

May 10, 2024

Re: Mitchell Landfill Recycling Building
Mitchell, South Dakota
Helms Project # A-8033
Bid Date: 5/14/2024

ADDENDUM NUMBER 1

The following modifications are made to the plans and specifications for the Mitchell Landfill Recycling Building Project.

CIVIL CONSTRUCTION SPECIFICATIONS AND CONTRACT DOCUMENTS

- 1. Section 00 52 14 Agreement; Article 4.02a Contract Times:** remove and replace with the following;

4.02 Contract Times: Dates

A. The Work will be substantially complete on or before May 1, 2025, and completed and ready for final payment on or before June 1, 2025 in accordance with Paragraph 15.06 of the General Conditions.

- 2. Section 01 32 23 Survey and Layout Data; Part 1.01C.1-2:** remove and replace parts C.1 & C.2 with the followings:

C. 1 Stakes showing proposed storm sewer piping and grades lines shall be provided, at an offset as agreed by the contractor, at intervals of not less than 50 feet. A benchmark for elevation of the inlets will be provided in close proximity.

C.2. At the building construction site, the Engineer shall furnish grade and building corner stakes, at an offset agreed by the contractor, with a maximum of two off set stakes per building corner.

PLANS

Plan Sheet 3: *Add the following notes*

Fill Under Building

The Fill material for under the building shall be obtained from the same stockpile area as the rest of the site fill. Fill material shall be installed in maximum 8” lifts, compacted to 97% of maximum standard proctor density. Moisture content during installation shall be +/- 2% optimum. See Section 31 23 00 Excavation and Fill of Civil specifications and Architectural Addendum for additional requirements.

The quantity of material for fill under the building is not included in the earthwork numbers and that portion of the fill is considered incidental to the project. Fill in general will not be measured for payment and will be based on plans quantities.

Granular Material Under Interior Slabs

12 inches of Base Course, as specified in section 32 11 23 Aggregate Base Course, shall be installed under interior concrete slabs.

Granular material installed under **Interior** concrete slabs is considered incidental to the building work and shall no be measured for separate payment.

APPROVALS:

HVAC Materials and Equipment Manufacturer: Greenheck

ATTACHEMENTS:

ARCHITECTURAL ADDENDUM #1

ALL OTHER ITEMS OF THE PLANS AND SPECIFICATIONS REMAIN UNCHANGED.

BY Leif C. Redinger
PROJECT ENGINEER - HELMS AND ASSOCIATES



FIRM NAME: _____ BY: _____

TITLE: _____ DATE: _____

ATTACH THIS SIGNED ADDENDUM TO THE BID FORM WHEN SUBMITTING AND/OR ACKNOWLEDGE THE ADDENDUM ON THE BID FORM.

ADDENDUM NO.1
TO GENERAL, STRUCTURAL, MECHANICAL AND ELECTRICAL
LANDFILL RECYCLING BUILDING
MITCHELL REGIONAL LANDFILL
MITCHELL, SOUTH DAKOTA

Addendum Dated: May 10, 2024

Original Plans and Specifications Dated: November 3, 2023 / April 12, 2024

NOTE: The Plans, details and accompanying specifications shall be amended as follows, but where any article is amended the original article shall remain in effect and shall become a part of the original plans and specifications.

A. PLAN CHANGES AND CLARIFICATIONS:

1. Sheet A2: Floor Plan

- a) Add bollard locations and bollard detail. See attached Addendum 1 Drawing 1. (1 page).

2. Sheet A2 3 – METAL COLUMN CONCRETE

- a) Concrete wall to be 8'-0". Delete metal plate, replace with sloped concrete. See revised Structural 5/S3.

3. Sheet A3: ELEVATIONS

- a) Foundation / Footing steps, refer to S1 Foundation Plan.

4. Sheet S1: FOUNDATION PLAN

- a) Move Foundation Step near Grid 5/G and 5/A - 15'-9 1/2", see attached SR-1.

5. Sheet S3: SECTIONS AND DETAILS

- a) Replace Section 5/S3 with attached 5/S3 on SR-2.
- b) Add Section 7/S3 on attached SR-2.

B. SPECIFICATIONS:

1. SECTION 01 50 00 – GENERAL REQUIREMENTS

- A. Staking by Engineer / Owner. Testing by Engineer / Owner.
- B. Temporary Utilities, Water : Water shall be paid for by Owner.

2. SECTION 02 50 00 EARTHWORK

- A. Delete Section in its entirety, replace with attached Section 02 50 00 Earthwork (5 pages).

3. SECTION 03 30 00 – CAST IN PLACE CONCRETE

- A. Concrete to be 4500 PSI.
- B. Add MasterKure HD 300WB Hardening and Densifying Compound or approved equal on exposed flat surfaces. (Attached 4 pages).

4. SECTION 13 34 19 – METAL BUILDING SYSTEMS

- A. 1.4 System Description, A. General: Replace IBC 2012 with IBC 2021.
- B. Metal Building Framing is not required to be hot-dip galvanized.

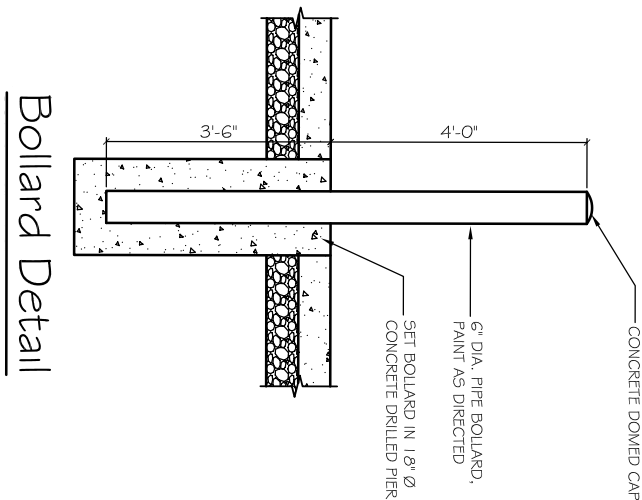
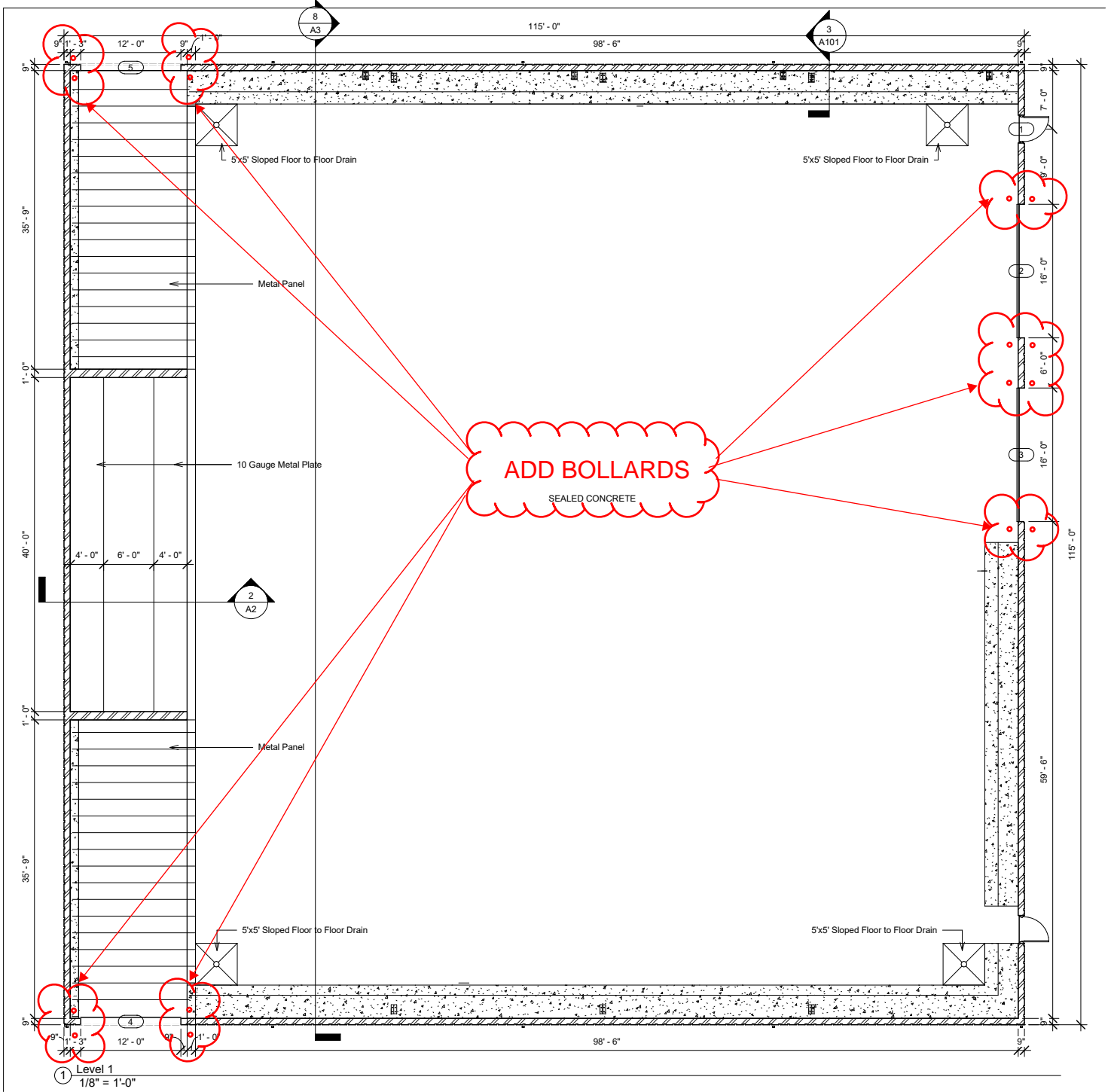
5. DIVISION 21

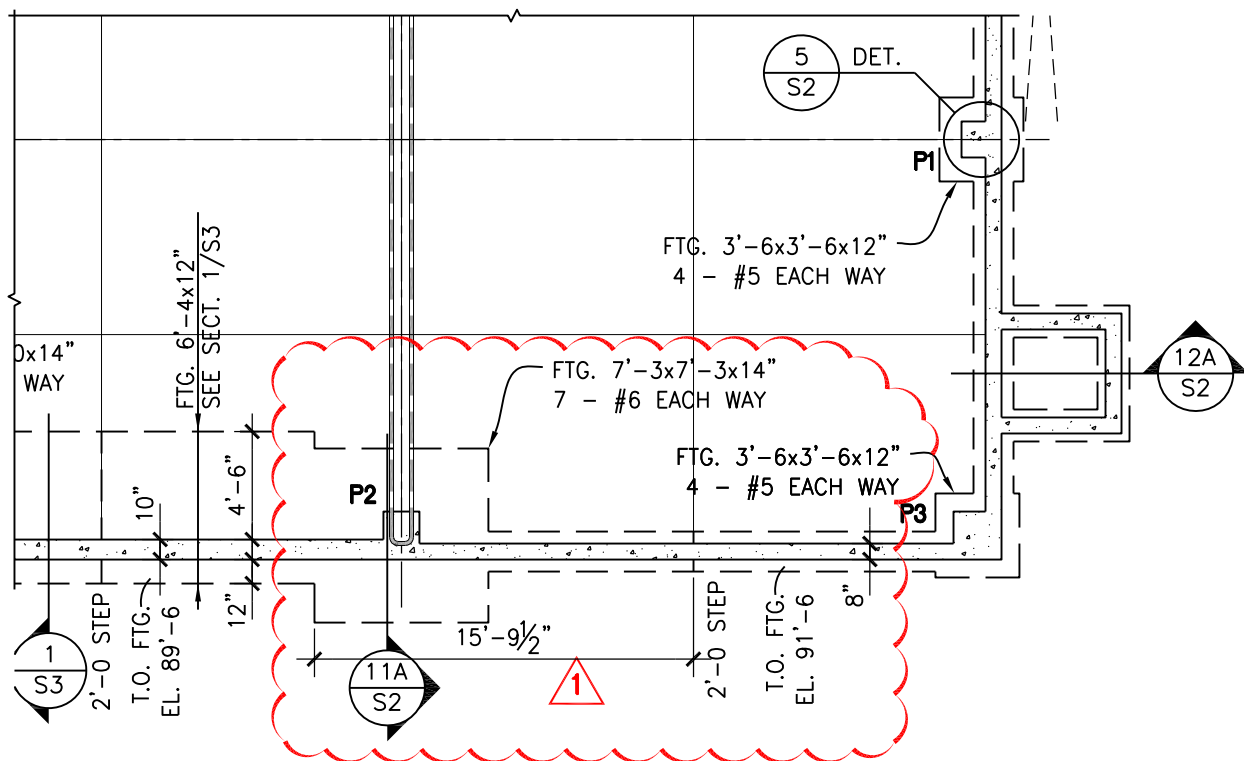
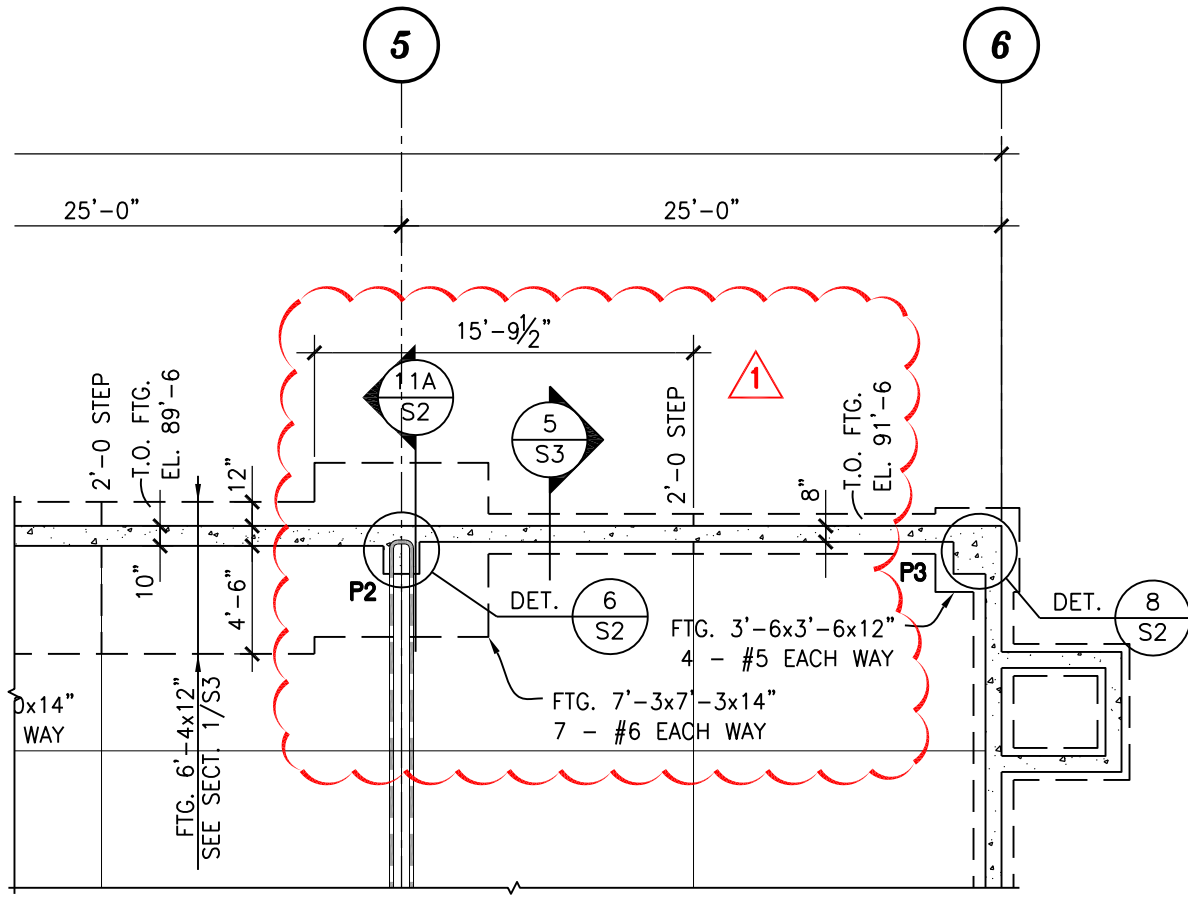
- A. No fire sprinkler system is required.

C. APPROVED EQUALS:

- 1. BEHLEN ZL-24. Section 13 34 19 STANDING SEAM ROOF
- 2. 2-COAT KYNAR FINISH. Section 13 34 19 METAL PANELS

HKG ARCHITECTS, INC., ARCHITECTS, AIA, ABERDEEN, SD

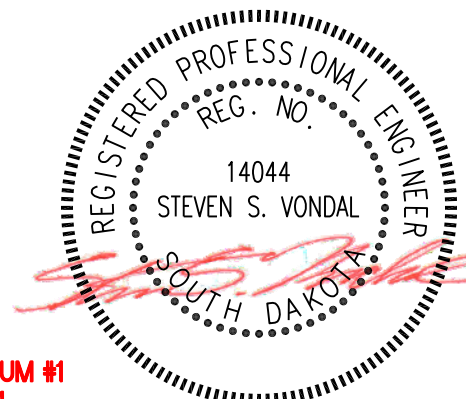




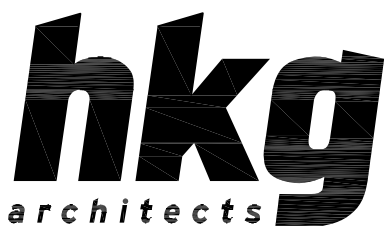
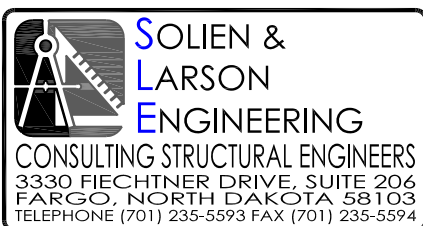
PARTION FOUNDATION PLANS

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

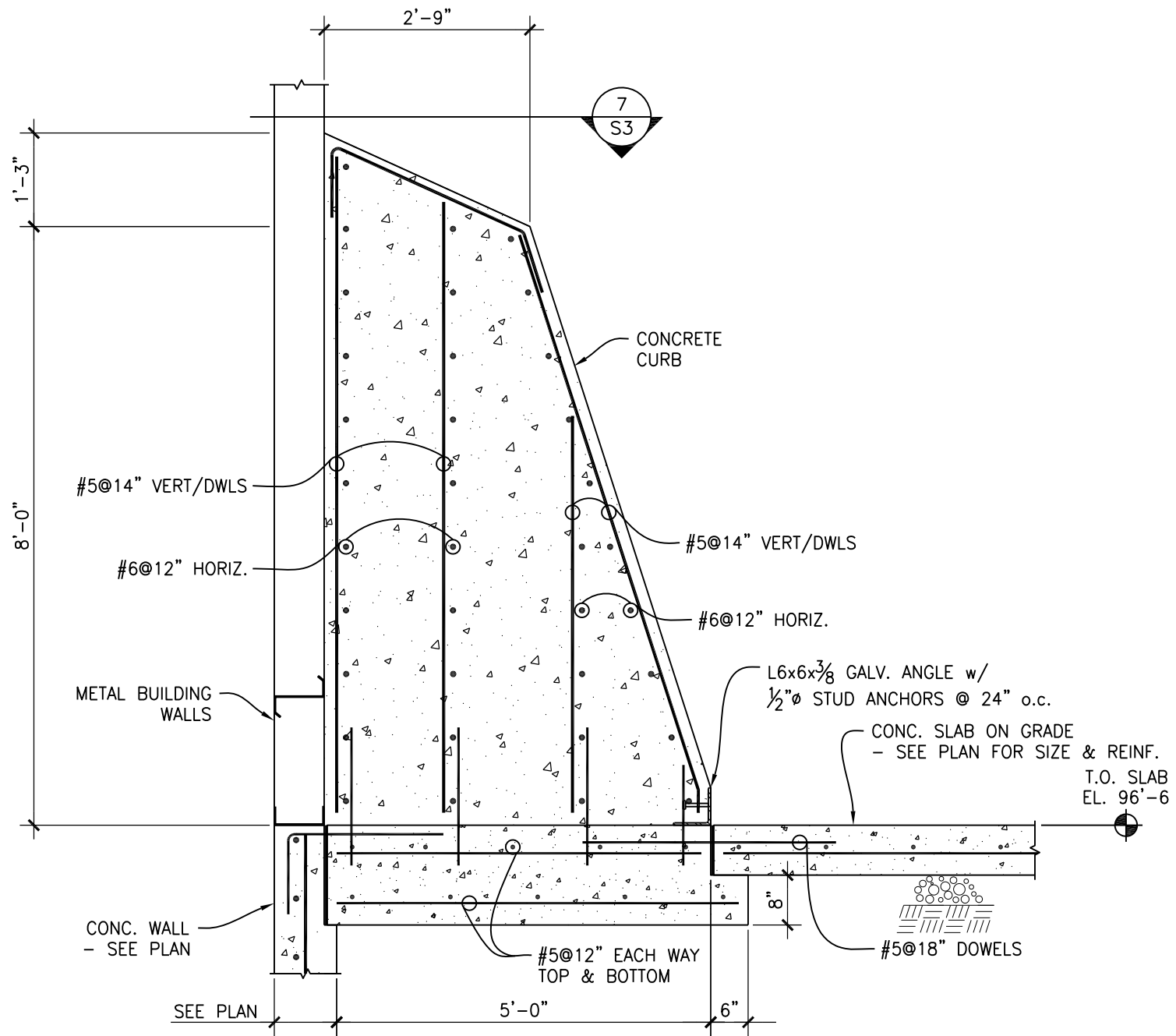
NOTE: 1). TOP OF FOOTING EL. = 91'-6 U.N.O.



1 ADDENDUM #1
5/10/2024



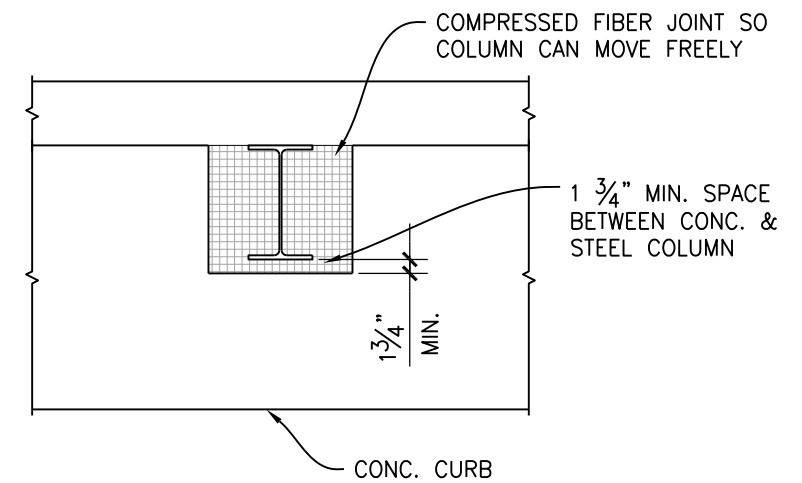
REVISED DATE	Plans for City of Mitchell Mitchell Landfill Mitchell, South Dakota	FOUNDATION PLAN	DRAWN BY LI	SR-1
CERT. NO.	HKG Architects, Inc.	Aberdeen, S.D.	CHECKED BY SV	PROJECT NO. 2023-0013 S&L 23111
			DATE 5/10/24	



5
S3

SECTION

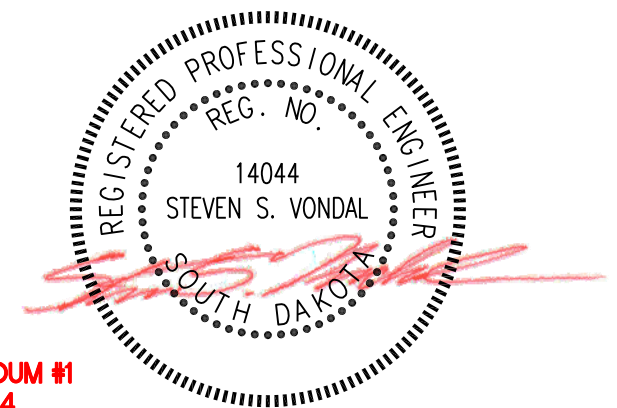
SCALE: 1/2" = 1'-0



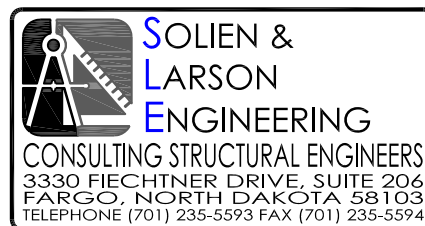
7
S3

SECTION

SCALE: 1/2" = 1'-0



ADDENDUM #1
5/10/2024



REVISED DATE	Plans for City of Mitchell Mitchell Landfill Mitchell, South Dakota	Sections and Details	DRAWN BY <i>LI</i>	SR-2
CERT. NO.	HKG Architects, Inc.	Aberdeen, S.D.	CHECKED BY <i>SV</i>	DATE 5/10/24
				PROJECT NO. 2023-0013 S&L 23111

SECTION 02 50 00 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Excavating and backfilling for buildings and structures.
 - 2. Drainage course for slabs-on-grade.
 - 3. Subsurface drainage backfill for walls and trenches.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
 - 2. Division 3 Section "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.

1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
- B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.
- C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- F. Fill: Soil materials used to raise existing grades.
- G. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by an independent geotechnical testing agency, according to ASTM D 1586.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.
 - 3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM AASHTO M 145 Soil Classification Groups A-1, A-2-4, A-2-5, and A-3, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.

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1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.
- D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

- A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

1. Existing topsoil and fill soils shall be stripped and removed under the building footprint. Topsoil is assumed to be 8", no fill soil is assumed but shall be verified by soil engineer post excavation prior to concrete forms. Fill material necessary to build site shall be from borrowed site indicated on civil plans. Existing soils shall be scarified and compacted prior to placement of fill soils. 12" granular material under interior slab see civil plans and specifications. Soil engineer shall review site conditions before placement of fill material. Contractor shall notify Engineer / Architect 72 hours prior to inspection.

FIELD QUALITY CONTROL

Testing Agency: Owner, at his option, will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

- a. Allow testing agency to inspect and test sub-grades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
 - b. Footing Sub-grade: At footing sub-grades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of sub-grade with tested sub-grade when approved by Architect.
 - c. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 - i. Paved and Building Slab Areas: At sub-grade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
 - ii. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet or less of wall length, but no fewer than two tests.
 - d. When testing agency reports that sub-grades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.
- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No

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changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
 - a. 24 inches outside of concrete forms other than at footings.
 - b. 12 inches outside of concrete forms at footings.
 - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 - e. 6 inches beneath bottom of concrete slabs on grade.
 - f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 SUBGRADE INSPECTION

- A. Notify Architect when excavations have reached required subgrade.
- B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.8 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.9 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
1. Construction below finish grade including, where applicable, sub drainage, damp proofing, waterproofing, and perimeter insulation.
 2. Removing concrete formwork.
 3. Removing trash and debris.
 4. Removing temporary shoring and bracing, and sheeting.
 5. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 SOIL FILL

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- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
 - B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under walks and pavements, use satisfactory soil material.
 - 3. Under steps and ramps, use engineered fill.
 - 4. Under building slabs, use engineered fill.
 - 5. Under footings and foundations, use engineered fill.
 - C. Place soil fill on subgrades free of mud, frost, snow, or ice.
- 3.12 SOIL MOISTURE CONTROL
- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- 3.13 COMPACTION OF SOIL BACKFILLS AND FILLS
- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
 - C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and compact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 2. Under walkways, scarify and compact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and compact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 - 4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.
- 3.14 GRADING
- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
 - B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1 inch.
 - 3. Pavements: Plus or minus 1/2 inch.
 - C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.
- 3.15 SUBBASE AND BASE COURSES
- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
 - B. On prepared subgrade, place subbase and base course under pavements and walks as follows:
 - 1. Place base course material over subbase course under hot-mix asphalt pavement.
 - 2. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
- 3.16 DRAINAGE COURSE
- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
 - B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Place drainage course 6 inches or less in compacted thickness in a single layer.
 - 2. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 3. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
- 3.17 PROTECTION
- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

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- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and compact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02 50 00

3 | 03 35 00
Concrete
Finishing

MasterKure[®] HD 300WB

Concrete hardener and dustproofer

FORMERLY LAPIDOLITH[®]

PACKAGING

5-gallon (18.9 L) pails
55-gallon (208 L) drums

COLOR

Clear liquid

YIELD

See Chart on page 4.

STORAGE

Store in unopened containers in a cool, dry area between 35° and 85° F (4° and 29° C). Keep from freezing.

SHELF LIFE

15 months when properly stored.

VOC CONTENT

0 g/L, less water and exempt solvents.

DESCRIPTION

MasterKure HD 300WB is a magnesium fluorosilicate concrete hardener and dustproofer that bonds chemically with the concrete to strengthen and harden floors that are porous, readily absorptive, and only moderately hard.

PRODUCT HIGHLIGHTS

- Hardens and densifies concrete floors to reduce absorption and prolong service life
- 100% reactive with the free lime in concrete to produce a dense, abrasion-resistant yet breathable surface
- Tightly binds together the cement, sand, and aggregate for improved chemical resistance
- Non-film forming, resulting in reduced cleaning and maintenance costs
- Compatible with most resilient tile adhesives

APPLICATIONS

- Interior and exterior
- Floors requiring a hard, dense, chemical-resistant finish
- Floors subject to heavy traffic and abrasion
- Floors that must resist penetration of contaminants

SUBSTRATES

- Concrete
- Terrazzo (non-resinous)

HOW TO APPLY

SURFACE PREPARATION

1. New concrete should be cured per ACI 308 Guidelines. For best results, allow concrete to air dry for at least 72 hours. Concrete should be at least 10 days old and preferably 28 days old before application of MasterKure HD 300WB.
2. Surfaces must be clean, dry, and free of contaminants, including carbonation byproducts.

APPLICATION

1. The number of applications and dilution ratios for MasterKure HD 300WB are dependent on the porosity and density of the concrete. Refer to coverage chart. Two applications of MasterKure HD 300WB are generally required on concrete and non-resin-based terrazzo floors. Wood-floated, broom-finished, or porous floors may require a third application of product at full strength.
2. Apply MasterKure HD 300WB by roller, spray, brush, or squeegee. Bubbling indicates reaction of MasterKure HD 300WB with the concrete. Distribute evenly and mop up excess solution or puddles.

CONCRETE

1. After the first application, allow the floor to dry until no longer visibly wet.
2. If crystals develop during the second application, flush the surface liberally with clean water. Use hot water if available. At the same time, rapidly brush the floor with a stiff-bristled broom.
3. Mop up excess water and allow the surface to dry.

CONCRETE, POLISHED SHEEN

1. To achieve the appearance of a polished sheen, use 3 applications of MasterKure HD 300WB. See Yield Chart for dilution ratios of each coat.
2. As the last application is drying, wait for the uniform appearance of white crystals. Flood the floor with water and buff with a commercial floor buffer using an abrasive pad. Continue buffing until the floor acquires a patina or polish and the whiteness is gone.

3. The above recommendation is for dense, steel-troweled floors. Older or more porous concrete may require a stronger mix, lower coverage rate or more than three applications.

Caution: unusually wet or oily environments will be more slippery with this surface treatment.

TERRAZZO (NON-RESIN-BASED)

1. Do not allow the first application to dry. While the surface is still damp, flush it thoroughly with clean hot water and then allow it to dry until no longer visibly wet. For the second application, follow the same procedure but mop up excess wash water and allow the surface to dry.
2. The appearance of white crystals after the first or second application indicates that the mix may be too strong, or that the surface has reached maximum hardness. If this occurs, stop the application and flush the surface with clean, hot water; scrub with a stiff-bristle broom, and allow to dry. Increase the dilution for any remaining applications to minimize crystal formation.

CLEAN UP

Clean all tools and equipment with water immediately after use. Thoroughly flush sprayers. Dispose of unused material according to local regulations.

MAINTENANCE

1. Routine sweeping and washing of floors with mild conventional cleaners and detergents is recommended.
2. Remove all abrasive grit and wipe up corrosive spills as soon as possible.

FOR BEST PERFORMANCE

- If MasterKure HD 300WB freezes, warm and restir to uniformity. If separation is persistent, discard product.
- When transferring MasterKure HD 300WB from the original sealed container, use only plastic buckets or pails.
- Small amounts of sediment or a cloudy appearance in the container will not affect product performance.
- Do not apply to uncured concrete; concrete must be properly wet cured.

- Do not apply MasterKure HD 300WB to floors that have been previously sealed or treated with curing and parting compounds unless these products have been chemically or mechanically removed.
- MasterKure HD 300WB can be used for exteriors. However, if the surface has been hard-troweled, traffic can polish the surface and make it slippery.
- Although MasterKure HD 300WB is chemically resistant, its application in specific chemical environments should be checked with Master Builders Solutions Technical Service.
- For resilient tile applications, conduct an adhesion test.
- Do not apply MasterKure HD 300WB to resin-based terrazzo mixes.
- MasterKure HD 300WB will not remediate honeycombed or structurally unsound surfaces.
- Do not allow MasterKure HD 300WB to dry on terrazzo floors except as indicated in application instructions.
- Do not allow MasterKure HD 300WB to come in contact with any glass, fabric, metal, or painted surfaces. Immediately wipe contaminated surfaces with a clean water-saturated cloth, then wipe dry with a second clean cloth.
- For subsequent coating applications, consult coating manufacturer for surface preparation and application instructions.
- For professional use only; not for sale to or use by the general public.
- Make certain the most current versions of product data sheet and SDS are being used; call Customer Service (1-800-433-9517) to verify the most current versions.
- Proper application is the responsibility of the user. Field visits by Master Builders Solutions personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

Technical Data

Composition

MasterKure HD 300WB is a magnesium fluorosilicate hardener.

Compliances

- Recommended for use on all classes of concrete floors as noted in Table 1.1, ACI Standard 302.1R
- USDA compliant for use in meat and poultry areas

Test Data

PROPERTY	RESULTS	TEST METHODS
Abrasion Resistance , depth of wear, in (mm) ASTM C 779*		
30 minutes		
Untreated concrete	0.0264 (0.7)	
MasterKure HD 300WB treated*	0.0025 (0.06)	
Abrasion Resistance , depth of wear, in (mm) ASTM C 779*		
60 minutes		
Untreated concrete	0.0428 (1.1)	
MasterKure HD 300WB treated*	0.0106 (0.27)	

*Concrete was cured for 28 days.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Chemical Resistance

ACI Standard 302.1R magnesium fluorosilicate hardeners can be used to increase concrete resistance to chemicals including, but not limited to the following:

Aluminum sulfate	Glucose	Nickel sulfate	Sodium chloride
Ammonium chloride	Glycerine	Oleic acid, 100%	Sodium dichromate
Barium hydroxide	Hydrogen sulfide	Olive oil	Sodium nitrite
Beef fat	Iodine	Paraffin	Sodium sulfate, 10%
Calcium hydroxide	Lactic acid, 25%	Phenol, 25%	Sodium sulfite, 10%
Calcium nitrate	Lead refining solutions, 10%	Phosphoric acid, 85%	Sodium thiosulfate
Carbon dioxide	Lignite oils	Pickling brine, 10%	Soybean oil
Carbonic acid	Machine oils	Poppy seed oil	Sugar
Castor oil	Magnesium chloride	Potassium aluminum sulfate, 10%	Sulfite liquor
Coal-tar oils	Magnesium sulfate	Potassium carbonate	Tallow and tallow oil
Cottonseed oil	Manganese sulfate	Potassium chloride	Tannic acid
Creosote	Manure	Potassium dichromate	Tanning liquor, 10%
Cresol	Mash, fermenting	Potassium persulfate	Tobacco
Distillers slop	Mercuric chloride	Potassium sulfate	Walnut oil
Ethylene glycol	Mercurous chloride	Rapeseed oil	Zinc chloride
Ferric chloride	Mine water, waste	Sea water	Zinc nitrate
Ferric sulfate	Mineral oil	Silage	Zinc sulfate
Ferrous chloride	Molasses	Sodium bromide	
Ferrous sulfate	Mustard oil	Sodium carbonate	
Fish oil			
Fruit juices			

Yield

TYPE OF SURFACE	FT./GAL (M ² /L) (MIXED MATERIAL)	APPLICATIONS	DILUTION RATIO (BY VOLUME) WATER TO MasterKure HD 300WB	RATIO
Light to moderately troweled floors	100 (2.45)	2	1 to 1 first 1 to 2 second	1.17
Heavy-duty or densely troweled floors	100 – 300 (2.45 – 7.35)	2	3 to 1 first 1 to 2 second	0.92
Rough-finished floors	100 (2.45)	2	1 to 1 first 1 to 2 second	1.17
Terrazzo (nonresin based)	300 (7.35)	2	3 to 1 each	0.50
Concrete, polished sheen	200 – 300 (4.9 – 7.35)	3	4 to 1 first 3 to 1 second 2 to 1 third	0.78

To estimate the quantity of MasterKure® HD 300WB needed for an application, divide the area of the floor by the coverage rate (ft²/gal or m²/L) of mixed material. Multiply this number by the ratio (in last column). Example: 8,000 ft² floor, moderately troweled: 8,000 ÷ 100 = 80 gallons mixed material x 1.17 = 93.6 gallons of MasterKure HD 300WB needed.

Recommendations for the number of applications and the dilution ratios are based upon average conditions. Coverage varies with application method, porosity, and texture of concrete.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.com/en-us, e-mailing your request to mbsbscst@mbcc-group.com or calling 1(800)433-9517. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

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