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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Weatherby Elementary School

Basic Property Information: COD 7-Weatherby-12099 Fielding

Short Name:	Weatherby
Address:	12099 Fielding Street, Detroit, Michigan 48228
Year Built:	1956
Additions Built:	None
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	180 feet x 180 feet
Square Footage:	27,418 sq. ft.
Number of Stories:	2
Building Height:	29 ft.

Current Ownership:	City of Detroit
City Council District:	7
SNF District:	NA

Structural Framing System:	■ Cast-in-Place Concrete ■ CMU ■ Cold-Formed Steel Deck
Exterior Wall System:	■ Brick Masonry ■ Limestone ■ Storefront
Window System(s):	■ Aluminum ■ Storefront ■ Steel-framed ■ Glass Block
Roofing System(s):	■ Built-Up Roof ■ Modified Bitumen ■ Internal Roof Drains ■ Stone Ballast

Assessment Summary

Assessment Date:	March 05, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush; Justin Barden, Meredith Crouch
Report Date:	November 16, 2020
Building Risk Index:	**21.33**

Cost Estimate

Base Rehabilitation Cost Estimate:	$427,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,193,440
Sub-Total	$3,521,140
Contingency (25%):	$880,285
Sub-Total	$4,401,425
Overhead and Profit (15-18%):	$792,256
Sub-Total	$5,193,681
Escalation (6% for 2 years)	$311,620
Sub-Total	$5,505,302
Architectural and Engineering Design Services (20%):	$1,101,060
TOTAL COST ESTIMATE:	$6,606,362

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The basement level is flooded, and thus, was not accessed. The interior finishes consist of durable materials including painted masonry, concrete and metal decking, and are generally intact. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building, constructed in 1957, is "L" shaped in plan. A powerhouse is located on the far north end of the building footprint, while the gymnasium and auditorium are located on the west and southwest ends of the building, respectively.

The facade generally consists of brick masonry veneer and limestone sill units over concrete masonry (CMU) backup. Ribbon windows contain glass block infill with operable metal-framed windows within lower lites. The glass block infill and operable units sit within steel frames constructed of C-shaped and I-shaped members. Aluminum storefront assemblies are present in select locations, such as stairwells and entrances. The internally drained, low-slope roof assembly consists of a gravel surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing and an aluminum coating. The sloped roof area over the gymnasium consists of granular modified bitumen roofing which is internally drained near the exterior walls. The roof structure extends outward past the exterior walls to create an overhang around the building perimeter.

The building structure consists of long span metal deck for concrete tee joist-slab construction supported by a concrete beam and column system. A localized area above the second-floor corridor is constructed of a flat concrete slab; the remaining corridor ceiling consists of a gypsum plank ceiling system which is suspended from the concrete flat slab of the roof above. Painted CMU walls infill the space between the concrete beams and columns; glazed masonry units are used in the lower portions of the corridor walls. The gymnasium structure consists of concrete encased steel bent frames with perforated metal panels spanning between the frames. The auditorium construction is similar to the gymnasium excepting the bent frames are simple span dropped beams.

In general, the building is in good condition with limited deterioration observed within the structural systems, facade, and interior finishes due to localized water infiltration into the building. The window and storefront assemblies are generally intact and can be repaired in-place. Maintenance-type roofing repairs should be completed to extend the service life of the existing roof assemblies, and mitigate further water infiltration into the building interior. Additional evaluation of the metal formed floor and roof structures is also recommended to confirm the metal deck on the underside of the structure is a form for the cast-in-place concrete structure. Further detail of the observed distress is provided below.

Facade

The masonry facade is generally in good condition. Minor localized cracking of the brick masonry is attributed to corrosion of embedded or adjacent steel elements. Isolated limestone sill units are cracked or spalled due to corrosion of the embedded anchors and perimeter steel window frames, and mortar between the stone units is generally cracked, debonded, or missing. Some sills are displaced. Vertical cracks in the brick masonry were observed at the corners of the chimney, though notable displacement was not observed. Rehabilitation of the building should include maintenance repairs to address the conditions above and to mitigate further masonry distress. These recommended repairs include grinding and pointing distressed mortar, replacing isolated cracked brick units, repairing or resetting limestone sills as needed, and repair of the corroded steel lintels with durable flashing details.

The soffit below the roof level overhang around the building perimeter exhibits localized areas of water staining, cracked and peeling paint, and isolated regions of minor cracking and spalling due to water infiltration through the roof assembly. The perimeter metal trim conceals the edge of the assembly. The condition of the concrete roof slab in these areas should be investigated to determine if structural repairs are required. The exposed areas of the soffit should be cleaned and repainted.

The operable, metal-framed windows exhibit limited cracked glass lites and widespread perimeter sealant failure. Localized glass block units above the operable windows are displaced, damaged, or missing. Corrosion of the perimeter steel frames is visible from the exterior and interior, and has caused localized cracking of adjacent masonry units. The storefront assemblies are in serviceable condition with sealant failure and localized cracked glass units observed. The conventional steel doors are generally corroded and damaged. The windows and storefront assemblies may be restored, though the conventional steel doors should be replaced.

Roofing

The roofing assemblies are in serviceable condition and exhibit only localized areas of distress, including weathering, seam failures, cracking, ponded water, and organic growth. Failure of sealants was also observed at roof penetrations and at counterflashings. Minor water damage to the building interior finishes and structural elements was observed in limited areas due to failed drains and drain conductors, which should be replaced or repaired. Rehabilitation of the building should consider maintenance repairs in localized areas to extend the service life of the existing roof assembly and to mitigate future water-related distress within the building interior or exterior wall assemblies.

Structure

The building structure is in excellent condition with minimal visible distress in the concrete systems or in the glazed tile and painted concrete masonry walls, excepting isolated locations where vandals have damaged the walls.

Minimal corrosion and paint loss have occurred on the underside of the concrete and long span metal deck systems of the classrooms and common spaces. The metal deck[1] is fire damaged in the art room and at the second-floor stairwell. Neither corrosion nor fire damage of the metal deck are a structural concern if the deck was used as a form deck for the concrete structure, but this could be a structural concern if it is behaving compositely with the concrete. Additional investigation would be required to determine if the deck is composite. At a minimum, the exposed steel is recommended to be cleaned and re-coated with a rust inhibiting paint as part of the rehabilitation effort.

The underside of the concrete joist slab system of the roof structure exhibits corrosion staining, exposed reinforcement, and efflorescence in isolated areas. These conditions are most prevalent throughout the roof structure above the boiler room. Preventing the water infiltration into the boiler room roof structure via implementation of localized roofing repairs will prevent the need for extensive concrete repairs in this

[1] Initial review of the 1950s era long span metal deck system indicates the decking is acting non-compositely with the concrete tee joist-slab, that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a “composite” concrete floor system.

area in the future. Cleaning of the underside of the roof structure that is exposed to the interior space will allow for assessment of the existing concrete. Minimal partial depth concrete repairs are anticipated for this roof structure.

Approximately two feet of ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

Miscellaneous

Vertical cracks exist in the CMU in multiple locations, which most are attributable to inadequate support, water infiltration, and thermal or volumetric changes in the wall materials. Previous repair of the corner cracking at the exterior wall of the stage has recurred. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

PLOT PLAN

WEATHERBY SCHOOL

BOARD OF EDUCATION
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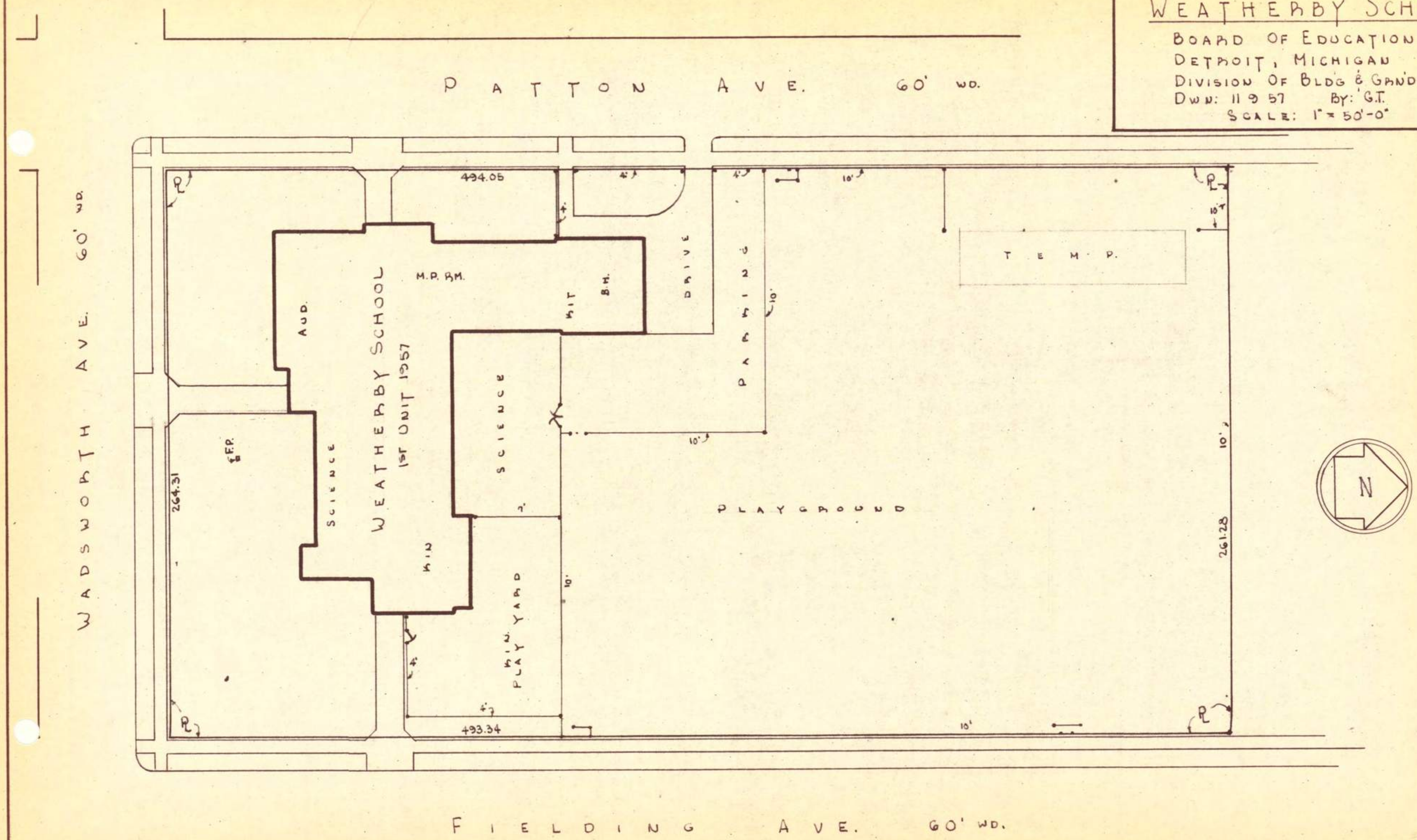
DIVISION OF BLDG & GRNDS
DWN: 11 9 57 BY: G.T.
SCALE: 1" = 50'-0"



WEATHERBY SCHOOL

BASEMENT PLAN
SCALE 1/32"=1'-0"

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICH.

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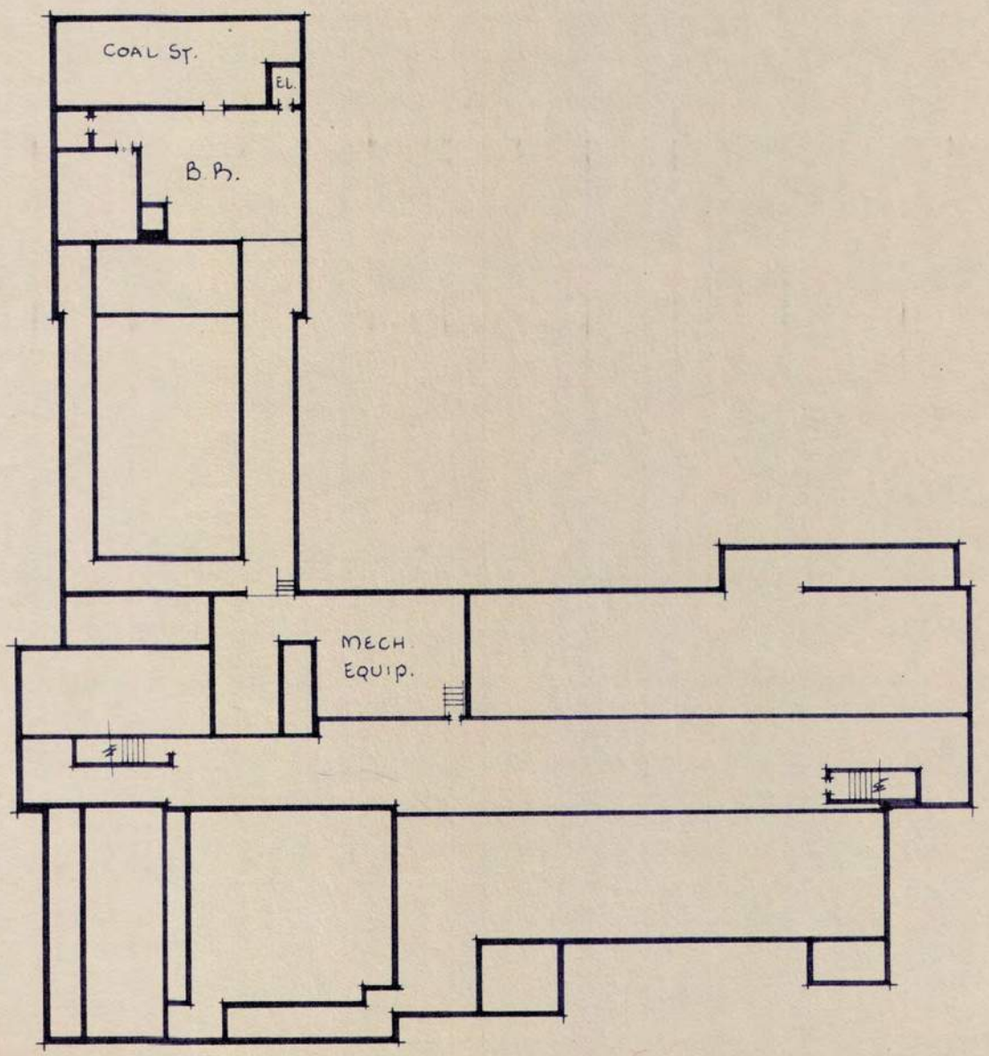

WEATHERBY SCHOOL
FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICH

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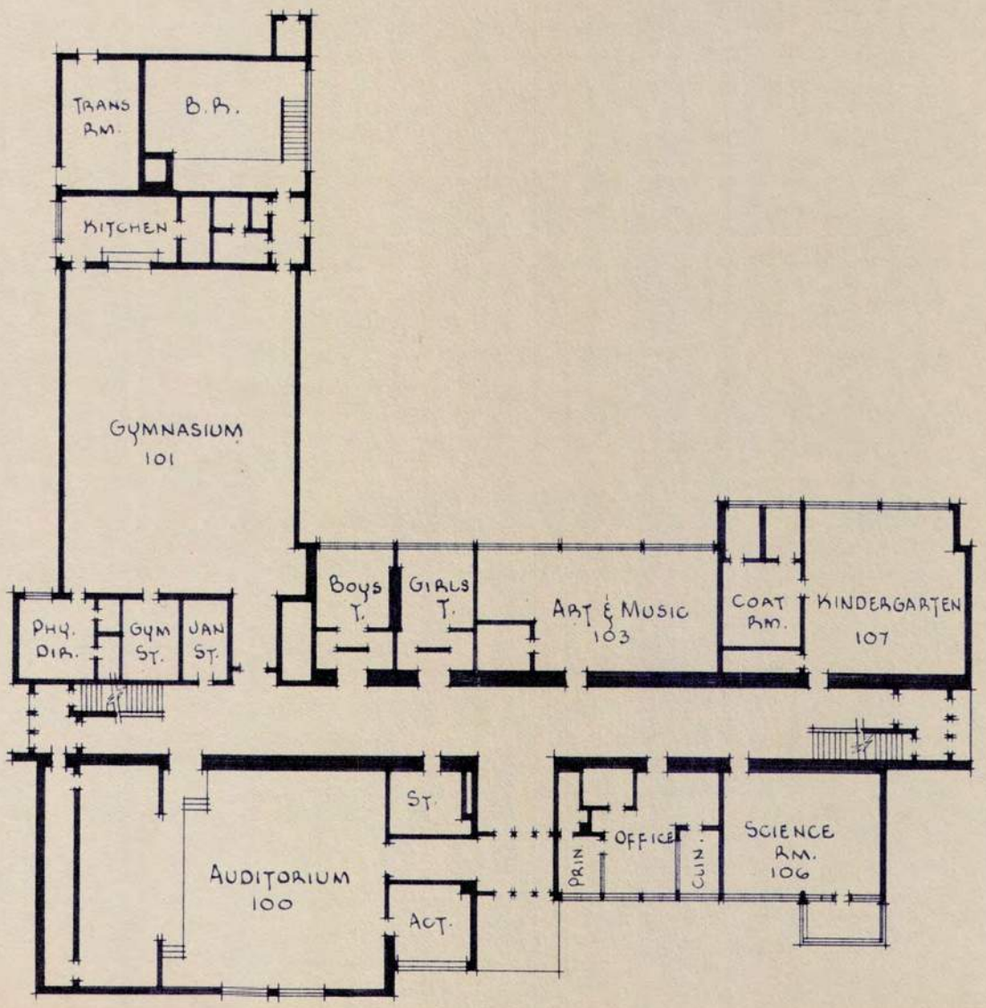

WEATHERBY SCHOOL
SECOND FLOOR PLAN
SCALE 1/32"-1'-0"

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICH

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