Executive Summary

Kimberton Elementary School for the Phoenixville Area School District was scheduled to mobilize July of 2008. The site closure plan would have taken place during the first 60 days of construction with the foundations beginning about halfway through the site closure plan. Structural steel would have followed with topping out occurring around mid February. The building would have been enclosed by July 20th. The building should be substantially complete around Christmas time 2009. The building would have been turned over for occupancy following the New Year with closeout items continuing for another 2 months. Overall, the schedule was not ideal and would have been better served if it could have been moved up about 4 months but because of construction delays that was not possible. The school however would have been ready for the middle school to be temporary relocated to it at the start of the spring semester in 2010.

The construction sequence would flow generally from the west to the east with most trades beginning around the main mechanical room. Each trade would work their way toward the classroom wing of the structure. All work would be scheduled to be completed about the same time to allow for a turn over around the first of the year 2010.

This technical report contains site plans for various phases of the building including existing, excavation, substructure, superstructure, exterior enclosure, interior finishes, and project completion. A temporary driveway will be built to access the site while the permanent drive way is completed. Overall the trailers and staging areas are placed on what will be the parking lot. The future soccer field will be used for soil stock piles.

The structural system of the building costs 2.5 million dollars and 24 dollars per square foot without profit and overhead. With profit and overhead, those numbers rise to about 3 million dollars and 29 dollars per square foot. The takeoff for the detailed structural estimate comes from the Revit model and the unit cost comes from RS Means 2007. The unit costs have been adjusted for time and location. Material accounts for about 77% of the total cost with about $2.2 million and $22 per square foot. The labor is about 19% of the total cost at about half a million dollars and $5 per square foot. The equipment is only about 4% of the cost with about a dollar per square foot totaling $100,000.

The general conditions estimate was derived from the FPCM GC conditions estimate. Using the items from this estimate, a separate GC estimate was preformed utilizing the RS Means 2007 unit costs. It is also adjust for time and location. The overall cost difference, before add-ons, is about $100,000 from the FPCM estimate. The general conditions cost about a million dollars or about $10 dollars per square foot. With profit and overhead, that number rises to about $1.2 million and $12 dollars per square foot.

The Pace Roundtable kicked off with a dinner on Wednesday night. Thursday was filled with breakout sessions about mentoring, LEED evolution, BIM strategies, energy and economy. There were also industry and student panels that fielded questions from the audience about the changing roles in industry and the challenges of the work-life balance. I was pleasantly surprised by the roundtable overall. I made numerous industry contacts that can help me in the future with my senior thesis.

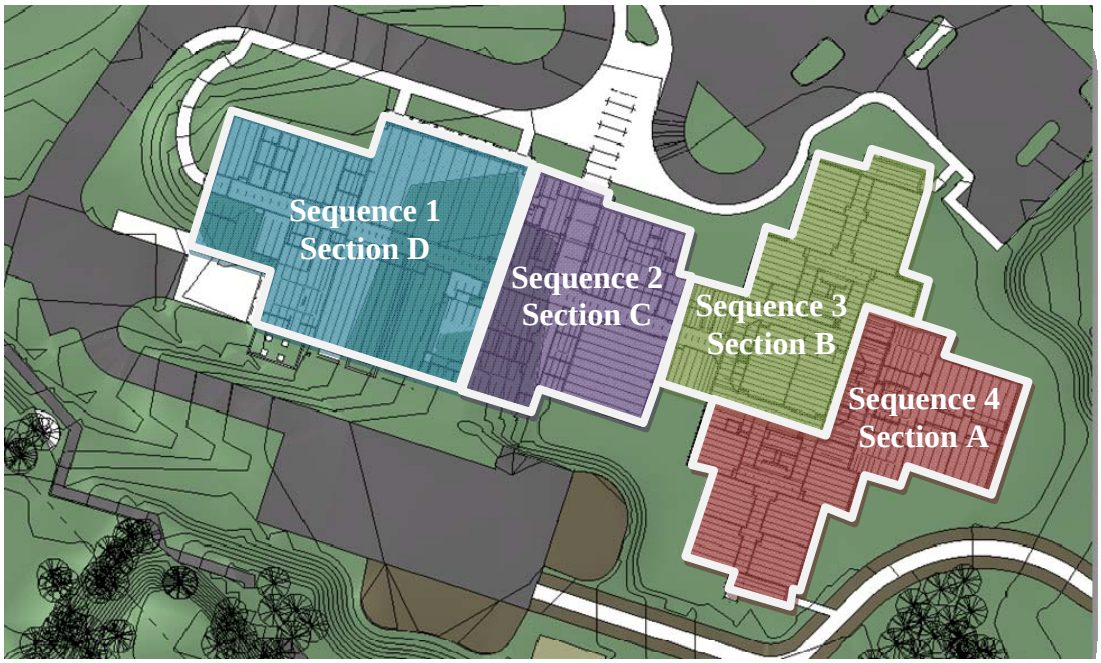
Ralph Kreider
Construction Option: Messner

Table of Contents

Detailed Project Schedule

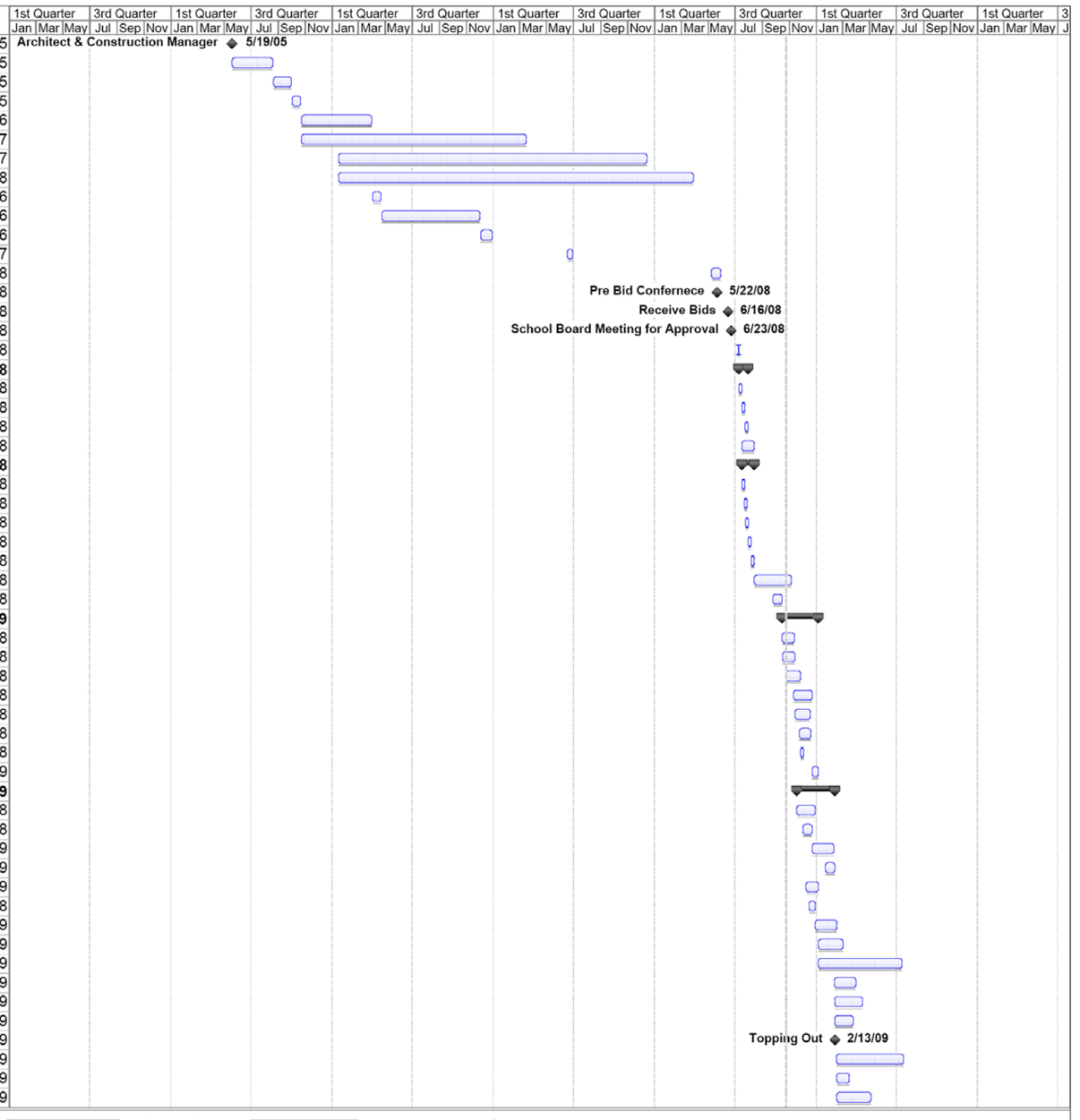
Summary of Schedule:
There was no detailed schedule for Kimberton Elementary constructed by the project manager. The following schedule was derived from the summary schedule and a similar project completed by Foreman Program and Construction Managers. The project was scheduled to mobilize Mid-July of 2008. The site closure plan will take place during the first 60 days of construction with the foundations beginning about halfway through the site closure plan. This is possible because most of the closure plan takes place away from the main building construction. After the foundation gets a few days ahead, the structural steel will follow with topping out occurring around mid February. The masonry walls, concrete slabs and metal studs follow the steel fairly closely. Next the specialty trades will begin to rough in all of the ductwork and piping while the masonry veneer and windows are being installed. The building should be enclosed by July 20th, 2009. Once the building is enclosed the finishing trades will follow. The building should be substantially complete around Christmas time 2009. (Note: according to this schedule it will actually occur on Christmas. This will not be the case.) The building will be turned over for occupancy following the New Year, 2010, with closeout items continuing for another 2 months. Overall the schedule is not ideal and would have been better served if it could have been moved up about 4 months but because of pre-construction delays that was not possible. Extra effort will have to be taken when pouring foundations as the weather gets colder. Some floor slabs are actually scheduled to be poured in December which is unfortunate. It would have also been ideal to be completing the rest of the site work during the summer and fall months so that the grass would have grown. The school however will be ready for the middle school to be temporary relocated to it at the start of the spring semester.

Construction Sequence:
In general, the construction processes will move from the west to the east for all trades. The mechanical room will be where most of the construction work will start and it will move to the classroom wing. For additional information on sequencing see technical report one. Below is a diagram of the purposed building sequencing.



Detailed Project Schedule

ID	Task Name	Duration	Start	Finish
1	Hire Architect & Construction Manager	0 days	Thu 5/19/05	Thu 5/19/05
2	Conceptual Planning Stage	66 days	Fri 5/20/05	Fri 8/19/05
3	Schematic Design Phase	30 days	Mon 8/22/05	Fri 9/30/05
4	Schematic Design Estimate	15 days	Mon 10/3/05	Fri 10/21/05
5	Design Development Phase	115 days	Mon 10/24/05	Fri 3/31/06
6	Land Development	365 days	Mon 10/24/05	Fri 3/16/07
7	PennDOT Approval	500 days	Mon 1/16/06	Fri 12/14/07
8	Governmental Agency Approvals	575 days	Mon 1/16/06	Fri 3/28/08
9	Design Development Phase	15 days	Mon 4/3/06	Fri 4/21/06
10	Construction Document Phase	160 days	Mon 4/24/06	Fri 12/1/06
11	Construction Document Estimate	20 days	Mon 12/4/06	Fri 12/29/06
12	Revise Construction Document Estimate	10 days	Mon 6/18/07	Fri 6/29/07
13	Bid Advertisement	15 days	Fri 5/9/08	Thu 5/29/08
14	Pre Bid Confernece	0 days	Thu 5/22/08	Thu 5/22/08
15	Receive Bids	0 days	Mon 6/16/08	Mon 6/16/08
16	School Board Meeting for Approval	0 days	Mon 6/23/08	Mon 6/23/08
17	Construction Start Up Meeting	1 day	Wed 7/9/08	Wed 7/9/08
18	**Contractors Mobilize**	**15 days**	**Thu 7/10/08**	**Wed 7/30/08**
19	Temporary Power to Trailers	5 days	Thu 7/10/08	Wed 7/16/08
20	Install Temporary Facilities & Controls	5 days	Thu 7/17/08	Wed 7/23/08
21	other mobilization activities	5 days	Thu 7/24/08	Wed 7/30/08
22	Clear and Grub Site	20 days	Thu 7/17/08	Wed 8/13/08
23	**Establish E&S Measures**	**20 days**	**Thu 7/17/08**	**Wed 8/13/08**
24	Install Temp. Swale	5 days	Thu 7/17/08	Wed 7/23/08
25	Install Temp. Storm Piping	5 days	Tue 7/22/08	Mon 7/28/08
26	Install Sedment Trap	5 days	Fri 7/25/08	Thu 7/31/08
27	Install Temporary Construction Entrance and Road	5 days	Thu 7/31/08	Wed 8/6/08
28	Install Stone Staging Area	5 days	Thu 8/7/08	Wed 8/13/08
29	**Preform Site Closure Plan Work**	60 days	Thu 8/14/08	Wed 11/5/08
30	**Develiop Building Pad**	15 days	Thu 9/25/08	Wed 10/15/08
31	**Building Foundations**	**58 days**	**Thu 10/16/08**	**Mon 1/5/09**
32	Foundation Excavation DC	20 days	Thu 10/16/08	Wed 11/12/08
33	Footings	20 days	Fri 10/17/08	Thu 11/13/08
34	Foundation CMU	24 days	Fri 10/24/08	Wed 11/26/08
38	Underslab Electrical	30 days	Tue 11/11/08	Mon 12/22/08
37	Install Underground Sanitary Piping and Foundation Drains	25 days	Fri 11/14/08	Thu 12/18/08
36	BackFill Foundations	20 days	Mon 11/24/08	Fri 12/19/08
35	Install Electrical Duct Bank & CATV	5 days	Thu 11/27/08	Wed 12/3/08
39	Install Stone Base	10 days	Tue 12/23/08	Mon 1/5/09
40	**Erect Steel**	**62 days**	**Tue 11/18/08**	**Wed 2/11/09**
41	Erect Steel DC	30 days	Tue 11/18/08	Mon 12/29/08
43	Joist and Decking DC	15 days	Tue 12/2/08	Mon 12/22/08
42	Erect Steel BA	35 days	Tue 12/23/08	Mon 2/9/09
44	Joist and Decking BA	15 days	Thu 1/22/09	Wed 2/11/09
47	Exterior Masonry	20 days	Tue 12/9/08	Mon 1/5/09
51	Vapor Barrier	10 days	Tue 12/16/08	Tue 12/30/08
50	Prep & Pour Slabs	35 days	Tue 12/30/08	Mon 2/16/09
48	Exterior Masonry	40 days	Tue 1/6/09	Mon 3/2/09
55	Electrical Rough In	135 days	Tue 1/6/09	Mon 7/13/09
49	Door Frames	35 days	Wed 2/11/09	Tue 3/31/09
58	EPDM Roofing	45 days	Thu 2/12/09	Wed 4/15/09
62	Install Stair Towers	30 days	Thu 2/12/09	Wed 3/25/09
45	**Topping Out**	0 days	Fri 2/13/09	Fri 2/13/09
46	**Building Envelope**	110 days	Mon 2/16/09	Fri 7/17/09
59	Install Plumbing Equipment and Rough In Mech Room	20 days	Tue 2/17/09	Mon 3/16/09
60	Install above Ceiling Plumbing	55 days	Tue 2/17/09	Mon 5/4/09



Project: Kimberton Elementary School
Date: Thu 10/23/08

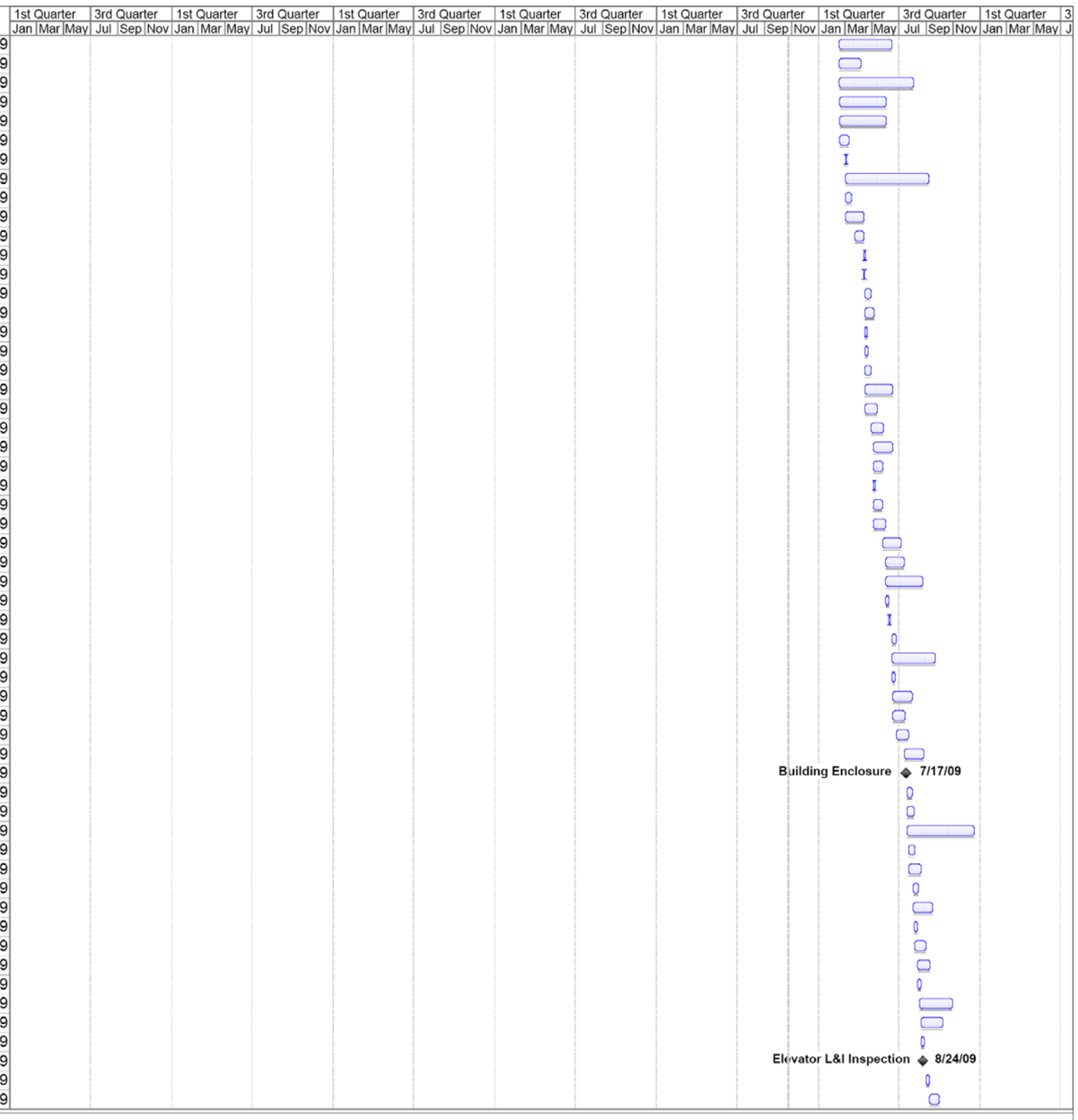
Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

Page 1

Ralph Kreider
Construction Option: Messner
Kimberton Elementary School
East Pikeland Township, Chester County, PA

Detailed Project Schedule

ID	Task Name	Duration	Start	Finish
64	Install Ductwork	85 days	Tue 2/17/09	Mon 6/15/09
74	Fire Protection Mains	35 days	Tue 2/17/09	Mon 4/6/09
75	Mechanical Piping	120 days	Tue 2/17/09	Mon 8/3/09
52	Interior Masonry Partitions	75 days	Wed 2/18/09	Tue 6/2/09
53	Plumbling Wall Rough In	75 days	Wed 2/18/09	Tue 6/2/09
54	Set Roof Curbs and Euipment	15 days	Wed 2/18/09	Tue 3/10/09
56	Install Generator Pad	3 days	Tue 3/3/09	Thu 3/5/09
57	Masonry Veneer	135 days	Tue 3/3/09	Mon 9/7/09
76	Install Interior metal Stud wall (admin area)	10 days	Tue 3/3/09	Mon 3/16/09
78	Install Exterior Metal Studs	30 days	Tue 3/3/09	Mon 4/13/09
77	Install Interior metal Studs Second Floor	15 days	Tue 3/24/09	Mon 4/13/09
83	Install Folding Partition Track	3 days	Tue 4/14/09	Thu 4/16/09
94	Test Piping	1 day	Tue 4/14/09	Tue 4/14/09
61	Install main Panels and Transformers	10 days	Thu 4/16/09	Wed 4/29/09
69	Install Boiler and Assoc. Equipment	15 days	Thu 4/16/09	Wed 5/6/09
79	Install Generator and Tranfer Switch	3 days	Thu 4/16/09	Mon 4/20/09
88	Install Standing Seam Roofing	5 days	Thu 4/16/09	Wed 4/22/09
89	Install Singles	10 days	Thu 4/16/09	Wed 4/29/09
95	Install HVAC Equipment	45 days	Thu 4/16/09	Wed 6/17/09
97	Insulate Mechanical Piping	20 days	Thu 4/16/09	Wed 5/13/09
63	Install Branch Panels and Transformers	20 days	Thu 4/30/09	Wed 5/27/09
66	Plumbing Insulation	32 days	Tue 5/5/09	Wed 6/17/09
84	Exterior Lovers	16 days	Tue 5/5/09	Tue 5/26/09
85	Exterior Building Letters	4 days	Tue 5/5/09	Fri 5/8/09
87	Install Concrete Siding	15 days	Tue 5/5/09	Mon 5/25/09
91	Install Windows	20 days	Tue 5/5/09	Mon 6/1/09
86	Install metal Fascia and Soffits	30 days	Tue 5/26/09	Mon 7/6/09
92	Install Store Fronts	30 days	Tue 6/2/09	Mon 7/13/09
99	Elevator	60 days	Tue 6/2/09	Mon 8/24/09
100	Install Walk in Freezer/Cooler Boxes	5 days	Tue 6/2/09	Mon 6/8/09
104	Install Kitchen Exhaust Hoods	3 days	Tue 6/9/09	Thu 6/11/09
68	Ductwork Testing	8 days	Tue 6/16/09	Thu 6/25/09
80	Fire Protection Branches	70 days	Tue 6/16/09	Mon 9/21/09
81	Install switch gear	5 days	Tue 6/16/09	Mon 6/22/09
102	HVAC Equipment Connections	32 days	Thu 6/18/09	Fri 7/31/09
103	HVAC Euipment Electrical Terminations	20 days	Thu 6/18/09	Wed 7/15/09
67	Insulate Ductwork	20 days	Fri 6/26/09	Thu 7/23/09
65	Install Feeder/Distribution Conduit	32 days	Tue 7/14/09	Wed 8/26/09
93	**Building Enclosure**	0 days	Fri 7/17/09	Fri 7/17/09
101	Install Drywall	10 days	Mon 7/20/09	Fri 7/31/09
150	underground site lighting conduit	12 days	Mon 7/20/09	Tue 8/4/09
165	Building Finishes	110 days	Mon 7/20/09	Fri 12/18/09
90	Fire Protection Riser & Feed main	10 days	Fri 7/24/09	Thu 8/6/09
96	Install Cable Tray	20 days	Fri 7/24/09	Thu 8/20/09
106	Install Rolling Dooring	10 days	Mon 8/3/09	Fri 8/14/09
107	Tape and Spackle Drywall	32 days	Mon 8/3/09	Tue 9/15/09
152	Install Site Light Bases	6 days	Wed 8/5/09	Wed 8/12/09
71	Install FA boxes/Conduit/wire	18 days	Thu 8/6/09	Mon 8/31/09
70	Pull Feeder and Distribution	20 days	Thu 8/13/09	Wed 9/9/09
153	Install Site Light Poles	6 days	Thu 8/13/09	Thu 8/20/09
110	Block Filler and Paint	55 days	Mon 8/17/09	Fri 10/30/09
98	Data Cabling Rough in	35 days	Fri 8/21/09	Thu 10/8/09
157	Install U/G Fiber Optic	5 days	Fri 8/21/09	Thu 8/27/09
111	Elevator L&I Inspection	0 days	Mon 8/24/09	Mon 8/24/09
73	Install Video Raceways/boxes	6 days	Tue 9/1/09	Tue 9/8/09
72	Install Security System Conduit/Boxes/cable	16 days	Wed 9/9/09	Wed 9/30/09



Project: Kimberton Elementary School
Date: Thu 10/23/08

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

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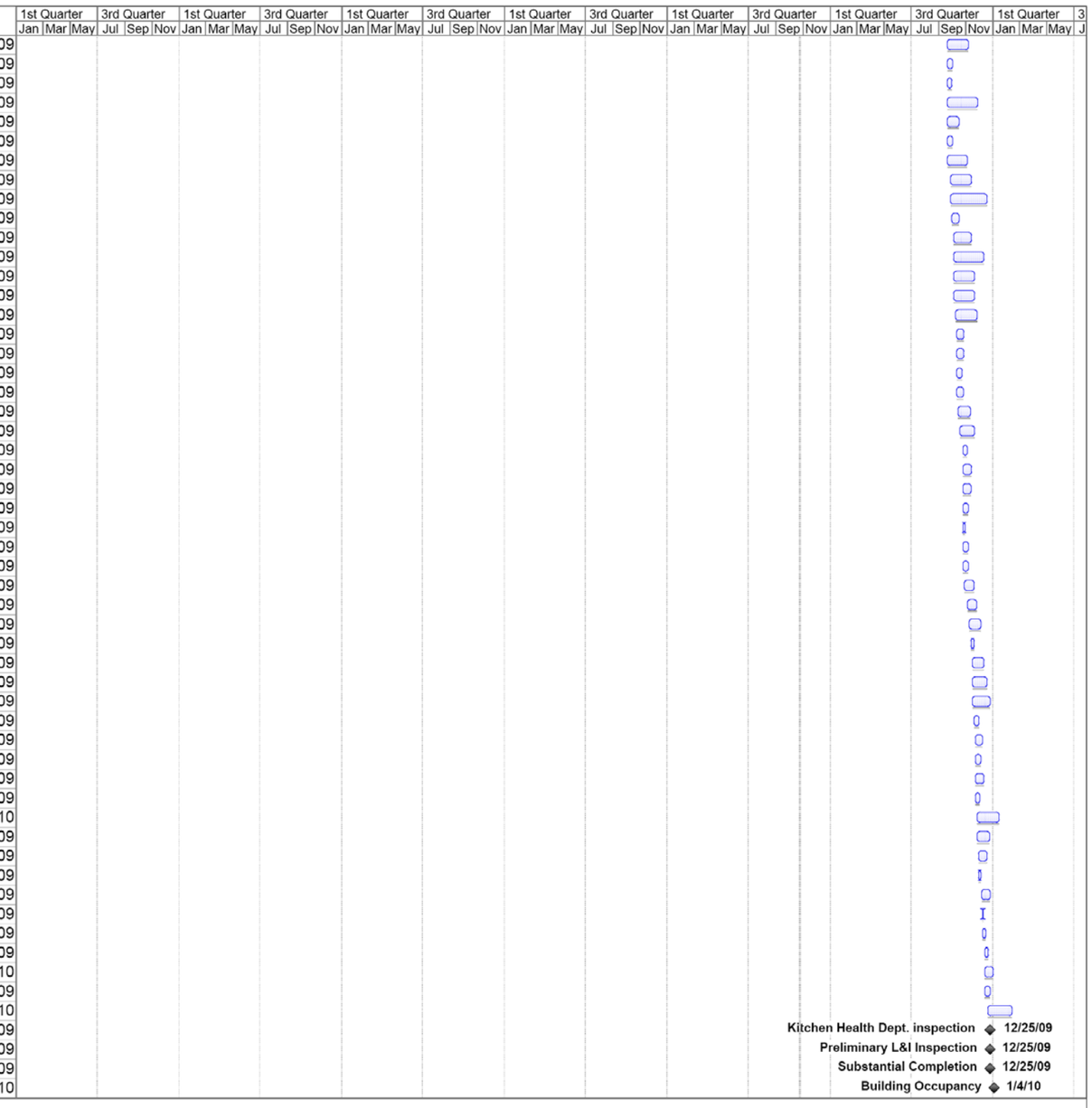
Kimberton Elementary School
East Pikeland Township, Chester County, PA
Ralph Kreider
Construction Option: Messner

Detailed Project Schedule

ID	Task Name	Duration	Start	Finish
112	Electrical Devices	35 days	Mon 9/21/09	Fri 11/6/09
113	Install Ceiling Grid Start	10 days	Mon 9/21/09	Fri 10/2/09
115	Install Gym Equipment	8 days	Mon 9/21/09	Wed 9/30/09
116	Install Interior Doors and Hardware	50 days	Mon 9/21/09	Fri 11/27/09
117	Fire extinguishers & Cabinets	20 days	Mon 9/21/09	Fri 10/16/09
118	Install Acoustical Wall panels	10 days	Mon 9/21/09	Fri 10/2/09
120	Install Casework	33 days	Mon 9/21/09	Wed 11/4/09
119	Tele/Data Terminations	35 days	Mon 9/28/09	Fri 11/13/09
128	Terrazzo	60 days	Mon 9/28/09	Fri 12/18/09
82	Install Intercom conduit/cables	12 days	Thu 10/1/09	Fri 10/16/09
114	Finish Ceiling Grid Install	30 days	Mon 10/5/09	Fri 11/13/09
123	Install Light Fixtures	50 days	Mon 10/5/09	Fri 12/11/09
124	Sprinkler Heads	35 days	Mon 10/5/09	Fri 11/20/09
126	Install Grills, Registers and Defusers	35 days	Mon 10/5/09	Fri 11/20/09
105	Install Telecommunications/Data Racks	35 days	Fri 10/9/09	Thu 11/26/09
125	Install Fire Alarm Devices	12 days	Mon 10/12/09	Tue 10/27/09
127	Install Clock System	12 days	Mon 10/12/09	Tue 10/27/09
130	Install Security Devices	10 days	Mon 10/12/09	Fri 10/23/09
132	Install Intercom Devices	11 days	Mon 10/12/09	Mon 10/26/09
122	Install Countertops	20 days	Thu 10/15/09	Wed 11/11/09
136	Finish paint/Paint Touch up	25 days	Mon 10/19/09	Fri 11/20/09
133	Quarry Tile Floor	8 days	Mon 10/26/09	Wed 11/4/09
134	Ceramic Floor Tile	15 days	Mon 10/26/09	Fri 11/13/09
135	Install kitchen Equipment	14 days	Mon 10/26/09	Thu 11/12/09
139	Install Ceiling Tile	10 days	Mon 10/26/09	Fri 11/6/09
151	Install Lockers	5 days	Mon 10/26/09	Fri 10/30/09
154	Install Gym Floor	10 days	Mon 10/26/09	Fri 11/6/09
155	Install Cafeteria Floor	10 days	Mon 10/26/09	Fri 11/6/09
129	Install Casework Sinks	16 days	Thu 10/29/09	Thu 11/19/09
138	Ceramic Wall Tile	15 days	Thu 11/5/09	Wed 11/25/09
142	Install Projection Screens	20 days	Mon 11/9/09	Fri 12/4/09
144	Kitchen Equipment Mech, Plumbing, Elec Hook Up	5 days	Fri 11/13/09	Thu 11/19/09
121	Test and Label Data System	20 days	Mon 11/16/09	Fri 12/11/09
137	Install Plumbing Fixtures	25 days	Mon 11/16/09	Fri 12/18/09
146	Install VCT Flooring	30 days	Mon 11/16/09	Fri 12/25/09
149	Kitchen Equipment Startup	7 days	Fri 11/20/09	Mon 11/30/09
131	Sprinkler Line Pressure Test	12 days	Mon 11/23/09	Tue 12/8/09
140	Install Underground Water/Fire Protection Feeds	10 days	Mon 11/23/09	Fri 12/4/09
141	Toliet Partitions	15 days	Mon 11/23/09	Fri 12/11/09
143	Interior Glazing	8 days	Mon 11/23/09	Wed 12/2/09
108	Install Data Backbone Cabling	35 days	Fri 11/27/09	Thu 1/14/10
109	Tele/Data closet end cabling	20 days	Fri 11/27/09	Thu 12/24/09
147	Carpet	15 days	Mon 11/30/09	Fri 12/18/09
159	Install Folding Partition	5 days	Mon 11/30/09	Fri 12/4/09
161	Final Cleaning	15 days	Mon 12/7/09	Fri 12/25/09
156	Install Kiln	1 day	Wed 12/9/09	Wed 12/9/09
160	Install Stage Curtain	5 days	Wed 12/9/09	Tue 12/15/09
145	Toliet Accessories	6 days	Mon 12/14/09	Mon 12/21/09
148	Install Floor Base	15 days	Mon 12/14/09	Fri 1/1/10
158	Install Library Furniture	10 days	Mon 12/14/09	Fri 12/25/09
166	**Building Puchlisting and Closeout**	40 days	Mon 12/21/09	Fri 2/12/10
162	**Kitchen Health Dept. inspection**	0 days	Fri 12/25/09	Fri 12/25/09
163	**Preliminary L&I Inspection**	0 days	Fri 12/25/09	Fri 12/25/09
164	**Substantial Completion**	0 days	Fri 12/25/09	Fri 12/25/09
167	**Building Occupancy**	0 days	Mon 1/4/10	Mon 1/4/10



Project: Kimberton Elementary School
Date: Thu 10/23/08

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

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Kimberton Elementary School
East Pikeland Township, Chester County, PA
Ralph Kreider
Construction Option: Messner

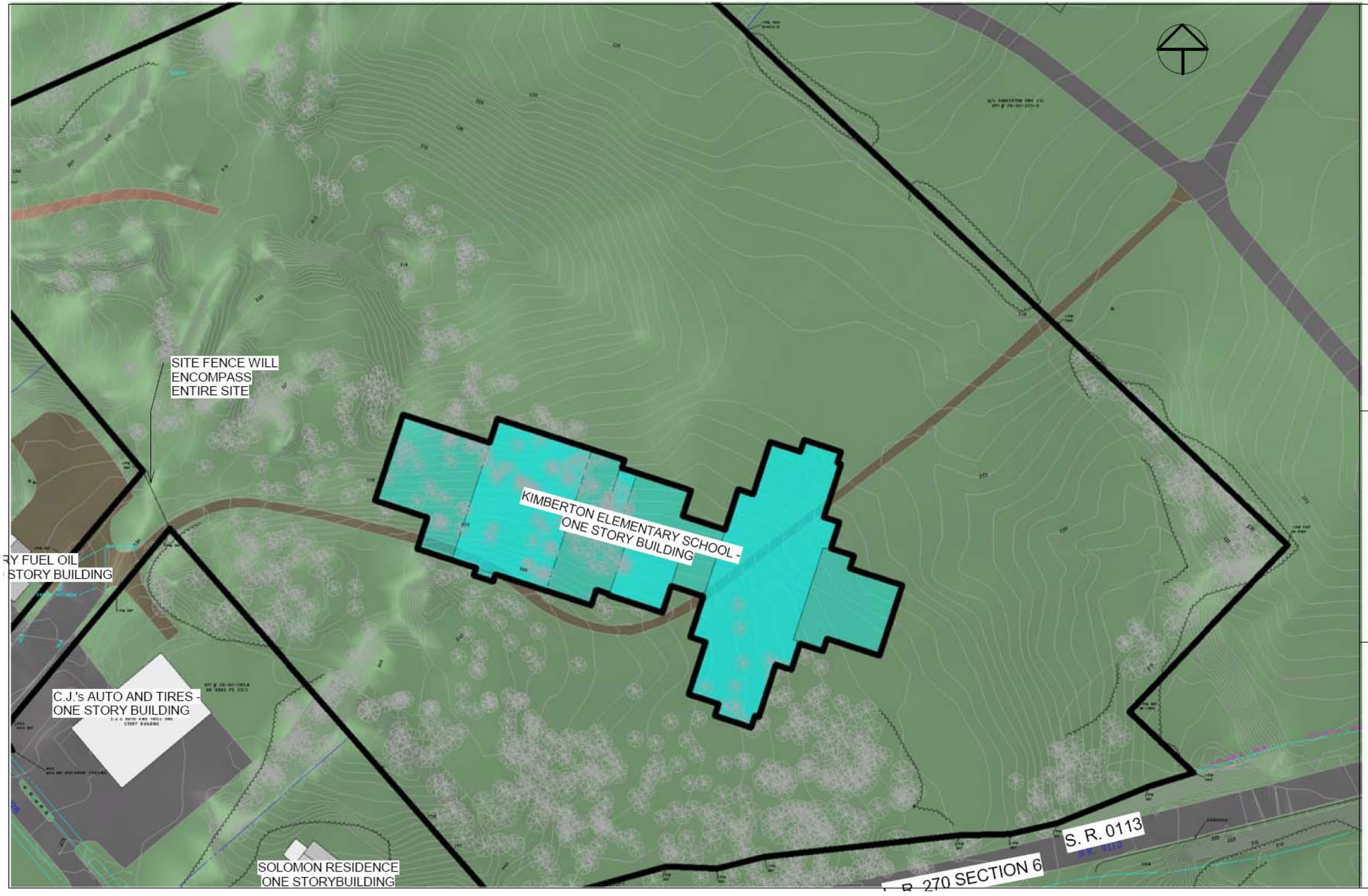
Site Layout Planning

Summary of Site Layout Plans

In general, all traffic enters the site via Route 113 to the south of the site. This construction entrance will be used at the permanent entrance once construction is complete. The job trailers will be located in the southeast corner of the future parking lot. This location was selected because they will not need to be moved for any task until the parking lot is ready to be paved. At that point a smaller job site office can be created inside the building. The porta-pots are also at this location. The main dumpsters will be located near the job trailers. This will allow for monitoring of those trailers. The each trade will be responsible for supplying their workers with trash cans through the site. The main lay down and staging areas are located on what will be future pavement – the large parking lot and the paved playground area. Lay down areas should not be a concern for this project. The site closure plan will mostly take place in the northwest corner of the site and should not interfere with most of construction. The soils that will be removed from this area will be hauled of site or if found suitable for fill stock piled on what will be the soccer field. A twenty foot wide temporary roadway will be constructed around the classroom wing during construction to allow for better movement around the building. The single crane will have four pick locations and is noted on the site plan as separate cranes. The storage containers will be located in the rear of the main lay down and storage area. Overall the site is not that difficult from a logistics stand point. There is plenty of room to move around the site and complete the construction as planned.

Evaluation of Contractors Layout Plan:

There was no actual site logistics plan created by the construction manager for this project. However the site engineer did approximate locations of various temporary structures. A large portion of the site will be hardscape once construction is complete so this area could be easily used for both access to the building and material lay down. Overall the site plan devised by the site engineer is fairly well planned out. For the most part, there will be few major changes from phase to phase. If the neighboring fire hall would have allowed access to the site it would have allowed for even more lay down and storage area. If I were the construction manager, I would have pushed more for this access. I would have also pushed more for a primary construction entrance between CJ Tire and Emery Oil - this would have allowed for less delays in construction is the access road to 113 was in use or being work on. As it stands now, I think many contractors would have probably ended up using the secondary entrance as their primary entrance anyway. Overall the site plan devised by the site engineer would have probably worked just fine and it would have been interesting to see the project come to completion.



Existing Site Plan

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker

C-03

Scale 1" = 100'-0"

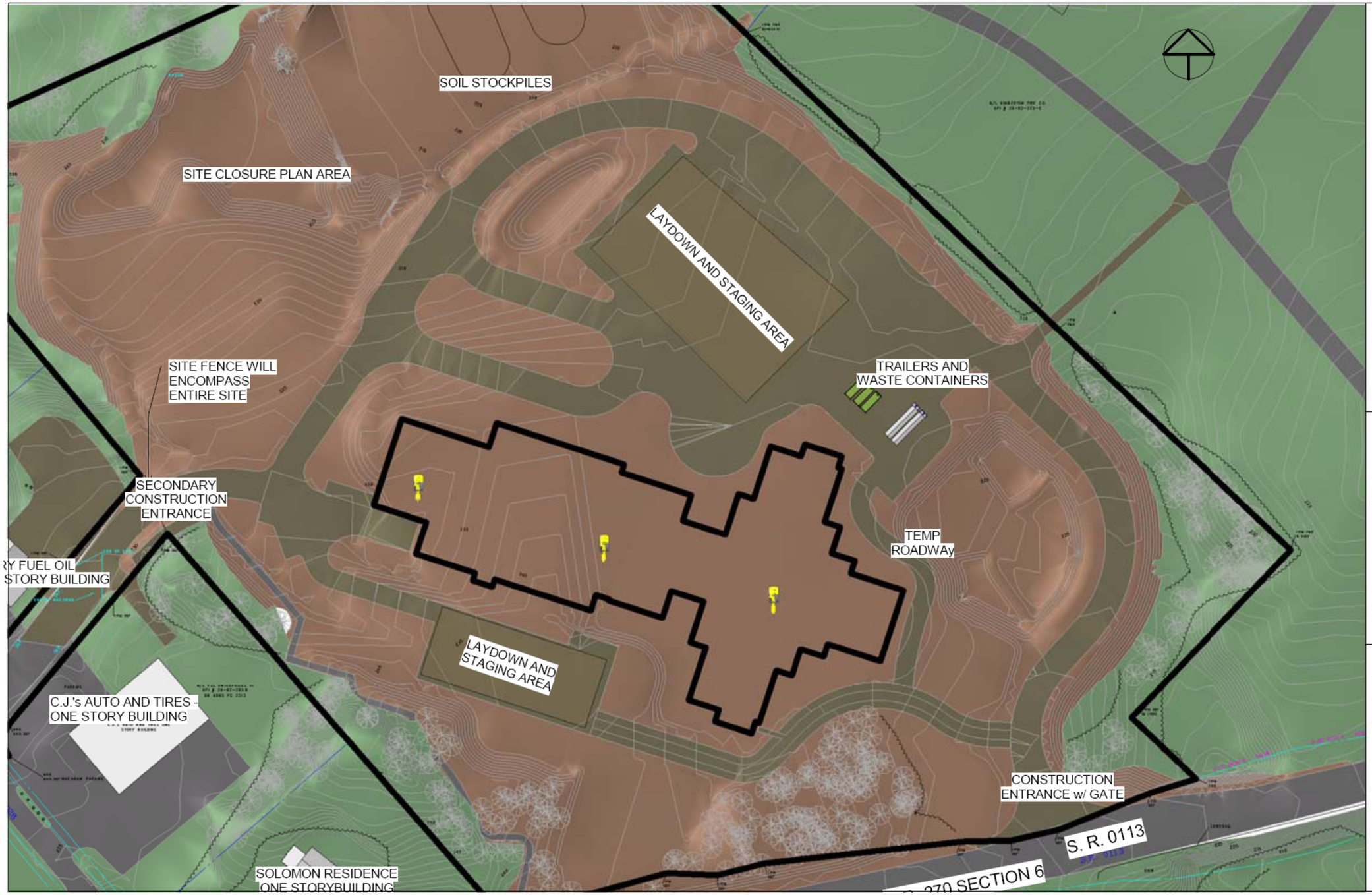
Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

Site Layout Planing



Excavatoin Phasing Plan - 11x17

C-04

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale 1" = 100'-0"

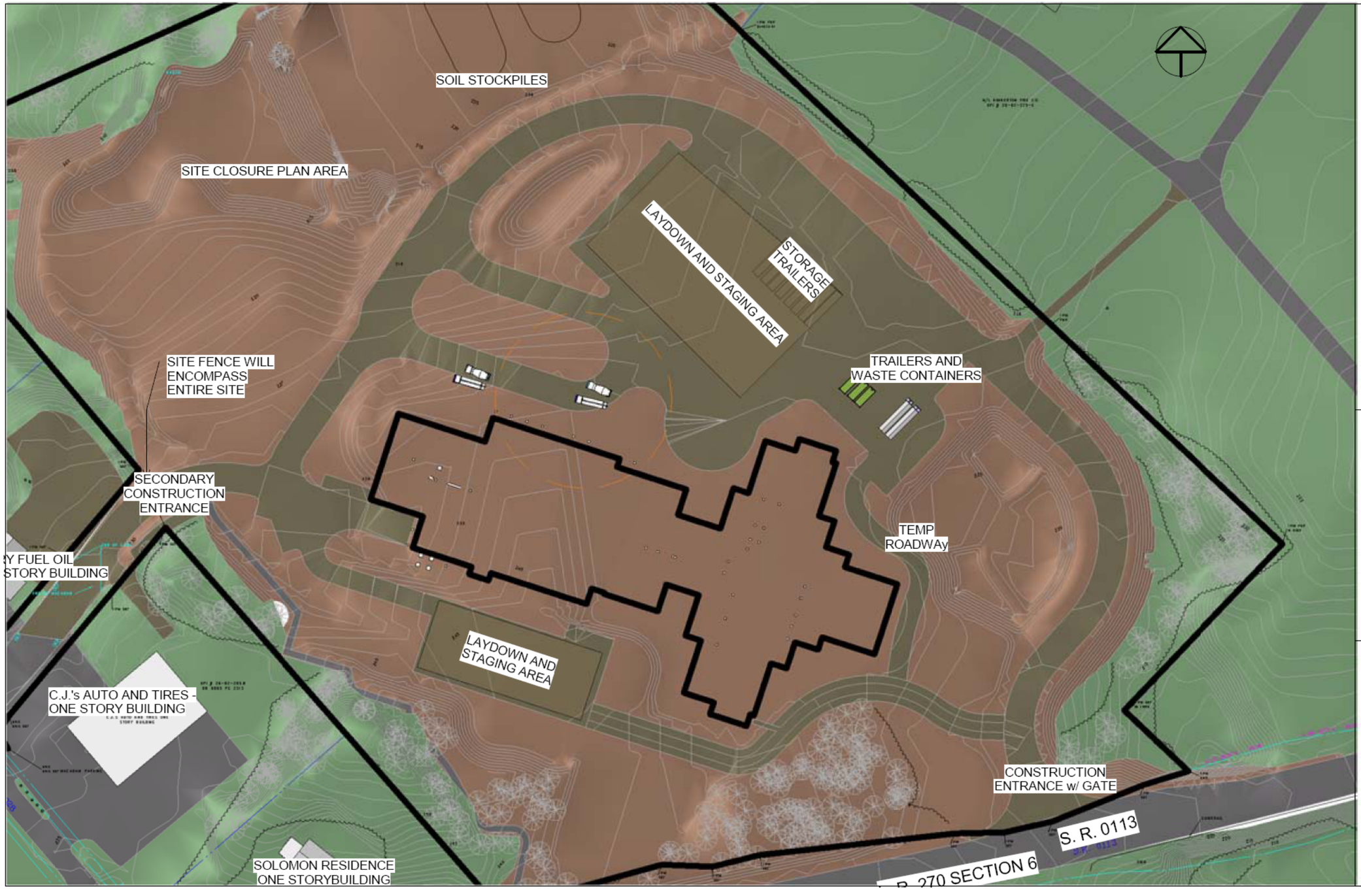
Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

Site Layout Planing



SubStructure Phasing Plan

C-05

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale 1" = 100'-0"

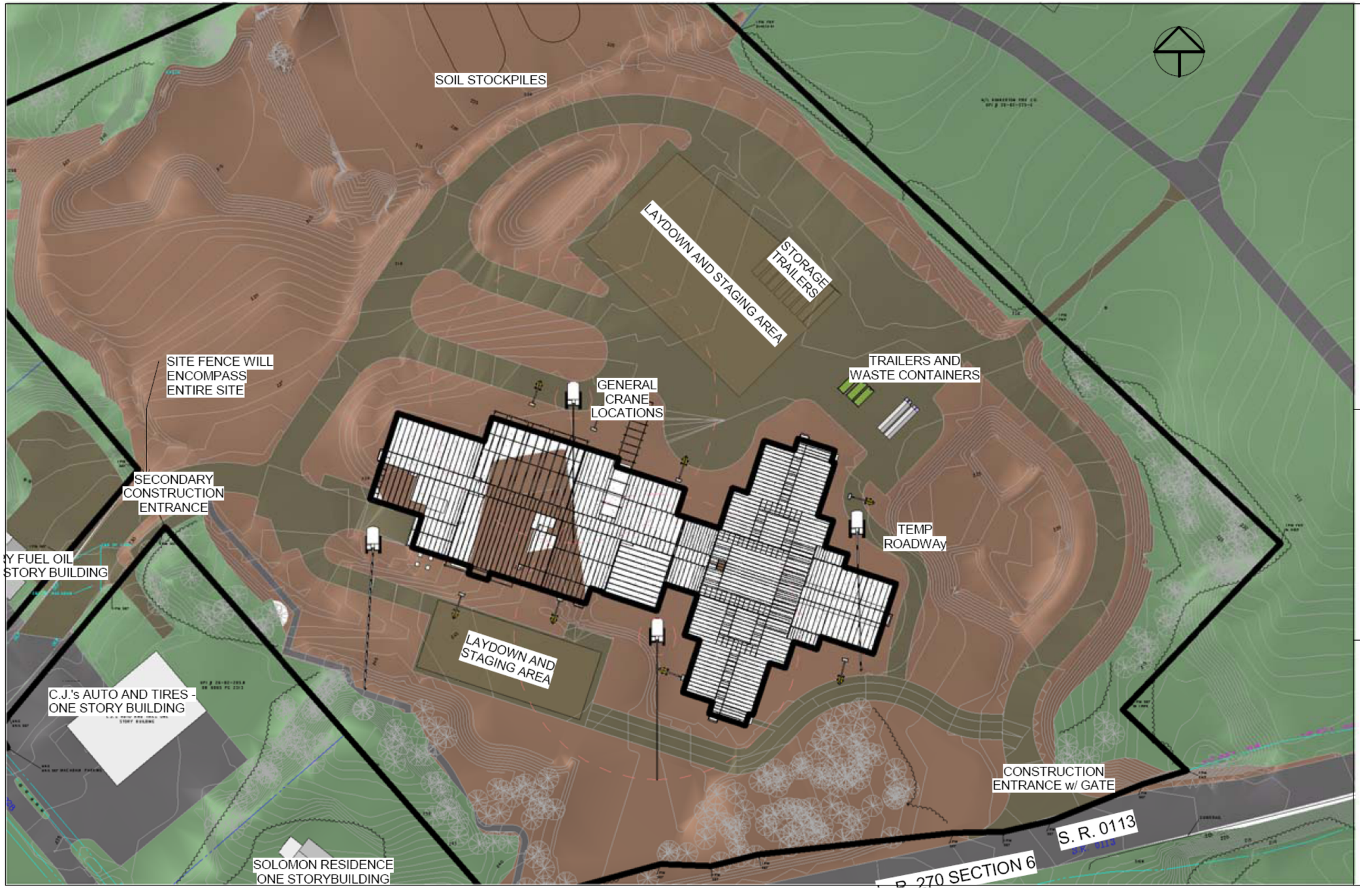
Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

Site Layout Planing



SuperStructure Phasing Plan

C-06

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale 1" = 100'-0"

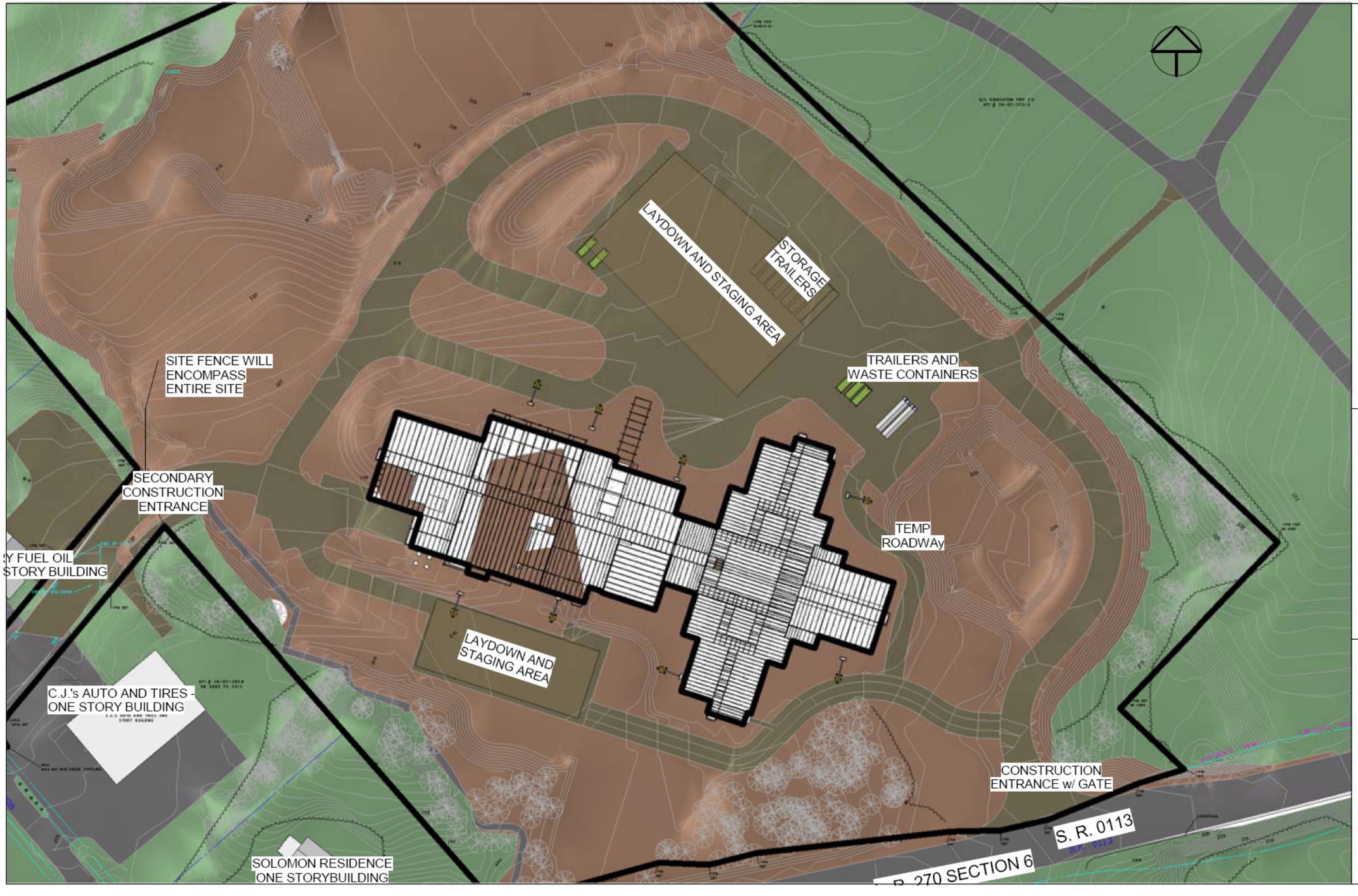
Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

Site Layout Planing



Exterior Enclosure Phasing Plan

C-07

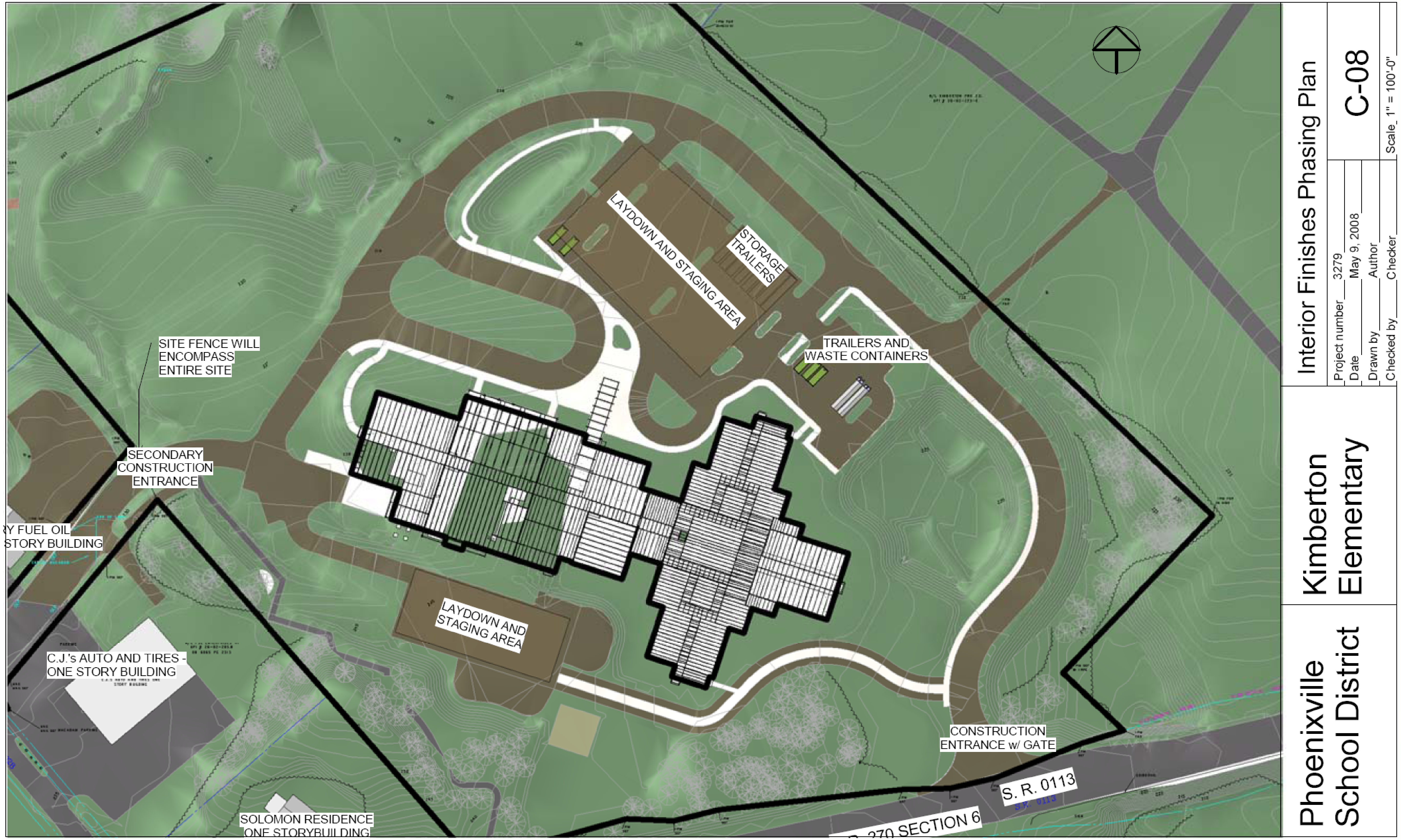
Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale 1" = 100'-0"

Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

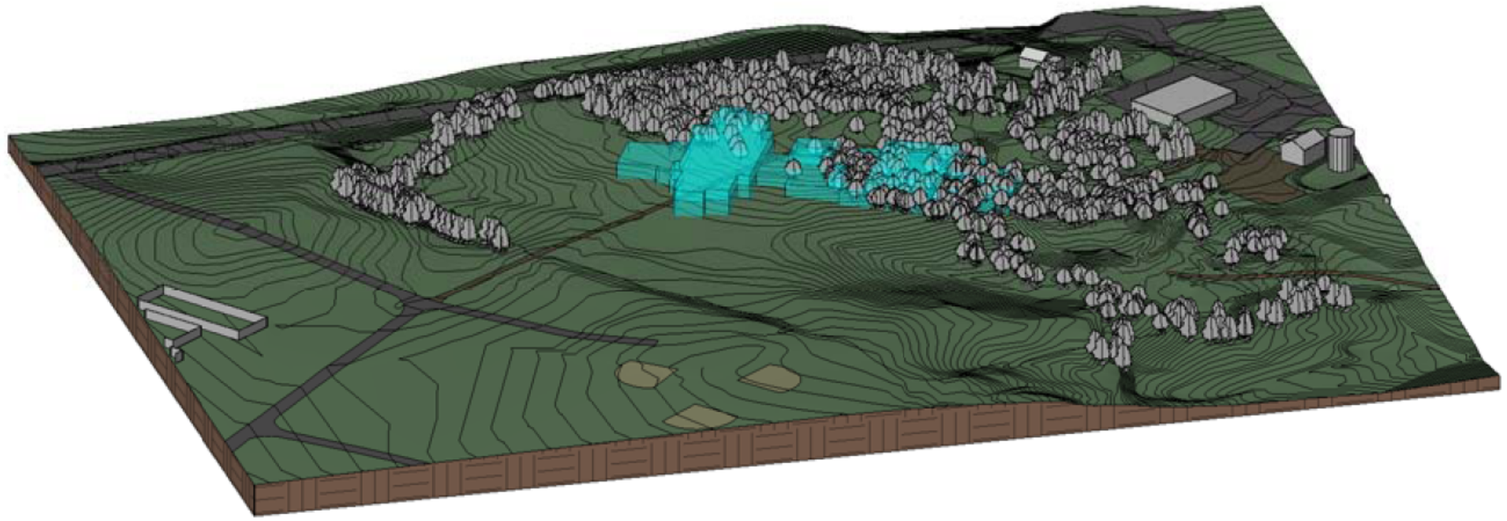
Ralph Kreider
Construction Option: Messner



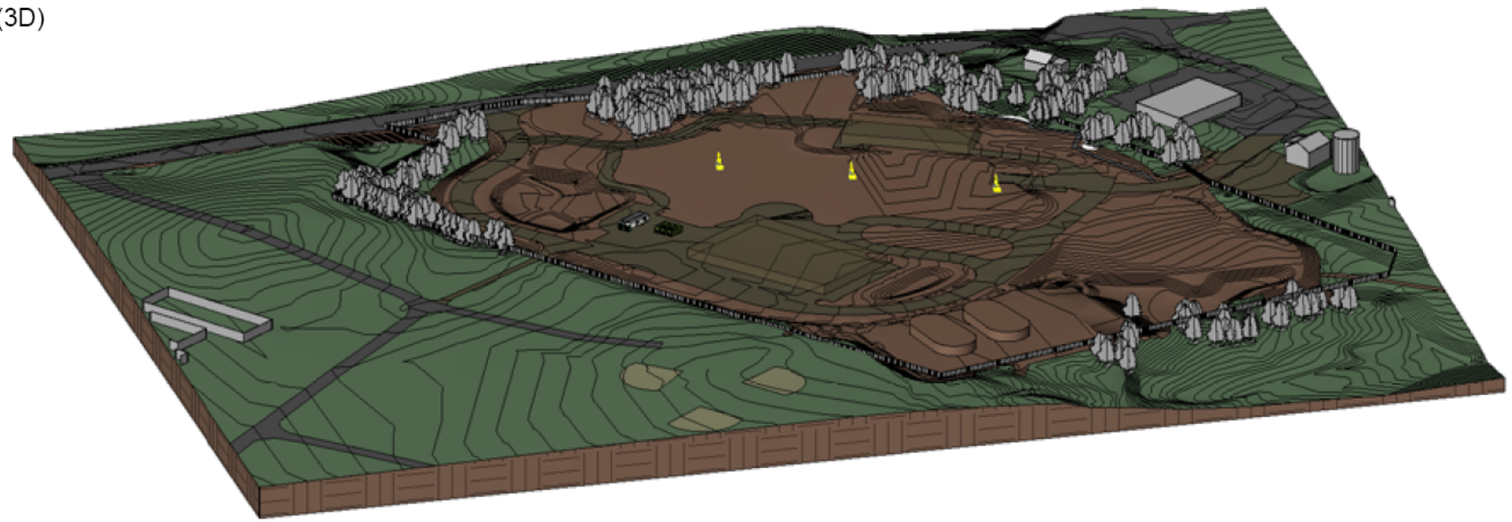
Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner


Y FUEL OIL
STORY BUILDING
C.J.'s AUTO AND TIRES -
ONE STORY BUILDING
SOLOMON RESIDENCE
ONE STORYBUILDING
S. R. 0113
R. 270 SECTION 6
Project Completion Site Plan
C-09
Scale_ 1" = 100'-0"
Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Kimberton Elementary
Phoenixville School District



1 Existing Site (3D)



2 Excavtion Phasing Plan (3D)

Existing and Excavation

Project number	3279
Date	May 9, 2008
Drawn by	Author
Checked by	Checker
Scale	

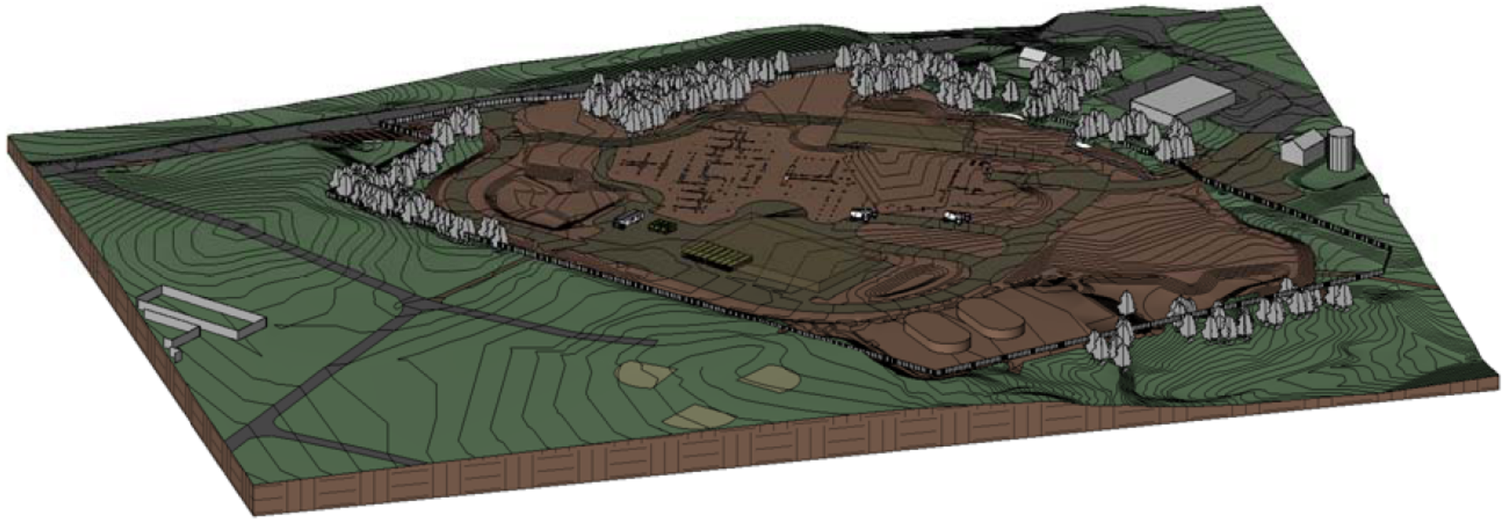
3D-01

Kimberton Elementary

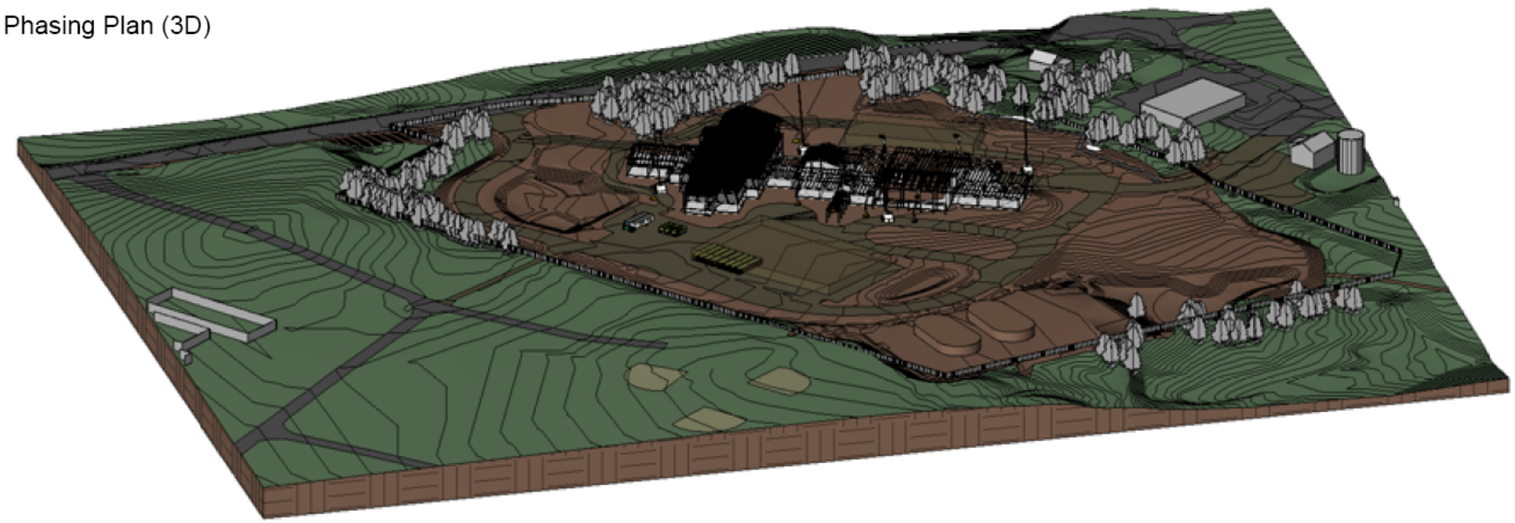
Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner



1 Substructure Phasing Plan (3D)



2 SuperStructure Phasing Plan (3D)

Substructure and Superstructure

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale

3D-02

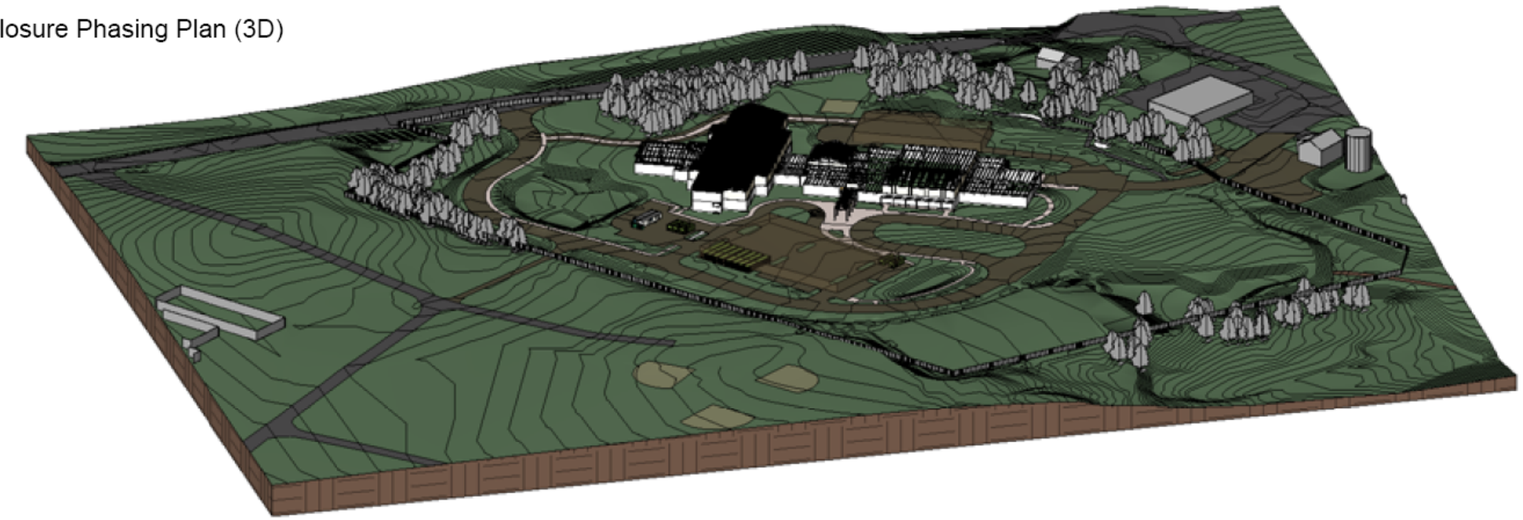
Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

1 Exterior Enclosure Phasing Plan (3D)



2 Interior Finishes Phasing Plan (3D)

Exterior and Interior

Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale

3D-03

Kimberton Elementary

Phoenixville School District

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
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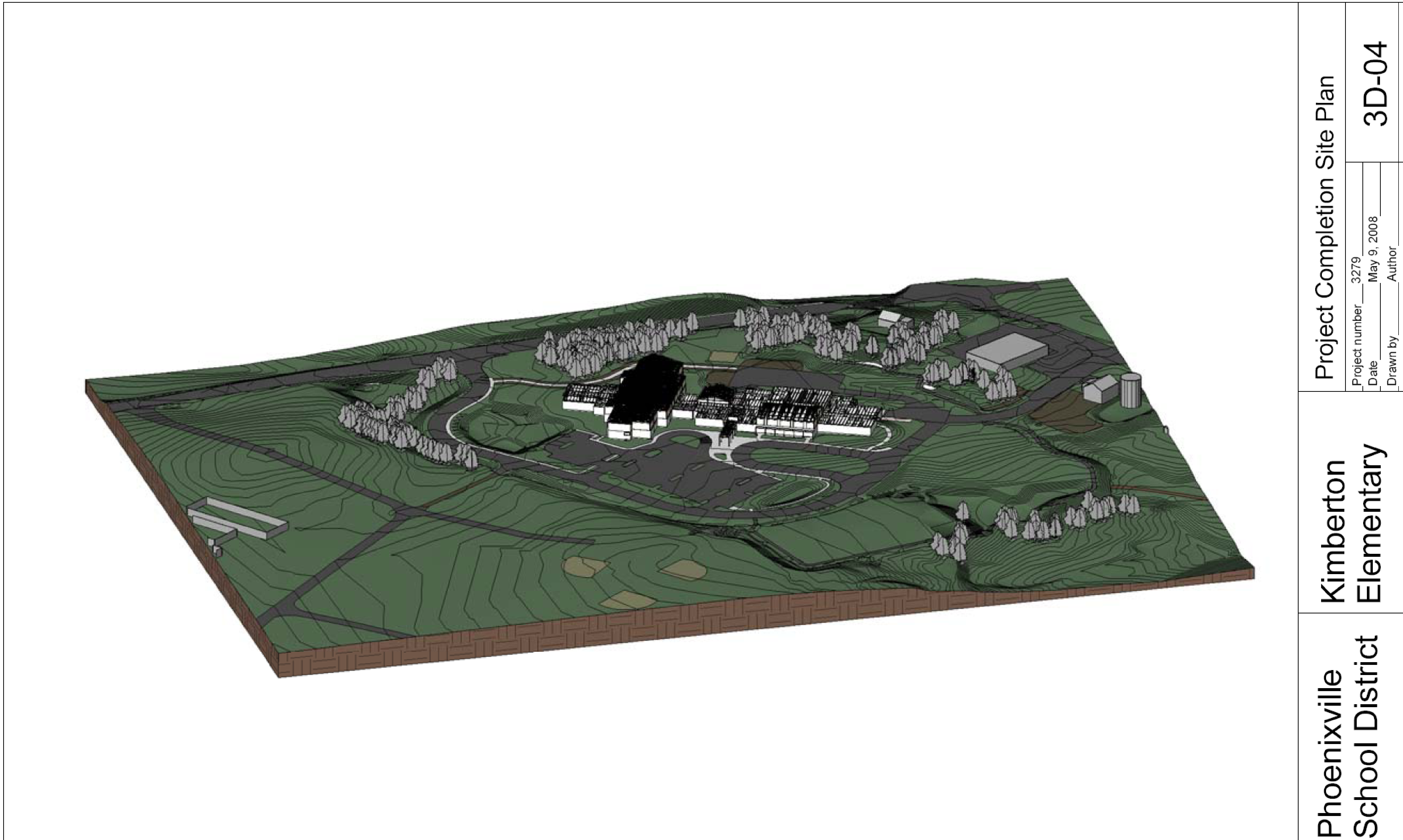
Project Completion Site Plan
3D-04
Project number 3279
Date May 9, 2008
Drawn by Author
Checked by Checker
Scale
Kimberton Elementary
Phoenixville School District

Detailed Estimate

Detailed Structural Estimate Summary:

As one can see below, the majority of the structural system is the material cost. Most of that material is the cost of steel. The takeoff of the structural system estimate comes directly from the Revit model and therefore should be very accurate. For the most part Revit does well with structural quality takeoff. Detailed take off sheets are located in the appendix. The material, labor, equipment and total costs are taken from RS Means 2007. They are adjusted 1.08 for time and 1.069 for location. This is done on every unit cost throughout the estimate. In a few cases the unit cost or quality could not be obtained due to insufficient information. Either the detail information was not available because shop drawing were not created or R.S. Means did not have the proper items. In that case the Foreman estimate was used to fill in the gaps. This estimate is actually very comparable to the Foreman Program and Construction Managers estimate. It, however, is difficult to compare the two side by side because the foreman estimate includes other metals and concretes that are not a part of the structural system. However looking at each line the quantities and values are similar. Overall I am very confined in my estimate of the structural system for Kimberton Elementary School.

SUMMAY	COST PER SQUARE FOOT	TOTAL COST	PERCENTAGE
Total	$28.81	$2,955,054.44	100%
Labor Total	$21.63	$2,218,423.24	76.92%
Material Total	$5.43	$557,079.76	19.32%
Equipment Total	$1.06	$108,492.81	3.76%

Ralph Kreider
Construction Option: Messner

Phase	Description	Takeoff Quantity		Cost/Unit		Total Amount
	CONCRETE					
3114.00	**Forms –Walls**					
03 11 13.40 0020	Wall Forms	7566.64	SQ FT	$6.47	$/SQFT	$48,920.69
	Forms –Walls					
3126.00	**Forms – Piers**					
03 11 13.25 6550	Pier Forms	2688	Sq FT	$7.57	$/SQFT	$20,357.97
	Forms - Piers					
3206.00	**Rebar - Footing**					
03 21 10.60 0500	Footing Rebar (tons)	13.91	TONS	$1,708.69	$/TON	$23,773.84
	Rebar - Footing					
3231.00	**Rebar - Wiremesh**					
03 22 05.50 0300	WWM sheets- 6 x6 - W2.9 x W2.9	998.43	CSQFT	$49.41	$/CSQFT	$49,335.91
	Rebar - Wiremesh					
3306.00	**Conc - Footing**					
03 30 53.40 3935	Wall Footing Concrete - 3000 PSI	317.26	CY	$221.54	$/CY	$70,285.72
03 30 53.40 3850	Spread Column Footing Concrete - 3000 PSI	223.99	CY	$363.40	$/CY	$81,397.50
	Conc - Footing					
3309.00	**Conc - Piers**					
03 30 53.40 0920	Pier Concrete - 3000 PSI	49.78	CY	$988.27	$/CY	$49,193.84
	Conc - Piers					
3310.01	**Conc - Slabs on grade**					
03 30 53.40 4760	SOG Concrete - 4000 PSI - 4" inch	73698.32	SQ FT	$2.40	$/SQFT	$176,979.26
	Conc - Slabs on grade					
3313.00	**Slab on Metal Deck**					
03 30 53.40 3250	SOD Concrete - 4000 PSI	26144.74	SQ FT	$2.10	$/SQFT	$54,936.02
	Slab on Metal Deck					
						$575,180.75
	Structural Steel					
5110.01	Structural - Framing					
-	Pre Engineered Steel Trusses (ton)	46.00	ton	$3,108.20	$/TON	$123,841.00
-	Structural Plates (ton)	14.00	ton	$3,108.20	$/TON	$37,691.00
	Structural - Framing					**$161,532.00**
5110.10	**Structural - W Shapes**					
05 12 23.75 0300	W8X10	158.71	lnft	$20.38	$/lnft	$3,234.08
05 12 23.75 0320	W8X15	390.29	lnft	$26.84	$/lnft	$10,476.39
05 12 23.75 0350	W8X21	12.67	lnft	$34.46	$/lnft	$436.64
05 12 23.75 0360	W8X24	6.83	lnft	$39.16	$/lnft	$267.47
05 12 23.75 0500	W8X31	1194.96	lnft	$48.40	$/lnft	$57,833.05
05 12 23.75 1100	W12X14	3312.40	lnft	$23.24	$/lnft	$76,981.79
05 12 23.75	W12X16	124.03	lnft	$25.90	$/lnft	$3,211.87
05 12 23.75	W12X19	246.34	lnft	$29.88	$/lnft	$7,360.39
05 12 23.75 1300	W12X22	206.68	lnft	$33.86	$/lnft	$6,998.61
05 12 23.75 1500	W12X26	446.34	lnft	$39.06	$/lnft	$17,432.89
05 12 23.75 1900	W14X22	1064.71	lnft	$38.49	$/lnft	$40,982.49
05 12 23.75 2700	W16X26	1646.57	lnft	$38.46	$/lnft	$63,322.24
05 12 23.75 2900	W16X31	798.03	lnft	$45.29	$/lnft	$36,144.23
05 12 23.75	W16X36	161.34	lnft	$52.04	$/lnft	$8,396.03
05 12 23.75 3300	W18X35	1642.57	lnft	$51.53	$/lnft	$84,635.44
05 12 23.75 3500	W18X40: 70	2123.13	lnft	$57.88	$/lnft	$122,878.46
05 12 23.75 3520	W18X46: 8	153.09	lnft	$65.96	$/lnft	$10,097.47
05 12 23.75 4100	W21X44: 20	708.36	lnft	$62.49	$/lnft	$44,268.37
05 12 23.75 4300	W21X50: 5	156.17	lnft	$70.58	$/lnft	$11,021.82
05 12 23.75 4700	W21X68: 5	145.02	lnft	$93.80	$/lnft	$13,603.56

Detailed Estimate

Phase	Description	Takeoff Quantity		Cost/Unit		Total Amount
05 12 23.75 4900	W24X55: 63	1591.21	lnft	$76.71	$/lnft	$122,055.85
05 12 23.75 5100	W24X62: 7	211.67	lnft	$85.94	$/lnft	$18,191.44
05 12 23.75 5500	W24X76: 1	36.67	lnft	$103.84	$/lnft	$3,807.72
05 12 23.75 5740	W24X104: 1	34.33	lnft	$140.49	$/lnft	$4,823.14
05 12 23.75 5800	W27X84: 50	1610.33	lnft	$113.89	$/lnft	$183,405.96
05 12 23.75 5900	W27X94: 3	88.67	lnft	$127.17	$/lnft	$11,276.20
05 12 23.75 6100	W30X90: 3	86.33	lnft	$134.05	$/lnft	$11,572.65
05 12 23.75 6100	W30X99: 1	36.67	lnft	$134.05	$/lnft	$4,915.66
	Structural - W Shapes					**$986,904.83**
5110.15	**HSS-Hollow Structural Section-Column**					
05 12 23.17 4550	HSS6X6X.3125: 30	303.72	lnft	$33.43	$/lnft	$10,154.26
05 12 23.17 4600	HSS8X8X.250: 159	3734.19	lnft	$55.75	$/lnft	$208,169.23
05 12 23.17 4600	HSS8X8X.375: 11	316.33	lnft	$55.75	$/lnft	$17,634.39
05 12 23.17 4600	HSS8X8X.500: 14	371.38	lnft	$55.75	$/lnft	$20,703.26
05 12 23.17 4600	HSS8X8X.3125: 14	393.00	lnft	$55.75	$/lnft	$21,908.50
05 12 23.17 4650	HSS12X8X.625: 2	51.18	lnft	$85.07	$/lnft	$4,354.07
	HSS-Hollow Structural Section-Column					**$282,923.71**
5110.60	**Structural - Steel Angles**					
05 12 23.40 0400	2L4X4X3/8: 177	30726.51	lb	$3.63	$/lb	$111,389.54
05 12 23.40 0400	2L5X5X1/2: 14	1658.23	lb	$3.63	$/lb	$6,011.41
	Structural - Steel Angles					**$117,400.95**
5210.01	**Structural Joist**					
05 21 19.10 0140	10K1: 9	120.01	lnft	$8.96	$/lnft	$1,075.18
05 21 19.10 0140	10K1: 9	120.05	lnft	$8.96	$/lnft	$1,075.54
05 21 19.10 0160	12K1: 7	116.70	lnft	$8.58	$/lnft	$1,001.06
05 21 19.10 0160	12K1: 7	119.03	lnft	$8.58	$/lnft	$1,021.05
05 21 19.10 0240	18K4: 1	27.34	lnft	$9.26	$/lnft	$253.15
05 21 19.10 0500	20K4: 56	1317.21	lnft	$9.55	$/lnft	$12,576.56
05 21 19.10 0540	22K4: 17	483.91	lnft	$10.01	$/lnft	$4,843.79
05 21 19.10	22K6: 12	352.10	lnft	$12.03	$/lnft	$4,235.80
05 21 19.10	24K7: 36	1168.66	lnft	$11.19	$/lnft	$13,074.15
05 21 19.10	26K7: 1	34.00	lnft	$11.85	$/lnft	$402.74
05 21 19.10	28K7: 22	850.95	lnft	$12.70	$/lnft	$10,806.83
	Structural Joist					**$50,365.84**
5210.20	Structural - Joist LH/DLH					
05 21 19.50 2500	44LH15: 13	940.33	lnft	$40.75	$/lnft	$38,322.73
05 21 16.50 2220	18LH09: 18	510.90	lnft	$21.47	$/lnft	$10,971.10
	Structural - Joist LH/DLH					**$49,293.84**
5312.10	Structural - Deck Roof/Floor					
05 31 13.50 3250	Metal Deck	76945.00	SQ FT	$2.41	$/SQFT	$185,664.19
05 31 23.50 2650	Metal Deck	25638.00	SQ FT	$2.08	$/SQFT	$53,279.25
	Structural - Deck Roof/Floor					**$238,943.44**
	Unit Cost adjusted 1.08 for time and 1.069 for location				**TOTAL**	**$2,462,545.36**
	Design Contingency			**1.50%**		**$36,938.18**
	Escalation Contingency			**3.50%**		**$86,189.09**
	Insurance			**3.00%**		**$73,876.36**
	Bonds			**2.00%**		**$49,250.91**
	Overhead & Profit			**10.00%**		**$246,254.54**
	Total	**$28.81** /SQ FT		**$2,955,054.44**		

General Conditions Estimate

General Conditions Estimate Summary:

The General Conditions estimate was derived from the FPCM GC conditions estimate. Using these items, a separate estimate was preformed utilizing the RS Means Unit Costs. The overall cost difference, before add-ons from the general conditions estimate, based on RS Means and the FPCM estimate is about 100,000 dollars. This is reasonable because of the cost escalation factor's that were included in the RS Means estimate. Each number of the estimate was based on a 78 week or 18 month schedule. The General Conditions cost about a million dollars or about $10 dollars per square foot. With profit and overhead that number rises to about $1.2 million and $12 dollars per square foot. Like most general conditions estimates the staffing of the project make up a large portion of the costs. In this case, the superintendent and project manager cost the project over $300,000. This does not include the added preconstruction costs for the project. Because the project was delayed the project management costs actually increase to more than this.

Phase	Description	Takeoff Quantity		Cost/Unit		Total Amount
1101.00	**Supervision**					
01 31 13.200.260	Superintendent/General Trades	78.00	Weeks	$1,904.96	$/WEEK	$148,586.72
	Supervision					
1131.00	**Project Management**					
01 31 13.20 0200	Project Manager/General Trades	78.00	Weeks	$2,049.27	$/WEEK	$159,843.29
	Project Management					
1500.00	**Construction Facilities**					
01 52 13.20 0550	Office Trailer	18.00	Month	$432.95	$/Month	$7,793.01
01 52 13.20 0450	Office Trailer	18.00	Month	$380.99	$/Month	$6,857.85
01 52 13.20 1350	Tool Trailers	18.00	Month	$116.61	$/Month	$2,098.92
-	First Aid Equipment	18.00	Month	$173.18	$/Month	$3,117.20
01 54 33.40 6410	Temp Toilet (Rent)	18.00	Month	$190.50	$/Month	$3,428.92
-	**Construction Facilities**					
1510.00	**Temporary Utilities**					
01 51 13.80 0600	Temporary Electricity	78.00	Week	$54.26	$/Week	$4,232.47
-	Fire Protection	18.00	month	$60.04	$/Month	$1,080.63
01 51 13.80 0100	Temp Heating, Cooling and Ventilating	6.00	months	$2,309.04	$/Month	$13,854.24
01 51 13.80 0350	Temp Lighting	1025.83	CSF	$14.99	$/CSF	$15,372.75
01 52 13.40 0140	Temp Phone Services	18.00	month	$242.45	$/Month	$4,364.09
01 51 13.80 0700	Temp Water	18.00	month	$71.58	$/Month	$1,288.44
	Temporary Utilities					
1550.00	**Vehicle Access & Parking**					
-	Construction Entrance	1.00	each	$2,886.30	$/each	$2,886.30
0 55 23.50 0100	Temporary Roads	5333.33	SY	$14.55	$/SY	$77,583.74
01 55 23.50 0100	Construction Lay Down Areas	6666.67	SY	$14.55	$/SY	$96,979.68
	Vehicle Access & Parking					
1560.00	**Temp Barriers & Enclosure**					
01 56 26.50 0250	Temp Fence (rent)	3500.00	lnft	$7.24	$/Month	$25,335.94
	Temp Barriers & Enclosure					

General Conditions Estimate

Phase	Description	Takeoff Quantity		Cost/Unit		Total Amount
1570.00	**Temp Controls - Erosion**					
31 25 13.10 1000	Sediment and Erosion Control	150000.00	LF	$0.73	$/LF	$109,102.14
	Temp Controls - Erosion					
1580.00	**Project Identification**					
01 58 13.50 0020	Project Sign	100.00	S.F.	$19.11	$/SF	$1,910.73
	Project Identification					
1591.00	**Project Equip. & Supplies**					
	General site signage	1.00	Lump Sum	$519.53	$/LS	$519.53
01 52 13.40 0100+0120	Office Supplies/Equipment	18.00	month	$282.86	$/Month	$5,091.43
	Project Equip. & Supplies					
1601.00	**Tools & Equipment**					
	Tools & Equipment	18.00	Month	$5.77	$/Month	$103.91
	Tools & Equipment (Repair)	18.00	Month	$240.14	$/Month	$4,322.52
	Oil & Fuel	18.00	Month	$1,394.66	$/Month	$25,103.88
	Tools & Equipment					
1701.00	**Layout**					
	Site and Building Layout	20.00	days	$748.13	$/day	$14,962.58
	Layout					
1725.00	**Punchlist, Etc**					
	Punchlist, Etc	2.00	each	$4,618.08	$/each	$9,236.16
	Punchlist, Etc					
1740.00	**Cleaning**					
01 74 13.20 0050	Progress Cleanup	8001.47	day*MSF	$28.48	$/day*MSF	$227,898.05
02 41 19.23 0840	Dumpsters	18.00	Months	$1,339.24	$/month	$24,106.38
01 74 13.20 0100	Final Cleanup	102.58	day*MSF	$58.63	$/MSF	$6,014.08
	Cleaning					
	General Requirements					**$1,003,075.61**
	Design Contingency			1.50%		$15,046.13
	Escalation Contingency			3.50%		$35,107.65
	Insurance			3.00%		$30,092.27
	Bonds			2.00%		$20,061.51
	Overhead & Profit			10.00%		$100,307.56
	Total		**11.73**	**/SQ FT**		**$1,203,690.73**

Unit Cost adjust 1.08 for time and 1.069 for location

Summary of Events:

Welcome Address and Banquet
This banquet was a time to spend talking to the contractors on a more casual basis than what we normally are able. The evening started with refreshments. Dr Riley and Dr Anumba introduced the evening and welcomed us to the event. At dinner, I sat with individuals from Southland, Hensel Phelps, Gilbane, and Truland. Most of the time was spent telling stories that had very little to do with construction but it improved our relationship with these individuals. The official part of the evening concluded with Dr. Riley giving a preview of Thursday's events.

Mixer: Mentoring Discussion
The morning began with Professor Holland introducing the mentoring discussion. Three students were to break out and sit down with an industry member to discuss Dr. Anumba's proposal for an architectural engineering mentoring program. This discussion focused on the benefits of the program for the students and for the professional, how the match would be made, how would the program be facilitated, and how would the program be assessed.

For this I was in a group with two individuals from Truland Systems, Chuck and Matt. As a collective group we discussed each topic. Some benefits we have for the students include: help selecting option, a one on one professional relationship, clarification on work, jobsite visits, easier to talk to than professors, and personal relationship. We thought that the professionals would benefit because it allows them to continue relationships with Penn State and the AE department, gives them a chance to give back, future employees and contacts, access to cutting edge research, level mindedness, helps keep them "young", help with newer technology, and new ideas often come from younger minds. To make a match we discussed, that there could be some kind of social where everyone gets together, the match should be made early in the college career, and that there needs to be a great deal of comfort level established for this to work well. Our group did not have much time to discuss logistic and assessment however we agreed that assessment should take place early so that a change could be made early if necessary.

When we returned to the main room, we found that most of our ideas were consistent with the other groups. A few additional student benefits are professional help with thesis, information on possible career paths, and a possible reference on a resume. Some additional industry member benefits include closing the age gap, ideas from peers and more trips to happy valley. A number of interesting methods were suggested for forming a match. Some desired a random match, some speed dating, while others suggested using the personality test. To facilitate the contact it was suggested that the first contact needs to be face to face, Mentee should do traveling, use new internet technologies, regularly schedule contact and a sharing of schedule with proper contacting time. To assess the mentoring it was reinforced that it should not be part of a class and some kind of survey should be filled out in the middle and end of the year of mentorship. Overall the mentoring conversation was very interesting and obtained my interest. I think it would have helped me early in my college career.

Technical Training Topics:

LEED Evolution:
The LEED break out session was a session I could not attend unfortunately. However, from the review I learned what they discussed. Early team integration, point changes, regional impacts, owner education, and cost evaluation were a few of the topics mentioned.

There are problems with the current LEED rating system. One is that there is no current standard for LEED during the Maintenance and operation phase of a building. Some LEED buildings are not efficient and it is difficult to know for sure what point will be obtained on a project. There seems to be extra cost for LEED projects that should not exist and the payback period is not understood. These problems will hopefully be fixed in the new LEED 2009 system. That will have regional points, a permanent system-level metering, ongoing commissioning, additional controls, and more performance-based than the previous versions of LEED.

There are a few major areas that need improvement. The integration of the team needs to happen earlier in projects. The project delivery method actually affects the LEED outcome and this early integration would allow for a more constructible LEED project and allow for better material selection. It is necessary to improve the education of the owner. The owner must understand their responsibility of the project. They need to understand how their decisions affect the project and the schedule. They should also have knowledge of what project information they would like turned over. There should also be a LEED point for the owner having LEED accreditation. There needs to be more point consistency. The regional impacts need to be considered because rural, suburban, and urban areas are very different. The cost of LEED needs to be considered. The LEED session talked about the problem with the current system and where there is room for improvement.

BIM Strategies:
This is the session I attended. We first went around the room and introduced ourselves and what level of BIM we were at. Most everyone in the room on the contractor side was a beginner; however there were a few intermediate level people and maybe an expert or two. The conversation in this session was divided originally into two sides: project level and organization level. We first discussed how it is used on a project currently. Most of the uses were MEP and one company talked about using a software program called Techila, for document control.

We then talked about what file formats the information is being transferred in. Most everything was being transferred currently as .dwgs and therefore would lose most of its intelligence. They define file type rather than software so that everyone could continue using a file type they were comfortable with and so that each contractor would not have to invest into new software. There was the question of using an IFC file format but the problem is that they do not always appear as desired. For example a revit model will not export and import the same when the IFC was used. So until the software catches up, this will not be standard. One individual however compared the IFC to the pdf of BIM. Basically the question was asked, “How do we avoid information loss from one software program to the next to avoid redundant work?”

Ralph Kreider
Construction Option: Messner

On the organization, the discussion revolved around, "How is the company setting up BIM?" What software, training and team properties were necessary?

The modeling its self was then discussed. Who should be doing the model so that there is not repeats. Should the modeling be done by the architect? What happens if you can't get the architects model? What level of detail should the contractor model? The overall consensus was that the architects model needs only to design intent and does not to be develop as far. There was also a desire that the manufacture actually is the one to design the equipment for the BIM model. This is something I believe should be done. Most manufactures probably already make at least a 3D model before they build something. Why not make these public? It would sell more and designers would be more likely to spec them.

I also question why people are so unwilling to share their models. The contractors responded by with that there is a lot of risk when something is created. Also they spent a lot of time developing the information and they have little incentive to share it. There is a lot of waste in the industry recreating a lot of the families in a BIM. I honestly believe that these should be shared amongst people freely.

Another topic is the transfer of model to the owner. Right now most contractors are just giving the model with no assistance. It cannot be transferred into their management software. It is a process that most contracts are working on a little but not whole heartedly. Overall I thought the BIM session was good because I got more of a prospective from the contractors, especially the contractors that are just starting up.

Energy and Economy:
The industry needs to change due to the current economy and energy situation the world currently faces. Right now material costs are going through the roof. Now it is more important to look into better systems that pay back over the life cycle of the equipment. There is more research into proven foreign technologies and better controls of systems. More subcontractors input into system.

Power System selection is key during this time. There are an increasing number of state rebates and manufacturer initiatives. They are a shift away from power inefficiencies.

The economy is a concern right now in construction. The renovation project will be a big market in the near future. Future markets include data centers, federal work, PPP, education, salvage jobs. These times will require a lot of experience, creativity and design/engineering will get a construction company through uncertain economic times.

Right now companies should be investing in good people. More time should be taken to become a construction expert. Investing in people is more than just about the bottom line because good people will allow the company to jump into market once there is a recovery. This should be a time to look into the companies and see its own flaws. Students should expand their horizons, do homework, think big and put their best foot forward.

Ralph Kreider
Construction Option: Messner

Industry Panel: Changing Roles in the Industry:
The changing roles in industry questions posed to the panel were very interesting. The analogy that project integration is creating less silos is true. Project integration is the driving for of the change in roles. Design builds and design assists are becoming the norm. Clients are constantly becoming more demanding and this requires a more closely linked time. For example, the estimator needs to be able to tell the designer how much a change is going to cost right away. It is more essential now to have developed people skills. "Spend as much time teaching people skills as technical skills," was said by one of the participants. This is very true. It is the people that usually go the furthest. We need to develop this more. We should have more knowledge of personalities. Managing people takes a true leader. Team environment is more prevalent than ever and needs to be taught more. You can no longer sit in a cube and survive in the construction industry. Organizational skills will go a long way to success in the industry. We should challenge the standard order of protocol. We need to ask why the company is doing what it is doing. It is valuable to have renovation skills in this current economy. There was a question about what is happening in the next five years. This was answered with more improvement, prefabrication, more blurred lines between manufacturer, engineer, design, and CM, and more globalization. It was fascinating to observe industry members opinion on the changing roles of people in construction.

Student Panel: Challenges of Work-Life Balance:
This was interesting for me to observe. In my opinion, a lot of the students up front are trying to do too much but I am glad that is how they like it. I think however the industry members did not ask the right questions. Most of the questions had to deal with the amount of tasks they have. In college we have more opportunity do things besides school work. I think that a number of industry members only work. We should have showed how we require more than just a job as life. Today, more than ever, there is more going on in our lives besides school/careers. We are more social and stretched between different tasks than ever. I think that time when a career defined a person has now pasted. I wonder how companies will deal with the fact that we all do not want to work 80 hours a week. There should be more to life than a career.

Surprises about Discussion:
I was really surprised how open and easy it was to discuss anything with the professionals. They seem to genuinely care about us more than just recruiting us to work for their company. Most of the people I talked to did not even bring up what company they work for and their companies history. This was comforting. It also surprised me that I enjoyed the time talking as much as I did rest of the time. I did not want to go back and sit down because of the conversations I was having. This speaks to the quality of the people attending the conference. It also surprised me how much the contractors got along and shared. They are all competitors and they all enjoy hanging out. I guess some of that comes back to the Penn State Alum mentality. Half of the people graduated together. I was surprised with the quality of discussion in the sessions. I was also surprised and it made me feel good that I know more about BIM than most of the industry members at the conference.

Ralph Kreider
Construction Option: Messner

Issues that Affect or Apply:

Honestly I feel that all of the subjects talked about can be applied to my thesis. The BIM subjects are already being implemented in the creation of a Revit Model. I am not positive how I can handle mentoring in any of my work except that I will be the Mentee of individuals at the conference when I will most likely ask them question about my thesis. The LEED issues will be considered on my thesis. I will be applying both LEED and value engineering ideas therefore the flaws in LEED are of great interest. More importantly, is how it will minimize the impact of these flaws. It is important to consider energy and economy in all projects but in practicality how this project was affected by the economy now that it has to be completed on another site. There are a lot of extra costs due to the cancellation. There are also a lot of rooms for improvement in the design. The changing roles will be used to understand how a different project delivery method could have hurt or improved the decision made on the project. I can analyze the different methods to the cost, schedule, and complexity of the job. The suggestions of the student panel will be used to complete my work. Time management is a key to completing my thesis. I can use the knowledge gained at the roundtable on my thesis in my direct ways as well in many more indirectly.

Key Contacts:

I made many contacts at the conference. Jason Reece from Balfour Beatty will be able to help me on almost any practical BIM question I have and also how BIM is really being used in the industry today. Also with Balfour Beatty, Mark Konchar will be able to answer question about a Ph.D. from an industry prospective. Mike Miller and Raj Vora from Southland will be able to answer most of the mechanical questions. Southland will also be assisting with my MCAA competition. Truland Systems also had two very outgoing individuals. Chuck Tomasco and Matt should be able to answer any electrical contracting question that I might have. It was also great to renew some of the previous contacts that I have made, like Benchmark and Barton Malow. I think that it is wonderful how tied to Penn State Architectural Engineering these individuals are. The Penn State AE Department must be doing something right to have these mostly former students willing to pay money to return to mentor the future graduates and sponsor PACE as well as it does.

Appendix Contents:

- **Original Schuylkill Elementary Schedule**
- **Erosion & Sediment Control Plans**
- **Structural Takeoff Sheets**
- **Original Foreman Estimate**