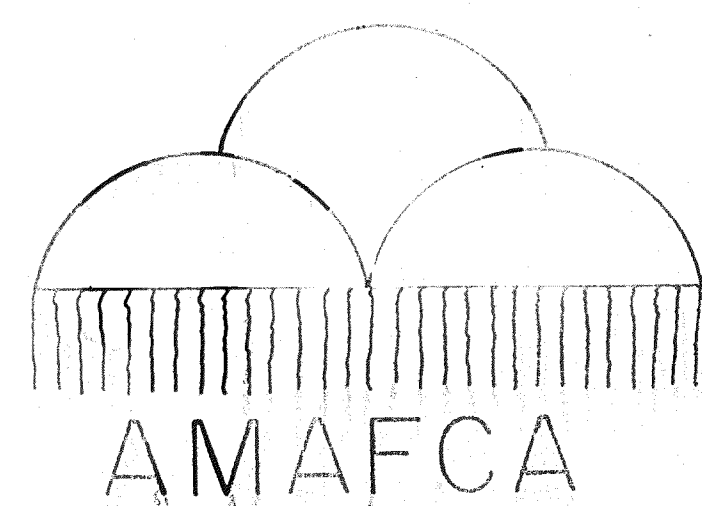


# ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

## BEAR CANYON ARROYO CHANNEL IMPROVEMENTS—REACH I

PROJECT LOCATION: ALBUQUERQUE, NEW MEXICO



DATE:  
SEPTEMBER 1986

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| 17 OF 17  | TRAFFIC CONTROL PLAN                                                                                   |

REC'D DRAWING  
MAY 15 1987  
Large drawings have been  
reduced in size for filing  
in this folder.

1 2 3 4 5 6 7 8 9 10 11 12  
00 00 00 00 00 00 00 00 00 00 00 00

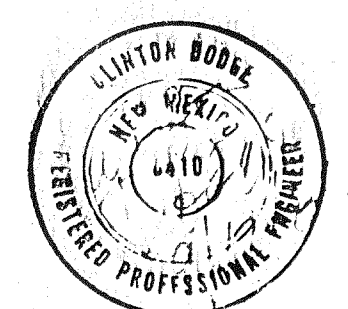
**LEEDSHILL - HERKENHOFF, INC.**  
Copper Square, 500 Copper Ave. N.W.  
P.O. Box 1217  
Albuquerque, New Mexico 87103  
(505) 247-0294

A SUBSIDIARY OF GORDON HERKENHOFF AND ASSOCIATES, INC.

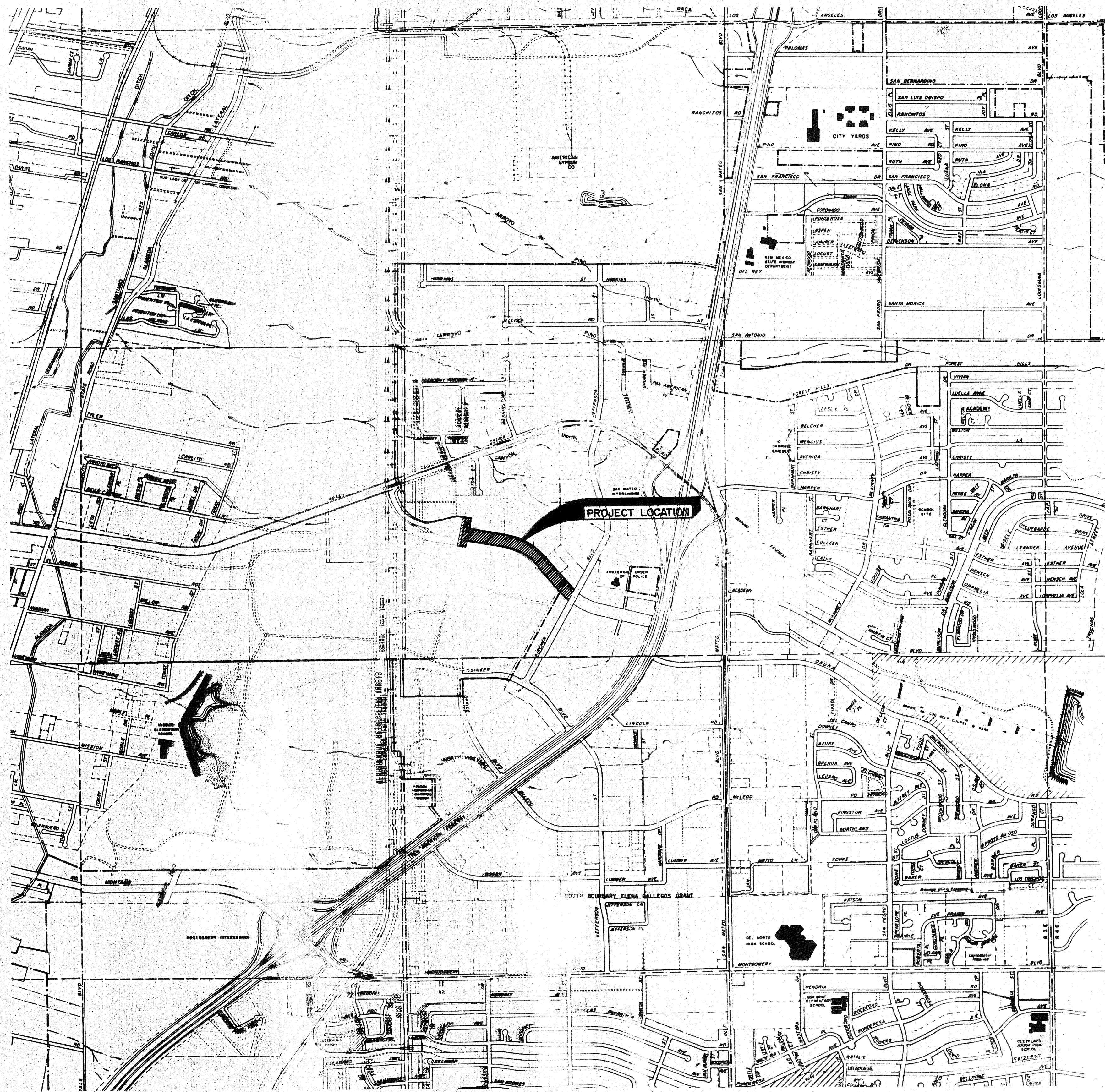
L-H INC. PROJECT NO. 5165.21

ALBUQUERQUE

SAN FRANCISCO



SAN FRANCISCO



LOCATION MAP  
SCALE: 1"=1000'

#### REFERENCE REPORTS

1. "REHABILITATION OF ARROYO DEL OSO DAM", BOVAY ENGINEERS INC., MAY 1980.
2. "ARROYO DEL OSO CHANNEL LINING/DAM REHABILITATION", RECORD DRAWINGS, BOVAY ENGINEERS INC., 1981.
3. KIRCHER BLVD. STRUCTURE OVER BEAR CANYON ARROYO, RECORD DRAWINGS, GORDON HERKENHOFF AND ASSOCIATES, 1970.
4. BEAR CANYON ARROYO CHANNEL IMPROVEMENTS, CONCEPT DESIGN REPORT & CALCULATIONS APPENDIX, LEEDSHILL-HERKENHOFF INC., MAY 1986.

#### HYDRAULIC PROFILE

Qp100 = 100 YEAR RETURN FREQUENCY DISCHARGE = 1800 CFS

n = MANNING'S FRICTION FACTOR

D<sub>typ</sub> = TYPICAL WATER DEPTH

V<sub>typ</sub> = TYPICAL VELOCITY

Fr = FROUDE NUMBER

| SUBREACH               | 1              | 2         | 3                    | 4                  | 5                     |
|------------------------|----------------|-----------|----------------------|--------------------|-----------------------|
|                        | STILLING BASIN | EXPANSION | TRANSITION STRUCTURE | UNIMPROVED CHANNEL | MID-CHANNEL STRUCTURE |
| BEGINNING STATION      | 0+00           | 7+00      | 7+41                 | 8+65               | 16+42.00              |
| n                      | .04            | .035      |                      | .022               |                       |
| D <sub>typ</sub> (FT)  | 5              | 3         |                      | 9.7                |                       |
| V <sub>typ</sub> (FPS) | 2.6            | 4         |                      | 3.2                |                       |
| Fr                     | .21            | .41       |                      | .18                |                       |

| SUBREACH          | 6           | 7             | 8                                      | 9                 | 10             |
|-------------------|-------------|---------------|----------------------------------------|-------------------|----------------|
|                   | CONTRACTION | EARTH CHANNEL | CHANNEL WITH RIPRAP BANK STABILIZATION | KIRCHER STRUCTURE | CONCRETE APRON |
| BEGINNING STATION | 17+18.80    | 17+50         | 23+00                                  | 28+78.88          | 30+02.59       |
| n                 | .035        | .022          | .022/.035                              |                   | .013           |
| D <sub>typ</sub>  | 8.4         | 9.0           | 8.9                                    |                   | 4.8            |
| V <sub>typ</sub>  | 5.4         | 2.6           | 4.2                                    |                   | 4              |
| Fr                | .33         | .15           | .25                                    |                   | .32            |

#### LEGEND

| EXISTING | PROPOSED            | DESCRIPTION                     |
|----------|---------------------|---------------------------------|
| —W—      | —W <sup>14"</sup> — | WATER LINE                      |
| —S—      | N/A                 | SANITARY SEWER LINE             |
| —M.H.—   | —●—                 | MANHOLE                         |
| —V—      | N/A                 | VALVE                           |
| —G—      | N/A                 | GAS LINE                        |
| —Tug—    | N/A                 | UNDERGROUND TELEPHONE LINE      |
| —F—      | N/A                 | FIRE HYDRANT                    |
| N/A      | —V—                 | BUTTERFLY VALVE                 |
| N/A      | —R—                 | RIGHT OF WAY                    |
| N/A      | —T—                 | TEMPORARY CONSTRUCTION EASEMENT |
| N/A      | —A—                 | AIR AND VACUUM RELEASE VALVE    |
| —Eug—    | N/A                 | ELECTRICAL UNDERGROUND          |
| —5/10—   | —10.0—              | CONTOURS                        |
| N/A      | —R—                 | DUMPED RIPRAP                   |
| N/A      | —W—                 | WIRE-ENCLOSED RIPRAP            |
| N/A      | —G—                 | GABIONS                         |

|                                          |     |                                        |     |
|------------------------------------------|-----|----------------------------------------|-----|
| SHEET NUMBER ON WHICH SECTION IS LOCATED | 5/7 | SHEET NUMBER ON WHICH SECTION IS DRAWN | 5/7 |
| SHEET NUMBER ON WHICH DETAIL IS LOCATED  | 5/7 | SHEET NUMBER ON WHICH DETAIL IS DRAWN  | 5/7 |

RECORD DRAWING  
DATE: 8/25/86  
These drawings have been reviewed and approved for construction on the basis of the information furnished and the field data and calculations shown herein.



#### GENERAL NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT THE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMUM AMOUNT OF DELAY.
3. ALL NEW STREET PAVING, DRIVEWAYS, SIDEWALKS, AND CURB AND GUTTERS ADJUTING EXISTING AREAS SHALL MATCH THE ELEVATION OF THOSE AREAS.
4. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DAMAGE TO EXISTING PAVING OR CURB AND GUTTER DURING CONSTRUCTION, APART FROM THOSE SECTIONS INDICATED FOR REPAIR ON THE PLANS. ANY DAMAGE SHALL BE REPAIRED OR REPLACED AT HIS OWN EXPENSE. HE SHALL SUITABLY PROTECT THE CURB AND GUTTER FROM INCIDENTAL SPLASHING DURING THE TACK COAT APPLICATION AND SHALL BE RESPONSIBLE FOR CLEANING SAME AT HIS OWN COST SHOULD SPLASHING OCCUR.
5. ALL UTILITY LINES WHICH ARE NOT SPECIFICALLY DESIGNATED TO BE REMOVED AND REPLACED ON THE PLANS SHALL BE MAINTAINED. SERVICE, SHORING, SHEETING, AND OTHER MEANS OF SUPPORT SHALL BE EMPLOYED BY THE CONTRACTOR TO PREVENT DAMAGE OR LOSS TO THESE EXISTING UTILITIES. BEARS AND CABLE OR OTHER ADEQUATE SUPPORTS SHALL BE USED FOR TEMPORARY SUPPORT OF ALL UTILITY LINES WHICH CROSS TRENCHES. ANY DAMAGE TO EXISTING UTILITIES SHALL PROMPTLY BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY SIGNIFICANT DEVIATION OF EXPOSED UTILITIES FROM THE LOCATIONS SHOWN ON THE PLANS SO THAT CONFLICTS CAN BE RESOLVED IN A TIMELY MANNER.
6. ALL MANHOLE AND STRUCTURE STEPS SHALL BE 1/2" GRADE 60 STEEL REINFORCING ROD ENCAPSULATED IN A CO-POLYMER POLYPROPYLENE AS MANUFACTURED BY M.A. INDUSTRIES, INC. (MODEL #P-2-PFS) OR EQUAL. STEPS ARE NOT TO BE PRECAST IN PLACE BUT SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER. SPACING BETWEEN STEPS TO BE 16 INCHES O.C., FIRST STEP TO BE 18 INCHES FROM TOP OF WALL, LAST STEP TO BE 18 INCHES FROM BOTTOM.
7. ALL MANHOLE COVERS, WATER VALVES, OR OTHER SERVICE ACCESS SHALL MATCH EXISTING GRADE OF PAVEMENT OR UNPAVED SURFACES, THESE SHALL MATCH EXISTING GROUND SURFACES OR FINAL GRADES, WHICHEVER APPLIES.
8. PAVEMENT REPLACEMENT. ALL ASPHALT PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH STD. DWG. P-25. ARTERIAL SECTION SHALL BE USED ON KIRCHER BLVD. RESIDENTIAL SECTION SHALL BE USED ON ALL REMAINING STREETS.
9. DRIVEPADS SHALL MEET THE 6.5' MINIMUM DEPTH REQUIREMENT PER ALBUQUERQUE STANDARD DRAWINGS P-11 UNLESS RIGHT-OF-WAY IS UNAVAILABLE.
10. RIGHT-OF-WAY SHOWN IS APPARENT RIGHT-OF-WAY DETERMINED FROM PLAT MAPS AND LOCATED PROPERTY TIES.
11. ALL WATER CONNECTIONS ARE WET CONNECTIONS UNLESS OTHERWISE NOTED ON PLANS.
12. REMOVE AND DISPOSE OF OFF SITE ALL EXISTING RIPRAP DEBRIS AND TRASH IN CHANNEL.
13. MATERIAL WHICH IS STRIPPED FROM THE CHANNEL PRIOR TO CONSTRUCTION OF STRUCTURES AND BANK PROTECTION SHALL BE STOCKPILED ON SITE. THIS MATERIAL SHALL BE SPREAD OVER THE AREAS TO BE SEED PRIOR TO SEEDING.
14. ALL DISTURBED AREAS SHALL BE SEED IN CONFORMANCE WITH THE SPECIFICATIONS. AREAS FLATTER THAN 4H:1V SHALL BE SEED WITH CLASS 'A' SEEDING. AREAS STEEPER THAN 4H:1V SHALL BE SEED WITH CLASS 'B' SEEDING.

#### CONCRETE NOTES

1. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL BE CLASS A AND HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
2. REINFORCING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. ALL TIES SHALL BE GRADE 40.
3. UNLESS OTHERWISE NOTED, LAPS, SPLICES OR EMBEDMENT REQUIREMENTS SHALL CONFORM TO TABLE 20.1 ACI MANUAL SP-17 CLASS B REINFORCING.
4. UNLESS OTHERWISE NOTED, CONCRETE COVER UNDER STEEL REINFORCEMENT SHALL BE 2" FOR FORMED CONCRETE AND 3" FOR CAST-IN-PLACE EARTH CONCRETE.
5. REINFORCING: CONTINUOUS AROUND ALL CORNERS UNLESS SHOWN OTHERWISE.
6. CONCRETE SLAB ON GRADE SHALL BE PLACED CONTINUOUSLY.
7. UNLESS OTHERWISE NOTED, ALL EXPOSED CORNERS SHALL BE BEVELLED TO A 1/4" CHAMFER.
8. BONDING EPOXY SHALL BE SIKADUR, HIGH MOD. OR APPROXIMATE EQUIVALENT.

#### AMAFCA

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS-REACH 1

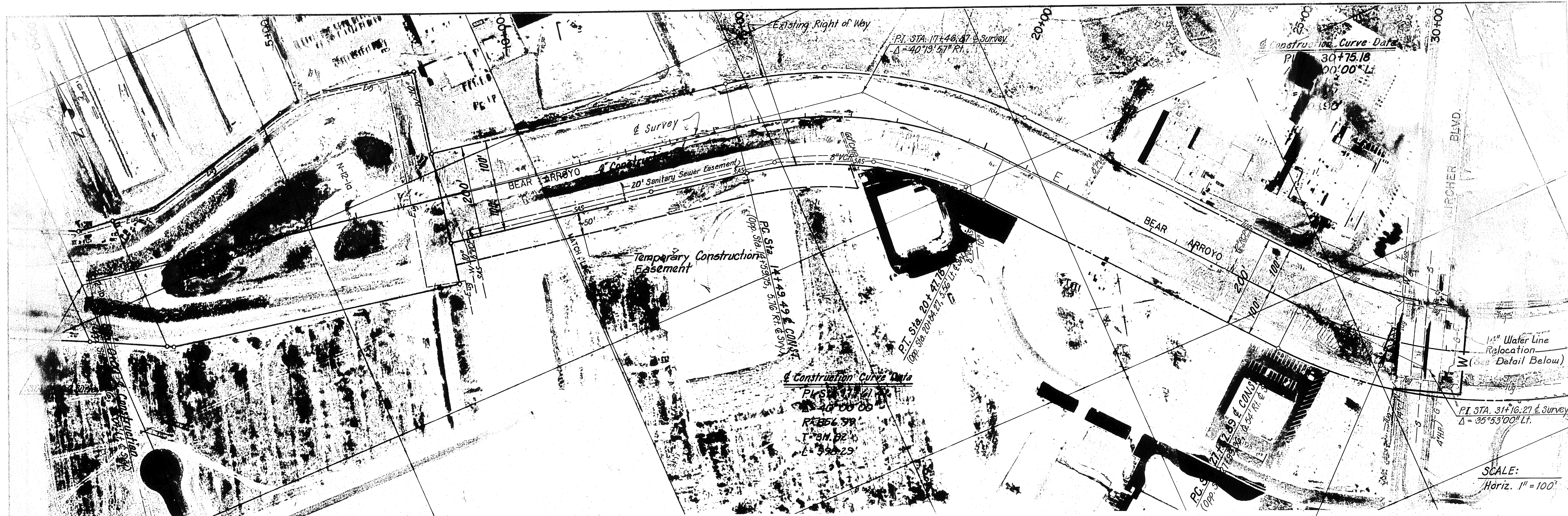


LOCATION MAP, GENERAL  
NOTES AND LEGEND

GORDON HERKENHOFF & ASSOCIATES, INC.  
ENGINEERS ARCHITECTS PLANNERS

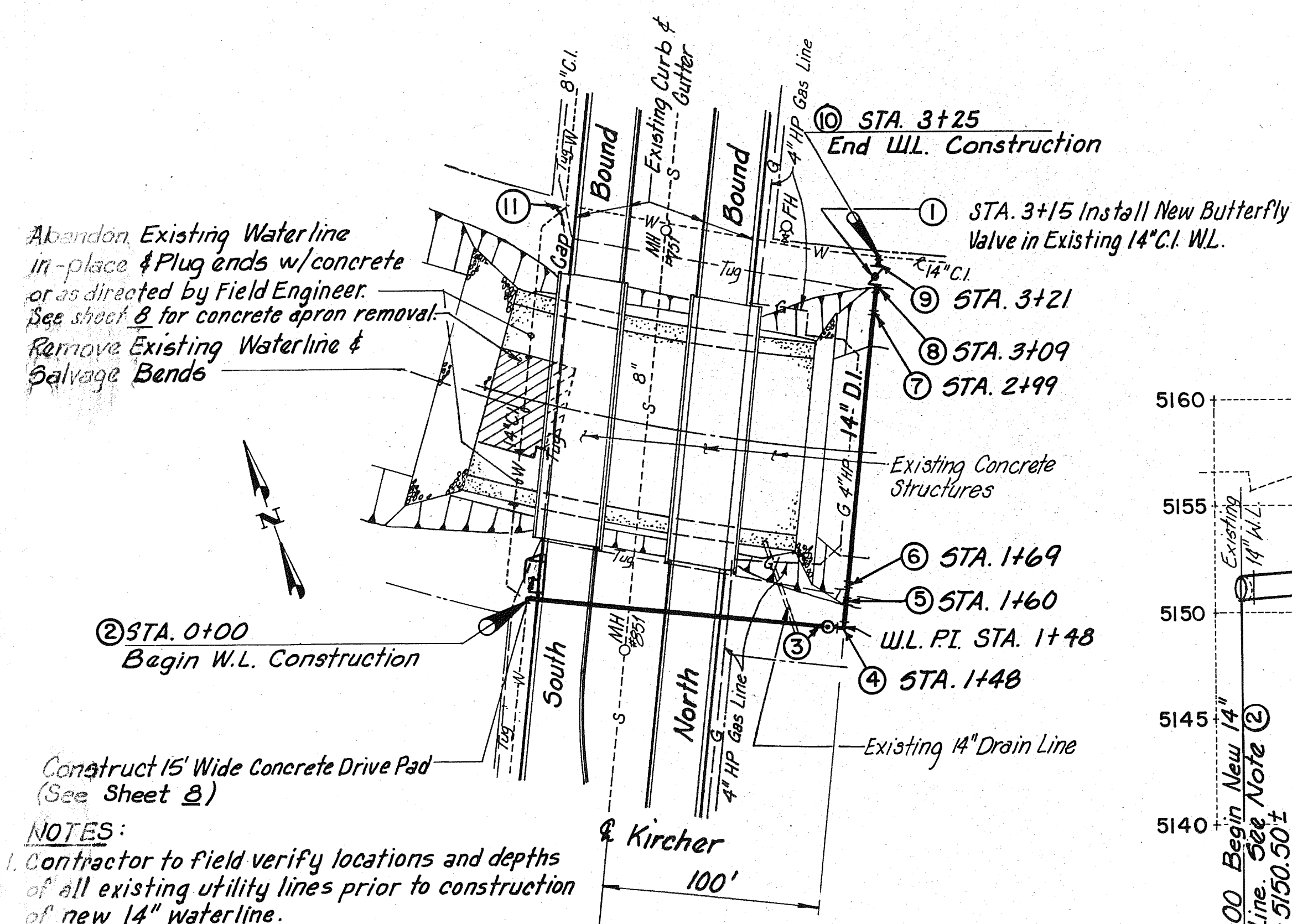
ALBUQUERQUE SANTA FE

1 2 3 4 5 6 7 8 9 10 11 12  
SHEET 2 OF 17



**SURVEY LAYOUT PLAN**

SCALE: 1" = 100'

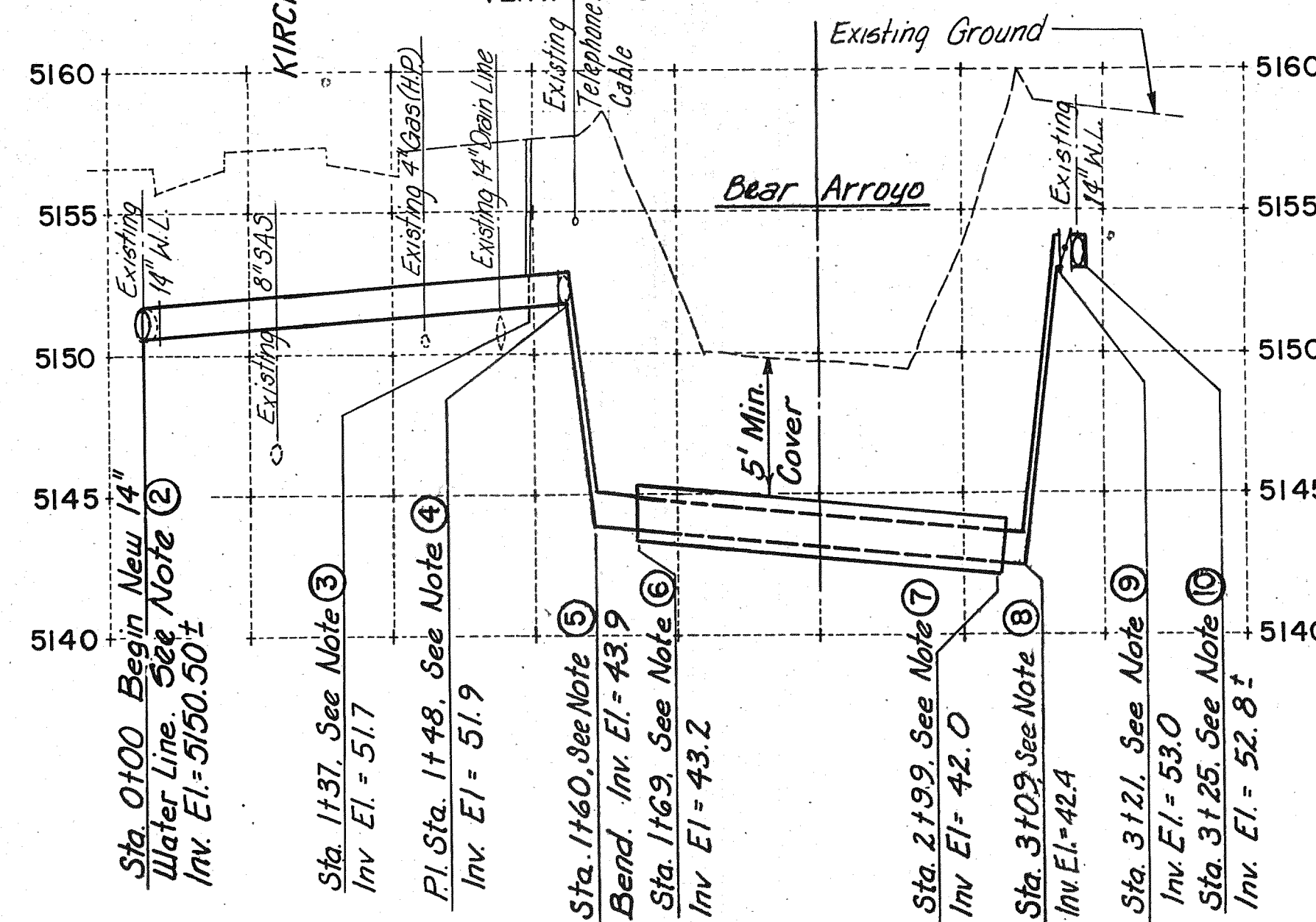


**WATERLINE RELOCATION PLAN**

SCALE: 1" = 50'

**WATERLINE RELOCATION PROFILE**

SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'



**WATERLINE RELOCATION CONSTRUCTION NOTES**

- ① STA 3+15 INSTALL 1-14" BUTTERFLY VALVE  
1 - TYPE 'B' VALVE BOX  
1 - COUPLING  
BLOCKING
- ② STA 0+00 BEGIN CONSTRUCTION AT EXISTING 45° BEND (APPROXIMATELY 95'± RIGHT OF CONSTRUCTION CENTER LINE). CONNECT NEW 14" DUCTILE IRON WATER LINE TO EXISTING 14" C.I. WATER LINE  
INSTALL 1 - 14" 90° BEND  
BLOCKING
- ③ STA 1+37 INSTALL 1 - 2" AIR AND VACUUM RELEASE VALVE, COMPLETE (INSTALL AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-24)
- ④ P.I. STA 1+48 INSTALL: 1 - 14" 90° BEND (ROLL BEND DOWN 45°)  
BLOCKING
- ⑤ STA 1+60 INSTALL: 1 - 14" 45° BEND  
BLOCKING
- ⑥ STA 1+69 BEGIN 24" SCHEDULE 20 STEEL PIPE CASING (INSTALL AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-6)
- ⑦ STA 2+99 END STEEL PIPE CASING
- ⑧ STA 3+09 INSTALL: 1 - 14" 45° BEND  
BLOCKING
- ⑨ STA 3+21 INSTALL: 1 - 14" 45° BEND  
BLOCKING
- ⑩ STA 3+25 CONNECT NEW 14" DUCTILE IRON WATER LINE TO EXISTING 14" WATER LINE  
INSTALL: 1 - 14" X 14" X 14" TEE  
1 - 14" COUPLING  
BLOCKING
- ⑪ AT EXISTING TEE CONNECTION OF 14" AND 8" WATERLINES (94'± LEFT OF CONSTRUCTION CENTERLINE AND OPPOSITE CENTERLINE KIRCHER)  
INSTALL: 1 - 14" CAP (AT THE SOUTH RUN)  
BLOCKING

**NOTE ON WATER SHUTOFF:** THE EXISTING WATER LINE BETWEEN SINGER RD. AND THE NEW BUTTERFLY VALVE SHALL BE SHUTOFF DURING NON-WORKING HOURS AND FOR A TOTAL TIME OF 6 HOURS ONLY.

Existing Concrete Apron  
to be Removed as Required  
for New Concrete Structure  
See Sheet B

1 2 3 4 5 6 7 8 9 10 11 12  
0 0 0 0 0 0 0 0 0 0 0 0



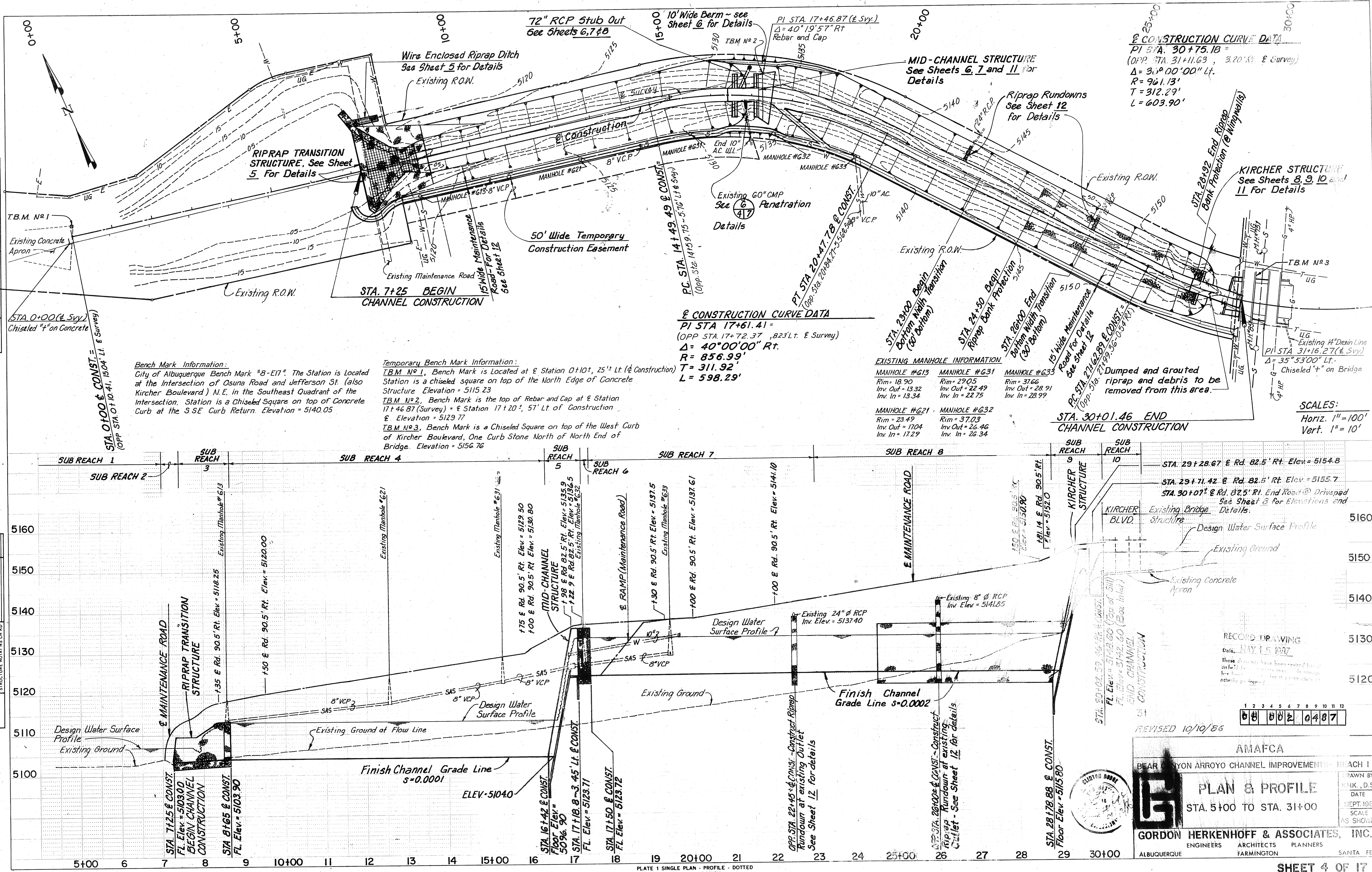
**RECORD DRAWING**  
Date: MAY 15, 1987  
These drawings have been prepared and checked by the undersigned and are true and correct as shown on the actual project.

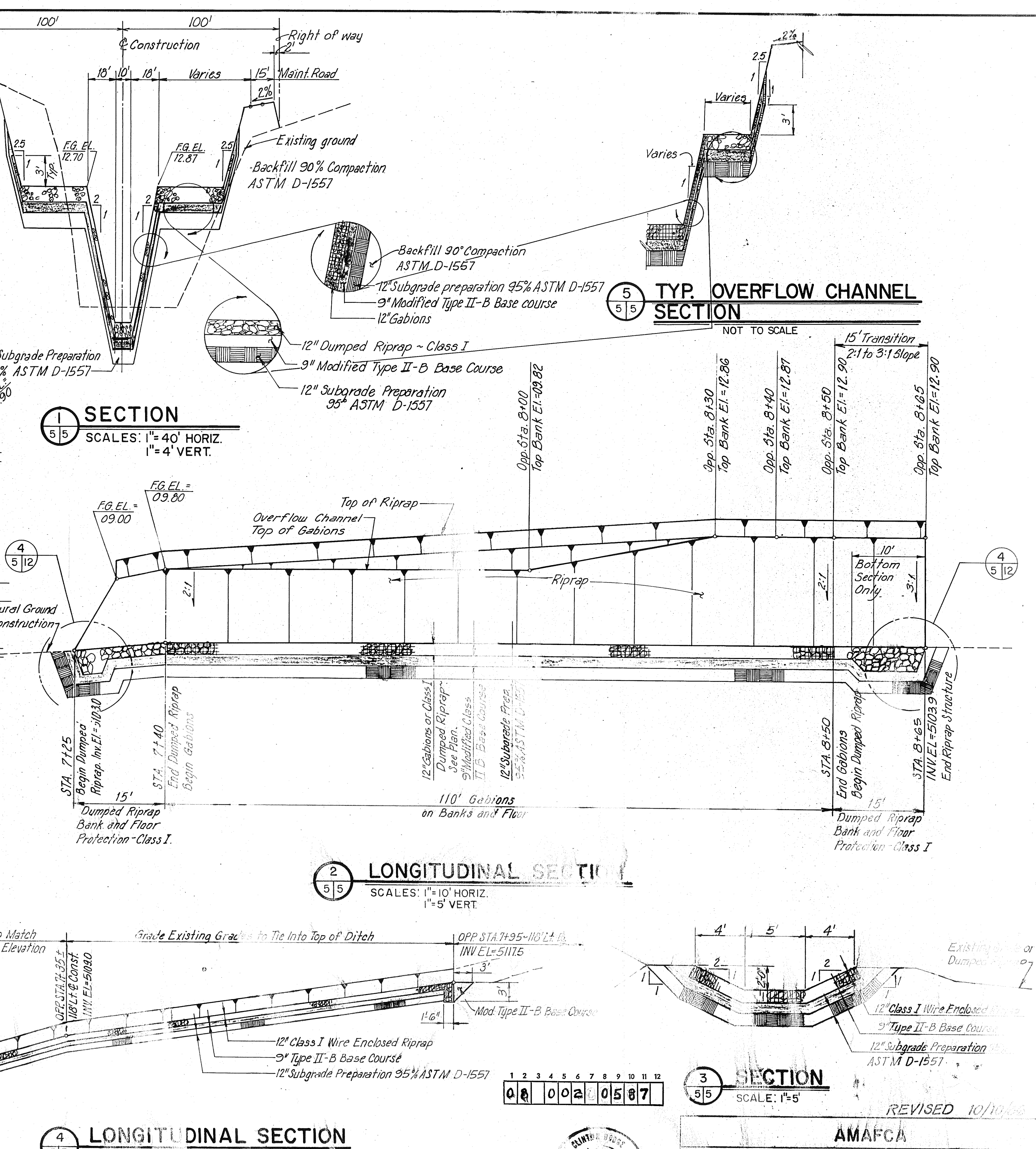
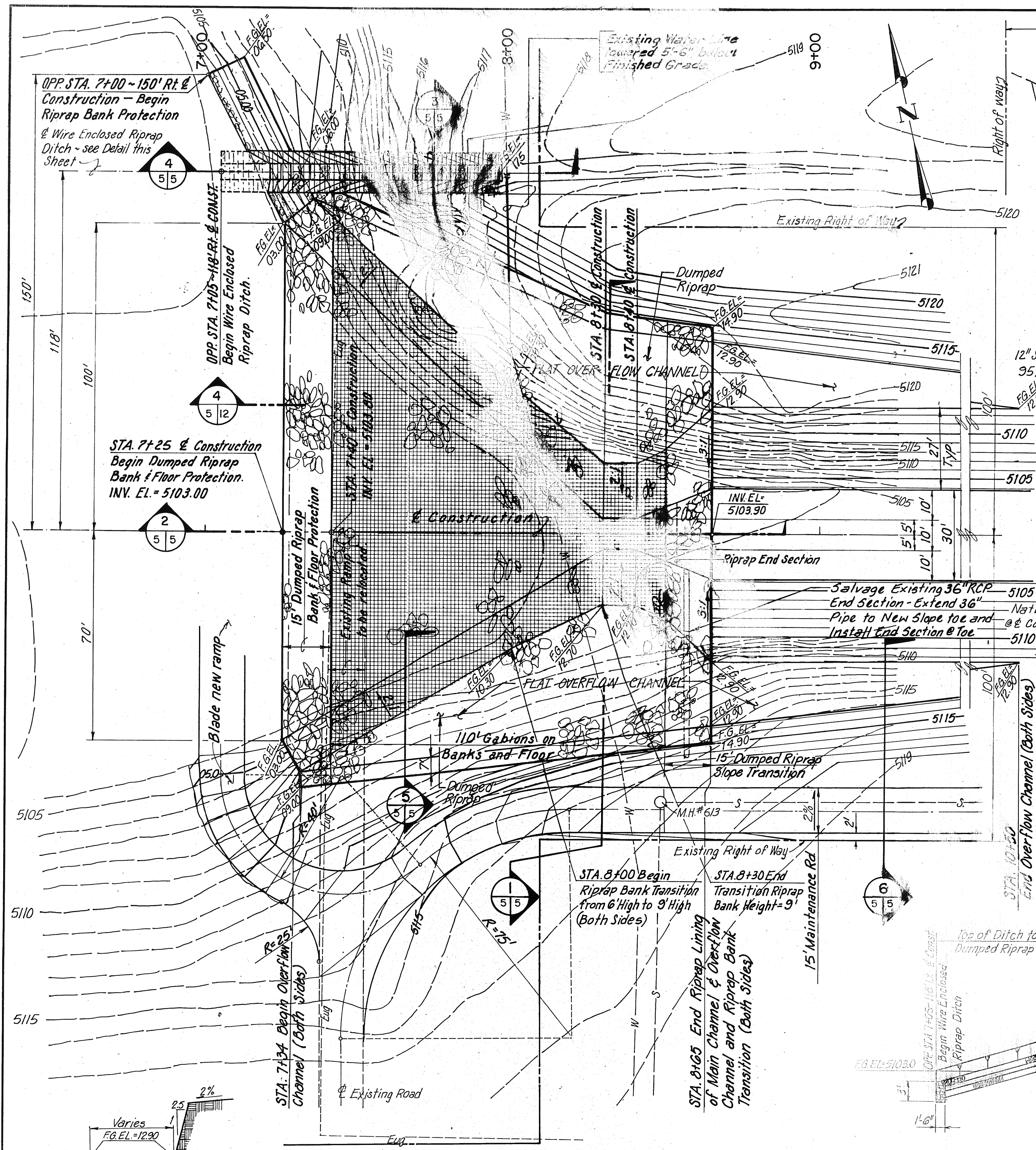
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|---------------------------------------------------|-----------------------------------------------------------------|
| <b>AMAFCA</b>                                     |                                                                 |
| BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1 |                                                                 |
| <b>G</b>                                          | SURVEY LAYOUT PLAN,<br>WATERLINE RELOCATION<br>PLAN AND PROFILE |
|                                                   | <b>GORDON HERKENHOFF &amp; ASSOCIATES, INC.</b>                 |
|                                                   | ENGINEERS ARCHITECTS PLANNERS                                   |
|                                                   | ALBUQUERQUE SANTA FE                                            |

1 2 3 4 5 6 7 8 9 10 11 12  
0 0 0 0 0 0 0 0 0 0 0 0

| PLAN     | DATE | BY | DATE | BY |
|----------|------|----|------|----|
| DESIGNED |      |    |      |    |
| CHECKED  |      |    |      |    |
| NOTED    |      |    |      |    |
| NO.      |      |    |      |    |

| PROFILE  | DATE | BY | DATE | BY |
|----------|------|----|------|----|
| DESIGNED |      |    |      |    |
| CHECKED  |      |    |      |    |
| NOTED    |      |    |      |    |
| NO.      |      |    |      |    |





**6 GRADED OVERFLOW CHANNEL SECTION**  
NOT TO SCALE

**GRADING AND SITE LAYOUT PLAN**  
SCALE: 1" = 20'

**4 LONGITUDINAL SECTION**  
SCALE: 1" = 10'

**2 LONGITUDINAL SECTION**  
SCALE: 1" = 10' HORIZ., 1" = 5' VERT.

**3 SECTION**  
SCALE: 1" = 5'

**RECORD DRAWING**  
Date: MAY 15 1987  
These drawings have been prepared based on field data and are not to be used for construction without the approval of the engineer.



**AMAFCA**  
BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1

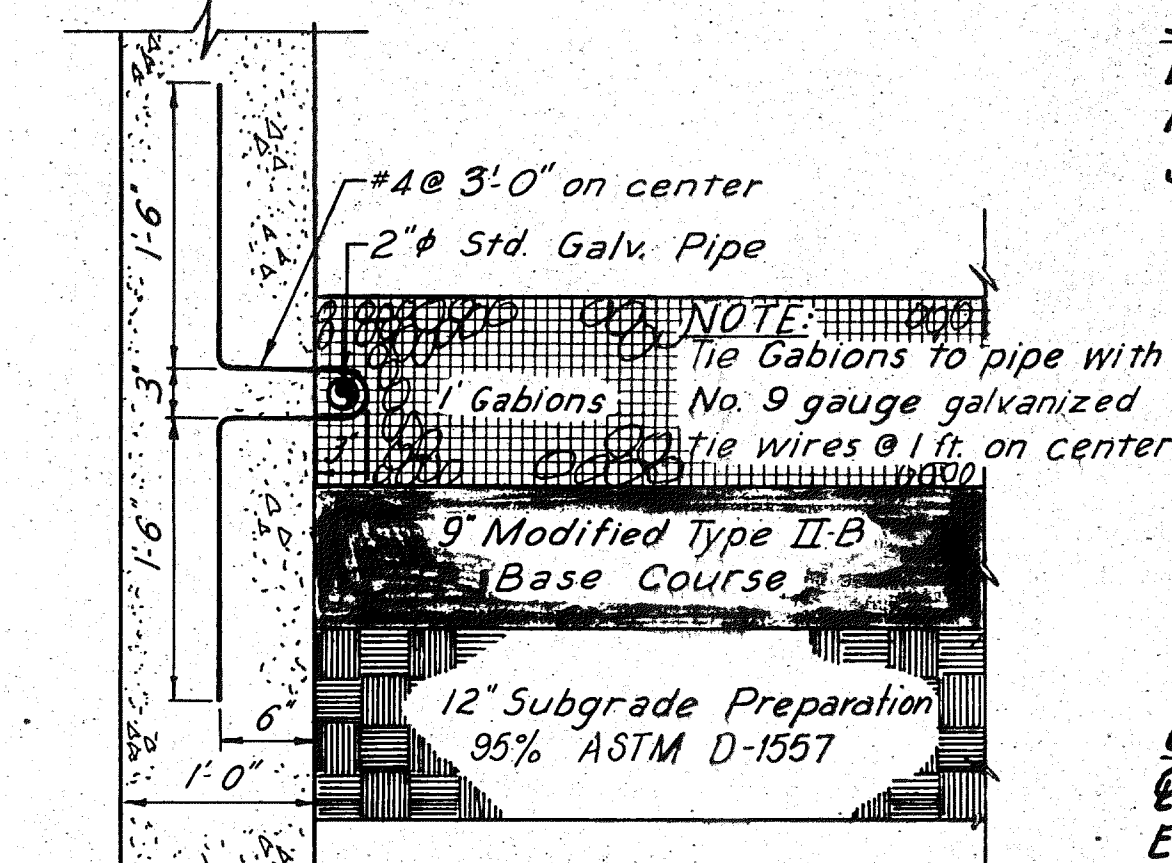
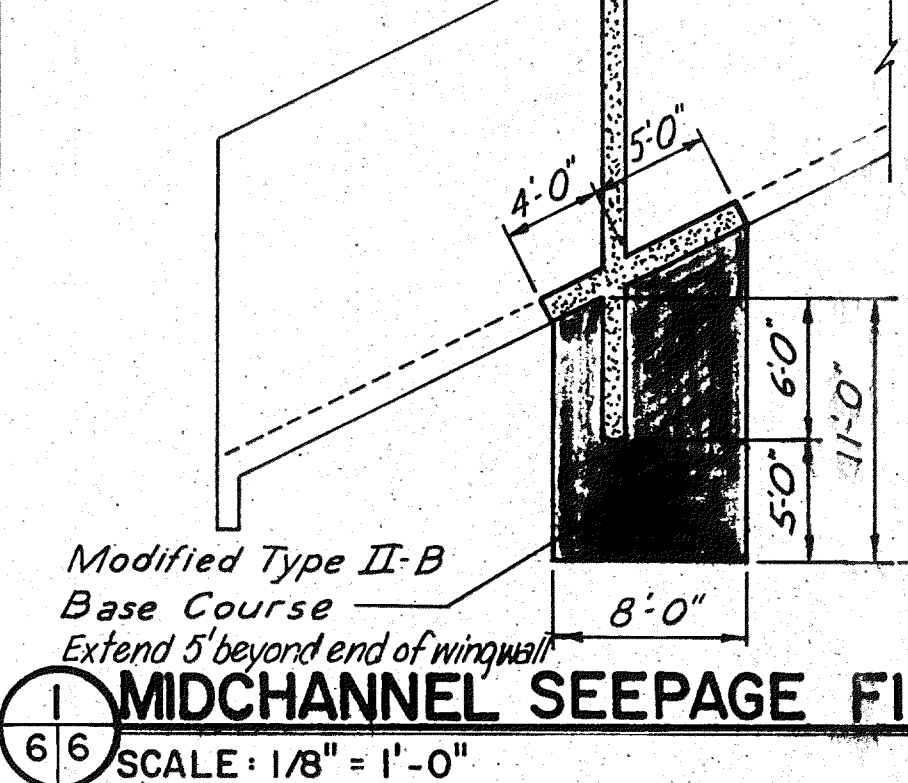
**RIPRAP TRANSITION STRUCTURE**

**GORDON HERKENHOFF & ASSOCIATES, INC.**  
ALBUQUERQUE ENGINEERS ARCHITECTS PLANNERS SANTA FE

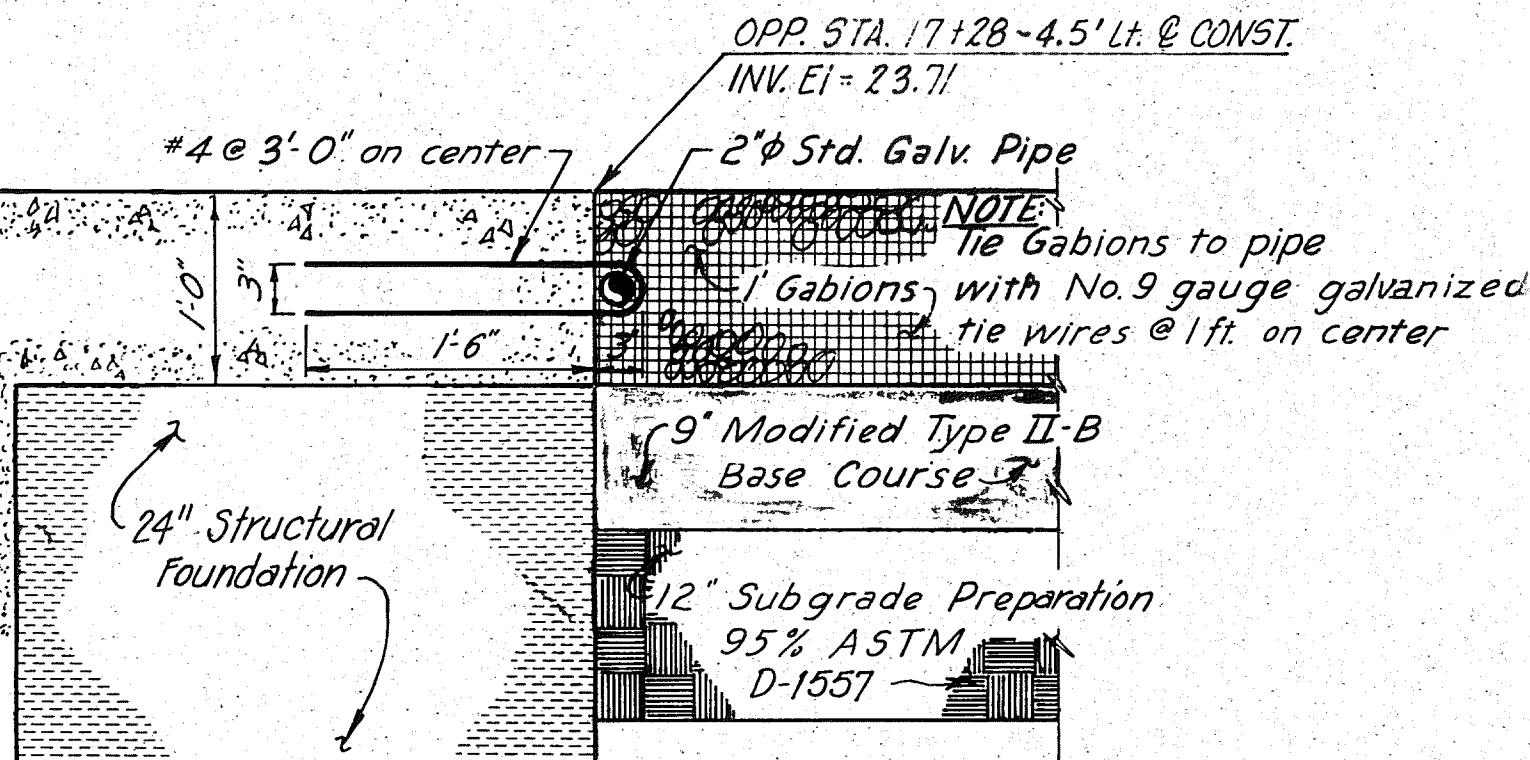
Drawn by: G.C.  
Date: SEPT. 1986  
Scale: AS SHOWN

REVISED 10/10/86

NOTE: Modified Type II-B Base Course Seepage Filter is required only at Wingwall of Mid-Channel Structure.



**GABION CONNECTION TO MIDCHANNEL**  
SCALE: 1" = 1'-0" INLET ON BANKS (Incidental - No Pay Item)



**GABION CONNECTION TO MIDCHANNEL**  
SCALE: 1" = 1'-0" INLET AT INVERT (Incidental - No Pay Item)

Begin 6' Chain Link Fence (both sides), mounted on inside face of wall.

OPP STA. 16+00, 80.0' Lt. & CONST. Begin transition to 10' wide berm. Tie to existing ground.

OPP STA. 17+08.8, 80.0' Lt. & CONST. Berm Elev. = 5136.5  
OPP STA. 16+88.5, 80.0' Lt. & CONST. Berm Elev. = 5135.9  
OPP STA. 16+57.55, 80.0' Lt. & CONST. Begin 10' wide berm Elev. = 5134.1

OPP STA. 17+18.8, 34.5' Lt. & CONST. End Construction Midchannel Structure Begin 1' Gabions - see Details (2/6/6) (3/6/6)  
OPP STA. 17+28, 4.5' Lt. & CONST. End 1' Gabions Begin Class I dumped riprap

OPP STA. 17+50, 90.0' Lt. & CONST. Begin transition of berm to 90' Lt. & CONST. Elev. = 5136.5  
OPP STA. 17+80, 90.0' Lt. & CONST. End berm transition Elev. = 5136.5

OPP STA. 18+50, 90.0' Lt. & CONST. Begin Transition to end of berm Elev. = 5136.5  
OPP STA. 19+00, 81.0' Lt. & CONST. End Transition, Tie to existing ground.

CONSTRUCTION CURVE DATA  
PI STA. 17+64.41  
 $\Delta = 40^\circ 00' 00''$   
 $R = 856.99'$   
 $T = 311.92'$   
 $L = 598.29'$

STA. 16+42 & CONST. Begin Construction Midchannel Baffle Chute Structure

OPP STA. 16+00, 90.5' Rt. & CONST. @ maintenance road Elev. = 5130.8

OPP STA. 16+60.82, 82.5' Rt. & CONST. @ maintenance road Elev. = 5134.1  
Remove and dispose of existing concrete rundown and riprap. Extend existing 60" CMP at existing slope and angle to enter the mid-structure wall

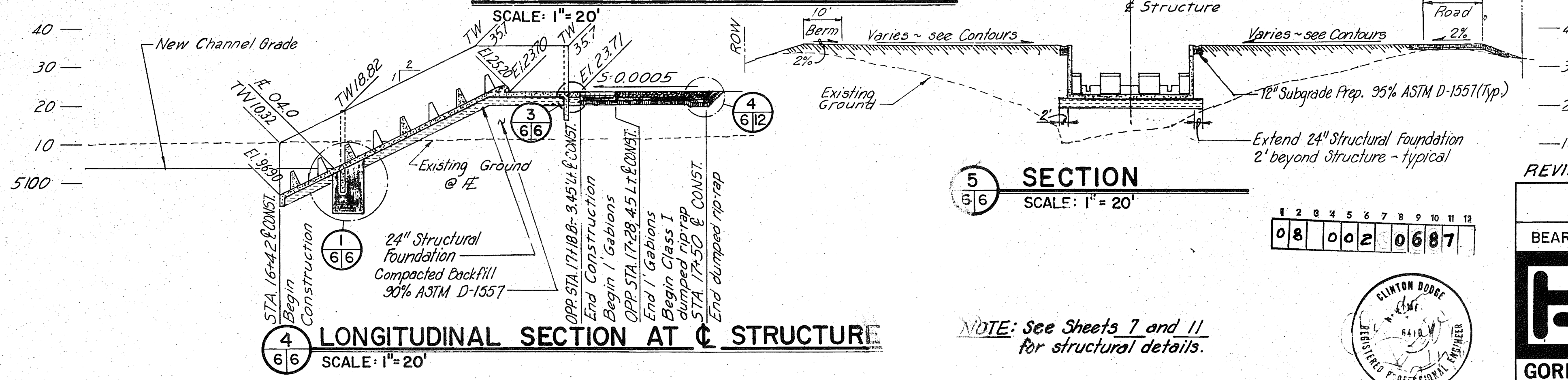
Installed Metal Beam Guard Rail as per City Albuq. Standard DWG. 2.610 (TYP)  
OPP STA. 16+98.3, 82.5' Rt. & CONST. Maintenance road Elev. = 5135.9  
OPP STA. 17+22.9, 82.5' Rt. & CONST. Maintenance road Elev. = 5136.5

OPP STA. 17+70, 20' Rt. & CONST. Begin 15' Ramp construction Tie Ramp to channel floor Elev. = 5123.73  
OPP STA. 18+30, 90.5' Rt. & CONST. @ maintenance road Elev. = 5137.00  
OPP STA. 17+50, 82.5' Rt. & CONST. @ maintenance road

Bladed Maintenance Road

STA. 18+80 & CONST. Channel bottom width = 50' N. side Toe 25' Lt. S. side Toe 25' Rt.  
OPP STA. 19+30, 90.5' Rt. & CONST. End Ramp construction Elev. = 5137.5 Channel bottom width = 50'

# GRADING AND SITE LAYOUT PLAN



**SECTION**  
SCALE: 1" = 20'

NOTE: See Sheets 7 and 11 for structural details.

RECORD DRAWING  
Date: MAY 15 1987  
These drawings have been revised based on field data and have been revised to reflect actual construction as performed.

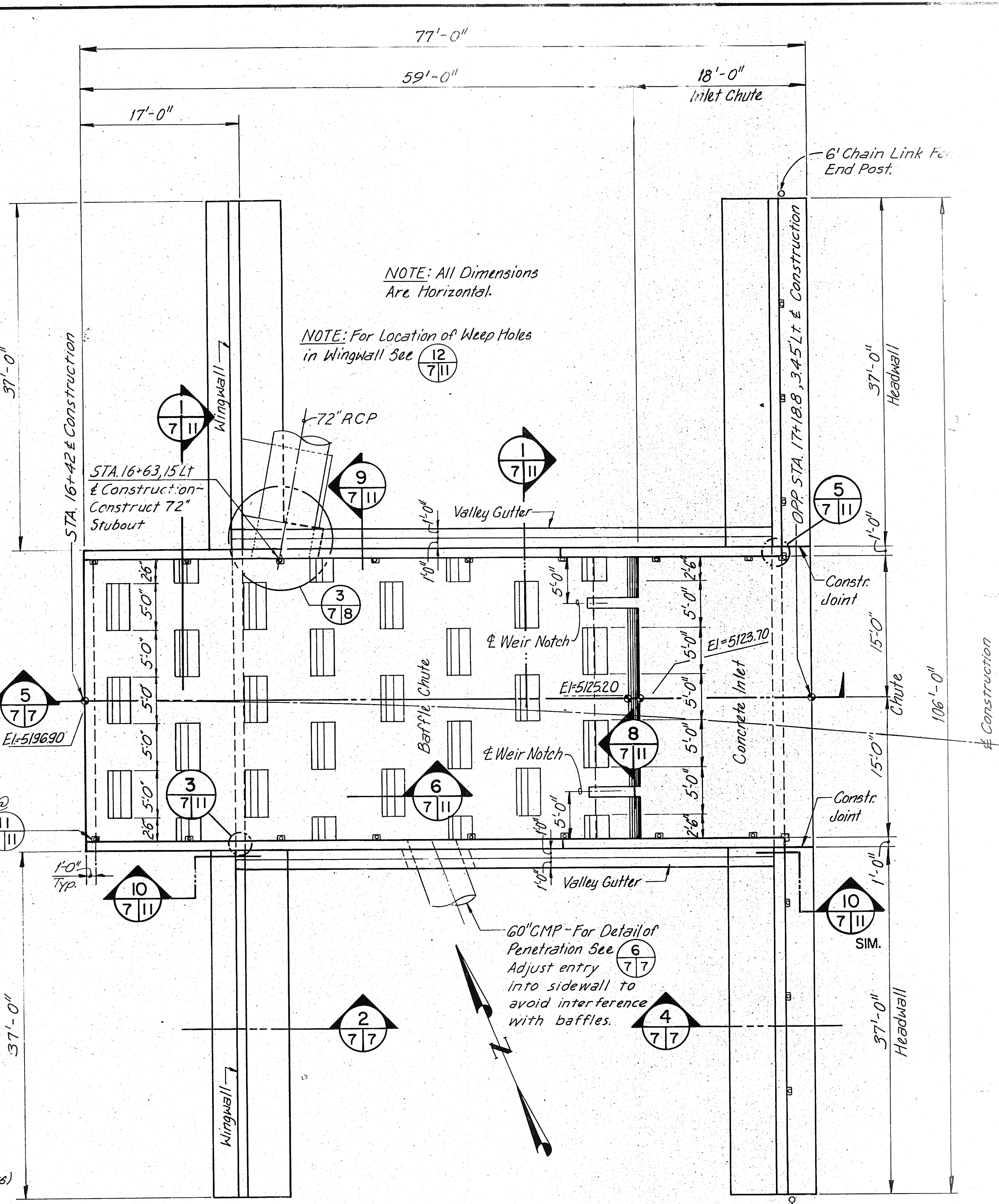
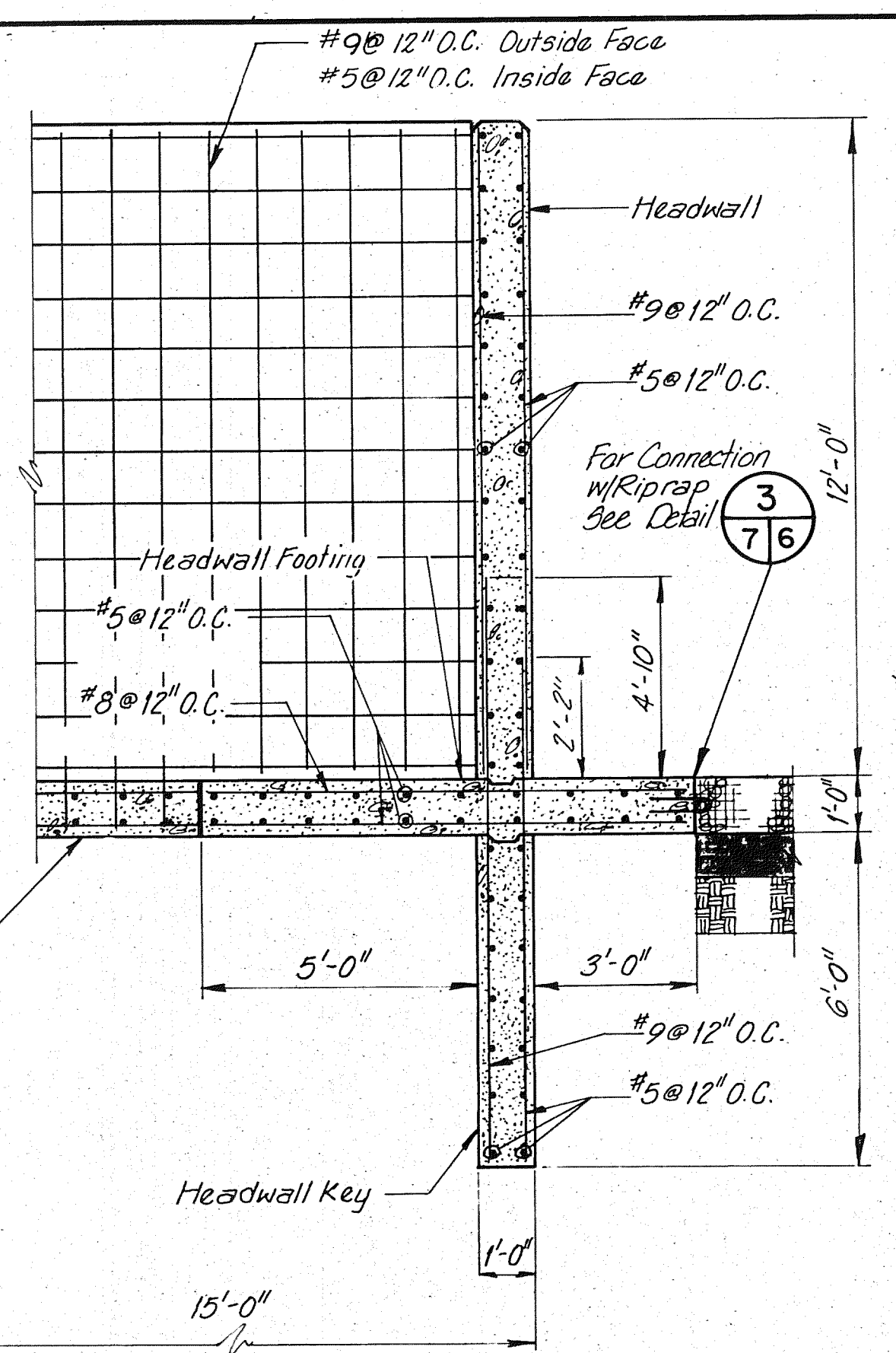
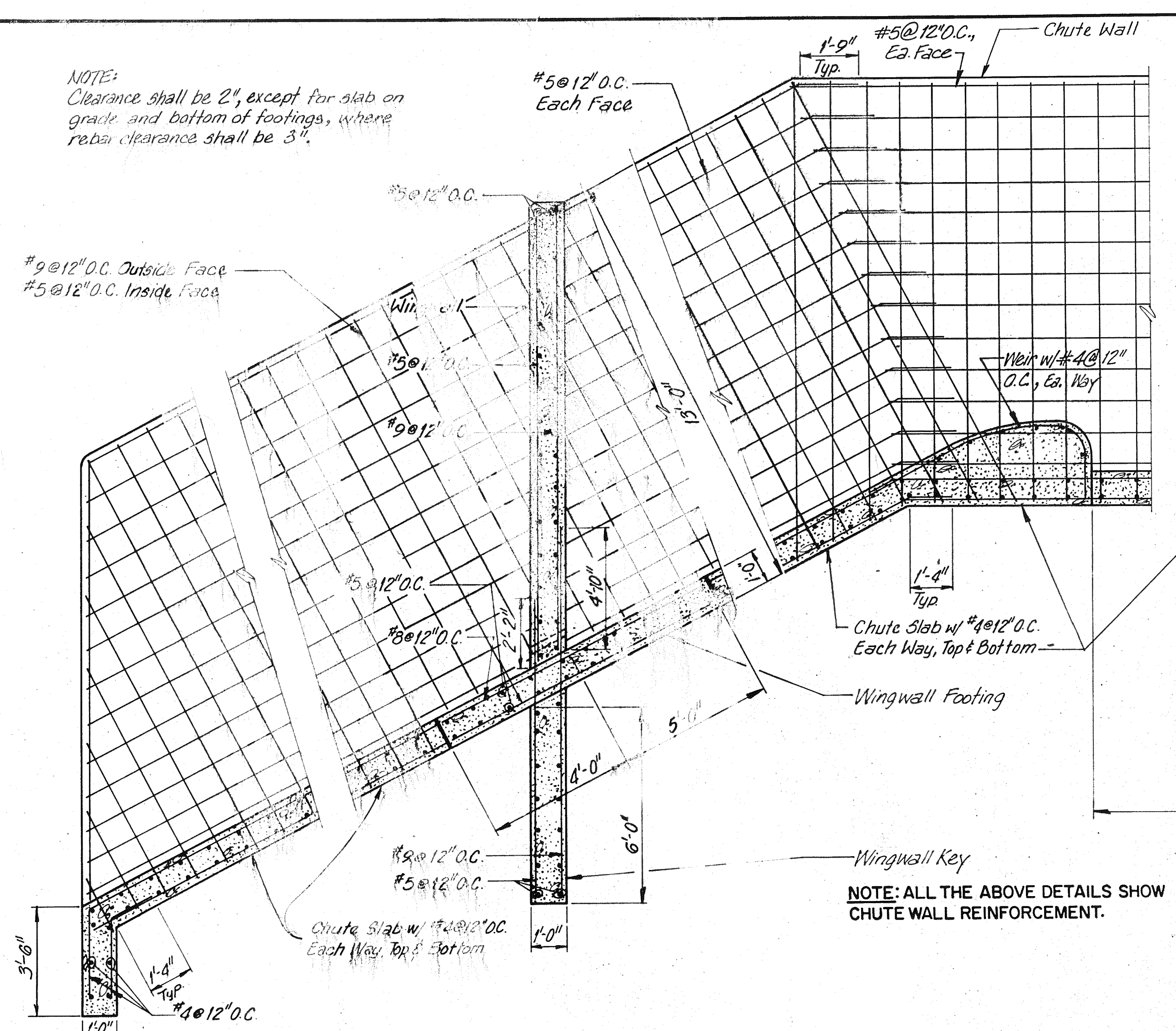
REVISED 10/10/86

AMAFCA

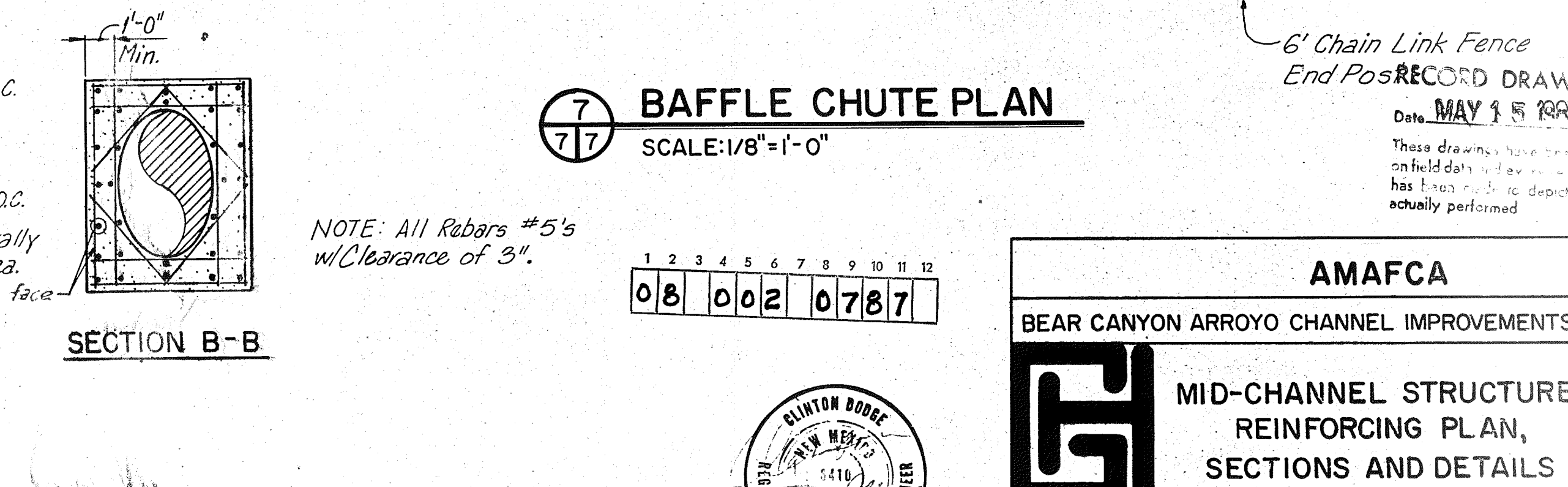
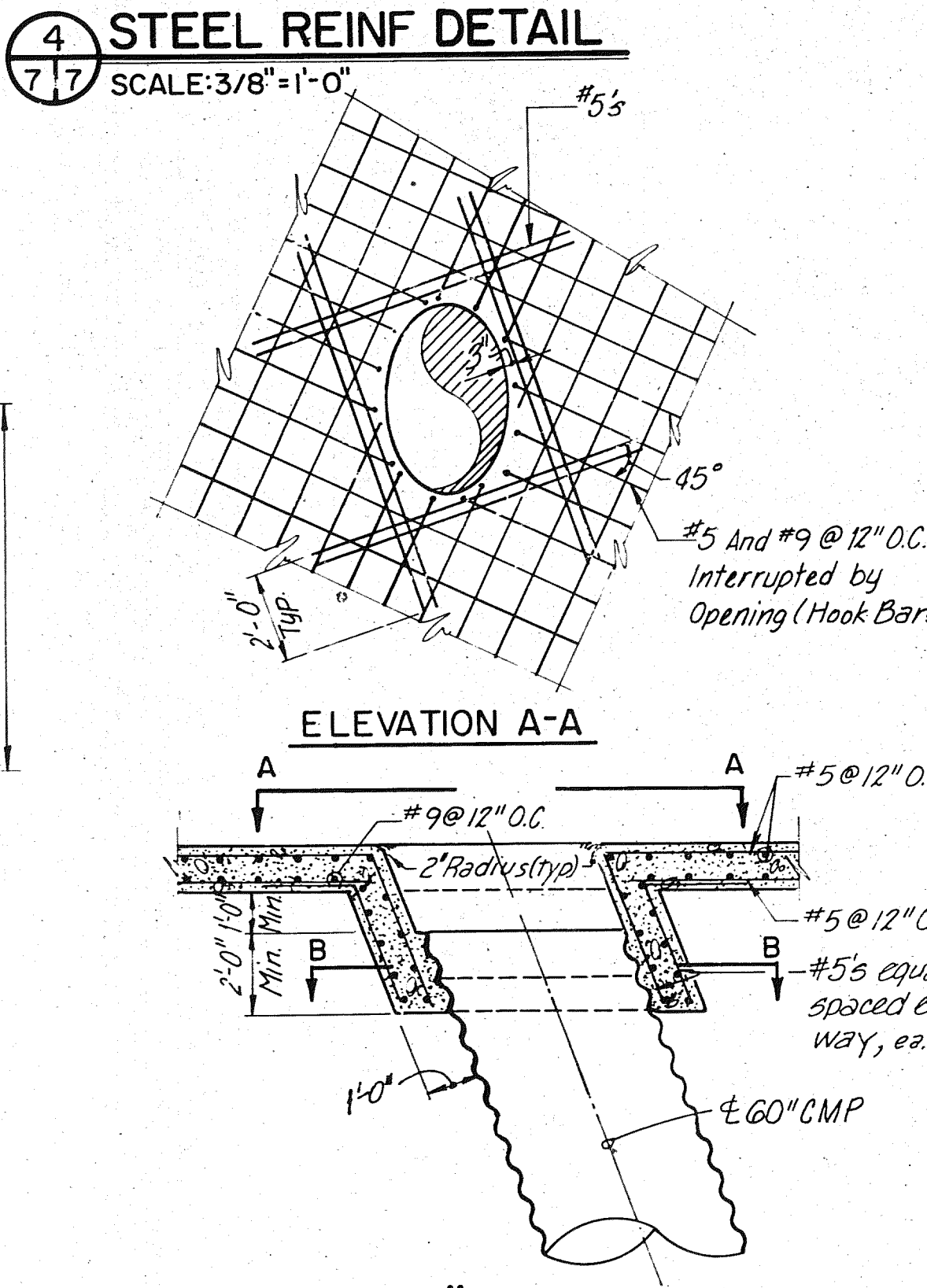
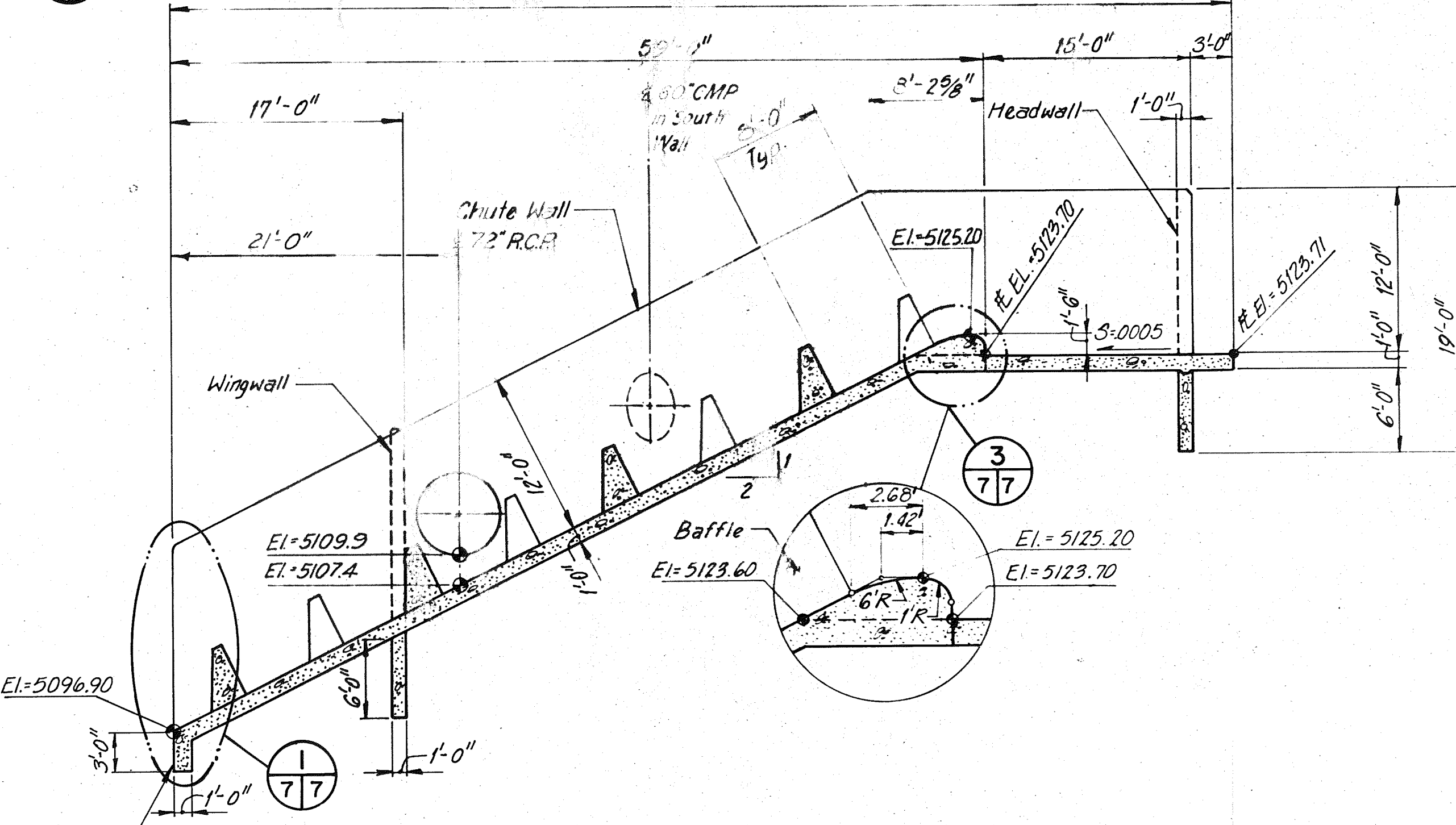
BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH I

|  |                                                                                                          |                 |
|--|----------------------------------------------------------------------------------------------------------|-----------------|
|  | MIDCHANNEL STRUCTURE GRADING AND SITE LAYOUT PLAN                                                        | DRAWN BY K.H.K. |
|  |                                                                                                          | DATE SEPT 1986  |
|  |                                                                                                          | SCALE AS SHOWN  |
|  | <b>GORDON HERKENHOFF &amp; ASSOCIATES, INC.</b><br>ENGINEERS ARCHITECTS PLANNERS<br>ALBUQUERQUE SANTA FE |                 |

NOTE: Clearance shall be 2", except for slab on grade and bottom of footings, where rebar clearance shall be 3".



1 STEEL REINF. DETAIL SCALE: 3/8"=1'-0"  
2 STEEL REINF. DETAIL SCALE: 3/8"=1'-0"  
3 STEEL REINF. DETAIL SCALE: 3/8"=1'-0"  
4 STEEL REINF. DETAIL SCALE: 3/8"=1'-0"



5 LONGITUDINAL SECTION SCALE: 1/8"=1'-0"

6 60" CMP PENETRATION DETAIL NOT TO SCALE

7 BAFFLE CHUTE PLAN SCALE: 1/8"=1'-0"

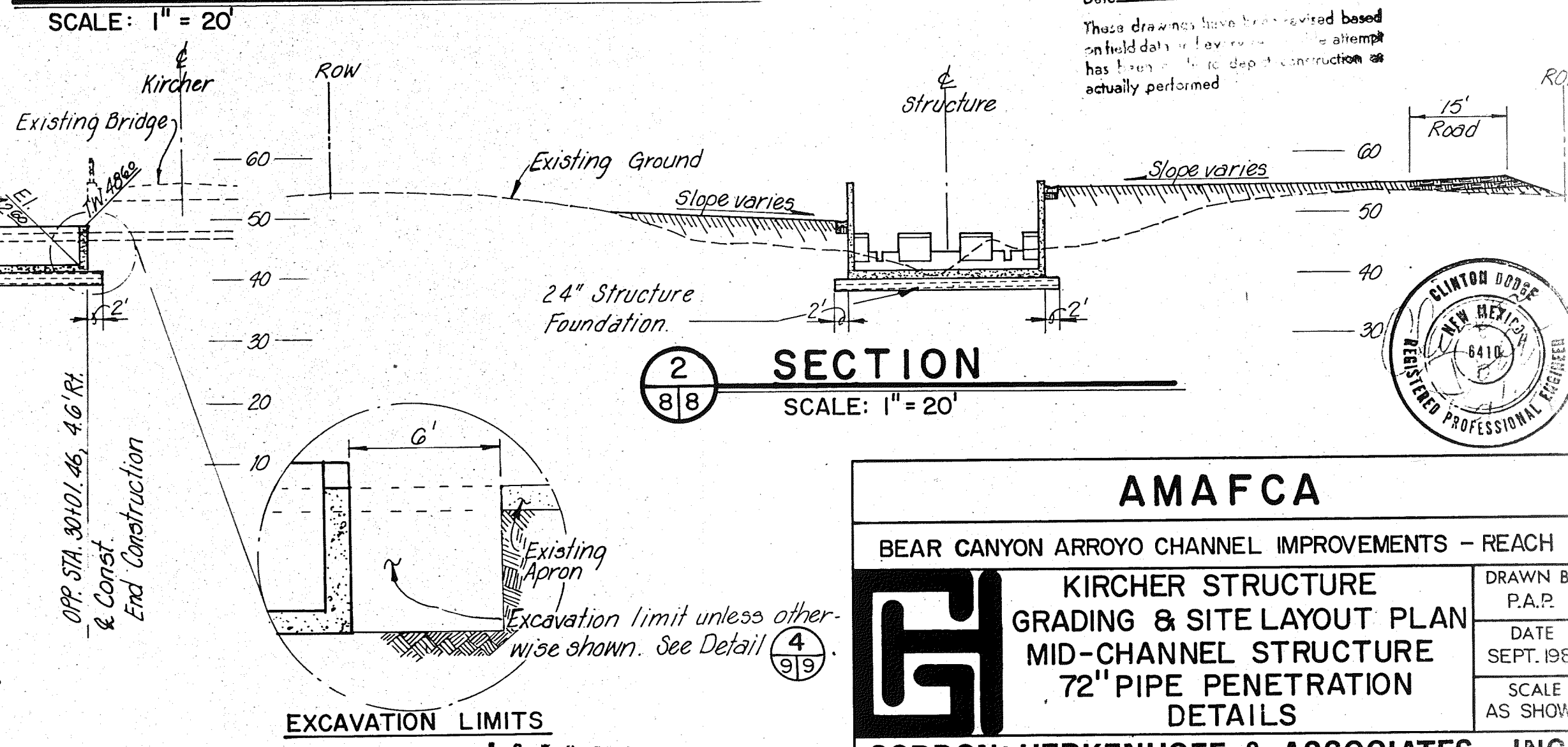
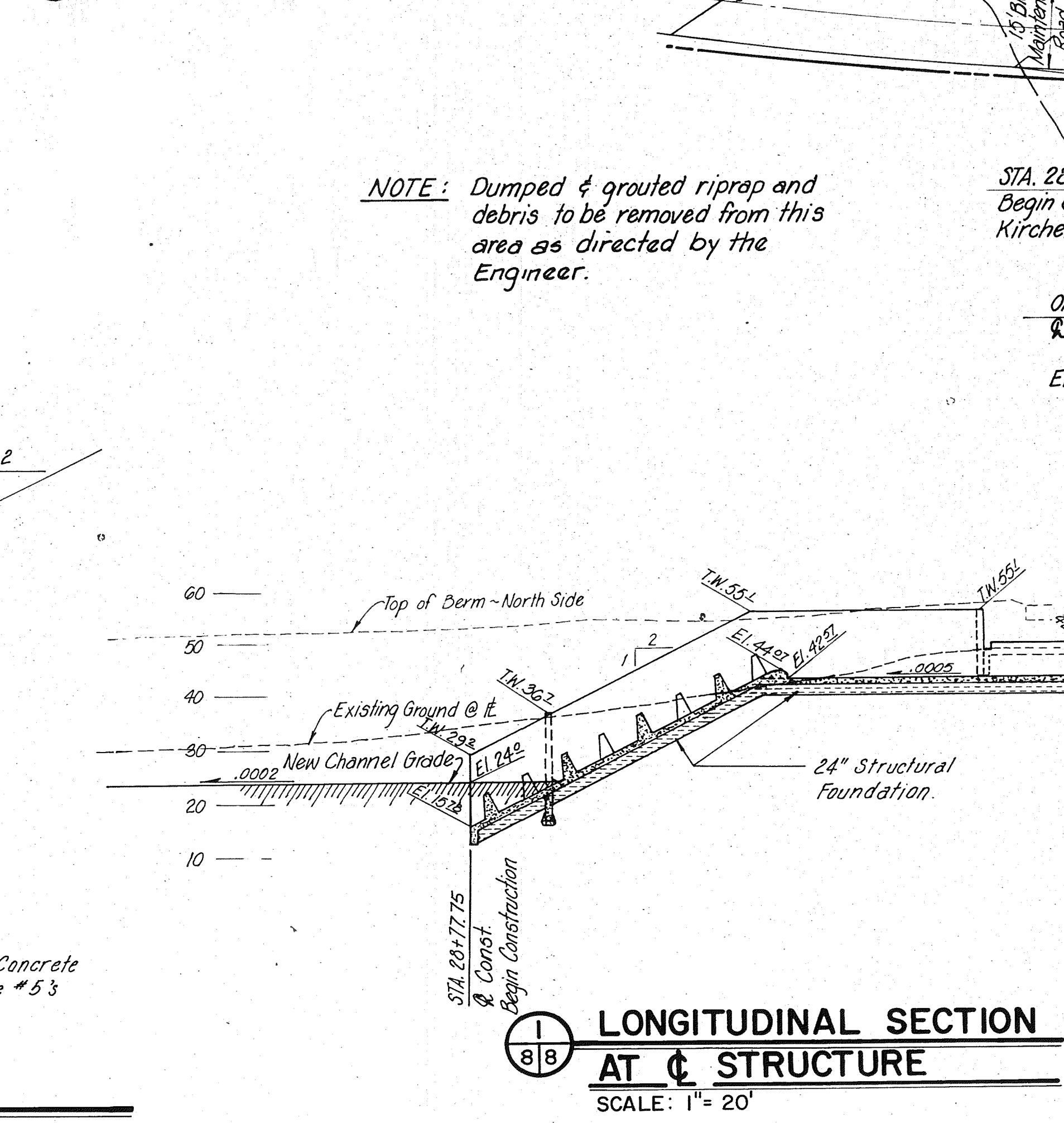
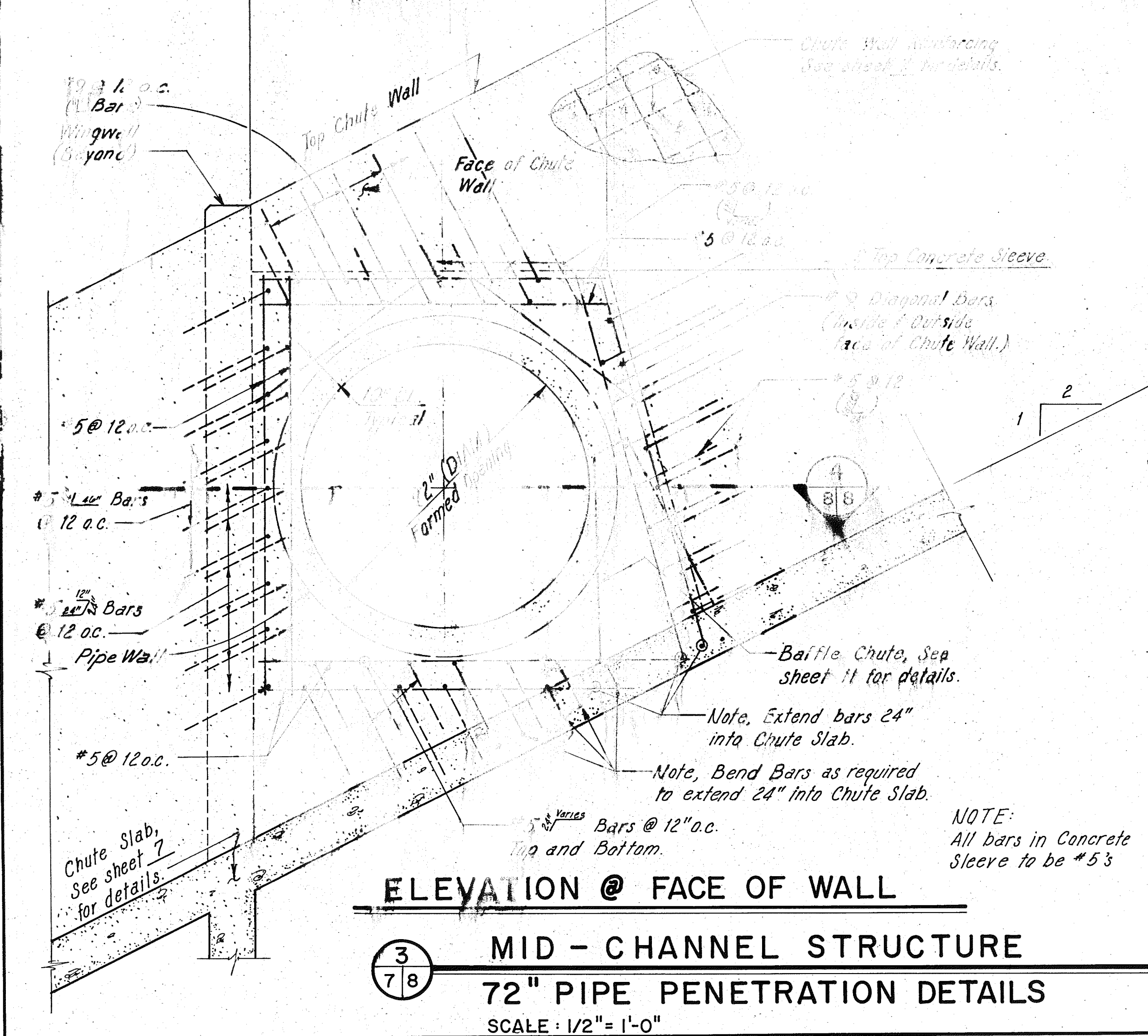
BRUNING 34325

RECORD DRAW  
Date: MAY 15 1997  
These drawings have been prepared on the basis of field data and have been checked and approved by the engineer.  
ALBUQUERQUE

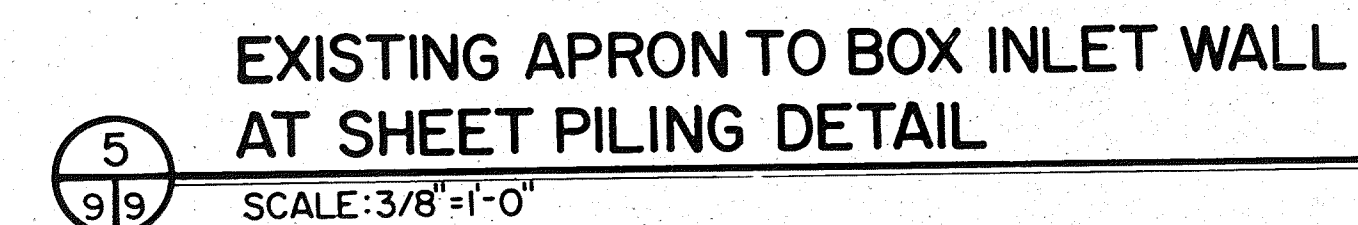
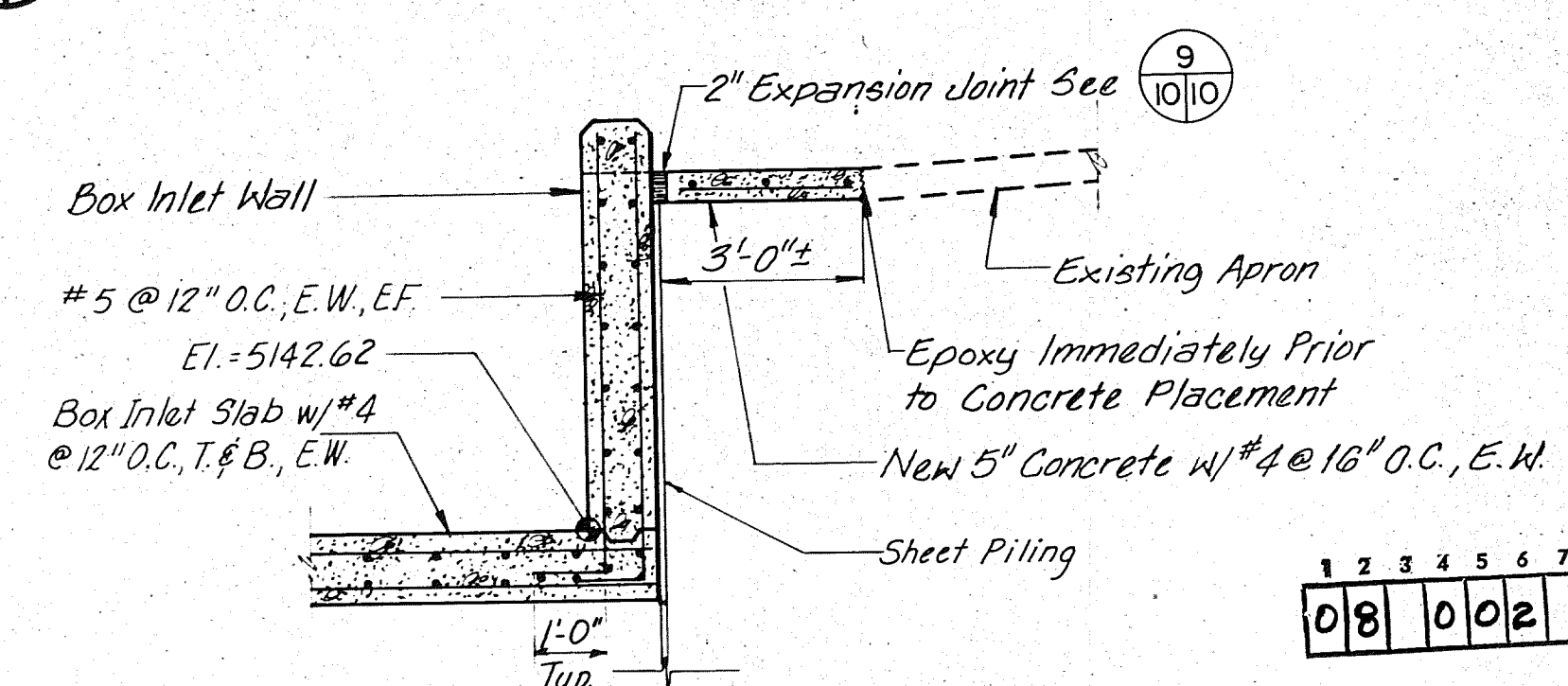
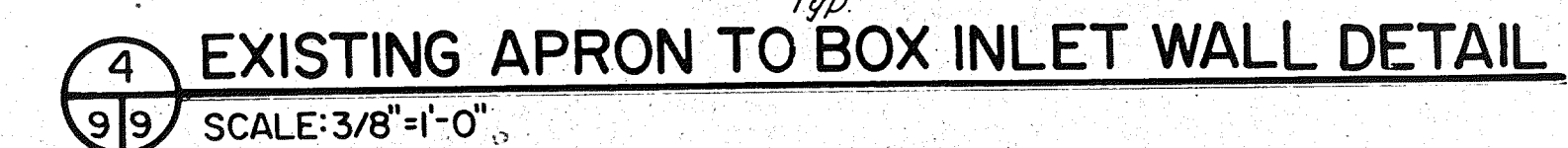
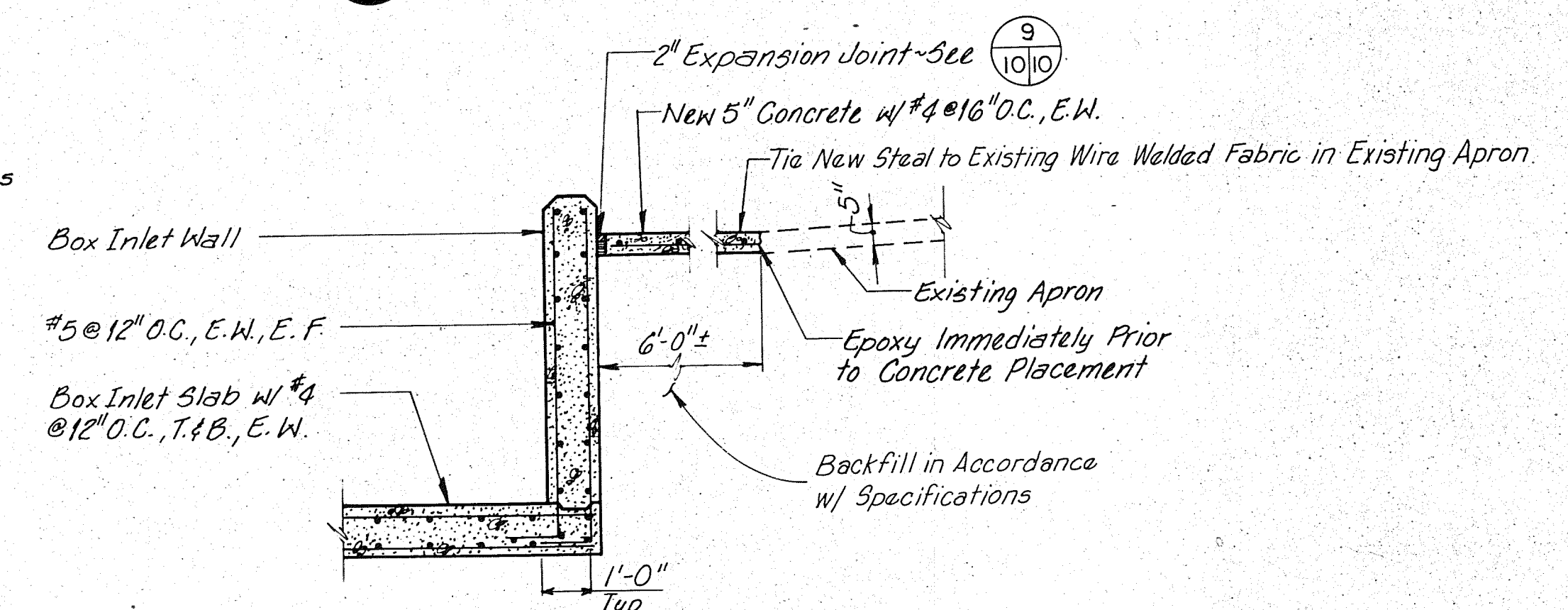
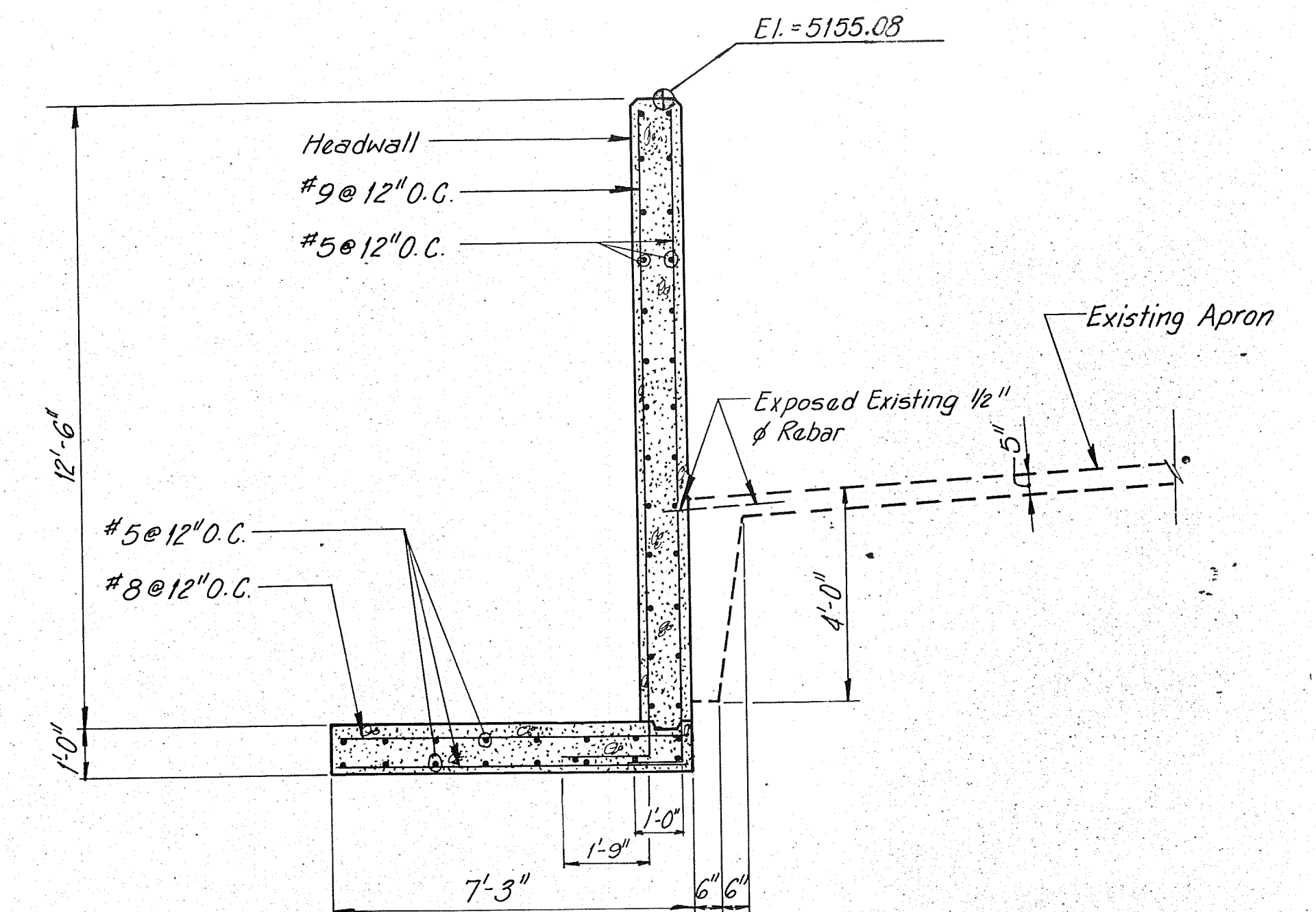
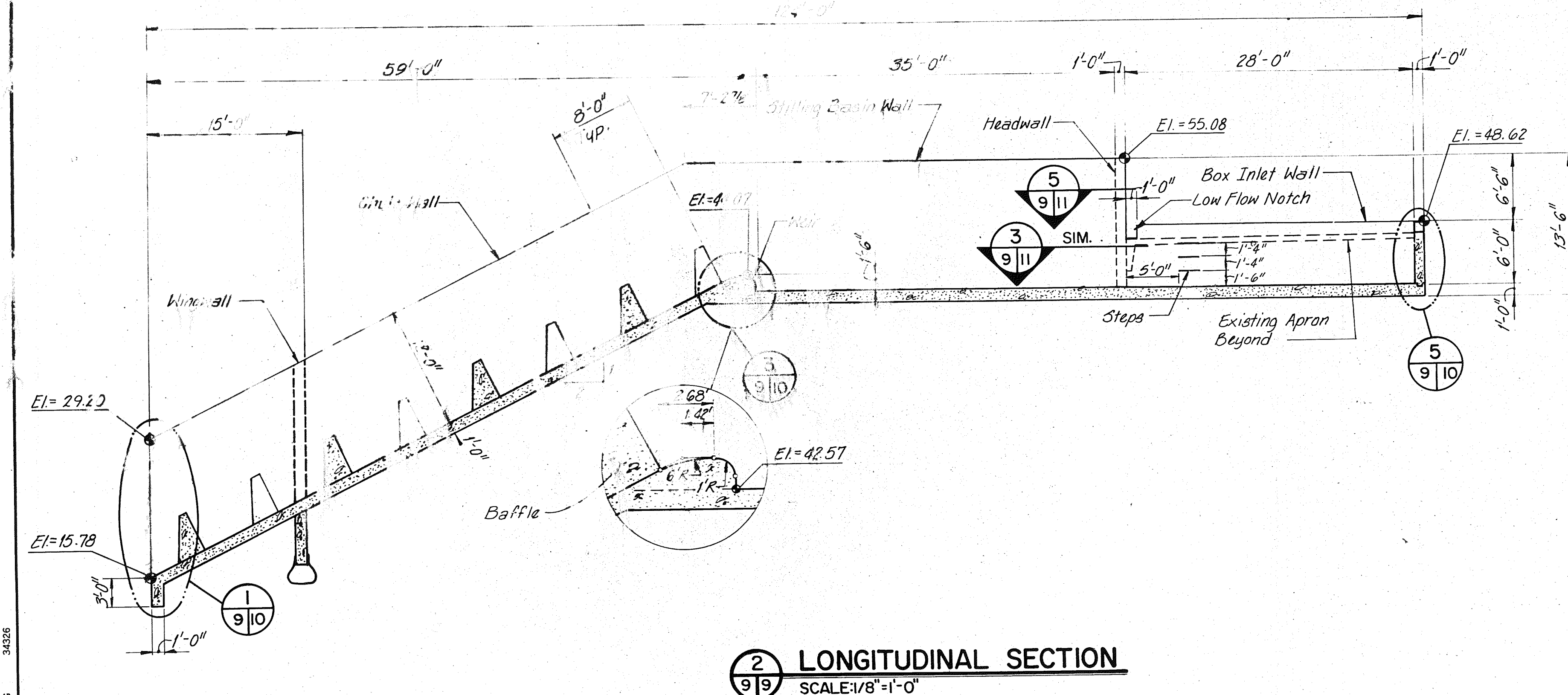
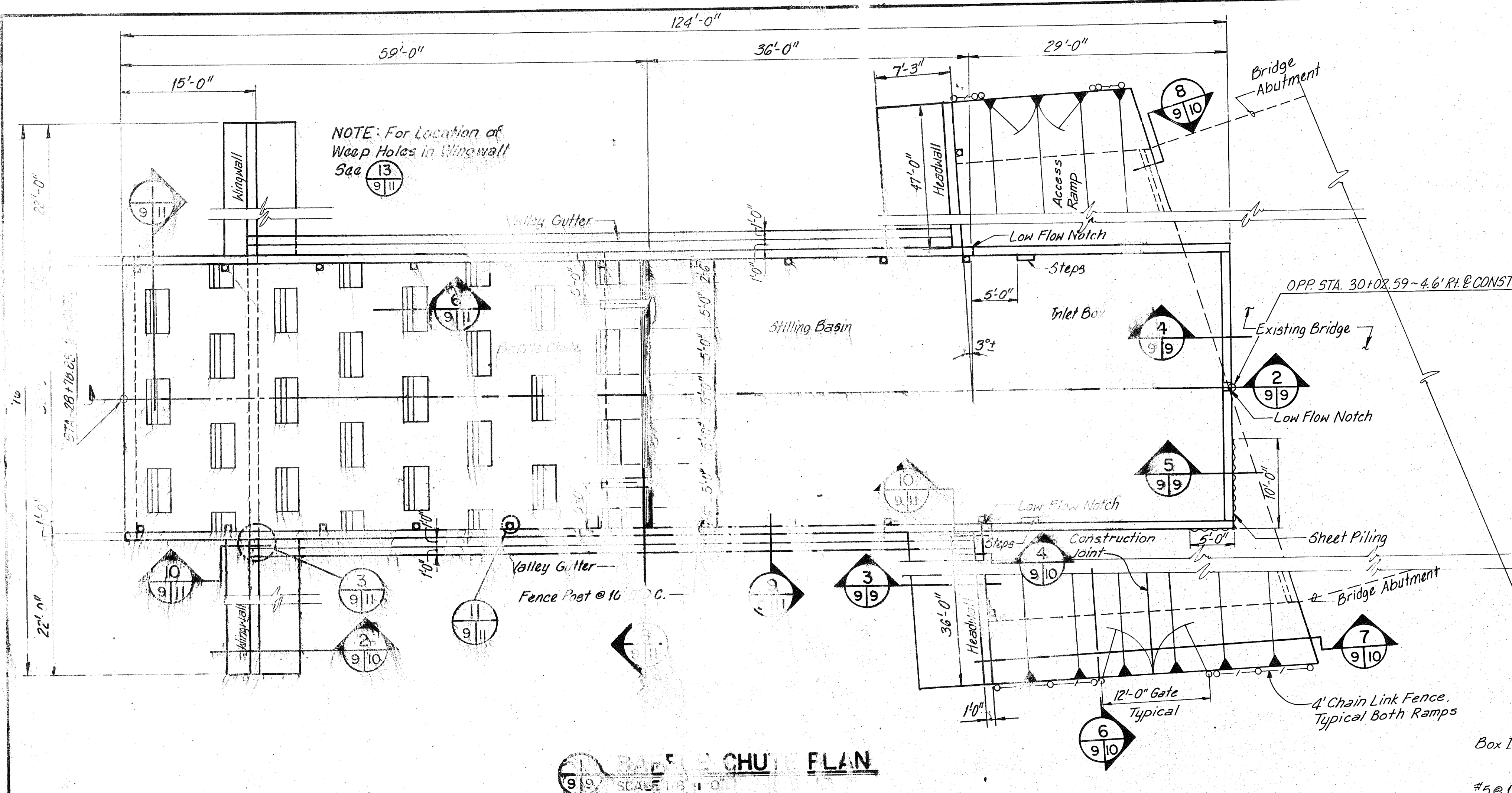
AMAFCA  
BEAR CANYON ARROYO CHANNEL IMPROVEMENTS  
MID-CHANNEL STRUCTURE  
REINFORCING PLAN,  
SECTIONS AND DETAILS  
GORDON HERKENHOFF & ASSOCIATES  
ENGINEERS ARCHITECTS PLANNERS

ALBUQUERQUE

34325



|                                                                                       |                                                                                                             |            |                    |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------|--------------------|
| <h1 style="text-align: center;">AMAFCA</h1>                                           |                                                                                                             |            |                    |
| BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH                                       |                                                                                                             |            |                    |
|  | KIRCHER STRUCTURE<br>GRADING & SITE LAYOUT PLAN<br>MID-CHANNEL STRUCTURE<br>72" PIPE PENETRATION<br>DETAILS |            | DRAWN BY<br>P.A.P. |
|                                                                                       |                                                                                                             |            | DATE<br>SEPT. 198  |
|                                                                                       |                                                                                                             |            | SCALE<br>AS SHOWN  |
|                                                                                       |                                                                                                             |            | DATE               |
| <b>GORDON HERKENHOFF &amp; ASSOCIATES, INC.</b>                                       |                                                                                                             |            |                    |
| ENGINEERS                                                                             |                                                                                                             | ARCHITECTS |                    |
| PLANNERS                                                                              |                                                                                                             | SANTA FE   |                    |



RECORD DRAWING  
Date MAY 15 1987

These drawings have been revised based on field data and have been made to depict construction actually performed.

|   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 0 | 8 |   | 0 | 0 | 2 |   | 0 | 9 | 8  | 7  |    |

**AMAFCA**

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS-REACH 1

DRAWN BY  
W. D.

**KIRCHER STRUCTURE**

PLAN, SECTION SEPT. 1986

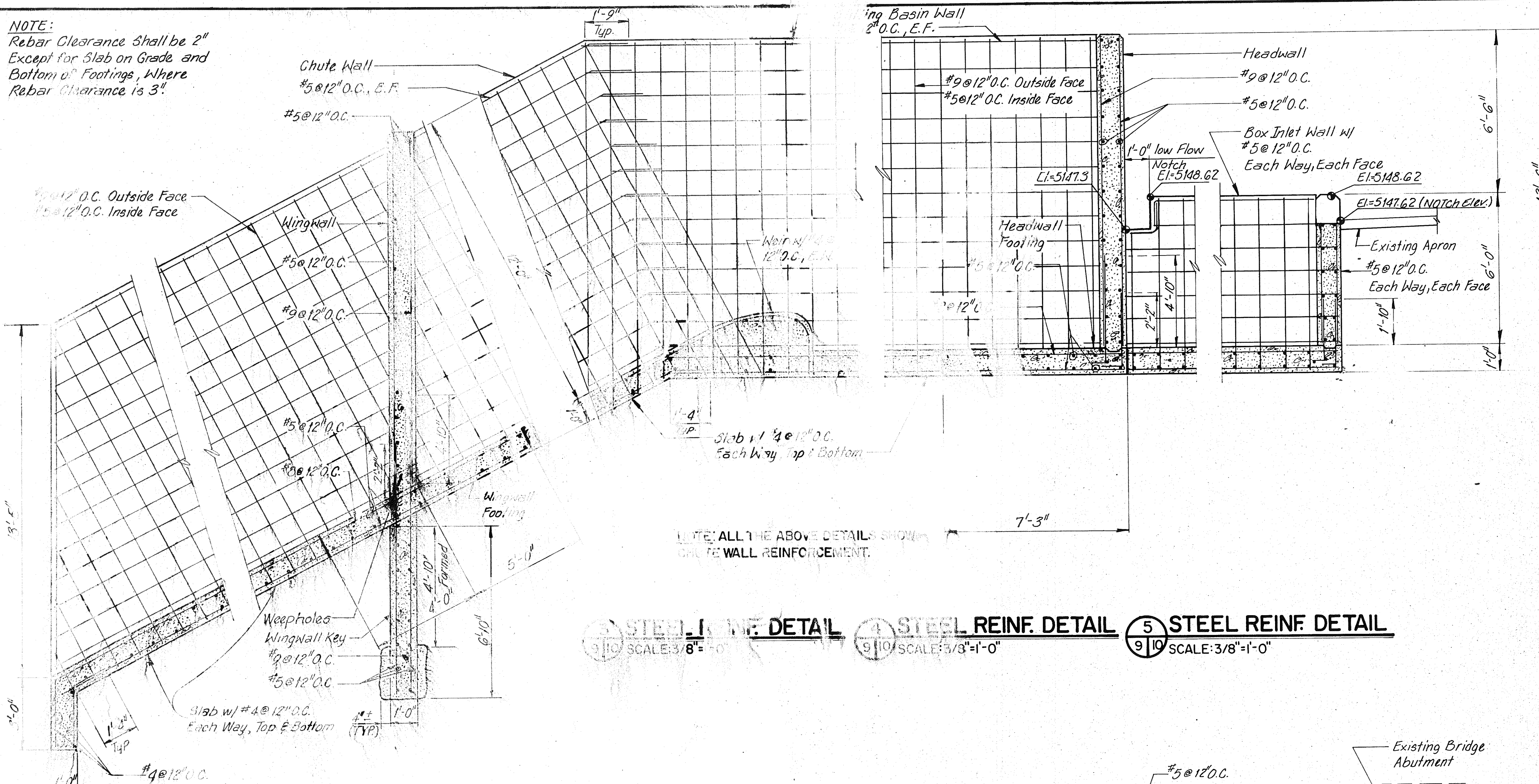
AND DETAILS

SCALE  
AS SHOWN

**GORDON, HERKENHOFF & ASSOCIATES, INC.**

**SHEET 9 OF 17**

NOTE:  
Rebar Clearance Shall be 2"  
Except for Slab on Grade and  
Bottom of Footings, Where  
Rebar Clearance is 3".



NOTE: ALL THE ABOVE DETAILS SHOW  
GRADE WALL REINFORCEMENT.

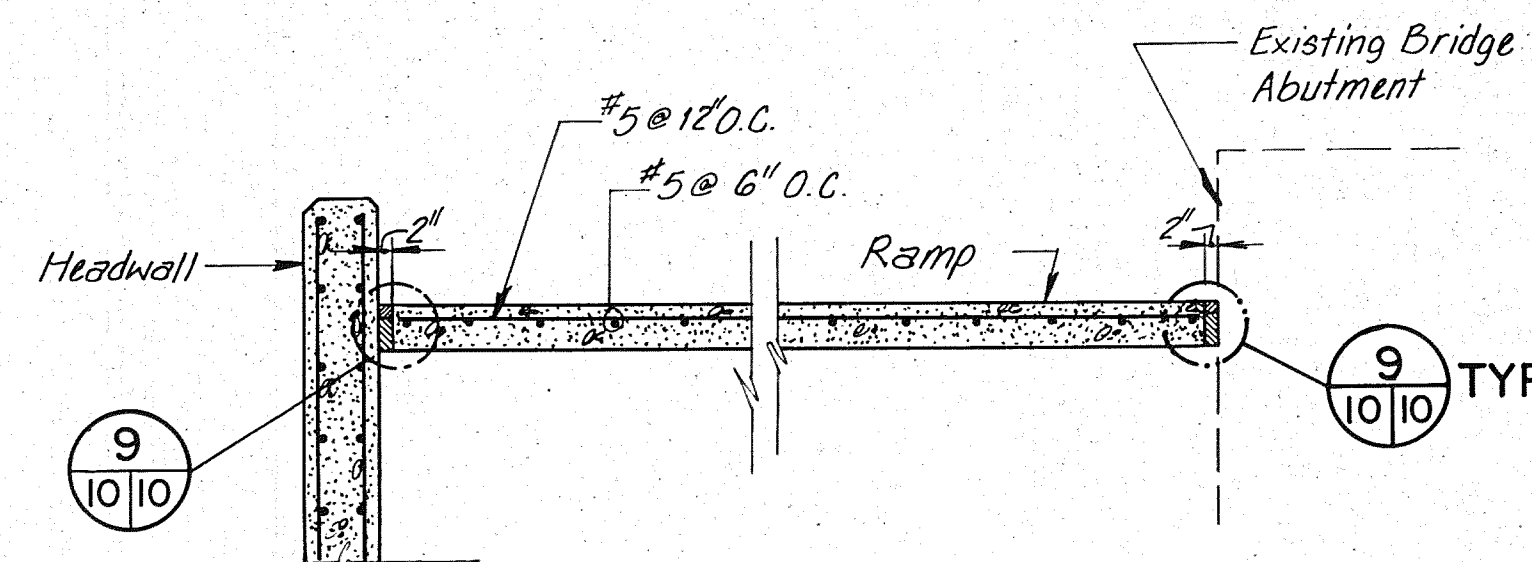
1 STEEL REINF. DETAIL  
SCALE: 3/8"=1'-0"

2 STEEL REINF. DETAIL  
SCALE: 3/8"=1'-0"

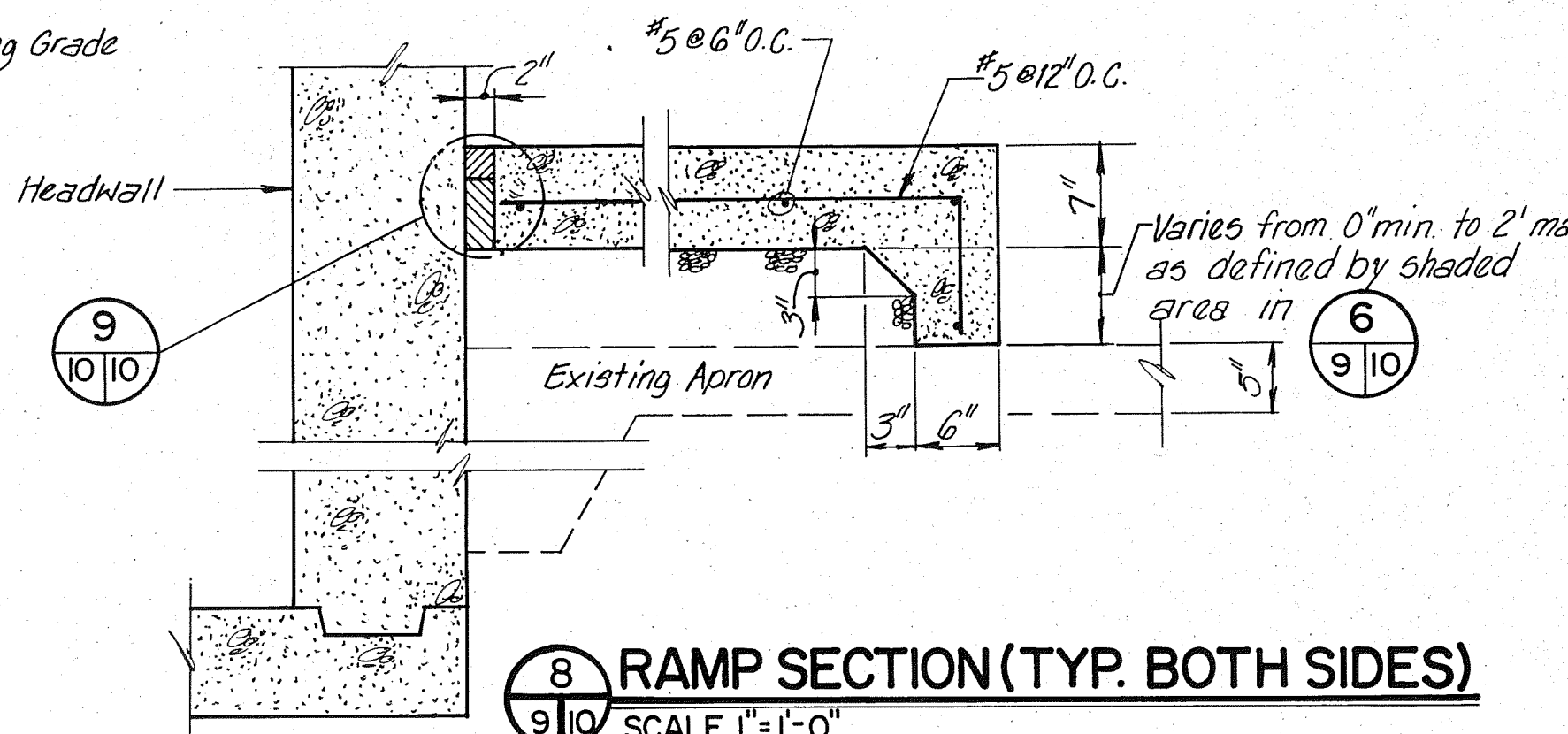
3 STEEL REINF. DETAIL  
SCALE: 3/8"=1'-0"

4 STEEL REINF. DETAIL  
SCALE: 3/8"=1'-0"

5 STEEL REINF. DETAIL  
SCALE: 3/8"=1'-0"



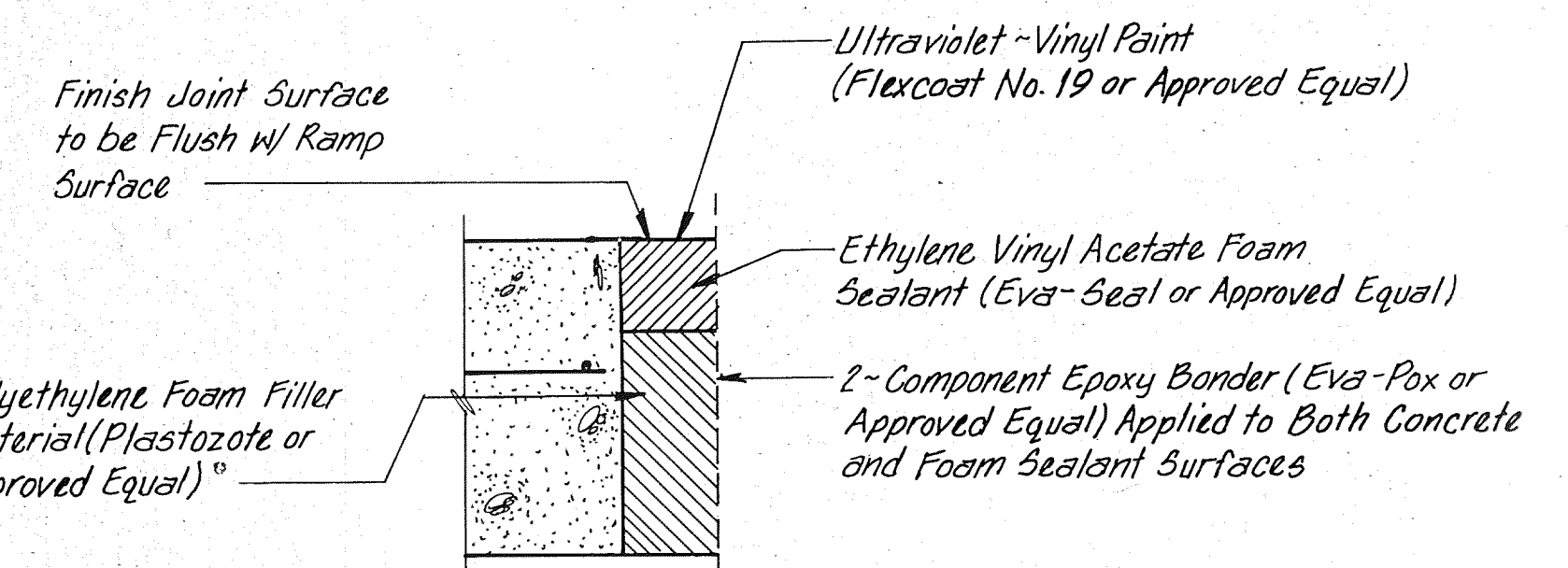
7 RAMP SECTION (TYP. BOTH SIDES)  
SCALE: 3/8"=1'-0"



8 RAMP SECTION (TYP. BOTH SIDES)  
SCALE: 1"=1'-0"

#### EXPANSION JOINT CONSTRUCTION NOTES

1. WHEN CONCRETE HAS REACHED A MINIMUM OF 80% DESIGN STRENGTH OR AFTER A MINIMUM OF SEVEN DAYS HAS ELAPSED SINCE CONCRETE WAS POURED, REMOVE SEALANT NOTCH FORM, SAND BLAST VERTICAL SURFACES AND CLEAN ALL DEBRIS FROM NOTCH. APPLY EPOXY BONDER TO BOTH VERTICAL CONCRETE FACES AND TO BOTH SIDES OF FOAM SEALANT MATERIAL. IMMEDIATELY COMPRESS FOAM SEALANT INTO NOTCH. REMOVE BONDER FROM TOP SURFACE OF SEALANT MATERIAL, BUT DO NOT CLEAN BONDER BEAD ALONG EDGES.
2. IF SEALANT MATERIAL EXTENDS FROM 0" TO 1/8" ABOVE CHANNEL FLOW LINE, APPLY ULTRAVIOLET PAINT AS SPECIFIED. IF SEALANT MATERIAL EXTENDS 1/8" OR MORE ABOVE CHANNEL FLOW LINE, POWER SAND MATERIAL FLUSH WITH CHANNEL FLOW LINE UNDER THE DIRECTION OF THE ENGINEER PRIOR TO APPLICATION OF ULTRAVIOLET PAINT.
3. ORDER WIDTH FOR FOAM FILLER MATERIAL SHALL BE 25% GREATER THAN THE 2" FINISH DIMENSION. INSTALL EVASEAL WHEN TEMPERATURE IS 60 DEGREES F OR LESS.



9 EXPANSION JOINT DETAIL  
NOT TO SCALE



1 2 3 4 5 6 7 8 9 10 11 12  
08 002 1087

#### RECORD DRAWING

Date: MAY 15 1987

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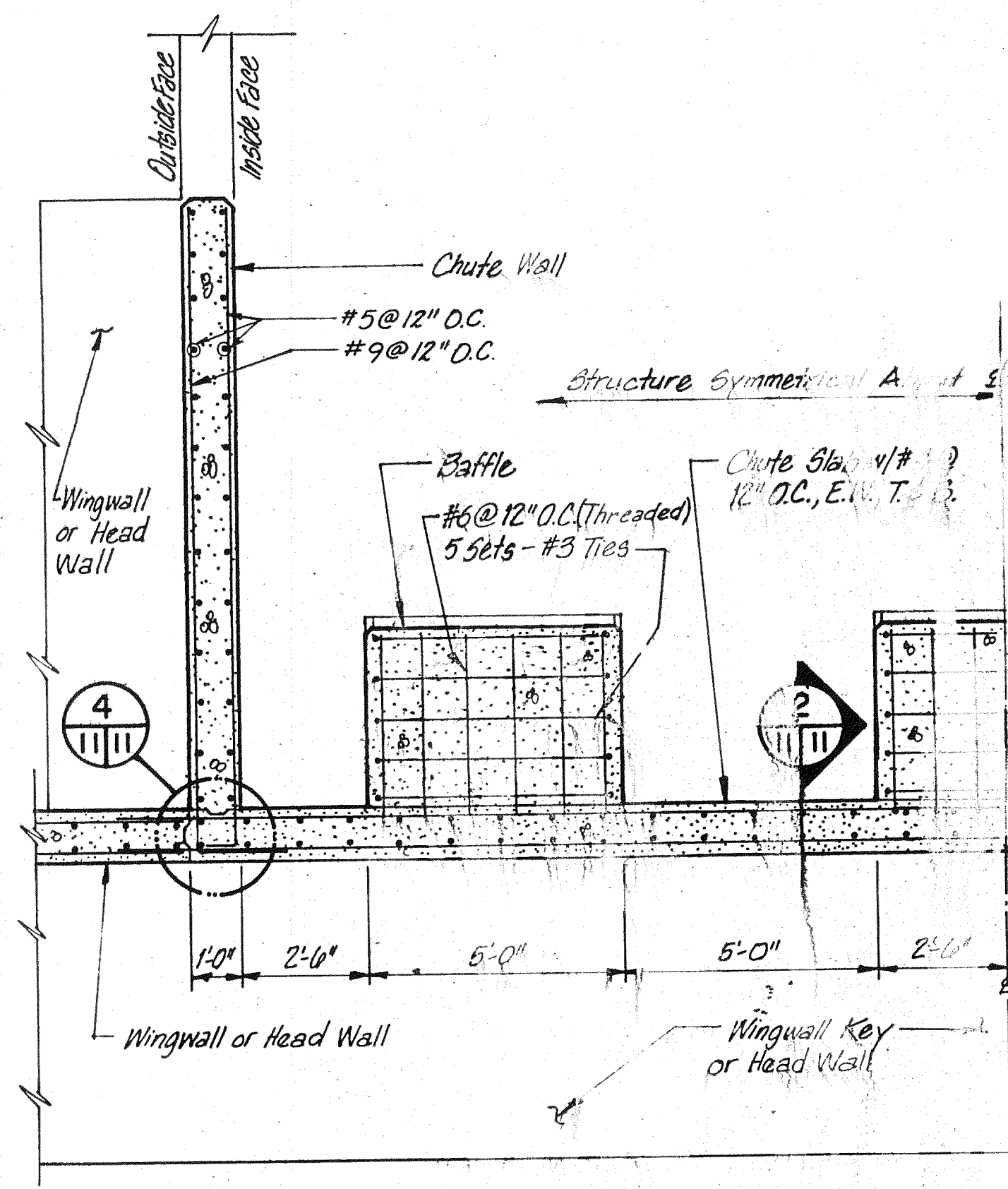
#### AMAFCA

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1

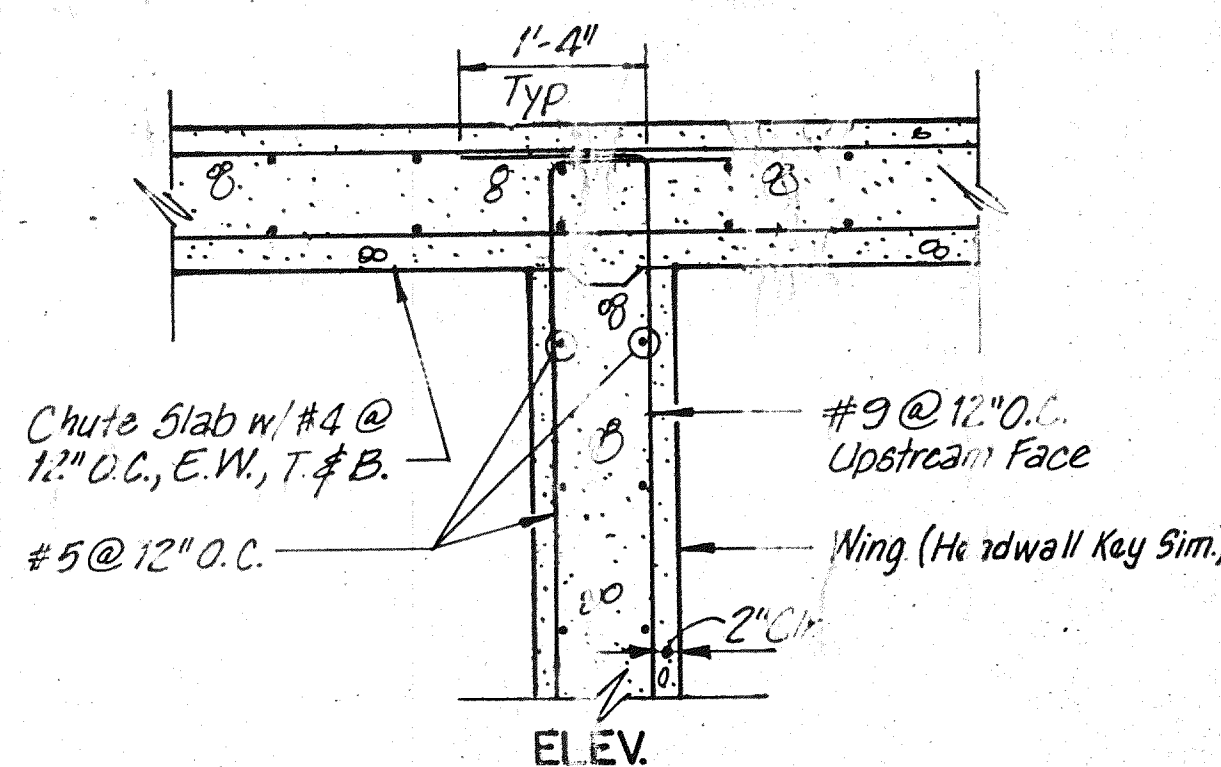
|  |                                            |  |                     |
|--|--------------------------------------------|--|---------------------|
|  | KIRCHER STRUCTURE<br>REINFORCEMENT DETAILS |  | DRAWN BY<br>W. DODD |
|  |                                            |  | DATE<br>SEPT 1987   |
|  |                                            |  | SCALE<br>AS SHOWN   |
|  |                                            |  |                     |

GORDON HERKENHOFF & ASSOCIATES, INC.

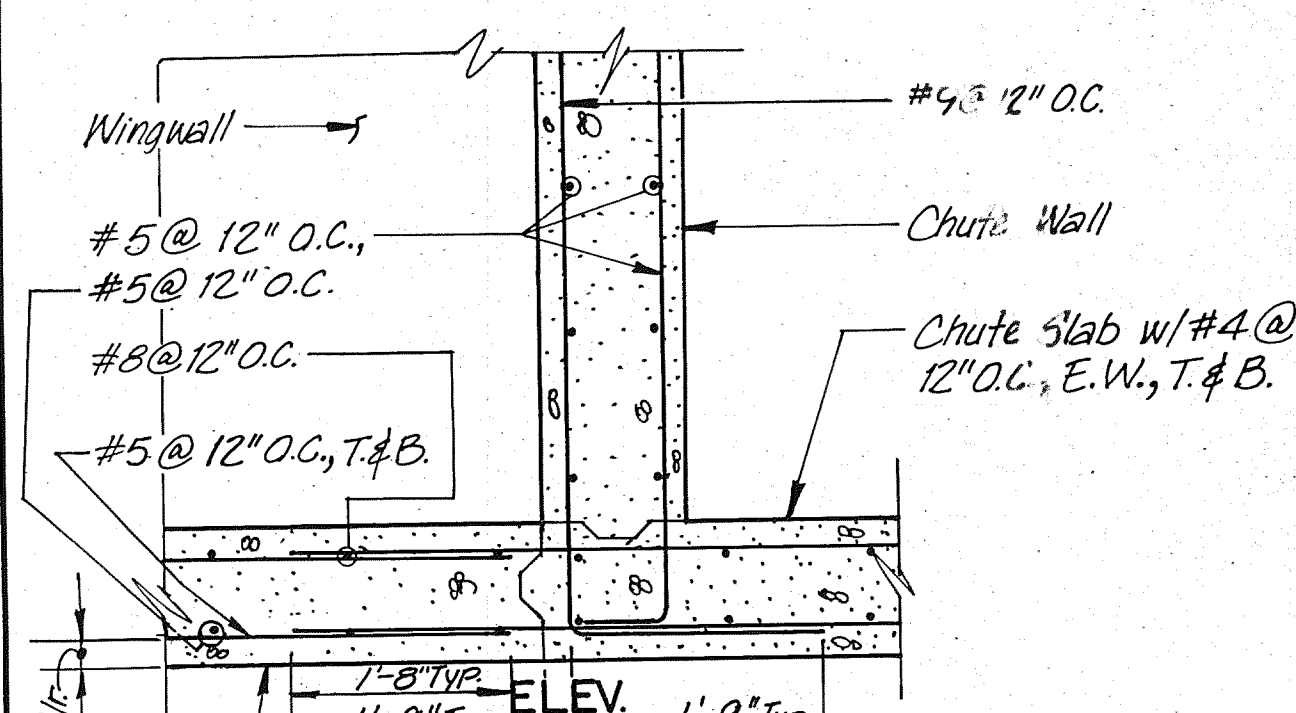
ALBUQUERQUE ENGINEERS ARCHITECTS PLANNERS SANTA FE



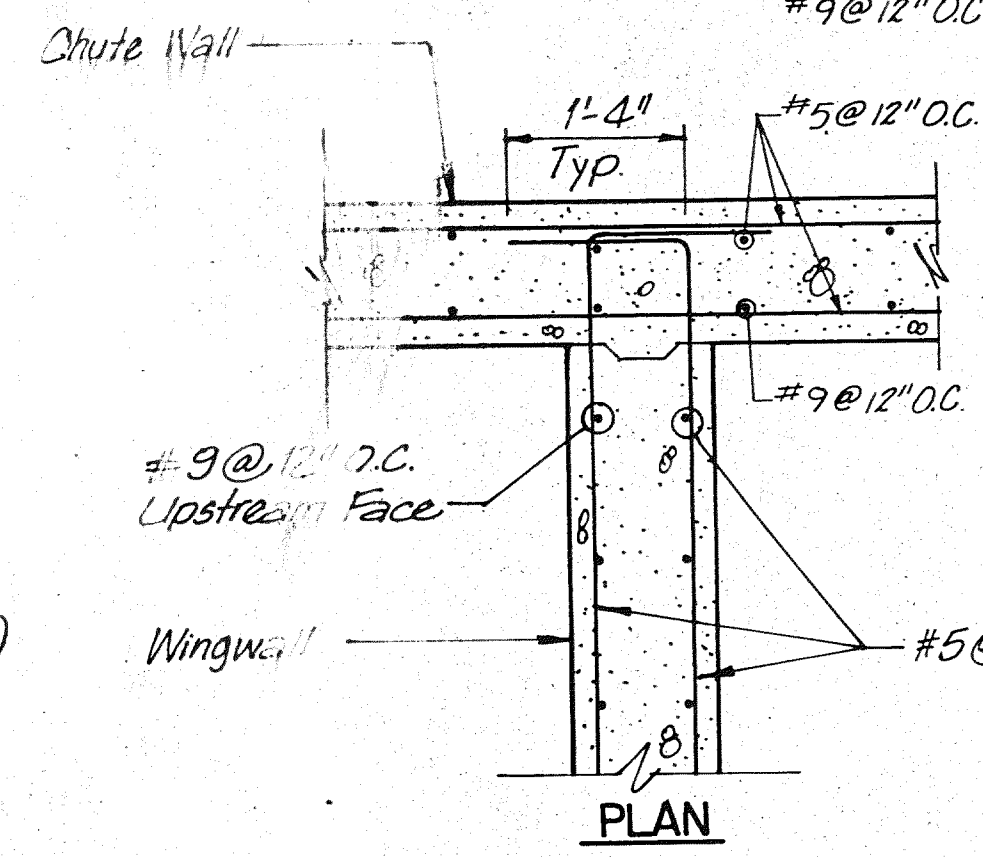
**TYPICAL TRANSVERSE SECTION**



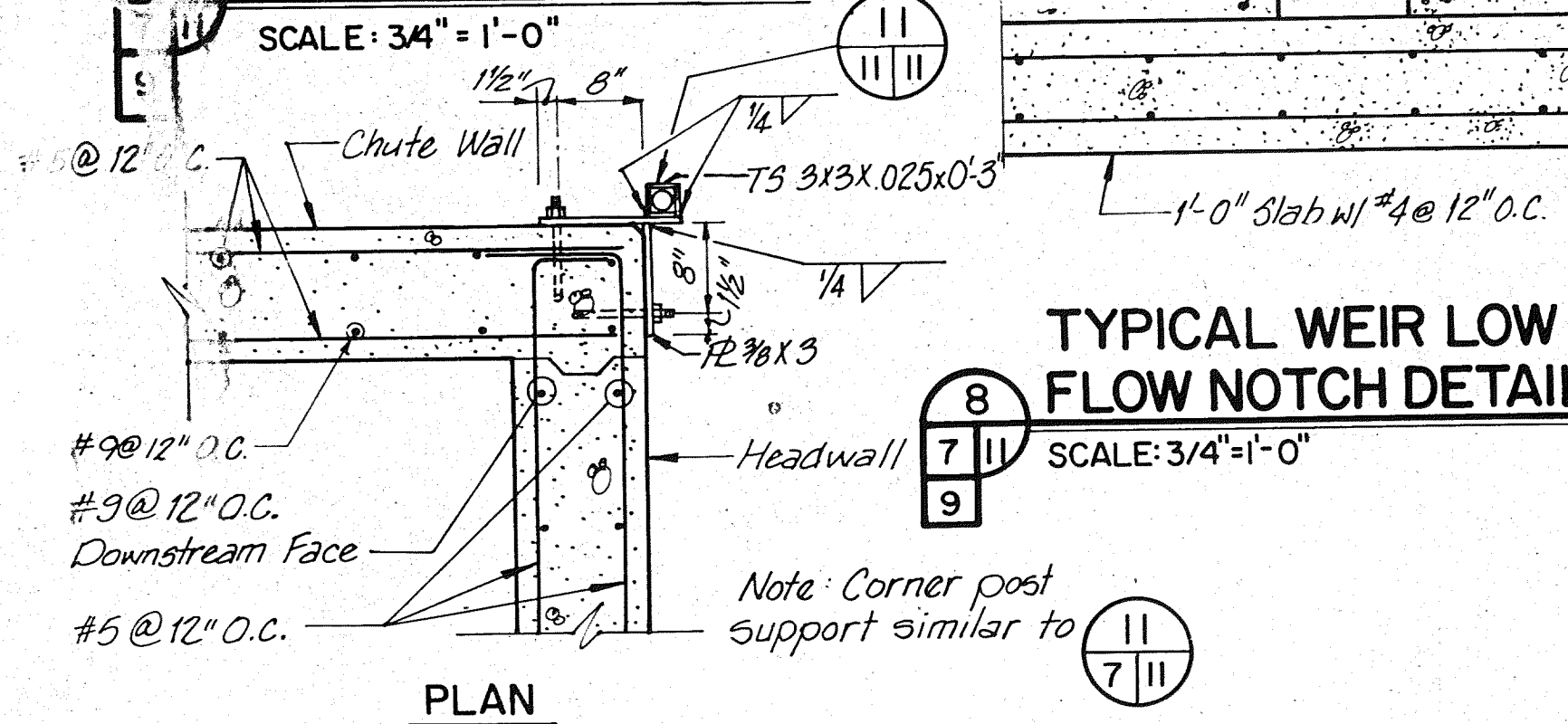
**TYPICAL CHUTE SLAB TO WINGWALL OR HEAD WALL**



**TYPICAL CHUTE WALL TO WINGWALL OR HEADWALL & CHUTE SLAB**

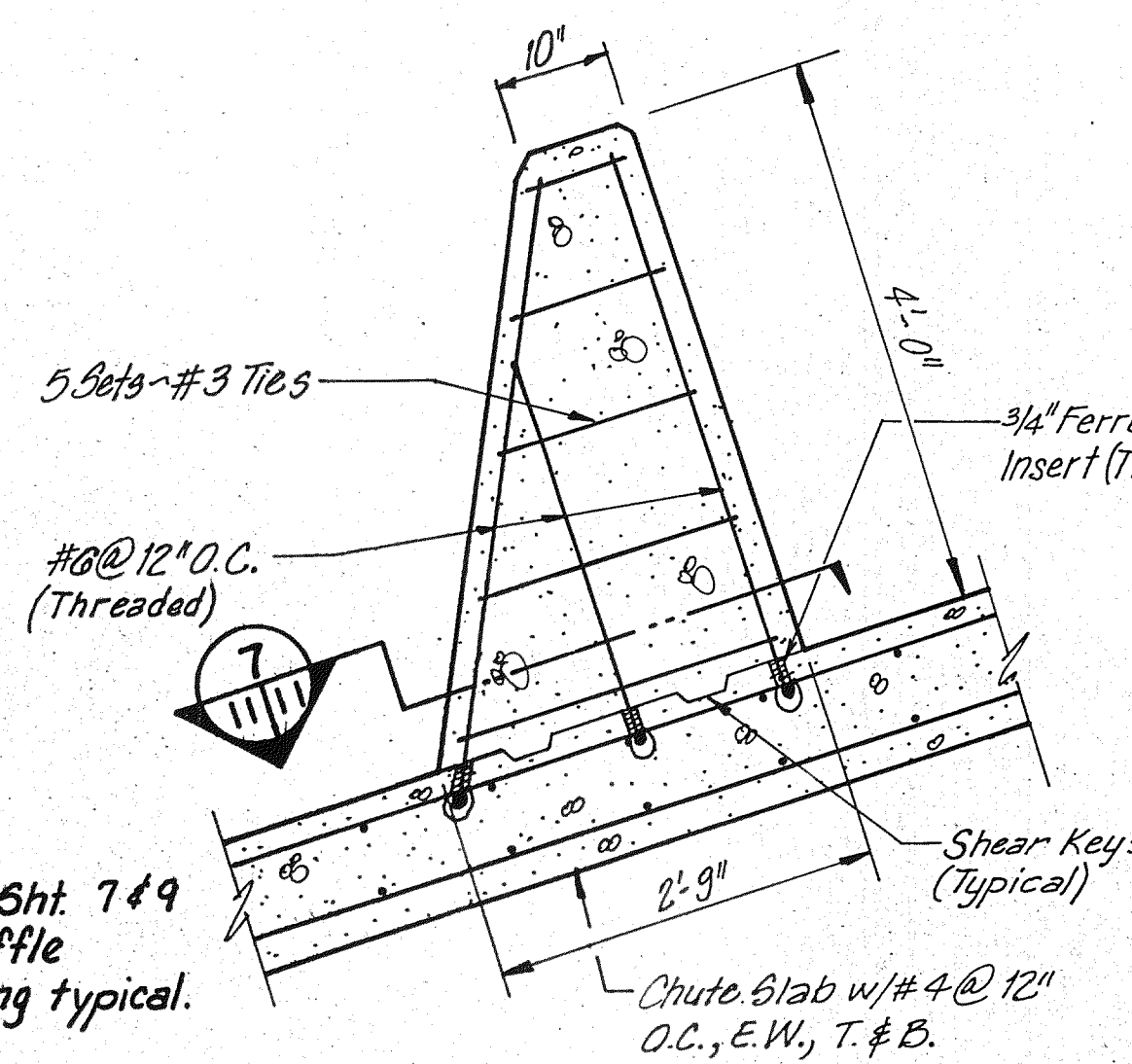


**TYPICAL WING WALL TO CHUTE WALL**

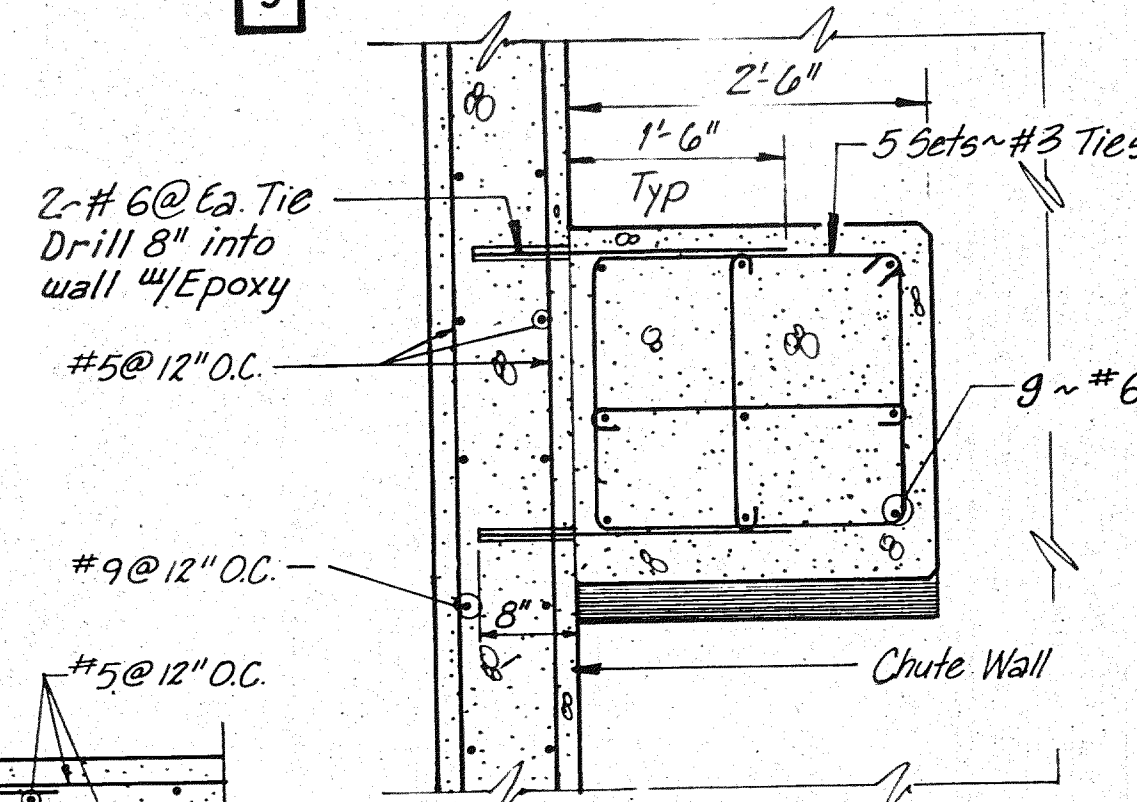


**TYPICAL WEIR LOW FLOW NOTCH DETAIL**

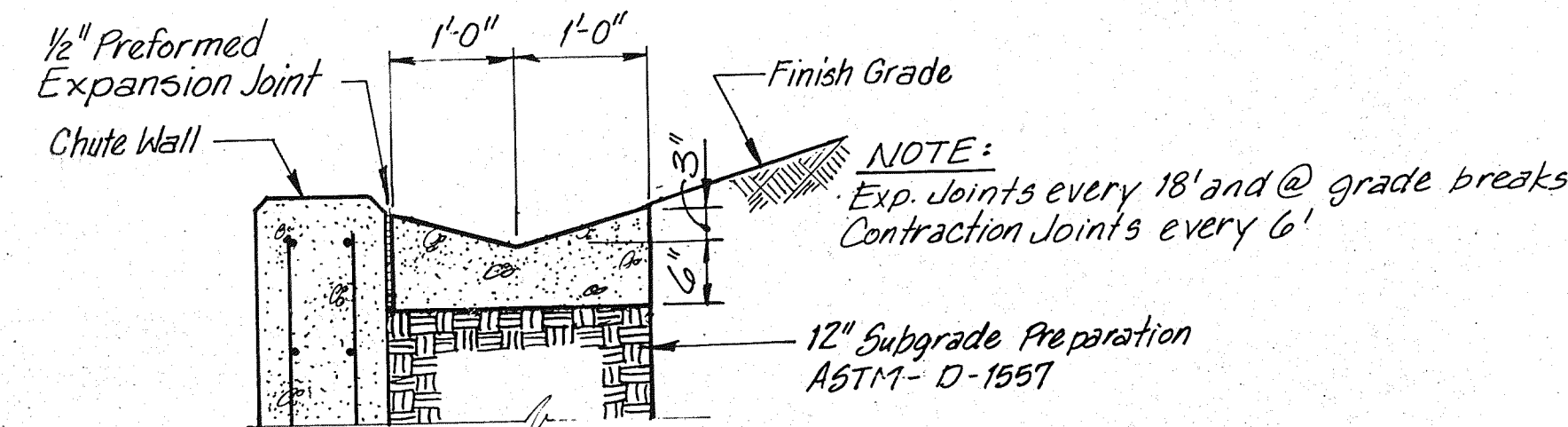
**HEADWALL TO CHUTE WALL**



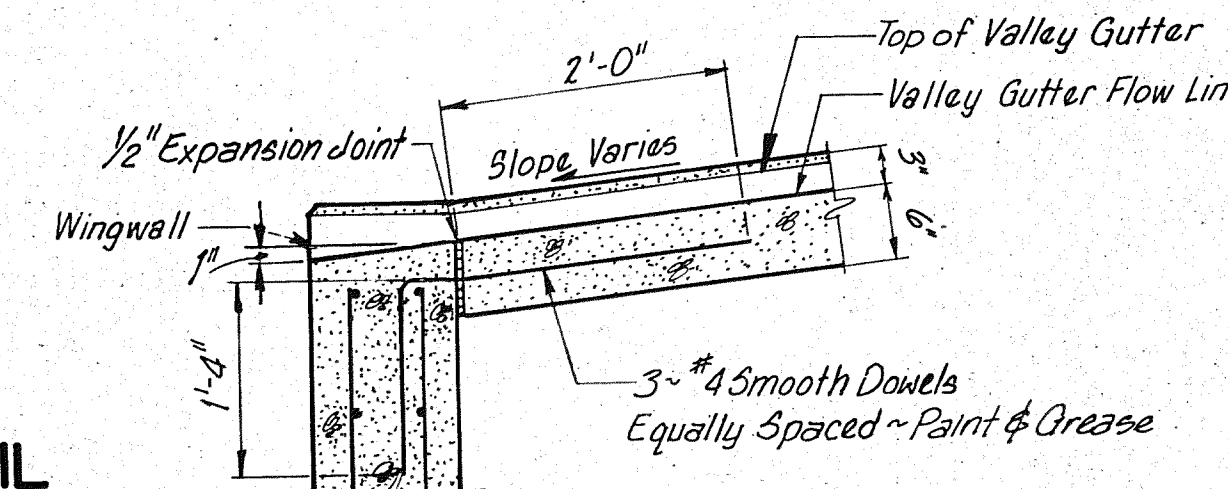
**TYPICAL BAFFLE REINF. DETAIL**



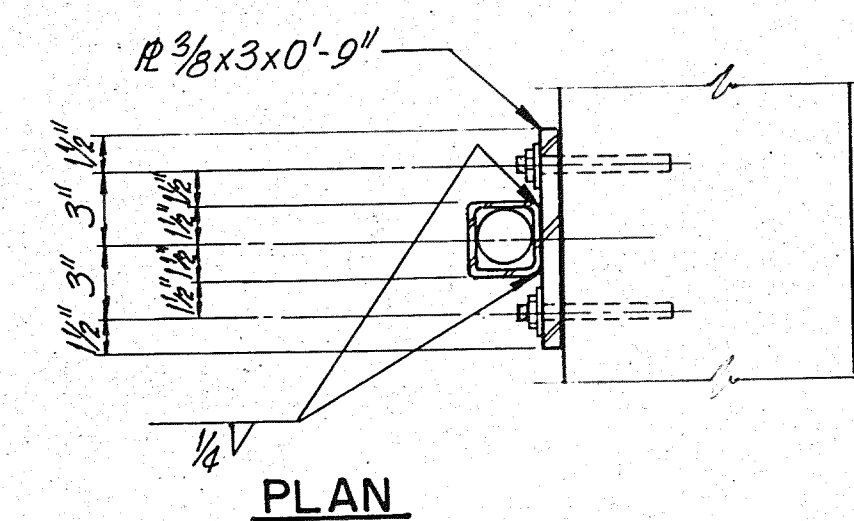
**TYPICAL HALF BAFFLE WALL CONNECTION DETAIL**



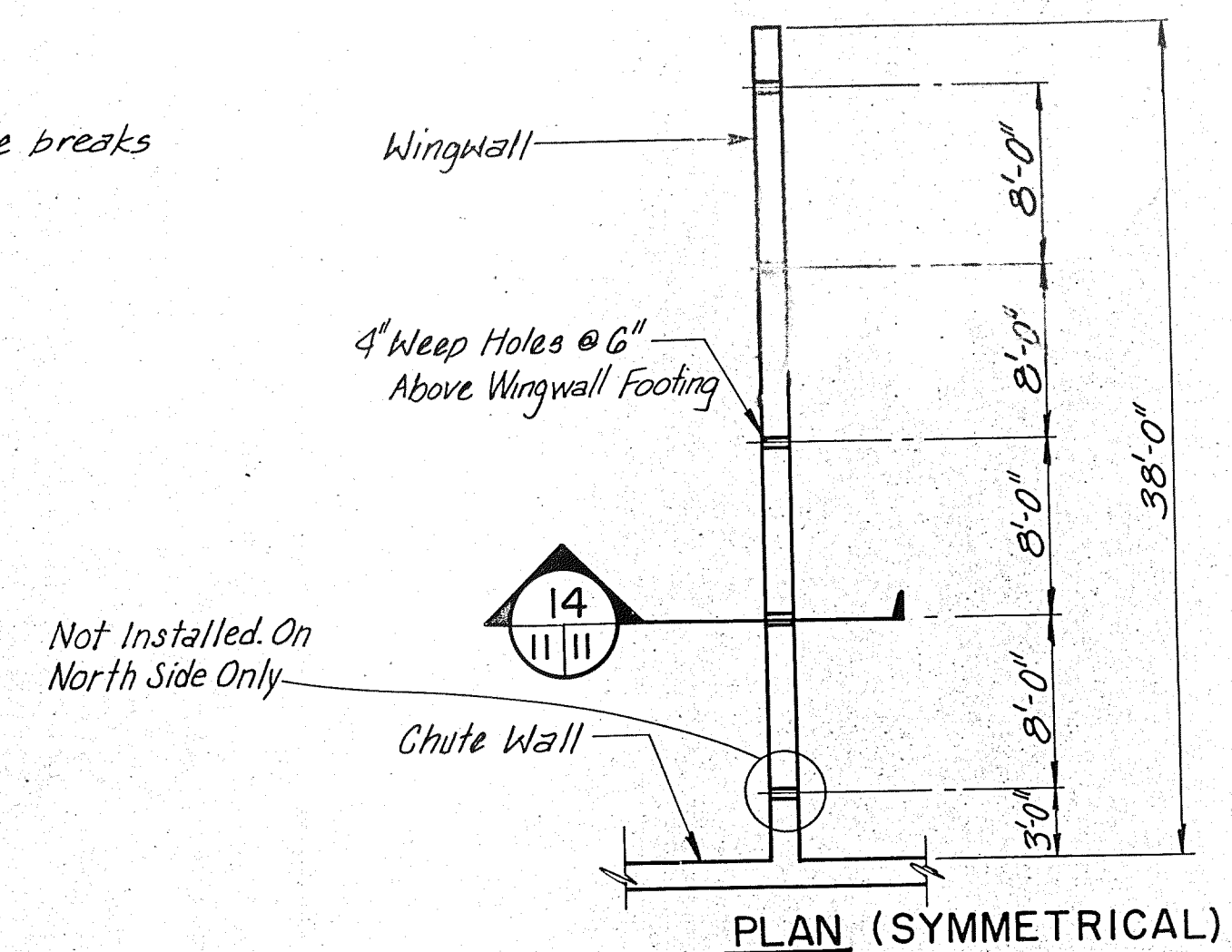
**TYPICAL VALLEY GUTTER DETAIL**



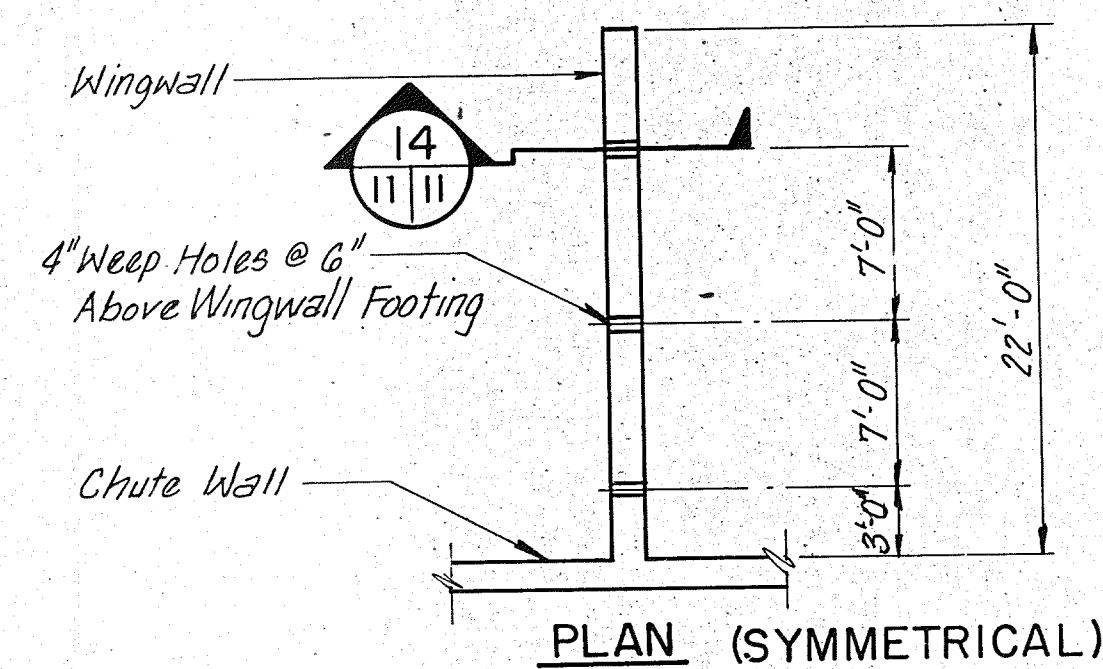
**TYPICAL VALLEY GUTTER TO WINGWALL**



**FENCE POST SECURING DETAIL**

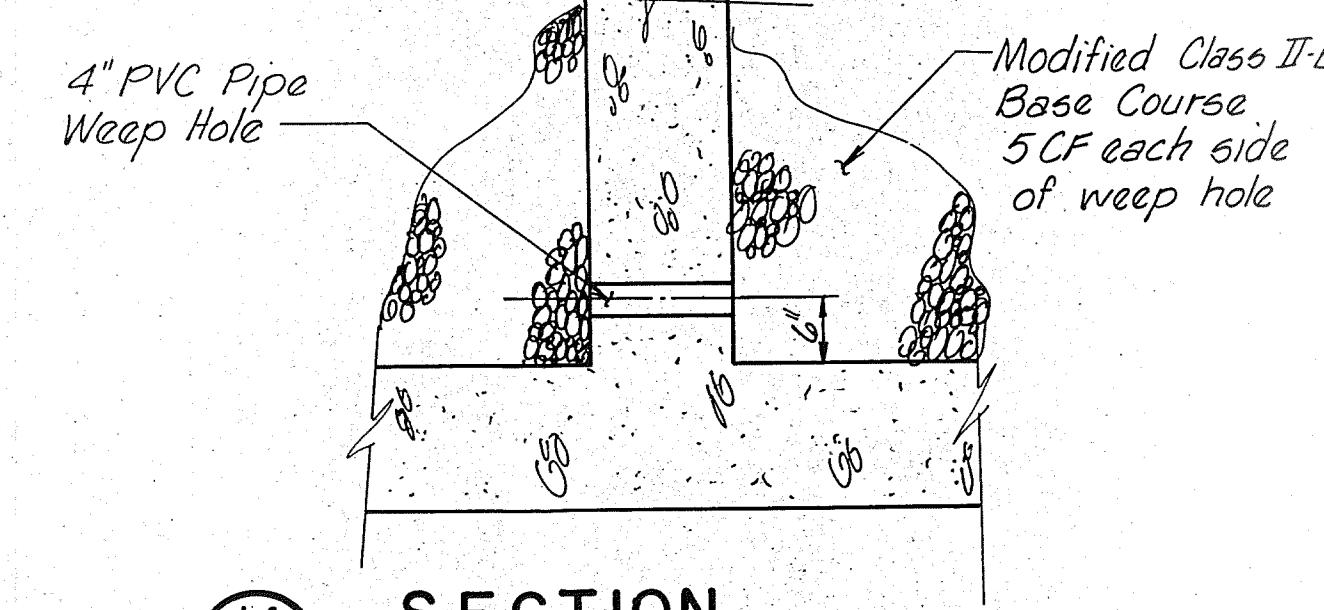


**WEEP HOLE LOCATION AT MID-CHANNEL STRUCTURE**



**WEEP HOLE LOCATION AT KIRCHER STRUCTURE**

Note: Weep Holes are considered incidental construction - No pay item.

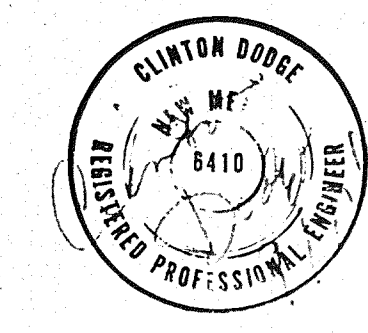


**SECTION**

|   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 0 | 8 | 0 | 0 | 2 |   | 1 | 1 | 8 | 7  |    |    |

RECORD DRAWING  
MAY 15 1987

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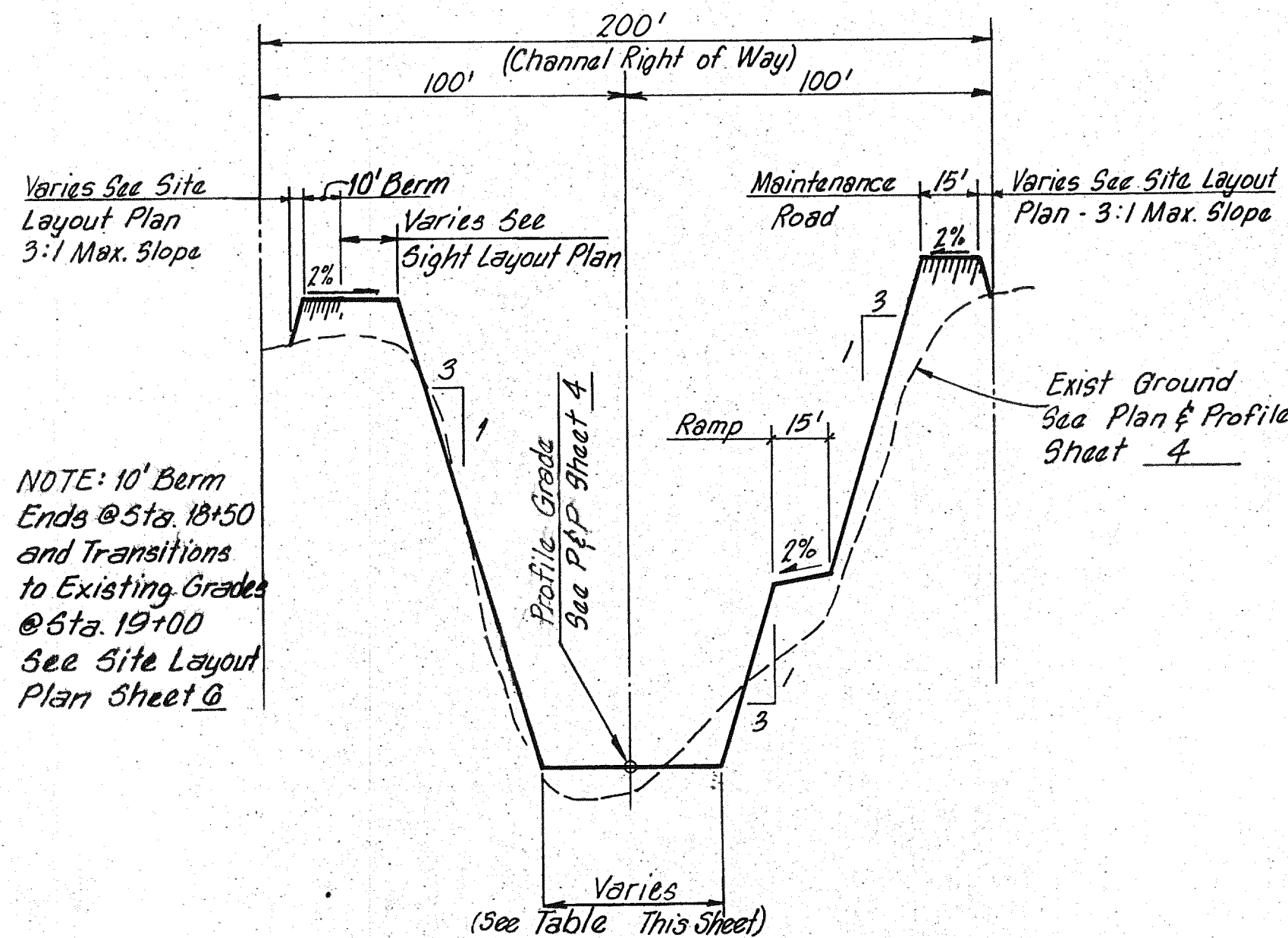


**AMAFCA**  
BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1

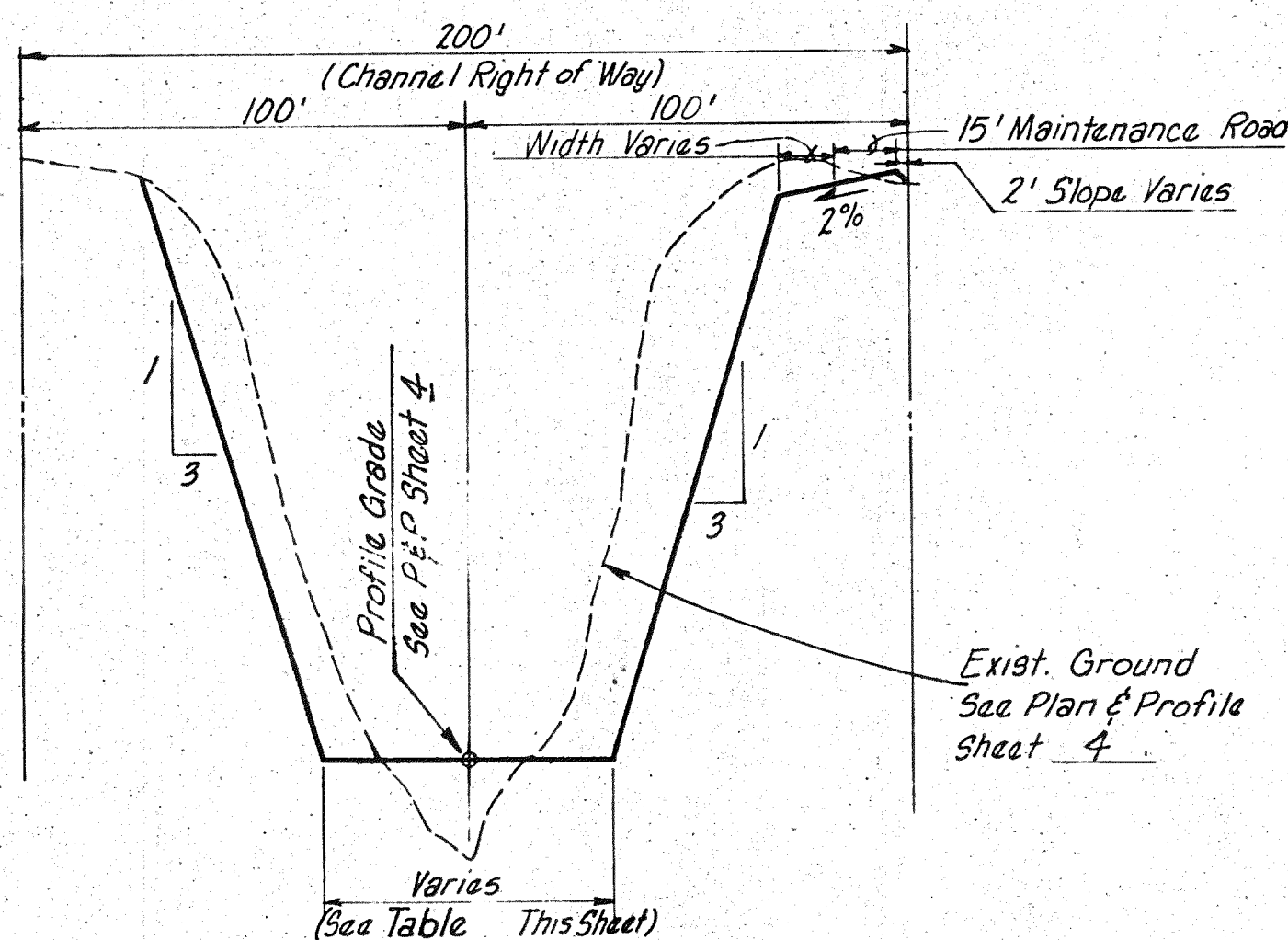
**TYPICAL REINFORCEMENT AND MISCELLANEOUS DETAILS**

**GORDON HERKENHOFF & ASSOCIATES, INC.**  
ENGINEERS ARCHITECTS PLANNERS  
ALBUQUERQUE SANTA FE

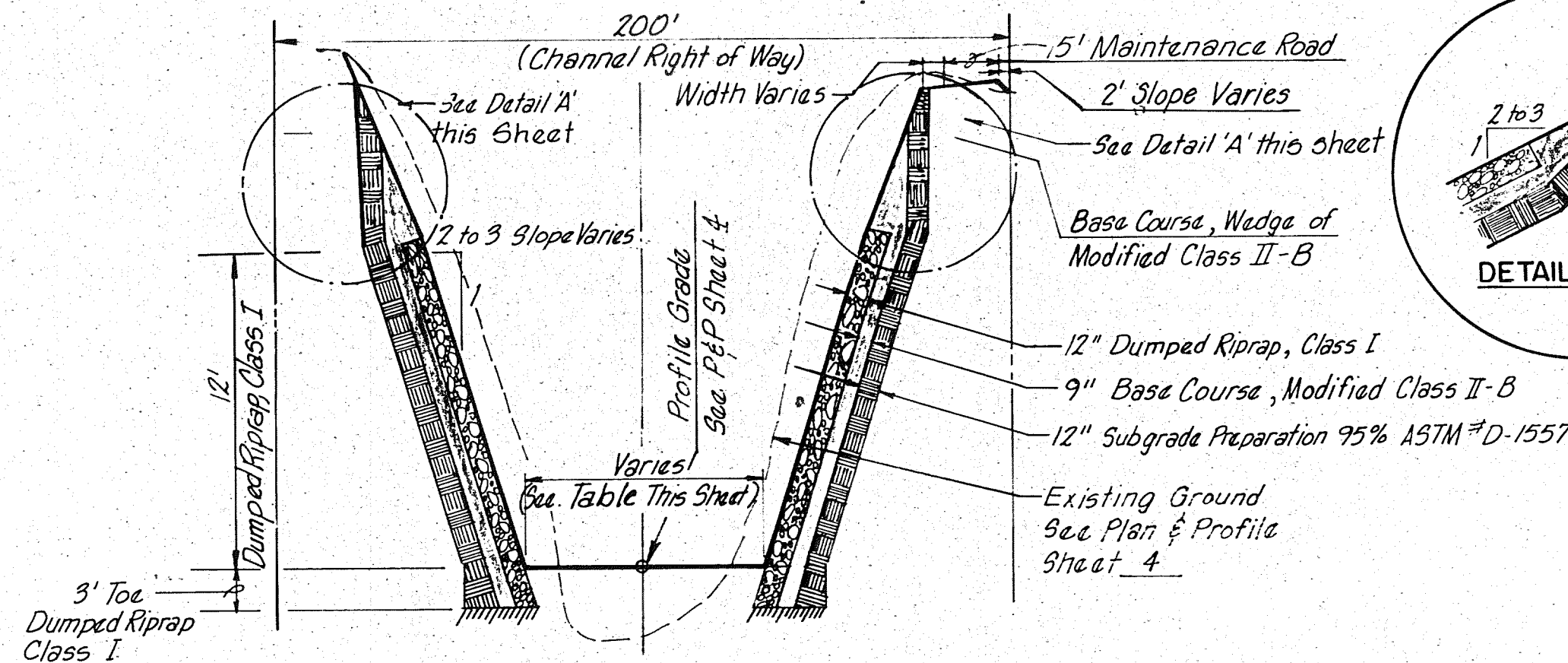
DRAWN BY K.W.  
DATE SEPT 1986  
SCALE AS SHOWN



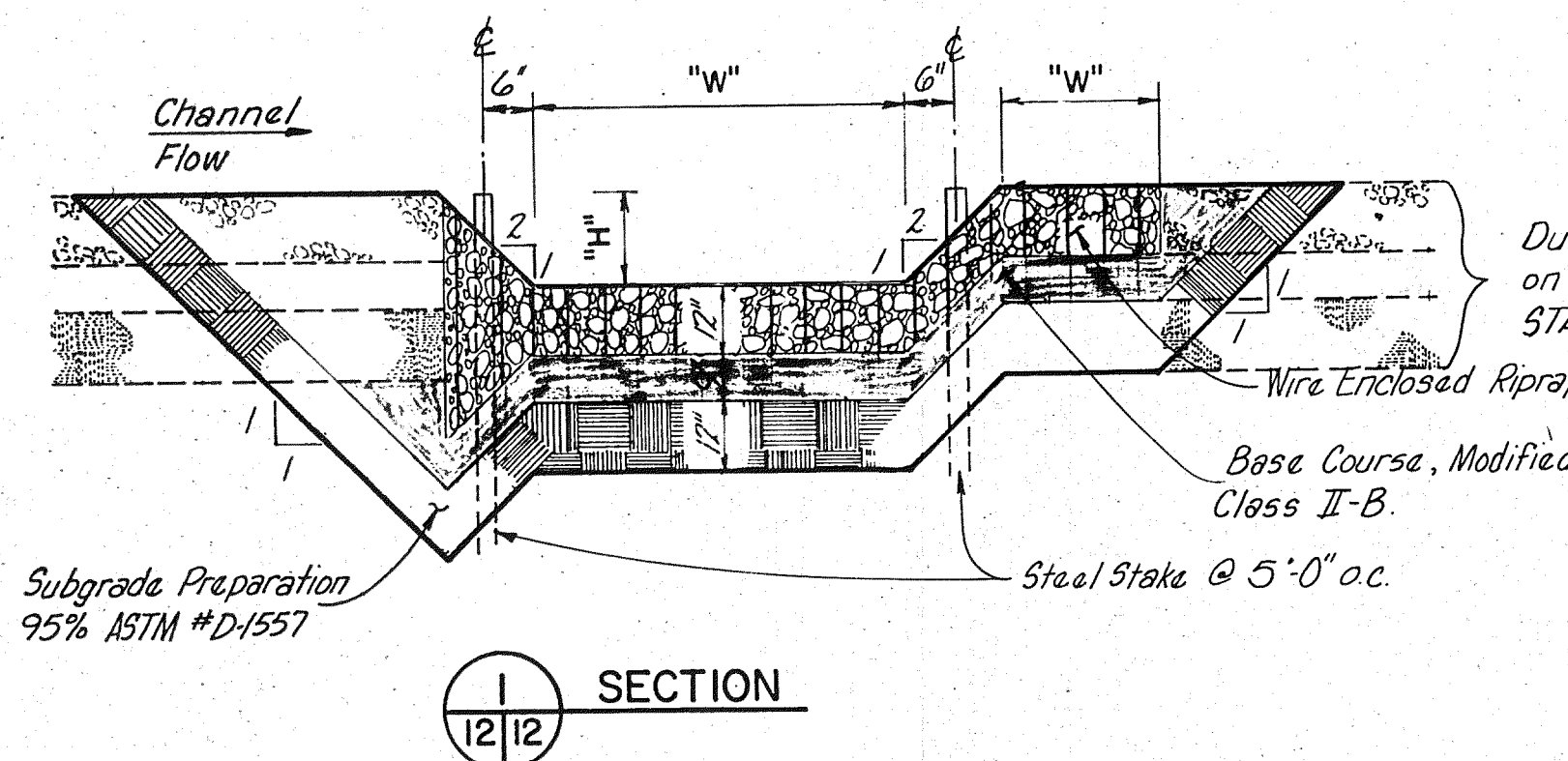
**TYPICAL CHANNEL SECTION**  
 SCALES: HORIZ: 1" = 40' STA. 17+50 TO STA. 19+30  
 VERT: 1" = 4'



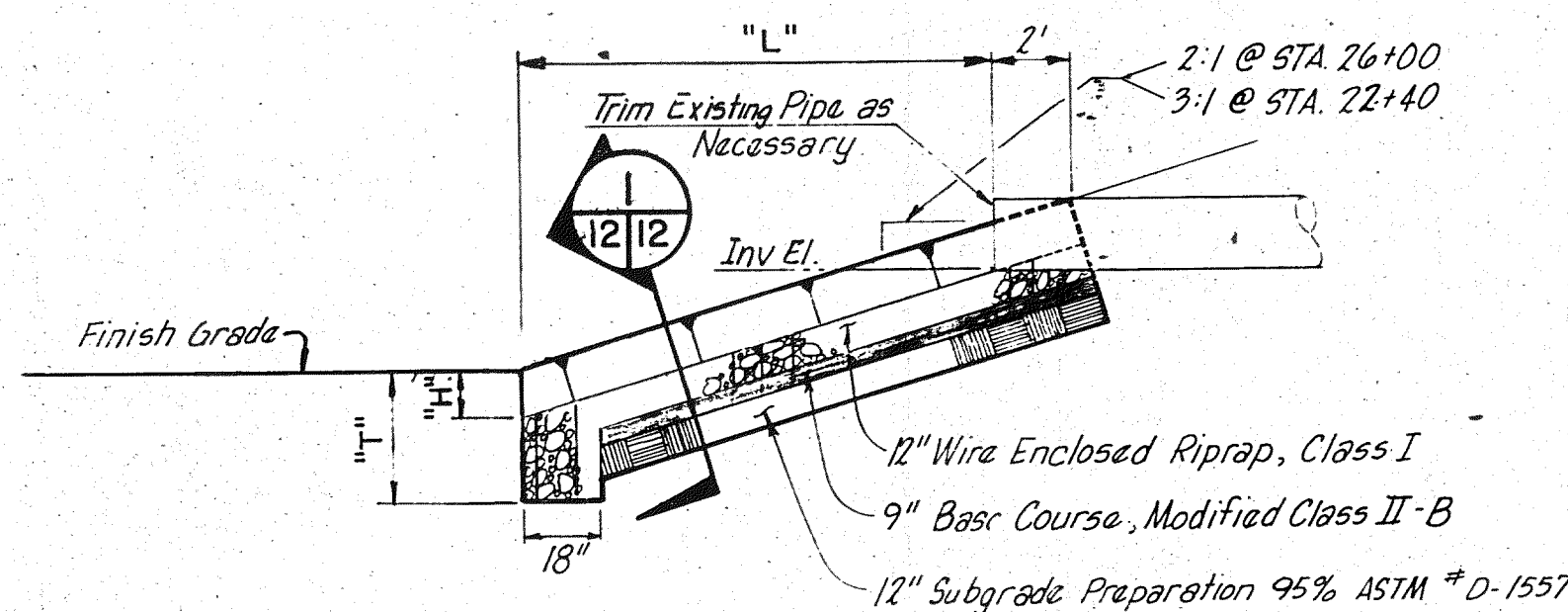
**TYPICAL CHANNEL SECTION**  
 SCALES: HORIZ: 1" = 40' STA. 19+30 TO STA. 24+50  
 VERT: 1" = 4'



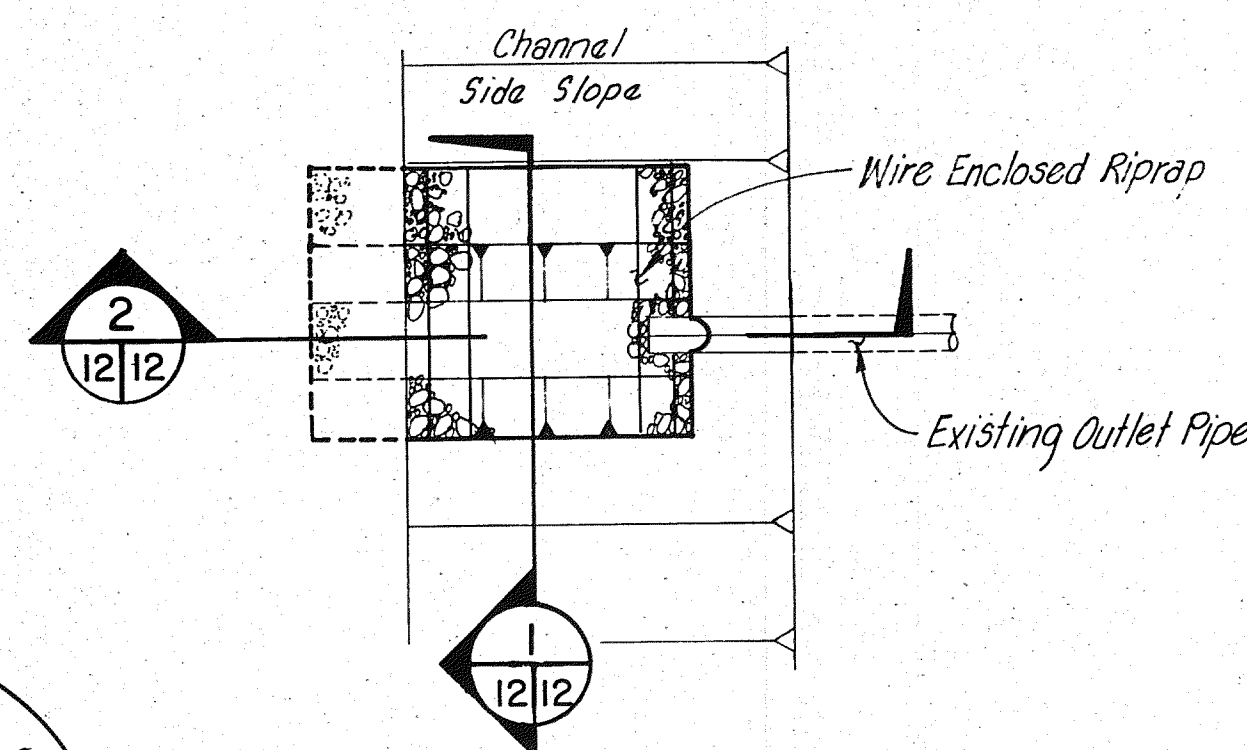
**TYPICAL CHANNEL SECTION**  
 NOT TO SCALE  
 STA. 24+50 TO STA. 25+00 - TRANSITION BANK SLOPE FROM 3:1 TO 2:1  
 STA. 25+00 TO STA. 28+78.9 - BANK SLOPE = 2:1



**SECTION**  
 12/12



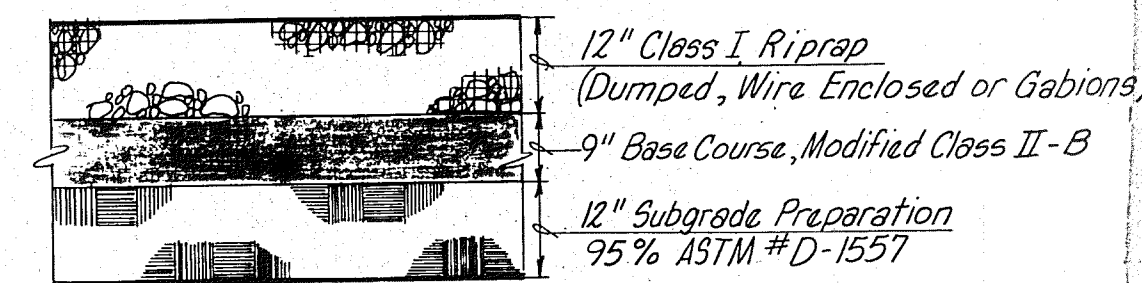
**SECTION**  
 12/12



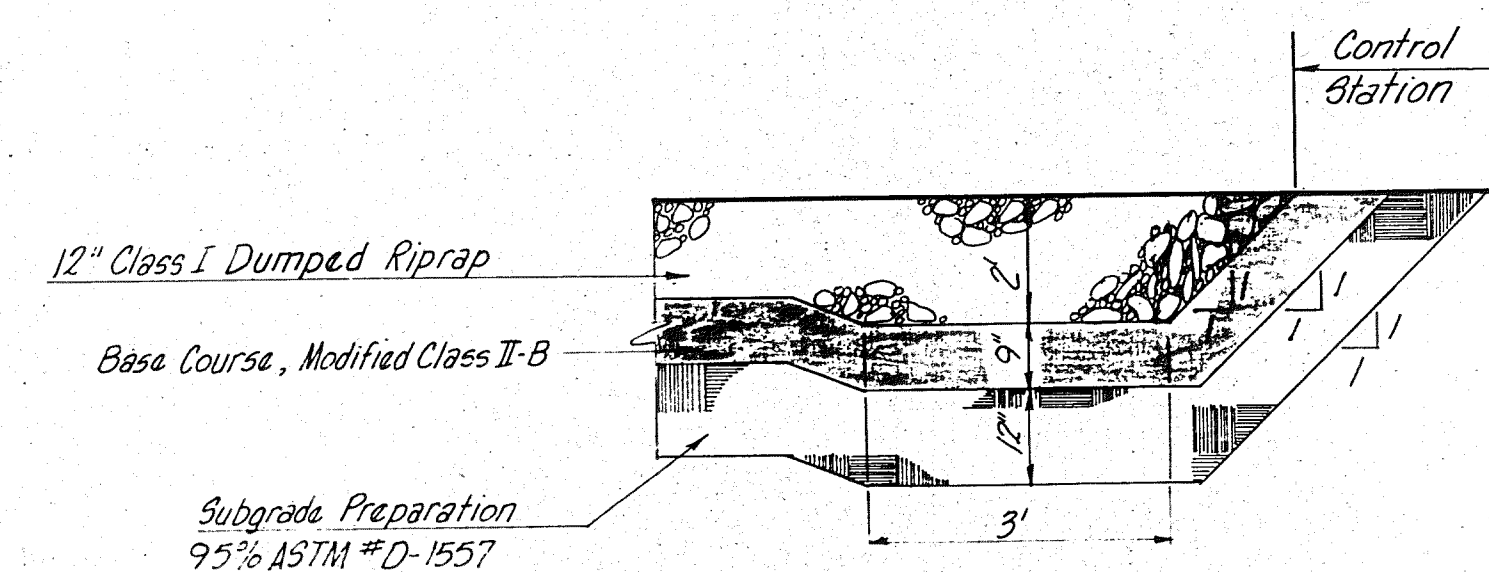
**PLAN**  
**RUNDOWN DETAILS**  
 NOT TO SCALE

| RUNDOWN RIPRAP SCHEDULE            |           |         |         |         |                 |         |
|------------------------------------|-----------|---------|---------|---------|-----------------|---------|
| LOCATION OPP. CONSTRUCTION STATION | PIPE SIZE | "H" Ft. | "W" Ft. | "L" Ft. | OUTLET INV. EL. | "L" Ft. |
| 22+40 ± S.W. GLAZING               | 8"        | 0.5'    | 2.0'    | 3'      | 3908            | 45.54'  |
| 26+00 ± CARIBE FOODS               | 12"       | 0.5'    | 3.0'    | 3'      | 41.85           | 50.28   |

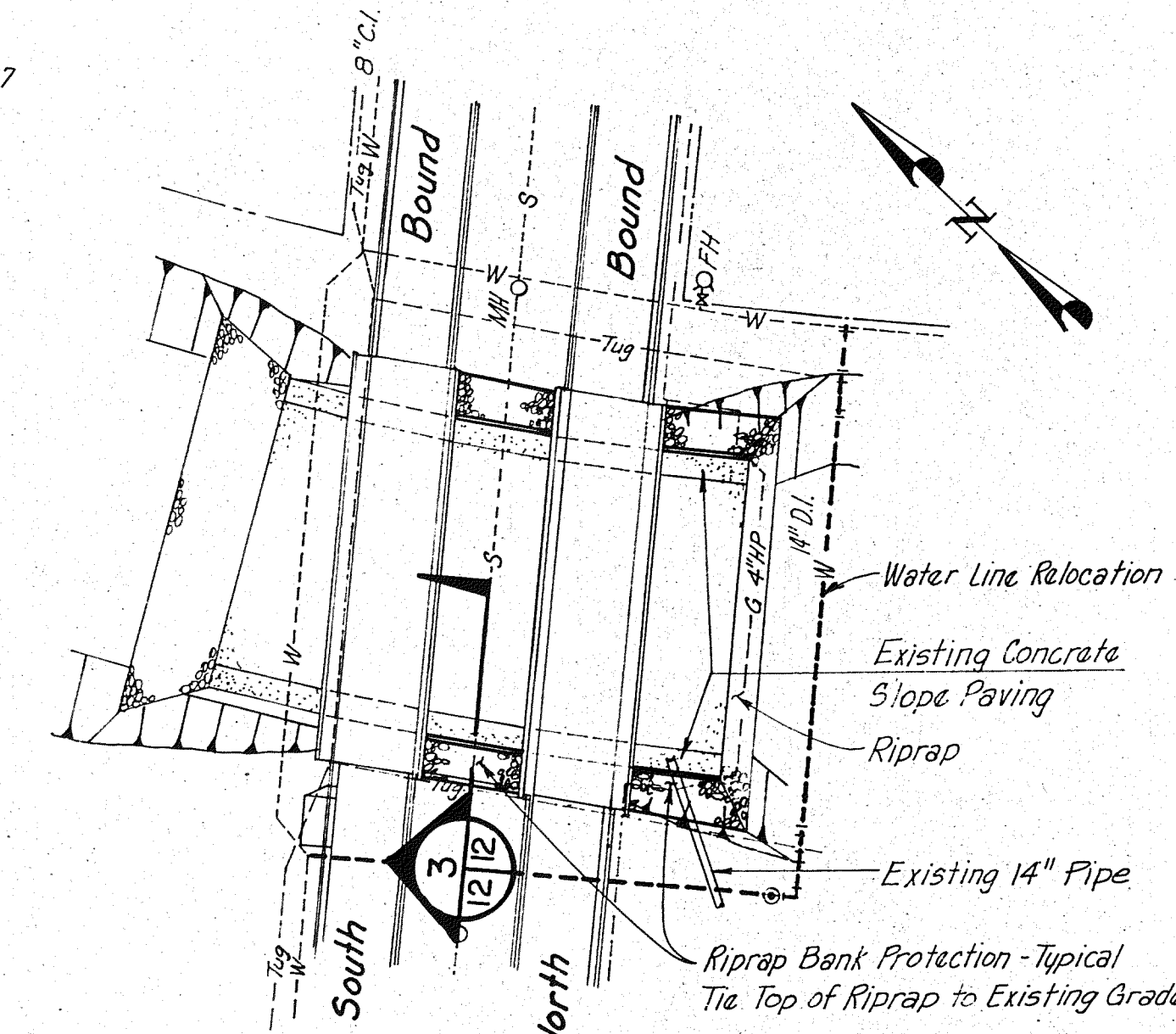
Dumped riprap bank - Stabilization on both sides of rundown @ STA. 26+00 only.



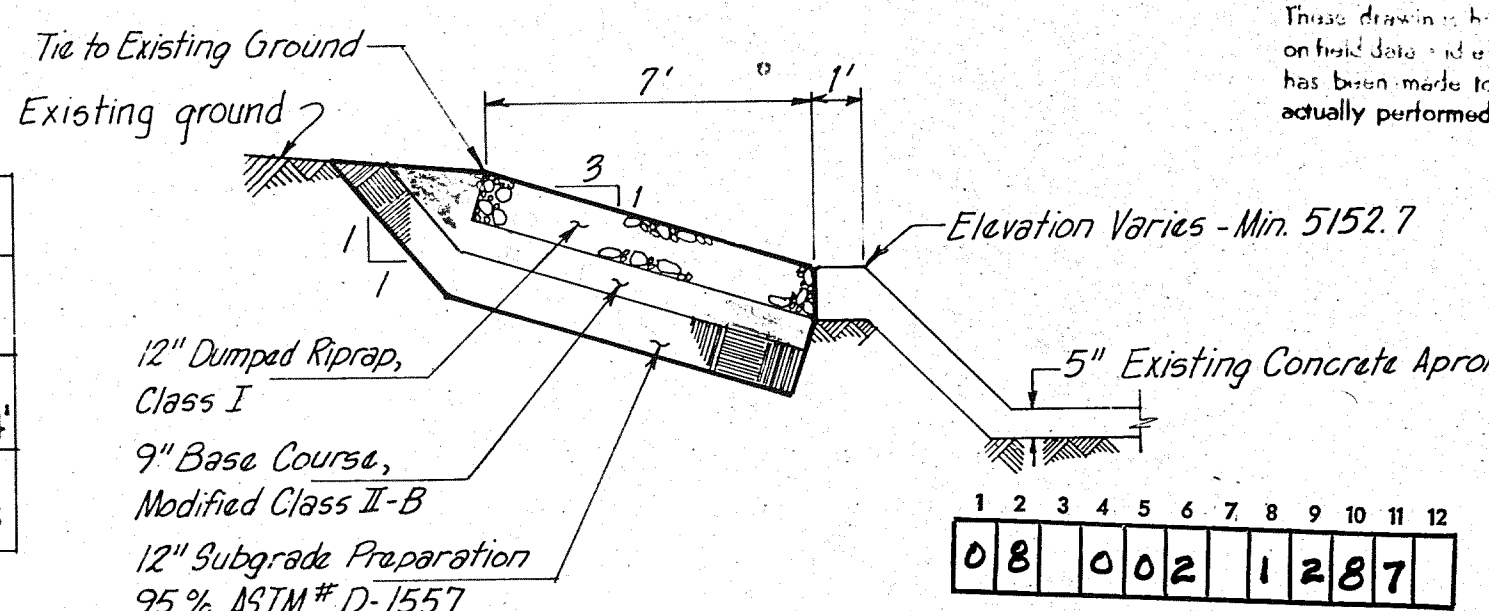
**TYPICAL RIPRAP SECTION**  
 NOT TO SCALE



**4 TYPICAL RIPRAP END SECTION**  
 NOT TO SCALE



**KIRCHER BRIDGE RIPRAP BANK PROTECTION**  
 SCALE: 1" = 50'

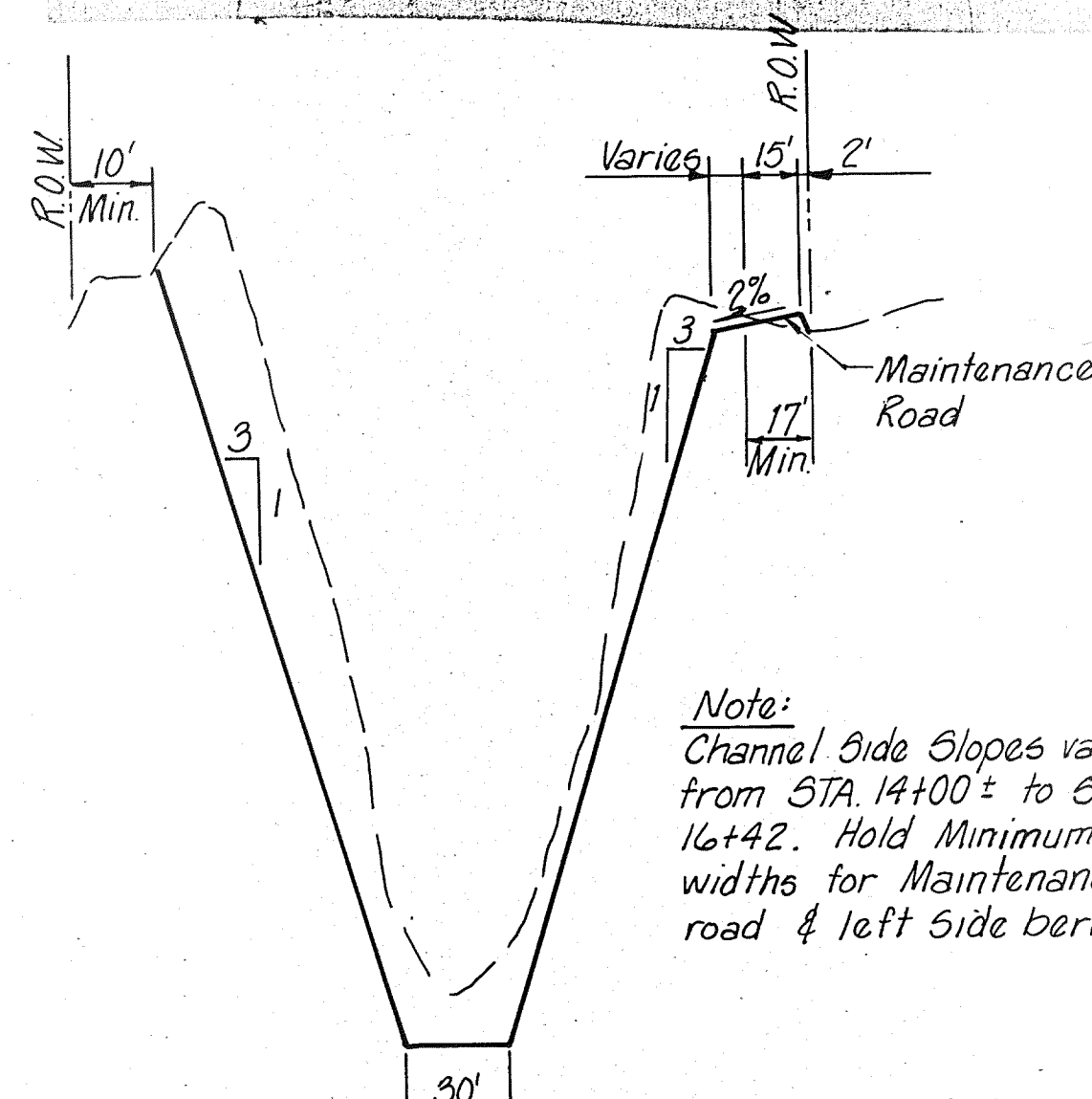


**3 RIPRAP BANK PROTECTION - SECTION**  
 NOT TO SCALE

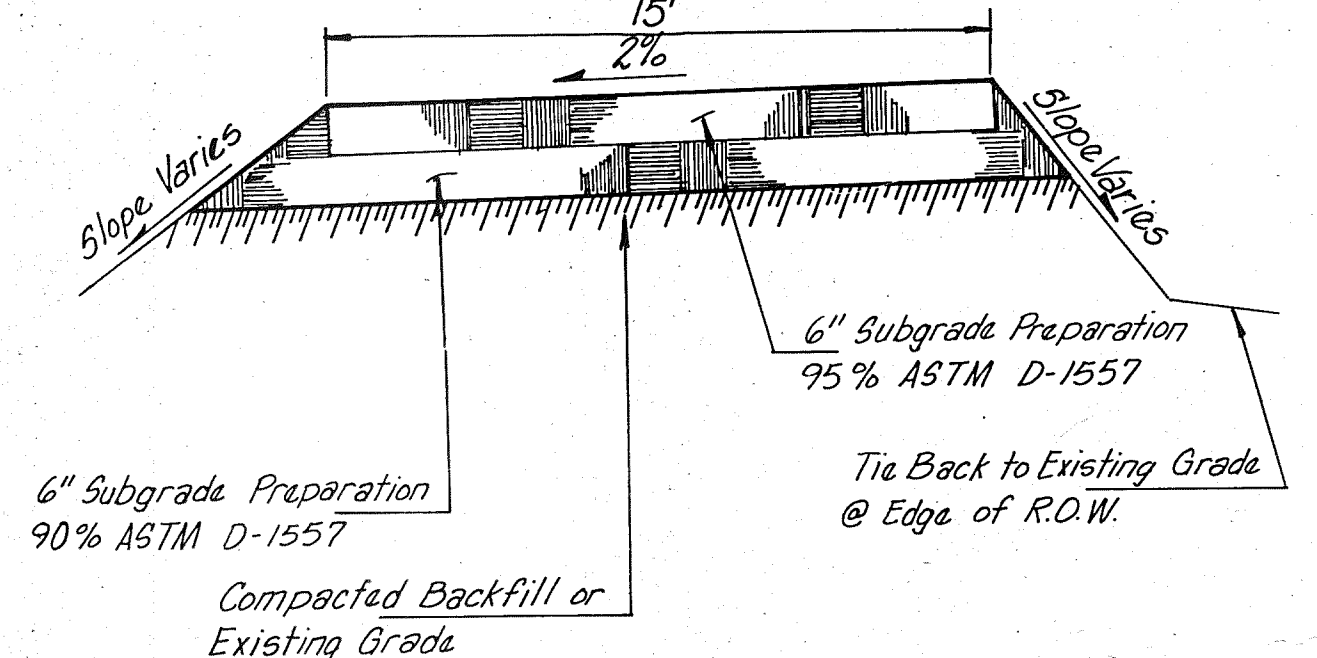
**CHANNEL WIDTH TABLE**

| CONTROL STATION | CHANNEL BOTTOM WIDTH LT. | RT. |
|-----------------|--------------------------|-----|
| 17+50           | 25'                      | 17' |
| 17+80           | 25'                      | 21' |
| 18+80           | 25'                      | 25' |
| 23+00           | 25'                      | 25' |
| 24+50           | 20'                      | 20' |
| 26+00           | 15'                      | 15' |
| 28+78.9         | 15'                      | 15' |

- NOTES:
1. TRANSITION BOTTOM WIDTH UNIFORMLY BETWEEN CONTROL STATION.
  2. FOR MAINTENANCE ROAD ELEVATIONS SEE SHEET 4.
  3. FOR RAMP ELEVATIONS AND DETAILS SEE MID-CHANNEL STRUCTURE LAYOUT, SHEET 6.



**TYPICAL CHANNEL SECTION**  
 SCALES: HORIZ: 1" = 50' STA. 10+50 TO STA. 16+42  
 VERT: 1" = 5'



**TYPICAL MAINTENANCE ROAD SECTION**  
 NOT TO SCALE

REVISED 10/10/86

AMAFCA

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1

**TYPICAL CHANNEL SECTION AND MISCELLANEOUS DETAILS**

GORDON HERKENHOFF & ASSOCIATES, INC.  
 ENGINEERS ARCHITECTS PLANNERS  
 ALBUQUERQUE SANTA FE

RECORD DRAWING MAY 15 1987

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CLAYTON DODGE  
 REGISTERED PROFESSIONAL ENGINEER  
 6440

1 2 3 4 5 6 7 8 9 10 11 12  
 08 002 1287

DATE: SEPT. 1986  
 SCALE: AS SHOWN

| ORIGINAL   |  | BY | DATE |
|------------|--|----|------|
| SURVEYED   |  |    |      |
| SURVEY     |  |    |      |
| PLOTTED    |  |    |      |
| TEMPLATE   |  |    |      |
| NOTE BOOK  |  |    |      |
| AREAS      |  |    |      |
| ENCLOSURES |  |    |      |



**RECORD DRAWING**  
Date MAY 15 1997  
These drawings have been revised based on field data and every reasonable attempt has been made to depict construction as actually performed.

**LEGEND**

|  |                    |
|--|--------------------|
|  | As Built           |
|  | Design             |
|  | Existing Ground    |
|  | Cut or Fill Design |
|  | As Built           |

**SCALE**

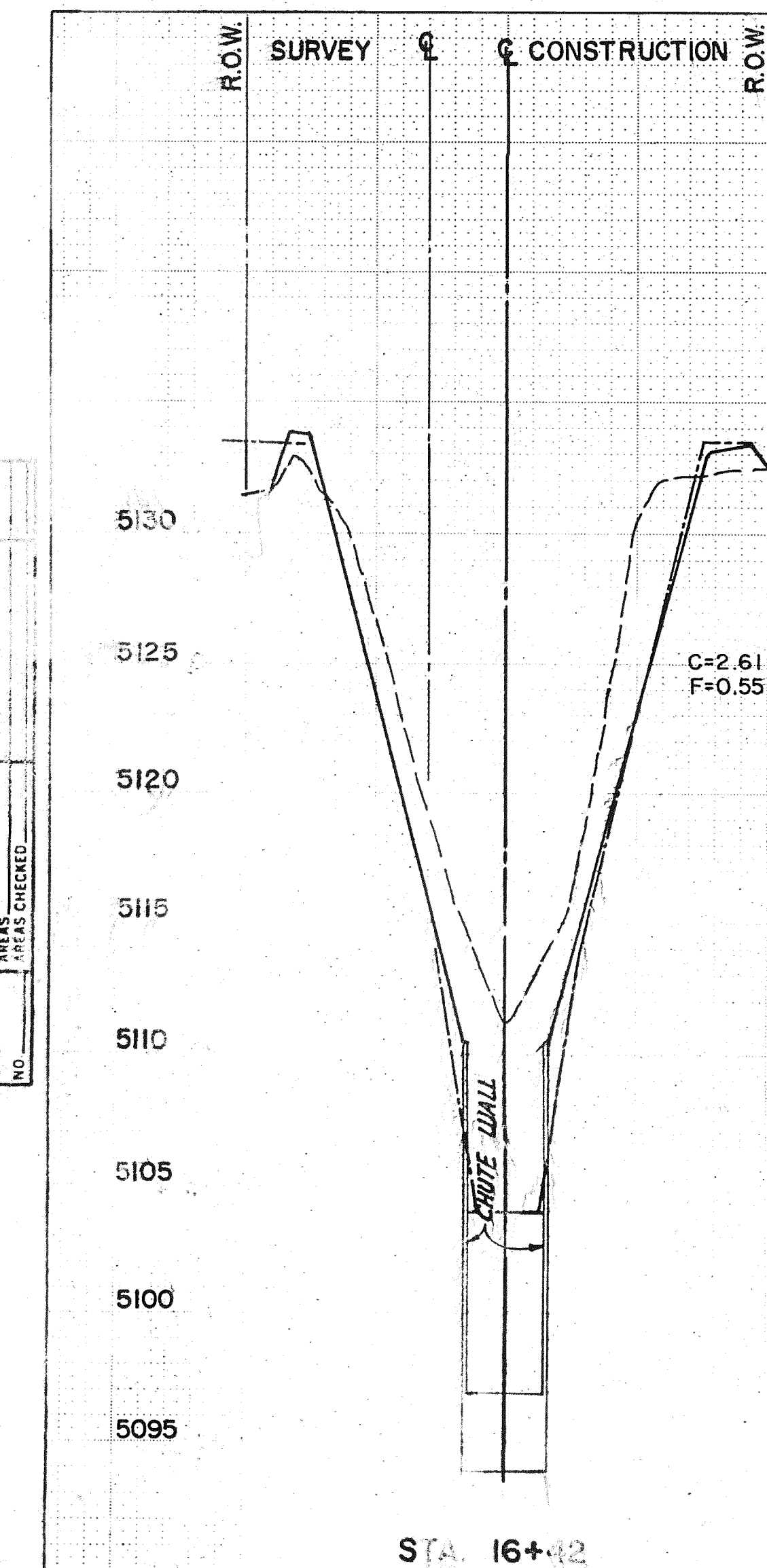
HORIZ. : 1" = 10'

VERT. : 1" = 10'

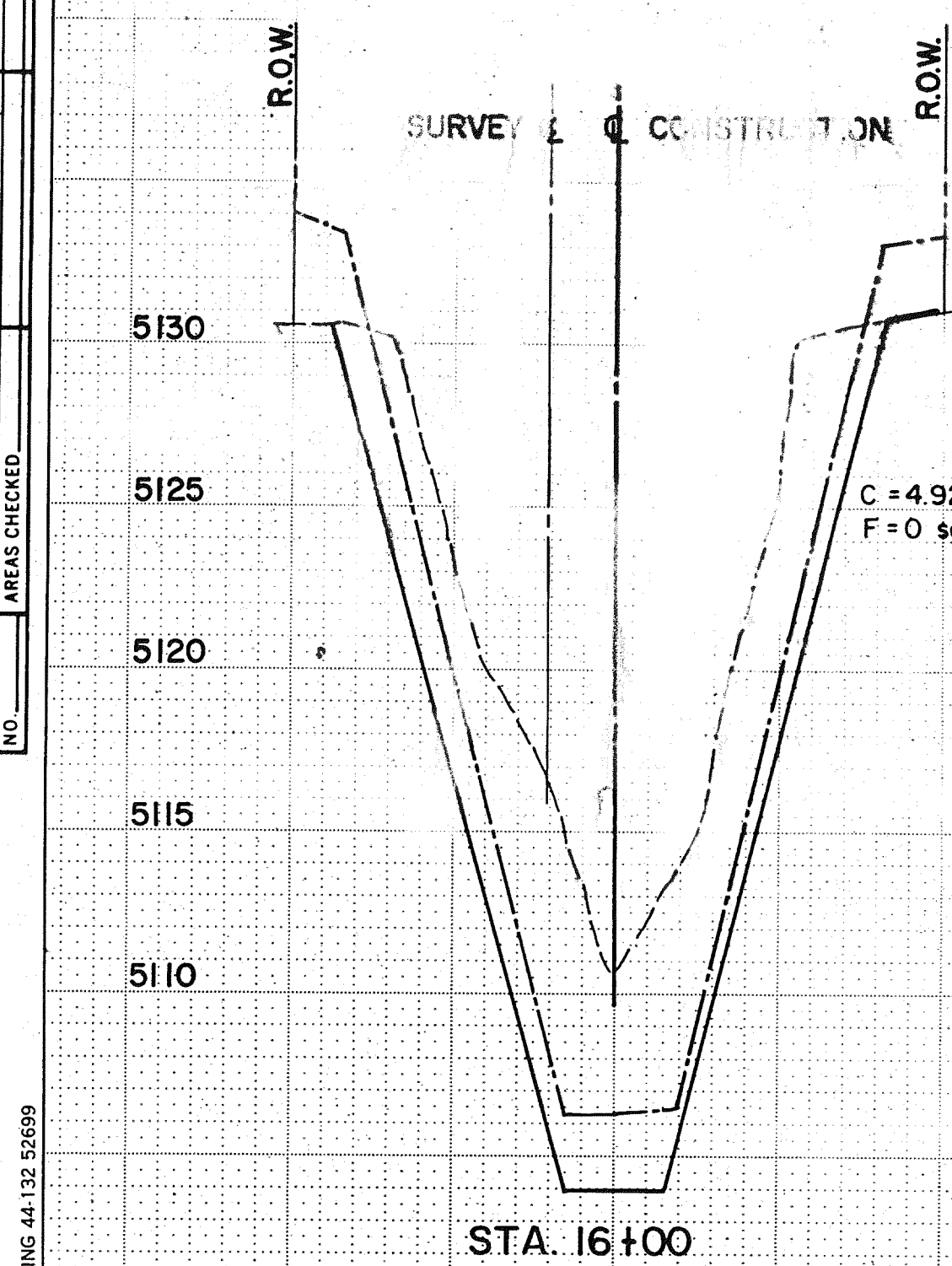
|                                                                                       |           |                    |          |
|---------------------------------------------------------------------------------------|-----------|--------------------|----------|
|  |           | <b>AMAFCA</b>      |          |
| BEAR CANYON ARROYO CHANNEL IMPROVEMENTS-REACH 1                                       |           |                    |          |
| CROSS SECTIONS<br>STA.6+89.67 TO STA.14 + 89.8                                        |           | DRAWN BY<br>M. J.  |          |
|                                                                                       |           | DATE<br>SEPT. 1986 |          |
|                                                                                       |           | SCALE<br>AS SHOWN  |          |
| <b>GORDON HERKENHOFF &amp; ASSOCIATES, INC.</b>                                       |           |                    |          |
| ALBUQUERQUE                                                                           | ENGINEERS | ARCHITECTS         | PLANNERS |
|                                                                                       |           |                    | SANTA FE |

|       |        |      |
|-------|--------|------|
| FINAL | SURVEY | DATE |
| NO.   | NO.    | NO.  |
| NO.   | NO.    | NO.  |
| NO.   | NO.    | NO.  |

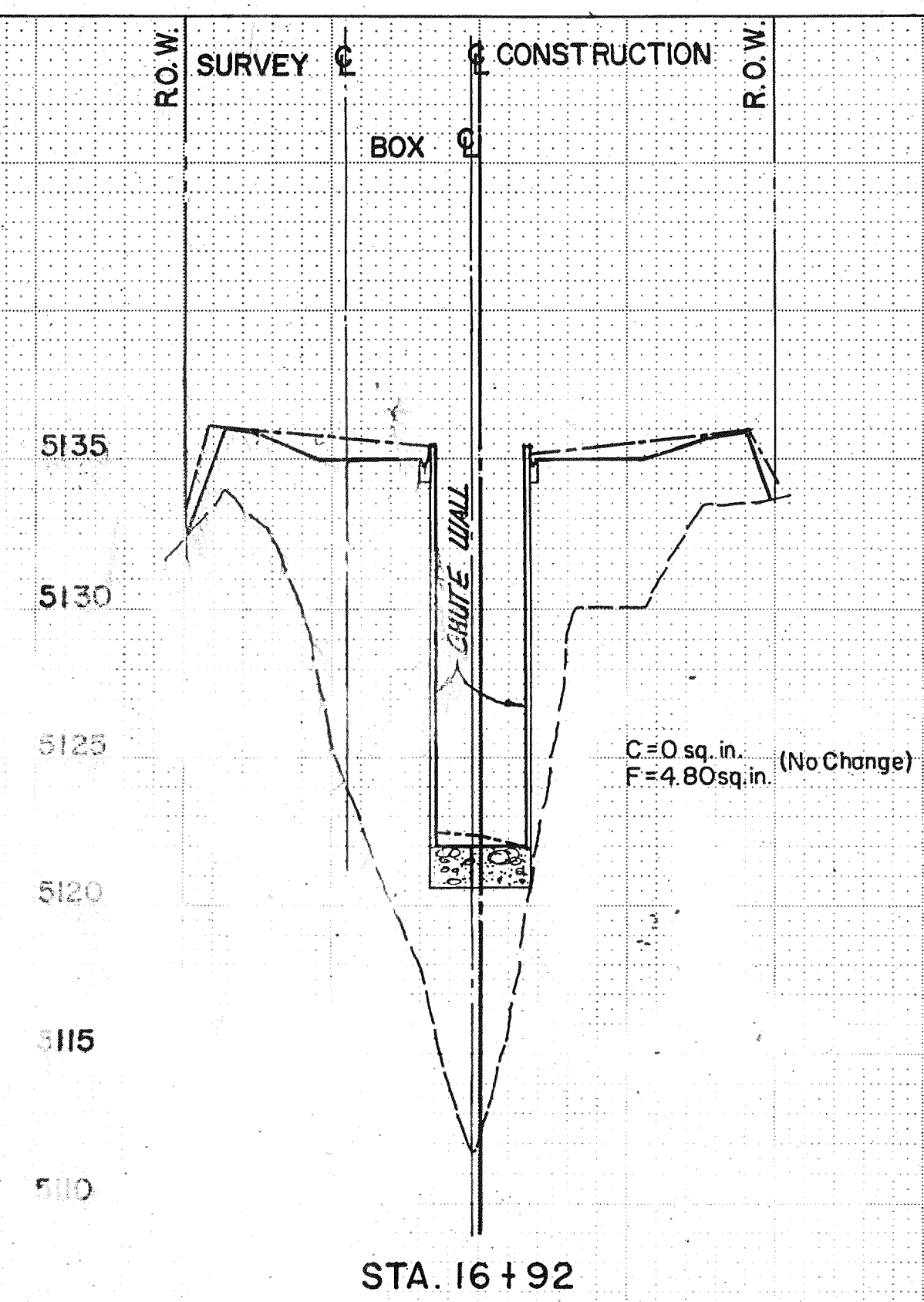
|          |        |      |
|----------|--------|------|
| ORIGINAL | SURVEY | DATE |
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| NO.      | NO.    | NO.  |
| NO.      | NO.    | NO.  |



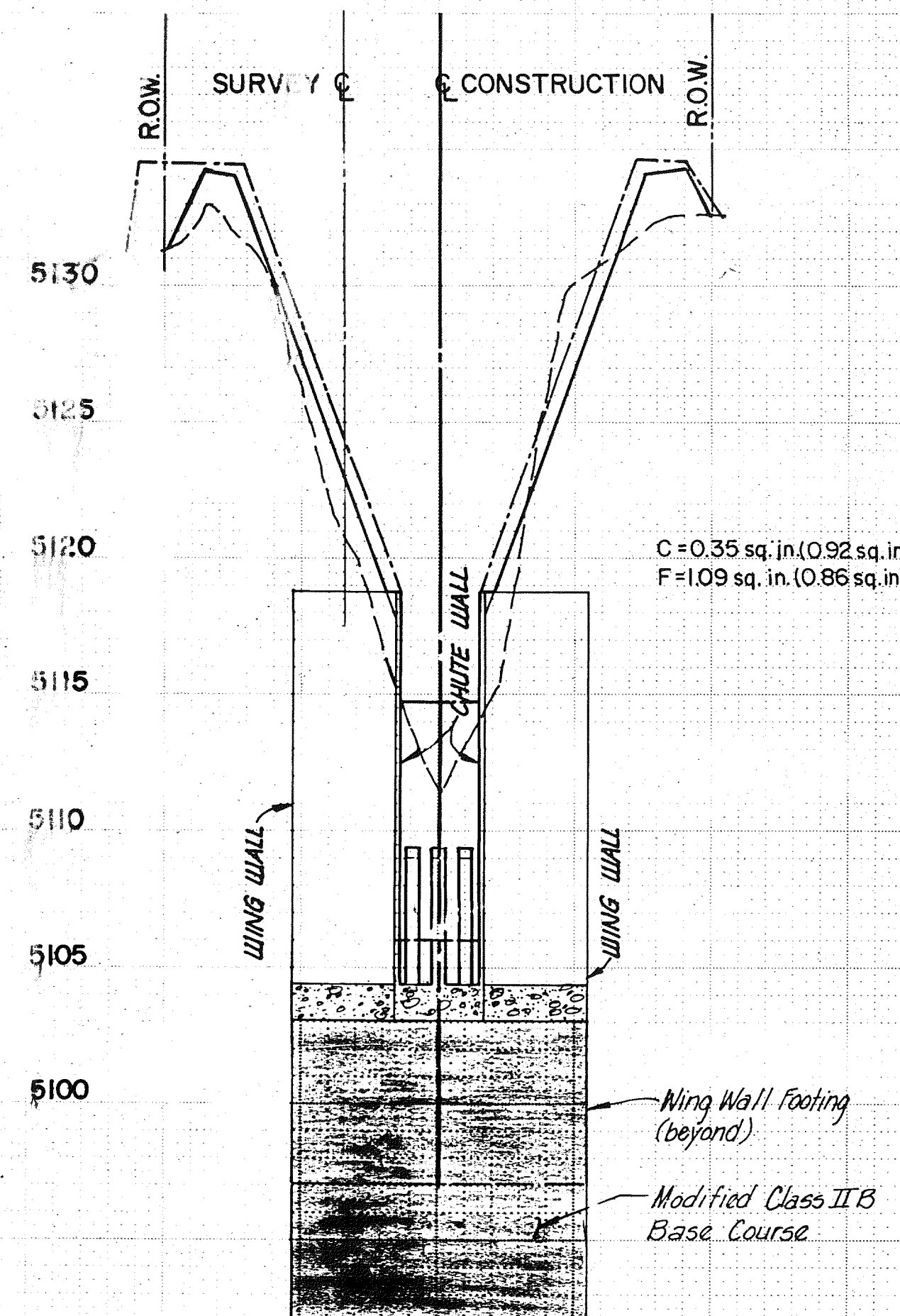
STA. 16+42



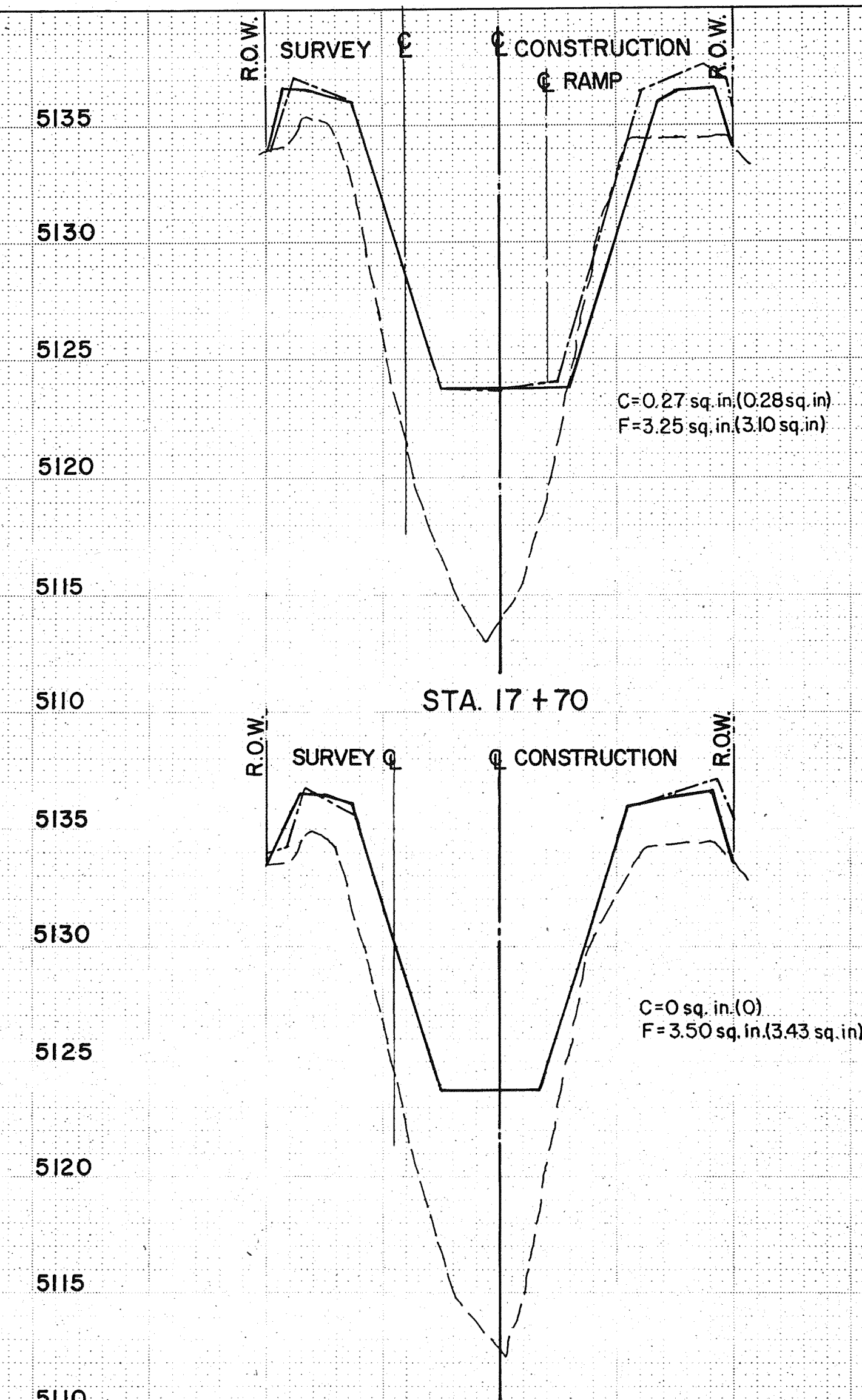
STA. 16+00



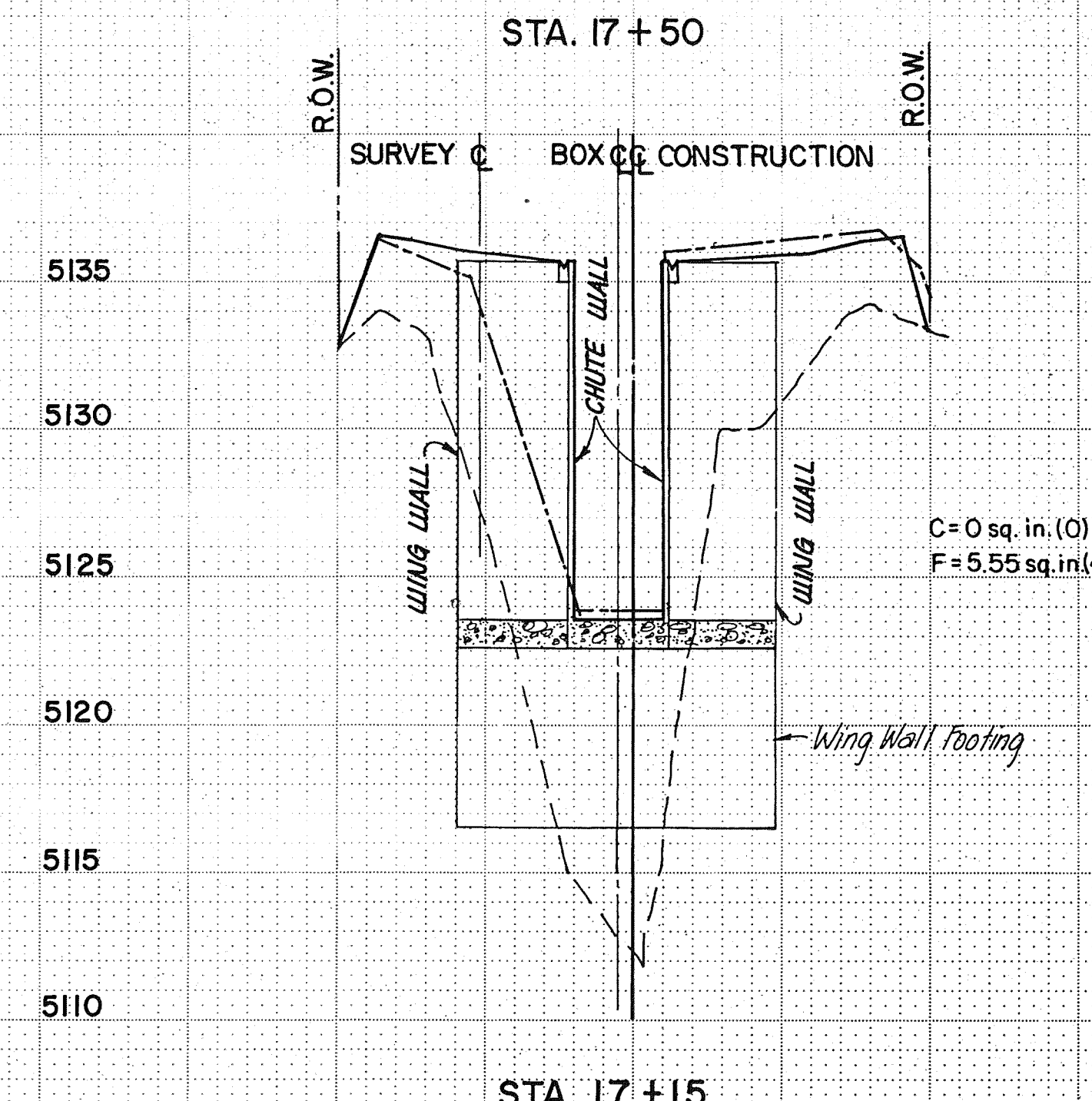
STA. 16+92



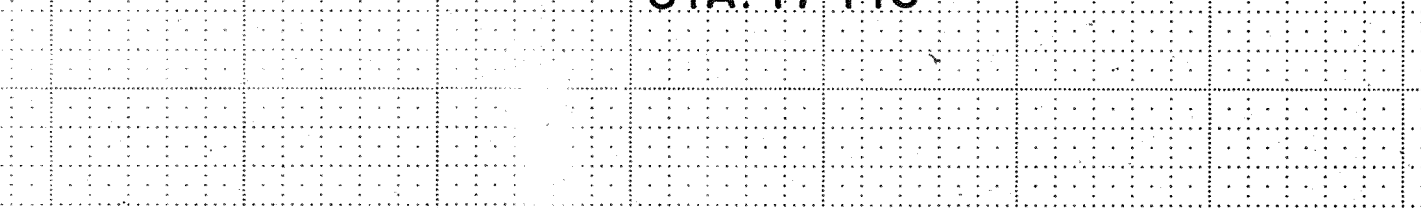
STA. 16+58.5



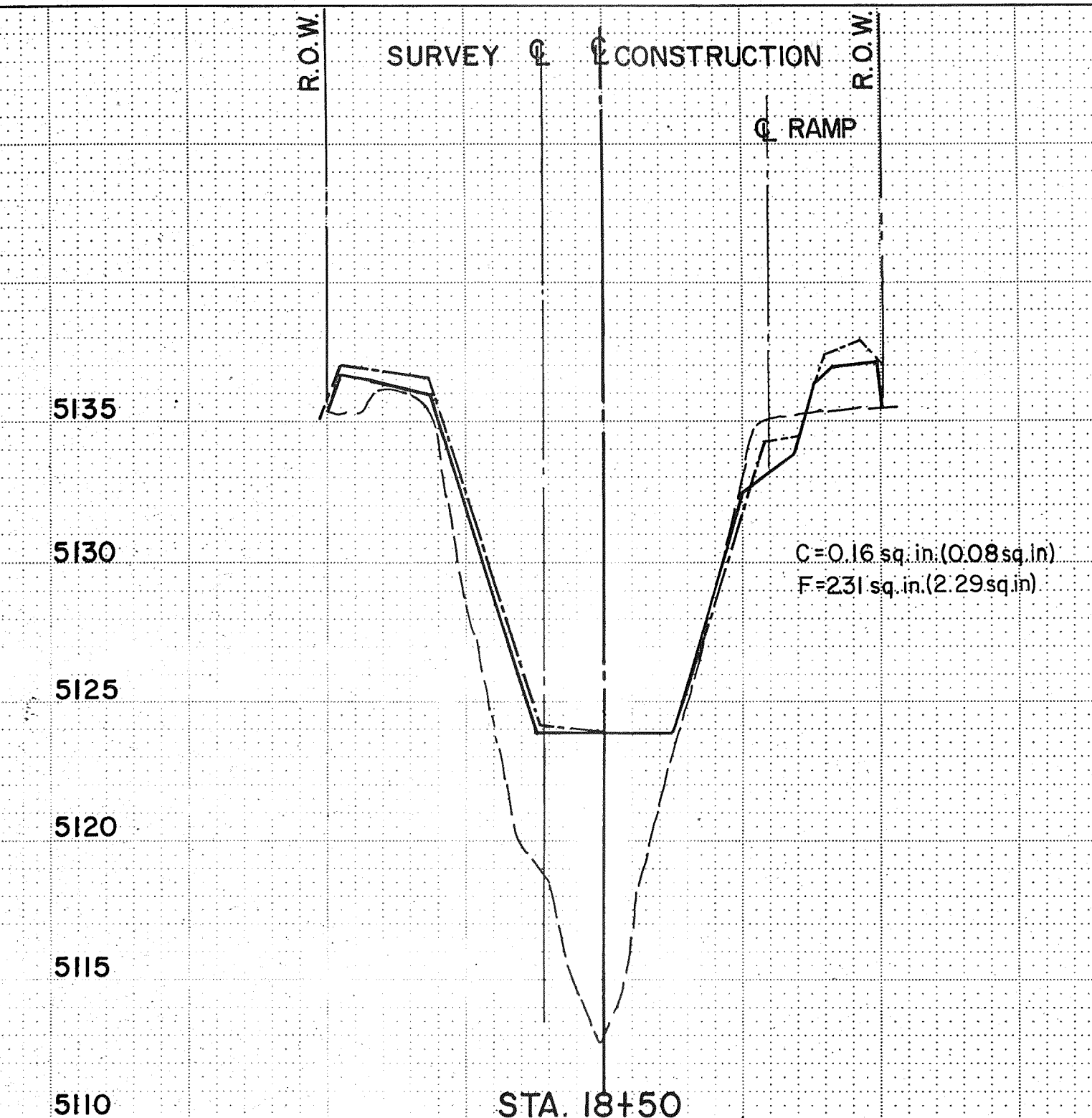
STA. 17+70



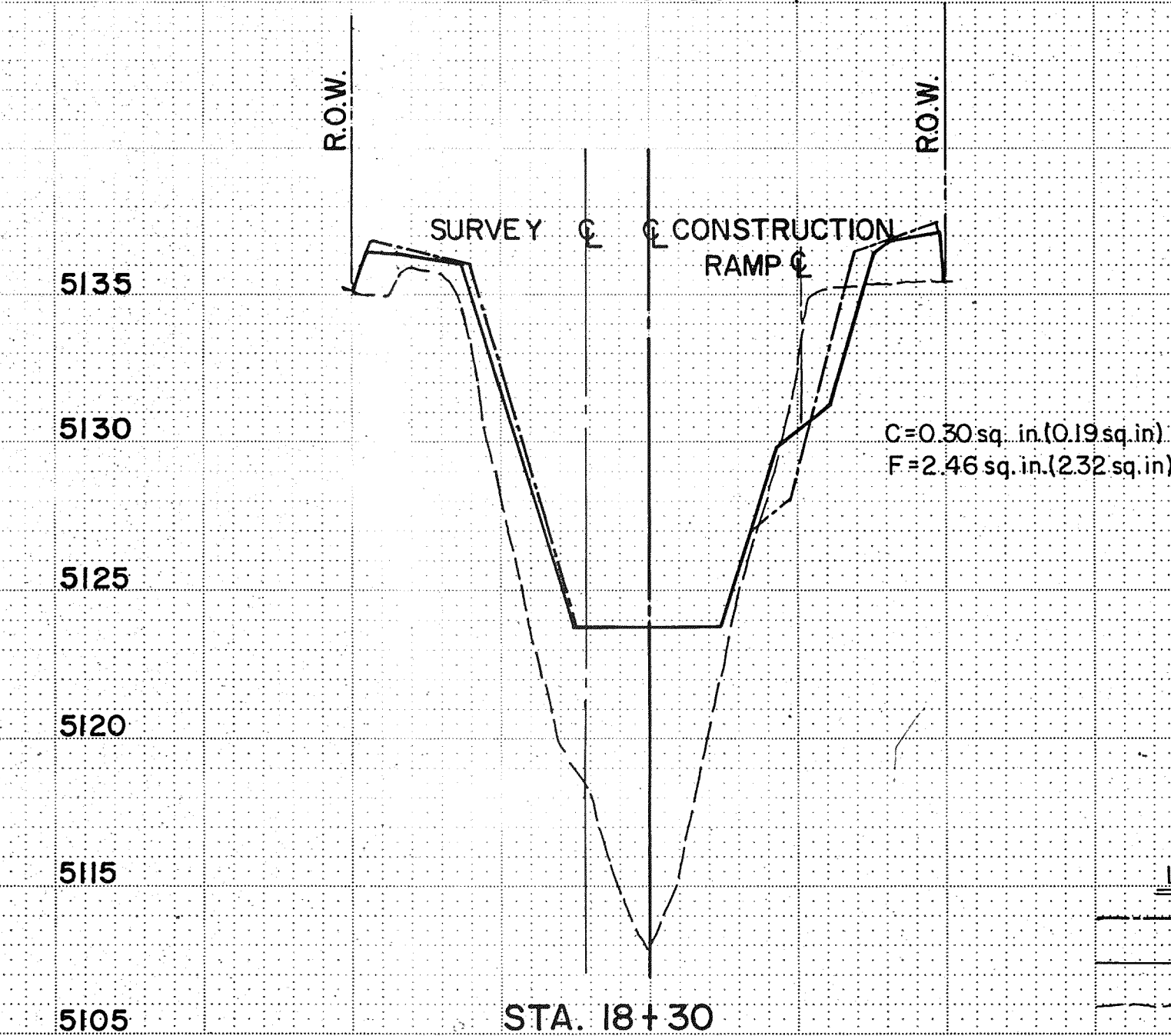
STA. 17+50



STA. 17+15



STA. 18+50



STA. 18+30

LEGEND  
 --- As Built  
 --- Design  
 --- Existing Ground  
 --- Cut or Fill Design  
 3.93 sq. in

RECORD DRAWING  
 DATE MAY 15 1987

These drawings have been revised based on field data and every reasonable attempt has been made to depict construction as actually performed.

SCALE  
 HORIZ: 1"=50'  
 VERT: 1"=5'

08 002 1487

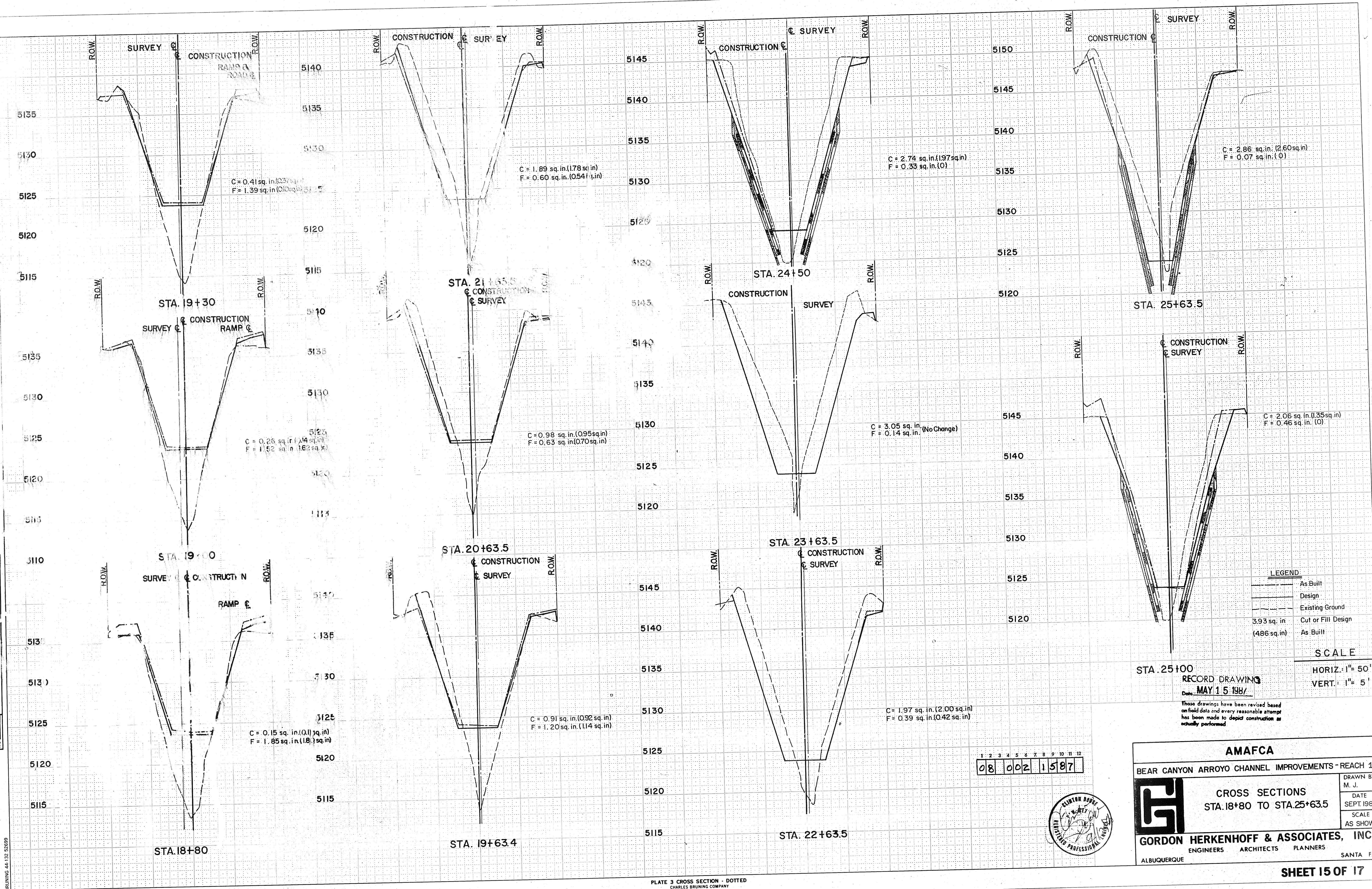


REVISED 10/10/86

**AMAFCA**  
 BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH :  
 CROSS SECTIONS  
 STA. 16+00 TO STA. 18+50  
**GORDON HERKENHOFF & ASSOCIATES, INC.**  
 ENGINEERS ARCHITECTS PLANNERS  
 ALBUQUERQUE SANTA FE

|          |        |       |      |
|----------|--------|-------|------|
| DATE     | BY     | CHKD  | DATE |
|          |        |       |      |
| ORIGINAL | SURVEY | NOTED | DATE |
|          |        |       |      |
| NO.      |        |       |      |

|          |        |       |      |
|----------|--------|-------|------|
| DATE     | BY     | CHKD  | DATE |
|          |        |       |      |
| ORIGINAL | SURVEY | NOTED | DATE |
|          |        |       |      |
| NO.      |        |       |      |



**LEGEND**

As Built  
Design  
Existing Ground  
3.93 sq. in. (486 sq. in.)  
As Built

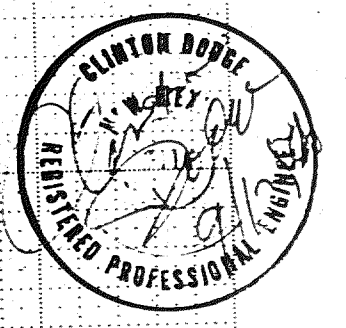
**SCALE**

HORIZ. 1" = 50'  
VERT. 1" = 5'

**RECORD DRAWING**  
Date: MAY 15 1987

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08 002 1587



**AMAFCA**

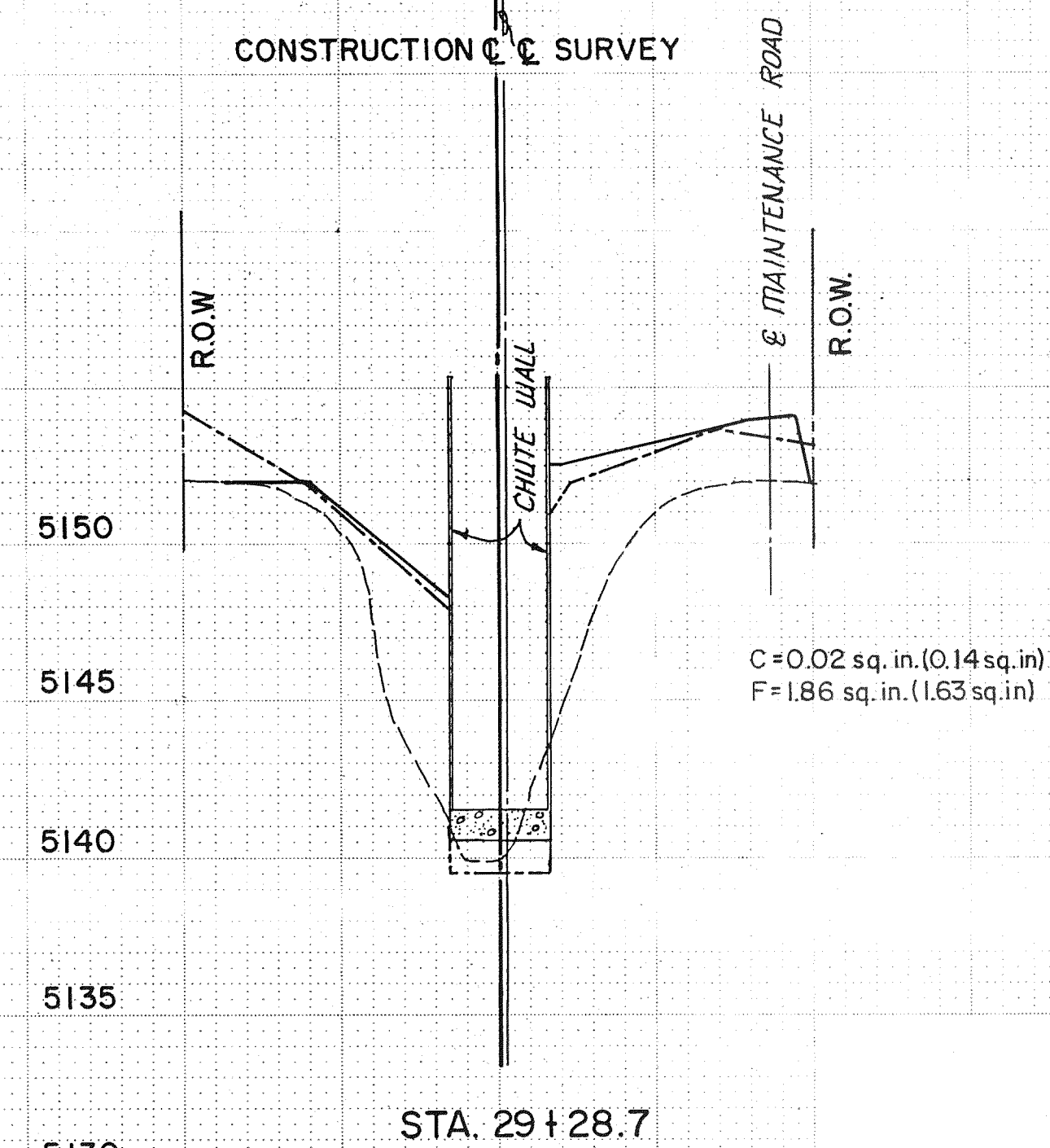
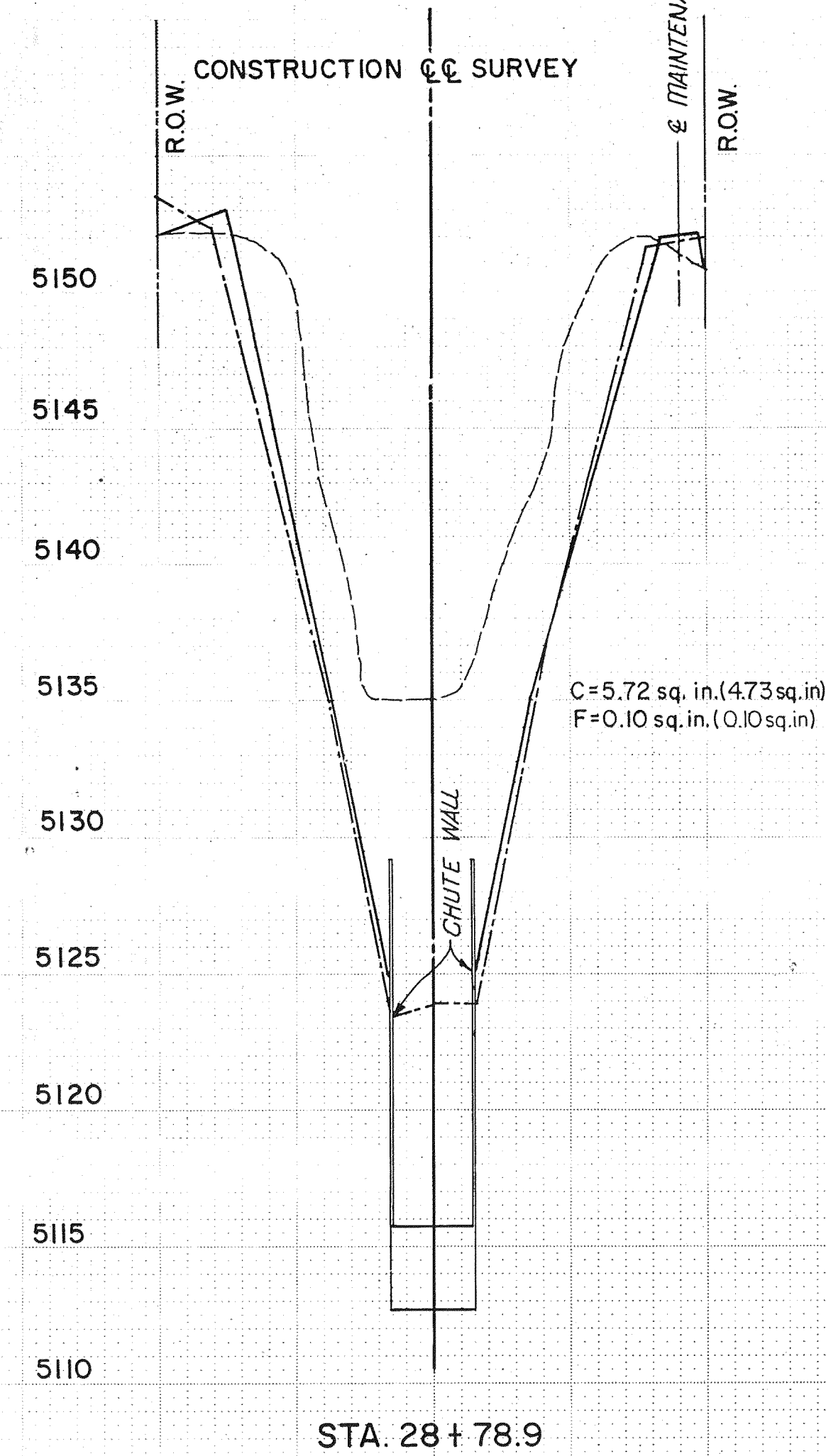
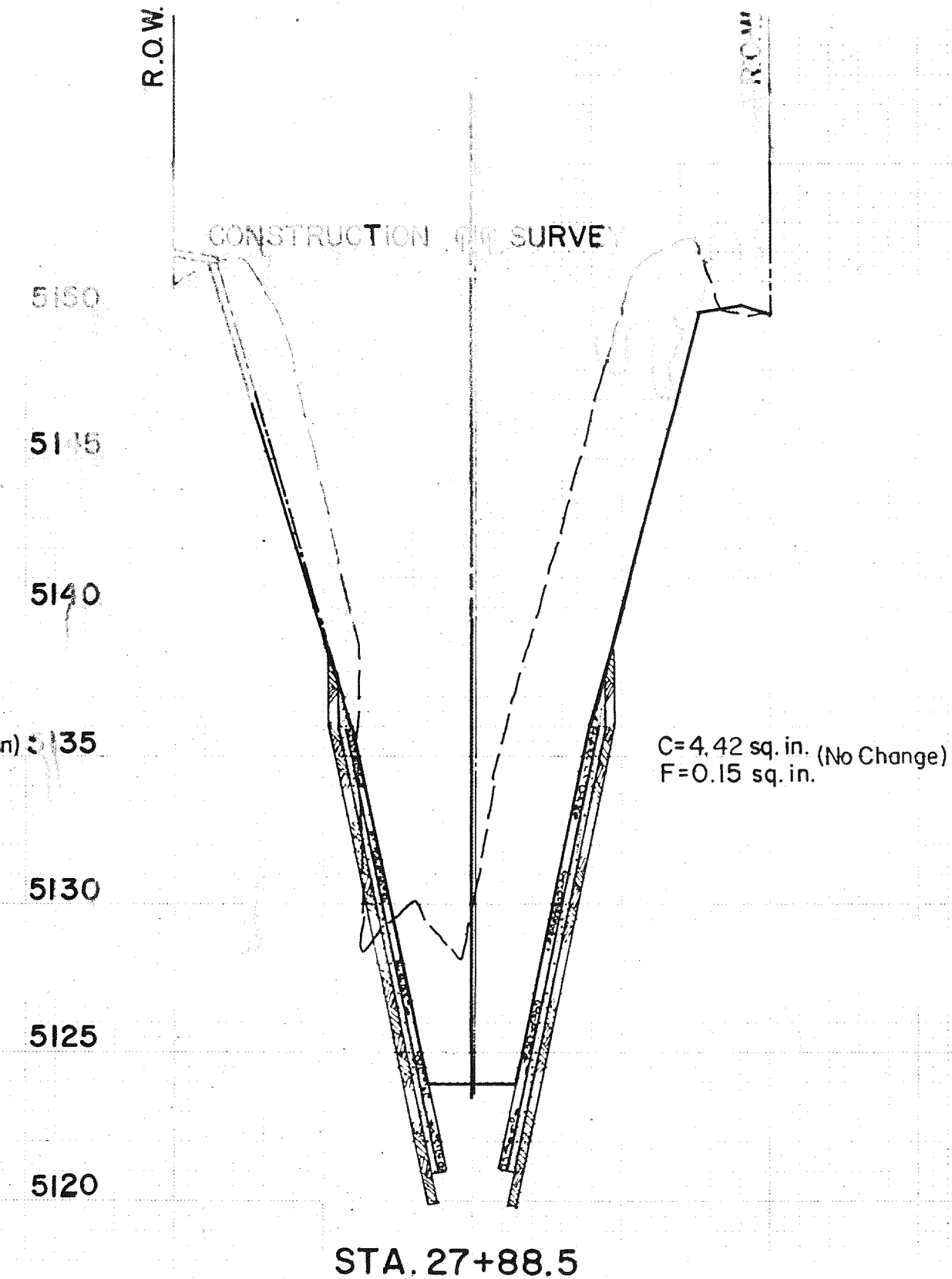
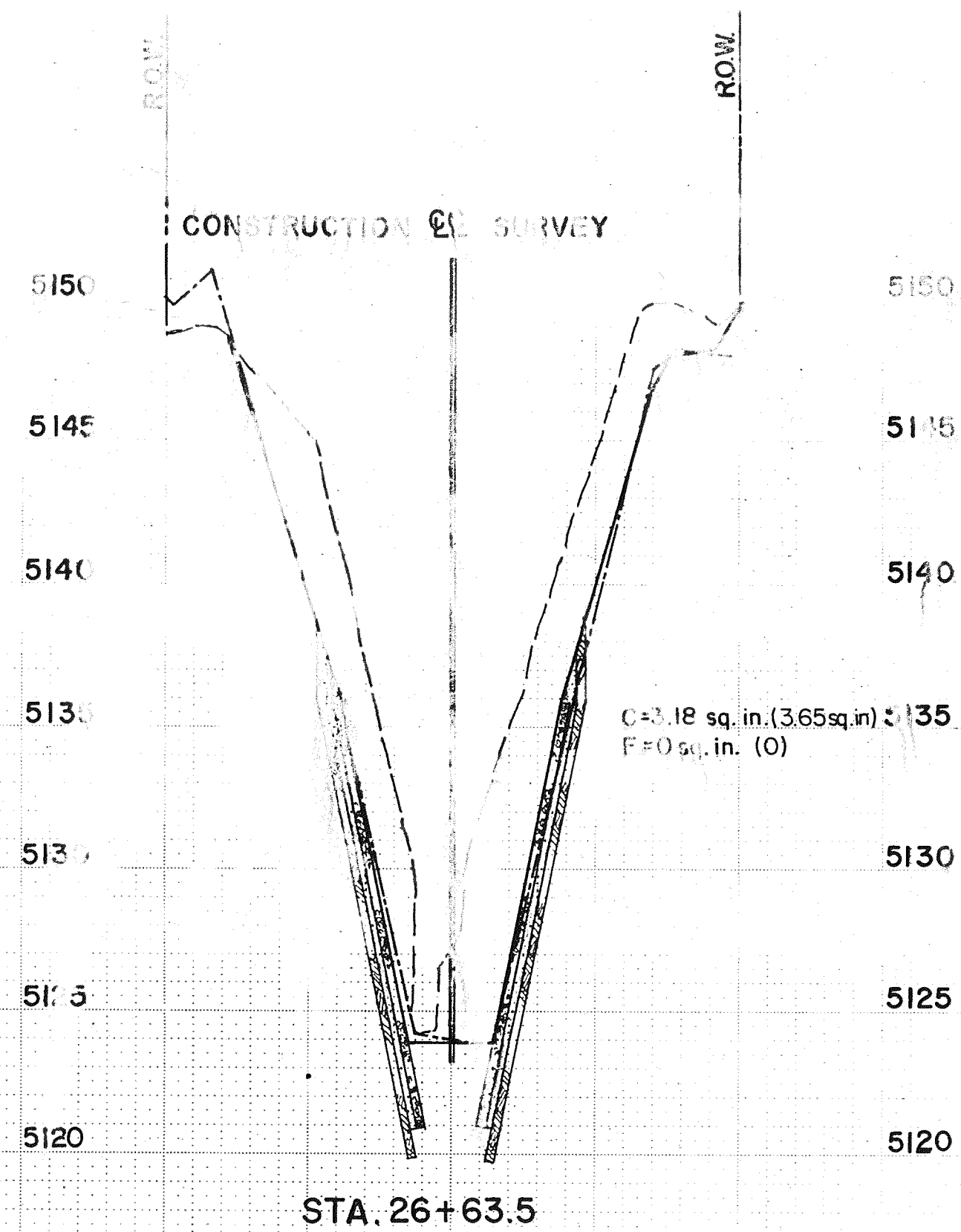
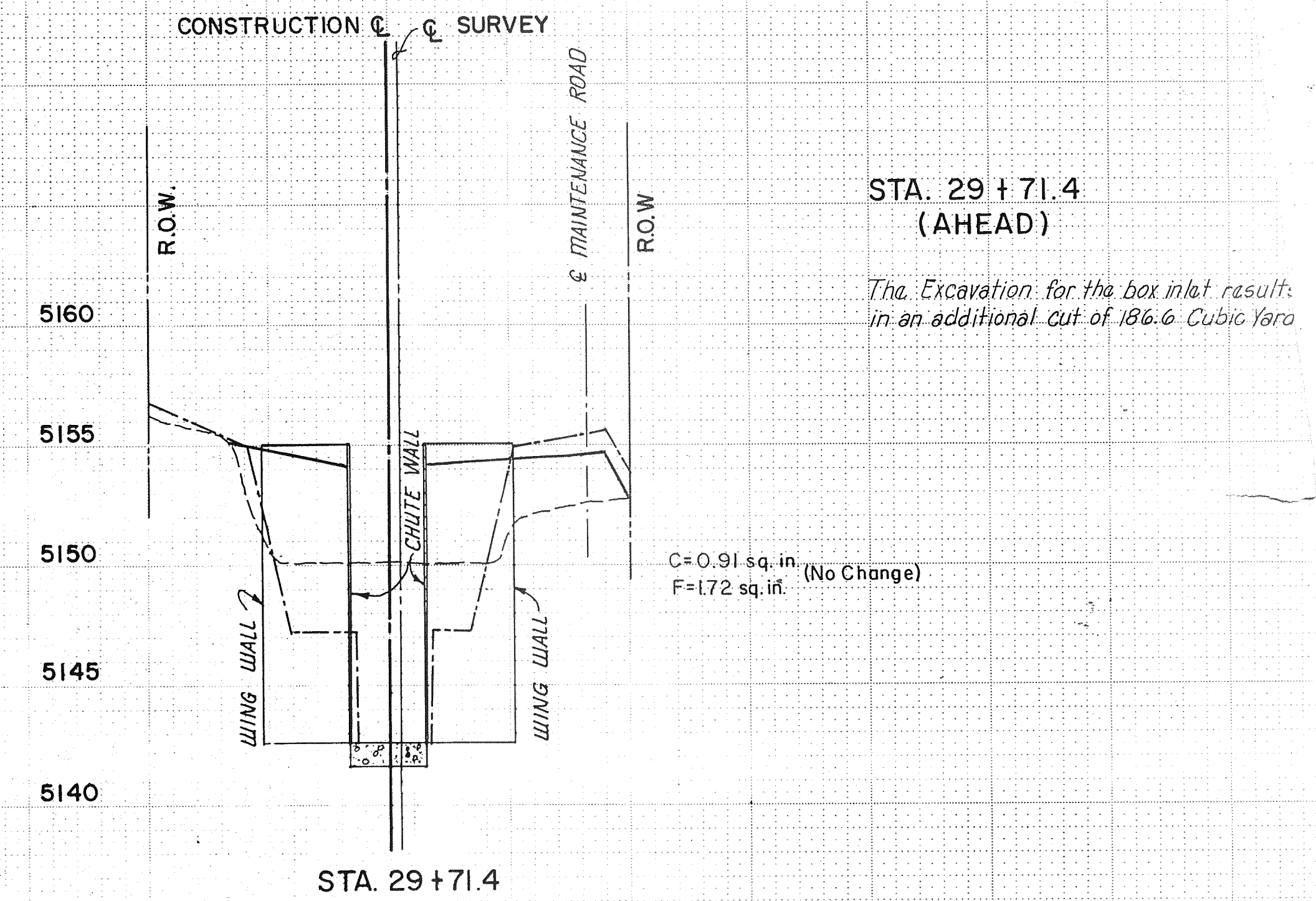
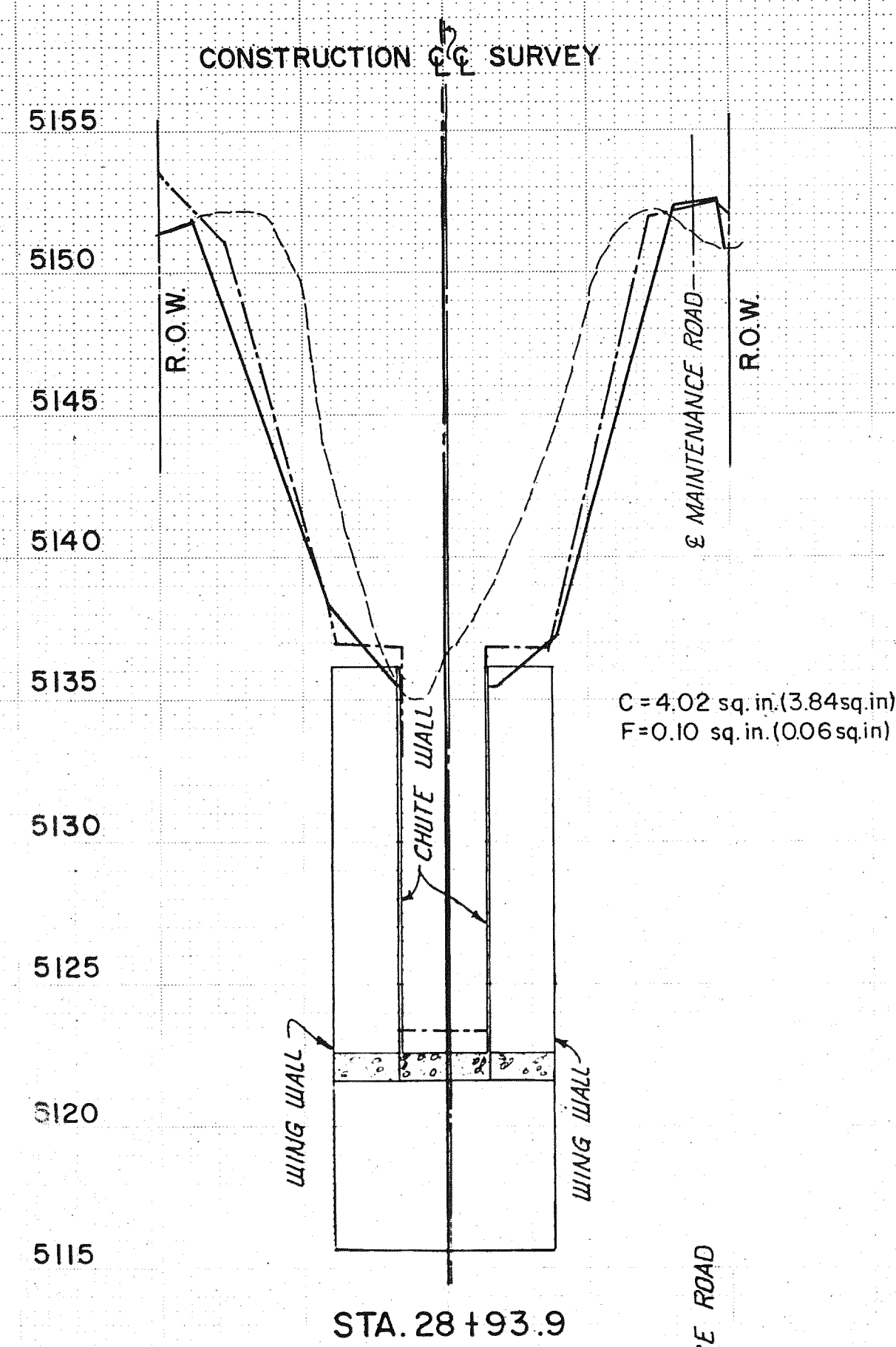
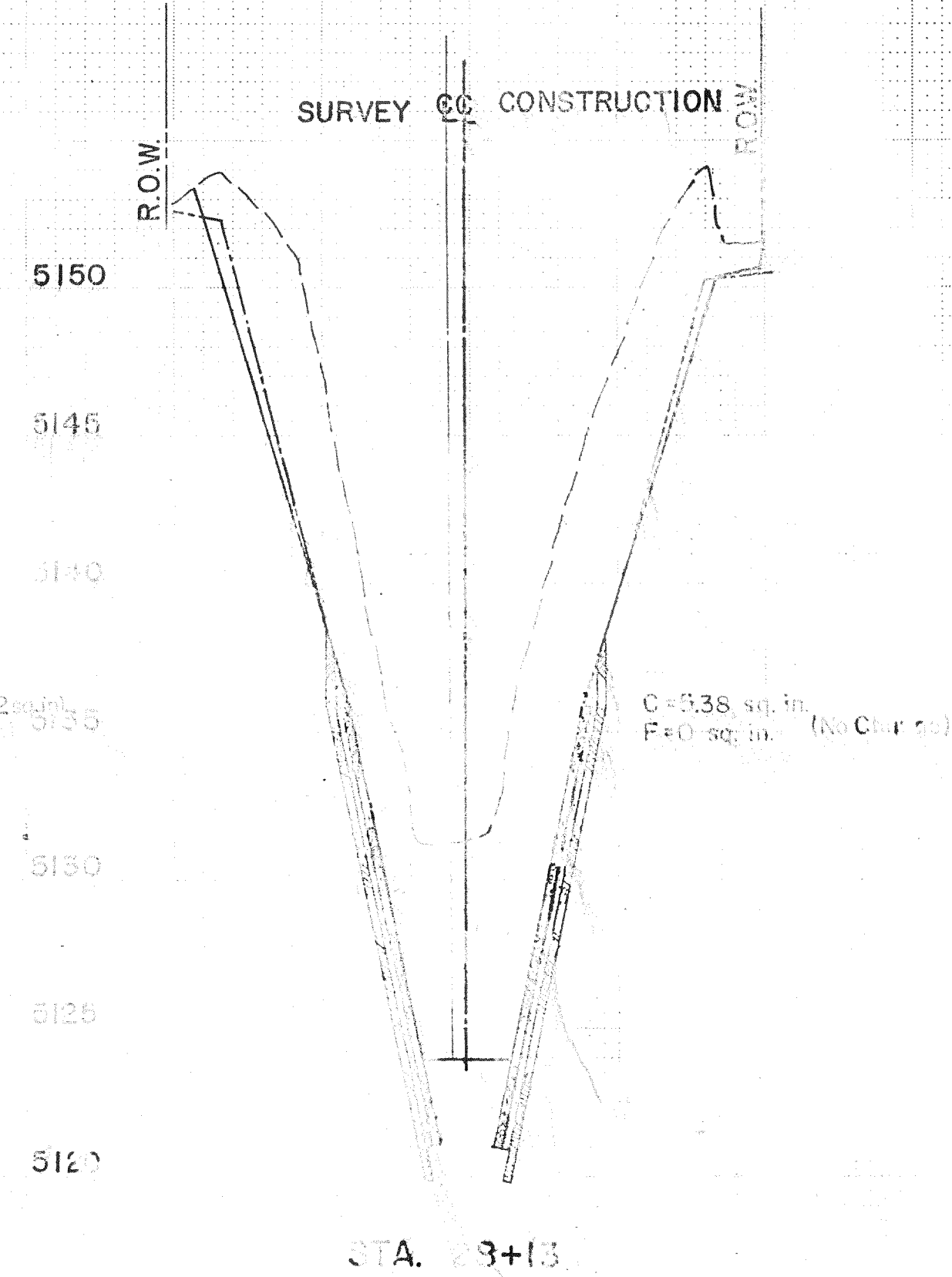
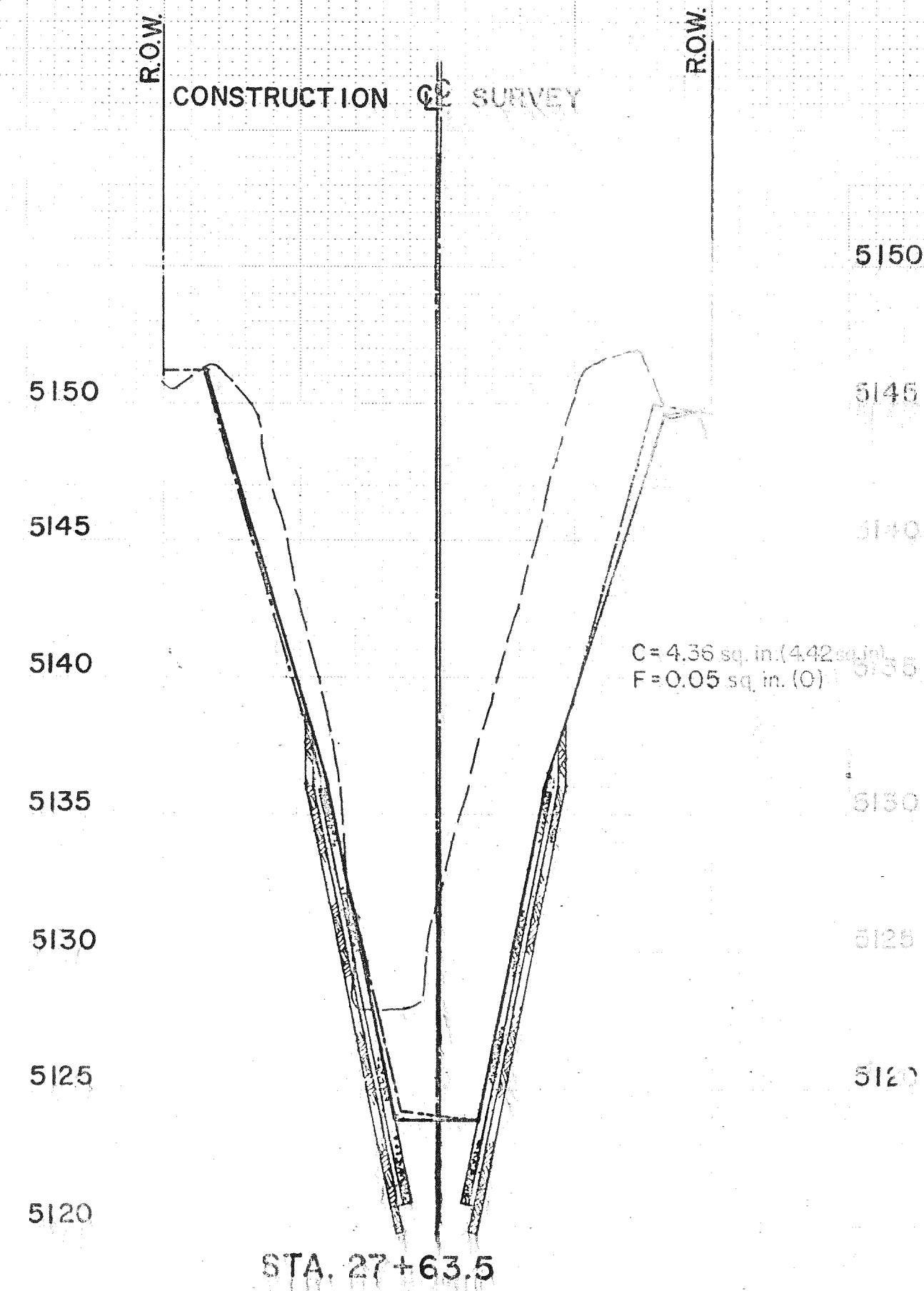
BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH 1

**CROSS SECTIONS**  
STA. 18+80 TO STA. 25+63.5

**GORDON HERKENHOFF & ASSOCIATES, INC.**  
ENGINEERS ARCHITECTS PLANNERS  
ALBUQUERQUE SANTA FE

DRAWN BY M. J.  
DATE SEPT. 1987  
SCALE AS SHOWN

|                  |  |  |                     |  |    |      |
|------------------|--|--|---------------------|--|----|------|
| ORIGINAL<br>SUEY |  |  | SURVEYED<br>PLOTTER |  | BY | DATE |
| NOTE BOOK        |  |  | AREAS               |  |    |      |
| NO.              |  |  | AREAS CHECKED       |  |    |      |



**LEGEND**

|                                                                                       |                    |
|---------------------------------------------------------------------------------------|--------------------|
|  | As Built           |
|  | Design             |
|  | Existing Ground    |
| 3.93 sq. in.                                                                          | Cut or Fill Design |
| (486 sq. in.)                                                                         | As Built           |

**SCALE**

HORIZ.: 1" = 50'

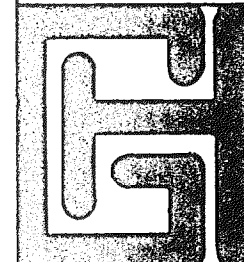
VERT.: 1" = 5'

RECORD DRAWING  
Date MAY 15 1987

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AMAFCA

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS - REACH



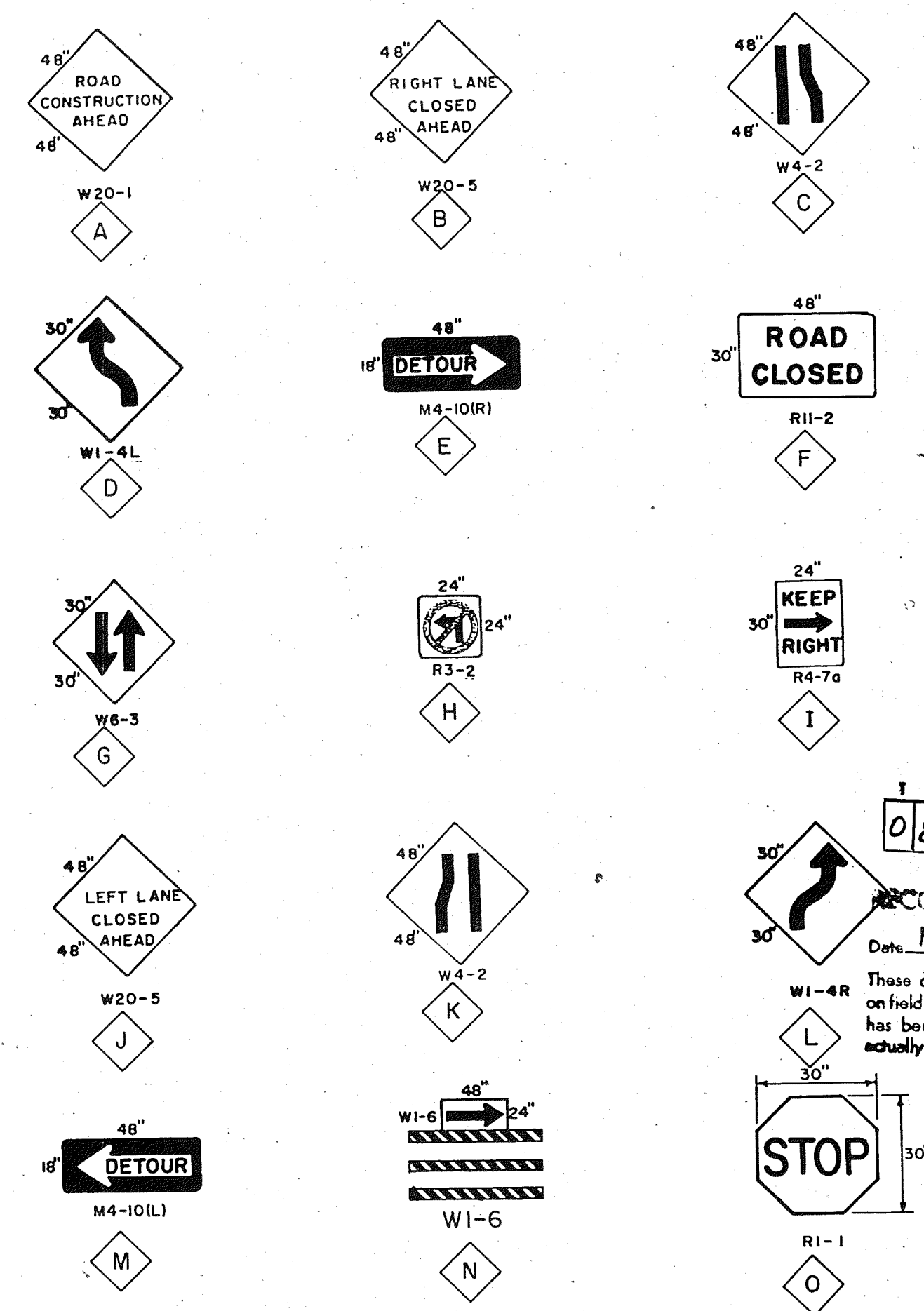
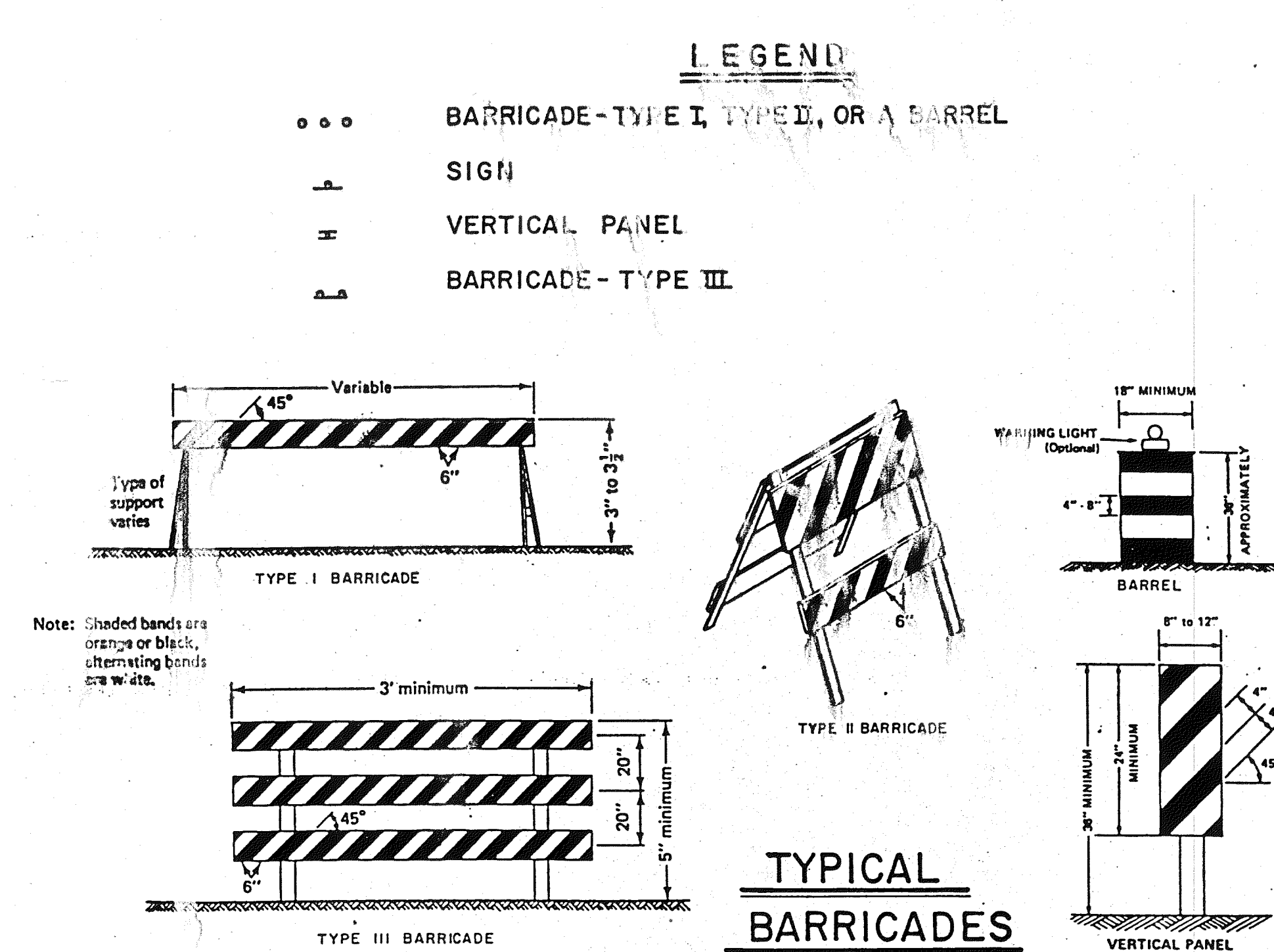
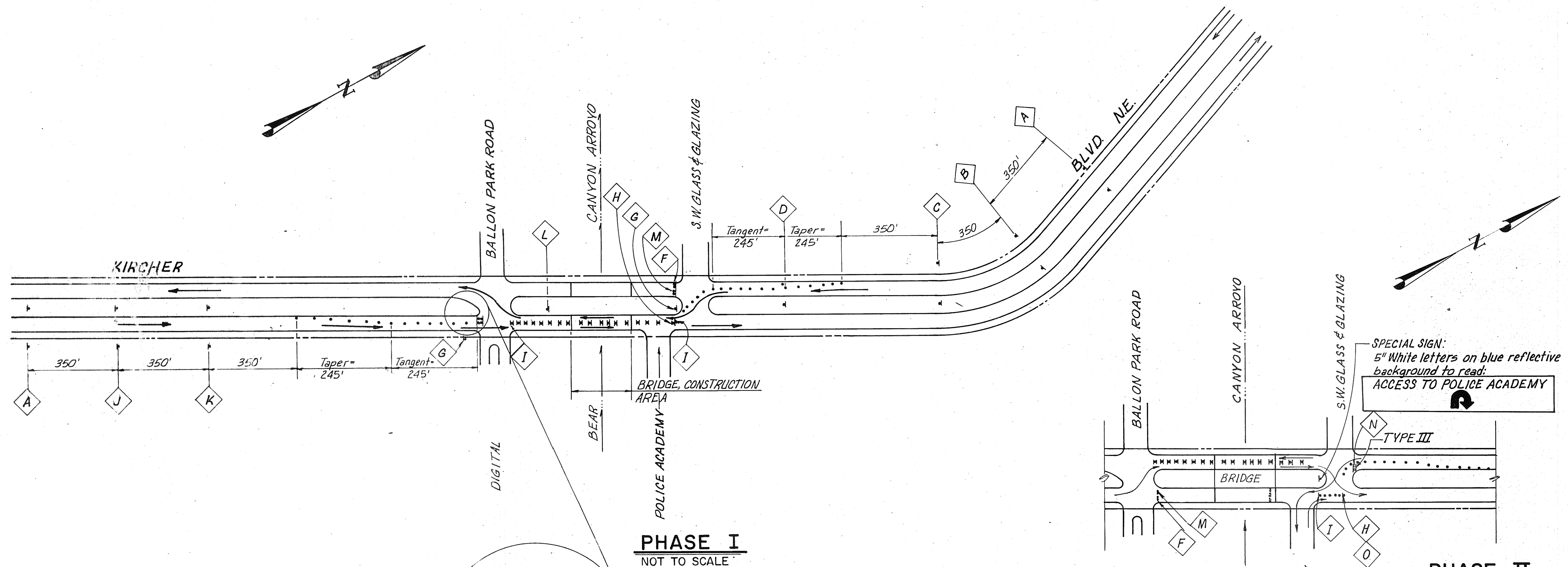
CROSS SECTIONS  
STA. 26+63.5 TO STA.29+71.4

**GORDON HERKENHOFF & ASSOCIATES, INC.**

ALBUQUERQUE SANTA

**SHEET 16 OF 17**

PLATE 3 CROSS SECTION - DOTTED  
CHARLES BRUNING COMPANY  
MADE IN U.S.A.



- GENERAL TRAFFIC NOTES**
1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE CITY OF ALBUQUERQUE TRAFFIC ENGINEER A DETAILED CONSTRUCTION SEQUENCE INDICATING WHEN EACH SECTION OF ROADWAY IS TO BE AFFECTED BY CONSTRUCTION.
  2. THE CONTRACTOR MUST OBTAIN A BARRICADING PERMIT FROM THE TRAFFIC ENGINEERING OFFICE 2 DAYS PRIOR TO EACH PHASE OF CONSTRUCTION.
  3. ALL ADVANCE LOCATIONS AND SIGN LOCATIONS WILL BE SELECTED IN THE FIELD AND APPROVED BY THE PROJECT ENGINEER.
  4. A MINIMUM OF 11 FEET SHALL BE PROVIDED FOR TRAFFIC IN ONE DIRECTION.
  5. EQUIPMENT AND MATERIALS ARE NOT TO BE STORED WITHIN THE STREET RIGHT-OF-WAY DURING NON-WORKING HOURS, OR WITHIN 15 FEET OF A TRAFFIC LANE.
  6. CONTRACTOR SHALL COORDINATE WITH TRAFFIC ENGINEERING OFFICE TO PROVIDE ACCESS SIGNS FOR BUSINESSES AFFECTED BY CONSTRUCTION.
  7. SPACING BETWEEN VERTICAL PANELS AND BARRELS TO BE EQUAL TO THE SPEED LIMIT.
  8. ALL BARRELS AND VERTICAL PANELS TO HAVE TYPE C LIGHTS.
  9. ADVANCE SIGNING AND TYPE III BARRICADES TO HAVE TYPE A LIGHTS.
  10. INSTALLATION OF WATER LINE SHALL BE IN TWO PHASES.
- PHASE I - PLAN AS SHOWN. ALL TRAFFIC IN EAST LANE.
- PHASE II - REVERSE THE PLAN. ALL TRAFFIC IN WEST LANE. ALL ADVANCE SIGNING AND BARRICADING TO BE SIMILAR TO PHASE I. ALSO TRAFFIC CONTROLS AND A SIGN FOR THE POLICE ACADEMY ENTRY. SEE DETAIL THIS SHEET.
- EACH PHASE SHALL BE COMPLETED IN NO MORE THAN 48 HOURS.

**RECORD DRAWING**

1 2 3 4 5 6 7 8 9 10 11 12

08 002 1787

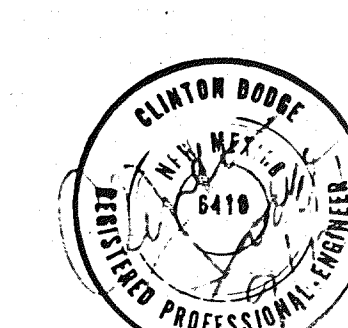
Date: MAY 15 1987

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**STOP**

R1-1

O



**AMAFCA**

BEAR CANYON ARROYO CHANNEL IMPROVEMENTS-REACH I

**TRAFFIC CONTROL PLAN**

**GORDON HERKENHOFF & ASSOCIATES, INC.**

ENGINEERS ARCHITECTS PLANNERS

ALBUQUERQUE SANTA FE

DRAWN BY G.B.C.

DATE SEPT. 1986

SCALE AS SHOWN