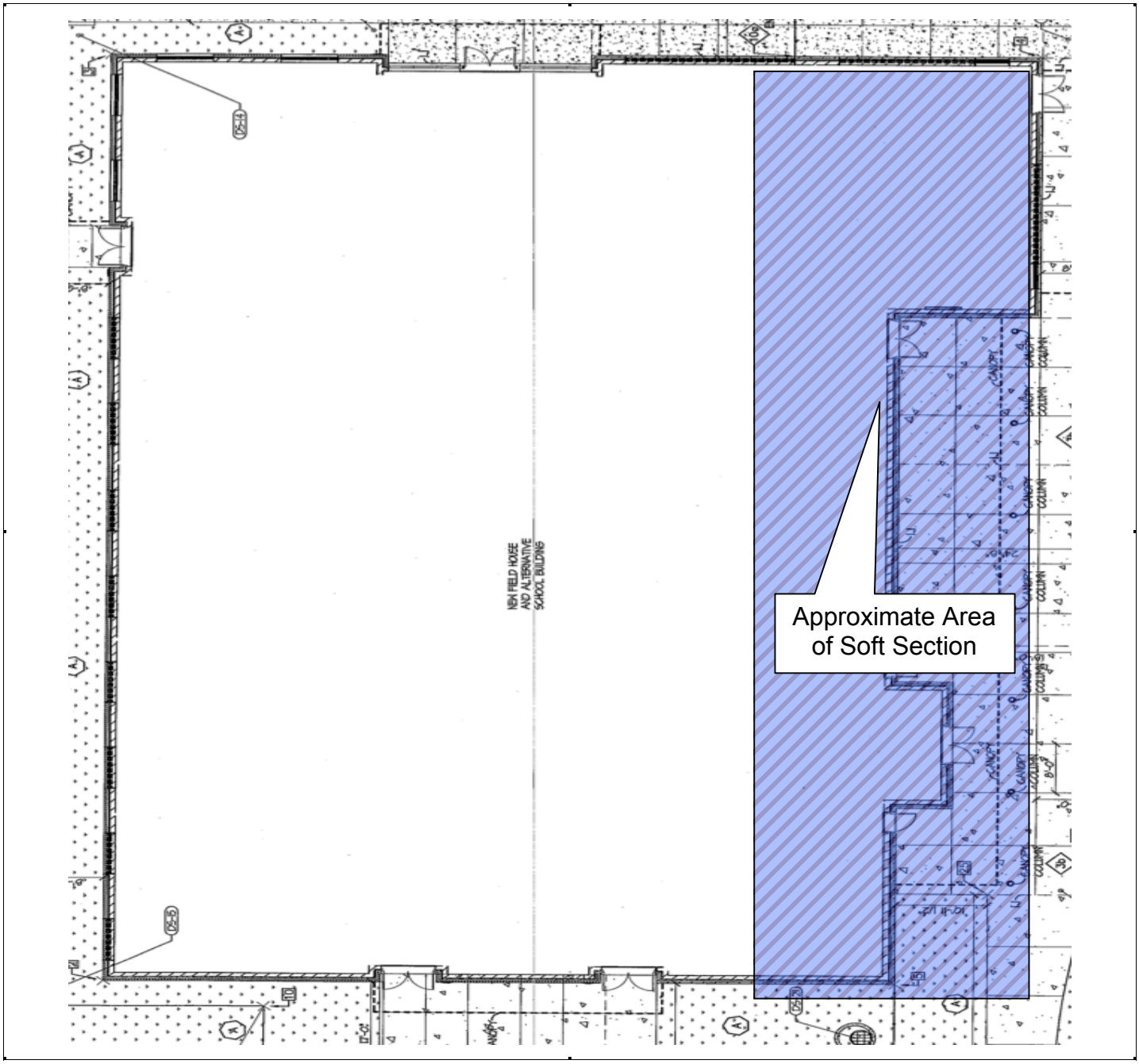
PROJECT:	Gallatin County High School Field House	**JOB NUMBER:**	2228
CLIENT:	Gallatin County Board of Education	**WEATHER:**	Sunny, 40s
CSI PROFESSIONAL:	Daniel Huffaker, S.I., C.E.T.	**DATE:**	Monday 26 February 2013

KBC Special Inspections - Summary of Observations

A CSI representative arrived on-site as requested by Kenneth Jones of Endeavor for Kentucky Building Code (KBC) Special Inspections Services. Specifically, CSI was on site for KBC Section 1704.7 Soil Construction. The CSI Professional met with Mr. Jones and PJ Lanigan of Lanigan Construction while at the site.

The CSI Professional observed a proofroll of the building pad using a loaded triaxial dump truck. Profrolling consisted of the loaded truck routing over the subgrade in forward and backward motion, then moving laterally one tire width and repeating the motion until the exposed subrgrade had been rolled. The profroll revealed a soft area on a portion of the area as noted in the highlighted area on the plan sheet below.
It was recommended to contact Ross Tarrant Architects for directions regarding the soft material encountered. Mr. Lanigan determined that he did not want to risk opening up the soft section prior to projected inclement weather. Mr. Lanigan spread densely graded aggregate (DGA) over the section that revealed no pumping in order to protect that portion from wet weather.

Observations and testing results reported to Kenneth Jones of Endeavor.



Legend = Approximate area of soft material noted during proofroll

Photo 1: Observation of Proofroll via Triaxial Dump Truck

Photo 2: Loose DGA Placement

PROJECT:	Gallatin County High School Field House	**JOB NUMBER:**	2228
CLIENT:	Gallatin County Board of Education	**WEATHER:**	Sunny, 40s
CSI PROFESSIONAL:	Daniel Huffaker, S.I., C.E.T.	**DATE:**	Thursday March 14, 2013

KBC Special Inspections - Summary of Observations

A CSI representative arrived on-site as requested by Kenneth Jones of Endeavor for Kentucky Building Code (KBC) Special Inspections Services. Specifically, CSI was on site for KBC Section 1704.7 Soil Construction. The CSI Professional met with Mr. Jones, PJ Lanigan of Lanigan Construction, and Lenny Whalen of Gallatin County Schools while at the site.

The CSI representative observed the undercutting of the rear section of the building pad where soft material had previously been encountered during proofrolling on February 15, 2013. The section was undercut to a more bearable material at approximately 2 feet below existing grade. Mr. Lanigan cut the remainder of the section to this depth. A proofroll was conducted for the bottom of the undercut by the contractor utilizing a loaded dump truck weighing approximately 27,000 pounds. Some areas exhibited rutting and pumping. Mr. Jones, Mr. Lanigan, Mr. Whalen, and the CSI representative contacted Ross Tarant Architects and described the soil conditions. Ross Tarant directed that the rutted areas be skimmed down to suitable material and backfilled with soil fill from the on-site borrow area. The rutted sections were skimmed down. Mr. Jones and the CSI representative measured and recorded the undercut as noted on figure 1 and table 1. Total undercut was observed to be 415.81 cubic yards.

Observations and testing results reported to Kenneth Jones of Endeavor.

Figure 1: Approximate Drawing of Undercut Areas

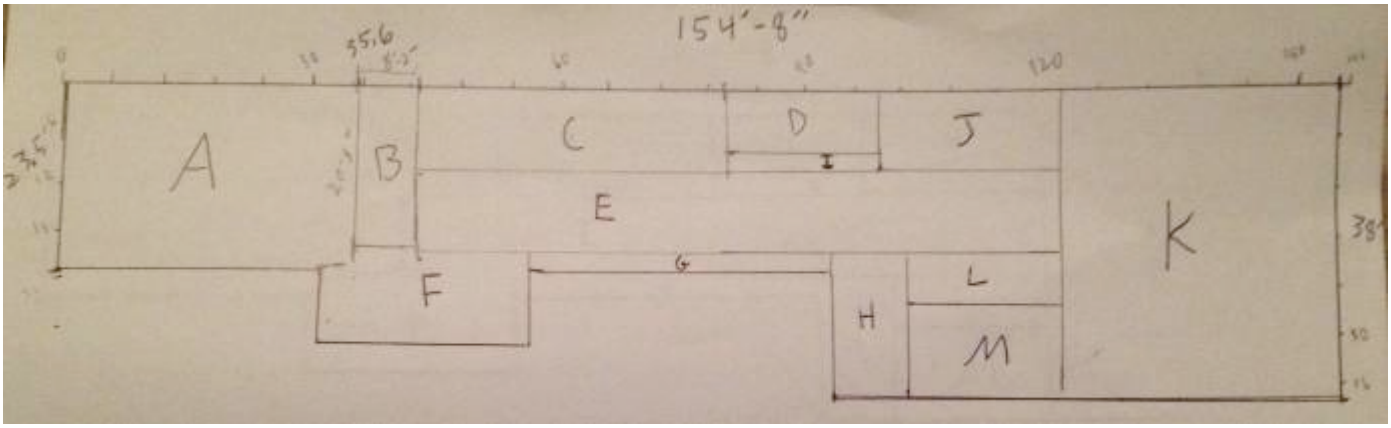


Table 1: Volume of Undercut

Section	Width ft	Length ft	Depth ft	Volume Ft^3	Volume Yd^3
A	23.50	35.5	2.08	1,735.24	64.27
B	20.67	8.17	3.21	542.09	20.08
C	10.67	37	2.125	838.93	31.07
D	8.25	18	2.67	396.50	14.69
E	10.67	78	2.54	2,113.94	78.29
F	9	24.75	2.21	492.28	18.23
G	2.5	35	2.21	193.38	7.16
H	16.67	9	2.17	325.57	12.06
I	2.42	18	2.5	108.90	4.03
J	10.67	23	2	490.82	18.18
K	38	33	2.33	2,921.82	108.22
L	5.33	23	2.33	285.63	10.58
M	11.33	23	3	781.77	28.95
			Total $Feet^3$	11,226.85	Sum Volume Cubic Yards
			Volume Cubic Yards:	415.81	415.81

Photo 1: Excavation of Soft Area via Caterpillar 320C Excavator

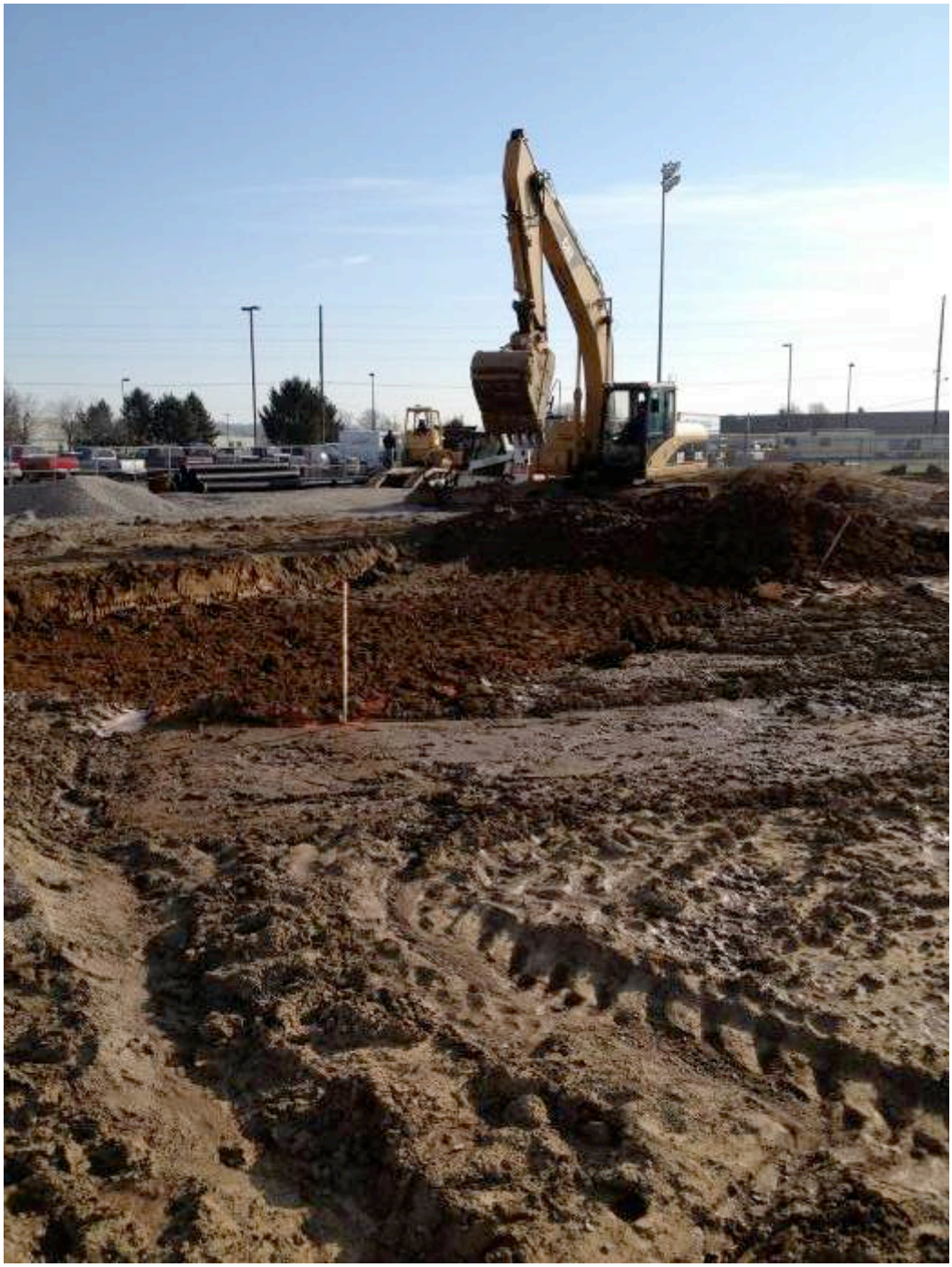


Photo 2: Excavation of Soft Area via Caterpillar 320C Excavator

Photo 3: Grading of Undercut via Bobcat T200 Skid Steer

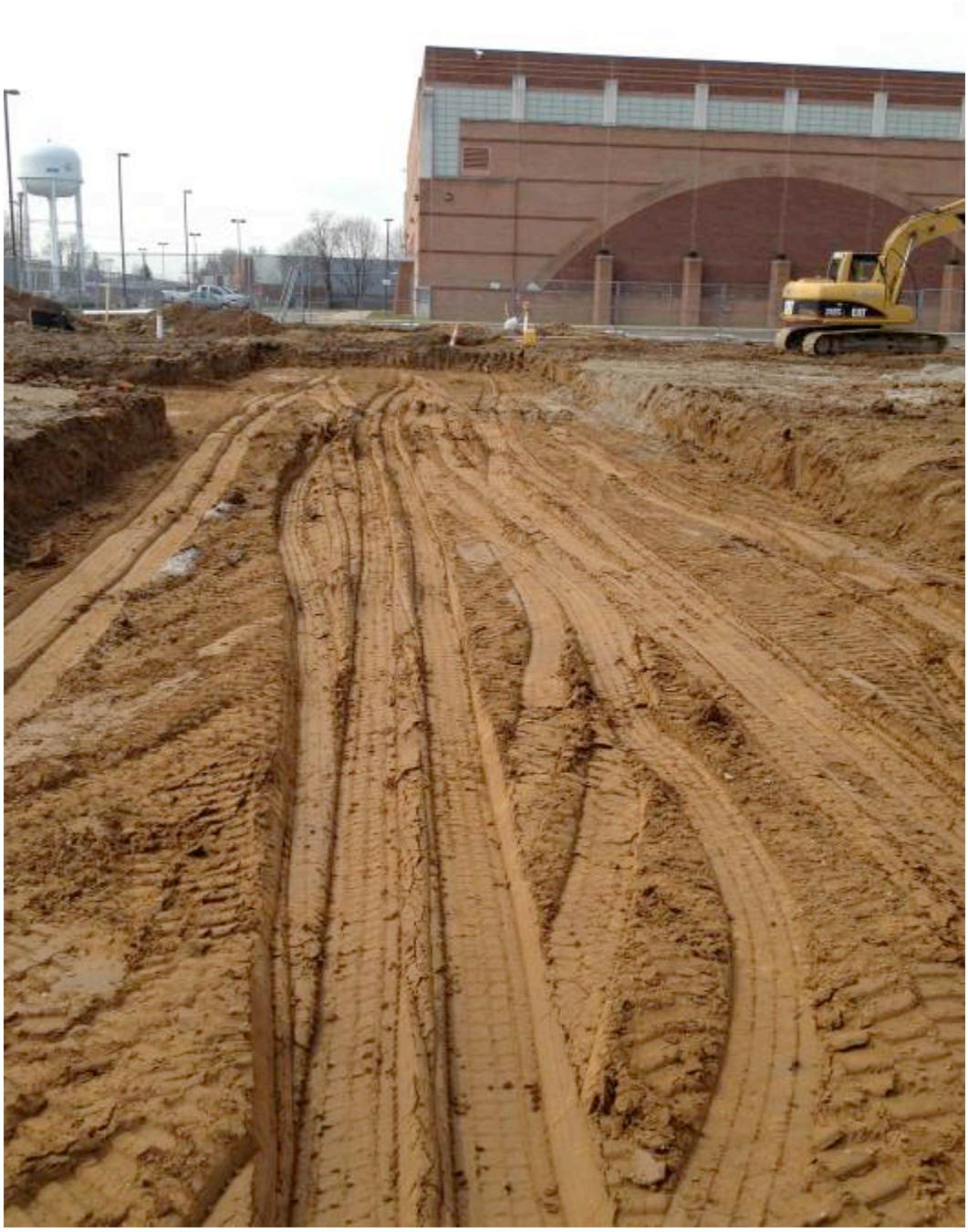


Photo 4: Undercut Section after Proof-Roll

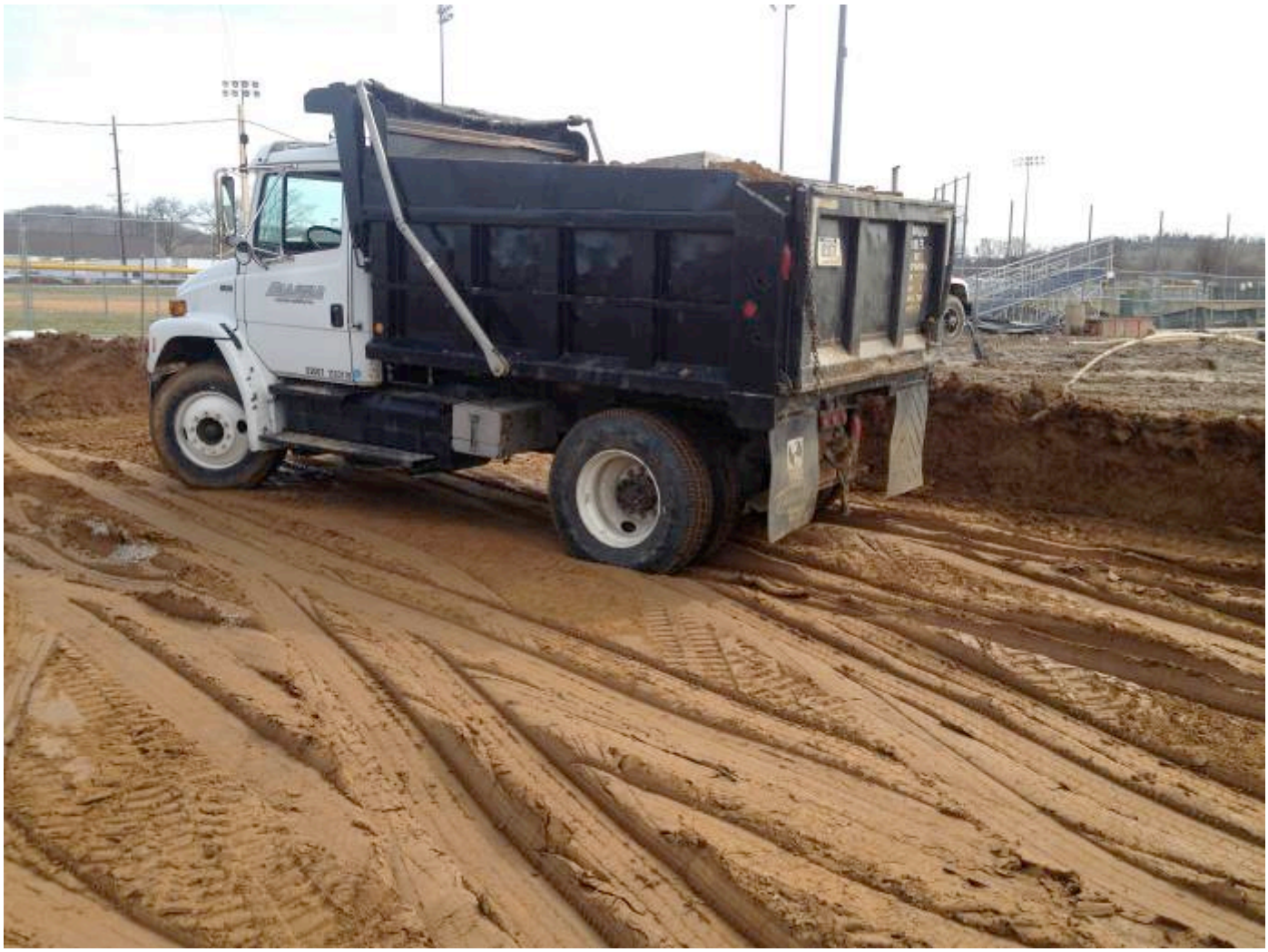


Photo 5: Dump Truck Employed for Proofroll

Photo 6: Undercut of Unsuitable Sections

PROJECT:	Gallatin County High School Field House	**JOB NUMBER:**	2228
CLIENT:	Gallatin County Board of Education	**WEATHER:**	Cloudy, 40s
CSI PROFESSIONAL:	Daniel Huffaker, S.I., C.E.T.	**DATE:**	Friday March 15, 2013

KBC Special Inspections - Summary of Observations

A CSI representative arrived on-site as requested by Kenneth Jones of Endeavor for Kentucky Building Code (KBC) Special Inspections Services. Specifically, CSI was on site for KBC Section 1704.7 Soil Construction. The CSI Professional met with Mr. Jones and PJ Lanigan of Lanigan Construction while at the site.

CSI Professional observed placement of structural soil fill in the southern section of the building pad for the area previously undercut on March 14, 2013. Lanigan Construction was obtaining fill from an on-site borrow location behind the tennis courts. Fill was transported to the placement location using a triaxial dump truck. The fill was placed in 8-10 inch loose lifts back up to orginial grade, using a Deere 450G bulldozer. A compactive effort was applied using a Terex M-237 Vibratory shoopsfoot roller. Field density test (FDT's) were performed for each lift placed to verify moisture density. The testing performed indicated values within the required 97% max dry density and ± 2% optimum moisture based on laboratory standard proctor testing. CSI professional observed informal proofrolls of the fill area during placement of material. No significant rutting or pumping was observed during the proofroll.

Observations and testing results reported to Kenneth Jones of Endeavor.

Summary of Earthwork Testing and Observations

On-site Contact:	Kenneth Jones of Endeavor		
Requested Services:	KBC Section 1704.7 Soil Construction		
Location of Earthwork:	Southern Portion of Building Pad		
Type of Fill Material Placed:	Silty Sandy Clay		
Source of Fill Material:	On-Site Borrow		
Thickness of Lifts Placed:	≈ 8 Inches	**Number of Lifts Placed Today:**	4
Bulk Samples Obtained Today:	0	**Check Plugs Performed:**	0

Gauge #:	27425	**DS**	2055	**MS**	629

Range of Test Results:

Lift	Depth Below Grade	Number of Tests	Dry Densities (pcf)	% Moisture	% Compaction	Number of Failing Tests
1	≈24 inches	3	111.6-117.6	12.7-14.8	97.1-102.2	0
2	≈16 inches	3	114.5-116.7	13.1-13.4	99.6-101.6	0
3	≈8 inches	3	112.0-115.6	13.9-16.1	97.4-100.6	0
4	0-4 inches	3	112.2-114.6	14.3-15.2	97.6-99.7	0

Moisture-Density Relationship Curves Used (Proctor):

Fill Specifications:

Proctor ID	Maximum Dry Density	Optimum Moisture	Soil Description/ Classification	Placement Type	Percent Compaction	Moisture Range	USCS Soil Classification
P-1	114.9	14.3	Silty-Sandy Clay	General Fill	97.0%	± 2 %	

Location of Failing Test Results:	n/a
Corrective Action Recommended:	n/a
Corrective Action Taken:	n/a
Was the Area Proofrolled:	Yes
Size / Weight of Truck Observed During Proofroll:	Triaxial Dump Truck
Areas Approved for Further Placement of Fill Material:	Building Pad
Equipment Used:	Deere 450 G Bulldozer, Terex M-235 Vibratory Sheepsfoot Drum Roller, Caterpilalr 953 Highlift Loader, Triaxial Dump Truck, Bobcat T200 SkidSteer
Informed Test Results To:	PJ Lanigan of Lanigan Construction, Kenneth Jones of Endeavor

IN-PLACE FIELD DENSITIES							
Test Number	Location	Elevation Below Grade	Field Moisture Percent	In-Place Dry Density (PCF)	Maximum Dry Density	Percent Compaction	
						Attained	Required
1	South east	24 inches	14.5	111.6	114.9	97.1	97.0
2	South Central	24 inches	12.7	117.4	114.9	102.2	97.0
3	Southwest	24 inches	14.8	111.9	114.9	97.4	97.0
4	South east	16 inches	13.1	116.1	114.9	101.1	97.0
5	South Central	16 inches	13.2	114.5	114.9	99.6	97.0
6	Southwest	16 inches	13.4	116.7	114.9	101.6	97.0
7	South east	8 inches	13.9	115.6	114.9	100.6	97.0
8	South Central	8 inches	16.1	112.0	114.9	97.4	97.0
9	Southwest	8 inches	14.2	112.0	114.9	97.4	97.0
10	South east	0 inches	14.6	114.6	114.9	99.7	97.0
11	South Central	0 inches	15.2	113.6	114.9	98.9	97.0
12	Southwest	4 inches	14.3	112.2	114.9	97.6	97.0

NOTE: Test locations were obtained by technician and are approximate
The percent compaction for in-place density tests are based on laboratory moisture density relations tests in accordance with ASTM D698.

Figure 1: Approximate Drawing of Undercut Areas

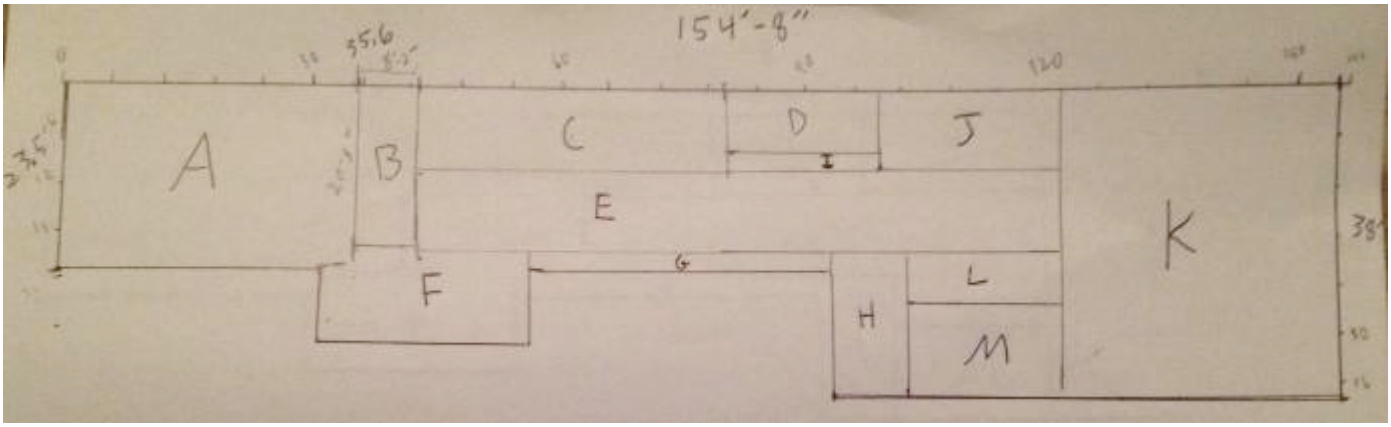


Photo 1: Excavation of Borrow Area via Caterpillar 953 Highlift Loader

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Photo 2: Fill Area During Placement of First Lift

Photo 3: Material Spread via Deere 450G Bulldozer

Photo 4: Compactive Effort Applied via Terex M-237 Vibratory Sheepsfoot Drum Roller
Vibrations only applied to lifts 3 and 4

Photo 5: Compactive Effort Applied via Terex M-237 Vibratory Sheepsfoot Drum Roller

Photo 6: Verification of Grade on Lift 4

Photo 7: Grade at End of Day