



Independence Living History Center

Demolition Survey

Alternative 3

Separation of
Buildings without
Demolition

June 7, 2010

South Elevation

JACOBS

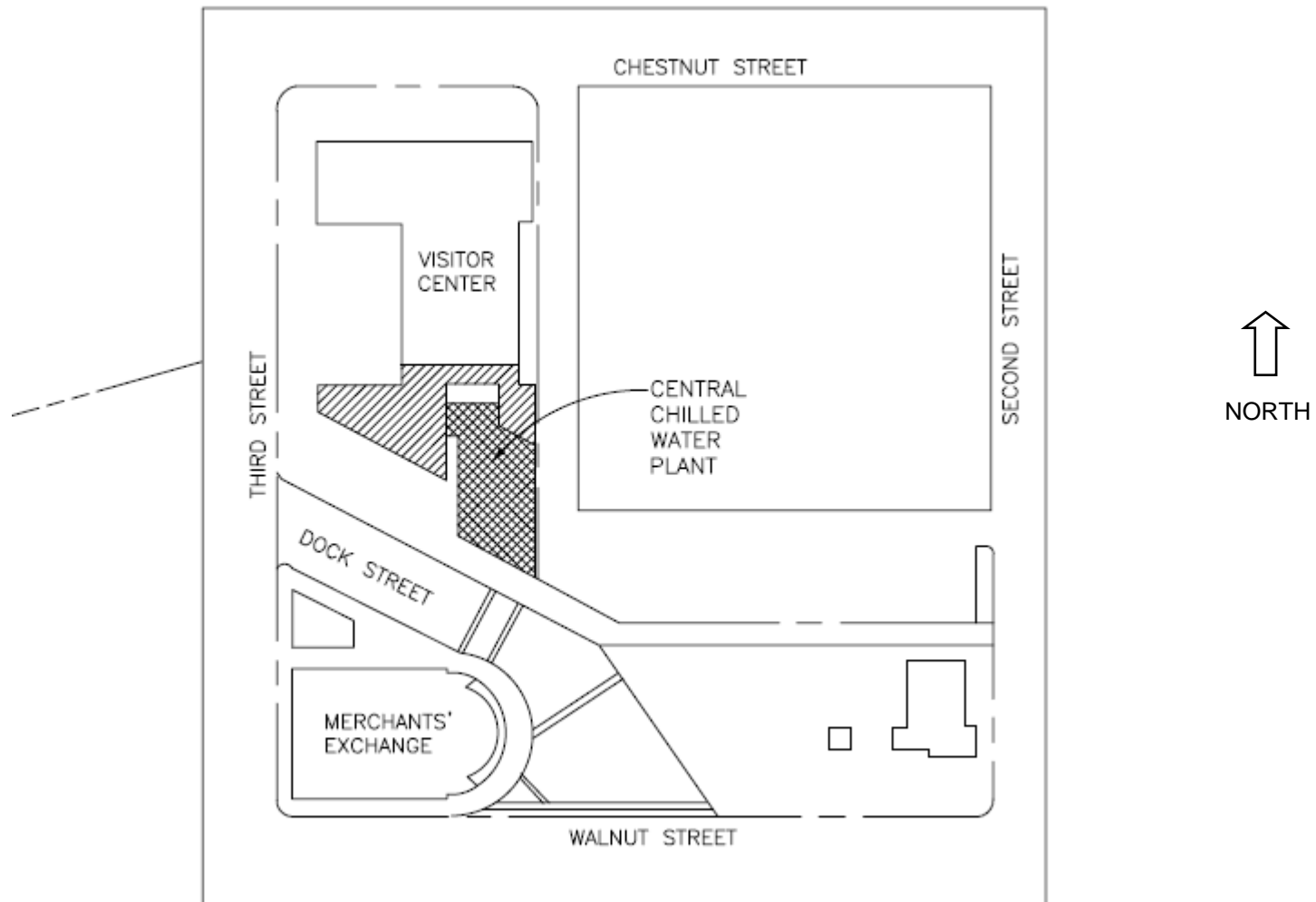
Project Background

On November 12, 2009, Jacobs Engineering traveled to the Independence National Historical Park in Philadelphia, PA to survey the existing Living History visitor's center and central chilled water plant. The original scope of work surveyed the effects of demolishing the Independence Living History Center and leaving the Command Center, Central Chilled Water Plant and Education Classrooms intact and operational.

Under this report purview, the building owner is investigating the effects of leaving the existing structure in place, and separating the facility into independent operating structures. When complete, the Central Chilled Water Plant and Education/Command Center spaces will operate as separate and independent facilities. The Independence Living History Center, located to the North of the demarcation line, will operate as a separate and independent facility.

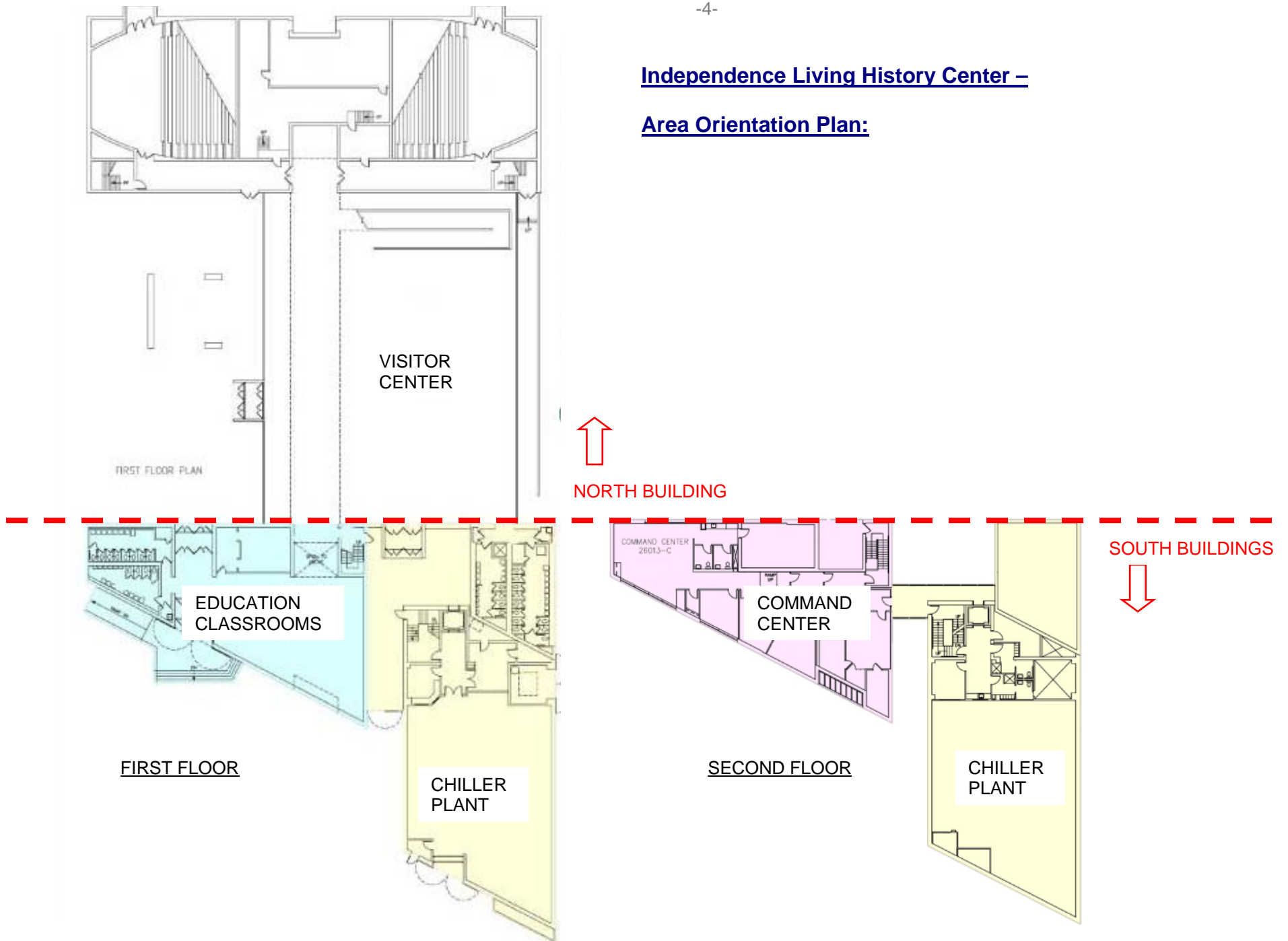


Independence Living History Center - Site Plan:



Independence Living History Center –

Area Orientation Plan:



Architectural Conclusions

[xxx] indicates Item-Number reference on cost spreadsheet

Functional

INDE will retain the current basic functions of the South Building, west block. The main building entrance will shift to the existing south entrance.

In the South Building complex, the existing Chilled Water Plant (CWP) functions and the existing Second Level Bridge functions – housing passageway and utility lines between east and west blocks -- will be retained. The South Building, east block, will retain the Toilet Wing shell, but toilet functions/facilities within will be abandoned-in-place [208]. The shell will continue to house utility lines connecting the CWP with roof-top mechanical equipment and to support the east end of the Second Level Bridge structure. Toilet functions/facilities could later be removed to house a mechanical space serving the now isolated South Building complex, which was previously serviced from a Mechanical Room at the north end of the ILHC.

Original primary functions of the North Building, as a main INDE Visitor Center, are currently obsolete; the space now serves a secondary function as an archaeological lab and interpretive center. All Park Service functions in the North Building will be vacated in this Alternative 3 option. New functions will be defined by the Developer – the American Revolution Center (ARC). New toilet facilities [236] satisfying the Plumbing Code will need to be incorporated into the North Building renovation design by ARC.

Function of the Second Level Bridge (North Building) as a communication connection between the south and north portions of the original building are obsolete and are eliminated by this Alternative 3 option. Continued use of the Bridge as a viewing platform to the First Level pavilion space will be at the discretion of ARC.

Codes

All Alternative 3 architectural modifications shown [200–237] are either directly or indirectly required by Code. Line-items that are direct/specific Code requirements [S. Bldg - 204,206,211,212,228,230; N. Bldg - 221,222,225,226,231,235,236] are identified by an asterisk (*). No other modifications or upgrades to building systems, including egress, security, finishes and building envelope, are intended.

Separation of the ILHC building will utilize Philadelphia Pennsylvania Building Codes, including the following:

Building Code – 2009 International Building Code (IBC), with Amendments
Fire/Life Safety Code – 2009 International Fire Code (IFC), with Amendments
Accessibility Code – 2009 IBC, Chapter 11 & ICC/ANSI A117.1-2003
Plumbing Code – 2009 International Plumbing Code (IPC), with Amendments

For purposes and constraints of this Report, only a preliminary Code analysis -- regarding issues of egress and fire walls -- was performed. Further analysis will be required if this Alternative 3 option is pursued.

For the South Building, elimination of the north exit/entrance at the Third Street courtyard [205,206,207]; elimination of the south end of the Bridge [201,202]; and elimination of the internal passage under the bridge [200,202,203] were reviewed. Travel distances and egress widths remain Code compliant without these exit access components. Closure of the Toilet Wing egress passage [211] to the pavilion space is supplanted by a new exterior door in the west wall of the current Men's Toilet room [209,210].

For the North Building, elimination of the south exit vestibule [214] was reviewed. Preliminary placement of a double door [221B] in the new masonry east wall is suggested as an alternate exit. Final North Building functions and layout by ARC will determine the eventual egress width and location for this fourth egress point from the pavilion (atrium) area.

A new 2-hr fire-resistant fire wall separation is required between the North and South Buildings. It is required to maintain its position and fire-resistance integrity in event of structural failure on either side. Because of building height and existing foundation limitations, an independent free-standing fire wall is not practically possible, so separate 2-hr walls for each building are utilized.

The existing masonry wall of the South Building visually appears to have a 2-hr-rating capacity [219,228] and any existing openings in it are closed with a 2-hr fire-rated masonry or gypsum board assembly [204,211,212]. A new 2-hr fire-rated gypsum board assembly [222] will be utilized for the fire wall of the North Building and will be attached to that structure.

1-hr fire-rated assemblies for exterior walls and roofs within 4 feet either side of the fire wall are required by Code [221A,226,230,231]. Additionally 1-hr fire protection for building framing extending one structural bay either side of the fire wall [230,231] is also required.

At the south end of the newly truncated Bridge structure [233,234] in the North Building, a temporary code-compliant egress stair [235A] is proposed and costed for installation to avoid a dead-end-corridor code violation. Only a light steel temporary stair is proposed since the pavilion space is subject to future reconfiguration by ARC.

Aesthetic

An attempt to best preserve the original design concepts for the ILHC are intended. The original concepts were founded on massing, orientation and transparency relationships between the main building components.

Insertion of a fire wall at the south end of the high glazed pavilion creates basic code dilemmas because of restrictive exterior wall requirements that are incompatible with the glazing and with the step in building height at that location. To circumvent these code issues, the south end of the roof-truss structure and the enclosing window wall are shifted northward away from the fire wall. A low solid masonry wall (and roof), to match the South Building, is substituted. Although the solid/transparent wall juncture does not correspond with interior building functions in the same way as the original design, the solution is proposed as the most acceptable compromise to achieve the subdivision goal of this Alternative 3 option.

Structural Integration

To correspond with the code-required modifications for the fire wall described above, Column Line D.1 is added to carry the relatively minimal loads of the fire wall and low roof structure and Column Line D.3 is added to carry the more substantial south-end loads of the truncated high roof truss system [213,215-220,223,224]. The columns and required footings at new Column Line D.3 are located to clear the existing South Building foundations at Column Line D. Column Line D.3 also corresponds with the existing roof-truss and window-wall module locations. These new column locations establish the limits of new masonry walls at the south ends of the east and west pavilion elevations [221].

The new columns along the fire wall (Col Line D.1) [222] also carry lateral loads – primarily wind loads from the wall (new exterior brick-veneer) exposure to the south [225]. Columns along the entire fire wall length at Column Line D.1 are capable of carrying wind loads in the event of a full southern wall exposure in the future.

Expansion joint covers close both wall and roof gaps between the South and North Buildings [227].

Legal

INDE has determined that the specific location of the new property line runs along the north face of the south building masonry wall. Existing spread footing foundations along Column Line D – the nominal property line between North and South Buildings – therefore extend into the defined north property by approximately 3 feet. Legal counsel [237] is recommended in order to establish the proper easement restrictions limiting construction and defining responsibilities within this area.

Disposition of the existing foundation structures along Column Line D has to be clarified should either ARC to the north or NPS to the south expand, modify or remove their respective building structures in the future. Issues include the following:

- 1) Structural dependence on the existing foundation
- 2) Actions or conditions that preclude removal of the existing foundation
- 3) Actions or conditions that compromise the structural integrity of the existing foundation or other opposing foundation elements

Disposition of exposed gypsum-board fire walls along Column Line D have to be clarified should either ARC to the north or NPS to the south remove all or portions of their respective building in the future. Issues may include the following:

- 1) Responsibility for weather-sheathing the opposing fire wall
- 2) Specifications and/or restrictions for the above weather-sheathing materials
- 3) Responsibility for thermally insulating the opposing fire wall
- 4) Responsibility for providing lateral (wind-load) support of the opposing fire wall

Archaeological

With the relatively minimal number of new footings in this Alternative 3 option, archaeological activity will have less impact on construction than in the previous option -- full-scale demolition/new construction in the north portion of the site.

From data on existing documents, the extensive building foundation system extends down to a mean depth of approximately 14 ft below the First Level. Previous foundation excavations have apparently already significantly disturbed subsurface conditions.

Structural Conclusions

The following recommendations for structural modifications are very preliminary. Member sizes, quantities and schemes were developed to provide for a rough order magnitude estimate.

Given the one building is to be separated into two independent buildings there are considerations that need to be addressed between the two property owners that relate to future modifications or demolition of either building. Although these buildings will be independent spaces with separate walls and entrances there are foundation dependencies that will persist for the life of both buildings. The following are assumed to be agreed between the two property owners:

- Footings that support loads of the independent building to the south but extend beyond the property line of the independent building to the north will have to be considered as protected property. The support provided by each footing depends upon the full bearing area of that footing. The owner of the building to the north would not have rights to demolish any parts of those footings as long as the building to the south was dependent on those footings for support.
- The foundation along the present border between the two buildings will have to be maintained for the life of both independent buildings. Columns, walls and slab of the building to the south are supported by this section of foundation. The southern slab section of the building to the north is supported by the section of foundation supporting the current common wall. Additional footings with associated piers, grade beams and slab sections could be constructed at the southern end of the building to the north. This would provide a complete separation of the building to the north from the building to the south. There would still be footings extending northward from the building to the south that would have to be established as an easement. These additional footings, piers and slab sections have not been considered in the estimate.

To create two independent buildings separated at the pavilion southern wall will require the establishment of two separate adjacent walls. The existing wall at this location is integrally linked with the two-story building sections to the south. The new wall will have to be located north of the existing wall. This wall will have to be built as an exterior wall with capacities to resist lateral loads and support gravity loads. Six tubular columns spaced at eighteen feet on center will be constructed on the north side of this wall to provide sufficient strength. These columns will be connected at the top with a tubular beam and at mid-span with a tubular beam connected to a ledge angle. Roof framing will span in the north/south direction between the top of this wall and steel framing attached to new columns to support the main trusses.

The southern clerestory for the pavilion is currently in line with the existing wall on top. This portion of the clerestory will have to move north. Our approach is to move the southern portion of the clerestory cladding to the adjacent east/west running truss located ten feet to the north. The two north/south trusses located along the east and west exterior walls of the pavilion

provide the primary support for the pavilion roof system. The roof system is comprised of a series of trusses that support the roof deck. These trusses are oriented in the east/west direction, spaced at ten feet on center and frame into the two north/south trusses. Four columns located at the ends of the two primary trusses transmit the gravity loads of the pavilion roof system to the foundation.

To create two independent buildings, the two primary trusses are to be shortened ten feet by removing the last panel of each truss and the attached southernmost, east/west running truss. Prior to this removal new truss members, columns, lateral bracing and foundation components will need to be constructed. Each newly established new truss end will require a pair of columns for support. One column of each pair will be located at the newly established end and will transmit support gravity loads to the foundation and the other column will be located eighteen feet inward. Both columns of each pair will transmit lateral loads of the pavilion roof system to the foundation. Each pair of columns will have two levels of x-bracing with an intermediate member establishing lateral bracing in the east west direction. The addition of the lateral bracing is required because separating the truss system from the wall at the southern end of the pavilion will eliminate lateral resistance associated with either wind or seismic loads in the east/west direction that the wall provided. This study assumes lateral bracing in the north/south direction will be sufficiently provided by the continued interaction between the pavilion and building section to the north where the two auditoriums and mechanical room are located.

The existing foundation/slab system consists of spread footings located about eighteen feet below the ground floor slab. Piers constructed on top of the footings provide support for grade beams throughout. These grade beams support the ground floor slab and numerous trenches that run under the ground floor slab. Establishing new foundation elements to support the new columns will require these foundation elements to extend at least as far down as the existing footings. A geotechnical study shall be conducted to provide a report containing recommendations for establishing new foundation elements. Extensive demolition of the existing ground floor slab and grade beams will occur during the process of installing the new foundation system. For this study it is assumed that sheeting and shoring will be required to contain soil along grid line D. It is also assumed that soil can be removed to required depths and then sloped with a 1 ½ to 1 (H:V) slope.

Structural work associated with the building to the south will be limited to removal of the bridge section that extends into this section of building, minor roof deck patching, a new grade beam between grid lines 6 and 7 at grid line D and a new grade beam with slab infill at the north entrance located west of grid line 2 and along grid line D.

Mechanical / Electrical Conclusions

At the demarcation line where the building will be separated into independent structures, preparation is required of existing utilities:

- Secure all existing utilities at or before property line to include steam, electric, water, and sewer.
- Excavate and remove abandoned utility lines

Mechanical and Electrical services to the Independence Living History Center are anticipated to be included in the new renovation/remodel design. As per the scope of work guiding this report, the Contract Appraiser will prepare the estimate for any required utility and M&E modifications.

Fire Protection Conclusions

Fire Suppression

North Building: The main visitor's area (which contains two auditoriums, main utility room, mechanical room, artifact restoration, public restrooms, etc.) is not protected by a suppression system; therefore, additional work to separate the fire suppression systems from the south building is not necessary. Jacobs has been informed that the north building may be used as a future museum space. As a result, the building shall be fully sprinklered, as required by IBC section 903. The estimated area for total sprinkler cover is ~28,000 ft².

South Building: A sprinkler system protects the first and second floors of the visitor's center and the entire central chilled water plant. The bathrooms, currently located in the north building, will eventually connect to the south building and serve the National Park Services as new mechanical room. As a result, this space will need to be protected by the existing south building sprinkler system in order to comply with the building code (IBC section 903). The added square footage for complete sprinkler protection of the south building (i.e. new mechanical room only) is approximately 1,200 ft². The addition of the mechanical room sprinklers to the existing system should not have a detrimental effect. The contractor will be required to submit hydraulic calculations to the support the new mechanical room sprinkler design.

Fire Alarm

North Building: A Simplex fire alarm control panel (FACP) is located in Mechanical Room #118 (just outside the main utilities room). This panel receives signals from the initiating devices and activates notification appliances within the north building. A National Park Service (NPS) life safety specialist, Dawn, indicated that there may be devices within the south wing which are connected to the Simplex FACP. There is one known connection between the north and south buildings, which is discussed

in the south building section below. Due to the age of the Simplex FACP, Jacobs recommends complete demolition of the panel, devices, and associated wiring/conduit in this building which are connected to the old Simplex FACP.

South Building: A Simplex model 4020 FACP is located within the command center on the second floor of this building. According to the fire alarm technician on-site, this panel receives signals from the initiating devices in the south building and activates the notification appliances within the education/command center and central chilled water plant. Adjacent to the Simplex 4020 panel is a Network Display Unit (NDU). The NDU receives signals from all NPS buildings on campus via fiber connection or radio antenna. The NDU also sends an alarm signal from the Simplex 4020 to a notification appliance circuit (NAC) power supply panel, located adjacent to the NDU, to the Simplex panel in Mechanical Room #118. The connections between the panels and NDU are illustrated in Appendix A, Figure 1. The construction team will need to remove the connection between the north and south buildings. Additionally, the new mechanical room (i.e. existing public bathrooms) will be required to install a manual pull station and a notification device, per NFPA 72. Connect these new devices to the existing Simplex 4020 FACP.

As stated in the initial report, as-built drawings of the fire alarm system in the education/command center and central chilled water plant were not available. Jacobs was unable to confirm where power for the Simplex 4020 and NDU was supplied from. Also, Jacobs could not confirm if any devices in the education wing were connected to the Simplex panel in Mechanical Room #118. According to the Visitor's Center as-built drawings, dated March 1978, fire alarm devices were installed in the education wing and connected to the old Simplex FACP in Mechanical Room #118. The construction team will need to verify power for Simplex 4020 panel and NDU. If power is fed from the breakers in the north building utility room, then power for the Simplex 4020 and NDU panels shall be reconfigured such that power to the panels are maintained during demolition.

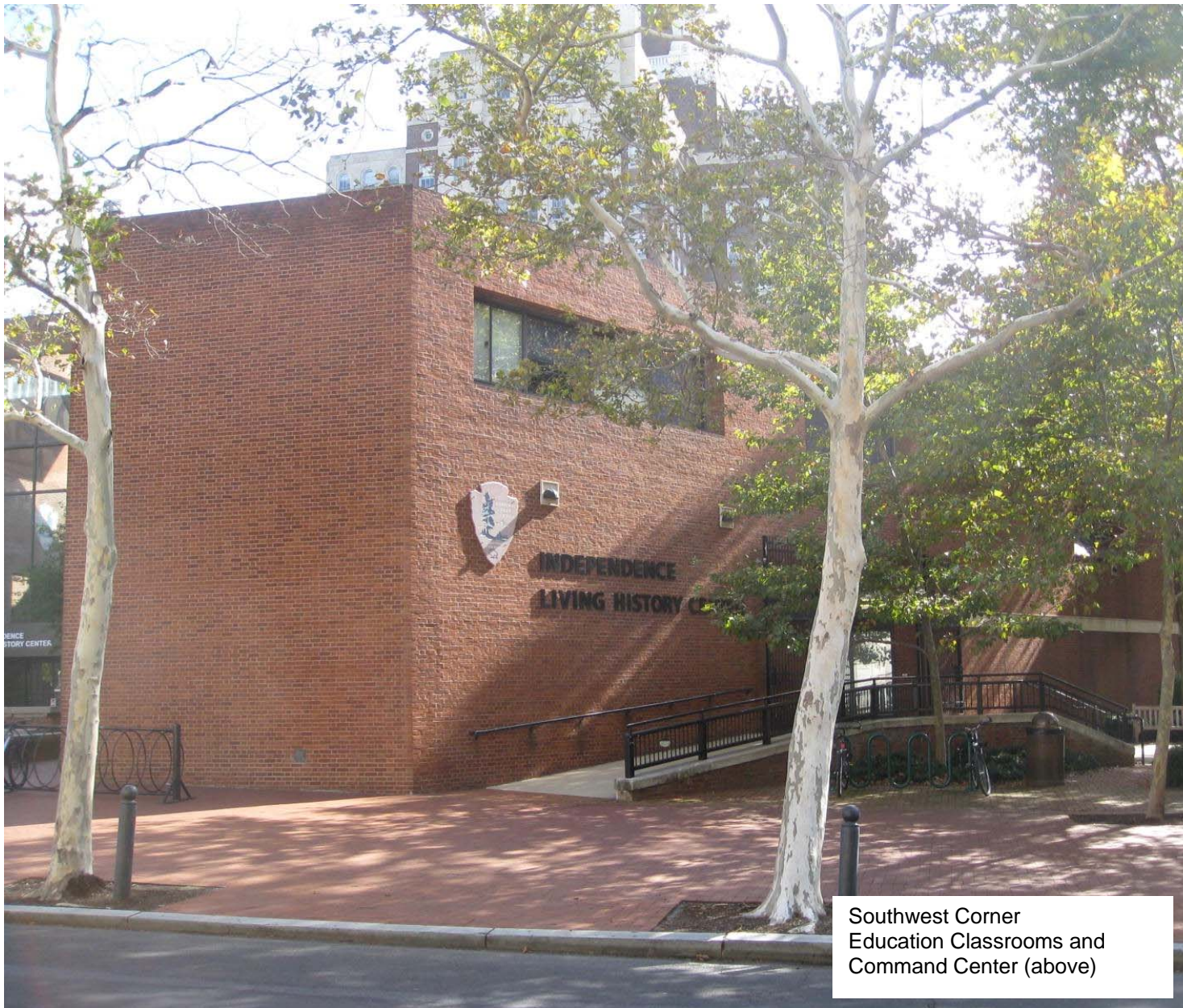
Life Safety

North Building: Once the buildings are separated, the north building will have several code violations that will need to be addressed. The second floor will have a dead-end greater than 20 feet (IBC section 1017.3). Also, the northwest, northeast, and the temporary stairs will be the only remote means of egress for the second floor. The northwest stair discharges its occupants into the first floor corridor. The corridor walls are required to be rated for one hour, per IBC 1019.3. For an illustration of the north building life safety concerns, please see Appendix A, Figures 2 and 3.

South Building: Once the two buildings are independent structures, the south building exterior will be approximately less than 30 feet away from the north building exterior. Per IBC Table 706.4, the proposed fire wall shall have a fire-resistance rating of 2-hours.

Independence Living History Center

Cost Estimates



Southwest Corner
Education Classrooms and
Command Center (above)

Alternative 3 costs to maintain the North facility (with the exception of the bell tower) as a separate and independent facility for both:

National Park Service (South Facilities)

&

American Revolution Center (North Facilities)

INDEPENDENCE LIVING HISTORY CENTER: Identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center

ITEM NUMBER: (located on floor plan for reference)	Cost Associated North or South of Demolition Line Alt3-North = ARC Alt3-South = NPS * = code mandated	DISCIPLINE FP: Fire Prot AR: Architectural ST: Structural MEP: Mech Elec Plu DM: Full site demo	DESCRIPTION OF RECOMMENDATION	QTY	UOM	MATERIAL (RSMMeans)	LABOR (RSMMeans)	TOTAL MATERIAL & LABOR	DEMO / DISPOSAL (RSMMeans)	DIRECT COST SUB TOTAL	NPS location factor (1.310)	Design Cont (20%)	General Cond (10%)	Overhead (8%)	Profit (10%)	Bond (1.5%)	TOTAL DIRECT and INDIRECT COSTS
200	Alt3-South	AR	BRIDGE AREA: Remove 1st Level brick paving at passage under south end of pre-existing Bridge.	304	SF	\$0	\$2,130	\$2,130	\$0	\$2,130	\$660	\$426	\$213	\$170	\$213	\$32	\$3,845
201	Alt3-South	AR	BRIDGE AREA: Remove HM door & frame at Stair #1 Bridge landing.	1	EA	\$0	\$951	\$951	\$0	\$951	\$295	\$190	\$95	\$76	\$95	\$14	\$1,715
202	Alt3-South	AR	BRIDGE AREA: Install 4" brick veneer & 8" CMU (2-hr rated) at wall pocket areas occupied by pre-existing east & west structural Bridge rails (28 SF) [ref.Structural demolition] and at wall opening from pre-existing HM door & frame at Stair #1 (24 SF). [ref Item 201]	52	SF	\$4,140	\$3,248	\$7,388	\$0	\$7,388	\$2,290	\$1,478	\$739	\$591	\$739	\$111	\$13,335
203	Alt3-South	AR	BRIDGE AREA: Fill concrete at 3" floor depression occupied by pre-existing brick paving [ref. Item 200]. Install carpet finish to match existing.	304	SF	\$1,620	\$1,875	\$3,495	\$0	\$3,495	\$1,083	\$699	\$350	\$280	\$350	\$52	\$6,308
204	Alt3-South*	AR	FIRE WALL: Infill with a 2-hr fire wall of 6" gyp board shaftwall assembly along Col Line D at wall opening of pre-existing Bridge.	320	SF	\$8,925	\$7,200	\$16,125	\$0	\$16,125	\$4,999	\$3,225	\$1,613	\$1,290	\$1,613	\$242	\$29,106
205	Alt3-South	AR	NORTH ENTRANCE AREA: A. Remove metal floor grating system (92 SF) at Vestibule 106. B. Remove 4 pairs entrance doors and frames at exterior and interior sides of Vestibule. C. Remove exterior entrance soffit and interior Vestibule ceiling systems (125 SF).	1	EA	\$9,428	\$0	\$9,428	\$0	\$9,428	\$2,923	\$1,886	\$943	\$754	\$943	\$141	\$17,018
206	Alt3-South*	AR	FIRE WALL - NORTH ENTRANCE AREA: Infill 4" brk - 2" insul cavity - 8" CMU (2-hr rated) assembly at exterior wall opening, aligned flush with exterior face of existing masonry wall. Include insulated interior furring of metal stud & gyp board.	98	SF	\$3,788	\$8,650	\$12,438	\$0	\$12,438	\$3,856	\$2,488	\$1,244	\$995	\$1,244	\$187	\$22,451
207	Alt3-South	AR	NORTH ENTRANCE AREA: Fill concrete at 3" floor depression occupied by pre-existing floor grating [ref. Item 205] and enclosed entrance inset. Install carpet finish and gyp board ceiling system to match existing.	125	SF	\$4,624	\$7,760	\$12,384	\$0	\$12,384	\$3,839	\$2,477	\$1,238	\$991	\$1,238	\$186	\$22,353
208	Alt3-South	AR	TOILET WING: A. Abandon-in-place two-section roof access ladder at Janitor Closet 128. Lock/secure roof hatch from interior and abandon-in-place. B. Abandon-in-place Women's Toilet 121 and Men's Toilet 131.	1	EA	\$50	\$12	\$62	\$0	\$62	\$19	\$12	\$6	\$5	\$6	\$1	\$112
209	Alt3-South	AR	TOILET WING: A. Remove existing toilet accessories, lavatories, gyp board chase wall and plumbing lines as required for new exterior door MO at west wall of Men's Toilet 131. B. Remove masonry at west exterior wall and create a new door MO (62 SF) at existing 4" brk - 2' cavity - 8" CMU (2-hr rated) wall assembly.	1	EA	\$16,133	\$23,465	\$39,598	\$0	\$39,598	\$12,275	\$7,920	\$3,960	\$3,168	\$3,960	\$594	\$71,474
210	Alt3-South	AR	TOILET WING: Install new 1-1/2 hr fire-rated HM double (2) 3'-6" x 8'-0" door & frame at exterior west wall of Men's Toilet 131. [ref. Item 209]	1	EA	\$450	\$725	\$1,175	\$0	\$1,175	\$364	\$235	\$118	\$94	\$118	\$18	\$2,121
211	Alt3-South*	AR	FIRE WALL - TOILET WING: A. Strip back brick paving (12 SF) at passage opening along Col Line D into Corridor 127. B. Infill passage masonry wall opening (48 SF) with 4" CMU - 2' cavity - 8" CMU (2-hr rated) assembly flush with existing masonry wall.	1	EA	\$2,286	\$1,518	\$3,804	\$0	\$3,804	\$1,179	\$761	\$380	\$304	\$380	\$57	\$6,866

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																		
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212	Alt3-South*	AR	FIRE WALL - TOILET WING: A. Remove duct grille (18 SF) at wall along Col Line D facing pavilion space. B. Infill grille masonry wall opening (18 SF) with 4" CMU - 2" cavity - 8" CMU (2-hr rated) assembly flush with existing masonry wall.	1	EA	\$794	\$826	\$1,620	\$0	\$1,620	\$502	\$324	\$162	\$130	\$162	\$24	\$2,924	
213	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: A. Dismantle, salvage and store window wall system @ south elevation (clerestories and upper window panels) (998 SF). B. Remove window wall system @ south elevation (partial bldg ht.) (929 SF) and @ southernmost 10 ft module of east and west elevations (full bldg ht.) (803 SF). Include blind and blind track systems. For removal of window wall pipe-bracing assemblies, ref Structural demolition	1	EA	\$19,668	\$0	\$19,668	\$0	\$19,668	\$6,097	\$3,934	\$1,967	\$1,573	\$1,967	\$295	\$35,501	
214	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: Remove all architectural / non-structural components of south Vestibule 101, including roof assembly, wall assemblies, porcelain enamel steel cladding system, doors & frames and floor grating system. [ref. Structural demolition]	1	EA	\$28,955	\$0	\$28,955	\$0	\$28,955	\$8,976	\$5,791	\$2,896	\$2,316	\$2,896	\$434	\$52,264	
215	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: A. Dismantle, salvage and store porcelain enamel metal parapet system @ south elevation (423 SF). B. Remove porcelain enamel metal parapet system at southernmost 10 ft module @ east and west elevations (90 SF).	1	EA	\$23,940	\$0	\$23,940	\$0	\$23,940	\$7,421	\$4,788	\$2,394	\$1,915	\$2,394	\$359	\$43,212	
216	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: Remove 10 ft wide module of continuous skylight adjacent to south parapet, including gutters and flashings extending from east to west parapets.	1	EA	\$21,230	\$0	\$21,230	\$0	\$21,230	\$6,581	\$4,246	\$2,123	\$1,698	\$2,123	\$318	\$38,320	
217	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Remove limited areas of upper masonry walls (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk) around Col's D-2 & D-7 for disconnection of the upper pipe columns at the roof truss system from the lower columns in the masonry walls. Masonry removal extends from bottom of the pipe column spherical bearings at EL 42'-10 to top of walls at EL 44'-7 3/8" (2 @ 4 SF). [ref. Structural demolition]	11	CF	\$26,340	\$0	\$26,340	\$0	\$26,340	\$8,165	\$5,268	\$2,634	\$2,107	\$2,634	\$395	\$47,544	
218	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Remove level top-of-wall (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk wall assembly) brick capping and upper courses of CMU & back-of-parapet-brick wythes where masonry parapet adjoins pre-existing pavilion clerestory window wall between Columns D-2 & D-5 (35 LF) and Columns D-6 & D-7 (18 LF). Remove existing single-ply roof membrane counterflashing at back of parapet to accommodate this work.	53	LF	\$32,798	\$0	\$32,798	\$0	\$32,798	\$10,167	\$6,560	\$3,280	\$2,624	\$3,280	\$492	\$59,200	
219	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Rebuild and patch limited areas of upper masonry walls (4' brk - 2" cavity - 8" CMU (2-hr rated) - 2" cavity - 4" brk assembly) at pre-existing upper pipe Col's D-2 & D-7 at roof truss system (2 @ 4 SF). [ref. Item 217]	11	CF	\$7,650	\$1,980	\$9,630	\$0	\$9,630	\$2,985	\$1,926	\$963	\$770	\$963	\$144	\$17,382	
220	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Install sloped top-of-wall (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk wall assembly) brick capping and upper courses of CMU & back-of-parapet-brick wythes where masonry parapet adjoined pre-existing pavilion clerestory window wall between Columns D-2 & D-5 (35 LF) and Columns D-6 & D-7 (18 LF). Install associated internal sheet metal wall flashing and new single-ply roof membrane counterflashing at back of parapet. Maintain existing roof warranty.	53	LF	\$27,380	\$15,400	\$42,780	\$0	\$42,780	\$13,262	\$8,556	\$4,278	\$3,422	\$4,278	\$642	\$77,218	
221	Alt3-North*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: A. Construct masonry walls (583 SF) ((4" brk - 2" insul cavity - 8" CMU (1-hr rated) assembly)) @ southernmost 10 ft module of east and west elevations. B. Install new 3/4-hr fire-rated double (2) 3'-0" x 7'-0" HM egress door & frame at east masonry wall.	1	EA	\$14,357	\$8,650	\$23,007	\$0	\$23,007	\$7,132	\$4,601	\$2,301	\$1,841	\$2,301	\$345	\$41,528	
222	Alt3-North*	AR	FIRE WALL: Install full-ht (incl parapet) 2-hr fire-rated gyp board shaftwall system (2620 SF), including mid-ht structural shelf angle (90 LF). For columns supporting fire wall at Col Lind D.1, reference Structural. Include \$10,000 Allowance for special details of brick-veneer relieving support along fire wall; brick veneer attachments to fire wall; and waterproofing of sheathing on backup fire wall.	1	EA	\$22,340	\$28,560	\$50,900	\$0	\$50,900	\$15,779	\$10,180	\$5,090	\$4,072	\$5,090	\$764	\$91,875	

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																		
ITEM NUMBER: (located on floor plan for reference)	Cost Associated North or South of Demolition Line Alt3-North = ARC Alt3-South = NPS * = code mandated	DISCIPLINE FP: Fire Prot AR: Architectural ST: Structural MEP: Mech Elec Plu DM: Full site demo	DESCRIPTION OF RECOMMENDATION	QTY	UOM	MATERIAL (RSMMeans)	LABOR (RSMMeans)	TOTAL MATERIAL & LABOR	DEMO / DISPOSAL (RSMMeans)	DIRECT COST SUB TOTAL	NPS location factor (1.310)	Design Cont (20%)	General Cond (10%)	Overhead (8%)	Profit (10%)	Bond (1.5%)	**TOTAL DIRECT and INDIRECT COSTS	
223	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: Reinstall salvaged porcelain enamel metal parapet system @ relocated upper south elevation and pavilion corners (423 SF). Include gutter and flashing rework. Reinstall new RWC's internal to new corner columns at roof truss system. [ref. Item 215]	1	EA	\$28,790	\$3,250	\$32,040	\$0	\$32,040	\$9,932	\$6,408	\$3,204	\$2,563	\$3,204	\$481	\$57,832	
224	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: A. Reinstall slaved window wall system @ relocated upper south elevation (clerestories and upper window panels) (998 SF) and pavilion corners. [ref. Item 213] B. Add new glazing panels at bottom of clerestory between Col's D-5 and D-6 (36 SF).	1	EA	\$32,420	\$2,330	\$34,750	\$0	\$34,750	\$10,773	\$6,950	\$3,475	\$2,780	\$3,475	\$521	\$62,724	
225	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: Install exterior wall sheathing board - 2" insul cavity - 4" brk veneer assembly on south face of exposed fire wall between Col's D-5 and D-6.	1048	SF	\$26,210	\$22,450	\$48,660	\$0	\$48,660	\$15,085	\$9,732	\$4,866	\$3,893	\$4,866	\$730	\$87,831	
226	Alt3-North*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: A. Install Class A, insulated single-ply-membrane roof system at new low pavilion roof (1070 SF), including flashings and copings. B. Install roof access hatch (16 SF) and life-safety tie-offs posts at roof. Maintain existing roof warranty.	1	EA	\$12,670	\$6,110	\$18,780	\$0	\$18,780	\$5,822	\$3,756	\$1,878	\$1,502	\$1,878	\$282	\$33,898	
227	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Install expansion joint covers (6" wide space, i.e. dim. betw new P.L. and face of south bldg) -- 62 LF @ east and west walls & 92 LF @ parapet roof copings.	1	EA	\$6,620	\$3,890	\$10,510	\$0	\$10,510	\$3,258	\$2,102	\$1,051	\$841	\$1,051	\$158	\$18,971	
228	Alt3-South*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: At Column D-2 & D-7 junctures of masonry walls to pre-existing pavilion window walls, infill continuous vertical wall pockets with 4" brk & CMU, including welded anchor ties at columns.	105	LF	\$9,230	\$5,135	\$14,365	\$0	\$14,365	\$4,453	\$2,873	\$1,437	\$1,149	\$1,437	\$215	\$25,929	
229	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: At Column D-5 & D-6 junctures of masonry walls to pre-existing pavilion window walls, cover continuous 5" wide vertical pockets with painted galvanized heavy guage metal closures. Patch adjacent bricks at pre-existing surface-mounted blind tracks & masonry anchors.	60	LF	\$720	\$1,800	\$2,520	\$0	\$2,520	\$781	\$504	\$252	\$202	\$252	\$38	\$4,549	
230	Alt3-South*	AR	FIRE WALL: Install 1-hr fire-resistive protection for roof deck areas within 4 ft of fire wall line (255 SF) and for all roof-support framing, including beams (340 LF) and columns (215 LF), extending one structural bay from fire wall line. Assume medium-density spray fireproofing for steel roof decks & beams and gyp board encapsulation (full ht) for columns.	1	EA	\$6,634	\$10,220	\$16,854	\$0	\$16,854	\$5,225	\$3,371	\$1,685	\$1,348	\$1,685	\$253	\$30,421	
231	Alt3-North*	AR	FIRE WALL: Install 1-hr fire-resistive protection for roof deck areas within 4 ft of fire wall line (360 SF) and for all roof-support framing, including beams (380 LF) and columns (385 LF), extending one structural bay from fire wall line. Assume medium-density spray fireproofing for steel roof decks and beams, gyp board encapsulation (full ht) for columns and intumescent coatings for exposed interior columns (55 LF) and bracing (180 LF) along new Col Line D.3	1	EA	\$8,624	\$13,286	\$21,910	\$0	\$21,910	\$6,792	\$4,382	\$2,191	\$1,753	\$2,191	\$329	\$39,548	
232	Alt3-North	AR	INTERIOR MODIFICATIONS: A. Remove, salvage and store brick paving in areas of new foundation and column installation along Col Lines D.1 & D.3. B. Reinstall same after completion of foundation and column installation.	1	EA	\$7,260	\$0	\$7,260	\$0	\$7,260	\$2,251	\$1,452	\$726	\$581	\$726	\$109	\$13,104	
233	Alt3-North	AR	INTERIOR MODIFICATIONS: A. Remove gyp board soffit at Bridge south-end demolition area. [ref. Structural demolition] B. Patch gyp board soffit and fascia at south-end demolition area.	1	EA	\$2,620.00	\$1,250.00	\$3,870	\$0	\$3,870	\$1,200	\$774	\$387	\$310	\$387	\$58	\$6,985	
234	Alt3-North	AR	INTERIOR MODIFICATIONS: Remove south portion of continuous bench seating on Bridge. Maintain 10 ft clear between bench and new south end of Bridge.	1	EA	\$2,200.00	\$0.00	\$2,200	\$0	\$2,200	\$682	\$440	\$220	\$176	\$220	\$33	\$3,971	

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235	Alt3-North*	AR	INTERIOR MODIFICATIONS: A. Install code-compliant temporary steel egress stair at south end of Bridge (9'-1" rise w/ intermediate landing. B. Install code-compliant steel access ladder(s) with intermediate platform to new low roof at south end of pavilion (28 ft rise).	1	EA	\$8,800.00	\$12,400.00	\$21,200	\$0	\$21,200	\$6,572	\$4,240	\$2,120	\$1,696	\$2,120	\$318	\$38,266	
236	Alt3-North*	AR	INTERIOR MODIFICATIONS: <u>Allowance -- New Toilet Facilities in Pavilion</u> - Assume 1200 SF total area and the following Plumbing Fixture Counts: Women's Toilet - 11 wc's + 9 lav's; Men's Toilet - 4 wc's 4 urinals + 8 lav's . Include toilet partitions and toilet room accessories . (final design by new Owner)	1	EA	\$17,280	\$20,340	\$37,620	\$0	\$37,620	\$11,662	\$7,524	\$3,762	\$3,010	\$3,762	\$564	\$67,904	
237	Alt3-South	AR	PROPERTY EASEMENT: <u>Allowance -- Legal Fees to Define & Document Property Easement</u>	1	EA	\$0.00	\$25,000.00	\$25,000	\$0	\$25,000							\$25,000	
250	Alt3-South*	ST	A grade beam between footings located at D-6 and D-7 is to be integrally cast prior to demolition of the foundation in the nearby area. It should be approximately 16" wide by 2'-6" deep by 15'-0" long. It can likely be cast without any ramifications to architectural components of the building.	1	EA	\$15,540	\$5,670	\$21,210	\$0	\$21,210	\$6,575	\$4,242	\$2,121	\$1,697	\$2,121	\$318	\$38,284	
251	Alt3-South*	ST	Demolition of the bridge section between grid lines 2.1 and 4, that extends into the building south of grid line D. The extent of this bridge is approximately 7 feet beyond the building line, 16 feet wide consisting of 6 1/2 inch slab. Along the sides there is a beam 1 foot wide extending 1'-4" below the slab and at the end, for the width of the bridge, the beam extends 1'-4" below the slab and 2'-8" above the slab. Removal of this bridge section should be clean since existing drawings indicate 1/4 inch joints separating it from the building and slide bearing pads where it is supported by a grouted brick column.	1	EA	\$678	\$1,388	\$2,066	\$393	\$2,459	\$762	\$492	\$246	\$197	\$246	\$37	\$4,439	
252	Alt3-South	ST	Minor patching of the roof deck where four angle braces will be removed.	1	EA	\$3,120	\$2,560	\$5,680	\$0	\$5,680	\$1,761	\$1,136	\$568	\$454	\$568	\$85	\$10,252	
253	Alt3-South*	ST	Provide a lintel at the interior door adjacent to the bridge beam prior to infill with masonry above. Length of the opening is approximately 3'-8".	1	EA	\$97	\$182	\$279	\$0	\$279	\$86	\$56	\$28	\$22	\$28	\$4	\$503	
254	Alt3-South	ST	Provide shoring of the stair landing prior to removal of the bridge as required until the masonry void is infilled.	1	EA	\$2,586	\$1,264	\$3,850	\$0	\$3,850	\$1,194	\$770	\$385	\$308	\$385	\$58	\$6,949	
255	Alt3-South*	ST	A grade beam between footings that support columns 14 and 15 along grid line D, west of grid line 2. It should be approximately 16" wide by 2'-6" deep by 12'-0" long. It can likely be cast without any ramifications to architectural components of the building.	1	EA	\$12,432	\$4,536	\$16,968	\$0	\$16,968	\$5,260	\$3,394	\$1,697	\$1,357	\$1,697	\$255	\$30,627	
256	Alt3-South	ST	Slab infill where the entrance is located on the northern wall at grid line D. This slab should be six inches thick.	30	CF	\$1,200	\$340	\$1,540	\$0	\$1,540	\$477	\$308	\$154	\$123	\$154	\$23	\$2,780	
257	Alt3-North	ST	Demolition of the bridge section between grid lines 2.1 and 4, that extends into the building north of grid line D. The extent of this demolition occurs where a control joint is located, approximately 15 feet beyond the grid line D, 16 feet wide consisting of 6 1/2 inch slab. Along the sides there is a beam 1 foot wide extending 1'-4" below the slab and 2'-8" above the slab.	1	EA	\$28,650	\$0	\$28,650	\$0	\$28,650	\$8,882	\$5,730	\$2,865	\$2,292	\$2,865	\$430	\$51,713	

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258	Alt3-North*	ST	Demolition of the ground floor slab, grade beams and trench bottoms, approximately 3,600 square feet as part of new foundation installation.	3600	SF	\$36,000	\$0	\$36,000	\$0	\$36,000	\$11,160	\$7,200	\$3,600	\$2,880	\$3,600	\$540	\$64,980
259	Alt3-North*	ST	Remove soil to a depth of approximately twenty feet, resulting in about 65,000 cubic feet as part of new foundation installation.	65000	CF	\$26,000	\$0	\$26,000	\$0	\$26,000	\$8,060	\$5,200	\$2,600	\$2,080	\$2,600	\$390	\$46,930
260	Alt3-North*	ST	Cast four new footings and piers to support the four new columns. Each footing is estimated to be six-feet by six-feet by eighteen inches thick. Each pier is estimated to be sixteen inches diameter and eighteen feet tall.	4	EA	\$23,100	\$18,900	\$42,000	\$0	\$42,000	\$13,020	\$8,400	\$4,200	\$3,360	\$4,200	\$630	\$75,810
261	Alt3-North*	ST	Compact soil in the void created to cast the new footings and piers, approximately 65,000 cubic feet.	65000	CF	\$6,500	\$0	\$6,500	\$0	\$6,500	\$2,015	\$1,300	\$650	\$520	\$650	\$98	\$11,733
262	Alt3-North*	ST	Cast new grade beams and slab sections to re-establish floor system, approximately 3,600 square feet.	3600	SF	\$9,750	\$12,400	\$22,150	\$0	\$22,150	\$6,867	\$4,430	\$2,215	\$1,772	\$2,215	\$332	\$39,981
263	Alt3-North*	ST	Provide shoring for the two north/south trusses. This shoring is to be located at the new truss support panel points. This shoring is needed to support the weight of the truss at this location and additional shoring is required for the top chord of each truss at this location.	1	EA	\$2,000	\$6,000	\$8,000	\$0	\$8,000	\$2,480	\$1,600	\$800	\$640	\$800	\$120	\$14,440
264	Alt3-North*	ST	Remove the first diagonal member (TS8x0.5 x 14' long) at the first panel point for each truss (2).	28	FT	\$1,500	\$0	\$1,500	\$0	\$1,500	\$465	\$300	\$150	\$120	\$150	\$23	\$2,708
265	Alt3-North*	ST	Remove the first vertical member at the first panel point (TSsx0.25 x 10' long) for each truss (2).	20	FT	\$1,500	\$0	\$1,500	\$0	\$1,500	\$465	\$300	\$150	\$120	\$150	\$23	\$2,708
266	Alt3-North*	ST	Remove top and bottom chords of the first truss panel (each TS12x0.688 x 10' long) for each truss (2).	40	FT	\$3,000	\$0	\$3,000	\$0	\$3,000	\$930	\$600	\$300	\$240	\$300	\$45	\$5,415
267	Alt3-North*	ST	Remove the existing end vertical (TS12x0.688 x 10' long) for each truss (2).	20	FT	\$2,200	\$0	\$2,200	\$0	\$2,200	\$682	\$440	\$220	\$176	\$220	\$33	\$3,971
268	Alt3-North*	ST	Remove the existing column (W10x66 x 28' long) for each truss (2).	56	FT	\$8,800	\$0	\$8,800	\$0	\$8,800	\$2,728	\$1,760	\$880	\$704	\$880	\$132	\$15,884
269	Alt3-North*	ST	Install new truss end vertical (TS12x0.688 x 14' long) with spherical bearing rotation assembly for each truss (2).	28	FT	\$16,000	\$42,000	\$58,000	\$0	\$58,000	\$17,980	\$11,600	\$5,800	\$4,640	\$5,800	\$870	\$104,690

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270	Alt3-North*	ST	Install new columns to support the new tress ends (W10x66 x 28' long) for each truss (2).	56	FT	\$21,000	\$52,000	\$73,000	\$0	\$73,000	\$22,630	\$14,600	\$7,300	\$5,840	\$7,300	\$1,095	\$131,765	
271	Alt3-North*	ST	Install new W12x26 member at mid-level of bracing for each truss (2).	36	FT	\$18,500	\$47,000	\$65,500	\$0	\$65,500	\$20,305	\$13,100	\$6,550	\$5,240	\$6,550	\$983	\$118,228	
272	Alt3-North*	ST	Install new HSS4x4x3/8 upper and lower braces for each truss (2).	182	FT	\$2,000	\$1,500	\$3,500	\$0	\$3,500	\$1,085	\$700	\$350	\$280	\$350	\$53	\$6,318	
273	Alt3-North*	ST	Install six new HSS6x6x3/8 x 28' long columns on the north side of the new wall to be constructed at the southern edge of the pavilion.	1092	FT	\$63,000	\$156,000	\$219,000	\$0	\$219,000	\$67,890	\$43,800	\$21,900	\$17,520	\$21,900	\$3,285	\$395,295	
274	Alt3-North*	ST	Install two HSS6x6x3/8 x 90' long members at the top and at mid-level of the six columns supporting the new wall.	180	FT	\$21,000	\$52,000	\$73,000	\$0	\$73,000	\$22,630	\$14,600	\$7,300	\$5,840	\$7,300	\$1,095	\$131,765	
275	Alt3-North*	ST	Install a shelf angle L6x4x3/8 attached to the mid-level HSS6x6 at the new wall.	90	FT	\$5,000	\$4,800	\$9,800	\$0	\$9,800	\$3,038	\$1,960	\$980	\$784	\$980	\$147	\$17,689	
276	Alt3-North*	ST	Install an HSS6x6x3/8 attached to the four new columns and suspended from the southernmost truss at the mid-span section. This member is to provide support for roof framing members of section of new roof that is part of the new wall.	90	FT	\$9,800	\$6,200	\$16,000	\$0	\$16,000	\$4,960	\$3,200	\$1,600	\$1,280	\$1,600	\$240	\$28,880	
280	Alt3-North	MEP	Preparation for separation of existing Visitor Center. Secure all existing utilities at or before property line to include steam, electric, water, and sewer.	1	ea	\$19,595	\$41,679	\$61,274	\$5,174	\$66,448	\$20,599	\$13,290	\$6,645	\$5,316	\$6,645	\$997	\$119,939	
281	Alt3-North	MEP	Excavate and remove abandoned utility lines	1	ea	\$20,574	\$35,657	\$56,231	\$6,940	\$63,171	\$19,583	\$12,634	\$6,317	\$5,054	\$6,317	\$948	\$114,024	
285	Alt3-North	FP	Complete demolition of old Simplex FACP (Mech Rm #118), devices, and wiring/conduit associated with north building FACP. [Estimated time for completion: 4 weeks]			\$16,000		\$3,200	\$0	\$3,200	\$992	\$640	\$320	\$256	\$320	\$48	\$5,776	
286	Alt3-North	FP	New sprinkler system installed throughout north building (~28,000 ft2). Connect new system to city water supply. [Estimated time for completion: 10 weeks]			\$54,000	\$102,000	\$0	\$0	\$156,000	\$48,360	\$31,200	\$15,600	\$12,480	\$15,600	\$2,340	\$281,580	
287	Alt3-North	FP	Install new manual pull station and notification device within new mechanical room. Devices shall be connected to existing Simplex 4020 FACP (located in the command center) [Estimated time for completion: 2 weeks]			\$260	\$350	\$0	\$0	\$610	\$189	\$122	\$61	\$49	\$61	\$9	\$1,101	
TOTAL											\$1,732,900					\$3,107,758		

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- ** Indirect Costs shown DO NOT include the following markups:**
- 1. Remoteness Factor (not applicable - not a remote location)
 - 2. Sales Tax
 - 3. Historic Preservation Factor (not applicable - not a historic facility)
 - 4. Federal Wage Rate Factor (not applicable - not a federal construction contract)
 - 5. Government General Conditions Factor (not applicable - not a federal construction contract)
 - 6. Contracting Method Adjustment Factor (not applicable - not a federal construction contract)
 - 7. Escalation Adjustment Factor

NOTES - ARCHITECTURAL

1. Asterisk (*) in "Cost-Associated..." column above indicates that the line-item is a specifically and directly identified Code requirement.

LIST OF ASSUMPTIONS – ARCHITECTURAL

- 1. Code compliance of existing building, unless otherwise identified in Report
- 2. Type II-B existing construction (non-protected structural elements).
- 3. Class A existing roof system
- 4. Inherent 2-hr fire-resistance rating of masonry wall assembly along Column Line D (South Building only)
- 5. No additional passive security requirements

LIST OF EXCEPTIONS – ARCHITECTURAL

- 1. Exterior egress system integrated with revised internal egress systems
- 2. Internal communication means between newly isolated Toilet Wing and Chilled Water Plant (South Building only)
- 3. NPS salvage coordination
- 4. NPS archaeological coordination
- 5. Zoning Code requirements (currently undefined by City of Philadelphia)
- 6. Removal of interior improvements and modifications (non-original), including archeological lab, etc. in the North Building
- 7. Detailed design integration of required facilities and features (North Building only), including:
 - a. Toilet facilities (cost Allowance is included)
 - b. Egress from south end of truncated Bridge (cost is included)
 - c. Interior furring and finishes at new exterior wall assemblies
 - d. Ceiling, fascia and interstitial space below new low south roof
 - e. Access (final configuration) to new low south roof (cost is included)
- 8. Additional mechanical space (North Building only)
- 9. Mechanical room facility (in toilet wing) (South Building only)
- 10. Demolition of tower (North Building only)
- 11. Hazardous materials abatement

Alternative 3 costs to maintain the North facility (with the exception of the bell tower) as a separate and independent facility for:

National Park Service (South Facilities) only

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																	
ITEM NUMBER: (located on floor plan for reference)	Cost Associated North or South of Demolition Line Alt3-North = ARC Alt3-South = NPS * = code mandated	DISCIPLINE FP: Fire Prot AR: Architectural ST: Structural MEP: Mech Elec Plu DM: Full site demo	DESCRIPTION OF RECOMMENDATION	QTY	UOM	MATERIAL (RSMMeans)	LABOR (RSMMeans)	TOTAL MATERIAL & LABOR	DEMO / DISPOSAL (RSMMeans)	DIRECT COST SUB TOTAL	NPS location factor (1.310)	Design Cont (20%)	General Cond (10%)	Overhead (8%)	Profit (10%)	Bond (1.5%)	**TOTAL DIRECT and INDIRECT COSTS
200	Alt3-South	AR	BRIDGE AREA: Remove 1st Level brick paving at passage under south end of pre-existing Bridge.	304	SF	\$0	\$2,130	\$2,130	\$0	\$2,130	\$660	\$426	\$213	\$170	\$213	\$32	\$3,845
201	Alt3-South	AR	BRIDGE AREA: Remove HM door & frame at Stair #1 Bridge landing.	1	EA	\$0	\$951	\$951	\$0	\$951	\$295	\$190	\$95	\$76	\$95	\$14	\$1,715
202	Alt3-South	AR	BRIDGE AREA: Install 4" brick veneer & 8" CMU (2-hr rated) at wall pocket areas occupied by pre-existing east & west structural Bridge rails (28 SF) [ref.Structural demolition] and at wall opening from pre-existing HM door & frame at Stair #1 (24 SF). [ref Item 201]	52	SF	\$4,140	\$3,248	\$7,388	\$0	\$7,388	\$2,290	\$1,478	\$739	\$591	\$739	\$111	\$13,335
203	Alt3-South	AR	BRIDGE AREA: Fill concrete at 3" floor depression occupied by pre-existing brick paving [ref. Item 200]. Install carpet finish to match existing.	304	SF	\$1,620	\$1,875	\$3,495	\$0	\$3,495	\$1,083	\$699	\$350	\$280	\$350	\$52	\$6,308
204	Alt3-South*	AR	FIRE WALL: Infill with a 2-hr fire wall of 6"gyp board shaftwall assembly along Col Line D at wall opening of pre-existing Bridge.	320	SF	\$8,925	\$7,200	\$16,125	\$0	\$16,125	\$4,999	\$3,225	\$1,613	\$1,290	\$1,613	\$242	\$29,106
205	Alt3-South	AR	NORTH ENTRANCE AREA: A. Remove metal floor grating system (92 SF) at Vestibule 106. B. Remove 4 pairs entrance doors and frames at exterior and interior sides of Vestibule. C. Remove exterior entrance soffit and interior Vestibule ceiling systems (125 SF).	1	EA	\$9,428	\$0	\$9,428	\$0	\$9,428	\$2,923	\$1,886	\$943	\$754	\$943	\$141	\$17,018
206	Alt3-South*	AR	FIRE WALL - NORTH ENTRANCE AREA: Infill 4" brk - 2" insul cavity - 8" CMU (2-hr rated) assembly at exterior wall opening, aligned flush with exterior face of existing masonry wall. Include insulated interior furring of metal stud & gyp board.	98	SF	\$3,788	\$8,650	\$12,438	\$0	\$12,438	\$3,856	\$2,488	\$1,244	\$995	\$1,244	\$187	\$22,451
207	Alt3-South	AR	NORTH ENTRANCE AREA: Fill concrete at 3" floor depression occupied by pre-existing floor grating [ref. Item 205] and enclosed entrance inset. Install carpet finish and gyp board ceiling system to match existing.	125	SF	\$4,624	\$7,760	\$12,384	\$0	\$12,384	\$3,839	\$2,477	\$1,238	\$991	\$1,238	\$186	\$22,353
208	Alt3-South	AR	TOILET WING: A. Abandon-in-place two-section roof access ladder at Janitor Closet 128. Lock/secure roof hatch from interior and abandon-in-place. B. Abandon-in-place Women's Toilet 121 and Men's Toilet 131.	1	EA	\$50	\$12	\$62	\$0	\$62	\$19	\$12	\$6	\$5	\$6	\$1	\$112
209	Alt3-South	AR	TOILET WING: A. Remove existing toilet accessories, lavatories, gyp board chase wall and plumbing lines as required for new exterior door MO at west wall of Men's Toilet 131. B. Remove masonry at west exterior wall and create a new door MO (62 SF) at existing 4" brk - 2" cavity - 8" CMU (2-hr rated) wall assembly.	1	EA	\$16,133	\$23,465	\$39,598	\$0	\$39,598	\$12,275	\$7,920	\$3,960	\$3,168	\$3,960	\$594	\$71,474
210	Alt3-South	AR	TOILET WING: Install new 1-1/2 hr fire-rated HM double (2) 3'-6" x 8'-0" door & frame at exterior west wall of Men's Toilet 131. [ref. Item 209]	1	EA	\$450	\$725	\$1,175	\$0	\$1,175	\$364	\$235	\$118	\$94	\$118	\$18	\$2,121
211	Alt3-South*	AR	FIRE WALL - TOILET WING: A. Strip back brick paving (12 SF) at passage opening along Col Line D into Corridor 127. B. Infill passage masonry wall opening (48 SF) with 4" CMU - 2" cavity - 8" CMU (2-hr rated) assembly flush with existing masonry wall.	1	EA	\$2,286	\$1,518	\$3,804	\$0	\$3,804	\$1,179	\$761	\$380	\$304	\$380	\$57	\$6,866
212	Alt3-South*	AR	FIRE WALL - TOILET WING: A. Remove duct grille (18 SF) at wall along Col Line D facing pavilion space. B. Infill grille masonry wall opening (18 SF) with 4" CMU - 2" cavity - 8" CMU (2-hr rated) assembly flush with existing masonry wall.	1	EA	\$794	\$826	\$1,620	\$0	\$1,620	\$502	\$324	\$162	\$130	\$162	\$24	\$2,924

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																		
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217	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Remove limited areas of upper masonry walls (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk) around Col's D-2 & D-7 for disconnection of the upper pipe columns at the roof truss system from the lower columns in the masonry walls. Masonry removal extends from bottom of the pipe column spherical bearings at EL 42'-10 to top of walls at EL 44'-7 3/8" (2 @ 4 SF). [ref. Structural demolition]	11	CF	\$26,340	\$0	\$26,340	\$0	\$26,340	\$8,165	\$5,268	\$2,634	\$2,107	\$2,634	\$395	\$47,544	
218	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Remove <i>level</i> top-of-wall (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk wall assembly) brick capping and upper courses of CMU & back-of-parapet-brick wythes where masonry parapet adjoins pre-existing pavilion clerestory window wall between Columns D-2 & D-5 (35 LF) and Columns D-6 & D-7 (18 LF). Remove existing single-ply roof membrane counterflashing at back of parapet to accommodate this work.	53	LF	\$32,798	\$0	\$32,798	\$0	\$32,798	\$10,167	\$6,560	\$3,280	\$2,624	\$3,280	\$492	\$59,200	
219	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Rebuild and patch limited areas of upper masonry walls (4' brk - 2" cavity - 8" CMU (2-hr rated) - 2" cavity - 4" brk assembly) at pre-existing upper pipe Col's D-2 & D-7 at roof truss system (2 @ 4 SF). [ref. Item 217]	11	CF	\$7,650	\$1,980	\$9,630	\$0	\$9,630	\$2,985	\$1,926	\$963	\$770	\$963	\$144	\$17,382	
220	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Install <i>sloped</i> top-of-wall (4' brk - 2" cavity - 8" CMU - 2" cavity - 4" brk wall assembly) brick capping and upper courses of CMU & back-of-parapet-brick wythes where masonry parapet adjoined pre-existing pavilion clerestory window wall between Columns D-2 & D-5 (35 LF) and Columns D-6 & D-7 (18 LF). Install associated internal sheet metal wall flashing and new single-ply roof membrane counterflashing at back of parapet. Maintain existing roof warranty.	53	LF	\$27,380	\$15,400	\$42,780	\$0	\$42,780	\$13,262	\$8,556	\$4,278	\$3,422	\$4,278	\$642	\$77,218	
227	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: Install expansion joint covers (6" wide space, i.e. dim. betw new P.L. and face of south bldg) -- 62 LF @ east and west walls & 92 LF @ parapet roof copings.	1	EA	\$6,620	\$3,890	\$10,510	\$0	\$10,510	\$3,258	\$2,102	\$1,051	\$841	\$1,051	\$158	\$18,971	
228	Alt3-South*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: At Column D-2 & D-7 junctures of masonry walls to pre-existing pavilion window walls, infill continuous vertical wall pockets with 4" brk & CMU, including welded anchor ties at columns.	105	LF	\$9,230	\$5,135	\$14,365	\$0	\$14,365	\$4,453	\$2,873	\$1,437	\$1,149	\$1,437	\$215	\$25,929	
229	Alt3-South	AR	PAVILION SHELL MODIFICATIONS: At Column D-5 & D-6 junctures of masonry walls to pre-existing pavilion window walls, cover continuous 5" wide vertical pockets with painted galvanized heavy guage metal closures. Patch adjacent bricks at pre-existing surface-mounted blind tracks & masonry anchors.	60	LF	\$720	\$1,800	\$2,520	\$0	\$2,520	\$781	\$504	\$252	\$202	\$252	\$38	\$4,549	
230	Alt3-South*	AR	FIRE WALL: Install 1-hr fire-resistive protection for roof deck areas within 4 ft of fire wall line (255 SF) and for all roof-support framing, including beams (340 LF) and columns (215 LF), extending one structural bay from fire wall line. Assume medium-density spray fireproofing for steel roof decks & beams and gyp board encapsulation (full ht) for columns.	1	EA	\$6,634	\$10,220	\$16,854	\$0	\$16,854	\$5,225	\$3,371	\$1,685	\$1,348	\$1,685	\$253	\$30,421	
237	Alt3-South	AR	PROPERTY EASEMENT: <u>Allowance -- Legal Fees to Define & Document Property Easement</u>	1	EA	\$0.00	\$25,000.00	\$25,000	\$0	\$25,000							\$25,000	
250	Alt3-South*	ST	A grade beam between footings located at D-6 and D-7 is to be integrally cast prior to demolition of the foundation in the nearby area. It should be approximately 16" wide by 2'-6" deep by 15'-0" long. It can likely be cast without any ramifications to architectural components of the building.	1	EA	\$15,540	\$5,670	\$21,210	\$0	\$21,210	\$6,575	\$4,242	\$2,121	\$1,697	\$2,121	\$318	\$38,284	

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																	
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251	Alt3-South*	ST	Demolition of the bridge section between grid lines 2.1 and 4, that extends into the building south of grid line D. The extent of this bridge is approximately 7 feet beyond the building line, 16 feet wide consisting of 6 1/2 inch slab. Along the sides there is a beam 1 foot wide extending 1'-4" below the slab and at the end, for the width of the bridge, the beam extends 1'-4" below the slab and 2'-8" above the slab. Removal of this bridge section should be clean since existing drawings indicate 1/4 inch joints separating it from the building and slide bearing pads where it is supported by a grouted brick column.	1	EA	\$678	\$1,388	\$2,066	\$393	\$2,459	\$762	\$492	\$246	\$197	\$246	\$37	\$4,439
252	Alt3-South	ST	Minor patching of the roof deck where four angle braces will be removed.	1	EA	\$3,120	\$2,560	\$5,680	\$0	\$5,680	\$1,761	\$1,136	\$568	\$454	\$568	\$85	\$10,252
253	Alt3-South*	ST	Provide a lintel at the interior door adjacent to the bridge beam prior to infill with masonry above. Length of the opening is approximately 3'-8".	1	EA	\$97	\$182	\$279	\$0	\$279	\$86	\$56	\$28	\$22	\$28	\$4	\$503
254	Alt3-South	ST	Provide shoring of the stair landing prior to removal of the bridge as required until the masonry void is infilled.	1	EA	\$2,586	\$1,264	\$3,850	\$0	\$3,850	\$1,194	\$770	\$385	\$308	\$385	\$58	\$6,949
255	Alt3-South*	ST	A grade beam between footings that support columns 14 and 15 along grid line D, west of grid line 2. It should be approximately 16" wide by 2'-6" deep by 12'-0" long. It can likely be cast without any ramifications to architectural components of the building.	1	EA	\$12,432	\$4,536	\$16,968	\$0	\$16,968	\$5,260	\$3,394	\$1,697	\$1,357	\$1,697	\$255	\$30,627
256	Alt3-South	ST	Slab infill where the entrance is located on the northern wall at grid line D. This slab should be six inches thick.	30	CF	\$1,200	\$340	\$1,540	\$0	\$1,540	\$477	\$308	\$154	\$123	\$154	\$23	\$2,780
TOTAL										\$343,381	\$599,676						

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- ** Indirect Costs shown DO NOT include the following markups:**
1. Remoteness Factor (not applicable - not a remote location)
 2. Sales Tax
 3. Historic Preservation Factor (not applicable - not a historic facility)
 4. Federal Wage Rate Factor (not applicable - not a federal construction contract)
 5. Government General Conditions Factor (not applicable - not a federal construction contract)
 6. Contracting Method Adjustment Factor (not applicable - not a federal construction contract)
 7. Escalation Adjustment Factor

NOTES - ARCHITECTURAL

1. Asterisk (*) in "Cost-Associated..." column above indicates that the line-item is a specifically and directly identified Code requirement.

LIST OF ASSUMPTIONS – ARCHITECTURAL

1. Code compliance of existing building, unless otherwise identified in Report
2. Type II-B existing construction (non-protected structural elements).
3. Class A existing roof system
4. Inherent 2-hr fire-resistance rating of masonry wall assembly along Column Line D (South Building only)
5. No additional passive security requirements

LIST OF EXCEPTIONS – ARCHITECTURAL

1. Exterior egress system integrated with revised internal egress systems
2. Internal communication means between newly isolated Toilet Wing and Chilled Water Plant (South Building only)
3. NPS salvage coordination
4. NPS archaeological coordination
5. Zoning Code rerequisites (currently undefined by City of Philadelphia)
6. Removal of interior improvements and modifications (non-original), including archeological lab, etc. in the North Building
7. Detailed design integration of required facilities and features (North Building only), including:
 - a. Toilet facilities (cost Allowance is included)
 - b. Egress from south end of truncated Bridge (cost is included)
 - c. Interior furring and finishes at new exterior wall assemblies
 - d. Ceiling, fascia and interstitial space below new low south roof
 - e. Access (final configuration) to new low south roof (cost is included)
8. Additional mechanical space (North Building only)
9. Mechanical room facility (in toilet wing) (South Building only)
10. Demolition of tower (North Building only)
11. Hazardous materials abatement

Alternative 3 costs to maintain the North facility (with the exception of the bell tower) as a separate and independent facility for:

American Revolution Center (North Facilities) only

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213	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: A. Dismantle, salvage and store window wall system @ south elevation (clerestories and upper window panels) (998 SF). B. Remove window wall system @ south elevation (partial bldg ht.) (929 SF) and @ southernmost 10 ft module of east and west elevations (full bldg ht.) (803 SF). Include blind and blind track systems. For removal of window wall pipe-bracing assemblies, ref Structural demolition	1	EA	\$19,668	\$0	\$19,668	\$0	\$19,668	\$6,097	\$3,934	\$1,967	\$1,573	\$1,967	\$295	\$35,501
214	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: Remove all architectural / non-structural components of south Vestibule 101, including roof assembly, wall assemblies, porcelain enamel steel cladding system, doors & frames and floor grating system. [ref. Structural demolition]	1	EA	\$28,955	\$0	\$28,955	\$0	\$28,955	\$8,976	\$5,791	\$2,896	\$2,316	\$2,896	\$434	\$52,264
215	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: A. Dismantle, salvage and store porcelain enamel metal parapet system @ south elevation (423 SF). B. Remove porcelain enamel metal parapet system at southernmost 10 ft module @ east and west elevations (90 SF).	1	EA	\$23,940	\$0	\$23,940	\$0	\$23,940	\$7,421	\$4,788	\$2,394	\$1,915	\$2,394	\$359	\$43,212
216	Alt3-North	AR	PAVILION SHELL MODIFICATIONS: Remove 10 ft wide module of continuous skylight adjacent to south parapet, including gutters and flashings extending from east to west parapets.	1	EA	\$21,230	\$0	\$21,230	\$0	\$21,230	\$6,581	\$4,246	\$2,123	\$1,698	\$2,123	\$318	\$38,320
221	Alt3-North*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: A. Construct masonry walls (583 SF) ((4" brk - 2" insul cavity - 8" CMU (1-hr rated) assembly)) @ southernmost 10 ft module of east and west elevations. B. Install new 3/4-hr fire-rated double (2) 3'-0" x 7'-0" HM egress door & frame at east masonry wall.	1	EA	\$14,357	\$8,650	\$23,007	\$0	\$23,007	\$7,132	\$4,601	\$2,301	\$1,841	\$2,301	\$345	\$41,528
222	Alt3-North*	AR	FIRE WALL: Install full-ht (incl parapet) 2-hr fire-rated gyp board shaftwall system (2620 SF), including mid-ht structural shelf angle (90 LF). For columns supporting fire wall at Col Lind D.1, reference Structural. Include \$10,000 Allowance for special details of brick-veneer relieving support along fire wall; brick veneer attachments to fire wall; and waterproofing of sheathing on backup fire wall.	1	EA	\$22,340	\$28,560	\$50,900	\$0	\$50,900	\$15,779	\$10,180	\$5,090	\$4,072	\$5,090	\$764	\$91,875
223	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: Reinstall salvaged porcelain enamel metal parapet system @ relocated upper south elevation and pavilion corners (423 SF). Include gutter and flashing rework. Reinstall new RWC's internal to new corner columns at roof truss system. [ref. Item 215]	1	EA	\$28,790	\$3,250	\$32,040	\$0	\$32,040	\$9,932	\$6,408	\$3,204	\$2,563	\$3,204	\$481	\$57,832
224	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: A. Reinstall salvaged window wall system @ relocated upper south elevation (clerestories and upper window panels) (998 SF) and pavilion corners. [ref. Item 213] B. Add new glazing panels at bottom of clerestory between Col's D-5 and D-6 (36 SF).	1	EA	\$32,420	\$2,330	\$34,750	\$0	\$34,750	\$10,773	\$6,950	\$3,475	\$2,780	\$3,475	\$521	\$62,724
225	Alt3-North*	AR	PAVILION SHELL MODIFICATIONS: Install exterior wall sheathing board - 2" insul cavity - 4" brk veneer assembly on south face of exposed fire wall between Col's D-5 and D-6.	1048	SF	\$26,210	\$22,450	\$48,660	\$0	\$48,660	\$15,085	\$9,732	\$4,866	\$3,893	\$4,866	\$730	\$87,831
226	Alt3-North*	AR	FIRE WALL - PAVILION SHELL MODIFICATIONS: A. Install Class A, insulated single-ply-membrane roof system at new low pavilion roof (1070 SF), including flashings and copings. B. Install roof access hatch (16 SF) and life-safety tie-offs posts at roof. Maintain existing roof warranty.	1	EA	\$12,670	\$6,110	\$18,780	\$0	\$18,780	\$5,822	\$3,756	\$1,878	\$1,502	\$1,878	\$282	\$33,898
231	Alt3-North*	AR	FIRE WALL: Install 1-hr fire-resistive protection for roof deck areas within 4 ft of fire wall line (360 SF) and for all roof-support framing, including beams (380 LF) and columns (385 LF), extending one structural bay from fire wall line. Assume medium-density spray fireproofing for steel roof decks and beams, gyp board encapsulation (full ht) for columns and intumescent coatings for exposed interior columns (55 LF) and bracing (180 LF) along new Col Line D.3	1	EA	\$8,624	\$13,286	\$21,910	\$0	\$21,910	\$6,792	\$4,382	\$2,191	\$1,753	\$2,191	\$329	\$39,548

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232	Alt3-North	AR	INTERIOR MODIFICATIONS: A. Remove, salvage and store brick paving in areas of new foundation and column installation along Col Lines D.1 & D.3. B. Reinstall same after completion of foundation and column installation.	1	EA	\$7,260	\$0	\$7,260	\$0	\$7,260	\$2,251	\$1,452	\$726	\$581	\$726	\$109	\$13,104	
233	Alt3-North	AR	INTERIOR MODIFICATIONS: A. Remove gyp board soffit at Bridge south-end demolition area. [ref. Structural demolition] B. Patch gyp board soffit and fascia at south-end demolition area.	1	EA	\$2,620.00	\$1,250.00	\$3,870	\$0	\$3,870	\$1,200	\$774	\$387	\$310	\$387	\$58	\$6,985	
234	Alt3-North	AR	INTERIOR MODIFICATIONS: Remove south portion of continuous bench seating on Bridge. Maintain 10 ft clear between bench and new south end of Bridge.	1	EA	\$2,200.00	\$0.00	\$2,200	\$0	\$2,200	\$682	\$440	\$220	\$176	\$220	\$33	\$3,971	
235	Alt3-North*	AR	INTERIOR MODIFICATIONS: A. Install code-compliant temporary steel egress stair at south end of Bridge (9'-1" rise w/ intermediate landing. B. Install code-compliant steel access ladder(s) with intermediate platform to new low roof at south end of pavilion (28 ft rise).	1	EA	\$8,800.00	\$12,400.00	\$21,200	\$0	\$21,200	\$6,572	\$4,240	\$2,120	\$1,696	\$2,120	\$318	\$38,266	
236	Alt3-North*	AR	INTERIOR MODIFICATIONS: <u>Allowance -- New Toilet Facilities in Pavilion</u> - Assume 1200 SF total area and the following Plumbing Fixture Counts: Women's Toilet - 11 wc's + 9 lav's; Men's Toilet - 4 wc's 4 urinals + 8 lav's . Include toilet partitions and toilet room accessories . (final design by new Owner)	1	EA	\$17,280	\$20,340	\$37,620	\$0	\$37,620	\$11,662	\$7,524	\$3,762	\$3,010	\$3,762	\$564	\$67,904	
257	Alt3-North	ST	Demolition of the bridge section between grid lines 2.1 and 4, that extends into the building north of grid line D. The extent of this demolition occurs where a control joint is located, approximately 15 feet beyond the grid line D, 16 feet wide consisting of 6 1/2 inch slab. Along the sides there is a beam 1 foot wide extending 1'-4" below the slab and 2'-8" above the slab.	1	EA	\$28,650	\$0	\$28,650	\$0	\$28,650	\$8,882	\$5,730	\$2,865	\$2,292	\$2,865	\$430	\$51,713	
258	Alt3-North*	ST	Demolition of the ground floor slab, grade beams and trench bottoms, approximately 3,600 square feet as part of new foundation installation.	3600	SF	\$36,000	\$0	\$36,000	\$0	\$36,000	\$11,160	\$7,200	\$3,600	\$2,880	\$3,600	\$540	\$64,980	
259	Alt3-North*	ST	Remove soil to a depth of approximately twenty feet, resulting in about 65,000 cubic feet as part of new foundation installation.	65000	CF	\$26,000	\$0	\$26,000	\$0	\$26,000	\$8,060	\$5,200	\$2,600	\$2,080	\$2,600	\$390	\$46,930	
260	Alt3-North*	ST	Cast four new footings and piers to support the four new columns. Each footing is estimated to be six-feet by six-feet by eighteen inches thick. Each pier is estimated to be sixteen inches diameter and eighteen feet tall.	4	EA	\$23,100	\$18,900	\$42,000	\$0	\$42,000	\$13,020	\$8,400	\$4,200	\$3,360	\$4,200	\$630	\$75,810	
261	Alt3-North*	ST	Compact soil in the void created to cast the new footings and piers, approximately 65,000 cubic feet.	65000	CF	\$6,500	\$0	\$6,500	\$0	\$6,500	\$2,015	\$1,300	\$650	\$520	\$650	\$98	\$11,733	
262	Alt3-North*	ST	Cast new grade beams and slab sections to re-establish floor system, approximately 3,600 square feet.	3600	SF	\$9,750	\$12,400	\$22,150	\$0	\$22,150	\$6,867	\$4,430	\$2,215	\$1,772	\$2,215	\$332	\$39,981	

INDEPENDENCE LIVING HISTORY CENTER: identification of required building modifications for INDEPENDENT OPERATION OF THE North Facility of the Independence Living History Center																		
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263	Alt3-North*	ST	Provide shoring for the two north/south trusses. This shoring is to be located at the new truss support panel points. This shoring is needed to support the weight of the truss at this location and additional shoring is required for the top chord of each truss at this location.	1	EA	\$2,000	\$6,000	\$8,000	\$0	\$8,000	\$2,480	\$1,600	\$800	\$640	\$800	\$120	\$14,440	
264	Alt3-North*	ST	Remove the first diagonal member (TS8x0.5 x 14' long) at the first panel point for each truss (2).	28	FT	\$1,500	\$0	\$1,500	\$0	\$1,500	\$465	\$300	\$150	\$120	\$150	\$23	\$2,708	
265	Alt3-North*	ST	Remove the first vertical member at the first panel point (TSsx0.25 x 10' long) for each truss (2).	20	FT	\$1,500	\$0	\$1,500	\$0	\$1,500	\$465	\$300	\$150	\$120	\$150	\$23	\$2,708	
266	Alt3-North*	ST	Remove top and bottom chords of the first truss panel (each TS12x0.688 x 10' long) for each truss (2).	40	FT	\$3,000	\$0	\$3,000	\$0	\$3,000	\$930	\$600	\$300	\$240	\$300	\$45	\$5,415	
267	Alt3-North*	ST	Remove the existing end vertical (TS12x0.688 x 10' long) for each truss (2).	20	FT	\$2,200	\$0	\$2,200	\$0	\$2,200	\$682	\$440	\$220	\$176	\$220	\$33	\$3,971	
268	Alt3-North*	ST	Remove the existing column (W10x66 x 28' long) for each truss (2).	56	FT	\$8,800	\$0	\$8,800	\$0	\$8,800	\$2,728	\$1,760	\$880	\$704	\$880	\$132	\$15,884	
269	Alt3-North*	ST	Install new truss end vertical (TS12x0.688 x 14' long) with spherical bearing rotation assembly for each truss (2).	28	FT	\$16,000	\$42,000	\$58,000	\$0	\$58,000	\$17,980	\$11,600	\$5,800	\$4,640	\$5,800	\$870	\$104,690	
270	Alt3-North*	ST	Install new columns to support the new tress ends (W10x66 x 28' long) for each truss (2).	56	FT	\$21,000	\$52,000	\$73,000	\$0	\$73,000	\$22,630	\$14,600	\$7,300	\$5,840	\$7,300	\$1,095	\$131,765	
271	Alt3-North*	ST	Install new W12x26 member at mid-level of bracing for each truss (2).	36	FT	\$18,500	\$47,000	\$65,500	\$0	\$65,500	\$20,305	\$13,100	\$6,550	\$5,240	\$6,550	\$983	\$118,228	
272	Alt3-North*	ST	Install new HSS4x4x3/8 upper and lower braces for each truss (2).	182	FT	\$2,000	\$1,500	\$3,500	\$0	\$3,500	\$1,085	\$700	\$350	\$280	\$350	\$53	\$6,318	
273	Alt3-North*	ST	Install six new HSS6x6x3/8 x 28' long columns on the north side of the new wall to be constructed at the southern edge of the pavilion.	1092	FT	\$63,000	\$156,000	\$219,000	\$0	\$219,000	\$67,890	\$43,800	\$21,900	\$17,520	\$21,900	\$3,285	\$395,295	

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274	Alt3-North*	ST	Install two HSS6x6x3/8 x 90' long members at the top and at mid-level of the six columns supporting the new wall.	180	FT	\$21,000	\$52,000	\$73,000	\$0	\$73,000	\$22,630	\$14,600	\$7,300	\$5,840	\$7,300	\$1,095	\$131,765
275	Alt3-North*	ST	Install a shelf angle L6x4x3/8 attached to the mid-level HSS6x6 at the new wall.	90	FT	\$5,000	\$4,800	\$9,800	\$0	\$9,800	\$3,038	\$1,960	\$980	\$784	\$980	\$147	\$17,689
276	Alt3-North*	ST	Install an HSS6x6x3/8 attached to the four new columns and suspended from the southernmost truss at the mid-span section. This member is to provide support for roof framing members of section of new roof that is part of the new wall.	90	FT	\$9,800	\$6,200	\$16,000	\$0	\$16,000	\$4,960	\$3,200	\$1,600	\$1,280	\$1,600	\$240	\$28,880
280	Alt3-North	MEP	Preparation for separation of existing Visitor Center. Secure all existing utilities at or before property line to include steam, electric, water, and sewer.	1	ea	\$19,595	\$41,679	\$61,274	\$5,174	\$66,448	\$20,599	\$13,290	\$6,645	\$5,316	\$6,645	\$997	\$119,939
281	Alt3-North	MEP	Excavate and remove abandoned utility lines	1	ea	\$20,574	\$35,657	\$56,231	\$6,940	\$63,171	\$19,583	\$12,634	\$6,317	\$5,054	\$6,317	\$948	\$114,024
285	Alt3-North	FP	Complete demolition of old Simplex FACP (Mech Rm #118), devices, and wiring/conduit associated with north building FACP. [Estimated time for completion: 4 weeks]			\$16,000		\$3,200	\$0	\$3,200	\$992	\$640	\$320	\$256	\$320	\$48	\$5,776
286	Alt3-North	FP	New sprinkler system installed throughout north building (~28,000 ft2). Connect new system to city water supply. [Estimated time for completion: 10 weeks]			\$54,000	\$102,000	\$0	\$0	\$156,000	\$48,360	\$31,200	\$15,600	\$12,480	\$15,600	\$2,340	\$281,580
287	Alt3-North	FP	Install new manual pull station and notification device within new mechanical room. Devices shall be connected to existing Simplex 4020 FACP (located in the command center) [Estimated time for completion: 2 weeks]			\$260	\$350	\$0	\$0	\$610	\$189	\$122	\$61	\$49	\$61	\$9	\$1,101
TOTAL										\$1,389,519							\$2,508,082

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- ** Indirect Costs shown DO NOT include the following markups:**
1. Remoteness Factor (not applicable - not a remote location)
 2. Sales Tax
 3. Historic Preservation Factor (not applicable - not a historic facility)
 4. Federal Wage Rate Factor (not applicable - not a federal construction contract)
 5. Government General Conditions Factor (not applicable - not a federal construction contract)
 6. Contracting Method Adjustment Factor (not applicable - not a federal construction contract)
 7. Escalation Adjustment Factor

NOTES - ARCHITECTURAL

1. Asterisk (*) in "Cost-Associated..." column above indicates that the line-item is a specifically and directly identified Code requirement.

LIST OF ASSUMPTIONS – ARCHITECTURAL

1. Code compliance of existing building, unless otherwise identified in Report
2. Type II-B existing construction (non-protected structural elements).
3. Class A existing roof system
4. Inherent 2-hr fire-resistance rating of masonry wall assembly along Column Line D (South Building only)
5. No additional passive security requirements

LIST OF EXCEPTIONS – ARCHITECTURAL

1. Exterior egress system integrated with revised internal egress systems
2. Internal communication means between newly isolated Toilet Wing and Chilled Water Plant (South Building only)
3. NPS salvage coordination
4. NPS archaeological coordination
5. Zoning Code rerequisites (currently undefined by City of Philadelphia)
6. Removal of interior improvements and modifications (non-original), including archeological lab, etc. in the North Building
7. Detailed design integration of required facilities and features (North Building only), including:
 - a. Toilet facilities (cost Allowance is included)
 - b. Egress from south end of truncated Bridge (cost is included)
 - c. Interior furring and finishes at new exterior wall assemblies
 - d. Ceiling, fascia and interstitial space below new low south roof
 - e. Access (final configuration) to new low south roof (cost is included)
8. Additional mechanical space (North Building only)
9. Mechanical room facility (in toilet wing) (South Building only)
10. Demolition of tower (North Building only)
11. Hazardous materials abatement

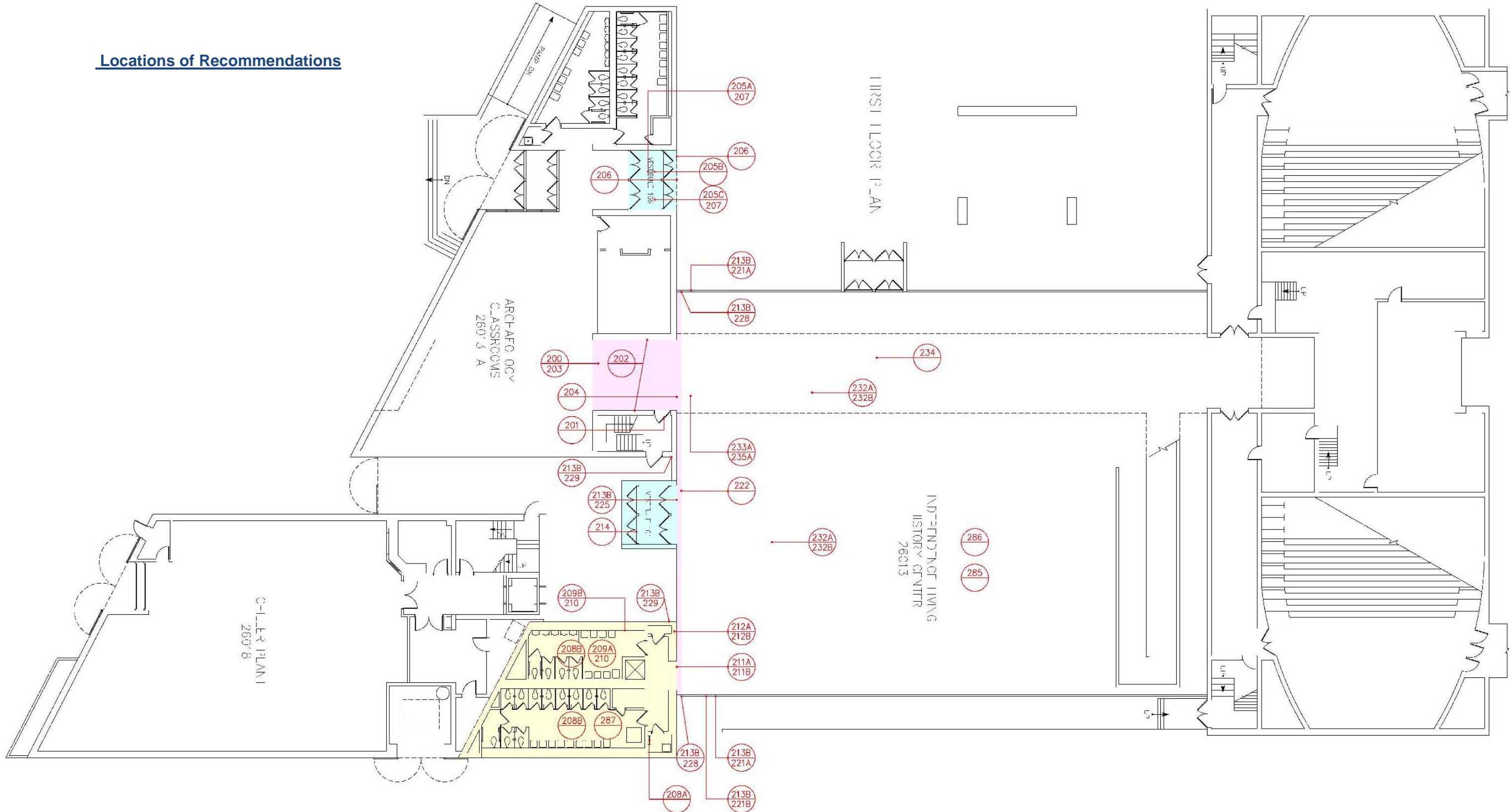
Independence Living History Center

Floor Plan Locations of Recommendations



East Facade

Locations of Recommendations



**Independence
Living History
Center**

APPENDIX A:
Field Sketches



South courtyard entry between
Education Classrooms and Chiller Plant

Figure 1: Fire Alarm Riser Diagram

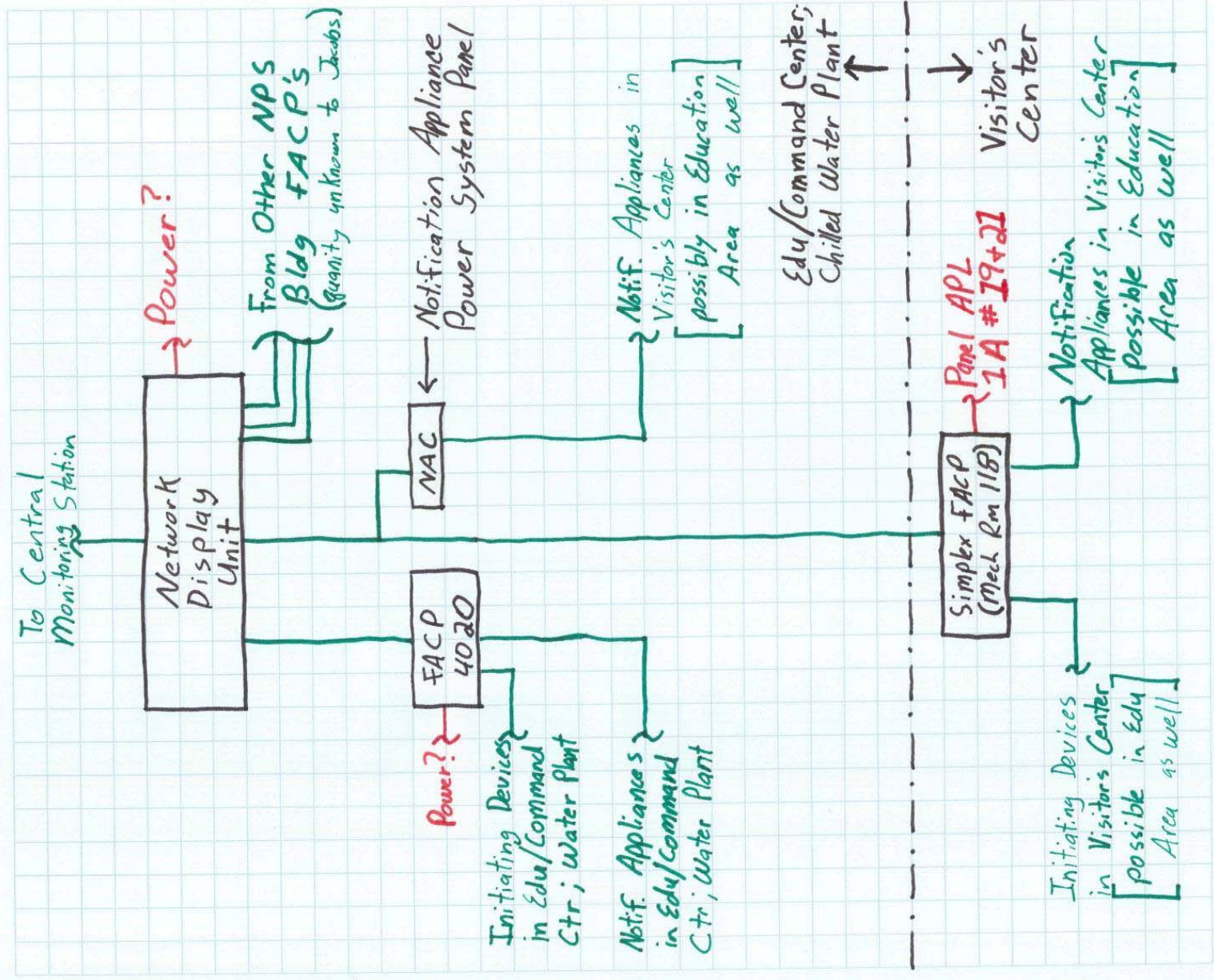


Figure 2: Life Safety Sketch – North Building, First Floor

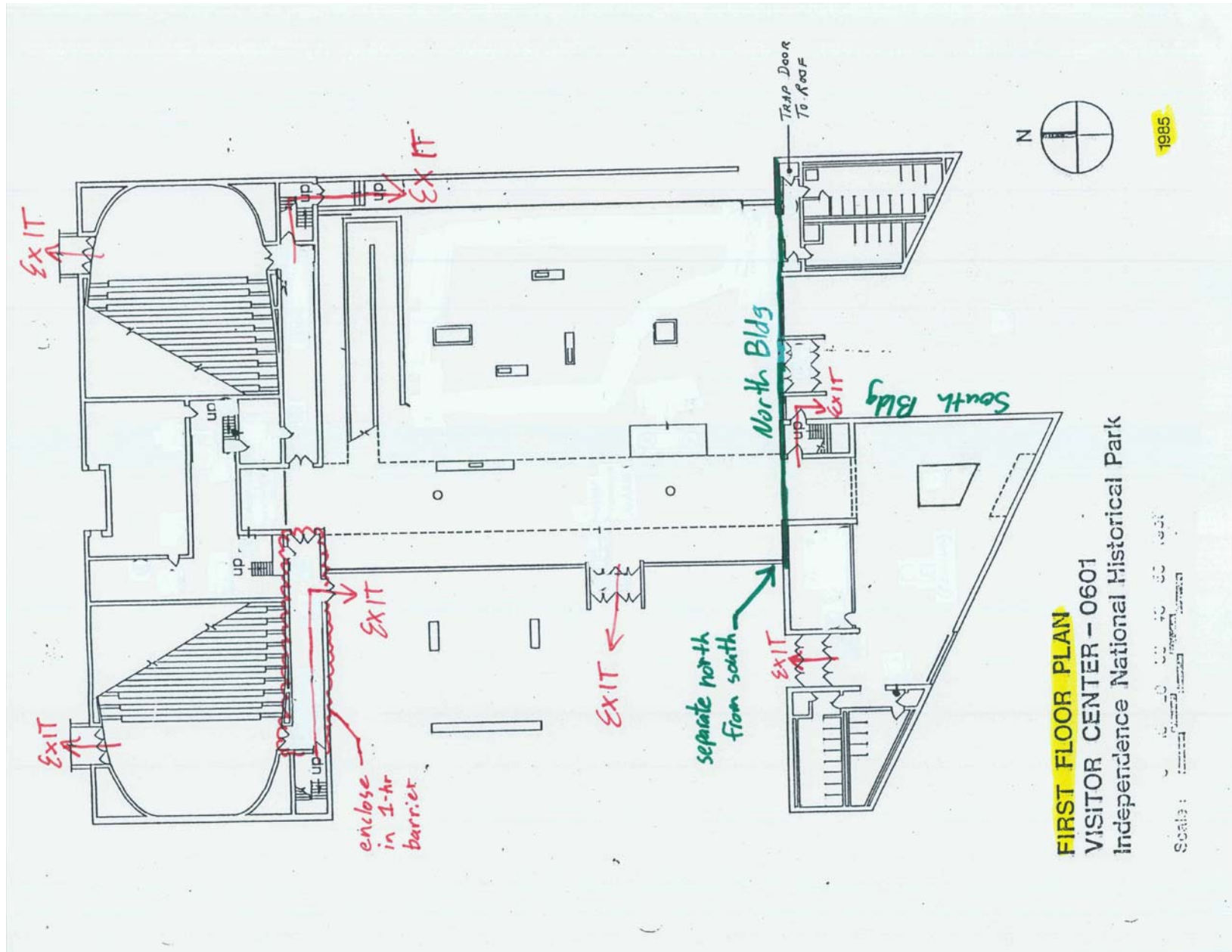


Figure 3: Life Safety Sketch – North Building, Second Floor

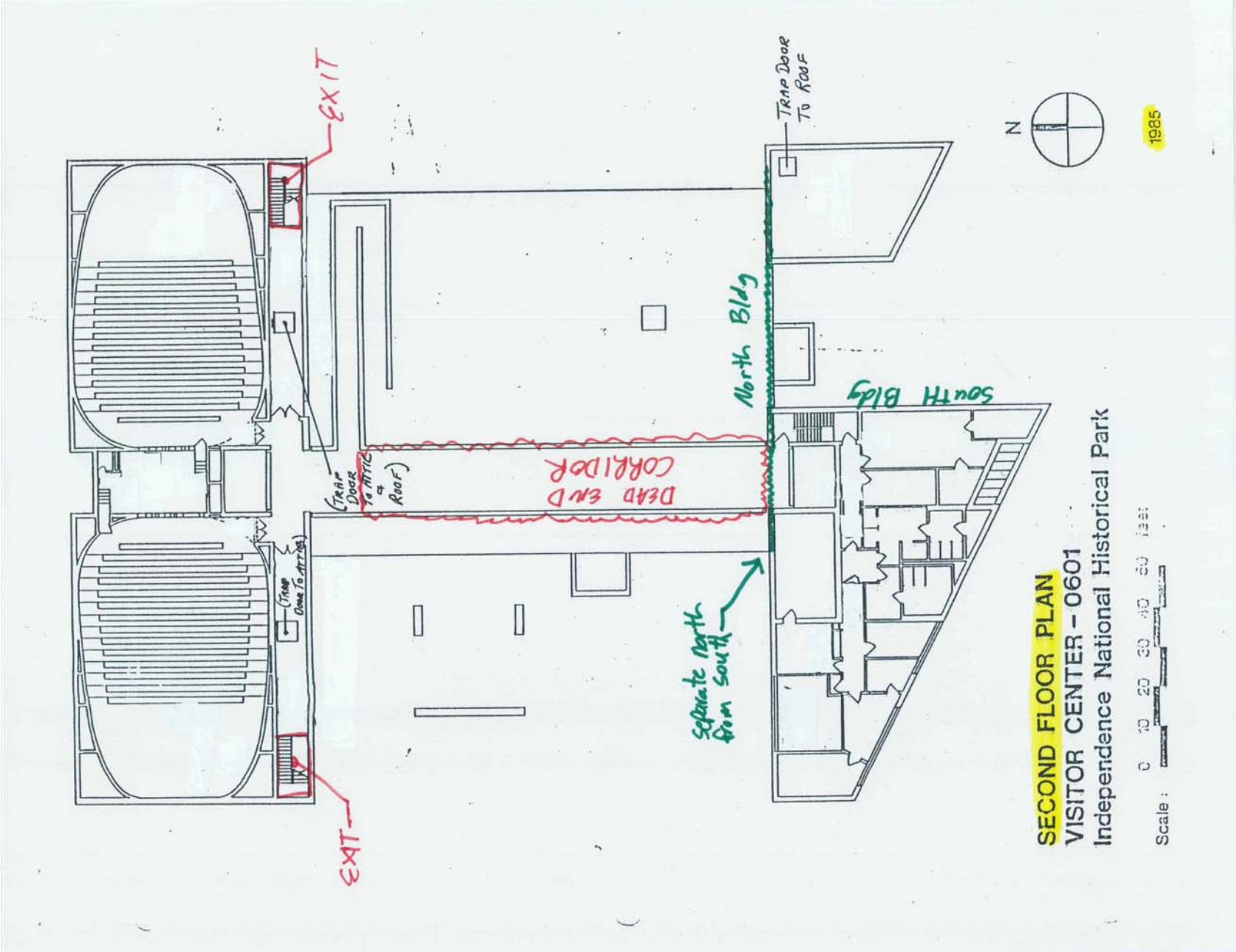
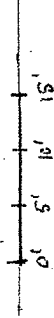


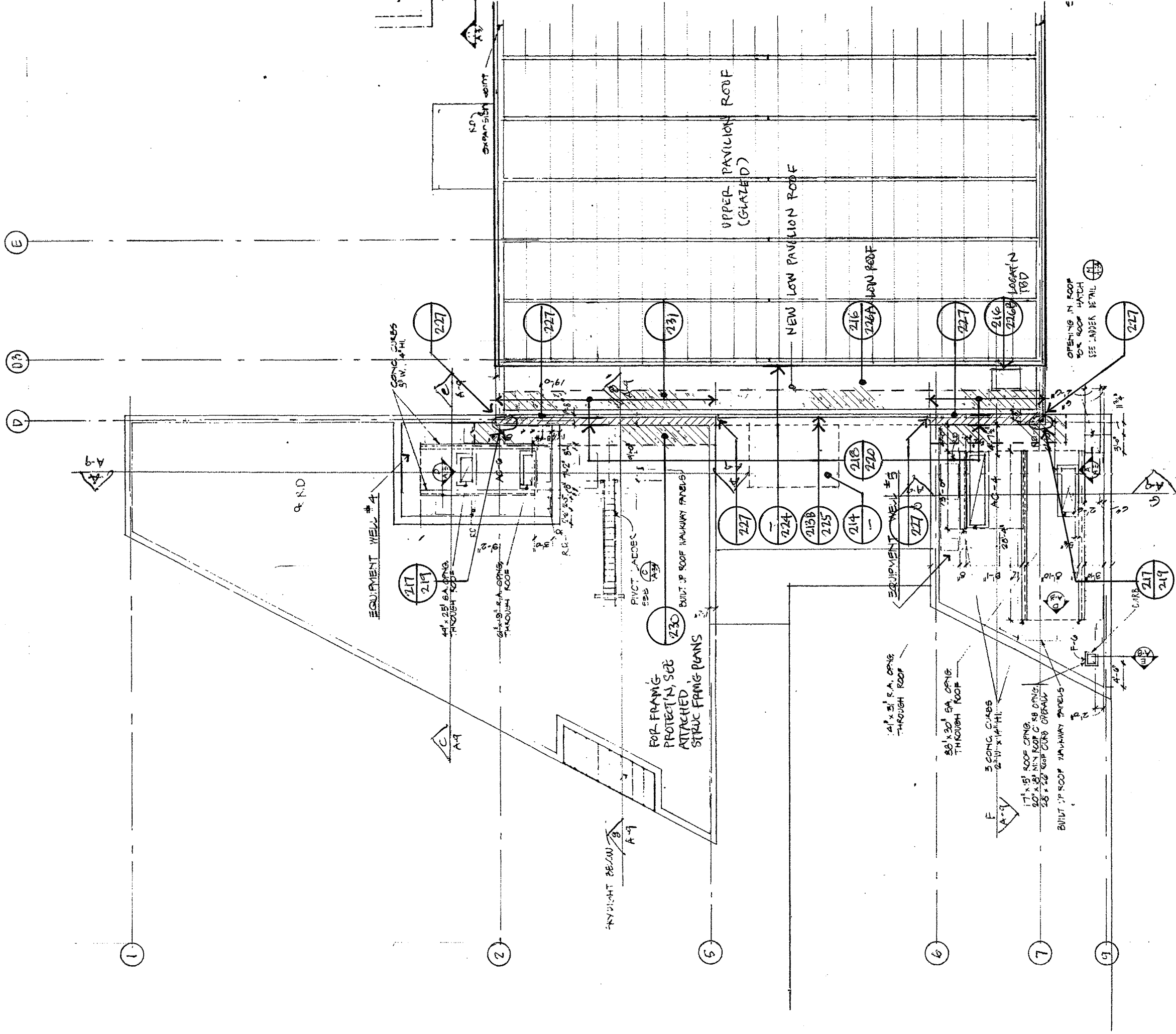
Figure 4: CONCEPT Sketches for Separation of Facilities

(8 field sketches)



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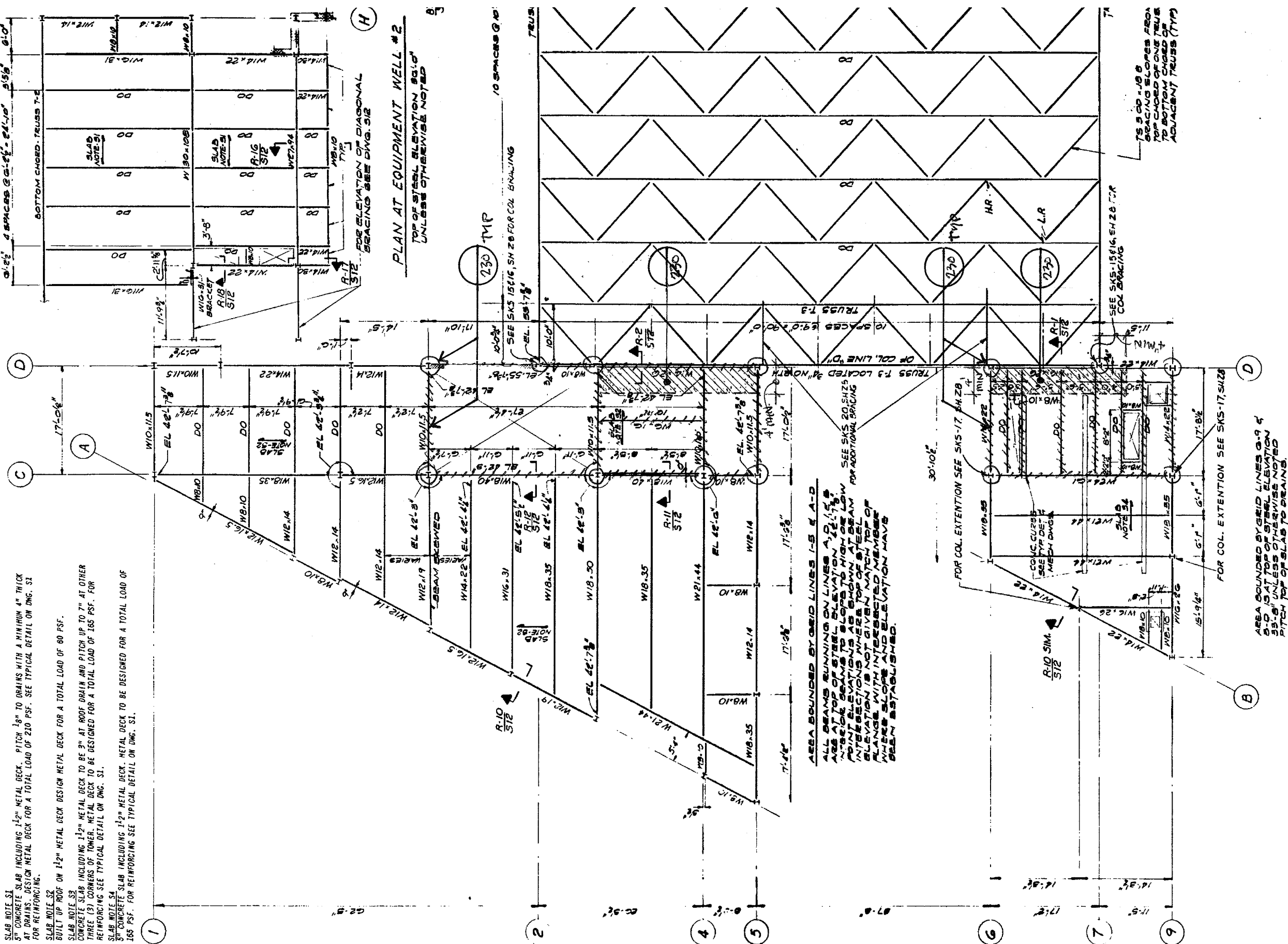




ROOF PLAN

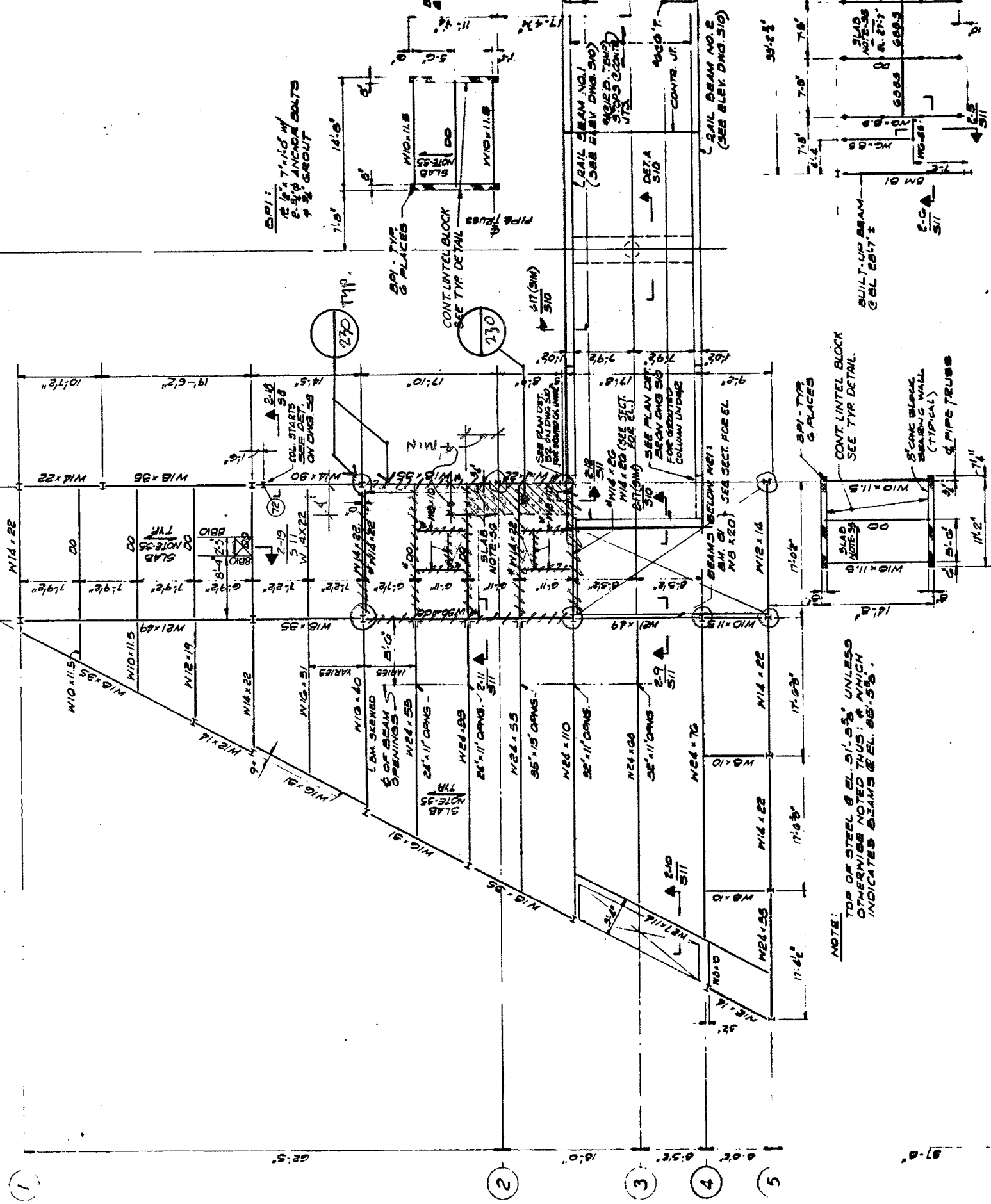
SLAB NOTES:

- SLAB NOTE S1
5" CONCRETE SLAB INCLUDING 1/2" METAL DECK, PITCH 1/8" TO DRAINS WITH A MINIMUM 4" THICK AT DRAINS. DESIGN METAL DECK FOR A TOTAL LOAD OF 210 PSF. SEE TYPICAL DETAIL ON DNG. S1 FOR REINFORCING.
- SLAB NOTE S2
BUILT UP ROOF ON 1/2" METAL DECK DESIGN METAL DECK FOR A TOTAL LOAD OF 60 PSF.
- SLAB NOTE S3
CONCRETE SLAB INCLUDING 1/2" METAL DECK TO BE 3" AT ROOF DRAIN AND PITCH UP TO 7" AT OTHER THREE (3) CORNERS OF TOWER. METAL DECK TO BE DESIGNED FOR A TOTAL LOAD OF 165 PSF. FOR REINFORCING SEE TYPICAL DETAIL ON DNG. S1.
- SLAB NOTE S4
5" CONCRETE SLAB INCLUDING 1/2" METAL DECK. METAL DECK TO BE DESIGNED FOR A TOTAL LOAD OF 165 PSF. FOR REINFORCING SEE TYPICAL DETAIL ON DNG. S1.

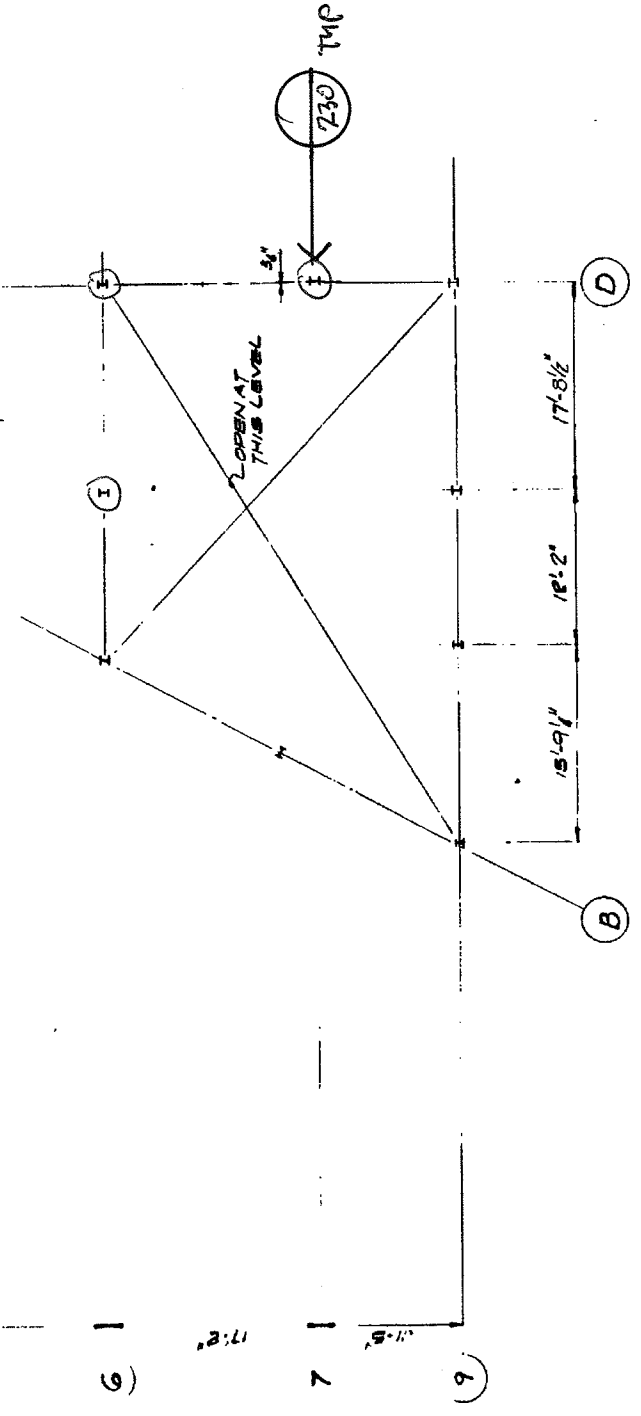


ROOF FRAMING PLAN

SLAB NOTES:
 SLAB NOTE SS
 5" CONCRETE SLAB INCLUDING 1/2" METAL DECK. METAL DECK TO
 BE DESIGNED FOR A TOTAL LOAD OF 165 PSF. FOR REINFORCING
 SEE TYPICAL DETAIL ON DNG. S1.
 SLAB NOTE SS
 5" CONCRETE SLAB INCLUDING 1/2" METAL DECK. METAL DECK TO
 BE DESIGNED FOR A TOTAL LOAD OF 210 PSF. FOR REINFORCING
 SEE TYPICAL DETAIL ON DNG. S1.



PART PLAN AT PR



EXIST'G
COL
LINE

NEW
COL
LINE

D

D.1

D.3

E

F

REMOVE SOUTH TRUSS PANEL
AND E-W TRUSS

10'-0 3/4

20'-0

60'-0

30'-0 3/4

REMOVE CONT. SKYLIGHT
ALONG SOUTH END OF ROOF

EXP.
JT.

224A

227

NEW LOW ROOF

FABRIC SUN SHADE
SEE A-6 & A-7

LIGHTING FIXTURES
SEE A-6 EX LOCATION

3x5 TEE (CONTINUOUS)

NEW COLUMNS @ E & W WALLS

NEW 2-HR FIRE RATED GYP BD FIREWALL (NORTH BLDG)

NEW BRK/CMU RETURN WALLS @ E & W PAVILION GLASS PLANES

213B
221 @ EXT.

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PLAN SET
001-138

LIBERTY BELL TOWER
FOR ELEVATIONS SEE SHEET A-8

T
-738

EL
31-3

A WEST ELEVATION
SCALE 1/8"=1'-0"

1/2" PL. GLASS

SEALANT JOINT

BRICK SHELF - MIN. 6" SBR.C.
BELOW GRADE

DETAILS @ PAVILION
MALL

FOR BELL TOWER ENTRY
DETAILS SEE E/A-18

PORCELAIN ENAMEL FASCIA

223

215A

215B

213A

213B

213B

221A

227

CONTROL JOINT

SKYLIGHT

BRICK SHELF MIN. 6" SBR.C.
BELOW GRADE

OBlique ELEVATION

FINISHED GRADE

DETAILS @
PAVILION MALL

NOTE: SEE DWG. NOS. Z-3, Z-4, Z-5,
Z-9 & Z-10 NEW TOWER DETAILS.

PORCELAIN ENAMEL FASCIA

1/2" PL. GLASS

1/2" PL. GLASS

SEALANT JOINT

INSULATED PORCELAIN ENAMEL PANEL

BRICK SHELF 6" MIN. - SBR.C.
BELOW GRADE (TYP)

FINISHED GRADE

213B
221B

DETAILS @
PAVILION MALL

FINISHED GRADE

SIM TO WEST WALL, UND

DETAILS @
PAVILION MALL

BRICK SHELF 6" MIN. - SBR.C.
BELOW GRADE (TYP)

FINISHED GRADE

THEATRE
ELEV. 31-

ELEVATION
1'-0"

4/26/10

