CITY OF HOUSTON

Sylvester Turner
Mayor

HOUSTON AIRPORT SYSTEM

George Bush Intercontinental ~ William P. Hobby ~ Ellington Airport

Mario C. Diaz
Director of Aviation

October 26, 2023

SUBJECT: **Addendum No. 2**

REFERENCE: Invitation To Bid (ITB) for the IAH Term C Helix Ramp Bearing & Misc. Repairs at George Bush Intercontinental Airport; Solicitation No. H06-HELIXC-2024-006; Project No. 235A

To: All Prospective Bidders:

This Addendum is issued for the following reasons:

I. **Provide** a second site visit on **October 31, 2023, from 1 – 3 P.M.** Please meet at Terminal C Baggage Claim Information Desk at 1 P.M.

II. **Replace** the following pages with the attached document outlined below:

1. Pages 1-2 Division 01 Table of Contents - revised 10/17/23.
2. Pages 19-26 Document 000410A & 00410B Bid Form Part A & Bid Form Part B - revised 10/26/23.
3. Page 10 Section 01210 – Cash Allowances - revised 10/26/23.

III. **Add** the following pages with the attached documents as outlined below.

1. Section 07 18 16 – Deck Coating System.
2. Section 22 05 53 – Identification for Plumbing Piping and Equipment.
3. Sheet No. S5 – Sheet No. S36.
4. Sheet No. SK – 1.
5. Sheet No. SK – 2.
6. 3.5” Helical Piles and Anchors – Upset Connection Sheet.
7. New Construction Bracket Detail Sheet.
8. RAMJACK Detail Sheet.
9. Sheet No. A1-701B.
10. Sheet No. A1-601B.
11. Sheet No. SJ-001.
12. Sheet No. SJ-002.

IV. **To Respond to the following Questions.**

1. **Question:** Please provide as-built drawings, specifically for the bridges that require lifting and how they connect or interface with other structures.

   Response: The details required to repair structures are provided in the Contract Documents. The legacy drawings specific to the bridge are attached to this addendum (Sheets S5, S6, S7, S8, S9, S11, S12, S13, S26, S27, S28, S29, S30, S31, S32, S33, S34, S35, S36), and are now to be considered part of the Construction Documents for bidding purposes. A full set of existing Terminal C legacy drawings will be provided to the successful bidder.

2. **Question:** At the pre-bid meeting site visit, there appeared to be some new baggage handling equipment that interfered with the plan for shoring the levels above. Also, it was difficult to get a concise answer from the Engineering team on where exactly the shores were to be installed and which elements needed to be supported. Since the bidding contractors do not have access to the baggage level, we suggest that the Engineer locate and mark the location of the shoring foundations in the baggage handling area and invite the bidders back to reevaluate the conditions and conflicts.

   Response: The shoring system means and methods will be the Contractor's responsibility. The Contract Documents provide loading and design intent but do provide the final locations of foundations since those will be determined once the shores are designed by the shoring contractor's licensed engineer. The final shoring design requires approval from the Structural Engineer-of-Record during the submittal process. There has been on-going work in the United baggage room, which changed the conditions of the space after the release of the Contract Documents. A coordinated effort will be required to develop a shoring design that will work within those constraints. The Contractor will include an allowance of $300,000 for the shoring system.

3. **Question:** Sheet A5-702, Section 4 shows 1/2" dia eyebolts going through an existing wall to support the canopy. At the site visit a question was asked on what access the Contractors had to the back side of the wall to install the plate washers and nuts and the Engineering group did not know. Please clarify what access the Contractors have to the back side of the wall.

   Response: The Contractor will have access to the backside of the wall by removing a stucco soffit section. After installation of the canopy, the stucco soffit will be repaired to the original condition and all the vestibule soffit area will be painted.

4. **Question:** For the stair repairs, please provide bid items and quantities for: Repair Door from Binding, Replace Door with Like Kind, Repair or Patch Hole in Metal Riser, Repair or Patch Crack in Concrete Landing, Repair or Patch Crack in Masonry Unit, Areas of Excessive Rusting, etc. It was also stated at the pre-bid site visit that some of the steel elements of the staircases would need to be removed and replaced. Please provide details, bid items, and quantities for this work.

Response: Please refer to the revised Bid Form - Part B, Section 1.0 B, provided in this Addendum, for base unit price description to these items.

5. **Question:** Please provide bid items and quantities for concrete spall repairs (vertical, overhead, and horizontal).

   Response: Summary of bid quantities for repairs at the east helix bridges are indicated on General Note Sheet SF003. Please refer to the partial bridge plans for approximate location of repairs. Refer to "Concrete Repair Details" Sheet S502 for the bid quantities for repairs at the west helix structures. Refer to the revised Bid Form - Part B, Section 1.0 B, provided in this Addendum, for base unit price description to these items.

6. **Question:** Please provide bid items and quantities for concrete crack repairs (vertical, overhead, and horizontal).

   Response: Please refer to the response provided in Question #5.

7. **Question:** Please clarify what work areas the contractor will have for the following: concrete surfacing, plumbing (drains), staircase work, staircase enclosure and awnings, concrete repair, and bridge jacking.

   Response: For helix bridge repairs: Approximate work area is indicated for shoring placement in baggage room (see sheets SJ001 and SJ002). Refer to the traffic control plans for the upper-level work. Also refer to Part VIII General Sequence of Work on Sheet SF002 for additional notes critical to understanding constraints of the project. Refer to Sheets A1-201A, A1-201B, A1-301B, A1-401B. and A1-501B for laydown areas and areas of work. However, awarded Contractor will review and coordinate the final laydown areas and areas of work with HAS Parking Management, United Airlines, and HAS Operations Departments.

8. **Question:** Please further clarify the scope of work for the bridges on the Helix side of the bridges.

   Response: Details 3 and 4 on Sheet SF501 indicate bridge bearing condition at helix side of the bridge. Removal and replacement of portion of precast wall will be necessary to review the plates (assume 12 SF at each bridge beam for a total of 144 SF). Existing drawings refer to Detail 14 on Sheet S36 for this condition, which is same referenced for the garage side bearing condition. Complete replacement is not anticipated but unit pricing shall be provided in case damaged plates are discovered. After review, patch surfaces to match existing.

9. **Question:** Is there an estimated budget or construction cost range available for this project?

   Response: The project estimated budget is $6,000,000.

10. **Question:** Is there an anticipated start and completion date for when this work should begin and end?

    Response: The Contractor shall achieve a Substantial Completion date within two hundred and seventy days (270) after receiving a Notice to Proceed to commence the Work, which is anticipated at the start of the second quarter of 2024.

11. **Question:** We would like to know if is possible to make another site visit in order to be accompanied by some subcontractors.

    Response: Please refer to response provided for Romain Numeral 1.

12. **Question:** Abrasive Blasting: In areas where abrasive/sand blasting is required. Is the paint 100% removed?

    Response: Abrasive blasting will only be required to remove rusting from railing and stairs metal risers. All other railings and risers will be primed and painted per specs. Paint all stairs metal components: risers, railing, stringers, etc. Refer to the revised Bid Form – Part B, Section 1.0 B, provided in this Addendum, for base unit price description to these items.

13. **Question:** Doors Un-Hang/Re-Hang: Extra service. Provide Alternate.

    Response: No alternate will be provided for this Work. Door repairs will be done as part of the base bid. Please refer to the revised Bid Form – Part B, Section 1.0 B, provided in this Addendum, for base unit price description to these items.

14. **Question:** New Enclosures: Are these being painted?

    Response: No. Please provide clear anodized aluminum to all new enclosure frames.

15. **Question:** In the areas where rust is rotting through the metal can you please confirm the metal is going to be replaced?

    Response: Yes. Metal risers damaged beyond repair will be replaced per structural details on Sheet S11-500, Detail 4.

16. **Question:** The bid form does not have a contract pay item for concrete repairs, crack sealer, bearing plate repairs and painting steel girders that are shown in the plans on pages sf204-sf206. Please clarify.

    Response: The bid form includes all items listed on structural and architectural drawings. Please refer to the revised Bid Form – Part B, Section 1.0 B, provided in this Addendum, for base unit price description to these items.

17. **Question:** Please clarify the note on section 3 regarding bearing plate inspection? Are existing measurements and details available to price/bid new bearing plates? Will the contractor have to replace neoprene pads? If yes what will be the pad type to be replaced?

    Response: The question is referring to detail 3 on Sheet SF502. Please provide pricing for replacing new bearing plates and bearing pads to match existing. Bearing plate sizes are indicated in detail 3. The existing drawings describe the bearing plate as "Cosmic XL self-lubricating medium duty service Alloy B (Alloy 196). Minimum allowable bearing 2,000 PSI or equal. Bearing plates to receive machine finish of minimum 125 micro-in RMS in direction of movement or as otherwise indicated by the manufacturer". This note comes from detail 14 on existing drawing Sheet S36. Replace all slide plates. The new slide bearing shall be low-friction assembly of configuration to match that of the existing plates being replaced. Use Fluorogold Slide lates with stainless steel backer plates or approved equal. See attached cut sheet for Fluorogold slide plates.

18. **Question:** The pictures in the plans do not match what is on site for shoring plan, please clarify if baggage handling components will be removed to properly shore the parking structure?

    Response: United Airlines recently completed the replacement of all baggage systems in the Terminal C bag room, so conditions have changed. The devices are all new and in operation so it is not likely that any of the components can be removed. Please refer to the response provided in Question #2 for additional information.

19. **Question:** On sheet sg502 the expansion joint detail. Please clarify the type of steel reinforced anchor blocks spec. Will this be poured in place concrete?

    Response: If this question is referring to detail 5 on Sheet SF502. The note is incorrect, anchor blocks shall be EPDM rubber as provided by WABO basis of design product. Expansion joint replacement will mostly occur at existing concrete locations, but new pour strips are required at level 6 so both conditions must be accommodated. Selected EJ devices must be compatible and work with all existing conditions encountered so similar, but alternative WABO products may be required. Review all existing conditions with WABO (or other approved manufacturer) before purchasing expansion joint devices and anchors.

20. **Question:** Which surfaces receive "Application of high-solids, fluid-applied, polyurethane, waterproofing, traffic-bearing, membrane deck coating system."

    Response: Please refer to the revised Bid Form - Part B, Section 1.0 B, item 1 provided in this Addendum, for base unit price description to this item.

21. **Question:** Do you happen to know if there is a geotechnical report, complete with soil borings, available for this project?

    Response: A geotechnical report for the United EBS project is available for reference if needed, but what may be more helpful is a report from helical pile installation that occurred within the baggage room in 2022. See attachment.

When issued, Addendum shall automatically become part of the solicitation documents and shall supersede any previous specification(s) and/or provision(s) in conflict with the Addendum. Addendum will be incorporated into the Agreement as applicable. It is the responsibility of the bidder(s) to ensure that it has obtained all such letter(s). By submitting a bid on this project, bidder(s) shall be deemed to have received all Addendum and to have incorporated them into their bid.

If further clarification is needed regarding this solicitation, please contact Senior Procurement Specialist, David Martinez via email at david.martinez@houstontx.gov.

DS DE

DocuSigned by:
Cathy Vander Plaats
02232028DE99414...

DS

Cathy Vander Plaats
Aviation Procurement Officer
Houston Airport System

CVP/dm

cc: Alfredo Oracion
Dallas Evans
Solicitation File

Attachments:

1. Division 01 Table of Contents - revised 10/26/23.
2. Document 000410A & 00410B Bid Form Part A & Bid Form Part B revised 10/26/23.
3. Section 01210 – Cash Allowances revised 10/26/23.
4. Section 07 18 16 – Deck Coating System.
5. Section 22 05 53 – Identification for Plumbing Piping and Equipment.
6. Sheet No. S5 – Sheet No. S36.
7. Sheet No. SK – 1.
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12. Sheet No. A1-701B.
13. Sheet No. A1-601B.
14. Sheet No. SJ-001.
15. Sheet No. SJ-002.

Document 00010

TABLE OF CONTENTS

NOTE: Capitalized Specification Sections are included in https://www.houstonpermittingcenter.org/media/6386/download, and are incorporated in Project Manuals by reference as if copied verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project. Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 00200, 00300 and 00400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

Doc. No. **Document Title**

Doc. No. **Document Title**

SPECIFICATIONS

Division 01 through 16 Specifications reference the latest editions of the Standard Specifications that are in effect as of the date of receipt of bids, unless otherwise noted. Supplemental Specifications include Doc Date for reference.

END OF DOCUMENT

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Houston**
City Hall Annex
900 Bagby Street
Houston, Texas 77002

Project: IAH TERMINAL C HELIX RAMP BEARING & MISC REPAIRS
Project No.: 235A
Bidder: _____
(Print or type full name of business entity, such as corporation, LLC, etc)

1.0 OFFER

A. Total Bid Price: Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document

B. Security Deposit: Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.

C. Period for Bid Acceptance: This offer is open to acceptance and is irrevocable for 180 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.

D. Addenda: All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

E. Bid Supplements: The following documents are attached:

[X] Security Deposit *(as defined in Document 00200 – Instructions to Bidders)*
[X] Document 00450 - Bidder's Statement of MWSBE Status
[X] Document 00454 - Affidavit of Non-interest
[X] Document 00455 - Ownership Information Form
[ ] Document 00456 - Bidder's Certificate of Compliance with Buy American Program *(required for AIP funded project)*
[X] Document 00457 – Conflicts of Interest Questionnaire (CIQ)
[ ] Document 00458 - Bidder's Certificate Regarding Foreign Trade Restriction *(required for AIP funded project)*
[ ] Document 00459 - Contractor's Statement Regarding Previous Contracts Subject to EEO *(required for AIP funded project)*
[X] Document 00460 – Pay or Play Acknowledgement Form (POP 1-A)
[X] Document 00461 – Hire Houston First Affidavit
[X] Document 00470 – Bidder's MWSBE Participation Plan *(required unless no MWSBE participation goal is provided in Document 00800* (the "Goal"))*.*
[ ] Document 00470D - Bidder's DBE Participation Plan *(required for AIP funded project)*

[ ] Document 00471 – Bidder's Record of Good Faith Efforts *(required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal).*
[ ] Document 00472 – Bidder's Goal Deviation Request *(required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal).*
[X] Document 00480 – Form SCM-1 Reference Verification
[X] Document 00481 – Non-Collusion Statement
[X] Document 00842 – Letter of Intent
[ ] Others as listed: _____

2.0 CONTRACT TIME

A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within Two Hundred Seventy (270) days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE: $_____

(Stipulated Price equals the Total Bid Price minus Base Unit Prices (B), Extra Unit Prices (C), Cash Allowances (D) and All Alternates (E), if any)

B. BASE UNIT PRICE TABLE:

Item No.	Spec/ Sheet Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
1	071816	Application of high-solids, fluid-applied, polyurethane, waterproofing, traffic-bearing, membrane deck coating system.	SF	76,544	_____ (1)	
2	079500	Provide watertight Heavy Duty Expansion Control System that is capable of accommodating HS-20 loading requirements.	LF		_____ (1)	
3	084113	Trifab® VersaGlaze® 451 Framing System. Price to include any demolition of handrails, floating of sidewalk to achieve drainage away from enclosure, roofing, structural elements, doors, hardware for stairs 4, 5, 6, 7, 8, 9,10 and 11.	LS	1	_____ (1)	
4	099113-7	4-inch-wide Flat Yellow Exterior Traffic Striping Paint	LF	3,492	_____ (1)	
5	030105	Prepare and fill concrete surface on the north and south side six floor of the garage to slope away from the garage edge.	SF	5,920	_____ (1)	
6		High pressure washing and landings, underside of stairs, guardrails, and handrails. Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, priming, and making good surfaces and areas.	SF	3,776,959	_____ (1)	

7		Install foundation armor sx5000 penetrating sealer clear matte transparent concrete sealer ready-to-use on stair treads and landings after hp washing	SF	1,512,000	____ (1)	
8		On surfaces prepared for paint, apply a test patch of the recommended coating system, on the handrail, riser, or stringer, covering at least 2 to 3 square feet, or 36" section of handrail, and allowed to dry one week before testing adhesion per ASTM D3359. Perform 3 tests minimum in each of the 14 staircases.	EA	42	____ (1)	
9		Mobilization	LS		____ (1)	
10	01505	Temporary Facilities	LS		____ (1)	
11	01450	Contractor Quality Control (material testing, inspections, etc.) Do not include, in this number, Item 8 above.	LS		____ (1)	
12		Repair hollow metal door from binding condition	EA	20	____ (1)	
13		Replace hollow metal door with like kind.	EA	3		
14		Replace stair's metal riser, 6-inch-high x 6-foot-wide, and prep to paint.	EA	25		
15		Patch crack in stair concrete landing	LF	300		
16		Repair of patch crack in concrete masonry unit	SF	100		
17		Abrasive blasting of stair's railing system, nosing, stringer, etc., to remove rusted sections and prepare railing for paint application.	LF	2,000		
18		Abrasive blasting of stair's hollow metal riser, 6-inch-high x 6-feet-wide and prepare for paint application.	EA	200		
19	S502	Level 4 concrete repair (with exposed rebar)	SF	40		
20	S502	Level 4 concrete repair (with no exposed rebar)	SF	40		
21	S502	Level 4 crack sealer (hairline cracks)	LF	40		

22	S502	Level 4 crack epoxy injection	LF	10		
23	S502	Level 4 Concrete corbels	EA	4		
24	S502	Level 4 steel bearing plate and neoprene pad replacement	EA	4		
25	S502	Level 5 concrete repair (with exposed rebar)	SF	10		
26	S502	Level 5 concrete repair (with no exposed rebar)	SF	30		
27	S502	Level 5 crack sealer (hairline cracks)	LF	250		
28	S502	Level 5 crack epoxy injection	LF	10		
29	S502	Level 5 Concrete corbels	EA	4		
30	S502	Level 5 steel bearing plate and neoprene pad replacement	EA	4		
31	S502	Level 6 concrete repair (with exposed rebar)	SF	30		
32	S502	Level 6 concrete repair (with no exposed rebar)	SF	10		
33	S502	Level 6 crack sealer (hairline cracks)	LF	10		
34	S502	Level 6 crack epoxy injection	LF	40		
35	S502	Level 6 Concrete corbels	EA	4		
36	S502	Level 6 steel bearing plate and neoprene pad replacement	EA	4		
37		Cut out and replace precast panel at helix side of bridge, 4 at each level.	EA	12		
38		Fluorgold Sliding Plates	EA	24		
39	XT Series Plans	Traffic Control Plan	LS	1		
40	P Series Plans	Plumbing installation to include 96 deck drains, 6,000 LF of storm piping, plumbing hangers and supports, and connectors and fittings.	LS	1		
TOTAL BASE UNIT PRICES						$_____

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C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
1		N/A				
TOTAL EXTRA UNIT PRICES						$_____

REST OF PAGE INTENTIONALLY LEFT BLANK

CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
1		Building Permit	**$6,000.00**
2		Shoring System Allowance	**$300,000.00**
TOTAL CASH ALLOWANCES			**$306,000.00**

REST OF PAGE INTENTIONALLY LEFT BLANK

E. ALTERNATES TABLE:

Item No.	Spec Ref.	Alternate Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total Price for Alternate in figures
1		N/A				
TOTAL ALTERNATES						$_____

REST OF PAGE INTENTIONALLY LEFT BLANK

F. TOTAL BID PRICE: **$**_____
(Add Totals for Stipulated Price (A), Base Unit Price, Extra Unit Price, Cash Allowance, and All Alternates, if any)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: _____
Signature Date

Name: _____
(Print or type name) Title

Address: _____
(Mailing)

_____
(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

Footnotes for Tables B through E:
(1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the Bidder.
(2) Minimum Bid Price determined prior to Bid. Can be increased by the Bidder, but not decreased, by crossing out the Minimum and inserting revised price on the line above. **Cannot** be decreased by the Bidder.
(3) Maximum Bid Price determined prior to Bid. Can be decreased by the Bidder, but not increased, by crossing out the Maximum and inserting revised price on the line above. A Bid that increases the Maximum Bid Price may be found non-conforming and non-responsive. **Cannot** be increased by the Bidder.
(4) Fixed Range Bid Price determined prior to Bid. Unit Price can be adjusted by Bidder to any amount within the range defined by crossing out prices noted and noting revised price on the line above.

SECTION 01210
CASH ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. City's allowances allocated to the items of work listed or as directed.

B. See Document 00700 - General Conditions, Paragraph 3.11 for costs included and excluded from cash allowance values listed in 1.02 below.

C. Follow Section 01255 - Modification Procedures for processing allowance expenditures. Cash Allowance sums remaining at Final Completion belong to the City, creditable by Change Order.

1.02 SCHEDULE OF CASH ALLOWANCES (TOTAL $6,000.00)

A. Allowance Item 1 - Building Permit: For obtaining the Building Permit from City of Houston, **$ 6,000.00**.

B. Allowance Item 2 – Shoring System: Provide shoring system to include all work to be provided by the shoring subcontractor for temporary barriers, scaffolding, pipe shores, beams, protection systems, cost for engineering (design & documentation) associated with the design and installation of the shoring system, shoring drawings, helical piles and concrete pads foundation, and all components necessary to provide a complete shoring system with capacity to jack up a single level of bridge to minimum height needed to replace steel bearing plates, **$ 300,000.00**.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

REVISED 10/26/23.

SECTION 07 18 16
DECK COATING SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Application of high-solids, fluid-applied, polyurethane, waterproofing, traffic-bearing, membrane deck coating system.

B. Related Sections:
1. Section 033053 - Cast-in-Place Concrete.

1.2 SUBMITTALS

A. Comply with Section 01330.

B. Product Data: Submit manufacturer's technical data sheets.

C. Submit list of project references as documented in this specification under Quality Assurance Article. Include contact name and phone number of the person charged with oversight of each project.

D. Quality Control Submittals:
1. Provide protection plan of surrounding areas and non-work surfaces.

1.3 QUALITY ASSURANCE

A. Comply with Section 01450.

B. Qualifications:
1. Manufacturer Qualifications: Company with minimum 15 years of experience in manufacturing of specified products and system.
2. Manufacturer Qualifications: Company shall be ISO 9001:2015 Certified.
3. Applicator Qualifications: Company with minimum of 5 years' experience in application of specified products and system on projects of similar size and scope and is acceptable to product manufacturer.
   a. Successful completion of a minimum of 5 projects of similar size and complexity to specified work.

C. Field Sample:
1. Install field sample at project site or other pre-selected area of building, as directed by architect/engineer.
2. Provide mock-up of at least 100 square feet (9.3 m^2) to include surface profile, sealant joint, crack, flashing and juncture details and allow for evaluation of slip resistance and appearance.
3. Apply material in accordance with manufacturer's written application instructions.
4. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application and workmanship.
5. Field sample will be standard for judging workmanship on remainder of project.
6. Maintain field sample during construction for workmanship comparison.
7. Do not alter, move or destroy field sample until work is completed and approved by architect/engineer.

8. Obtain architect/engineer written approval of field sample before start of material application, including approval of aesthetics, color, texture and appearance.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Store materials in unopened packaging in clean, dry area protected from sunlight.

1.5 PROJECT CONDITIONS

A. Environmental Requirements:
1. Minimum Application Temperature: 40 degrees F (4 degrees C).
2. Do not apply in rain or when rain is expected within 24 hours.
3. Do not apply above 90 degrees F (32 degrees C).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products from the following manufacturer as basis of design:
BASF Corporation Construction Chemicals
889 Valley Park Drive
Shakopee, MN 55379 USA
Customer Service: 800-433-9517
Technical Service: 800-243-6739
Direct Phone: 952-496-6000
Website: www.master-builders-solutions.basf.us

B. Other approved manufacturers:
1. Sika: Sikalastic 720/745 Al Heavy Vehicular Traffic System
Sika Corporation
201 Lito Avenue
202 Lyndhurst, NJ 07071
Phone: +1-800-933-7452
2. Neogard: Auto-Gard FC Heavy Duty System
Neogard
2728 Empire Central
Dallas, TX 75235
Phone: 1-833-443-6735

C. Specifications and drawings are based on manufacturer's proprietary literature from BASF. Other manufacturers shall comply with minimum levels of material, color selection and detailing indicated in specifications or on drawings. Architect will be sole judge of appropriateness of substitutions.

2.2 MATERIALS

A. High-solids, fluid-applied, polyurethane, waterproofing, traffic-bearing, membrane deck coating system.

1. Acceptable Product: MasterSeal Traffic 2500 Deck Coating System (formerly Conipur II Deck Coating System) by BASF.
   a. Primer: MasterSeal P 255 (formerly Conipur 78 Primer.) two-component, polyurethane-based adhesive primer.
   b. Base coat: MasterSeal M 265 (formerly Conipur 265-Z Base Coat.) two-component, fast-curing, polyurethane base coat.
   c. Top Coat: MasterSeal TC 275 (formerly Conipur 275 Top Coat): two-component, fast-curing, aromatic polyurethane top coat.
   d. Aliphatic Top Coat: MasterSeal TC 295 (formerly Conipur 295 Top Coat): two-component, aliphatic, 100 percent solids, polyurethane, waterproofing top coat.
   e. Aggregate: MasterSeal 941DR: aggregate free of respirable crystalline silica

B. Compliances:
   1. ASTM C 957
   2. CSA S413

C. Performance Requirements: Provide materials complying with the following requirements:
   1. Crack Bridging, Base Coat, ASTM C957: Passes.
   2. Adhesion Peel, Primer and Base Coat, ASTM C957.
      a. Plywood: 25 pli.
      b. Concrete: 14 pli.
   3. Tensile Strength, ASTM D412:
      a. Base Coat: 3,400 psi (23.4 MPa)
      b. Top Coat: 3,000 psi (20.7 MPa).
      c. Aliphatic Top Coat: pre-pigmented 3,400 psi (23.4 MPa), tint base 3,000 psi (20.7 MPa).
   4. Elongation, ASTM D412:
      a. Base Coat: 900 percent.
      b. Top Coat: 30 percent.
      c. Aliphatic Top Coat: pre-pigmented 340 percent, tint base 390 percent.
   5. Hardness, ASTM D2240, Shore A:
      a. Top Coat: 70.
      b. Aliphatic Top Coat: pre-pigmented 94, tint base 90.
   6. Taber Abrasion Resistance, ASTM D4060, CS-17 Wheel, 1,000 g load, 1,000 cycles:
      a. Primer/Base Coat/Top Coat: 100 mg.
      b. Primer/Base Coat/Intermediate Top Coat/Aliphatic Top Coat: 47 mg.
   7. Solids Content:
      a. Primer: 99 percent.
      b. Base Coat: 99 percent.
      c. Top Coat: 99 percent.
      d. Aliphatic Top Coat: 91 percent.
   8. VOC Content:
      a. Primer:
         1) Part A: 0.08 lbs per gal (10 g/L), less water and exempt solvents.
         2) Part B: 0.08 lbs per gal (10 g/L), less water and exempt solvents.
      b. Base Coat:
         1) Part A: 0.03 lbs per gal (4 g/L), less water and exempt solvents.
         2) Part B: 0.04 lbs per gal (5 g/L), less water and exempt solvents.
      c. Top Coat:
         1) Part A: 0.59 lbs per gal (71 g/L), less water and exempt solvents.
         2) Part B: 0.11 lbs per gal (13 g/L), less water and exempt solvents.
      d. Aliphatic Top Coat:

1) Part A: 20.1 g/L, less water and exempt solvents
2) Part B: 173.8 g/L, less water and exempt solvents

D. Color:

1. Black (only available with TC 275).
2. Charcoal.
3. Gray.
4. Tintbase (only available with TC 295).

E. Accessories:

1. Aggregate: MasterSeal 941DR.
2. Sealant Primer: MasterSeal P 173 (formerly Sonneborn Primer 733).
3. Sealant: MasterSeal SL 2 or MasterSeal CR 195 (formerly Sonneborn SL-2 or Sonneborn Ultra).
4. Deep Joint Sealant: MasterSeal SL 2 or MasterSeal NP 2 (formerly Sonneborn SL-2 or Sonneborn NP-2).
5. Plywood Joint Sealant: MasterSeal NP 1 or MasterSeal NP 2 (formerly Sonneborn NP-1 or Sonneborn NP-2).
6. Reinforcing Fabric: MasterSeal 995 (formerly Sonoshield Reinforcing Fabric).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Comply with Section [01 70 00] [__ __ __].

3.2 SURFACE PREPARATION

A. Protection: Protect adjacent work areas and finish surfaces from damage during deck coating system application.

B. Prepare surface in accordance with manufacturer's instructions.

C. Concrete:

1. Minimum Compressive Strength: 3,000 psi (21 MPa).
2. Cure concrete for a minimum of 28 days.
3. Ensure concrete is structurally sound, clean and dry in accordance with ASTM D4263.
4. Repair voids and delaminated areas.
5. Shot blast concrete to remove dirt, dust, grease, oil, coatings, laitance and other surface contamination and to provide profile for proper adhesion.
6. Profile: Minimum of ICRI CSP-3 (approximately 80 to 100-grit sandpaper).
7. Prestripe and prepare cracks, joints and detail work in accordance with manufacturer's instructions.

3.3 MIXING

A. Mix material components in accordance with manufacturer's instructions.

B. Precondition material components to a temperature of 70 degrees F (21 degrees C) before mixing.

3.4 APPLICATION – GENERAL

A. Apply deck coating system in accordance with manufacturer's instructions.

B. Do not apply deck coating system to damp, wet or contaminated surfaces.

3.5 APPLICATION – EXTRA-HEAVY TRAFFIC

A. Primer: Apply 4 wet mils (0.1 mm).

B. Base Coat: Apply 25 wet mils (0.5 mm). Immediately backroll to level material. Allow base coat to cure 3 to 4 hours.

C. Intermediate Coat: Apply 20 to 25 wet mils (0.5 to 0.6 mm). Immediately backroll to level material.

D. Aggregate: Immediately broadcast aggregate to refusal into wet intermediate coat. Allow curing time of 3 to 4 hours.

E. Remove excess aggregate.

F. Top Coat: Apply 15 wet mils (0.40 mm). Immediately backroll to level material.

G. Additional Slip Resistance: Immediately broadcast aggregate at rate of 3 to 5 lbs per 100 sq ft (0.15 to 0.25 kg/m^2). Lightly backroll into top coat.

3.6 PROTECTION

A. Pedestrian Traffic: Allow minimum curing time of 4 hours before allowing pedestrian traffic onto deck coating system.

B. Vehicular Traffic: Allow minimum curing time of 24 hours before allowing vehicular traffic onto deck coating system.

C. Protect completed deck coating system from damage and staining during construction.

END OF SECTION

SECTION 22 0553 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 REFERENCE STANDARDS

A. ASME A13.1 - Scheme for the Identification of Piping Systems 2020.

1.2 SUBMITTALS

A. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.1 IDENTIFICATION APPLICATIONS

A. Piping: Pipe markers.

2.2 PIPE MARKERS

A. Comply with ASME A13.1.

B. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

C. Install plastic pipe markers in accordance with manufacturer's instructions.

D. Use tags on piping 3/4 inch diameter and smaller.

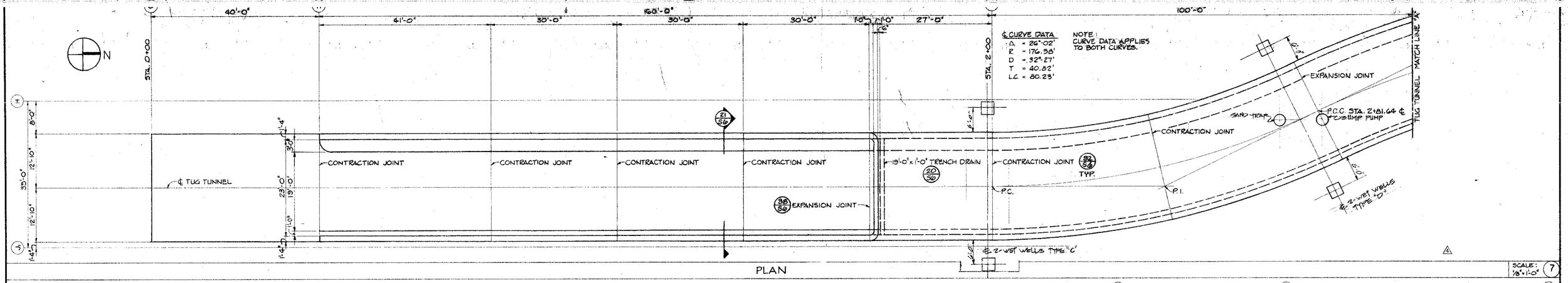
1. Identify service, flow direction, and pressure.

2. Install in clear view and align with axis of piping.

3. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

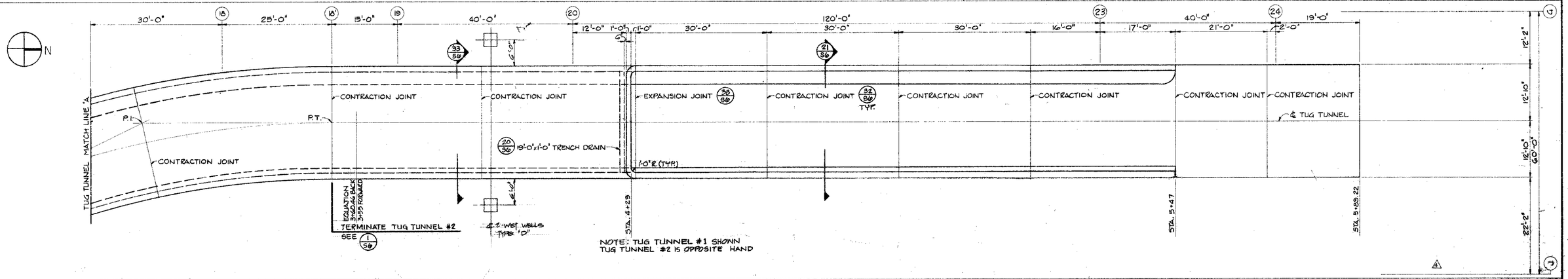
E. Locate ceiling tacks to locate valves or dampers above lay-in panel ceilings. Locate in corner of panel closest to equipment.

END OF SECTION



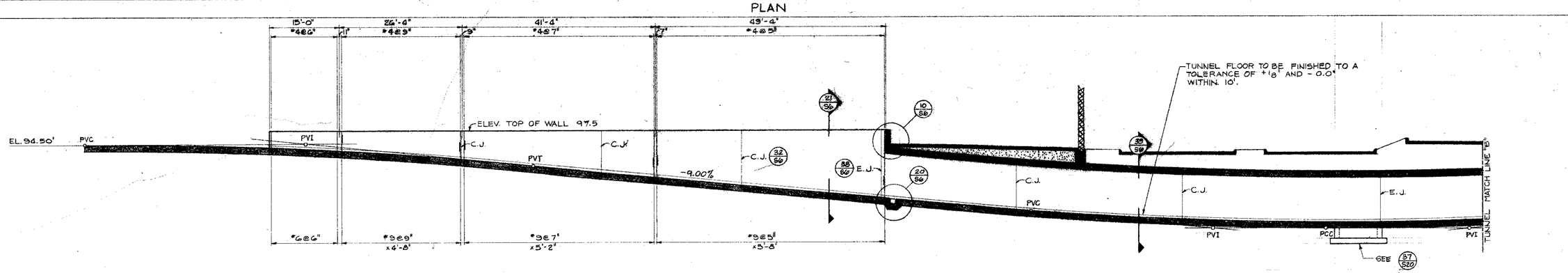
PLAN

SCALE: 1/8"=1'-0" (7)



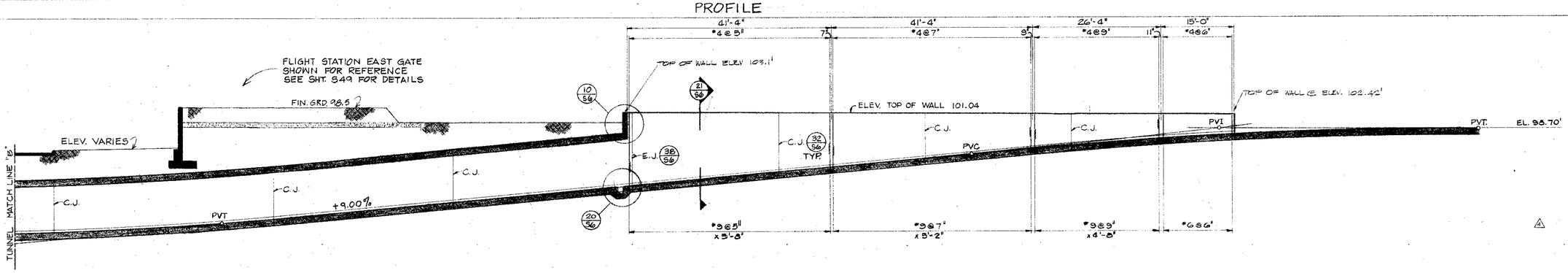
PLAN

SCALE: 1/8"=1'-0" (5)



PROFILE

SCALE: 1/8"=1'-0" (3)



PROFILE

SCALE: 1/8"=1'-0" (1)

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDUM ONE THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
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APPROVED Ross J. Hamm EXEC. AIRPORT ENG. DEPT OF PUB WKS.
APPROVED E R Cole DIRECTOR OF PUBLIC WORKS
APPROVED DIRECTOR OF AVIATION
APPROVED Jim M. Bell ASST. DIRECTOR DEPT OF PUB WKS

AIRPORT ARCHITECTS
GOLEMON & ROLLER
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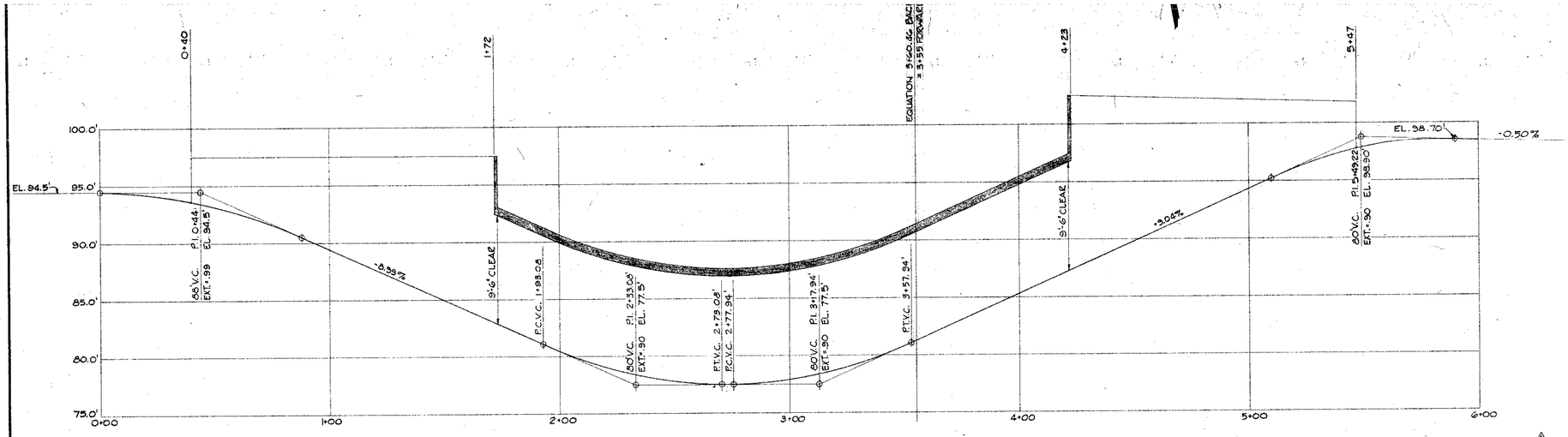
DRAWN DTR
CHECKED MKA
DATE AUG. 15, 77

REVISIONS
⚠ ADDENDA #4 9-30-77
RECORD DRAWING 6-15-78

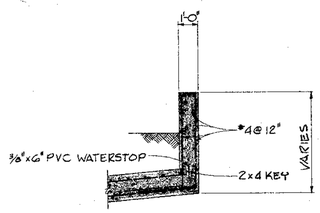
TUG TUNNEL
PLAN & SECTION
DRAWING NO. 6950-186

S 5
SHEET OF



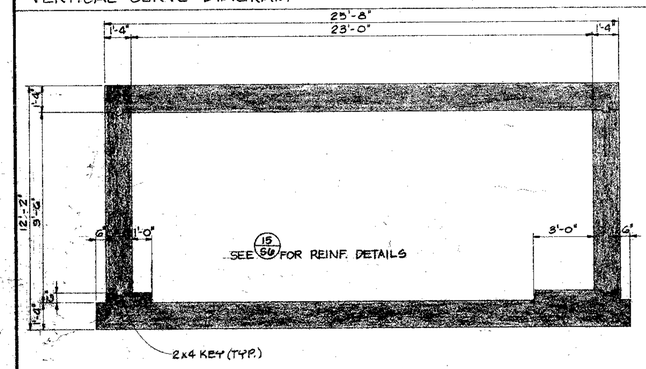
VERTICAL CURVE DIAGRAM

SCALES: HORIZ.: 1" = 20'-0" VERT.: 1" = 5'-0" (16)



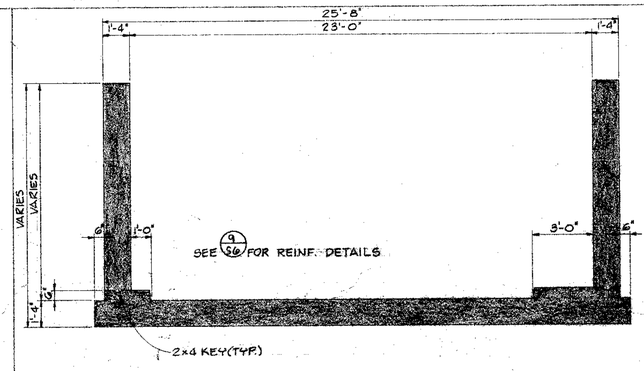
HEADWALL DETAIL

SCALE: 3/8"=1'-0" (10)



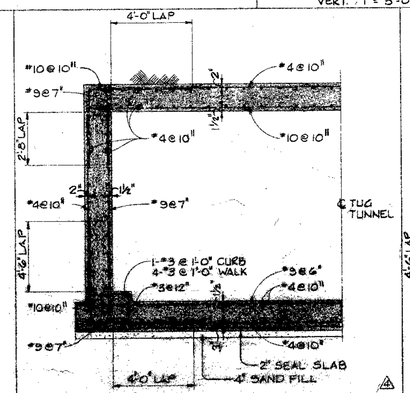
TUNNEL SECTION SHOWING DIMENSIONS

SCALE: 3/8"=1'-0" (33)



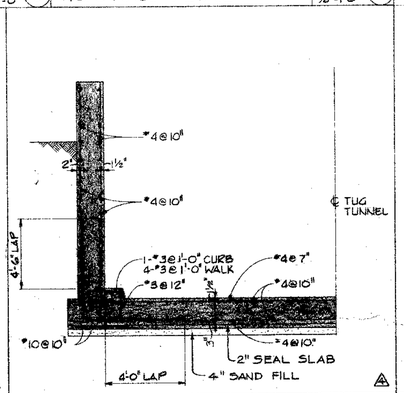
SECTION SHOWING DIMENSIONS & CANTILEVERED SIDE WALLS

SCALE: 3/8"=1'-0" (21)



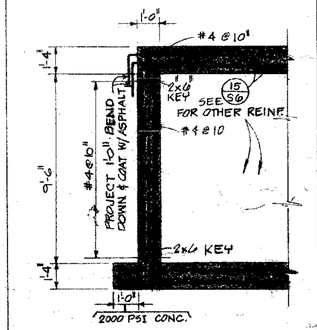
HALF SECTION SHOWING REINF.

SCALE: 3/8"=1'-0" (15)

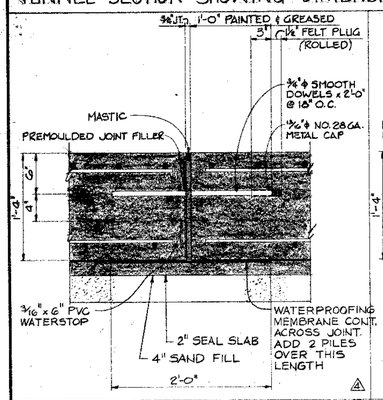


CANT. WALL SECT. SHOWING REINF.

SCALE: 3/8"=1'-0" (9)

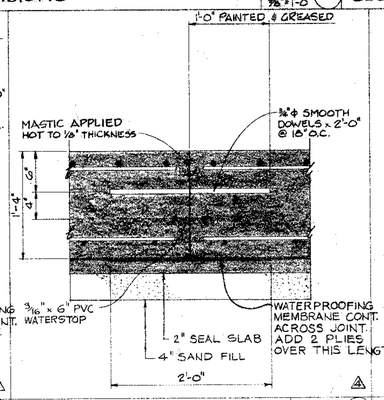


END PANEL "KNOCK-OUT" DETAIL (3)



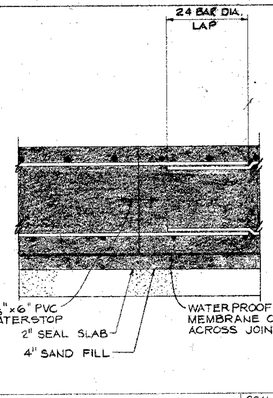
EXPANSION JOINT

SCALE: 1½"=1'-0" (38)



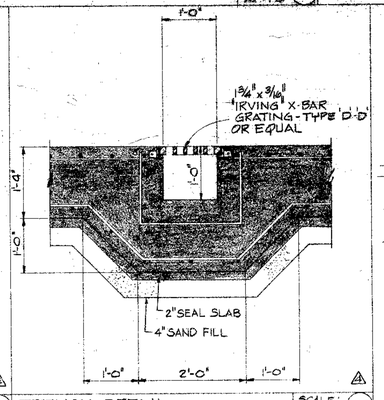
CONTRACTION JOINT

SCALE: 1½"=1'-0" (32)



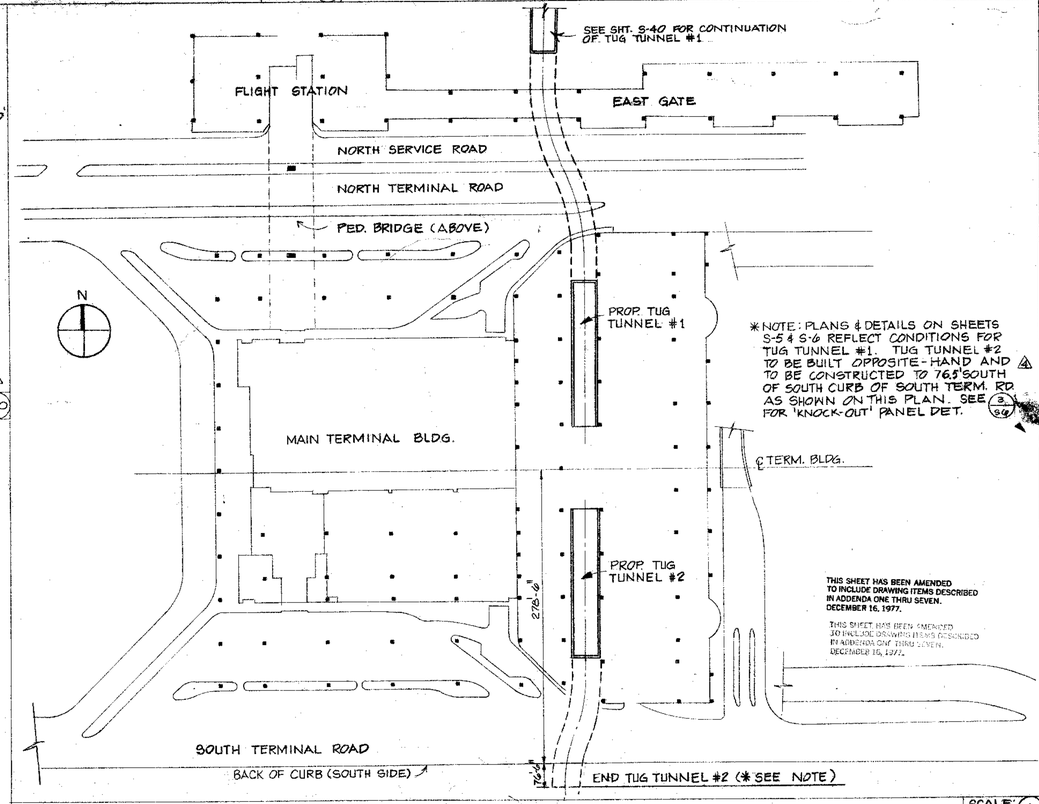
CONSTRUCTION JOINT

SCALE: 1½"=1'-0" (26)



TRENCH DETAIL

SCALE: 1"=1'-0" (20)



* NOTE: PLANS & DETAILS ON SHEETS S-5 & S-6 REFLECT CONDITIONS FOR TUG TUNNEL #1. TUG TUNNEL #2 TO BE BUILT OPPOSITE-HAND AND TO BE CONSTRUCTED TO 76.5' SOUTH OF SOUTH CURB OF SOUTH TERM. RD AS SHOWN ON THIS PLAN. SEE 3/56 FOR 'KNOCK-OUT' PANEL DET.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

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TUG TUNNEL LOCATION PLAN

SCALE: 1"=50' (1)

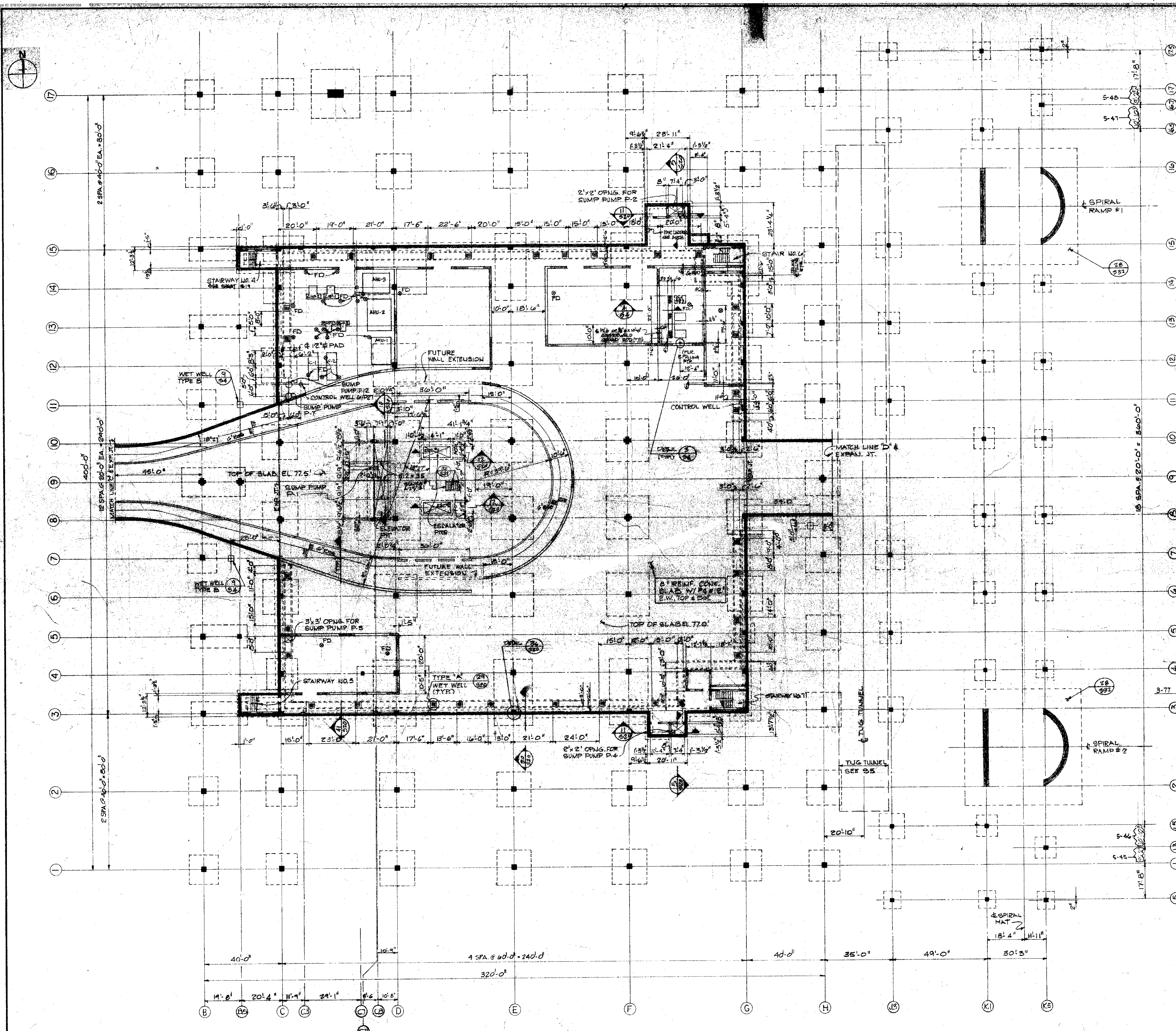
HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED Exec. Airport Dir. Dept. of Pub. Wks. — APPROVED Director of Public Works — APPROVED Director of Aviation — APPROVED Asst. Director Dept. of Pub. Wks.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN DTR	REVISIONS	TUG TUNNEL	S 6
CHECKED VIKA	⚠ ADDENDA #4 9-30-77	PROFILE & SECTIONS	
DATE AUG. 15, 77	RECORD DRAWINGS 4-12-82	DRAWING NO. 6950-186	SHEET OF



MAIN TERMINAL BUILDING FOUNDATION PLAN

SCALE: 1/16" = 1'-0" (7)

1. DESIGN LOADS:
   A. WALL LATERAL PRESURE = 65 PSF
   B. LOWER LEVEL LIVE LOAD = 100 PSF
   C. LOWER LEVEL LOAD @ TRAIN LOCATION = 200 PSF

2. CONCRETE:
   A. HARDROCK CONCRETE IN THE FOLLOWING STRUCTURES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.

      COLUMN FOOTING (HARD ROCK) = 3000 PSI
      LOWER LEVEL FLOOR (HARD ROCK) = 4000 PSI
      LOWER LEVEL WALLS (HARD ROCK) = 4000 PSI
      SEAL SLAB (HARD ROCK) = 2500 PSI
   B. CONCRETE SHALL BE MIXED, TRANSPORTED, PLACED, COMPACTED AND CURED IN STRICT ACCORDANCE WITH ALL PERTINENT ACI SPECIFICATIONS AND STANDARDS, INCLUDING "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318-71.

3. REINFORCING STEEL:
   A. ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60. DESIGN, FABRICATE AND ERECT IN STRICT ACCORDANCE WITH ACI AND CR.S.I. STANDARDS AND SPECIFICATIONS.

4. STEEL:
   A. ALL STEEL SHALL BE ASTM A36. DESIGN, FABRICATE AND ERECT IN STRICT ACCORDANCE WITH SPECIFICATIONS, STANDARDS AND RECOMMENDATIONS OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).
   B. FIELD CONNECTIONS SHALL BE EQUIVALENT TO STANDARD BOLTED CONNECTIONS USING 3/4" A.S.T.M. A307 BOLTS UNLESS OTHERWISE SHOWN.
   C. WELDS AND WELDING SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS, STANDARDS AND RECOMMENDATIONS OF A.I.S.C. AND THE AMERICAN WELDING SOCIETY.
   D. ALL HARDWARE EXPOSED STRUCTURAL STEEL, BOLTS, SHALL BE HOT DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED.

5. JOINTS:
   A. ALL EXPANSION JOINTS, CONSTRUCTION JOINTS SHALL HAVE A CONTINUOUS PVC WATERSTOP TO FORM A WATERTIGHT STRUCTURE.

6. STRUCTURAL REQUIREMENTS:
   A. ELEVATOR PITS AND ESCALATOR PIT DIMENSIONS AS SHOWN ARE FOR BID PURPOSES ONLY. COORDINATE PIT DIMENSIONS & LOCATE ANCHOR BOLTS WITH APPROVED CERTIFIED VENDOR DRAWINGS.
   B. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE COMMENCING WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO OWNER IN A TIMELY MANNER.
   C. BUILDING CODE, CITY OF HOUSTON, SHALL BE USED AS APPLICABLE.
   D. PADS FOR MECHANICAL EQUIPMENT (SEE MECHANICAL SHEET M12 FOR LOCATION) SHALL BE 4" MIN. ABOVE FINISH FLOOR WITH #6x#6, 10x10 WWM AT MID HEIGHT OF PAD. COORDINATE ANCHOR BOLT LOCATIONS AND PAD SIZE WITH EQUIPMENT SUBMITTED BY MANUFACTURER.

7. FOUNDATION:
   A. BACKFILL FOR LOWER LEVEL AND TUNNEL WALLS SHALL BE COHESIVE SOILS HAVING A LIQUID LIMIT OF 55 OR LESS AND P.I. 5 TO 20.
   B. IF OVER-EXCAVATION IS REQUIRED AND THE FOOTINGS FORMED, THE SPACE BETWEEN THE EDGE OF FOOTING AND NATURAL SOIL SHOULD BE BACKFILLED WITH COMPACTED CEMENT STABILIZED SAND OR LEAN CONCRETE UP TO THE LEVEL OF THE TOP OF FOOTINGS.
   C. DURING CONSTRUCTION, GROUNDWATER LEVEL MUST BE REDUCED TO AT LEAST THREE FEET BELOW EXPOSED EXCAVATION SURFACES IN ORDER TO MAINTAIN THE FOUNDATION SOILS IN DRY AND STABLE CONDITION.
   D. ALL FILL SHALL BE SELECT MATERIAL, FREE OF EXCESS SILT AND HAVING A P.I. OF BETWEEN 10 AND 20. THE SANDY CLAY MATERIAL REMOVED FROM EXCAVATION SHALL BE ADEQUATE. THE BACKFILL SHALL BE PLACED AND COMPACTED TO 95 PERCENT OF STANDARD PROCTOR (ASTM D-698) AT APPROXIMATE OPTIMUM MOISTURE CONTENT.

3-77
7. E. ALL FOOTINGS WHICH CANNOT BE EXCAVATED TO FINAL GRADE AND POURED THE SAME DAY SHALL HAVE A 3-INCH SEAL SLAB (3,000 PSI CONCRETE) BELOW THE BOTTOM ELEVATION.

8. REFERENCE DRAWINGS:
   A. REFER TO A.M.E.P SHEETS FOR SIZES AND LOCATION OF SLEEVED PENETRATIONS THROUGH SLAB.
   B. STRUCTURAL:

1.) INTER-TERMINAL TUNNEL	S1 THRU S4
2.) TUG TUNNEL	S5, S6
3.) COLUMN & FOOTING SCHEDULE	S14 THRU S16
4.) MISC. STRUCTURAL DWGS.	S8, S19, S20 & S32

9. LOCATE MECH. INSERTS AS INSTRUCTED BY DIVISION 15, FURNISHED BY DIVISION 15 AND INSTALLED BY DIVISION 03. OF THE SPECIFICATIONS.

10. TUNNEL FLOOR AT TRAIN LOCATION SHALL BE GROUND TO THE TOLERANCE OF -1/8" OR +0'-0" IN 10'-0" LENGTH.

11. SLOPE ALL FLOOR SLABS 1/2" TO FLOOR DRAINS.

GENERAL NOTES (2)

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HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
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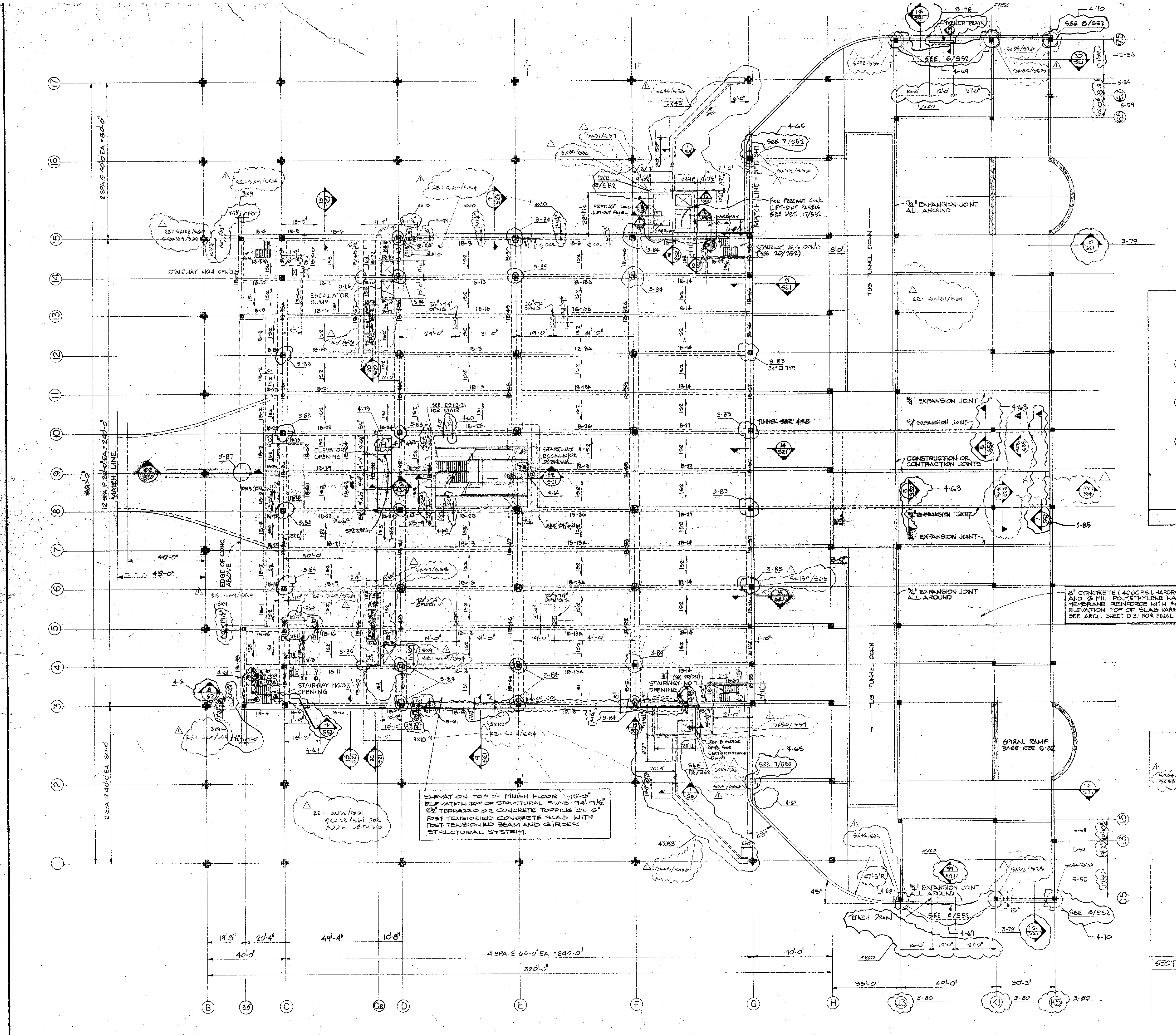
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN NP
CHECKED MKA
DATE AUG 15, 77

REVISIONS
ADD. #4 9-30-77
RECORD DRAWINGS 6-13-83

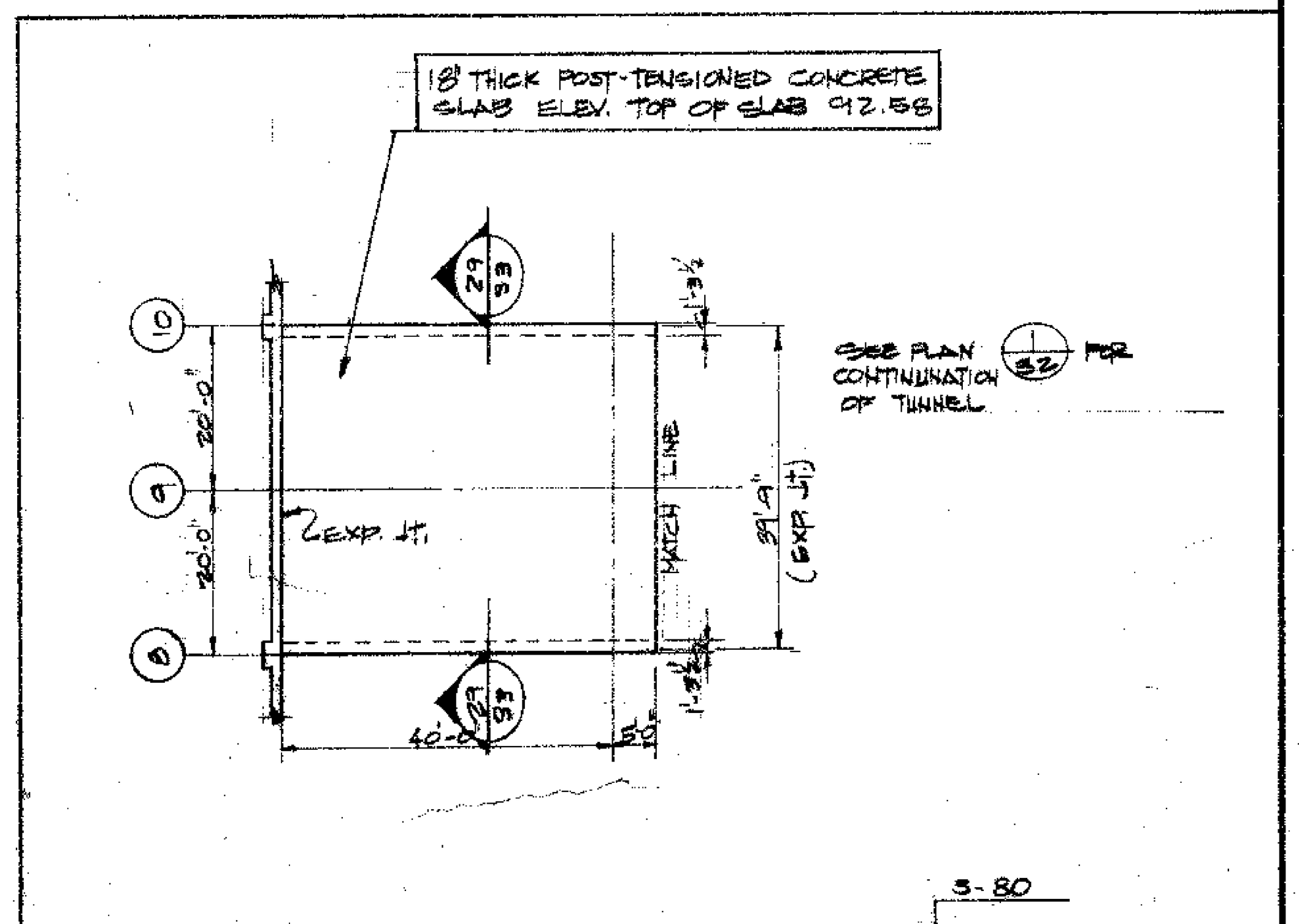
MAIN TERMINAL BUILDING
LOWER LEVEL PLAN
DRAWING NO. 6950-186

S7
SHEET OF

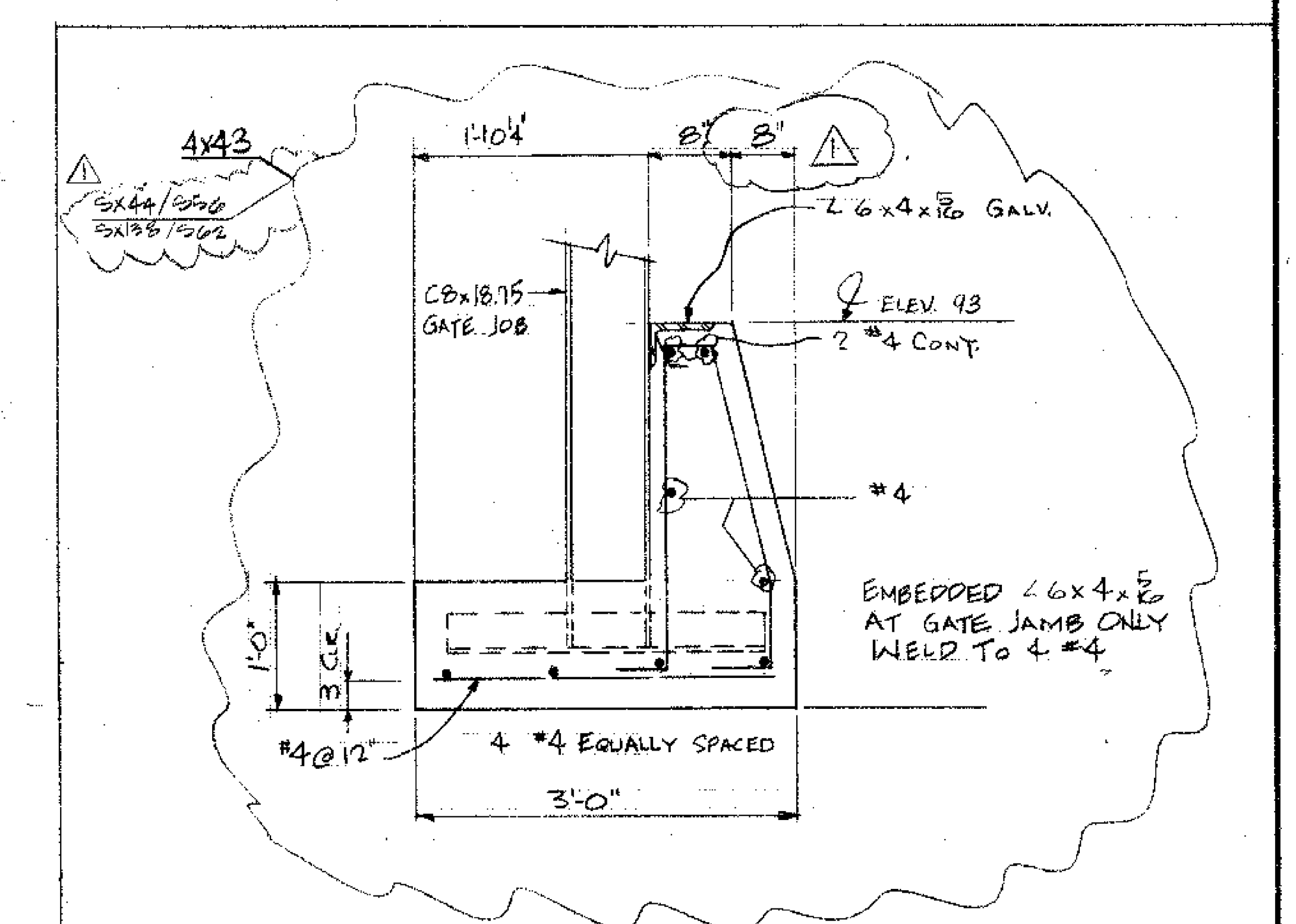


NOTES:

1. DESIGN LIVE LOAD ON FLOOR 100 PSF
2. CONCRETE:
   A. CONCRETE FOR ALL COLUMNS BETWEEN ELEVATIONS 94'-9 1/2" AND 110'-1 1/2" IS TO BE 4000 PSI HARD ROCK CONCRETE. (3-81)
   B. CONCRETE FOR ALL SLABS BEAMS & GIRDERS IS TO BE 4000 PSI LIGHT WEIGHT CONCRETE USING TYPE 'K' CEMENT. (3-82)
3. REINFORCING STEEL:
   SLAB, BEAM, GIRDERS ... f_y = 60,000 PSI
   COLUMNS ... f_y = 60,000 PSI
4. REFER TO SHEETS S-14 FOR SCHEDULES OF COLUMNS SHOWN.
5. REFER TO SHEETS S-18 FOR SCHEDULES OF BEAMS & GIRDERS.
6. REFER TO SHEET S-15 FOR SLAB SCHEDULE.
7. REFER TO ARCHITECTURAL PLANS FOR PRECAST PANEL ATTACHMENT DETAILS.
8. REFER TO M.E.P. SHEETS FOR SIZES AND LOCATIONS OF SLEEVED PENETRATIONS THROUGH SLAB
9. ELEVATOR OPENING DIMENSIONS SHOWN FOR BID PURPOSES ONLY. COORDINATE OPENING DIMENSIONS WITH DIMENSIONS OF EXACT ELEVATORS FURNISHED.
10. TENDONS IN SLAB WITH CLEAR SPAN LESS THAN 5'-0" SHALL HAVE NO DRAPE. THE TENDONS SHALL BE STRAIGHT BETWEEN END DRAPE POINTS OF ADJACENT SPANS.
11. #4 x 2'-0" DOWELS @ 1'-0" O.C. ALONG ALL EXPANSION JOINTS ON 8" SLAB ON GRADE.



PLAN OF TUNNEL ROOF @ ELEV. 93.50 — SCALE 1/8"=1'-0" — 4



SECTION — 3/4"=1'-0" — 1

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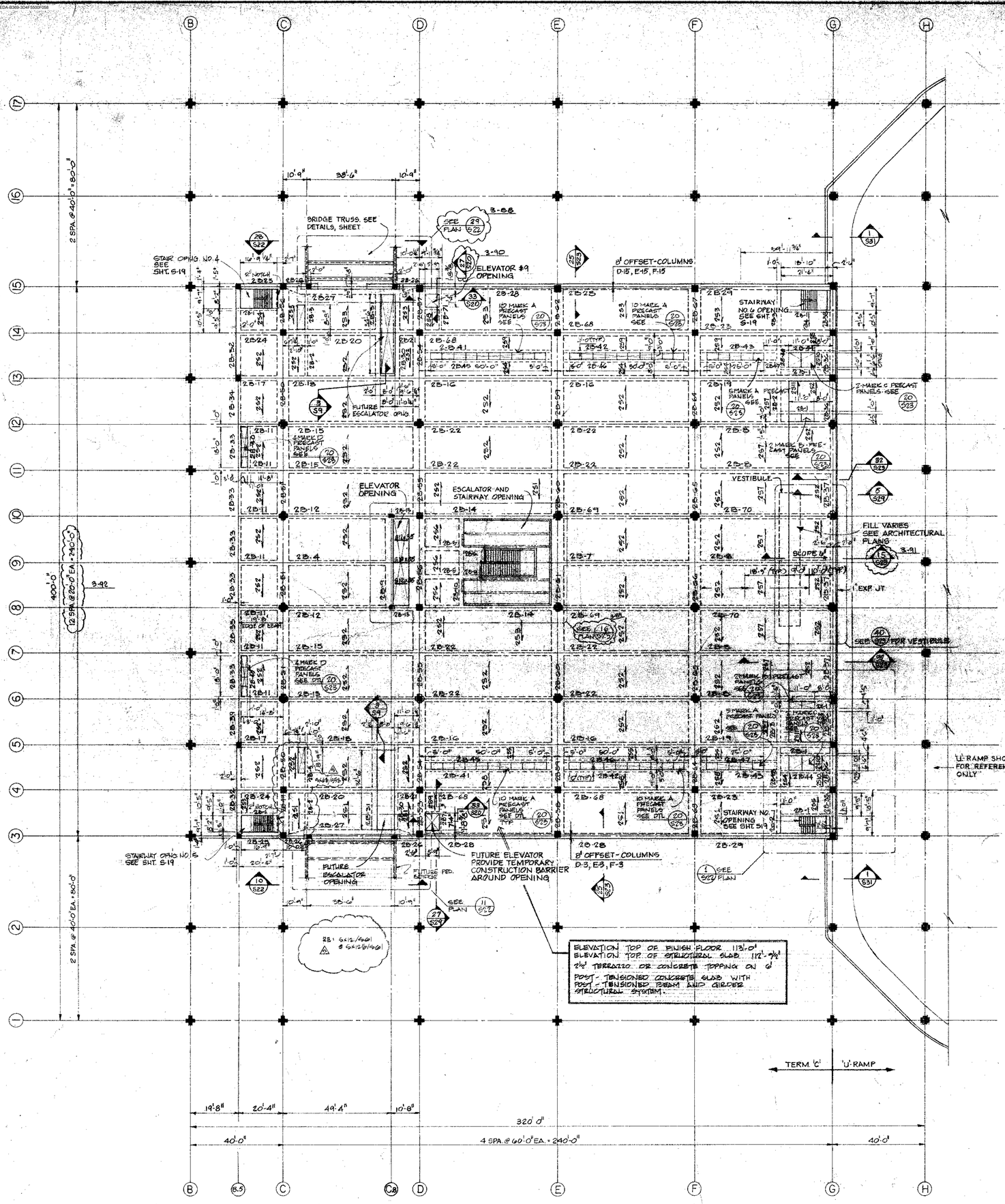
HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED: EXEC. AIRPORT ENG. DEPT. OF PUB. WKS. — APPROVED: DIRECTOR OF PUBLIC WORKS — APPROVED: DIRECTOR OF AVIATION — APPROVED: ASST. DIRECTOR DEPT. OF PUB. WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T. CHECKED R.L.H. DATE Aug 15, 1977	REVISIONS △ RECORD DRAWINGS 6-13-83	MAIN TERMINAL BUILDING GRADE LEVEL PLAN DRAWING NO. 6950-186	S8 SHEET OF



SECOND LEVEL PLAN

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

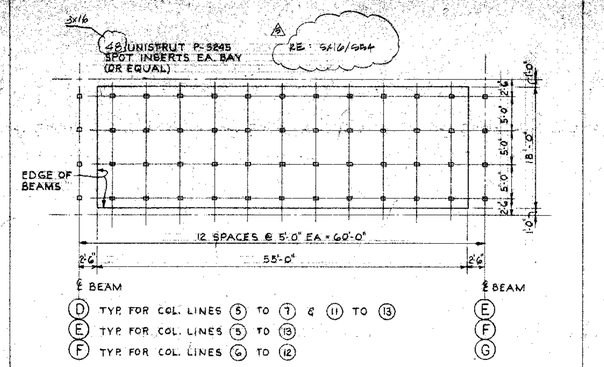
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

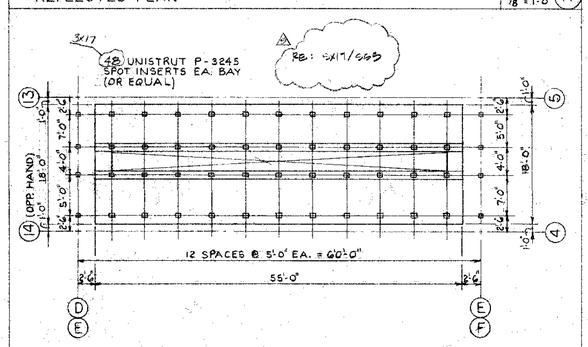
REVISIONS
ADD. #4 9-30-77
RECORD DRAWING 6-13-83

MAIN TERMINAL BUILDING
SECOND LEVEL PLAN
DRAWING NO. 6950-186

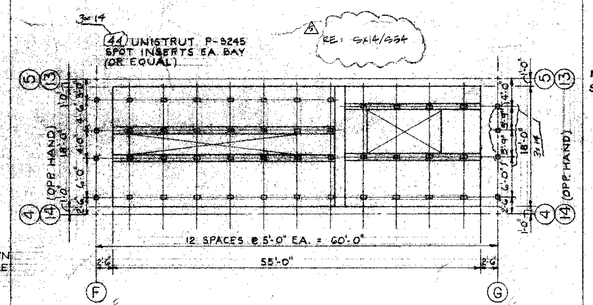
S9
SHEET OF



REFLECTED PLAN — SCALE: 1/8" = 1'-0" (11)

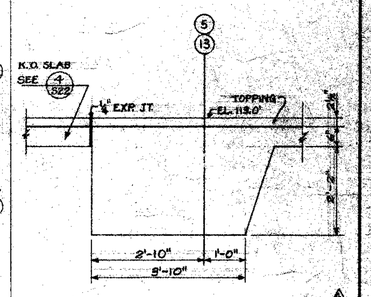


REFLECTED PLAN — SCALE: 1/8" = 1'-0" (10)



REFLECTED PLAN — SCALE: 1/8" = 1'-0" (9)

REFLECTED PLAN — SCALE: 1/8" = 1'-0" (7)



SECTION — SCALE: 3/4" = 1'-0" (3)

NOTES

1. DESIGN LIVE LOAD 100 P.S.F.
2. CONCRETE
   A. CONCRETE FOR ALL COLUMNS SHOWN ON THIS PLAN AND BETWEEN ELEV. 112-9½" TO 135'-0" TO BE 4000 PSI HARDROCK CONCRETE.
   B. CONCRETE FOR STRUCTURAL SLABS, BEAMS AND GIRDERS IS TO BE 4000 PSI LIGHTWEIGHT CONCRETE USING TYPE 'K' CEMENT.
3. REINFORCING STEEL
   A. SLAB, BEAM, GIRDER STEEL f_y = 60,000 PSI
   B. COLUMN STEEL f_y = 60,000 PSI
4. REFER TO SHEET S-14 FOR COLUMN SCHEDULES OF COLUMNS SHOWN BETWEEN ELEVATIONS 112'-9½" AND 135'-0".
5. REFER TO SHEET S-18 FOR BEAM DETAILS.
6. REFER TO SHEET S-15 FOR SLAB SCHEDULE.
7. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF PRECAST PANEL ATTACHMENT.
8. REFER TO PLUMBING AND MECHANICAL PLANS FOR PENETRATIONS THROUGH FLOOR SYSTEM.
9. ELEVATOR OPENING DIMENSION SHOWN FOR BID PURPOSES ONLY. COORDINATE OPENING DIMENSIONS WITH DIMENSIONS OF ELEVATORS FURNISHED.
10. TENDONS IN SLAB WITH CLEAR SPANS LESS THAN 5'-0" SHALL HAVE NO DRAPE. THE TENDONS SHALL BE STRAIGHT BETWEEN END DRAPE POINTS OF ADJACENT SPANS.
11. UNISTRUT ANCHORS SHALL BE MAINTAINED FOR USE WITH FUTURE CONVEYORS ONLY. USE BY OTHER TRADES SHALL NOT BLOCK USE FOR CONVEYORS.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

N

NOTES:

1. DESIGN LIVE LOAD = 50 P.S.F.
2. CONCRETE:
   A. CONCRETE FOR ALL COLUMNS SHOWN ON THIS PLAN BETWEEN ELEVATIONS 137'-7" TO 146'-5" IS TO BE 4000 PSI. HARDROCK
   B. CONCRETE FOR STRUCTURAL SLABS, BEAMS AND GIRDERS IS TO BE 4000 P.S.I. LIGHTWEIGHT CONCRETE USING TYPE 'K' CEMENT.
   C. CONCRETE FOR TOPPING SLABS IS TO BE 3000 PSI. LIGHTWEIGHT CONCRETE.
3. REINFORCING STEEL:
   A. SLAB, BEAM AND GIRDER STEEL TO BE f_y = 60,000 P.S.I.
   B. COLUMN STEEL TO BE f_y = 60,000 P.S.I.
4. REFER TO SHEET S14 FOR COLUMN SCHEDULE OF COLUMNS SHOWN BETWEEN ELEVATIONS 137'-7" TO 146'-5"
5. REFER TO SHEET S18 FOR BEAM DETAILS.
6. REFER TO SHEET S-15 FOR SLAB SCHEDULE.
7. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF PRECAST PANEL ATTACHMENT.
8. REFER TO PLUMBING AND MECHANICAL PLANS FOR PENETRATIONS THROUGH THE FLOOR SYSTEM.
9. ELEVATOR OPENING DIMENSIONS SHOWN FOR BID PURPOSES ONLY. CO-ORDINATE OPENING DIMENSIONS WITH DIMENSIONS OF ELEVATOR FURNISHED.
10. ALL STRUCTURAL STEEL NOT SHOWN ON THESE PLANS, BUT REQUIRED TO SUCCESSFULLY COMPLETE THE WORK OF THE ELEVATOR CONTRACT, SUCH AS SHEAVE BEAMS, COUNTERWEIGHT SUPPORTS AND ANY OTHER ITEM SHALL BE FURNISHED BY THE ELEVATOR SUBCONTRACTOR.

LIGHTWEIGHT CONCRETE TOPPING SLAB OVER WATER-PROOF MEMBRANE. ELEVATION OF TOPPING SLAB VARIES. REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS. STRUCTURAL SYSTEM IS 6" POST-TENSIONED CONCRETE SLAB WITH BEAMS AND GIRDERS.

ELEVATION TOP OF STRUCTURAL SLAB 137'-7"

* ALL BEAMS 32" DEEP

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED Exec. Airport Bur. Dept. of Pub. Wks.
APPROVED Director of Public Works
APPROVED Director of Aviation
APPROVED Director Dept. of Pub. Wks.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

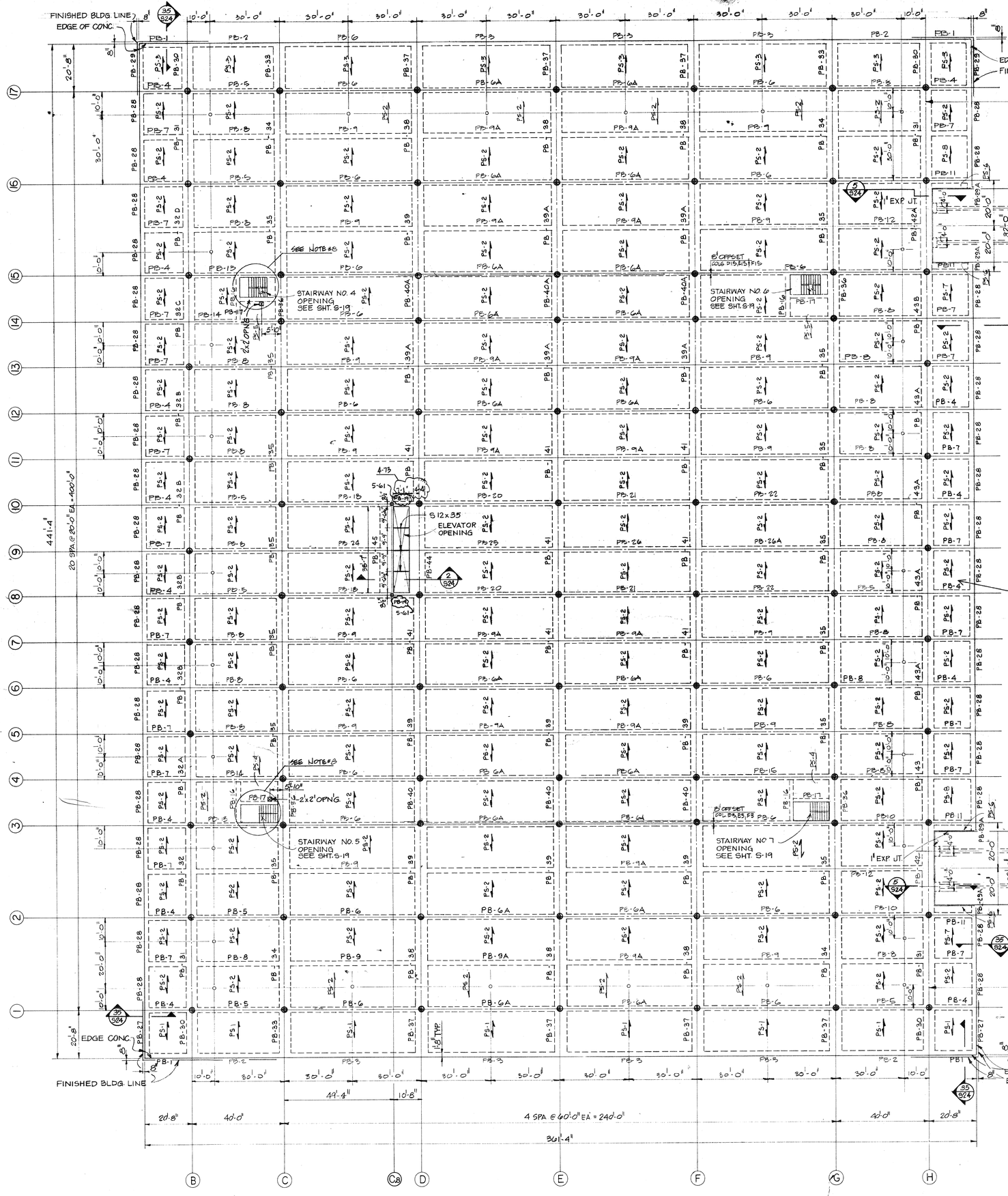
LOWER LEVEL PARKING PLAN — SCALE: 1/16 = 1'-0"

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

REVISIONS

MAIN TERMINAL BUILDING
LOWER PARKING LEVEL PLAN
DRAWING NO. 6950-186

SHEET S11 OF

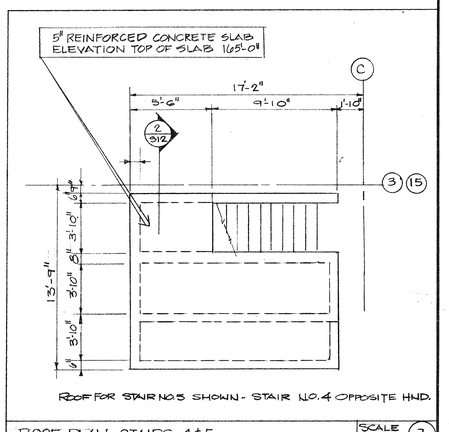


NOTES:

1. DESIGN LIVE LOAD = 50 P.S.F.
2. CONCRETE:
   A. CONCRETE FOR ALL COLUMNS SHOWN ON THIS PLAN BETWEEN ELEVATIONS 149'-1" TO 157'-11" IS TO BE 4000 P.S.I. HARDROCK.
   B. CONCRETE FOR STRUCTURAL SLABS, BEAMS AND GIRDERS IS TO BE 4000 P.S.I. LIGHTWEIGHT CONCRETE USING TYPE 'K' CEMENT.
   C. CONCRETE FOR TOPPING SLABS IS TO BE 3000 P.S.I. LIGHTWEIGHT CONCRETE.
3. REINFORCING STEEL:
   A. SLAB, BEAM AND GIRDER STEEL TO BE f_y = 60,000 P.S.I.
   B. COLUMN STEEL TO BE f_y = 60,000 P.S.I.
4. REFER TO SHEET S14 FOR COLUMN SCHEDULE OF COLUMNS SHOWN BETWEEN ELEVATIONS 149'-1" TO 157'-11".
5. REFER TO SHEET S18 FOR BEAM DETAILS.
6. REFER TO SHEET S-15 FOR SLAB SCHEDULE.
7. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF PRECAST PANEL ATTACHMENT.
8. REFER TO PLUMBING AND MECHANICAL PLANS FOR PENETRATIONS THROUGH THE FLOOR SYSTEM.
9. ELEVATOR OPENING DIMENSIONS SHOWN FOR BID PURPOSES ONLY. COORDINATE OPENING DIMENSIONS WITH DIMENSIONS OF ELEVATOR FURNISHED.
10. ALL STRUCTURAL STEEL NOT SHOWN ON THESE PLANS BUT REQUIRED TO SUCCESSFULLY COMPLETE THE WORK OF THE ELEVATOR CONTRACT, SUCH AS SHEAVE BEAMS, COUNTERWEIGHT SUPPORTS AND ANY OTHER ITEM SHALL BE FURNISHED BY THE ELEVATOR SUBCONTRACTOR.

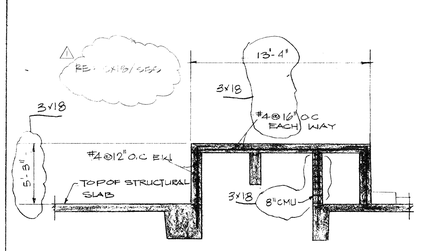
LIGHTWEIGHT CONCRETE TOPPING SLAB OVER WATERPROOF MEMBRANE. ELEVATION OF TOPPING SLAB VARIES. REFER TO ARCHITECTURAL PLANS FOR ELEVATIONS. STRUCTURAL SYSTEM IS 6" POST-TENSIONED CONCRETE SLAB WITH BEAMS AND GIRDERS.

ELEVATION TOP OF STRUCTURAL SLAB 149'-1"

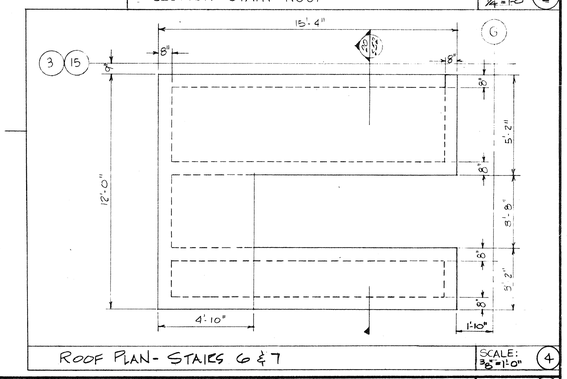


ROOF FOR STAIR NO.5 SHOWN - STAIR NO.4 OPPOSITE HND.

ROOF PLAN - STAIRS 4 & 5 — SCALE 1/4"=1'-0" (3)



SECTION STAIR ROOF — SCALE 1/4"=1'-0" (2)



ROOF PLAN - STAIRS 6 & 7 — SCALE: 3/8"=1'-0" (4)

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED: EXEC. AIRPORT ENG'R DEPT OF PUB WKS. — DIRECTOR OF PUBLIC WORKS — DIRECTOR OF AVIATION — ASST. DIRECTOR DEPT OF PUB WKS

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER COLLIE & BRADEN, INC.

INTERMEDIATE PARKING LEVEL PLAN — SCALE: 1/8"=1'-0" (1)

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

REVISIONS
△ ADDENDUM ONE THRU SEVEN

MAIN TERMINAL BUILDING
INTERMEDIATE
PARKING LEVEL PLAN

S12
SHEET OF

DRAWING NO. 6950-186

NOTES:

1. DESIGN LIVELOAD 50 PSF
2. CONCRETE:
   A. CONCRETE FOR COLUMNS SHOWN IS TO BE 4000 PSI HARDROCK CONCRETE.
   B. CONCRETE FOR STRUCTURAL SLABS, BEAMS AND GIRDERS IS TO BE 4000 PSI LIGHTWEIGHT CONCRETE USING TYPE K CEMENT.
   C. CONCRETE FOR TOPPING SLABS IS TO BE 3000 PSI LIGHTWEIGHT CONCRETE.
3. REINFORCING STEEL:
   SLAB, BEAM AND GIRDER STEEL —— f_y = 60,000 PSI
   COLUMN STEEL f_y = 60,000 PSI
4. REFER TO SHEET S14 FOR COLUMN SCHEDULE OF COLUMNS SHOWN BETWEEN ELEVATIONS 160'-7" TO 177'-10"
5. REFER TO SHEET S-18 FOR BEAM DETAILS.
6. REFER TO SHEET S-15 FOR SLAB SCHEDULE
7. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF PRECAST PANEL ATTACHMENT.
8. REFER TO MECHANICAL & PLUMBING PLANS FOR PENETRATIONS THROUGH THE FLOOR SYSTEM.
9. ELEVATOR OPENING DIMENSIONS SHOWN FOR BID PURPOSES ONLY. COORDINATE OPENING DIMENSIONS WITH DIMENSIONS OF ELEVATORS FURNISHED.
10. ALL STRUCTURAL STEEL NOT SHOWN ON THESE PLANS, BUT REQUIRED TO SUCCESSFULLY COMPLETE THE WORK OF THE ELEVATOR CONTRACT, SUCH AS SHEAVE BEAMS COUNTERWEIGHT SUPPORTS, AND ANY OTHER ITEM SHALL BE FURNISHED BY THE ELEVATOR SUB CONTRACTOR.

LIGHTWEIGHT CONCRETE TOPPING SLAB OVER WATERPROOF MEMBRANE
ELEVATION TOP OF TOPPING SLAB VARIES REFER TO ARCHITECTURAL PLANS FOR ELEV.
STRUCTURAL SYSTEM IS 6" POST-TENSIONED CONCRETE SLAB WITH BEAMS AND GIRDERS
ELEVATION TOP OF STRUCTURAL SLAB
160'-7"

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

N

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED: ASST. AIRPORT ENG. DEPT OF PUB WKS. · APPROVED: DIRECTOR OF PUBLIC WORKS · APPROVED: DIRECTOR OF AVIATION · APPROVED: ASST. DIRECTOR DEPT OF PUB WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

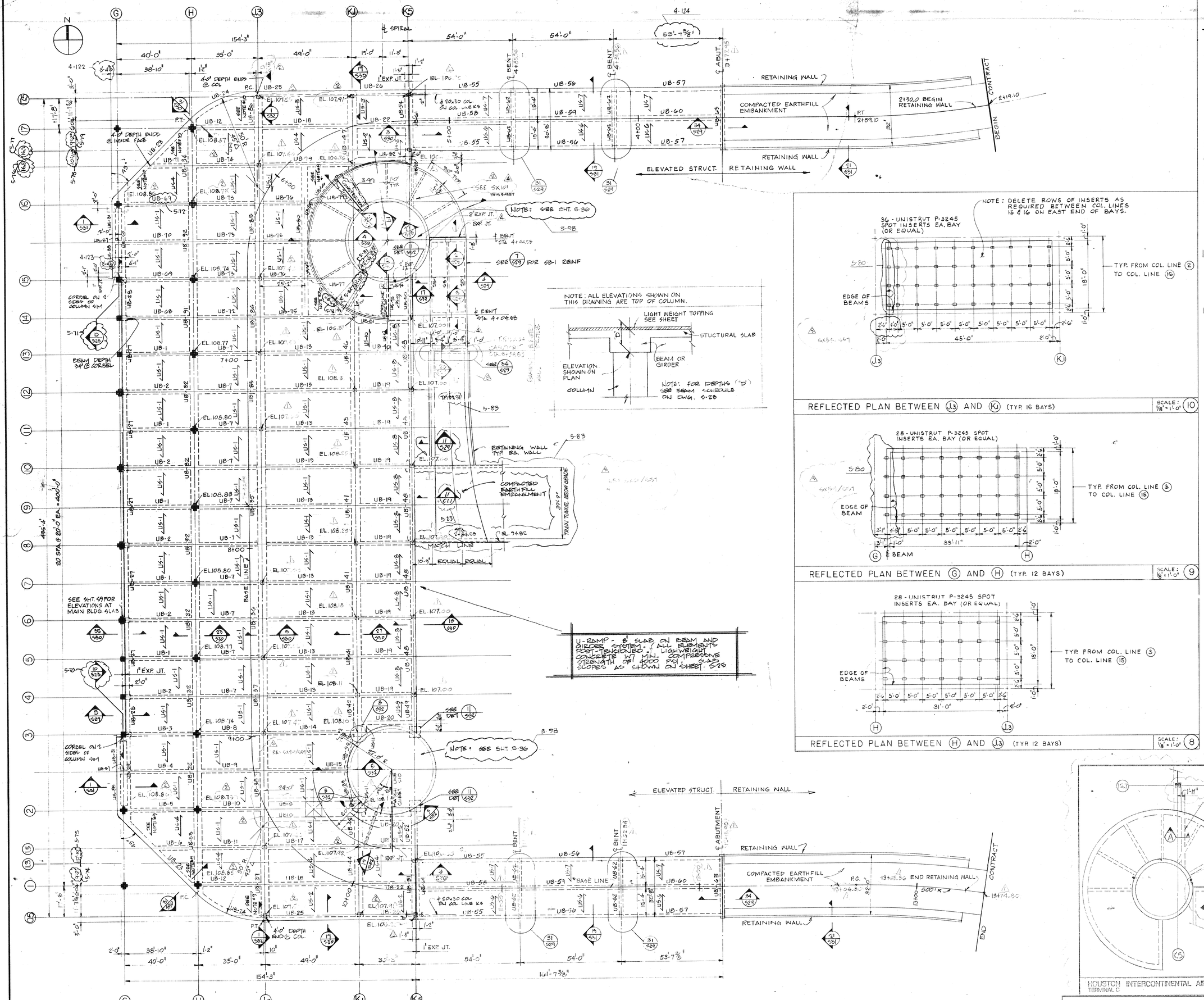
ROOF PARKING LEVEL PLAN — SCALE: 1/16"=1'-0" (1)

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

REVISIONS
⚠1 1-19-79 ROOF DRAIN LOCATIONS
⚠2 RECORD DRAWING, C.O.B.R.

MAIN TERMINAL BUILDING
ROOF PARKING LEVEL PLAN
DRAWING NO. 6950-186

S13
SHEET OF



NOTE: ALL ELEVATIONS SHOWN ON THIS DRAWING ARE TOP OF COLUMN.

NOTE: FOR DEPTHS ("D") SEE BEAM SCHEDULE ON DWG. S-28

U-RAMP - 8" SLAB ON BEAM AND GIRDER SYSTEM. (ALL ELEMENTS POST-TENSIONED.) LIGHWEIGHT CONCRETE W/ MIN. COMPRESSIVE STRENGTH OF 4000 PSI. SLAB SLOPES AS SHOWN ON SHEET S-25

REFLECTED PLAN BETWEEN (J3) AND (K1) (TYP. 16 BAYS)

SCALE: 1/8" = 1'-0" ⑩

REFLECTED PLAN BETWEEN (G) AND (H) (TYP. 12 BAYS)

SCALE: 1/8" = 1'-0" ⑨

REFLECTED PLAN BETWEEN (H) AND (J3) (TYP. 12 BAYS)

SCALE: 1/8" = 1'-0" ⑧

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN DECEMBER 16, 1977.

DETAIL OF ADDITIONAL SUPPORT BEAM

#746-1-105-000 NO SCALE △4

HOUSTON INTERCONTINENTAL AIRPORT TERMINAL C — AIRPORT ARCHITECTS GOLEMON & ROLFE AND PIERCE, GOODWIN, ALEXANDER — ENGINEERS OF THE SOUTHWEST LOCKWOOD, ANDREWS, & NEWNAM, INC. BOVAY ENGINEERS, INC. TURNER, COLLIE, & BRADEN, INC. — DRAWN BR CHECKED AMS. DATE 11-10-78 — SX101

NOTES:

1. DESIGN LIVE LOAD ON FLOOR 150 PSF OR BUS LOADS.
2. CONCRETE:
   A. CONCRETE FOR ALL COLUMNS BETWEEN ELEVATIONS AND IS TO BE 4000 PSI
   B. CONCRETE FOR ALL SLAB BEAMS & GIRDERS IS TO BE 4000 PSI LIGHTWEIGHT CONCRETE USING TYPE "K" CEMENT.
3. REINFORCING STEEL:
   SLAB, BEAM GIRDERS fy = 60,000 PSI
   COLUMNS fy = 60,000 PSI
4. REFER TO SHEETS S14, S15 AND S27 FOR SCHEDULES OF COLUMNS SHOWN.
5. REFER TO SHEETS S17, S18 AND S28 FOR SCHEDULES OF BEAMS AND GIRDERS.
6. REFER TO SHEET S27 FOR SLAB SCHEDULE.
7. REFER TO SHEETS S20 FOR PRECAST PANEL ATTACHMENT DETAILS.
8. REFER TO M.E.P. SHEETS FOR SIZES AND LOCATIONS OF SLEEVED PENETRATIONS THROUGH SLAB.
9. CLEAR SPANS TO 4'-0" SHALL BE MARK US-12 SLABS.
   CLEAR SPANS FROM 4'-0" TO 8'-0" SHALL BE MARK US-13 SLABS.
   CLEAR SPANS FROM 8'-0" TO 14'-0" SHALL BE MARK US-14 SLABS.
   CLEAR SPANS FROM 14'-0" TO 18'-0" SHALL BE MARK US-2 SLABS.
10. CLEAR SPANS TO 4'-0" SHALL BE MARK US-15 SLABS.
    CLEAR SPANS FROM 4'-0" TO 8'-0" SHALL BE MARK US-16 SLABS.
    CLEAR SPANS FROM 8'-0" TO 14'-0" SHALL BE MARK US-17 SLABS.
    CLEAR SPANS FROM 14'-0" TO 18'-0" SHALL BE MARK US-3 SLABS.
11. ALL 48" DEEP BEAMS SHALL HAVE 3-#4 EQUALLY SPACED ON EACH SIDE OF BEAM

U-RAMP PLAN

SCALE: 1/16" = 1'-0" ①

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED Ross F. Jarvis EXEC. AIRPORT ENG. DEPT. OF PUB. WKS.
APPROVED E.B. DIRECTOR OF PUBLIC WORKS
APPROVED DIRECTOR OF AVIATION
APPROVED ASST. DIRECTOR DEPT. OF PUB. WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

REGISTERED ARCHITECT STATE OF TEXAS

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

REVISIONS
△1 AS NTD. 9-12-78 BK.
△2 AS NTD. 11-16-78 BK./AMS.
△3 MOVE ABUTMENT @ (12) 11-30/BK
△4 AS NTD 7-25-79 AB

U-RAMP

STRUCTURAL PLAN

DRAWING NO. 6950-186

S26

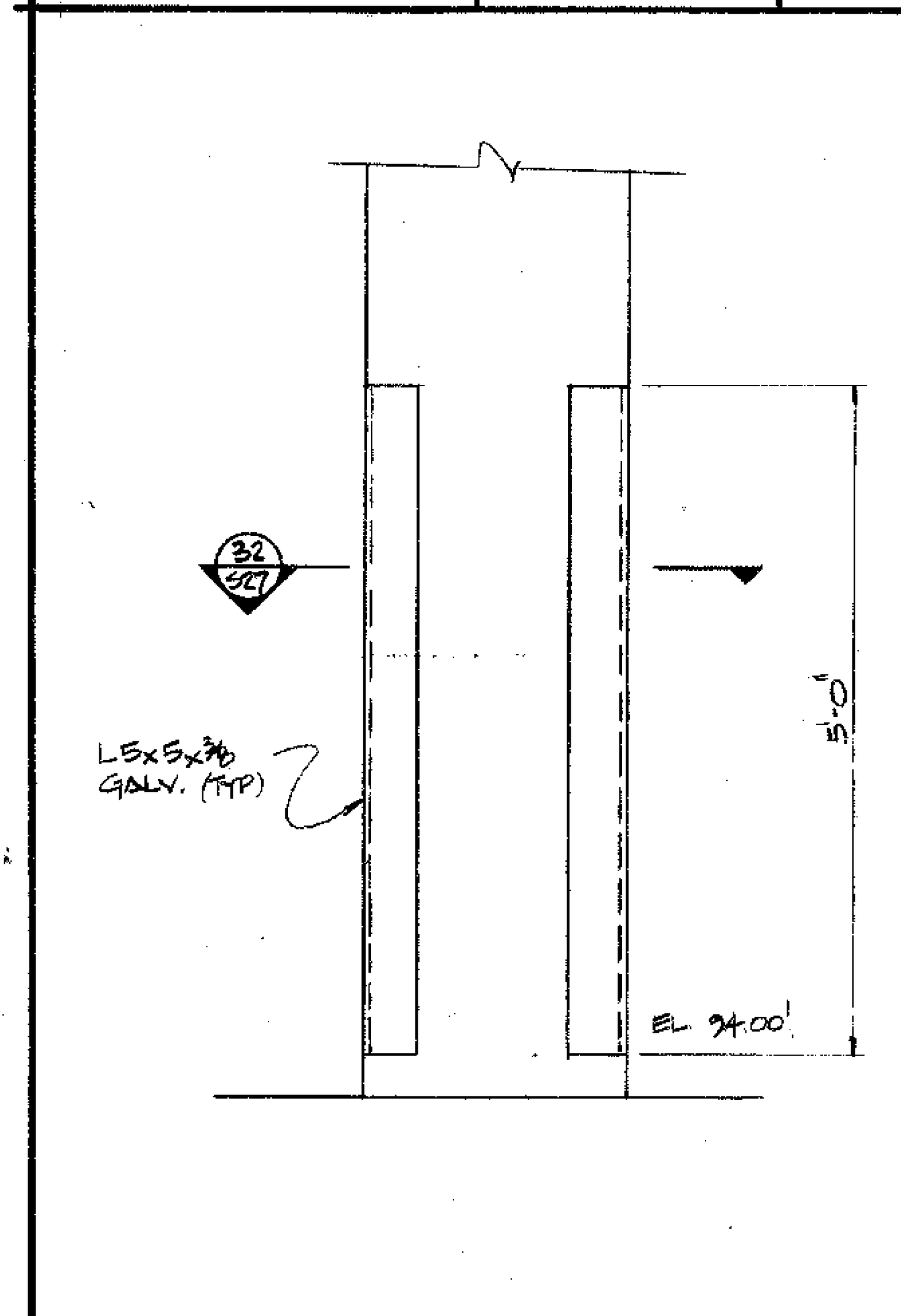
SHEET OF

△5 RECORD DRAWINGS 6-12-82

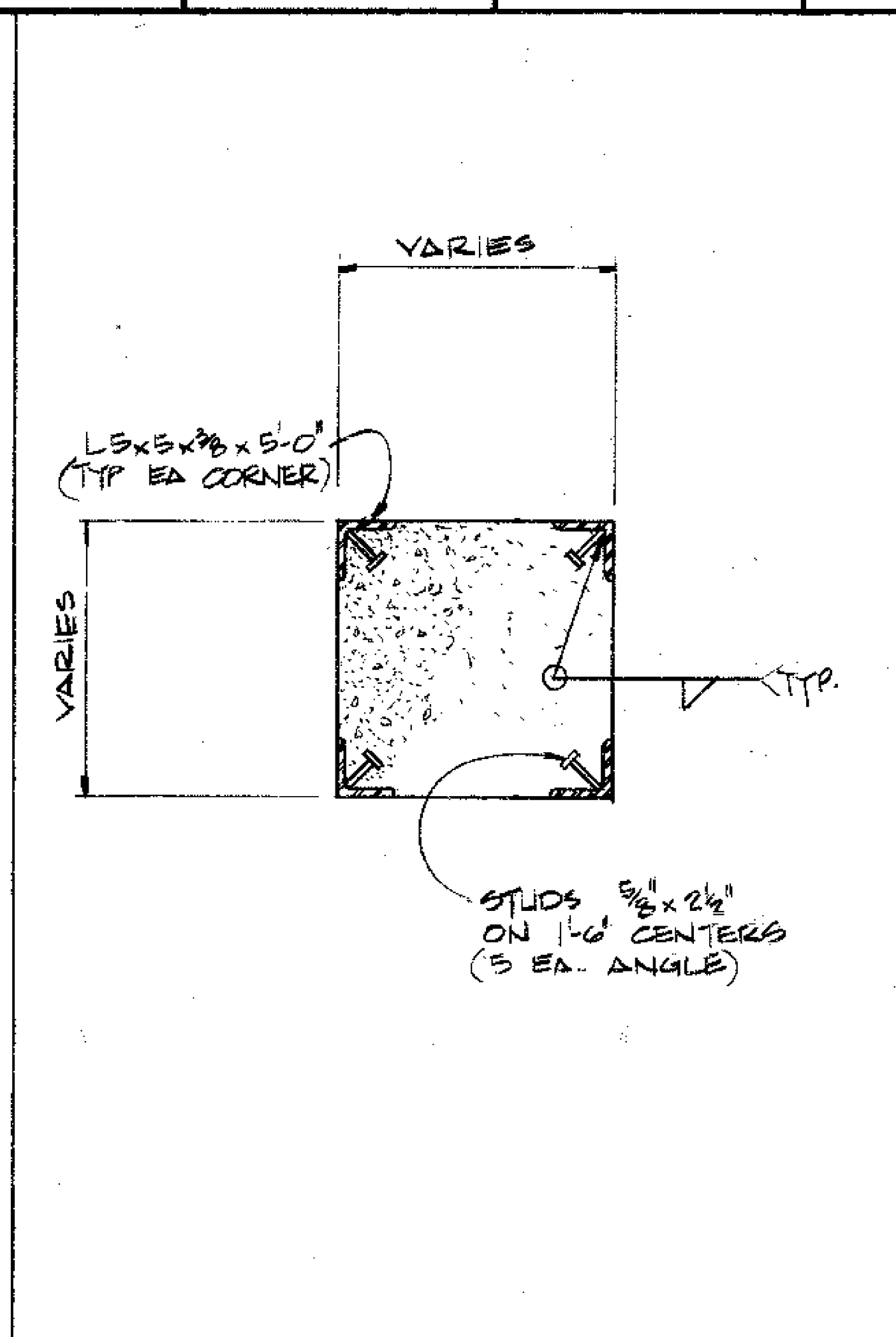
20

"U" – RAMP

MARK NUMBER	J.1-0.5, K.1-0.5, J.1-17.5, K.1-17.5	J.1-1.5, J.1-16.5	J.1-3.0, J.1-15.0	J.1-5.0, J.1-13.0	J.1-7.0, J.1-11.0	K.1-1.5, K.1-4.0, K.1-14.0, K.1-16.5	K.1-6.0, K.1-8.0, K.1-10.0, K.1-12.0	K.5-0.5, K.5-17.5, K.5-1.3, K.5-16.7	K.5-4.0, K.5-6.0, K.5-8.0, K.5-10.0, K.5-12.0, K.5-14.0
(COLUMN SIZE / MAIN REINF. / TIES / SECTION / REMARKS)									
SECOND LEVEL EL. 113'-0"									
GRADE LEVEL EL. 93'-0"	24"x24" / 8-#8 / #3 @ 18" / TYPE "A"	26"x26" / 8-#11 / #4 @ 22" / TYPE "A"	26"x26" / 8-#11 / #4 @ 22" / TYPE "A"	26"x26" / 8-#9 / #3 @ 18" / TYPE "A"	26"x26" / 20-#11 / #4 @ 22" / TYPE "C"	24"x24" / 8-#8 / #3 @ 18" / TYPE "A"	24"x24" / 8-#8 / #3 @ 18" / TYPE "A"	20"x30" / 16-#11 / #4 @ 20" / TYPE "F"	20"x30" / 12-#11 (4E) / #3 @ 18" / TYPE "E"
BOT. OF FTG. EL. 80'-0" UNLESS NOTED	BOT. OF FTG. EL. 69'-0" J.1-0.5, J.1-17.5 ONLY	BOT. OF FTG. EL. 69'-0"			BOT. OF FTG. EL. 69'-0"		BOT. OF FTG. EL. 69'-0" K.1-8.0, K.1-10.0 ONLY	4x49 5x49/657 ⚠	BOT. OF FTG. EL. 69'-0" K.5-8.0, K.5-10.0 ONLY
PEDESTAL SIZE	24" x 24"	26" x 26"	26" x 26"	26" x 26"	26" x 26"	24" x 24"	24" x 24"	20" x 30"	20" x 30"
PEDESTAL TYPE	A	A	A	A	C	A	A	F	E
PEDESTAL REINF.	8-#9 (4-125)	8-#11	8-#11	8-#9	20-#11	8-#9 (4-125)	8-#9 (4-125)	16-#10 (6L-4S)	12-#11 (4E)
PEDESTAL TIES	#3@18"	#4@22"	#4@22"	#3@18"	#4@22"	#3@18"	#3@18"	#3@18"	#4@20" (4-126)
FOOTING WIDTH (W)	9'-0"	13'-0"	13'-0"	11'-0"	15'-0"	11'-0"	11'-0"	11'-0"	9'-0"
FOOTING LENGTH (L)	9'-0"	13'-0"	13'-0"	11'-0"	15'-0"	11'-0"	11'-0"	11'-0"	9'-0"
FOOTING THICKNESS (T)	2'-6"	3'-5"	3'-5"	2'-11"	3'-10"	2'-11"	2'-11"	2'-11"	2'-6"
BOTTOM REINF. "A"	#8@14½"	#10@16½"	#10@16½"	#9@16"	#11@17"	#9@16"	#9@16"	#9@16"	#8@14½"
BOTTOM REINF. "B"	#8@14½"	#10@16½"	#10@16½"	#9@16"	#11@17"	#9@16"	#9@16"	#9@16"	#8@14½"
TOP REINF. "A"	#5@11"	#6@12"	#6@12"	#5@10"	#6@10"	#5@10"	#5@10"	#5@10"	#5@11"
TOP REINF. "B"	#5@11"	#6@12"	#6@12"	#5@10"	#6@10"	#5@10"	#5@10"	#5@10"	#5@11"
COLUMN PROTECTION	YES	YES	YES	YES	YES	YES	YES	NO	NO
SEE 38/S27									



TYPICAL COLUMN PROTECTION 1"=1'-0" (38)



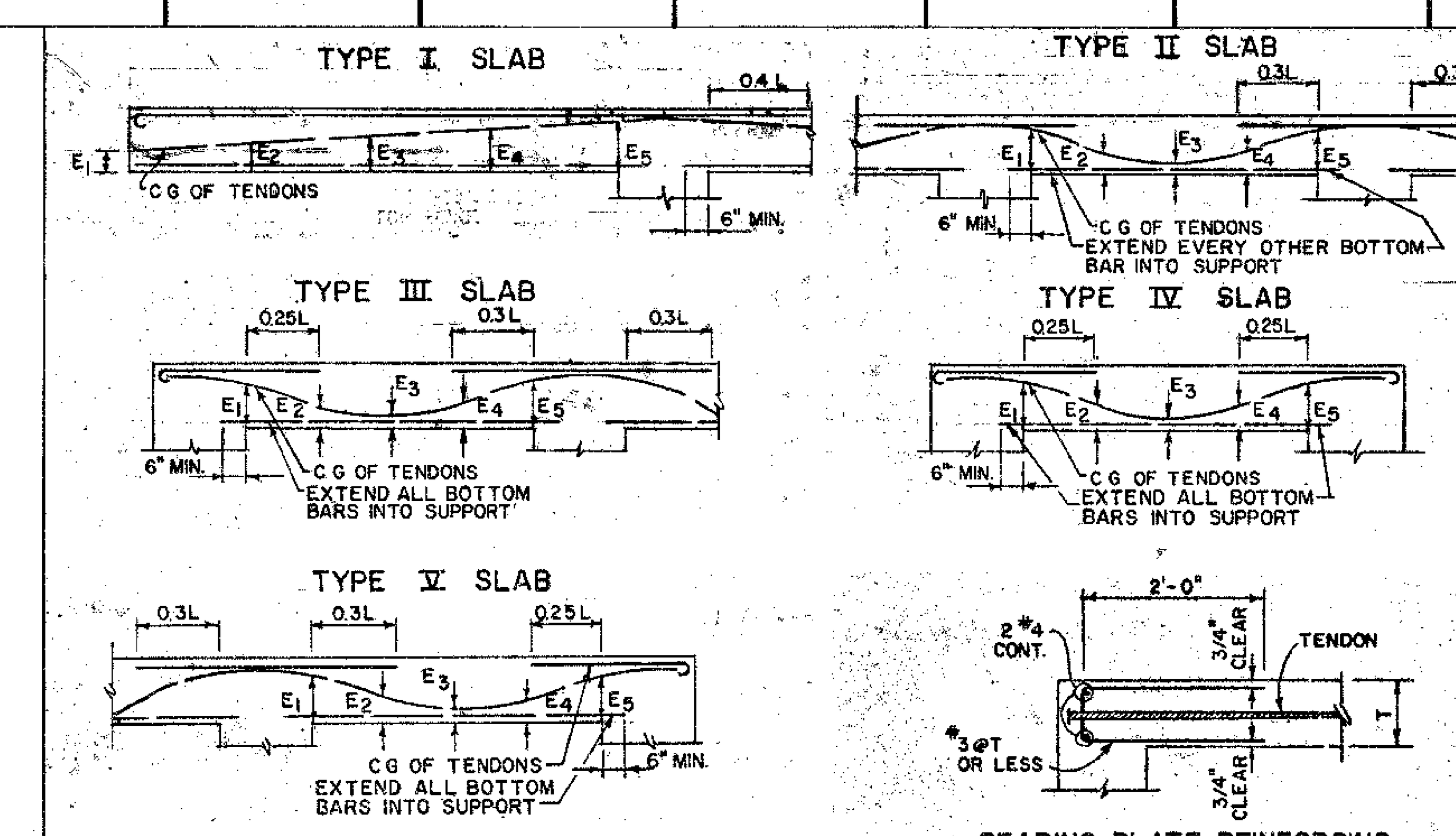
SECTION COLUMN PROTECTION (32)

GENERAL NOTES
1. SEE NOTES ON SHEET S-14
2. ALL BARS SHALL BE LAPPED AS SHOWN BELOW.
#9 - 4'-3"
#11 - 6'-3"

⚠ 5x49/657
4x49

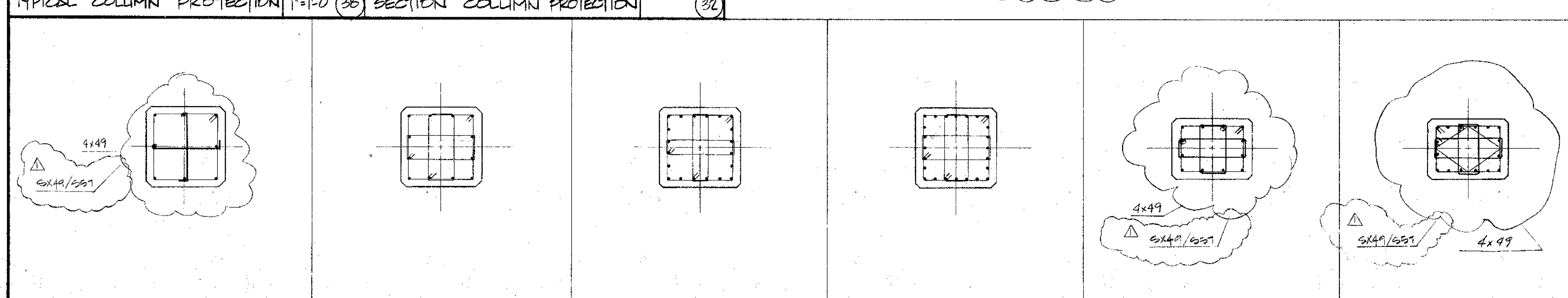
4-127

NOTE:
1. SEE POST-TENSIONED SLAB SCH. NOTES ON S-39



SLAB SCHEDULE

SLAB MARK NUMBER	T (INCHES)	SLAB TYPE	MINIMUM EFFECTIVE PRESTRESS FORCE (KIPS/FT. OF WIDTH)	E (INCHES)					BONDED REINFORCING			TEMPERATURE PRESTRESS (KIPS/FT. OF WIDTH)	REMARKS
				E_1	E_2	E_3	E_4	E_5	TOP	BOT.	DISCONT. TOP		
US-1	8	II	21.0	6⅝	2½	1	2½	6⅝	#4@12	#4@12	—	—	EVERY THIRD BOTTOM BAR IS CONTINUOUS
US-2	8	III	23.5	3⅞	1½	1	3	6⅝	#4@8	#4@8	—	—	EVERY OTHER BOTT. BAR IS CONTINUOUS E_3 IS .4L FROM LEFT
US-3	8	V	23.5	6⅝	3	1	1½	3⅞	#4@8	#4@8	—	—	EVERY OTHER BOTT. BAR IS CONTIN. E_3 IS .4L FROM RIGHT
US-4	8	II	21.0	6⅝	2½	1	2½	6⅝	#4@8	#4@8	—	—	EVERY OTHER BOTT. BAR IS CONTINUOUS
US-5	8	V	21.0	6¾	3	1⅛	1½	3⅞	#4@8	#4@8	—	—	EVERY OTHER BOTT. BAR IS CONTINUOUS
US-6	8	III	23.3	3¾	1⅜	1	3	6½	#4@6	#4@12	—	—	EVERY OTHER BOTT BAR IS CONTINUOUS. E_3 IS AT .4L FROM LEFT.
US-7	8	V	23.3	6½	3	1	1⅜	3¾	#4@6	#4@12	—	—	EVERY OTHER BOTT. BAR IS CONTINUOUS. E_3 IS AT .4L FROM RIGHT
US-8	8	II	14.4	6⅝	2½	1	2½	6⅝	#4@8	#4@12	—	—	—
US-9	8	III	21.0	3⅞	1½	1	3	6¾	#4@8	#4@12	—	—	E_3 IS .4L FROM LEFT.
US-10	8	V	21.0	6⅝	4	3	4	6⅝	#4@8	#4@12	—	—	—
US-11	10	I	21.0	5	5⅛	5⅜	5⅝	5⅞	#4@8	#4@12	-	—	—
US-12	8	III	21.0	4⅛	4¾	5⅜	6⅛	6¾	#4@8	#4@8	-	-	SEE NOTE 9 ON S-26
US-13	8	III	21.0	3⅞	3¼	3⅛	4⅞	6¾	#4@8	#4@8	—	—	"
US-14	8	III	21.0	3⅞	1½	1⅛	3	6⅝	#4@8	#4@8	—	—	"
US-15	8	V	21.0	6¾	6⅛	5⅜	4¾	4⅛	#4@8	#4@8	—	—	SEE NOTE 10 ON S-26
US-16	8	V	21.0	6¾	4⅞	3⅛	3	3⅞	#4@8	#4@8	-	—	"
US-17	8	V	21.0	6⅝	3	1⅛	1½	3⅞	#4@8	#4@8	—	—	"



TYPE "A" TYPE "B" TYPE "C" TYPE "D" TYPE "E" TYPE "F"

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

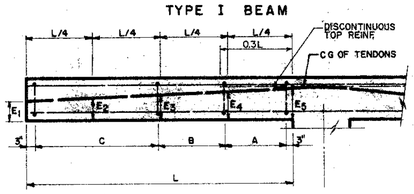
DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

REVISIONS
⚠ RECORD DRAWINGS, 6-13-83

U-RAMP
COL. & FTG. SCHEDULE

S27
SHEET OF
DRAWING NO. 6950-126

TYPE I BEAM



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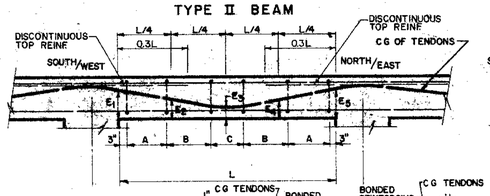
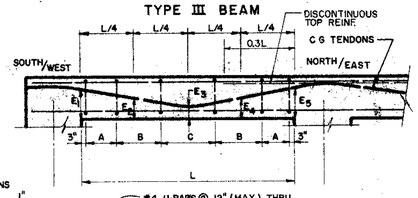
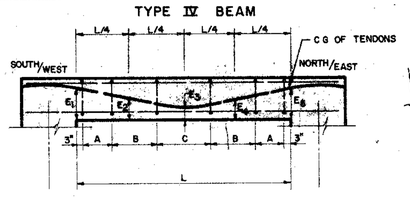


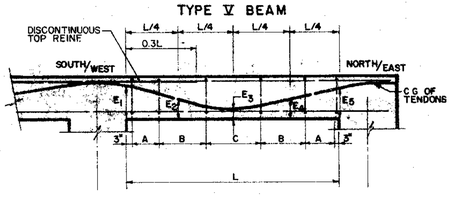
TYPE III BEAM

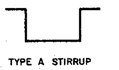


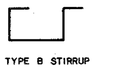
TYPE IV BEAM

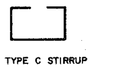


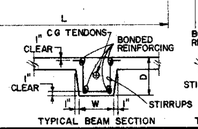
TYPE V BEAM



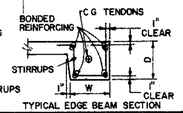




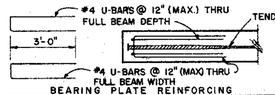




TYPICAL BEAM SECTION



TYPICAL EDGE BEAM SECTION



BEARING PLATE REINFORCING

NOTE:
1. SEE POST-TENSIONED BEAM SCHEDULE NOTES ON S-45

4-129

BEAM MARK NUMBER	BEAM TYPE	SIZE (INCHES) W	SIZE (INCHES) D	MINIMUM EFFECTIVE PRESTRESS FORCE (KIPS)	E (INCHES) E1	E2	E3	E4	E5	BONDED REINFORCING TOP	BOT.	DIS-CONT. TOP	STIRRUPS NO.	SIZE	TYPE	SPACING A	B	C	REMARKS
UB-1	III	24	34	514	25½	16¾	13½	17¾	28⅛	6-#10	3-#9	—	18	#3	A	8@24	—	—	2-#9 CONTINUOUS ON BOTT.- EAST END
UB-2	III	24	34	514	25½	16	12⅜	16⅞	28⅛	6-#10	4-#9	—	18	#3	A	8@24	—	—	〃 〃 〃
UB-3	III	24	34	570	25⅜	17⅜	14¾	18⅝	28¼	6-#10	3-#9	—	18	#3	A	8@24	—	—	〃 〃 〃
UB-4	III	24	34	514	24½	21	17⅝	21¼	30⅜	6-#10	4-#9	—	18	#3	A	8@24	—	—	——
UB-5	III	24	34	588	22⅝	14½	12⅜	17¾	28¼	6-#10	3-#9	—	18	#3	A	8@24	—	—	2-#9 CONTINUOUS ON BOTT.- EAST END
UB-6	III	24	34	514	25½	22⅜	22	24½	29⅜	6-#10	3-#9	—	12	#3	A	5@24	—	—	——
UB-7	II	24	34	514	28¼	19⅞	16¾	19⅞	28¼	6-#10	3-#9	—	16	#3	A	7@24	—	—	2-#9 CONTINUOUS ON BOTT.- BOTH ENDS
UB-8	II	24	34	570	28¼	20½	17⅜	20½	28¼	6-#10	3-#9	—	16	#3	A	7@24	—	—	〃 〃 〃
UB-9	II	24	34	514	30¾	22½	19½	22½	30¾	6-#10	6-#9	—	16	#3	A	7@24	—	—	6-#9 CONTINUOUS ON BOTT.- EAST END
UB-10	II	24	34	588	28¼	20½	17⅝	20½	28¼	6-#10	3-#9	—	16	#3	A	7@24	—	—	3-#9 CONTINUOUS ON BOTT.- EAST END
UB-11	II	24	34	514	29¾	21¾	18⅝	21¾	29¾	6-#10	3-#9	—	16	#3	A	7@24	—	—	2-#9 CONTINUOUS ON BOTT.- EAST END
UB-12	III	24	34	501	25	17⅜	15⅛	19⅛	28⅛	6-#10	3-#9	—	16	#3	A	7@24	—	—	3-#9 CONTINUOUS ON BOTT.- EAST END
UB-13	II	24	34	514	28¼	11⅜	4¾	11⅜	28¼	6-#10	4-#9	—	23	#3	A	11@24	—	—	3-#9 CONTINUOUS ON BOTT.- BOTH ENDS
UB-14	V	24	34	570	28¼	12	5	10⅛	25	6-#10	4-#9	—	23	#3	A	11@24	—	—	4-#9 CONTINUOUS ON BOTT.- WEST END
UB-15	V	24	34	580	30⅝	12¼	2⅞	5½	16⅜	6-#10	6-#9	—	30	#3	A	15@18	—	—	6-#9 CONTINUOUS ON BOTT.- WEST END
UB-16	V	24	34	588	28¼	12	5	10⅛	25	6-#10	4-#9	—	23	#3	A	11@24	—	—	3-#9 CONTINUOUS ON BOTT.- WEST END
UB-17	II	24	34	514	29¾	18⅜	17⅝	18⅜	29¾	6-#10	4-#9	—	23	#3	A	11@24	—	—	2-#9 CONTINUOUS ON BOTT.- BOTH ENDS
UB-18	II	24	34	501	28¼	11⅜	5	11⅜	28¼	6-#10	4-#9	—	23	#3	A	11@24	—	—	3-#9 CONTINUOUS ON BOTT.- BOTH ENDS
UB-19	V	24	34	514	25⅛	21	18	19¾	25½	6-#10	3-#9	—	14	#3	A	6@24	—	—	2-#9 CONTINUOUS ON BOTT.- WEST END
UB-20	IV	24	34	317	23¼	17⅝	15¾	17⅝	23¼	6-#10	3-#9	—	14	#3	A	6@24	—	—	SEVERAL STIRRUPS @MIDSPAN WILL BE TYPE "B" STIRRUPS
UB-21	V	24	34	514	24⅜	22½	19¼	20⅜	25½	6-#10	3-#9	—	14	#3	A	6@24	—	—	2-#9 CONTINUOUS ON BOTT.- WEST END
UB-22	V	24	34	501	25⅛	21¼	18¼	22	25½	6-#10	3-#9	—	14	#3	A	6@24	—	—	2-#9 CONTINUOUS ON BOTT. WEST END
UB-23	III	24	34	319	21	6¾	2½	8⅞	24¾	5-#9	3-#9	—	22	#3	B	10@24	—	—	FOR READING DRAPES "E" CONSIDER AS AN EAST-WEST SPAN
UB-24	II	24	34	319	26⅜	19¼	17½	21⅞	30⅜	5-#9	3-#8	—	18	#3	B	8@24	—	—	——
UB-25	II	24	34	319	30⅝	13⅛	6½	13⅛	30⅝	5-#9	3-#8	—	24	#3	B	11@24	—	—	——
UB-26	V	24	34	319	30½	22¼	18⅛	18¾	28¼	5-#9	3-#8	—	14	#3	B	4@24	—	—	——
UB-27	II	24	34	289	31⅛	11	2½	11	31⅛	4-#9	3-#9	—	20	#3	B	9@24	—	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-28	II	24	34	289	31⅝	30⅜	30	30⅜	31⅜	4-#9	3-#9	—	10	#5	B	4@24	—	—	1-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-29	III	24	34	566	23⅞	7½	2⅝	12⅛	31⅛	4-#9	3-#9	—	30	#3	A	7@24	7@8	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-30	V	24	34	584	31⅛	12⅛	2⅝	7½	23⅜	4-#9	3-#9	—	30	#3	A	7@24	7@8	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-31	III	24	34	147	19	19	19	19	19	4-#7	4-#7	—	10	#3	B	4@24	—	—	——
UB-32	II	48	34	626	30⅜	10¾	2⅝	10⅜	30¾	6-#9	6-#9	—	24	#3	A	8@24	3@10	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-33	III	48	34	626	23¼	7⅝	3	12	30⅞	6-#9	5-#9	—	24	#3	A	8@24	3@10	—	3-#9 CONTINUOUS ON BOTT. NORTH END
UB-34	V	48	34	626	31	17⅜	10½	15	23⅝	6-#9	5-#9	—	20	#3	A	9@24	—	—	——
UB-35	II	48	48	2097	44⅞	15⅞	3	15⅞	44⅞	5-#11	7-#10	7#11	52	#4	A	5@10	20@20	—	7-#10 CONTINUOUS ON BOTT. BOTH ENDS
UB-36	II	48	48	1169	44¾	31⅞	26½	31⅞	44¾	5-#11	7-#10	7#11 NORTH	38	#4	A	13@8	5@24	—	7-#10 CONTINUOUS ON BOTT. NORTH ENDS
UB-37	II	48	48	1169	44¾	31½	26	31½	44¾	5-#11	5-#10	—	22	#5	A	10@22	—	—	——
UB-38	II	48	48	1169	44¾	15⅝	3	15⅝	44¾	5-#11	5-#10	—	56	#4	A	13@14	32@5	—	——
UB-39	III	48	48	1169	32½	23¼	21½	29⅝	44⅜	5-#11	5-#10	—	20	#5	A	9@22	—	—	——
UB-40	V	24	34	514	26¼	22	19⅜	20⅝	26½	6-#10	4-#9	—	16	#3	A	7@24	—	—	2-#9 CONTINUOUS ON BOTT. WEST END
UB-41	II	48	34	573	30⅜	11⅝	3	11⅝	30⅜	6-#9	7-#9	—	28	#3	A	6@24	5@6	—	7-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-42	III	48	34	573	29	24⅜	25½	27⅝	30½	6-#9	5-#9	—	12	#3	A	5@24	—	—	——
UB-43	II	48	34	573	30⅜	11⅝	3	11⅝	30⅜	6-#9	7-#9	—	28	#3	A	6@24	5@6	—	7-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-44	III	48	34	960	23½	7⅝	2⅝	12⅛	31⅛	6-#9	6-#10	—	36	#3	A	8@22	9@5	—	4-#10 CONTINUOUS ON BOTT. NORTH END
UB-45	V	48	34	960	31	28⅛	25⅝	24⅝	24⅛	6-#9	5-#10	—	10	#3	A	4@22	—	—	4-#10 CONTINUOUS ON BOTT. SOUTH END
UB-46	V	48	34	997	30¼	12¼	3⅝	12¼	23½	6-#9	7-#9	—	34	#3	A	8@22	5@6	—	7-#9 CONTINUOUS ON BOTT. SOUTH END
UB-47	IV	48	34	988	23½	8⅝	2½	8⅝	23½	6-#9	5-#10	—	52	#5	A	5@22	20@5	—	——
UB-48	II	30	34	397	31⅜	19⅝	14⅜	19⅝	31⅜	4-#9	3-#9	—	20	#3	B	9@24	—	—	——
UB-49	III	30	34	397	23⅛	21¼	22⅝	26	31¼	4-#9	3-#9	—	12	#3	B	5@24	—	—	——
UB-50	V	30	34	397	31¼	26	22⅞	21¾	23⅛	4-#9	3-#9	—	12	#3	B	5@24	—	—	——
UB-51	III	15	34	397	25⅜	22¼	22	25½	31⅜	4-#9	3-#9	—	15	#3	B	7@24	—	—	——
UB-52	V	30	34	397	31⅜	24⅞	20⅞	20⅝	23⅛	4-#9	3-#9	—	15	#3	B	7@24	—	—	——
UB-53	I	30	34	107	23	22½	24⅛	21	30⅛	3-#8	3-#8	—	8	#3	B	7@12	—	—	——
UB-54	V	15	34	107	30¾	22½	20	19⅛	24⅛	3-#8	3-#8	—	15	#3	B	7@24	—	—	——
UB-55	III	24	34	314	22½	7⅞	2⅜	11	30⅜	4-#9	3-#9	—	26	#3	B	12@24	—	—	2-#9 CONTINUOUS ON BOTT. EAST END
UB-56	II	24	34	291	30⅜	13⅛	6½	13⅛	30⅜	4-#9	3-#9	—	26	#3	B	12@24	—	—	2-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-57	V	24	34	317	30⅜	11⅞	2⅝	7⅝	22½	4-#9	3-#9	—	26	#3	B	12@24	—	—	2-#9 CONTINUOUS ON BOTT. WEST END
UB-58	III	24	34	523	24¾	10⅞	5½	12⅞	30⅜	5-#10	4-#9	—	30	#3	A	6@16	8@24	—	3-#9 CONTINUOUS ON BOTT. EAST END
UB-59	II	24	34	418	30¾	18¼	13½	18¼	30⅜	5-#10	4-#9	—	26	#3	A	12@24	—	—	——
UB-60	V	24	34	523	30½	13	5⅝	10⅝	24⅝	5-#10	4-#9	—	30	#3	A	6@16	8@24	—	3-#9 CONTINUOUS ON BOTT. WEST END
UB-61	IV	14	34	287	25½	9¼	2½	9¼	25½	3-#9	3-#9	—	20	#3	B	9@20	—	—	——
UB-62	I	60	SEE DET.	1374	44⅞	38	32	27	21	4-#10	6-#10	—	29	#4	A	28@6	—	—	SEE DETAIL 31 ON S-29
UB-63	IV	12	34	100	17	17	17	17	17	3-#9	3-#9	—	20	#3	B	9@20	—	—	SEE DETAIL 34 ON S-29
UB-64	III	12	34	92	20⅞	20⅛	19⅞	20⅛	20⅞	2-#8	2-#7	—	14	#3	B	6@24	—	—	VIEW BEAM FROM CENTER OF SPIRAL RAMP TO READ SCHEDULE
UB-65	II	12	34	92	21⅛	21⅛	21⅛	21⅛	21⅛	2-#8	2-#7	—	4	#3	B	3@24	—	—	——
UB-66	V	12	34	92	20⅞	20⅛	19⅞	20⅛	20⅞	2-#8	2-#7	—	14	#3	B	6@24	—	—	——
UB-67	III	24	34	165	24½	24⅛	27⅜	27⅛	31	3-#8	3-#8	—	8	#3	A	3@24	—	—	——
UB-68	III	24	48	584	35¾	27	24⅞	30⅝	43	6-#11	4-#9	—	18	#3	A	8@24	—	—	——

BEAM MARK NUMBER	BEAM TYPE	SIZE (INCHES) W	SIZE (INCHES) D	MINIMUM EFFECTIVE PRESTRESS FORCE (KIPS)	E (INCHES) E1	E2	E3	E4	E5	BONDED REINFORCING TOP	BOT.	DIS-CONT. TOP	STIRRUPS NO.	SIZE	TYPE	SPACING A	B	C	REMARKS
UB-69	III	24	34	514	25½	16⅜	13⅝	18¾	30½	6-#10	3-#9	—	18	#3	A	8@24	—	—	3-#9 CONTINUOUS ON BOTT. EAST END
UB-70	II	24	34	514	29½	21	17⅜	21¼	30¾	6-#10	3-#9	—	18	#3	A	8@24	—	—	——
UB-71	III	24	48	1060	33½	35⅝	38	40⅜	42⅞	6-#11	4-#9	—	12	#3	A	5@24	—	—	——
UB-72	II	24	48	1060	43⅜	43¼	43	43¼	43⅜	6-#11	4-#9	—	22	#3	A	10@8	—	—	4-#9 CONTINUOUS ON BOTT. EAST END
UB-73	II	24	34	514	30¾	22½	19½	22½	30¾	6-#10	3-#9	—	16	#3	A	7@24	—	—	2-#9 CONTINUOUS ON BOTT. WEST END
UB-74	II	24	48	1060	43⅞	43¼	43	43¼	43⅞	6-#11	4-#9	—	22	#3	A	10@18	—	—	2-#9 CONTINUOUS ON BOTT. EAST END
UB-75	II	24	48	1060	42¾	15	4	15	42¾	6-#11	4-#9	—	54	#3	A	11@16	15@6	—	4-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-76	II	24	34	514	30⅝	26¾	25½	27	31	6-#10	3-#9	—	10	#3	A	4@24	—	—	——
UB-77	I	24	34	514	25¾	26	26⅜	27⅞	29½	6-#10	3-#9	—	3	#3	A	2@24	—	—	——
UB-78	V	24	34	514	30¼	24½	21⅜	21⅜	25	6-#10	3-#9	—	10	#3	A	4@24	—	—	——
UB-79	II	24	48	1060	42⅝	15	4	15	42⅝	6-#11	5-#9	—	54	#3	A	11@16	15@6	—	5-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-80	IV	48	48	1685	32⅜	11¾	2½	11¾	32⅜	5-#10	8-#9	—	94	#4	A	6@24	40@8	—	SEVERAL STIRRUPS AT MIDSPAN WILL BE TYPE "B" STIRRUPS
UB-81	V	SEE PLAN	48	1060	43½	41⅝	39⅝	38	36¼	6-#11	4-#9	—	56	#3	B	21@6	—	—	SEE PLAN S-26 FOR BEAM WIDTH.
UB-82	V	SEE PLAN	48	984	43¼	40⅝	37⅞	35¼	32⅝	6-#11	5-#9	—	28	#3	B	13@12	—	—	SEE PLAN S-26 FOR BEAM WIDTH.
UB-83	II	48	48	860	44⅝	27½	19¾	27½	44⅝	5-#11	7-#10	7-#11 SOUTH	48	#4	A	19@6	4@24	—	7-#10 CONTINUOUS ON BOTT. SOUTH END
UB-84	II	48	48	860	44⅜	15⅛	3	15⅛	44⅜	5-#11	5-#10	—	34	#4	A	7@24	9@6	—	——
UB-85	II	48	48	860	44⅜	18¾	7½	18¾	44⅜	5-#11	5-#10	—	30	#3	A	14@24	—	—	——
UB-86	V	48	48	860	44½	25¼	15¼	18⅞	32⅝	5-#11	5-#10	—	20	#3	A	9@24	—	—	——
UB-87	I	24	34	514	25⅜	26	26½	27½	28⅞	6-#10	3-#9	—	4	#3	A	3@20	—	—	——
UB-88	V	24	34	147	19	19	19	19	19	4-#7	4-#7	—	10	#3	B	4@24	—	—	——
UB-89	III	12	34	82	17	17	17	17	17	2-#7	2-#7	—	10	#3	B	4@24	—	—	——
UB-90	V	12	34	82	17	17	17	17	17	2-#7	2-#7	—	10	#3	B	4@24	—	—	——
UB-91	II	48	34	626	30⅞	14⅛	7⅜	14⅛	30⅞	6-#9	6-#9	—	20	#3	A	9@24	—	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS
UB-92	II	48	34	626	30¾	10⅝	2½	10⅝	30¾	0-#9	6-#9	—	24	#3	A	8@24	3@6	—	3-#9 CONTINUOUS ON BOTT. BOTH ENDS.
UB-93	I	24	34	165	21¾	22⅝	24¼	27⅜	31¼	3-#8	3-#8	—	11	#3	B	10@24	—	—	——
UB-94	IV	12	34	——	——	——	——	——	——	3-#7	3-#7	—	6	#3	B	20@24	—	—	——

BEAM MARK NUMBER	BEAM TYPE	SIZE (INCHES) W	SIZE (INCHES) D	MINIMUM EFFECTIVE PRESTRESS FORCE (KIPS)	E (INCHES) E1	E2	E3	E4	E5	BONDED REINFORCING TOP	BOT.	DIS-CONT. TOP	STIRRUPS NO.	SIZE	TYPE	SPACING A	B	C	REMARKS

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

RE: SX-1/S&P FOR REVISED SCHED.

Harry A. Golemon

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED Chief Airport Engr. Dept. of Pub. Wks.
APPROVED Director of Public Works
APPROVED Director of Aviation
APPROVED Asst. Director Dept. of Pub. Wks.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

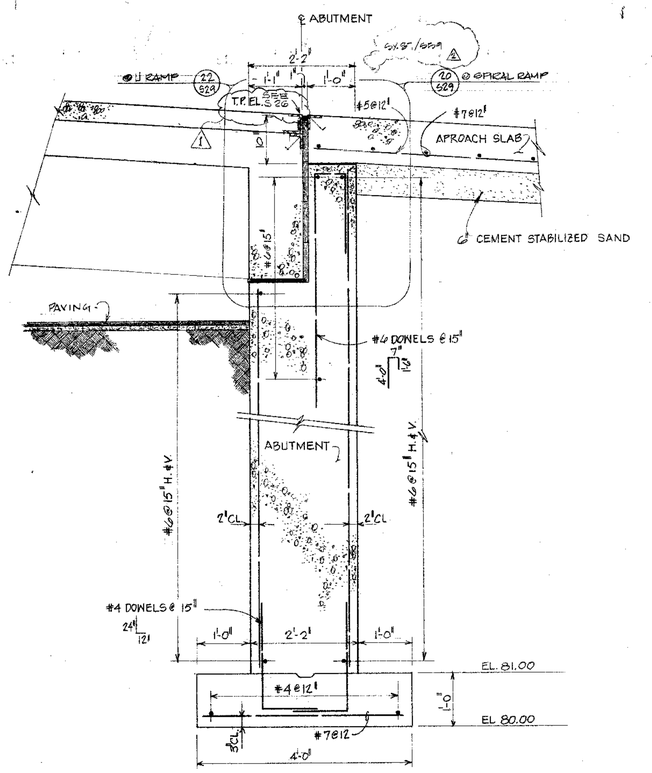
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.H.
DATE Aug 15, 1977

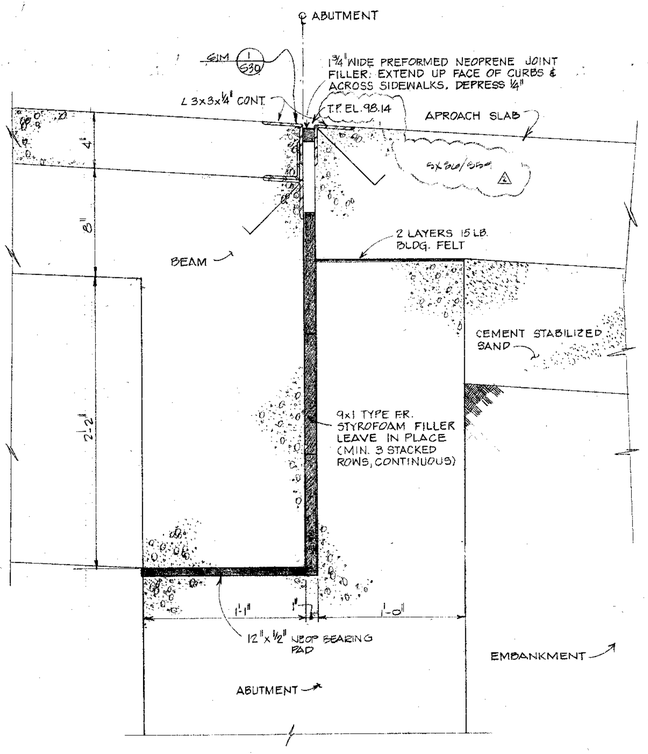
REVISIONS
△ RECVD DRAWING 6-15-78

U-RAMP
BEAM SCHEDULE
DRAWING NO. 6950-186

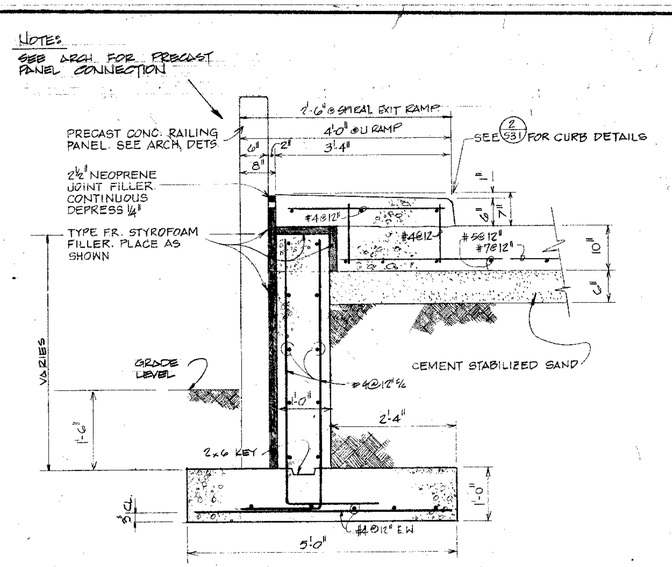
S28
SHEET OF



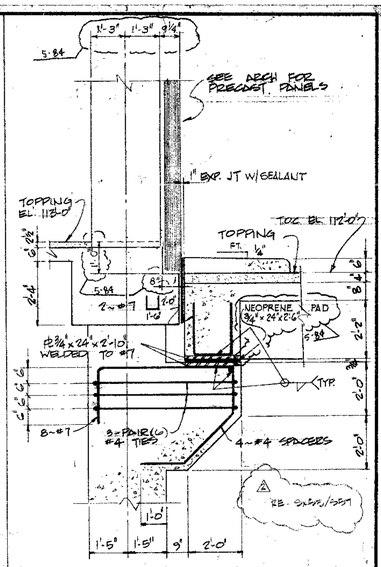
APPROACH ROAD ABUTMENT - SECTION | 1"=1'-0" (34)



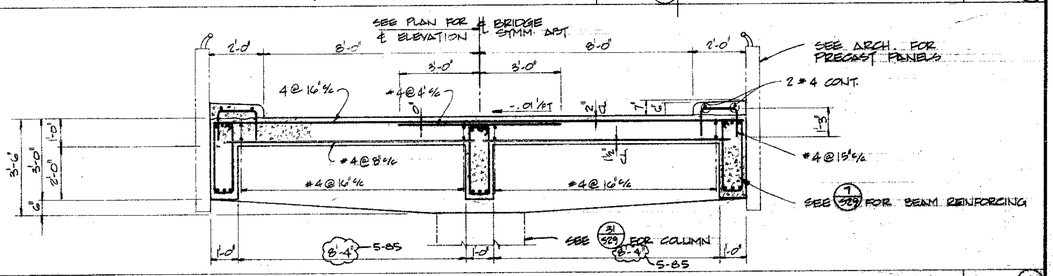
APPROACH ROAD, ABUTMENT ARMOR JT. DETAIL | 3"=1'-0" (22)



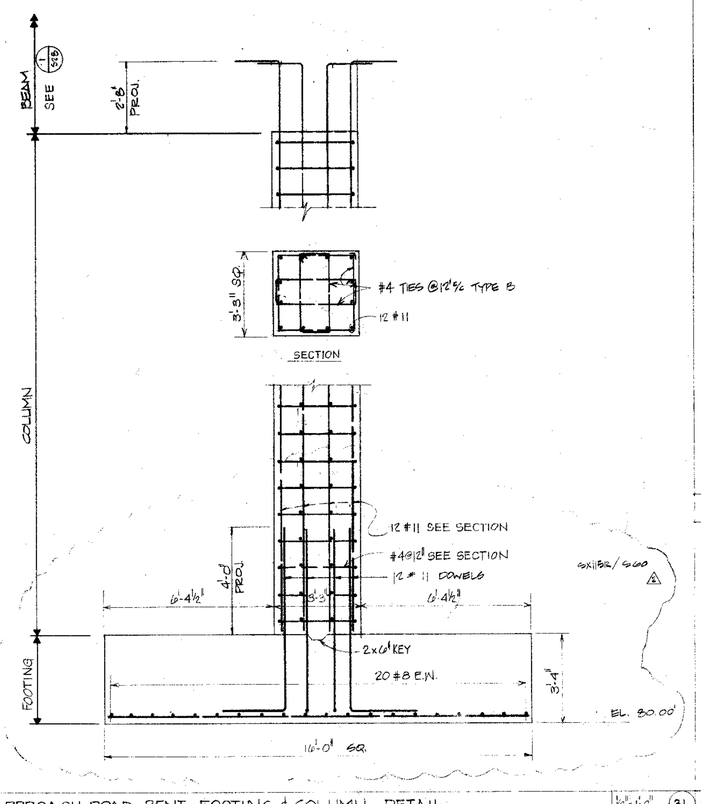
APPROACH ROAD RETAINING WALL - SECTION | 1"=1'-0" (11)



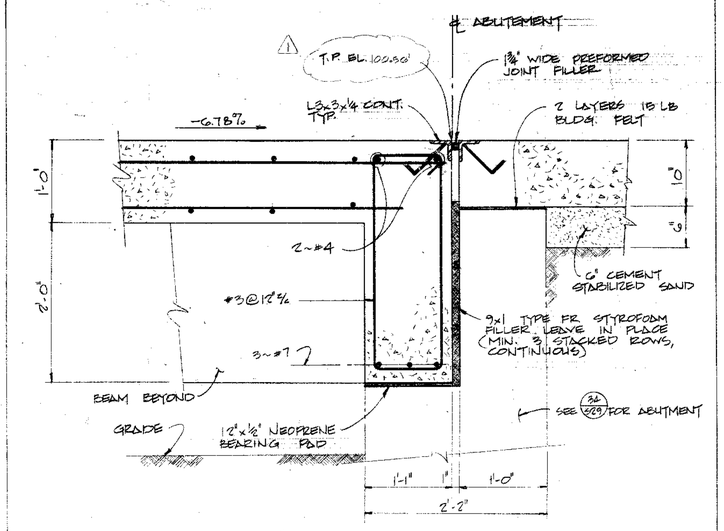
SECTION | SCALE ½"=1'-0" (5)



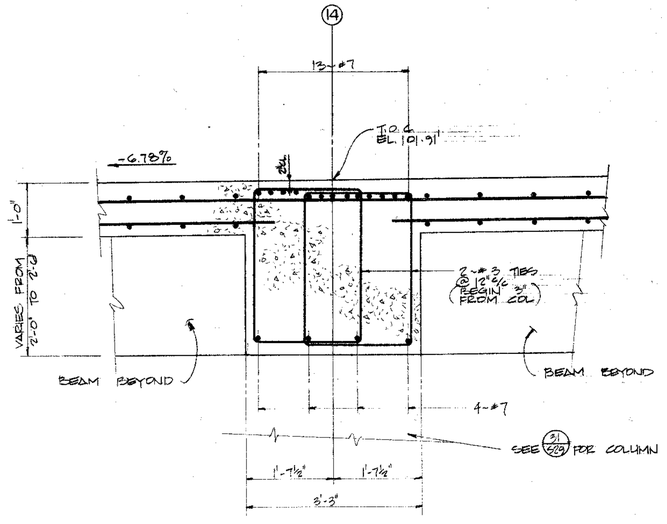
SECTION | ½"=1'-0" (4)



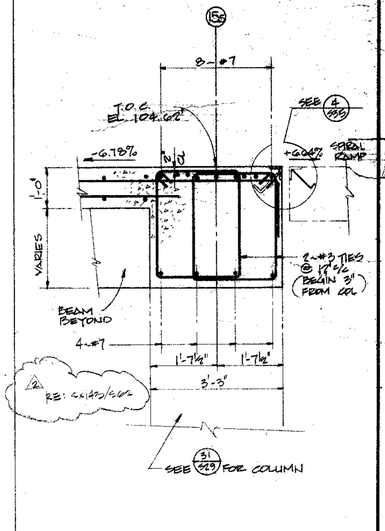
APPROACH ROAD BENT - FOOTING & COLUMN DETAIL | ½"=1'-0" (31)



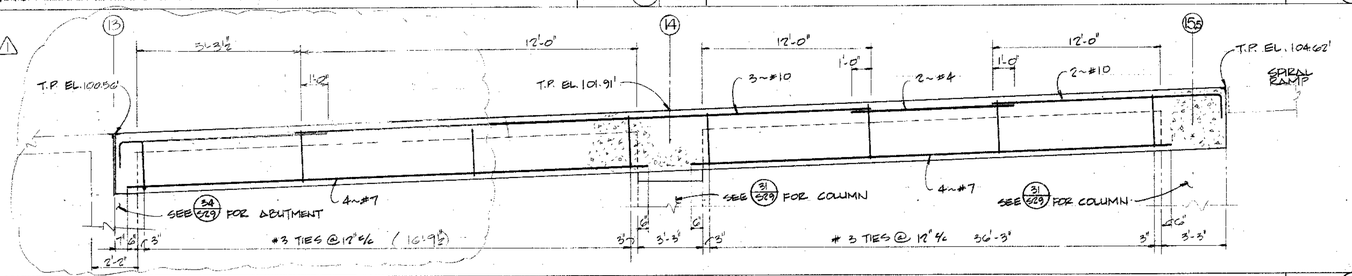
SECTION | 1"=1'-0" (20)



SECTION | 1"=1'-0" (8)



SECTION | ¾"=1'-0" (2)



SECTION | NTS (7)

(1)

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

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HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED — CHIEF, AIRPORT ENG. DIV. OF PUB. WKS.
APPROVED — DIRECTOR OF PUBLIC WORKS
APPROVED — MAYOR, CITY OF HOUSTON
APPROVED — ASST. DIRECTOR, DEPT. OF PUB. WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

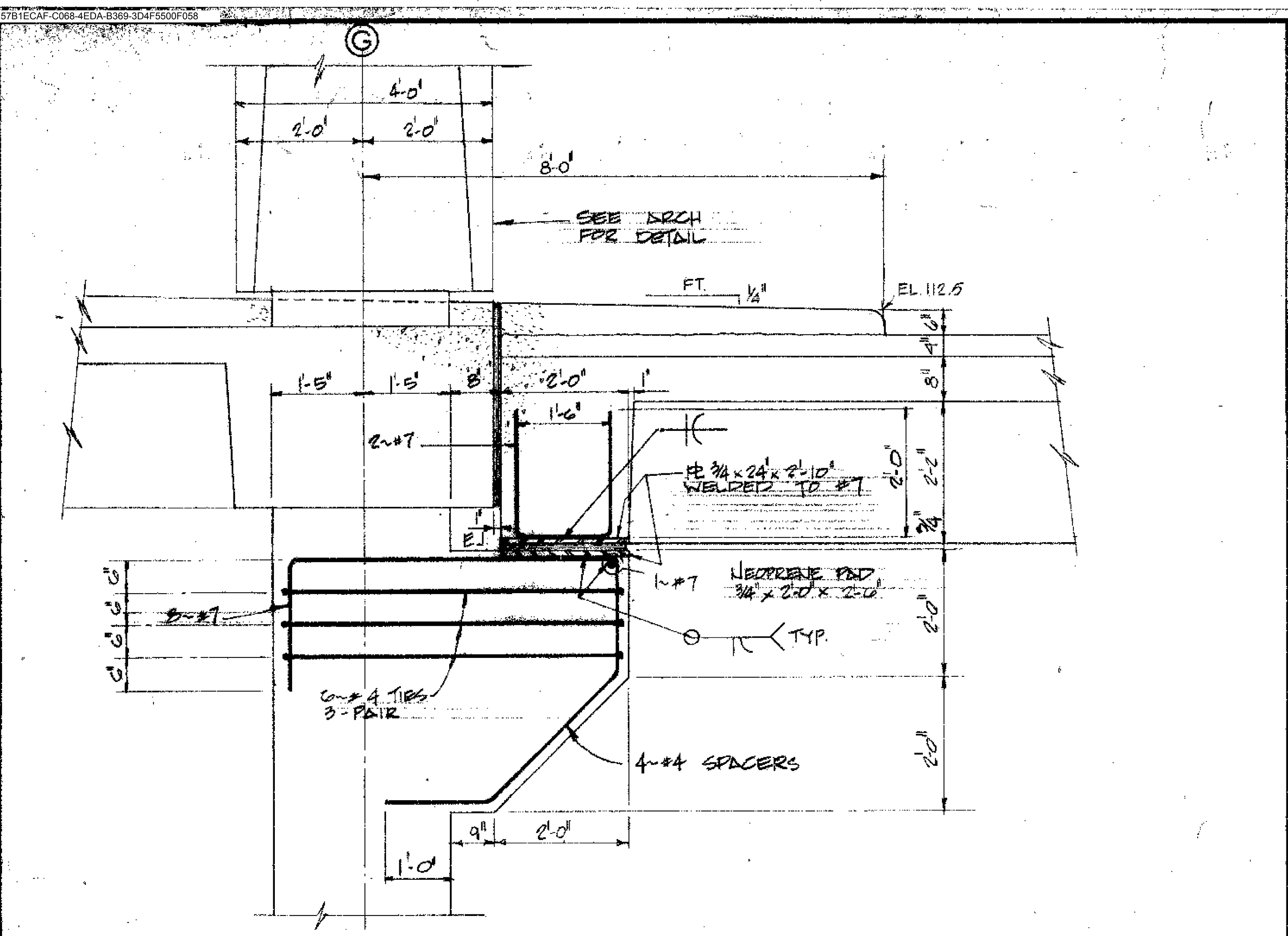
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.	REVISIONS
CHECKED R.L.H.	⚠1 REVISED ABUTMENT 12-13-76
DATE Aug. 15, 1977	⚠2 RECORD DRAWINGS, 6-13-83

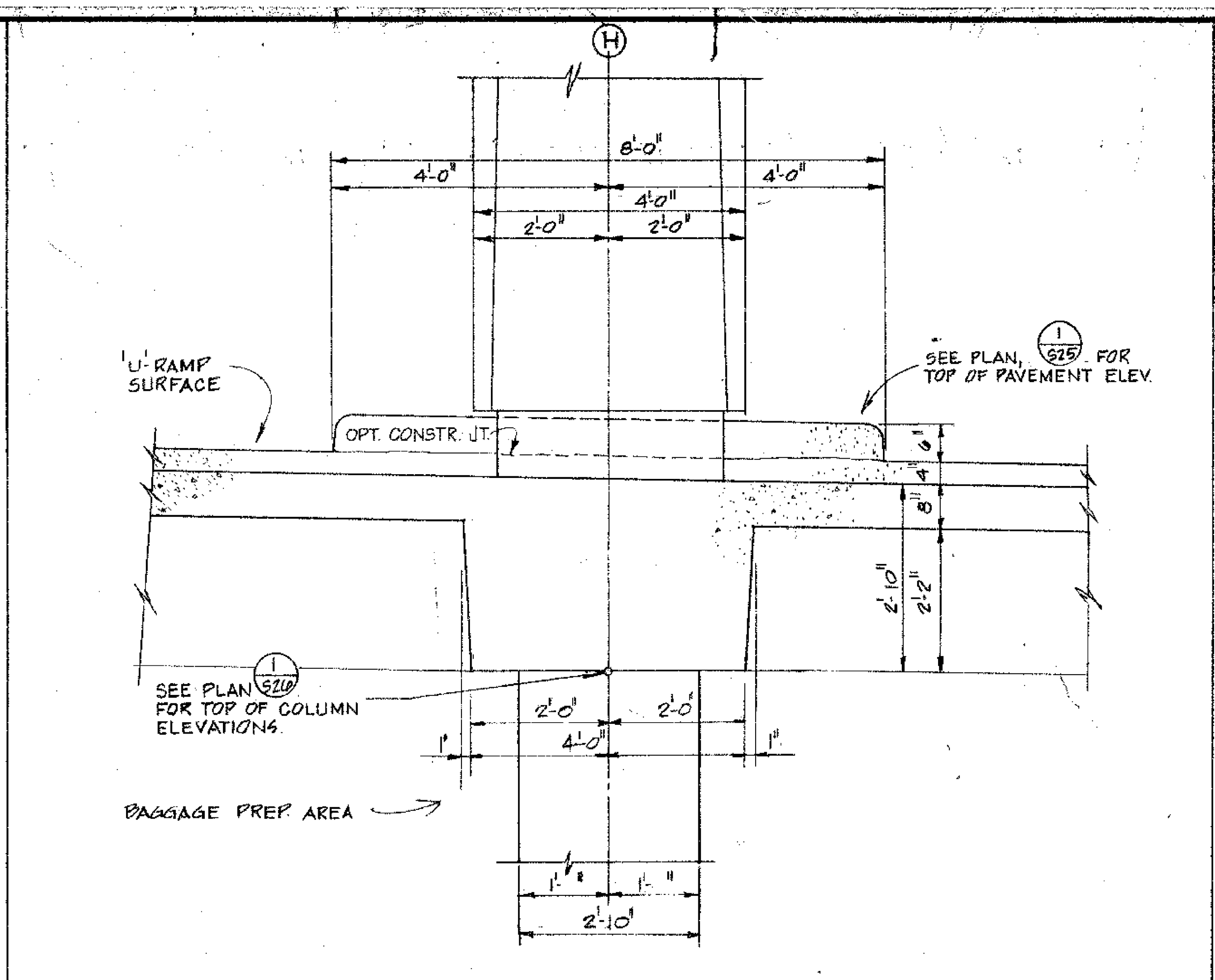
U - RAMP

SECTIONS & DETAILS
DRAWING NO. 6950-186

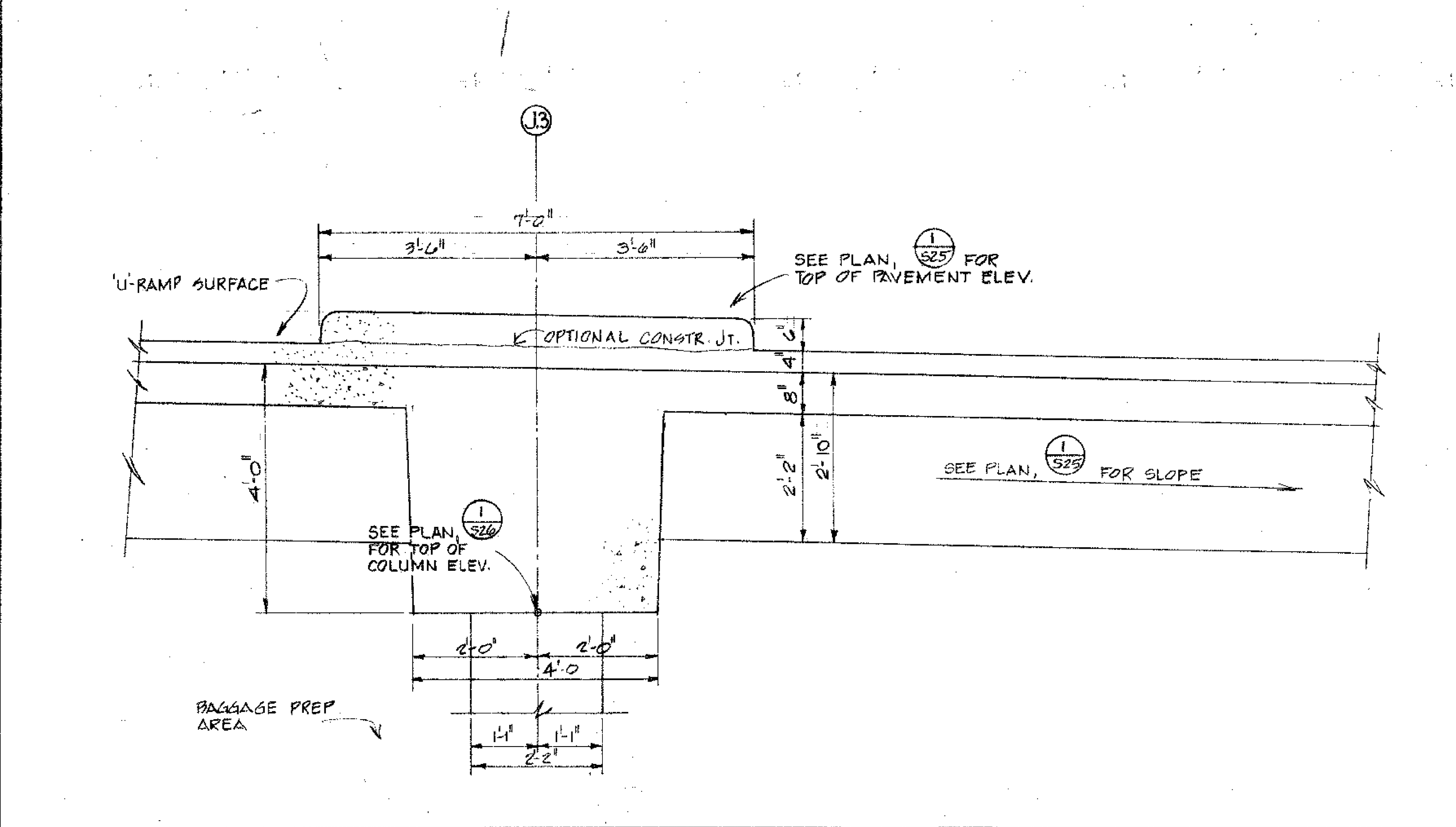
S29
SHEET OF



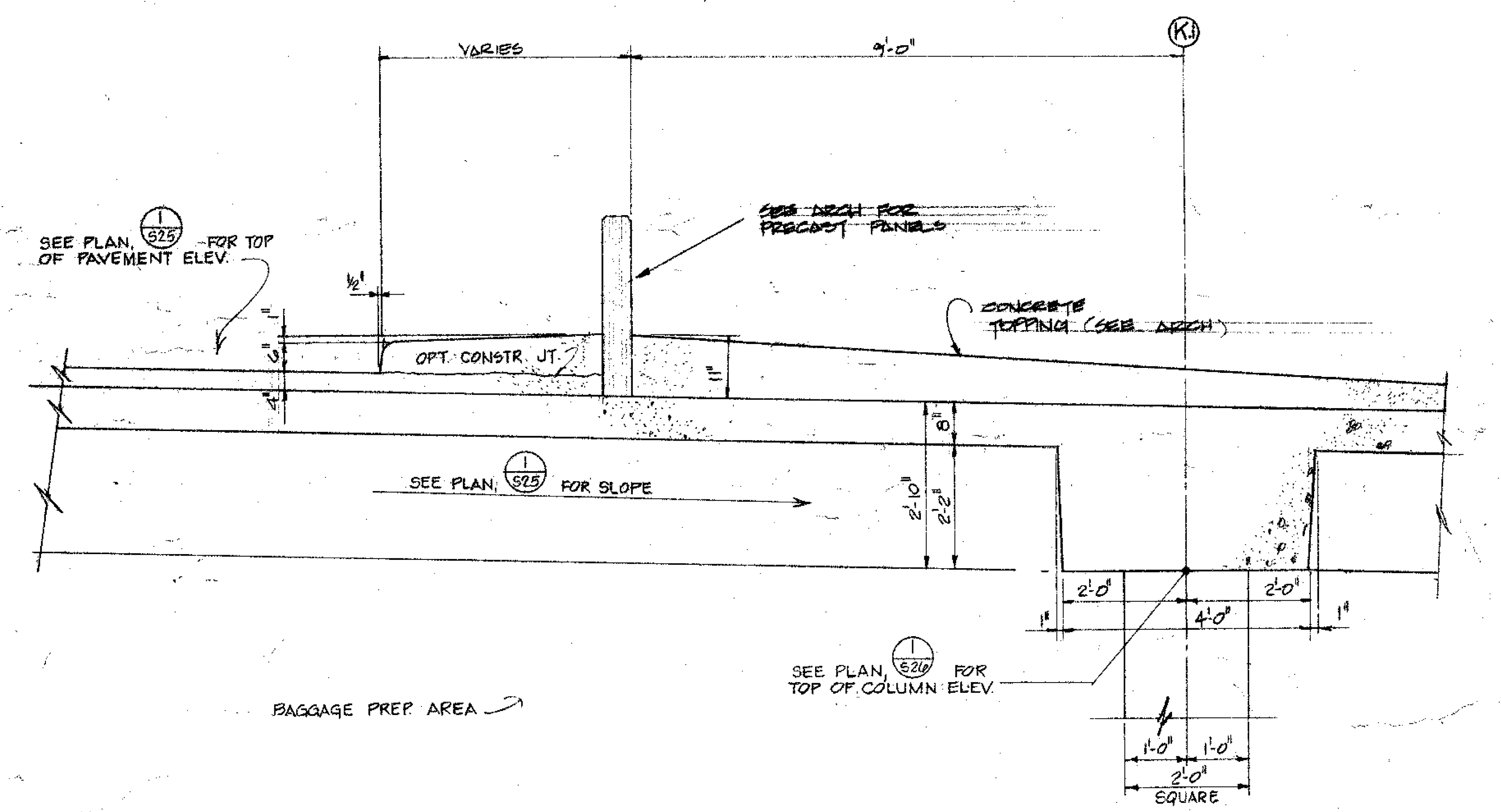
SECTION @ COL. LINE 'G' 3/4"=1'-0" (35)



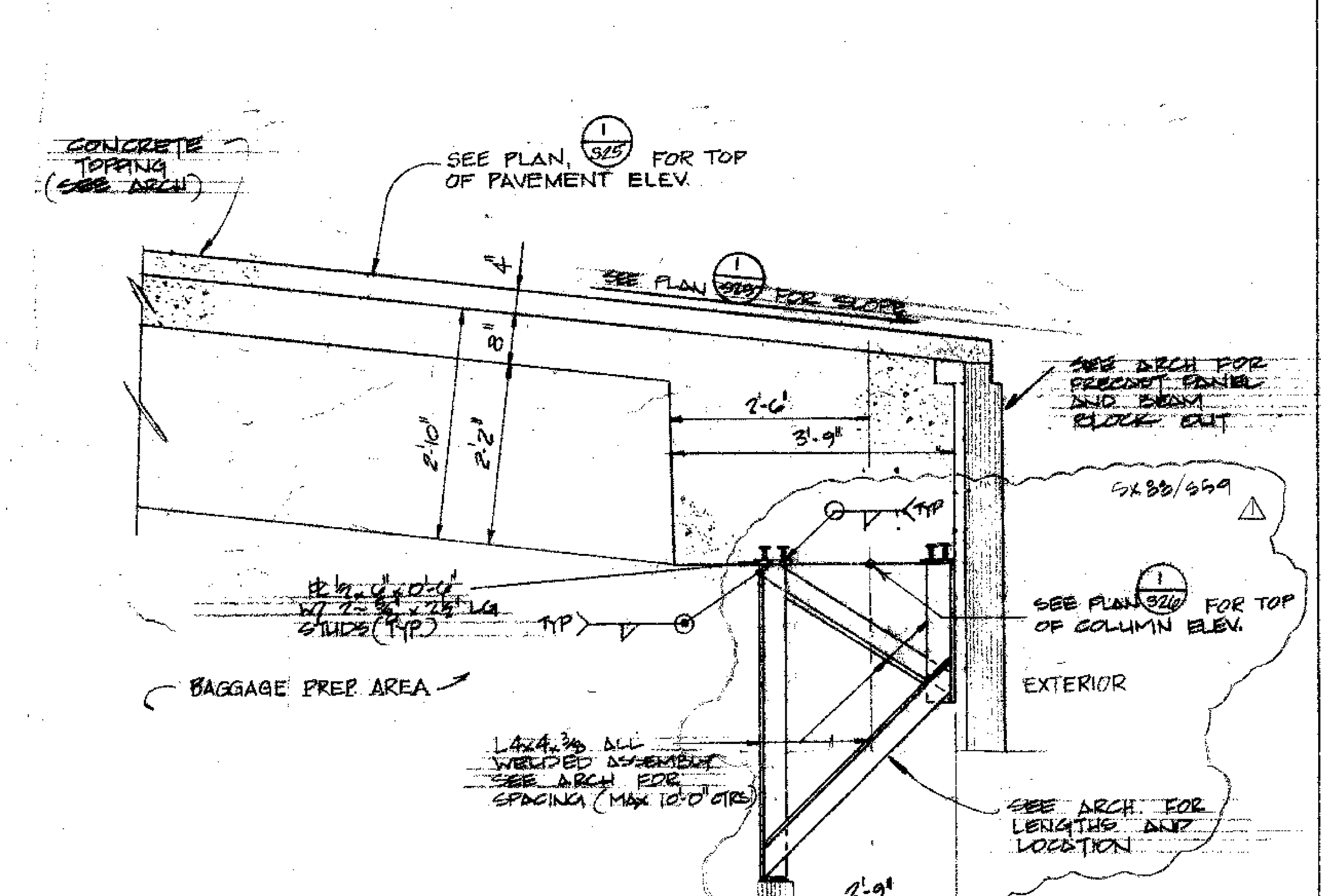
SECTION @ COL. LINE 'H' 3/4"=1'-0" (23)



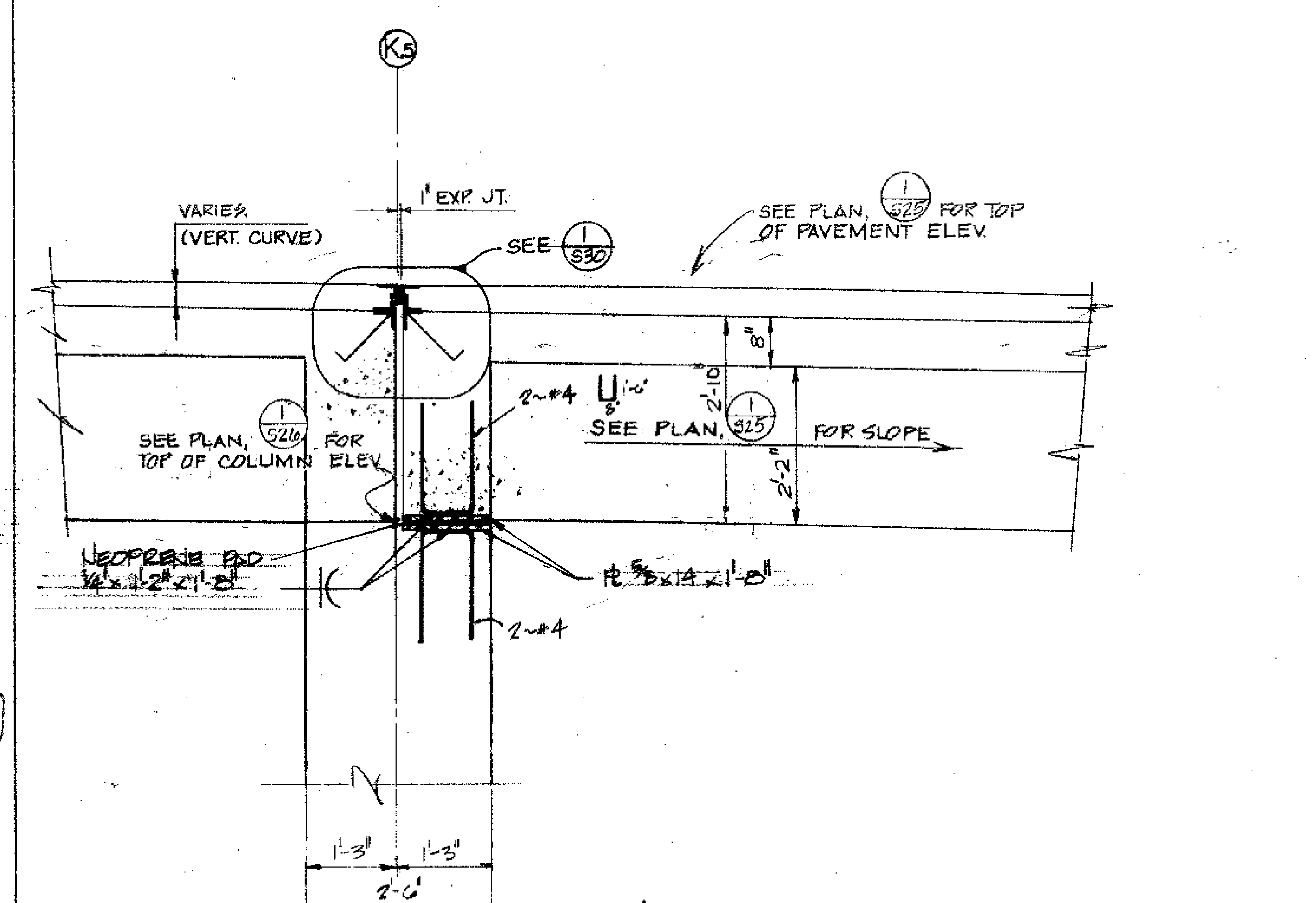
SECTION @ COL. LINE 'J.3' 3/4"=1'-0" (5)



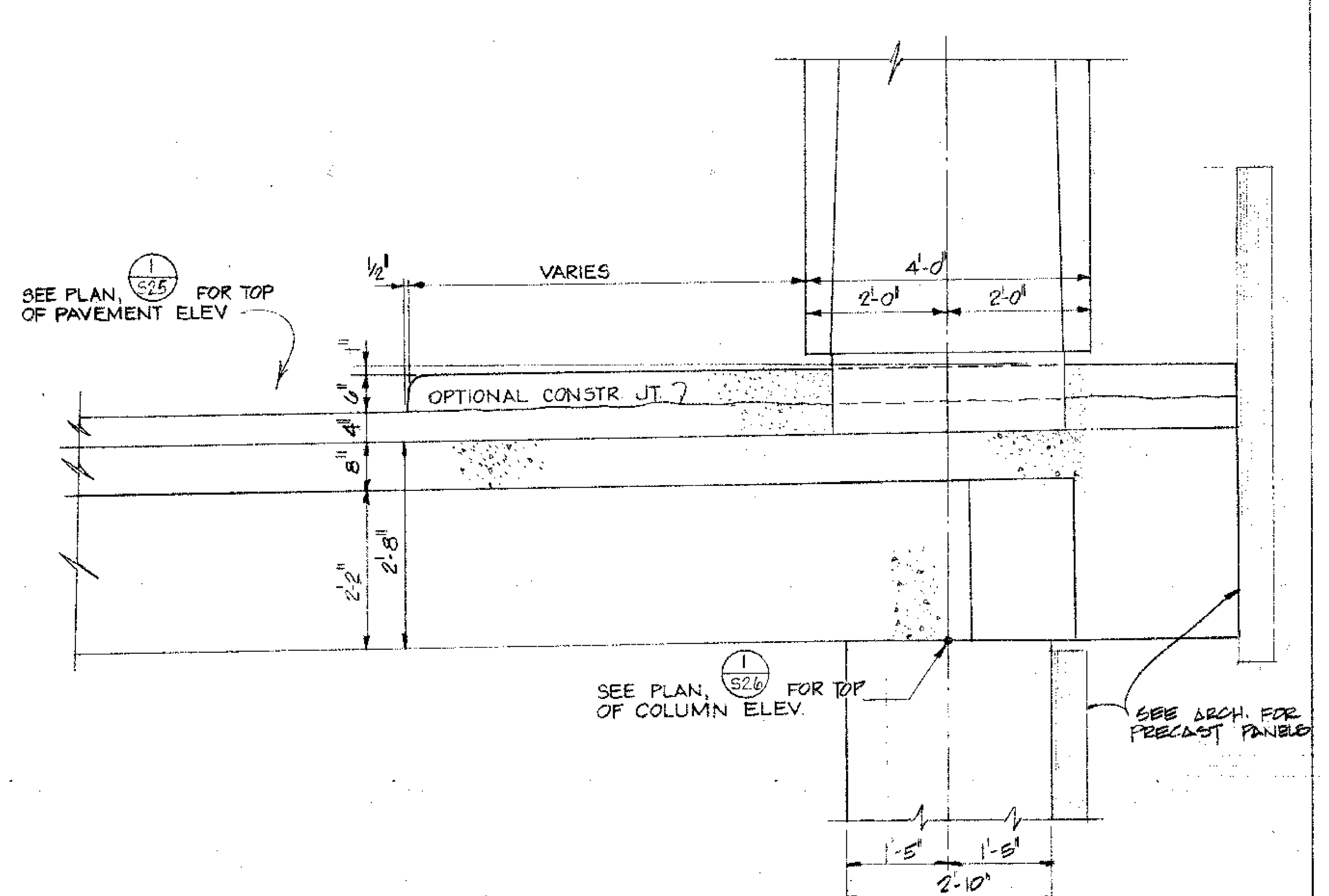
SECTION @ EAST CURB 3/4"=1'-0" (27)



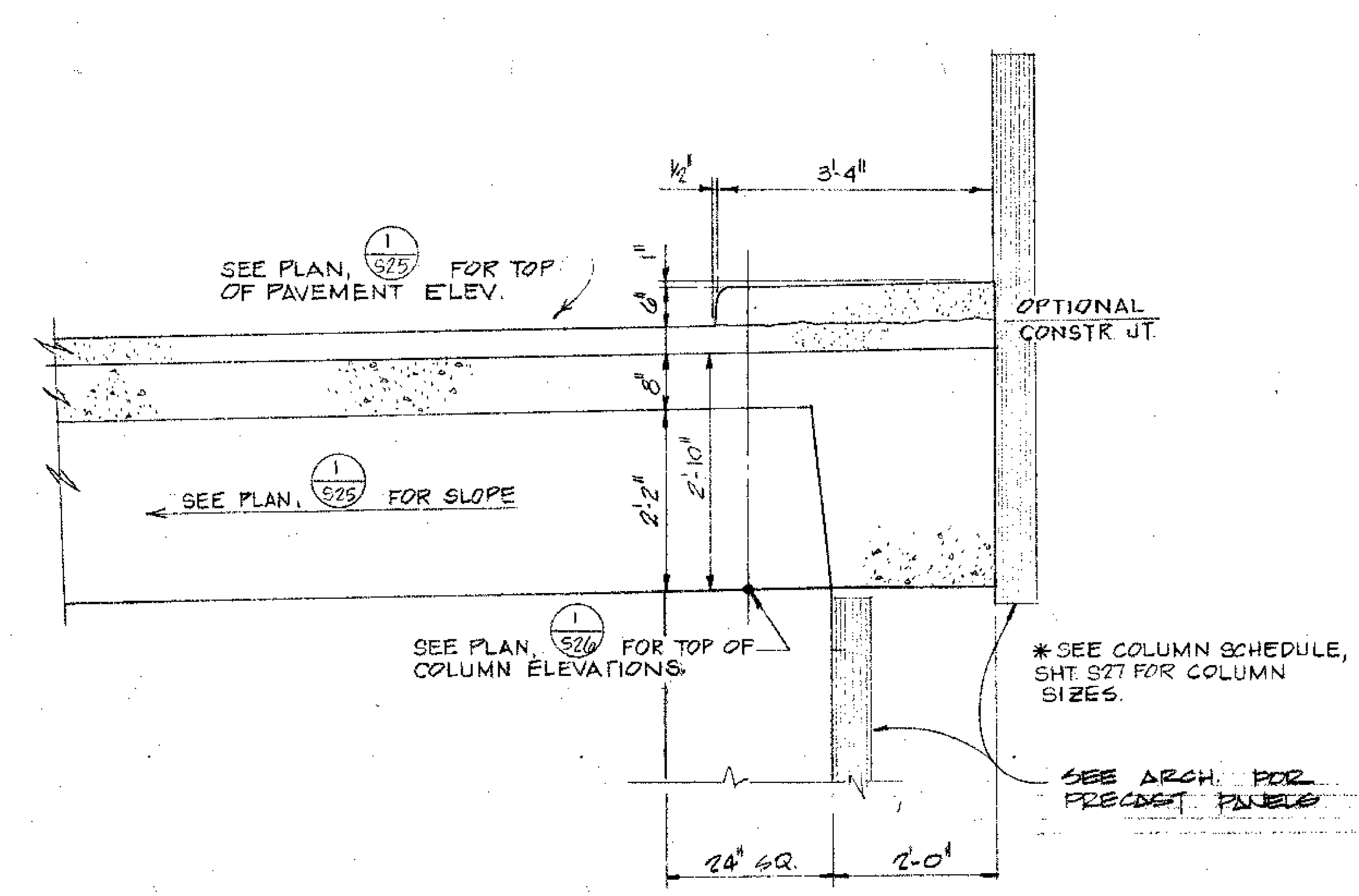
SECTION @ EAST EDGE OF RAMP 3/4"=1'-0" (15)



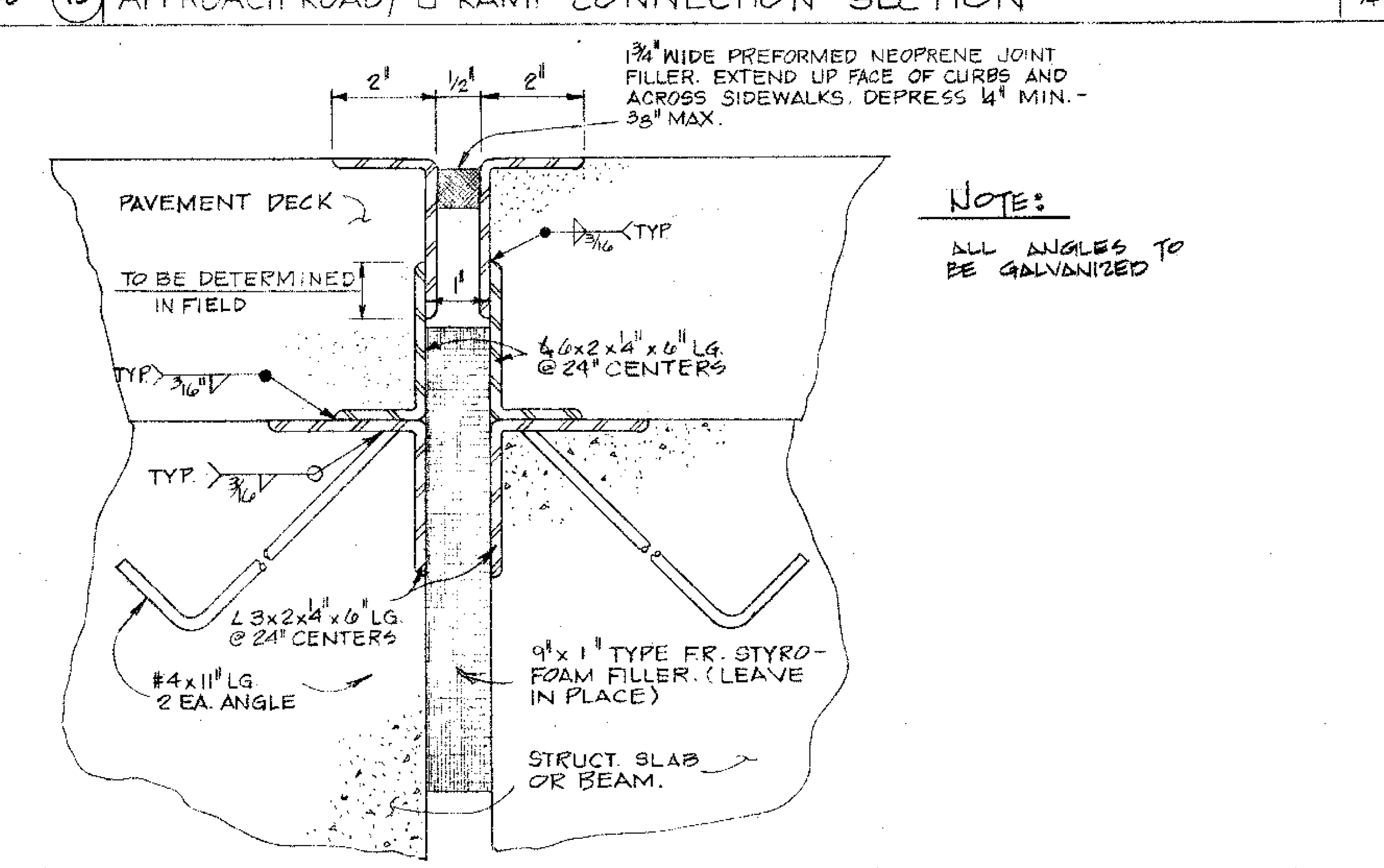
APPROACH ROAD/'U'-RAMP CONNECTION-SECTION 3/4"=1'-0" (3)



SECTION @ SIDEWALK 3/4"=1'-0" (31)



SECTION @ SIDEWALK 3/4"=1'-0" (19)



NOTE:
ALL ANGLES TO BE GALVANIZED

ARMOR JOINT DETAIL 1/2"=1" (1)

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HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

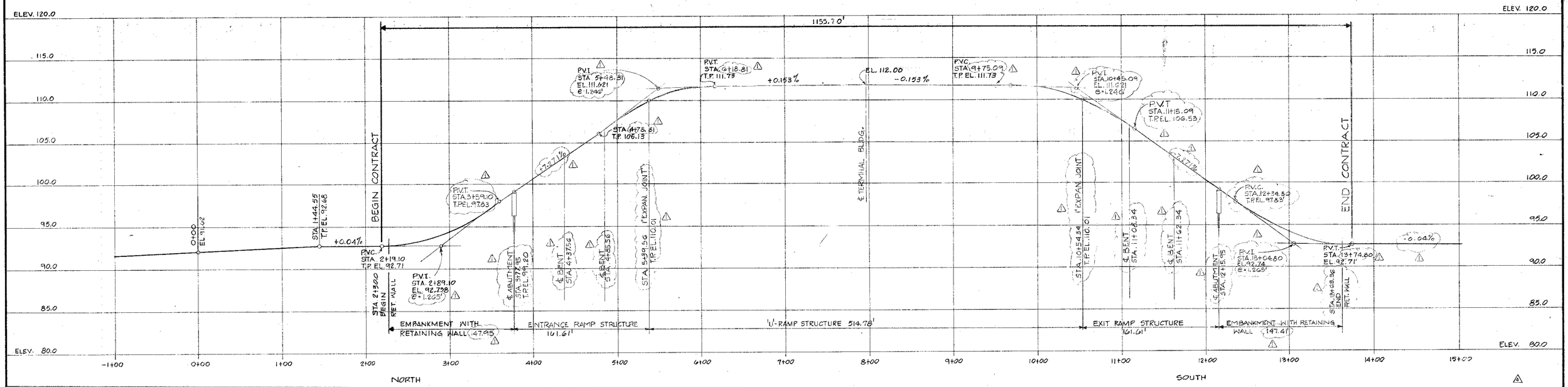
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.N.
DATE Aug. 15, 1977

REVISIONS
△ RECORD DRAWINGS 6-15-85

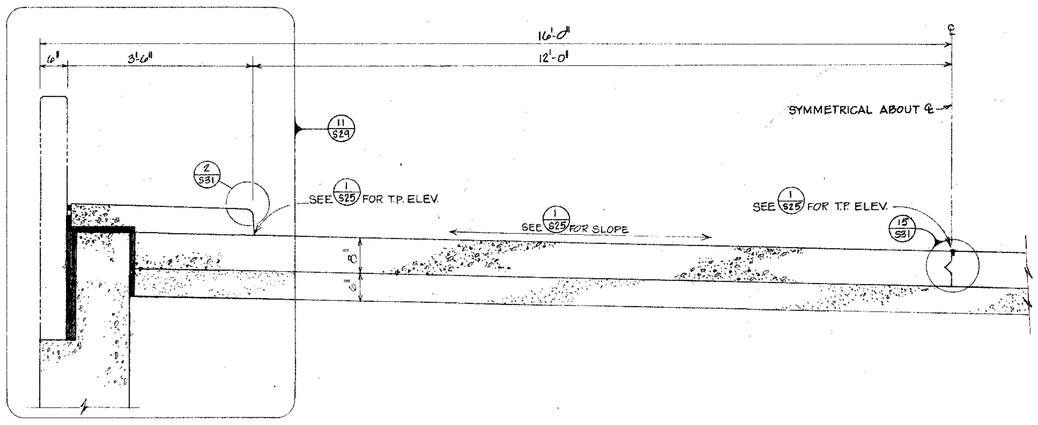
U-RAMP
DETAILS

S30
DRAWING NO. 6950-186
SHEET OF

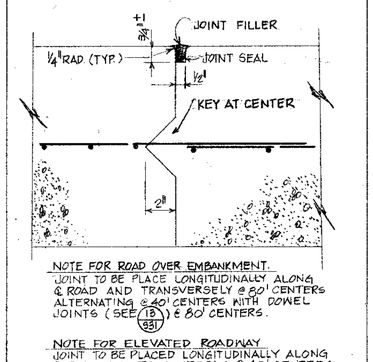


APPROACH ROAD & 'U'-RAMP BASELINE PROFILE △

1"=40' H. 1'-4' V. (4)



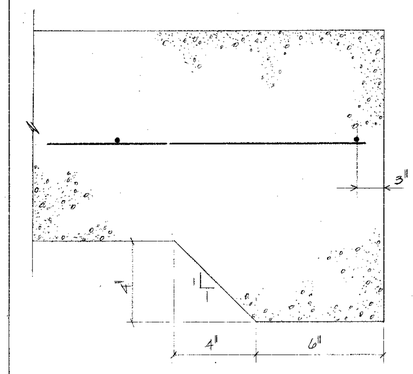
U-RAMP APPROACH ROAD (@ EMBANKMENT) - SECTION — 1"=1'-0" (21)



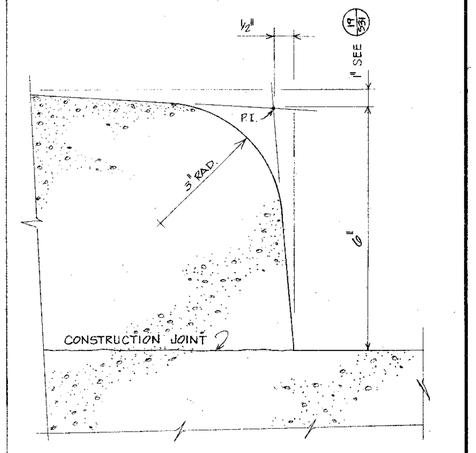
NOTE FOR ROAD OVER EMBANKMENT.
JOINT TO BE PLACE LONGITUDINALLY ALONG ℄ ROAD AND TRANSVERSELY @ 80' CENTERS ALTERNATING @ 40' CENTERS WITH DOWEL JOINTS (SEE 13/S31) @ 80' CENTERS.

NOTE FOR ELEVATED ROADWAY
JOINT TO BE PLACED LONGITUDINALLY ALONG ℄ ROAD AND TRANSVERSLY @ 40' CENTERS.

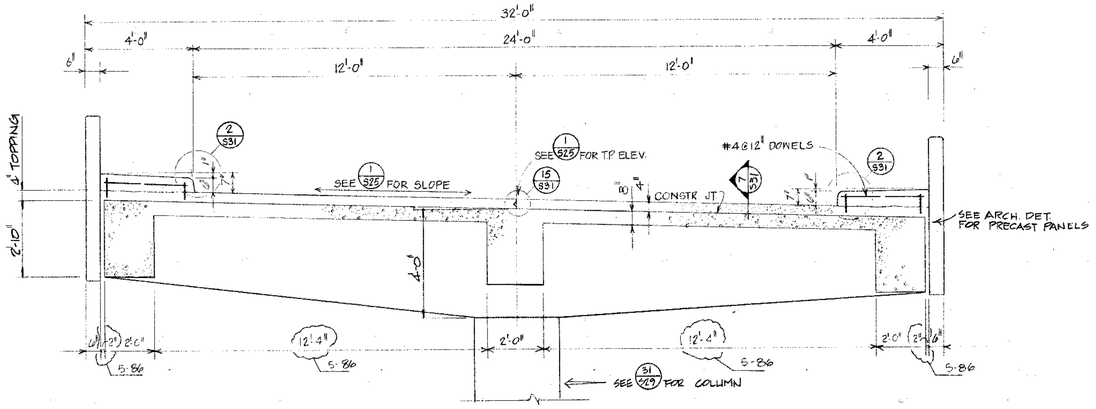
CONTROL JOINT DETAIL — 3"=1'-0" (15)



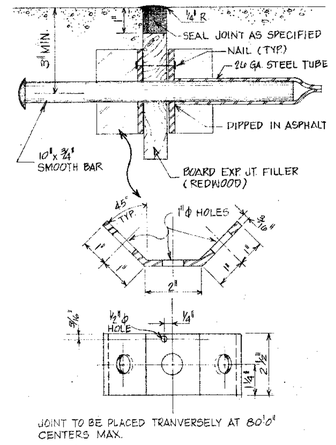
TYPICAL HEADER DETAIL — NTS (8)



TYPICAL CURB DETAIL — 3/4 SCALE (2)

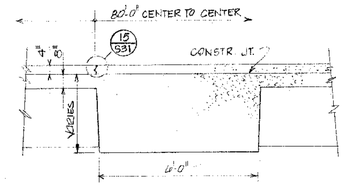


U-RAMP APPROACH ROAD (ELEVATED PORTION) - SECTION — 1/2"=1'-0" (19)

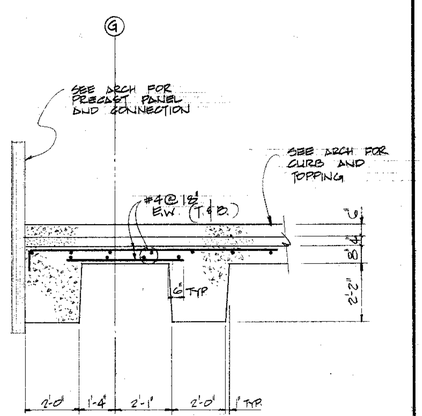


JOINT TO BE PLACED TRANVERSELY AT 80'-0" CENTERS MAX.

EXPANSION (DOWEL) JOINT DET. — 1/2"=1" (13)



APPROACH RD. TRANSVERSE BM. SECT. — 1/2"=1'-0" (7)



1/2"=1'-0" (1)

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDUM ONE, THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED [signature] MGR. AIRPORT ENG. DEPT. OF PUB. WKS. — APPROVED ERC DIRECTOR OF PUBLIC WORKS — APPROVED [signature] DIRECTOR OF AVIATION — APPROVED [signature] ASST. DIRECTOR DEPT. OF PUB. WKS.

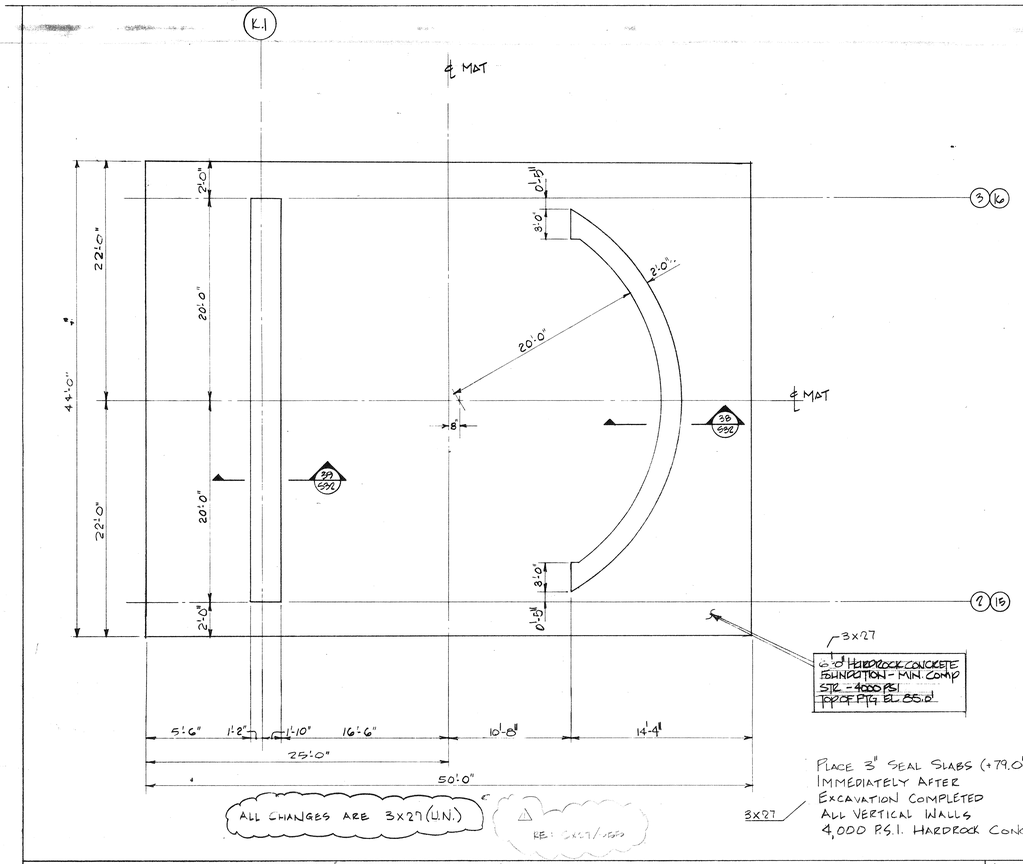
AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

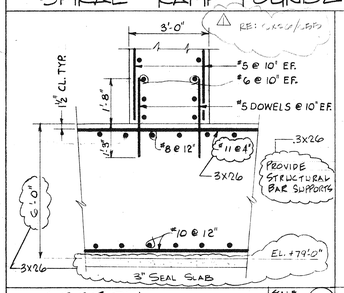
DRAWN D.T. CHECKED R.L.H. DATE 04.15.1977	REVISIONS △ ADD #4 9-30-77 △ U-RAMP BASE LINE REDRAWN 9-12-78 BK. RECORD DRAWINGS, 6-13-78	U- RAMP SECTIONS & DETAILS DRAWING NO. 6650-186	S31 SHEET OF

38

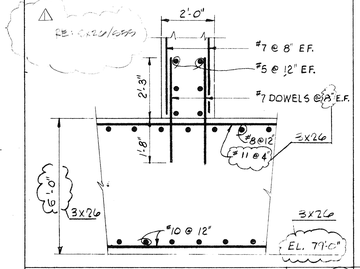
4



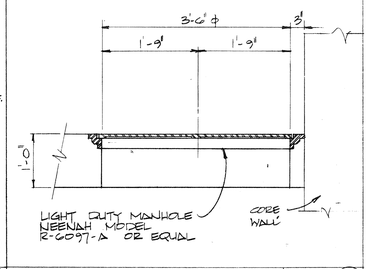
SPIRAL RAMP FOUNDATION PLAN — SCALE: 3/16"=1'-0" (28)



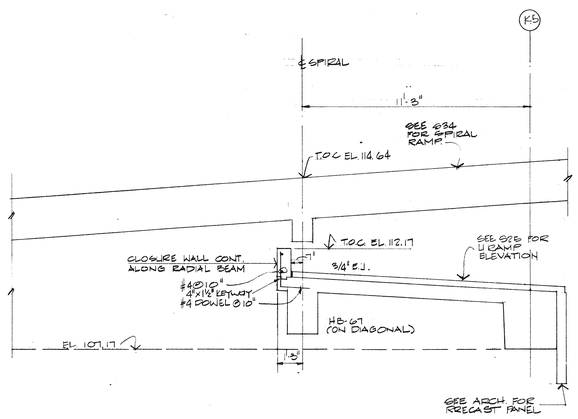
SECTION — SCALE 3/4"=1'-0" (39)



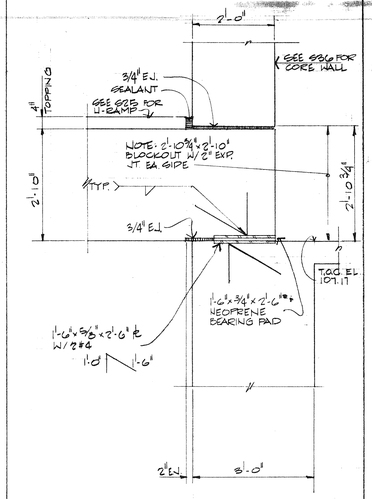
SECTION — SCALE 3/4"=1'-0" (38)



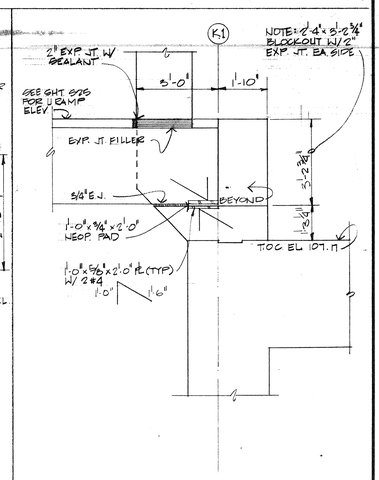
SECTION — SCALE (32)



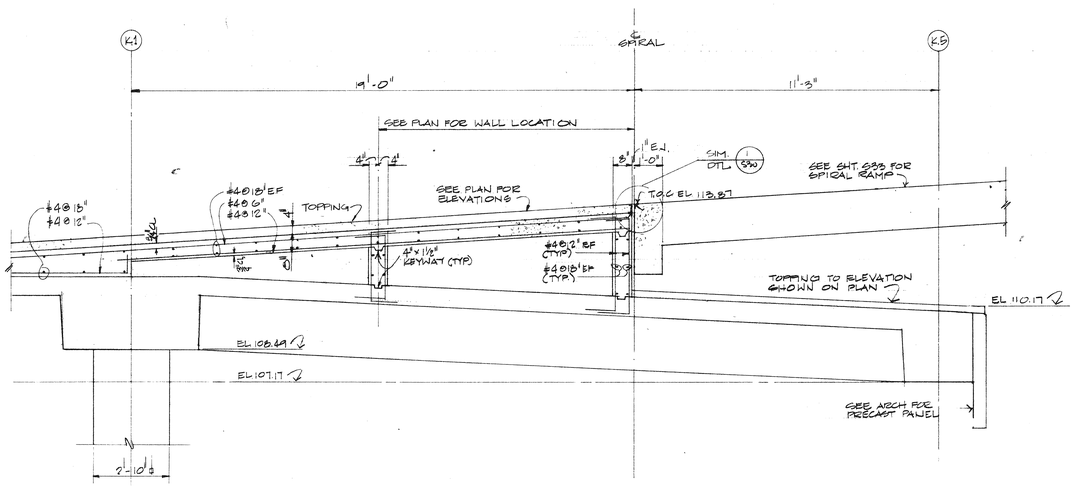
SECTION — SCALE 3/16"=1'-0" (17)



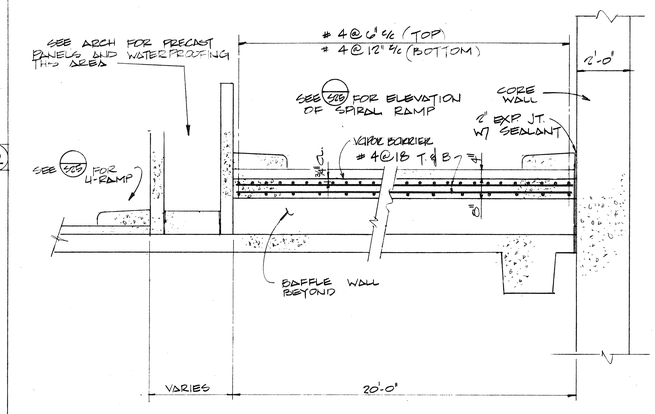
DETAIL — SCALE 3/4"=1'-0" (11)



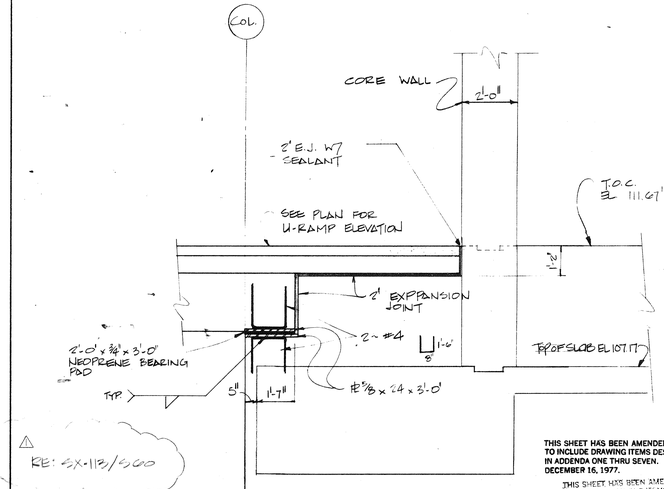
DETAIL — SCALE 1½"=1'-0" (5)



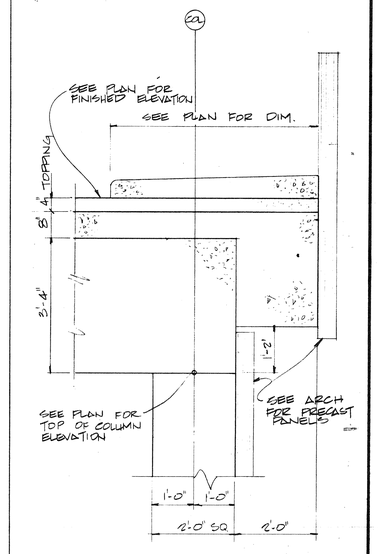
SECTION AT ℄ OF RAMP — SCALE 1/2"=1'-0" (3)



CROSS SECTION AT RAMP — ½"=1'-0" (19)



DETAIL — SCALE 1½"=1'-0" (8)



SECTION — SCALE 3/4"=1'-0" (1)

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED: CHIEF, AIRPORT PLANNING & DESIGN DIV. — APPROVED: DIRECTOR OF PUBLIC WORKS — APPROVED: DIRECTOR OF AVIATION — APPROVED: DEPUTY DIRECTOR DEPT. OF PUB. WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

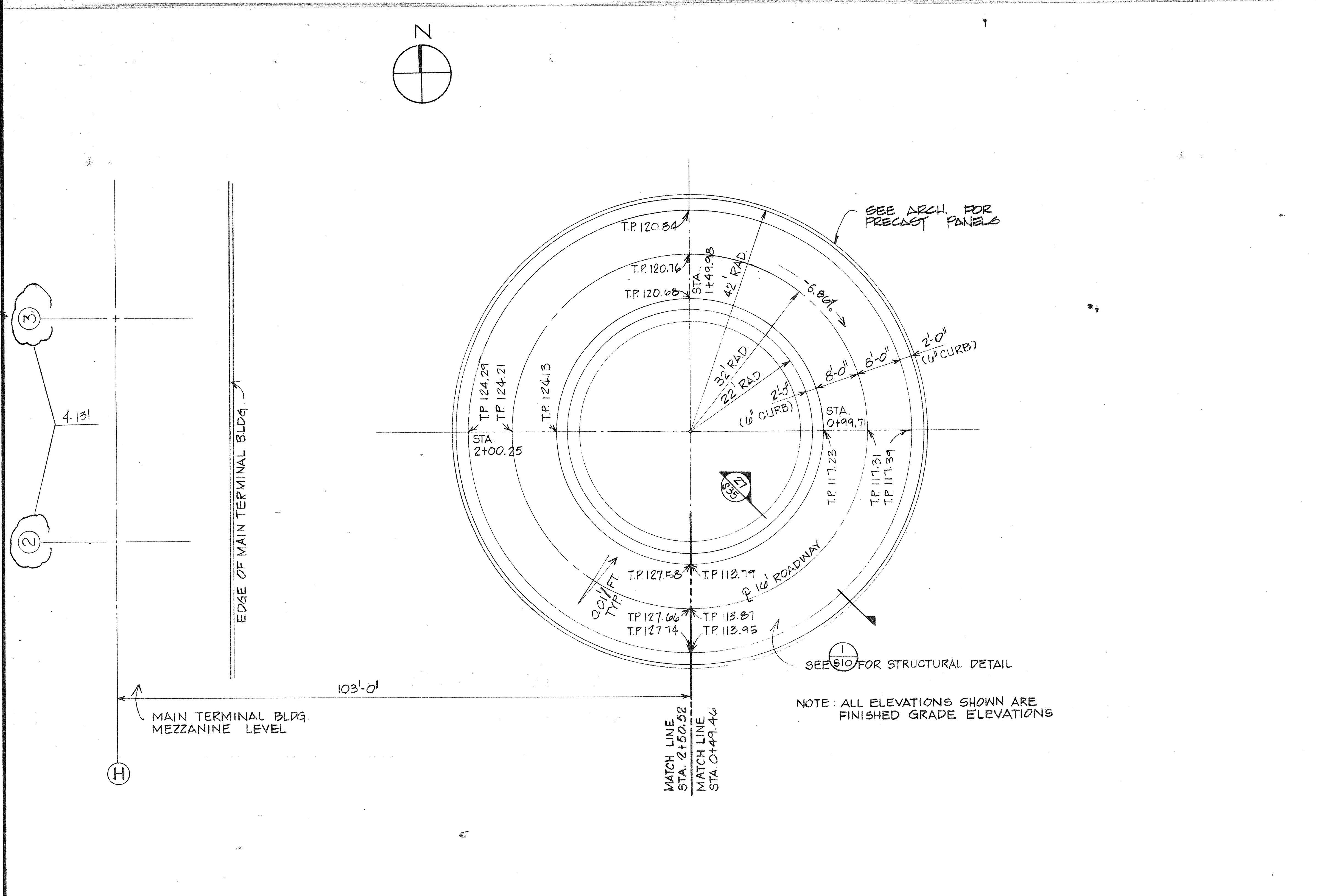
ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOVAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.H.
DATE Aug. 15, 1977

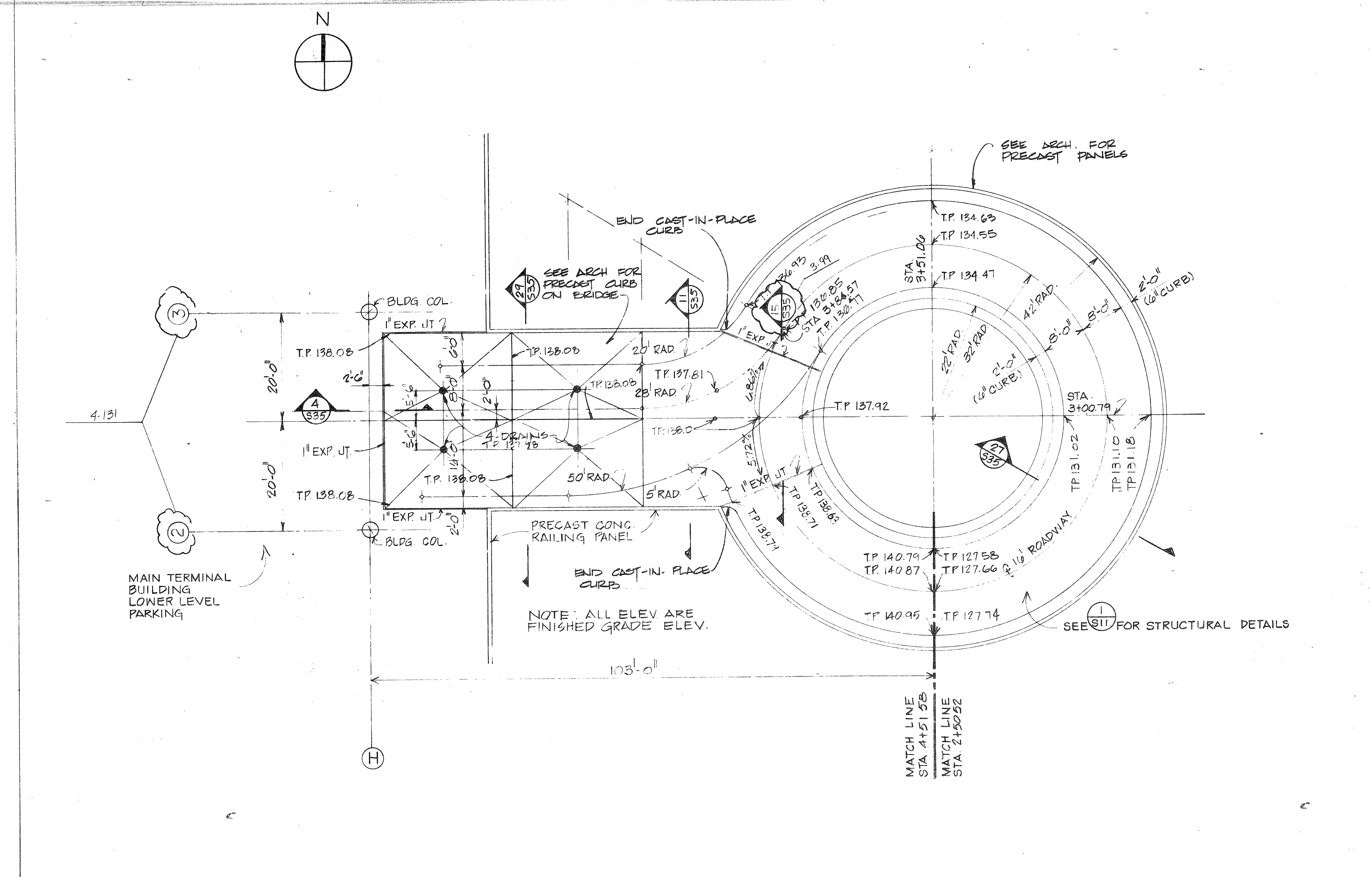
REVISIONS
△ RECORD DRAWING, 6/15/78

SPIRAL RAMP
FOUNDATION PLAN AND DET.
DRAWING NO. 6950-186

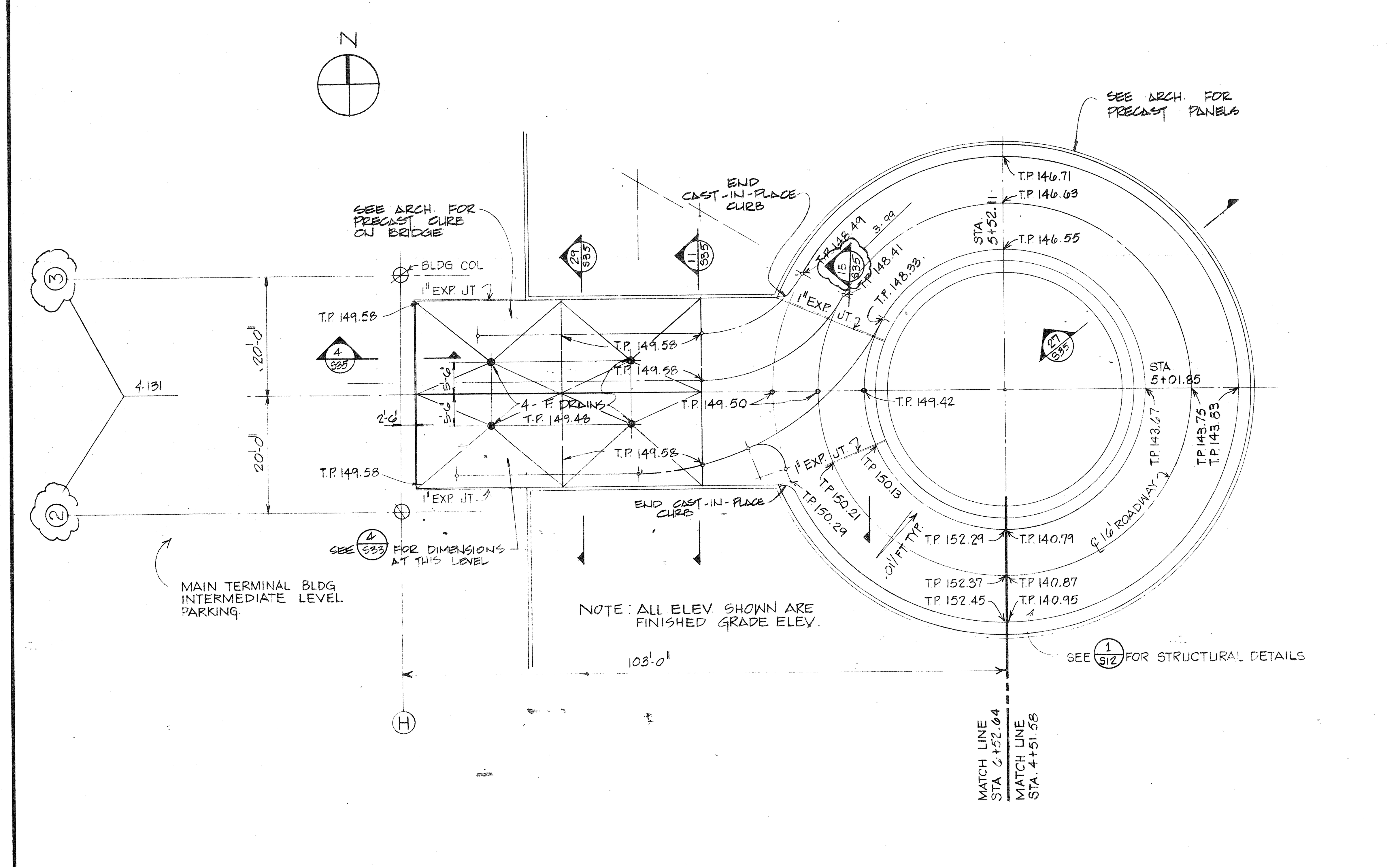
S-32
SHEET OF



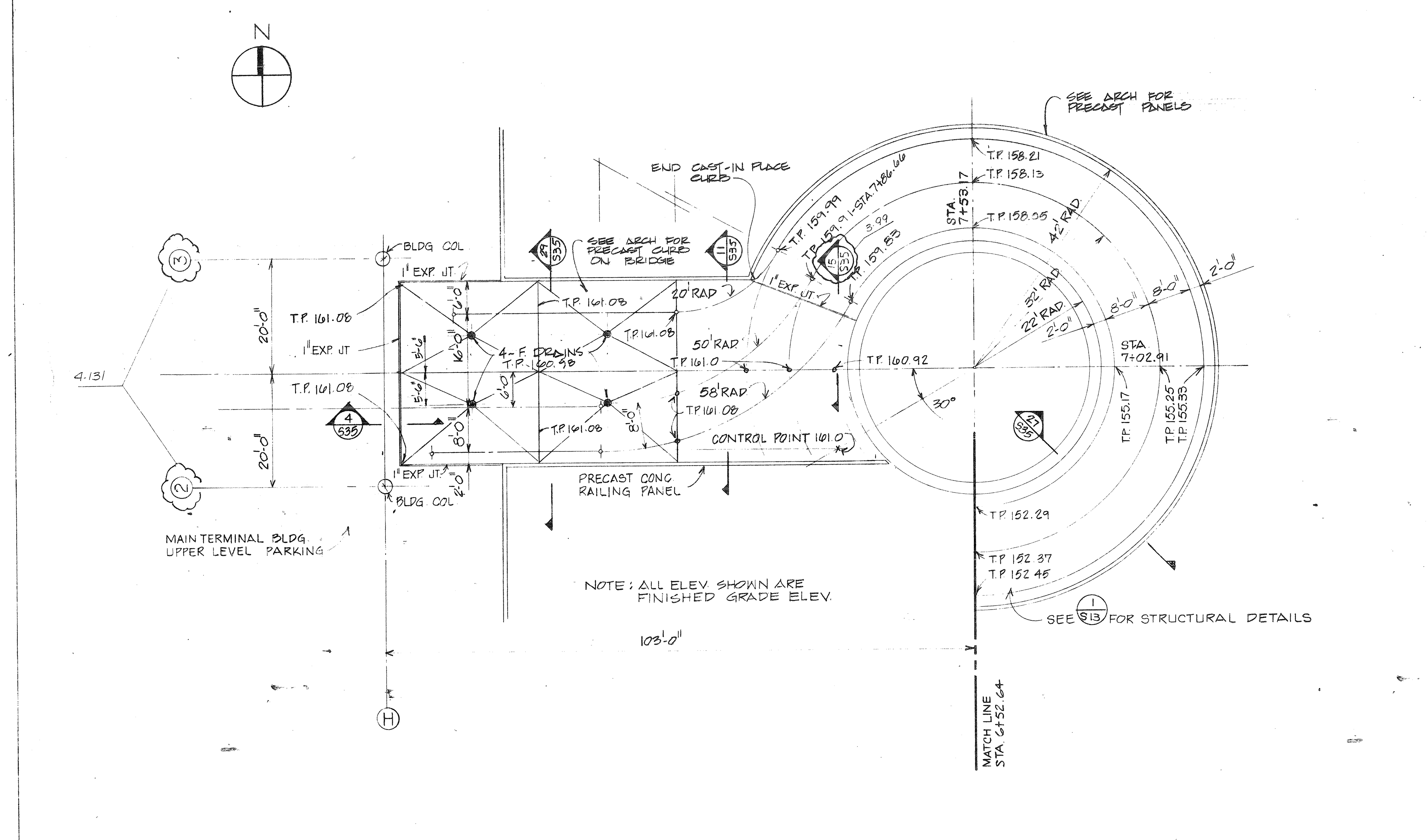
SPIRAL RAMP @ MEZZANINE LEVEL – PLAN 3/32" = 1'-0" (22)



SPIRAL RAMP LOWER PARKING LEVEL – PLAN 3/32" = 1'-0" (4)



SPIRAL RAMP @ INTERMEDIATE PARKING LEVEL – PLAN 3/32" = 1'-0" (19)



SPIRAL RAMP @ UPPER PARKING LEVEL – PLAN 3/32" = 1'-0" (1)

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

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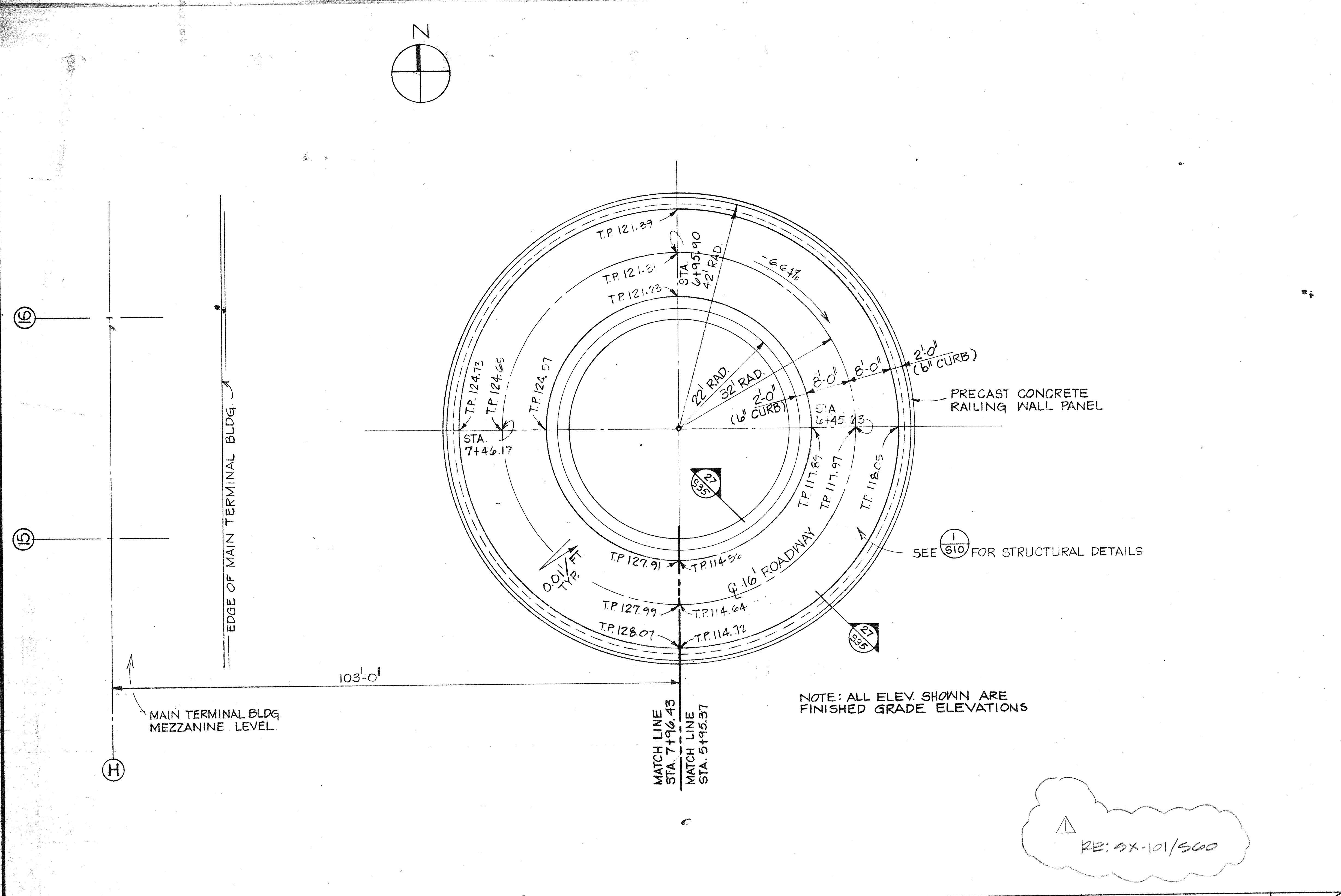
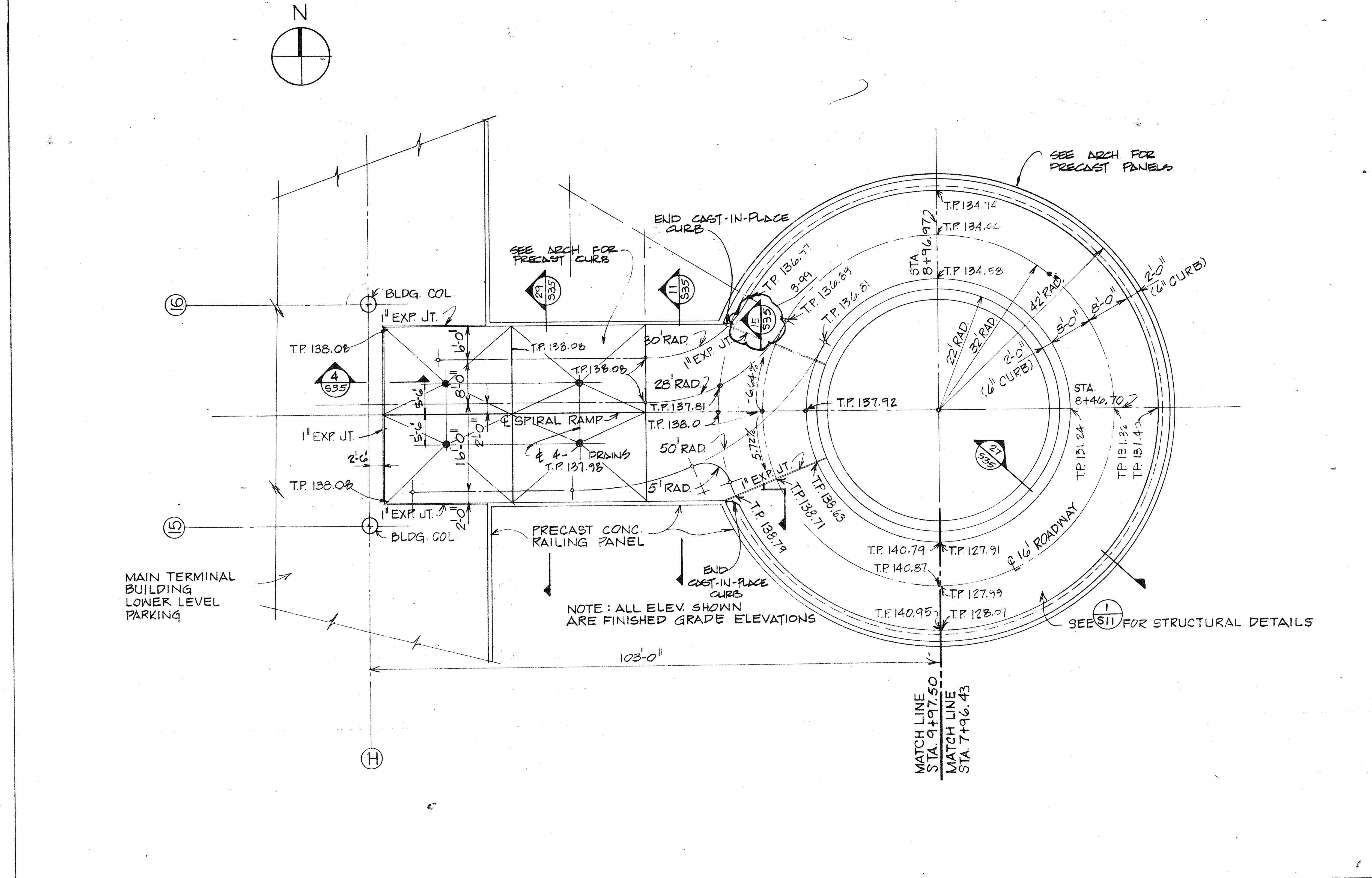
TURNER, COLLIE, & BRADEN, INC.

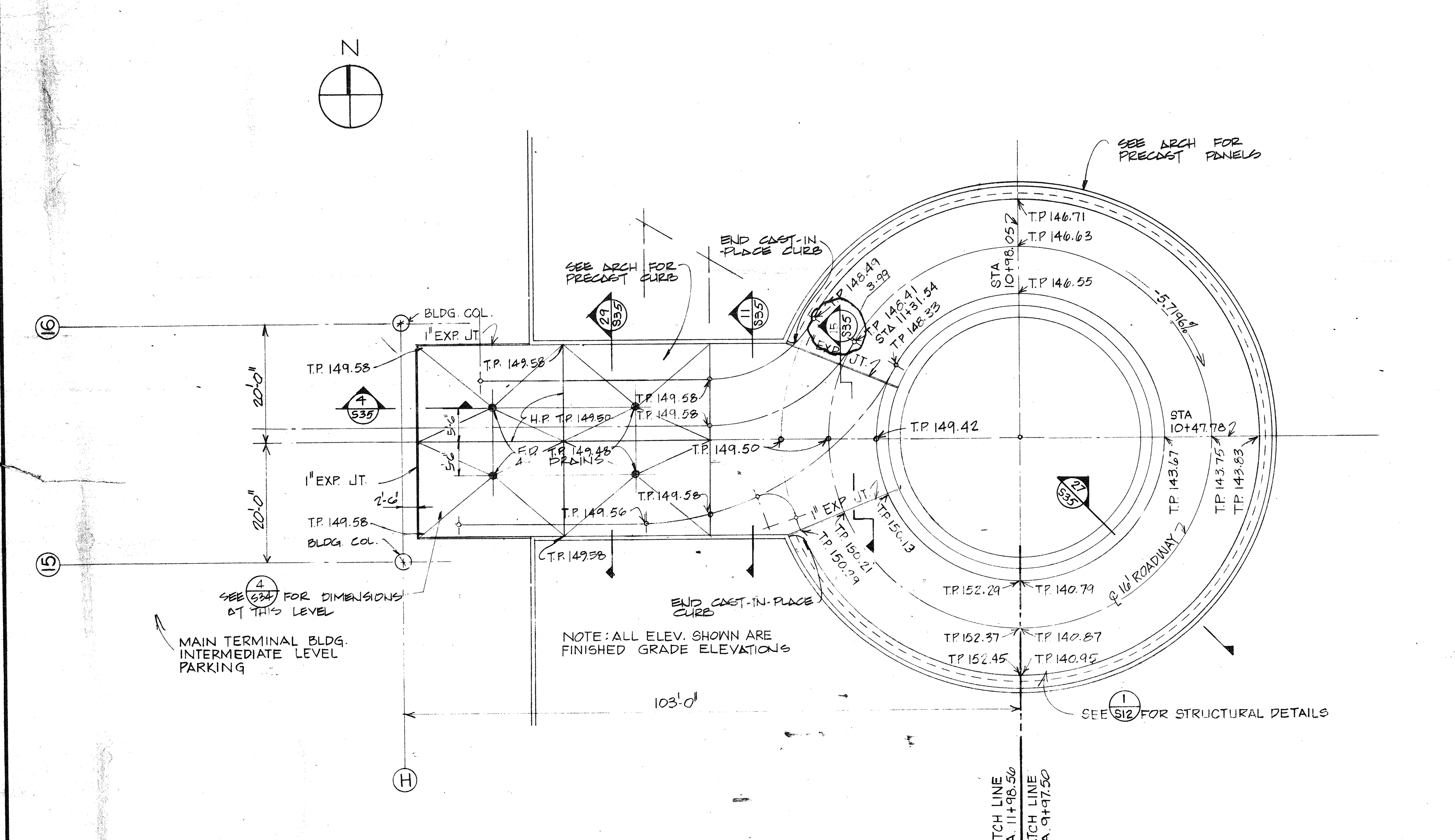
DRAWN D.T.	REVISIONS	SPIRAL RAMP	S33
CHECKED R.L.H.	REVISED DRAWINGS, 6-18-85	DRAWING NO. 6950-186	
DATE Aug. 15, 1977		ENTRANCE RAMP PLANS	SHEET OF



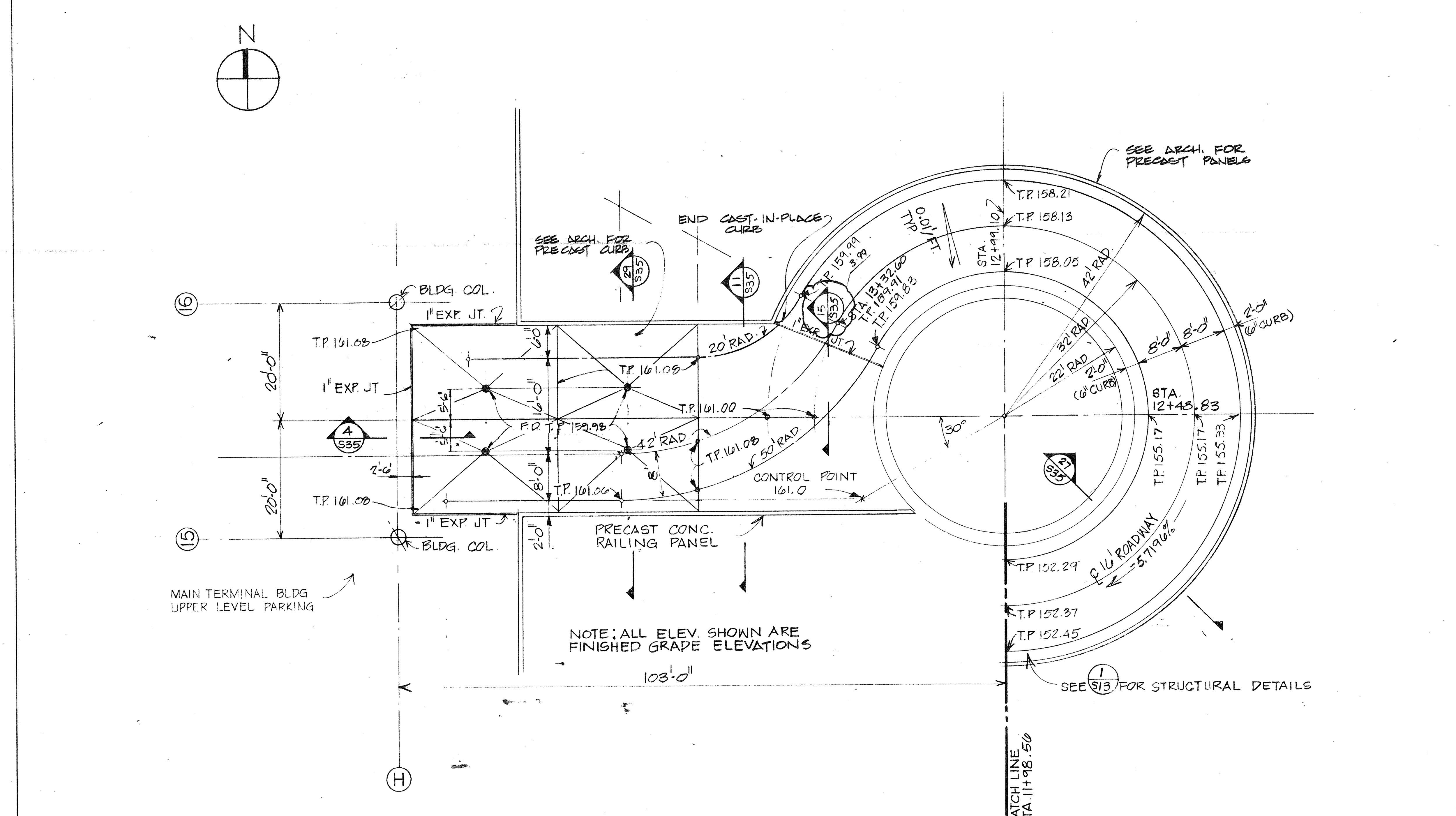
SPIRAL RAMP @ MEZZANINE LEVEL - PLAN 3/32" = 1'-0" (22)



SPIRAL RAMP @ LOWER PARKING LEVEL - PLAN 3/32" = 1'-0" (4)



SPIRAL RAMP @ INTERMEDIATE PARKING LEVEL - PLAN 3/32" = 1'-0" (19)



THIS SHEET HAS BEEN AMENDED TO INCLUDE DRAWING ITEMS DESCRIBED IN ADDENDA ONE THRU SEVEN. DECEMBER 16, 1977.

SPIRAL RAMP @ UPPER PARKING LEVEL - PLAN 3/32" = 1'-0" (1)

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HOUSTON INTERCONTINENTAL AIRPORT
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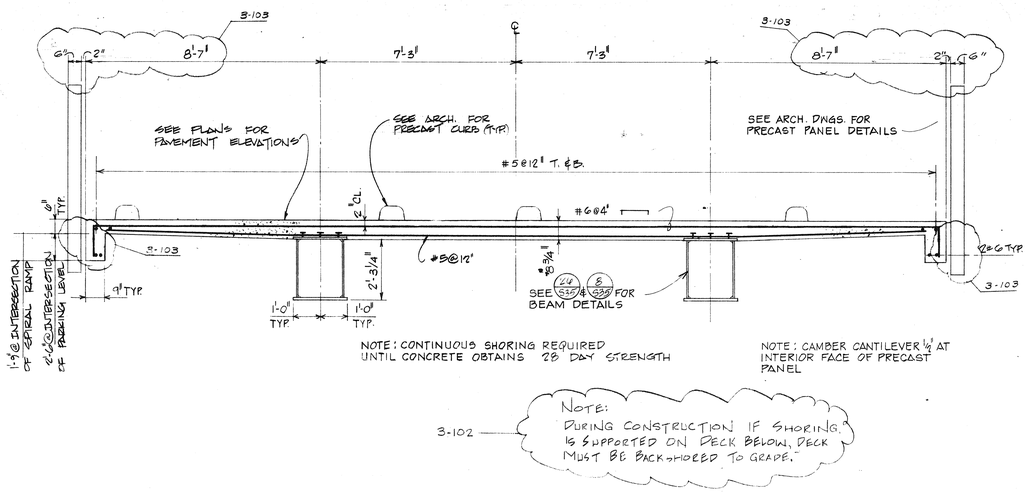
TURNER, COLLIE, & BRADEN, INC.

DRAWN	D.T.
CHECKED	R.L.H.
DATE	Aug 15, 1977

REVISIONS
△ RECORD DRAWINGS 6-13-83

SPIRAL RAMP
EXIT RAMP PLANS
DRAWING NO. 6950-186

SHEET S34 OF

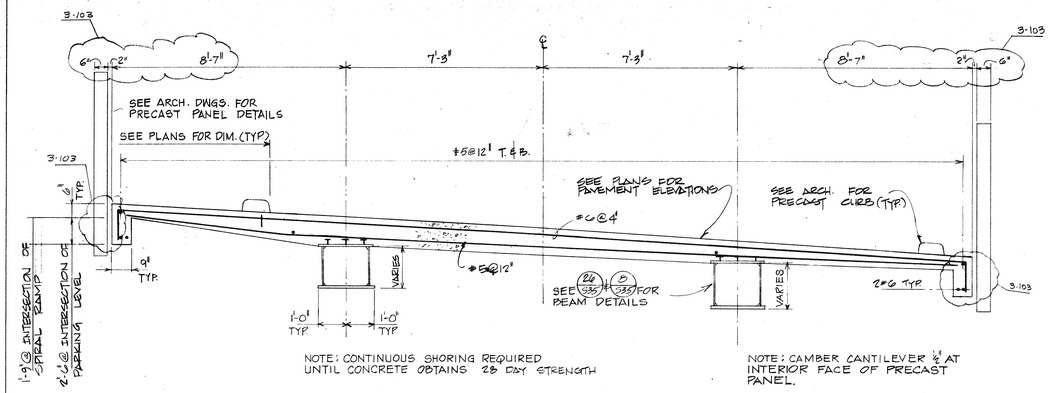


NOTE: CONTINUOUS SHORING REQUIRED UNTIL CONCRETE OBTAINS 28 DAY STRENGTH

NOTE: CAMBER CANTILEVER ½" AT INTERIOR FACE OF PRECAST PANEL

3-102 NOTE: DURING CONSTRUCTION IF SHORING IS SUPPORTED ON DECK BELOW, DECK MUST BE BACKSHORED TO GRADE.

SPIRAL RAMP TO MAIN BLDG. BRIDGE SECTION (TYP. LOWER, INT., & UPPER PARKING LEVELS) | ⅛"=1'-0" | 29

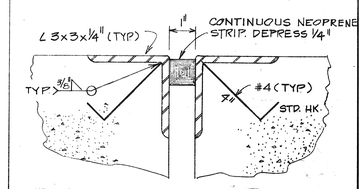


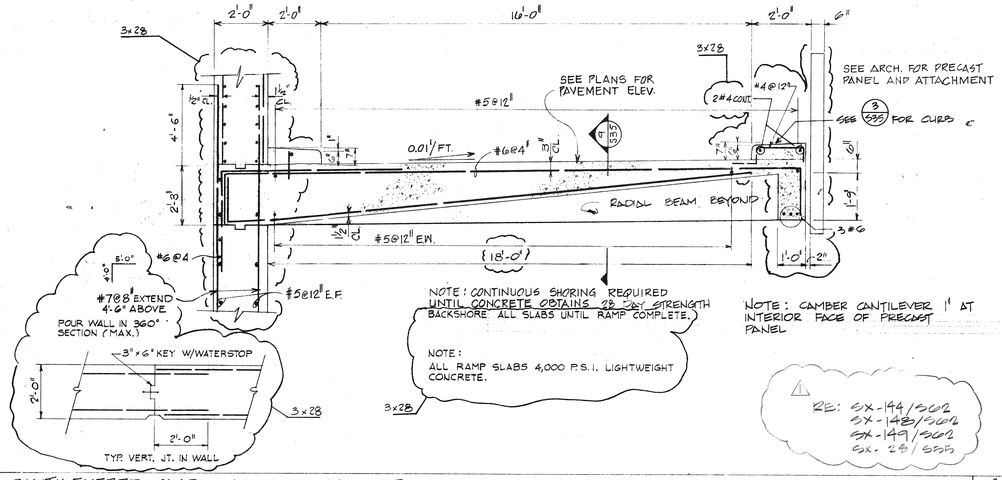
NOTE: CONTINUOUS SHORING REQUIRED UNTIL CONCRETE OBTAINS 28 DAY STRENGTH

NOTE: CAMBER CANTILEVER ½" AT INTERIOR FACE OF PRECAST PANEL.

SPIRAL RAMP TO MAIN BLDG. BRIDGE SECTION (LOWER, INT., UPPER PARKING LEVELS) | ½"=1'-0" | 11

GENERAL NOTES | 5





NOTE: CONTINUOUS SHORING REQUIRED UNTIL CONCRETE OBTAINS 28 DAY STRENGTH BACKSHORE ALL SLABS UNTIL RAMP COMPLETE.

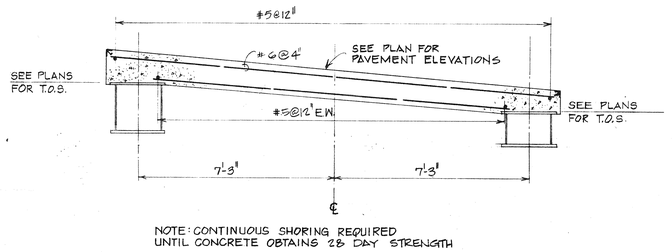
NOTE: ALL RAMP SLABS 4,000 P.S.I. LIGHTWEIGHT CONCRETE.

3x28

NOTE: CAMBER CANTILEVER 1" AT INTERIOR FACE OF PRECAST PANEL

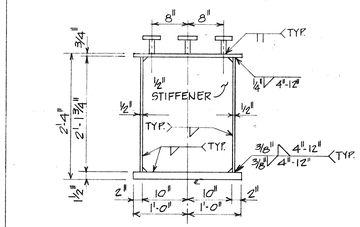
RE: SX-144/S02, SX-148/S02, SX-149/S02, SX-28/S35

CANTILEVERED SLAB AND CORE WALL REINFORCING DETAIL | ½"=1'-0" | 27



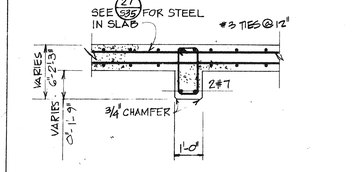
NOTE: CONTINUOUS SHORING REQUIRED UNTIL CONCRETE OBTAINS 28 DAY STRENGTH

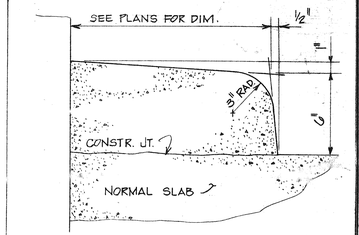
SECTION - ELEVATED SLAB AT CORE WALL | ½"=1'-0" | 15



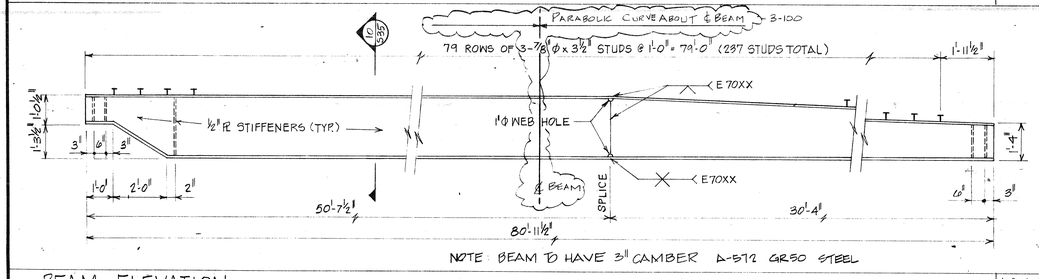
NOTE: A-572 GR 50 STEEL

BEAM SECTION | ¾"=1'-0" | 10



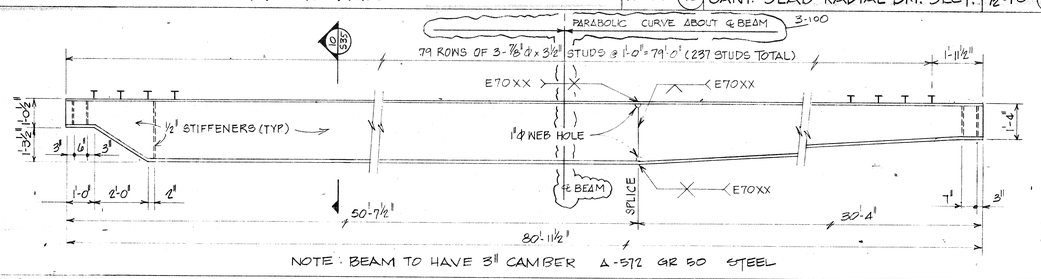


CURB DETAIL | 3"=1'-0" | 3



NOTE BEAM TO HAVE 3" CAMBER A-572 GR50 STEEL

BEAM ELEVATION | ½"=1'-0" | 26



NOTE: BEAM TO HAVE 3" CAMBER A-572 GR 50 STEEL

BEAM ELEVATION | ½"=1'-0" | 8

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HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

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Harry A. Golemon

AIRPORT ARCHITECTS
GOLEMON & ROLFE
AND
PIERCE, GOODWIN, ALEXANDER

REGISTERED ARCHITECT STATE OF TEXAS

ENGINEERS OF THE SOUTHWEST
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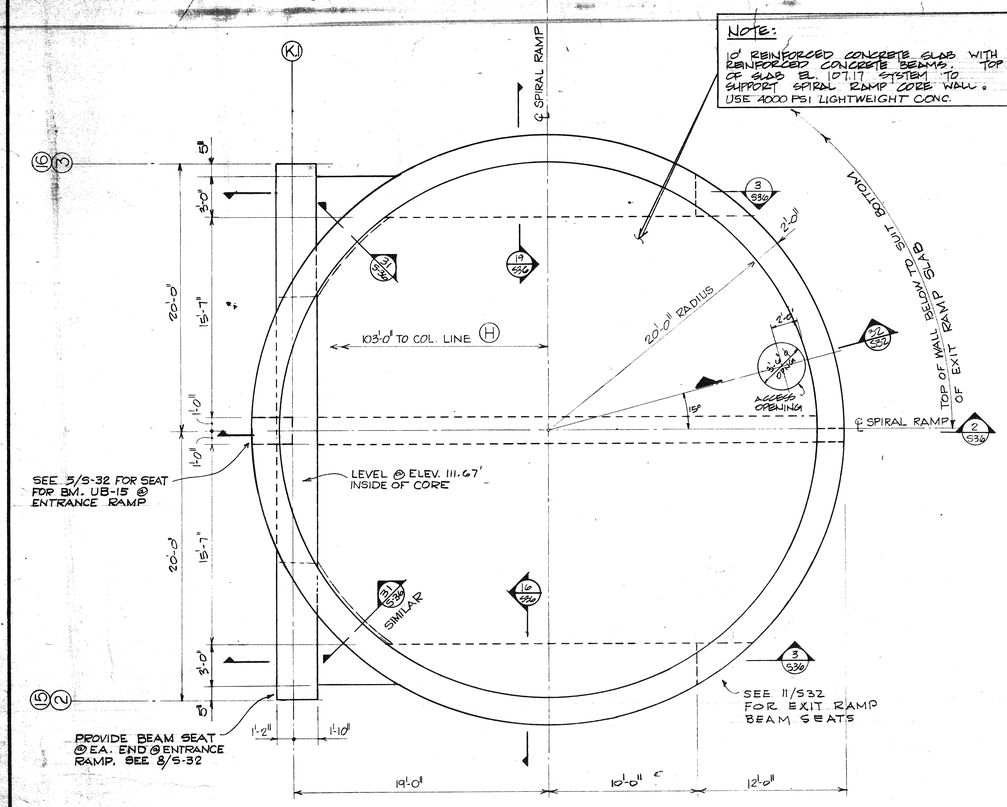
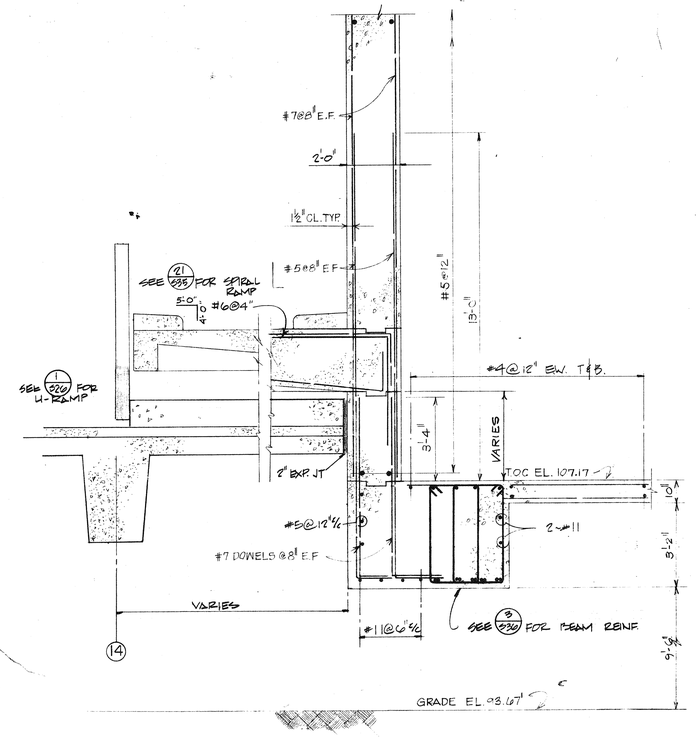
TURNER, COLLIE, & BRADEN, INC.

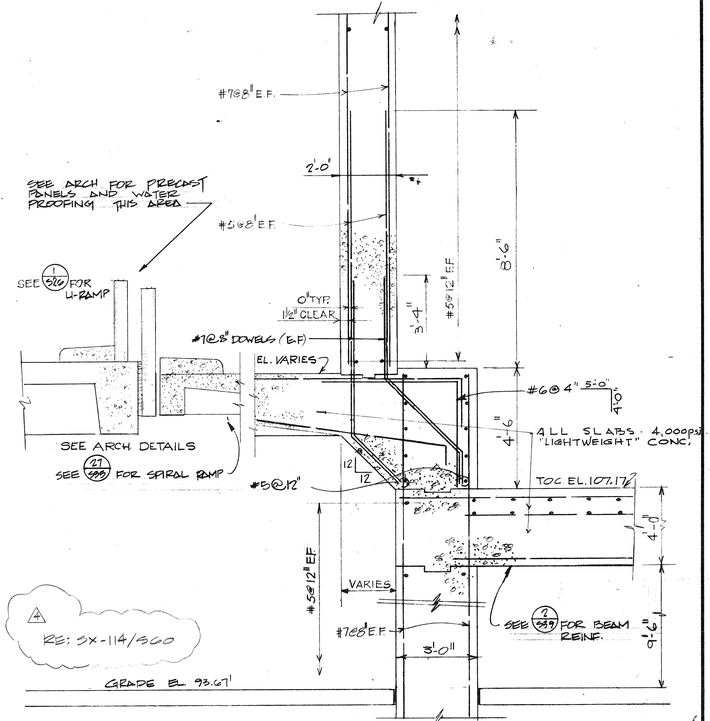
DRAWN TILOTTA	REVISIONS	SPIRAL RAMP	S 35
CHECKED R.L.H.	⚠ RECORD DRAWINGS, 5-17-85	SECTIONS & DETAILS	SHEET OF
DATE AUG. 13, 1977		DRAWING NO. 6950-186	



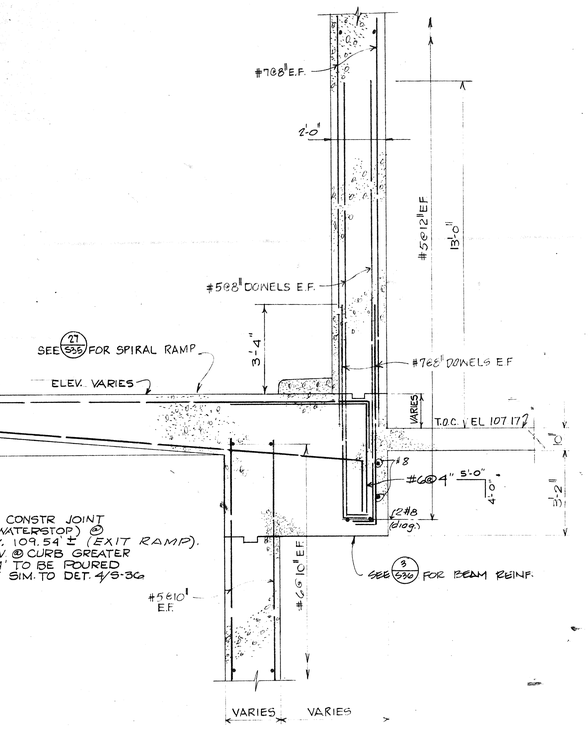
CORE WALL FRAMING PLAN @ EL. 107.17 — 1/4"=1'-0" (28)



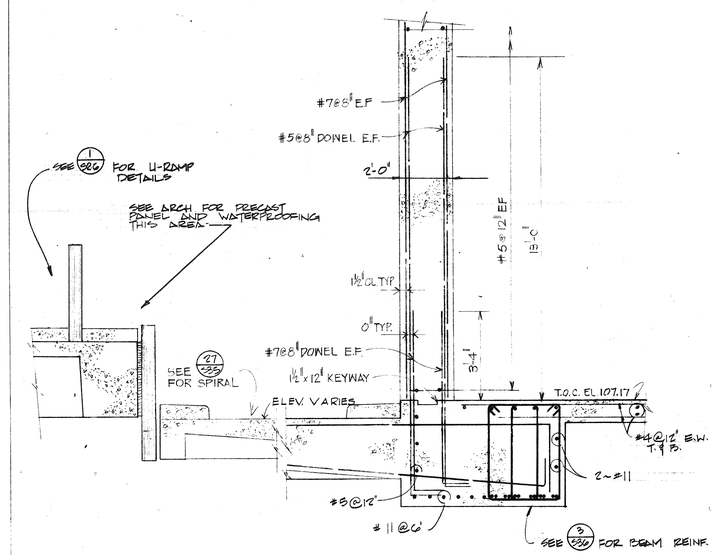
CORE WALL & CANTILEVERED SLAB SECTION — 1/2"=1'-0" (16)



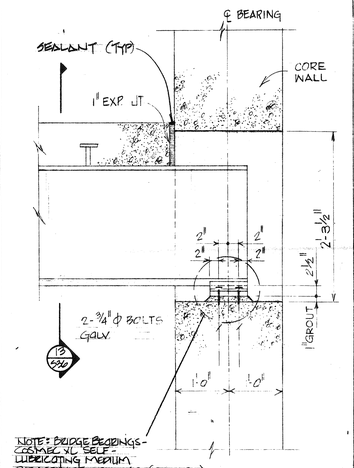
CORE WALL & CANTILEVERED SLAB SECTION — 1/2"=1'-0" (4)



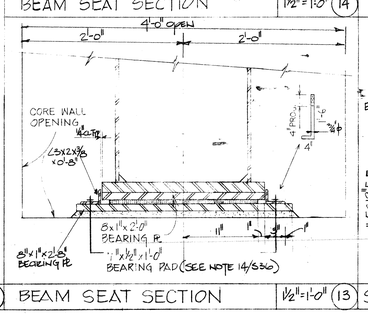
CORE WALL, PEDESTAL & CANTILEVERED SLAB SECTION — 1/2"=1'-0" (31)



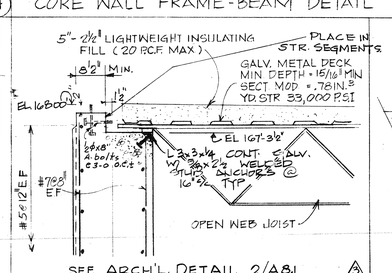
CORE WALL & CANTILEVERED SLAB SECTION — 1/2"=1'-0" (19)



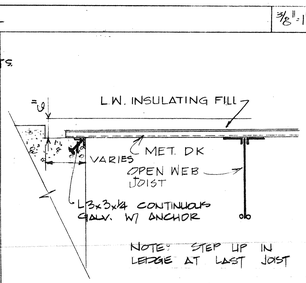
BEAM SEAT SECTION — 1/2"=1'-0" (14)



BEAM SEAT SECTION — 1/2"=1'-0" (13)



SPIRAL RAMP ROOF DETAIL — 3/4"=1'-0" (7)



SPIRAL RAMP ROOF DETAIL — 3/4"=1'-0" (1)

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HOUSTON INTERCONTINENTAL AIRPORT
TERMINAL C

APPROVED: EXEC. AIRPORT DIR., DEPT. OF PUB. WKS. — DIRECTOR OF PUBLIC WORKS — DIRECTOR OF AVIATION — ASST. DIRECTOR DEPT. OF PUB. WKS.

AIRPORT ARCHITECTS
GOLEMON & ROLFE
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ENGINEERS OF THE SOUTHWEST
LOCKWOOD, ANDREWS, & NEWNAM, INC.
BOWAY ENGINEERS, INC.
TURNER, COLLIE, & BRADEN, INC.

DRAWN D.T.
CHECKED R.L.H.
DATE Aug 15, 1977

REVISIONS
ADDENDA #3 9-23-77
RECORD DRAWING 6-15-83

SPIRAL RAMP
SECTIONS & DETAILS
DRAWING NO. 6950-186

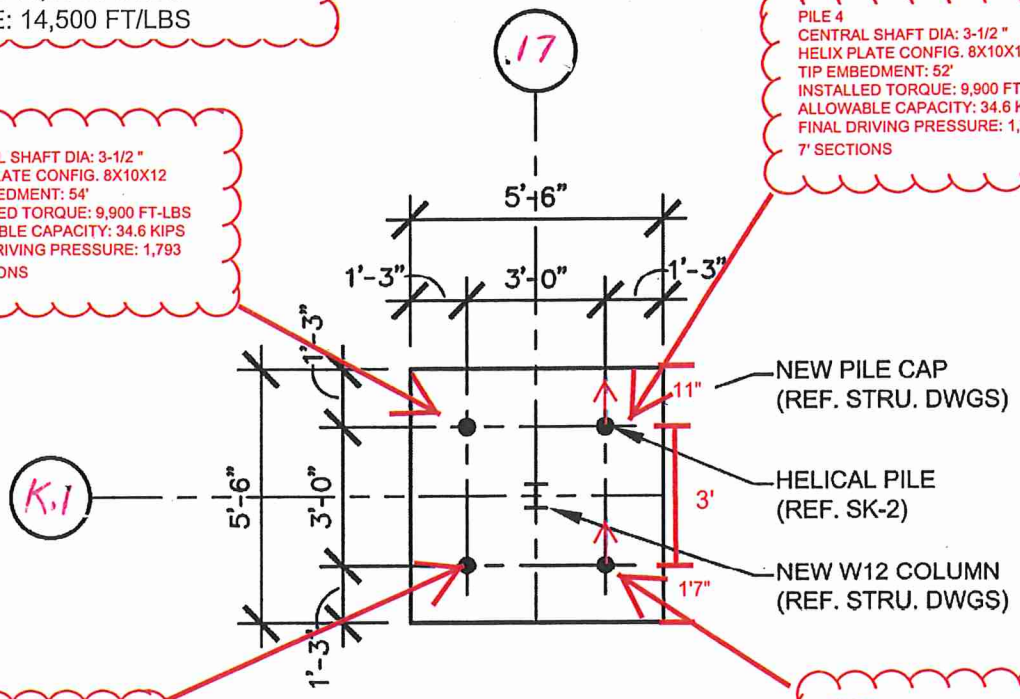
S36
SHEET OF

HELICAL PILE INFO

INSTALL DATE: 11/08/2022
PILE MANUFACTURER: RAMJACK
CONTRACTOR: RAMJACK
EQ I.D: TORQUE CELL 63800010
MIN. TORQUE 11,500 FT/LBS
MAX TORQUE: 14,500 FT/LBS

PILE 1
CENTRAL SHAFT DIA: 3-1/2 "
HELIX PLATE CONFIG. 8X10X12
TIP EMBEDMENT: 54'
INSTALLED TORQUE: 9,900 FT-LBS
ALLOWABLE CAPACITY: 34.6 KIPS
FINAL DRIVING PRESSURE: 1,793
7' SECTIONS

PILE 4
CENTRAL SHAFT DIA: 3-1/2 "
HELIX PLATE CONFIG. 8X10X12
TIP EMBEDMENT: 52'
INSTALLED TORQUE: 9,900 FT-LBS
ALLOWABLE CAPACITY: 34.6 KIPS
FINAL DRIVING PRESSURE: 1,793 PSI
7' SECTIONS



PILE 2
CENTRAL SHAFT DIA: 3-1/2 "
HELIX PLATE CONFIG. 8X10X12
TIP EMBEDMENT: 51'
INSTALLED TORQUE: 10,000 FT-LBS
ALLOWABLE CAPACITY: 35 KIPS
FINAL DRIVING PRESSURE: 1,900 PSI
5' SECTIONS

PILE 3
CENTRAL SHAFT DIA: 3-1/2 "
HELIX PLATE CONFIG. 8X10X12
TIP EMBEDMENT: 52'
INSTALLED TORQUE: 10,000 FT-LBS
ALLOWABLE CAPACITY: 35 KIPS
FINAL DRIVING PRESSURE: 1900 PSI
7' SECTIONS

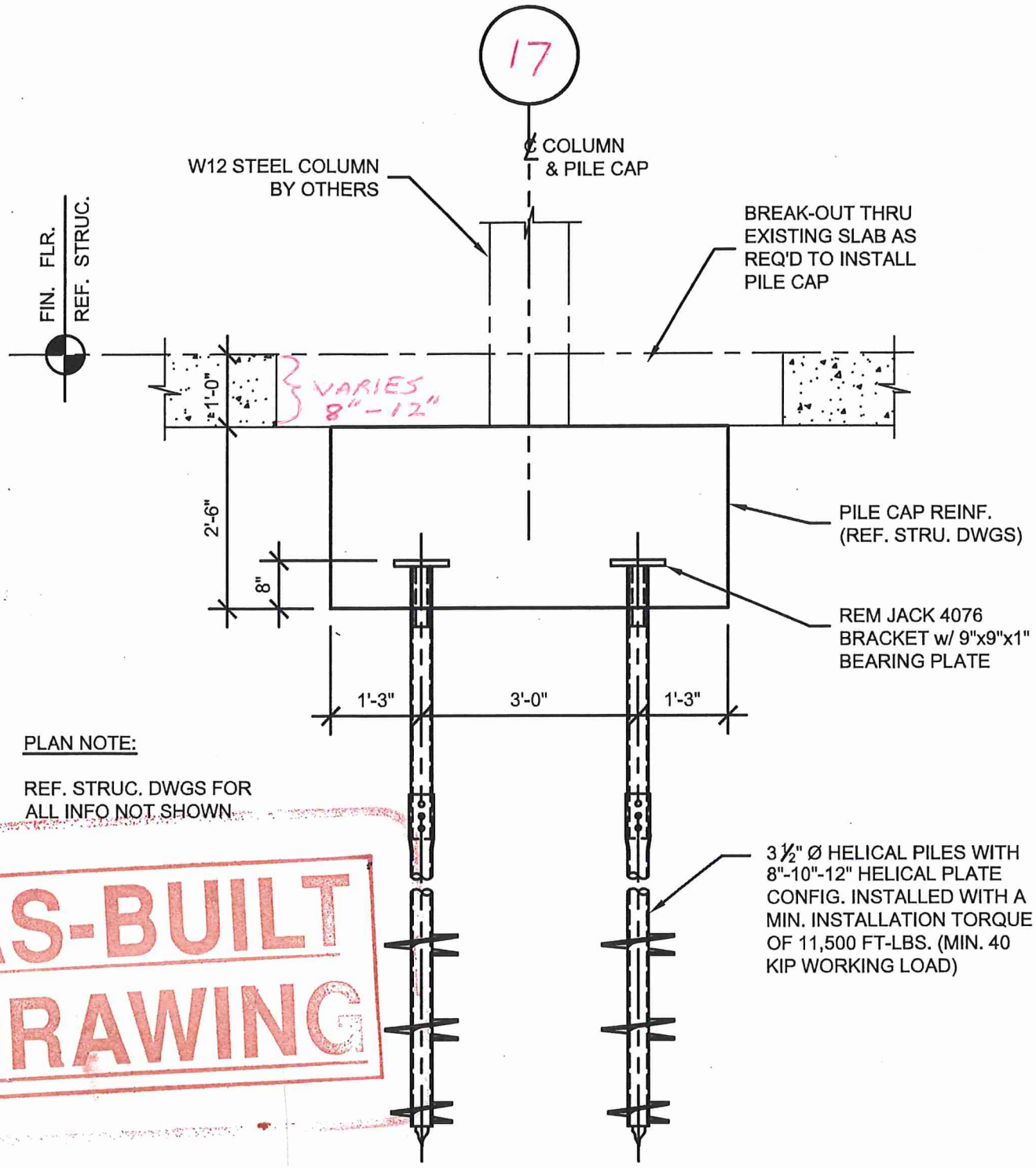
PLAN NOTES

1. HELICAL PILES TO HAVE A MINIMUM WORKING CAPACITY OF 40 KIPS.
2. REFERENCE SK-2 FOR HELICAL PILE DETAILS.

AS-BUILT DRAWING

HELICAL PILE PLACEMENT PLAN

	CLIENT: RAM JACK HOUSTON PROJECT: IAH TC BEAM UB-47 REPAIRS 2800 N TERMINAL ROAD HOUSTON, TX 77032	DATE: 10/25/2022 SCALE: ¼" = 1'-0	SHEET NO.: SK-1

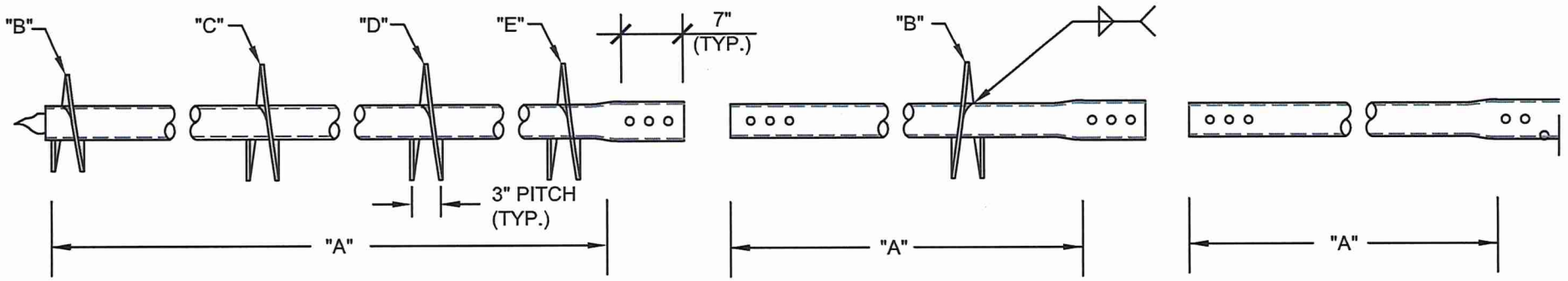


AS-BUILT DRAWING

01 TYPICAL PILE CAP DETAIL

	CLIENT: RAM JACK HOUSTON PROJECT: IAH TC BEAM UB-47 REPAIRS 2800 N TERMINAL ROAD HOUSTON, TX 77032	DATE: 10/25/2022 SCALE: ½" = 1'-0	SHEET NO.: SK-2

3.5"Ø HELICAL PILES AND ANCHORS - UPSET CONNECTION



LEAD SECTION | HELIX EXTENSION | EXTENSION

LEAD SECTION TABLE					
CAT. #	"A"	"B"	"C"	"D"	"E"
4607	5'-0	8"			
4640	5'-0	8"	10"		
4613	5'-0	10"	12"		
4611	7'-0	10"	12"		
4641	7'-0	8"	10"	12"	
4617	7'-0	10"	12"	12"	
RD.3047	10'-0	8"	10"	12"	14"
RD.2461	12'-0	8"	10"	12"	14"

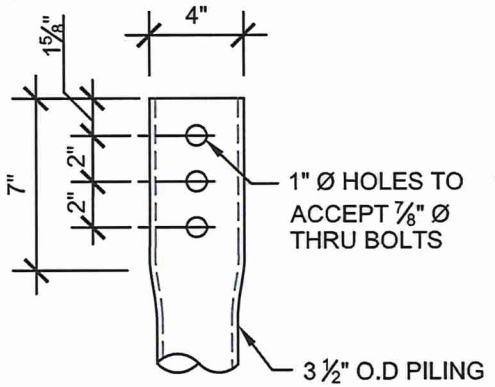
* MULTI-HELIX ARE SPACED 3 DIAMETERS OF THE LOWEST HELIX.

HELIX EXTENSIONS		
CAT #	"A"	"B"
8705.8	5'-0	8"
8705.10	5'-0	10"
8705.12	5'-0	12"
8707.10	7'-0	10"

EXTENSIONS	
CAT #	"A"
8705	5'-0
8707	7'-0
8710	10'-0
8712	12'-0

PIERS 2 & 3
PIERS 1 & 4

MECHANICAL TORQUE RATING - 14,510 FT-LB
ULTIMATE CAPACITY (COMP. & TENS.) - 101.6 KIP *
ALLOWABLE CAPACITY (COMP. & TENS.) - 50.8 KIP *
*BASED ON A TORQUE FACTOR (Kt) = 7



CONNECTION DETAIL

NOTES:

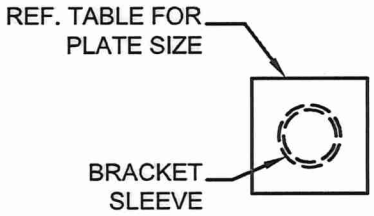
1. POLYETHYLENE POLYMER THERMOPLASTIC COATING PER ICC-ES AC 228. (GALVANIZED AND UNCOATED PILES AVAILABLE UPON REQUEST)
2. LEAD AND EXTENSION SECTION LENGTHS ARE NOMINAL.
3. SHAFT MATERIAL IS 3 ½" O.D., 0.254" WALL, MINIMUM Fy=65 KSI AND Fu=76 KSI, ASTM - A500.
4. HELIX BLADE MATERIAL IS HOT ROLLED, MINIMUM Fy=50 KSI AND Fu=80 KSI CARBON STEEL. PLATE THICKNESS IS AVAILABLE IN ⅜" AND ½" THICKNESSES.
5. NOMINAL SPACING BETWEEN HELICAL PLATES IS THREE TIMES THE DIAMETER OF THE LOWEST HELIX.
6. MANUFACTURER SHALL BE ISO 9001:2015 CERTIFIED.
7. ALL WELDING IS TO BE DONE BY WELDERS CERTIFIED UNDER SECTION 5 OF THE AWS CODE D1.1.
8. ALL COUPLING BOLTS TO BE ⅞"Ø, SAE J429 GRADE 8 BOLTS. (SAE J429 GRADE 5 IF GALVANIZED).

AS-BUILT DRAWIN

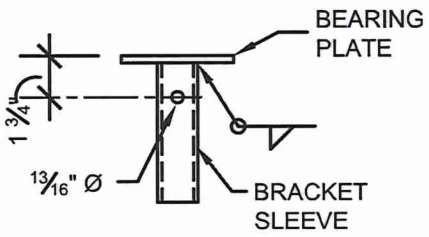
RAMJACK

DWG. NO. : 3.500	CATALOG NO. : SEE TABLES		REV. 1
SCALE 3/4"= 1'-0	DRAWN BY SA	DATE: 2/23/17	SHEET 1 OF 1

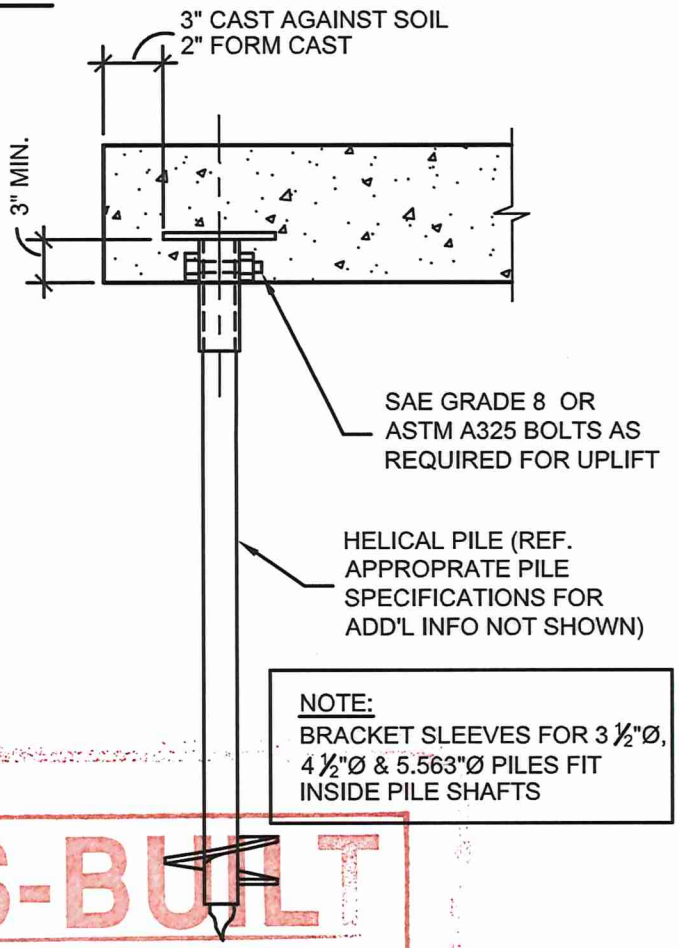
NEW CONSTRUCTION BRACKET DETAIL



TOP VIEW



SIDE VIEW



TYPICAL BRACKET w/
PILE ASSEMBLY DETAIL

STANDARD NEW CONSTRUCTION BRACKET CHART				
PART NUMBER	DIAMETER OF PILE	ALLOWABLE LOAD CAPACITY	BEARING PLATE SIZE	BRACKET SLEEVE AND LENGTH
4074	2 3/8"	24.2 KIPS	PL 5/8" x 8" x 0'-8	2 7/8"Ø x 0'-8
4075	2 7/8"	20.6 KIPS	PL 5/8" x4" x 0'-8	3 1/2"Ø x 0'-10
4079	2 7/8"	36.5 KIPS	PL 5/8" x 8" x 0'-8	3 1/2"Ø x 0'-10
4076	3 1/2"	65.1 KIPS	PL 1" x 9" x 0'-9	2 7/8"Ø x 0'-10
4077	4 1/2"	75.8 KIPS	PL 1" x 9" x 0'-9	3 1/2"Ø x 0'-10
4078	5.563"	80 KIPS	PL 1" x 10" x 0'-10	4 1/2"Ø x 0'-10

NOTE:
BRACKET SLEEVES FOR 3 1/2"Ø, 4 1/2"Ø & 5.563"Ø PILES FIT INSIDE PILE SHAFTS

NOTES:

1. POLYETHYLENE COPOLYMER THERMOPLASTIC COATING PER ICC-ES AC 228
2. REFERENCE PRE-CONSTRUCTION BRACKET CHART FOR ALLOWABLE LOAD CAPACITY OF BRACKET ONLY.
3. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL AND ASSURANCE FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
4. MANUFACTURER SHALL BE ISO CERTIFIED.
5. ALL WELDING IS TO BE DONE BY WELDERS CERTIFIED UNDER SECTION 5 OF THE AWS CODE D1.1.
6. THE CAPACITY OF THE UNDERPINNING SYSTEM IS A FUNCTION OF MANY INDIVIDUAL ELEMENTS, INCLUDING THE CAPACITY OF THE FOUNDATION, BRACKET, PIER SHAFT, HELICAL PLATE, AND BEARING STRATA, AS WELL AS THE STRENGTH OF THE FOUNDATION BRACKET CONNECTION AND THE QUALITY OF THE INSTALLATION OF THE PILE. YOUR ACHIEVABLE CAPACITIES COULD BE HIGHER OR LOWER THAN THOSE LISTED DEPENDING ON THE ABOVE FACTORS.
7. SEE ICC-ES EVALUATION REPORT ESR-1854 AND RAM JACK ENGINEERING HANDBOOK FOR ALLOWABLE VALUES AND/OR CONDITIONS OF USE CONCERNING MATERIAL PRESENTED IN THIS DOCUMENT.

AS-BUILT DRAWING

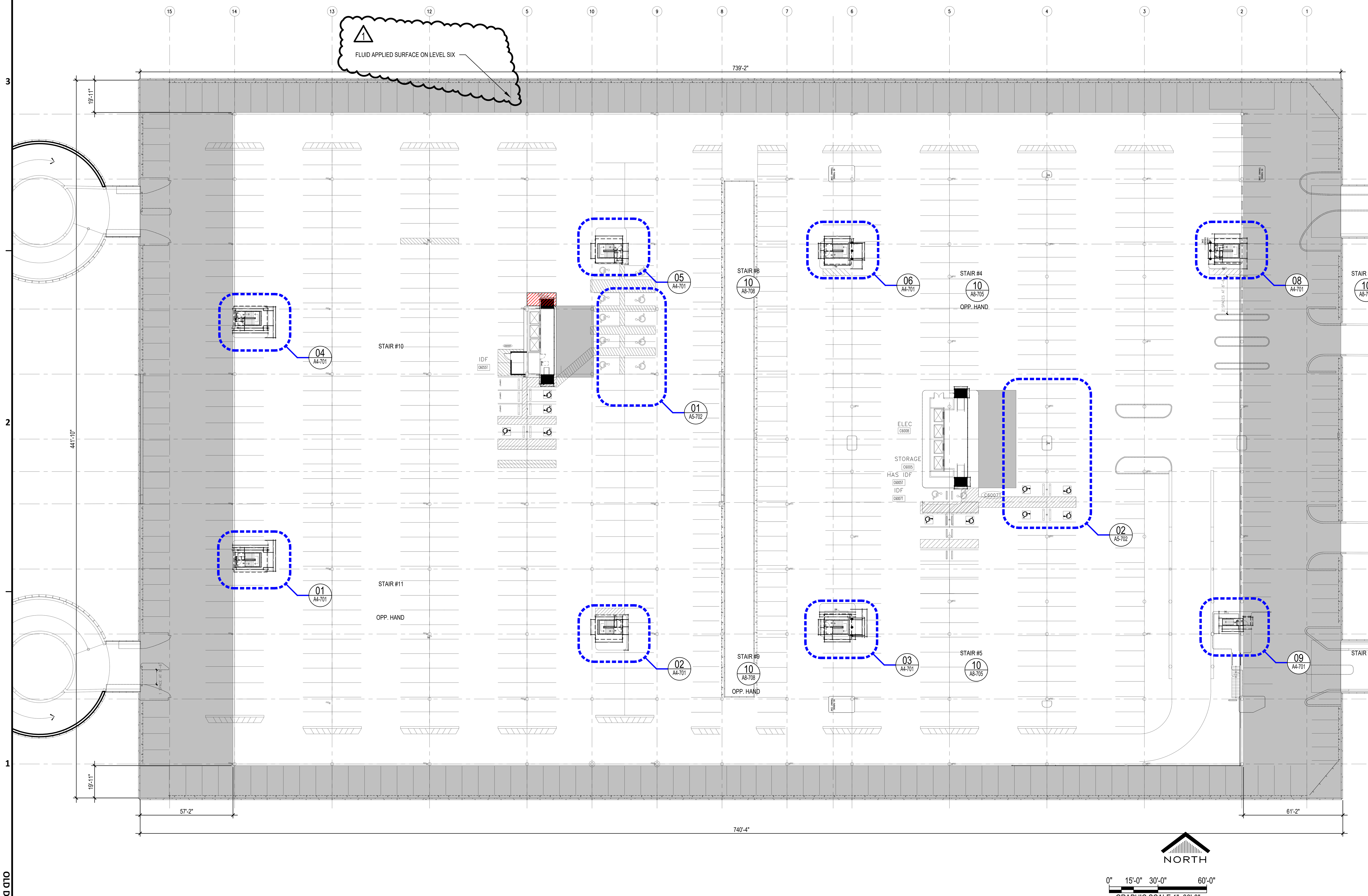
RAMJACK

NEW CONST. BRACKET	CATALOG NO. : SEE TABLES	REV. 1
SCALE 3/4"= 1'-0	DRAWN BY DLW	DATE: 04/30/08	SHEET 1 OF 1

RAMJACK

Install Start Date: 11/8/2022
IAH Term C
Address:

Pier #	Pile Dia	Final Depth (ft)	Final Driving Pressure (PSI)	Torque (FT-LBS)	Allowable Capacity (KIPS)	Helix Conf
1	3 1/2	54	1,793	9,900	34.6 KIPS	8"- 10"-12"
2	3 1/2	51	1,900	10,000	35 KIPS	8"- 10"-12"
3	3 1/2	52	1,900	10,000	35 KIPS	8"- 10"-12"
4	3 1/2	52	1,793	9,900	34.6 KIPS	8"- 10"-12"



01 TERMINAL C 7TH LEVEL FLOOR PLAN

1" = 30'-0"

F:\2019\19-21 HAS- IAH TC STRUCTURAL & PONDING\DWGS\A1-701B IAH TER C GARAGE LEVEL 7 WEST SIDE FLOOR PLAN.DWG

PLOT DATE: 16 October 2023 5:31:32 PM

OLD DOA No.:

DOA DWG FILE:

HOUSTON AIRPORTS

TERMINAL C AT IAH - 2800 N TERMINAL RD
HOUSTON, TX 77032

IAH TERMINAL C HELIX RAMP BEARING AND MISC REPAIRS

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 19-21

PROJECT STATUS: ISSUED FOR CONSTRUCTION

REVISIONS

No.	DESCRIPTION	DATE	BY
A	ISSUED FOR PERMIT 12/15/2022		J TOHILL
B	ISSUED FOR BID 01/20/2023		J TOHILL
0	ISSUED FOR CONSTRUCTION 05/08/2023		J TOHILL
1	ISSUED FOR ADD 01 10/16/2023		J TOHILL

DESIGNER: J TOHILL
DRAWN BY: J TOHILL
CHECKED BY: TBD
ISSUE DATE: 10/16/2023
APPROVED BY:
APPROVAL DATE:

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFP
ISSUED FOR REVIEW

REGISTERED ARCHITECT · STATE OF TEXAS · 22651

09/25/2023

TERMINAL "C"

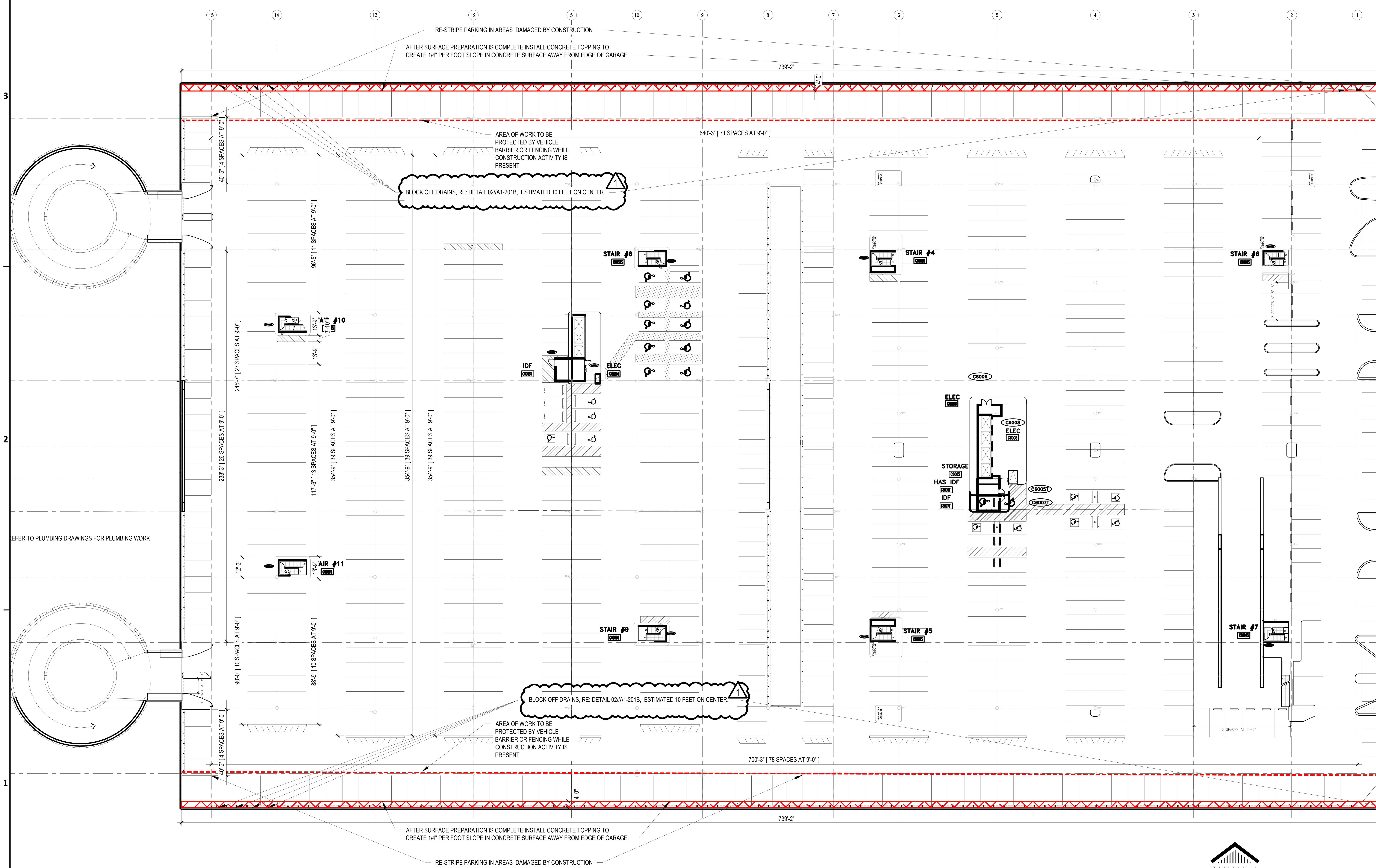
NORTH

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: IAH TER C GARAGE LEVEL 7 WEST SIDE FLOOR PLAN

SHEET No. A1-701B

SCALE:



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PLOT DATE: 16 October 2023 5:30:39 PM

OLD DOA No.:
DOA DWG FILE:

01 IAH TERMINAL C GARAGE LEVEL 6
1" = 30'-0"

HOUSTON AIRPORTS

TERMINAL C AT IAH - 2800 N TERMINAL RD
HOUSTON, TX 77032

IAH TERMINAL C HELIX RAMP BEARING AND MISC REPAIRS

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 19-21
PROJECT STATUS: ISSUED FOR CONSTRUCTION

REVISIONS

No.	DESCRIPTION	DATE	BY
A	ISSUED FOR PERMIT 12/15/2022		J TOHILL
B	ISSUED FOR BID 01/20/2023		J TOHILL
0	ISSUED FOR CONSTRUCTION 05/08/2023		J TOHILL
	ISSUED FOR ADD 01 10/16/2023		

DESIGNER:	J TOHILL
DRAWN BY:	J TOHILL
CHECKED BY:	TBD
ISSUE DATE:	10/16/2023
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFP
ISSUED FOR REVIEW

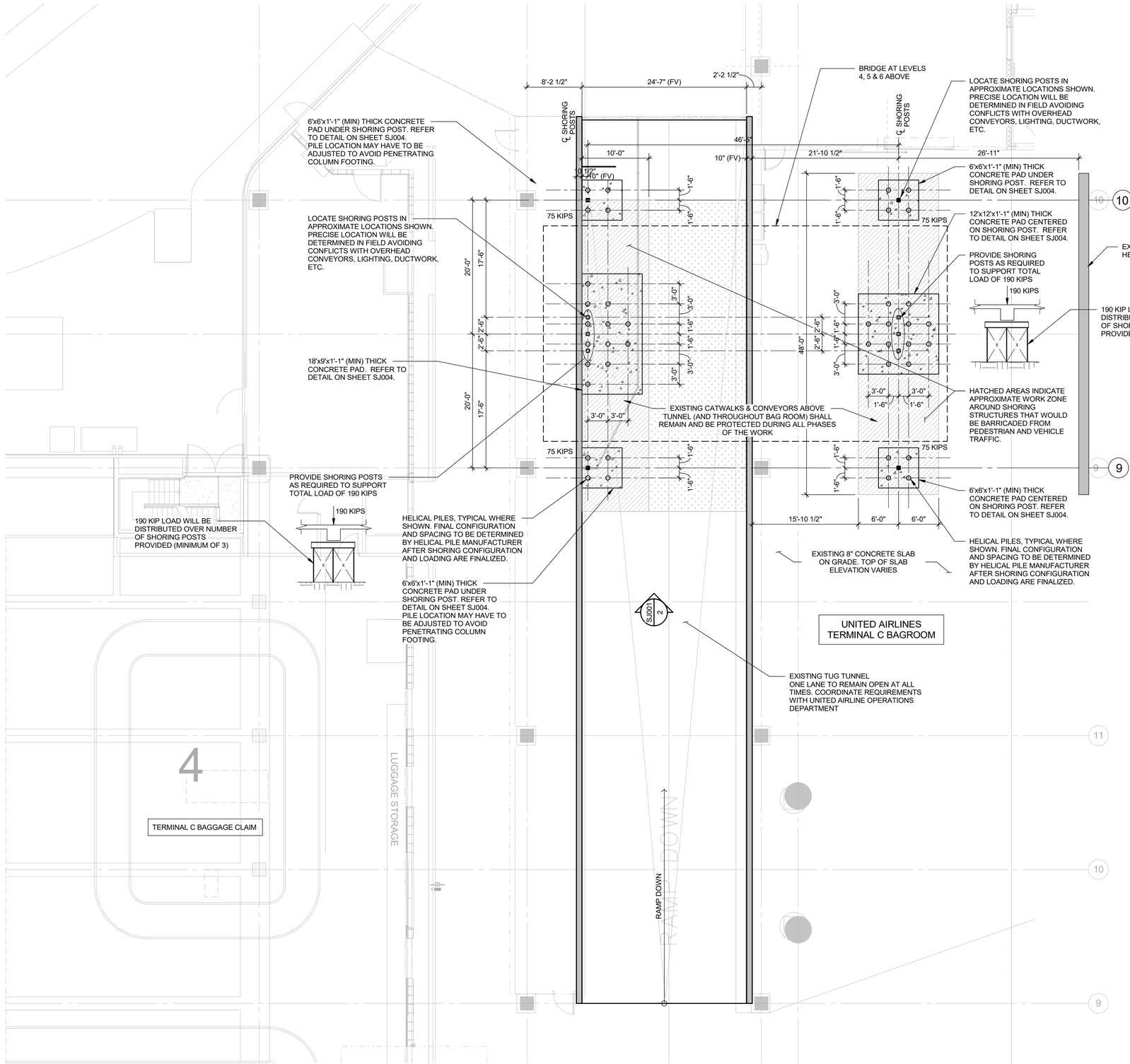
09/25/2023

TERMINAL
"C"

NORTH

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: IAH TER C GARAGE LEVEL 6 WEST SIDE FLOOR PLAN
SHEET No. A1-601B
SCALE:



1 SHORING PLAN AT LEVEL 1 - NORTH

1/8" = 1'-0"

LEGEND:

- APPROXIMATE WORK ZONE AROUND SHORING STRUCTURES
- EXISTING STRUCTURE ABOVE TUG TUNNEL RAMP
- NEW PILE CAP WITH HELICAL PILES SUPPORTING TEMPORARY SHORING POST(S)
- EXISTING CONCRETE WALL OR COLUMN

NOTE:

1. SHORING POSTS SHALL BE DESIGNED BY CONTRACTOR'S ENGINEER FOR TOTAL UNFACTORED LOADS INDICATED. SHORING DRAWINGS SHALL BE SUBMITTED TO OWNER AND DESIGN TEAM FOR REVIEW.
2. SHORING SYSTEM MUST HAVE CAPACITY TO SECURELY JACK UP A SINGLE LEVEL OF BRIDGE TO MINIMUM HEIGHT NEEDED TO REPLACE STEEL BEARING PLATES.

2 NORTH TUG TUNNEL

NO SCALE

HOUSTON AIRPORTS

TERMINAL C AT IAH - 2800 N TERMINAL RD
HOUSTON, TX 77032

IAH TERMINAL C HELIX RAMP BEARING AND MISC REPAIRS

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
	ISSUE FOR CONSTRUCTION	05/08/2023	
1	ADDENDUM #1	10/16/2023	

DESIGNER:	ER
DRAWN BY:	RR
CHECKED BY:	ER
ISSUE DATE:	05/08/2023
APPROVED BY:	ER
APPROVAL DATE:	05/08/2023

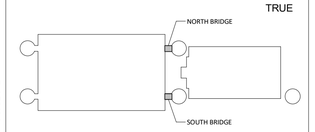
DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFC
ISSUED FOR CONSTRUCTION

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
K. Elaine Rogers
05/08/2023

North
TRUE



SHEET NAME: SHORING PLAN AT LEVEL 1 - NORTH

SHEET No. SJ001 **SCALE:** As indicated

SHEET SIZE: 22"x34" ANSI-D

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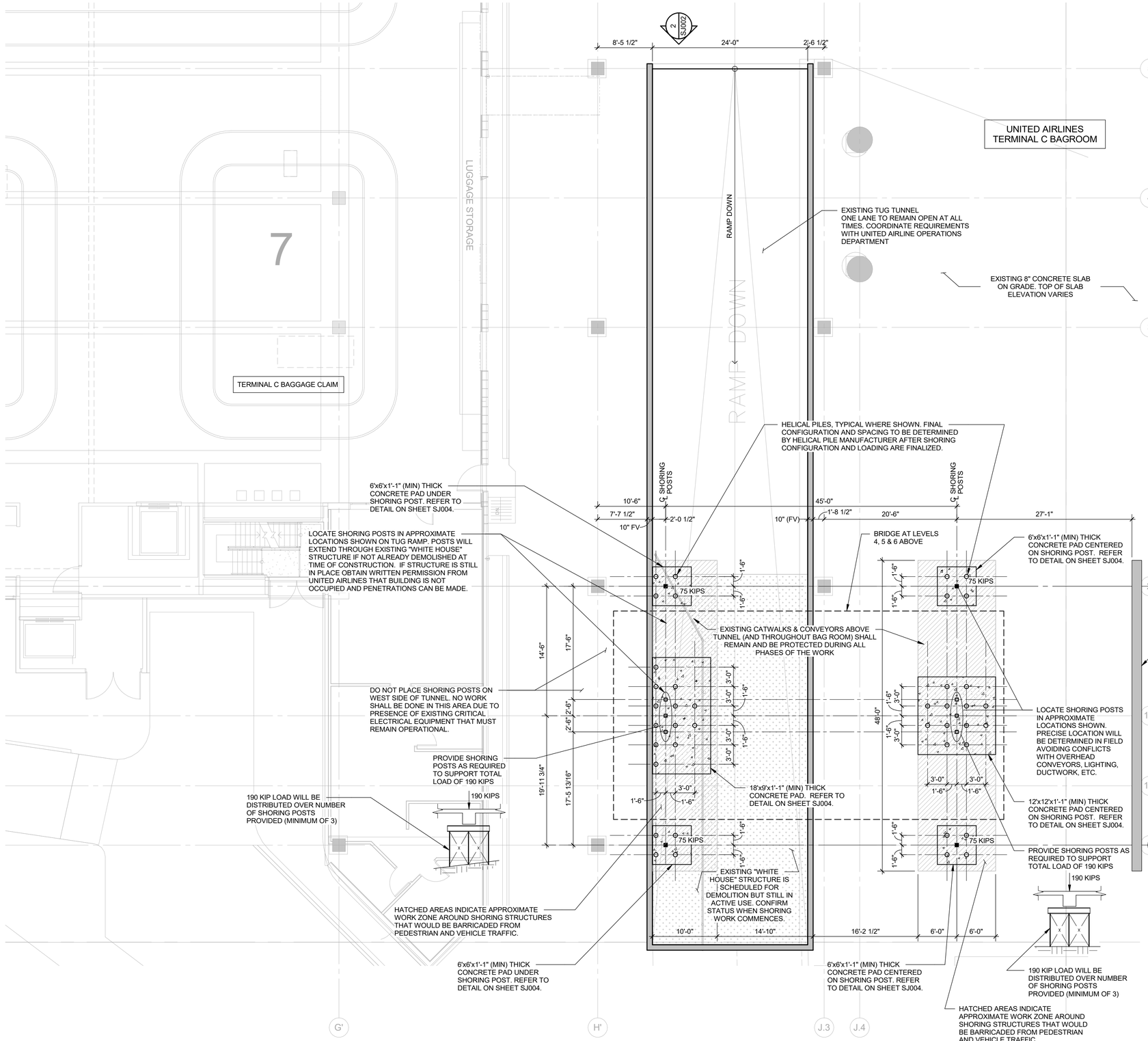


NOTE:

1. SHORING POSTS SHALL BE DESIGNED BY CONTRACTOR'S ENGINEER FOR TOTAL UNFACTORED LOADS INDICATED. SHORING DRAWINGS SHALL BE SUBMITTED TO OWNER AND DESIGN TEAM FOR REVIEW.
2. SHORING SYSTEM MUST HAVE CAPACITY TO SECURELY JACK UP A SINGLE LEVEL OF BRIDGE TO MINIMUM HEIGHT NEEDED TO REPLACE STEEL BEARING PLATES.

1 SHORING PLAN AT LEVEL 1 - SOUTH
1/8" = 1'-0"

2 SOUTH TUG TUNNEL
NO SCALE

HOUSTON AIRPORTS

TERMINAL C AT IAH - 2800 N TERMINAL RD
HOUSTON, TX 77032

IAH TERMINAL C HELIX RAMP BEARING AND MISC REPAIRS

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
	ISSUE FOR CONSTRUCTION	05/08/2023	
1	ADDENDUM #1	10/16/2023	

DESIGNER:	ER
DRAWN BY:	RR
CHECKED BY:	ER
ISSUE DATE:	05/08/2023
APPROVED BY:	ER
APPROVAL DATE:	05/08/2023

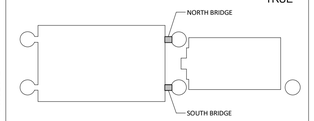
DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFC
ISSUED FOR CONSTRUCTION

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
05/08/2023

North
TRUE



SHEET NAME: SHORING PLAN AT LEVEL 1 - SOUTH

SHEET No.: SJ002 **SCALE:** As indicated

SHEET SIZE: 22"x34" ANSI-D

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OLD DOA No.:
DOA DWG FILE: 1320001_IAH C Garage Bridge