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November 20, 2025

Project No. 21-109

Ms. Dana Drake, Environmental Program Manager
Waterways & Wetlands Program
400 Waterfront Drive
Pittsburgh, PA 15222

RE: DEP File No. E0205225-004
Second Technical Deficiency Letter
QVSD New High School Campus
Leet Twp, Leetsdale & Edgeworth Boroughs, Allegheny County

Dear Ms. Drake:

The Quaker Valley School District and its design team have reviewed the Second Technical Deficiency Letter from the PA Department of Environmental Protection (PADEP) dated October 31, 2025, and have prepared the following responses.

Engineering Comments

1. §105.261(3): Regarding the H&H analysis, the 100-yr flow utilized for Reaches UNT-1.1 and UNT-1.2 was 55.72 cfs. This flow rate was calculated by modelling the UNT 1 Drainage Area in Hydraflow. At around RS 637 (Reach UNT-1.2), UNT 3 joins UNT 1 so the flow rate for this reach should be the combined rate of the UNTs (higher than 55.72 cfs). Submit an updated Hydraflow model which combines these flows and an updated HECRAS model utilizing the revised flow rate for this reach. Additionally, please submit updated riprap apron calculations and anything else in the H&H report that may be affected by the revised flow rate.

   Response: *As shown in Table 1 on page 7 of the Hydrologic and Hydraulic Report, the drainage area for UNT1 at UNT2 is 33.75 acres for predevelopment conditions and 20.70 acres for post development conditions. The flow for UNT1.1 and UNT1.2 of 55.72 cfs for post development conditions, was calculated using the entire drainage area of 20.70 acres. The drainage area for UNT3 is a subset of the 20.70 acres as indicated in Note 2 of Table 1. For UNT1.1 from RS 637 to RS 731, the flow could have*

been reduced without the contributing area from UNT3 and UNT4/5, but for such a small segment which will not be impacted by the project, further subdividing the drainage area for UNT1.1 was not considered.

2. §105.13(g): It is noted that a resubmission was made to Allegheny County Conservation District for an Individual NPDES permit at the end of June 2025. Please continue to provide updates on the status of this permit application. The Waterway & Wetlands Program will conduct a concurrent review, but should we complete our review and evidence that other, required permits have not been secured, the Department may withdraw this application. You would then need to resubmit your application.

   Response: *Matthew Gordon of Allegheny County Conservation District informed Streamline, via email dated 8/26/2025, that the NPDES application is considered administratively complete and that the application is going through a technical review. Streamline has not yet received any technical comments. Once received, Streamline will respond within the required time frame. Further, in the interest of completeness, note that the Department indicated (via your 11/6/2025 email) that it would not withdraw the pending application simply because the NPDES permitting process had not concluded by the time the Department had completed its review of this application. Rather, in that case, the Department "will hold the Joint Permit and coordinate with the NPDES permit."*

Environmental Comments

3. §105.13(e)(1)(vii) & §105.18a(b)(3)(ii)(A): In your response, you provided "ATTACHMENT 2 Existing Site Alternative Study And Architecture Cost Estimate." In the provided analysis, your estimates were for a 220,000 sq. ft. high school building; however, your proposed high school building has a footprint of approximately 163,000 sq. ft. As such, provide revised cost estimates utilizing your proposed footprint. Alternatively, provide additional data and discussion supporting the provided cost estimates.

   Response: *For purposes of clarification, the cost estimates provided in the "ATTACHMENT 2 Existing Alternative Study And Architecture Cost Estimate" document were for a high school building having a total gross building area of 220,000 square feet. This calculation included 12,000 gross square feet for a District Administrative Office, which if removed from the calculation, would result in a high school building having a total gross building area of 208,000 square feet.*

   While the proposed high school building has a footprint of approximately 163,000 square feet, its total gross building area is 191,759 square feet, excluding the District Administration Office. Therefore, the total gross building area of the proposed high school building is only 16,241 square feet less than the high school building options considered in the ATTACHMENT 2 Existing Alternative Study And Architecture Cost Estimate. Accordingly, the 2014 cost estimates contained in said Attachment are representative of those costs that would be incurred for a building of similar size to the proposed high school building.

   Additionally, in 2020, Thomas and Williamson provided an estimated renovation cost for the existing high school, which has a total gross square footage of 126,560 square feet. This included a new addition of 77,800 square feet, bringing the overall gross square footage to 204,360 square feet. The total includes a 12,000 square foot District Administrative Office. If the District Administrative Office is excluded, the total gross square footage is 192,360 square feet, which is only 601 square feet more than the proposed

high school. The total proposed renovation cost in 2020, covering renovations, additions, and site work, was $72,732,723. This 2020 cost estimate may be found at page 17 of the attached March 10, 2020 "Quaker Valley SD High School Project Facilities Update."

The construction cost for a new building with 191,759 gross square feet would be the same, whether it is built on the existing site or a new location, as both would require the construction of a new foundation and would be designed with the same features – classrooms, gym space, cafeteria, theater, auxiliary services, administrative areas, etc. Attached please find a letter from John F. Orsini, AIA, with BSHM, that supports this conclusion.

A significant challenge of demolishing and rebuilding on the existing site is managing the temporary displacement of students and staff. This would likely involve utilizing mobile classrooms, and the most feasible place for such classrooms (in terms of grade and other physical property features) would be the lower portion of the current site, which is within a flood zone, making it an inadequate and dangerous location to house children. The estimated cost for the utilization of mobile classrooms is $8,000,000. This represents wasted funds that could otherwise be invested directly into the construction of a new building at a new site. Further, this temporary displacement of students and staff would occur over at least two (2) academic years.

While this is not a cost that can be measured in dollars and cents, the detrimental effects on students and staff having to use mobile classrooms for all/a portion of one or more school years would be significant. Building on a new site would eliminate the need to displace students and staff during construction, along with the associated costs of the same.

Moreover, the lower portion of the current site contains the District's football field, track, tennis courts, and other athletic facilities. If this space is used to house students and staff while demolition and rebuilding are occurring, District athletic teams, as well as the marching band, would not be able to practice or hold events at these facilities. Consequently, certain athletic/other events would need to be suspended during demolition and construction, which would be devastating for students, families and members of the community, or the District would be required to attempt to rent athletic facilities from a third party. While there are other high schools in the area that have the required facilities, renting from those districts would be challenging, as they have their own teams and bands who utilize the fields, courts, etc. during the relevant athletic seasons. Additionally, paying rent for the use of the facilities would be an added cost.

Lastly, if the existing athletic space on the lower portion of the current site would be converted to a school building, there would be no place on the current site where the football field, track, tennis courts, bleachers and other athletic facilities may be relocated. Additionally, any requisite Township approval for locating these types of facilities on the new site has not been received. Therefore, there would be no location on District property for these athletic facilities.

4. §105.13(e)(1)(vii) & §105.18a(b)(3)(ii)(A): Related to the preceding comment, reevaluate the feasibility of all of your alternatives based on your revised cost estimates, the reduced 163,000 sq. ft. footprint, and all of the factors that you previously provided, including continuing to use the current high school with renovations and additions or constructing the new high school on the existing site.

Response: *As set forth above, cost estimates contained in the "ATTACHMENT 2 Existing Alternative Study And Architecture Cost Estimate" are for a building having a total gross building area comparable in size to that of the proposed high school (208,000 square feet, and 191,759 square feet, respectively).*

By way of further information, please refer to the attached Thomas and Williamson document. To highlight some of the information contained in said document:

- *The existing high school was designed and constructed in an era before modern construction technologies were developed and in widespread use. The "load-bearing" nature of the walls of the facility significantly limit the feasibility of internal structural modifications. The need to reconcile the existing changes in the floor elevations throughout the facility, in order to enable accessibility mandated by the Americans with Disabilities Act ("ADA"), will require an inordinate amount of structural reworking and further reduces the feasibility of these modifications.*

- *The compression arches ("flat arch" construction) employed in the earliest portions of the existing high school building further complicate the ability to execute alterations which expand the spaces inside of that facility. The exterior and corridor walls must remain in-place. Removal or the creation of larger openings in those walls would require the tedious installation of steel beams, columns to support the beams, and new pile foundations that would have to be drilled many feet under the existing structure using a drilling rig inside of the existing building.*

- *There is a residual degradation of the existing high school building in process, which is indirectly driven by the infeasibility of renovating the facility. All buildings contain components with predictable serviceable lives. While components of the superstructure may typically remain serviceable for 75 to 100 years, most of the other components have a substantially shorter anticipated serviceable life. After the anticipated serviceable lives expire, it becomes necessary to upgrade or replace the components. The context for the existing high school, a building which includes an outmoded superstructure, has placed the District in a position where it cannot continue to replace retiring equipment, where the superstructure is not feasibly adaptable and, in the case of the oldest parts of the building, where the superstructure is close to the end of its useful life cycle.*

- *The existing high school site is not functional, as over the many decades in which the facility has been in use, the school's functions have absorbed all available areas of the site. The existing site is heavily constrained by Route 65 on the southwest side, by Beaver Street on the northwest side, by a supermarket complex to the south, and by a residential development to the north. The on-site parking is extremely limited, with the majority of the parking located approximately 50 vertical feet below the entrance to the building. The parking areas are regularly fully-loaded and congested. Further, the build-out of the site facilities and the expansion of the building on the constrained site has also resulted in a traffic pattern around the building with poor site lines and intermingling of the pedestrian patterns. The vertical distance from the majority of the parking areas to the building entrances also poses a significant impediment to achieving compliance with the ADA. Accessibility cannot be achieved without unreasonably long ramps, exterior elevators or a combination of the two. These constraints*

prevent the feasible redevelopment of the site, as well as the expansion of the building in a practical manner.

- *The Pennsylvania Department of Education ("PDE") provides guidelines for the acreage for various school configurations in its PlanCon Part C instructions. Under those guidelines, high school sites supporting Grade 9-12 should have a base area of 35 acres, with one (1) additional acre for each 100 FTE (full-time equivalent) of capacity. Using this guidance, with an FTE capacity of approximately 1000, the overall site should have an area of 45 acres. The current site, at approximately 14.55 acres, is roughly one third of the recommended area.*

- *The school building located on the new site will provide the following improvements, some of which are correcting failed conditions on both the existing and new sites:*

    - *The on-site parking will be more than double that of the current amount at the existing facility;*
    - *Car and bus traffic will be segregated and routed over appropriately sloped roadways;*
    - *Pedestrian walkways will be isolated and safer than the current conditions;*
    - *Vehicular access to and from the site will be improved;*
    - *Stormwater management will be provided and will benefit all downstream properties;*
    - *Water quality basins will be constructed in order to offset any environmental impacts from the proposed impervious areas;*
    - *Improvements will be made to the existing unstable site conditions adjacent to Camp Meeting Road;*
    - *The existing streambed adjacent to Camp Meeting Road will be stabilized;*
    - *Classrooms will be designed to provide flexible classroom layouts, in order to enhance the learning climate and support departmental collaboration;*
    - *Classroom deficiencies at the existing current high school, which include undersized classrooms, numerous spaces without windows or natural light, and spaces with poor climate control, low ceilings, and sound issues, will be completely eliminated;*
    - *Special education classrooms will now be full size and located within the flow of the learning program, with support spaces being located near learning spaces. Current inadequacies with the Life Skills space will be fully corrected;*
    - *Large group instruction rooms, special education resource rooms, small group rooms, dedicated teacher workspaces/offices for planning time, and additional conference rooms, all of which are either absent or lacking at the current high school, will be added to enhance the learning climate;*
    - *Music instruction classrooms, practice rooms, and storage which cannot be accommodated at the existing high school, will be accommodated at the new high school;*
    - *Significant improvements and upgrades will be made to science labs, art studios, applied learning labs, and media center, to name a few, and each will be appropriately designed to meet current educational needs;*
    - *Existing deficiencies with the gym and related facilities, which deficiencies include limited seating, limited storage, poor ventilation and sound, inadequate fitness rooms,*

no health classrooms, and woefully inadequate locker rooms, which are poorly ventilated and lack private changing areas, will be eliminated; and

- *The existing high school suffers from multiple deficiencies based on the current criteria established by PDE. Although many of these deficiencies are permitted to exist under PDE's grandfathering rules, they remain deficiencies adversely affecting the educational opportunities available to students. The new high school will meet all current requirements established by PDE and significantly enrich the educational experience for all students.*

Additionally, please refer to the attached November 6, 2013 letter from Douglas A. Beitko, P.E. with Garvin, Boward, Beitko. A summary of the findings are set forth below:

- *Construction additions to the existing high school building.*
    - *It is a virtual certainty that any additions to the rear and sides of the existing structure would require some type of deep foundation system. Building/foundation plans are somewhat limited for the existing building; however, at least 1 of the rear additions is known to be supported on drilled shafts that extend on the order of 60 feet below the ground surface based on personal knowledge of one of Garvin, Boward, Beitko's principal engineers.*
    - *Test boring records indicate the sandstone bedrock surface/decomposed bedrock surface drops severely from the front of the existing school to the rear of the existing school, and continues to dip toward the drainage basin of the Ohio River. In general, relatively impermeable bedrock/very dense residual soil was encountered between elevations 744 and 741 feet in the front of the school. This places bedrock near some of the lower floor elevations of the existing school, particularly along the front of the school. It is a virtual certainty that rainwater falling on the hills above the school migrates downward due to gravity through the relatively permeable alluvial sand deposits until it hits the relatively impermeable bedrock layer. At that point, it would tend to flow downhill along the bedrock surface and toward the foundation walls and lower floor elevations of the existing school. If the existing structure intercepts this water flow, it is likely that lower levels of the school have experienced significant groundwater intrusion over the life of the structure. Such intrusion can be a nuisance, can degrade the structure, and can cause indoor air quality issues if not controlled.*
- *New school on existing campus.*
    - *The site is limited by topographical/elevation change from Beaver Road down to the football field area as the ground surface ranges from about 760 FT along Beaver Road (in front of school) to around 710 feet near the open athletic field and football stadium. As such, it is likely that significant retaining walls would be required to develop and make use of the entire site.*
    - *In order to maintain access from Beaver Road, and to maintain school in session, it is likely the building footprint would be located over the rear slope and out over the lower field area. As such, it appears that the approximate 40-foot of elevation difference would require an*

approximate 40-foot high retaining structure. In order to maintain a similar developable "width" (frontage along Rt 65), the wall would probably be in excess of 600 feet long along the front. Two "wings" would extend back toward the existing school for a total length on the order of 1000 feet.

- *Based on the experience of Garvin, Boward, Beitko, a mechanically stabilized earth (MSE) wall would probably be the most cost-effective wall for this area of the site. Their experience also indicates the cost of the MSE wall components (block facing and geogrid) would probably be on the order of $45 to $64 per square foot of wall face, or $1,800,000 to $2,600,000. This would not include any imported granular premium fill (as required for construction of reinforced zone of MSE wall) or any fill soils that would have to be imported to fill beyond the reinforced MSE wall zone). The reinforced zone alone would entail import on the order of 60,000 cubic yards or approximately 110,000 tons at a delivered cost on the order of $25 per ton for a total cost on the order of $2,800,000. Compaction of the crushed stone would probably cost on the order of $6 to $10 per cubic yard, or $360,000 to $600,000. This would suggest a wall cost on the order of $5,000,000 to $6,000,000.*

- *The order of magnitude cost described above would not include the import or compaction of soils required to reach grade beyond the reinforced zone. It also does not include any special subgrade preparation that may be required. A geotechnical exploration was not conducted for the potential wall area.. However, published mapping indicates the Upper Freeport coal seam was exposed in this area, and it is likely that significant disturbance occurred during undocumented "wildcat" mining operations.*

- *Any new school constructed upon such a large fill platform would likely require deep foundations. Alternatively, it might be possible to use an extended surcharge program (piling additional soils in the future building footprint) to simulate future building loads and effectively "squeeze" out settlement prior to construction of a new school. The length of surcharge programs varies, but 3 to 6 months would be a reasonable prediction at this point in time. The settlement would be monitored by surveying and evaluated by the geotechnical engineer to determine when actual building could commence.*

Further, we have attached a 2010 District Wide Facility Study prepared by Eckles, including those portions relating to the current high school site. Included in this 2010 Study are (1) cost estimates and analysis for making comprehensive alterations to the existing high school building, which would enlarge it to 172,460 square feet (excluding administrative office space) of gross building area, (2) cost estimates and analysis for constructing a new high school building containing 172,460 square feet (excluding administrative office space) of gross building area on the existing site; (3) cost estimates and analysis for demolishing a portion of the existing high school and constructing alterations and additions, which would result in a building with a gross building area of 172,460 square feet; and (4) cost estimates and analysis for constructing a new high school building having a gross building area of 172,460 square feet on a new site.

We note the following considerations and challenges identified in the 2010 Study, for 3 of these options:

- *Comprehensive Alterations & Additions*
  - *The existing gymnasium is undersized and an addition would be necessary to enlarge it to the desired size.*

- *The existing auditorium, stage, and support spaces are undersized and do not provide the appropriate amount of flexibility for a multi-use assembly space. An addition would be necessary to provide a large group assembly venue to meet both performance and educational needs.*
- *The usability/efficiency of the existing building is compromised by the organization of the original construction and previous improvement projects. The efficiency of the building may not be enhanced after renovations due to the existing building limitations.*
- *While the existing site utilization separates bus and parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions.*
- *The District should consider vacating the existing building during construction. While it might be possible to renovate and build new additions in phases while keeping the building occupied, it may not be a practical solution at this site. The site is already very congested and the buildable area of the site is limited by the adjacent residential properties, the city street, and the large slope that separates the high school from McNamara Park. Occupying the building during construction may prove to limit the design options, lengthen the construction timeline, add to the construction costs, and further congest the existing site.*
- *PDE's recommendation for this high school based on FTE's is 44 acres, but the existing site area is approximately 30 acres below the recommended acreage and a portion of the existing site exceeds a 20% slope.*

- *New Building on Existing Site*
  - *The organization of the building design should be greatly improved; however, it is assumed that the building would need to be multiple floors (possible 4 to 5) in order to accommodate the budling on this site.*
  - *It is advisable that if a project is to be considered on the existing site, the District look into acquiring adjacent property.*
  - *While the existing site utilization separates bus and parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions.*
  - *The District should consider vacating the existing building during construction. While it might be possible to renovate and build new additions in phases while keeping the building occupied, it may not be a practical solution at this site. The site is already very congested and the buildable area of the site is limited by the adjacent residential properties, the city street, and the large slope that separates the high school from McNamara Park. Occupying the building during construction may prove to limit the design options, lengthen the construction timeline, add to the construction costs, and further congest the existing site.*
  - *While the organization of the building should be greatly improved over the existing, the site will still be constrained by the property limits, municipal streets, and the steep slope that separates the high school from McNamara Park. These site limitations will limit the availability to fully differentiate bus, parent, and student circulation.*

- *Partial Demolition and Comprehensive Alterations & Additions*

- *The organization of the building design should be greatly improved; however, it is assumed that the building would need to be multiple floors (possible 4 to 5) in order to accommodate the budling on this site.*
- *It is advisable that if a project is to be considered on the existing site, the District should look into acquiring adjacent property.*
- *While the existing site utilization separates bus and parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions.*
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In short, the multiple studies that Quaker Valley School District has commissioned over the years continue to confirm that there are no reasonable alternatives other than construction of a new school building as planned.

5. §105.13(e)(1)(vii) & §105.18a(b)(3)(ii)(A): Related to the preceding comment, the aforementioned Attachment 2 included general statements regarding the feasibility of continuing to use the current high school with renovations and additions or constructing the new high school on the existing site. Regarding your reevaluation of this alternative, any general statements should be supported by project specific information and discussion.

   Response: *Please refer to the responses to questions 3 and 4 above, along with the documents referenced therein.*

6. §105.13(e)(1)(x) & 105.15(b)(5): While you indicated in your response that consultation is still ongoing with the Pennsylvania Historical and Museum Commission (PHMC), as previously requested, provided evidence that you have addressed PHMC's concerns regarding your projects potential to affect the property associated with the Muotta House (Resource #2004RE03024), per PHMC's letter dated January 9, 2025.

   Response: *The USACE has taken the lead in the process, under Section 106 of the National Historic Preservation Act. On or around September 22, 2025, the USACE sent letters to potential interested parties, including the Pennsylvania State Historic Preservation Office ("SHPO"), a bureau within the PHMC, inviting them to contact the USACE if they would like to provide input on mitigation of the adverse effect to the Muotta House. On November 13, 2025, Jeremy Roberts of USACE emailed individuals and/or entities who indicated an interest in participating in the process, which included the SHPO, for the purpose of scheduling a meeting to determine appropriate mitigation for an adverse effect to the Muotta House. A copy of this November 13th email is attached. A meeting has been scheduled for Friday,*

November 21, 2025. Following the conclusion of meetings held by the USACE, a Memorandum of Agreement will be created.

As requested, a copy of PADEP's comments from the October 31, 2025 letter is attached to this letter as Attachment 1. If you have any questions on this submittal, please contact Streamline Engineering, Inc.

Respectfully yours,
STREAMLINE ENGINEERING, INC.

Martha L. Frech, P.E.
President

Attachments

ATTACHMENT 1
PADEP Second Technical Deficiency Letter

DEP FILE NO. E0205225-004

PLEASE ENCLOSE A DIGITAL COPY OF THIS LETTER WHEN SUBMITTING THE REQUESTED INFORMATION

All requested information below must be provided electronically through *ePermitting and Public Upload with Electronic Payment*. Please use the link below to view the webpage, get instructions, and submit documents as we are no longer accepting paper copies. Additionally, submit the dated revisions as an entire section so that we can exchange individual sections with the original submission. The revisions should be in a searchable format. Please submit as a new submission and choose "fee exempt" if additional fees are not being submitted.

https://www.dep.pa.gov/DataandTools/ElectronicSubmissions/Pages/default.aspx

Engineering Comments

1. §105.261(3): Regarding the H&H analysis, the 100-yr flow utilized for Reaches UNT-1.1 and UNT-1.2 was 55.72 cfs. This flow rate was calculated by modelling the UNT 1 Drainage Area in Hydraflow. At around RS 637 (Reach UNT-1.2), UNT 3 joins UNT 1 so the flow rate for this reach should be the combined rate of the UNTs (higher than 55.72 cfs). Submit an updated Hydraflow model which combines these flows and an updated HECRAS model utilizing the revised flow rate for this reach. Additionally, please submit updated riprap apron calculations and anything else in the H&H report that may be affected by the revised flow rate.

2. §105.13(g): It is noted that a resubmission was made to Allegheny County Conservation District for an Individual NPDES permit at the end of June 2025. Please continue to provide updates on the status of this permit application. The Waterway & Wetlands Program will conduct a concurrent review, but should we complete our review and evidence that other, required permits have not been secured, the Department may withdraw this application. You would then need to resubmit your application.

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ATTACHMENT 2
Quaker Valley SD High School Project Facilities Update, March 10, 2020

Quaker Valley SD

High School Project

Facilities Update

March 10, 2020

Assistant Superintendent

Andrew Surloff, Ed.D.

High School Project Update

A new high school is the best value for our children and our community.

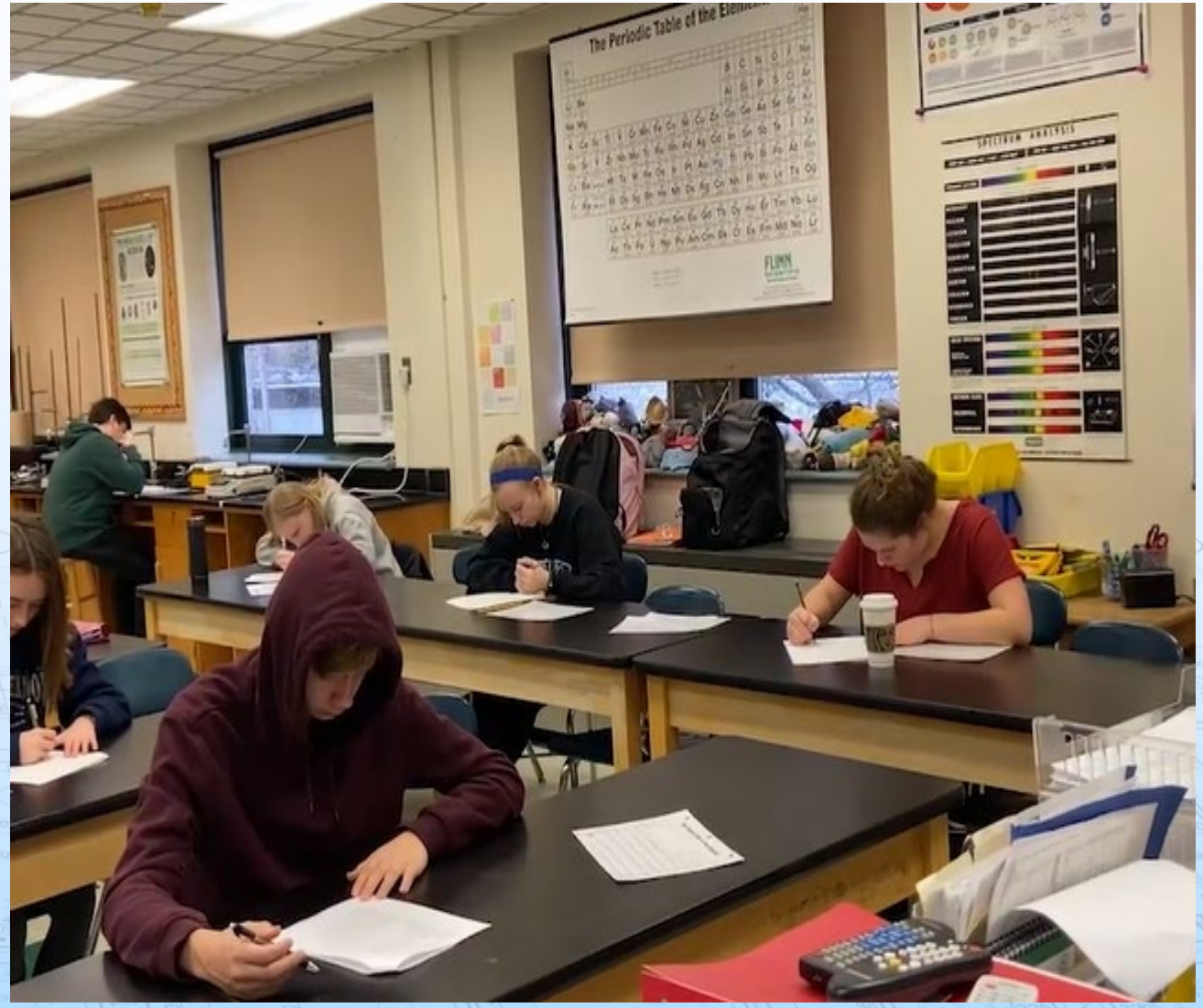
- Renovating and expanding the current facility is complex and costly.
- The facility would be inadequate and result in a loss of campus resources.
- The impact on the educational experience of our children will be significant.

Challenges of Renovation and Expansion

- Educational programming limitations
- Impact on students (potentially K-12)
- Geotechnical and site limits
- Building limitations
- Less than desirable outcome

Educational Program Limitations

- Some core classrooms are unable to hold more than 18-20 students
- Science lab classrooms only have 10 lab stations
- No designated areas for related services (OT, PT, ESL, Speech, etc.)



Educational Program Limitations

- Elective classrooms are too small, can only fit 16 students (CADD lab with manufacturing, computer science, art, and family and consumer science classrooms)
- Main Office and School Counseling/Collegiate Affairs Office have no student/parent meeting space
- Climate concerns exist (too hot, too cold, and too loud)

Educational Program Limitations

- No collaborative workspace for students and staff (LGI, SGI)
- No contemporary education spaces (video production, creative labs, physical education studios)
- Fitness center is inadequate and no competition-size gymnasium
- No space to construct sets for school performances except on the stage
- Auditorium cannot seat the entire student body and staff

Educational Program Limitations

- Cafeteria has cramped seating, long lines, and limited serving space
- Main kitchen is too small to meet the High School needs; some food is prepared at Middle School
- Hallways and stairways are narrow with poor sight lines

Renovation Impact on Students

Vacate the High School for at least three years

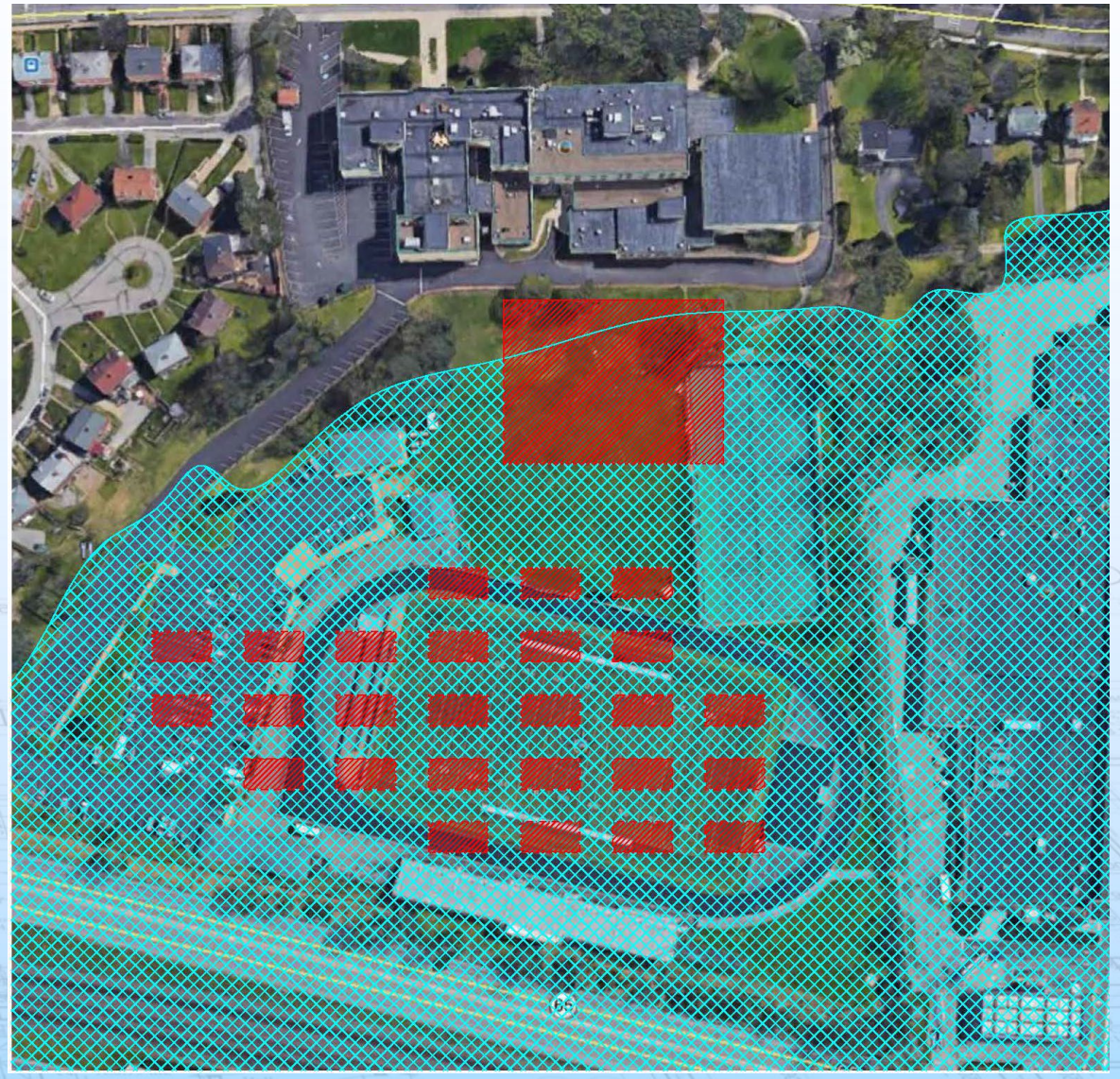
- Three options to educate students
  - Rent another facility
  - Build a portable school campus
  - Use the other District school buildings in split shifts
- No High School athletic facilities
- No student drivers/parking
- Off-site parking for staff and visitors (shuttles)

Portable Campus

- Likely will need 26 portable classrooms
- Cost of $50,000 per classroom which includes delivery, power, data, telephone, security, and ADA compliance
- Monthly rent of $7,800 per portable classroom

Total: $7.5 million for three years

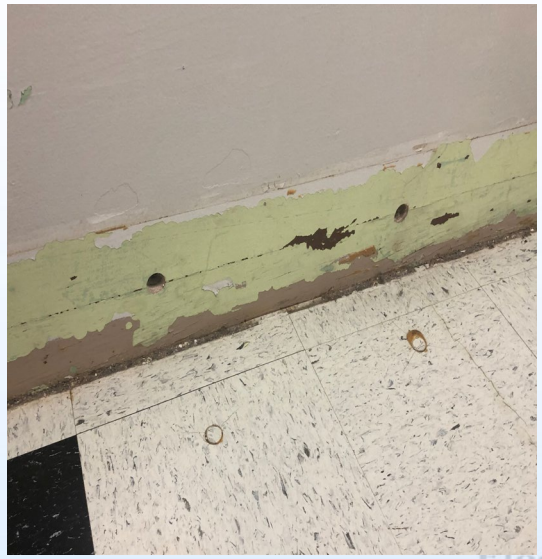
- Cost does **not** include restrooms, cafeteria, kitchen, auditorium, and administration and various offices
- Loss of gymnasium, athletic field, practice field, and tennis courts

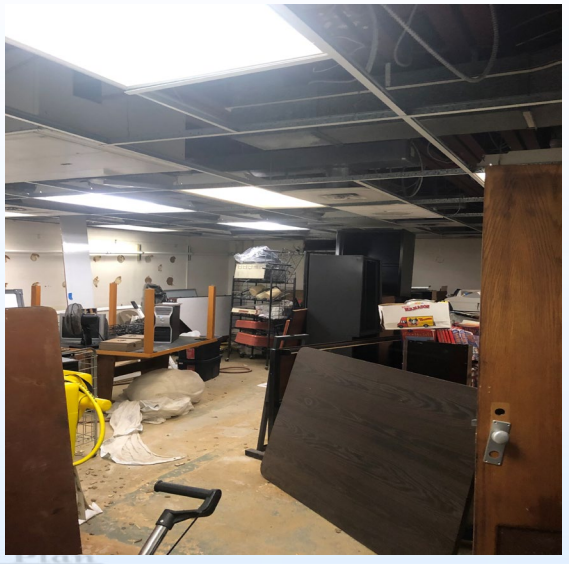


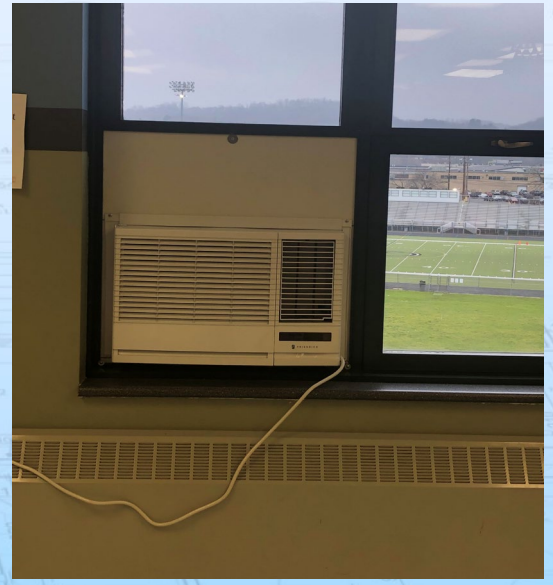
Director of Facilities
Mr. Charlie Gauthier

Current Building Limitations

- Not ADA compliant to current standards
- Air quality concerns
  - Dehumidifier in every classroom on lower level
  - Air conditioning window units
- Mechanical, electrical, and plumbing
  - Complete replacement
- Sump pumps and unusable spaces
- Safety and security updates
- Encapsulated lead paint and asbestos

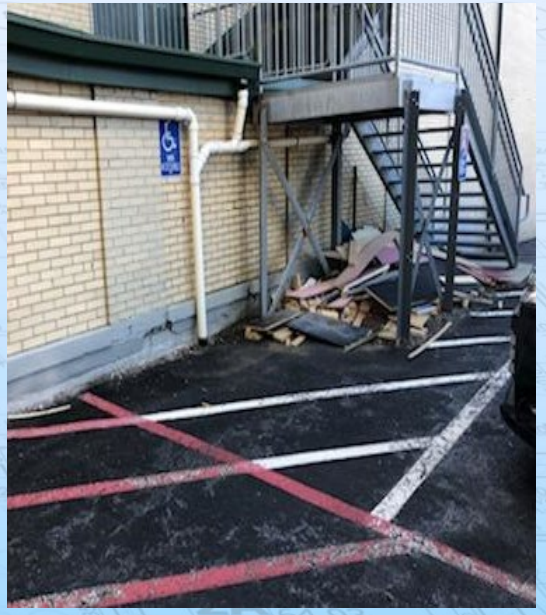






Current Building Limitations

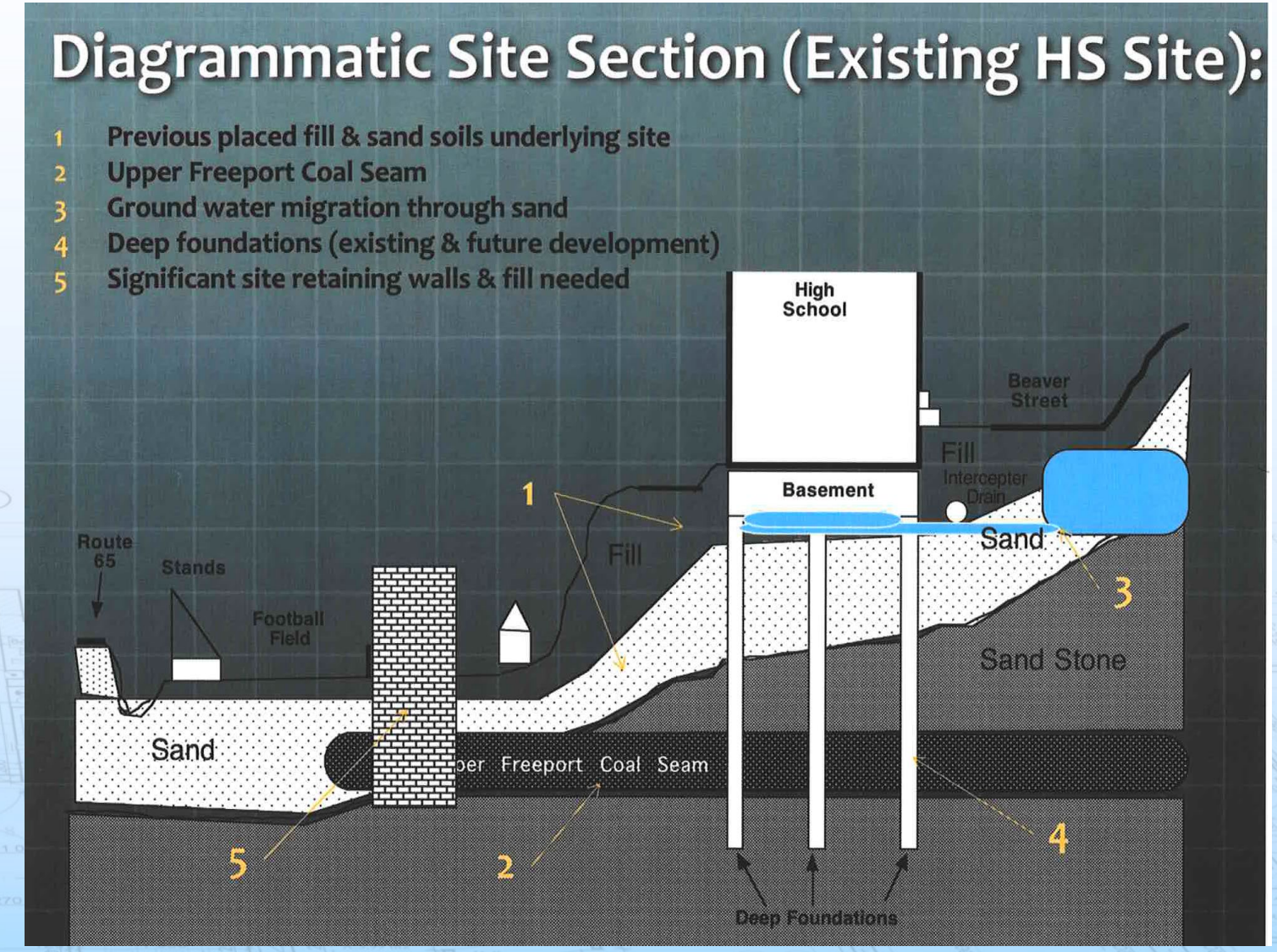
- Cracked foundations and walls
- Load bearing walls
- Shallow spread footings
- Lack of parking and traffic issues
  - Unable to hold large events, such as graduation
  - Lack of ADA compliant vehicular access

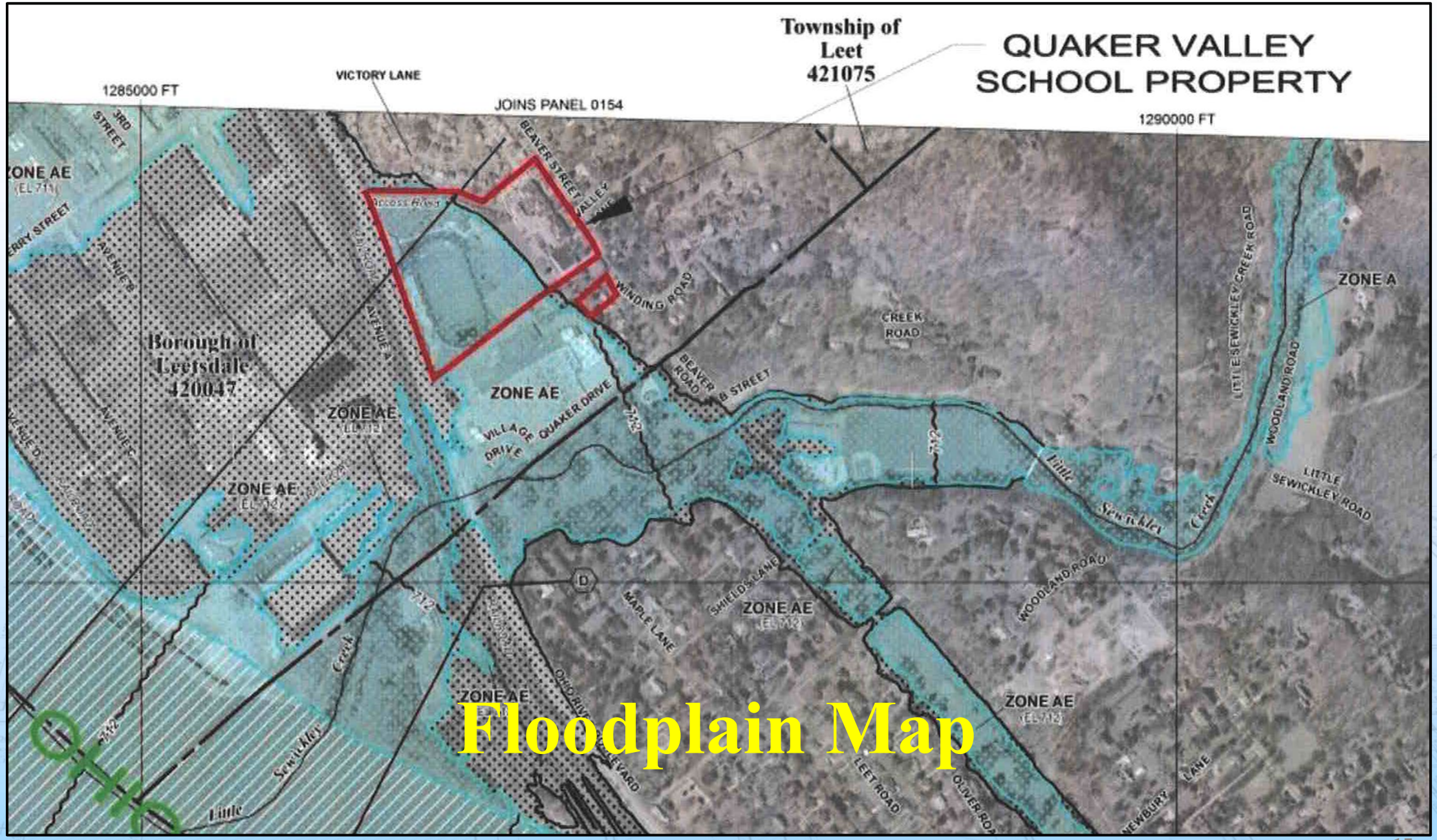


Geotechnical Limitations

- Floodplain
- Deep foundations needed
- Retaining walls needed
- Ground water flooding issues

**2013 study by Garvin Boward Beitko is available on Quaker Valley's website*




Township of
Leet
421075
QUAKER VALLEY
SCHOOL PROPERTY
1285000 FT
VICTORY LANE
JOINS PANEL 0154
1290000 FT
BEAVER STREET
WINDING ROAD
CREEK
ROAD
ZONE A
Borough of
Leetsdale
420047
ZONE AE
VILLAGE DRIVE
QUAKER DRIVE
BEAVER ROAD
B STREET
LITTLE SEWICKLEY CREEK ROAD
WOODLAND ROAD
LITTLE
SEWICKLEY ROAD
Little Sewickley Creek
MAPLE LANE
SHIELDS LANE
WOODLAND ROAD
LEET ROAD
OLIVER ROAD
NEWBURY
LANE
Floodplain Map

Thomas and Williamson

Mr. Jon Thomas

QVHS Renovation Project

	HARD COST	SOFT COST	TOTAL COST	GSF	TOTAL COST/GSF
Renovation to Existing High School	$29,414,910	$8,575,016	$37,989,926	126,560	$300.17
New Addition to Existing High School	$25,429,517	$7,413,197	$32,842,714	77,800	$422.14
Site	$ 1,471,200	$ 428,883	$ 1,900,083		
Total Cost	$56,315,627	$16,417,096	$ **72,732,723**	204,450	$355.74

	HARD COST	SOFT COST	TOTAL COST	GSF	TOTAL COST/GSF
BREAK-OUT COSTS:					
Mechanical, Electrical, Plumbing (Renovation)	$9,732,410	$2,837,186	$12,569,596	126,560	$99.31
Mechanical, Electrical, Plumbing (New Addition)	$3,170,949	$ 924,393	$ 4,095,342	77,800	$52.64
Building Shell (Renovation)	$5,549,207	$1,617,701	$ 7,166,908	126,560	$56.62
Building Shell (New Addition)	$10,892,068	$3,175,249	$14,067,317	77,800	$180.81

EXISTING HIGH SCHOOL GSF	**126,560**
NEW ADDITION GSF	**77,800**
TOTAL GSF	**204,450**

Next Steps:
Program Management

- Issue Request for Proposals (RFP) for:
  - Architects and Engineers
  - Construction Manager
- Develop design criteria
- Engage community on conceptual design
- Develop construction documents and specifications
- Put construction documents out for bid
- Conduct bid review

Quaker Valley SD

High School Project Facilitates Update

Educating and empowering all learners to design their best future.

ATTACHMENT 3
BSHM Letter from John F. Orsini, AIA, November 13, 2025

bshm
architecture revealed

November 13, 2025

Quaker Valley School District
100 Leetsdale Industrial Drive, Suite B
Leetsdale, Pa, 15056

Re: **Cost of Building on Existing High School Site**

Dear Charlie,

This letter is to confirm that, based on the information currently available, the estimated construction cost for the proposed building is expected to be similar for both the Camp Meeting Road Site (Site A) and the current High School site (Site B). This is based on a building program and square footage being the same for both sites. The building includes the physical structure and connections to site utilities 5 feet beyond the building proper. Maintaining the current school and renovating spaces would require a phased approach to construction including summer projects that would not disturb the building's use during the academic year. In addition, there are areas that do not meet the current direction of education and may require major renovations to the building. There are other areas that would also need addressed. Phased construction also adds to cost of the work including multiple bid packages, multiple years of construction and the added impediment of the current limited site.
Following a review and preliminary assessment of the two proposed sites for the planned building project, we provide the following observations that may add additional cost based on the current high school site (Site B) as a new building location:

1. **CONSTRUCTION**
    a. **Construction Cost**
        Based on current estimates, the building construction costs for both sites are broadly similar. No significant cost advantage has been identified for either location at this stage. Other site-specific factors will play a more decisive role in determining the cost of a building located on Site B.
    b. **Geotechnical Engineering and Materials Testing**
        For Site B, there is currently no available geotechnical engineering materials testing data. This absence of information means that additional site investigations will be necessary to assess soil conditions, bearing capacity, and potential ground improvement requirements. The lack of this data could affect both design decisions and project cost.
    c. **Site Layout and Space Availability**
        Site B presents limitations in terms of available layout space during construction, may limit options for construction staging areas, and

potentially require complex planning during the construction phase. These constraints could also influence the handling of material and equipment movement to the site and on the site.

d. Occupied Site

Site B includes the performance field and stadium for the district. This limits the amount of space for layout as well as new building design. Accessing the stadium may be limited to one entrance/exit. In addition, parking for events at the stadium would be limited or not available.

2. BUILDING/SITE DESIGN

a. Site Design

Each site includes grades that will require a retaining wall to provide the programmed educational spaces for a new building. A building on Site B with zoning setbacks would be in an area that may require a retaining wall to provide the size of programmed building.

b. Flood Plain

Portions of the site are situated within a designated flood plain, which may require additional design measures, permitting requirements, and mitigation strategies. This further reduces the site for a new building development area for exterior educational and school sponsored programs on this site.

c. Fill Area Limitations on Developed Site/Balanced Site

A balanced site is when the amount of cut soil is filled on the current site and not removed. Site A design is balanced. On Site B, there is limited space available to designate an area for fill placement. This is a result of the limited site area and the differential grade at Beaver Street and Ohio River Blvd. This constraint could complicate earthworks operations, requiring either off-site disposal or the use of alternative fill management strategies, both of which may have cost and scheduling implications.

d. Parking & Bus and Student Drop-off

Site B with limited area, existing grading and the locations of site access and entries complicates building parking and drop-off. Each is dependent on the other. On Site B the location of parking may be like the current parking lot design. The current lot is not accessible. Logistics of bus/student drop-off from Site B may include Beaver Street and not be on the site proper. In addition, school designs typically separate bus drop off and parent drop off. This maintains safe access routes for students' entrance to the building and site. This would require an on-site drop off for both. To provide both a bus drop-off and a parent drop-off can be achieved by raising the grade with the addition of a retaining wall. Regarding parking and building access, one solution is a parking garage. These approaches add cost to the project as well as another area for the district to monitor for both safety and maintenance.

3. **PROJECT TIMELINE/LOGISTICS**
    a. **Design Schdule/Fee**

        The current schedule for a new school of this size is one to one and a half years to complete the three phases of design and preparing bid and permit documents. These include schematic design, design development and construction documentation. Additional design fees would also be required for a new building on Site B. The current design fee for Site A is 6.5% of construction cost. Design fees for renovations are a higher fee than a new build.

    b. Land Development and Zoning Approvals

        Site B would include compliance with local zoning ordinances and land development regulations. This may require public hearings, environmental reviews, or other procedural steps before approvals are granted. This also may affect the project schedule

    c. Permitting Process

        Currently Site A is submitting the permit and review phase with the authorities having jurisdiction in first quarter of 2026. Site B will be subject to a separate permitting process, which may involve multiple municipal departments and could extend the pre-construction phase.

    d. Existing Building Demolition

        A new building on Site B would include abatement and demolition of the existing building.

    e. Enabling Project

        A new building on the existing High School Site, Site B would require the displacement of the school and an enabling project to provide the spaces required to maintain the level of education at Quaker Valley Schools. There are few directions for the planning of an enabling project. One is a modular building approach, and another is use of an existing building, preferably an existing school. Each has challenges and cost implications. Modular buildings include both foundations and utility hook-ups as well as rent. An enabling building may include a few renovations for specific educational use.

While the construction costs for both buildings, as defined above are comparable, the assessment includes the operational and logistical challenges identified above for a new building on Site B. The limited layout space on Site B, the absence of geotechnical data for Site B, building/site design and the restricted fill area on the developed site are all factors that could influence project timelines, risk levels, and overall feasibility.

Sincerely,

John F. Orsini, AIA Partner/Senior Vice President

ATTACHMENT 4
Thomas & Williamson Program Management Document

Thomas & Williamson
Program Management

The Quaker Valley School District ("QVSD") serves the students and families Aleppo Township, Bell Acres Borough, Edgeworth Borough, Glenfield Borough, Glen Osborne Borough, Haysville Borough, Leetsdale Borough, Leet Township, Sewickley Borough, Sewickley Heights Borough and Sewickley Hills Borough. The public (those communities comprising the School District) benefit in many ways from the services that QVSD provides.

The benefit to the public will be made greater by locating the proposed high school at the proposed location on Camp Meeting Road in Leet Township.

QVSD's existing high school, located on Beaver Street in Leetsdale, PA, has served the citizens of Leet Township as well as all of the other aforementioned surrounding municipalities comprising the Quaker Valley School District since the district's formation in 1956. Prior to that time, there were 10 independent school districts serving the 11 municipalities. Students from those areas who sought to enroll in high school, after the eighth grade, could attend Leetsdale High School, Sewickley High School or Ambridge High School.

Upon the jointure of the 10 independent school districts in 1956, Leetsdale High School became the only high school within the consolidated Quaker Valley School District. That facility, which is currently known as "Quaker Valley High School", was constructed in 1926 and has served as the public high school for the 11 municipalities making up the school district since 1956. The facility has been expanded and renovated several times since its original construction. It is now 98 years old.

While many efforts have been made to modernize the existing facility, those efforts have, in recent years, become less and less effective and the financial investments required to sustain the basic operations have increased. The original facility was designed and constructed in an era before modern construction technologies were developed and in widespread use. The "load-bearing" nature of the walls of the facility significantly limit the feasibility of internal structural modifications. The need to reconcile the existing changes in the floor elevations throughout the facility, in order to enable accessibility mandated by the Americans with Disabilities Act (ADA), will require an inordinate amount of structural reworking and further reduces the feasibility of these modifications.

The compression arches ("flat arch" construction) employed in the earliest portions of the building further complicate the ability to execute alterations which expand the spaces inside that facility. The exterior and corridor walls must remain in-place. Removal or the creation of larger openings in those walls would require the tedious

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installation of steel beams, columns to supports the beams and new pile foundations that would have to be drilled many feet under the existing structure using a drilling rig inside the existing building.

If there were no other impediments, these antiquated structural features, alone, due the cost of implementing the work, the disruption to the educational operations and the complexity of the schedule required to perform the work, inexorably limit the feasibility of revitalizing the facility.

There is also a residual degradation of the facility in process, which is indirectly driven by the infeasibility of renovating the facility. All buildings, including newer ones, contain components with a predictable serviceable lives. While the components of the superstructure may typically remain serviceable for 75 to 100 years, most of the other components have a substantially shorter anticipated serviceable life. For example, the finishes should remain serviceable for 15 to 25 years. Mechanical systems have piping which generally functions for 50 to 60 years, however, the equipment (fans, pumps, boiler, chillers, etc.) should only be expected to remain serviceable for 20 to 30 years.

After these anticipated serviceable lives expire, it becomes necessary to upgrade or replace the components. The context for the existing high school, a building which includes an outmoded superstructure, has placed the school district in a position where it cannot continue to replace retiring equipment, where the superstructure is not feasibly adaptable and, in the case of the oldest parts of the building, where the superstructure is close to the end of its life cycle. It is simply not feasible to install, for example, new mechanical and electrical systems inside a superstructure that is in the final years of its life cycle.

But the limitations posed by the building's structural systems are not the only impediments to implementing facility improvements, as, over the many decades in which the facility has been in use, the school's functions have absorbed all available areas of the site. The existing site in Leetsdale is heavily constrained: by Route 65 on the southwest side, by Beaver Street on the northwest side, by a supermarket complex to the south and by a residential development to the north. The existing site is not functional. The on-site parking is extremely limited, with the majority of the parking located approximately 50 vertical feet below the entrance to the building. The parking areas are regularly fully-loaded and congested. Further, the build-out of the site facilities and the expansion of the building on the constrained site has also resulted in a traffic pattern around the building with poor site lines and intermingling of the pedestrian patterns. The vertical distance from the majority of the parking areas to the building entrances also poses a significant impediment to achieving compliance with

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the ADA. Accessibility cannot be achieved without unreasonably long ramps, exterior elevators or a combination of the two. These constraints prevent the feasible redevelopment of the site as well as the expansion of the building in a practical manner.

These impediments and constraints have played prominently in the District's facility planning studies which have been underway for most of the past decade. QVSD is responsible for delivering effective education for all of its students and must do so within predefined financial boundaries set forth by the legislature. Accordingly, not only do the physical and performance limitations of the current facility inhibit the growth and vitality of the educational program at the current high school, those same limitations result in a reduction in the consistent loading of the students within the various educational spaces comprising the facility - which in turn leads to imbalances among the staff assignments. In an operation, wherein the preponderance of the operating costs are attributable staff salaries and benefits, such imbalances inherently result in higher operating costs.

The District seeks to continue expanding its educational program for the betterment of all its students and to do so in a cost-effective manner which remains compliant with the mandated budget objectives of the Commonwealth.

QVSD desires to continue to operate its high school program at a site within the District boundaries and considered several alternative locations in various areas of the School District. Planning criteria for a new high school were developed by the School District's facility planning consultants and those criteria formed the basis for the planning objectives for the acquisition of a site(s) to support the facility. These objectives greatly exceed the capabilities of the current high school site.

Foremost among these objectives is the site area. The Pennsylvania Department of Education (PDE) provides guidelines for the acreage for various school configurations in its PlanCon Part C instructions. Under those guidelines, high school sites supporting Grade 9-12 should have a base area of 35 acres, with one (1) additional acre for each 100 FTE (full-time equivalent) of capacity. Using this guideline, with an FTE capacity of approximately 1000, the overall site should have an area of 45 acres. The current site, at approximately 14.55 acres, is roughly one-third of the recommended area. The conceptual plans developed in order to "test-fit" the proposed high school building on the proposed site demonstrate that the developed area of 47.3 acres comports with the PDE site planning guidelines.

In addition to the benefits brought to the public by way of an improved educational facility, the new facility located at the proposed site will provide the following

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improvements, some of which, in the absence of the development, would leave failed conditions uncorrected:

a) The on-site parking will be more than double that of the current amount at the existing facility;
b) Car and bus traffic will be segregated and routed over appropriately sloped roadways;
c) Pedestrian walkways will be isolated and safer than the current conditions;
d) Vehicular access to and from of the site will be improved;
e) Stormwater management will be provided and will benefit all downstream properties;
f) Water quality basins will be constructed in order to offset any environmental impacts from the proposed impervious areas;
g) Improvements will be made to the existing unstable site conditions adjacent Camp Meeting Road;
h) The existing streambed adjacent Camp Meeting Road will be stabilized;
i) Classrooms will be designed to provide flexible classroom layouts to enhance the learning climate and support departmental collaboration;
j) Classroom deficiencies at the existing current high school, which deficiencies include undersized classrooms, numerous spaces without windows or natural light, and spaces with poor climate control, low ceilings and sound issues, will be completely eliminated;
k) Special education classrooms will now be full size and located within the flow of the learning program, with support spaces being located near learning spaces. Current inadequacies with the Life Skills space will be fully corrected;
l) Large group instruction rooms, special education resource rooms, small group rooms, dedicated teacher workspaces / offices for planning time, and additional conference rooms, all of which are either absent or lacking at the current high school, will be added to enhance the learning climate;
m) Music instruction classrooms, practice rooms and storage which cannot be accommodated at the existing high school will be accommodated at the new high school;
n) Significant improvements and upgrades will be made to science labs, art studios, applied learning labs and media center, to name a few, and each will be appropriately designed to meet current educational needs;
o) Existing deficiencies with the gym and related facilities, which deficiencies include limited seating, limited storage, poor ventilation and sound, inadequate fitness rooms, no health classrooms, and woefully inadequate

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locker rooms which are poorly ventilated and lack private changing areas, will be eliminated; and

p) The existing high school suffers from multiple deficiencies based on current criteria established by PDE. Although many of these deficiencies are permitted to exist under PDE's grandfathering rules, they remain deficiencies adversely affecting the educational opportunities available to students. The new high school will meet all current requirements established by PDE and significantly enrich the educational experience for all students.

The proposed location, therefore, appropriately accommodates the school district's needs for its high school facility and provides an opportunity for improving the quality of its program, and improving the life safety features of its high school facility. Additionally, the development corrects conditions which currently pose risks to the public.

Due to the criteria established by PDE, QVSD must develop the high school on 45 acres of usable land. Within the School District (including Leet Township), due to topography and other physical features, the Site is the most suitable land within the School District to relocate the high school. After an exhaustive search, the School District did not find any site nearly as favorable as this site. The Site includes 108 acres, providing ample opportunity to provide surrounding landscape buffers.

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ATTACHMENT 5
Report of a Preliminary Geotechnical Exploration from Douglas A. Beitko, P.E., of Garvin Boward Beitko, November 6, 2013

GARVIN
BOWARD BEITKO

BUILT ON REPUTATION

CONSULTING
GEOTECHNICAL / FORENSIC / ENVIRONMENTAL
ENGINEERS

Garvin Boward Beitko Engineering, Inc.
180 Bilmar Drive
Suite IV
Pittsburgh, PA 15205
Phone: (412) 922-4440
Fax: (412) 922-3223

November 6, 2013

Dr. Joseph Marrone
Quaker Valley School District
100 Leetsdale Industrial Drive, Suite B
Leetsdale, PA 15056

Re: Report of a Preliminary Geotechnical Exploration
Long Term QVSD Planning at Existing High School
Beaver Street, Leetsdale Borough, Allegheny County, PA
Garvin Boward Beitko Project 12136

Dear Dr. Marrone:

We are pleased to present this report outlining our preliminary evaluation of the soil conditions relative to future construction projects at the existing QVSD High School campus. This report includes a review of background information, the scope of services we provided, and our preliminary evaluation.

PROJECT INFORMATION

We understand that Quaker Valley School District (District) is in a long-term planning process with respect to future high school needs. The District is considering several options including:

- Constructing additions to the existing high school building and completing renovations of the existing structure;
- Demolishing the existing structure and constructing a new high school building within a similar footprint to the existing building;
- Constructing a new school between the existing building and the football field; and

- Finding a different piece of property to build a new high school.

As this project is only in the long-term planning phase, there are no potential construction projects to review with respect to geotechnical issues. Therefore, our preliminary evaluation is based on discussions with QVSD personnel and our experience on similar projects.

The information outlined in this section reflects our understanding of the project and helped to form the basis for our evaluation. If our understanding is inaccurate, or if additional information becomes available, we should be given the opportunity to review our preliminary evaluation in light of the new information.

PURPOSE AND SCOPE OF EXPLORATION

Obviously, the evaluation of a given site for future construction is based on a myriad of factors. One of these is geotechnical considerations, especially when viewed in light of other site/civil engineering requirements. Our intent was to explore and evaluate the subsurface conditions with respect to future, undefined construction. In order to complete the evaluation, we drilled 10 exploratory test borings across the site. The test borings were drilled to depths ranging from approximately 18 to 65 feet below grade. An engineer from our office visually classified the soils as they were extracted during the drilling process. The soil samples were returned to our laboratory for possible laboratory testing and short term storage. The engineer prepared test boring records based on the driller's field logs and visual classification of the samples. We then evaluated the results of the field and laboratory testing by utilizing empirical relationships that have been developed between the tests and soil strength/compressibility characteristics. Field and laboratory testing (if any) were completed in general accordance with applicable standards. The assessment of site environmental conditions for the presence of pollutants in the soil, rock, and groundwater at the site was beyond our scope of services for this project.

SITE, GEOLOGY, AND MINING CONDITIONS

A geologist from our office monitored test drilling operations and documented subsurface conditions that could affect our evaluation and recommendations. The Site Location Plan shows the approximate site location. A brief review of the United States Geological Survey (USGS) Ambridge, PA, Quadrangle topographic map indicates the site ground surface elevation ranges from 710 to 760 feet above Mean Sea Level (FT-MSL). As such, the elevations shown on the provided survey appear to generally coincide with the published mapping.

The provided survey indicates the ground surface elevation is on the order of 760 FT on the northern side (front) of the school and abutting Beaver Road. The ground surface elevation at the rear of the school ranges is on the order of 750 to 735 FT and generally coincides with the lowest floor level entrances of the existing school. From the rear of the school, the ground surface slopes down to a relatively level lawn area, football field, and SR 65 at elevations on the order of 700 to 710 FT.

The site is physiographically situated in the Pittsburgh Low Plateau Section of the Appalachian Plateau Province. Bedrock at the site is reportedly of the Pennsylvanian Age (290 to 323 million years ago). Pennsylvanian Age bedrock consists of cyclic sequences of sandstone, red and gray shale, conglomerate, coal, claystone and limestone. Bedrock was not encountered during drilling operations. Material encountered at the site consists of Late Wisconsin gravels and post glacial low terrace sand and gravel.

Our review of mine maps from "Coal Resources of Allegheny County," compiled by Clifford H. Dodge, 1985, indicates that the Upper Freeport Coal, a geologic marker bed, originally outcropped (exposed at surface) around elevation 700 between the rear slope and the football field/Rt 65. According to the literature, the Upper Freeport Coal was not deep mined or strip mined at the site; however, it is possible or even probable that "wildcat" strip mining was completed by earlier settlers local to the area. As such, it is likely that some of the upper sands were disturbed significantly in this area.

SUBSURFACE CONDITIONS

We drilled 10 exploratory test borings to provide an indication of the subsurface soil, rock, and groundwater conditions across the proposed addition footprint. The test boring locations were generally outlined in the RFP and modified somewhat by Garvin Boward Beitko Engineering, Inc. (GBB) based on accessibility, utility conflicts, and the initial findings. The borings were drilled in general accordance with the procedures outlined in ASTM D 420. Standard Penetration Tests (SPT or N value) were performed at selected intervals during drilling in general accordance with the procedures outlined in ASTM D 1586. When properly interpreted, the SPT resistances provide a general indication of the in-place consistency or relative density of the soil. The approximate test boring locations are shown on the Field Exploration Plan in the Appendix. Because the actual field locations were determined by our field crew using a 100-foot tape and estimating right angles off of existing site features, the boring locations shown on the plan should be considered approximate.

The subsurface conditions encountered at the boring locations are shown on the test boring records in the Appendix. The test boring records represent our interpretation of the subsurface conditions at the time of drilling based on the driller's field logs and visual classification of the field samples by an engineer (in general accordance with ASTM D 2488). The lines designating the interfaces between various strata on the test boring records represent the approximate interface locations. In addition, the actual transitions between strata may be gradual. Any groundwater levels shown on the test boring records represent the conditions only at the time of our exploration.

Soil Conditions

The soils we encountered generally match those predicted by available references (fill over alluvial deposits of nearby river). The natural soils generally consist of sand with varying amounts of silt and gravel. The bedrock generally consisted of sandstone, with sporadic sandy shale and sandy claystone layers. The test boring records can be reviewed to determine the subsurface conditions at specific locations.

Groundwater Conditions

We encountered the groundwater table during the drilling process at an elevation on the order of 690 FT. This is relatively consistent with the pool elevation of the nearby Ohio River (approximately 692 FT) and there is likely a hydraulic connection between the groundwater at the site and the water level in the river. We also encountered several wet zones that are probably indicative of water that is perched or trapped above less permeable soil or rock. It should be understood that groundwater levels can vary with seasonal climatic changes, changes in surface runoff patterns, and construction activity. In addition, the upper soils at this site have the potential to contain several zones of perched groundwater that may become evident during construction.

PRELIMARY GEOTECHNICAL EVALUATION

Additions to Existing Building

The subsurface conditions are extremely variable from the front of the building to the rear of the structure in that man-placed fill was used to increase the "buildable" area in the rear of the school. It is a virtual certainty that any additions to the rear and sides of the existing structure would require some type of deep foundation system. Building/foundation plans are somewhat limited for the existing building; however, at least one of the rear additions is known to be

supported on drilled shafts that extend on the order of 60 feet below the ground surface based on personal knowledge of one of this firm's principal engineers. Based on our recent test borings drilled in the rear of the building, his recollection of approximate 60-foot deep drilled shafts appears reasonable.

It is difficult to accurately assess the likelihood of shallow foundations versus deep foundations in the front of the school without additional information. Depending on the lowest floor elevations, and the addition weights, it is possible that some configuration of additions could be supported on typical spread footing foundations. In general, the lighter the addition and the lower the new floor elevation, the more likely that shallow foundations could be used. However, there is a drawback to lowering the floor elevation as described in the succeeding paragraph.

A brief review of the test boring records indicates the sandstone bedrock surface/decomposed bedrock surface drops severely from the front of the existing school to the rear of the existing school, and continues to dip toward the drainage basin of the Ohio River. In general, relatively impermeable bedrock/very dense residual soil was encountered between elevations 744 and 741 FT in the front of the school. This places bedrock near some of the lower floor elevations of the existing school, particularly along the front of the school. It is a virtual certainty that rainwater falling on the hills above the school migrates downward due to gravity through the relatively permeable alluvial sand deposits until it hits the relatively impermeable bedrock layer. At that point it would tend to flow downhill along the bedrock surface and toward the foundation walls and lower floor elevations of the existing school. If the existing structure intercepts this water flow, it is likely that lower levels of the school have experienced significant groundwater intrusion over the life of the structure. Such intrusion can be a nuisance, can degrade the structure, and can cause indoor air quality issues if not controlled.

New School on Campus

This site is limited by topographical/elevation change from Beaver Road down to the football field area as the ground surface ranges from about 760 FT along Beaver Road (in front of school) to around 710 feet near the open athletic field and football stadium. As such, it is likely that significant retaining walls would be required to develop and make use of the entire site. In order to maintain access from Beaver Road, and to maintain school in session, it is likely the building footprint would be located over the rear slope and out over the lower field area. As such, it appears that the approximate 40- foot of elevation difference would require an approximate 40-foot high retaining structure. In order to maintain a similar developable "width' (frontage along Rt 65), the wall would probably be in excess of 600 feet long along the front. Two "wings" would extend back toward the existing school for a total length on the order of 1000 feet.

Obviously, it is not possible to accurately estimate wall costs without completing a substantial level of actual design work. However, our experience indicates that a mechanically stabilized earth (MSE) wall would probably be the most cost effective wall for this area of the site. Our experience also indicates the cost of the MSE wall components (block facing and geogrid) would probably be on the order of $45 to $65 per square foot of wall face or $1,800,000 to $2,600,000. This would not include any imported granular premium fill (as required for construction of reinforced zone of MSE wall) or any fill soils that would have to be imported to fill beyond the reinforced MSE wall zone). The reinforced zone alone would entail import on the order of 60,000 cubic yards or approximately 110,000 tons at a delivered cost on the order of $25 per ton for a total cost on the order of $ 2,800,000. Compaction of the crushed stone would probably cost on the order of $6 to $10 per cubic yard or $ 360,000 to $ 600,000. This would suggest a wall cost on the order of $ 5,000,000 to $ 6,000,000.

The order of magnitude cost described above would not include the import or compaction of soils required to reach grade beyond the reinforced zone. It does also not include any special subgrade preparation that may be required. The likely wall area was not explored. However, as mentioned previously, published mapping indicates the Upper Freeport coal seam was exposed in this area and it is likely that significant disturbance occurred during undocumented “wildcat” mining operations. We understand that some of these disturbed soils may have caused problems and additional costs related to football stadium construction.

It should also be understood that any new school constructed upon such a large fill platform would likely require deep foundations. Alternately, it might be possible to use an extended surcharge program (piling additional soils in the future building footprint) to simulate future building loads and effectively “squeeze” out settlement prior to construction of new school. The length of surcharge programs varies, but 3 to 6 months would be a reasonable prediction at this point in time. The settlement would be monitored by surveying and evaluated by the geotechnical engineer to determine when actual building could commence.

BASIS FOR PRELIMINARY EVALUATION

The preceding evaluation and recommendations are based on the previously discussed project information, our observations at the site, interpretation of the field data obtained during the exploration, and our experience with similar subsurface conditions. We evaluated the field and laboratory test results using empirical correlations that have been developed between test data and allowable foundation design parameters. If you elect to build at this site, it is likely that

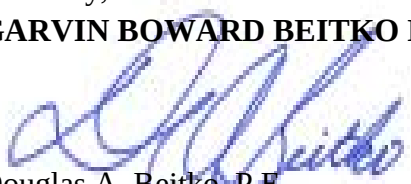
additional exploration and geotechnical engineering will be required. We would be happy to provide that service at the appropriate time.

Regardless of the thoroughness of a geotechnical exploration, there is always a possibility that conditions between borings will be different from those at specific boring locations, and conditions will not be as anticipated by the designers or contractors. In addition, the construction process may itself alter soil conditions. Therefore, experienced geotechnical personnel should observe and document the construction procedures used and the conditions encountered. Unanticipated conditions and inadequate procedures should be reported to the design team along with timely recommendations to solve any problems as they arise. We recommend that GBB be retained to provide this service based upon our familiarity with the project and the subsurface conditions.

CLOSURE

We have enjoyed assisting you on this project and trust this report will satisfy your immediate needs. If you have any questions or comments concerning this report, please feel free to contact us.

Sincerely,
GARVIN BOWARD BEITKO ENGINEERING, INC.



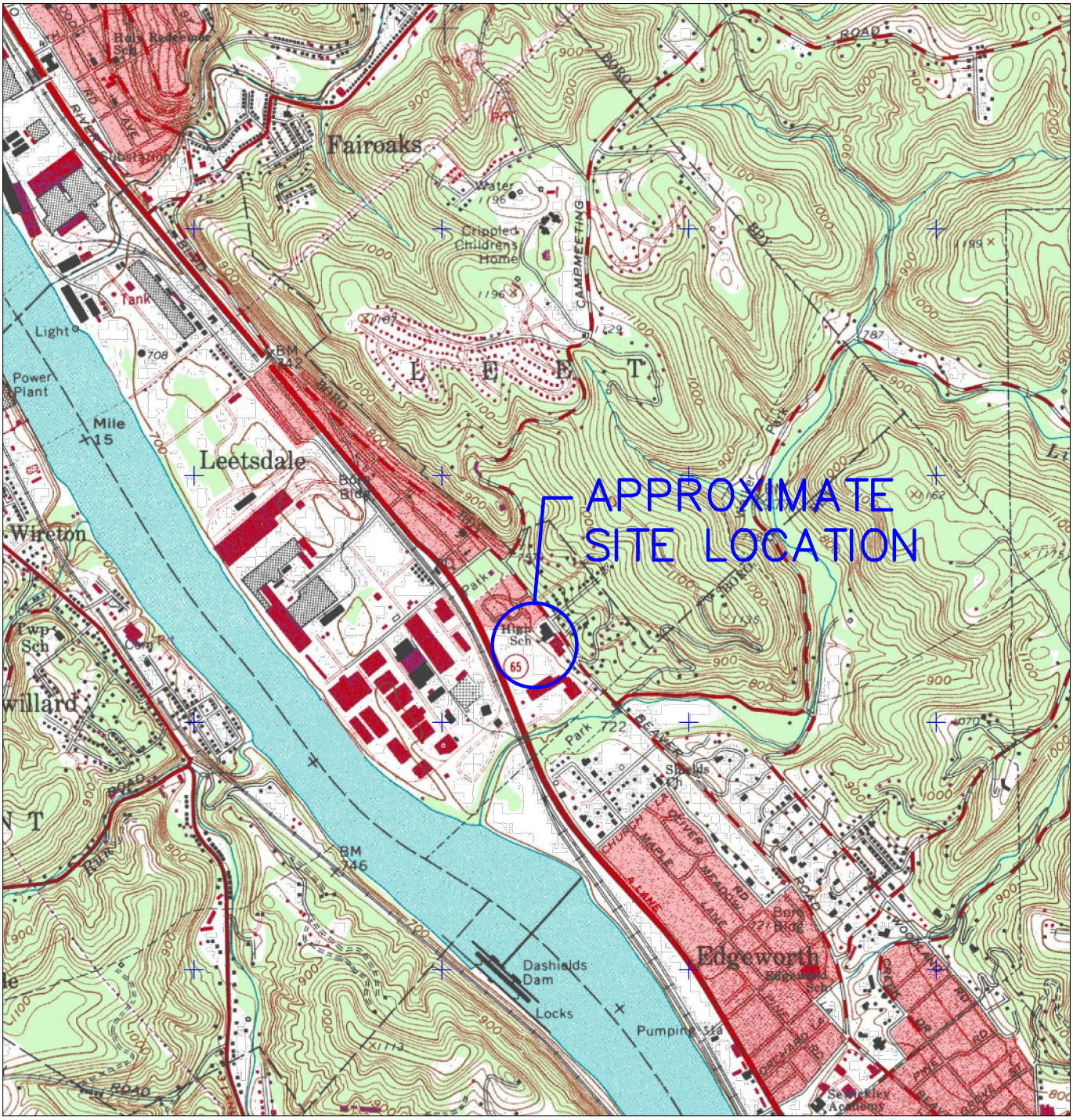
Douglas A. Beitko, P.E.
Principal Engineer

DAB/db

APPENDIX

Site Location Plan
Field Exploration Plan
Definition of Soil and Rock Classification Terms
Test Boring Records

APPENDIX



SITE LOCATION PLAN

APPROXIMATE SCALE 1"=2000'

REFERENCE:
EXCERPT FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) NEW AMBRIDGE, PA, TOPOGRAPHIC QUADRANGLE MAP (1960)

GARVIN

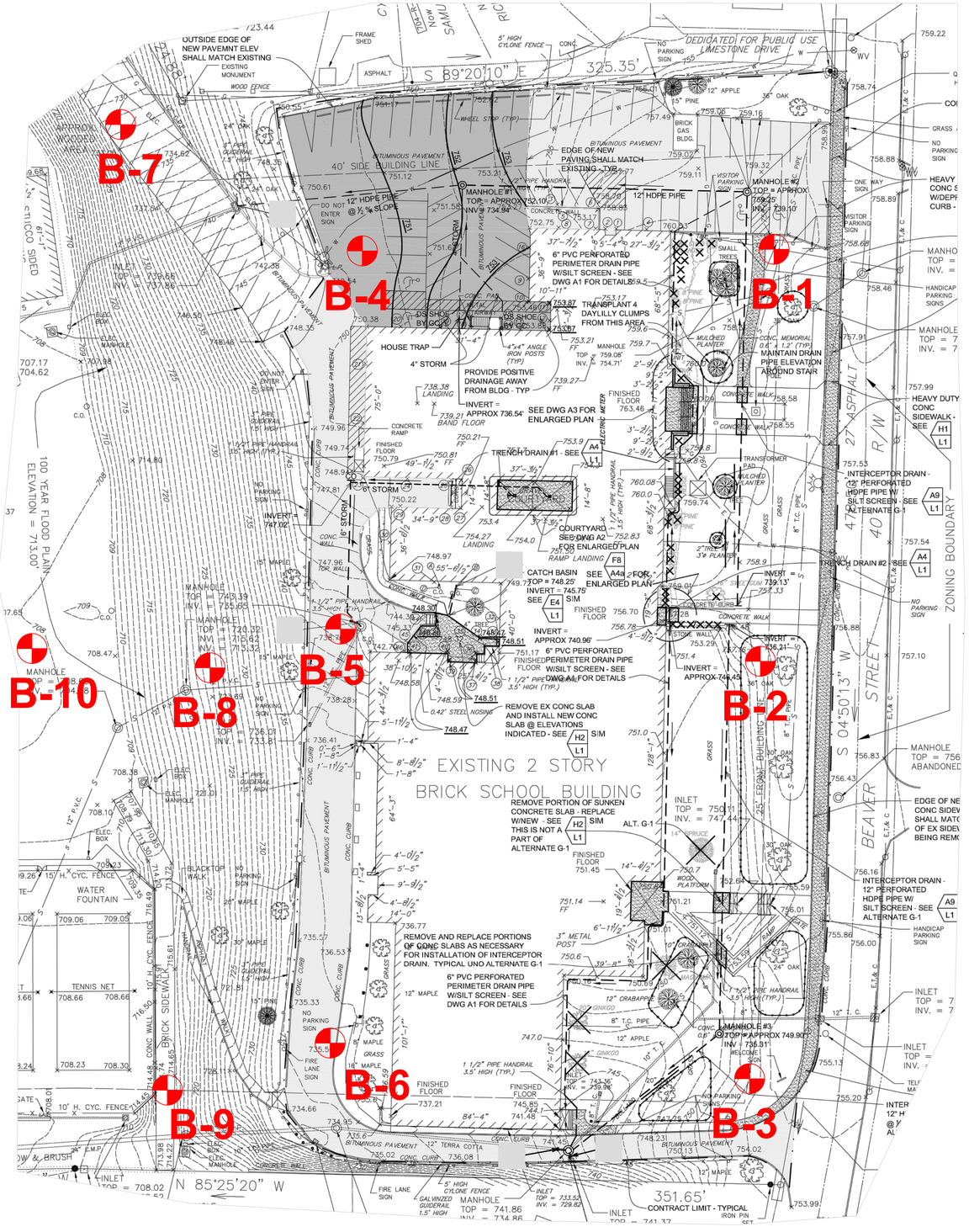
BOWARD BEITKO

GARVIN BOWARD BEITKO ENGINEERING, INC.
PITTSBURGH, PA

QUAKER
VALLEY HIGH
SCHOOL

GBBE PROJECT NO.
12136.1

FIELD EXPLORATION PLAN



LEGEND:

B-X ⊕ - PROPOSED TEST BORING LOCATION

FIGURE 2

REFERENCE:
ECKLES ARCHITECTURE
QUAKER VALLEY HIGH SCHOOL
SITE PLAN DATE: APRIL 27, 2005
DWG. NO.: L1 PROJECT NO.: 0525.00

GARVIN BOWARD BEITKO

SCALE:	AS NOTED
DATE:	11-5-13
REVISED:	
DRAWN BY:	LCT
APPROVED BY:	DAB

GARVIN BOWARD BEITKO ENGINEERING, INC.
BUILT ON REPUTATION
180 BILMAR DRIVE, SUITE IV
PITTSBURGH, PA 15205
PHONE: 412-922-4440

GEOTECHNICAL ENGINEERING INVESTIGATION
LONG TERM QVSD PLANNING AT EXISTING HIGH SCHOOL

BEAVER STREET, LEETSDALE BOROUGH
ALLEGHENY COUNTY, PENNSYLVANIA

FOR: QUAKER VALLEY SCHOOL DISTRICT

DRAWING NUMBER: 12136.2

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DEFINITION OF SOIL AND ROCK CLASSIFICATION TERMS

SOIL

Consistency and Relative Density of soils, based on the Standard Penetration Test[1] (SPT) blow counts over the last foot of penetration, N, are generally determined as follows:

Consistency of Cohesive Soils

CONSISTENCY	N (blows/foot)	UNCONFINED COMPRESSIVE STRENGTH, Q_u(tsf)
Very soft	0 – 2	<0.25
Soft	3 – 4	0.25 – 0.5
Medium	5 – 7	0.5 – 1.0
Stiff	8 – 15	1.0 – 2.0
Very stiff	16 – 30	2.0 – 4.0
Extremely stiff	>30	>4.0
Hard (if friable or brittle)	>30	>4.0

Relative Density of Granular Soils

RELATIVE DENSITY	N (blows/foot)
Very loose	0 – 4
Loose	5 – 10
Firm	11 – 14
Medium dense	15 – 30
Dense	31 – 50
Very dense	>50

The percents by weight of constituents present in soil are as follows:

Trace: indicates particles are present, but estimated to be less than 5%
Few: indicates 5 to 10%
Little: indicates 15 to 25%
Some: indicates 30 to 45%
Mostly (and): indicates 50 to 100%

Criteria for describing moisture content:

MOISTURE CONDITION	CRITERIA
Dry (Humid)	Absence of moisture, dusty, dry to touch
Damp	Apparent moisture in soil
Moist	Moist to touch, but no visible water
Wet	Visible free water

ROCK

Hardness of rock is based on the following:

Very soft – crushes under finger pressure
Soft – crushes easily under one hammer blow
Medium hard – breaks under one hammer blow
Hard – resistant to breaking under hammer blow
Very hard – resisting to breaking under several hammer blows

	SPACING OF FRACTURES AND/OR DISCONTINUITES
Extremely broken (very broken)	<1”
Moderately broken (broken)	1” – 3”
Occasionally broken (blocky)	3” – 6”
Massive	>6”

[1] STANDARD PENETRATION TEST (SPT) – defined as the number of blows (N) required to drive a two-inch outside diameter split-barrel sampling tube a depth of one foot with a 140-pound hammer falling 30 in. in accordance with American Society of Testing and Materials (ASTM) Test Designation: D1586.

GARVIN BOWARD BEITKO

Test Boring Record

B-1

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 1
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/03/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/03/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 70 Degrees, Sunny
Water Level Upon Completion:
Drilling Method: 3 1/4 HSA & NQ2 Core
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
759'	TOPSOIL 0.3 FILL sampled as black and gray slag and cinders 0.5 **(FILL)**		S-1	80	2-4-5 (9)				
	Light brown fine SAND (SP), moist		S-2	100	4-5-4 (9)				
754		5							
			S-3	100	3-5-6 (11)				
	(ALLUVIAL) 8.0 Light brown fine SAND and GRAVEL (SP/GP), moist								
749		10	S-4	100	7-6-6 (12)				
	(ALLUVIAL) 12.0 Yellowish brown CLAY (CL), trace sand, few gravel, moist		S-5	100	5-7-16 (23)				
744	**(ALLUVIAL)** 15.0 Yellowish brown to tan DECOMPOSED fine-grained micaceous SANDSTONE, dry	15	S-6	100	11-11-12 (23)				
	(RESIDUAL) 18.6 Light brown fine-grained SANDSTONE, extremely broken to occassionally broken, medium hard to hard, occassional clay seams		S-7	100	44-50/0.1'				
739		20	R-1	98 (8)					
	-No water return during rock coring 23.6 Light brown and gray fine-grained SANDSTONE, moderately broken to occassionally broken, hard								
734		25	R-2	100 (24)					
	-massive from 27.4' to 28.2' 28.6 Boring Terminated at 28.6 feet								
729		30							
724		35							

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GARVIN BOWARD BEITKO

Test Boring Record

B-2

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 1
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/03/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/03/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 70 Degrees, Cloudy
Water Level Upon Completion:
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
756'	TOPSOIL 0.1 FILL sampled as light brown and medium gray-brown very fine sand, damp **(FILL)** 3.0		S-1	80	4-4-6 (10)				
	Brown fine SAND (SP), moist		S-2	100	4-4-5 (9)				
751	**(ALLUVIAL)** 6.0	5							
	Brown fine SAND and GRAVEL (SP), moist		S-3	100	14-15-17 (32)				
	(ALLUVIAL) 9.0								
746	Light brownish gray DECOMPOSED CLAYSTONE (CL), damp	10	S-4	100	15-6-5 (11)				
	(RESIDUAL) 12.0								
	Light yellow-brown DECOMPOSED SANDSTONE (SP), damp		S-5	100	9-7-16 (23)				
741	**(RESIDUAL)** 15.0	15							
	Light yellow-brown DECOMPOSED SANDSTONE (GP), dry		S-6	100	10-23-39 (62)				
	(RESIDUAL) 18.6		S-7	100	26-50/0.1'				
	Boring Terminated at 18.6 feet								
736		20							
731		25							
726		30							
721		35							

GARVIN BOWARD BEITKO

Test Boring Record

B-3

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 1
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/04/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/04/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 80 Degrees, Sunny
Water Level Upon Completion:
Drilling Method: 3 1/4 HSA & NQ2 Core
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
753'	FILL sampled as brown silty sand, damp **(FILL)** 1.0		S-1	100	2-7-9 (16)				
	FILL sampled as gray sandstone fragments, dry **(FILL)** 3.0								
	FILL sampled as dark brown sandy silt, trace rock fragments, trace brick and slag fragments, moist		S-2	100	9-9-9 (18)				
748	**(FILL)** 6.0	5							
	FILL sampled as gray-brown clay, little sand, few gravel, few rock fragments, moist		S-3	100	7-4-6 (10)				
	(FILL) 9.0								
743	FILL sampled as brown sand, few rock fragments/gravel, few glass fragments, moist	10	S-4	100	8-9-8 (17)				
	(FILL) 12.0								
	Yellow-brown DECOMPOSED micaceous fine grained SANDSTONE, dry 12.9		S-5	100	32-50/0.4'				
	(RESIDUAL)								
738	Light brown SANDSTONE, moderately broken to occasionally broken, hard to very hard	15	R-1	100 (22)					
	-vertical fracture from 18.6' to 19.2'								
733		20	R-2	96 (24)					
	-vertical fracture from 20.9' to 21.9'								
	22.9								
	Boring Terminated at 22.9 feet								
728		25							
723		30							
718		35							

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GARVIN BOWARD BEITKO

Test Boring Record

B-4

Project Number: 12136 | **Project Name:** QVHS Preliminary Investigation | **Sheet:** 1 of 2

Project Location: Leetsdale, Allegheny County, PA | **Start Date:** 09/05/13 | **Water Level During Drilling:** 48'

Drilled By: W. Ewing (Test Boring Services, Inc.) | **Completion Date:** 09/06/13 | **Water Level Before Coring:**

Drilling Rig: CME 45 Track | **Weather:** 75 Degrees, Sunny | **Water Level Upon Completion:** 10.6

Drilling Method: 3 1/4 HSA & NQ2 Core | **Logged By:** M. Fontanese, P.E. | **Water Level After 24 Hours:**

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
750'	ASPHALT 0.4								
	SUBBASE 1.0								
	FILL sampled as brown fine sand, little gravel fragments and slag, moist		S-1	100	6-8-7 (15)				
			S-2	73	6-4-3 (7)				
745		5							
	(FILL) 7.2		S-3	100	5-6-6 (12)				
	FILL sampled as orange brown fine sand, few gravel/rock fragments, moist								
740		10	S-4	87	4-4-5 (9)				
	(FILL) 12.0								
	Brown SAND (SP), some gravel, moist		S-5	100	7-9-34 (43)				
	(ALLUVIAL) 15.0	15							
735	Brown fine SAND (SP), few gravel, moist		S-6	100	6-4-7 (11)				
	(ALLUVIAL) 18.0								
	Brown SILT (ML), occasional fine sand layers, moist		S-7	100	2-3-5 (8)				
730		20							
	(ALLUVIAL) 21.0								
	Brown fine SAND (SP), moist		S-8	100	7-8-9 (17)				
725		25	S-9	87	4-4-6 (10)				
	(ALLUVIAL) 27.0								
	Brown SAND, little gravel, moist		S-10	100	7-7-6 (13)				
720	**(ALLUVIAL)** 30.0	30							
	Brown sandy GRAVEL (GP), moist		S-11	100	10-7-8 (15)				
	(ALLUVIAL) 33.0								
	Brown SAND (SP), few silt and gravel, moist		S-12	100	8-6-8 (14)				
715		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-4

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/05/13
Water Level During Drilling: 48'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/06/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 75 Degrees, Sunny
Water Level Upon Completion: 10.6
Drilling Method: 3 1/4 HSA & NQ2 Core
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
	Brown SAND (SP), few silt and gravel, moist *(continued)*								
	(ALLUVIAL) 36.0								
	Brown SAND (SP), some gravel, few clay, occasional cobbles, moist		S-13	100	6-6-9 (15)				
710		40	S-14	100	3-11-8 (19)				
			S-15	100	15-18-13 (31)				
705		45	S-16	100	21-21-21 (42)				
	(ALLUVIAL) 46.5								
	Brown silty SAND (SM), little gravel, occasional cobbles, moist -soft augering between Samples S-16 and S-17		S-17	33	12-12-10 (22)				
700	-wet in Sample S-17	50	S-18	100	7-9-11 (20)				
	-driller reported soft augering from 45.0' to 48.0'								
	(ALLUVIAL) 54.0								
695	Light brown DECOMPOSED SANDY SHALE, sampled as sandy shale fragments, moist 55.4	55	S-19	100	6-10-50/0.4'				
	(RESIDUAL)								
	Light brown SANDSTONE, occasionally broken to massive		R-1	90 (48)					
	-extremely broken from 58.1' to 58.6'								
690		60							
			R-2	100 (58)					
	-high angle fracture from 62.7' to 62.9' -high angle fracture from 63.1' to 63.3'								
685	-light gray from 64.1' to 65.4'	65							
	65.4								
	Boring Terminated at 65.4 feet								
680		70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-5

Project Number: 12136 | **Project Name:** QVHS Preliminary Investigation | **Sheet:** 1 of 2

Project Location: Leetsdale, Allegheny County, PA | **Start Date:** 09/05/13 | **Water Level During Drilling:**

Drilled By: W. Ewing (Test Boring Services, Inc.) | **Completion Date:** 09/05/13 | **Water Level Before Coring:**

Drilling Rig: CME 45 Track | **Weather:** 65 Degrees, Cloudy | **Water Level Upon Completion:**

Drilling Method: 3 1/4-inch HSA | **Logged By:** M. Fontanese, P.E. | **Water Level After 24 Hours:**

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
740'	ASPHALT 0.5 SLAG SUBBASE 0.7 FILL sampled as brown fine sand, some rock/brick fragments, few cobbles, few silt, moist **(FILL)** 3.0		S-1	80	9-10-8 (18)				
	FILL sampled as brown fine sand, some gravel, few silt, moist		S-2	67	21-9-7 (16)				
735	**(FILL)** 6.0	5							
	Brown SAND (SP), moist		S-3	93	4-5-8 (13)				
	(ALLUVIAL) 9.0								
730	Brown SAND (SP), little gravel, moist	10	S-4	100	4-3-5 (8)				
	(ALLUVIAL) 12.0								
	Brown SAND (SP), little gravel, few silt, wet		S-5	87	3-3-3 (6)				
725	**(ALLUVIAL)** 15.0	15							
	Brown SAND (SP), some gravel, moist		S-6	100	4-6-8 (14)				
			S-7	100	5-5-5 (10)				
720		20							
			S-8	100	6-3-4 (7)				
	(ALLUVIAL) 24.0								
715	Brown fine SAND (SP), moist	25	S-9	67	4-5-5 (10)				
	(ALLUVIAL) 27.0								
	Brown SILT (ML), trace sand, wet 27.9 **(ALLUVIAL)**		S-10	100	1-2-3 (5)				
	Brown fine SAND (SP), moist **(ALLUVIAL)**								
710	30.0	30							
	Brown fine SAND (SP), some gravel, moist 31.0 **(ALLUVIAL)**		S-11	100	11-7-6 (13)				
	Brown fine SAND (SP), moist **(ALLUVIAL)** 33.0								
	Brown fine SAND (SP), some gravel, few silt, moist, occasional cobbles		S-12	100	9-11-13 (24)				
705		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-5

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/05/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/05/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 65 Degrees, Cloudy
Water Level Upon Completion:
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Graphic Log	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
		Brown fine SAND (SP), some gravel, few silt, moist, occasional cobbles *(continued)*								
				S-13	100	9-13-14 (27)				
		(ALLUVIAL)								
		39.0								
700		Orange-brown fine SAND (SP), little rock fragments, moist	40	S-14	67	9-18-15 (33)				
		(ALLUVIAL)								
		42.0								
		Brown fine SAND (SP), little gravel, moist		S-15	100	11-7-5 (12)				
695			45							
		-trace silt in Sample B-16		S-16	100	9-7-8 (15)				
		(ALLUVIAL)								
		48.0								
		Brown SAND and SANDSTONE FRAGMENTS, dry		S-17	100	14-13-25 (38)				
690			50							
				S-18	100	17-25-22 (47)				
		(RESIDUAL)								
		54.4		S-19	100	50/0.4'				
685		Boring Terminated at 54.4 feet	55							
680			60							
675			65							
670			70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-6

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/04/13
Water Level During Drilling: 21'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/04/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 65 Degrees, Foggy
Water Level Upon Completion: 22.7
Drilling Method: 3 1/4 HSA & NQ2 Core
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
735'	ASPHALT PAVEMENT 0.4 GRAVEL SUBBASE 0.6 SLAG 1.6 FILL sampled as brown silty fine sand, moist		S-1	93	17-9-8 (17)				
			S-2	13	4-3-2 (5)				
730		5							
			S-3	0	3-2-3 (5)				
	-boulder 7.5' to 8.5' **(FILL)** 9.0								
725	FILL sampled as medium grayish brown sandy clay, few gravel/rock fragments/coal fragments, moist	10	S-4	100	1-2-2 (4)				
	(FILL) 12.0								
	FILL sampled as brown silty sand, moist		S-5	100	2-4-3 (7)				
720		15							
			S-6	100	3-3-4 (7)				
	(FILL) 18.0								
	Brown SAND and GRAVEL (GP), moist, occassional cobbles sampled as rock fragments		S-7	100	5-10-7 (17)				
715		20							
	(ALLUVIAL) 21.0								
	Brown fine SAND (SP) with chert fragments, wet		S-8	100	5-5-8 (13)				
	(ALLUVIAL) 24.0								
710	Brown SAND (SP), some gravel, moist	25	S-9	100	8-8-13 (21)				
	(ALLUVIAL) 27.0								
	Brown SAND (SP), few gravel, trace clay, wet		S-10	100	5-5-6 (11)				
705	**(ALLUVIAL)** 30.0	30							
	Brown sandy gravel (GP), moist, trace clay		S-11	100	14-11-16 (27)				
	(ALLUVIAL) 33.0								
	Brown gravelly SAND (SP), moist		S-12	100	9-15-35 (50)				
700		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-6

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/04/13
Water Level During Drilling: 21'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/04/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 65 Degrees, Foggy
Water Level Upon Completion: 22.7
Drilling Method: 3 1/4 HSA & NQ2 Core
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
	Brown gravelly SAND (SP), moist *(continued)*								
	(ALLUVIAL)	36.0							
	Brown SAND (SP), some gravel/rock fragments, moist		S-13	100	10-14-18 (32)				
	-added water to assist with augering at 37.5'. Very difficult augering.								
	(ALLUVIAL)	39.0							
695	Brown fine SAND (SP), wet	40	S-14	100	5-7-8 (15)				
	-moist, sandstone cobble in S-15		S-15	67	6-13-24 (37)				
690	**(ALLUVIAL)**	45							
	Dark brown SANDSTONE FRAGMENTS, little sand, few clay moist	45.7	S-16	100	13-16-18 (34)				
	(RESIDUAL)	48.0							
	Brown DECOMPOSED SANDSTONE, dry	48.4	S-17	100	50/0.4'				
	(RESIDUAL)								
685	Brown and gray SANDSTONE, moderately broken to occassionally broken, hard to very hard	50	R-1	98 (18)					
	-No water return during rock coring								
		52.4							
	Gray SANDSTONE, occassionally broken to massive, hard to very hard								
680		55	R-2	98 (56)					
		58.4							
	Boring Terminated at 58.4 feet								
675		60							
670		65							
665		70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-7

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/09/13
Water Level During Drilling: 36'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/09/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 70 Degrees, Sunny
Water Level Upon Completion: 42'
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
732'	ASPHALT 1.0								
	FILL sampled as gray crushed stone, gravel, and slag		S-1	40	12-15-10 (25)				
			S-2	33	25-13-15 (28)				
727		5							
			S-3	67	32-25-7 (32)				
	(FILL) 9.0								
722	FILL sampled as medium brown fine sand, few silt, some gravel, moist	10	S-4	80	4-3-3 (6)				
	(FILL) 12.0								
	Brown fine SAND (SP), trace gravel, moist		S-5	93	1-1-1 (2)				
717	**(ALLUVIAL)** 15.0	15							
	Brown fine SAND (SP), little gravel, moist		S-6	80	2-3-4 (7)				
	(ALLUVIAL) 18.0								
	Brown fine SAND (SP), some gravel, moist		S-7	67	5-6-5 (11)				
712		20							
	(ALLUVIAL) 21.4		S-8	100	3-3-3 (6)				
	Brown fine SAND (SP), trace gravel, trace silt, moist								
	(ALLUVIAL) 24.0								
707	Brown SILT (ML), few sand, wet	25	S-9	100	4-3-3 (6)				
	(ALLUVIAL) 27.0								
	Brown SAND (SP), moist		S-10	100	3-3-4 (7)				
702		30							
	-Sample S-11 wet		S-11	100	2-3-4 (7)				
	-few gravel in Sample S-12		S-12	100	4-3-5 (8)				
697		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-7

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/09/13
Water Level During Drilling: 36'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/09/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 70 Degrees, Sunny
Water Level Upon Completion: 42'
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
	Brown SAND (SP), moist *(continued)* **(ALLUVIAL)**	36.0							
	Brown SAND (SP), little gravel, wet		S-13	100	3-4-8 (12)				
	(ALLUVIAL)	39.0							
692	Brown SAND (SM), little silt, wet	40	S-14	100	5-7-6 (13)				
			S-15	67	2-4-6 (10)				
687	**(ALLUVIAL)**	45.0 45							
	Brown SAND (SP), trace gravel, wet		S-16	100	5-7-7 (14)				
	(ALLUVIAL)	48.0							
682	Brown SAND (SP), little gravel, moist	50	S-17	100	21-20-13 (33)				
			S-18	100	21-25-21 (46)				
	(ALLUVIAL)	54.3							
677	Light brown DECOMPOSED SANDSTONE, moist **(RESIDUAL)**	54.6 55	S-19	100	34-50/0.1'				
	Boring Terminated at 54.6 feet								
672		60							
667		65							
662		70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-8

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/10/13
Water Level During Drilling: 27'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/11/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 90 Degrees, Sunny
Water Level Upon Completion: 41.5
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese/K. Thiry
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
724'	FILL sampled as orange brown sandy silt, dry		S-1	100	1-2-4 (6)				
	(FILL) 3.0								
	FILL sampled as medium brown silty sand, few gravel, moist		S-2	100	3-3-6 (9)				
719		5							
	(FILL) 6.3								
	Brown fine SAND (SP), moist		S-3	100	5-4-5 (9)				
	(ALLUVIAL) 9.0								
714	Brown SAND (SP), some gravel, trace silt, moist	10	S-4	100	7-4-5 (9)				
	(ALLUVIAL) 12.0								
	Brown GRAVEL (GP), little to some sand, loose to firm, moist		S-5	87	6-4-10 (14)				
709		15							
			S-6	100	4-3-4 (7)				
			S-7	100	2-2-8 (10)				
704		20							
			S-8	100	5-7-6 (13)				
699		25	S-9	60	7-6-7 (13)				
	(ALLUVIAL) 27.0								
	Brown clayey SILT (ML), little sand, trace gravel, stiff, wet		S-10	67	4-6-3 (9)				
694		30							
	(ALLUVIAL) 31.0		S-11	100	6-7-4 (11)				
	Brown GRAVEL (GP), little sand, loose, wet								
	(ALLUVIAL) 33.0								
	Brown fine to medium grained SAND (SP), trace silt, trace gravel, loose to medium dense, wet		S-12	93	5-3-3 (6)				
689		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-8

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/10/13
Water Level During Drilling: 27'
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/11/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 90 Degrees, Sunny
Water Level Upon Completion: 41.5
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese/K. Thiry
Water Level After 24 Hours:

Ground Elevation (ft)	Graphic Log	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
		Brown fine to medium grained SAND (SP), trace silt, trace gravel, loose to medium dense, wet *(continued)*								
				S-13	100	8-5-6 (11)				
684		**(ALLUVIAL)**	40	S-14	100	17-18-22 (40)				
		40.3								
		Light gray and brown fine to coarse SAND (SP), some sandstone fragments, medium to very dense, damp								
		(RESIDUAL) 42.2		S-15	100	50/0.2'				
		Boring Terminated at 42.2 feet								
679			45							
674			50							
669			55							
664			60							
659			65							
654			70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-9

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/09/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/10/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 85 Degrees, Sunny
Water Level Upon Completion:
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
715'	Patio Pavers	0.5							
	Light gray gravel	0.7	S-1	67	4-3-2 (5)				
	FILL sampled as brown sandy silt, little gravel, moist **(FILL)**	3.0							
	FILL sampled as brown sand, some gravel, moist		S-2	53	4-2-2 (4)				
710		5	S-3	60	2-2-2 (4)				
	(FILL)	9.0							
705	Dark grayish-brown SILT (ML), little sand, trace gravel, moist	10	S-4	67	4-2-2 (4)				
	(ALLUVIAL)	12.0							
	Dark brown and light brown mottled SILT (ML), little sand, moist		S-5	100	3-3-3 (6)				
700	**(ALLUVIAL)**	15.0 15							
	Brown fine SAND (SP), some silt, few rock fragments, moist		S-6	100	4-5-7 (12)				
	-little silt in Sample S-7		S-7	100	3-2-3 (5)				
695		20	S-8	100	4-4-5 (9)				
	(ALLUVIAL)	24.0							
690	Brown fine SAND (SP), trace gravel, wet	25	S-9	100	4-4-5 (9)				
			S-10	100	5-6-8 (14)				
685		30							
			S-11	100	13-11-11 (22)				
	(ALLUVIAL)	33.0							
	Brown GRAVEL (GM), some sand, little silt, wet		S-12	80	7-6-4 (10)				
680		35							

(Continued Next Page)

GARVIN BOWARD BEITKO

Test Boring Record

B-9

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 2 of 2
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/09/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/10/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 85 Degrees, Sunny
Water Level Upon Completion:
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Graphic Log	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
		Brown GRAVEL (GM), some sand, little silt, wet *(continued)* **(ALLUVIAL)**	36.0							
		Light brown DECOMPOSED SANDSTONE, moist **(RESIDUAL)**	36.3	S-13	100	33-50/0.1'				
		Light gray DECOMPOSED sandy CLAYSTONE **(RESIDUAL)**	36.6							
675		Boring Terminated at 36.6 feet	40							
670			45							
665			50							
660			55							
655			60							
650			65							
645			70							

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GARVIN BOWARD BEITKO

Test Boring Record

B-10

Project Number: 12136
Project Name: QVHS Preliminary Investigation
Sheet: 1 of 1
Project Location: Leetsdale, Allegheny County, PA
Start Date: 09/10/13
Water Level During Drilling:
Drilled By: W. Ewing (Test Boring Services, Inc.)
Completion Date: 09/10/13
Water Level Before Coring:
Drilling Rig: CME 45 Track
Weather: 80 Degrees, Sunny
Water Level Upon Completion:
Drilling Method: 3 1/4-inch HSA
Logged By: M. Fontanese, P.E.
Water Level After 24 Hours:

Ground Elevation (ft)	Material Description	Depth (ft)	Sample Type Number	Recovery % (RQD)	Blow Counts (N Value)	Pocket Pen. (tsf)	Water Content (%)	Liquid Limit	Plastic Limit
708'	TOPSOIL 0.3								
	FILL sampled as dark brown silt, little sand, few gravel and brick fragments, moist		S-1	100	2-5-5 (10)				
	(FILL) 3.5								
	FILL sampled as dark brownish-gray silt, little sand, moist		S-2	100	9-5-5 (10)				
703	**(FILL)** 6.0	5							
	Brown fine SAND (SM), little silt, trace gravel, moist		S-3	100	4-4-5 (9)				
698		10	S-4	100	3-3-4 (7)				
	(ALLUVIAL) 12.0								
	Brown fine SAND (SM), few silt, little gravel		S-5	13	5-4-8 (12)				
693	**(ALLUVIAL)** 15.0	15							
	Brown SAND (SM), few silt, some gravel		S-6	100	6-6-7 (13)				
	(ALLUVIAL) 18.0								
	Brown SAND (SP), trace silt, trace gravel, wet		S-7	53	4-4-5 (9)				
688		20	S-8	100	2-1-6 (7)				
683		25	S-9	100	4-3-4 (7)				
	(ALLUVIAL) 27.0								
	Brown SAND (SP), trace silt, wet		S-10	100	5-6-9 (15)				
678		30	S-11	100	9-8-8 (16)				
	(ALLUVIAL) 33.3								
	Light brown DECOMPOSED SANDSTONE, moist 33.9		S-12	100	9-50/0.4'				
673	**(RESIDUAL)**	35							

Boring Terminated at 33.9 feet

BORING LOG - GARVIN - GARVIN.GDT - 11/06/13 11:23 - G:\GINT\PROJECTS\12136 QUAKER VALLEY SCHOOL DISTRICT.GPJ

ATTACHMENT 6
District Wide Facility Study for the Quaker Valley School District, September 21, 2010

DISTRICT WIDE FACILITY STUDY

FOR THE

QUAKER VALLEY SCHOOL DISTRICT

September 21, 2010 – FINAL REPORT

architecture
ECKLES
engineering

301 north mercer street
new castle, pa 16101
p 724-652-5507
f 724-652-0751

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founded 1898

QUAKER VALLEY SCHOOL DISTRICT

Table of Contents

EXHIBITS

Forward

What is desirable?

If you are a parent you will expect a quality education for your child.

If you are a student you will want a learning environment that can motivate.

If you are a teacher you will require efficient facilities and instructional materials with which you work.

If you are a school director or an administrator you will strive for the proper balance of these needs, knowing that varying and often conflicting priorities make the complete fulfillment of all seldom possible.

What is possible?

With good planning and unlimited resources, almost anything can be accomplished. As the resources become more limited, planning becomes more important. Planning calls for information that will enable us to evaluate both goals and resources to determine what is practical.

What is practical?

It is the need to develop a logical and reasonable plan to house the educational program of the Quaker Valley School District that prompts this study.

Credits

BOARD OF DIRECTORS

Mr. Jack Norris, President, Region III
Ms. Sarah Heres, Vice President, Region II
Ms. Danielle Cairns Burnette, Region III
Mr. Gianni Floro, Region I
Ms. Debora Miller, Region I
Mr. David Pusiteri, Region II
Mr. Rob Riker, Region II
Mr. Mark Rodgers, Region III
Dr. Kay Wijekumar, Region I

Mr. Patrick Clair, District Solicitor

DISTRICT OFFICE ADMINISTRATION

Dr. Joseph Clapper	*Superintendent of Schools*
Dr. Heidi Ondek	*Assistant Superintendent*
Dr. Joseph Marrone	*Director of Administrative Services*
Dr. Jillian Bichsel	*Director of Academic Services*
Dr. Sally Hoover	*Director of Pupil Services*
Mr. Karlton Chapman	*Director of Technology*
Mr. Michael Mastroianni	*Director of Athletics & Student Activities*
Mr. John Sheline	*Director of Operations & Finance / Board Secretary*
Ms. Kimberly Eaton	*Assistant Director of Financial Services*
Mr. Greg Bennett	*Transportation Manager*
Mrs. Betsy Klasnick	*Director of Food Services*
Mrs. Leah Wells	*Assistant to Director of Pupil Services / School Psychologist*
Mrs. Martha Smith	*Communications Manager*
Mrs. Catherine Kovac	*Human Resources Manager*

SCHOOL ADMINISTRATION

Mrs. Susan Gentile,	*Edgeworth Elementary Principal*
Mrs. Barbara Mellett	*Osborne Elementary Principal*
Mr. Sean Aiken	*Middle School Principal*
Mr. Andrew Surloff	*High School Principal*
Mrs. Deborah Riccobelli	*High School Assistant Principal*

QUAKER VALLEY SCHOOL DISTRICT

Need for the Study

School districts must develop a complete building facility study of all district educational facilities including the district administration office. The study must be completed prior to, and within two years of the date of the PlanCon Part A, Project Justification, submission. The study must provide an appraisal as to each facility's ability to meet current and planned educational program requirements. Facility studies must contain documentation regarding the author's credentials for producing the document.

From the Basic Education Circular (BEC) 24 p.s. 7-733 "School Construction Reimbursement Criteria" which explains that a district-wide facility study is a condition for state reimbursement.

The following elements must be included in the District-wide facility study:

An overview of the school district that considers such factors as geography, population, wealth. Are there any distinguishing characteristics that will have an impact on facilities such as geographically separate population centers?

An overview of the school district's educational program that highlights any special facilities needs. Are there instructional practices or planned curriculums that will require special design features?

An analysis of projected enrollment. What is likely enrollment for each grade structure? Are projections five to ten years into the future reasonable and reliable? Is there a predictable growth potential in certain areas of the district? It is not sufficient to base construction plans on PDE's "current enrollment plus 10 percent." The "10 percent rule" is to be used solely for reimbursement.

An analysis of each building's capacity as it relates to the educational program. One must ask not only how many students can a building house, but if each building provides the types of educational spaces dictated by the educational program. Factors such as the length of the school day, number of classes per day, grade alignments, size of particular rooms and adequacy of those rooms will affect capacity.

An analysis of each building's physical condition. What is the condition and projected useful life of each building's major components (heating, HVAC, plumbing, etc.)? Are there code violations? Is the building accessible? Is the building structurally sound? Is the building energy efficient? What will it cost to upgrade each building to current standards?

An analysis of construction options. What choices does the district have considering the above analysis? What are the pros and cons of each alternative?

Cost estimates for each option.

A summary depicting buildings, options and costs.

Documentation regarding the authors' credentials. What education, registration or licensure and experience qualify the authors to perform the study?

From the "District-Wide Facility Study Guidelines", Attachment C, PlanCon-A Instructions, dated July 1, 2007.

QUAKER VALLEY SCHOOL DISTRICT

Pennsylvania Department of Education

District Wide Facility Study Certification

(Dated 07/2007)

DISTRICT-WIDE FACILITY STUDY CERTIFICATION

District/CTC:	Project Name:	Grades: ____ - ____

The Board of Directors certifies that it has accepted a district-wide facility study pursuant to Basic Education Circular (BEC) 24 P.S. § 7-733, "School Construction Reimbursement Criteria,". At least two copies of the study will be available for public inspection throughout the PlanCon process for this project at

_____
(Building or location where facility study will be available for public review)

The date of the original facility study is: _____

The authors are: _____
(INCLUDE NAME, POSITION, SCHOOL DISTRICT OR FIRM NAME & ADDRESS)

_____
(INCLUDE NAME, POSITION, SCHOOL DISTRICT OR FIRM NAME & ADDRESS)

The date of the addendum to the study is: _____

The authors are: _____
(INCLUDE NAME, POSITION, SCHOOL DISTRICT OR FIRM NAME & ADDRESS)

_____
(INCLUDE NAME, POSITION, SCHOOL DISTRICT OR FIRM NAME & ADDRESS)

The following information summarizes the nature and contents of the study.
NOTE: The most recent study must have been completed within the preceding two years of board action on the Part A submittal for this project building.

ORIGINAL STUDY PAGE(S)	ADDENDUM PAGE(S)	
_____	_____	An overview of the school district including such factors as geography, population, and wealth.
_____	_____	An overview of the school district including such factors as any distinguishing characteristics that will have an impact on facilities such as geographically separate population centers.
_____	_____	An overview of the school district's educational program that highlights any special facility needs including any instructional practices or planned curriculums that will require special design features.
_____	_____	An analysis of projected enrollment.
_____	_____	The likely enrollment for each grade structure.
_____	_____	A review as to whether projections 5 to 10 years into the future are reasonable and reliable.
_____	_____	An analysis of each building's capacity as it relates to the educational program including, not only how many students can a building house, but if each building provides the types of educational spaces dictated by the educational program.
_____	_____	An analysis of each building's physical condition including the condition and projected useful life of each building's major components (heating, HVAC, plumbing, etc.), any code violations, whether the building is accessible, structurally sound and energy efficient.
_____	_____	Costs to upgrade each building to current standards.
_____	_____	An analysis of construction options including the alternatives to consider and the pros and cons of each alternative.
_____	_____	Cost estimates for each option.
_____	_____	A summary depicting buildings, options and costs.
_____	_____	Documentation regarding the author's credentials including education, registration or licensure and experience qualifying the authors to perform the study.

REVISED JULY 1, 2007 FORM EXPIRES 6-30-09 PLANCON-A23

QUAKER VALLEY SCHOOL DISTRICT

PART I - INTRODUCTION

FACILITY STUDY PROCESS

DISTRICT INFORMATION

District Background

- Community
- Schools
- Program

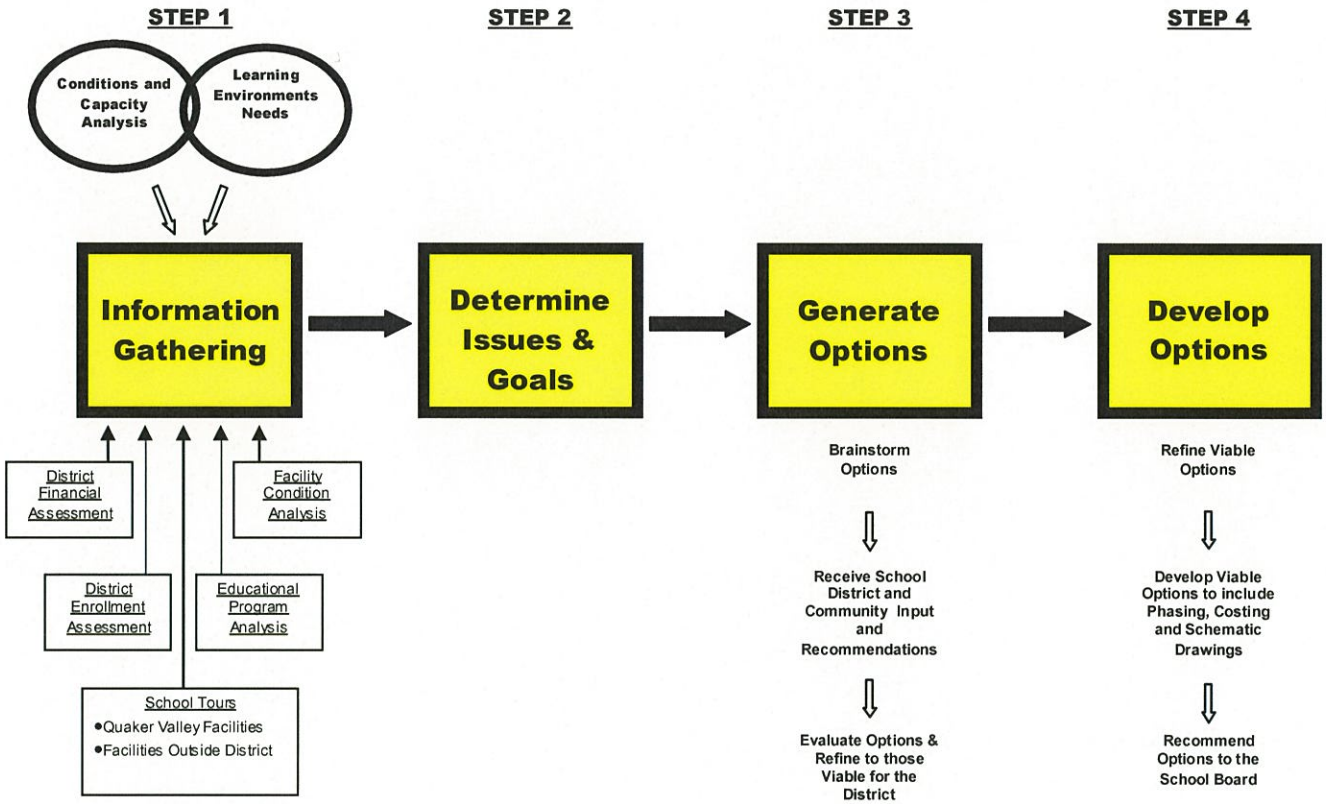
District Map

District Enrollment

Fiscal Outlook

OBJECTIVES OF THE STUDY

FACILITY STUDY PROCESS



QUAKER VALLEY SCHOOL DISTRICT

DISTRICT INFORMATION

District Background

Community

The Quaker Valley School District was formed in 1956 by consolidating of 10 adjoining districts. The district, now comprising approximately 24.2 square miles, is located in western Pennsylvania along the banks of the Ohio River. 12 miles northwest of Pittsburgh in western Allegheny County, the district is comprised of 11 municipalities, the boroughs of Sewickley, Leetsdale, Edgeworth, Osborne, Sewickley Hills, Sewickley Heights, Bell Acres, Haysville, and Glenfield, and the Townships of Leet and Aleppo. As of 2010 the population of the District was 13,935. Residents have convenient access to major highways and the Pittsburgh International Airport.

The primary population and commercial centers of the district are along the communities adjacent to the river. The hills rising above the river are largely suburban residential. Sewickley, the geographic focus of the District, was once home to riverboat captains. Also in the area lived captains of industry, including many who built the corporations of Pittsburgh's legendary steel industry. In the early days, other residents included the caretakers of the estates of the wealthy, merchants, and mill workers. Today, descendants of these populations form the core society of Quaker Valley, one that is wide in its range of differences, yet united in support of quality educational opportunities for its children and in its strong value system. The community is diverse, including various ethnic, racial and socioeconomic populations. The stable population includes third and fourth generation Quaker Valley families, as well as those who have come not only from other states, but also from other countries. The diversity is embraced as an opportunity for cultural understanding and exchange. The schools mirror the cohesive, small-town atmosphere of the community they serve.

Schools

Quaker Valley School District is comprised of four National Blue Ribbon Schools that serve nearly 2,000 students from 11 municipalities. The schools are staffed by outstanding teachers who genuinely care about their students and each child's academic, social and emotional growth.

The schools include:

- Osborne Elementary School, Osborne Borough
- Edgeworth Elementary School, Edgeworth Borough
- Quaker Valley Middle School, Sewickley Borough
- Quaker Valley High School, Leetsdale Borough

The greatest distance between schools is a mere 3.1 miles, from Osborne Elementary to Quaker Valley High School on opposite ends of Beaver Street.

The schools are community assets. During non-school hours, the facilities and fields are heavily used by residents, community groups and organizations for meetings, programming and activities. It is not unusual for a school to accommodate a borough council meeting, Brownie troop activity, and a youth basketball team after hours on the same day.

Parent and community support is integral to the success of not only the individual students but also to the success of the programs and activities at each building level. The schools welcome and thrive on the volunteer support of parent groups, booster groups, and senior citizens.

The small size allows the district to personalize instruction at every building level and provide comprehensive curriculum, co-curriculum, programs and activities that serve our students' needs and prepare them as they progress from the elementary, middle and high school curriculum on to college and careers.

The district is relatively small with a reputation for quality. School and class sizes allow for a personal approach to instruction. Quaker Valley recognizes that it takes a cumulative experience of excellence to produce students who will be internationally competitive. To that end, an innovative curriculum challenges all students to excel as independent thinkers and learners, and gives each the support and incentive to do so successfully.

All four of the district schools have been selected for National Blue Ribbon Awards of Excellence.

The 2011 *Pittsburgh Business Times Guide to Western Pennsylvania Schools* ranked Quaker Valley School District 9th in Western Pennsylvania and 24th in the state based on standardized test scores.

In 2010, *Newsweek Magazine*, for the 6th year in a row, named Quaker Valley High School as one of the top high schools nationwide. QVHS's rank of 994 places it among the top six percent of high schools nationwide. Quaker Valley was among nine schools in Allegheny County and 29 schools statewide to make the list.

Apple Corporation recently named Quaker Valley High School "An Apple Distinguished School." QVHS is one of only four schools in Pennsylvania to receive this distinction. An Apple Distinguished School is one that has implemented a 21st century vision of education and technology integration in an exemplary way and is willing to share its program with other educators and institutions.

2011 also marks the seventh year in a row the National Association of Music Makers (NAMM) named Quaker Valley one of the "Best Communities for Music Education" in America.

In 2010, three Quaker Valley teachers were named semi-finalists and one a finalist for Pennsylvania Teacher of the Year.

Typically 90% of seniors take the SAT. Recent results place Quaker Valley High School in the top 4% of the 641 high schools in the state. Quaker Valley's composite score is the sixth highest among the 42 suburban districts.

Historically 90% of graduating seniors go on to higher education.

All elementary and middle school students are engaged in the study of fine arts. 76% of Quaker Valley High School students continue to study and participate in some form of fine arts ~ the graphic and visual arts as well as the choral, orchestral, instrumental and theatrical arts – all through a variety of coursework and co-curricular enrichment.

Computers and technology are used as tools to enhance and facilitate learning and assessment. In addition to providing computer instruction and at least one computer lab in each building, every high school student is issued a laptop as a freshman for use at school and home for their four years at QVHS; middle school students are assigned a laptop for use while at school; and computer carts equipped with laptops are available to elementary teachers so that each child has access to a laptop during a class period if needed to support the lesson or curriculum unit.

Program

The Pennsylvania Department of Education has adopted the Standards-Aligned System (SAS). This is a comprehensive approach to support student achievement across the Commonwealth. The curriculum framework specifies what is to be taught for each subject in the curriculum. In Pennsylvania, curriculum frameworks include Big Ideas, Concepts, Competencies, and Essential Questions aligned to the Standards and Assessment Anchors and, where appropriate, Eligible Content.

On July 1, 2010, the Pennsylvania State Board of Education adopted the Common Core State Standards in English/Language Arts (ELA) and mathematics, making Pennsylvania the 18th state to do so. The Pennsylvania State Board of Education has identified a strong alignment between Common Core State Standards and the Pennsylvania Standards.

Below are definitions for the Standards-Aligned System Curriculum Framework:

- Big Ideas: Declarative statements that describe concepts that transcend grade levels. Big Ideas are essential to provide focus on specific content for all students.
- Concepts: Describe what students should know (key knowledge) as a result of this instruction specific to grade level.
- Competencies: Describe what students should be able to do (key skills) as a result of this instruction, specific to grade level.
- Essential Questions: Questions connected to the SAS framework and are specifically linked to the Big Ideas. They should frame student inquiry, promote critical thinking, and assist in learning transfer.

The arts are integral to the Quaker Valley's curricular and co-curricular programs. Ongoing educational research continues to report the positive correlation between participation in the arts and success in school, work and life. In an effort to develop well-rounded students and creative thinkers the arts are priority throughout the Quaker Valley School District.

District art exhibits, musicals and dramas as well as choral and instrumental concerts are favorites with parents and the community. Our arts faculty collaborates to find different venues and opportunities to showcase and support students' talents.

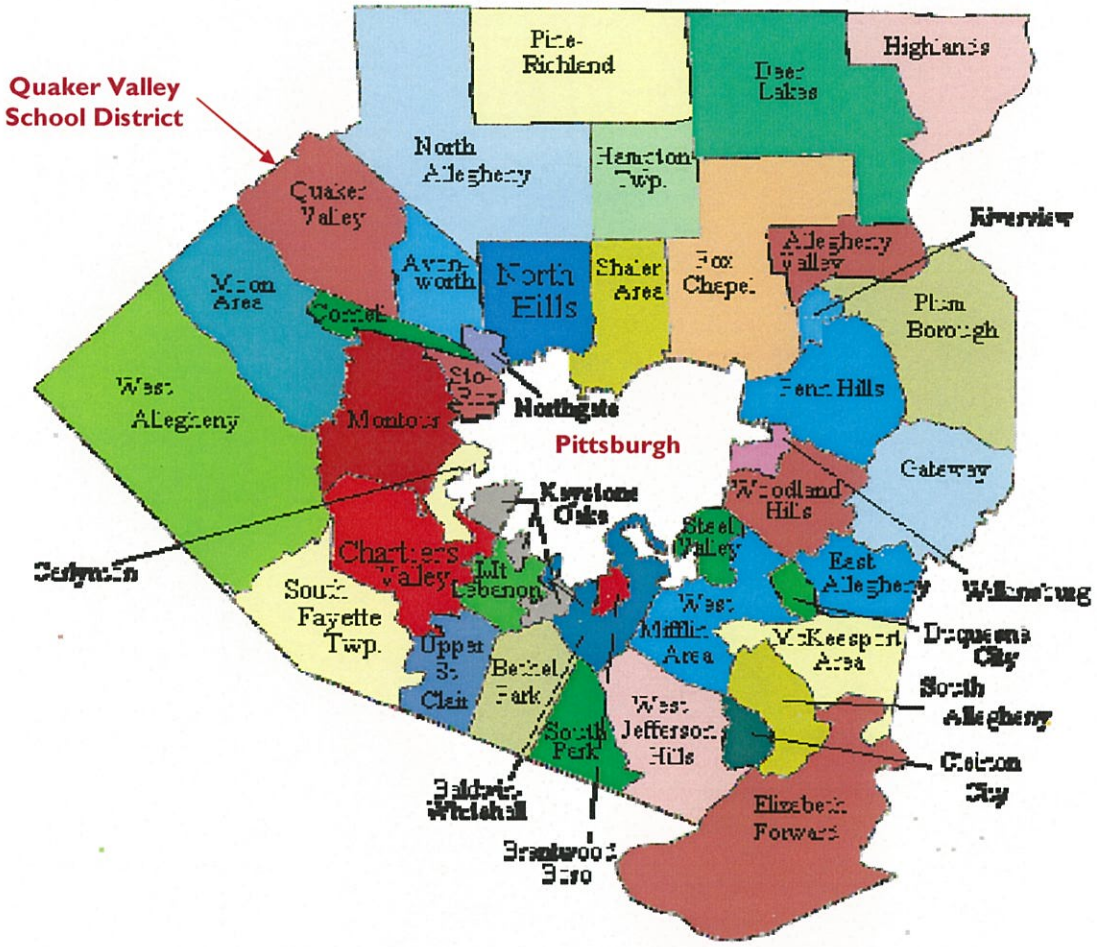
QUAKER VALLEY SCHOOL DISTRICT

Quaker Valley's athletic program is an integral part of the total educational experience. Research demonstrates that participation in extracurricular athletics and activities is associated with higher academic achievement. More than 60 percent of our high school students participate in at least one of our 14 different interscholastic programs.

Throughout the years, Quaker Valley athletes have celebrated both individual and team successes ~ consistently placing in the district, state and national rankings.

Quaker Valley believes in high standards and expectations. Therefore, personal conduct and academic achievement are integral to participation and success in the athletic arena. Staff members consistently monitor the progress of the student athletes in order to assist them in maximizing their ability to succeed both academically and athletically.

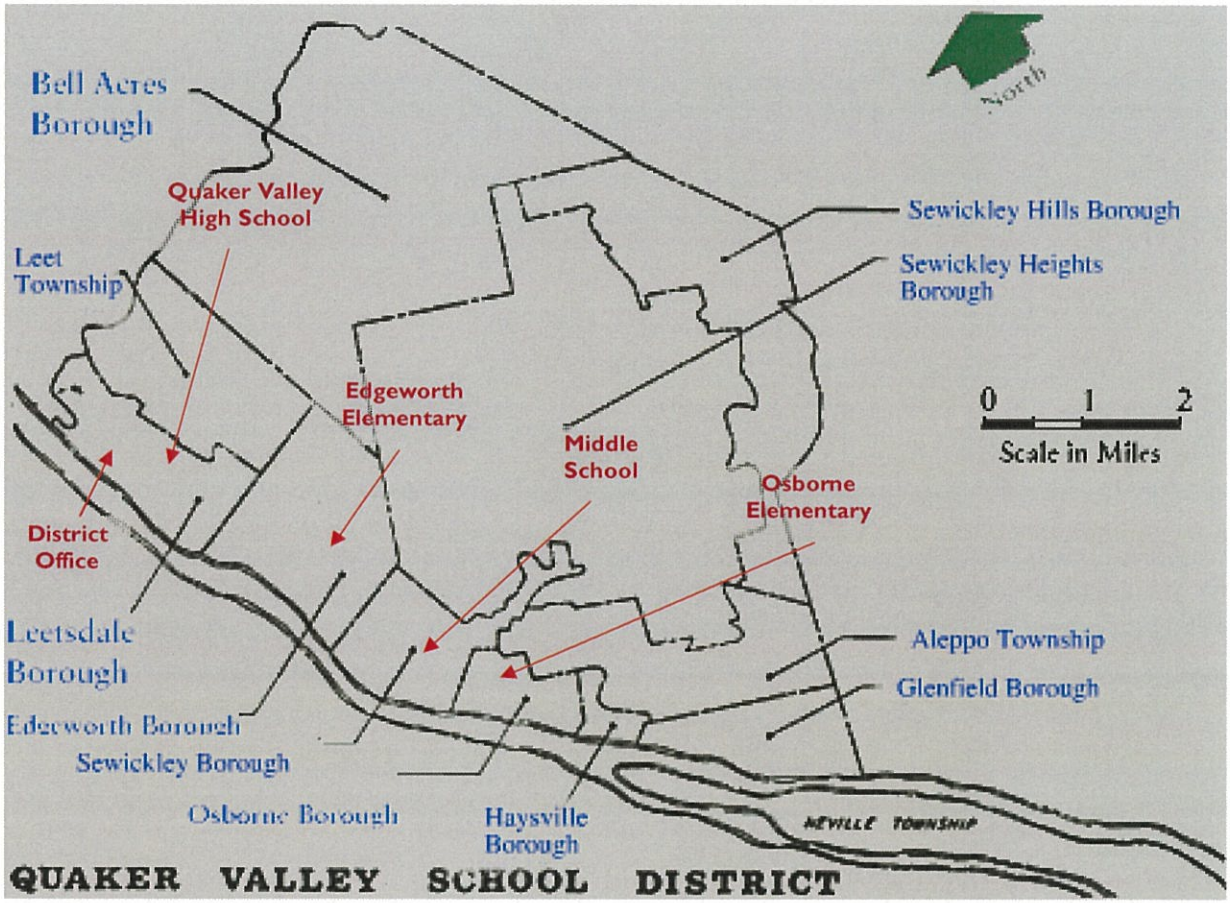
Allegheny County School District Map



Allegheny County School Districts

The Quaker Valley School District is in western Allegheny County, in southwestern Pennsylvania. The District is located along the Ohio River 12 miles northwest of Pittsburgh.

Quaker Valley School District Map



Quaker Valley School District

The Quaker Valley School District covers 24.2 square miles and includes the 11 municipalities as noted on the map. The District is comprised of four school buildings and the district office. Elementary schools are located in Edgeworth Borough and Osborne Borough. The Middle School is in Sewickley Borough. Both the High School and the District Office are located in Leetsdale Borough.

District Enrollment

Anticipation of the student population is critical to the planning of the entire educational process. Enrollment projections have been and will continue to be the most important planning tool for the administrators. Without them, adequate preparations for curriculum, staff assignments, transportation, operation, and budget cannot be made.

Five year projections have been customary for the year to year operating decisions. Longer projections require periodic updating to adjust for interim fluctuations and maintain reasonable accuracy. While the longer projections are more vulnerable to unforeseen events and circumstances, they are necessary to evaluate any commitment to a building program that could affect the district for the next 20 to 30 years. The Department of Education is currently requiring enrollment projection data by grades for 10 years hence.

Most population estimates are based on recent history or "trends". Extrapolation of these trends then produces an expected future progression. Modifications to account for conditions that can effect migration or birth rate might refine the results but there are limitations (which increase with the length of the forecast) to any of the accepted methods.

The enrollment projection model used by the Pennsylvania Department of Education is based on the "retention" theory that students' historical progression to the next grade is influenced by factors that will continue in the future. See the following pages for current enrollment and current PDE Enrollment Projects. Quaker Valley School District administration believes that these projections are reflective of actual enrollment trends in the district, and have been close to actual enrollment numbers.

These projections however, have limitations since they do not recognize any change in the internal or external factors that could disrupt historical trends. With an interest in examining other factors, which might affect population trends within the District, a Demographic Study reflecting population projections was prepared by Shelby Stewman of Stewman Demographics.

QUAKER VALLEY SCHOOL DISTRICT

Quaker Valley Generated Statistics
Current Enrollment by School

	Edgeworth	Osborne	Middle School	High School	TOTALS
KDG	60	60			120
GRADE 1	65	63			128
GRADE 2	80	70			150
GRADE 3	66	82			148
GRADE 4	83	58			141
GRADE 5	96	79			175
SUBTOTAL Elementary Grades					862
GRADE 6			154		154
GRADE 7			155		155
GRADE 8			137		137
SUBTOTAL Middle School Grades					446
GRADE 9				165	165
GRADE 10				187	187
GRADE 11				139	139
GRADE 12				186	186
SUBTOTAL High School Grades					667
TOTAL BY SCHOOL	450	412	446	677	1985
OUTSIDE QV					21
DISTRICT TOTALS					2006

Pennsylvania Department of Education

Enrollment Projections

(Dated 07/2010)

Revised 7/2010 (2009 Enrollments)

Enrollment Projections
Prepared by the Pennsylvania Department of Education
(717) 787-2644

Quaker Valley SD **1-03-02-775-3**

YEAR	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2005-2006	115	134	105	147	152	149	161	154	164	140	173	157	161	1912
2006-2007	134	134	136	116	149	166	152	164	153	170	130	158	154	1916
2007-2008	112	151	140	133	115	149	173	156	160	151	159	124	153	1876
2008-2009	126	126	160	147	146	127	160	170	145	173	153	159	134	1926
2009-2010	121	143	134	173	155	154	132	165	180	149	178	149	158	1991
P R O J E C T I O N S														
2010-2011	123	138	152	141	180	165	161	134	163	186	153	171	150	2017
2011-2012	107	137	147	160	147	191	172	163	133	168	191	147	172	2035
2012-2013	112	118	146	155	166	156	199	175	161	137	173	183	148	2029
2013-2014	111	124	125	154	161	176	163	202	173	166	141	166	184	2046
2014-2015	109	123	132	132	160	171	184	165	200	179	171	135	167	2028
2015-2016	108	121	131	139	137	170	179	187	163	207	184	164	136	2026
2016-2017	106	119	129	138	144	146	177	182	185	168	213	177	165	2049
2017-2018	104	117	127	136	143	153	152	180	180	191	173	205	178	2039
2018-2019	102	115	124	134	141	152	160	154	178	186	197	166	206	2015
2019-2020	100	113	122	131	139	150	159	162	152	184	191	189	167	1959

Various Grade Groupings of the Enrollment Projections

YEAR	K-4	K-5	K-6	K-7	K-8	K-9	K-12	5-8	6-8	7-8	6-9	7-9	7-12	8-12	9-12	10-12
2009-2010	726	880	1012	1177	1357	1506	1991	631	477	345	626	494	979	814	634	485
2014-2015	656	827	1011	1176	1376	1555	2028	720	549	365	728	544	1017	852	652	473
2019-2020	605	755	914	1076	1228	1412	1959	623	473	314	657	498	1045	883	731	547
2009-2010 to 2019-2020																
Change	-121	-125	-98	-101	-129	-94	-32	-8	-4	-31	31	4	66	69	97	62
Percent	-16.7	-14.2	-9.7	-8.6	-9.5	-6.2	-1.6	-1.3	-0.8	-9.0	5.0	0.8	6.7	8.5	15.3	12.8

Notes:
1. Excludes students in full-time out-of-district special education, comprehensive AVTSs, charter schools, state-owned schools, consortium-operated alternative high schools, and juvenile correctional institutions.
2. Enrollment projections beyond five years are subject to errors in the lower grades resulting from inconsistencies between actual and projected live births and should be reviewed closely.
3. Four year old kindergarten students, if any, added to K enrollments.
4. Elementary and secondary ungraded students were distributed among the grades. Therefore, enrollments by grade may differ from those reported by the local education agencies.

Sources:
1. Public School Enrollment Report (ESPE) and Pennsylvania Information Management System (PIMS)
2. Resident Live Birth file, 2008, supplied by the Division of Health Statistics, PennsylvaniaDepartment of Health. The Department of Health specifically disclaims responsibility for any analyses, interpretations or conclusions.

Elementary School (K-5)

Current Enrollment (2009/2010)	**880**		
Projected Enrollment (2019/2020)	**755**		
Anticipated Change	***-125***	***Percent Growth (%)***	***-14.2%***

Middle School (6-8)

Current Enrollment (2009/2010)	**477**		
Projected Enrollment (2019/2020)	**473**		
Anticipated Change	***-4***	***Percent Growth (%)***	***-0.8%***

High School (9-12)

Current Enrollment (2009/2010)	**634**		
Projected Enrollment (2019/2020)	**731**		
Anticipated Change	***+97***	***Percent Growth (%)***	***+15.3%***

QUAKER VALLEY SCHOOL DISTRICT

Shelby Stewman, Stewman Demographics',
Demographic Study Excerpts

See the September 15, 2015 Demographic Study

QVSD.org/Distirct/Blueprint QV: New High School Project/ Research and Studies/Demographic School Analysis - Population Projections for the Quaker Valley School District

Fiscal Outlook

See the June 9, 2020 Finance Presentation.

QVSD.org/Distirct/Blueprint QV: New High School Project/Research and Studies/Finance Presentation New HS Prospective Funding Plan Scenarios

OBJECTIVES OF THE STUDY

The objective of the study is to gather, analyze, evaluate, and document information that will enable Quaker Valley School District School Board, Administrators, and Staff to make informed value decisions concerning potential improvements to the elementary schools, middle school, high school, and district office. This is a comprehensive study that assesses the existing conditions of the buildings and sites, analyzes the capacity of the buildings, evaluates the current and planned educational programs, and defines options and associated costs for the potential improvements.

The district has recently addressed their needs at the elementary level with renovations and additions to both buildings. Both the high school and middle school have been well maintained, however, due to the age of the buildings, both infrastructure and educational program updates are needed. Program limitations, health and wellness mandates, after school programs, increased participation in fine arts, increased enrollment, and ever-changing technology, indicate these facilities are or will be inadequate.

This study will focus primarily on the district's needs at the Middle School with secondary emphasis on the High School level by evaluating the School Facilities, the Anticipated Enrollment, the Educational Program, and the Budget. The study will look beyond the needs of the secondary grades by recognizing the impact future growth and program changes may have at the Elementary and Middle School levels as well as on overall district development 10 years and beyond. This study will also evaluate other Administrative, Athletic, or Maintenance needs and make recommendations for immediate & future development.

QUAKER VALLEY SCHOOL DISTRICT

PART II – DISTRICT FACILITIES

GENERAL

- District Facilities Map

[redacted]

[redacted]

[redacted]

[redacted]

QUAKER VALLEY HIGH SCHOOL

- Facility Profile
- Existing Building Utilization
- Existing Conditions Analysis

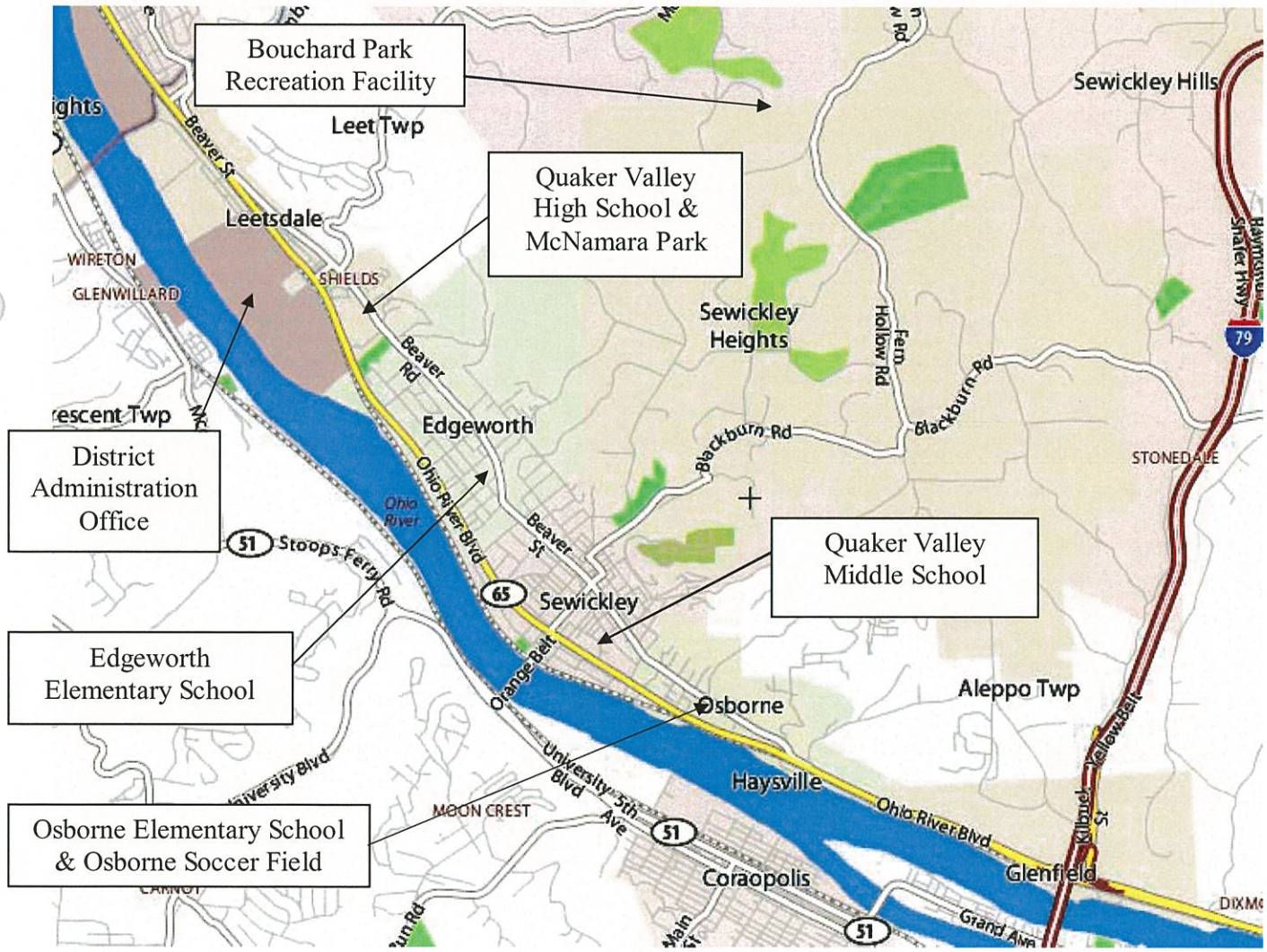
ATHLETIC FACILITIES

QUAKER VALLEY SCHOOL DISTRICT

DISTRICT FACILITIES MAP

District Facilities Map

All Quaker Valley School District facilities, consisting of a district office and 4 schools, are located within the major population centers located in the communities paralleling the Ohio River. The 4 schools are either on or adjacent to the main community thoroughfare known as Beaver Street (also known as Beaver Road). Each of the school buildings are located in different municipalities. The High School is in Leetsdale Borough, the Middle School is in Sewickley Borough, the Edgeworth Elementary School is in Edgeworth Borough and the Osborne Elementary School is in Osborne Borough. The District Office is located in Leetsdale Borough within the Leetsdale Industrial Park.



Existing Conditions Analysis

DISTRICT ADMINISTRATION OFFICES

GENERAL

In the summer of 2010, the District Administration Offices (DAO) moved from their long time location in the Middle School building to their current location in the Leetsdale Industrial Park. The move was facilitated to provide needed space for both the Middle School programs and District Office functions.

The DAO site, centrally located near the District population center, is easily accessed via a dedicated ramp and overpass from nearby Pennsylvania Route 65 to the Leetsdale Industrial Park. Once inside the Park, appropriate street signage has been placed to enable visitors to conveniently locate the facility. Adjacent to the main DAO entrance is significant parking to accommodate all staff and visitors. There are clearly identified staff, visitor, accessible and generic parking spaces. The site is flat and the entrance is at grade.

The DAO occupies a leased commercial office space which was thoroughly renovated and modified in 2010 to suit the specific needs of the district. Increased square footage has allowed the district to consolidate varying administrative functions which were previously housed throughout the district in varying locales and in inadequate spaces. Multiple conference spaces have been provided to accommodate small to large groups. Room layouts are designed to facilitate work flow and provide necessary privacy and confidentiality. Storage and support spaces have been sized and located to suit District needs.

Both the site and the building are totally handicapped accessible per applicable codes and ordinances. Building security is maintained by door card access controls, cameras and a monitored fire and security system. The main reception area functions using a pass window allowing visitors to be greeted before being electronically passed into the main office space.

All mechanical, plumbing, electric and telecommunications systems have been upgraded and currently suit the needs of the DAO. There is no evidence of hazardous materials apparent in the space.

Given the recent date of the renovations, the adequacy of the spaces and the infrastructure, and the long term lease agreement, the District sees no need to either modify the building or relocate in the foreseeable future.

QUAKER VALLEY SCHOOL DISTRICT

QUAKER VALLEY HIGH SCHOOL

625 Beaver Street, Leetsdale, PA 15056

Mr. Andrew Surloff, Principal
Mrs. Deborah Riccobelli, Asst. Principal

Facility Profile

Date of Construction	1926		**Renovations/Additions**	1998	
Grades			9th thru 12th		
Stories			Four Story		
Occupancy Type			Educational		
Construction Type			Non-Combustible / Steel Frame		
Architectural Area	**126,563 SF**		**Site Area**	13.98 acres (shared with McNamara Park)	
PDE FTE Capacity			**694**		
Current Enrollment			**677**		
Municipality			Leetsdale Borough		
Condition			Poor to Good		
Building History		**1959**	Minor upgrades		
		1988	Minor upgrades		
		1998	Extensive renovations & minor additions		
		2003	Main entrance security alterations		
		2005	Water infiltration remediation, roof repair & HVAC upgrades		
		2008	Auditorium Sound System		

Existing Building Utilization

BASEMENT FLOOR PLAN

Key to Spaces

1. Entry
2. Lobby
3. Corridor
4. Administration
5. Guidance
6. Health Suite
7. Faculty/Staff
8. Gymnasium
9. Locker Rooms
10. Fitness Classrooms
11. Cafeteria
12. Kitchen
13. Auditorium
14. Stage
15. Library/Media Center
16. Library Classroom
17. Art Classroom
18. Band Classroom
19. Choral Classroom
20. Music Classroom
21. Computer/Business Classroom
22. Family & Consumer Science Classroom
23. Tech-Ed Classroom
24. General Classroom
25. Science Classroom
26. Special Education Classroom
27. Small Group Instruction
28. Student Activities
29. School Store
30. Restrooms

QUAKER VALLEY SCHOOL DISTRICT

GROUND FLOOR PLAN

Key to Spaces

1. Entry
2. Lobby
3. Corridor
4. Administration
5. Guidance
6. Health Suite
7. Faculty/Staff
8. Gymnasium
9. Locker Rooms
10. Fitness Classrooms
11. Cafeteria
12. Kitchen
13. Auditorium
14. Stage
15. Library/Media Center
16. Library Classroom
17. Art Classroom
18. Band Classroom
19. Choral Classroom
20. Music Classroom
21. Computer/Business Classroom
22. Family & Consumer Science Classroom
23. Tech-Ed Classroom
24. General Classroom
25. Science Classroom
26. Special Education Classroom
27. Small Group Instruction
28. Student Activities
29. School Store
30. Restrooms

QUAKER VALLEY SCHOOL DISTRICT

FIRST FLOOR PLAN

Key to Spaces

1. Entry
2. Lobby
3. Corridor
4. Administration
5. Guidance
6. Health Suite
7. Faculty/Staff
8. Gymnasium
9. Locker Rooms
10. Fitness Classrooms
11. Cafeteria
12. Kitchen
13. Auditorium
14. Stage
15. Library/Media Center
16. Library Classroom
17. Art Classroom
18. Band Classroom
19. Choral Classroom
20. Music Classroom
21. Computer/Business Classroom
22. Family & Consumer Science Classroom
23. Tech-Ed Classroom
24. General Classroom
25. Science Classroom
26. Special Education Classroom
27. Small Group Instruction
28. Student Activities
29. School Store
30. Restrooms

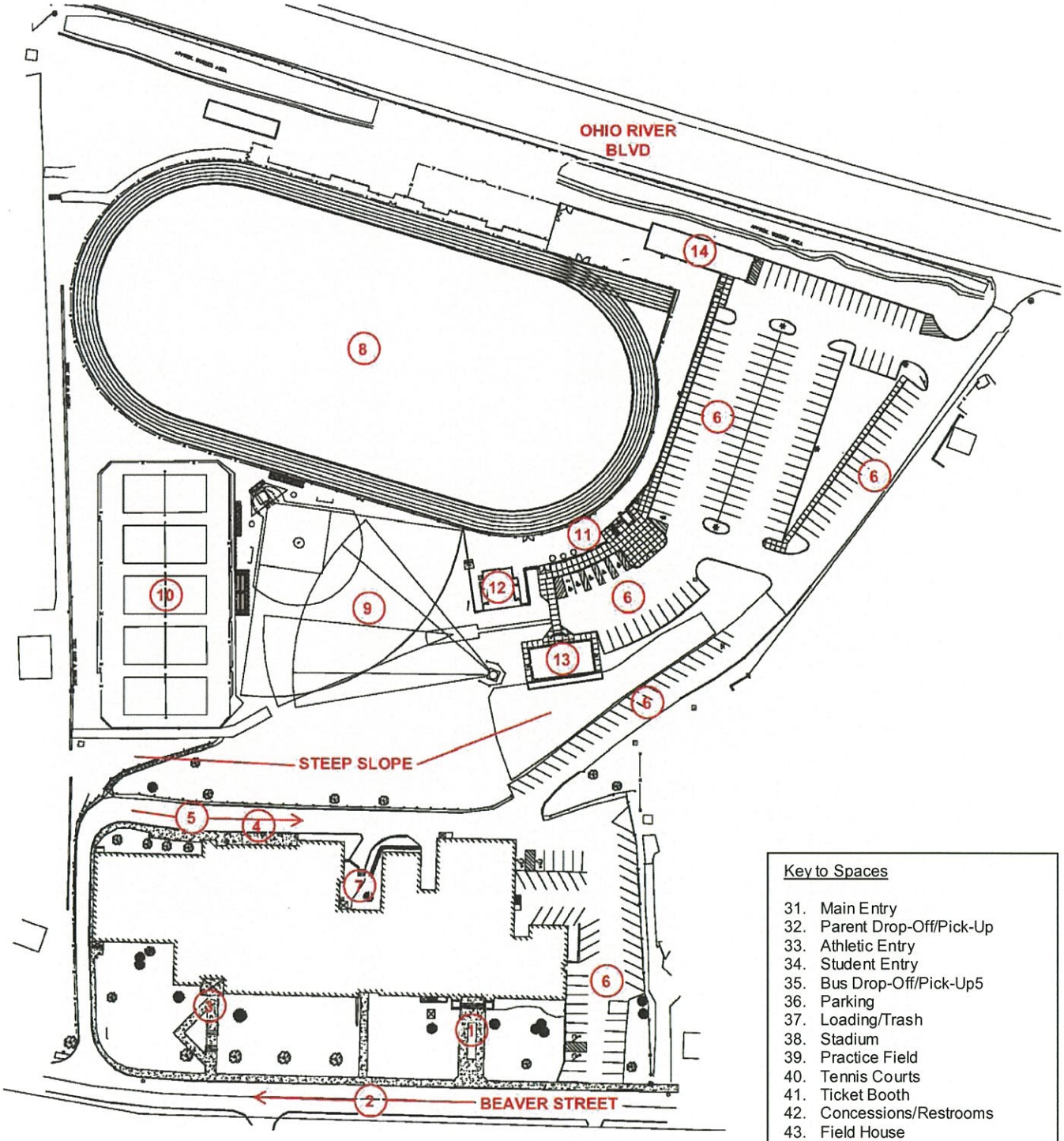
SECOND FLOOR PLAN

Key to Spaces

1. Entry
2. Lobby
3. Corridor
4. Administration
5. Guidance
6. Health Suite
7. Faculty/Staff
8. Gymnasium
9. Locker Rooms
10. Fitness Classrooms
11. Cafeteria
12. Kitchen
13. Auditorium
14. Stage
15. Library/Media Center
16. Library Classroom
17. Art Classroom
18. Band Classroom
19. Choral Classroom
20. Music Classroom
21. Computer/Business Classroom
22. Family & Consumer Science Classroom
23. Tech-Ed Classroom
24. General Classroom
25. Science Classroom
26. Special Education Classroom
27. Small Group Instruction
28. Student Activities
29. School Store
30. Restrooms

QUAKER VALLEY SCHOOL DISTRICT

SITE PLAN



Key to Spaces

31. Main Entry
32. Parent Drop-Off/Pick-Up
33. Athletic Entry
34. Student Entry
35. Bus Drop-Off/Pick-Up5
36. Parking
37. Loading/Trash
38. Stadium
39. Practice Field
40. Tennis Courts
41. Ticket Booth
42. Concessions/Restrooms
43. Field House
44. Maintenance/Storage

Existing Conditions Analysis

General

The existing High School was originally constructed in 1926 and underwent a Major Renovations and Additions project completed in 1998. The existing High School building is in fair to good condition. Although the renovations performed in 1998 were extensive they were not comprehensive and were not all designed for longevity & maintainability. If properly maintained and with minor upgrades, these renovated areas of the building should provide the district with an additional 5 to 10 years of service without need for any major renovations. The additions built in 1998 are in good to good condition, with proper maintenance and minor upgrades as needed, these areas of the building should serve the district for the next 15 plus years without the need for major renovations. The District has struggled with numerous water infiltration issues over the years since the renovations and although the majority of the water was addressed in a water remediation project in 2005, the building has suffered with moisture related issues.

The District has been able to effectively deliver their educational program over the last 12 years, however current and future needs are becoming more challenging to meet as the educational program expands, especially in the arts and the athletics. The building presents a challenge in offering more programs as the building is already fully utilized and numerous educational spaces are undersized. The 1998 and prior renovations to the building left carved-up and reconfigured the existing structure in ways that compromise the efficiency and usability of space.

The 1998 renovations addressed handicapped accessibility upgrades, any future renovations or improvement projects should be designed to current accessibility standards.

The building was partially re-roofed as part of the 1998 project; consideration should be given to re-roofing the remainder of the building, tearing off all layers of old roofing.

Although the HVAC system was brought up to building codes of the time, air conditioning was not a part of that project scope. The lack of air conditioning in the building has proved to be an administrative issue for the District, the number of students with environmental allergies has risen and the District ability to provide summertime programs has been hampered.

With the nature of the tight site, traffic patterns around the building are compromised. The bus and parent drop-off areas are effectively separated but neither circulation path is ideal and cause congestion and unsafe conditions. The buses circle around to the back of the building and drop-off and pick up students on the buildings lowest level. The bus drive is tight, forcing the busses to maneuver the tight corner around the building and stack out onto Beaver Street. The parent drop-off and pick-up is along Beaver street at the front of the building. Beaver Street is a fairly heavily trafficked municipal street; the vehicular circulation is congested with parents mixing with both thru traffic and buses. The traffic conditions should be addressed as part of any option. Staff & Student parking is provided on site with the parking spaces located along the drive between the school & McNamara Park and within the McNamara Park parking lots. The students and staff walk up the drive way to the school. Visitor and administrative parking is in a small lot adjacent to the main entrance. Buses and students and staff circulate through this lot. Additional visitor parking is needed on site and should be separated from the vehicular circulation paths.

Building Systems

See Attached 'Exhibit C' for HVAC, Plumbing/Fire Protection and Electrical Facility and Food Service/Kitchen Assessments.

QUAKER VALLEY SCHOOL DISTRICT

The following is a preliminary list of additional High School identified program, facility and deferred maintenance needs (some may be previously mentioned):

- Adequate classroom space based on enrollment and educational program needs
- Create adequate classroom space throughout building, rooms are currently undersized
- Access control system needed (keycards)
- Keying system is obsolete
- Flooring repair/replacement throughout
- Gymnasium and wellness upgrades needed
- Security cameras needed for both interior & exterior monitoring
- Classroom technology stations needed to include LCD projectors
- HVAC systems upgrades & equipment replacement
- Replace carpet with linoleum
- Reconfigure and re-equip kitchen
- Relocate Guidance Office closer to Main Administration Office
- Water supply and sanitary waste lines to be addressed
- Replace plumbing fixtures with high-efficiency/low flow type
- Green design and energy efficiency improvements
- Address site traffic patterns – improve safety
- Parking upgrades and expansion
- Building code and accessibility upgrades
- Fire alarm system upgrades
- Exterior masonry repair and re-grouting including parapet repair
- Auditorium, stage, and theatrical lighting upgrades
- Lighting upgrades – interior and exterior
- Resolve water infiltration issues

QUAKER VALLEY SCHOOL DISTRICT

ATHLETIC FACILITIES

The district utilizes various athletic facilities throughout the district to support the district sponsored athletic programs. These facilities are also utilized by the general public and available to community athletic programs for practice and competition.

Edgeworth Field

Osborne Field

Middle School Walking Track and Field

McNamara Park

The McNamara Athletic Complex located at the High School Site supports the High School physical education program, various sports programs and community use. The complex was upgraded in 2002 with the construction of five tennis courts and again in 2003 with the upgrades to their stadium, track and field. The complex includes event parking, stadium ticket booth, concession stand and restrooms, and a field house. The grass field was replaced with synthetic turf and the track was resurfaced in 2004. The complex also includes accommodations for various field events like jumping and throwing and includes a grass practice field. The McNamara Athletic Complex is located along Ohio River Boulevard and is separated from the Highs School with a large steeply sloping hillside. The facilities are open to the general public and utilized by various community sports programs.

Bouchard Park Recreation Facility

QUAKER VALLEY SCHOOL DISTRICT

PART III –OPTIONS

PRIORITIES/GOALS

OPTIONS

OPTION SUMMARY

QUAKER VALLEY SCHOOL DISTRICT

PRIORITIES/GOALS

In the previous District Wide Facility Study completed in 2004, the District identified that the modernization and upgrades to the Elementary Schools were of a high priority. As a result the Elementary Schools underwent comprehensive alterations and additions in 2005/2006 which brought those facilities up to date and resulted in facilities that will adequately accommodate future needs. It is now the Districts desire to plan for improvements to the Secondary Schools. The District has identified the following priorities in their evaluation of the various options.

PRIORITY 1

Middle School

PRIORITY 2

High School

a. **Deferred maintenance/capital improvements;**
b. **Safety and security upgrades;**
c. **Modernization of building infrastructure and physical plant;**
d. **Functional reorganization to support the current and future programmatic needs of the administration, educational program & the community;**
e. **Expansion to accommodate program needs not currently addressed in the existing facility;**
f. **Energy efficiency improvements and Green design features.**

PRIORITY 3

Ongoing maintenance of other district facilities.

It is the districts intention to maintain their current grade level alignments with grades 6 thru 8 at the Middle School and grades 9 thru 12 at the High School. The priority goals can be addressed through renovations/additions to existing facilities or through construction of a new facility(ies); the following options contemplate both scenarios.

Options Considered

MIDDLE SCHOOL OPTIONS

HIGH SCHOOL OPTIONS

- **2A** Deferred maintenance and capital improvement upgrades
- **2B** Comprehensive alterations and additions (as required to accommodate program)
- **2C** New high school building on a new site
- **2D** New high school building on an existing site
- **2E** Partial demolition with comprehensive alterations and additions

COMBINED MIDDLE/HIGH SCHOOL OPTIONS

OPTION 2A – High School

Deferred Maintenance and Capitol Improvement Upgrades

	SUMMARY	COSTS	
		Low	High
ARCHITECTURAL UPGRADES	• Kitchen & Servery upgrades & equipment replacement • Roof Replacement • Replace fire escape • Exterior door and hardware replacement • Stage Upgrades • Site Improvements to include 'governors drive', additional visitor parking, & existing parking lot repairs	$1,750,000	$2,500,000
HVAC UPGRADES	• Building-wide air conditioning • Replace terminal equipment • Replace boilers • Replace air handling equipment • New DDC controls • New Chiller • New HVAC system to serve Kitchen	$2,000,000	$3,500,000
PLUMBING UPGRADES	• New Plumbing to accommodate Kitchen upgrades • Upgrade to low-flow fixtures • Replace hot water boilers • Install kitchen grease interceptor	$400,000	$700,000
ELECTRICAL UPGRADES	• New Electrical to accommodate Kitchen upgrades • Site lighting at new 'governors drive' & parking • Technology Upgrades • Security Upgrades	$100,000	$150,000
CONSTRUCTION COST		**$4,250,000**	**$6,850,000**
PROJECT COST*		**$5,100,000**	**$8,220,000**

* Project Costs include 20% soft costs.

SUMMARY

The scope of work in this option is viewed as the work that would be necessary to perform if the District were to maintain the status quo for more than the next five years.

CHALLENGES

This option does not include any improvements to accommodate current or future programmatic needs. Educational, administrative and community needs have changed over the years and are anticipated to change in the future and this option does not accommodate those needs or anticipate the changing trends in education.

Due to the age of the building and the nature of the previous renovations, other significant capital improvement needs could exist but be unknown at this time. It is generally recognized that the previous renovation projects did not address the building comprehensively, concealed conditions may exist that could become evident with time or construction activity.

OPTION 2B – High School

Comprehensive Alterations & Additions

	SUMMARY	COSTS	
		Low	High
PROJECTED ENROLLMENT (PDE – 2016/17)	626		
PDE CAPACITY (FTE)	953		
EXISTING BUILDING RENOVATIONS**	126,560 SF	$18,984,000*	$20,249,600*
NEW CONSTRUCTION**	45,900 SF	$8,262,000*	$8,721,000*
SITE DEVELOPMENT	13.98 Acres (allowance****)	$3,000,000*	$4,000,000*
CONSTRUCTION COST		$30,246,000	$32,970,600
PROJECT COST***		$36,900,120	$40,224,132

* Construction Costs are based on $150/sf to $160/sf for Renovations and $180/sf to $190/sf for New Construction plus site development

** Proposed Area (including both Existing & New) is based on the Proposed Program Table in Exhibit D

*** Project Costs include 22% soft costs

SUMMARY

This option contemplates comprehensive alterations to the existing building and additions to accommodate program needs. In addition to physical plant updates and general modernization, it is recommended that the internal organization of the existing building be reconfigured to more effectively meet the program needs. Numerous educational spaces are currently undersized, internal walls should be moved to provide appropriately sized classrooms and support spaces. The interior environment should be outfitted to support the various educational programs. The comprehensive alterations will address the identified deficiencies within the existing facility and will include upgrades and modernizations that will bring the building up to current codes.

Considerations:

- The District has identified programmatic deficiencies in the Food Service, Arts, Family & Consumer Science, Tech-Ed, and Athletics departments and Administration and it is assumed that additions will include facilities to enhance these program areas.
- The Existing Gymnasium is undersized and an addition would be necessary to enlarge it to the desired size.
- The existing Auditorium, stage, and support spaces are undersized and do not provide the appropriate amount of flexibility for a multi-use assembly space. An addition would be necessary to provide a large group assembly venue to meet both performance and educational needs.

- The usability/efficiency of the existing building is compromised by the organization of the original construction and previous improvement projects. The efficiency of the building may not be enhanced after renovations due to the existing building limitations.
- While the existing site utilization separates Bus and Parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions. Site modifications should address the traffic issues by providing an on-site parent drop-off, a more appropriate bus route and drop-off/pick-up area, and additional visitor and staff parking.

CHALLENGES

This option assumes that the entire existing building will be renovated & reused in the additions and alterations project. It would be fair to speculate that when the schematic design is developed that the proposed program may not pair up exactly to the existing facility and at that time it may be considered that portions of the existing building be demolished and replaced with new construction. The extent to which that may be found to be desirable or necessary cannot be determined at this time.

The district should consider vacating the existing building during construction. While it might be possible to renovate and build new additions in phases while keeping the building occupied, it may not be a practical solution at this site. The site is already very congested and the buildable area of the site is limited by the adjacent residential properties, the city street, and the large slope that separates the High School from McNamara Park. Occupying the building during construction may prove to limit the design options, lengthen the construction timeline, add to the construction costs and further congest the existing site.

The Department of Education's recommendation for this High School based on full-time equivalents (FTE's) is 44 acres, the existing site area is approximately 30 acres below the recommended acreage, and a portion of the existing site exceeds a 20% slope.

OPTION 2C – High School

New Building on New Site

	SUMMARY	COSTS	
		Low	High
PROJECTED ENROLLMENT (PDE – 2016/17)	626		
PDE CAPACITY (FTE)	953		
EXISTING BUILDING RENOVATIONS	n/a		
NEW CONSTRUCTION	172,460SF**	$31,042,800*	$32,767,400*
SITE DEVELOPMENT	(allowance****)	$3,500,000*	$4,500,000*
CONSTRUCTION COST		$34,542,800	$37,267,400
PROJECT COST***		$43,178,500	$46,584,250

* Construction Costs are based on $180/sf to $190/sf for New Construction plus site development
** Proposed Area is based on the Proposed Program Table in Exhibit D
*** Project Costs include 25% soft costs
**** The nature of the site is unknown, allowance assumes that site is relatively flat and that basic utilities would be available in close proximity to the proposed building location

Note: Site Acquisition Costs are not included;
PDE's recommended acreage = 44 acres, For a HS it is 35 acres + 1 acre for every 100 FTE's

SUMMARY

This option contemplates the construction of a new building with associated site development to support the High School on a new site within the District. The design options available for a new building on a new site should be extensive and be able to be driven by the program needs for the building and without the constraints of the existing building and site.

Considerations:

- The District would need to acquire land (costs outside this analysis); a site with a useable area of approximately 44 acres is recommended by PDE.
- The District may consider incorporating the District Administration Offices into the facility.
- This option assumes that the athletic facilities at McNamara Park will remain at the existing High School site & will not be relocated as part of this project.
- The new building should be designed to accommodate community and evening events within secured public areas.

- The new site should be organized to provide separate Bus and Parent circulation during arrival & dismissal, adequate staff and visitor parking, and outdoor recreational facilities for use of the school and community.
- The existing school can be utilized during construction of a new facility without any on-site construction activity.

CHALLENGES

The availability of property within the district is an unknown and while the state does reimburse for property acquisition, the costs associated with site acquisition and development of the property could be high. These costs for acquisition, regulatory approvals & site development beyond typical earthmoving to receive the building are not factored into the above costs.

OPTION 2D – High School

New Building on Existing Site

	SUMMARY	COSTS	
		Low	High
PROJECTED ENROLLMENT (PDE – 2016/17)	626		
PDE CAPACITY (FTE)	953		
EXISTING BUILDING RENOVATIONS	n/a		
NEW CONSTRUCTION	172,460SF**	$31,042,800*	$32,767,400*
BUILDING DEMOLITION	(allowance)	$1,000,000	$1,500,000
SITE DEVELOPMENT	13.98 Acres (allowance****)	$3,500,000*	$4,500,000*
CONSTRUCTION COST		**$35,542,800**	**$38,767,400**
PROJECT COST***		**$44,428,500**	**$48,459,250**

* Construction Costs are based on $180/sf to $190/sf for New Construction plus site development
** Proposed Area is based on the Proposed Program Table in Exhibit D
*** Project Costs include 25% soft costs
**** The allowance assumes that the existing site would be utilized in its current configuration, with the new building occupying roughly the same area of the site as the existing building and that McNamara Park would be preserved.

SUMMARY

This option contemplates the construction of a new building with associated site development to support the High School on the existing site. The demolition of the existing building provides additional opportunities for development of the site. The organization of the building design should be greatly improved; however it is assumed that the building would need to be multiple floors (possible 4 to 5) in order to accommodate the building on this site.

Considerations:

- The District may consider incorporating the District Administration Offices into the facility.
- With a new building on this site, there may be an opportunity to develop parking under the building footprint.
- It is advisable that if a project is to be considered on the existing site, the District look into acquisition of adjacent property.
- While the existing site utilization separates Bus and Parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions. Site

modifications should address the traffic issues by providing an on-site parent drop-off, a more appropriate bus route and drop-off/pick-up area, and additional visitor and staff parking.

CHALLENGES

The district should consider vacating the existing building during construction. While it might be possible to renovate and build a new building & demolish the existing building in phases while keeping the building occupied, it may not be a practical solution at this site. The site is already very congested and the buildable area of the site is limited by the adjacent residential properties, the city street, and the large slope that separates the High School from McNamara Park. Occupying the building during construction may prove to limit the design options, lengthen the construction timeline, add to the construction costs and further congest the existing site.

While the organization of the building should be greatly improved over the existing, the site will still be constrained by the property limits, municipal streets, and the steep slope that separates the High School from McNamara Park. These site limitations will limit the availability to fully differentiate bus, parent and student circulation.

The Department of Education's recommendation for this High School based on full-time equivalents (FTE's) is 44 acres; the existing site area is approximately 30 acres below the recommended acreage.

OPTION 2E – High School

Partial Demolition and Comprehensive Alterations & Additions

	SUMMARY	COSTS	
		Low	High
PROJECTED ENROLLMENT (PDE – 2016/17)	626		
PDE CAPACITY (FTE)	953		
EXISTING BUILDING RENOVATIONS**	69,000 SF	$10,350,000*	$11,040,000*
NEW CONSTRUCTION**	103,460 SF	$18,622,800*	$19,657,400*
PARTIAL DEMOLITION	(allowance)	$500,000	$1,000,000
SITE DEVELOPMENT	13.98 Acres	$3,000,000*	$4,000,000*
CONSTRUCTION COST		$32,472,800	$35,697,400
PROJECT COST***		$40,591,000	$44,621,750

* Construction Costs are based on $150/sf to $160/sf for Renovations and $180/sf to $190/sf for New Construction plus site development

** Proposed Area (including both Existing & New) is based on the Proposed Program Table in Exhibit D

*** Project Costs include 25% soft costs

SUMMARY

This option contemplates the partial demolition of the existing building, those that offer limitations to their re-use, alterations to the remaining portion of the building, and construction of sizable additions. The demolition of the existing building provides additional opportunities for development of the site. The organization of the building design should be greatly improved; however it is assumed that the building would need to be multiple floors (possible 4 to 5) in order to accommodate the building on this site.

Considerations:

- It would be recommended that the new portion of the building include the large venue spaces like the gym, auditorium and cafeteria, the highly specialized instructional and support spaces such as tech-ed, science, art, and music, and the existing building be utilized to accommodate general instruction.
- The District may consider incorporating the District Administration Offices into the facility.
- With a large portion of new building on this site, there may be an opportunity to develop parking under the building footprint.

- It is advisable that if a project is to be considered on the existing site, the District look into acquisition of adjacent property.
- While the existing site utilization separates Bus and Parent drop-off zones, the circulation paths cross and are not adequately sized to accommodate the traffic. The parent drop-off occurs on a heavily trafficked main municipal street leading to congestion and unsafe conditions. Site modifications should address the traffic issues by providing an on-site parent drop-off, a more appropriate bus route and drop-off/pick-up area, and additional visitor and staff parking.

CHALLENGES

The district should consider vacating the existing building during construction. While it might be possible to renovate, demolish portions of the existing building and build new additions in phases while keeping the building occupied, it may not be a practical solution at this site. The site is already very congested and the buildable area of the site is limited by the adjacent residential properties, the city street, and the large slope that separates the High School from McNamara Park. Occupying the building during construction may prove to limit the design options, lengthen the construction timeline, add to the construction costs and further congest the existing site.

The Department of Education's recommendation for this High School based on full-time equivalents (FTE's) is 44 acres; the existing site area is approximately 30 acres below the recommended acreage.

Option Summary

[redacted]

HIGH SCHOOL						
Option 2A **Deferred Maintenance and Capitol Improvement Upgrades**						
			Construction Cost Range		**Project Cost Range**	
			Low	High	Low	High
			$4,250,000	**$6,850,000**	**$5,100,000**	**$8,220,000**
Option 2B **Comprehensive Alterations and Additions**						
	Existing Building Renovations	New Construction/ Additions	**Construction Cost Range**		**Project Cost Range**	
Area	126,560 sf	45,900 sf	Low	High	Low	High
Costs	$150/sf to $160/sf	$180/sf to $190/sf	**$30,246,000**	**$32,970,600**	**$36,900,120**	**$40,224,132**
Site Allowance Range	$3,000,000 to $4,000,000					

Option 2C **New High School Building on New Site**						
	New Construction		**Construction Cost Range**		**Project Cost Range**	
Area	172,460 sf		Low	High	Low	High
Costs	$180/sf to $190/sf		**$35,542,800**	**$37,267,400**	**$43,178,500**	**$46,584,250**
Site Allowance Range	$3,500,000 to $4,500,000					
Option 2D **New High School Building on Existing Site**						
	New Construction		**Construction Cost Range**		**Project Cost Range**	
Area	172,460 sf		Low	High	Low	High
Costs	$180/sf to $190/sf		**$35,542,800**	**$38,767,400**	**$44,428,500**	**$48,459,250**
Demolition Allowance	$1,000,000 to $1,500,000					
Site Allowance Range	$3,500,000 to $4,500,000					
Option 2E **Partial Demolition with Comprehensive Alterations and Additions**						
	Existing Building Renovations	New Construction/ Additions	**Construction Cost Range**		**Project Cost Range**	
Area	69,000 sf	103,460 sf	Low	High	Low	High
Costs	$150/sf to $160/sf	$180/sf to $190/sf	**$32,472,800**	**$35,697,400**	**$40,591,000**	**$44,621,750**
Demolition Allowance	$500,000 to $1,000,000					
Site Allowance Range	$3,000,000 to $4,000,000					
[redacted]						

QUAKER VALLEY SCHOOL DISTRICT

PART IV - RECOMMENDATION

SELECTED OPTIONS

This study has provided an analysis of the existing facilities and potential options to address both current and future needs. The existing Edgeworth and Osborne Elementary Schools, the District Office Facilities, and Stadium at McNamara Park are in excellent condition due to recent capitol improvement projects at these facilities. Upgrades to these facilities will be relatively minor over the next twenty years if properly maintained.

Although the existing Middle and High Schools have had a numerous renovations, additions and minor capital improvement projects over the last 10 to 15 years, they are in the worst condition of any of the district buildings. Adding to the deficiencies brought on by the nature of their age, these building are not designed to accommodate current educational needs and this will be even more dramatically so over the next ten years with continued changes in educational programming. Improvements which may include significant building expansion are the District's most immediate need. The District has identified their intent to comprehensively address both the Middle and High School buildings as part of their future capital improvements plan. They have further identified that their first priority is to address the needs of the Middle School.

[redacted]

High School

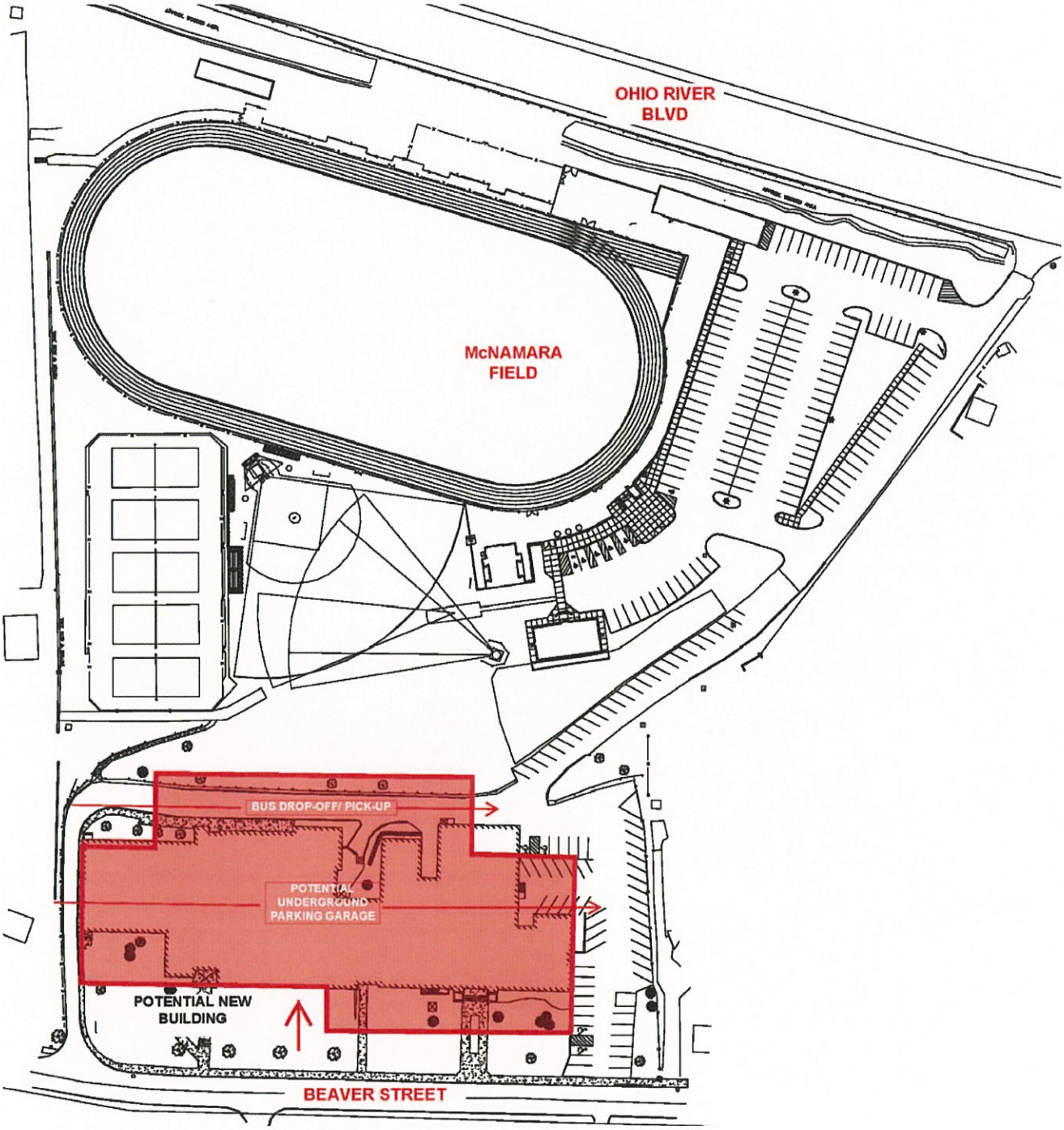
The District has identified their preference to maintain the High School facility at the existing High School site. This can be achieved through the implementation of Options 2B, 2D, and 2E. The District has identified that their focus for the High School project will be to create a 21st century learning environment with a focus on the future of education. Their programming goals will include highly specialized instructional spaces with focuses on STEAM (science, technology, engineering, art and math) curriculum, performing and fine arts, collaborative learning, athletics, and the availability of these community resources. Due to the nature of the existing building and the previous improvement projects which left the building with unusual physical characteristics, it is recommended that the most effective way to achieve the district's programming goals at the existing site will be through the implementation of either **Option 2D - New Building on the Existing Site** or **2E – Partial Demolition with Alterations and Additions to the Existing Building**. Further development of

both options as part of a future design project will be required to analyze the cost benefit & final outcome of each option. Other future considerations will influence the final direction of the project. Early in 2012 and prior to the programming and planning for a future High School facility, the District & High School Administration will be begin a Strategic Planning and Middle States Certification process. The outcome of that process along with the District's research into charter and cyber schools will dramatically influence the final program and scope of the building project.

Prior to the implementation of a comprehensive High School project, it is recommended that current and future deficiencies which affect student and staff safety and security as well as fundamental building operations be addressed through capital improvement projects.

HIGH SCHOOL

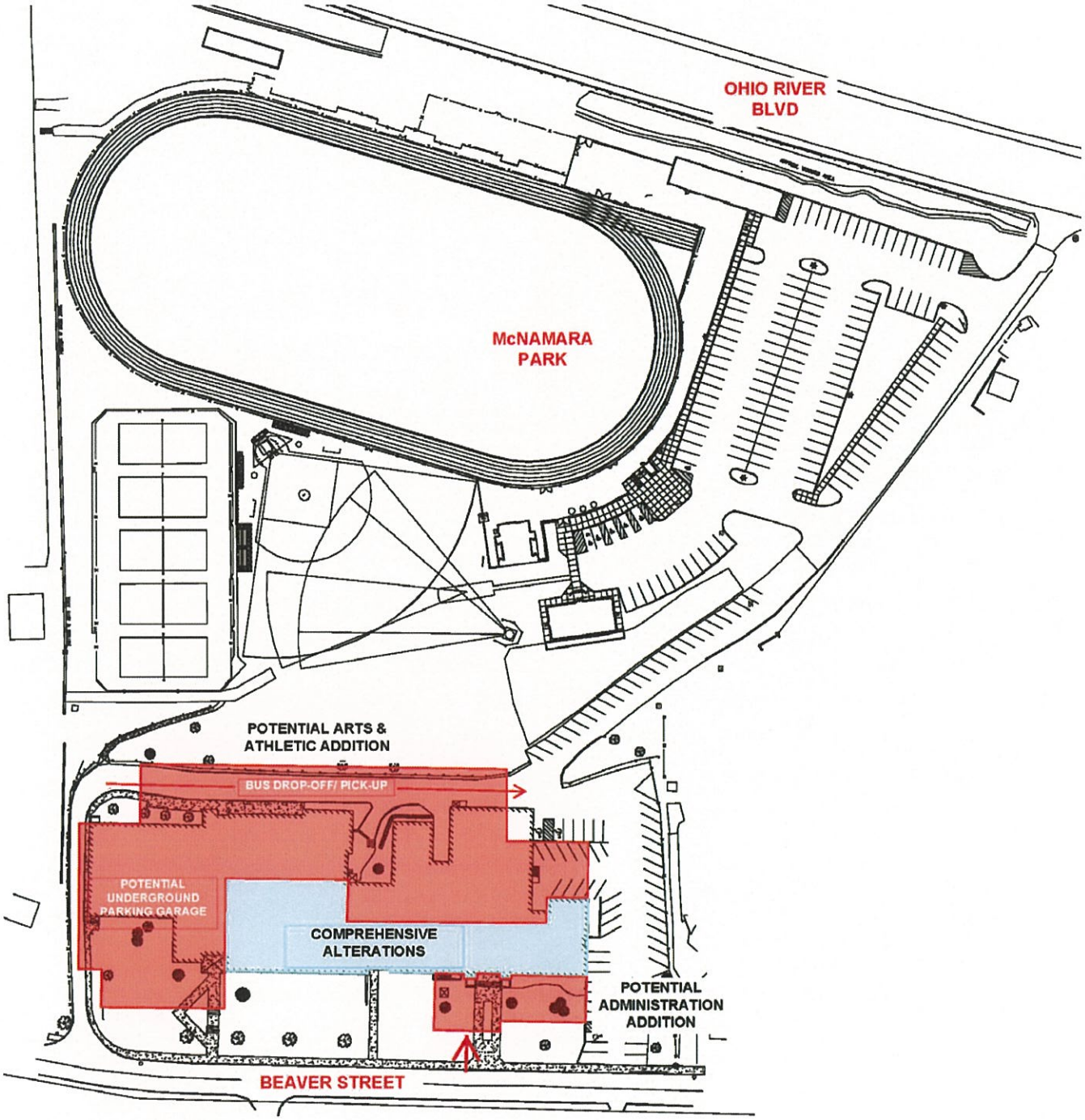
OPTION 2D – New Facility on Existing Site



QUAKER VALLEY SCHOOL DISTRICT

HIGH SCHOOL

OPTION 2E – Partial Demolition and Comprehensive Alterations & Additions



QUAKER VALLEY SCHOOL DISTRICT

This District Wide Facility Study Final Report dated September 21, 2010 is to be utilized as a tool to plan for the future of the District and the District's facilities. This report is intended to be a 'living' document that will be refined, revised and adapted to meet the ever-changing needs and desires of the District.

QUAKER VALLEY SCHOOL DISTRICT

Exhibit A - Author's Credentials

In the Spring of 2010, the Quaker Valley School District Board of Director's commissioned Eckles Architecture & Engineering to complete a District-Wide Facility study in order to evaluate their facility needs, to develop options for future campus development, to make an assessment and recommendation for implementation, and to complete the necessary documentation required by Pennsylvania's Department of Education for a PlanCon reimbursable project.

This study was conducted by Design Professionals of Eckles Architecture & Engineering in cooperation with Tower Engineering. Eckles Architecture & Engineering has been involved in the planning, design & construction of School Facilities in Pennsylvania for over one-hundred years. Eckles is recognized throughout the region as a premier school facility design firm.

Mr. Robert Naugle, AIA
Mr. Naugle is a Principal at Eckles Architecture & Engineering. Bob has over 45 years of experience designing schools in western Pennsylvania. He holds a Bachelor's of Architecture Degree from Carnegie Technology Institute and is licensed to practice architecture in the state of Pennsylvania.

Mr. Jeffrey Foreman, RA
Mr. Foreman is a Project Manager at Eckles Architecture & Engineering. Jeff has over 15 years of experience designing schools in western Pennsylvania. He holds a Bachelor's of Architecture Degree from University of Cincinnati and is licensed to practice architecture in the state of Pennsylvania.

Ms. Cassandra Renninger, RA NCARB
Ms. Renninger is a Project Manager at Eckles Architecture & Engineering with over 15 years of experience designing school facilities in Western Pennsylvania. Cassi holds a Bachelor's of Architecture degree from Carnegie Mellon University and has a license to practice architecture in the state of Pennsylvania.

Mr. James N. Kosinski, PE
Mr. Kosinski is a Principal at Tower Engineering with over 22 years of experience designing school facilities. He is a graduate of Penn State University with a Bachelor's Degree in Architectural Engineering. Jim holds his Professional Engineering licenses in Pennsylvania and West Virginia. Jim is a LEED (Leadership in Energy & Environmental Design) Accredited Professional.

Ms. Mary T. Smith, PE
Ms. Smith is a Project Manager at Tower Engineering with over 30 years of experience. She is a graduate of University of Pittsburgh with a Bachelor and Master Degrees in Chemical Engineering. Mary holds her Professional Engineering license in Pennsylvania. Mary is a LEED (Leadership in Energy & Environmental Design) Accredited Professional and holds her certification in plumbing design from ASPE (American Society of Plumbing Engineers).

QUAKER VALLEY SCHOOL DISTRICT

Mr. John C. West Jr., PE

Mr. West is an Associate at Tower Engineering with over 17 years of experience designing school facilities. He is a graduate of Penn State University with a Bachelor's Degree in Architectural Engineering. John holds his Professional Engineering license in Pennsylvania.

QUAKER VALLEY SCHOOL DISTRICT

Exhibit B – DEMOGRAPHIC STUDY

Demographic School Analysis:
Population Projections for the
Quaker Valley School District

See the September 15, 2015 Demographic Study

QVSD.org/Distirct/Blueprint QV: New High School Project/Research and Studies/Demographic School Analysis - Population Projections for the Quaker Valley School District

QUAKER VALLEY SCHOOL DISTRICT

Exhibit C – Facility Assessments

[redacted]

High School HVAC Assessment
Tower Engineering, Jim N. Kosinski, PE, February 9, 2010

High School Plumbing and Fire Protection Assessment
Tower Engineering, Mary T. Smith, P, February 9, 2010

High School Electrical Assessment
Tower Engineering, John C. West, PE, February 9, 2010

Food Service Assessment – [redacted] High Schools
McFarland Kistler & Assoc., Inc., Ken Kistler, FCSI, February 12, 2010

TOWER ENGINEERING

Project Name:	Quaker Valley School District – Middle School and High School
Tower Project Number:	A9108
Client:	Eckles Architecture and Engineering
Date of Report:	February 9, 2010
Author:	James N. Kosinski, PE
Subject:	**High School HVAC Assessment**

General Comments and Recommendations:

- Overall System Type - Classrooms: [redacted]
- Overall System Type – Remaining Areas: [redacted]
- Construction and Renovation History: The latest renovation occurred in 1997and while most of the HVAC equipment was replaced in the 1997 renovation, some older hot water piping still exists throughout the building.
- Comparison to Current Standards:
  - The [redacted] ventilators are similar to the equipment installed in numerous primary/secondary schools with the exception that modern classroom systems are designed with increased ventilation air capabilities and usually have an integral cooling coil.
  - Modern HVAC design for K-12 facilities has moved away from [redacted] design towards vertical unit ventilator, water-source heat pump, Variable Air Volume, and fan-coil designs. These systems have numerous advantages including indoor air quality, acoustics, maintenance requirements and energy efficiency.
  - Improvements to the building HVAC systems that bring the building systems up to or exceed current energy efficiency standards should be considered to decrease the overall energy usage.
- Overall Recommendation: See specific recommendations below

Central Heating Plant:

- Description of Existing System:
  - Plant Type: Plant Age: 1997: [redacted]
  - Fuel: natural gas
  - Boiler: [redacted]
  - Pump Configuration: [redacted]
  - Variable Speed Drive: [redacted]
  - HW Valve Configuration: [redacted]
  - Glycol: [redacted]
- Code Violations and Safety Concerns:
  - The boiler room does not comply with the 2010 edition of the International Mechanical Code with respect to boiler room combustion air requirements.
- Comments and Recommendations:

- The combustion air intakes do not have motorized dampers
- If the boilers are retained, install in-line dedicated recirculation pumps to eliminate potential for thermal shock and condensation
- Consider replacement of existing [redacted] boilers with new condensing boilers
- Consider replacement of existing hot water pumps with new pumps with the capability of lead/lag operation
- Consider installation of variable speed drives on the hot water pumps for energy efficiency

Central Cooling Plant: not applicable

Control System:

- Description of Existing Control System:
  - [redacted]
- Comments and Recommendations:
  - Upgrade to direct digital control system

Classrooms:

- Description of Existing System:
  - System Type: [redacted] The majority of the unit ventilators are heating only and there are various unit ventilators throughout the building that are furnished with heating and DX cooling. Relief air from the classrooms is via a ducted relief system that extends up through the building.
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
  - Ventilation Source: [redacted]
- Comments and Recommendations:
  - Existing unit ventilators have [redacted] to minimize potential for freeze failures.
  - It is unlikely that the existing system meets current ventilation codes (15 cfm per student in each classroom).
  - There is evidence that humidity levels are very high at times making ceiling tiles sag in numerous classrooms.
  - Consider installing newer vertical unit ventilators with, hot water heat and heat recovery to increase energy efficiency.

Office & Health Suite:

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]

- Comments and Recommendations:
  - The Office & Health Suite is served via a [redacted]
  - Individual rooms have [redacted]
  - The thermostat for the air handling system is located in [redacted]
  - Consider converting the existing [redacted] to a zoned system for better temperature control

Tech Ed & Basement:

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Comments and Recommendations:
  - The inlet control vanes on the air handling unit are [redacted] indicating that the unit is at its maximum capacity
  - The ductwork insulation is pulling away from the ductwork indicating that the vapor barrier on the ductwork has been breached. Moisture form condensation on the ductwork has permeated the insulation making it ineffective. All of the insulation should be replaced
  - Heating at the unit is controlled via a [redacted]
  - Verify actual airflow requirements and upgrade air flow capacities as required
  - Consider installation of a variable speed drive for the supply fan

Library:

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Comments and Recommendations:
  - The ductwork insulation is pulling away from the ductwork indicating that the vapor barrier on the ductwork has been breached. Moisture form condensation on the ductwork has permeated the insulation making it ineffective. All of the insulation should be replaced
  - Heating at the unit is controlled via [redacted]

Kitchen:

- Description of Existing System:
  - Kitchen System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Code Issues: no direct ventilation is provided
- Comments and Recommendations:
  - Install a dedicated makeup air unit to provide direct mechanical ventilation to the kitchen
  - The majority of the heating hot water supply and return piping is not insulated. Insulate all uninsulated heating hot water supply and return piping
  - Based upon observations, it appears that insufficient makeup air exists within the Cafeteria to compensate for hood exhaust. Installation of a dedicated makeup air unit would improve this situation.
  - Transfer air into the kitchen is through a [redacted]
  - There are [redacted] signs of rust. Replace existing exhaust fans and exposed ductwork

Cafeteria:

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Code Issues: none noted
- Comments and Recommendations: none
  - Consider adding cooling capability

Boys and Girls Locker Rooms

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Code Issues: none noted
- Comments and Recommendations:
  - none

Guidance Suite

- Description of Existing System:
  - System Type: Constant Volume Air Handling System in roof penthouse – McQuay model LSL103CH
  - Age: 1997
  - Cooling Source: none
  - Heating Source: hot water
- Code Issues: none noted
- Comments and Recommendations:
  - Consider adding cooling capability

Band/Chorus Room

- Description of Existing System:
  - System Type: [redacted]
  - Age: Recently modified
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Code Issues: The condensing unit is within 10'-0" of the roof parapet
- Comments and Recommendations:
  - This system was recently replaced with the exception to the fan section which remained
  - A new hot water coil, evaporator coil and air cooled condenser section was installed
  - The supply fan discharge has a [redacted] This was installed as a means to divert air to the return duct when the system is at lower loads
  - Relocate condensing unit or install hand rail at parapet

Corridors

- Description of Existing System:
  - System Type: [redacted]
  - Age: NA
  - Cooling Source: [redacted]
  - Heating Source: [redacted]
- Code Issues: Ventilation required per 2009 International Mechanical Code - .06 cfm/sq.ft.
- Comments and Recommendations:
  - Provide ventilation air via a dedicated heating and ventilation unit. This could be tied into a new heating and ventilation that would serve the classrooms.

Weight Room - Basement

- Description of Existing System:
  - System Type: [redacted]
  - Age: 1997

  - Cooling Source: [redacted]
  - Heating Source:
- Code Issues: none
- Comments and Recommendations:
  - Consider adding cooling capability

Gymnasium

- Description of Existing System:
  - System Type: [redacted]
  - Age: Unknown
  - Cooling Source: [redacted]
  - Heating Source:
- Code Issues: none
- Comments and Recommendations:
  - Replace existing units with new packaged rooftop units with cooling capability

Project Name:	Quaker Valley School District – Middle School and High School
Tower Project Number:	A9108
Client:	Eckles Architecture and Engineering
Date of Report:	February 9, 2010
Author:	Mary T. Smith, PE
Subject:	**High School Plumbing and Fire Protection Assessment**

General Comments and Recommendations:

- An initial discussion was held with QV personnel to get an overview of the concerns for the plumbing systems.
  - The building is to be functional for another 20 years of service life.
  - High efficiency sinks and toilets: It is desired to replace the water closets, sinks and urinals with fixtures that use less water. Auto-sensor flush valves can be used for the urinal. Manual flush valves will be used for the water closets. Sloan is the preferred manufacturer for flush valves. Crane is not preferred. The district has a preference to use Chicago Faucets. The model will be provided to the AE team.
  - Science labs: The science lab areas need to be reviewed to determine if they are code compliant.

- Overall Recommendation: Replace the plumbing fixtures with lower flow models. Replace existing equipment to meet the requirement of an additional 20 years of service. Additional recommendations follow.

Water Supply:

- Description of Existing System:
  - [redacted] installed in 1997, it enters the building [redacted]
  - Present configuration includes a [redacted]
  - Pressure gage [redacted]
  - There is limited [redacted]
- Code Violations and Safety Concerns:
  - None identified at this time.
- Comments and Recommendations:
  - See Fire Protection Section

Sanitary Sewer:

- Description of Existing System:

- Sanitary lines exit the building from [redacted] and discharge to a manhole.

- Code Violations and Safety Concerns:
  - None identified at this time.
- Comments and Recommendations:
  - Have the underground sanitary lines video scoped to determine the condition of these lines.
  - Replace aboveground sanitary piping that was not replaced in the most recent renovation of 1997.

Storm Sewer:

- Description of Existing System:
  - Storm lines exit [redacted]
  - Some storm lines within the building were replaced in 1997.
- Code Violations and Safety Concerns:
  - Secondary roof drains or scuppers are required by IPC section 1107 should the roof construction allow the entrapment of water if the primary drains allow buildup.
- Comments and Recommendations:
  - Have the underground storm lines video scoped to determine the condition of these lines.
  - Determine adequacy of overflow scuppers to provide secondary roof drainage.

Natural Gas Service:

- Description of Existing System:
  - The gas service comes from [redacted]
- Code Violations and Safety Concerns:
  - [redacted]
- Comments and Recommendations:
  - Install an [redacted]

Interior Water Distribution:

- Description of Existing System:
  - In 1997, a majority of the cold water, hot water and hot water recirculation system and the gas piping to the labs was replaced.
- Code Violations and Safety Concerns:
  - None identified at this time.
- Comments and Recommendations:
  - Replace plumbing systems that were not replaced in 1997.
  - Replace/repair piping that is leaking.
  - Replace missing or damaged insulation on plumbing lines.

Plumbing Fixtures:

- Description of Existing System:

- Some plumbing fixtures were replaced in 1988 and others were replaced in 1997. There is a mix of wall mounted and floor mounted water closets with manual flush valves. Water closet water consumption is 1.6 GPF. Urinal water consumption is 1 GPF, with manual and sensor flush valves. Lavatories had manual faucets.
- Electric water coolers were installed in 1997.
- Most of the service sinks are wall mounted. A few have been replaced with floor mounted mop sinks.
- Tempered and cold water is provided for the showers.

- Code Violations and Safety Concerns:
  - Current IPC requires tempered (85 to 110 deg F) water for public hand washing.
- Comments and Recommendations:
  - Replace the water closets and urinals with low flow fixtures (1.28 GPF and 0.5 GPF respectively).
  - Install sensor operated (battery powered) flush valves on the urinals.
  - Install manual flush valves on the water closets
  - Install new faucets on the lavatories. The lavatories are in reasonable condition, but could be replaced if the other fixtures are being replaced.
  - Replace service sinks with mop sinks where possible. Replace faucets at service/mop sinks.
  - Replace electric water coolers
  - Replace shower heads and shower faucets.
  - Replace tempering valves to showers.
  - Install tempering valve to provide tempered water in the building's existing hot water distribution system. Install separate hot water line to kitchen area.

Domestic Water Heaters:

- Description of Existing System:
  - There are two [redacted] There are two [redacted] The tank was installed in 1997. There was no indication of problems, from school personnel, with the volume or temperature of the hot water system.
- Code Violations and Safety Concerns:
  - None identified at this time.
- Comments and Recommendations:
  - Replace the water heaters (same capacity) with higher energy efficient units, comparable to the building boilers replacement. Replace the circulating pumps.

Kitchen/Cafeteria:

- Description of Existing System:
  - The kitchen does not presently have a grease interceptor.
- Code Violations and Safety Concerns:
  - A grease interceptor is required per IPC section 1003.3.1 for school kitchens.

- Comments and Recommendations:
  - Replace floor drain grates with stainless steel grates.
  - Replace hand wash sink with stainless steel.
  - Replace the dishwasher booster heater.
  - Install a minimum 1,000 gallon grease interceptor (minimum size per Allegheny County Plumbing Code)

Science Labs:

- Description of Existing System:
  - During the 1997 renovation gas turrets, sinks, water, gas and drain piping was installed.
  - At the instructor's station there are [redacted]
- Code Violations and Safety Concerns:
  - Tepid water is required for emergency eyewash and safety shower.
- Comments and Recommendations:
  - Determine if tepid water is provided to the emergency eye wash, if not, provide safety fixture mixing valve.

Miscellaneous Plumbing:

- Description of Existing System:
  - Acid waste neutralization tank for science labs located i[redacted]
  - In the art and silk screen rooms there are [redacted]hat are problematic.
  - Home economics room has [redacted]
- Code Violations and Safety Concerns:
  - None identified at this time.
- Comments and Recommendations:
  - Provide new solids interceptors.
  - Darkroom sink needs the faucet replaced.
  - In the Home economics room reroute the lines on the [redacted]

Fire Protection:

- Description of Existing System:
  - Presently there is [redacted]This [redacted]
  - [redacted]
  - The sprinklers and fire hose connections are s[redacted]
    On the day of the site visit 2/01/2010, the water pressure gage reading for the building was 58 PSI. [redacted]

- Code Violations and Safety Concerns:
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- Comments and Recommendations:
  - A discussion should be held with the local authority having jurisdiction (AHJ) to discuss the fire protection for the building.
  - [redacted] the required pressures can be obtained at the fire hoses.
  - A hydrant flow test should be conducted.
  - Adequacy of existing sprinkler coverage was not evaluated at this time, pending the overall sprinkler issue.

Project Name:	Quaker Valley School District – Middle School and High School
Tower Project Number:	A9108
Client:	Eckles Architecture and Engineering
Date of Report:	February 9, 2010
Author:	John C. West Jr., PE
Subject:	**High School Electrical Assessment**

Power Distribution:

- Description of Existing System
  - Utility Connection: [redacted]
  - Equipment Manufacturer: General Electric
  - Main Building Service: [redacted]
  - Branch Distribution
    - [redacted]
- Code Violations and Safety Concerns
  - All clearances around the electrical distribution equipment meet the requirements of the National Electric Code (NEC), with the exception of the main switchboard. Per the latest edition of the NEC 2008, the clearance in front of the main switchboard should be 36". At this time, [redacted]
- Expected Life
  - The distribution equipment is approximately 12 years old and has another 25-30 years of life before replacement is required. Replacement parts are readily available for this equipment through GE.
- Recommendations:
  - Where branch panelboards are located [redacted] care should be taken to keep these panelboards locked at all times.

- The current main electric service for this building is not near its limit for capacity and can be added to for future air conditioning needs in the building, but the switchboard does not have physical space to add fusible switches to serve these new loads. One option would be to replace the fusible switch distribution sections with circuit breaker distribution sections. This would require the disconnection and reconnection of all feeders connected to the switchboard and fault current/coordination study to be provided.
- To correct the clearance issue in the [redacted]
- In the classrooms, the [redacted] could be removed because it is not being used.

Emergency Lighting and Power System:

- Description of Existing System
  - Existing generator: [redacted]
  - Emergency egress lighting
    - [redacted]
- Code Violations and Safety Concerns
  - The current wiring method for the lighting in the gymnasium is no longer permitted by the NEC.
  - The life safety emergency loads need to be [redacted]
  - A life safety automatic transfer switch can not be located in the same space as the main switchboard. This transfer switch needs to be located a separate room per the current edition of NFPA 110.
  - Per current codes, [redacted]
- Expected Life.
  - As long as the emergency generators are properly maintained, they should be able to operate another 15-20 years.
- Recommendations
  - The lighting in the gymnasium should be revised to be circuited so that the current code violation is corrected.

- A second automatic transfer switch should be added to shift the life safety emergency loads off of the existing automatic transfer switch. This automatic transfer switch should then be located a separate space with a one hour enclosure. Once this is accomplished, the power for the network closets could be added to the non-essential emergency automatic transfer switch.

Lighting Systems:

- Description of Existing Systems
  - [redacted]
- Code Violations and Safety Concerns
  - At this time, there are no apparent code violations pertaining to the lighting systems in the building, although one concern that was raised recently was in regard to the light levels in the classrooms. It was observed that these levels may be too high.
- Expected Life
  - Most light fixtures have a life expectancy of 20 – 25 years, and since the light fixtures are only 12 years old, they should be able to operate another 15 – 20 years before needing to be replaced.
- Recommendations
  - No changes are required to the lighting systems in the building at this time.
  - If alterations to the building are planned in the near future, then to comply with the current energy codes, lighting control devices (timer switches, occupancy sensors) will be required to provide automatic shut-off of light fixtures during unoccupied times. Also, a low voltage lighting relay control panel could be installed to provide a central control point for the lighting in the building.
  - If alterations to the classrooms and office spaces are planned, the light fixtures could be replaced with more efficient light fixtures that would provide greater spacing, which would reduce the amount energy consumed. This would also lower light levels to provide a softer environment on the eye.

Fire Alarm System:

- Description of Existing Systems
  - The existing fire alarm system is manufactured by Gamewell.
- Code Violations and Safety Concerns
  - Almost all areas are equipped with adequate fire alarm devices with the exception [redacted] All pull stations appear to meet code required mounting heights along with all strobe devices and horn/strobe devices.
  - The existing fire alarm system is a coded system and not addressable. The school district staff indicated that this system has [redacted]
- Expected Life
  - The existing fire alarm system is now around 12 years old and will soon need to be replaced or upgraded. Replacement parts will become more difficult to obtain.
- Recommendations
  - The fire alarm system should be upgraded to a more current generation of equipment and additional devices should be added to comply with current codes, including adding devices in the classrooms.

Building Intercom, Clock, and Cable Television System (CATV):

- Description of Existing Systems
  - Building paging/intercom system is manufactured by Telecor. This system is used for all pages throughout the entire building and includes call-in switches in the classrooms.
  - There are also several local sound systems in the auditorium and gymnasium.
  - There is no [redacted] in the building.
  - The main paging/intercom cabinet is located [redacted] All speaker cabling is landed on 66 blocks at this location and cross connected into the cabinet.
  - The cable television distribution system is routed into each classroom and split i[redacted] The coaxial cable is then distributed within the classroom to the television and desk mounted VCR. The head-end equipment for cable television distribution system is located [redacted]
- Code Violations and Safety Concerns
  - None
- Expected Life
  - The paging/intercom system is 12 years old and currently experiencing issues that require service calls to correct. This system will soon need to be replaced or upgraded because replacement parts will become more difficult to obtain. From the administrative handset [redacted]
  - The cable television system may be completely replaced with newer technology that utilizes the building data network rather than upgrading the current equipment in the central rack.
- Recommendations
  - The building paging/intercom system should be evaluated for potential replacement. This may require the replacement of speakers and cabling along with the head-end rack.
  - Provide [redacted] in the building to establish better time control in the building.

Telephone and Data Network System:

- Description of Existing Systems
  - [redacted]
  - [redacted]
- Code Violations and Safety Concerns
  - None
- Expected Life
  - The data cabling throughout the building is within the typical 15 year warranty period but should be retested and certified to ensure the cabling system can accommodate present and future technologies that will operate at gigabit Ethernet speeds. Also, fiber optic cabling from the [redacted]
- Recommendations
  - The data cabling in the building should be tested and recertified for use with gigabit Ethernet speeds.
  - Fiber optic cabling in the building should be retested for signal loss due to dust at connection points, etc.
  - A voice over IP type telephone system may be considered.

Classroom Audio/Visual System:

- Description of Existing Systems
  - The present classroom A/V system consists of a ceiling mounted LCD projector and speakers mounted at the projector. This equipment was obtained as part of a grant several years ago and has begun to have maintenance issues for the staff.
- Code Violations and Safety Concerns
  - None
- Expected Life
  - The LCD projectors in the classrooms are nearing the end of the life because when they were obtained as part of a grant, they were not the highest quality.
- Recommendations
  - All classrooms should be upgraded to a ceiling mounted LCD projector with wall or ceiling mounted speakers and voice amplification within the classroom. This design would be similar to what has been installed at the two elementary school buildings. This would require the removal of the older LCD projectors and speakers. Once this equipment is removed, consideration should be given to removing all coaxial cabling in the building and converting the cable television distribution system in the building to a network based system, similar to a VBrick type system.
  - A suggestion was also made to add an IP based camera in each classroom for distance learning capabilities.

McFarland Kistler & Associates, Inc.
Food & Laundry Facilities Consultants
~ Celebrating over 50 Years ~

Pines Plaza
1130 Perry Highway - Suite 115
Pittsburgh, PA 15237

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Fax: 412.367.4487
e-mail: kkistler-mka@comcast.net

February 12, 2010

Eckles Architecture, Inc.
301 North Mercer Street
New Castle, PA 16101

Attention: Mr. W. Jeffrey Foreman, AIA wjf@ecklegroup.com

Reference: Quaker Valley School District
Food Service Assessment – Middle and High Schools

Dear Jeff:

As requested, I met with Bob Naugle, Joe Marrone, and Betsy Klasnick at the Middle School on February 3, 2010, to discuss the overall concept regarding the assessments for both the Middle School and High School food service areas and review the existing Middle School kitchen and equipment. I later met with Betsy Klasnick at the High School on February 11, 2010, to further discuss their present food service operations and review the kitchen area and equipment at the High School.

The food service operation has been directed by Betsy Klasnick for over 30 years. The operation has been self-supporting throughout the recent past; however, the past deficit from the previous fifty-plus years has not been addressed. A breakfast program and lunch program are offered to all students (and faculty) throughout the District. Reimbursable breakfast participation is relatively low, similar to most school districts; however, ala carte purchases are generally good. Reimbursable lunch participation [redacted]; however, approximately [redacted] Free and/or reduced qualifying students are relatively low throughout the District. Ms. Klasnick has expanded her operation to cater to a number of outside parties, as well as accommodate the vast majority of the catering needs within the District in an effort to increase revenues. Outside parties presently include:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

Ms. Klasnick is anticipating expanding these programs and adding new clients, as available.

General comments pertaining to both facilities are as follows:

- [redacted] kitchen areas — specifically the "grandfathering" of existing installations. Typically a building renovation of 50%, or greater, will require the kitchen area equipment meet present day code standards. In addition, modifications to the kitchen area, regardless of the degree of change, may also result in the requirement to comply with present day code standards. Unfortunately, this is strictly up to the interpretation of the specific code reviewer. In these kitchens, the potential code issues involve the following:

  — Non air-gapped drains extending from the food preparation sinks and dishwasher.
  — Inadequate overhangs of the exhaust ventilators (hoods) encompassing the cooking equipment.
  — Presence of corrosion on various equipment items.
  — Inadequate number of handwashing sinks.
  — Inadequate illumination levels in various areas of the kitchens.
  — Presence of clothes dryer within the main kitchen area of the High School.
  — Inadequate illumination levels within the walk-in refrigerators and freezers.

Information Specific to the Middle School Kitchen:

- [redacted]

- [redacted]

Possible Options for Consideration:

- [redacted]

Information Specific to the High School Kitchen:

- Accommodates production for approximately 630 students in Grades 9 through 12.
- Catering demands, specifically District-related, will likely increase at this facility due to the relocation of the District Administration offices.
- Students are served via three (3) lunch periods at thirty (30) minutes each.
- Was originally designed as a "satellite" kitchen, supported by the Middle School kitchen, but now utilized as a stand alone full-service kitchen, receiving all deliveries and handling all production requirements.
- Encompasses approximately 1,640 square feet of "contained" kitchen area, plus approximately 350 square feet of the cafeteria area at the kitchen side and another 400 square feet of the cafeteria area at the opposite side of the cafeteria (alternate serving line).
- Very minimal renovation in 1997 involving the addition of a walk-in freezer, conversion of a stair tower to a small Dry Storage Room, purchase of two (2) refrigerators, and purchase of a few serving counters.
- Vast majority of the equipment, excluding the previously noted items from the 1997 renovation, are outdated, inefficient, and beyond their expected useful life.
- Dry Storage space is severely undersized.

- Walk-In Refrigerator is slightly undersized, but dangerous due to the integral "step" between the kitchen floor and walk-in floor.
- Walk-In Freezer is undersized.
- Preparation Area is inadequate and under-equipped, lacking a slicer, utility carts, small mixer, etc.....
- Custom fabricated work tables and sinks may be reusable, with refurbishment necessary, specifically the galvanized components.
- Cooking equipment is lacking, specifically oven space.
- The size and capacity of the back-up hot food holding cabinets is severely limited.
- The remote serving areas cannot be properly secured and are also tremendously inefficient from a labor perspective.
- Dishwashing area is undersized and pot-washing area is inefficiently positioned.

Possible Options for Consideration:

— Enlarge kitchen and serving area by extending approximately 18'-0" - 22'-0" into the cafeteria. This is in essence only about 8'-0" further than the existing serving counters presently envelop; however, we may be able to eliminate the remote serving line at the opposite end of the cafeteria, returning about 400 square feet of area to the cafeteria for seating.

— Increase freezer and dry storage space.

— Incorporate additional preparation space and new preparation equipment.

— Update the cooking equipment to include combi-ovens (boilerless), kettles, trunnion kettles, and large microwave oven, thereby expediting production, reducing energy usage, and improving quality.

— Replace the ventilator (hood) with a new properly-sized and designed system, reducing energy consumption and corresponding expenses on a daily basis.

— Replace and slightly enlarge the existing refrigerator, also eliminating the dangerous step, complete with an energy-efficient refrigeration system.

— Consider the addition of a second walk-in freezer to provide adequate frozen storage capacity.

— Replace necessary equipment with new Energy Star rated equipment, where possible.

— Develop three (3) or four (4) integral serving lines, complete with adequate back-up holding equipment adjacent to the kitchen area, thereby efficiently utilizing labor and providing the students with multiple food selections.

— Consider incorporating a small food court style servery, common in approximately 80% of the new/renovated High School facilities throughout the country. This style servery stimulates sales, but must be equipped with security cameras to control theft. This design also requires additional space, as the students can visit multiple counters within an enclosed area prior to exiting at the cashier's location.

— Design the serving area and kitchen to be fully securable, regardless of specific type of operation.

I hope this is helpful, let me know if you have any questions or require additional input or information.

Sincerely,

Kenneth M. Kistler, FCSI
President

McFARLAND KISTLER & ASSOCIATES, INC.
1130 Perry Highway - Suite 115
Pittsburgh, PA 15237

QUAKER VALLEY SCHOOL DISTRICT

Exhibit D – Educational Programming

Preliminary Educational Program –

[redacted]

Preliminary Educational Program –
HIGH SCHOOL
September 2010

Preliminary Educational Program –

[redacted]

Preliminary Educational Program

September 2010

Quaker Valley School District
HIGH SCHOOL

SPACE	Existing Room # / EAE Survey #	Target Area	Current Area
Green Room	109	250	184
Boys Dressing Rooms		350	
Girls Dressing Room		350	
WELLNESS			
Gymnasium	G12	8500	7849
Athletic Storage	B20	850	434
Athletic Storage	B21		339
Athletic Storage	B22		385
Fitness Center	B16	2500	2274
Storage		500	
Boys Locker Room - incl. Tlt/Shower	B11A	1400	1064
Phys-Ed Office (boys)	B11E	200	145
Girls Locker Room - incl. Tlt/Shower	B12A	1400	1101
Phys-Ed Office (girls)	B12E	200	145
Coach Office	B14	200	117
Coach Office		200	
Trainers Room	B17	500	156
MEDIA CENTER			
Media Center	127A	4200	3376
Office	127C	150	150
Workroom	127D	250	250
Storage	127B	150	414
Conference	127E		346
Library Classroom	127F	800	479
CAFETERIA / KITCHEN			
Cafeteria - Including Kitchen	G07A	4800	4303
Kitchen	G08	2400	1111
Concession	G06B	200	94
School Store	G10	600	540
Student Store	G06C	250	109
Student Government	G11	600	295
HS ADMINISTRATION & SUPPORT			
Faculty Dining	G07B	700	545
Teachers Workroom	216		292
IPC - Math & Science		200	
IPC - SS, English & WL		200	
IPC - SE		200	
Community Room	B09	750	751
Toilet	B08	80	75
High School Administration Suite	101	2800	
Mouse trap entry			153
Waiting	101C		154
Reception	101D		458
Admin	101A		102
Mail Room	101H		44
Attendance	104A		156
Waiting	104B		64
Principal	101G		305
Assistant Principal	101F		216
Toilet	101J		49
Corridor			88
Conference Room	103		114
Storage	111		202
Resource Office	G36B		262
Nurse Suite		1200	
Triage	102A		171
Exam	102C		145

SPACE	Existing Room # / EAE Survey #	Target Area	Current Area
Exam	102D		163
Storage	102E		70
Toilet	102F		44
Office	102G		102
Waiting	102H		102
Guidance Suite		1600	
Guidance	115A		330
Storage	115B		64
Student Resource	115C		254
Office	115D		115
Office	115E		119
Conference Room	218		257
Collegiate Affairs	120		311
Academic Affairs	119		285
Athletic Director's Office	G05	600	319
TOTAL PROGRAM AREAS		**109,155**	**77,502**
Support & Circulation	1.58		
TOTAL BUILDING AREA		**172,465**	**126,563** (actual)

ATTACHMENT 7
LRP-2025-00070, QVSD – Consulting Parties/MOA Development Planning by Jeremy Roberts, Pittsburgh District Corps of Engineers

From: Roberts, Jeremy N CIV USARMY CELRP (USA)
Subject: LRP-2025-00070, QVSD - consulting parties/MOA development planning
Date: Thursday, November 13, 2025 2:43:38 PM
Attachments: Schedule.xlsx

[External Sender]

Good afternoon,

The Corps is preparing to hold a meeting with identified consulting parties to determine appropriate mitigation for an adverse effect to the Muottas House, a National Register of Historic Places-eligible structure, associated with the Quaker Valley School District – New High School Campus project. This meeting will lay the foundation for the drafting of a Memorandum of Agreement (MOA) between the signatory parties. Though the Corps intends to solicit as much participation as needed to fulfill obligations under Section 106 of the National Historic Preservation Act, we anticipate that only one meeting with consulting parties will be needed prior to the drafting of the MOA – the instrument by which mitigation will be specified and upheld.

We are targeting this meeting to be held sometime next few weeks, and it is expected to last for one hour. Please open the attached excel file and make selections on your individual availability, and we will work to pick a time that works for most folks. Please highlight fields indicating when you ARE AVAILABILE, save, and send the file back to me. Or simply reply that all or none of these times will work for you. Please complete indicate your selections and provide these times back to me ASAP. I'll do my best to have an official meeting invite out to you in the near future.

Upon selecting a meeting time/date, I will send out a meeting invite for everybody to meet digitally via Microsoft Teams. I will also provide an agenda.

Sorry that this couldn't be a doodle poll. There were too many selections for me to be able to use the free version, so I needed to default back to using a spreadsheet.

Thank you,

Jeremy Roberts
Pittsburgh District Corps of Engineers
William S. Moorhead Federal Building
1000 Liberty Ave.
Regulatory Division, Ste. 2200
Pittsburgh, Pennsylvania 15222

Ph: (412) 598-4730