Kimberton Elementary School

East Pikeland Township, Chester County, Pennsylvania

Technical Report 1

Construction Project Management

Consultant: Dr. John Messner

Monday September 29th, 2008

Ralph Gary Kreider

2009 Construction Option

http://www.engr.psu.edu/ae/thesis/portfolios/2009/rgk5000/

Kimberton Elementary School

East Pikeland Township, Chester County, Pennsylvania

Building Statistics:

- **Size:** 104,000 sq ft – Two Stories
- **Construction:** July 2008 – Jan 2010
- **Construction Cost:** $25.5 Million
- **Delivery Method:** Design-Bid- Build with Multiple Prime and CM Agency

Architecture:

- 650 students Elementary
- Two main wings: Classroom and Activities
- 30 750 SF classrooms
- 2 computer labs
- 3000 SF media center
- 650 seat auditorium/cafeteria
- 6000 SF gymnasium with full basketball and volleyball courts

Building Envelope:

- Masonry Veneer Exterior
- Split face block on first floor
- Green cementitious siding used on second floor
- Asphalt shingled gabled roof on top of the classrooms, media center, gymnasium, and entry
- White single-ply membrane flat roof on remainder of building

Structural:

- Structural Steel Building
- 1.5" 20 GA composite deck with 2.5" of NW concrete
- Classroom live load is 40 PSF
- Most columns are HSS8x8x1/2
- Spread footing support columns
- First floor is 4" cast-in-place concrete slab with 6x6 W2.9xW2.9 WWF

Mechanical:

- Water source heat pump
- Individual heat pumps for each classroom housed in the second floor mechanical room
- 6 water source heat recovery units manufactured by Des Champs housed on the roof
- Originally designed as geothermal heat pump

Electrical:

- Disturbed through building at 480/277V
- Supply Voltage is 33KV
- 5 Local Transformers step down to 208/120V
- Lighting uses 277V
- 125 KW Backup Generator
- 40 panel boards located throughout school

Lighting:

- 59 lighting types
- Classrooms use 3 32W T8 lamps
- Switching allows for 3 light levels
- The media center contains pendent and drop lights
- Gymnasium lighting is produced by high bay fluorescents
- Cafeteria/auditorium has dimmable metal halide lights

Project Team:

- **Owner:** Phoenixville Area School District
- **Construction Manger:** Foreman Program and Construction Managers
- **Architect:** Gilbert Architects
- **Structural:** Baker, Ingram, & Associates
- **M.E.P.:** Snyder Hoffman & Associates

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Executive Summary

During the summer of 2005, Phoenixville Area School District decided to hire an architect and construction manager for the construction of a new elementary school. Because of enrollment projections and to replace the aging East Pikeland elementary school, the school district decided to build a 650 student elementary school on a fallow site next to the Kimberton Fair Grounds. This school was originally proposed to be open for the 2008 school year but because of delays due to site containments, the proposed completion date was pushed back to January 2010. The school was prepared to pay $26 million for the construction but because of delays that number was closer to $30 million. The cost of construction including all fees was $27.7 million ($270 dollars per square foot) plus $2 million for the site. The construction alone without fees is $22 million and $25.5 million with fees. These numbers are comparable to D4Cost and RS Means Square Foot Estimates preformed today.

The site will have to be grub and the site closure plan will have to be completed before any major work on this site can be completed. Spread footings support the structural steel for the building. The footings for this building will be placed using traditional forming methods and pumped into place and then machine vibrated. The building's walls are made up of mostly CMU except metal studs are used in several locations. The exterior of the building contains a CMU veneer as well as cementitious siding. The mechanical system of the building is an all air system with individual water source heat pumps to heat each zone. There are also various heat recovery units, roof top units. The system is dependent on two boilers and single cooling tower. Kimberton is protected by an active automated fire extinguishing system with each sprinkler head having no more than 130ft of coverage. Fire walls separated the building in two and protect area of vertical movement. The elementary school distributes 240/277V throughout the building and steps it down to 208/120v using 5 transformers throughout the building. The building is backed by a 125 KW generator.

The site of Kimberton is complicated by the site closure plan. The 3.85 acre area of the closure plan will be a retention pond and should not delay the construction of the building once ground is broken. The main access for construction will be from Route 113. There are no fire hydrants on site however the fire hall is on the neighboring property. Existing utilities are under Cold Stream Road and will be supplied to the elementary school via the service drive between CJ tire and Emery Oil to the mechanical room on west side of the building. There are no buildings in the area that will interfere with construction. Overall the site is relatively open and should allow for plenty of lay down area.

The Kimberton project is being delivered with a design-bid-build method with 15 multiple prime contracts and a construction management agency overseeing. Each Contract is held by the owner (Phoenixville Area School District). The construction manager will run the day to day management of the project and the school will release the payments. Foreman Program and Construction Managers plan to staff the job with a project manager and site manager. The FPCM will act as the liaison between prime contractors, architect, and owner.

Please note: Because this project was never completed, a percentage of the information contained in this report is based on what was planned or typically would have happened had this project gone forward. Throughout this report different tenses may be used as if the project is still going to be completed. Please ignore these inconsistencies as the project will not be completed. The chain of events that lead to the abandonment of the project will be analyzed in future reports.

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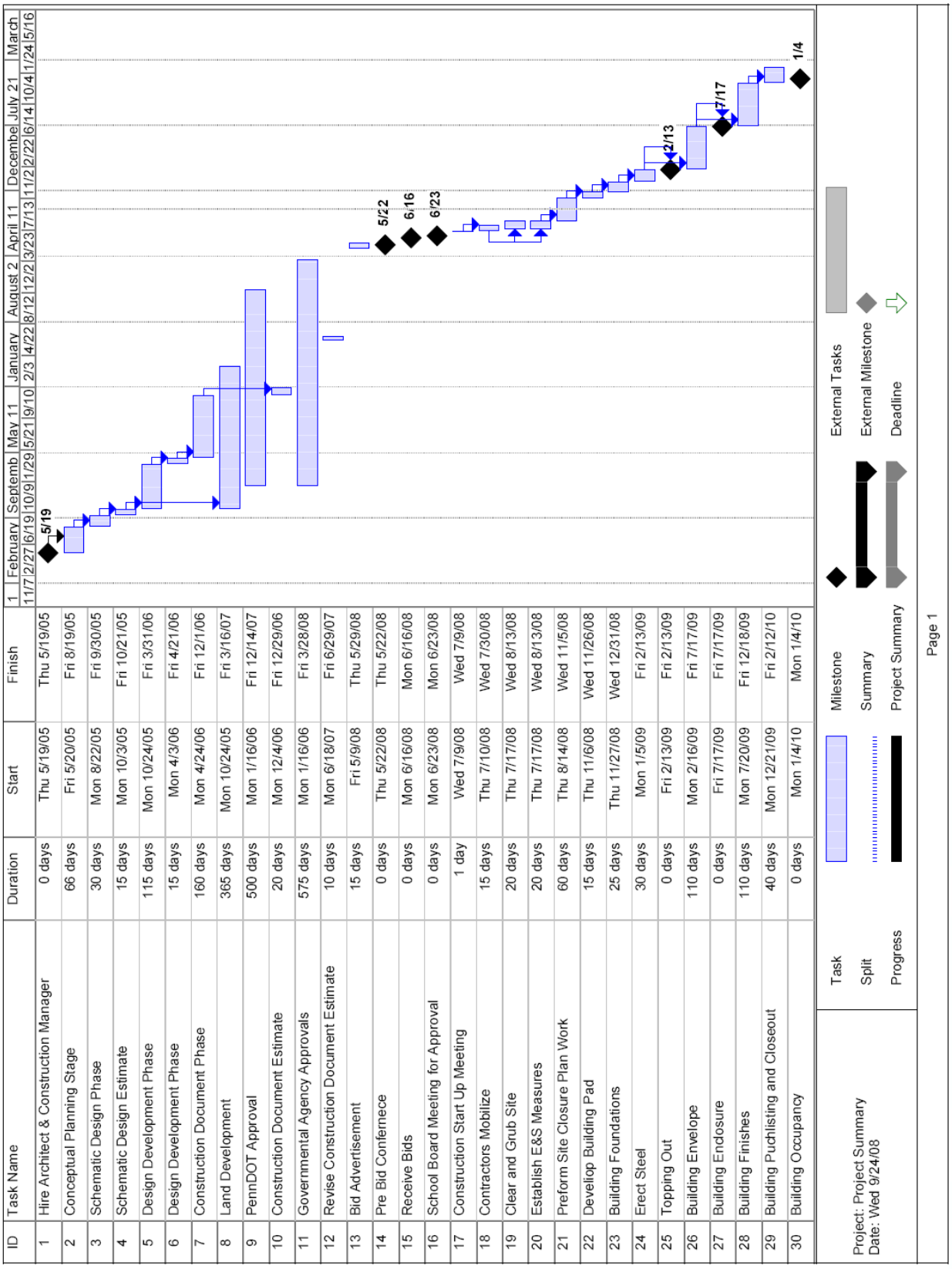
Ralph Kreider
Construction Option: Messner

Project Schedule Summary

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	Design Development Phase	15 days	Mon 4/3/06	Fri 4/21/06
7	Construction Document Phase	160 days	Mon 4/24/06	Fri 12/1/06
8	Land Development	365 days	Mon 10/24/05	Fri 3/16/07
9	PennDOT Approval	500 days	Mon 1/16/06	Fri 12/14/07
10	Construction Document Estimate	20 days	Mon 12/4/06	Fri 12/29/06
11	Governmental Agency Approvals	575 days	Mon 1/16/06	Fri 3/28/08
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	Clear and Grub Site	20 days	Thu 7/17/08	Wed 8/13/08
20	Establish E&S Measures	20 days	Thu 7/17/08	Wed 8/13/08
21	Preform Site Closure Plan Work	60 days	Thu 8/14/08	Wed 11/5/08
22	Develiop Building Pad	15 days	Thu 11/6/08	Wed 11/26/08
23	Building Foundations	25 days	Thu 11/27/08	Wed 12/31/08
24	Erect Steel	30 days	Mon 1/5/09	Fri 2/13/09
25	Topping Out	0 days	Fri 2/13/09	Fri 2/13/09
26	Building Envelope	110 days	Mon 2/16/09	Fri 7/17/09
27	Building Endosure	0 days	Fri 7/17/09	Fri 7/17/09
28	Building Finishes	110 days	Mon 7/20/09	Fri 12/18/09
29	Building Puchlisting and Closeout	40 days	Mon 12/21/09	Fri 2/12/10
30	Building Occupancy	0 days	Mon 1/4/10	Mon 1/4/10



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Kimberton Elementary School

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Key Elements of Construction Sequences:

Foundation Sequence:
This would be a logical sequence of work for the foundation. The foundation starts in the mechanical room with the spread footings. Each spread footing will have to be formed up, and rebar will be placed, then poured. After that, they will pour each of the footings working towards the classroom wing. Then they will remove the form work. After the formwork can be removed from each of the spread footings, the concrete contractor will form up the wall footings in between the spread footing. These will require two sides of formwork and the rebar will be place in between the two sides. Once the rebar is placed, the concrete will be poured. After a few days of curing the formwork is removed. After the wall footings are placed, the concrete contractor will begin to form the piers that are required on several of the columns. These will be filled with the required rebar and the concrete will be poured. Then formwork is removed. All of the concrete will be placed directly from the truck or will be pumped to the location whichever is easiest. This completes the majority of the foundation work.

Structural Sequence:
The structural steel will be delivered as the foundations are being poured. There is plenty of shakedown area around the future bus turn around and parking lot that space should not be a problem. The structural steel will follow the foundation. It will be placed starting at the mechanical room and working towards the classroom wing. The crane will be located relocated as little as possible along the way. First the steel plates will be put on top of the piers or spread footings at each column location. Then the columns will preliminary be bolted in place to allow for later plumbing. As the columns are placed the beams will be placed (hopefully with multiple beam picks to increase efficiency) in between the columns where they will be preliminarily bolted as well. The beams and columns will then be plumbed and aligned. After plumbing and aligning the steel beams, the second floor deck and roof deck will be bolted or welded to the beams. The shear studs will also be welded in place at this point. Before the concrete can be placed, all of the embeds will need to be placed on the deck. The basic structure will be finished when all the concrete floors are poured (slab on grade and slab on metal deck).

Finish Sequence:
This building will not require as much drywall finishing as do many buildings. However, there is a large amount of interior masonry. This will proceed in the same fashion as the rest of the building starting in the mechanical room area and moving towards the classrooms. The masons placing the CMU will be followed by the concrete slab on grade (with all embeds coordinated). This will require a little coordination because some of the CMU needs to be placed before the slab on grade while other CMU is placed on top of the slab on grade. Also the MEP trades need to rough in inside many of these CMU walls. After the mason has finished, the drywall contractor will place all of the metal studs and allow for the MEP trades to rough in their work. Most of the metal studs are located inside the administration area and on the second floor in the classroom wing. After the metal studs and rough in is completed, they can begin to hang and finish the drywall on top of the studs. As area becomes available then the painter can move and begin to finish them. After painting takes place, the ceiling grid can be hung and light fixtures, registers, speakers, and ceiling tile can be dropped. This is also the time that the most of the devices, fixtures, cabinets, etc. will be installed. After all of that is complete, we can put the floor down in place and the building (besides odds and ends) is complete.

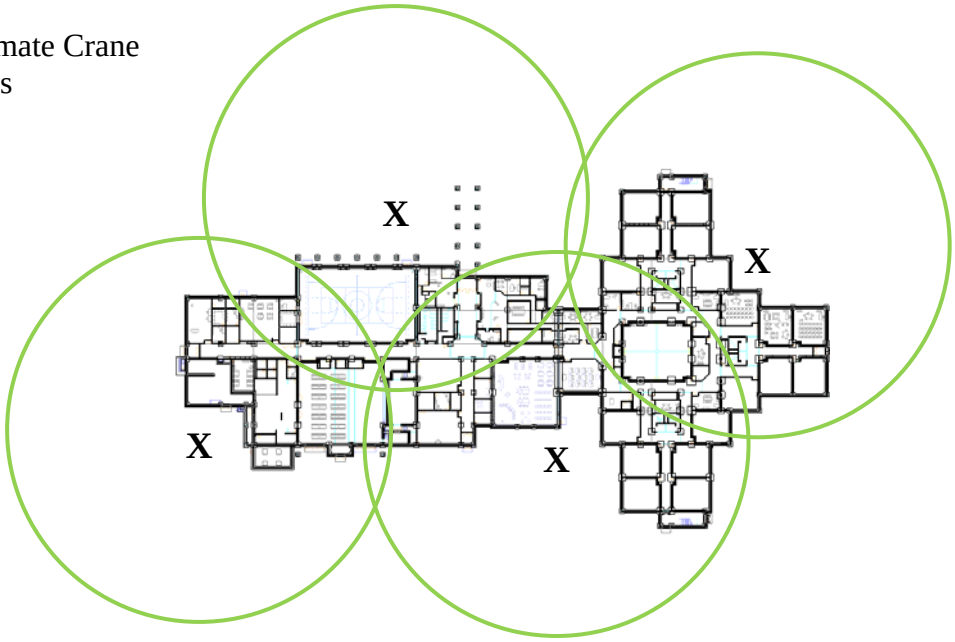
Yes/No	Work Scope (If yes, address these questions / issues)
Yes	**Demolition Requirements** A large amount of trees will have to be removed from site and those over 6 inches in diameter will have to be replanted. Basic grubbing of the site. There is also a large site closure plan for the Kimberton Elementary School Property. It involves a large amount of excavation and fill to mitigate the risk to the occupants of the site. The area of Closure Plan is located on the northwest corner of site. It is approximately 3.85 acres. At its largest extents it's about 400ft by 460 ft. The fill area is the entire 3.85 acres and ranges between 10 and 4 feet deep. The excavation area is approximately 61,000 SF and the maximum depth of the remediation area is approximately 10 ft below grade until the bedrock layer is reached. The estimated volume of excavation matter is 8,425.4 cubic yards (CY). One third (2,125 CY) of the volume is thought to be native soil and can be used for clean fill. The remaining 6,300 CY will be removed from site and treated.
Yes	**Cast in Place Concrete** The large majority of the concrete in Kimberton Elementary is in the foundation and first floor. Spread footings support the steel structure. Most footings range from 4x4 to 10x10 and have a depth from 1 foot to 2.333 feet. The exterior walls are supported by a foundation wall that is 1 foot deep at most locations throughout the building. A 4" cast in place concrete slab with 6x6 W2.9xW2.9 WWF on 4" of drainage fill with a high grade vapor barrier is used as the ground floor on most of the building. The second floor also has a concrete deck that is 1.5 inches thick topped with 2.5 inches of standard weight concrete. The concrete is placed directly from the truck or pumped to various locations throughout the building. The concrete once placed, will be vibrated with a mechanical vibrator to ensure that the aggregate has settled properly.
Yes	**Structural Steel Frame** The structural system for Kimberton Elementary School is structural steel. The floor system is a 1.5 inch 20 gauge composite deck with 2.5 inches of normal weight concrete topping. The deck concrete is reinforced with 6x6-W2.1xW2.1 WWF. The total floor thickness is 4 inches. The roof is also covered by 1.5 inches of 20 gauge type B steel deck which it protected from the weather by either asphalt shingles or a single ply membrane. The steel members supporting the 40 pounds per square foot live load of the classrooms are W18x40 steel I beams spanning approximately 32 feet at a 5.5 foot spacing. W27x84's support the multi-room classrooms which span 50 feet at a 5 foot spacing. Most of the roof is supported by K-series joists. Non-standard Gable Shaped LH Joists span the 54 feet over the media center. Over the cafeteria 44LH15 joist span 72 feet. The gym roof is supported by custom designed gable trusses that span 64 feet. These trusses are cross-braced with W8x15. The majority of the steel structure is supported by HSS8x8x1/4 columns. The corners contain HSS8x8x1/2 columns. At various locations throughout the building there are HSS12x8x5/8 columns. W8x24 columns support the wood trusses of the main entrance canopy as well as various other entry roofs around the building.

The steel structure of this building is temporarily braced to maintain that the framing is safe, plumb and in true alignment. Typical a contractor would use steel cables to cross brace the structure until all final connections were made. The cables would be place diagonal between columns to maintain square. The cables would be maintained until the final supporting structure has been erected. Kimberton will be supported from moment forces by CMU sheer walls throughout the building. The roof trusses will be lateral braced between using steel angles.

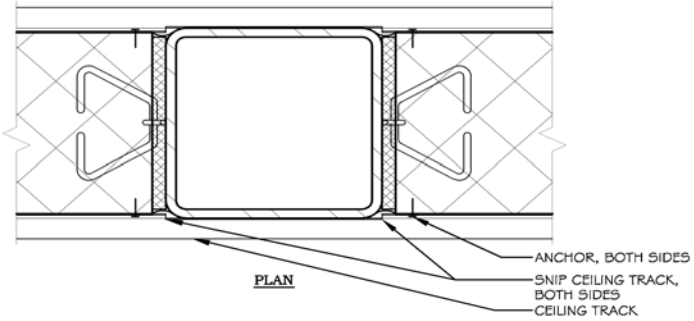
The erection of the steel would be done by a standard crawler crane. The steel would be erected starting near the mechanical room. Based on logic of crane placement total of four picks will be used. The first pick will be in the southwest corner outside the mechanical room and kitchen. The second pick will be next to the gym and main entrance. The third pick will be in the southwest corner of the classroom wing, located outside the media center. The final pick will be in the northeast corner of the building to erect the remaining section of the classroom wing.

Based on my calculation of the largest lift on this job being the steel trusses for the gym, a Manitowoc model 8000 crawler crane would easily be able to lift all of the steel lifts for this job. The Gym truss weighs 6750lb and with a 20% safety factor that weight is 8100lbs. The furthest lift for the building is approximately 100 ft. (the lift for the gym truss will be only about 75 feet). For extra safety, the critical pick was calculated at 105 feet. The height of the building should not be a factor because it only raises 30 feet at the highest point but for added safety a boom angel of 40 degrees was assumed. The crane boom will be far above the 30 feet. At the critical lift the Model 8000 is able to pick 8.5 tons at 105 feet and a boom length of 160 feet. The Manitowoc Model 8000 is rated at 80 ton lift capacity and has a 200' foot heavy lift boom.

Approximate Crane Locations



No	**Precast Concrete:** There are no large amounts of precast concrete on Kimberton Elementary that need to be considered above and beyond normal construction.
Yes	**Mechanical System:** The mechanical system of Kimberton was originally proposed as a geothermal heat pump system. This was scratched however because of contaminated groundwater under the site and contaminated soil in the northwest corner. The system was instead changed to a water source heat pump. Each room is served by its own water source heat pump which average about CFM of 1200 to 690 and having a cooling capacity of on average of 26 MBH. The media center has its own roof top unit which has a 3000 CFM, 82 MBH cooling and 80 MBH heating capacity. Most of the classroom heat pumps are housed in the second floor mechanical room. These individual heat pumps allow for localized temperature setting without the need for reheat which increase efficiency. 6 water source heat recovery units are on top of the roof to provide cooling and heating for the 104,000 sq ft building. The Des Champs manufactured classroom HRUs provide a total of 761 MBH cooling, 457 MBH heating, and about 20,000 CFM and are housed on the mechanical mezzanine. The remaining 4 HRUs serve the activities wing of the building are above the cafeteria and have a 706 MBH cooling, 424 MBH heating and 18,000 CFM. The heat recovery units supply all of the outside air to the individual heat pumps. Each heat recovery unit has an energy wheel to help the efficiency of the entire HVAC system. The system is dependent on two boilers and single cooling tower The heating and cooling for the building is distributed almost 100% all air from the individual heat pumps and roof top units. Each unit is also connected to a cold water supply and return from the main cooling tower. The mechanical rooms are located in the southwest corner of the building as well as on the eastern second floor. **Fire Suspension System:** Kimberton Elementary has an active automated fire extinguishing system and smoke detectors throughout the building. The building is equipped with audio/visual fire alarms in every classroom, gymnasium, cafeteria, etc. and all corridors. The school contains only quick response rated heads that have a maximum coverage of 130 ft. Each Classroom contains nine concealed pendent heads and the concealed hallway heads are place about every twelve feet. Various other types of heads are used throughout the larger assembly areas. There are very few fire walls around located in Kimberton Elementary. There is a major two hour fire rated wall between the classroom wing and activities wing. The walls around the stairwells have a one hour fire rating. The elevator is also required to have one hour fire rating. Around the electrical, storage, and vertical shafts there are smoke partitions. All fire walls are required to go from floor to deck.

Yes	**Electrical System** The elementary school gets its power from electrical lines under the nearby cold stream road. The power is stepped down from 33KV to 480/277V in a PECO transformer outside the building. The lines then run underground into the main electrical room and main switchboard which is in the southwest corner (plan east) of the building. The power is distributed throughout the building at 480V/277V and is stepped down to 120/208V using 5 transformers. One main transformer is located in the main mechanical room while the other main transformer is located in an electrical closet in the classroom wing. Most of the lighting is powered by 277V and is not stepped down from the PECO supplied power. There are 40 panel boards throughout the building to power the lighting, receptacles and various types of equipment. The emergency circuit is power by a 125 KW backup generator that serves only a single light from each classroom and various lights throughout the corridors. There are also three other panel boards powered by the emergency generator. These panel boards power all the refrigeration units, emergency systems (fire, security, intercom, and telephones), and various receptacles throughout the building.
Yes	**Masonry** All the masonry walls in Kimberton Elementary are non-load bearing. Most first floor interior walls are made up of standard 8x8x16 CMU block. The exterior walls on the first floor are made up of a CMU wall with a CMU veneer on the exterior. The masonry veneer has four different types of finish that are used at various locations throughout the building. A darker split face block is used above ground level. Above the darker split face block on a number of facades is a tan sand blasted CMU veneer. The different facades are transitioned between by a ground face almost white CMU veneer The standard CMU is tied to the steel columns every 16 inches vertically using standard masonry to steel connections that allow expansion and contraction at different rates. The Masonry veneer is tied to CMU wall standard masonry dovetail connection strips. It is connected at least every four course in various locations to the CMU wall  Because the maximum height of the building is about 30 feet above final grade, standard scaffolding will be used on this building. Hydraulic scaffolding or other methods are not necessary. The material will be staged using a standard masonry petty bone.

Ralph Kreider
Construction Option: Messner

No	**Curtain wall** There is no major curtain wall on Kimberton Elementary School. There is a large storefront entry at the main entrance, as well as large windows in the media center and cafeteria. They are all made of aluminum framed glazing that have been designed by the architect and will be field verified and fabricated in the window contractor's shop.
No	**Support of Excavation** No large amount of below grade excavation will have to take place. The deepest trenches are around five feet and will not be supported. If they have to go deeper, the contractor will simply use step backs to ensure the safety of the personnel working in the trenches. The deepest foundation for the building is approximately six feet below final grade. These areas will have a series of step back and will be back filled after the building foundation is complete and inspected.

Project Cost Evaluation

Please note: Because this project was not completed, this information is a combination of estimates and actual bid data. While great effort was made to interpret this data correctly some interpolation was necessary because of the contract style.

Actual Building Construction Cost (CC)(estimated):

- $19,600,000 Bid Building Cost (Total Building Cost – Site Work)
- $190 /SF ($19,600,000/103,000 sq ft)

Total Project Cost:

- $27,700,000 Bid Project Cost (total building cost including site plus Arch and CM fees)
- $270 / SF ($27,700,000/103,000 sq ft)

Building Systems Costs (Cost and Cost/SF)

Building Systems	Cost	Cost/SF	Notes
Concrete	$665,339	$6.46	From FPCM Estimate
Masonry	$2,207,741	$21.44	From FPCM Estimate
Structural	$2,099,224	$20.39	From FPCM Estimate
HVAC	$3,100,447.00	$30.11	From Low Bid Contract
Plumbing	$1,251,384.00	$12.15	From Low Bid Contract
Fire Protection	$368,643.00	$3.58	From Low Bid Contract
Electrical	$2,653,131.00	$25.76	From Low Bid Contract
Data	$316,030.00	$3.07	From Low Bid Contract
Flooring Finishes	$781,052	$7.58	From Low Bid Contract
General Conditions	$896,768	$8.71	From FPCM Estimate

Prime Contract Break Down

	Prime Contract	Final FPCM Estimate	Low Base Bids	Low Bidder Based on Base Bid
1	GENERAL CONSTRUCTION	$14,600,530.00	$14,087,000.00	Miller Bros.
2	ROOFING	$988,049.00	$997,764.00	J.M. Young & Sons
3	ALUMINUM ENTR AND WIND	$411,968.00	$389,791.00	Glass Erectors
4	CERAMIC AND QUARRY TILE	$532,665.00	$578,600.00	Roman Mosaic.
5	ACOUSTICAL AND DRYWALL	$955,738.00	$1,058,700.00	All Walls and Ceilings
6	RESILIENT FLOOR & CARPET	$248,387.00	$240,776.00	DeGol Brothers
7	PAINTING	$208,553.00	$174,700.00	Thomas Painting .
8	VISUAL DISPLAY	$128,207.00	$97,850.00	Thoma Inc.
9	FOOD SERVICE EQUIPMENT	$338,568.00	$316,500.00	Clark Food Service Equip.
10	GENERAL CASEWORK	$443,810.00	$349,800.00	Polyvision, Inc
12	PLUMBING	$1,251,384.00	$1,013,000.00	Frey Lutz Corp.
13	FIRE PROTECTION	$368,643.00	$398,125.00	Wayman Fire Protection
14	HVAC	$3,100,447.00	$3,265,000.00	Frey Lutz Corp.
15	ELECTRICAL	$2,653,131.00	$2,249,000.00	Silas Bolef
16	DATA CABLING	$316,030.00	$320,600.00	Atlantic Coast Comm
	TOTAL	**$26,546,110.00**	**$25,537,206.00**	**-$1,008,904**

Summary of the low bidders on the multiple prime contracts. These are the amounts that the contract would have been signed at, had the project continued.

Comparison Between FPCM and Contractor Estimate					
Code	Division Name	%	Sq. Cost	Estimated	Contractor
1	General Requirements	4.01%	$8.71	$896,768	$1,043,198
2	Site Work	24.95%	$54.19	$5,579,788	$6,490,893
3	Concrete	2.97%	$6.46	$665,339	$773,980
4	Masonry	9.87%	$21.44	$2,207,741	$2,568,236
5	Metals	9.39%	$20.39	$2,099,224	$2,441,999
6	Wood & Plastics	0.92%	$2.00	$205,625	$239,201
7	Thermal & Moisture Protection	4.62%	$10.03	$1,032,945	$997,764
8	Doors & Windows	2.71%	$5.90	$607,177	$389,791
9	Finishes	5.51%	$11.96	$1,231,545	$2,052,776
10	Specialties	1.67%	$3.63	$373,470	$434,453
11	Equipment	1.58%	$3.42	$352,382	$414,350
12	Furnishings	3.05%	$6.63	$682,430	$349,800
14	Conveying Systems	0.37%	$0.79	$81,700	$95,041
15	Mechanical	17.18%	$37.31	$3,842,035	$4,676,125
16	Electrical	11.22%	$24.37	$2,509,525	$2,569,600
	Total Building Costs	100.00%	$217.21	$22,367,694	$25,537,206
	with Profit and Overhead			$25,671,110	$25,537,206
	Total Building Costs minus site	100.00%	$195.11	$20,091,322	$19,046,313

Building Cost per CSI MasterFormat based on Forman Program and Construction Managers original estimate before escalation. This estimate is compared to the prime contractor's low bids. Note: the contracts for the prime contractors are not divided strictly based upon the CSI MasterFormat, some interpolation was necessary.

Parametric D4Cost Estimate:				
Code	Division Name	%	Sq. Cost	Projected
00	Bidding Requirements	1.27	2.75	283,217
01	General Requirements	2.81	6.08	626,631
02	Site Work	6.36	13.76	1,417,733
03	Concrete	2.90	6.27	646,306
04	Masonry	11.20	24.22	2,494,976
05	Metals	6.62	14.31	1,473,908
06	Wood & Plastics	1.04	2.26	232,443
07	Thermal & Moisture Protection	4.64	10.05	1,034,760
08	Doors & Windows	3.05	6.59	678,591
09	Finishes	5.61	12.12	1,248,803
10	Specialties	1.90	4.12	424,124
11	Equipment	2.40	5.19	534,256
12	Furnishings	1.29	2.79	287,692
13	Special Construction	0.64	1.38	141,704
14	Conveying Systems	0.30	0.66	67,614
15	Mechanical	13.56	29.33	3,020,840
16	Electrical	9.17	19.84	2,043,622
21	Fire Suppression	0.56	1.20	123,683
22	Plumbing	2.62	5.67	583,912
23	HVAC	4.73	10.22	1,052,984
26	Electrical	6.79	14.68	1,511,675
27	Communications	0.03	0.06	6,197
31	Earthwork	3.98	8.60	885,541
32	Exterior Improvements	3.44	7.43	765,291
33	Utilities	3.10	6.70	690,428
	Total Building Costs	100.00	216.28	22,276,931

Project Cost Evaluation

Kimberton Elementary School Square Foot Building Estimate

RS Means Source:	Year: **2007**	Model #:	**M.560**
Page(s):	**80-81**	Ext. Wall Type:	**Decorative Concrete Block**
Area:	**102583 (From Revit Model)**	Frame:	**Steel Frame**
Perimeter:	**2642.9 (From Revit Model)**	Story Height:	**14**

The Area fall between:	**above**	and	**65000**
		Base Cost per Square Foot:	**$105.40**

Cost Adjustment Type:	**Perimeter Adjustment**	Per SF Adj.	**$9.23**
Cost Adjustment Type:	**Story Height Adjustment**	Per SF Adj.	**$1.30**
		Adjusted Base cost Per Square Foot:	**$115.93**

Base Building Cost:	**$115.93**	x	**102583**	=	**$11,892,577.08**
Basement Cost:	**none**	x		=	
				Total Cost:	**$11,892,577.08**

RS Means Additions

Additions	**Clock System (50 Room)**	Amount:	**$33,200.00**
Additions	**Flagpole (Aluminum 40' High)**	Amount:	**$3,025.00**
Additions	**Kitchen Equipment (Broiler)**	Amount:	**$6,700.00**
Additions	**Kitchen Equipment (Cooler)**	Amount:	**$8,550.00**
Additions	**Kitchen Equipment (Dishwasher)**	Amount:	**$4,225.00**
Additions	**Kitchen Equipment (Food Warmer)**	Amount:	**$4,800.00**
Additions	**Kitchen Equipment (Freezer)**	Amount:	**$8,550.00**
Additions	**Kitchen Equipment (Ice Cube Maker)**	Amount:	**$1,500.00**
Additions	**Kitchen Equipment (Range)**	Amount:	**$8,700.00**
Additions	**Classroom Chairs (700 Set)**	Amount:	**$84,000.00**
Additions	**Sound System (Amplifier)**	Amount:	**$2,050.00**
Additions	**Sound System (ceiling or wall) ~50**	Amount:	**$8,250.00**
		Total Cost:	**$12,066,127**

Multiplier Type:	**Location (West Chester)**	Value:	**1.07**
Multiplier Type:	**Time (.04+.04 Approximated)**	Value:	**1.08**

Allowances:			
Addition:	**none**	Amount:	

Total Square Foot Estimate for Building: **$13,943,616.45**

Project Cost Evaluation

RS Assembly Estimate Based on Square Foot			
Assembly	**% of Total**	**Cost per SF**	**Total Cost**
A Substructure	**11.0%**	**$14.95**	**$1,533,797.81**
B. Shell			
B10 Superstructure	**4.5%**	**$6.12**	**$627,462.74**
B20 Exterior Enclosure	**8.5%**	**$11.55**	**$1,185,207.40**
B30 Roofing	**5.4%**	**$7.34**	**$752,955.29**
C. Interiors	**25.7%**	**$34.93**	**$3,583,509.43**
D. Services			
D10 Conveying	**0.0%**	**$0.80**	***$81,700.00***
D20 Plumbing	**6.1%**	**$8.29**	**$850,560.60**
D30 HVAC	**21.8%**	**$29.63**	**$3,039,708.39**
D40 Fire Protection	**2.3%**	**$3.13**	**$320,703.18**
D50 Electrical	**14.6%**	**$19.85**	**$2,035,768.00**
E. Equipment & Furnishings	**10.0%**	**$13.59**	**$1,394,361.65**
F Special Construction		**$3.90**	***$400,000.00***
G. Building Sitework		**$50.49**	***$5,179,788.00***
Additions			
Jobsite OH & GC's	**18** Time (# months)	**$49,820.44** Monthly Cost	**$896,768.00**
Subtotal			**$21,882,290.48**
Contractors Fee		**10%**	**$2,188,229.05**
Designer's Fee		**6%**	**$1,312,937.43**
		Total Cost of Building	**$25,383,000**

Note: Conveying, Special Construction, and Site Work were not included in the RS Means Square Foot Estimate. These numbers are taken from the Foreman Program and Construction Managers Detailed Estimate

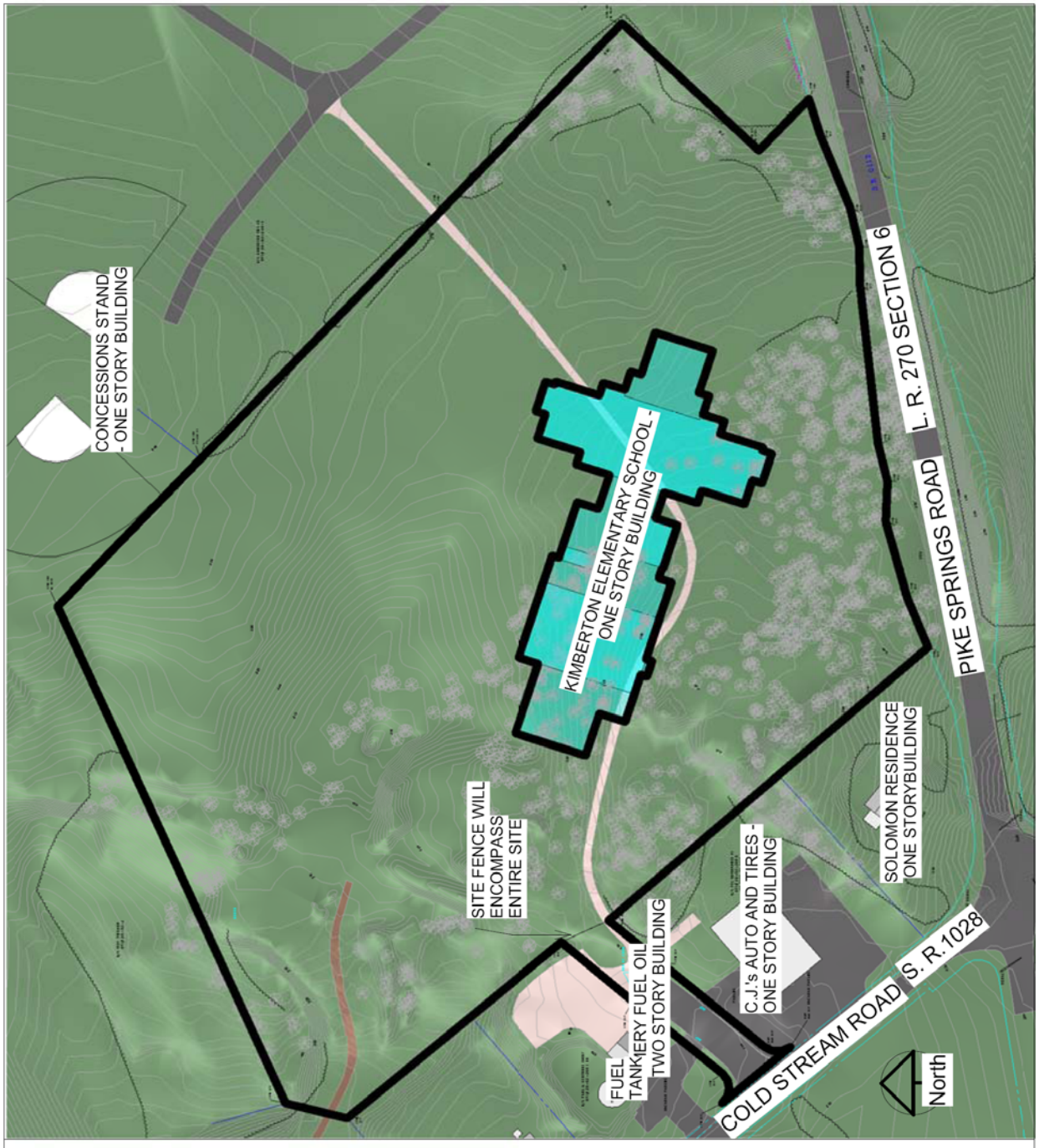
First off, it is important to discuss that there are no actual building costs for Kimberton Elementary because it was never built. The closest to actual building cost and what will be used for actual building cost in this report are the bids of the low bidders on the project. These bids, however, are difficult to analyze because they are not broken down into the CSI Master Format. Foreman's original estimate without escalation and the contractor's low bids are within $150,000 of each other. So therefore, I will use this original building systems estimate to compare it to the RS Means and D4Cost estimates.

The D4Cost cost estimate does not include profit and overhead and therefore is very comparable (less than $100,000) to the FPCM estimate (without profit and overhead). It seems that the D4 cost estimate severely underestimates the electrical and mechanical systems of the building (approx. $1 million each).

Without making any modifications to the RS Means square foot estimate. The RS Means without modifications the square foot estimate is about $14 million which is about $8 million less than the FPCM estimate. If the site work, elevator and special construction (site closure plan) are added into the RS Means square foot estimate, it makes the two estimates without profit and overhead within $500,000 of the FPCM estimate. With profit and overhead added, the difference is less than $300,000.

Overall the estimates were all very similar. This is most likely due to the fact that Kimberton Elementary is pretty much a spec elementary school. There are not many modifications to it that make it more expensive than other elementary schools. There were several differences between the different assemblies in the estimates but these seemed to balance out in the end.

Site Plan of Existing tConditions



Phoenixville Area School District	Kimberton Elementary School	Existing Site Plan	
		Project number 3279	C2
		Date May 9, 2008	
		Drawn by Ralph G. Kreider	
		Checked by Ralph G. Kreider	Scale 1" = 160'-0"

Kimberton Elementary School
East Pikeland Township, Chester County, PA

Ralph Kreider
Construction Option: Messner

Site Plan of Existing Conditions

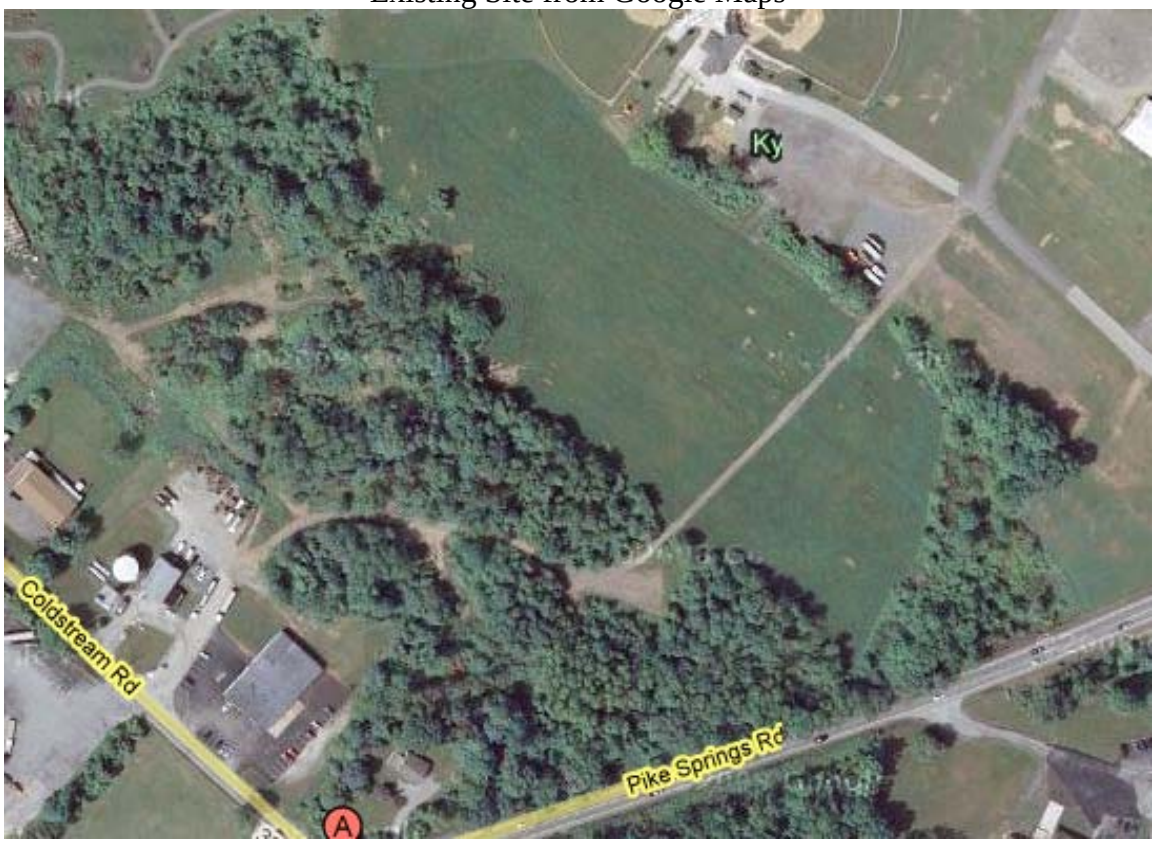
Notes on site plan: At present scale, it is impossible to have everything that is required in the site plan check list. Addition full scale site plans are included in the appendix(3-5) of this report. Kimberton is a two story building located in the lower half of the 19.8 acre site. All Existing Utilities run underneath Cold Stream Road and Pike Springs Road (Route 113). There are no utilities underneath the proposed site of Kimberton Elementary School. The new water, gas, electrical, and communication lines for the school will run underneath the service road between Emery Oil and CJ Tire. The lines will run into the southwest corner of Kimberton Elementary. (See CMX utility plan for details.) There are no fire hydrants or temporary lights on site, however the fire department is located on the neighboring property. There is currently no pedestrian traffic through the site and construction fences around the entire site will be used to prevent any unauthorized person to wonder on site. No overhead protection will be required. All roads surrounding the site are two way roads and the site will be accessed for construction directly from route 113.

Rendering of Current Site Conditions

Site Plan of Existing Conditions

Bird's Eye View of site (maps.live.com)

Existing Site from Google Maps



See appendix for additional site plans

Site Plan of Existing Conditions

One of the most important factors and areas of risk is the site closure plan for the Kimberton Elementary School Property. It involves large amounts of excavation and fill to mitigate the risk to the occupants of the site. Below is an section from the site closure plan to provide background and history of the proposed Kimberton Elementary School Site.

1.1 Site Background and History

The KES Property is located on the northeast corner of the intersection of Cold Stream Road and Route 113, in the Township of East Pikeland, Chester County, Pennsylvania. The property occupies approximately 19.8 acres and is currently undeveloped land; however, historical information indicates that open portions of the property were used for agricultural production. An estimated 3.85 acres in the northwestern corner of the property had been utilized by a construction firm (e.g., C. Raymond Davis) for storage, burning and disposal of construction-related materials, and a small section (approximately 2,000 square feet) reportedly had also been used by the Township to dispose of household municipal waste during the 1950s/1960s. A section of a former rail line also ran through the northwestern section of the property.

The property consists of open, grass fields on the eastern/northeastern two-thirds of the site and wooded areas cover the remainder of the property area. KES Property topography is primarily gently to moderately sloping; however, the northern/northwestern portion exhibits variable terrain, which resulted from historical filling operations. An unpaved access road divides the property and provides access from Cold Stream Road to the west and the Kimberton Fire Company property to the east.

In addition to the Fire Company, adjacent properties consist of municipal parkland to the north, residential and undeveloped land to the south, and commercial properties to the west. The current commercial tracts include Emery Oil, a collision auto repair facility, and unoccupied commercial properties. Farther west, across Cold Stream Road is the Henry Company, which currently manufactures asphalt products. The Henry Company property is the location of the Kimberton Superfund Site, which has been investigated by USEPA since 1981. A chlorinated solvent groundwater plume associated with releases from the Kimberton Superfund Site has impacted local groundwater and remedial actions and monitoring are continuing. The groundwater plume extends to one of the Superfund site monitoring wells (MW-17), which is located at the western KES property border.

Area of Closure Plan is located on the northwest corner of site. It is approximately 3.85 acres. At its largest extents, it's about 400ft by 460 ft. The fill area of the entire 3.85 acres and ranges between 10 and 4 feet deep. The excavation area is approximately 61,000 SF and the maximum depth of the remediation area is approximately 10 ft below grade until the bedrock layer is reached. The estimated volume of excavation matter is 8,425.4 cubic yards (CY). One third (2,125 CY) of the volume is thought to be native soil and can be used for clean fill. The remaining 6,300 CY will be removed from site and treated. See Appendix for Site Closure Plan Map

Methods of Construction:
The Chester County Area prefers the methods that would have been used to build Kimberton Elementary School. Most commercial buildings in the area are built with structural steel framing with a concrete spread foundation and slab on grade. Like most schools, the exteriors are veneered with either brick or spilt face block. The façade is backed up by either metal stud or CMU. Most schools have a flat EPDM roof. Kimberton has an EPDM roof in addition to a gabled shingled roof. Also like most other schools in Pennsylvania, this school will use a multiple prime method to deliver the project. Most other delivery methods in the area are construction managers at risk or general contractors.

Construction Parking:
Construction parking is available on site in what will be the future parking lots as well as the eventual soccer field. If parking is not available due to construction on these areas, contractors will be permitted to use the neighboring Kimberton fairgrounds.

Recycling and Tipping Fees:
Recycling is available at no extra cost from the waste management providers in the area. It is not a requirement of the project and therefore will be up to each contractor to implement on their own behalf. The tipping fees for the recycled product are the same as none recyclable waste.

Waste disposal for the project could have been handled by Waste Management. They charge $659 for week of rental of a 30 yard container. This quote includes removal of 5 tons of debris. An additional $73 dollars is charged per ton over 5 tons. A. J. Blosenski, Allied Waste - Valley Forge District, Ches-Mont Disposal can also be used in this area.

Soil/Subsurface water conditions:
The northwest corner of this site was used for municipal waste in the 50's/60's and construction waste until purchased buy the school district. This use creates the need for a site closure plan. Site additional information in the site plan section.

The soil at Kimberton is made up of four major types: Silty Gravel with Sand (GM), Silty Sand (SM), Sandy Silty Clay (CL-ML), Lean Clay (CL). Each varies in amount and location. All of the test boar samples came up dry. Therefore there will not be a problem with the water table and there will be no need to have any pumping of ground water. The top soil varies in depth from 2" to 6". Auger refusal was between 10 feet and 21 feet. It appears that there could be a some rock under the gymnasium and the cafeteria. This should not pose a huge concern because the depth of the foundation is rather shallow at those locations.

Ralph Kreider
Construction Option: Messner

Client Information

The owner of Kimberton Elementary School is the Phoenixville Area School District. As of 2006, the enrollment of the school district was 3,302. The school is located in the northwestern part of Chester county, PA and is home of the phantoms. The school encompasses an area of 19.5 square miles. At the last census 28,299 people lived in the district.

Phoenixville is building the new school to replace an aging East Pikeland Elementary. The School is one of three elementary schools in the Phoenixville area school district. The building was built as the East Pikeland Consolidated School in 1928. It was the first multiple room school in the township. It currently educates 1st through 5th grades. Additionally, studies were completed by the school district. Based on future enrollment projections as 650 student school was required. A 20% cushion was built into the enrollment number to allow for growth.

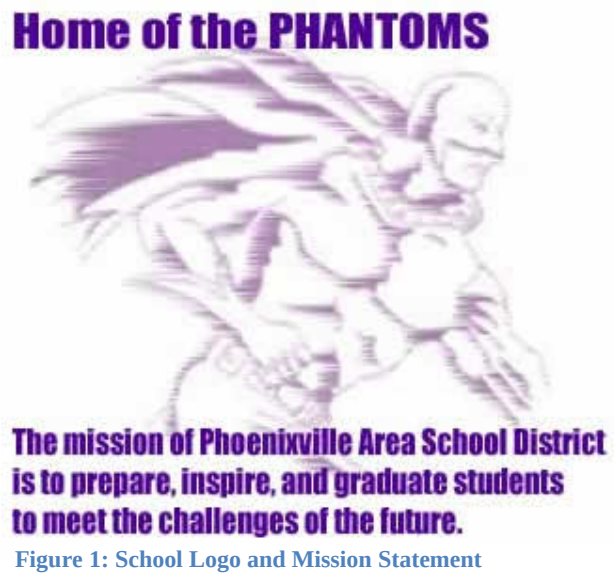


Figure 1: School Logo and Mission Statement

Figure 2: East Pikeland Elementary

When beginning the Kimberton project, the school district expected to have the entire project completed for about 26 million dollars and in time for the 2008 school year. However due to delays, the school was prepared to pay $30 million for the entire project at the time of construction. They expected the school to be open in January of 2010 to allow the temporary relocation of the Phoenixville Middle School while that building was being renovated. It was very important to have this building completed on time to allow for the middle school renovation to take place. The building will be occupied in one phase.

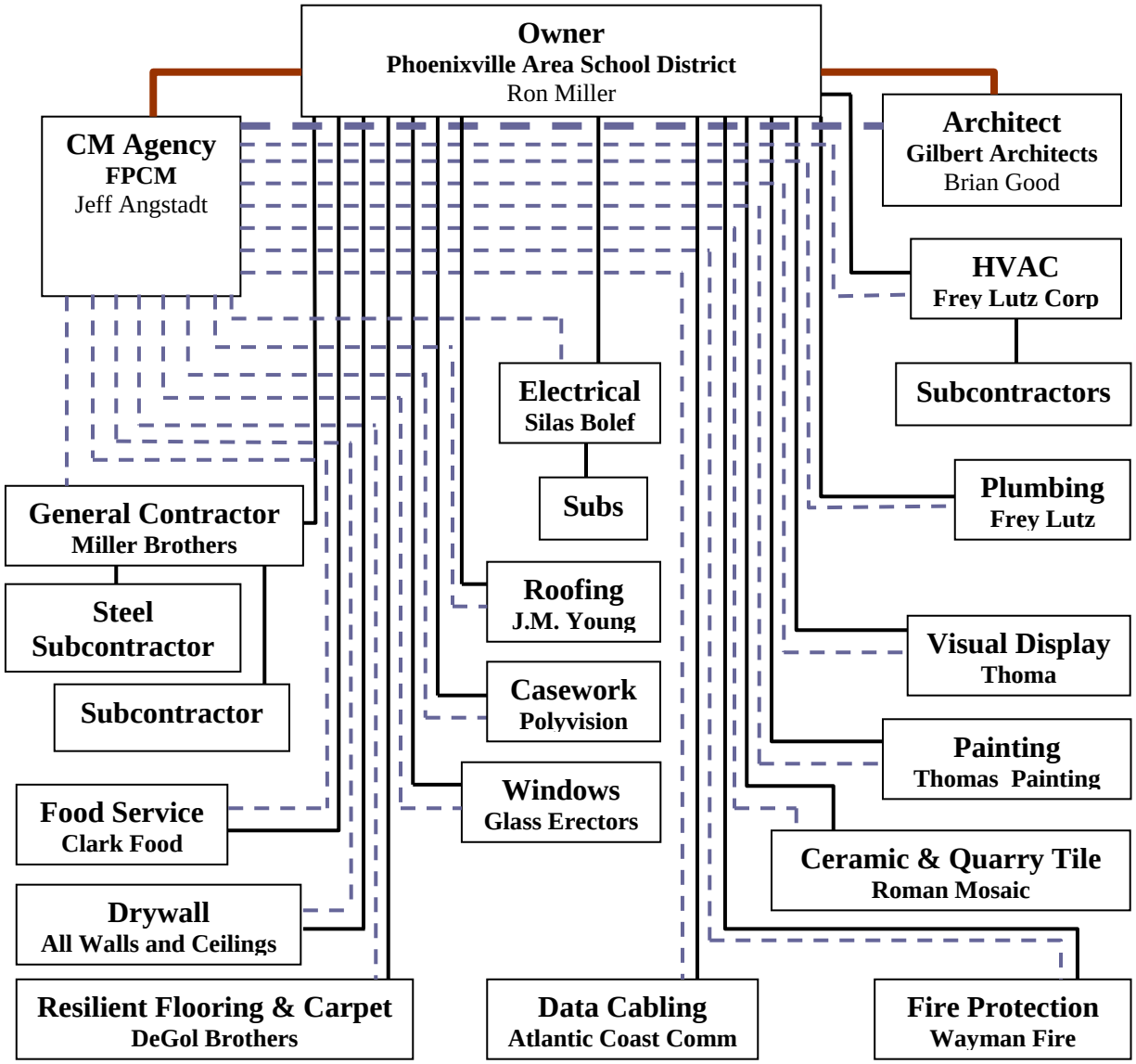
Figure 3: Aerial of East Pikeland Elementary (google.com)

The school desired a normal quality elementary school. They did not try to do anything too advanced but did try to incorporate a few green ideals without going LEED certified. Some examples of these are a white roof, solar panel and researched into the feasibility of geothermal heating. In order for this to be a successful project for the school it will need to have good specs, good drawings, minimal change orders, good end products, and most importantly all parties involved need to be satisfied especially the people of the township.

Project Delivery System

The project is being delivered using a design-bid-build method with multiple prime contracts and a construction management agency overseeing. The contracts are divided into 15 prime contracts: General Construction, Roofing Construction, Aluminum Entrances and Windows Construction, Ceramic and Quarry Tile Construction, Acoustical and Drywall Construction, Resilient Flooring and Carpeting, Painting Construction, Visual Display Construction, Food Service Equipment Construction, General Casework Construction, Plumbing Construction, Fire Protection Construction, HVAC Construction, Electrical Construction, Data Cabling Construction. Each Contract is held by the owner (Phoenixville Area School District). The construction manager will run the day to day management of the project and the school will release the payments.

Organizational Chart:



Solid lines in organizational chart are contractual agreements. Most major contractual agreements are between the owner and the parties. The thick solid lines are contracts made directly with the school and were not publicly bid. All other contracts were publicly bid. Each prime contractor is permitted to choose their own subcontractors. The dashed lines are lines of communication and are not contractually binding. There are also many other lines of communication that are not illustrated. The construction manager is to help facilitate those lines of communication.

The multiple prime delivery method of project delivery was chosen because of a Pennsylvania State requirement for school construction. PA requires a multiple prime delivery method for school projects. In most cases, this requirement creates the need for a construction manager on the project because most schools do not have the ability to manage large construction projects with their own personnel.

The architect, Gilbert, was chosen by the school administration and approved by the school board. The architect's contract amount is based upon a percentage of the project cost. For Kimberton Elementary School the contract price was approximately 1.5 million dollars.

The Construction Manager, Foreman Program and Construction Managers, was chosen in much of the same manner as the architect. Foreman has developed a relationship with Phoenixville Area School District on a previous project and the school board approved awarding Foreman the construction management contract at the administration's suggestion.

All the prime contracts were selected as using public bid. The low bid contractor was selected by law and the school board was to award the contracts. Each contractor is responsible for their own bonds and insurance in most cases. Each contractor is responsible for showing proof of a Bid Bond, Performance Bond, and Payment Bond.

The insurance for this project is a little more complicated than the bonds. All parties are responsible for having their own worker's compensation insurance, employer's liability insurance, and unemployment insurance. For the project, the owner will purchase all-risk insurance, fire and extended coverage insurance, owner's liability, property insurance, loss of use insurance, and boiler and machinery insurance. Each prime contractor is responsible for purchasing its own contractor's liability insurance, contractual liability insurance, public liability, comprehensive automobile insurance, product and operations insurance, stored materials, and environmental (population) liability(for those contractors who are performing site work. The construction manager and architect have relatively no insurance to purchase.

The appropriate contract type and delivery system for this project was selected. It is appropriate because it is required by law. The school district is not however required to have a construction manager. They chose to do so in order to manage the multiple prime contracts and have a better overall project. The school district does not have the experience or the resources to manage the construction project themselves. There may have been cheaper or more effective ways to deliver this project but with the current legal system it was the only conceivable delivery method. The only real decision the school and the construction manager had to make was the number of prime contracts that would be awarded. The number of prime contracts was based on the amount of work in each CSI division and the capabilities of each trade to perform their work well as a prime contract. The school district could have also applied for exception to the law but did not deem this to be necessary.

Ralph Kreider
Construction Option: Messner

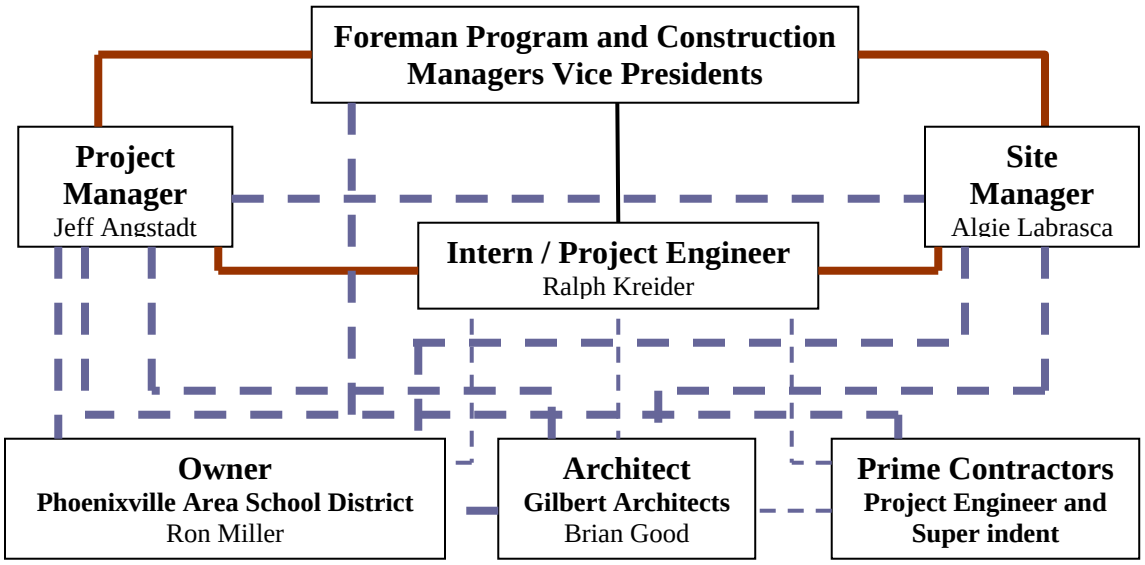
Staffing Plan

The Construction Manager (Foreman Program and Construction Managers) has allotted a project manager and site manager for the entire 18 month construction schedule of the project. The project manager is scheduled for 20 hours a week and the site manager is scheduled 40 hours a week. After turnover of the building, FPCM will allot 10 hours a week for a project manager for 2 months of closeout. Also during that time, FPCM has allotted 40 hours a week for a site manager. During the preconstruction of this project, FPCM scheduled 10-15 hours a week of a Project Manager. The preconstruction process for this project was about three years. Extra hours would be allowed for the three estimating periods during the preconstruction phase. There was a full-time intern (Project Engineer) scheduled for the project both summers (total of 24 weeks).

Project Staffing Allotment/Plan

Role	Preconstruction (156 weeks)	Construction (78 weeks)	Closeout (8 weeks)	Total
Project Manager	1560 hours	1560 hours	80 hours	3200 hours
Site Manager	0 hours	3120 hours	320 hours	3440 hours
Intern	120 hours	960 hours		1080 hours

Organization Chart



Note: The heavy solid lines indicate direct boss. The light solid line indicates secondary boss. The dashed lines are lines of communication.

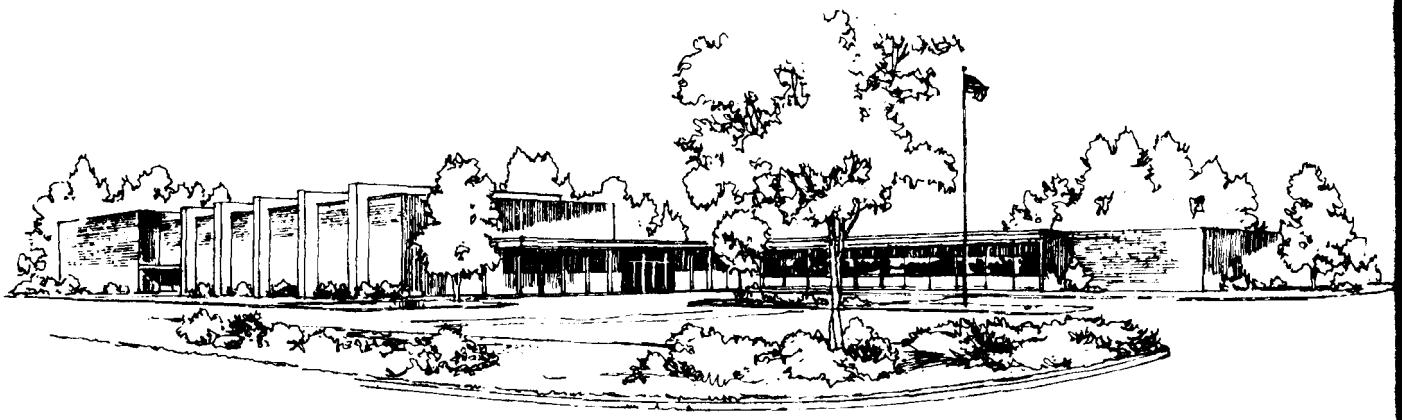
The main project management staff for the construction of Kimberton Elementary consists of a FPCM project manager and FPCM site manager. The two positions are overseen by the vice presidents of the company. FPCM will also have a project engineer/intern assigned to the job, who is supervised by both the project manager and the site manager. Both the site manager and the project manager are in constant communication with the owner, architect, and prime contractors. The project engineer is also in contact with the owner architect and prime contractors but on a less formal manner. The architect and prime contractors have basically the same management setup as FPCM with a project manager and superintendent. The owner has a facilities manager, Ron Miller, a superintendent, and a school board that makes its decisions. The prime contracts have communication with the owner and architect; however the CM usually facilitates it.

Ralph Kreider
Construction Option: Messner

Appendix Contents:

Ralph Kreider
Construction Option: Messner

1. RS Means Square Foot Estimate Pages



Costs per square foot of floor area

Exterior Wall	S.F. Area	25000	30000	35000	40000	45000	50000	55000	60000	65000
	L.F. Perimeter	700	740	823	906	922	994	1033	1100	1166
Face Brick with Concrete Block Back-up	Steel Frame	117.55	114.25	112.85	111.80	109.85	109.15	108.15	107.60	107.15
	Bearing Walls	111.75	108.50	107.05	106.05	**104.10**	103.30	102.35	101.85	101.35
Stucco on Concrete Block	Steel Frame	114.20	111.30	110.05	109.05	107.45	106.75	105.90	105.45	105.00
	Bearing Walls	108.35	105.45	104.25	103.25	101.65	100.95	100.10	99.60	99.15
Decorative Concrete Block	Steel Frame	114.75	111.85	110.55	109.60	107.90	107.15	106.30	105.80	105.40
	Bearing Walls	108.95	106.00	104.75	103.80	102.10	101.35	100.50	100.00	99.55
Perimeter Adj., Add or Deduct	Per 100 L.F.	2.95	2.50	2.20	1.85	1.70	1.45	1.35	1.30	1.15
Story Hgt. Adj., Add or Deduct	Per 1 Ft.	1.00	.85	.90	.85	.75	.65	.65	.65	.65

***For Basement**, add $18.05 per square foot of basement area*

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from $69.20 to $176.00 per S.F.

Common additives

Description	Unit	$ Cost
Bleachers, Telescoping, manual		
To 15 tier	Seat	102 - 145
16-20 tier	Seat	218 - 269
21-30 tier	Seat	230 - 278
For power operation, add	Seat	43 - 68
Carrels Hardwood	Each	865 - 1300
Clock System		
20 room	Each	13,600
50 room	Each	33,200
Emergency Lighting, 25 watt, battery operated		
Lead battery	Each	248
Nickel cadmium	Each	755
Flagpoles, Complete		
Aluminum, 20' high	Each	1325
40' high	Each	3025
Fiberglass, 23' high	Each	1625
39'-5" high	Each	3125
Kitchen Equipment		
Broiler	Each	3350
Cooler, 6 ft. long, reach-in	Each	4275

Description	Unit	$ Cost
Kitchen Equipment, cont.		
Dishwasher, 10-12 racks per hr.	Each	4225
Food warmer, counter, 1.2 KW	Each	600
Freezer, 44 C.F., reach-in	Each	4275
Ice cube maker, 50 lb. per day	Each	1500
Range with 1 oven	Each	2175
Lockers, Steel, single tier, 60" to 72"	Opening	153 - 283
2 tier, 60" to 72" total	Opening	97 - 130
5 tier, box lockers	Opening	52 - 74
Locker bench, lam. maple top only	L.F.	19.00
Pedestals, steel pipe	Each	57
Seating		
Auditorium chair, all veneer	Each	206
Veneer back, padded seat	Each	251
Upholstered, spring seat	Each	251
Classroom, movable chair & desk	Set	65 - 120
Lecture hall, pedestal type	Each	196 - 595
Sound System		
Amplifier, 250 watts	Each	2050
Speaker, ceiling or wall	Each	165
Trumpet	Each	315

Important: See the Reference Section for Location Factors

1. RS Means Square Foot Estimate Pages

Model costs calculated for a 1 story building with 12′ story height and 45,000 square feet of floor area

School, Elementary

				Unit	Unit Cost	Cost Per S.F.	% Of Sub-Total
A. SUBSTRUCTURE							
1010	Standard Foundations	Poured concrete; strip and spread footings		S.F. Ground	2.30	2.30	
1030	Slab on Grade	4" reinforced concrete with vapor barrier and granular base		S.F. Slab	4.07	4.07	11.0%
2010	Basement Excavation	Site preparation for slab and trench for foundation wall and footing		S.F. Ground	.12	.12	
2020	Basement Walls	4′ foundation wall		L.F. Wall	59	2.06	
B. SHELL							
	B10 Superstructure						
1010	Floor Construction	N/A		–	–	–	4.5%
1020	Roof Construction	Metal deck on open web steel joists		S.F. Roof	3.49	3.49	
	B20 Exterior Enclosure						
2010	Exterior Walls	Face brick with concrete block backup	*70% of wall*	S.F. Wall	24	4.16	
2020	Exterior Windows	Steel outward projecting	*25% of wall*	Each	595	1.91	8.5%
2030	Exterior Doors	Metal and glass	*5% of wall*	Each	2810	.51	
	B30 Roofing						
3010	Roof Coverings	Built-up tar and gravel with flashing; perlite/EPS composite insulation		S.F. Roof	4.20	4.20	5.4%
3020	Roof Openings	N/A		–	–	–	
C. INTERIORS							
1010	Partitions	Concrete block	*20 S.F. Floor/L.F. Partition*	S.F. Partition	7.24	3.62	
1020	Interior Doors	Single leaf kalamein fire doors	*700 S.F. Floor/Door*	Each	788	1.13	
1030	Fittings	Toilet partitions		S.F. Floor	1.75	1.75	
2010	Stair Construction	N/A		–	–	–	25.7%
3010	Wall Finishes	75% paint, 15% glazed coating, 10% ceramic tile		S.F. Surface	6.08	3.04	
3020	Floor Finishes	65% vinyl composition tile, 25% carpet, 10% terrazzo		S.F. Floor	6.10	6.10	
3030	Ceiling Finishes	Mineral fiber tile on concealed zee bars		S.F. Ceiling	4.00	4.37	
D. SERVICES							
	D10 Conveying						
1010	Elevators & Lifts	N/A		–	–	–	0.0%
1020	Escalators & Moving Walks	N/A		–	–	–	
	D20 Plumbing						
2010	Plumbing Fixtures	Kitchen, bathroom and service fixtures, supply and drainage	*1 Fixture/625 S.F. Floor*	Each	2506	4.01	
2020	Domestic Water Distribution	Gas fired water heater		S.F. Floor	.35	.35	6.1%
2040	Rain Water Drainage	Roof drains		S.F. Roof	.37	.37	
	D30 HVAC						
3010	Energy Supply	Oil fired hot water, wall fin radiation		S.F. Floor	6.94	6.94	
3020	Heat Generating Systems	N/A		–	–	–	
3030	Cooling Generating Systems	N/A		–	–	–	21.8%
3050	Terminal & Package Units	Split systems with air cooled condensing units		S.F. Floor	10.03	10.03	
3090	Other HVAC Sys. & Equipment	N/A		–	–	–	
	D40 Fire Protection						
4010	Sprinklers	Sprinklers, light hazard		S.F. Floor	1.81	1.81	2.3%
4020	Standpipes	N/A		–	–	–	
	D50 Electrical						
5010	Electrical Service/Distribution	800 ampere service, panel board and feeders		S.F. Floor	1.21	1.21	
5020	Lighting & Branch Wiring	Fluorescent fixtures, receptacles, switches, A.C. and misc. power		S.F. Floor	8.36	8.36	14.6%
5030	Communications & Security	Alarm systems, internet wiring, communications systems and emergency lighting		S.F. Floor	1.73	1.73	
5090	Other Electrical Systems	Emergency generator, 15 kW		S.F. Floor	.07	.07	
E. EQUIPMENT & FURNISHINGS							
1010	Commercial Equipment	N/A		–	–	–	
1020	Institutional Equipment	Chalkboards		S.F. Floor	.11	.11	0.1%
1030	Vehicular Equipment	N/A		–	–	–	
1090	Other Equipment	N/A		–	–	–	
F. SPECIAL CONSTRUCTION							
1020	Integrated Construction	N/A		–	–	–	0.0%
1040	Special Facilities	N/A		–	–	–	
G. BUILDING SITEWORK		**N/A**					
					Sub-Total	77.82	**100%**
	CONTRACTOR FEES (General Requirements: 10%, Overhead: 5%, Profit: 10%)				25%	19.47	
	ARCHITECT FEES				7%	6.81	
					Total Building Cost	**104.10**	

2. Original D4Cost Estimate

Statement of Probable Cost

Kimberton Elementary School - Jul 2008 - PA - Philadelphia

Prepared By:	**Ralph Kreider** **Penn State University**	Prepared For:	
	, **7174750181 Fax:**		, **Fax:**
Building Sq. Size:	**103000**	Site Sq. Size:	**971877**
Bid Date:	**6/16/2008**	Building use:	**Educational**
No. of floors:	**2**	Foundation:	**CON**
No. of buildings:	**1**	Exterior Walls:	**CMU**
Project Height:	**30**	Interior Walls:	**CMU**
1st Floor Height:	**14**	Roof Type:	**MEM**
1st Floor Size:	**75000**	Floor Type:	**CON**
		Project Type:	**NEW**

Division		Percent	Sq. Cost	Amount
00	**Bidding Requirements**	**1.27**	**2.75**	**283,217**
	Bidding Requirements	1.27	2.75	283,217
01	**General Requirements**	**2.81**	**6.08**	**626,631**
	General Requirements	2.81	6.08	626,631
02	**Site Work**	**6.36**	**13.76**	**1,417,733**
	Site Work	6.36	13.76	1,417,733
03	**Concrete**	**2.90**	**6.27**	**646,306**
	Concrete	2.90	6.27	646,306
04	**Masonry**	**11.20**	**24.22**	**2,494,976**
	Masonry	11.20	24.22	2,494,976
05	**Metals**	**6.62**	**14.31**	**1,473,908**
	Metals	6.62	14.31	1,473,908
06	**Wood & Plastics**	**1.04**	**2.26**	**232,443**
	Wood & Plastics	1.04	2.26	232,443
07	**Thermal & Moisture Protection**	**4.64**	**10.05**	**1,034,760**
	Thermal & Moisture Protection	4.64	10.05	1,034,760
08	**Doors & Windows**	**3.05**	**6.59**	**678,591**
	Doors & Windows	3.05	6.59	678,591
09	**Finishes**	**5.61**	**12.12**	**1,248,803**
	Finishes	5.61	12.12	1,248,803
10	**Specialties**	**1.90**	**4.12**	**424,124**
	Specialties	1.90	4.12	424,124
11	**Equipment**	**2.40**	**5.19**	**534,256**
	Equipment	2.40	5.19	534,256
12	**Furnishings**	**1.29**	**2.79**	**287,692**
	Furnishings	1.29	2.79	287,692
13	**Special Construction**	**0.64**	**1.38**	**141,704**
	Special Construction	0.64	1.38	141,704
14	**Conveying Systems**	**0.30**	**0.66**	**67,614**
	Conveying Systems	0.30	0.66	67,614
15	**Mechanical**	**13.56**	**29.33**	**3,020,840**
	Mechanical	13.56	29.33	3,020,840
16	**Electrical**	**9.17**	**19.84**	**2,043,622**
	Electrical	9.17	19.84	2,043,622
21	**Fire Suppression**	**0.56**	**1.20**	**123,683**
	Fire Suppression	0.56	1.20	123,683

2. Original D4Cost Estimate

22	**Plumbing**	**2.62**	**5.67**	**583,912**
	Plumbing	2.62	5.67	583,912
23	**HVAC**	**4.73**	**10.22**	**1,052,984**
	HVAC	4.73	10.22	1,052,984
26	**Electrical**	**6.79**	**14.68**	**1,511,675**
	Electrical	6.79	14.68	1,511,675
27	**Communications**	**0.03**	**0.06**	**6,197**
	Communications	0.03	0.06	6,197
31	**Earthwork**	**3.98**	**8.60**	**885,541**
	Earthwork	3.98	8.60	885,541
32	**Exterior Improvements**	**3.44**	**7.43**	**765,291**
	Exterior Improvements	3.44	7.43	765,291
33	**Utilities**	**3.10**	**6.70**	**690,428**
	Utilities	3.10	6.70	690,428
Total Building Costs		**100.00**	**216.28**	**22,276,931**
Total Non-Building Costs		**100.00**	**0.00**	**0**
Total Project Costs		**--**	**--**	**22,276,931**

3. Existing Conditions Plan (CMX engineering)

gilbert

Gilbert Architects Inc.
609 Eisenhower Boulevard, Suite 1 Harrisburg, PA 17111
P: 717.291.1077 F: 717.292.3992

501 Silverside Road Wilmington, DE 19809
P: 302.791.0022 F: 302.791.9096

1040 Mill Run Circle Owings Mills, MD 21117
P: 410.356.8866 F: 410.654.8892

1000 Bishops Gate Blvd., Suite 300 Mount Laurel, NJ 08054
P: 856.914.9090 F: 856.914.9091

BID DOCUMENTS
MAY 9, 2008

NEW:
KIMBERTON ELEMENTARY SCHOOL
PHOENIXVILLE AREA SCHOOL DISTRICT
EAST PIKELAND TOWNSHIP, CHESTER COUNTY, PA

EXISTING RESOURCES AND SITE ANALYSIS PLAN

CMX PROJECT NO. C#04475

SCALE 1" = 50'
DRAWN BY JJC
DESIGNED BY SAL / MPS
PROJECT NO. 05.1 # 2

SHEET NO. 5 of 35

C2.1

DATE 05/09/2008

REVISION NO.	DATE	REVISION
0	01/30/06	PLAN ORIGINATION DATE
1	06/21/06	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
2	10/05/06	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
3	12/01/06	PLANS REVISED PER WATT FORCE SEWER AUTHORITY REVIEW
4	03/19/07	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
5	12/05/07	PLANS REVISED PER TOWNSHIP AND CCCD REVIEW LETTERS
6	03/12/08	PLANS REVISED PER TOWNSHIP AND CCCD REVIEW LETTERS

GRAPHIC SCALE IN FEET
50 0 50 100

SEE GENERAL INFORMATION SHEET C1.0 FOR ALL PERTINENT NOTES AND LEGEND INFORMATION.

REGISTERED LANDSCAPE ARCHITECT, PA. LIC. No. 756-R
G. GLENN HARRIS

LEGEND

Description	Proposed
GROUNDWATER MONITORING WELL	MW
SOIL PERMEABILITY TEST PIT	PT

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 AS AMENDED, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. CALL UNDERGROUND UTILITIES AND FACILITIES SYSTEM INC. – 1-800-242-1776 – 811 – PENNSYLVANIA ONE CALL SYSTEM INC. – SERIAL NO. 36453391.

STEEP SLOPES

	0 – 15% SLOPES
	15 – 25% SLOPES (STEEP SLOPES)
	25% + SLOPES (VERY STEEP SLOPES)

EXISTING DATA SOURCES

1. SURVEY DATA:
   A. BOUNDARY INFORMATION SHOWN PER PLAN ENTITLED "SURVEY OF PROPERTY MADE FOR PHOENIXVILLE AREA SCHOOL DISTRICT PREPARED BY HOPKINS AND SCOTT, INC. DATED OCTOBER 11, 2004, LAST REVISED AUGUST 3, 2006. ERROR OF CLOSURE IS NOTED AS 1:62,000.
   B. TOPOGRAPHIC INFORMATION SHOWN FROM AERIAL METHODS BY NOR EAST MAPPING WITH GROUND CONTROL BY HOPKINS AND SCOTT, PER THE ABOVE REFERENCE PLAN.
   C. THE PROJECT AREA DURING 2006/2007.
   D. SUPPLEMENTARY OFF-SITE TOPOGRAPHIC INFORMATION HAS BEEN DEVELOPED FROM USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP OF THE PHOENIXVILLE QUADRANGLE, 1953, PHOTO REVISED 1983 FOR USE IN STROM WATER CALCULATIONS WHERE NOT SHOWN ON BOTH PLANS.
   E. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. OTHER RIGHTS TO PROPERTY MAY EXIST.
   F. VERTICAL DATUM: NGVD 29. SITE BENCH MARK: SANITARY MANHOLE 102, LOCATED WITHIN COLLISTEAM ROAD APPROXIMATELY 100 FEET NORTHWEST OF PIKE SPRINGS ROAD. ELEV. 111.88 ELEVATION: 230.70.
   G. LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM ABOVE-GROUND OBSERVATIONS AND/OR UTILITY COMPANY RECORDS AND/OR PLANS BY OTHERS. COMPLETENESS OR ACCURACY OF THE TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES CANNOT BE GUARANTEED BY CMX. CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. CALL UNDERGROUND UTILITIES AND FACILITIES SYSTEM INC. – 1-800-242-1776 – 811 – PENNSYLVANIA ONE CALL SERIAL NUMBER 36453391 FOR PERMITTING PURPOSES ONLY.
   H. THIS PLAN DOES NOT SHOW UNDERGROUND HAZARDS, ARCHEOLOGICAL SITES OR FLOOD PRONE AREAS.
   I. REFERENCE PLANS:
      a) SURVEY OF PROPERTY MADE FOR PHOENIXVILLE AREA SCHOOL DISTRICT PREPARED BY HOPKINS AND SCOTT, DATED OCTOBER 11, 2004, LAST REVISED AUGUST 3, 2006.
      b) "IMPROVEMENTS FOR CONSTRUCTION OF PSH-I-97-WAY, ROUTE 270, SECTION 6F PREPARED BY COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF HIGHWAYS, DATED MARCH 26, 1958 AND REVISED IN THE OFFICE FOR THE RECORDING OF DEEDS, ETC. IN AND FOR MONTGOMERY COUNTY IN PLAN BOOK 5, PAGE 3 ON SEPTEMBER 26, 1961.
      c) "DRAWINGS FOR CONSTRUCTION OF I.S. ROUTE 270, SECTION 2NF, PREPARED BY COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION DATED JANUARY 3, 1983.
      d) "CONVEYANCE PLAT OF PENNSYLVANIA DEPARTMENT OF HIGHWAYS, RIGHT-OF-WAY RECORDS", PAGE NO. 183, I.S. ROUTE NO. 1404, LAST REVISED JANUARY 6, 1981, PER FOR NO. 989 (82-2-26-29).

2. FLOODPLAINS:
   AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP (FIRM) #42091C0059F, MAP REVISION DATE SEPTEMBER 28, 2006. 100-YEAR FLOOD LIMITS ARE NOT CONTINUOUS WITHIN THE SUBJECT TRACT.

3. GEOLOGIC FORMATIONS:
   FORMATIONS HAVE BEEN DERIVED FROM SOILS MAP.

4. SOILS:
   SOILS DATA IS TAKEN FROM THE USDA SOIL SURVEY GEOGRAPHIC (SSURGO) DATABASE FOR CHESTER COUNTY, PENNSYLVANIA, DATED DECEMBER 8, 2004. THE SOILS ON-SITE INCLUDE:

SOILS NAME	DRAINAGE CLASS	HYDRIC RATING	SLOPE RANGE	WATER TABLE DEPTH (FT)	FLOODING FREQUENCY	BEDROCK DEPTH (FT)	POTENTIAL FOR FROST ACTION	RISK OF CORROSION CONCRETE
			%					
BhB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	NONE	2 to 3.5	LOW	LOW
CbB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	NONE	3.5 to 5	LOW	HIGH
CbC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CbD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CbE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CbF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CmC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CmD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CmE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
CmF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
DbB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
DbC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
DbD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
DbE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
DbF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
GbB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
GbC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
GbD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
GbE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
GbF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UbB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UbC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UbD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UbE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UbF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UdB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UdC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UdD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UdE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UdF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UgB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UgC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UgD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UgE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UgF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UmB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UmC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UmD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UmE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UmF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UnB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UnC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UnD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UnE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UnF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UpB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UpC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UpD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UpE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UpF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UrB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UrC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UrD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UrE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UrF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UsB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UsC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UsD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UsE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UsF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UtB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UtC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UtD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UtE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UtF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UuB2	MOD. WELL	NO	3 to 8	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UuC2	MOD. WELL	NO	8 to 15	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UuD2	MOD. WELL	NO	15 to 25	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UuE2	MOD. WELL	NO	25 to 35	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH
UuF2	MOD. WELL	NO	35 to 60	2.0 to 3.0	MODERATE	3.5 to 5	LOW	HIGH

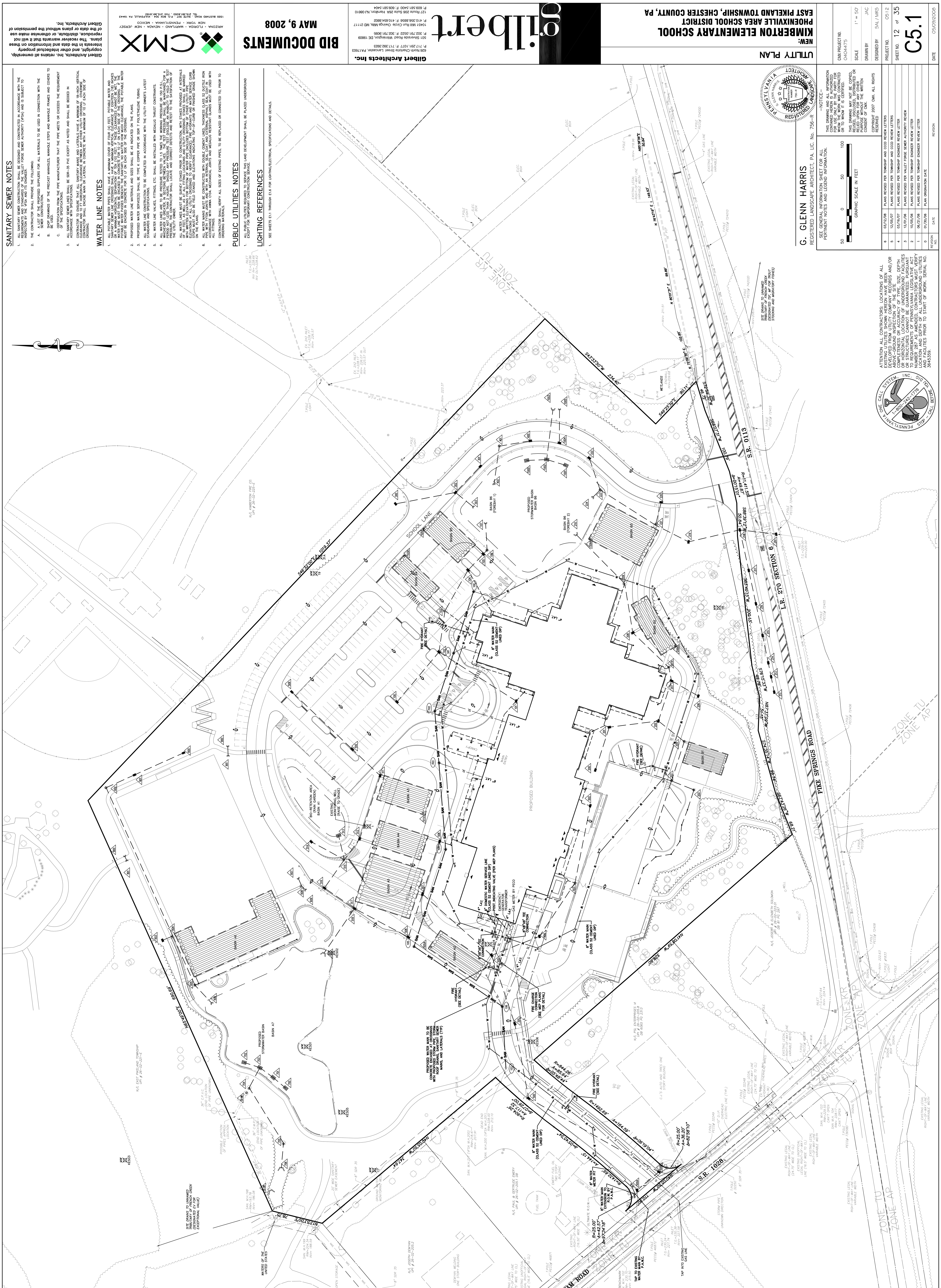
SOIL USE LIMITATIONS

SOILS NAME	RESTRICTIVE LAYER TOP (IN)	RESTRICTIVE LAYER THICKNESS (IN)	HYDROLOGIC GROUP	DEPTH TO WATER TABLE (IN)	HYDRAULIC CONDUCTIVITY	AVAILABLE WATER CAPACITY	LINEAR EXTENSIBILITY
BbB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
BbC2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
BbD2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
BbE2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
BbF2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
CbB2	BEDROCK (LITHIC)	72-118	VERY STRONGLY SLOPING	0-8	4.23-14.11	0.14-0.17	0.03-0.09
CbC2	BEDROCK (LITHIC)	72-118	STRONGLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
CbD2	BEDROCK (LITHIC)	72-118	STRONGLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
CbE2	BEDROCK (LITHIC)	72-118	VERY STEEPLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
CbF2	BEDROCK (LITHIC)	72-118	VERY STEEPLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
CmB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
CmC2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
CmD2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
CmE2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
CmF2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
DbB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
DbC2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
DbD2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
DbE2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
DbF2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
EbB2	BEDROCK (LITHIC)	60-99	STRONGLY SLOPING	30-50	4.23-14.11	0.14-0.20	0.03-0.09
EbC2	BEDROCK (LITHIC)	60-99	STRONGLY SLOPING	30-50	4.23-14.11	0.14-0.20	0.03-0.09
EbD2	BEDROCK (LITHIC)	60-99	STRONGLY SLOPING	30-50	4.23-14.11	0.14-0.20	0.03-0.09
EbE2	BEDROCK (LITHIC)	60-99	VERY STEEPLY SLOPING	30-50	4.23-14.11	0.14-0.20	0.03-0.09
EbF2	BEDROCK (LITHIC)	60-99	VERY STEEPLY SLOPING	30-50	4.23-14.11	0.14-0.20	0.03-0.09
FrADPAN	15-30	15-30	NEARLY LEVEL	10-18	4.23-14.11	0.12-0.16	0.03-0.09
FrB2	BEDROCK (LITHIC)	72-118	STRONGLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
FrC2	BEDROCK (LITHIC)	72-118	STRONGLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
FrD2	BEDROCK (LITHIC)	72-118	STRONGLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
FrE2	BEDROCK (LITHIC)	72-118	VERY STEEPLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
FrF2	BEDROCK (LITHIC)	72-118	VERY STEEPLY SLOPING	8-26	4.23-14.11	0.14-0.20	0.03-0.09
GbB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
GbC2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
GbD2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
GbE2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
GbF2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UbB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UbC2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UbD2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UbE2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UbF2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UdB2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UdC2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UdD2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UdE2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UdF2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UgB2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UgC2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UgD2	BEDROCK (LITHIC)	40-60	STRONGLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UgE2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UgF2	BEDROCK (LITHIC)	40-60	VERY STEEPLY SLOPING	9-40	4.23-14.11	0.14-0.20	0.03-0.09
UmB2	–	–	–	–	–	–	–
UmC2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UmD2	BEDROCK (LITHIC)	20-40	STRONGLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UmE2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UmF2	BEDROCK (LITHIC)	20-40	VERY STEEPLY SLOPING	9-21	4.23-14.11	0.14-0.18	0.03-0.09
UnB2	–	10	–	33-37	1.41-42.34	0.03-0.06	0.03-0.09
UnC2	–	–	–	33-37	1.41-42.34	0.03-0.06	0.03-0.09
UnD2	–	–	–	33-37	1.41-42.34	0.03-0.06	0.03-0.09
UnE2	–	–	–	33-37	1.41-42.34	0.03-0.06	0.03-0.09
UnF2	–	–	–	33-37	1.41-42.34	0.03-0.06	0.03-0.09
UpB2	–	–	–	24-33	4.23-42.34	0.14-0.18	0.03-0.09
UpC2	–	–	–	24-33	4.23-42.34	0.14-0.18	0.03-0.09
UpD2	–	–	–	24-33	4.23-42.34	0.14-0.18	0.03-0.09
UpE2	–	–	–	24-33	4.23-42.34	0.14-0.18	0.03-0.09
UpF2	–	–	–	24-33	4.23-42.34	0.14-0.18	0.03-0.09
UrB2	–	–	–	21-24	4.23-42.34	0.04-0.08	0.03-0.09
UrC2	–	–	–	21-24	4.23-42.34	0.04-0.08	0.03-0.09
UrD2	–	–	–	21-24	4.23-42.34	0.04-0.08	0.03-0.09
UrE2	–	–	–	21-24	4.23-42.34	0.04-0.08	0.03-0.09
UrF2	–	–	–	21-24	4.23-42.34	0.04-0.08	0.03-0.09
UsB2	–	–	–	–	–	–	–
UsC2	–	–	–	–	–	–	–
UsD2	–	–	–	–	–	–	–
UsE2	–	–	–	–	–	–	–
UsF2	–	–	–	–	–	–	–
UtB2	–	–	–	–	–	–	–
UtC2	–	–	–	–	–	–	–
UtD2	–	–	–	–	–	–	–
UtE2	–	–	–	–	–	–	–
UtF2	–	–	–	–	–	–	–
UuB2	–	–	–	–	–	–	–
UuC2	–	–	–	–	–	–	–
UuD2	–	–	–	–	–	–	–
UuE2	–	–	–	–	–	–	–
UuF2	–	–	–	–	–	–	–

TREE INFORMATION

RIPPER TO WOODLAND REPORT FOR DETAILED INFORMATION ON EXISTING TREES SHOWN. EACH EXISTING TREE OVER 6" SIZE IS KEYED TO WITH NUMBER KEYED TO LIST OF TREES IN THE REPORT.

4. Utilities Plan (CMX Engineering)



OPEN SPACE COMPLIANCE CALCULATION

25% (4.97 AC) OF THE PROPOSED LOT AREA SHALL BE PROVIDED FOR PASSIVE RECREATION OPEN SPACE, AS REQUIRED IN SECTION 424.C OF THE EAST PIKELAND TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE:

1.	ATHLETIC FIELDS	1.57 AC
2.	PLAYGROUND AREA	0.50 AC
3.	PASSIVE REFORESTED AREAS	1.59 AC
4.	PATH SYSTEM (ON SITE)	0.22 AC
5.	PRESERVED WOODLAND AREA	1.26 AC
	TOTAL LAND AVAILABLE FOR RECREATION/OPEN SPACE	5.14 AC

PROJECT FEES

1.	TRAFFIC IMPACT FEE:	$114,833.16
2.	STORMWATER BMP O & M FUND:	$10,035.00
3.	SIDEWALK FEE-IN-LIEU:	$14,000.00

RECORDING ACKNOWLEDGEMENTS

SURVEYOR'S CERTIFICATION

I, HEREBY CERTIFY THAT I, KRAIG HEINRICH DIENER, AM A REGISTERED PROFESSIONAL LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA: THAT THIS IS A SURVEY MADE ON THE GROUND AND AERIAL METHODS PER A PLAN ENTITLED "SURVEY OF PROPERTY" MADE FOR PHOENIXVILLE AREA SCHOOL DISTRICT, AS PREPARED BY HOPKINS AND SCOTT, INC., DATED OCTOBER 11, 2005, LAST REVISED AUGUST 3, 2006 AND LIMITED SUPPLEMENTAL TOPOGRAPHIC SURVEYS MADE ON THE GROUND WITHIN THE PROJECT AREA AS PERFORMED BY CMX DURING 2006 AND 2007.

SURVEYOR SIGNATURE — DATE — SU-049360-E LICENSE NUMBER

OWNER'S CERTIFICATION

TO ALL WHOM THESE PRESENTS MAY COME WE, (OWNER NAME(S)) OF (OWNER ADDRESS) DO HEREBY GREETINGS. KNOW YE THAT WE HAVE LAID OUT UPON OUR LAND SITUATE IN EAST PIKELAND TOWNSHIP, CHESTER COUNTY, COMMONWEALTH OF PENNSYLVANIA, CERTAIN LOTS AND STREETS ACCORDING TO THE ACCOMPANYING PLAN WHICH IS HEREWITH INTENDED TO BE RECORDED. WITNESS OUR HAND AND SEAL THIS _____ DAY OF _____, 20____.

OWNER SIGNATURE — OWNER SIGNATURE

NOTARY

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF CHESTER, ON THE _____ DAY OF _____, 20____ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, PERSONALLY APPEARED

OWNER — OWNER — OWNER

WHO ACKNOWLEDGED THIS PLAN TO BE THE OFFICIAL PLAN OF PROPERTY SHOWN THEREON, SITUATE IN THE TOWNSHIP OF EAST PIKELAND, COUNTY OF CHESTER, COMMONWEALTH OF PENNSYLVANIA AND DESIRED THAT THIS PLAN BE RECORDED ACCORDING TO THE LAW.

NOTARY PUBLIC

MY COMMISSION EXPIRES ON THE ___ DAY OF _____, 20____

DESIGN ENGINEER CERTIFICATION

TO THE BEST OF MY KNOWLEDGE, THE PLANS ARE IN CONFORMITY WITH ENGINEERING, ZONING, BUILDING, SANITATION, AND OTHER APPLICABLE EAST PIKELAND TOWNSHIP ORDINANCES AND REGULATIONS.

DESIGN ENGINEER SIGNATURE — DATE

TOWNSHIP ENGINEER REVIEW

REVIEWED BY THE EAST PIKELAND TOWNSHIP ENGINEER THIS _____ DAY OF _____, 20____.

ENGINEER'S SIGNATURE

TOWNSHIP BOARD OF SUPERVISORS APPROVAL

APPROVED BY THE EAST PIKELAND TOWNSHIP BOARD OF SUPERVISORS ON THIS _____ DAY OF _____, 20____.

MEMBER — MEMBER — MEMBER

TOWNSHIP PLANNING COMMISSION APPROVAL

APPROVED BY THE EAST PIKELAND TOWNSHIP PLANNING COMMISSION ON THIS _____ DAY OF _____, 20____.

MEMBER — MEMBER — MEMBER

CHESTER COUNTY PLANNING COMMISSION REVIEW: CCPC No. _____

CERTIFIED BY THE EXECUTIVE DIRECTOR OF THE CHESTER COUNTY PLANNING COMMISSION THIS _____ DAY OF _____, 20____.

CCPC SIGNATURE

RECORDER OF DEEDS OFFICE

RECORDED IN THE OFFICE FOR RECORDING OF DEEDS, ETC. IN AND FOR THE COUNTY OF CHESTER, AT WEST CHESTER, PENNSYLVANIA IN PLAN BOOK _____ PAGE _____ ON THIS _____ DAY OF _____, 20____.

RECORDER OF DEEDS

SITE STATISTICS

1. APPLICANT:
   PHOENIXVILLE AREA SCHOOL DISTRICT
   1120 SOUTH DAY STREET
   PHOENIXVILLE, PA 19460
   484.927.5000
   OWNER OF RECORD:
   PHOENIXVILLE AREA SCHOOL DISTRICT
   1120 SOUTH DAY STREET
   PHOENIXVILLE, PA 19460
   484.927.5000
2. EXISTING PROPERTY IDENTIFICATION:
   TAX MAP PARCEL REFERENCE – TMP 26-002-0205.3, 26-002-0205.4, 26-002-0205.5, 26-002-0205.6, 26-002-0205.7 & 26-002-0205.9
   RECORDED DEED DATA REFERENCE – CHESTER COUNTY, DEED BOOK 6413, PAGE 0873
   TRACT LOCATION:
   PIKE SPRINGS ROAD
   PHOENIXVILLE, PA 19460
   EAST PIKELAND TOWNSHIP, CHESTER COUNTY
3. TRACT AREA SUMMARY:
   GROSS TRACT AREA = 865,537 SF (19.87 ACRES)
   PROPOSED RIGHT-OF-WAY = 8,761 SF (0.20 ACRES)
   NET TRACT AREA = 856,776 SF (19.67 ACRES)

THE DIFFERENCE BETWEEN EXISTING LEGAL R.O.W. AND PROPOSED ULTIMATE R.O.W. TO BE OFFERED FOR DEDICATION TO EAST PIKELAND TOWNSHIP IN PERPETUITY AT NO COST. AREAS A, B AND C COMPRISED OF 0.20 AC TO BE PART OF THIS DEDICATION.

WAIVERS GRANTED

SUBDIVISION & LAND DEVELOPMENT ORDINANCE:
(DATED 2001, AS AMENDED THROUGH 11/29/04)

1. SECTION 304.C.7.b.(11) – LOCATIONS AND DIMENSIONS (ALL EXISTING UTILITY SIZES WITHIN ONE HUNDRED FEET OF PROPOSED DEVELOPMENT UNKNOWN.)
2. SECTION 304.C.7.b.(12) – LOCATIONS AND DIMENSIONS (REFERENCE WOODLAND REPORT FOR DETAILED SUMMARY OF SITE TREES.)
3. SECTION 306.B.2.I – DISTURBANCE OF WETLAND BUFFERS
4. SECTION 306.B.7.e.(5) – HDPE PIPE USE
5. SECTION 306.B.7.e(9) – TO ALLOW STORM STRUCTURES 220, 222 AND 400 TO HAVE LESS THAN 1 FOOT OF FREEBOARD BELOW THE INLET GRATE TO MAXIMIZE CAPTURE OF RUNOFF INTO THE BASIN.
6. SECTION 306.B.7.e.(13) – BASIN DESIGN CRITERIA (NOT ACHIEVABLE FOR DRAINAGE AREA C IN POST-DEVELOPMENT.)
7. SECTION 306.B.7.e.(3) – MAXIMUM DEPTH OF STORM BASIN
8. SECTION 415.C – PARKING AREA CURBS (UNCURBED AREAS PREFERABLE FOR USE AS STORMWATER MANAGEMENT BMPS)
9. SECTION 424.C – 25% OPEN SPACE
10. SECTION 424.E.6.(d.1) – TO ALLOW TRAIL SLOPES TO COMPLY WITH ADA REQUIREMENTS IN LIEU OF TOWNSHIP REGULATED SLOPES WHICH DIFFER FROM ADA REQUIREMENTS.
11. SECTION 425.B – TREE REMOVAL AND RE-FORESTATION (REFORESTATION OFFERED. PROPOSED TREE PLANTING PROVIDED BUT LESS THAN REQUIRED.)

ZONING DATA

1. ZONING DISTRICT CLASSIFICATION:
   KR – KIMBERTON RETAIL
2. PROPOSED USE:
   SCHOOL (PERMITTED)
3. ZONING REQUIREMENTS TABLE:

	REQUIRED:	PROPOSED:
MINIMUM LOT AREA	20,000 SF	857,179 SF
MINIMUM LOT WIDTH	100 FT	709 FT
MINIMUM FRONT YARD SETBACK	35 FT	35 FT
MINIMUM SIDE YARD SETBACK	15 FT	15 FT
MINIMUM REAR YARD SETBACK	40 FT	40 FT
MINIMUM VEGETATIVE COVER	30%	67%
MAXIMUM IMPERVIOUS COVER	60%	33%
MAXIMUM BUILDING HEIGHT	35 FT	48 FT *
MAXIMUM BUILDING SIZE	2,500 SF	VARIANCE GRANTED

* VARIANCE GRANTED

4. PARKING REQUIREMENTS/TABULATION:

2 SPACES PER CLASSROOM + 7.5 SPACES PER 1,000 SF OF PUBLIC ASSEMBLY = TOTAL PARKING REQUIRED
(2 X 36 CLASSROOMS) + (7.5/1,000 X 10,628 SF OF PUBLIC ASSEMBLY) = 72 + 80 = 152 SPACES

TOTAL PARKING REQUIRED = 152 SPACES
TOTAL PARKING PROVIDED = 154 SPACES

ZONING VARIANCES & SPECIAL EXCEPTIONS GRANTED

ZONING ORDINANCE: (DATED 2002, AS AMENDED THROUGH 11/29/04)

THE APPLICATION OF THE PHOENIXVILLE AREA SCHOOL DISTRICT FOR RELIEF FROM THE FOLLOWING SECTIONS OF THE EAST PIKELAND ZONING ORDINANCE WAS GRANTED BY ORDER OF THE EAST PIKELAND ZONING HEARING BOARD ON OCTOBER 10, 2007:

1. SECTION 402.4.B(2) AND 402.4.C(2) FOR A SPECIAL EXCEPTION FOR CERTAIN CONSTRUCTION IN PRECAUTIONARY AND PROHIBITIVE SLOPES;
2. SECTION 403.1.B AND 403.2.D FOR A VARIANCE TO PERMIT GRADING, STORMWATER MANAGEMENT FACILITIES AND A PORTION OF A BUILDING WITHIN THE BUFFER ZONE FROM SEASONALLY HIGH GROUNDWATER SOILS;
3. SECTION 404.2.A FOR A VARIANCE TO REMOVE MORE THAN 25% OF THE WOODLAND ON THE SITE;
4. SECTION 404.6.B.1 FOR A VARIANCE TO REDUCE THE NUMBER OF REPLACEMENT TREES;
5. SECTION 408 AND 403.2.D FOR A VARIANCE TO ENCROACH INTO THE WETLAND BUFFER;
6. SECTION 1101.1 FOR A VARIANCE TO CONSTRUCT A BUILDING IN EXCESS OF 2,500 SF IN THE KIMBERTON RETAIL DISTRICT;
7. SECTION 1102.B FOR A VARIANCE TO CONSTRUCT A BUILDING OF 48 FEET IN HEIGHT;
8. SECTION 1709.3.D(3) FOR A VARIANCE TO ALLOW REMOVAL OF A LANDSCAPE ISLAND;
9. SECTION 1904.3.A FOR A VARIANCE FROM THE MAXIMUM TEMPORARY SIGN SIZE.

LEGEND	
Description	Proposed
CARTWAY/EDGE OF PAVEMENT (HEAVY DUTY)	
CARTWAY/EDGE OF PAVEMENT (LIGHT DUTY)	
BITUMINOUS PATH	
CONCRETE SIDEWALK	
TURF PAVER BLOCKS	
GRASSPAVE2	

ROAD CENTERLINE & ULTIMATE R.O.W. CURVE TABLE

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA ANGLE	CHORD DIRECTION	CHORD
C1	106.88	110.00	55°40'08"	S14°32'30"W	102.72
C2	211.04	136.00	88°54'34"	N02°04'43"W	190.49
C3	381.15	220.00	99°15'50"	S83°59'05"W	335.24
C4	9.90	35.00	16°12'10"	S26°06'05"W	9.86
C5	61.26	39.00	90°00'00"	N63°00'00"E	55.15
C6	61.26	39.00	90°00'00"	N27°00'00"W	55.15
C7	39.22	61.00	36°50'19"	S53°34'51"E	38.55
C8	165.46	135.00	70°13'20"	S72°53'20"W	155.29
C9	64.31	11381.55	0°19'25"	N79°28'54"E	64.31
C10	494.58	11381.55	2°29'23"	N77°29'00"E	494.54
C11	19.39	25.00	44°26'26"	N64°33'18"E	18.91
C12	13.02	25.00	29°49'39"	S27°57'20"W	12.87
C13	23.18	25.00	53°07'26"	S60°39'33"E	22.36
C14	23.19	25.00	53°08'11"	S13°31'45"E	22.36

ROAD CENTERLINE & ULTIMATE R.O.W. LINE TABLE

LINE TABLE		
LINE	LENGTH	BEARING
L1	100.25	N13°37'34"W
L2	47.41	N42°22'34"E
L3	400.59	N41°32'00"W
L4	304.86	S34°12'10"W
L5	30.89	S18°00'00"W
L6	207.17	S72°00'00"E
L7	109.74	N72°00'00"W
L8	35.56	N35°09'41"W
L9	265.68	N37°46'40"E
L10	164.91	S72°00'00"E
L11	9.83	N67°43'28"E
L12	99.74	N74°35'14"E
L13	42.69	S87°37'09"E
L14	14.04	N41°08'59"W
L15	512.55	N41°08'59"W
L16	58.38	N67°43'28"E
L17	8.46	N87°37'09"W
L18	75.52	S40°25'10"E
L19	14.60	N40°25'10"W
L20	70.90	N40°05'28"W

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 AS AMENDED, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 3645359.

PENNSYLVANIA ONE CALL SYSTEM, INC. — 1-800-242-1776 — STOP! CALL BEFORE YOU DIG!

G. GLENN HARRIS
REGISTERED LANDSCAPE ARCHITECT, PA. LIC. No. 756-R

SEE GENERAL INFORMATION SHEET FOR ALL PERTINENT NOTES AND LEGEND INFORMATION.

50 0 50 100
GRAPHIC SCALE IN FEET

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REVISION NO.	DATE	REVISION
6	03/12/08	PLANS REVISED PER TOWNSHIP AND CCCD REVIEW LETTERS
5	12/05/07	PLANS REVISED PER TOWNSHIP AND CCCD REVIEW LETTERS
4	03/19/07	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
3	12/01/06	PLANS REVISED PER VALLEY FORGE SEWER AUTHORITY REVIEW
2	10/05/06	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
1	06/21/06	PLANS REVISED PER TOWNSHIP ENGINEER REVIEW LETTER
0	01/30/06	PLAN ORIGINATION DATE

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BID DOCUMENTS
MAY 9, 2008

Gilbert Architects Inc.
680 North Delaware Street Lansdale, PA 19446 P: 717.291.1077 F: 717.393.3923
501 Silverside Road Wilmington, DE 19809 P: 302.791.0502 F: 302.791.9095
10451 Mill Run Circle, Owings Mills, MD 21117 P: 410.356.8856 F: 410.654.5802
127 Route 206 Suite 204, Hamilton, NJ 08610 P: 609.890.0400 F: 609.890.0401

SITE LAYOUT PLAN

NEW:
KIMBERTON ELEMENTARY SCHOOL
PHOENIXVILLE AREA SCHOOL DISTRICT
EAST PIKELAND TOWNSHIP, CHESTER COUNTY, PA

CMX PROJECT NO.	04044475
SCALE	1" = 50'
DRAWN BY	JAC
DESIGNED BY	SAL / MRS
PROJECT NO.	0512
SHEET NO.	8 of 35
	C3.2
DATE	05/09/2008

5. Proposed Site Plan (CMX Engineering)

6. Site Closure Plan Map (CMX Engineering)

REVISION NO.	DATE	REVISION

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60 0 60 120
GRAPHIC SCALE IN FEET
1"=60'

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1555 BUSTARD ROAD, SUITE 50T
P.O. BOX 304
KULPSVILLE, PA 19443
TEL (215)361-6050
FAX (215)361-6160

SITE CLOSURE PLAN
KIMBERTON ELEMENTARY SCHOOL

PHOENIXVILLE BOROUGH CHESTER COUNTY PENNSYLVANIA

PROJECT NO 0404475	DATE 1/15/2007
DRAWN BY JAC	DESIGNED BY
SCALE 1"=60'	CHECKED BY AL
CMX	
SHEET NO. 1 of 1	

7. Site Closure Plan Section

1.0 INTRODUCTION

CMX (formerly Schoor DePalma) prepared this Site Closure Plan (Plan) to describe closure actions at the Phoenixville Area School District's (PASD's) proposed Kimberton Elementary School (KES) Property, located along Route 113 in the Township of East Pikeland, Chester County, Pennsylvania. This Plan was prepared in accordance with the Commonwealth of Pennsylvania Residual Waste Management Regulations (25 PA Code Chapter 288.182). Figure 1 depicts the Site boundaries on a portion of the United States Geologic Survey (USGS) 7.7 Minute Topographic Quadrangle map for Phoenixville, Pennsylvania. Figure 2 displays site features and locations of site characterization soil and groundwater sampling locations.

CMX performed a Site Characterization on behalf of PASD and submitted the Site Characterization Report (SCR) in April 2007. PASD proposes to construct an elementary school on the property with sports fields and open-space recreational areas. As part of the redevelopment, PASD is seeking site closure for historical fill/disposal operations associated with a portion of the Site through the Pennsylvania Department of Environmental Protection's (PADEP's) Waste Management Program. Site closure measures will be carried out consistent with the Land Recycling and Environmental Remediation Standards Act (Act 2) program.

This report is divided into 6 sections. Section 1 provides an overview of proposed remedial actions/construction activities and objectives, as well as a description of the KES property background and history. Section 2 summarizes Site Characterization activities for each media evaluated. Section 3 presents proposed closure plan activities and associated confirmatory sampling. Section 4 describes post-closure monitoring and institutional controls. Section 5 describes the Final Report; and Section 6 discusses implementation and anticipated schedule.

1.1 Site Background and History

The KES Property is located on the northeast corner of the intersection of Cold Stream Road and Route 113, in the Township of East Pikeland, Chester County, Pennsylvania. The property occupies approximately 19.8 acres and is currently undeveloped land; however, historical information indicates that open portions of the property were used for agricultural production. An estimated 3.85 acres in the northwestern corner of the property had been utilized by a construction firm (e.g., C. Raymond Davis) for storage, burning and disposal of

construction-related materials, and a small section (approximately 2,000 square feet) reportedly had also been used by the Township to dispose of household municipal waste during the 1950s/1960s. A section of a former rail line also ran through the northwestern section of the property.

The property consists of open, grass fields on the eastern/northeastern two-thirds of the site and wooded areas cover the remainder of the property area. KES Property topography is primarily gently to moderately sloping; however, the northern/northwestern portion exhibits variable terrain, which resulted from historical filling operations. An unpaved access road divides the property and provides access from Cold Stream Road to the west and the Kimberton Fire Company property to the east.

In addition to the Fire Company, adjacent properties consist of municipal parkland to the north, residential and undeveloped land to the south, and commercial properties to the west. The current commercial tracts include Emery Oil, a collision auto repair facility, and unoccupied commercial properties. Farther west, across Cold Stream Road is the Henry Company, which currently manufactures asphalt products. The Henry Company property is the location of the Kimberton Superfund Site, which has been investigated by USEPA since 1981. A chlorinated solvent groundwater plume associated with releases from the Kimberton Superfund Site has impacted local groundwater and remedial actions and monitoring are continuing. The groundwater plume extends to one of the Superfund site monitoring wells (MW-17), which is located at the western KES property border.

1.2 Purpose and Objectives

The objective of this Plan is to describe the protocols for site construction and closure of the former fill disposal area. PASD intends to develop the KES property as an elementary school and associated active and passive recreational areas. The presence of fill material in the northwest corner of the site will be addressed as part of the site redevelopment activities as it represents a physical impediment to the planned construction. The fill has been characterized as mixed construction debris and solid waste. Buried beneath a small portion of the construction fill there exists a limited area of solid waste that was associated with a former municipal disposal area. Soil characterization results from investigation activities indicate that, with very isolated exceptions, the fill material does not contain contaminants above residential clean up standards nor did it significantly impact subsurface soils. PADEP

has indicated that these materials may be closed in place as regulated, residual fill, with the intended soil and vegetative cover for the recreational area serving as a physical barrier to contact with any physical hazards that construction materials might otherwise pose. A deed notice will also be placed on the property to further mitigate any potential future exposures.

Soil/fill in the area proposed for excavation will be sorted and segregated during excavation for potential re-use. Materials intended for re-use will be sampled to ensure compliance with Management of Fill policy and/or Act 2 demonstration of attainment requirements.

The Site Characterization and quarterly groundwater monitoring conducted to date will be utilized for water quality monitoring in connection with this Closure Plan. Chlorinated volatile organic compound (VOC) groundwater impacts that were identified as a result of an off-site source will be addressed through demonstration of attainment of the Act 2 background remediation standard. The results of characterization sampling to date have not indicated an on-site source associated with the fill, and only one (1) well (MW-17), located near the upgradient property boundary was identified as having chlorinated volatile organic compound (VOC) exceedances.

1.3 Closure Summary

The fill materials encountered on the PASD KES property consist primarily of construction-related debris that is mixed with solid waste in places. A majority of the fill encountered meets the PADEP Management of Fill Policy definitions of clean fill or historic fill; however, because portions are mixed with solid waste, PADEP requested that it be closed in-place as regulated, residual fill. Fill thickness varies between less than 2 feet (near the south end of the fill area) to greater than 16 feet (near the central portion of the fill). While isolated exceedances of Act 2 residential soil Statewide Health Standard (SHS) for arsenic, lead and n-nitrosodiphenylamine were reported, soil analytical results do not indicate the presence of significant sources of impact. The arsenic concentrations reported are also within the range of naturally occurring arsenic typically encountered across Pennsylvania. The presence of lead above the applicable standard in one soil sample is believed to be associated with the stained soil encountered with a buried AST removed from test pit TP-4 and will be addressed during a soil removal and soil sampling action, as discussed in Section 3.7.

7. Site Closure Plan Section

Closure actions for the remaining fill area will be completed "in-place" and will be performed in conjunction with site redevelopment. As such, PASD assumes that no remedial action design will be necessary because the associated/applicable closure remedy design elements are incorporated into the land development plans. The future use of the fill area will be a passive recreational area with both existing and newly-planted vegetation/trees. An existing East Pikeland Township tree ordinance requires preservation of trees of certain types and calipers, and this requirement is addressed as part of the land development planning. The tree ordinance is also a consideration that has been incorporated into the objectives and approach for site closure to minimize disturbance of existing trees, where possible and to facilitate installation of replacement species.

Portions of the delineated fill disposal area will excavated and revegetated, while other areas will be leveled and covered with a soil/vegetative layer. In areas slated for excavation, encountered regulated fill and solid waste will be segregated from re-usable materials (soil or concrete) for onsite re-use or offsite disposal. Post-excavation soil sampling will be conducted to demonstrate attainment of Act 2 residential SHS. Sampling and laboratory analysis will also be conducted to assess excavated materials intended for re-use.

Relative to groundwater, as further described below, site characterization findings did not indicate an on-site source of impact to shallow groundwater associated with the fill; therefore, the Site Closure Plan for groundwater includes quarterly groundwater quality monitoring to confirm non-impact, three rounds of which have been performed. This monitoring is expected to also demonstrate that the volatile organic compounds in the groundwater at MW-17 are a background condition consistent with the background remediation standard under Act 2. As indicated in Section 1.1, the edge of a previously identified chlorinated VOC plume exists at the western edge of the property. This impact is considered a background condition associated with the upgradient Kimberton Superfund site.

2.0 SUMMARY OF SITE CHARACTERIZATION

2.1 Overview of Site Characterization

Site Characterization activities for the KES property included a review of historical environmental documents, site reconnaissance, and on-site subsurface investigations of fill, soil and groundwater. CMX and PASD also met with PADEP Waste Management and Environmental Cleanup Program (ECP) representatives on several occasions to provide updates on findings and obtain regulatory concurrence with the investigative and site closure approaches.

Previous limited site investigations were conducted on the KES Property in 1991, 2004 and 2005. Based on the reported findings of these previous investigative activities, the disposal areas on the site consisted primarily of construction debris. Analytical results exhibited few exceedances of Act 2 residential SHS. During meetings with PADEP, the regulatory agency indicated that additional characterization would be needed to further evaluate the fill material and fill data gaps. Depending on the outcome of the investigation, and assuming no significant source of impact or evidence of release were identified, PADEP concurred that an on-site Closure Plan could be developed and implemented as part of KES property redevelopment activities for closure under the Waste Management Program and /or Act 2.

In addition to the historic environmental document review, CMX conducted extensive field activities for site characterization between May 2006 and December 2007. These investigative activities included:

- Geophysical Survey across identified fill areas to assess the extent of the fill and evaluate the potential for subsurface anomalies indicative of potential environmental concern (i.e., tanks, drums, etc);
- Test pit excavation and soil sampling to further assess encountered geophysical anomalies; characterize the nature and extent of fill materials; assess the potential for an onsite source of chlorinated groundwater impact; and, collect analytical soil samples to assess potential for environmental impact;
- Surface water sampling to assess surface water quality near fill areas as an indication of potential groundwater impact prior to initiation of groundwater investigation activities;

- Installation and sampling of groundwater monitoring wells and sampling of existing groundwater monitoring wells to assess on-site groundwater quality in the fill area and to further assess the background chlorinated VOC groundwater impacts previously identified in MW-17.
- Soil boring/sampling performed in conjunction with the groundwater monitoring well installations to further characterize fill materials and assess potential for soil impact.

Details regarding these activities are included in the April 2007 Site Characterization Report. The following sections summarize methodology and findings of the site characterization.

2.2 Encountered Fill Materials and Volume Estimates

The fill observed on the KES property resulted from non-permitted disposal activities that included residual waste disposal by a construction company associated with the former property owners through the 1990s and municipal waste disposal during the 1950s and 1960s. Initial investigative work conducted in 2004 indicated only limited impact; however, further characterization of the fill was needed to define its extent on the KES property and to determine the potential for subsurface impact. Because of the waste disposal history, characterization of the fill was needed to determine required closure activities and whether some or all of the fill would be considered "regulated" for closure under the PADEP Waste Management Program, or "clean fill" as defined by PADEP's April 24, 2004 Management of Fill Policy.

Twenty-three (23) exploratory test pits/trenches were excavated across the site to evaluate metallic anomalies identified during the geophysical survey and to further characterize fill materials. The lateral/horizontal extent of each test pit was also dependent on anticipated anomaly size/orientation. Test pits were excavated until native materials, backhoe refusal, or excessive groundwater infiltration were encountered and/or to the maximum extent of the excavator. Soil/fill material was continuously field screened for indications of potential impact using visual, olfactory and organic vapor instrumentation.

Ten (10) soil samples were collected for laboratory analysis from seven (7) of the test pits. Soil samples were collected from discreet six-inch intervals and the depths/locations were determined based on observed greatest potential impact as determined by field screening and/or the presence of stained soil, odor or other indication of potential impact. A second,

deeper sample was collected from three (3) test pits (TP-4, TP-9, and TP-16) to assess soil quality beneath the fill. Soil samples were forwarded under chain of custody to Accutest Laboratories (Accutest) for Priority Pollutant List (PP+40) analyses. Figure 3 illustrates the locations of geophysical anomalies and test pit locations and presents the analytical results from soil samples collected during site characterization. Appendix 1 provides analytical data summary tables from site characterization samples.

Based on these efforts, no significant source of environmental impact was identified in the fill materials evaluated at the PASD KES property. Fill materials consist primarily of construction-related fill materials, which appear to have been placed over a previously deposited municipal/household-type fill. Based on PADEP's Management of Fill Policy, with a few exceptions (discussed below), a majority of the materials encountered meet the definition of clean fill and/or historic fill. With the exception of one buried and abandoned heating oil AST in TP-4, the metallic anomalies identified in the geophysical survey were determined to consist of scrap metal, metal equipment or crushed/empty drums, and no other stained soil or buried tanks were encountered. The tank was located in one anomaly near the western property boundary.

The overall landfill extent was defined in an area located across the northwest corner of the KES property, approximately 167,860 square feet (3.85 acres) in size. Fill extends throughout the northern wooded section of the KES property located north of the unpaved access roadway; and fill deposition extends from the western property boundary eastwards to the edge of the grass field, and northwards to the northern property boundary. At its largest extent, the fill covers an area that is approximately 400 feet wide (east to west), and 460 feet long (north to south). The thickest fill deposition is found near the center of the landfill (test pits TP-12, TP-13, TP-7 and TP-9), where fill depths extended to the maximum reach of the backhoe (e.g., 16 to 18 feet). In these locations, a thick layer of construction fill, approximately 7 to 10 feet thick, overlies municipal/household fill. The municipal fill was only encountered in these four test pits. The bottom depth of municipal fill could not be confirmed beyond the reach of the backhoe test pits; however, based on soil boring logs from the nearby wells (MW-KES-02 and MW-KES-5), the fill in these locations appeared limited to the top of the weathered bedrock surface, approximately ten (10) feet below grade.

Construction fill thicknesses across the remainder of fill area varied in thickness from greater than 10 feet (TP-1, TP-18) to less than 4 feet (TP-8, TP-14, TP-15, TP-16 and TP-23). In general, only limited fill, located at or near the surface was encountered along the southern fill areas near the unpaved access road. A soil cover of varying thickness appears to extend across the majority of the fill area; however, in places, concrete, stone, lumber and other types of construction materials exist on the surface. A thick vegetative overgrowth also exists across a majority of the landfill, with the exception of a scoured surface associated with a former access area on its western edge. Trees with diameters greater than six inches exist throughout the former landfill. Isolated areas of cinders, burned lumber and ash were identified within the construction fill in seven (7) of the test pits, generally located in the western portion of the fill area.

Based on the findings of the site characterization soil due diligence evaluations, further discussed below, fill associated with test pits TP-4, TP-9, TP-12 and TP-16 would meet PADEP's Management of Fill Policy definition of regulated fill and would need to be managed as such. Fill encountered in the remaining test pits would meet the clean fill definition. PADEP's Management of Fill Policy stipulates that clean fill may be used in an unrestricted or unregulated manner, without the need for a permit; however, best management practices and other applicable regulations, such as Chapter 102 (Erosion and Sediment Control) must be followed.

As indicated on the Site Closure Plan (Figure 5), portions of the planned excavation area overlap with the area characterized as containing fill. The overall fill area is estimated at 3.85 acres, and the total area of excavation is approximately 61,000 square feet (SF). The location and vertical/horizontal limits of the excavation area have been determined based on the design requirements for subgrade elevations for the basin and the existing topography of the fill area. Based on these calculations, the estimated total volume of excavation material is 8,425.4 cubic yards (CY); however, based on the test pit investigation findings, approximately one third (1/3) of this volume, or roughly 2,125 CY is estimated to consist of native soil or soil fill. The remainder of the excavated material, estimated to be 6,300 CY is estimated to consist of mixed construction fill and solid waste.

2.3 Soil Investigation and Analytical Results

A total of thirteen (13) soil samples were collected during site characterization activities, which included ten (10) test pit soil samples and three (3) soil boring samples collected from the monitoring wells. A majority of the analytical results were non-detect for PP or full TCL/TAL analyses. Isolated exceedances of the Act 2 residential MSCs were identified as described below.

With the exception of N-nitrosodiphenylamine in one sample (TP-16), there were no organic compound exceedances of residential MSCs in the site characterization samples. The analytical result for this compound in a soil sample collected deeper in the same test pit did not exceed any Act 2 residential MSCs. The detected concentration (24.5 mg/kg) exceeded the soil-to-groundwater MSC of 20 mg/kg, but was well below the direct contact MSC (3,700 mg/kg). While the soil-to-groundwater MSC was exceeded, this compound was not detected in any of the results from the groundwater characterization sampling.

With the exception of arsenic results for two (2) samples (TP-9A and TP-12), and the lead result for one (1) sample (TP-4A), there were no exceedances of any inorganic Act 2 residential SHS. The arsenic results are within the concentration ranges reported in this area of Pennsylvania and may represent a naturally occurring background condition. The presence of lead in the TP-4A sample may be associated with stained soil encountered adjacent to the buried AST identified and removed from test pit TP-4, as analytical results from a deeper soil sample collected from non-impacted soil beneath the tank did not exhibit any exceedances of the Act 2 residential SHS. Sample TP-4 also exhibited low-level concentrations of petroleum-related VOCs and PAHs, all of which were below their respective Act 2 residential SHS.

2.4 Groundwater Investigation and Analytical Results

CMX performed a groundwater investigation to further assess on-site groundwater quality and flow characteristics; evaluate the potential for an on-site source of TCE impact; and to evaluate the need for vapor intrusion analysis. Prior to conducting the groundwater investigation, CMX reviewed proposed well locations and rationale with PADEP and USEPA who provided general concurrence with the locations and planned approach.

Six (6) shallow groundwater monitoring wells (MW-KES-01 through MW-KES-06) were installed at the PASD KES property. Monitoring well locations are presented on Figure 4. A groundwater screening sample was collected from each PASD well directly after installation to provide preliminary VOC data from these wells in advance of the full sampling round. No exceedances of PADEP SHS were reported in the screening samples from any of the wells. On December 19 and 20, 2006, CMX performed a groundwater sampling round from existing and newly-installed monitoring wells. The existing wells sampled included the four on-site wells previously installed as part of the Ciba Superfund Site investigation (e.g., monitoring wells: MW-17, MW-18, MW-19 and MW-31A). In addition; a sample was also collected from one monitoring well (MW-1) that had been installed in 1991 as part of a limited site investigation by the previous property owner. Samples were submitted to the analytical laboratory for PP+40 analysis.

Analytical results from the December 2006 round of groundwater sampling exhibited no organic compound exceedances in any of the groundwater samples from the newly installed PASD wells. With the exception of manganese, there were also no exceedances of any inorganic parameters in these groundwater samples. Manganese was reported in groundwater samples from three (3) monitoring wells at concentrations above the Act 2 groundwater MSC (300 ug/L). Reported manganese concentrations in monitoring wells MW-KES-01 (1,110 ug/L), MW-KES-05 (698 ug/L), and MW-KES-06 (816 ug/L) exceeded the groundwater MSC for manganese. There is no Act 2 soil-to-groundwater SHS for manganese in soil and manganese was not detected in soil samples at concentrations exceeding the direct contact SHS (31,000 mg/kg). Apparent manganese stains/concretions were observed within weathered soil/coarse fragments from the MW-KES-06 soil boring, and manganese is typically encountered in the soil weathered from Stockton-related parent material encountered on the KES property (e.g., Penn and Readington Soil Series). CMX also observed that red brown native-type soil appeared to have been used as cover material on the surface and within the fill layers. The presence of manganese in well MW-KES-06, situated outside the fill area, is believed to be the result of naturally occurring manganese, and manganese concentrations identified within the fill wells may be associated with reducing conditions typically encountered in landfills.

With the exception of MW-17, VOCs were not detected in samples from the Ciba monitoring wells located on the PASD KES Property and the previously installed Satterthwaite monitoring

well MW-1. Analytical results for both the standard and duplicate samples from MW-17 reported concentrations of several chlorinated VOCs. The results for TCE and cis-1,2-DCE exceeded the Act 2 groundwater MSCs for these compounds (5 ug/L and 70 ug/L, respectively). TCE was detected in sample MW-17-122006 at a concentration of 619 ug/L; the duplicate sample (MW-17-122006A) had a reported TCE concentration of 600 ug/L. Cis-1,2 DCE was reported at concentrations of 532 ug/L and 476 ug/L in both samples from MW-17.

8. Summary of Multiple Contracts

SECTION 01120

MULTIPLE CONTRACT SUMMARY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Work covered by Contract Documents.

B. Administrative and procedural sections applicable to each Prime Contract.

C. Temporary facilities and services sections applicable to each Prime Contract.

D. Contracts.

1.02 RELATED SECTIONS

A. Document 00500 - Construction Agreement.

B. Document 00700 - General Conditions.

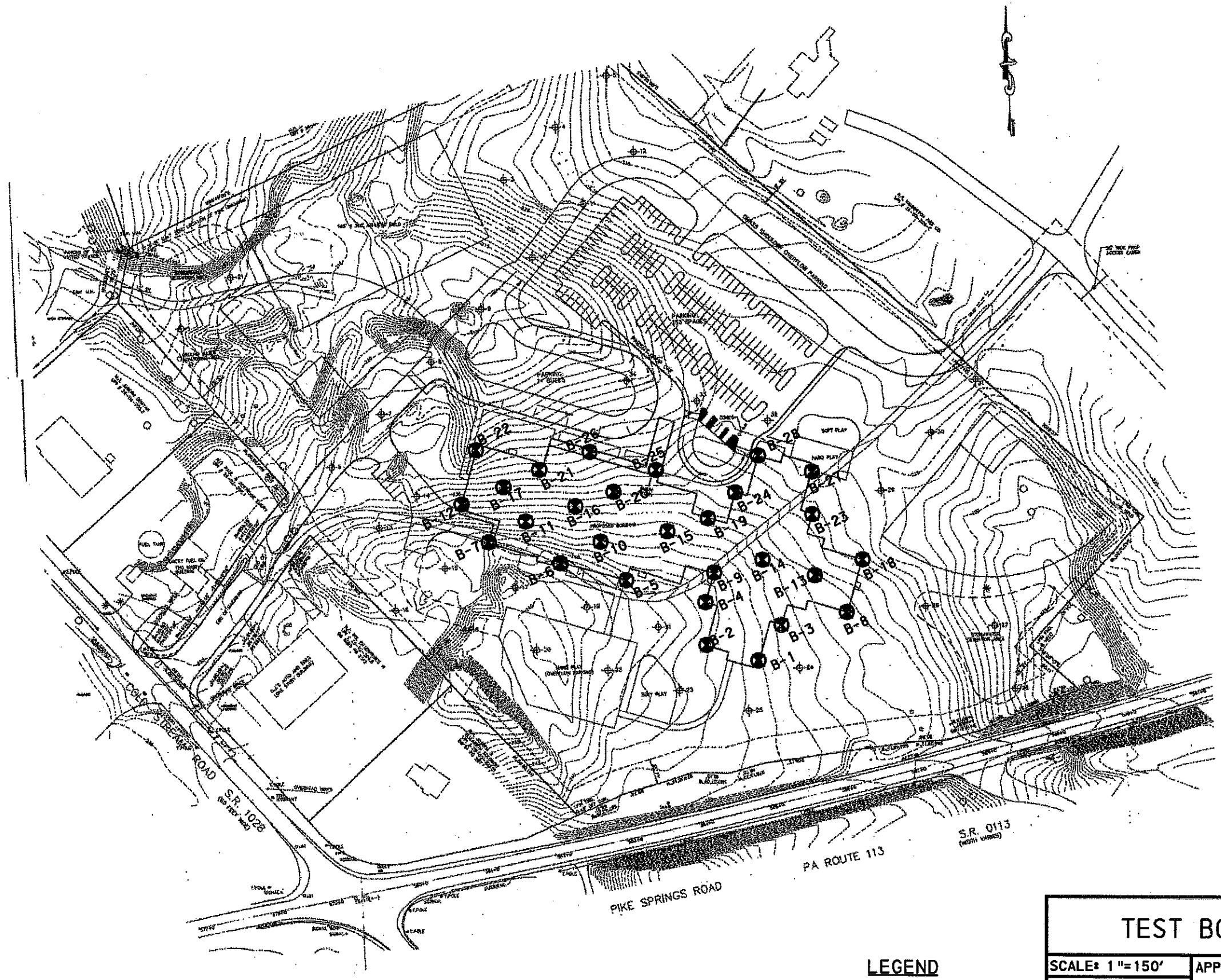
1.03 PROJECT WORK COVERED BY CONTRACT DOCUMENTS

A. Fifteen (15) Prime Contracts comprise the Project Work titled “The New Kimberton Elementary School” of the Phoenixville Area School District, Phoenixville Pennsylvania.

B. Perform the Work of each of the (15) Fifteen Prime Contracts under separate stipulated lump sum contracts with the Owner.
1. Contract No. 1 - General Construction.
2. Contract No. 2 - Roofing Construction.
3. Contract No. 3 - Aluminum Entrances and Windows Construction.
4. Contract No. 4 - Ceramic Tile and Quarry Tile Construction.
5. Contract No. 5 – Acoustical and Drywall Construction.
6. Contract No. 6 - Resilient Flooring and Carpeting
7. Contract No. 7 - Painting Construction.
8. Contract No. 8 - Visual Display Construction.
9. Contract No. 9 - Food Service Equipment Construction.
10. Contract No. 10 - General Casework Construction.
11. Contract No. 11 - NOT USED
12. Contract No. 12 - Plumbing Construction.
13. Contract No. 13 - Fire Protection Construction.
14. Contract No. 14 - HVAC Construction.
15. Contract No. 15 - Electrical Construction.
16. Contract No. 16 - Data Cabling Construction.

C. Work of each separate Prime Contract is identified in the following paragraphs and as indicated on the Contract Drawings. Each Prime Contractor shall familiarize themselves with the description of the work of other Prime Contractors, and shall incorporate into their bid the work that is an appropriate part of their contract.

D. Interpretation of Prime Contract Descriptions: Each Prime Contract description lists sections of the Project Manual in which that Prime Contract is responsible. Sections that have information contained in parentheses are common with other Prime Contracts. The information in the parentheses describes that portion of the section that pertains and is the responsibility of the Prime Contract in which the information is listed under. If there is a conflict on a specific item between the Contract Documents and the Prime Contract description, the description shall govern; however if an item is covered in the Contract Documents, but not reiterated in the prime contract package description, the Bidder shall be responsible for that item of work.



LEGEND

⊗ TEST BORING LOCATION

150′ 0 150′

SCALE IN FEET

TEST BORING LOCATION PLAN

SCALE: 1"=150′	APPROVED BY: RC	DRAWN BY: JWJ
DATE: 1/6/06		

VALLEY FORGE LABORATORIES, INC. ENGINEERING CONSULTANTS

PROPOSED KIMBERTON ELEMENTARY SCHOOL
KIMBERTON., PA

DRAWING NUMBER: 05210-1

9. Sample of Soil Reports

LEGEND

● AUGER PROBE LOCATION

150′ 0 150′

SCALE IN FEET

AUGER PROBE LOCATION PLAN

SCALE: 1"=150′	APPROVED BY: RC	DRAWN BY: JWJ
DATE: 1/6/06		

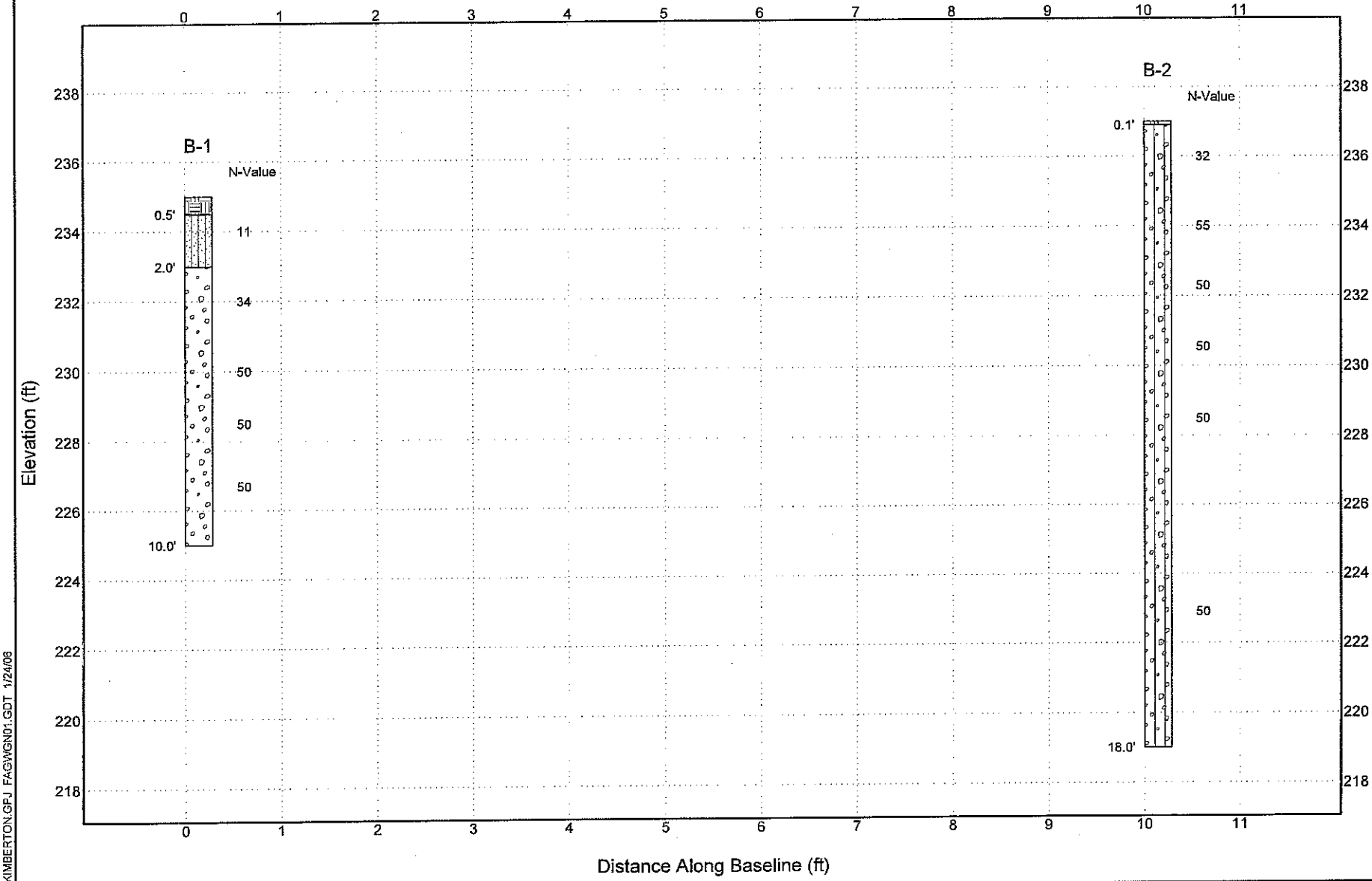
VALLEY FORGE LABORATORIES, INC. ENGINEERING CONSULTANTS

PROPOSED KIMBERTON ELEMENTARY SCHOOL
KIMBERTON., PA

DRAWING NUMBER: 05210-2

9. Sample of Soil Reports

SUBSURFACE BORING PROFILE



VFL SELP2 PROFILE KIMBERTON.GPJ FAGWGN01.GDT 1/24/06

VALLEY FORGE LABORATORIES, INC.	PROJECT NAME	PROJECT NO.	DATE	VFL DWG.
	Proposed Kimberton Elementary School	05210	Jan 06	05210-3

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