MIAMIBEACH

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COMMISSION MEMORANDUM

TO: Mayor Philip Levine and Members of the City Commission

FROM: Jimmy L. Morales, City Manager

DATE: April 13, 2016

SUBJECT: **A DISCUSSION REGARDING INTERIOR FLOODING AT THE BYRON CARLYLE THEATER.**

BACKGROUND

In September 2015, O Cinema notified the City of excessive flooding in the interior low areas of the Byron Carlyle Theater. Initial investigation of the flooding indicated the water was penetrating the facility through the slab, which coincided with the king tide cycle. The City's Property Management Division contracted with Douglas Woods and Associates, Inc. (structural engineers) to provide a condition assessment, a copy of the report is attached for your reference.

In order to address the water intrusion from the floor slab, the following options should be considered:

1. **Raise Existing Restroom Floor**: This can only be accomplished if there is sufficient headroom to the structure above. If possible, this would require a complete demolition and reconstruction of the restrooms. Such construction would be fairly expensive.

2. **Abandon Existing Restrooms and Reconstruct Restrooms Elsewhere**: If an area is available elsewhere, at the main ground-floor level, new restrooms could be constructed. Such new restrooms, however, would still likely be well below the current Design Flood Elevation (DFE). The abandoned restroom area would also still be subject to flooding with its negative effects.

3. **Demolish Existing Restrooms and Reconstruct with "Dry-Floodproofed" Construction**: It is allowed to "dry-floodproof" non-residential uses. In the case of the present location of the restrooms, dry-floodproofing would require a complete demolition of the existing non-structural construction in the area. It would also require removal of the existing concrete floor slab. It would also likely require removal of existing masonry walls around the restroom area and replacement with appropriately reinforced concrete or masonry walls. The floor slab would need to be replaced with a structurally reinforced concrete slab capable of resisting the DFE flood. Tension piles (to resist upward loads) would also be required at some spacing. The new slab and all perimeter walls

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up to the DFE would need to be waterproofed. Any openings below the DFE would need to be protected with appropriately designed flood panels. Sanitary drain pipes would need to be equipped with backflow preventers to prevent reverse flow through the pipes into the space. It would also be prudent to provide an automatic sump pump.

None of the options discussed above would protect other building areas from king tide flooding or from tidal surge associated with hurricanes as the building itself is below base flood elevation requirements. Therefore, consideration should also be given to redevelopment of the site.

Long range planning efforts with the community in North Beach have identified the number one goal of developing a vibrant commercial district with shopping, restaurants, culture and entertainment to serve the needs of North Beach residents. The area bounded by 72 Street, Collins Avenue, 69 Street and Indian Creek Drive/Dickens Avenue was selected to be the "Town Center" due to its centralized location, high density CD-3 zoning and relatively pedestrian-friendly streets (compare 71 Street with one lane of traffic in each direction to Collins Ave with three lanes of one-way traffic or Normandy Village with 6 lanes of traffic). Two retail market reviews have demonstrated the capacity of the population to support several hundred thousand square feet of new retail development. Yet with no existing base of quality retail stores to build from, it has been recognized that significant planning and public investment would be required to attract the desired mix of private investment.

The North Beach Town Center Plan, adopted July 2007, identifies a wide range of strategies to attract new development to the Town Center. Long term uses of the Byron are being considered by Dover Kohl as part of their Master Planning efforts. Staff has considered the need for a commercial anchor and civic use needs, as well as the development potential available on the site beyond what is utilized by the existing building. The Byron Carlyle Theater property was also identified as an important piece of the Town Center redevelopment strategy because of the location, size, public ownership and potential to provide a cultural anchor. Indeed, the purchase and renovation of the theater was intended for economic development purposes, as well as to assist the local talent by providing a venue for rehearsal, performances, office space, and to ensure that once established, the arts would be able to remain in a rejuvenated North Beach. However, for the Byron Carlyle Theater to succeed in this role, other supporting elements of the plan would need to be in place. Nonetheless, there continues to be much discussion regarding the use of the Byron Carlyle and its role in the revitalization of the 71st Street corridor.

If the City Commission would like to seriously consider redeveloping the site, the Administration will draft a solicitation for consideration and issuance. In light of the report's findings, the Administration is seeking direction from the City Commission.

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LIMITED CONDITIONS ASSESSMENT REPORT

RELATIVE TO INTERIOR FLOORING

AT

BYRON CARLYLE THEATER
500 71ST STREET
MIAMI BEACH, FLORIDA

MARCH 4, 2016

PREPARED BY:
DOUGLAS WOOD ASSOCIATES, INC.

WWW.DOUGLASWOOD.BIZ

AA/EO EMPLOYER|EB6353

5040 N.W. 7TH STREET, SUITE 820, MIAMI, FLORIDA 33126

DOUGLAS WOOD ASSOCIATES, INC.
STRUCTURAL ENGINEERS

LIMITED CONDITIONS ASSESSMENT REPORT RELATIVE TO INTERIOR FLOORING

BYRON CARLYLE THEATER
500 71ST STREET
MIAMI BEACH, FLORIDA

DOUGLAS WOOD ASSOCIATES, INC.
STRUCTURAL ENGINEERS

March 4, 2016

INTRODUCTION

General

As requested, we have conducted a limited assessment of the present conditions relative to interior floor flooding at the Byron Carlyle Theater, located at 500 71st Street in Miami Beach, Florida.

Purpose

The purpose of this investigation was to provide a general assessment of the present conditions and causes of the periodic floor flooding and to comment on how these conditions may relate to future use and renovation.

Scope

This investigation includes only the reported periodic floor flooding issue. No other issues were investigated or considered.

Roofing, insect infestations (including termites and other wood-destroying insects), mechanical, plumbing and electrical systems, environmental issues (including radon, mold and ground contamination) and hazardous materials (including lead paint and asbestos) are not included in the scope of this assessment.

METHODOLOGY AND LIMITATIONS

Our investigation of existing conditions was primarily conducted as follows:

- Visual Observations
    - Significant portions of this building are presently occupied. Architectural finishes remain in place throughout much of the interior and all of the exterior of the building. Therefore, direct observation of structural materials was limited to a few restricted views.

- Review of Documents: The City made available to us a copy of a report prepared by C3TS, dated January, 2006. This report included a few architectural drawings form the original construction.

Calculations were not performed to verify the adequacy of the original design and construction of the existing systems for this building. Douglas Wood Associates assumes no responsibility for the design or construction of this existing building. The findings presented in this report do not imply any warranty on the performance or Building Code conformance of the existing structural systems.

In the absence of observations to the contrary, we have assumed that the existing building systems were properly designed, permitted, constructed and approved in accordance with the building code and general design and construction practices in effect at the time of construction. Also, while we performed observations of the existing structural systems, our observations were limited by the scope of this investigation, by time constraints and by what could be readily observed in the existing building.

GENERAL DISCUSSION

In general, this building could be considered to have withstood the "test of time" and therefore, to have structural systems that were generally adequate for their intended purposes. However, it must be recognized that the building codes, standards, methods, products and practices of the time this building and subsequent modifications were made vary considerably from those of today. Therefore, it should be remembered that there are many aspects of the existing structural systems which do not conform to today's standards, practices and codes.

The Byron Carlyle Theater was originally constructed in 1968. FEMA flood plain requirements were not in effect at the time this building was constructed.

The preponderance of scientific evidence indicates that mean sea levels have been rising in the past century and that the rate of sea level rise is accelerating. Local data indicates that mean sea level in South Florida has risen in the range of four to six inches since the Byron Carlyle Theater was originally constructed. Predictions of future sea level rise vary, but again, the preponderance of evidence leads to predictions of continued and accelerated sea level rise.

Existing Site Conditions Relative to Structural Issues

Environmental Influences

Hurricanes

All of South Florida is vulnerable to hurricanes. Tidal flooding due to wind-induced surge due to hurricanes is a possibility, and a definitive likelihood over a long period of time.

Flooding
Floods are possible in most of the coastal regions of South Florida. According to Miami-Dade County's website, this building is located within a FEMA AE-8 flood zone. If future additions and/or renovations have a construction cost (accumulated over a five year period) exceeding 50% of the concurrent construction cost value of the existing building, the building would need to be brought into compliance with the concurrent FEMA flood design requirements.

This assessment did not include verification of existing floor and exterior grade elevations. Current flood design criteria places the Design Flood Elevation (DFE) at the Base Flood Elevation (BFE) plus 1.0 foot. At this time, we do not know the existing floor elevations. We assume, however, that most or all of the existing ground floor level is likely well below the DFE.

OBSERVATIONS RELATIVE TO REPORTED FLOOR FLOODING

Observations/Investigation
The writer visited the building on two occasions. The first visit was arranged to coincide with a predicted time of relatively high tide. The time of the actual site visit was close to, but did not coincide with the peak of high tide, and it was close to but did not coincide with the peak of the king tide cycle experienced in October of 2015. Therefore, the writer did not observe west of conditions. Nonetheless, tidal flooding of the streets around the theater was occurring at the time of the visit. Interior floor flooding was also occurring in the low areas of the interior floor. The writer observed approximately two inches of standing water in the restroom area (east end of building) and similar amounts at the low points of the presently unused auditoriums in the western portion of the building.

The writer conducted a brief telephone interview with the current theater manager. The manager reported that up to a "few inches" of water accumulated on the floor of the eastern restrooms at high tide during the past king tide cycle of October, 2015. The manager reported that portable pumps were used to lower the water level in the restroom area during periods of flooding. The manager also reported that he observed tidal flooding in the streets around the theater up to the curbs, but not onto/over the sidewalks.

The main lobby entrance to the theater is at the top of the back-of-sidewalk elevation. There is an interior ramp inside the main doors, and the main lobby floor is a few inches higher than the sidewalk. In the southeast area of the lobby, there are steps up to the upper auditorium seating level and steps down to the public restrooms. The floor of the restroom is approximately 2'-1/2 feet lower than the main lobby level. In the absence of specific survey elevations and high water elevations, it appears that the floor of the restroom area and the low points of the unused auditoriums on the west side of the building are significantly below the observed high water elevations during the king tide cycle in October, 2015.

EVALUATIONS

Based on our visual observations and based on the verbal report from the current building manager, it appears that the restroom area at the east end of the building and the low points of the west side auditoriums regularly flooded around high tides during the cycle of king tides this past October, 2015. Water depths up to a few inches were reported. Tidal flooding in the adjacent streets up to the sidewalk curbs was reported. Based on our observations, it appears that the restroom area floor and the low points of the west side auditoriums are significantly below the high tide elevation during the cycle of king tides this past October, 2015. The drawings for the original construction also indicate a storage area, mechanical room and electrical room in the southeast corner of the building to be below exterior grade elevation (but several inches higher than the restroom area floor).

The 2006 report by C3TS indicates that the ground floor is a concrete slab on ground. Assuming this to be true, it would not have been designed to prevent water seepage under hydrostatic pressure, and it would not have been designed to resist hydrostatic pressure. Assuming a four-inch thick concrete slab and ignoring the requirement for a factor of safety, a ground water elevation depth of just five to six inches above the floor could be expected to rupture the existing slab.

The preponderance of scientific evidence predicts continued sea level rise, at an accelerated rate of rise, for the foreseeable future. Therefore, it should be expected that the flooding experienced to date will become deeper and more frequent. Other lower floor areas within the building may soon be affected. This investigation is limited to structural concerns, but obviously, the City should also take into account other issues arising from floor flooding such as possible contamination, mold growth, corrosion, rot, and electrical system safety issues.

If it is desired to address only the restroom area at this time, one might consider the following options:

1. Raise Existing Restroom Floor
   If there is sufficient headroom to the structure above, one might consider raising the existing restroom. To accomplish this, however, would require casting say a six-inch thick concrete topping on the floor. This, in turn, would essentially require a complete demolition and reconstruction of the restrooms. Such construction would be fairly expensive. In addition, the raised level of floor may soon be below groundwater elevations.

2. Abandon Existing Restrooms and Reconstruct Restrooms Elsewhere
   If an area is available elsewhere, at the main ground-floor level, new restrooms could be constructed. Such new restrooms, however, would still likely be well below the current Design Flood Elevation (DFE). The abandoned restroom area would also still be subject to flooding with its negative effects. Therefore, it would be appropriate to raise the restroom floor with concrete topping to prevent flooding. An appropriate vapor barrier or waterproofing system should be included to prevent water vapor migration into the space.

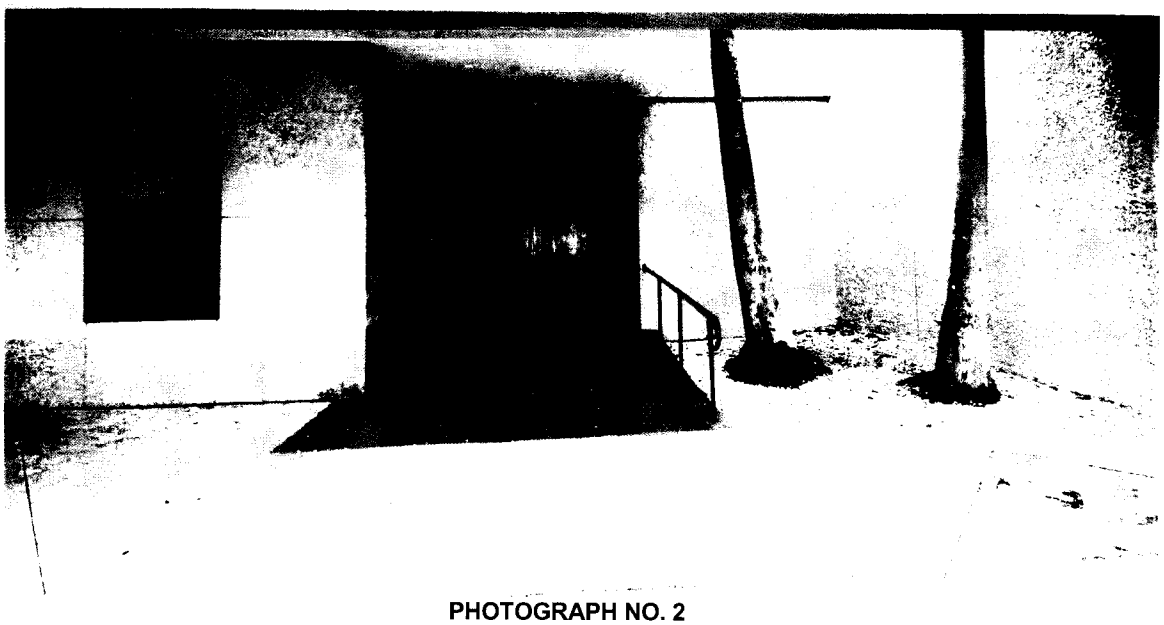
Again, of course, as sea level rises, the low floor level will eventually become subject to flooding again.

3. Demolish Existing Restrooms and Reconstruct with "Dry-Floodproofed" Construction
   It is allowed to "dry-floodproof" non-residential uses. In the case of the present location of the restrooms, dry-floodproofing would require a complete demolition of the existing non-structural construction in the area. It would also require removal of the existing concrete floor slab. It would also likely require removal of existing masonry walls around the restroom area and replacement with appropriately reinforced concrete or masonry walls. The floor slab would need to be replaced with a structurally reinforced concrete slab capable of resisting the DFE flood. Tension piles (to resist upward loads) would also be required at some spacing. The new slab and all perimeter walls up to the DFE would need to be waterproofed. Any openings below the DFE would need to be protected with appropriately designed flood panels. Sanitary drain pipes would need to be equipped with backflow preventers to prevent reverse flow through the pipes into the space. It would also be prudent to provide an automatic sump pump.

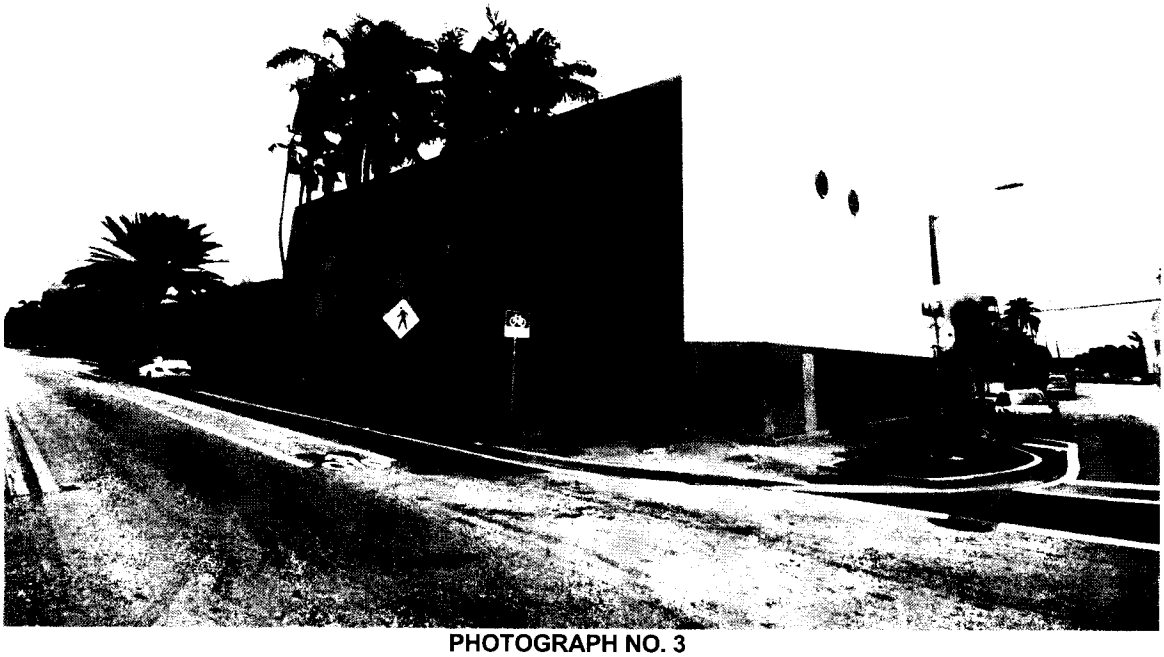
None of the options discussed above would protect other building areas from king tide flooding or from tidal surge associated with hurricanes.

If major renovations of the building were to be considered, and if the construction cost of such renovations (accumulated over a five-year period) were to exceed 50% of the concurrent construction cost value of the existing building, current regulations require that the entire building be brought into compliance with current FEMA design criteria. This would require all floors to either be raised to the DFE (currently +9.0 N.G.V.D.). If any floor areas remained below the DFE, they would need to be dry-floodproofed as described above for the restrooms. Obviously, this would be relatively costly. This would also result in lower ceiling heights and possible reconfiguration/raising of existing second floor areas. Raising or reconstruction of the ground floor would likely require the complete replacement of interior construction. Given the likely cost of such work, it would be prudent to enhance other existing structural system to provide greater hurricane resistance. In our opinion (in the absence of a detailed study), it would seem that such an extensive renovation would be as or more expensive than constructing a new building.

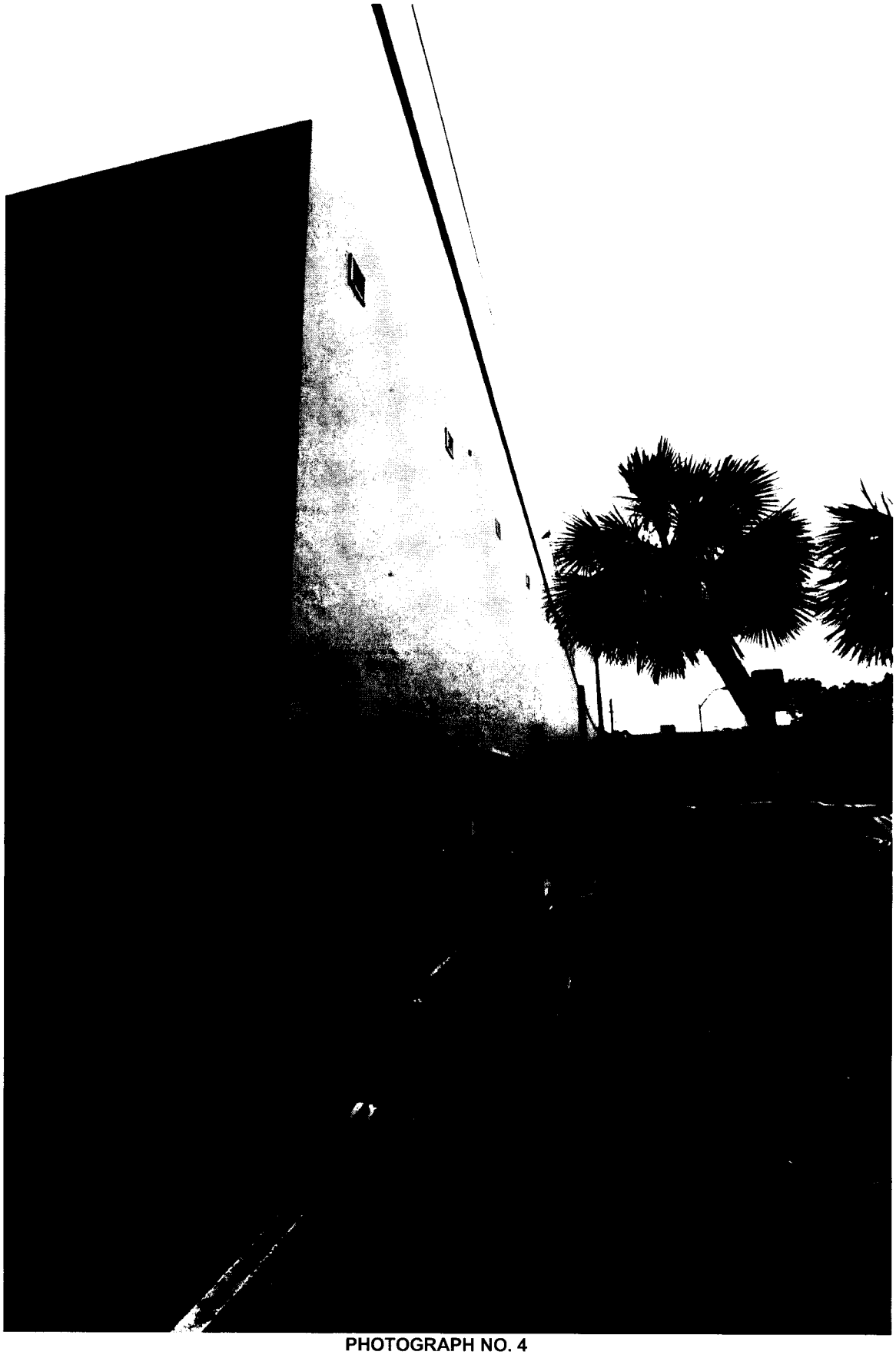
PHOTOGRAPH NO. 1
NORTHEAST CORNER OF BUILDING
(NOTE STREET, SIDEWALK & DOOR ELEVATIONS. NOTE PROXIMITY OF STREET DRAINS)



PHOTOGRAPH NO. 2
NORTH SIDE EXIT DOORS

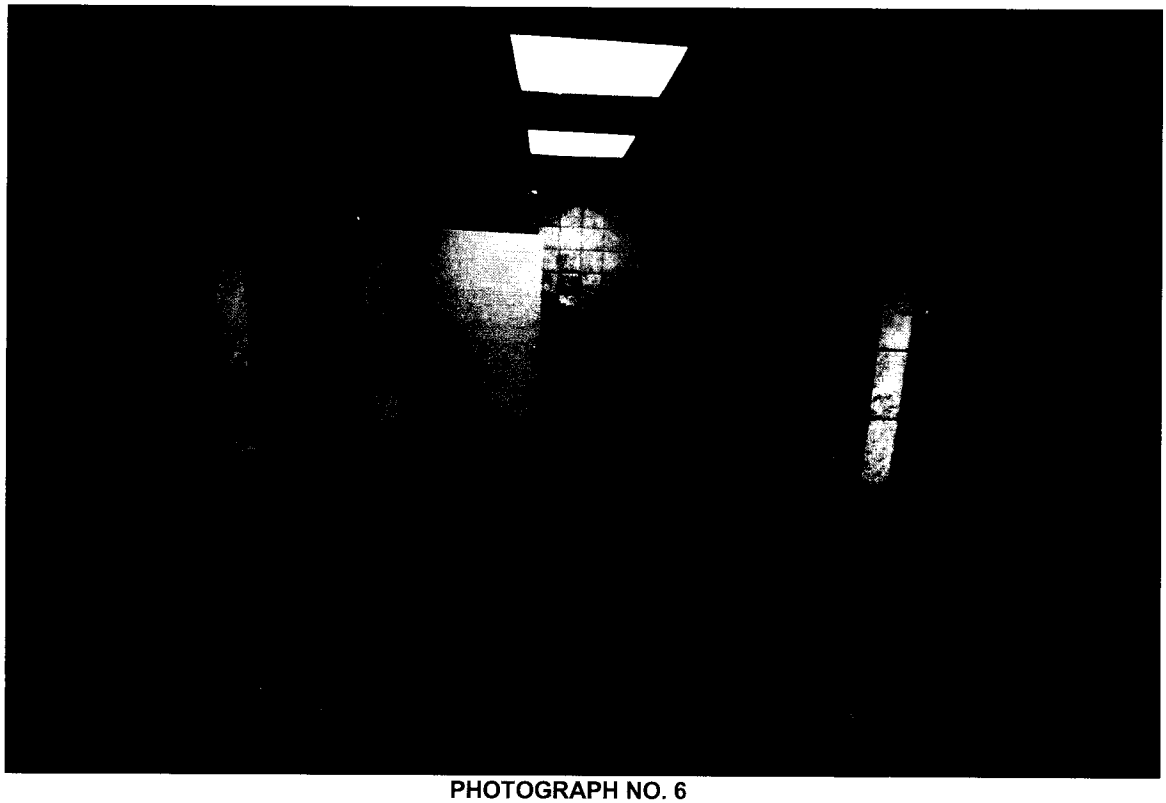


PHOTOGRAPH NO. 3
NORTHWEST CORNER OF BUILDING
(NOTE STREET, SIDEWALK & DOOR ELEVATIONS. NOTE PROXIMITY OF STREET DRAINS)

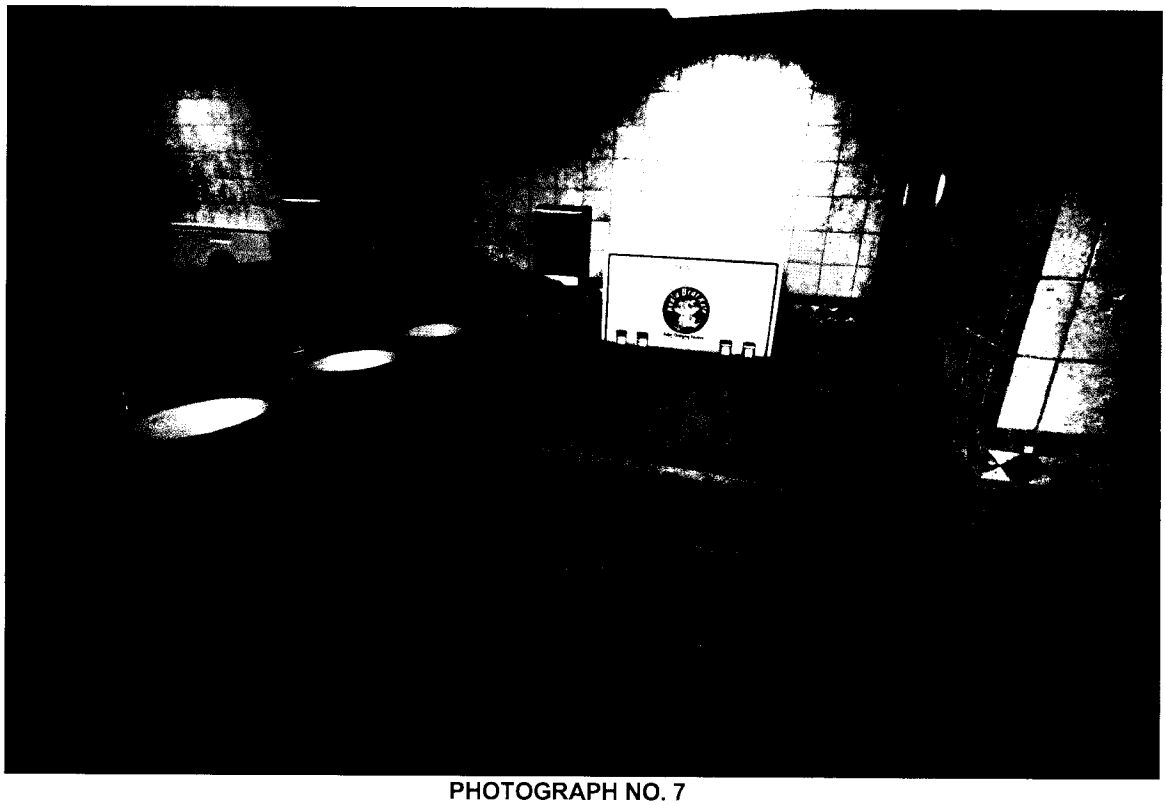


PHOTOGRAPH NO. 4
SOUTHWEST CORNER OF BUILDING
(NOTE SIDEWALK AND DOOR ELEVATION)

PHOTOGRAPH NO. 5
NORTH SIDE EXIT DOOR
(NOTE THRESHOLD ELEVATION RELATIVE TO SIDEWALK)

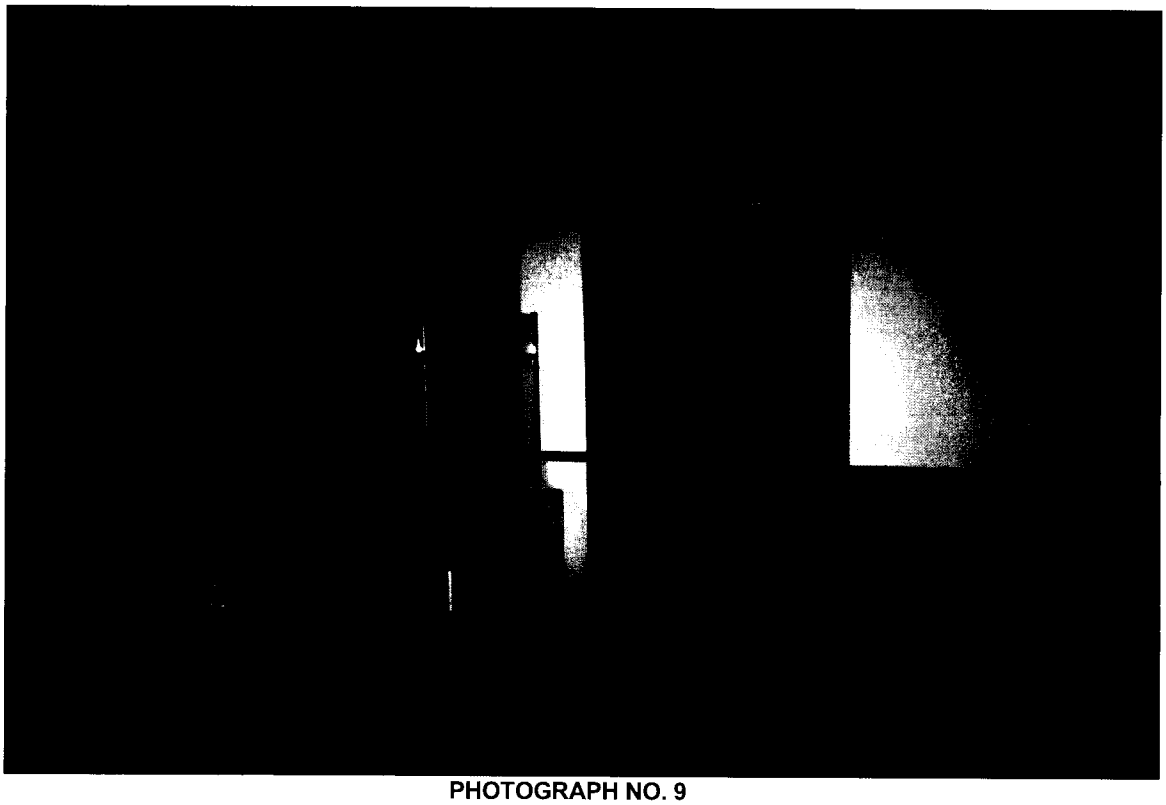


PHOTOGRAPH NO. 6
(EXISTING RESTROOM)

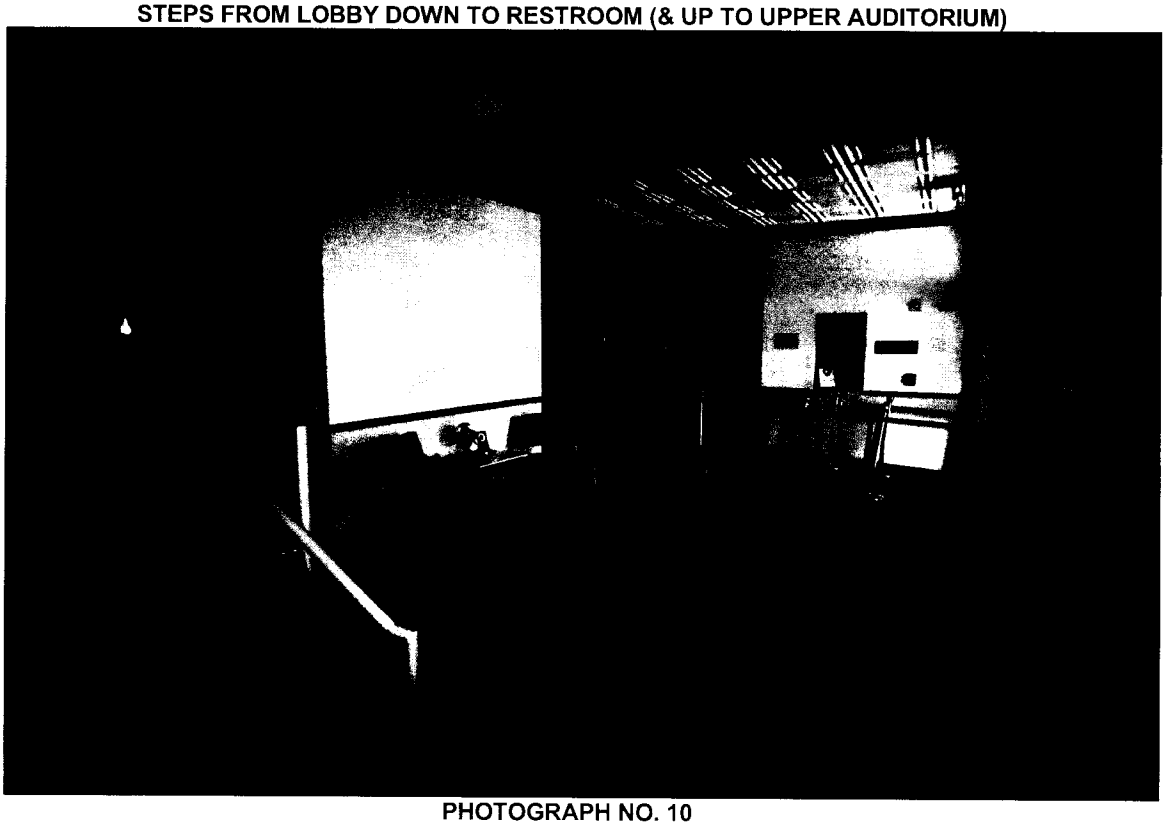


PHOTOGRAPH NO. 7
(EXISTING RESTROOM)

PHOTOGRAPH NO. 8
STEPS FROM LOWER RESTROOM UP TO LOBBY



PHOTOGRAPH NO. 9
STEPS FROM LOBBY DOWN TO RESTROOM (& UP TO UPPER AUDITORIUM)



PHOTOGRAPH NO. 10
MAIN LOBBY
(SLIGHT RAMP UP FROM SIDEWALK-LEVEL ENTRY DOORS)

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