Forest Hills School District
Anderson High School
Pool Facility Report

June 2, 2026
Board of Education Regular Meeting

Forest Hills School District

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1. Executive Summary

This Pool Facility Report offers a detailed overview of the recent history of the Anderson High School aquatic facility. This includes a timeline of events after the pool was closed due to significant water loss in early 2019, historical context regarding efforts to investigate possible causes of the leak and what a repair process would entail, up-to-date cost estimates for different renovation or replacement scenarios, a look at the current FHSD aquatic programs, and items to consider throughout the decision making process.

Since the pool closure in 2019, the district has worked with outside pool construction and architectural design companies to conduct a comprehensive review of the Anderson pool facility. In addition to the water loss that prompted the pool to be closed, other challenges with the current pool space include a non-compliant diving well, systems and equipment past the end of their useful life, and pool and deck drainage issues. These issues were confirmed through several site visits for visual investigations, geophysical exploration with ground penetrating radar, site utility examinations, review and comparison of third-party evaluations and analysis of available structural drawings.

Current cost estimates to renovate or replace the existing pool in its current location are significant, ranging from $4.5 million to $9.5 million. The cost to build a new, stand-alone aquatic facility on campus is estimated to be $11.1 million to $12.3 million. An alternative option to remove the pool and demolish the bleachers is estimated between $712,000 and $787,000.

Throughout the process to explore solutions to these issues at the Anderson pool facility, different district administrators and board members have prioritized a forward-looking approach that seeks creative funding solutions and takes into consideration the best interests of students and the community at large. At the present time, the swim and dive teams at Anderson High School, Turpin High School and Nagel Middle School currently share the pool facility on Turpin's campus. This shared use has been in place since the 2019-2020 swim and dive season, and modifications have been made to the facility to include branding and colors that represent all three schools.

A decision regarding the long-term future of the Anderson pool facility will naturally need to consider the age and lifespan of the Turpin facility, which is nearing 50 years old, as it serves as the district's only aquatic facility at this time. Other factors to take into account include the potential cost of the project, sources of funding for construction and ongoing operations, availability of any external partnerships or community projects, and how to support the best interests of students and the broader community.

2. Timeline of Events

The following timeline of events offers a brief overview of key events related to the Anderson High School pool facility. The details are based on available historical documents and information, including past presentations created by district administrators. The timeline is meant to provide a recap of major updates related to the pool's closure and efforts to investigate possible solutions over the past several years.

- **2018**
  - **Spring:** greater than expected water loss is being experienced
  - **Summer:** water discovered during AHS construction project
  - **Fall/Winter:** preliminary evaluation of pool vessel and drain system
- **2019**
  - **March:** Instructed by insurance carrier to drain pool
  - **2019-2021:** Comprehensive evaluation process of pool facility
  - **Winter:** AHS and NMS Swim/Dive begin using THS pool
- **2020**
  - **March 11:** Family communication that anticipated repair cost is high, district intends to consider possible funding methods (including potential partnerships with outside groups)
  - **March 12:** Gov. DeWine announces school closures due to COVID-19
  - **2019-2021:** Comprehensive evaluation of pool facility continues
- **2021**
  - **April 26:** Public presentation of completed facility evaluation and formal cost estimates
  - **Fall:** Aquatics Citizens Advisory Group holds series of ideation and planning meetings
- **2022-2024**
  - Exploration of alternative funding options, potential corporate and/or community partnerships
  - **March 2024:** Discussion at public board meeting of costs associated with stand-alone aquatic center and general update on district pools
- **2025**
  - **Summer/Fall:** Site visits, meetings with outside firms to update cost estimates
  - **November:** Updated cost estimates are presented at Technology and Facilities Committee meeting
- **2026**
  - **February:** Discussion of AHS pool facility at public board meeting
  - **March:** Tour of facility with board president, vice president, administrators and interested community members
  - **May:** Presentation of AHS pool facility current estimates and general update provided at public board meeting

3. Historical Context

In order to better understand the timeline of events, it is helpful to share additional information and historical context in this report. The purpose is to better illustrate the sequence of events that led to the current challenges related to the Anderson High School pool facility.

As early as spring 2018, school and district administrators became aware of water loss in the Anderson aquatic facility that was higher than would normally be expected in a pool of this size. From that point forward, the water levels in the pool were closely monitored. During the construction project taking place at Anderson High School at the time, which was part of the 2014 district-wide bond project, third-party crews identified evidence of water underground near the school. This discovery took place during summer 2018, and the district began its preliminary evaluation of the pool vessel and drain system in the fall and winter that same year.

Estimates as to the amount of daily water loss being experienced at the time were reported in the range of 2,000-4,000 gallons per day, with some variance between hot summer weather (greater loss) and cooler winter months. Based on initial evidence, the district's insurance carrier instructed the district in March 2019 to drain the pool until the leak could be identified and repaired. In that same notice, confirmation was provided that the district's insurance would not cover the cost to repair the pool.

At this time, the district began a comprehensive evaluation of the pool facility that involved consultations and site visits with multiple pool companies, as well as architecture, design, construction and related firms. The early cost estimates received by the district indicated that the amount of money required to identify the potential cause of the leak and make necessary repairs would be significant, and district leadership began developing contingency plans for the 2019-2020 school year.

In August 2019, the Board of Education approved plans to refinish the surface of the pool at Turpin High School and repair a malfunction with the filtering system. The cost of these repairs was estimated at $68,138, an amount the district could absorb from existing permanent improvement funds. At the same time, the bond-related construction project at Anderson High School was still underway and needed to be completed before any potential site-work would be able to take place in the pool facility. The Anderson and Nagel swim and dive teams were notified they would use the Turpin facility beginning in the 2019-2020 season.

It is important to note that renovations to the pool facility were not included in the 2014 bond issue and funds were not available to address the pool issues as part of the ongoing work at the school.

Throughout the 2019-2020 school year, district officials continued the comprehensive review of the Anderson aquatic facility. In addition to costs associated with locating the leak and making necessary repairs, the district confirmed the current pool does not meet necessary standards to

allow diving. A renovation that increases the depth of the diving well would be required for student-athletes to dive in a reopened pool.

On March 11, 2020, the district provided an email update to FHSD families and staff on the status of the Anderson pool. This letter detailed the administration's plan to work with community partners to develop a comprehensive plan for the district's swimming programs, looking for ways to provide quality programming to all FHSD swim and dive student-athletes. The hope for this process was to identify a feasible and affordable solution, including potential partnerships with private groups or community organizations to create a financially sustainable approach to aquatics district-wide.

The district's priorities and focus quickly shifted, understandably, to navigating the COVID-19 pandemic. Ohio Governor Mike DeWine announced on March 12, 2020 that schools across the state would shut down for three weeks beginning March 16. As we now know, school closures extended through the end of the 2019-2020 school year and school districts across the country were faced with a multitude of challenges to continue instruction in a safe, effective manner. FHSD was proud to be able to offer in-person instruction for the 2020-2021 school year, but that required countless hours of planning and preparation, including elevated efforts to keep school facilities clean and healthy for students and staff throughout the district.

Coordination with outside experts and an architectural design firm continued, and the next significant update on the Anderson pool was shared with the public on April 26, 2021. District leaders, joined by members of the outside assessment team, delivered a presentation at a regular meeting of the Board of Education to outline the detailed investigation that had taken place over the previous months and years. This presentation outlined several possible scenarios and the associated cost estimates. All cost estimates gathered to date are "rough order of magnitude" estimates, which means they are high-level, early stage cost projections based on available data. In addition to several site visits for visual investigations, data that has been gathered and reviewed during this process includes geophysical exploration with ground penetrating radar, site utility examinations, review and comparison of third-party evaluations and analysis of available structural drawings.

This report identified key issues with the more-than-60-year-old pool facility, including substantial water loss, systems and equipment past the end of their useful life, non-compliant diving well, and pool and deck drainage issues.

In November and December 2021, meetings of the Aquatics Citizens Advisory Group (ACAG) were held to further evaluate the status of the Anderson pool and consider possible solutions. The stated mission of the group was "to review the Anderson High School aquatics facility assessments alongside the short and long-term facility needs of the Forest Hills School District and to deliver recommendations to the Board of Education in February of 2022." These meetings included district and school officials, current and incoming members of the Board of Education, community members and construction professionals. The group ultimately suggested that the Board of Education look at fundraising, donations and community

partnerships as possible avenues to repair the pool without taxpayer funding. The ACAG also recommended further research into potential cost-effective repair options.

From 2022 to 2024, the Board of Education and Superintendent worked together to seek potential outside partners who might be interested in supporting the cost of pool repairs or constructing a new aquatic facility. In May 2023, community members voted to approve a combination levy that included 1.5 mills for the permanent improvement fund and additional general operating funds. This levy came after the district made approximately $750,000 in cost reductions, and the district stated that the levy would allow FHSD to maintain current educational programs and standards, while addressing critical permanent improvement needs like roof repairs, parking lot repairs and maintenance of heating and cooling systems. Costs to repair the Anderson pool were not included in the 2023 levy.

In March 2024, a discussion on the pool took place at the regular meeting of the Board of Education with an emphasis on costs associated with a stand-alone aquatic facility. A similar project in the region was completed around that time at an estimated cost of $10-11 million.

Over the summer into fall 2025, FHSD worked with outside companies to review and update the rough order of magnitude cost estimates. More information about these updated figures is available in the next section of this report. Those figures were first presented publicly at the Technology and Facilities Committee Meeting of the Board of Education on November 6, 2025.

Discussion concerning the Anderson pool, including comments from community members, took place at the Board's regular meeting on February 18, 2026. Following this meeting, the Board President and Vice President joined a group of community members on a tour of the Anderson pool facility to get a better understanding of current conditions and learn more about the community's perspective on this ongoing topic.

On May 20, 2026, the Director of Business Operations provided a comprehensive presentation of the current status of the Anderson pool that included current repair cost estimates, historical information, up-to-date operational cost figures and more.

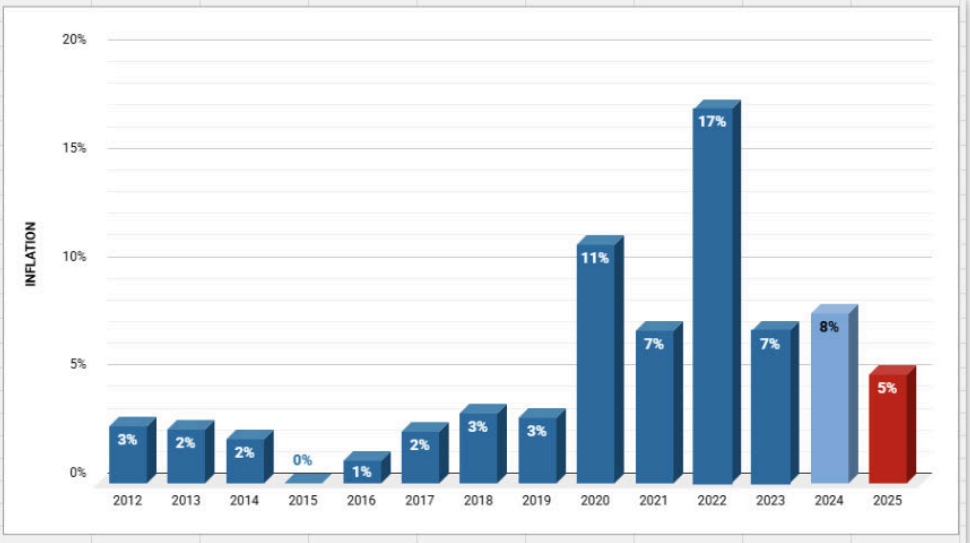
4. Current Cost Estimates

Over the summer into fall 2025, FHSD worked with two different architectural design firms to review and update the existing rough order of magnitude cost estimates. The assessment team visited the pool facility, reviewed all of the historical data (including past investigations into the facility), considered inflationary increases to construction costs over the previous years and analyzed the actual costs of similar projects that have taken place recently.

Of particular note is the construction industry year-over-year inflation, a statistic recorded by the Ohio Facilities Construction Commission. Since 2021, the construction industry has experienced significant cost increases, with the year-over-year inflationary figure recorded at 22% in 2022, 7% in 2023, 8% in 2024 and 5% in 2025.

Construction Industry Year-Over-Year Inflation

YEAR	INFLATION
2012	3%
2013	2%
2014	2%
2015	0%
2016	1%
2017	2%
2018	3%
2019	3%
2020	11%
2021	7%
2022	17%
2023	7%
2024	7.80%
2025	5%



Source: Ohio Facilities Construction Commission

Professionals from HGC Construction, MSA Design and SHP Architecture and Design contributed to the current project cost estimates. These rough order of magnitude estimates are high-level, early stage cost projections based on available data, which includes geophysical exploration with ground penetrating radar, site utility examinations, review and comparison of third-party evaluations and analysis of available structural drawings. These estimates exclude associated design fees, but the industry standard for those fees is approximately 8% of the total cost of the project.

The possible scenarios presented to the Board of Education for the Anderson pool facility include renovating the existing pool, replacing the entire pool in the same location or removing the pool and demolishing the bleachers. Cost estimates were also updated for a new, stand-alone aquatic facility.

Renovate Pool	Replace Pool (Same Location)	Remove Pool & Demo Bleachers	New Pool (Stand-Alone Facility)
$4.5 - $5.6 million	$8.6 - $9.5 million	$712,000 - $787,000	$11.1 - $12.3 million

The option to remove the pool and demolish the bleachers only includes costs associated with that specific work. Future use of the space may require additional upgrades depending on the intended purpose. The renovation and replacement options both account for necessary costs to modify the diving well to bring it up to current standards, and they account for the pool remaining at its current six lanes. While this would allow the school to host smaller meets, it is not sufficient to host OHSAA state tournament rounds or other large championship-level events. Key differences between those options are:

Renovate Pool	Replace Pool (Same Location)
New pool membrane, replace gutter system	Replace the full pool structure
Repair and re-finish pool deck	Replace pool deck
Increase electrical service	Replace electrical service
Connect controls to the central building management system	Replace controls and connect to the central building management system
Upgrade existing HVAC units	Replace HVAC units

5. FHSD Aquatics Today

The swim and dive teams at Anderson High School, Turpin High School and Nagel Middle School currently share the pool facility on Turpin's campus. This shared use has been in place since the 2019-2020 swim and dive season, and modifications have been made to the facility to present it as a district pool. These include school logos and records on the walls and school-themed pool flags. The athletic departments work together to create a structured schedule that provides each team with its designated time to use the pool.

For the 2025-2026 school year, the swim and dive teams have 48 participants at Nagel, 25 at Anderson and 49 at Turpin. You can find historic team participation numbers in the table below.

2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
AHS: 53 THS: 64 NMS: N/A	AHS: 44 THS: 62 NMS: N/A	AHS: 60 THS: 75 NMS: N/A	AHS:44 THS: 74 NMS: 61	AHS: 44 THS: 72 NMS: 58	AHS: 44 THS: 91 NMS: 26
2020-2021	**2021-2022**	**2022-2023**	**2023-2024**	**2024-2025**	**2025-2026**
AHS: 39 THS: 73 NMS: 25	AHS: 32 THS: 63 NMS: 29	AHS: 40 THS: 55 NMS: 34	AHS: 41 THS: 49 NMS: 26	AHS: 28 THS: 49 NMS: 32	AHS: 25 THS: 49 NMS 48

When you consider aquatic facilities for schools in the Eastern Cincinnati Conference, only four out of ten have an on-campus pool and this includes Turpin High School. Another helpful comparison is to look at suburban school districts in Ohio with multiple high schools. Of 11 such districts that were identified as meeting this criteria, only two have on-campus pool facilities of any kind and just one of those has a pool at multiple high schools. You can find more detailed information in the table below.

District	# of High Schools	Enrollment	# of Pools in District	Notes (Suburban Ohio Districts with Multiple High Schools)
Dublin	3	16,259	0	Dublin City Rec Center
Hilliard	3	16,002	0	District uses a combination of outside pools.
Lakota	2	16,827	0	Local YMCA facility
Northwest	2	7,585	0	Local YMCA facility

Olentangy	4	23,232	0	District uses a combination of outside pools.
Parma	2	8,941	2	
Pickerington	2	11,407	0	District uses a combination of outside pools.
South-Western Schools	4	21,952	0	Local YMCA facility
Sylvania	2	7,734	1	The one pool is shared by both high schools
Westerville	3	14,255	0	District uses the Westerville Community Center.
Worthington	2	10,612	0	A non-profit organization built and manages pool space on the campus of Thomas Worthington High School. The district pays an annual fee.

The current cost to operate the Turpin pool facility each year is approximately $13,263. This accounts for regular, recurring costs like daily labor, energy costs to run the pool pump motor and supply costs for pool chemicals. There are also a variety of mechanical, equipment and other costs to maintain and operate the facility that do not occur each year. Those estimates are outlined in more detail in the table below.

Mechanical/Other Items	Cost and Potential Frequency of Upkeep
Pool Paint	$50,000 (ten year rotation)
Pool Water Pump	$4,311 (replace when fails)
Pool Pump Motor	$2,828.75 (replaced in 2025; lasts 8-15 years)
Pool Heater	$4,000-$6,000 (replace when fails)
Pool Chemical Distribution Station	$2,500 (nearing end of life)
Pool Chemical Pumps	$2,000 (cost for two pumps; last 2-3 years)
Pool Vacuum Cleaner	$5,000 (replaced in 2025; lasts 3-5 years)
Training Certification	$1,200 (renew every three years)

6. Future-Planning Considerations

Any decision about the long-term future of the Anderson pool facility must consider several different factors: potential cost of the project; sources of funding and whether to utilize taxpayer funds; ongoing operational costs of aquatic facilities; external partnerships and community projects; and how a decision supports the best interests of students and the expectations of the community.

At the time of this report's publication, the Forest Hills School District Board of Education is currently participating in planning meetings with the Anderson Township Trustees and Anderson Park District Board of Commissioners to explore plans for the use of the Anderson Park District property adjacent to Beech Acres Park. A Community Engagement Study related to the site, which included an online survey, a statistically valid random sample survey, open houses and stakeholder group meetings, included aquatic facilities among a wide-variety of possible uses for the property.

Separately, the current Turpin pool facility is nearing 50 years old. While regular maintenance and diligent upkeep has allowed the pool to serve students for decades, it is difficult to know how many years remain in the pool's useful life. The current costs to operate the Turpin pool are also a helpful reference point when considering the financial sustainability of aquatic facilities.

Any project at the Anderson pool facility, whether it be to renovate, replace or remove the pool, will require the Board of Education to adhere to public contracting and bidding laws.

7. Appendices

Appendix A - AHS Pool Facility Report June 2, 2026

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
October 20, 2025

	Description of Work	Cost Estimate			Notes
		Low	Mid	High	
	A1 - Fully Renovate in-place w/ Diving	$4,570,592	**$5,078,692**	$5,586,791	pool liner, replace finishes & lighting, MEP upgrades
	A2 - Fully Replace in-place w/ Diving*	$8,556,247	**$9,006,576**	$9,456,905	replace pool, finishes, lighting, MEP systems
	B1 - Remove Pool/Seating*	$711,767	**$749,228**	$786,689	demo/infill pool & seating, new floor slab
	B2 - Remove Pool/Seating + replace MEP*	$2,633,000	**$2,771,579**	$2,910,158	demo/infill pool & seating, new floor slab, new MEP
	C1 - New Natatorium - 25m (13,000 sf)*	$11,131,383	**$11,717,245**	$12,303,107	25 meter pool, diving, seating
	C2 - New Natatorium - 50m (27,000 sf)	$23,110,650	**$24,327,000**	$25,543,350	50 meter pool, diving, seating, locker rooms

Note: Concept costs based on 2025 dollars
**Reference 9/10/25 HGC estimate*

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
October 20, 2025

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	A1 - Renovate in-place w/ Diving + Upgrades			
	Demolition	$467,277	$490,641	Floor slab, pool, shoring
	Site Utilities	$69,977	$73,476	New Sanitary Piping
	Interior Finishes	$476,206	$500,016	Paint Walls, floor tile
	New Pool & Equipment	$1,224,915	$1,718,310	Refer to attached detail
	HVAC, Electrical & Plaumbing Systems	$104,902	$126,365	
	ADD - Electrical Upgrades	**$56,515**	**$89,535**	replace lighting
	ADD - HVAC Upgrades	**$97,790**	**$130,810**	improved air quality & controls
	ADD - Replace ACT Ceiling System	**$217,170**	**$240,030**	
	ADD - Repair/Refinish Gym Floor Structure	**$304,038**	**$336,042**	
	ADD - Replace Seating & Metal Railings	**$130,302**	**$144,018**	
	Base Construction Subtotal	**$3,149,092**	**$3,849,243**	
10%	General Conditions	$314,909	$384,924	
2%	Contractor's Bond & Insurance	$62,982	$76,985	
6%	Contractor's Fee	$188,946	$230,955	
5%	Construction Contingency	$157,455	$192,462	
	TOTAL CONSTRUCTION	**$3,873,383**	**$4,734,569**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$697,209	$852,222	
	TOTAL NON-CONSTRUCTION	**$697,209**	**$852,222**	
	TOTAL BASE PROJECT	**$4,570,592**	**$5,586,791**	

Scenario A1 - New Pool & Equipment Detail

	Anderson HS Natatorium and Pool Systems Recommendations	Comment	Priority	ROM Cost Estimate (original 4/19/2021 costs) Low	High	Comments	Escalation at 6%/year (27%) (updated 10/20/2025 costs) Low	High
1	Provide new pump(10HP) to achieve 6 hour turnover rate	430 GPM (472 GPM with increased diving well). Include influent and effluent gauges on pump.	1	*$8,000*	*$10,000.00*	6 hours is industry standard turnover for competition pools	$10,160	$12,700
2	Add Variable Frequency Drive to pool pump to minimize electrical usage. Adjust motor rpm to match pool circulation rate.		1	*$6,000*	*$8,000.00*	energy savings is substantial	$7,620	$10,160
3	Add an in-line digital flow meter which provides a reading of the pool's circulation rate (gallons per minute).	Signet. Connect to VFD for optimized flow.	1	*$3,000*	*$5,000.00*	necessary for communication with VFD	$3,810	$6,350
4	Provide two new sand filter(s) to achieve 6 hour turnover rate. Refurbish three existing filters.	TR-140 C, Replace media and laterals of existing filters. New filter piping	1	*$8,000*	*$10,000.00*	consider stacking if space is a problem	$10,160	$12,700
5	Convert existing dry side filter tank to wet side surge tank	including installation of gutter and main drain valves with extension handles, installation of a modulating float valve, pump suction pipe, relocation of pump, water proofing, and installation of fiberglass grating	1	*$18,000*	*$22,000.00*		$22,860	$27,940
6	Convert existing wet side pit to a backwash pit	including sump pump and fiberglass grating	1	*$2,000*	*$3,000.00*	sanitary sewer capacity must be determined	$2,540	$3,810
7	Provide suplimental water treatment system to eliminate combined chlorine and reduce chloramines (improve air quality)	Ultraviolet Treatment System or hydroxyl-based advanced oxidation (Clear Comfort)	2	*$35,000*	*$45,000.00*		$44,450	$57,150
8	Provide double-walled tanks for chlorine & acid	Chemtainer	1	*$1,500*	*$2,500.00*		$1,905	$3,175
9	Replace main drains and associated main drain piping	including all required concrete removal, demolition, excavation, testing, backfill, reinforcement, and concrete replacement	1	*$45,000*	*$50,000.00*		$57,150	$63,500
							$0	$0
10	Replace pool gutter with custom stainless steel gutter	Cut and demolish pool walls and pool deck as required. Fabricate and install a continuous rim-flow stainless steel gutter complete with integral return line pipe. Install a stainless steel skirt. Seal the skirt to the concrete wall transition. Fill the void between the gutter and pool wall with a flowable grout. Install rebar dowels to the remaining concrete deck. Install the required equipotential bonding grid. New piping to/from gutter.	1	*$180,000*	*$225,000.00*		$228,600	$285,750
11	Repair pool shell with abandonment of wall inlets, underwater lights, vacuum fitting.		1	*$5,000*	*$6,500.00*		$6,350	$8,255
12	Install PVC Membrane on floor and walls of pool	Install an 11 ounce fleece separator to all pool wall and floor surfaces. Install a PVC membrane to all pool wall and floor surfaces, terminating at the new stainless steel skirt. All penetrations to be terminated with compression flanges. Install black PVC racing stripes, targets, and safety stripes.	1	*$55,000*	*$70,000.00*		$69,850	$88,900
13	Provide new starting blocks/anchors	Includes angled wedge and side handles SR Smith, KDI Paragon, Spectrum...	1	*$52,000*	*$63,500.00*	angled wedge blocks are the expectation for competition	$66,040	$80,645
14	Provide pool lift	SR Smith, Spectrum	1	*$7,000*	*$8,500.00*	required for ADA compliance	$8,890	$10,795
15	Provide four sets of custom, new, exit ladders.	Install in existing recess - not intrude into the lane.	1	*$8,000*	*$10,000.00*		$10,160	$12,700
16	Replace pool deck drains and associated piping	Cut and demolish pool deck as required to install new deck drains and deck drain pipe. Daylight new deck drains to drain in mechanical room. Place and finish concrete as required for deck drain installation.	1	*$40,000*	*$45,000.00*		$50,800	$57,150
17	Re-tile swimming pool deck	Remove remaining deck tile. Prepare surface and install 1" x 1" mosaic tiles. Supply and install required depth marking and "No Diving" signage. 4,200 SF+/-	1	*$100,000*	*$120,000.00*		$127,000	$152,400
18	Provide stainless steel walls with PVC membrane on floor (in lieu of item 19 - membrane walls and floor)	welded stainless steel over concrete connected to floor membrane at wall/floor intersection	2	*$105,000*	*$120,000.00*		$133,350	$152,400
19	Provide Regenerative media filter (in lieu of item #4, sand filters) to achieve 6 hour turnover rate	Regenerator, Defender, Filtrex. New filter piping (Defender SP-27-48-487)	2	*$70,000*	*$85,000.00*	Minimized backwash/sewer requirements. Reduces operational costs.	$88,900	$107,950
20	Replace pool wall and floor to meet USA Diving/NFSHAA required profile.	entire deep end wall and 30'x 42' of the deep-end pool floor	3	*$210,000*	*$400,000.00*	understanding the pool structure is critical to accurately estimate. Replacement of entire pool may be more prudent.	$266,700	$508,000
21	Refurbish 2 diving boards		3	*$6,000*	*$7,000.00*	at factory	$7,620	$8,890
22	Replace diving boards	Duraflex Maxiflex-B	3	*$12,000*	*$14,000.00*		$15,240	$17,780
23	Provide 2 new Duraflex diving stands	double rails, both sides	3	*$28,000*	*$30,000.00*		$35,560	$38,100

	Renovation Options	ROM Cost Estimate Low	High	ROM Cost Estimate Low	High
1	Base - Renovate w/o Diving - Equipment	$126,500.00	$155,500.00	$160,655.00	$197,485.00
2	Base - Renovate w/o Diving - Vessel & Deck	$447,000.00	$548,500.00	$567,690.00	$696,595.00
3	Add Pool Upgrades	$175,000.00	$205,000.00	$222,250.00	$260,350.00
4	Add Modify Pool for Diving	$216,000.00	$444,000.00	$274,320.00	$563,880.00

Appendix B - AHS Pool Facility Report June 2, 2026

Anderson HS Natatorium Facility Improvement Scenarios
10-24-25

Summary:

- Scenario A – Fully Renovate/Replace Existing Facility ($4.6 mil - $9.5 mil)
- Scenario B – Remove and Infill Pool to Re-imagine Empty Space ($712k - $2.9 mill)
- Scenario C – New Natatorium Facility ($11.1 mil - $25.5 mil)

Descriptions:

SCENARIO A – FULLY RENOVATE/REPLACE EXISTING FACILITY

Scenario A1: Fully renovate existing facility with MEP systems upgrades

- **Increase circulation rate to 6-hour turnover** (industry standard)
- **Upgrade/replace filtration and water treatment system**
- **Replace all main drains and piping**
- **Replace gutter system**
- **Repair and re-finish pool deck**
- **Add surge tank**
- **New chemical storage tanks**
- **New ladders & starting blocks**
- **New ADA pool lift**
- **New pool membrane with stainless steel wall panels** (extend life expectancy)
- **Upgrade filtration system** (improve water quality and conserve significant water)
- **Modify diving well to meet USA Diving/NSFHAA requirements**
- **Increase electrical service**
- **Connect controls to central building management system**
- **Re-route drain piping to site sanitary/waste** (code requirement)
- **Install new sanitary piping to discharge pit**
- **Paint walls**
- **Replace light fixtures** (improve energy efficiency and lighting quality)
- **Upgrade existing HVAC units** (improve indoor air quality)
    - *Add cooling and dehumidification*
- **Replace pool water heater** (improve efficiency)
- **Replace finish ceiling system** (improve acoustics and appearance)
    - *Consider alternate finish options to eliminate suspended ceiling system*
- **Replace spectator seating** (reduce maintenance & improve function)
- **Replace railing systems** (improve safety & function)

Scenario A2: Fully replace existing facility, including MEP systems

- **Increase circulation rate to 6-hour turnover** (industry standard)
- **Upgrade/replace filtration and water treatment system**
- **Replace all main drains and piping**
- **Remove and replace full pool with diving well that meets USA Diving/NSFHAA requirements**
- **Replace pool deck**
- **Add surge tank**
- **New chemical storage tanks**
- **New ladders & starting blocks**
- **New ADA pool lift**
- **Upgrade filtration system** (improve water quality and conserve significant water)

- **Replace electrical service**
- **Replace controls and connect to central building management system**
- **Re-route drain piping to site sanitary/waste** (code requirement)
- **Install new sanitary piping to discharge pit**
- **Paint walls**
- **Replace light fixtures** (improve energy efficiency and lighting quality)
- **Replace HVAC units** (improve indoor air quality)
    - *Add cooling and dehumidification*
- **Replace pool water heater** (improve efficiency)
- **Replace finish ceiling system** (improve acoustics and appearance)
    - *Consider alternate finish options to eliminate suspended ceiling system*
- **Replace spectator seating** (reduce maintenance & improve function)
- **Replace railing systems** (improve safety & function)

SCENARIO B – REMOVE AND INFILL POOL TO RE-IMAGINE EMPTY SPACE

Scenario B1: Remove and infill pool, remove seating, maintain existing MEP systems

- **Remove and infill pool**
- **Remove pool deck**
- **Remove drains and piping**
- **Remove all pool equipment**
- **Remove spectator seating, tiered mezzanine, and equipment/storage rooms**
- **Remove ceiling system**
- **Install new concrete floor slab**
- **Maintain existing mechanical systems**
- **Maintain existing primary electrical service**
- **Maintain existing sprinkler system**
- **Paint exposed steel structure overhead**
- **Remainder of space to remain unfinished**

Scenario B2: Remove and infill pool, remove seating, new MEP systems

- **Remove and infill pool**
- **Remove pool deck**
- **Remove drains and piping**
- **Remove all pool equipment**
- **Remove spectator seating, tiered mezzanine, and equipment/storage rooms**
- **Remove ceiling system**
- **Install new concrete floor slab**
- **Replace HVAC units & add cooling**
- **Replace controls and connect to central building management system**
- **Replace electrical service**
- **Replace light fixtures**
- **Modify existing sprinkler system**
- **Paint exposed steel structure overhead**
- **Paint walls**
- **Concrete floor and ceiling to remain unfinished**

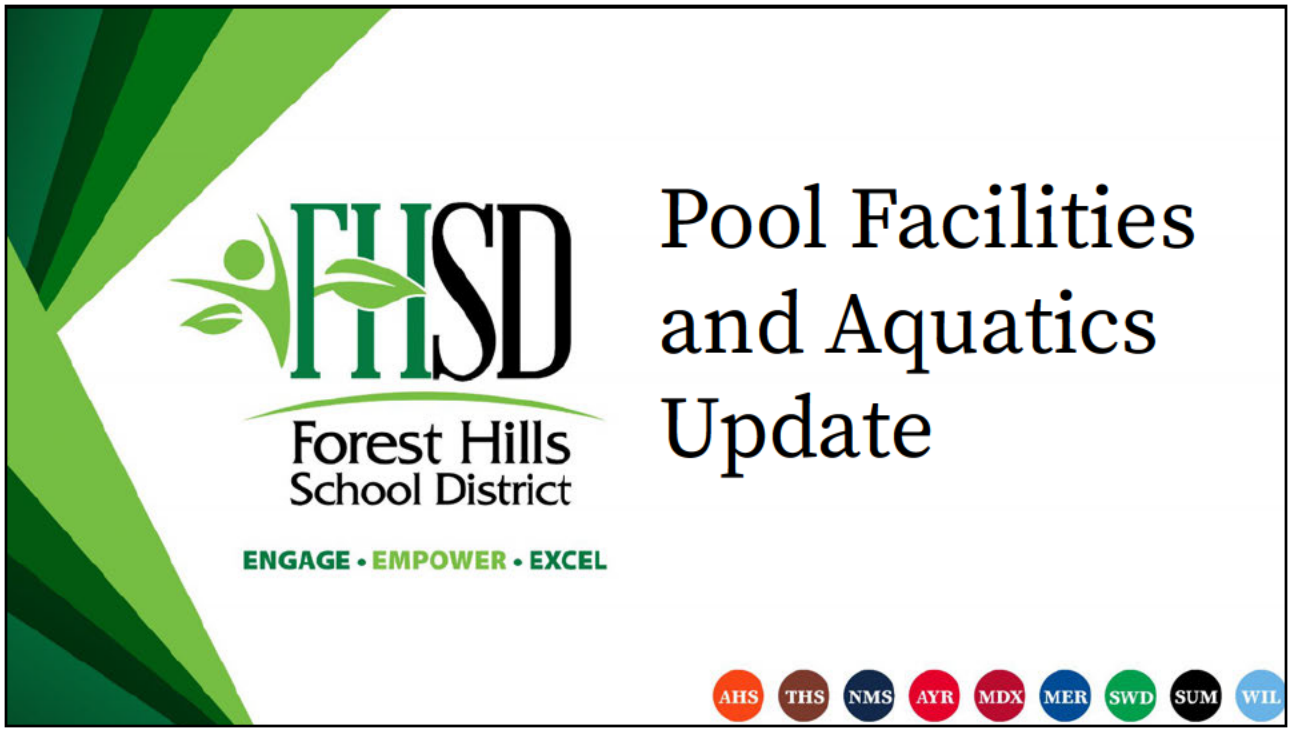
SCENARIO C – NEW NATATORIUM FACILITY

Scenario C1: New Natatorium – 25 meter pool

- **New 8-lane 25 meter pool facility w/ diving well (approx. 13,000 sf)**
- **New elevated spectator seating** (approx. 300 seats)

Scenario C2: New Natatorium – 50 meter pool w/ locker rooms

- **New 10-lane 50 meter pool facility w/ movable bulkhead & diving well (approx. 27,000 sf)**
- **New elevated spectator seating** (approx. 800 seats)
- **New locker rooms**
- **New public restrooms**
- **New aquatics offices and storage**



AHS Aquatics Timeline

2018

- **Spring:** greater than expected water loss is being experienced
- **Summer:** water discovered during construction
- **Fall/Winter:** preliminary evaluation of pool vessel and drain system

2019

- **March:** Instructed to drain pool
- **2019-2021:** Comprehensive evaluation process of pool facility
- **Winter:** AHS Swim/Dive begins using THS pool

2020

- **March 11:** Family communication that anticipated repair cost is high, district intends to consider possible funding methods (including potential partnerships with outside groups)
- **March 12:** Gov. DeWine announces school closures due to COVID-19
- Comprehensive evaluation of pool facility continues

2021

- **April 26:** Public presentation of completed facility evaluation and formal cost estimates
- **Fall:** Aquatics Citizens Advisory Group holds series of ideation and planning meetings

2022-24

- Exploration of alternative funding options, potential corporate and/or community partnerships
- **March 2024:** Discussion at public board meeting of costs associated with stand-alone aquatic center and general update on district pools

2025

- **Summer/Fall:** Site visits, meetings with outside firms to update cost estimates
- **November:** Updated cost estimates are presented at technology and facilities committee meeting

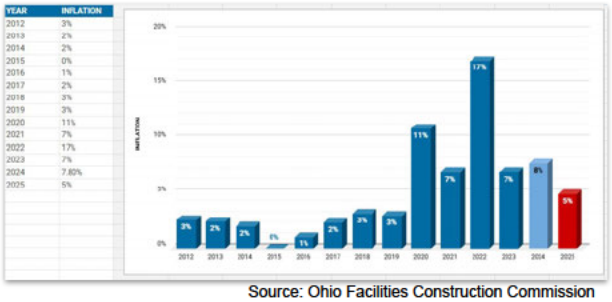
2026

- **February:** Discussion of AHS pool facility at public board meeting
- **March:** Tour of facility with board president, vice president, administrators and interested community members

Current Cost Estimates

- Provided by SHP, MSA and HGC
- Based on multiple site visits, review of detailed facility assessment, comparison to actual cost of similar projects
- Rough order of magnitude ("ROM") estimates, excluding associated design fees (industry standard is 8% of the total cost of the project):

Construction Industry Year-Over-Year Inflation



YEAR	INFLATION
2012	3%
2013	2%
2014	2%
2015	0%
2016	1%
2017	2%
2018	3%
2019	3%
2020	11%
2021	7%
2022	17%
2023	7%
2024	7.80%
2025	5%

Source: Ohio Facilities Construction Commission

Renovate Pool	Replace Pool (Same Location)	Remove Pool & Demo Bleachers*	New Pool (Stand-Alone Facility)
$4.5 - $5.6 million	$8.6 - $9.5 million	$712K - $787K	$11.1 - $12.3 million

*Requires additional cost based on future use (i.e. classrooms, training, storage, etc.)

ECC Pool Comparison

ECC High School	Swimming Pool
Anderson HS	Not currently
Kings HS	No
Lebanon HS	No
Little Miami HS	No
Loveland HS	No

ECC High School	Swimming Pool
Milford HS	Yes
Turpin HS	Yes
Walnut Hills HS	Yes
West Clermont HS	Yes
Winton Woods HS	No

District	# of High Schools	Enrollment	# of Pools in District	Notes (Suburban Ohio Districts with Multiple High Schools)
Dublin	3	16,259	0	Dublin City Rec Center
Hilliard	3	16,002	0	District uses a combination of outside pools.
Lakota	2	16,827	0	Local YMCA facility
Northwest	2	7,585	0	Local YMCA facility
Olentangy	4	23,232	0	District uses a combination of outside pools.
Parma	2	8,941	2	
Pickerington	2	11,407	0	District uses a combination of outside pools.
South-Western Schools	4	21,952	0	Local YMCA facility
Sylvania	2	7,734	1	The one pool is shared by both high schools
Westerville	3	14,255	0	District uses the Westerville Community Center.
Worthington	2	10,612	0	A non-profit organization built and manages pool space on the campus of Thomas Worthington High School. The district pays an annual fee.

Student-Athlete Participation

FHSD Forest Hills School District
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2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
AHS: 53 THS: 64 NMS: N/A	AHS: 44 THS: 62 NMS: N/A	AHS: 60 THS: 75 NMS: N/A	AHS:44 THS: 74 NMS: 61	AHS: 44 THS: 72 NMS: 58	AHS: 44 THS: 91 NMS: 26
2020-2021	**2021-2022**	**2022-2023**	**2023-2024**	**2024-2025**	**2025-2026**
AHS: 39 THS: 73 NMS: 25	AHS: 32 THS: 63 NMS: 29	AHS: 40 THS: 55 NMS: 34	AHS: 41 THS: 49 NMS: 26	AHS: 28 THS: 49 NMS: 32	AHS: 25 THS: 49 NMS 48

Cost to Operate THS Pool Facility

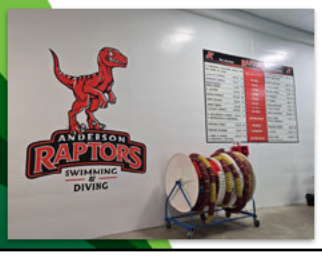
Annual Operational Items	Annual Costs
Labor (daily maintenance and regular cleaning tasks)	$5,443
Pool Pump Motor (estimated energy cost for 24/7 operation)	$4,320
Pool Chemicals	$3,500
Total Annual Cost	***$13,263***

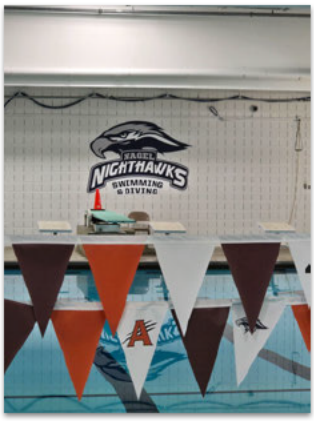
Mechanical/Other Items	Cost and Potential Frequency of Upkeep
Pool Paint	$50,000 (ten year rotation)
Pool Water Pump	$4,311 (replace when fails)
Pool Pump Motor	$2,828.75 (replaced in 2025; lasts 8-15 years)
Pool Heater	$4,000-$6,000 (replace when fails)
Pool Chemical Distribution Station	$2,500 (nearing end of life)
Pool Chemical Pumps	$2,000 (cost for two pumps; last 2-3 years)
Pool Vacuum Cleaner	$5,000 (replaced in 2025; lasts 3-5 years)
Training Certification	$1,200 (renew every three years)

FHSD Aquatics Today

Collaboration Between Three Athletic Programs

- Shared Pool Times
  - 3:00-4:45 - THS Varsity Swim
  - 4:00-5:00 - THS JV Swim
  - 5:00-6:30 - AHS Swim
  - 6:30-7:30 - Dive
  - 7:30-9:00 - Nagel but they typically practice in the mornings
- District Facility
  - Logos and records representing all schools added in 2024






FHSD
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Questions?

Forest Hills School District

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Anderson High School Natatorium Assessment

April 2021

WTI

KLEINGERS GROUP

MSA DESIGN

Current State of the Pool

Investigation

- Reviewed previous independent evaluations by (2) local pool contractors
- Conducted on-site inspections
- Reviewed as-built drawings of existing facility

Primary Issues

- 60+ year old facility
- Pool systems & equipment past the end of their useful life
  - *Life safety systems upgrades only work done in existing Natatorium during previous construction projects*
- Pool vessel experiencing substantial water loss
- Non-compliant diving well
- Pool and deck drainage is not functional
- Poor indoor air quality
- Outdated finishes

Pool & Pool Systems

Facility Infrastructure

Forest Hills School District

WTI · KLEINGERS GROUP · MSA DESIGN

Pool & Pool Systems – Minimum Requirements

- **Increase circulation rate to 6-hour turnover** (industry standard)
- **Upgrade/replace filtration and water treatment system**
- **Replace all main drains and piping**
- **Replace gutter system**
- **Repair and re-finish pool deck**
- **Add surge tank**
- **New chemical storage tanks**
- **New ladders & starting blocks**
- **New ADA pool lift**
- **New pool membrane**

Forest Hills School District

WTI · KLEINGERS GROUP · MSA DESIGN

Pool & Pool Systems – Potential Added Improvements

- Increase circulation rate to 6-hour turnover (industry standard)
- Upgrade/replace filtration and water treatment system
- Replace all main drains and piping
- Replace gutter system
- Repair and re-finish pool deck
- Add surge tank
- New chemical storage tanks
- New ladders & starting blocks
- New ADA pool lift
- New pool membrane

- **Install stainless steel wall panels (extend life expectancy)**
- **Upgrade filtration system (improve water quality and conserve significant water)**
- **Modify diving well to meet USA Diving/NSFHAA requirements**

FHSD Forest Hills School District

WTI THE KLEINGERS GROUP MSA DESIGN

Facility Infrastructure – Minimum Requirements

- **Increase electrical service**
- **Connect controls to central building management system**
- **Re-route drain piping to site sanitary/waste** (code requirement)
- **Install new sanitary piping to discharge pit**
- **Paint walls**

FHSD Forest Hills School District

WTI THE KLEINGERS GROUP MSA DESIGN

Facility Infrastructure – Potential Added Improvements

- Increase electrical service
- Connect controls to central building management system
- Re-route drain piping to site sanitary/waste (code requirement)
- Install new sanitary piping to discharge pit
- Paint walls
- **Replace light fixtures** (improve energy efficiency and lighting quality)
- **Upgrade existing HVAC units** (improve indoor air quality)
  - *Add cooling and dehumidification*
- **Replace pool water heater** (improve efficiency)
- **Replace finish ceiling system** (improve acoustics and appearance)
  - *Consider alternate finish options to eliminate suspended ceiling system*
- **Replace spectator seating** (reduce maintenance & improve function)
- **Replace railing systems** (improve safety & function)

Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Potential Considerations

Renovate Pool

Modify Pool to include diving

Replace Pool in-place

Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Concept Cost - Renovate

Renovate Pool (minimum) $1.04 - $1.29 million

Add Improvements $450k - $550k

Total + Improvements $1.49 - $1.84 million

Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Concept Cost – Renovate to include diving

Renovate Pool (minimum) $1.04 - $1.29 million

Add Improvements $450k - $550k

Modify to Add Diving $400k - $750k

Total + Improvements $1.89 - $2.59 million

Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Concept Cost – Replace Pool in-place

Replace Pool In-Place	**$1.69 - $1.99 million**
Add Improvements	$280k - $330k
Modify to Add Diving	$230k - $250k
Total + Improvements	**$2.20 - $2.57 million**

FHSD Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Concept Cost Comparison

Renovate Pool (minimum)	**$1.04 - $1.29 million**
Add Improvements	$450k - $550k
Modify to Add Diving	$400k - $750k
Total Renovate	**$1.89 - $2.59 million**
Replace Pool In-Place	**$1.69 - $1.99 million**
Add Improvements	$280k - $330k
Modify to Add Diving	$230k - $250k
Total Replace	**$2.20 - $2.57 million**

FHSD Forest Hills School District

WTI KLEINGERS GROUP MSA DESIGN

Concept Cost Comparison with Diving

Renovate Pool	**$1.21 - $1.47 million**
Replace Pool In-Place	**$1.69 - $1.99 million**
Renovate Pool with Diving	**$1.62 - $2.24 million**
Replace Pool with Diving	**$1.92 - $2.24 million**

FHSD Forest Hills School District

WTI THE KLEINGERS GROUP MSA DESIGN

Appendix E - AHS Pool Facility Report June 2, 2026

MSA DESIGN

Forest Hills School District
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FOREST HILL SCHOOL DISTRICT
ANDERSON HIGH SCHOOL
NATATORIUM ASSESSMENT

Project Locations
Anderson High School
7560 Forest Road
Cincinnati, Ohio 45255

May 2021

MSA Project Number 21121.00

PROJECT SUMMARY

Assessment Team:

- MSA Design – Architectural Planing and Design
- Water Technology Inc (WTI) – Aquatic Planning, Design and Engineering
- Motz Engineering – Mechanical, Electrical, and Plumbing Engineering
- The Kleingers Group – Civil Engineering
- Terraon Consultants – Geotechical Engineering

Process Overview

- Conducted on-site inspections of the existing facilities, including sub-surface investigations of site utilies and surface geophysical exploration of the existing pool vessel
- Reviewed as-built drawings of the existing facilities and met with District facility personnel on-site to review existing conditions and operations
- Reviewed previous independent evaluations by two (2) local pool contractors, inlcuding Shamrock Enterprises.

Primary Issues and Concerns

- 60+ year old facility - The existing natatroium is a 60+ year old facility that was constructed in the early 1960's and has been in operation most of that time. The facility is located on the lower level of the High School under the main Gymnasium. The pool exits on-grade to the exterior on the east side of the building. Existing locker rooms are located to the south. The north and west sides are below grade with the grade sloping away on the north side. Limited as-built drawings were available for the facility. Existing structural drawings for the pool were not avaialble. Assumptions were made regarding the constructin of the pool, including foundation walls, for the purposes of the study. Further investigation would be needed to determine actual construction details.

- Pool systems and equipment are past the end of their useful life
    - Pool pumps and filtration system are outdated and in certain instances no longer operational. Refer to the attached drawings for further details and comments.
    - Electrical Services
        - Field investigation revealed that the existing equipment is served from panel PP-1 located in the west side storage room beneath the viewing stand and a local panel (no nomenclature) located in the pool filtration room.
    - Lighting Services
        - Field investigation revealed that the lighting is served from LP1-1 located on the natatorium west wall.
        - Field investigation revealed that the current lighting fixtures are minimally operable and are at or near the end of their serviceable life.
    - Low Voltage Services
        - Field investigation revealed little to no “connectivity” to the natatorium equipment or general area.

- Pool vessel is experiencing substantial water loss – The pool is currently not in operation due to substantial water loss according to the District facility personnel. The District indicated that the pool had been experiencing substantial drop in water over a period of days and that they determined they would need to close the facility and empty the pool. The pool was empty prior to the assessment being done. The team determined water loss could be occuring through the outdated equipment and piping or through cracks, gaps, or joints in the pool vessel or drainage system.
    - Surface geophysical exploration performed by Terracon revealed a potential crack near the bottom of the slab. Further investigation would need to be done to determine extents of crack along with recommended repairs. Refer to the attached Surface Geophysical Exploration report (Attachment ‘B’).
- Non-compliant diving well – A significant concern is that the pool’s diving well does not meet the requirements of USA Diving or the National Federation of State High School Associations or the Ohio Board of Health. The current pool cannot safely conduct springboard diving activites.

- Pool and deck drainage is not functional – The District facility personnel indicated that there had been issues with the pool and deck drainage.
    - Field investigation confirmed portions of the existing drainage piping is damaged or obstructed. Refer to the attached Site Uitlity Report (Attachment 'A')
    - Field investigation revealed that the deck drains drain to storm and not sanitary as required by code.
    - Field investigation revealed that the backwash pit (discharge from the filters) is not connected to a viable piping system allowing the water to be discharged from the filter system as required by code.
- Poor indoor air quality
    - Field investigation revealed that there are two Air Handling units serving the pool area located in the natatorium east side ceiling space and currently discharge out the west face of the ceiling. These units are connected to the building central plant hot water and provisions were made to provide cooling (although the chilled water was not run to the units during initial installation). The units currently do not provide colling or humidity control.
    - Field investigation revealed an exhaust fan system is located in the natatorium east side ceiling space and discharges out the east building wall.
- Outdated finishes
    - The overall appearance of the natatorium is old and outdated.
    - Ceiling – The existing ceiling is an ACT ceiling system with lay-in tiles. The District indicated they have had issues in the past with tiles falling out of the grid. A previous investigation was performed to analyse the strucutral floor system above and ceiling suspension system. Some items were addressed at that time.
    - Pool deck – The existing pool deck has a ceramic mosaic tile finish that is cracking and spauling in certain locations. The tile will need to be removed and replaced due to the extents of the construction work.
    - Seating & railing – The existing seating consists of wood benches moutned to riser of cast-concrete tiers. Railings are painted metal with cable rails.

SUMMARY OF RECOMMENDATIONS

The key recommendations were divided into (2) primary catagories:

- **Pool & Pool Systems**
- **Facility Infrastructure**

Pool & Pool Systems

- Bring the pool circulation rate up to a 6-hour turnover (industry standard).
    - The increased turnover rate will require larger pump and piping.
- It is critical that a renovated pool system includes replacement of 100% of the piping.
- Replace the pool gutter with a new stainless-steel system, as indicated on the drawings, as it eliminates the need for perimeter inlets and associated piping.
- Provide a variable frequency drive (VFD) for the pump motor to minimize operational costs.
- Provide a modern flow-meter that communicates with the VFD to optimize the system.
- Upgrade the chemical storage tanks to double-walled tanks for secondary containment.
- Provide a supplemental water treatment system such as UV or hydroxyl-based advanced oxidation system. This will assist with maintaining water chemistry as well as improve air quality.
- Provide filtration and water treatment system. Consideration should be given to upgrading the filter system from a high-rate sand system to a regenerative media system. These systems result in lower operational costs (electricity, water, sewer, chemicals, etc.).
    - Regenerative media filter will take up less space than multiple sand filters while having a significantly lower sewer discharge amount and frequency.
- Add surge tank, as indicated on drawings.
- Repair and re-finish the pool deck. Finish material options to consider could range from epoxy resinous flooring systems to ceramic or porcelain floor tile (similar to existing finish).
- Provide new ladders and starting blocks. Recommendation is for the ladders to be recessed into the pool side walls to maximize use of the pool and prevent conflict with swimmers.
- Provide new ADA pool lift.
- Provide new pool liner membrane. Additional consideration could be given to installing stainless steel side wall panels to further extend the life expectancy of the liner.
- Modify the diving well to meet USA Diving/NSFHAA requirements.
    - This item is dependent on the long-term use of the facility and whether or not diving would continue occur.
    - The team evaluated modifying the existing pool compared to replacing the pool all together. Due to the various unknown conditions with the existing pool (ie. construction, structural foundation design, etc.), the team feels the cost of a completely new pool would be in a similar cost range as a major renovation of the existing pool. Refer to the attached cost budget analysis for further information.

Facility Infrastructure

- Sanitary Services
    - Deck drains – New 4” sanitary lines should be run from the new deck drains to the sanitary sewer. These would be connected under the natatorium floor to the new 6”-8” sanitary line leading from the backwash pit to the sanitary manhole located outside the building.
    - Backwash pit drain – The current backwash pit drain is inoperable / non-existent. A new 6/8” sanitary line from the backwash pit to the sanitary manhole located outside the building is required. This line will serve the backwash pit and receive the water from the new pool deck drains
- Mechanical Services
    - The current air handling units serve the natatorium, providing heating and the ability to provide code required outdoor air. The current system could be enhanced to provide occupants an improved environment:
        - Install fabric “duct socks” to distribute the air handling unit discharge air throughout the room vs, blowing the air from east to west
        - Connect the air handling units to the building chilled water system. This would allow the user to better control the indoor air quality (temperature and humidity). Currently the only way to de-humidify is to “evaporate” the humidity by raising the discharge air temperature.
    - Installation / reprogramming the controls system to take advantage of “free cooling and dehumidification” could reduce energy consumption and increase occupant comfort.
    - The current pool heater was reported to “function”, although it looks to be “well used”. We suggest installing of a replacement unit to prevent a future failure.
- Electrical Services
    - Replacement of the panel in the pool filtration room is necessary to prevent a future failure.
    - All wiring and conduit in the pool equipment room should be replaced.
    - We would incorporate a batter charging station for the handicap lift into the equipment closet.
    - PP-1 replacement would be prudent, but is not necessary.
- Lighting Services
    - Replacement of all fixtures in the natatorium during pool construction would provide better illumination, prevent future replacement and minimize significant weight on the new pool deck imposed by future equipment used to access the light fixtures. Use of high efficiency LED fixtures would further reduce energy use and improve building performance, consistent with more recent upgrades and improvements made throughout the High School facility.
- Low Voltage Services
    - We would recommend that all pool equipment, UV systems and temperature monitoring be integrated into the building automation system.
- Finishes
    - Paint existing walls and replace/upgrade signage. This is a fairly inexpensive item that would greatly improve the appearance and user experience. It would also be an opportunity to upgrade branding within the space to be consistent with the overall school.
    - Consideration should be given to replace the existing suspended ACT ceiling system. A new system would not only improve the overall appearance of the space but would also greatly improve the acoustics and sound management. Alternative finish options would eliminate the suspended grid system and utilize

more functional materials such as sound baffles and acoustical cloud elements. This would also address ongoing safety concerns regarding ceiling tiles falling out of the grid.

- Consideration should be given to replacing the spectator bleacher seating. The current seating consists of wood planks. A new seating system would improve function and comfort as well as reduce on-going maintenance.
- Consideration should be given to replacing the railing system. A new railing system would improve safety and function as well as improve the overall appearance of the space.

POTENTIAL CONSIDERATIONS

Due to the extent of improvements required for the existing nataroium, there are a number of potential scenarios to consider. Each of the considerations is dependent on the long-term use and operation of the facility. One of the biggest drivers will be diving and whether or not diving continues to occur at this facility. Most all of the considerations assume the natatorium would remain in the current locaiton. The primary scenarios include:

- **Scenario 'A' - Renovate the existing pool**
- **Scenario 'B' - Modify the existing pool to include diving**
- **Scenario 'C' - Replace the pool with a completely new pool in the current location**
- **Scenario 'D' - Build a new natarium facility off-site**

Below is a summary of the concept cost analysis for the various scenarios. Refer to the attached Concept Cost Analysis (Attachment 'C') for further detail.

Description of Work	Cost Estimate		
	Low	Mid	High
A1 - Renovate w/o Diving	$1,041,444	**$1,163,857**	$1,286,269
A2 - Renovate w/o Diving + Pool Upgrades	$1,209,354	**$1,341,511**	$1,473,668
A3 - Renovate w/o Diving + All Upgrades	$1,480,065	**$1,652,575**	$1,825,085
B1 - Renovate w/ Diving	$1,395,093	**$1,693,261**	$1,991,430
B2 - Renovate w/ Diving + Pool Upgrades	$1,615,125	**$1,925,376**	$2,235,628
B3 - Renovate w/ Diving + All Upgrades	$1,890,311	**$2,241,582**	$2,592,854
C1 - Replace in-place w/o Diving	$1,692,666	**$1,916,360**	$2,140,053
C2 - Replace in-place w/ Diving	$1,921,262	**$2,068,757**	$2,216,252
C3 - Replace in-place w/ Diving + Upgrades	$2,196,447	**$2,384,962**	$2,573,477
D - New Natatorium	$8,000,000	**$9,000,000**	$10,000,000

Based on the analysis, the cost of a completely new pool is a similar cost range as a major renovation of the existing pool particularly when incorporating diving (B2 v. C2). Careful consideration should be taken when evaluating the long-term use of the facility and overall operations. There were still a number of assumptions the team had to make, including the construction of the existing pool, subsurface conditions, and connection to the existing sanitary waste lines. Further investigation needs to be performed if the District elects to proceed with renovation of the existing natatorium to better understand the extent of work and potential cost impacts.

Attachments include:

- Attachment 'A' – Kleingers Site Utility Report
- Attachment 'B' – Terracon Surface Geophysical Exploration Report
- Attachment 'C' – Concept Cost Analysis
- Natatorium Drawings with Comments

ATTACHMENT 'A'

THE KLEINGERS GROUP

www.kleingers.com

Memorandum

Project #
160758.002

TO: Chris Patek

CC: Click here to enter text.

FROM: The Kleingers Group

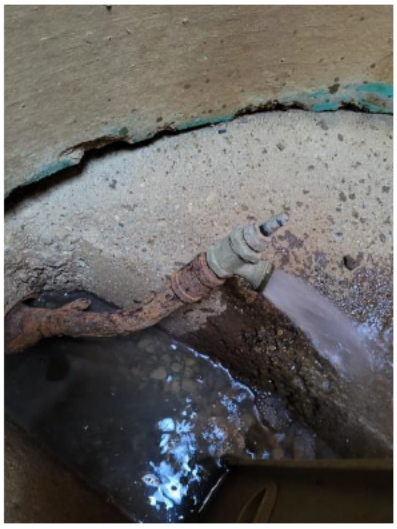
DATE: April 14, 2021

RE: Anderson HS Utility Investigation

A utility Investigation was conducted on 04/09/2021 by The Kleingers Group, Underground detective, and maintenance personnel to understand and document the existing condition of the storm and sanitary utilities after the addition and renovations that have taken place to the existing building and the construction of the new auxiliary gymnasium. There are five documents attached to aid and articulate what was found.

- Civil Site Plan prior to any renovation and construction of the new Auxiliary Gymnasium illustrating what utilities were removed and what remains.
- Civil Site Plan post construction illustrating what utilities were found.
- Existing Plumbing Plan showing the original storm and sanitary design intent
- Existing Plumbing Plan partially overlayed with the current renovated floor plan showing current storm and sanitary
- Current floor plan with storm and sanitary

The investigation started at STM MH-3. A release valve exists at the bottom of STM MH-3 that is connected to the deck drains and scum gutters. This was confirmed by dumping water in both the deck drains and scum gutters noting the flowing water. The drain tile from the north side of the building is also tied into STM MH-3. Video was recorded on both the lines from the STM MH-3. There appears to be debris partially blocking the line into the building around 20' and the drain tile seems to be capped about 4' in.

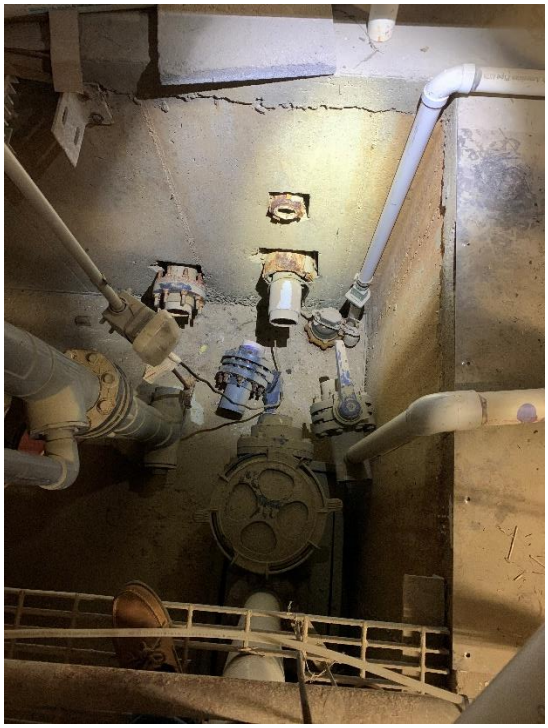


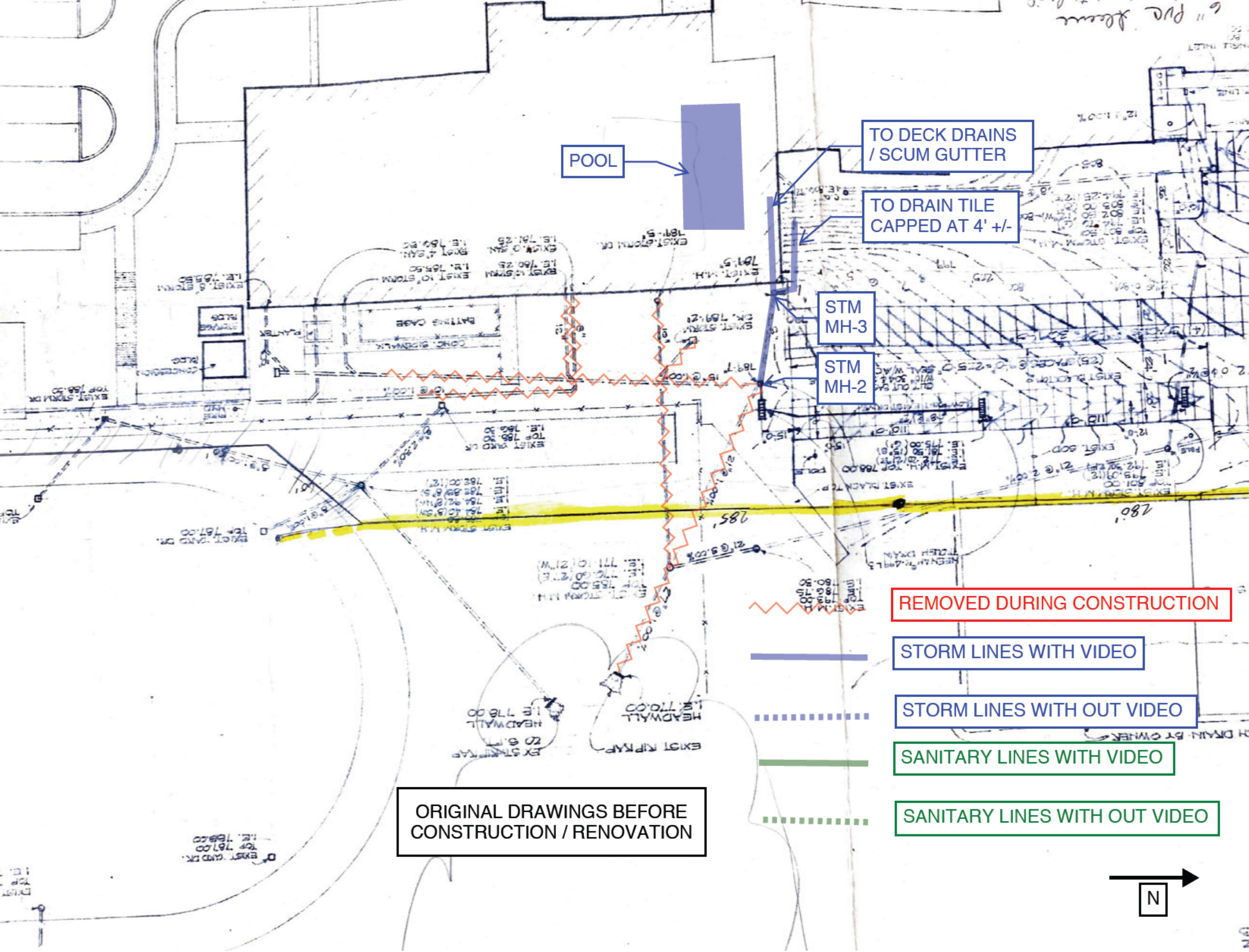
Storm lines from STM MH-1 were recorded both toward the trench drain at the building entrance. Both lines appeared to be clear but the was some difficulty getting the camera passed a pipe fitting near the building entrance. Lines from this manhole were also inspected for any future stubs as indicated by maintenance personnel. No indication was found.

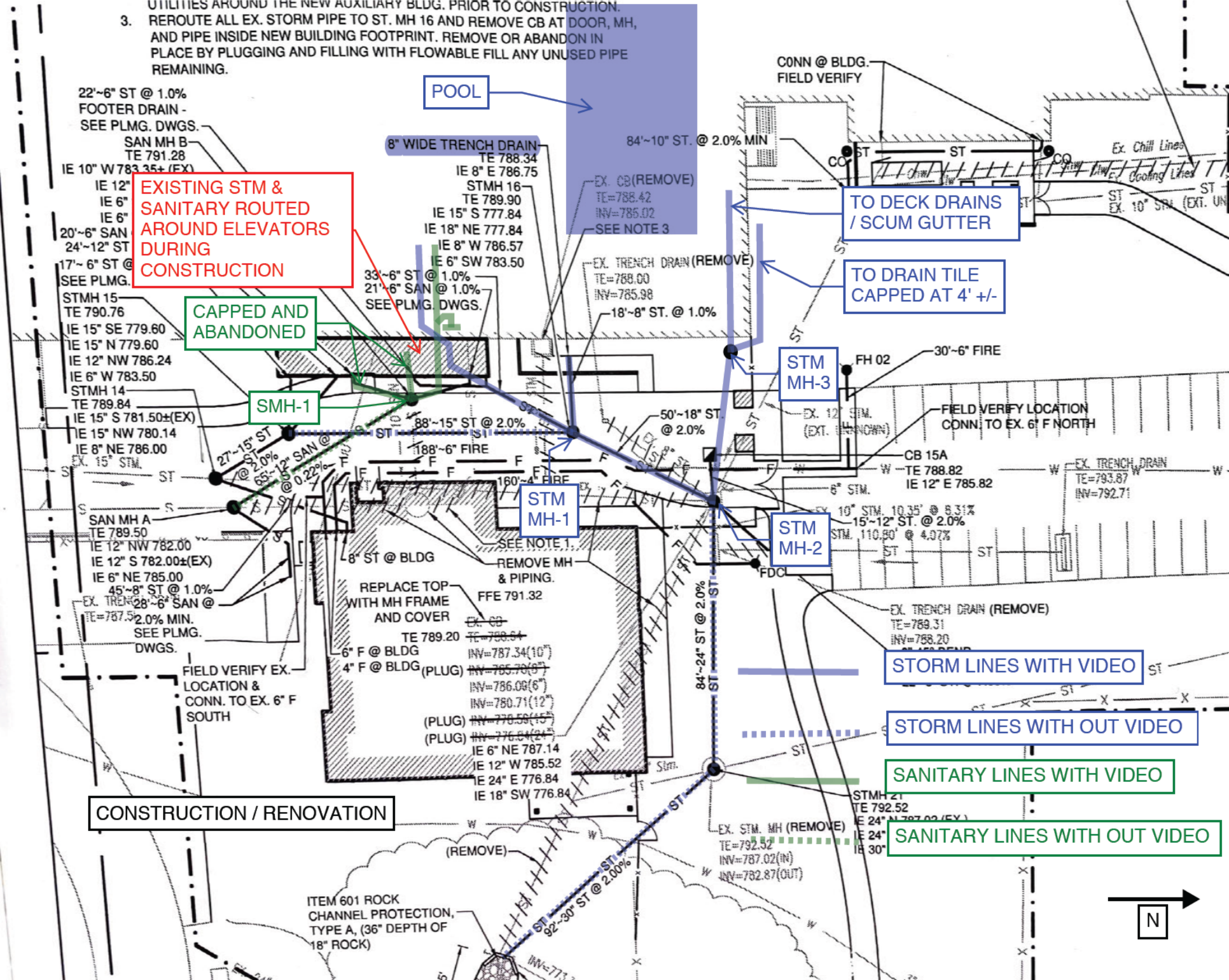
Sanitary Lines from SMH-1 were video recorded. Both the south west and west lines have been capped and abandoned as indicated in the post construction site plan. The north west line (SAN-2) was recorded until a fitting that could not be passed just past the elevator near the trench drain as indicated in the current and overlayed plumbing plans. Lines from this manhole were also inspected for any future stubs as indicated by maintenance personnel. No indication was found.

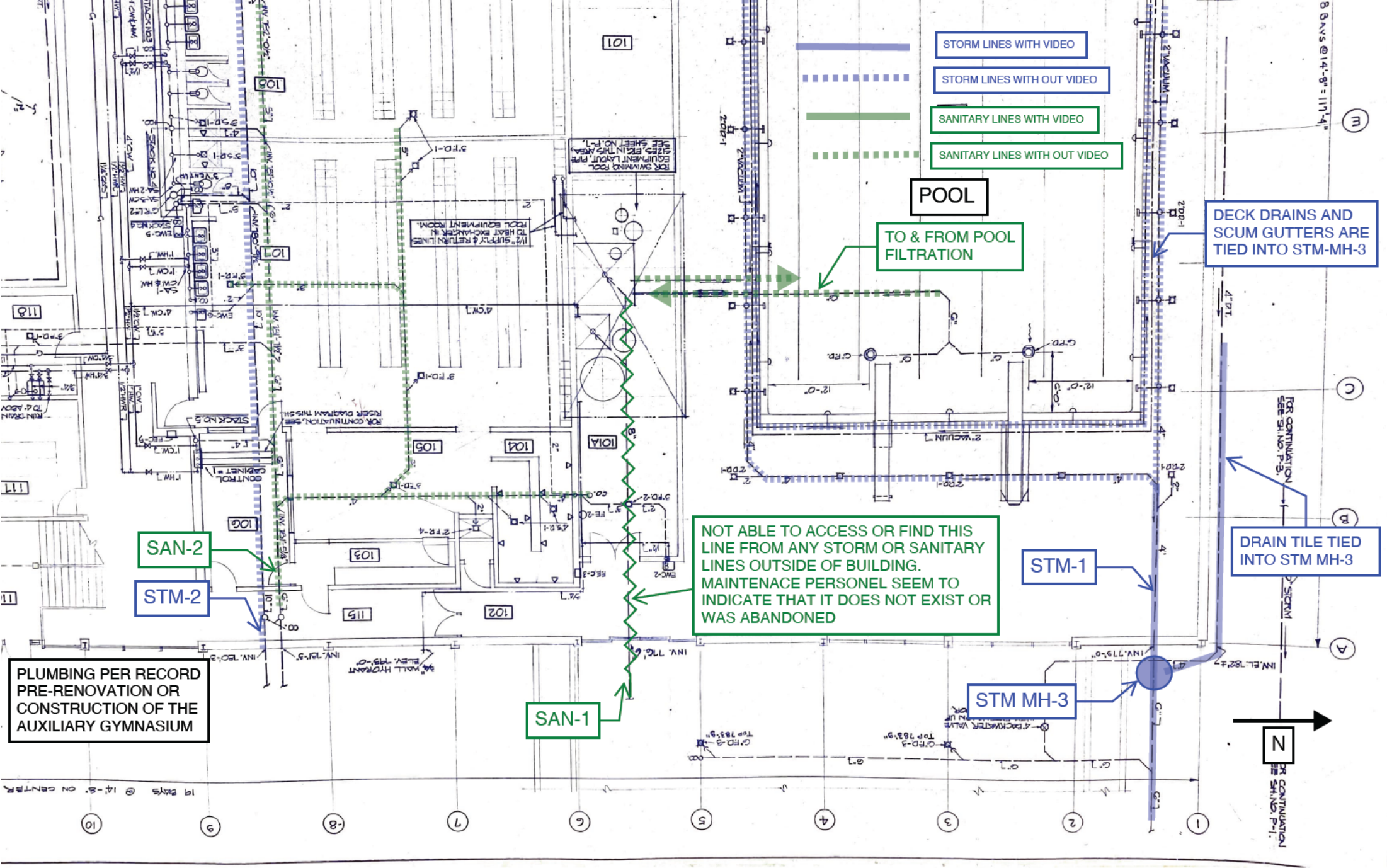
The sanitary line (SAN-2) installed during the renovation as indicated in the plumbing plans was recorded from a clean out in the female locker rooms to the trench drain in front of the elevator door.

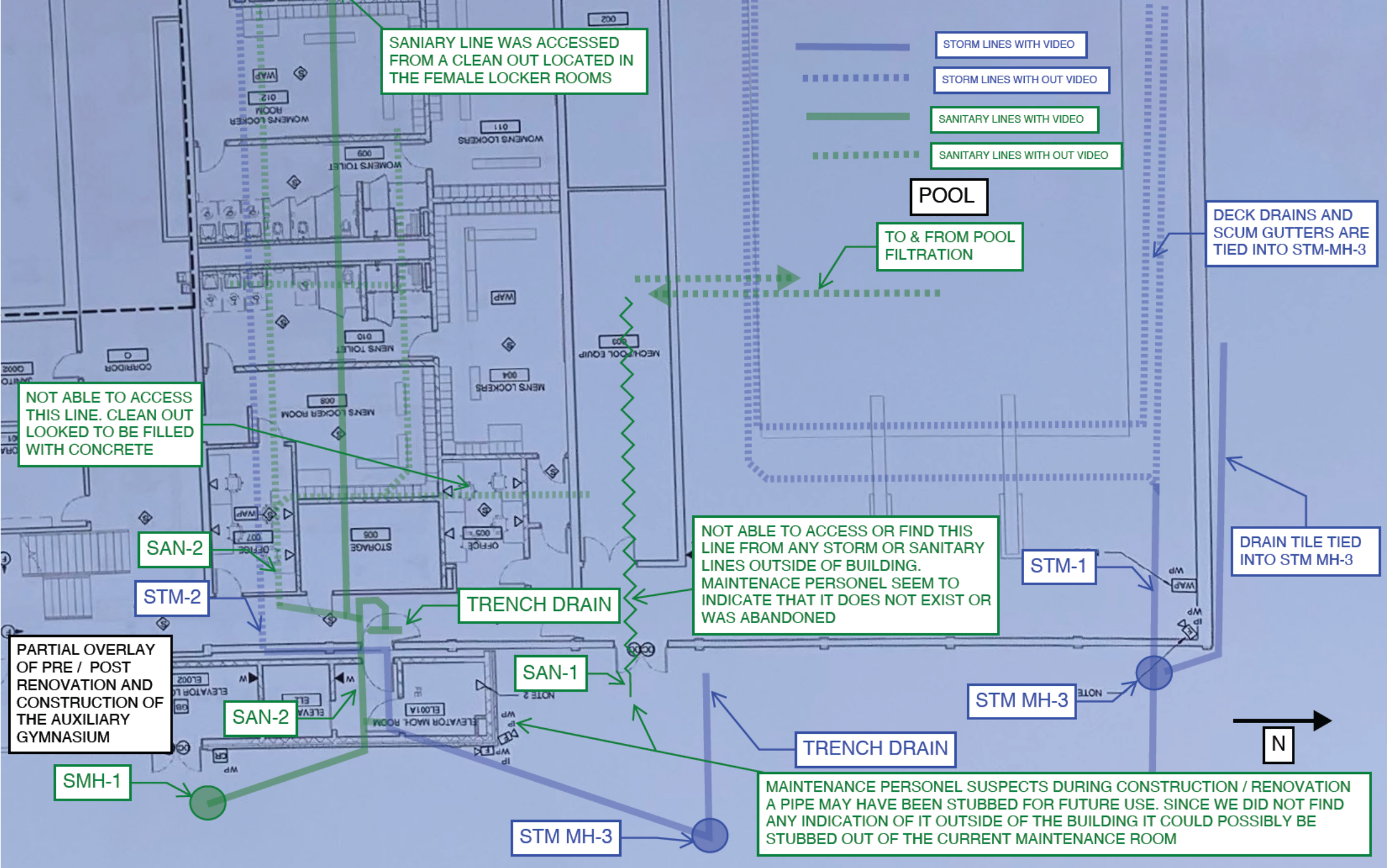
Sanitary lines from the pool maintenance room could not be accessed. SAN-1 as indicated in the original plumbing drawings was not found and or could not be accessed. Maintenance personnel indicated they thought it had not been installed or has been capped / abandoned.

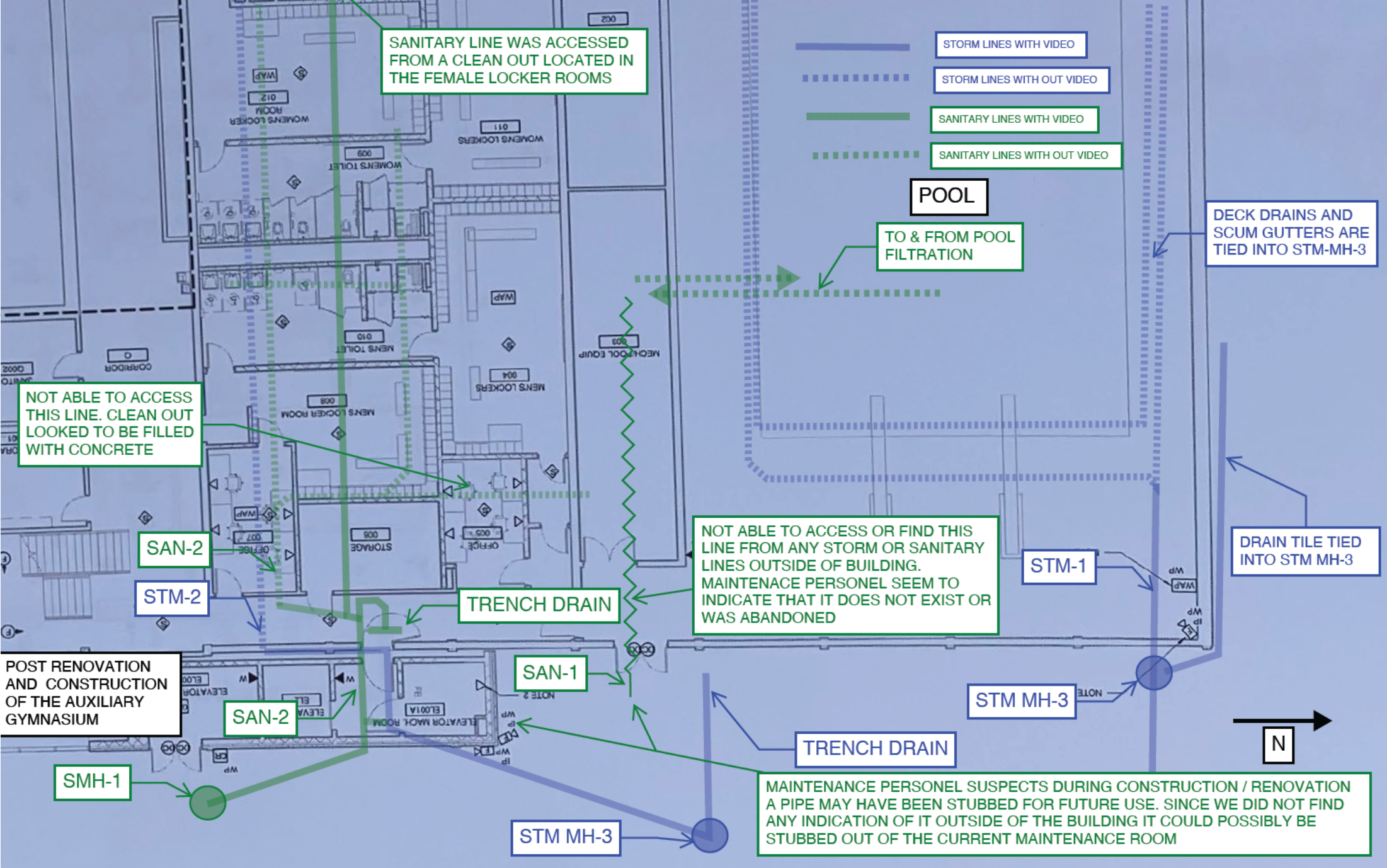



POOL
TO DECK DRAINS / SCUM GUTTER
TO DRAIN TILE CAPPED AT 4' +/-
STM MH-3
STM MH-2
REMOVED DURING CONSTRUCTION
STORM LINES WITH VIDEO
STORM LINES WITH OUT VIDEO
SANITARY LINES WITH VIDEO
SANITARY LINES WITH OUT VIDEO
ORIGINAL DRAWINGS BEFORE CONSTRUCTION / RENOVATION
N


UTILITIES AROUND THE NEW AUXILIARY BLDG. PRIOR TO CONSTRUCTION.
3. REROUTE ALL EX. STORM PIPE TO ST. MH 16 AND REMOVE CB AT DOOR, MH, AND PIPE INSIDE NEW BUILDING FOOTPRINT. REMOVE OR ABANDON IN PLACE BY PLUGGING AND FILLING WITH FLOWABLE FILL ANY UNUSED PIPE REMAINING.
POOL
CONN @ BLDG. FIELD VERIFY
22'~6" ST @ 1.0% FOOTER DRAIN - SEE PLMG. DWGS.
SAN MH B TE 791.28
8" WIDE TRENCH DRAIN TE 788.34 IE 8" E 786.75
84'~10" ST. @ 2.0% MIN
EX. CB (REMOVE) TE=788.42 INV=785.02 SEE NOTE 3
EXISTING STM & SANITARY ROUTED AROUND ELEVATORS DURING CONSTRUCTION
TO DECK DRAINS / SCUM GUTTER
TO DRAIN TILE CAPPED AT 4' +/-
CAPPED AND ABANDONED
SMH-1
STM MH-3
STM MH-1
STM MH-2
FH 02
30'~6" FIRE
FIELD VERIFY LOCATION CONN. TO EX. 6" F NORTH
CB 15A TE 788.82 IE 12" E 785.82
STMH 16 TE 789.90 IE 15" S 777.84 IE 18" NE 777.84 IE 8" W 786.57 IE 6" SW 783.50
EX. TRENCH DRAIN (REMOVE) TE=788.00 INV=785.98
18'~8" ST. @ 1.0%
33'~6" ST @ 1.0%
21'~6" SAN @ 1.0%
SEE PLMG. DWGS.
STMH 15 TE 790.76 IE 15" SE 779.60 IE 15" N 779.60 IE 12" NW 786.24 IE 6" W 783.50
STMH 14 TE 789.84 IE 15" S 781.50±(EX) IE 15" NW 780.14 IE 8" NE 786.00
88'~15" ST @ 2.0%
50'~18" ST. @ 2.0%
188'~6" FIRE
160'~4" FIRE
27'~15" ST @ 2.0%
65'~12" SAN @ 0.22%
EX. 15" STM.
EX. 12" STM. (EXT. UNKNOWN)
6" STM.
EX. TRENCH DRAIN TE=793.87 INV=792.71
10" STM. 10.35' @ 6.31%
15'~12" ST. @ 2.0%
STM. 110.80' @ 4.07%
SAN MH A TE 789.50 IE 12" NW 782.00 IE 12" S 782.00±(EX) IE 6" NE 785.00
45'~8" ST @ 1.0%
28'~6" SAN @ 2.0% MIN. SEE PLMG. DWGS.
EX. TRENCH DRAIN TE=787.5
8" ST @ BLDG
SEE NOTE 1.
REMOVE MH & PIPING.
FFE 791.32
REPLACE TOP WITH MH FRAME AND COVER
EX. CB TE 789.20 INV=787.34(10") (PLUG) INV=786.09(6") INV=780.71(12") (PLUG) (PLUG) IE 6" NE 787.14 IE 12" W 785.52 IE 24" E 776.84 IE 18" SW 776.84
6" F @ BLDG
4" F @ BLDG
FIELD VERIFY EX. LOCATION & CONN. TO EX. 6" F SOUTH
84'~24" ST @ 2.0%
FDC
EX. TRENCH DRAIN (REMOVE) TE=788.31 INV=788.20
STORM LINES WITH VIDEO
STORM LINES WITH OUT VIDEO
SANITARY LINES WITH VIDEO
SANITARY LINES WITH OUT VIDEO
CONSTRUCTION / RENOVATION
(REMOVE)
EX. STM. MH (REMOVE) TE=792.52 INV=787.02(IN) INV=782.87(OUT)
STMH 21 TE 792.52
92'~30" ST @ 2.00%
ITEM 601 ROCK CHANNEL PROTECTION, TYPE A, (36" DEPTH OF 18" ROCK)
N


STORM LINES WITH VIDEO
STORM LINES WITH OUT VIDEO
SANITARY LINES WITH VIDEO
SANITARY LINES WITH OUT VIDEO
POOL
TO & FROM POOL FILTRATION
DECK DRAINS AND SCUM GUTTERS ARE TIED INTO STM-MH-3
DRAIN TILE TIED INTO STM MH-3
NOT ABLE TO ACCESS OR FIND THIS LINE FROM ANY STORM OR SANITARY LINES OUTSIDE OF BUILDING. MAINTENACE PERSONEL SEEM TO INDICATE THAT IT DOES NOT EXIST OR WAS ABANDONED
SAN-2
STM-2
SAN-1
STM-1
STM MH-3
PLUMBING PER RECORD PRE-RENOVATION OR CONSTRUCTION OF THE AUXILIARY GYMNASIUM
N


SANIARY LINE WAS ACCESSED FROM A CLEAN OUT LOCATED IN THE FEMALE LOCKER ROOMS
STORM LINES WITH VIDEO
STORM LINES WITH OUT VIDEO
SANITARY LINES WITH VIDEO
SANITARY LINES WITH OUT VIDEO
POOL
TO & FROM POOL FILTRATION
DECK DRAINS AND SCUM GUTTERS ARE TIED INTO STM-MH-3
NOT ABLE TO ACCESS THIS LINE. CLEAN OUT LOOKED TO BE FILLED WITH CONCRETE
SAN-2
STM-2
TRENCH DRAIN
NOT ABLE TO ACCESS OR FIND THIS LINE FROM ANY STORM OR SANITARY LINES OUTSIDE OF BUILDING. MAINTENACE PERSONEL SEEM TO INDICATE THAT IT DOES NOT EXIST OR WAS ABANDONED
STM-1
DRAIN TILE TIED INTO STM MH-3
PARTIAL OVERLAY OF PRE / POST RENOVATION AND CONSTRUCTION OF THE AUXILIARY GYMNASIUM
SAN-1
SAN-2
STM MH-3
N
SMH-1
TRENCH DRAIN
STM MH-3
MAINTENANCE PERSONEL SUSPECTS DURING CONSTRUCTION / RENOVATION A PIPE MAY HAVE BEEN STUBBED FOR FUTURE USE. SINCE WE DID NOT FIND ANY INDICATION OF IT OUTSIDE OF THE BUILDING IT COULD POSSIBLY BE STUBBED OUT OF THE CURRENT MAINTENANCE ROOM


SANITARY LINE WAS ACCESSED FROM A CLEAN OUT LOCATED IN THE FEMALE LOCKER ROOMS
STORM LINES WITH VIDEO
STORM LINES WITH OUT VIDEO
SANITARY LINES WITH VIDEO
SANITARY LINES WITH OUT VIDEO
POOL
TO & FROM POOL FILTRATION
DECK DRAINS AND SCUM GUTTERS ARE TIED INTO STM-MH-3
NOT ABLE TO ACCESS THIS LINE. CLEAN OUT LOOKED TO BE FILLED WITH CONCRETE
SAN-2
STM-2
TRENCH DRAIN
NOT ABLE TO ACCESS OR FIND THIS LINE FROM ANY STORM OR SANITARY LINES OUTSIDE OF BUILDING. MAINTENACE PERSONEL SEEM TO INDICATE THAT IT DOES NOT EXIST OR WAS ABANDONED
STM-1
DRAIN TILE TIED INTO STM MH-3
POST RENOVATION AND CONSTRUCTION OF THE AUXILIARY GYMNASIUM
SAN-1
SAN-2
STM MH-3
N
SMH-1
TRENCH DRAIN
STM MH-3
MAINTENANCE PERSONEL SUSPECTS DURING CONSTRUCTION / RENOVATION A PIPE MAY HAVE BEEN STUBBED FOR FUTURE USE. SINCE WE DID NOT FIND ANY INDICATION OF IT OUTSIDE OF THE BUILDING IT COULD POSSIBLY BE STUBBED OUT OF THE CURRENT MAINTENANCE ROOM

June 3, 2021

MSA Design
316 W 4th Street
Cincinnati, Ohio 45202

Attn: Mr. Chris Patek, AIA LEED AP
Principal
P: [513] 241-5666
E: cpatek@masaarch.com

Re: Surface Geophysical Exploration Report
Anderson HS Swimming Pool Evaluation
7560 Forest Road
Cincinnati, OH 45255
Terracon Project Number: N1215136

Dear Mr. Patek:

Terracon Consultants, Inc. (Terracon) performed surface geophysical exploration services consisting of Ground Penetrating Radar (GPR) on April 22th, 2021 at the above-referenced location. The geophysical survey was authorized by MSA Design via email on April 12, 2021. The GPR survey was limited to the deep end of the pool and the primary objectives of the survey was to identify the presence of potential voids below the existing concrete slab-on-grade and locate foundations of the pool perimeter walls.

1.0 GEOPHYSICAL EXPLORATION

The geophysical exploration consisted of a surface geophysical survey using Ground Penetrating Radar (GPR). The GPR field collection was performed in general accordance with the procedures referenced in ASTM D6432 Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation. Additional information on both the general method and collection procedures can be found in the referenced standard. Terracon used a GPR system consisting of a 400 MHz push-cart antenna (approximate penetration depth of 4 feet) and a hand-held 1600 MHz antenna (approximate penetration depth of 20 inches) designed by Geophysical Survey Systems, Inc. (GSSI) to perform the geophysical survey.

GPR utilizes high frequency electromagnetic waves to detect certain electrical property changes in the subsurface of the area being scanned. Changes or reflections in the signal generally indicate material property changes, including electromagnetic conductivity and dielectric constant, which in some cases can be qualitatively linked to other material properties (e.g., density). These changes can be effective in identifying the presence and location of numerous subsurface

anomalies including: subsurface voids, buried concrete, underground tanks, disturbed soils, underground utilities, and embedded objects in concrete and masonry structures, among others.

Scans were collected in a grid pattern across the survey areas displayed on Exhibit 1. Scans with the 400 MHz push-cart antenna were performed in a 5-foot grid pattern across the entire pool bottom slab. Scans with the handheld 1600 MHz antenna were performed in a 2-foot grid pattern across the deep end of the pool bottom slab starting from to the 45-foot mark, as indicated on the pool perimeter wall.

2.0 GEOPHYSICAL SURVEY FINDINGS

The GPR survey located an anomalous area, as displayed on Exhibit 1. The data appears to indicate a potential crack in the pool slab (indicated by a thin void space within the slab) with an under-slab anomaly. The under-slab anomaly may be a potential void and/or high saturation areas. Both features (void and saturations) are indicated by similar data characteristics in the GPR cross-sections. The anomalous area appears to consist of a series of smaller void features and not one large void.

GPR cannot determine void thickness due to signal loss when reflecting off an air void. However, the presence of additional reflections beneath the air void does indicate that the void may not be "significant" enough to completely block signal penetration. The interpreted void anomalies did not completely block signal penetration in the 1600 MHz data. The 400 MHz antenna did not image the anomalies, indicating the crack/voids may be thinner than 2 inches. Direct exploration using concrete coring could be completed to characterize the anomalous area but may present difficulty due to the voids being "small". Cross-sectional GPR data examples, with the interpreted anomalies, are displayed on Exhibit 2. Neither antenna located indications of existing foundations (footings) near the perimeter walls within the maximum penetration depth of about 4 feet below the pool slab. Due to the size of the antennas, scans could not be performed closer than 1 to 2 feet from the walls.

3.0 LIMITATIONS

All geophysical testing methods rely on instrument signals to indicate physical conditions in the field. Signal information can be affected by on-site conditions beyond the control of the operator, such as, but not limited to, cultural features, standing water, ground water, buried objects, and cultural noise (e.g. traffic, construction equipment etc.). Interpretation of those signals is based on a combination of known factors combined with the experience of the operator and geophysical scientist evaluating the results. The provided depth measurements are estimations based on an estimation of the electrical properties of the subsurface material.

This report has been prepared for the application discussed and in accordance with generally accepted geophysical practices. No warranties, expressed or implied, are intended or made. The

findings presented in this report are based upon the data obtained from the geophysical surveys and from other information discussed in this report. This report does not reflect variations that may occur in areas not tested or inaccessible to the geophysical equipment, across the site, or due to the modifying effects of construction or weather.

4.0 CONCLUSIONS

The surface geophysical surveys did not identify presence of existing foundations (footings) for the perimeter walls within the maximum penetration depth of about 4 feet. Consideration could be given to saw cutting the pool concrete slab adjoining the perimeter wall and excavating the subgrade soils to develop specific information regarding the perimeter wall foundation.

The voids in the concrete slab identified by the scans appear to be “small” (less than about 2 inches). The crack appears near the bottom of the slab but does not appear to extend to the surface of the slab. Consideration could be given to coring the concrete slab at select locations and performing petrographic examination to further characterize the voids and possible slab degradation. The “small” size of the voids can present difficulty to a targeted coring program, but the potential crack could be located again for coring. If a remediation plan or possible injection grouting is planned, then additional investigation may not be warranted.

We appreciate the opportunity to be of service to you on this project. Please don’t hesitate to contact the undersigned, if you may have any questions.

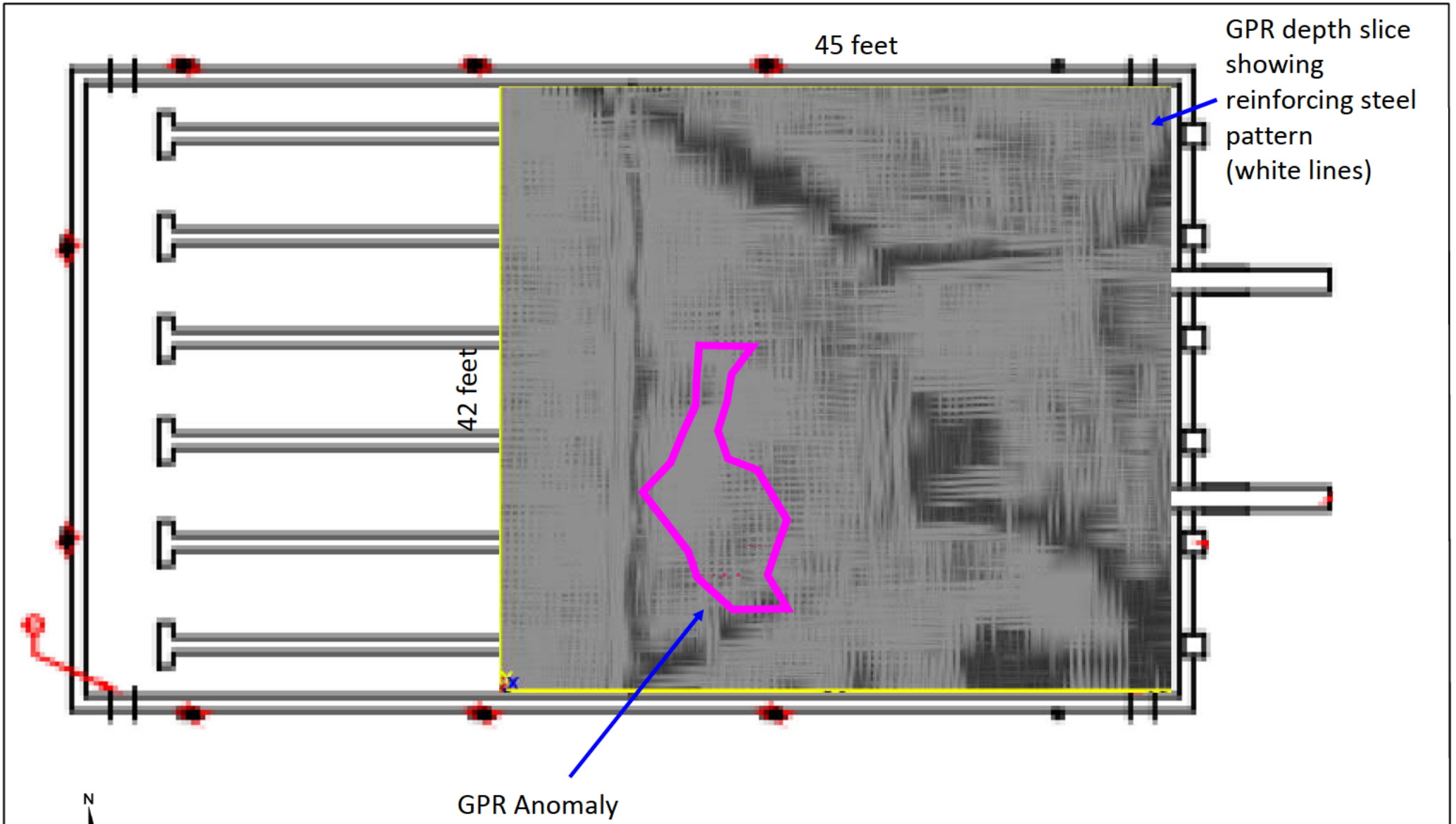
Sincerely,

Terracon Consultants, Inc.

Kyle J. Shalek, Ph.D.
Senior Geophysicist

Rajan Viswanathan, P.E.
Senior Project Manager

Attachments:
Exhibits 1 and 2 GPR Survey Results

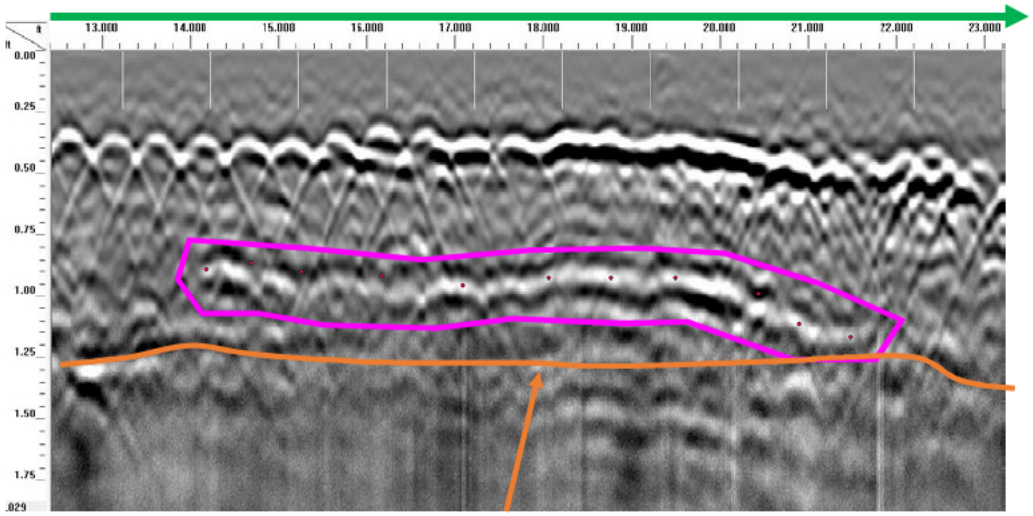


Project No. N1215136	Date: 6/1/2021
Project Manager: RJV	Drawn by: KJS
File Name: exhibits.pdf	
Scale: N.T.S.	

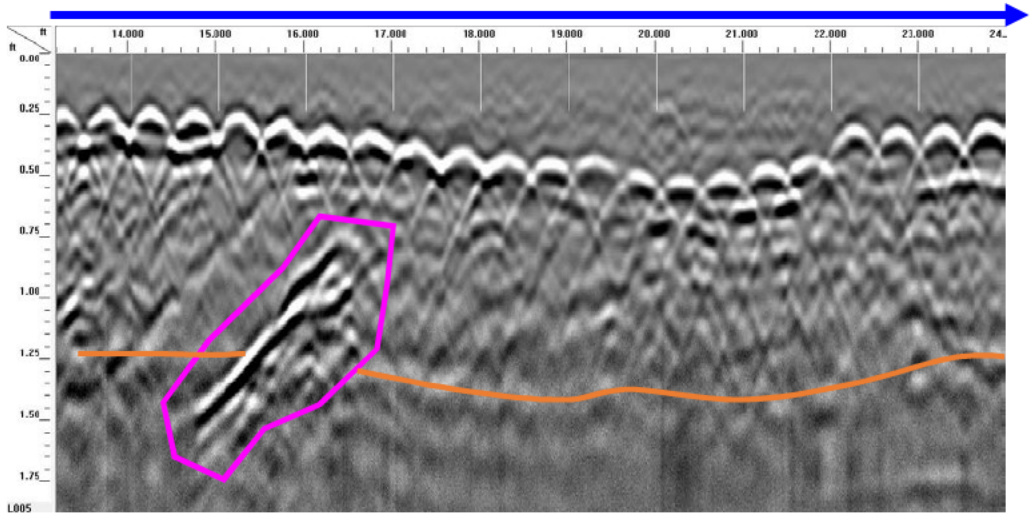
Terracon
Consulting Engineers & Scientists
611 Lunken Park Dr. Cincinnati, OH
PH. (513)612-9081 FAX. (513) 321-0294

GPR Survey Results
Anderson HS Swimming Pool
7560 Forest Road
Cincinnati, Ohio

Exhibit
1



Potential Bottom of Slab



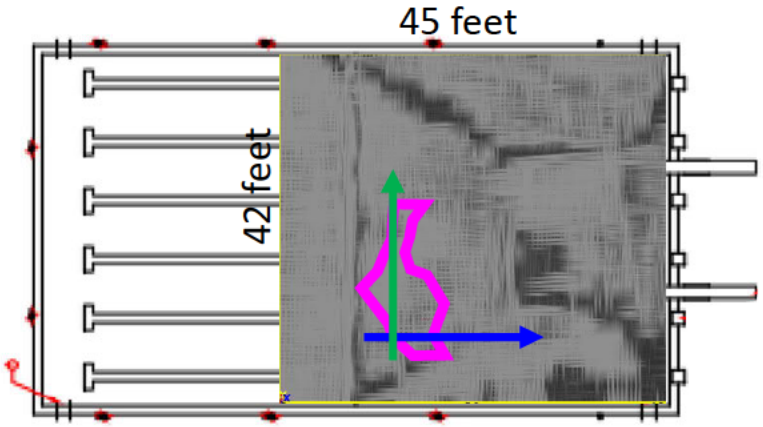


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project No. N1215136	Date: 6/1/2021
Project Manager: RJV	Drawn by: KJS
File Name: exhibits.pdf	
Scale: N.T.S.	

Terracon
Consulting Engineers & Scientists
611 Lunken Park Dr. Cincinnati, OH
PH. (513)612-9081 FAX. (513) 321-0294

GPR Survey Results
Anderson HS Swimming Pool
7560 Forest Road
Cincinnati, Ohio

Exhibit
2

ATTACHMENT 'C'

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate			Notes
		Low	Mid	High	
	A1 - Renovate w/o Diving	$1,041,444	**$1,163,857**	$1,286,269	
	A2 - Renovate w/o Diving + Pool Upgrades	$1,209,354	**$1,341,511**	$1,473,668	Pool membrane, filter, lighting, HVAC, finishes
	A3 - Renovate w/o Diving + All Upgrades	$1,480,065	**$1,652,575**	$1,825,085	Pool membrane, filter, lighting, HVAC, finishes
	B1 - Renovate w/ Diving	$1,395,093	**$1,693,261**	$1,991,430	
	B2 - Renovate w/ Diving + Pool Upgrades	$1,615,125	**$1,925,376**	$2,235,628	Pool membrane, filter, lighting, HVAC, finishes
	B3 - Renovate w/ Diving + All Upgrades	$1,890,311	**$2,241,582**	$2,592,854	Pool membrane, filter, lighting, HVAC, finishes
	C1 - Replace in-place w/o Diving	$1,692,666	**$1,916,360**	$2,140,053	
	C2 - Replace in-place w/ Diving	$1,921,262	**$2,068,757**	$2,216,252	
	C3 - Replace in-place w/ Diving + Upgrades	$2,196,447	**$2,384,962**	$2,573,477	lighting, HVAC, finishes
	D - New Natatorium	$8,000,000	**$9,000,000**	$10,000,000	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	A1 - Renovate w/o Diving			
	Demolition	$25,000	$35,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	Base Construction Subtotal	**$729,405**	**$900,875**	
10%	General Conditions	$72,941	$90,088	
2%	Contractor's Bond & Insurance	$14,588	$18,018	
6%	Contractor's Fee	$43,764	$54,053	
3%	Construction Contingency	$21,882	$27,026	
	TOTAL CONSTRUCTION	**$882,580**	**$1,090,059**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$158,864	$196,211	
	TOTAL NON-CONSTRUCTION	**$158,864**	**$196,211**	
	TOTAL BASE PROJECT	**$1,041,444**	**$1,286,269**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	A2 - Renovate w/o Diving + Pool Upgrades			
	Demolition	$25,000	$35,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Pool Membrane Upgrade	**$52,500**	**$52,500**	Stainless steel walls
	ADD - Pool Filter System	**$65,100**	**$78,750**	Regenerative media system
	Base Construction Subtotal	**$847,005**	**$1,032,125**	
10%	General Conditions	$84,701	$103,213	
2%	Contractor's Bond & Insurance	$16,940	$20,643	
6%	Contractor's Fee	$50,820	$61,928	
3%	Construction Contingency	$25,410	$30,964	
	TOTAL CONSTRUCTION	**$1,024,876**	**$1,248,871**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$184,478	$224,797	
	TOTAL NON-CONSTRUCTION	**$184,478**	**$224,797**	
	TOTAL BASE + UPGRADES PROJECT	**$1,209,354**	**$1,473,668**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	A3 - Renovate w/o Diving + All Upgrades			
	Demolition	$25,000	$35,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Pool Membrane Upgrade	**$52,500**	**$52,500**	Stainless steel walls
	ADD - Pool Filter System	**$65,100**	**$78,750**	Regenerative media system
	ADD - Replace Light Fixtures	**$6,825**	**$8,925**	
	ADD - HVAC Upgrades	**$47,775**	**$67,200**	improved air quality & controls
	ADD - Replace ACT Ceiling System	**$60,000**	**$70,000**	
	ADD - Replace Seating & Metal Railings	**$75,000**	**$100,000**	
	Base Construction Subtotal	**$1,036,605**	**$1,278,250**	
10%	General Conditions	$103,661	$127,825	
2%	Contractor's Bond & Insurance	$20,732	$25,565	
6%	Contractor's Fee	$62,196	$76,695	
3%	Construction Contingency	$31,098	$38,348	
	TOTAL CONSTRUCTION	**$1,254,292**	**$1,546,683**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$225,773	$278,403	
	TOTAL NON-CONSTRUCTION	**$225,773**	**$278,403**	
	TOTAL BASE + UPGRADES PROJECT	**$1,480,065**	**$1,825,085**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	B1 - Renovate w/ Diving			
	Demolition	$30,000	$40,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Modify Diving Well	$226,800	$466,200	Meet USA Diving/NSFHAA
	Base Construction Subtotal	**$961,205**	**$1,372,075**	
10%	General Conditions	$96,121	$137,208	
2%	Contractor's Bond & Insurance	$19,224	$27,442	
6%	Contractor's Fee	$57,672	$82,325	
5%	Construction Contingency	$48,060	$68,604	
	TOTAL CONSTRUCTION	**$1,182,282**	**$1,687,652**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$212,811	$303,777	
	TOTAL NON-CONSTRUCTION	**$212,811**	**$303,777**	
	TOTAL BASE PROJECT	**$1,395,093**	**$1,991,430**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	B2 - Renovate w/ Diving + Pool Upgrades			
	Demolition	$30,000	$40,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Pool Membrane Upgrade	$52,500	$52,500	Stainless steel walls
	ADD - Pool Filter System	$65,100	$78,750	Regenerative media system
	ADD - Modify Diving Well	**$226,800**	**$466,200**	Meet USA Diving/NSFHAA
	ADD - Diving Board Replacement	**$34,000**	**$37,000**	
	Base Construction Subtotal	**$1,112,805**	**$1,540,325**	
10%	General Conditions	$111,281	$154,033	
2%	Contractor's Bond & Insurance	$22,256	$30,807	
6%	Contractor's Fee	$66,768	$92,420	
5%	Construction Contingency	$55,640	$77,016	
	TOTAL CONSTRUCTION	**$1,368,750**	**$1,894,600**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$246,375	$341,028	
	TOTAL NON-CONSTRUCTION	**$246,375**	**$341,028**	
	TOTAL BASE + UPGRADES PROJECT	**$1,615,125**	**$2,235,628**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	B3 - Renovate w/ Diving + All Upgrades			
	Demolition	$30,000	$40,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	Pool Equipment	$132,825	$163,275	
	Pool Vessel & Deck	$437,850	$538,125	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Pool Membrane Upgrade	$52,500	$52,500	Stainless steel walls
	ADD - Pool Filter System	$65,100	$78,750	Regenerative media system
	ADD - Replace Light Fixtures	$6,825	$8,925	
	ADD - HVAC Upgrades	$47,775	$67,200	improved air quality & controls
	ADD - Replace ACT Ceiling System	$60,000	$70,000	
	ADD - Replace Seating & Metal Railings	$75,000	$100,000	
	ADD - Modify Diving Well	**$226,800**	**$466,200**	Meet USA Diving/NSFHAA
	ADD - Diving Board Replacement	**$34,000**	**$37,000**	
	Base Construction Subtotal	**$1,302,405**	**$1,786,450**	
10%	General Conditions	$130,241	$178,645	
2%	Contractor's Bond & Insurance	$26,048	$35,729	
6%	Contractor's Fee	$78,144	$107,187	
5%	Construction Contingency	$65,120	$89,323	
	TOTAL CONSTRUCTION	**$1,601,958**	**$2,197,334**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$288,352	$395,520	
	TOTAL NON-CONSTRUCTION	**$288,352**	**$395,520**	
	TOTAL BASE + UPGRADES PROJECT	**$1,890,311**	**$2,592,854**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

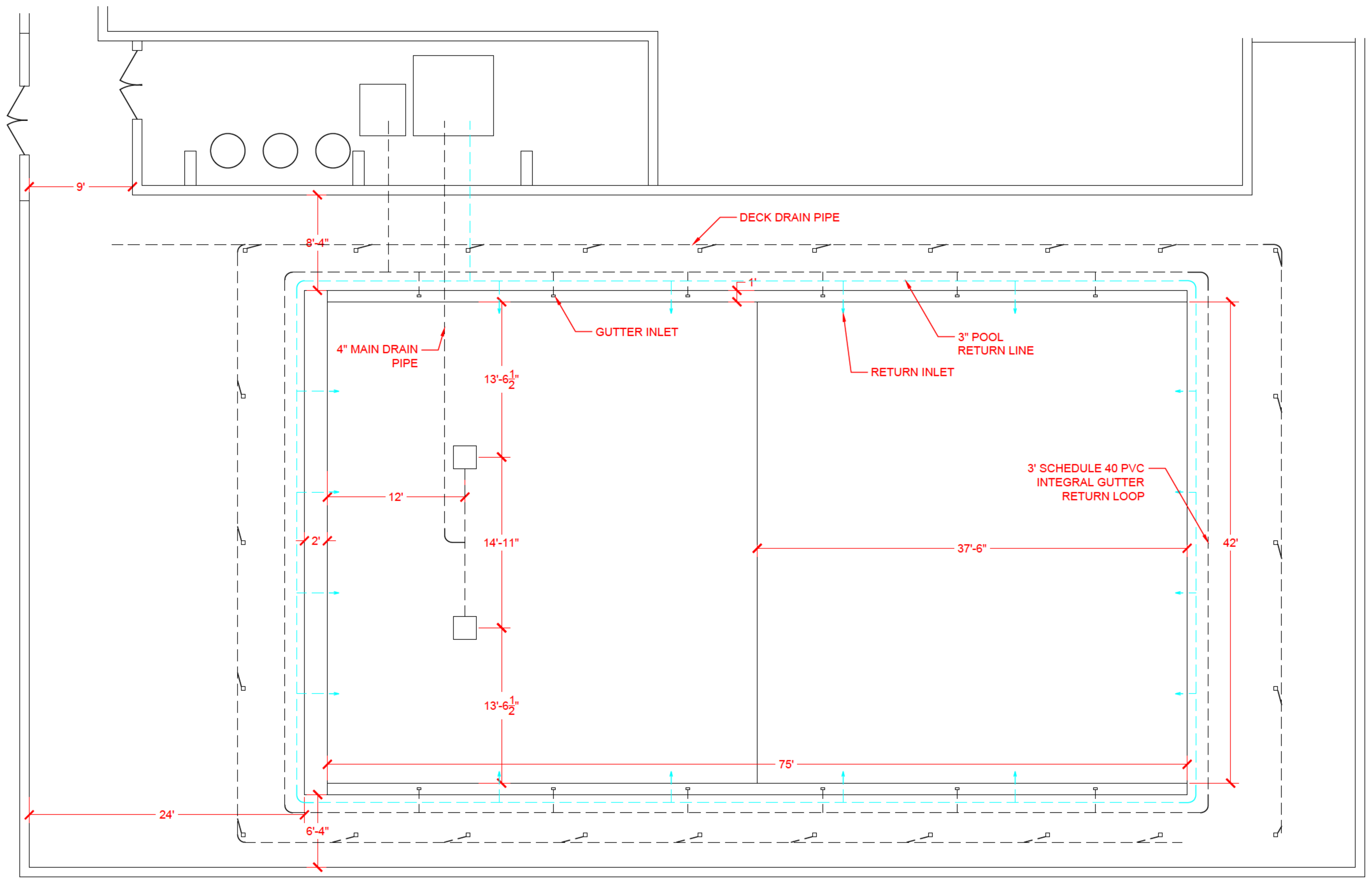
	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	C1 - Replace in-place w/o Diving			
	Demolition	$35,000	$50,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	New Pool & Equipment	$997,500	$1,260,000	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	Base Construction Subtotal	**$1,166,230**	**$1,474,475**	
10%	General Conditions	$116,623	$147,448	
2%	Contractor's Bond & Insurance	$23,325	$29,490	
6%	Contractor's Fee	$69,974	$88,469	
5%	Construction Contingency	$58,312	$73,724	
	TOTAL CONSTRUCTION	**$1,434,463**	**$1,813,604**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$258,203	$326,449	
	TOTAL NON-CONSTRUCTION	**$258,203**	**$326,449**	
	TOTAL BASE PROJECT	**$1,692,666**	**$2,140,053**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

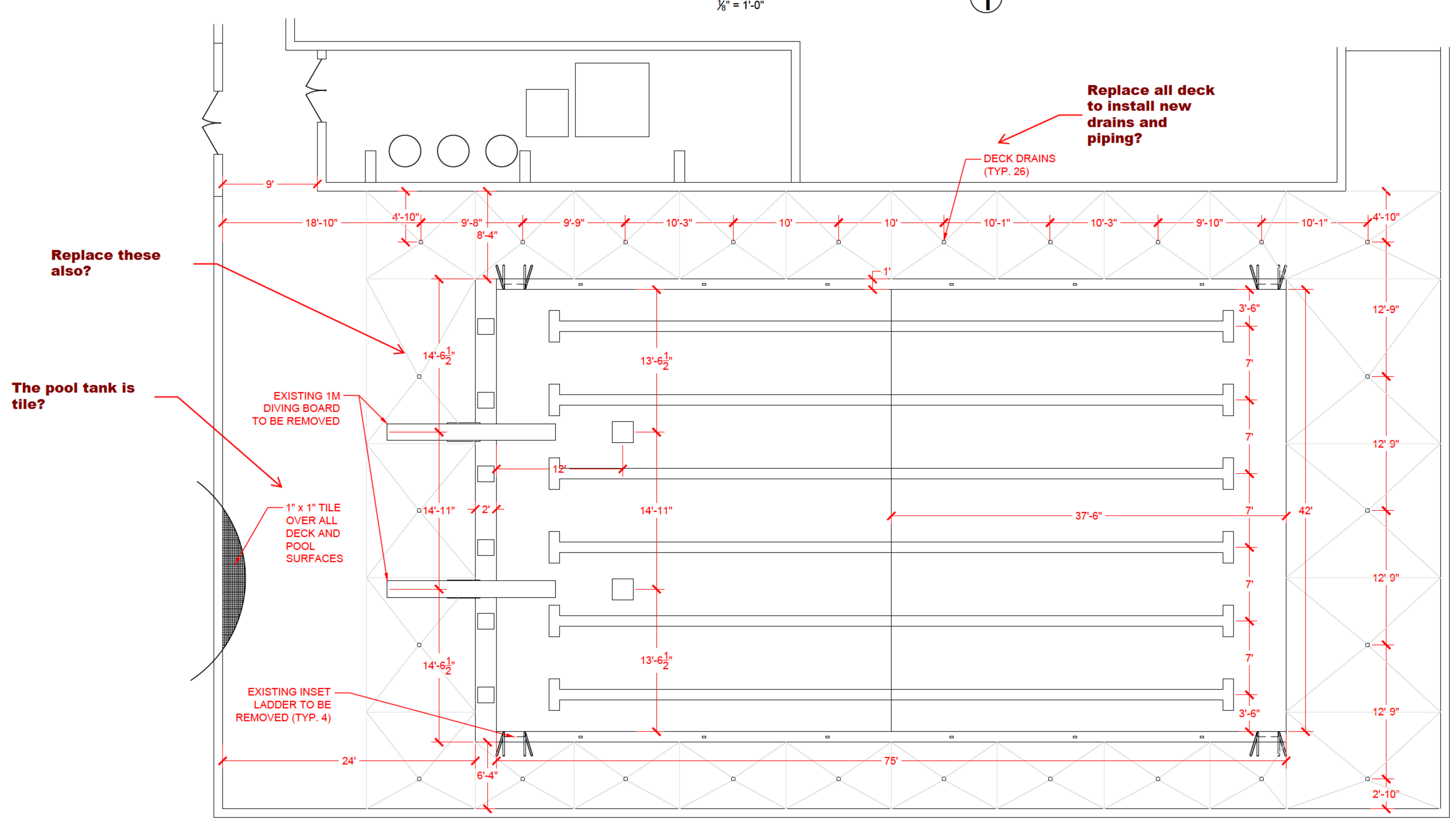
	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	C2 - Replace in-place w/ Diving			
	Demolition	$35,000	$50,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	New Pool & Equipment	$1,155,000	$1,312,500	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	Base Construction Subtotal	**$1,323,730**	**$1,526,975**	
10%	General Conditions	$132,373	$152,698	
2%	Contractor's Bond & Insurance	$26,475	$30,540	
6%	Contractor's Fee	$79,424	$91,619	
5%	Construction Contingency	$66,187	$76,349	
	TOTAL CONSTRUCTION	**$1,628,188**	**$1,878,179**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$293,074	$338,072	
	TOTAL NON-CONSTRUCTION	**$293,074**	**$338,072**	
	TOTAL BASE PROJECT	**$1,921,262**	**$2,216,252**	

Forest Hills School District
Anderson HS Natatorium Assessment
Concept Cost Estimate
April 19, 2021

	Description of Work	Cost Estimate Low	Cost Estimate High	Notes
	C3 - Replace in-place w/ Diving + Upgrades			
	Demolition	$35,000	$50,000	
	Site Utilities	$35,000	$45,000	New Sanitary Piping
	Interior Finishes	$12,000	$15,000	Paint Walls
	New Pool & Equipment	$1,155,000	$1,312,500	
	HVAC, Electrical & Plaumbing Systems	$86,730	$104,475	
	ADD - Replace Light Fixtures	**$6,825**	**$8,925**	
	ADD - HVAC Upgrades	**$47,775**	**$67,200**	improved air quality & controls
	ADD - Replace ACT Ceiling System	**$60,000**	**$70,000**	
	ADD - Replace Seating & Metal Railings	**$75,000**	**$100,000**	
	Base Construction Subtotal	**$1,513,330**	**$1,773,100**	
10%	General Conditions	$151,333	$177,310	
2%	Contractor's Bond & Insurance	$30,267	$35,462	
6%	Contractor's Fee	$90,800	$106,386	
5%	Construction Contingency	$75,667	$88,655	
	TOTAL CONSTRUCTION	**$1,861,396**	**$2,180,913**	
18%	Proj Contingency (6%), AE Fees, Permits/Misc	$335,051	$392,564	
	TOTAL NON-CONSTRUCTION	**$335,051**	**$392,564**	
	TOTAL BASE PROJECT	**$2,196,447**	**$2,573,477**	



EXISTING POOL PIPING PLAN
⅛" = 1'-0"
1



EXISTING POOL DECK PLAN
⅛" = 1'-0"
2

BUILDING CODE SUMMARY

NAME OF PROJECT: ANDERSON HIGH SCHOOL POOL REMODEL

PROPOSED USE: ASSEMBLY INDOOR POOL GROUP A-4

INTERNATIONAL BUILDING CODE LATEST EDITION

NATIONAL ELECTRIC CODE (BONDING) LATEST EDITION

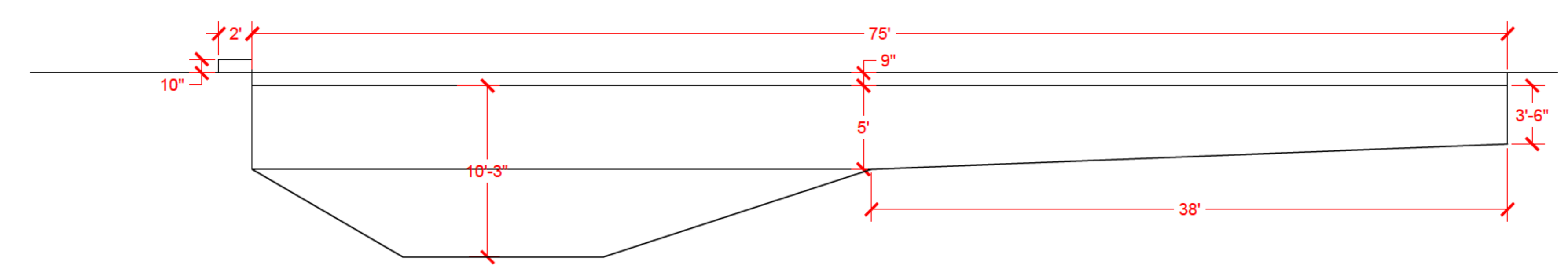
OHIO PUBLIC SWIMMING POOL AND SPECIAL USE POOL LATEST EDITION

CONCRETE WORK SHALL CONFORM TO THE RECOMMENDATIONS OF ACI-301 LATEST EDITION

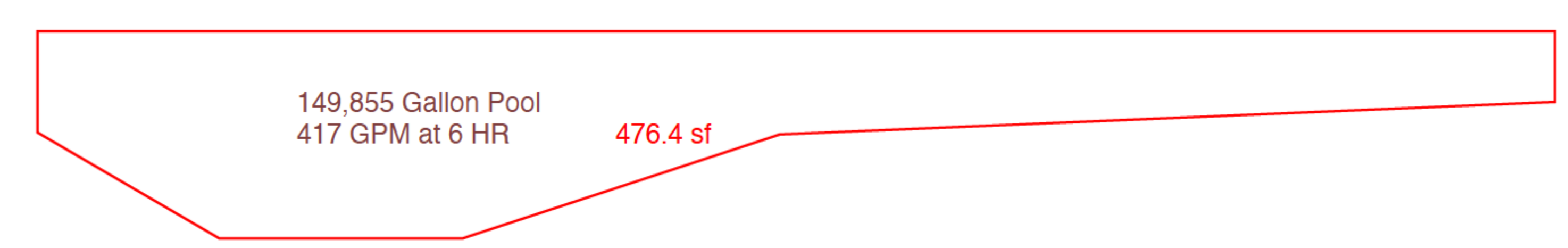
REINFORCING STEEL SHALL BE ASTM A615, GRADE 60

STAINLESS STEEL SHALL BE 12 Gg 304 ASTM A240

PIPE SHALL BE SCH. 80/40 ASTM 1785



EXISTING POOL ELEVATION
⅛" = 1'-0"
3



SITE MAP

SHAMROCK ENTERPRISES

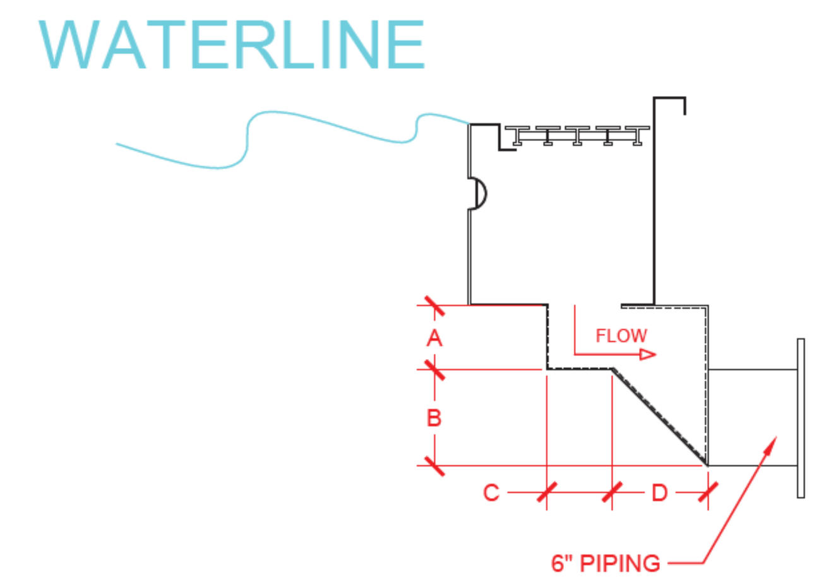
ANDERSON HIGH SCHOOL
7560 FOREST RD.
CINCINNATI, OH 45255

SCALE: 1/8" = 1'

DRAWN BY	CHECKED BY
BEN LYKINS	ROB HUMBERT

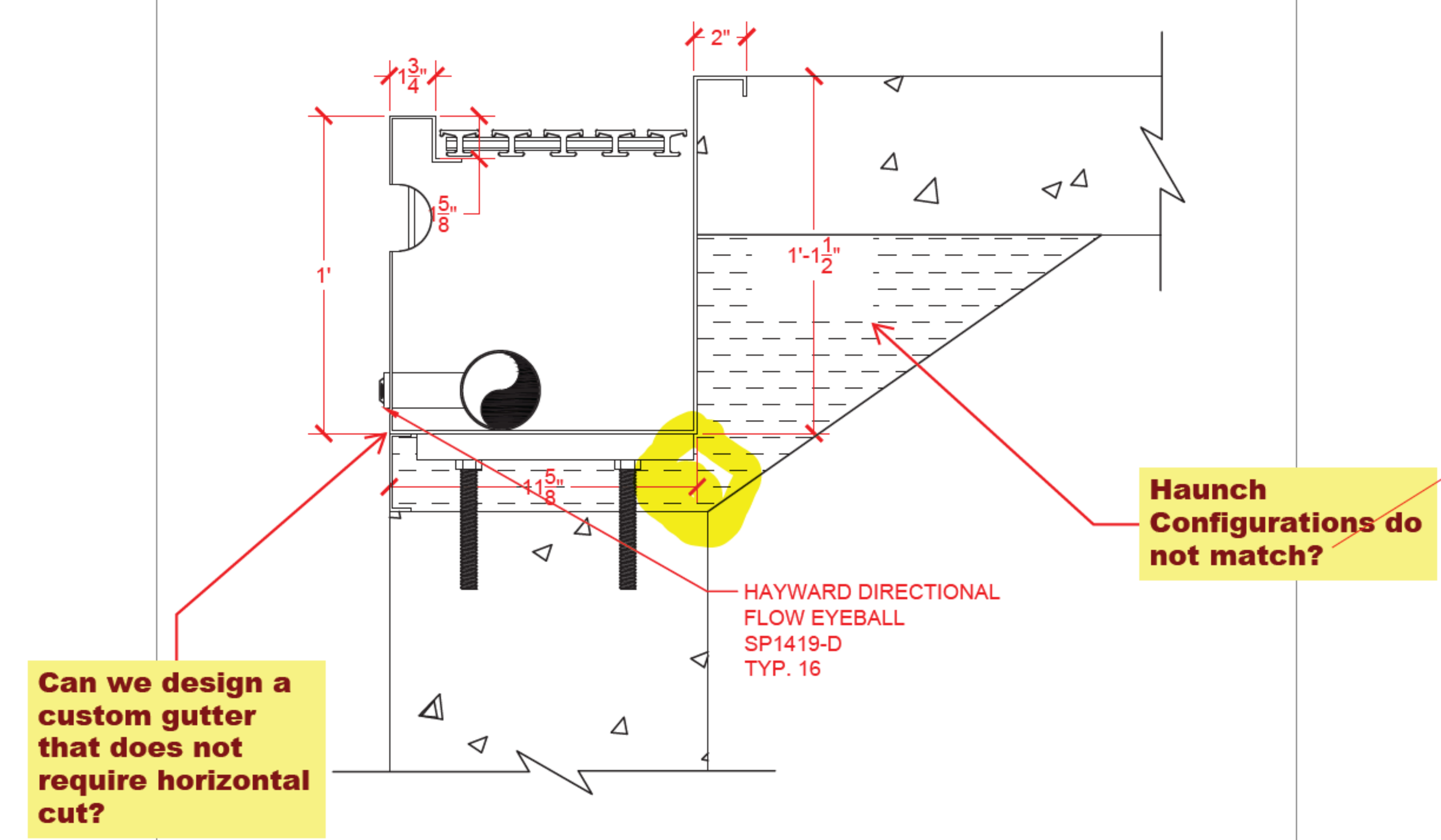
DATE:	JOB #
12/31/19	

SHEET 1 OF 5

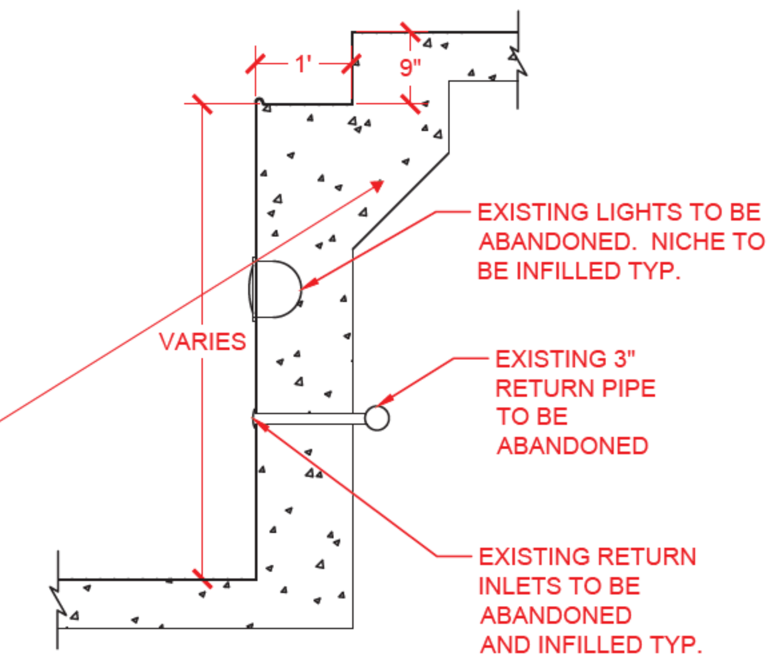


SIZE NPS	GPM@ 3.57FT/S	GPM@ 5.36FT/S	BOX W DTH	A	B	C	D
6"	500	750	18"	4"	6"	5"	6"

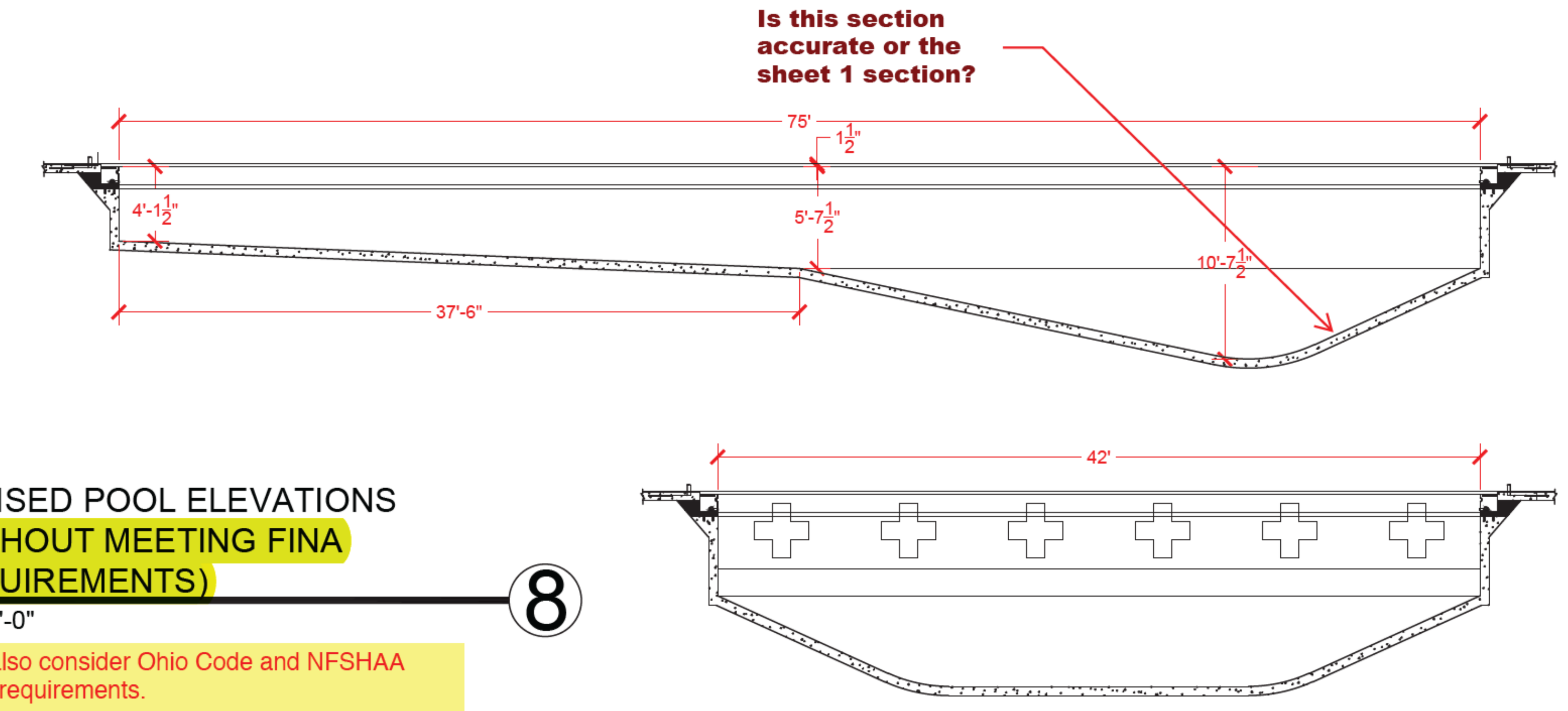
GUTTER OUTFALL DETAIL 1
5/8" = 1'-0"



NEW GUTTER DETAIL 2
1 7/8" = 1'-0"

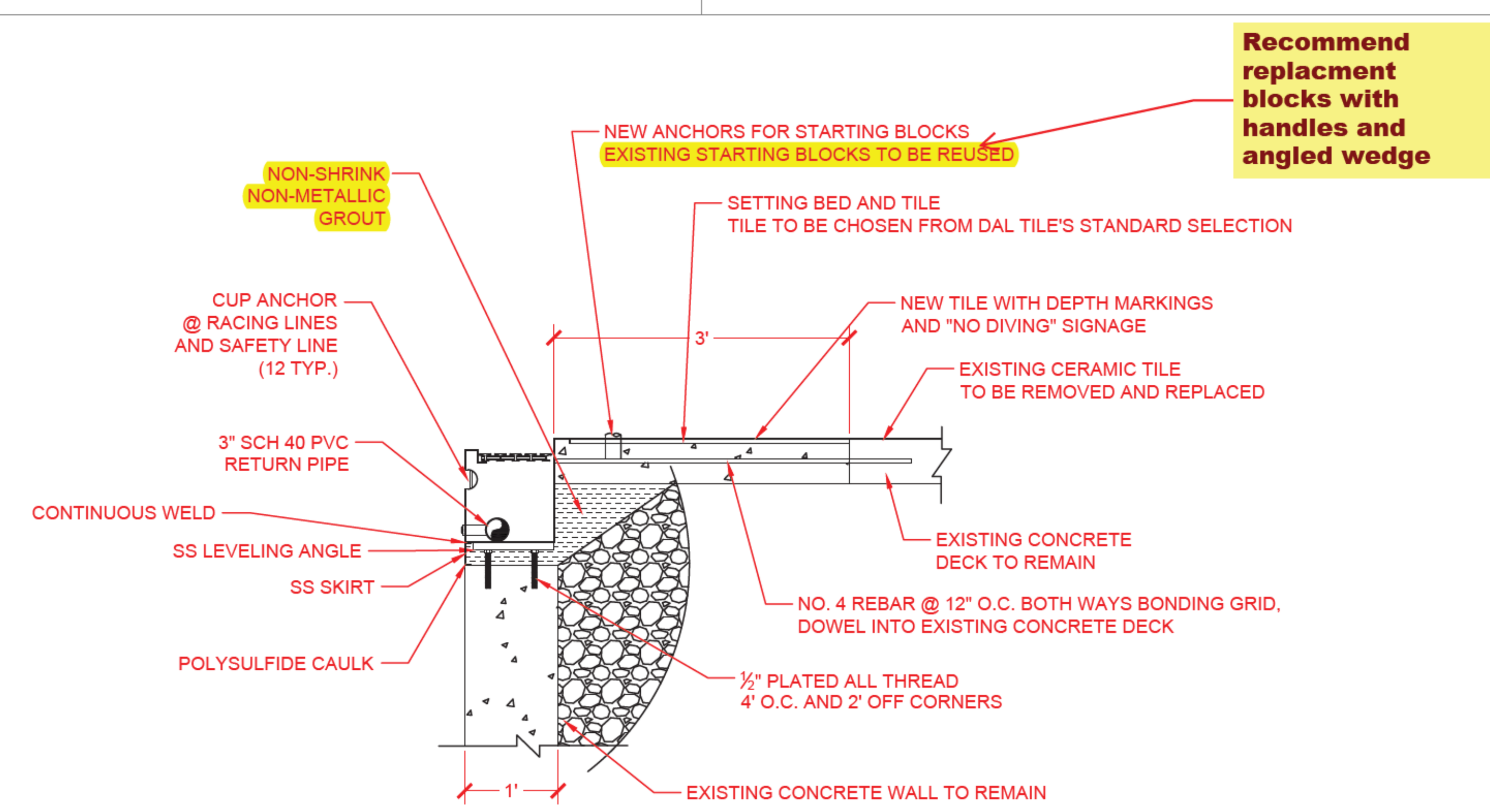


EXISTING WALL AND GUTTER DETAIL 3
½" = 1'-0"



REVISED POOL ELEVATIONS
(WITHOUT MEETING FINA REQUIREMENTS) 8
1/8" = 1'-0"

Must also consider Ohio Code and NFSHAA diving requirements.

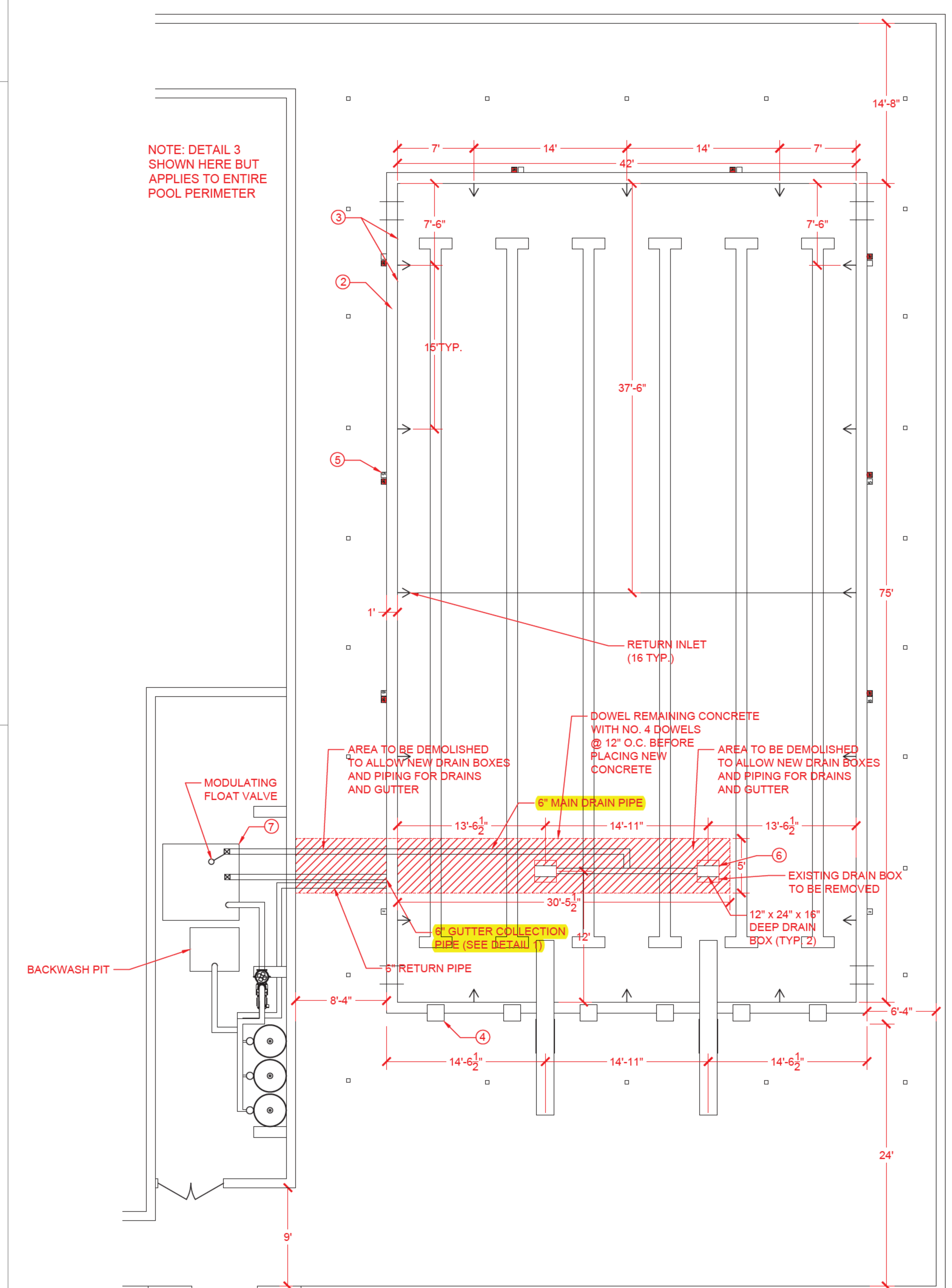


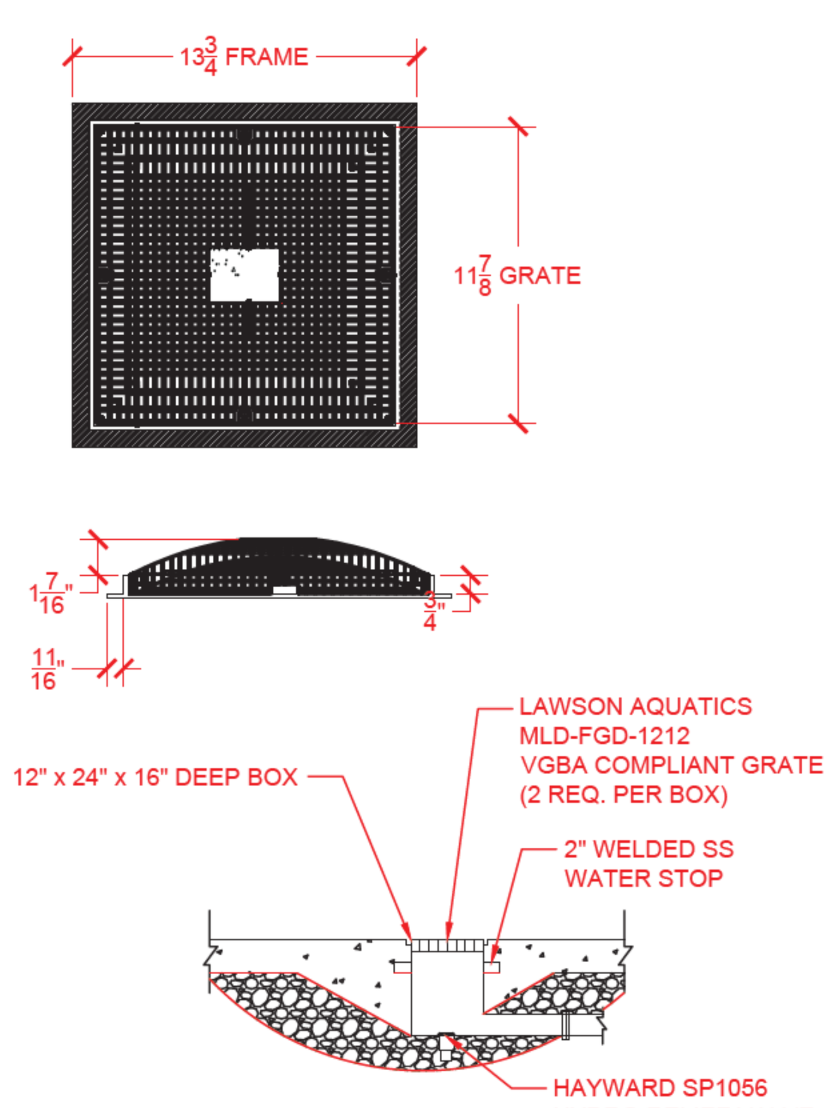
RENOVATED WALL DETAIL 4
5/8" = 1'-0"

DEPTH MARKING AND NO DIVING TILES PLACED AS NEEDED
DEPTH CHANGED AS REQUIRED

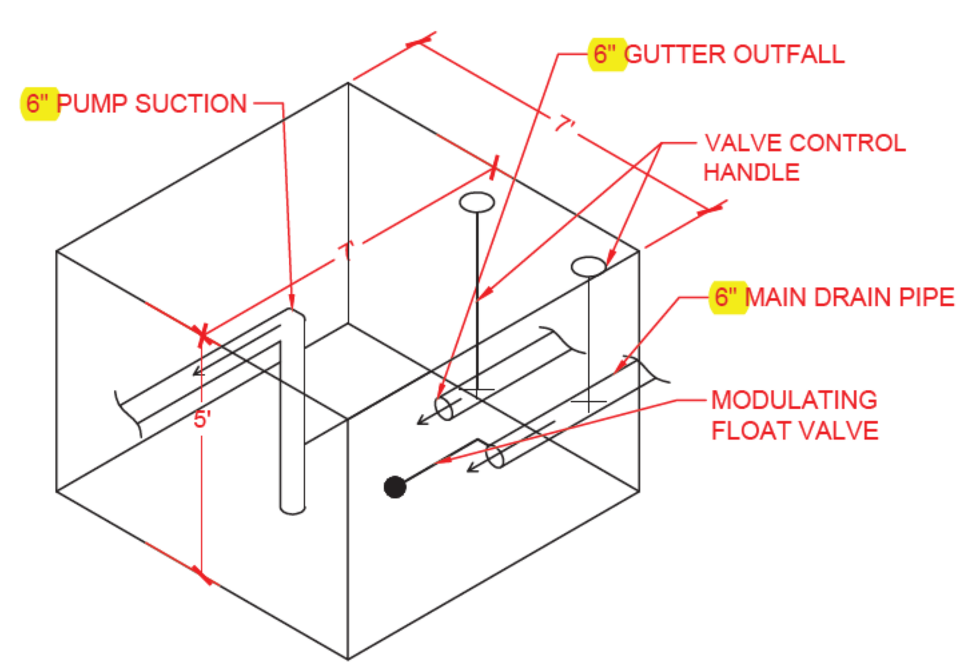
DEPTH MARKING DETAIL 5
2 ½" = 1'-0"

NOTE: DETAIL 3 SHOWN HERE BUT APPLIES TO ENTIRE POOL PERIMETER





MAIN DRAIN BOX AND GRATE DETAIL 6
NO SCALE



SURGE TANK DETAIL 7
¼" = 1'-0"

SHAMROCK ENTERPRISES

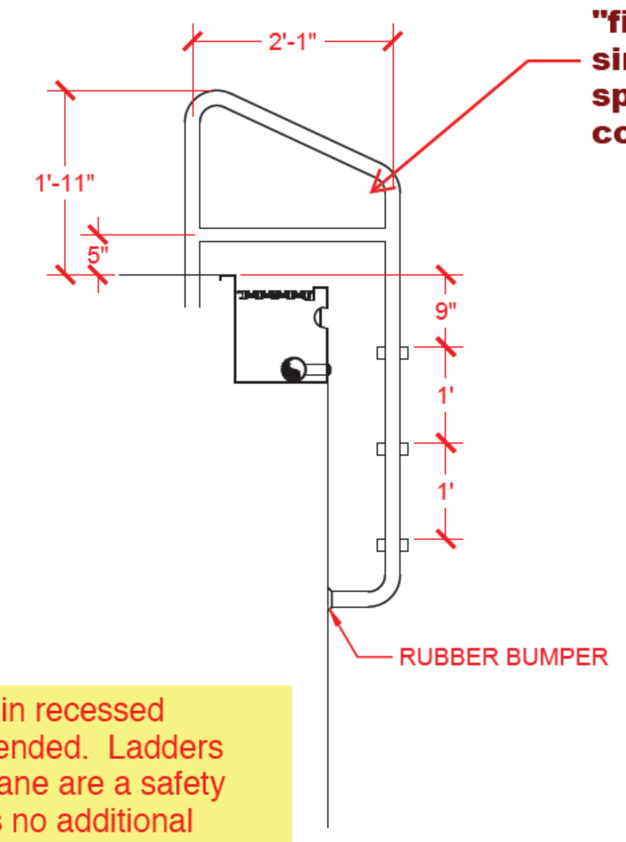
ANDERSON HIGH SCHOOL
7560 FOREST RD.
CINCINNATI, OH 45255

SCALE: 1/8" = 1'

DRAWN BY	CHECKED BY
BEN LYKINS	ROB HUMBERT

DATE:	JOB #
12/31/19	

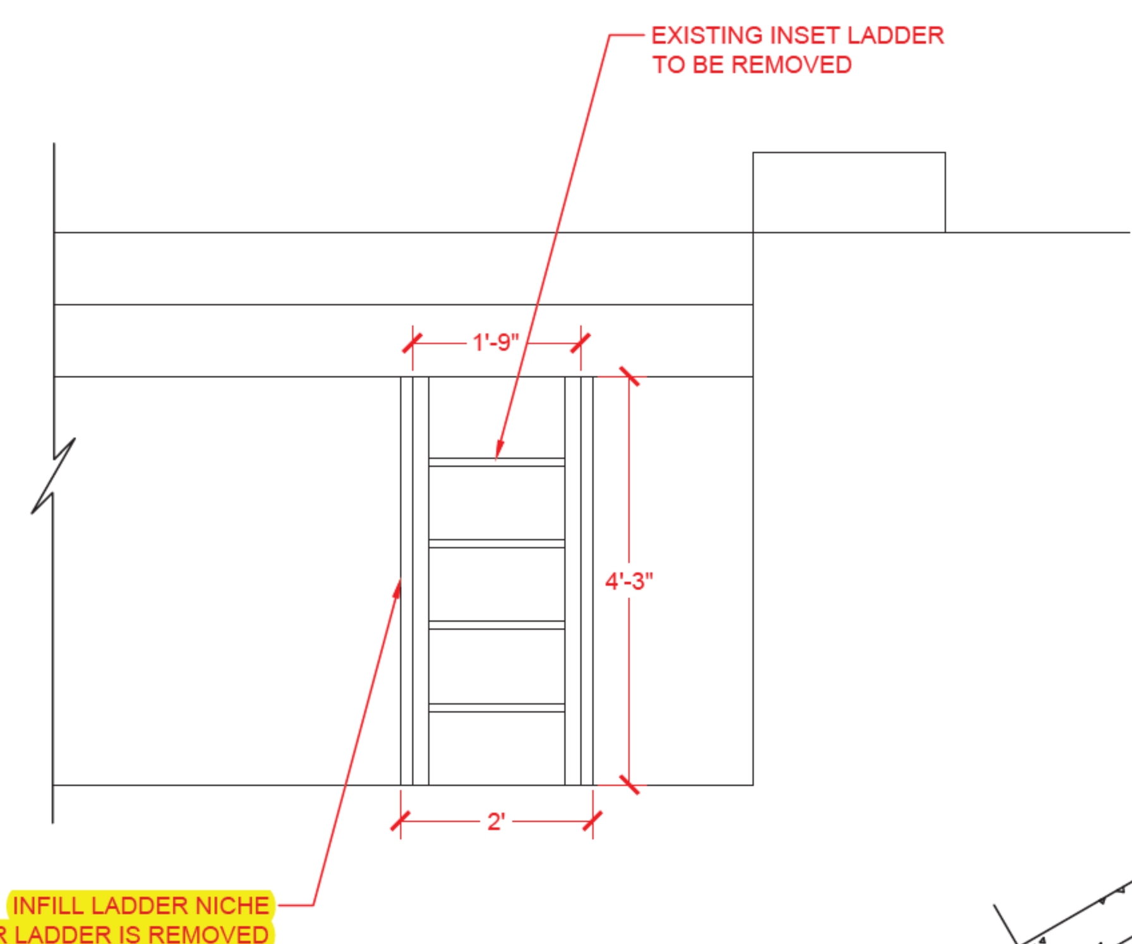
SHEET 2 OF 5

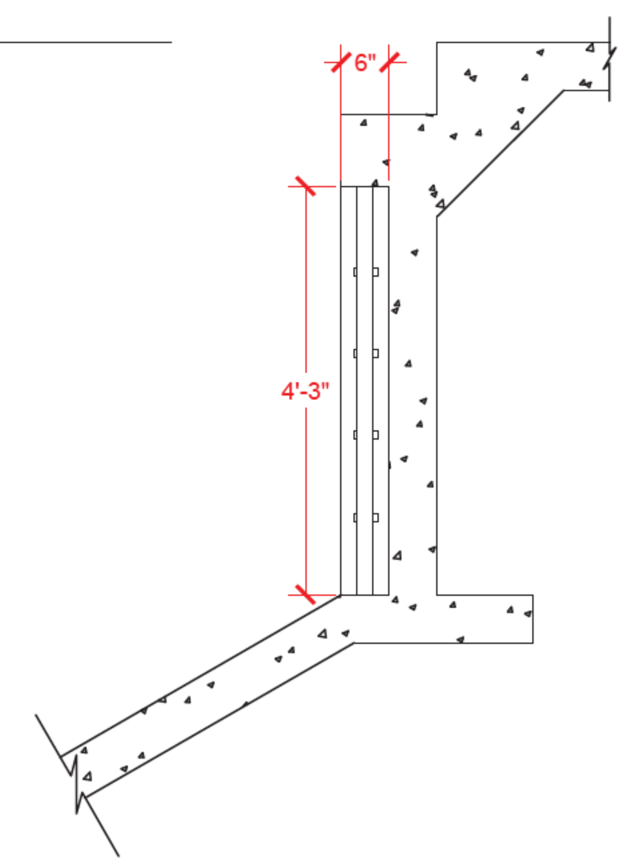


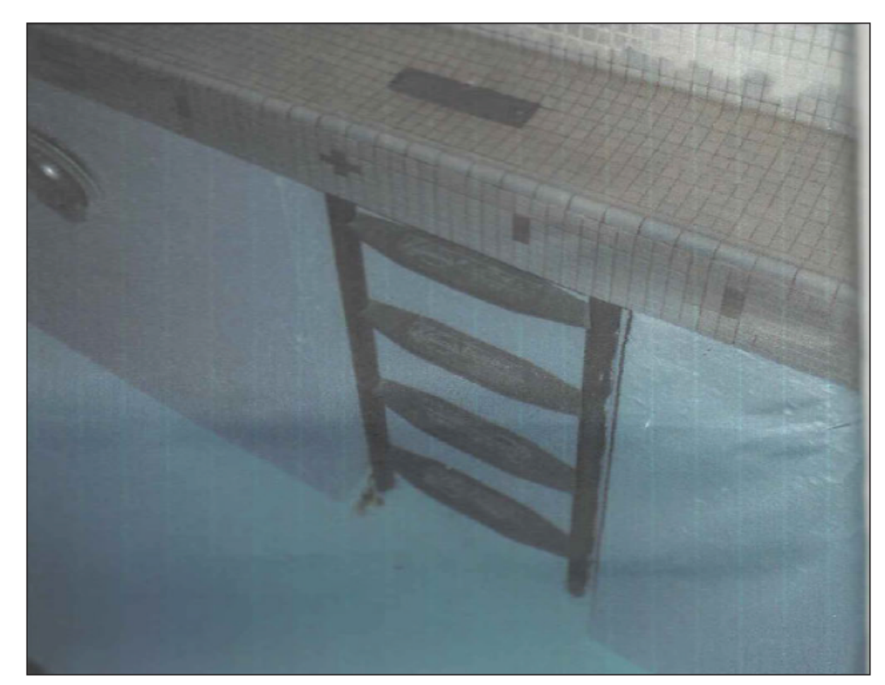
This is within the "field of play" since no buffer space...safety concern.

Keeping the ladders in recessed condition is recommended. Ladders that extend into the lane are a safety risk and the pool has no additional space next to the side walls.

OVERHANG LADDER DETAIL (TYP.4) ①
½" = 1'-0"

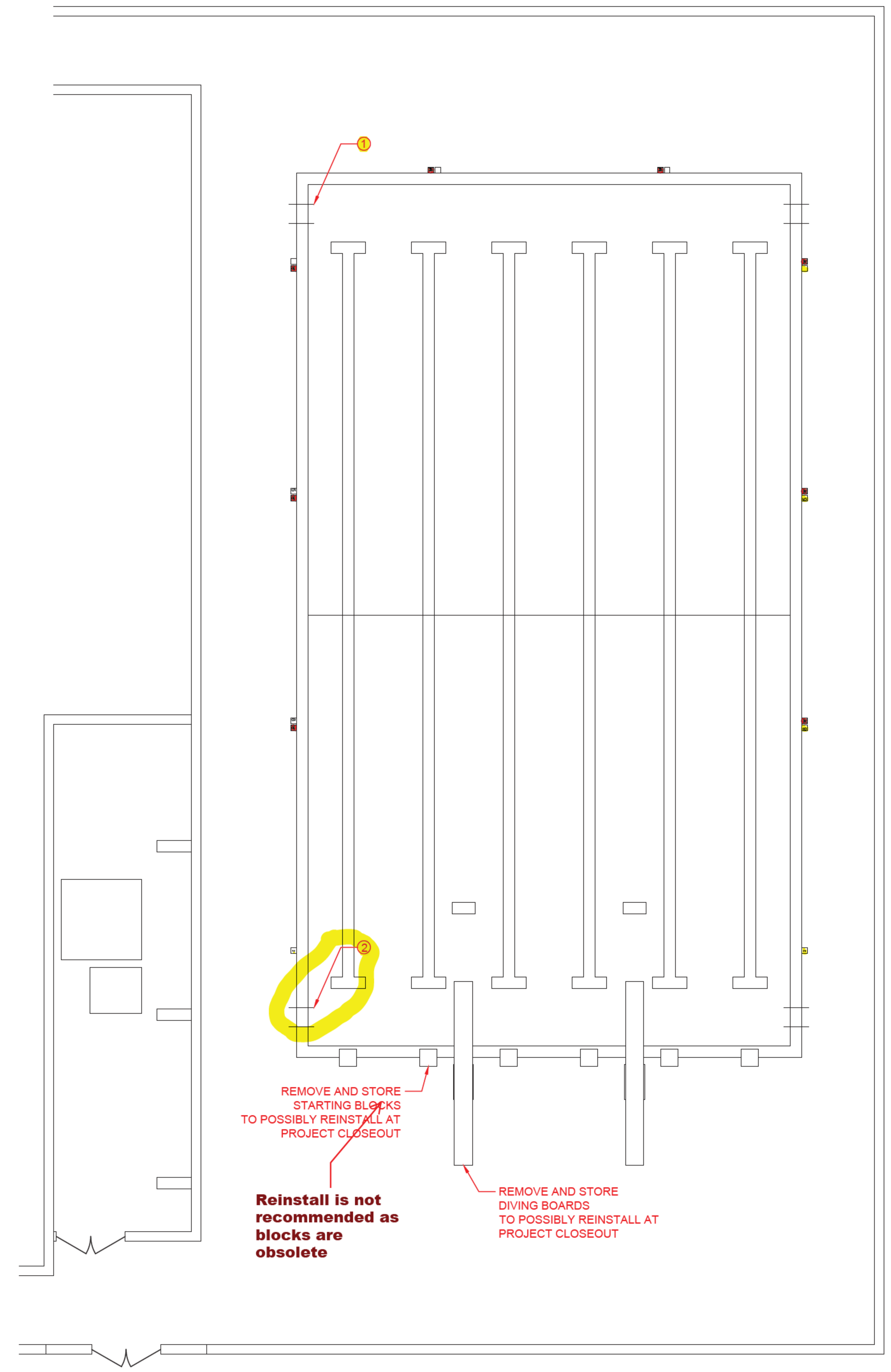






Keeping the ladders in recessed condition is recommended. Ladders that extend into the lane are a safety risk and the pool has no additional space next to the side walls.

EXISTING INSET LADDER DETAIL (TYP. 4) ②
½" = 1'-0"



Reinstall is not recommended as blocks are obsolete

SHAMROCK ENTERPRISES
SHAMROCK ENTERPRISES HAMILTON, OH 45013 513-931-9641 FAX 513-931-9644
E-MAIL SHAMROCKPOOLS@FUSE.NET

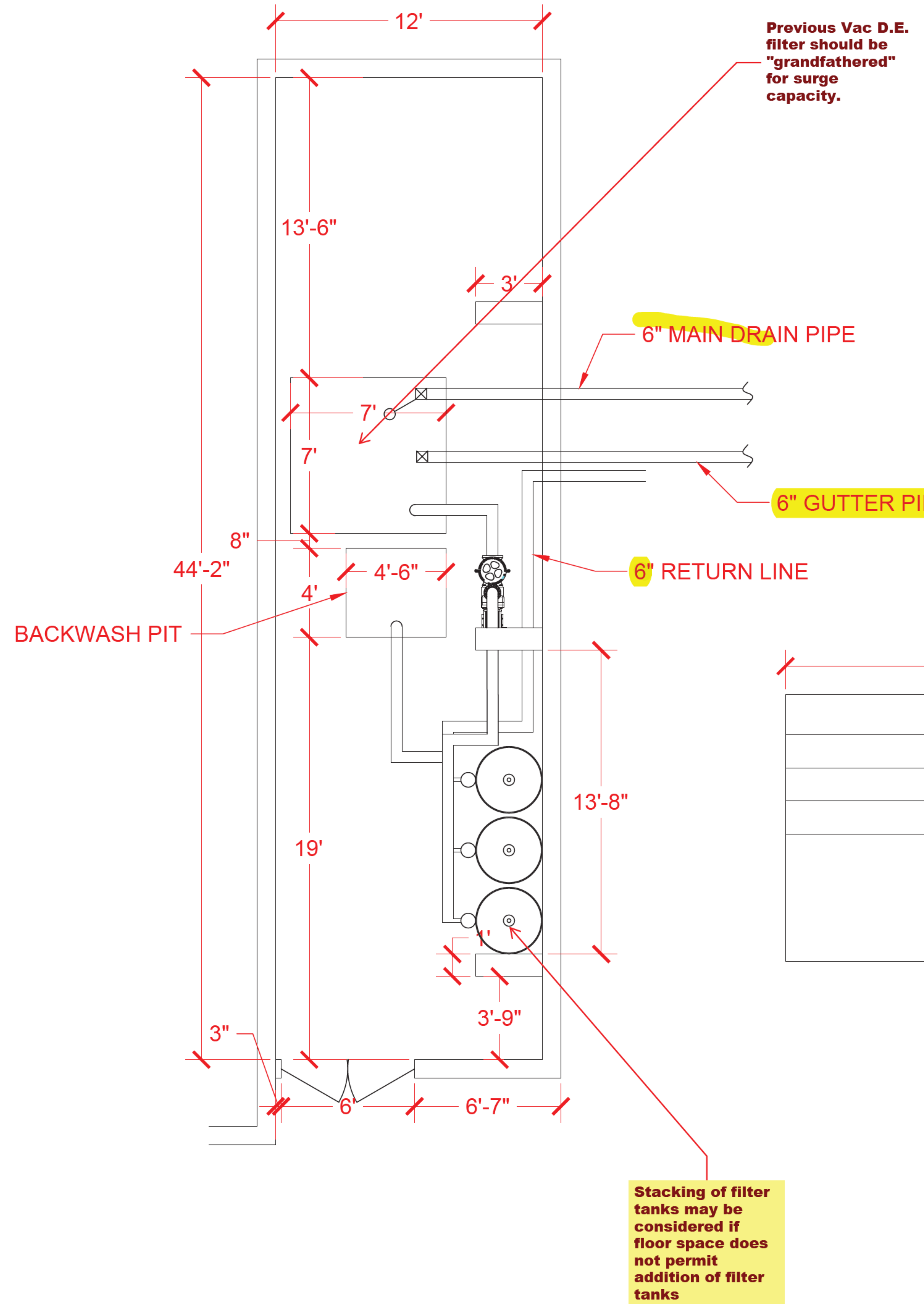
ANDERSON HIGH SCHOOL
7560 FOREST RD
CINCINNATI, OH 45255

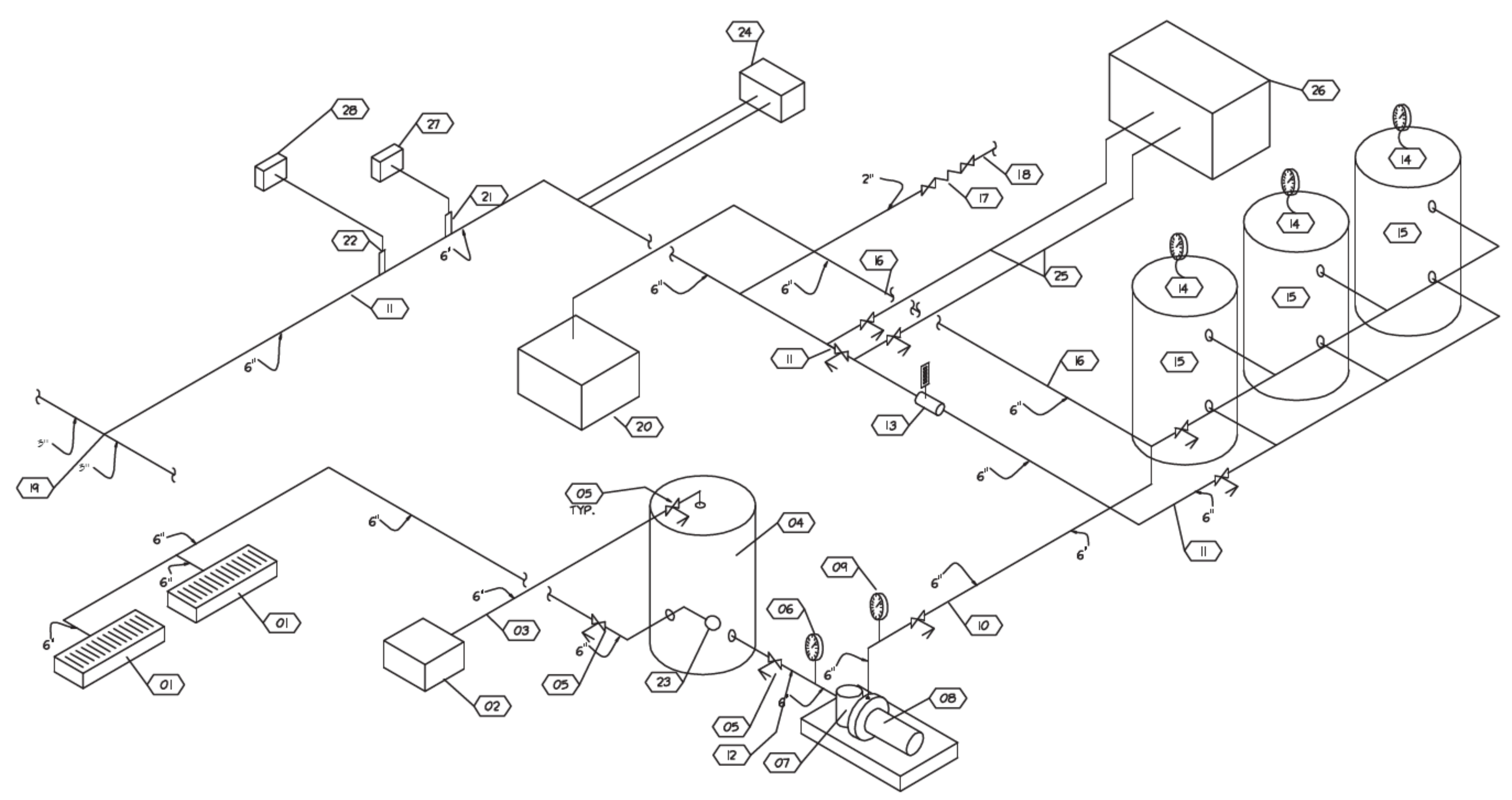
SCALE: 1/8" = 1'

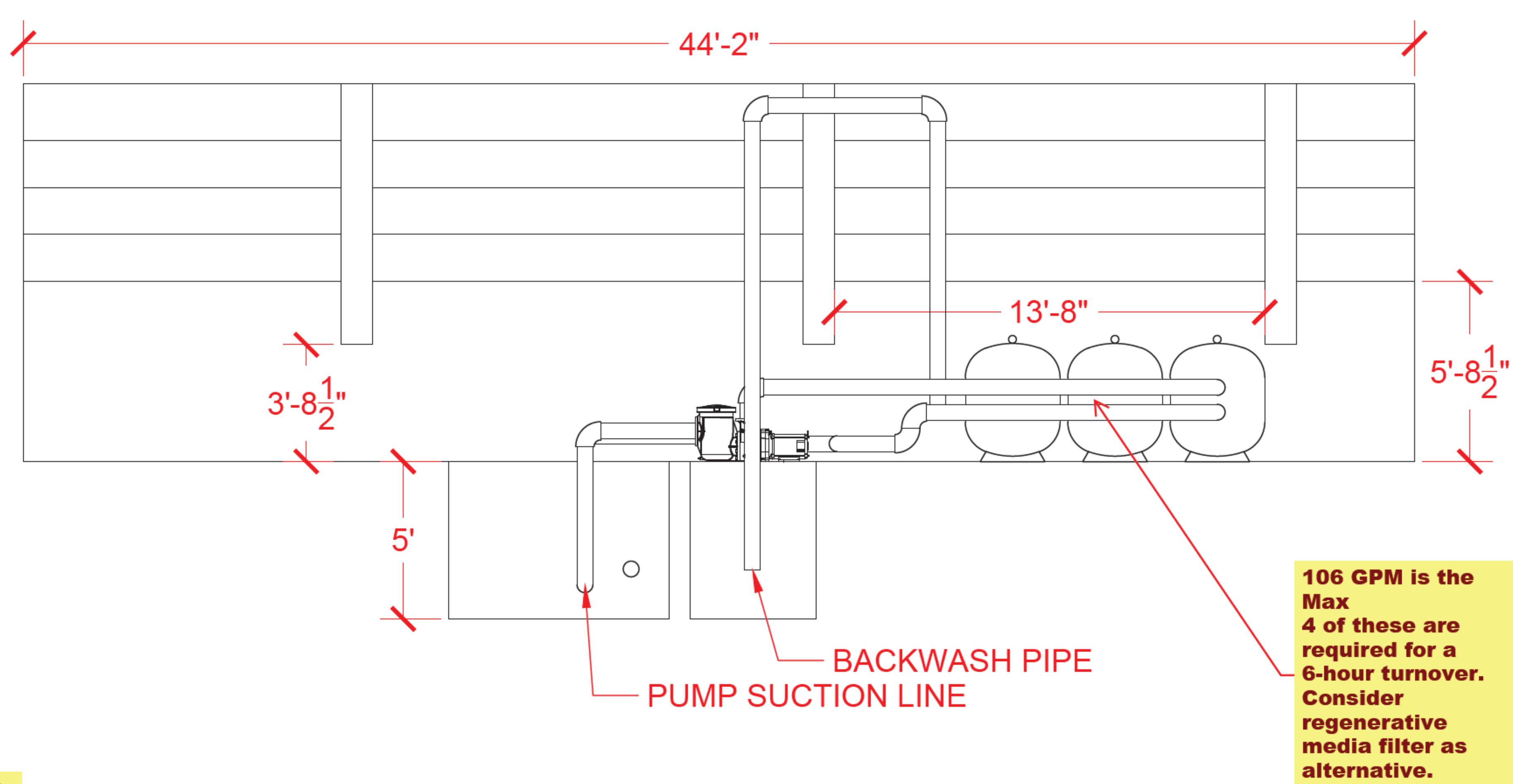
DRAWN BY	CHECKED BY
BEN LYKINS	ROB HUMBERT

DATE:	JOB #
12/31/19	

SHEET 3 OF 5







POOL CODED NOTES

1. MAIN DRAIN BOX - 304 STAINLESS STEEL 12" x 24" x 16" DP.(2 TYP.)
2. GUTTER COLLECTION BOX - 304 STAINLESS STEEL - SIZE AS NOTED ON DETAIL
3. GRAVITY PIPING FROM GUTTER BOX TO SURGE. ALL PIPE TO BE SCH. 80 PVC. SEE PIPE PLAN FOR SIZE
4. SURGE TANK (VOLUME = 1,788 GALLONS; DIMENSIONS: 5' x 7' x5' DEEP)
5. TYPICAL BUTTERFLY VALVE - VALVE TO MATCH PIPE SIZE TO WHICH IT IS CONNECTED
6. COMPOUND VACUUM AND PRESSURE GAUGE
7. HAIR AND LINT STRAINER
8. E.Q. 7.5 Hp PUMP
9. PRESSURE GAUGE
10. SCHEDULE 80 PVC
11. SCHEDULE 80 PVC PRESSURE (RETURN WATER)
12. SCHEDULE 80 PVC PIPING
13. FLOW METER BLUE WHITE MODEL NO. 600 250 TO 1050 GPM
14. PRESSURE GAUGE - SUPPLIED WITH FILTER TANK
15. TR140C SAND FILTER (TYP. 3)
16. SCHEDULE 80 PVC (BACKWASH PIPE)
17. 2" BACK FLOW PREVENTER. BY OTHERS
18. 2" COPPER DOMESTIC WATER LINE FROM DOMESTIC WATER SYSTEM TO BACK FLOW PREVENTER
19. PVC RETURN T (6" x 3")
20. EXISTING SUMP PIT IN MECHANICAL ROOM TO REMAIN
21. MURATIC ACID INJECTOR INTO WATER RETURN PIPE
22. CHLORINE INJECTOR INTO WATER RETURN PIPE
23. MODULATING FLOAT VALVE IN SURGE TANK
24. CHEMICAL ANALYZER TO BE REUSED
25. PIPING TO POOL HEATER
26. POOL HEATERS (EXISTING)
27. ACID PUMP FLEX FLO A1N30A-6T 30 GPD AT 75 PSI
28. CHLORINE PUMP FLEX FLO A1N30A-7T 95 GPD AT 50 PSI

Consider automatic water level controller in surge tank

10 HP with VFD is recommended

Magmeter is recommended for communication with VFD

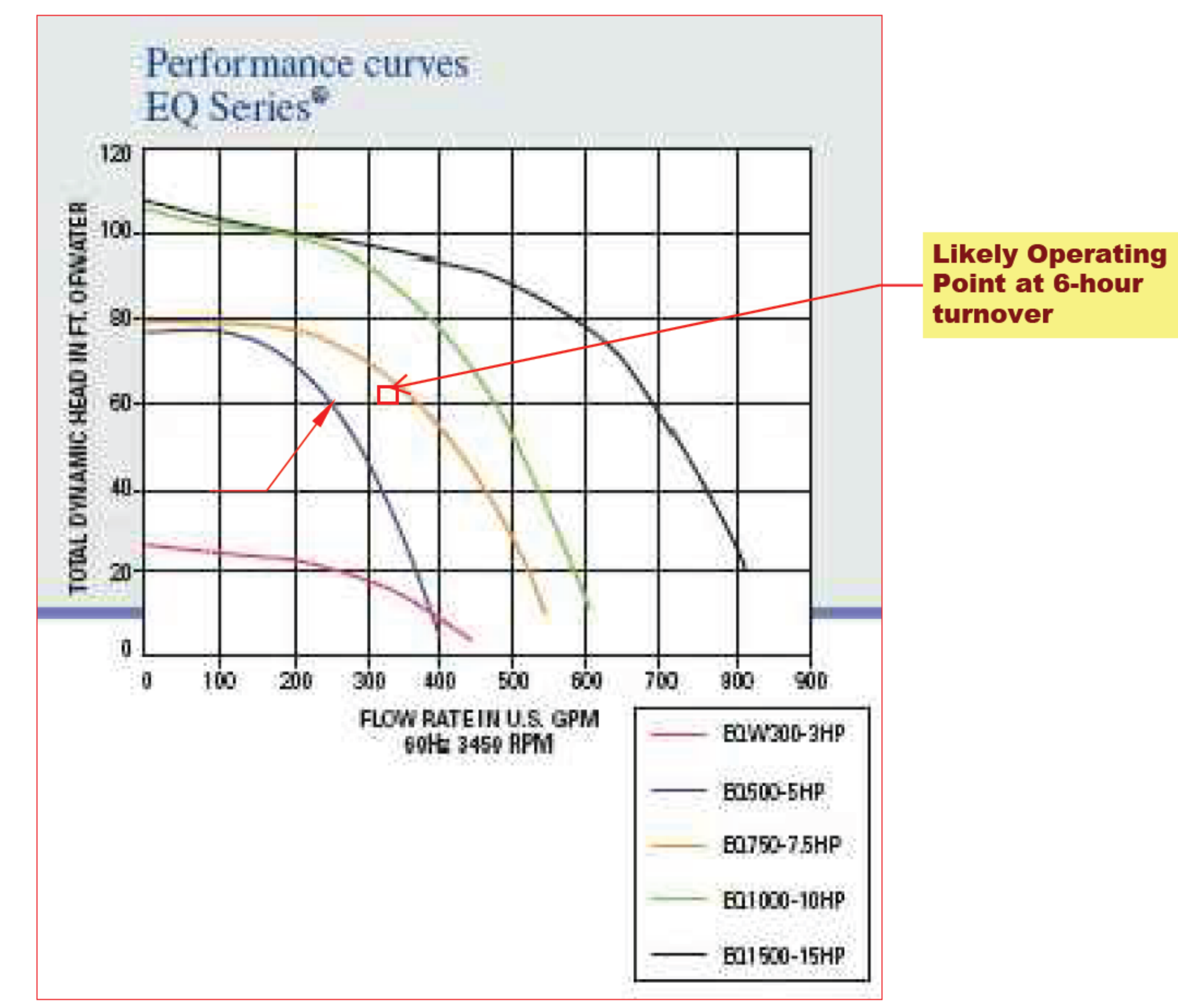
4 recommended

Condition/type - Consider replacement

POOL DATA

SURFACE AREA: 3,150 FT²
VOLUME: 155,000 GALLONS
TURN OVER RATE: 8 HRS
FLOW RATE: 323 GPM

6 HRS is recommended 430 GPM



PUMP CURVE

SHAMROCK ENTERPRISES

SHAMROCK ENTERPRISES HAMILTON, OH 45013 513-931-9641 FAX 513-931-9644
E-MAIL SHAMROCKPOOLS@FUSE.NET

ANDERSON HIGH SCHOOL
7450 FOREST RD
CINCINNATI, OH 45255

SCALE: 1/4" = 1'

DRAWN BY	CHECKED BY
BEN LYKINS	ROB HUMBERT

DATE:	JOB #
12/31/19	

SHEET 4 OF 5

SHAMROCK ENTERPRISES
SHAMROCK ENTERPRISES HAMILTON, OH 45013 513-931-3641 / FAX : 513-931-3644
E-MAIL: SHAMROCKPOOLS@FUSE.NET

ANDERSON HIGH SCHOOL
7560 FOREST RD.
CINCINNATI, OH 45255

SCALE: 3/8" = 1'

DRAWN BY	CHECKED BY
BEN LYKINS	ROB HUMBERT

DATE:	JOB #

SHEET 5 OF 5