Consultant Architect: CURTIS + GINSBERG ARCHITECTS LLP

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Cost Estimator: ACCU-COST CONSTRUCTION CONSULTANTS, INC.

UPDATE:
LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION PLAN

2012 UPDATE TO 2001 INVESTIGATION AND REPORT
MAY 1, 2012

PREPARED FOR:
LIBERTY HISTORIC RAILWAY INC.

CONTENTS

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INTRODUCTION AND REVIEW OF 2001 REPORT

In 2001 Curtis + Ginsberg Architects led a team that created the Liberty State Park Train Shed Historic Preservation Plan for the State of New Jersey. This plan documents the history of the Train Shed, current conditions, recommendations for preservation and re-use of the structure. At the time of the report, there were plans to have a railway museum at another location in New Jersey, and so one of the proposed reuses was for some railroad exhibition space. In the intervening eleven years this rail museum did not go ahead and the Liberty State Park Train shed has continued to deteriorate. The Liberty Historic Railway, Inc. a non-profit public benefit corporation, was set up to look at restoring and converting a portion of the Train Shed to display historic railroad artifacts and equipment as well as serving as a terminus of a rail shuttle within the park. As part of this effort they retained a team led by Curtis + Ginsberg Architects to update our report of eleven years ago. This update is to verify the current conditions of the structure and based on this information update the cost estimate for stabilization of the structure to 2012 dollars. This update does not change the plans proposed eleven years ago. These plans are still applicable even if the allocation of space is modified to reflect current conditions.

In the 2001 report we reviewed the following alternate restoration schemes:

- Option 1A and 1B: Full Restoration
  1A was recommended, proposing all stabilization work to be done at once
  1B proposed segmented stabilization, which, given the nature of the structure was not cost effective.
- Option 2: Creation of a stabilized ruin
  This, with the removal of all concrete, which could be an intermediate step to full restoration. This would allow for safe access to the Shed by the public.
- Option 3: Demolition
  This was not recommended by the consultant team.
- Option 4: Do nothing
  Let the structure to continue to deteriorate and collapse. This was not recommended by the consultant team.

The 2001 report noted the Shed offered an excellent opportunity for the State of New Jersey to enhance the amenities of Liberty State Park, particularly by better relating the park to its transportation history. Based on analysis of the structure and the site, as well as interviews with people operating the park and adjacent institutions, we analyzed and added to previous proposals for the use of the shed. From this we have developed a Master Plan with a number of proposed uses for the Shed:

- An exhibition space to be used by the Park and/or other entities and a pedestrian connection from the parking lot, west of the shed, to the Head House and Ferry slips to the east of the Shed.
- A covered open space to be used for large exhibitions, gatherings, shows, etc.
- A space for interpretive initiatives to present the terminal / park transportation history

No single use could successfully fill the entire Shed space. We also feel that a variety of uses is more likely to lead to successful redevelopment of the Shed than a reliance on one activity which, if unsuccessful, would leave the shed entirely empty.

The plans of eleven years ago included exhibition and support spaces such as toilet facilities which would still be required. Much of the shed was to be left open for events. This report, we hope, will allow The Liberty Historic Railway, Inc. to move ahead with developing a plan to first stabilize, then preserve and finally reuse this wonderful structure of major historic importance.

EXECUTIVE SUMMARY

As a follow-up to the 2001 Liberty State Park Train Shed Historic Preservation Plan Report, Curtis + Ginsberg Architects, with Donald Friedman of Old Structures Engineering has conducted an investigation of the physical conditions of the train shed. As documented in the Preservation Plan, this historically significant building was in danger of structural collapse eleven years ago, a condition that worsens with every year and will become a certainty if steps are not taken to preserve the structure. Divided into the five sections summarized below, this report outlines the escalating deterioration of the structure, the methods used to document the deterioration and the recommendations for the structure's stabilization.

Structural Preface
In March of 2012, the architectural and structural team visited the Liberty State Park Train Shed. Using the 2001 Preservation Plan as a baseline, visual observations were performed of the train shed from the platforms. Limited observations from the roofs were performed due to the unsafe conditions determined in 2001 which have not since been remediated. No materials testing was deemed necessary due to the testing already performed in 2001.

General Building Description
The structure of the vast one hundred year old train shed is relatively simple, yet it spans a range of 19th century and early 20th century construction technologies. There are ten concrete platforms and thirty cast iron column bays supporting a steel frame and concrete roof. The deteriorating shed roof is connected to the steel columns of the headhouse concourse, renovated 1980.

Conditions Noted
Deterioration has continued since the structure was examined in 1999-2000. As noted in the 2001 report, the concrete roof slabs remain unsalvageable, and the cast-iron columns require extensive reinforcement. Wind, snow, and the dead weight of the structure itself continue to add to the stress on the structure while accumulating debris and plants have added to these loads. Even more significantly, the 2011 earthquake centered in Virginia has likely added stress fracturing at innumerable points throughout the unstabilized structure.

Of particular note is the accelerated failure of the steel roof beams. In addition to the five collapsed bays noted in the 2001 report, two more bays have collapsed since, and two others are in imminent danger of collapse. Many of the cast-iron columns, while not failing outright, are cracked and therefore will fail immediately in the instance of a collapse of roof concrete or steel. This, in turn, may cause widespread failure well beyond the initial collapse. In contrast, the

concrete platforms are in relatively good condition, including areas where roof collapses have occurred, with no significant settlement.

Conclusions and Recommendations
The structural condition of the train shed has not stabilized since the 2001 report. As localized failures weaken adjacent structure, the rate of failure has accelerated and will continue to do so. The shed remains inaccessible to the public, however, the collapse of an edge bay, where the structure is most vulnerable, may pose a danger due to airborne debris. Minor failures; falling decorative elements, connector plates, pieces of concrete, make the structure generally unsafe for people to be present in the train shed for any purpose, including maintenance.

As outlined in the 2001 report, our recommendation is to, at minimum; stabilize the structure through removal of the concrete roof and repair/replacement of the deteriorated cast-iron columns. However, immediate remedial steps need to be taken to make this possible and stem the cost increases as the structure continues to deteriorate.

Cost Estimate
The original cost estimate was divided into 5 phases of Option 1A – Preservation / Restoration in addition to Option 3 - Demolition as described below:

- Phase 1: Immediate shoring / environmental remediation / roofing removal.
- Phase 2: Concrete removal / column/steel repair
- Phase 3: Concrete roof/roofing membrane / flashing and skylight replacement
- Phase 4: Utilities/bathrooms/sprinkler system / lighting
- Phase 5: Paving / surface finishes.

- Demolition: This covers the cost of removal, environmental remediation.

As we noted in our original report, after Phases 1 & 2 were done the structure would be stabilized. We have updated the costs for these phases in the attached estimate. It would be, then, possible to do the other phases in increments so that some of the tracks could be fully repaired and a display opened before all the work and all the cost of Phases 3 through 5 are incurred. The total cost in eleven years has increased between 80 and 90 percent due to inflation.

Cost of stabilization is 23 million dollars while cost of demolition is 14 million dollars. This cost of demolition will be incurred whether it is planned or occurs after structural collapse. A collapse will result in unpredictable airborne fragments which may cause minor to major collateral damage to the surrounding structure including the adjacent concourse and, possibly the Head House Terminal.

Time is running out on the stabilization and preservation of the Liberty State Park Train Shed, if action is not taken soon there will be no Shed left to preserve. In updating our report we have ascertained that the shed is still salvageable and have put 2012 dollar values to the cost of the work.

STRUCTURAL PREFACE

This report, and the investigation and analysis that it summarizes, are a follow-up to a structural investigation led by Donald Friedman, then at LZA Technology, as part of the team headed by Curtis+Ginsburg Architects for the 1999-2000 Historic Preservation Plan. The report from that investigation contains a general history of the building and site that is not repeated here.

The current investigation was directly based on the previous investigation, and we reused the drawings showing damage in 2000 as a baseline for examination of current conditions. Our investigation included visual observation of the conditions within the train shed (from all locations along all platforms) and limited observation of the condition of the roof top surface. Thorough examination of the roof from above is not possible: the concrete roof slab was unsafe in 2000 and has not been repaired or stabilized since, and portions of the roof structure were observed from below to be in dangerous condition.

Given the materials testing that took place in 2000, no testing was performed at this time. Given the nature of the building structure, as described below, visual observation was sufficient for the current investigation.

GENERAL BUILDING DESCRIPTION

Despite its size, the structure of the 1912-1914 train shed is relatively simple. Individual piles support grade beams below the platforms and grouped piles support pile caps below the roof columns. The cast-iron roof columns support steel plate-girders girders spanning north-south, which support steel truss girders (encased in concrete) at the edges of the smoke vent openings in the roof, which in turn support steel beam rafters, which finally support the concrete roof slab.

The steel framing is the only portion of the structure that uses modern materials: cast iron had already fallen out of general use at the time of construction, the platforms are reinforced with square twisted rebar and the roof slabs reinforced with wire, and the concrete aggregates do not meet current standards. (See the 2000 report for details.)

While there are varying bay sizes, the basic bay repeats across 10 platform bays north to south and 30 column bays east to west. At the east end, the steel roof structure is connected to the steel columns of the headhouse concourse. The main plate girders cantilever at the north and south edges of the building to carry half-bays of roof.

CONDITIONS NOTED

The building was in a deteriorated state when examined in 1999-2000. Per the 2000 report, the concrete roof slabs were determined to be unsalvageable, and the cast-iron columns had sustained sufficient damage that our recommendation was effective replacement through reinforcement.

All structures have their vulnerabilities, and after more than 40 years of full abandonment and a preceding period of reduced maintenance, the relatively small failures that have taken place highlight the vulnerabilities of the train shed. The main forces to which the roof is subject – wind, snow, and self-weight – have not changed since 2000, but that does not mean that there have been no changes in loading. Plant debris has collected in the roof valleys, causing a small but real increase in load, and perhaps more importantly the August 23, 2011 earthquake

centered in Virginia was felt in the New York/New Jersey metropolitan region. The effects of earthquake ground acceleration on the train shed would include adding stress to any bolted or riveted connections in the roof and causing loading in a horizontal plane greater than most winds.

The areas where deterioration was noted in 2000 and which are most vulnerable to damage from weathering include:

- rusting of structural steel embedded in concrete, including the lattice girders at the smoke vents, the main plate girders where they pass through the smoke vents, and the channels at the north and south cantilevered-edge half-bays,
- loss of cohesion in the concrete from the presence of salts and from expansive pressure from rusting reinforcing,
- brittle fracture of the cast-iron columns (the reason that the material is no longer used for building structure), particularly at the upper square portion of each column that serves as the attachment point of the plate girders.

One condition that has become significant since the 2000 investigation is the presence of trees, vines, and other large plants growing within the shed. The plants are destructive to the structure in several ways, including root pressure on the concrete and lateral pressure where plants extend from below the roof through smoke vents or skylight openings to the open air above.

Concrete Roof Slabs

The concrete roof slabs are in poor condition, similar to that noted in 2000. In general, the concrete is not failing by itself, but rather collapsing when a portion of the steel structure collapses. However the concrete material continues to deteriorate, as is visible in deposits of salts and other dissolved material on the underside of the slabs and collecting at the column heads.

At one location, between K/27 and K/28, the concrete slab is cracked through and the slab in this bay is in imminent danger of failure even though the steel supporting it is in fair condition.

The deflector plates embedded in the concrete of the smoke vents below the points where the main girders cross the smoke vents are non structural, but are largely failing. These metal plates are located at low points of the roof structure adjacent to openings through the roof. As a result of their exposure, they are rusting heavily and damaging the surrounding concrete, which is encasement around the steel girders that is integral with the roof slabs.

Steel Roof Beams

The greatest change in the condition of the building since 2000 is the progress of steel beam and girder failure. The 2000 report noted five bays that had collapsed, all “half-bays” at the cantilevered north and south edges of the building. Two more bays have collapsed since, both at the south edge (A/7-A/8 and A/14-A/15), and two others are in imminent danger of collapse, one at the north edge (K/11-K/12) and one at the south edge (A/12-A/13).

The main cantilever girder running from column A/14 to the south edge of the building has collapsed, apparently from failure of the connection at the square cast-iron top extension of the column. All of the other steel failures appear to have begun with failure of the connection of the edge beams to the cantilever girders.

As there is no redundancy in the load paths, the failure of one connection of an edge beam is sufficient to cause collapse of the entire edge "half-bay" structure.

Cast-Iron Columns
No additional damage was noted since the 2000 investigation. However, two conditions are noteworthy. First, the 2000 investigation showed that a large number of columns are cracked and therefore in structural failure, which is why the recommendations at that time included effectively replacing the column through reinforcement designed to carry the full column loads.

Second, the brittle nature of the cast iron means that direct impact – such as might occur during collapse of roof concrete or steel – is likely to cause immediate failure. The localized damage that is causing the collapses noted elsewhere in this report may therefore cause collapse over a larger area by initiating column damage.

Concrete Platforms
The platforms have generally performed well, with little gross damage to the concrete structure. There is generally no visible settlement of the platforms except at several small scale locations near the west end of the building. That settlement was noted in 2000 and does not appear to have increased since.

It should be noted that the concrete platforms have performed well even where the local roof collapses have occurred, with no sign of pile cap, grade beam, or platform failure despite the impact loading.

CONCLUSIONS AND RECOMMENDATIONS

The current conditions are, as expected, similar to but worse than the conditions noted in 2000. Structural damage in abandoned buildings tends to be progressive and accelerate over time, which is borne out by the rate of steel beam (and therefore entire bay) collapse. Between the train shed's abandonment in 1967 and the investigation in 2000, five edge bays collapsed. Between 2000 and 2012, two more collapsed and two more are near collapse, nearly doubling in 12 years the number of failures in the preceding 33 years. Since each collapse has the potential to damage adjacent structure through vibration, debris impact, and temporary excessive deflection, and since weathering damage continues, it can be safely predicted that the edge-bay collapses will continue. Since each edge-bay collapse creates an unbalanced loading condition on the adjacent column, it is likely that damage at the next group of bays in from the edge will accelerate. If conditions remain as is, this manner of structural failure will spread from the edges inward, destroying the building.

Dangerous Conditions
The entire train shed is currently inaccessible to the public and not in regular use by Liberty State Park staff, so the most pressing life-safety hazard has been addressed. The chain link fence that surrounds the site serves to protect people in the adjacent public park areas near the north and south edges of the train shed, although it may not be sufficient to protect against debris released during an uncontrolled collapse of an edge bay. Since uncontrolled collapse of individual bays (as have already occurred) can also damage the adjacent columns and platforms, it should be avoided if possible. Therefore, any areas in immediate danger of collapse should be shored.

- **General**
  In addition to the collapse of entire bays, there is a steady stream of small scale failures – cast-iron decorative column capitals, deflector plates, and small pieces of concrete (particularly encasement from the smoke vent trussed girders) – as can be seen by the presence of these broken pieces on the platforms. It is therefore generally unsafe for people to be present in the train shed for any purpose, including maintenance. As described below in "Stabilization," we recommend the removal of the concrete roof as soon as is practical.
- **Imminent Failure**
  Most of the structure is stable against gross collapse, but the deterioration of the cantilevered-edge half bays has created several locations where the collapse of a section roof – similar to the collapses that have already taken place – could occur at any time. The edge half-bays at K/11-K/12 and 'A/12-A/13 can collapse at any time.

Stabilization
The structure requires immediate stabilization measures to reduce ongoing damage and to make the structure safe for future documentation and repair.

Given that the proposed restoration work outlined in the 2001 report will include replacement of the concrete roof and effective replacement of the cast-iron columns, the stabilization measures following that general outline will reduce the cost of the full restoration project.

The site investigation of 2012 highlighted a number of critical issues in need of intervention. In order of decreasing usefulness, these include:

1. Shoring of the two bays in imminent danger of collapse.
2. Removal of the concrete slabs in general.
3. Removal of the concrete at the north and south edge bays.
4. Removal vines and trees

As per our 2001 report and the continuing deteriorating conditions, we recommend that three things be done as soon as possible to lessen damage until the structure can be fully stabilized or restored.

1. Fully shore the entire structure. To protect the structure from potential damage caused by a collapse, and to allow for safer conditions for beginning restoration of the structure, we recommend that the entire structure be shored as per the following:
   a. Shore perimeter beams at expansion joints. Shoring should be designed with footings to prevent frost heave or settlement under load.
   b. Upgrade existing shoring for lateral loads with diagonal rods.
   c. Provide additional shoring at badly damaged columns, including bracing for lateral loads.
2. Remove all roofing material on top of concrete structure. The roofing material has failed to a point that, instead of protecting the structure below from water infiltration, it is allowing water to get underneath the membrane, becoming

trapped and preventing evaporation. When the structure is subject to freezing conditions, the trapped water freezes, causing damage to the structure.. To alleviate this problem we recommend the removal of all roofing membrane from above the concrete structure. Note that the roofing membrane system contains asbestos. Removal will require disposal of the roofing as a hazardous material.

3. Once the structure is made safe by shoring, Historic American Engineering Record (HAER) documentation should be performed. HAER documentation will provide a useful tool for future restoration at no cost to the state.

COST ESTIMATE SUMMARY

The attached cost estimate focuses strictly on the following:

Two stabilization phases of Option 1A – Preservation / Restoration:

- Phase 1: Immediate shoring / environmental remediation / roofing removal.
- Phase 2: Concrete removal/ column, steel repair

The total for Option 1A is $23,309,757

Option 3 - Demolition:

- This covers the cost of removal, environmental remediation.

The total for Option 3 is $ 13,876,734

APPENDIX A:
PHOTOGRAPHS

New collapse at column lines A/7-A/8, at the south edge of the train shed

Failed roof beam connections at A/7-A/8

Vegetation growing within the train shed, from column line A looking north

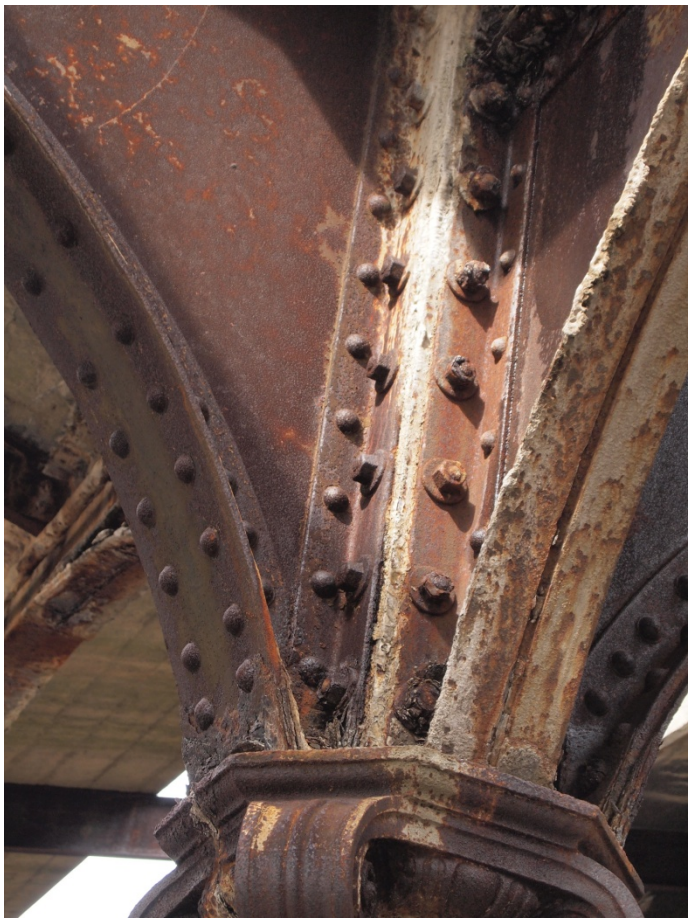
Two-bay failure: failure from before 2000 at column lines A/13-A/14 (near the camera) And A/14-A/15 (further from camera) Note collapsed cantilever girder from column line A/14

Concrete roof debris near A/15. Note the poor quality of the concrete at the broken edge and the spalled bottom.

Failed connection of cantilever girder at A/14. Note that the steel girder connection angles, and bolts are intact; the broken edge of cast iron is visible

Former location of cantilever girder at A/14, showing remaining cast-iron column and top square-section connection extension, remaining A-line girders, and broken edges of cast iron

Rusting girders at column B/24



Concrete slab cracked through near K/28, imminent danger of slab collapse

Broken edge-girder to cantilever-girder connection near K/11. Edge bay is in imminent danger of collapse

Plants growing on roof

ACCU-COST CONSTRUCTION CONSULTANTS, INC.

PROJECT: LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION
CLIENT: CURTIS + GINSBERG

JOB NO: 12-035
DATE: 04/11/12

MASTER PLAN ESTIMATE

GRAND SUMMARY

OPTION 1A - PRESERVATION / RESTORATION

PHASE I - IMMEDIATE SHORING / ENVIRONMENTAL REMEDIATION / ROOFING REMOVAL	$	4,554,240
PHASE 2 - CONCRETE REMOVAL / COLUMNS, STEEL REPAIR	$	18,755,517
TOTAL OPTION 1A	**$**	**23,309,757**

TOTAL OPTION 3 - DEMOLITION **$** **13,876,734**

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MASTER PLAN ESTIMATE

SUMMARY OPTION 1A

PHASE I - IMMEDIATE SHORING / ENVIRONMENTAL REMEDIATION / ROOFING REMOVAL			2,846,000
PHASE 2 - CONCRETE REMOVAL / COLUMNS, STEEL REPAIR			11,720,550
DIRECT COST		$	14,566,550
GENERAL CONDITIONS	10%	$	1,456,655
SUBTOTAL		$	16,023,205
OVERHEAD AND PROFIT	10%	$	1,602,321
SUBTOTAL		$	17,625,526
ESCALATON TO MIDPOINT OF CONSTRUCTION	15%	$	2,643,829
TOTAL CONSTRUCTION COST		**$**	**20,269,354**
DESIGN CONTIGENCY	10%	$	2,026,935
ESTIMATING CONTINGENCY	5%	$	1,013,468
CURRENT WORKING ESTIMATE OPTION 1A		**$**	**23,309,757**

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DATE: 04/11/12

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	SUBTOTAL		TOTAL
SUMMARY OF COSTS - OPTION 1A						
PHASE 1					$	2,846,000
PHASE 2					$	11,720,550
TOTAL DIRECT COST					**$**	**14,566,550**
SUMMARY - PHASE 1 - OPTION 1A						
DIV. 2 SITE WORK					$	2,846,000
TOTAL PHASE 1 DIRECT COST					**$**	**2,846,000**
DIV. 2 SITE WORK						
02100 SITE PREPARATION						
0.01 CLEARING AND GRUBBING	330,000	SF	1.00	330,000		
0.02 SHORING	1	LS	800,000.00	800,000		
02300 DEMOLITION						
0.01 EXISTING ROOFING / FLASHING	330,000	SF	3.50	1,155,000		
0.02 ASBESTOS - 20%	66,000	SF	8.50	561,000		
TOTAL DIV.2 SITEWORK - PHASE 1					**$**	**2,846,000**

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	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	SUBTOTAL		TOTAL
	SUMMARY - PHASE 2						
DIV 2	SITE WORK					$	4,620,300
DIV 5	METALS					$	6,172,500
DIV 9	FINISHES					$	387,750
DIV 13	SPECIAL CONSTRUCTION					$	540,000
	TOTAL PHASE 2 DIRECT COST					**$**	**11,720,550**
	DIV. 2 SITE WORK						
2300	DEMOLITION						
0.01	EXISTING SEVERELY DAMAGED COLUMNS INCLUDING SHORING	30	EA	4,000.00	120,000		
0.02	CONCRETE ROOF STRUCTURE	330,000	SF	10.00	3,300,000		
0.03	EXISTING PAINT ON STEEL FRAME STRUCTURE	85,500	SF	1.50	128,250		
0.04	EXISTING PAINT ON COLUNS	260	EA	800.00	208,000		
0.05	EXISTING SKYLIGHTS	32,500	SF	15.00	487,500		
0.06	EXISTING DRAINAGE	188,275	SF	2.00	376,550		
	TOTAL DIV. 2 SITE WORK - PHASE 2					**$**	**4,620,300**

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	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	SUBTOTAL	TOTAL
	DIV. 5 METALS					
05100	REPAIR AND STABILIZE EXISTING STEEL FRAME STRUCTURE	330,000	SF	16.00	5,280,000	
05200	COLUMNS					
0.01	NEW COLUMNS	30	EA	7,500.00	225,000	
0.02	REPAIR COLUMNS WITH CRACKS	120	EA	1,500.00	180,000	
05300	STEEL STRUCTURE					
0.01	AT CONCRETE COLLAPSE AREA	6,500	SF	75.00	487,500	
	TOTAL DIV. 5 METALS -PHASE 2					**$ 6,172,500**
	DIV. 9 FINISHES					
09100	PAINTING					
0.01	STEEL FRAME STRUCTURE	85,500	SF	2.50	213,750	
0.02	COLUMNS	290	EA	600.00	174,000	
	TOTAL DIV. 5 FINISHES - PHASE 2					**$ 387,750**

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DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	SUBTOTAL	TOTAL
DIV. 13 SPECIAL CONSTRUCTION					
013100 SPECIAL CONSTRUCTION					
0.01 REPAIR & STABILIZE EXISTING COLUMNS USING THE CYNTEC / BLASTECH SYSTEM	80	EA	3,500.00	280,000	
0.02 STABILIZE CAST IRON (REMEOVE CHLORIDES, ETC.)	260	EA	1,000.00	260,000	
TOTAL DIV 13 - SPECIAL CONSTRUCTION - PHASE 2					**$ 540,000**

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MASTER PLAN ESTIMATE

SUMMARY

OPTION 3 - DEMOLITION

DIV 2	SITE WORK		7,978,000
	TOTAL DIRECT COST	$	7,978,000
	GENERAL CONDITIONS 10%	$	797,800
	SUBTOTAL	$	8,775,800
	OVERHEAD AND PROFIT 10%	$	877,580
	SUBTOTAL	$	9,653,380
	ESCALATON TO MIDPOINT OF CONSTRUCTION 15%	$	1,448,007
	TOTAL CONSTRUCTION COST	**$**	**11,101,387**
	CONSTRUCTION CONTINGENCY 10%	$	1,110,139
	DESIGN CONTIGENCY 10%	$	1,110,139
	ESTIMATING CONTINGENCY 5%	$	555,069
	CURRENT WORKING ESTIMATE OPTION 3	**$**	**13,876,734**

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JOB NO: 12-035
DATE: 04/11/12

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	SUBTOTAL	TOTAL
SUMMARY OF COSTS					
DIV 2 SITE WORK					7,978,000
TOTAL DIRECT COST - SITE WORK					7,978,000
DIV 2 SITEWORK					
02300 DEMOLITION					
0.01 EXISTING STRUCTURE	330,000	SF	15.00	4,950,000	
0.02 ASBESTOS - 20%	66,000	SF	10.00	660,000	
0.03 SOIL REMOVAL; ASSUMED 10% OF FOOTPRINT - 3' DEPTH	3,700	CY	120.00	444,000	
0.04 IMPORTATION OF FILL MATERIAL	37,000	CY	40.00	1,480,000	
0.05 FILL DISTRIBUTION / COMPACTION	37,000	CY	12.00	444,000	
TOTAL DIV . 2 SITE WORK					**$ 7,978,000**