

**CITY OF KNOXVILLE**  
**REQUEST FOR QUALIFICATIONS**

**(Renovation of the Knoxville Civic  
Auditorium and Coliseum)**

**Qualifications to be Received by 11:00:00 a.m., Eastern Time on  
March 22, 2018**

Submit Qualifications to:  
City of Knoxville  
Office of Purchasing Agent  
City/County Building  
Room 667-674  
400 Main Street  
Knoxville, Tennessee 37902

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**Request for Qualifications**

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**City of Knoxville  
Request for Qualifications**

**Renovation of the Knoxville Civic Auditorium and Coliseum**

**I. Statement of Intent.** The City of Knoxville invites interested firms or teams to provide professional services qualifications for the “Renovation of the Knoxville Civic Auditorium and Coliseum Project.” A qualifications-based evaluation process will be used to select the firm or team that is best qualified to execute the project. The City intends to contract for the architectural design and necessary engineering services to renovate important aspects of the Knoxville Civic Auditorium and Coliseum (KCAC) in order to enhance the overall experience of patrons, sports teams, and exhibitors. These services are to include the renovation plans/design and subsequent preparation of bid specifications and contract documents for the “build-out” of the desired renovations. The renovations cover a wide array of projects so the City expects the winning qualifier to have a multi-disciplined team of architectural and engineering professionals on their team capable of preparing the design(s) for the desired renovations. The City envisions the contract being executed with an Architectural firm as the lead with engineering sub-consultants in various disciplines such as mechanical, electrical, plumbing, and structural engineering as well as a consultant with experience in designing ice rinks. A significant part of this project is renovating the ice rink floor. Additionally, the winning qualifier must work in close collaboration with a Construction Manager at Risk (CMAR), which the City will select in the near future.

**II. RFQ Time Line**

Availability of RFQ .....February 12, 2018

Pre-Qualifications Submittal Meeting .....March 1, 2018

Deadline for questions to be submitted in writing to the  
Purchasing Agent .....March 15, 2018

**Qualifications Due Date..... March 22, 2018**

This timetable is for the information of submitting entities. These dates are subject to change. **However, in no event shall the deadline for submission of qualifications be changed except by written modification from the City of Knoxville Purchasing Division.**

**III. Background.** The KCAC opened in 1961 and has served a very important role in the Knoxville community by hosting a wide variety of entertainment, sports, arts, cultural, educational and civic event activity. Over its lifespan, the Coliseum has served the Knoxville community and surrounding region as a site of thousands of sporting events, concerts, political gatherings, circuses, family shows, ice shows, civic events, religious events and other such events where large numbers of people gather. However, after more than 56 years, the building is clearly in need of some important renovations. A very basic description of the current facility and some of the areas the City desires to renovate are as follows:

- A. General: The KCAC is a City-owned multicomponent event facility that primarily consists of an arena but also has some space for meetings, banquets and other types of activities. However, the primary function of the Coliseum is as an arena venue which has 4,790 seats for hockey or ice shows. The KCAC consists of a 6,540 seat arena (4,790 seats for hockey or ice shows), a 2,500 seat performance hall, 4,800 square foot ballroom, 10,000 square feet of exhibit space and an outdoor plaza with a capacity of 10,000. The Coliseum has exceeded its practical life and needs renovating in some important areas in order to continue accommodating existing events. Note that the “as built” plans for the coliseum can be found as Exhibit “A” to this RFQ.
- B. Structure: There is spalling, cracking, exposed and/or rusting rebar, CMU wall settlement, corroded concrete, water infiltration, erosion, excessive gaps, and mineral deposits.
- C. Mechanical, Electrical and Plumbing:
1. A significant portion of the MEP equipment has reached the end of its useful life, requiring replacement or upgrades in order to mitigate unexpected breakdowns. The Building Automation System (BAS) is an Andover system and was added in the energy upgrade project approximately five years ago. It is in good condition and should continue to perform well for another ten years at least. However, upgrade of the demand control ventilation (DCV) control for some air handling units and single zone VAV control for all constant volume single zone system, including the Coliseum bowl air handling units are in need of replacement or repair.
  2. The air handling units are original to the facility and in working order, although a number of controls and motor upgrades have occurred through the years. The cooling coils are relatively clean and several of the units have added UV lights to maintain cleanliness. Condensate drain pans have little signs of biological growth and motors are in good condition. There are air exhaust systems in the Coliseum and some units do not function.
  3. Lighting consists of a variety of types – recessed and surface mount fixtures with incandescent as well as fluorescent bulbs. The City wants to move to LED technology. The sports lights in the Coliseum consist of 1000W metal halide fixtures, and overall the system is in fair condition. However, there is no building wide lighting control system, and the Coliseum uses the original control console with contractors to operate lights for events. The City desires a lighting control system to be installed that is capable of scheduling (for events), with local area control by occupancy sensors.
  4. Due to a ruptured water main in 2007/2008, a new single 4” high pressure water service with pressure reducing valve and backflow preventer, along with a new 8” fire service main, was installed. The system is operational. Some of the pipe insulation, however, is original to the building’s construction, and based on a study in 2014, it is likely that the insulation contains asbestos.
  5. Regarding pipe, the condition of the galvanized screw waste and vent piping is a concern. Although it appears to be in good condition on the outside, it is likely this type of galvanized pipe will corrode from the inside out, causing a reduced internal diameter,

which then causes reduced flow issues and leaks.

- D. Locker Rooms. The locker rooms in the Coliseum are simple rooms with lockers installed, limited environmental controls (especially problematic for hockey and all the wet gear that is present), dated and worn finishes, narrow doorways, and low ceiling height. The locker rooms need renovating.
- E. Ice Floor – The ice floor is original to the building and is in need of replacement including the drainage system, dashers and glass.
- F. Bathrooms – most plumbing fixtures and trim were changed out in the coliseum in 2010 with the exception of free-standing urinals in the men's rooms. The number one complaint from attendees is the general condition of the restrooms and need for additional facilities. Galvanized screw waste and vent piping is a concern.

**IV. General Conditions.** The following data is intended to form the basis for submission of qualifications to provide professional services for the City of Knoxville's Renovation of the KCAC. This material contains general conditions for the procurement process, the scope of service requested; contract requirements; instructions for submissions of qualifications; and submission forms that must be included in the Statement of Qualifications. The RFQ should be read in its entirety before preparing the submission.

4.1 All materials submitted pursuant to this RFQ shall become the property of the City of Knoxville and all expenses for making submission of qualifications shall be borne by submitting entity.

4.2 To the extent permitted by law, all documents pertaining to this RFQ shall be kept confidential until the qualification evaluation is complete and a recommendation submitted to City Council for review. No information about any submission of qualifications shall be released until the process is complete, except to the members of the Evaluation Committee and other appropriate City staff. All information provided shall be considered by the Evaluation Committee in making a recommendation to enter into an agreement with the selected consultant.

4.3 Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the RFQ shall be made **in writing and be in the hands of the Purchasing Agent by the close of the business day on March 15, 2018.** Questions can be submitted by letter, fax (865-215-2277), or email to [bhevans@knoxvilletn.gov](mailto:bhevans@knoxvilletn.gov). The City of Knoxville is not responsible for oral interpretations given by any City employee, representative, or others. The issuance of written addenda is the only official method whereby interpretation, clarification, or additional information can be given. If any addenda are issued to this Request for Qualifications, the Purchasing Division will post them to the City's website at: [www.knoxvilletn.gov/bids](http://www.knoxvilletn.gov/bids). Submitting organizations are strongly encouraged to view this site often to see if addenda are posted. Failure of any qualifier to receive such addendum or interpretation shall not relieve such Proposer from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

4.4 The City of Knoxville reserves the right to (a) accept or reject any and/or all submissions of qualifications; (b) to waive irregularities and technicalities; and (c) accept any alternative submission of qualifications presented which in its opinion, would best serve the interests of the

City. The City shall be the sole judge of the qualifications, and the resulting negotiated agreement that is in its best interest, and its decision shall be final. The City also reserves the right to make such investigation as it deems necessary to determine the ability of any submitting entity to perform the work or service requested. Information the City deems necessary to make this determination shall be provided by the submitting entity. Such information may include, but is not limited to, current financial statements by an independent CPA, verification of availability of equipment and personnel, and past performance records.

4.5 Included in the Contract Documents is an affidavit that the undersigned has not entered into any collusion with any person in respect to this qualification. The qualifier is required to submit this affidavit with the submission. Also included is the Diversity Business Program contracting packet. Submissions must indicate on the enclosed form whether or not the proposer/qualifier intends to use subcontractors and/or suppliers from one of the defined groups. Proposers/Qualifiers are advised that the City tracks use of such use, but it does not influence or affect evaluation or award.

4.6 Subsequent to the Evaluation Committee's review and the Mayor's recommendation of a firm(s), Knoxville City Council approval may be required before the final contract may be executed.

4.7 Any submission of qualifications may be withdrawn up until the date and time for opening of the submissions. **Any submission not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of 120 days to the City of Knoxville for the services set forth in the Request for Qualifications until one or more of the submissions have been duly accepted by the City.**

4.8 Prior to submitting their qualifications, qualifiers are to be registered with the Purchasing Division by setting up a Vendor Self-Service Account. Instructions for registering on-line are available at [www.knoxvilletn.gov/purchasing](http://www.knoxvilletn.gov/purchasing). **Submissions from un-registered qualifiers may be rejected.**

4.9 **NO CONTACT POLICY:** After the posting of this solicitation to the Purchasing Division's website, any contact initiated by any proposer with any City of Knoxville representative concerning this procurement action is strictly prohibited, unless such contact is made with the Purchasing Division representative listed herein or with said representative's authorization. Any unauthorized contact may cause the disqualification of the proposer from this procurement transaction.

4.10 **INCLEMENT WEATHER:** During periods of inclement weather, the Purchasing Division will enact the following procedures with regard to solicitations and weather delays:

- If City offices are closed due to inclement weather on the date that bids/proposals/qualifications/letters of interest are due into the Purchasing Office, all solicitations due that same day will be moved to the next operational business day.
- The City of Knoxville shall not be liable for any commercial carrier's decision regarding deliveries during inclement weather.

**V. Scope of Service.** The City of Knoxville seeks statements of qualifications from multi-disciplined, responsible and qualified firms or teams to conduct the “Renovation of the Knoxville Civic Auditorium and Coliseum Project.” The contracted services are to include the renovation plans/design and subsequent preparation of bid specifications and contract documents for the “build-out” of the desired renovations. The renovations cover a wide array of projects so the City expects the winning qualifier to have a multi-disciplined team of architectural and engineering professionals on their team capable of preparing the design(s) for the desired renovations. Below is a list of the design services that the City will require from the winning qualifier as well as other requirements that are related to this particular project:

5.1 The following is a list of the various tasks, as a minimum, that the City envisions the winning qualifier accomplishing for this project:

Task #1: Design Program Development: Analyze the existing site conditions to develop design objectives, constraints, opportunities, and criteria to identify all project parameters. Discussion with Working Group members, as well as other individuals or groups will be conducted to understand and document the project’s design program. A preliminary designation of project boundaries will be required during this phase. The renovation designs to the coliseum that the City desires are listed as follows:

### **Coliseum**

- Ice Floor. Demolition of existing floor and design new ice floor. New floor to have heating system for permafrost, drainage for ground water, new piping and install an ice pit connected to waste water line.
- Dashers/Box Seats/Ice Pit/Ice Cover/ Media Platform. Replacing the ice rink dashers, glass, media platform, and box seats
- Air Handler Units/Ventilation. Replacement of the air handling units. This includes replacement of the two existing air handlers and several small units as well as any and all duct work, etc. that is necessary.
- Lighting. Renovation of both the sports lighting in the arena and installing LED lighting in the seating areas and halls. Note that in the sports arena area, at present, the fixtures are no longer supported by GE
- Scoreboard. Scoreboard shall have video playback and live feed capabilities.
- Ceiling scrape, prime and paint. Re-painting of the ceiling in the sports arena area (includes scraping, priming, and painting).
- Asbestos Survey. Conduct a survey of both the auditorium and coliseum to determine what asbestos, if any, exists and is in need of remediation.

- Exterior Seepage. Conducting the necessary design to correct the exterior seepage.
- Bathroom Upgrades/replace lines (Coliseum only)
- Locker Room Upgrades
- Electrical Distribution System Upgrades to support large scale musical events and replace several distribution panels

### **Auditorium**

- Stage-house Rigging Bridge. Design, build and install a mid-level loading bridge to existing fly rail
- Fire Panel upgrade. Install two additional fire panels, strobes and horns to existing system
- Smoke vents repairs. These are located in the roof area and need to be repaired or replaced.
- Carpet House. New carpet is needed throughout the seated auditorium area (in the aisles).
- Seats. New seats are needed
- Stage Floor. A new floor is needed.
- House Lighting. Needs to be designed for LED Lighting to include controls
- Catwalk. Modifications to existing catwalk are necessary
- Orchestra Pit Lift. The City does not have one so one needs to be designed and built.

### **Garages**

- Garage Cameras. No cameras currently exist so the City wants them installed for security reasons
- Garage A controlled access gate. No controlled access gate exists at present and the City wants one installed
- Garage Repairs (Phase II). Specifically, the winning qualifier will prepare the design and

construction documents for the needed repairs of Garage “C,” the Pedestrian Bridge” and Parking Structure “B” that are listed in the columns labeled “High Priority Cost” and “Medium Priority Cost” on page 26 of the attached Condition Assessment from Walter P. Moore (see Exhibit “A”).

**NOTE:** The “As Built” schematics for the KCAC are included in the back of this RFQ as Exhibit “B.”

Task #2: Concept Design Options & Modifications: Potential design and structural options and modifications will be identified and evaluated, with functionality, aesthetics, and cost impacts being among the evaluation criteria used to determine the best project approach.

Task #3: Design Development & Preliminary Engineering: Design option for the various renovations will be selected for continued design and engineering work.

Task #4: Final Design and Engineering: The final design will reflect all changes required by the “working group.” This task will include, as a minimum, the completion of bid specifications, contract documents, construction plans, a detailed timeline for the project, and a final detailed cost estimate of each renovation to be undertaken.

Task #5: Construction Oversight Services: Construction Oversight Services for the project may be included in the contract in close collaboration with the CMAR. Work for this subtask will not start until a specific Notice to Proceed has been issued by the City.

**NOTE: A pre-qualification meeting will be held on March 1, 2018 from 2:00 p.m. until 5:00 p.m. (Eastern Time) in the Ballroom of the Knoxville Civic Coliseum which is located at 500 Howard Baker Jr Blvd., Knoxville, TN 37915. Interested qualifiers are encouraged to attend so they can view the existing KCAC conditions and discuss, more fully, the scope of services outlined above and ask questions as needed.**

Meet on a periodic basis with a Working Group that represents the stakeholders on behalf of the City that will serve in an oversight function, potentially consisting of, but not limited to, representatives from:

- City of Knoxville Deputy Chief of Operations (Contract Administrator)
- The City of Knoxville’s selected Construction Manager at Risk (Project Administrator)
- SMG’s management team which manages KCAC and other City owned facilities

## 5.2 Other requirements.

- A. The selected qualifier will provide detailed cost estimates for the renovations the City plans to make in such a manner that they are detailed enough so that the City can add to or take away from said repairs based on available funding.
- B. Provide a proposed sequence of events and timeline delineating which renovations should take place first, second, third and so forth such that all renovations (with the exception of

the ice rink floor) can be completed between execution of the CMAR Contract and April of 2019. Note, however, that the winning qualifier will need to work closely with the City on the timeline to ensure scheduled events are not disrupted by the work. Additionally, note that the City desires the ice rink floor renovation to occur between April 2, 2019 and October 1, 2019 so that it will not affect the 2019/2020 hockey season.

- C. The winning qualifier will be required to work in close collaboration with the Construction Manager at Risk that the City selects in the near future.

**VI. Contract Requirements.** Submitting entities, if selected, must be willing to sign a contract with the City which will include certain provisions, among which are the following:

6.1 Contract Documents. The contract shall consist of (1) the RFQ; (2) the qualifications submitted by the contractor to this RFQ; and (3) the contract. In the event of a discrepancy between the contract, the RFQ and the submitted qualifications, the terms that provide the greater benefit to the City and/or impose the greater obligation to the contractor will prevail.

6.2 Administration. The contract will be administered by the City of Knoxville's Deputy Chief of Operations.

6.3 Invoices. Invoices for services will be submitted to the City in accordance with the contract terms.

6.4 Independent Contractor. The relationship of contractor to the City will be that of independent contractor. The contractor will be solely and entirely responsible for its acts and for the acts of its agents, employees, servants and subcontractors done during the performance of the contract. All services performed by the contractor shall be provided in an independent contractor capacity and not in the capacity of officers, agents, or employees of the City.

6.5 Assignment. The contractor shall not assign or transfer any interest in this contract without prior written consent of the City of Knoxville.

6.6 Consultant shall indemnify, defend, save and hold harmless the City, its employees, agents, and officers, of and from suits, claims, actions, damages, and expenses, including reasonable attorney's fees, to the extent caused by the negligent acts, errors, omissions of the firm, and/or its agents, employees, officers, directors, consultants, subcontractors and suppliers ("Indemnified Claim").

Consultant shall assume and take over the defense of the City in any such claim, demand, suit, or cause of action involving an Indemnified Claim upon written notice and demand for same by the City. Consultant will have the right to defend the City with counsel of its choice that is satisfactory to the City, and the City will provide reasonable cooperation in the defense as Consultant may request. Consultant will not consent to the entry of any judgment or enter into any settlement with respect to an Indemnified Claim without the prior written consent of the City, such consent not to be unreasonably withheld or delayed. The City shall have the right to



participate in the defense against an Indemnified Claim with counsel of its choice at its own expense.

Consultant shall save, indemnify and hold City harmless and pay judgments that shall be rendered in any such actions, suits, claims or demands against the City with respect to any Indemnified Claim.

The indemnification and hold harmless provisions of this Agreement shall survive termination of the Agreement.

6.7 Termination. The City may this Agreement at any time, with or without cause, by written notice of termination to the Contractor.

If the City terminates this Agreement, and such termination is not a result of a default by the Contractor, the Contractor shall be entitled to receive as its sole and exclusive remedy the following amounts from the City, and the City shall have no further or other obligations to the Contractor: the amount due to the Contractor for work executed through the date of termination, not including any future fees, profits, or other compensation or payments which the Contractor would have been entitled to receive if this Agreement had not been terminated.

The City may, by written notice of default to the Contractor, terminate the whole or any part of this Agreement if the Contractor fails to perform any provisions of this Agreement and does not cure such failure within a period of ten (10) days (or such longer period as the Purchasing Agent may authorize in writing) after receipt of said notice from the Purchasing Agent specifying such failure. If this Agreement is terminated in whole or in part for default, the City may procure, upon such terms and in such manner as the Purchasing Agent may deem appropriate, supplies or services similar to those terminated.

6.8 Insurance. When applicable and prior to the commencement of the contract, contractor must, at its sole expense, obtain and maintain in full force and effect for the duration of the Agreement and any extension hereof at least the following types and amounts of insurance for claims which may arise from or in connection with this Agreement. Contractor shall furnish the City of Knoxville with properly executed certificates of insurance which shall clearly evidence all insurance required by the City. All insurance must be underwritten by insurers with an A.M. Best rating of A-VIII or better. Such insurance shall be at a minimum the following:

- A. **Commercial General Liability Insurance;** occurrence version commercial general liability insurance, and if necessary umbrella liability insurance, with a limit of not less than two million dollars each occurrence for bodily injury, personal injury, property damage, and products and completed operations. If such insurance contains a general aggregate limit, it shall apply separately to the work/location in this Agreement or be no less than \$3,000,000.

Such insurance shall:

- (a.) Contain or be endorsed to contain a provision that includes the City, its

officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. The coverage shall contain no special limitations on the scope of its protection afforded to the above-listed insureds. Proof of additional insured status up to and including copies of endorsements and/or policy wording will be required.

(b.) For any claims related to this project, Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, officers, employees, and volunteers. Any insurance or self-insurance programs covering the City, its officials, officers, employees, and volunteers shall be excess of Contractor's insurance and shall not contribute with it.

(c.) At the sole discretion of the City, dedicated limits of liability for this specific project may be required.

- B. **Automobile Liability Insurance;** including vehicles owned, hired, and non-owned, with a combined single limit of not less than \$1,000,000 each accident. Such insurance shall include coverage for loading and unloading hazards. Insurance shall contain or be endorsed to contain a provision that includes the City, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of Contractor.
- C. **Workers' Compensation Insurance.** Contractor shall maintain workers' compensation insurance with statutory limits as required by the State of Tennessee or other applicable laws and employers' liability insurance with limits of not less than \$500,000. Contractor shall require each of its subcontractors to provide Workers' Compensation for all of the latter's employees to be engaged in such work unless such employees are covered by Contractor's workers' compensation insurance coverage.
- D. **Professional Liability (including Errors & Omissions).** Consultant shall maintain professional liability insurance covering claims arising from real or alleged negligent errors, omissions, or acts committed in the performance of professional services under this contract with limits of \$2,000,000. If the coverage is written on a claims-made form:
- a. The "Retro Date" must be shown and must be before the date of the contract or the beginning of contract work.
  - b. Insurance must be maintained and evidence of insurance must be provided for at least three (3) years after completion of the contract work and acceptance by the City.
  - c. If coverage is cancelled or non-renewed and not replaced with another claims-made policy form with a "Retro Date" prior to the contract effective date, Consultant must purchase "extended reporting" coverage

- for a minimum of three (3) years after completion of contract work.
- d. A copy of the claims reporting requirements must be submitted to the City for review.

**E. Other Insurance Requirements.** Contractor shall:

- Prior to commencement of services, furnish the City with original certificates and amendatory endorsements effecting coverage required by this section and provide that such insurance shall not be cancelled, allowed to expire, or be materially reduced in coverage except on 30 days' prior written notice to the City Attorney of Knoxville; P.O. Box 1631; Knoxville, Tennessee 37901. Proof of policy provisions regarding notice of cancellation will be required.
- Upon the City's request, provide certified copies of endorsements and policies if requested by the City in lieu of or in addition to certificates of insurance. Copies of policies will only be requested when contracts are deemed to be extremely or uniquely hazardous, include a dollar amount that is significant to the overall budget of the City or a City Department, or the coverage(s) may not follow standard insurance forms. A policy will only be requested after the City's Risk Manager has reviewed the contract and proof of coverage has been provided. Should the certificate of insurance refer to specific coverage wording or endorsements(s), proof of such policy wording or endorsement(s) will be required.
- Replace certificates, policies, and endorsements for any such insurance expiring prior to completion of services.
- Maintain such insurance from the time services commence until services are completed. Failure to maintain or renew coverage or to provide evidence of renewal may be treated by the City as a material breach of contract.
- If Contractor cannot procure insurance through an insurer having an A.M. Best rating of A-VIII, Contractor may, in the alternative, place such insurance with insurer licensed to do business in Tennessee and having A.M. Best Company ratings of no less than A. Modification of this standard may be considered upon appeal to the City Law Director.
- Require all subcontractors to maintain during the term of the Agreement Commercial General Liability insurance, Business Automobile Liability insurance, and Workers' Compensation/Employer's Liability insurance (unless subcontractor's employees are covered by Contractor's insurance) in the same manner as specified for Contractor. Contractor shall furnish subcontractors' certificates of insurance to the City without expense immediately upon request.
- Large Deductibles; Self-Insured Retentions. Any deductibles and/or self-insured retentions greater than \$50,000 must be disclosed to and approved by the City of Knoxville prior to the commencement of services. Use of large deductibles and/or

self-insured retentions may require proof of financial ability as determined by the City.

- Waiver of Subrogation Required. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, and employees for losses arising from work performed by Contractor for the City. Proof of waiver of subrogation up to and including copies of endorsements and/or policy wording will be required.
- Occurrence Basis Requirement. All general liability policies must be written on an occurrence basis, unless the Risk Manager determines that a claims made basis is reasonable in the specific circumstance. Use of policies written on a claims made basis must be approved by the City. Risk Manager and retroactive dates and/or continuation dates must be provided to the City prior to commencement of any work performed. Professional Liability and Environmental Liability (Pollution Coverage) are most commonly written on a claims made basis and are generally acceptable in that form.

6.9 Ethical Standards. Attention of all firms is directed to the following provisions contained in the Code of the City of Knoxville: Chapter 24, Article II, Section 24-33 entitled “Debts owed by persons receiving payments other than Salary;” Chapter 2, Article VIII, Division 11. the Contractor hereby takes notice of and affirms that it is not in violation of, or has not participated, and will not participate, in the violation of any of the following ethical standards prescribed by the Knoxville City Code:

A. Section 2-1048. Conflict of Interest.

It shall be unlawful for any employee of the city to participate, directly or indirectly, through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing or otherwise, in any proceeding or application, request for ruling or other determination, claim or controversy or other matter pertaining to any contract or subcontract and any solicitation or proposal therefore, where to the employee’s knowledge there is a financial interest possessed by:

- (1) the employee or the employee’s immediate family;
- (2) A business other than a public agency in which the employee or member of the employee’s immediate family serves as an officer, director, trustee, partner or employee; or
- (3) Any person or business with whom the employee or a member of the employee’s immediate family is negotiating or has an arrangement concerning prospective employment.

B. Section 2-1049. Receipt of Benefits from City Contracts by Council Members, Employees and Officers of the City.

It shall be unlawful for any member of council, member of the board of education, officer or employee of the city to have or hold any interest in the profits or emoluments of any contract, job, work or service, either by himself or by another, directly or indirectly. Any such contract for a job, work or service for the city in which any member of council, member of the board of education, officer or employee has or holds any such interest is void.

C. Section 2-1050. Gratuities and Kickbacks Prohibited.

It is unlawful for any person to offer, give or agree to give to any person, while a city employee, or for any person, while a city employee, to solicit, demand, accept or agree to accept from another person, anything of a pecuniary value for or because of:

- (1) An official action taken, or to be taken, or which could be taken;
- (2) A legal duty performed, or to be performed, or which could be performed; or
- (3) A legal duty violated, or to be violated, or which could be violated by such person while a city employee.

Anything of nominal value shall be presumed not to constitute a gratuity under this section.

Kickbacks. It is unlawful for any payment, gratuity, or benefit to be made by or on behalf of a subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

D. Section 2-1051. Covenant Relating to Contingent Fees.

(a) Representation of Contractor. Every person, before being awarded a contract in excess of ten thousand dollars (\$10,000.00) with the city, shall represent that no other person has been retained to solicit or secure the contract with the city upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except for bona fide employees or bona fide established commercial, selling agencies maintained by the person so representing for the purpose of securing business.

(b) Intentional Violation Unlawful. The intentional violation of the representation specified in subsection (a) of this section is unlawful.

E. Section 2-1052. Restrictions on Employment of Present and Former City Employees.

Contemporaneous employment prohibited. It shall be unlawful for any city employee to become or be, while such employee, an employee of any party contracting with the particular department or agency in which the person is employed.

For violations of the ethical standards outlined in the Knoxville City Code, the City has the following remedies:

- (1) Oral or written warnings or reprimands;
- (2) Cancellation of transactions; and
- (3) Suspension or debarment from being a Contractor or subcontractor under city or city-funded contracts.

The value of anything transferred in violation of these ethical standards shall be recoverable by the City from such person. All procedures under this section shall be in accord with due process requirements, included but not limited to a right to notice and hearing prior to imposition of any cancellation, suspension or debarment from being a Contractor or subcontractor under a city contract.

6.10 Firms must comply with the President's Executive Order No. 11246 and 11375 which

prohibit discrimination in employment regarding race, color, religion, sex or national origin. Firms must also comply with Title VI of the Civil Rights Act of 1964, Copeland Anti-Kick Back Act, the Contract Work Hours and Safety Standards Act, Section 402 of the Vietnam Veterans Adjustment Act of 1974, Section 503 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, all of which are herein incorporated by reference.

6.11 Firms shall give consideration to the inclusion of minority firms or individuals in this project, and shall advise the city in this submittal of qualifications of their efforts to do so.

6.12 Firms shall give consideration to the use of environmentally sustainable best practices, and shall advise the city in this submittal of qualifications of their efforts to do so.

6.13 Federal, State, and Local Requirements. Each submitting entity is responsible for full compliance with all applicable federal, state, and local laws, rules and regulations.

6.14 Licenses. The contractor must be a licensed professional as required by the State of Tennessee for any services in this contract requiring such licensure. Additionally, any and all sub-consultants/contractors employed by the prime consultant/contractor for the performance of the services requested in this RFQ must be licensed as professional service firms in the State of Tennessee if said sub-consultants/contractors will perform services that are considered professional in nature. As such, the prime consultant/contractor submitting his/her statement of qualifications must submit an affidavit with his/her statement of qualifications stating that all sub-consultants/contractors he plans to use are indeed licensed as professional service firms in the State of Tennessee. This affidavit is located in the "submission forms" section of this RFQ.

6.15 Before a contract is signed by the City, the submitting entity, if selected, **must** provide the City Purchasing Division with a copy of its valid business license **or** with an affidavit explaining why it is exempt from the business licensure requirements of the city or county in which it is headquartered. If a contract is signed, the contractor's business license shall be kept current throughout the duration of the contract, and the contractor shall inform the City of changes in its business name or location.

6.16 Funding. The City's performance and obligation to pay under this contract is subject to funding contingent upon an annual appropriation.

6.17 Governing Law and Venue. This Agreement shall be governed by and construed in accordance with the substantive laws of the State of Tennessee and its conflict of laws provisions. Venue for any action arising between the City and the Contractor from the Agreement shall lie in Knox County, Tennessee.

6.18. Subcontracts to the Agreement. Contractor shall not enter into a subcontract for any of the services performed under this Agreement without obtaining the prior written approval of the City.

6.19. Amendments. This Agreement may be modified only by a written amendment or addendum that has been executed and approved by the appropriate officials shown on the signature page of the Agreement.

6.20 Captions. The captions appearing in the Agreement are for convenience only and are not a part of the Agreement; they do not in any way limit or amplify the provisions of the Agreement.

6.21. Severability. If any provision of the Agreement is determined to be unenforceable or invalid, such determination shall not affect the validity of the other provisions contained in the Agreement. Failure to enforce any provision of the Agreement does not affect the rights of the parties to enforce such provision in another circumstance, nor does it affect the rights of the parties to enforce any other provision of this Agreement at any time.

6.22 No Benefit for Third Parties. The services to be performed by the Contractor pursuant to the Agreement with the City are intended solely for the benefit of the City, and no benefit is conferred hereby, nor is any contractual relationship established herewith, upon or with any person or entity not a party to the Agreement. No such person or entity shall be entitled to rely on the Contractor's performance of its services hereunder, and no right to assert a claim against the City or the Contractor, its officers, employees, agents, or contractors shall accrue to the Contractor or to any subcontractors, independently retained professional consultant, supplier, fabricator, manufacturer, lender, tenant, insurer, surety, or any other third party as a result of this Agreement or the performance or non-performance of the Contractor's services hereunder.

6.23 Non-Reliance of Parties. Parties explicitly agree that they have not relied upon any earlier or outside representations other than what has been included in the Agreement. Furthermore, neither party has been induced to enter into this Agreement by anything other than the specific written terms set forth herein.

6.24. Force Majeure. Neither party shall be liable to the other for any delay or failure to perform any of the services or obligations set forth in this Agreement due to causes beyond its reasonable control, and performance times shall be considered extended for a period of time equivalent to the time lost because of such delay plus a reasonable period of time to allow the parties to recommence performance of their respective obligations hereunder. Should a circumstance of force majeure last more than ninety (90) days, either party may by written notice to the other terminate this Agreement. The term "force majeure" as used herein shall mean the following: acts of God; strikes, lockouts or other industrial disturbances; acts of public enemies; orders or restraints of any kind of the government of the United States or of the State or any of their departments, agencies or officials, or any civil or military authority; insurrections, riots, landslides, earthquakes, fires, storms, tornadoes, droughts, floods, explosions, breakage or accident to machinery, transmission pipes or canals; or any other cause or event not reasonably within the control of either party.

6.25 EEO/AA/ The City of Knoxville is an EE/AA/Title VI/Section 504/ADA/ADEA Employer.

6.26 By submitting a statement of qualifications, the submitting entity agrees to all terms and conditions established in this RFQ, including its contract requirements.

**VII. Instructions to Submitting Entities.** All submissions of qualifications shall comply with the following instructions. These instructions ensure that (1) submissions contain the information and documents required by the City RFQ; and (2) the submissions have a degree of uniformity to facilitate evaluation.

7.1 General. Submission forms and RFQ documentation may be obtained on or after February 12, 2018, at no charge from:

City of Knoxville Purchasing Division  
City/County Building  
400 Main Street, Room 667  
Knoxville, Tennessee 37902

between 8:30 a.m. and 4:30 p.m. (Eastern Time), Monday through Friday or by calling 865-215-2070. Forms and RFQ information are also available on the City web site at [www.knoxvilletn.gov/purchasing](http://www.knoxvilletn.gov/purchasing) where it can be read or printed using Adobe Acrobat Reader software.

7.2 Submission Information. Submitters shall include 8 hard copies (one original and seven duplicates—**mark the original as such**), as well as one electronic copy of their submission (.pdf format on CD only—**mark the storage device with the company name**); the electronic version shall be an exact duplicate of the original, and the electronic version will be the official document exhibited in the contract. **Electronic submissions must be included with the sealed submissions; do not email your submission.**

Submissions of Qualifications shall clearly indicate the legal name, address and telephone number of the submitting entity (company, firm, partnership, individual). Original signature must be signed above the typed or printed name and title of the signer. All submissions of qualifications must be signed by an officer of the company authorized to bind the firm to a contract.

Qualifications will be received until 11:00:00 a.m. (Eastern Time) on March 22, 2018. Each submission of qualifications must be submitted in a sealed envelope addressed to:

City of Knoxville Purchasing Division  
City/County Building  
400 Main Street, Room 667  
Knoxville, TN 37902

**IMPORTANT NOTE: Each outermost mailing envelope or shipping carton containing a submission of qualifications must be plainly marked on the outside “Renovation of the Knoxville Civic Auditorium and Coliseum.”** Those making submissions are reminded that the Purchasing Division receives many submissions for any number of solicitations; **unlabeled submissions are extremely difficult to match to their appropriate solicitations and therefore may be rejected.**

Any submissions of qualifications received after the time and date on the cover sheet will not be considered. It shall be the sole responsibility of the submitting entity to have the submissions of



qualifications delivered to the City of Knoxville Purchasing Division on or before that date.

Late submissions will not be considered. Submissions that arrive late due to the fault of United States Postal Service, United Parcel Service, DHL, FEDEX, any delivery/courier service, or any other carrier of any sort are still considered late and shall not be accepted by the City. Such submissions shall remain unopened and will be returned to the submitting entity upon request.

- 7.3 Format. The City is committed to reducing waste. Submissions of qualifications must be typed on 8.5 x 11 inch wide white paper, printed on both sides. DO NOT BIND the document; instead, staple or binder clip the submission together and place in a sealed envelope (see Paragraph 7.2). Pages must be consecutively numbered. A table of contents must be included in the submission immediately after the title page, and each of the following numbered sections must be tabbed.

Submissions of qualifications shall be structured as follows:

1. Title Page
2. Table of Contents
3. Submission Forms:
  - A. Form S-1
  - B. Non-Collusion Affidavit
  - C. Iran Divestment Act Certification of Non-inclusion
  - D. Diversity Business Enterprise Program form
4. Body of Statement of Qualifications which submitting entity wishes to include

NOTE: All required submission forms may be found in this solicitation document.

7.4 Evaluation of Qualifications. All qualified submissions received by the deadline will be analyzed by the Evaluation Committee according to the criteria outlined in these specifications. Failure to comply with the provisions of the RFQ may cause any submission of qualifications to be ineligible for evaluation. Each submittal of Qualifications will be initially analyzed and judged according to the evaluation criteria below. The maximum score is 100 points.

Firms and/or teams responding to this Request for Qualifications shall be available for interviews with the Evaluation Committee. Discussions may be conducted with responsible submitting entities for purposes of clarification to assure full understanding of and conformance to the RFQ requirements. Selection shall be based on the firms' qualifications applicable to the scope and nature of the services to be performed per this request for qualifications. Determination of firms' qualifications shall be based on their written responses to this Request for Qualifications and information presented to the Evaluation Committee during oral interviews, if any.

Each Statement of Qualifications will be initially analyzed and judged according to the evaluation criteria listed in Section VIII below. The maximum score is 100 points. In addition to materials provided in the written responses to this Request for Qualifications, the Committee may request additional material, information, or references from the submitting entity or others.

Provided it is in the best interest of the City of Knoxville, the firm or team determined to be the most

responsive to the City of Knoxville, taking into consideration the evaluation factors set forth in this Request for Qualifications, will be selected to begin contractual negotiations. The firm or team selected will be notified at the earliest practical date and invited to submit more comprehensive information if necessary. If no satisfactory agreement can be reached with the “most responsive firm,” the City may elect to negotiate with the next best and most responsive firm or team.

**VIII. Evaluation Criteria.** An evaluation team, composed of representatives of the City, will evaluate Statements of Qualifications on a variety of quantitative and qualitative criteria. Upon receipt of submissions, the City will review to determine whether the submission is acceptable or non-acceptable based on the criteria outlined below.

The criteria, and their associated weights, upon which the evaluation of the qualifications will be based include, but are not limited to, the following:

**1. Demonstrated ability to communicate & coordinate with a Construction Manager at Risk and multiple parties to ensure projects are conducted on time, to standard, and within budget (30 points).** This includes evidence of good communication and coordination with all involved parties to include the client, a Construction Manager at Risk, various regulatory agencies, and other potential stakeholders. This includes the use of creative problem solving, and the ability to manage staff and budgets to minimize the necessity for project change orders.

**2. Relevant experience and qualifications of team members, as it pertains to this project, as well as the level of involvement of team members (30 points).** State the respective roles of your primary team members in regard to this project. Provide a chart that clearly depicts the persons who will be working on this project and their respective roles with particular emphasis on your principal-in-charge and Project Manager. Describe the PIC & PM’s project management expertise with regard to managing the various architectural and engineering disciplines needed to complete this project. Also describe the dedication of time (as a percentage of available weekly work hours) to be spent on the Project by the principal-in-charge.

**3. Experience with similar renovation design projects (25 Points).** Describe similar type projects your firm or team has completed in the past five years that include the type renovations listed in the scope of services in this RFQ. In particular, please describe any projects where your firm has managed multi-disciplined architectural and engineering sub-consultants in completing a large scale project that your firm was the lead on.

**3. Ice Rink Design Experience. (15 points).** List and describe any experience your firm has had in designing ice rinks similar in size to that which is in the current Knoxville Coliseum.

# Submission Forms

**CITY OF KNOXVILLE  
REQUEST FOR QUALIFICATIONS**

**Renovation of the Knoxville Civic  
Auditorium and Coliseum**

**Submission Form (S-1)**

**Qualifications To Be Received by 11:00 a.m., Eastern Time, March 22, 2018, in Room 667-674,  
City/County Building, Knoxville, Tennessee.**

**IMPORTANT:** Submitters shall include eight hard copies (one original and seven duplicates—**mark the original as such**), as well as one electronic copy of their submission (.pdf format on CD only—**mark the storage device with the company name**); the electronic version shall be an exact duplicate of the original, and the electronic version will be the official document exhibited in the contract. **Electronic submissions must be included with the sealed submissions; do not email your submission.**

**Please complete the following:**

**Legal Name of Qualifier:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone Number:** \_\_\_\_\_

**Fax Number:** \_\_\_\_\_

**Contact Person:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Name and Title of Signer:**

\_\_\_\_\_

**Note: Failure to use these response sheets may disqualify your submission.**

## NON-COLLUSION AFFIDAVIT

State of \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_, being first duly sworn, deposes and says that:

- (1) He/She is the \_\_\_\_\_ of \_\_\_\_\_, the firm that has submitted the attached Proposal;
- (2) He/She is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;
- (3) Such Proposal is genuine and is not a collusive or sham Proposal;
- (4) Neither the said firm nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other vendor, firm or person to submit collusive or sham proposal in connection with the contract or agreement for which the attached Proposal has been submitted or to refrain from making a proposal in connection with such contract or agreement, or collusion or communication or conference with any other firm, or, to fix any overhead, profit, or cost element of the proposal price or the proposal price of any other firm, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Knoxville or any person interested in the proposed contract or agreement; and
- (5) The proposal of service outlined in the Proposal is fair and proper and is not tainted by collusion, conspiracy, connivance, or unlawful agreement on the part of the firm or any of its agents, representatives, owners, employees, or parties including this affiant.

(Signed): \_\_\_\_\_

Title: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission expires \_\_\_\_\_

## IRAN DIVESTMENT ACT

### Certification of Non-inclusion

**NOTICE:** Pursuant to the Iran Divestment Act, Tenn. Code Ann. § 12-12-106 requires the State of Tennessee Chief Procurement Officer to publish, using creditable information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105. Inclusion on this list makes a person ineligible to contract with the state of Tennessee; if a person ceases its engagement in investment activities in Iran, it may be removed from the list. A list of entities ineligible to contract in the State of Tennessee Department of General Services or any political subdivision of the State may be found here:

[https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List\\_of\\_persons\\_pursuant\\_to\\_Tenn.\\_Code\\_Ann.\\_12-12-106\\_Iran\\_Divestment\\_Act\\_updated\\_7.7.17.pdf](https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/cpo-library/public-information-library/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106_Iran_Divestment_Act_updated_7.7.17.pdf)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.

Vendor Name (Printed)	Address
By (Authorized Signature)	Date Executed
Printed Name and Title of Person Signing	

### NOTARY PUBLIC:

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2\_\_\_\_\_.

My commission expires: \_\_\_\_\_

# DIVERSITY BUSINESS ENTERPRISE

The City of Knoxville strongly encourages prime contractors to employ diverse businesses in the fulfillment of contracts/projects for the City of Knoxville.

The City of Knoxville's Fiscal Year 2017 goal is to conduct 3.33% of its business with minority-owned businesses, 9.21% of its business with woman-owned businesses, and 45.5% with small businesses.

While the City cannot engage (pursuant to state law) in preferential bidding practices, the City does **strongly encourage** prime contractors to seek out and hire diverse businesses in order to help the City meet its goals as stated above. As such, the City encourages prime contractors to seek out and consider competitive sub-bids and quotations from diverse businesses.

For DBE tracking purposes, the City requests that prime contractors who are bidding, proposing, or submitting statements of qualifications record whether or not they plan to employ DBE's as sub-contractors or consultants. With that in mind, please fill out, sign and submit (with your bid/proposal) the following sub-contractor/ consultant statement.

## CITY OF KNOXVILLE DIVERSITY BUSINESS DEFINITIONS

Diversity Business Enterprise (DBE's) are minority-owned (MOB), women-owned (WOB), service-disabled veteran-owned (SDVO), and small businesses (SB), who are impeded from normal entry into the economic mainstream because of past practices of discrimination based on race or ethnic background. These persons must own at least 51% of the entity and operate or control the business on a daily basis.

Minority: A person who is a citizen or lawful admitted permanent resident of the United States and who is a member of one (1) of the following groups:

- a. African American, persons having origins in any of the Black racial groups of Africa;
- b. Hispanic American, persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race;
- c. Native American, persons who have origin in any of the original peoples of North America ;
- d. Asian American, person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

Minority-owned business (MOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or

more minority individuals.

Woman-owned business (WOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more women.

Service Disabled Veteran-owned business (SDOV) is a continuing, independent, for profit business that performs a commercially useful function, owned by any person who served honorably on active duty in the armed forces of the United States with at least a twenty percent (20%) disability that is service connected. Meaning such disability was incurred or aggravated in the line of duty in the active military, naval or air service, and is at least fifty-one percent (51%) owned and controlled by one (1) or more service disabled veteran.

Small Business (SB) is a continuing, independent, for profit business which performs a commercially useful function and has total gross receipts of not more than ten million dollars (\$10,000,000) average over a three-year period or employs no more than ninety-nine (99) persons on a full-time basis.



**Subcontractor/Consultant Statement**  
(TO BE SUBMITTED IN THE BID/PROPOSAL ENVELOPE)

We \_\_\_\_\_ do certify that on the  
(Bidder/Proposer Company Name)

\_\_\_\_\_  
(Project Name)  
\$ \_\_\_\_\_  
(Amount of Bid)

**Please select one:**

☐ **Option A: Intent to subcontract using Diverse Businesses**

A Diversity business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated **dollar value** of the amount that we plan to pay is:

\$ \_\_\_\_\_.  
Estimated Amount of Subcontracted Service

Diversity Business Enterprise Utilization			
Description of Work/Project	Amount	Diverse Classification (MOB, WOB, SB, SDOV)	Name of Diverse Business

☐ **Option B: Intent to perform work “without” using Diverse Businesses**

We hereby certify that it is our intent to perform 100 % of the work required for the contract, work will be completed without subcontracting, or we plan to subcontract with non-Diverse companies.

DATE: \_\_\_\_\_ COMPANY NAME: \_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_  
(Authorized Representative)

ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP CODE: \_\_\_\_\_

TELEPHONE NO: \_\_\_\_\_

# **EXHIBIT "A"**

## **Condition Assessment from Walter P. Moore**

**GARAGE AND PEDESTRIAN BRIDGE  
KNOXVILLE CIVIC AUDITORIUM & COLISEUM  
PHASE I CONDITION ASSESSMENT**

Knoxville, Tennessee



Draft Report Date	July 13, 2017
WPM Proposal No.	16-2581
WPM Project No.	D07.17015.00

**EXECUTIVE SUMMARY**

Walter P Moore has performed an assessment of the following structures serving the Knoxville Civic Auditorium and Coliseum:

- Parking Structure C
- Pedestrian bridge leading from Parking Structures A and B to the Civic Auditorium & Coliseum
- Access ramp leading to the upper level and retaining walls on the north side of Parking Structure B.

The objective of the assessment was to make a reasonable assessment of present condition of the above referenced structures and to identify any potential liabilities that may exist. The scope consisted of a review of the available original construction documents to become familiar with the design concept of the structure, visual review of the structure to identify areas of deterioration, limited non-destructive and materials testing, and a geotechnical study at the pedestrian bridge. Our recommendations are intended to repair the distressed areas of the structures and return them to serviceable conditions for future use.

Parking Structure C, the pedestrian bridge from A and B parking structures and the ramp retaining wall leading to the upper level of Parking Structure B are considered in "Poor" Condition. Significant effort is necessary to return the three structures to intended service levels.

Upper level of Parking Structure C is exhibiting significant distress from overloading conditions during past use. The upper slab does have isolated locations that require either temporary plates or must be barricaded from use until repairs can be implemented. SMG has been notified of these isolated conditions. Cracking of the slabs, beams, and joists of the Upper Level has occurred that requires repair to return the structure into future serviceable condition. The remaining levels of the parking structure are in good condition for the age and type of the structure. A normal repair program has been recommended for the other levels of the structure.

The pedestrian bridge from Parking Structures A and B requires a significant repair program to return the structure to serviceable conditions. Structurally, one bridge section has moved out of alignment and requires stabilization with micropiles on the foundation. Additional testing information is required of the soil conditions that will provide data as to the load capacities of the surrounding area that will allow design to be completed for moving the displaced segment back into position without damage. This additional testing can be completed during the design process in a restoration program. The structure requires concrete repair and protective systems due to corroding reinforcement and spalling concrete. High chloride levels and low

# WALTER P MOORE

July 14, 2017

Mr. Jason Bourgoyne  
Director of Operations  
SMG Knoxville  
500 Howard Baker Jr Blvd.  
Knoxville, TN 37915

Re: Phase I -Condition Assessment  
Parking Structure C, Pedestrian Bridge, and Parking Structure B Ramp  
Knoxville Civic Auditorium & Coliseum  
Walter P Moore Project No. D07.17015.00

Dear Jason,

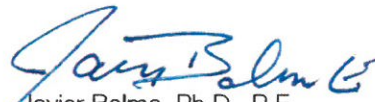
We have completed the Phase I visual condition assessment of the referenced structures in accordance with our proposal 16-2581 dated January 17, 2017

Included in our report are our visual observations, results of materials testing and non-destructive testing, recommendations for follow-up evaluation, conceptual repair recommendations, and preliminary opinion of probable construction costs.

We very much appreciate this opportunity to provide these services to you. Please do not hesitate to contact us if we can further assist you with the follow-up evaluation and development of repair documents for the distress conditions described in the following report.

Sincerely,

WALTER P. MOORE AND ASSOCIATES, INC.

  
Javier Balma, Ph.D., P.E.  
Senior Associate  
Diagnostics Group

Cc: Randal M. Beard

Enclosure

  
  
07/14/2017  
Sunil Puri, P.E.  
Principal  
Diagnostics Group

concrete cover over the reinforcing steel in these areas has contributed to the distress. The translucent acrylic canopy and framing is heavily distressed from the lack of the ability to allow movement and aging materials. It is recommended the full canopy system be removed and replaced in kind.

The retaining wall at the ramp leading to the upper level of Parking Structure B requires repair and stabilization. We have recommended micropiles to stabilize the footing and reconstruction of the wall. Expansion joints along the parking structure upper level and sealing of the joint along the retaining wall is required. Following this, voids that are present under the on grade ramp slab will have to be grouted or the slab replaced to properly prepare the subgrade.

A summary of the opinion of probable construction cost is shown below:

ITEM	OPINION OF PROBABLE CONSTRUCTION COST
Parking Structure C repairs	\$ 1,300,000.00
Pedestrian Bridge repairs	\$ 756,000.00
Parking Structure B repairs	\$ 258,000.00
<b>SUBTOTAL</b>	<b>\$ 2,314,000.00</b>
General Conditions & Mobilization (15%)	\$ 348,000.00
Contingency (15%)	\$ 348,000.00
<b>SUBTOTAL</b>	<b>\$ 3,010,000.00</b>
Geotechnical engineering fees (estimate)	\$ 50,000.00
Structural and waterproofing engineering fees (estimate)	\$ 180,000.00
<b>GRAND TOTAL</b>	<b>\$ 3,240,000.00</b>



## STRUCTURE DESCRIPTION

The Knoxville Civic Auditorium and Coliseum (KCAC) in downtown Knoxville, Tennessee was opened in 1961 and includes 22,000 square feet of exhibit space, an auditorium with a seating capacity of 2,500, a 10,000 square foot exhibit hall, a 4,800 square foot ballroom, a coliseum with a seating capacity of 6,500 and a performance lawn area.

Three parking structures serve the facility as shown in Figure 1. These structures are labeled A, B, and C. A pedestrian bridge crosses over Howard Baker Jr. Blvd. and connects Parking Structures A and B to the Civic Auditorium & Coliseum. Date of construction for the garages and pedestrian bridge is unknown from the information we have available.

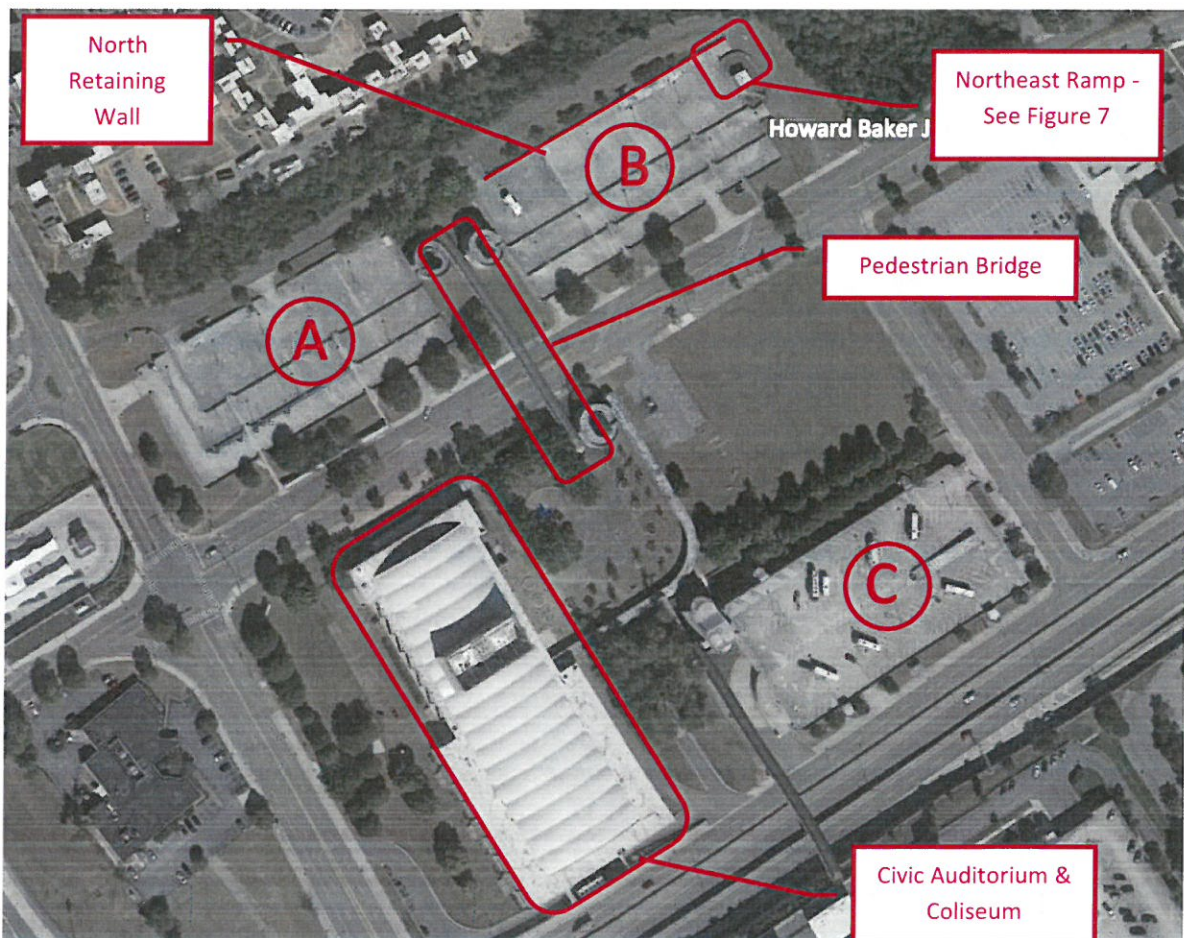


Figure 1 – Satellite view of Civic Auditorium & Coliseum and Garages

Parking Structure C is a five-level cast-in-place reinforced concrete structure. As illustrated in Figures 2 and 3, the floor system consists of a pan-joist system with a 4 to 5-inch thick slab and 20-inch deep post-tensioned joists. The pan-joist system is supported by 36-inch wide and 20-inch deep girders that run in the east-west direction along gridlines 1, 2, 3, 4, 5, and 6. The girders are supported by 24-inch round columns. The foundation system was not visible and we do not have structural drawings of Parking Structure C; however, according to the structural drawings for the other two garages, their foundation system consists of rectangular isolated footings. There are two expansion joints in the structure, one located between Gridlines E and F, and another located between Gridlines K and L (refer to Figure 4). The ground elevation slopes upward in the east direction as shown in Figure 4, thus certain sections of Levels 1 and 2 are below grade.

The garage has entrances/exits to the first and second level on the west side of the structure, and entrances/exits to the fourth and fifth (roof) levels on the east side of the structure. There are four stair towers, two on the north side and two on the south side. In addition, there is a fifth stair tower with one elevator on the west side of the structure that also connects to a pedestrian bridge that leads to the Marriott hotel.

The roof level of the structure is typically used for parking of recreational vehicles and it is our understanding that in the past it had been used to park truck trailers for shows.

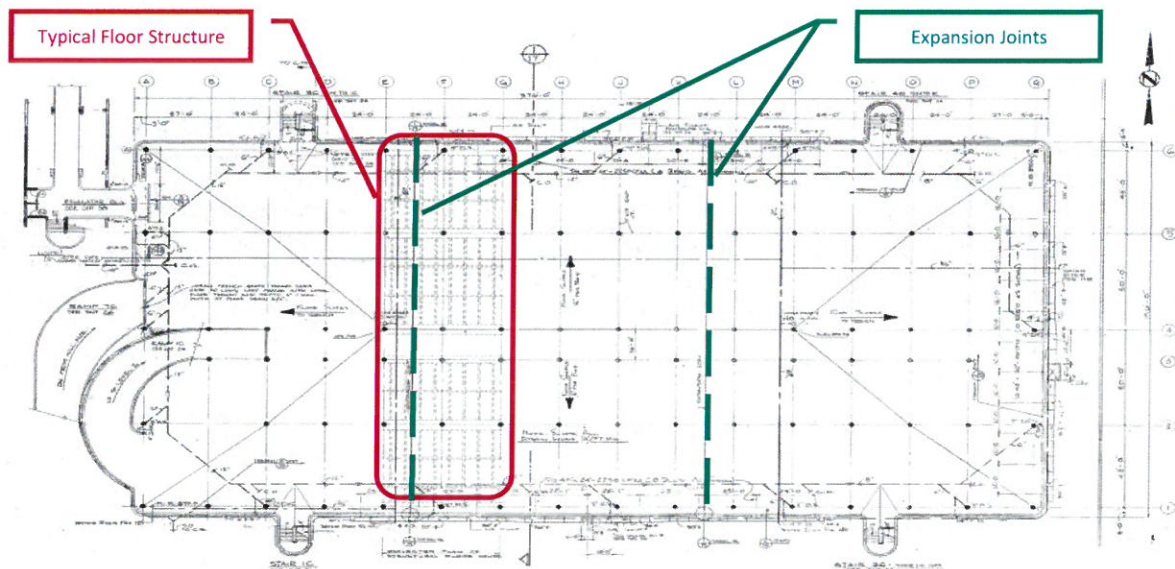


Figure 2 – Plan view of Level 2 on Parking Structure C





Figure 3 – View of typical structural system of Parking Structure C

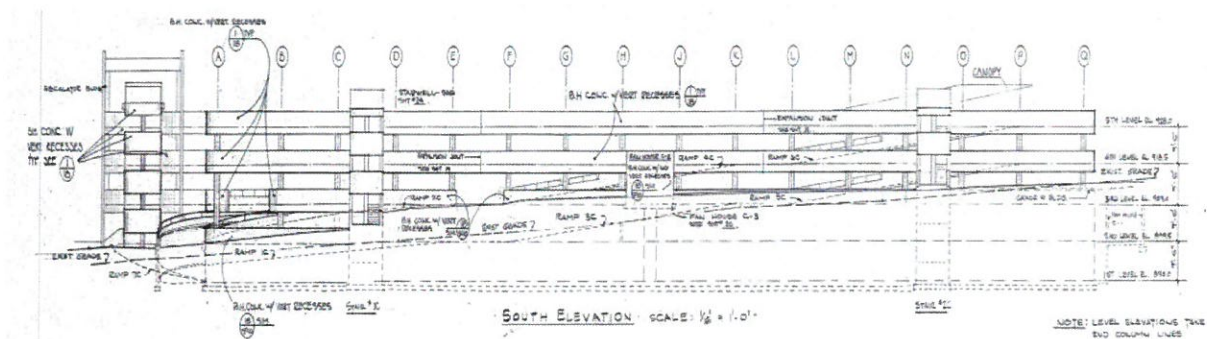


Figure 4 – South elevation of Parking Structure C

The pedestrian bridge that connects Parking Structures A and B to the Civic Auditorium & Coliseum is a cast-in-place concrete structure. The floor structure consists of a concrete slab that is supported by 10-inch wide perimeter beams approximately 5'-4" deep that also act as the barriers along the edge of the bridge. The beams are supported by 5-foot wide girders that cantilever out from 3-foot diameter circular columns that are located at the centerline of the bridge along its length. A curved translucent canopy over the pedestrian bridge is constructed with light gage steel members that support clear acrylic panels





Figure 5 – Exterior view of pedestrian bridge connecting Parking Structures A and B to Civic Auditorium & Coliseum



Figure 6 – Interior view of pedestrian bridge connecting Parking Structures A and B to Civic Auditorium & Coliseum

Parking Structure B is a four-level cast-in-place reinforced concrete structure with a similar structural system as that of Parking Structure C. On the north side of the structure, a cast-in-place concrete retaining wall extends the entire height of the structure.

Access to Level 4 is by means of two ramps, one on the northwest corner and another one on the northeast corner (shown in Figure 7). The northeast ramp has a retaining wall on the south side. The ramp slab is supported on a shallow foundation on one end and on the parking structure on the other end, with a ½" expansion joint at each end.



Figure 7 – Satellite view of northeast ramp to level 4 of Parking Structure B

## DOCUMENT REVIEW

No construction documents for Parking Structure C or the pedestrian bridge that connects Parking Structures A and B to the Coliseum were available for review.

## OBSERVATIONS

Our observations consisted of a walk-through visual review of the structures to identify structural and waterproofing items in the need of repair. Our observations were made without the removal of finishes. A definition of technical terms is presented in the Glossary section of the report.



Our observations are as follows. Please see the Discussion and Recommendations section for further description.

PARKING STRUCTURE C		PHOTO #
• Cracks on the top side and underside of floor slabs, primarily on the exposed upper level		1, 2
• Cracks on joist webs and at intersection of joists with girder, primarily on the underside of the exposed upper level		3, 4
• Cracks in girders, primarily on the underside of the exposed upper level		5
• Cracks in walls		6
• Concrete spalls and delaminations in top and bottom surfaces of floor slabs		7, 8
• Concrete spalls in joists		9, 10
• Concrete spalls and delaminations in columns		11
• Concrete spalls and delamination in walls		12
• Deterioration of concrete pedestals for light poles		13
• Differential lateral movement between Parking Structure C and stair tower		14
• Deterioration of concrete at expansion joint between Parking Structure C and stair tower		15
• Differential vertical movement on expansion joint located between Gridlines K and L		16, 17
• Deterioration of concrete at expansion joint between Gridlines K and L		18 – 20
• No waterproofing at expansion joints		16
• Corroded bollards and spalling at bollard bases		21
• Failed waterproofing on top of ramp roof		22, 23
• Clogged drains		24
• Missing pedestrian protection at stair entrance/exit		25
• Faded parking stripes		26
• Slab-on-grade settlement on sidewalk on north end of garage		
PEDESTRIAN BRIDGE		PHOTO #1
• Significant differential deflections between both sides of the structure at both expansion joints		27 – 29
• Concrete spalls and delaminations on top and bottom surfaces of floor slab		30, 31
• Exposed and corroded reinforcing steel on inside and outside faces of edge beams		32 – 34
• Broken, cracked, and detached acrylic panels on canopy		35 - 37
PARKING STRUCTURE B		PHOTO #
• Failed concrete retaining wall with significant vertical deflection		38 – 39
• Voids under drive slab adjacent to concrete retaining wall		40
• Water infiltration through west retaining wall		41

## PHOTOGRAPHS

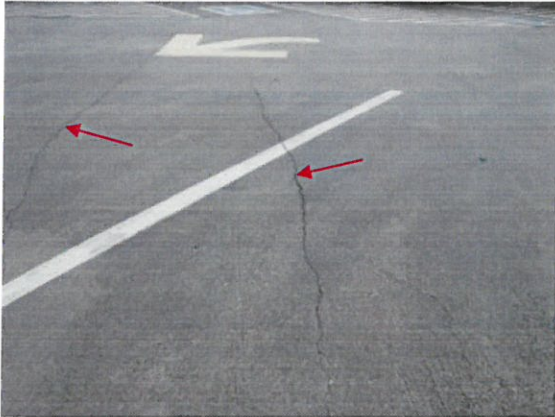


Photo 1: Cracks on top surface of roof level slab



Photo 2: Underside view of cracks in the roof level slab

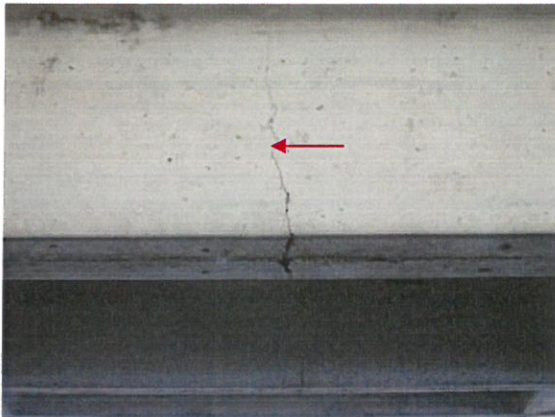


Photo 3: Crack in joist typical on the underside of the roof level

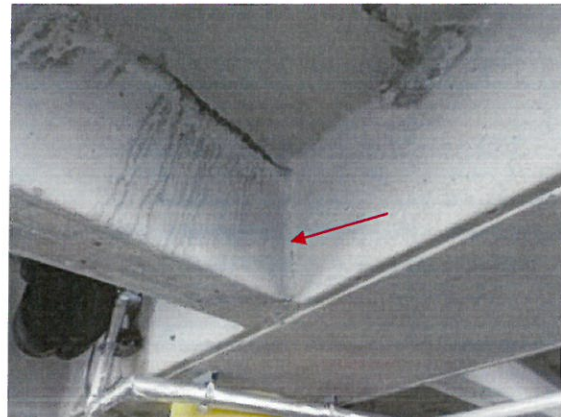


Photo 4: Crack at end of joist typical at select location on the underside of the roof level

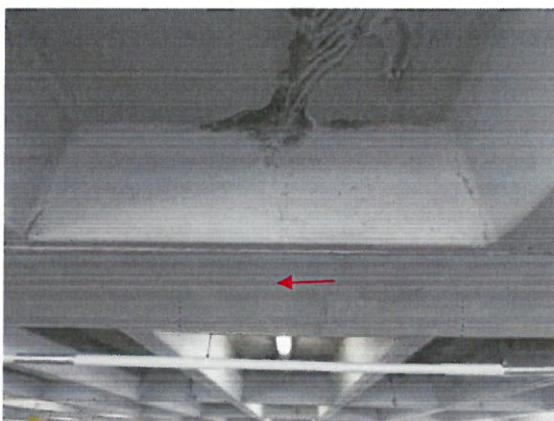


Photo 5: Crack in girder



Photo 6: Cracks in perimeter walls



## PHOTOGRAPHS (CONTINUED)

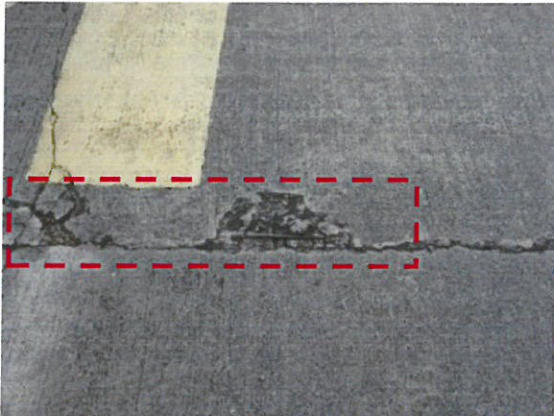


Photo 7: Concrete spalls and delaminations on top surface of roof slab

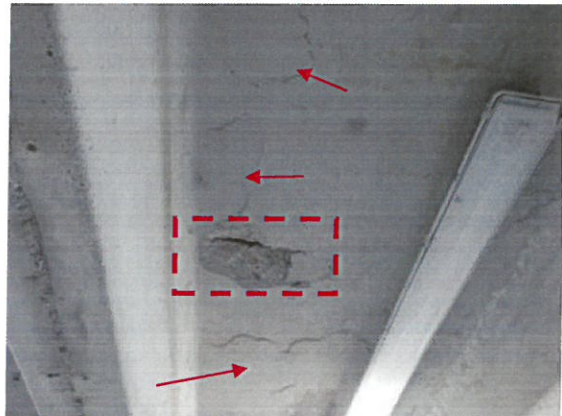


Photo 8: Concrete spalls (red rectangle) and delaminations (arrows) on underside of slab

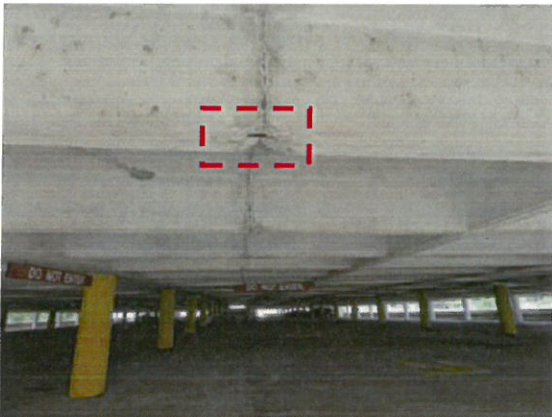


Photo 9: Concrete spall in joist



Photo 10: Close-up of concrete spall in joist (notice section loss in reinforcing steel)

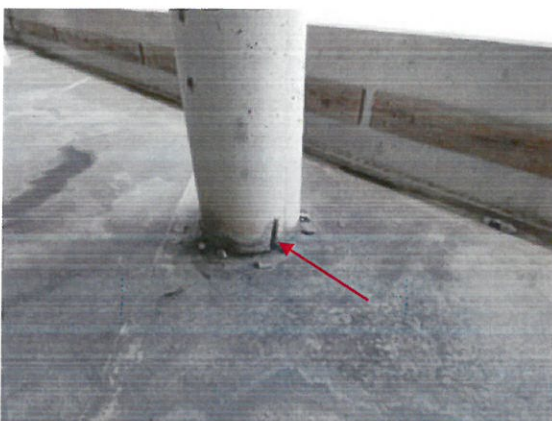


Photo 11: Concrete spall in column

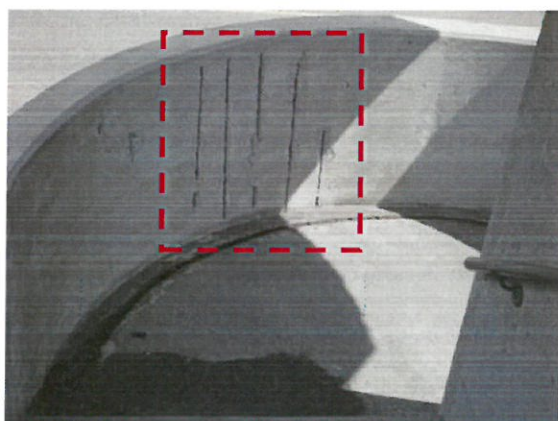


Photo 12: Concrete spalls in perimeter wall



## PHOTOGRAPHS (CONTINUED)



Photo 13: Deterioration of concrete pedestal



Photo 14: Horizontal differential displacement between parking structure C and stair tower

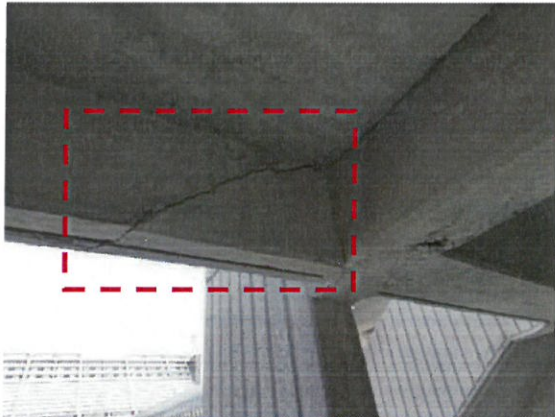


Photo 15: Differential movement between Parking Structure C and south stair/elevator tower



Photo 16: Differential vertical elevation on slab along expansion joint on roof level

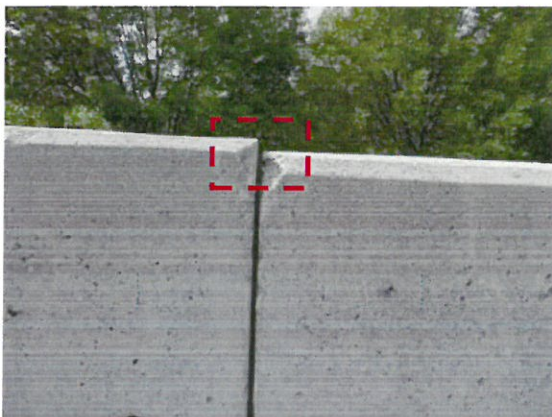


Photo 17: Differential vertical elevation at expansion joint on perimeter bumper wall along expansion joint on roof level



Photo 18: Full depth concrete spall along expansion joint on roof level of Parking Structure C



PHOTOGRAPHS (CONTINUED)



Photo 19: Concrete cracks parallel to expansion joint at roof level

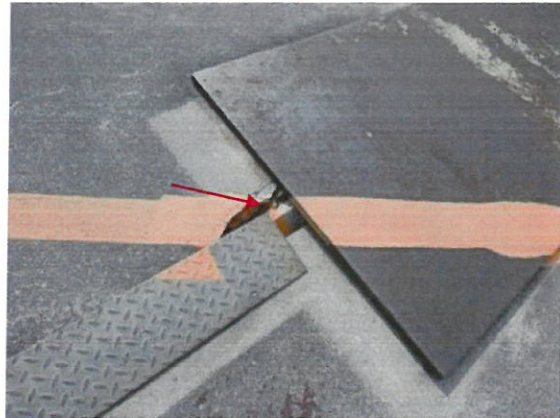


Photo 20: Full depth concrete spall at expansion joint on roof level

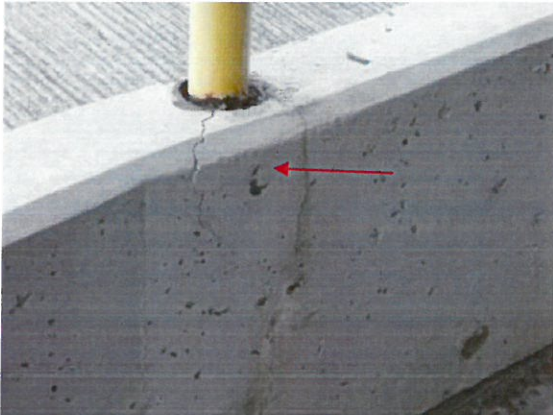


Photo 21: Corrosion of steel posts for guardrails and concrete delamination around the post



Photo 22: Roof over ramp on Parking Structure C

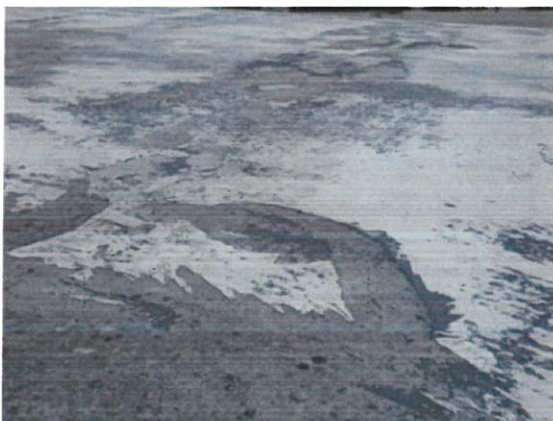


Photo 23: Deteriorated waterproofing coating on roof over ramp on Parking Structure C

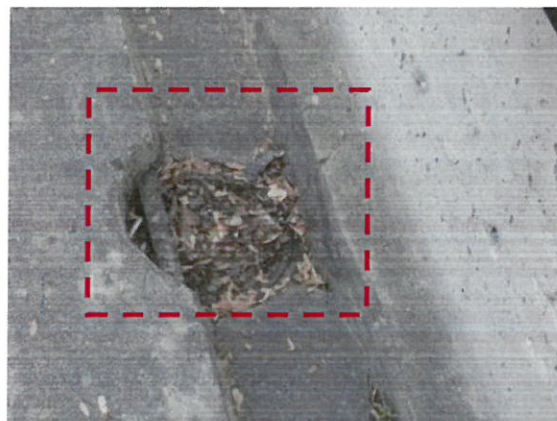


Photo 24: Clogged drain in Parking Structure C



## PHOTOGRAPHS (CONTINUED)

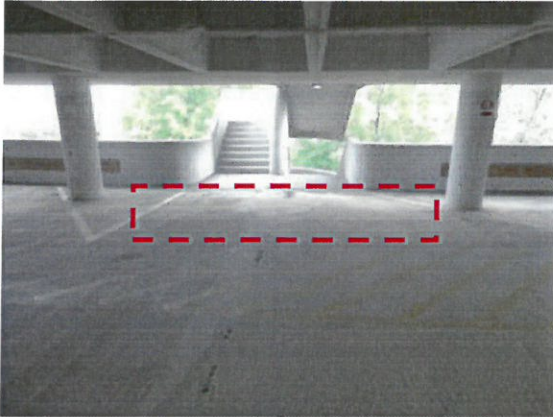


Photo 25: Missing pedestrian protection at stair access



Photo 26: Faded parking stall striping

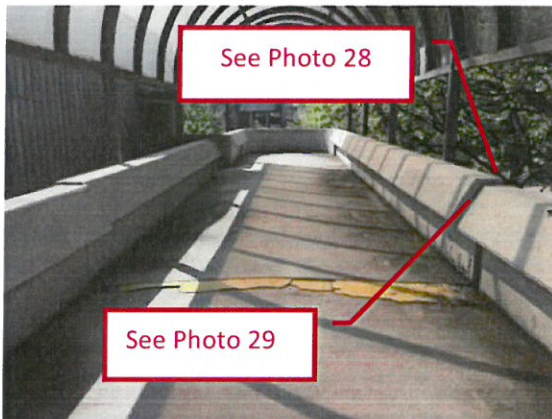


Photo 27: Differential movement at expansion joint on pedestrian bridge



Photo 28: Vertical differential movement between two sides of the expansion joint on pedestrian bridge



Photo 29: Horizontal differential movement between both sides of expansion joint on pedestrian bridge

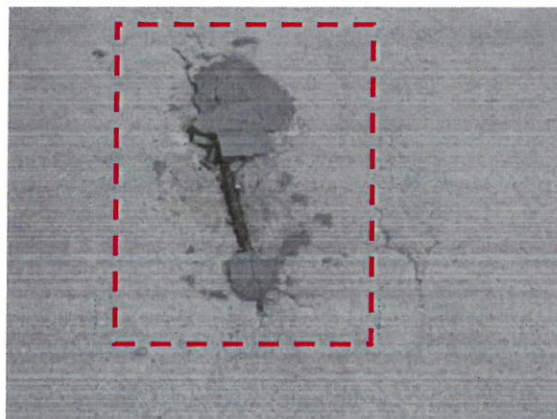


Photo 30: Concrete spall on top surface of slab on pedestrian bridge



## PHOTOGRAPHS (CONTINUED)

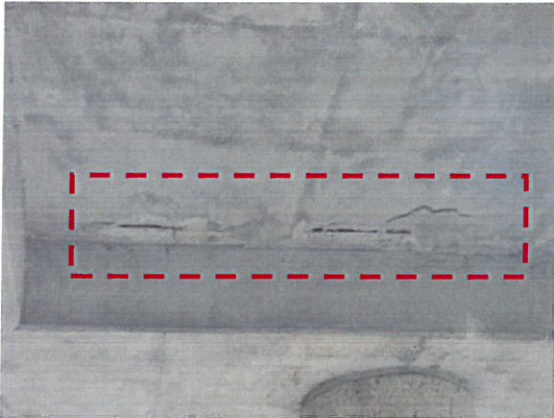


Photo 31: Concrete spall on underside of slab on pedestrian bridge



Photo 32: Concrete spalls on interior face of edge beam on pedestrian bridge



Photo 33: Concrete delamination on top exterior edge of edge beam on pedestrian bridge

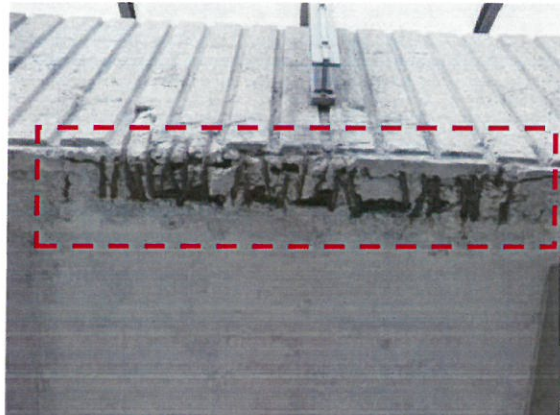


Photo 34: Concrete spall and exposed reinforcement on the underside of edge beam on pedestrian bridge

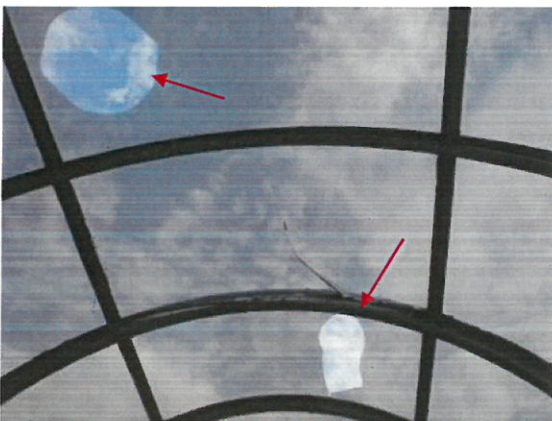


Photo 35: Broken canopy panels on pedestrian bridge

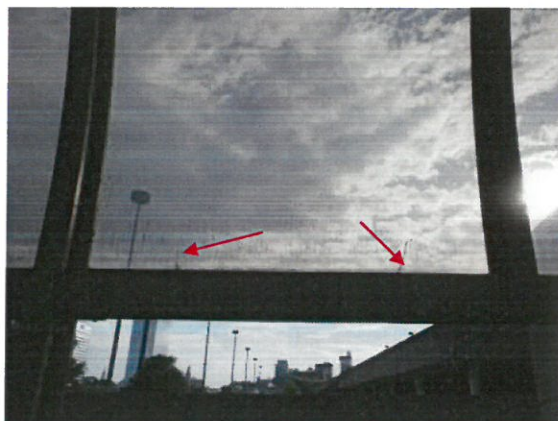


Photo 36: Cracked canopy panels on pedestrian bridge



## PHOTOGRAPHS (CONTINUED)



Photo 37: Detached canopy panel on pedestrian bridge

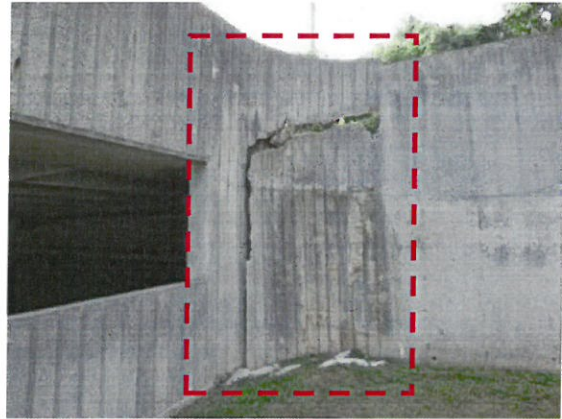


Photo 38: Severely cracked and distressed retaining wall on Parking Structure B



Photo 39: Deterioration of retaining wall on Parking Structure B



Photo 40: Voids underneath entry ramp on top level of Parking Structure B

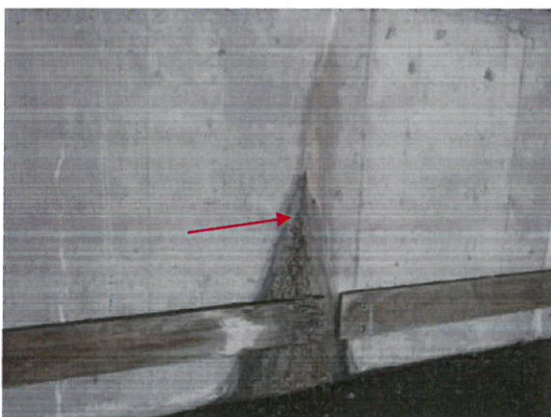


Photo 41: Water infiltration through west retaining wall on Parking Structure B



## GROUND-PENETRATING RADAR TESTING

GPR is a non-destructive technique that emits a short pulse of electromagnetic energy, which is radiated into the medium being evaluated. When this pulse strikes an interface between layers of materials with different electrical properties, part of the wave reflects back, and the remaining energy continues to the next interface. GPR evaluates the reflection of electromagnetic waves at the interface between two different dielectric materials. The penetration of the waves into the medium is a function of the media relative dielectric constants ( $\epsilon$ ). If a material is dielectrically homogeneous, then the wave reflections will indicate a single thick layer.

GPR is particularly effective for evaluating the presence and location of steel reinforcement in existing concrete and concrete masonry structures. This is because of the very different dielectric properties of concrete and steel. Concrete is a low conductivity, non-metallic medium that is ideal for GPR signal propagation. Steel on the other hand is highly conductive and therefore completely reflects the GPR signal. It is this reflection that identifies embedded steel reinforcement. Figure 2 shows a sample scan from the GPR survey on a concrete slab. The bright (white) dots represent the location of the reinforcing steel.

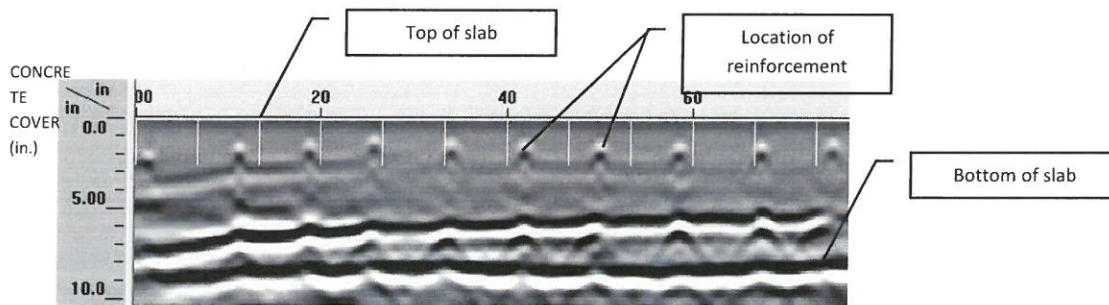


Figure 2 – Sample output from a GPR scan

GPR scans were performed on slabs and walls at selected locations to determine the concrete cover. The following table summarizes the average concrete cover for the scans performed.

Table 1 – Results from GPR scans

LOCATION	AVERAGE CONCRETE COVER (in.)
<b>Parking Structure C</b>	
Top surface of roof level slab	2.50
Column	1.50
Bumper Wall	1.50
<b>Pedestrian Bridge</b>	
Top surface of slab (Note 2)	3.50
Bottom surface of slab	1.00
Interior face of edge beam	1.15

Notes:

1. Numbers in red are below required concrete cover.
2. Measured at midspan between edge beams.



## LABORATORY TESTING

Laboratory materials testing was performed to better understand the condition of the concrete walls. Overall, (24) concrete core samples were extracted for laboratory materials testing. Eight cores were used for petrography, eight for chloride content analysis, and eight for compressive strength testing. All the concrete cores for materials testing were obtained from the north wall. Each core location was selected at a different concrete pour along the depth of the wall. Exhibit A shows the location of the cores. The locations were cored as deep as the equipment allowed with the intent of reaching the backside of the wall in order to confirm the thickness of the wall. The following is a summary of the materials testing. The detailed materials testing reports is attached as Exhibit A.

### CONCRETE PETROGRAPHY

Concrete petrography testing was performed on one (1) concrete core sample extracted from the roof level slab on Parking Garage C. Air content was also measured as part of this test. The following sections describe the testing methodologies and present a summary of the results.

#### Petrographic Analysis

Petrographic analysis is a standard test method for evaluating the quality of a concrete material and determining causes of material distress. The test is conducted by visually examining concrete samples under high magnification stereoscopic microscope. The petrographic examinations were conducted in accordance with ASTM C-856 Standard Practice for Petrographic Examination of Hardened Concrete.

#### Air Content

Air entrainment in concrete increases its resistance to damage caused by freeze-thaw cycles. The air void system in the concrete provides space for ice crystals to form, preventing pressure from building up in the concrete. The recommended amount of air content by the American Concrete Institute Guide to Durable Concrete (ACI 201.2R) is 6%.

The air-void system analysis was performed in accordance with ASTM C457 Standard Test Method for Microscopical Determination of the Air-Void System in Hardened Concrete. The concrete samples were analyzed at a magnification of 100x at a longitudinally cut surface.

#### Results

The core was described as in good condition. Water-cement ratio was estimated to be between 0.43 and 0.48. No deleterious reactions were observed in the core. Carbonation depths was minimal. The air content was estimated to be 6.5%, which is consistent with requirements by the American Concrete Institute (ACI).

Refer to the testing results provided by American Engineering Testing, Inc. dated May 22, 2017, attached as Appendix B of this report, for specific test results and additional information.

### CHLORIDE ION CONTENT

Chlorides are typically present in concrete, whether they get introduced during the mixing, or they migrate into the material due to local environmental conditions. When chloride content reaches or exceeds a critical value, the protection of the steel reinforcement is lost. Once the passive protective layer around the steel is destroyed, corrosion of reinforcement will begin with the presence of oxygen and moisture at the steel-concrete interface. Therefore, by measuring chloride content levels in concrete and reviewing relative levels at various locations around the structure, it is possible to predict the initiation of corrosion in concrete. The critical value, or

corrosion threshold, is considered to be around 320 parts per million (ppm) of acid-soluble chlorides. Once the concentration of chlorides reaches this amount, corrosion of the reinforcing steel initiates.

The critical location for chloride contamination is located at the level of the reinforcing steel. Corrosion of the reinforcing steel will lead to concrete spalling, steel reinforcing section loss, and loss of concrete strength and durability. Four (4) concrete core samples from representative locations in the concrete walls were tested for chloride content according to ASTM C1152 "Standard Method for Acid-Soluble Chloride in Mortar and Concrete". Chloride content was measured at various depths.

### Results

Table 3, below, summarizes the results of the chloride ion content analysis.

Table 3: Chloride Ion Content Results

CORE No.	LOCATION	SAMPLE DEPTH	CHLORIDE CONTENT (PPM)
3	Garage Roof Level	0"-1"	488
		1"-2"	374
		2"-3"	423
4	Garage Roof Level	0"-1"	964
		1"-2"	1160
		2"-3"	975
5	Pedestrian Bridge Slab	0"-1"	1450
		1"-2"	1330
		2"-3"	1444
6	Pedestrian Bridge Edge Beam	0"-1"	546
		1"-2"	1510
		2"-3"	1330

The results on all cores show that the chloride contents are higher than the chloride threshold to initiate corrosion of the reinforcing steel.

### COMPRESSIVE STRENGTH

Compressive strength testing was performed on two cores, one extracted from the roof level slab on Parking Structure C and another one extracted from the slab on the pedestrian bridge between Parking Structures A and B. The compressive strength for these cores were 7,760 psi and 4,540 psi, respectively.

## GEOTECHNICAL INVESTIGATION

Geosyntec Consultants performed a subsurface evaluation of two areas 1) the southernmost column of the pedestrian bridge between Parking Structured A/B and the Coliseum and 2) the northeast ramp for Parking Structure B. The evaluation was performed using a geophysical survey with the use of microgravity. This method is used to locate voids associated with karst formations typically encountered in the Knoxville area.

The results of the microgravity survey indicate that there are “low-gravity” zones within the tested areas. “Low-gravity” zones indicate areas with a potential for voids.

Additional investigation is required to further assess cause and extent of the observed distress, and to obtain soil properties required for design of the repairs. In addition, a review of construction documents and information from local sources regarding previously detected voids in the vicinity. Soil borings are recommended to determine the nature and extent of the anomalies identified in this study.

Geosyntec’s recommendations include the installation of micropiles to underpin the foundations followed by jacking of the structure to eliminate some of the displacement.

The detailed geotechnical testing report is attached as Exhibit B.



## DISCUSSION AND RECOMMENDATIONS

### Concrete Cover

We observed reinforcing steel with very low concrete cover (i.e., 0.25 to 0.50 inches) on the perimeter wall at the stair towers, at the slab and edge beam on the pedestrian bridge, and at isolated locations in Parking Structure C. A low concrete cover typically results in chlorides or carbonation reaching the reinforcing steel in a short period of time, which results in initiation of corrosion.

Based on the ACI Building Code at the time of design, the required minimum concrete covers are as follows:

- ¾-inch for walls and slabs not directly exposed to the ground or weather
- 1½-inch for beams and girders not directly exposed to the ground or weather
- 1½" for column spirals
- "In extremely corrosive atmospheres or other severe exposures, the amount of protection shall be suitable increased."

The ACI Code at the time to design did not provide criteria for members exposed to weather. Current ACI codes recommend 1½-inch cover for No.5 bars and smaller and 2-inches for No. 6 bars and larger, for all types of members exposed to weather. An increase in the concrete cover is recommended for aggressive environments such as deicing chemicals.

The GPR results showed cover lower than required by original construction documents on the interior face of the beams and the slab soffit on the pedestrian bridge.

### Corrosion of Reinforcing Steel

Corrosion is an electrochemical process in which the iron in the steel reacts with moisture and aggressive ions such as chlorides, resulting in a degradation of the steel (i.e., corrosion). Carbonation of the concrete may also lead to corrosion of the reinforcing steel. When a reinforcing bar corrodes, the resulting corrosion products (i.e., rust), occupy a larger volume than the original steel. This results in the steel exerting stresses in the concrete that eventually result in cracks. These cracks allow more moisture and chlorides to penetrate into the concrete, thus increasing the rate of deterioration. Eventually, the concrete will spall and expose the reinforcing steel.

Factors affecting the initiation and rate of corrosion include:

- Presence of cracks in concrete
- Presence of moisture and chlorides
- Low concrete cover
- Quality of the concrete (i.e., permeability)
- Carbonation of the concrete

We observed corrosion of the reinforcing steel on perimeter walls, columns, and joists in Parking Structure C. At the perimeter walls the concrete cover was minimal. In other cases such as in the joists, corrosion of the bottom bars was observed at the construction joints. In one of these cases, the section loss of the reinforcement due to corrosion appeared to be significant. A loss of cross-sectional area in the steel will

result in a reduction in the structural capacity of the members. Corrosion of reinforcing steel needs to be addressed before it is deteriorated to a degree that will require structural strengthening of the structure.

As discussed in the material testing section, the concentration of acid soluble chlorides is above the threshold required for corrosion to start. The chloride concentrations are high throughout the top 3 inches of the slab, which indicates that the source may be combination of road salt and admixed chlorides. This high concentration of chlorides may lead to further corrosion of the reinforcing steel if corrosion mitigation methods are not implemented.

**Recommendations:** *Based on the low concrete covers observed and the chloride content results, the chloride content has already reached the threshold to initiate corrosion. Application of a concrete penetrating sealer or a waterproofing coating will reduce the moisture penetrating into the concrete, which will reduce the rate of corrosion. Additional corrosion mitigation options include cathodic protection and migrating corrosion inhibitors. We recommend performing half-cell corrosion potential and corrosion rate testing, which will give an indication of ongoing corrosion activity on the reinforcing steel. Based on this information we can determine if more aggressive corrosion mitigation options are required to extend the life of the structure.*

### **Concrete Cracks**

From the information provided thus far and observations, it appears that Parking Structure C was designed for service loads from recreational vehicles up to 40,000 pounds maximum. Reportedly however, service and delivery trucks and trailers have also been using the upper level for short term parking and storage. Based on this information, it is our opinion the structure's upper level has been experiencing severe loads that have exceeded the intended design loads. Extensive patterns of cracks were observed in the concrete slabs, joists, and girders, primarily on the upper level. In the case of most of the cracks on the roof level slab, it appears that the cause may have been overloading of the structure during the past use. In other cases, the cracks appear to be a result of volumetric changes in the concrete due to shrinkage and/or temperature changes, which is considered normal for a structure of this type.

Cracks that resulted from overloading of the structure will have to be epoxy-injected to restore the structural capacity of the structure. Cracks that are of no structural concern are still a long term durability concern. The cracks allow moisture and airborne chlorides to penetrate into the concrete and induce corrosion of the reinforcing steel, which would result in concrete degradation such as the concrete spalls documented in the seating risers, as discussed below. In addition, it is our understanding that water leaking had been reported in occupied areas located underneath the concourse. This water intrusion is most likely occurring through some of these cracks.

**Recommendations:** *We recommend routing and sealing moving cracks and epoxy injecting stagnant cracks greater than 1/32-inch. For cracks smaller than 1/32-inch, the application of flexible waterproofing membranes or concrete penetrating sealers will provide additional protection against moisture intrusion and the resulting corrosion of the embedded steel.*



### Concrete Spalls and Delaminations

Concrete spalls and delaminations were observed on slabs, joists, columns, and walls of the parking structure and pedestrian bridge. As discussed above, concrete spalls and delaminations are typically a result of internal stresses in the concrete that result from corrosion of the embedded reinforcing steel. The upper level was experiencing corrosion of reinforcing steel on the underside of the slab severe enough that there is a potential for punching shear to occur from wheel loads applied on top surface. This area was previously identified as requiring action and is located on the southwest corner of the upper level. This area will need to remain blocked off until repairs can be implemented.

**Recommendations:** *Repair of concrete spalls and delaminations is required to prevent an increase in the deterioration rate of the structure. Repairs shall be performed according to ICRI guidelines and with durable materials. Provide corrosion mitigation to prevent future corrosion. Due to the low concrete cover and high chloride content on the pedestrian bridge slab, we recommend the application of a waterproofing membrane.*

### Expansion Joints

The expansion joints in Parking Structure C do not have a waterproofing gland that prevent water from penetrating through the joints into the lower levels. In addition, the joint between Gridlines K and L exhibits differential vertical deflection between two sides of the joint. It is our understanding that the vertical deflections occurred several years ago. From all indications from observations of the adjacent slabs, beams and lower level conditions, the previous movement appears to have stabilized.

**Recommendations:** *Install a concrete wash along the gridlines located between Gridlines K and L to eliminate the difference in vertical elevations in order to mitigate impact damage from traffic as it crosses the expansion joints. Temporarily install protective cover plates to carry loads at select locations in order to protect concrete slabs from cracking damage. On all expansion joints, install an expansion joint gland system to prevent moisture intrusion through the joints.*

### Bollards

Pedestrians are not adequately protected from vehicles when exiting the elevators or stair in case a vehicle loses control and veers into a pedestrian area. Where bollards exist we observed corrosion at the base of the bollards. Typically the hole where the bollard was installed is not fully grouted and that had led to water ponding around the bollard. These bollard have corroded and in some cases this has resulted spalling of the surrounding concrete.

**Recommendations:** *Bollards near the stairwell and elevator entrances are recommended to offer protection for pedestrians from vehicles and to limit and guide pedestrians when they exit the stairs or elevators. At locations of the existing bollards, we recommend that the bollards are recoated, and that the holes where the bollards were installed are grouted to prevent water ponding. In addition, cove sealant shall be installed at the base of the bollards.*

### Waterproofing

The roof over the ramp in Parking Structure C had a waterproofing membrane on the top surface. However, the membrane is worn and is not providing the required protection against moisture.

**Recommendations:** *Replace waterproofing membrane on top of ramp roof.*

### Differential deflections

Differential movement between different sections of the structures were observed at several locations.

1. On Parking Structure C, at the expansion joint between gridlines K and L there are differential vertical deflections between both sides of the joint. As discussed above, it appears that the movement has been stabilized. We recommend monitoring to confirm that the movement has stabilized.
2. At the expansion joint between Parking Structure C and the stair tower on the west corner of the parking structure there appears to be differential lateral movement between the structures. Based on our observations, it appears that the stair tower has shifted to one side and that has caused damage to adjoining concrete elements in the parking structure. We recommend monitoring to determine if movement is still occurring.
3. On the pedestrian bridge between Parking Structures A and B to the Civic Auditorium & Coliseum there are differential vertical and lateral deflections at the south expansion joint. Based on the geotechnical study, it appears that there are voids underneath the south column, which may have led to the movement in the structure. Please refer to the attached geotechnical report provided by Geosyntec for detailed information.
4. At the ramp leading to Level 3 of Parking Structure B, the retaining wall shifted downward while the top section of the wall which was tied into the adjacent structure did not move, resulting in the lower part of the wall detaching from the upper section. Based on the geotechnical study, it appears that at this location there is also a probability of voids. We believe the voids have been caused by long-term erosion from water runoff along the pavement and the retaining wall.

**Recommendations:** *Investigation will be required to evaluate the differential movement between Parking Structure C and the stair tower, as this was not included in our scope. It may be possible that the movement has stabilized as with the other sections of the garage.*

*For the pedestrian bridge and the retaining wall at the entrance to Parking Structure C, the installation of micropiles is recommended to stabilize the structure and the retaining wall will have to be reconstructed to address the broken concrete sections and undermined conditions.*

### Retaining Wall Cracks

Along the north end of Parking Structure B, the retaining wall shows signs of water intrusion through vertical cracks. The cracks are present along the entire length and height of the wall. The cracks do not appear to be of structural concern, they appear to be caused by movement of the structure due to shrinkage or thermal differences. However, water intrusion through the cracks should be addressed to mitigate the leakage and protect reinforcement in the concrete.

**Recommendations:** *Perform grout injection of the cracks to prevent moisture intrusion through the*



walls.

### **Acrylic Canopy**

The acrylic canopy over the pedestrian bridge exhibits damage in the form of broken, cracked, and detached panels. The damage may be a result of the differential deflections of the structure due to the settlement, but it is our opinion that the majority of the damage is from deteriorating performance to allow movement as a result of differential thermal movements of the structure.

**Recommendations:** *Replace entire structure and acrylic panels in kind. Localized repairs were considered but in our opinion it would not increase the service life of the canopy in an effective manner.*

## **SUMMARY OF RECOMMENDATIONS AND PRIORITY**

Our condition assessment of the stadium indicates that the structures are in generally fair condition overall.

*Our repair recommendations are separated into high, medium, and low priority repairs, defined as follows.*

**High Priority:** High priority items are items that should be addressed within one year to maintain serviceability of the associated item and/or maintain the safety of the garage facility.

**Medium Priority:** Medium priority items are items that should be addressed within two years to mitigate further deterioration of the item and ensure the overall serviceability of the structure is maintained.

**Low Priority:** Low priority items are items that should be addressed once the high and medium priority items have been repaired to sustain the overall serviceability of the facility for the long-term.

### **PARKING STRUCTURE C**

#### **IMMEDIATE**

- Repair concrete spalls and delamination primarily on south-west corner of the roof level. Full depth repairs will be required at certain locations.
- Perform epoxy-injection of cracks in joists and slab on south-west corner of the roof level
  - As an alternative to these two recommendations above, the referenced section can be closed-off to traffic
- Install temporary load transfer plates to areas of expansion joint that exhibit cracking to limit further damage until full repairs are implemented

#### **HIGH**

- Repair concrete spalls, corroding steel, delaminations on slabs, beams, joists and walls.
- Perform epoxy injection of cracks on slabs, joists, and girders in Parking Structure C for stagnant cracks
- Install a concrete wash at expansion joint with differential vertical deflections
- Monitor the differential lateral movement between parking structure C and stair tower and differential vertical movement at expansion joint between gridlines K and L.

#### **MEDIUM**

- Install waterproofing glands at expansion joints
- Rout and seal moving cracks
- Replace sealant on construction joints
- Install cove sealant
- Replace settled slab-on-grade concrete approaching stairs

## LOW

- Replace waterproofing coating on top of ramp roof
- Apply concrete penetrating sealer on all elevated levels
- Perform bollard repairs
- Install bollards at stairwell access points
- Perform re-striping of garage
- Clean clogged drains periodically

## PEDESTRIAN BRIDGE

### HIGH

- Provide new installation of micropiles to stabilize columns showing vertical instability
- Repair concrete spalls, corroding steel and concrete delaminations on bridge walls interior and exterior

### MEDIUM

- Install waterproofing membrane on bridge slab and walls

### LOW

- Fully replace acrylic panels canopy with a new system

## PARKING STRUCTURE B

### HIGH

- Provide new installation of micropiles at foundation of distressed ramp foundation wall
- Complete full wall repair at ramp foundation retaining wall
- Replace slab and properly prepare subgrade at entrance ramp, or grout voids under slab
- Install ramp slab expansion joint
- Install sealant to waterproof along rebuilt concrete wall.

### MEDIUM

- Perform grout injection of cracks on retaining wall along north side of garage

**OPINION OF PROBABLE CONSTRUCTION COST**

Table 2 – Opinion of Probable Construction Cost

TASK ITEM	Opinion of Probable Repair Cost			
	Immediate Priority Cost	High Priority Cost	Medium Priority Cost	Low Priority Cost
Parking Structure C				
Full Depth Concrete Floor Repair (SW corner)	\$ 150,000.00			
Joist Repair (SW corner)	\$ 6,000.00			
Epoxy Injection (SW corner)	\$ 80,000.00			
Partial Depth Concrete Floor Repair		\$ 8,000.00		
Full Depth Concrete Floor Repair		\$ 20,000.00		
Concrete Wash at Expansion Joint		\$ 22,000.00		
Overhead Slab Repair		\$ 66,000.00		
Joist Repair		\$ 11,000.00		
Beam Repair		\$ 8,000.00		
Bumper Wall Repair		\$ 33,000.00		
Column Repair		\$ 15,000.00		
Epoxy Injection		\$ 80,000.00		
Expansion Joint Replacement on Floor Slab			\$ 320,000.00	
Expansion Joint Replacement on Façade			\$ 32,000.00	
Crack Repair			\$ 29,000.00	
Construction Joint Repair			\$ 11,000.00	
Cove Sealant Installation			\$ 22,000.00	
Slab-on-Grade Replacement				\$ 14,000.00
Replace Waterproofing on Ramp Roof				\$ 10,000.00
Concrete Penetrating Sealer				\$ 326,000.00
Repair Bollards				\$ 2,000.00
Install New Bollards				\$ 20,000.00
Restriping				\$ 15,000.00
PARKING STRUCTURE C - SUBTOTAL	\$ 286,000.00	\$ 263,000.00	\$ 414,000.00	\$ 887,000.00
Pedestrian Bridge				
Partial Depth Concrete Floor Repair		\$ 4,000.00		
Overhead Slab Repair		\$ 5,000.00		
Beam Repairs		\$ 18,000.00		
Concrete Wall Repairs		\$ 47,000.00		
Façade Repairs		\$ 6,000.00		
Install Micropiles and Realign Structure		\$ 125,000.00		
Replace Deteriorated Slab-on-Grade		\$ 12,000.00		
Install Waterproofing Membrane on Slab and Walls		\$ 39,000.00		
Replace Acrylic Canopy System				\$ 500,000.00
PEDESTRIAN BRIDGE - SUBTOTAL	\$ -	\$ 256,000.00	\$ -	\$ 500,000.00
Parking Structure B				
Installation of Micropiles		\$ 125,000.00		
Replace Retaining Wall at Entrance		\$ 35,000.00		
Slab Replacement at Entrance		\$ 42,000.00		
Expansion Joint and Cove Sealant Installation at Ramp			\$ 8,000.00	
Grout Injection on North Wall			\$ 48,000.00	
PARKING STRUCTURE B - SUBTOTAL	\$ -	\$ 202,000.00	\$ 56,000.00	\$ -
ALL STRUCTURES - SUBTOTAL	\$ 286,000.00	\$ 721,000.00	\$ 470,000.00	\$ 887,000.00

Hand Cost Only

PARKING STRUCTURE C SUBTOTAL

PEDESTRIAN BRIDGE SUBTOTAL

PARKING STRUCTURE B SUBTOTAL

2,814,000.00

Task Item Subtotal (from table above)	\$ 2,314,000.00
General Conditions & Mobilization (15%)	\$ 348,000.00
Contingency (15%)	\$ 348,000.00
<b>SUBTOTAL</b>	<b>\$ 3,010,000.00</b>
Geotechnical engineering fees (estimate)	\$ 50,000.00
Structural and waterproofing engineering fees (estimate)	\$ 180,000.00
<b>GRAND TOTAL</b>	<b>\$3,240,000.00</b>

*Hard, Soft plus contingency*



Notes:

1. Opinion of probable construction costs are in 2017 dollars and are based on one construction season and estimated quantities.
2. Opinion of probable construction costs are based on historical records of similar types of work.
3. Cost may vary due to time of year, local economy, or other factors.
4. Cost based on normal workweek and daylight hours.
5. Engineering fee are estimated on preparation of one bid package and construction administration services during one construction season.

*These opinions of probable construction costs are for budgeting purposes only and not for actual construction. Since this is an opinion of cost, we do not have control over the cost or availability of labor, equipment or materials, or over market conditions or the contractor's method of pricing. In addition, the engineer's opinions of probable construction costs are made on the basis of the engineer's professional judgment and experience.*

*Furthermore, the engineer makes no warranty, expressed or implied, that the bids or the negotiated cost of the work will not vary from the engineer's opinion of probable construction cost.*

## LIMITATIONS

The recommendations presented represent current technology for parking structure renovation and maintenance. We have assumed the facilities will continue in its present use and will require appropriate repairs and periodic maintenance for this use. Parking structures and adjacent supporting structures undergo harsh exposure to various environmental elements and further deterioration will take place with continued service related exposure. Proper design and installation of effective repairs and maintenance can significantly reduce further deterioration and the associated repair costs.

This report is not a warranty or guarantee of the items noted. The extent of our evaluation was limited and cannot guarantee that the condition assessment discovered or disclosed all possible latent conditions. The evaluation required that certain assumptions be made regarding existing conditions and some of these conditions cannot be verified without expending additional sums of money, or destroying otherwise adequate or serviceable portions of the facility. In this study, we did not include review of the design, inspection of concealed conditions, or detailed analysis, to verify adequacy of the structure to carry the imposed loads and to check conformance to the applicable codes. The assessment also does not provide specific repair details, construction contract documents, material specifications, details to develop construction cost, or information on means and methods of construction.

Any comment regarding concealed construction or subsurface conditions are our professional opinion, based on engineering experience and judgment, and derived in accordance with standard of care and professional practice.

This report has been prepared on behalf of and for the exclusive use of the City of Knoxville and SMG. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or used or relied upon by any other party, in whole or in part, without our prior written consent.

## GLOSSARY OF TERMS

The definitions of terms used in this report are given below. Note that when terms are applied to an overall system, certain portions of the system may be in a different condition.

**GOOD:** Component is in a "like new" condition requiring no rehabilitation and is performing its function as intended.

**FAIR:** Item is in sound condition and performing its function. The component is exhibiting some signs of normal wear and tear. Some incidental rehabilitation work may be recommended.

**POOR:** Component is performing adequately at this time but the component's rate of deterioration has begun to accelerate.

**FAILED:** Component has either failed or cannot be relied upon to continue performing its original function. Repair or replacement is required. Item exhibits deferred maintenance. Repair, replacement, or maintenance is required to prevent further deterioration.

**ABRASION RESISTANCE:** Ability to resist being worn away by rubbing and friction.

**CONCRETE:** Mixture of Portland cement, fine aggregate, coarse aggregate, and water, with or without admixtures.

**CORROSION:** Disintegration or deterioration of steel or reinforcement by electrolysis or by chemical attack.

**CRAZE CRACKS:** Fine, random cracks, or fissures caused by shrinkage, which may appear in a surface of plaster, cement paste, mortar, or concrete.

**DEFLECTION:** A variation in position or shape of a structure or element due to effects of loads or volume change, usually measured as a linear deviation from an established plane.

**DELAMINATION:** In the case of a concrete slab, a delamination is the horizontal splitting, cracking, or separation of a slab in a plane roughly parallel to, and generally near, the upper surface. Delaminations are typically caused by corrosion of reinforcing steel or separation between concrete topping and underlying elements.

**DETERIORATION:** Disintegration or chemical decomposition of a material during service exposure.

**DIAGONAL CRACK:** An inclined crack caused by shear stress, usually at about 45 degrees to the neutral axis of a concrete member; or a crack in a slab, not parallel to the lateral or longitudinal dimensions.

**DURABILITY:** The ability of concrete to resist weathering action, chemical attack, abrasion, and other conditions of service.

**EFFLORESCENCE:** A deposit of mineral salts, usually white in color, formed on a concrete or masonry surface.

**EPOXY CONCRETE:** A mixture of epoxy resin, catalyst, fine aggregate, and coarse aggregate.

**HAIRLINE CRACKING:** Small cracks of random pattern in an exposed concrete surface.

**JOINT SEALANT:** Compressible material used to exclude water and solid foreign material from joints.

**MAINTENANCE:** Taking periodic actions that will either prevent or delay damage or deterioration or both.

**MICROCRACKS:** Microscopic cracks within concrete.

**OVERLAY:** A layer of concrete or mortar, seldom thinner than 1 inch, placed on and usually bonded to the worn or cracked surface of a concrete slab to either restore or improve the function of the previous surface.

**PATTERN CRACKING:** Fine openings on concrete surfaces in the form of a pattern; resulting from a decrease in volume of the material near the surface, or increase in volume of the material below the surface, or both.

**PEELING:** A process in which thin flakes of mortar are broken away from a concrete surface, such as by deterioration or by adherence of surface mortar to forms as they are removed.

**PLASTIC CRACKING:** Cracking that occurs in the surface of fresh concrete soon after it is placed and while it is still plastic.

**PRECAST CONCRETE:** Concrete cast elsewhere than in its final position.

**PRESTRESSED CONCRETE:** Concrete in which stresses of such magnitude and distribution are introduced that the tensile stresses resulting from the service loads are counteracted to the desired degree.

*Pretensioned* concrete is prestressed concrete in which stressing tendons are tensioned *before* the concrete hardens.

*Post-Tensioned* concrete is prestressed concrete in which stressing tendons are tensioned *after* the concrete hardens.

**REINFORCEMENT:** Bars, (smooth or deformed), wires, strands, tendons and other elements that are embedded in concrete in such a manner that reinforcement and concrete act together to resist applied forces.

Conventional reinforcement is non-prestressed smooth or deformed bar or wire reinforcement with yield strengths in the 40,000-75,000 psi range.

Prestressed reinforcement is steel bars, wires or strands with ultimate strengths in the 250,000-270,000 psi range, strong enough to permit effective pre- or post-tensioning.



**GLOSSARY OF TERMS** *(CONTINUED)*

**SANDBLASTING:** A system of cutting or abrading a surface, such as concrete, by a stream of sand ejected from a nozzle at high speed by compressed air; often used for cleanup or for exposure of aggregate in architectural concrete.

**SCALING:** Local flaking or peeling away of the near-surface portion of hardened concrete or mortar; also of a layer from metal. (Note: Light scaling of concrete does not expose coarse aggregate; medium scaling involves loss of surface mortar of 5-10 mm in depth and exposure of coarse aggregate; severe scaling involves loss of surface mortar of 5-10 mm in depth with some loss of mortar surrounding aggregate particles 10-20 mm in depth; very severe scaling involves loss of coarse aggregate particles as well as mortar generally to a depth greater than 20 mm.)

**SHRINKAGE CRACKING:** Cracking of a structure or member due to failure in tension caused by external or internal restraints as reduction in moisture content develops, or as carbonation occurs, or both.

**SPALL:** A dish-shaped cavity or void formed by the broken surface, edge, or corner of a larger mass such as a floor slab, beam, column, wall, etc. Spalls are usually the result of weathering, pressure, or volume change of the larger mass.

**TENDON:** A steel element such as a wire, cable, bar, rod, strand, or group of such elements used to impart prestress to concrete when the element is tensioned.

**TRANSVERSE CRACKS:** Cracks that develop at right angles to the long direction of a member.





## KCAC garages

11/2/2018

Knoxville - Knox County - KUB Geographic Information System

Printed: 11/2/2017 at 5:45:00 PM



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## **EXHIBIT “B”**

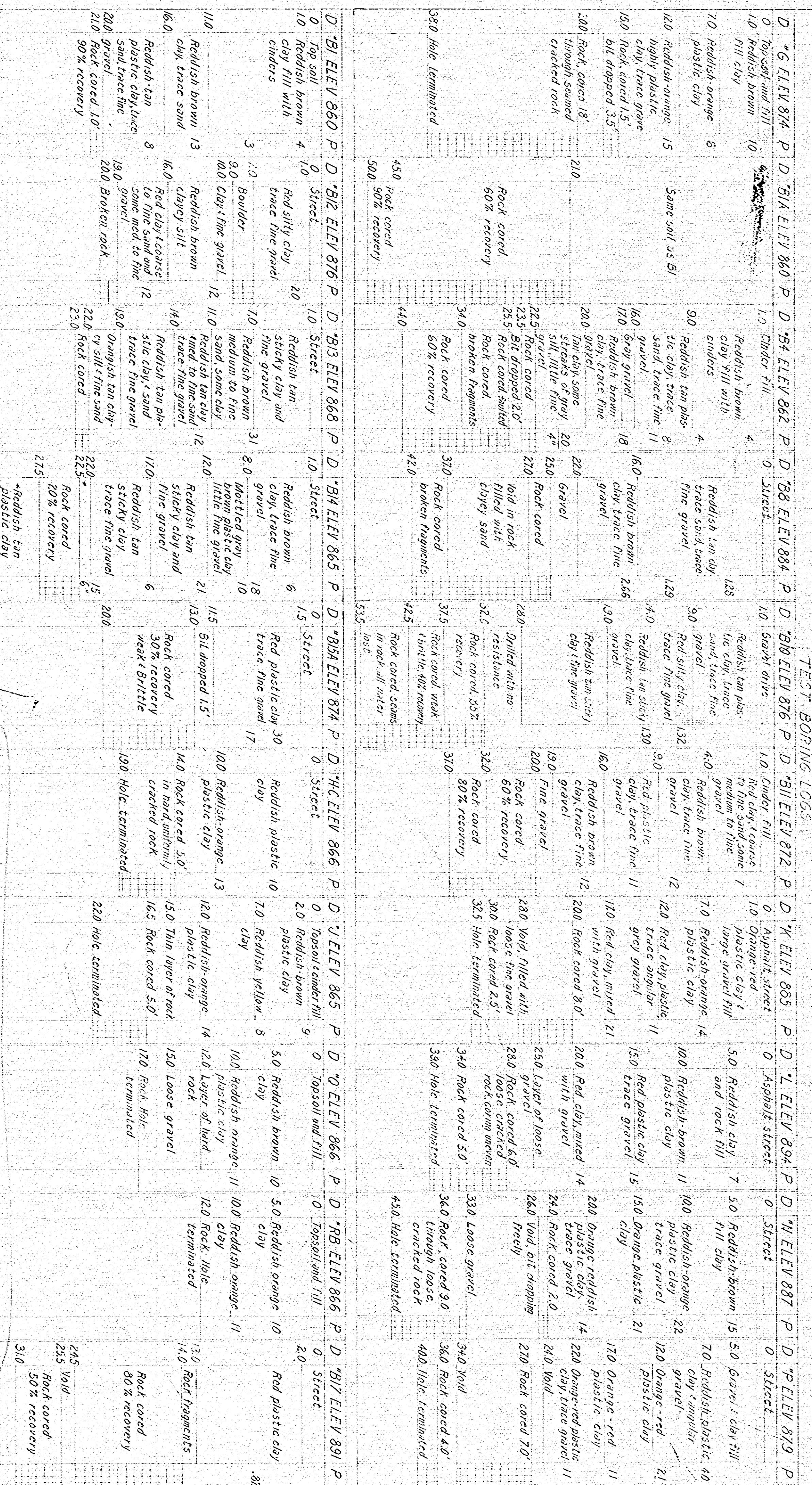
### **“As Built” Schematics for KCAC**



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21.1958

Assumed datum for above elevations: taken from existing site plan, Sheet 3. For finished contours, see finished site plan, Sheet 2.

For existing utilities see existing site plan sheet.



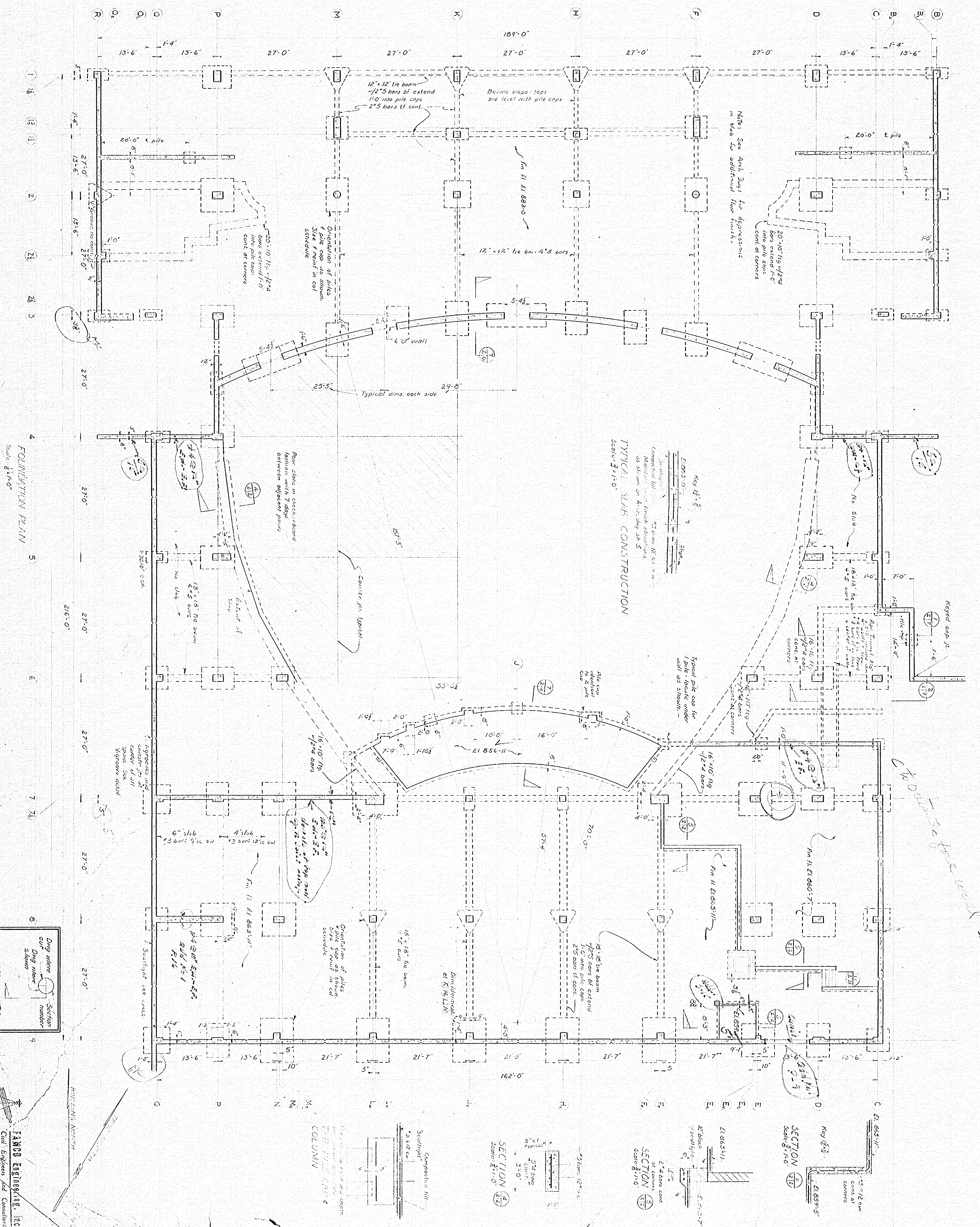


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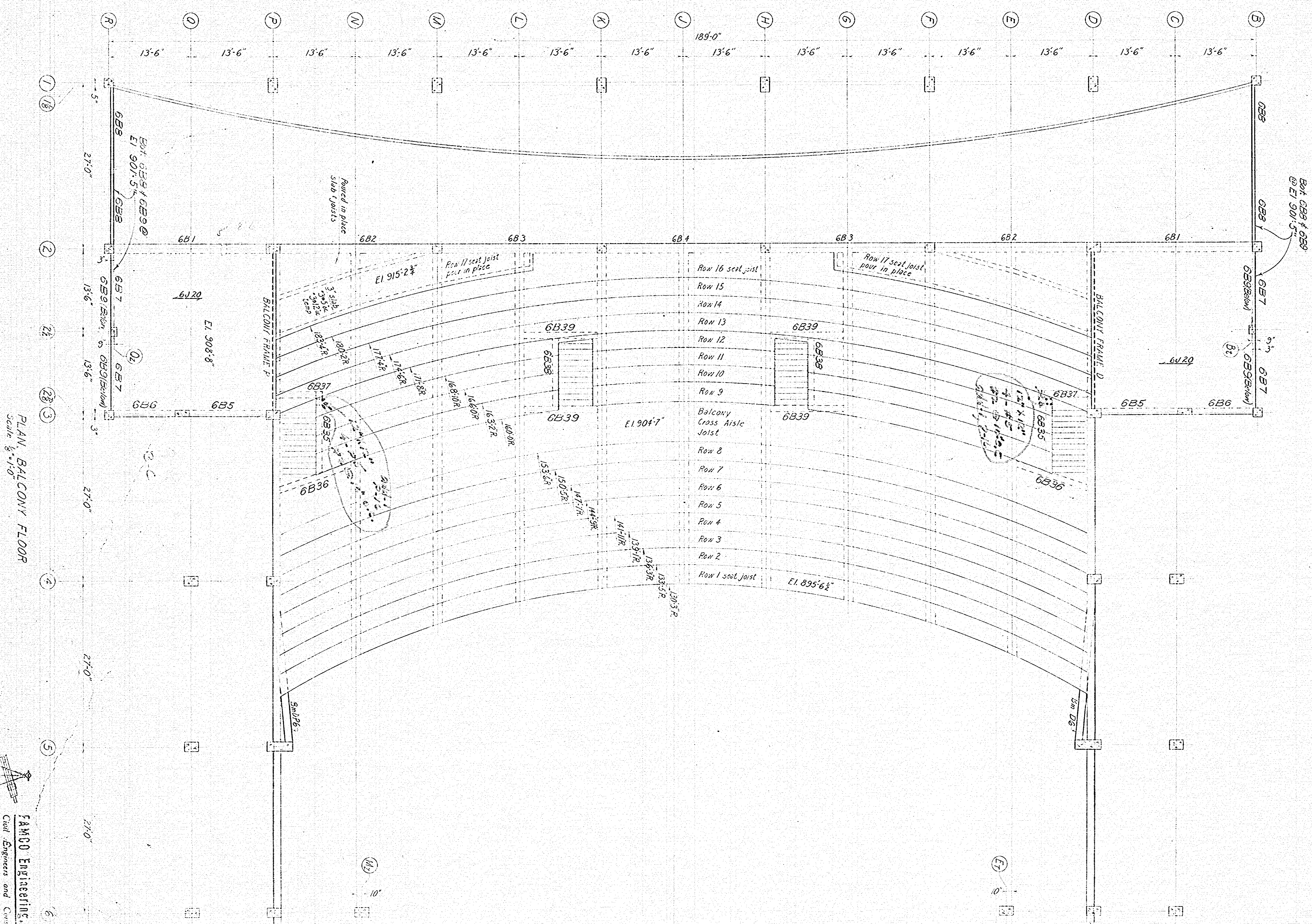
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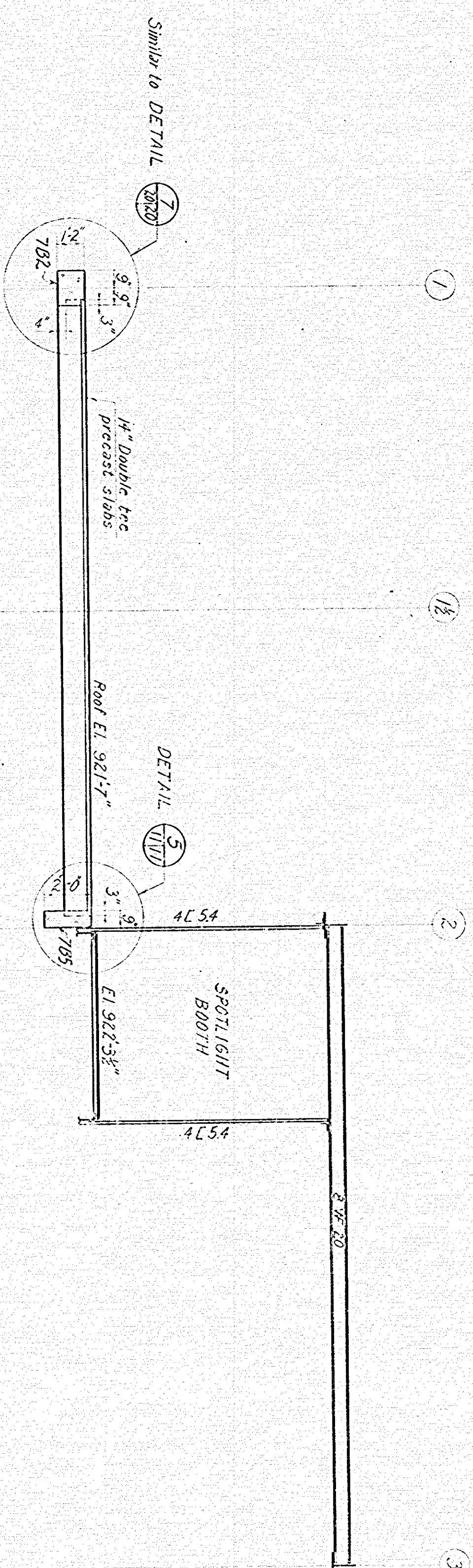
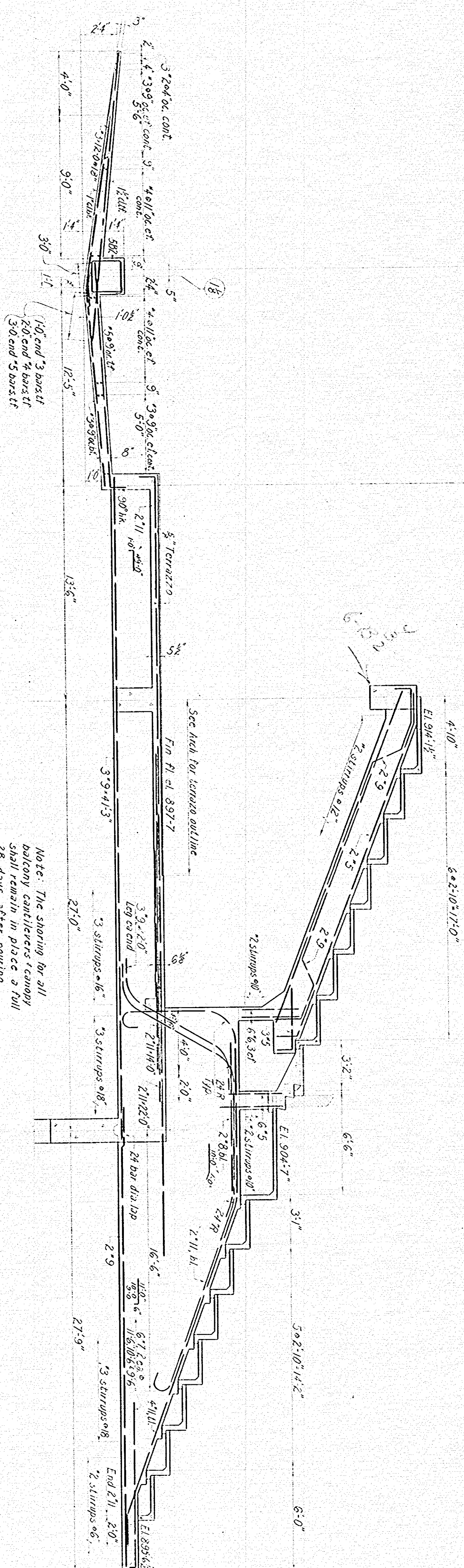
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SHEET 54

**FAMCO Engineering, Inc.**  
*Civil Engineers and Consultants*  
KNOXVILLE - TENNESSEE

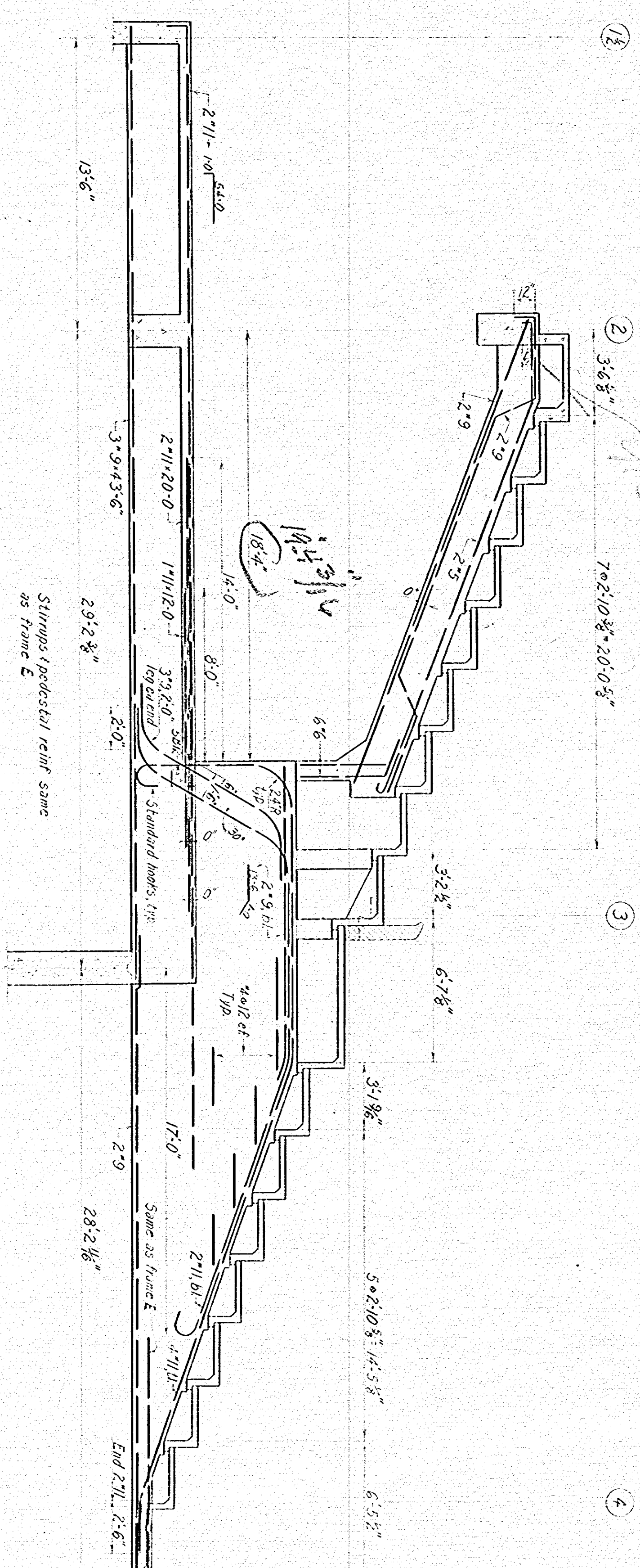


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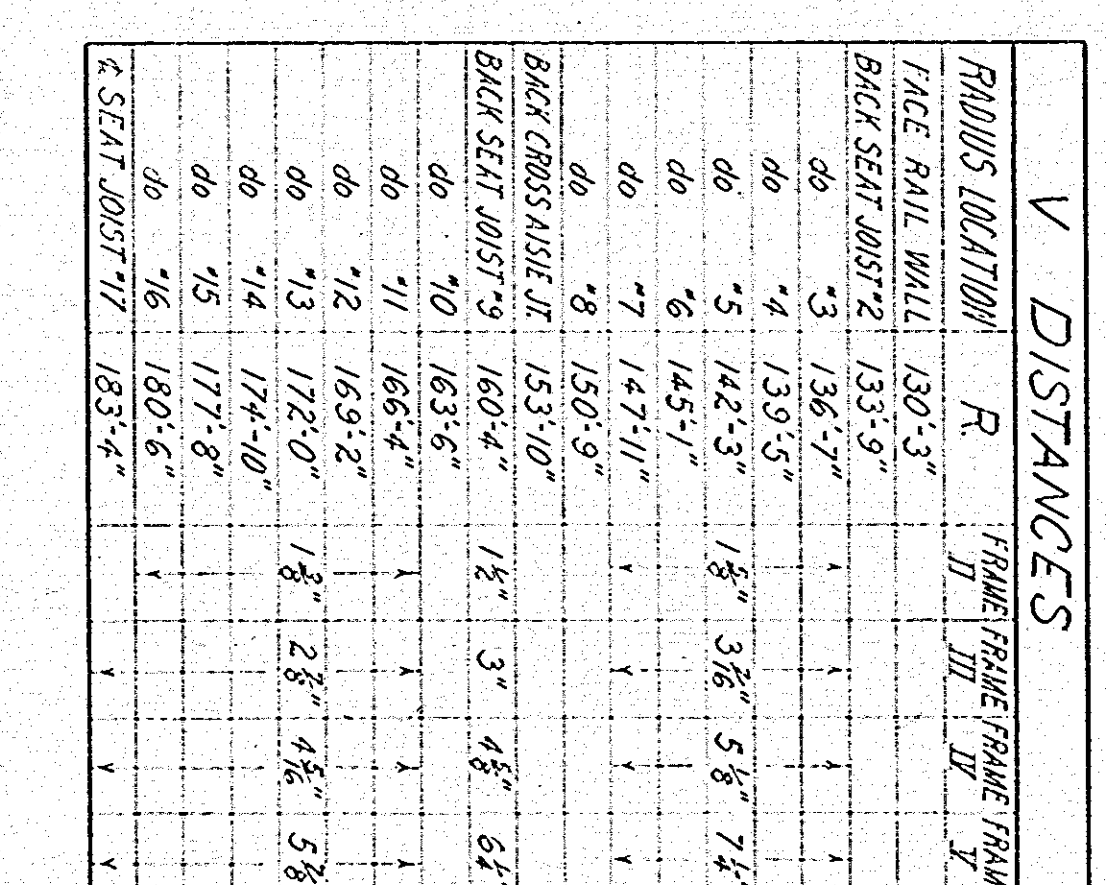




REVISIONS	SHEET
1	151
2	DATE <u>Nov 21, 1953</u>
3	BY <u>CHERO N/A</u>
4	DATE <u>Nov 21, 1953</u>
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BALCONY FRAME G  
BALCONY FRAME L OPPOSITE HAND  
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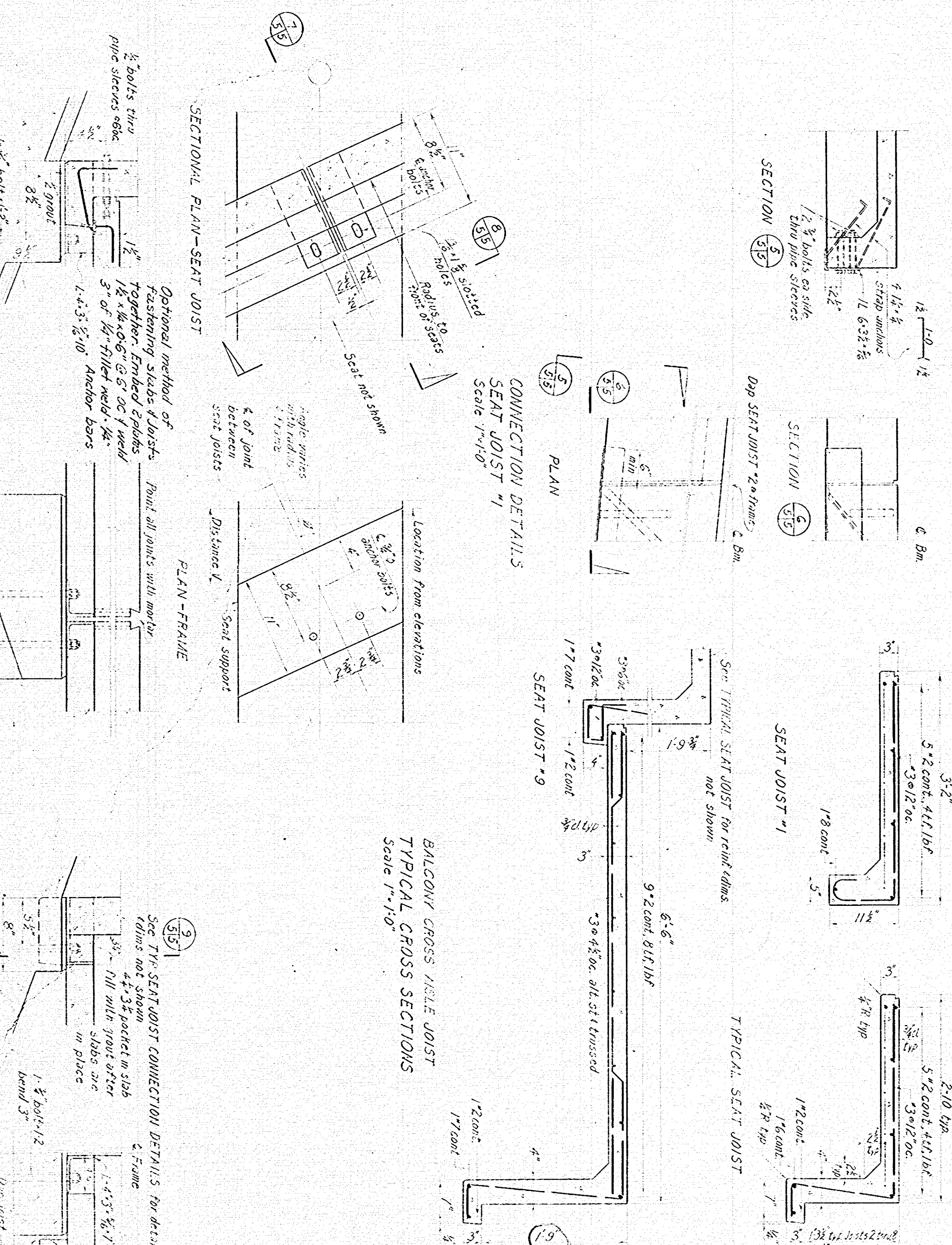


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4'-8"  
1'-6"  
5'-11"  
2'-11"  
2'-9"  
3'-0 1/2"  
4'-0"  
1'-3 1/4"  
2'-9"  
2'-9"

SECTION  
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6'-8"  
2'-6"  
1'-6 1/2"  
2'-9"



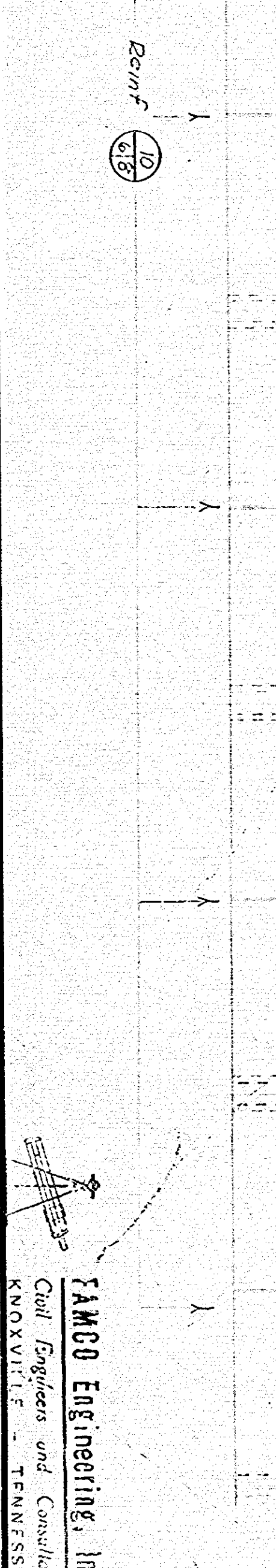
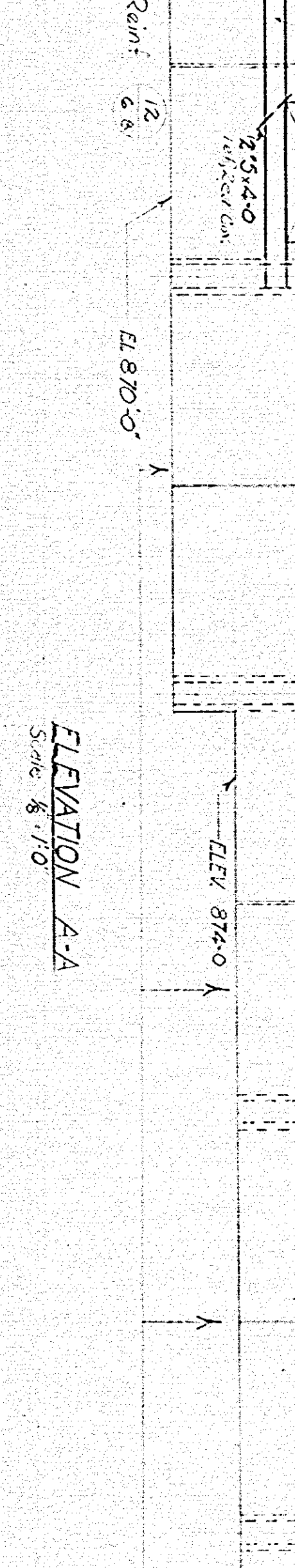
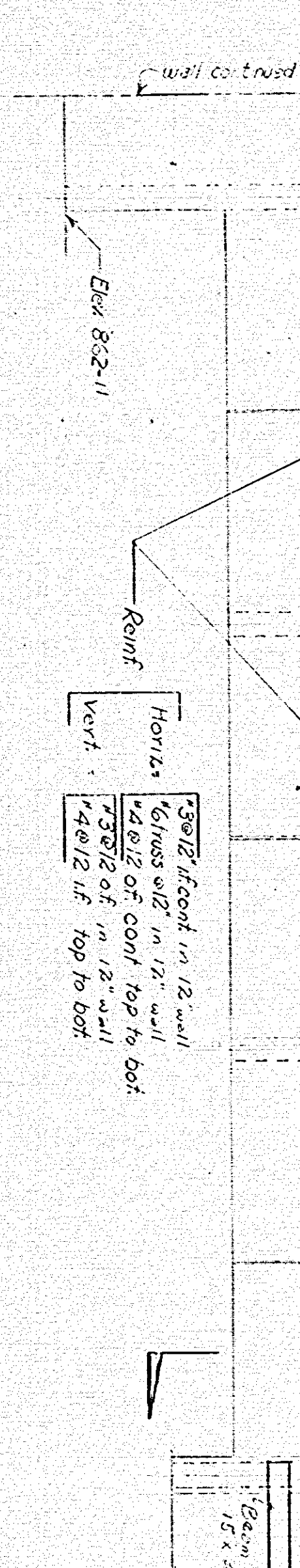
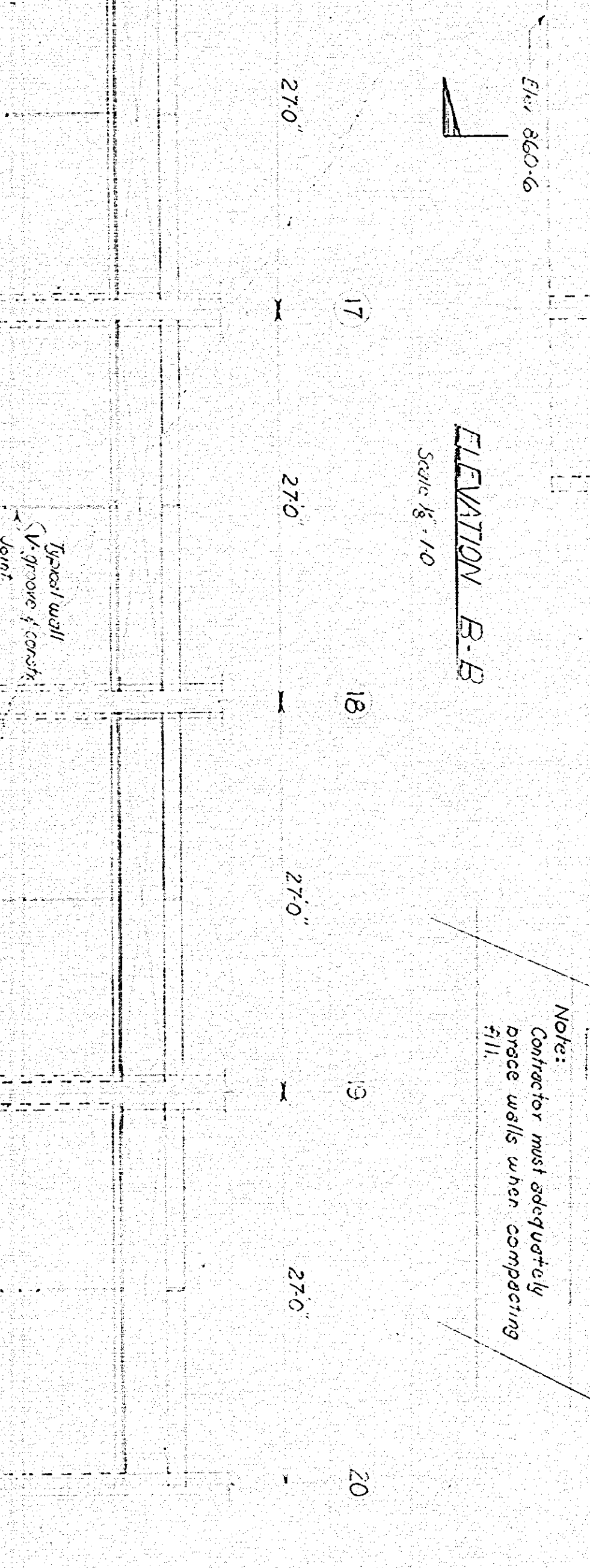
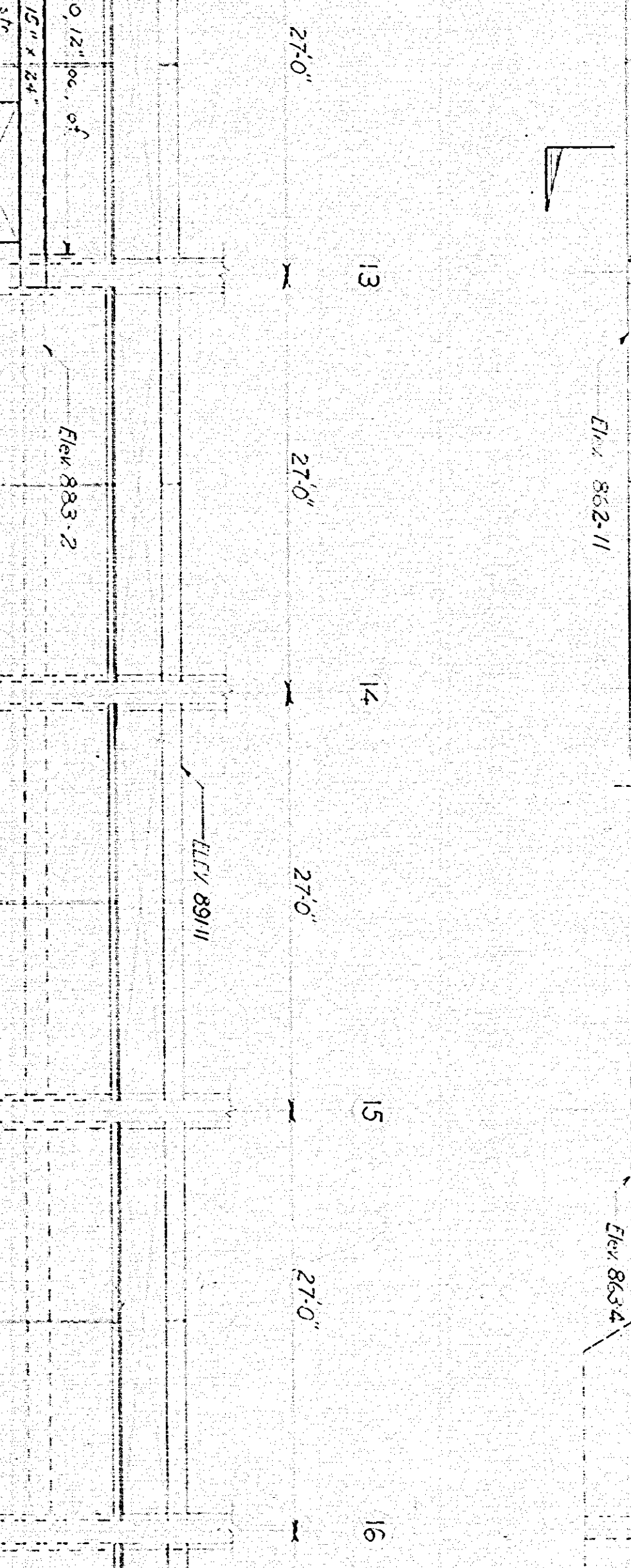
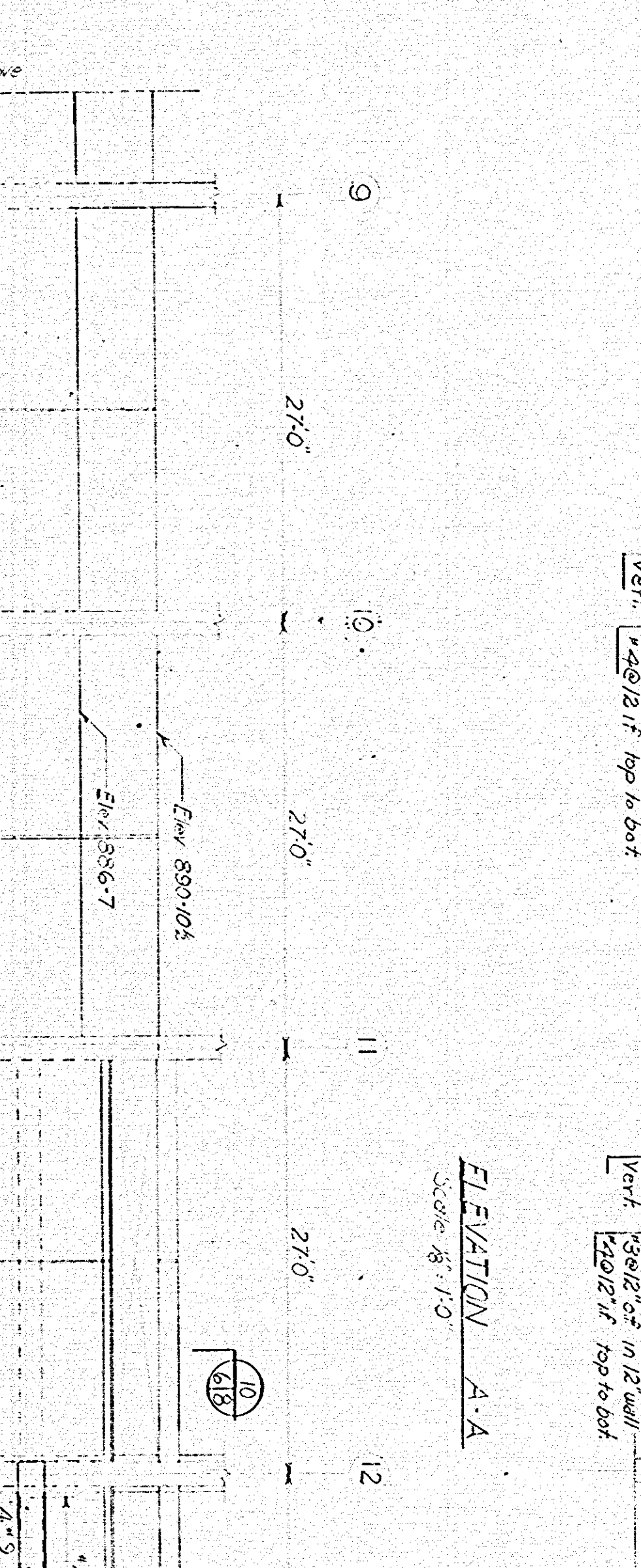
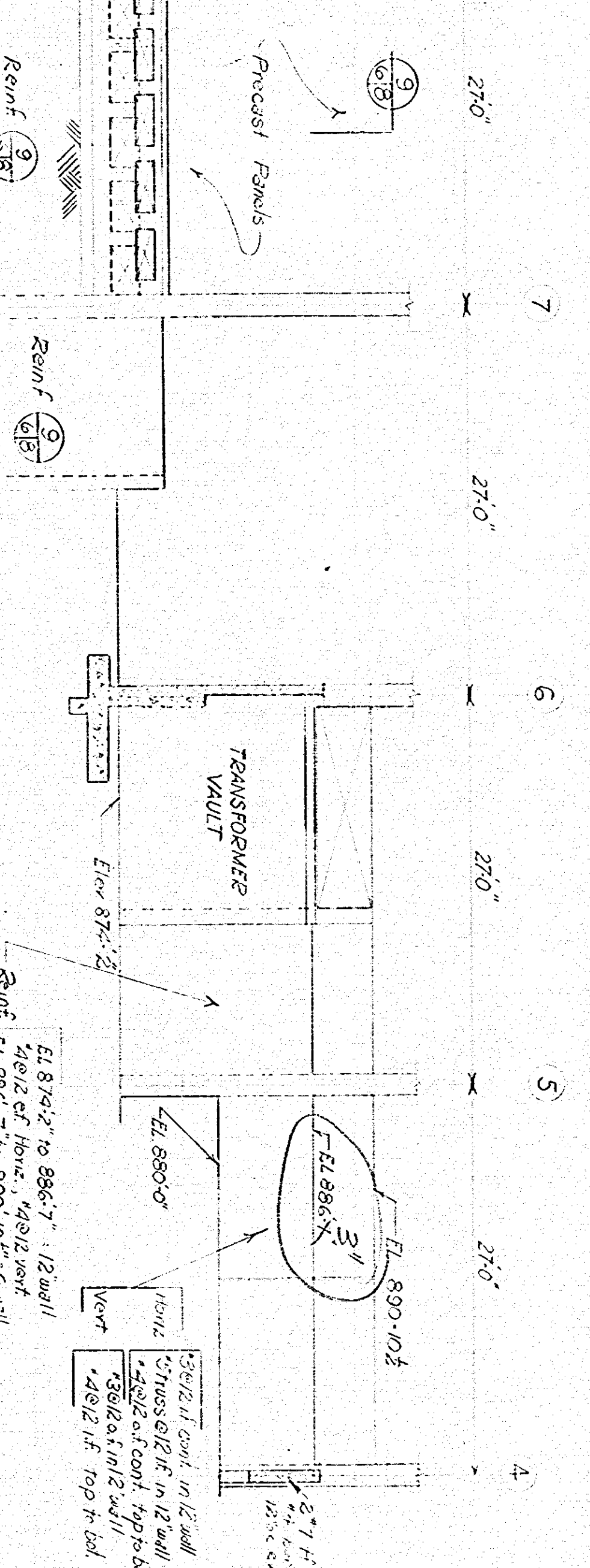
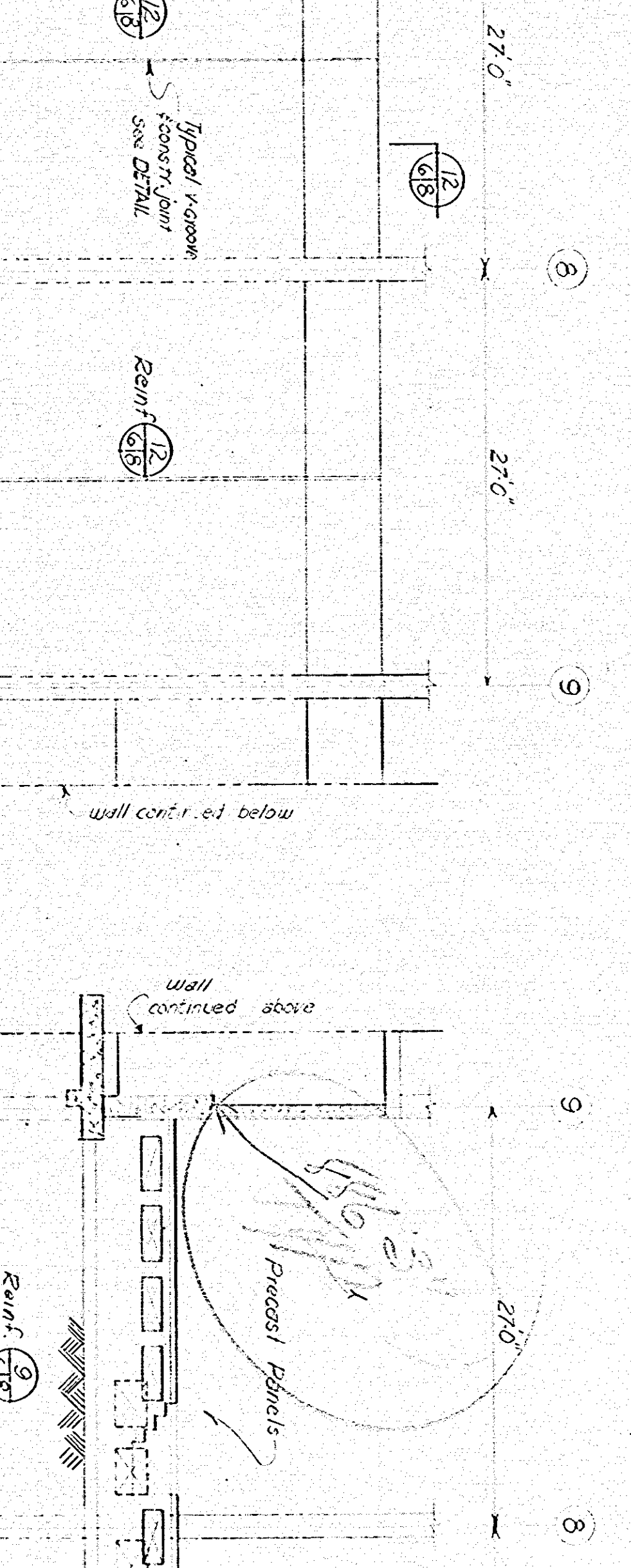
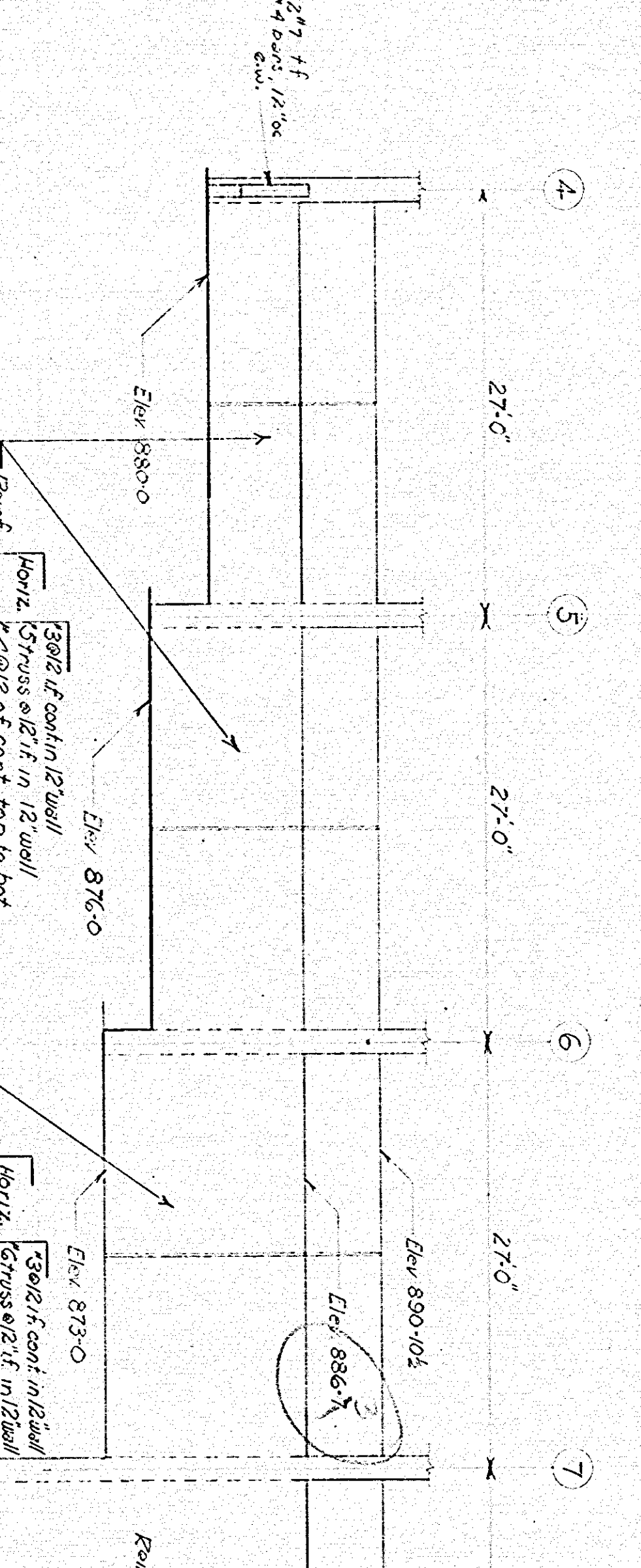
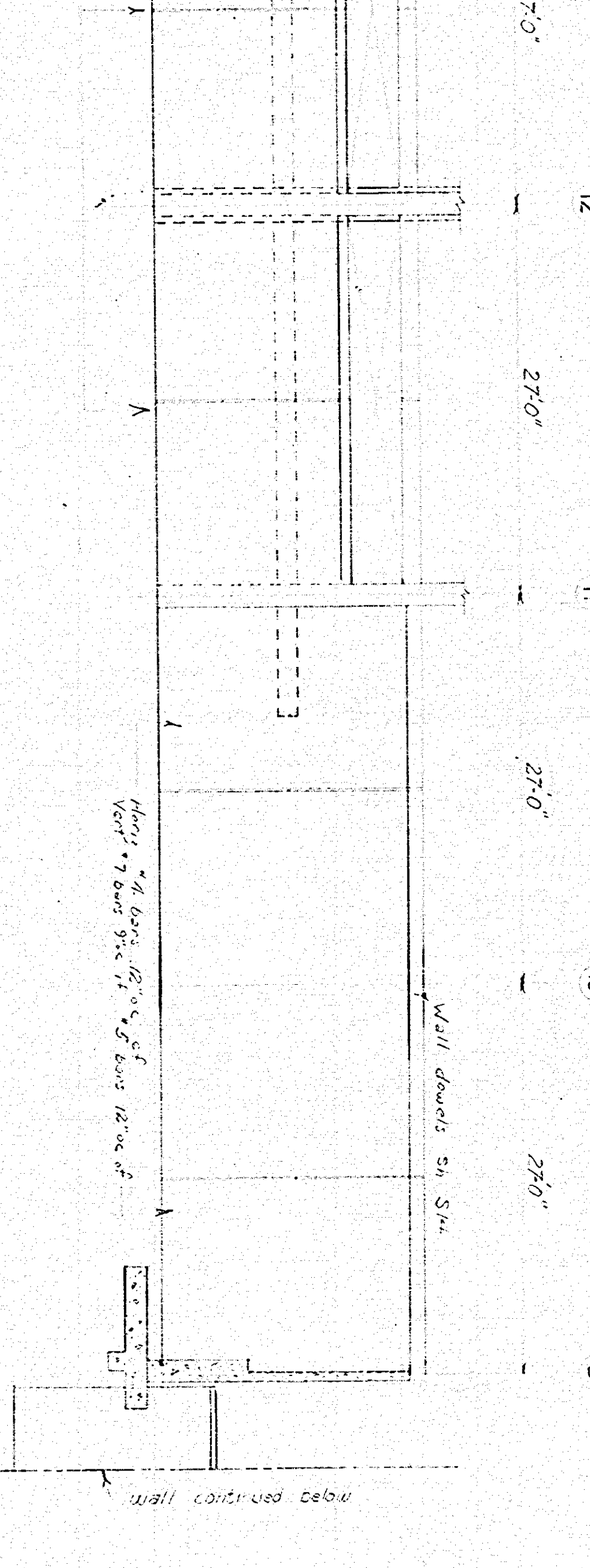
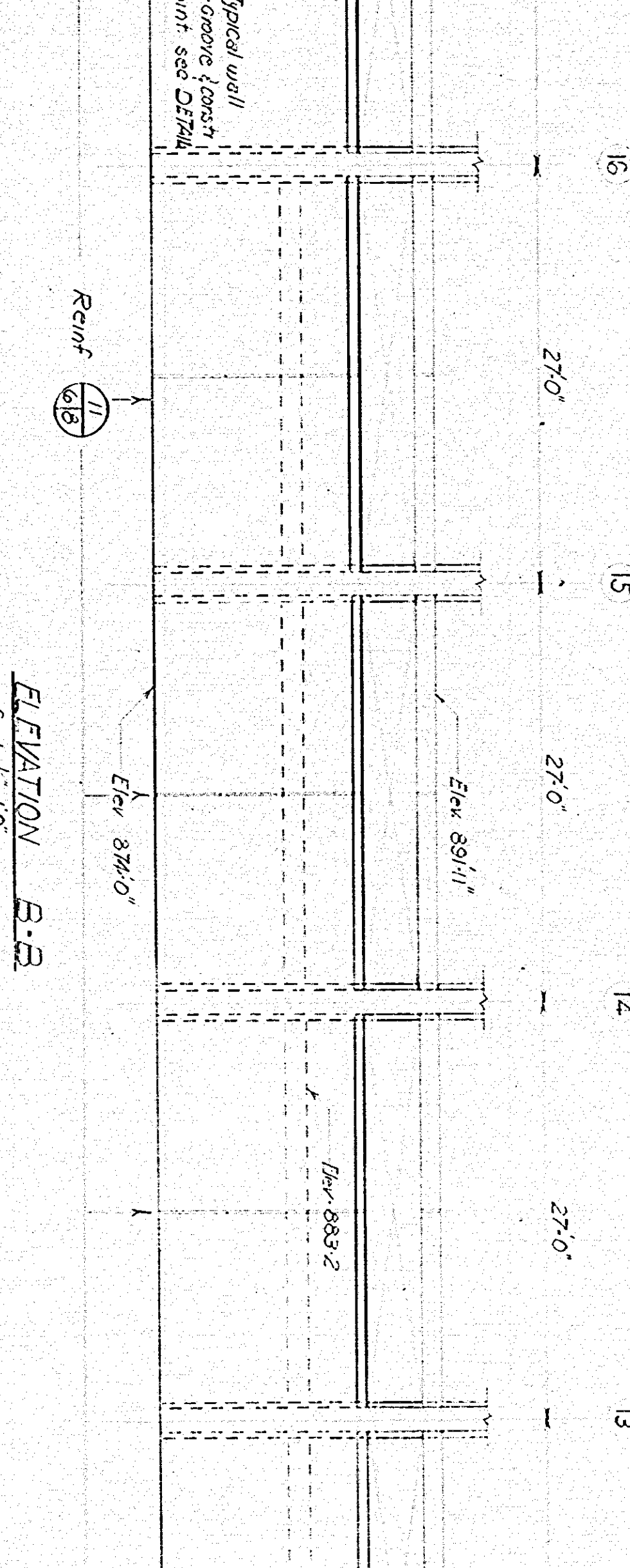
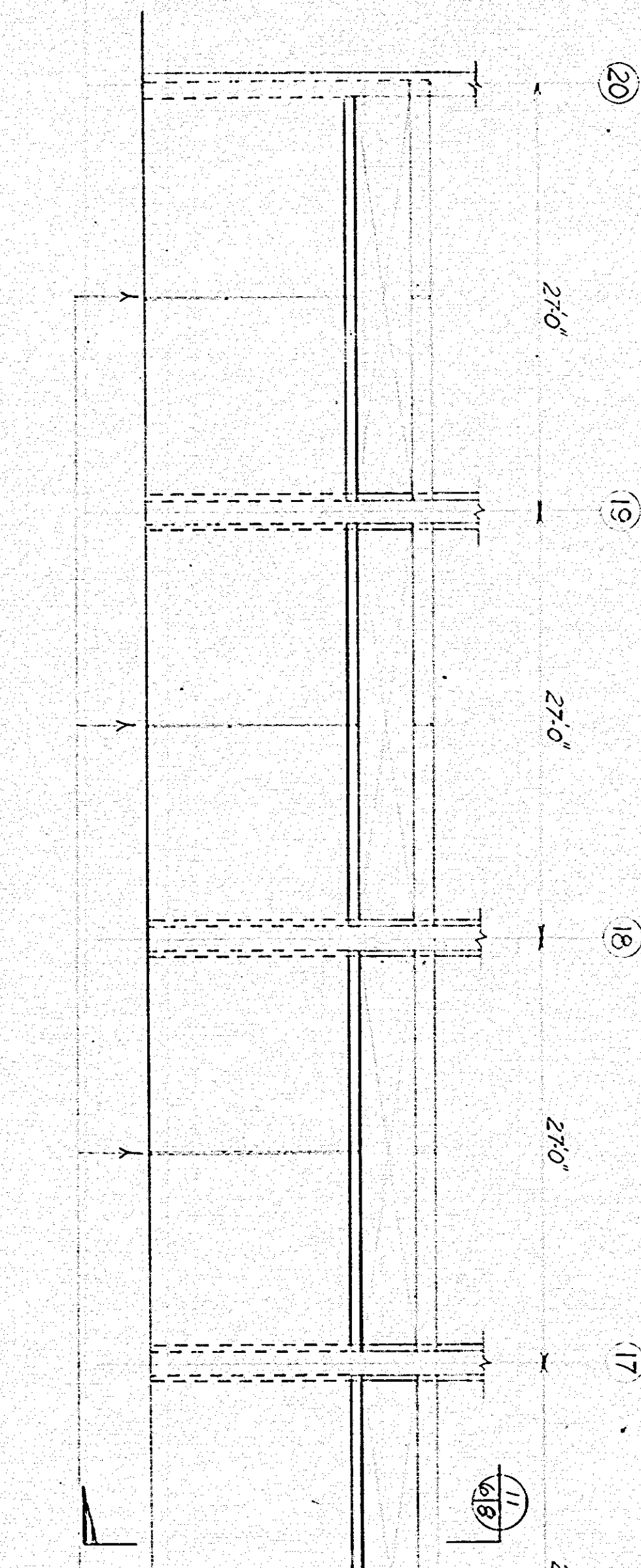
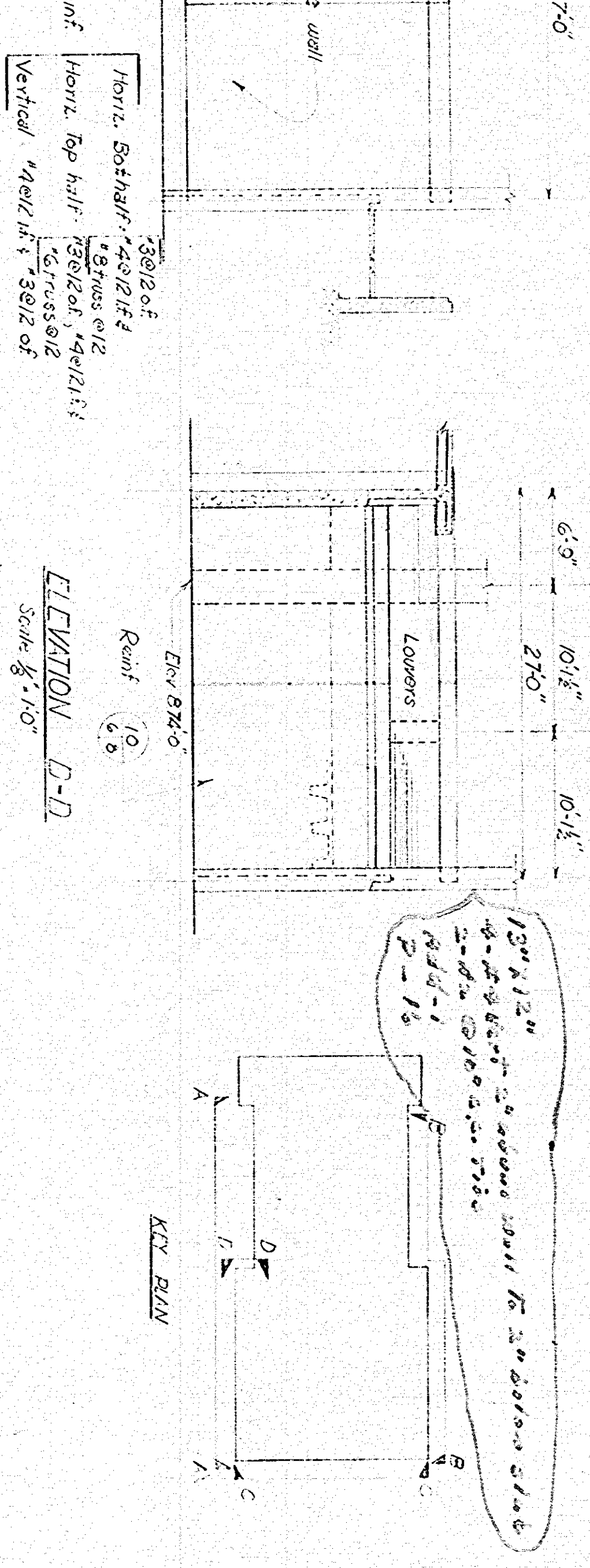
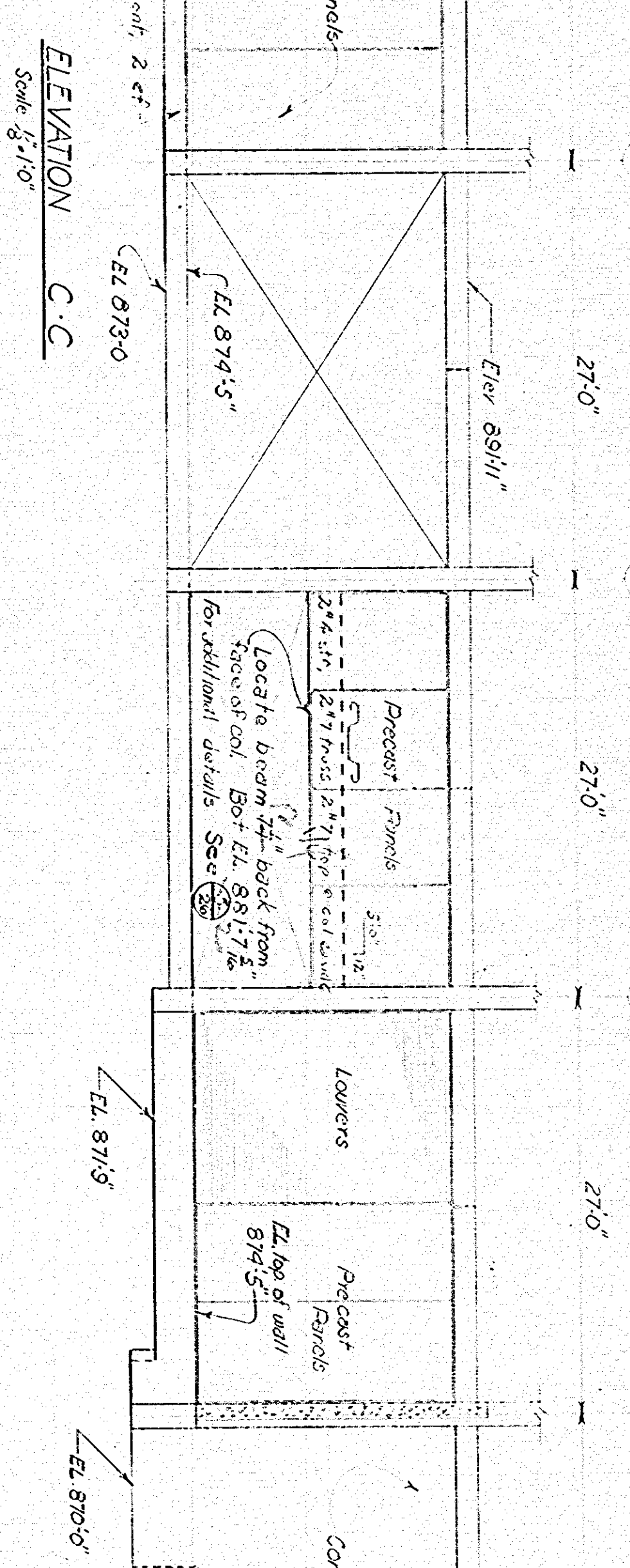
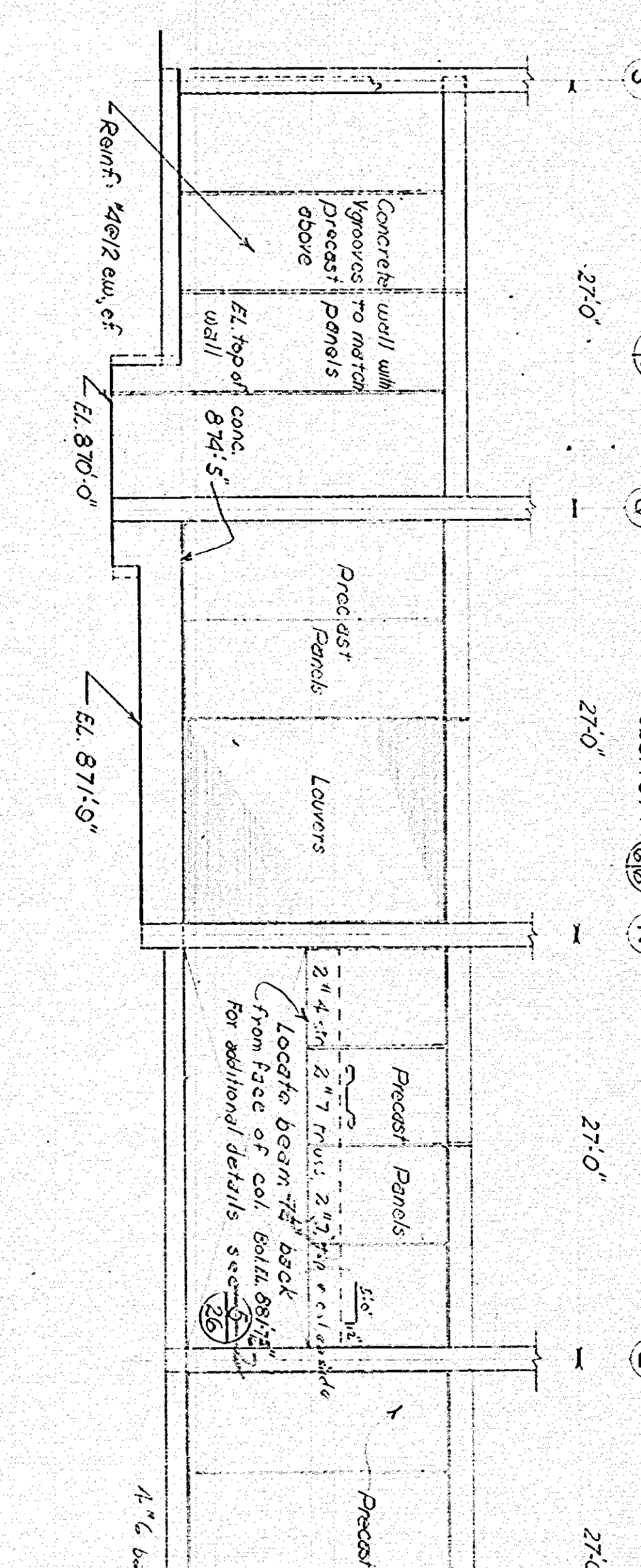
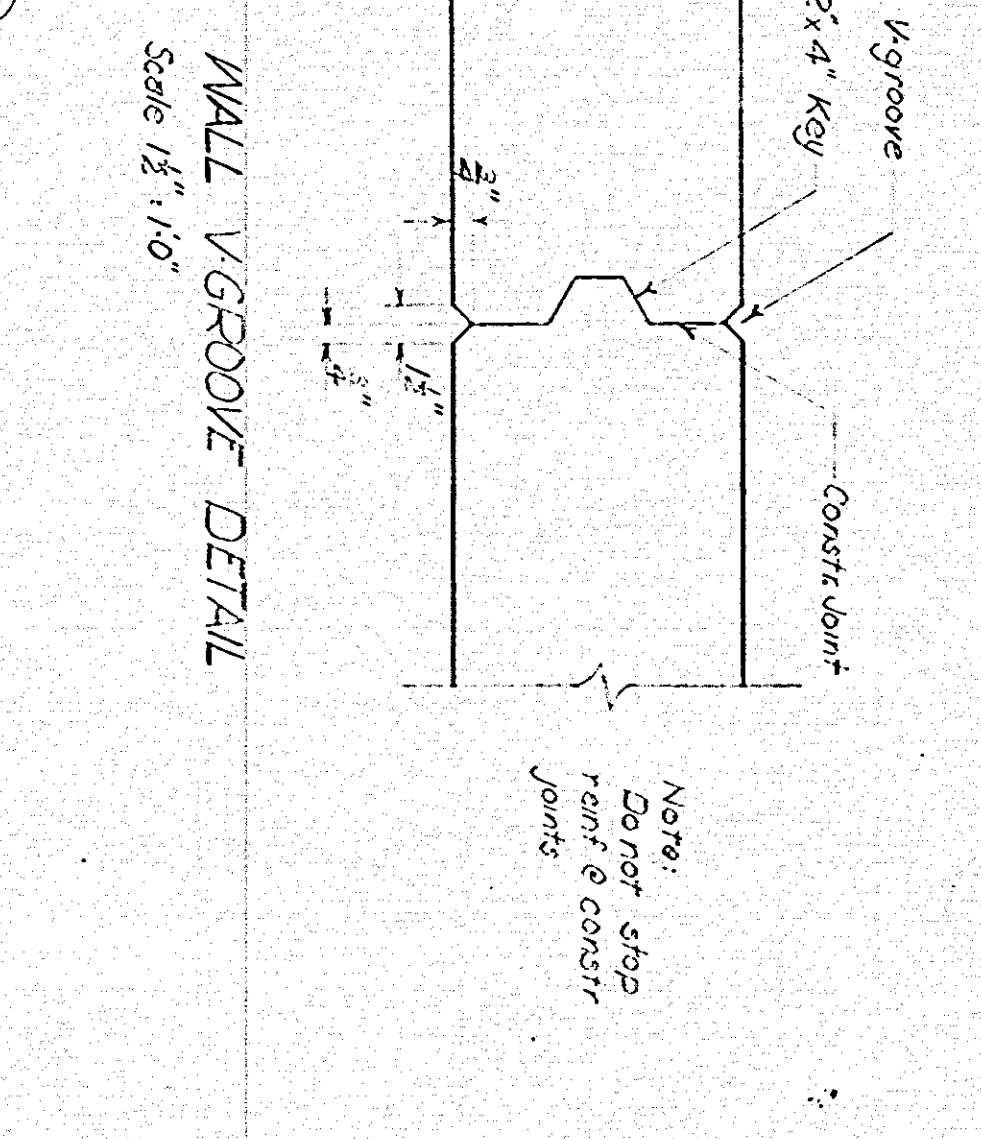
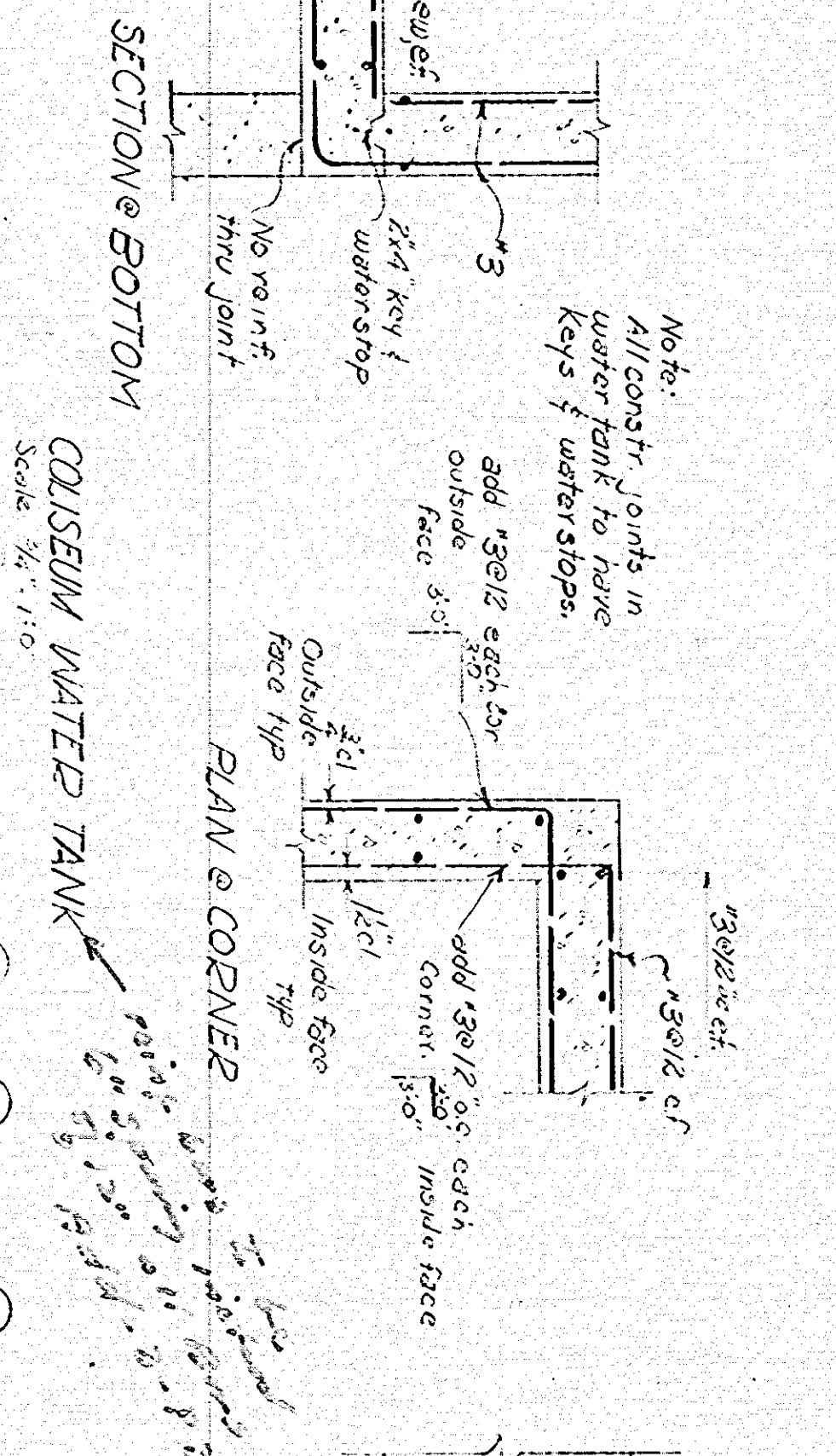
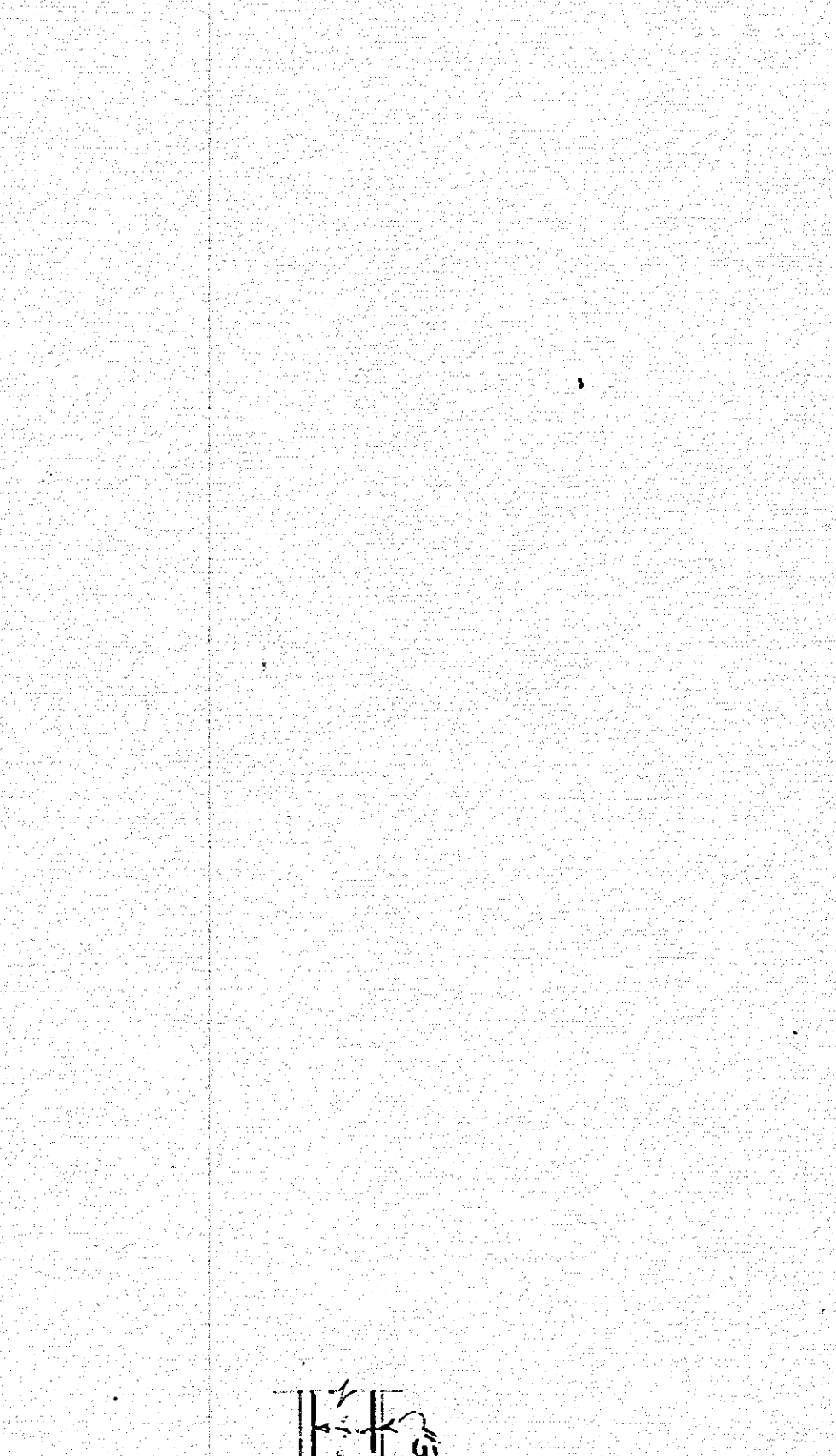
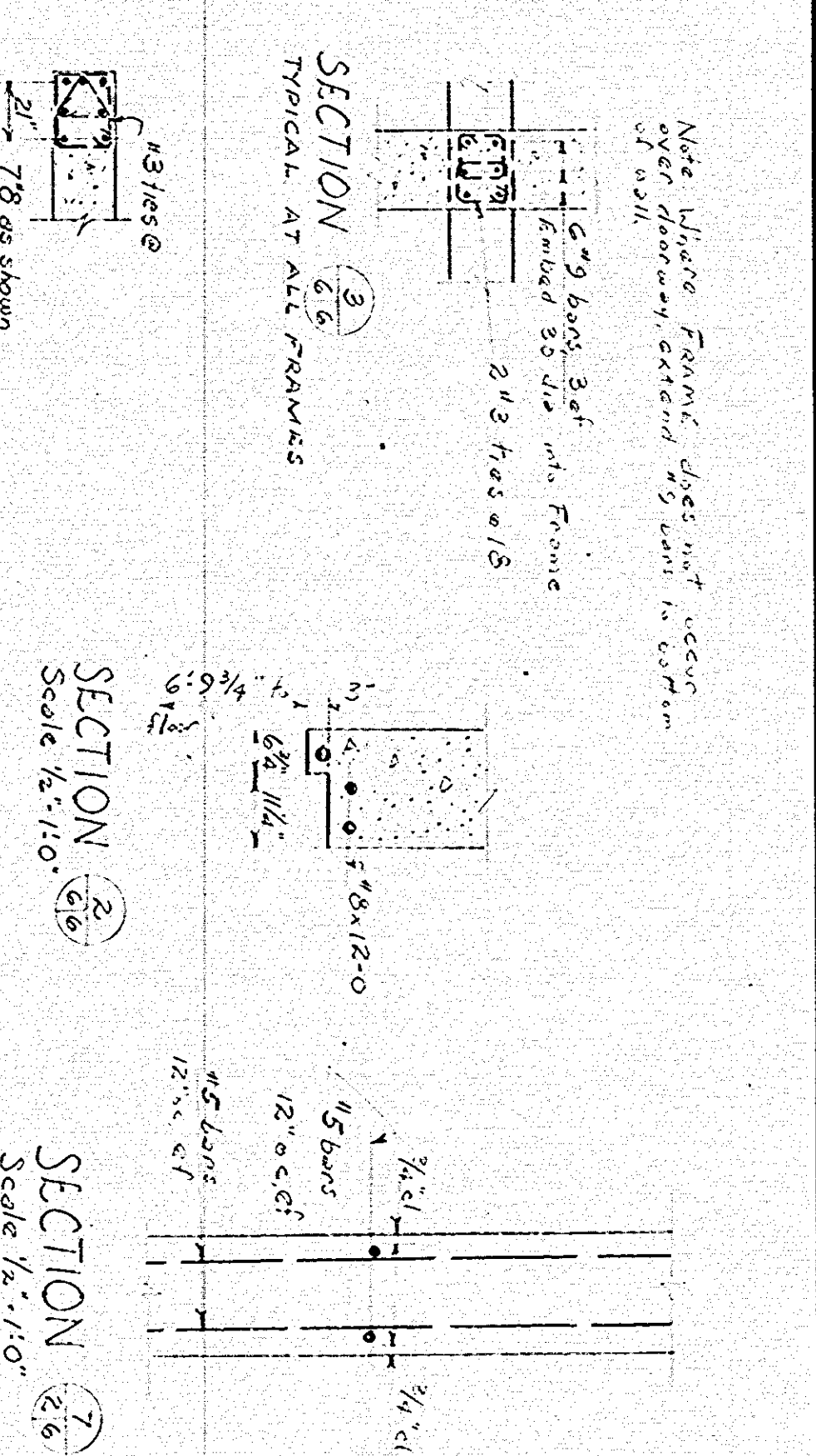
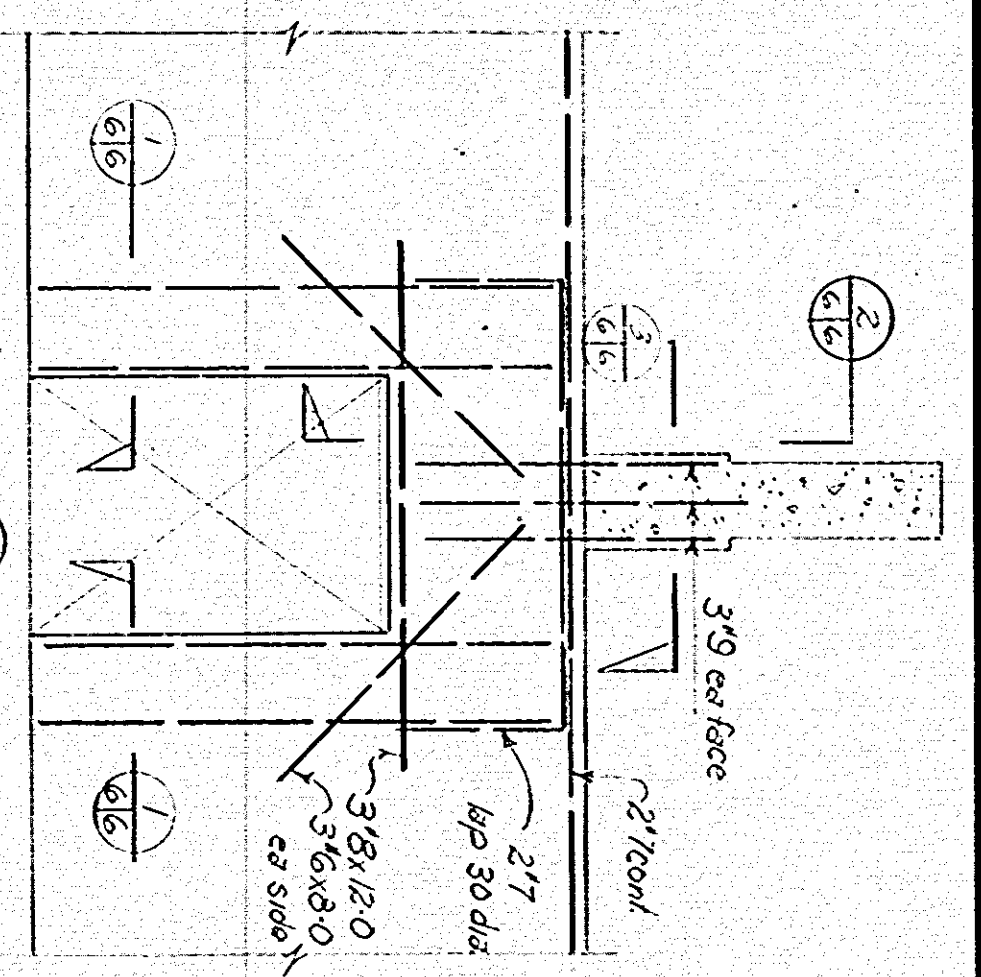
**NO. FRAM**

**SECT**

DAPPED SEAT JOIST DETAILS  
JOIST HANGS 10 THRU 16 FRAMES  
Scale 1/8"=1'-0"

9  
5.5





# KNOXVILLE CIVIC AUDITORIUM - COLISEUM

PAINTER, WEEKS & McCARTY  
MORTON & SWEETSER  
ASSOCIATED ARCHITECTS  
KNOXVILLE  
TENNESSEE

SHEET S6  
REVISIONS  
CONCRETE WALLS  
S6

ELEVATION A-A  
Scale 1/2"=1'-0"

ELEVATION A-A  
Scale 1/2"=1'-0"

ELEVATION B-B  
Scale 1/2"=1'-0"

ELEVATION B-B  
Scale 1/2"=1'-0"

ELEVATION C-C  
Scale 1/2"=1'-0"

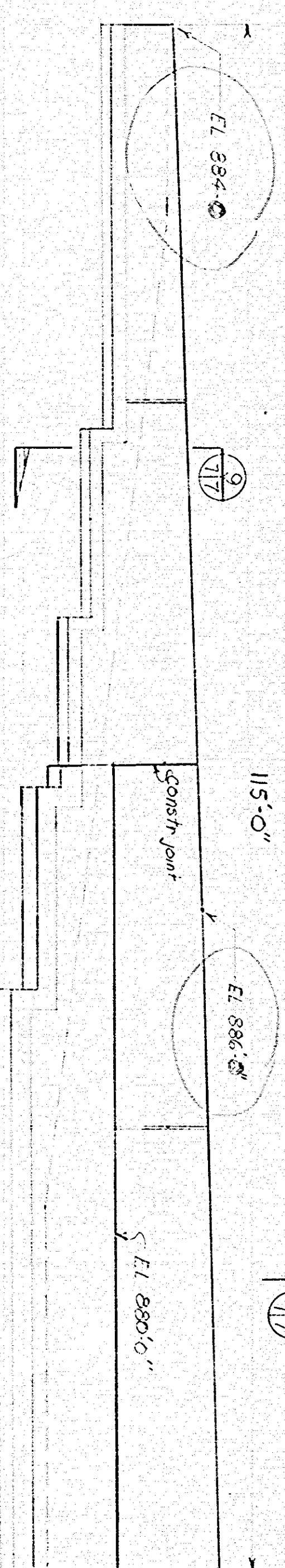
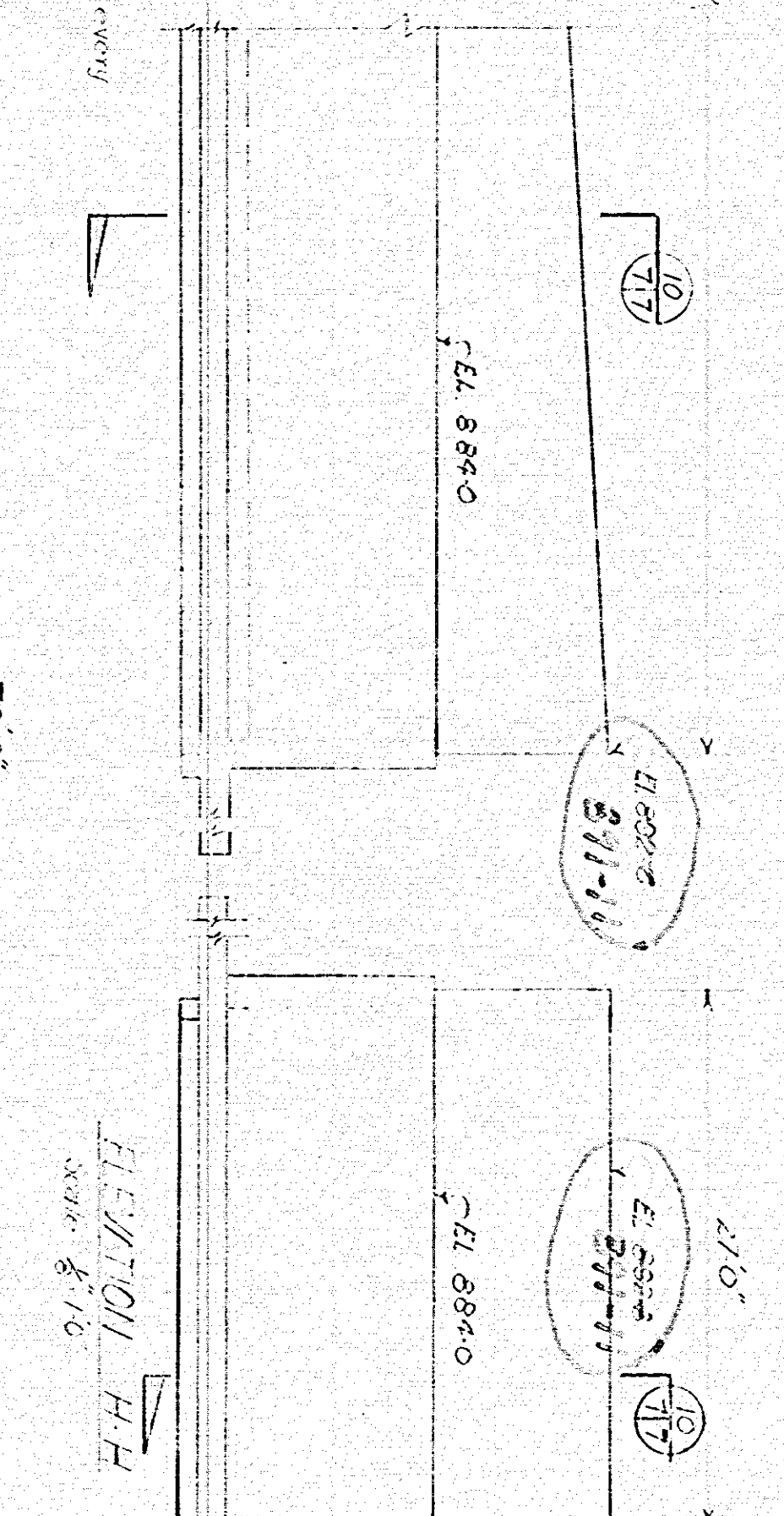
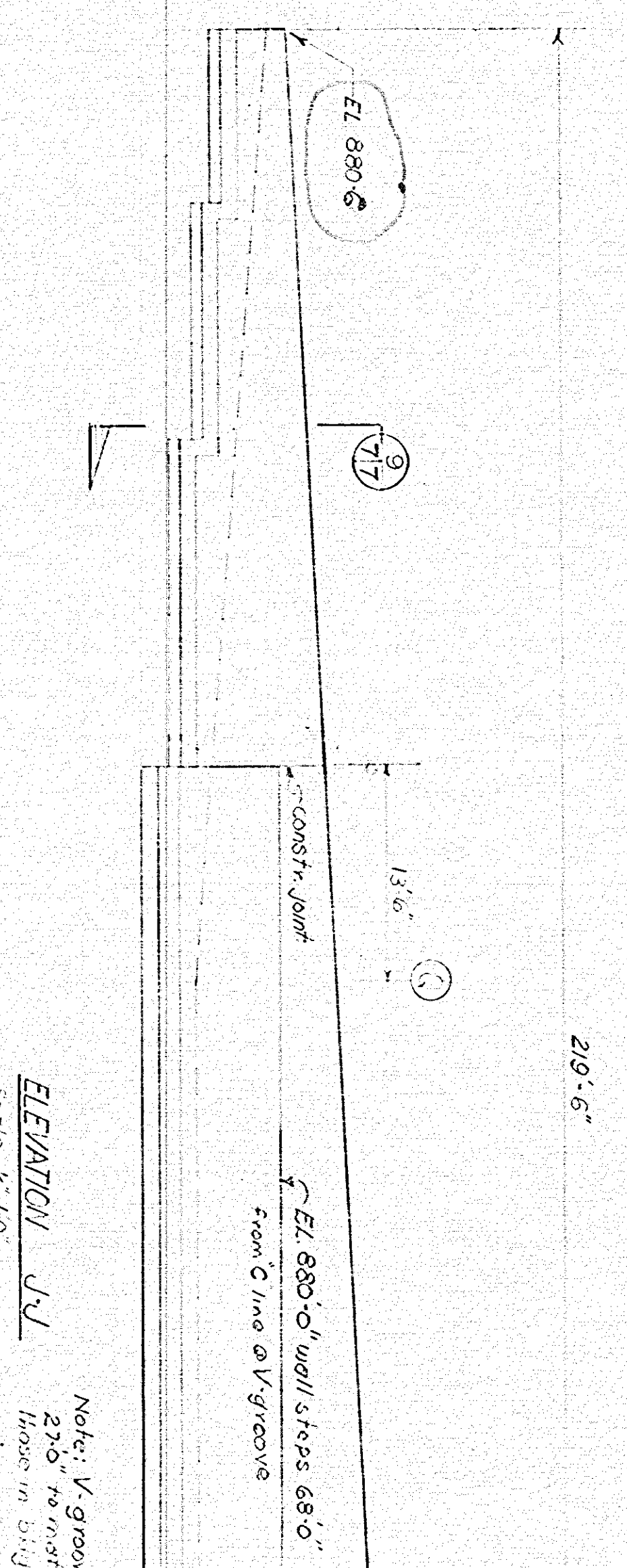
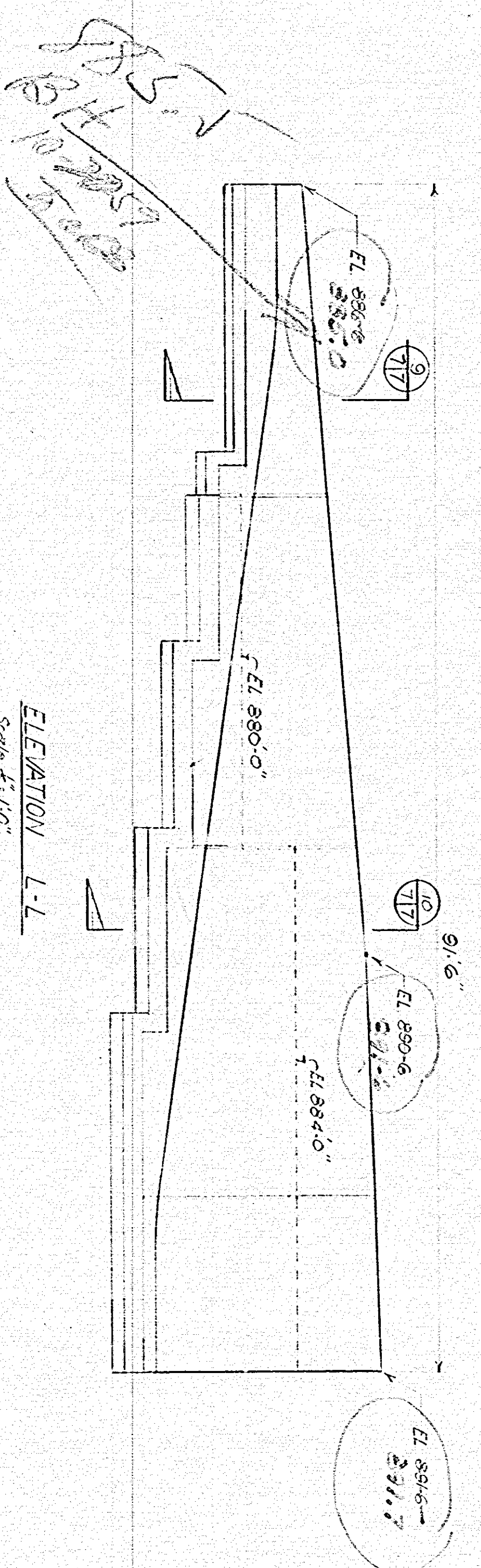
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COLISEUM WATER TANK  
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WALL JOINT DETAIL  
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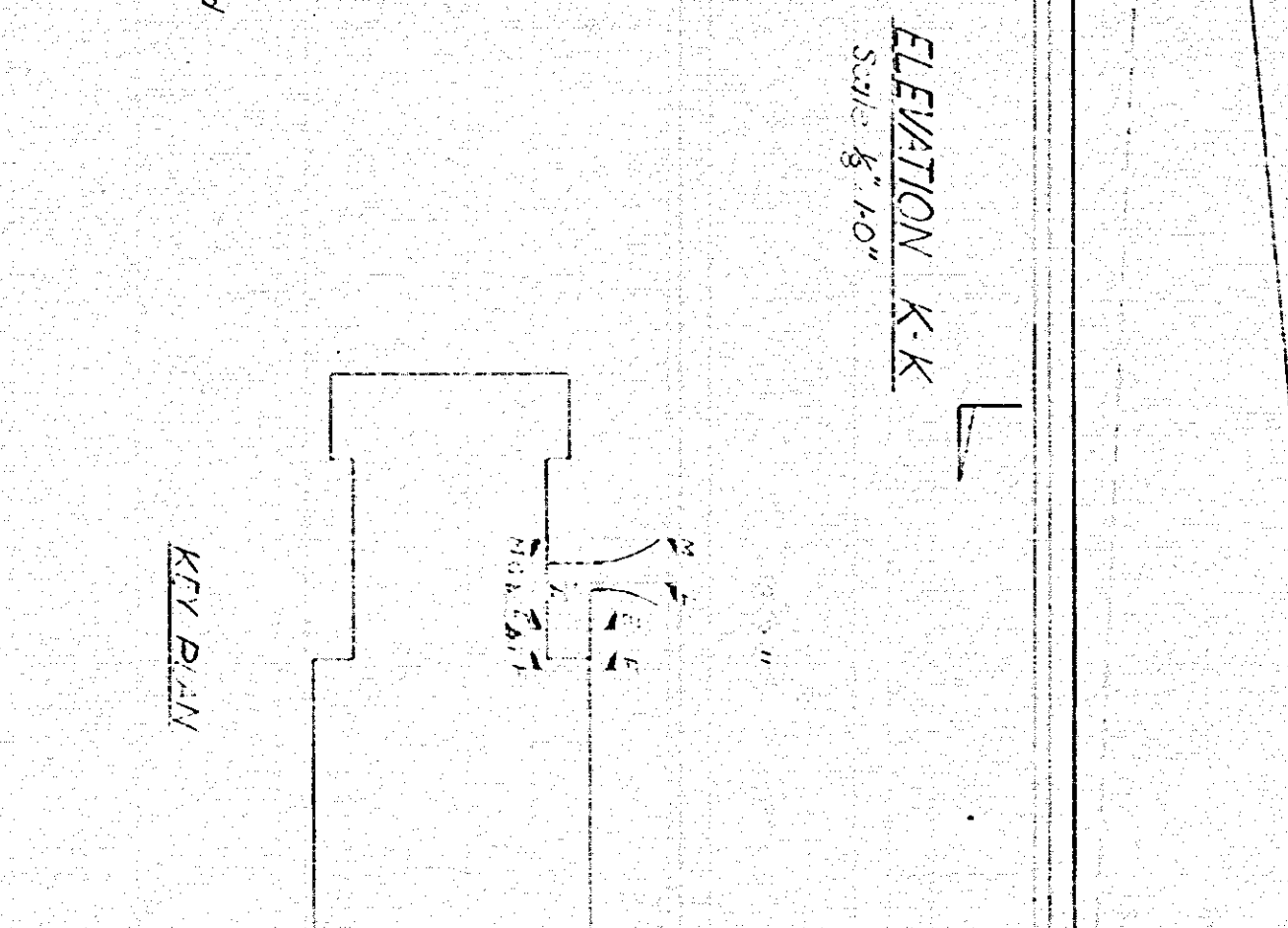
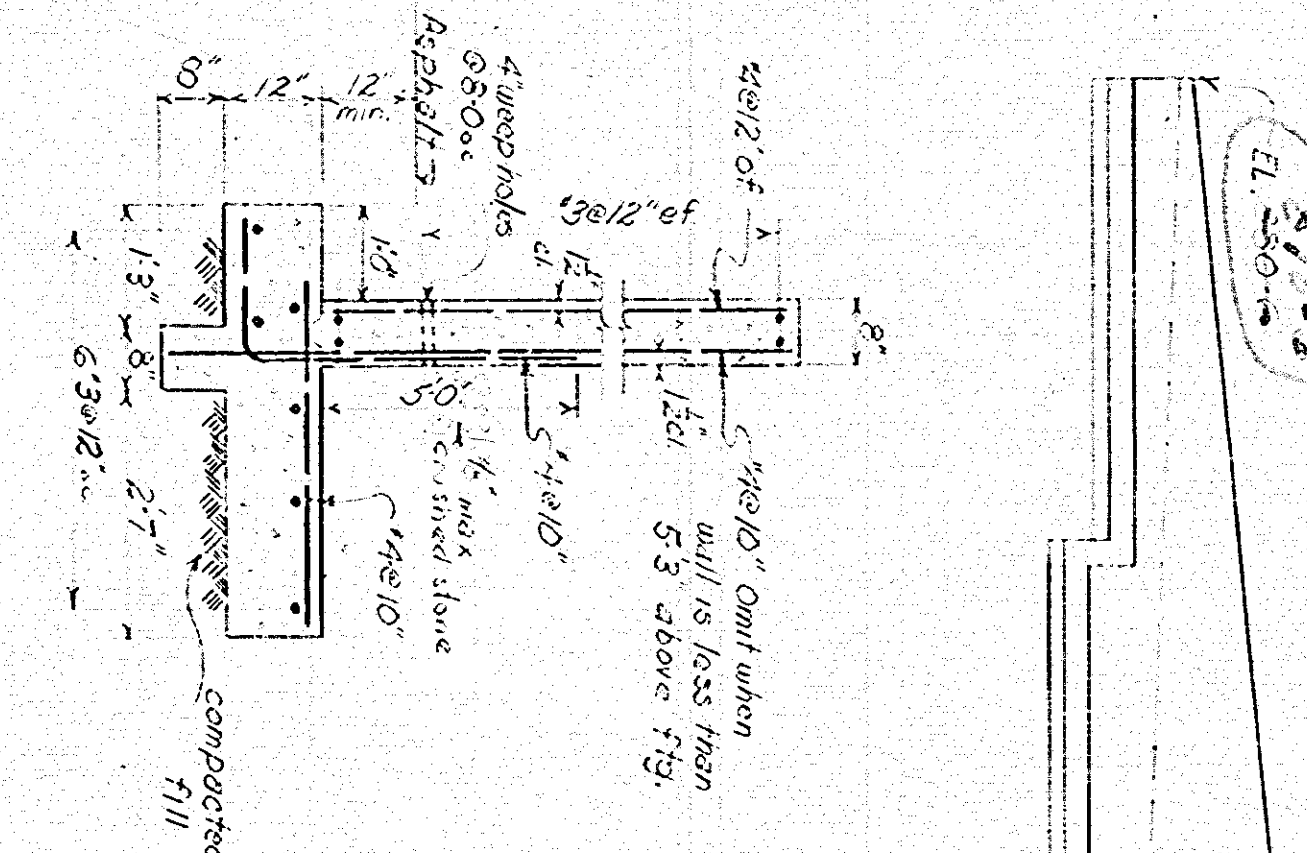
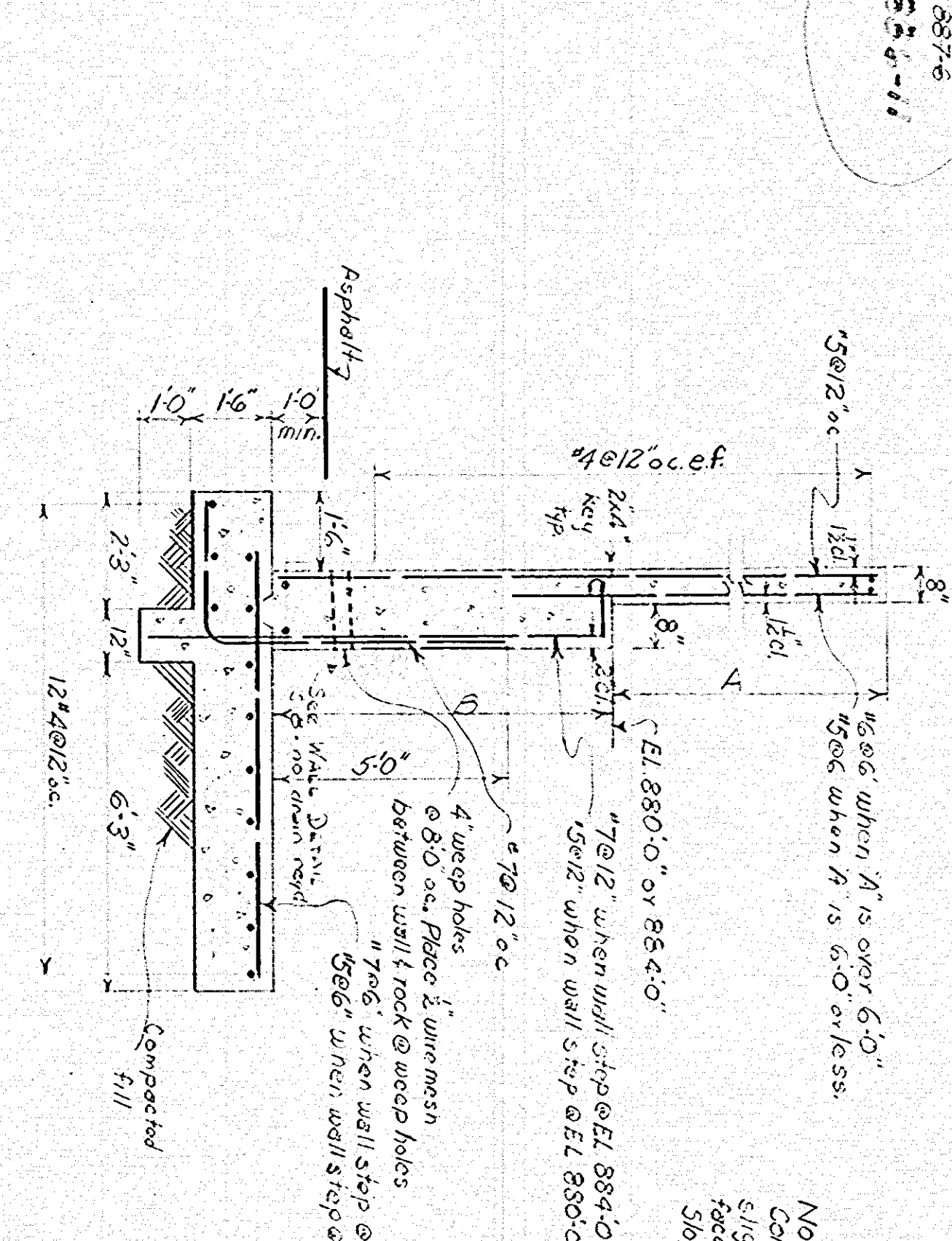
JAMES Engineering, Inc.  
Civil Engineers and Consultants  
KNOXVILLE, TENNESSEE





Remove 2' roof in  
returning walls 27'-0" to  
bid. No roof shall  
cross joint.

RETAINING WALL DETAIL  
N.T.S.



SECTION 27  
Scale 1/8" = 1'-0"

SECTION 28  
Scale 1/8" = 1'-0"

SECTION 29  
Scale 1/8" = 1'-0"

SECTION 30  
Scale 1/8" = 1'-0"

SECTION 31  
Scale 1/8" = 1'-0"

SECTION 32  
Scale 1/8" = 1'-0"

SECTION 33  
Scale 1/8" = 1'-0"

SECTION 34  
Scale 1/8" = 1'-0"

SECTION 35  
Scale 1/8" = 1'-0"

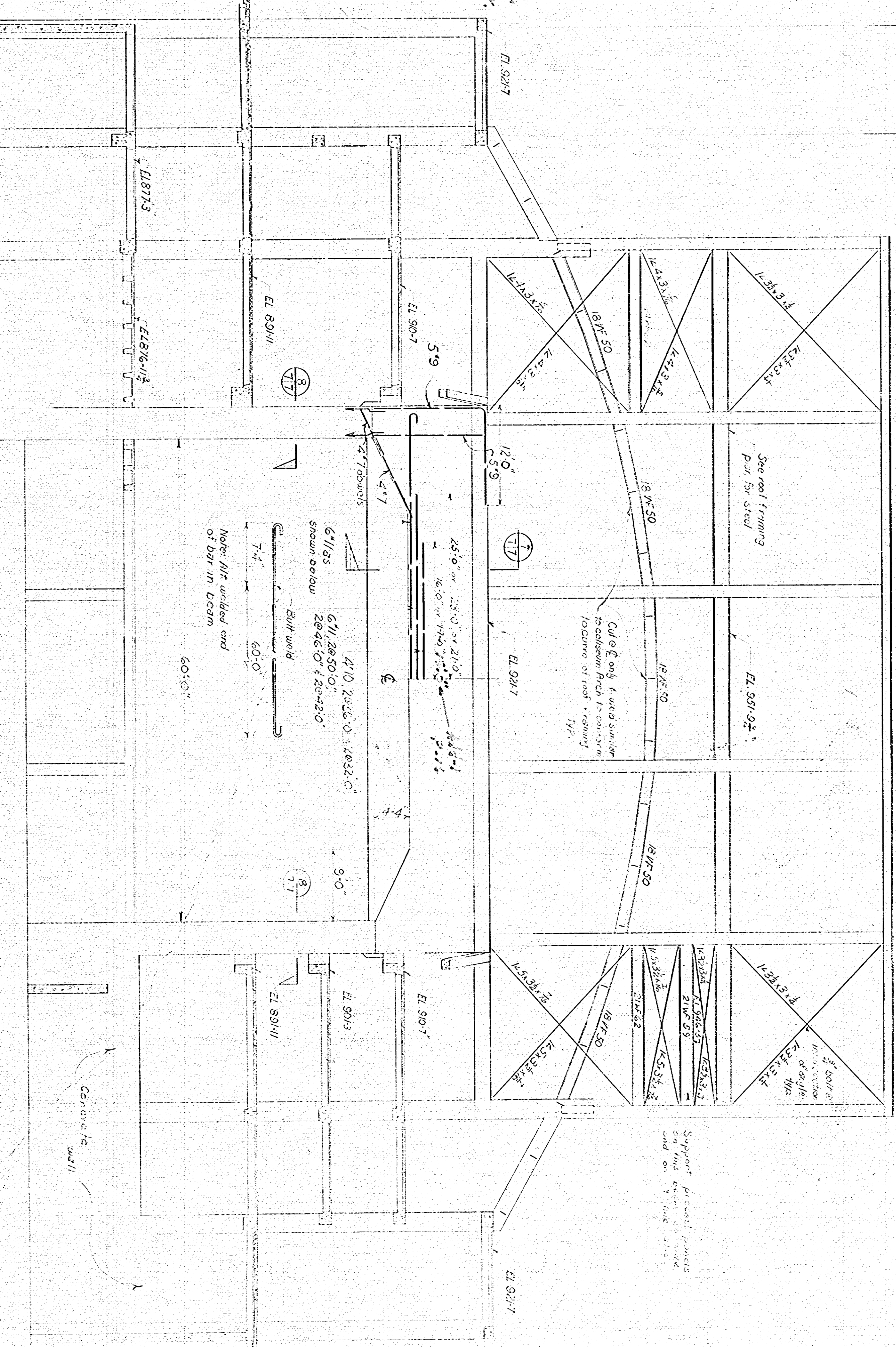
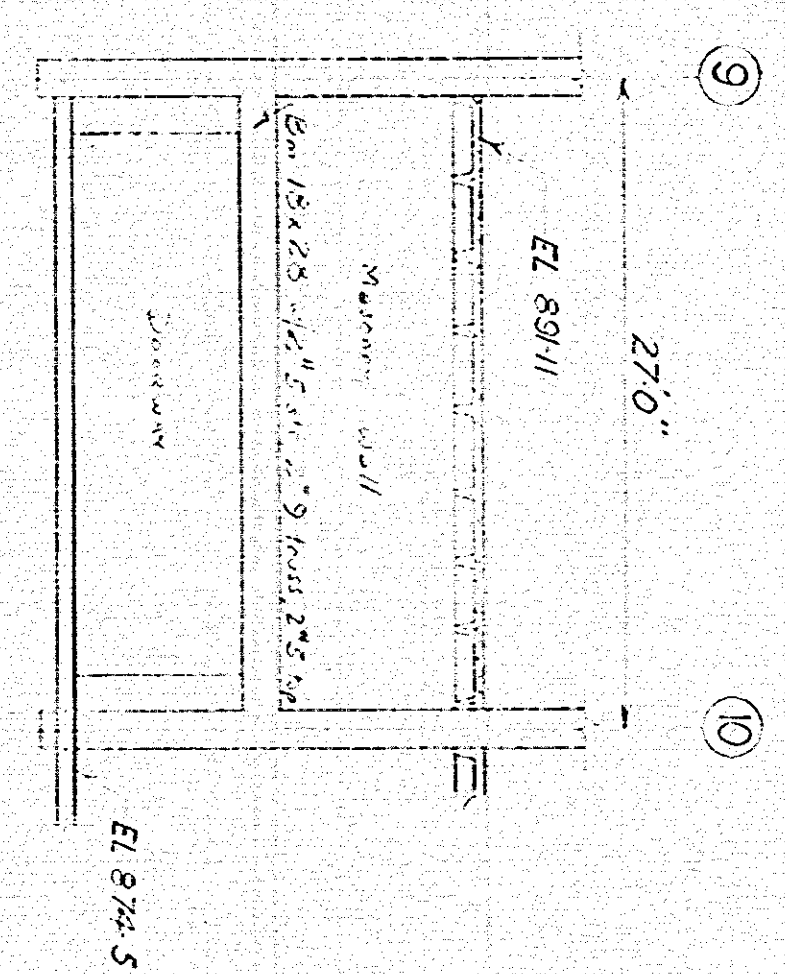
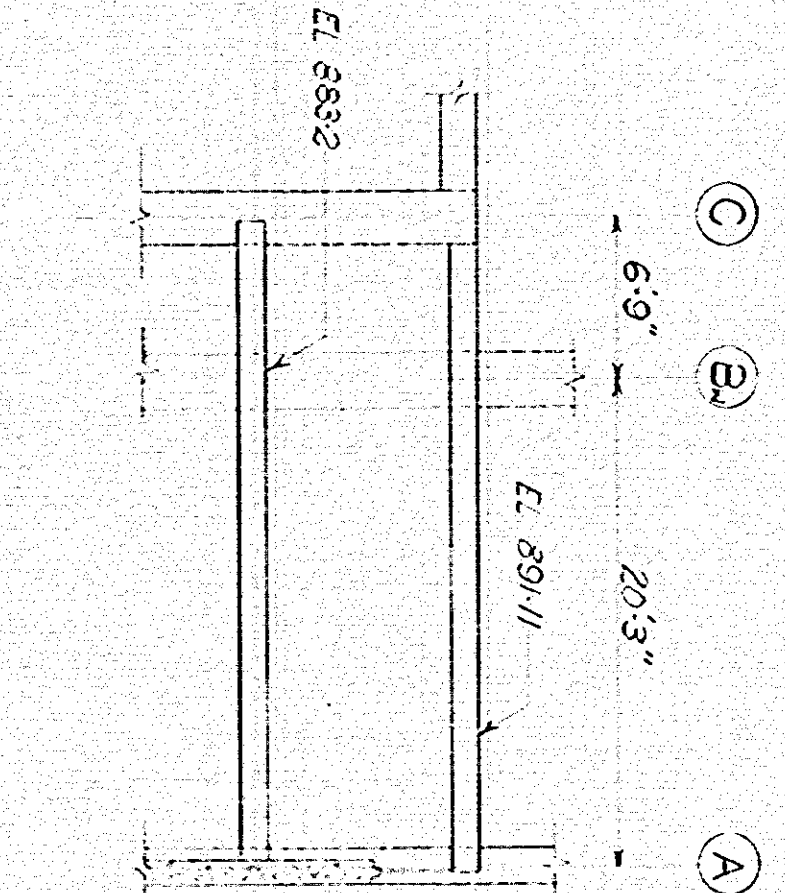
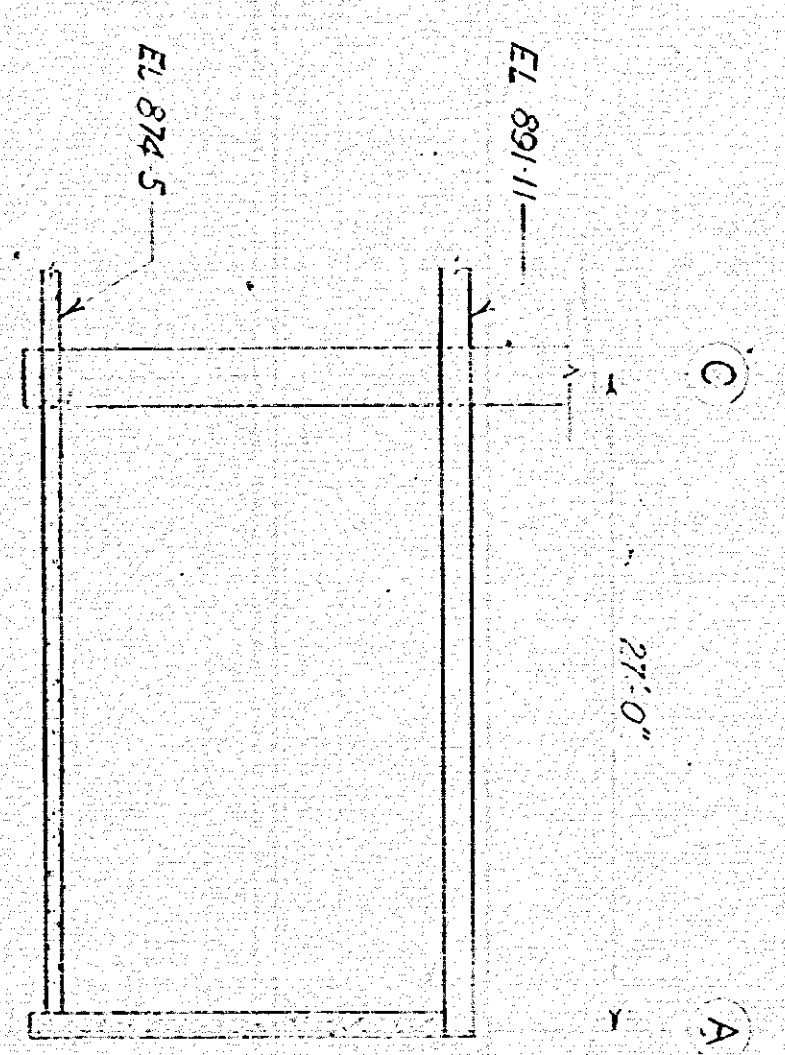
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SECTION 37  
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SECTION 38  
Scale 1/8" = 1'-0"

SECTION 39  
Scale 1/8" = 1'-0"

SECTION 40  
Scale 1/8" = 1'-0"





DRAWN \_\_\_\_\_  
CHECKED LS  
DATE Nov 21 1953

SECTION  
Scale 1" = 10' (12/62)



# KNOXVILLE CIVIC AUDITORIUM - COLISEUM

PAINTER, WEEKS & McCARTY  
MORTON & SWEETSER

ASSOCIATES  
KNOXVILLE  
TENNESSEE

S9

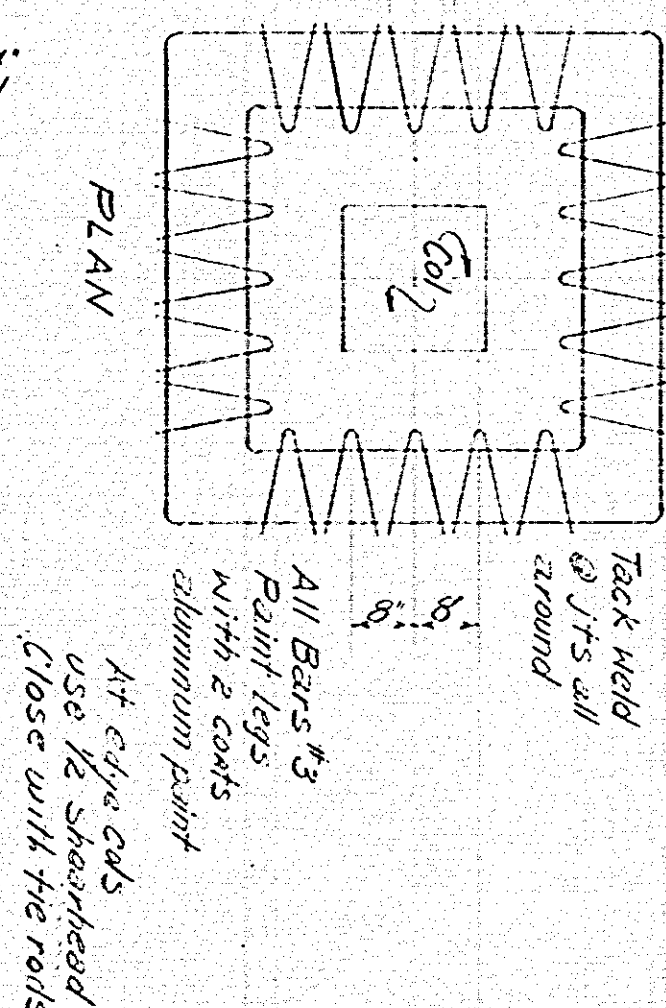
SECTION

FLOOR SLABS  
EL. 891.1', EL. 876.11 1/2, EL. 873.3

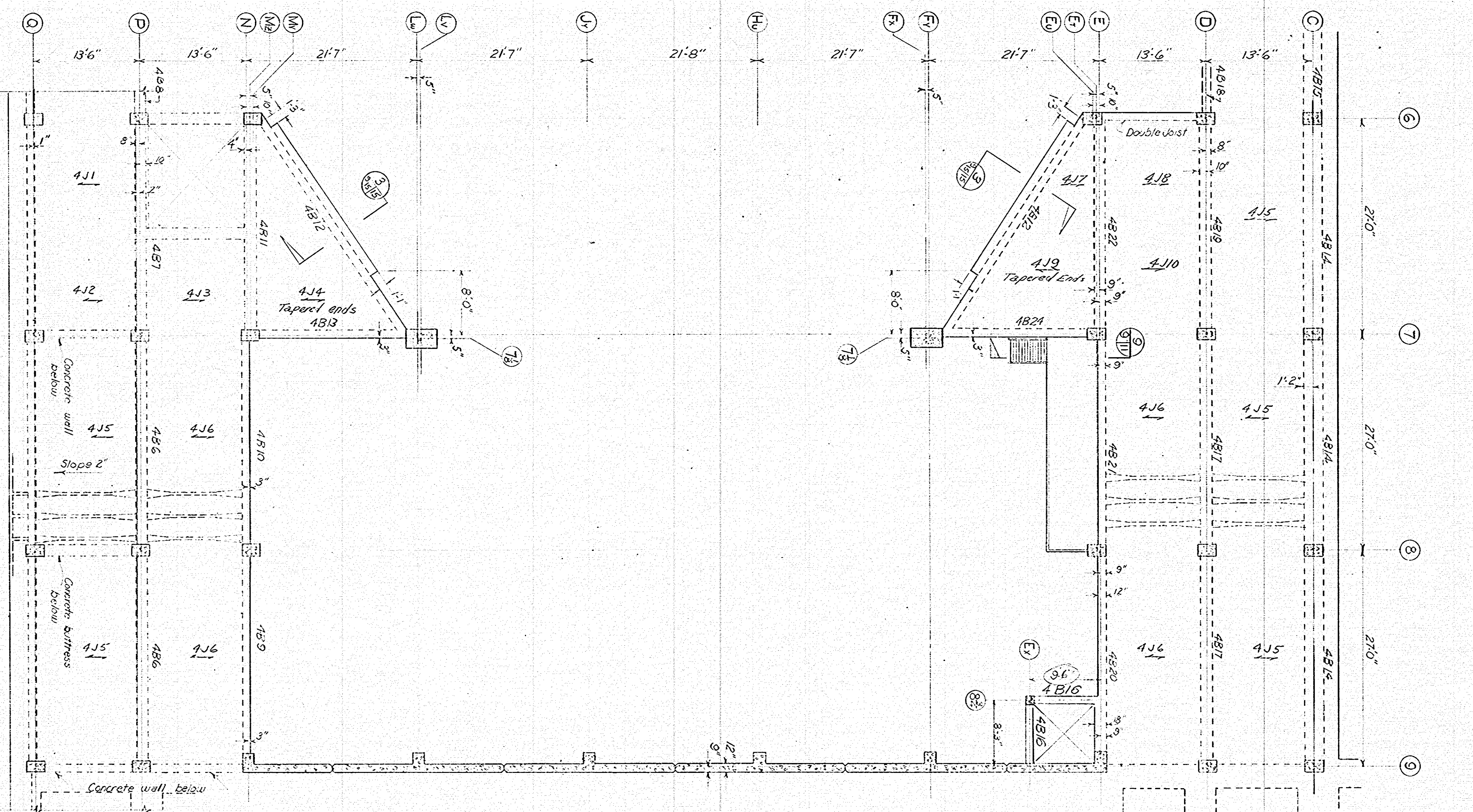
DATE: 12/1/58

SHEARWALL DETAILS

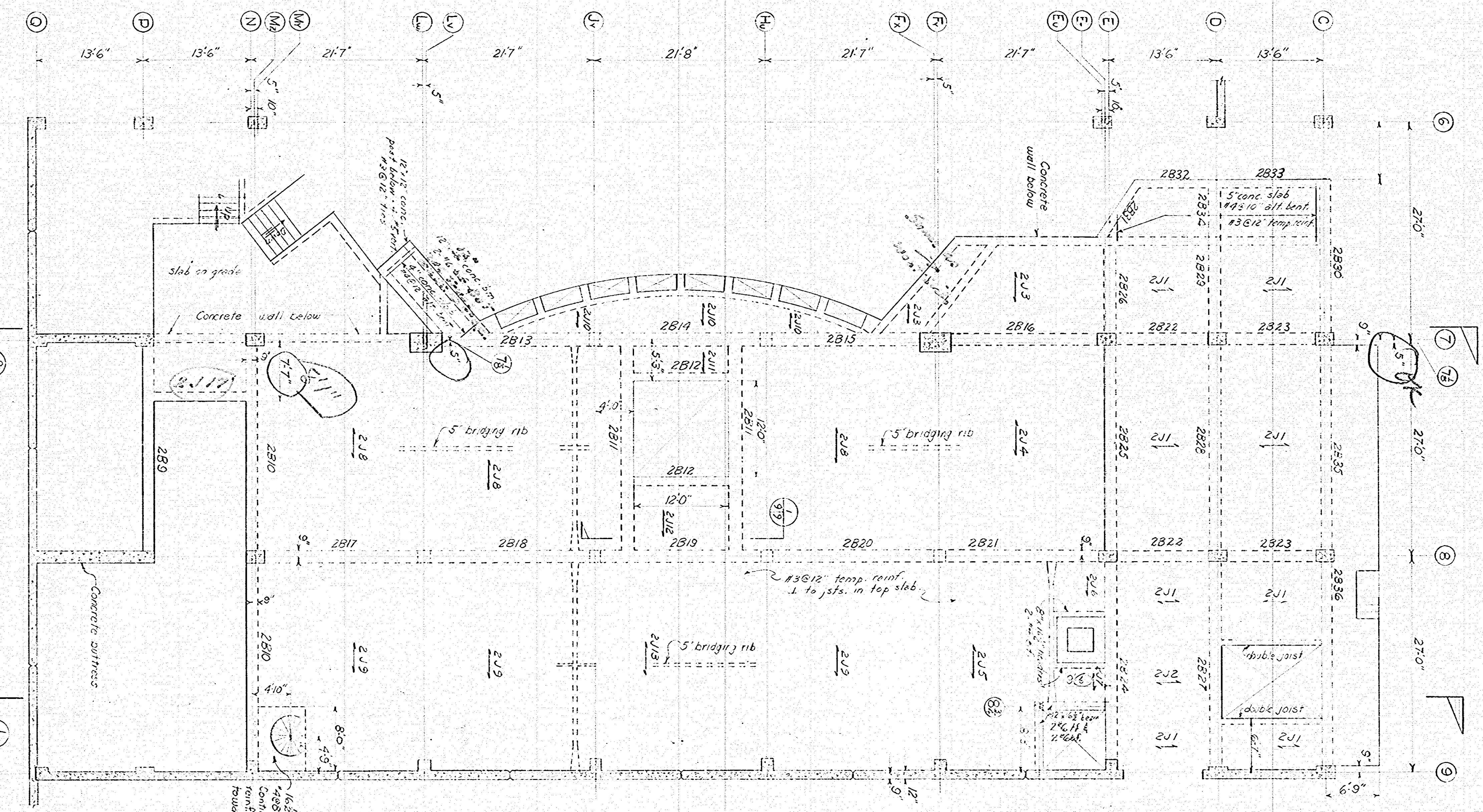
RAMCO Engineering, Inc.  
Civil Engineers and Consultants  
KNOXVILLE - TENNESSEE



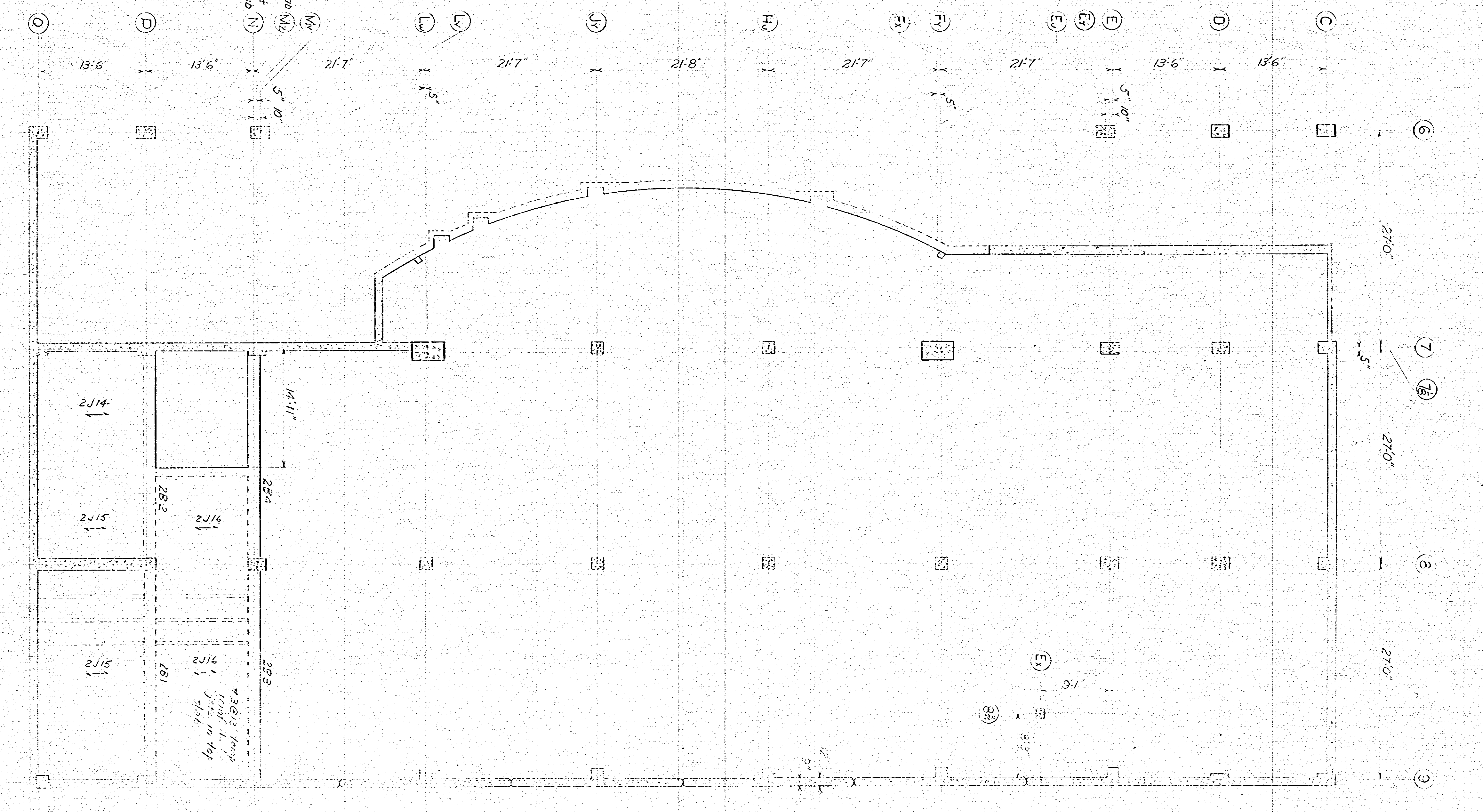
PLAN ELEV 891.1'  
Scale 1/4" = 1'-0"



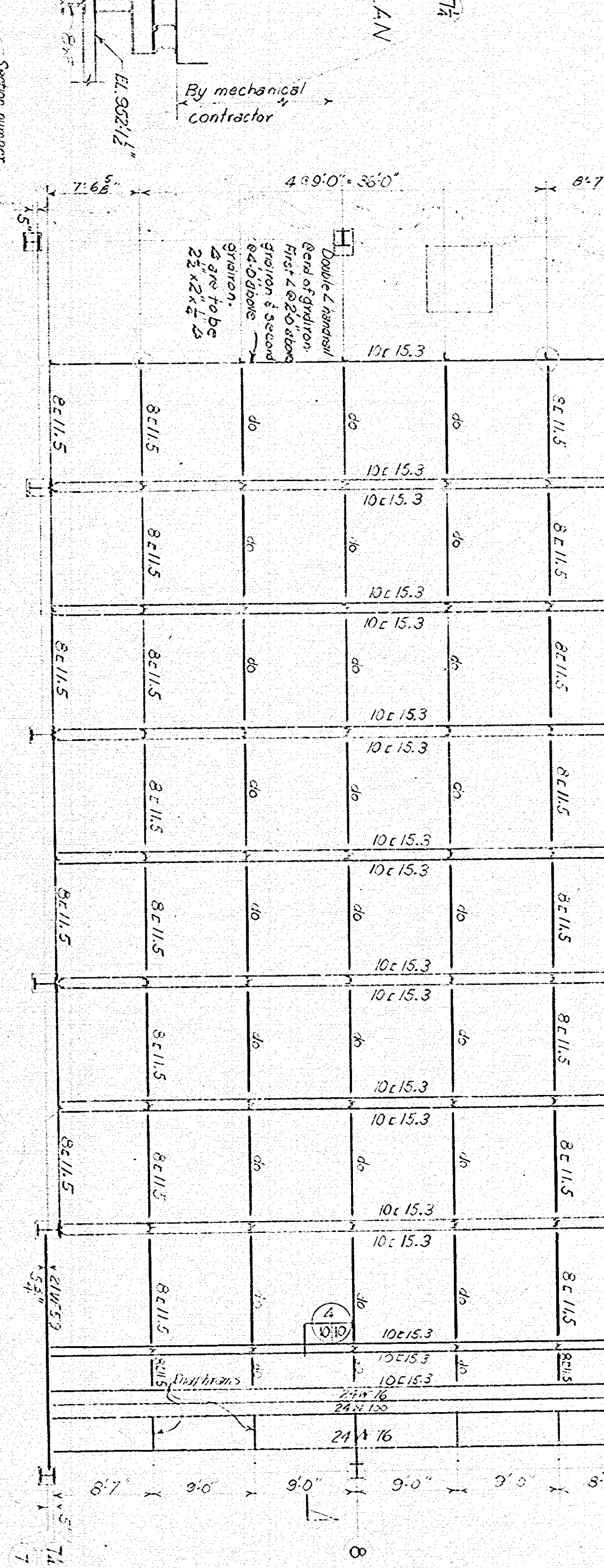
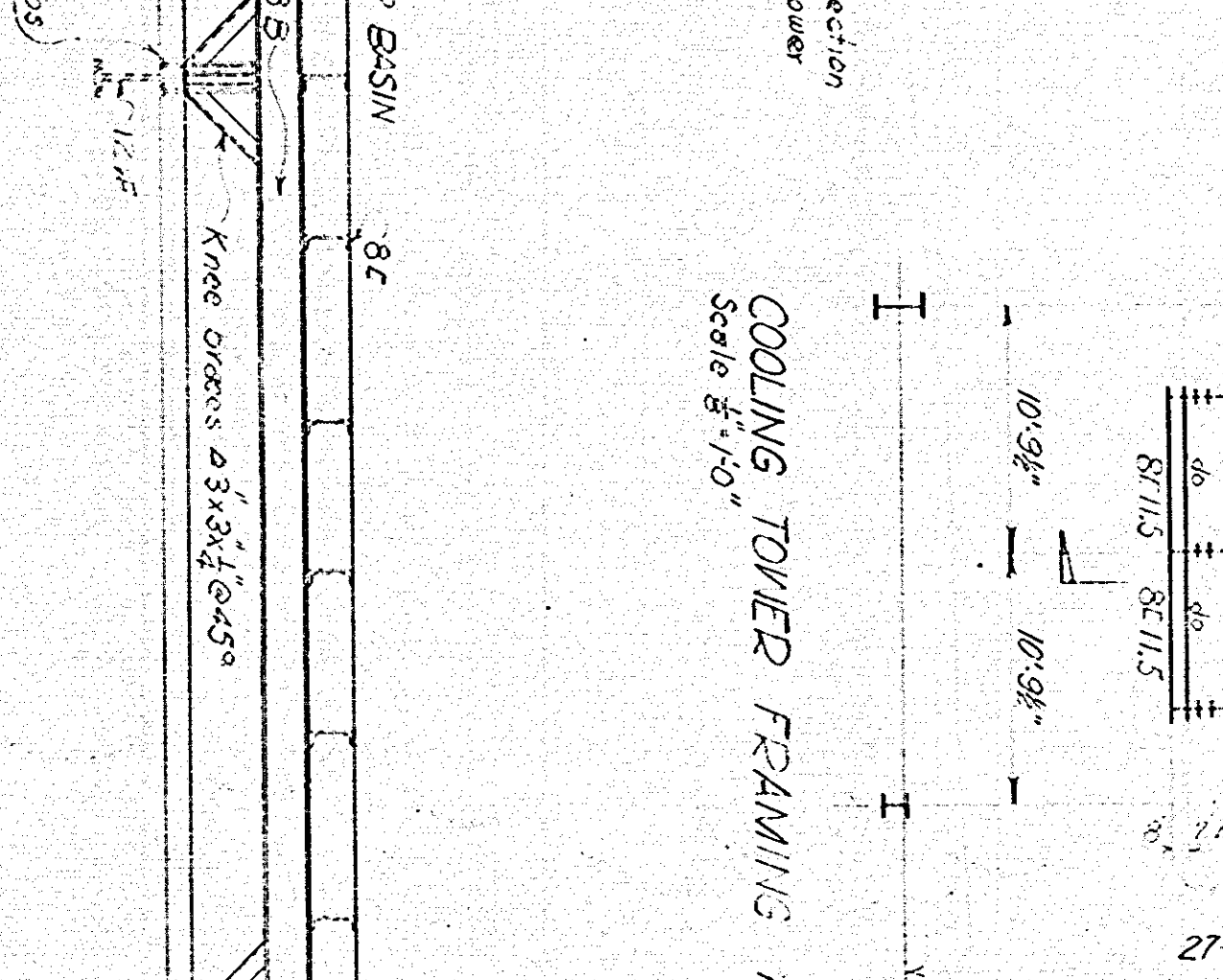
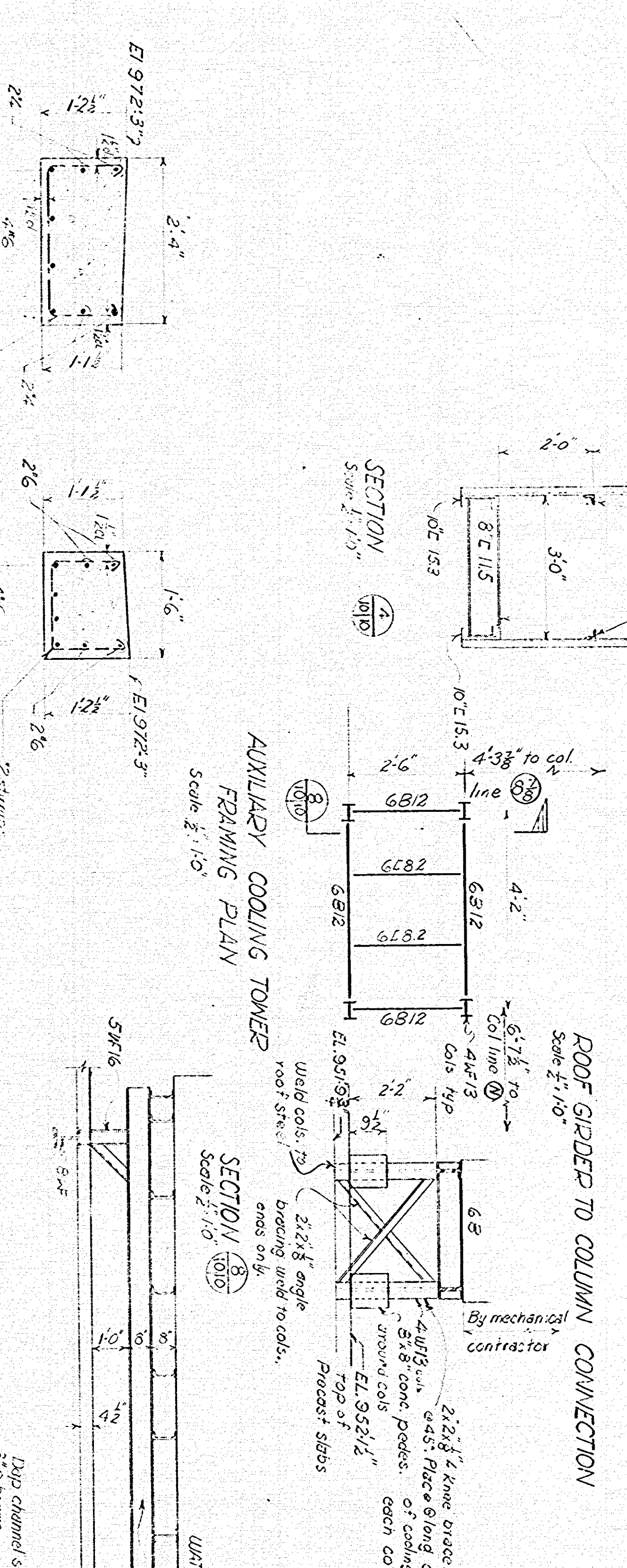
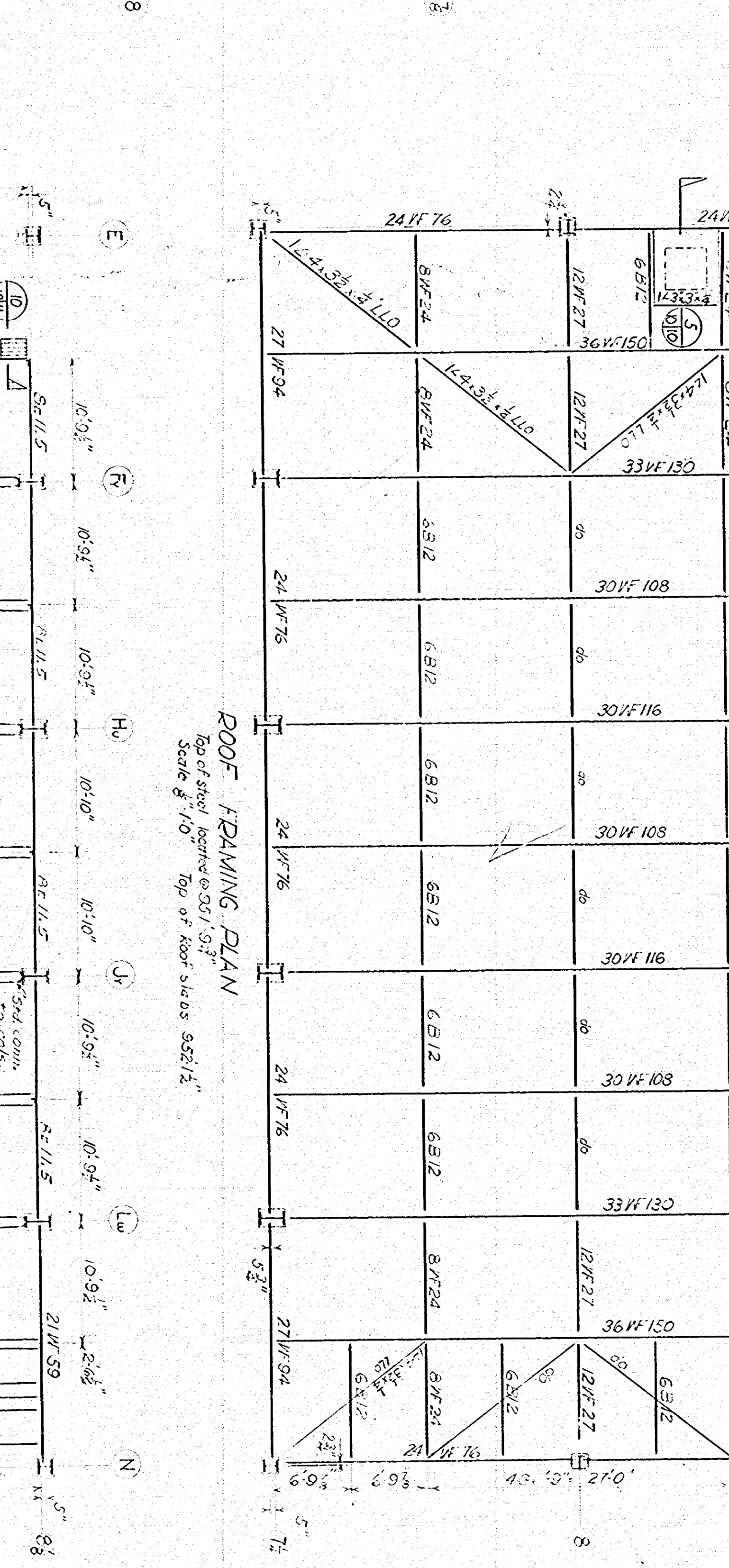
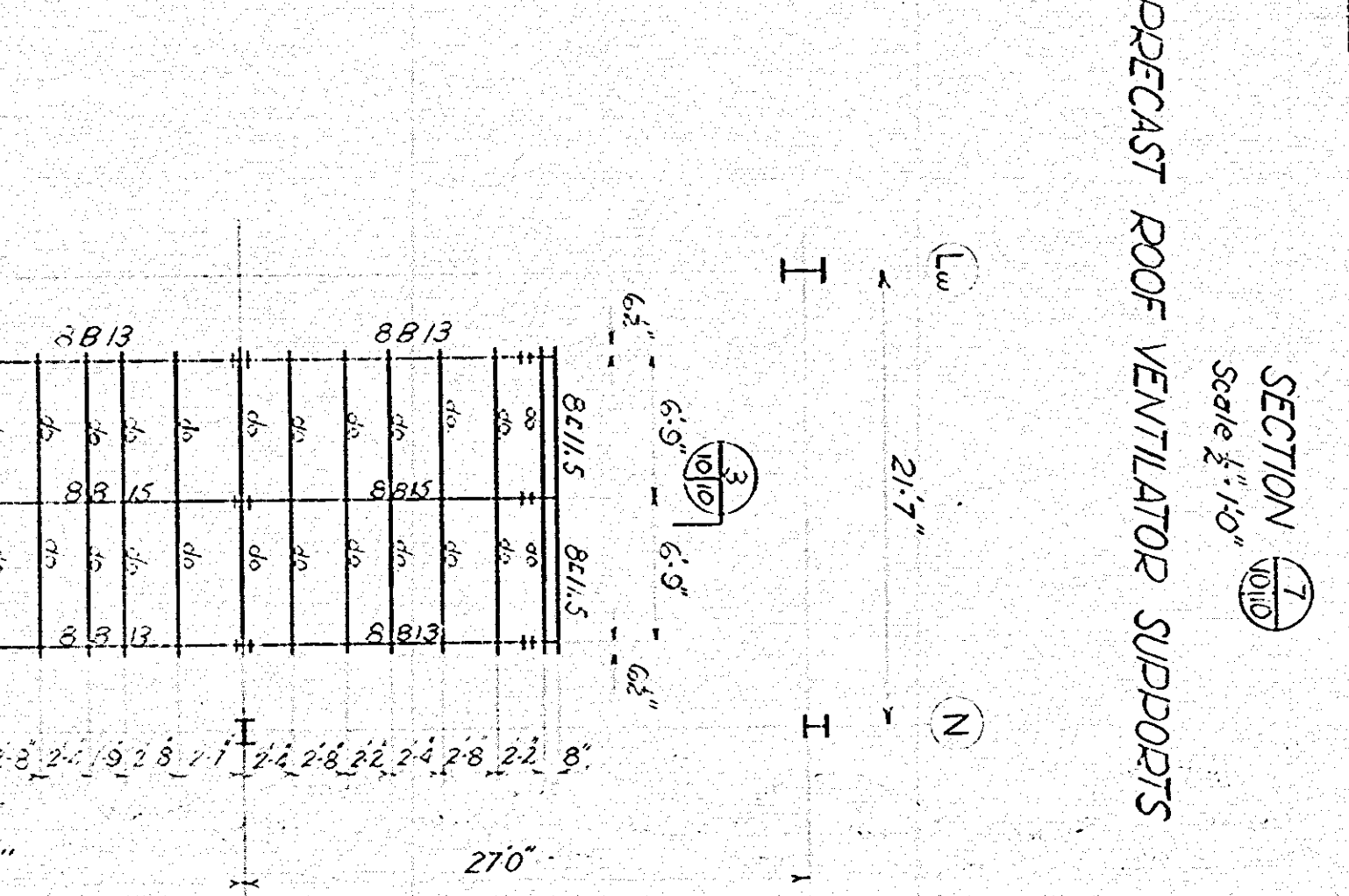
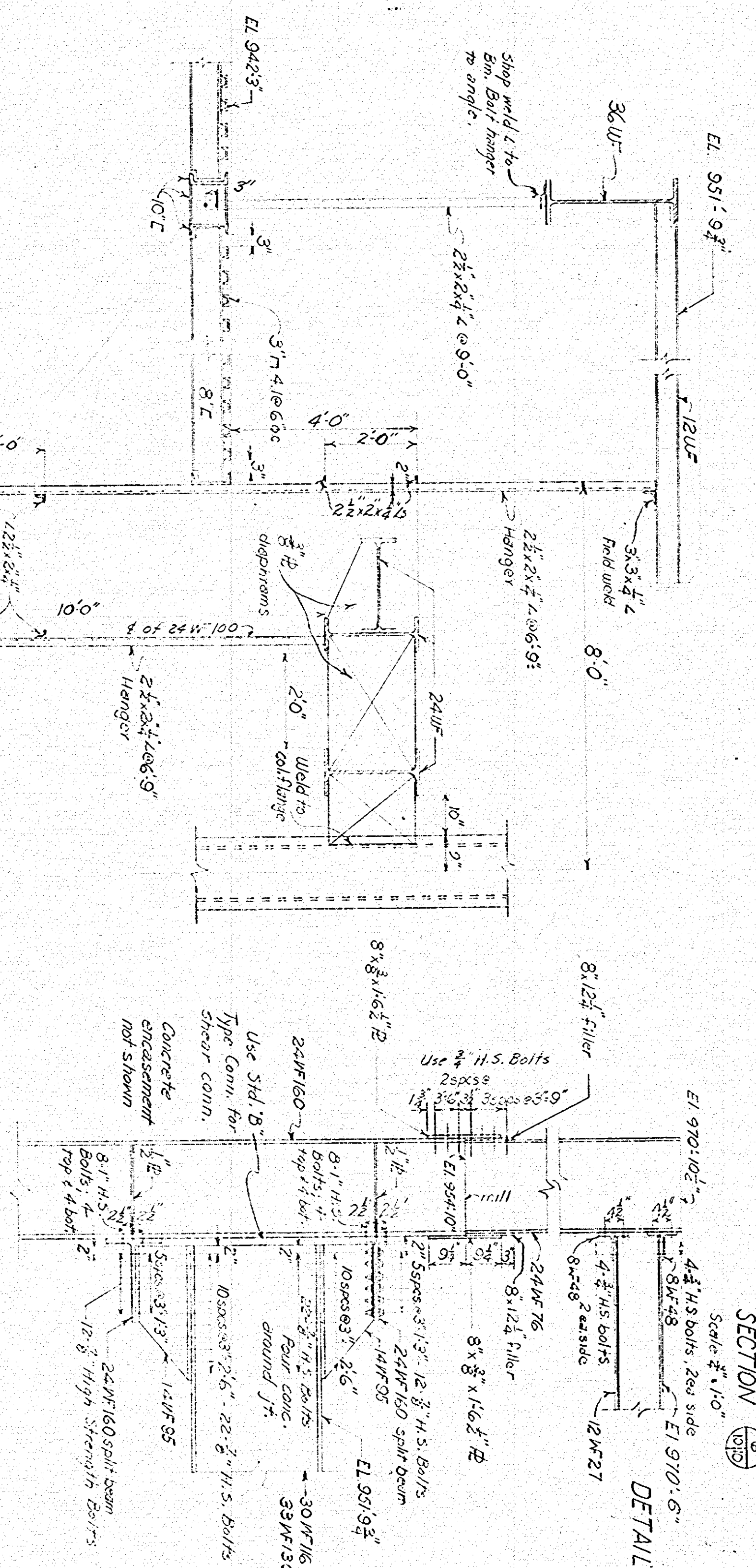
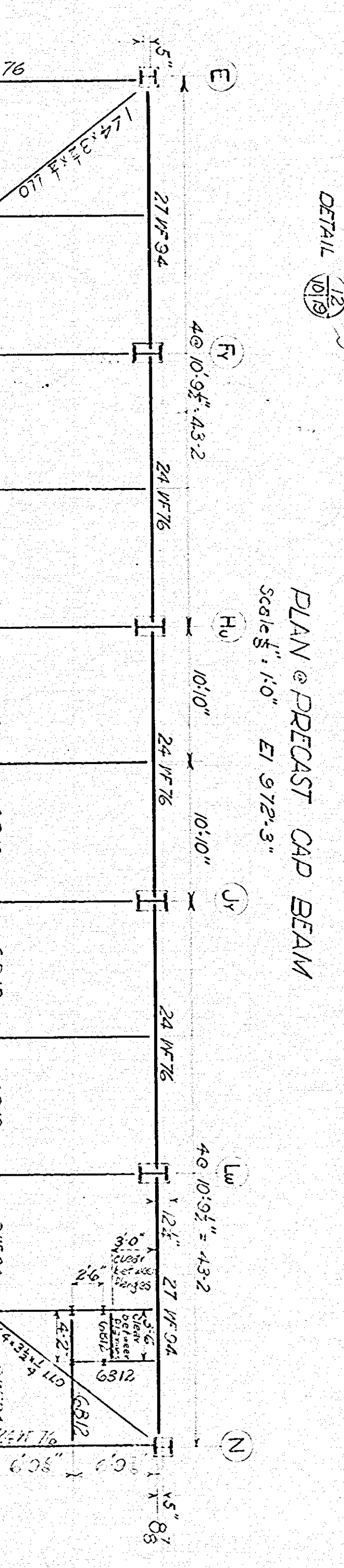
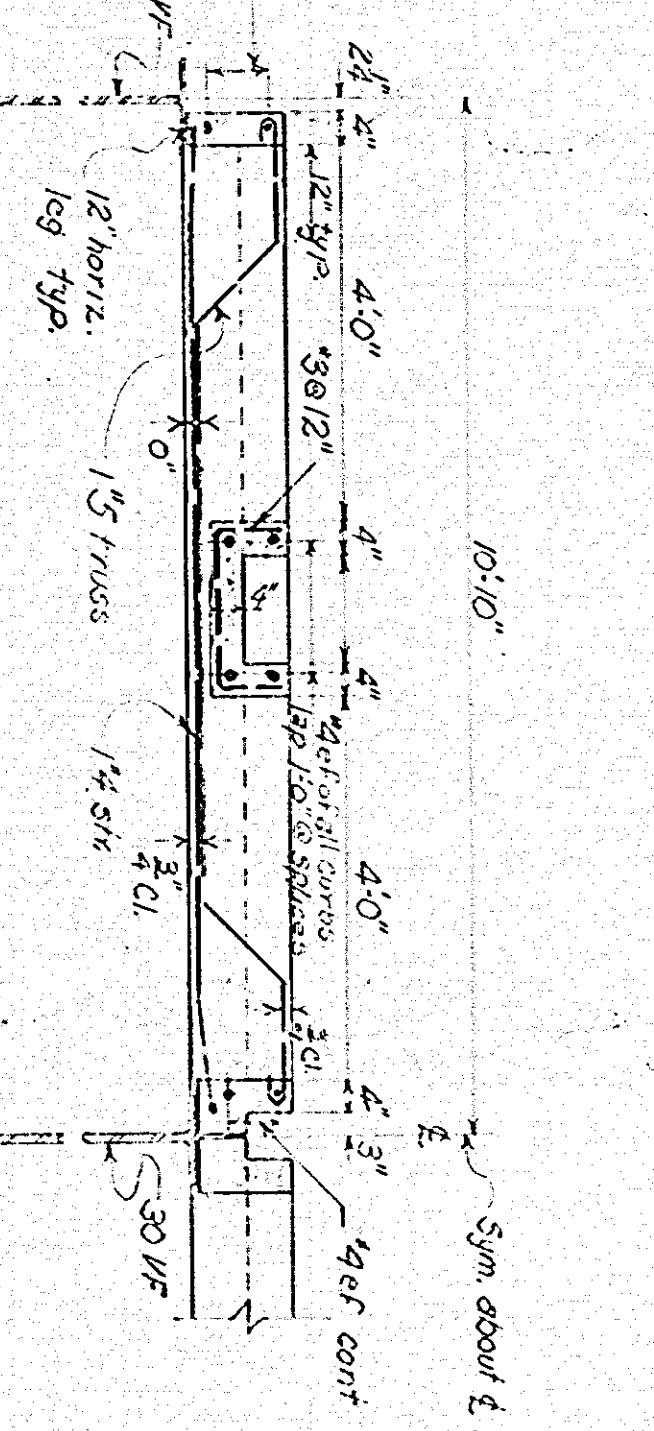
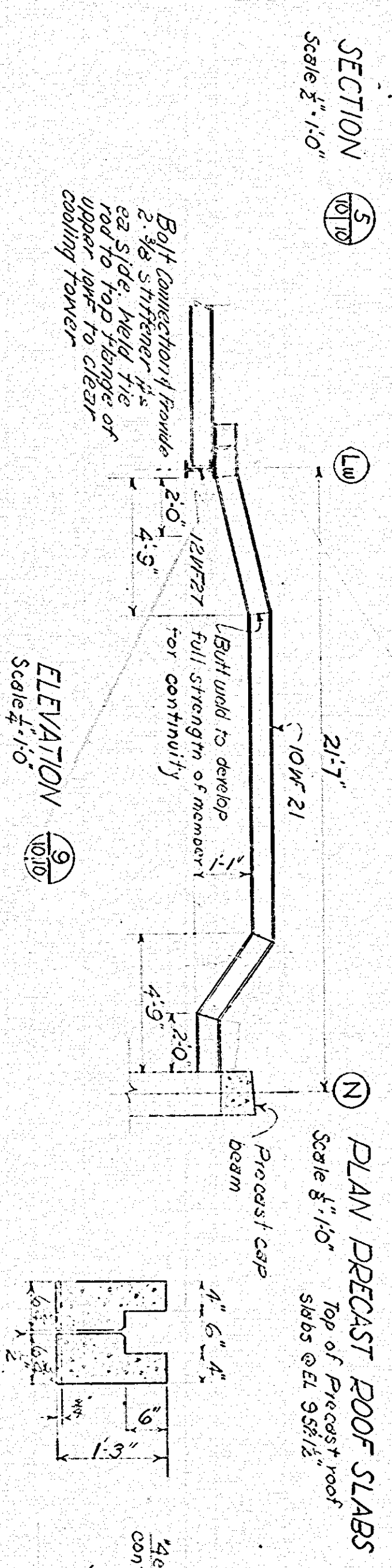
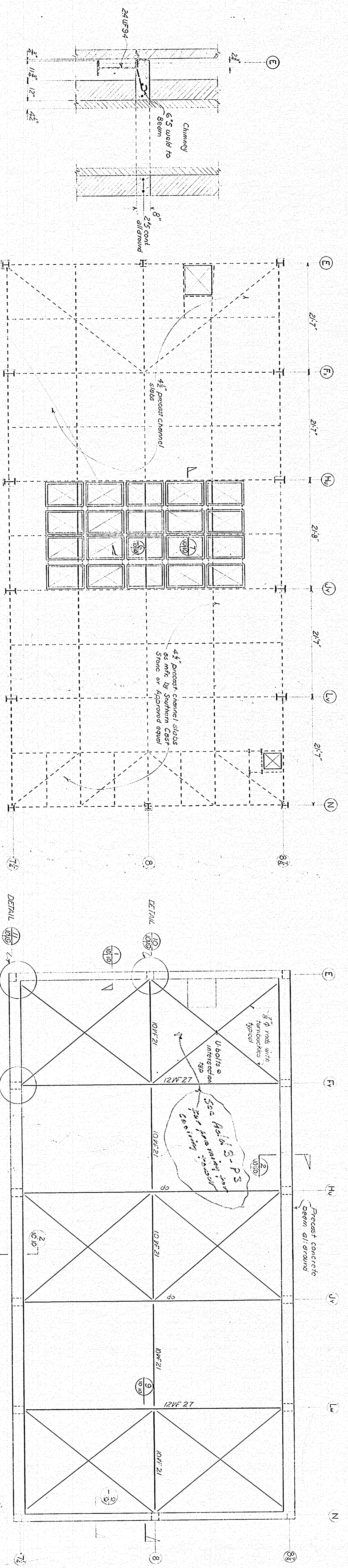
PLAN ELEV 876.11 1/2 EL. 877.3' H  
Scale 1/4" = 1'-0"  
diagonal slab at slope 3 1/4"  
12'-17"



PLAN ELEV 873.3'  
Scale 1/4" = 1'-0"







# KNOXVILLE CIVIC AUDITORIUM - COLISEUM



**PAINTER, WEEKS & McCARTY  
MORTON & SWEETSER**

ASSOCIATED  
ARCHITECTS  
KNOXVILLE  
TENNESSEE

SHEET  
S111

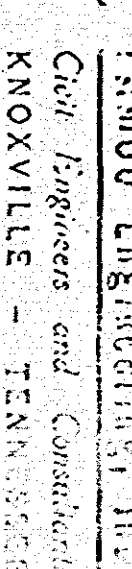
REVISIONS

MISC

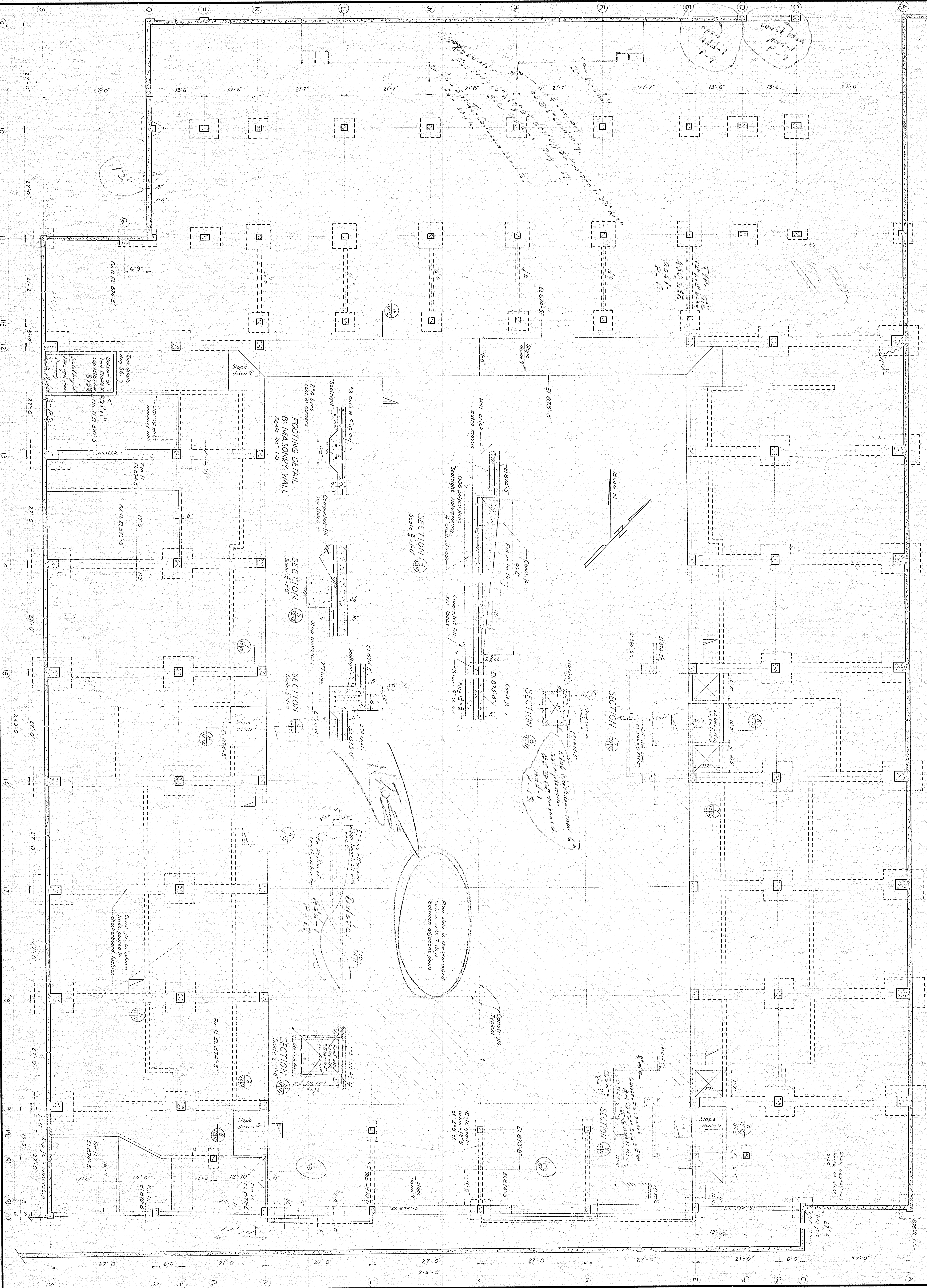
AUDITORIUM  
ELLANEOUS

## DETAILS

DRAWN JSI  
CHECKED MAA  
DATE Nov 21, 1958

111  
SHEET

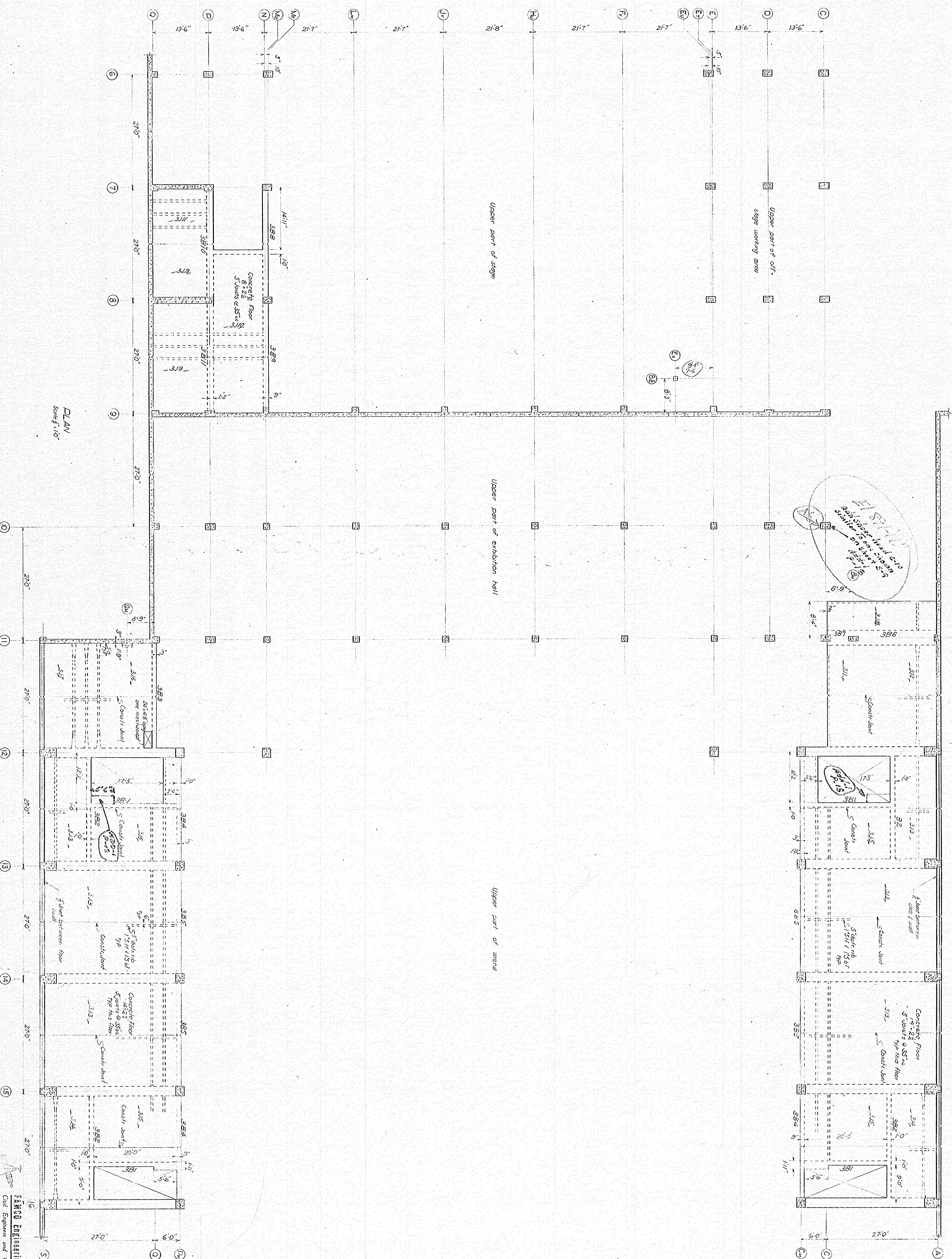






DRAWN THF  
CHECKED MAA  
DATE NOV 21, 1958

SHEET  
S13






**PAINTER, WEEKS & McCARTY**  
ASSOCIATED ARCHITECTS  
**MORTON & SWEETSER**  
KNOXVILLE  
TENNESSEE

ASSOCIATED  
ARCHITECTS  
KNOXVILLE  
TENNESSEE

SHEET  
S14

REVISIONS

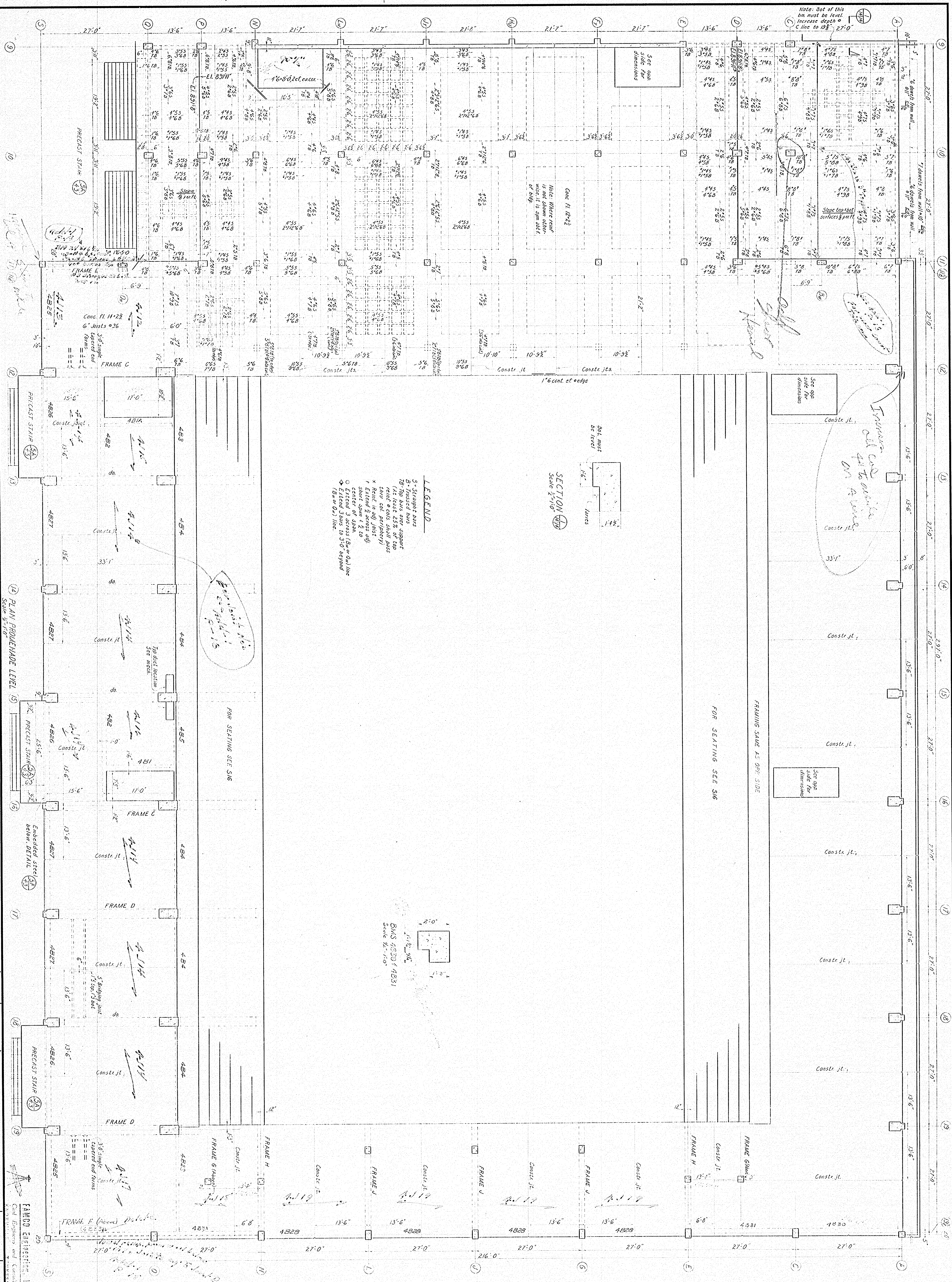
CO  
P-AN

1687

100

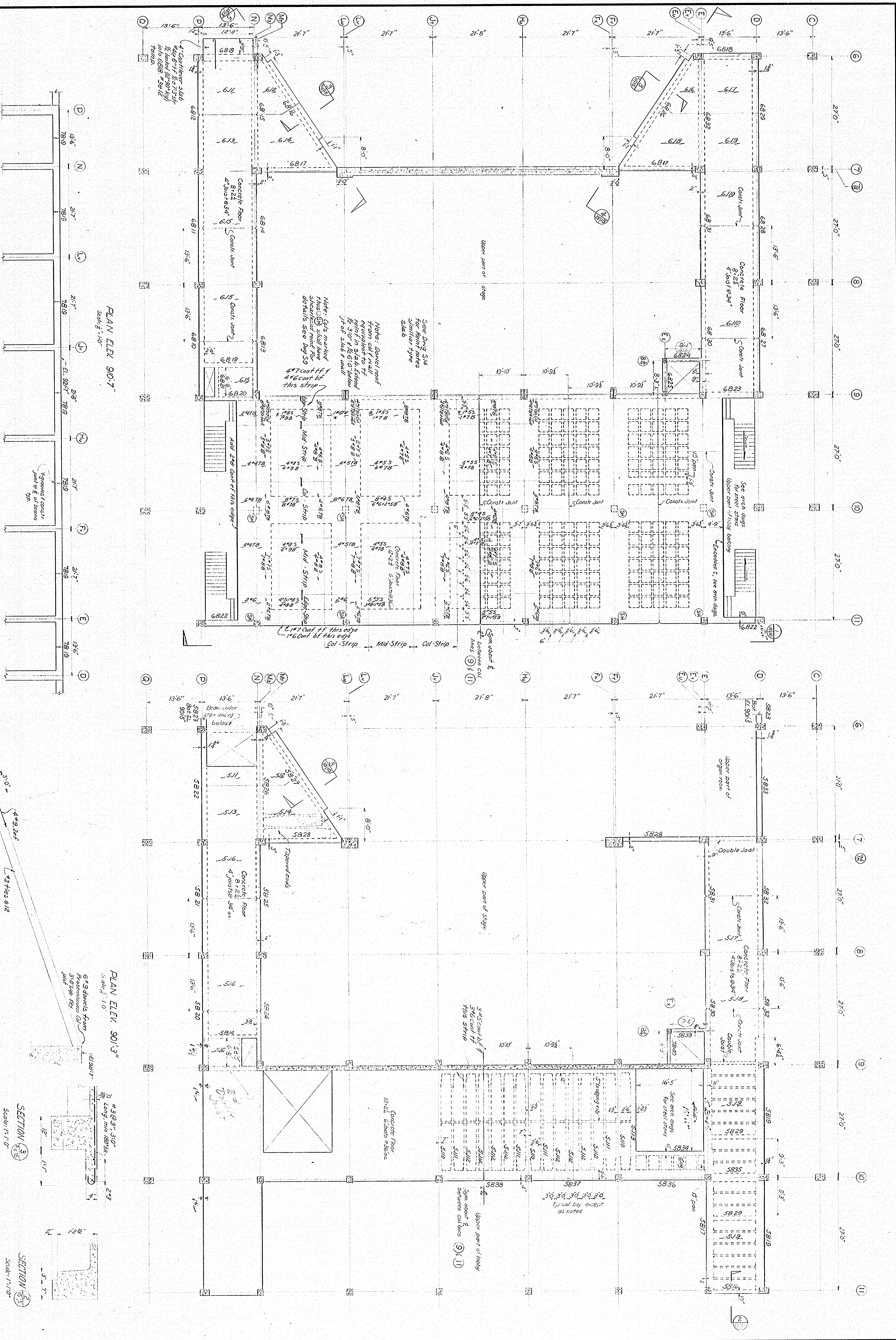
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CHECKED \_\_\_\_\_  
DATE 11/11/11

SHEET 2 OF 2





DRAWN TH SHEET  
CHECKED W/A  
DATE Nov 21, 58 S15

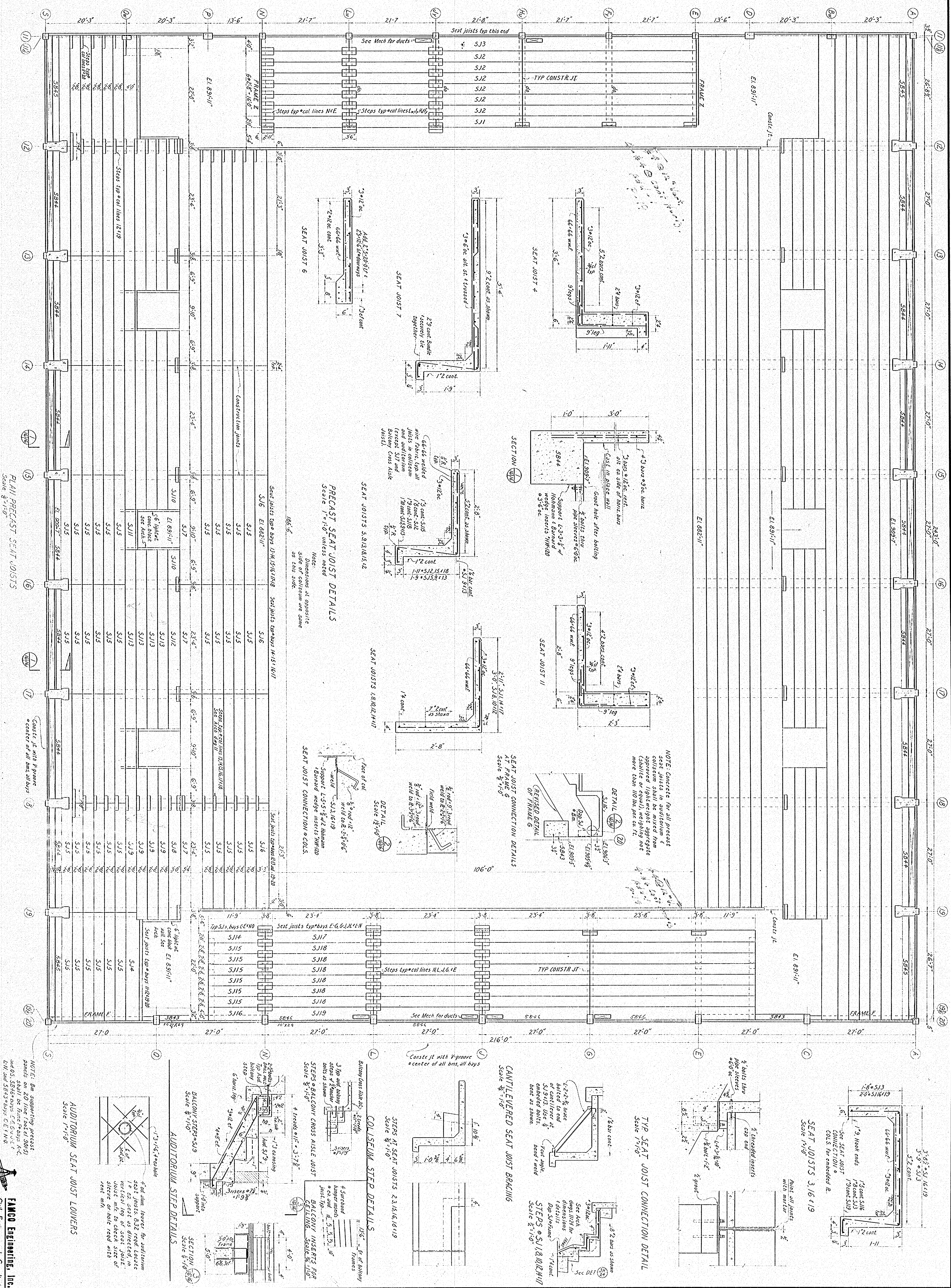




DRAWN 51  
CHECKED W.A.  
DATE DEC. 3, 1958

SHEET  
516

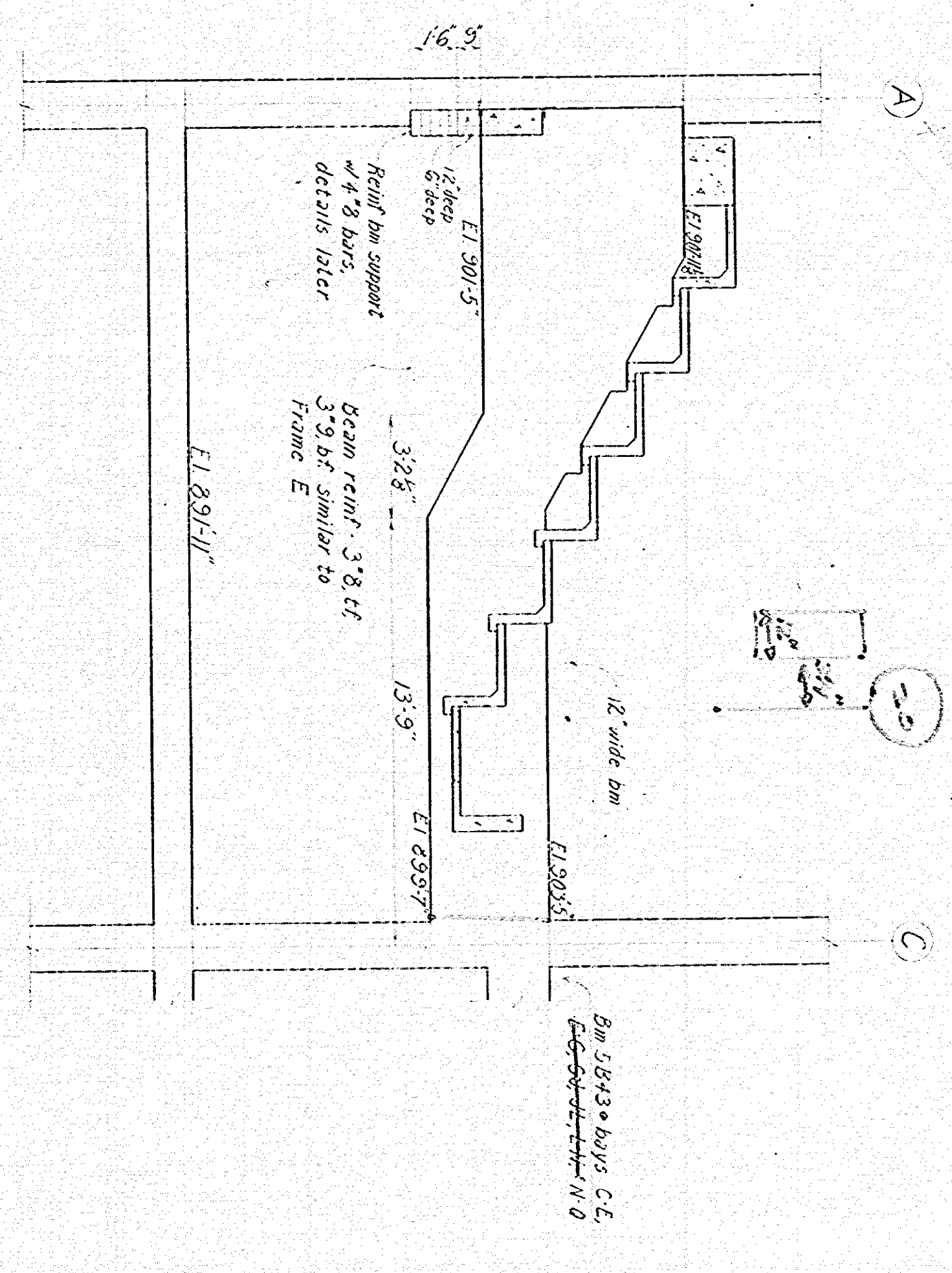
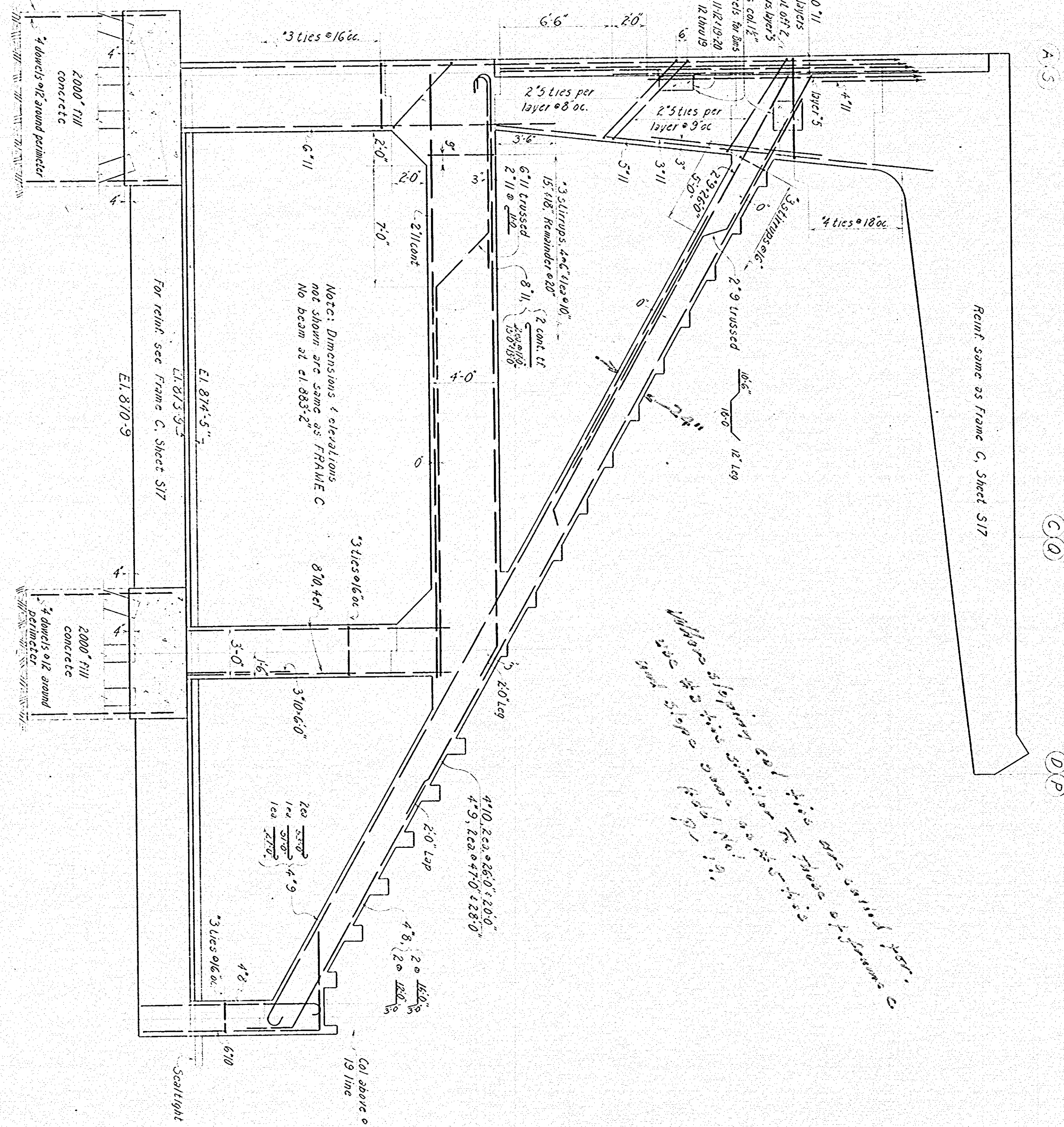
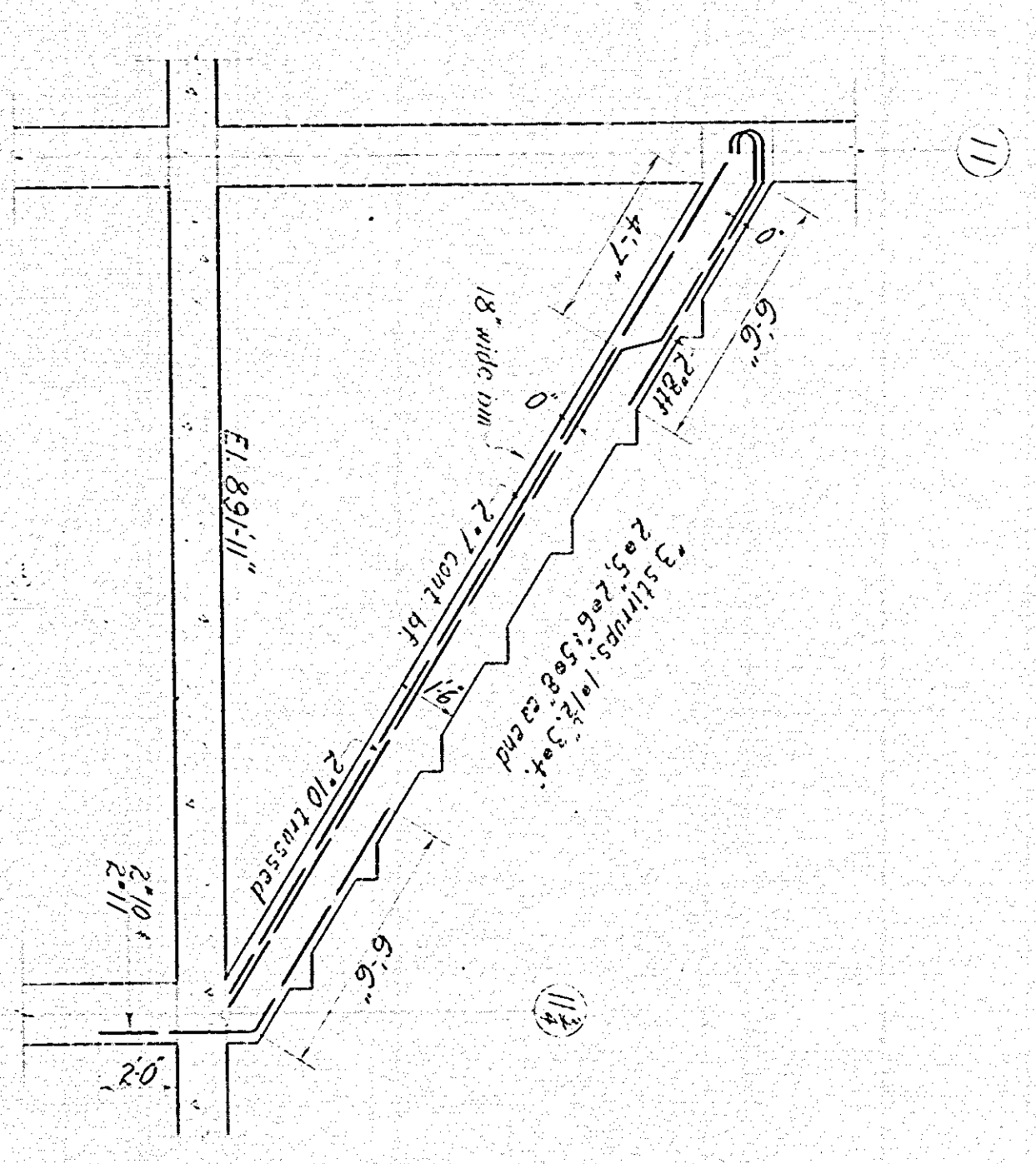
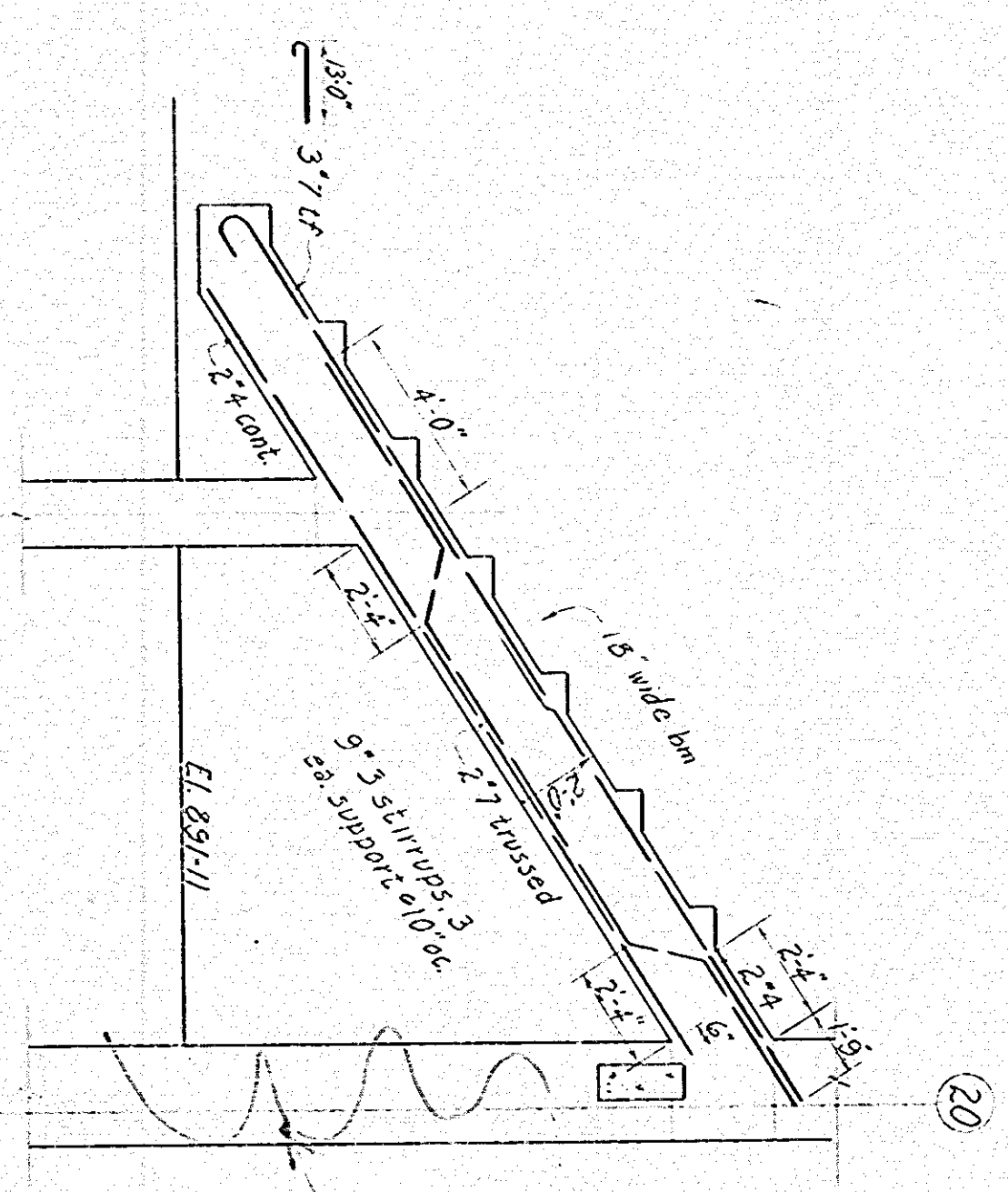
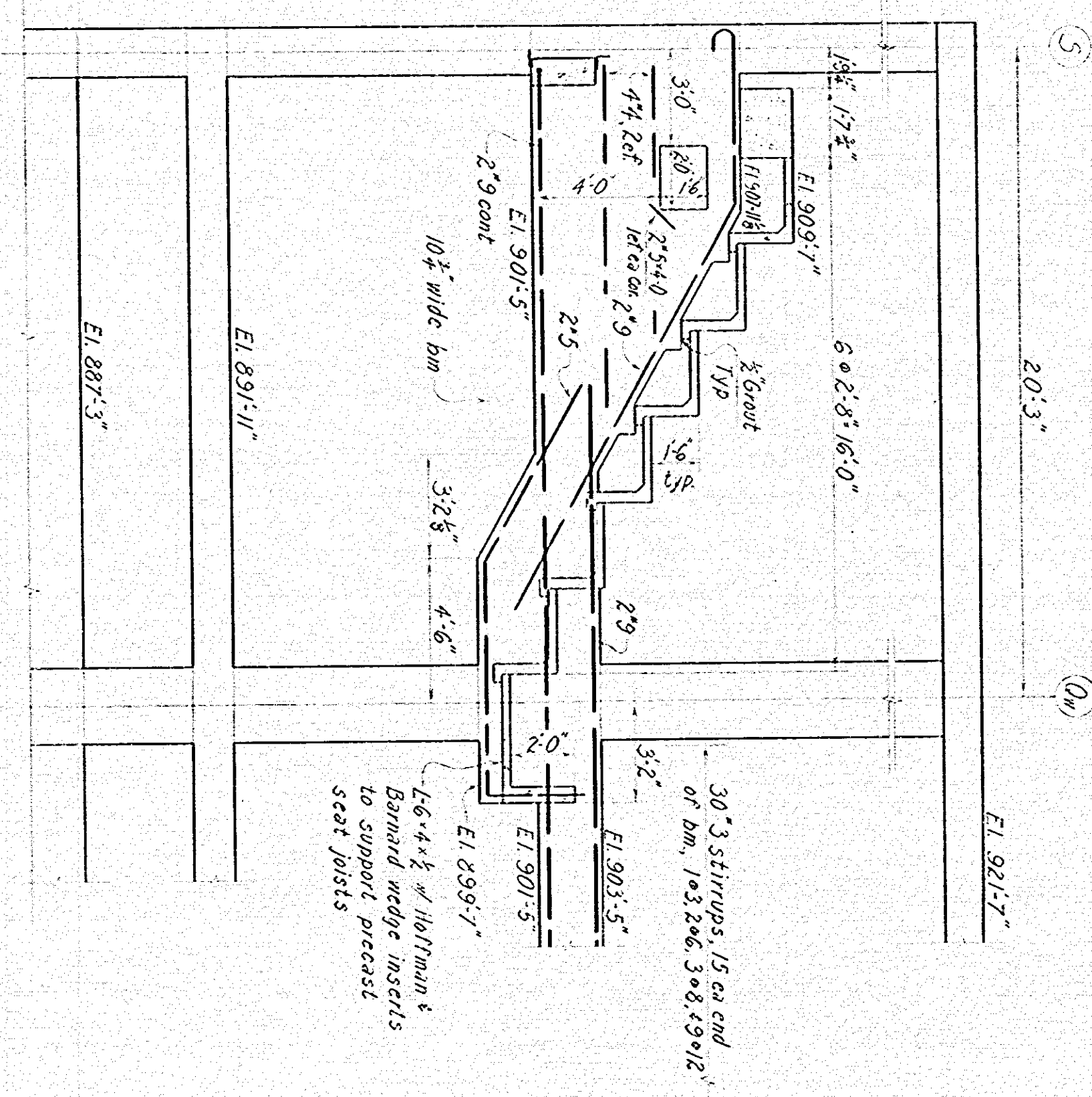
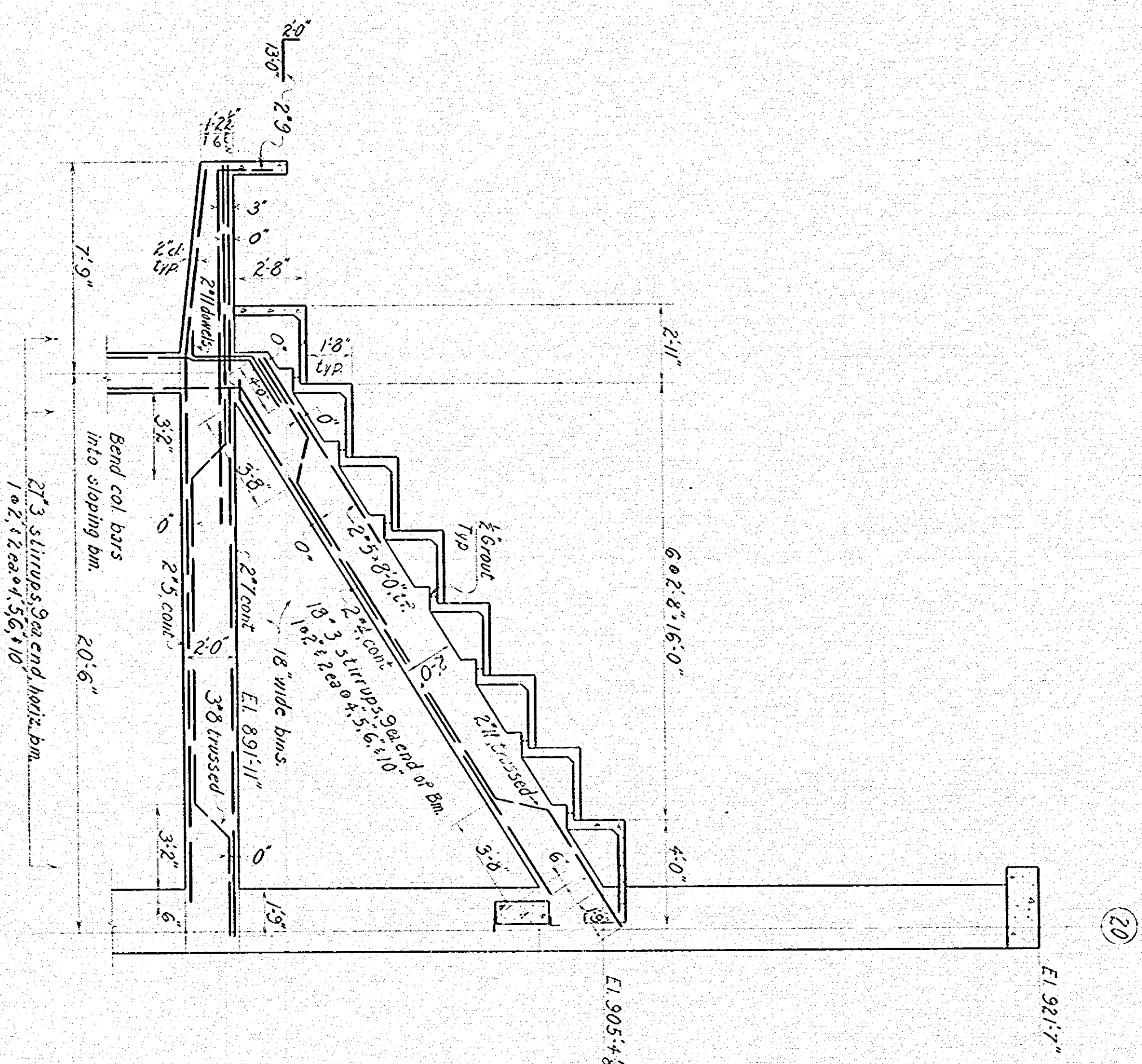
**FAMCO Engineering, Inc.**  
Civil Engineers and Consultants  
KNOXVILLE - TENNESSEE









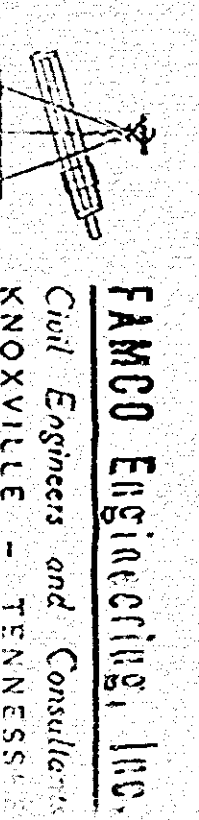


Notes: Where rock occurs closer to the top of the pile than 5'0", the contractor shall have the pile cut and the structure carrying the pile cut to solid rock as shown.

# KNOXVILLE CIVIC AUDITORIUM - COLISEUM

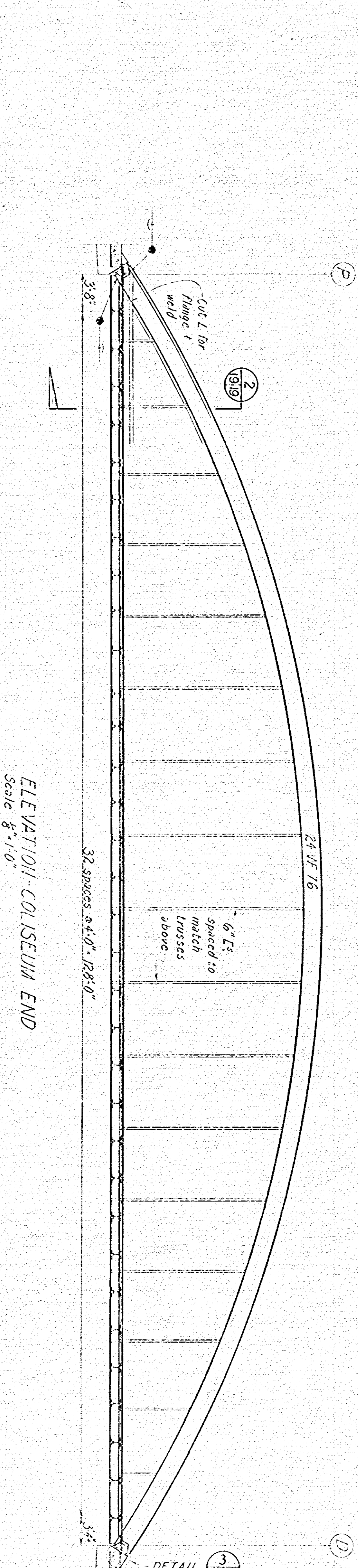
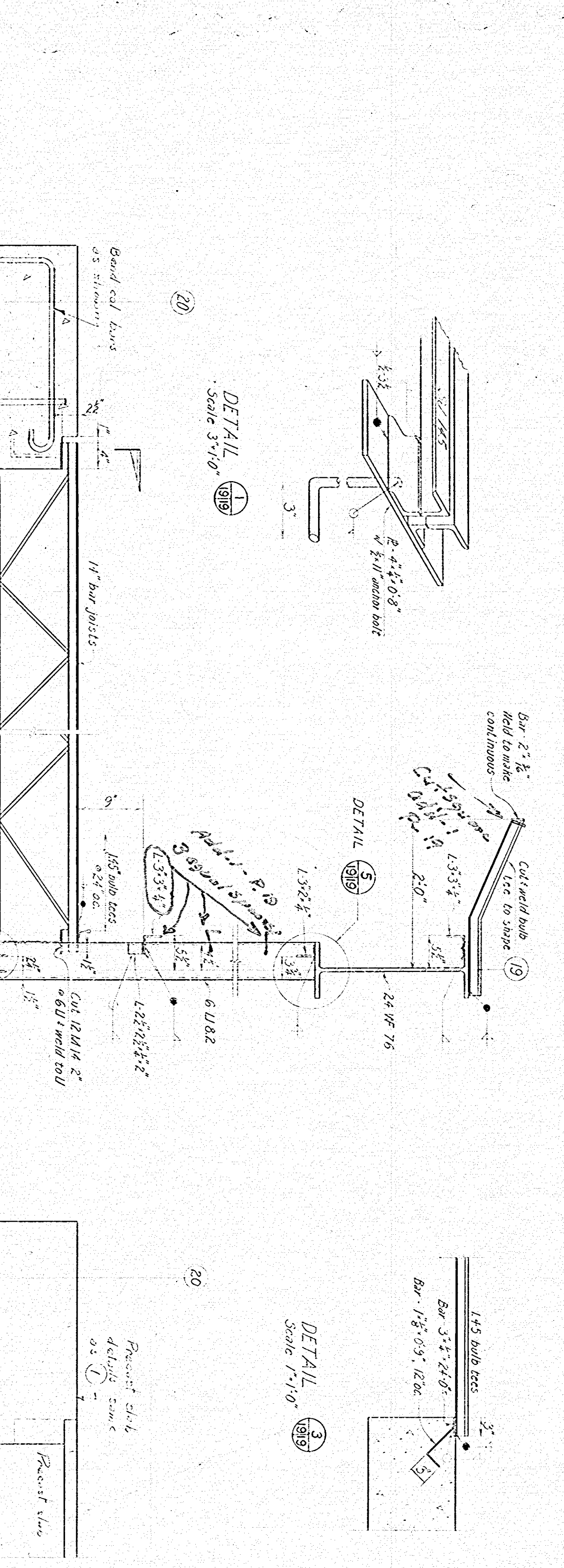
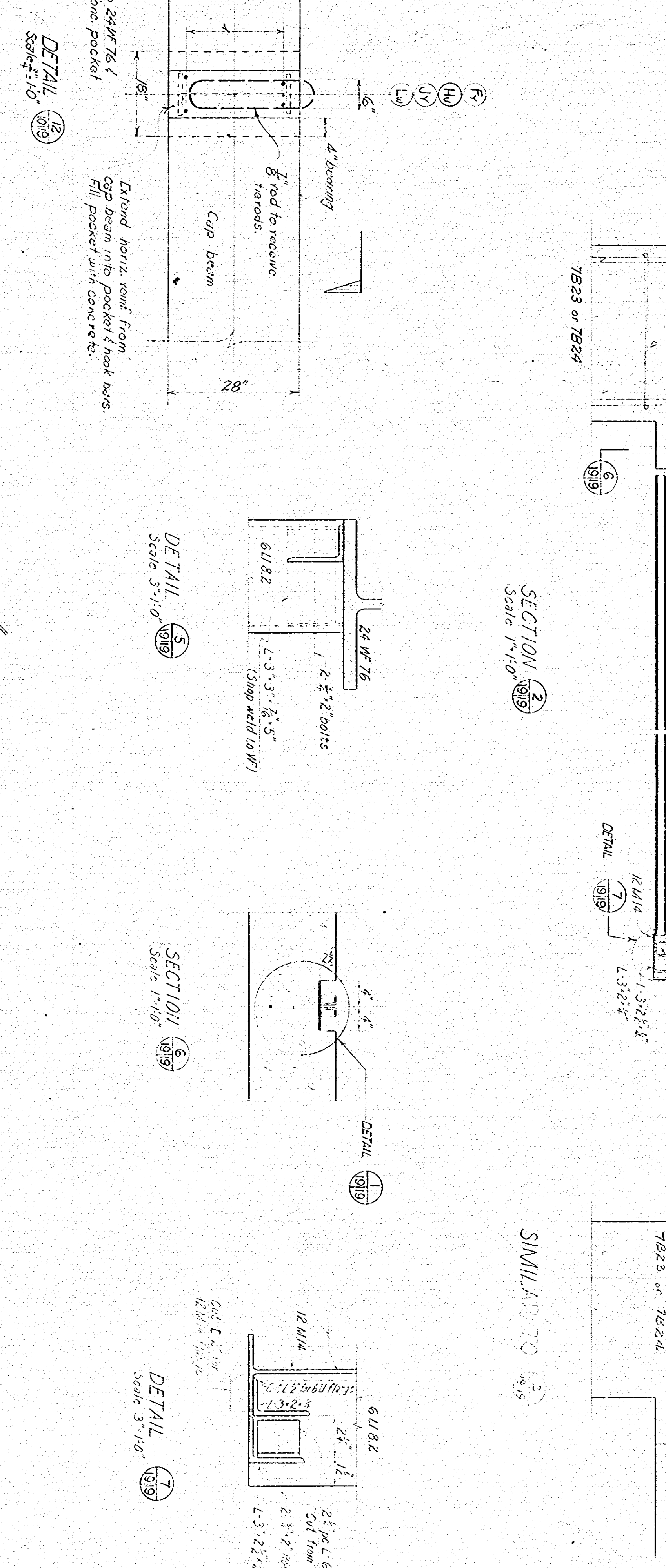
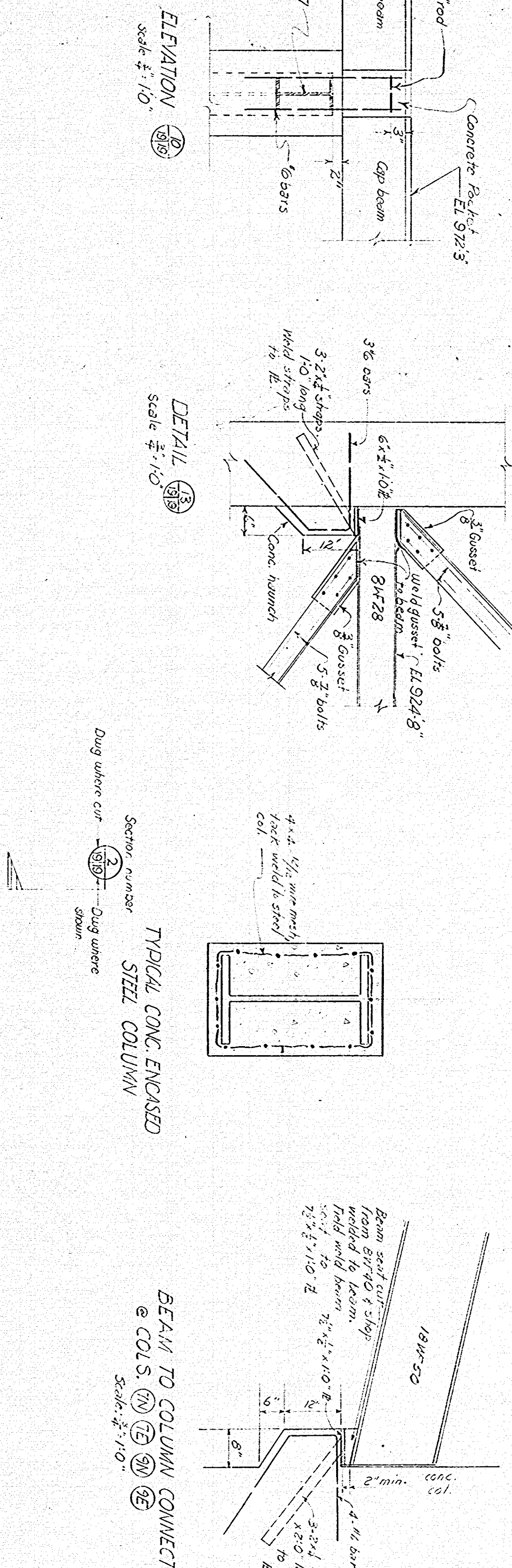
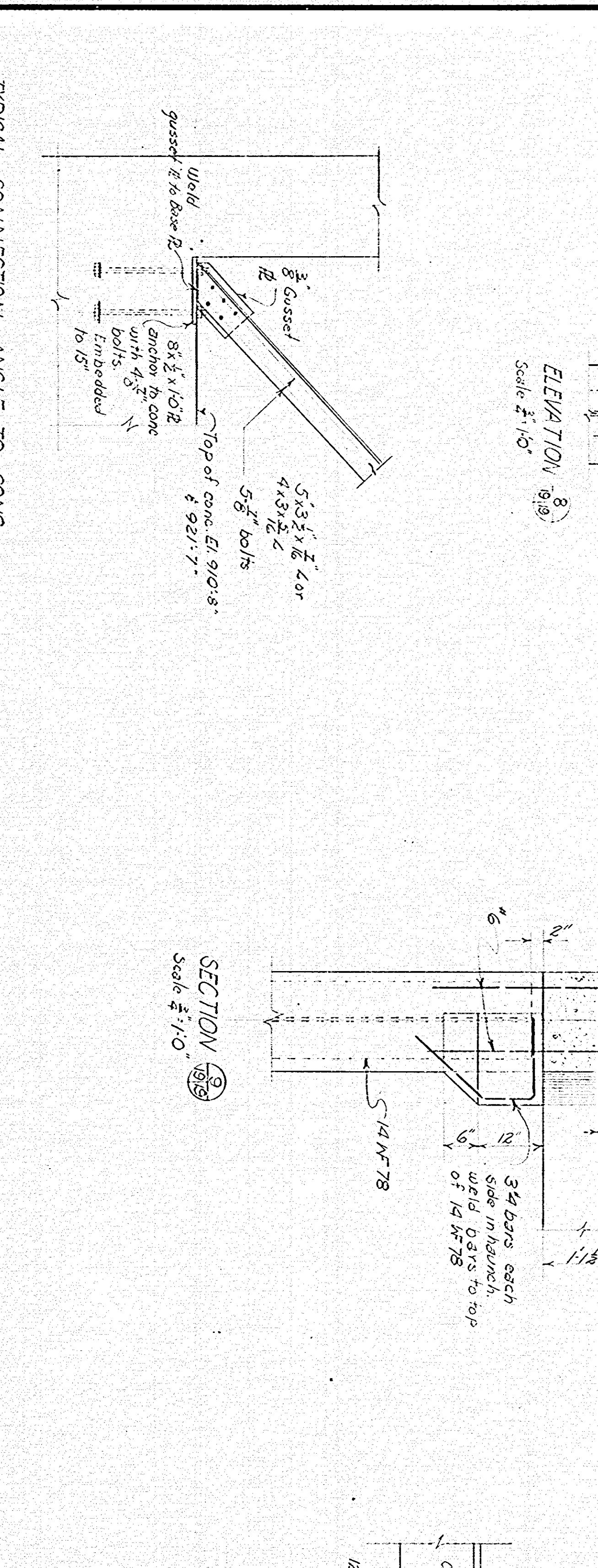
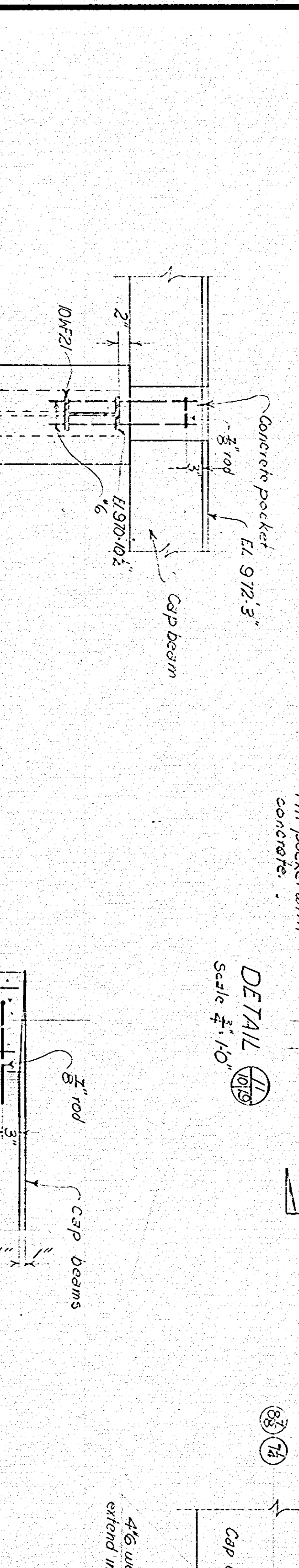
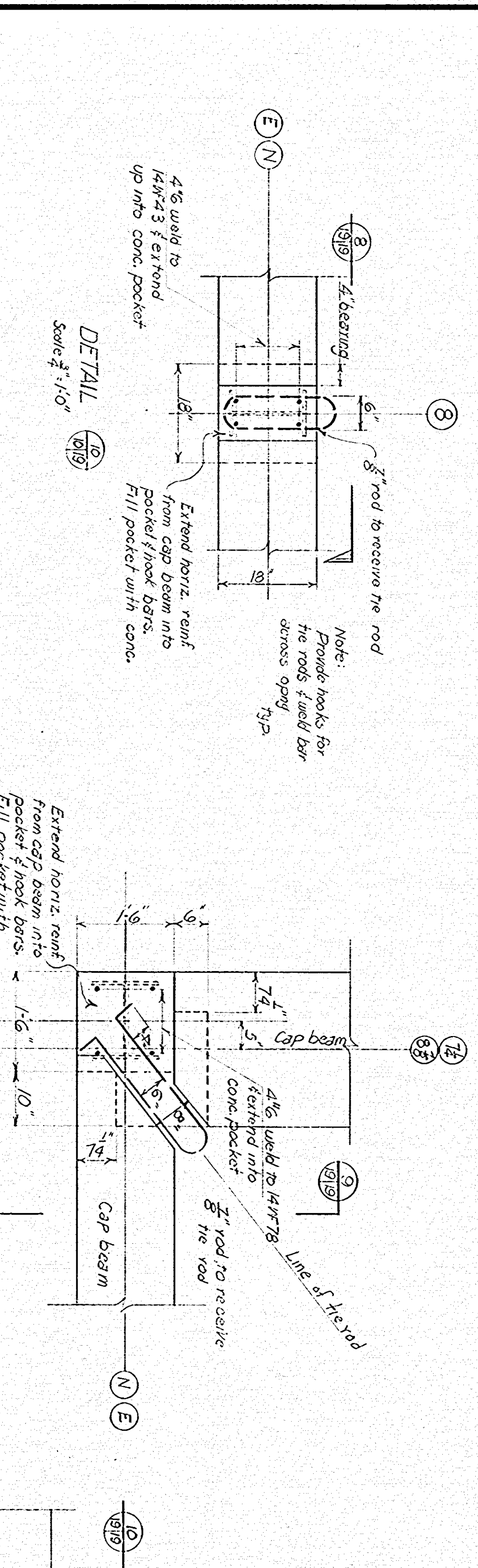
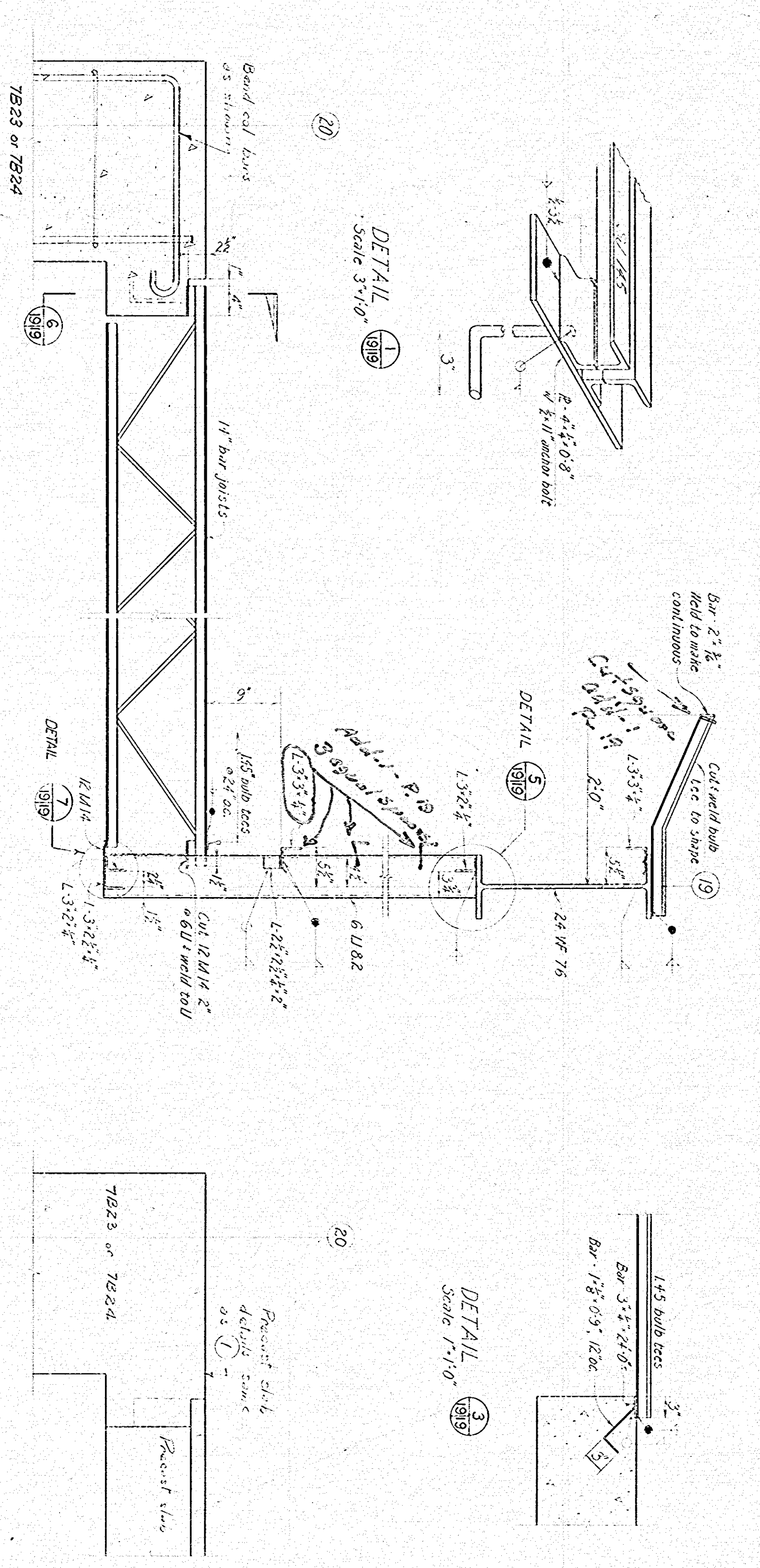
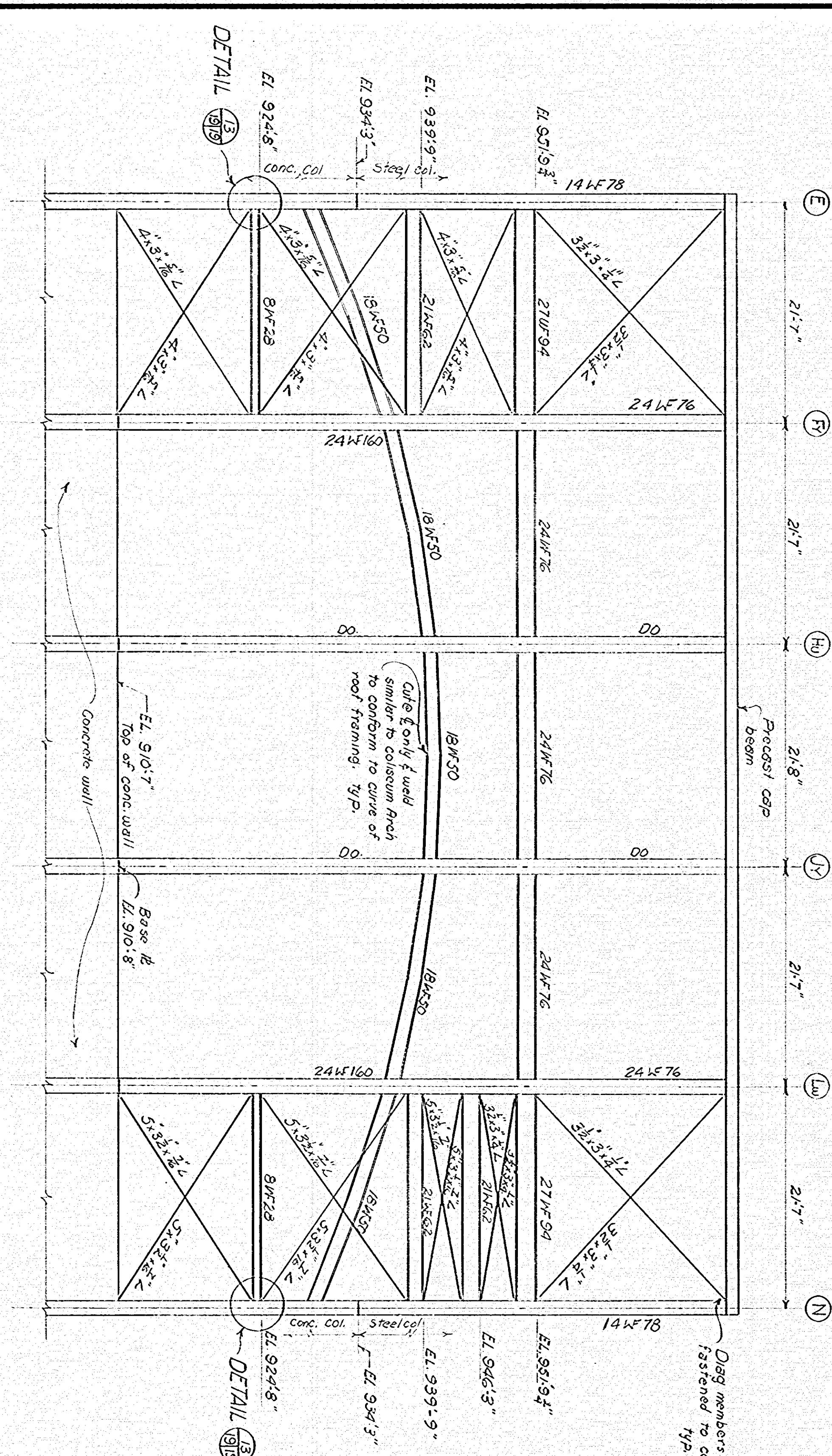
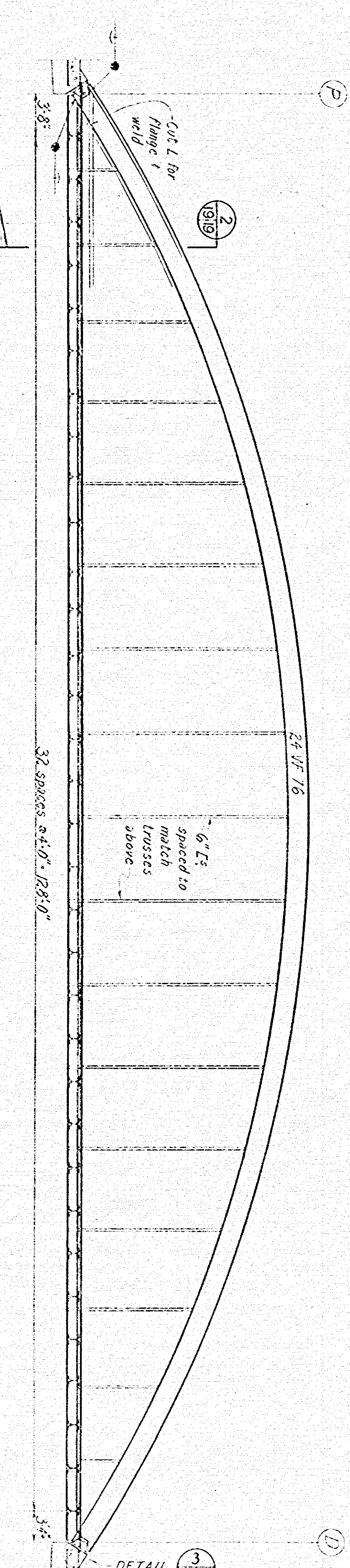
PAINTER, WEEKS & McCARTY ASSOCIATES  
MORTON & SWEETSER KNOXVILLE, TENNESSEE

SHEET	COLISEUM	DATE	12-1-58
S18	FRAMES AND DETAILS	CHECKED	2-17-59
		BY	W. J. SWEETSER
		DATE	12-1-58
		BY	W. J. SWEETSER



FAMCO Engineering, Inc.  
Civil Engineers and Consultants  
KNOXVILLE - TENNESSEE






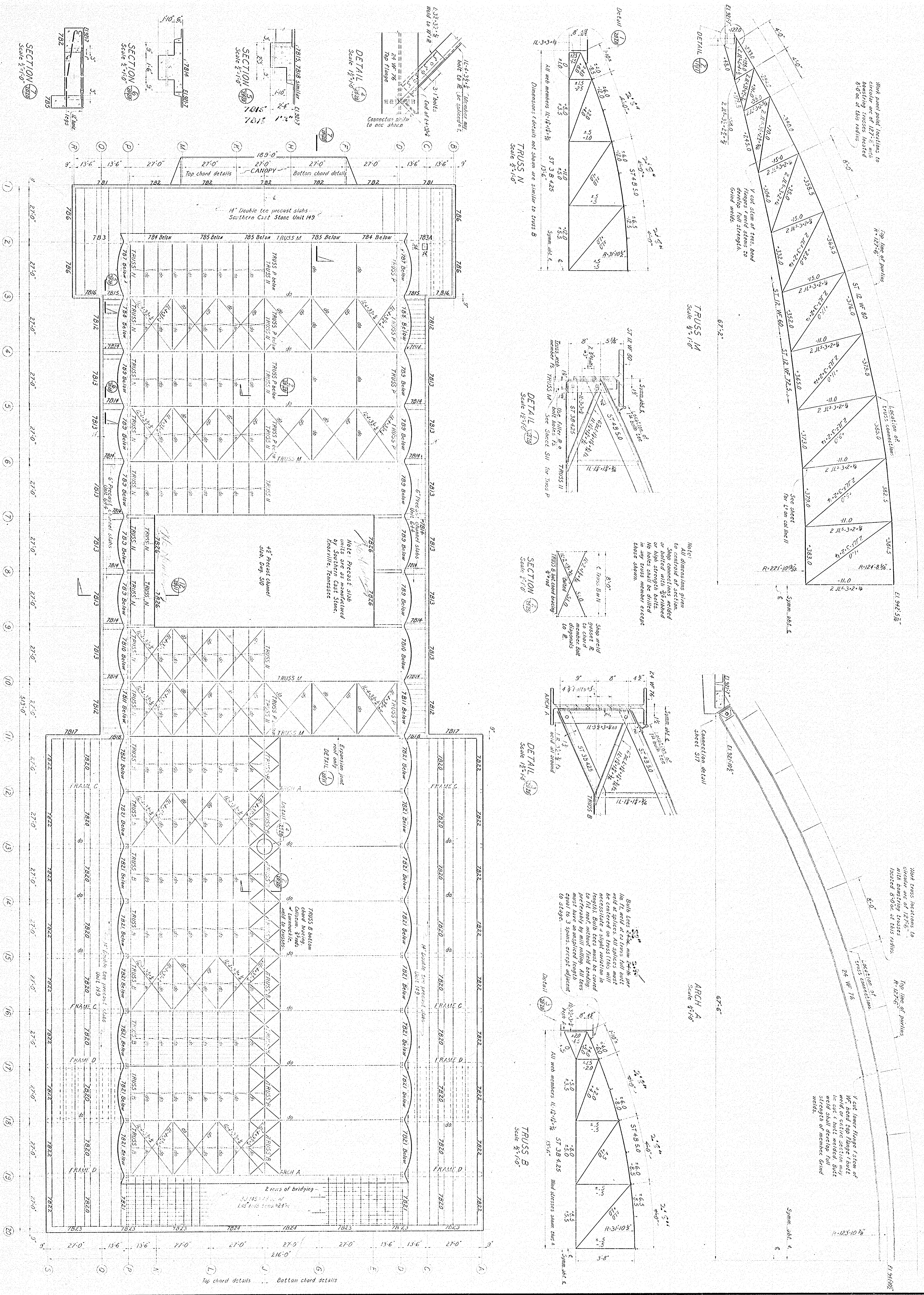


DRAWN JS  
CHECKED LSM  
DATE Nov 21 1953

SHEET  
S20



**CIVIL ENGINEERING, INC.**  
**Civil Engineers and Consultants**





**PAINTER, WEEKS & McCARTY  
MORTON & SWEETSER**

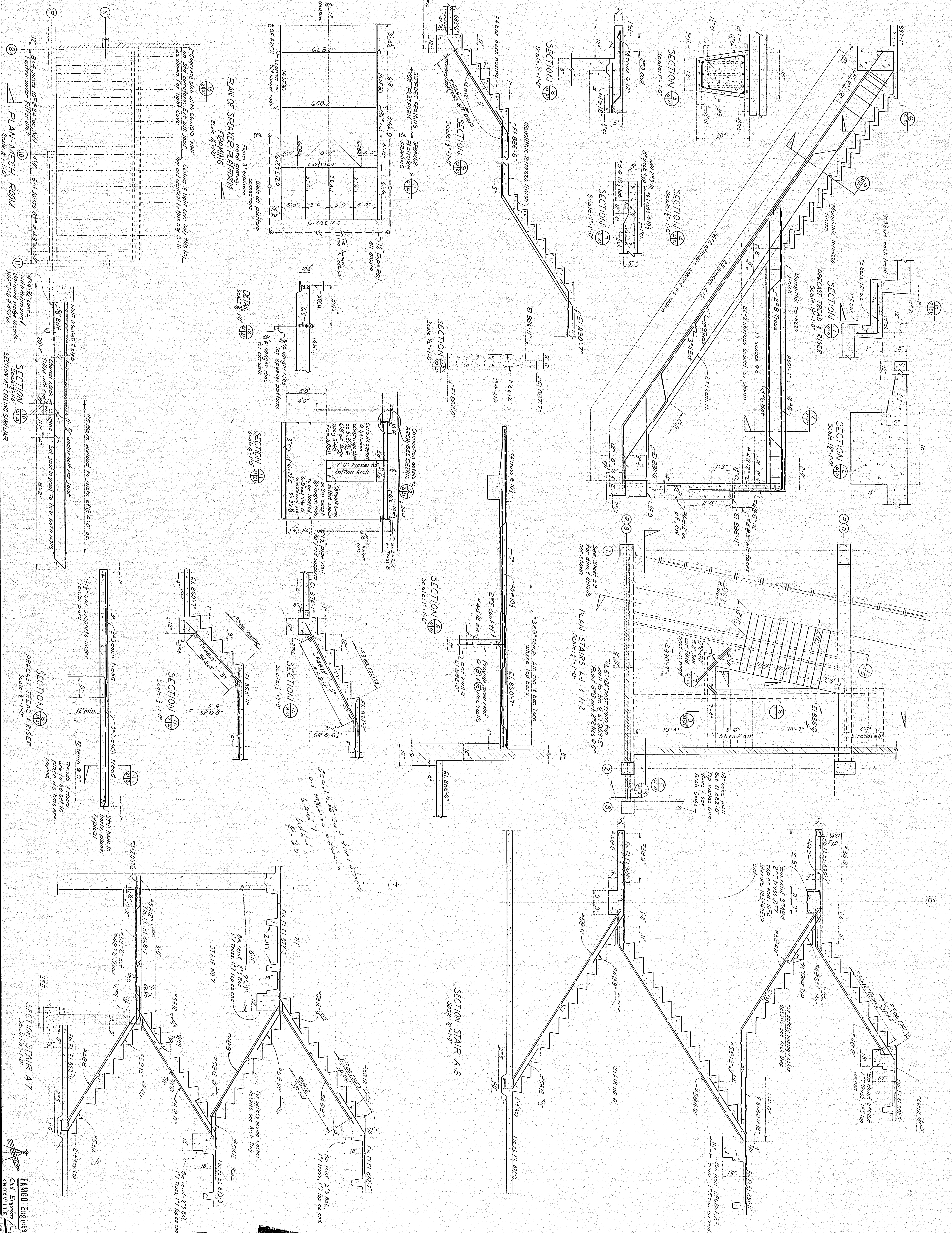
ASSOCIATED  
ARCHITECTS  
KNOXVILLE  
TENNESSEE

S21

1000

## STAIR DETAILS

DRAWN WAA  
CHECKED WAA  
DATE DEC 3 1952





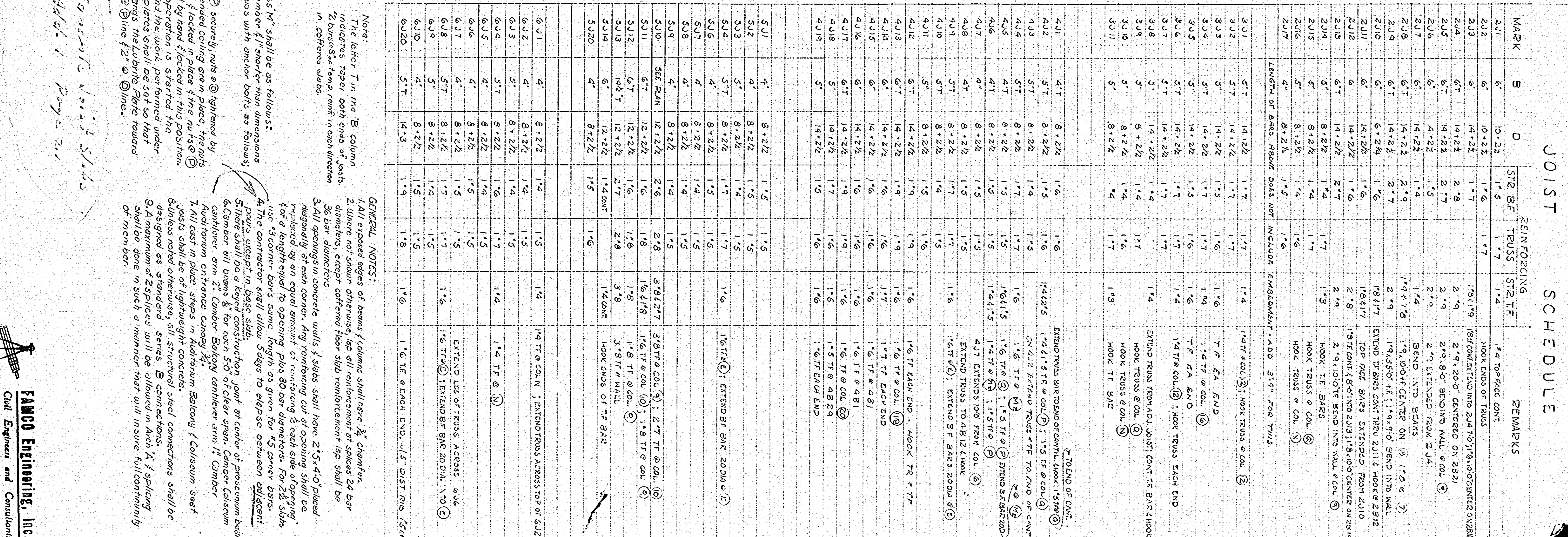








SHEET	REVISIONS	= JOIST SCHEDULE & MISC DET	DRAWN / JHF	SHEET
S24	1. 2. 3. 4. 5.		CHECKED W.A.A. DATE DEC. 3, 1958	S24



MARK		D		REINFORCING		REMARKS	
	S	STP. B.F.	TRUSS	STP. T.F.			
2.1	6	10.22	1.5	1.4	14 TOP PLATE CONT.		
2.2	6	10.22	1.6	1.7	14 TOP PLATE CONT.		
2.3	6	14.22	1.7		18.00" BEND INTO AND 70.1" B.0.0" CENTER DASHED		
2.4	6.7	14.22	2.8		2.9" .80" BEND INTO ON 2821		
2.5	6.7	14.22	2.7		2.9" .80" BEND INTO WALL @ COL. ⑦		
2.6	6	14.22	1.5	2.1	2.9" STRAINED FROM 2.4		
2.7	6	14.22	1.4	1.4	BEND INTO B.0.0"		
2.8	6.7	14.22	2.9		19.00" CENTER ON @ 1.0 & ⑦		
2.9	6.7	14.22	2.7	2.9	19.85" 16.1" 19.90" BEND INTO WALL		
3.0	6	14.22	1.6		END TOP PLATE BARS EXTENDED FROM 2.10		
3.1	6	14.22	1.6		TOP PLATE BARS EXTENDED FROM 2.11		
3.2	6	14.22	1.6		18.41"		
3.3	6	14.22	1.6		18.41"		
3.4	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.5	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.6	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.7	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
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3.10	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.11	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.12	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
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3.14	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
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3.16	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.17	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.18	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
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3.36	6.7	14.22	2.7		2.9" 18.00" BEND INTO WALL @ COL. ⑦		
3.37	6.7	14.22	2				



PAINTER, WEEKS & McCARTHY  
MORTON & SONS

