.conditions

BOOK 3

Structural Assessment

tennessee valley authority

Muscle Shoals Reservation adaptive re-use study

Conditions/Market/Planning/Implementation

July 31, 2009

Revised August 25, 2009

LORD · AECK · SARGENT

ARCHITECTURE

Structural Assessment

Summary of Assessment Methodology and Documentation

A team of MACTEC representatives conducted a general visual structural assessment of the designated buildings at the site from April 27 through April 30, 2009. The team leader made a general observation of each building and conducted detailed inspections of roof structures in selected locations by utilizing a hydraulic lift with the aid of an experienced MACTEC lift operator. The buildings were divided into two groups, and each group was evaluated by a team of two personnel. Field notes regarding the general condition of structural components and specific structural defects were collected at each building, as well as representative photographs of corresponding features. The field data collected on-site serves as the basis of the General Structural Assessment of each building, which consists of five parts:

1. **General Information**, which includes a general description of the building structure, a general description of the building structural condition, a summary of recommended structural repairs, and recommendations for additional specific evaluations when applicable.

2. **Table 1: Structural Systems Assessment**, which lists the applicable structural components of each building, a numeric rating of the condition of each component, and an indication of whether or not specific defects for each component are itemized in Table 2. See “Condition Code Description” below regarding criteria for numeric ratings ascribed to each component.

3. **Table 2: Itemized Structural Defects**, which lists specific defects as described in field notes collected as the buildings were being visually assessed. Some entries in Table 2 are general observations; some are descriptions of specific defects with corresponding quantities and repair codes. The repair codes, when provided, are followed at the end of Table 2 with corresponding generic descriptions of the types of structural repairs that will be required. References to corresponding photographs, when provided, are also listed in Table 2.

4.**Reference Plan(s)**, which are typically scanned images of original building drawings, with graphic indications of approximate locations of the Photolog photographs added.

5.**Photolog**, which contains representative photographs of the general building condition and of specific structural defects that are characteristic of observed deficiencies.

Condition Code Description: The numeric ratings for the Structural Systems Assessment are based on the following criteria as described in Table 1 for each building:

(1) **Excellent** – Visual observation indicates no remedial work required. (less than 10% repair)

(2) **Good** – Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)

(3) **Fair** – Visual observation indicates remedial work required. (up to 25% replacement and/or 50% repair)

(4) **Deteriorated** – Visual observation indicates significant remedial work required.(up to 50% replacement and/or 75% repair)

(5) **Critical -** Visual observation indicates extensive replacement and/or repair. (over 50% replacement and/or 75% repair)

The preceding Condition Code criteria is also the basis for the following Summary of General Building Conditions. However, the Summary is not determined by the numeric average of the various structural systems of any given building. The Summary numeric ranking is based on professional judgment regarding the overall building condition, taking into account characteristic defects of each structural system as a proportion of the total building structure.

Summary of General Building Conditions:

Buildings in "**Excellent**" Structural Condition:	#17 (Environmental Research Center building)
Buildings in "**Good**" Structural Condition:	#17 (Service building), #25
Buildings in "**Fair**" Structural Condition:	#1A, #1B, #4, #5, #15, # 16, #21, #33,34,35,&36, #37&38, #39, #41, #42, #44, #47, #48, #50, #54, #57, #68, #69, #71, #74, #79, #81, #86, #118, #134
Buildings in "**Deteriorated**" Structural Condition:	#1C, #1D, #6,#22,23,24,&26, #53, #56, #70, #72, #73
Buildings in "**Critical**" Structural Condition:	None

Non-Structural Observations of Note:

It should be noted in summation of the General Structural Assessment that the general structural condition of the majority of the observed buildings appeared to be directly related to the condition of each building's roof covering system. Although the evaluation of roof coverings was beyond the scope of the visual structural assessment, numerous opportunities to observe roofing deficiencies were afforded to the inspection teams from below and occasionally from above the building roof structure. Buildings that were found to be "Deteriorated" in the Summary of General Building Structural Conditions were consistently observed to have significant roof covering deficiencies. The nature of such roofing deficiencies is that they will continue to contribute to further structural deterioration of the building structures until they are remediated.

GLOSSARY OF STRUCTURAL ASSESSMENT TERMS

2-way slab: A reinforced concrete slab that spans to vertical supports without beams or joists.

Clerestory monitor: A portion of the roof structure above the main roof that has windows above the roof, typically on each side.

Concrete pan joist: A reinforced elevated concrete slab that is poured in place on forms that create a series of concrete joists below a continuous concrete slab.

Concrete piers (footing piers): Concrete pedestals constructed on top of concrete footings, typically extending above the floor slab, that serve as the base for steel column attachments.

Delaminated: A condition of steel or concrete where the surface material is separating from the base material.

Diaphragm: A roof or floor deck that is used to transfer lateral loads to walls and/or framing members.

Efflorescence: A condition of concrete or masonry caused by water intrusion where calcium from within the material forms stains on the exterior surface of the material.

Elevated slab (structural slab): A reinforced concrete slab that spans between structural supports which is not supported directly on grade.

Foundation walls: A concrete wall, partially below grade, that extends from the wall footing and terminates above the finished floor.

Girders: Concrete or steel beams that span between vertical supports which support primary (vs. secondary) framing.

Girts: Secondary horizontal wall framing, typically located between columns, used for the attachment of wall material.

Joists: Secondary concrete, steel, or wood framing used to attach and support floors and ceilings. Also used to describe some framing components for low-slope roofs.

Lateral Bracing: Structural system components (beams, braces, diaphragms, etc.) used to transfer wind and/or seismic loads to vertical supports that transfer these loads to the structural foundations.

Lintel: Structural component at top of wall openings that supports wall material above opening.

Lintel beams: Structural component at top of wall openings that supports wall material above opening and also provides lateral bracing between vertical framing members at or within exterior walls.

Parapet: The top portion of an exterior wall that extends above the roof.

Purlins: Secondary roof framing members that span between primary roof framing which are used for the attachment of roof material (sometimes described as “rafters”).

Rafters: Roof framing members which are used for the attachment of roof material. The term “rafter” is most commonly used to describe closely spaced wood framing at pitched roofs.

Route: The mechanical widening and shaping of a crack with a drill-type grinding tool in order to install sealant with a caulk gun rather than using injection tools and procedures.

Soffit: The bottom surface of an elevated concrete slab or beam. Also, an exterior ceiling.

Spalls: Voids in the exposed surface of concrete components where delaminated concrete has fallen out or been removed. Spalls may or may not be caused by corroded reinforcing steel within the concrete.

Structural slab-on-grade: A concrete slab supported on grade that is strengthened with reinforcing steel rather than welded wire mesh used for conventional slabs-on-grade.

Buildings Assessed

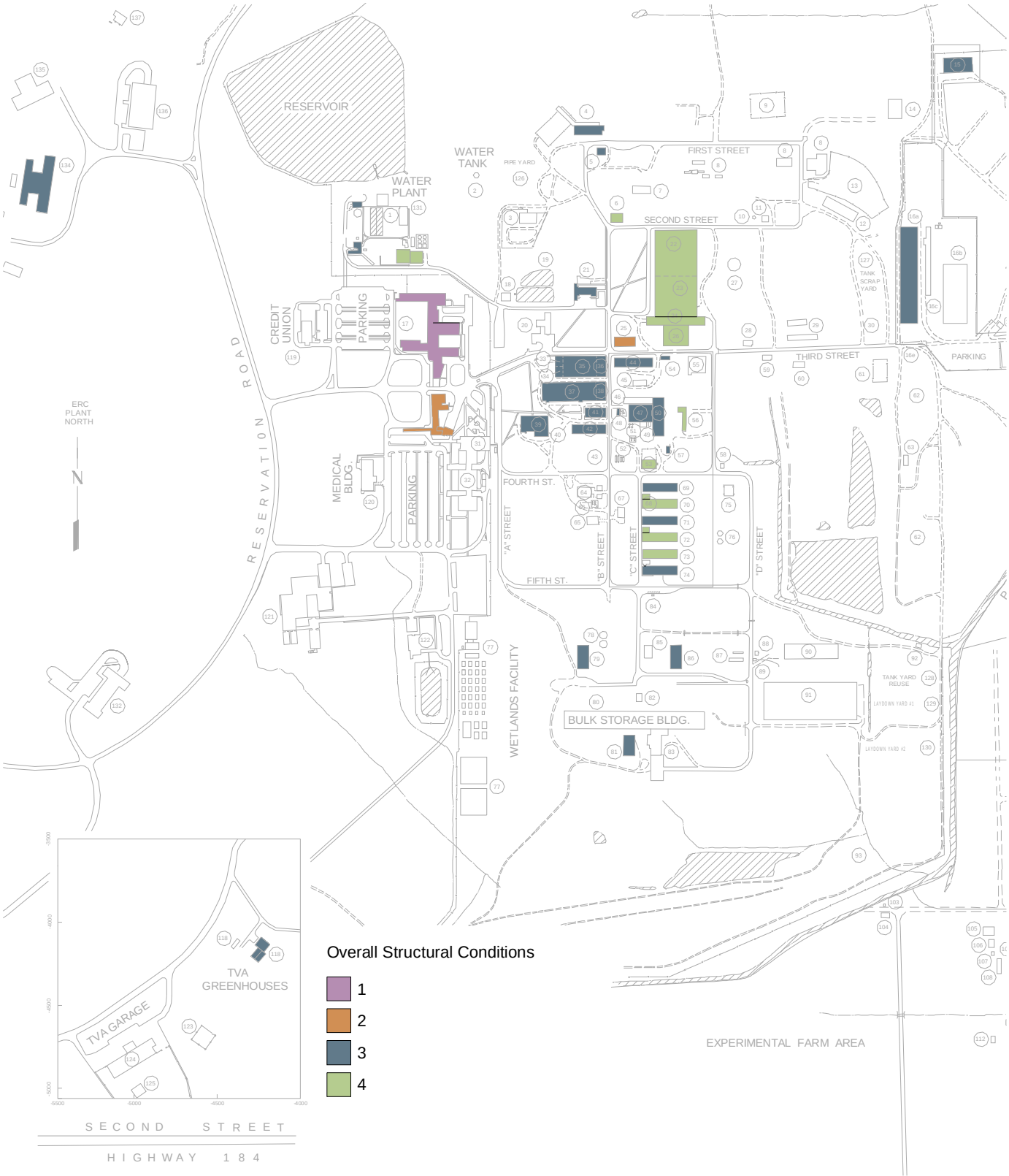
17a	Environmental Research Center
17b	Environmental Research Center
25	Project Operations Office Building
1A	Water Plant
1B	Water Plant
4	Switch House (Substation #1)
5	Drum Storage Area Building
15	PDW Receiving Warehouse
16	Power Service Shop No. 2
21	Old Medical Building (Field Engineering)
81	5A Building
33	Shipping and Receiving Office
34	Instrumentation/Electric Shop
35	Chemical Plant Warehouse
36	Projects Operations Storage Warehouse
37	Machine Shop
38	Gas and Diesel Repair Shop
39	Engineering Lab
41	Sheetmetal Shop
42	Pipe Shop
44	Project Operations Bath House
47	Pilot Plant Building
48	Paint Storage Building
50	Autoclave Building
54	Grinding Building
57	Substation No. 2
68	Substation No. 4 & 5
69	Catalyzer Building #1
71	Catalyzer Building #3
74	Catalyzer Building #6
79	3A Building
86	2A Shop
118	Greenhouse
134	Office Service Warehouse
1C	Water Plant
1D	Water Plant
22	L/N Building
23	L/N Power Service Shop Storage Area
24	L/N Warehouse No. 4
26	Grounds Maintenance Shop
53	Tin Shop
56	Boiler House
70	Catalyzer Building #2
72	Catalyzer Building #4
73	Catalyzer Building #5
6	R/M Lab

Structural Condition Summary

The following list and map documents the overall structural condition rating for each resource included in this study.

Structural Condition Ratings

1	Excellent - Minimal remedial work
2	Good - Some remedial work, no impact to occupancy
3	Fair - Remedial work required for continued occupancy
4	Deteriorated - Substantial work required
5	Critical - Extensive work required



TVA Muscle Shoals Feasibility

Muscle Shoals, Alabama

Lord, Aeck & Sargent Architecture

July 31, 2009

Structural Assessment - General Information

Building No.: 01A - Chemical Feed House	
Building Name:	Chemical Feed House
Original Function:	Water Treatment Plant
Subsequent Modification	N/A
General Building Structure Description:	Two story concrete frame building with cast-in-place concrete basement. Exterior walls are masonry supported on concrete foundation walls. The entire first floor is a structural slab above grade with a crawl space under the west side and the basement under the east side. The second floor and roof are concrete slab and beam construction supported by concrete columns. The building has a loading dock and open receiving room at the NW corner, and a steel frame canopy with a concrete roof deck on the west side. The south side of the building has an elevated concrete walkway at the first floor level that is partially constructed above a concrete flume that connects to a circular water treatment tank / pool adjacent to the building.
General Building Structural Condition:	The overall building is in fair condition with most portions of the concrete frame and upper slabs in generally good condition. Some cracks were observed in the basement walls and exterior foundation walls. A crack and spall were noted in the soffit of the first floor slab, as well as evidence of water intrusion in areas of the basement walls and ceiling. Numerous cracks were noted in the exterior masonry walls. An area of corroded steel framing and flashing was observed at the west canopy. The elevated walkway on the south side of the building is in generally fair condition. Each of the three metal awnings at the south walkway were dented at the corners
Summary of Recommended Structural Repairs:	Cracks and spalls in the basement walls and ceiling must be repaired. Cracks in the exterior foundation walls and masonry walls must be repaired. The corroded portion of the west canopy must be repaired, and the dented metal awnings should be repaired or replaced.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 01A - Chemical Feed House

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	3	Yes
Lowest Level Floor System	3	No
Exposed Foundation or Stem Walls	3	Yes
Ramps, Stairs, and Landings (At or below first floor)	3	No
Loading Docks (Walls, supports, and slabs)	3	No
Exterior Slabs at Canopies	3	No
First Floor System [Above basement] (Deck and framing)	3	Yes
Second Floor System (Deck and framing)	2	No
Columns	2	No
Exterior Walls	3	Yes
Roof Deck	2	No
Exterior Appurtenances (Fire Escapes, etc)	3	No
Awnings (Total Assembly)	3	Yes

Condition Code Description

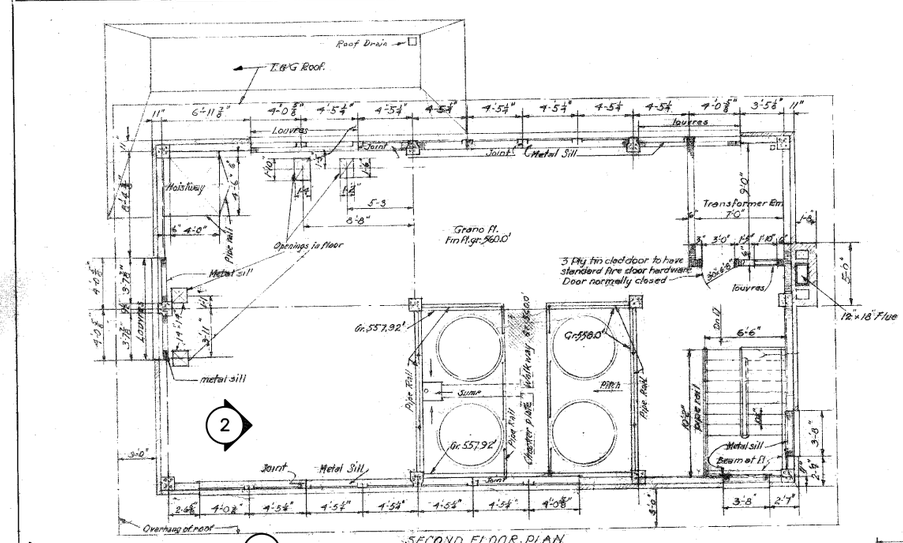
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

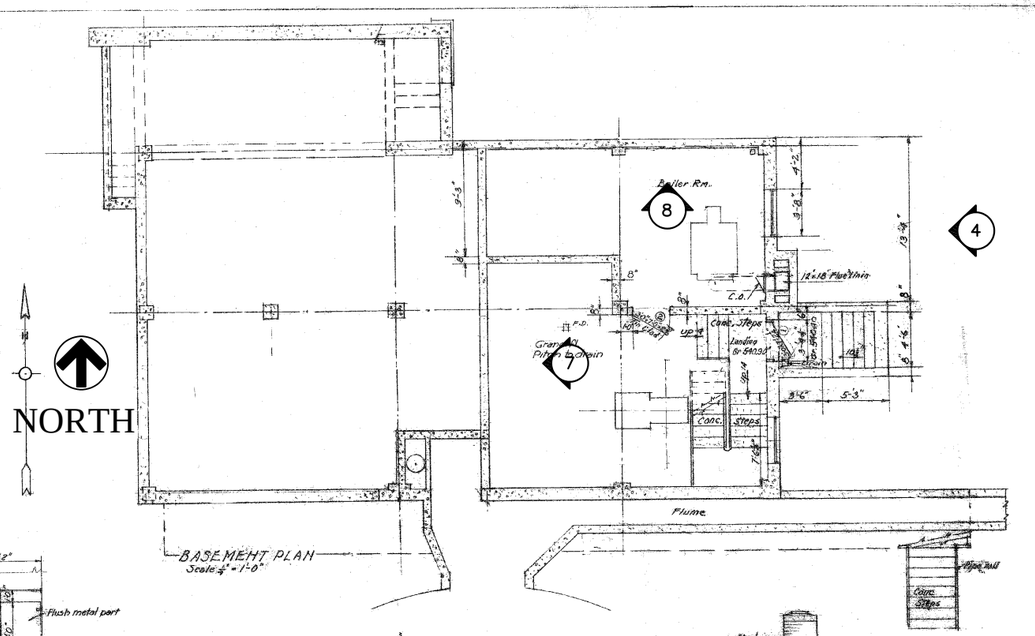
Table 2: Itemized Structural Defects

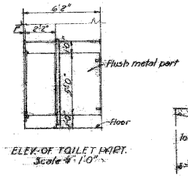
Building 01A - Chemical Feed House

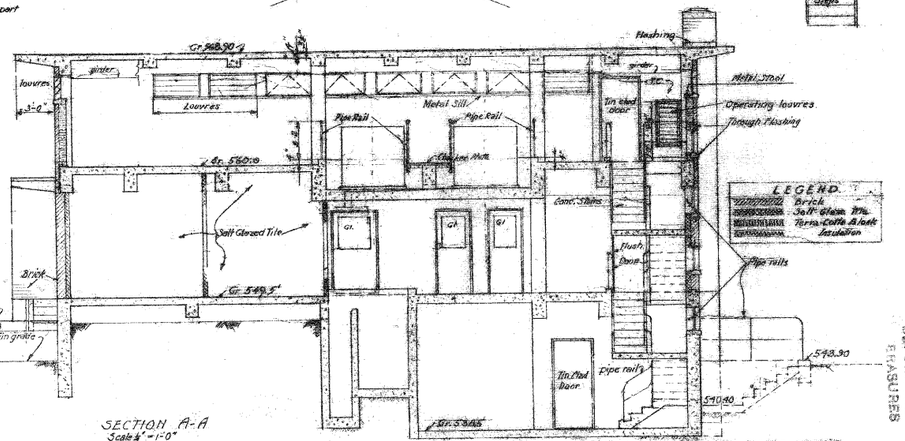
Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Minor Cracking in exterior concrete slab at canopy	20 LF	R-M-1	
2	Diagonal crack on northeast corner	5 LF	R-M-2	
3	Vertical crack on east side	5 LF	R-M-2	4
4	Cracks in basement soffit	20 LF	R-C-2	8
5	Vertical crack in foundation stem wall at east side	5 LF	R-C-2	4
6	Crack in west ext. masonry wall	75 LF	R-M-3	
7	Spall in basement soffit	2 SF	R-C-3	18
8	Vertical crack in masonry in the northeast corner	15 LF	R-M-2	
9	Crack in north basement wall	5 LF	R-C-2	15
10	Corroded steel roof beam	10 LF	R-S-1	
11	Crack in interior load-bearing basement wall	5 LF	R-C-2	
12	Aluminum Sheet Metal awning torn at front corner	48 SF	R-A-1	6
13	Corroded steel beam of exterior canopy	10 LF	R-S-1	5
14	Vertical crack in exterior masonry wall	75 LF	R-M-2	1
15	Vertical crack in exterior masonry wall	10 LF	R-M-2	3
16	Vertical crack in exterior masonry wall	60 LF	R-M-2	1

Repair Code -	Description
R-A-1	Repair damaged awning
R-C-2	Inject sealant to seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material
R-S-1	Sandblast, prime, and paint structural steel









NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 01A
CHEMICAL FEED HOUSE

REQUISITION NO. 369661 FOR TIN CLAD FIREDOOR.
REQUISITION NO. 349662 FOR OVERHEAD WOOD DOOR
REQUISITION NO. 349659 FOR GLASS & GLAZING
REQUISITION NO. 349659 WOOD DOORS & HARDWARE.
REQUISITION NO 349435 FOR PRESSED METAL DOORS & WINDOW FRAMES WINDOW SILLS & LOUVRES COMPLETE.
REQUISITION NO. 349655 FOR INDUSTRIAL TYPE STEEL SASH.
REQUISITION NO. 349652 FOR SALT GLAZED TILE INTERIOR FACING.
REQUISITION NO. 349651 FOR EXTERIOR FACE BRICK.

REQ NO 349723 FOR ASPHALT TILE FLOORING.
REQ NO 349684 FOR TIN CLAD FIREDOOR TRANSFORMER RM.
REQ. NO. 349466 FOR TOILET PART. DOOR & HARDWARE.
REQ. NO. 349464 FOR ROOFING INSULATION & FLASHING.

NOTES.
All doors (interior and exterior) shall be wood doors except Boiler room door which shall be tin clad.
See drg no. YQ 995 for elevations & details (A7027)
See drg no. YQ 988 for arch. details (A7032)
All interior first floor doors to have pressed metal frames.
Basement interior doors to have channel frame.
All heights given for doors are from Fin. floor
All widths given for doors are clear frame openings

Date of Signatures						
(4) TRANSFORMER RM. LOUVERS ADDED	6-21-46	R.M.B.	6-27-46	R.M.B.	6-27-46	E.C.C.
Date of Signatures	3-3-47		3-12-47		3-13-47	
(3) TOILET MATERIAL CHG'D. PIPE RAILINGS ADDED.	3-6-47	R.M.B.	3-7-47	R.M.B.	3-7-47	E.C.C.
Date of Signatures	8-22-46		12-7-46		12-7-46	
(2) FLOORS TILE AT CHEM. DIMS. CORR.	8-26-46	R.M.B.	12-9-46	R.M.B.	12-9-46	E.C.C.
Date of Signatures	2-18-46		5-17-46		5-17-46	
(1) TRANSFORMER ROOM ADDED & UNCHECKED PRINTS	2-18-46	R.M.B.	5-17-46	R.M.B.	5-17-46	E.C.C.
No.	DESCRIPTION	CHKD.	DRFT.	EGR.	APPD.	

TABLE OF ADDITIONS AND REVISIONS USE ONLY PRINTS OF LATEST DATE

STONE & WEBSTER ENGINEERING CORPORATION
TENNESSEE VALLEY AUTHORITY
DEPARTMENT OF CHEMICAL ENGINEERING U. S. NITRATE PLANT NO. 2
SYNTHETIC AMMONIA PLANT
PLANS & SECTION - CHEMICAL FEED HOUSE
SUPERSTRUCTURE - WATER PURIFICATION PLANT

DATE Feb 5, 1947
J. O. NO. 6879-E
SCALE 1/4" = 1'-0"
USE DIMENSIONS ONLY
A7028
E.C.C. 5/8/47
VQ 399

MICROFILMED

PROCESS PRINT NO OBTAIN INSPECTION BEFORE MAKING BLUEPRINTS

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

SEAL

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		

BLP, INC. PROJECT NO:
DATE: 052609
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 01A
Chemical Feed House

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S1A.1
SHEET#

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Building 01A - Chemical Feed House



Photograph #: 1

Exterior building looking at southwest corner



Photograph #: 2

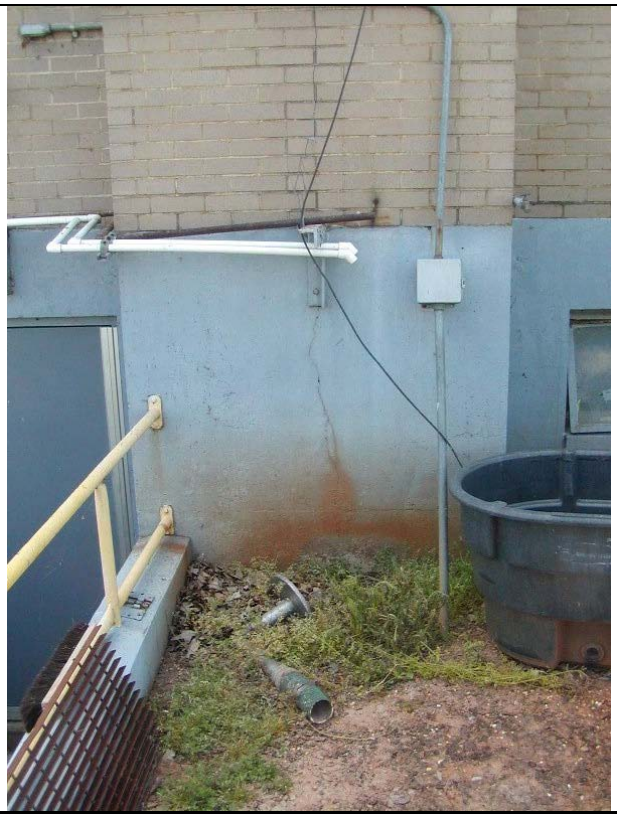
Interior building at 2nd floor

Building 01A - Chemical Feed House



Photograph #: 3

Cracks in masonry on north side



Photograph #: 4

Crack in masonry and foundation wall on east side

Building 01A - Chemical Feed House



Photograph #: 5

Corroded steel framing and flashing at west canopy



Photograph #: 6

Dented metal awning on south side

Building 01A - Chemical Feed House



Photograph #: 7

Spall in soffit of floor slab above basement



Photograph #: 8

Evidence of water intrusion at basement wall and ceiling

Structural Assessment - General Information

Building No.: 01B - Filter Building	
Building Name:	Filter Building
Original Function:	Water Treatment Plant
Subsequent Modification	N/A
General Building Structure Description:	Two story cast-in-place concrete building. The second floor and roof are 2-way slabs supported by concrete bearing walls and columns. The building has a pump pit that is recessed below the ground floor level.
General Building Structural Condition:	The building is in fair condition with minor cracks and spalls in the concrete structure. Interior elements such as metal stairs and pit slabs are corroded due to water saturation.
Summary of Recommended Structural Repairs:	Repair cracks and spalls in concrete structure. Repair or replace corroded interior stairs. Clean and coat corroded interior floor surfaces.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 01B - Filter Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Pits and Trenches	3	Yes
Second Floor System (Deck and framing)	3	No
Columns	2	No
Interior Load Bearing Walls	2	No
Exterior Walls	3	Yes
Roof Deck	2	No
Interior Stairs	3	Yes
Awnings (Total Assembly)	3	Yes
Exterior Stairs	2	No

Condition Code Description

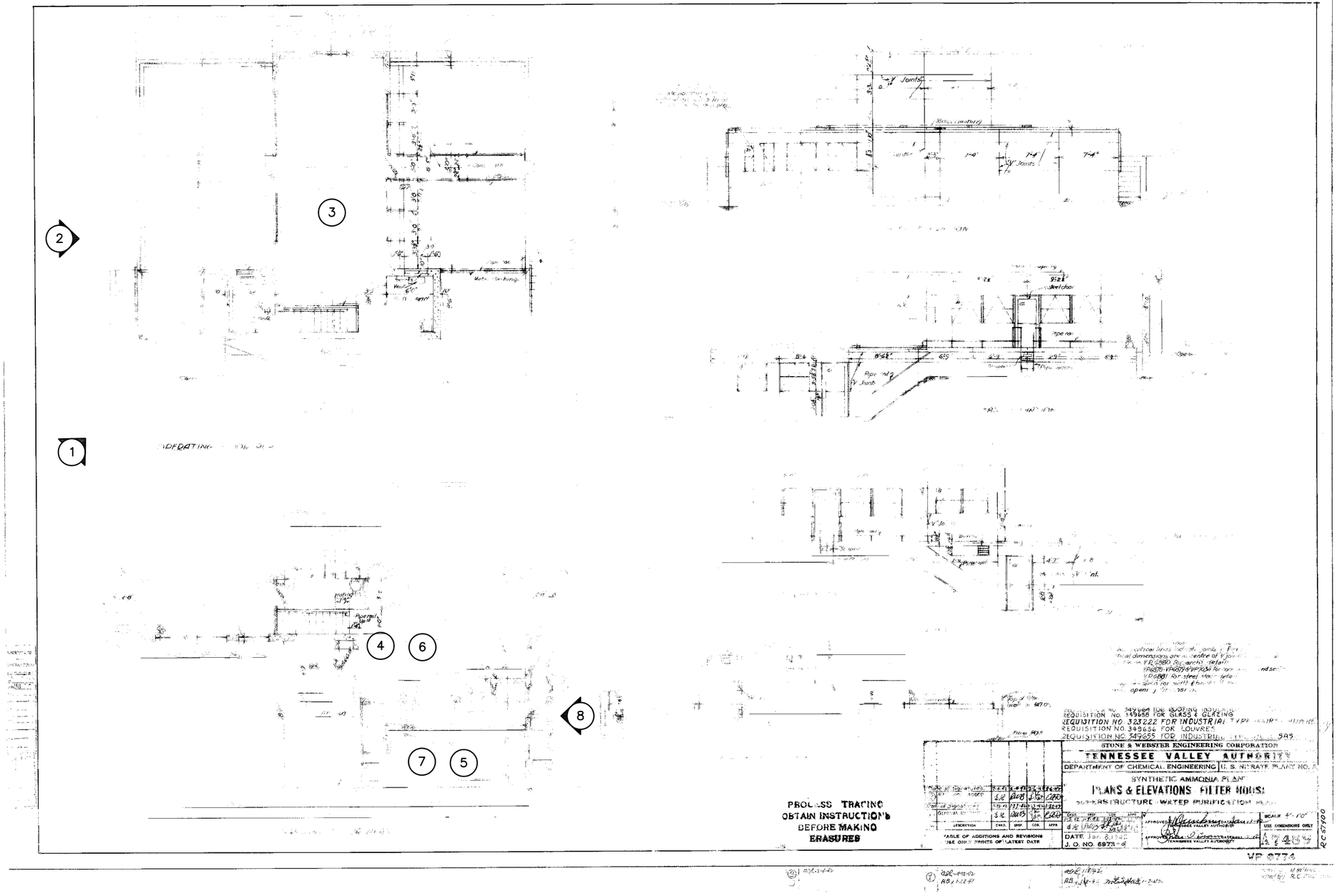
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 01B - Filter Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Hairline cracks with efflorescence in the pit wall of sump for water treatment tank	10 LF	R-C-1	
2	Corrosion of metal stairs/grating leading from 1st level pit	10 LF	R-S-3	
3	Small hairline cracks in bottom of canopy	10 LF	R-C-2	
4	Exterior cast-in-place concrete wall has some localized cracking and spalling	4 SF	R-C-3	8

Repair Code -	Description
R-C-1	Route and seal cracks in concrete
R-C-2	Inject sealant to seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-S-3	Replace structural steel framing



NORTH

BUILDING NO. 01B
FILTER BUILDING

PLAN NOT TO SCALE

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

SEAL

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
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B.P. INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 01B
Filter Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S1B.1
SHEET#

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Building 01B - Filter Building



Photograph #: 1

Exterior building looking at southwest corner



Photograph #: 2

Exterior building looking at west elevation

Building 01B - Filter Building



Photograph #: 3

Interior view of top floor



Photograph #: 4

Interior view of ground floor

Building 01B - Filter Building



Photograph #: 5

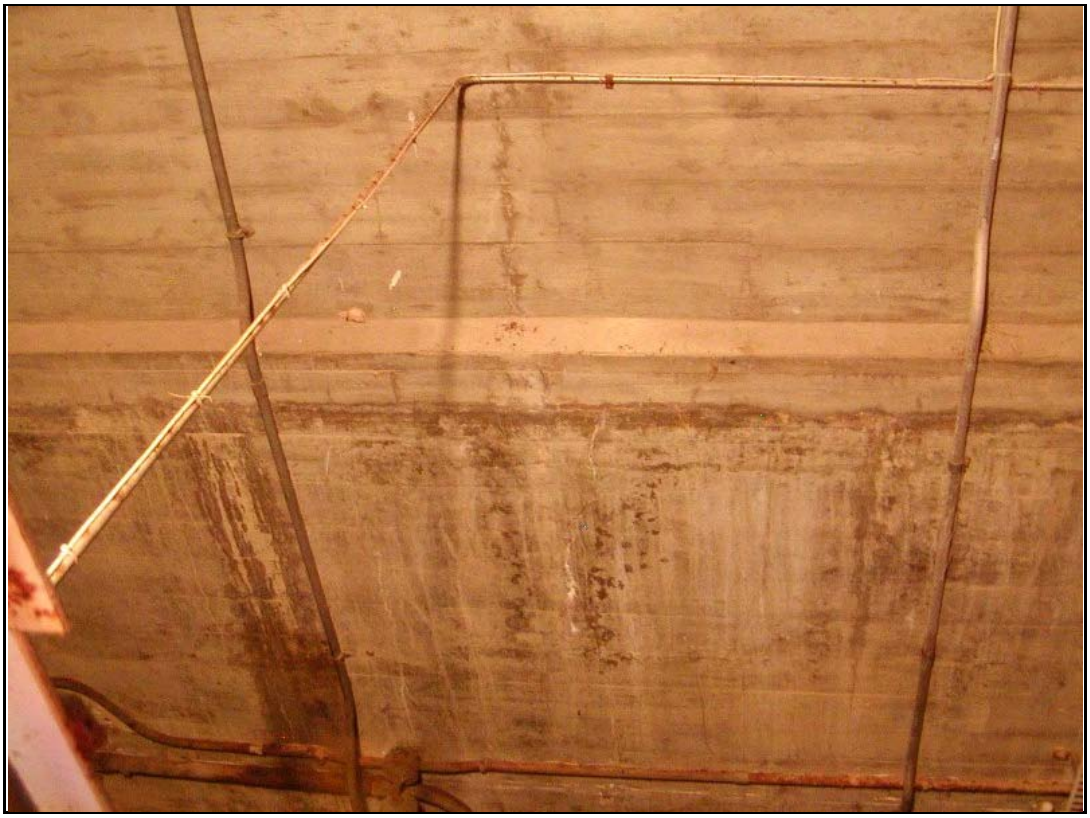
Pump pit floor



Photograph #: 6

Interior building at ground level

Building 01B - Filter Building



Photograph #: 7

Underside of second floor slab



Photograph #: 8

Minor spall at window on east side

Structural Assessment - General Information

Building No.: 01C – Old Filtration Building	
Building Name:	Old Filtration Building
Original Function:	Water Treatment Plant
Subsequent Modification	N/A
General Building Structure Description:	Three story concrete frame building with load bearing exterior masonry walls. The second floor, third floor, and roof are concrete slab and beam construction supported with interior concrete columns. The original drawings indicate the first floor to be a combination of structured slabs and slab-on-grade.
General Building Structural Condition:	The building is in poor condition due to the deterioration of the upper floor and roof slabs. Substantial amounts of spalled concrete and corroded reinforcing steel are visible in the beams and soffits of these systems. Unglazed openings at the upper level and deteriorated roof covering appear to be primary factors in the deterioration of the concrete beams and soffits. Significant efflorescence occurs in some locations of the exterior masonry walls. Masonry cracks, spalls, and general deterioration was observed as well.
Summary of Recommended Structural Repairs:	General remediation of masonry defects will be required. Extensive repair of the concrete slab and beam construction at the upper floor and roof will be required after water intrusion deficiencies are addressed. The interior stair to the upper level must be replaced.
Additional Recommendations:	A detailed structural evaluation of the upper floor and roof concrete slab and beam construction will be required to confirm the extent of repairs and remediation required.

Table 1: Structural Systems Assessment

Building 01C - Old Filtration Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Second Floor System (Deck and framing)	3	No
Third Floor System (Deck and framing)	4	Yes
Columns	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	Yes
Roof Deck	4	Yes
Interior Stairs	5	Yes

Condition Code Description

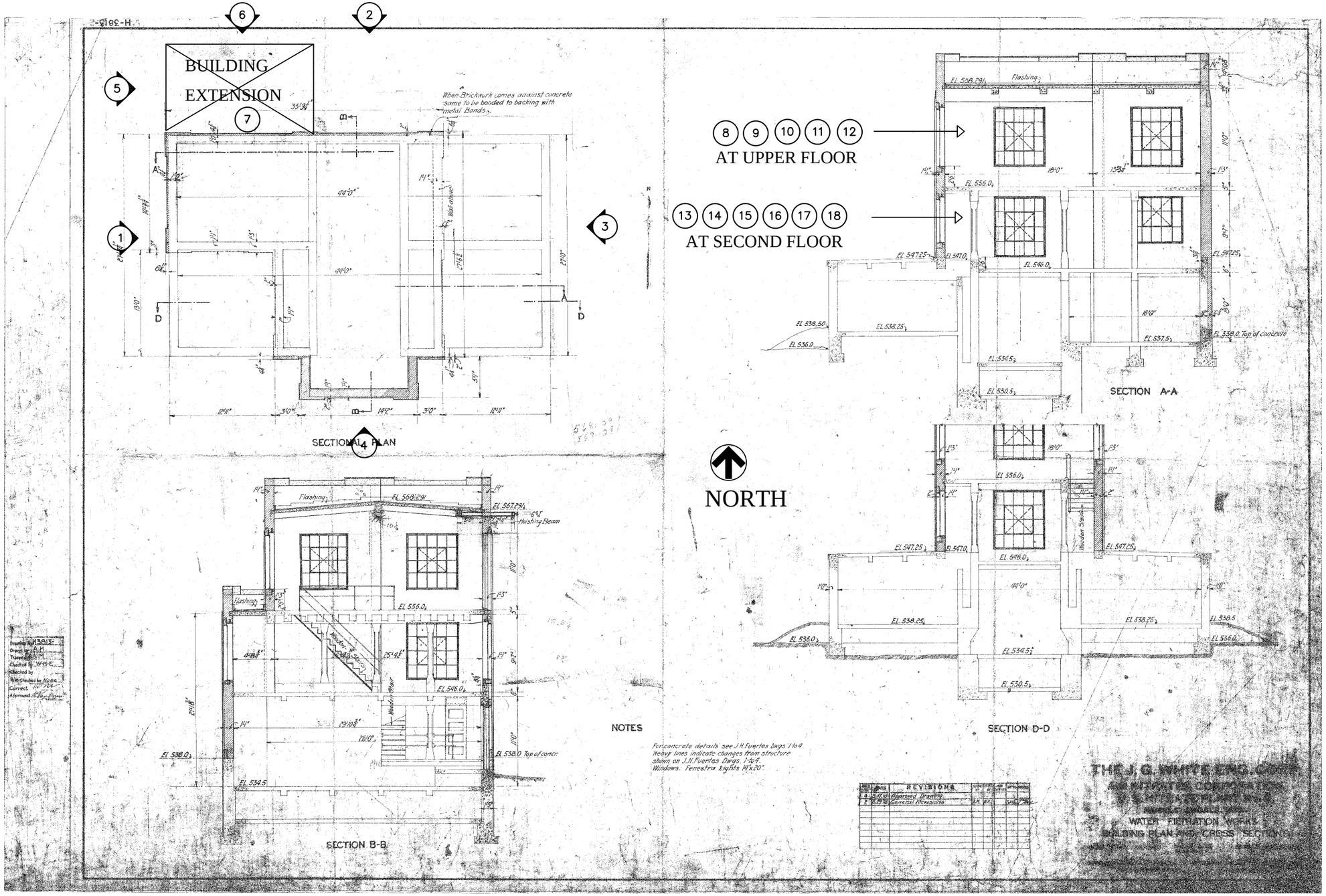
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 01C - Old Filtration Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Spalling, cracking and severe corrosion of reinforcing at reinforced concrete edge beams	30 LF	R-C-3	13
2	Exposed rebar delaminating in 2nd level concrete floor slab soffit	25 SF	R-C-3	16,17
3	Much cracking in exterior masonry load-bearing south wall	40 LF	R-M-6	
4	Much cracking in exterior masonry load-bearing east wall	150 LF	R-M-6	
5	Much cracking in exterior masonry load-bearing north wall	100 LF	R-M-6	4
6	Much cracking in exterior masonry load-bearing west wall	30 LF	R-M-6	5
7	Delaminated concrete, spalling and exposed corroded reinforcing in exterior wall framing/lintels		R-C-3	18
8	Rotting interior wooden stairs	30 LF	R-W-2	
9	Cracks in 2nd Level Roof diaphragm	30 LF	R-C-3	10
10	Exposed corroded rebar and spalling in roof beams and girders		R-C-3	9

Repair Code -	Description
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-M-6	Repair cracks in masonry with appropriate sealant and repair spalls in masonry with matching material.
R-W-2	Replace or reinforce defective wood framing



BUILDING NO. 01C

OLD FILTRATION BUILDING

PLAN NOT TO SCALE

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

SEAL

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
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BLP, INC. PROJECT NO:
DATE: 06/28/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 01C
Old Filtration Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S1C.1

SHEET#

Building 01C - Old Filtration Building



Photograph #: 1

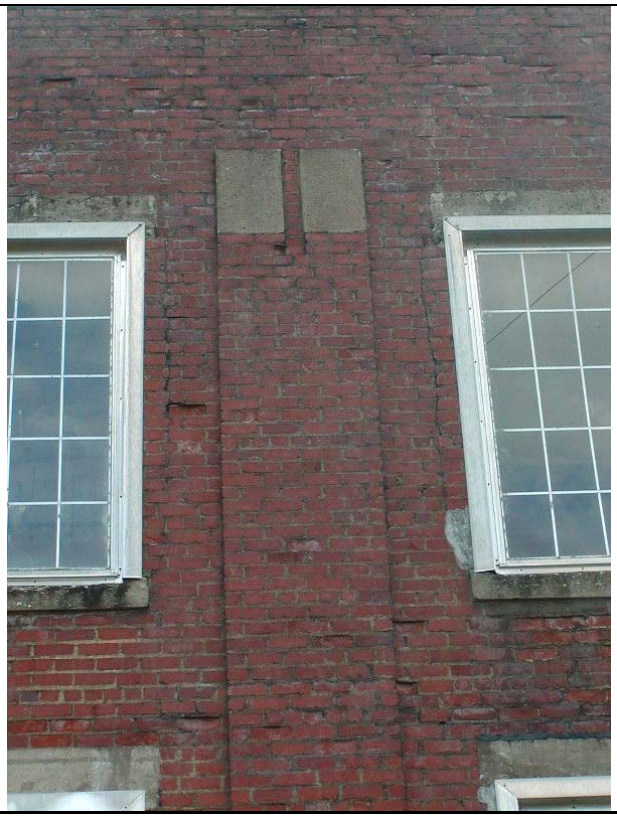
Exterior balding - west elevation



Photograph #: 2

Exterior building - north elevation

Building 01C - Old Filtration Building



Photograph #: 3

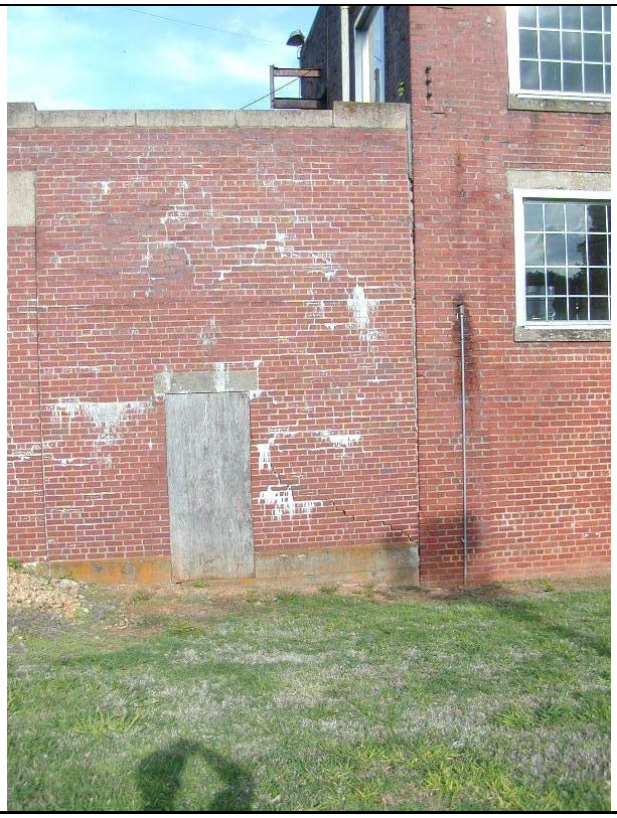
Vertical cracks in masonry adjacent to windows



Photograph #: 4

Spalled masonry at exterior wall

Building 01C - Old Filtration Building



Photograph #: 5

Heavy efflorescence at exterior masonry



Photograph #: 6

General deterioration of exterior masonry

Building 01C - Old Filtration Building



Photograph #: 7

Poor drainage at low roof



Photograph #: 8

Upper floor open to weather

Building 01C - Old Filtration Building



Photograph #: 9

Spalled concrete at roof deck



Photograph #: 10

Cracked and spalled concrete at roof deck

Building 01C - Old Filtration Building



Photograph #: 11

Cracked roof beam and spalled concrete wall at upper floor



Photograph #: 12

Spalled concrete at underside of upper floor

Building 01C - Old Filtration Building



Photograph #: 13

Spall in concrete at underside of upper floor



Photograph #: 14

Spalls in concrete at underside of upper floor

Building 01C - Old Filtration Building



Photograph #: 15

Severe spalls in concrete at underside of upper floor



Photograph #: 16

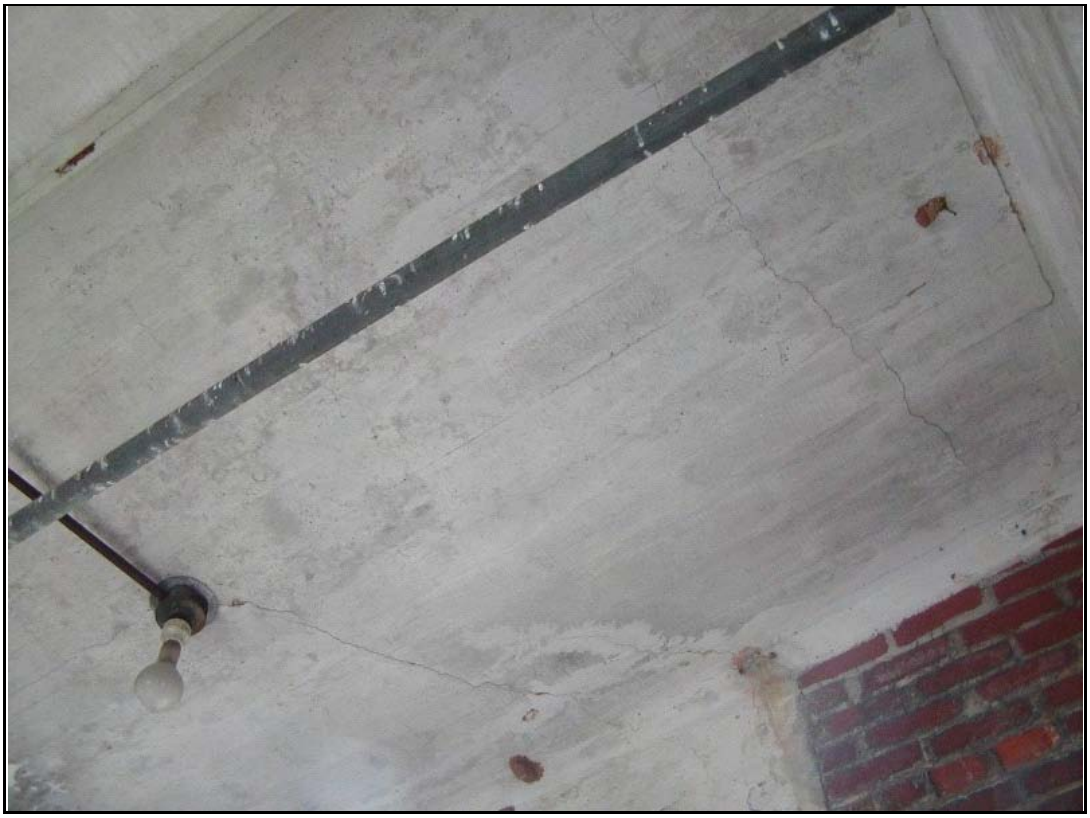
Deteriorated concrete of underside of upper floor

Building 01C - Old Filtration Building



Photograph #: 17

Severely spalled concrete lintel at upper floor



Photograph #: 18

Cracks in concrete roof deck

Structural Assessment - General Information

Building No.: 01D - Reservoir Pumping Station	
Building Name:	Reservoir Pumping Station
Original Function:	Pumping Station
Subsequent Modification	N/A
General Building Structure Description:	One story building approximately 30 ft. tall with partial basement. The exterior walls are load bearing masonry and the roof system is a concrete slab supported on steel beams. The building has one row of interior steel columns that support primary and secondary steel trusses. The basement has concrete walls and floor, and the first floor system above the basement is reinforced concrete slab and beams.
General Building Structural Condition:	The building is in generally poor condition due to concrete and masonry defects. The roof slab is cracked in multiple locations and the first floor structural slab has spalls in the concrete beams and soffit. The exterior masonry walls have numerous cracks with partially dislodged masonry in several locations. Significant efflorescence was observed on three of the four exterior walls as well as the exterior concrete holding tanks which were not evaluated. The basement walls and the interior steel framing are in generally good condition.
Summary of Recommended Structural Repairs:	Extensive repair of concrete and masonry components is required.
Additional Recommendations:	A detailed structural evaluation of the concrete roof deck and first floor structural slab will be required to determine the extent of repair and remediation required.

Table 1: Structural Systems Assessment

Building 01D - Reservoir Pumping Station

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	3	No
Lowest Level Floor System	3	No
First Floor System [Above basement] (Deck and framing)	4	Yes
Columns	3	No
Exterior Walls	4	Yes
Roof Framing and Subframing	3	No
Roof Deck	4	Yes
Interior Stairs	3	No

Condition Code Description

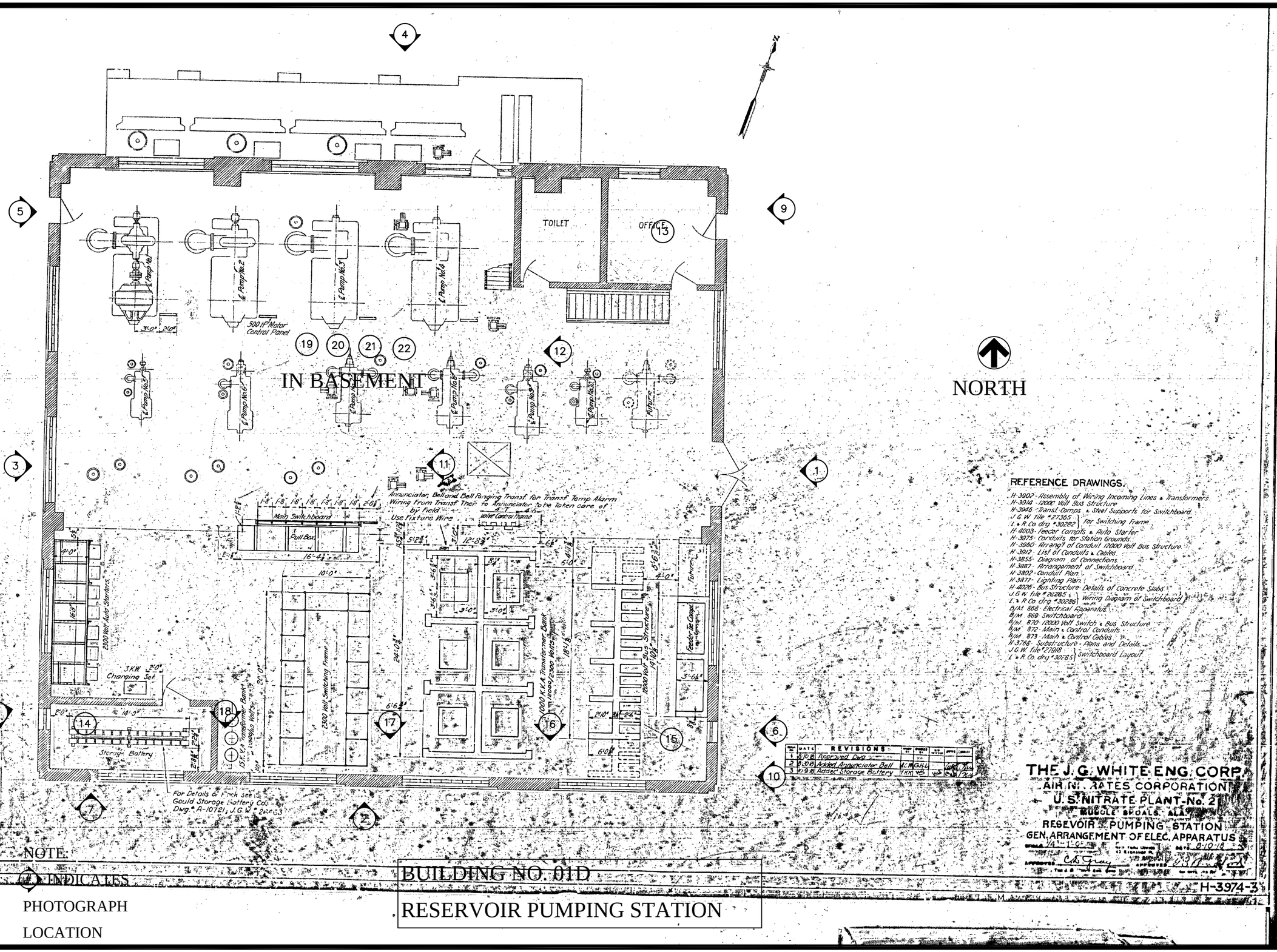
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 01D - Reservoir Pumping Station

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Exposed and corroded rebar and spalling in soffit of slabs, beams and girders	300 SF	R-C-3	19,20,21,22
2	Isolated column cracking at the interface of 1st level slab and column	10 LF	R-C-2	
3	Exterior load bearing wall, step cracking at bearing points of rafters on south side	30 LF	R-M-3	16,17,18
4	Cracking in the exterior masonry walls - east wall	60 LF	R-M-7	6,9,10
5	Cracking in the exterior masonry walls - south wall	30 LF	R-M-7	7
6	Cracking in the exterior masonry walls - west wall	100 LF	R-M-7	5,8
7	Cracking in the exterior masonry walls - north wall	40 LF	R-M-7	
8	Efflorescence and spalling of concrete at walls of holding tanks on the north side	100 SF	R-C-3	4
9	Roof concrete panels significantly cracked at all four corners	6400 SF	R-D-2	13,14,15

Repair Code -	Description
R-C-2	Inject sealant to seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-2	Replace roof deck
R-M-3	Repair spalls in masonry with matching material
R-M-7	Repair spalls in masonry with matching material and reconstruct damaged and/or unstable masonry.



NOTE:
INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 01D
RESERVOIR PUMPING STATION

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 01D
Reservoir Pumping Station

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S1D.1

SHEET#

SEAL

Building 01D - Reservoir Pumping Station



Photograph #: 1

Exterior building east elevation



Photograph #: 2

Exterior building south elevation

Building 01D - Reservoir Pumping Station



Photograph #: 3

Exterior building west elevation



Photograph #: 4

Exterior building north elevation

Building 01D - Reservoir Pumping Station



Photograph #: 5

Horizontal and diagonal cracks in masonry west side



Photograph #: 6

Cracked masonry partially dislodged at lintel

Building 01D - Reservoir Pumping Station



Photograph #: 7

Cracked masonry partially dislodged at west end of south wall



Photograph #: 8

Cracks in masonry at south end of west wall

Building 01D - Reservoir Pumping Station



Photograph #: 9

Cracked and partially dislodged masonry at north end of east wall



Photograph #: 10

Cracks in masonry at south end of east wall

Building 01D - Reservoir Pumping Station



Photograph #: 11

Interior building looking west



Photograph #: 12

Interior building looking west

Building 01D - Reservoir Pumping Station



Photograph #: 13

Crack in concrete roof deck at northeast corner



Photograph #: 14

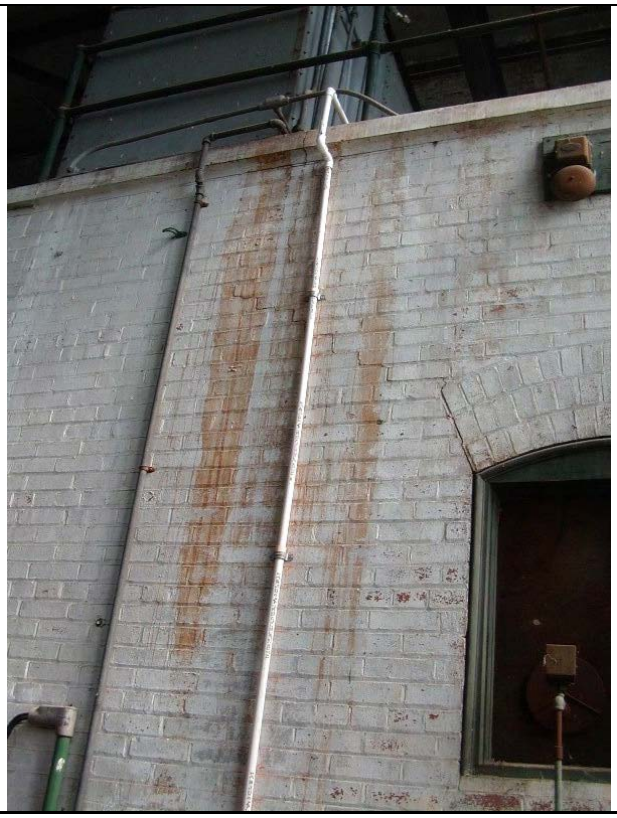
Crack in concrete roof deck

Building 01D - Reservoir Pumping Station



Photograph #: 15

Crack in concrete roof deck at southeast corner



Photograph #: 16

Diagonal cracks in load bearing masonry at south wall

Building 01D - Reservoir Pumping Station



Photograph #: 17

Vertical and diagonal cracks in load bearing masonry at south wall



Photograph #: 18

Cracked and deteriorated masonry at south wall

Building 01D - Reservoir Pumping Station



Photograph #: 19

Spalled concrete soffit at basement ceiling



Photograph #: 20

Spalled concrete soffit at basement ceiling

Building 01D - Reservoir Pumping Station



Photograph #: 21

Severely spalled concrete beam at basement ceiling



Photograph #: 22

Severely spalled concrete beam at basement ceiling

Structural Assessment - General Information

Building No.: 4 Switch House (Substation #1)	
Building Name:	Switch House (Substation #1)
Original Function:	Electrical Distribution House
Subsequent Modification	1 story extensions on north and east sides
General Building Structure Description:	Three story building with interior and exterior masonry bearing walls, cast-in-place concrete floor slabs supported by steel beams, and concrete plank roof deck supported by steel beams. The building has exposed structure throughout. A portion of the one-story north extension was inaccessible.
General Building Structural Condition:	The building structure is in fair condition with the following exceptions: a significant portion of the steel framing is mildly to moderately corroded, and parapet walls at the one-story north extension are structurally unstable. A full height crack at the northeast corner of the masonry exterior appears to be of minor significance.
Summary of Recommended Structural Repairs:	Corroded interior steel framing needs to be cleaned and painted. Masonry parapets at the north extension need to be demolished and reconstructed. The crack at the northeast corner of the masonry exterior should be repaired.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 4 Switch House (Substation #1)

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Second Floor System (Deck and framing)	3	Yes
Third Floor System (Deck and framing)	2	No
Interior Load Bearing Walls	2	No
Exterior Walls (Main Building)	4	Yes
Exterior Walls (Additions)	2	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	2	No
Interior Stairs	2	No

Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 4 Switch House (Substation #1)

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Mildly corroded Steel bottom flange of each beam at 2nd floor soffit		R-S-1	-
2	Severe corrosion full depth of steel beams at 2nd floor soffit	160 LF	R-S-2	6
3	Moderately corroded steel beams with irregular texture at roof	160 LF	R-S-1	9,10
4	Mildly corroded steel beams with flaking paint	160 LF	R-S-1	7,8
5	Crack in exterior CMU wall at northeast corner	30 LF	R-M-2	3
6	Deformed masonry parapets at appendages on north side of bldg		R-M-4	4,5

Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel
R-S-2	Reinforce damaged or deteriorated steel framing

APPROXIMATE FOOTPRINT OF NORTH EXTENSION

APPROXIMATE FOOTPRINT OF EAST EXTENSION

N.

Note:- Floor construction holes inserts etc. see Air Nitrates Corp. Drwg. # 526-S-371

Note:- For floor reinforcement see 3rd floor plan Drwg. # 2203-E-161

HIGH TENSION SWITCHES.

Some type of reinforcement as for 3rd floor spacing main rods 4" ctrs.

Note: for details of slots in floor slab of switch boards and holes in central brick wall see Air Nitrates Corp. Drwg. # J-371

Concrete Floor. 300# Per. Sq. Ft. on concrete slab
Allowable Live Load = 500 " " " on steel Beams

Concrete Floor
Allowable Live Load 300 PER SQ. FT.

Concrete Floor
Allowable Live Load = 300 PER SQ. FT.

Concrete Floor
Allowable Live Load 300 PER SQ. FT.

Wood floor on concrete slab.

Battery charging set.

Glass Doors

Tile partition

Plastered

Furred and Plastered

Sliding Door

Future Switches

Landing 7'-0"

Open

L.D.

L.G.

L.K.

L.A.

L.O.

L.H.

S.F.D.

Testing Room.

Battery Room

Operating Room

Motor Room

Office

Landing

Hatch Steel with Cover

Drinking Fountain.

Ice partition 8'-0" high.

Plastered Walls.

Wood, Door & Cement floor protected by acid resist paint.

Tile

Window 5'-2"x5'-0" fixed sash 8'-0" from floor

Vent 4"x4" bottom 6" above concrete floor.

Fire Wall

Expansion Joint

Slope to Drain

Tile

Brick

Concrete

Wood

Steel

Plaster

Tile

Brick

Concrete

Wood

Steel

Plaster

Tile

Brick

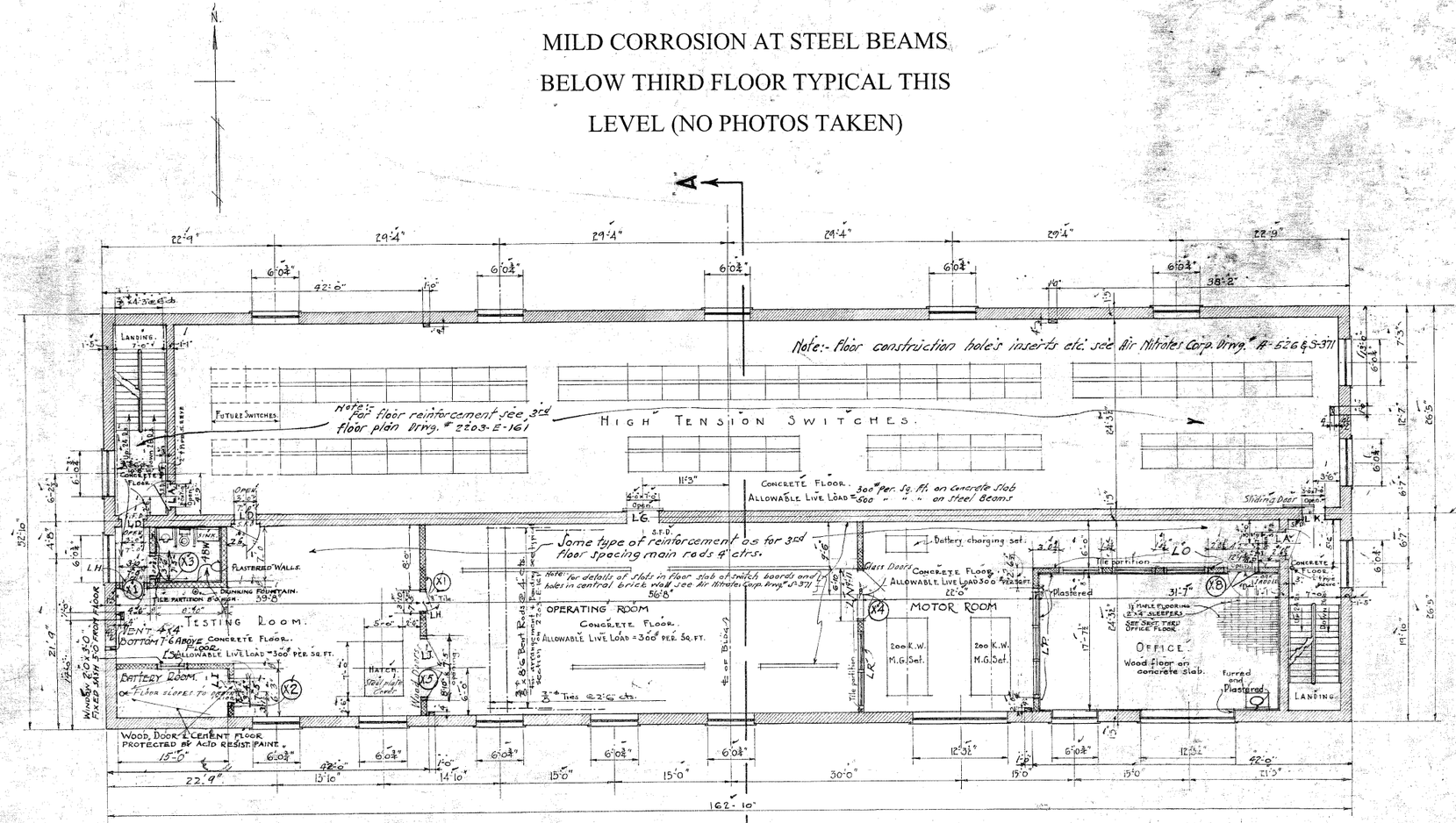
Concrete

Wood

Steel

Plaster

MILD CORROSION AT STEEL BEAMS BELOW THIRD FLOOR TYPICAL THIS LEVEL (NO PHOTOS TAKEN)



SECOND FLOOR PLAN.
Scale 8 - 1'-0"

NOTE:-
"S.F.D" Means Standard Fire Door.
Swinging door openings, to be provided with angle iron frames, by door Mfr. and brick work and tile where noted to be built around same.
Sliding doors to have brick or concrete jambs as noted.
All interior door openings to have reinforced concrete lintels.
Concrete Mix - 1:2:4.

SECTION DD

FOR LIST OF REFERENCE DRAWINGS SEE DRAWING No 2203-E-159

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
ELECTRICAL DISTRIBUTING HOUSE
SECOND FLOOR PLAN.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK			
MADE M.M.A.	DATE 3-22-13	APPROVED	THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED AND SIGNED AS CHECKED, AND APPROVED IN BOTH COLUMNS.
CHECKED J.R.S.	DATE 5-1-13	A.K.	
Revised Date	Checked Date		DESTROY ALL PRINTS MADE PREVIOUS TO DATE OF LAST REVISION.
			Scale: 1/8" = 1'-0" USE DIMENSIONS ONLY.
PRINTED			No 2203-E-160

BUILDING NO. 4
SWITCH HOUSE (SUBSTATION #1)

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

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2ND FLOOR PLAN

MACTEC Engineering and Consulting, Inc.
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ATLANTA, GEORGIA 30324
(404) 873-4761

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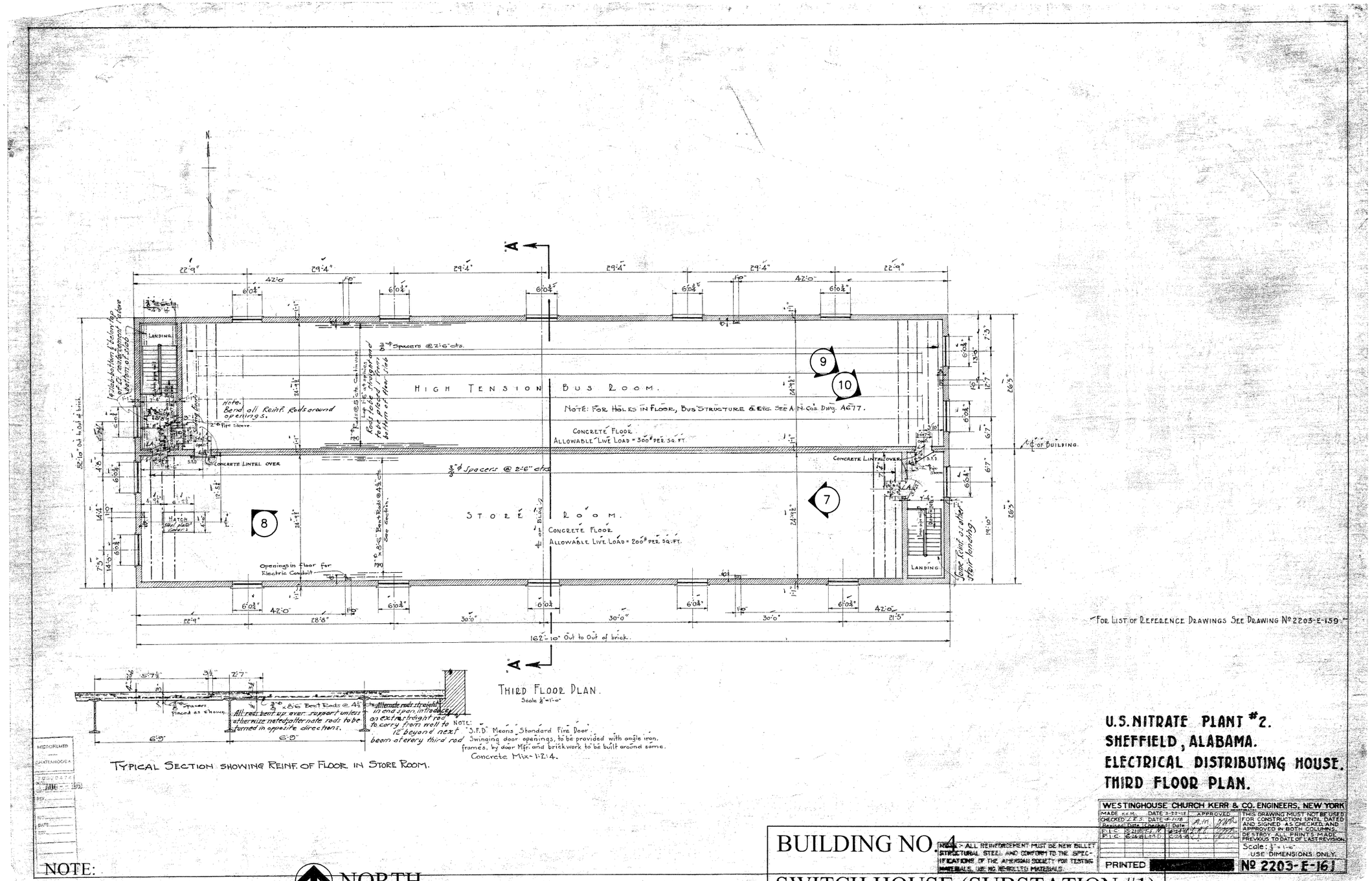
DATE: 05/2009
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 4
Switch House/Substation #1

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

SHEET# S4.2



BUILDING NO. 4

SWITCH HOUSE (SUBSTATION #1)

NOTE:

# INDICATES PHOTOGRAPH LOCATION

NORTH

3RD FLOOR PLAN

SEAL

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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BLP, INC. PROJECT NO.
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 4
Switch House/Substation #1

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S4.3

SHEET#

PHOTOLOG: Building 4 Switch House



Photograph #: 1

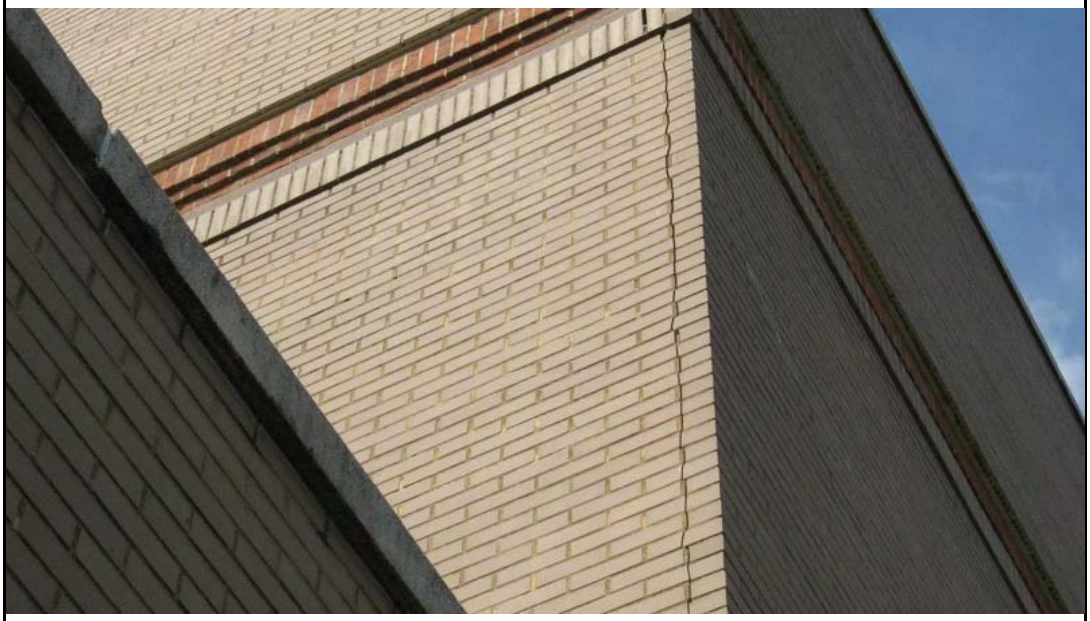
Exterior building looking at southwest corner



Photograph #: 2

Exterior building looking at northeast corner

PHOTOLOG: Building 4 Switch House



Photograph #: 3

Full height crack in exterior masonry wall at northeast corner.



Photograph #: 4

Structurally unstable masonry parapet at north extension.

PHOTOLOG: Building 4 Switch House



Photograph #: 5

Structurally unstable masonry parapet at north extension.



Photograph #: 6

Moderate to severe corrosion at steel beams below second floor.

PHOTOLOG: Building 4 Switch House



Photograph #: 7

Mild corrosion at roof beams.



Photograph #: 8

Mild to moderate corrosion at roof beams.

PHOTOLOG: Building 4 Switch House



Photograph #: 9

Moderate corrosion at roof beams.



Photograph #: 10

Moderate corrosion at roof beam - steel surface below peeling paint has irregular surface, indicating trend to severe corrosion.

Structural Assessment - General Information

Building No.: 5 Drum Storage Area Building	
Building Name:	Drum Storage Area Building
Original Function:	Raw Material Sampling Building
Subsequent Modification	Interior Mechanical Mezzanine added
General Building Structure Description:	One story building with interior and exterior load bearing masonry walls and concrete plank roof deck supported on steel beams. The roof structure includes a central clerestory monitor approximately 8 feet high. The building also has a wood frame mechanical mezzanine not indicated on the original drawings.
General Building Structural Condition:	The building is in generally fair condition for its age. Defects include voids in exterior masonry units, mildly corroded steel roof beams, a relatively small area of the concrete plank roof deck that is structurally unsound, a moderately deteriorated wood frame mechanical mezzanine, and a damaged metal awning at the main entrance.
Summary of Recommended Structural Repairs:	Voids in exterior masonry should be repaired to prevent further deterioration. Defective concrete roof plank must be replaced, necessitating associated repairs to roof covering. The floor deck of the mechanical mezzanine and the damaged metal awning should be replaced.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 5 Drum Storage Area Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Mezzanine Floor System (Deck and framing)	4	Yes
Interior Load Bearing Walls	3	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No
Awnings (Total Assembly)	5	Yes

Condition Code Description

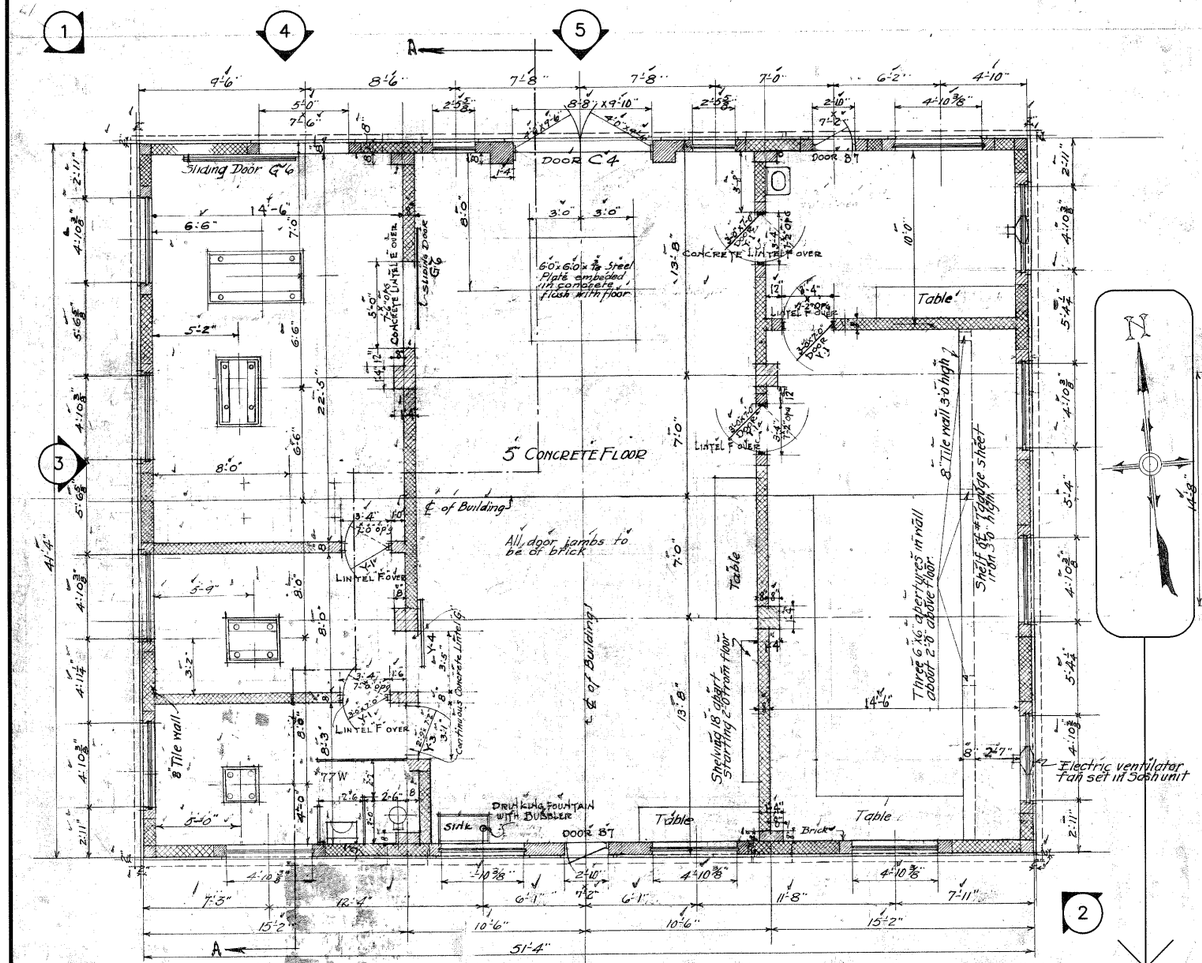
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

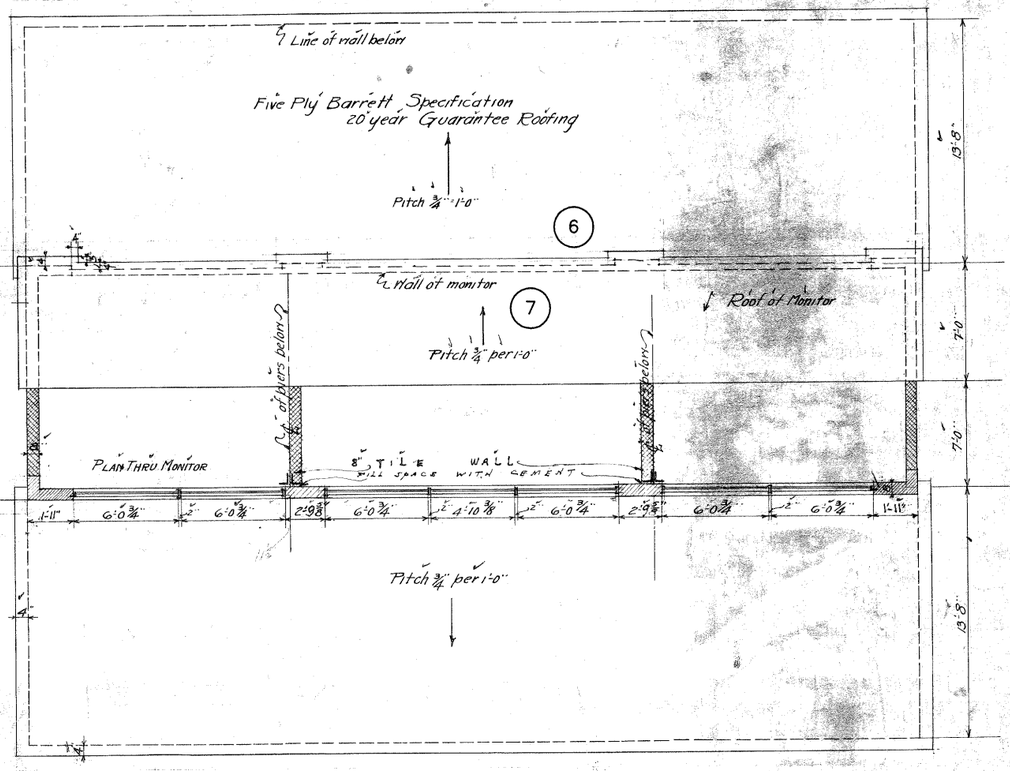
Building 5 Drum Storage Area Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Numerous holes from bolts or other attachments in Exterior Masonry wall	5 SF	R-M-1	3,4
2	Concrete Roof Plank with spalled soffit and exposed rebar	8 SF	R-D-1	6
3	Slightly deteriorated timber planking	150 SF	R-W-2	7
4	Mildly corroded Steel Roof Beams	90 %	R-S-1	
5	Impact damage to aluminum awning	50 SF	R-A-2	5
6	Delaminated floor coating	500 SF	R-C-4	

Repair Code -	Description
R-A-2	Replace damaged awning
R-C-4	Remove floor finish and repair damaged slab
R-D-1	Replace defective concrete planks at roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-S-1	Sandblast, prime, and paint structural steel
R-W-2	Replace or reinforce defective wood framing



FLOOR PLAN

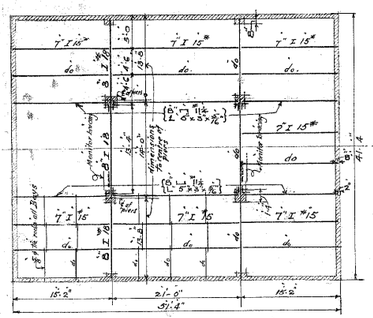


ROOF PLAN

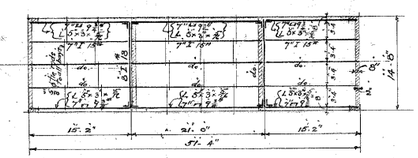
NORTH

NOTE:

MAIN DOOR IS ON SOUTH SIDE OF BUILDING - SEE PHOTO NO. 1



ROOF FRAMING PLAN



MONITOR FRAMING PLAN

GENERAL NOTES

Roof load, live #10/□' dead #30/□' Total #40/□'.
Material; O.H. steel mfrs. Std. Spec. Class B.
Rivets ¾" ϕ open holes 1/16" unless noted.
Field connections riveted except purlins are to be bolted.
Furnish all field rivets, field bolts, and fitting up bolts.
Shop Paint; one coat of Cheeseman & Elliots #31 Dark.
Field " as specified.
Punch steel for attachment for sash.
Prefix all shipping marks with letter "Y."

REFERENCE DRAWINGS.
EQUIPMENT FOUNDATIONS, A.N.Co. DWG. No 476.
FOUNDATION PLAN & DETAILS 2203-E-501
NORTH & WEST ELEVATION-2203-E-503
SOUTH & EAST ELEVATION & CROSS SECTION 2203-E-504

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
RAW MATERIAL SAMPLING BLDG.
FLOOR PLAN & ROOF.

BUILDING NO. 5

DRUM STORAGE AREA BUILDING

P.B.W. 4/24/18
U.S./J.A.D. 5-7-18/6-17-18
E.C. 6/6-18
F.H.R. 6-19-18
Crosts 6-29-18
D.M. 7-2-18

¼" = 1 FOOT

2203-E-502

MICROFILMED

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

SEAL

REVISIONS

No.	DATE	DESCRIPTION
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SUBMITTALS

No.	DATE	DESCRIPTION
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BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 5
Drum Storage Area

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S5.1

SHEET#

PHOTOLOG: Building 5 Drum Storage Area



Photograph #: 1

Exterior building looking at southeast corner.



Photograph #: 2

Exterior building looking at northwest corner.

PHOTOLOG: Building 5 Drum Storage Area



Photograph #: 3

East wall - voids and typical holes in masonry units.



Photograph #: 4

South wall - voids in masonry units.

PHOTOLOG: Building 5 Drum Storage Area



Photograph #: 5

Impact damage at metal awning on south side.



Photograph #: 6

Concrete roof plank with spalled soffit and exposed rebar.

PHOTOLOG: Building 5 Drum Storage Area



Photograph #: 7

Moderately deteriorated wood planking at mechanical mezzanine.

Structural Assessment - General Information

Building No.: 6 R-M Lab	
Building Name:	R/M Lab
Original Function:	Wash and Locker House 1
Subsequent Modification	N/A
General Building Structure Description:	One story building with exterior load bearing masonry walls and interior timber frame. The wood frame roof structure includes a central clerestory monitor approximately 8 feet high. The building has a wood frame mezzanine directly below the monitor.
General Building Structural Condition:	The exterior masonry walls are reasonably well preserved, considering the severely deteriorated roof. Most of the monitor roof has collapsed, leaving the interior building exposed to weather. The low roof on each side of the monitor is badly deteriorated, and the wood frame mezzanine is structurally unsound. Timber columns supporting the roof and mezzanine are visibly deteriorated, and their structural integrity has been compromised by exposure to weather.
Summary of Recommended Structural Repairs:	It is recommended that the building be demolished, as only the exterior walls are in salvageable condition.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 6 R-M Lab

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Mezzanine Floor System (Deck and framing)	5	Yes
Columns	4	No
Exterior Walls	3	Yes
Roof Framing and Subframing	5	Yes
Roof Deck	5	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	5	Yes

Condition Code Description

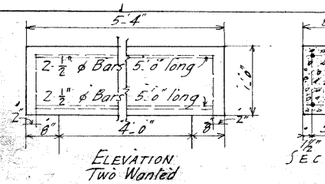
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 6 R-M Lab

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Voids in masonry wall	3 SF	R-M-1	-
2	Voids in masonry wall	8 SF	R-M-1	-
3	Cracks in masonry wall	20 LF	R-M-2	-
4	Decayed wood roof framing at fascia and monitor roof framing.	1700 LF	R-W-1	3
5	Decayed wood roof framing (Typical)		R-W-4	4
6	Low roof framing and deck in poor condition.	1400 LF	R-W-1	6
7	Low roof badly deteriorated and open to sky; wood rafters rotten and sagging.	2600 SF	R-W-1	7
8	Roof diaphragm is missing, damaged and deteriorated	3500 SF	R-D-2	5
9	Mezzanine framing and deck deteriorated due to moisture damage	300 LF	R-W-1	8

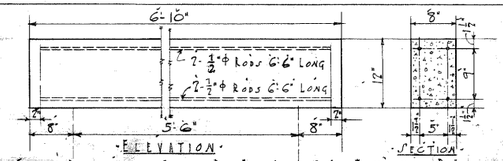
Repair Code -	Description
R-D-2	Replace roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant
R-W-1	Replace defective wood framing and reconstruct wood finish
R-W-4	Replace wood roof assembly



ELEVATION
Two Wanted

SECTION

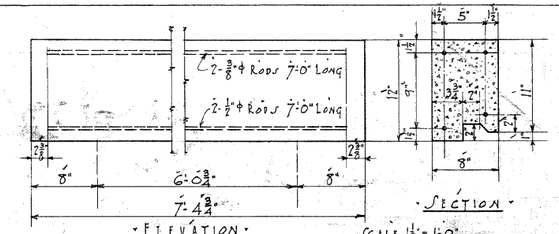
REINFORCED CONCRETE LINTELS OVER OPENINGS IN WASH ROOMS
Scale 1"=1'-0"



ELEVATION

SECTION

DETAIL OF REINFORCED CONCRETE LINTEL OVER ENTRANCE DOORS
2 WANTED
Scale 1"=1'-0"

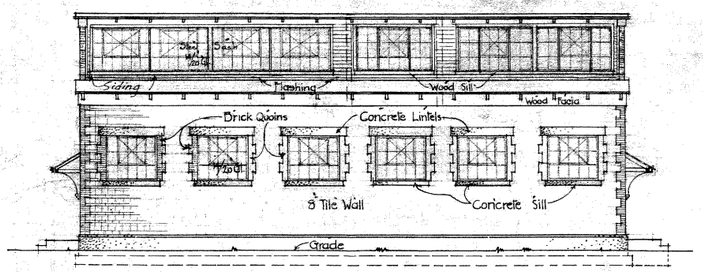


ELEVATION

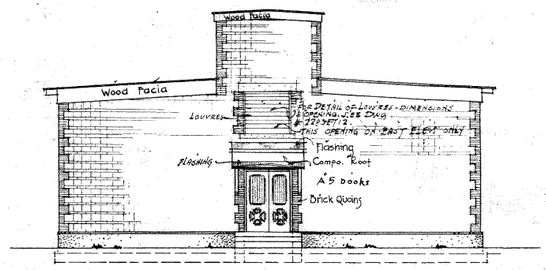
SECTION

Scale 1½"=1'-0"

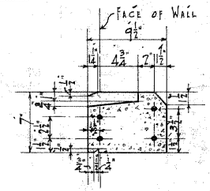
DETAIL OF REINFORCED CONCRETE LINTELS OVER WINDOWS
12 WANTED



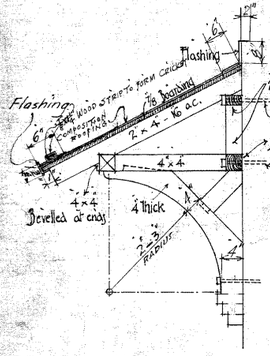
South Elevation
North " Similiar



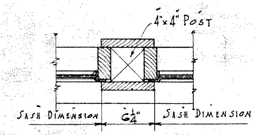
East Elevation
West " Similiar



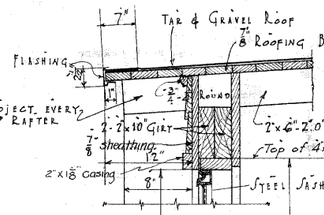
SECTION
Scale 1½"=1'-0"



DETAIL OF HOOD OVER DOORS
Scale ¾"=1'-0"



DETAIL AT POSTS

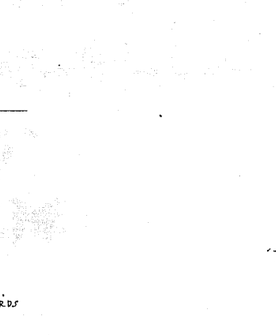


HEAD DETAIL

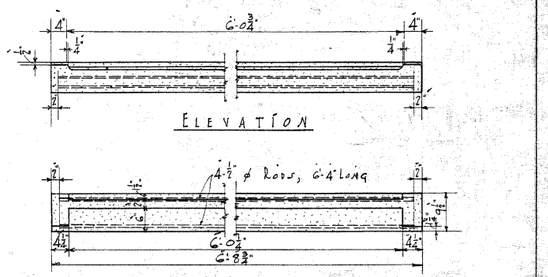
TYPICAL JAMB DETAIL

SILL DETAIL

DETAILS OF MONITOR SASH
Scale 1½"=1'-0"

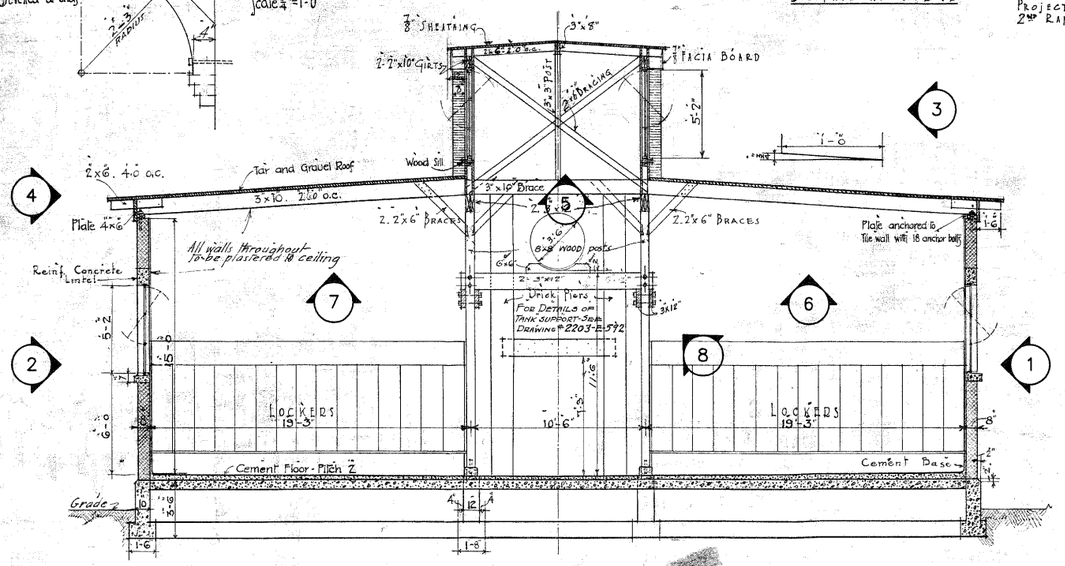


DETAIL OF LINTEL & SILL FOR LOUVRE OPENING ON EAST ELEV.



PLAN

DETAIL OF CONCRETE SILLS
12 WANTED
Scale ¾"=1'-0"



Section A.A.

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 6
R/M LAB

REFERENCE DRAWINGS
PLANS 2203-E-245

MICROFILMED
CHATTANOOGA
NOV 1983

U.S. NITRATE PLANT #2
SHEFFIELD, ALABAMA.
WASH HOUSE #1
ELEVATIONS, SECTION & DETAILS.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK				
MADE	J.L.D.	DATE 3/20/18	APPROVED	
CHECKED	[illegible]	DATE 3/20/18	A.M.	
Revised	Date	Checked	Date	
W.B.M.	[illegible]	4-14-18	A.M.	
J.T.D.	[illegible]	5-16-18	[illegible]	
E.C.	[illegible]	5-16-18	[illegible]	
PRINTED	[redacted]			

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED AND SIGNED AS CHECKED AND APPROVED IN BOTH COLUMNS.
DESTROY ALL PRINTS MADE PREVIOUS TO DATE OF LAST REVISION.
Scale: ⅛"-¼"-½"-1"-1½"=1'-0"
USE DIMENSIONS ONLY.
№ 2203-E-276

MICROFILMED

MACTEC
MACTEC Engineering and Consulting, Inc.
398 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4781

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No.	DATE	DESCRIPTION

SUBMITTALS

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BLP. INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 6
R/M Lab

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

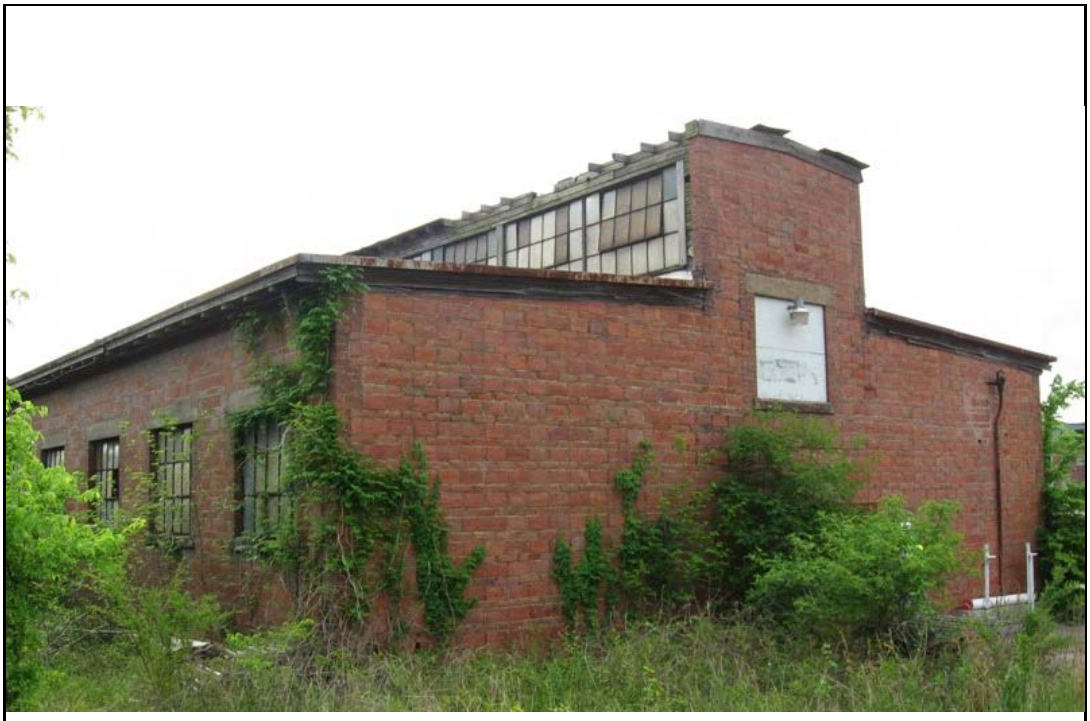
Photolog Plan

SHEET TITLE

S6.1

SHEET #

PHOTOLOG: Building 6 R-M Lab



Photograph #: 1

Exterior building looking at northwest corner



Photograph #: 2

Exterior building looking at southwest corner.

PHOTOLOG: Building 6 R-M Lab



Photograph #: 3

View of clerestory monitor with deteriorated roof structure.



Photograph #: 4

View of decayed wood roof structure on south side.

PHOTOLOG: Building 6 R-M Lab



Photograph #: 5

Decayed/missing roof at monitor



Photograph #: 6

Deteriorated low roof structure

PHOTOLOG: Building 6 R-M Lab



Photograph #: 7

Deteriorated low roof structure



Photograph #: 8

Wood frame mezzanine below monitor is structurally unsound.

Structural Assessment - General Information

Building No.: 15 PDW Receiving Warehouse	
Building Name:	PDW Receiving Warehouse
Original Function:	Phosphate Development Warehouse
Subsequent Modification	N/A
General Building Structure Description:	One story building with steel roof trusses supported by steel columns. Exterior walls are concrete masonry units laterally braced by steel frame. Roof deck is concrete planks supported by steel beams. Concrete loading docks extend the full length of the north and south sides of building, and are covered with cantilevered steel frame canopies with metal panel roofs.
General Building Structural Condition:	Building is in generally fair condition with no significant structural defects. Evidence of water intrusion can be seen in several areas of the concrete plank roof deck. Interior and exterior painted steel frame has minor corrosion; exterior metal panel canopy roofs are in good condition and appear to be newer than original building.
Summary of Recommended Structural Repairs:	Building structure does not require significant repair. Primary defects appear to be limited to leaking roof membrane, and concrete roof planks may be deteriorated on top side underneath membrane. Replacement of roof membrane is required and examination of roof deck condition from above is recommended.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 15 PDW Receiving Warehouse

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Ramps, Stairs, and Landings (At or below first floor)	3	No
Loading Docks (Walls, supports, and slabs)	3	Yes
Columns	2	No
Exterior Walls	3	No
Roof Framing and Subframing	2	No
Roof Deck	3	Yes
Canopies (Framing and deck)	3	Yes

Condition Code Description

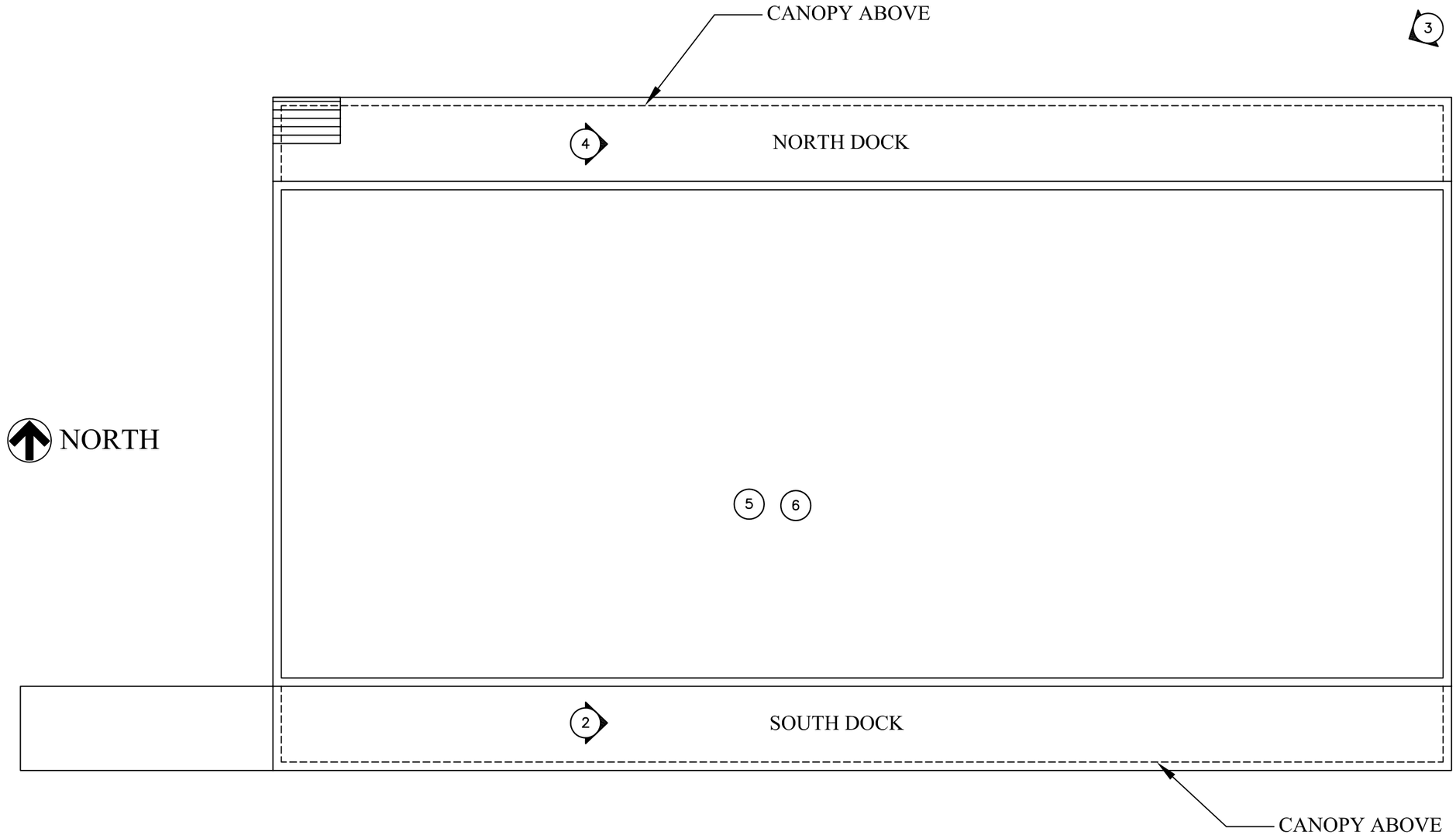
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 15 PDW Receiving Warehouse

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Water stained concrete panel roof deck.	1520 SF	R-D-2	5,6
2	Minor cracking and spalls on south loading dock canopy		R-C-3	2
3	Slightly corroded south canopy covered with debris and vegetation.			4

Repair Code -	Description
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-2	Replace roof deck



NORTH

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 15
PDW RECEIVING WAREHOUSE

PLAN NOT TO SCALE

SEAL

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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BLP, INC. PROJECT NO:
DATE: 051599
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 15
PDW Receiving Warehouse

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S15.1
SHEET#

Building 15 PDW Receiving Warehouse



Photograph #: 1

Exterior building looking at southwest corner.



Photograph #: 2

South dock looking east.

Building 15 PDW Receiving Warehouse



Photograph #: 3

Exterior building on north side.



Photograph #: 4

North dock looking east

Building 15 PDW Receiving Warehouse



Photograph #: 5

Evidence of water intrusion at concrete plank roof deck.



Photograph #: 6

Evidence of water intrusion at concrete plank roof deck.

Structural Assessment - General Information

Building No.: 16 Power Service Shop No. 2	
Building Name:	Power Service Shop No. 2
Original Function:	Liquid Air Building
Subsequent Modification	N/A
General Building Structure Description:	One story steel frame building with two interior mezzanines at the north end and one interior mezzanine at the south end. The building is approximately 45 ft. tall with two 10 ft. high clerestory monitors above the main roof. The main roof and monitors are supported by steel trusses that span approximately 50 ft. in the east-west direction. The building is two 50 ft. bays wide and twenty-three 25 ft. bays long. The roof deck is concrete planks supported on steel beams. The north and south exterior walls are load bearing masonry and the east and west walls are self-supporting masonry infill panels that engage steel columns and roof beams that are exposed inside and covered with masonry outside. The long sides of the building each have five vertical expansion joints covered with exterior steel plates.
General Building Structural Condition:	The overall building is in generally fair condition. The structural steel framing is mildly to moderately corroded. The concrete roof planks exhibit surface deterioration throughout the building. Cracks were observed in the exterior masonry walls, and some deteriorated masonry detailing was noted at the north and south ends of the building. Extensive deterioration of the plaster veneer at the base of the building was observed, especially on the west elevation. The plaster is an architectural finish, and the condition of the masonry material behind it could not be observed.
Summary of Recommended Structural Repairs:	The structural steel framing must be sandblasted and painted. Structurally defective concrete roof planks, if applicable, should be replaced. Cracks in exterior masonry walls and deteriorated masonry detailing must be repaired. The deteriorated plaster veneer at the base of the building should be removed and defective masonry beneath it, if applicable, must be repaired.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the extent of repairs required. Subsequent evaluation of the masonry walls after the deteriorated plaster has been removed will be required.

Table 1: Structural Systems Assessment

Building 16 Power Service Shop No. 2

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Mezzanine Floor System (Deck and framing)	3	No
Columns	3	No
Interior Load Bearing Walls	2	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes
Interior Stairs	2	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

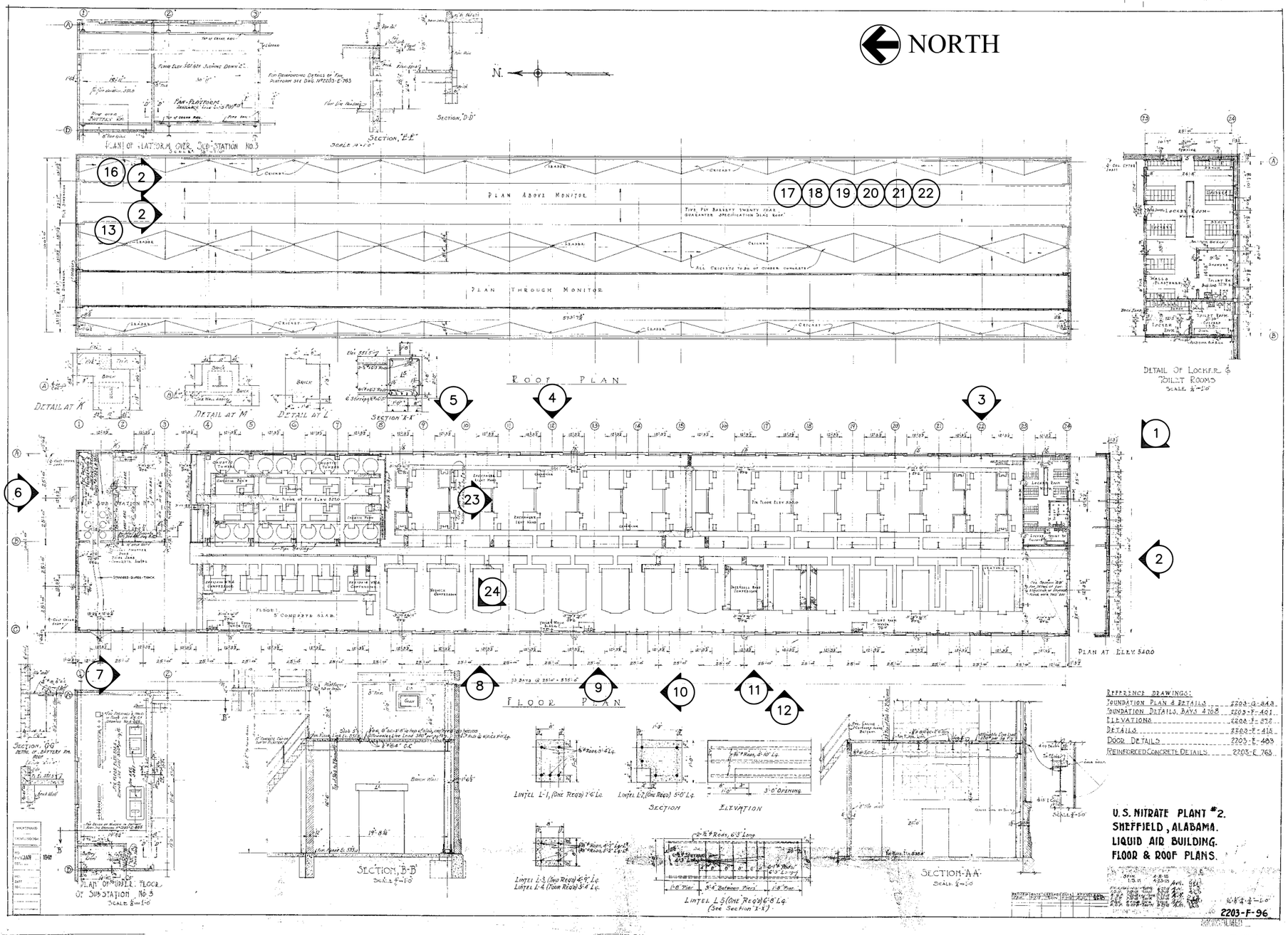
Table 2: Itemized Structural Defects

Building 16 Power Service Shop No. 2

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Crack in plaster base on southeast corner and masonry	30 LF	R-P-1	
2	Spalling brick band below monitors on south end	50 LF	R-M-3	
3	Voids in south end wall, deteriorated masonry below roof	12 SF	R-M-1	2
4	Cracked plaster veneer at top of masonry wall on east side, south end (typical)		R-P-1	
5	Cracks in masonry at top of window	10 LF	R-M-2	3
6	Plaster trim stops at 2nd (of 5) expansion joints on east side			
7	Cracked plaster base on east side (typical)		R-P-1	
8	Cracks at top of windows at 3rd of 5 expansion joints	10 LF		4
9	Cracked/spalled plaster base on east side at 4th of 5 expansion joints (typical)		R-P-1	5
10	Crack in plaster base iand n masonry above	15 LF	R-P-1	6
11	Spalling brick at band below monitor on north end		R-M-3	7
12	Voids in masonry between windows on west side, north end	5 SF	R-M-1	
13	General deterioration of plaster base on west side		R-P-2	9
14	Plaster base spalled below window opening	5 SF	R-P-2	
15	Cracked/spall at plaster base on west side	10 SF	R-P-2	
16	Misc. defects in plaster base on west side		R-P-2	9,10
17	Ugly patch in plaster base on west side	100 SF	R-P-2	11
18	Missing flashing at roof coping on west side	10 LF		12
19	Low mezzanine on north end - good condition (typical)			
20	Steel at roof and roof diaphragm above mezzanine in good condition/minor rust on steel/minor spalling at concrete planes (typical)			13
21	High mezzanine on north end, south side of low mezzanine - good condition (typical)			
22	Monitor roof deck - fair condition (typical)			
23	Low roof deck - fair to poor condition (typical)		R-D-1	14
24	Minor spalling and some efflorescence/deterioration (typical)		R-C-3	15
25	Moderate corrosion on steel trusses above high mezzanine		R-S-1	16
26	Cracks in slab - wide cracks (1/2 length of bldg (1/8" +), medium - narrow cracks (2 x length of bldg (<1/8")		R-C-1	24
27	General roof condition is fair			
28	Mezzanine at south end - good condition			

Table 2: Itemized Structural Defects

Building 16 Power Service Shop No. 2	
Repair Code - Description	
R-C-1	Route and seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-1	Replace defective concrete planks at roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material
R-P-1	Repair cracks in plaster with appropriate sealant
R-P-2	Remove damaged and/or unstable plaster and construct new plaster finish
R-S-1	Sandblast, prime, and paint structural steel



NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 16

POWER SERVICE SHOP NO. 2

PLAN NOT TO SCALE

SEAL

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

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BLP, INC. PROJECT NO:

DATE: 051599

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 16
PDW Receiving Warehouse

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog
Plan

SHEET TITLE

S16.1

SHEET#

Building 16 Power Service Shop No. 2



Photograph #: 1

Exterior building looking at southeast corner



Photograph #: 2

Deteriorated masonry at roof line on south

Building 16 Power Service Shop No. 2



Photograph #: 3

Crack in masonry at east wall



Photograph #: 4

Cracks in masonry at east wall

Building 16 Power Service Shop No. 2



Photograph #: 5

Deteriorated plaster veneer at east wall



Photograph #: 6

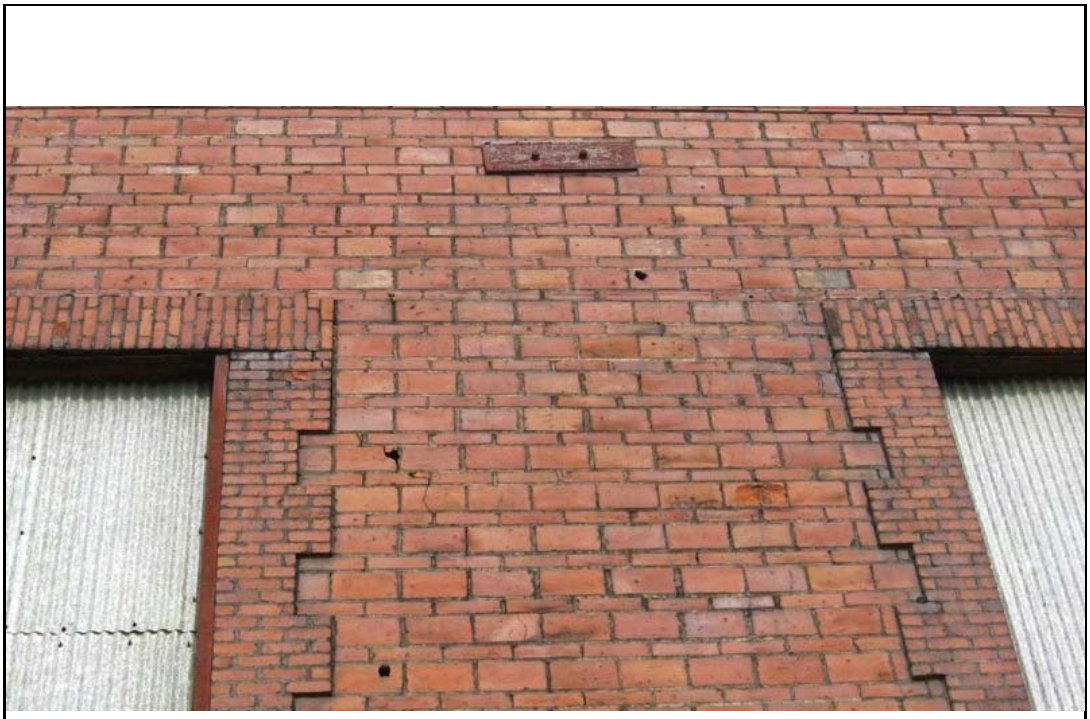
Deteriorated masonry at roof line at north wall

Building 16 Power Service Shop No. 2



Photograph #: 7

Deteriorated plaster veneer at west wall



Photograph #: 8

Deteriorated plaster veneer at west wall

Building 16 Power Service Shop No. 2



Photograph #: 9

Deteriorated plaster veneer at west wall



Photograph #: 10

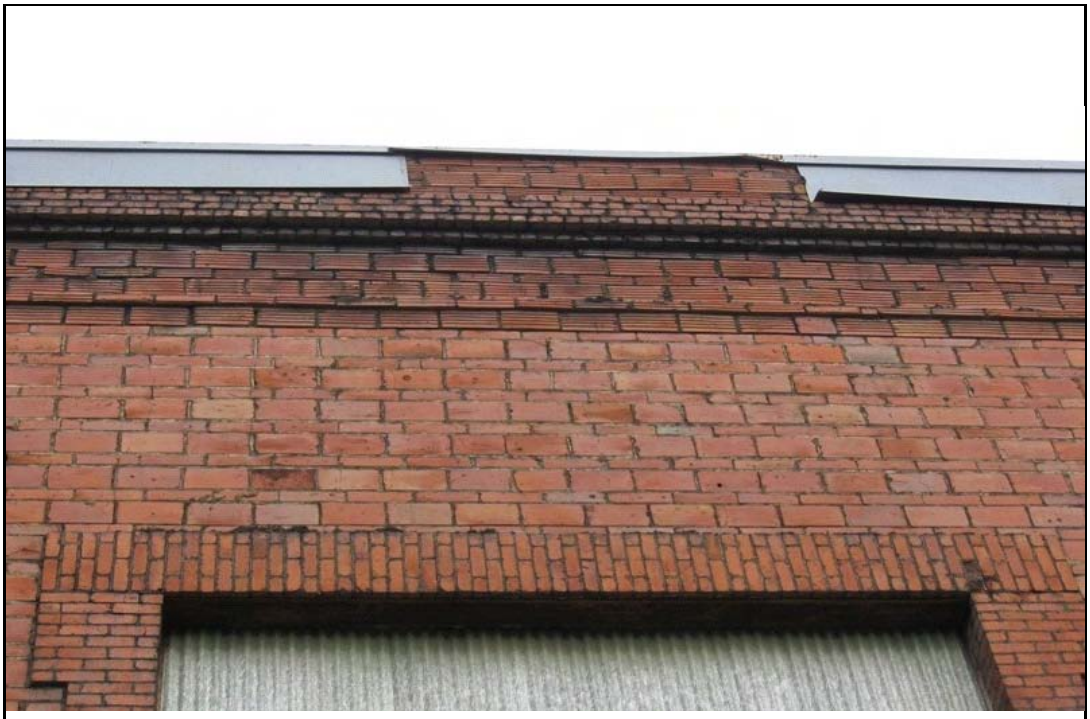
Plaster veneer on exposed masonry at west wall

Building 16 Power Service Shop No. 2



Photograph #: 11

Deteriorated plaster veneer at west wall



Photograph #: 12

Missing roof flashing at west wall

Building 16 Power Service Shop No. 2



Photograph #: 13

Roof construction above north mezzanine



Photograph #: 14

View of east roof from north mezzanine

Building 16 Power Service Shop No. 2



Photograph #: 15

Surface deterioration at roof deck



Photograph #: 16

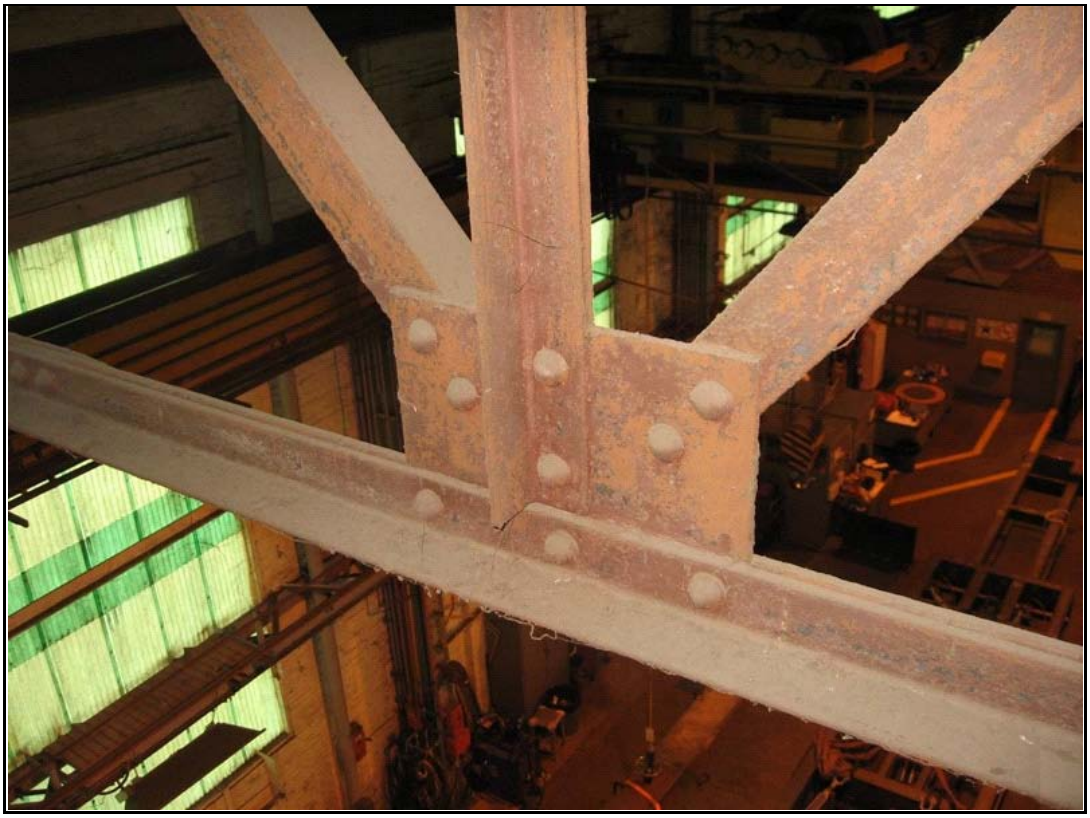
Surface deterioration at roof deck and moderately corroded roof framing

Building 16 Power Service Shop No. 2



Photograph #: 17

Moderately corroded roof framing



Photograph #: 18

Moderately corroded roof framing

Building 16 Power Service Shop No. 2



Photograph #: 19

View of transition from clerestory to main roof



Photograph #: 20

Moderately corroded roof framing at clerestory monitor

Building 16 Power Service Shop No. 2



Photograph #: 21

Surface deterioration of roof deck at monitor



Photograph #: 22

Surface deterioration at roof deck and moderately corroded steel framing at monitor

Building 16 Power Service Shop No. 2



Photograph #: 23

Interior building looking at south mezzanine



Photograph #: 24

Cracks in concrete floor slab

Structural Assessment - General Information

Building No.: 17 ERC

Building Name:	Environmental Research Center/Service Building
Original Function:	Comical Engineering Building/Gatehouse
Subsequent Modification	Subsequent Expansions
General Building Structure Description:	Building 17 consists of two structurally separate buildings. The Service Building is a one story steel frame building with a metal deck roof and exterior masonry walls. The Service Building has a partial concrete basement with a service tunnel that connects to the Environmental Research Center Building. The first floor level of the Service Building above the basement is a concrete slab on steel beams. Most of the interior of the Service Building is fully finished and the structure in the finished areas could not be observed. The vehicle storage area at the southeast corner has an exposed metal roof deck on steel beams, and portions of metal roof deck were visible in other parts of the Service Building through small voids in the finished ceilings. The Environmental Research Center (ERC) consists of a multi-wing two story concrete frame structure with exterior masonry walls. The ERC has an extensive partial basement, an auditorium on the second level, and an open two story atrium at the main entrance. The atrium has a circular well at ground level that is open to the basement level below. Most of the interior of the ERC is fully finished and the structure in the finished areas could not be observed. Some areas of the basement ceiling were exposed, revealing a concrete pan joist structure in very good condition. Portions of concrete framing and slabs were visible in other parts of the building through small voids in the finished ceilings.
General Building Structural Condition:	The Service Building is in generally good condition, with some minor interior deficiencies noted in the vehicle storage area. The exterior concrete overhang near the building entrance has a crack in the soffit, and the adjacent concrete canopy supported on concrete piers has notable surface deterioration due to water intrusion at the roof surface. The Environmental Research Center is in good condition for its age, with the exception of a few isolated cracks in the exterior masonry walls. No other significant structural deficiencies were noted.

Structural Assessment - General Information

Building No.: 17 ERC

Summary of Recommended Structural Repairs:	Service Building: Water intrusion deficiencies at the exterior concrete canopy and at the vehicle storage area need to be remediated. The crack in the concrete soffit near the building entrance needs to be repaired. ERC: Isolated cracks in exterior masonry walls meet to be repaired.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 17 ERC

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	2	Yes
Lowest Level Floor System	1	No
First Floor System [Above basement] (Deck and framing)	1	No
Second Floor System (Deck and framing)	1	No
Columns	1	No
Exterior Walls	2	No
Roof Deck	1	No
Interior Stairs	1	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 1: Structural Systems Assessment

Building 17 Service Building

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	2	No
Lowest Level Floor System	2	Yes
Exterior Slabs at Canopies	2	No
Columns	2	No
Exterior Walls	2	Yes
Roof Framing and Subframing	2	No
Roof Deck	3	Yes
Canopies (Framing and deck)	3	Yes

Condition Code Description

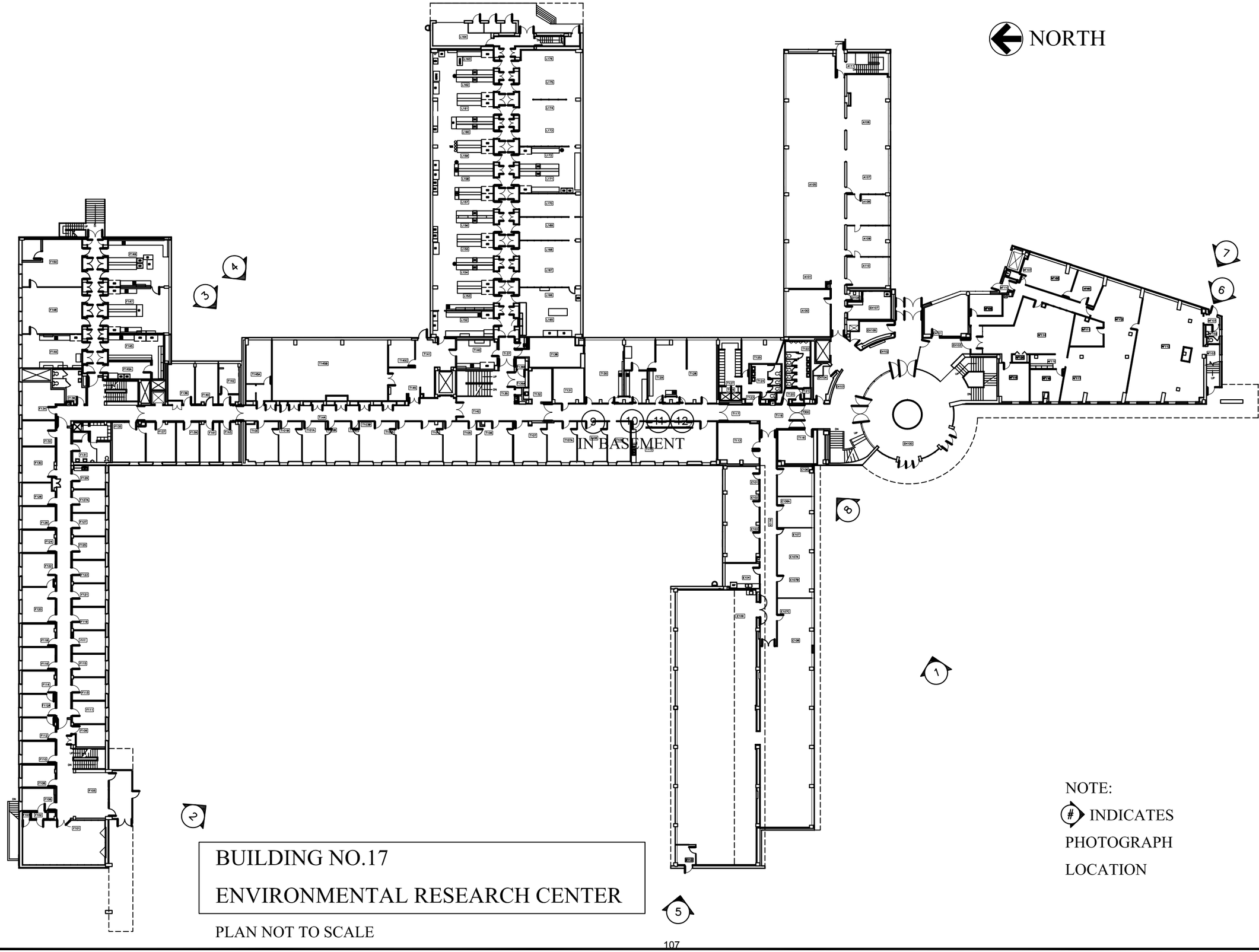
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 17

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	ERC: Isolated cracks in exterior masonry walls	60 LF	R-M-2	5,6,7,8
2	ERC: Minor cracks in interior masonry walls	20 LF	R-M-2	9,10,11,12
3	Service Building: Crack in concrete soffit near man entrance	10 LF	R-M-2	14
4	Service Building: Minor roof deck corrosion at vehicle storage area	400 SF	R-D-3	15,16
5	Service Building: Water intrusion at exterior masonry wall	300 SF	R-M-1	17,18
6	Service Building: Minor cracks in slab at vehicle storage area	60 LF		

Repair Code -	Description
R-D-3	Repair deteriorated metal roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant



NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.17
ENVIRONMENTAL RESEARCH CENTER

PLAN NOT TO SCALE

SEAL

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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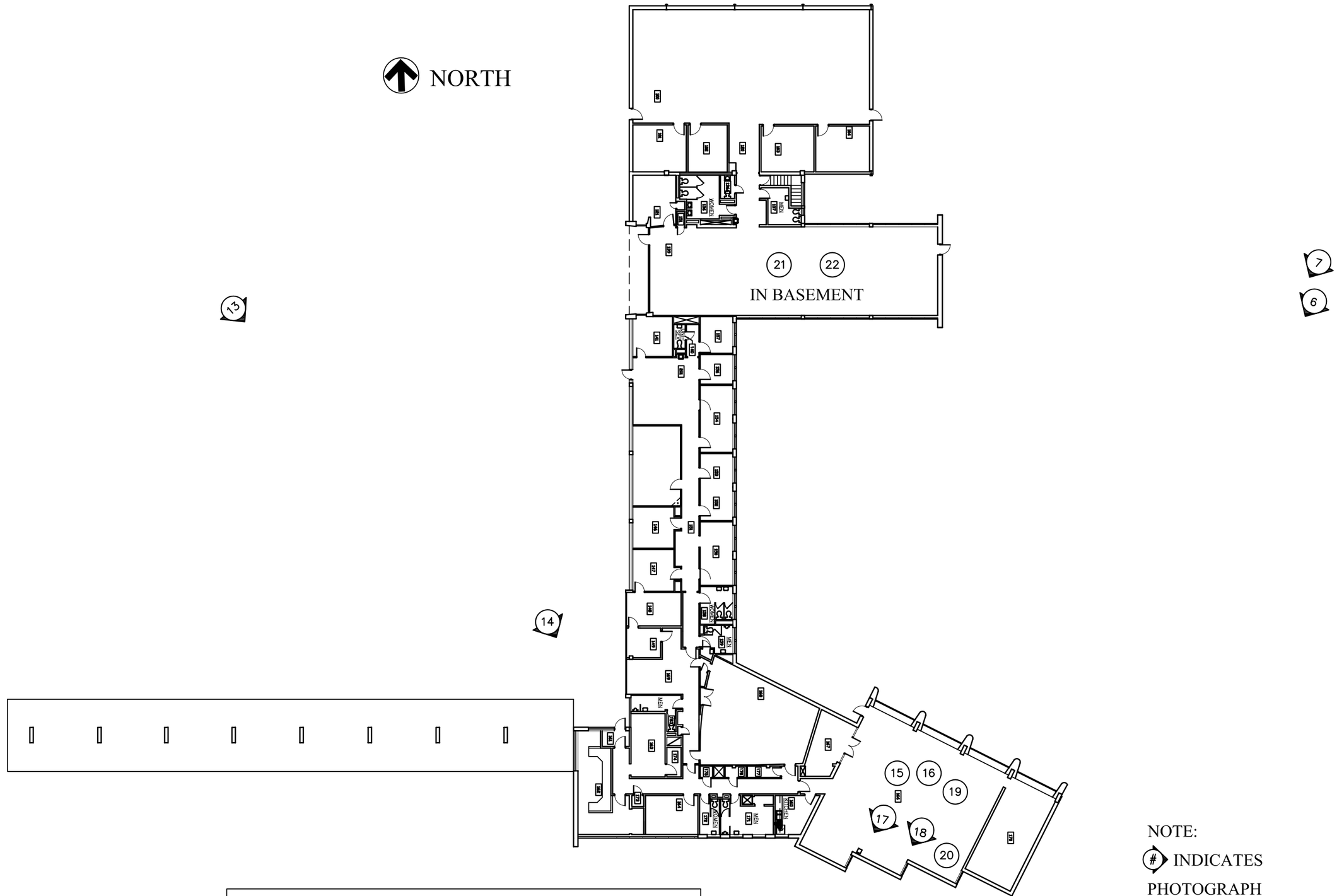
BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 17
Environmental Research Center

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S17.1
SHEET#



NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.17
SERVICE BUILDING

PLAN NOT TO SCALE

SEAL

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BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 17
Service Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S17.2
SHEET#

PHOTOLOG: Building 17



Photograph #: 1

ERC Building main entrance at Atrium



Photograph #: 2

ERC Building - exterior building looking south

PHOTOLOG: Building 17



Photograph #: 3

ERC Building - exterior building in good condition



Photograph #: 4

ERC Building - exterior building in good condition

PHOTOLOG: Building 17



Photograph #: 5

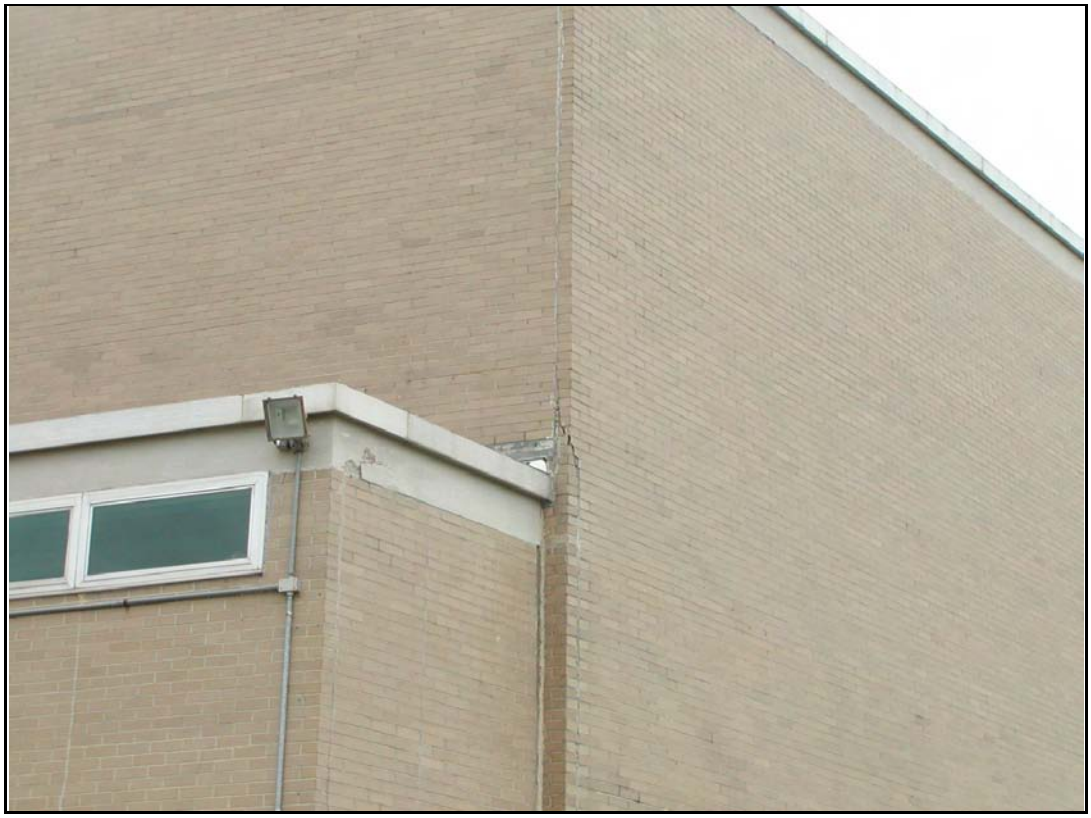
ERC Building - vertical crack in exterior wall



Photograph #: 6

ERC Building - crack in corner at top of auditorium wall

PHOTOLOG: Building 17



Photograph #: 7

ERC Building - crack at corner of auditorium wall



Photograph #: 8

ERC Building - crack in wall near building entrance

PHOTOLOG: Building 17



Photograph #: 9

ERC Building - minor crack in interior brick wall



Photograph #: 10

ERC Building - minor crack in interior brick wall

PHOTOLOG: Building 17



Photograph #: 11

ERC Building - minor crack in interior concrete masonry wall



Photograph #: 12

ERC Building - minor crack in interior concrete masonry wall

PHOTOLOG: Building 17



Photograph #: 13

ERC Building - vertical crack in exterior wall



Photograph #: 14

Service Building - crack in concrete soffit near main entrance

PHOTOLOG: Building 17



Photograph #: 15

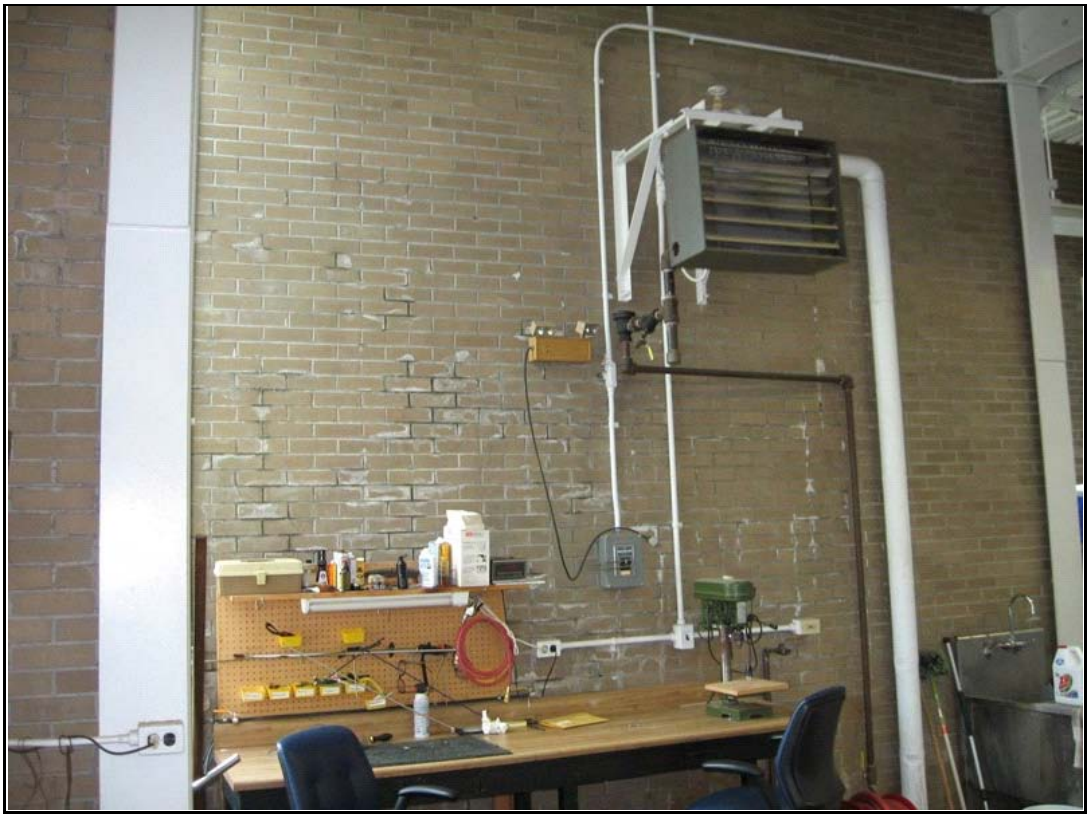
Service Building - flaking paint at metal deck in vehicle storage area



Photograph #: 16

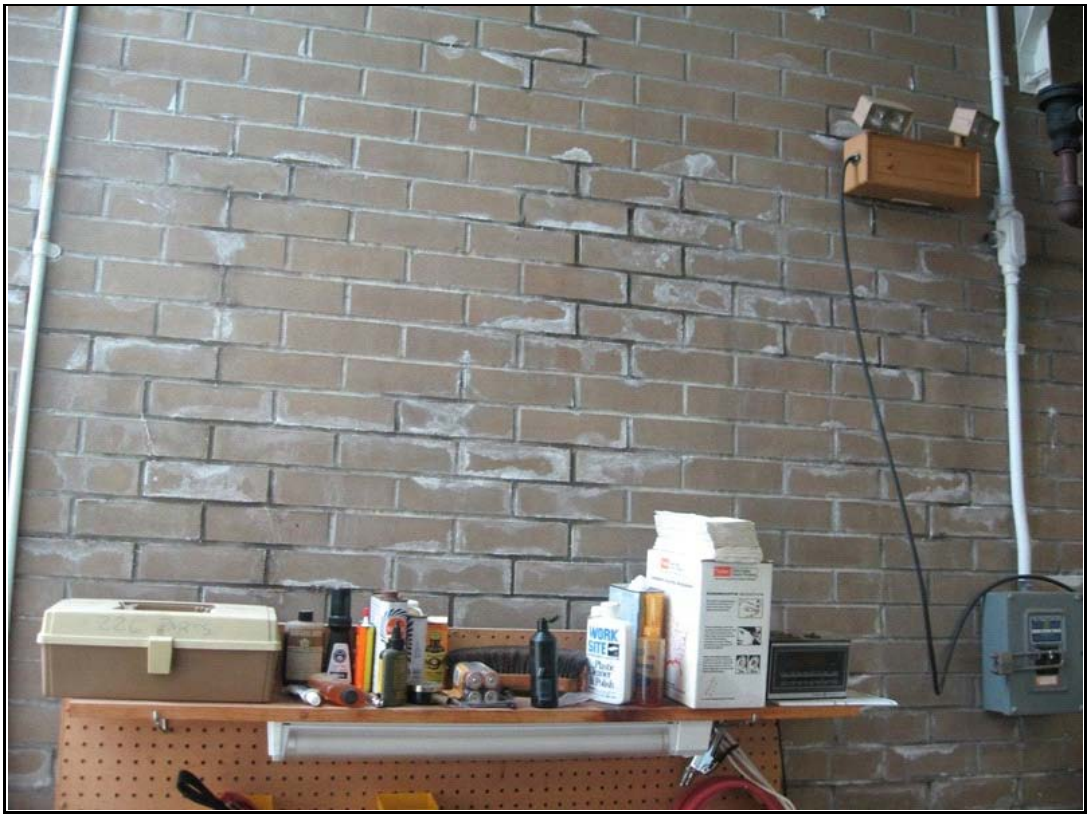
Service Building - flaking paint at metal roof deck in vehicle storage area

PHOTOLOG: Building 17



Photograph #: 17

Service - efflorescence at masonry wall of vehicle storage area



Photograph #: 18

Service Building - efflorescence at masonry wall of vehicle storage area

PHOTOLOG: Building 17



Photograph #: 19

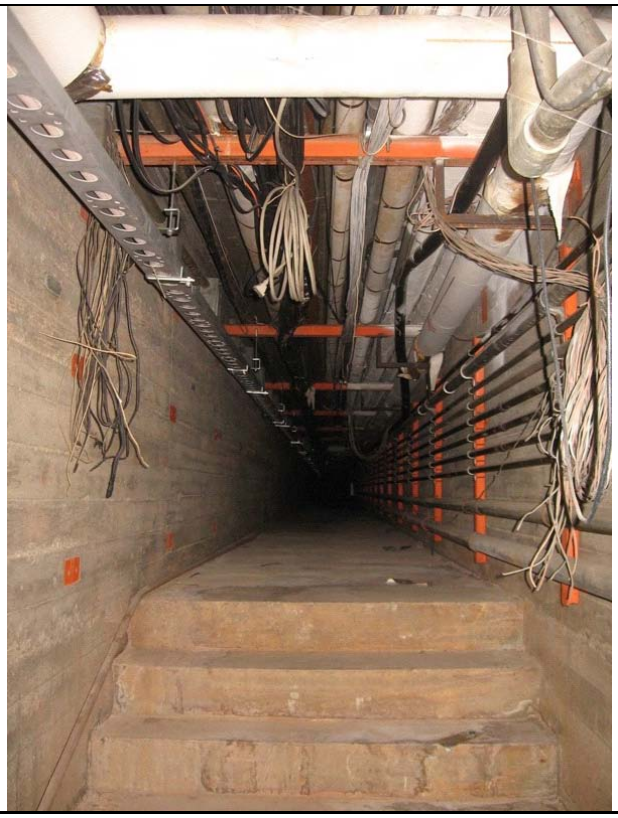
Service Building - cracks in slab at vehicle storage area



Photograph #: 20

Service Building - crack in slab at vehicle storage area

PHOTOLOG: Building 17



Photograph #: 21

Service Building - concrete service tunnel looking toward ERC Building



Photograph #: 22

Service Building - mechanical equipment in basement

Structural Assessment - General Information

Building No.: 21 Old Medical Building (Field Engineering - RBO)	
Building Name:	Old Medical Building (Field Engineering - RBO)
Original Function:	Medical Building
Subsequent Modification	Garage Addition
General Building Structure Description:	One story building with load bearing concrete masonry walls and wood frame roof structure. The interior building is completely finished and the roof structure could not be observed.
General Building Structural Condition:	The building appears to be in generally fair condition, although significant deterioration of floor and ceiling finishes due to water intrusion can be observed in numerous locations. The roof deck is presumed to be deteriorated in these locations, but it could not be observed. Minor cracking in exterior concrete masonry walls was noted in several locations.
Summary of Recommended Structural Repairs:	Cracks in exterior concrete masonry must be repaired. Damaged areas of roof deck and roof framing, if applicable, must be replaced or reinforced.
Additional Recommendations:	A detailed evaluation of the roof structure will be required to determine the extent of repair and replacement required.

Table 1: Structural Systems Assessment

Building 21 Old Medical Building (Field Engineering - RBO)

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Interior Load Bearing Walls	3	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	No
Roof Deck	4	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

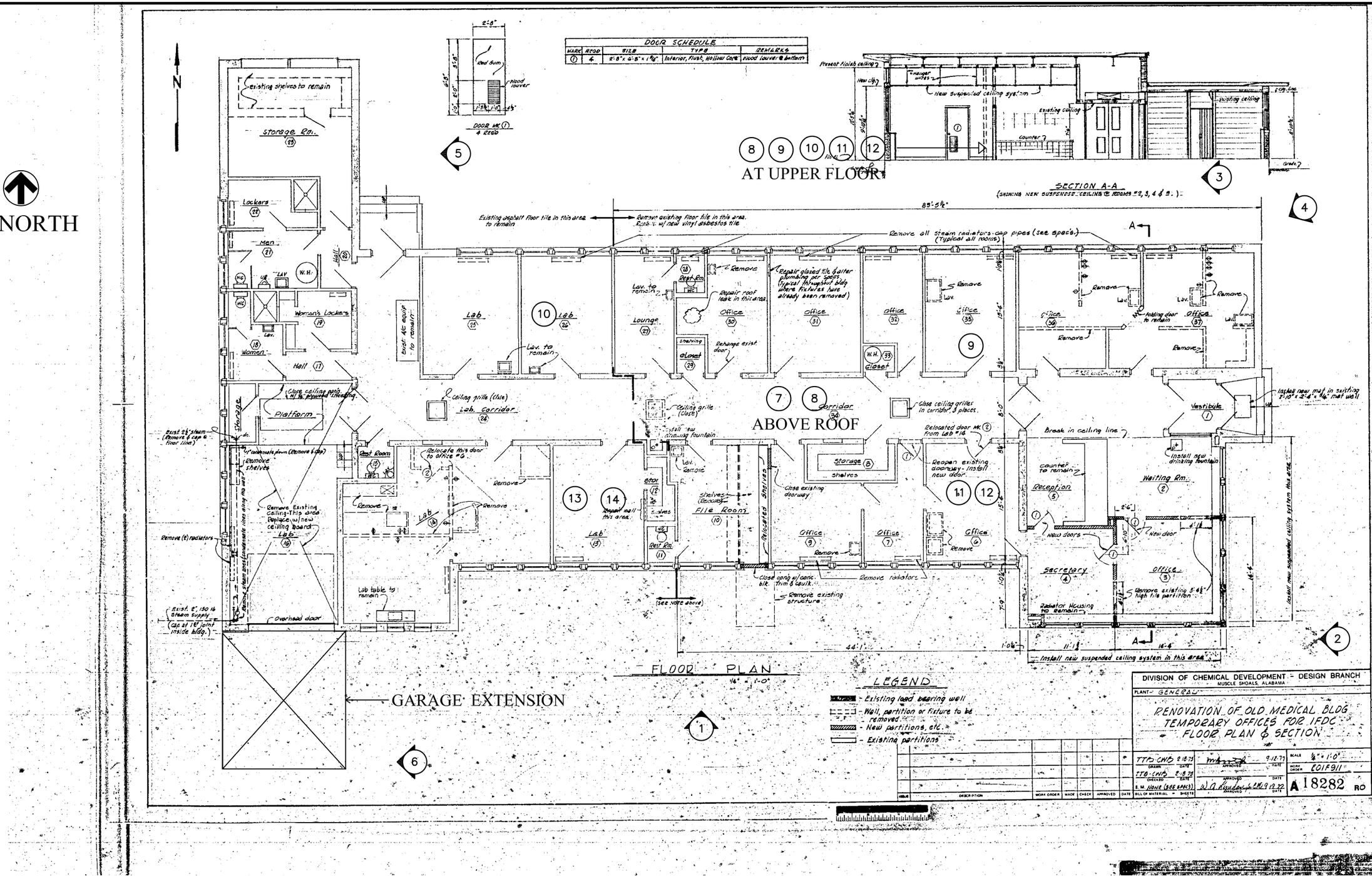
Table 2: Itemized Structural Defects

Building 21 Old Medical Building (Field Engineering - RBO)

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Minor cracking at northeast corner	30 LF	R-M-2	4
2	Minor cracking at north side	20 LF	R-M-2	
3	Minor cracking at northwest entrance	20 LF	R-M-2	
4	Interior water damage, west end		R-W-3	
5	Water damage north side		R-W-3	10
6	Water damage south side		R-W-3	13,14
7	Water damage northeast corner		R-W-3	9
8	Water damage southeast corner		R-W-3	11,12
9	Cracking, southeast corner		R-M-2	
10	Cracking, south side		R-M-2	
11	Deteriorated exterior siding at garage addition			6

Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-W-3	Replace defective wood decking

NORTH



BUILDING NO. 21

OLD MEDICAL BUILDING (FIELD ENGINEERING-RBO)

PLAN NOT TO SCALE

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

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396 PLASTERS AVENUE, N.E.
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TVA Muscle Shoals
Structural Assessment
Building No. 21
Old Medical Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

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PHOTOLOG: Building 21 Old Medical Building



Photograph #: 1

Exterior building - south side



Photograph #: 2

Exterior building - southeast corner

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 3

Exterior building - north side



Photograph #: 4

Exterior building - northeast corner

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 5

Cracks in exterior concrete masonry



Photograph #: 6

Deteriorated exterior siding at garage extension

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 7

View of roof covering



Photograph #: 8

View of roof covering

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 9

Interior water intrusion damage



Photograph #: 10

Interior water intrusion damage

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 11

Interior water intrusion damage



Photograph #: 12

Interior water intrusion damage

PHOTOLOG: Building 21 Old Medical Building



Photograph #: 13

Interior water intrusion damage



Photograph #: 14

Interior water intrusion damage

Structural Assessment - General Information

Building No.: 22,23,24 & 26	
Building Name:	L/N Building (#22), Power Service Shop Storage Area (#23), Warehouse No 4 (#24), Grounds Maintenance Shop (#26)
Original Function:	Cyanamide Oven Building
Subsequent Modification	N/A
General Building Structure Description:	Buildings 22, 23, 24, and 26 comprise one very large structurally contiguous building separated by interior masonry walls. Buildings 22 and 23 are parallel structures that together are five 50 ft. bays wide and twenty six 20 ft. bays long. The main roof at the north end is approximately 50 ft. high with 10 ft. high clerestory monitors at the center of each 50 ft. bay. The main roof at the remainder of Buildings 22 and 23 is approximately 35 ft. high with 10 ft. high clerestory monitors at the center of each 50 ft. bay. The main roof and monitors are supported by steel trusses, and the roof deck is concrete planks supported by steel beams. The north exterior wall of Buildings 22 and 23 is load bearing masonry, and the east and west walls are masonry infill panels with exposed steel framing. The ground floor level of both buildings in an elevated concrete slab above a concrete frame basement. The roof structure of both buildings is supported by steel columns that bear on the top of the elevated slab. Building 24 consists of a single 50 ft. structural bay that spans north and south, perpendicular to the large bay spans of Buildings 22 and 23. The east and west ends of Building 24 extend approximately 50 ft. beyond the east and west walls of Buildings 22 and 23, and these extended areas are clad with metal panels. The roof height and structural framing of Building 24 is similar to the adjacent perpendicular roof of Buildings 22 and 23. Building 24 has an interior steel frame mezzanine and an interior wood frame mezzanine. Building 26 is located adjacent to Building 24 on the south side. The roof height, structural framing and structural orientation of Building 26 is identical to the north end of Buildings 22 and 23, however, Building 26 is only three 50 ft. bays wide. The south exterior wall is load bearing masonry, and the east and west walls are masonry infill panels with exposed steel framing. Building 26 has an interior enclosure with a wood frame roof on the west side.
General Building Structural Condition:	The entire building which consists of Buildings 22, 23, 24 and 26 is in poor condition with significant portions of each building that are structurally unsound. Severely corroded steel framing is found throughout each building. The concrete plank roof decking in Building 22 and 23 has collapsed in some locations. The roof deck in Buildings 24 and 26 is generally deteriorated and structurally unsound in some locations. Spalled concrete with exposed corroded reinforcing steel was observed in numerous locations in the basement areas of Buildings 22 and 23. The exterior walls of each building vary between fair and poor condition.

Structural Assessment - General Information

Building No.: 22,23,24 & 26	
Summary of Recommended Structural Repairs:	The roof deck of each building must be replaced. The structural steel framing must be sandblasted and painted, with extensive remediation required to restore the structural integrity of the overall building. Deteriorated concrete at the elevated slabs and support structure must be repaired. Deteriorated masonry and exposed steel framing, primarily on the east side of Building 23, must be repaired.
Additional Recommendations:	An extensive, detailed evaluation of the structural framing at each building must be performed to determine the extent of remediation, repair and replacement required to restore the structural integrity of the overall building.

Table 1: Structural Systems Assessment

Building 22 L-N Building

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	3	No
Lowest Level Floor System	3	No
First Floor System [Above basement] (Deck and framing)	4	Yes
Columns	4	Yes
Exterior Walls	3	No
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	4	Yes
Roof Deck	4	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 1: Structural Systems Assessment

Building 23 Power Service Shop Storage Area

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	3	No
Lowest Level Floor System	3	No
First Floor System [Above basement] (Deck and framing)	4	Yes
Columns	4	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	2	Yes
Roof Framing and Subframing	4	Yes
Roof Deck	4	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 1: Structural Systems Assessment

Building 24 Warehouse No. 4

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Mezzanine Floor System (Deck and framing)	4	Yes
Columns	4	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	Yes
Roof Deck	4	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 1: Structural Systems Assessment

Building 26 Grounds Maintenance Shop

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	4	Yes
Interior Load Bearing Walls	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	4	Yes
Roof Deck	4	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	Yes
Interior Stairs	4	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 22 L-N Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Significant corrosion to columns G-25 (0.3" thickness compromised)	20 LF	R-S-4	13,14
2	Deteriorated soffit of 1st level concrete slab - spalling, exposed corroded rebar, efflorescence	1000 SF	R-W-4	17,18
3	Cracking in the exterior brick masonry wall on the west side of the building	50 LF	R-M-8	
4	Damaged interior load bearing wall at the northwest corner	20 LF	R-M-9	
5	Roof/clerestory framing is moderately to severely corroded throughout the entire area of the building	52000 SF	R-S-4	11,12,13,14
6	Roof concrete planks are deteriorated due to spalling of concrete, cracking in the panels and exposed corroded rebar. Nets have been installed to retain the spalling debris from the concrete planks	52000 SF	R-D-1	4,5,6,7,8

Repair Code -	Description
R-D-1	Replace defective concrete planks at roof deck
R-M-8	Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant. Repair spalls in masonry with matching material.
R-M-9	Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant.
R-S-4	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing.
R-W-4	Replace wood roof assembly

Table 2: Itemized Structural Defects

Building 23 Power Service Shop Storage Area

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Significant corrosion to columns throughout the entire building (0.1" to 0.5" thickness compromised)	300 LF	R-S-5	5,6
2	Moderate corrosion to mezzanine framing	2000 SF	R-S-4	
3	Damage and cracking in the exterior brick masonry wall on the east side of the building	50 LF	R-M-8	3,4
4	Roof/clerestory framing is moderately to severely corroded throughout the entire area of the building	78000 SF	R-S-4	7,8,9
5	Roof concrete planks are deteriorated due to spalling of concrete, cracking in the panels and exposed corroded rebar. Plastic nets installed to catch the spalling concrete debris	78000 SF	R-D-1	11,12

Repair Code -	Description
R-D-1	Replace defective concrete planks at roof deck
R-M-8	Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant. Repair spalls in masonry with matching material.
R-S-4	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing.
R-S-5	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing. Replace structural steel framing.

Table 2: Itemized Structural Defects

Building 24 Warehouse No. 4

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Significant corrosion of steel columns (0.1" to 0.3" thickness compromised)	60 LF	R-S-1	9,10
2	Significantly damaged and deteriorated wood framed mezzanine	1000 SF	R-W-4	4
3	Deteriorated metal siding/wall system on the west side of building	1500 SF	R-D-4	
4	Damaged brick partition wall	50 LF	R-M-4	8
5	Roof framing is moderately corroded throughout the entire area of the building	17500 SF	R-S-4	
6	Roof concrete planks are deteriorated due to cracking and exposed corroded rebar	17500 SF	R-D-1	5,6,7

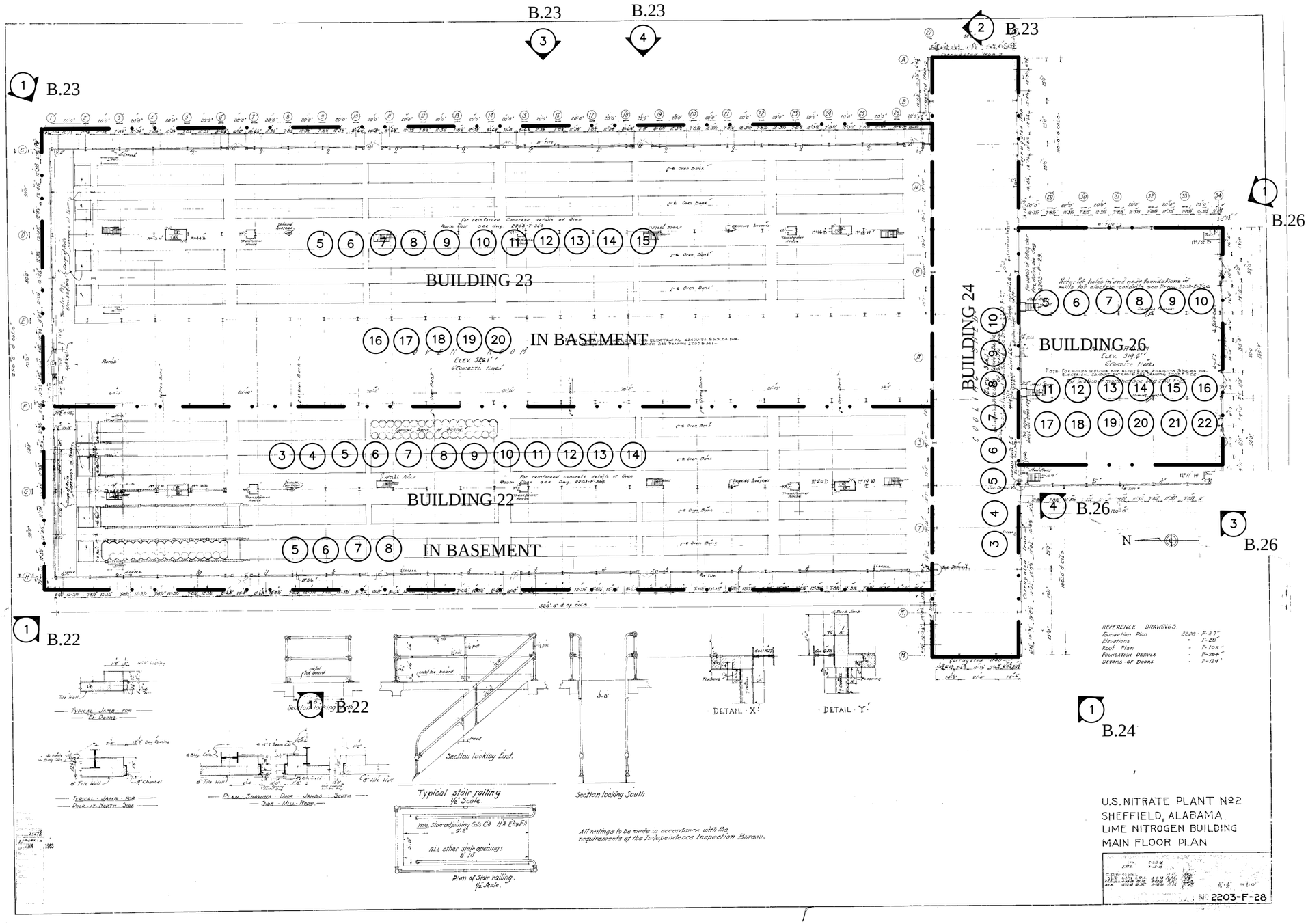
Repair Code -	Description
R-D-1	Replace defective concrete planks at roof deck
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel
R-S-4	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing.
R-W-4	Replace wood roof assembly

Table 2: Itemized Structural Defects

Building 26 Grounds Maintenance Shop

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Significant corrosion of steel columns (0.1" to 0.3" thickness compromised	40 LF	R-S-1	8
2	Damaged flange of column E-33	5 LF	R-S-2	9
3	Deteriorated interior wood frame enclosure	20 SF	R-W-4	17,18,19
4	Spalled masonry at west wall	10 LF	R-M-3	4
5	Roof framing is moderately to severely corroded throughout the entire area of the building	18000 SF	R-S-4	5,6,7
6	Roof concrete planks are deteriorated due to cracking, spalling and exposed corroded rebar	18000 SF	R-D-1	11,12,13,14, 15,16

Repair Code -	Description
R-D-1	Replace defective concrete planks at roof deck
R-M-3	Repair spalls in masonry with matching material
R-S-1	Sandblast, prime, and paint structural steel
R-S-2	Reinforce damaged or deteriorated steel framing
R-S-4	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing.
R-W-4	Replace wood roof assembly



NORTH

BUILDING NO. 22: L/N BUILDING
BUILDING NO. 23: POWER SERVICE SHOP STORAGE AREA
BUILDING NO. 24: WAREHOUSE NO. 4
BUILDING NO. 26: GROUNDS MAINTENANCE SHOP

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

SEAL

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
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BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
BUILDING Nos 22, 23, 24, 26

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S22.1
SHEET#

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PHOTOLOG: Building 22 L-N Building



Photograph #: 1

Exterior building - west side



Photograph #: 2

Exterior building - west side

PHOTOLOG: Building 22 L-N Building



Photograph #: 3

Interior building looking south



Photograph #: 4

Deteriorated concrete plank roof deck

PHOTOLOG: Building 22 L-N Building



Photograph #: 5

Holes in deteriorated concrete plank roof deck



Photograph #: 6

Areas of ruined concrete plank roof deck

PHOTOLOG: Building 22 L-N Building



Photograph #: 7

Ruined concrete roof planks



Photograph #: 8

Ruined concrete roof planks

PHOTOLOG: Building 22 L-N Building



Photograph #: 9

Deteriorated concrete roof planks



Photograph #: 10

Deteriorated concrete roof planks

PHOTOLOG: Building 22 L-N Building



Photograph #: 11

Severely corroded structural steel



Photograph #: 12

Severely corroded structural steel

PHOTOLOG: Building 22 L-N Building



Photograph #: 13

Severely corroded structural steel



Photograph #: 14

Severely corroded structural steel

PHOTOLOG: Building 22 L-N Building



Photograph #: 15

View of basement



Photograph #: 16

Defective concrete at basement ceiling

PHOTOLOG: Building 22 L-N Building



Photograph #: 17

Severely spalled concrete at basement ceiling



Photograph #: 18

Severely spalled concrete at basement ceiling

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 1

Exterior of buildings 22 and 23 on the north side



Photograph #: 2

Exterior building - east side

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 3

Exterior building - east side



Photograph #: 4

Deteriorated steel and masonry at exterior building - east side

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 5

Severely corroded steel column



Photograph #: 6

Severely corroded steel column

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 7

Severely corroded steel framing



Photograph #: 8

Severely corroded steel framing

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 9

Severely corroded steel framing



Photograph #: 10

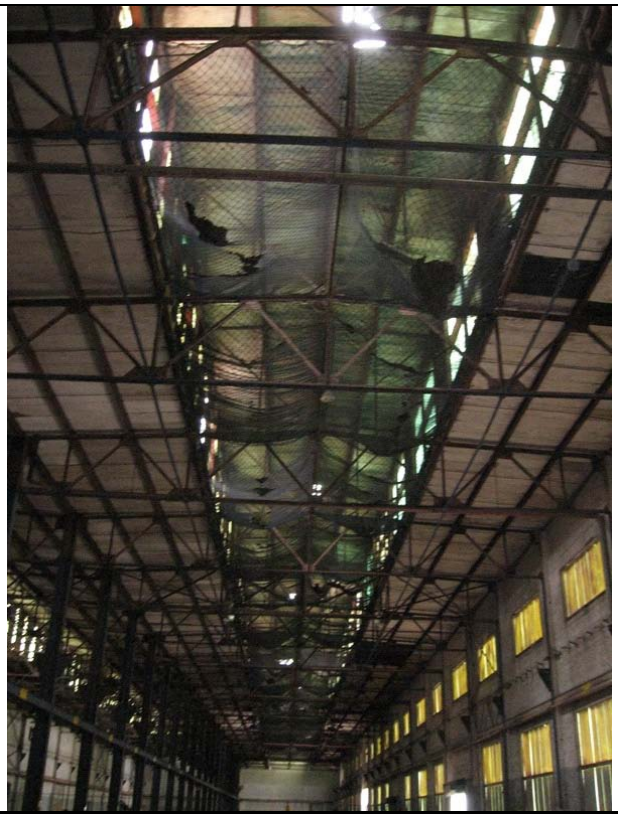
Defective area of elevated slab above basement

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 11

Large hole in deteriorated concrete plank roof deck



Photograph #: 12

Holes in deteriorated concrete plank roof deck

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 13

Interior view of building looking north



Photograph #: 14

Interior view of building looking north at east wall

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 15

Interior view of building looking north



Photograph #: 16

View of open area at basement level

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 17

Cracks at edge of elevated slab above basement



Photograph #: 18

Spalled concrete at basement structure

PHOTOLOG: Building 23 Power Service Shop Storage Area



Photograph #: 19

Spalled concrete at basement structure



Photograph #: 20

Spalled concrete at basement structure

Building 24 Warehouse No. 4



Photograph #: 1

Exterior building - west end



Photograph #: 2

Exterior building - east end

Building 24 Warehouse No. 4



Photograph #: 3

Interior building looking west



Photograph #: 4

Steel and wood mezzanines at building interior

Building 24 Warehouse No. 4



Photograph #: 5

Deteriorated concrete plank roof deck



Photograph #: 6

Deteriorated concrete plank roof deck

Building 24 Warehouse No. 4



Photograph #: 7

Structurally deficient concrete roof plank



Photograph #: 8

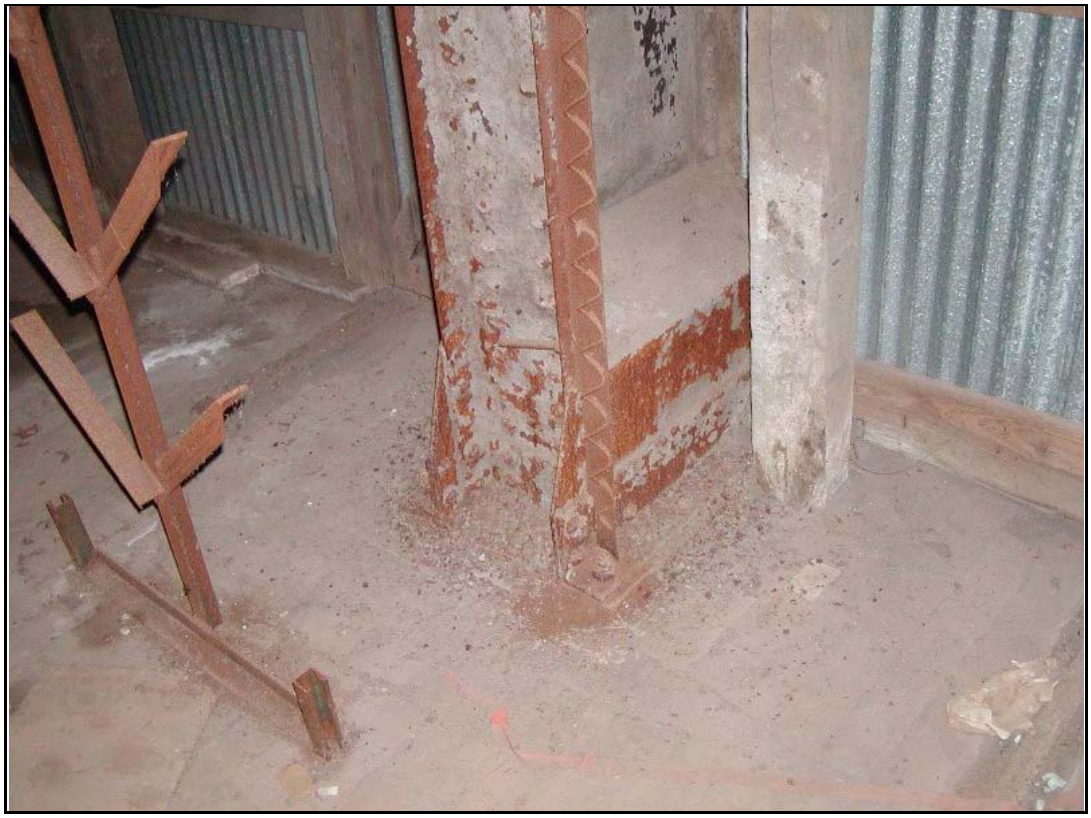
Partially collapsed interior masonry partition

Building 24 Warehouse No. 4



Photograph #: 9

Severe corrosion at column base plate attachment



Photograph #: 10

Severely corroded steel column

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 1

Exterior building - south end



Photograph #: 2

Exterior building east side at intersection with Building 24

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 3

Exterior building - west side



Photograph #: 4

Spalled masonry on west side at intersection with Building 24

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 5

Severely corroded steel framing



Photograph #: 6

Severely deteriorated steel framing

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 7

Severely corroded steel framing



Photograph #: 8

Severely corroded steel framing

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 9

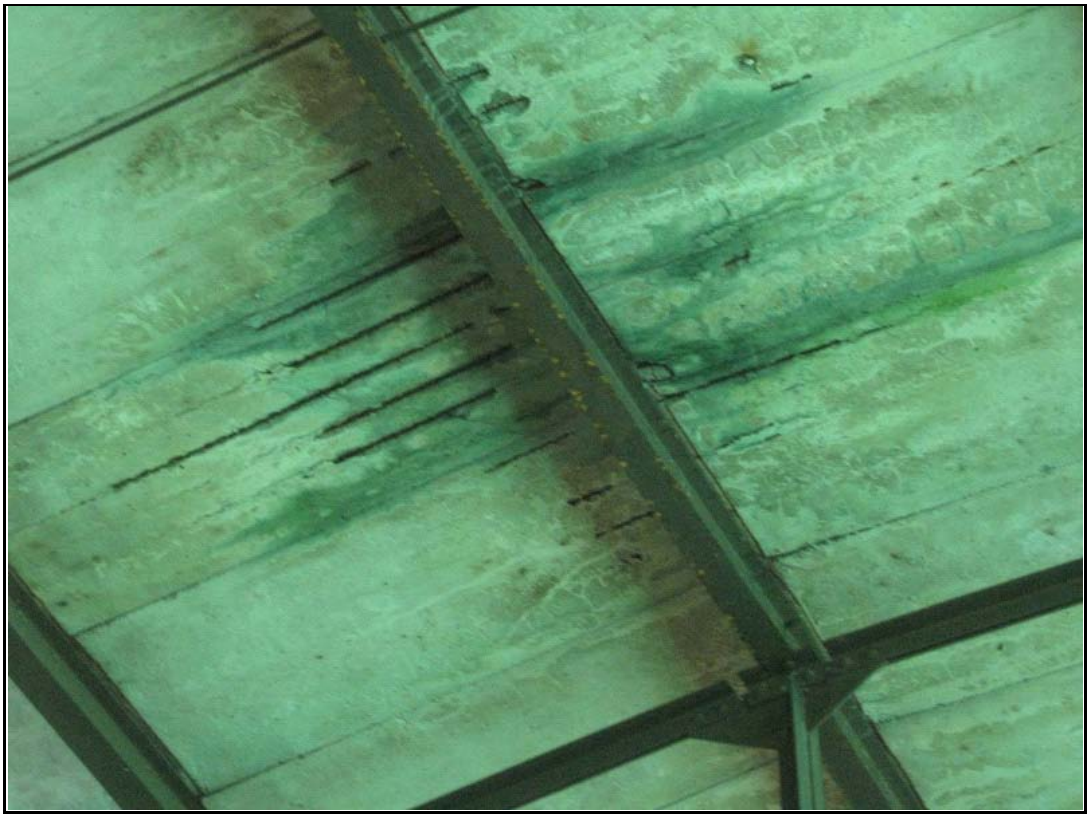
Moderately corroded steel column with impact damage



Photograph #: 10

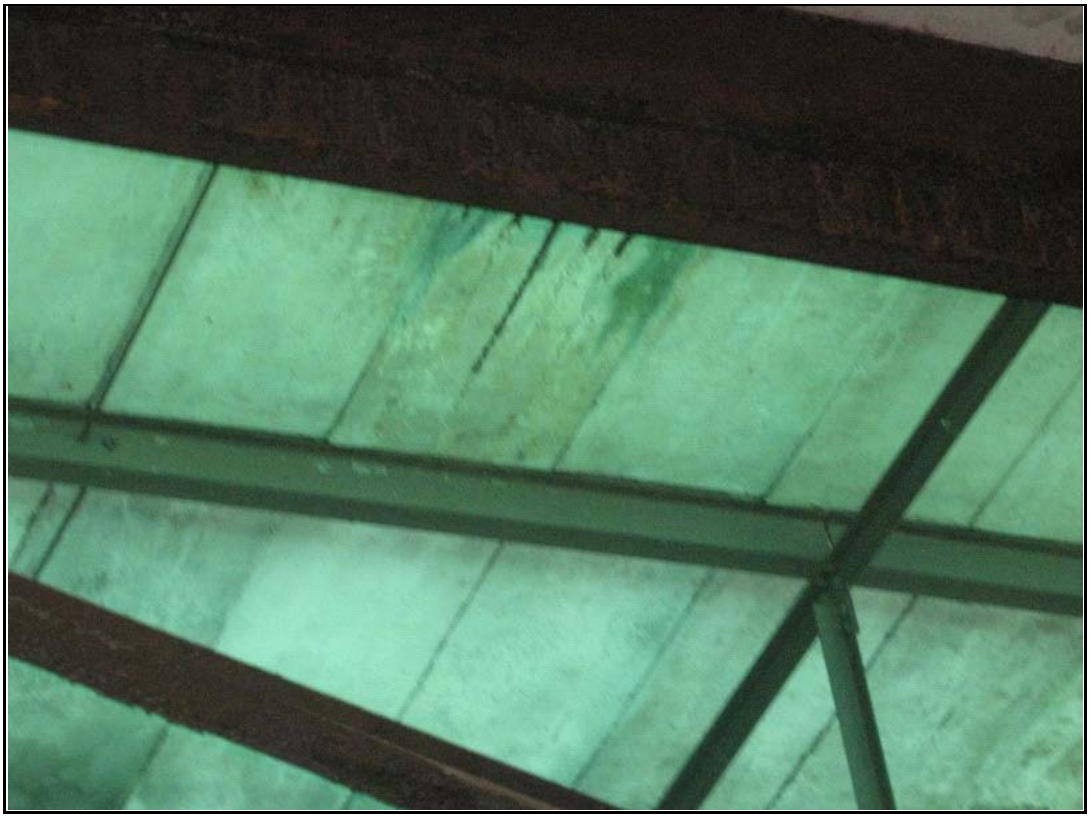
Moderately corroded steel column with impact damage

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 11

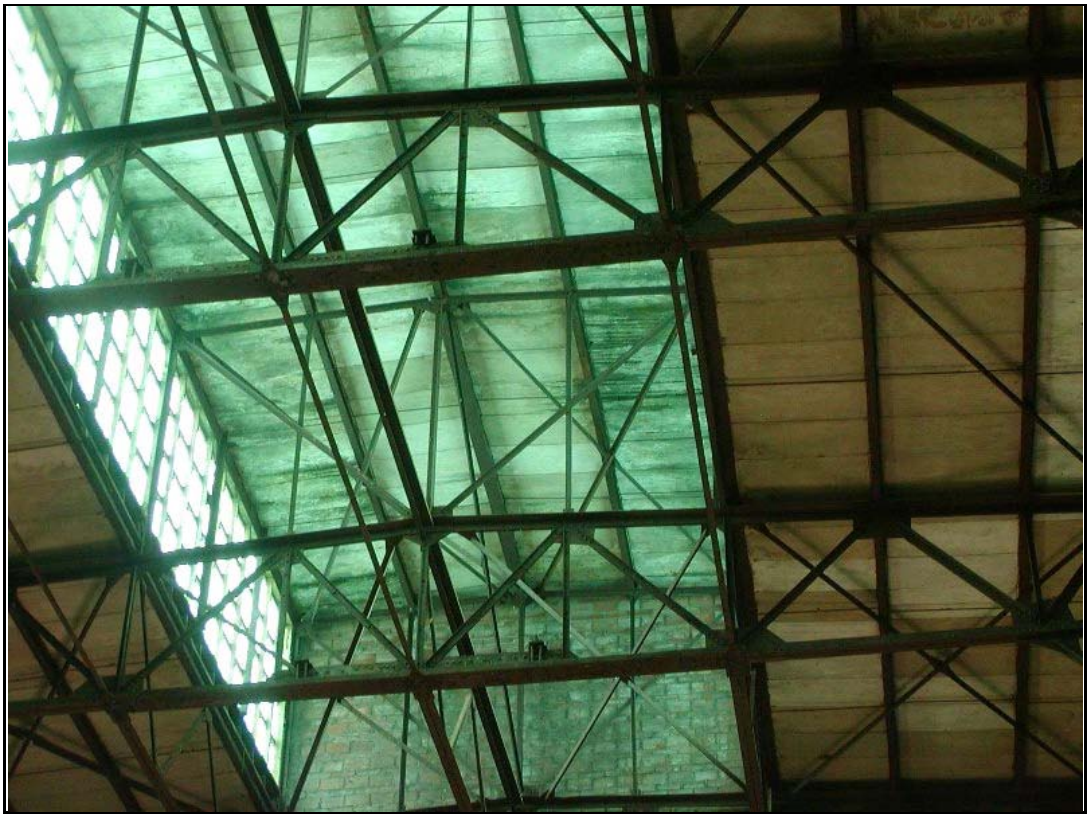
Structurally deficient concrete roof planks



Photograph #: 12

Structurally deficient concrete roof planks

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 13

Deteriorated concrete roof planks



Photograph #: 14

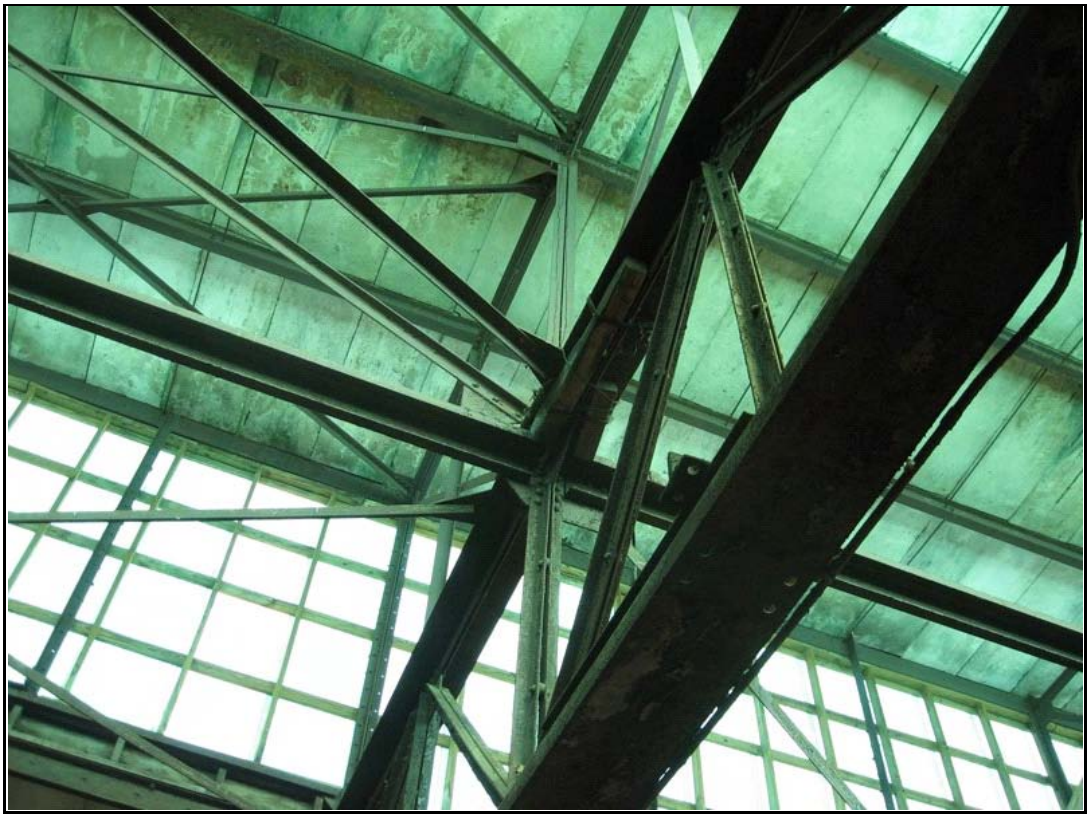
Deteriorated concrete roof planks

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 15

Deteriorated concrete roof planks



Photograph #: 16

Deteriorated concrete roof planks

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 17

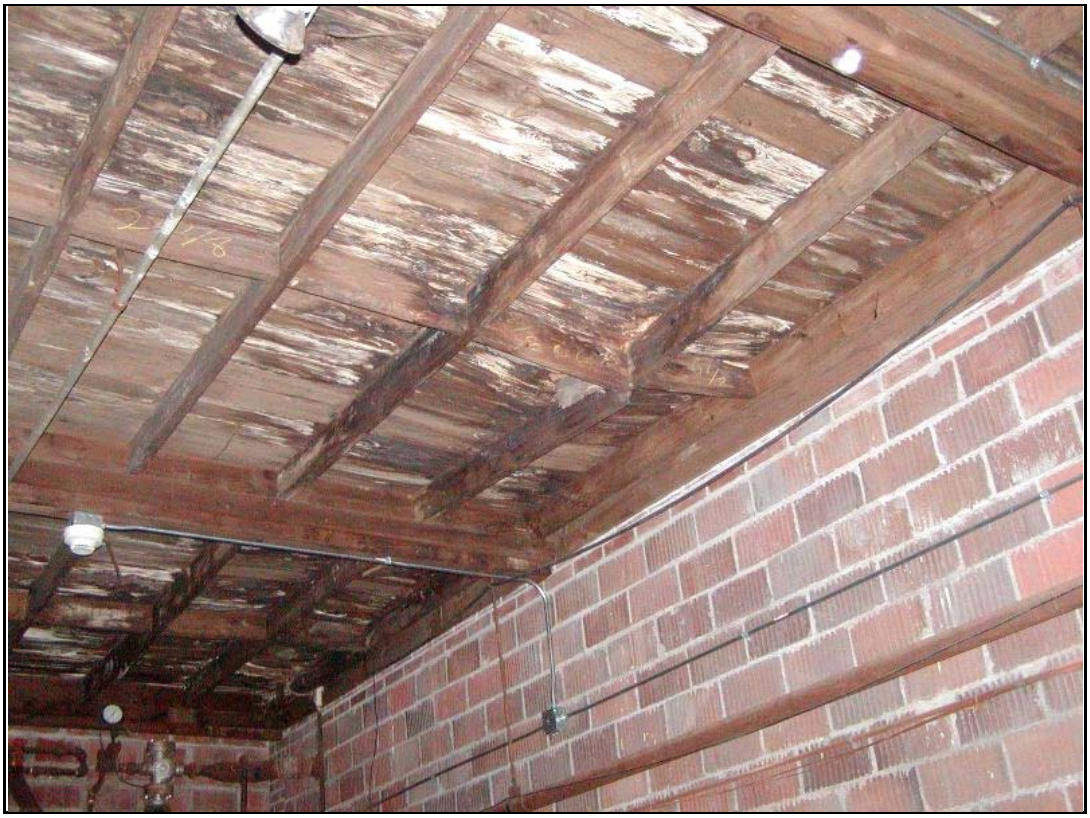
View of interior wood frame enclosure from above



Photograph #: 18

View of interior wood frame enclosure from above

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 19

Ruined roof deck of interior enclosure



Photograph #: 20

Spalled concrete/corroded reinforcing steel at lintel

PHOTOLOG: Building 26 Grounds Maintenance Shop



Photograph #: 21

Cracked masonry at outside wall



Photograph #: 22

Deteriorated steel stair going up to Building 24

Structural Assessment - General Information

Building No.: 25 Project Operations Office Building	
Building Name:	Project Operations Office Building
Original Function:	Wash and Locker House 2
Subsequent Modification	Roof appears to be reconstructed
General Building Structure Description:	One story building with exterior load bearing masonry walls. Original drawings indicate interior timber columns on concrete piers. The building has a completely finished interior and structural framing could not be observed. The original drawings also indicate a central clerestory monitor which does not exist.
General Building Structural Condition:	The building appears to be in generally good structural condition. Minor cracks in exterior masonry and in the foundation wall were observed. Minor surface deterioration of metal awnings was noted.
Summary of Recommended Structural Repairs:	Minor defects at the exterior walls and awnings need to be repaired.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 25 Project Operations Office Building

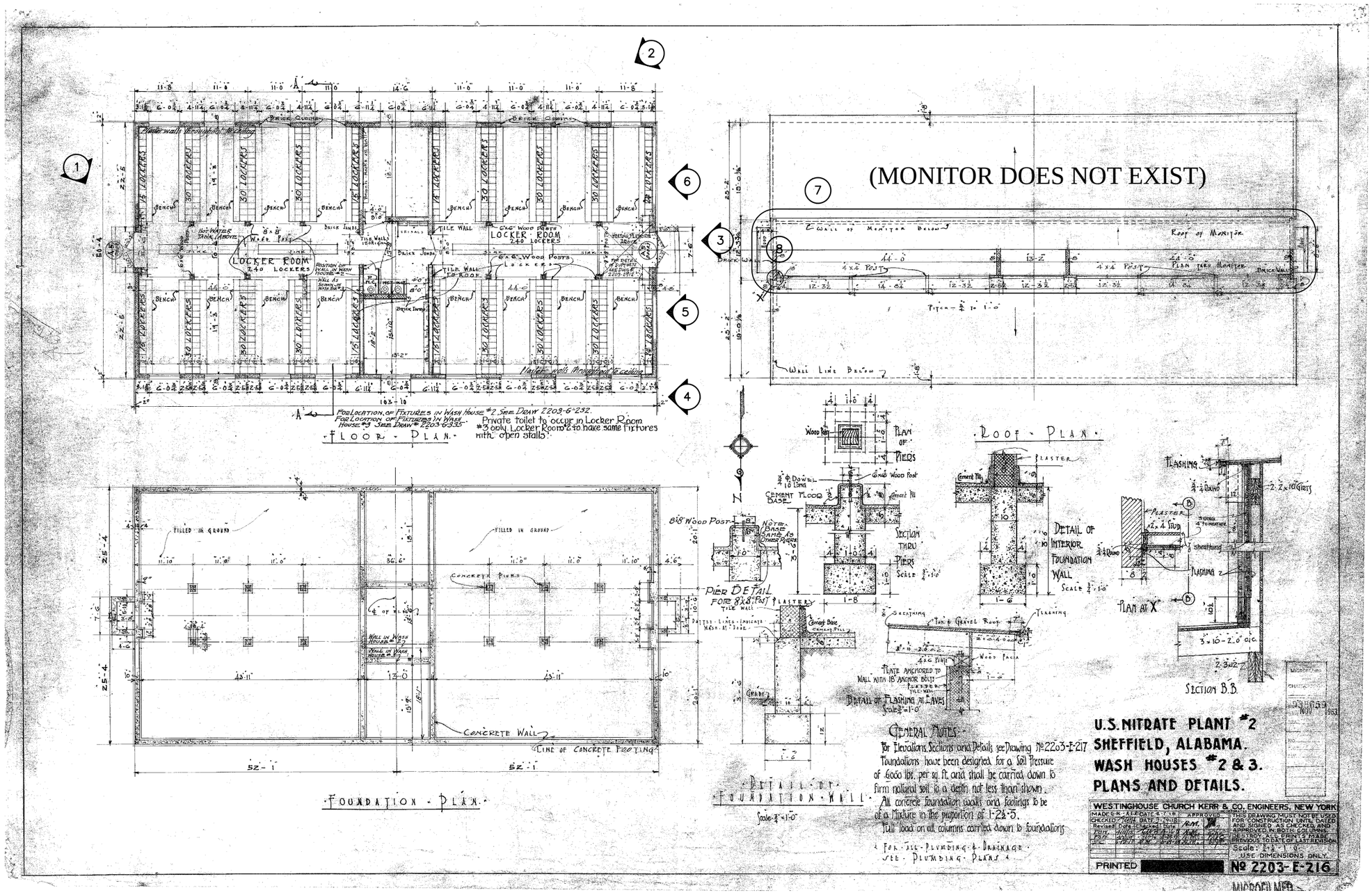
Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Exposed Foundations/Stem Walls	2	Yes
Columns	2	No
Exterior Walls	3	Yes
Roof Framing and Subframing	2	No
Roof Deck	2	No
Awnings (Total Assembly)	3	No

Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 25 Project Operations Office Building				
Defect Item No.	**Defect Description**	**Quantity/ Unit of Measure**	**Repair Code/ Remarks**	**Photo Log Reference No.**
1	Cracks in masonry at west wall	30 LF	R-M-2	5,6
2	Crack in foundation wall at southwest corner	2 LF	R-C-2	

Repair Code -	**Description**
R-C-2	Inject sealant to seal cracks in concrete
R-M-2	Repair cracks in masonry with appropriate sealant



BUILDING NO.25

PROJECT OPERATIONS OFFICE BUILDING

PLAN NOT TO SCALE

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
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BLP, INC. PROJECT NO:

DATE: 06/29/09

DRAWING BY: AK

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 25
Project Operations Office Building

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S25.1

SHEET №

SEAL

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Building 25 Project Operations Office Building



Photograph #: 1

Exterior building east end



Photograph #: 2

Exterior building south side

Building 25 Project Operations Office Building



Photograph #: 3

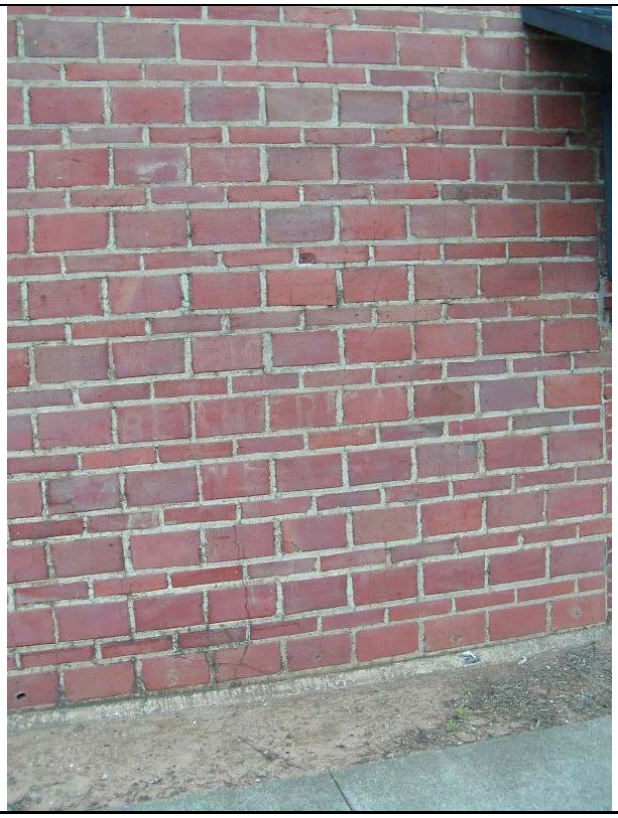
Exterior building west end



Photograph #: 4

Exterior building north side

Building 25 Project Operations Office Building



Photograph #: 5

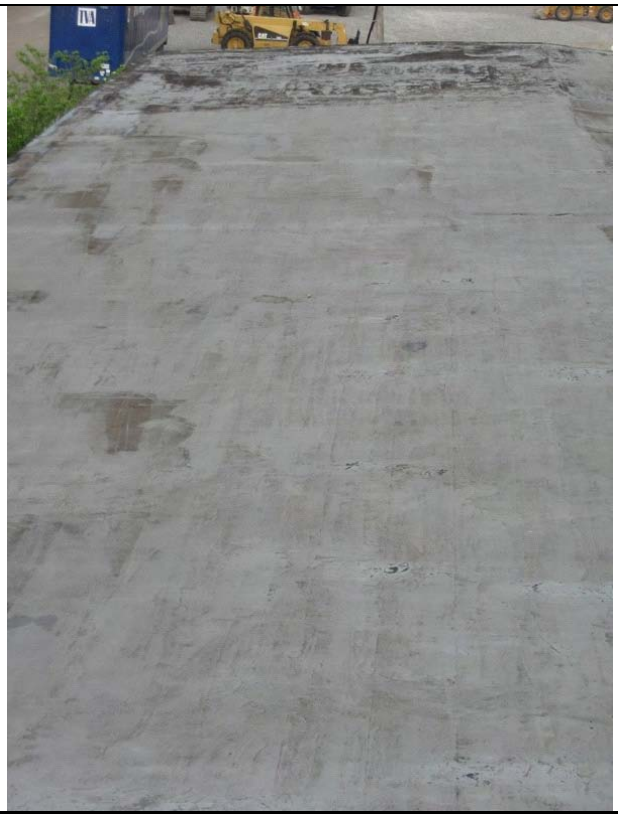
Minor crack in masonry at west end



Photograph #: 6

Minor crack in masonry at west end

Building 25 Project Operations Office Building



Photograph #: 7

View of building roof membrane in fair condition



Photograph #: 8

View of deteriorated awning roof from above

Structural Assessment - General Information

Building No.: 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse	
Building Name:	(33) Shipping and Receiving Office (34) Instrumentation/Electric Shop (35) Chemical Plant Ware house (36) Projects Operations Storage Warehouse
Original Function:	Store House
Subsequent Modification	Current Interior build-out lower level west side (identified as building)
General Building Structure Description:	In terms of structure, Buildings 33, 34, 35, and 36 are one 2-story steel frame building 4 bays wide and 15 bays long. Two interior load bearing masonry walls separate the building into 3 sections that are each 5 bays long. Each section has a centrally located clerestory monitor above a centrally located freight elevator. Original drawings show stairs at each end section. The west stair was apparently removed; presently only the east stair remains. The east and west end walls are load bearing masonry; the north and south walls are masonry infill panels with exposed steel framing. Original drawings indicate columns to be steel encased in concrete throughout the building interior. The second floor slab and concrete plank roof deck are supported on steel beams. The building has a canopy-covered loading dock that extends the full length of the south side. The dock is elevated above finish floor and is accessed by two concrete ramps inside the building. A canopy also extends the full length of the north side, where access is at grade. The exterior pavement on the north side has been recently demolished, and the interface of this area with the building appears to be in the process of reconstruction.
General Building Structural Condition:	The first floor slab is in generally good condition, with some cracks that require repair. The second floor slab is in fair condition, with numerous cracks that require repair. The concrete plank roof deck at the main building is in fair condition, with some surface deterioration and numerous minor spalls that require repair. The building columns and the second floor beams are in generally good condition. The roof beams at the main building are mildly corroded. The load bearing masonry walls are in fair condition with vertical cracks at the exterior corners. The masonry infill panels have cracks and spalls that require repair. The steel framing at the north and south canopies is moderately corroded. The concrete roof planks at the north canopy are in generally fair condition with isolated areas of deterioration. The concrete roof planks at the south canopy are generally deteriorated and a significant portion are beyond repair. The south loading dock has numerous large cracks that require repair.

Structural Assessment - General Information

Building No.: 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse	
Summary of Recommended Structural Repairs:	Route and seal cracks in first and second floor slabs. Repair spalls in concrete roof planks at the main building and replace a small number of defective planks. Sandblast and paint steel roof beams. Seal cracks and repair spalls in exterior masonry walls. Sandblast and paint steel framing at north and south canopies. Repair and/or replace deteriorated concrete roof planks at north canopy. Replace roof deck at south canopy. Repair cracks in south loading dock.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Ramps, Stairs, and Landings (At or below first floor)	2	No
Loading Docks (Walls, supports, and slabs)	4	Yes
Second Floor System (Deck and framing)	3	Yes
Columns	2	No
Interior Load Bearing Walls	3	Yes
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes
Canopies (Framing and deck)	4	Yes
Interior Stairs	2	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Voids in interior wall east end of Bldg 36, Upper Level	8 SF	R-M-1	
2	Vertical cracks in interior wall at concrete column northeast corner of Bldg 36, Upper Level	20 LF	R-C-2	
3	Vertical crack in masonry interior wall on south side of Bldg 36, Upper Level	5 LF	R-M-1	35
4	Crack in concrete sill on south side of Bldg 36, Upper Level (misc.)	1 of 2	R-C-2	36
5	Vertical/diagonal crack in east wall of Bldg 36, Upper Level (misc.)	15 LF	R-M-1	37
6	Voids in east wall (adjacent to 1) of Bldg 36, Upper Level (misc.)	6 LF	R-M-1	
7	Cracks in floor (+ !/8") of Bldg 36, Upper Level (misc.)	1 Length of Bldg	R-C-2	
8	Cracks in floor (< 1/8") of Bldg 36, Upper Level (misc.)	2 Length of Bldg	R-C-2	
9	More cracks in floor of Bldg 36, Upper Level (misc.)		R-C-2	31
10	Cracks in roof plank with rust below on Bldg 36, Upper Level (roof)		R-D-1	
11	General condition roof diaphragm with minor spalls on Bldg 36, Upper Level (roof)		R-D-1	
12	Misc. plank damage/mild to moderate corrosion on steel frame at interior wall (condition similar full length of wall) of Bldgs. 36 & 35 Upper Level (roof)		R-D-1	40
13	Spalls in planks below monitor walls (west side) of Bldg 36, Upper Level (roof)		R-D-1	
14	Mild & moderate corrosion at steel frame, roof planks fair condition on Bldg 36, Upper Level (roof)		R-S-1	46
15	Interior walls,- outside and inside - good condition for age on Bldg 35, Upper Level (misc.)			
16	Cracks in floor similar to Bldg 36 (somewhat better condition than Bldg. 36) in Bldg 35, Upper Level (misc)		R-C-2	
17	Spalls in concrete roof planks at interior wall between Bldg 35 & Bldg 36		R-D-1	42
18	Spalls in concrete roof planks at pit wall between center & west Bldg 35 (close-up)		R-D-1	
19	General deterioration of roof planks & beams at monitor on north side of Bldg 35, Upper Level (misc)		R-D-1	41

Table 2: Itemized Structural Defects

Building 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse				
20	Spalls in planks below monitor walls on west side of Bldg 35, Upper Level (misc)		R-D-1	43
21	Monitor roof - good condition for age on center portion of composite bldg.			45
22	Cracks in north wall at infilled opening on west portion of composite bldg.	10 LF	R-M-2	
23	Vertical crack in wall adjacent to concrete column in northwest corner of west portion of composite bldg.	12 LF	R-M-2	38
24	Vertical spall in concrete column in southwest corner of Bldg. 35, Upper Level (misc)		R-C-3	
25	Cracks in floor similar to center and east end in Bldg 35, Upper Level (misc)		R-C-1	
26	Cracks in floor at column by elevator, worse than center and east end in Bldg 35, Upper Level (misc)		R-C-1	32
27	Close-up of each side of column (see plan) in Bldg 35, Upper Level (misc)			33,34
28	North stair at elevator on west end of Bldg 35, Upper Level (misc)			
29	Typical spalling in roof planks above beam at interior wall of Bldg 35, Upper Level (misc) west end		R-D-1	
30	General condition of roof planks north side of monitor of Bldg 35, Upper Level (misc) west end			
31	Spalls in planks below monitor wall west side of Bldg 35, Upper Level (misc) west end		R-D-1	
32	Spalls in planks below monitor wall east side of Bldg 35, Upper Level (misc) west end		R-D-1	
33	Monitor roof of Bldg 35, Upper Level (misc) west end			47
34	No Stair at west end of building			
35	Ramps to south dock okay on lower level of Bldgs 33 - 36			
36	Flaking paint on concrete soffit on lower level of Bldgs 33 - 36			
37	Steel floor beams on 2nd floor slab general good condition for age on lower level of Bldgs 33 - 36			

Table 2: Itemized Structural Defects

Building 33 Shipping and Receiving Office,34 Instrumentation - Electric Shop,35 Chemical Plant Warehouse & 36 Projects Operations Storage Warehouse

38	Voids in south wall - east end on lower level of Bldgs 33 - 36		R-M-1	27
39	General condition South wall, east end on lower level of Bldgs 33 - 36			29
40	Crack in floor +/- 1/8" by ?? Door, east end on lower level of Bldgs 33 - 36		R-C-1	28
41	General condition looking south, east end on lower level of Bldgs 33 - 36			30
42	Vertical crack at southeast corner & context of exterior walls		R-M-2	21,22
43	Wood awnings (2) - fair condition for age			
44	Context photo northeast corner			1
45	Wall above cantilevered canopy, north side - rusted steel columns. Stained clay masonry		R-S-1	2,3
46	North canopy steel mildly corroded/heavily stained. Concrete planks are in fair to poor condition		R-S-1	4,5,7,8
47	Cracks in masonry north wall, east end	18 LF	R-M-2	6

Repair Code - Description
R-C-1 Route and seal cracks in concrete
R-C-2 Inject sealant to seal cracks in concrete
R-C-3 Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-1 Replace defective concrete planks at roof deck
R-M-1 Repair voids in masonry with appropriate filler
R-M-2 Repair cracks in masonry with appropriate sealant
R-S-1 Sandblast, prime, and paint structural steel

FIRST FLOOR PLAN

NORTH

NOTE:

# INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 33: SHIPPING AND RECEIVING OFFICE (1ST FLOOR)
BUILDING NO. 34: INSTRUMENTATION/ELECTRIC SHOP (1ST FLOOR)
BUILDING NO. 35: CHEMICAL PLANT WATERHOUSE
BUILDING NO. 36: PROJECTS OPERATION STORAGE WAREHOUSE

SEAL

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		

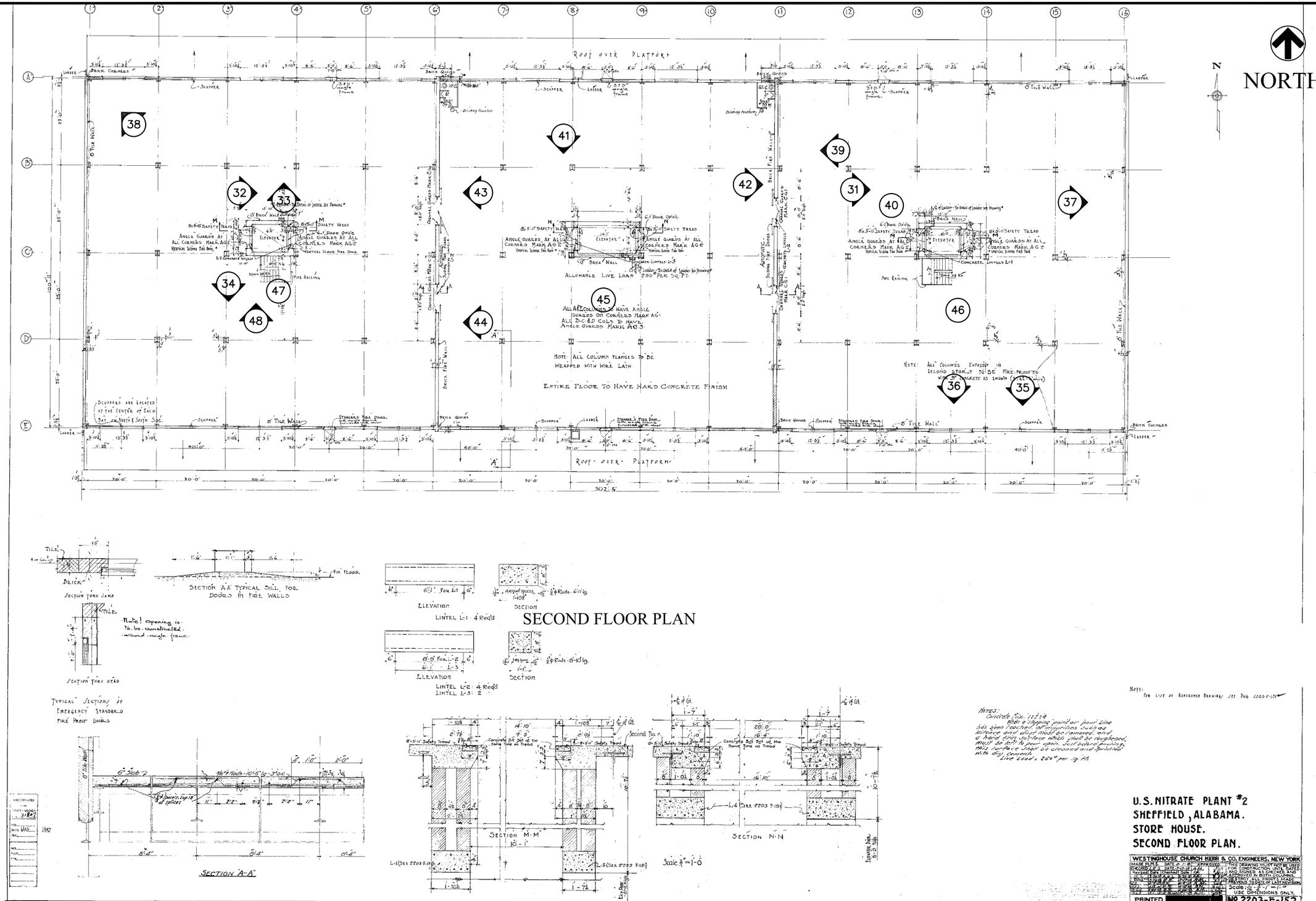
BLP, INC. PROJECT NO:
DATE: 05/26/99
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 33-34-35-36

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

SHEET # S33-36.1



SECOND FLOOR PLAN

NOTE:

# INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 33: SHIPPING AND RECEIVING OFFICE (1ST FLOOR)
BUILDING NO. 34: INSTRUMENTATION/ELECTRIC SHOP (1ST FLOOR)
BUILDING NO. 35: CHEMICAL PLANT WATERHOUSE
BUILDING NO. 36: PROJECTS OPERATION STORAGE WAREHOUSE

SEAL

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

REVISIONS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		

BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 33-34-35-36

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

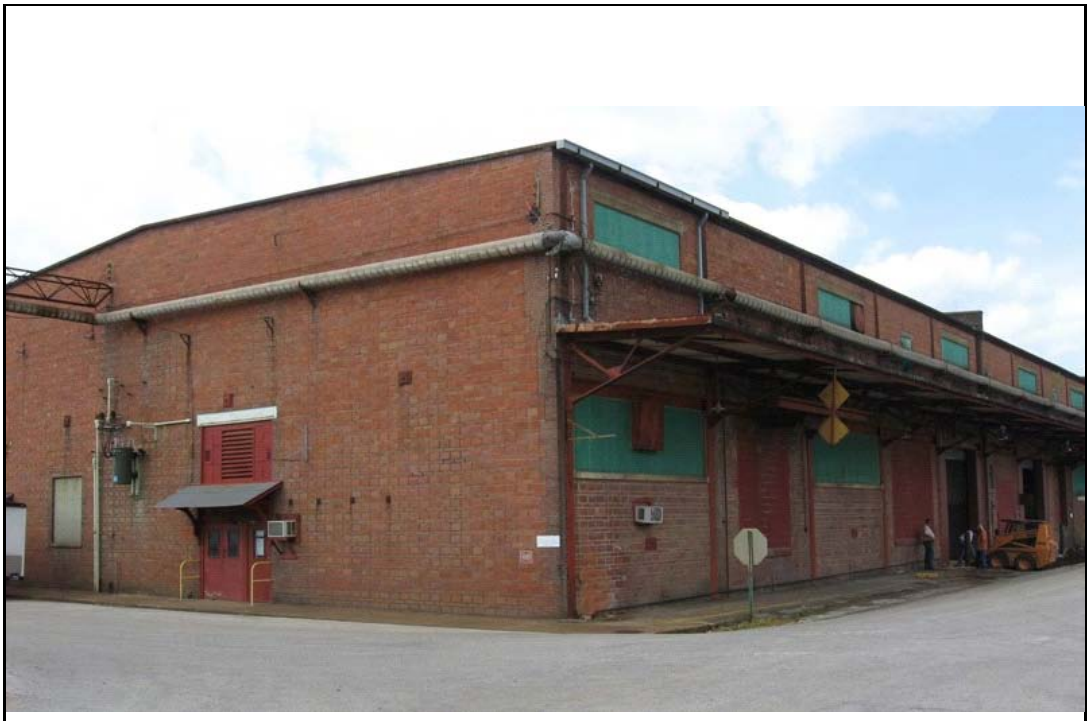
Photolog Plan

SHEET TITLE

S33-36.2

SHEET#

Building 33, 34, 35, 36



Photograph #: 1

Exterior building looking at northeast corner.



Photograph #: 2

Exterior building looking at north side

Building 33, 34, 35, 36



Photograph #: 3

Exterior building looking at north side toward west end.



Photograph #: 4

Underside of north canopy.

Building 33, 34, 35, 36



Photograph #: 5

Deteriorated concrete roof planks at north canopy.



Photograph #: 6

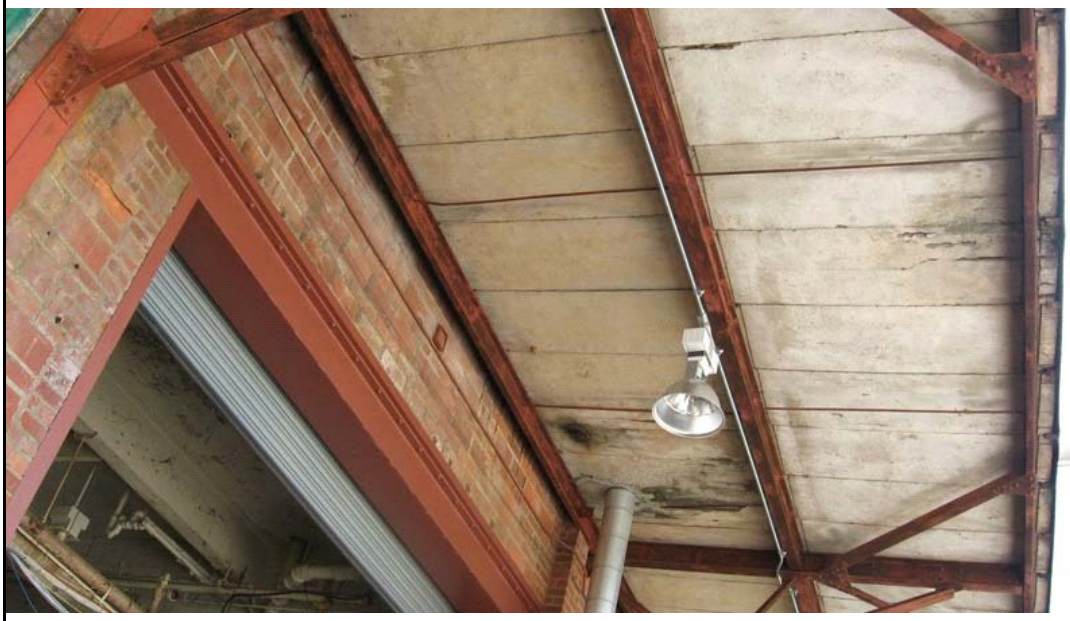
Crack in exterior masonry below north canopy.

Building 33, 34, 35, 36



Photograph #: 7

Deteriorated concrete roof planks at north canopy.



Photograph #: 8

Deteriorated concrete roof planks at north canopy.

Building 33, 34, 35, 36



Photograph #: 9

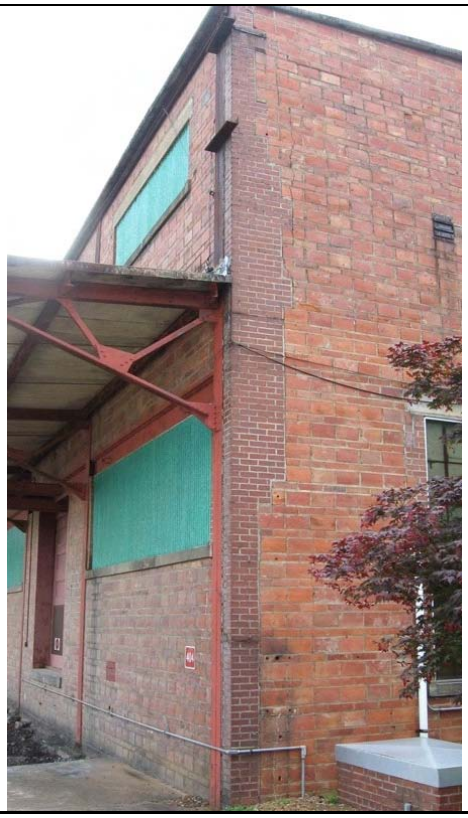
Crack in exterior masonry below north canopy.



Photograph #: 10

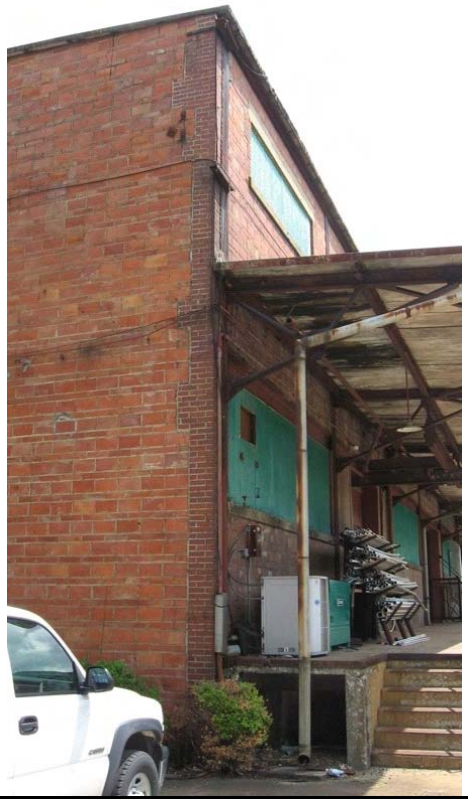
Voids and spalls in exterior masonry at north wall.

Building 33, 34, 35, 36



Photograph #: 11

Exterior building looking at northwest corner.



Photograph #: 12

Exterior building looking at southwest corner.

Building 33, 34, 35, 36



Photograph #: 13

Exterior building looking at southwest corner.



Photograph #: 14

Crack in exterior masonry on south side southwest corner.

Building 33, 34, 35, 36



Photograph #: 15

Deteriorated concrete roof planks at west end of south canopy.



Photograph #: 16

Ruined concrete roof planks at south canopy.

Building 33, 34, 35, 36



Photograph #: 17

Deteriorated concrete roof planks at south canopy.



Photograph #: 18

Crack in exterior masonry below south canopy.

Building 33, 34, 35, 36



Photograph #: 19

Ruined concrete roof planks at south canopy.



Photograph #: 20

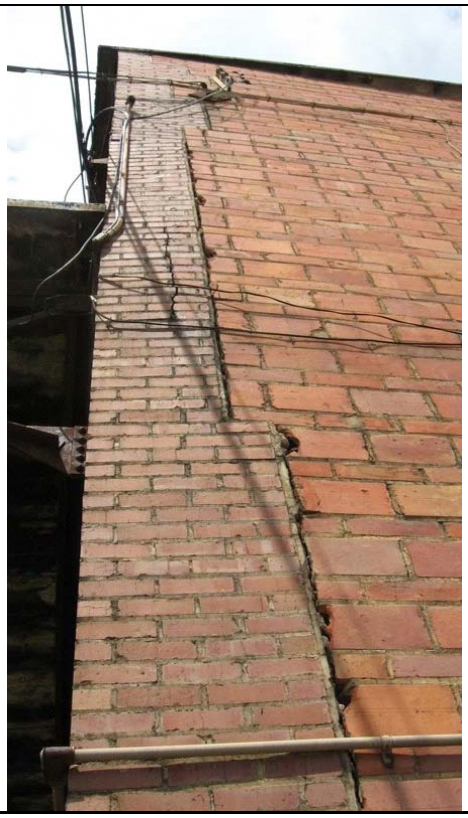
Deteriorated and ruined concrete roof planks at south canopy.

Building 33, 34, 35, 36



Photograph #: 21

Exterior building looking at southeast corner.



Photograph #: 22

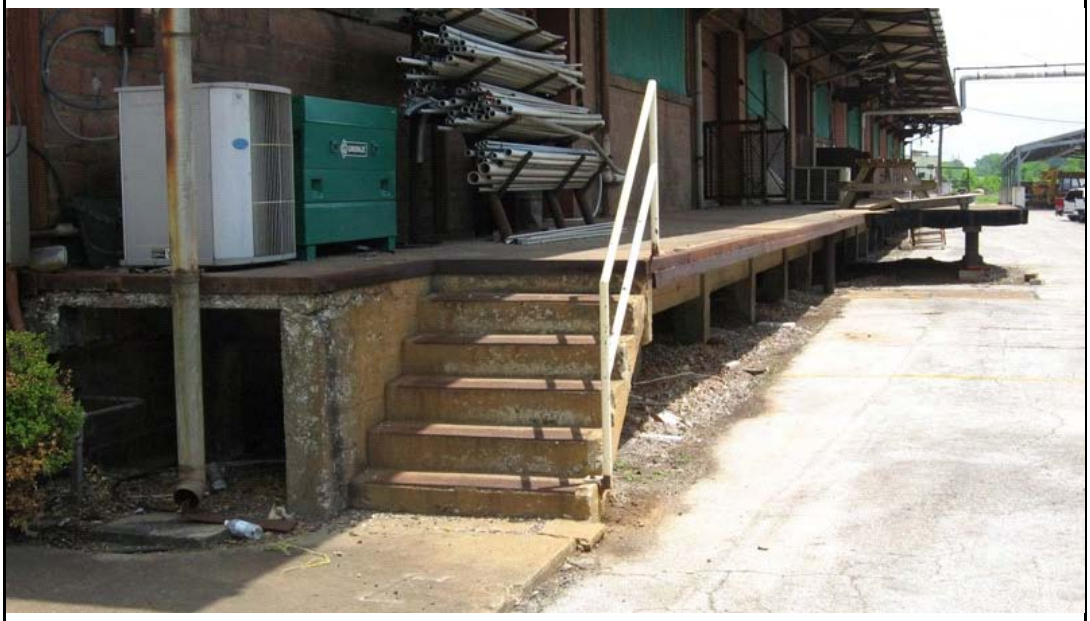
Vertical crack in masonry on east side of southeast corner.

Building 33, 34, 35, 36



Photograph #: 23

Deteriorated concrete steps and support at east and south loading dock.



Photograph #: 24

Deteriorated concrete steps and support at west and south loading dock.

Building 33, 34, 35, 36



Photograph #: 25

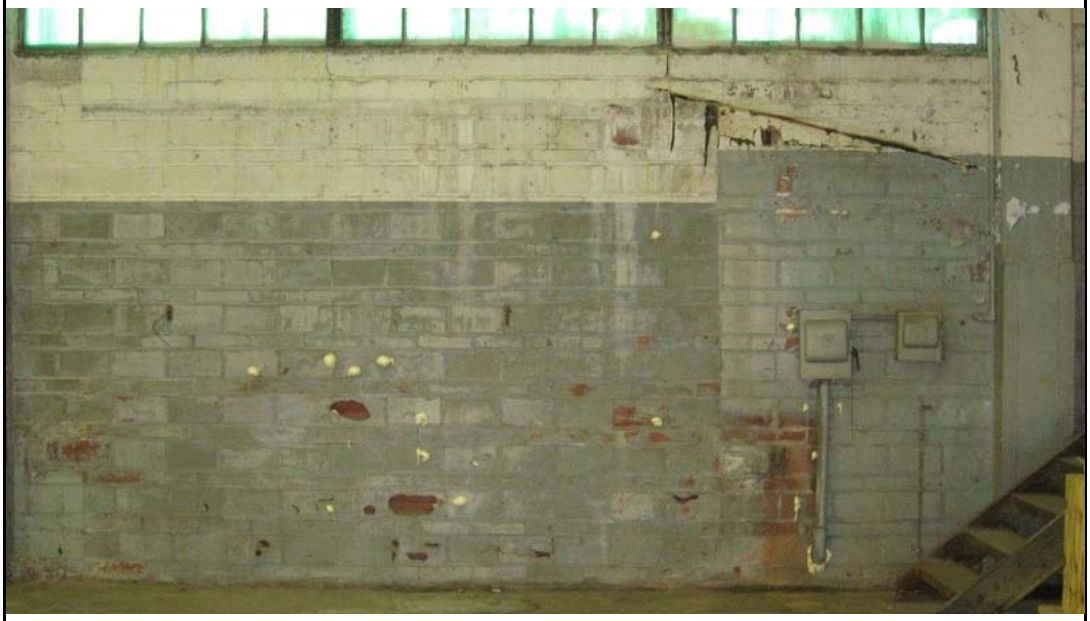
Cracks in south loading deck slab.



Photograph #: 26

Crack in south loading dock slab.

Building 33, 34, 35, 36



Photograph #: 27

Spalls and voids in interior masonry wall on north side.



Photograph #: 28

Crack in floor in northwest area of first level.

Building 33, 34, 35, 36



Photograph #: 29

Interior view of central building at first level.



Photograph #: 30

Interior building at first level looking north.

Building 33, 34, 35, 36



Photograph #: 31

Cracks in east area of second floor slab.



Photograph #: 32

Cracks in west area of second floor slab.

Building 33, 34, 35, 36



Photograph #: 33

Cracks in west area of second floor slab.



Photograph #: 34

Crack in west area of second floor slab.

Building 33, 34, 35, 36



Photograph #: 35

Interior crack in south masonry wall near east end.



Photograph #: 36

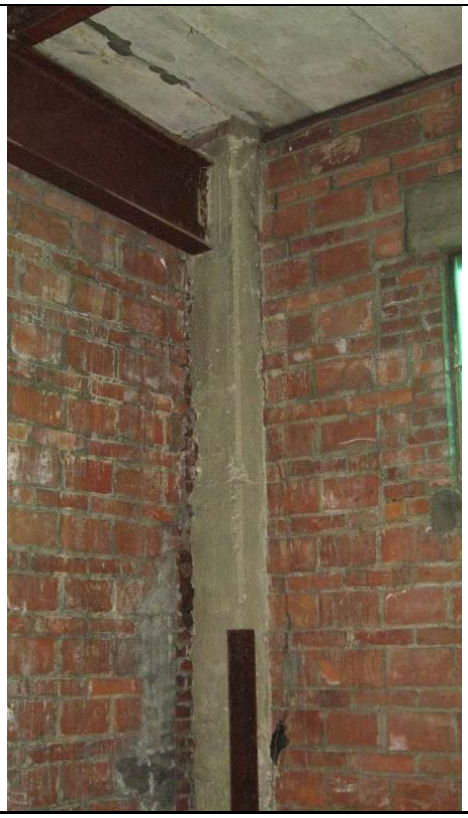
Interior crack/void at window sill on south side near east end.

Building 33, 34, 35, 36



Photograph #: 37

Interior crack in east wall.



Photograph #: 38

Interior crack/void at column and wall at northwest corner.

Building 33, 34, 35, 36



Photograph #: 39

Spalls and surface deterioration at concrete roof planks at interior wall.



Photograph #: 40

Spalls at concrete roof planks adjacent to clerestory monitor.

Building 33, 34, 35, 36



Photograph #: 41

Water intrusion damage at concrete roof planks, steel beam and concrete column.



Photograph #: 42

Spalls and surface deterioration at concrete roof planks at interior wall.

Building 33, 34, 35, 36



Photograph #: 43

Spalls and surface deterioration at concrete roof planks at interior wall.



Photograph #: 44

Deteriorated concrete roof plank at interior wall.

Building 33, 34, 35, 36



Photograph #: 45

Concrete roof planks at clerestory monitor.



Photograph #: 46

Concrete roof planks with surface deterioration at clerestory monitor.

Building 33, 34, 35, 36



Photograph #: 47

Concrete roof planks with surface deterioration at clerestory monitor.



Photograph #: 48

Interior freight elevator at second floor - west end.

Structural Assessment - General Information

Building No.: 37 Machine Shop & 38 Gas and Diesel Repair Shop

Building Name:	Machine Shop & Gas and Diesel Repair Shop
Original Function:	Machine Shop
Subsequent Modification	N/A
General Building Structure Description:	One story steel frame building with perimeter steel columns inside self-supporting exterior masonry walls. The building is divided into two interior spaces, with the west space designated as Building No. 37 and the east space designated as Building No. 38. The building has two structural bays with central clerestory monitors that extend the full length of the building. The main roof and monitors are supported by steel trusses that span approximately 50 ft. in the north-south direction. The roof deck is concrete planks supported on steel beams.
General Building Structural Condition:	The overall building is in generally fair condition, with the exception of extensive cracking in the exterior masonry walls. The steel framing is mildly to moderately corroded, and surface deterioration of the concrete plank roof deck can be observed throughout the building. Structurally defective roof planks were noted in some locations.
Summary of Recommended Structural Repairs:	See additional recommendations below regarding the repair of cracks in the exterior masonry walls. The interior steel framing, which has been painted, should be sand-blasted and repainted. Structurally deficient concrete roof planks must be replaced.
Additional Recommendations:	Previous repairs of cracks in the exterior masonry walls have deteriorated to some extent. A detailed evaluation of the entire masonry envelope will be required to determine the extent of repair and remediation that will be required. A detailed evaluation of the concrete plank roof deck will be required to verify the amount of structurally deficient roof planks that must be replaced, as well as the extent of remediation required for the surface deterioration of the roof deck.

Table 1: Structural Systems Assessment

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Columns	3	Yes
Exterior Walls	4	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop				
Defect Item No.	**Defect Description**	**Quantity/ Unit of Measure**	**Repair Code/ Remarks**	**Photo Log Reference No.**
1	Crack northeast corner in interior of Bldg. 38	10 LF	R-M-2	
2	Deterioration in High Bay southeast corner ceiling panel in interior of Bldg. 38			19
3	Crack southeast corner in interior of Bldg. 38		R-M-2	
4	Corrosion south corner in interior of Bldg. 38		R-S-1	
5	Truss corrosion in interior of Bldg. 38		R-S-1	20
6	Cracking south wall in interior of Bldg. 38	10 LF	R-M-2	23
7	Ceiling panel deterioration in interior of Bldg. 38		R-D-1	
8	Partition between Bldg 37/38 crack		R-M-2	
9	Cracking on northeast corner of partition stucco in interior of Bldg.37		R-P-2	
10	Cracking on center of partition stucco in interior of Bldg. 37		R-P-2	
11	Cracking in masonry south wall in interior of Bldg. 37	10 LF	R-M-2	24
12	Cracking in masonry south wall in interior of Bldg. 37	10 LF	R-M-2	25
13	Roof panel deterioration in interior of Bldg. 37		R-D-1	17
14	Cracking south wall in interior of Bldg. 37	10 LF	R-M-2	
15	Interior cracking southwest corner of Bldg. 37	10 LF	R-M-2	
16	Masonry cracking southwest corner of Bldg. 37		R-M-2	
17	Corrosion of column southwest of Bldg. 37		R-S-1	
18	Cracking southwest corner of Bldg. 37	10 LF	R-M-2	22
19	Cracking south side of north high bay, west end of Bldg. 37	10 LF	R-M-2	
20	Cracking in northwest corner in interior of Bldg. 37	10 LF	R-M-2	
21	Masonry crack north wall of Bldg. 37	10 LF	R-M-9	
22	Cracking in north wall of Bldg. 37	5 LF	R-M-2	21
23	Corrosion north wall of Bldg. 37	10 LF	R-S-1	
24	Cracking northwest corner		R-M-2	
25	Cracking southwest corner	30 LF	R-M-2	4
26	Cracking north high bay, west end	40 LF	R-M-2	
27	Cracking south high bay, west end	40 LF	R-M-2	
28	Cracking southwest corner	30 LF	R-M-2	
29	Cracking southwest corner	30 LF	R-M-2	6
30	Cracking south side	30 LF	R-M-2	

Table 2: Itemized Structural Defects

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop				
31	Cracking south side	20 LF	R-M-2	9
32	Cracking south side	10 LF	R-M-2	
33	Cracking southeast corner	10 LF	R-M-2	7,8
34	Cracking southeast corner	10 LF	R-M-2	
35	Cracking east end	20 LF	R-M-2	5
36	Cracking south high bay east end	10 LF	R-M-2	
37	Cracking northeast corner	20 LF	R-M-2	10
38	Cracking north wall	20 LF	R-M-2	11
39	Cracking north wall	40 LF	R-M-2	12
40	Cracking north wall	40 LF	R-M-2	13
41	Cracking northwest corner	20 LF	R-M-2	14

Repair Code - Description
R-D-1 Replace defective concrete planks at roof deck
R-M-2 Repair cracks in masonry with appropriate sealant
R-M-9 Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant.
R-P-2 Remove damaged and/or unstable plaster and construct new plaster finish
R-S-1 Sandblast, prime, and paint structural steel

NOTE: 5 Ply Barrett Twenty Year Guarantee Specifications "Slag Roof"

PLAN ABOVE MONITOR

leader leader leader leader leader leader leader leader leader

PLAN THROUGH MONITOR

179'-10½" 18'-8" 179'-10½" Smoke Jack

ROOF PLAN

NORTH

Machine Shop

Concrete Floor Drained To Outlet

Tool Room.

Yard Engine Room (Floor - 5" Concrete Slab)

Floor Construction- 5" concrete with 1⅛" T.G.& Maple set on 2"x4" Sleepers Fin. Floor Elev. 518.0

Detail of Flooring Scale: 1"=1'0"

Detail of Furring around Roof Truss Scale: 12"=1'0"

Door Opening "C1" Showing Location of Bolts Scale: ½"=1'0"

6-8" Anchor Bolts-1'2" Long

Detail at "L"

Detail at "K" Scale: ½"=1'0"

12" Cement Tile Roofing

Top of Monitor

Space to be filled with tile.

½" Rods-15" c.c. Continuous around Truss

Diamond 24 Gage Wire Lath

¾" Cement Plaster

Bottom of Truss

8" Tile Wall

Brick Pilaster

Anchor Bolt-1'2" lg

Brick Coping

Sliding Fire Door

Brick Piers

12" Lintel

Note: For Engine Room, Pits See Dwg. No. 2203-E-375

For list of reference drawings see Drwg. 2203-E-52

Detail at Smoke Jack

Plan

Section A-A

Section B-B

Details of Opening in Roof for Smoke Jack.

19 Bays @ 20'-0" = 380'-0"

15 Bays @ 20'-0" = 300'-0"

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
MACHINE SHOP & YARD ENGINE HOUSE FLOOR AND ROOF PLANS.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

MADE H.P DATE 1-6-18 APPROVED

CHECKED J.C.S. DATE 1/25/18

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED AND SIGNED AS CHECKED, AND APPROVED IN BOTH COLUMNS. DESTROY ALL PRINTS MADE PREVIOUS TO DATE OF LAST REVISION.

Scale: 1"=10' ½" ¼" 1'-0" USE DIMENSIONS ONLY.

PRINTED [redacted]

№ 2203-E-69.

Revised	Date	Checked	Date	Approved
A. C. Mc.	2-27-18	J.C.S.	2-27-18	H.P.
H.C. Mc.	3-1-18	J.C.S.	3-1-18	H.P.
J.C.S.	4-24-18	J.C.S.	4-24-18	H.P.
J.C.S.	5-3-18	J.C.S.	5-3-18	H.P.
J.C.S.	5-14-18	J.C.S.	5-14-18	H.P.
J.C.S.	5-21-18	J.C.S.	5-21-18	H.P.
J.C.S.	6-4-18	J.C.S.	6-4-18	H.P.
J.C.S.	6-11-18	J.C.S.	6-11-18	H.P.
J.C.S.	6-18-18	J.C.S.	6-18-18	H.P.
J.C.S.	6-25-18	J.C.S.	6-25-18	H.P.
J.C.S.	7-2-18	J.C.S.	7-2-18	H.P.
J.C.S.	7-9-18	J.C.S.	7-9-18	H.P.
J.C.S.	7-16-18	J.C.S.	7-16-18	H.P.
J.C.S.	7-23-18	J.C.S.	7-23-18	H.P.
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J.C.S.	2-25-19	J.C.S.	2-25-19	H.P.
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J.C.S.	4-22-19	J.C.S.	4-22-19	H.P.
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J.C.S.	5-13-19	J.C.S.	5-13-19	H.P.
J.C.S.	5-20-19	J.C.S.	5-20-19	H.P.
J.C.S.	5-27-19	J.C.S.	5-27-19	H.P.
J.C.S.	6-3-19	J.C.S.	6-3-19	H.P.
J.C.S.	6-10-19	J.C.S.	6-10-19	H.P.
J.C.S.	6-17-19	J.C.S.	6-17-19	H.P.
J.C.S.	6-24-19	J.C.S.	6-24-19	H.P.
J.C.S.	7-1-19	J.C.S.	7-1-19	H.P.
J.C.S.	7-8-19	J.C.S.	7-8-19	H.P.
J.C.S.	7-15-19	J.C.S.	7-15-19	H.P.
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J.C.S.	7-29-19	J.C.S.	7-29-19	H.P.
J.C.S.	8-5-19	J.C.S.	8-5-19	H.P.
J.C.S.	8-12-19	J.C.S.	8-12-19	H.P.
J.C.S.	8-19-19	J.C.S.	8-19-19	H.P.
J.C.S.	8-26-19	J.C.S.	8-26-19	H.P.
J.C.S.	9-2-19	J.C.S.	9-2-19	H.P.
J.C.S.	9-9-19	J.C.S.	9-9-19	H.P.
J.C.S.	9-16-19	J.C.S.	9-16-19	H.P.
J.C.S.	9-23-19	J.C.S.	9-23-19	H.P.
J.C.S.	9-30-19	J.C.S.	9-30-19	H.P.
J.C.S.	10-7-19	J.C.S.	10-7-19	H.P.
J.C.S.	10-14-19	J.C.S.	10-14-19	H.P.
J.C.S.	10-21-19	J.C.S.	10-21-19	H.P.
J.C.S.	10-28-19	J.C.S.	10-28-19	H.P.
J.C.S.	11-4-19	J.C.S.	11-4-19	H.P.
J.C.S.	11-11-19	J.C.S.	11-11-19	H.P.
J.C.S.	11-18-19	J.C.S.	11-18-19	H.P.
J.C.S.	11-25-19	J.C.S.	11-25-19	H.P.
J.C.S.	12-2-19	J.C.S.	12-2-19	H.P.
J.C.S.	12-9-19	J.C.S.	12-9-19	H.P.
J.C.S.	12-16-19	J.C.S.	12-16-19	H.P.
J.C.S.	12-23-19	J.C.S.	12-23-19	H.P.
J.C.S.	12-30-19	J.C.S.	12-30-19	H.P.
J.C.S.	1-6-20	J.C.S.	1-6-20	H.P.
J.C.S.	1-13-20	J.C.S.	1-13-20	H.P.
J.C.S.	1-20-20	J.C.S.	1-20-20	H.P.
J.C.S.	1-27-20	J.C.S.	1-27-20	H.P.
J.C.S.	2-3-20	J.C.S.	2-3-20	H.P.
J.C.S.	2-10-20	J.C.S.	2-10-20	H.P.
J.C.S.	2-17-20	J.C.S.	2-17-20	H.P.
J.C.S.	2-24-20	J.C.S.	2-24-20	H.P.
J.C.S.	3-2-20	J.C.S.	3-2-20	H.P.
J.C.S.	3-9-20	J.C.S.	3-9-20	H.P.
J.C.S.	3-16-20	J.C.S.	3-16-20	H.P.
J.C.S.	3-23-20	J.C.S.	3-23-20	H.P.
J.C.S.	3-30-20	J.C.S.	3-30-20	H.P.
J.C.S.	4-6-20	J.C.S.	4-6-20	H.P.
J.C.S.	4-13-20	J.C.S.	4-13-20	H.P.
J.C.S.	4-20-20	J.C.S.	4-20-20	H.P.
J.C.S.	4-27-20	J.C.S.	4-27-20	H.P.
J.C.S.	5-4-20	J.C.S.	5-4-20	H.P.
J.C.S.	5-11-20	J.C.S.	5-11-20	H.P.
J.C.S.	5-18-20	J.C.S.	5-18-20	H.P.
J.C.S.	5-25-20	J.C.S.	5-25-20	H.P.
J.C.S.	6-1-20	J.C.S.	6-1-20	H.P.
J.C.S.	6-8-20	J.C.S.	6-8-20	H.P.
J.C.S.	6-15-20	J.C.S.	6-15-20	H.P.
J.C.S.	6-22-20	J.C.S.	6-22-20	H.P.
J.C.S.	6-29-20	J.C.S.	6-29-20	H.P.
J.C.S.	7-6-20	J.C.S.	7-6-20	H.P.
J.C.S.	7-13-20	J.C.S.	7-13-20	H.P.
J.C.S.	7-20-20	J.C.S.	7-20-20	H.P.
J.C.S.	7-27-20	J.C.S.	7-27-20	H.P.
J.C.S.	8-3-20	J.C.S.	8-3-20	H.P.
J.C.S.	8-10-20	J.C.S.	8-10-20	H.P.
J.C.S.	8-17-20	J.C.S.	8-17-20	H.P.
J.C.S.	8-24-20	J.C.S.	8-24-20	H.P.
J.C.S.	8-31-20	J.C.S.	8-31-20	H.P.
J.C.S.	9-7-20	J.C.S.	9-7-20	H.P.
J.C.S.	9-14-20	J.C.S.	9-14-20	H.P.
J.C.S.	9-21-20	J.C.S.	9-21-20	H.P.
J.C.S.	9-28-20	J.C.S.	9-28-20	H.P.
J.C.S.	10-5-20	J.C.S.	10-5-20	H.P.
J.C.S.	10-12-20	J.C.S.	10-12-20	H.P.
J.C.S.	10-19-20	J.C.S.	10-19-20	H.P.
J.C.S.	10-26-20	J.C.S.	10-26-20	H.P.
J.C.S.	11-2-20	J.C.S.	11-2-20	H.P.
J.C.S.	11-9-20	J.C.S.	11-9-20	H.P.
J.C.S.	11-16-20	J.C.S.	11-16-20	H.P.
J.C.S.	11-23-20	J.C.S.	11-23-20	H.P.
J.C.S.	11-30-20	J.C.S.	11-30-20	H.P.
J.C.S.	12-7-20	J.C.S.	12-7-20	H.P.
J.C.S.	12-14-20	J.C.S.	12-14-20	H.P.
J.C.S.	12-21-20	J.C.S.	12-21-20	H.P.
J.C.S.	12-28-20	J.C.S.	12-28-20	H.P.
J.C.S.	1-4-21	J.C.S.	1-4-21	H.P.
J.C.S.	1-11-21	J.C.S.	1-11-21	H.P.
J.C.S.	1-18-21	J.C.S.	1-18-21	H.P.
J.C.S.	1-25-21	J.C.S.	1-25-21	H.P.
J.C.S.	2-1-21	J.C.S.	2-1-21	H.P.
J.C.S.	2-8-21	J.C.S.	2-8-21	H.P.
J.C.S.	2-15-21	J.C.S.	2-15-21	H.P.
J.C.S.	2-22-21	J.C.S.	2-22-21	H.P.
J.C.S.	3-1-21	J.C.S.	3-1-21	H.P.
J.C.S.	3-8-21	J.C.S.	3-8-21	H.P.
J.C.S.	3-15-21	J.C.S.	3-15-21	H.P.
J.C.S.	3-22-21	J.C.S.	3-22-21	H.P.
J.C.S.	3-29-21	J.C.S.	3-29-21	H.P.
J.C.S.	4-5-21	J.C.S.	4-5-21	H.P.
J.C.S.	4-12-21	J.C.S.	4-12-21	H.P.
J.C.S.	4-19-21	J.C.S.	4-19-21	H.P.
J.C.S.	4-26-21	J.C.S.	4-26-21	H.P.
J.C.S.	5-3-21	J.C.S.	5-3-21	H.P.
J.C.S.	5-10-21	J.C.S.	5-10-21	H.P.
J.C.S.	5-17-21	J.C.S.	5-17-21	H.P.
J.C.S.	5-24-21	J.C.S.	5-24-21	H.P.
J.C.S.	5-31-21	J.C.S.	5-31-21	H.P.
J.C.S.	6-7-21	J.C.S.	6-7-21	H.P.
J.C.S.	6-14-21	J.C.S.	6-14-21	H.P.
J.C.S.	6-21-21	J.C.S.	6-21-21	H.P.
J.C.S.	6-28-21	J.C.S.	6-28-21	H.P.
J.C.S.	7-5-21	J.C.S.	7-5-21	H.P.
J.C.S.	7-12-21	J.C.S.	7-12-21	H.P.
J.C.S.	7-19-21	J.C.S.	7-19-21	H.P.
J.C.S.	7-26-21	J.C.S.	7-26-21	H.P.
J.C.S.	8-2-21	J.C.S.	8-2-21	H.P.
J.C.S.	8-9-21	J.C.S.	8-9-21	H.P.
J.C.S.	8-16-21	J.C.S.	8-16-21	H.P.
J.C.S.	8-23-21	J.C.S.	8-23-21	H.P.
J.C.S.	8-30-21	J.C.S.	8-30-21	H.P.
J.C.S.	9-6-21	J.C.S.	9-6-21	H.P.
J.C.S.	9-13-21	J.C.S.	9-13-21	H.P.
J.C.S.	9-20-21	J.C.S.	9-20-21	H.P.
J.C.S.	9-27-21	J.C.S.	9-27-21	H.P.
J.C.S.	10-4-21	J.C.S.	10-4-21	H.P.
J.C.S.	10-11-21	J.C.S.	10-11-21	H.P.
J.C.S.	10-18-21	J.C.S.	10-18-21	H.P.
J.C.S.	10-25-21	J.C.S.	10-25-21	H.P.
J.C.S.	11-1-21	J.C.S.	11-1-21	H.P.
J.C.S.	11-8-21	J.C.S.	11-8-21	H.P.
J.C.S.	11-15-21	J.C.S.	11-15-21	H.P.
J.C.S.	11-22-21	J.C.S.	11-22-21	H.P.
J.C.S.	11-29-21	J.C.S.	11-29-21	H.P.
J.C.S.	12-6-21	J.C.S.	12-6-21	H.P.
J.C.S.	12-13-21	J.C.S.	12-13-21	H.P.
J.C.S.	12-20-21	J.C.S.	12-20-21	H.P.
J.C.S.	12-27-21	J.C.S.	12-27-21	H.P.
J.C.S.	1-3-22	J.C.S.	1-3-22	H.P.
J.C.S.	1-10-22	J.C.S.	1-10-22	H.P.
J.C.S.	1-17-22	J.C.S.	1-17-22	H.P.
J.C.S.	1-24-22	J.C.S.	1-24-22	H.P.
J.C.S.	1-31-22	J.C.S.	1-31-22	H.P.
J.C.S.	2-7-22	J.C.S.	2-7-22	H.P.
J.C.S.	2-14-22	J.C.S.	2-14-22	H.P.
J.C.S.	2-21-22	J.C.S.	2-21-22	H.P.
J.C.S.	2-28-22	J.C.S.	2-28-22	H.P.
J.C.S.	3-7-22	J.C.S.	3-7-22	H.P.
J.C.S.	3-14-22	J.C.S.	3-14-22	H.P.
J.C.S.	3-21-22	J.C.S.	3-21-22	H.P.
J.C.S.	3-28-22	J.C.S.	3-28-22	H.P.
J.C.S.	4-4-22	J.C.S.	4-4-22	H.P.
J.C.S.	4-11-22	J.C.S.	4-11-22	H.P.
J.C.S.	4-18-22	J.C.S.	4-18-22	H.P.
J.C.S.	4-25-22	J.C.S.	4-25-22	H.P.
J.C.S.	5-2-22	J.C.S.	5-2-22	H.P.
J.C.S.	5-9-22	J.C.S.	5-9-22	H.P.
J.C.S.	5-16-22	J.C.S.	5-16-22	H.P.
J.C.S.	5-23-22	J.C.S.	5-23-22	H.P.
J.C.S.	5-30-22	J.C.S.	5-30-22	H.P.
J.C.S.	6-6-22	J.C.S.	6-6-22	H.P.
J.C.S.	6-13-22	J.C.S.	6-13-22	H.P.
J.C.S.	6-20-22	J.C.S.	6-20-22	H.P.
J.C.S.	6-27-22	J.C.S.	6-27-22	H.P.
J.C.S.	7-4-22	J.C.S.	7-4-22	H.P.
J.C.S.	7-11-22	J.C.S.	7-11-22	H.P.
J.C.S.	7-18-22	J.C.S.	7-18-22	H.P.
J.C.S.	7-25-22	J.C.S.	7-25-22	H.P.
J.C.S.	8-1-22	J.C.S.	8-1-22	H.P.
J.C.S.	8-8-22	J.C.S.	8-8-22	H.P.
J.C.S.	8-15-22	J.C.S.	8-15-22	H.P.
J.C.S.	8-22-22	J.C.S.	8-22-22	H.P.
J.C.S.	8-29-22	J.C.S.	8-29-22	H.P.
J.C.S.	9-5-22	J.C.S.	9-5-22	H.P.
J.C.S.	9-12-22	J.C.S.	9-12-22	H.P.
J.C.S.	9-19-22	J.C.S.	9-19-22	H.P.
J.C.S.	9-26-22	J.C.S.	9-26-22	H.P.
J.C.S.	10-3-22	J.C.S.	10-3-22	H.P.
J.C.S.	10-10-22	J.C.S.	10-10-22	H.P.
J.C.S.	10-17-22	J.C.S.	10-17-22	H.P.
J.C.S.	10-24-22	J.C.S.	10-24-22	H.P.
J.C.S.	10-31-22	J.C.S.	10-31-22	H.P.
J.C.S.	11-7-22	J.C.S.	11-7-22	H.P.
J.C.S.	11-14-22	J.C.S.	11-14-22	H.P.
J.C.S.	11-21-22	J.C.S.	11-21-22	H.P.
J.C.S.	11-28-22	J.C.S.	11-28-22	H.P.
J.C.S.	12-5-22	J.C.S.	12-5-22	H.P.
J.C.S.	12-12-22	J.C.S.	12-12-22	H.P.
J.C.S.	12-19-22	J.C.S.	12-19-22	H.P.
J.C.S.	12-26-22	J.C.S.	12-26-22	H.P.
J.C.S.	1-2-23	J.C.S.	1-2-23	H.P.
J.C.S.	1-9-23	J.C.S.	1-9-23	H.P.
J.C.S.	1-16-23	J.C.S.	1-16-23	H.P.
J.C.S.	1-23-23	J.C.S.	1-23-23	H.P.
J.C.S.	1-30-23	J.C.S.	1-30-23	H.P.
J.C.S.	2-6-23	J.C.S.	2-6-23	H.P.
J.C.S.	2-13-23	J.C.S.	2-13-23	H.P.
J.C.S.	2-20-23	J.C.S.	2-20-23	H.P.
J.C.S.	2-27-23	J.C.S.	2-27-23	H.P.
J.C.S.	3-6-23	J.C.S.	3-6-23	H.P.
J.C.S.	3-13-23	J.C.S.	3-13-23	H.P.
J.C.S.	3-20-23	J.C.S.	3-20-23	H.P.
J.C.S.	3-27-23	J.C.S.	3-27-23	H.P.
J.C.S.	4-3-23	J.C.S.	4-3-23	H.P.
J.C.S.	4-10-23	J.C.S.	4-10-23	H.P.
J.C.S.	4-17-23	J.C.S.	4-17-23	H.P.
J.C.S.	4-24-23	J.C.S.	4-24-23	H.P.
J.C.S.	5-1-23	J.C.S.	5-1-23	H.P.
J.C.S.	5-8-23	J.C.S.	5-8-23	H.P.
J.C.S.	5-15-23	J.C.S.	5-15-23	H.P.
J.C.S.	5-22-23	J.C.S.	5-22-23	H.P.
J.C.S.	5-29-23	J.C.S.	5-29-23	H.P.
J.C.S.	6-5-23	J.C.S.	6-5-23	H.P.
J.C.S.	6-12-23	J.C.S.	6-12-23	H.P.
J.C.S.	6-19-23	J.C.S.	6-19-23	H.P.
J.C.S.	6-26-23	J.C.S.	6-26-23	H.P.
J.C.S.	7-3-23	J.C.S.	7-3-23	H.P.
J.C.S.	7-10-23	J.C.S.	7-10-23	H.P.
J.C.S.	7-17-23	J.C.S.	7-17-23	H.P.
J.C.S.	7-24-23	J.C.S.	7-24-23	H.P.
J.C.S.	7-31-23	J.C.S.	7-31-23	H.P.
J.C.S.	8-7-23	J.C.S.	8-7-23	H.P.
J.C.S.	8-14-23	J.C.S.	8-14-23	H.P.
J.C.S.	8-21-23	J.C.S.	8-21-23	H.P.
J.C.S.	8-28-23	J.C.S.	8-28-23	H.P.
J.C.S.	9-4-23	J.C.S.	9-4-23	H.P.
J.C.S.	9-11-23	J.C.S.	9-11-23	H.P.
J.C.S.	9-18-23	J.C.S.	9-18-23	H.P.
J.C.S.	9-25-23	J.C.S.	9-25-23	H.P.
J.C.S.	10-2-23	J.C.S.	10-2-23	H.P.
J.C.S.	10-9-23	J.C.S.	10-9-23	H.P.
J.C.S.	10-16-23	J.C.S.	10-16-23	H.P.
J.C.S.	10-23-23	J.C.S.	10-23-23	H.P.
J.C.S.	10-30-23	J.C.S.	10-30-23	H.P.
J.C.S.	11-6-23	J.C.S.	11-6-23	H.P.
J.C.S.	11-13-23	J.C.S.	11-13-23	H.P.
J.C.S.	11-20-23	J.C.S.	11-20-23	H.P.
J.C.S.	11-27-23	J.C.S.	11-27-23	H.P.
J.C.S.	12-4-23	J.C.S.	12-4-23	H.P.
J.C.S.	12-11-23	J.C.S.	12-11-23	H.P.
J.C.S.	12-18-23	J.C.S.	12-18-23	H.P.
J.C.S.	12-25-23	J.C.S.	12-25-23	H.P.
J.C.S.	1-1-24	J.C.S.	1-1-24	H.P.
J.C.S.	1-8-24	J.C.S.	1-8-24	H.P.
J.C.S.	1-15-24	J.C.S.	1-15-24	H.P.
J.C.S.	1-22-24	J.C.S.	1-22-24	H.P.
J.C.S.	1-29-24	J.C.S.	1-29-24	H.P.
J.C.S.	2-5-24	J.C.S.	2-5-24	H.P.
J.C.S.	2-12-24	J.C.S.	2-12-24	H.P.
J.C.S.	2-19-24	J.C.S.	2-19-24	H.P.
J.C.S.	2-26-24	J.C.S.	2-26-24	H.P.
J.C.S.	3-4-24	J.C.S.	3-4-24	H.P.
J.C.S.	3-11-24	J.C.S.	3-11-24	H.P.
J.C.S.	3-18-24	J.C.S.	3-18-24	H.P.
J.C.S.	3-25-24	J.C.S.	3-25-24	H.P.
J.C.S.	4-1-24	J.C.S.	4-1-24	H.P.
J.C.S.	4-8-24	J.C.S.	4-8-24	H.P.
J.C.S.	4-15-24	J.C.S.	4-15-24	H.P.
J.C.S.	4-22-24	J.C.S.	4-22-24	H.P.
J.C.S.	4-29-24	J.C.S.	4-29-24	H.P.
J.C.S.	5-6-24	J.C.S.	5-6-24	H.P.
J.C.S.	5-13-24	J.C.S.	5-13-24	H.P.
J.C.S.	5-20-24	J.C.S.	5-20-24	H.P.
J.C.S.	5-27-24	J.C.S.	5-27-24	H.P.
J.C.S.	6-3-24	J.C.S.	6-3-24	H.P.
J.C.S.	6-10-24	J.C.S.	6-10-24	H.P.
J.C.S.	6-17-24	J.C.S.	6-17-24	H.P.
J.C.S.	6-24-24	J.C.S.	6-24-24	H.P.
J.C.S.	7-1-24	J.C.S.	7-1-24	H.P.
J.C.S.	7-8-24	J.C.S.	7-8-24	H.P.
J.C.S.	7-15-24	J.C.S.	7-15-24	H.P.
J.C.S.	7-22-24	J.C.S.	7-22-24	H.P.
J.C.S.	7-29-24	J.C.S.	7-29-24	H.P.
J.C.S.	8-5-24	J.C.S.	8-5-24	H.P.
J.C.S.	8-12-24	J.C.S.	8-12-24	H.P.
J.C.S.	8-19-24	J.C.S.	8-19-24	H.P.
J.C.S.	8-26-24	J.C.S.	8-26-24	H.P.
J.C.S.	9-2-24	J.C.S.	9-2-24	H.P.
J.C.S.	9-9-24	J.C.S.	9-9-24	H.P.
J.C.S.	9-16-24	J.C.S.	9-16-24	H.P.
J.C.S.	9-23-24	J.C.S.	9-23-24	H.P.
J.C.S.	9-30-24	J.C.S.	9-30-24	H.P.
J.C.S.	10-7-24	J.C.S.	10-7-24	H.P.
J.C.S.	10-14-24	J.C.S.	10-14-24	H.P.
J.C.S.	10-21-24	J.C.S.	10-21-24	H.P.
J.C.S.	10-28-24	J.C.S.	10-28-24	H.P.
J.C.S.	11-4-24	J.C.S.	11-4-24	H.P.
J.C.S.	11-11-24	J.C.S.	11-11-24	H.P.
J.C.S.	11-18-24	J.C.S.	11-18-24	H.P.
J.C.S.	11-25-24	J.C.S.	11-25-24	H.P.
J.C.S.	12-2-24	J.C.S.	12-2-24	H.P.
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J.C.S.	12-16-24	J.C.S.	12-16-24	H.P.
J.C.S.	12-23-24	J.C.S.	12-23-24	H.P.
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J.C.S.	1-27-25	J.C.S.	1-27-25	H.P.
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J.C.S.	2-17-25	J.C.S.	2-17-25	H.P.
J.C.S.	2-24-25	J.C.S.	2-24-25	H.P.
J.C.S.	3-3-25	J.C.S.	3-3-25	H.P.
J.C.S.	3-10-25	J.C.S.	3-10-25	H.P.
J.C.S.	3-17-25	J.C.S.	3-17-25	H.P.
J.C.S.	3-24-25	J.C.S.	3-24-25	H.P.
J.C.S.	3-31-25	J.C.S.	3-31-25	H.P.
J.C.S.	4-7-25	J.C.S.	4-7-25	H.P.
J.C.S.	4-14-25	J.C.S.	4-14-25	H.P.
J.C.S.	4-21-25	J.C.S.	4-21-25	H.P.
J.C.S.	4-28-25	J.C.S.	4-28-25	H.P.
J.C.S.	5-5-25	J.C.S.	5-5-25	H.P.
J.C.S.	5-12-25	J.C.S.	5-12-25	H.P.
J.C.S.	5-19-25	J.C.S.	5-19-25	H.P.
J.C.S.	5-26-25	J.C.S.	5-26-25	H.P.
J.C.S.	6-2-25	J.C.S.	6-2-25	H.P.
J.C.S.	6-9-25	J.C.S.	6-9-25	H.P.
J.C.S.	6-16-25	J.C.S.	6-16-25	H.P.
J.C.S.	6-23-25	J.C.S.	6-23-25	H.P.
J.C.S.	6-30-25	J.C.S.	6-30-25	H.P.
J.C.S.	7-7-25	J.C.S.	7-7-25	H.P.
J.C.S.	7-14-25	J.C.S.	7-14-25	H.P.
J.C.S.	7-21-25	J.C.S.	7-21-25	H.P.
J.C.S.	7-28-25	J.C.S.	7-28-25	H.P.
J.C.S.	8-4-25	J.C.S.	8-4-25	H.P.
J.C.S.	8-11-25	J.C.S.	8-11-25	H.P.
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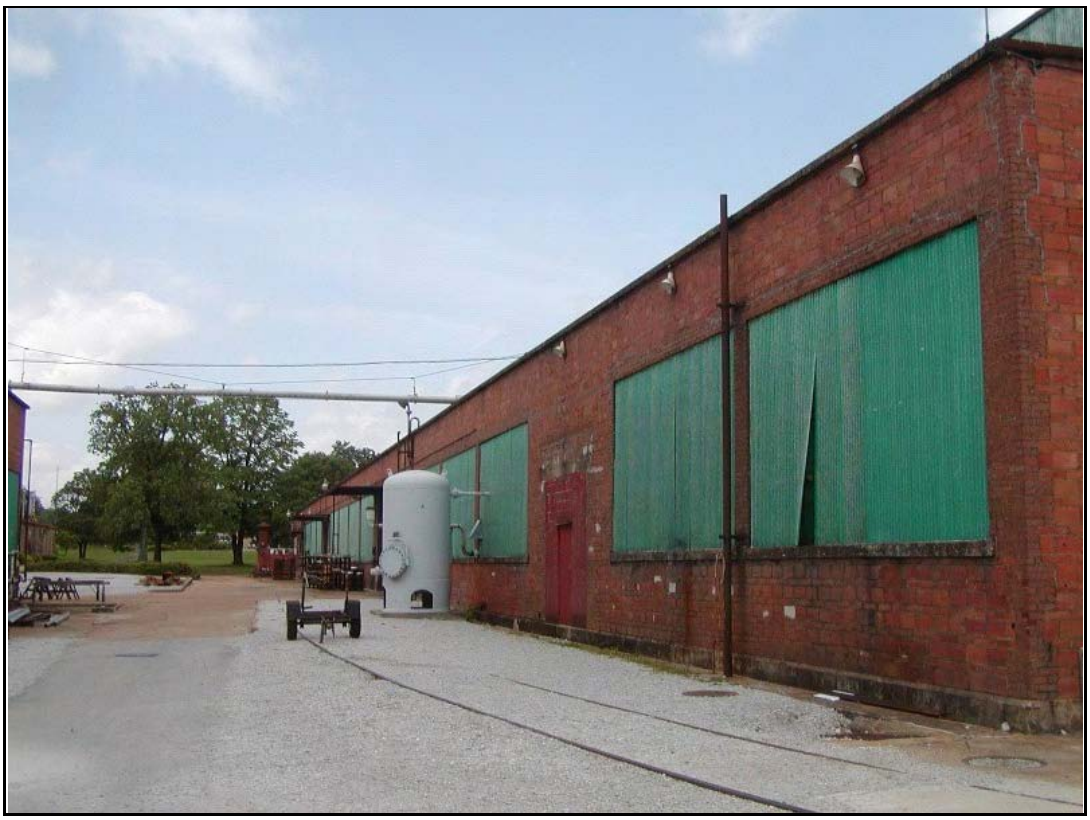
J.C.S.	8-25-25	J.C.S.	8-25-25	H.P.
J.C.S.	9-1-25	J.C.S.	9-1-25	H.P.
J.C.S.	9-8-25	J.C.S.	9-8-25	H.P.
J.C.S.	9-15-25	J.C.S.	9-15-25	H.P.
J.C.S.	9-22-25	J.C.S.	9-22-25	H.P.
J.C.S.	9-29-25	J.C.S.	9-29-25	H.P.
J.C.S.	10-6-25	J.C.S.	10-6-25	H.P.
J.C.S.	10-13-25	J.C.S.	10-13-25	H.P.
J.C.S.	10-20-25	J.C.S.	10-20-25	H.P.
J.C.S.	10-27-25	J.C.S.	10-27-25	H.P.
J.C.S.	11-3-25	J.C.S.	11-3-25	H.P.
J.C.S.	11-10-25	J.C.S.	11-10-25	H.P.
J.C.S.	11-17-25	J.C.S.	11-17-25	H.P.
J.C.S.	11-24-25	J.C.S.	11-24-25	H.P.
J.C.S.	12-1-25	J.C.S.	12-1-25	H.P.
J.C.S.	12-8-25	J.C.S.	12-8-25	H.P.
J.C.S.	12-15-25	J.C.S.	12-15-25	H.P.
J.C.S.	12-22-25	J.C.S.	12-22-25	H.P.
J.C.S.	12-29-25	J.C.S.	12-29-25	H.P.
J.C.S.	1-5-26	J.C.S.	1-5-26	H.P.
J.C.S.	1-12-26	J.C.S.	1-12-26	H.P.
J.C.S.	1-19-26	J.C.S

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 1

Exterior building east end



Photograph #: 2

Exterior building south side

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 3

Exterior building west end



Photograph #: 4

Cracks in masonry south end of west wall

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 5

Cracks in masonry at southeast corner



Photograph #: 6

Crack in masonry at southwest corner

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 7

Cracks in masonry in south wall



Photograph #: 8

Cracks in masonry (same location as Photo No. 7)

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 9

Cracks in masonry lintels at south wall



Photograph #: 10

Cracks in masonry north end of east wall

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 11

Cracks in masonry at north wall



Photograph #: 12

Cracks in masonry at north wall

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 13

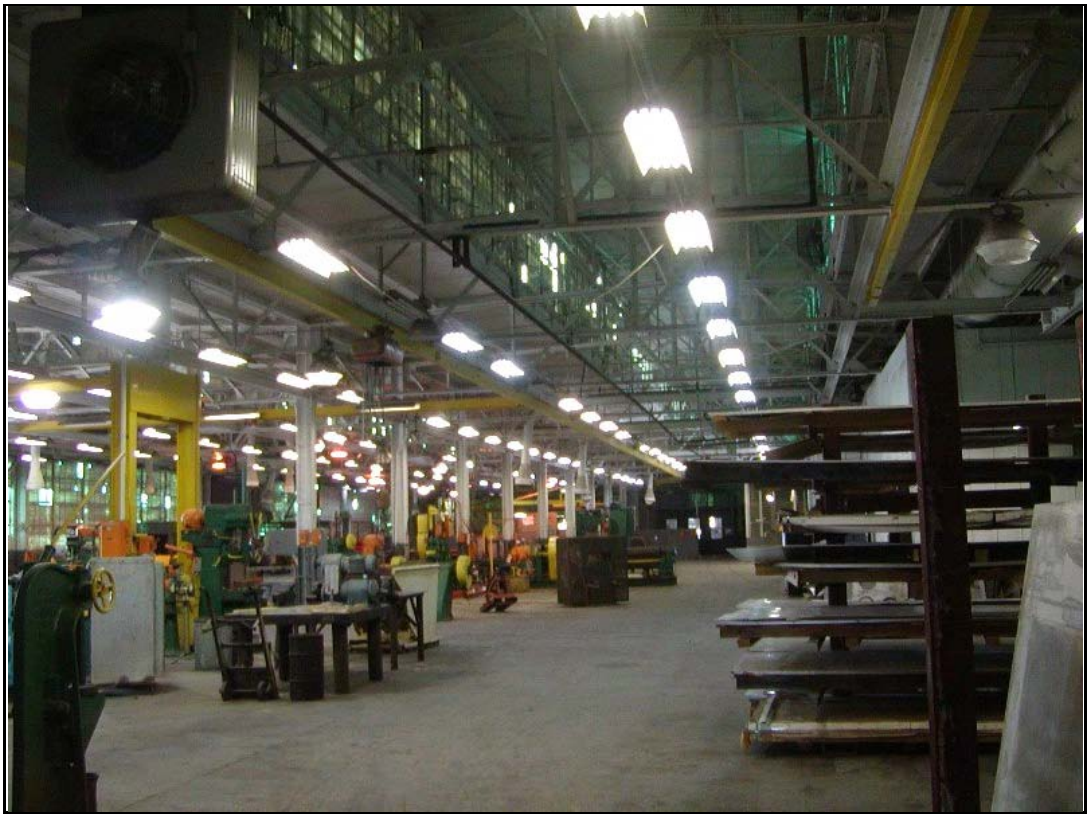
Crack in masonry at north wall



Photograph #: 14

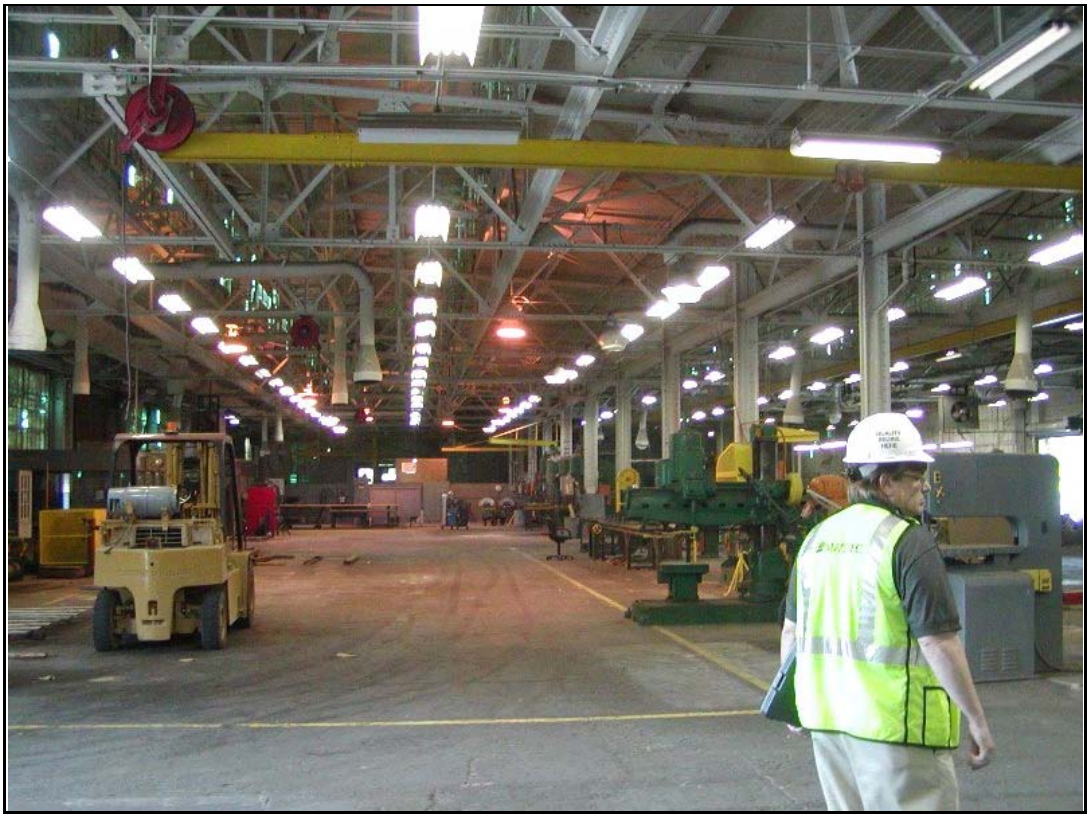
Cracks in masonry at northwest corner

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 15

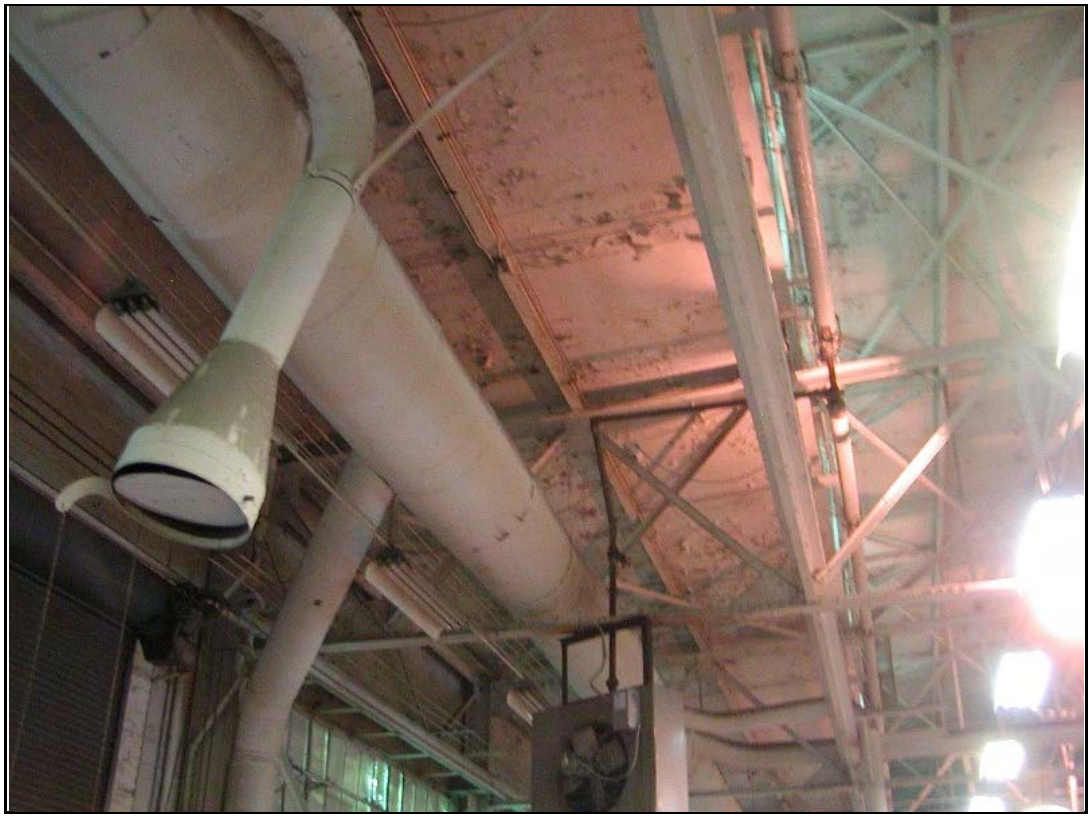
Interior building



Photograph #: 16

Interior building

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 17

Surface deterioration at concrete plank deck



Photograph #: 18

Crack and spall in concrete plank roof deck

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 19

General moderate deterioration of monitor framing, wall and roof deck



Photograph #: 20

Deteriorated concrete plank roof deck at monitor

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 21

Diagonal crack in masonry at north wall



Photograph #: 22

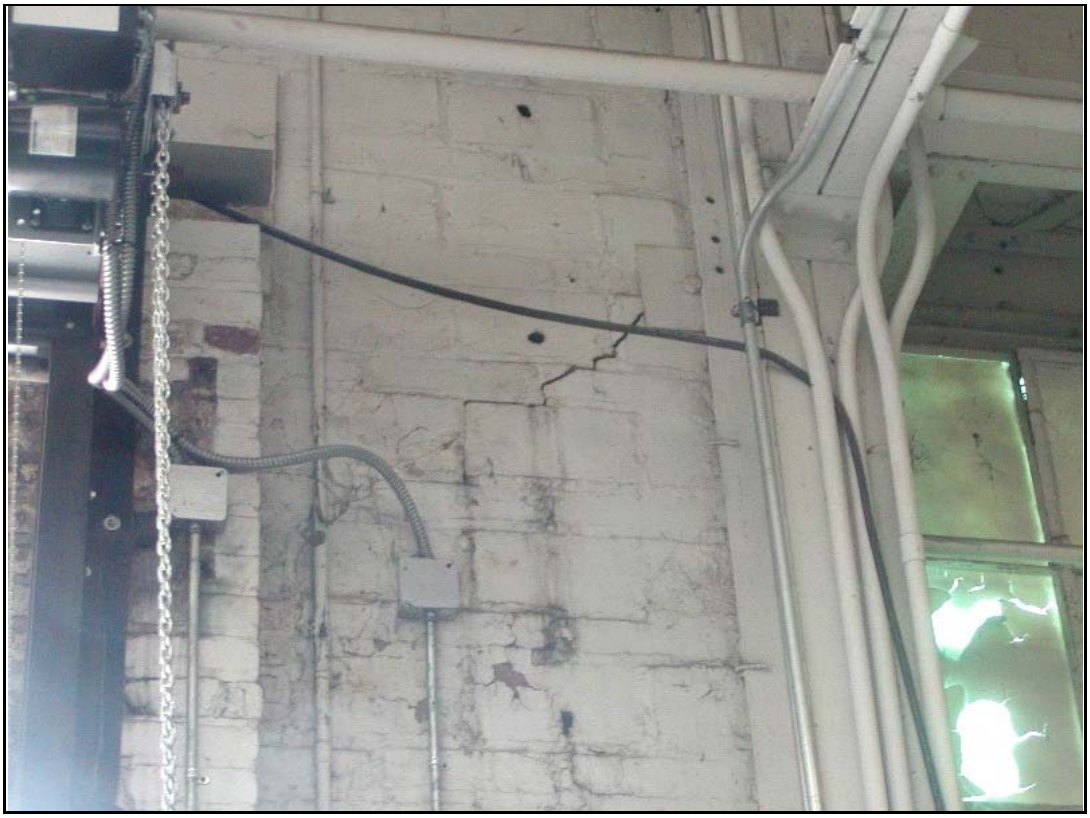
Diagonal crack in masonry at west wall

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 23

Vertical crack in masonry at south wall



Photograph #: 24

Diagonal crack in masonry at south wall

Building 37 Machine Shop & 38 Gas and Diesel Repair Shop



Photograph #: 25

Horizontal crack in masonry at south wall



Photograph #: 26

Cracked and partially dislodged masonry at northeast corner

Structural Assessment - General Information

Building No.: 39 Engineering Lab	
Building Name:	Engineering Lab
Original Function:	Iron and Brass Foundry
Subsequent Modification	Extension on north side
General Building Structure Description:	One story steel frame building approximately 35 ft. tall with a central 10 ft. high clerestory monitor above the main roof. The main roof and monitor are supported by steel trusses on perimeter steel columns inside self-supporting exterior masonry walls. The roof deck is concrete planks supported by steel beams. The building has a partial second floor on the south side and a low one-story office addition on the north side. A steel frame building with shed roofs (Building 40) has been constructed on the south side of Building 39.
General Building Structural Condition:	The building roof deck and exterior masonry walls are in generally fair condition. The steel framing, which was painted, is moderately corroded with heavy corrosion in some locations. Numerous minor cracks were noted in the exterior masonry walls. The steel framing and metal deck at the partial second floor are moderately to heavily corroded.
Summary of Recommended Structural Repairs:	The steel framing must be sandblasted and painted. Cracks on the masonry walls must be repaired. The second floor structure must be repaired.
Additional Recommendations:	A detailed evaluation of the second floor deck will be required to determine the extent of repairs and/or replacement required.

Table 1: Structural Systems Assessment

Building 39 Engineering Lab

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Pits and Trenches	4	No
Second Floor System (Deck and framing)	4	Yes
Columns	3	Yes
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No
Exterior Stairs	5	Yes

Condition Code Description

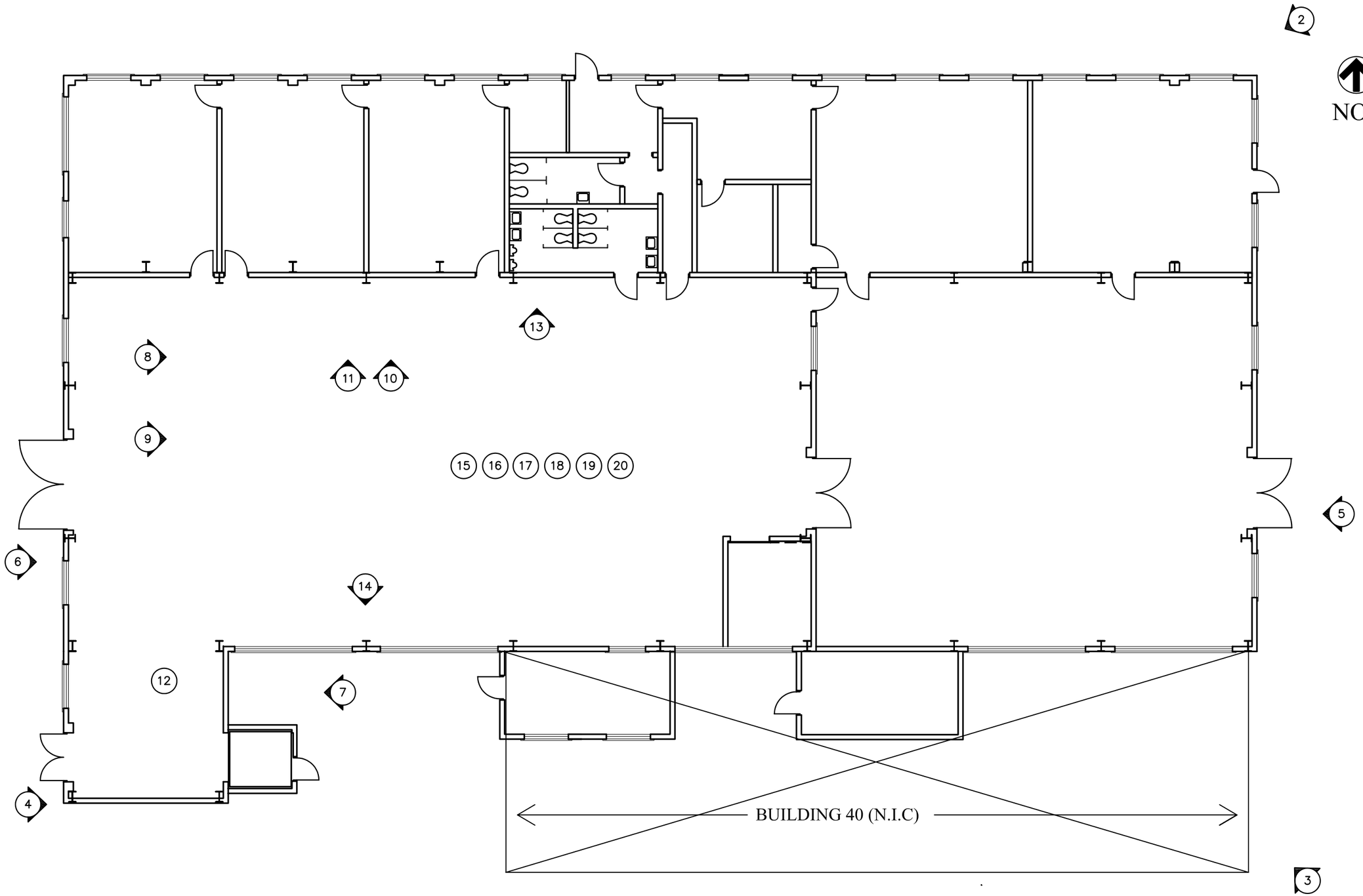
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 39 Engineering Lab

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Thermal cracks in slab-on-grade	30 LF	R-C-2	
2	Severe corrosion in steel columns on north wall	100 LF	R-S-4	13
3	Moderate corrosion to steel framing in southwest corner	50 LF	R-S-4	
4	Moderate corrosion to painted steel roof throughout the entire building, steel paint is peeling off		R-S-4	15,16,17,18, 19,20
5	Cracks in exterior masonry wall at the southwest corner high bay on both sides	50 LF	R-M-2	
6	Cracks in masonry wall at southeast corner	30 LF	R-M-9	
7	Cracks in exterior masonry wall at the east elevation	30 LF	R-M-2	5
8	Cracking in masonry wall at southwest corner	50 LF	R-M-2	
9	Foundation settlement and localized distortion of steel column at base at southwest corner	50 LF	R-M-3	
10	Crack in clay tile wall at the annex on south side	30 LF		
11	Exterior steel staircase on south side is significantly corroded	1 ea	R-S-3	7

Repair Code -	Description
R-C-2	Inject sealant to seal cracks in concrete
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material
R-M-9	Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant.
R-S-3	Replace structural steel framing
R-S-4	Sandblast, prime, and paint structural steel. Reinforce damaged or deteriorated steel framing.



BUILDING NO. 39
ENGINEERING LAB

PLAN NOT TO SCALE

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

SEAL

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		

BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 39
Engineering Lab Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S39.1
SHEET#

Building 39 Engineering Lab



Photograph #: 1

Exterior building east elevation



Photograph #: 2

Exterior building looking at northeast corner

Building 39 Engineering Lab



Photograph #: 3

Exterior building south side - Building No. 40 (N.I.C.) is in foreground



Photograph #: 4

View of roof on south side - Building 40 (N.I.C.) is on right hand side of photograph

Building 39 Engineering Lab



Photograph #: 5

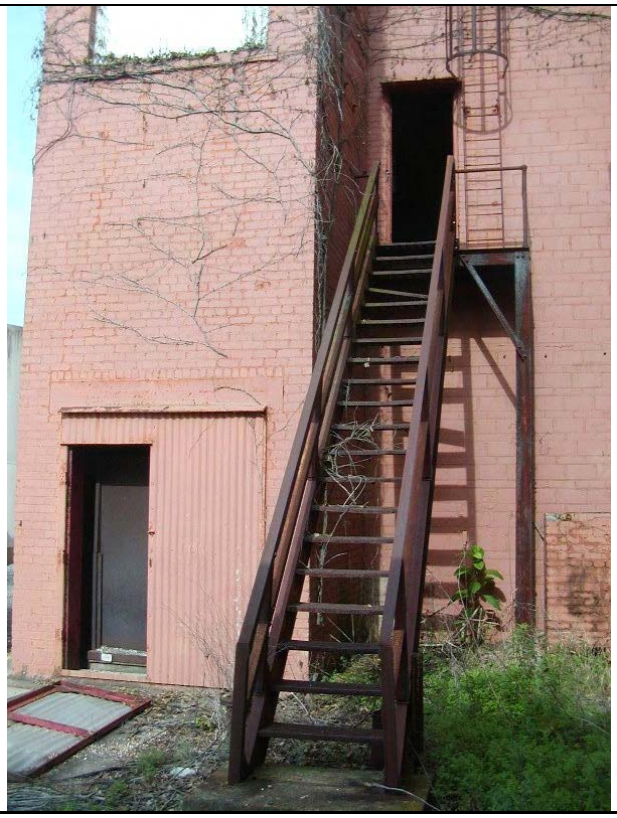
Crack in masonry at end wall east side



Photograph #: 6

Crack in wall by door opening west end

Building 39 Engineering Lab



Photograph #: 7

Deteriorated exterior steel stair



Photograph #: 8

Interior building looking east

Building 39 Engineering Lab



Photograph #: 9

Interior building looking east at monitor roof



Photograph #: 10

Interior building looking at main roof north side

Building 39 Engineering Lab



Photograph #: 11

Deteriorated wall construction north side of main building



Photograph #: 12

Corroded steel below second floor at southwest corner

Building 39 Engineering Lab



Photograph #: 13

Corroded steel column north side of main building



Photograph #: 14

Corroded steel column and deteriorated steel trench grates at south side of main building

Building 39 Engineering Lab



Photograph #: 15

View of monitor framing and roof deck



Photograph #: 16

View of steel roof trusses

Building 39 Engineering Lab



Photograph #: 17

View of main roof framing and roof deck



Photograph #: 18

Wood frame interior wall at second floor

Building 39 Engineering Lab



Photograph #: 19

Flaking paint at corroded steel roof framing



Photograph #: 20

Flaking paint at corroded steel roof framing

Structural Assessment - General Information

Building No.: 41 Sheet Metal Shop	
Building Name:	Sheet Metal Shop
Original Function:	Wood Working Shop
Subsequent Modification	N/A
General Building Structure Description:	One story steel frame building with perimeter steel columns inside self-supporting exterior masonry walls. The building has a central clerestory monitor that extends the length of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams.
General Building Structural Condition:	The overall building is in generally fair condition. The roof structure is painted and exhibits minimal corrosion. One concrete roof plank is structurally deficient. Numerous cracks were noted in the exterior masonry walls and masonry is partially dislodged at cracks in the northeast and southeast corners. Large cracks were noted in the concrete floor at the east end of the building.
Summary of Recommended Structural Repairs:	Replace defective concrete roof plank. Repair cracks in exterior masonry walls and reconstruct partially dislodged masonry. Repair cracks in concrete floors.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 41 Sheet Metal Shop

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Columns	2	No
Exterior Walls	3	Yes
Roof Framing and Subframing	2	No
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No
Awnings (Total Assembly)	4	No

Condition Code Description

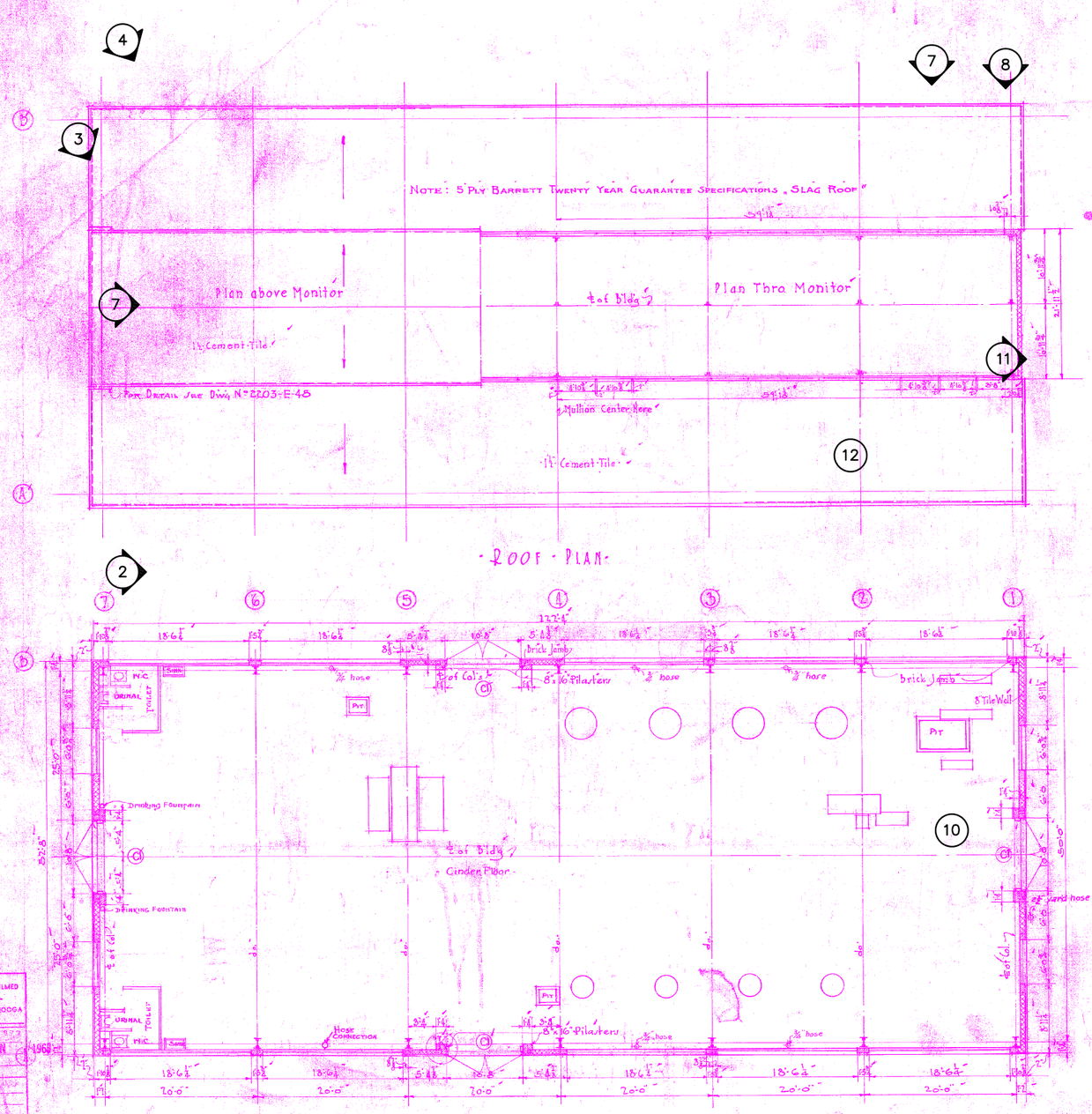
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

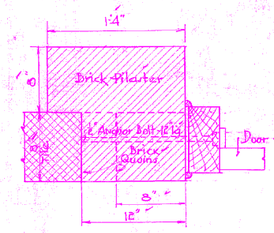
Table 2: Itemized Structural Defects

Building 41 Sheet Metal Shop

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Thermal cracks in slab on grade	30 LF	R-C-2	10
2	Cracks in exterior masonry wall at high bay on east side	10 LF	R-M-2	11
3	Cracks in exterior masonry wall at the southwest corner	20 LF	R-M-2	
4	Cracks in masonry wall at southeast corner	30 LF	R-M-2	5
5	Corroded rear exposed from roof panels, cracks observed in roof panel	15 LF	R-D-1	12

Repair Code -	Description
R-C-2	Inject sealant to seal cracks in concrete
R-D-1	Replace defective concrete planks at roof deck
R-M-2	Repair cracks in masonry with appropriate sealant





For List of Reference Dwg's 2203-E-46

U.S. NITRATE PLANT #2
SHEFFIELD, ALABAMA.
BLACKSMITH SHOP. – Now
FLOOR AND ROOF PLAN.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS

PRINTED

MICROFILMED

NOTE:

# INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 41

SHEET METAL SHOP

NORTH

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

SEAL

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		

BLP, INC. PROJECT NO:

DATE: 05/26/09

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 41
Sheet Metal Shop

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

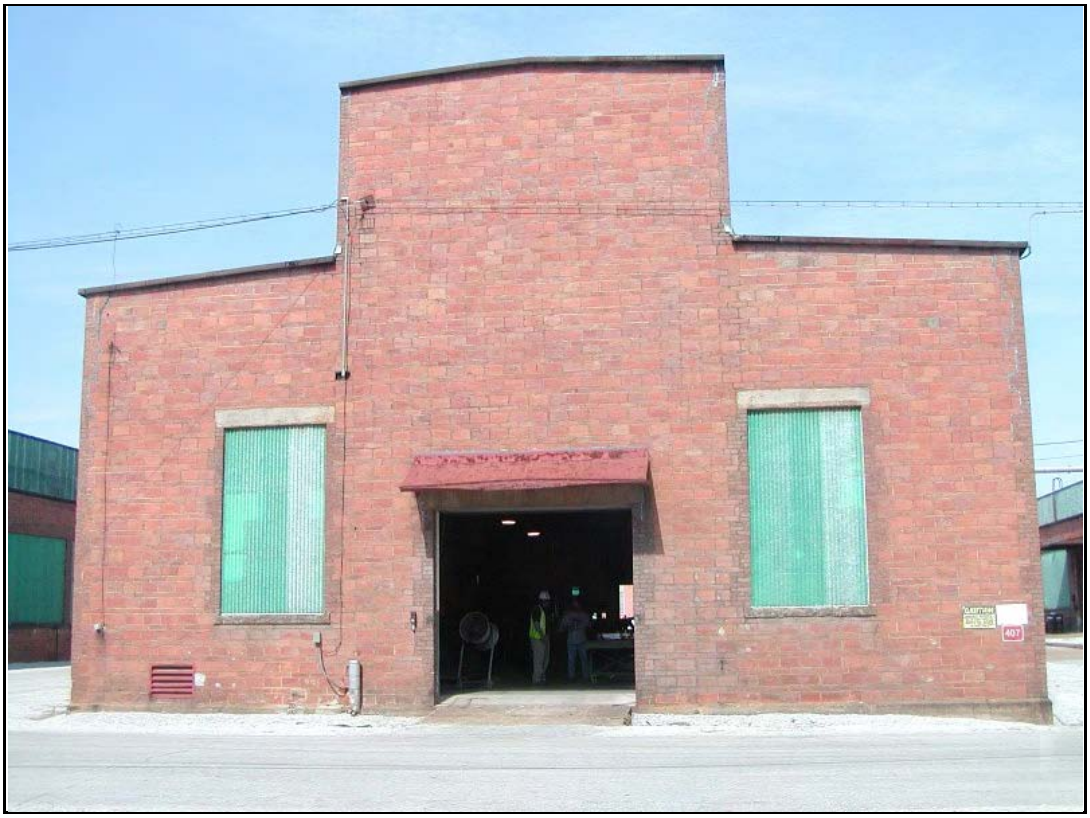
SHEET TITLE

S41.1

SHEET#

Z:\Projects\Jobs\2009 Projects\[41]TVA Muscle Shoals\Photolog Drwgs\Bldg 41-SS.dwg - 41 05/26/2009 4:14pm dshotpd

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 1

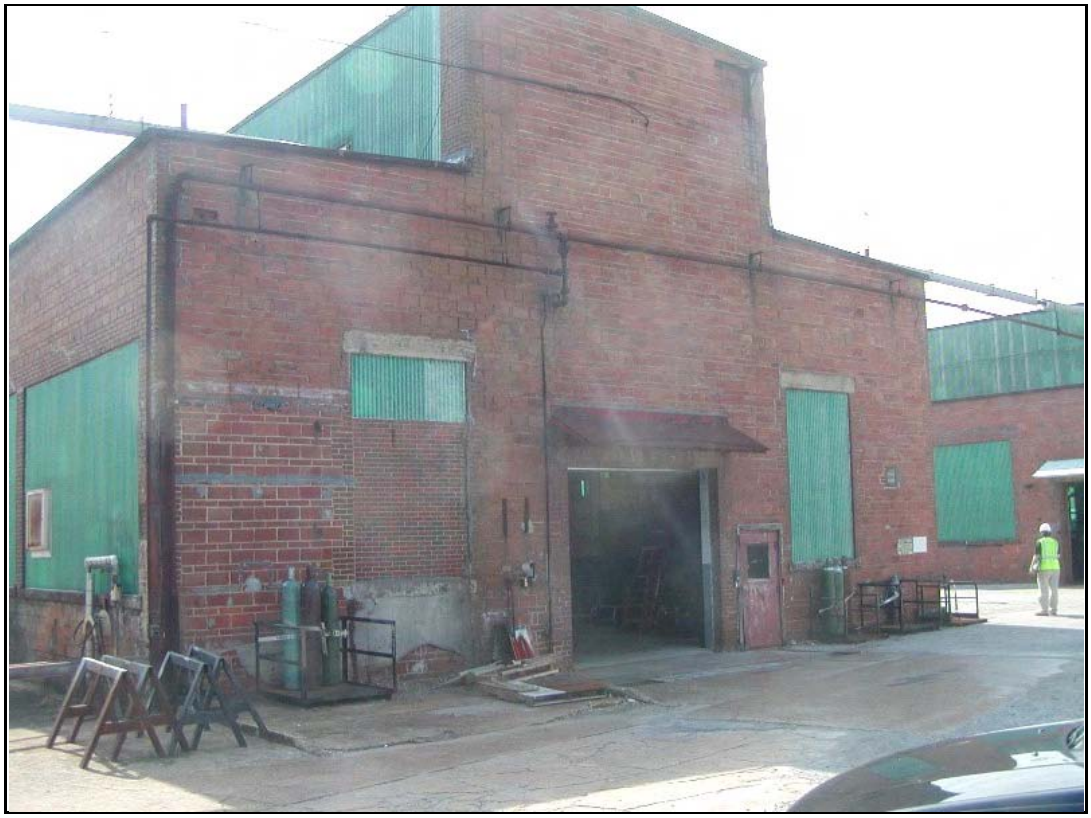
Exterior of building - east elevation



Photograph #: 2

Exterior of building - south elevation

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 3

Exterior of building - west elevation



Photograph #: 4

Exterior of building looking at north elevation

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 5

Cracked and partially dislodged masonry at southeast corner



Photograph #: 6

Cracks in masonry at northeast corner

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 7

Surface deterioration and cracks in exterior masonry at west wall



Photograph #: 8

Crack above window opening on north side

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 9

Cracks in masonry and exposed slab edge on north side



Photograph #: 10

Large cracks in concrete floor slab

PHOTOLOG: Building 41 Sheet Metal Shop



Photograph #: 11

Roof framing at east end wall



Photograph #: 12

Structurally defective concrete roof deck panel

.conditions

BOOK 3

Structural Assessment

tennessee valley authority

Muscle Shoals Reservation adaptive re-use study

Conditions/Market/Planning/Implementation

July 31, 2009

Revised August 25, 2009

LORD · AECK · SARGENT

ARCHITECTURE

Structural Assessment

Summary of Assessment Methodology and Documentation

A team of MACTEC representatives conducted a general visual structural assessment of the designated buildings at the site from April 27 through April 30, 2009. The team leader made a general observation of each building and conducted detailed inspections of roof structures in selected locations by utilizing a hydraulic lift with the aid of an experienced MACTEC lift operator. The buildings were divided into two groups, and each group was evaluated by a team of two personnel. Field notes regarding the general condition of structural components and specific structural defects were collected at each building, as well as representative photographs of corresponding features. The field data collected on-site serves as the basis of the General Structural Assessment of each building, which consists of five parts:

1. **General Information**, which includes a general description of the building structure, a general description of the building structural condition, a summary of recommended structural repairs, and recommendations for additional specific evaluations when applicable.

2. **Table 1: Structural Systems Assessment**, which lists the applicable structural components of each building, a numeric rating of the condition of each component, and an indication of whether or not specific defects for each component are itemized in Table 2. See “Condition Code Description” below regarding criteria for numeric ratings ascribed to each component.

3. **Table 2: Itemized Structural Defects**, which lists specific defects as described in field notes collected as the buildings were being visually assessed. Some entries in Table 2 are general observations; some are descriptions of specific defects with corresponding quantities and repair codes. The repair codes, when provided, are followed at the end of Table 2 with corresponding generic descriptions of the types of structural repairs that will be required. References to corresponding photographs, when provided, are also listed in Table 2.

4.**Reference Plan(s)**, which are typically scanned images of original building drawings, with graphic indications of approximate locations of the Photolog photographs added.

5.**Photolog**, which contains representative photographs of the general building condition and of specific structural defects that are characteristic of observed deficiencies.

Condition Code Description: The numeric ratings for the Structural Systems Assessment are based on the following criteria as described in Table 1 for each building:

(1) **Excellent** – Visual observation indicates no remedial work required. (less than 10% repair)

(2) **Good** – Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)

(3) **Fair** – Visual observation indicates remedial work required. (up to 25% replacement and/or 50% repair)

(4) **Deteriorated** – Visual observation indicates significant remedial work required.(up to 50% replacement and/or 75% repair)

(5) **Critical -** Visual observation indicates extensive replacement and/or repair. (over 50% replacement and/or 75% repair)

The preceding Condition Code criteria is also the basis for the following Summary of General Building Conditions. However, the Summary is not determined by the numeric average of the various structural systems of any given building. The Summary numeric ranking is based on professional judgment regarding the overall building condition, taking into account characteristic defects of each structural system as a proportion of the total building structure.

Summary of General Building Conditions:

Buildings in "**Excellent**" Structural Condition:	#17 (Environmental Research Center building)
Buildings in "**Good**" Structural Condition:	#17 (Service building), #25
Buildings in "**Fair**" Structural Condition:	#1A, #1B, #4, #5, #15, # 16, #21, #33,34,35,&36, #37&38, #39, #41, #42, #44, #47, #48, #50, #54, #57, #68, #69, #71, #74, #79, #81, #86, #118, #134
Buildings in "**Deteriorated**" Structural Condition:	#1C, #1D, #6,#22,23,24,&26, #53, #56, #70, #72, #73
Buildings in "**Critical**" Structural Condition:	None

Non-Structural Observations of Note:

It should be noted in summation of the General Structural Assessment that the general structural condition of the majority of the observed buildings appeared to be directly related to the condition of each building's roof covering system. Although the evaluation of roof coverings was beyond the scope of the visual structural assessment, numerous opportunities to observe roofing deficiencies were afforded to the inspection teams from below and occasionally from above the building roof structure. Buildings that were found to be "Deteriorated" in the Summary of General Building Structural Conditions were consistently observed to have significant roof covering deficiencies. The nature of such roofing deficiencies is that they will continue to contribute to further structural deterioration of the building structures until they are remediated.

GLOSSARY OF STRUCTURAL ASSESSMENT TERMS

2-way slab: A reinforced concrete slab that spans to vertical supports without beams or joists.

Clerestory monitor: A portion of the roof structure above the main roof that has windows above the roof, typically on each side.

Concrete pan joist: A reinforced elevated concrete slab that is poured in place on forms that create a series of concrete joists below a continuous concrete slab.

Concrete piers (footing piers): Concrete pedestals constructed on top of concrete footings, typically extending above the floor slab, that serve as the base for steel column attachments.

Delaminated: A condition of steel or concrete where the surface material is separating from the base material.

Diaphragm: A roof or floor deck that is used to transfer lateral loads to walls and/or framing members.

Efflorescence: A condition of concrete or masonry caused by water intrusion where calcium from within the material forms stains on the exterior surface of the material.

Elevated slab (structural slab): A reinforced concrete slab that spans between structural supports which is not supported directly on grade.

Foundation walls: A concrete wall, partially below grade, that extends from the wall footing and terminates above the finished floor.

Girders: Concrete or steel beams that span between vertical supports which support primary (vs. secondary) framing.

Girts: Secondary horizontal wall framing, typically located between columns, used for the attachment of wall material.

Joists: Secondary concrete, steel, or wood framing used to attach and support floors and ceilings. Also used to describe some framing components for low-slope roofs.

Lateral Bracing: Structural system components (beams, braces, diaphragms, etc.) used to transfer wind and/or seismic loads to vertical supports that transfer these loads to the structural foundations.

Lintel: Structural component at top of wall openings that supports wall material above opening.

Lintel beams: Structural component at top of wall openings that supports wall material above opening and also provides lateral bracing between vertical framing members at or within exterior walls.

Parapet: The top portion of an exterior wall that extends above the roof.

Purlins: Secondary roof framing members that span between primary roof framing which are used for the attachment of roof material (sometimes described as “rafters”).

Rafters: Roof framing members which are used for the attachment of roof material. The term “rafter” is most commonly used to describe closely spaced wood framing at pitched roofs.

Route: The mechanical widening and shaping of a crack with a drill-type grinding tool in order to install sealant with a caulk gun rather than using injection tools and procedures.

Soffit: The bottom surface of an elevated concrete slab or beam. Also, an exterior ceiling.

Spalls: Voids in the exposed surface of concrete components where delaminated concrete has fallen out or been removed. Spalls may or may not be caused by corroded reinforcing steel within the concrete.

Structural slab-on-grade: A concrete slab supported on grade that is strengthened with reinforcing steel rather than welded wire mesh used for conventional slabs-on-grade.

Buildings Assessed

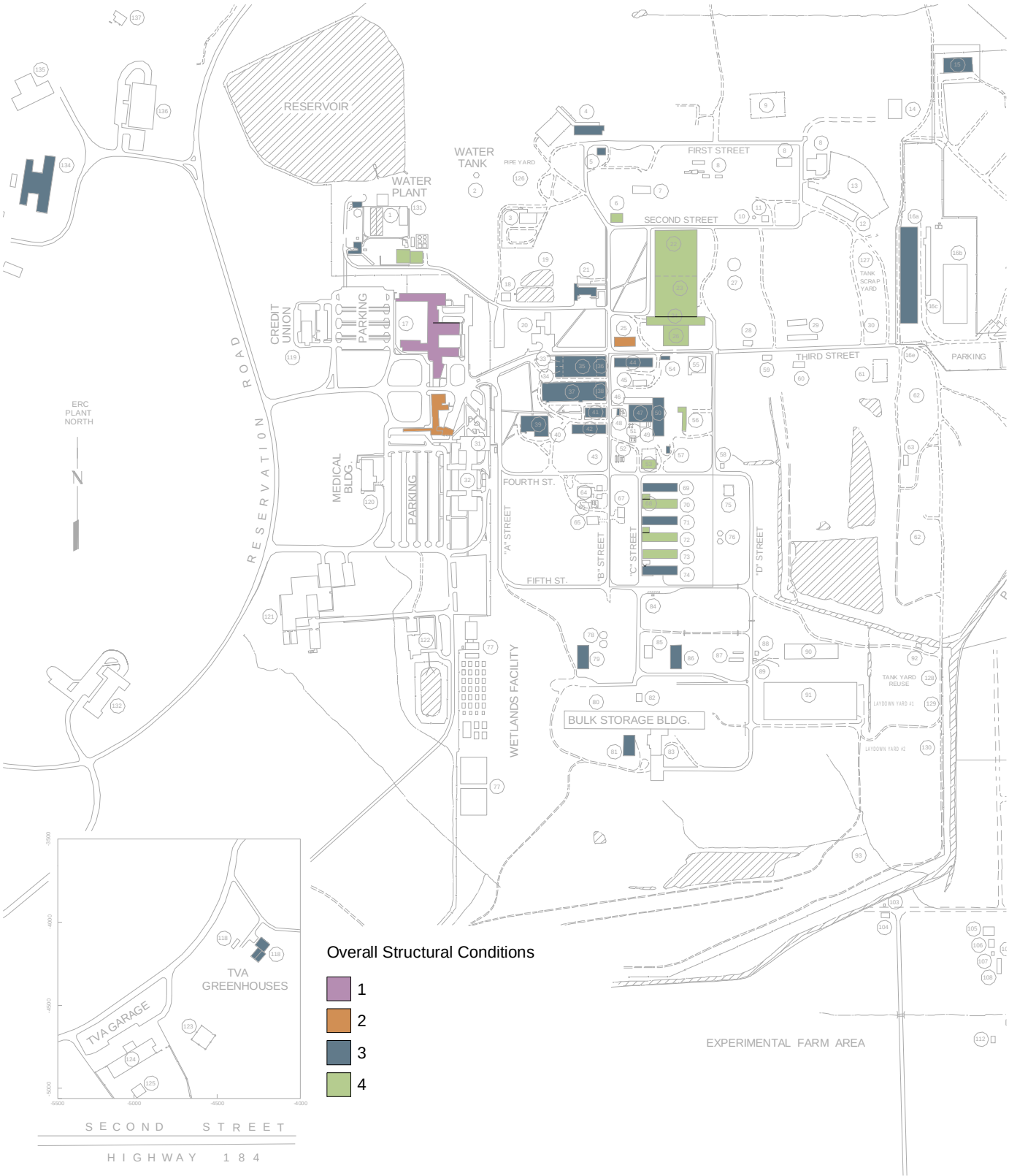
17a	Environmental Research Center
17b	Environmental Research Center
25	Project Operations Office Building
1A	Water Plant
1B	Water Plant
4	Switch House (Substation #1)
5	Drum Storage Area Building
15	PDW Receiving Warehouse
16	Power Service Shop No. 2
21	Old Medical Building (Field Engineering)
81	5A Building
33	Shipping and Receiving Office
34	Instrumentation/Electric Shop
35	Chemical Plant Warehouse
36	Projects Operations Storage Warehouse
37	Machine Shop
38	Gas and Diesel Repair Shop
39	Engineering Lab
41	Sheetmetal Shop
42	Pipe Shop
44	Project Operations Bath House
47	Pilot Plant Building
48	Paint Storage Building
50	Autoclave Building
54	Grinding Building
57	Substation No. 2
68	Substation No. 4 & 5
69	Catalyzer Building #1
71	Catalyzer Building #3
74	Catalyzer Building #6
79	3A Building
86	2A Shop
118	Greenhouse
134	Office Service Warehouse
1C	Water Plant
1D	Water Plant
22	L/N Building
23	L/N Power Service Shop Storage Area
24	L/N Warehouse No. 4
26	Grounds Maintenance Shop
53	Tin Shop
56	Boiler House
70	Catalyzer Building #2
72	Catalyzer Building #4
73	Catalyzer Building #5
6	R/M Lab

Structural Condition Summary

The following list and map documents the overall structural condition rating for each resource included in this study.

Structural Condition Ratings

1	Excellent - Minimal remedial work
2	Good - Some remedial work, no impact to occupancy
3	Fair - Remedial work required for continued occupancy
4	Deteriorated - Substantial work required
5	Critical - Extensive work required



TVA Muscle Shoals Feasibility

Muscle Shoals, Alabama

Lord, Aeck & Sargent Architecture

July 31, 2009

Structural Assessment - General Information

Building No.: 42 Pipe Shop	
Building Name:	Pipe Shop
Original Function:	Blacksmith Shop
Subsequent Modification	N/A
General Building Structure Description:	One story steel frame building with perimeter steel columns inside self supporting exterior masonry walls. The building has a central clerestory monitor that extends the length of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams. The building has an interior steel frame mechanical mezzanine.
General Building Structural Condition:	The overall building is in generally fair condition. The roof structure is painted and exhibits minimal corrosion. Numerous cracks were noted in the exterior masonry walls and masonry is partially dislodged at a crack in the southeast corner.
Summary of Recommended Structural Repairs:	Repair cracks in exterior masonry walls and reconstruct partially dislodged masonry.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 42 Pipe Shop

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Mezzanine Floor System (Deck and framing)	2	No
Columns	2	No
Exterior Walls	3	Yes
Roof Framing and Subframing	2	No
Roof Deck	3	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No

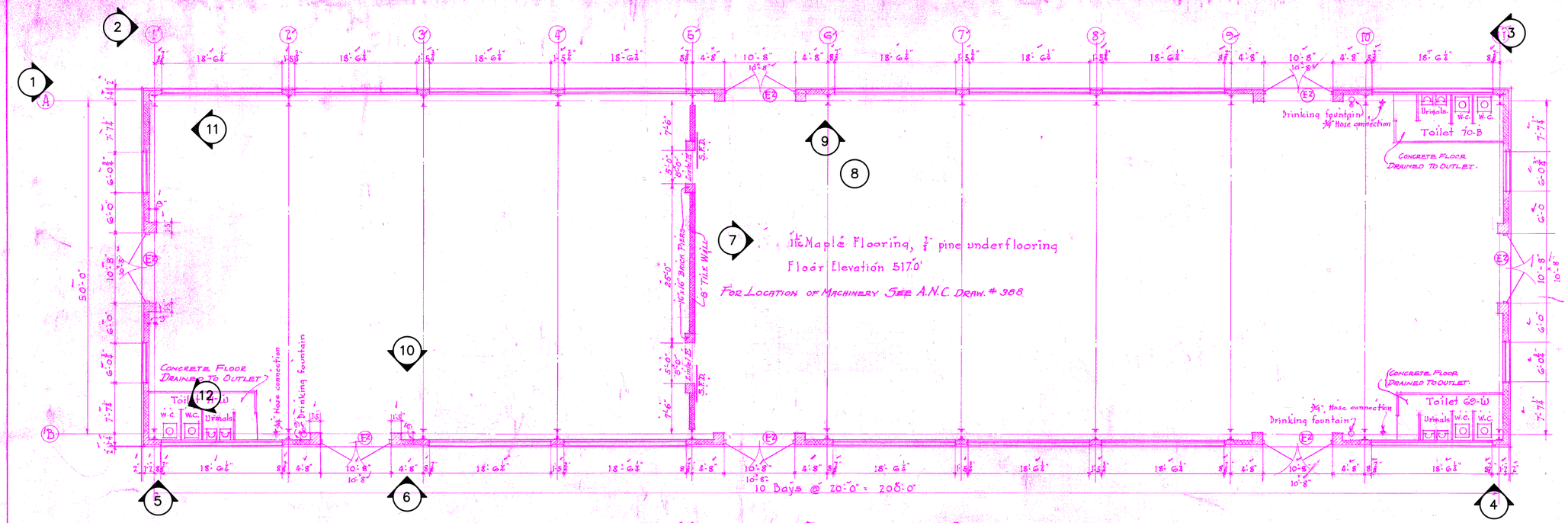
Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 42 Pipe Shop

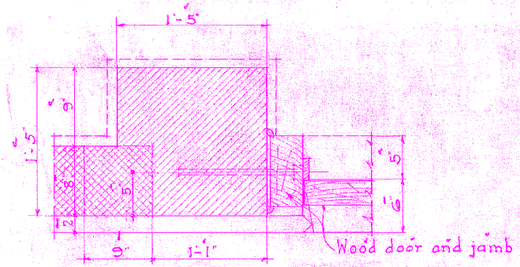
Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Settlement cracks in the masonry wall in southwest corner	10 LF	R-M-1	5
2	Cracks in exterior masonry wall at the southeast corner	20 LF	R-M-2	4
3	Cracks in exterior masonry wall at the south doorway	20 LF	R-M-2	
4	Cracks in masonry wall on the interior at north doorway	20 LF	R-M-2	9
5	Cracks in masonry wall on the interior at the southwest corner	30 LF	R-M-2	12
6	Crack in masonry wall on south side	20 LF	R-M-2	10

Repair Code -	Description
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant

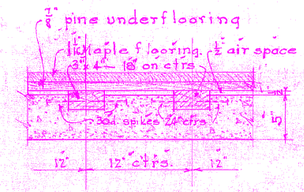


MAIN FLOOR PLAN

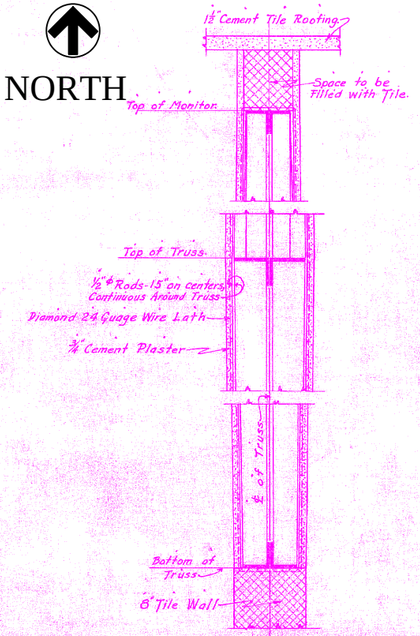
NORTH



DETAIL OF DOOR JAMB PIER



DETAIL OF WOOD FLOORING



DETAIL OF FURRING AROUND ROOF TRUSS

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 42

PIPE SHOP

MICROFILMED
CHATTANOOGA
DATE JAN 1963

List of Reference
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Elevations and Deta

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SHEFFIELD, AL
WOODWORKING
FLOOR PLAN.

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BLP, INC. PROJECT NO:
DATE: 02/2009
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 42
Pipe Shop

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S42.1
SHEET#

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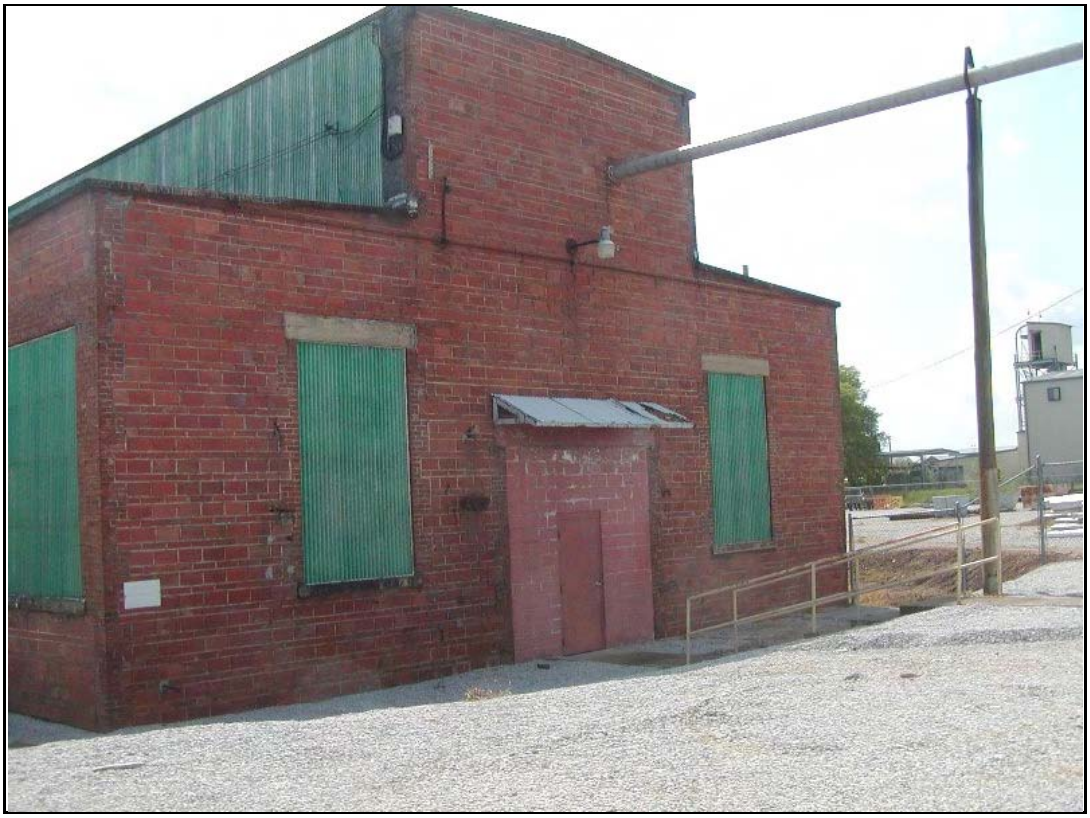
Building 42 Pipe Shop



Photograph #: 1

Exterior of building at west end



Photograph #: 2

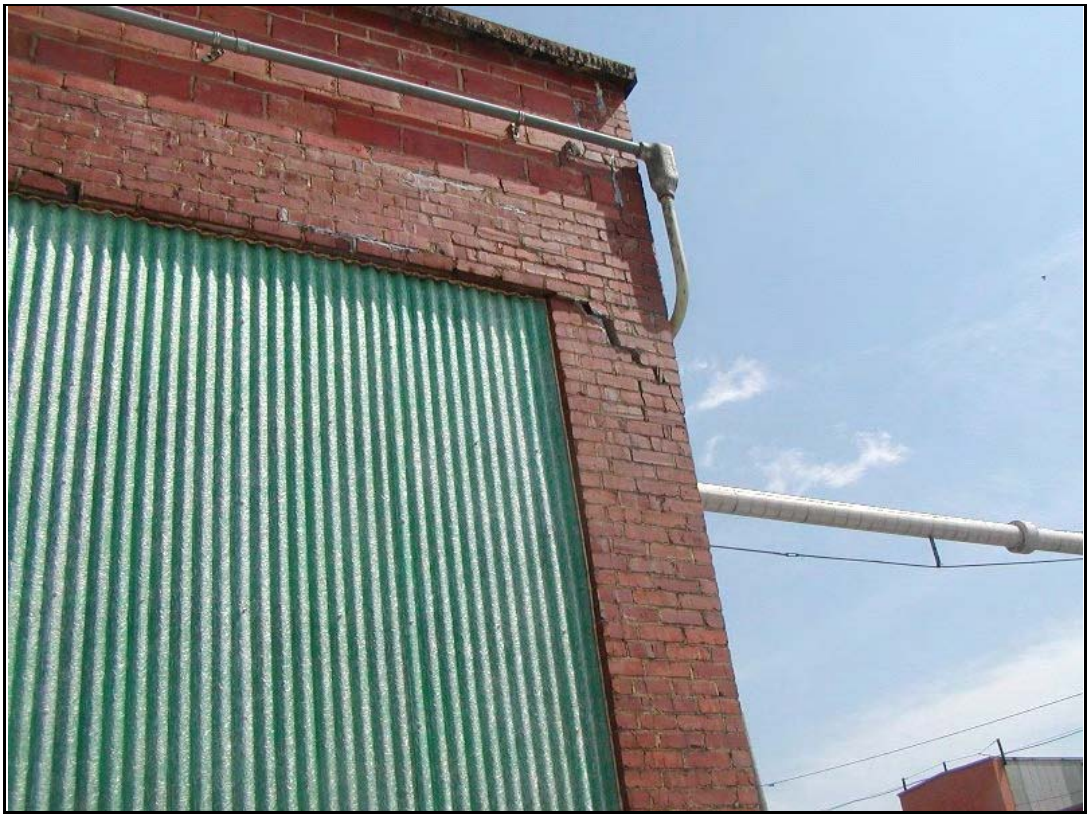
Exterior of building on north side

Building 42 Pipe Shop



Photograph #: 3

Exterior of building on south side



Photograph #: 4

Crack and partially dislodged masonry at southeast corner

Building 42 Pipe Shop



Photograph #: 5

Horizontal crack in masonry at southwest corner



Photograph #: 6

Cracks in masonry on south side

Building 42 Pipe Shop



Photograph #: 7

Interior wall and roof construction



Photograph #: 8

Interior building looking east

Building 42 Pipe Shop



Photograph #: 9

Example of diagonal crack in masonry at overhead doors



Photograph #: 10

Horizontal crack in brick pier

Building 42 Pipe Shop



Photograph #: 11

Crack in masonry at end wall



Photograph #: 12

Diagonal crack in masonry at corner of building below window

Structural Assessment - General Information

Building No.: 44 Project Operations Bath House

Building Name:	Project Operations Bath House
Original Function:	Wash and Locker House 3
Subsequent Modification	Interior only
General Building Structure Description:	One story building with interior and exterior load bearing masonry walls, timber frame columns and roof joists, and wood plank roof. The building is partially occupied on the west end, which has a lay-in ceiling, and is used for storage on the east end, where the wood frame roof structure is completely visible.
General Building Structural Condition:	Exterior and interior load bearing masonry walls are in good condition with no significant structural defects. Wood roof structure, which is unprotected by roof covering in some areas, has been previously repaired and is in need of additional repair of significant scope. Standing water was observed inside the building, and moisture damage to the wood roof structure is visible throughout the building.
Summary of Recommended Structural Repairs:	Repair of minor cracking in foundation stem walls, which is not structurally significant, can be considered optional. Wood frame exterior awning at east end needs to be replaced. The remaining original wood roof deck (80-90% of roof area) should be replaced and a new roof covering system installed.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 44 Project Operations Bath House

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Exposed Foundation or Stem Walls	3	Yes
Columns	3	No
Exterior Walls	3	No
Roof Framing and Subframing	3	No
Roof Deck	4	Yes
Awnings (Total Assembly)	4	Yes

Condition Code Description

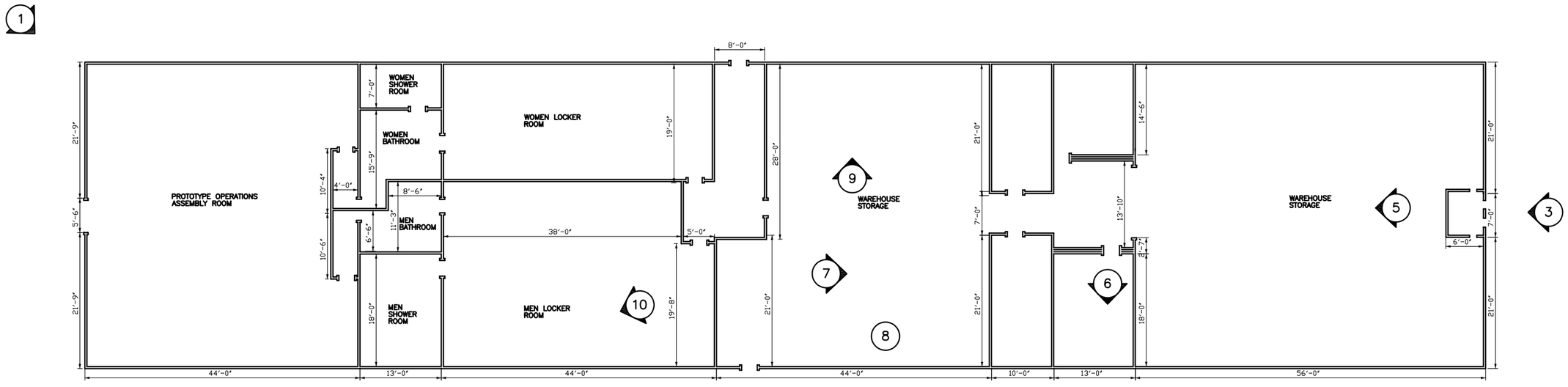
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 44 Project Operations Bath House

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Crack in stem wall at southeast corner	3 LF	R-C-2	-
2	Deteriorated wood frame awning	1 EA	R-A-2	3
3	Multiple small cracks in foundation stem wall on south side of building	40 LF	R-C-2	4
4	Deteriorated wooden roof planks on south side (Large area of daylight visible)		R-W-2	6,7 & 9
5	Damaged interior CMU partition wall (Non-load bearing)	10 SF	R-M-4	-

Repair Code -	Description
R-A-2	Replace damaged awning
R-C-2	Inject sealant to seal cracks in concrete
R-M-4	Reconstruct damaged and/or unstable masonry
R-W-2	Replace or reinforce defective wood framing



DESIGNATION	DESCRIPTION
H1	FLOOR PLAN
SCALE: 1/8"= 1'-0"	SHEET REFERENCE / TVA STANDARD NO.

NORTH

BUILDING NO. 44
PROJECT OPERATIONS BATH HOUSE

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

MACTEC
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395 PLASTERS AVENUE, N.E.
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(404) 873-4761

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BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 44
Project Operations Bath House

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

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Building 44 Project Operations Bath House



Photograph #: 1

Exterior building looking at northwest corner.



Photograph #: 2

Exterior building looking at southeast corner

Building 44 Project Operations Bath House



Photograph #: 3

Wood frame exterior awning at east end.



Photograph #: 4

Cracks in foundation stem wall south side.

Building 44 Project Operations Bath House



Photograph #: 5

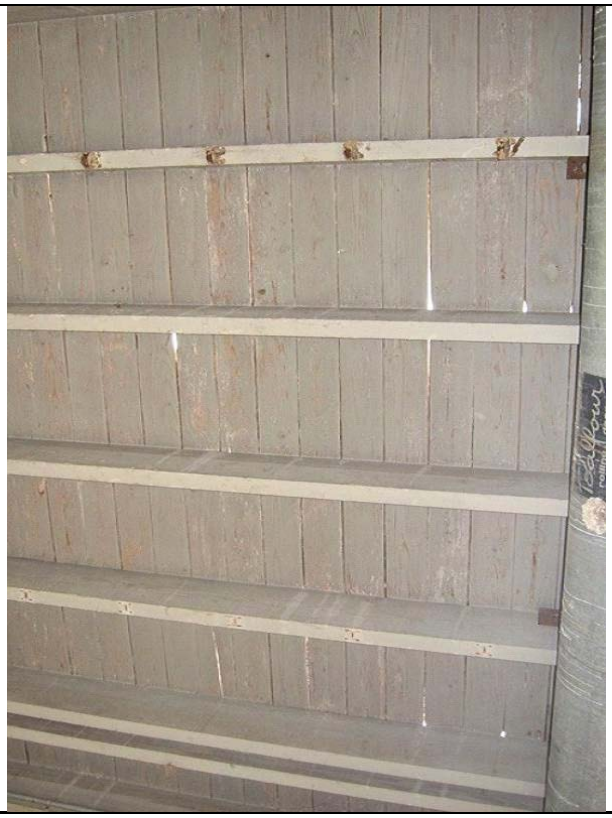
Partially reconstructed wood frame roof structure.



Photograph #: 6

Existing wood plank roof with no roof covering (Bright spots are daylight visible through roof deck).

Building 44 Project Operations Bath House



Photograph #: 7

Existing wood plank roof deck with no roof covering (Bright spots are daylight visible through roof deck).



Photograph #: 8

Standing water on floor in one area of uncovered roof deck.

Building 44 Project Operations Bath House



Photograph #: 9

Partially replaced wood roof deck.



Photograph #: 10

Moisture damage at wood plank roof deck above partially removed lay-in ceiling.

Structural Assessment - General Information

Building No.: 47 Pilot Plant Building	
Building Name:	Pilot Plant Building
Original Function:	Filter and Caustic Building
Subsequent Modification	External additions identified as separate buildings
General Building Structure Description:	One story steel frame building approximately 35 ft. tall with three 10 ft. high clerestory monitors above the main roof. Main roof and monitors are supported by steel trusses that span approximately 50 ft. in the north-south direction. The roof deck is concrete planks supported on steel beams. The building is three 50 ft. bays wide and eight 20 ft. bays long. The west exterior wall is load bearing masonry, and the north and south walls are masonry infill panels with exposed steel framing. The east wall of Building 47 is the west wall of Building 50. A pre-engineered metal enclosure (Building 46) has been constructed as an addition on the north side of Building 47. A precast concrete addition (Building 51) and a small one story masonry addition (Building 49) have been constructed on the south side. The interior building has large multi-level steel mezzanines supporting a labyrinth of industrial apparatus.
General Building Structural Condition:	The building roof framing, roof deck, and masonry walls are in generally fair condition. The steel framing is mildly corroded and the concrete plank roof deck exhibits some surface deterioration. The exterior building walls have numerous cracks and voids that require repair, as well as some areas of surface deterioration. The concrete floor slab has some cracks and spalls, and corroded steel grates at trenches can be observed throughout the building.
Summary of Recommended Structural Repairs:	The steel framing should be sandblasted and painted. Damaged and deteriorated masonry must be repaired. The building floor requires general remediation.
Additional Recommendations:	Not Applicable

Table 1: Structural Systems Assessment

Building 47 Pilot Plant Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	4	Yes
Pits and Trenches	4	Yes
Columns	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes

Condition Code Description

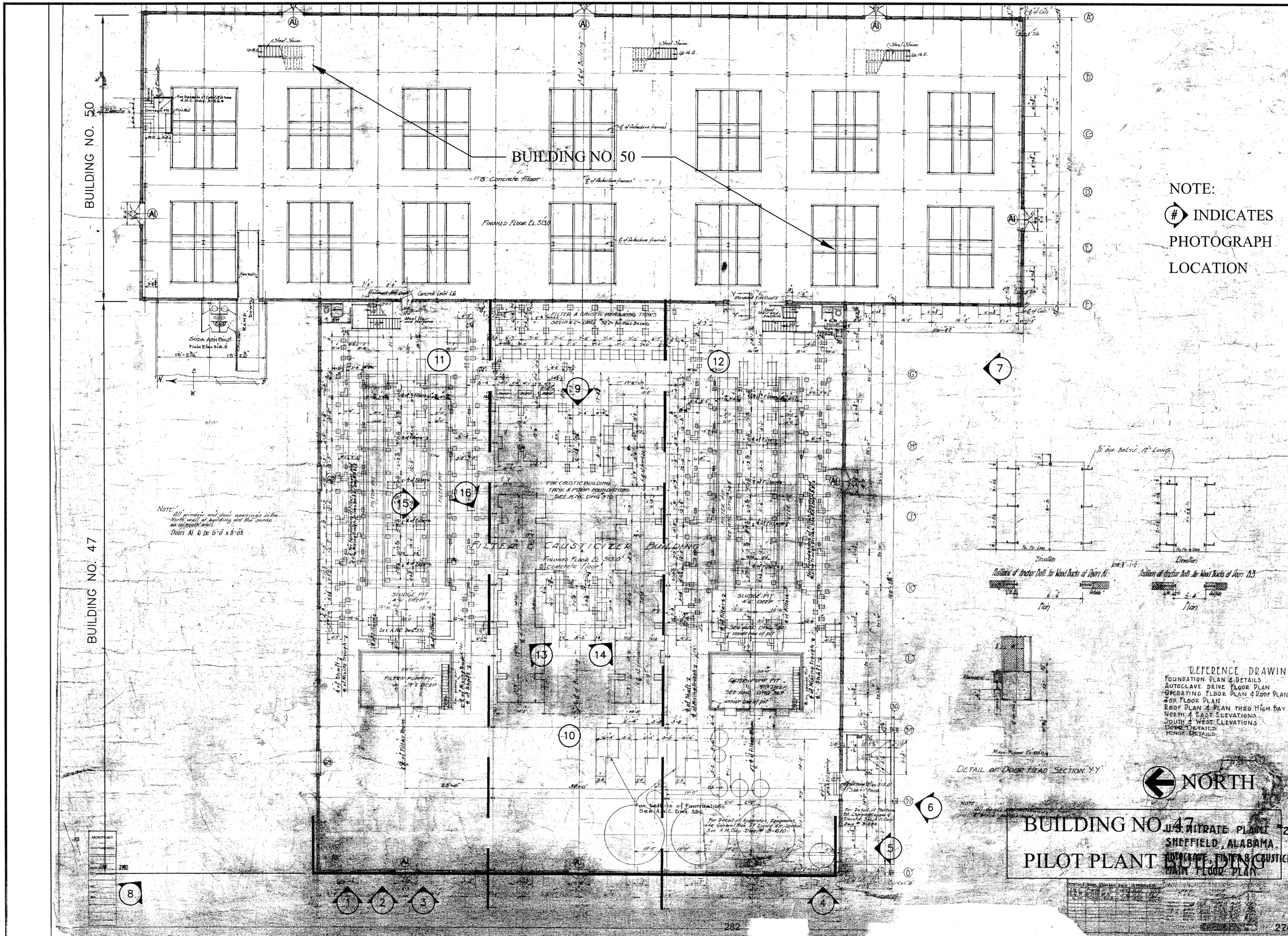
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 47 Pilot Plant Building				
Defect Item No.	**Defect Description**	**Quantity/ Unit of Measure**	**Repair Code/ Remarks**	**Photo Log Reference No.**
1	Water feature			
2	Low roof between monitor on south side, east end			
3	Monitor roof on center bay, east end			9
4	Low roof between center monitor and north side monitor			12
5	Monitor roof on north side, east end			
6	Bldg. 46 (NIC) metal bldg on north side			
7	Monitor and low roof each side north side center bldg			
8	Floor - center bldg			15
9	Floor detail			16
10	Apparatus mezzanines in northeast quadrant			13
11	Apparatus mezzanines in south central bldg			14
12	Monitor roof on north side, west end			
13	Water feature on north side, center bldg			
14	Monitor roof on center bay, west end			
15	Monitor roof elevator at east end			
16	Apparatus mezzanines in southwest corner			
17	Low roof between center and north monitors, west end			
18	Low roof between center and south monitors, center bldg			
19	Vertical crack, in northwest corner	30 LF	R-M-2	1
20	Vertical cracks each side of north monitor	20 LF	R-M-2	2
21	Diagonal crack at west elevation	10 LF	R-M-2	3
22	Damaged masonry each side of center monitor, west end	15 LF	R-M-3	
23	Multiple cracks on south monitor, west end	35 LF	R-M-2	
24	Vertical cracking southwest corner, west side	35 LF	R-M-2	4
25	Holes, spalls and cracks at south elevation, west end	30 LF	R-M-3	5
26	Misc. deterioration at south elevation, west end		R-M-3	6
27	Bldg 51/47 intersection			
28	Bldg 51 inside			
29	Bldg 49/51/47			7
30	Stain on masonry on north side above Bldg 46			8

Table 2: Itemized Structural Defects

Building 47 Pilot Plant Building
Repair Code - Description R-M-2 Repair cracks in masonry with appropriate sealant R-M-3 Repair spalls in masonry with matching material



NOTE:
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MACTEC

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396 PLASTERS AVENUE, N.E.
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DATE: 06/12/09
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CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 47
Pilot Plant Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S47.1

SHEET#

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 1

Masonry crack in west wall at intersection with Building 46



Photograph #: 2

Crack in masonry at west end of north monitor.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 3

Diagonal crack in west wall.



Photograph #: 4

Vertical crack in masonry on west side of southwest corner.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 5

Voids in masonry at west end of south wall.



Photograph #: 6

Deteriorated masonry at south wall.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 7

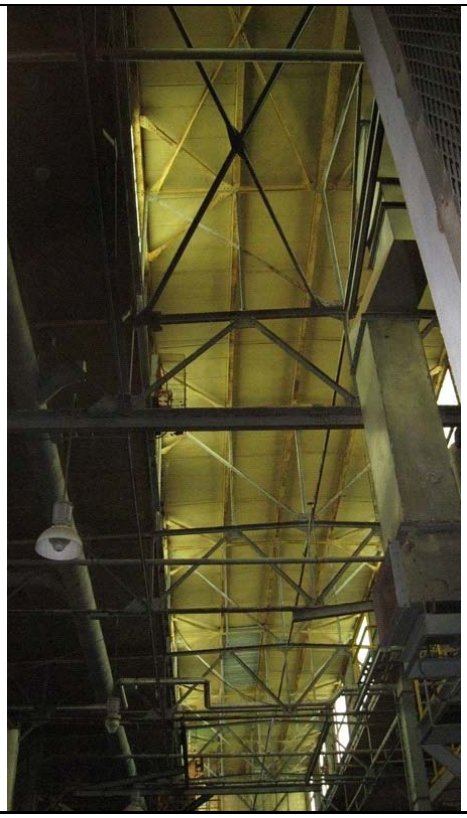
South wall at intersection with Building 50. Buildings 51 and 49 are partially visible at left and center of photograph.



Photograph #: 8

Stains are visible on north wall at Building 47 above roof of Building 46 (in foreground). Building 50 is in background.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 9

Interior view of clerestory monitor (1 of 3).



Photograph #: 10

Mildly corroded steel roof framing.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 11

Surface deterioration at concrete roof planks.



Photograph #: 12

Surface deterioration at concrete roof planks.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 13

View of multi-level interior mezzanine looking northeast.



Photograph #: 14

View of multi-level interior mezzanine looking southeast.

PHOTOLOG: Building 47 Pilot Plant Building



Photograph #: 15

Deteriorated concrete floor and steel grate.



Photograph #: 16

Deteriorated concrete floor and steel grate.

Structural Assessment - General Information

Building No.: 48 Paint Storage Building	
Building Name:	Paint Storage Building
Original Function:	Acetylene Generator House
Subsequent Modification	N/A
General Building Structure Description:	Small one story building with exterior load-bearing masonry walls. Roof structure is concrete planks supported by steel frame.
General Building Structural Condition:	Building is in fair condition with damaged masonry walls and foundation at northeast corner. Steel frame at roof is moderately corroded, and concrete plank roof deck has visible cracks and shows deterioration apparently caused by water intrusion.
Summary of Recommended Structural Repairs:	Although scope of defects is relatively small, the proportion of defects to building size is large. Foundation and masonry wall at northeast corner must be repaired, and the entire concrete plank roof deck should be replaced. Steel frame at roof should be cleaned and painted.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 48 Paint Storage Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Exposed Foundation or Stem Walls	3	Yes
Interior Load Bearing Walls	3	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes

Condition Code Description

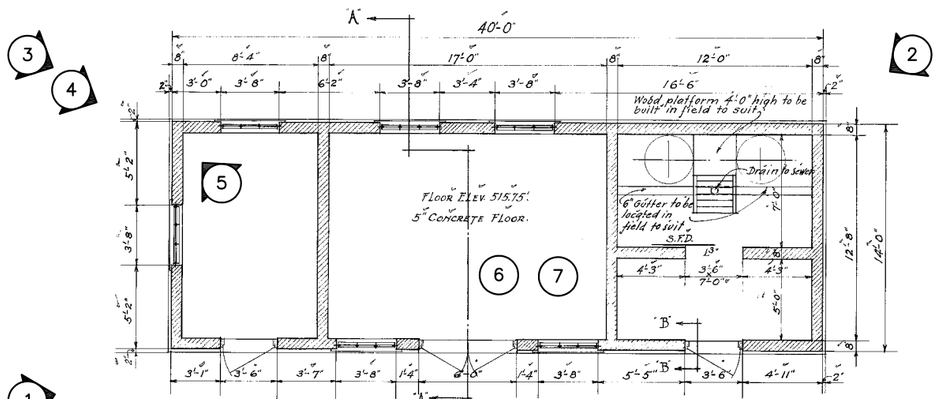
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

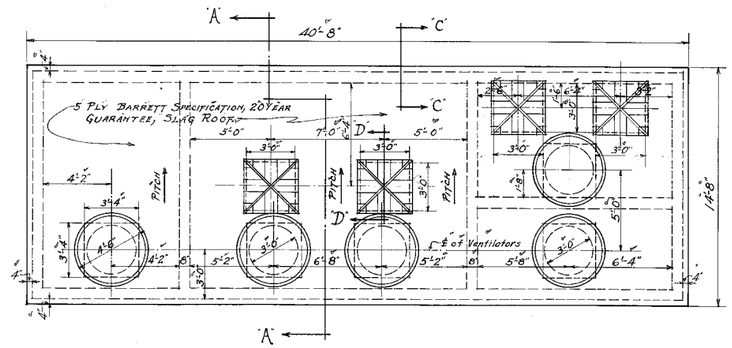
Building 48 Paint Storage Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Corroded steel sub frame at roof openings.	20 LF	R-S-1	6
2	Crack in concrete roof planks.	6 LF	R-D-2	7
3	Cracks in interior masonry at northeast corner of building.	5 LF	R-M-2	5
4	Spalls outside at same location as defect #5	10 SF		3
5	Deteriorated masonry with water intrusion damage at northeast corner.	10 SF	R-M-4	3
6	Spalled concrete foundation at northeast corner	20 SF	R-C-3	4

Repair Code -	Description
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-2	Replace roof deck
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel

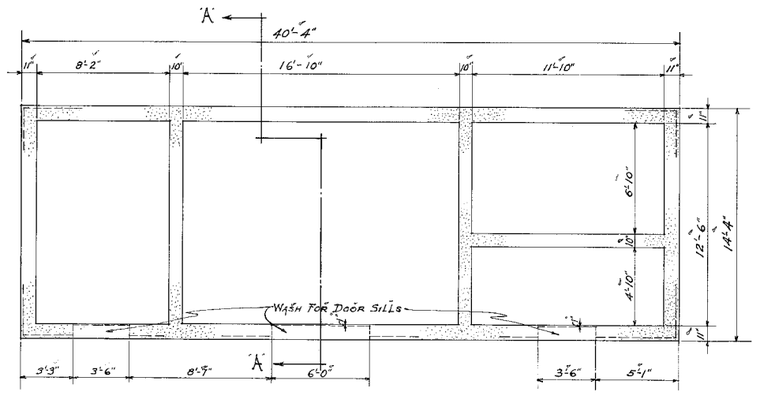


FLOOR PLAN

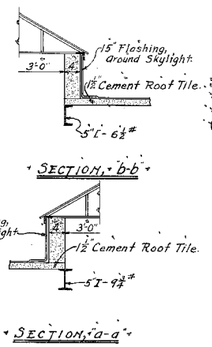


ROOF PLAN

N

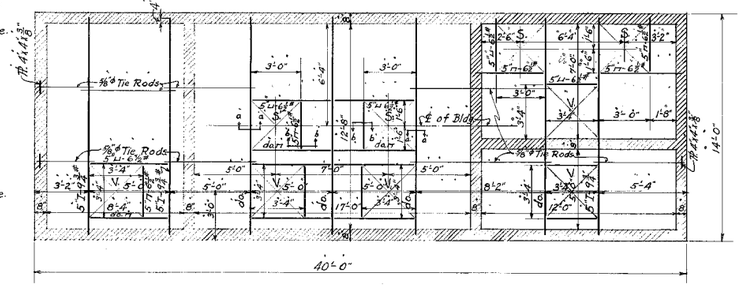


FOUNDATION PLAN

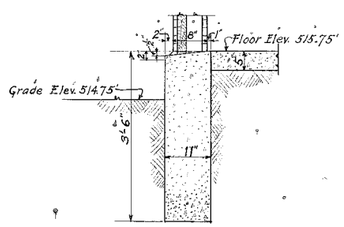


SECTION b-b

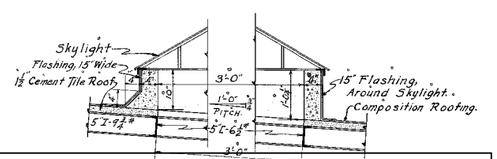
SECTION a-a



STEEL FRAMING PLAN



SECTION B-B



SECTION c-d

GENERAL NOTES;
ALL FOUNDATIONS ARE DESIGNED FOR A SOIL PRESSURE OF 6000 LBS. PER SQ. FT. CONCRETE MIXTURE TO BE 1:2½:5. WHEN A STOPPING POINT OR POUR LINE HAS BEEN REACHED ALL IMPURITIES, SUCH AS LAITANCE AND DUST, MUST BE REMOVED AND A HARD, FIRM SURFACE, WHICH SHALL BE ROUGHENED, MUST BE LEFT TO POUR UPON. JUST BEFORE POURING THIS SURFACE SHALL BE CLEANED AND SPRINKLED WITH DRY CEMENT.
ROOF LOADS. L.L = 25 #/ft²; D.L. = 15 #/ft²; TOTAL = 40 #/ft².
MATERIAL; O.H. STEEL MFGRS. STANDARD SPECIFICATION, CLASS B.
RIVETS ¾" ϕ; OPEN HOLES 7/8" ϕ UNLESS NOTED
PAINT; ONE SHOP COAT OF CHIESMAN & ELLIOTS #31 DARK.
FIELD CONNECTION RIVETED.
STEEL CONTRACTOR TO FURNISH FIELD-RIVETS, FITTING UP BOLTS, TIE RODS AND GOVERNMENT ANCHORS FOR WALL-BEARING BEAMS.
FOR DETAIL OF KALAMEIN DOORS, SEE DWG. NO 2203-F-689.
FOR ELEVATIONS, SECTIONS & DETAILS, " " " 2203-E-725.

NORTH

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 48

PAINT STORAGE BUILDING

U.S. NITRATE PLANT # 2.
SHEFFIELD, ALABAMA.
ACETYLENE GENERATOR HOUSE.
PLANS.

E.G.P. 6/12-18
L.R./J.A.D. 6/19/18-19-18 A.M.
R.W. 9-23-18 / Beach 9-23-18 A.M.

1/4" & 3/4" = 1'-0"

2203-E-724

SEAL

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

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BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 48
Paint Storage Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

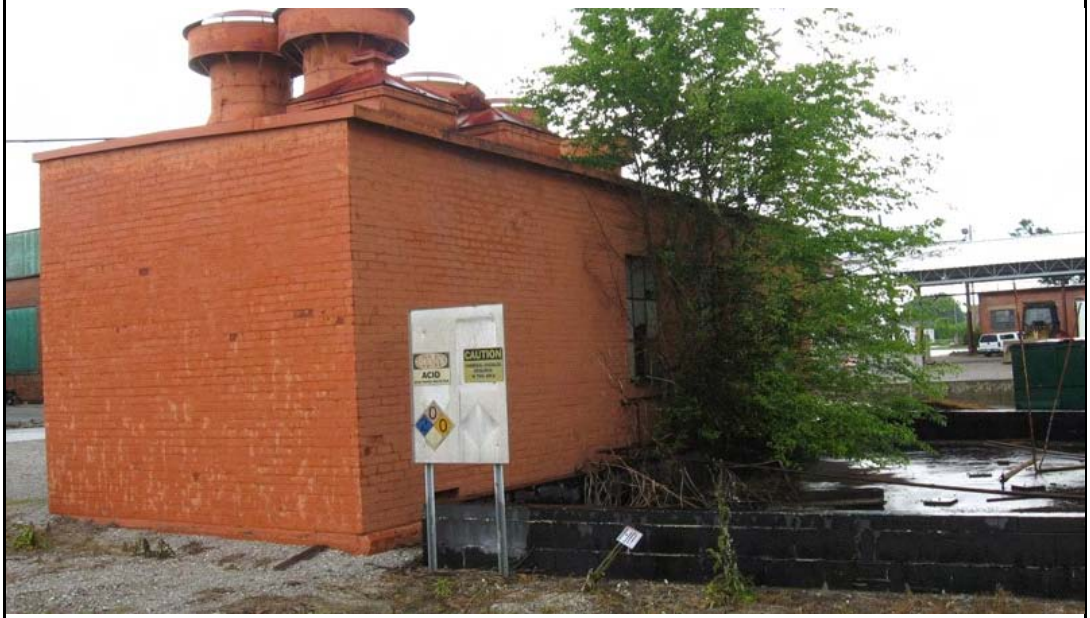
S48.1
SHEET#

PHOTOLOG: Building 48 Paint Storage Building



Photograph #: 1

Exterior building looking at northwest corner.



Photograph #: 2

Exterior building looking at southeast corner.

PHOTOLOG: Building 48 Paint Storage Building



Photograph #: 3

Deteriorated masonry wall at northeast corner with water intrusion damage - see Photograph # 5.



Photograph #: 4

Spalled concrete foundation at northeast corner.

PHOTOLOG: Building 48 Paint Storage Building



Photograph #: 5

Crack in masonry wall at northeast corner with water intrusion damage - see Photograph #3.



Photograph #: 6

Corroded steel frame at roof; deteriorated concrete plank roof deck.

PHOTOLOG: Building 48 Paint Storage Building



Photograph #: 7

Cracks in concrete plank roof deck.

Structural Assessment - General Information

Building No.: 50 Autoclave Building	
Building Name:	Autoclave Building
Original Function:	Autoclave Building
Subsequent Modification	N/A
General Building Structure Description:	Three story steel frame building approximately 55 ft. tall with five 10 ft. high clerestory monitors that intersect a high bay along the east side of the building, estimated to be 75 ft. tall. A metal-clad penthouse with two levels is located above the high bay. The exterior walls are primarily masonry infill panels with exposed steel framing. The roof deck is concrete planks with two isolated areas of cast-in-place concrete, which are the floors of metal-clad penthouses above the main roof that are inaccessible from below. The main roof and monitors are supported by steel trusses that span approximately 50 ft. in the north-south direction. The building has steel sub-framing that extends approximately 10 ft. above the top of the third floor that was used to support iron grating walkways, according to the original drawings, that have since been removed. The subframing is supported by steel columns in addition to those that support the roof, creating 16'-8"x 16'-0" column bays at each floor level throughout the building. In addition to the closely spaced columns, the ground floor has clusters of diagonally braced floor-to-ceiling steel framing that helps to support a second floor slab with rectangular masses approximately 8 inches higher than the main floor. The third floor is a concrete slab on steel beams with steel framed circular openings and steel framed linear openings throughout the length and width of the top floor.
General Building Structural Condition:	The structural steel roof framing is mildly to moderately corroded throughout the building. The observed deterioration of the concrete plank roof deck was primarily superficial, with isolated areas of structural damage. The cast-in-place portions of the main building roof, which are the floors of two penthouses, exhibit moisture intrusion damage, and an active leak was observed below the north main roof penthouse. Active leaks were also observed at damaged clerestory windows. A considerable amount of rainwater is entering the upper level of the building, contributing to significant corrosion and concrete deterioration on the underside of the third floor. The second floor structure appears to be in generally fair condition, with some deterioration noted on the north side in one of several areas where water has penetrated to the second floor. Some minor structural deficiencies were observed on the underside of the second floor slab. Standing water was observed in some locations on the ground floor slab, indicating that water is migrating through the entire building from the roof. The masonry envelope of the building is in generally fair condition. The exposed structural steel is moderately corroded but appears to be structurally sound. Surface deterioration of the exterior masonry can be observed on all sides of the building. Evidence of repaired spalls was observed on the south and east sides, and unrepaired spalls were noted on the north side.

Structural Assessment - General Information

Building No.: 50 Autoclave Building	
Summary of Recommended Structural Repairs:	Exterior masonry defects must be repaired. The structural steel framing, with the exception of those areas that may be determined to be unsalvageable, must be sandblasted and painted. Roof leaks must be repaired, and moisture damage to roof components must be remediated. The composite structural system at the third floor, if salvageable, must be extensively repaired. The composite structural system at the second floor, including the floor to ceiling bracing below, requires some remediation of the existing concrete and steel components.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 50 Autoclave Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Second Floor System (Deck and framing)	3	Yes
Third Floor System (Deck and framing)	4	Yes
Mezzanine Floor System (Deck and framing)	3	No
Columns	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes
Interior Stairs	3	No
Penthouse Structure (Framing, Floor, Walls and Roof Deck)	3	Yes
Exterior Appurtenances (Fire Escapes, etc)	5	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 50 Autoclave Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Southwest corner of Bldg 50			1
2	Vertical crack in southwest corner of Bldg 50	50 LF	R-M-2	
3	Corroded exterior steel bands/general deterioration on south side, east end of Bldg 50		R-S-1	2
4	Sealed vertical crack on southeast corner, south side on Bldg 50	80 LF		3
5	Spall and vertical crack on southeast corner, east side of Bldg 50	64 LF	R-M-3	4
6	Misc steel detail/minor to moderate corrosion		R-S-1	21
7	General roof photos			22,23,24
8	Top penthouse roof/coating			26
9	Top penthouse floor			27
10	Lower penthouse coating (metal floor of top penthouse)			28
11	Lower penthouse floor (metal)			
12	View from stair between 2nd and 3rd level			29
13	2nd floor details/defect		R-S-1	36
14	Soffit of 3rd floor slab with 2 spalls	2 SF	R-C-3	
15	Holes in 3rd floor from below	6 SF		30
16	Spalls in 3rd floor from below	6 SF	R-C-3	31,32
17	Bigger spalls in 3rd floor from below		R-C-3	32,33,34,35,37
18	Irregular slab surface in top of pop-up floor on 2nd level			
19	Magnitude of spalls = 3 - 5 x photos		R-C-3	
20	Void in north wall at Bldg 47 (typical)	1 SF		
21	Spall at soffit of 2nd floor slab		R-C-3	38
22	Context photos of steel truss type framing between 1st and 2nd floor			39,40
23	Context photo of opening from lowest to highest level, north side			
24	Fire escape - poor condition			
25	Patched clay masonry at top of bldg, east side			
26	Exposed windows with missing cover at top of bldg, east n.			
27	Spalled masonry at former intersection of bridge on north side	25 SF	R-M-3	8
28	Spalled masonry on north side, west end	20 SF	R-M-3	9
29	Chalking on masonry on west side above Bldg 47		R-M-4	10

Table 2: Itemized Structural Defects

Building 50 Autoclave Building
Repair Code - Description R-C-3 Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler R-M-2 Repair cracks in masonry with appropriate sealant R-M-3 Repair spalls in masonry with matching material R-M-4 Reconstruct damaged and/or unstable masonry R-S-1 Sandblast, prime, and paint structural steel

BUILDING NO. 50

BUILDING NO. 47

FIRST FLOOR PLAN

NORTH

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.50

AUTOCLAVE BUILDING

BUILDING 47

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

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BLP, INC. PROJECT NO:

DATE: 05/26/09

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 50
Autoclave Building

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

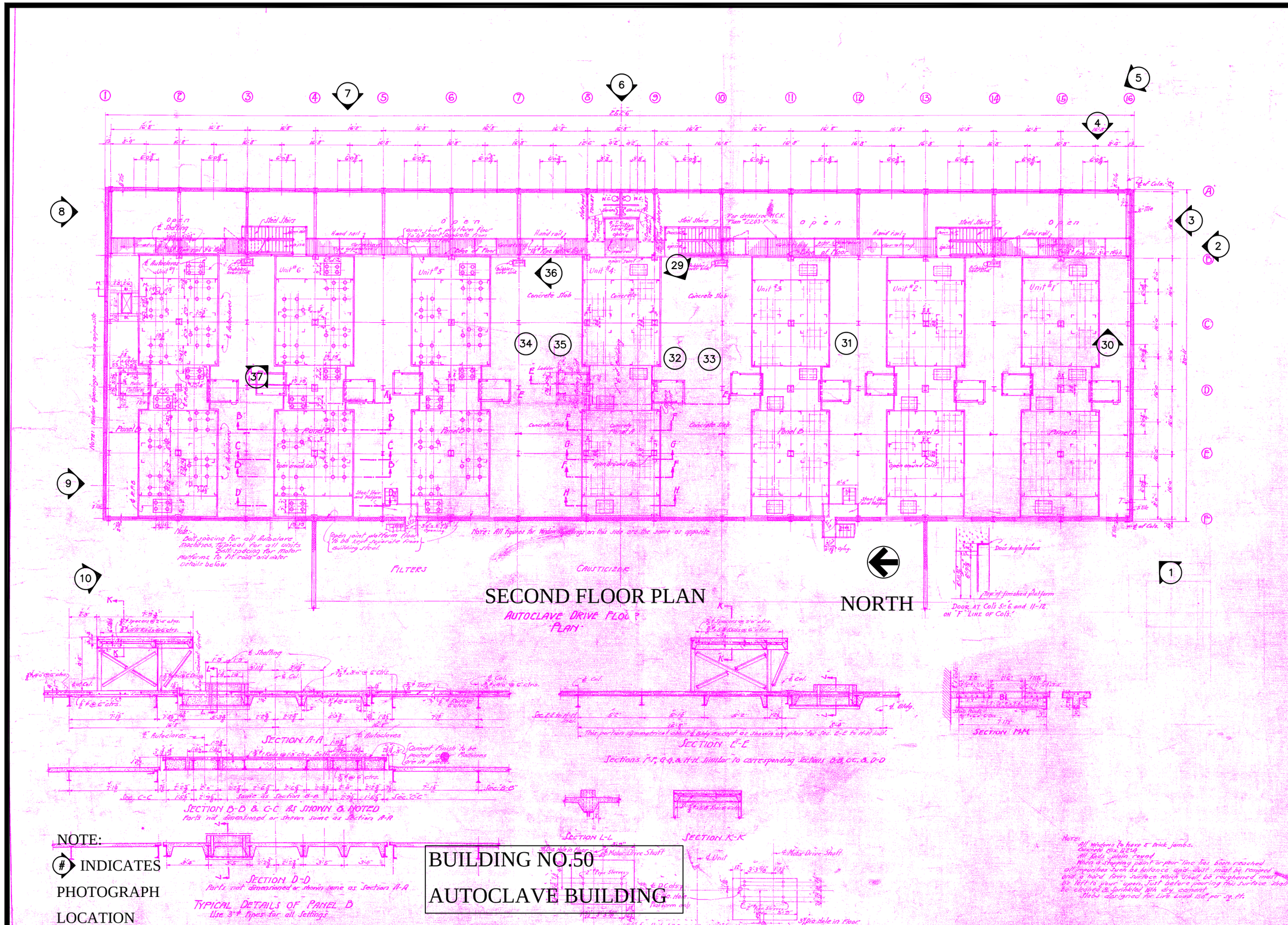
Photolog Plan

SHEET TITLE

S50.1

SHEET#

SEAL



MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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TVA Muscle Shoals
Structural Assessment
Building No. 50
Autoclave Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

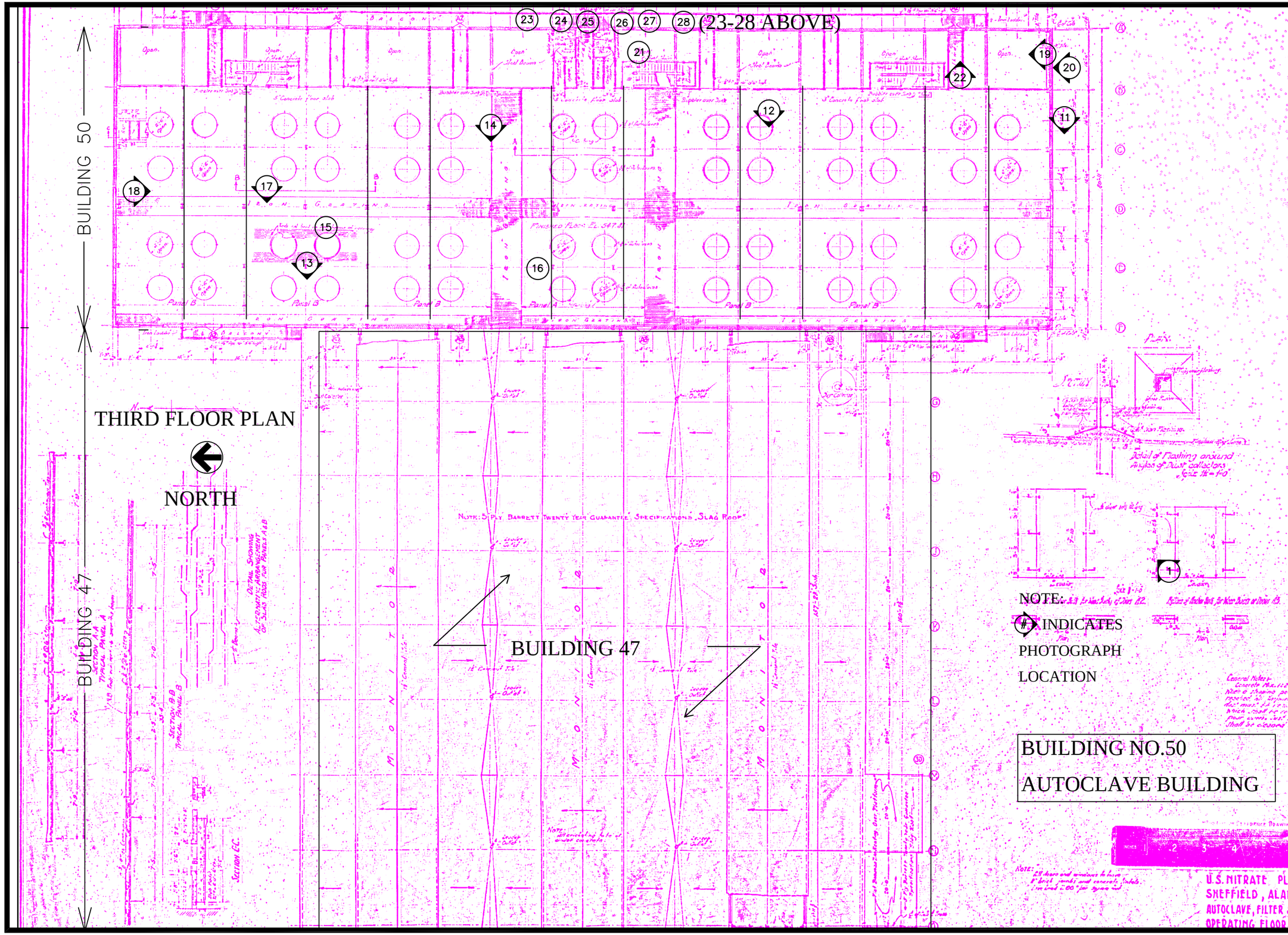
DEVELOPER

Photolog Plan

SHEET TITLE

S50.2

SHEET#



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396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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TVA Muscle Shoals
Structural Assessment
Building No. 50
Autoclave Building

Lord, Aeck &
Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog
Plan

SHEET TITLE

S50.3

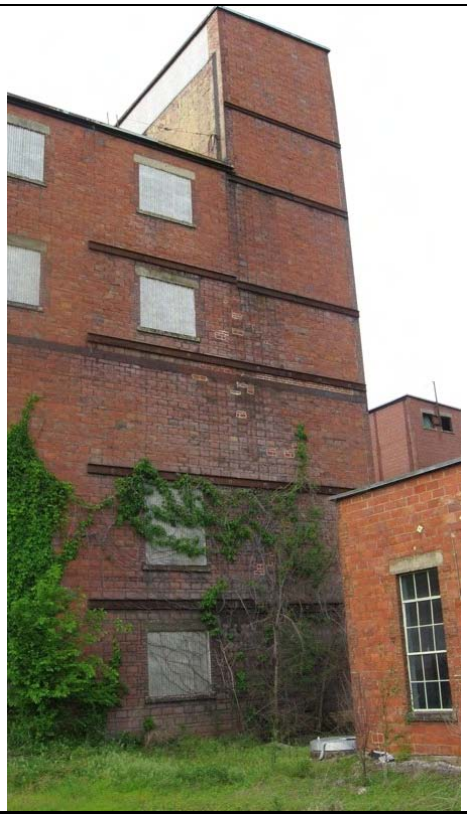
SHEET#

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 1

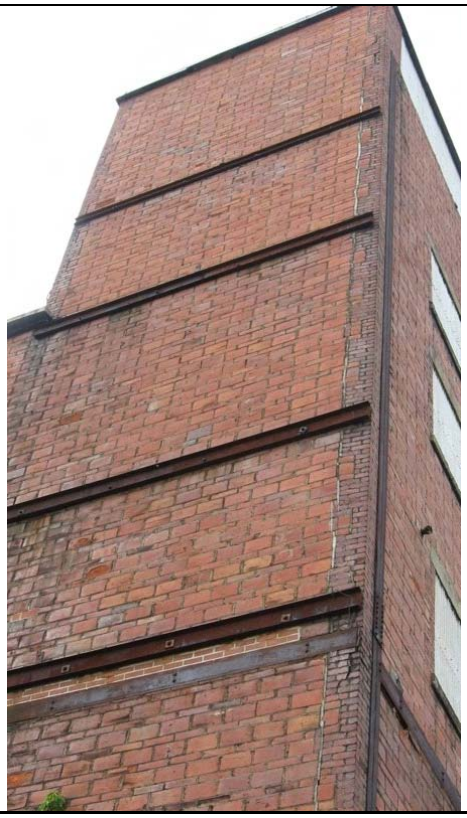
Exterior building looking at southwest corner.



Photograph #: 2

Exterior building looking at south side - east end.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 3

Exposed steel framing and vertical crack in masonry, south side - east end.



Photograph #: 4

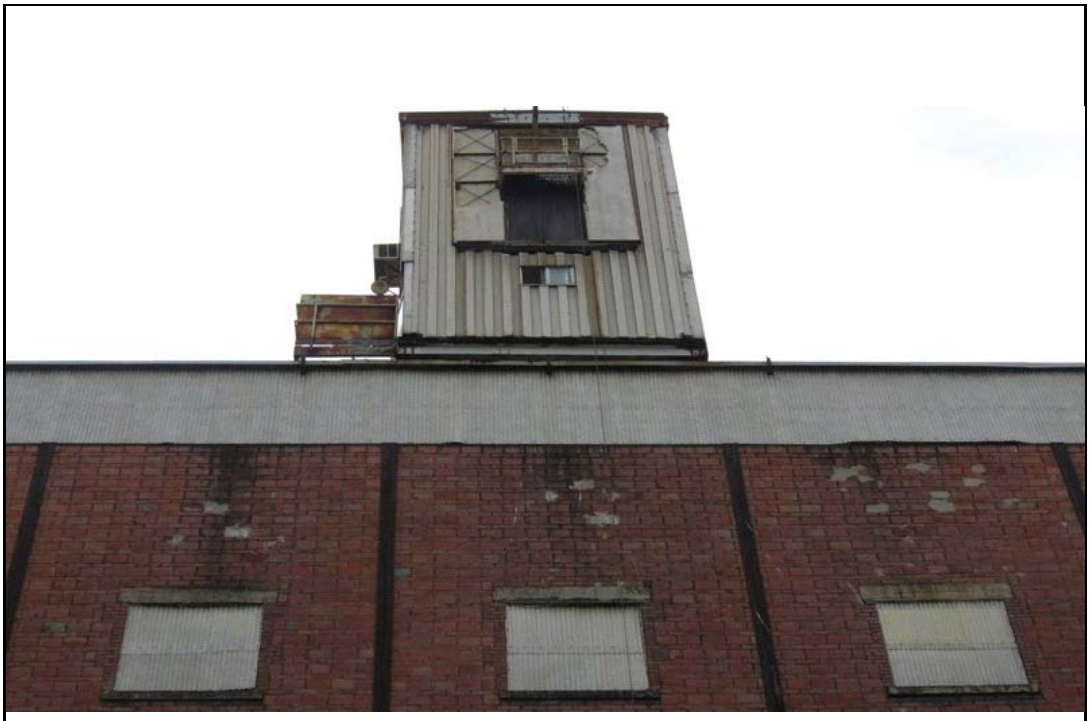
Exposed steel framing and vertical crack in masonry, east side - south end.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 5

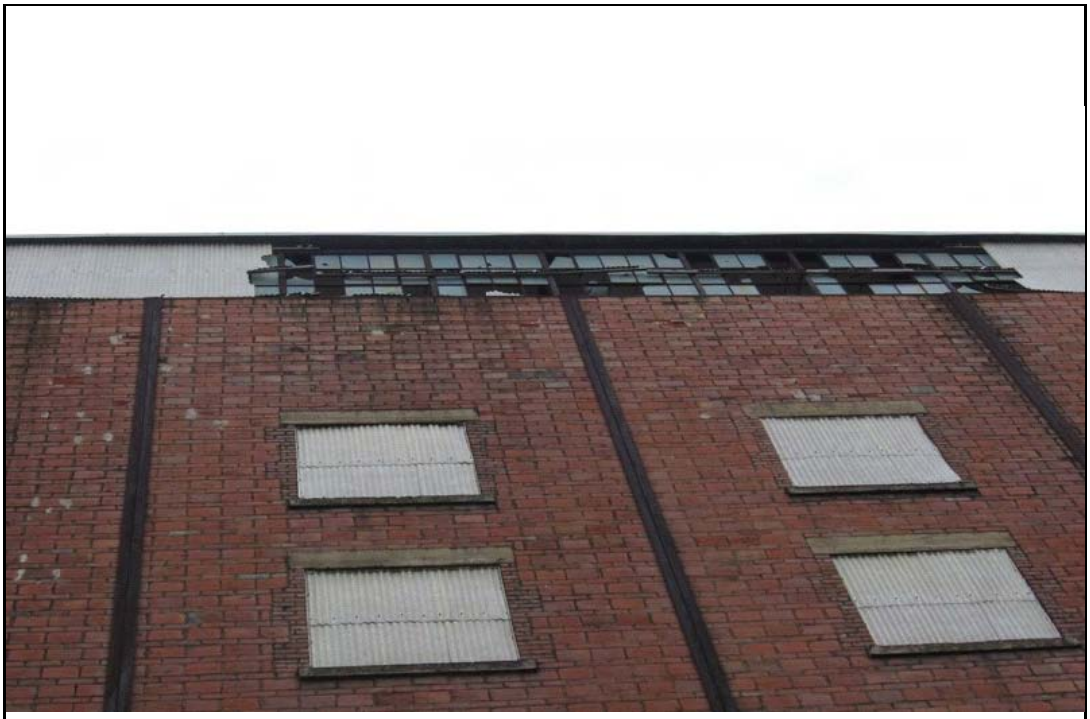
Deteriorated fire escape east side



Photograph #: 6

View of penthouse with repaired spalls in masonry below east side

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 7

Damaged covering at clerestory east side



Photograph #: 8

Spalled and deteriorated masonry, north side - east end.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 9

Spalled masonry - north side - west end.



Photograph #: 10

Exterior building looking at northwest corner.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 11

Corroded steel framing and surface deterioration at concrete plank roof deck, south end.



Photograph #: 12

Corroded steel framing and surface deterioration at concrete plank roof deck at clerestory monitor (typical of 5).

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 13

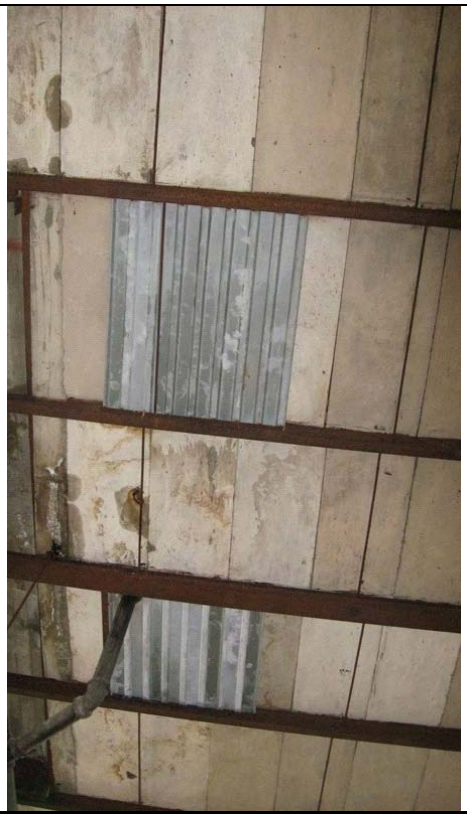
Water intrusion damage at cast-in-place portion of roof deck, east side



Photograph #: 14

Concrete plank roof deck with surface deterioration

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 15

Concrete plank roof deck with surface deterioration



Photograph #: 16

Structurally deteriorated concrete roof plank.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 17

Active water intrusion at roof deck



Photograph #: 18

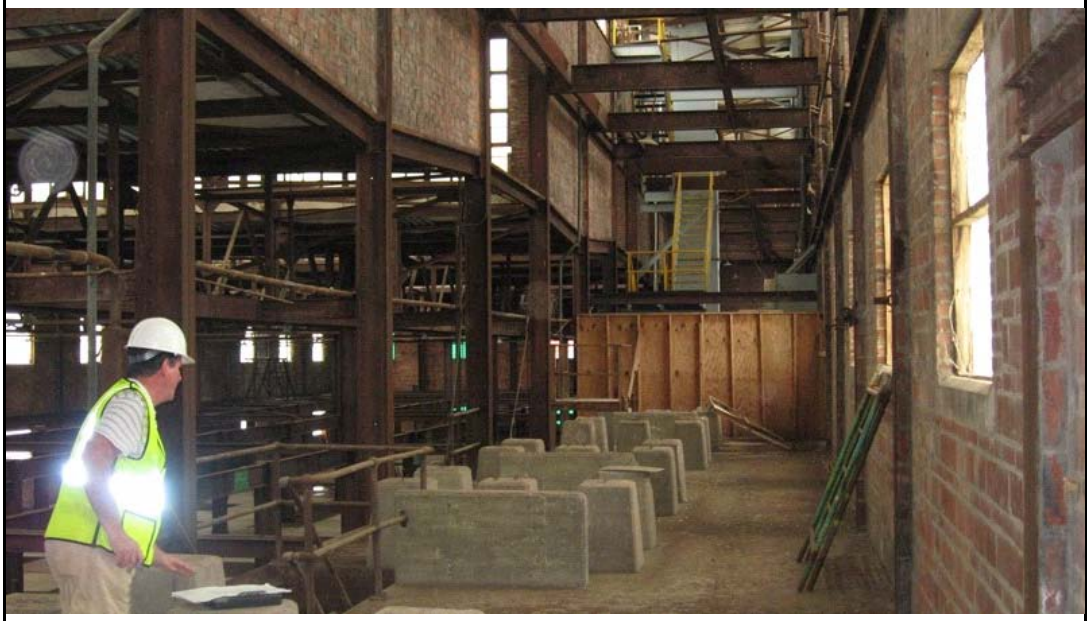
View of 3rd floor looking south. Note: Water collecting on floor, typically below broken clerestory windows.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 19

View of high bay monitor on north side.



Photograph #: 20

View of mezzanine above 3rd floor at high bay on north side.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 21

Corroded steel framing at high bay adjacent to stair to penthouse.



Photograph #: 22

Structural damage at mezzanine slab above 3rd floor.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 23

View of roof from penthouse stair looking south.



Photograph #: 24

View of roof from penthouse stair looking north

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 25

View of roof from penthouse stair looking west at Building 47.



Photograph #: 26

Interior view of penthouse roof.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 27

Interior view of upper penthouse floor (topside).



Photograph #: 28

Interior view of upper penthouse floor (underside)

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 29

Interior view of 2nd floor looking south.



Photograph #: 30

View of voids in 3rd floor slab from below.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 31

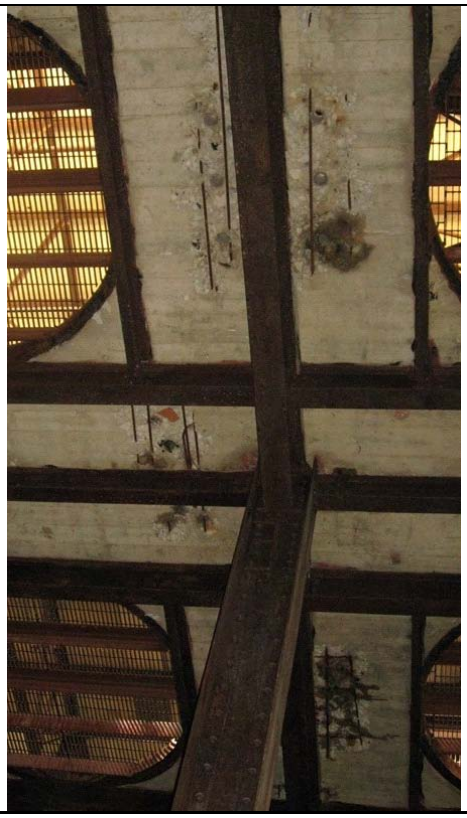
Deteriorated steel and concrete at 3rd floor slab from below.



Photograph #: 32

Structural damage at underside of 3rd floor.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 33

Structural damage at underside of 3rd floor.



Photograph #: 34

Structural damage at underside of 3rd floor.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 35

Structural damage at underside of 3rd floor.



Photograph #: 36

View of 2nd floor from topside.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 37

Deterioration at raised slab - topside of 2nd floor.



Photograph #: 38

Structural damage at underside of 2nd floor.

PHOTOLOG: Building 50 Autoclave Building



Photograph #: 39

View of steel framing below 2nd floor.



Photograph #: 40

View of steel framing below 2nd floor.

Structural Assessment - General Information

Building No.: 53 Tin Shop	
Building Name:	Tin Shop
Original Function:	Wash and Locker House 4
Subsequent Modification	Exterior and Interior modifications
General Building Structure Description:	One story building with exterior load bearing masonry walls. Primary interior framing is steel, secondary roof framing is wood with wood plank decking. The roof structure includes a central clerestory monitor approximately 8 feet high. Original drawings suggest interior partitions have been removed. Additions have been constructed on the east end of the building. One portion of the addition has CMU load-bearing walls with steel roof joists and wood plank roof deck; the other portion of the addition is light steel framing with corrugated metal roof and walls.
General Building Structural Condition:	The exterior masonry walls are reasonably well preserved, and the primary steel framing appears to be in salvageable condition. The structural integrity of the wood frame monitor roof and deck has been compromised by water intrusion, and the low roof framing and deck is structurally unsound. The original roof has deteriorated to the point that the majority of the building interior is effectively exposed to weather, making the overall building in poor condition. The wood plank roof deck and the metal frame enclosure at the east addition are deteriorated and require significant remedial work.
Summary of Recommended Structural Repairs:	One side of the monitor roof deck and the entire low roof structure on both sides of the original building must be replaced. Defective structural framing at the monitor must either be reinforced, replaced, or reconstructed. Defects at structural columns and masonry walls must be repaired.
Additional Recommendations:	A detailed evaluation of the structural integrity of the monitor framing must be performed to determine if the existing central portion of the original building roof system can be salvaged.

Table 1: Structural Systems Assessment

Building 53 Tin Shop

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	4	Yes
Interior Load Bearing Walls	3	No
Exterior Walls	3	No
Roof Framing and Subframing	5	Yes
Roof Deck	5	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	Yes

Condition Code Description

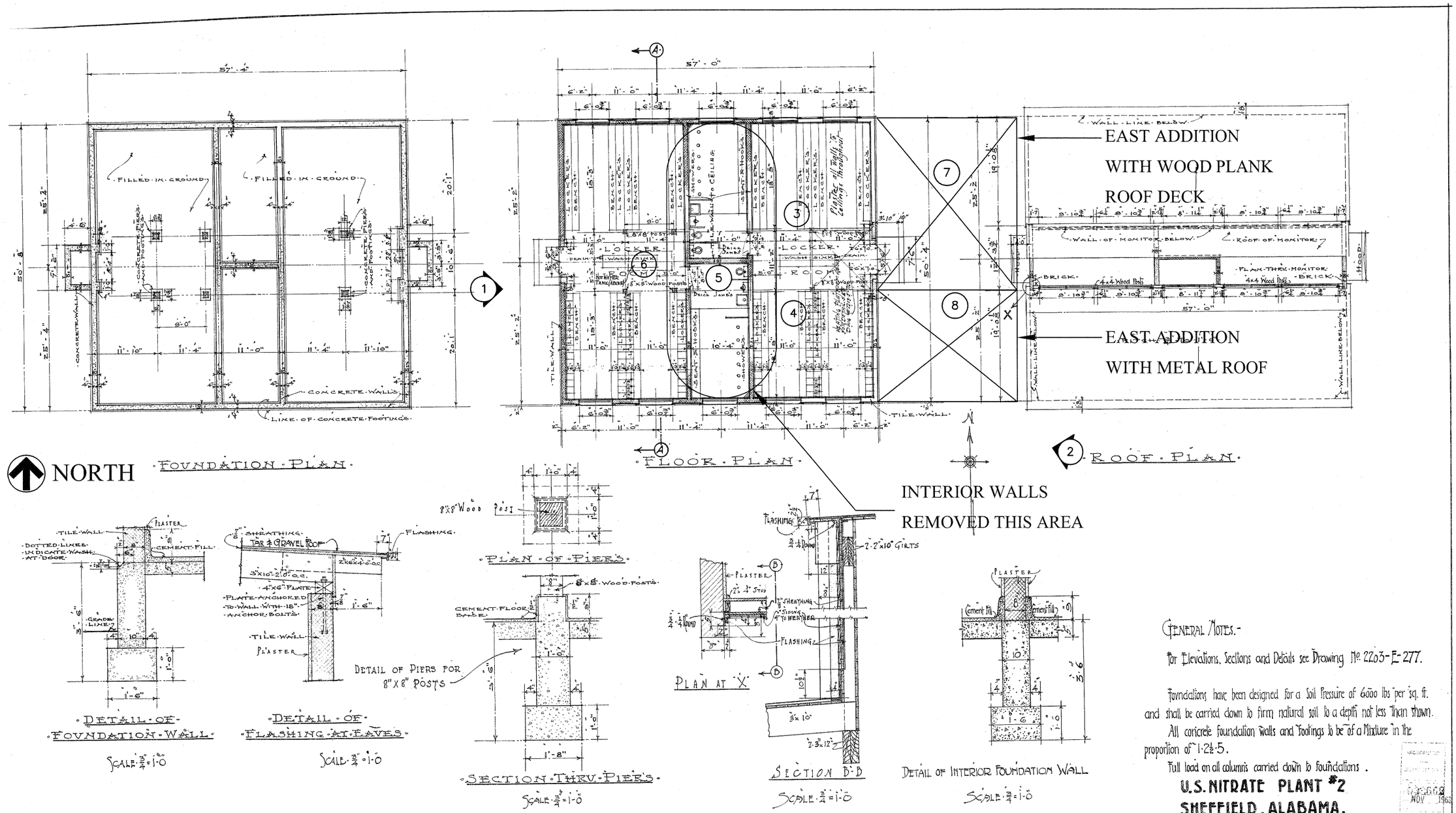
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 53 Tin Shop

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Cracking at northwest corner.		Minor Defect	-
2	Roof deck rotting and decaying.	90 Per Cent	R-W-4	3,4
3	Columns not attached to pier.	6 EA	R-S-2	-
4	Crack in original east wall.	20 LF	R-M-2	-
5	Crack in CMU east wall	6 LF	R-M-2	-
6	Ponding water on building floor.		Repair Roof	5

Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-S-2	Reinforce damaged or deteriorated steel framing
R-W-4	Replace wood roof assembly



BUILDING NO. 53

TIN SHOP

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

* FOR ALL PLUMBING & DRAINAGE SEE PLUMBING PLANS.

GENERAL NOTES.-

For Elevations, Sections and Details see Drawing No. 2203-E-277.

Foundations have been designed for a Soil Pressure of 6000 lbs per sq. ft. and shall be carried down to firm natural soil to a depth not less than shown.

All concrete foundation walls and footings to be of a Mixture in the proportion of 1-2½-5.

Full load on all columns carried down to foundations.

U.S. NITRATE PLANT #2
SHEFFIELD, ALABAMA.
WASH HOUSE #4
PLANS AND DETAILS.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

MADE M.L.J.S.	DATE 2-18-16	APPROVED	
CHECKED	DATE 2/29/16	A.M.	
Revised	Date	Checked	Date

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Scale: 1/8" = 1'-0" USE DIMENSIONS ONLY.

PRINTED [redacted] No 2203-E-271.

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BLP, INC. PROJECT NO.
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 53
Tin Shop

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S53.1

SHEET#

SEAL

PHOTOLOG: Building 53 Tin Shop



Photograph #: 1

Exterior building, looking at west elevation.



Photograph #: 2

Exterior building looking at additions on east end.

PHOTOLOG: Building 53 Tin Shop



Photograph #: 3

Severely decayed wood roof structure with daylight visible through voids in wood plank deck.



Photograph #: 4

Severely deteriorated wood roof structure.

PHOTOLOG: Building 53 Tin Shop



Photograph #: 5

Standing water on floor inside building; corroded steel columns.



Photograph #: 6

Partially repaired roof deck at clerestory monitor.

PHOTOLOG: Building 53 Tin Shop



Photograph #: 7

Wood plank roof deck at east addition is damaged by water intrusion.



Photograph #: 8

Corroded metal roof deck and steel framing at east addition.

Structural Assessment - General Information

Building No.: 54 Grinding Building	
Building Name:	Grinding Building
Original Function:	L & N Hydrating Building
Subsequent Modification	N/A
General Building Structure Description:	Building 54 is comprised of two structurally independent buildings. The east building is a cast-in-place concrete silo approximately 75 feet tall, and the west building is a steel frame structure with exterior masonry walls approximately 45 ft. tall with a 10 ft. high central clerestory monitor. The roof of the west building abuts the concrete wall of the east building. The top of the concrete silo is a penthouse accessible by an exterior steel stair with a light steel frame enclosure clad with corrugated metal panels. The penthouse roof is a wood plank deck on timber joists supported by concrete beams and columns. The penthouse has a wood plank floor, and original drawings indicate the penthouse floor framing, which could not be observed, to be 6x12 timber beams. The primary steel frame of the masonry building consists of horizontal roof trusses supported by vertical steel trusses partially embedded in the exterior masonry walls. Horizontal steel beams between the vertical trusses serve as lintels above large window openings, and are exposed on the exterior surface. The roof deck is concrete planks supported by steel beams. The masonry building has a multi-level steel frame interior mezzanine with steel grate floors.
General Building Structural Condition:	The cast-in-place concrete silo appears to be structurally sound, with only minor cracks and spalls observed on the exterior walls. The wood roof structure at the penthouse is in good condition, with no significant defects. The wood floor at the penthouse, although very dirty, appeared to have only minor defects of a superficial nature. The penthouse floor was observed to be wet near a closed exterior window, but the path of water intrusion was not readily apparent. The masonry building is in generally poor condition. The windows below the roof are removed, and the translucent panel coverings at the window openings are damaged and/or missing in several locations. The exterior masonry walls have numerous spalls, and an area of brick infill on the north elevation is partially collapsed. The majority of the building's steel framing is moderately corroded, and a portion of the mezzanine framing is severely corroded. The exposed structural steel lintel beams are also severely corroded, and appear to be structurally unsound in some locations. The concrete plank roof panels have only minor defects and are in generally good condition for their age.

Structural Assessment - General Information

Building No.: 54 Grinding Building	
Summary of Recommended Structural Repairs:	Cracks and spalls in the exterior surface of the concrete silo building should be repaired to prevent further deterioration. Repairs required for the masonry building include extensive restoration and partial reconstruction of the masonry and exposed steel portions of the exterior walls. The interior steel framing must be cleaned and painted, and the multi-level interior mezzanine should be demolished. The wood roof deck of the concrete silo and the concrete plank roof deck of the masonry building appear to be in relatively good condition, therefore an evaluation of the roof membranes on each building is not needed to support the structural evaluation.
Additional Recommendations:	An engineering evaluation of embedded steel framing at the masonry building, including the exposed structural steel lintel beams which provide lateral bracing between the vertical steel trusses, will be required prior to restoration of the exterior masonry walls. L & N Hydrating Building

Table 1: Structural Systems Assessment

Building 54 Grinding Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Pits and Trenches	3	No
Mezzanine Floor System (Deck and framing)	4	Yes
Columns	2	No
Interior Load Bearing Walls	2	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	Yes
Exterior Wall Framing at Openings (Lintels and Structural Jambs)	4	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes
Interior Stairs	3	No
Penthouse Structure (Framing, Floor, Walls and Roof Deck)	2	No
Exterior Appurtenances (Fire Escapes, etc)	3	No
Exterior Stairs	3	No

Condition Code Description

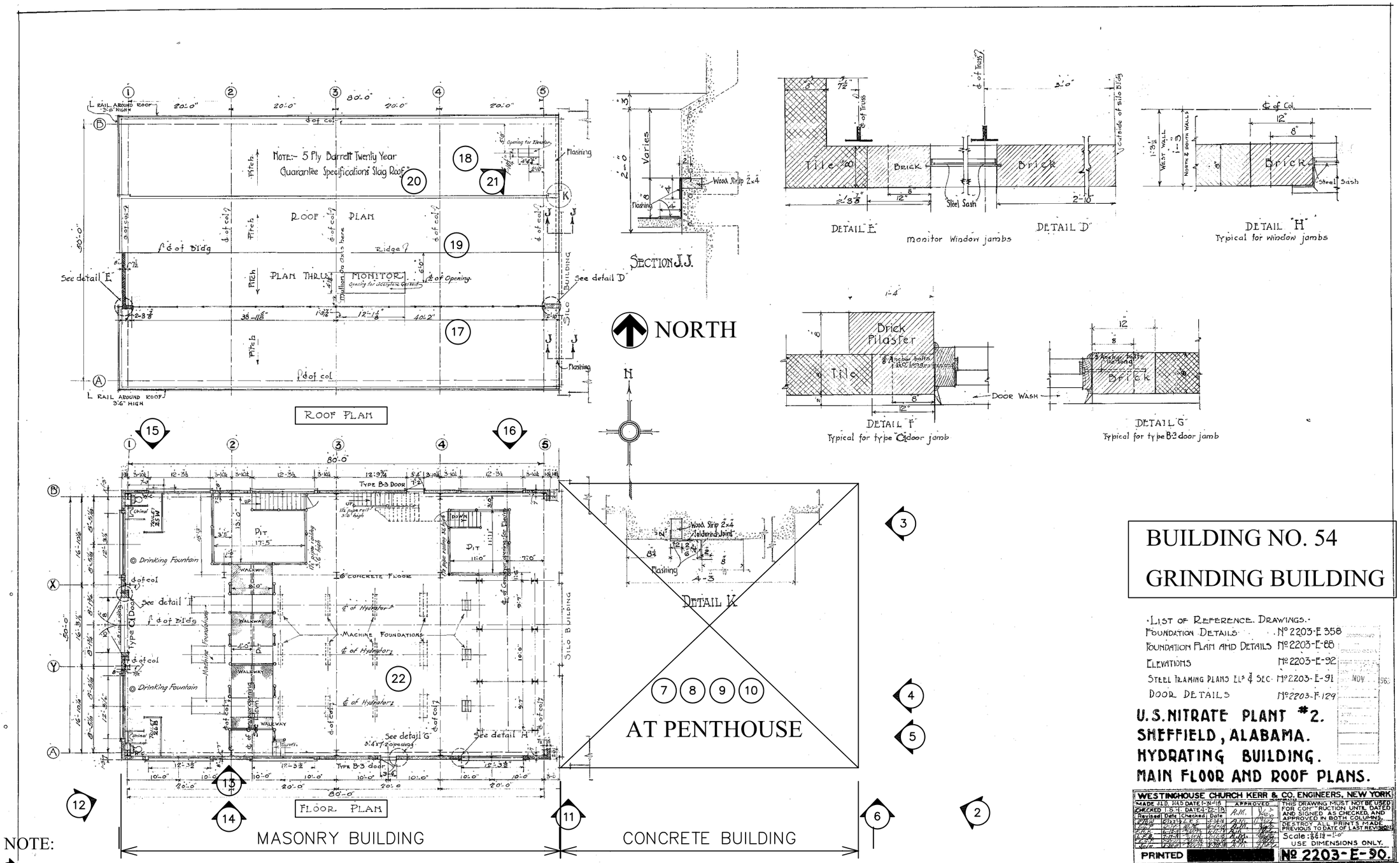
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 54 Grinding Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Loose railing on top level.	15 LF		
2	Severe corrosion of steel at multi-level mezzanine.	70 %	R-S-2	22
3	Large hole in masonry wall.	40 SF	R-M-4	21
4	Mild corrosion of vertical trusses.	50 %	R-S-1	
5	Moderate corrosion of vertical trusses.	50 %	R-S-1	
6	Mild corrosion of horizontal trusses.	50 %	R-S-1	
7	Moderate corrosion of horizontal trusses.	50 %	R-S-1	17,18
8	Minor spalls in low roof deck.	20 SF	R-D-1	20
9	Spalls in masonry wall	98 SF	R-M-3	
10	Crack in masonry wall	70 LF	R-M-2	
11	Corroded steel lintels or girders across 2 openings	40 LF	R-S-3	
12	Cracks in monitor	10 LF	R-C-1	
13	Minor spalls in exterior wall	85 SF	R-M-1	
14	Vertical and horizontal narrow cracks in exterior wall	50 LF	R-M-2	
15	Horizontal and vein cracks in exterior wall	50 LF	R-M-2	

Repair Code -	**Description**
R-C-1	Route and seal cracks in concrete
R-D-1	Replace defective concrete planks at roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel
R-S-2	Reinforce damaged or deteriorated steel framing
R-S-3	Replace structural steel framing



BUILDING NO. 54
GRINDING BUILDING

·LIST OF REFERENCE DRAWINGS·

FOUNDATION DETAILS	Nº 2203-E 358
FOUNDATION PLAN AND DETAILS	Nº 2203-E-88
ELEVATIONS	Nº 2203-E-92
STEEL FRAMING PLANS ELS & SEC.	Nº 2203-E-91
DOOR DETAILS	Nº 2203-F-129

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
HYDRATING BUILDING.
MAIN FLOOR AND ROOF PLANS.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

MADE J.L.D. HAD DATE 1-31-18 APPROVED

CHECKED I.S.H. DATE 4-22-18

Revised	Date	Checked	Date
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NOTE:
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TVA Muscle Shoals
Structural Assessment
Building 54
Grinding Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S54.1

SHEET#

Building 54 Grinding Building



Photograph #: 1

Building 54 - both structures. Exterior building looking at northwest corner.



Photograph #: 2

Concrete silo looking at southeast corner.

Building 54 Grinding Building



Photograph #: 3

Surface cracks at concrete building - east side.



Photograph #: 4

Multiple spalls at concrete building - east side.

Building 54 Grinding Building



Photograph #: 5

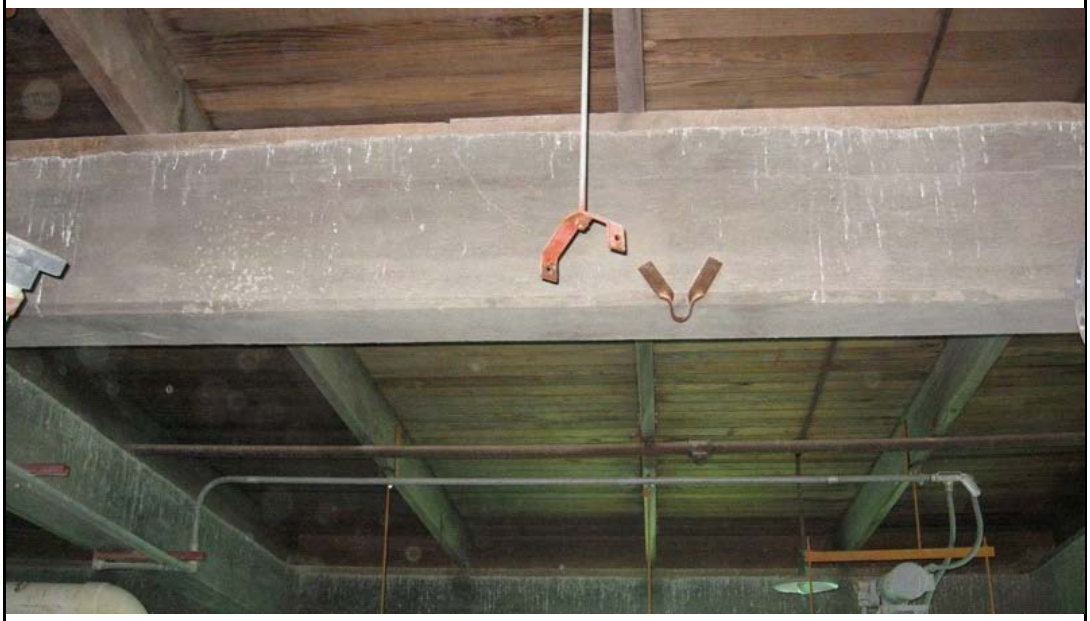
Concrete building - surface cracks and horizontal crack at southeast corner column.



Photograph #: 6

Concrete building - horizontal crack at southeast corner column.

Building 54 Grinding Building



Photograph #: 7

Wood roof at concrete building penthouse.



Photograph #: 8

Penthouse at concrete building.

Building 54 Grinding Building



Photograph #: 9

Penthouse floor at concrete building.



Photograph #: 10

Concrete building - water intrusion evident on penthouse floor.

Building 54 Grinding Building



Photograph #: 11

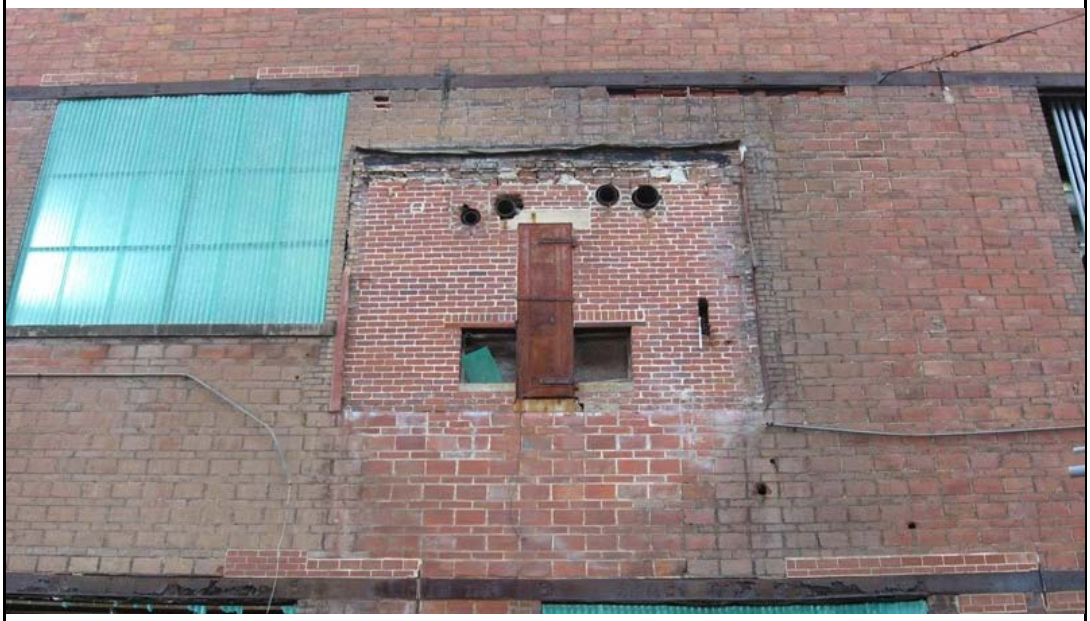
Interface of masonry and concrete buildings on south side.



Photograph #: 12

Building 54 - both structures. Exterior building looking at southwest corner.

Building 54 Grinding Building



Photograph #: 13

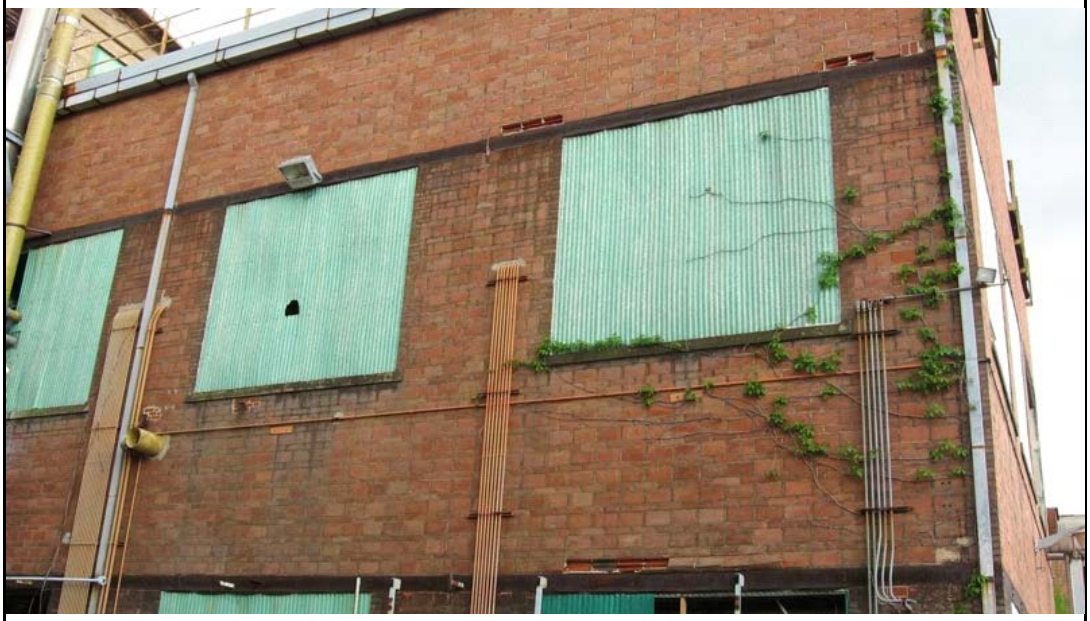
Spalled masonry and corroded steel lintel beams - south side.



Photograph #: 14

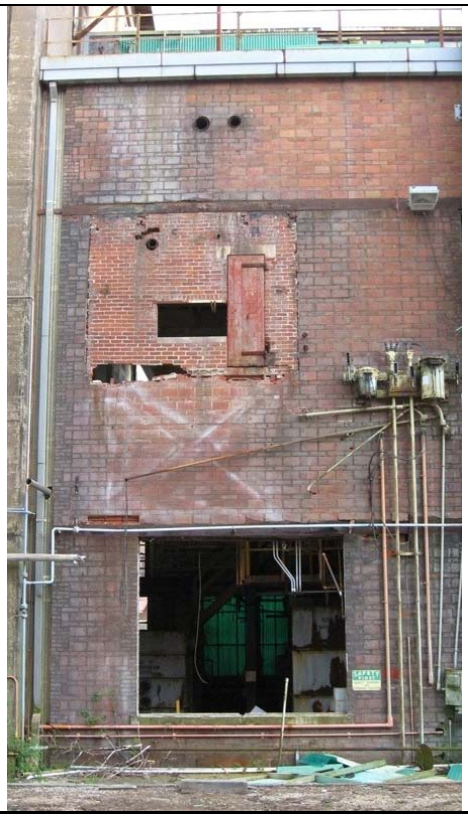
Structurally unsound steel lintel beams - south side.

Building 54 Grinding Building



Photograph #: 15

Spalled masonry and corroded steel lintel beams - north side.



Photograph #: 16

Defective exterior masonry, including partially collapsed brick infill - north side.

Building 54 Grinding Building



Photograph #: 17

Moderately corroded steel framing in masonry building.



Photograph #: 18

Moderately corroded steel framing in masonry building.

Building 54 Grinding Building



Photograph #: 19

View of concrete plank roof deck at monitor.



Photograph #: 20

Moderately corroded steel framing at low roof. Concrete plank roof deck is in generally good condition.

Building 54 Grinding Building



Photograph #: 21

View of collapsed brick infill from inside masonry building - note steel beam embedded in wall below collapsed masonry.



Photograph #: 22

Severely corroded steel at multi-level interior mezzanine.

Structural Assessment - General Information

Building No.: 56 Boiler House	
Building Name:	Boiler House
Original Function:	Boiler House and Stack
Subsequent Modification	Exterior industrial equipment added
General Building Structure Description:	One story steel frame building with exterior masonry walls approximately 60 ft. high on west side and 45 ft. high on east side. The building includes a low one story addition on the west side at the north end and is connected by exterior steel framed industrial apparatus to the original smokestack on the east side. Access to the building interior was limited due to the presence of asbestos containing materials, and a complete general structural assessment could not be performed.
General Building Structural Condition:	The exterior of the building is in generally fair condition. Portions of the building interior that could be observed appeared to be in generally poor condition.
Summary of Recommended Structural Repairs:	The general scope of required repairs could not be determined due to limited accessibility.
Additional Recommendations:	A detailed structural evaluation of the building must be performed with the aid of protective equipment for hazardous materials.

Table 1: Structural Systems Assessment

Building 56 Boiler House

Structural Component	Condition Code	Defects itemized in Table 2?
Basement Walls	3	No
Lowest Level Floor System	3	No
First Floor System [Above basement] (Deck and framing)	4	Yes
Columns	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	No
Roof Deck	3	No
Interior Stairs	3	No
Awnings (Total Assembly)	5	No

Condition Code Description

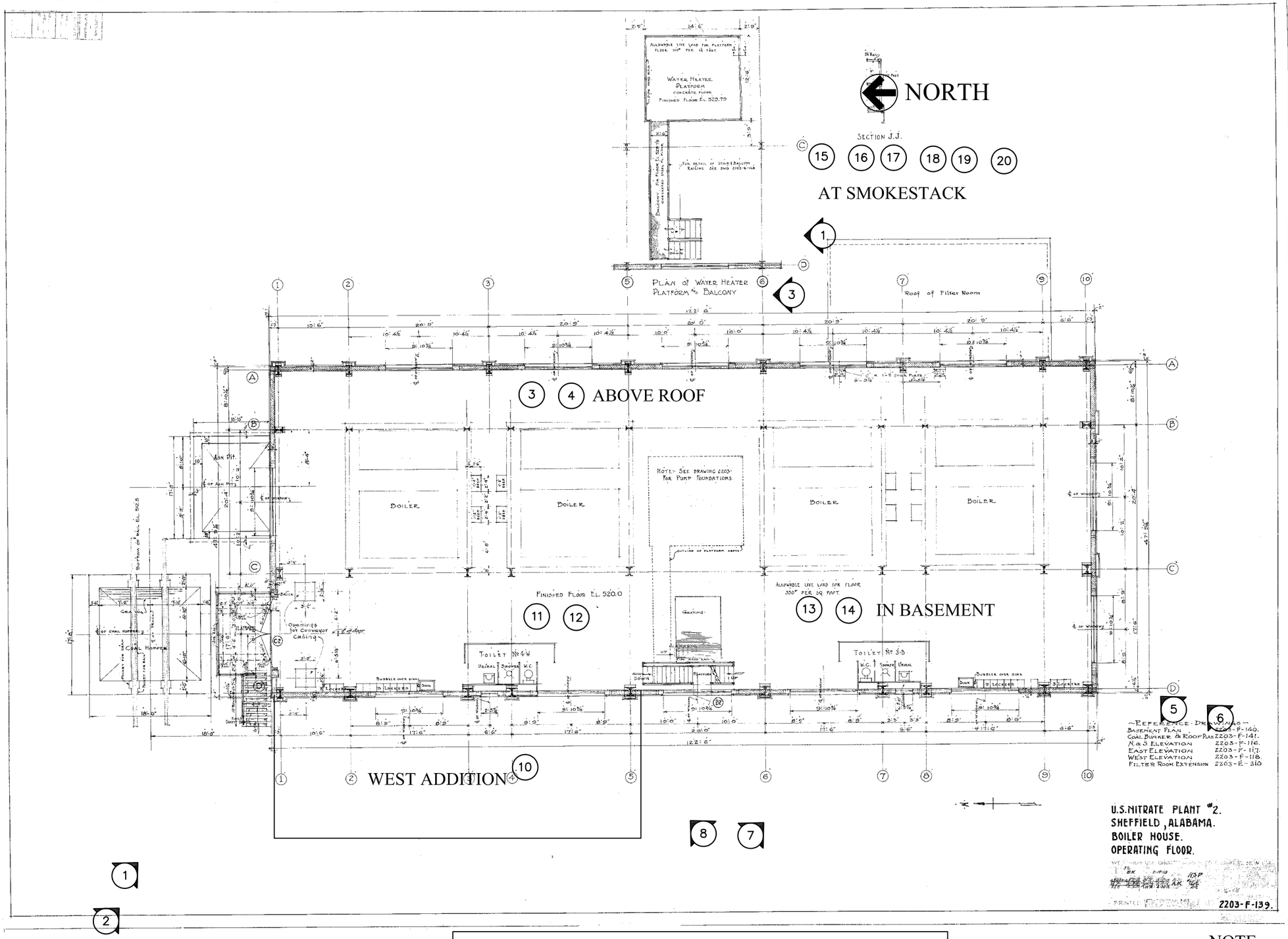
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 56 Boiler House

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Basement steel framing is heavily corroded - very limited access		R-S-3	13,14
2	Wood awning is deteriorated		R-A-1	9
3	Cracking in the exterior brick masonry wall at southwest, southeast, northeast, and northwest corners of the building	120 LF	R-M-8	

Repair Code -	Description
R-A-1	Repair damaged awning
R-M-8	Repair voids in masonry with appropriate filler. Repair cracks in masonry with appropriate sealant. Repair spalls in masonry with matching material.
R-S-3	Replace structural steel framing



BUILDING NO. 56
BOILER HOUSE & STACK

PLAN NOT TO SCALE

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

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396 PLASTERS AVENUE, N.E.
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TVA Muscle Shoals
Structural Assessment
Building 56
BOILER HOUSE

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S56.1
SHEET#

PHOTOLOG: Building 56 Boiler House



Photograph #: 1

Exterior building looking at northwest corner



Photograph #: 2

Exterior building looking at northwest corner

PHOTOLOG: Building 56 Boiler House



Photograph #: 3

East side of building a above roof



Photograph #: 4

East side of building above roof

PHOTOLOG: Building 56 Boiler House



Photograph #: 5

Exterior building looking at southwest corner



Photograph #: 6

Exterior building looking at southwest corner

PHOTOLOG: Building 56 Boiler House



Photograph #: 7

Exterior building - west wall



Photograph #: 8

Exterior building - west wall

PHOTOLOG: Building 56 Boiler House



Photograph #: 9

Exterior building looking at west addition



Photograph #: 10

Deteriorated wood roof at west addition

PHOTOLOG: Building 56 Boiler House



Photograph #: 11

View of interior building with limited access



Photograph #: 12

View of interior building with limited access

PHOTOLOG: Building 56 Boiler House



Photograph #: 13

Corroded steel framing in basement



Photograph #: 14

Corroded steel framing in basement

PHOTOLOG: Building 56 Boiler House



Photograph #: 15

Smokestack on east side of Building 56



Photograph #: 16

Smokestack on east side of Building 56

PHOTOLOG: Building 56 Boiler House



Photograph #: 17

Steel banding at smokestack



Photograph #: 18

Cracked masonry at smokestack

PHOTOLOG: Building 56 Boiler House



Photograph #: 19

Deteriorated steel coupling at smokestack



Photograph #: 20

Cracked masonry at smokestack

Structural Assessment - General Information

Building No.: 57 Substation No. 2	
Building Name:	Substation No. 2
Original Function:	Electrical Distribution House
Subsequent Modification	N/A
General Building Structure Description:	One story building with load-bearing exterior masonry walls. Roof system is concrete plank roof deck supported by steel beams.
General Building Structural Condition:	Building is in fair condition. Defects include cracks and spalls in exterior masonry walls and minor corrosion at steel roof beams.
Summary of Recommended Structural Repairs:	Repair cracks and spalls in masonry walls, clean and paint corroded steel roof beams.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 57 Substation No. 2

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Exposed Foundation or Stem Walls	2	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes

Condition Code Description

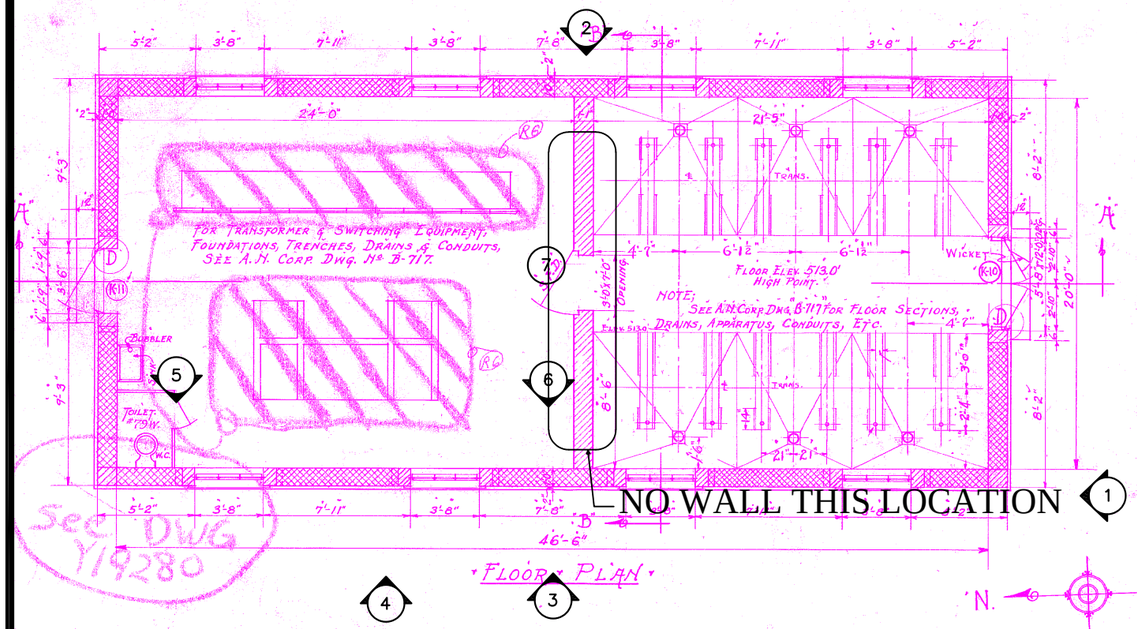
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

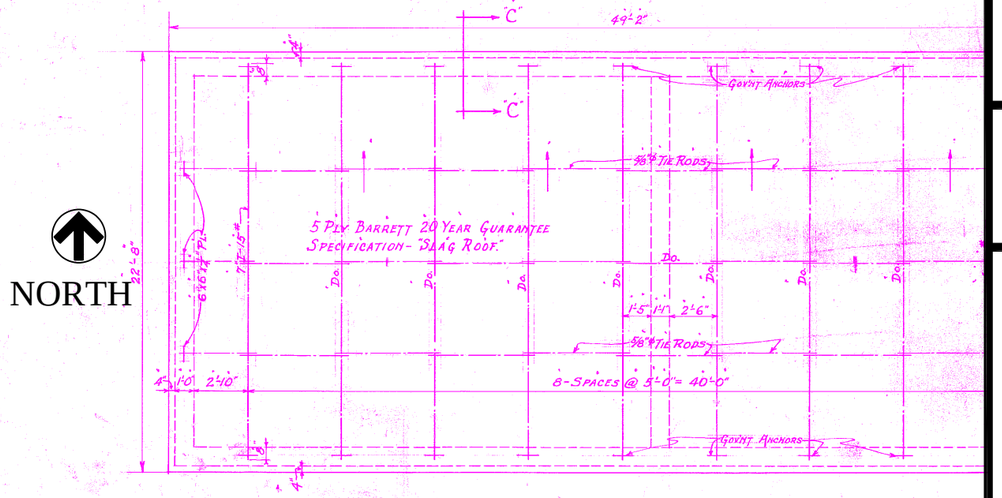
Table 2: Itemized Structural Defects

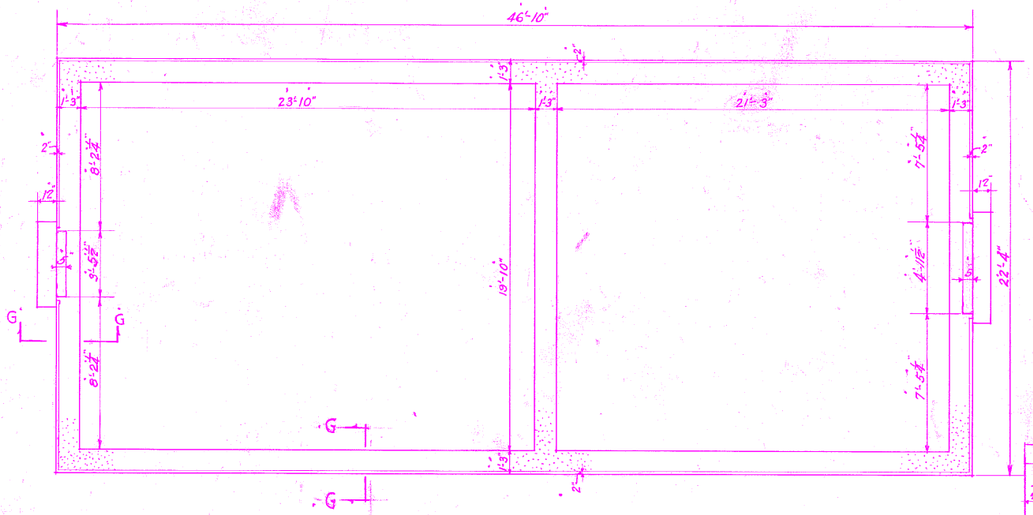
Building 57 Substation No. 2

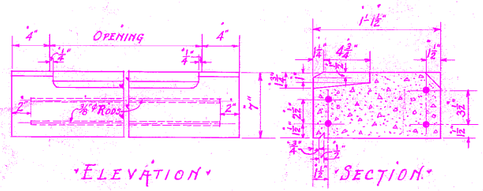
Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Defective roof plank and corroded steel beam	1 each	R-D-1, R-S-1	7
2	Concrete floor - ok			
3	2 cracks in interior masonry west wall	10 LF	R-M-2	5,6
4	Multiple surface spalls in exterior masonry on east side		R-M-3	2
5	Concrete lintels ok			
6	Vertical cracks in masonry on west side	10 LF	R-M-2	3,4
7	Context photo - southwest corner			1

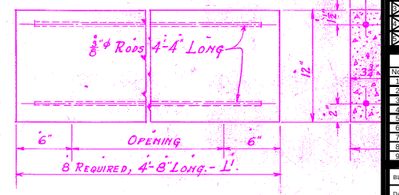
Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material







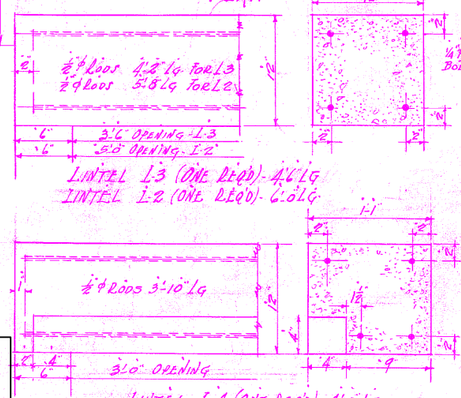


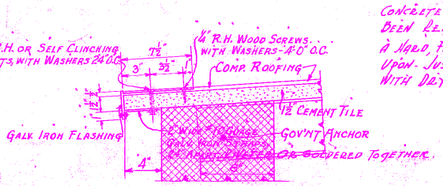




DETAIL OF WINDOW SILL.

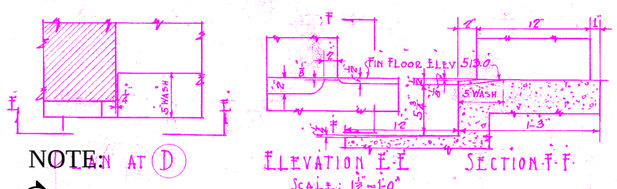
DETAIL OF WINDOW LINTEL

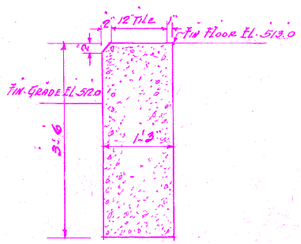




NOTE; FOR ELEVATIONS & SECTION
ALL FOUNDATIONS ARE DESIGNED FOR
CONCRETE MIXTURE TO BE NO. 5. WHEN A
DEEN LEACHED, ALL IMPURITIES, SUCH AS
A HARD, FIRM SURFACE, WHICH SHALL BE
UPON. JUST BEFORE POURING THIS SURF
WITH DRY CEMENT.

U.S. NITRATE PLA
SHEFFIELD, ALABA
AUTOCLAVE SUB
PLANS AND DET





NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 57
SUBSTATION NO. 2

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

SEAL

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
2		
3		
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BLP, INC. PROJECT NO:
DATE: 6/2/2009
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 57
Substation No. 2

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S57.1
SHEET#

T:\Workarea Area\Building\JA\2009 Projects\[JA1457] TVA Muscle Shoals\Photolog Drwgs\Bldg 44-53.dwg — BY 06/29/2009 4:14pm ckhrdpd

PHOTOLOG: Building 57 Substation No. 2



Photograph #: 1

Exterior building looking at southwest corner.



Photograph #: 2

Multiple surface spalls in exterior masonry - east side.

PHOTOLOG: Building 57 Substation No. 2



Photograph #: 3

Vertical cracks in masonry - west side.



Photograph #: 4

Vertical cracks in masonry - west side.

PHOTOLOG: Building 57 Substation No. 2



Photograph #: 5

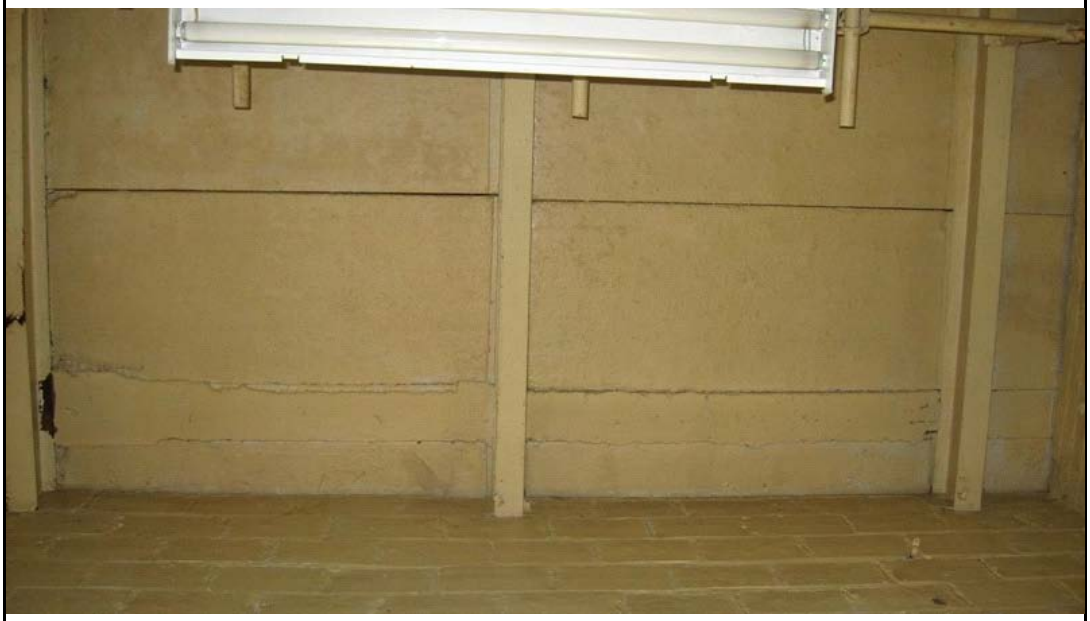
Cracks in masonry - west wall.



Photograph #: 6

Crack in masonry - west wall.

PHOTOLOG: Building 57 Substation No. 2



Photograph #: 7

Concrete roof plank appears to have been repaired; note corroded steel beam at left end of irregular surface at roof deck.

Structural Assessment - General Information

Building No.: 68 Substation No. 4	
Building Name:	Substation No. 4
Original Function:	Electrical Distribution House
Subsequent Modification	N/A
General Building Structure Description:	One story building with load bearing masonry walls. Roof is concrete planks supported on steel beams.
General Building Structural Condition:	The building is in generally fair condition. Some cracks were noted in the exterior walls and the roof beams are moderately corroded.
Summary of Recommended Structural Repairs:	Sand blast and paint steel roof beams. Repair cracks in exterior masonry walls.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 68 Substation No. 4

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	No

Condition Code Description

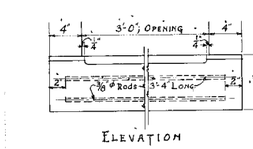
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

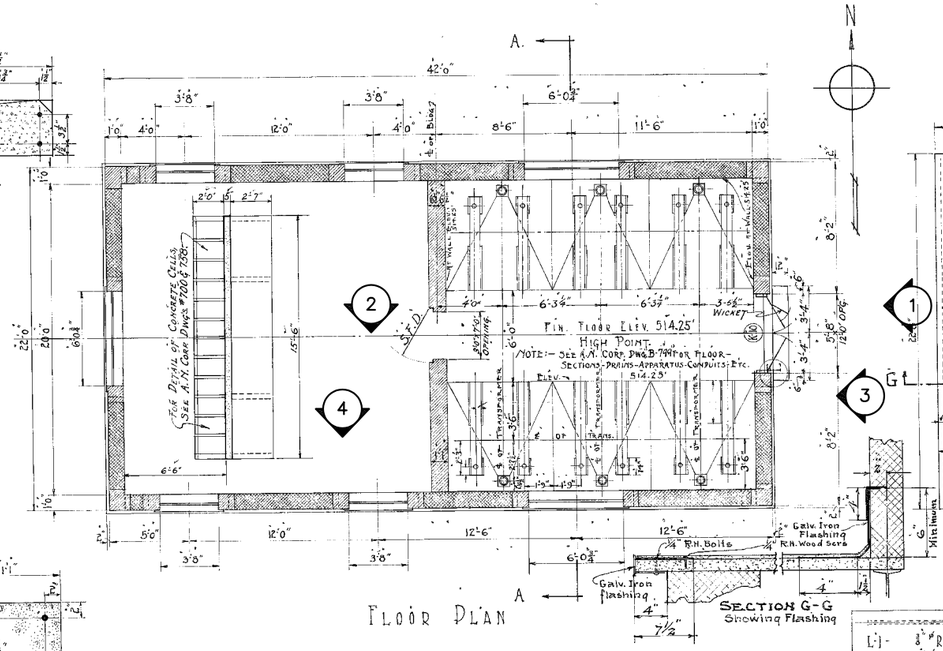
Table 2: Itemized Structural Defects

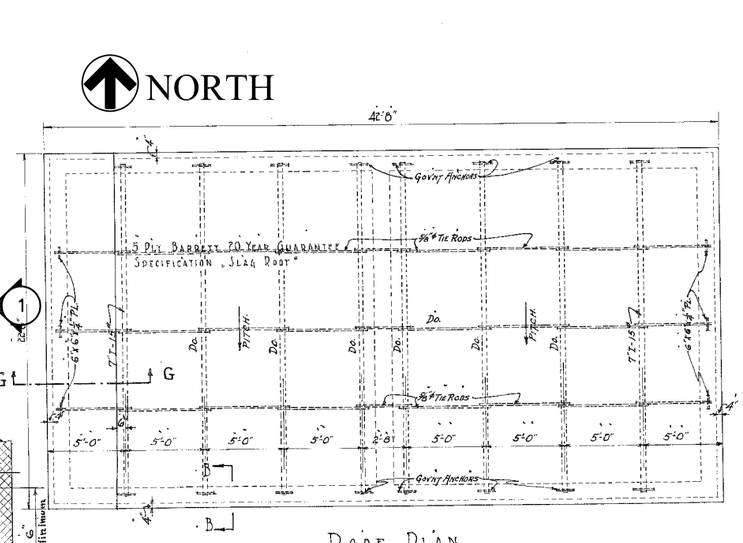
Building 68 Substation No. 4

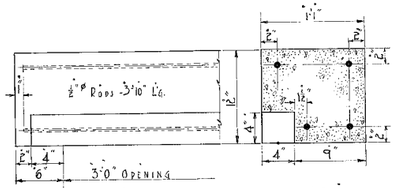
Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Cracked and spalled masonry at east wall	10 LF	R-M-2	3
2	Cracked masonry at lintel	3 LF	R-M-2	4
3	Roof beams are moderately corroded		R-S-1	2

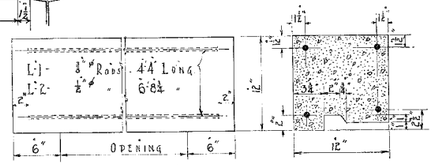
Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-S-1	Sandblast, prime, and paint structural steel

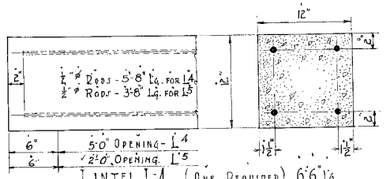


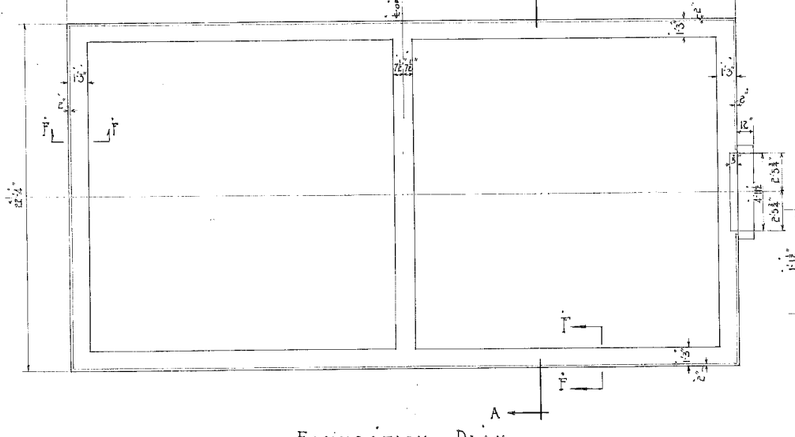




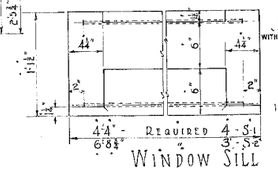


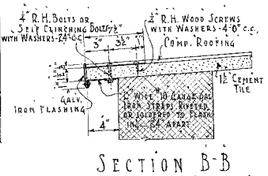


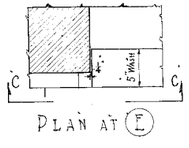


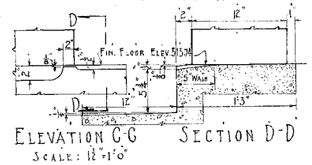


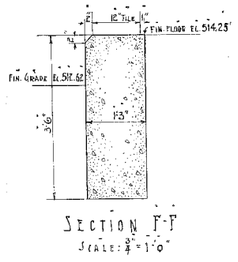












General Notes:
All Foundations are Designed for a Soil Pressure of 6000 Lbs. per Sq. Foot. Concrete Mixture to be 1:2½:5. When a Stopping Point or Pour Line has been Reached all Impurities, such as Laitance and Dust, Must be Removed, and a Hard, Firm Surface, which shall be Roughened, Must be Left to Pour Upon. Just Befor Pouring This Surface Shall be Cleaned and Sprinkled with Dry Cement

NOTE:- 3 Buildings Like This.

MICROFILMED — CHATTANOOGA

Note: For Elevations & Sections See Dwg. No. 2203-E-563

U.S. NITRATE PLANT No. 2
SHEFFIELD, ALABAMA.
CATALYZER SUB-STATIONS No. 4-5 & 6
PLANS AND DETAILS

I.S.H	5-4-18	
2nd	5-13-18	A.M.

4" = 1'-0"

2203-E-564

MICROFILMED

NOTE:
(#) INDICATES
PHOTOGRAPH
LOCATION

BUILDING NO. 68
SUBSTATION No. 4

PLAN NOT TO SCALE

SEAL

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
1		
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BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 68
SUBSTATION No. 4

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

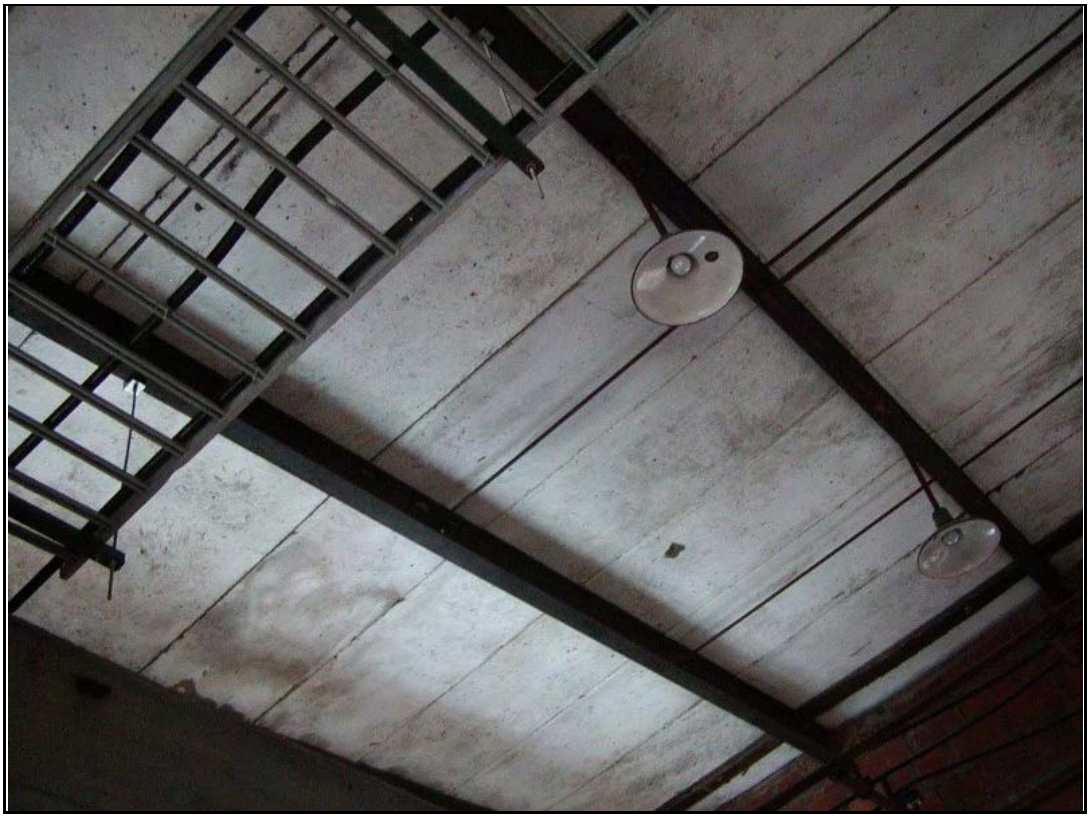
S68.1
SHEET#

PHOTOLOG: Building 68 Substation No. 4



Photograph #: 1

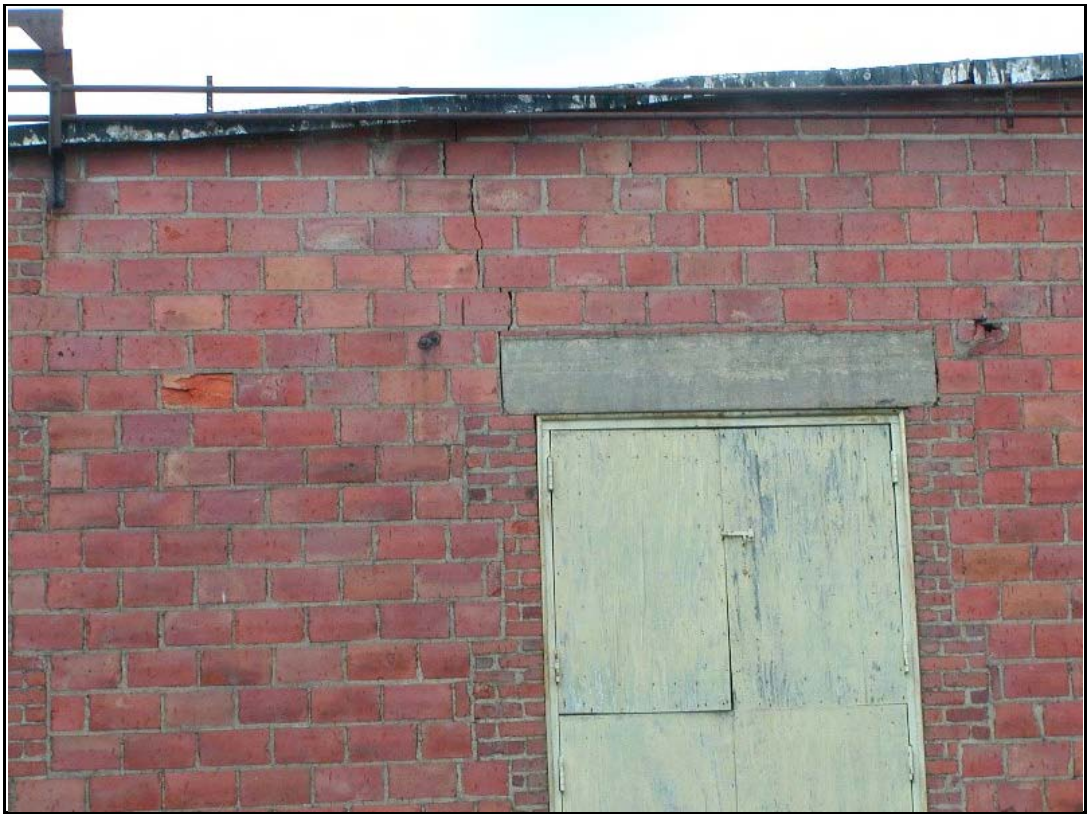
East wall of substation



Photograph #: 2

Roof deck at substation

PHOTOLOG: Building 68 Substation No. 4



Photograph #: 3

Cracked and spalled masonry at substation



Photograph #: 4

Cracked masonry at substation lintel

Structural Assessment - General Information

Building No. 69 Catalyzer #1	
Building Name:	Catalyzer #1
Original Function:	Catalyzer Building
Subsequent Modification	N/A
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and the main building is an eight bay structure with a central monitor that extends from the high bay to the east end of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams.
General Building Structural Condition:	The building is in generally fair condition. The concrete plank roof deck exhibits surface deterioration throughout the building. The steel roof framing is moderately corroded, and some portions of the exterior wall framing are severely corroded. Substantial settlement cracks were observed at the west end of the building in the masonry and exposed portions of the turned-down slab edge. The masonry wall is cracked and partially dislodged near the roof at the SE corner.
Summary of Recommended Structural Repairs:	The structural steel framing must be sandblasted and painted. Cracks in the exposed slab edge and masonry walls must be repaired, and partially dislodged portions of the exterior masonry must be repaired or reconstructed.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the extent of repairs required.

Table 1: Structural Systems Assessment

Building 69 Catalyzer #1

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	3	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	4	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	Yes

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 69 Catalyzer #1

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Severe corrosion of masonry support beam on north wall	150 LF	R-S-1	11,12
2	Moderate corrosion of steel column at north wall and column line 5	20 LF	R-S-1	
3	Moderate corrosion of steel column at north wall and column line 5	15 LF	R-S-1	
4	Moderate corrosion of roof framing in the southeast corner	200 LF	R-S-1	7,8
5	Surface corrosion of concrete planks at roof deck and discoloration of roof deck planks		R-D-2	9,10
6	Settlement cracks in the masonry wall in northeast, southeast and southwest corners	50 LF	R-M-2,R-M-3	3,14
7	Thermal crack in masonry wall in high bay at the south wall	20 LF	R-M-1	
8	Buckling of wall in the southeast corner	20 LF	R-M-4	3

Repair Code -	**Description**
R-D-2	Replace roof deck
R-M-1	Repair voids in masonry with appropriate filler
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel

210'-0"

9 Bays or 20'-0" = 180'-0"

30'-0"

℄ of Col.

Door 3'-0" x 7'-0"

Door 3'-0" x 7'-0"

Door 3'-0" x 7'-0"

5" tile wall for toilets

Drinking fountain

Flue below floor

See Chem. Const. Co. Dwg. A.N.G. 111

Flue below floor

8" Concrete Floor

Flue below floor

Flue below floor

Drinking fountain

Toilet walls of

NORTH

BUILDINGS #1 & #6 ONLY

TANK

TANK

Meter

Meter

IN BUILDING #1 ONLY

FOR LAYOUT OF METER ROOM SEE DWG. NO. 2203 D 248

Concrete Slab (Sloping) 0"-4"

(Door A-7 as shown for Catalyzer Buildings No 1 and 2, South Wall.
(Door A-7 opposite hand for Catalyzer Buildings Nos 3, 4, 5 and 6, North Wall.

PLAN OF WINDOW OVER DOOR

HIGH BAY of MONITOR 32'-4"

FLOOR · PLAN · AT · WINDOW · LEVEL ·

Roof

78'-0¼"

MULLION · CENTERED · HERE

79'-2⅝"

NOTE: HIGH BAY — DOTTED LINES SHOW WINDOWS AT UPPER MONITOR LEVEL

PLAN · THRU · MONITOR

℄ of BUILDING

PLAN · ABOVE · MONITOR

Roof

5 Ply Barrett Twenty Year Guarantee Specification Slag Roof
All flashing to be lead

LOWER MONITOR-DOTTED LINE

UPPER MONITOR-FULL LINE

ROOF · PLAN ·

6" high curb extend short way of roof slope

Jack

Door A6

Section

SCALE ¾"-1'0"

DETAILS OF FLUE WALL FOR BOTH SIDES OF DOORS A6.

NOTE · FOR · LIST · OF · REFERENCE · DRAWINGS · SEE · No · 2203-E-5

SECTION XX

U.S. NITRATE PLANT 2
SHEFFIELD, ALA.
CATALYZER BLD'G
FLOOR & ROOF PLANS

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED, SIGNED & CHECKED AND APPROVED IN BOTH COLUMNS. DESTROY ALL PRINTS HAVING PREVIOUS TO DATE OF LAST REVISION

Scale: ⅛ & ¾"-1'-0"
USE DIMENSIONS ONLY

NO 2203-E-32

PRINTED

NOV 1963

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO. 69
CATALYZER BUILDING #1

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

SEAL

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SUBMITTALS

No.	DATE	DESCRIPTION
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BLP, INC. PROJECT NO:

DATE: 05/2009

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 69
Catalyzer #1

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S69.1

SHEET #

T:\Projects Area\Huntsville\2009 Projects\[P1457]TVA Muscle Shoals\Photolog Dwgs\Bldg 44-45.dwg - 69 05/20/2009 4:14pm dshotpot

Building 69 Catalyzer #1



Photograph #: 1

Exterior building looking at southwest corner - note multiple cracks in masonry



Photograph #: 2

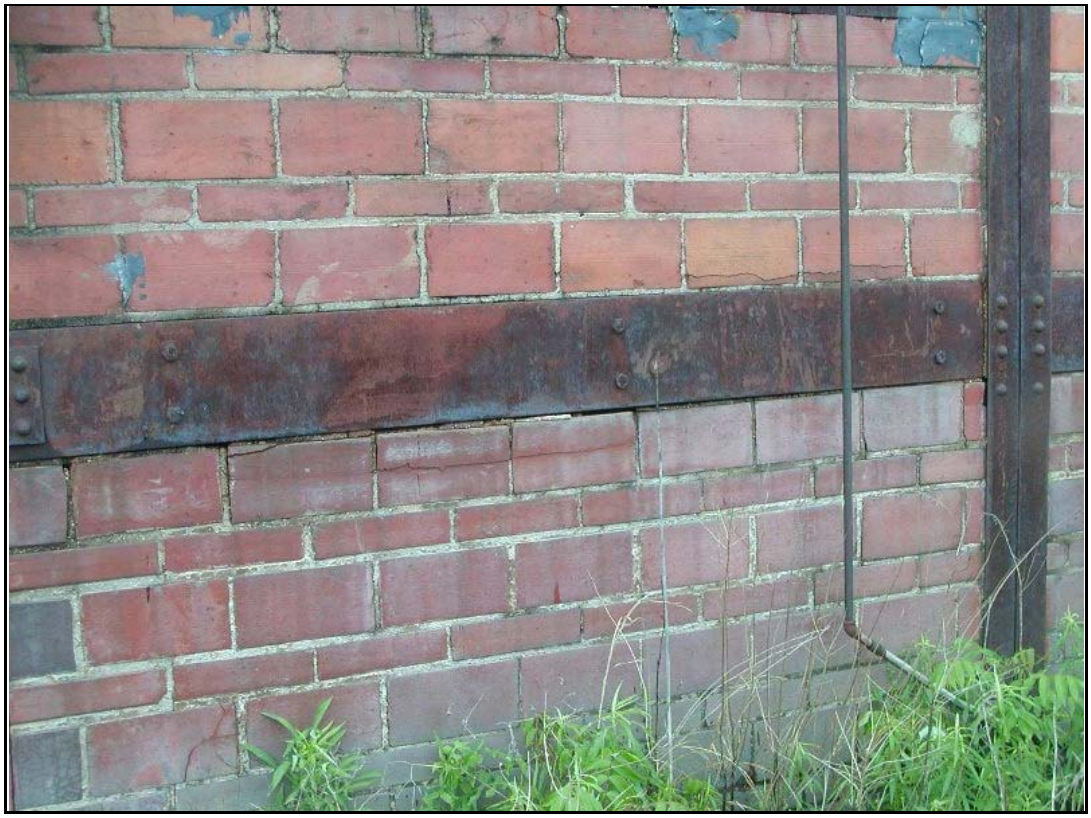
Exterior building looking at south wall - note cracks in masonry above foundation wall

Building 69 Catalyzer #1



Photograph #: 3

Cracked and partially dislodged masonry at southeast corner



Photograph #: 4

Corroded exterior steel framing at south wall

Building 69 Catalyzer #1



Photograph #: 5

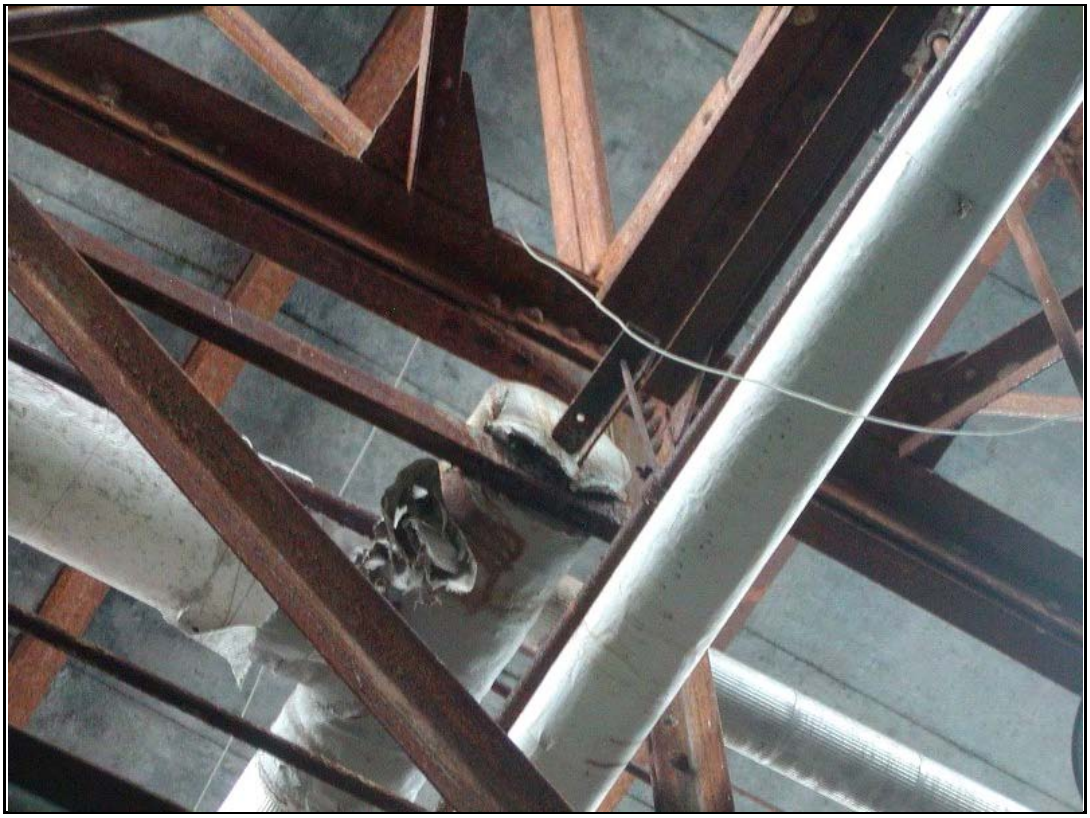
Interior building looking east



Photograph #: 6

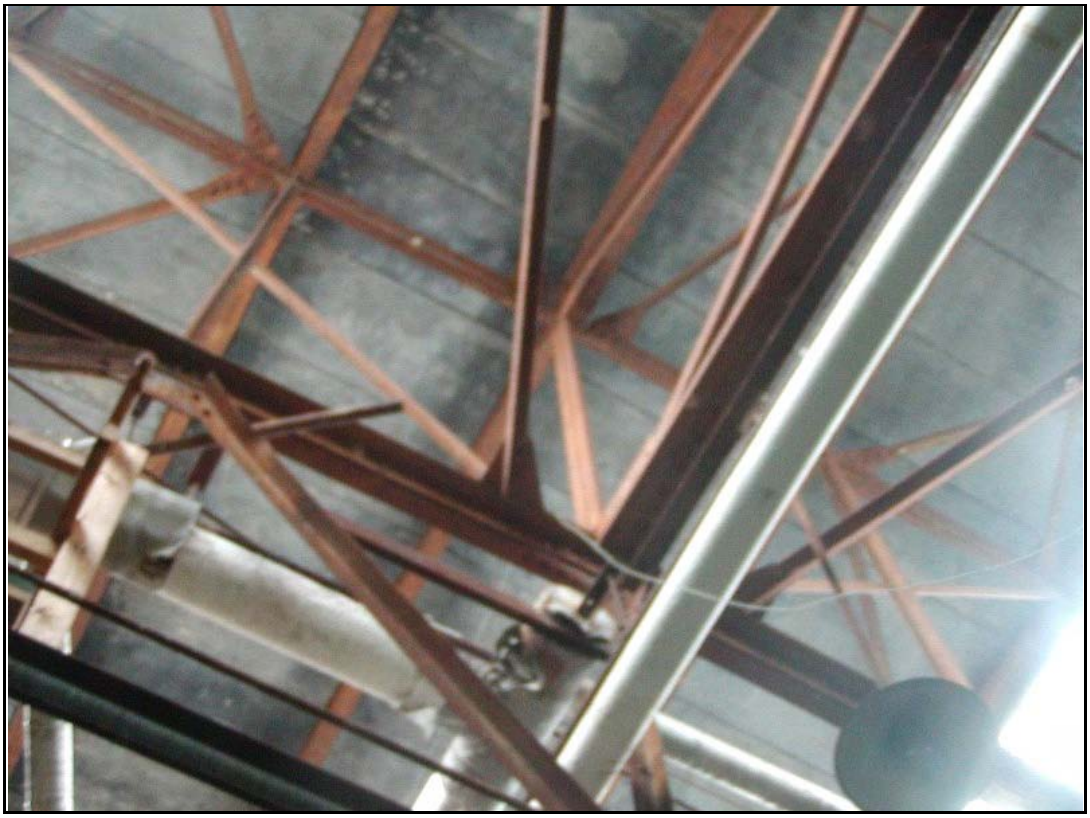
Interior building looking west

Building 69 Catalyzer #1



Photograph #: 7

Moderately corroded steel roof framing



Photograph #: 8

Moderately corroded steel roof framing and surface deterioration on concrete plank roof deck

Building 69 Catalyzer #1



Photograph #: 9

Monitor roof with corroded steel framing and surface deterioration on concrete plank roof deck



Photograph #: 10

Corroded steel framing and deteriorated roof deck at low roof

Building 69 Catalyzer #1



Photograph #: 11

Heavily corroded steel framing at north wall



Photograph #: 12

Heavily corroded steel framing at north wall

Building 69 Catalyzer #1



Photograph #: 13

Previously repaired cracks in wall at northwest corner



Photograph #: 14

Cracks in masonry and foundation wall at southwest corner

Structural Assessment - General Information

Building No.: 70 Catalyzer #2	
Building Name:	Catalyzer #2
Original Function:	Catalyzer Building
Subsequent Modification	East End Demolished
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and it appears that five bays of the original building were demolished at the east end. The east end is now a three bay structure with a central monitor that extends from the high bay to a masonry wall that appears to have previously been an interior partition. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams.
General Building Structural Condition:	The building is in generally poor condition. The steel framing is moderately corroded, and the concrete plank roof deck appears to be significantly deteriorated. Cracks and spalls were noted in the exterior masonry infill panels, and the east wall was not repaired when the end of the building beyond was demolished. At the west end of the building the masonry infill panels extend below grade, and settlement cracks were observed at the northwest corner.
Summary of Recommended Structural Repairs:	The structural steel framing must be sandblasted and painted. Remediation or replacement of the concrete plank roof deck will be required. Cracks and spalls in the exterior masonry walls must be repaired. A substantial portion of the east wall requires repair.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the type of remediation and the extent of repairs and/or replacement required.

Table 1: Structural Systems Assessment

Building 70 Catalyzer #2

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	3	No
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	No
Roof Deck	4	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 70 Catalyzer #2				
Defect Item No.	**Defect Description**	**Quantity/ Unit of Measure**	**Repair Code/ Remarks**	**Photo Log Reference No.**
1	Cracking on west face of building		R-M-2	
2	Cracking at southwest corner		R-M-2	5
3	Cracking at northwest corner		R-M-2	6

Repair Code -	**Description**
R-M-2	Repair cracks in masonry with appropriate sealant

THIS AREA
OF BUILDING
DEMOLISHED

NORTH

NOTE:
(#) INDICATES
PHOTOGRAPH
LOCATION

BUILDING NO.70
CATALYZER BUILDING #2

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
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BLP, INC. PROJECT NO:
DATE: 05/2009
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No. 70
Catalyzer #2

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S70.1

SHEET #

PHOTOLOG: Building 70 Catalyzer #2



Photograph #: 1

Exterior building - west side



Photograph #: 2

Exterior building - north side

PHOTOLOG: Building 70 Catalyzer #2



Photograph #: 3

Exterior building - south side



Photograph #: 4

East end of building - end wall is former interior wall

PHOTOLOG: Building 70 Catalyzer #2



Photograph #: 5

Crack in south exterior wall



Photograph #: 6

Crack in wall at northwest corner

PHOTOLOG: Building 70 Catalyzer #2



Photograph #: 7

Interior building at high bay



Photograph #: 8

Interior building at high bay

PHOTOLOG: Building 70 Catalyzer #2



Photograph #: 9

Interior building



Photograph #: 10

Corroded steel framing and deteriorated roof deck

Structural Assessment - General Information

Building No.: 71 Catalyzer #3

Building Name:	Catalyzer #3
Original Function:	Catalyzer Building
Subsequent Modification	Interior Vault
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and the main building is an eight bay structure with a central monitor that extends from the high bay to the east end of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams. Shutters are installed between columns at floor level on the long sides of the building. The building floor is a topping slab that covers the original floor construction. An interior vault was constructed at the west end of the building.
General Building Structural Condition:	The building is in generally fair condition. The steel framing is mildly corroded, and the concrete plank roof deck exhibits surface deterioration throughout much of the main building. The roof deck is heavily deteriorated above the vault area at the west end of the building. Cracked and spalled concrete piers at column attachments were observed, and some cracks were noted in the exterior masonry walls.
Summary of Recommended Structural Repairs:	The structural steel framing must be cleaned and repainted. Remediation of the concrete plank roof deck in the main building will be required, and repair or replacement of the roof deck at the west end will be required. Cracks in the exterior masonry walls must be repaired, and deteriorated concrete piers at column attachments must be repaired.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the type of remediation and the extent of repairs and/or replacement required.

Table 1: Structural Systems Assessment

Building 71 Catalyzer #3

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	3	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	No
Roof Deck	4	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No

Condition Code Description

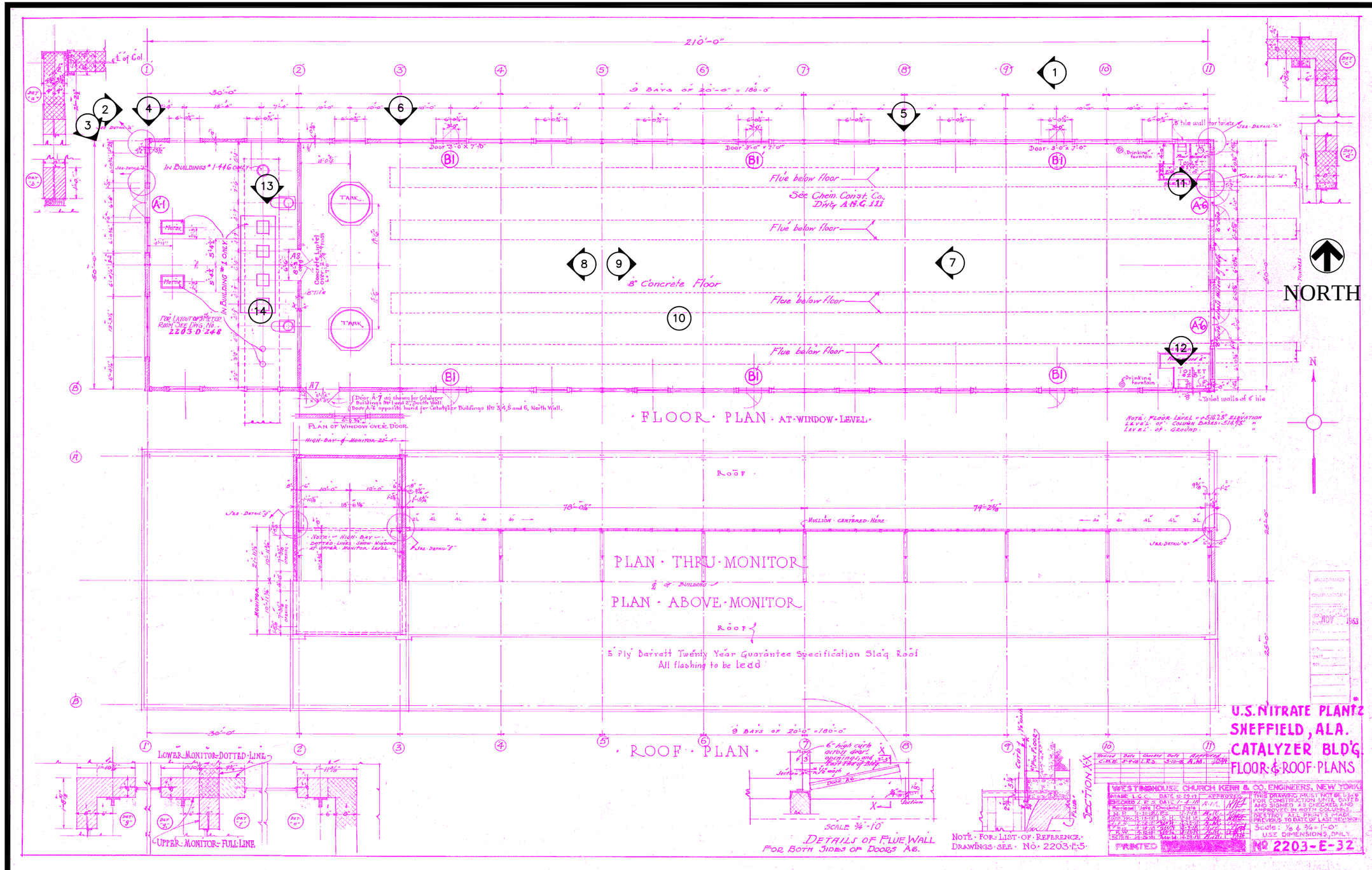
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 71 Catalyzer #3

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Minor infill cracking at northeast corner	10 LF	R-M-2	
2	Infill cracking and displacement at southeast corner	10 LF	R-M-2	12
3	Minor cracking due sag at door opening	10 LF	R-M-4	
4	Step cracking at northeast corner	20 LF	R-M-2	11
5	Northwest corner cracking	30 LF	R-M-2,R-M-3	
6	Footing pier cracked and spalled	2 EA	R-C-2,R-C-3	5,6

Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-4	Reconstruct damaged and/or unstable masonry



NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.71

CATALYZER BUILDING #3

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4781

SEAL

REVISIONS

No.	DATE	DESCRIPTION
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SUBMITTALS

No.	DATE	DESCRIPTION
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BLP, INC. PROJECT NO:

DATE: 05/26/09

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No.71
Catalyzer # 3

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S71.1

SHEET#

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 1

Exterior building - north side



Photograph #: 2

Exterior building - north side

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 3

Exterior building looking at northwest corner



Photograph #: 4

Cracked concrete pier and masonry at northwest corner

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 5

Deteriorated concrete pier at column



Photograph #: 6

Deteriorated concrete pier at column

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 7

Interior building looking west



Photograph #: 8

Monitor roof looking west

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 9

Interior building looking east



Photograph #: 10

Deteriorated concrete plank at roof deck

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 11

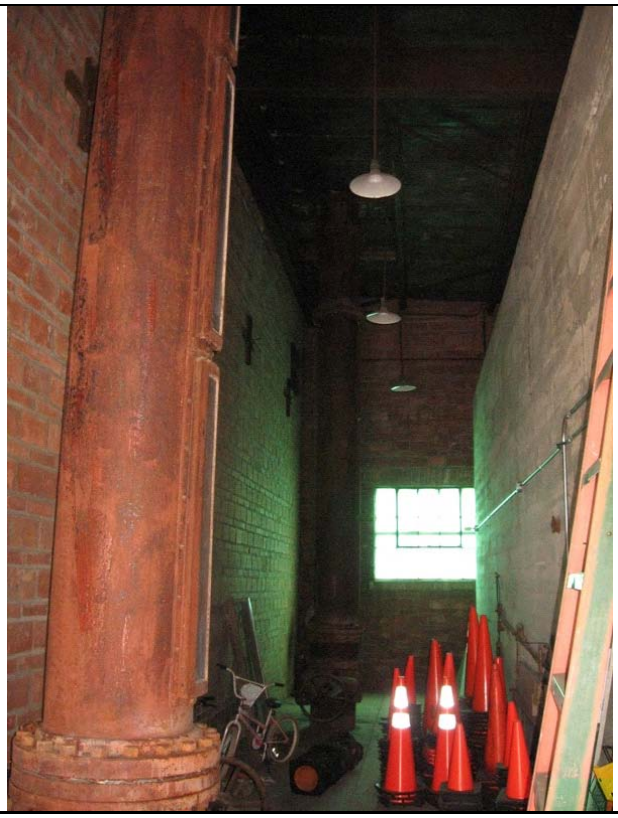
Interior crack in masonry at east wall



Photograph #: 12

Infill cracking and displacement at southeast corner

PHOTOLOG: Building 71 Catalyzer #3



Photograph #: 13

Interior building at west end



Photograph #: 14

Heavily deteriorated roof deck at west end

Structural Assessment - General Information

Building No.: 72 Catalyzer #4	
Building Name:	Catalyzer #4
Original Function:	Catalyzer Building
Subsequent Modification	Interior Offices
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and the main building is an eight bay structure with a central monitor that extends from the high bay to the east end of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams. The building floor is a concrete topping slab that covers the original floor construction. Interior partitions have been added, including those for offices at the west end of the main building.
General Building Structural Condition:	The building is in generally poor condition. The steel framing is moderately corroded, and some portions of the exterior wall framing including columns are severely corroded. The concrete plank roof deck appears to be significantly deteriorated. Numerous cracks and spalls were noted in the exterior masonry infill panels. At the west end of the building the masonry infill panels extend below grade, and settlement cracks were observed at the northwest corner.
Summary of Recommended Structural Repairs:	The structural steel framing must be sandblasted and painted. Remediation or replacement of the concrete plank roof deck will be required. Cracks and spalls in the exterior masonry walls must be repaired. Deteriorated concrete piers at column attachments must be repaired.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the type of remediation and the extent of repairs and/or replacement required.

Table 1: Structural Systems Assessment

Building 72 Catalyzer #4

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Columns	4	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	No
Roof Deck	4	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 72 Catalyzer #4

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Cracking in masonry wall on south side	10 LF	R-M-2	
2	Cracking at northeast corner	10 LF	R-M-2	
3	Cracking at northeast corner	20 LF	R-M-2	
4	Crack in slab, slab added at later date		R-C-2	
5	Crack at southeast corner	20 LF	R-M-2	
6	Crack at southeast corner high bay	30 LF	R-M-2	
7	Crack at northwest corner		R-M-2	4
8	North side of masonry building			
9	Footing pier cracked and spalled	1 EA	R-C-2	

Repair Code -	Description
R-C-2	Inject sealant to seal cracks in concrete
R-M-2	Repair cracks in masonry with appropriate sealant

(11-14 AT SUBSTATION)

NORTH

FLOOR PLAN AT WINDOW LEVEL

PLAN THRU MONITOR

PLAN ABOVE MONITOR

ROOF PLAN

DETAILS OF FLUE WALL FOR BOTH SIDES OF DOORS A6.

U.S. NITRATE PLANT 2
SHEFFIELD, ALA.
CATALYZER BLD'G
FLOOR & ROOF PLANS

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

NO 2203-E-32

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.72
CATALYZER BUILDING #4

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

REVISIONS

No.	DATE	DESCRIPTION
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SUBMITTALS

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BLP, INC. PROJECT NO:
DATE: 092609
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No.72
Catalyzer # 4

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S72.1

SHEET #

SEAL

PHOTOLOG: Building 72 Catalyzer #4



Photograph #: 1

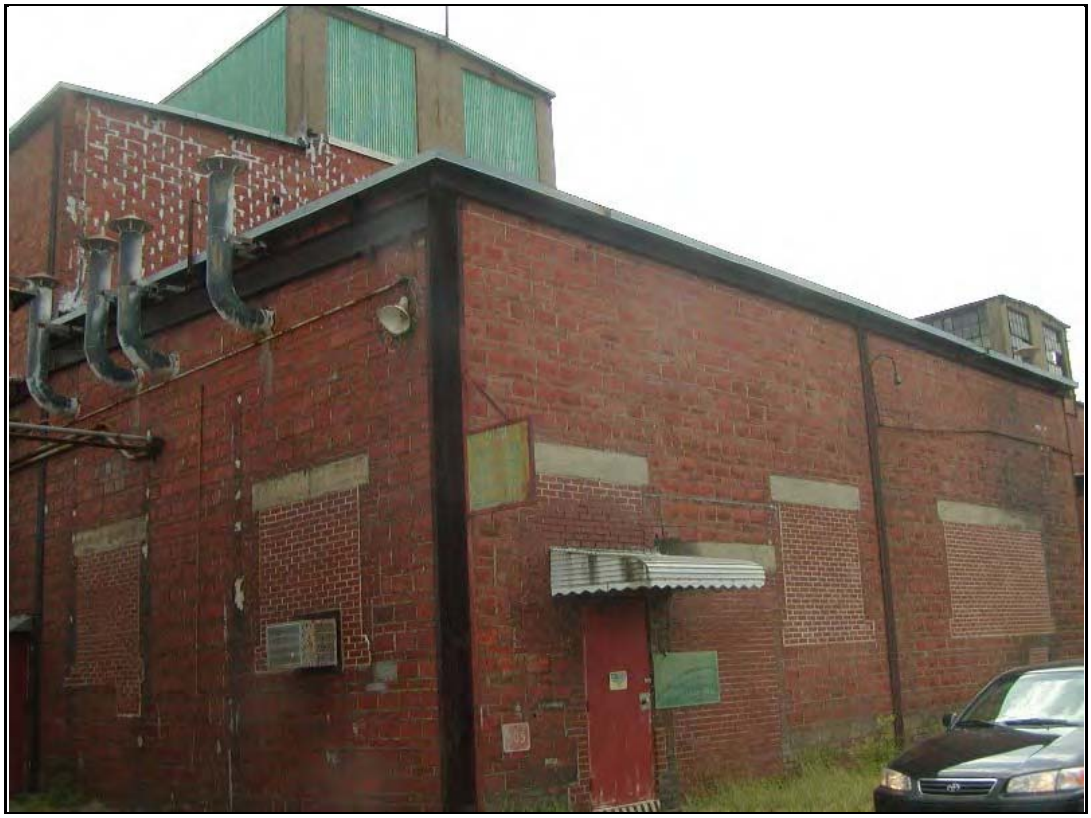
North side of building with substation on left



Photograph #: 2

North side of building

PHOTOLOG: Building 72 Catalyzer #4



Photograph #: 3

Exterior building looking at northwest corner



Photograph #: 4

Crack in wall at northwest corner

PHOTOLOG: Building 72 Catalyzer #4



Photograph #: 5

General deterioration on north side of building



Photograph #: 6

Detail view of north side

PHOTOLOG: Building 72 Catalyzer #4



Photograph #: 7

Interior building looking west



Photograph #: 8

Corroded steel roof framing and deteriorated concrete roof planks

PHOTOLOG: Building 72 Catalyzer #4



Photograph #: 9

Box-out in topping slab at column



Photograph #: 10

Deteriorated concrete pier at column

Structural Assessment - General Information

Building No.: 72a - Substation

Building Name:	Substation
Original Function:	Electrical Distribution House
Subsequent Modification	N/A
General Building Structure Description:	One story building with load bearing masonry walls. Roof is concrete planks supported on steel beams
General Building Structural Condition:	The building is in generally fair condition. Some cracks and minor spalls were noted in the exterior walls.
Summary of Recommended Structural Repairs:	Repair cracks and spalls in exterior masonry walls.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 72a - Substation

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Exterior Walls	3	No
Roof Framing and Subframing	2	No
Roof Deck	3	No

Condition Code Description

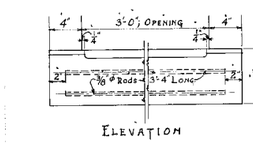
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

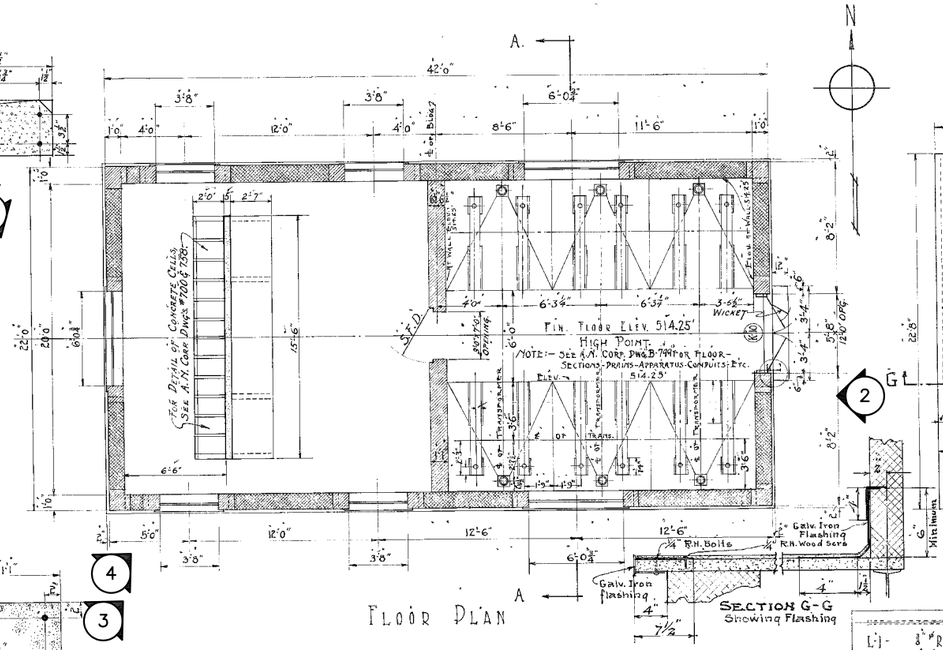
Table 2: Itemized Structural Defects

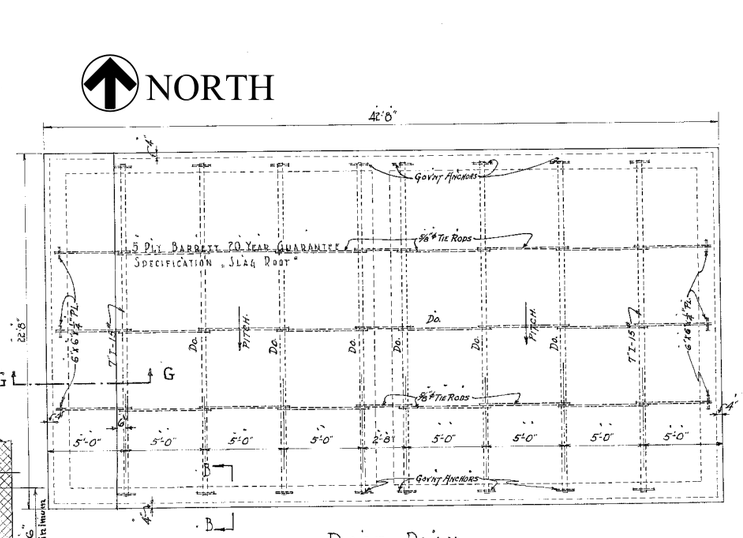
Building 72a - Substation

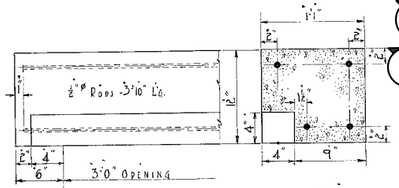
Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Cracked masonry at east wall	10 LF	R-M-2	2
2	Spalled masonry at south wall	3 SF	R-M-3	3

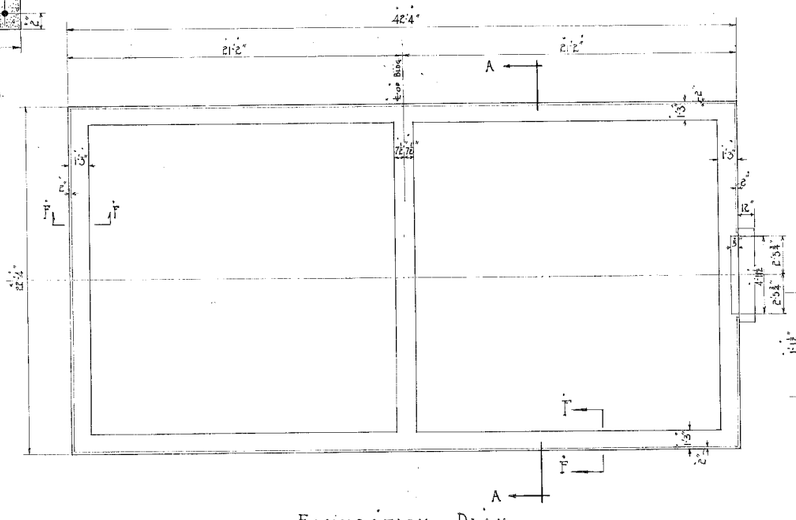
Repair Code -	Description
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-3	Repair spalls in masonry with matching material

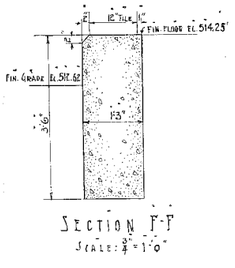


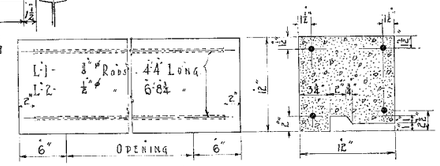


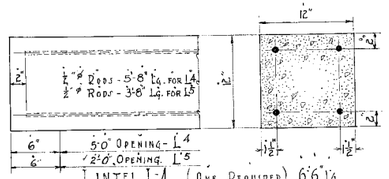




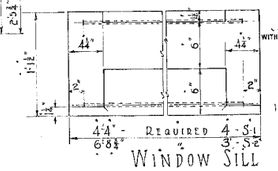


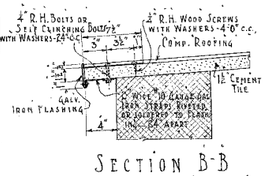


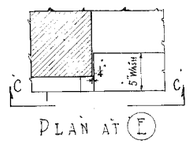


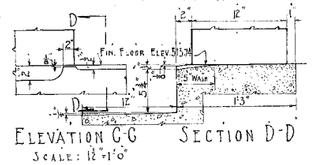












General Notes:
All Foundations are Designed for a Soil Pressure of 6000 Lbs. per Sq. Foot. Concrete Mixture to be 1:2½:3. When a Stopping Point or Pour Line has been Reached all Impurities, such as Laitance and Dust, Must be Removed, and a Hard, Firm Surface, which shall be Roughened, Must be Left to Pour Upon. Just Before Pouring this Surface Shall be Cleaned and Sprinkled with Dry Cement

NOTE:- 3 Buildings Like This.

NOTE: For Elevations & Sections See Dwg. No 2203-E-563

U.S. NITRATE PLANT No 2
SHEFFIELD, ALABAMA.
CATALYZER SUB-STATIONS No 4-5 & 6
PLANS AND DETAILS

I.S.H	5-4-18				A.M.
	5-13-18				

4" = 1'-0"

2203-E-564

MICROFILMED

NOTE:
(#) INDICATES
PHOTOGRAPH
LOCATION

BUILDING NO. 72a
SUBSTATION

PLAN NOT TO SCALE

MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

SEAL

REVISIONS

No.	DATE	DESCRIPTION

SUBMITTALS

No.	DATE	DESCRIPTION
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BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 72
SUBSTATION

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S72.2
SHEET#

Building 72a - Substation



Photograph #: 1

West wall of substation in generally good condition



Photograph #: 2

Minor cracks in masonry at east wall of substation

Building 72a - Substation



Photograph #: 3

Minor spalls in exterior masonry



Photograph #: 4

Minor crack on turned down slab

Structural Assessment - General Information

Building No.: 73 Catalyzer #5	
Building Name:	Catalyzer #5
Original Function:	Catalyzer Building
Subsequent Modification	N/A
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and the main building is an eight bay structure with a central monitor that extends from the high bay to the east end of the building. Original drawings indicate shutters to be installed between columns at floor level on the long sides of the building; this portion of the exterior walls is now completely open. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams. The building has an irregular concrete floor below the tops of four brick covered trenches that extend the length of the main building.
General Building Structural Condition:	The building is in generally poor condition. The steel framing is moderately to severely corroded, and the concrete plank roof deck appears to be significantly deteriorated. Portions of the masonry infill panels are structurally unsound due to deteriorated and/or deformed support framing. At the west end of the building the masonry infill panels extend below grade, and substantial settlement cracks were observed at the northwest corner. The irregular floor system of the main building is generally deteriorated, and the condition of the brick covered trenches could not be determined.
Summary of Recommended Structural Repairs:	A substantial portion of the concrete plank roof deck must be repaired or replaced. The structural steel framing must be cleaned and painted, and some steel framing embedded in the masonry walls must be replaced or reinforced. Unstable portions of the masonry walls must be reconstructed, and cracks in the masonry walls must be repaired. Remediation of the existing floor system is not required to stabilize the building, but a new floor system must be constructed to in order to reuse the building.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine what portion of the original deck can be salvaged and the extent of repairs required.

Table 1: Structural Systems Assessment

Building 73 Catalyzer #5

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	Yes
Pits and Trenches	3	No
Mezzanine Floor System (Deck and framing)	3	No
Interior Load Bearing Walls	3	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	4	Yes
Roof Framing and Subframing	4	Yes
Roof Deck	4	Yes

Condition Code Description

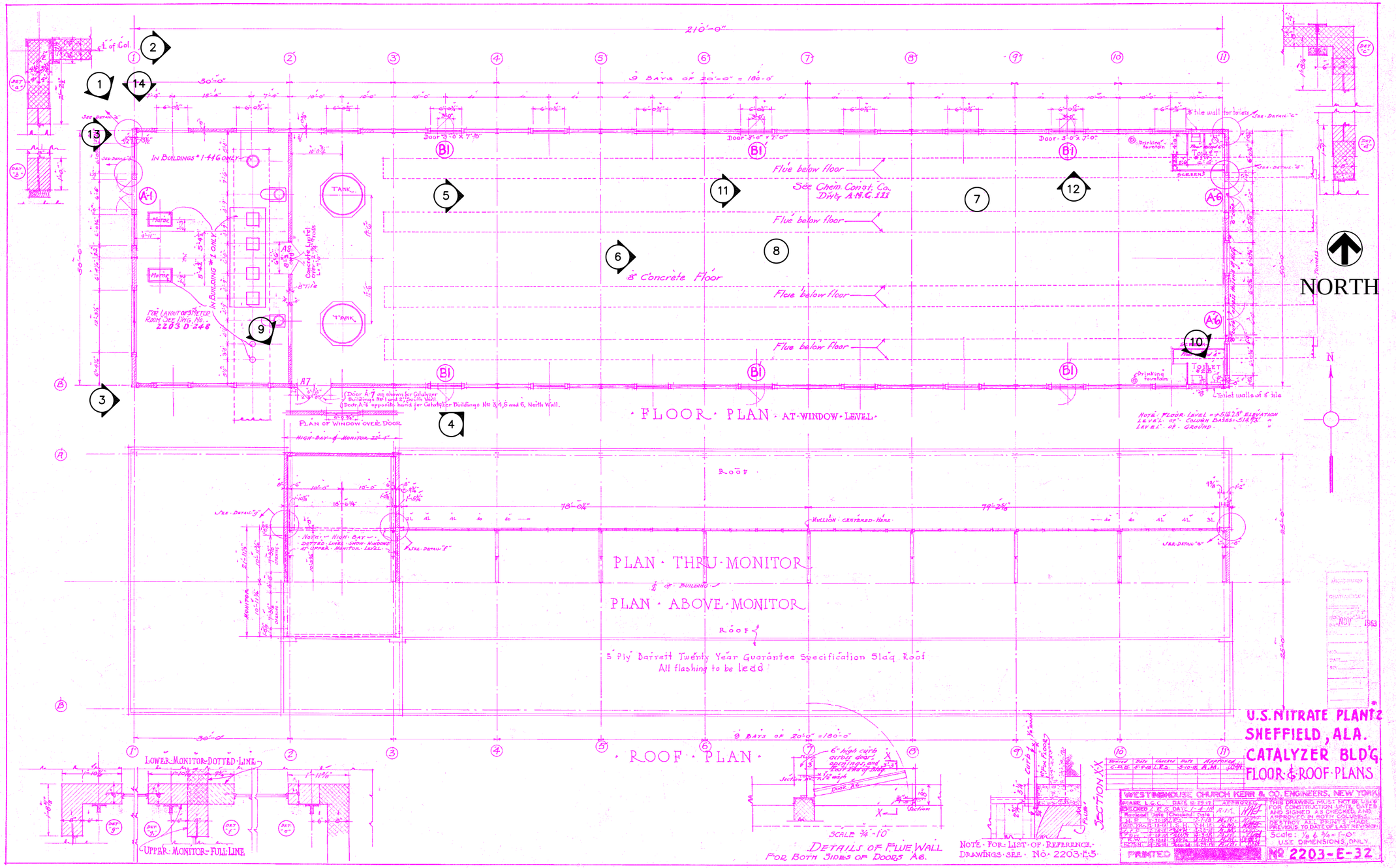
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 73 Catalyzer #5

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Foundation settlement cracks on northwest corner	20 LF	R-M-2	13,14
2	Foundation settlement cracks on southwest corner	20 LF	R-M-2	
3	Foundation settlement cracks on north wall	30 LF	R-M-2	
4	Sagging support beam for north wall masonry.	10 LF	R-M-4	12
4	Sagging support beam for north wall masonry	10 LF	R-S-3	12
5	Deteriorated masonry at southeast corner.	10 LF	R-M-4	10
6	Cracking in exterior masonry at southeast corner.	18 LF	R-M-2	
7	Cracking in masonry at northeast corner	10 LF	R-M-2	
8	Corrosion of steel framing	95 %	R-S-1	6,7
9	Spalling and deteriorated concrete roof deck.	20 %	R-D-1	6,7,8,9
10	Cracks in floor slab.	30 LF	R-C-1	
11	Door lintel severely deformed on north wall.	20 LF	R-M-4	
11	Door lintel severely deformed on north wall.	20 LF	R-S-3	

Repair Code -	Description
R-C-1	Route and seal cracks in concrete
R-D-1	Replace defective concrete planks at roof deck
R-M-2	Repair cracks in masonry with appropriate sealant
R-M-4	Reconstruct damaged and/or unstable masonry
R-S-1	Sandblast, prime, and paint structural steel
R-S-3	Replace structural steel framing



NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.73

CATALYZER BUILDING #5

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

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BLP, INC. PROJECT NO:

DATE: 092609

DRAWING BY: TKD

CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No.73
Catalyzer # 5

Lord, Aeck & Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S71.1

SHEET #

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PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 1

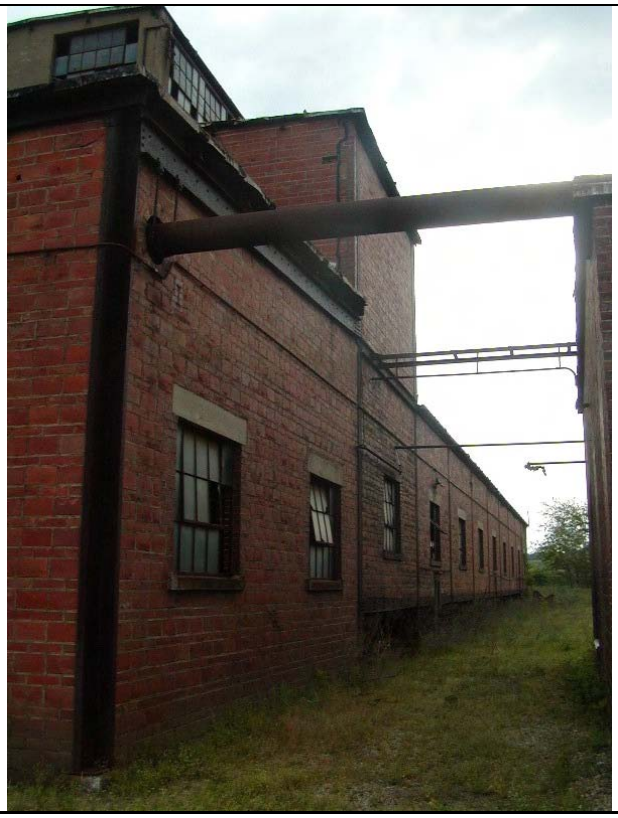
Exterior building looking at northwest corner.



Photograph #: 2

Exterior building looking at north side.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 3

Exterior building looking at southwest corner.



Photograph #: 4

Exterior building looking at south side.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 5

Interior building looking east.



Photograph #: 6

Corroded steel framing and deteriorated concrete plank roof deck.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 7

Corroded steel framing and deteriorated concrete plank roof deck.



Photograph #: 8

Deteriorated concrete plank roof deck at monitor. Exposed reinforcing steel is visible.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 9

Severely deteriorated roof structure at west end of building.



Photograph #: 10

Damaged masonry infill at southeast corner.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 11

Irregular, deteriorated floor system in main building.



Photograph #: 12

Structurally unstable masonry infill and supporting steel framing.

PHOTOLOG: Building 73 Catalyzer #5



Photograph #: 13

Settlement cracks in masonry at northwest corner.



Photograph #: 14

Settlement cracks in masonry at northwest corner.

Structural Assessment - General Information

Building No.: 74 Catalyzer #6	
Building Name:	Catalyzer #6
Original Function:	Catalyzer Building
Subsequent Modification	Office Addition
General Building Structure Description:	One story building with steel frame supporting masonry infill panels at exterior walls. The building has a single high bay with a central clerestory monitor near the west end, and the main building is an eight bay structure with a central monitor that extends from the high bay to the east end of the building. The roof structure is steel trusses with a concrete plank roof deck supported by steel beams. The open portion of the building at the east end has an irregular concrete floor below the tops of four brick covered trenches that extend the length open portion of the main building. The west portion of the building, including an addition on the north side at the west end, has been fitted up with office space that is inaccessible. In the main building, the office area is constructed with wood frame partitions that terminate below the roof structure.
General Building Structural Condition:	The building is in generally fair condition. The steel framing is moderately corroded, and some portions of the exterior wall framing including columns are severely corroded. The concrete plank roof deck exhibits surface deterioration throughout the building. Numerous cracks and spalls were noted in the exterior masonry infill panels. At the west end of the building the masonry infill panels extend below grade, and settlement cracks were observed at the northwest corner. The irregular floor system in the open part of the main building appears to be in fair condition, and the condition of the brick covered trenches could not be determined.
Summary of Recommended Structural Repairs:	The structural steel framing must be sandblasted and painted. Remediation of the concrete plank roof deck will be required. Cracks and spalls in the exterior masonry walls must be repaired. Remediation of the existing floor system at the east end of he building is not required, but a new floor system in this portion of the building must be constructed in order to reuse this area of the building.
Additional Recommendations:	A detailed evaluation of the concrete plank roof deck will be required to determine the type of remediation and the extent of repairs required.

Table 1: Structural Systems Assessment

Building 74 Catalyzer #6

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Pits and Trenches	3	No
Columns	4	Yes
Exterior Walls	3	Yes
Exterior Wall Framing and Subframing	3	No
Roof Framing and Subframing	3	No
Roof Deck	4	No
Monitor/Clerestory Structure (Framing, walls, and roof deck)	4	No

Condition Code Description

(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 74 Catalyzer #6

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Minor stair step crack at northeast corner interior	20 LF	R-M-2	
2	Footing pier cracking at southeast corner		R-C-2	7,8
3	Wall cracking at southeast corner	20 LF	R-M-2	9
4	Cracking at northeast corner of high wall	30 LF	R-M-2	
5	Small 1 story building (20' x 30') between Bldg 74 and Bldg 73. No access. No cracking noted in masonry walls			
6	Cracking at northwest corner	20 LF	R-M-2	4
7	Cracking at center of west wall	10 LF	R-M-2	
8	Cracking at southwest corner	20 LF	R-M-2	
9	Crack at south sides of high bay	30 LF	R-M-2	
10	Crack under lintel at southwest corner	20 LF	R-C-2	
11	Crack at southeast corner	20 LF	R-M-2	10

Repair Code -	**Description**
R-C-2	Inject sealant to seal cracks in concrete
R-M-2	Repair cracks in masonry with appropriate sealant

ADDITION

NORTH

FLOOR PLAN AT WINDOW LEVEL

PLAN THRU MONITOR

PLAN ABOVE MONITOR

ROOF PLAN

DETAILS OF FLUE WALL FOR BOTH SIDES OF DOORS A6.

U.S. NITRATE PLANT 2
SHEFFIELD, ALA.
CATALYZER BLD'G
FLOOR & ROOF PLANS

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

Scale: 1/8 & 3/4"=1'-0"
USE DIMENSIONS ONLY

NO 2203-E-32

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

BUILDING NO.74
CATALYZER BUILDING #6

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4781

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BLP, INC. PROJECT NO:
DATE: 092609
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No.74
Catalyzer # 6

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S74.1

SHEET #

SEAL

PHOTOLOG: Building 74 Catalyzer #6



Photograph #: 1

Exterior view of north side



Photograph #: 2

Exterior view of south side

PHOTOLOG: Building 74 Catalyzer #6



Photograph #: 3

Exterior building looking at southwest corner



Photograph #: 4

Crack in masonry at northwest corner where north addition adjoins original building

PHOTOLOG: Building 74 Catalyzer #6



Photograph #: 5

Interior building looking west



Photograph #: 6

Interior building looking east

PHOTOLOG: Building 74 Catalyzer #6



Photograph #: 7

Deteriorated concrete pier and slab at column



Photograph #: 8

Close-up of deteriorated column attachment at concrete pier

PHOTOLOG: Building 74 Catalyzer #6



Photograph #: 9

Deteriorated steel column and wall framing



Photograph #: 10

Exterior view of wall and wall framing shown in Photo No. 9

Structural Assessment - General Information

Building No.: 79 3A Building	
Building Name:	3A Building
Original Function:	Ammonium Nitrate Storage
Subsequent Modification	N/A
General Building Structure Description:	Original drawings indicate the building was designed to have a complete second floor consisting of elevated concrete slabs on each side connected by a central floor structure which does not now exist. In its present configuration, the building has mezzanines on each side with concrete columns supporting concrete slab and beam floors with no interior access stairs. The building has a central clerestory monitor supported by steel columns anchored above the inside edge of each mezzanine. The building superstructure is primarily a steel frame constructed on top of the concrete mezzanines. The east, west, and north sides of the building have large window openings within narrow bands of masonry above and below the mezzanines. The south end of the building is load bearing masonry with smaller openings. The original drawings indicate the roof material to be "asbestos protected corrugated iron". The existing roof is corrugated metal that is heavily corroded, however, the roof deck appears to be newer than the original building.
General Building Structural Condition:	The overall building is in generally fair condition, however, numerous significant structural deficiencies were noted. The mezzanine concrete columns and beams have suffered substantial spalling from impact damage, and some cracks were noted in the concrete mezzanine structures. The structural steel framing is moderately corroded. The metal roof has significant exterior corrosion and holes in the roof deck can be observed from the underside. Ponded water on the interior floors indicates water intrusion through some portion of the roof system and/or the clerestory windows. Various size cracks were observed in the exterior masonry walls, and a large hole in the wall appears to have been caused by impact damage.
Summary of Recommended Structural Repairs:	Interior and exterior cracks and spalls in the concrete mezzanine structures must be repaired. The structural steel framing must be sandblasted and painted. Cracks and holes in the exterior masonry walls must be repaired. Defects in the metal roof system must be repaired, and the deteriorated exterior metal roof panels should either be replaced or cleaned, primed, and coated in order to preserve the existing material.

Structural Assessment - General Information

Building No.: 79 3A Building	
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 79 3A Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Mezzanine Floor System (Deck and framing)	4	Yes
Columns	4	Yes
Interior Load Bearing Walls	3	No
Exterior Walls	3	Yes
Roof Framing and Subframing	3	No
Roof Deck	4	Yes
Monitor/Clerestory Structure (Framing, walls, and roof deck)	3	No
Exterior Stairs	5	Yes

Condition Code Description

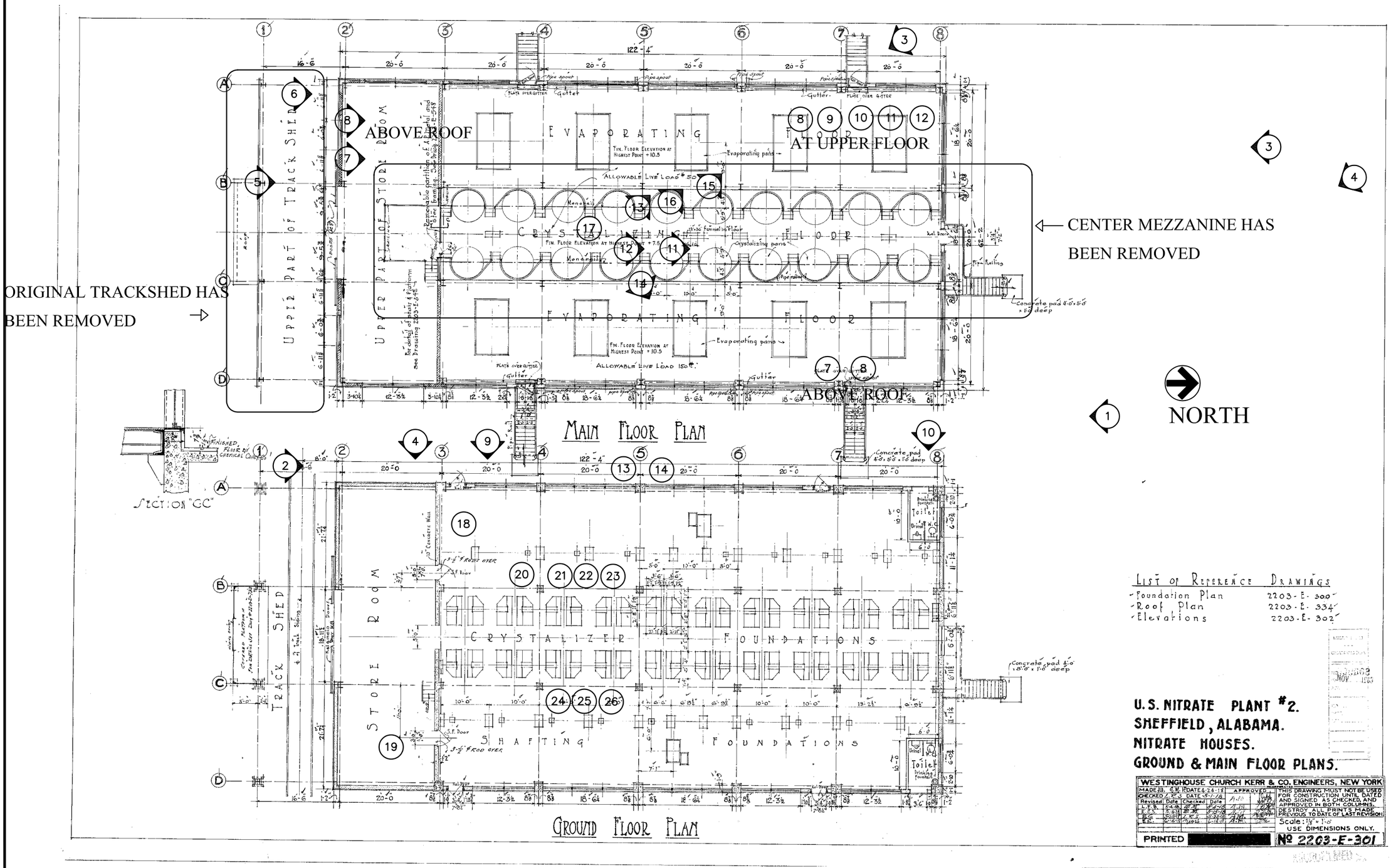
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 79 3A Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Vertical masonry crack1 inch wide in southwest corner	20 LF		2
2	Cracks at lintel on west elevation at south window	20 LF		4
3	Vertical cracks at columns on exposed mezzanine concrete frame on west elevation	15 SF		10
4	Spalls in west elevation	20 SF	R-C-3	
5	Badly rusted exterior metal stars on west elevation		R-S-3	3
6	Masonry exterior wall at north elevation - fair condition			
7	Crack at columns in exposed mezzanine concrete frame on east elevation			
8	Surface spalls on east elevation		R-C-3	
9	Lots of spalls (impact damage) of concrete columns supporting concrete mezzanine	12 ea	R-C-3	21,22
10	Impact damage at concrete mezzanine beams; serious chunk missing in 3 locations		R-C-3	23,24,25,26
11	Voids in masonry wall below both mezzanines at closed end		R-M-1, R-M-3	
12	Roof diaphragm - corrugated metal deck or signs of rusting		R-D-2	7,8

Repair Code -	**Description**
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-D-2	Replace roof deck
R-S-3	Replace structural steel framing



BUILDING NO. 79

3A BUILDING

PLAN NOT TO SCALE

NOTE:

(#) INDICATES PHOTOGRAPH LOCATION

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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BLP, INC. PROJECT NO:
DATE: 06/29/89
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
BUILDING No. 79
3A Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S79.1

SHEET#

PHOTOLOG: Building 79 3A Building



Photograph #: 1

Exterior building looking at northeast corner



Photograph #: 2

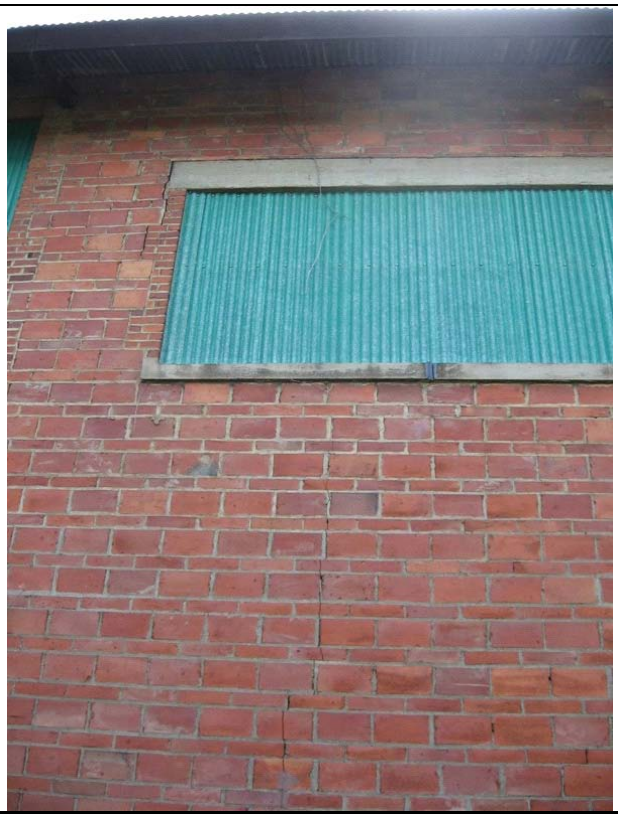
Exterior building looking at southwest corner

PHOTOLOG: Building 79 3A Building



Photograph #: 3

Remains of exterior exit stair on west side



Photograph #: 4

Vertical cracks in masonry

PHOTOLOG: Building 79 3A Building



Photograph #: 5

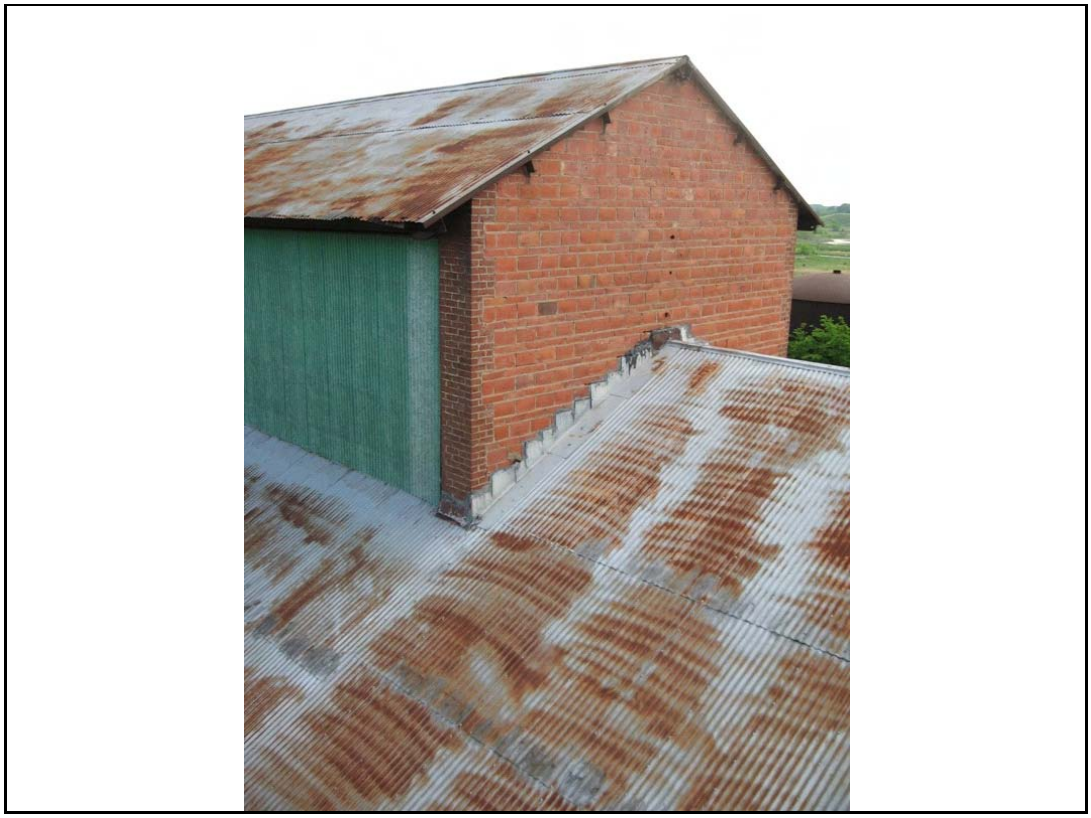
Exterior building south end where track shed was originally attached



Photograph #: 6

Detail view of where track shed roof was attached to building

PHOTOLOG: Building 79 3A Building



Photograph #: 7

Deteriorated metal roof at south end



Photograph #: 8

Deteriorated metal roof on west side

PHOTOLOG: Building 79 3A Building



Photograph #: 9

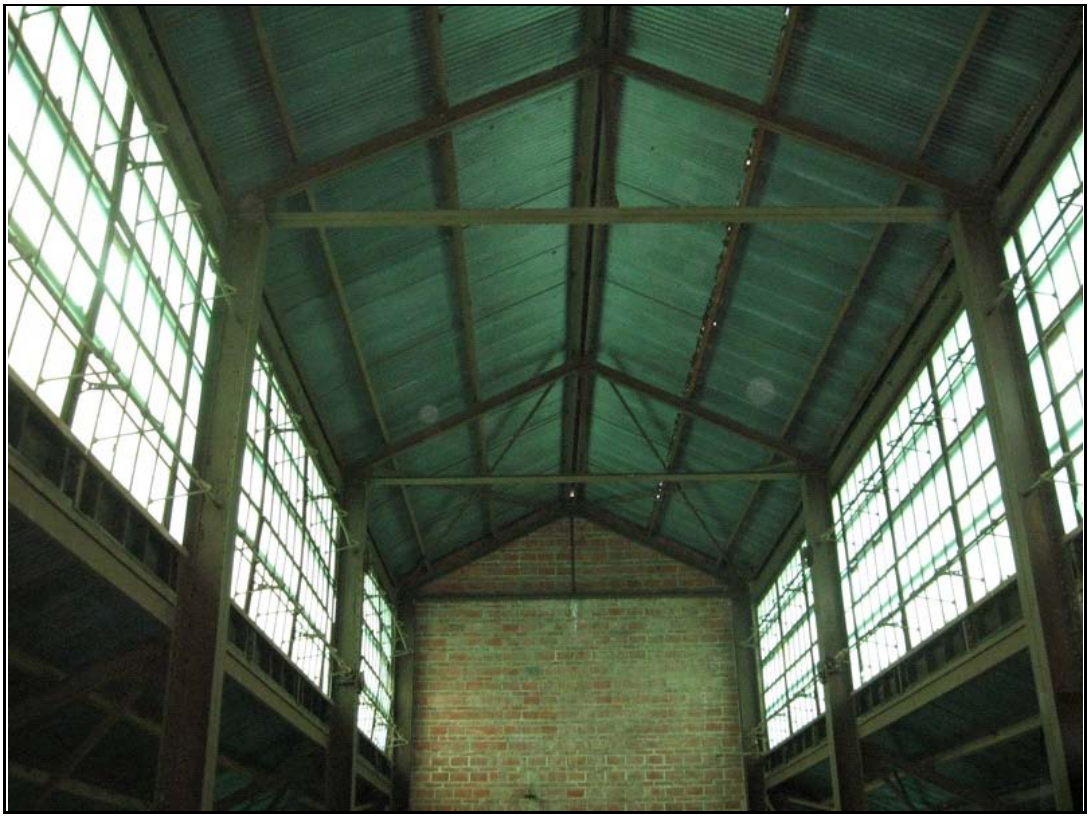
Minor cracks and spalls in exterior face of mezzanine concrete frame



Photograph #: 10

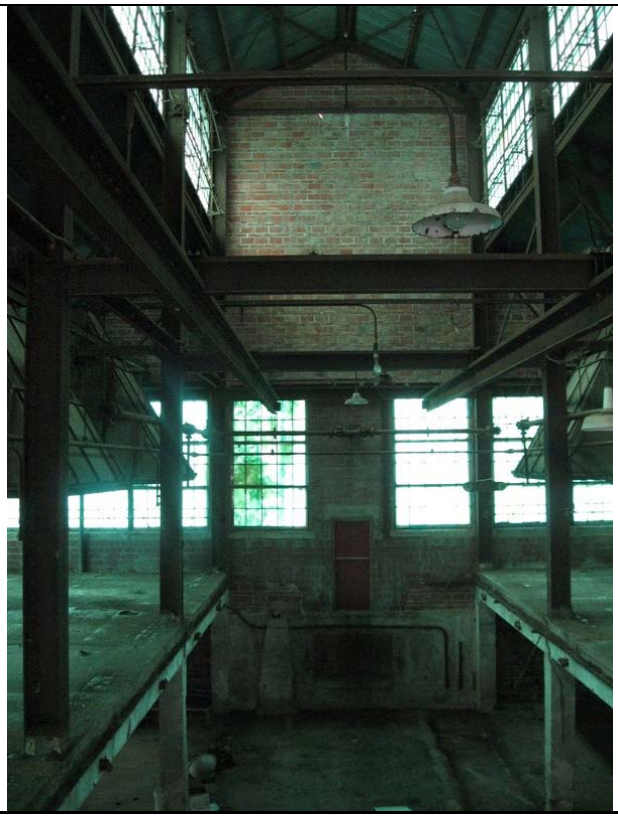
Substantial crack in exterior mezzanine concrete frame

PHOTOLOG: Building 79 3A Building



Photograph #: 11

Interior building looking north



Photograph #: 12

Interior building looking north

PHOTOLOG: Building 79 3A Building



Photograph #: 13

Concrete mezzanine west side



Photograph #: 14

Concrete mezzanine east side

PHOTOLOG: Building 79 3A Building



Photograph #: 15

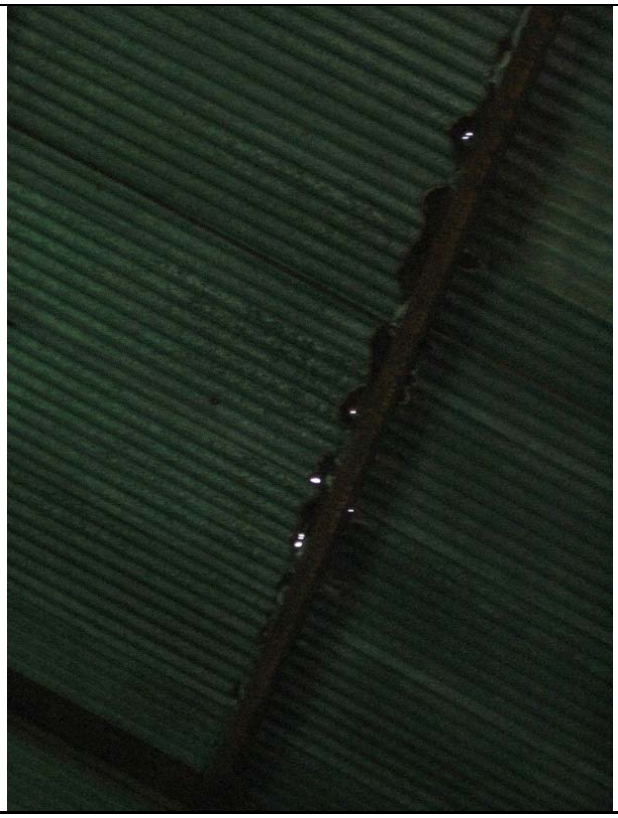
Main roof above mezzanine



Photograph #: 16

Main roof above mezzanine

PHOTOLOG: Building 79 3A Building



Photograph #: 17

Holes in metal roof deck



Photograph #: 18

Cracked and spalled concrete at interior wall

PHOTOLOG: Building 79 3A Building



Photograph #: 19

Large hole in exterior masonry wall



Photograph #: 20

Deterioration from water intrusion at mezzanine concrete frame

PHOTOLOG: Building 79 3A Building



Photograph #: 21

Severely spalled mezzanine concrete column



Photograph #: 22

Severely spalled mezzanine concrete column

PHOTOLOG: Building 79 3A Building



Photograph #: 23

Heavily damaged mezzanine concrete beam



Photograph #: 24

Heavily damage mezzanine concrete beam

PHOTOLOG: Building 79 3A Building



Photograph #: 25

Damaged mezzanine concrete beam



Photograph #: 26

Damaged mezzanine concrete beam

Structural Assessment - General Information

Building No.: 81 5A Building	
Building Name:	5A Building
Original Function:	Ammonium Nitrate Storage
Subsequent Modification	Original roof construction altered
General Building Structure Description:	Original drawings indicate the building was designed to have a complete second floor consisting of elevated concrete slabs on each side connected by a central floor structure which does not now exist. In its present configuration, the building has mezzanines on each side with concrete columns supporting concrete slab and beam floors with no interior access stairs. The building has a central clerestory monitor supported by steel columns anchored above the inside edge of each mezzanine. The building superstructure is primarily a steel frame constructed on top of the concrete mezzanines. The east, west, and south sides of the building have large windows within narrow bands of masonry above and below the mezzanines. The north end of the building is load bearing masonry with smaller openings. The original drawings indicate the roof material to be "asbestos protected corrugated iron". The existing roof is corrugated metal, which appears to be newer than the original building.
General Building Structural Condition:	The overall building is in fair condition, and does not appear to have major structural deficiencies. Some cracks were noted in the concrete mezzanine structures. The structural steel framing has mild corrosion with moderate corrosion in isolated areas. The metal roof exhibits areas of exterior deterioration and appears to be in generally good condition on the underside. Ponded water on the interior floor indicates water intrusion through some portion of the roof system and/or the clerestory windows.
Summary of Recommended Structural Repairs:	Interior and exterior cracks in the concrete mezzanine structures must be repaired. The structural steel framing must be cleaned and painted. Defects in the metal roof system must be repaired, and the deteriorated exterior surface of the metal roof panels should be cleaned, primed, and coated in order to preserve the existing material.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 81 5A Building

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Mezzanine Floor System (Deck and framing)	3	No
Columns	3	No
Interior Load Bearing Walls	3	No
Exterior Wall	3	Yes
Roof Framing and Subframing	3	Yes
Roof Deck	3	Yes
Monitor/Clerestory Structure (framing, walls, and roof deck)	3	Yes
Exterior Stairs	5	No

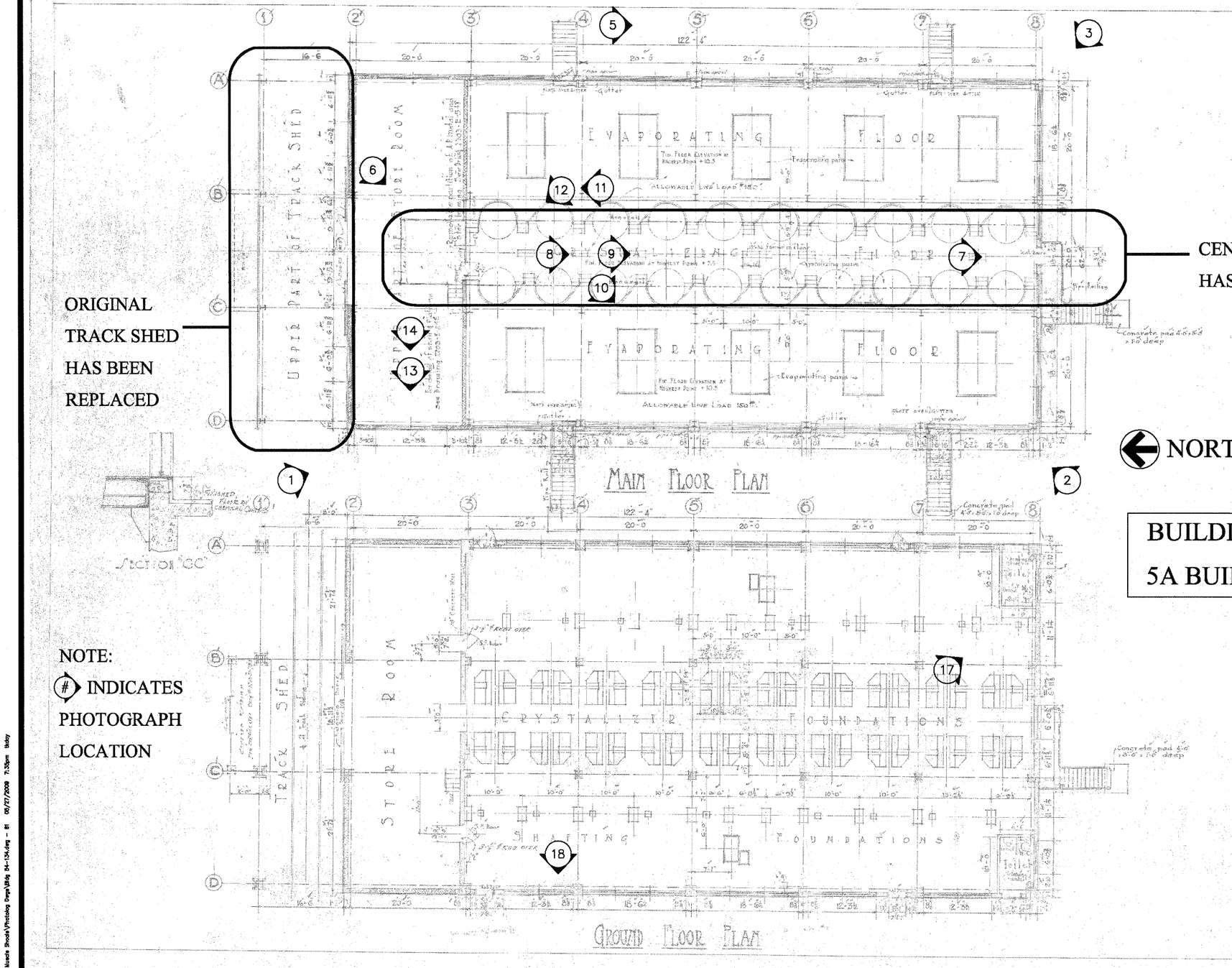
Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 81 5A Building

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Cracks in concrete mezzanine columns.	10 LF	R-C-2	2,3,4,18
2	Surface rust on steel columns.	95 %	R-S-1	15,16
3	Leaks in deteriorated areas of metal roof deck.	5 %	R-D-3	6
4	Surface rust on roof framing and subframing	95 %	R-S-1	7,14

Repair Code -	Description
R-C-2	Inject sealant to seal cracks in concrete
R-D-3	Repair deteriorated metal roof deck
R-S-1	Sandblast, prime, and paint structural steel



ORIGINAL TRACK SHED HAS BEEN REPLACED

CENTER MEZZANINE HAS BEEN REMOVED

NORTH

BUILDING NO. 81
5A BUILDING

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

LIST OF REFERENCE DRAWINGS

Foundation Plan	2203-E-360
Roof Plan	2203-E-334
Elevations	2203-E-302

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
NITRATE HOUSES.
GROUND & MAIN FLOOR PLANS.

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BLP. NO. PROJECT NO.
DATE: 09/2009
DRAWING BY: TED
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 81
5A Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S81.1
SHEET#

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PHOTOLOG: Building 81 5A Building



Photograph #: 1

Exterior building looking at west side.



Photograph #: 2

Exterior cracks in concrete mezzanine frame at southwest corner

PHOTOLOG: Building 81 5A Building



Photograph #: 3

Exterior cracks in concrete mezzanine frame at southeast corner.



Photograph #: 4

Exterior crack in concrete mezzanine column.

PHOTOLOG: Building 81 5A Building



Photograph #: 5

Deteriorated metal roof on east side.



Photograph #: 6

Deteriorated metal roof on east side

PHOTOLOG: Building 81 5A Building



Photograph #: 7

Interior south end of monitor.



Photograph #: 8

Interior building looking south.

PHOTOLOG: Building 81 5A Building



Photograph #: 9

View of concrete mezzanines from above.



Photograph #: 10

View of west concrete mezzanine from above.

PHOTOLOG: Building 81 5A Building



Photograph #: 11

View from mezzanine looking north.



Photograph #: 12

View from mezzanine looking north.

PHOTOLOG: Building 81 5A Building



Photograph #: 13

Interior west wall of store room.



Photograph #: 14

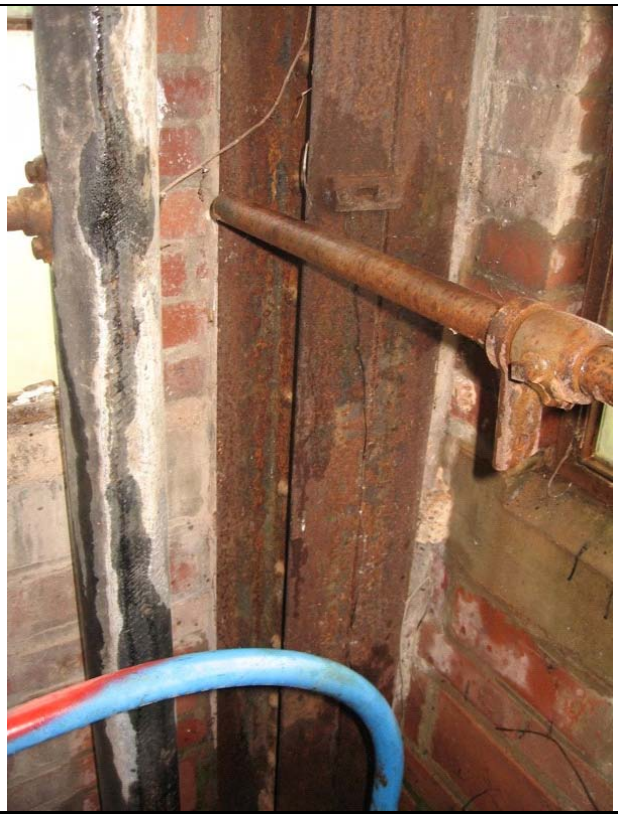
Interior roof of store room west side.

PHOTOLOG: Building 81 5A Building



Photograph #: 15

Surface corrosion on steel framing.



Photograph #: 16

Corroded steel column.

PHOTOLOG: Building 81 5A Building



Photograph #: 17

Underside of east mezzanine floor.



Photograph #: 18

Cracked concrete column at east mezzanine.

Structural Assessment - General Information

Building No.: 86 2A Shop (90 Day Hazardous Waste Storage)	
Building Name:	2A Shop (90 Day Hazardous Waste Storage)
Original Function:	Ammonium Nitrate Storage
Subsequent Modification	Original roof construction has been altered
General Building Structure Description:	Original drawings for the Nitrate Houses indicate the building would have a central clerestory monitor and a complete second floor consisting of elevated concrete slabs on each side connected by a central floor structure. Building 86 does not have a monitor, and it is apparent that the original roof deck, identified as "asbestos protected corrugated iron" on the drawings, has been replaced with a newer corrugated metal roof. In its present configuration, the building has mezzanines on each side with concrete columns supporting concrete slab and beam floors connected by a concrete slab on steel beams in one center bay at the north end of the building. The building superstructure is primarily a steel frame constructed on top of the concrete mezzanines, with steel trusses supported by steel columns anchored above the inside edge of each mezzanine. The east, west and north sides of the building have large structural openings for windows with narrow bands of masonry above and below the mezzanines. These openings are now glazed with translucent and opaque panels. The south end of the building is load bearing masonry, with a steel frame canopy identified as a track shed on the original drawings.
General Building Structural Condition:	The overall building is in fair condition, and does not appear to have major structural deficiencies. Portions of the interior steel framing have been painted and appear to be in good condition; other portions are unpainted and are moderately to heavily corroded. Minor cracks and spalls were noted on the mezzanine concrete framing. The masonry walls are in generally good condition. The original metal panel walls and roof at the track Shed are severely deteriorated. The new metal roof on the main building is in good condition.
Summary of Recommended Structural Repairs:	The unpainted portion of the interior steel framing must be sandblasted and painted. Cracks and spalls in the mezzanine concrete frame must be repaired. The metal panel walls and roof at the Track Shed should be replaced and remediation of the shed steel framing will be required.
Additional Recommendations:	Not applicable.

Table 1: Structural Systems Assessment

Building 86 2A Shop (90 Day Hazardous Waste Storage)

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Pits and Trenches	4	No
Exposed Foundation or Stem Walls	3	Yes
Exterior Slabs at Canopies	3	Yes
Mezzanine Floor System (Deck and framing)	3	Yes
Columns	3	No
Interior Load Bearing Walls	3	Yes
Exterior Walls	3	No
Roof Framing and Subframing	3	Yes
Roof Deck	2	No
Canopies (Framing and deck)	4	No
Interior Stairs	2	No

Condition Code Description

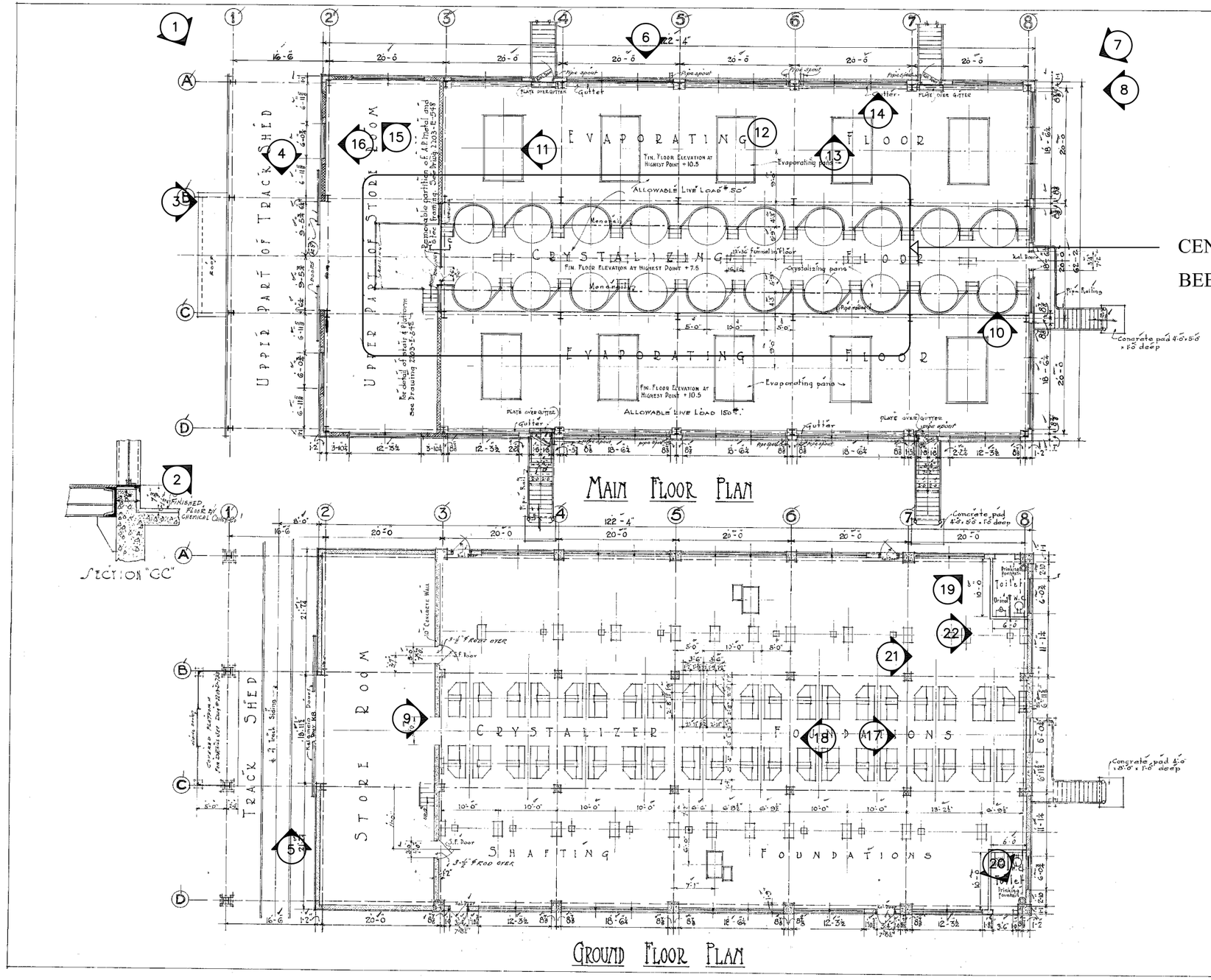
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 86 2A Shop (90 Day Hazardous Waste Storage)

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Painted structural steel framing in good condition (column and roof framing			13,14
2	Roof purlin rusted		R-S-1	12
3	Interior masonry fair condition			
4	Vertical and horizontal cracks in concrete mezzanine column below mezzanine -		R-C-3	19,20
5	Vertical stress crack in mezzanine beam - north end interior		R-C-2	
6	Spall on face on 1st interior beam from north		R-C-3	21
7	Upper level masonry interior - fair condition			11
8	Concrete retaining wall - diff settlement at northwest corner	2 LF	R-C-1	8
9	East floor has been coated with epoxy			
10	Mezzanine infill with stairs to north			17
11	Slab below canopy with ramp on grade - fair condition			5
12	Mezzanine slab with concrete beams - shrinkage cracks at corners and columns	50 LF	R-C-1	

Repair Code -	Description
R-C-1	Route and seal cracks in concrete
R-C-2	Inject sealant to seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-S-1	Sandblast, prime, and paint structural steel



CENTER MEZZANINE HAS BEEN REMOVED

NORTH

LIST OF REFERENCE DRAWINGS

Foundation Plan	2203-E-300
Roof Plan	2203-E-334
Elevations	2203-E-302

U.S. NITRATE PLANT #2.
SHEFFIELD, ALABAMA.
NITRATE HOUSES.
GROUND & MAIN FLOOR PLANS.

WESTINGHOUSE CHURCH KERR & CO. ENGINEERS, NEW YORK

	Made By	Date	Checked	Date	Approved
Revised					
L.F.S.	C.M.	4-24-18			
F.S.	S.S.	5-1-18			
F.C.	C.M.	5-2-18			
F.C.	C.M.	10-9-18			

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED AND SIGNED AS CHECKED AND APPROVED IN BOTH COLUMNS.
DESTROY ALL PRINTS MADE PREVIOUS TO DATE OF LAST REVISION.
Scale: 1/8" = 1'-0"
USE DIMENSIONS ONLY.
PRINTED
№ 2203-E-301

BUILDING NO. 86
2A SHOP

PLAN NOT TO SCALE

NOTE:
(#) INDICATES PHOTOGRAPH LOCATION

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MACTEC
MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 875-4761

REVISIONS

No.	DATE	DESCRIPTION

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BLP, INC. PROJECT NO:
DATE: 06/29/09
DRAWING BY: AK
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
BUILDING No. 86
2A Shop Building

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361
DEVELOPER

Photolog Plan
SHEET TITLE

S86.1
SHEET#

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 1

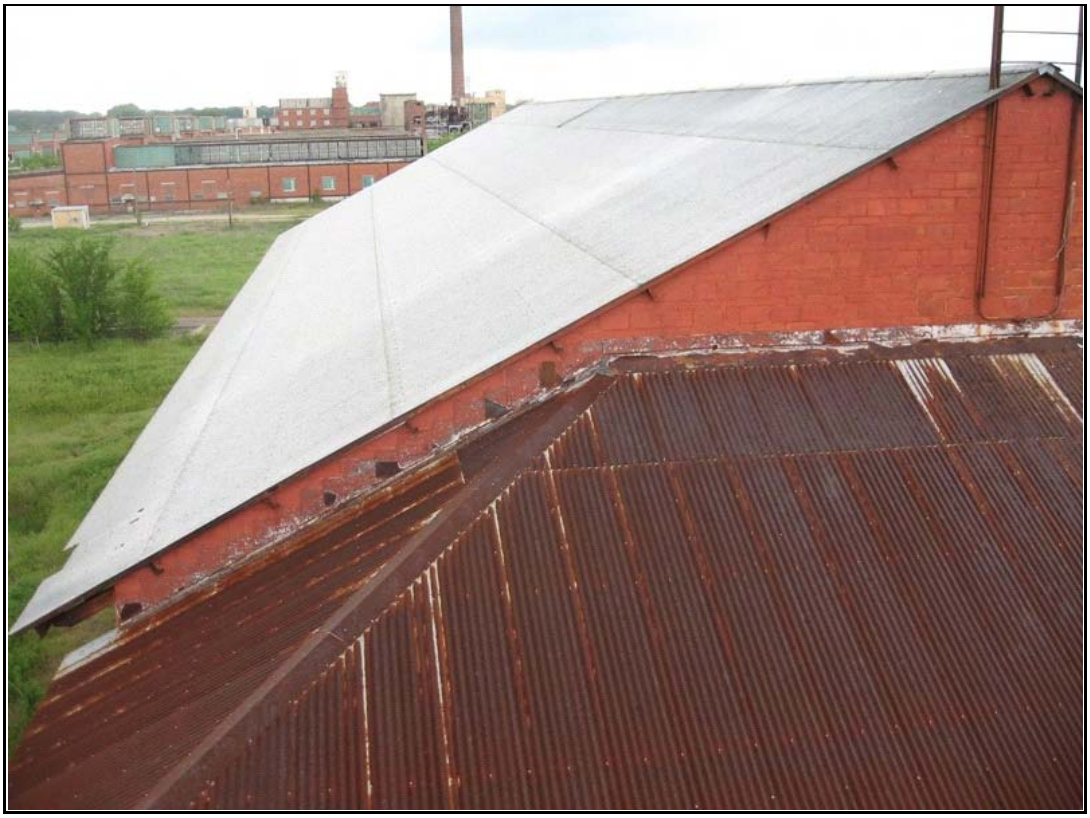
Exterior of building looking at southwest corner



Photograph #: 2

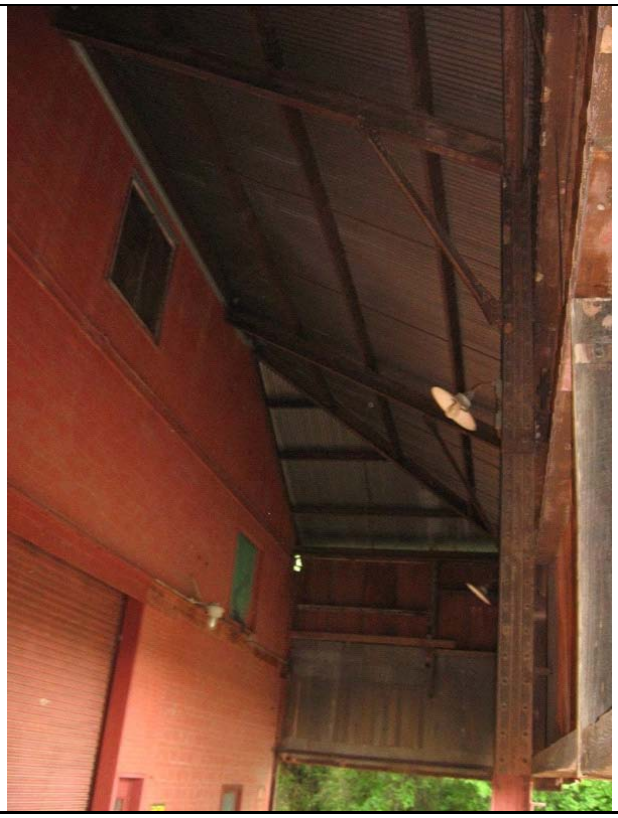
Exterior building looking at southeast corner - original track shed is in foreground

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 3

New metal roof on main building and original metal roof on shed at south end



Photograph #: 4

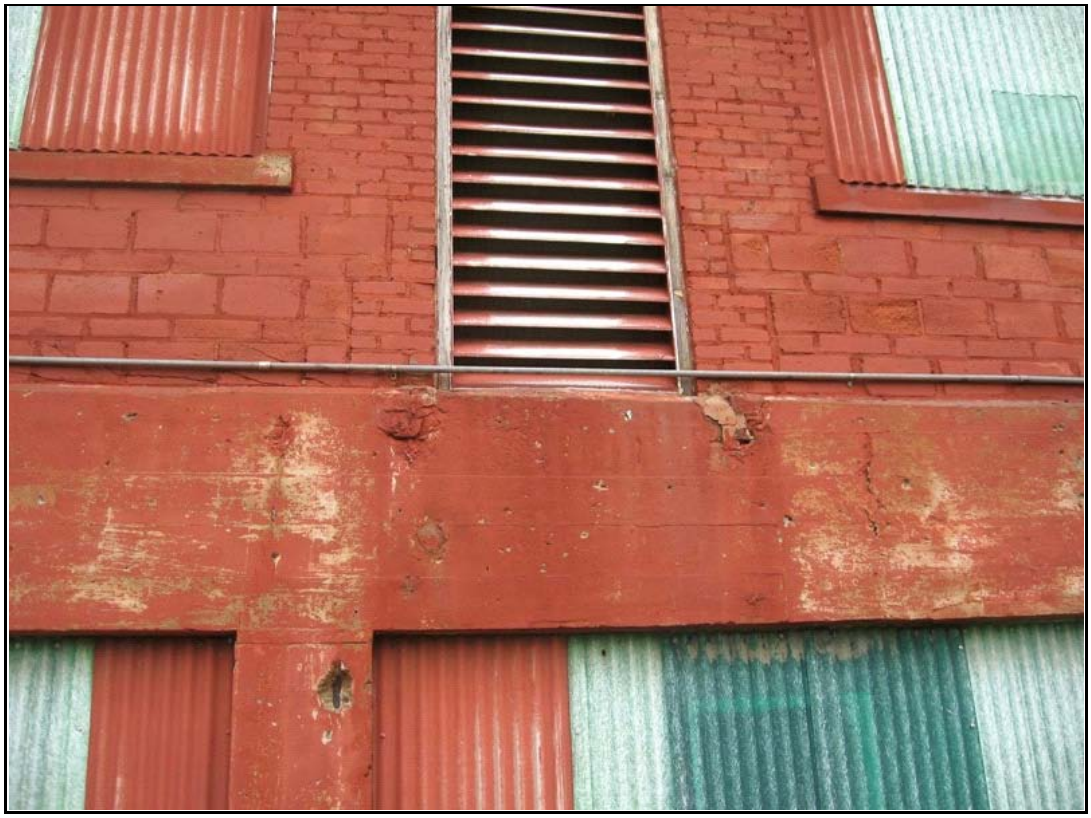
Underside of track shed

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 5

Floor of track shed - note vertical steel framing partially removed adjacent to ramp



Photograph #: 6

Cracks and spalls in exterior face of concrete mezzanine frame

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 7

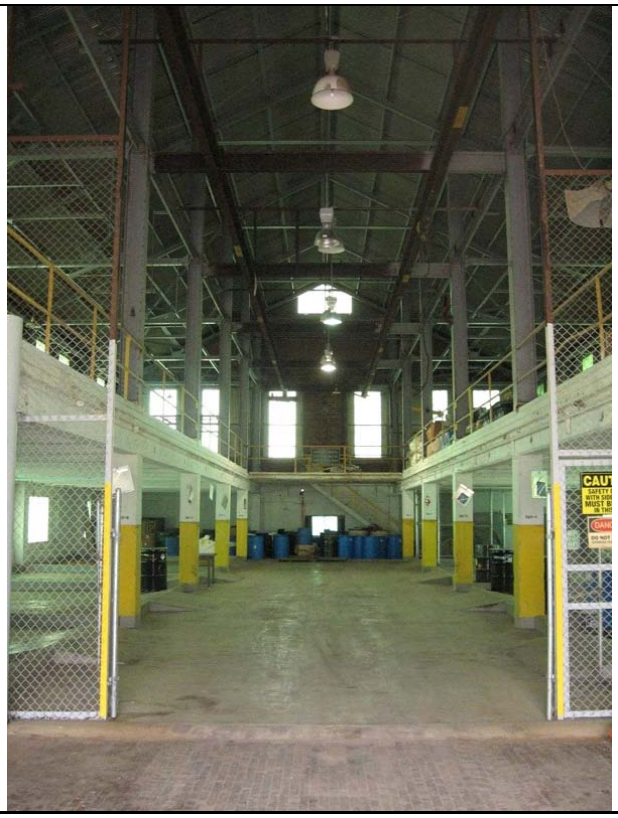
Exterior building looking at northwest corner



Photograph #: 8

Crack in turned-down slab at northwest corner

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 9

Interior building looking north - note partially painted steel framing



Photograph #: 10

Interior mezzanine in center bay at north end

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 11

Interior mezzanine west side looking south



Photograph #: 12

Corrosion on painted steel framing below new metal roof

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 13

Painted steel framing in good condition



Photograph #: 14

Painted steel framing and new metal decking

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 15

Unpainted corroded steel framing below new metal roof deck



Photograph #: 16

Unpainted corroded steel framing under new metal roof deck

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 17

Mezzanine slab on steel beams at center bay of building



Photograph #: 18

Mezzanine slab on concrete beams at side bay of building

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 19

Cracks in concrete frame and masonry infill below on mezzanine



Photograph #: 20

Surface cracking and deterioration at mezzanine concrete frame

Building 86 2A Shop (90 Day Hazardous Waste Storage)



Photograph #: 21

Crack and potential spall in concrete beam below mezzanine



Photograph #: 22

Crack in exterior beam at mezzanine concrete frame

Structural Assessment - General Information

Building No.: 118 Greenhouse	
Building Name:	Greenhouse
Original Function:	Greenhouse Complex
Subsequent Modification	N/A
General Building Structure Description:	Building No. 118 is a complex of eight buildings, four of which are interconnected. The Lab Building is a one story structure with load bearing masonry walls and a long span metal roof deck approximately 4 ½ inches deep. The Lab Building has a steel frame open covered storage area with a translucent panel roof, and is joined to three greenhouses by a multi-gable steel tube frame connecting structure with a translucent panel roof. Each greenhouse consists of panelized clear glazing supported by lightweight steel angle frames. The remaining four detached structures include two greenhouses of similar construction as those connected to the Lab Building, a storage building made of corrugated metal panels on a lightweight steel frame, and a free-standing "screened porch" constructed of translucent panels on wood roof trusses supported by lightweight steel framing.
General Building Structural Condition:	The overall Green House complex is in fair to good condition. The Lab Building roof and walls have water intrusion damage in some isolated areas. The steel frame open covered storage area has mild to moderate corrosion. The greenhouse structures are in generally good condition; some cracks were observed in the foundation stem walls. The metal storage building has surface corrosion on the roof. A large portion of the translucent panel roof covering at the Screened Porch appears to have been torn away, exposing the wood roof trusses to weather.
Summary of Recommended Structural Repairs:	The Lab Building roof membrane must be repaired or replaced, and water intrusion damage to the metal roof deck must be repaired. The steel framing at the open covered storage area should be cleaned and painted. Concrete foundation walls should be repaired, including cracks in the greenhouse stem walls and a spalled corner of the turned-down slab at the Lab Building. The metal roof at the Storage Building should be cleaned and coated, and the translucent panel roof at the Screened Porch should be replaced. Deteriorated wood framing at the Screened Porch roof must be replaced or reinforced.
Additional Recommendations:	Not applicable

Table 1: Structural Systems Assessment

Building 118 Greenhouse

Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	2	No
Exposed Foundation/Stem Walls	3	Yes
Exterior Slabs at Canopies	3	No
Interior Load Bearing Walls	2	No
Exterior Walls	3	No
Exterior Wall Framing and Subframing	2	No
Roof Framing and Subframing	2	No
Roof Deck	3	Yes
Canopies (Framing and deck)	3	Yes
Awnings (Total Assembly)	4	Yes

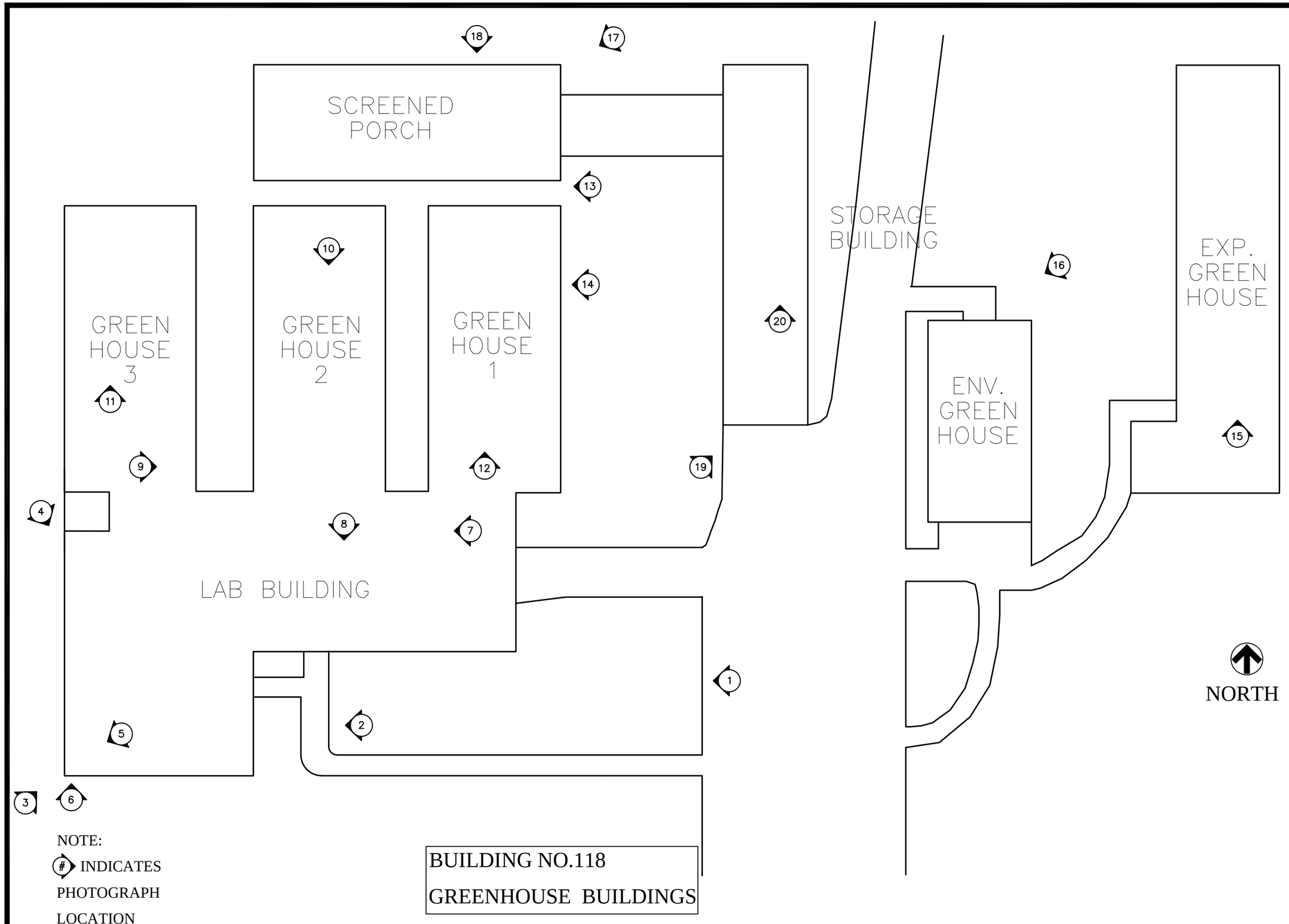
Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 118 Greenhouse

Defect Item No.	Defect Description	Quantity/ Unit of Measure	Repair Code/ Remarks	Photo Log Reference No.
1	Masonry bldg/roof			7,8
2	Flaking paint on roof deck			5
3	Floor and walls in good condition			
4	Left greenhouse (addition)			11
5	Greenhouse connector			9
6	Middle greenhouse toward masonry bldg (original)			10
7	Right greenhouse (original)			12
8	Most remote greenhouse			15
9	2nd most remote greenhouse			16
10	Metal bldg			19,20
11	Cracks in stem wall - right hand original greenhouse		R-C-1	14
12	Concrete stem walls			13
13	Missing translucent roof panels and deteriorated rafters on wood frame roof on shed			17,18
14	Flimsy metal frame in fair condition			
15	Corroded light weight joists and heavy steel posts and beam on canopy at left rear of masonry bldg		R-S-1	4
16	Context photo of above, etc.			3
17	Spalled foundation wall - same corner as water extrusion		R-C-3	6
18	Corroded steel awning		R-A-1	2
19	Context photo of masonry bldg			1

Repair Code -	Description
R-A-1	Repair damaged awning
R-C-1	Route and seal cracks in concrete
R-C-3	Remove unsound concrete, remediate corroded reinforcing steel (if applicable) and repair spalls with appropriate filler
R-S-1	Sandblast, prime, and paint structural steel



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ATLANTA, GEORGIA 30324
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BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building No.118
Greenhouse (Includes 8 Buildings)

Lord, Aeck & Sargent Architecture
1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog Plan

SHEET TITLE

S71.1

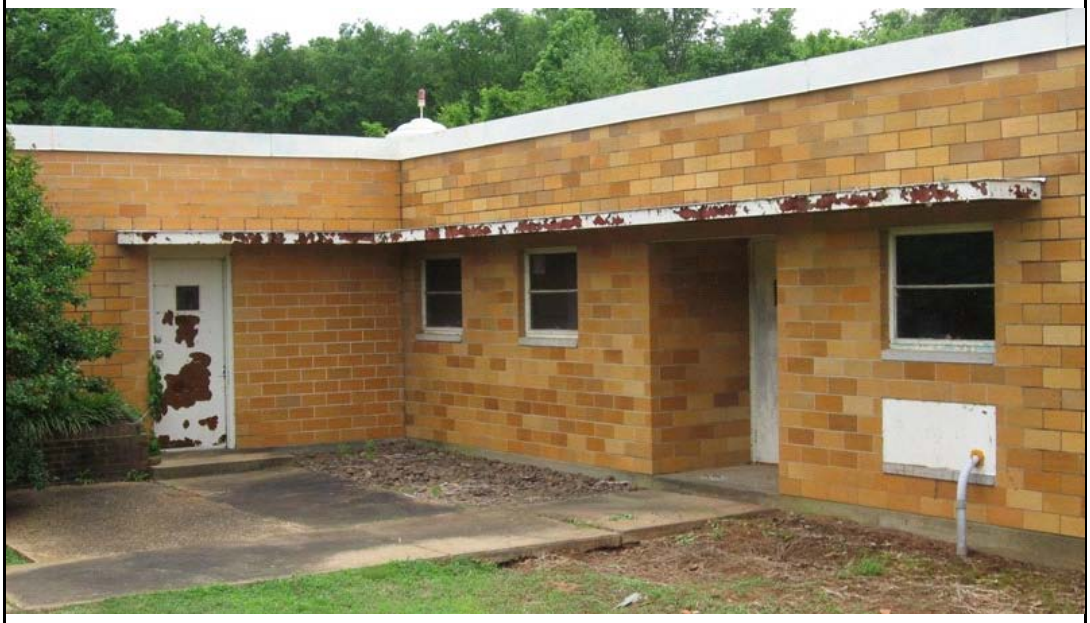
SHEET#

PHOTOLOG: Building 118 Greenhouse



Photograph #: 1

Exterior view of lab building



Photograph #: 2

Eroded awning at lab building

PHOTOLOG: Building 118 Greenhouse



Photograph #: 3

Exterior view of lab building and attached open covered storage area



Photograph #: 4

Mildly to moderately corroded steel at open covered storage area

PHOTOLOG: Building 118 Greenhouse



Photograph #: 5

Interior evidence of moisture intrusion at lab building roof



Photograph #: 6

Spalled foundation wall and exterior evidence of interior water intrusion

PHOTOLOG: Building 118 Greenhouse



Photograph #: 7

Interior of work room at lab building



Photograph #: 8

Metal roof deck at lab building in generally good condition

PHOTOLOG: Building 118 Greenhouse



Photograph #: 9

Steel frame enclosure between lab building and greenhouses



Photograph #: 10

Interior of greenhouse 2 looking at lab building

PHOTOLOG: Building 118 Greenhouse



Photograph #: 11

Interior view of greenhouse 3



Photograph #: 12

Interior of greenhouse 1

PHOTOLOG: Building 118 Greenhouse



Photograph #: 13

Foundation walls at greenhouses



Photograph #: 14

Cracks in foundation wall at greenhouse 1

PHOTOLOG: Building 118 Greenhouse



Photograph #: 15

Interior view of exp. Greenhouse



Photograph #: 16

Exterior view of Env. Greenhouse

PHOTOLOG: Building 118 Greenhouse



Photograph #: 17

Exterior view of screened porch with damage roof covering



Photograph #: 18

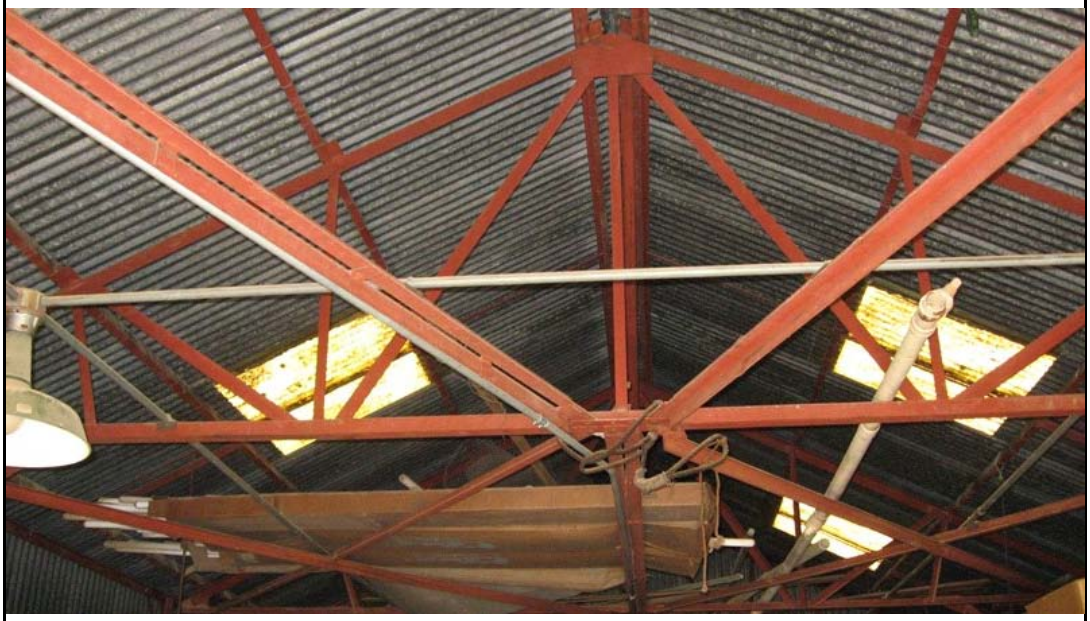
Damaged roof covering at screened porch

PHOTOLOG: Building 118 Greenhouse



Photograph #: 19

Exterior view of metal storage building with surface corrosion at roof



Photograph #: 20

Interior view of metal storage building in generally good condition

Structural Assessment - General Information

Building No.: 134 Office Service Warehouse	
Building Name:	Office Service Warehouse
Original Function:	Maintenance Support Facility
Subsequent Modification	Could not be determined
General Building Structure Description:	One story wood frame building with gable roofs. The existing building configuration consists of an east and west wing with simple gables connected by a central structure. The original roof configuration of the central structure could not be observed. Original drawings were not available, and the original building configuration could not be determined. The building has open courtyards on the north and south side of the central structure. The north courtyard has two wood frame canopy structures and the south courtyard has one. The north wing has a small CMU addition with a gable roof that partially encloses the north courtyard.
General Building Structural Condition:	The overall building is in generally fair condition. The primary structural defects were observed from the outside, which include deteriorated wood roofs at the north courtyard canopies and deteriorated structural supports between overhead doors on both sides of the west wing at the south end. The majority of the building has interior finishes that prevent observation of the building structural framing. The south end of the east wing is mostly unfinished, and the wood roof trusses, joists, and deck in this area appear to be in good condition. An area of deteriorated wood framing and planking was observed in the central structure near the east wing. The damage appears to be the result of water intrusion that may no longer be active. The extent of the deterioration could not be verified.
Summary of Recommended Structural Repairs:	Defective framing and finishes at the canopy roofs and overhead doors must be replaced. Architectural features including roofing, fascias, and soffits are in need of repair and/or replacement.
Additional Recommendations:	A detailed investigation of the deteriorated wood construction that was observed in the central structure should be performed to determine the extent and severity of the defective materials. A comprehensive evaluation of the total building roof condition is also needed to determine if defective portions of the roof structure may exist in areas where they could not be observed.

Table 1: Structural Systems Assessment

Building 134 Office Service Warehouse

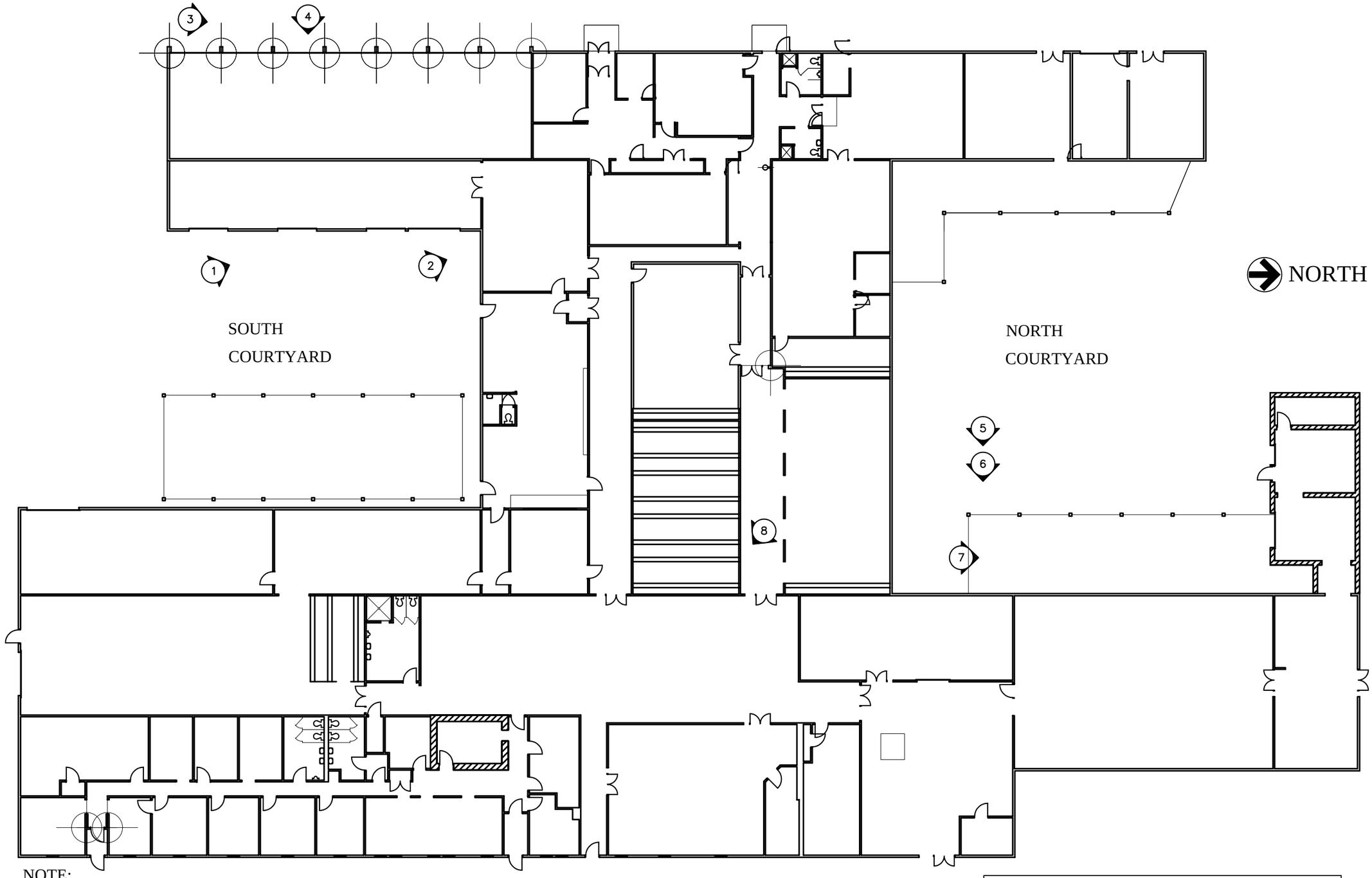
Structural Component	Condition Code	Defects itemized in Table 2?
Lowest Level Floor System	3	No
Exterior Slabs at Canopies	3	No
Mezzanine Floor System (Deck and framing)	2	No
Interior Load Bearing Walls	3	Yes
Exterior Walls	3	No
Exterior Wall Framing at Openings (Lintels and Structural Jambs)	4	Yes
Roof Framing and Subframing	3	No
Roof Deck	3	No
Canopies (Framing and deck)	4	Yes
Awnings (Total Assembly)	2	No

Condition Code Description
(1) Excellent - Visual observation indicates no remedial work required. (less than 10% repair)
(2) Good - Visual observation indicates minimal remedial work required. (less than 10% replacement and/or 25% repair)
(3) Fair - Visual observation indicates remedial work required. (Up to 25% replacement and/or 50% repair)
(4) Deteriorated - Visual observation indicates significant remedial work required. (Up to 50% replacement and/or 75% repair)
(5) Ruin - Visual observation indicates total replacement and/or repair.

Table 2: Itemized Structural Defects

Building 134 Office Service Warehouse				
Defect Item No.	**Defect Description**	**Quantity/ Unit of Measure**	**Repair Code/ Remarks**	**Photo Log Reference No.**
1	Rotting wood at base of framed opening	16 EA	R-W-2	1,2,3,4
2	Rotten or missing fascia	6 LF	R-W-4	5,6
3	Significant moisture damage to plywood roof deck	600 SF	R-W-3	7,8

Repair Code - Description
R-W-2 Replace or reinforce defective wood framing
R-W-3 Replace defective wood decking
R-W-4 Replace wood roof assembly



NOTE:

# INDICATES PHOTOGRAPH LOCATION

FLOOR PLAN MS,
OFFICE SERVICE WAREHOUSE
APPROXIMATELY 36398 SQ. FT.

BUILDING NO. 134

OFFICE SERVICE WAREHOUSE

SEAL

MACTEC

MACTEC Engineering and Consulting, Inc.
396 PLASTERS AVENUE, N.E.
ATLANTA, GEORGIA 30324
(404) 873-4761

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BLP, INC. PROJECT NO:
DATE: 05/26/09
DRAWING BY: TKD
CHECKED BY: JA

TVA Muscle Shoals
Structural Assessment
Building 134
Office Service Warehouse

Lord, Aeck &
Sargent Architecture

1201 Peachtree St NE
Atlanta, GA 30361

DEVELOPER

Photolog
Plan

SHEET TITLE

S134.1

SHEET#

Building 134 Office Service Warehouse



Photograph #: 1

Deteriorated structural supports between overhead doors at south courtyard.



Photograph #: 2

Deteriorated structural supports at overhead door at south courtyard.

Building 134 Office Service Warehouse



Photograph #: 3

Overhead doors on west side of west wing.



Photograph #: 4

Deteriorated wood frame and finish at supports between overhead doors on west side of west wing.

Building 134 Office Service Warehouse



Photograph #: 5

Deteriorated wood canopy at north courtyard.



Photograph #: 6

Deteriorated wood canopy at north courtyard.

Building 134 Office Service Warehouse



Photograph #: 7

Deteriorated wood canopy at north courtyard.



Photograph #: 8

Deteriorated wood framing and planking at central structure near east wing