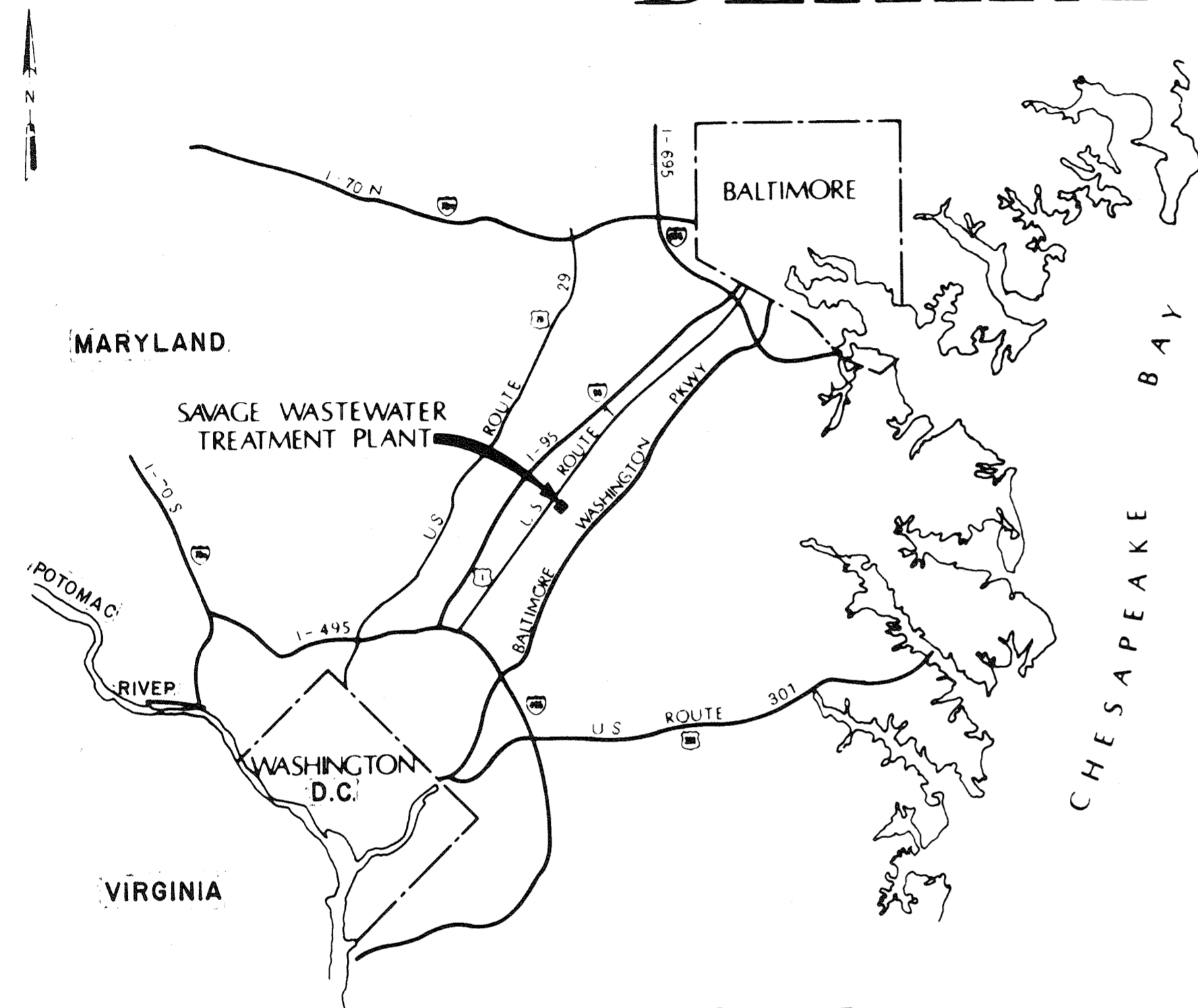
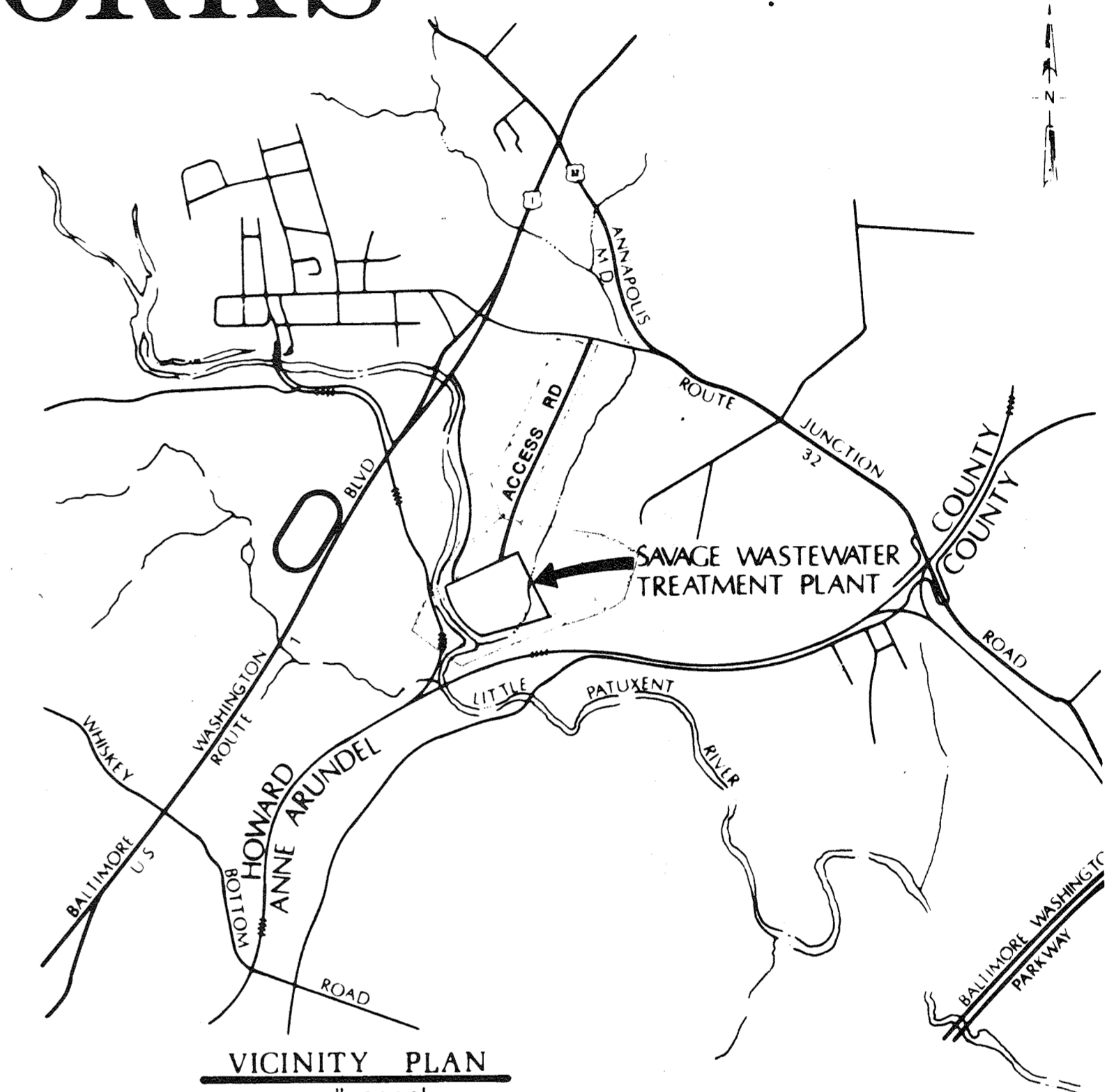


HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS



LOCATION MAP
SCALE 1" = 6 MILES



VICINITY PLAN
SCALE 1" = 2000'

SAVAGE WASTEWATER TREATMENT PLANT

ADDITION NO. 4

CONTRACT 764-S

HOWARD COUNTY

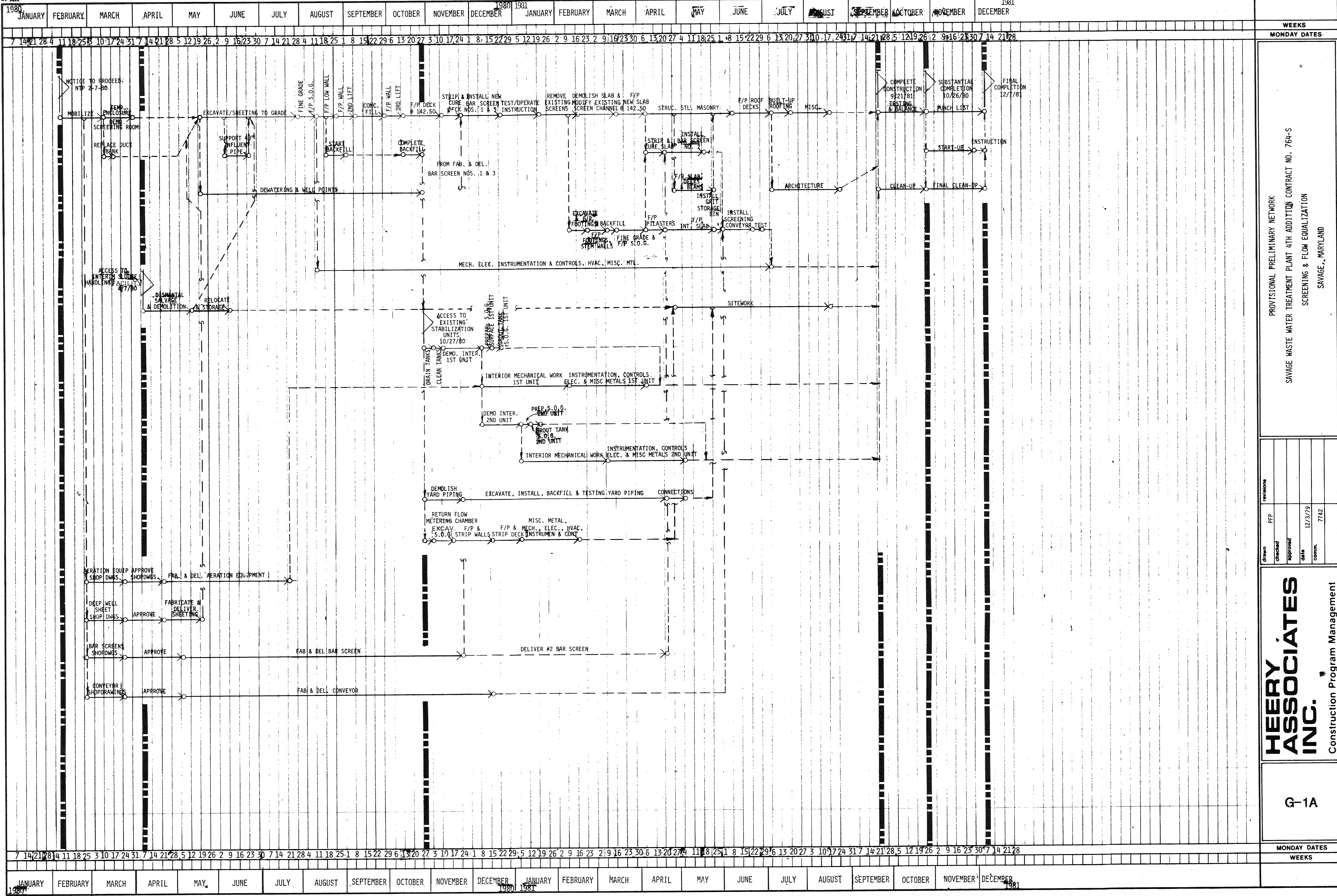
George F. Nemajew Date 5-29-79
DIRECTOR-DEPARTMENT OF PUBLIC WORKS



James M. Swine Date 5/29/79
CHIEF-BUREAU OF ENVIRONMENTAL SERVICES

RECORD DRAWING

| | | | | | | | | | | | | |
|--|-------|-----|------|----------|----|-------|----------|---|---|---|-----------|-----|
| | DES. | | | | | | | DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 5/29/79 DATE <i>James M. Swine</i> CHIEF - BUREAU OF ENVIRONMENTAL SERVICES | SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | TITLE SHEET & VICINITY MAP GENERAL | SHEET OF | G-1 |
| | DR. | | | | | | DATE | | | | 8-78 | |
| | CHK. | | | | | | DWG. NO. | | | | W11078.C1 | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. | | | | | | |



PROVISIONAL PRELIMINARY NETWORK
 SAVAGE WASTE WATER TREATMENT PLANT 4TH ADDITION CONTRACT NO. 764-S
 SCREENING & FLOW EQUALIZATION
 SAVAGE, MARYLAND

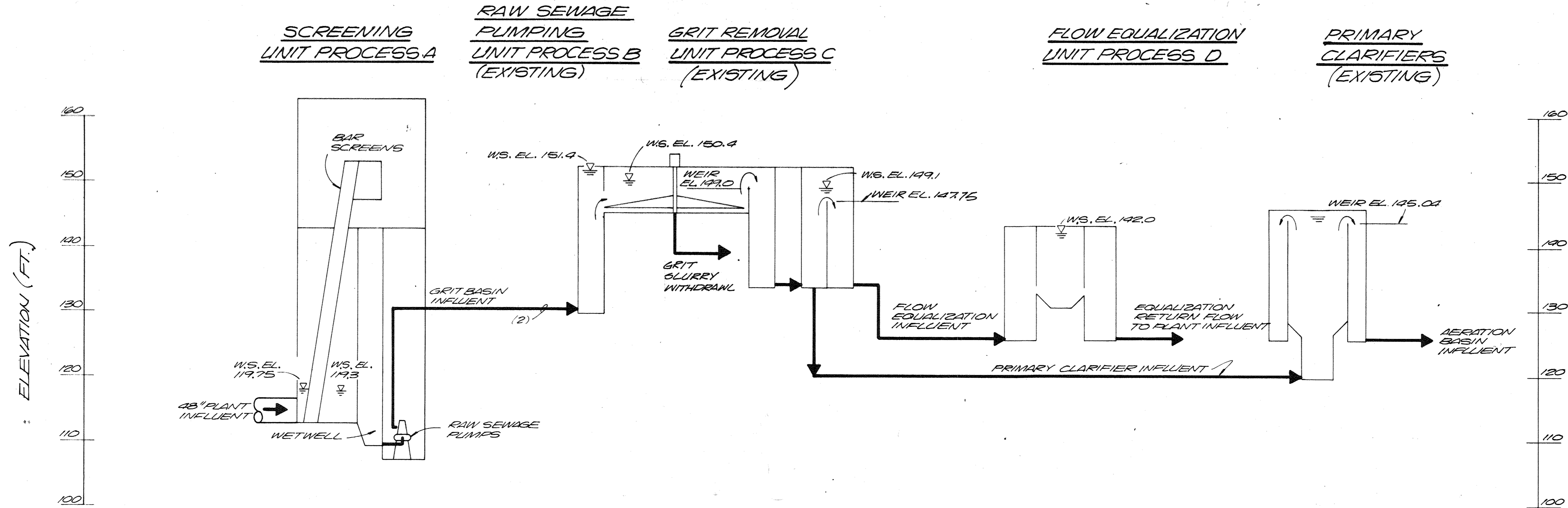
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|-------|---------|----------|---------|-------|
| Drawn | checked | approved | date | comm. |
| | | | 12/9/79 | 7/82 |

HEERY ASSOCIATES INC.
 Construction Program Management

G-1A
 MONDAY DATES
 WEEKS

HYDRAULIC PROFILE - MAXIMUM FLOW 50 MGD

WS. ELEVATIONS ARE MAXIMUM AT 50 MGD,
ASSUMING NO FLOW EQUALIZATION VOLUME AVAILABLE



SCREENINGS REMOVAL & FLOW EQUALIZATION - DESIGN SUMMARY

FLOW

INITIAL AVERAGE 15 MGD
INITIAL MAXIMUM 30 MGD
ULTIMATE AVERAGE 25 MGD
ULTIMATE MAXIMUM 50 MGD

BAR SCREEN

TYPE MECHANICALLY CLEANED
NO. OF SCREENS 3
NO. NORMALLY IN SERVICE 2
SCREEN WIDTH, FT. 6
BAR SPACING, IN. 3/4 CLEAR
MAXIMUM DESIGN VELOCITY THRU EACH SCREEN, APPROX. 3 FT/SEC.
SCREENING QUANTITY, APPROX. 5 FT³/MG
AVERAGE DAILY SCREENING VOL. 15 MGD 75 FT³
25 MGD 125 FT³
MAXIMUM DESIGN CAPACITY, EACH SCREEN 25 MGD

SCREENING STORAGE BIN

MAXIMUM STRUCK CAPACITY, CU. FT. 330 FT.³

FLOW EQUALIZATION

NO. OF BASINS 2
NO. NORMALLY IN SERVICE 2
TOTAL EQUALIZATION VOL., APPROX. 2.2 MG
MAXIMUM EQUALIZATION INF. RATE 20 MGD
AIR FLOW PER BASIN, CFM
MINIMUM 1000
MAXIMUM 3000



RECORD DRAWING

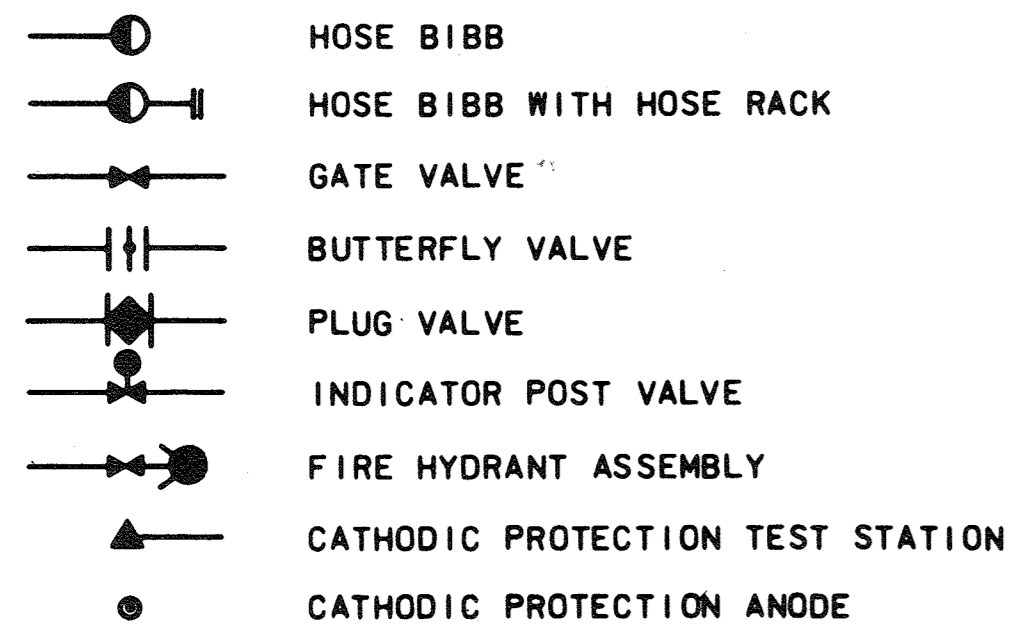
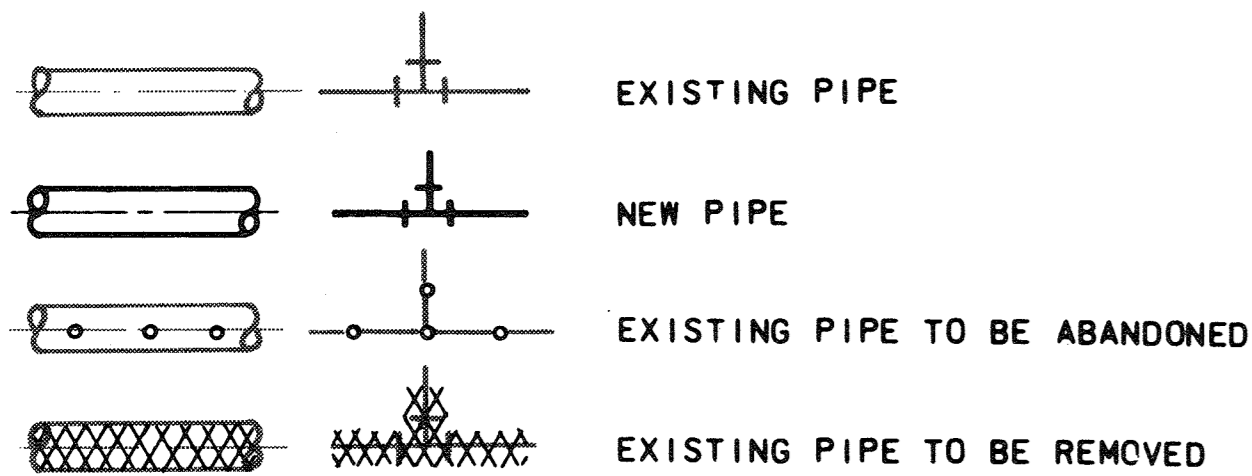
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|-----------|------------|-----|------|----------|----|---|---|------------------------------------|-------------------|
| CH2M HILL | DES. DDB. | | | | | DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | HYDRAULIC PROFILE & DESIGN SUMMARY | SHEET OF G-3 |
| | DR. GFE/EM | | | | | | | | DATE 8-78 |
| | CHK. | | | | | 5/29/79 DATE | James M. Linn CHIEF - BUREAU OF ENVIRONMENTAL SERVICES | GENERAL | DWG NO. W11078.C1 |
| | APPD. | NO. | DATE | REVISION | BY | APPD. | | | |

YARD PIPING LEGEND AND NOTES

GENERAL PIPING NOTES

- LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
- LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
- ALL JOINTS SHALL BE WATERTIGHT. STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
- ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, WHERE INDICATED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
- SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE PLANS, WHEREVER APPLICABLE. ALL OF THE VARIOUS PIPING APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT.
- ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, OR SCREWED PIPING, SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTION CHANGES, UNLESS OTHERWISE NOTED. SEE THRUST DETAILS AND NOTES ON THIS SHEET.
- NUMBER AND LOCATION OF UNIONS SHOWN ON PLANS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
- WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE USED TO JOIN THE COUPLING ADAPTER.

YARD PIPING LEGEND

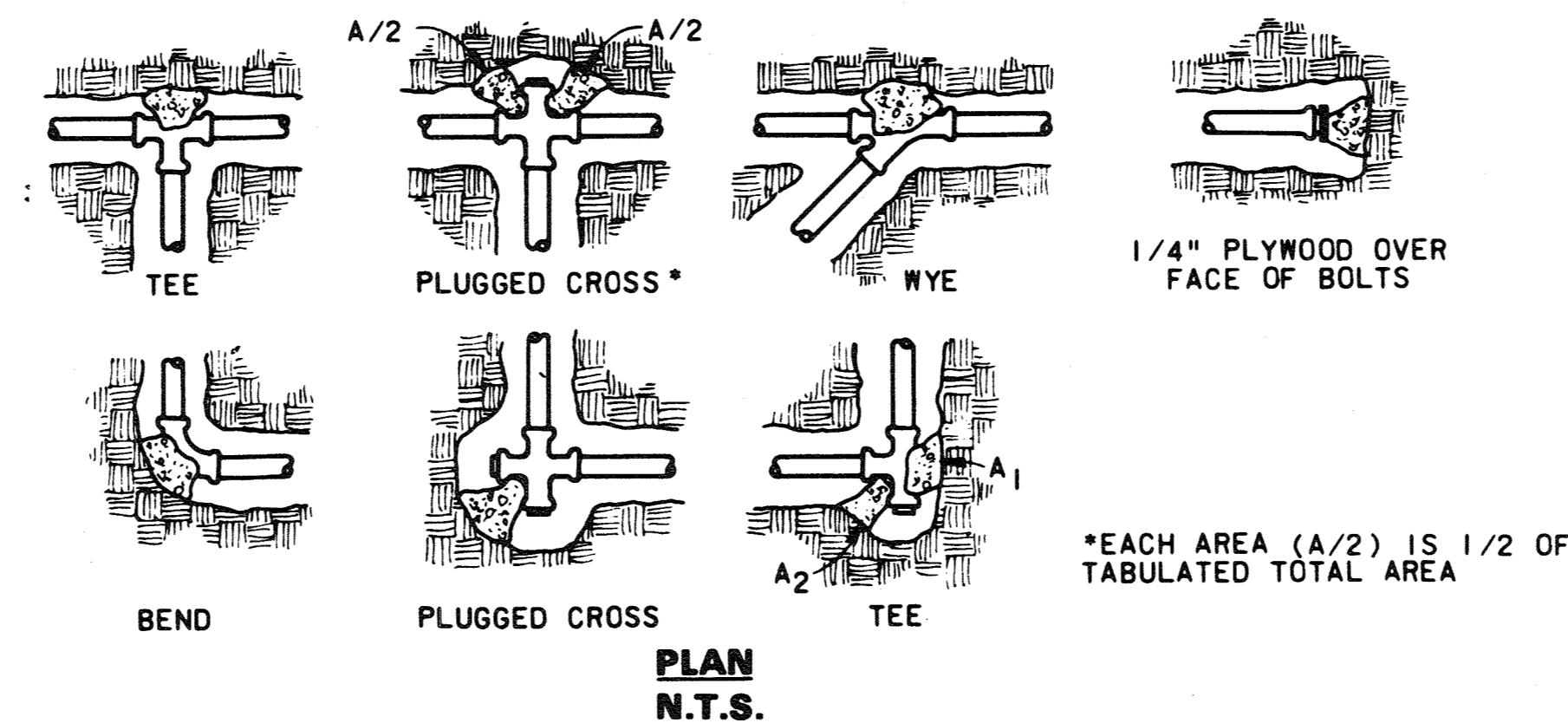


THRUST BLOCK NOTES AND DETAILS

THRUST BLOCK NOTES

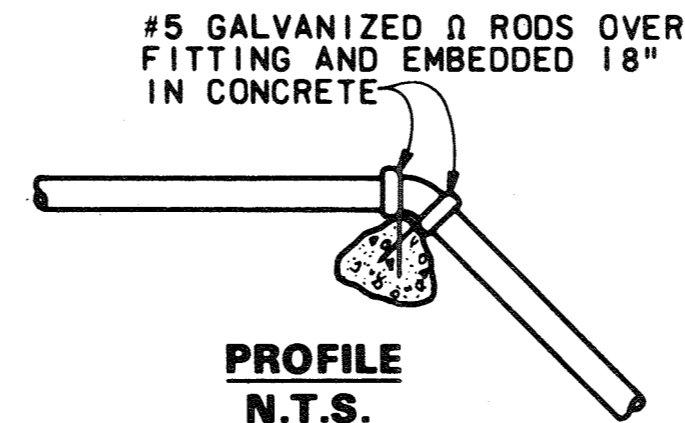
- KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
- CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
- REQUIRED VOLUMES OR BEARING AREAS AT FITTINGS SHALL BE AS INDICATED ABOVE, ADJUSTED, IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES) STATED IN THE SPECIFICATIONS.
- THRUST BLOCK VOLUMES ARE BASED ON TEST PRESSURE OF 150 PSIG AND THE WEIGHT OF CONCRETE = 4050 LBS/CU. YD. TO COMPUTE VOLUMES. FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:
VOLUME = (TEST PRESS./150) x (TABLE VALUE).
- BEARING AREAS ARE BASED ON TEST PRESSURE OF 150 PSIG AND AN ALLOWABLE STRESS OF 2000 LBS/SQ. FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES USE THE FOLLOWING EQUATION:
BEARING AREA = (TEST PRESS./150) x (2000/SOIL BEARING STRESS) x (TABLE VALUE).
- THRUST BLOCKS FOR VERTICAL UP-BENDS SHALL BE THE SAME AS FOR HORIZONTAL BENDS.
- BEARING AREAS, VOLUMES, AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER THIS STANDARD.
- BEARING AREA OF THRUST BLOCK SHALL NOT BE LESS THAN 1.0 SQ. FT.

THRUST BLOCK DETAILS



| FITTING SIZE | TEE, WYE, PLUG OR CAP | 90° BEND PLUGGED CROSS | TEE PLUGGED ON RUN | | BEND ANGLE | | |
|--------------|-----------------------|------------------------|--------------------|------|------------|---------|---------|
| | | | A1 | A2 | 45° | 22 1/2° | 11 1/4° |
| | | | 4 | 1.0 | 1.4 | 1.9 | 1.4 |
| 6 | 2.1 | 3.0 | 4.3 | 3.0 | 1.6 | 1.0 | - |
| 8 | 3.8 | 5.3 | 7.6 | 5.4 | 2.9 | 1.5 | 1.0 |
| 10 | 5.9 | 8.4 | 11.8 | 8.4 | 4.6 | 2.4 | 1.2 |
| 12 | 8.5 | 12.0 | 17.0 | 12.0 | 6.6 | 3.4 | 1.7 |
| 14 | 11.5 | 16.3 | 23.0 | 16.3 | 8.9 | 4.6 | 2.3 |
| 16 | 15.0 | 21.3 | 30.0 | 21.3 | 11.6 | 6.0 | 3.0 |
| 18 | 19.0 | 27.0 | 38.0 | 27.0 | 14.6 | 7.6 | 3.8 |
| 20 | 23.5 | 33.3 | 47.0 | 33.3 | 18.1 | 9.4 | 4.7 |
| 24 | 34.0 | 48.0 | 68.0 | 48.0 | 26.2 | 13.6 | 6.8 |

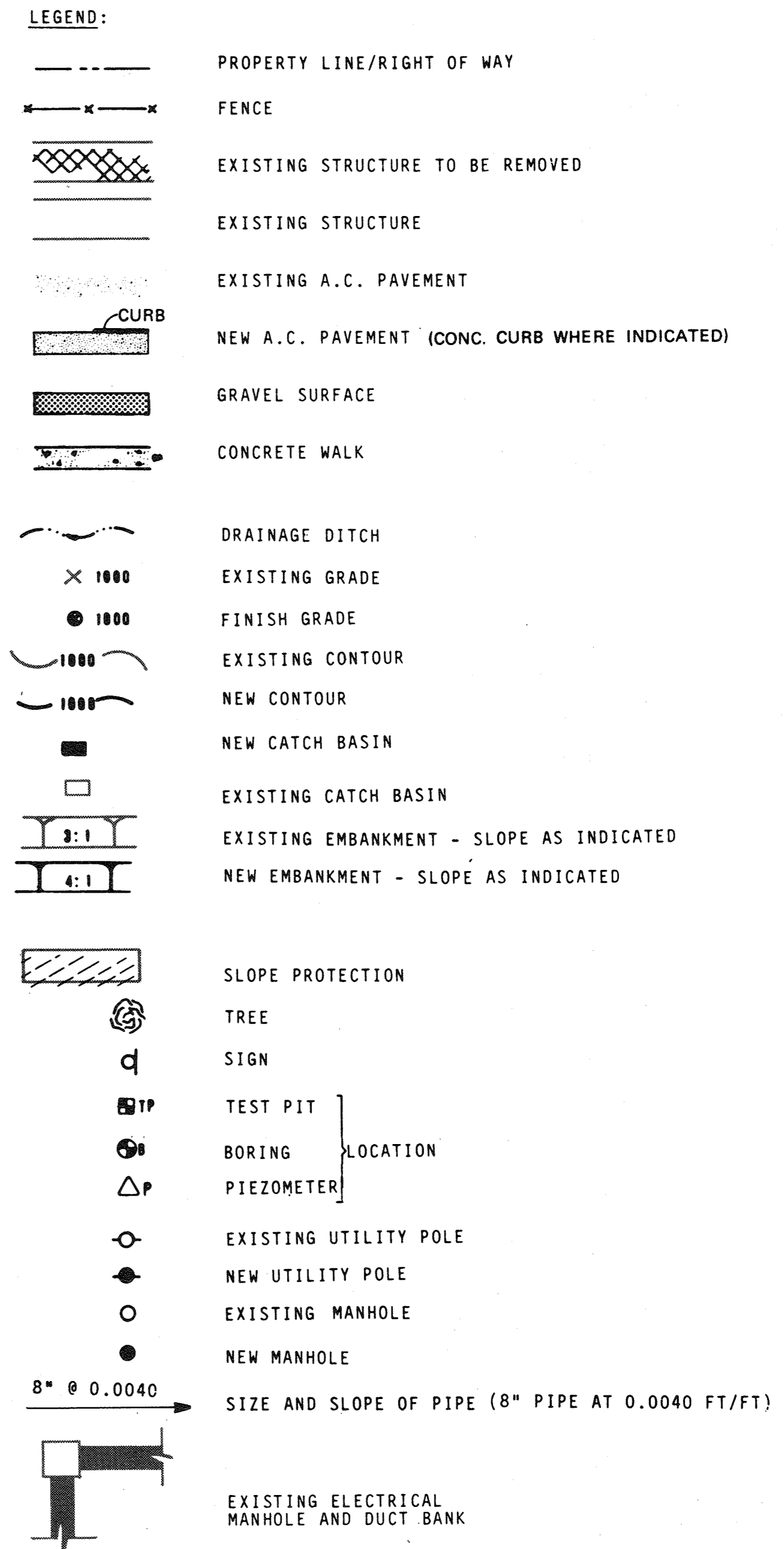
| FITTING SIZE | BEND ANGLE | | | |
|--------------|------------|------|---------|---------|
| | 90° | 45° | 22 1/2° | 11 1/4° |
| 4 | 2.9 | 1.1 | 0.4 | 0.2 |
| 6 | 6.0 | 2.7 | 1.0 | 0.4 |
| 8 | 10.3 | 4.0 | 1.5 | 0.6 |
| 10 | 15.5 | 6.0 | 2.3 | 0.9 |
| 12 | 22.0 | 8.5 | 3.2 | 1.3 |
| 14 | 29.5 | 11.5 | 4.3 | 1.8 |
| 16 | 38.2 | 14.8 | 5.6 | 2.3 |



RECORD DRAWING

SITE LEGEND

NOTES:
1. IN GENERAL, EXISTING STRUCTURES AND FACILITIES ARE NOTED AS "EXISTING" AND ARE SHOWN IN LIGHT LINE WEIGHTS, OR AS SCREENED BACKGROUND. NEW STRUCTURES ARE SHOWN IN HEAVY LINE WEIGHTS.



For Registration Drafting Use Only



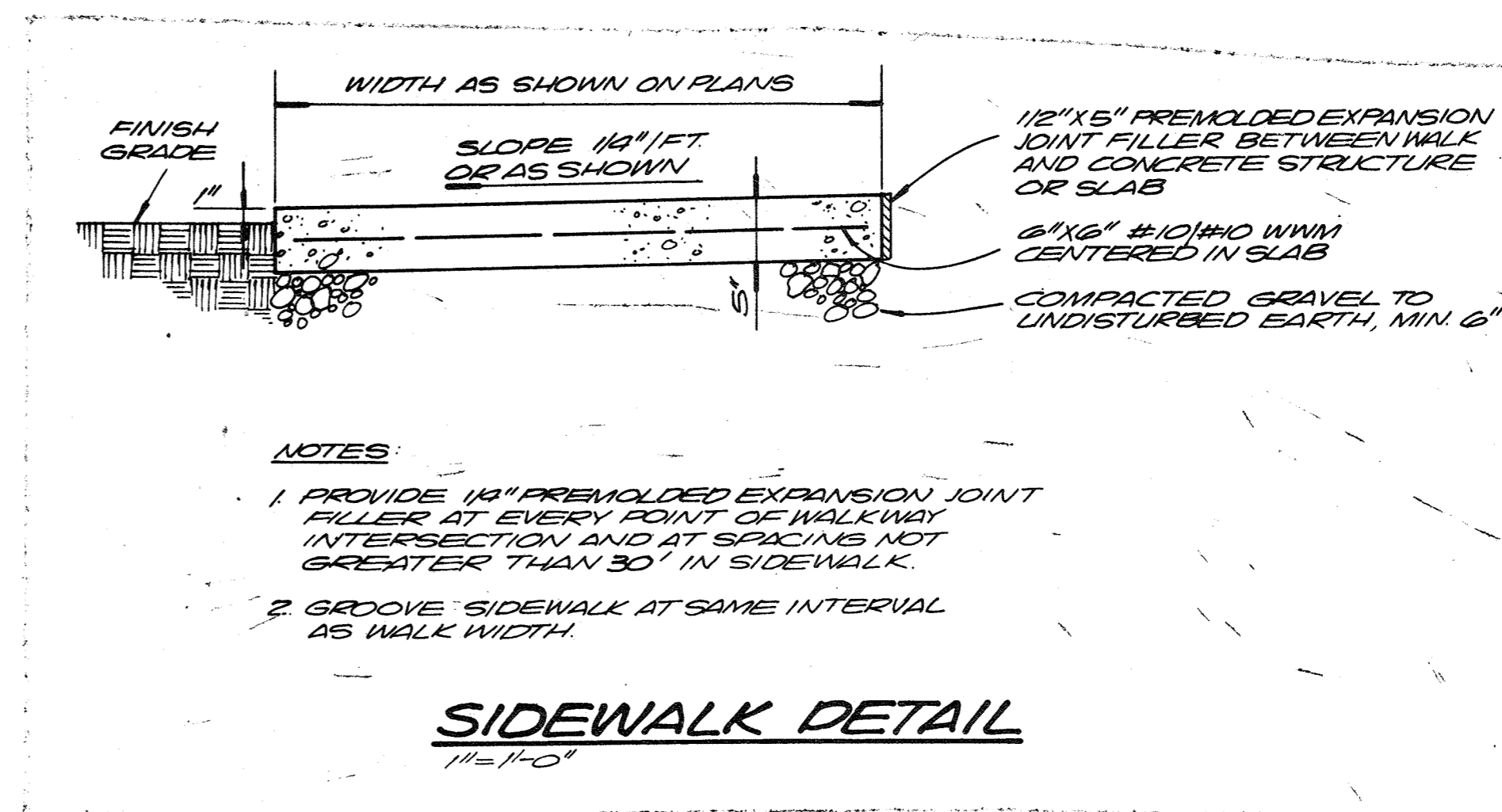
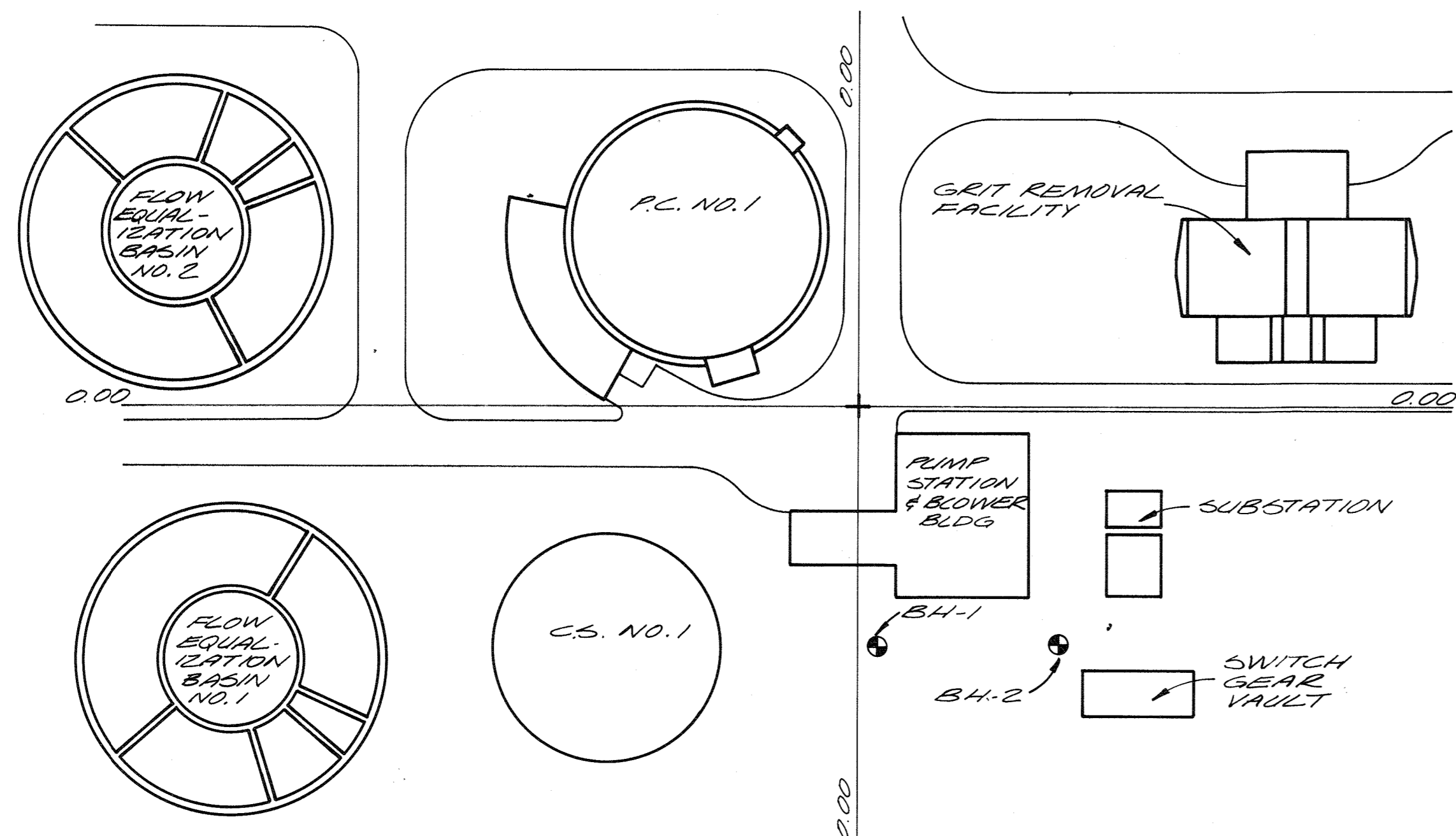
| | | | | | |
|-------|--|------|----------|----|-------|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/22/79
DATE
James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

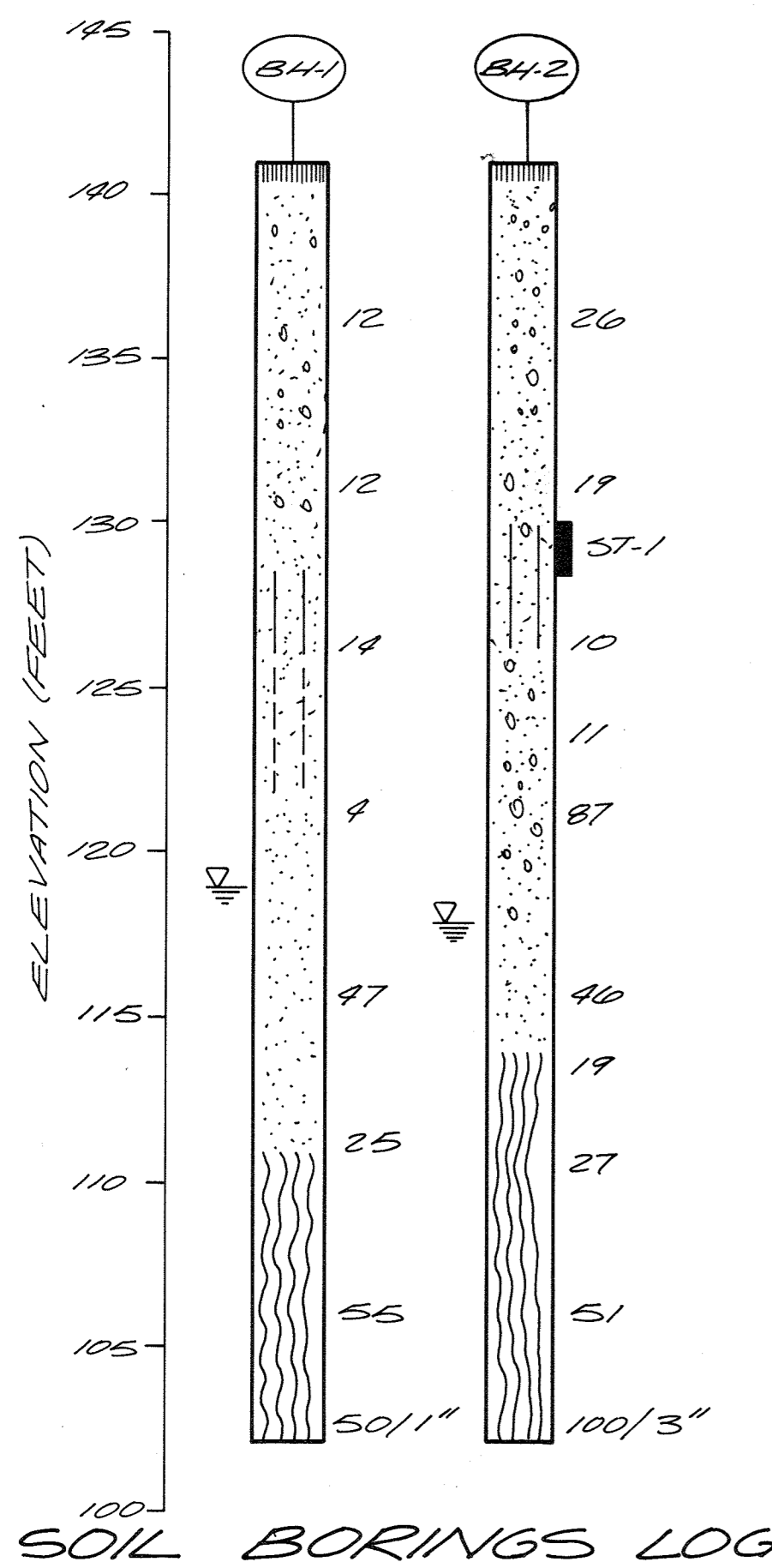
LEGEND
SITE

SHEET OF C-1
DATE 8-78
DWG. NO. W11078.C1



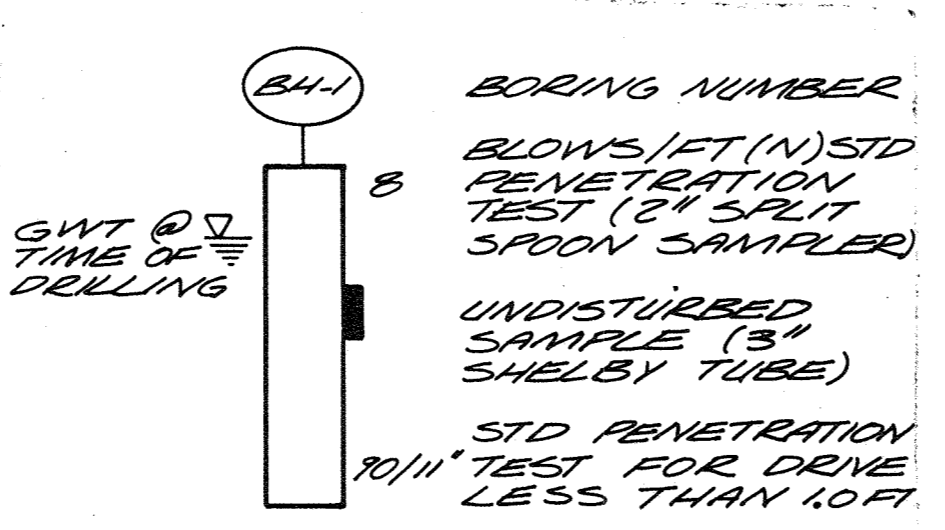
LOCATION OF BORINGS

N.T.S.

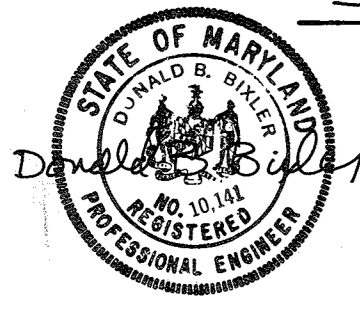


- SYMBOLS**
- TOP SOIL
 - WEATHERED BED ROCK
 - SAND
 - GRAVELLY SAND
 - SILTY SAND
 - SANDY SILT
 - SILT

- NOTES:**
1. THE DEPTHS OF THE INTERFACES BETWEEN SOIL TYPES SHOWN ARE APPROXIMATE. TRANSITIONS BETWEEN MATERIALS MAY BE GRADUAL.
 2. BORINGS DRILLED ON 16 AND 17 JANUARY 1978 BY ATEC ASSOCIATES OF MARYLAND WITH A MOBILE ATV-50 ALL TERRAIN DRILLING RIG USING HOLLOW STEM AUGERS AND OBSERVED BY CH2M-HILL.
 3. GROUND WATER LEVELS SHOWN WERE MEASURED AT THE TIME OF DRILLING.
 4. THESE BORING LOGS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT TO BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. NEITHER THE ENGINEER NOR THE OWNER ASSUMES ANY RESPONSIBILITY FOR THE COMPLETENESS OR INTERPRETATION OF THIS INFORMATION.



RECORD DRAWING



| | | | | | |
|--|-------------|-----|------|----------|----|
| | DES. B.J.H. | | | | |
| | DR. V.A.W. | | | | |
| | CHK. | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

BORING LOGS & SITE DETAILS

SITE

SHEET OF **C-2**

DATE 8-78

DWG. NO. W11078.C1

For Registration Drafting Use Only

| | | | | |
|-----------|-----|--------|--------|----------|
| SCREEN | S | | | |
| COMPOSITE | C-3 | BASE 2 | BASE 3 | W1078.C1 |
| OVERLAY | C-3 | BASE 2 | BASE 3 | |



DES. D.B.G.
DR. V.A.W.
CHK.
APPD.

| NO. | DATE | REVISION | BY | APPD. |
|-----|------|----------|----|-------|
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

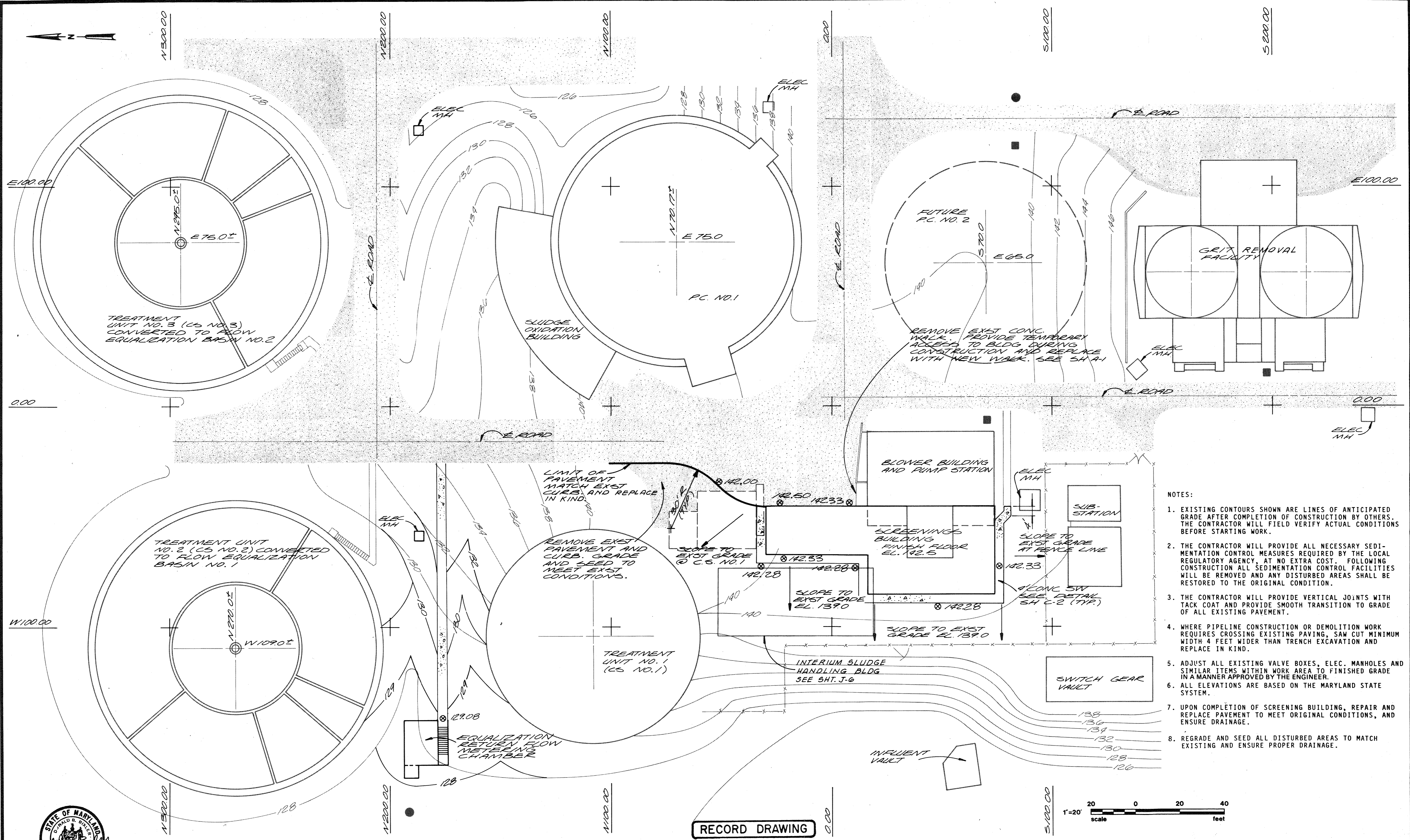
James M. Curran
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

GRADING PLAN

SITE

SHEET
OF
C-3
DATE 8-78
DWG.
NO. W1078.C1



- NOTES:
- EXISTING CONTOURS SHOWN ARE LINES OF ANTICIPATED GRADE AFTER COMPLETION OF CONSTRUCTION BY OTHERS. THE CONTRACTOR WILL FIELD VERIFY ACTUAL CONDITIONS BEFORE STARTING WORK.
 - THE CONTRACTOR WILL PROVIDE ALL NECESSARY SEDIMENTATION CONTROL MEASURES REQUIRED BY THE LOCAL REGULATORY AGENCY AT NO EXTRA COST. FOLLOWING CONSTRUCTION ALL SEDIMENTATION CONTROL FACILITIES WILL BE REMOVED AND ANY DISTURBED AREAS SHALL BE RESTORED TO THE ORIGINAL CONDITION.
 - THE CONTRACTOR WILL PROVIDE VERTICAL JOINTS WITH TACK COAT AND PROVIDE SMOOTH TRANSITION TO GRADE OF ALL EXISTING PAVEMENT.
 - WHERE PIPELINE CONSTRUCTION OR DEMOLITION WORK REQUIRES CROSSING EXISTING PAVING, SAW CUT MINIMUM WIDTH 4 FEET WIDER THAN TRENCH EXCAVATION AND REPLACE IN KIND.
 - ADJUST ALL EXISTING VALVE BOXES, ELEC. MANHOLES AND SIMILAR ITEMS WITHIN WORK AREA TO FINISHED GRADE IN A MANNER APPROVED BY THE ENGINEER.
 - ALL ELEVATIONS ARE BASED ON THE MARYLAND STATE SYSTEM.
 - UPON COMPLETION OF SCREENING BUILDING, REPAIR AND REPLACE PAVEMENT TO MEET ORIGINAL CONDITIONS, AND ENSURE DRAINAGE.
 - REGRADE AND SEED ALL DISTURBED AREAS TO MATCH EXISTING AND ENSURE PROPER DRAINAGE.

For Registration Drafting Use Only

| | | |
|-----------|-----|---------|
| SCREEN | S | W1078CI |
| COMPOSITE | C-4 | BASE 5 |
| OVERLAY | C-4 | BASE 5 |



| | | | | |
|-----------|-------------|---------|---|----------|
| CH2M HILL | DES. DBB/LG | 12/4/81 | MOVED 12" OVERFLOW, RELOCATED TEL. CONDUIT, 3" CHLORINE LINE REMAINS (IN SERVICE), 12" DRAIN FOR C.S.#1, ADD CLEANOUT & ADAPTER CONC. ENCASED ADDENDUM NO.1 | DLT |
| | DR. V.A.W. | | | |
| CHK. | | 1/3/80 | | LG DBB |
| APPD. | | | | BY APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

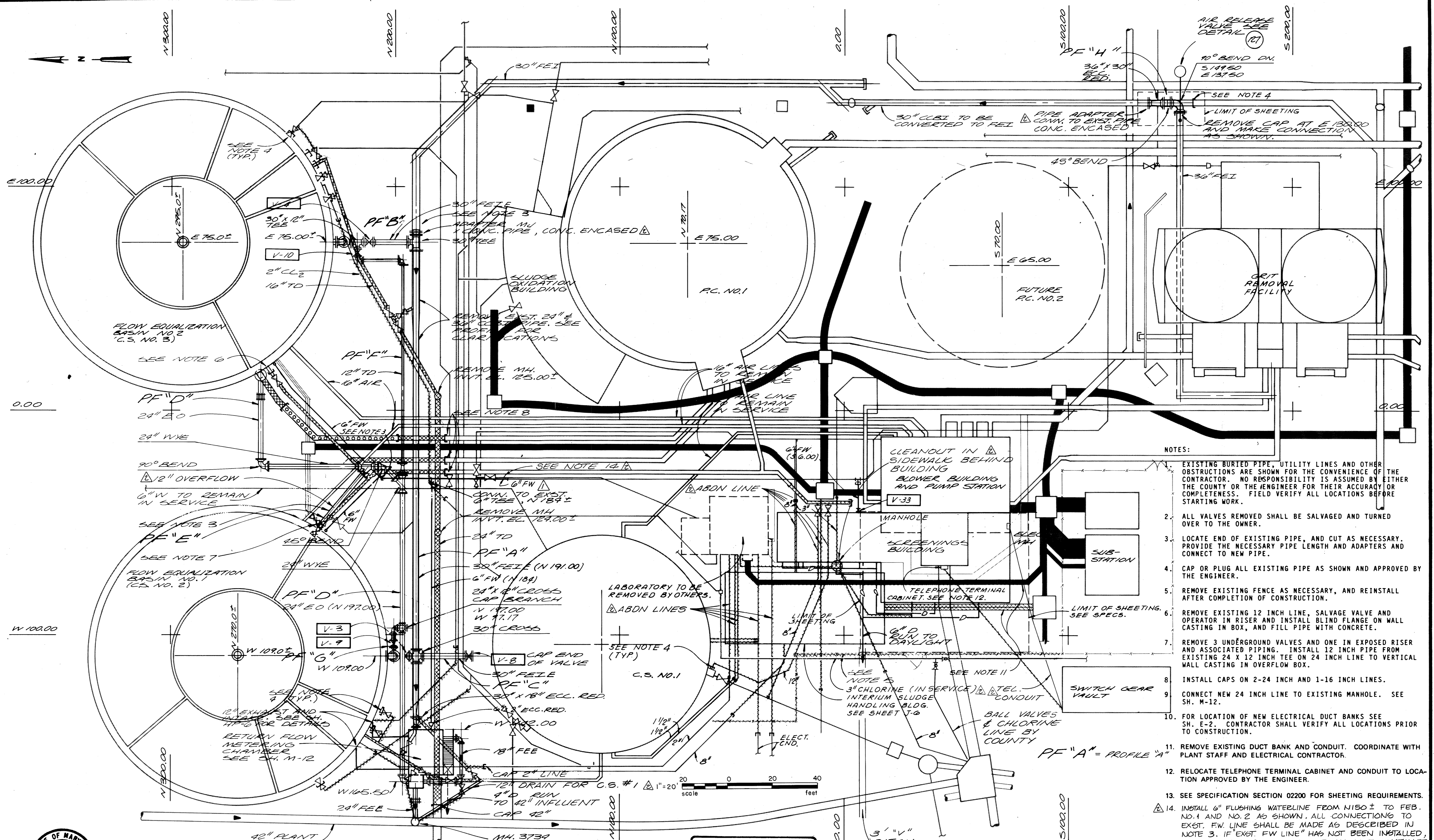
5/22/79
DATE

James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

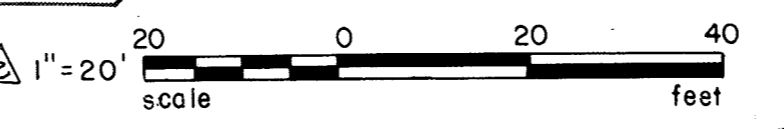
YARD PIPING PLAN
SITE

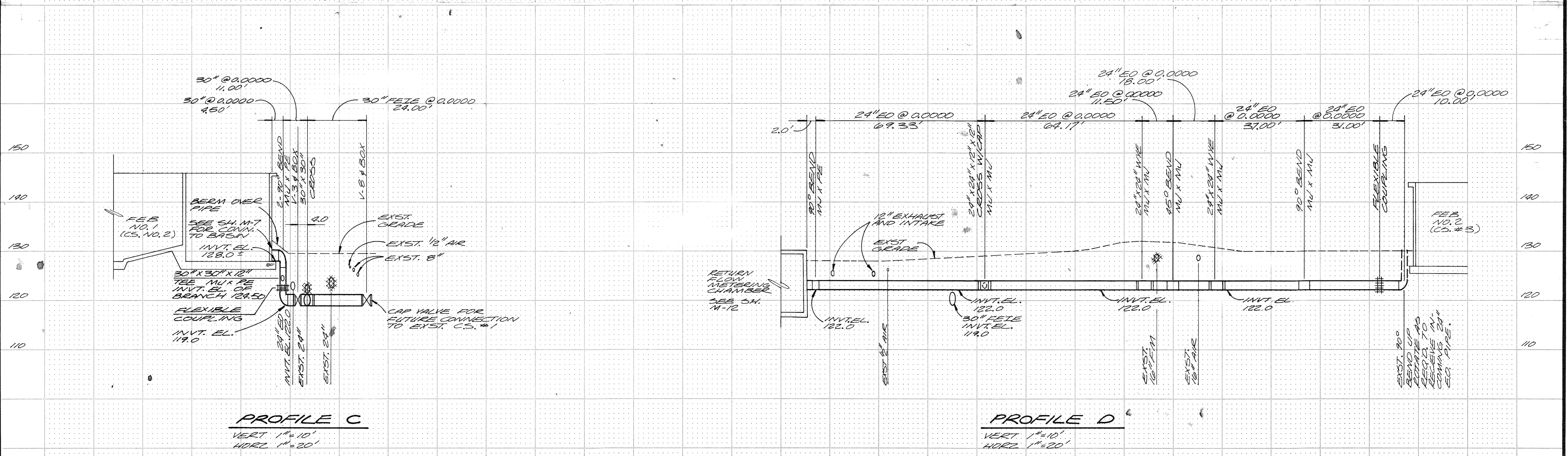
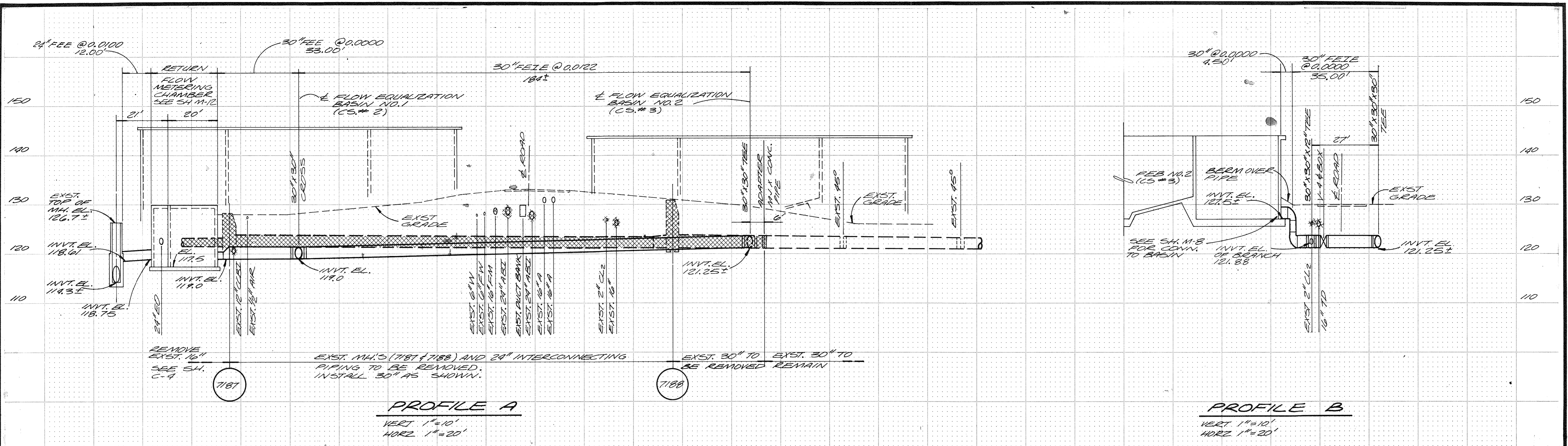
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| SHEET | C-4 |
| OF | |
| DATE | 8-78 |
| DWG NO. | W1078.CI |



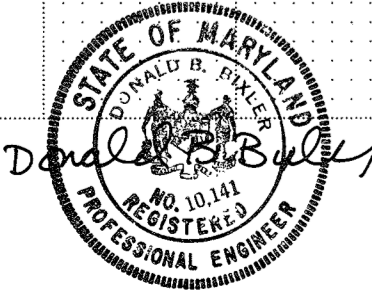
- NOTES:
- EXISTING BURIED PIPE, UTILITY LINES AND OTHER OBSTRUCTIONS ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. NO RESPONSIBILITY IS ASSUMED BY EITHER THE COUNTY OR THE ENGINEER FOR THEIR ACCURACY OR COMPLETENESS. FIELD VERIFY ALL LOCATIONS BEFORE STARTING WORK.
 - ALL VALVES REMOVED SHALL BE SALVAGED AND TURNED OVER TO THE OWNER.
 - LOCATE END OF EXISTING PIPE, AND CUT AS NECESSARY. PROVIDE THE NECESSARY PIPE LENGTH AND ADAPTERS AND CONNECT TO NEW PIPE.
 - CAP OR PLUG ALL EXISTING PIPE AS SHOWN AND APPROVED BY THE ENGINEER.
 - REMOVE EXISTING FENCE AS NECESSARY, AND REINSTALL AFTER COMPLETION OF CONSTRUCTION.
 - REMOVE EXISTING 12 INCH LINE, SALVAGE VALVE AND OPERATOR IN RISER AND INSTALL BLIND FLANGE ON WALL CASTING IN BOX, AND FILL PIPE WITH CONCRETE.
 - REMOVE 3 UNDERGROUND VALVES AND ONE IN EXPOSED RISER AND ASSOCIATED PIPING. INSTALL 12 INCH PIPE FROM EXISTING 24 X 12 INCH TEE ON 24 INCH LINE TO VERTICAL WALL CASTING IN OVERFLOW BOX.
 - INSTALL CAPS ON 2-24 INCH AND 1-16 INCH LINES.
 - CONNECT NEW 24 INCH LINE TO EXISTING MANHOLE. SEE SH. M-12.
 - FOR LOCATION OF NEW ELECTRICAL DUCT BANKS SEE SH. E-2. CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION.
 - REMOVE EXISTING DUCT BANK AND CONDUIT. COORDINATE WITH PLANT STAFF AND ELECTRICAL CONTRACTOR.
 - RELOCATE TELEPHONE TERMINAL CABINET AND CONDUIT TO LOCATION APPROVED BY THE ENGINEER.
 - SEE SPECIFICATION SECTION 02200 FOR SHEETING REQUIREMENTS.
 - INSTALL 6" FLUSHING WATERLINE FROM N150± TO FEB. NO.1 AND NO.2 AS SHOWN. ALL CONNECTIONS TO EXST. FW. LINE SHALL BE MADE AS DESCRIBED IN NOTE 3. IF EXST. FW. LINE HAS NOT BEEN INSTALLED, THE CONTRACTOR SHALL CAP ALL LINES INSTALLED ON THIS CONTRACT FOR FUTURE CONNECTION BY OTHERS.

RECORD DRAWING





RECORD DRAWING



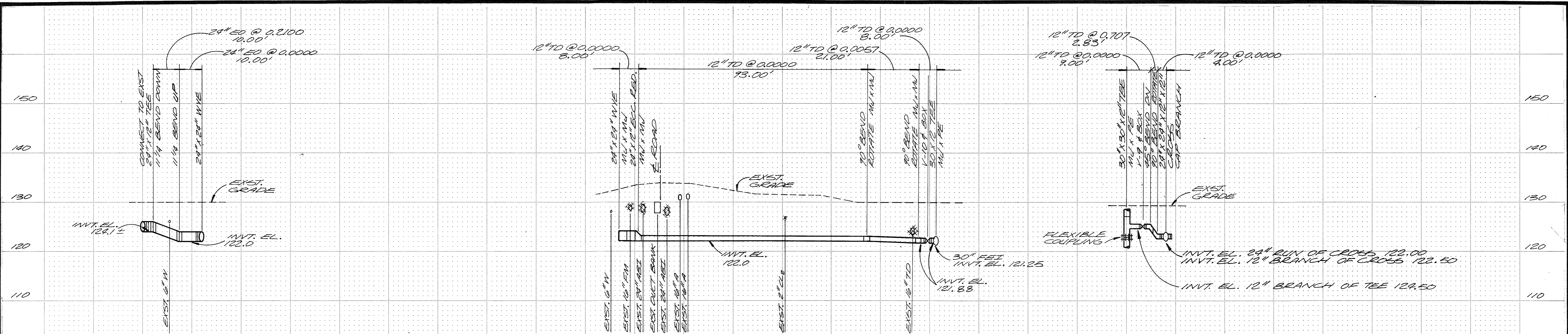
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|-------------------------|-----|------|----------|----|
| DES. <i>R.B.B./L.G.</i> | | | | |
| DR. <i>V.A.W.</i> | | | | |
| CHK. | | | | |
| APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE *8/29/79*
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

Savage Wastewater Treatment Plant
ADDITION NO. 4
CONTRACT NO. 764-S

PIPING PROFILES
SITE

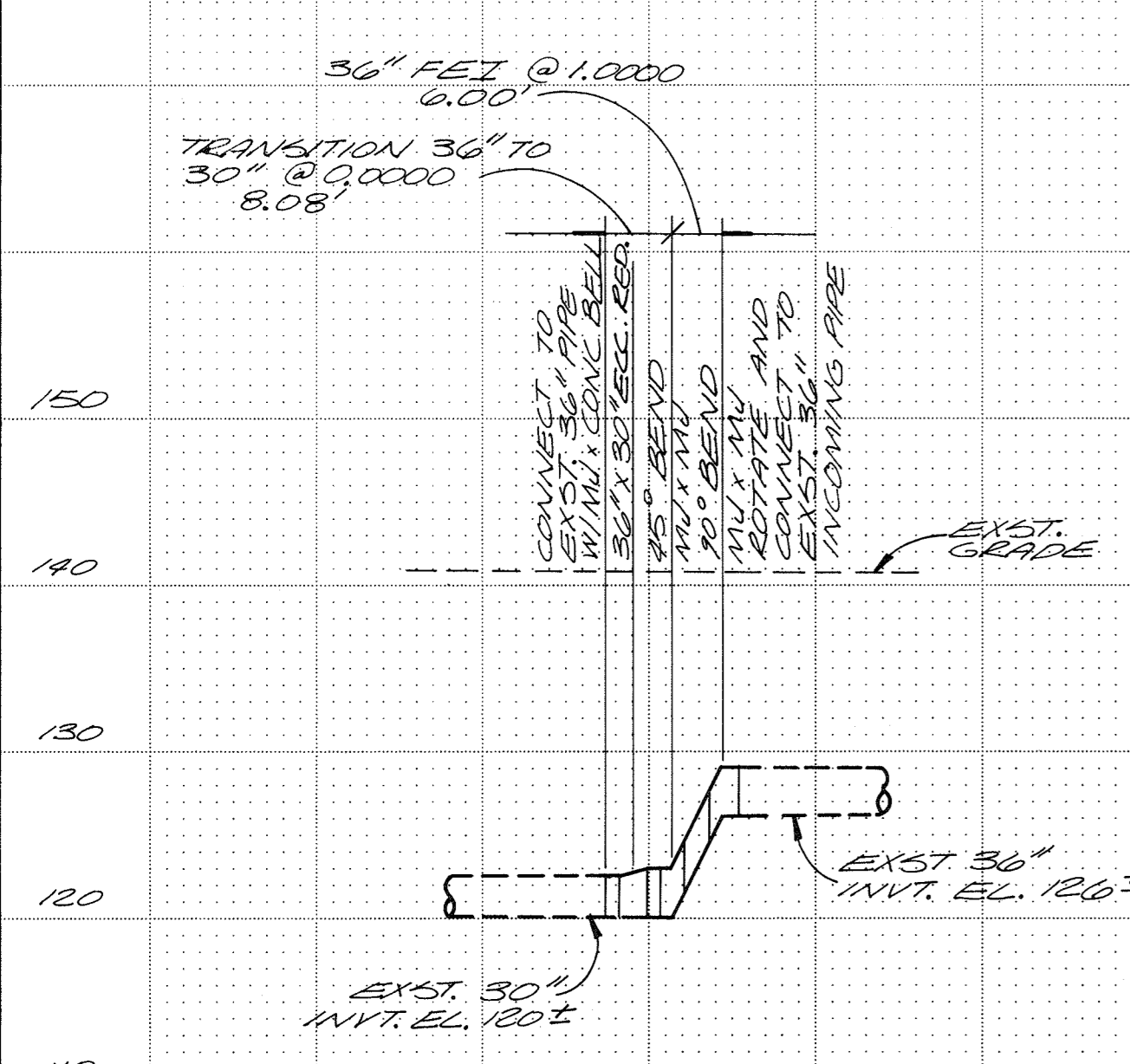
SHEET OF C-5
DATE 8-78
DWG. NO. W11078.C1



PROFILE E
 VERT 1"=10'
 HORIZ 1"=20'

PROFILE F
 VERT 1"=10'
 HORIZ 1"=20'

PROFILE G
 VERT 1"=10'
 HORIZ 1"=20'



PROFILE H
 VERT 1"=10'
 HORIZ 1"=20'

SITE PIPING
 DUCTILE IRON PIPING
 THICKNESS CLASS
 - 30 INCH - CLASS 53
 - 24 INCH - CLASS 51
 - 12 INCH - CLASS 51

RECORD DRAWING



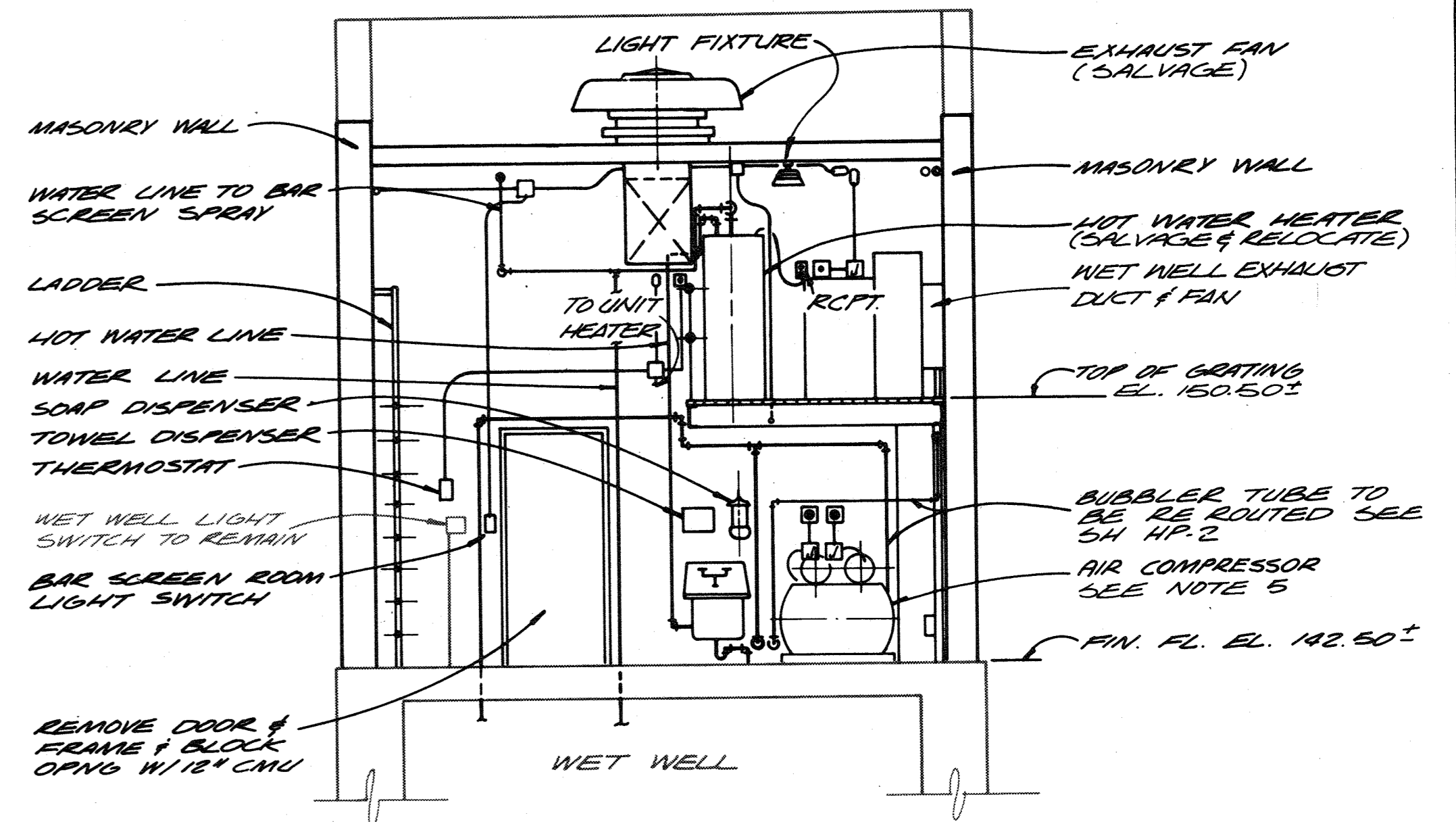
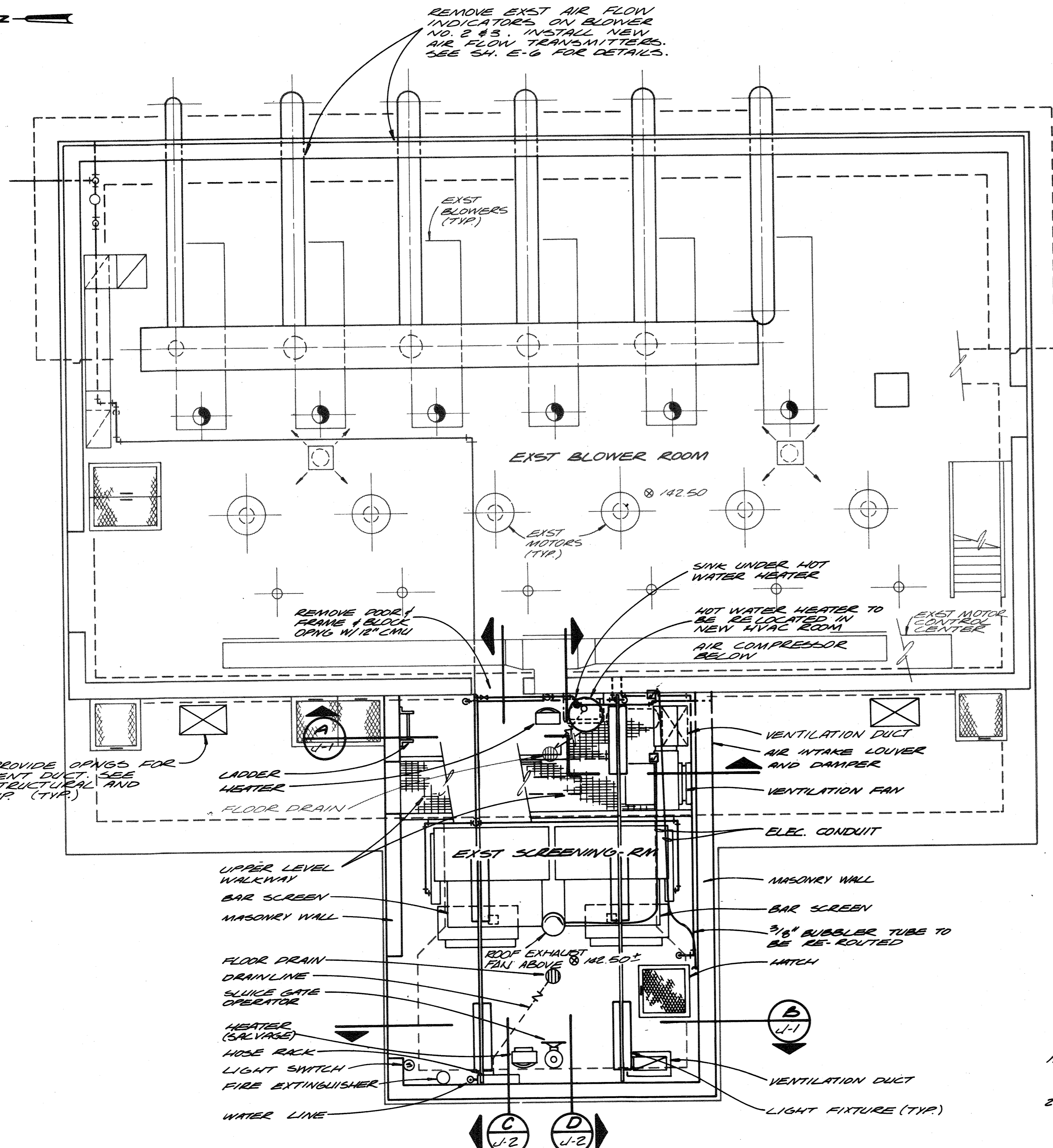
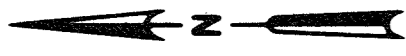
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|-------------------------|-----|------|----------|----|-------|
| DES. <i>D.B.B./L.G.</i> | | | | | |
| DR. <i>V.A.W.</i> | | | | | |
| CHK. | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE *5/28/79*
James M. Lewis
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

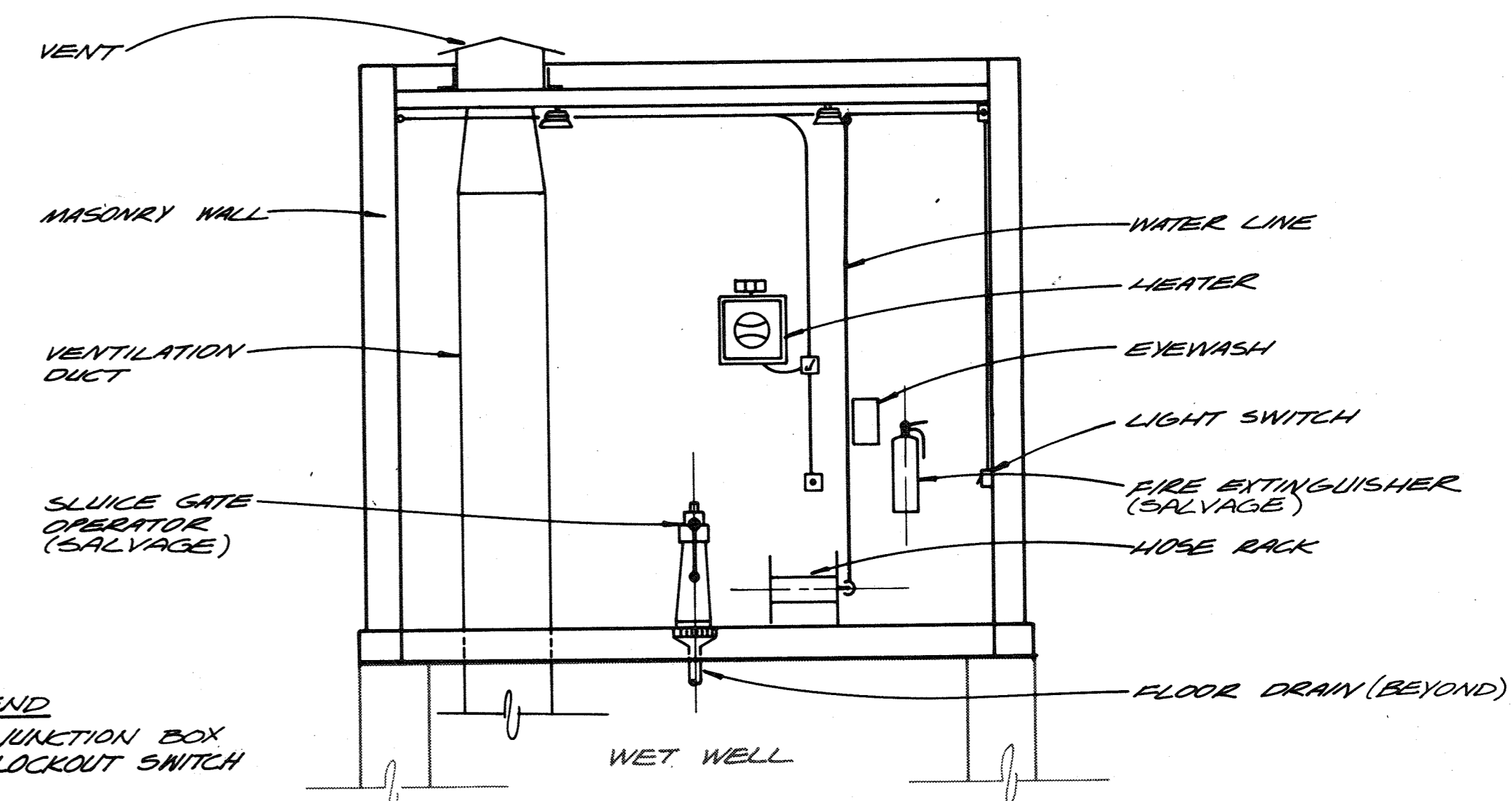
SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

PIPING PROFILES
 SITE

SHEET OF **C-6**
 DATE 8-78
 DWG. NO. W11078.C1



SECTION A
1/4" = 1'-0" J-1



SECTION B
1/4" = 1'-0" J-1

LEGEND
 - JUNCTION BOX
 - LOCKOUT SWITCH

- NOTE:**
1. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.
 2. PRIOR TO DEMOLITION OR CONSTRUCTION THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION OF THE EXST FACILITIES/EQUIPMENT.
 3. PRIOR TO DEMOLITION OR CONSTRUCTION THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS IN ORDER TO SEQUENCE THE OPERATION AS RECOMMENDED BY THE ENGINEER.
 4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXST FACILITIES & EQUIPMENT FROM DAMAGE DURING DEMOLITION OR CONSTRUCTION.
 5. THE EXISTING AIR COMPRESSOR AND BUBBLER TUBES SHALL REMAIN IN SERVICE UNTIL THE NEW BUBBLER SYSTEM IS READY FOR OPERATION.
 6. THE EXISTING BAR SCREENS MUST REMAIN IN SERVICE UNTIL NEW BAR SCREENS NO. 1 AND NO. 3 ARE OPERATIONAL.

DEMOLITION PLAN FOR EXISTING SCREENING ROOM
1/4" = 1'-0"

RECORD DRAWING

For Registration Drafting Use Only

| | |
|--------------------------|--------|
| S | BASE G |
| J-1 | BASE G |
| J-1 | BASE G |
| SCREEN COMPOSITE OVERLAY | |



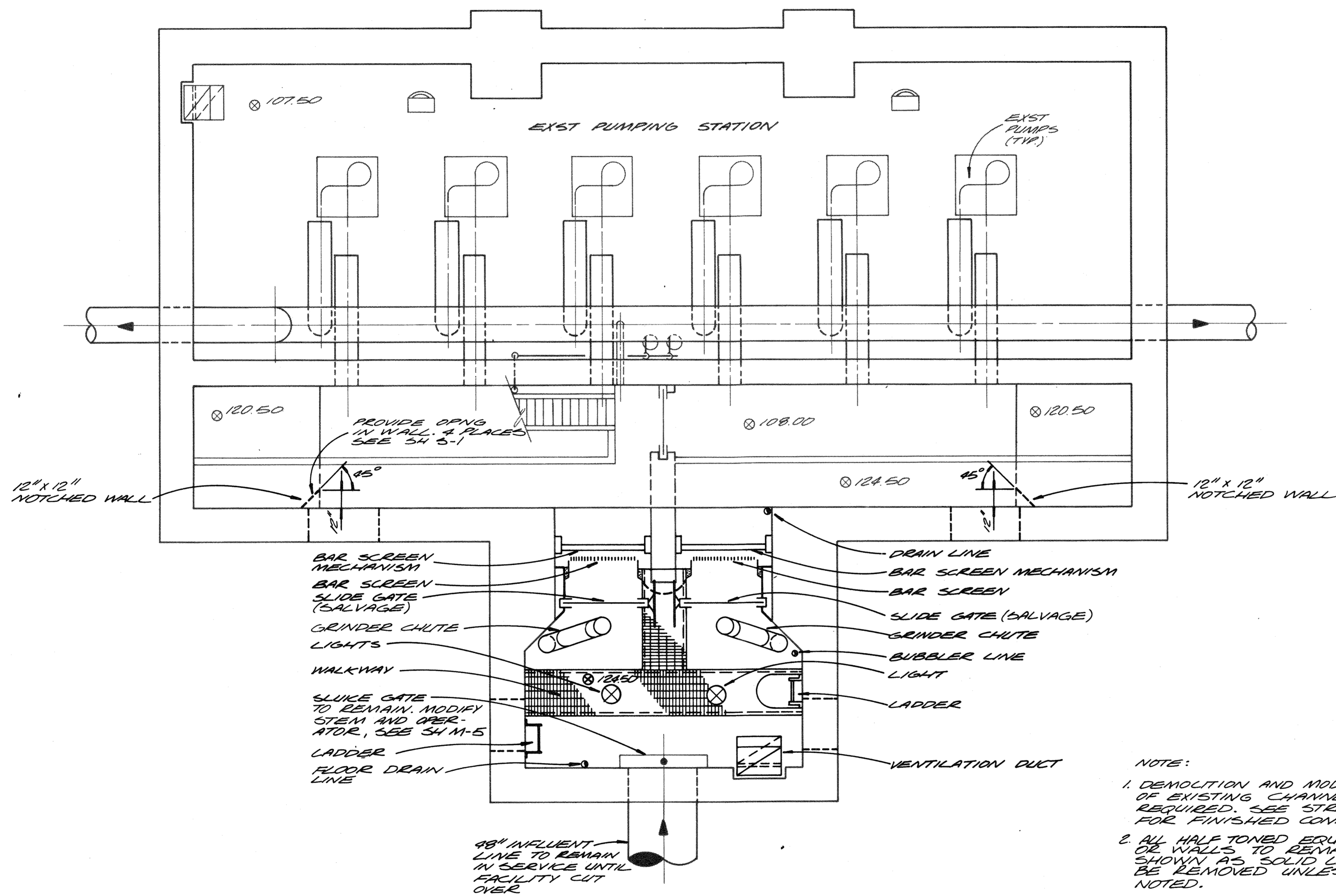
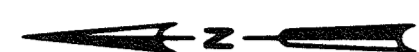
| | | | | | |
|-----------|---------------------|------|----------|----|-------|
| CH2M HILL | DES. <i>UBH/DBB</i> | | | | |
| | DR. <i>VAN</i> | | | | |
| | CHK. | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Law
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

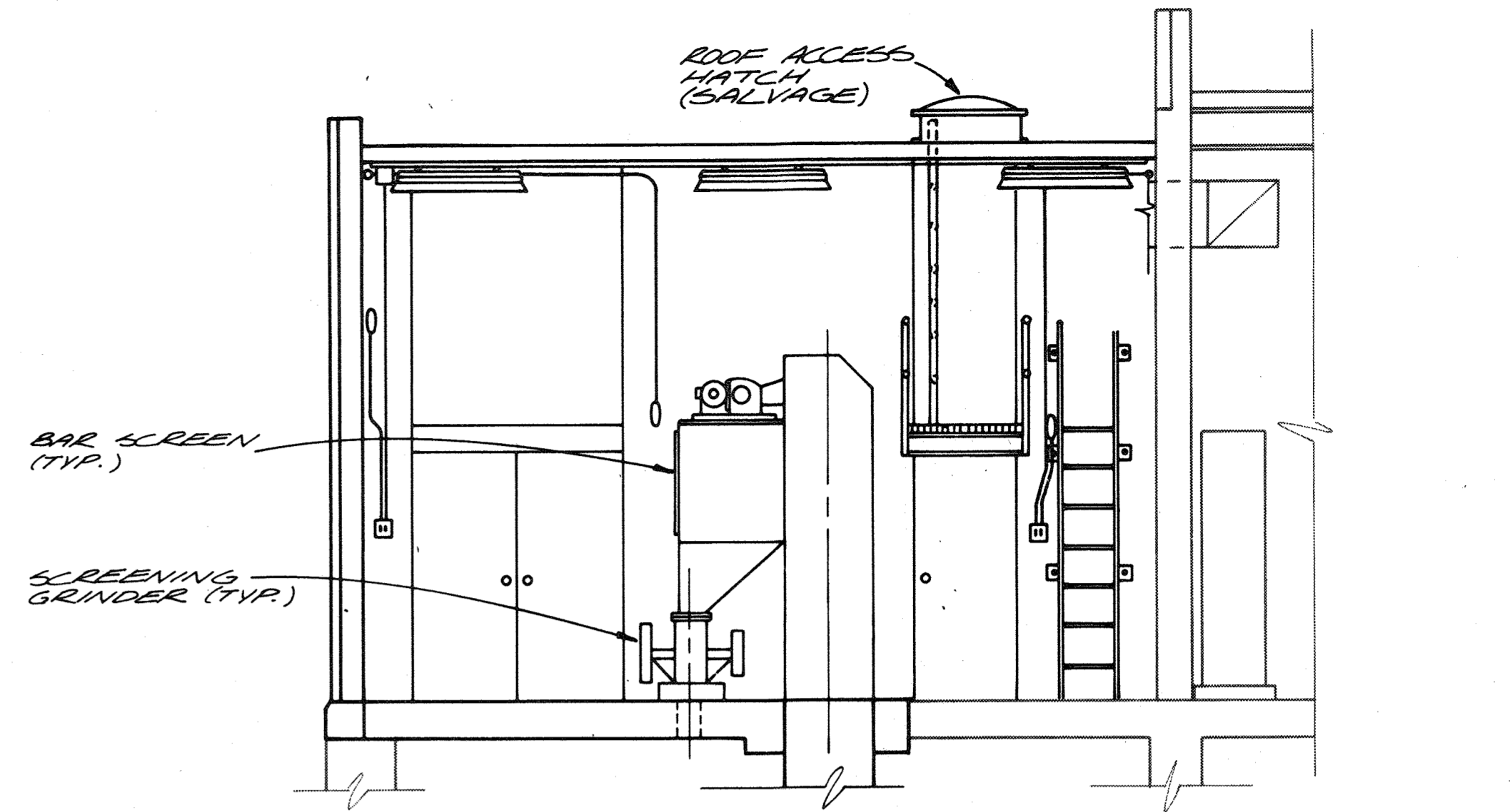
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
OPERATING ROOM PLAN
AND SECTIONS
DEMOLITION

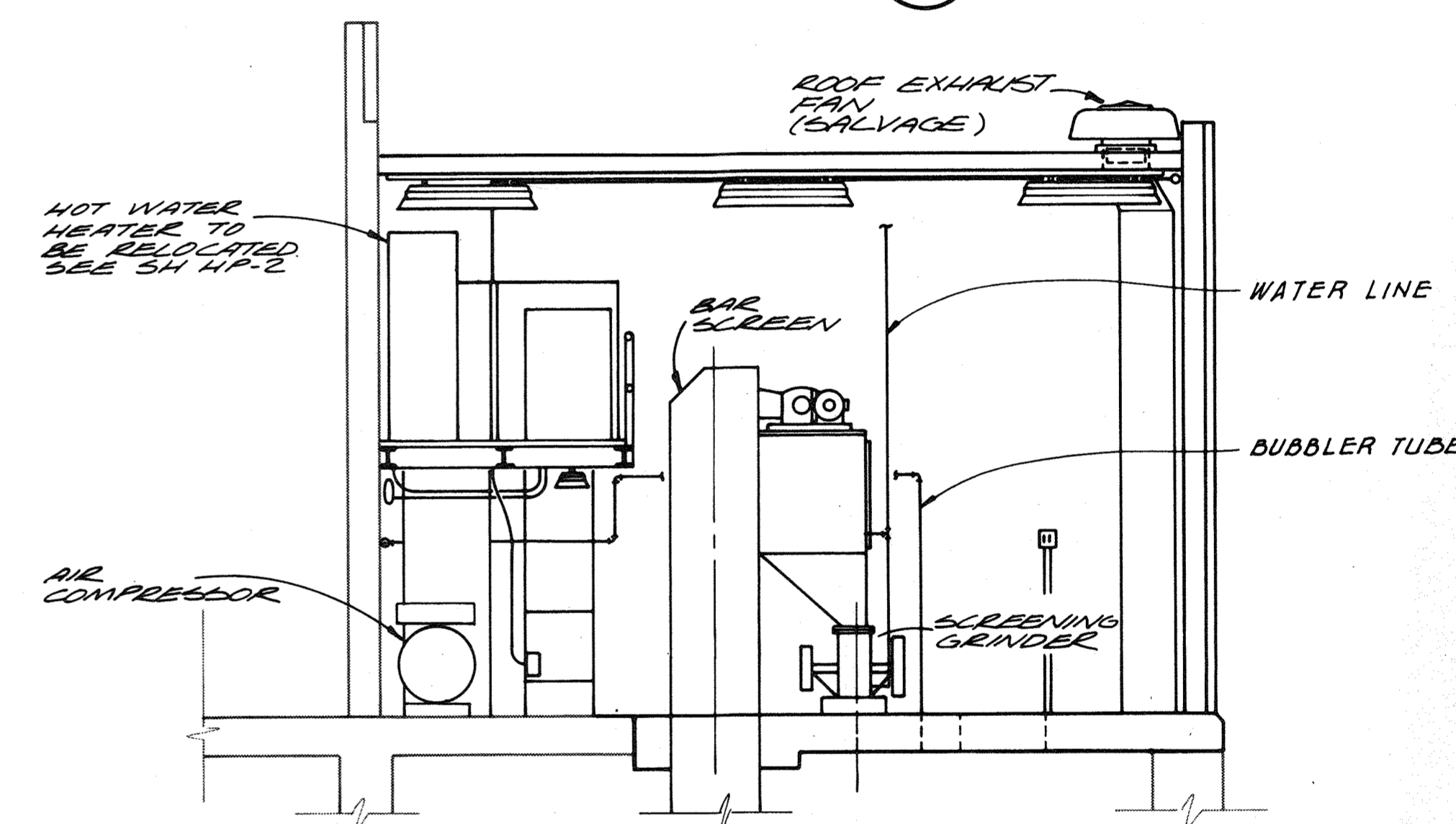
SHEET
OF **J-1**
DATE 8-78
DWG. NO. W1078.C1



DEMOLITION PLAN FOR EXISTING SCREENING CHAMBER
1/4" = 1'-0"

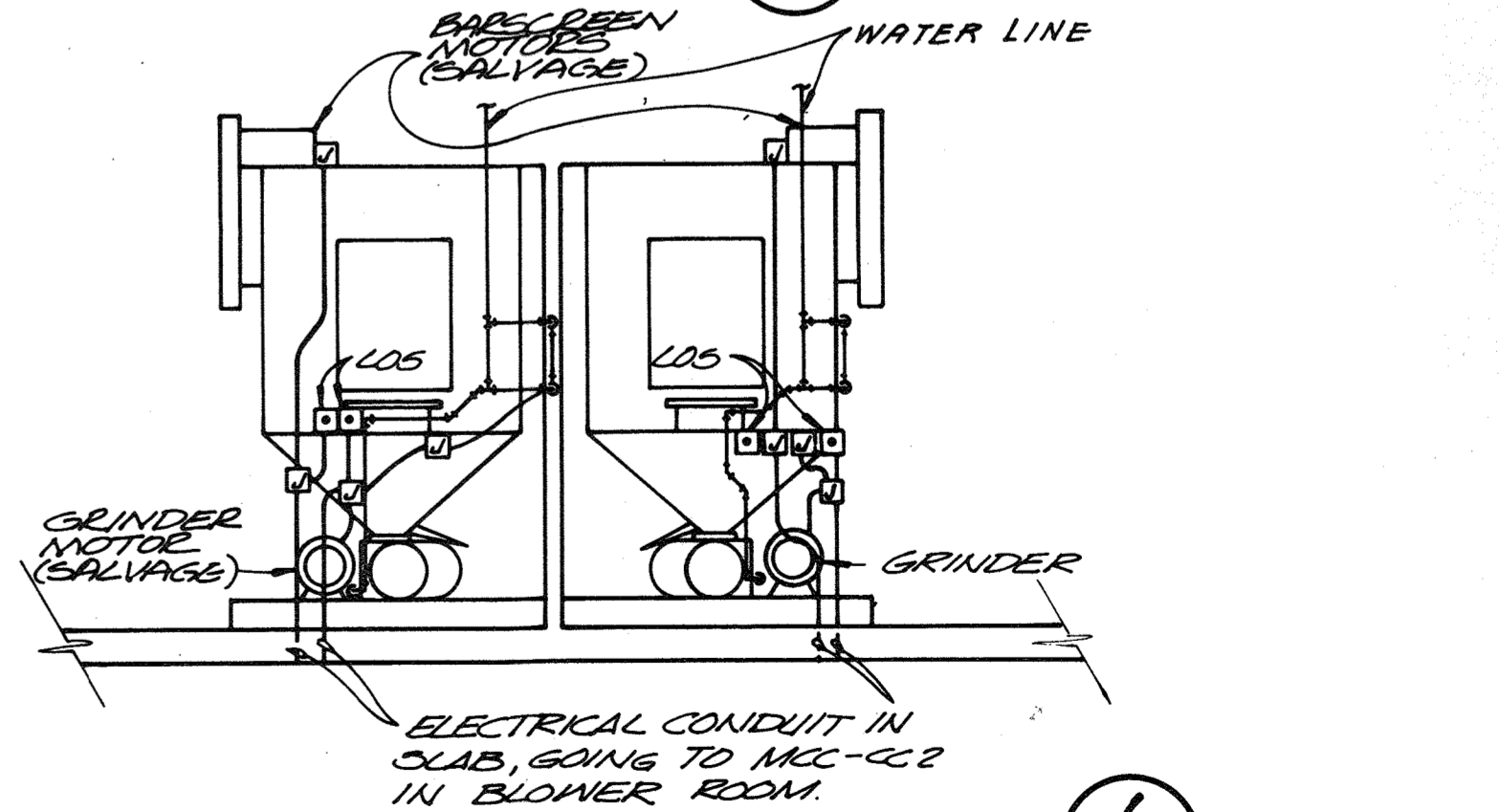


SECTION C
1/4" = 1'-0" J-1



SECTION D
1/4" = 1'-0" J-1

NOTE:
1. DEMOLITION AND MODIFICATION OF EXISTING CHANNEL IS REQUIRED. SEE STRUCTURAL DWGS FOR FINISHED CONFIGURATION
2. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.



BAR SCREEN DETAIL
1/4" = 1'-0" 1

For Registration Drafting Use Only
S
U-2
U-2
BASE 7
BASE 7
W1078.C1



| | | | | | | |
|-----------|--------------------|-----|------|----------|----|-------|
| CH2M HILL | DES. J.B.H./D.B.C. | | | | | |
| | DR. E.E.M./V.A.M. | | | | | |
| | CHK. | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. |

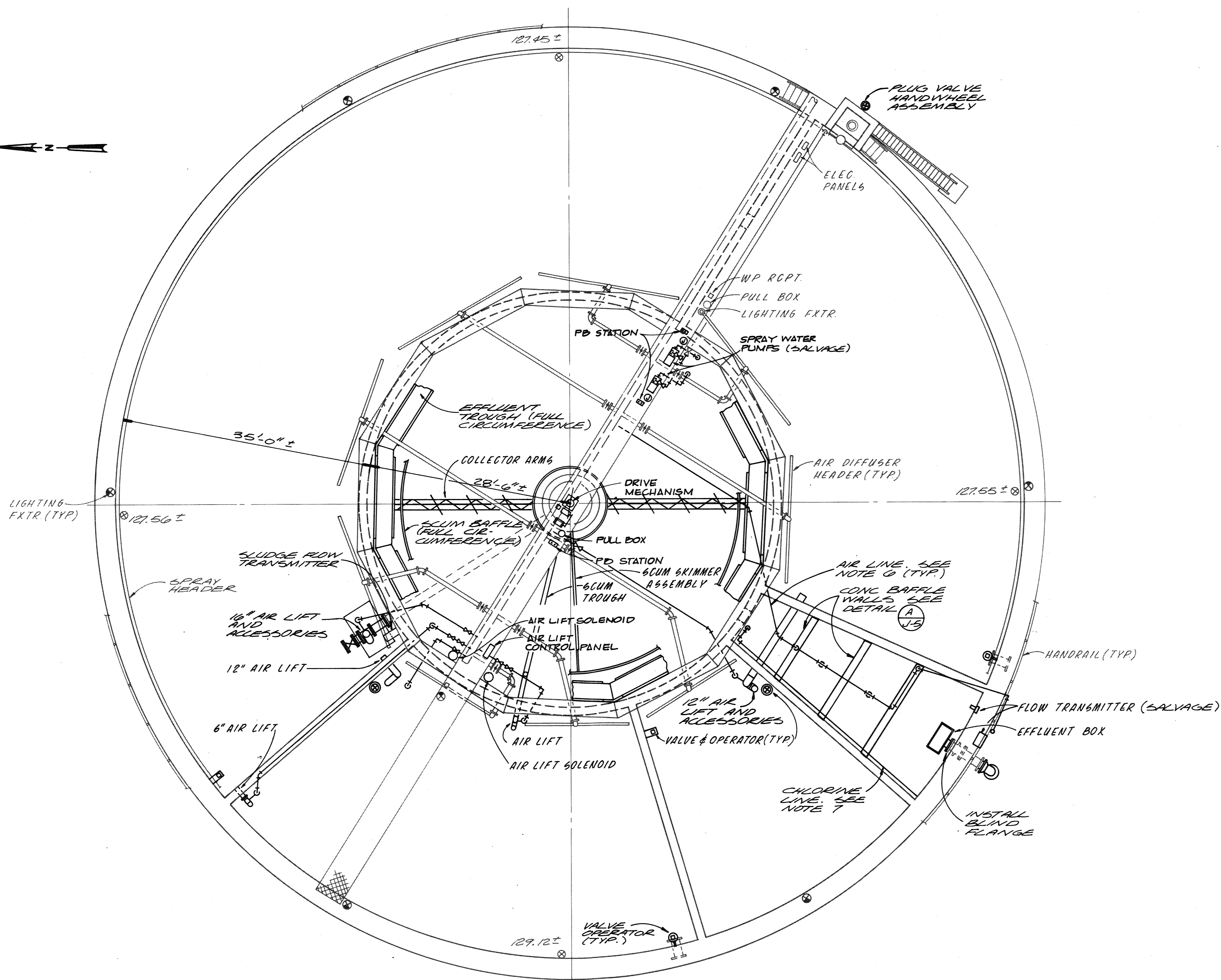
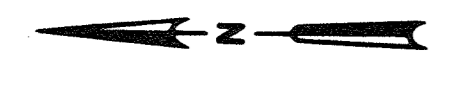
RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/21/79
DATE
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
BAR SCREEN LOWER LEVEL PLAN AND SECTIONS
DEMOLITION

SHEET
OF J-2
DATE 8-78
DWG. NO. W1078.C1



NOTES:

1. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.
2. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION OF THE EXISTING FACILITIES AND EQUIPMENT.
3. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS IN ORDER TO CLEARLY SEQUENCE THE OPERATION AS RECOMMENDED BY THE ENGINEER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING FACILITIES AND EQUIPMENT FROM DAMAGE DURING DEMOLITION OR CONSTRUCTION.
5. REFER TO SPECIFICATIONS SECTION 09900 FOR INFORMATION PERTAINING TO SURFACE PREPARATION AND PAINTING OF EXISTING METALS TO REMAIN.
6. ALL AIR LINES DESIGNATED TO BE REMOVED SHALL BE CAPPED. LENGTH OF REMAINING BRANCH STUB SHALL NOT EXCEED 6 INCHES.
7. THE CHLORINE LINE AND ACCESSORIES SHALL BE REMOVED.
8. SEE SH. M-7 FOR ADDITIONAL DETAILS.
9. SEE SH. M-7 FOR ADDITIONAL WALL OPENINGS AND WALL PIPE INSTALLATIONS REQUIRED.
10. EXISTING ELECTRICAL CONDUIT IS NOT SHOWN. THE CONTRACTOR SHALL REMOVE ALL CONDUIT AND MOUNTING ACCESSORIES CONNECTING TO EQUIPMENT TO BE REMOVED. THE CONDUIT SHALL BE REMOVED TO THE NEAREST JUNCTION BOX TO REMAIN IN SERVICE AND BE CAPPED. THE CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND ISOLATE ALL CONDUIT TO BE REMOVED, AND RECEIVE APPROVAL FROM THE ENGINEER PRIOR TO DEMOLITION.
11. TREATMENT UNIT NO. 2 SHALL BE REMOVED FROM SERVICE BY TREATMENT PLANT STAFF. CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING AND CLEANING OF TANK.

DEMOLITION PLAN FOR TREATMENT UNIT NO. 2 (F.E.B. NO. 1)
 1/8" = 1'-0"
RECORD DRAWING

For Registration Drafting Use Only

| | | | | |
|-----------|-----|------|------|----------|
| SCREEN | S | BASE | BASE | W1078.C1 |
| COMPOSITE | J-3 | BASE | BASE | |
| OVERLAY | J-3 | BASE | BASE | |

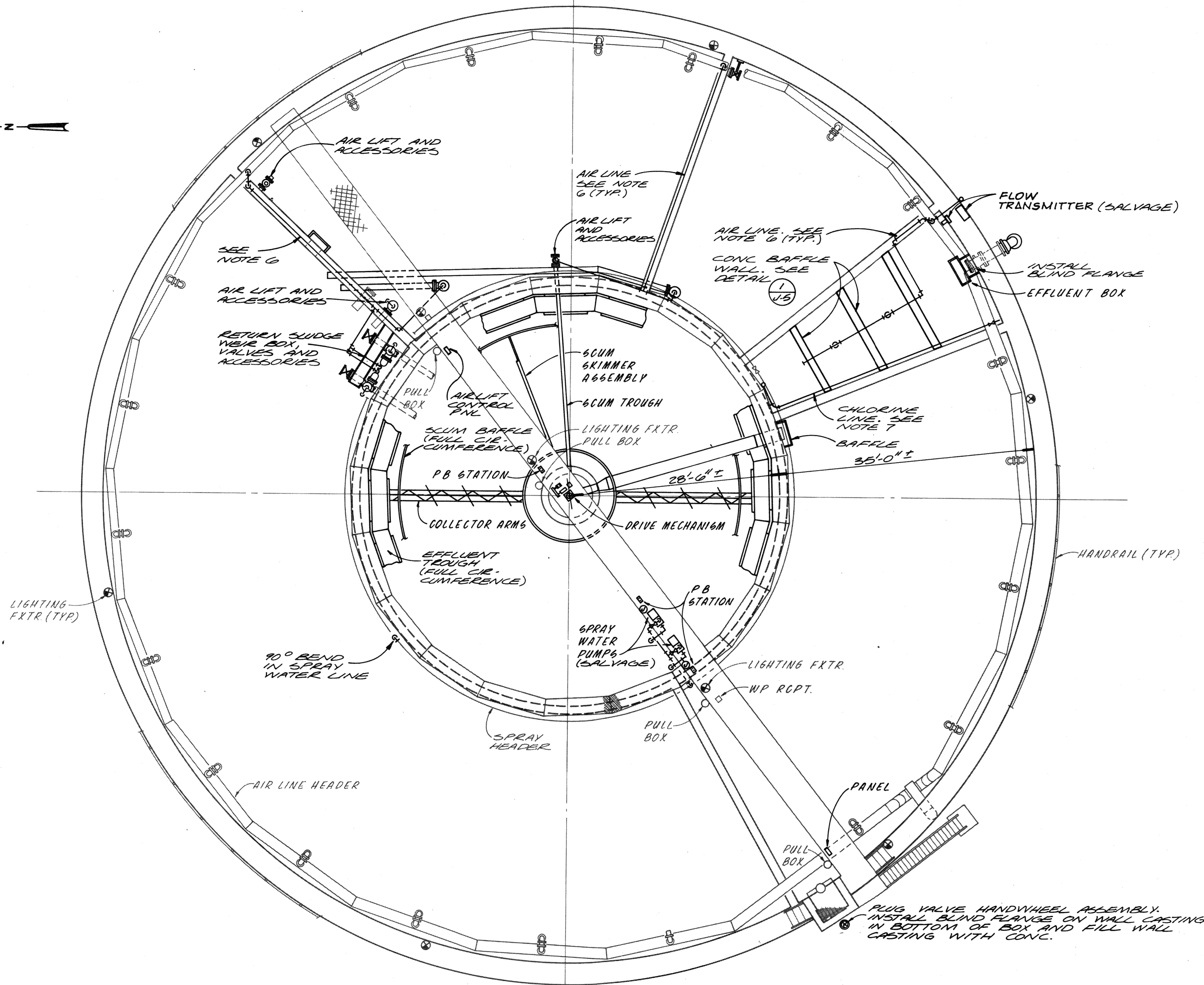
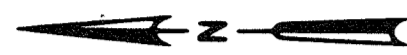


| | | | | | | | |
|------------------|-------------|------|----------|----|-------|--|--|
| CH2M HILL | DES. D.B.B. | | | | | | |
| | DR. TAB. | | | | | | |
| | CHK. | | | | | | |
| | APPD. | | | | | | |
| | NO. | DATE | REVISION | BY | APPD. | | |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
James M. ...
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

| | | |
|-------------------------|--|-------------------|
| FLOW EQUALIZATION BASIN | | SHEET |
| TREATMENT UNIT NO. 2 | | OF J-3 |
| DEMOLITION | | DATE 8-78 |
| | | DWG. NO. W1078.C1 |



NOTES:

1. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.
2. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION OF THE EXISTING FACILITIES AND EQUIPMENT.
3. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS IN ORDER TO CLEARLY SEQUENCE THE OPERATION AS RECOMMENDED BY THE ENGINEER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING FACILITIES AND EQUIPMENT FROM DAMAGE DURING DEMOLITION OR CONSTRUCTION.
5. REFER TO SPECIFICATIONS SECTION 09900 FOR INFORMATION PERTAINING TO SURFACE PREPARATION AND PAINTING OF EXISTING METALS TO REMAIN.
6. ALL AIR LINES DESIGNATED TO BE REMOVED SHALL BE CAPPED. LENGTH OF REMAINING BRANCH STUB SHALL NOT EXCEED 6 INCHES.
7. THE CHLORINE LINE AND ACCESSORIES SHALL BE REMOVED.
8. SEE SH. M-8 FOR ADDITIONAL DETAILS.
9. SEE SH. M-8 FOR ADDITIONAL WALL OPENINGS AND WALL PIPE INSTALLATIONS REQUIRED.
10. EXISTING ELECTRICAL CONDUIT IS NOT SHOWN. THE CONTRACTOR SHALL REMOVE ALL CONDUIT AND MOUNTING ACCESSORIES CONNECTING TO EQUIPMENT TO BE REMOVED. THE CONDUIT SHALL BE REMOVED TO THE NEAREST JUNCTION BOX TO REMAIN IN SERVICE AND BE CAPPED. THE CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND ISOLATE ALL CONDUIT TO BE REMOVED, AND RECEIVE APPROVAL FROM THE ENGINEER PRIOR TO DEMOLITION.
11. TREATMENT UNIT NO. 2 SHALL BE REMOVED FROM SERVICE BY TREATMENT PLANT STAFF. CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINING AND CLEANING OF TANK.

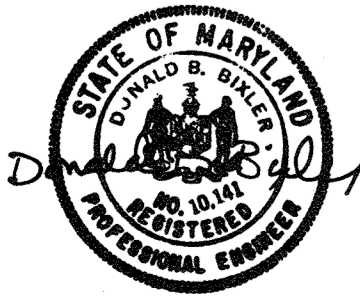
DEMOLITION PLAN FOR TREATMENT UNIT NO.3 (FEB NO.2)

1/8" = 1'-0"

RECORD DRAWING

For Registration Drafting Use Only

| | | |
|--------------------------|--------|----------|
| 5 | BASE 9 | WI078.C1 |
| J-4 | BASE 9 | |
| J-4 | BASE 9 | |
| SCREEN COMPOSITE OVERLAY | | |



| | | | | |
|-------------|-----|------|----------|----------|
| DES. P.B.B. | | | | |
| DR. T.A.S. | | | | |
| CHK. | | | | |
| APPD. | NO. | DATE | REVISION | BY APPD. |

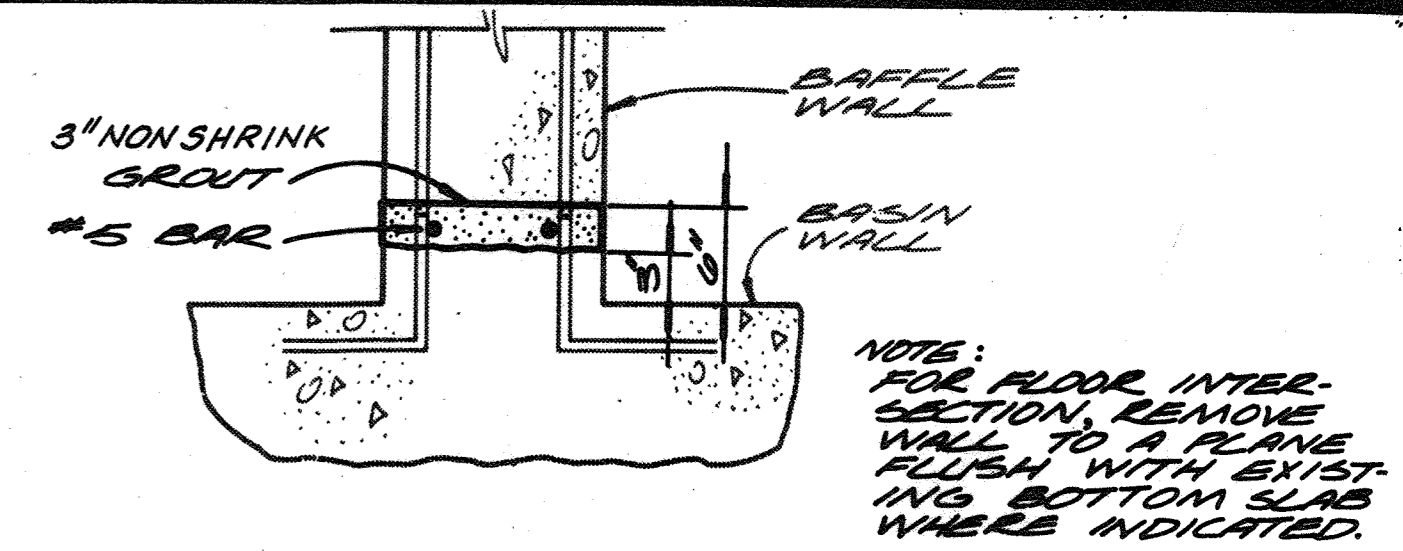
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James McLawin
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

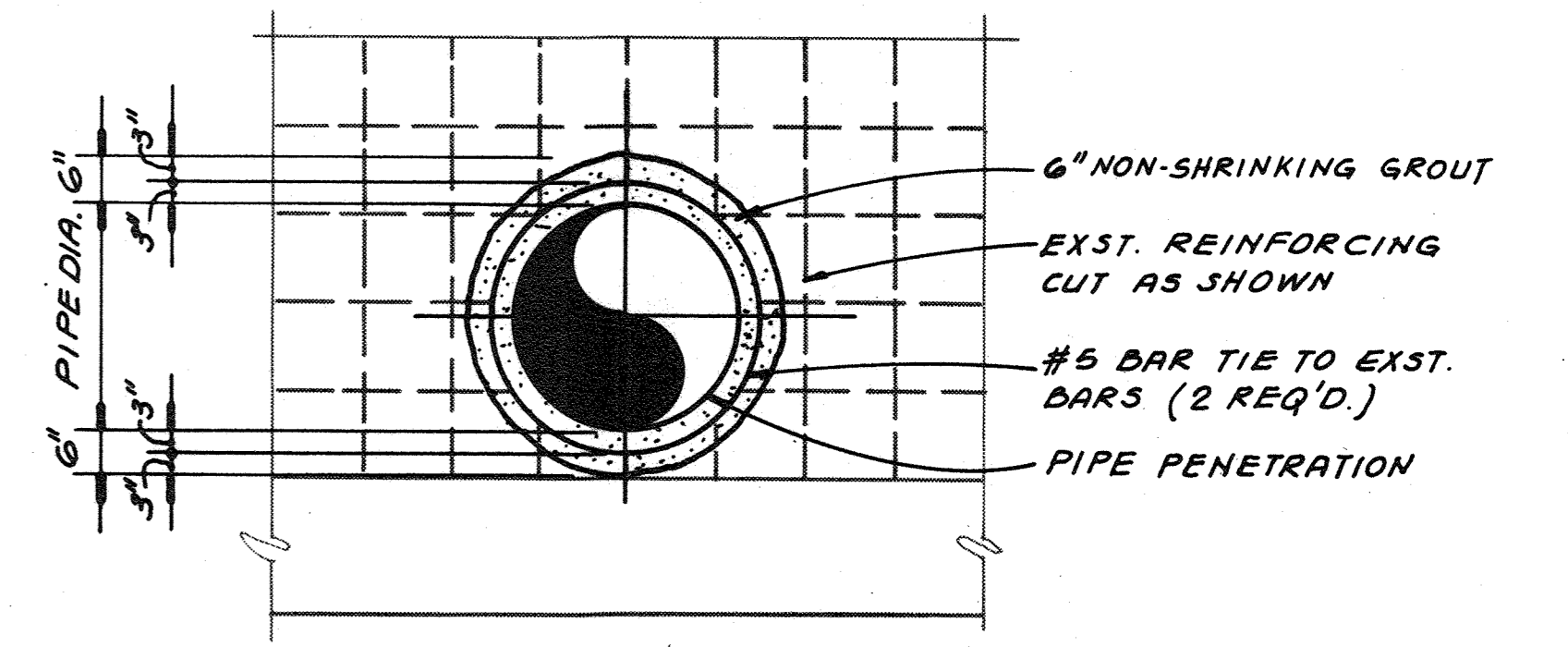
FLOW EQUALIZATION BASIN
TREATMENT UNIT NO.3

DEMOLITION

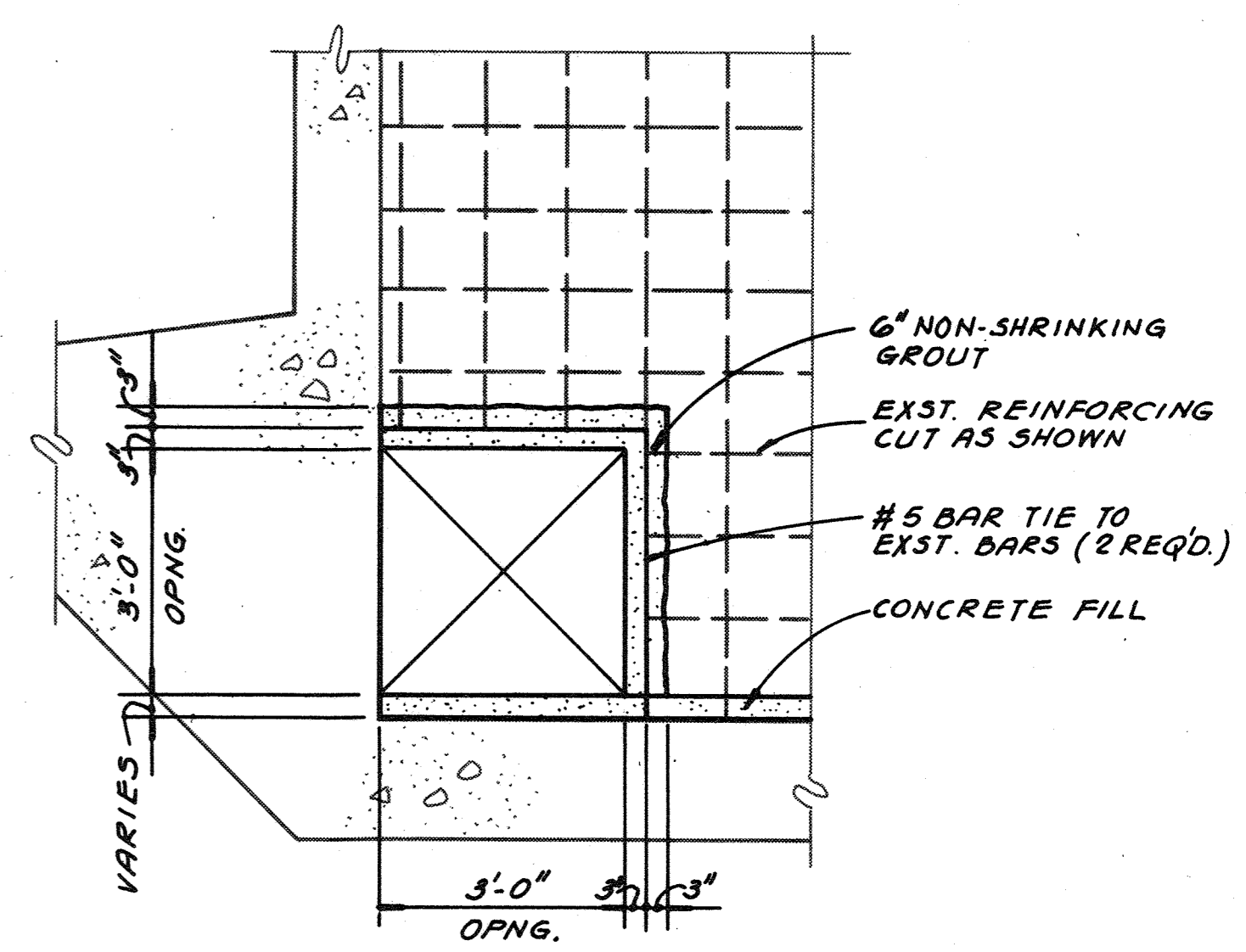
SHEET OF J-4
DATE 8-78
DWG. NO. WI078.C1



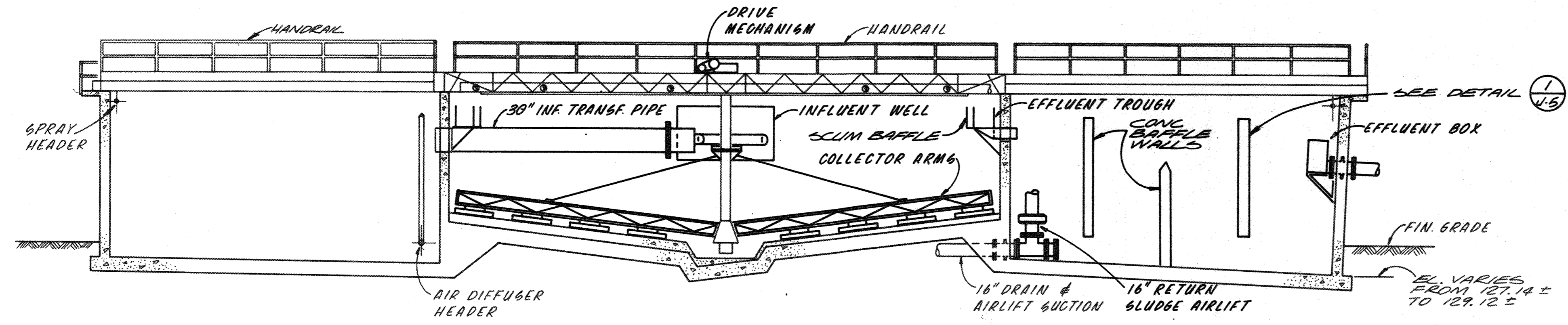
WALL INTERSECTION DETAIL 1
J-3, J-4, J-5



WALL OPENING DETAIL 2
M-7, M-8

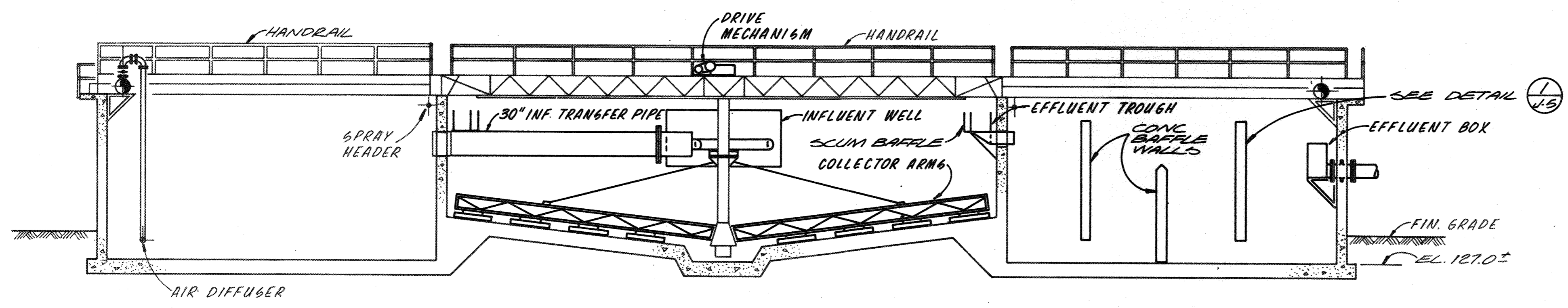


WALL OPENING DETAIL 3
N.T.S. M-7, M-8



COMPOSITE SECTION - TREATMENT UNIT No. 2
DEMOLITION
1/8" = 1'-0"

NOTE:
1. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.
2. BASIN TO BE REUSED AS FEB NO. 1



COMPOSITE SECTION - TREATMENT UNIT No. 3
DEMOLITION
1/8" = 1'-0"

NOTE:
1. ALL HALF TONED EQUIPMENT OR WALLS TO REMAIN, ITEMS SHOWN AS SOLID LINES TO BE REMOVED UNLESS OTHERWISE NOTED.
2. BASIN TO BE REUSED AS FEB NO. 2.

For Registration Drafting Use Only

| | | |
|-----------|---------|---------|
| SCREEN | J-5 | J-5 |
| COMPOSITE | BASE 10 | BASE 10 |
| OVERLAY | | |



| | | | | | |
|-----------|-----|------|----------|----|-------|
| DES. DBB | | | | | |
| DR. T A S | | | | | |
| CHK. | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James J. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

Savage Wastewater Treatment Plant
ADDITION NO. 4
CONTRACT NO. 764-S

FLOW EQUALIZATION BASIN
COMPOSITE SECTION FOR
TREATMENT UNIT NO. 2 & 3
DEMOLITION

SHEET
OF J-5
DATE 8-78
DWG. NO. W11078.C1



FERRIC CHLORIDE STORAGE TANK

POLYMER STORAGE TANK

POLYMER DAY TANK

FERRIC CHLORIDE DAY TANK

POLYMER SUPPLY PUMP

FERRIC CHLORIDE FEED PUMP

POLYMER FEED PUMP

VACUUM AND FILTRATE ASSEMBLY

CONDITIONING TANK

SLUDGE FEED PUMP

VACUUM FILTER

SLUDGE CONVEYOR

CONTROL ROOM

MOTOR CONTROL CENTER

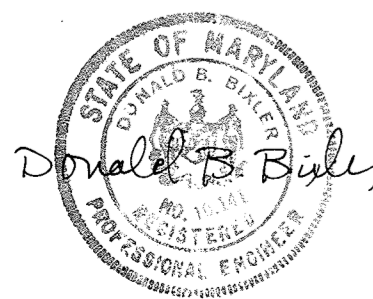
NOTES:

1. THE PURPOSE OF THIS KEY PLAN IS TO IDENTIFY ITEMS OF EQUIPMENT AND TO REFERENCE RECORD DRAWINGS PRESENTED IN THE APPENDIX. NO RESPONSIBILITY IS ASSUMED BY EITHER THE COUNTY OR THE ENGINEER FOR THEIR ACCURACY OR COMPLETENESS. FIELD VERIFY ALL LOCATIONS BEFORE STARTING WORK.
2. PRIOR TO REMOVAL OF THE FACILITY, THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS IN ORDER TO SEQUENCE THE WORK.
3. ORIGINAL CONTRACT DRAWINGS AND SHOP DRAWINGS ARE PRESENTED AS RECORD DRAWINGS IN THE APPENDIX. THESE DRAWINGS REPRESENT THE BEST AVAILABLE INFORMATION ABOUT THE EXISTING INTERIUM SLUDGE HANDLING FACILITY. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. NO RESPONSIBILITY IS ASSUMED BY EITHER THE COUNTY OR THE ENGINEER FOR THEIR ACCURACY OR COMPLETENESS.

EXISTING INTERIUM SLUDGE HANDLING FACILITY - KEY PLAN

1/4" = 1'-0"

RECORD DRAWING



| | | | | | |
|--|-------------|-----|------|----------|----|
| | DES. D.B.B. | | | | |
| | DR. L.G. | | | | |
| | CHK. | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/78
DATE

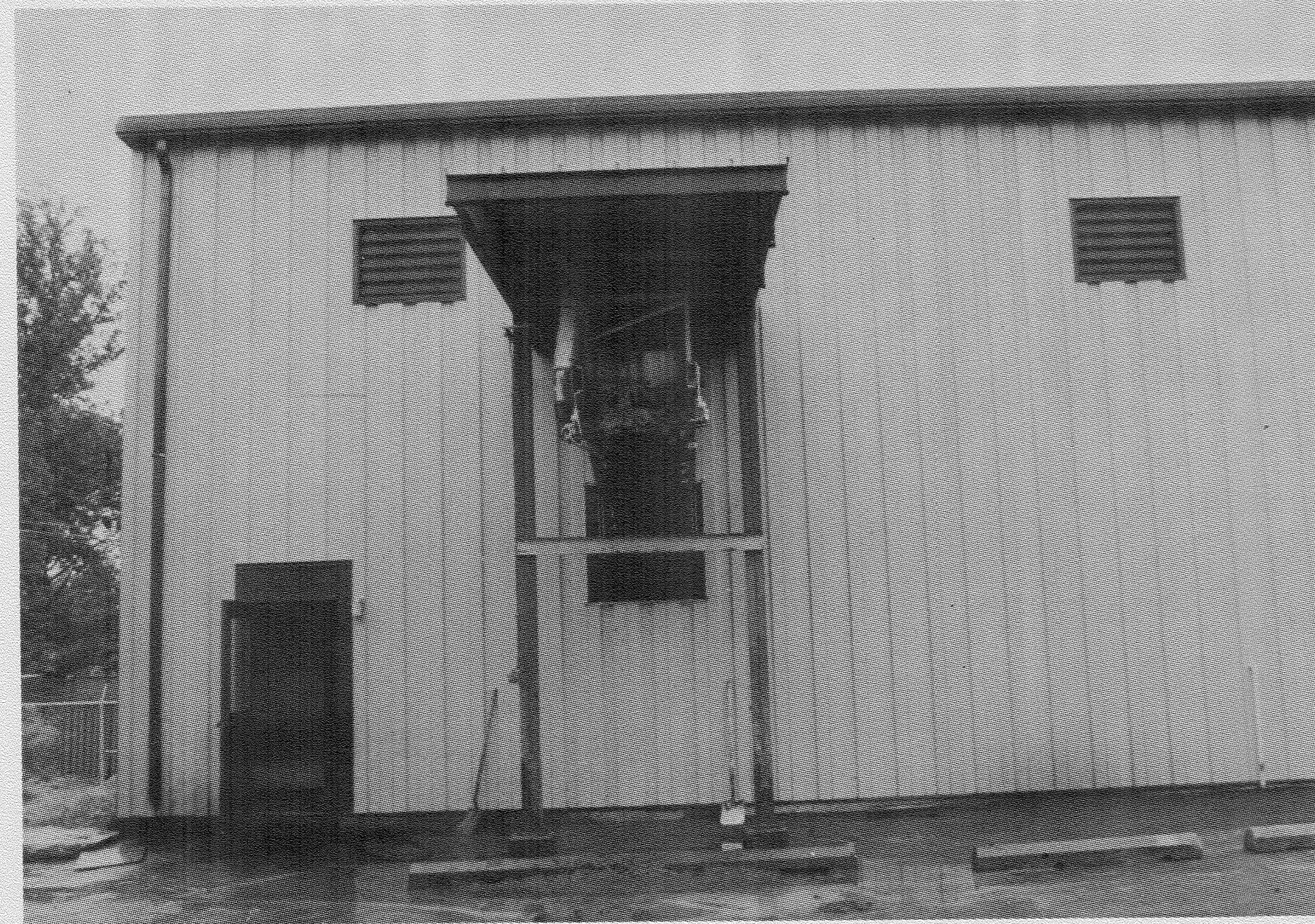
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

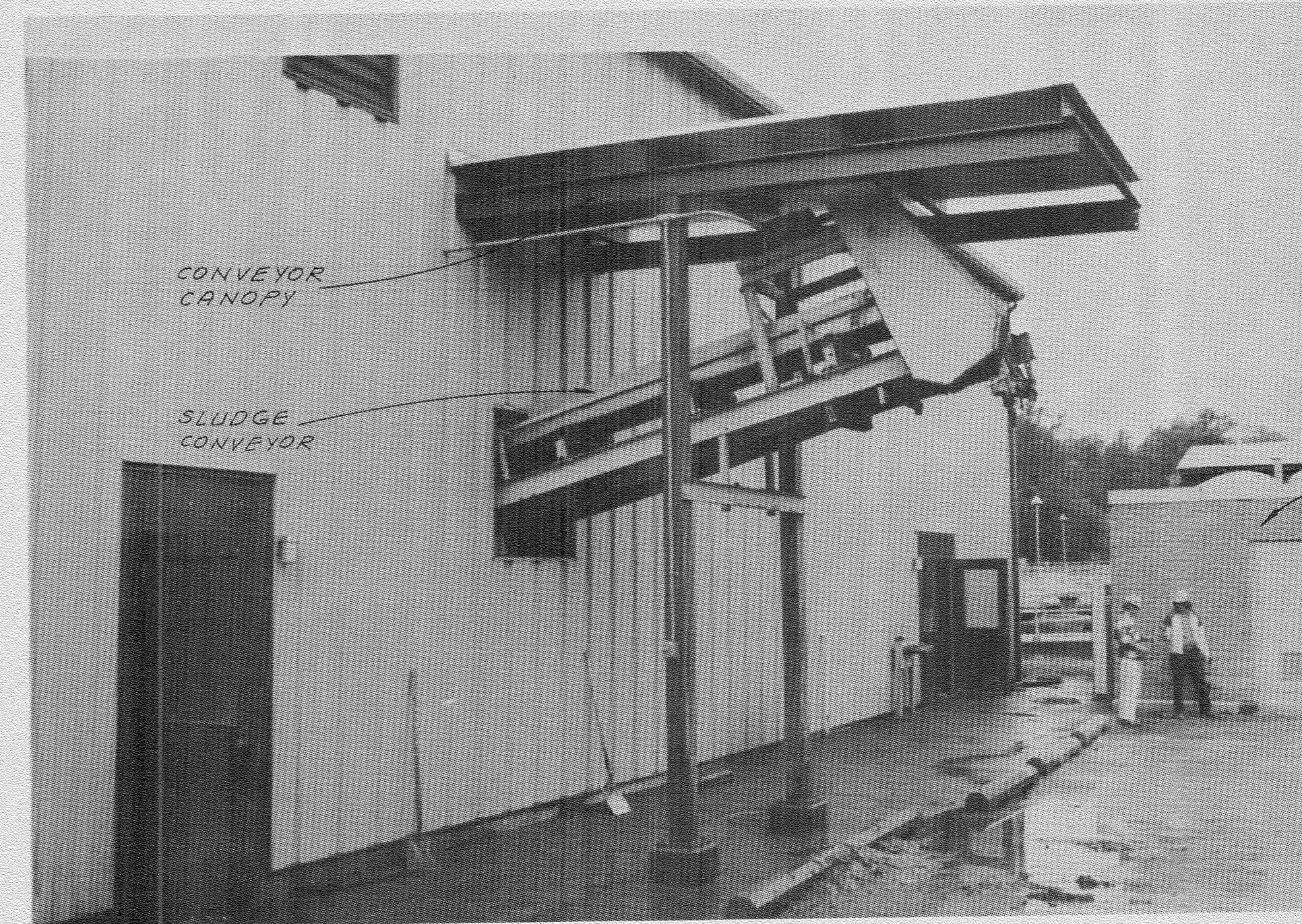
SCREENING FACILITY
INTERIUM SLUDGE HANDLING FACILITY
KEY PLAN
DEMOLITION

SHEET
OF
J-6
DATE 8-78
DWG.
NO. W11078.C1

PRELIMINARY



EAST ELEVATION (A)
N.T.S. J-6



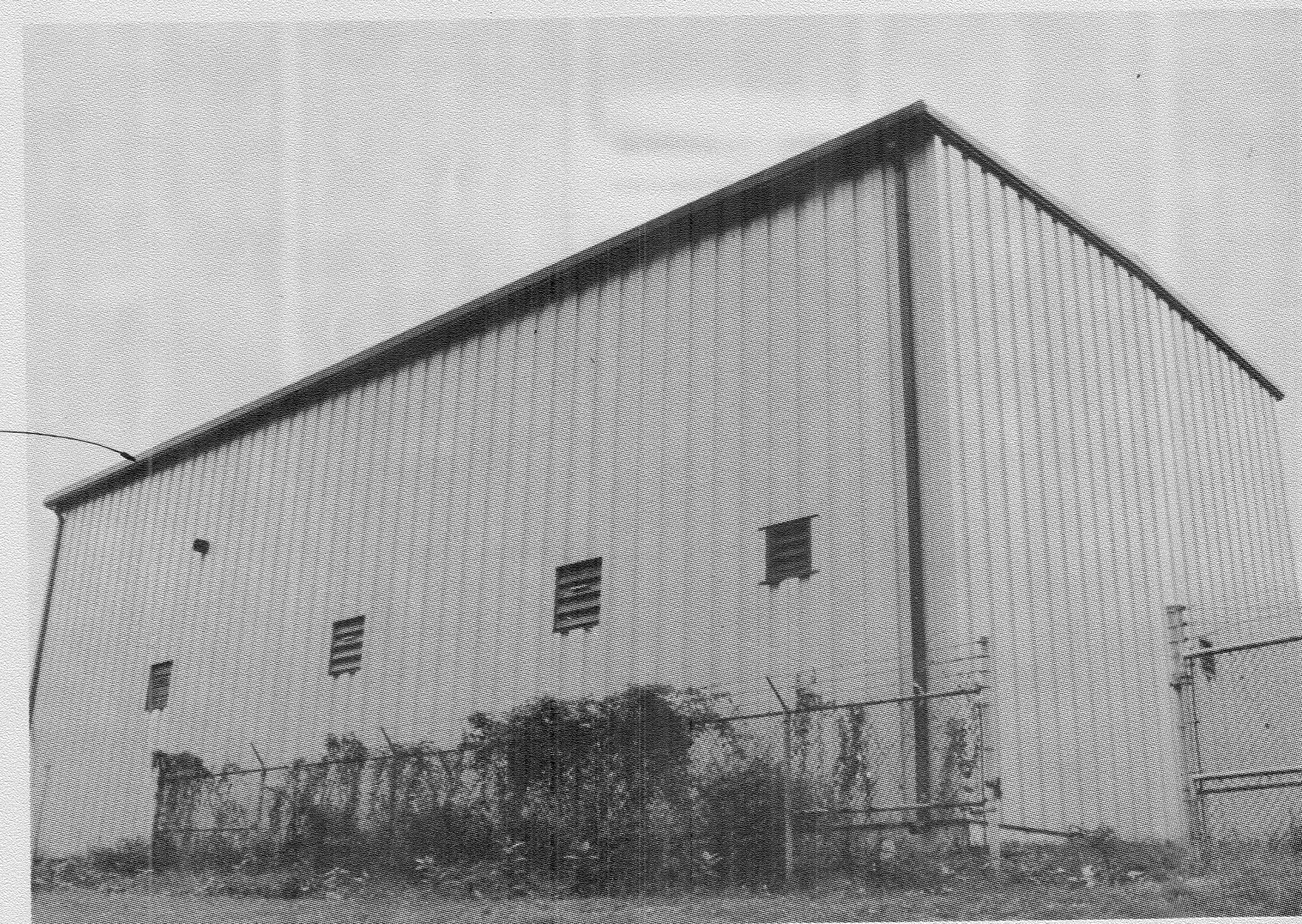
EAST ELEVATION (B)
N.T.S. J-6

EXISTING LABORATORY BUILDING TO BE REMOVED BY OTHERS.



NORTH ELEVATION (C)
N.T.S. J-6

EXISTING SLUDGE HANDLING BUILDING



SOUTH-WEST ELEVATION (D)
N.T.S. J-6

RECORD DRAWING

Donald B. Byrle

| | | | | | |
|-----------|-------------|-----|------|----------|----|
| CH2M HILL | DES. D.B.B. | | | | |
| | DR. L.G. | | | | |
| | CHK. | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/78
DATE

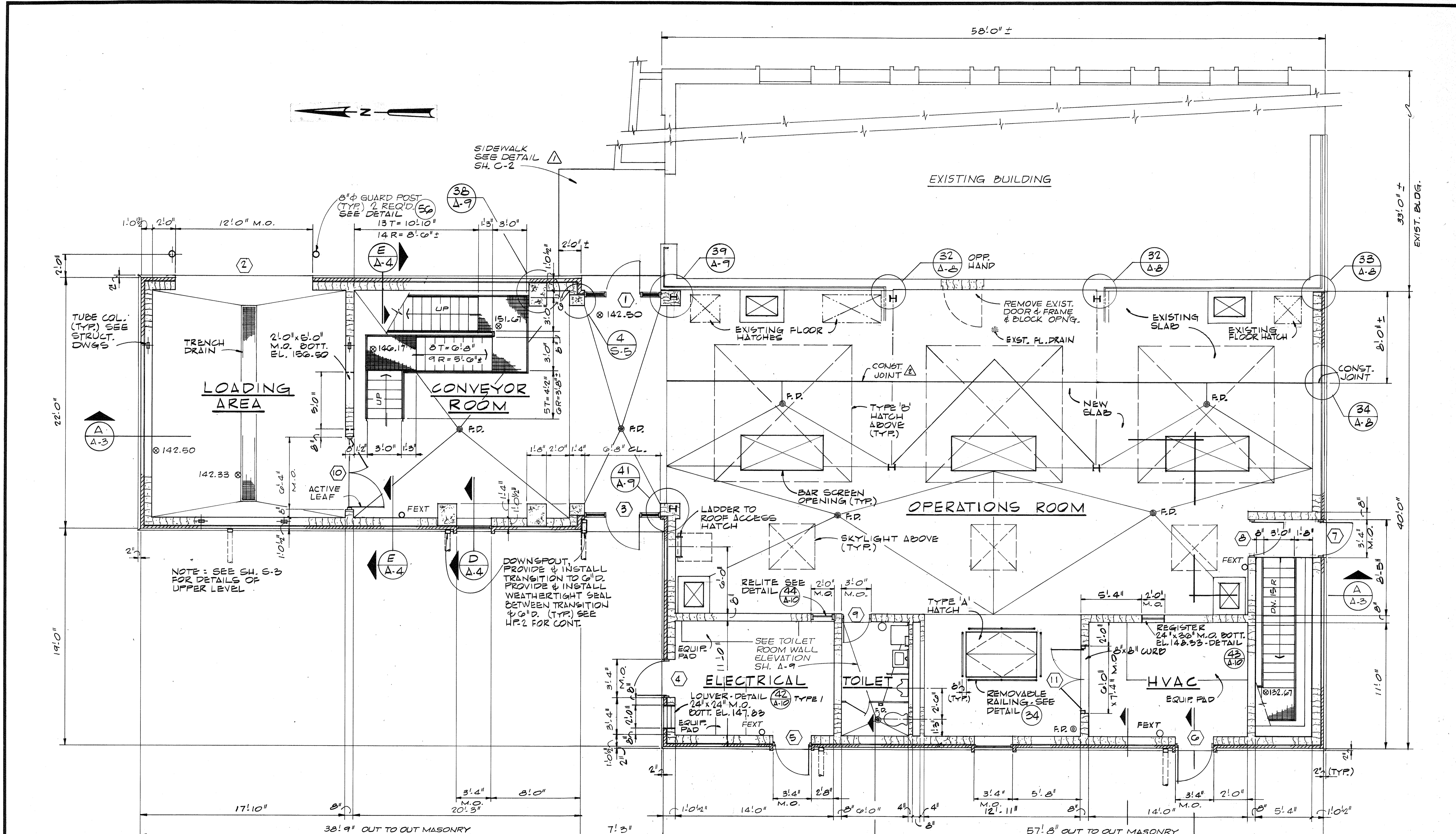
James M. [Signature]
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
INTERIUM SLUDGE HANDLING FACILITY
BUILDING ELEVATIONS
DEMOLITION

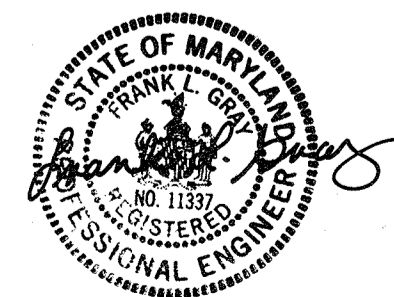
| | |
|----------|-----------|
| SHEET | J-7 |
| OF | |
| DATE | 8-78 |
| DWG. NO. | W11078.C1 |

PRELIMINARY



FLOOR PLAN
1/4" = 1'-0"

RECORD DRAWING



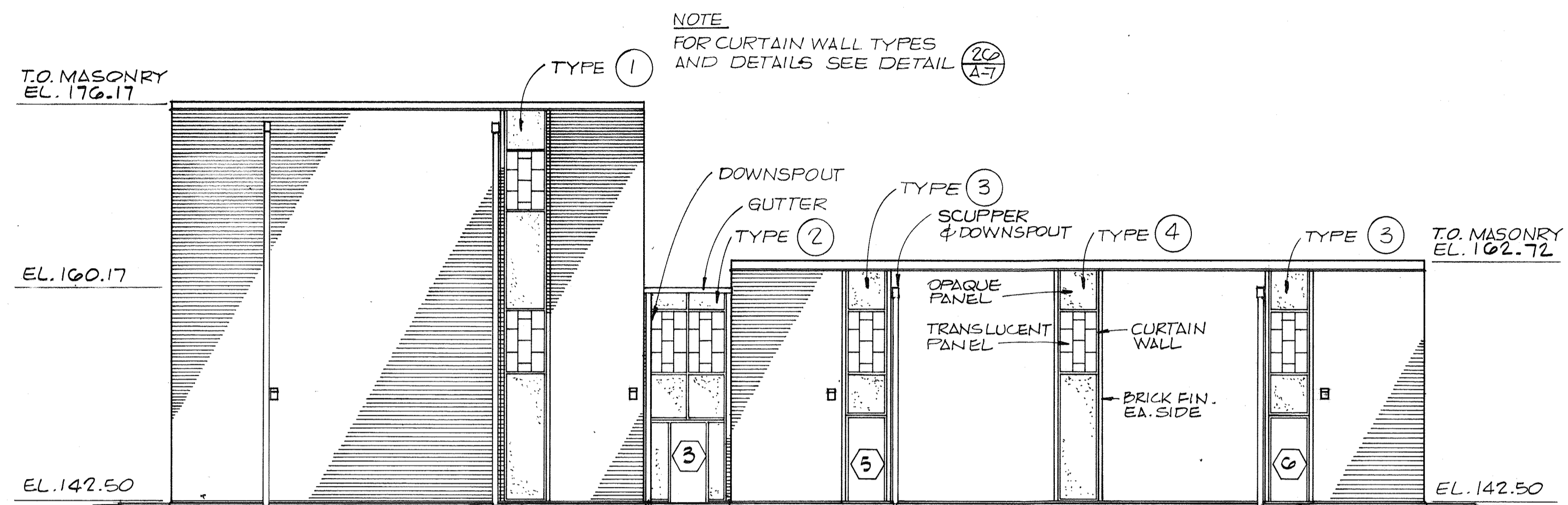
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|--|--|----------------------------------|
| CH2M HILL DES. WTG DR. DHA CHK. JMY APPD. | NO. 12-14-81 DATE | REVISION CHANGED CONST. JOINT |
| | NO. 1/3/80 DATE | REVISION ADDENDUM NO. 1 |
| | BY DHA APPD. | DATE 5/29/79 |
| | CHIEF - BUREAU OF ENVIRONMENTAL SERVICES | DATE |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 Chief - Bureau of Environmental Services

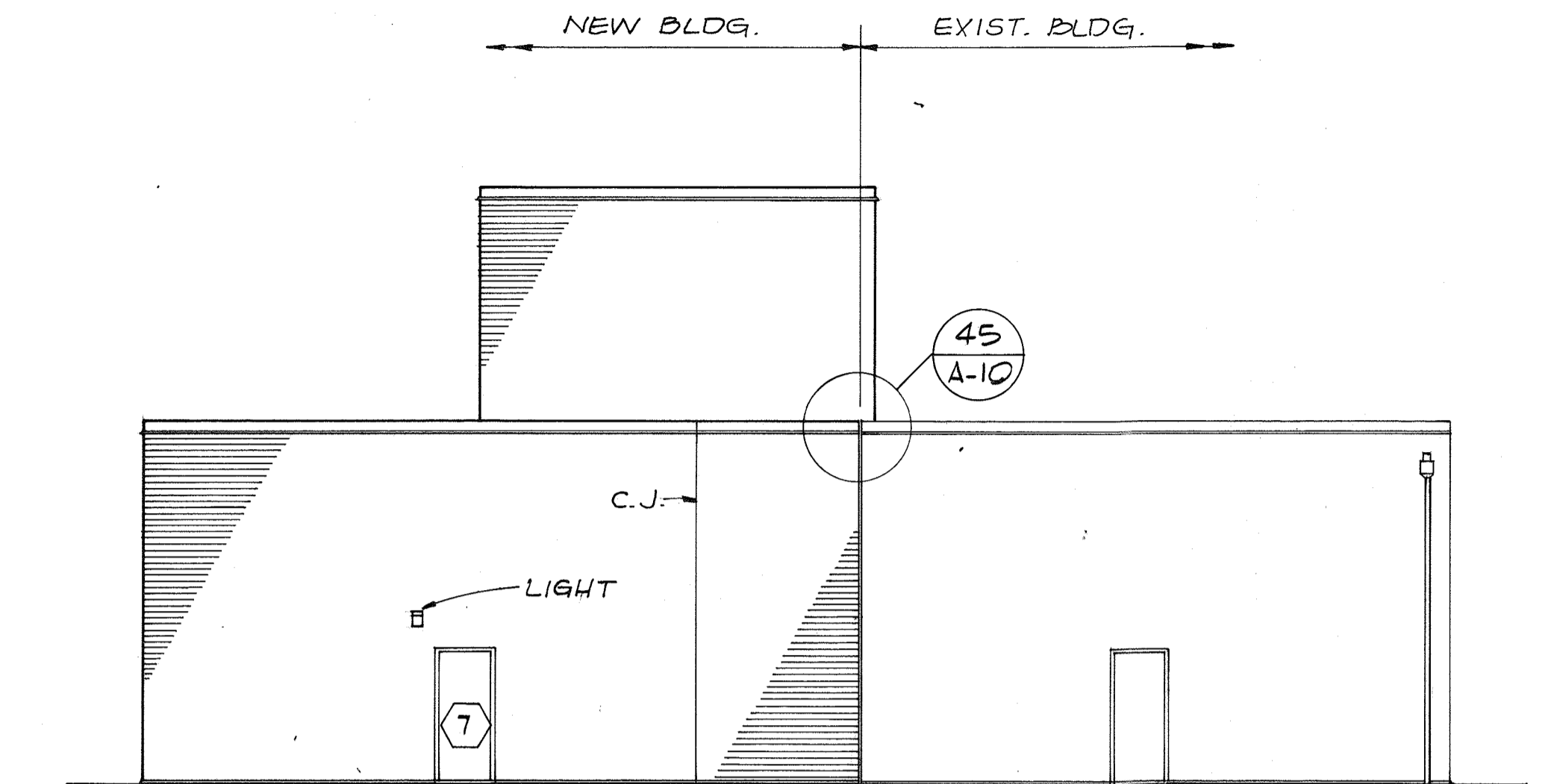
SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

SCREENING FACILITY
FLOOR PLAN
 ARCHITECTURAL

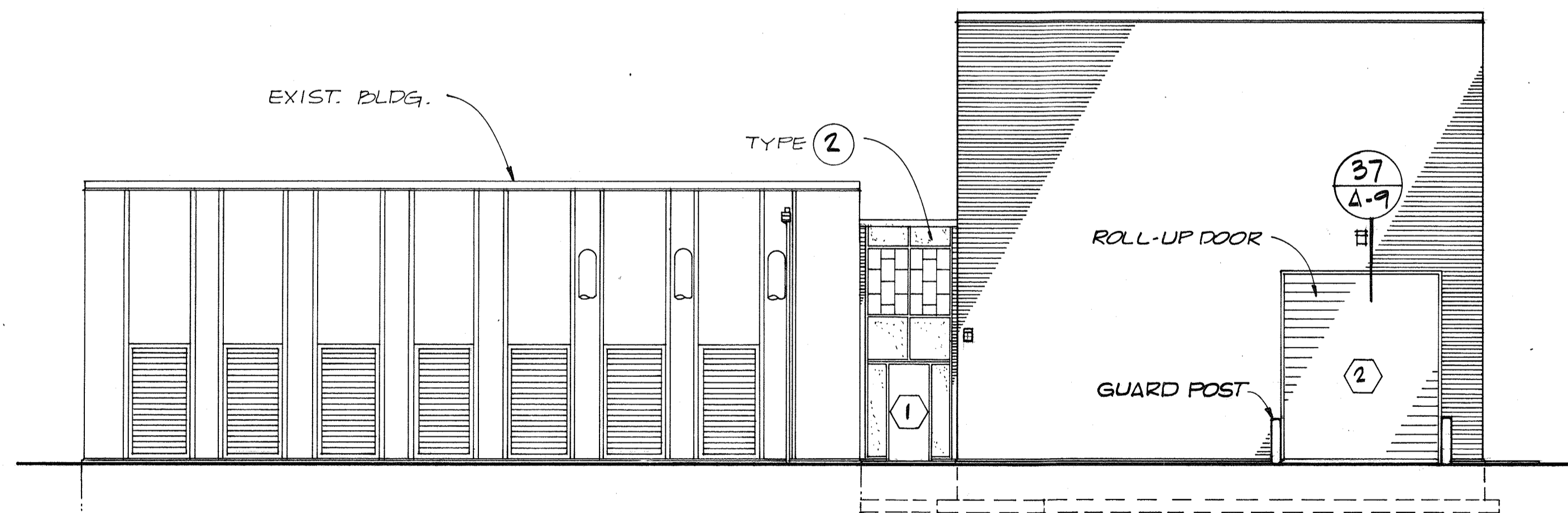
SHEET
 OF A-1
 DATE 8-78
 DWG. NO. W1078.C1



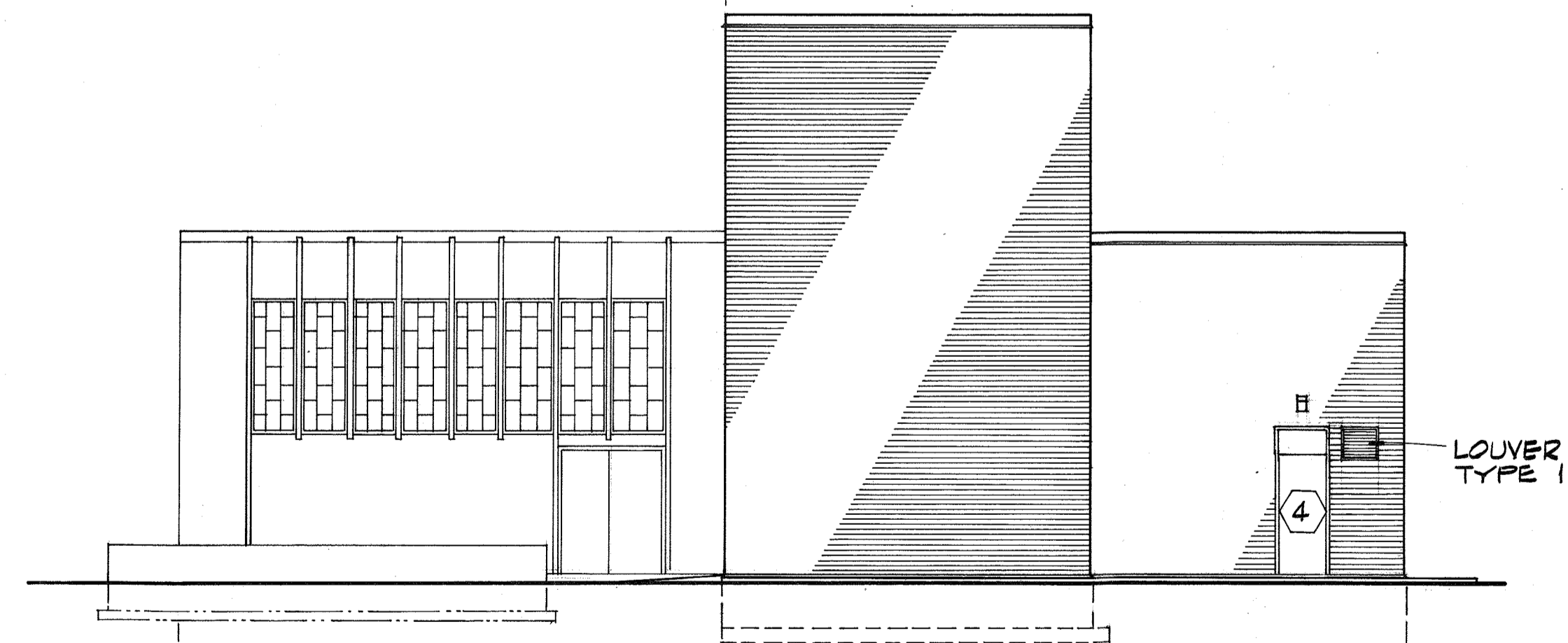
WEST ELEVATION
1/8" = 1'-0"



SOUTH ELEVATION
1/8" = 1'-0"

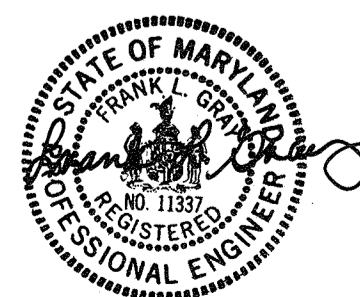


EAST ELEVATION
1/8" = 1'-0"



NORTH ELEVATION
1/8" = 1'-0"

RECORD DRAWING



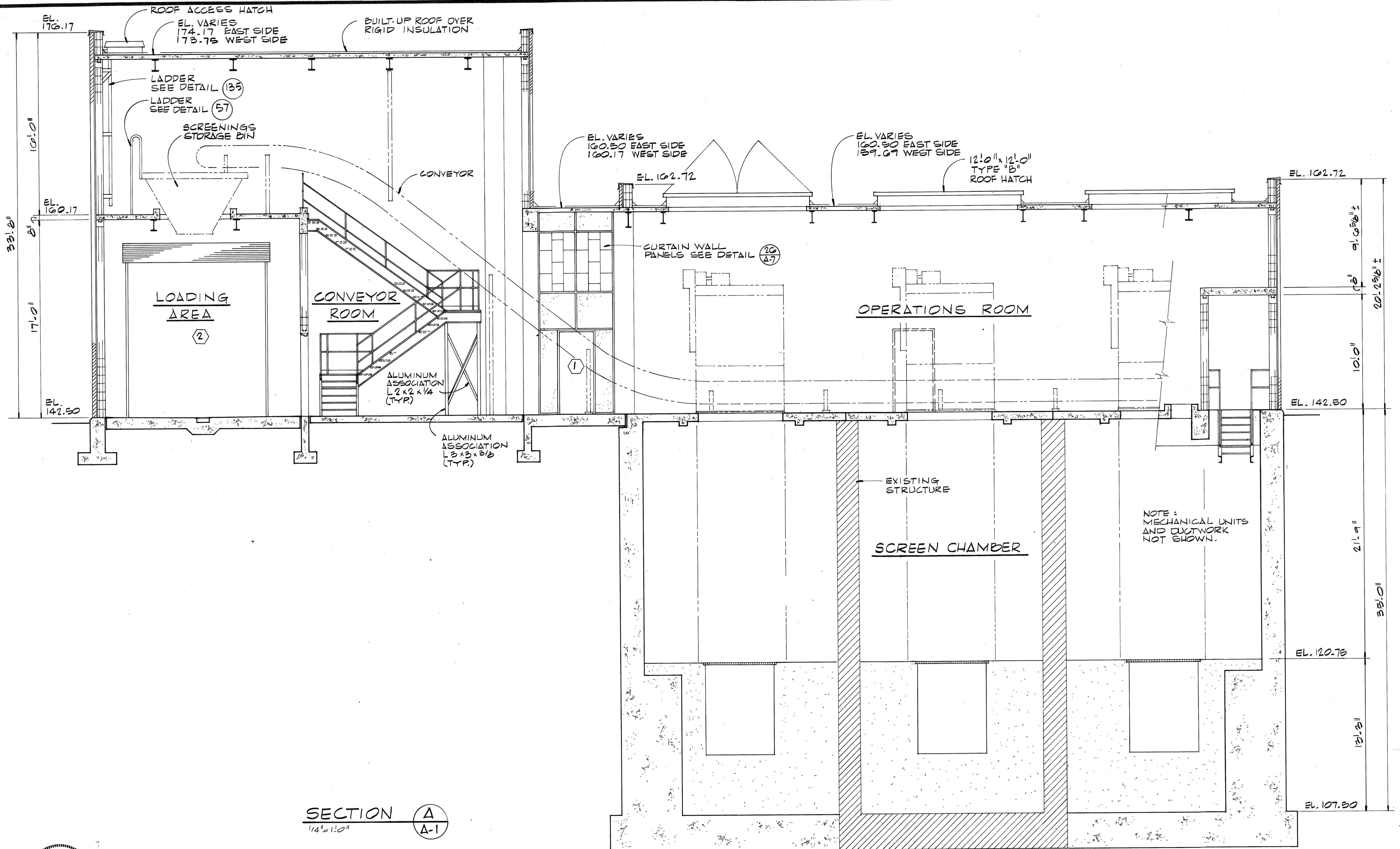
| | | | | | |
|------------------|----------|-----|------|----------|----|
| CH2M HILL | DES. AFW | | | | |
| | DR. DHA | | | | |
| | CHK. JMY | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

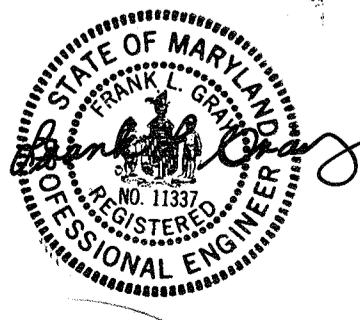
SCREENING FACILITY
ELEVATIONS
ARCHITECTURAL

SHEET **A-2**
OF
DATE 8-78
DWG. NO. W1078.C1



SECTION **A**
 1/4" = 1'-0" **A-1**

RECORD DRAWING



| | | | | | | |
|---|-------|-----|------|----------|----|-------|
| CH2M HILL DES. WTG DR. DHA CHK. JMY | APPD. | NO. | DATE | REVISION | BY | APPD. |
| | | | | | | |
| | | | | | | |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

5/29/77
 DATE

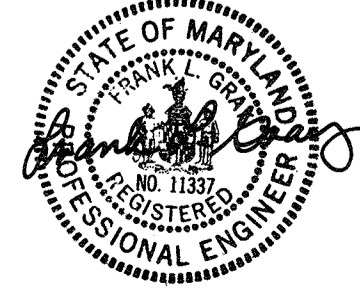
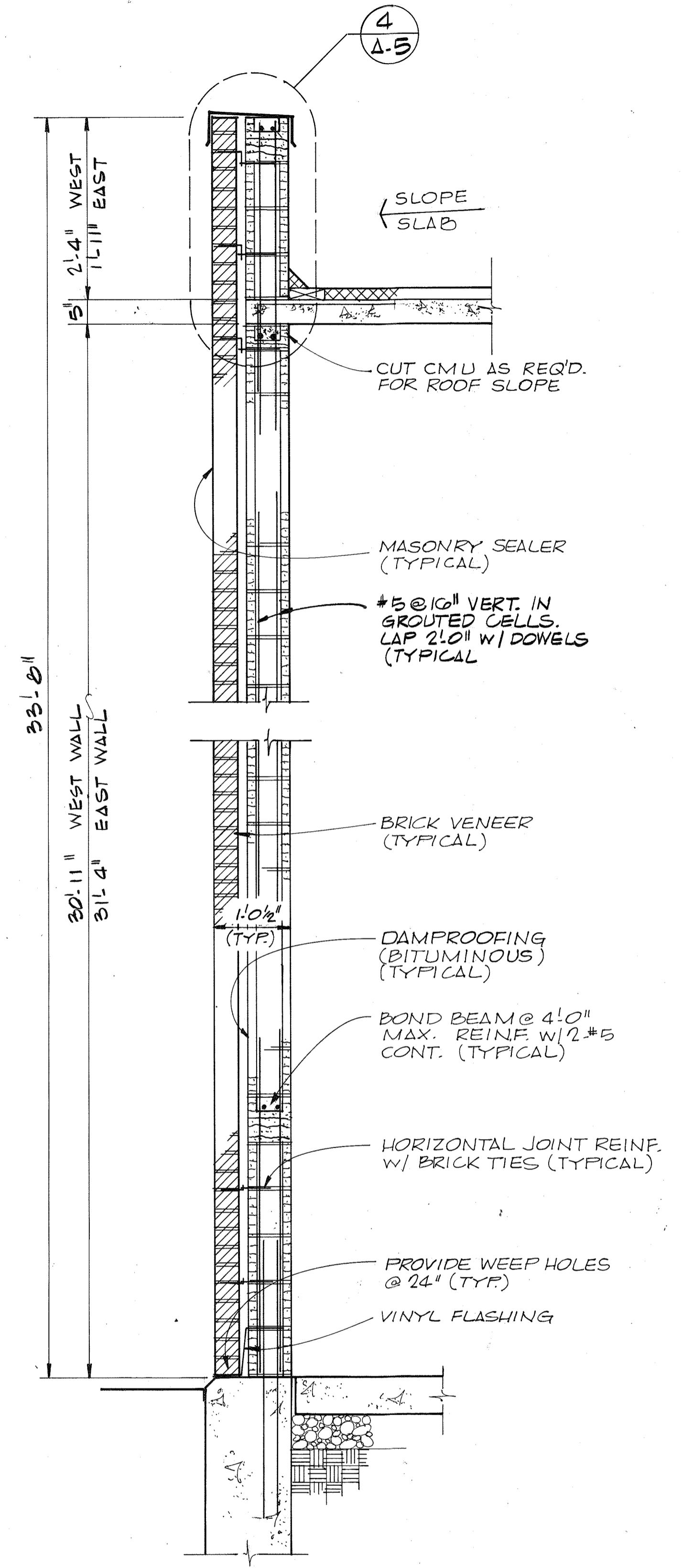
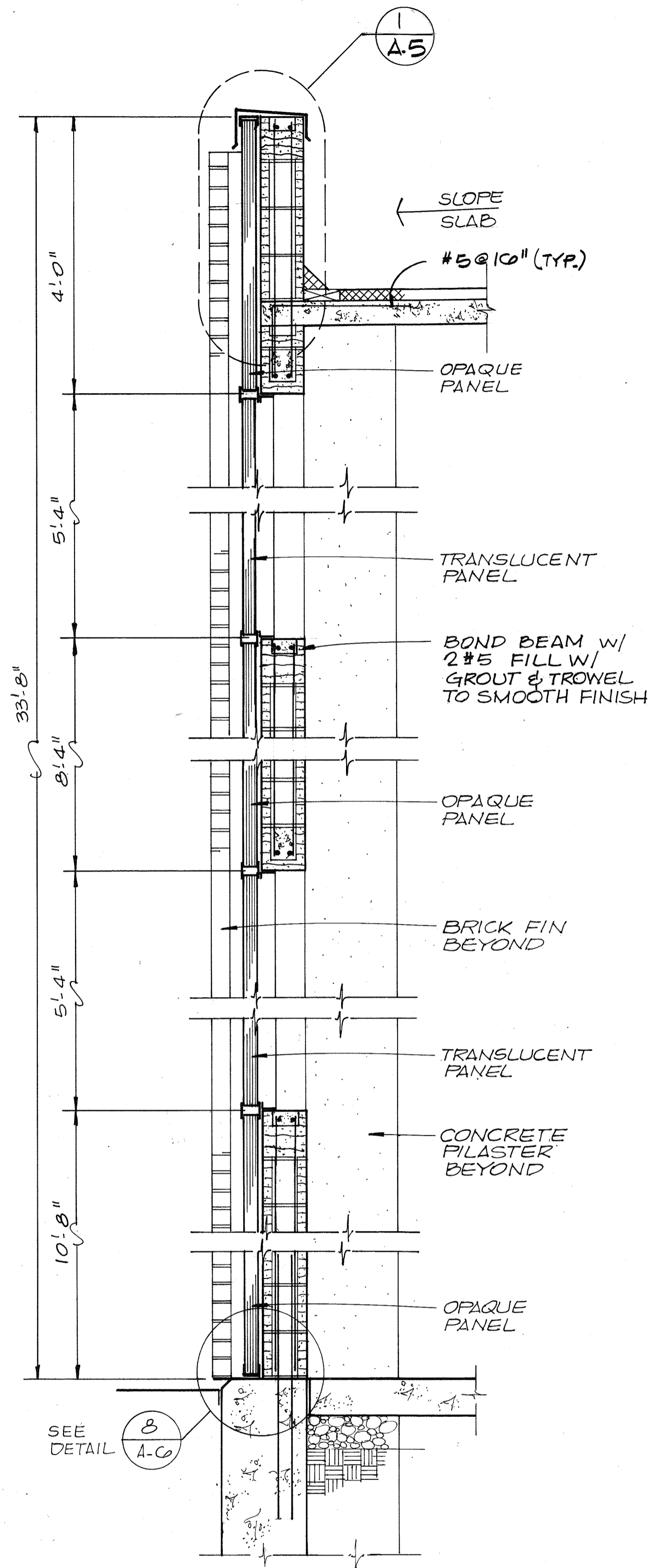
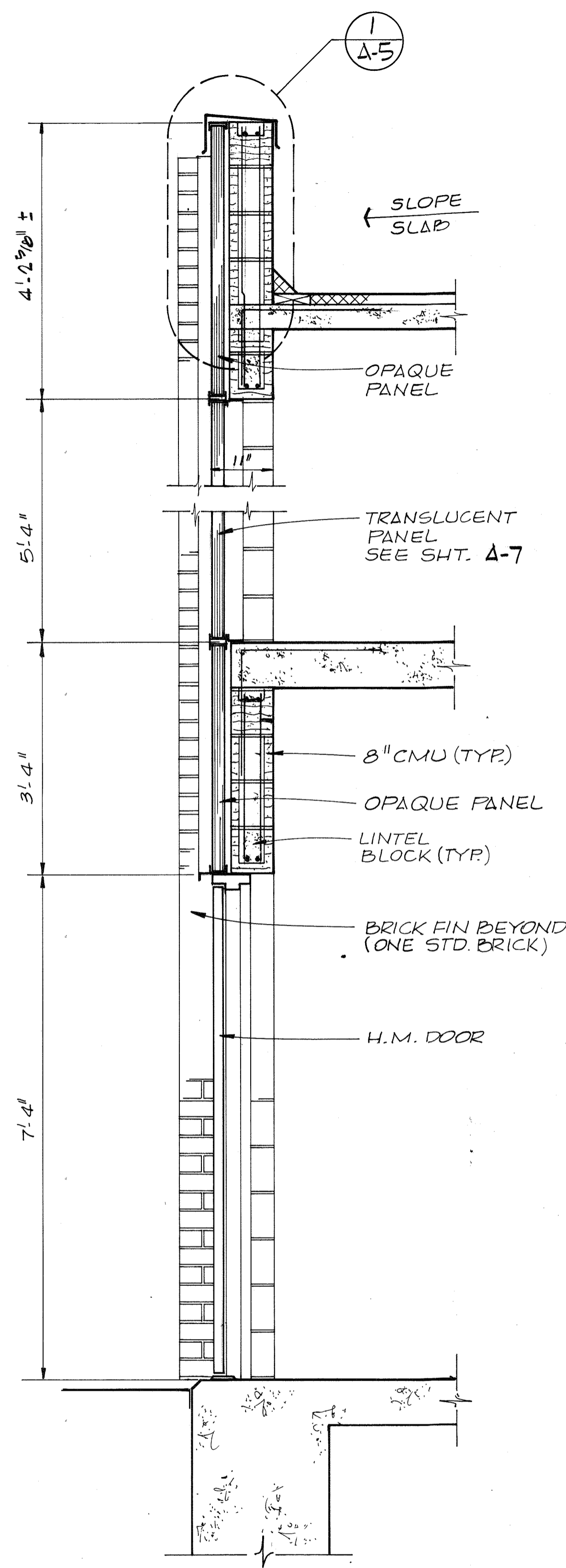
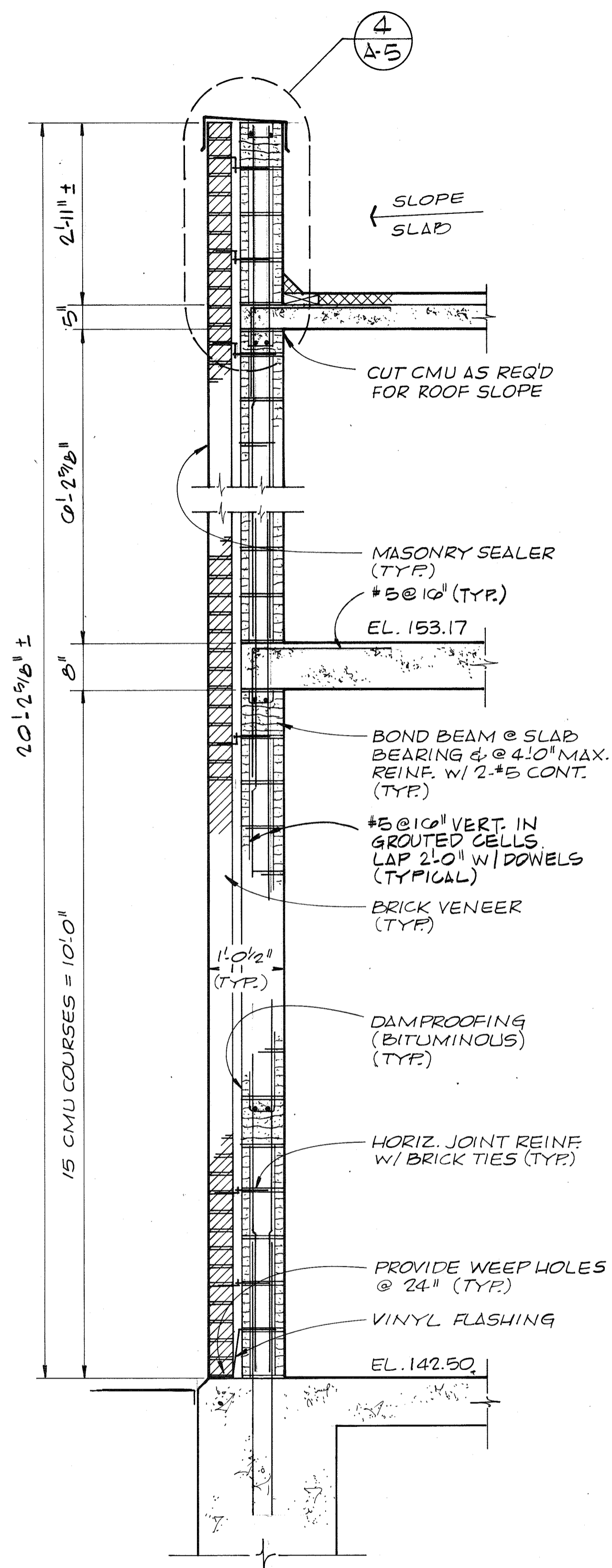
James M. Irwin
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

SCREENING FACILITY
 BUILDING SECTIONS

ARCHITECTURAL

SHEET **A-3**
 OF
 DATE 8-78
 DWG. NO. W1078.C1



CH2M HILL

| | | | | | |
|----------|-----|------|----------|----|-------|
| DES. AFW | | | | | |
| DR. DHA | | | | | |
| CHK. JMY | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

slzabg
DATE

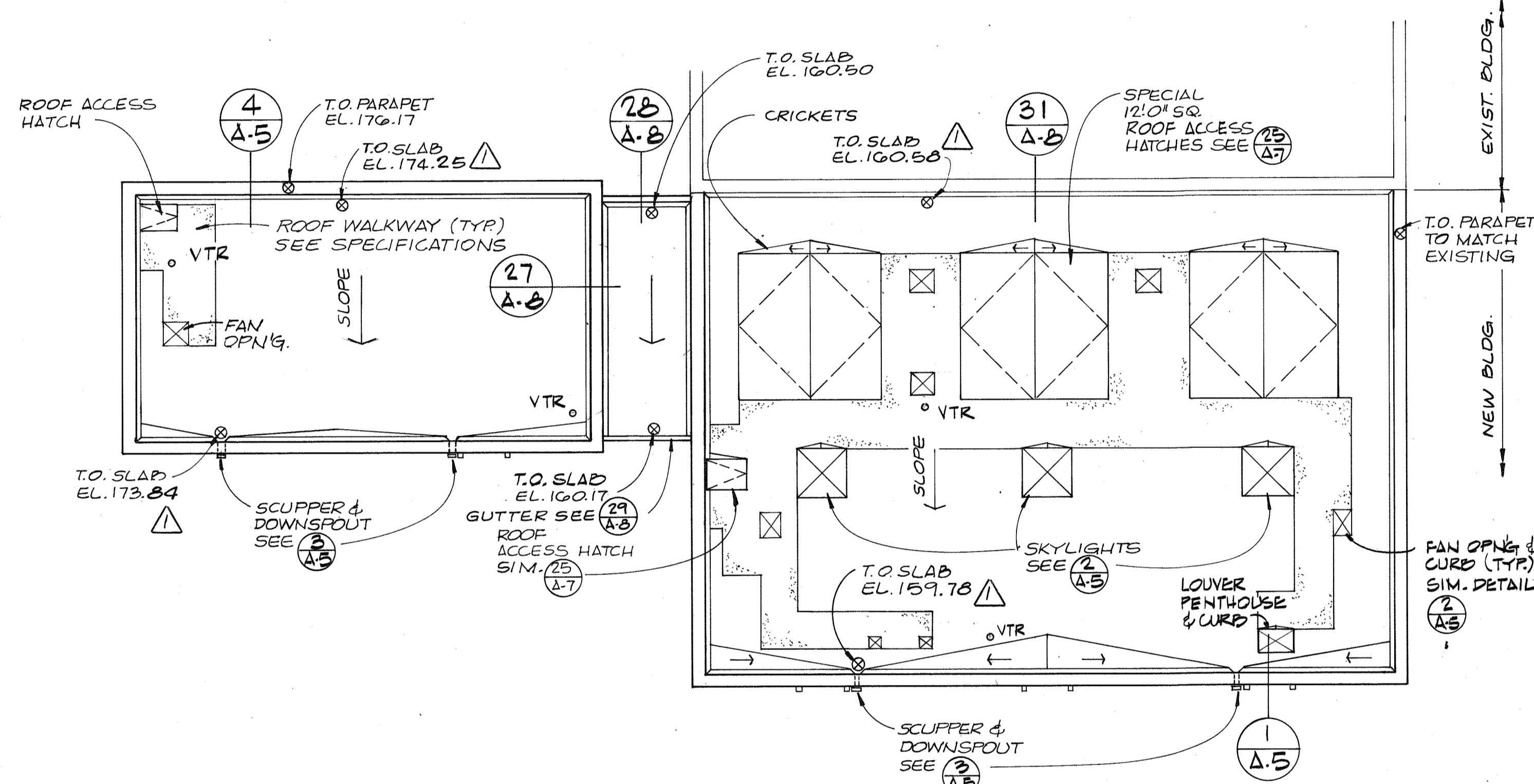
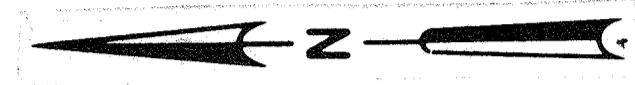
Comu M. elwin
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

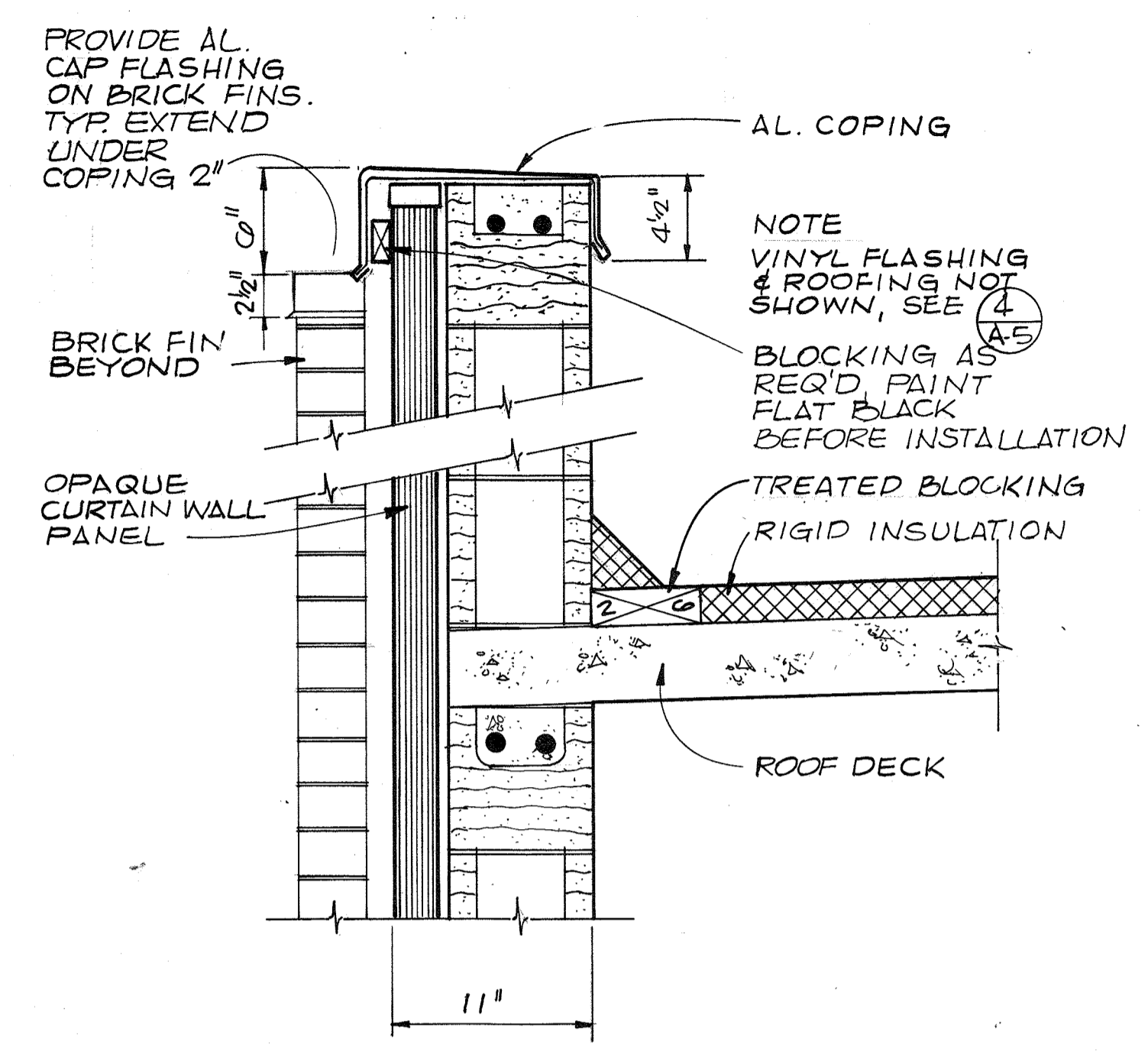
SCREENING FACILITY
WALL SECTIONS

ARCHITECTURAL

SHEET A-4
OF
DATE 8-78
DWG. NO. W1078 CI

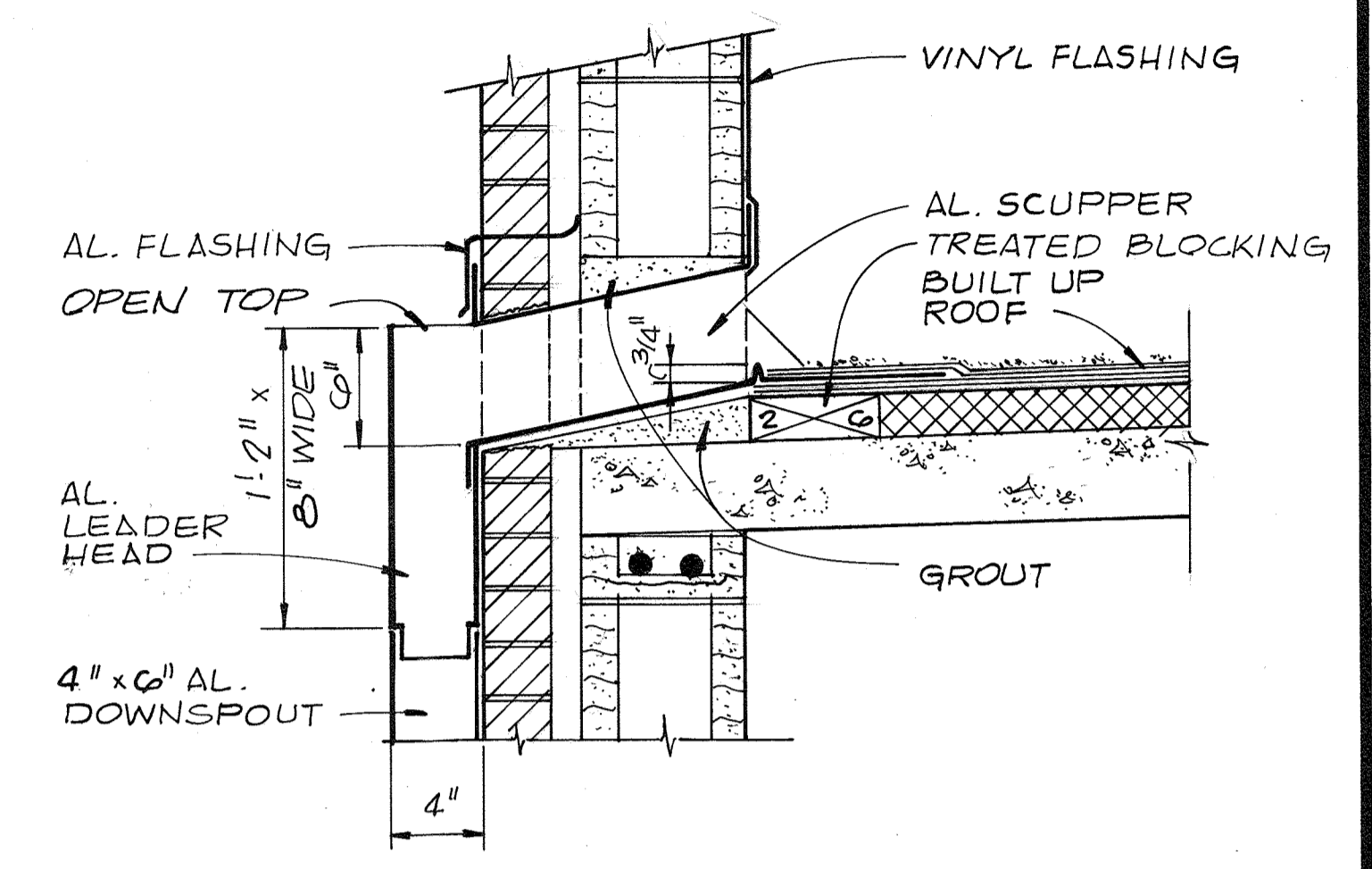


ROOF PLAN
1/8" = 1'-0"



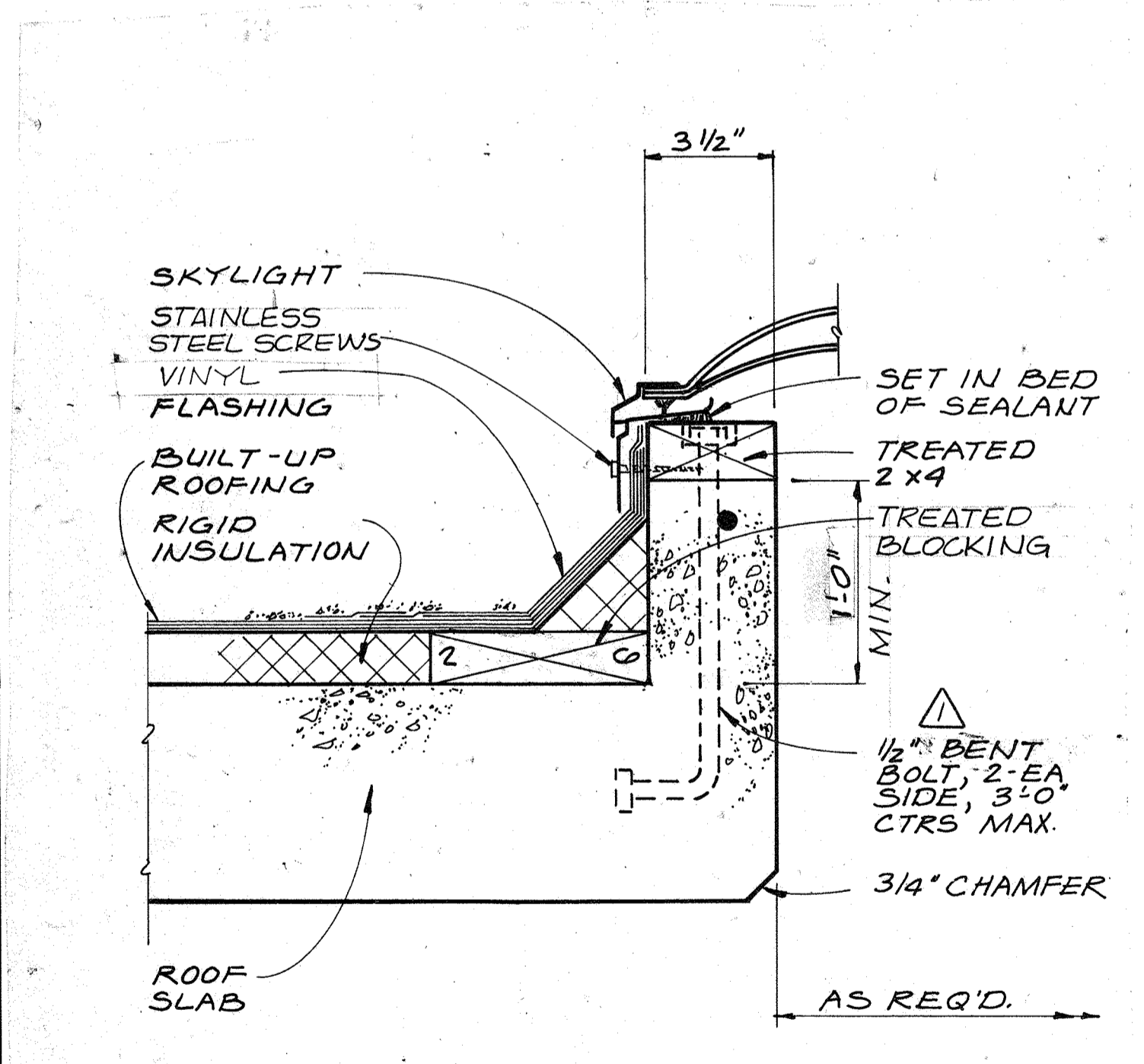
COPING & FLASHING
DETAIL
1/2" = 1'-0"

1
A-5



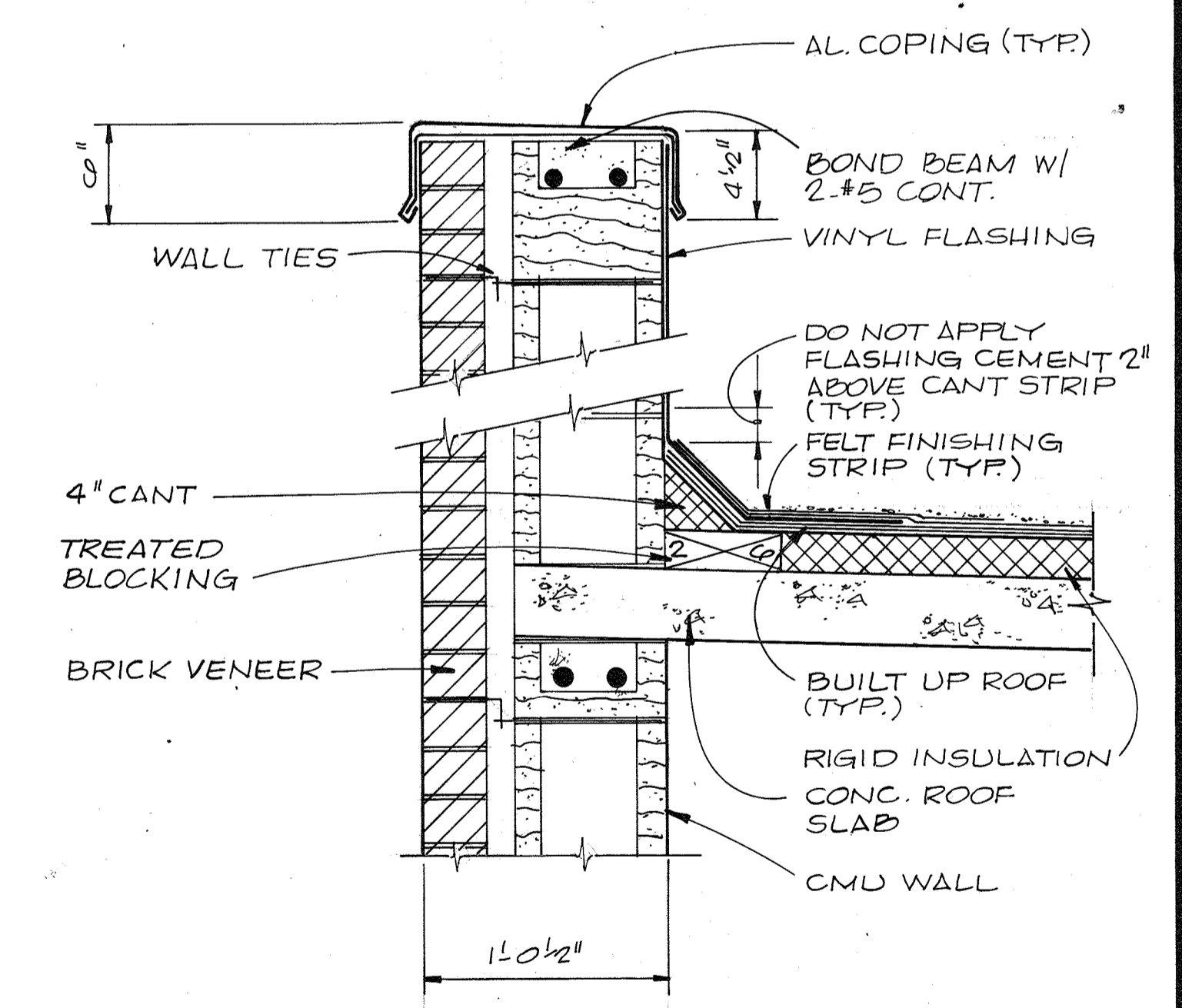
SCUPPER & DOWNSPOUT
DETAIL
1/2" = 1'-0"

3
A-5



SKYLIGHT CURB DETAIL
3" = 1'-0"

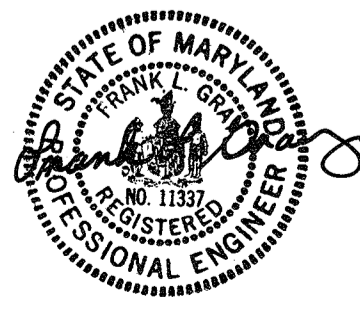
2
A-5



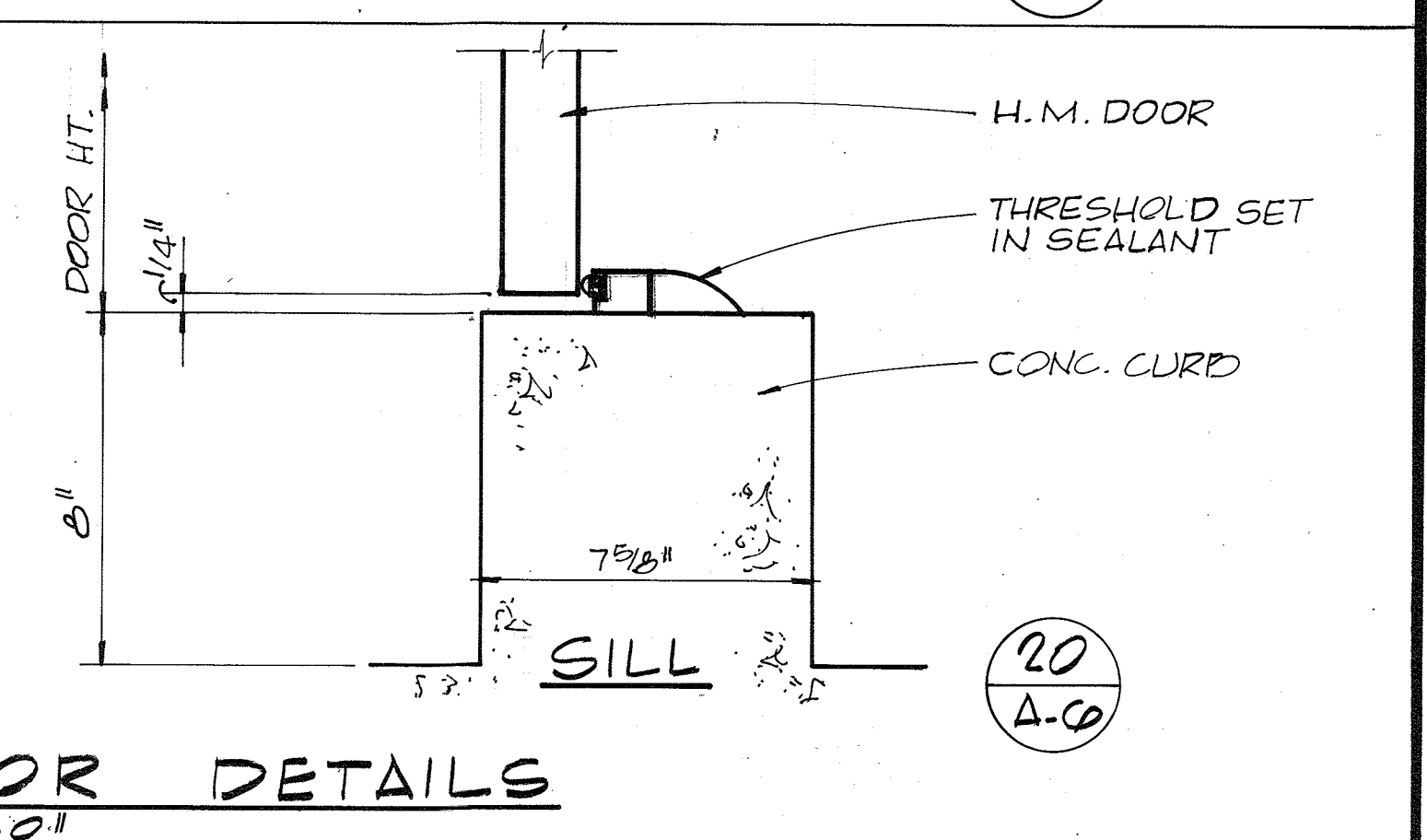
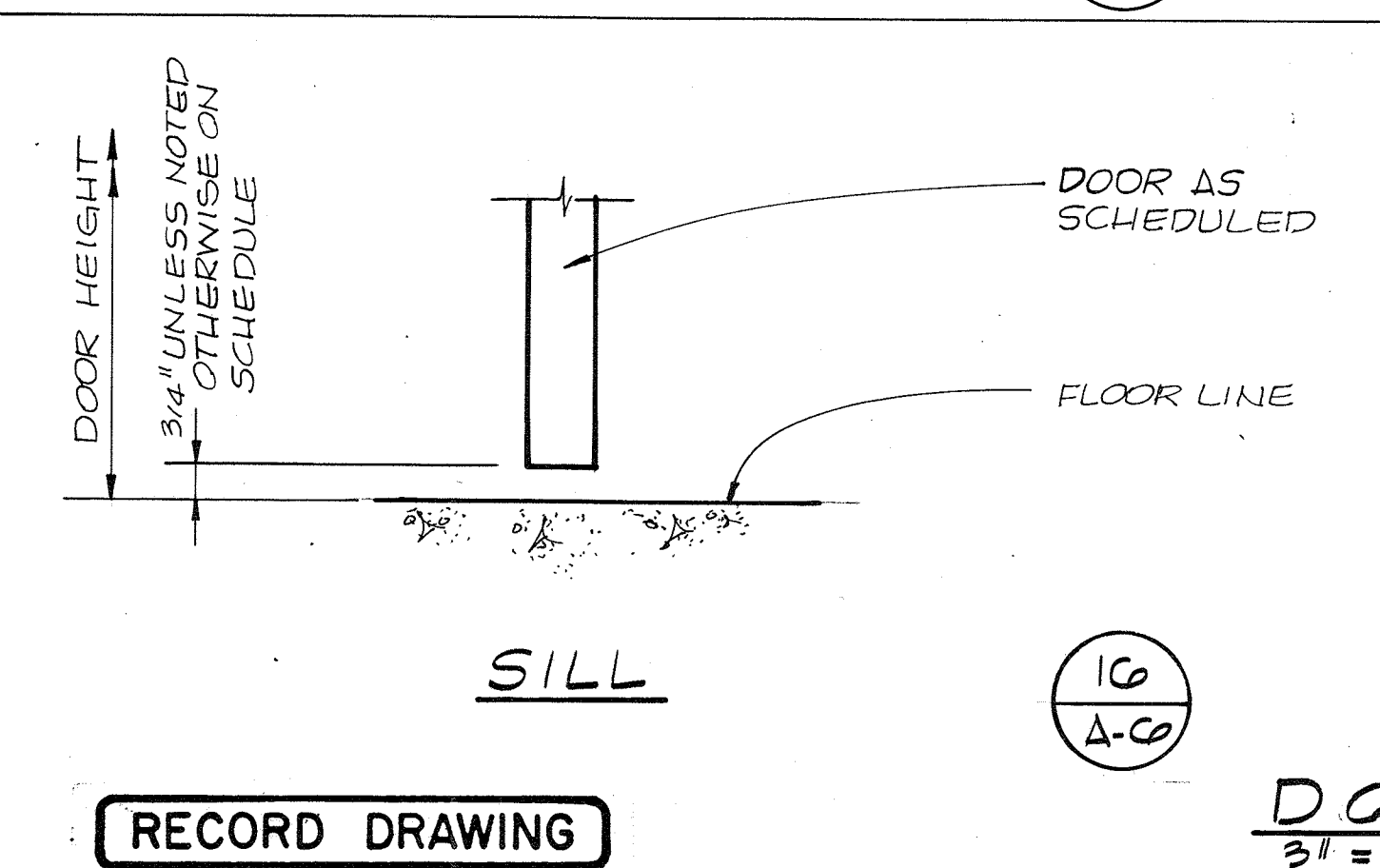
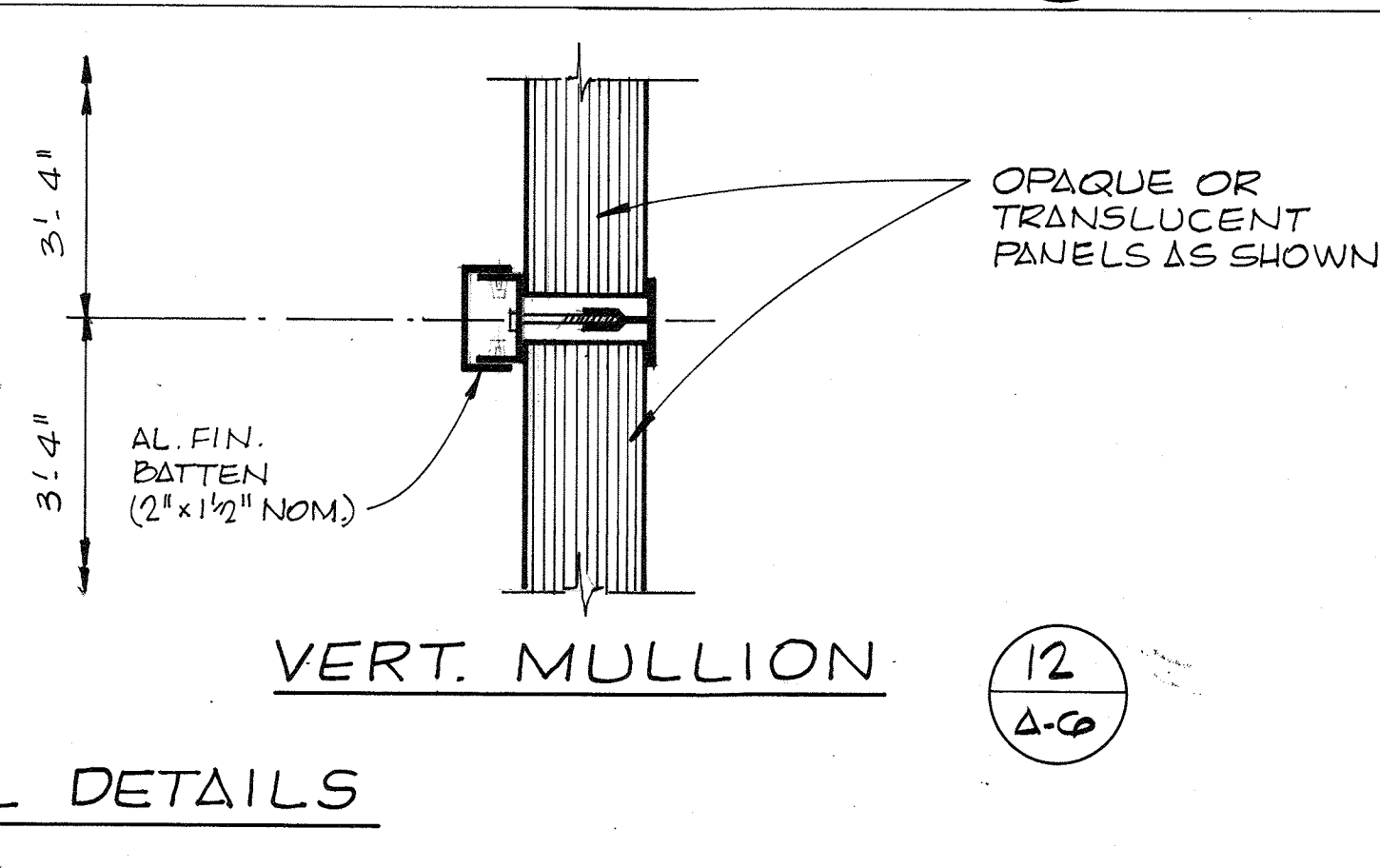
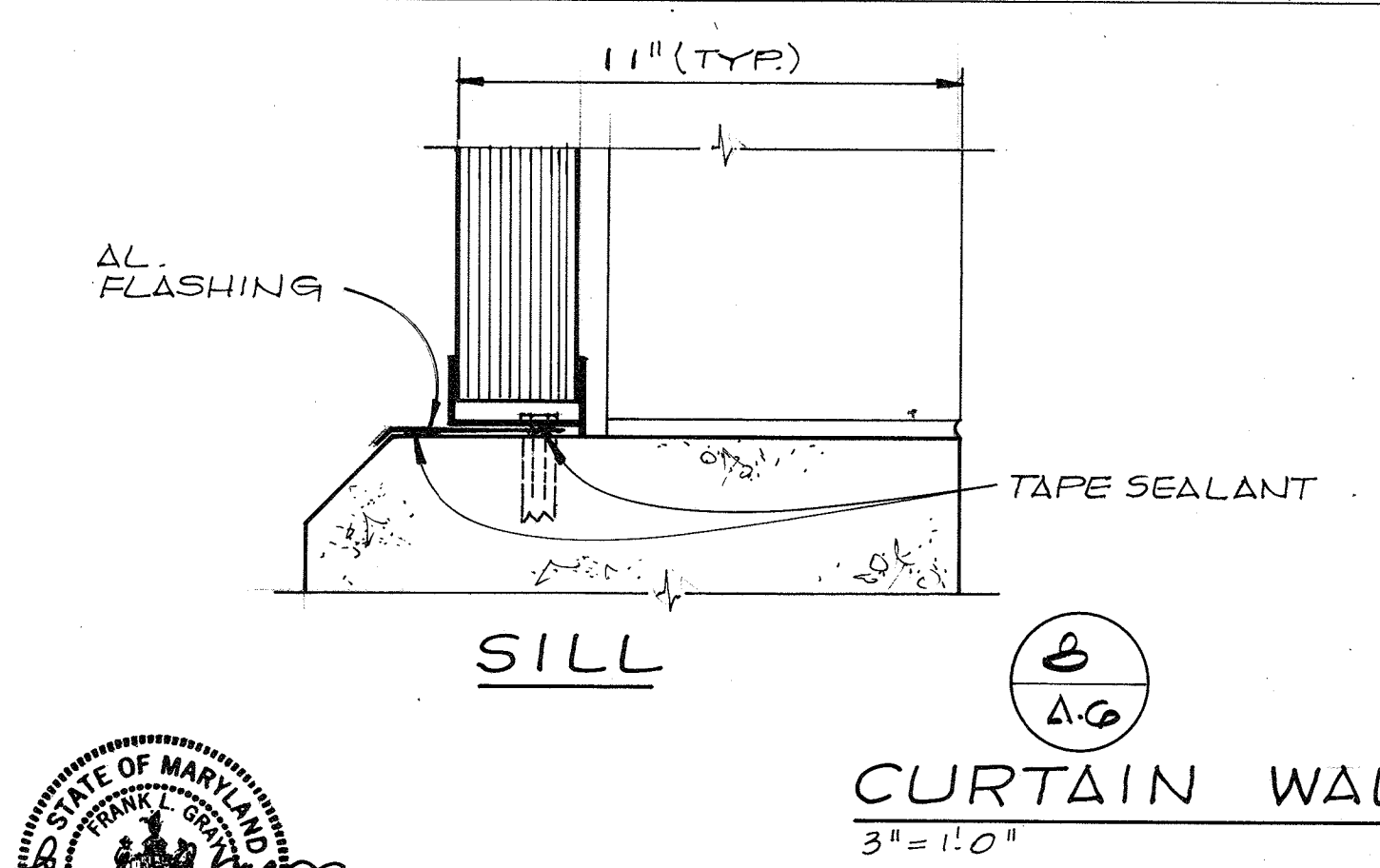
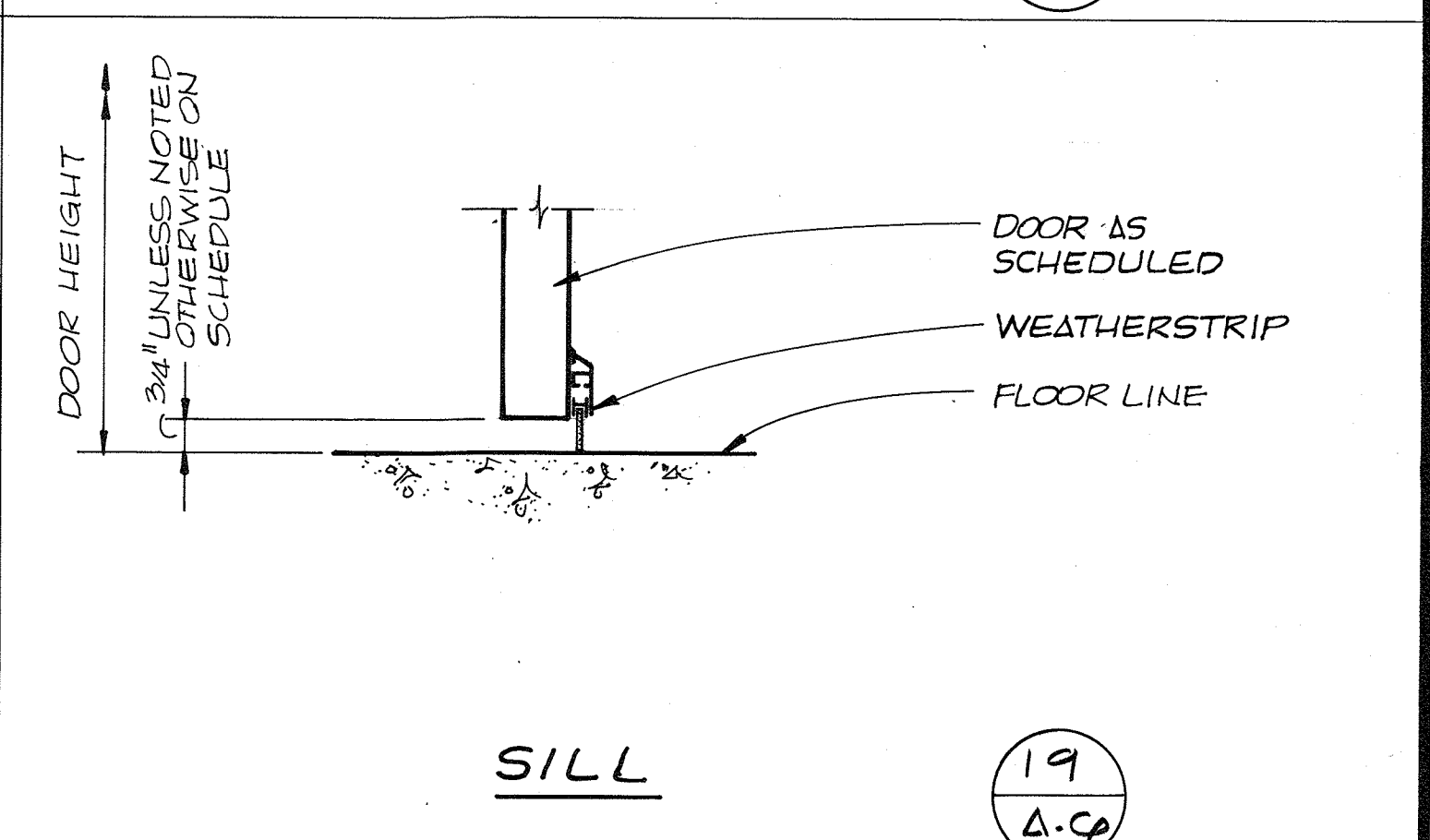
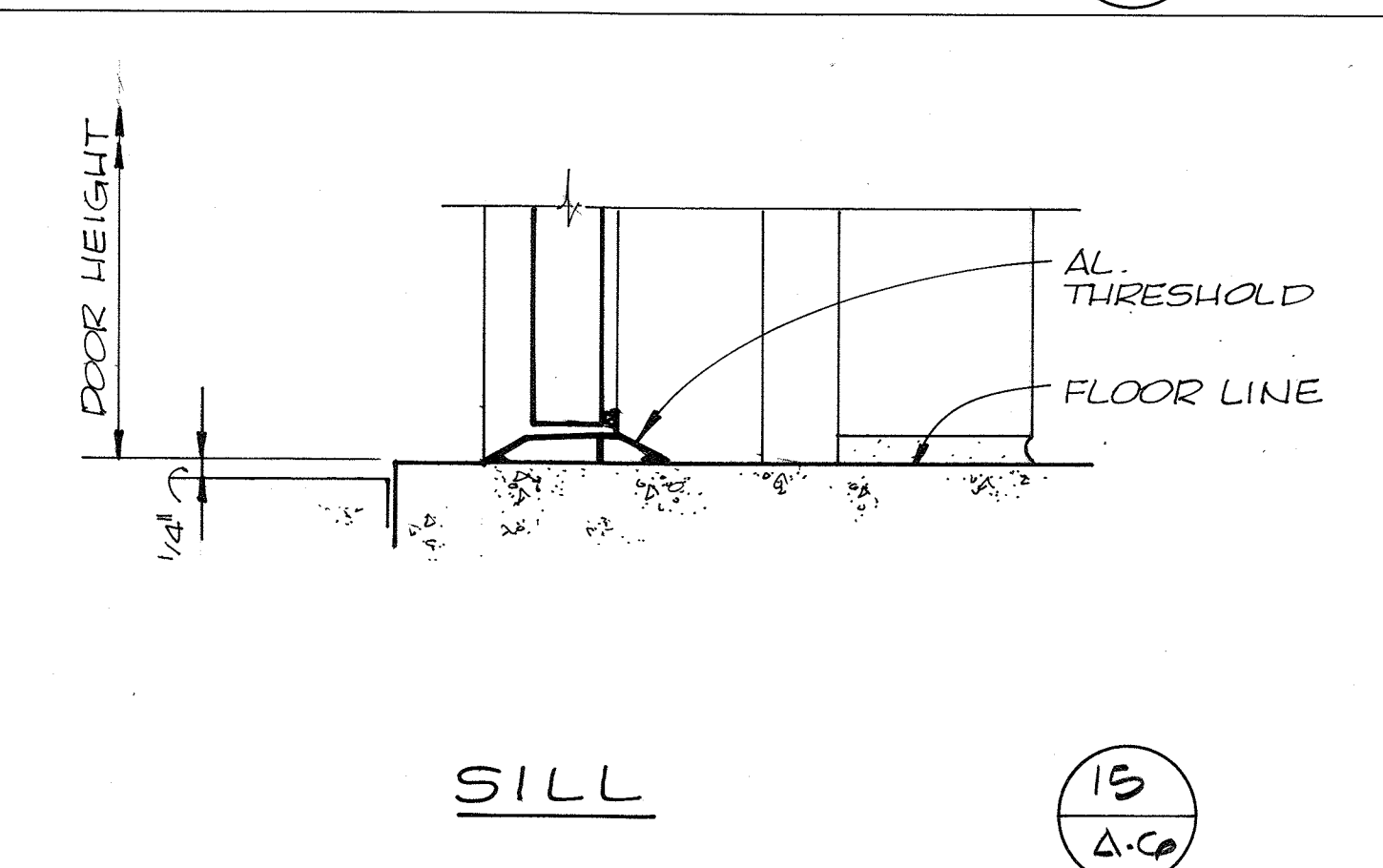
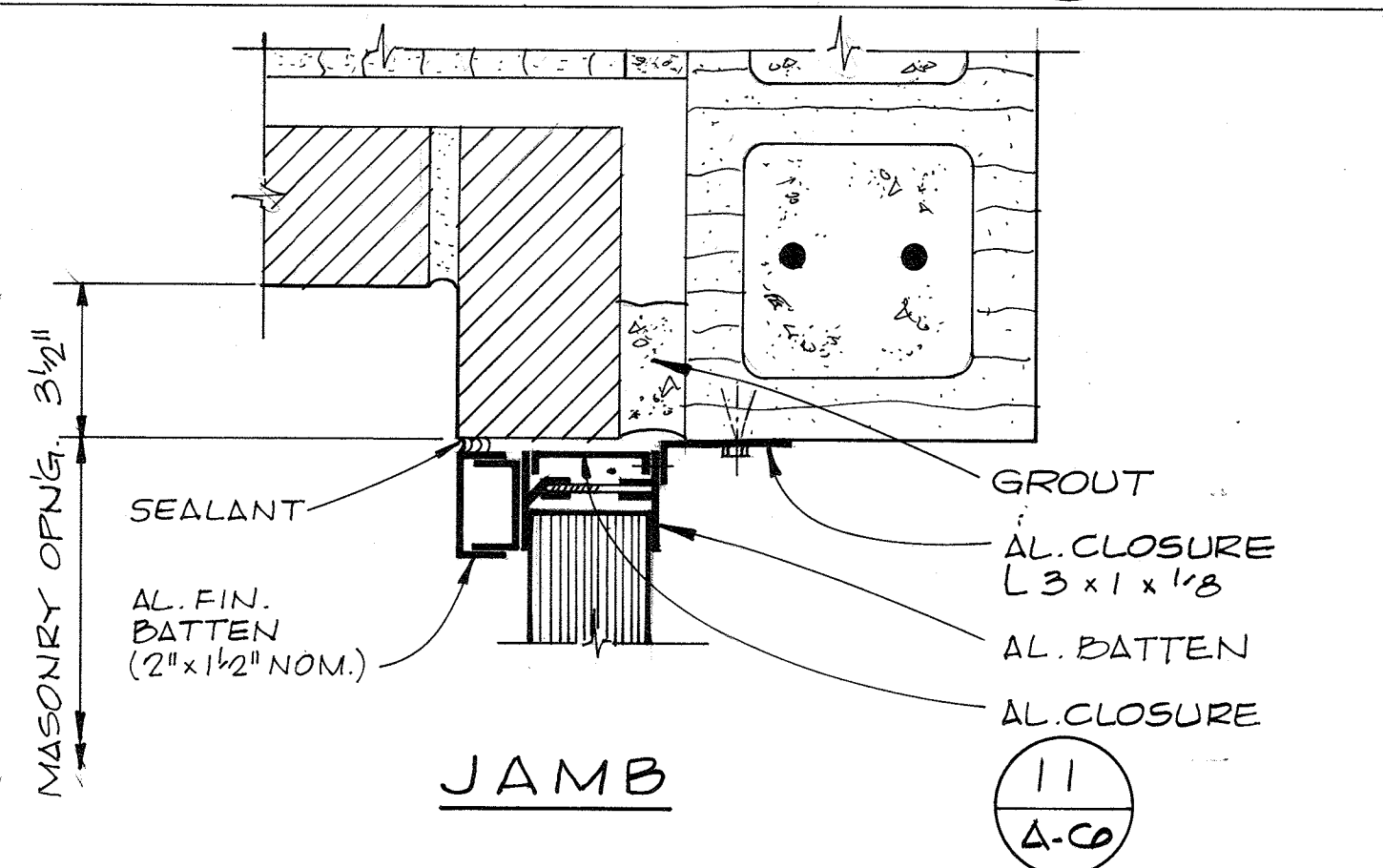
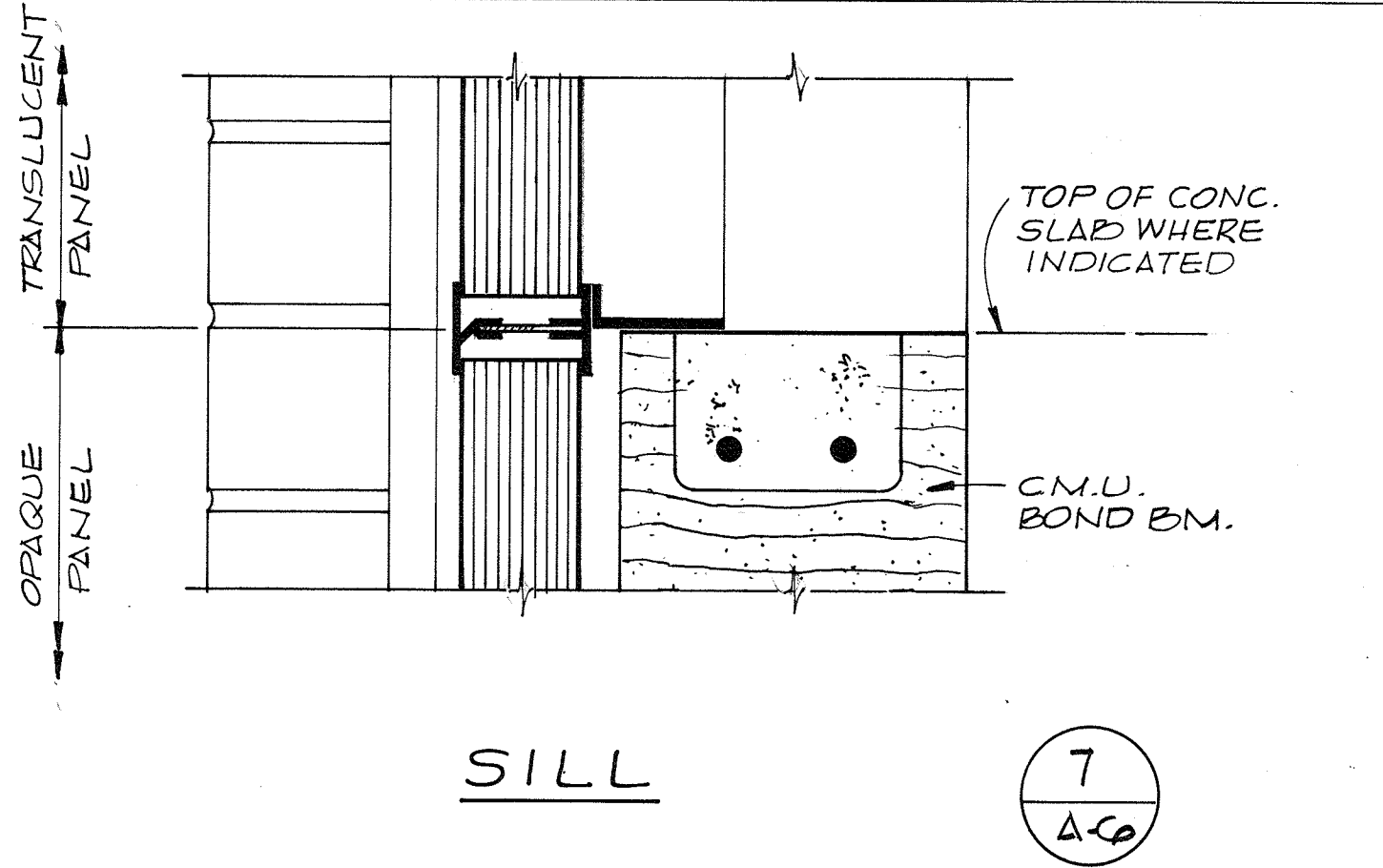
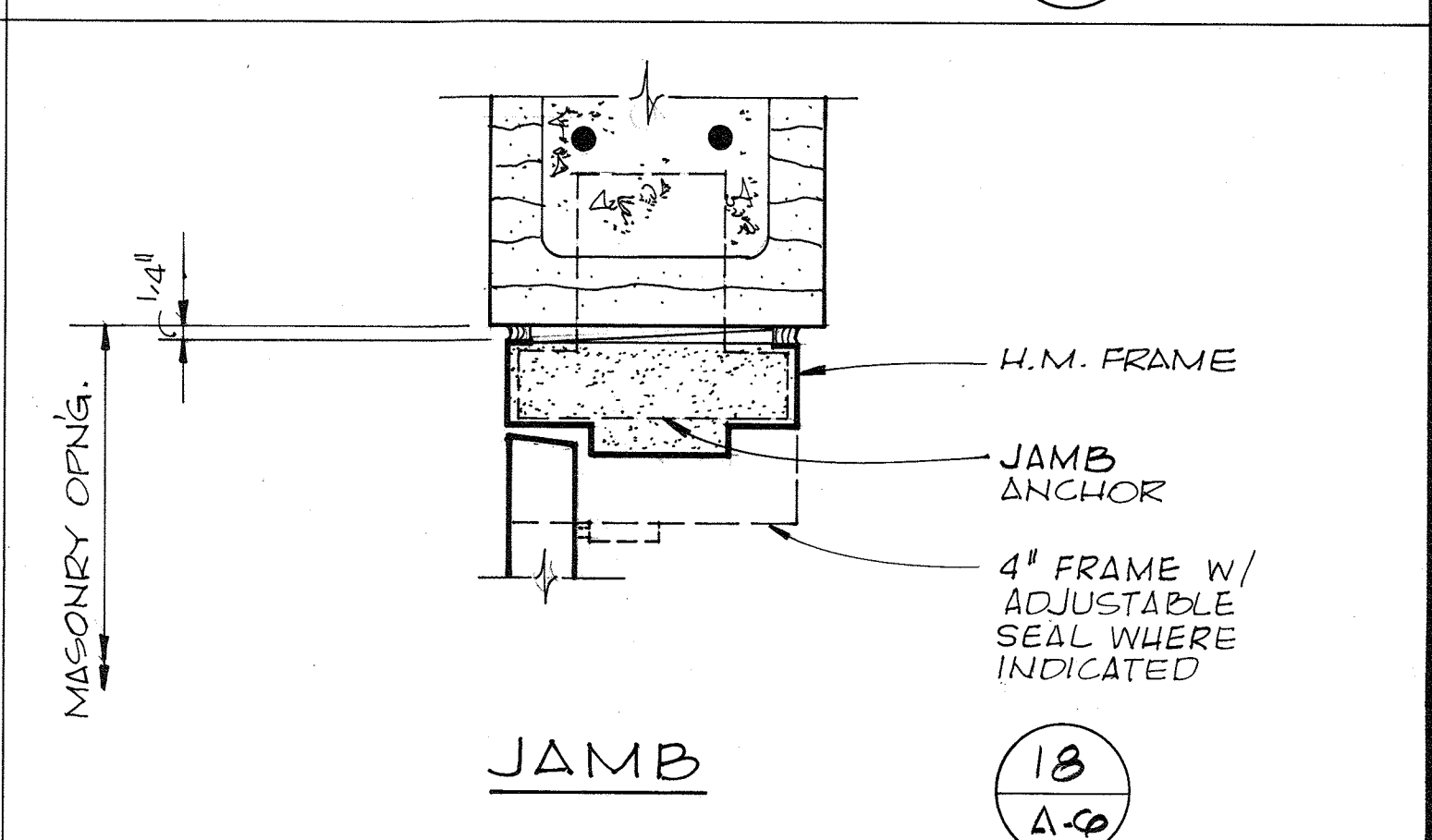
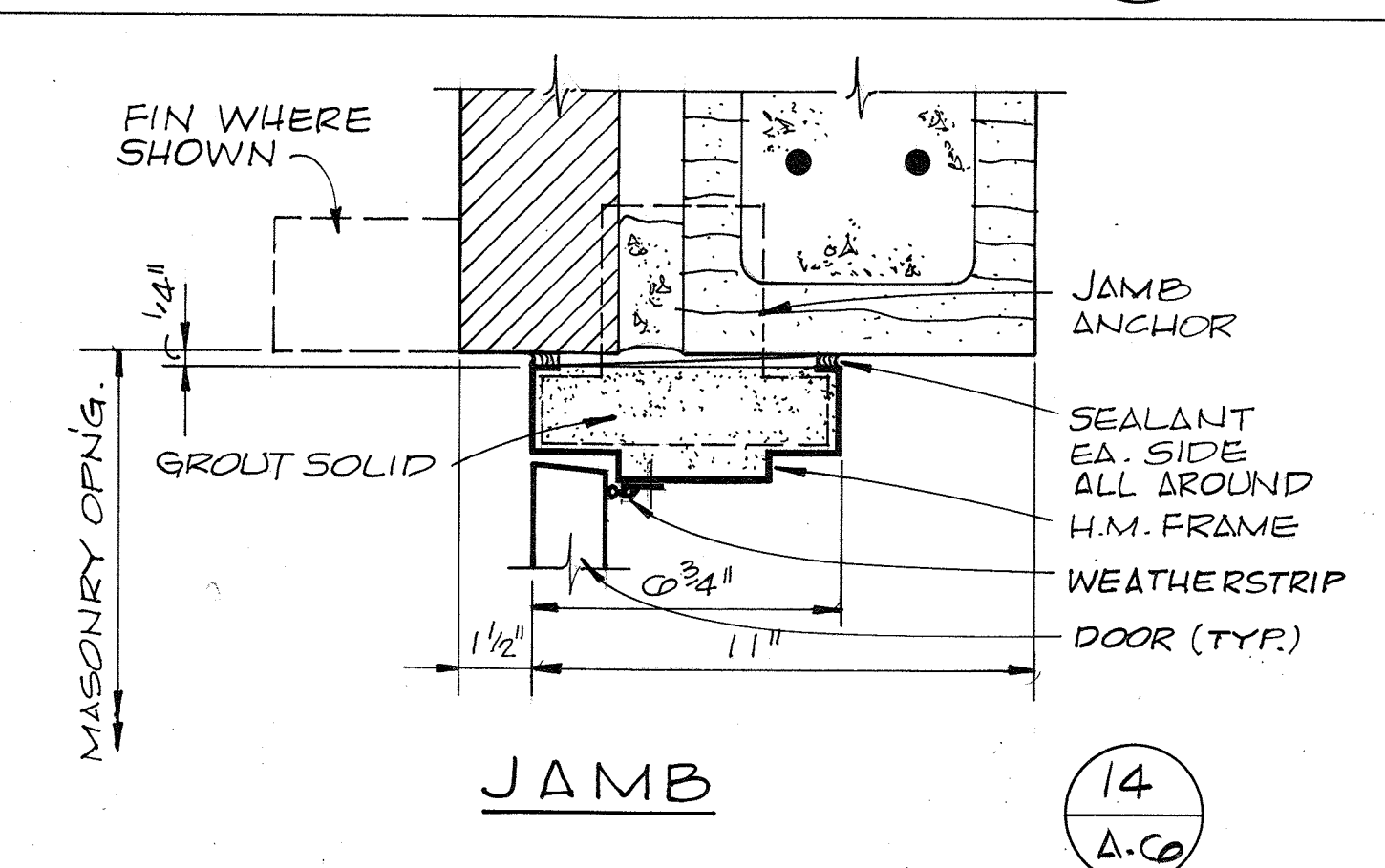
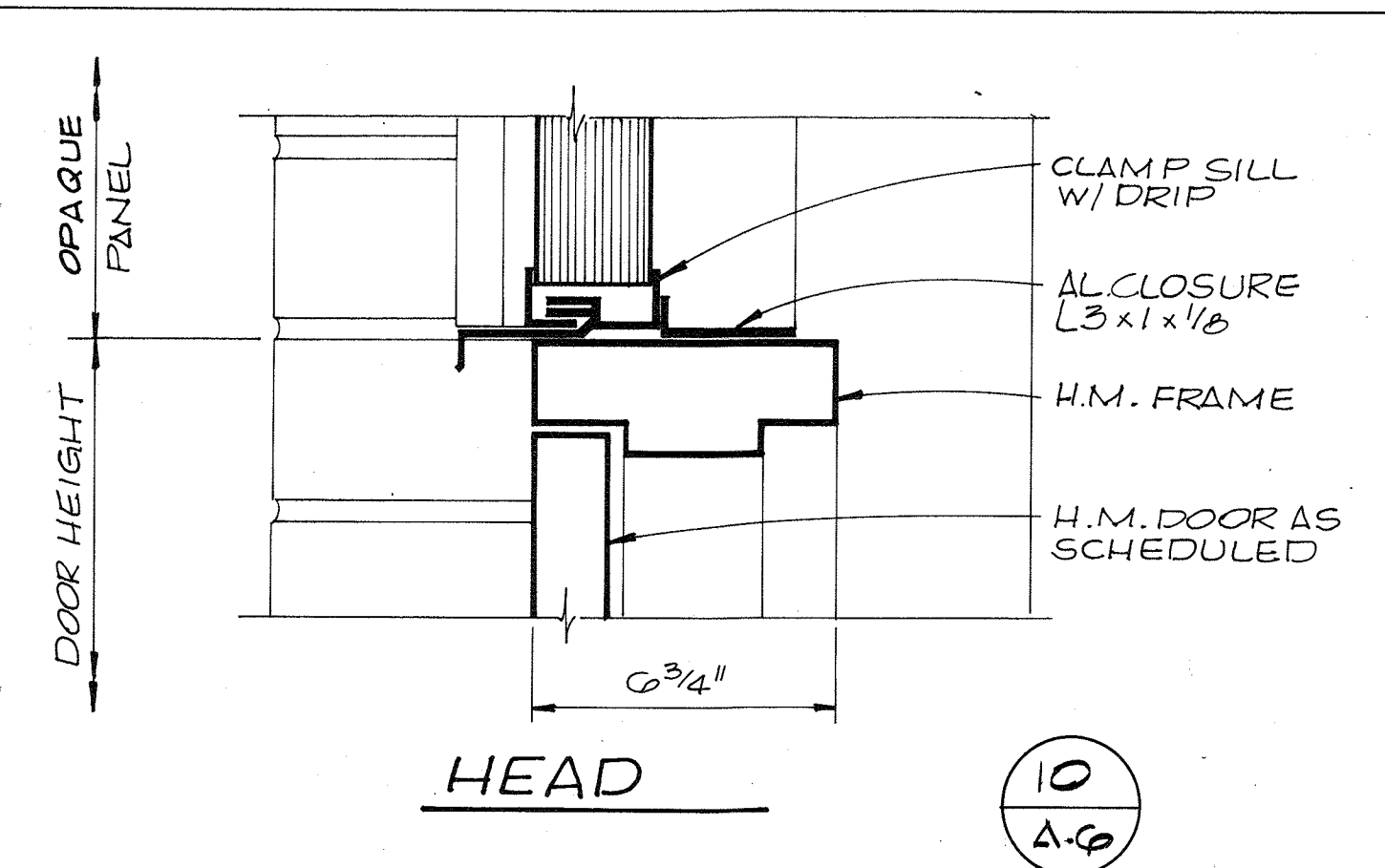
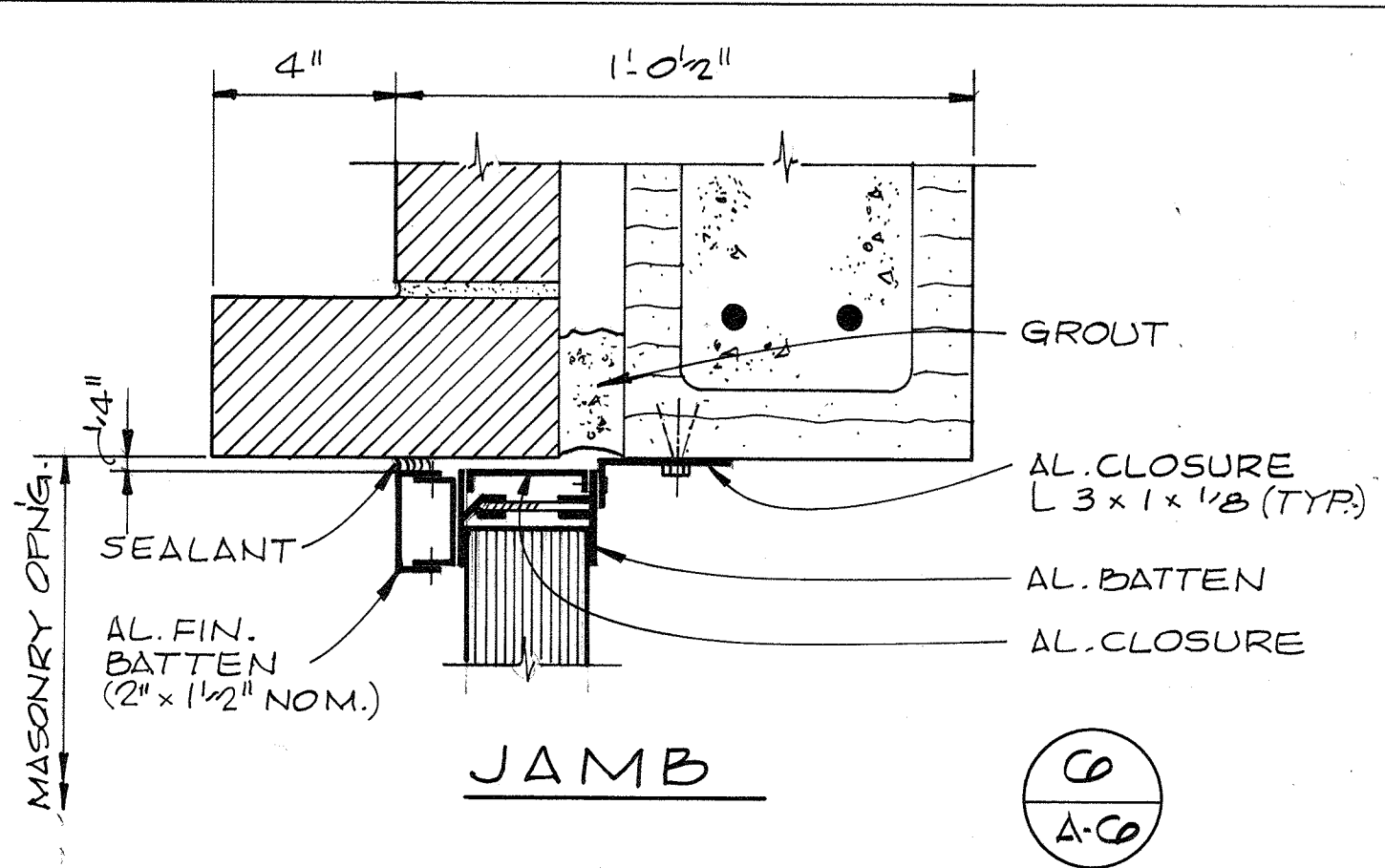
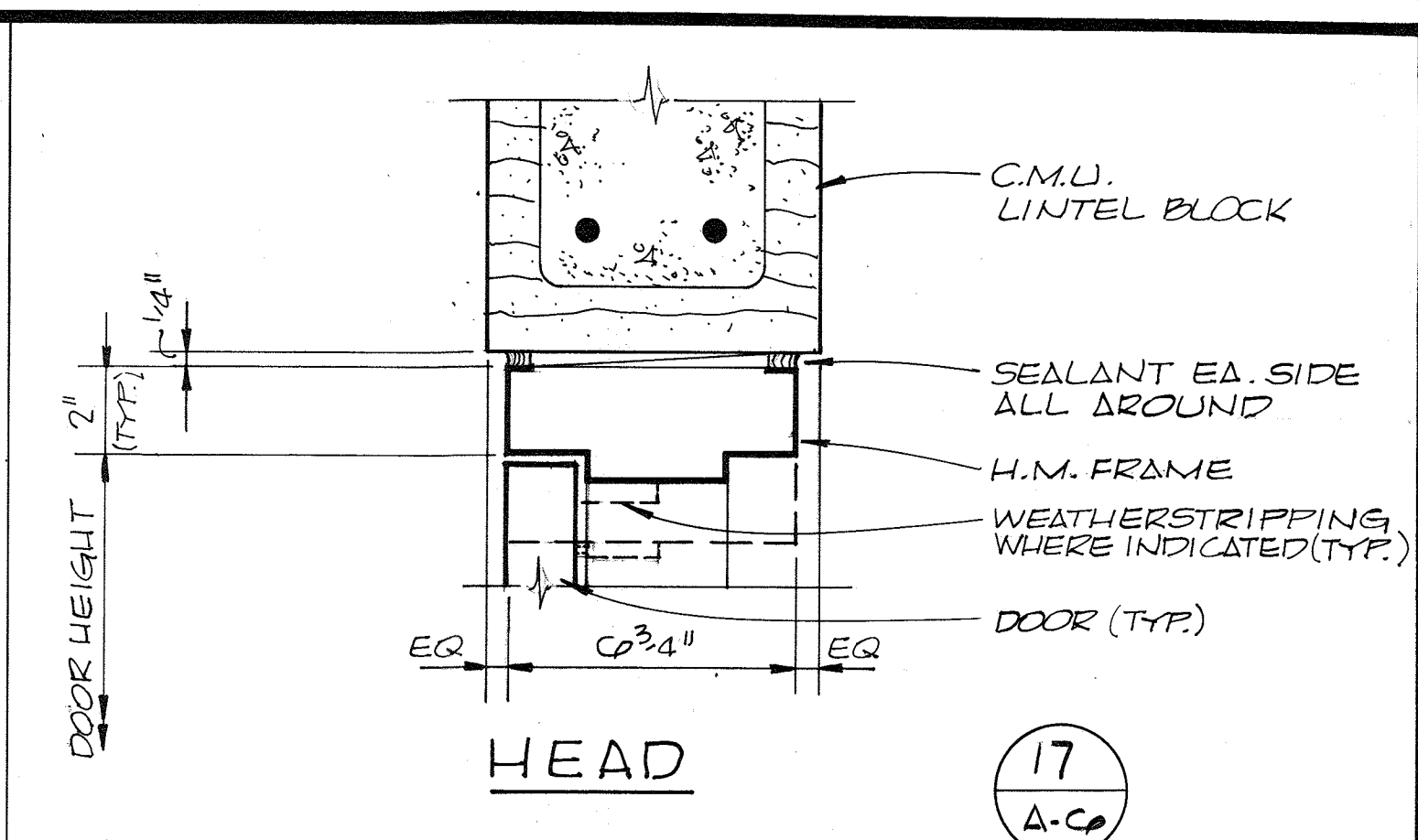
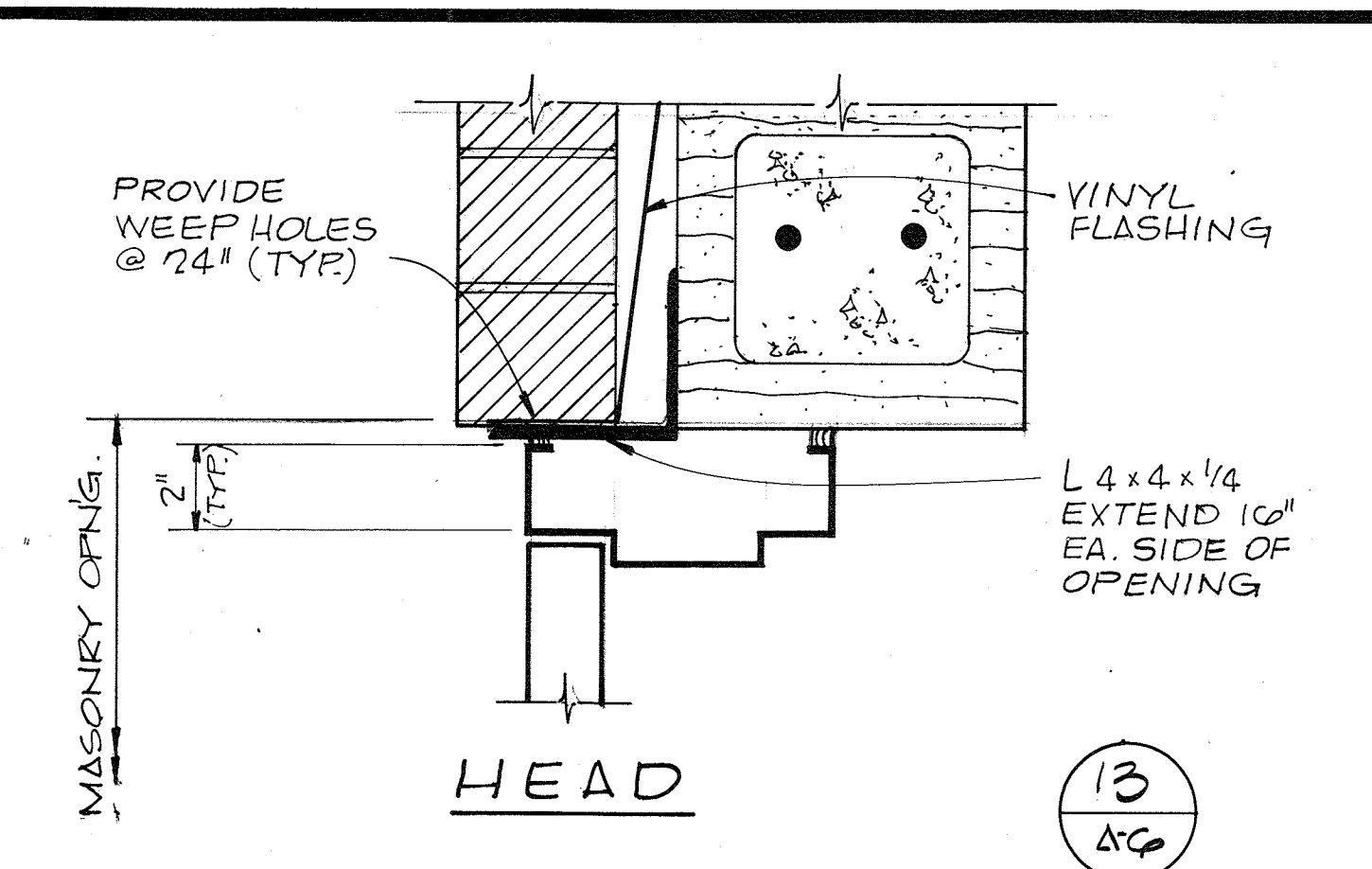
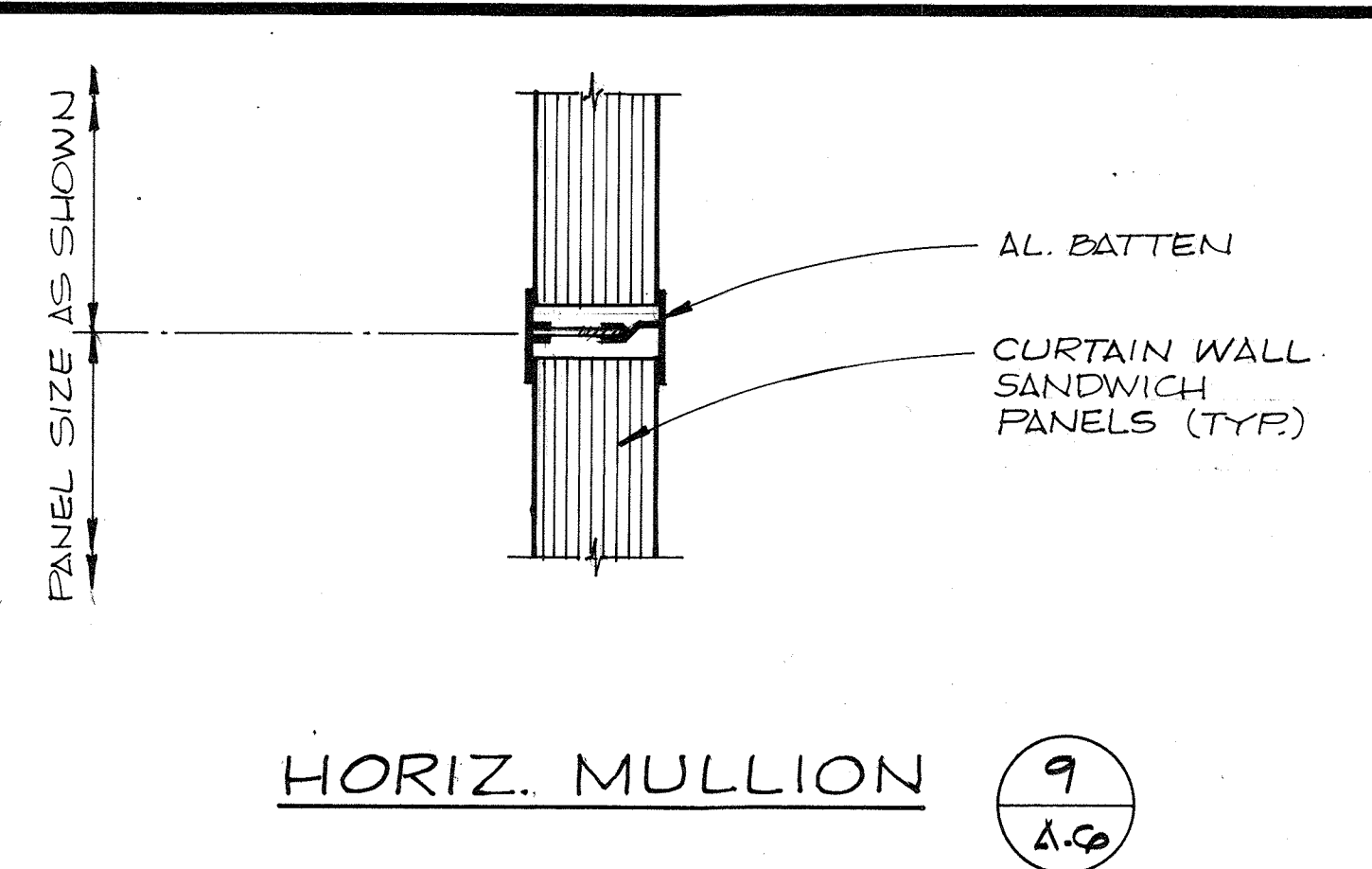
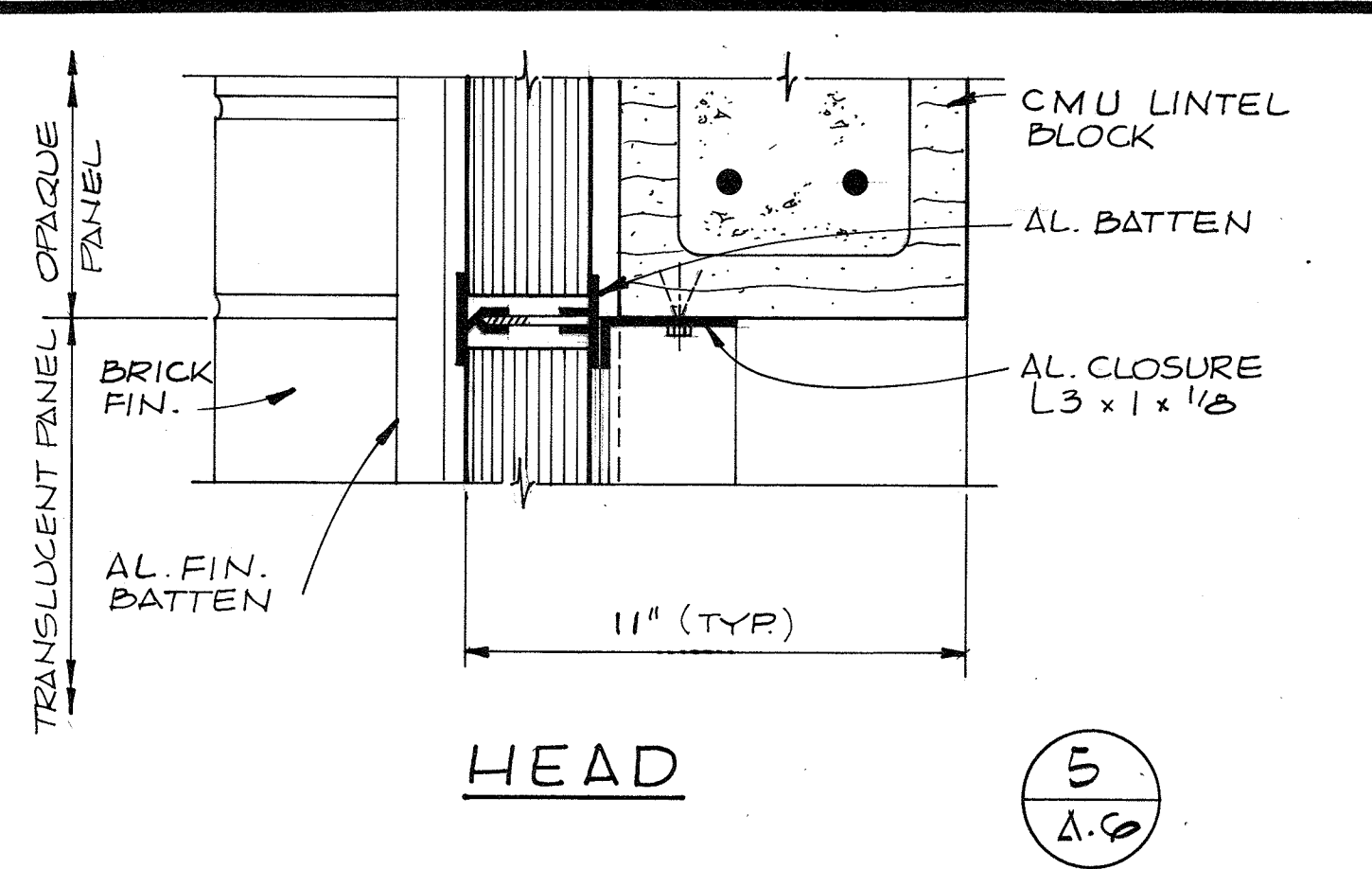
COPING & FLASHING
DETAIL
1/2" = 1'-0"

4
A-5

RECORD DRAWING



| | | | | | | | |
|--|--------------------|----------------|------------------|-----------------|--|--|--|
| CH2M HILL DES. WTG DR. DHA CHK. JMY APPD. | NO. 1/3/80 DATE | ADDENDUM NO. 1 | DHA DEB BY | 5/29/79 DATE | DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | SCREENING FACILITY ROOF PLAN AND DETAILS ARCHITECTURAL | SHEET A-5 OF DATE 8-78 DWG. NO. W1078.C1 |
| | | REVISION | | | | | |



CURTAIN WALL DETAILS
3" = 1'-0"

DOOR DETAILS
3/4" = 1'-0"



| | | | | | |
|-----------|----------|-----|------|----------|----|
| CH2M HILL | DES. AFW | | | | |
| | DR. DHA | | | | |
| | CHK. JMY | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

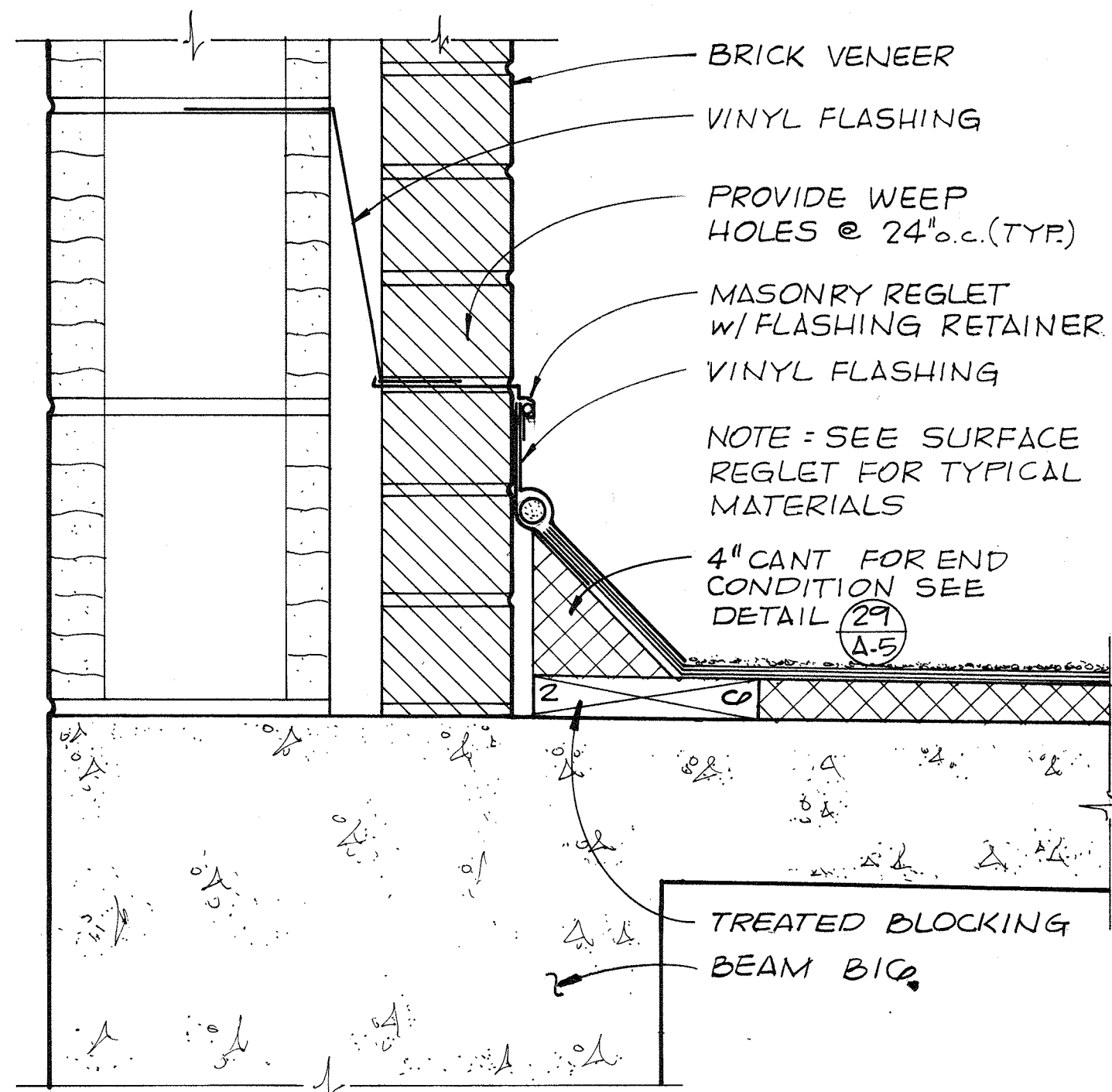
James H. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS
ARCHITECTURAL

SHEET
OF
A-6
DATE 8-78
DWG. NO. W11078.CI

RECORD DRAWING

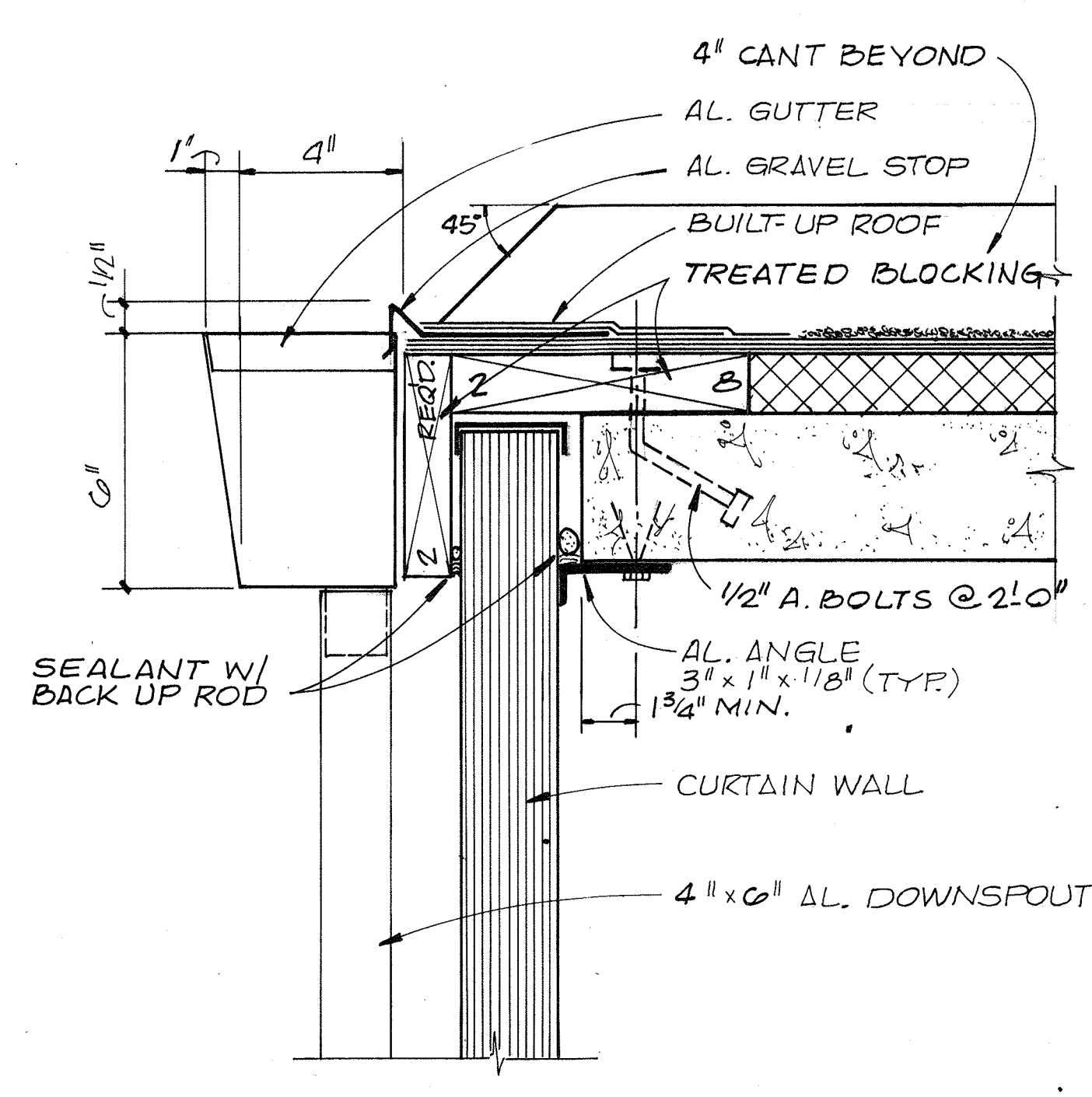


FLASHING DETAIL

3" = 1'-0"

27

A-5

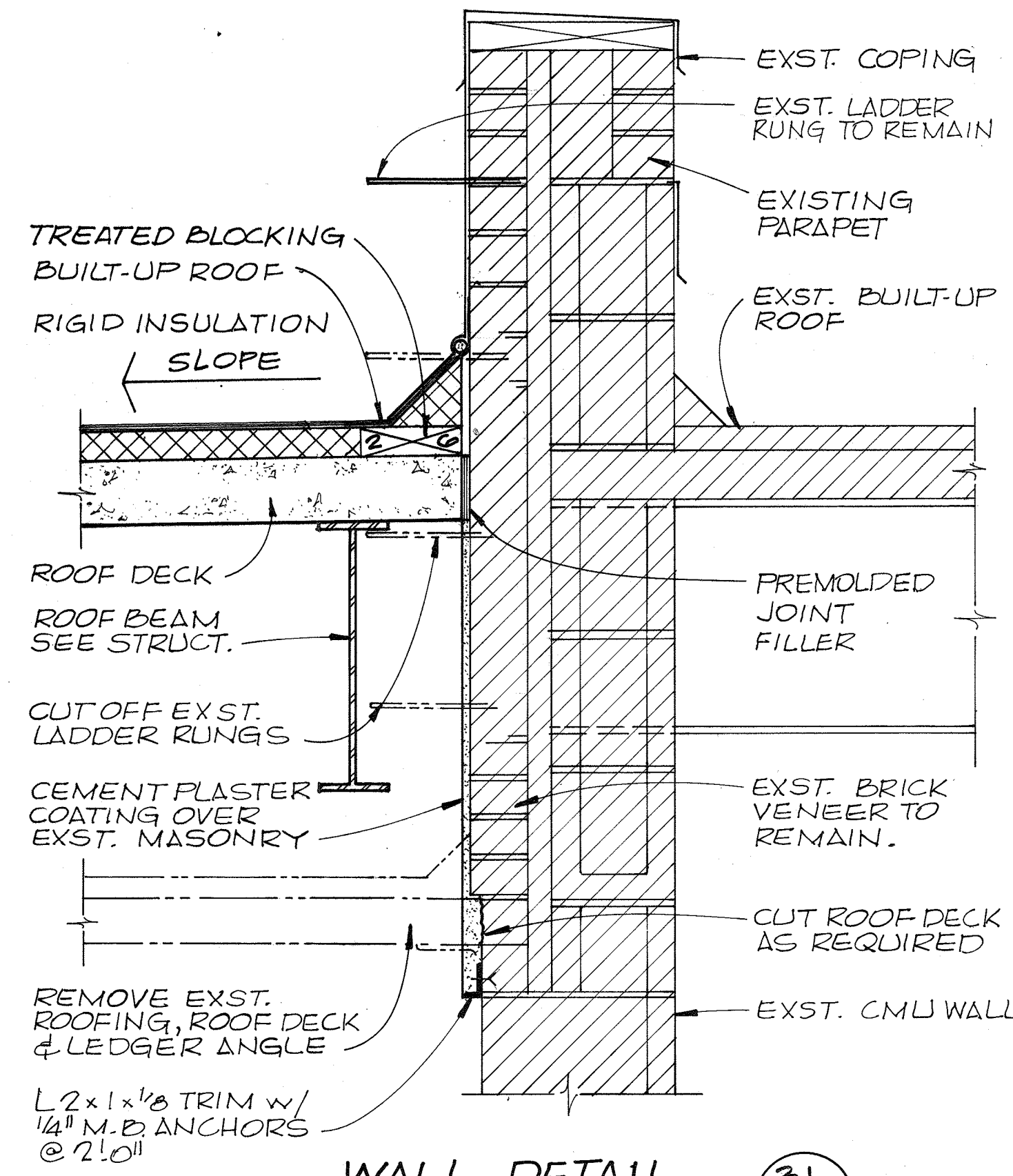


GUTTER & FLASHING DETAIL

3" = 1'-0"

29

A-5

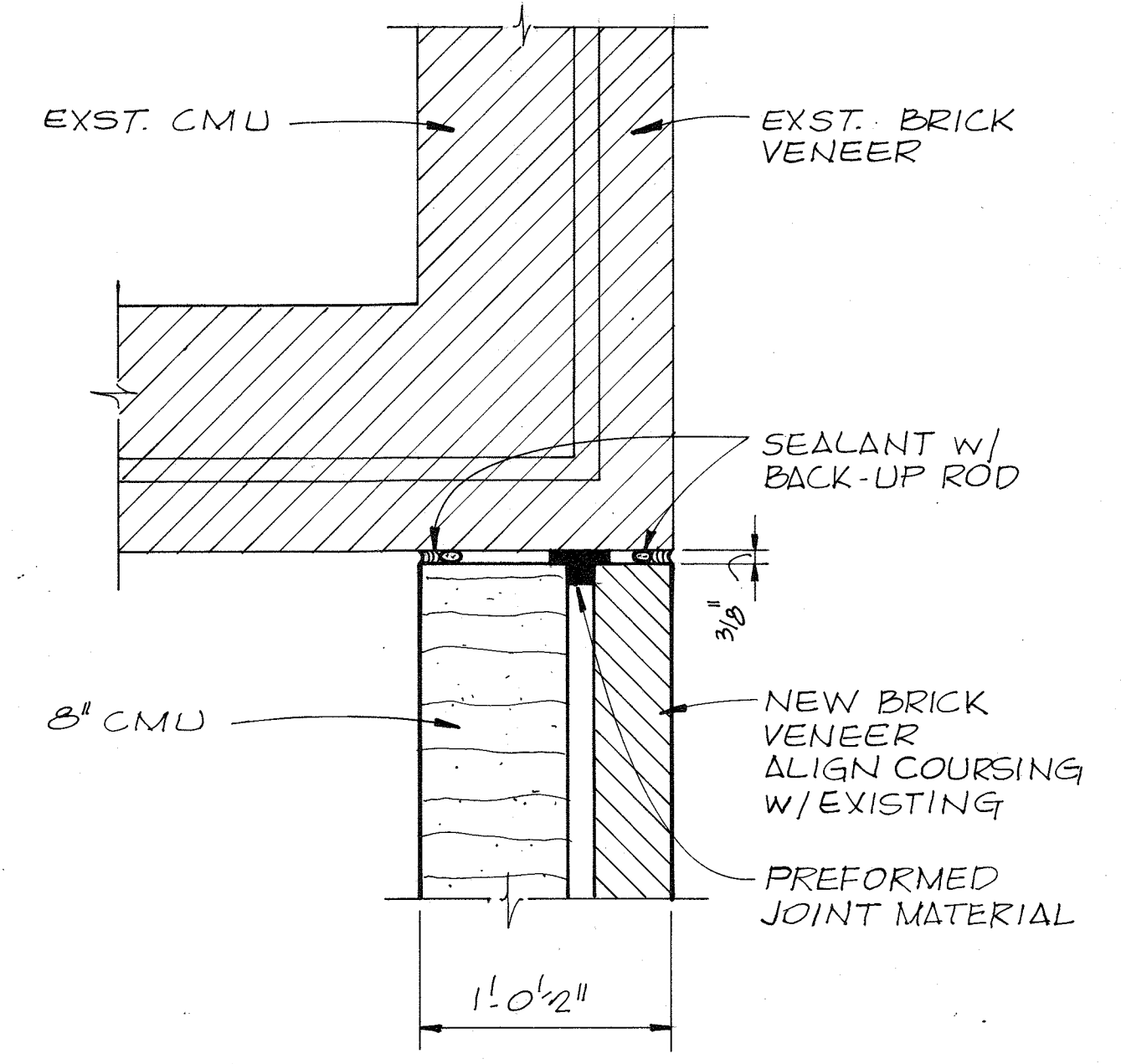


WALL DETAIL

1 1/2" = 1'-0"

31

A-5

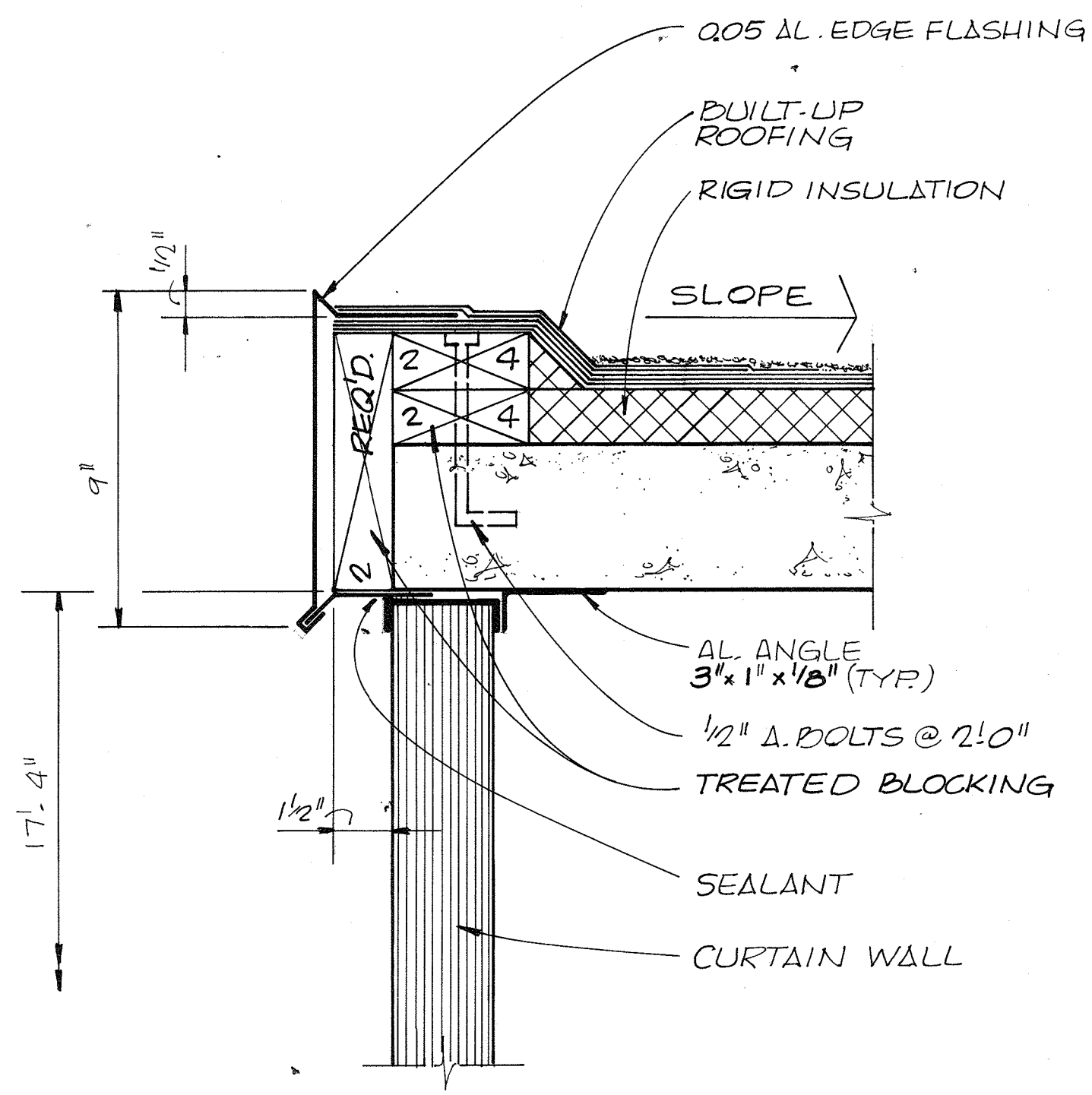


JOINT DETAIL

1 1/2" = 1'-0"

33

A-1

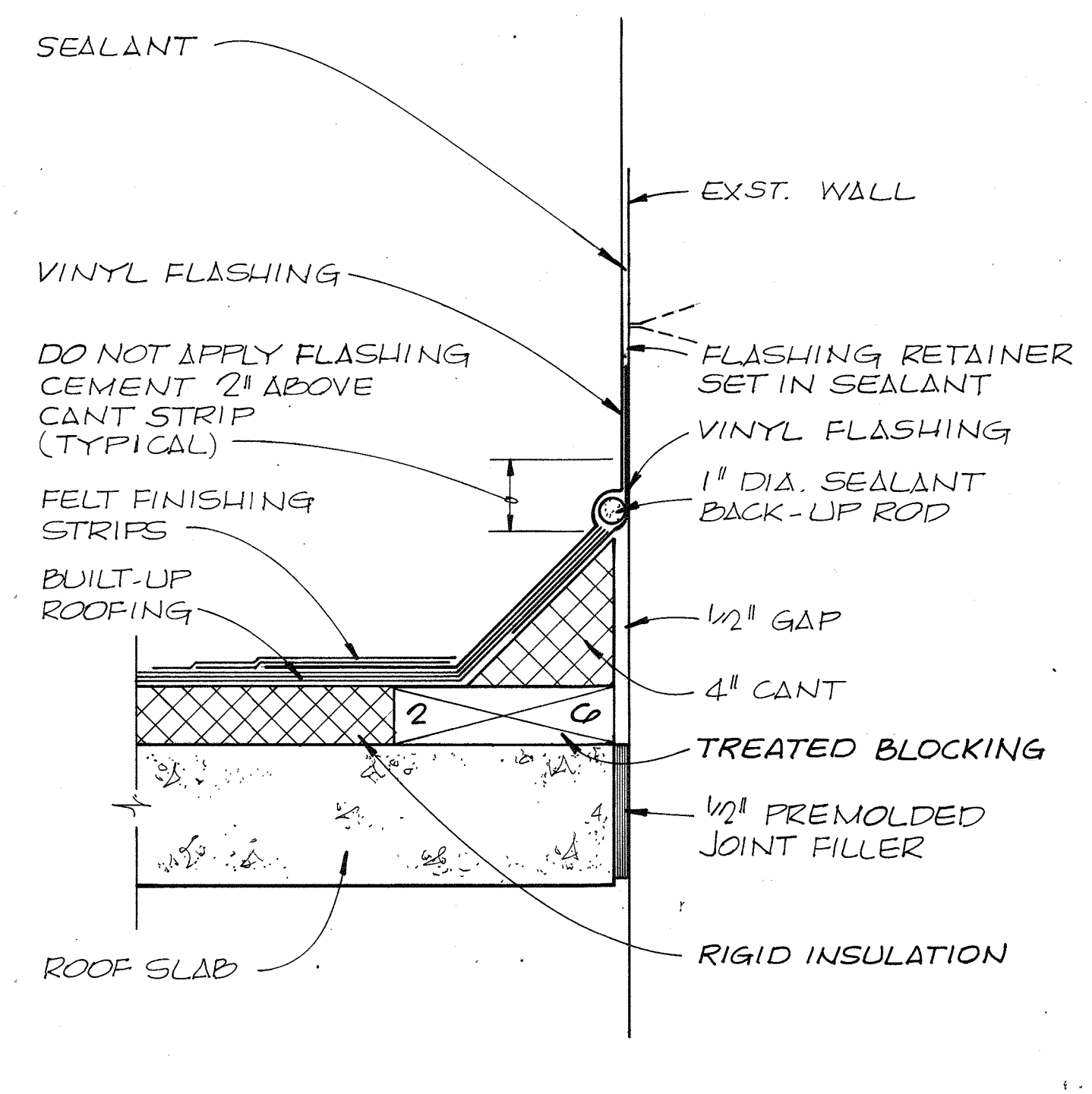


EDGE FLASHING DETAIL

3" = 1'-0"

28

A-5

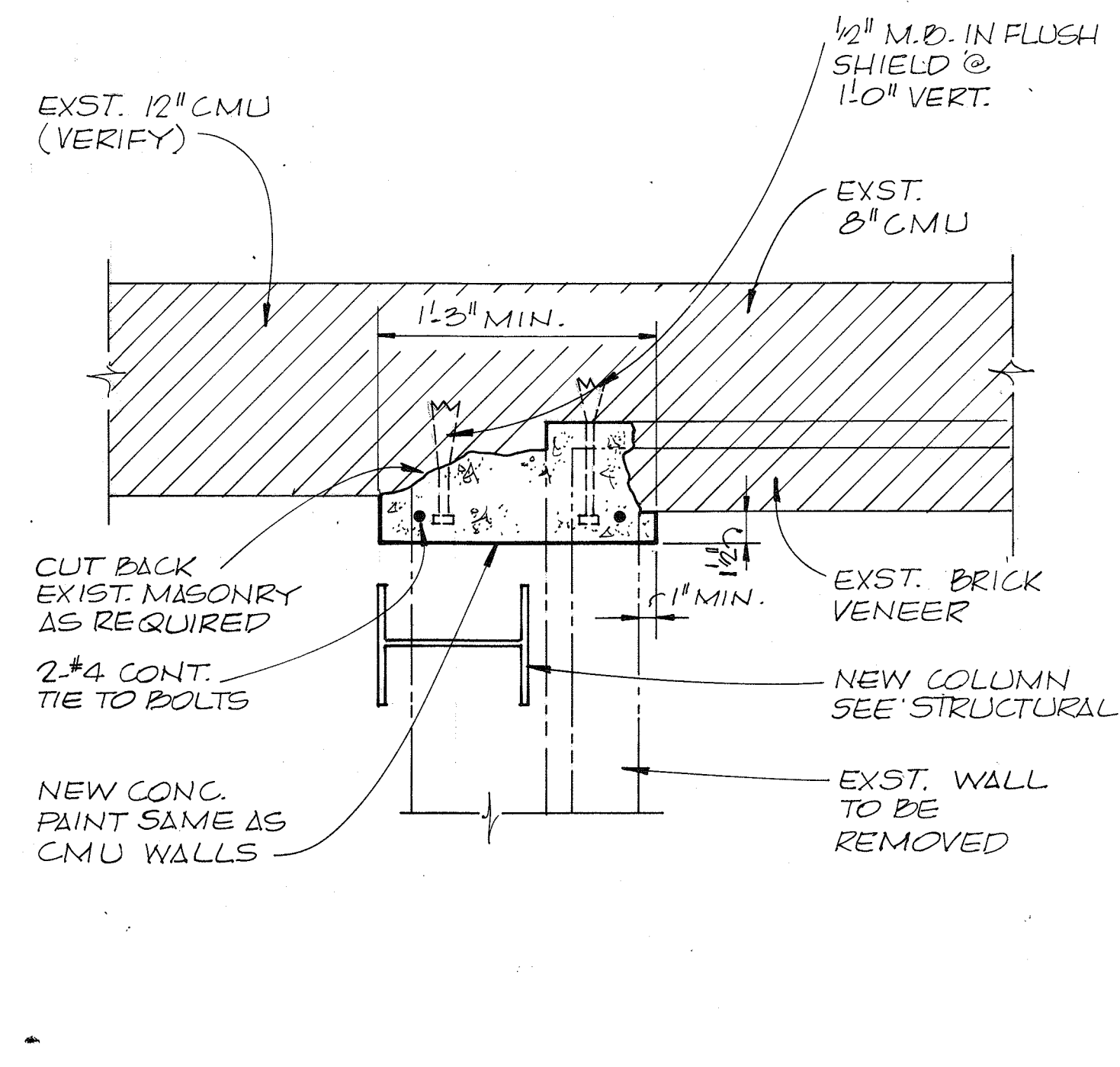


SURFACE REGLET

3" = 1'-0"

30

A-5

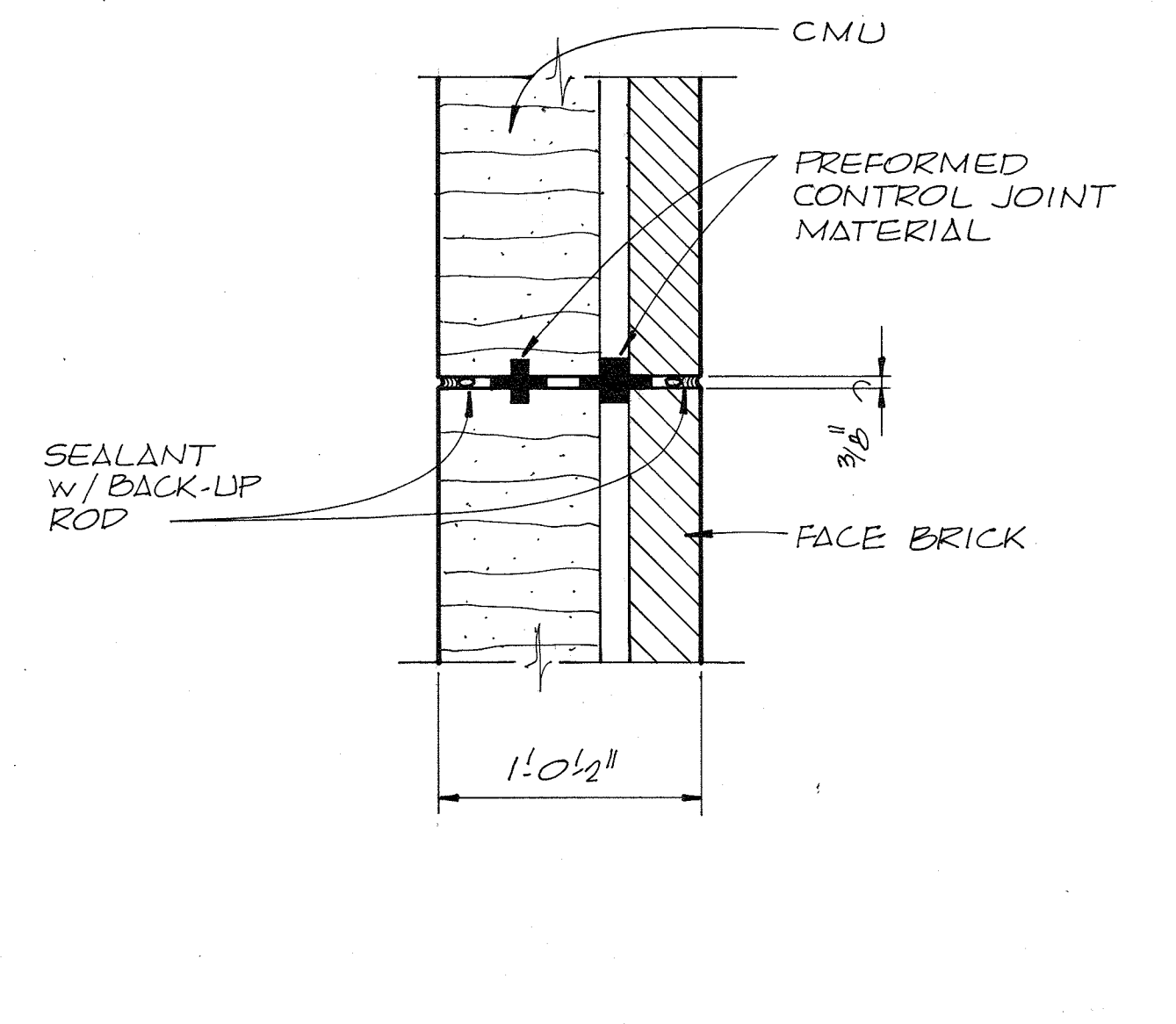


WALL DETAIL

1 1/2" = 1'-0"

32

A-1



CONTROL JOINT DETAIL

1 1/2" = 1'-0"

34

A-1

RECORD DRAWING



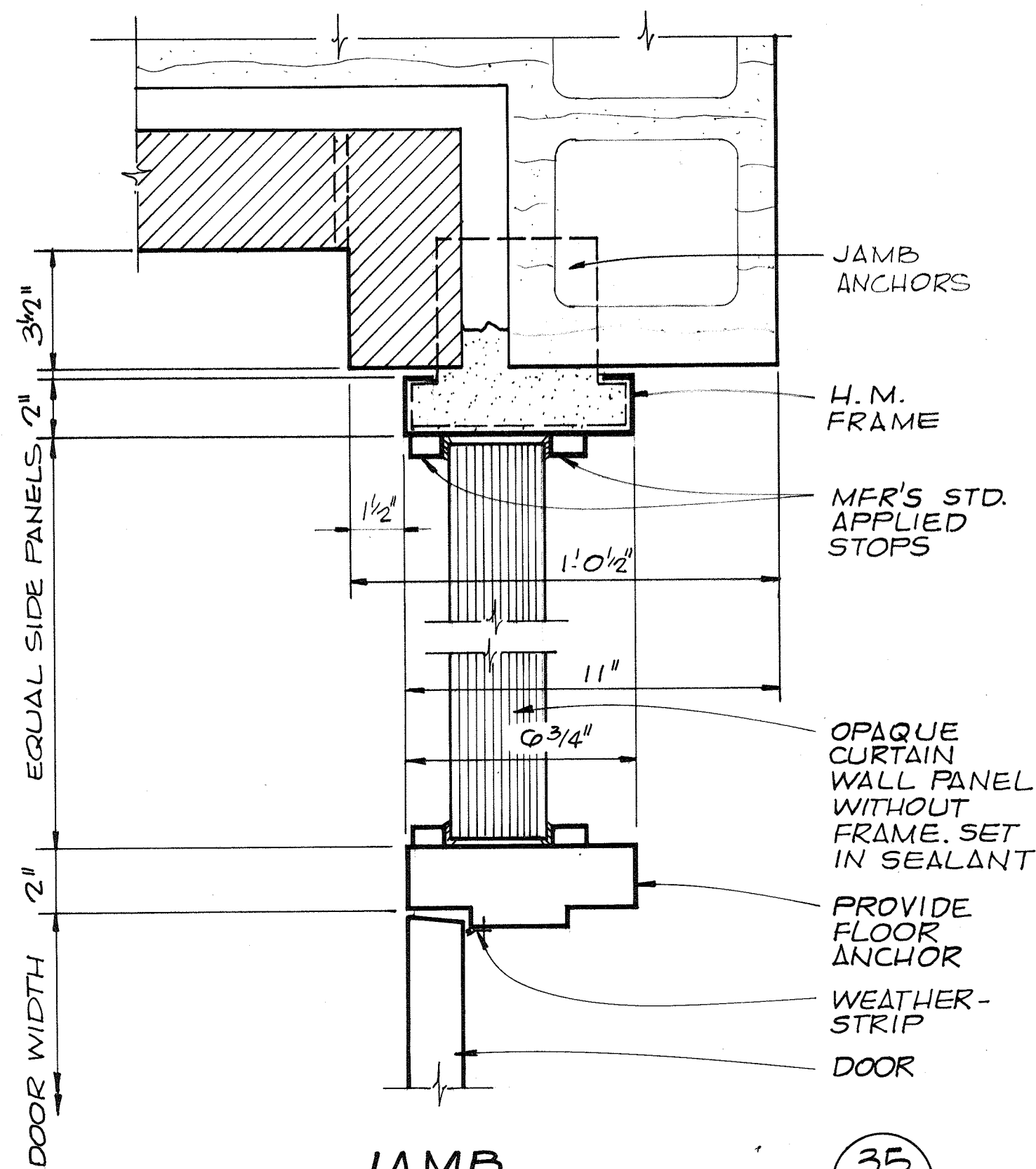
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|-----------|----------|----------|-------------------|----|-------|
| CH2M HILL | DES. ΔFW | | | | |
| | DR. DHA | | | | |
| | CHK. JMY | | | | |
| | APPD. | | | | |
| | NO. | DATE | REVISION | BY | APPD. |
| | | 12-14-81 | FLASHING EXTENDED | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

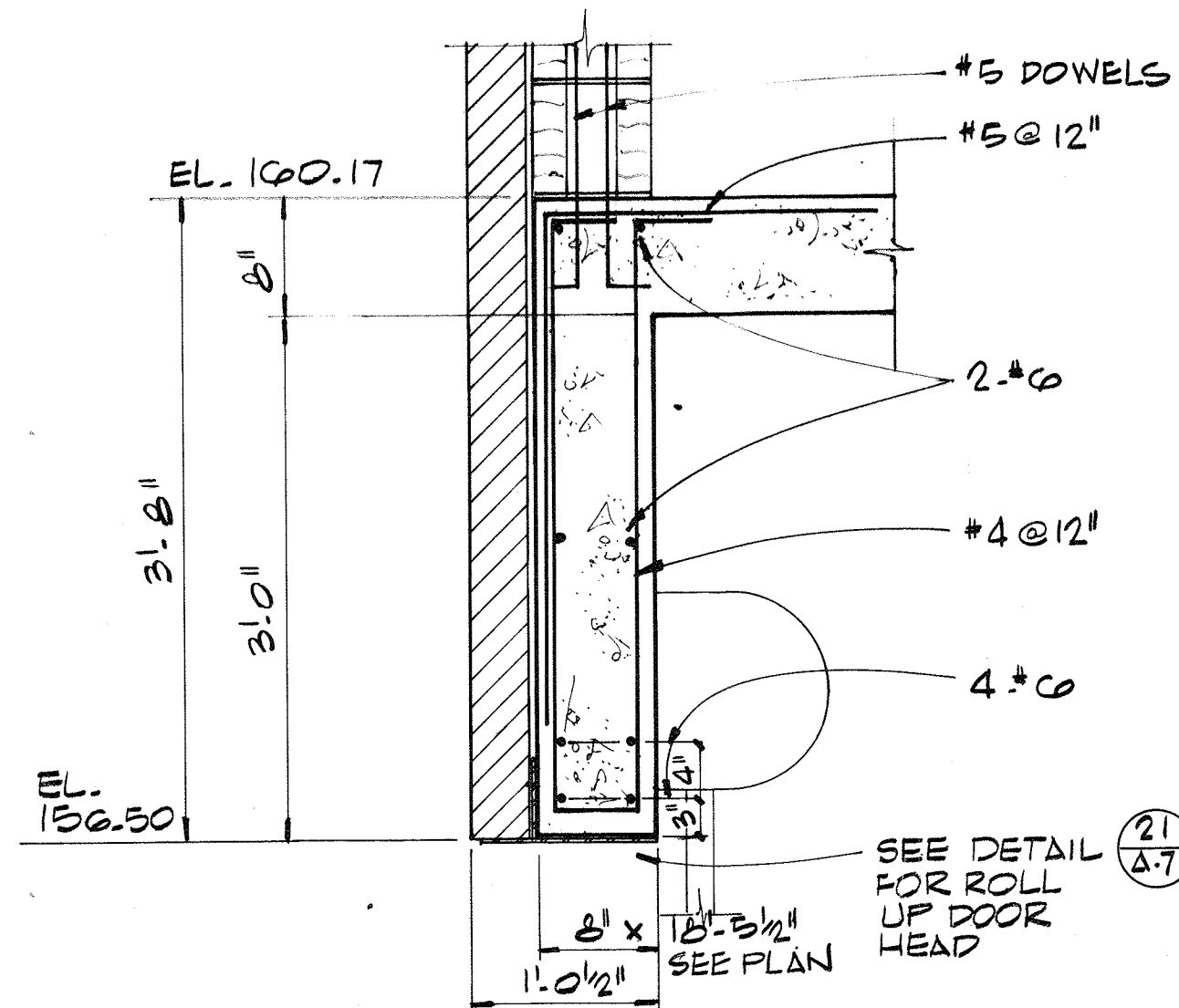
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS
ARCHITECTURAL

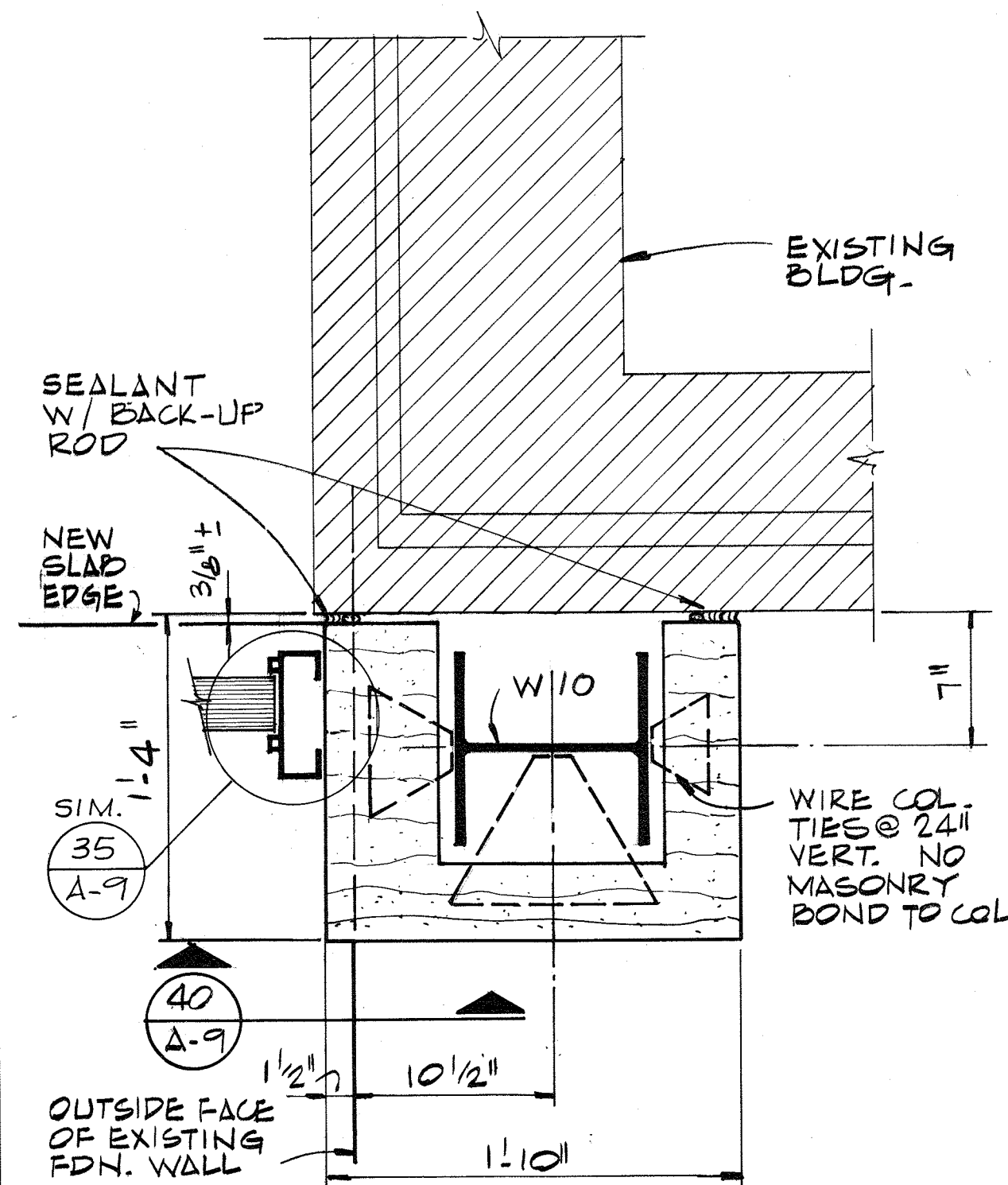
SHEET OF A-8
DATE 8-78
DWG. NO. W1078.C1



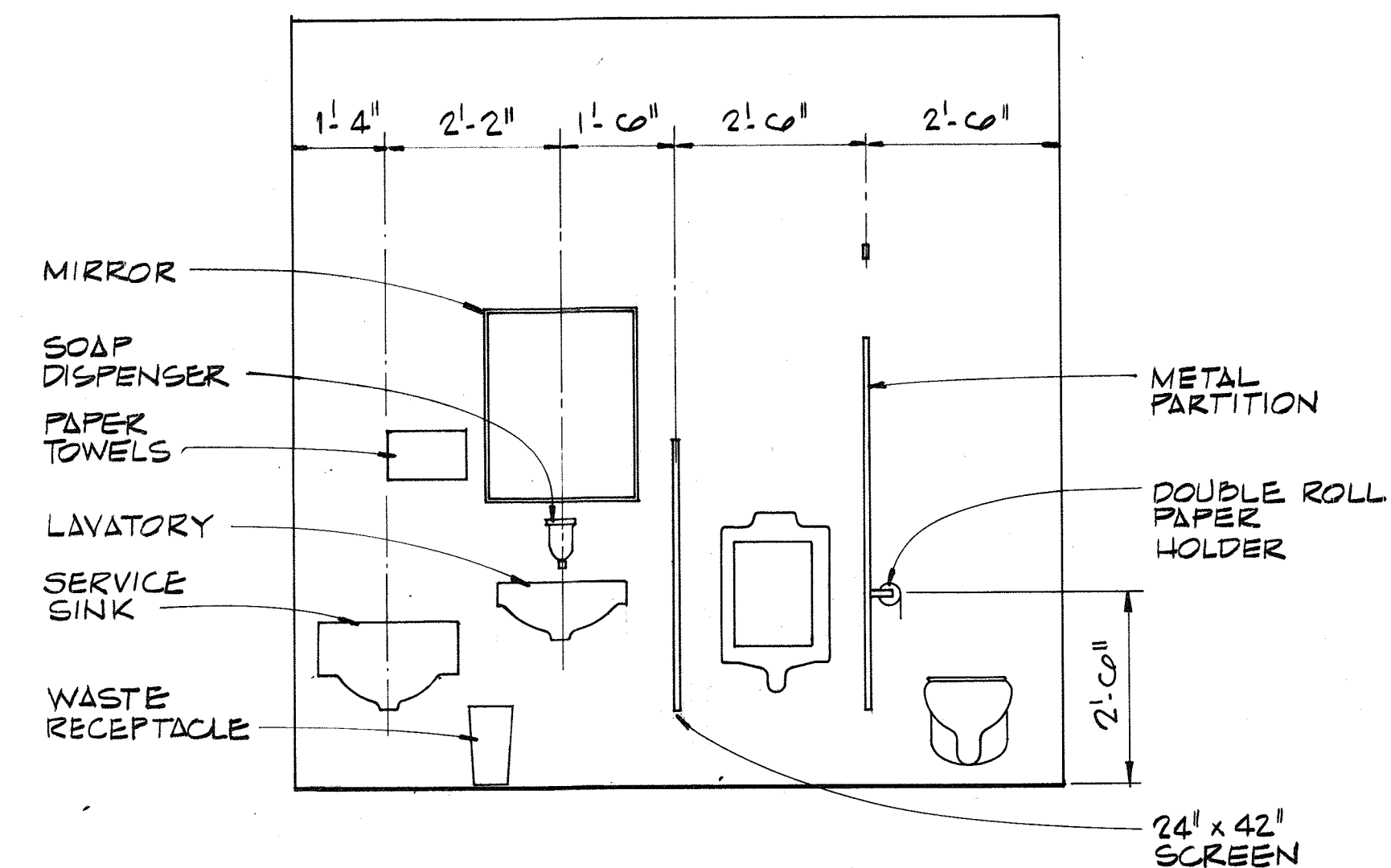
JAMB (35) Δ-7



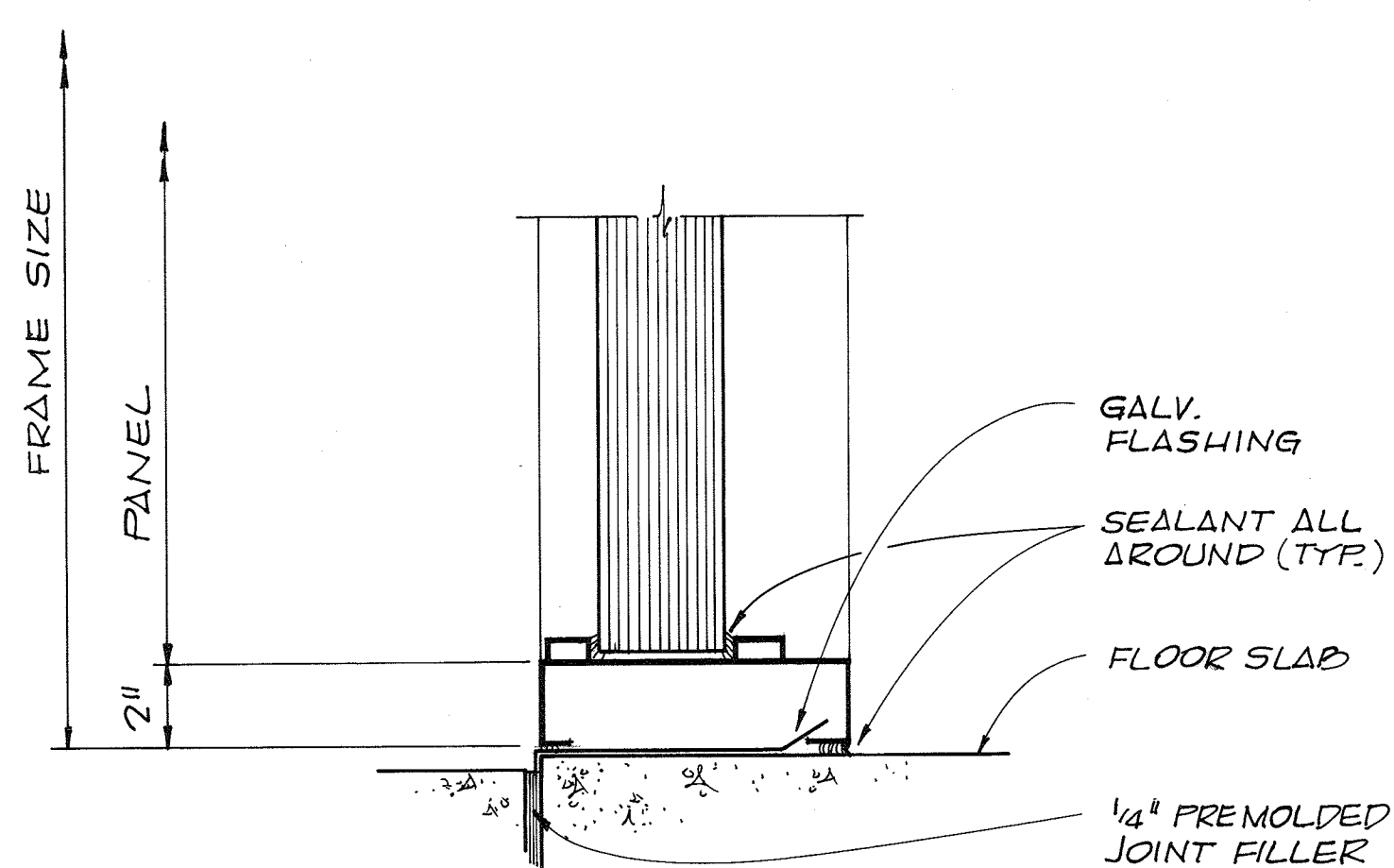
LINTEL DETAIL (37) Δ-2



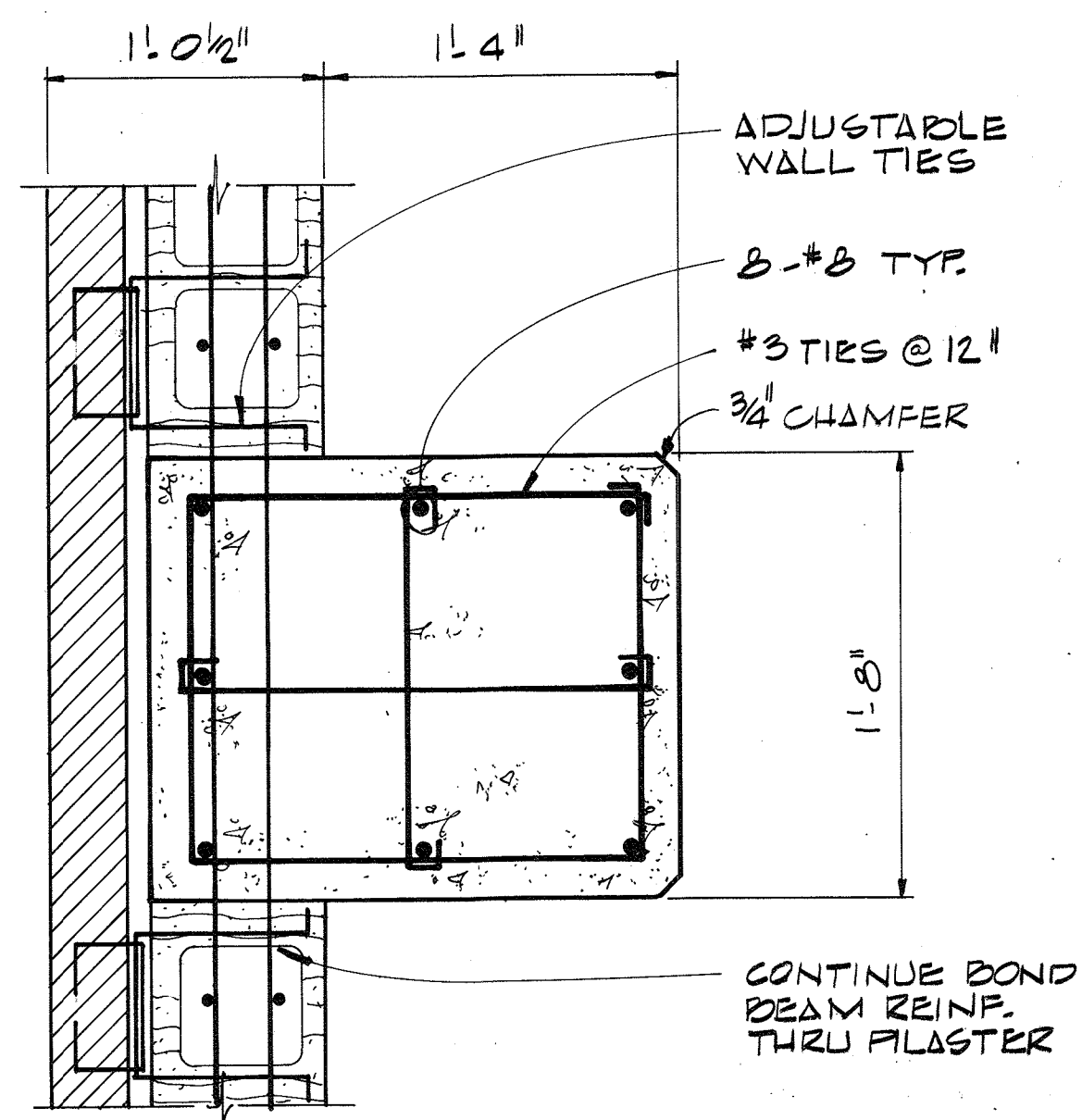
JOINT DETAIL (39) Δ-1



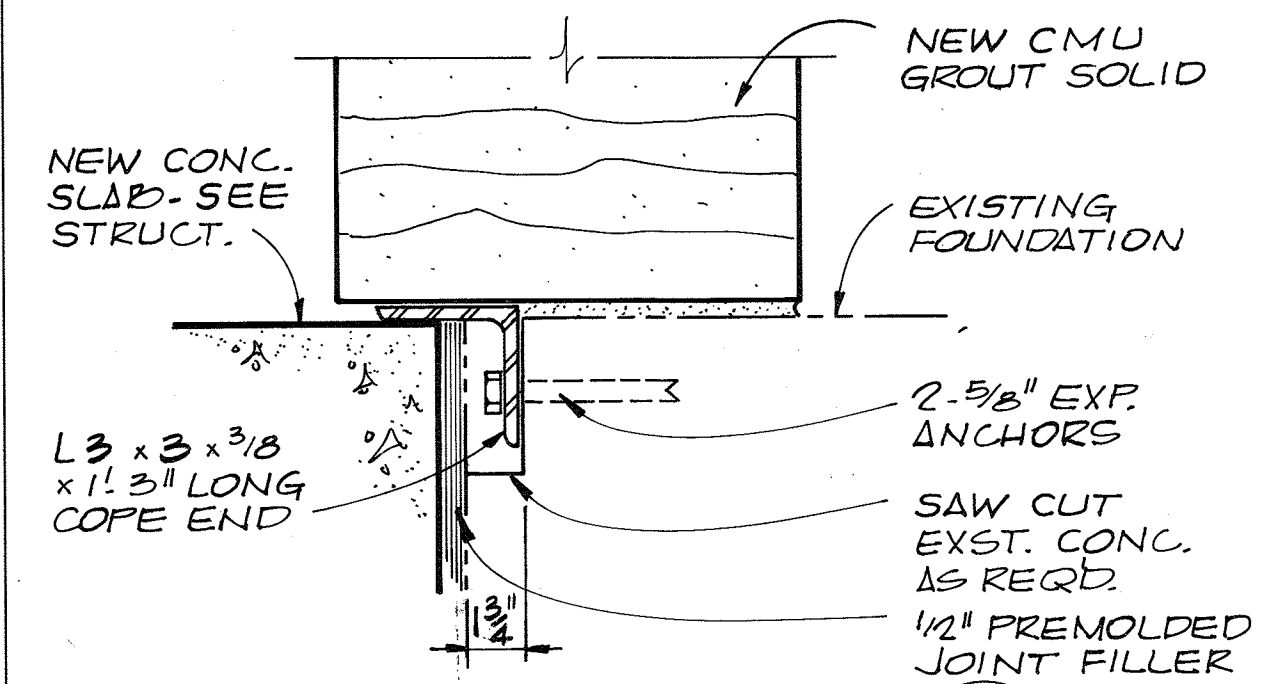
SOUTH WALL ELEVATION-TOILET (1/2\"/>



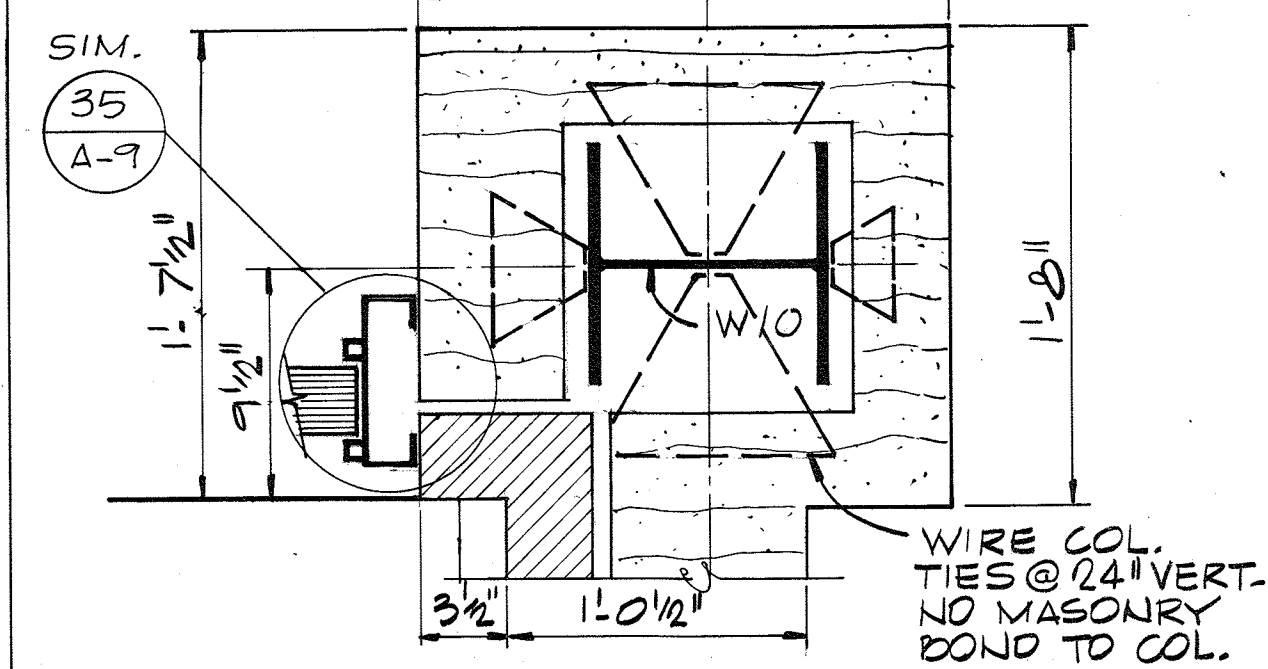
SILL (30) Δ-7



PILASTER DETAIL (38) Δ-1



DETAIL 40 (40) Δ-9



DETAIL 41 (41) Δ-1

| ROOM | FLOOR | | | WALLS | | | CEILING | | | REMARKS | |
|-----------------|-------|-------|------|-----------|-----|-----|---------|-------|-----|---------|------------|
| | MAT'L | FIN | COL | MAT'L | FIN | COL | HEIGHT | MAT'L | FIN | | COL |
| LOADING AREA | CONC. | HARD. | NONE | CMU/CONC. | 12 | * | 17'-0" | CONC. | 12 | * | |
| CONVEYOR ROOM | CONC. | HARD. | NONE | CMU/CONC. | 12 | * | 33'-8" | CONC. | 12 | * | |
| OPERATIONS ROOM | CONC. | HARD. | NONE | CMU/CONC. | 12 | * | 18'-0" | CONC. | 12 | * | |
| ELECTRICAL ROOM | CONC. | HARD. | NONE | CMU | 12 | * | 10'-0" | CONC. | 12 | * | |
| TOILET | CONC. | HARD. | NONE | CMU | 12 | * | 10'-0" | CONC. | 12 | * | |
| HVAC ROOM | CONC. | HARD. | NONE | CMU | 12 | * | 10'-0" | CONC. | 12 | * | |
| SCREEN CHAMBER | CONC. | - | - | CONC. | 18 | * | 21'-1" | CONC. | - | - | SEE NOTE 3 |

- EXTERIOR FINISH**
- BRICK - MATCH EXISTING
 - FLASHINGS, DOWNSPOUTS - MATCH EXISTING
 - OPAQUE CURTAIN WALL PANELS - MATCH EXISTING
 - TRANSLUCENT CURTAIN WALL PANELS - MATCH EXISTING
 - EXPOSED CONCRETE - SYSTEM NO. 13

- NOTES:**
- *FOR PAINT FINISH SYSTEMS SEE SPECIFICATIONS.
 - ALL ARCHITECTURAL EXPOSED ALUMINUM SHALL BE ANODIZED A DARK BRONZE TONE. STAIRWAYS, PLATFORMS AND HANDRAILS SHALL BE ANODIZED NATURAL.
 - EXISTING BELOW GRADE WALLS TO BE CONVERTED TO INTERIOR EXPOSED WALLS SHALL RECEIVE PAINT SYSTEM NO. 18.

CURTAINWALL DETAILS (31\"/>



| | | | | | | | |
|--|--------------|-----|------|----------|----|-------|--|
| | DES. AFW/PLG | | | | | | |
| | DR. DHA | | | | | | |
| | CHK. JMY | | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James Hill
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

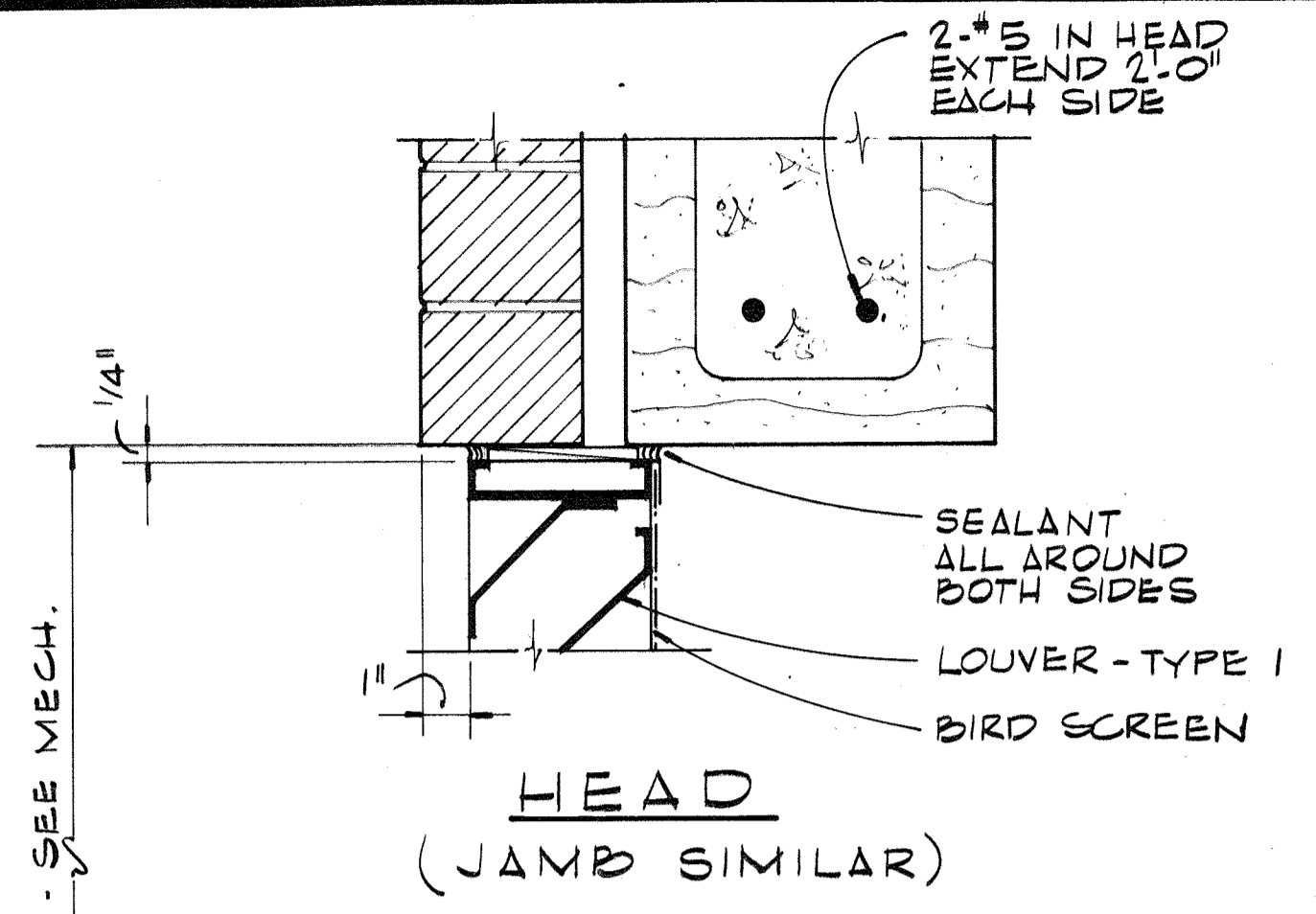
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS AND FINISH SCHEDULE

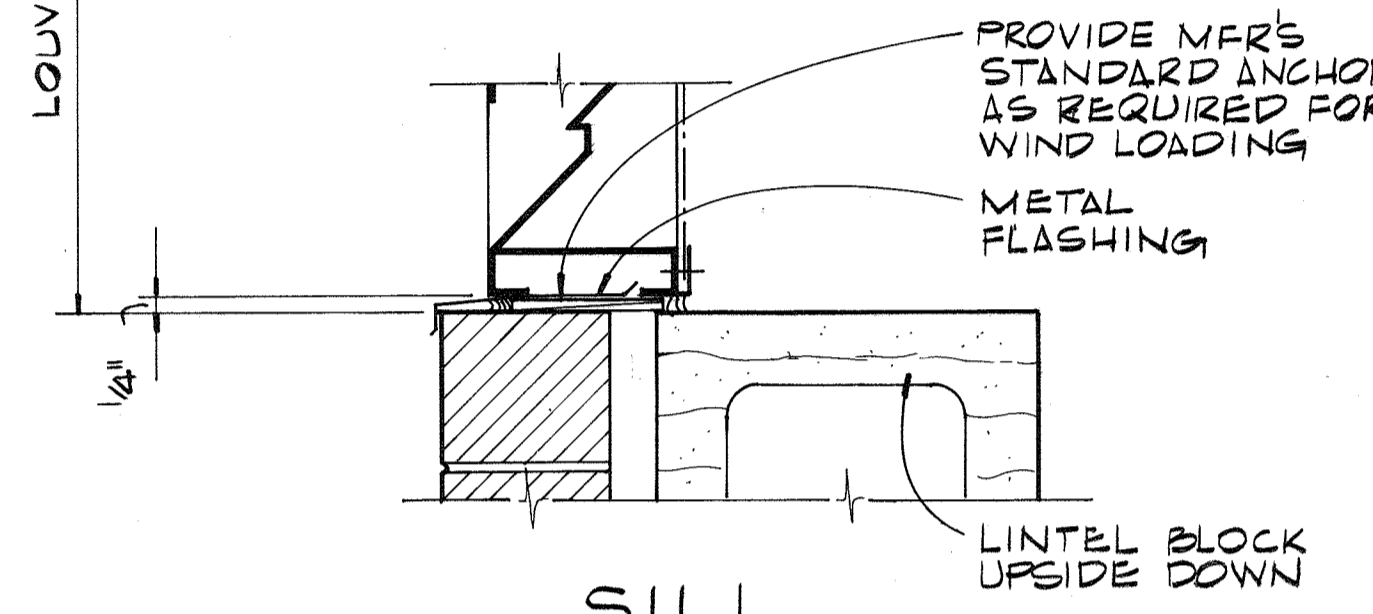
ARCHITECTURAL

SHEET
OF
A-9
DATE 8-78
DWG. NO. W1078.CI

RECORD DRAWING

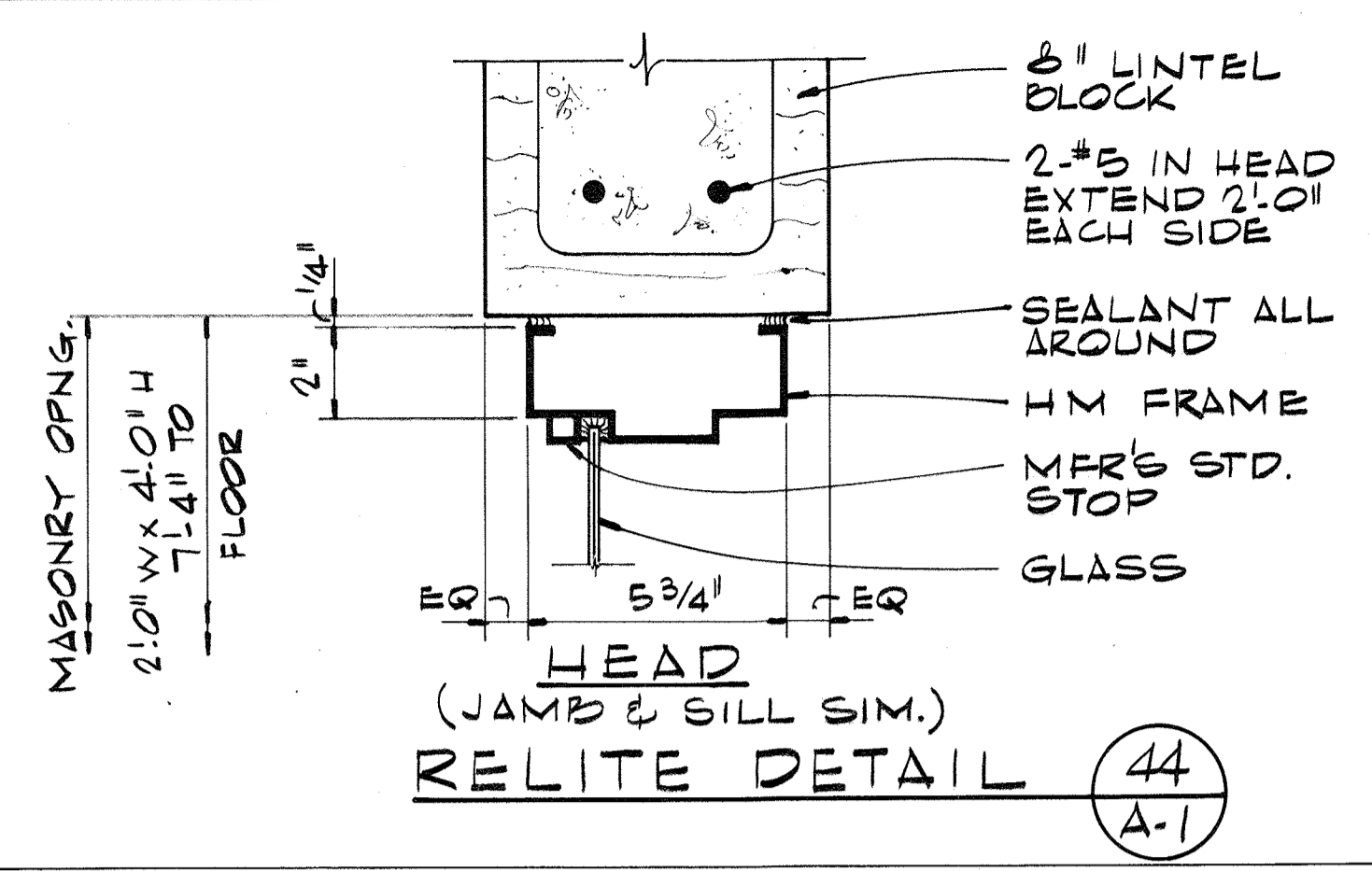


HEAD
(JAMB SIMILAR)

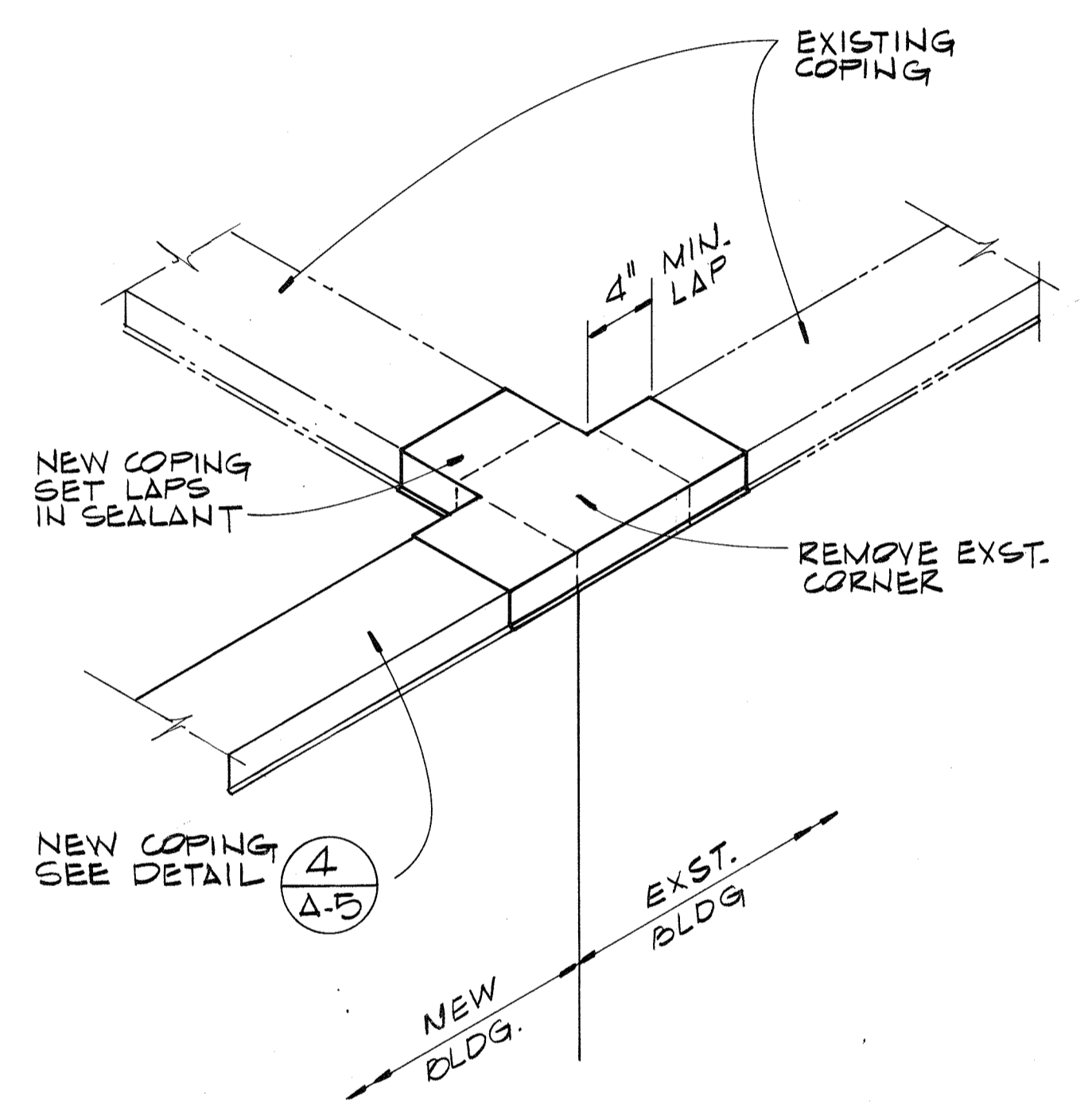


SILL

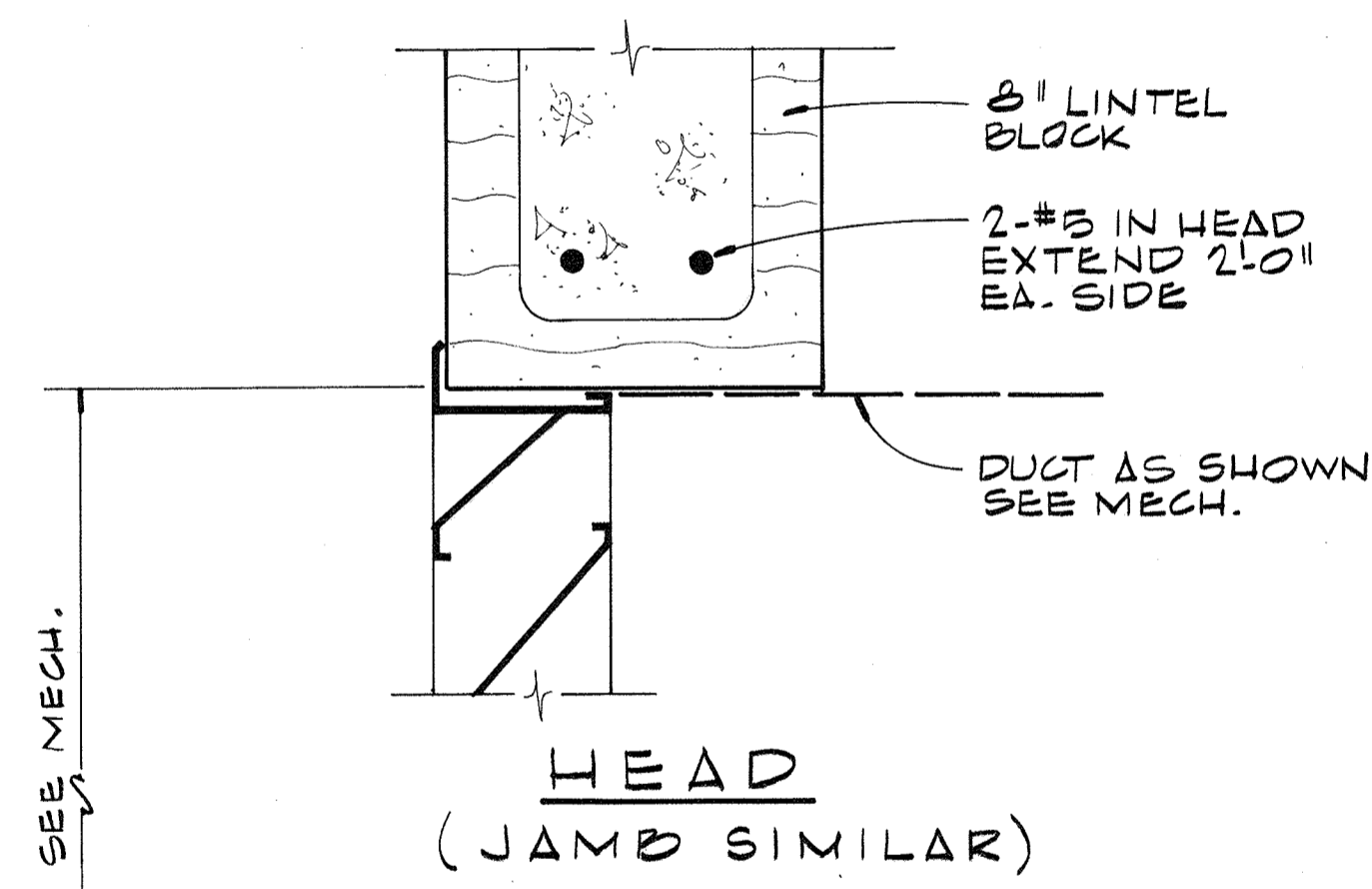
EXTERIOR LOUVER DETAIL (42)
A-1
3" = 1'-0"



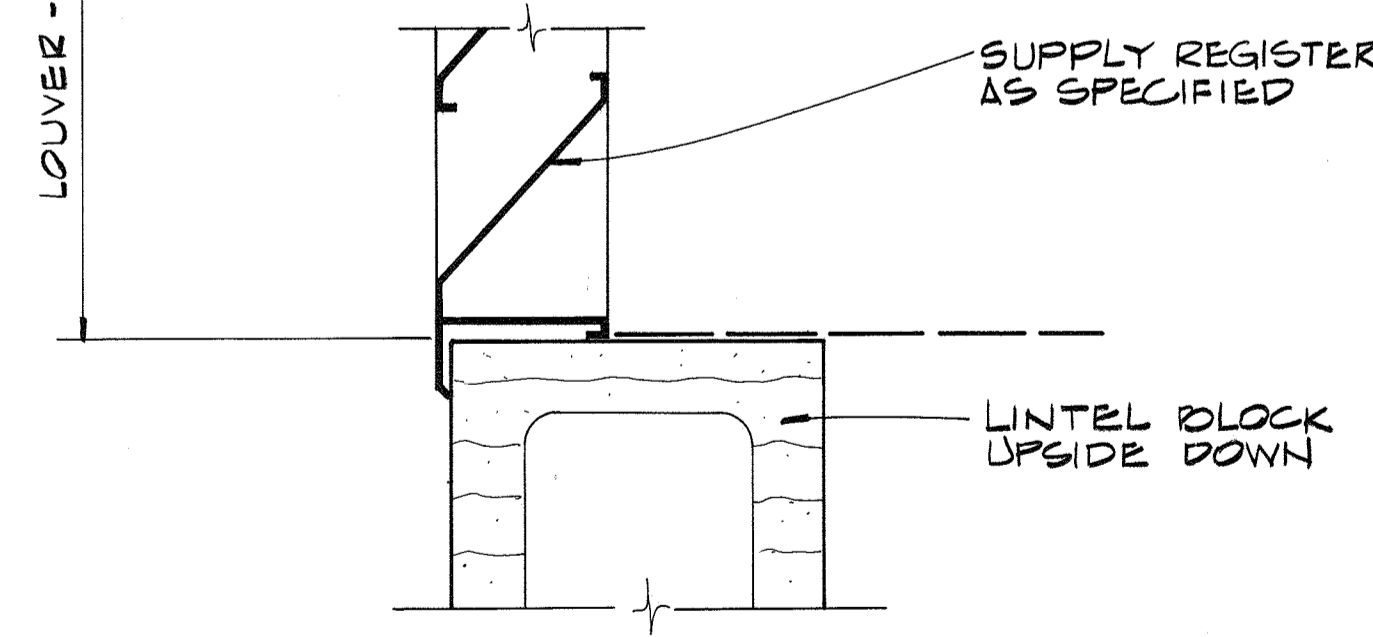
HEAD
(JAMB & SILL SIM.)
RELITE DETAIL (44)
A-1



NEW TO EXISTING COPING DETAIL (45)
A-2
NTS



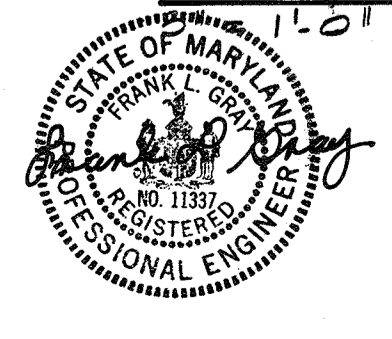
HEAD
(JAMB SIMILAR)



SILL

INTERIOR REGISTER DETAIL (43)
A-1
1'-0"

RECORD DRAWING



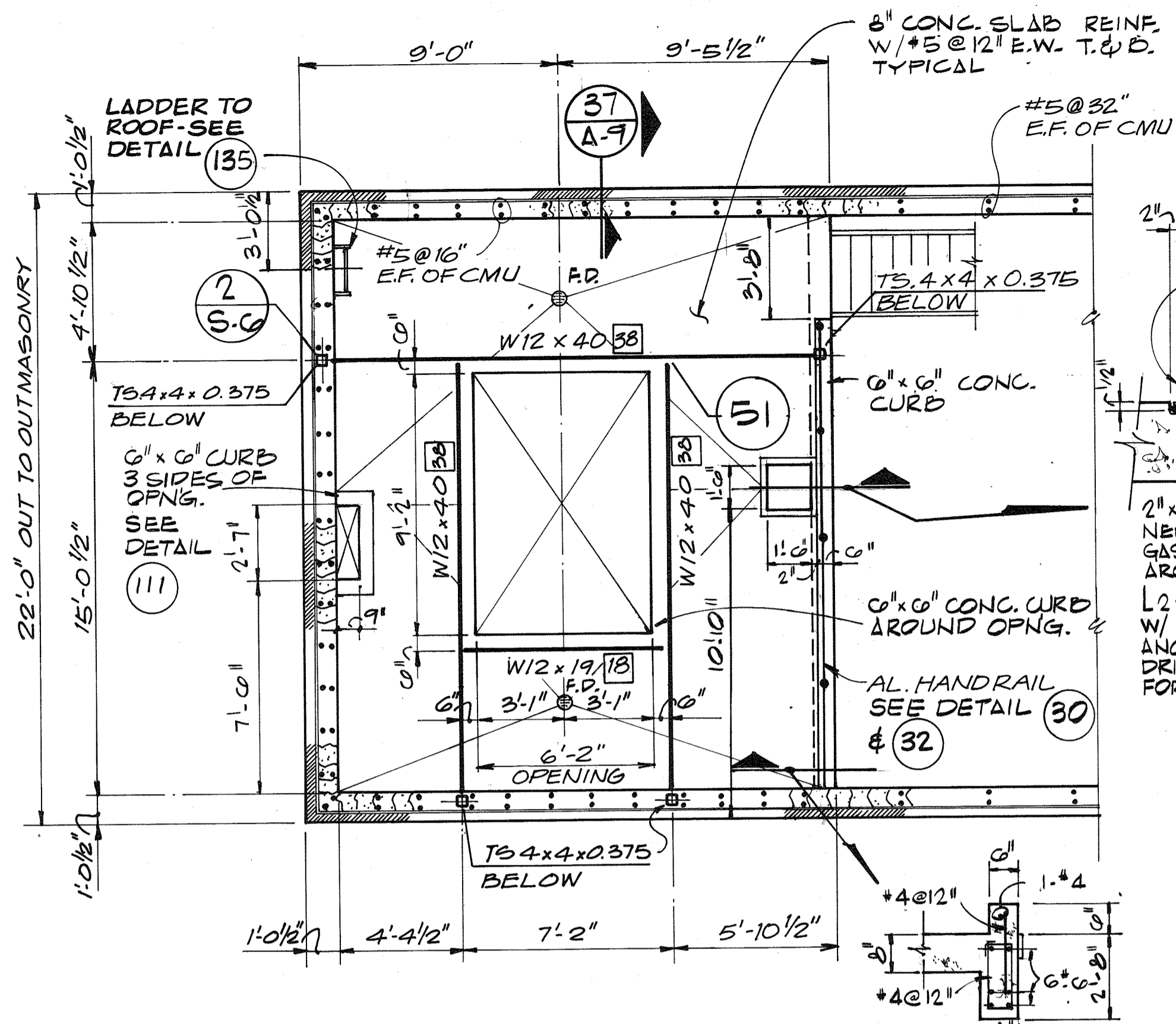
| | | | | | |
|--|-----|------|----------|----|-------|
| CH2M HILL DES. FLG DR. DHA CHK. JMY APPD. | NO. | DATE | REVISION | BY | APPD. |
| | | | | | |
| | | | | | |
| | | | | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Hill
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

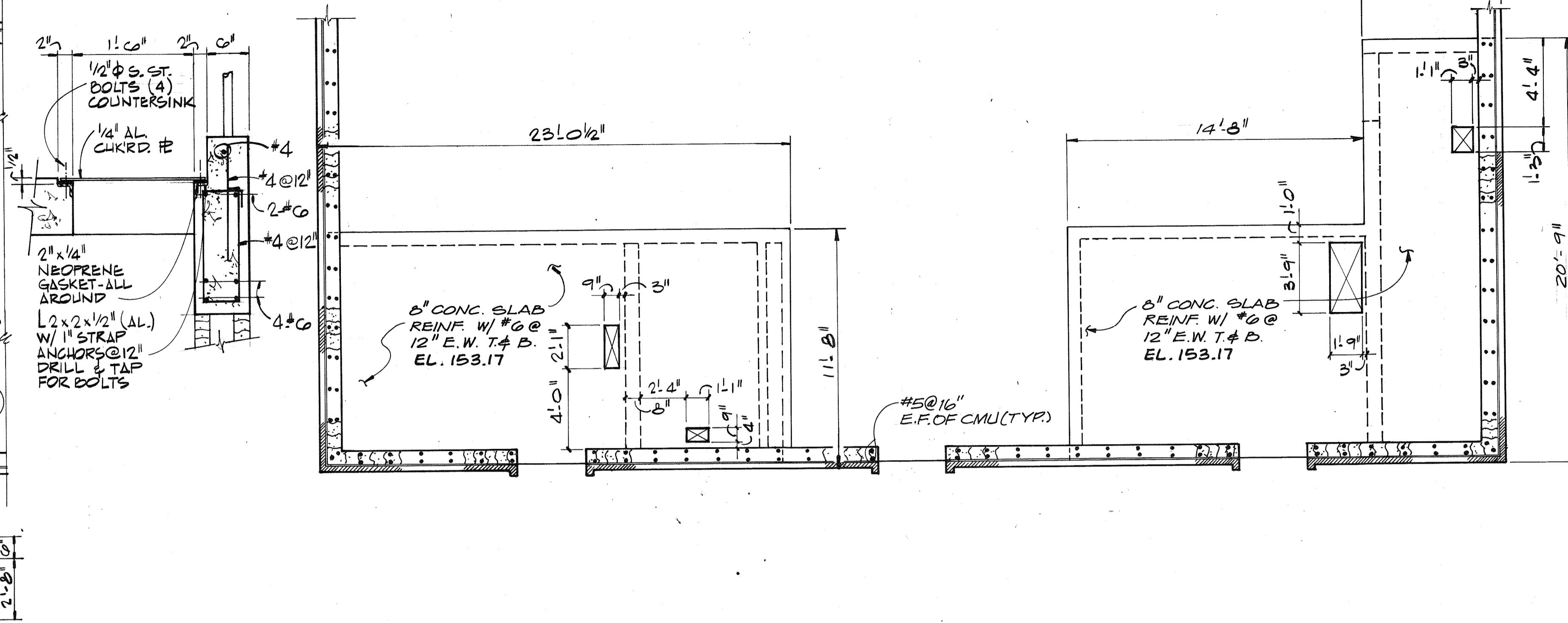
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS
ARCHITECTURAL

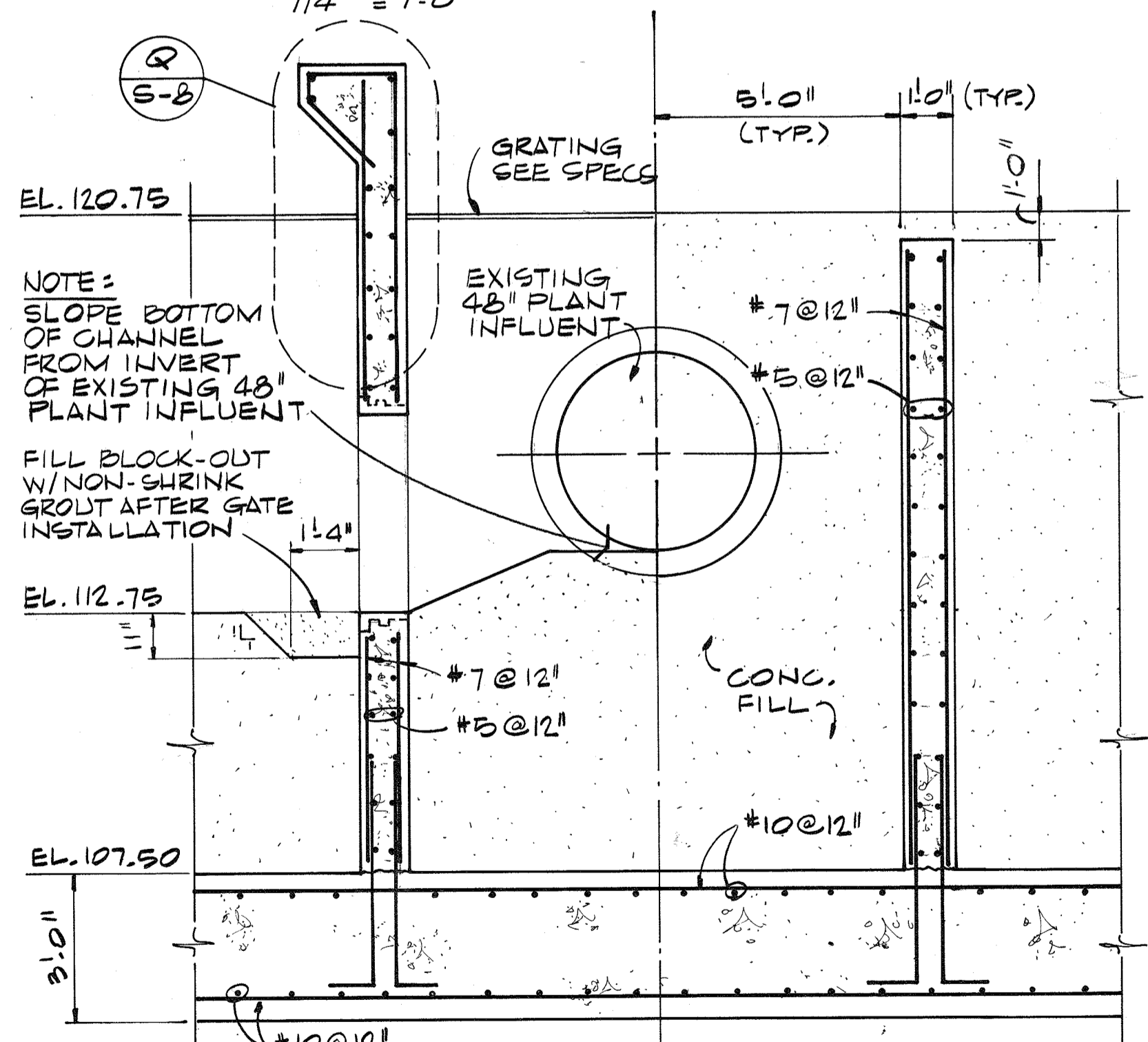
SHEET
OF
A-10
DATE 8-78
DWG.
NO. W1078.C1



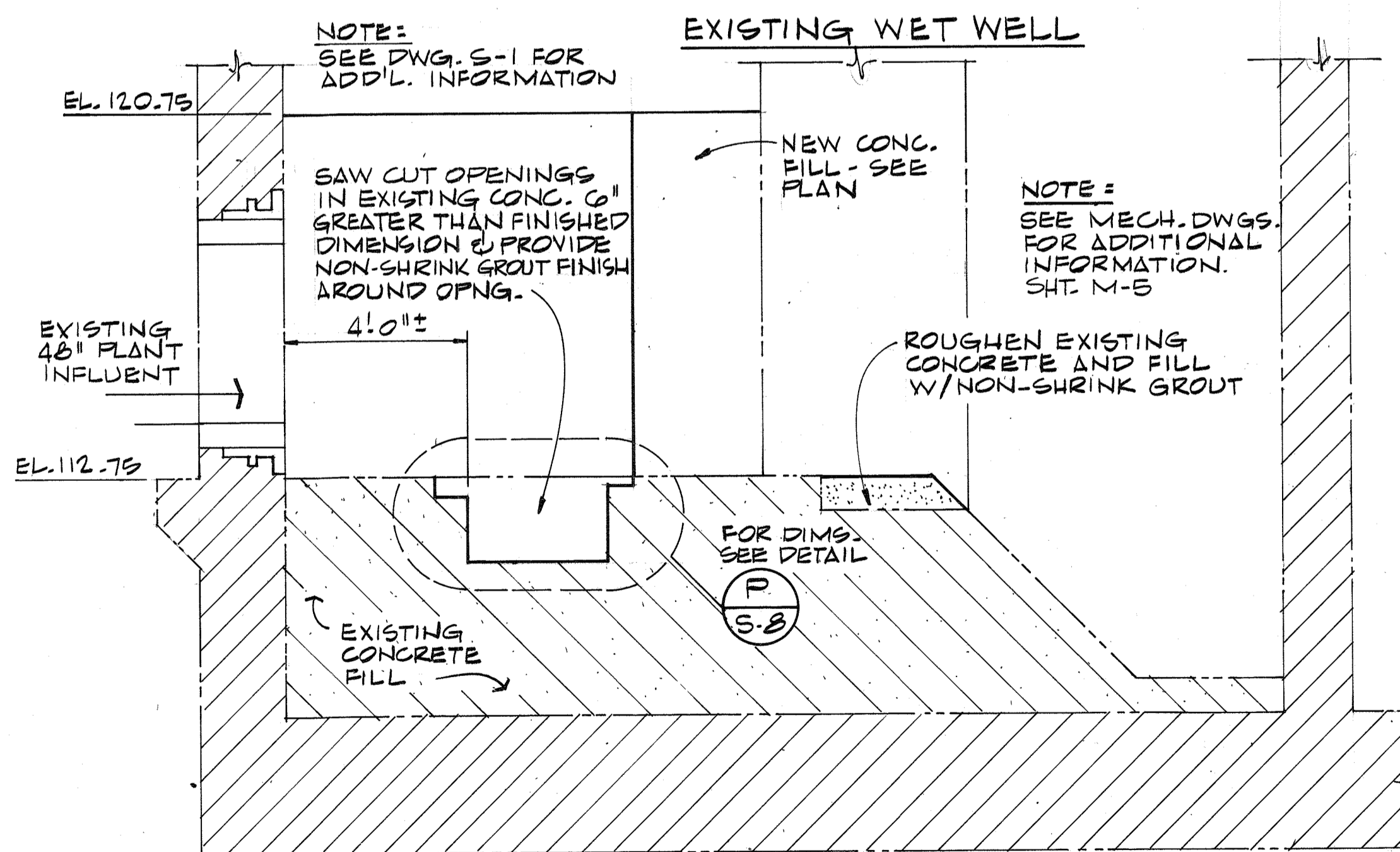
FLOOR PLAN @ EL. 100.17
1/4" = 1'-0"



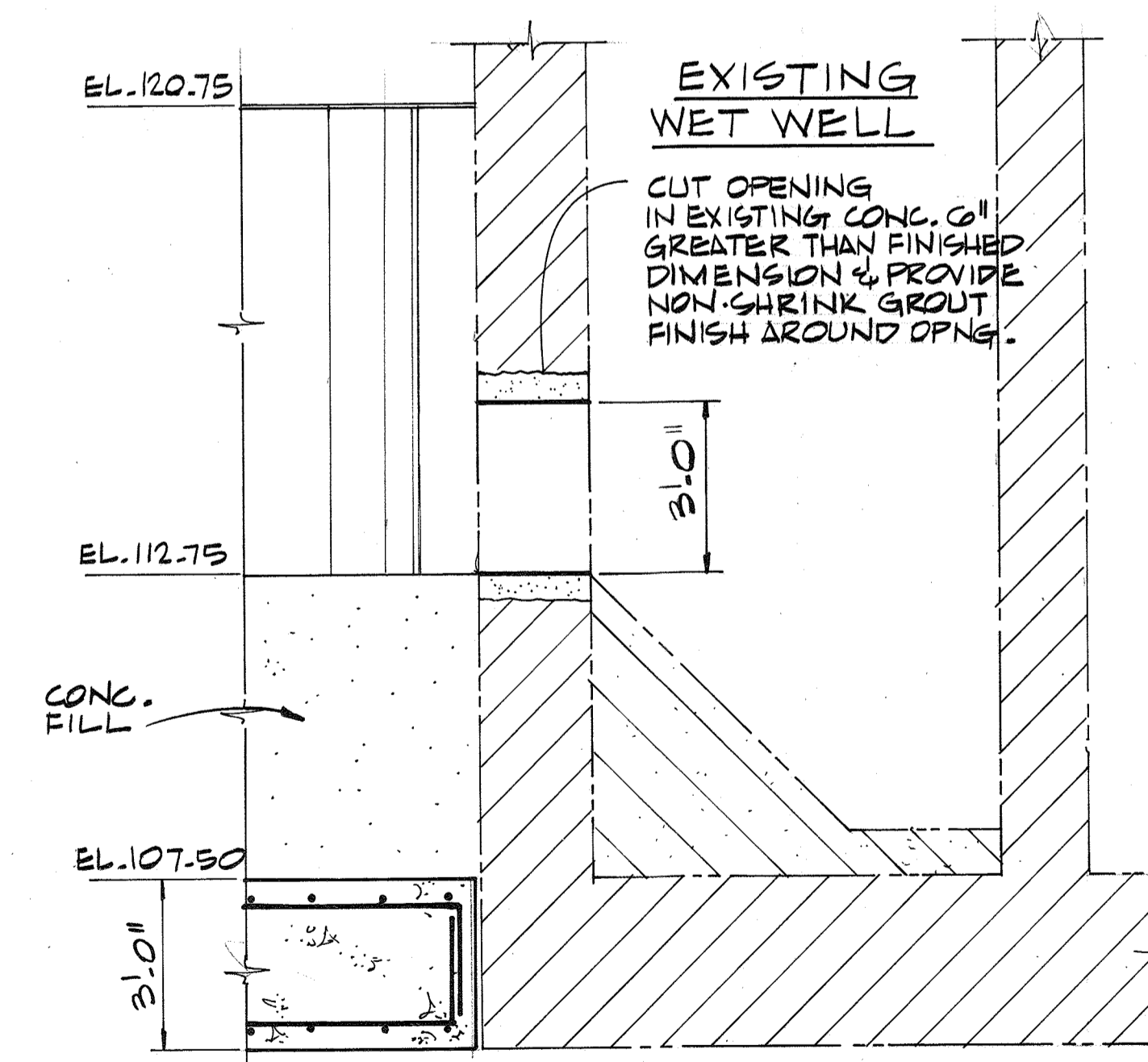
CEILING SLAB @ EL. 153.17
1/4" = 1'-0"



SECTION A
3/8" = 1'-0"



SECTION B
3/8" = 1'-0"



SECTION C
3/8" = 1'-0"

RECORD DRAWING



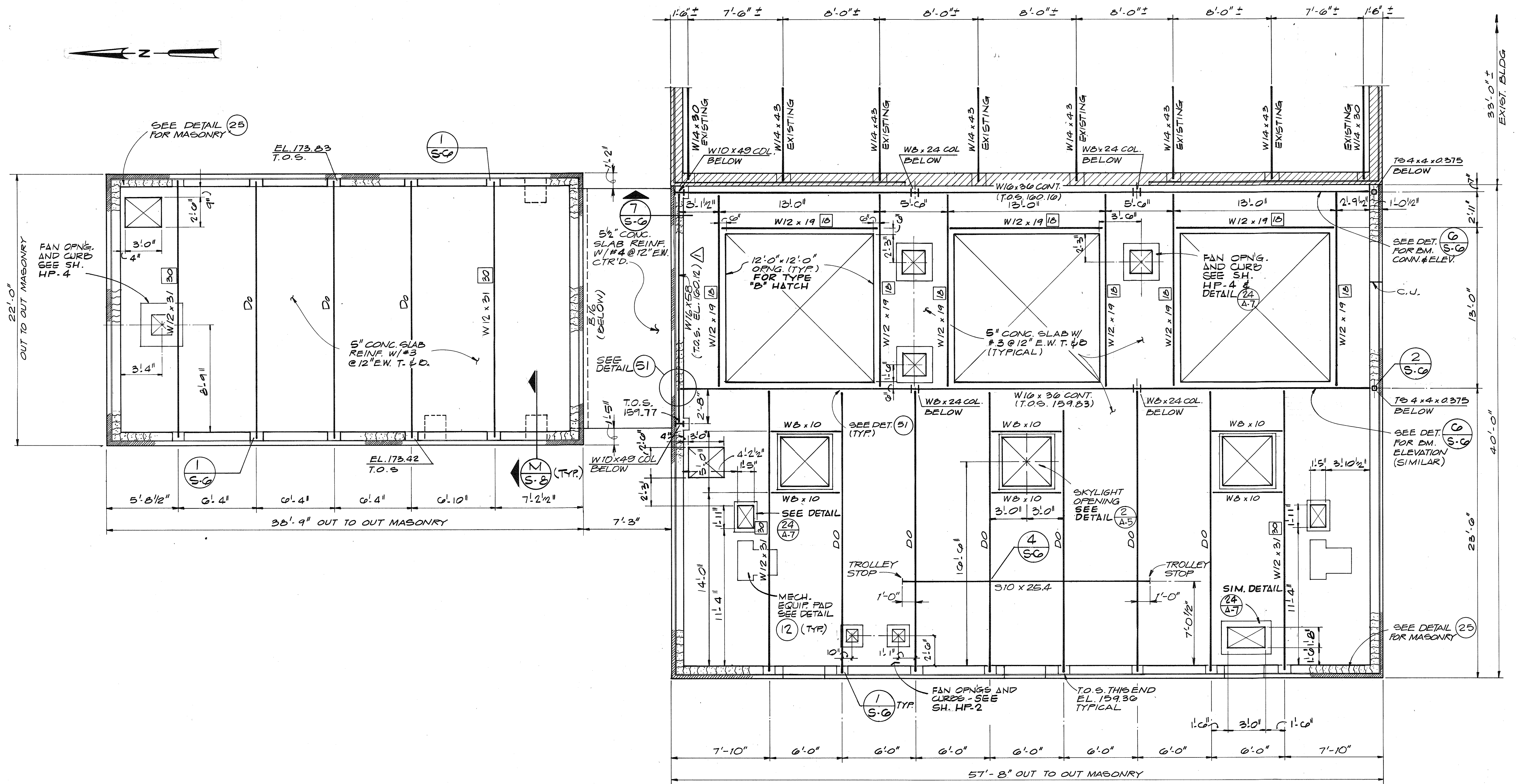
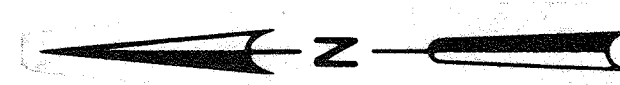
| | | | | | |
|-----------|----------|--------|----------------|----------|---------|
| CH2M HILL | DES. FLG | | | | |
| | DR. DHA | | | | |
| | CHK. HHM | | | | |
| | APPD. | | | | |
| | NO. | 1/3/80 | ADDENDUM NO. 1 | REVISION | DHA/DEB |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Lawler
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S


SCREENING FACILITY
FLOOR PLANS
STRUCTURAL

SHEET
OF
S-3
DATE 8-78
DWG.
NO. W11078.C1



ROOF FRAMING PLAN

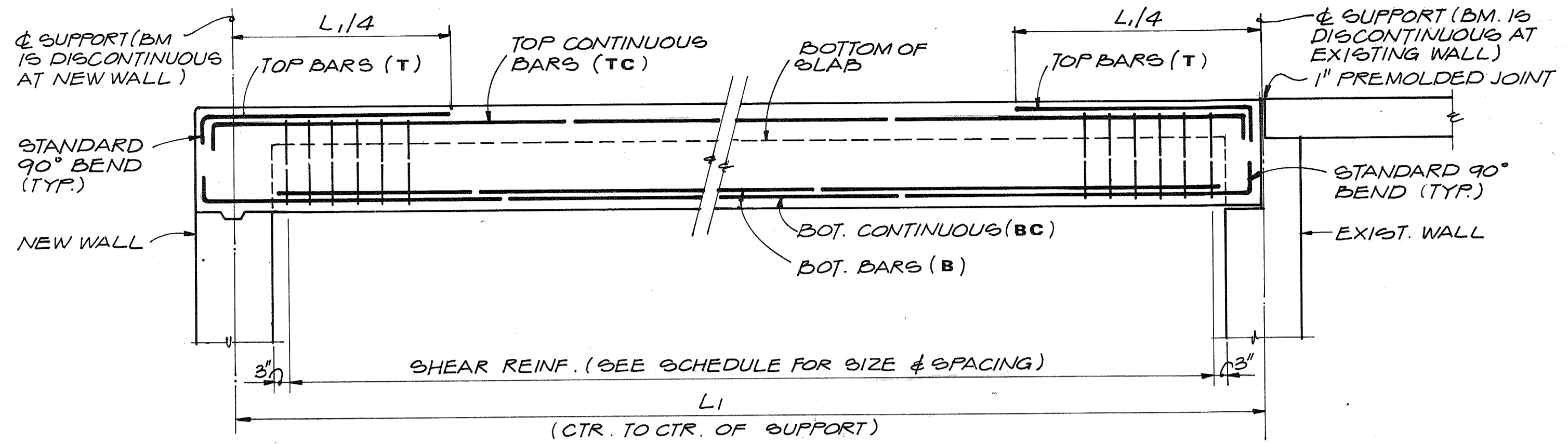
1/4" = 1'-0"

NOTE: SYMBOL  SHOWN AFTER BEAM CALLOUTS INDICATE THE TOTAL NUMBER OF 3/4" φ x 3" HEADED STUDS REQUIRED. THE STUDS SHALL BE EQUALLY SPACED ALONG BEAM STARTING 6" FROM END OF BEAM.

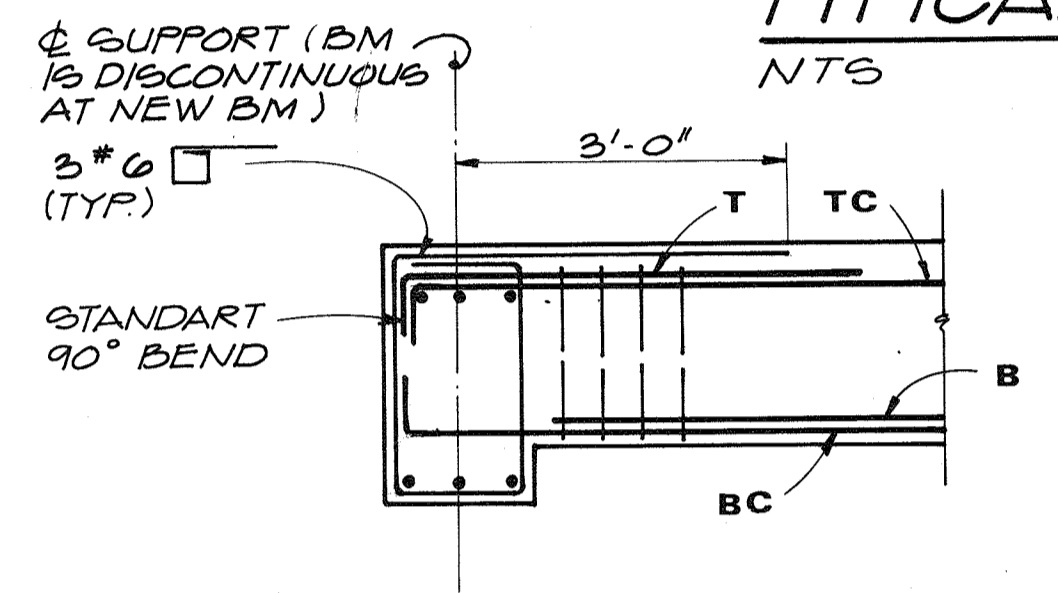
RECORD DRAWING



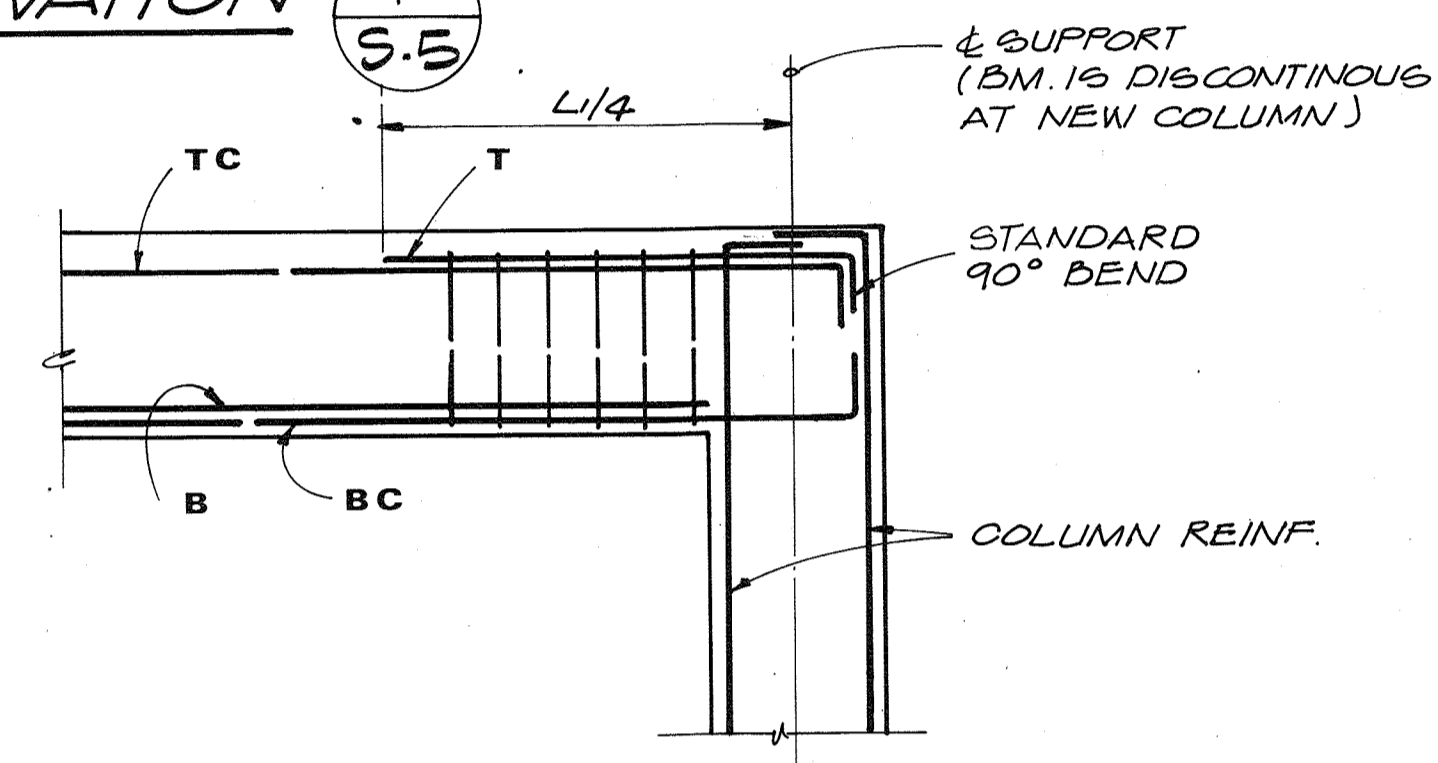
| | | | | | | | |
|--|--------------------|----------------------------|---------------------|---|---|--|-----------------------------------|
| CH2M HILL DES. FLG DR. DHA/KMT CHK. HLM APPD. | NO. 1/3/80 DATE | ADDENDUM NO. 1 REVISION | DHA DDB BY APPD. | 5/29/79 DATE <i>James M. Shuman</i> CHIEF - BUREAU OF ENVIRONMENTAL SERVICES | SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | SCREENING FACILITY ROOF FRAMING PLAN STRUCTURAL | SHEET S-4 |
| | | | | | | | DATE 8-78 DWG. W1078.C1 NO. |



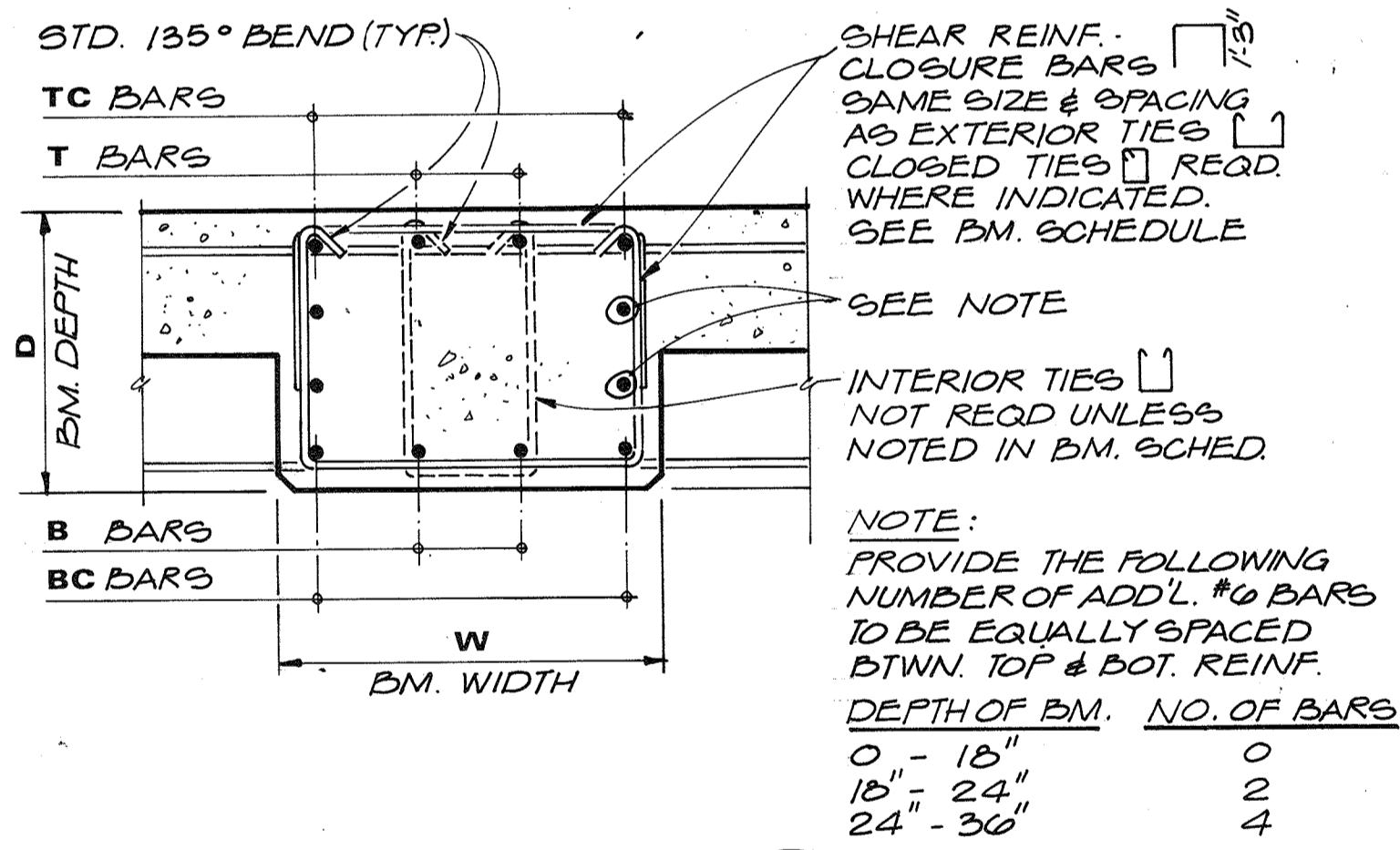
TYPICAL BEAM ELEVATION (1) S-5



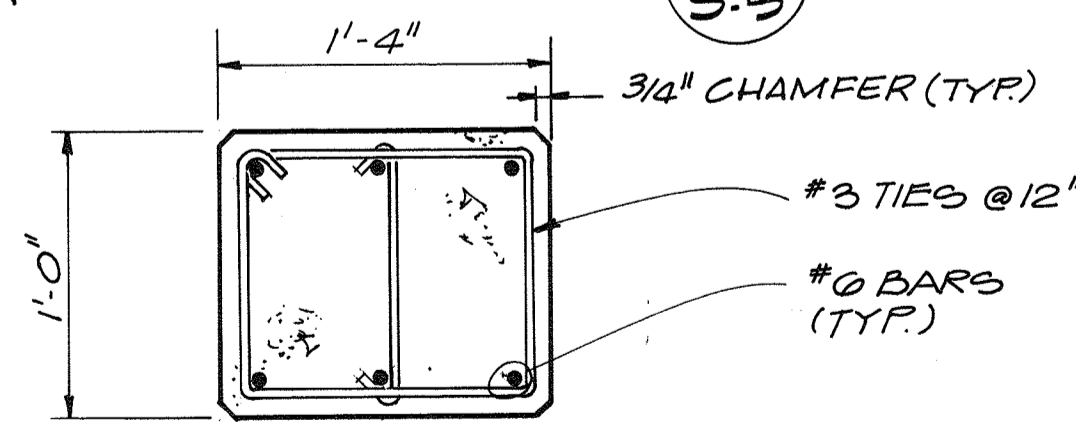
BEAM ELEV. @ BM (2) S-5



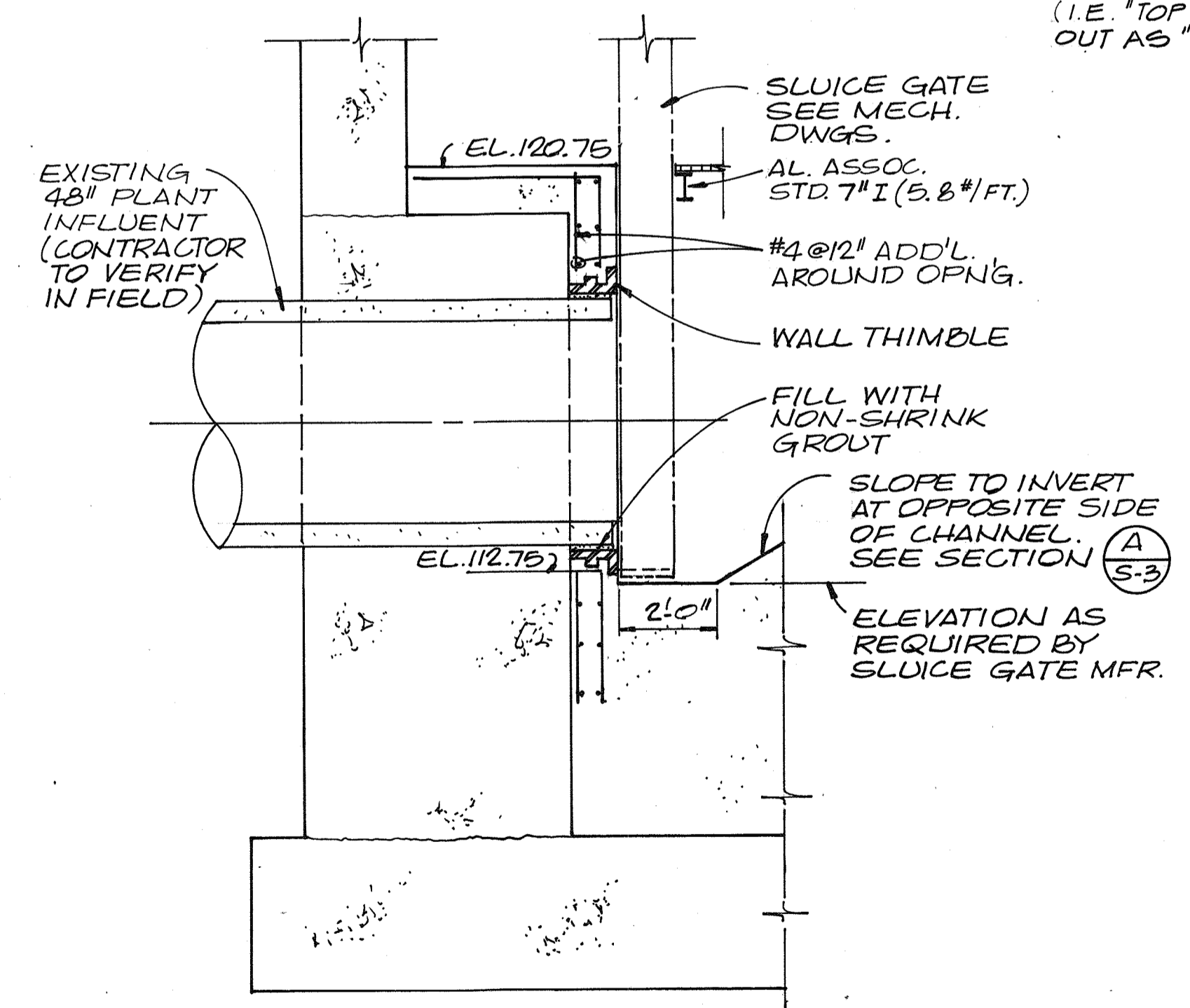
BEAM ELEV. @ COLUMN (3) S-5



TYP. BEAM SECTION (3) S-5



TYP. COLUMN SECT (4) S-2

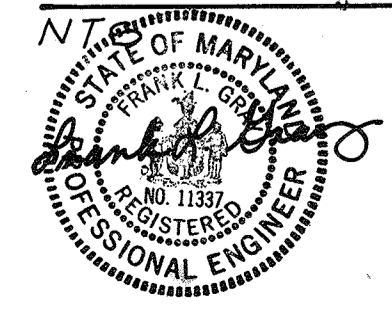


SECTION (D) S-1

| BEAM NO. (SEE PLANS) | SIZE | | TOP REINF. AT LEFT SUPPORT | | BOTTOM REINF. | | TOP REINF. AT RIGHT SUPPORT | | SHEAR REINF. | | REMARKS |
|----------------------|------|-----|----------------------------|------|---------------|------|-----------------------------|------|---------------|---|---|
| | W | D | T | *TC | B | BC | T | *TC | NO. SIZE | SPACING FROM LEFT SUPPORT | |
| B1 | 12" | 20" | 2-#6 | 3-#6 | 2-#6 | 2-#6 | - | 3-#6 | #4 | @9" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: EXISTING WALL |
| B2 | 15" | 24" | 3-#8 | 2-#9 | 2-#7 | 2-#7 | - | 2-#9 | #4 | @11" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: EXISTING WALL |
| B3 | 12" | 20" | - | 3-#6 | 1-#8 | 2-#8 | - | 3-#6 | #4 | @9" | LEFT SUPPORT: EXISTING WALL RIGHT SUPPORT: EXISTING WALL |
| B4 | 15" | 24" | - | 3-#7 | 3-#8 | 2-#9 | - | 3-#7 | #4 | @11" | LEFT SUPPORT: EXISTING WALL RIGHT SUPPORT: EXISTING WALL |
| B5 | 12" | 20" | - | 3-#6 | 2-#6 | 2-#6 | 2-#6 | 3-#6 | #4 | @9" | LEFT SUPPORT: EXISTING WALL RIGHT SUPPORT: NEW WALL |
| B6 | 15" | 24" | - | 2-#9 | 2-#7 | 2-#7 | 3-#8 | 2-#9 | #4 | @11" | LEFT SUPPORT: EXISTING WALL RIGHT SUPPORT: NEW WALL |
| B7 | 8" | 12" | - | 2-#6 | - | 2-#6 | - | 2-#6 | #4 CLOSED TIE | @5" | LEFT SUPPORT: NEW BEAM RIGHT SUPPORT: NEW BEAM |
| B8 | 18" | 34" | 3-#9 | 4-#8 | 2-#9 | 2-#8 | - | 4-#8 | #4 | 12 SPACING @7 1/2", @12" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: NEW BEAM |
| B9 | 15" | 24" | 2-#9 | 3-#7 | - | 3-#7 | - | 3-#7 | #4 | 6 SPACING @9 1/2", @11" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: NEW BEAM |
| B10 | 18" | 36" | 2-#7 | 4-#8 | 2-#9 | 4-#8 | - | 4-#8 | #4 | 15 SPACING @5 1/2", @12", 10 SPACING @7" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: EXISTING WALL |
| B11 | 18" | 36" | - | 5-#8 | 2-#7 | 3-#8 | 2-#9 | 5-#8 | #4 | @12", 20 SPACING @5 1/2" | LEFT SUPPORT: EXISTING WALL RIGHT SUPPORT: NEW WALL |
| B12 | 18" | 24" | - | 3-#8 | - | 3-#8 | - | 3-#8 | #4 | @11" | LEFT SUPPORT: NEW BEAM RIGHT SUPPORT: NEW BEAM |
| B13 | 18" | 30" | 2-#9 | 3-#9 | 2-#9 | 3-#9 | - | 3-#9 | #4 | 21 SPACING @4", @10 1/2", 15 SPACING @4" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: EXISTING WALL |
| B14 | 18" | 30" | 2-#8 | 3-#9 | - | 4-#8 | - | 3-#9 | #4 | 15 SPACING @5 1/2", @10 1/2" | LEFT SUPPORT: NEW WALL RIGHT SUPPORT: NEW BEAM |
| B15 | 12" | 20" | 2-#6 | 3-#6 | 2-#6 | 2-#6 | 2-#6 | 3-#6 | #4 | @9" | LEFT SUPPORT: NEW BEAM RIGHT SUPPORT: NEW BEAM |
| B16 | 16" | 24" | 2-#5 | 2-#6 | 3-#8 | 3-#6 | 2-#5 | 2-#6 | #4 | @10 1/2" | LEFT SUPPORT: NEW COLUMN RIGHT SUPPORT: NEW COLUMN |

*TOP REINF MAY BE CALLED-OUT TWICE IN SCHEDULE (I.E. TOP CONTINUOUS BARS AT LEFT SUPPORT ARE CALLED OUT AS "TOP CONTINUOUS BARS AT RIGHT SUPPORT")

RECORD DRAWING



| | | | | | |
|------------|-----|------|----------|----|-------|
| DES. FLG | | | | | |
| DR. KMT | | | | | |
| CHK. H H M | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

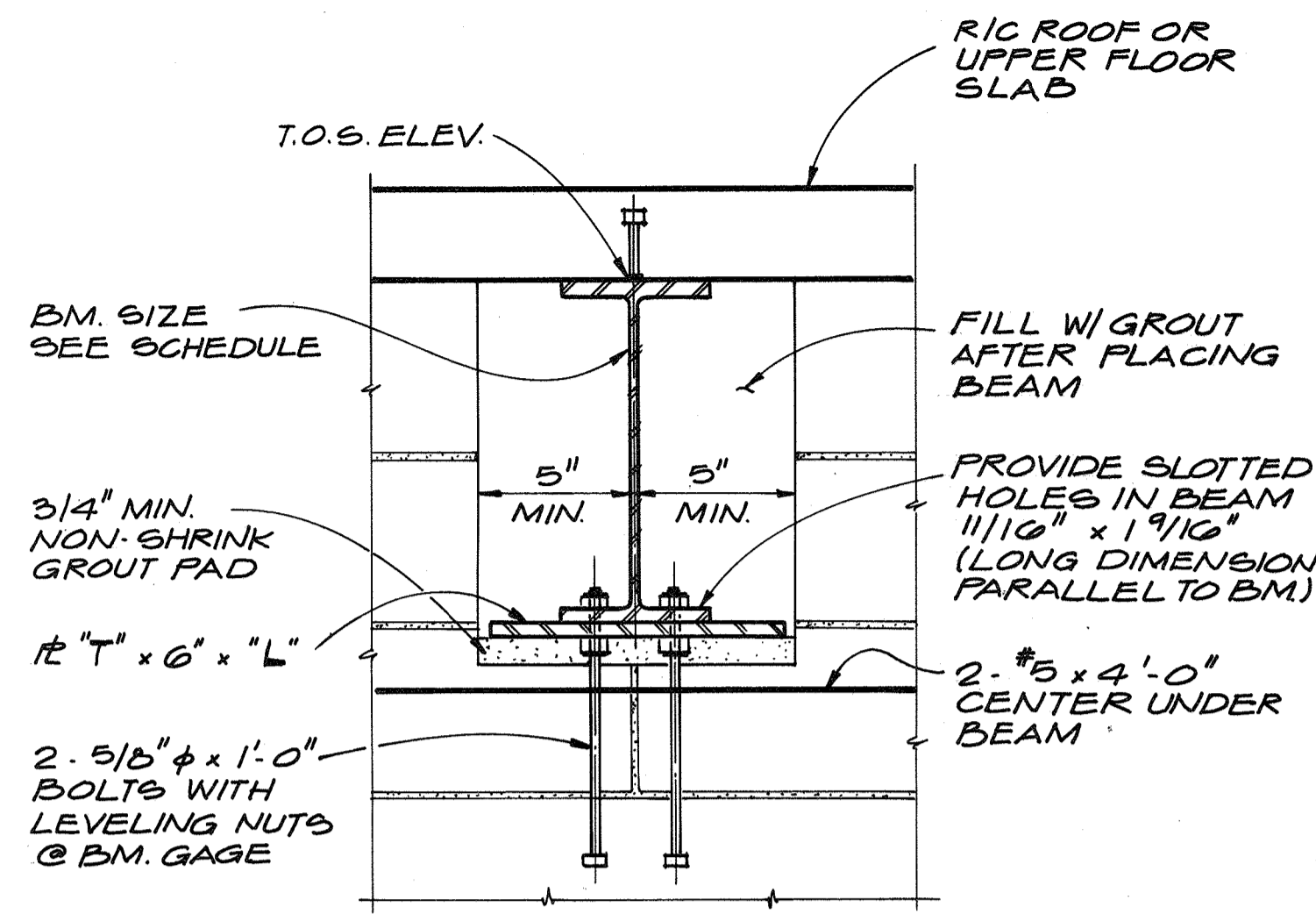
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
James M. Sullivan
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
BEAM SCHEDULE AND DETAILS

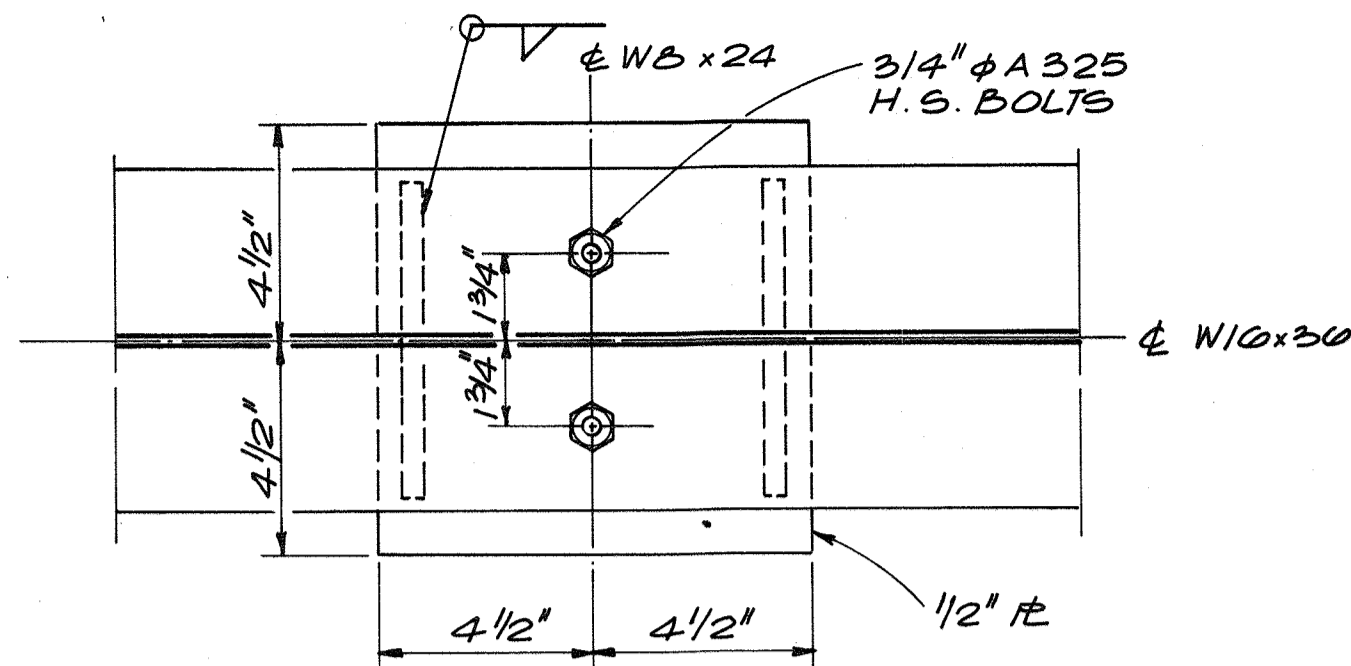
STRUCTURAL

SHEET OF S-5
DATE 8-78
DWG. NO. W1078.CI

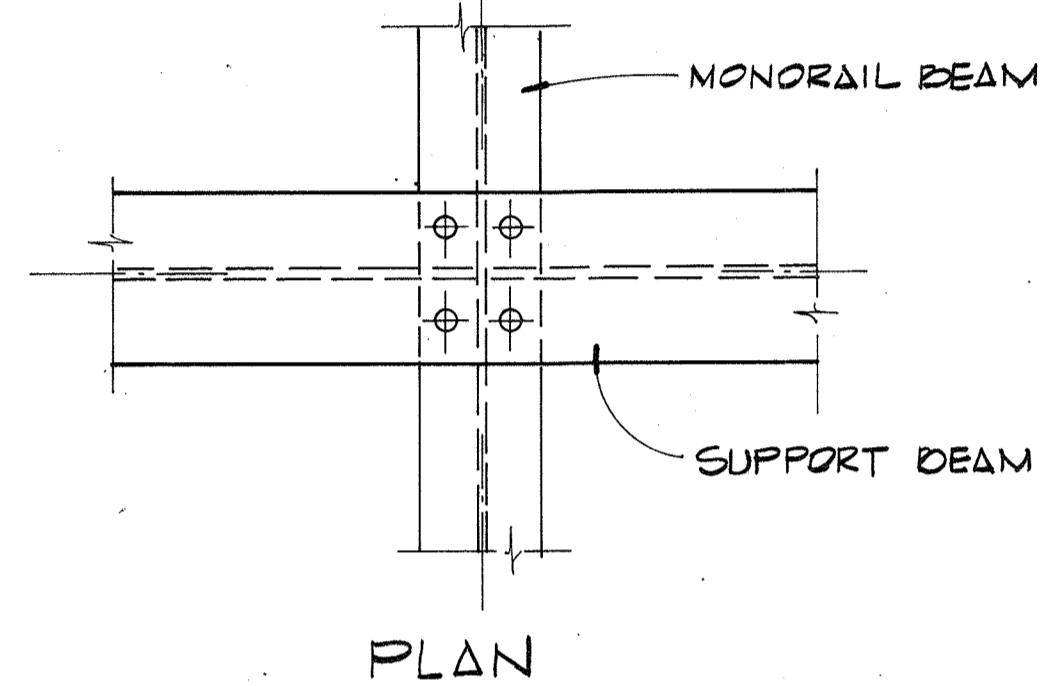


| BEARING # SCHEDULE | | | |
|--------------------|------------------|-------------|----------|
| BM. SIZE | T.O.S. ELEVATION | # THICKNESS | # LENGTH |
| W12 x 31 | 173.53 173.50 | 5/8" | 0'-9" |
| W12 x 31 | 159.50 | 3/4" | 1'-0" |

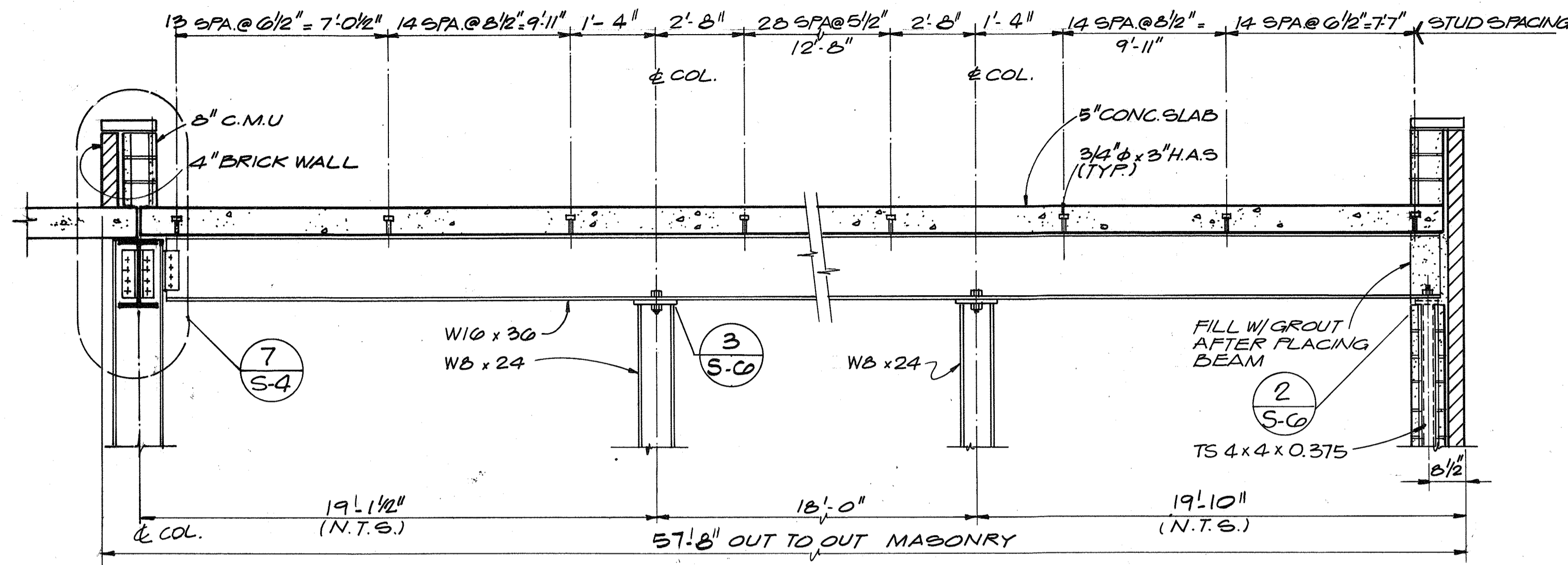
DETAIL 1
N.T.S. S-4



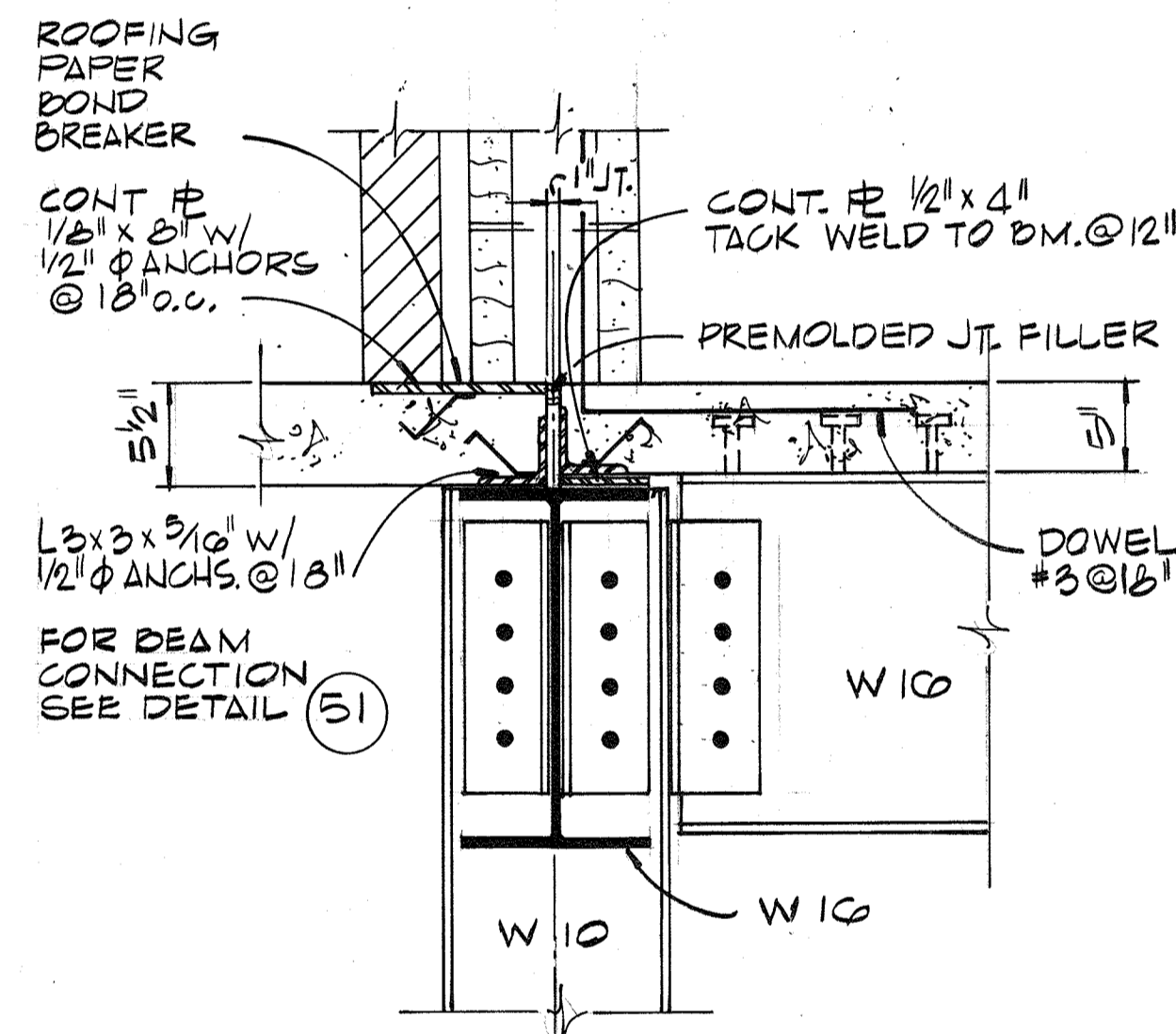
DETAIL 3
3" = 1'-0" S-6



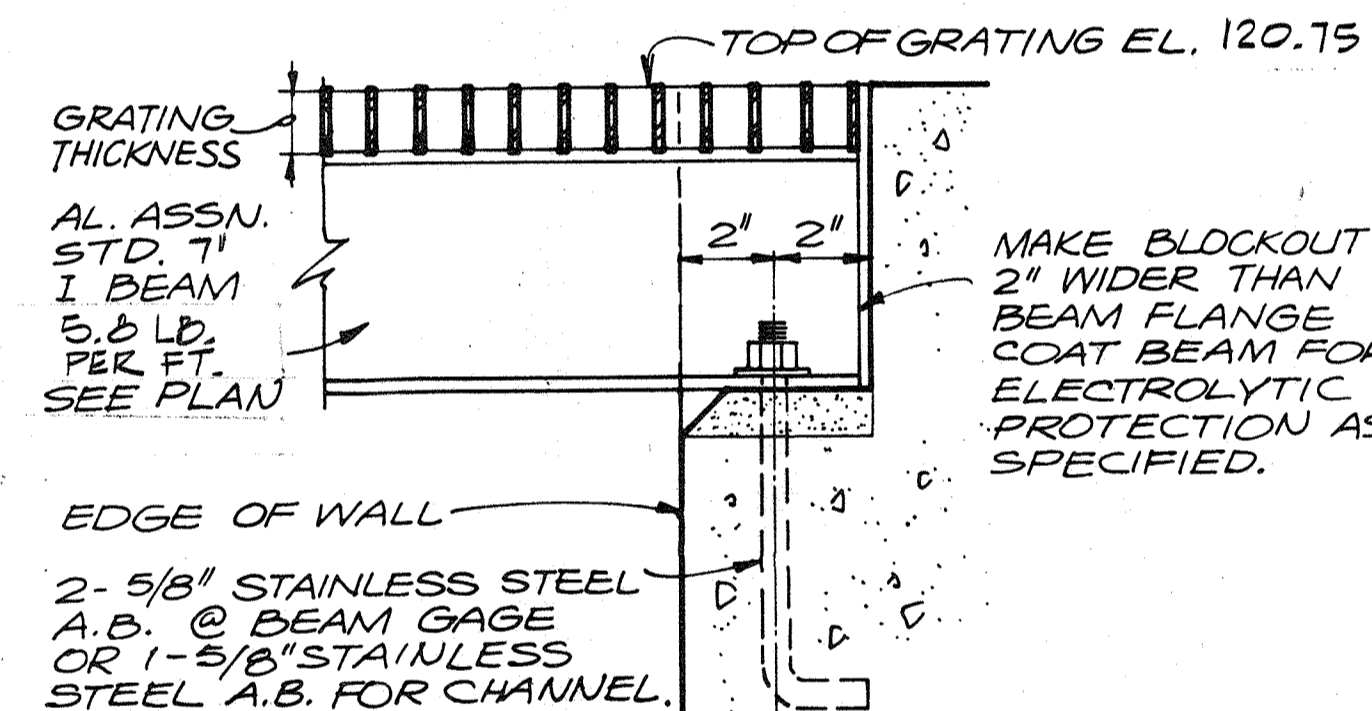
DETAIL 4
1/2" = 1'-0" S-4



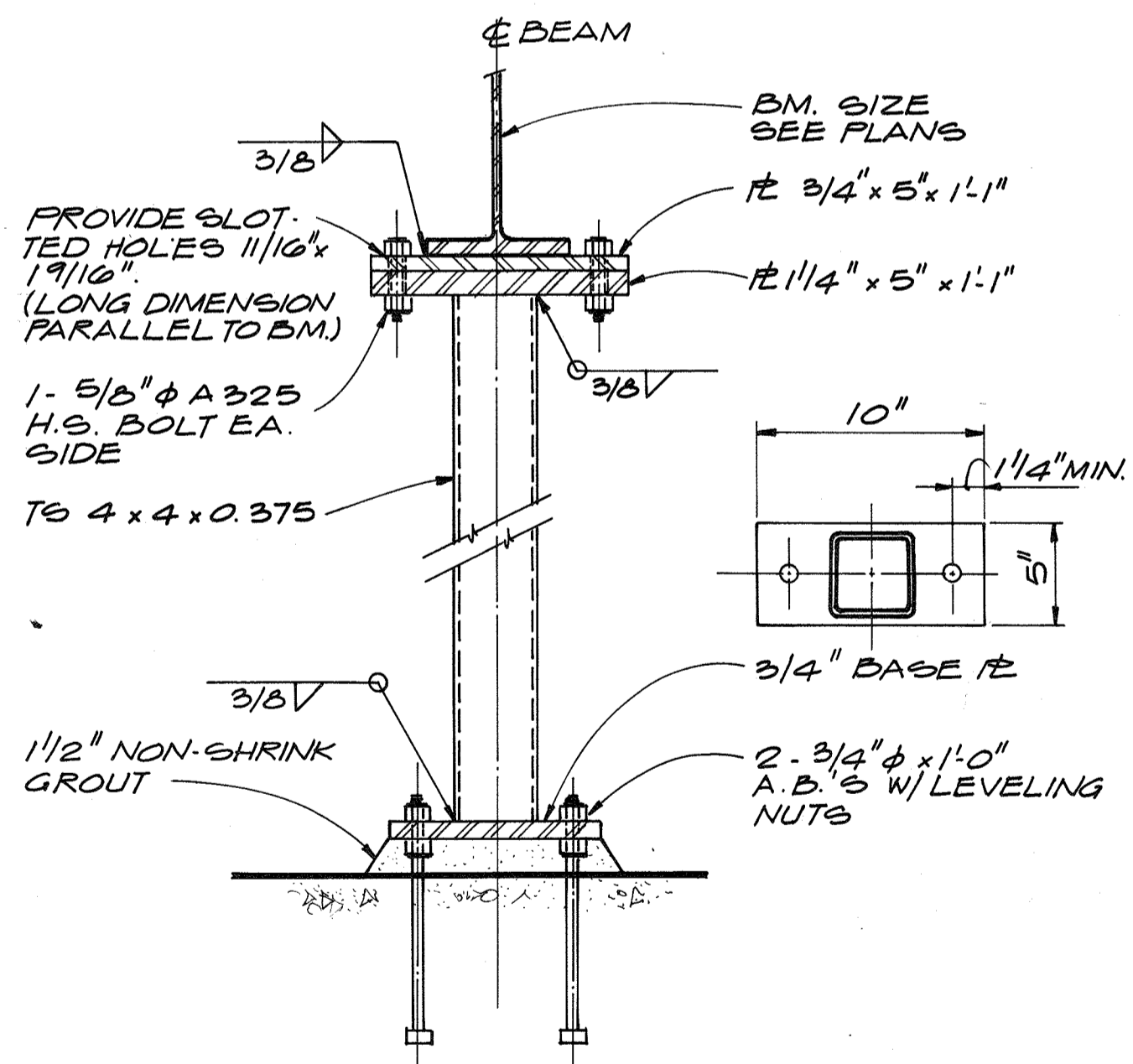
DETAIL 6
N.T.S. S-4



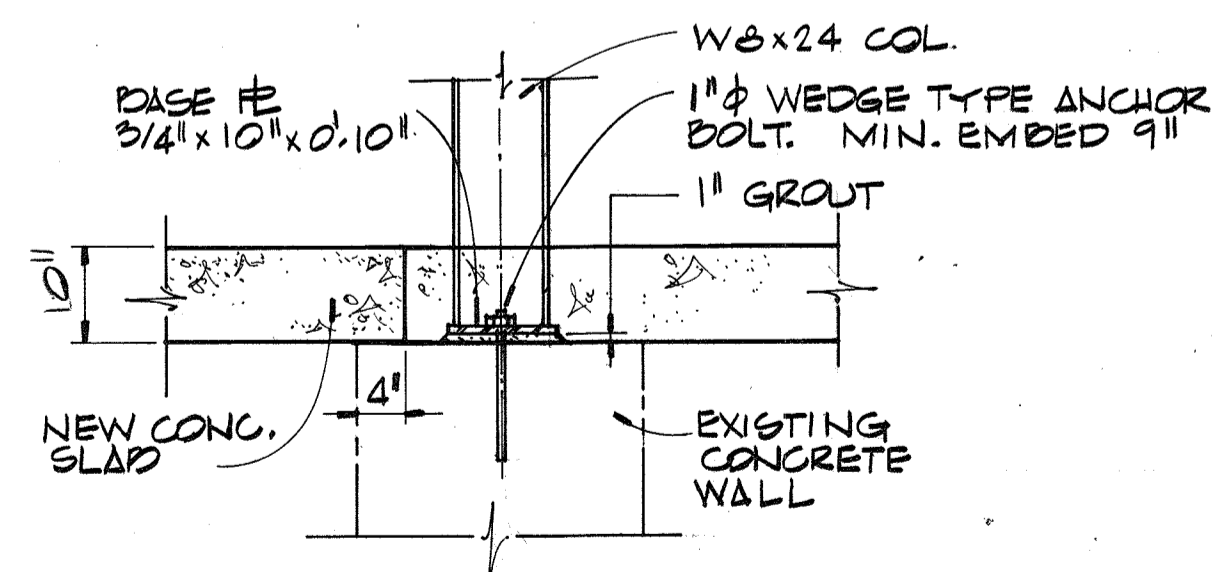
DETAIL 7
1/2" = 1'-0" S-4



TYP. BEAM-WALL CONN. (B)
3" = 1'-0" S-1



DETAIL 2
1/2" = 1'-0" S-3



DETAIL 5
3/4" = 1'-0" S-2

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS
STRUCTURAL

SHEET OF S-6
DATE 8-78
DWG. NO. W1078.CI

CH2M HILL

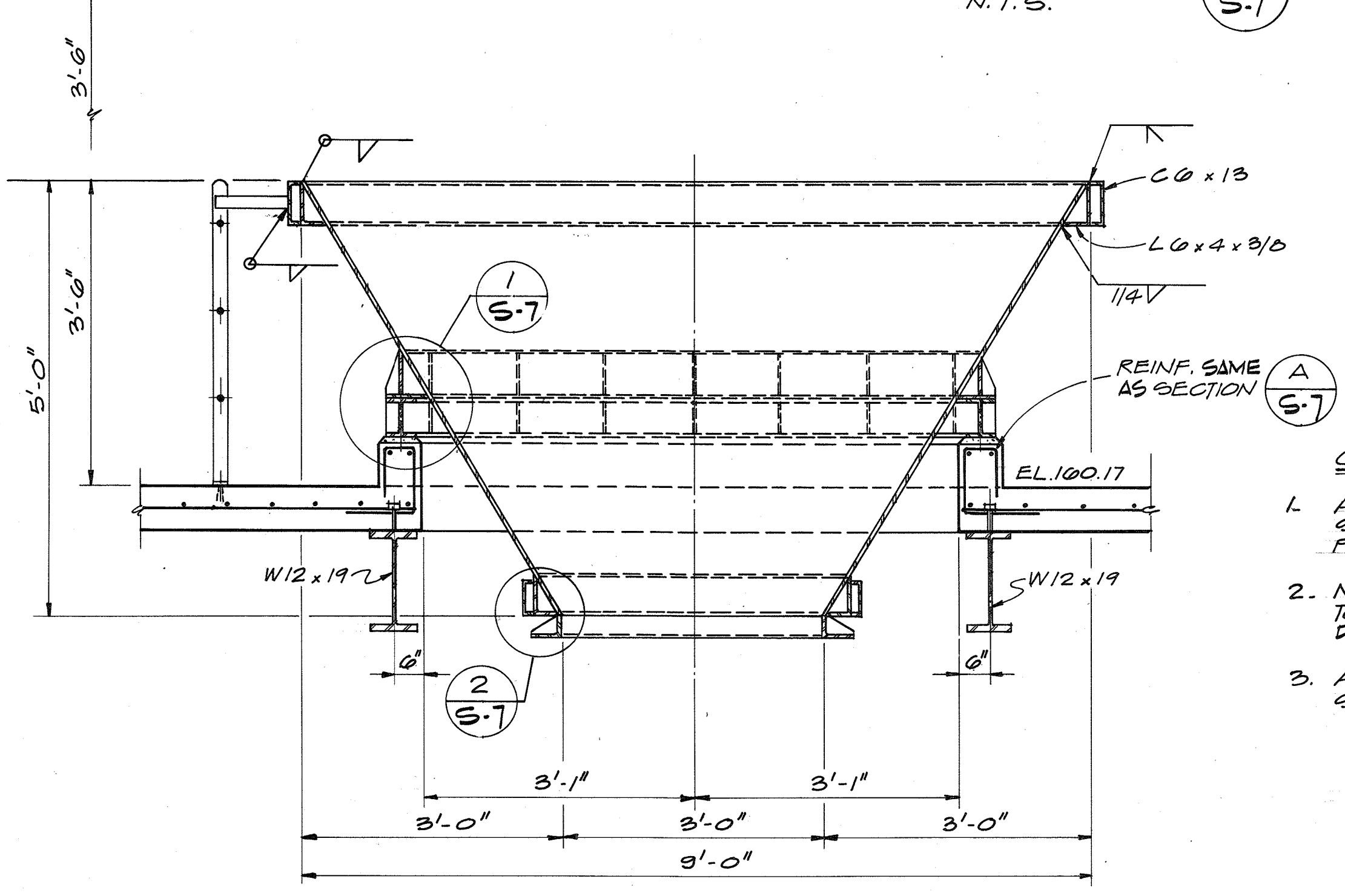
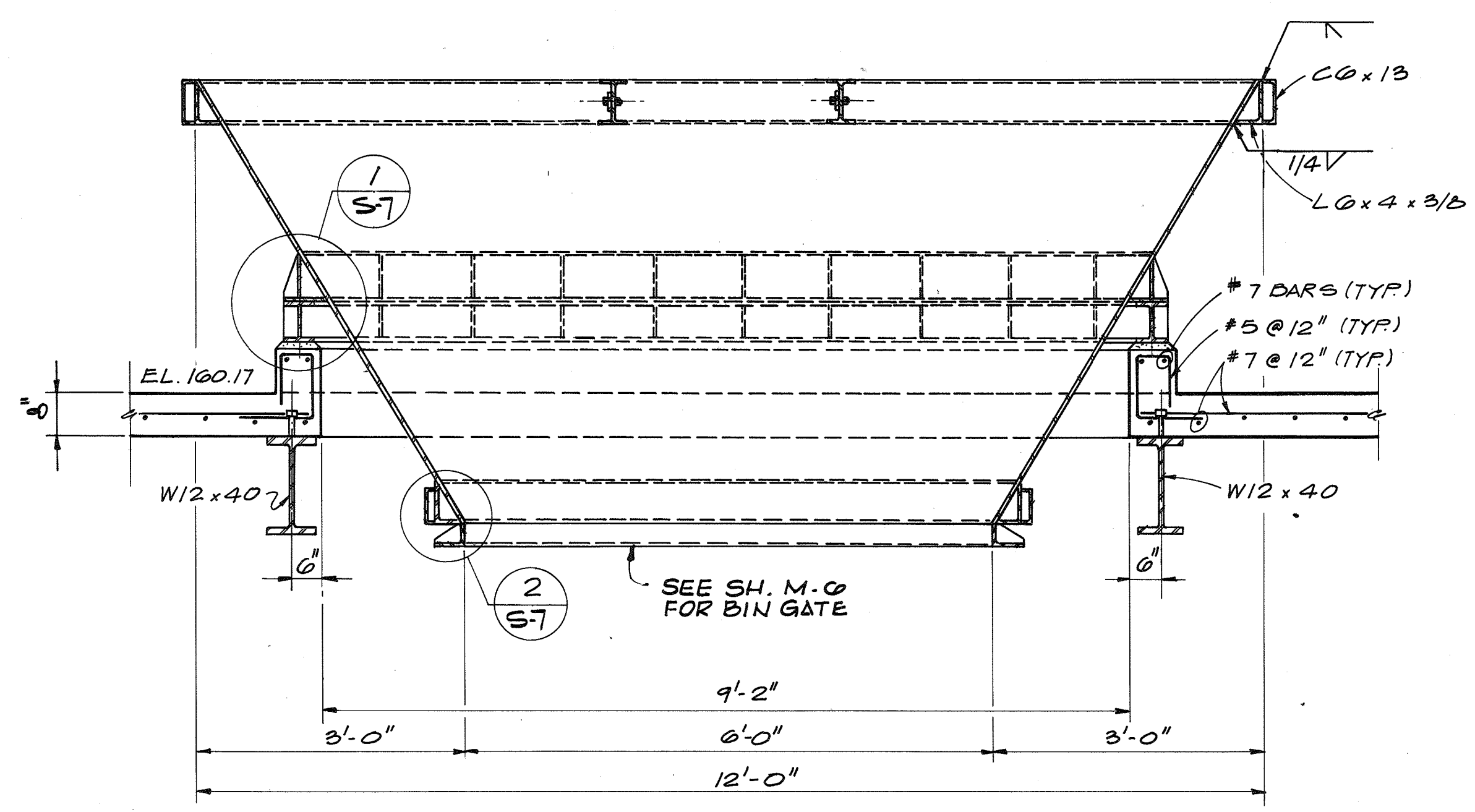
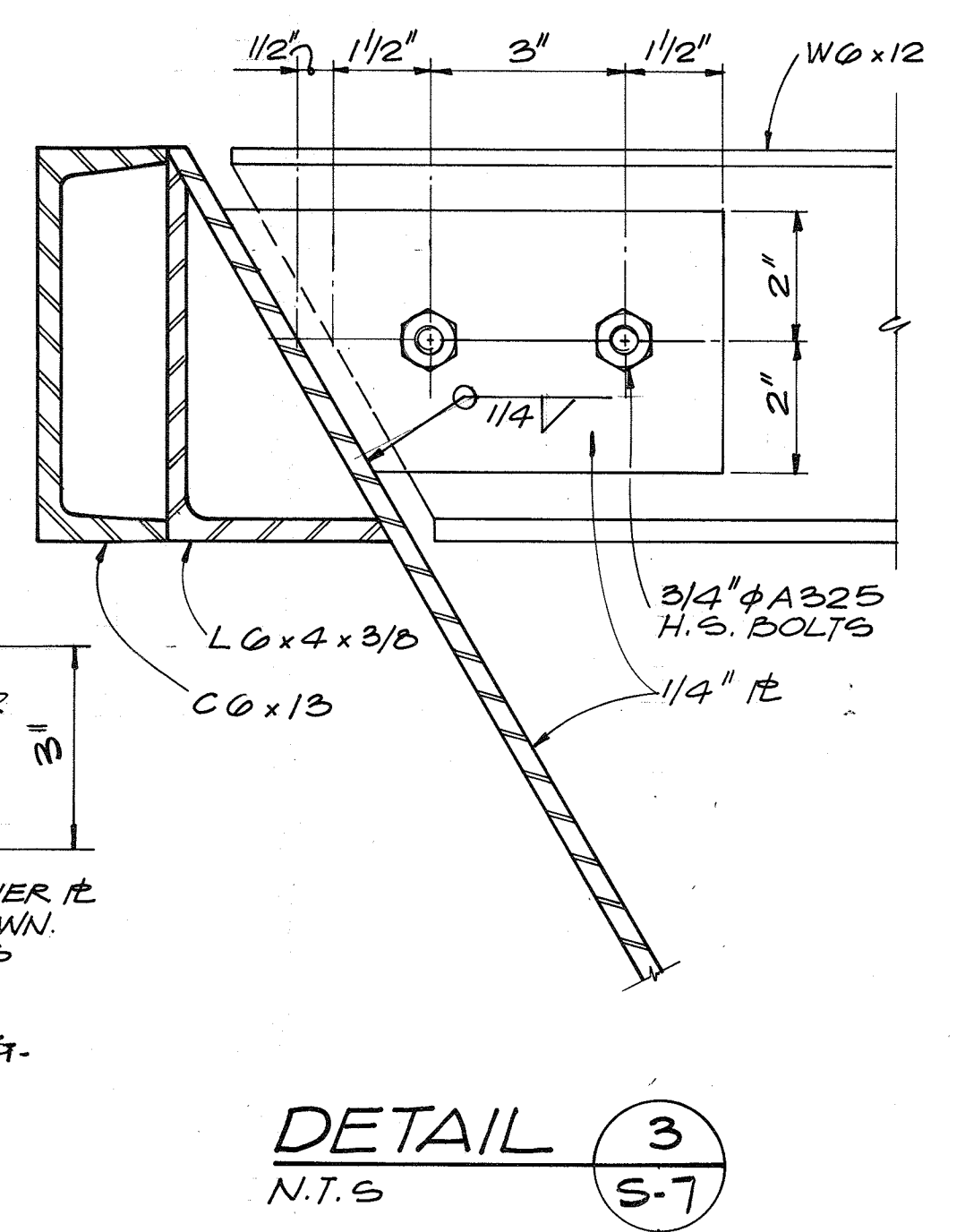
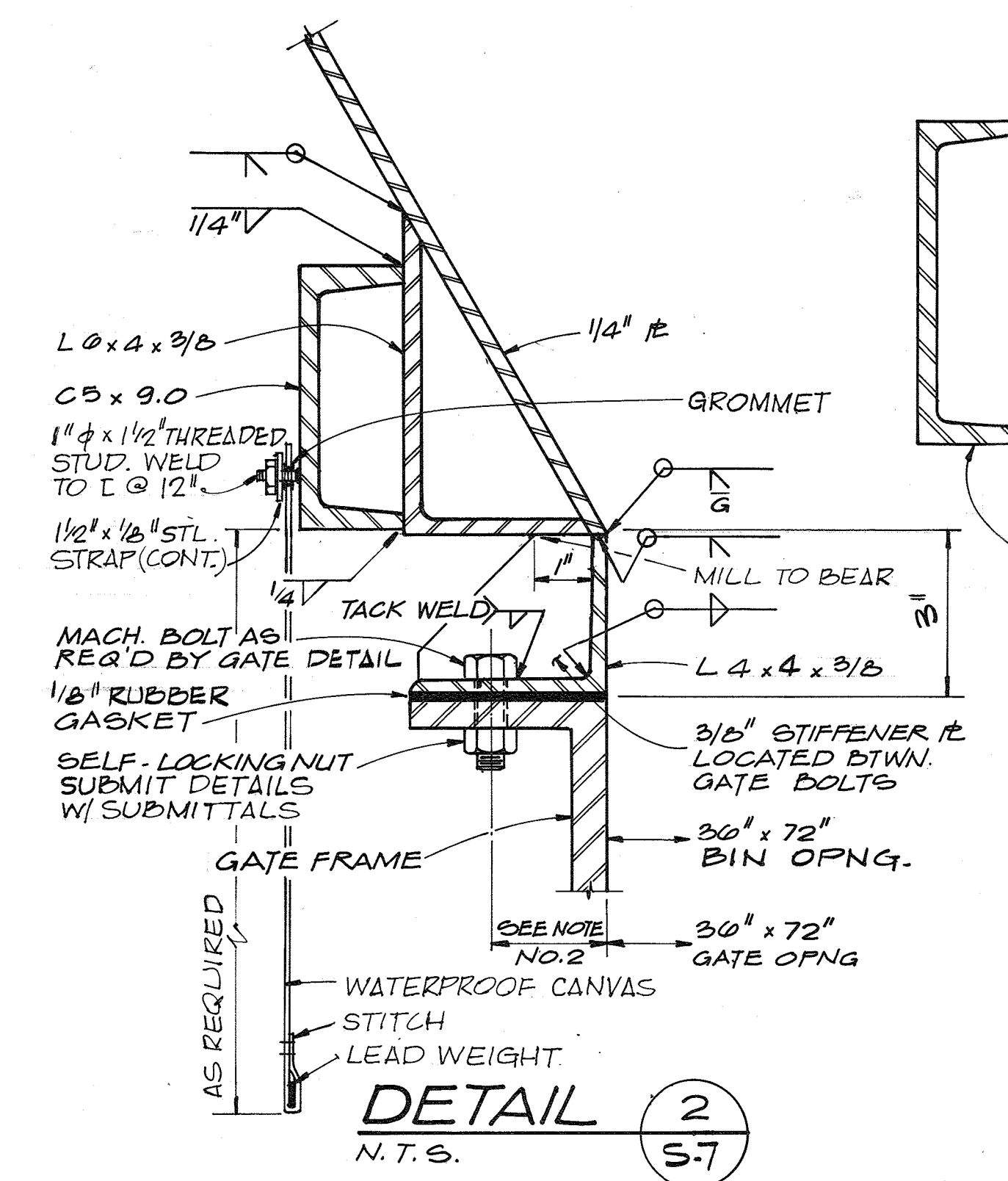
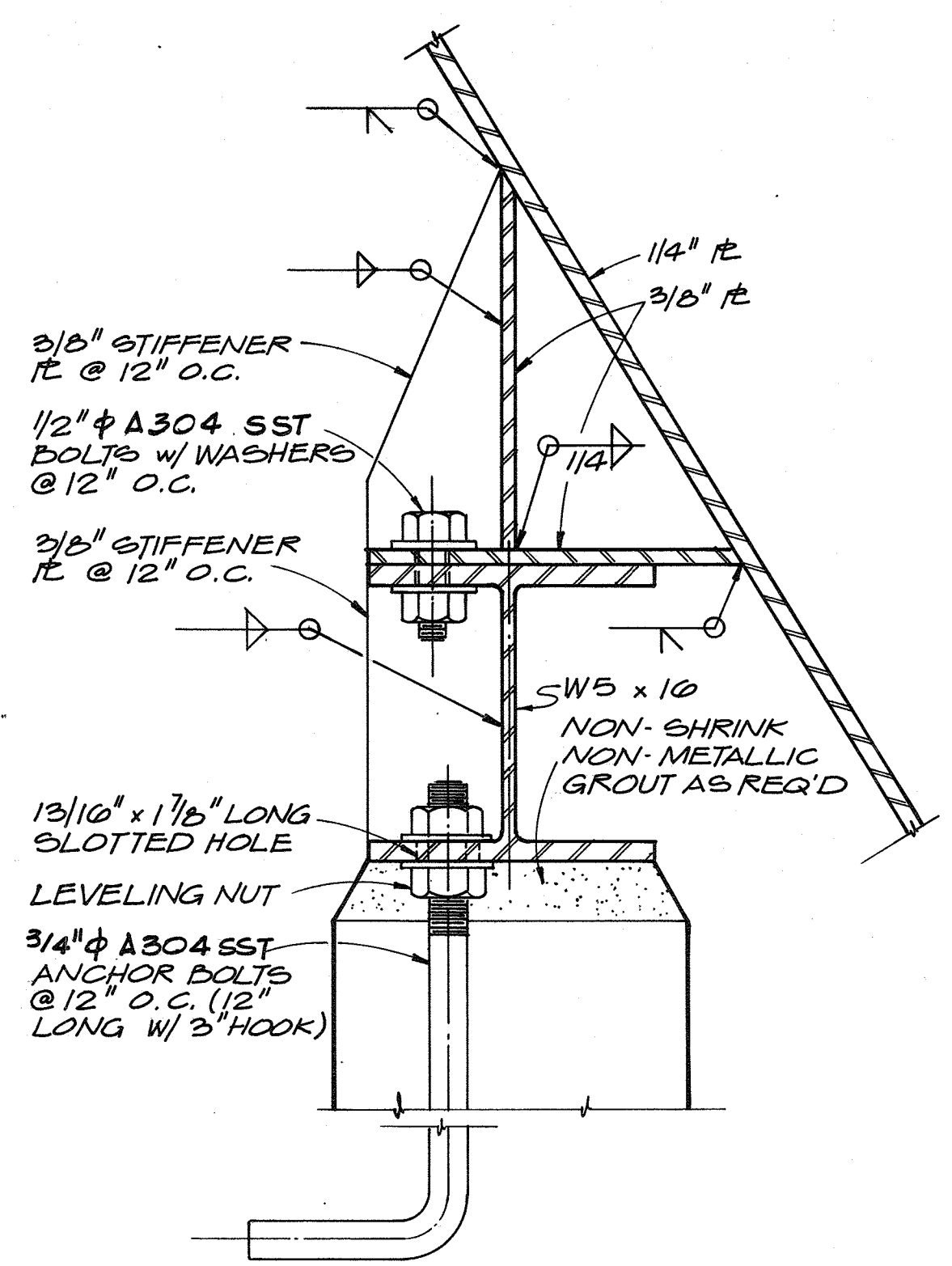
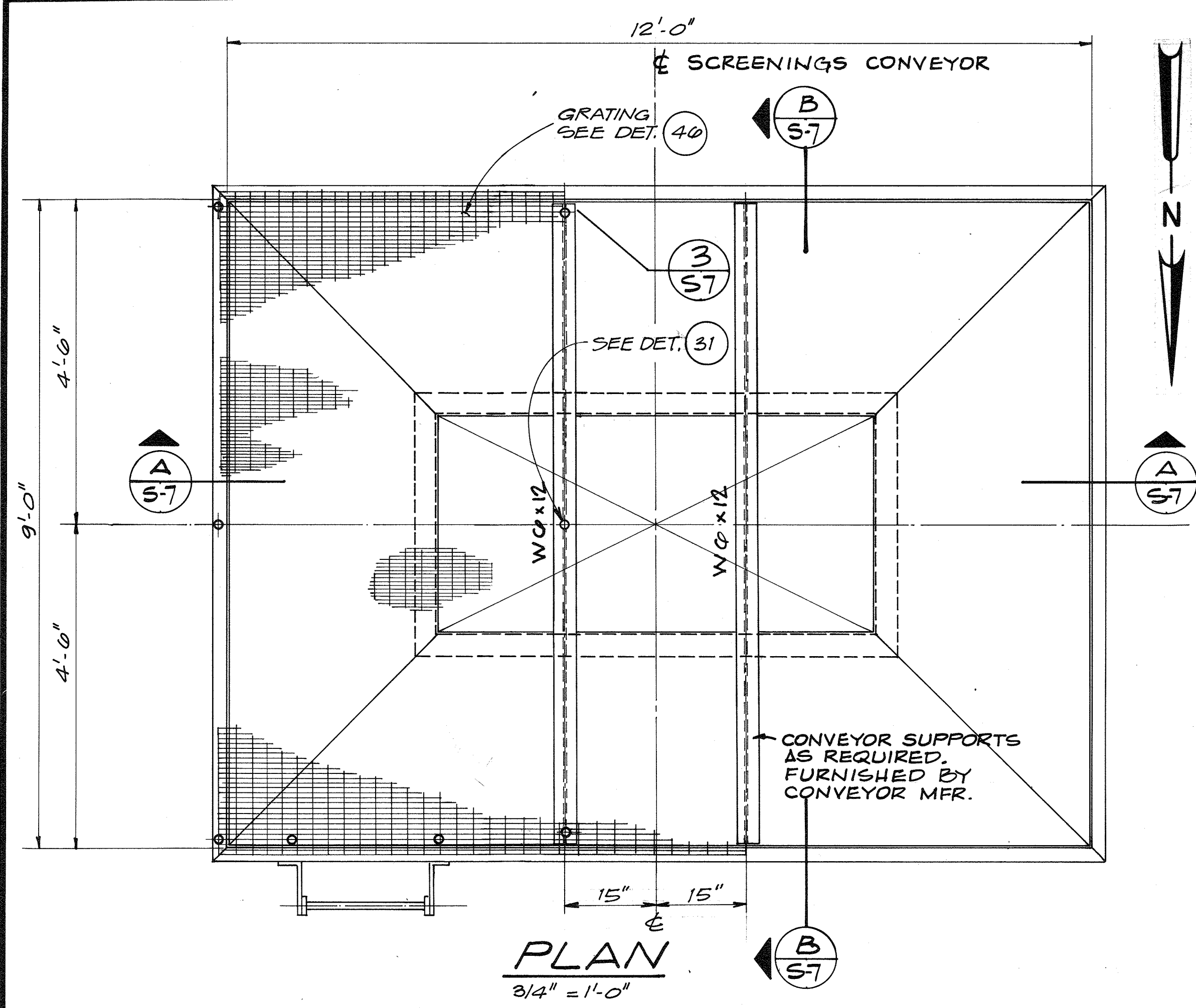
DES. FLG
DR. KMT/DHA
CHK. H.H.M.
APPD.

NO. DATE

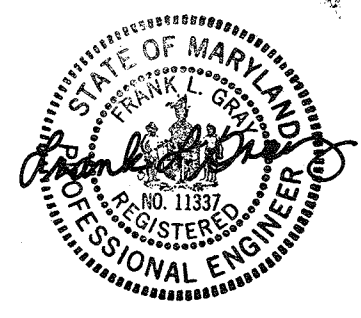
REVISION

BY APPD.





- GENERAL NOTES**
1. ACCURATELY BEVEL EDGES OF ALL STRUCTURAL SHAPES AND PLATES TO BE WELDED. USE FULL PENETRATION WELDS UNLESS OTHERWISE SHOWN.
 2. NUMBER, SIZE, LENGTH AND SPACING OF BOLTS TO CONNECT GATE FRAME TO BIN, SEE BIN GATE DETAIL M.O.
 3. ALL STEEL TO BE ASTM A-36 UNLESS OTHERWISE SHOWN.



| | | | | | |
|-----------|-------------|----------|--------------------------|----|-------|
| CH2M HILL | DES. F.L.G. | 12-14-81 | REVISED LADDER ON DET. B | BY | APPD. |
| | DR. K.M.T. | | REVISION | | |
| | CHK. H.H.M. | | DATE | | |
| | APPD. | | NO. | | |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

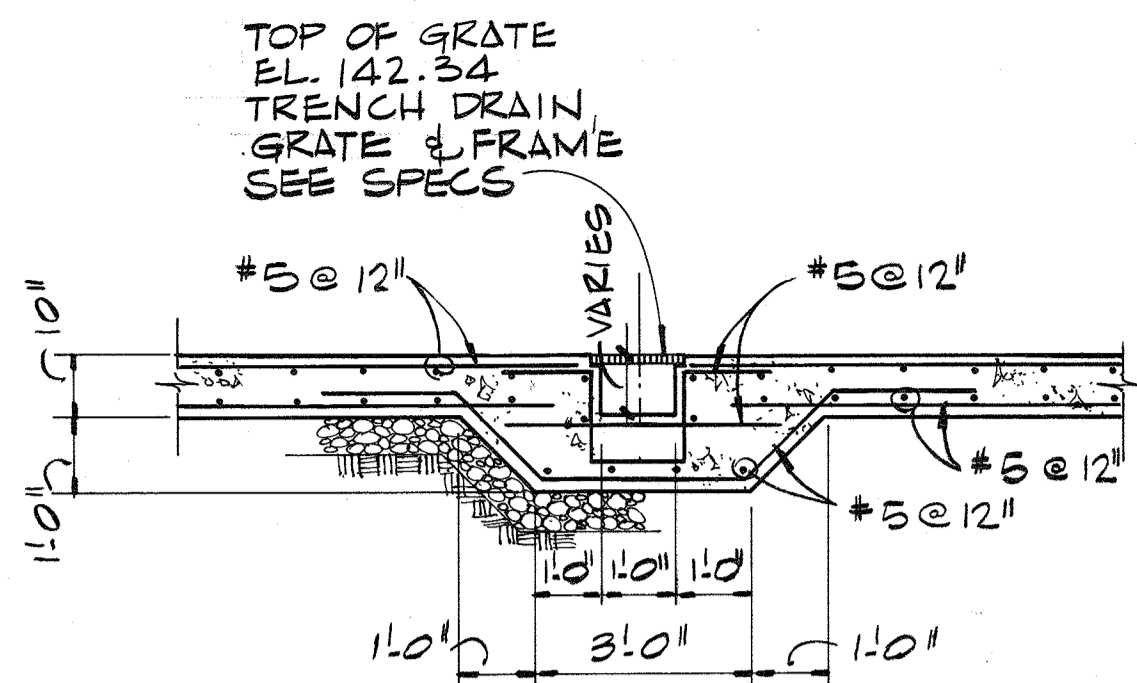
DATE 5/29/79

James M. Law
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

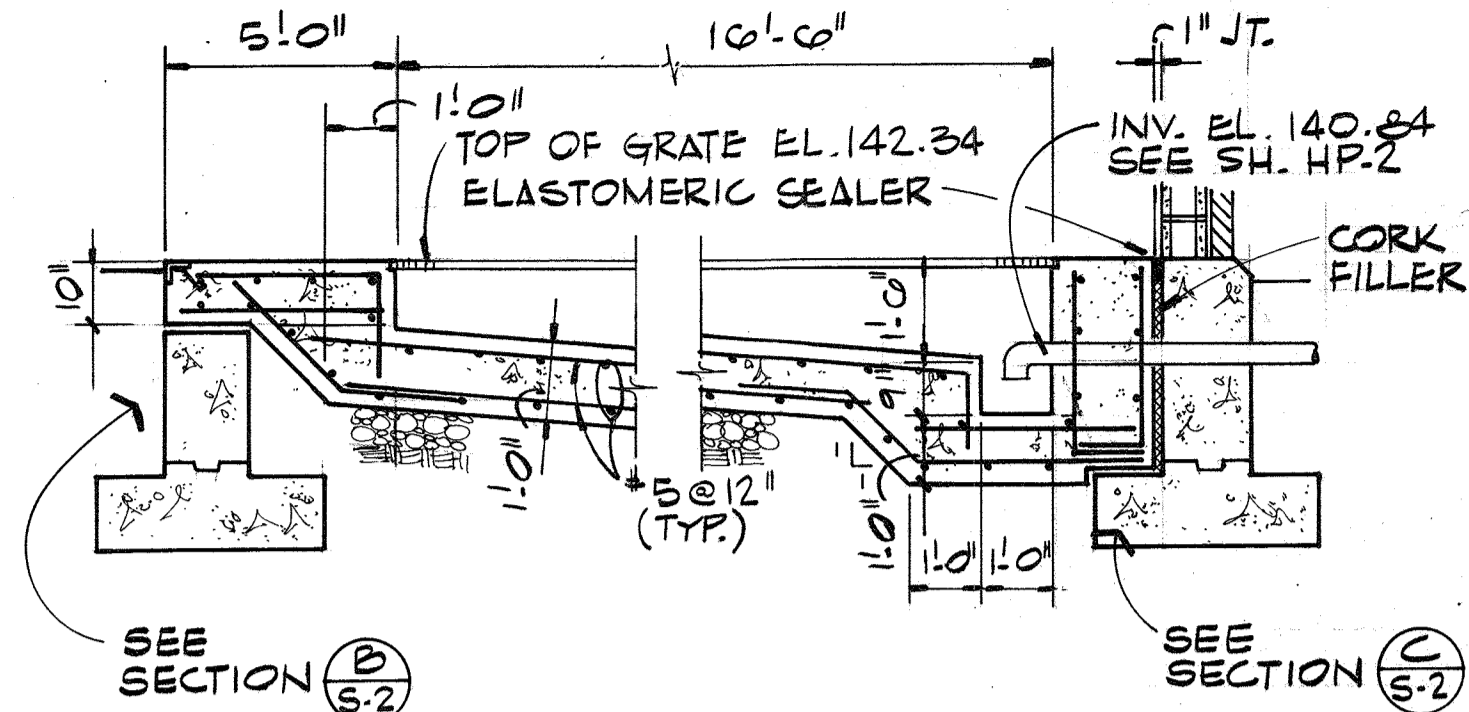
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
STORAGE BIN DETAILS
STRUCTURAL

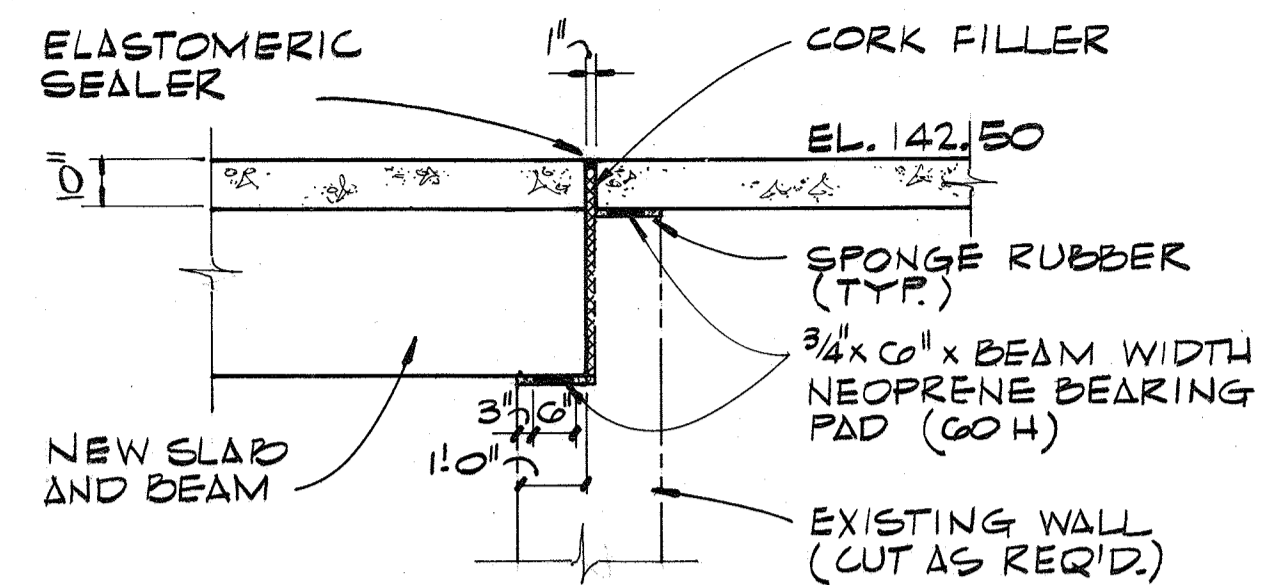
SHEET S-7
OF
DATE 8-78
DWG. NO. W1078.C1



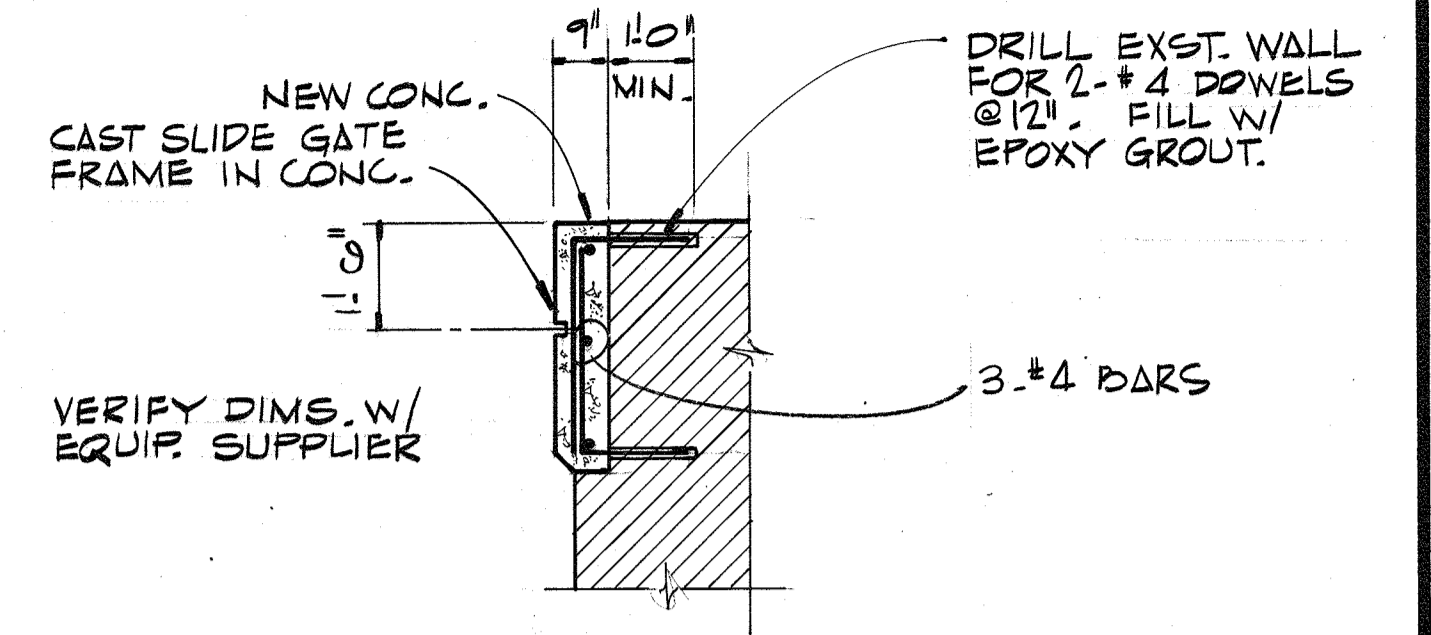
SECTION A
3/8" = 1.0"



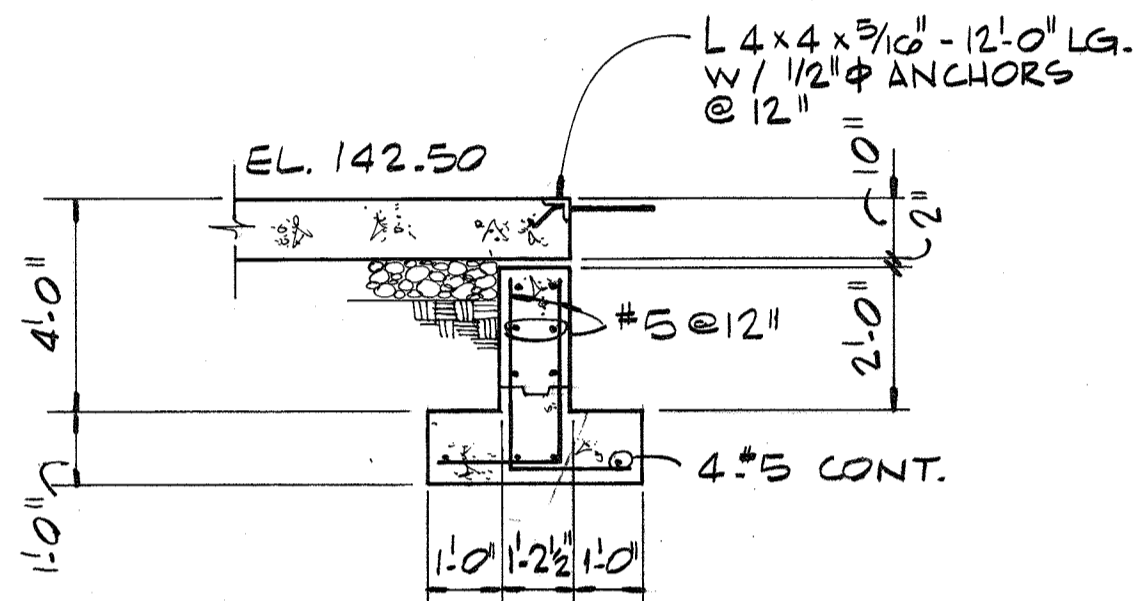
SECTION E
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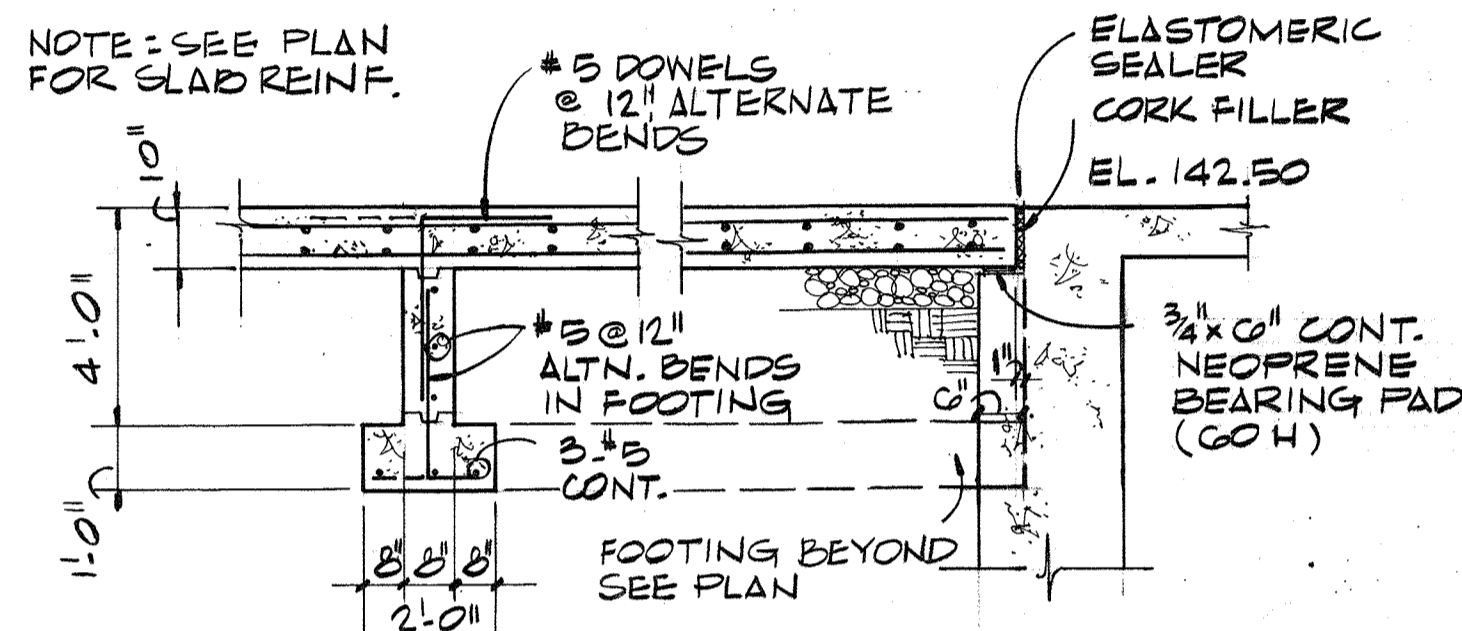
SECTION J
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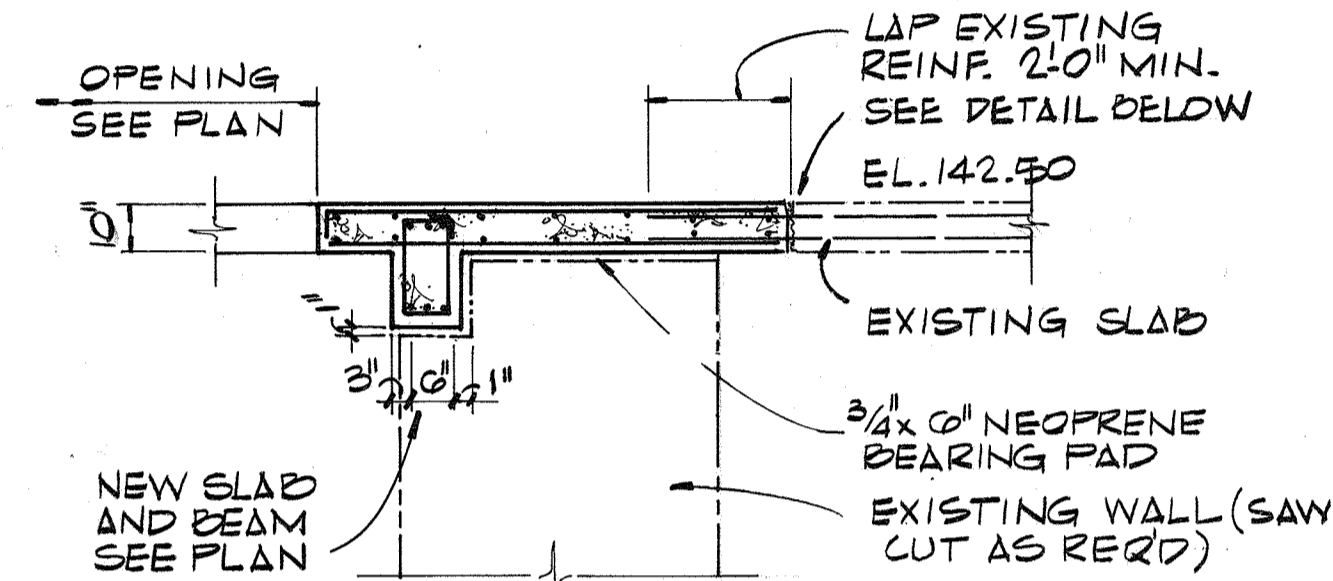
DETAIL N
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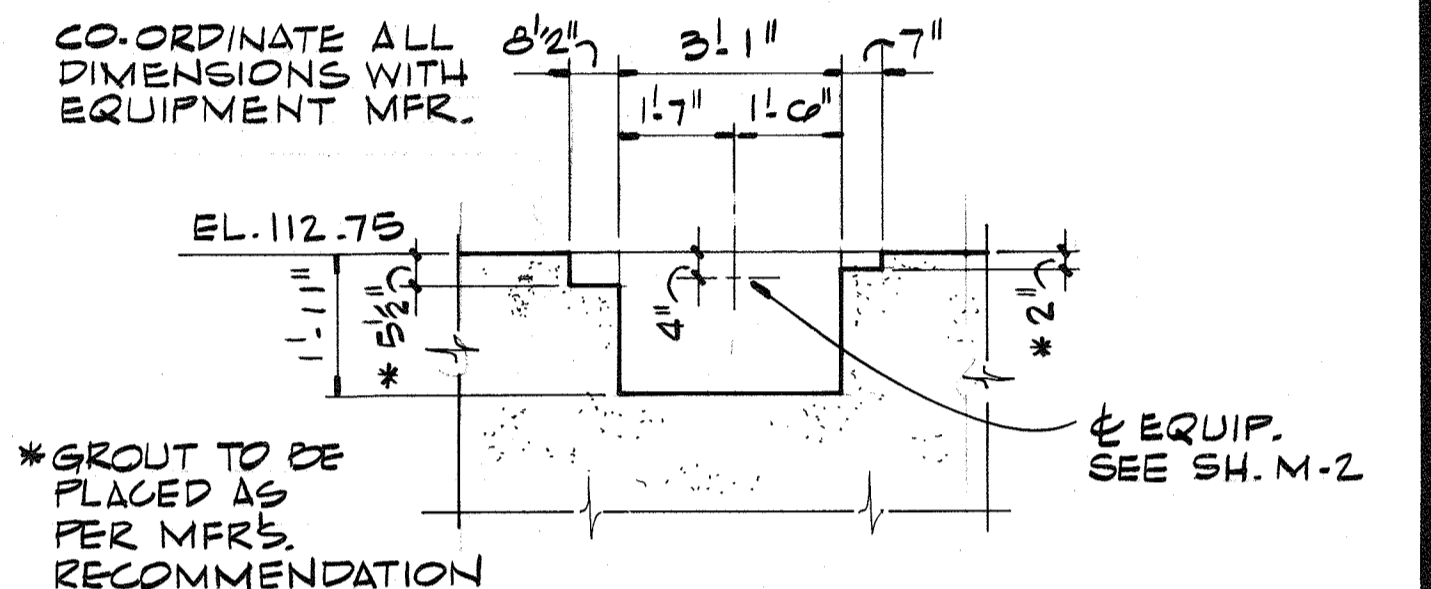
SECTION B
3/8" = 1.0"



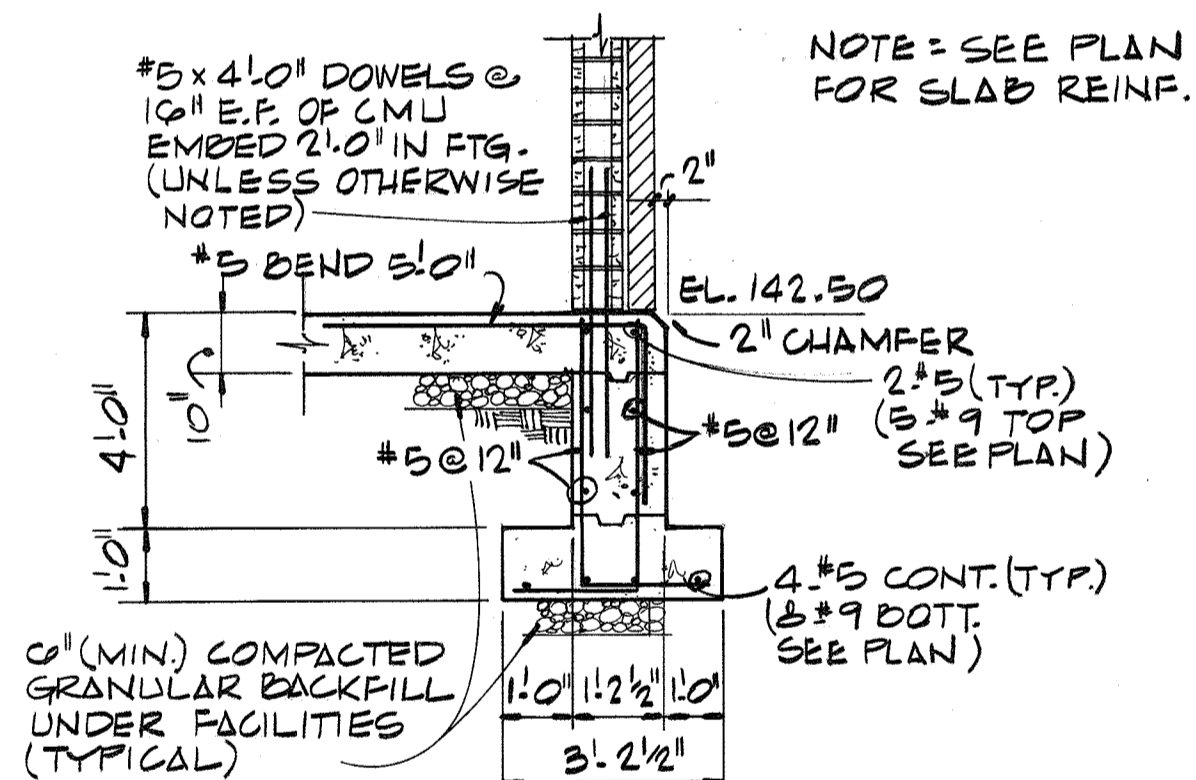
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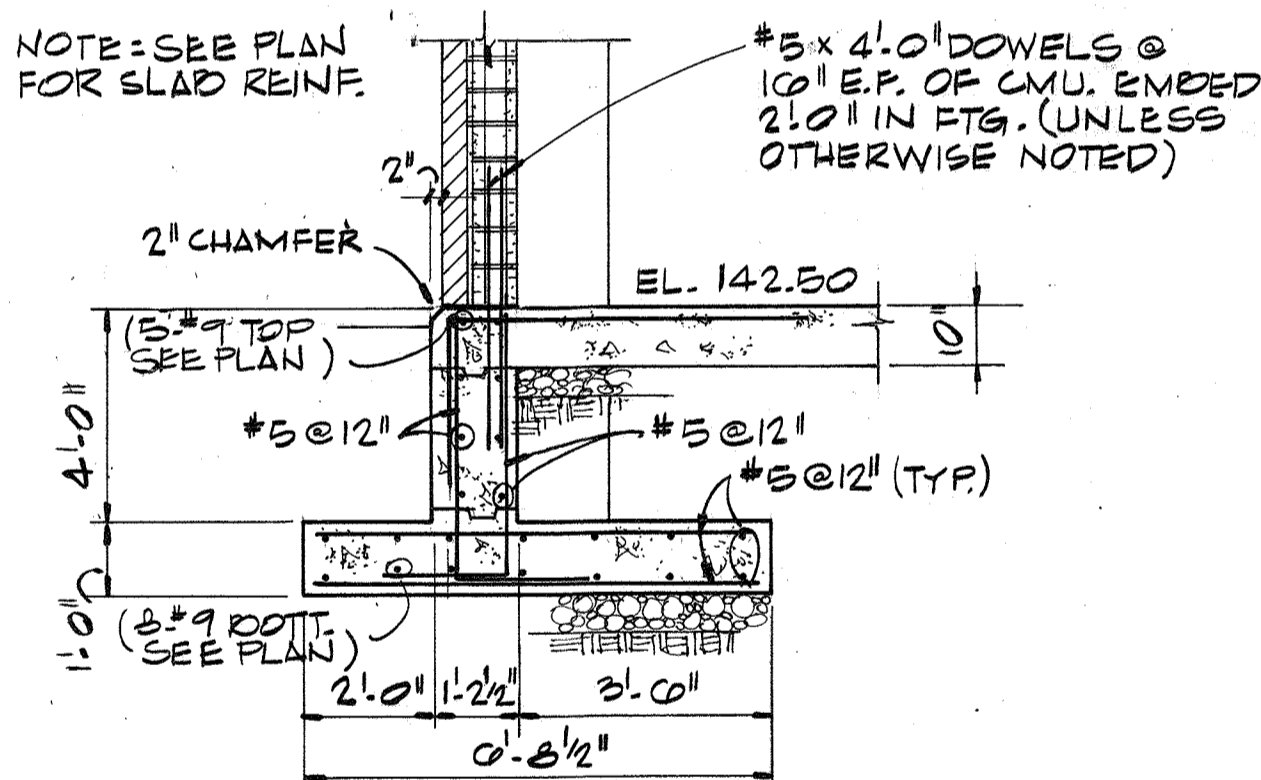
SECTION K
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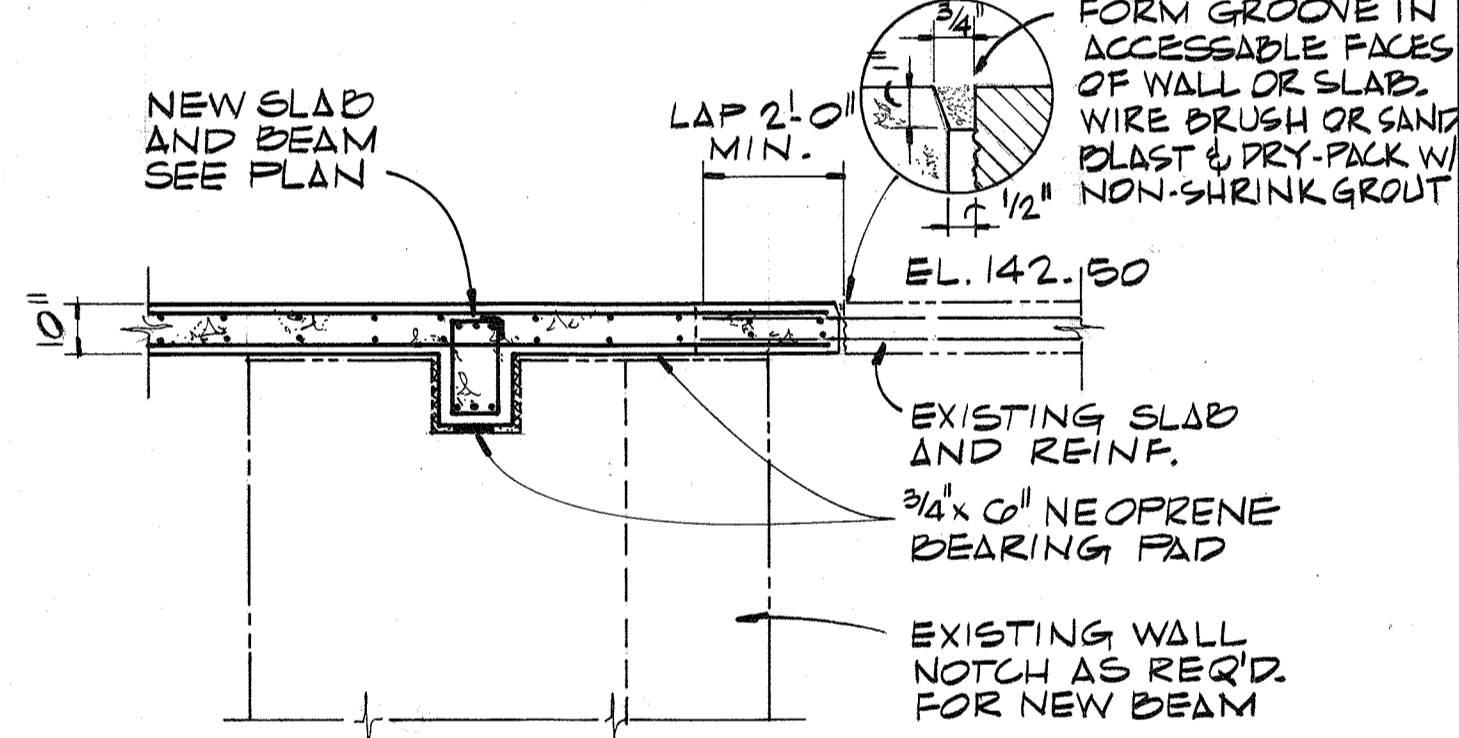
SECTION P
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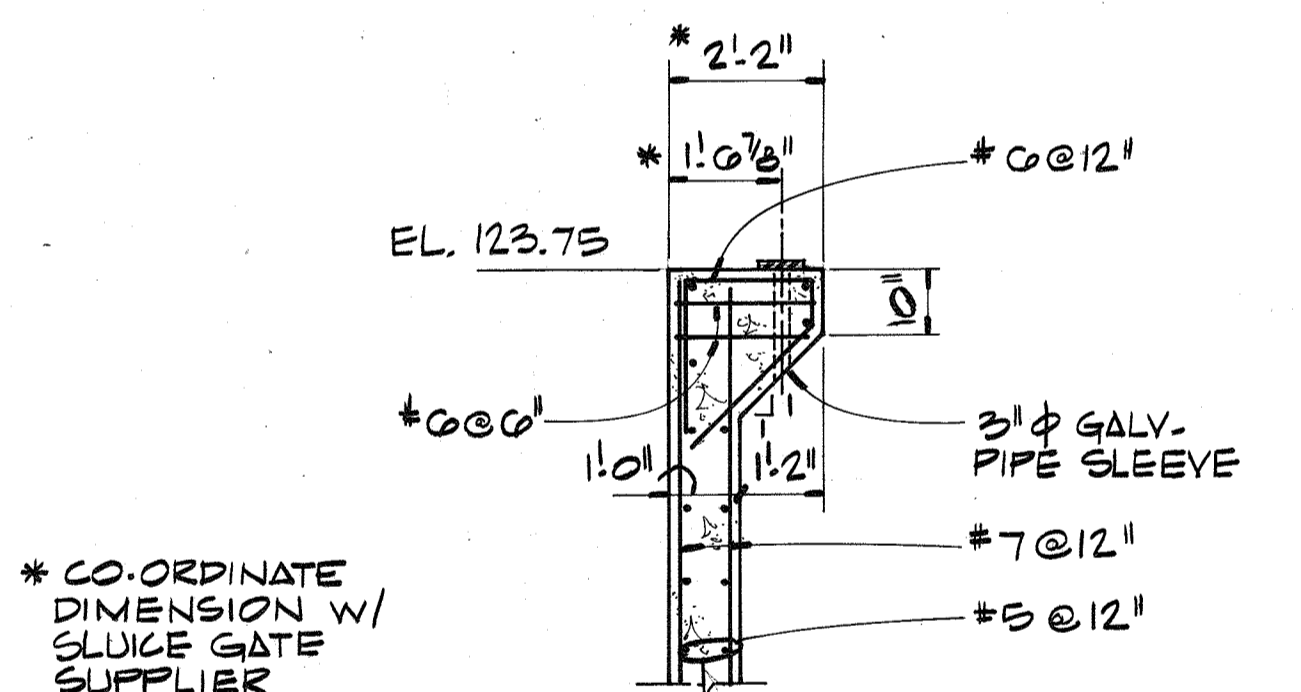
SECTION C
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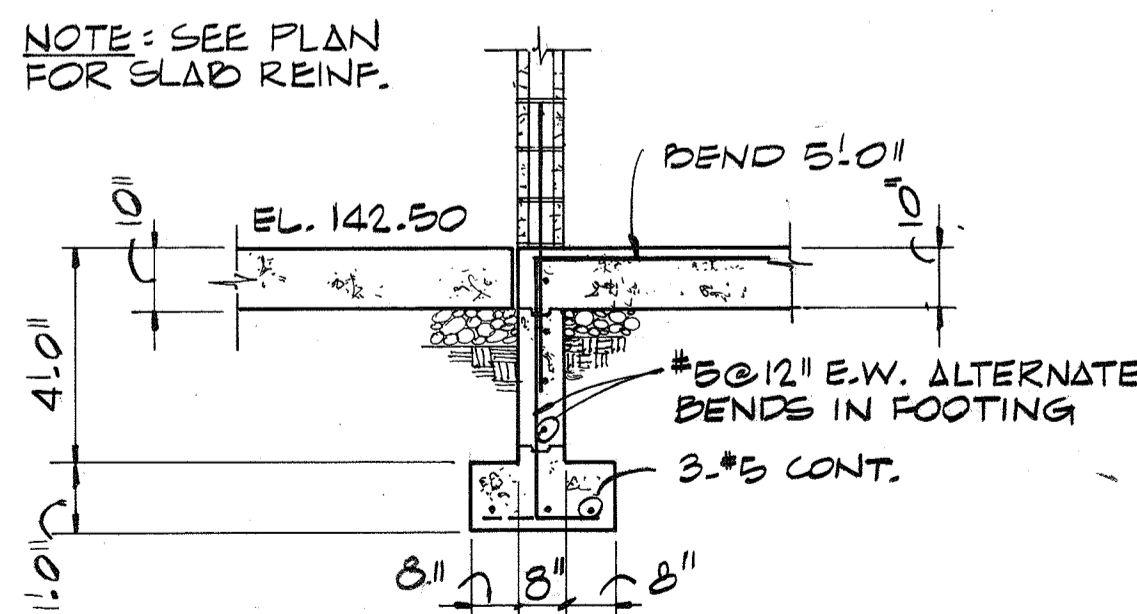
SECTION G
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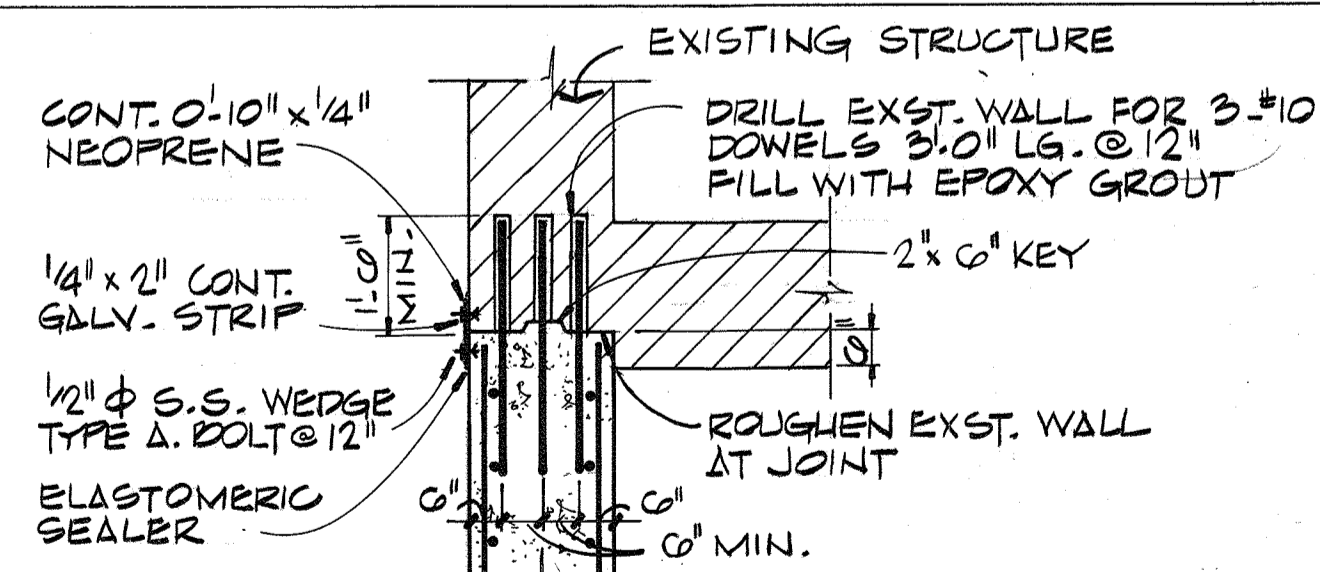
SECTION L
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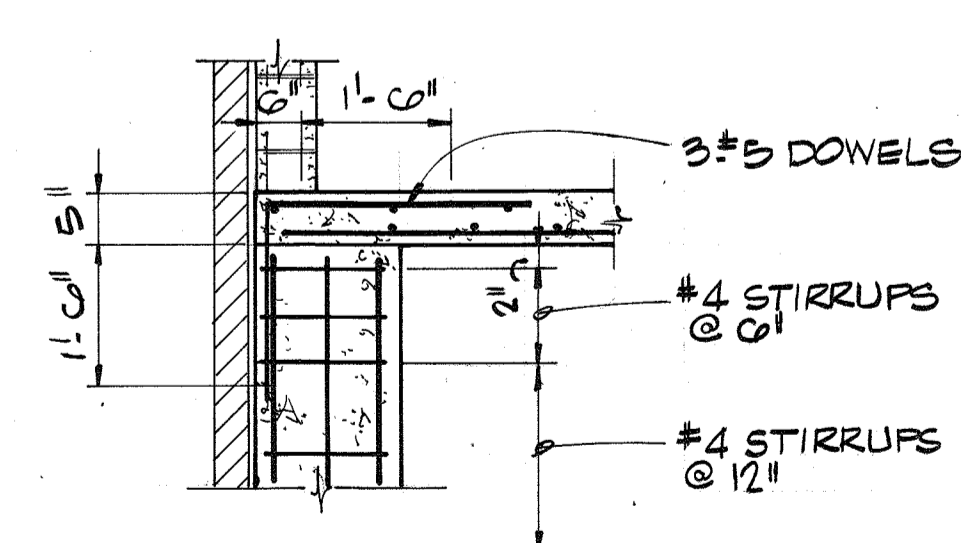
SECTION Q
3/8" = 1.0"



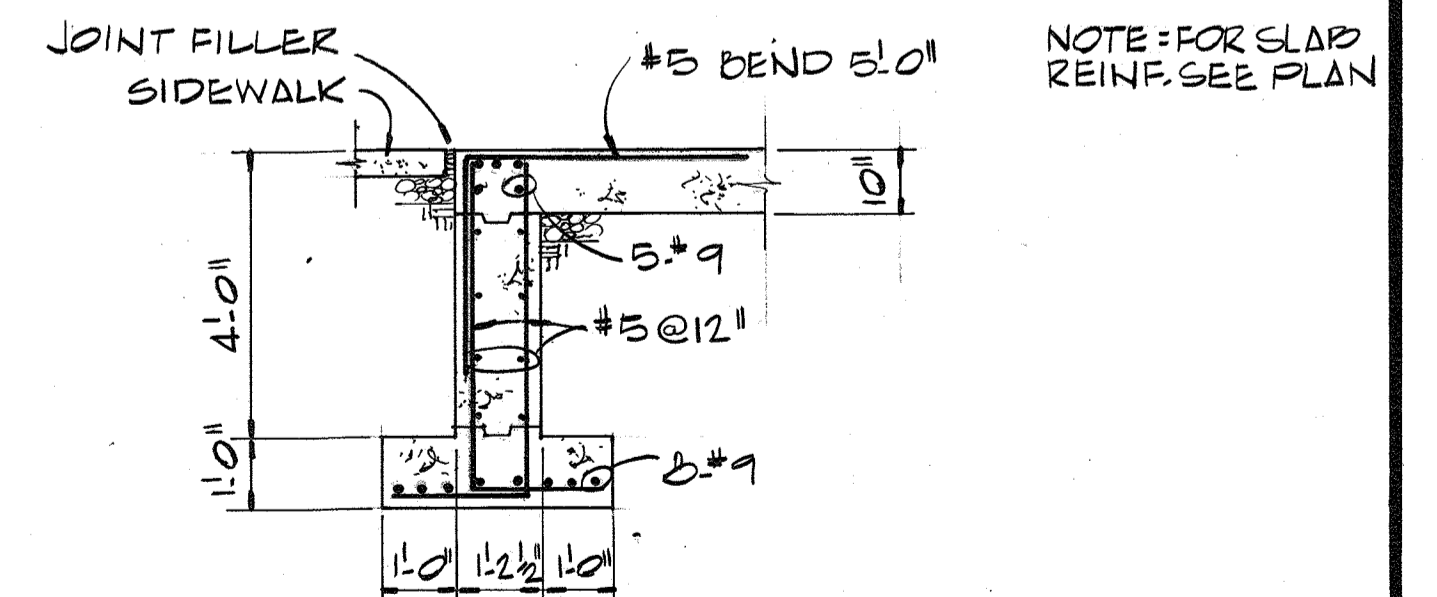
SECTION D
3/8" = 1.0"



DETAIL H
3/8" = 1.0"



SECTION M
3/8" = 1.0"



SECTION R
3/8" = 1.0"



CH2M HILL
DES. FLG
DR. DHA
CHK. HMM

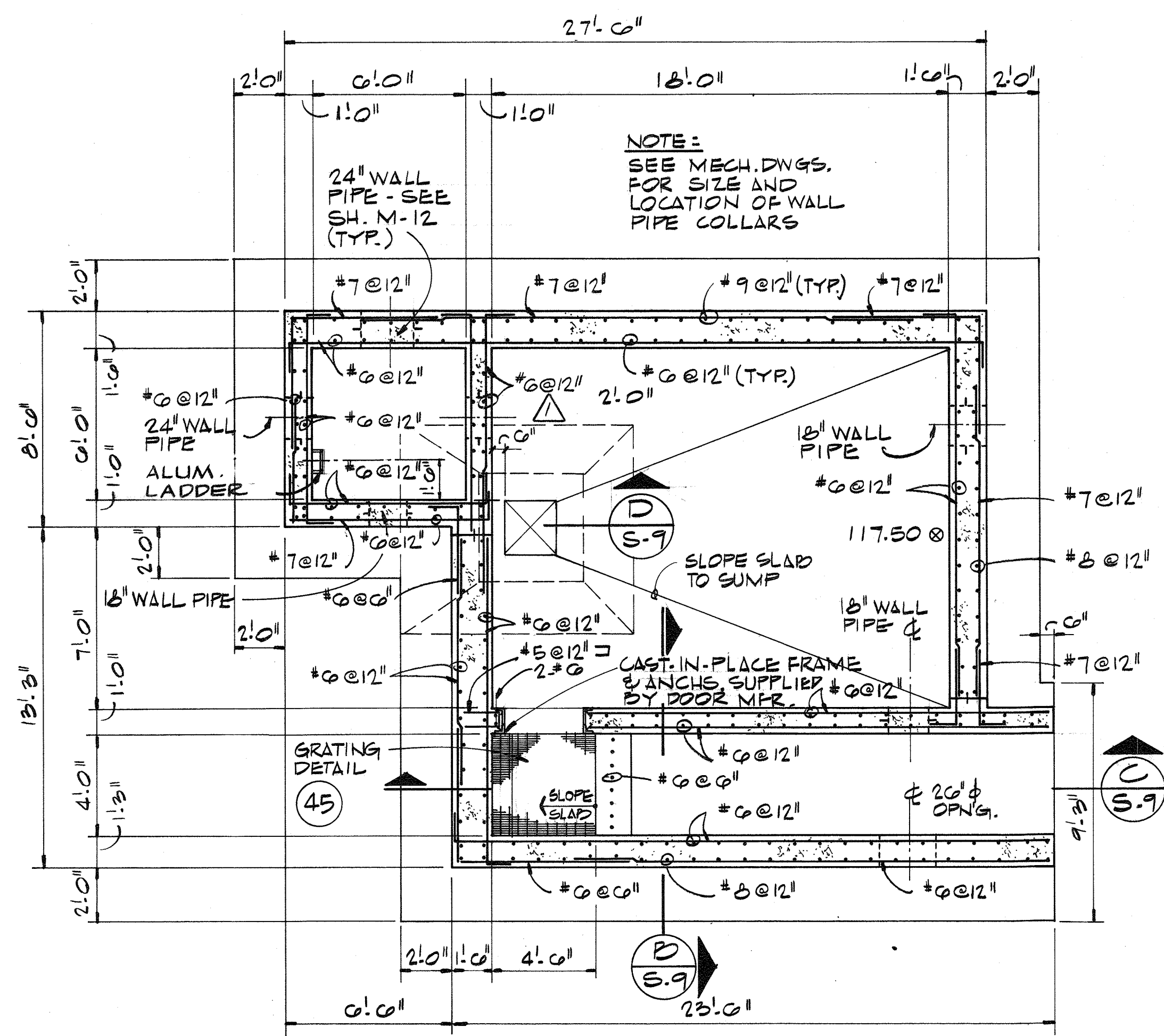
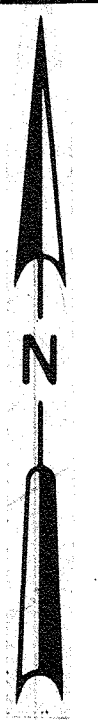
| APPD. | NO. | DATE | REVISION | BY | APPD. |
|-------|-----|------|----------|----|-------|
| | | | | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

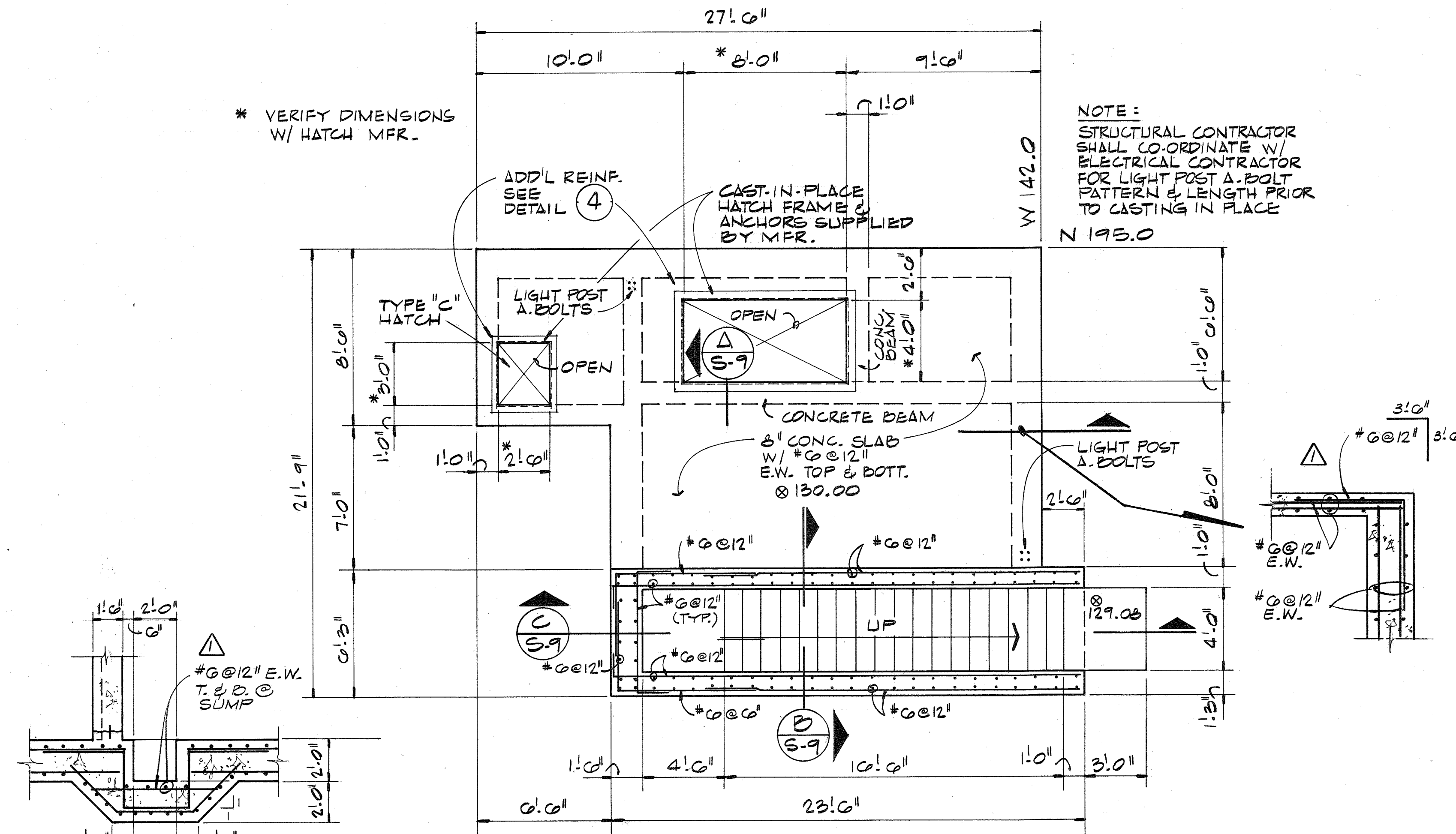
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
DETAILS AND SECTIONS
STRUCTURAL

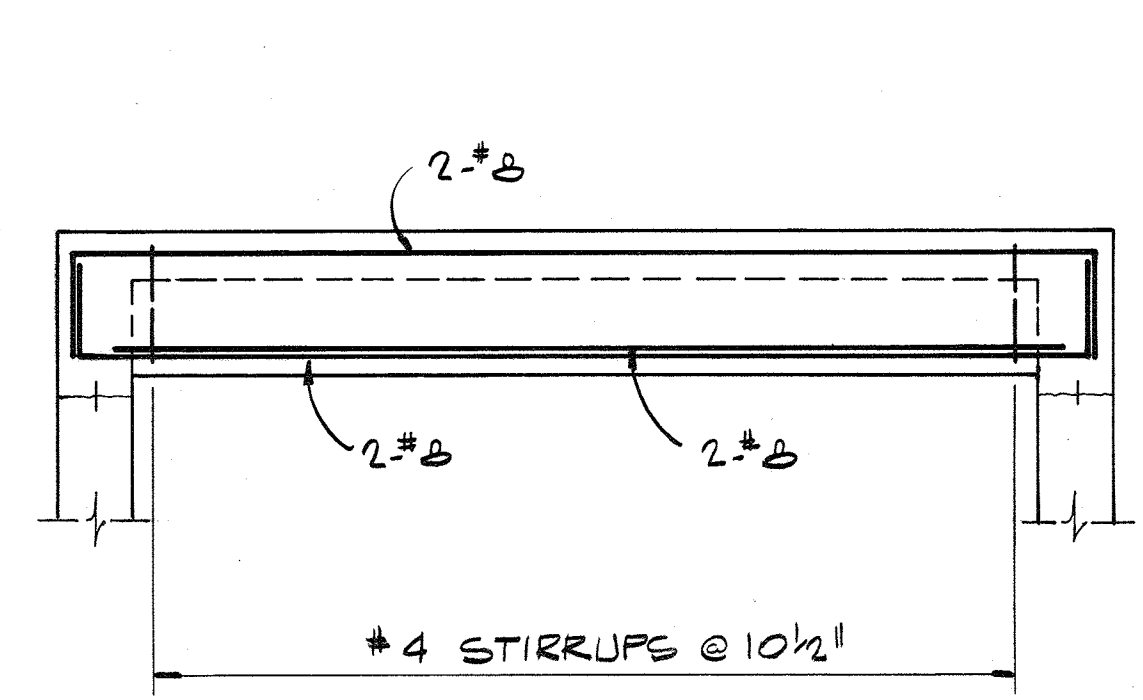
SHEET OF S-8
DATE 8-78
DWG. NO. W1078.CI



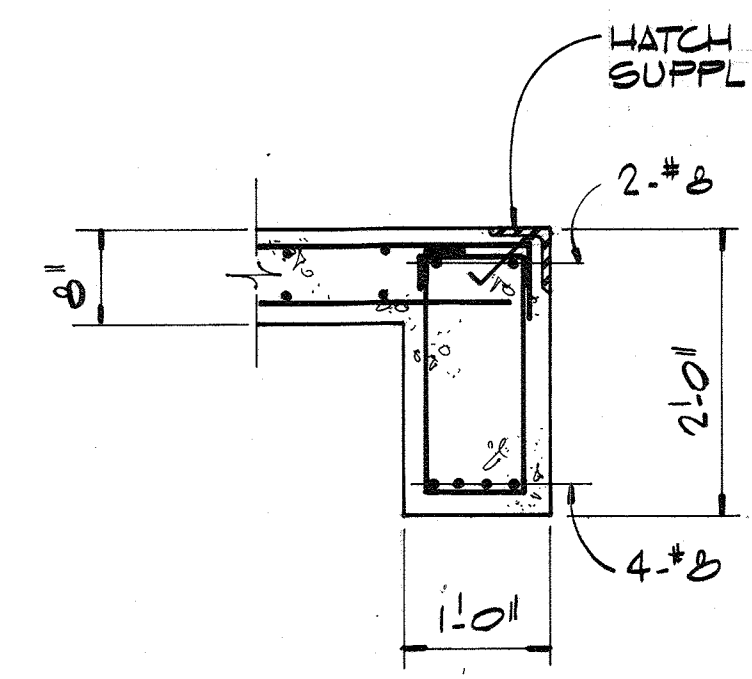
FOUNDATION AND FLOOR PLAN
1/4" = 1'-0"



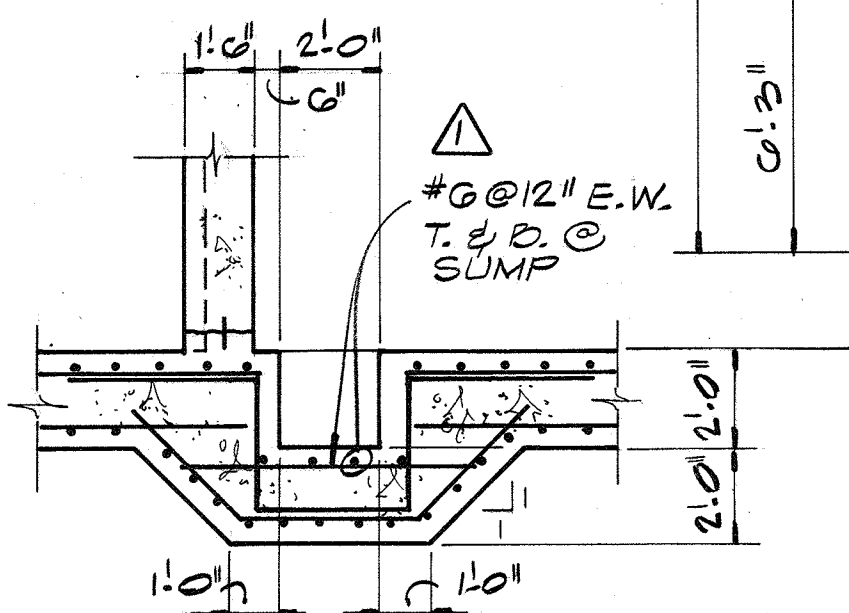
PLAN AT ELEVATION 130.00
1/4" = 1'-0"



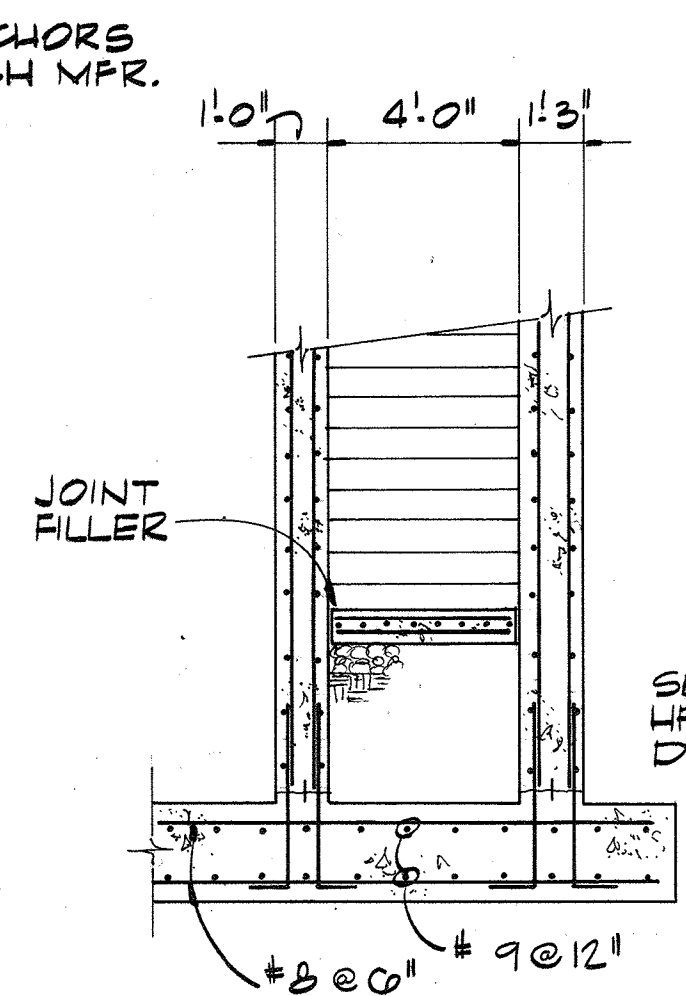
TYPICAL BEAM REINFORCING
N. T. S.



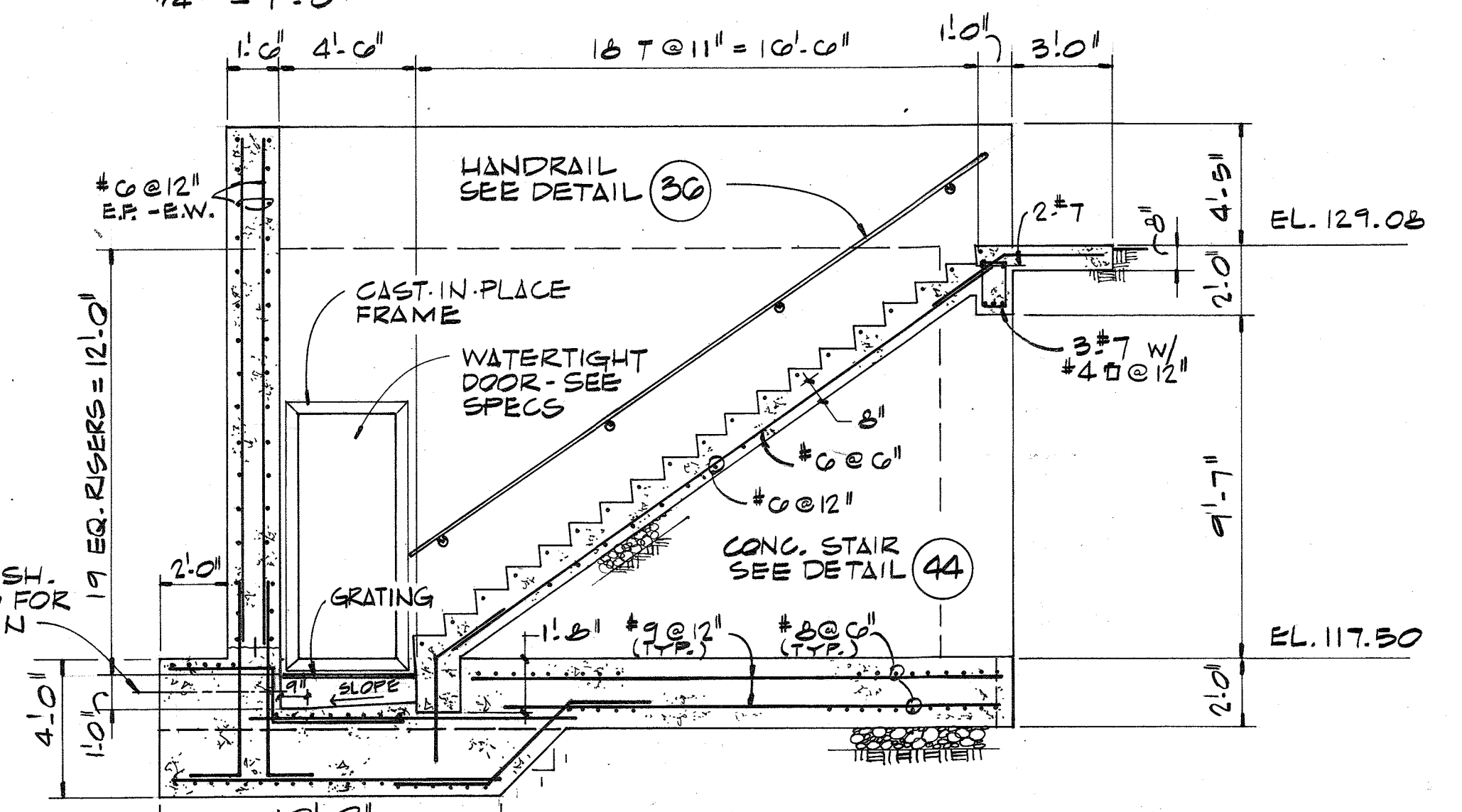
SECTION A
3/4" = 1'-0"



SECTION D
1/4" = 1'-0"

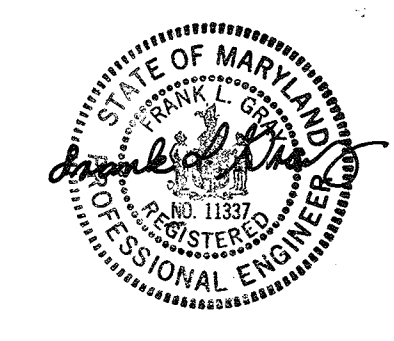


SECTION B
1/4" = 1'-0"



SECTION C
1/4" = 1'-0"

RECORD DRAWING



| | | | | | |
|--|----------|-------------------|--|---------|----|
| | DES. FLG | 1-24-81 1/3/80 | CHANGED CAST IN PLACE STEPS TO ALUMINUM LADDER | DHA DBB | BY |
| | DR. DHA | | ADDENDUM NO. 1 | | |
| | CHK. HHM | | DATE | | |
| | APPD. | | REVISION | | |
| | NO. | | DATE | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Lawler
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

RETURN FLOW METERING CHAMBER
PLANS AND SECTIONS
STRUCTURAL

SHEET S-9
OF
DATE 8-78
DWG. NO. W1078.C1

PIPE AND FITTING SYMBOLS

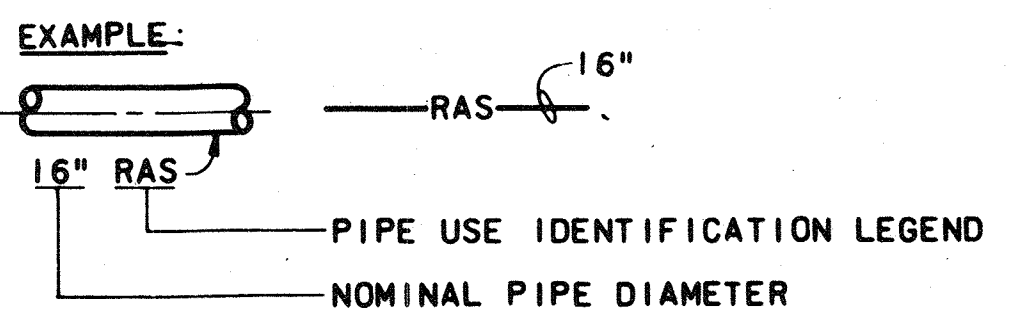
| DOUBLE LINE | SINGLE LINE | |
|-------------|-------------|------------------------------------|
| | | EXISTING PIPE |
| | | NEW PIPE |
| | | EXISTING PIPE TO BE ABANDONED |
| | | EXISTING PIPE TO BE REMOVED |
| | | WELDED JOINT |
| | | GROOVED END JOINT |
| | | FLANGED JOINT |
| | | MECHANICAL JOINT |
| | | BELL & SPIGOT JOINT (LEADED) |
| | | HUB & SPIGOT JOINT (RUBBER GASKET) |
| | | BALL JOINT |
| | | FLANGED COUPLING ADAPTER |
| | | GROOVED END ADAPTER FLANGE |
| | | FLEXIBLE COUPLING |
| | | FLEXIBLE COUPLING WITH THRUST TIES |
| | | STEEL BELLOWS XP JOINT |
| | | ELASTOMER BELLOWS XP JOINT |
| | | ELBOW UP |
| | | ELBOW DOWN |
| | | TEE UP |
| | | TEE DOWN |
| | | LATERAL OR WYE UP |
| | | LATERAL OR WYE DOWN |
| | | CONCENTRIC REDUCER |
| | | ECCENTRIC REDUCER |
| | | UNION |

NOTE: ONLY FLANGED FITTINGS ARE SHOWN. FITTINGS WITH OTHER END PATTERNS ARE SIMILAR.

MISCELLANEOUS PIPING SYMBOLS

| | |
|--|--|
| | STRAINER |
| | SIGHT GLASS |
| | FLEXIBLE (ELASTOMER) PIPE CONNECTION |
| | GAUGE WITH COCK |
| | THERMOMETER |
| | ROTAMETER |
| | PIG LAUNCHER |
| | PIG CATCHER |
| | AIR SET |
| | SUPPLY PRESSURE - PSIG |
| | TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND) |

PIPING DESIGNATION

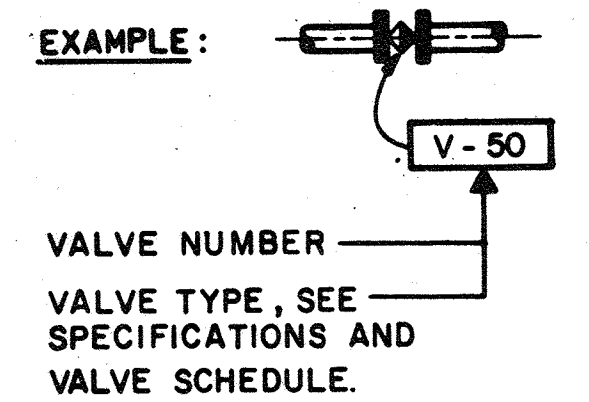


PIPE AND FITTING END PATTERNS

| | | | | | |
|---|--------|----|------------------|----------|--|
| B | BELL | PE | PLAIN END | EXAMPLE: | |
| S | SPIGOT | GE | GROOVED END | | |
| F | FLANGE | MJ | MECHANICAL JOINT | | |

VALVE SYMBOLS

| | | | |
|--|----------------------------|--|--|
| | GATE | | PRESSURE RELIEF |
| | KNIFE GATE | | AIR AND/OR VACUUM RELEASE |
| | BUTTERFLY | | REGULATED SIDE |
| | GLOBE | | PRESSURE CONTROL |
| | BALL | | MULTI-PORT VALVES (BALL VALVE SHOWN. FOR OTHER VALVE TYPES, USE APPROPRIATE VALVE SYMBOL. ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.) |
| | VEE-BALL | | |
| | PLUG SEAT PORT | | |
| | ECCENTRIC PLUG | | |
| | DIAPHRAGM | | |
| | PINCH | | |
| | NEEDLE | | |
| | SWING CHECK | | |
| | BALL CHECK | | |
| | BALL CHECK (SPRING LOADED) | | |
| | SAMPLE | | |
| | MUD | | |



RECORD DRAWING

GATE SYMBOLS

| EL. VIEW | PLAN VIEW | |
|----------|-----------|------------------|
| | | SLUICE |
| | | BUTTERFLY |
| | | FLAP |
| | | SHEAR |
| | | FABRICATED SLIDE |

GENERAL PIPING NOTES

- LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
- LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
- ALL JOINTS SHALL BE WATERTIGHT. STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
- ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES WHERE INDICATED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
- SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE PLANS, WHEREVER APPLICABLE. ALL OF THE VARIOUS PIPING APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT.
- ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, OR SCREWED PIPING, SHALL BE PROVIDED WITH CONCRETE THRUST BLOCKS AT ALL DIRECTION CHANGES, UNLESS OTHERWISE NOTED. THRUST DETAILS AND NOTES ON CIVIL LEGEND.
- NUMBER AND LOCATION OF UNIONS SHOWN ON PLANS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
- WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE USED TO JOIN THE COUPLING ADAPTER.

Pipe Fitting Symbols

| PIPE FITTING SYMBOLS: | | | |
|-----------------------|----------------------|----|---|
| 1 | 90° BEND | 15 | ECCENTRIC REDUCER |
| 2 | 90° LONG RADIUS BEND | 16 | FLEXIBLE COUPLING |
| 3 | 90° REDUCING BEND | 17 | FLANGED COUPLING ADAPTER |
| 4 | 45° BEND | 18 | VICTAULIC COUPLING |
| 5 | 22½° BEND | 19 | BLIND FLANGE |
| 6 | 11¼° BEND | 20 | FLUSHING CONNECTION |
| 7 | SIDE OUTLET 90° BEND | 21 | SIGHT GLASS |
| 8 | BEND AS SHOWN | 22 | STANDARD WALL PIPE ASSEMBLY |
| 9 | TEE | 23 | STANDARD WALL SLEEVE |
| 10 | SIDE OUTLET TEE | 24 | VALVE BOX W/ STEM EXTENSION-SET IN 1'-6" SO ± 6" THICK CONCRETE SLAB, UNLESS SHOWN OTHERWISE. LID TO BE FLUSH WITH TOP OF CONCRETE. |
| 11 | CROSS | | |
| 12 | WYE | | |
| 13 | WYE (TRUE) | | |
| 14 | CONCENTRIC REDUCER | | |

For Registration Drafting Use Only
SCREEN COMPOSITE OVERLAY
S
BASE II
M-1
BASE II
M-1
W11078.C1



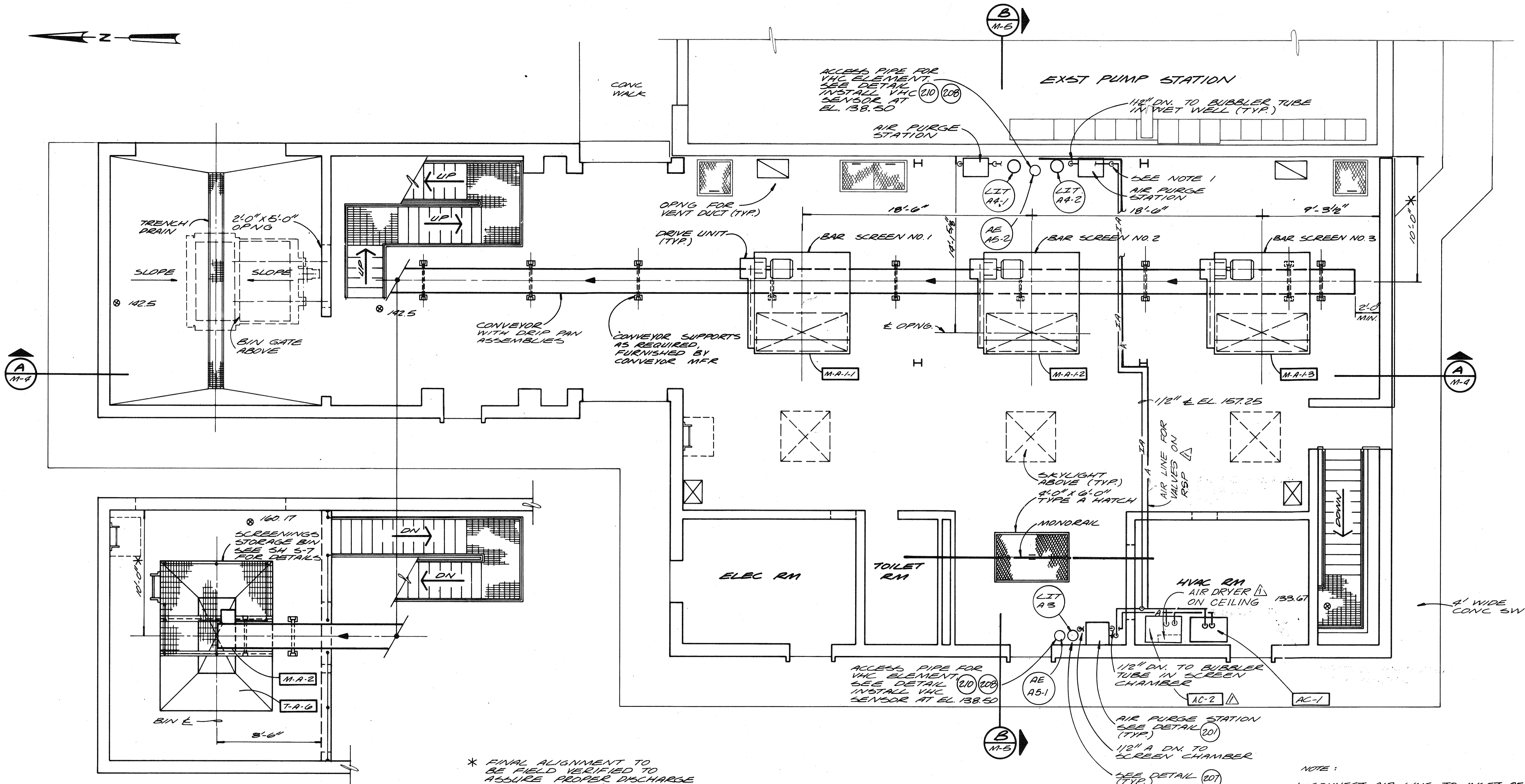
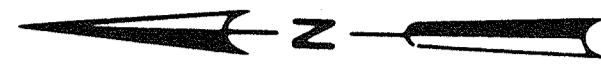
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|-------|--|-----|------|----------|----|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/77
DATE
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

LEGEND AND ABBREVIATIONS
MECHANICAL

SHEET OF M-1
DATE 8-78
DWG. NO. W11078.C1



PARTIAL PLAN ABOVE EL. 159.0

1/4" = 1'-0"

OPERATING ROOM BELOW EL. 159.0

1/4" = 1'-0"

* FINAL ALIGNMENT TO BE FIELD VERIFIED TO ASSURE PROPER DISCHARGE OF SCREENING.

NOTE:
1. CONNECT AIR LINE TO INLET OF PURGE STATION (TYP OF 2). WHEN NEW COMPRESSOR SYSTEM IS READY FOR OPERATION, DISCONNECT EXIST AIR LINE TO RAW SEWAGE PUMP CONTROLS AND CONNECT NEW AIR SUPPLY. AFTER CONNECTION OF NEW AIR SUPPLY TO PUMP CONTROLS, REMOVE EXIST. AIR COMPRESSOR.

For Registration Drafting Use Only

| | |
|-----------|----------|
| SCREEN | 5 |
| COMPOSITE | BASE 1/2 |
| OVERLAY | BASE 1/2 |
| M-2 | M-2 |
| M-2 | M-2 |



DES. J.B.H./D.B.S.
DR. K.A.V.
CHK.
APPD.

NO. DATE

1/26/81 AC-2, ADD AIR LINE
REVISION

DLT
BY APPD.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James M. Slavin
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

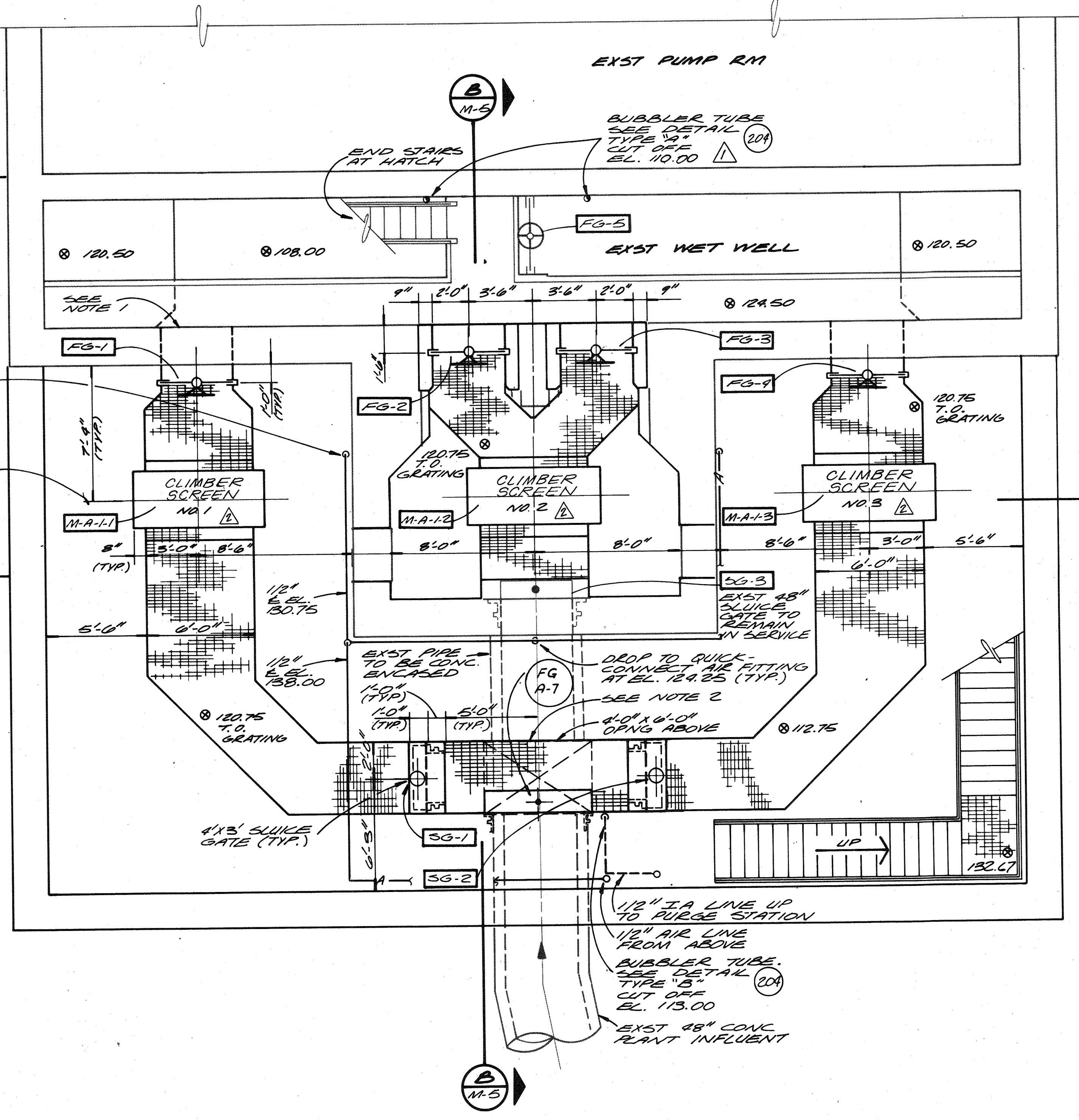
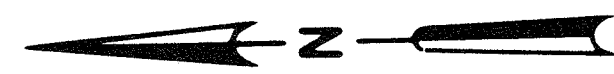
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

SCREENING FACILITY
OPERATING ROOM PLAN

MECHANICAL

SHEET
OF M-2
DATE 8-78
DWG. NO. W1078.C1

RECORD DRAWING



NOTE:

1. PRIOR TO CUTTING OPENING IN THE EXISTING WALL, THE CONTRACTOR WILL ISOLATE AND DEWATER THE NORTH HALF OF WET WELL. INSTALL GATES FG-1 AND FG-2 PRIOR TO PUTTING THE WET WELL BACK IN SERVICE. SEE STRUCTURAL FOR DETAILS ON OPENING. REPEAT PROCEDURE FOR SOUTH HALF OF WET WELL. COORDINATE ALL SHUT-DOWN OF FACILITIES WITH PLANT SUPERINTENDENT AND ENGINEER.
2. SAW CUT OUT AND REMOVE EXISTING 48" CONCRETE PIPE FOR 4' WIDTH OF CHANNEL OPENING. COORDINATE WITH START UP OF NEW FACILITIES. PROVIDE TEMPORARY PUMPING FACILITIES TO AVOID BY-PASS OF WASTEWATER TO RIVER DURING REMOVAL OF PIPE SECTION & GATE INSTALLATION.
3. PROVIDE TEMPORARY PUMPING AND OTHER MEASURES AS REQUIRED TO CONTROL LEAKAGE FROM EXIST PLANT INFLUENT PIPE DURING CONSTRUCTION.

CLIMBER SCREEN CHAMBER - PLAN AT EL. 140.0
 1/4" = 1'-0"

For Registration Drafting Use Only

| | | | | |
|-----------|-----|---------|---------|--|
| SCREEN | | | | |
| COMPOSITE | M-3 | BASE 14 | BASE 15 | |
| OVERLAY | M-3 | BASE 14 | BASE 15 | |



| | | | | | |
|-----------|---------------------------|----------|----------------|----|-------|
| CH2M HILL | DES. <i>J.S.H./D.B.B.</i> | NO. DATE | REVISION | BY | APPD. |
| | DR. <i>K.A.W.</i> | | | | |
| | CHK. | 1/3/80 | ADDENDUM NO. 1 | LG | DBB |
| | APPD. | | | | |

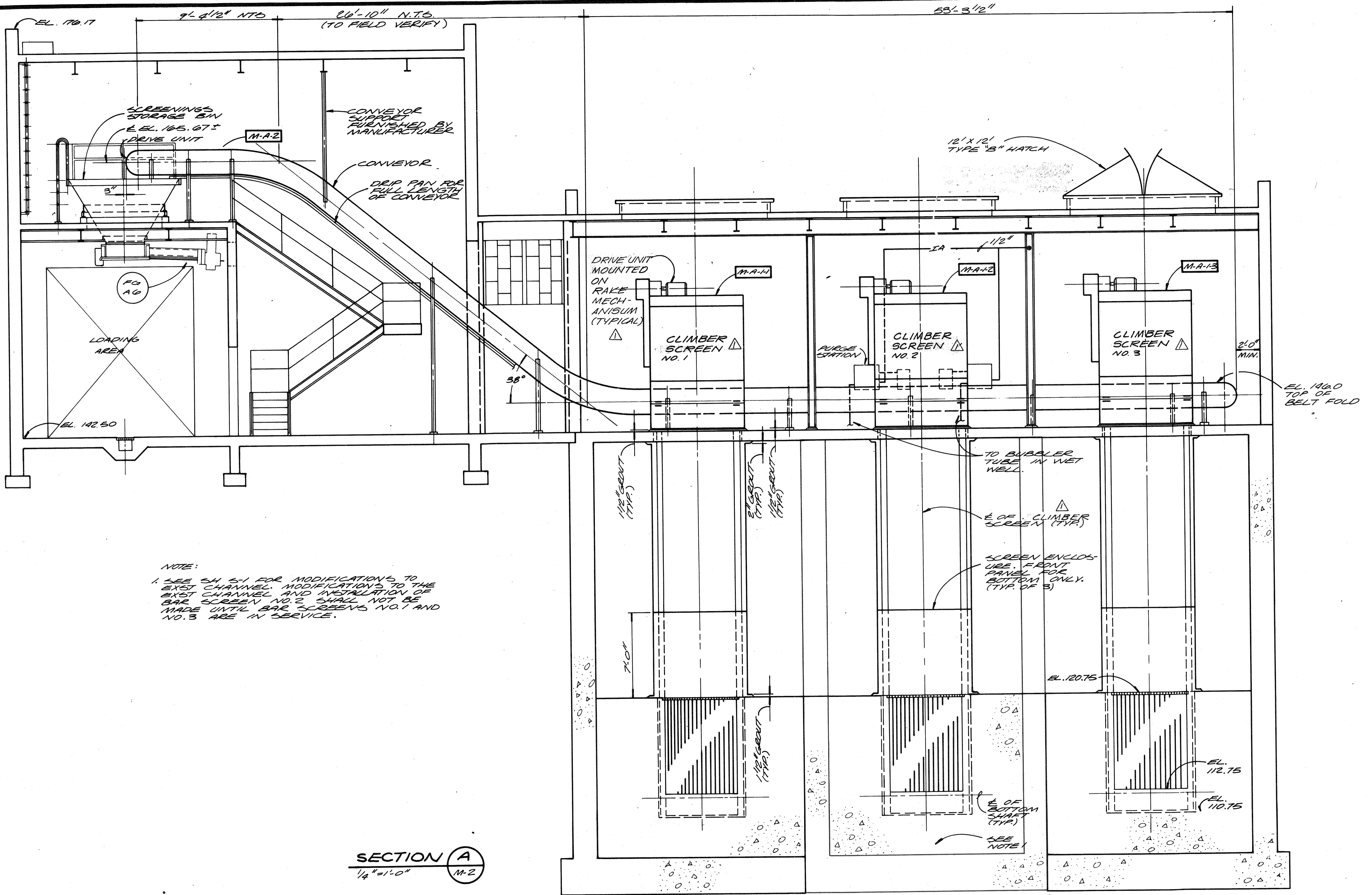
RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
James M. Schum
 DATE _____ CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

SCREENING FACILITY
LOWER LEVEL PLAN
 MECHANICAL

SHEET
 OF **M-3**
 DATE 8-78
 DWG. NO. W11078.C1



NOTE:
1. SEE SH 5-1 FOR MODIFICATIONS TO THE EXIST CHANNEL. MODIFICATIONS TO THE EXIST CHANNEL AND INSTALLATION OF BAR SCREEN NO. 2 SHALL NOT BE MADE UNTIL BAR SCREENS NO. 1 AND NO. 3 ARE IN SERVICE.

SECTION A
1/4" = 1'-0" M-2

RECORD DRAWING

| | | | | | |
|--------------------------|-----|-----|---------|---------|------------|
| SCREEN COMPOSITE OVERLAY | M-4 | M-4 | BASE 16 | BASE 17 | WH1078B-01 |
|--------------------------|-----|-----|---------|---------|------------|



| | | | | | | | | | |
|-----------|--------------------|------------|------|-------|---------|------|--------------------------------------|----|-------|
| CH2M HILL | DES. J.B.H./D.B.B. | DR. V.A.W. | CHK. | APPD. | NO. | DATE | REVISION | BY | APPD. |
| | | | | | 1-26-82 | | ADD NOTE & CHANGE TYPE OF SCREEN DLT | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

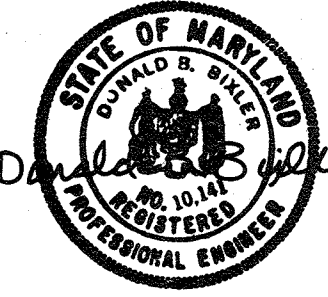
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
SECTION
MECHANICAL

SHEET OF M-4
DATE 8-78
DWG. NO. W1078.C1

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| | | | | | |
|-----------|-----|---------|---------|--|----------|
| SCREEN | | | | | |
| COMPOSITE | M-5 | BASE 18 | BASE 19 | | |
| OVERLAY | M-5 | BASE 18 | BASE 19 | | W1078.C1 |



| | | | | | |
|-----------|-------|---------------|---------|--|-----|
| CH2M HILL | DES. | J.B.H./D.B.B. | | | |
| | DR. | V.A.W. | 1/26/82 | HEIGHT DIMENSION ON SLUICE GATE OPERATOR | DLT |
| | CHK. | | | | |
| | APPD. | | | | |

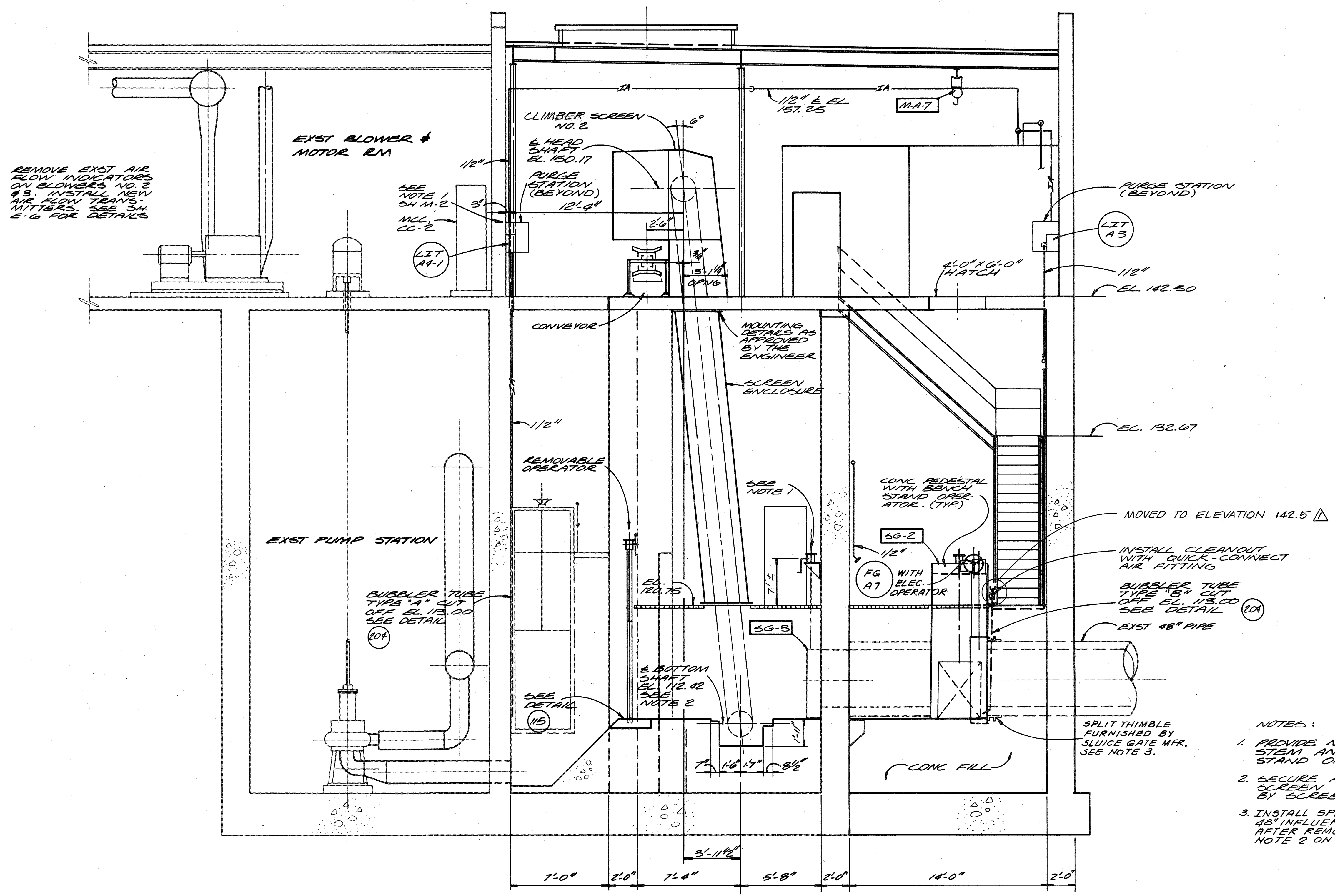
RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 5/29/79
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

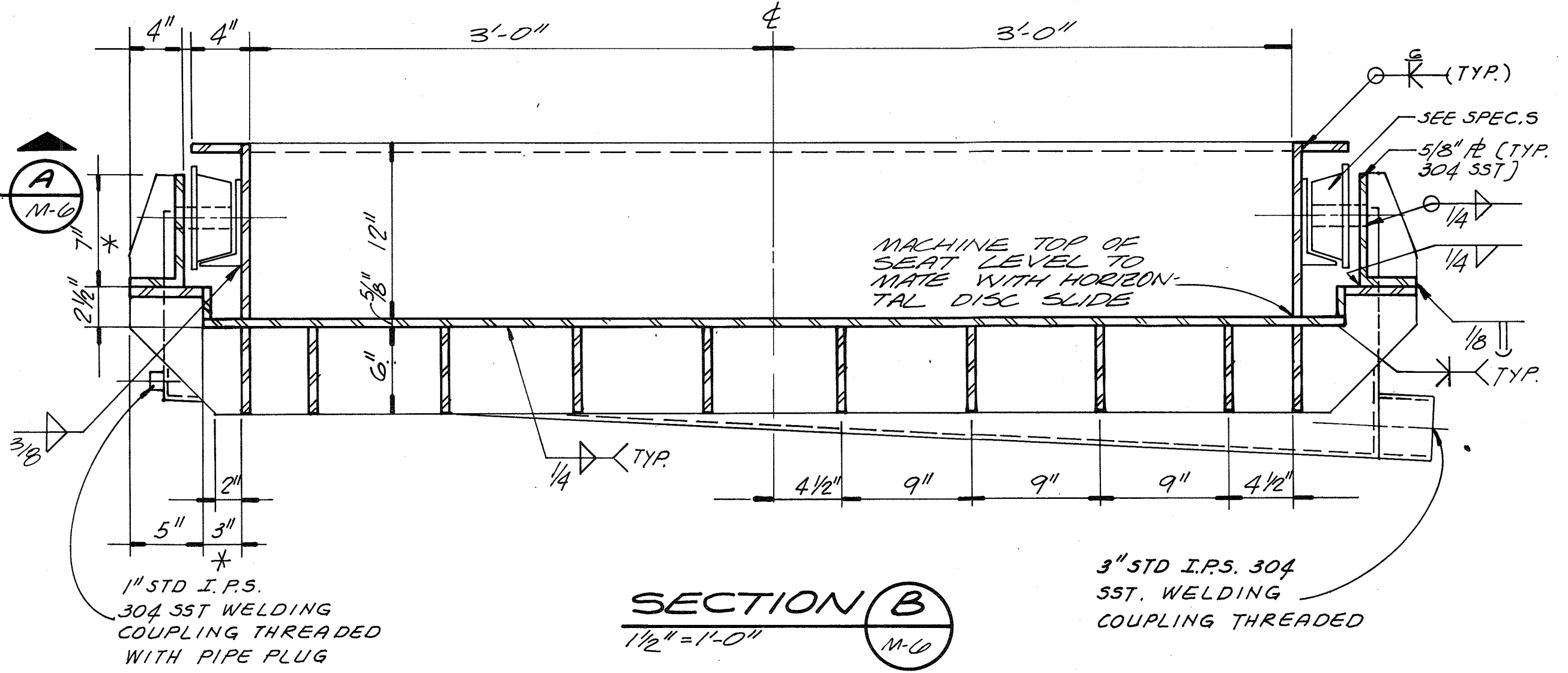
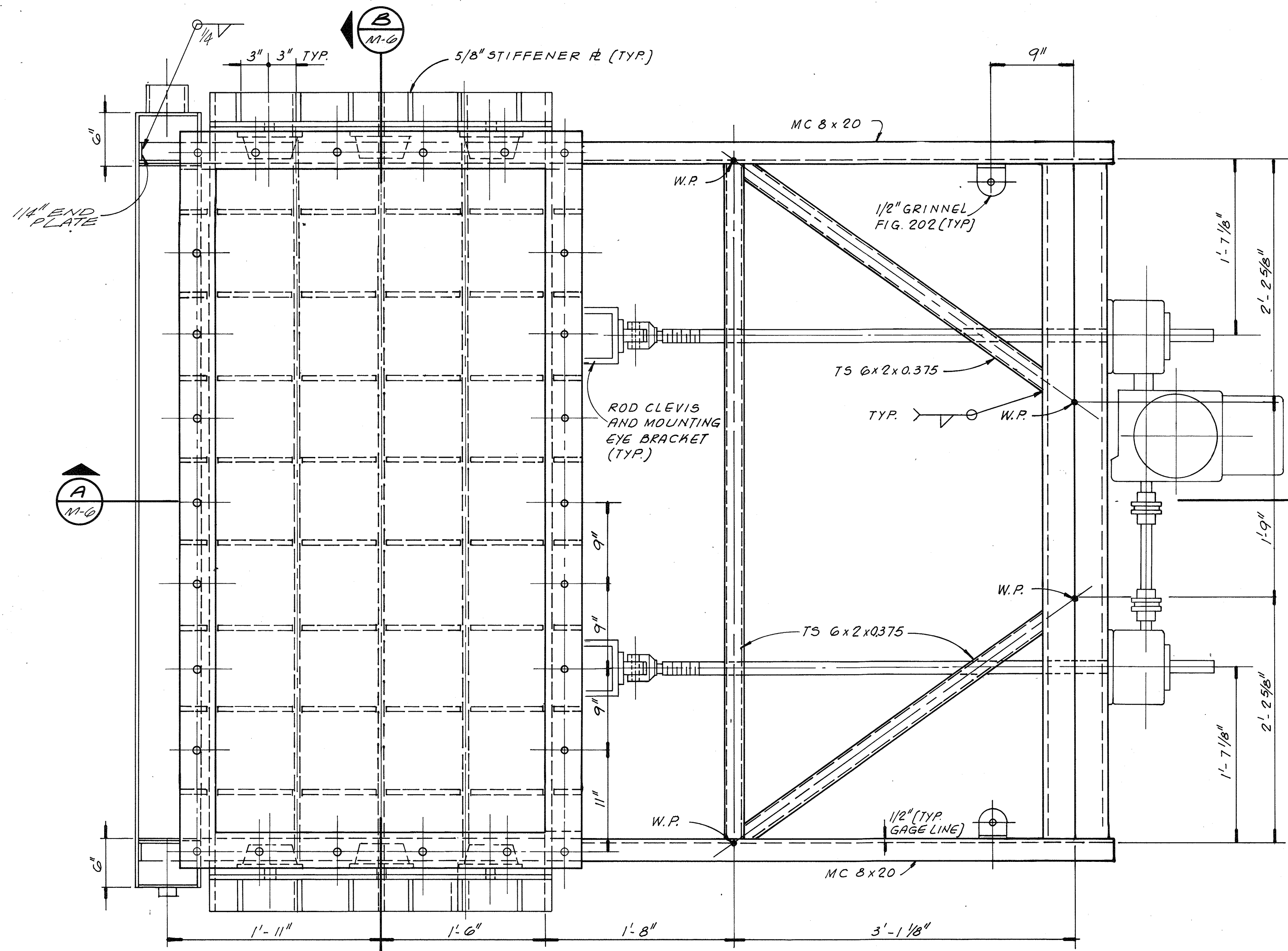
SCREENING FACILITY
SECTION
MECHANICAL

SHEET OF **M-5**
DATE 8-78
DWG. NO. W1078.C1



- NOTES:**
1. PROVIDE NEW SLUICE GATE STEM AND INSTALL WITH BENCH STAND OPERATOR AS INDICATED.
 2. SECURE AND GROUT IN BAR SCREEN AS RECOMMENDED BY SCREEN MFR.
 3. INSTALL SPLIT THIMBLE WHILE MAINTAINING 48" INFLUENT IN SERVICE. INSTALL GATE AFTER REMOVAL OF 48" PIPE. SEE NOTE 2 ON SHEET M-3.

SECTION (B)
1/4" = 1'-0" M-2

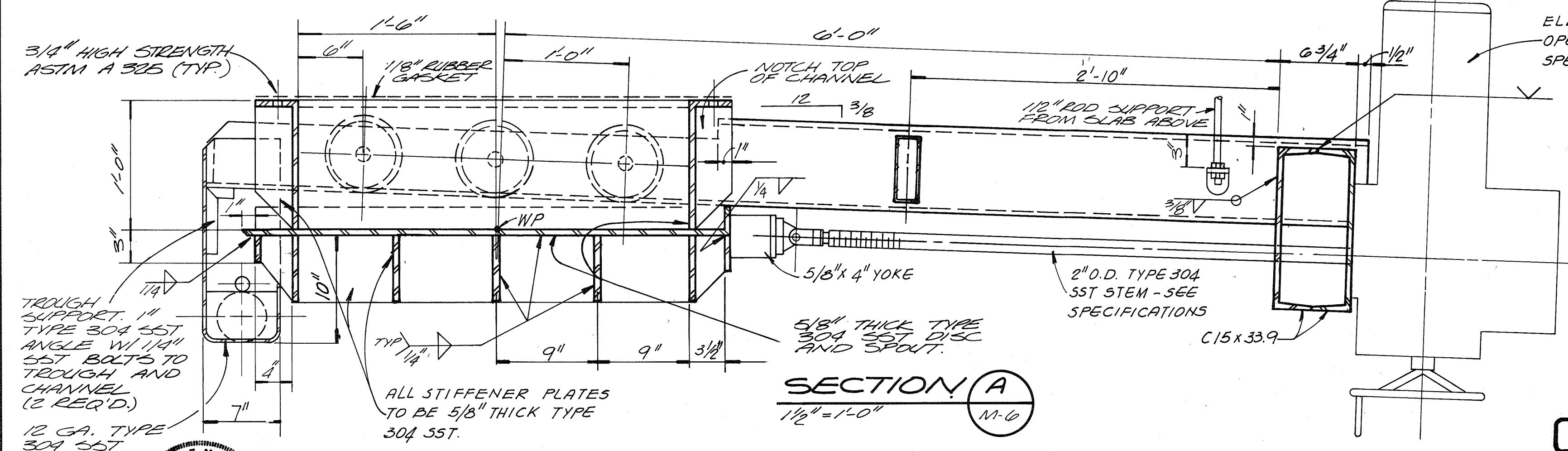


STORAGE BIN GATE
1 1/2" = 1'-0"

SECTION B
1 1/2" = 1'-0"

3" STD I.P.S. 304 S.S.T. WELDING COUPLING THREADED
* DIMENSION TO BE VERIFIED WITH WHEEL SUPPLIER

- NOTES:**
- 1) CONTRACTOR TO SUBMIT COMPLETE DETAILED FABRICATION DRAWINGS FOR THE BIN GATE.
 - 2) ALL STEEL TO BE ASTM A-306, UNLESS OTHERWISE NOTED.
 - 3) ALL WELDS TO BE FULL PENETRATION UNLESS OTHERWISE NOTED.
 - 4) ONE COMPLETE ASSEMBLY REQUIRED.



SECTION A
1 1/2" = 1'-0"

RECORD DRAWING



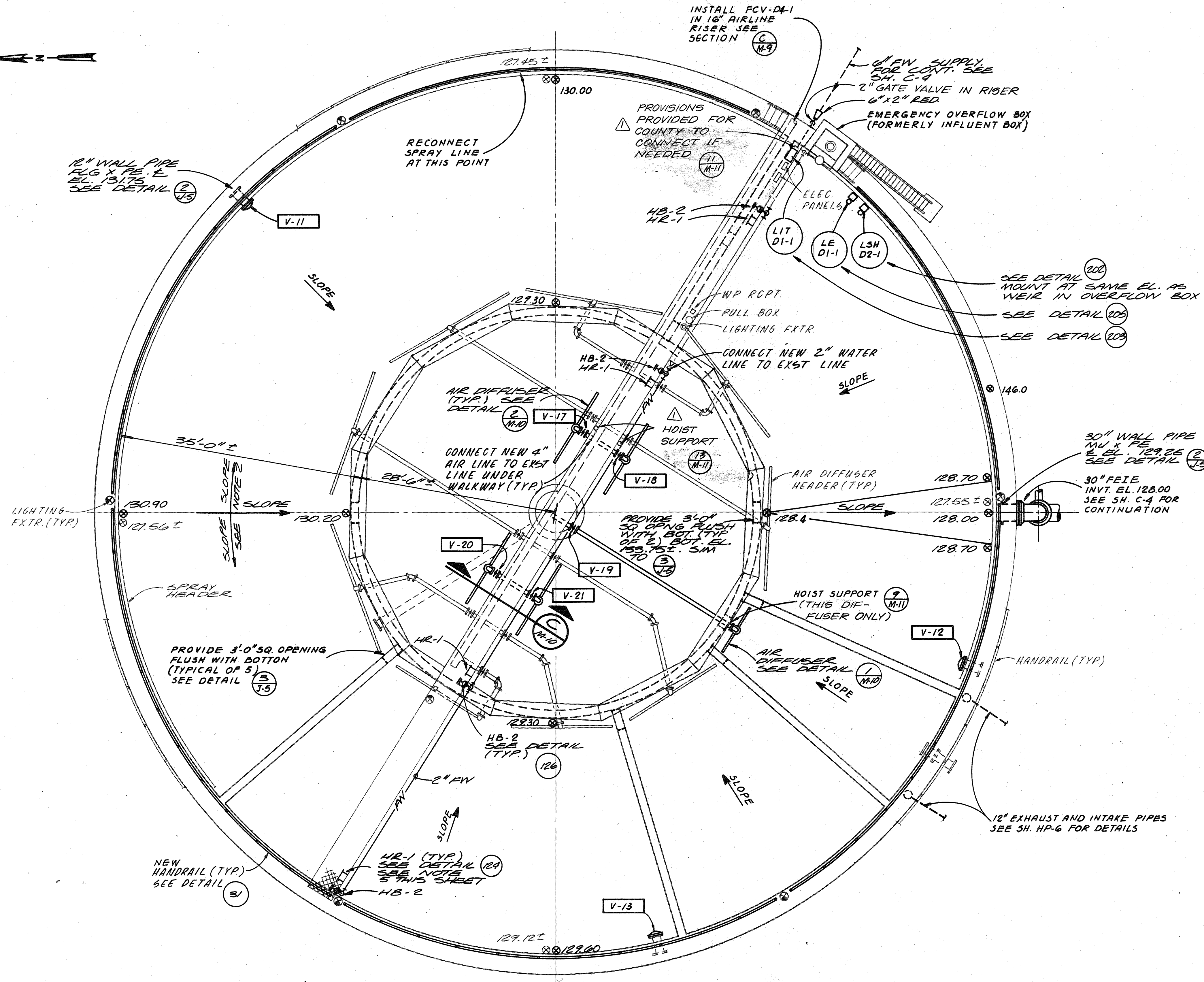
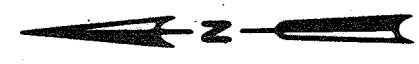
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|------------------------|-------------|-----|------|----------|----|-------|
| CH ₂ M HILL | DES. F.L.G. | | | | | |
| | DR. L.G. | | | | | |
| | CHK. | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/22/79
DATE
James M. Shaw
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
STORAGE BIN GATE
MECHANICAL

SHEET OF M-6
DATE 8-78
DWG. NO. W1078.C1



- NOTES:**
- 1) THE CONTRACTOR SHALL VERIFY ALL EXST. AND PROPOSED ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
 - 2) PLACE CONCRETE FILL IN ALL PERIPHERAL CHAMBERS TO PRODUCE NEW RESHAPED BOTTOM SLOPES INDICATED. MAINTAIN EVEN SLOPE BETWEEN ELEVATIONS SHOWN.
 - 3) PAINT ALL NEW AND REMAINING FERROUS METALS, SUCH AS HANDRAILS, WALKWAYS AND SUPPORTS, PIPING, AND OTHER MISCELLANEOUS METALS, IN ACCORDANCE WITH APPLICABLE SYSTEM SPECIFIED IN SECTION 0990.
 - 4) INSULATE AND HEAT TRACE ALL EXPOSED FLUSHING WATER LINES TO HOSE BIBBS.
 - 5) LOCATE HOSE BIBBS ADJACENT TO EACH HOSE REEL. HOSE REELS SHALL BE LOCATED AT A VERTICAL HANDRAIL SUPPORT AS SHOWN ON DETAIL (12A) LOCATION OF HOSE REEL SHALL BE APPROVED BY ENGINEER.

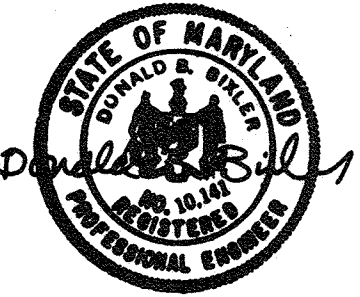
FLOW EQUALIZATION BASIN NO. 1 - PLAN

1/8" = 1'-0"

RECORD DRAWING

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| | | |
|-----------|-----|----------|
| SCREEN | S | W1078.C1 |
| COMPOSITE | M-7 | BASE 6 |
| OVERLAY | M-7 | BASE 8 |



| | | | | | |
|------------|---------|--------------------------|----------|----|-------|
| DES. DBB | | | | | |
| DR. T.A.S. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | 1-26-82 | ADD HOIST SUPPORT & NOTE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

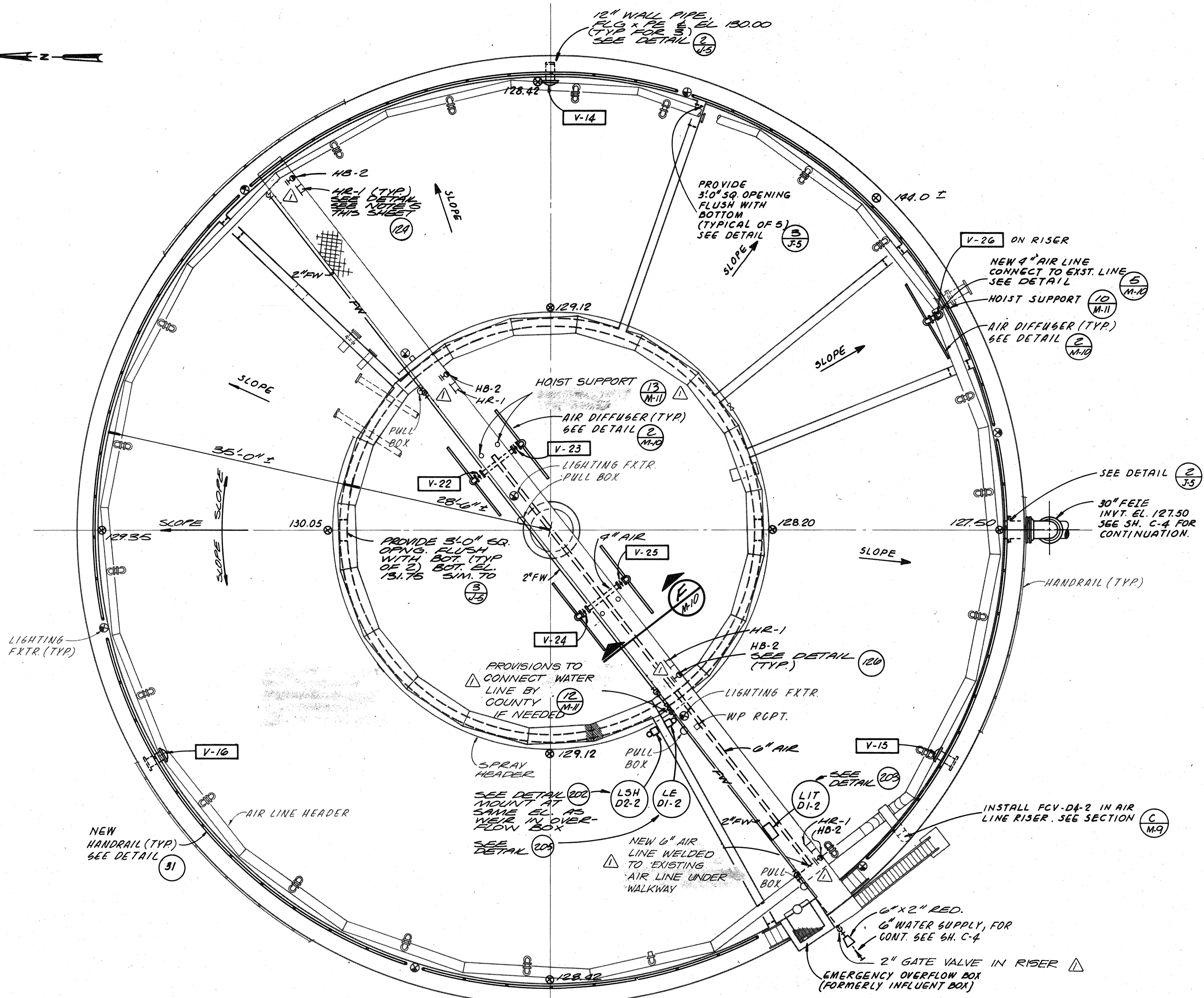
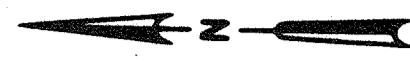
James H. Sullivan
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

FLOW EQUALIZATION BASIN
EQUALIZATION BASIN NO. 1 PLAN

MECHANICAL

SHEET OF M-7
DATE 8-78
DWG. NO. W1078.C1



- NOTES:**
- 1) THE CONTRACTOR SHALL VERIFY ALL EXST. AND PROPOSED ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
 - 2) PLACE CONCRETE FILL IN ALL PERIPHERAL CHAMBERS TO PRODUCE NEW RESHAPED BOTTOM SLOPES INDICATED. MAINTAIN EVEN SLOPE BETWEEN ELEVATIONS SHOWN.
 - 3) PAINT ALL NEW AND REMAINING FERROUS METALS, SUCH AS HANDRAILS, WALKWAYS AND SUPPORTS, PIPING, AND OTHER MISCELLANEOUS METALS, IN ACCORDANCE WITH APPLICABLE SYSTEM SPECIFIED IN SECTION 09900.
 - 4) INSULATE AND HEAT TRACE ALL EXPOSED FLUSHING WATER LINES TO HOSE BIBBS.
 - 5) LOCATE HOSE BIBBS ADJACENT TO EACH HOSE REEL. HOSE REELS SHALL BE LOCATED AT A VERTICAL HANDRAIL SUPPORT AS SHOWN ON DETAIL (124). LOCATION OF HOSE REEL SHALL BE APPROVED BY THE ENGINEER.

FLOW EQUALIZATION BASIN NO. 2 - PLAN
 1/8" = 1'-0"
RECORD DRAWING

| | | |
|-----------|-----|----------|
| SCREEN | 5 | W1078.C1 |
| COMPOSITE | M-B | BASE 9 |
| OVERLAY | M-B | BASE 9 |



| | | | | | |
|-----------|----------|---------|--------------------------------------|----|-------|
| CH2M HILL | DES. DBB | | | | |
| | DR. TAS | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | NO. | DATE | REVISION | BY | APPD. |
| | | 1-26-84 | ADD HOIST SUPPORTS, MOVED HRI & HB-2 | | |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 1/24/77
 DATE
 James M. ...
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

FLOW EQUALIZATION BASIN
 EQUALIZATION BASIN NO. 2 PLAN
 MECHANICAL

SHEET
 OF M-8
 DATE 8-78
 DWG. NO. W1078.C1

For Registration Drafting Use Only

| | |
|-----------|---------|
| SCREEN | S |
| COMPOSITE | M-9 |
| OVERLAY | M-9 |
| | BASE 20 |
| | BASE 20 |



| | | | | | |
|--|----------|-----|------|----------|----|
| | DES. DBB | | | | |
| | DR. TAS | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | | NO. | DATE | REVISION | BY |

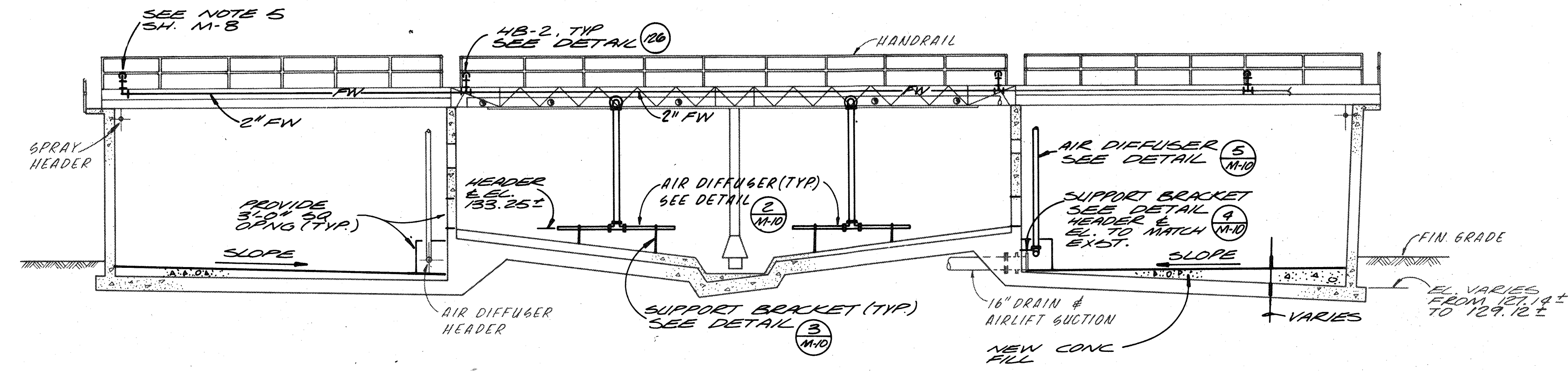
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 5/29/79
James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

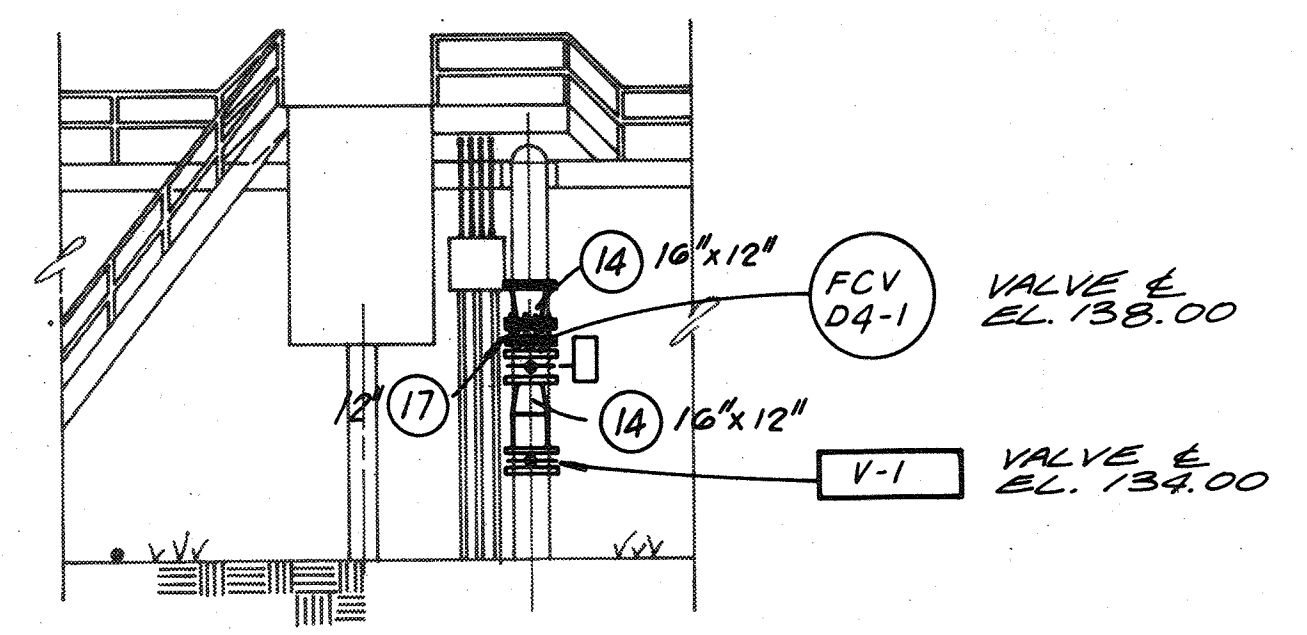
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

FLOW EQUALIZATION BASIN
SECTIONS
EQUALIZATION BASIN NO. 1 & 2
MECHANICAL

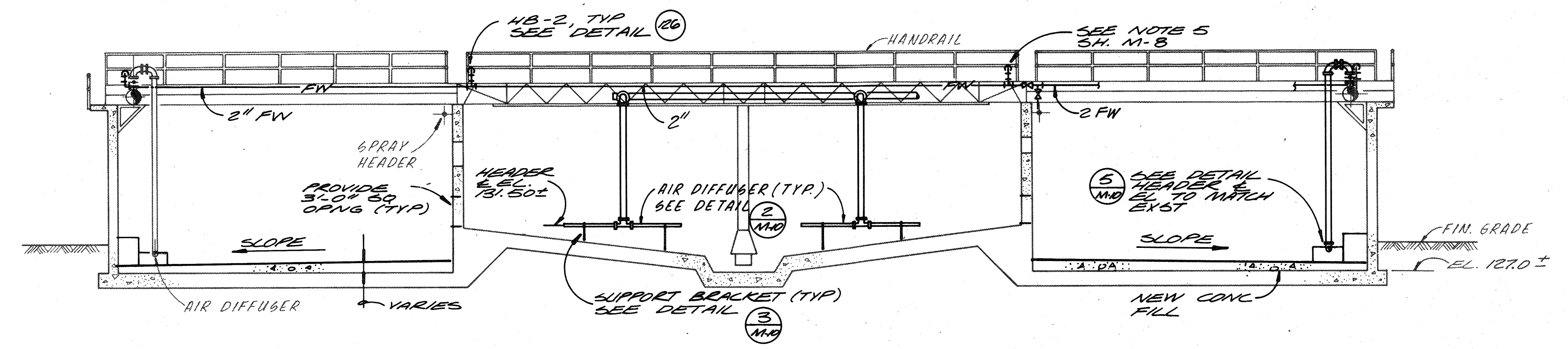
SHEET
OF
M-9
DATE 8-78
DWG.
NO. W1078.C1



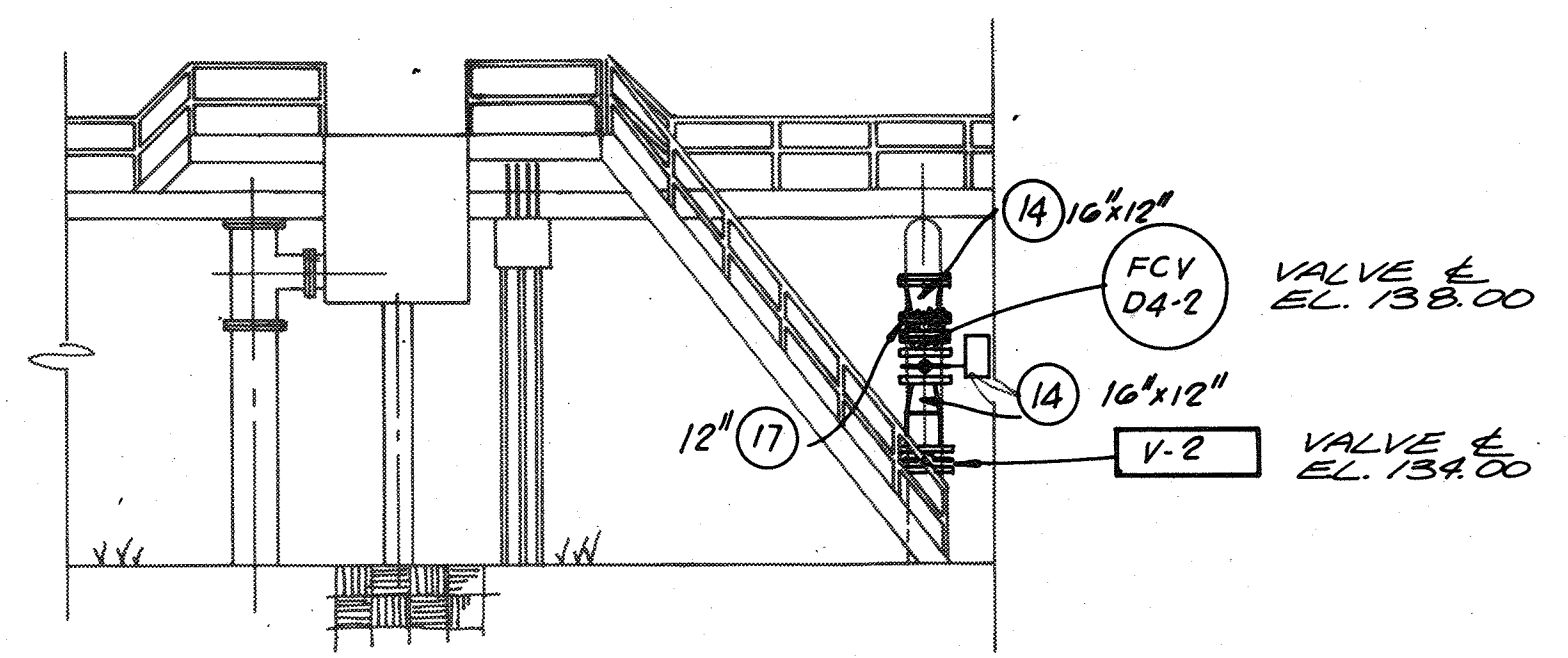
COMPOSITE SECTION
FLOW EQUALIZATION BASIN NO. 1
1/8" = 1'-0"



SECTION C
N.T.S. M-7

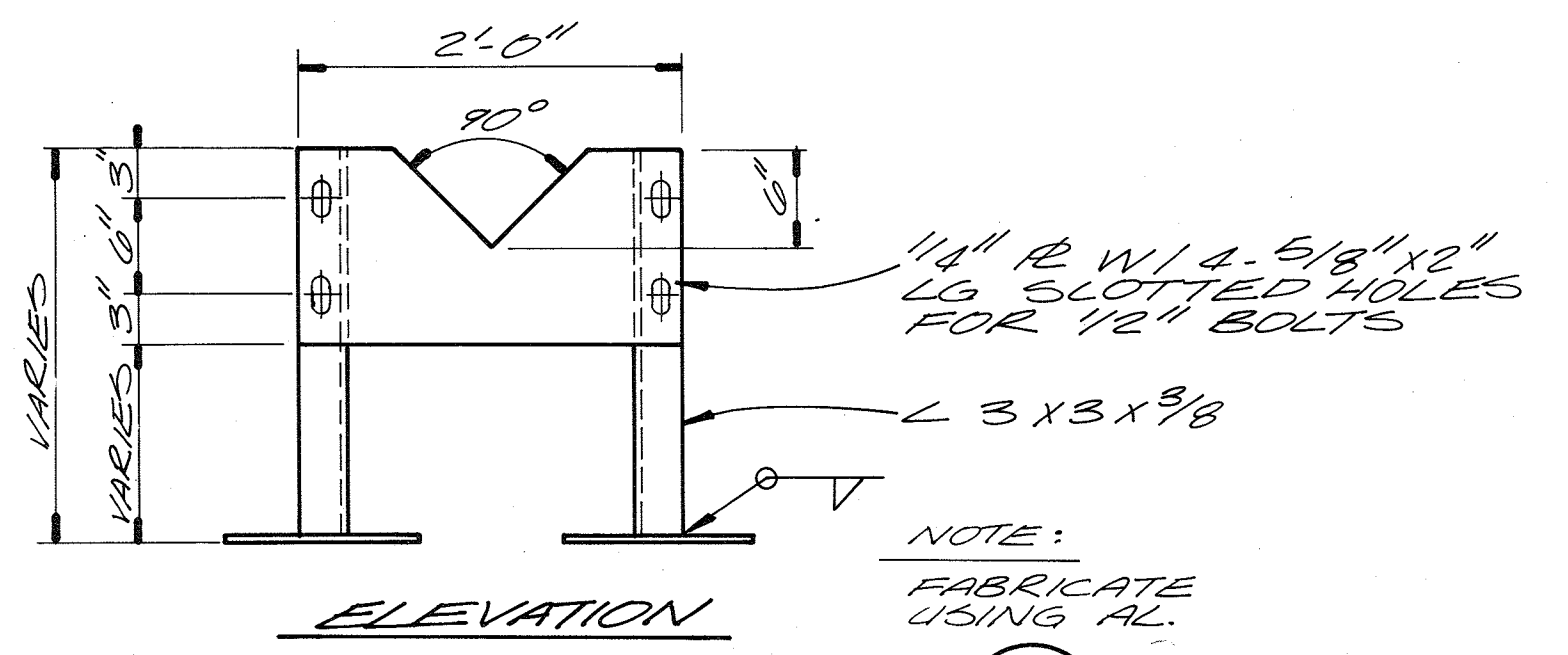
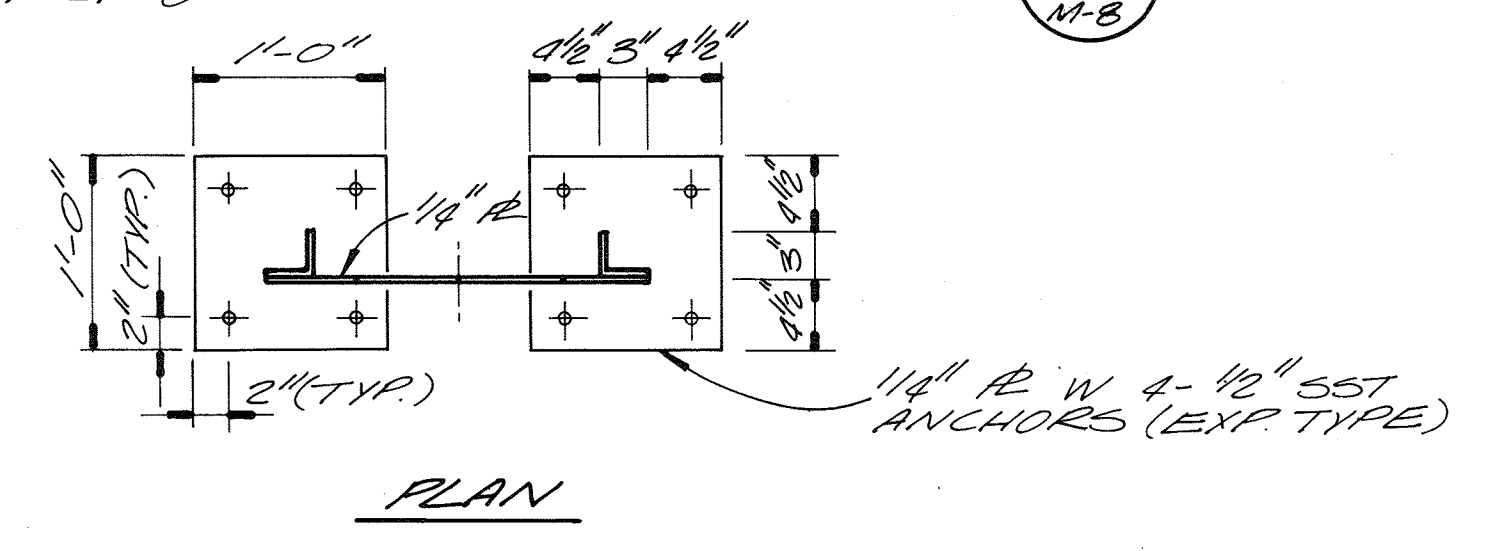
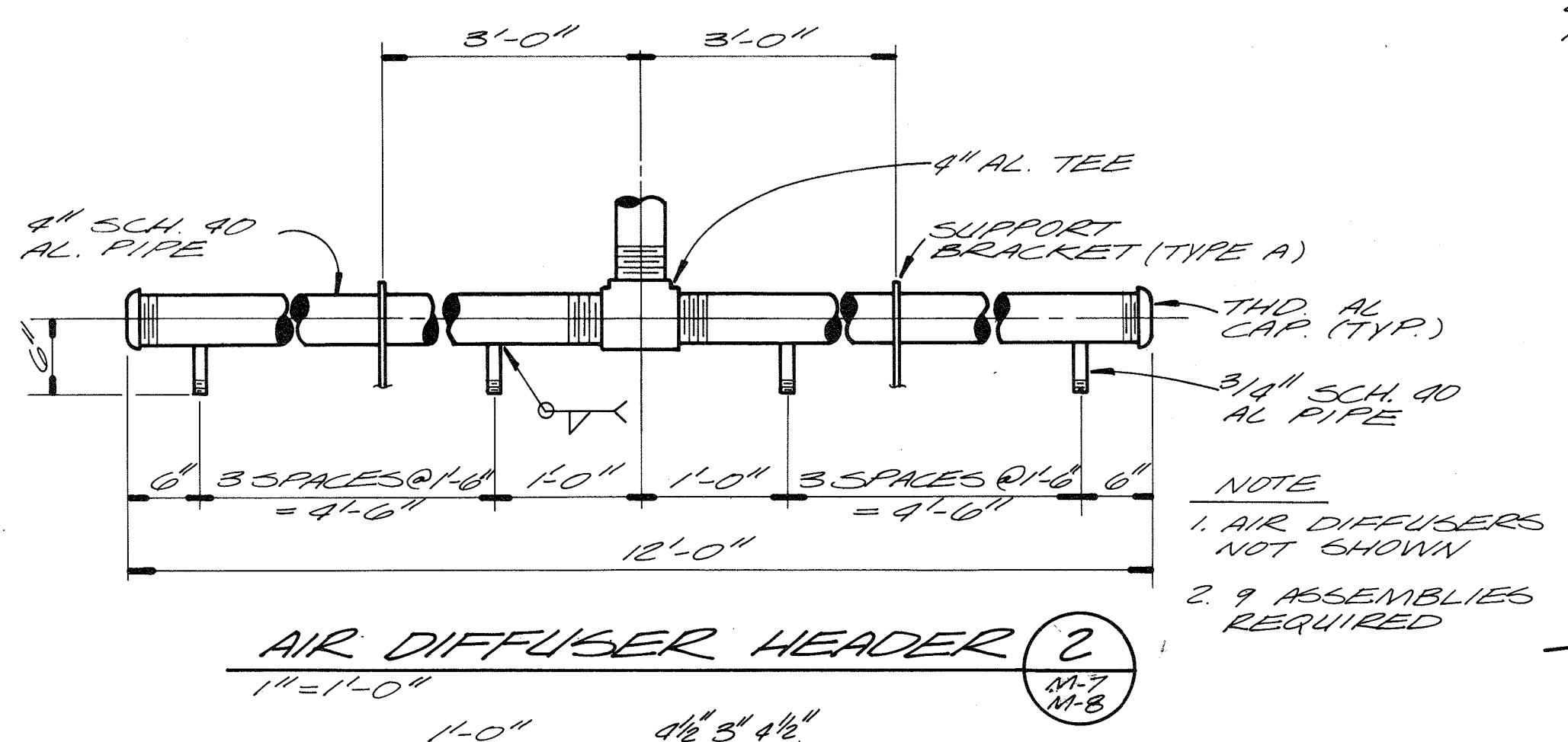
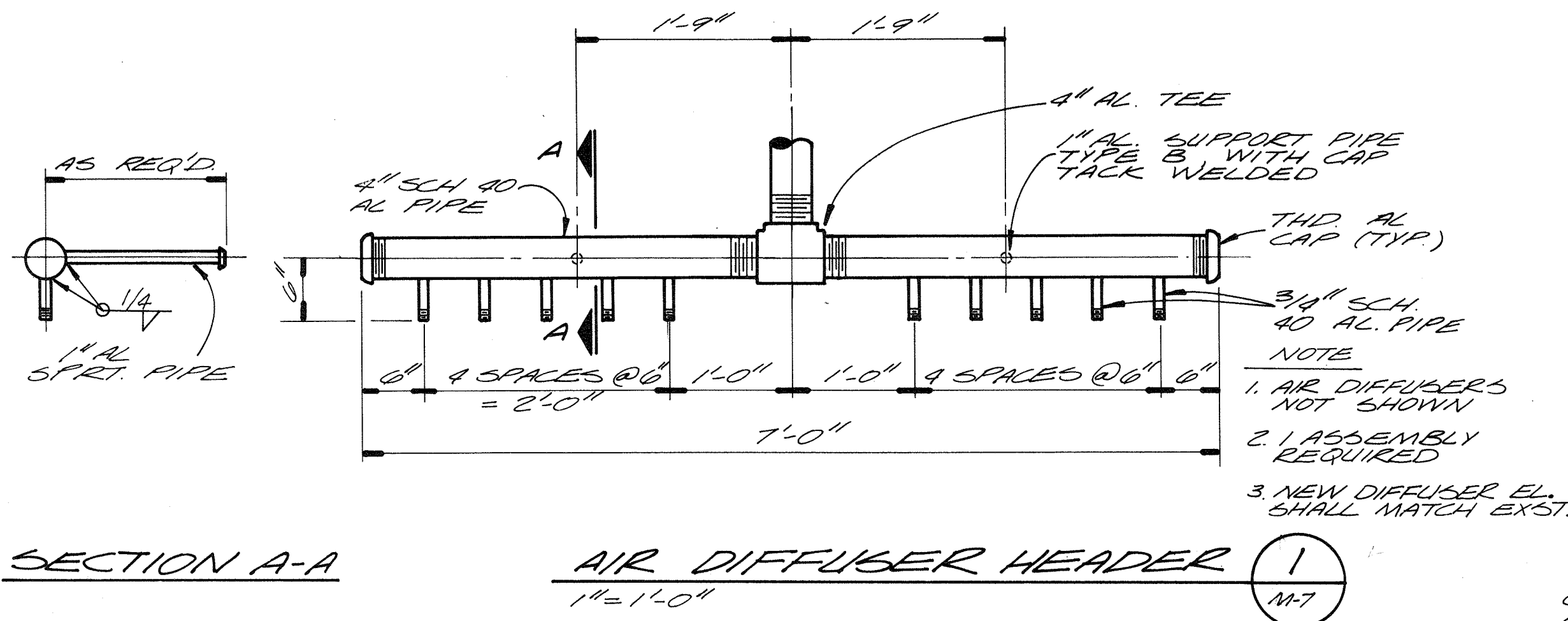


COMPOSITE SECTION
FLOW EQUALIZATION BASIN NO. 2
1/8" = 1'-0"

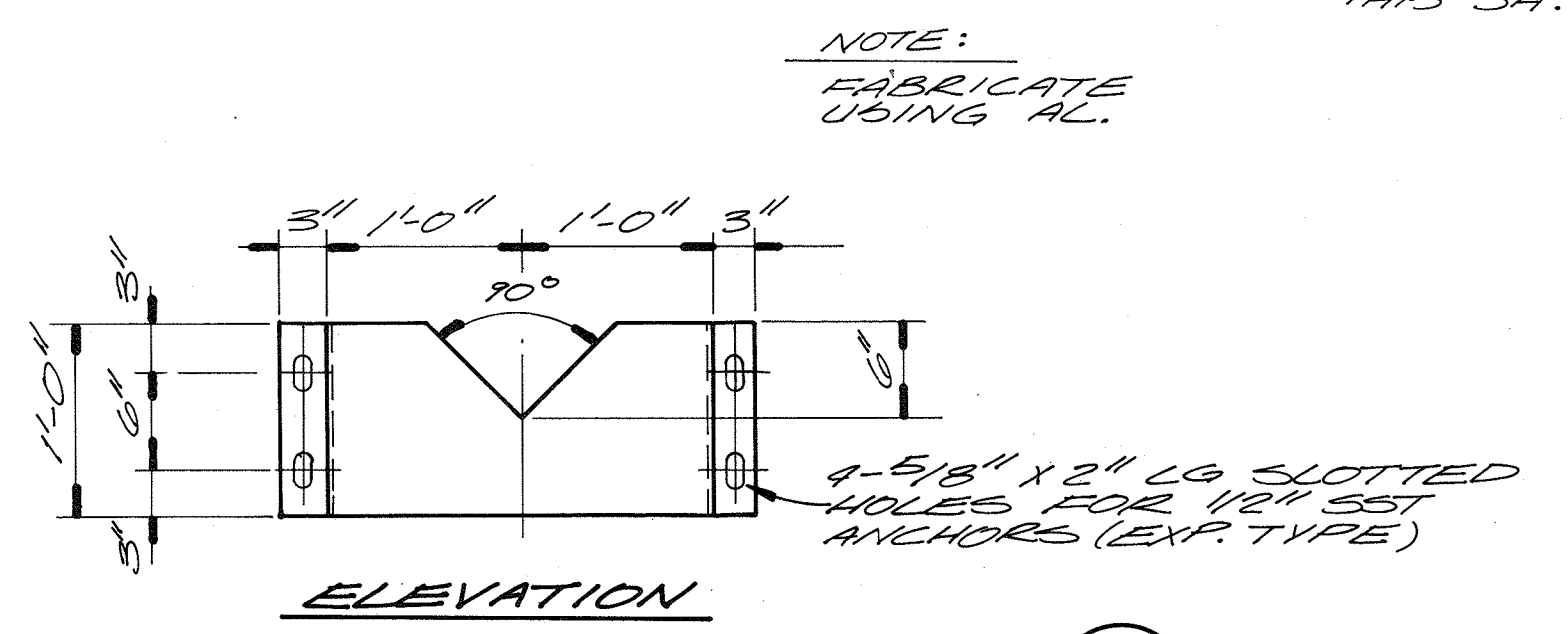
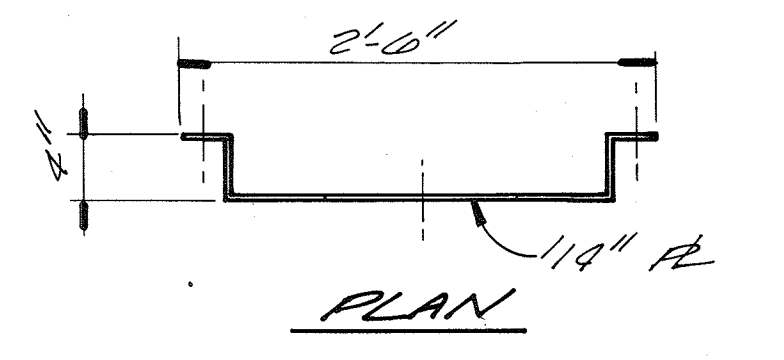
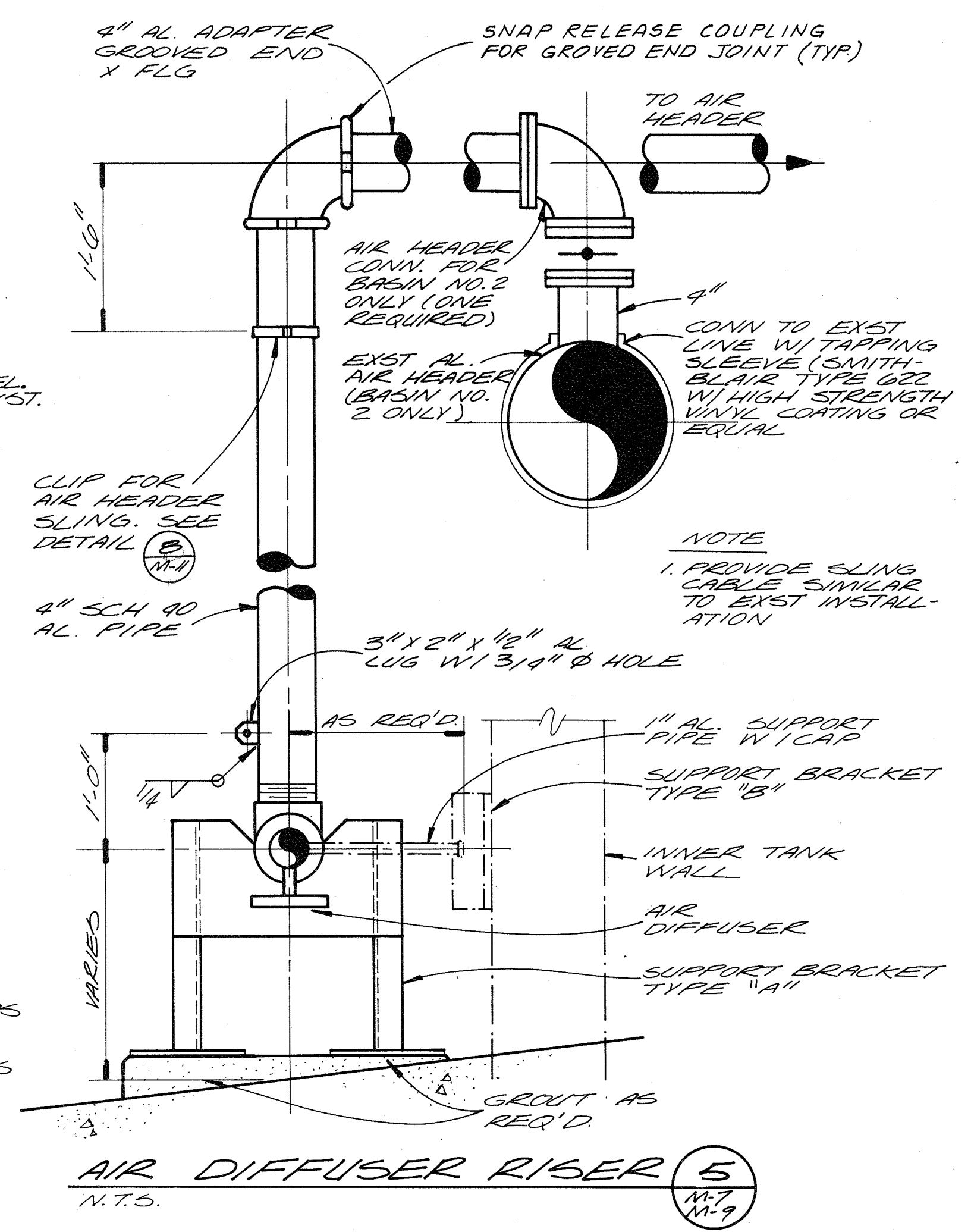


SECTION C
N.T.S. M-8

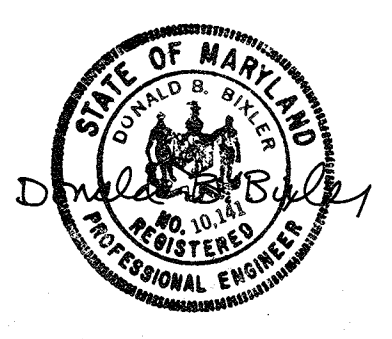
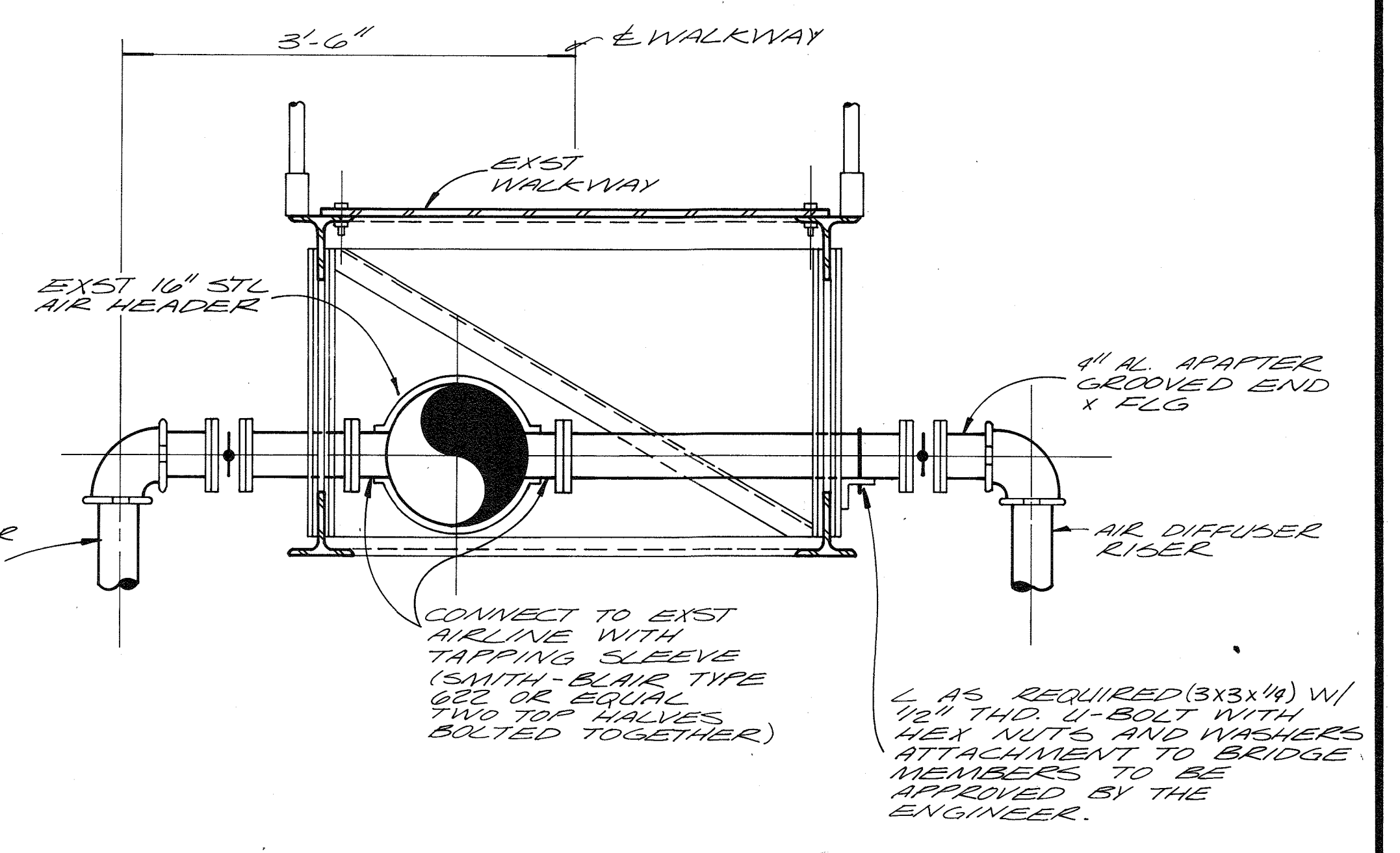
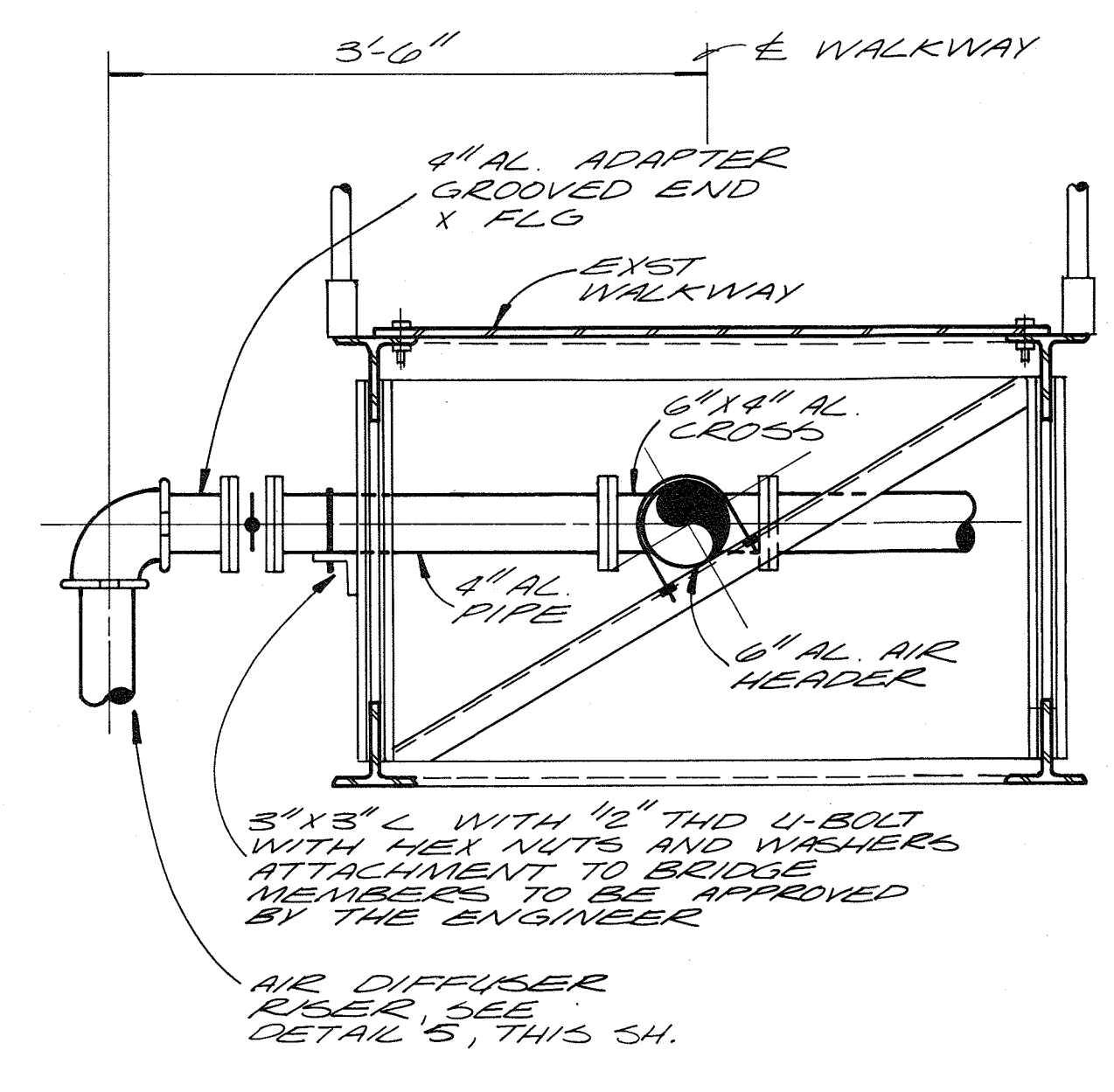
NOTE: SEE BASIN PLANS FOR FINISH CONCRETE FILL ELEVATIONS.



AIR HEADER SUPPORT BRACKET (TYPE "A") (3)
1"=1'-0"



AIR HEADER SUPPORT BRACKET (TYPE "B") (4)
1"=1'-0"



| | | | | | |
|---------------|-----|------|----------|----|-------|
| DES. THS/LGB. | | | | | |
| DR. YAW | | | | | |
| CHK. | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

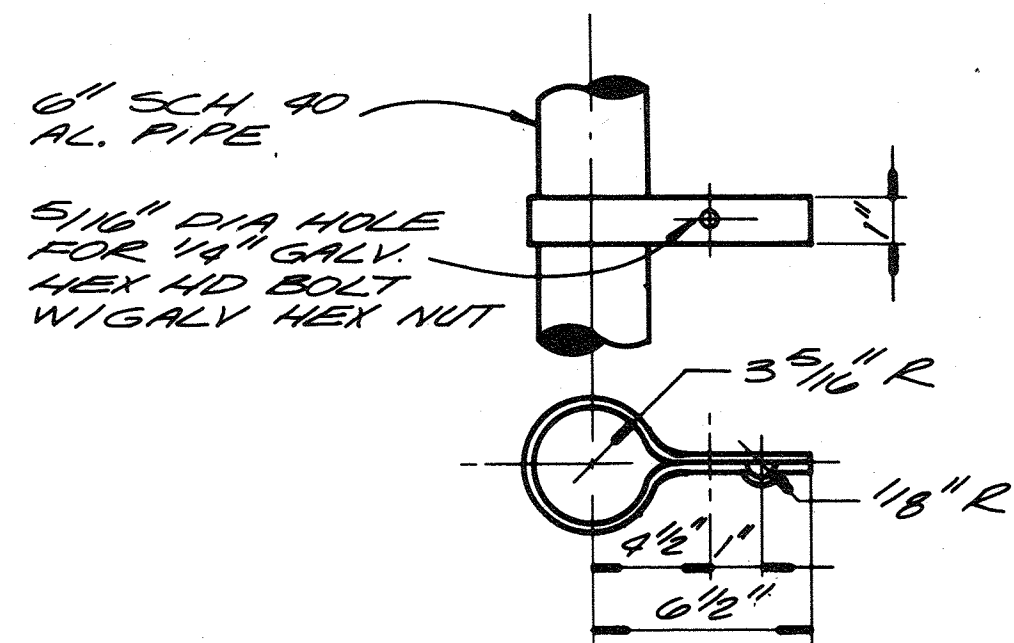
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/78
DATE
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

RECORD DRAWING

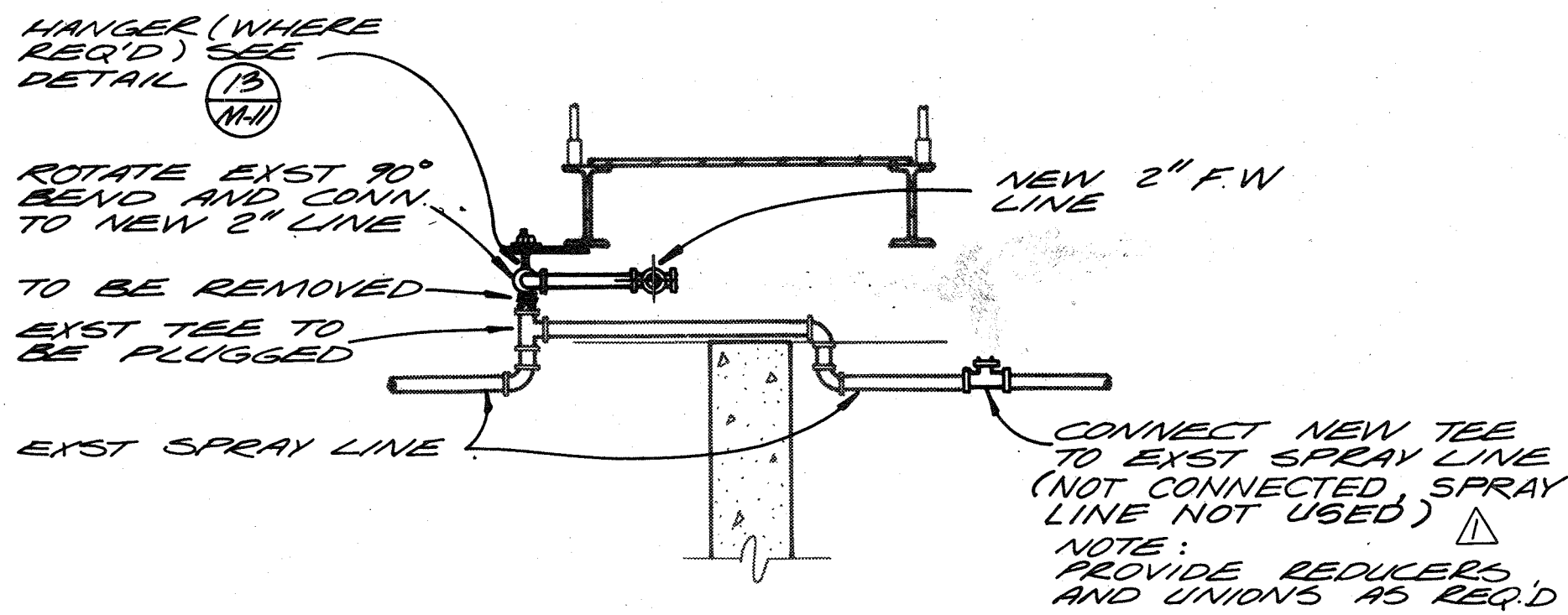
Savage Wastewater Treatment Plant
ADDITION NO. 4
CONTRACT NO. 764-S

FLOW EQUALIZATION BASIN
DETAILS AND SECTIONS
MECHANICAL

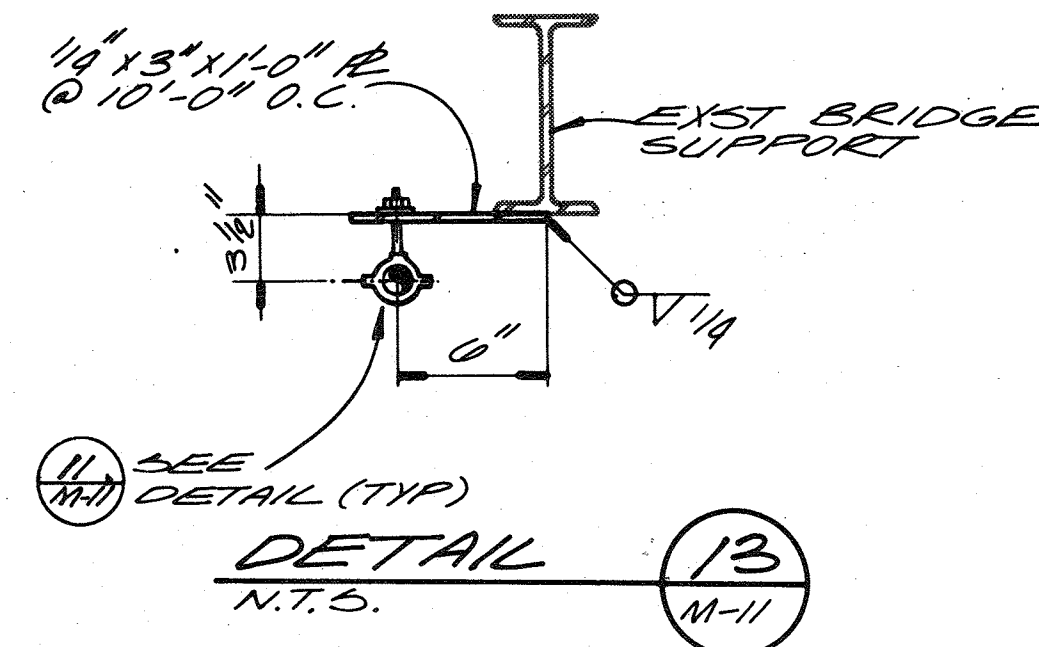
SHEET
OF **M-10**
DATE 8-78
DWG. NO. W1078.C1



CLIP FOR AIR HEADER SLING - AS REQ'D. (B)
N.T.S. M-10

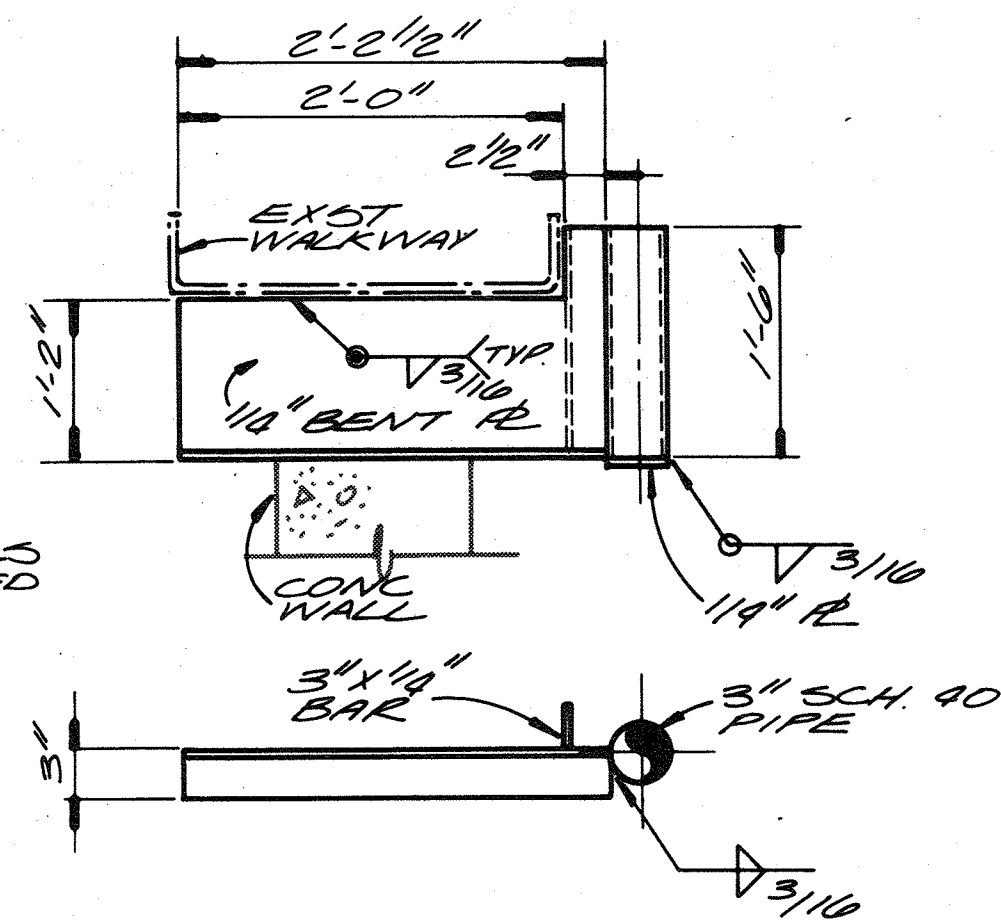


WATER CONNECTION DETAIL (11)
N.T.S. M-7

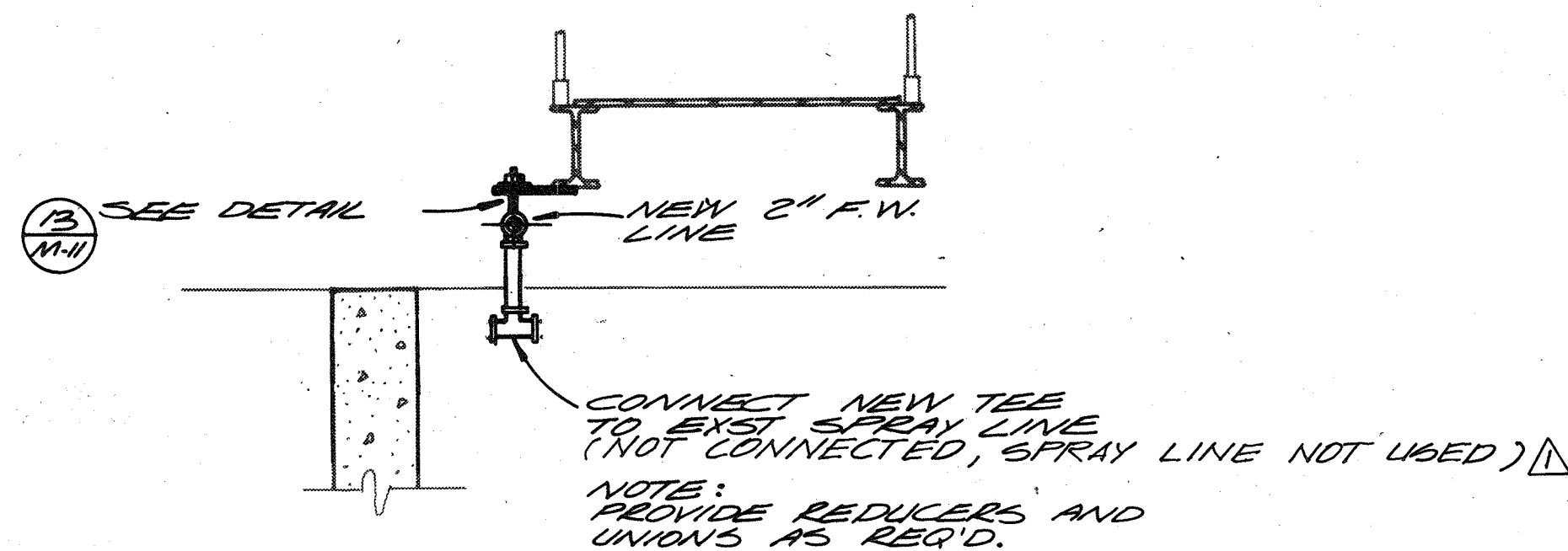


DETAIL (13)
N.T.S. M-11

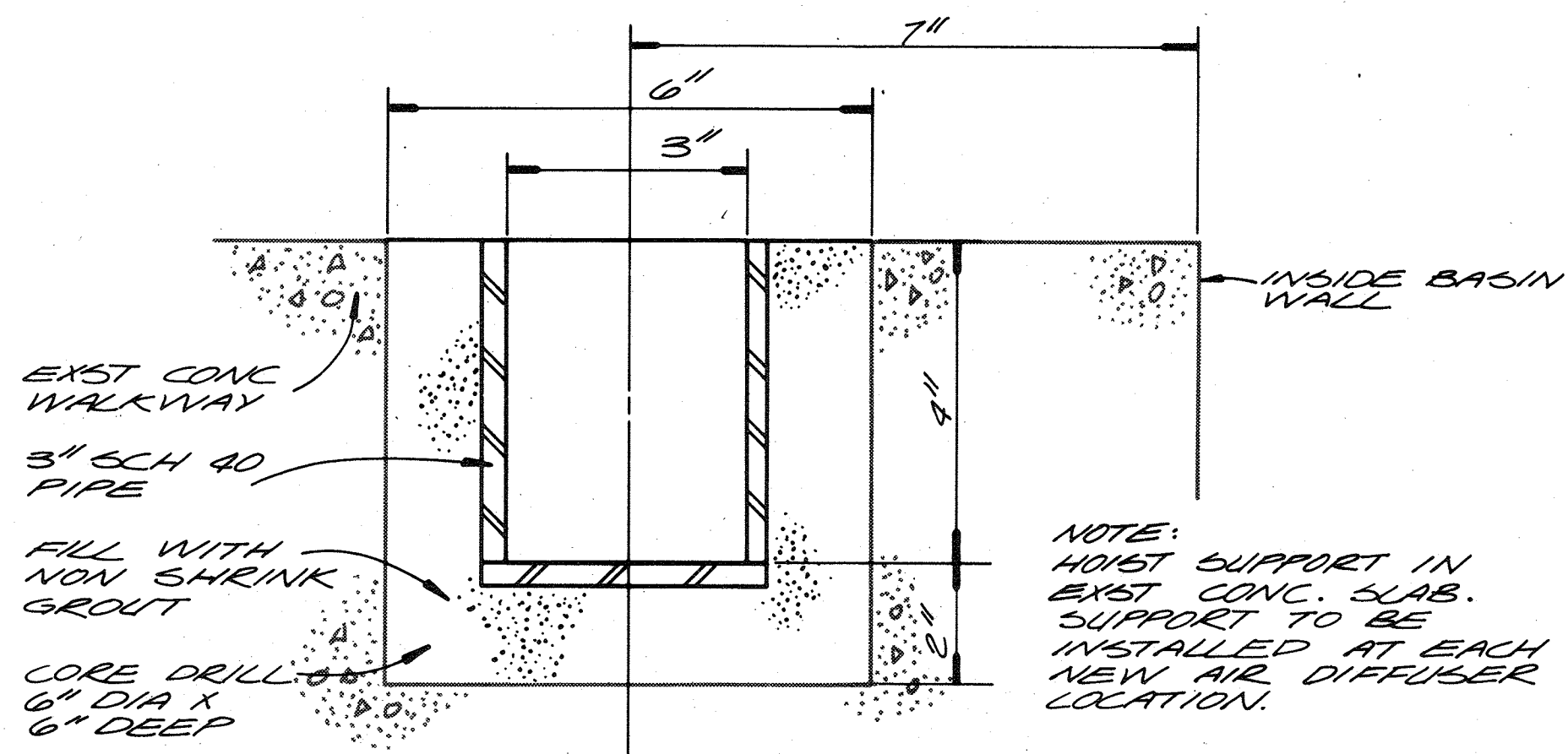
NOTE: HOIST SUPPORTS FOR WALKWAY TO BE INSTALLED AT EACH NEW AIR DIFFUSER LOCATION. FINAL MOUNTING AND SUPPORT DETAILS TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER.



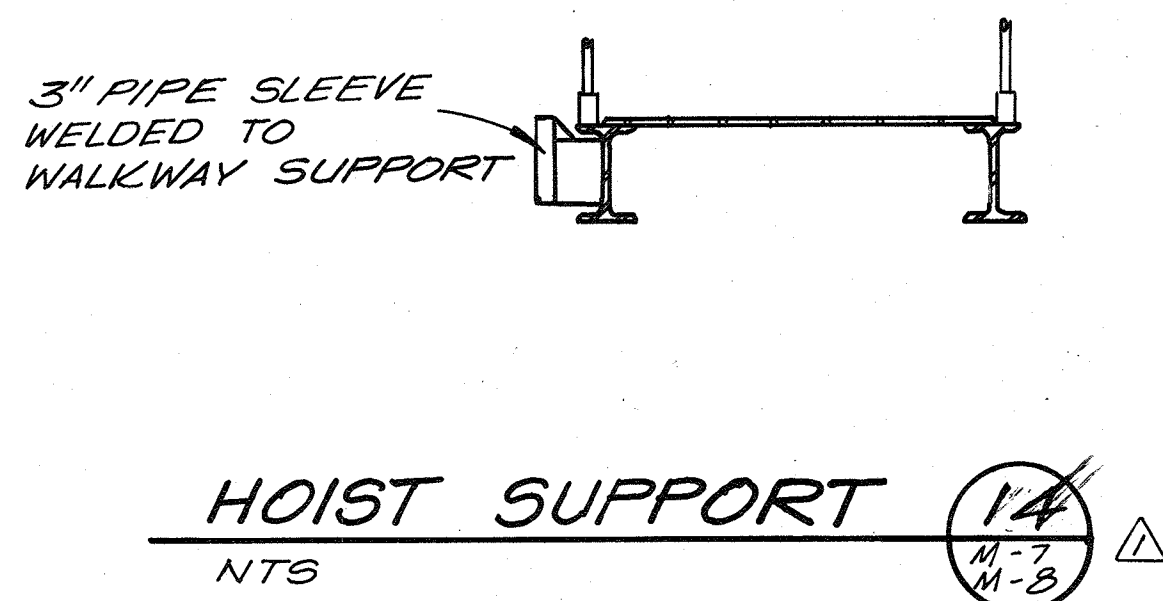
HOIST SUPPORT (9)
N.T.S. M-7



WATER CONNECTION DETAIL (12)
N.T.S. M-8



HOIST SUPPORT DETAIL (10)
N.T.S. M-8



HOIST SUPPORT (14)
N.T.S. M-7, M-8

For Registration Drafting Use Only

| | | | |
|-----------|------|---------|---------|
| SCREEN | S | BASE 21 | BASE 21 |
| COMPOSITE | M-11 | M-11 | M-11 |
| OVERLAY | | | |



| | | | | | |
|-----------|--------------------|------------|------|----------------------------------|----------|
| CH2M HILL | DES. T.A.S./D.B.B. | | | | |
| | DR. T.A.S. LG | | | | |
| | CHK. YAW | | | | |
| | APPD. | NO. 126-88 | DATE | ADD HOIST SUPPORT DETAIL & NOTES | DLT |
| | | | | REVISION | BY APPD. |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

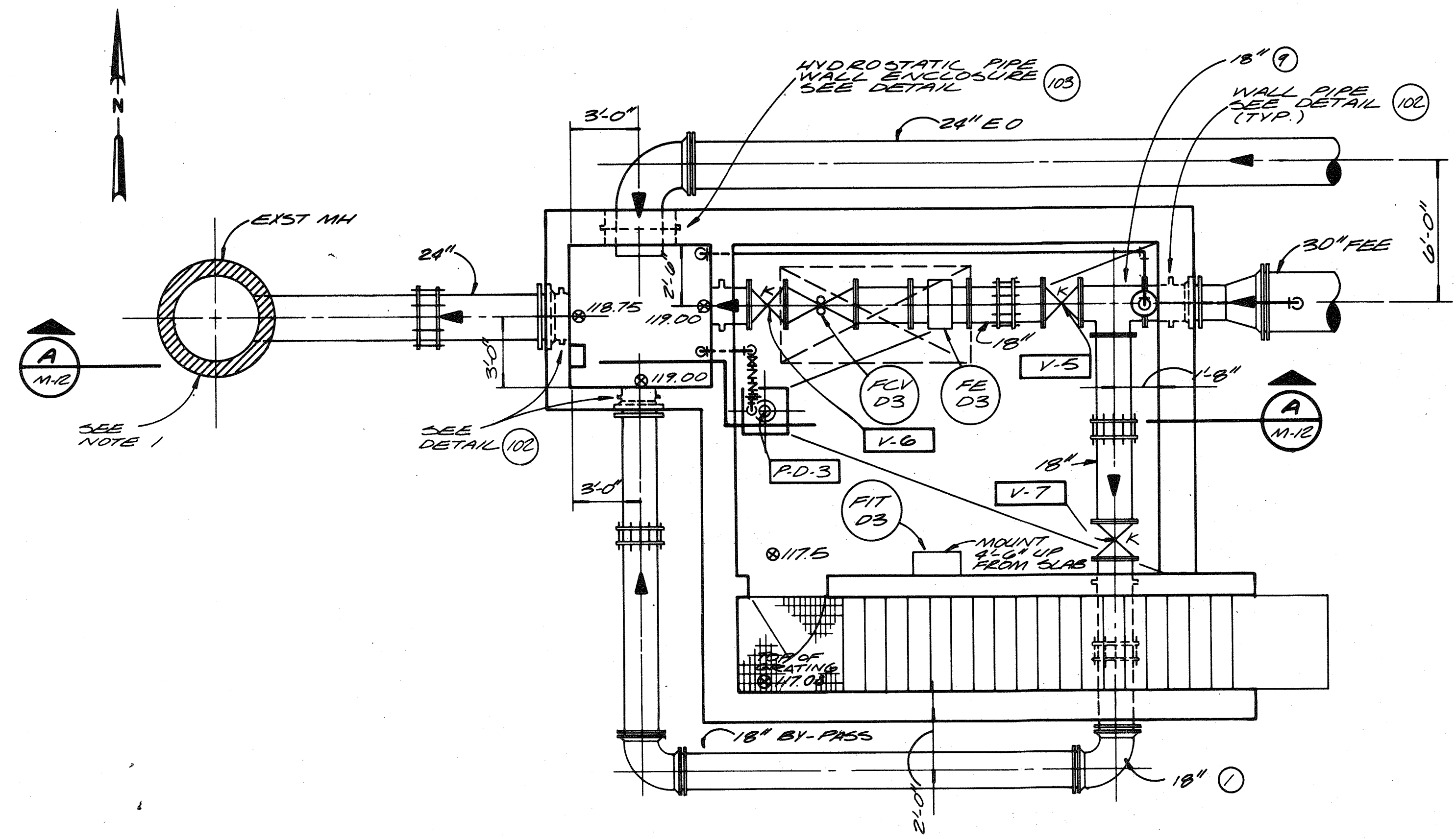
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

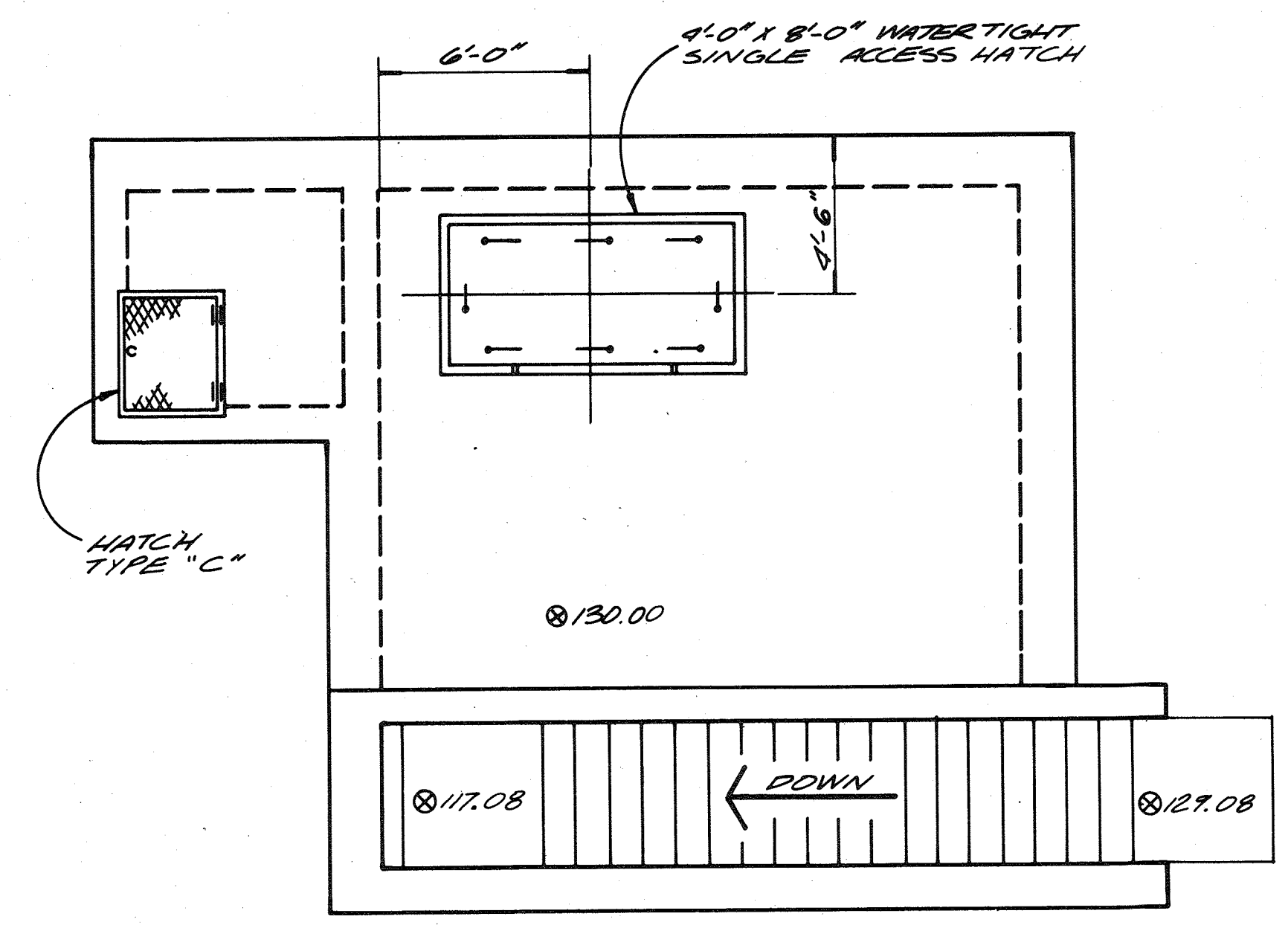
FLOW EQUALIZATION BASIN
DETAILS AND SECTIONS

MECHANICAL

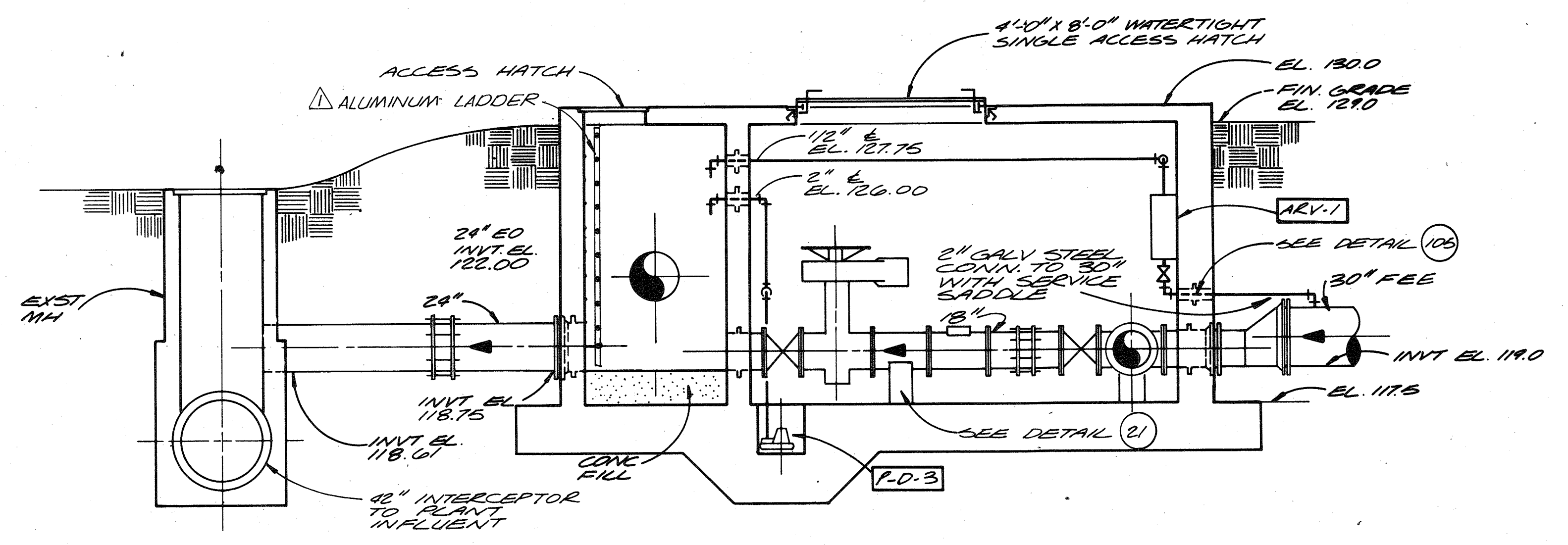
SHEET OF M-11
DATE 8-78
DWG. NO. W11078.C1



EQUALIZATION RETURN FLOW METERING CHAMBER - PLAN AT EL. 120.0
 1/4" = 1'-0"



EQUALIZATION RETURN FLOW METERING CHAMBER - PLAN AT EL. 130.0
 1/4" = 1'-0"



SECTION A
 1/4" = 1'-0"

NOTE:
 1. CONNECT TO EXISTING 24" LINE AT MANHOLE OR REMOVE EXISTING LINE, MODIFY MANHOLE AND INSTALL NEW 24" LINE AS REQUIRED TO MATCH INVERT ELEVATION SHOWN. DAMAGE TO THE MANHOLE SHALL BE REPAIRED IN A MANNER APPROVED BY THE ENGINEER.

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 James H. Linn
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

RETURN FLOW METERING CHAMBER
 PLAN AND SECTION
 MECHANICAL

SHEET
 OF
 DATE 8-78
 DWG.
 NO. W1078.C1

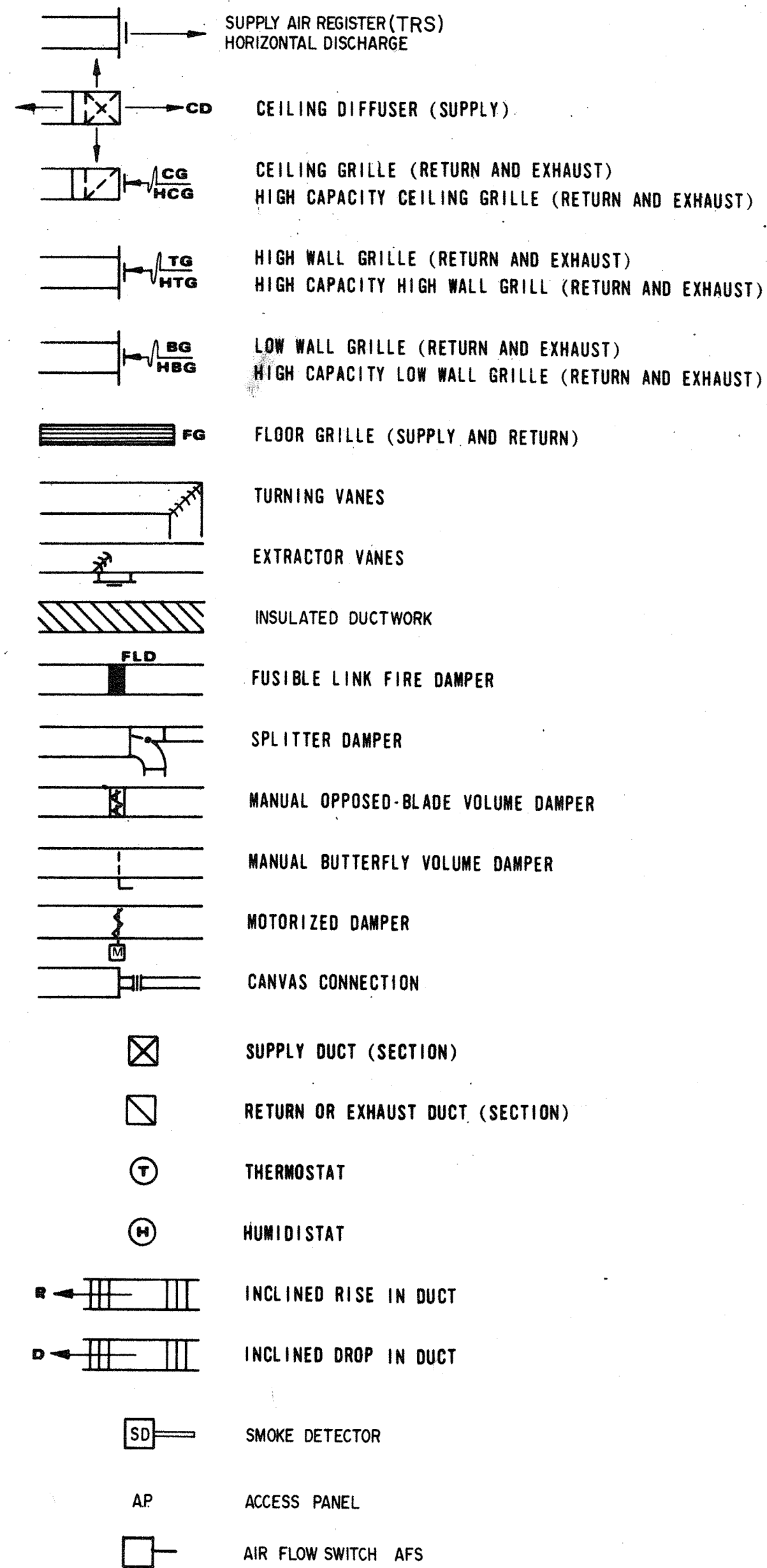
| | | | | |
|-----------|---------------|---------|-------------------------------------|----------|
| CH2M HILL | DES. LG/DB.B. | 1/26/82 | REPLACED STEPS WITH ALUMINUM LADDER | DLT |
| | DR. V.A.W. | | | |
| CHK. | | NO. | DATE | REVISION |
| APPD. | | | | BY |



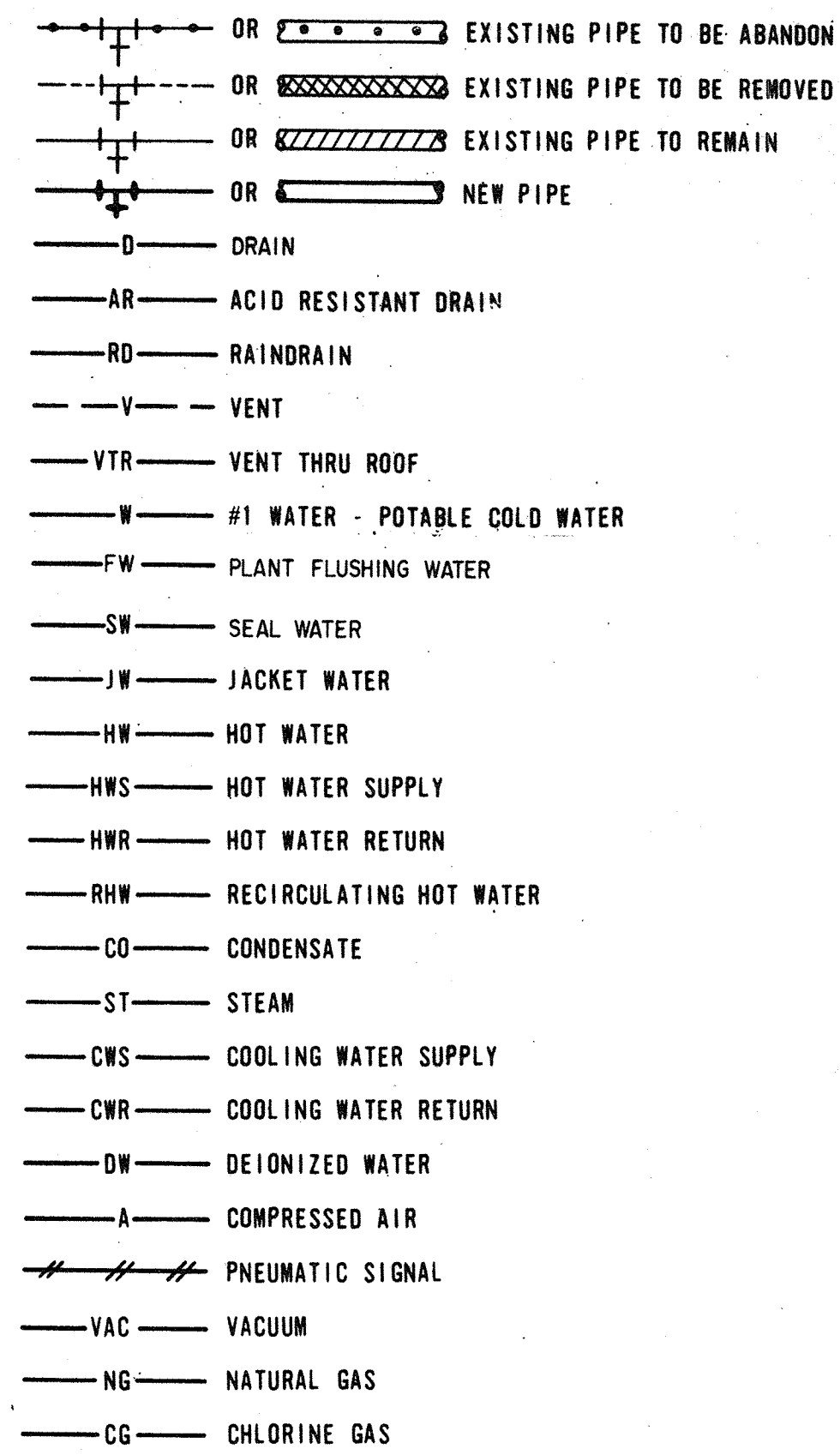
For Registration Drafting Use Only

| | | |
|-----------|------|----------|
| SCREEN | M-12 | W1078.C1 |
| COMPOSITE | M-12 | W1078.C1 |
| OVERLAY | M-12 | W1078.C1 |

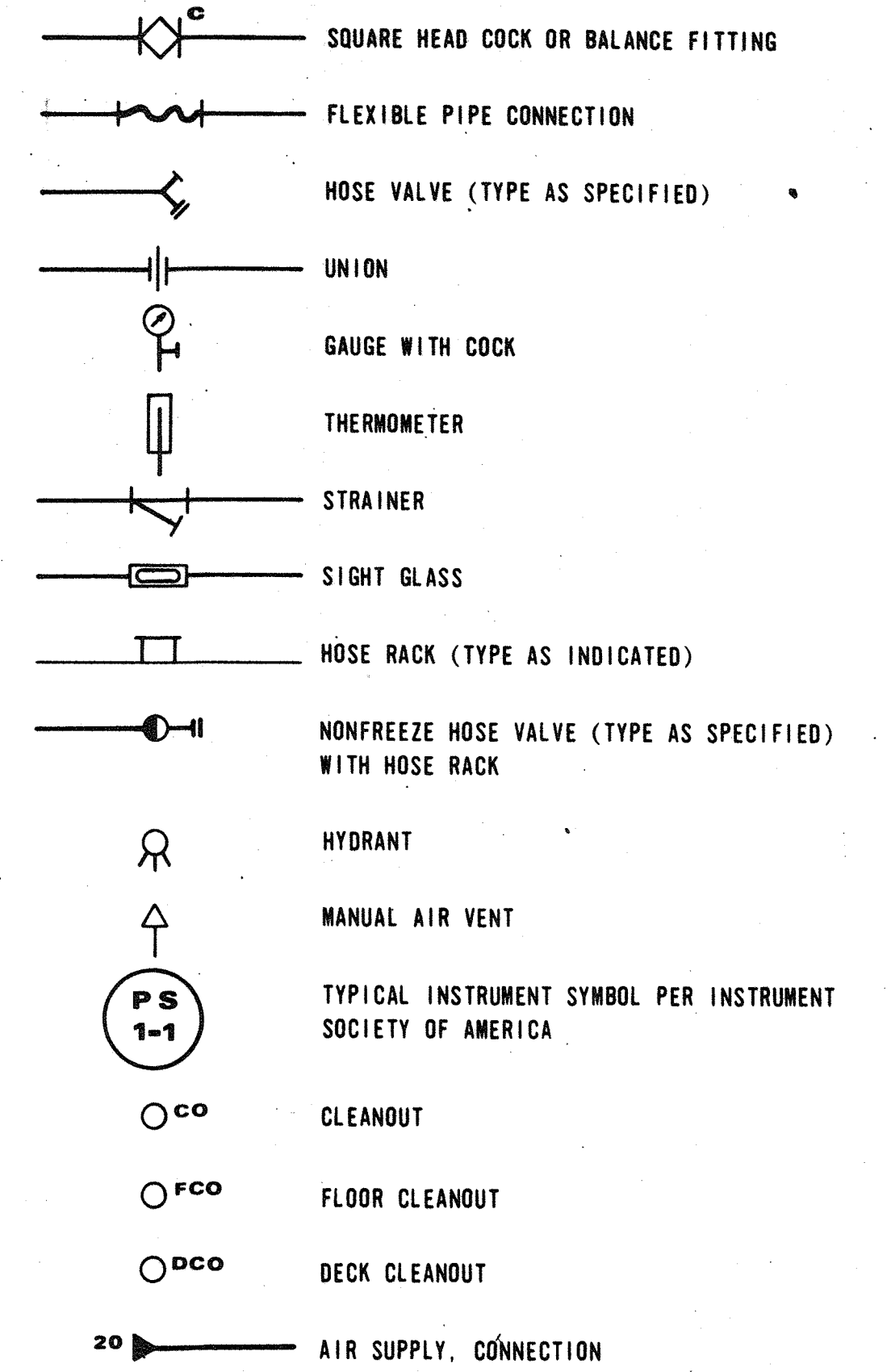
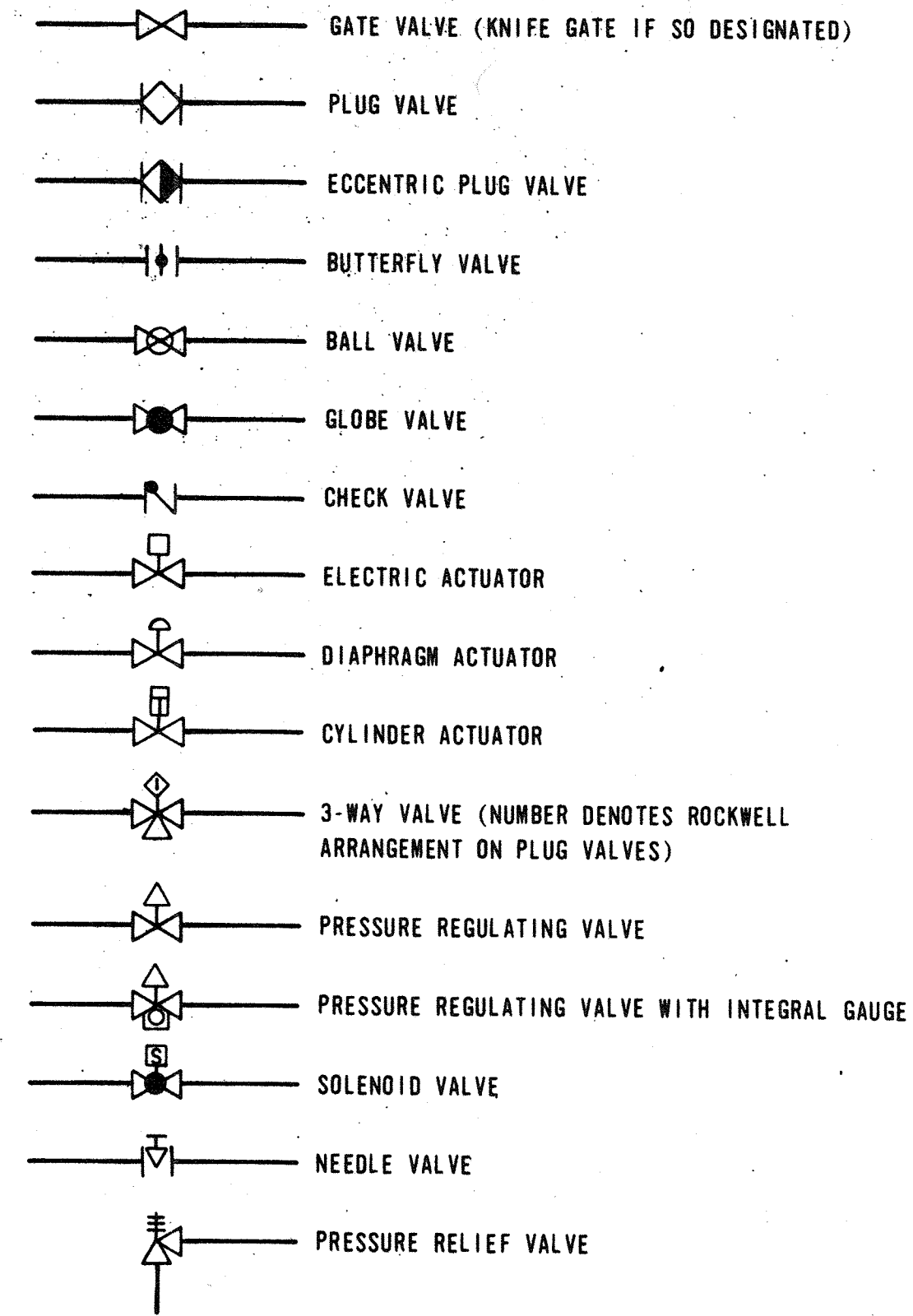
HEATING, VENTILATING AND AIR CONDITIONING:



PIPING:



VALVES AND MISCELLANEOUS PIPING ITEMS:



| | | | | | | |
|--|---------------------|-----|------|----------|----|-------|
| | DES <i>RWM</i> | | | | | |
| | DR. <i>C.F.E.JR</i> | | | | | |
| | CHK. | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. |

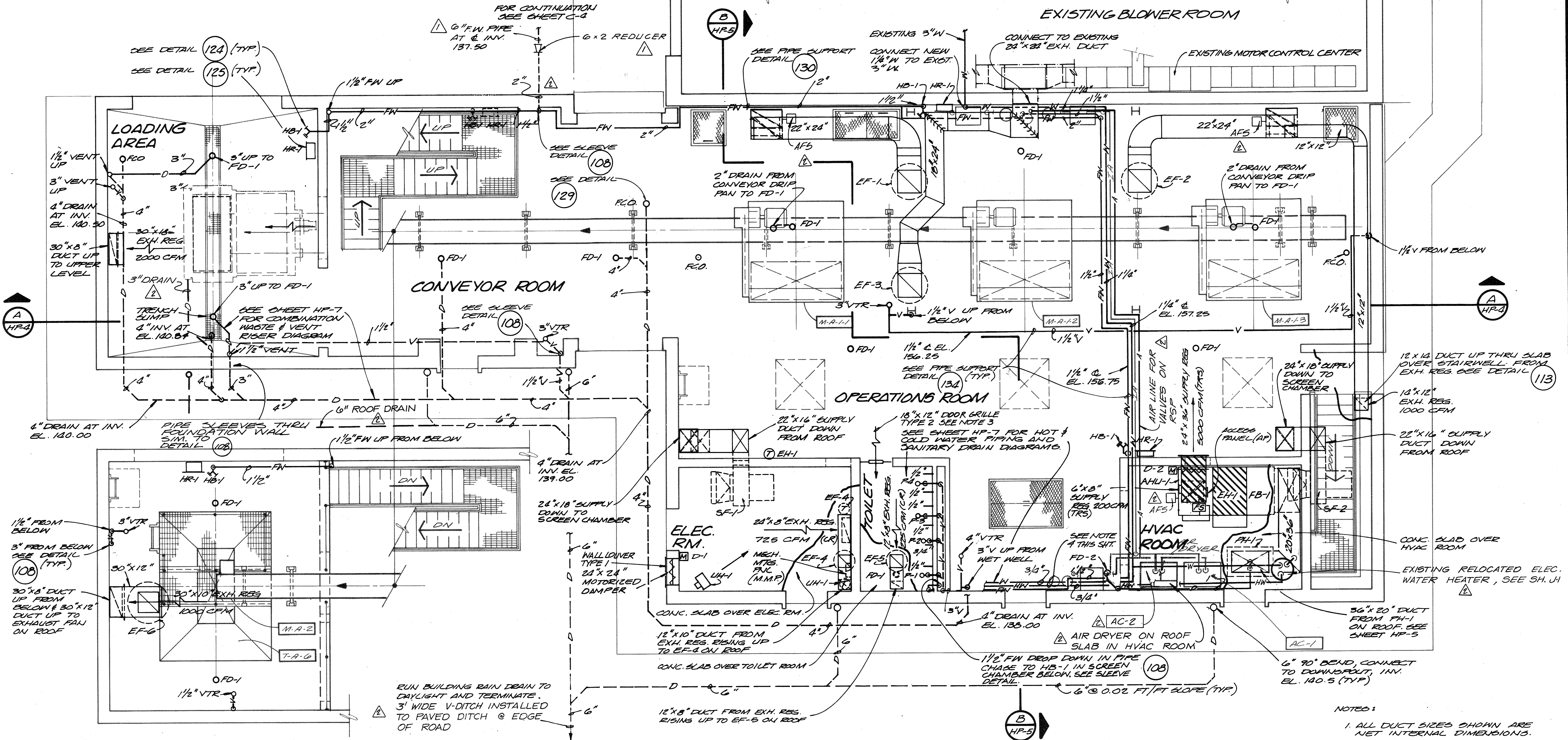
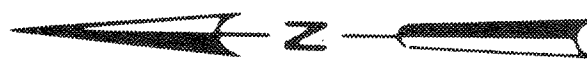
RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

LEGEND
HEATING & BUILDING SERVICES

SHEET HP-1
OF
DATE 8-78
DWG. NO. W1078.B1



PARTIAL PLAN ABOVE
EL. 159.00
 1/4" = 1'-0"

OPERATING ROOM - PLAN ABOVE EL. 142.50
 1/4" = 1'-0"

- NOTES:
1. ALL DUCT SIZES SHOWN ARE NET INTERNAL DIMENSIONS.
 2. ALL PIPE SUPPORTS LOCATED IN SCREEN CHAMBER AREA, AND WET WELL AREA SHALL BE FABRICATED IN STAINLESS STEEL.
 3. HALL AND DOOR LOUVER TYPES SHOWN ON ARCHITECTURAL DWGS AND SPECIFIED IN SECTION 10200 LOUVERS.
 4. ALL INTERIOR POTABLE WATER AND HOT WATER PIPING EXPOSED AND CONCEALED SHALL BE INSULATED AS SPECIFIED IN SECTION 15050 PLANT PIPING GENERAL.

RECORD DRAWING

For Registration Drafting Use Only
 SCREEN COMPOSITE OVERLAY
 HP-2 HP-2
 BASE 12 BASE 13
 S S
 W/1078CI



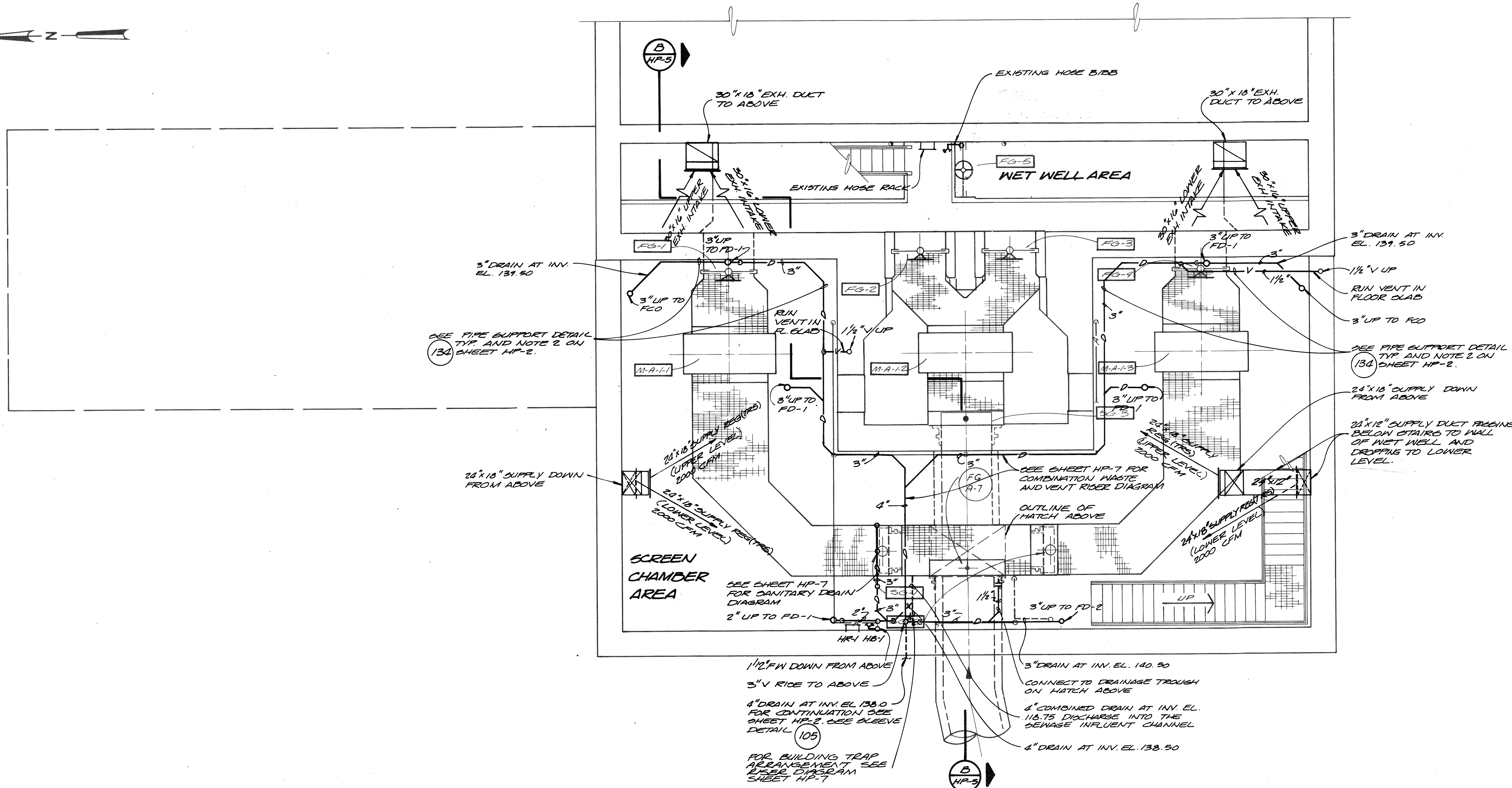
| | | | | | |
|----------|-----|----------|--|----|-------|
| DES. RHM | NO. | DATE | REVISION | BY | APPD. |
| DR. EEM | 1 | 11/20/88 | ROOF DRAIN, AC-2, ELEC. WATER HEATER OLT REMOVED V-33 & ADD AIR LINE ADDENDUM NO.1 | LG | DBB |
| CHK. | | 1/3/90 | | | |
| APPD. | | | | | |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 James H. Shaw
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

Savage Wastewater Treatment Plant
 ADDITION NO. 4
 CONTRACT NO. 764-S

SCREENING FACILITY
OPERATING ROOM PLAN
 HEATING & BUILDING SERVICES

SHEET
 OF
HP-2
 DATE 8-78
 DWG. NO. W1078.CI



CLIMBER SCREEN CHAMBER PLAN ABOVE EL. 120.75
1/4" = 1'-0"

RECORD DRAWING

For Registration Drafting Use Only

| | | | |
|------------------|------|---------|---------|
| SCREEN COMPOSITE | HP-3 | BASE 14 | BASE 15 |
| OVERLAY | HP-3 | BASE 14 | BASE 15 |



| | | | | | |
|-----------|------------|---------|----------------------------------|-----|-------|
| CH2M HILL | DES. RMM. | | | | |
| | DR. E.E.M. | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | NO. | DATE | REVISION | BY | APPD. |
| | | 1/26/88 | REMOVED DRAIN FROM WET WELL AREA | DLT | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DATE: 5/24/77
James M. [Signature]
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
LOWER LEVEL PLAN
HEATING & BUILDING SERVICES

SHEET OF **HP-3**
DATE 8-78
DWG. NO. W11078.C1

For Registration Drafting Use Only

| | | | | |
|-----------|------|---------|---------|----------|
| SCREEN | HP-4 | BASE 16 | BASE 17 | W11078C1 |
| COMPOSITE | HP-4 | BASE 16 | BASE 17 | W11078C1 |
| OVERLAY | | | | |



| | | | | | |
|-----------|-------------|----------|----------|----|-------|
| CH2M HILL | DES. R.V.M. | NO. DATE | REVISION | BY | APPD. |
| | DR. GEM | | | | |
| | CHK. | | | | |
| | APPD. | | | | |

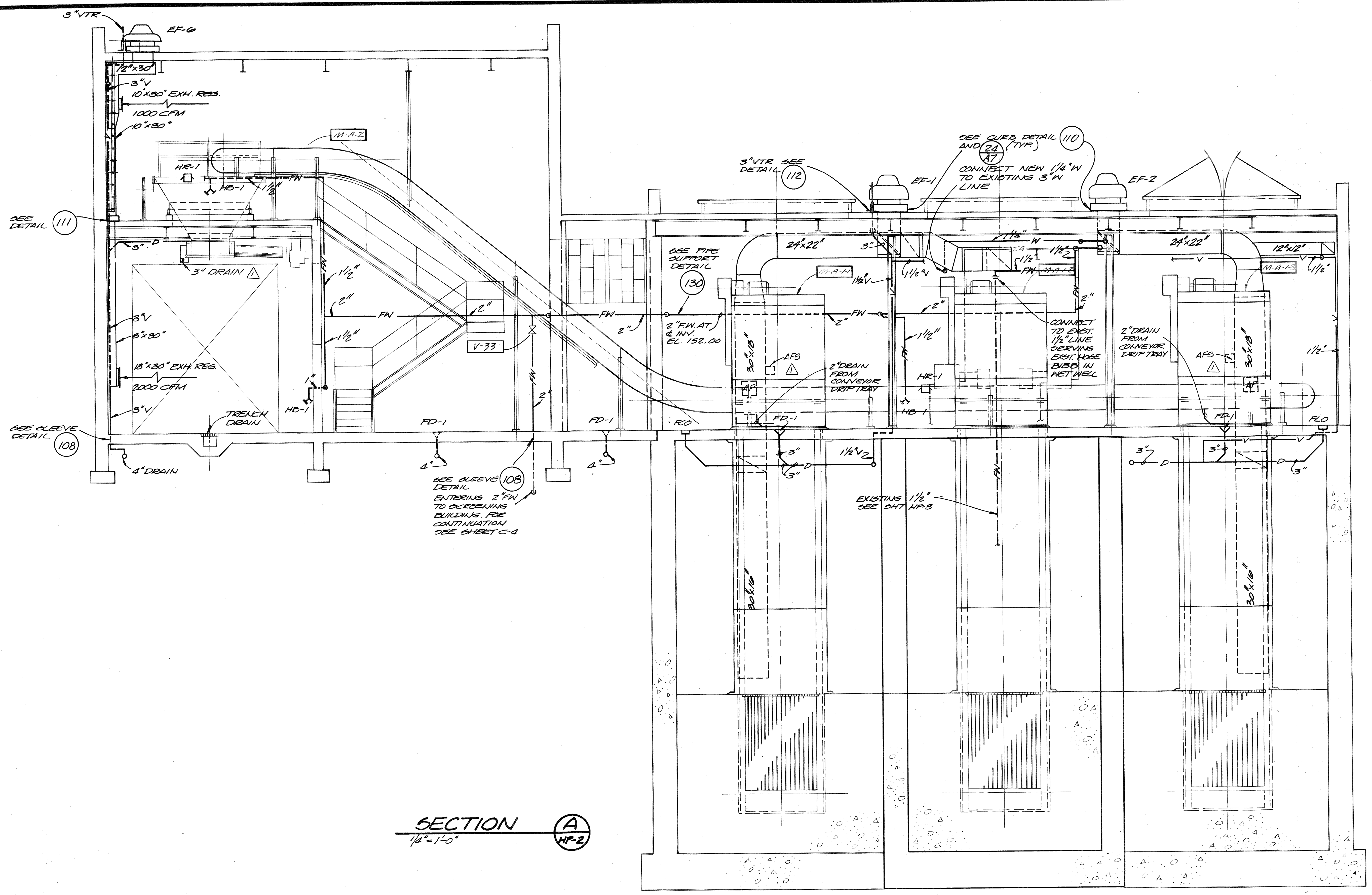
1-27-88 CHANGED POSITIONS OF 3" DRAIN & AFS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/88
James M. Law
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

Savage Wastewater Treatment Plant
Addition No. 4
Contract No. 764-S

SCREENING FACILITY
SECTION
HEATING & BUILDING SERVICES

SHEET HP-4
OF
DATE 8-78
DWG. W11078.C1
NO.



SECTION
1/2" = 1'-0"
A
HP-2

RECORD DRAWING

For Registration Drafting Use Only

| | | | |
|-----------|---------|---------|----------|
| SCREEN | HP-5 | HP-5 | W1078.C1 |
| COMPOSITE | BASE 18 | BASE 19 | W1078.C1 |
| OVERLAY | BASE 18 | BASE 19 | |



| | | | | | |
|--------------------|-----|------|----------|----|-------|
| DES. <i>R.M.M.</i> | | | | | |
| DR. <i>EEM</i> | | | | | |
| CHK. | | | | | |
| APPD. | NO. | DATE | REVISION | BY | APPD. |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/23/79
DATE

James H. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

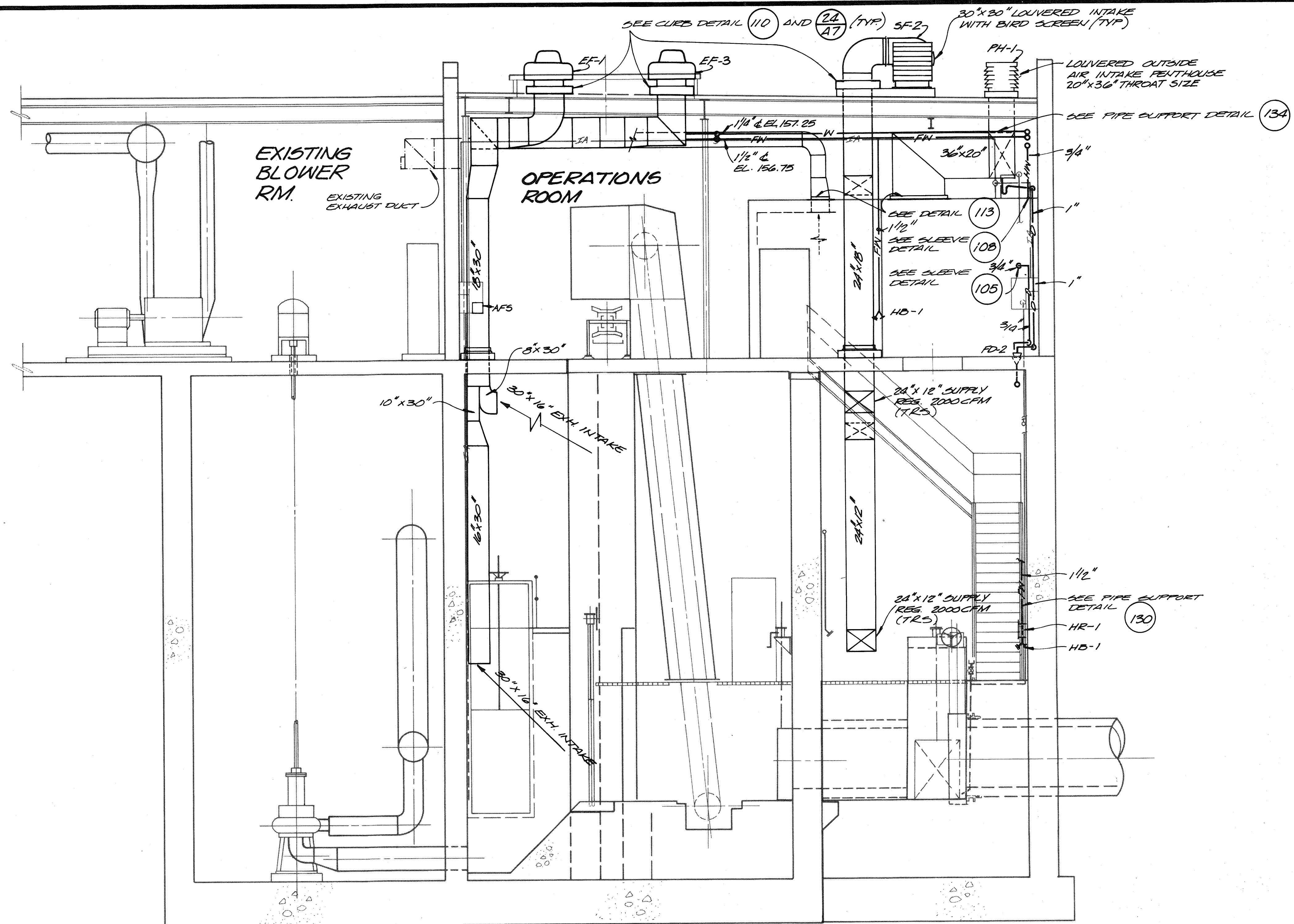
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY

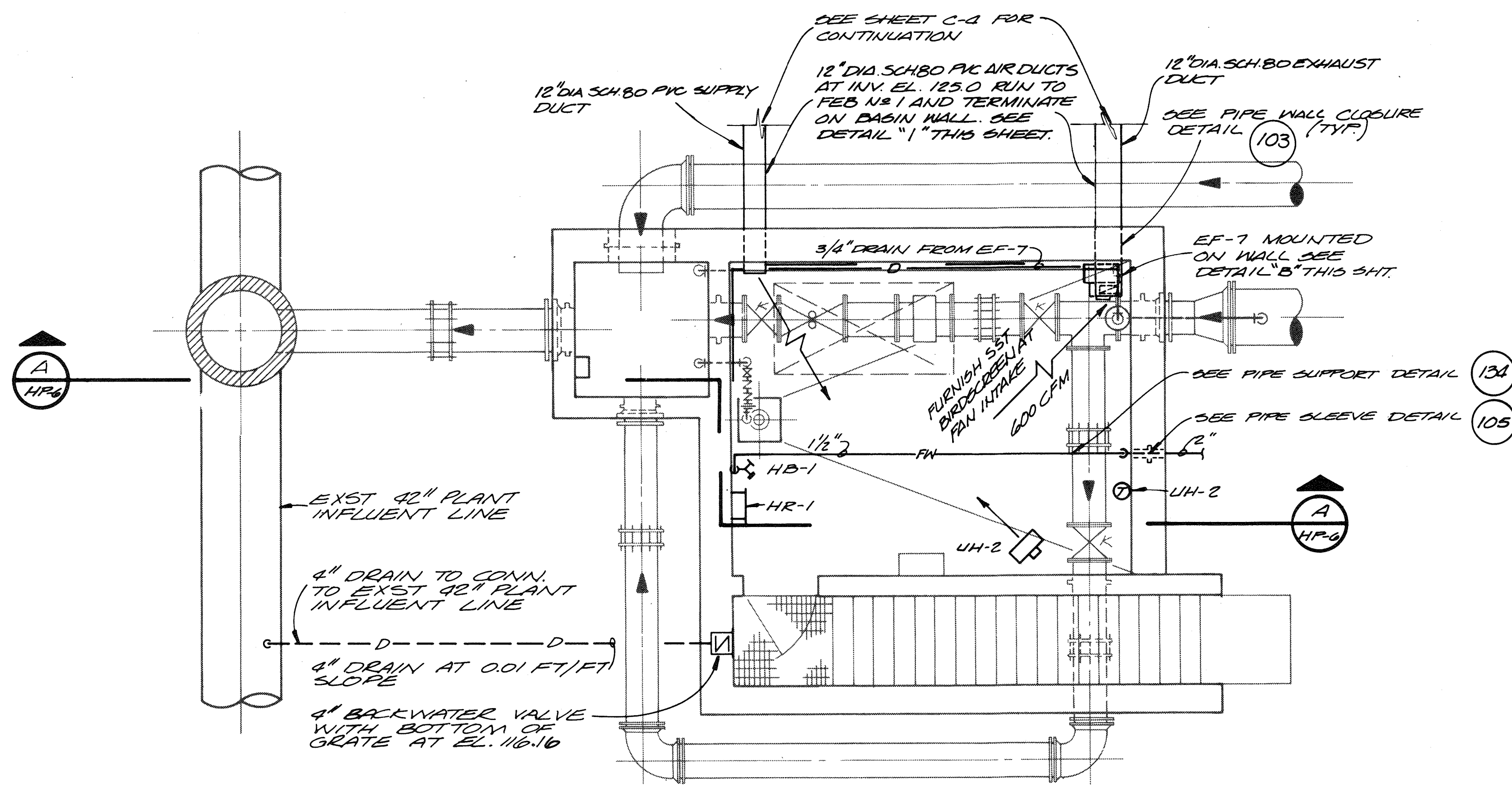
SECTION

HEATING & BUILDING SERVICES

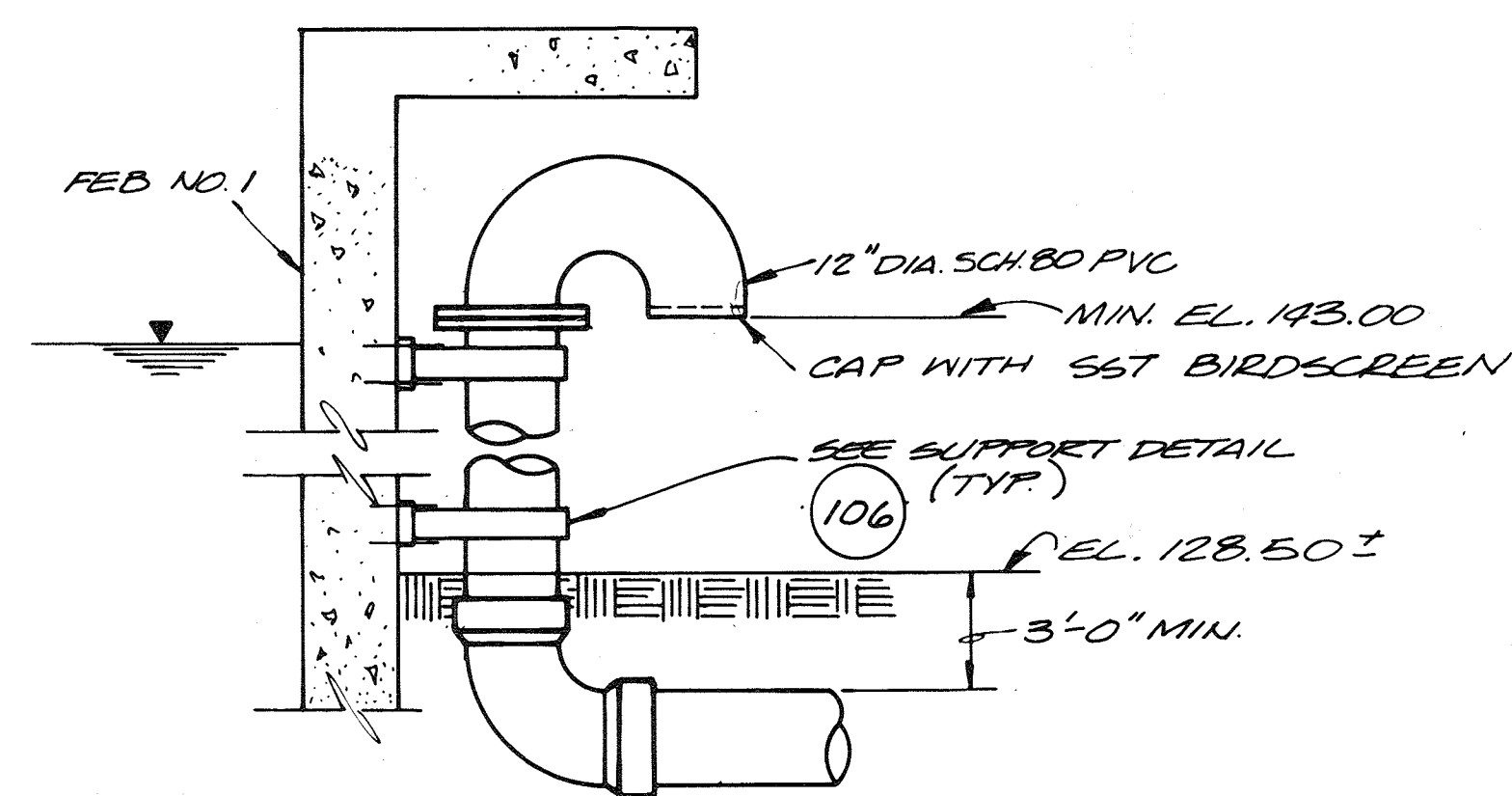
SHEET
OF
HP-5
DATE 8-78
DWG. NO. W1078.C1



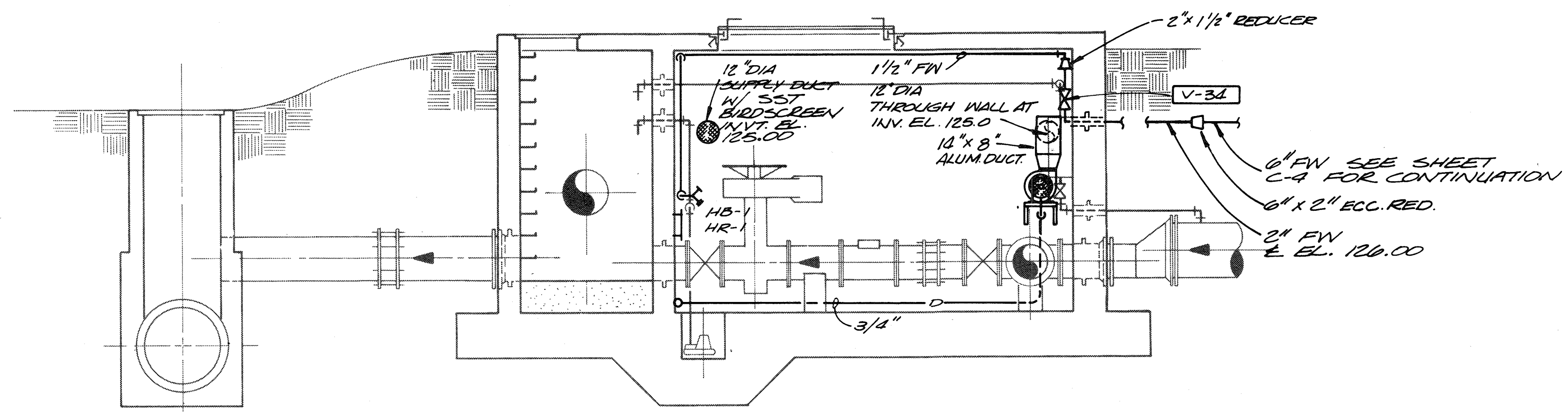
SECTION **B**
1/4" = 1'-0"
HP-2



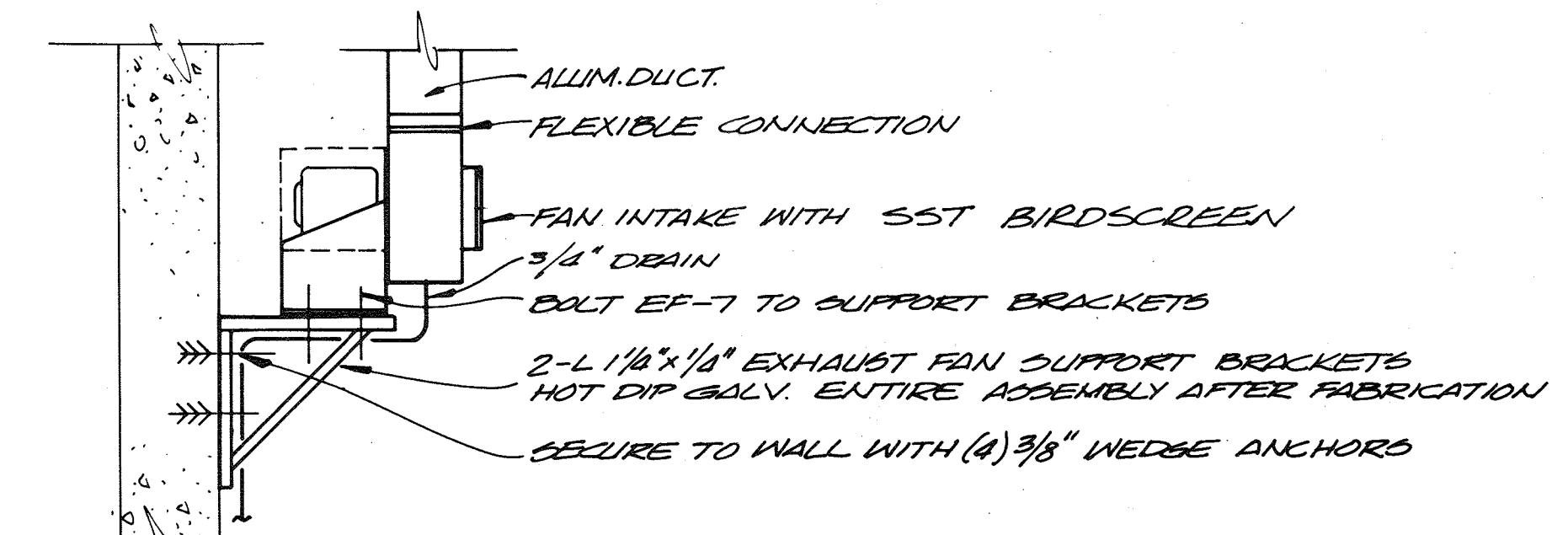
EQUALIZATION RETURN FLOW METERING CHAMBER - PLAN AT EL. 120.0
 1/4" = 1'-0"



DETAIL 1
 N.T.S. HP-6



SECTION A
 1/4" = 1'-0" HP-6



DETAIL B
 N.T.S. HP-6

RECORD DRAWING

For Registration Drafting Use Only

| | |
|-----------|-----------|
| SCREEN | W11078.C1 |
| COMPOSITE | HP-6 |
| OVERLAY | HP-6 |
| | BASE 23 |
| | BASE 23 |



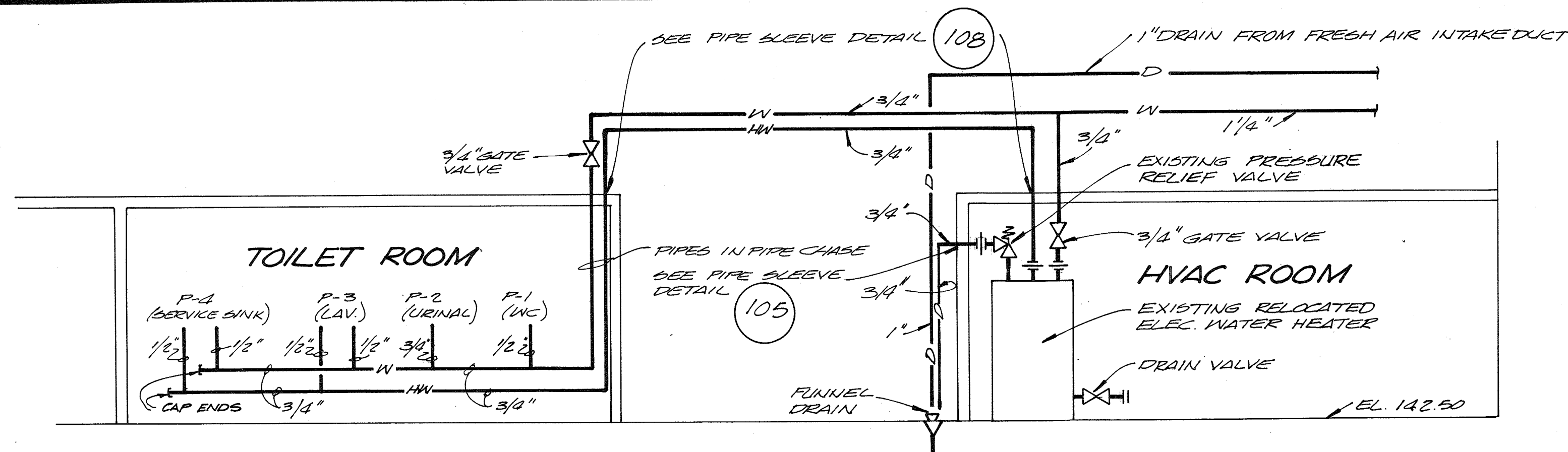
| | | | | | |
|-----------|-------------|------|----------|----|-------|
| CH2M HILL | DES. R.V.M. | | | | |
| | DR. E.E.M. | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | NO. | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 James M. Slaw
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

Savage Wastewater Treatment Plant
 ADDITION NO. 4
 CONTRACT NO. 764-S

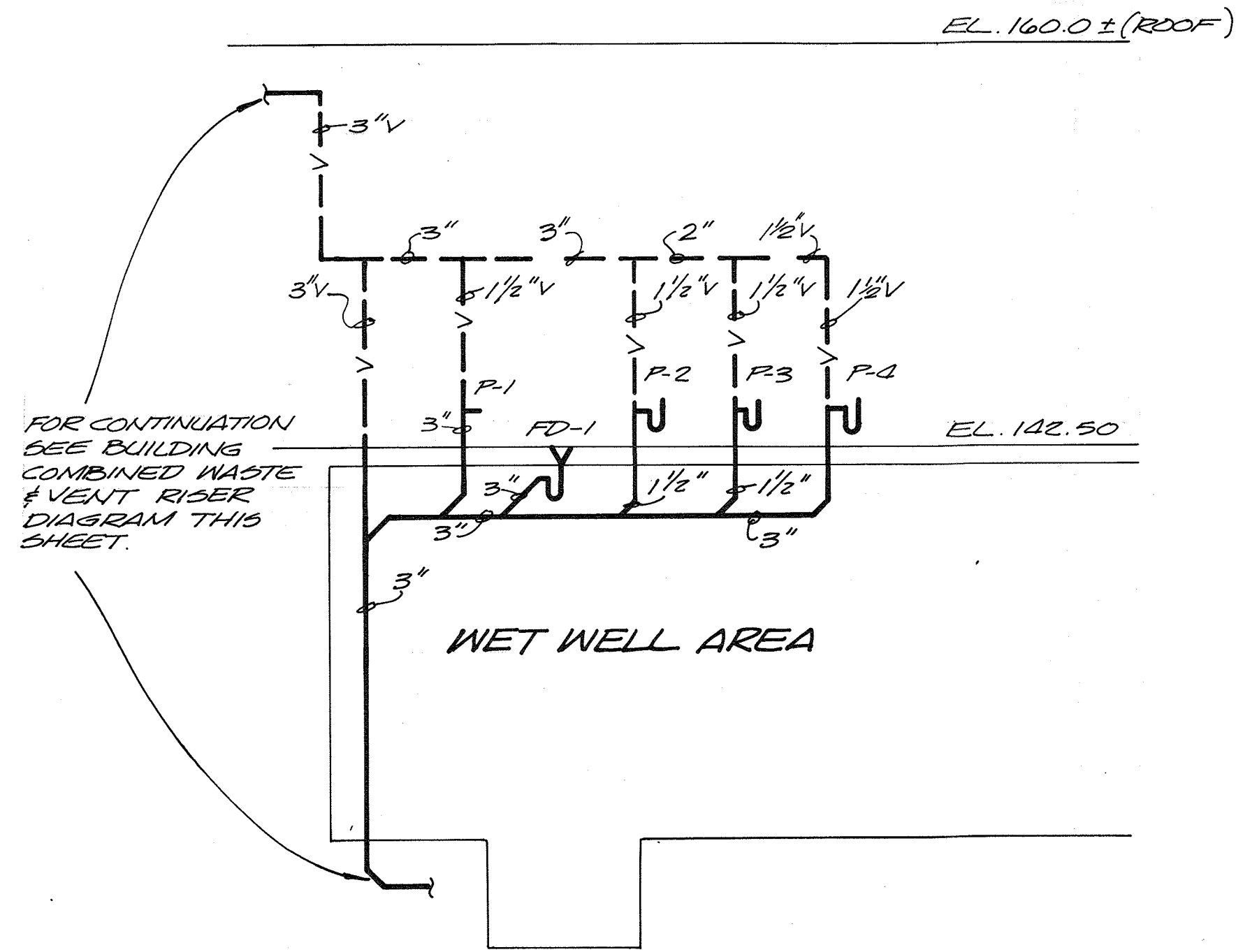
RETURN FLOW METERING CHAMBER
 PLAN AND SECTIONS
 HEATING & BUILDING SERVICES

SHEET OF HP-6
 DATE 8-78
 DWG. NO. W11078.C1



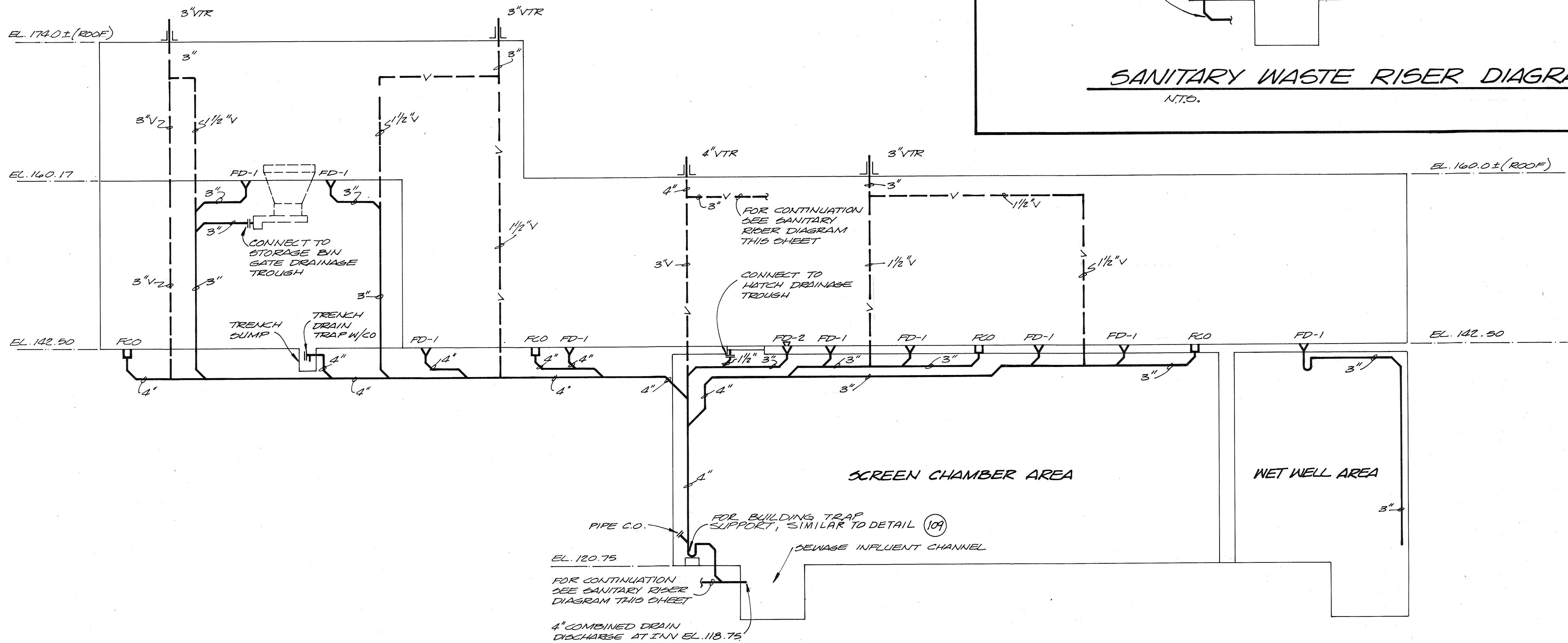
HOT & COLD WATER PIPING DIAGRAM

N.T.D.



SANITARY WASTE RISER DIAGRAM

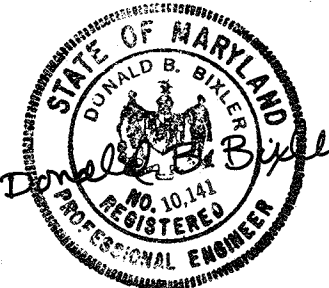
N.T.D.



BUILDING COMBINED WASTE & VENT RISER DIAGRAM

N.T.D.

RECORD DRAWING



| | | | | | |
|---------------------------|--------------------|-----|------|----------|----|
| CH ₂ M HILL | DES. <i>R.W.M.</i> | | | | |
| | DR. <i>E.E.M.</i> | | | | |
| | CHK. | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/78
DATE

James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
PLUMBING RISER DIAGRAM

HEATING & PLUMBING

SHEET
OF HP - 7
DATE 8-78
DWG. NO. W11078.C1

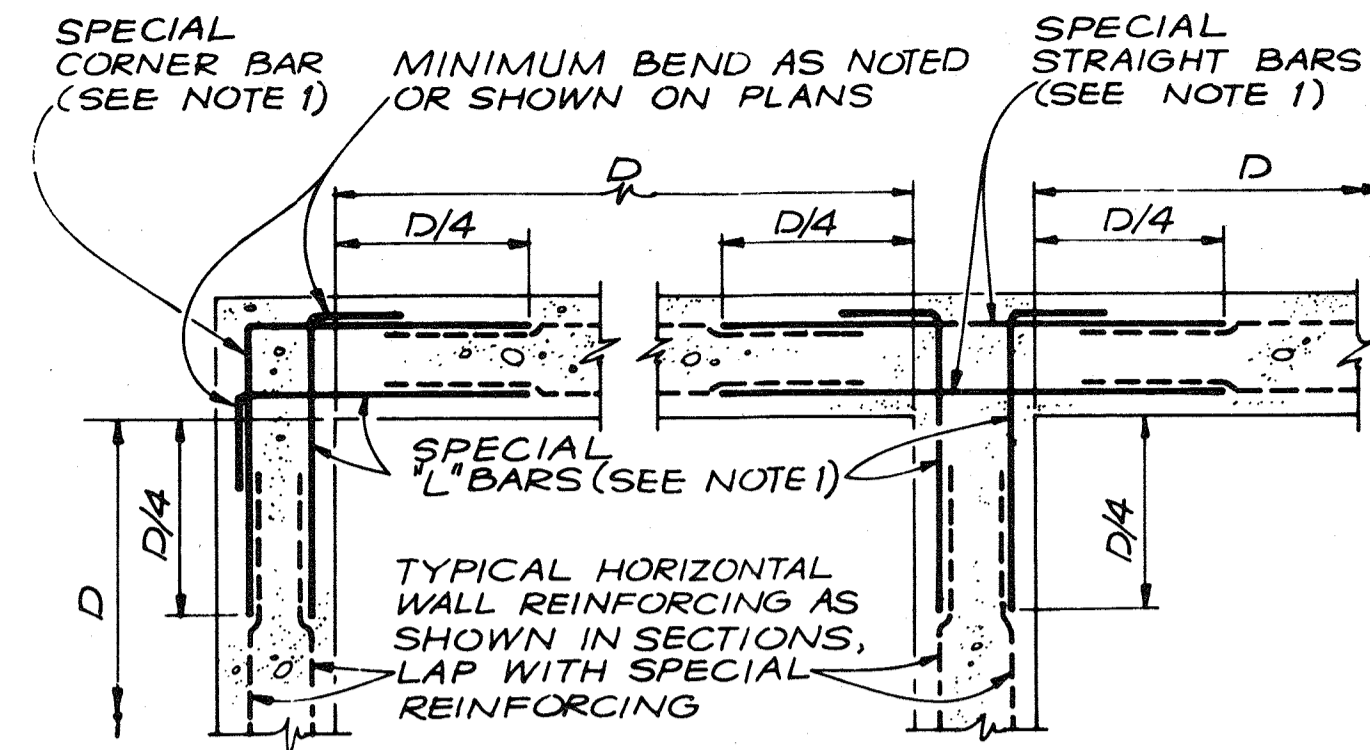
GENERAL STRUCTURAL NOTES

- UNLESS OTHERWISE SHOWN CONC. WALLS & SLABS SHALL BE REINF. AS FOLLOWS: #4@12" E.W. CENTER OF 8" SECTIONS; #5@12" E.W. CENTER OF 8" SECTIONS; #4@12" E.W.E.F. OF 10" SECTIONS; #5@12" E.W.E.F. OF 12" SECTIONS. SINGLE MAT REINF. SHALL BE AT CENTER OF SECTION, UNLESS SHOWN OTHERWISE.
- MIN. CLR. FOR REINF. BARS, UNLESS SHOWN OTHERWISE, SHALL BE 3" WHEN POURED ON GROUND; FOR SURFACES EXPOSED TO WATER OR WEATHER-1 1/2" CLR. FOR #5 BAR AND SMALLER AND 2" CLR. FOR LARGER BARS; INTERIOR SLABS 3/4" CLR., INTERIOR BEAMS 1 1/2" CLR.
- UNLESS OTHERWISE NOTED, ALL WALL REINF. BARS SHALL BE CONT. AROUND CORNERS AND THROUGH COL. OR PILASTERS. REINF. SHALL BE EXTENDED INTO CONNECTING WALLS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALLS, AS INDICATED ELSEWHERE ON THIS SHEET. VERT. WALL BARS SHALL BE LAPPED WITH DOWELS FROM BASE SLABS AND EXTENDED INTO THE TOP FACE OF ROOF SLABS AND LAPPED WITH TOP SLAB REINF. ALL REINF. BENDS & LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENT:

| DETAILS OF REINFORCEMENT | | | | | | | | |
|--------------------------|---------------------|---------------------|--------|-------|---------|-------|---------|-------|
| BAR SIZE | #8 OR SMALLER BARS | | #9 BAR | | #10 BAR | | #11 BAR | |
| | BEND | LAP | BEND | LAP | BEND | LAP | BEND | LAP |
| TOP BAR* | 28 DIAM. MIN. 1'-0" | 42 DIAM. MIN. 2'-0" | 3'-0" | 4'-9" | 3'-9" | 6'-0" | 4'-6" | 7'-3" |
| OTHER BAR | 20 DIAM. MIN. 1'-0" | 30 DIAM. MIN. 1'-6" | 2'-0" | 3'-3" | 2'-9" | 4'-3" | 3'-3" | 5'-3" |

* TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.

- CONT. GALV. STL. W.S. AS SPEC., SHALL BE INSTALLED IN ALL C.J. IN WALLS OF WATER HOLDING BASINS & CHANNELS, EXCEPT WHERE INDICATED OTHERWISE.
- PROVIDE AND INSTALL SELECT GRANULAR MATERIAL AS SPECIFIED UNDER ALL SLABS AND FOOTINGS TO UNDISTURBED EARTH WITH MINIMUM THICKNESS EQUAL 6", UNLESS OTHERWISE NOTED.

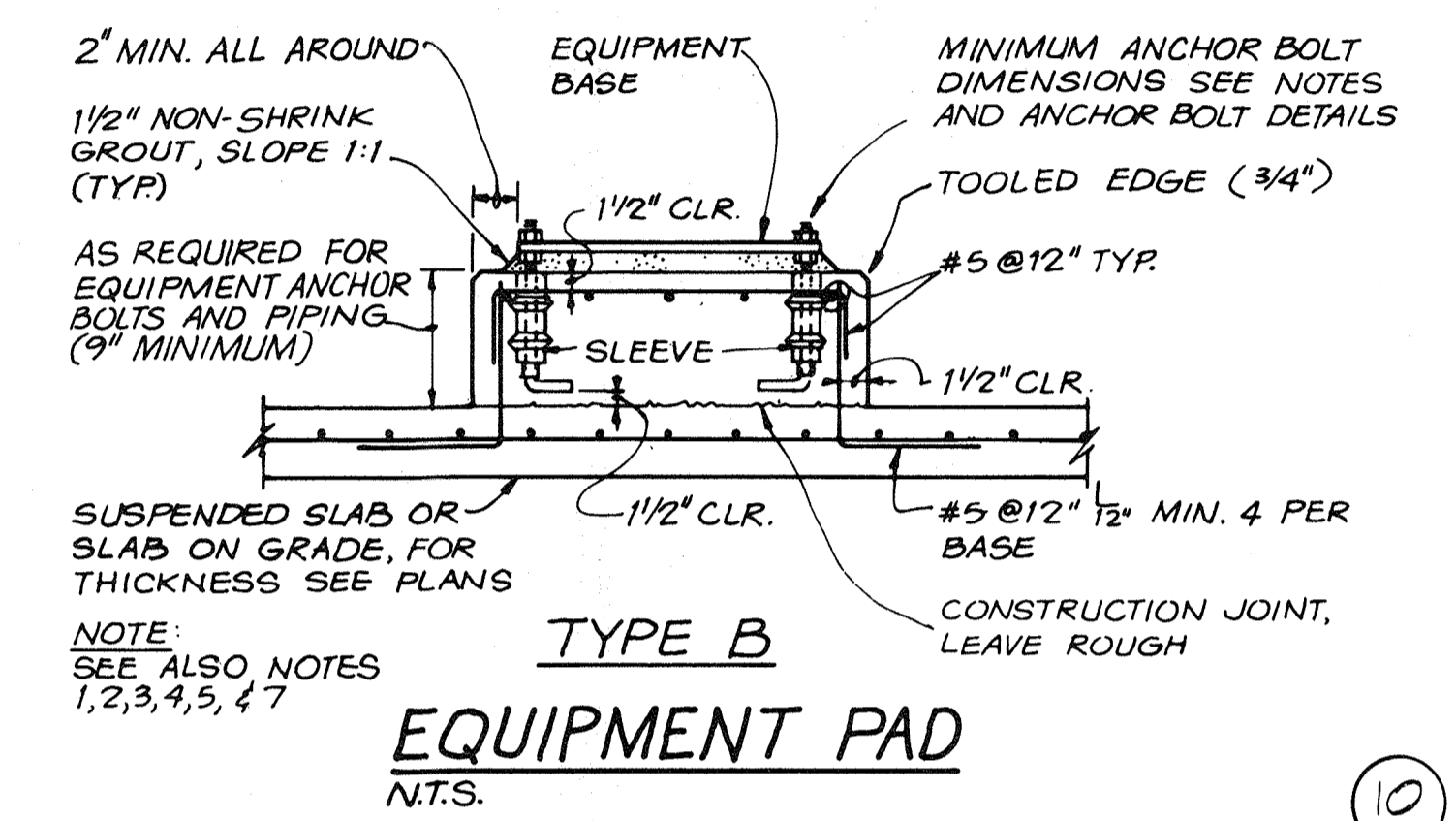
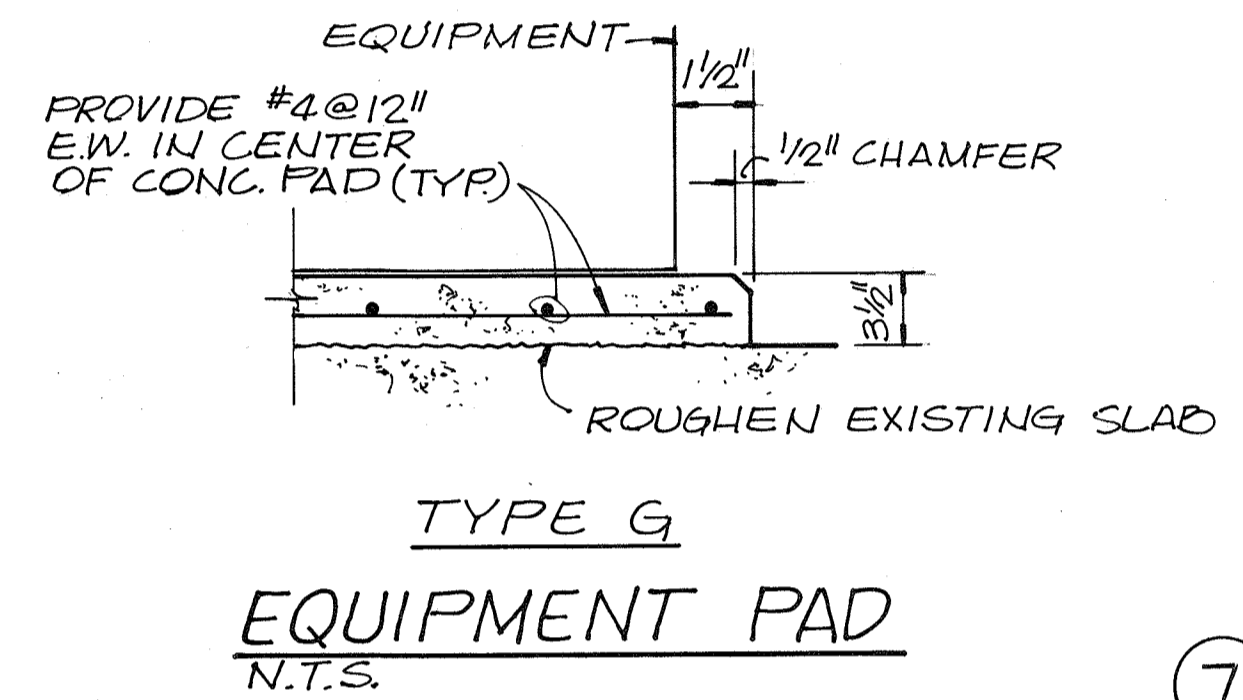
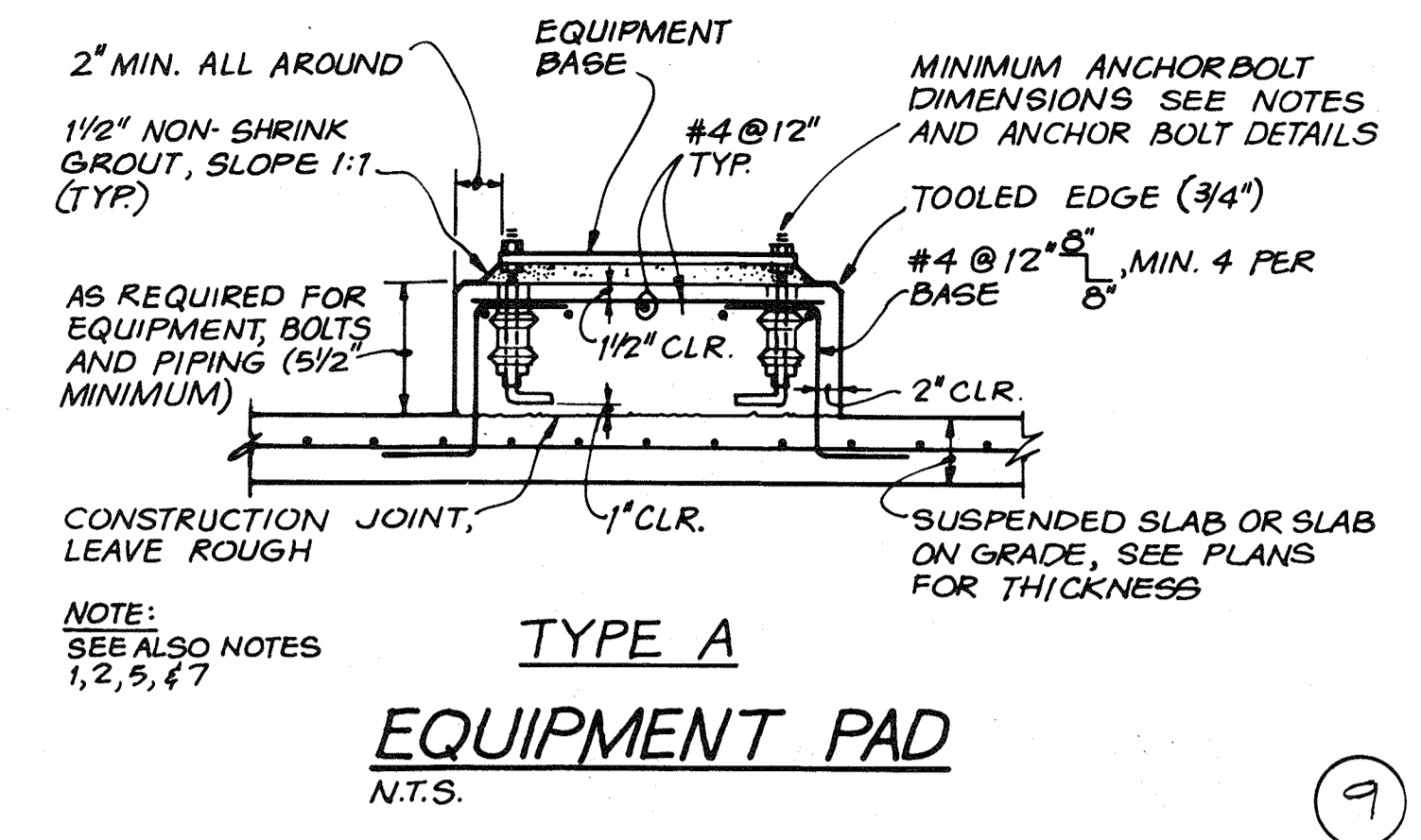


NOTES:

- SPECIAL HORIZONTAL WALL REINFORCING SHOWN FOR CORNERS AND WALL INTERSECTIONS WHERE SPECIAL REINFORCING IS INDICATED ON PLANS. SEE PLANS FOR SIZE AND SPACING.
- SPICE LENGTHS AND BENDS SHALL BE AS INDICATED ON PLANS OR AS NOTED IN GENERAL STRUCTURAL NOTES.
- D/4 = BAR LENGTH EXCEPT WHERE INDICATED OTHERWISE ON PLANS.
- D = LENGTH OF WALL PARALLEL TO BAR LENGTH IN QUESTION.

SPECIAL CORNER AND INTERSECTION REINFORCING
N.T.S.

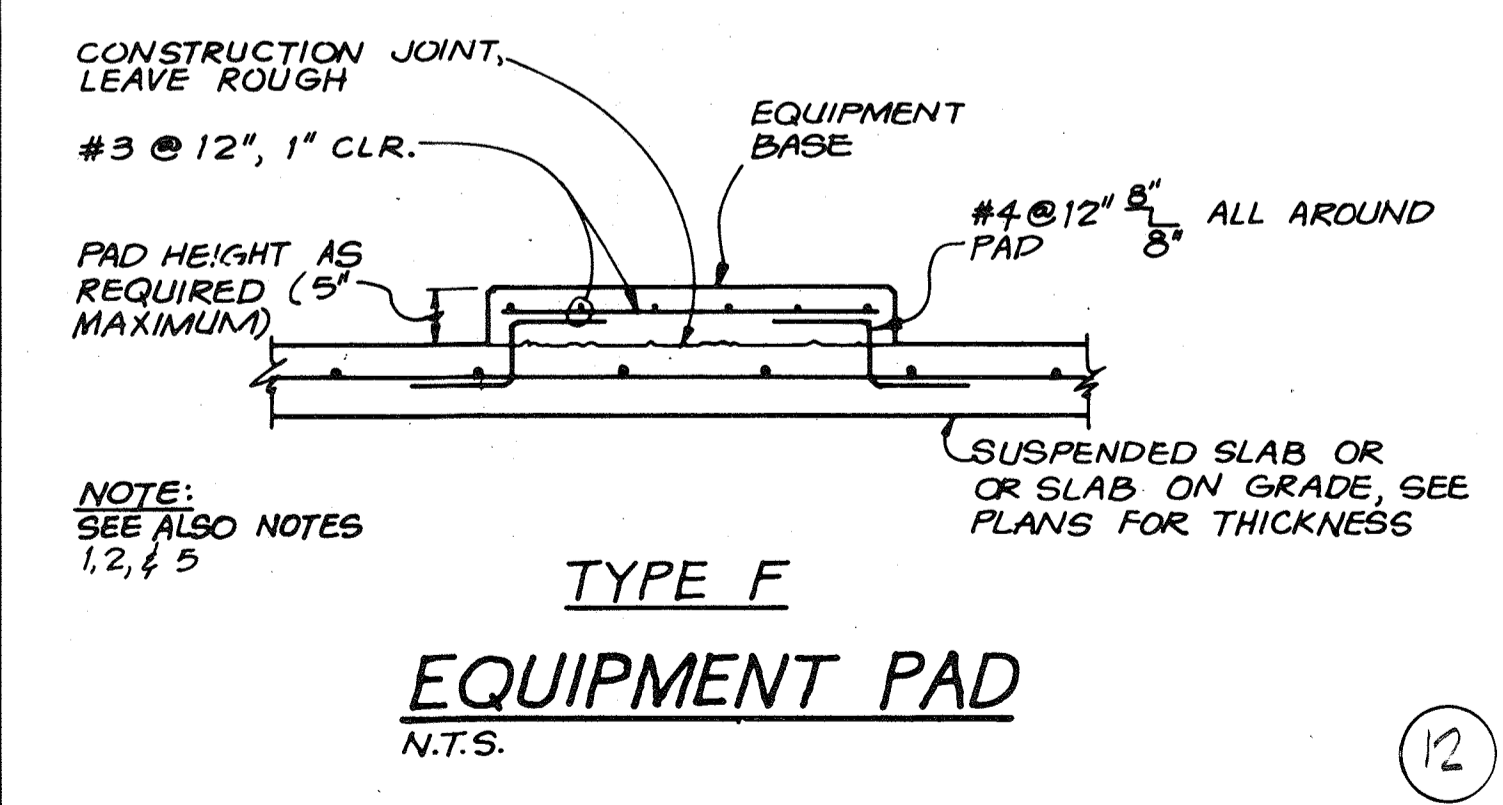
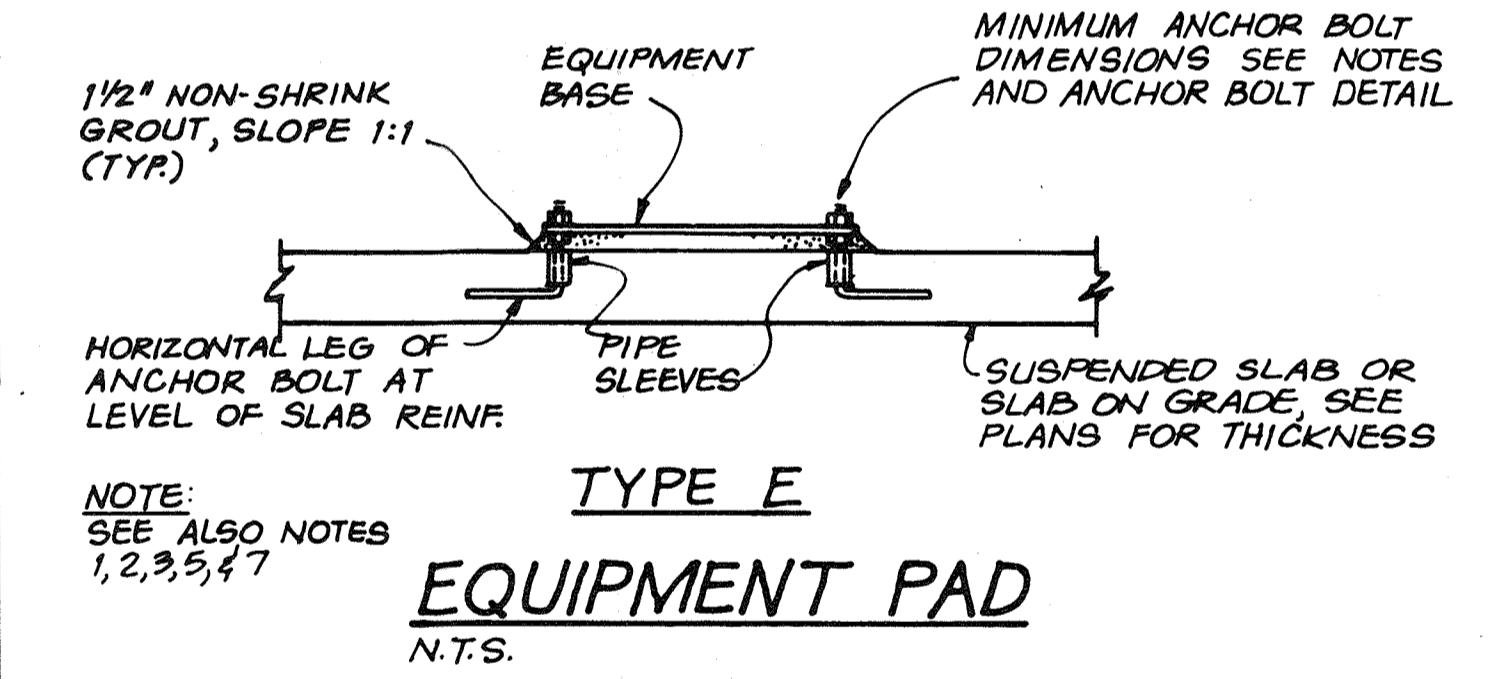
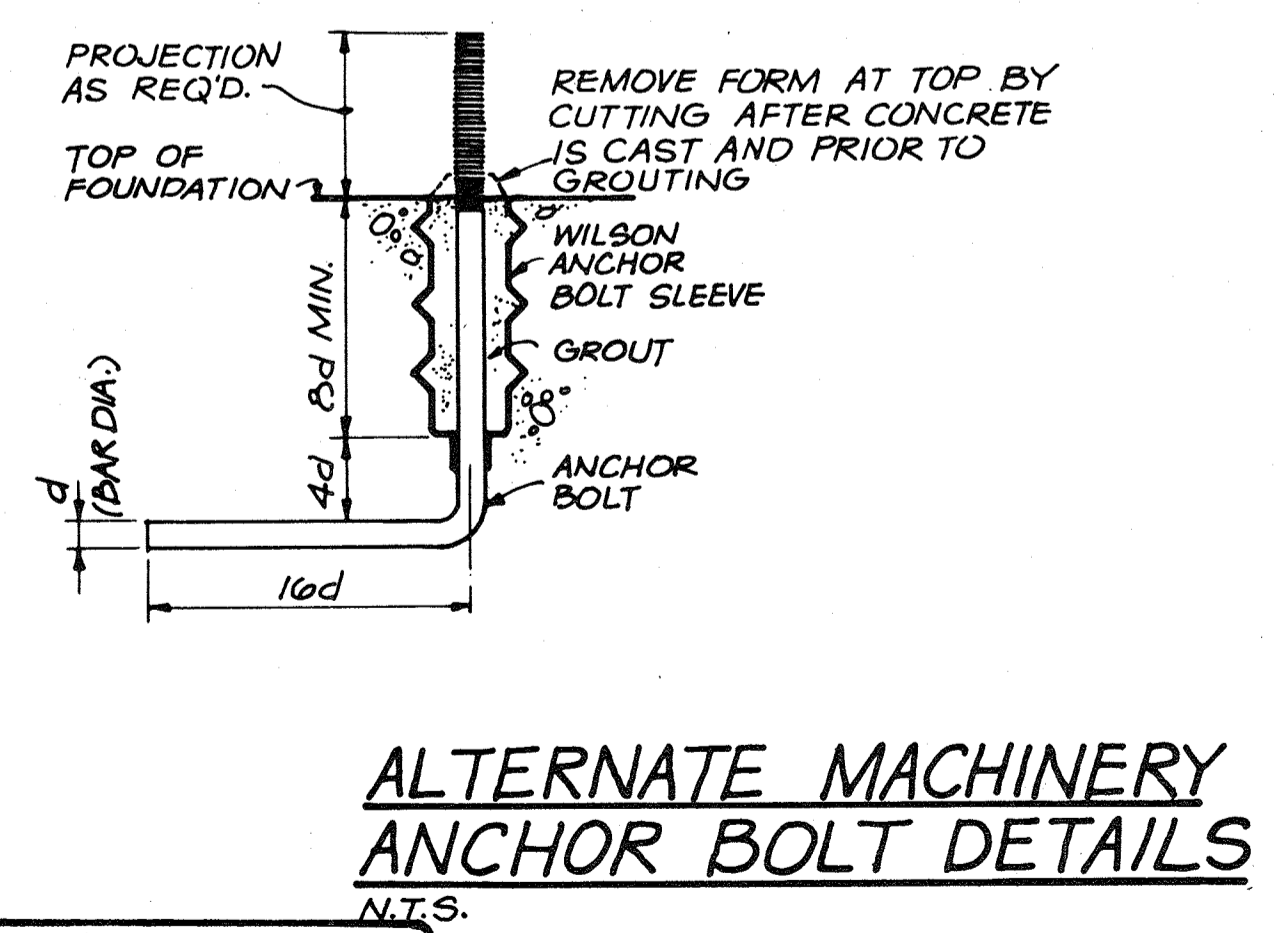
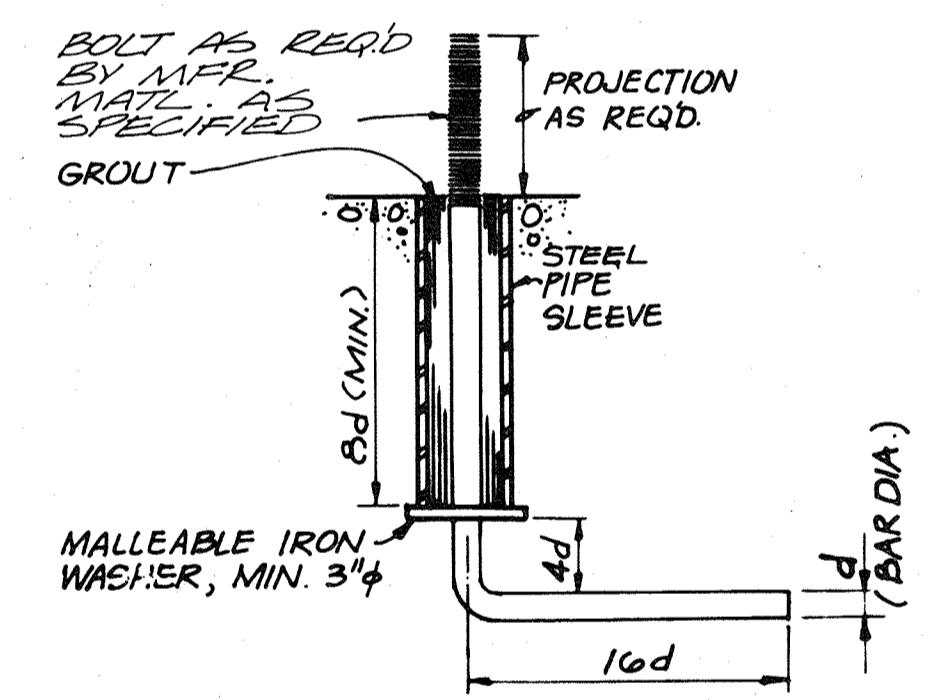
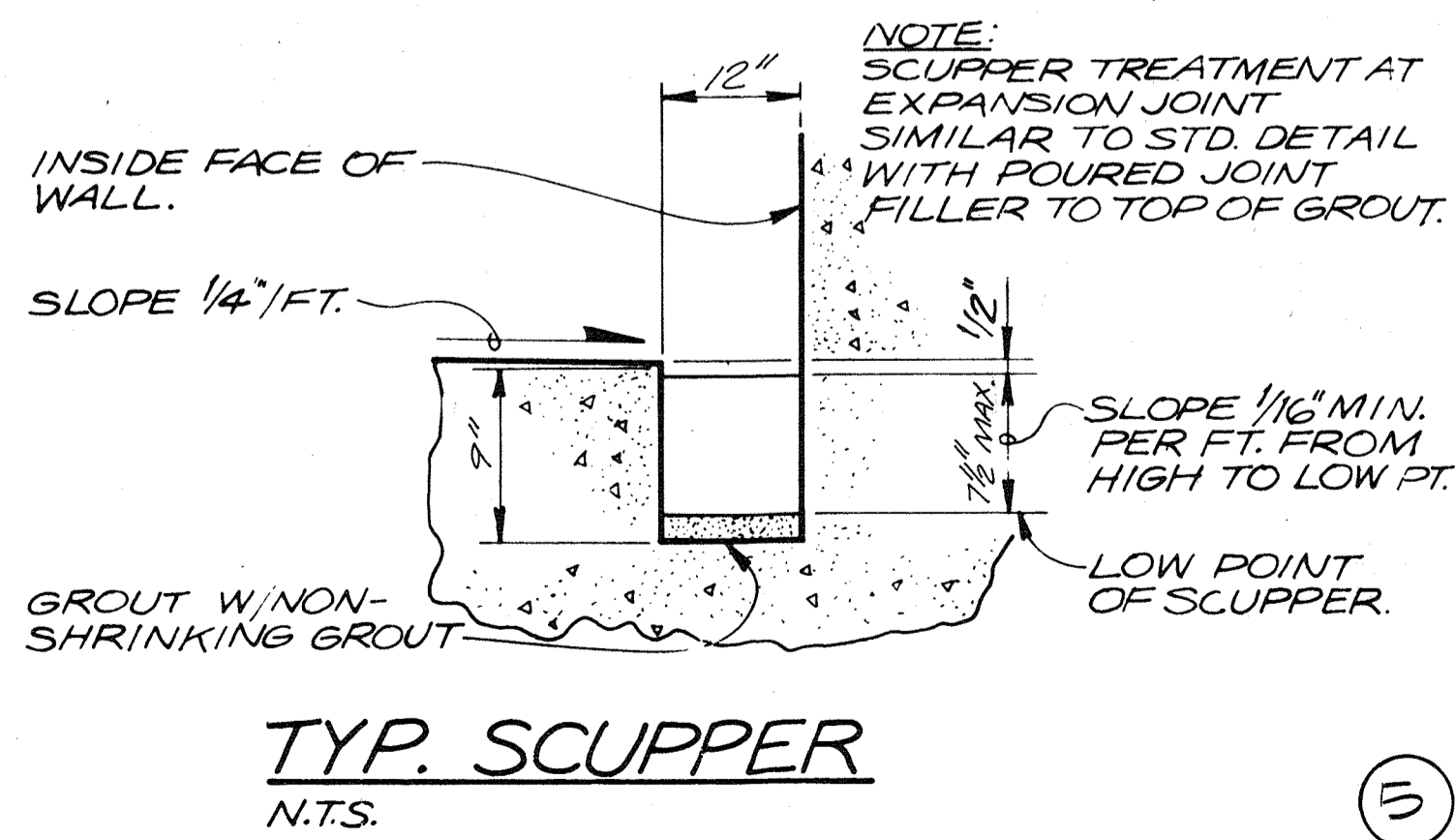
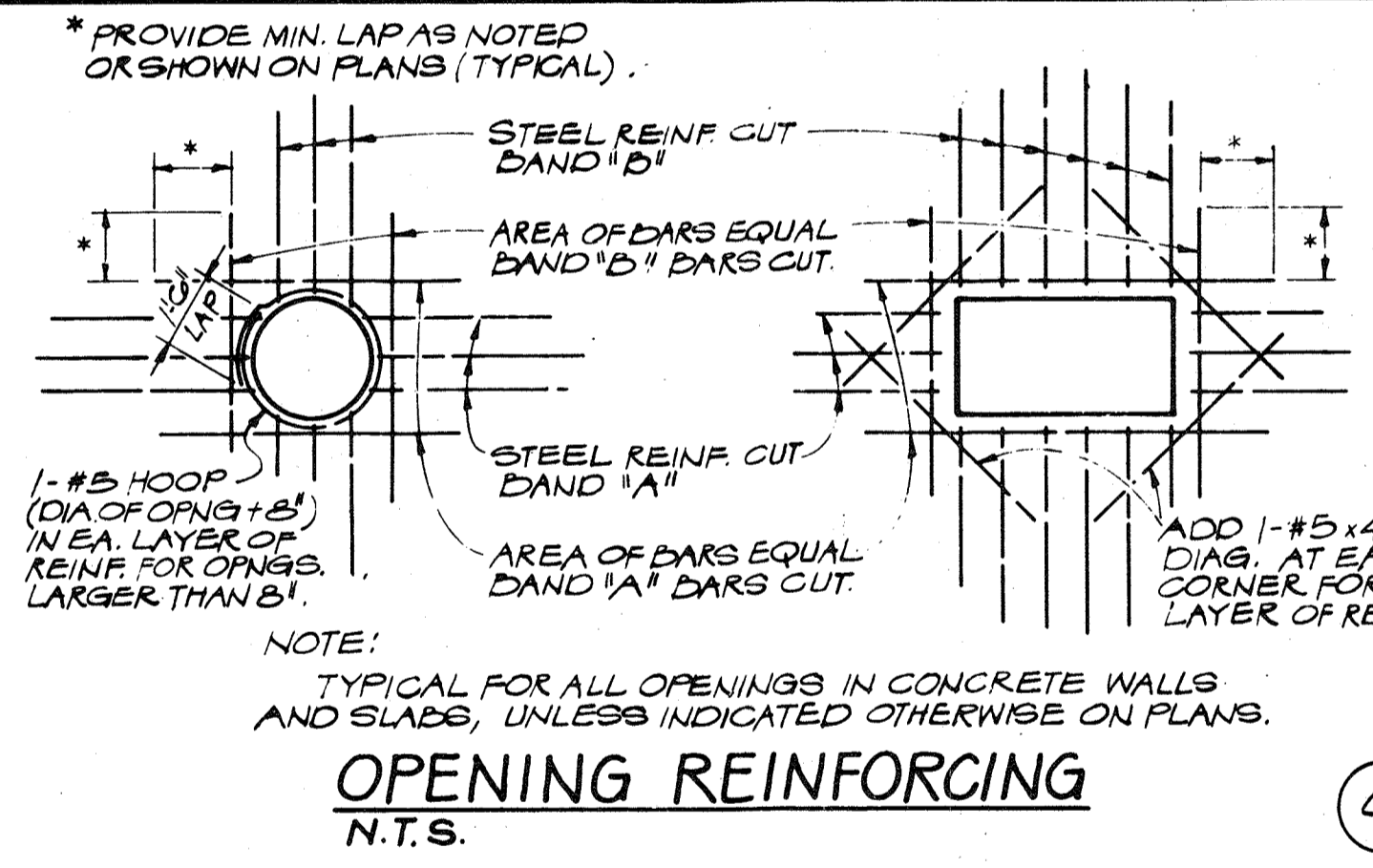
- EQUIPMENT BASE NOTES**
- PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER.
 - THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.
 - PIPE SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
 - PIPE SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
 - EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
 - TYPE "D" DETAIL SHALL BE USED ONLY FOR SLABS ON GRADE AND AT GRADE. THE SURROUNDING FLOOR SLAB SHALL NOT BE PLACED UNTIL THE EXACT SIZE AND LOCATION OF THE PAD IS KNOWN.
 - WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF, IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.



STRUCTURAL ABBREVIATIONS

| | | |
|-------------------------|----------------------------|-------------------------------|
| AB ANCHOR BOLT | FD FLOOR DRAIN | RC REINFORCED CONCRETE |
| AHR ANCHOR | FON FOUNDATION | REINF REINFORCE |
| AL ALUMINUM | FNSH GR FINISHED GRADE | RST REINFORCING STEEL |
| ALTN ALTERNATE | FTG FOOTING | |
| APVD APPROVED | | SIM SIMILAR |
| | GALV HOT DIP GALVANIZED | SPECS SPECIFICATIONS |
| BOT BOTTOM | GVL GRAVEL | SQ SQUARE |
| BF BOTTOM FACE | | STD STANDARD |
| BM BEAM | HAS HEADED ANCHOR STUD | STIF STIFFENER |
| BRG BEARING | HDR HEADER | STL STEEL |
| | HORIZ HORIZONTAL | STR STRAIGHT |
| | | STRUCT STRUCTURES |
| | | SYMM SYMMETRICAL |
| C TO C CENTER TO CENTER | IF INSIDE FACE | |
| CJ CONSTRUCTION JOINT | | T & B TOP AND BOTTOM |
| CL CENTER LINE | LNTL LINTEL | TC TOP OF CONCRETE |
| CLR CLEARANCE | LONG LONGITUDINAL | TF TOP FACE |
| COL COLUMN | | THK THICK |
| CONC CONCRETE | MAX MAXIMUM | TRANSV TRANSVERSE |
| CONN CONNECTION | MB MACHINE BOLTS | TST TOP OF STEEL |
| CONT CONTINUOUS | MIN MINIMUM | TW TOP OF WALL |
| CTR CENTER | | TY ² TYPICAL |
| | NIC NOT IN CONTRACT | |
| DBA DEFORMED ANCHOR BAR | NTS NOT TO SCALE | |
| DIA. Φ DIAMETER | | VERT VERTICAL |
| DIR DIRECTION | OC ON CENTER | |
| DWG DRAWING | OF OUTSIDE FACE | WS WATERSTOP OR WATER SURFACE |
| | O TO O OUT TO OUT | WWM WELDED WIRE MESH |
| EA EACH | OPNG OPENING | |
| EF EACH FACE | | |
| EL ELEVATION | | |
| EQL SP EQUALLY SPACED | PJF PREMOLDED JOINT FILLER | |
| EW EACH WAY | PLYWD PLYWOOD | |
| EXP JT EXPANSION JOINT | PRCST PRECAST | |
| EXST EXISTING | | |

NOTE: FOR ABBREVIATIONS NOT LISTED SEE "ABBREVIATIONS FOR USE ON DRAWINGS AND TEXT", PUBLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE INC. (ANSI)



RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
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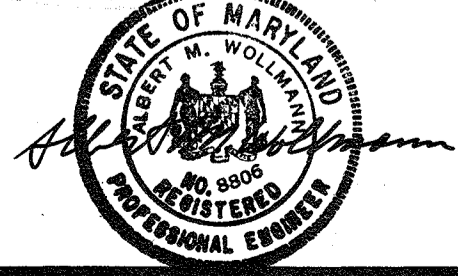
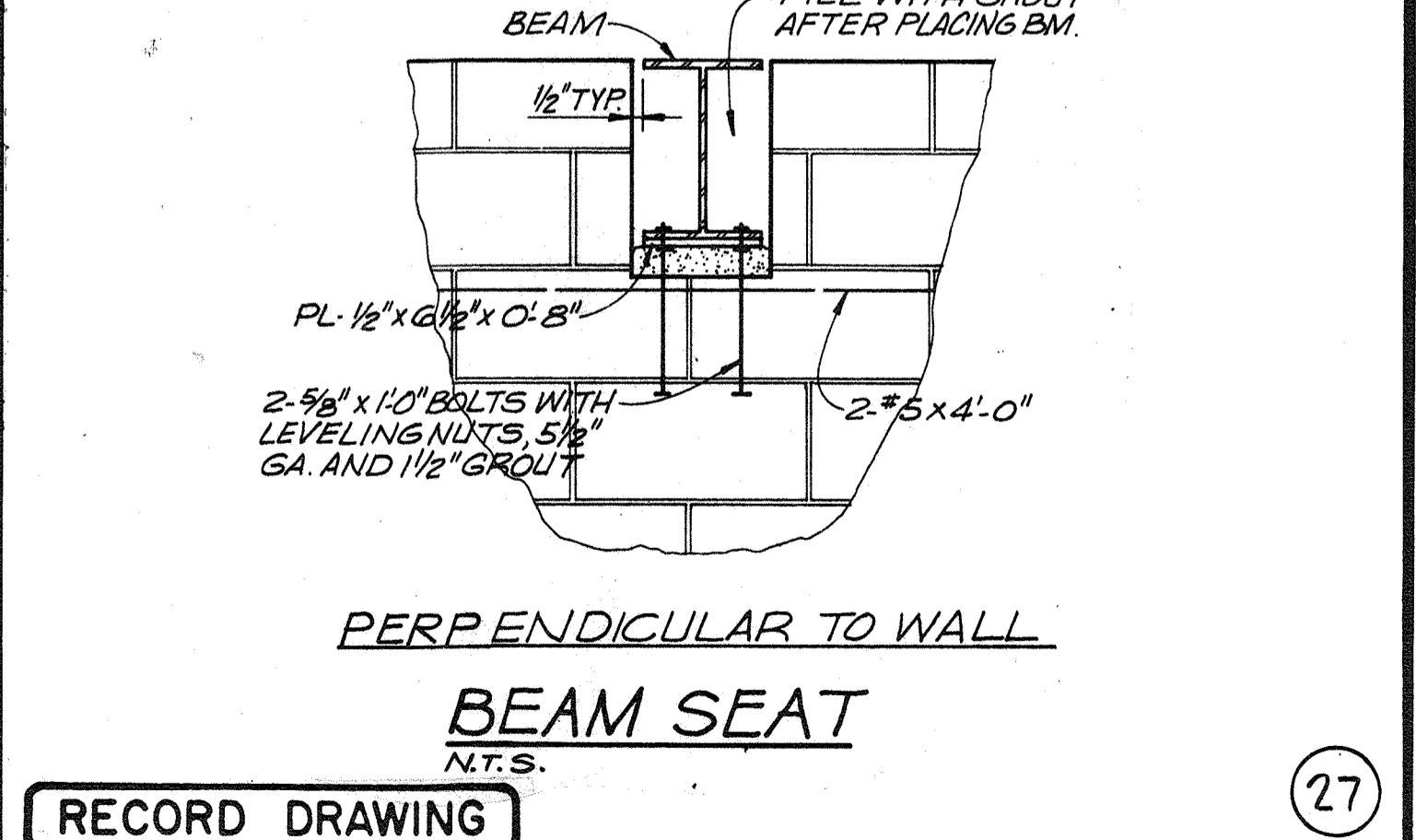
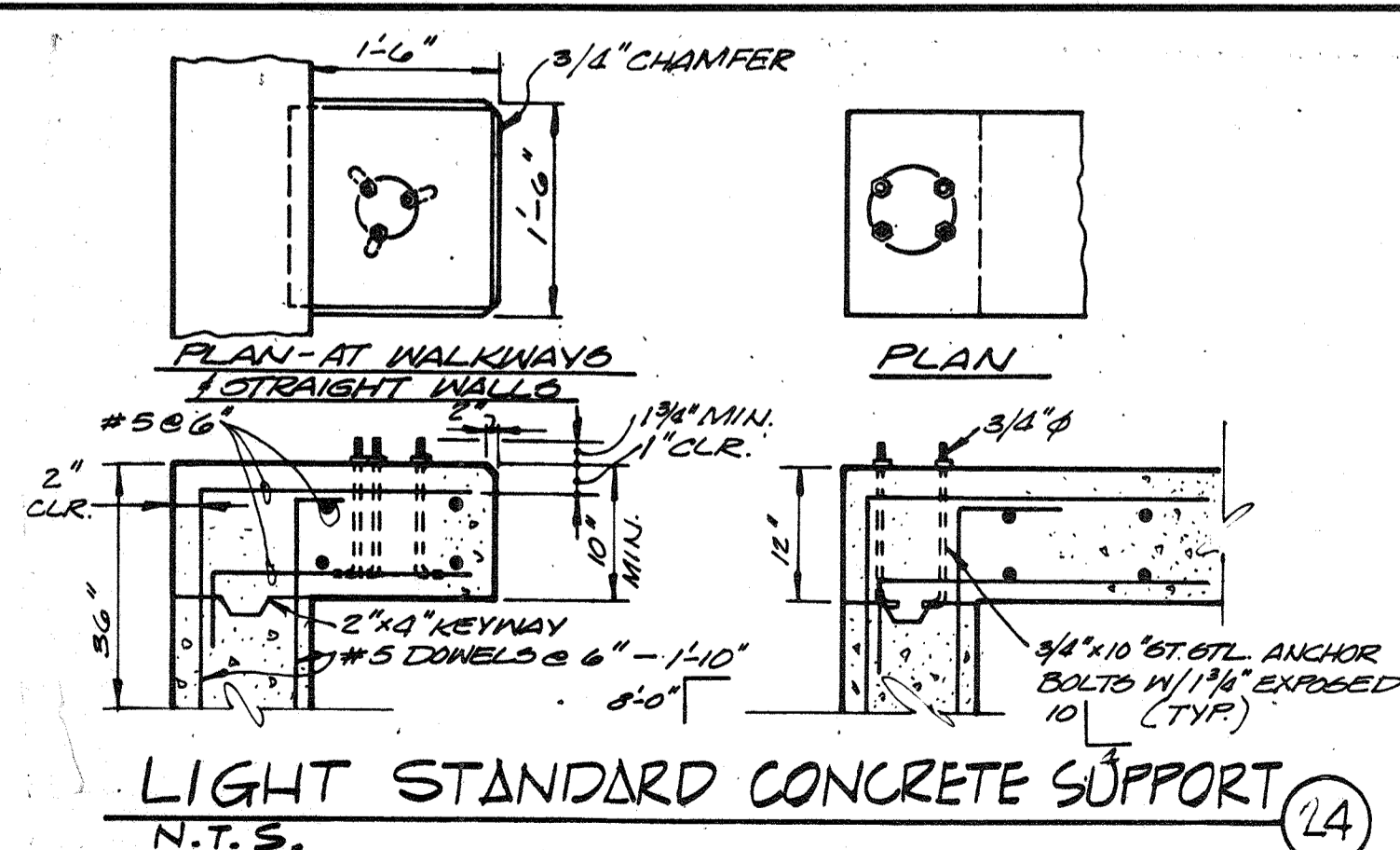
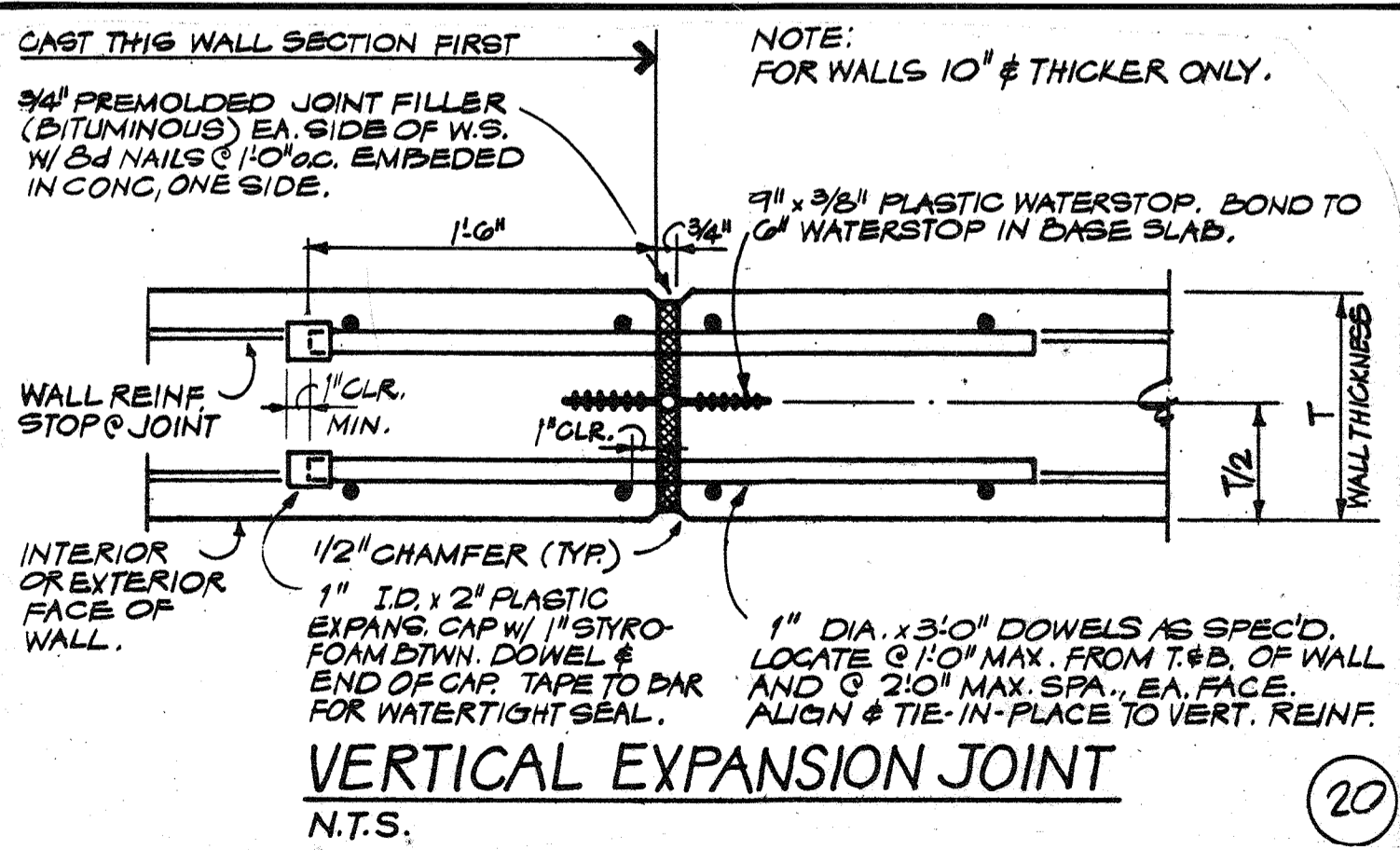
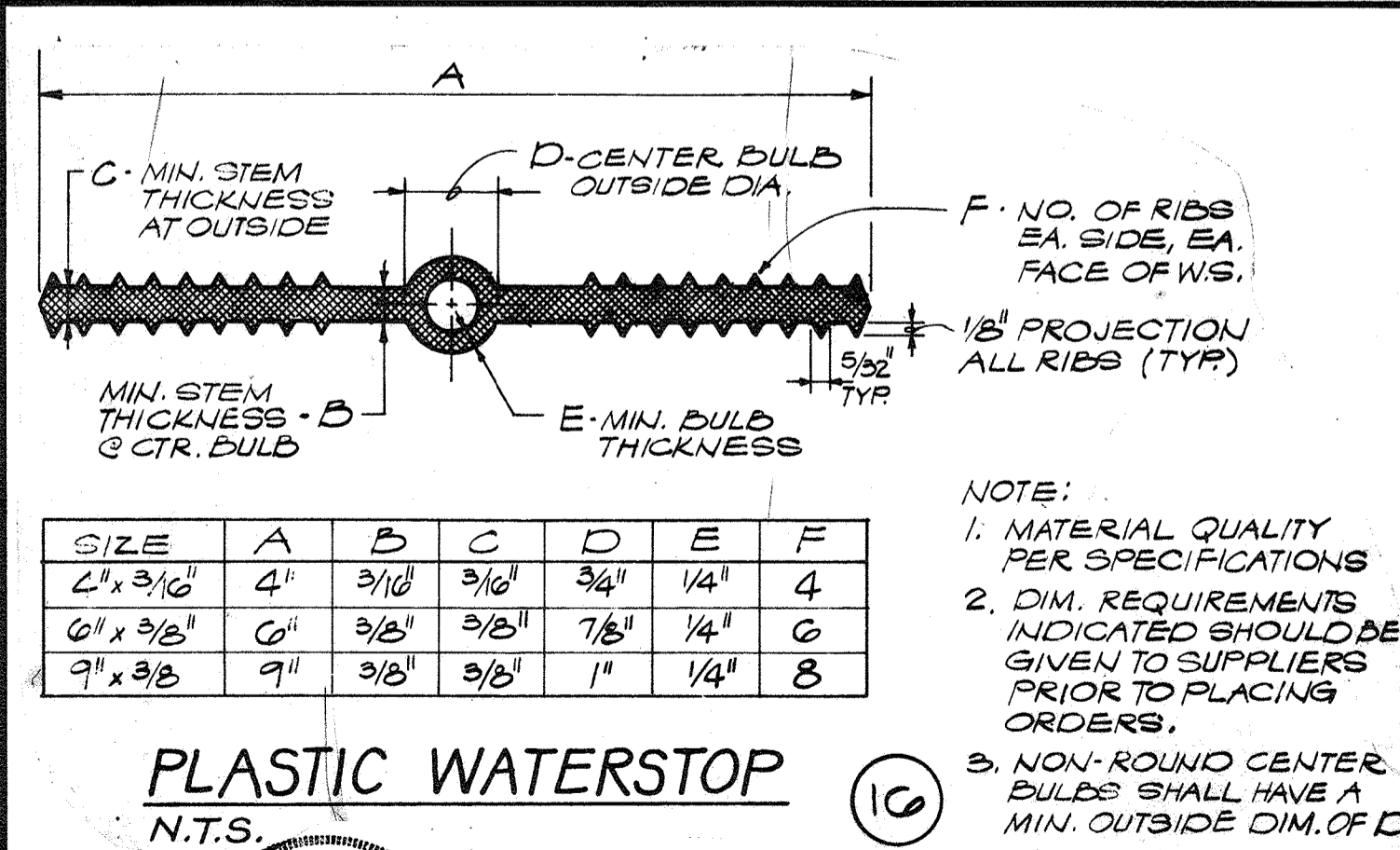
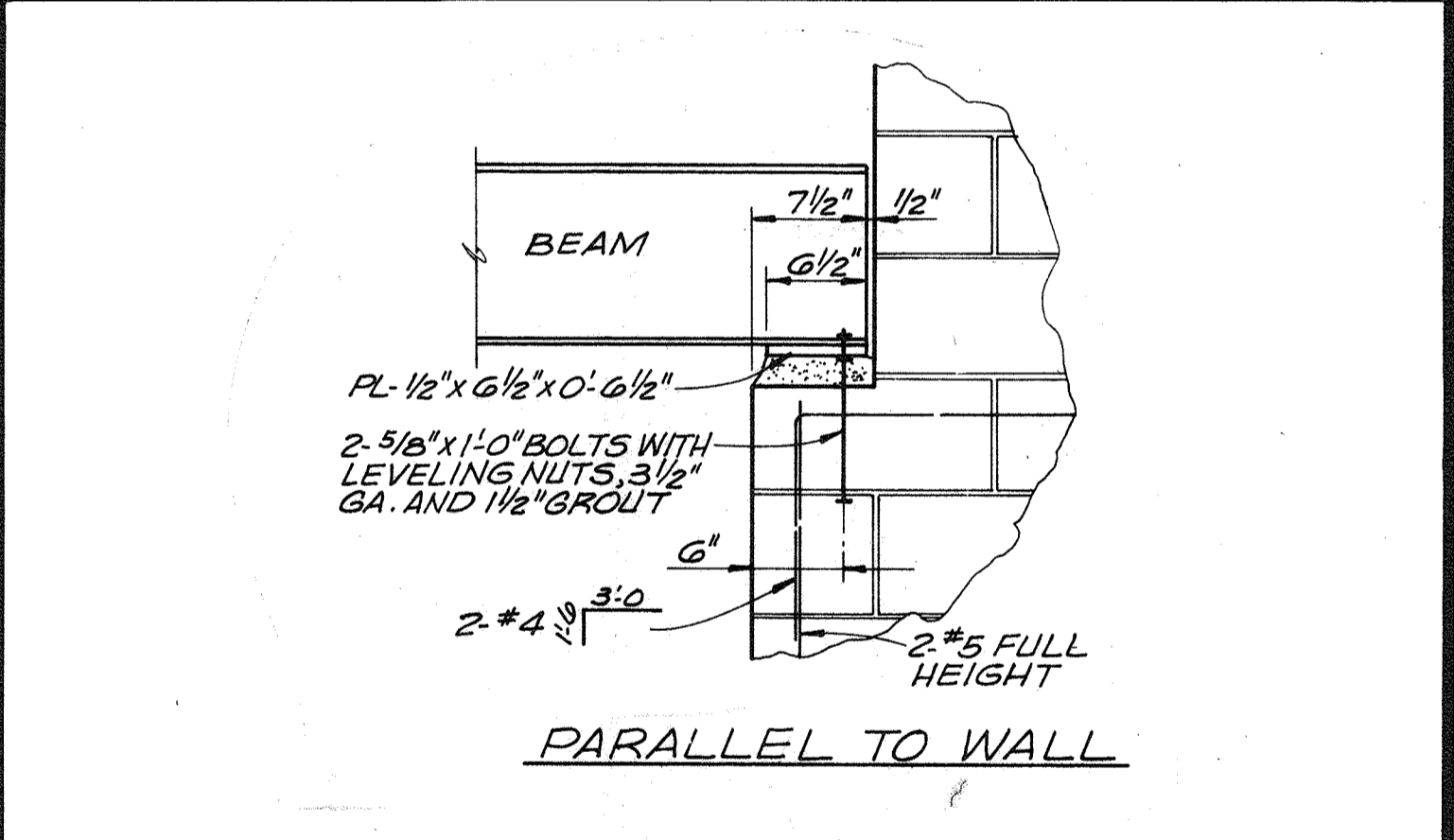
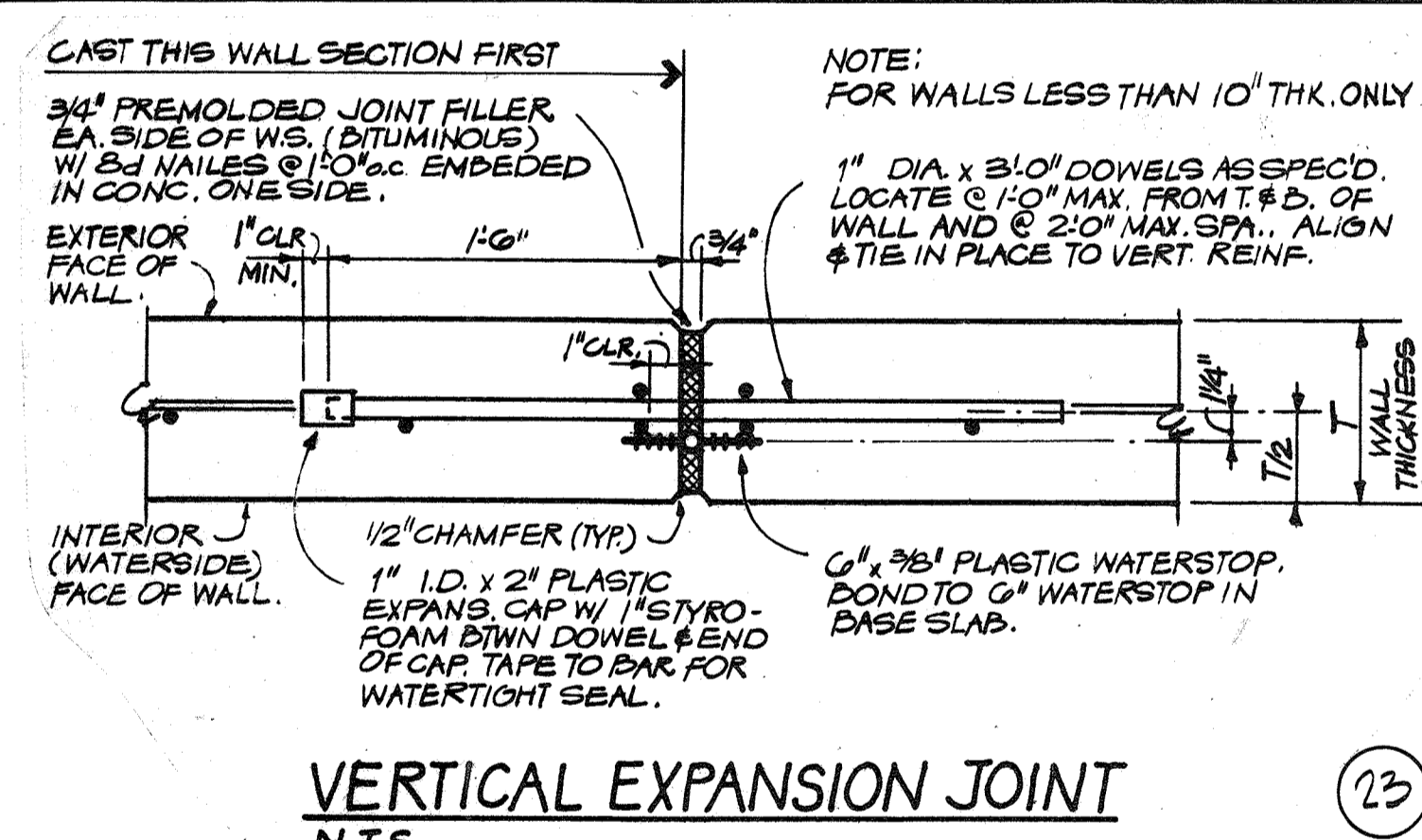
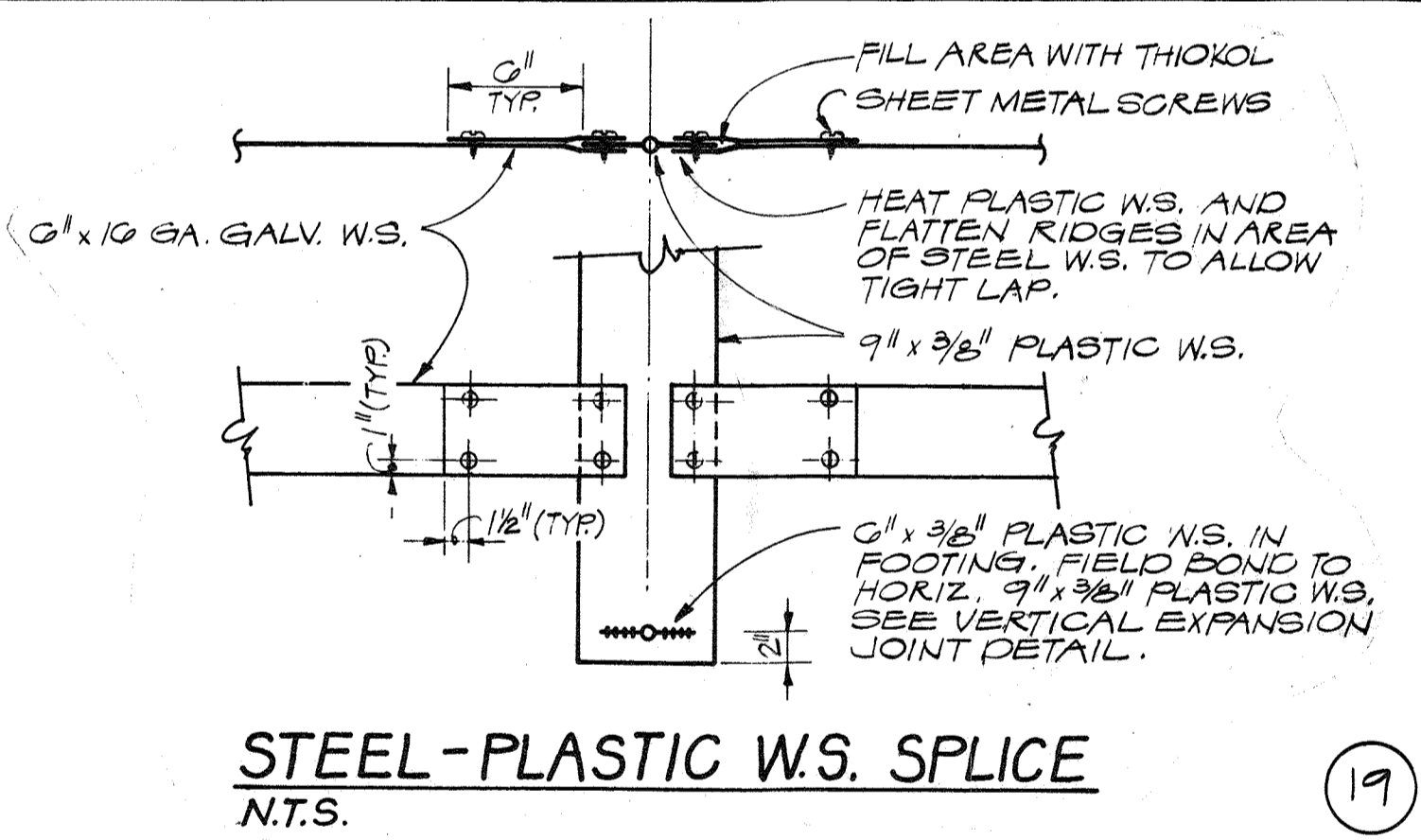
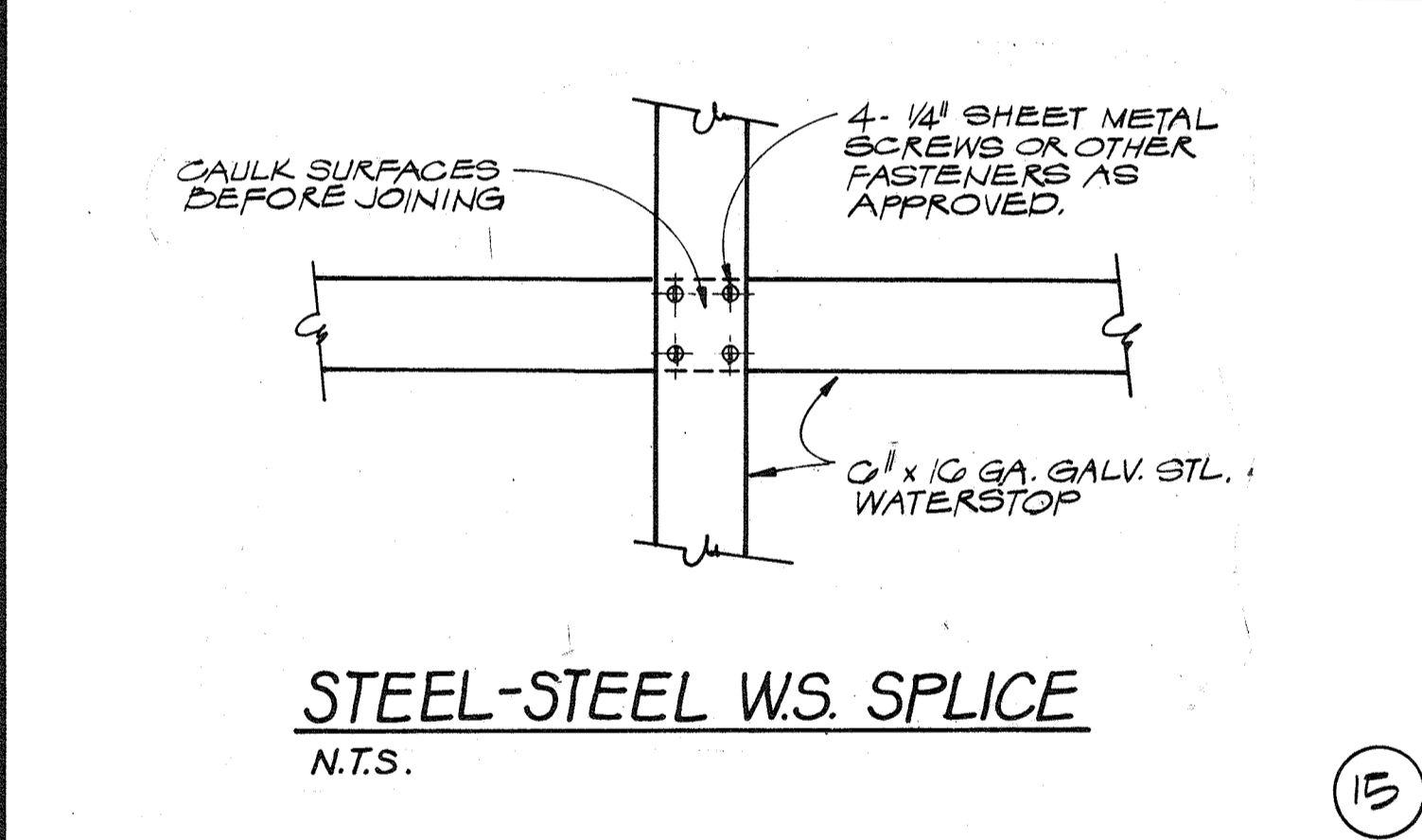
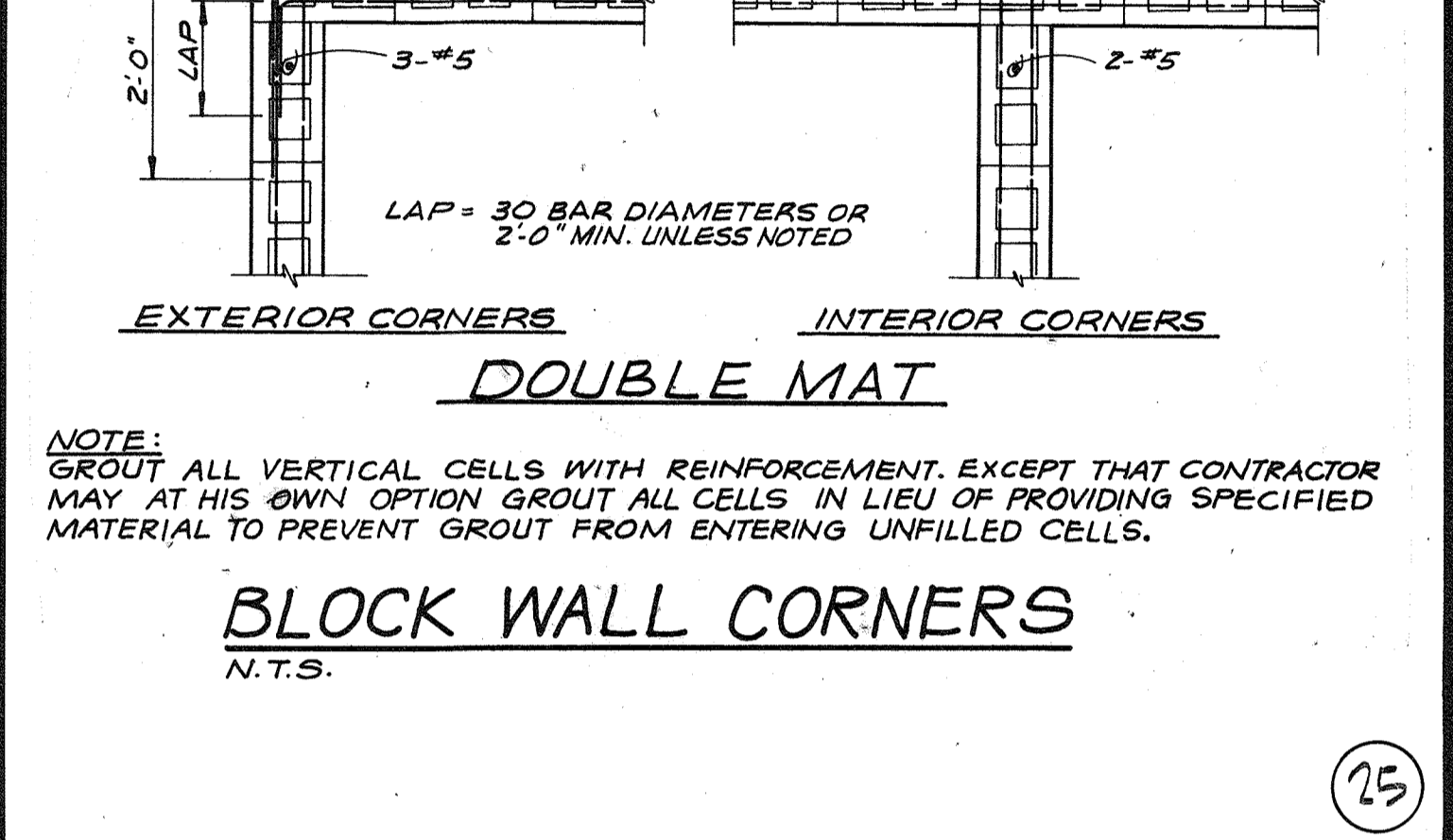
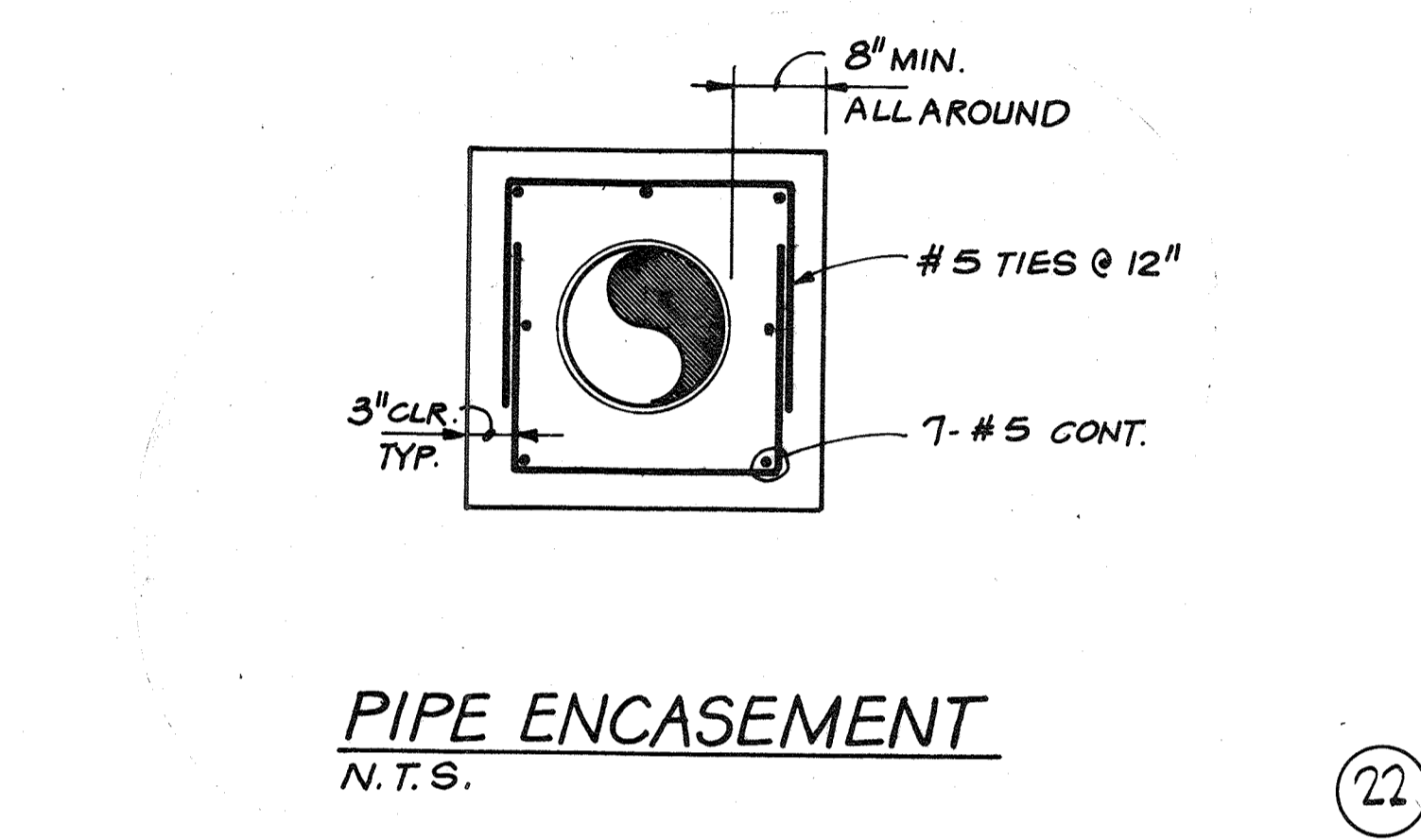
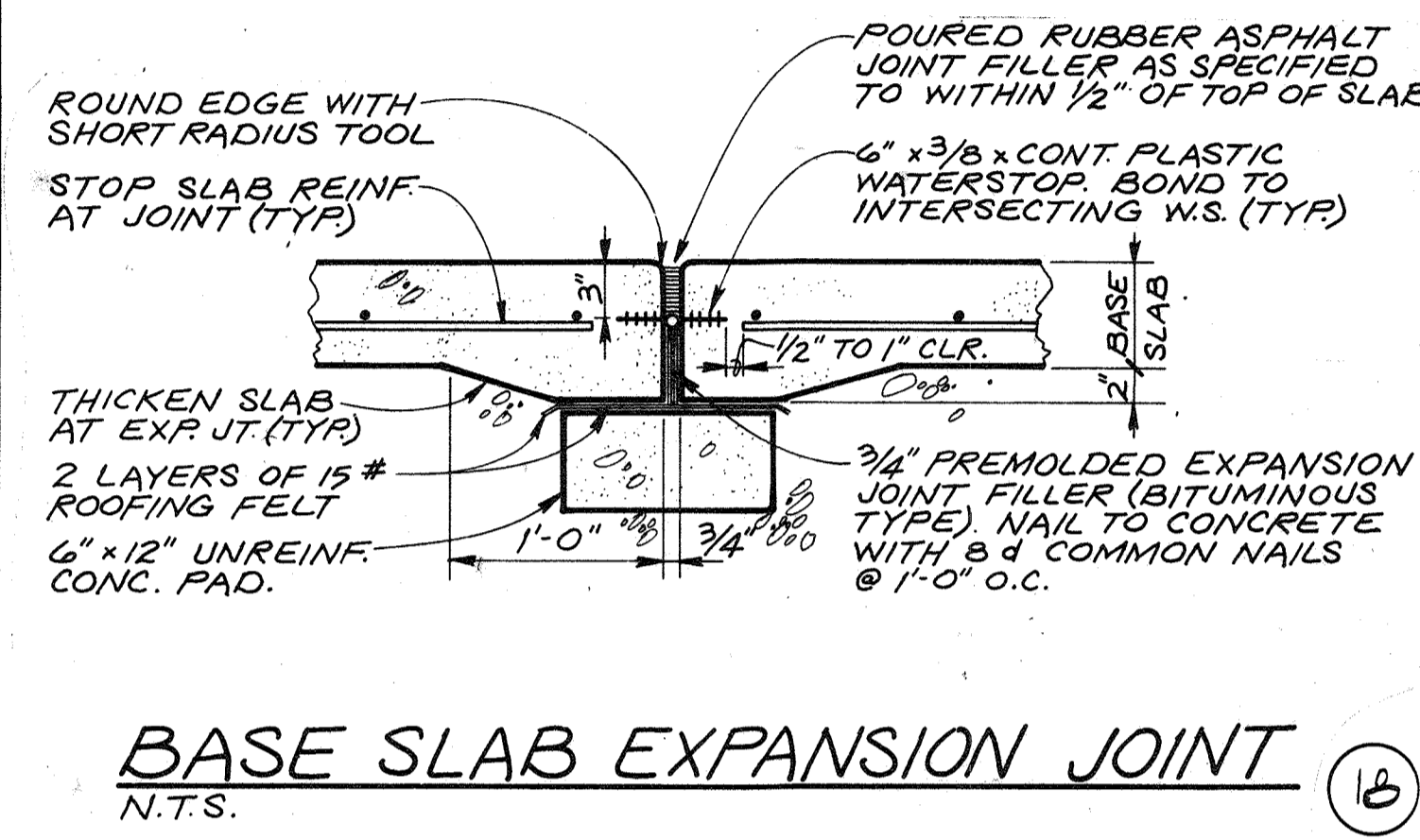
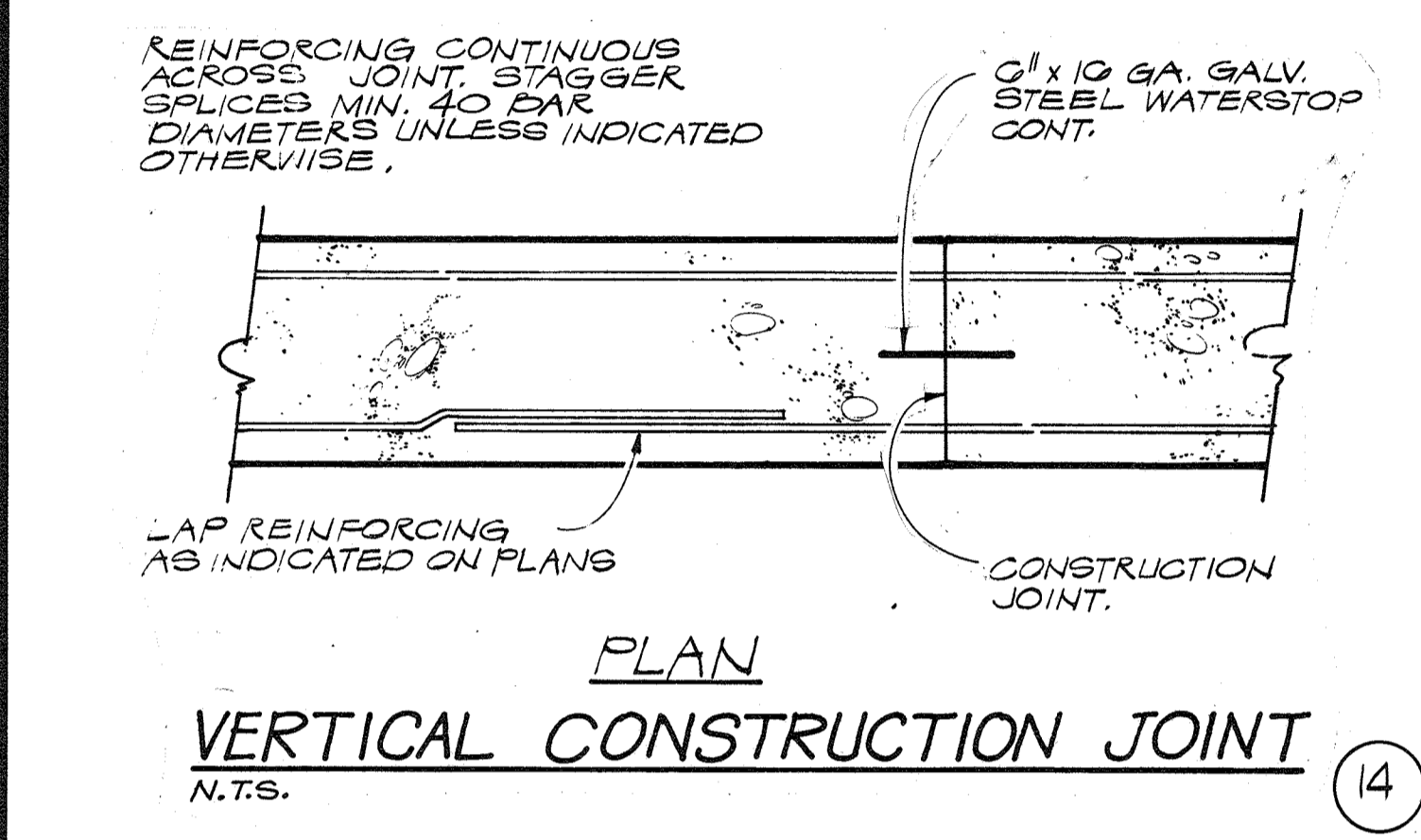
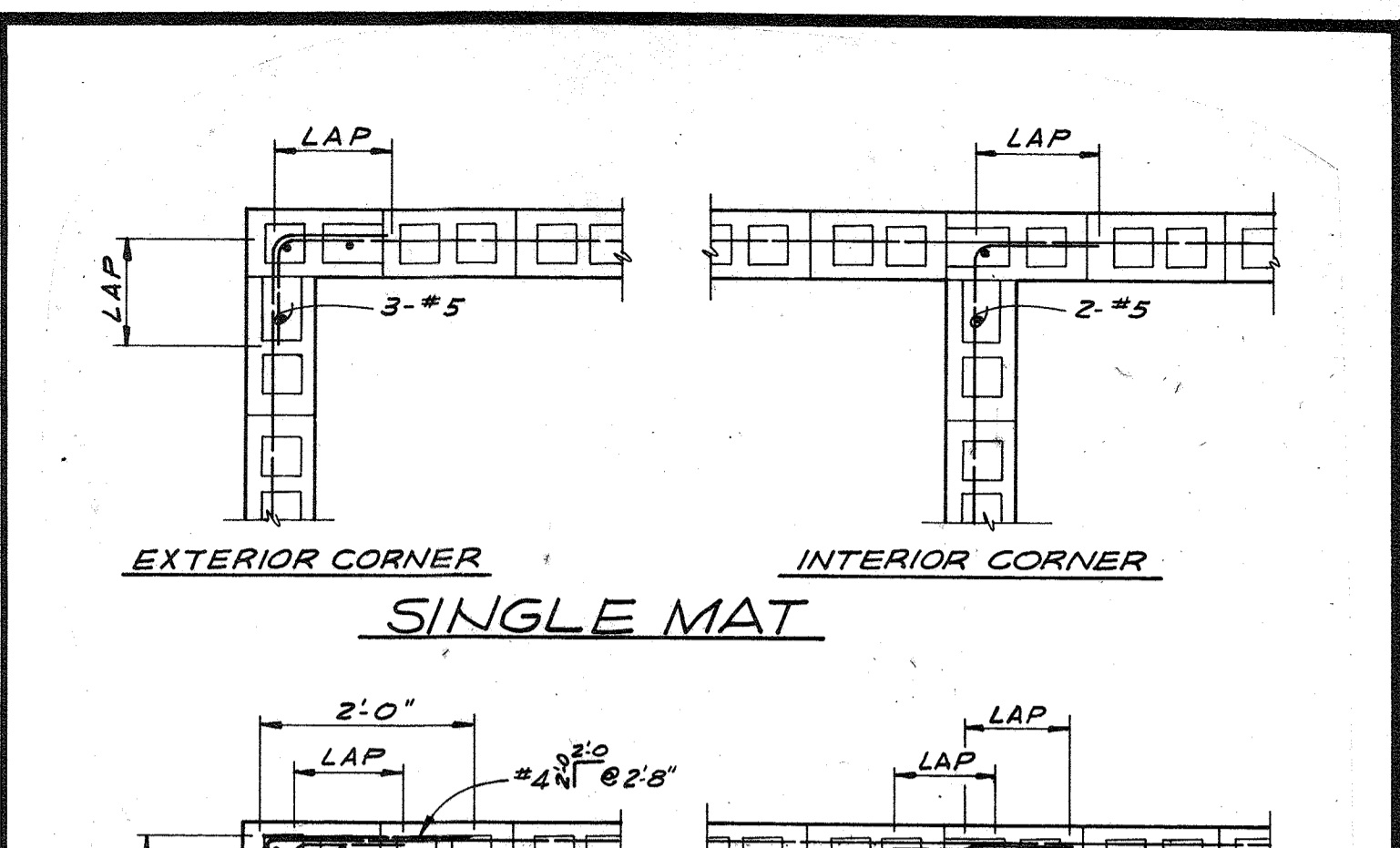
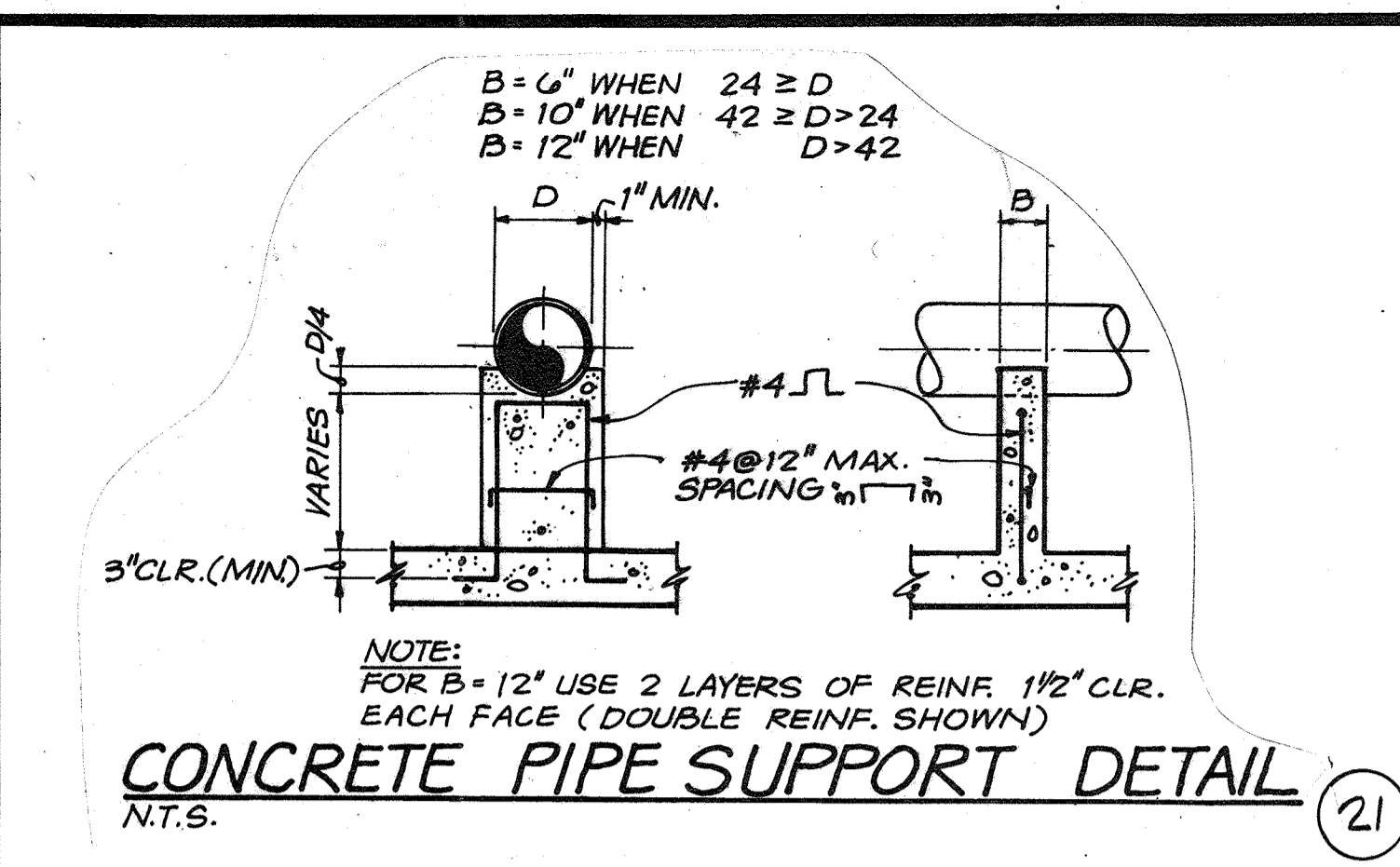
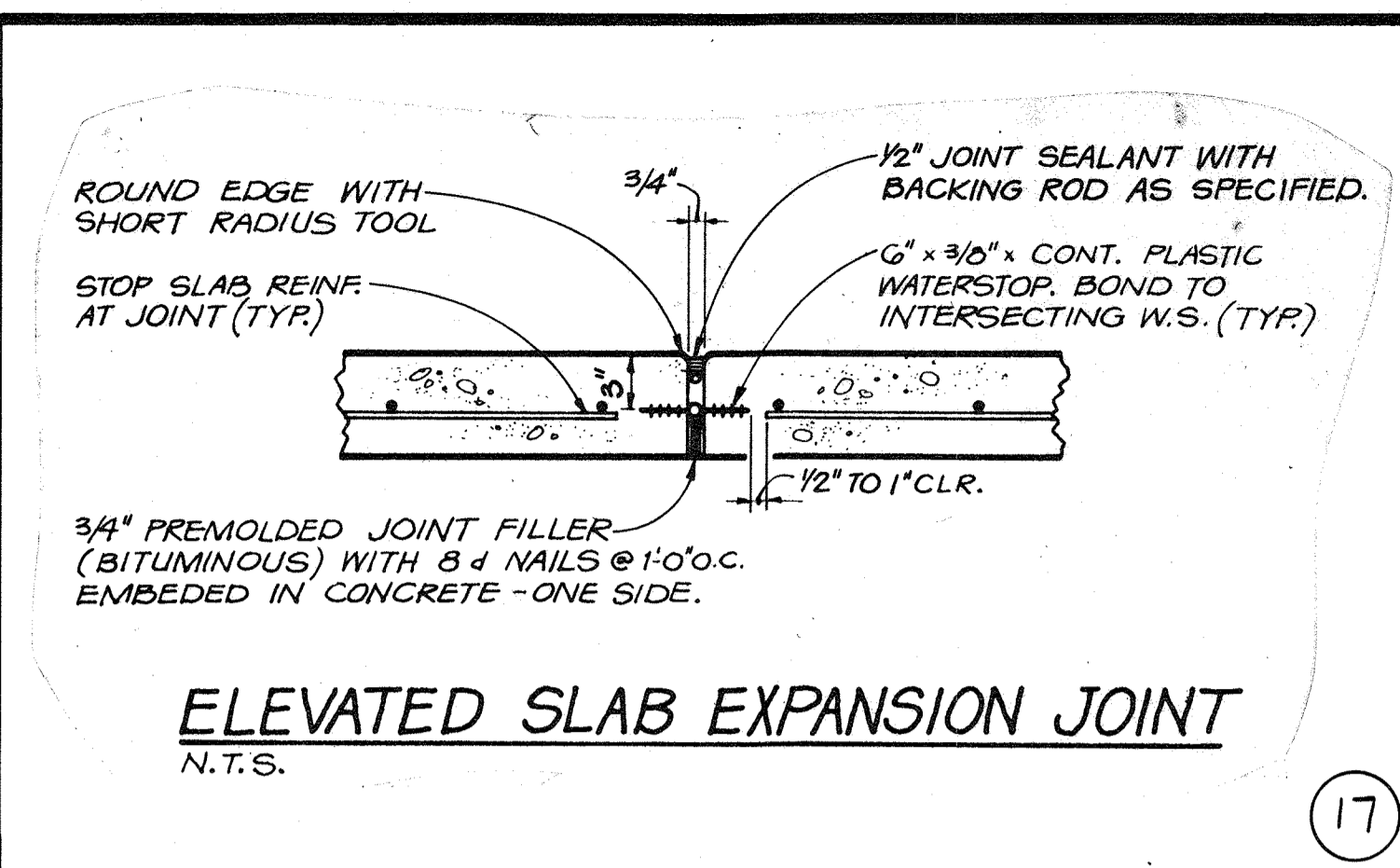
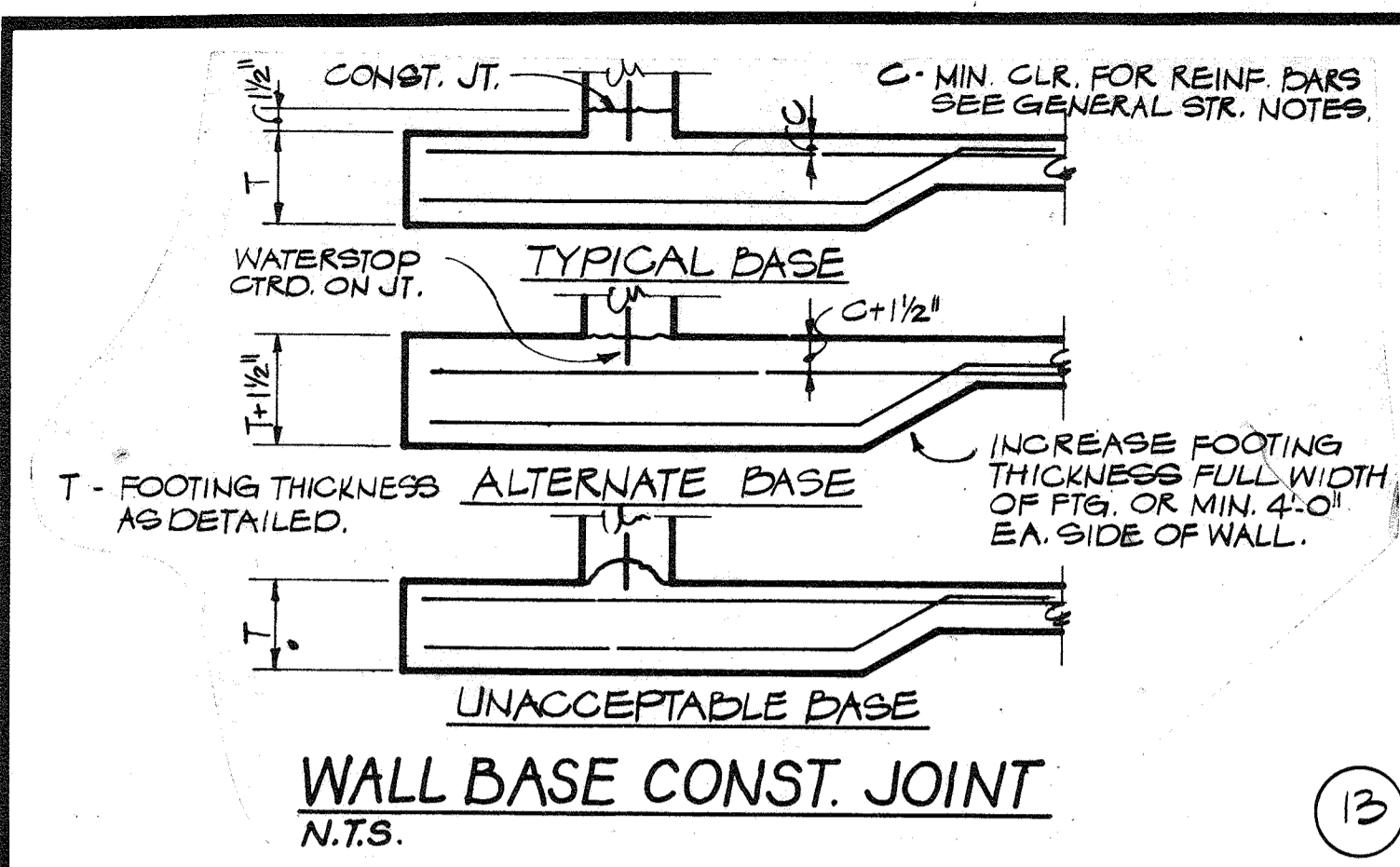
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 763-S

STANDARD DETAILS
STRUCTURAL

SHEET OF D-1
DATE 8-78
DWG. NO. W1078.C1



| | | | | | |
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| DES. RAH | | | | | |
| DR. MAW | | | | | |
| CHK. | | | | | |
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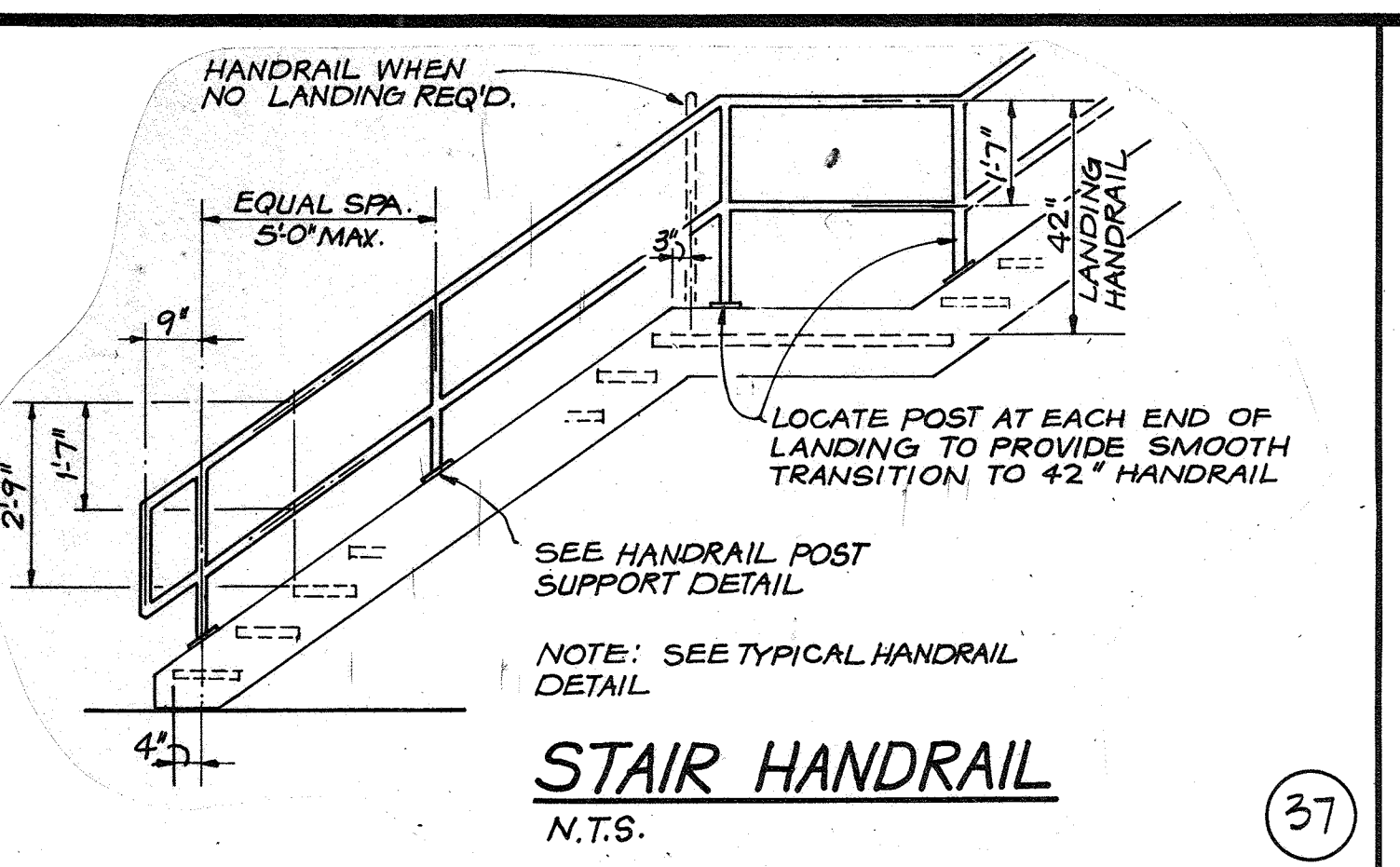
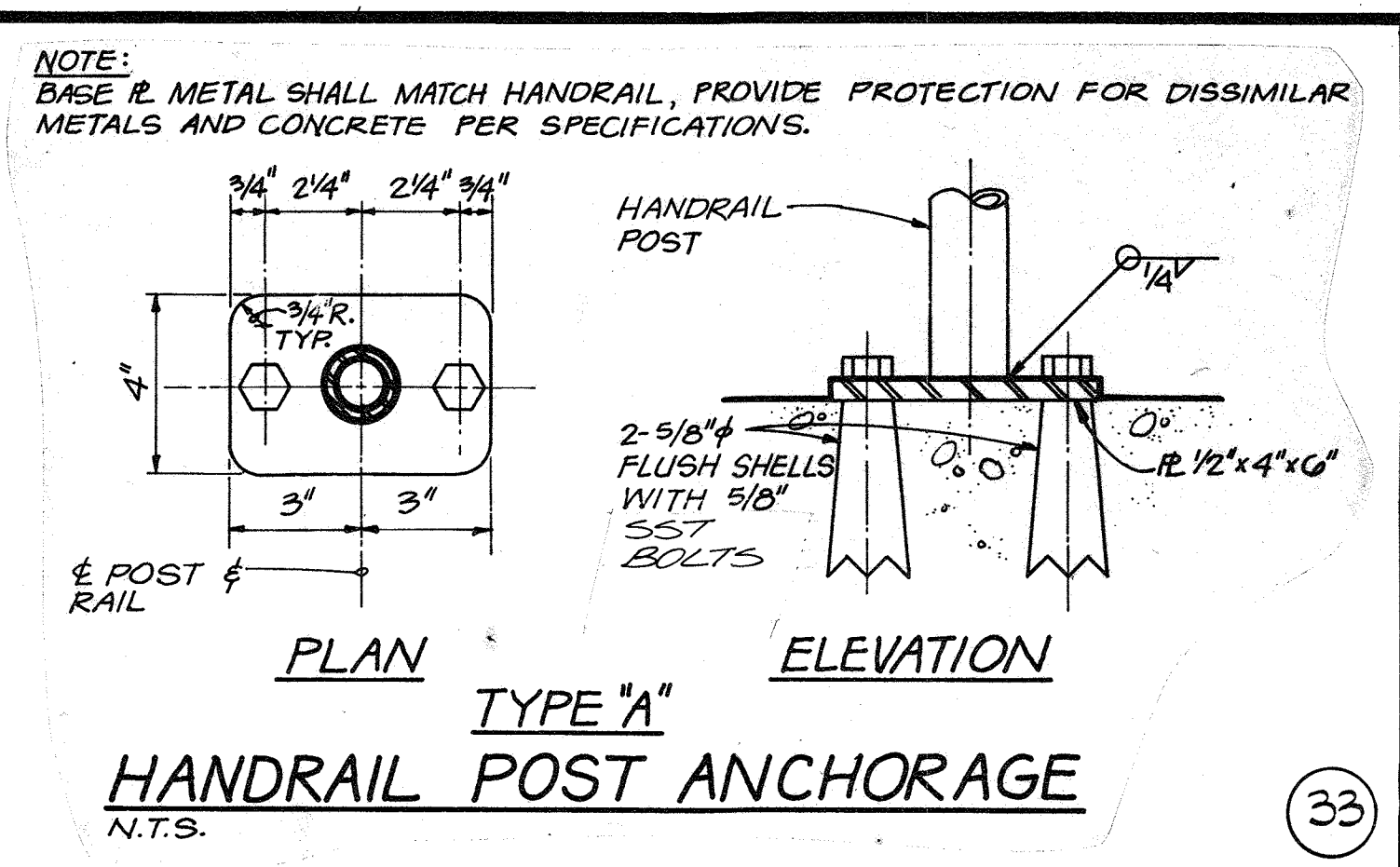
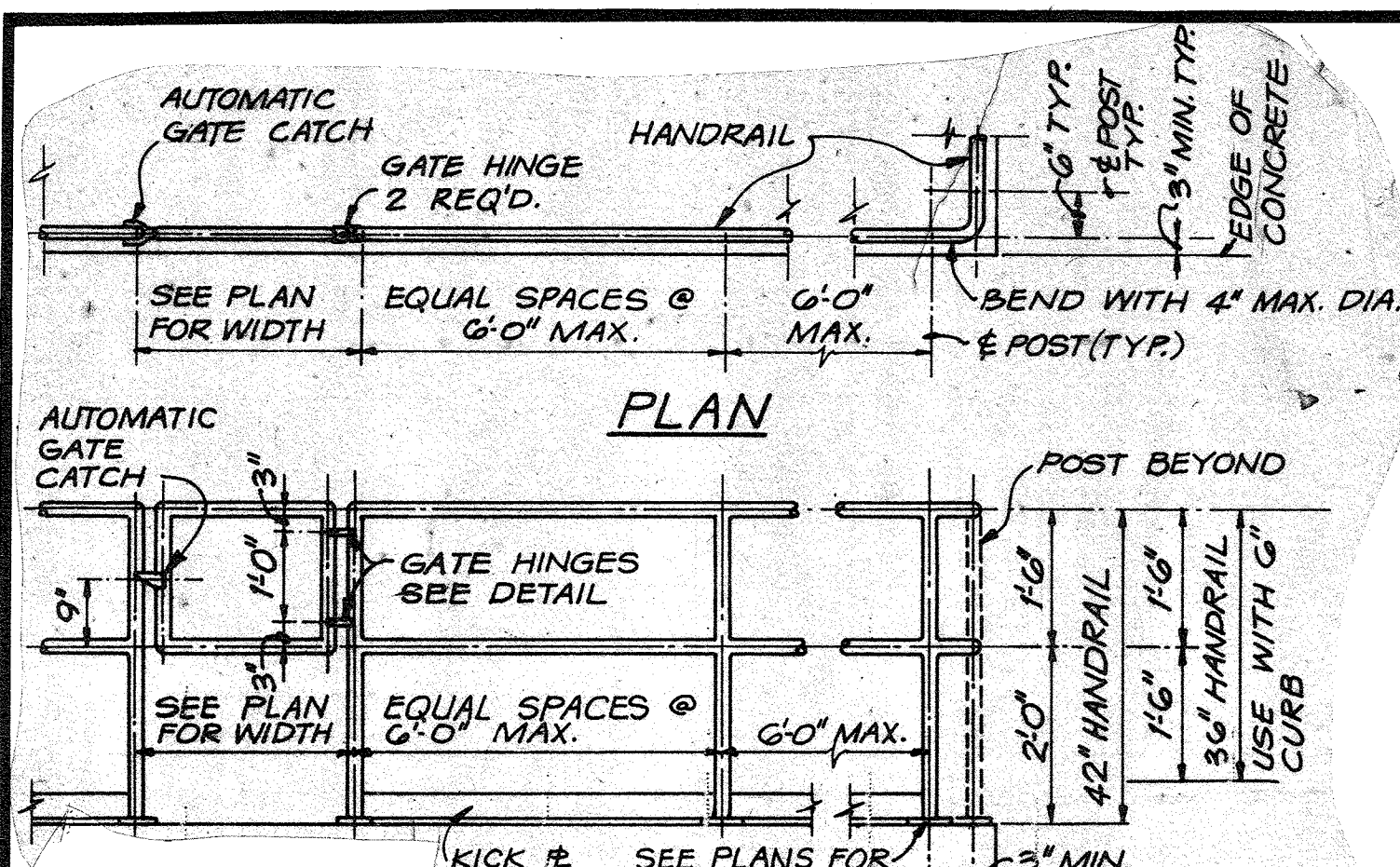


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HOWARD COUNTY, MARYLAND
5/29/79
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SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 763-S

RECORD DRAWING
STANDARD DETAILS
STRUCTURAL
SHEET OF D-2
DATE 8-78
DWG. NO. W1078.C1



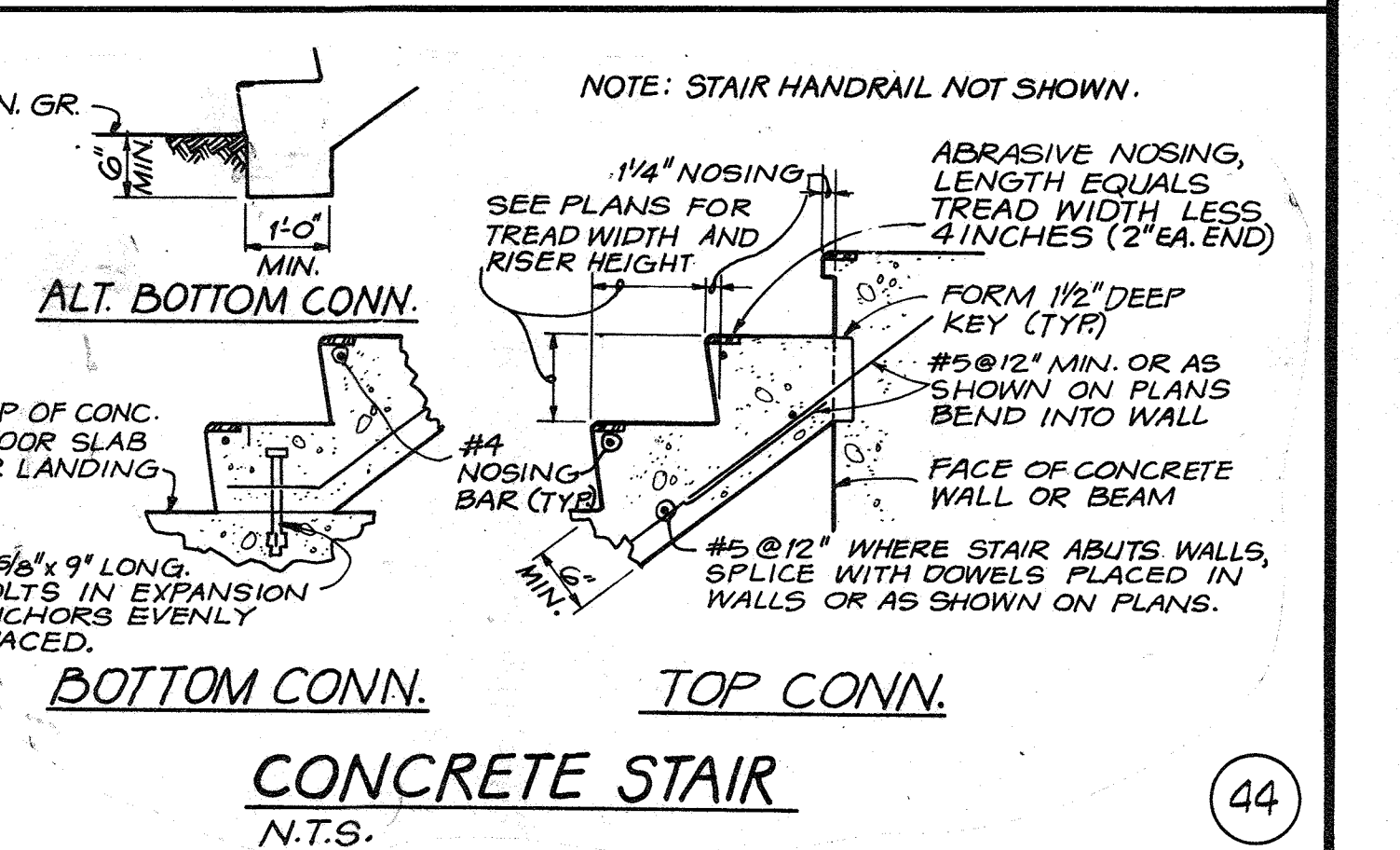
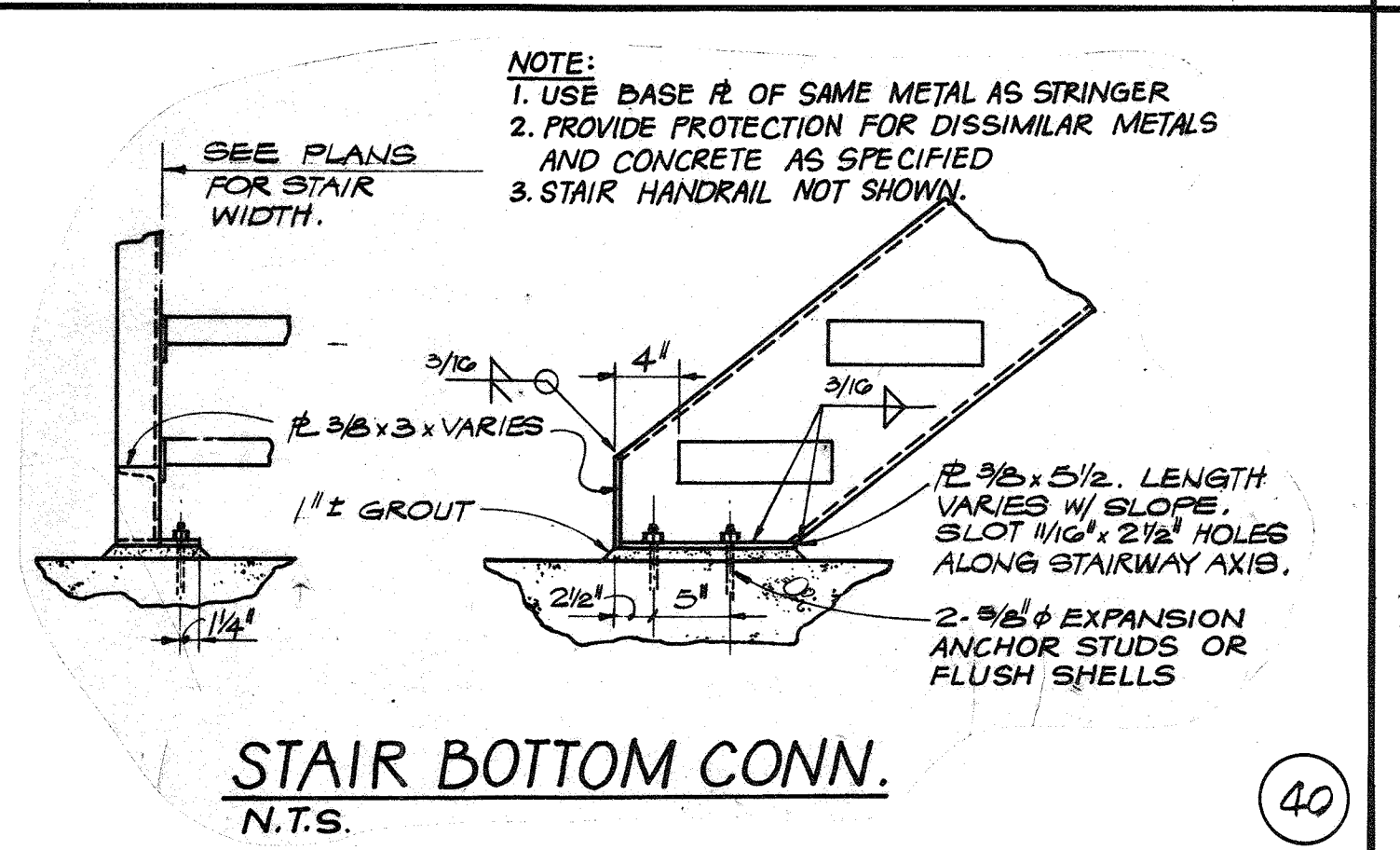
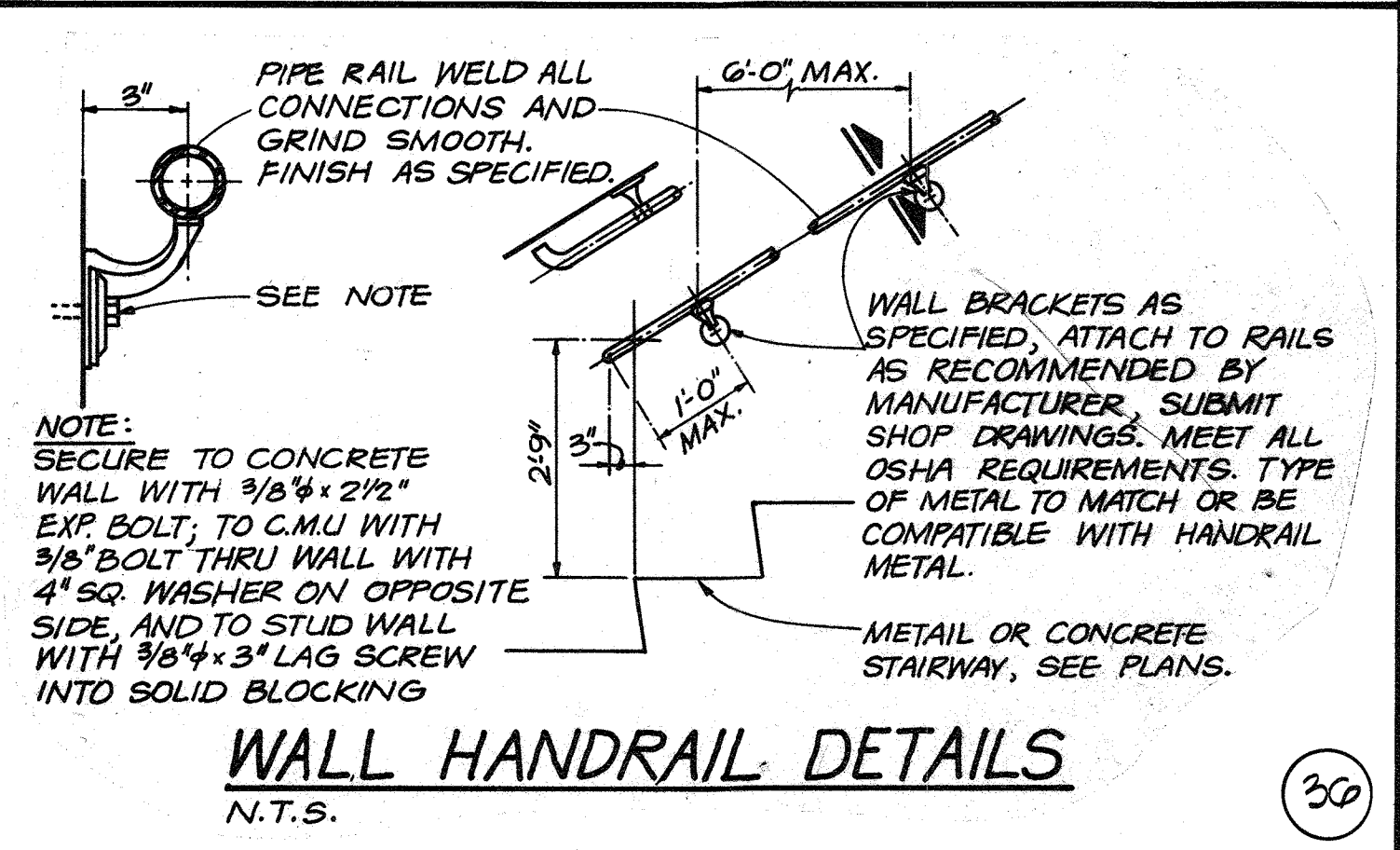
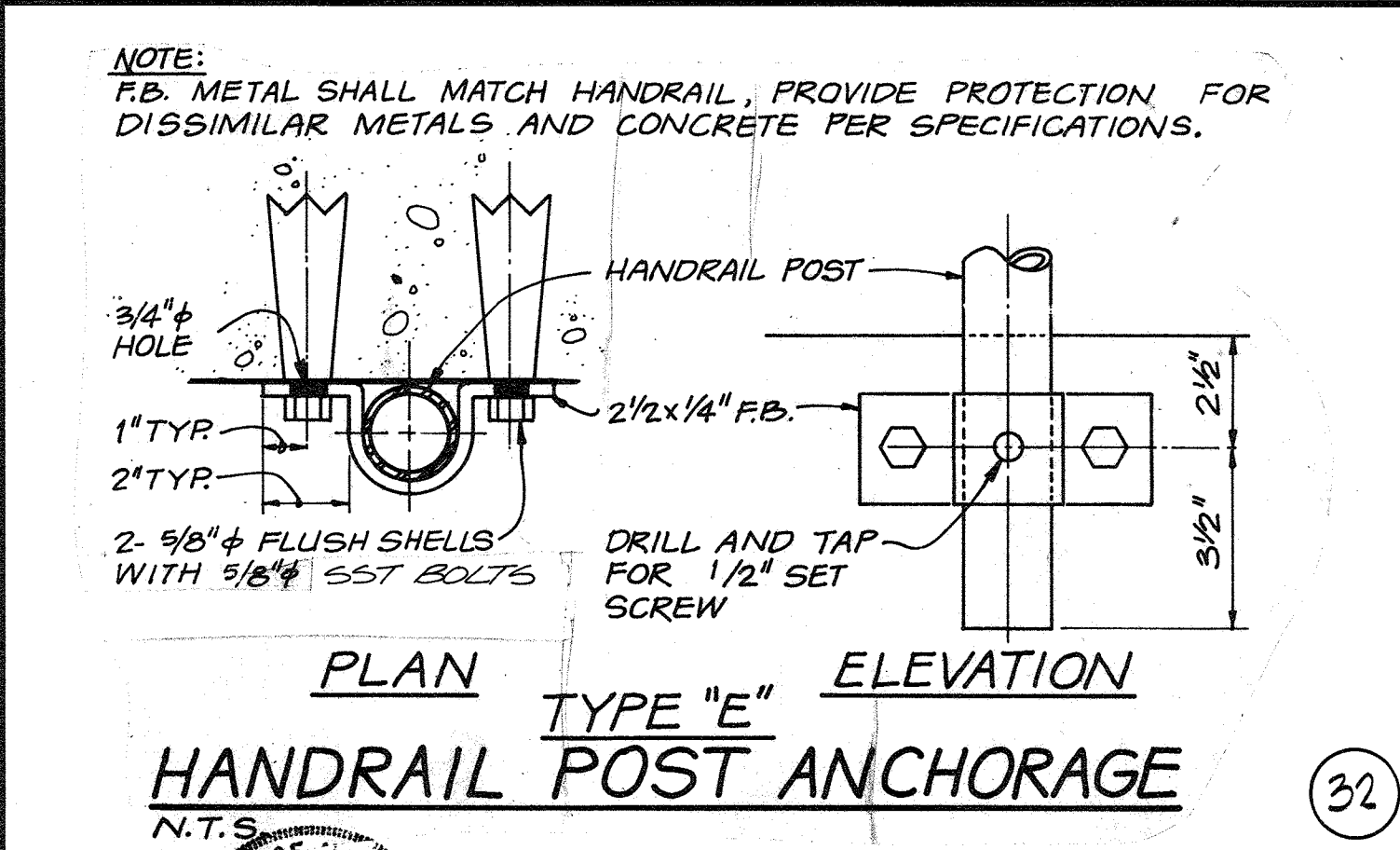
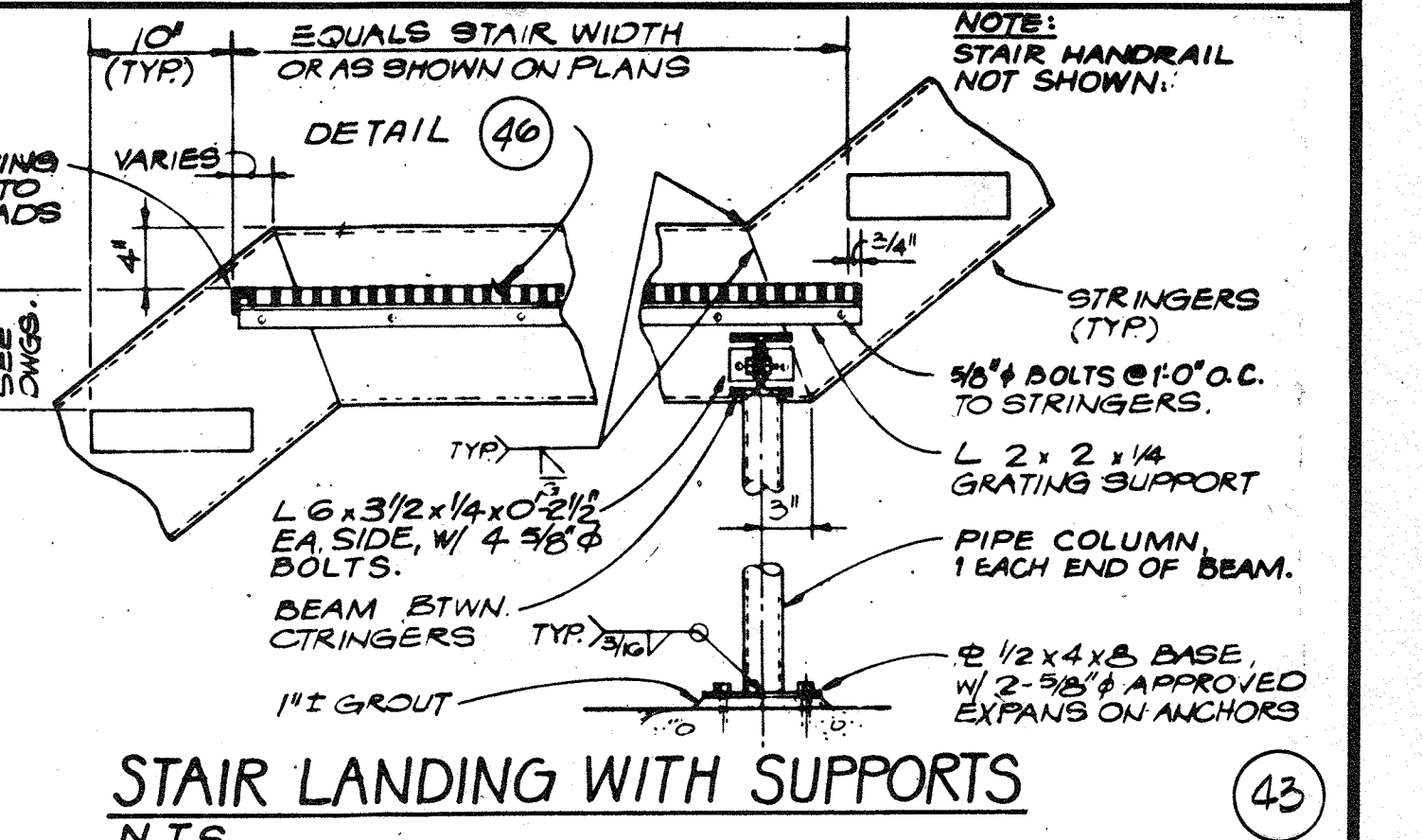
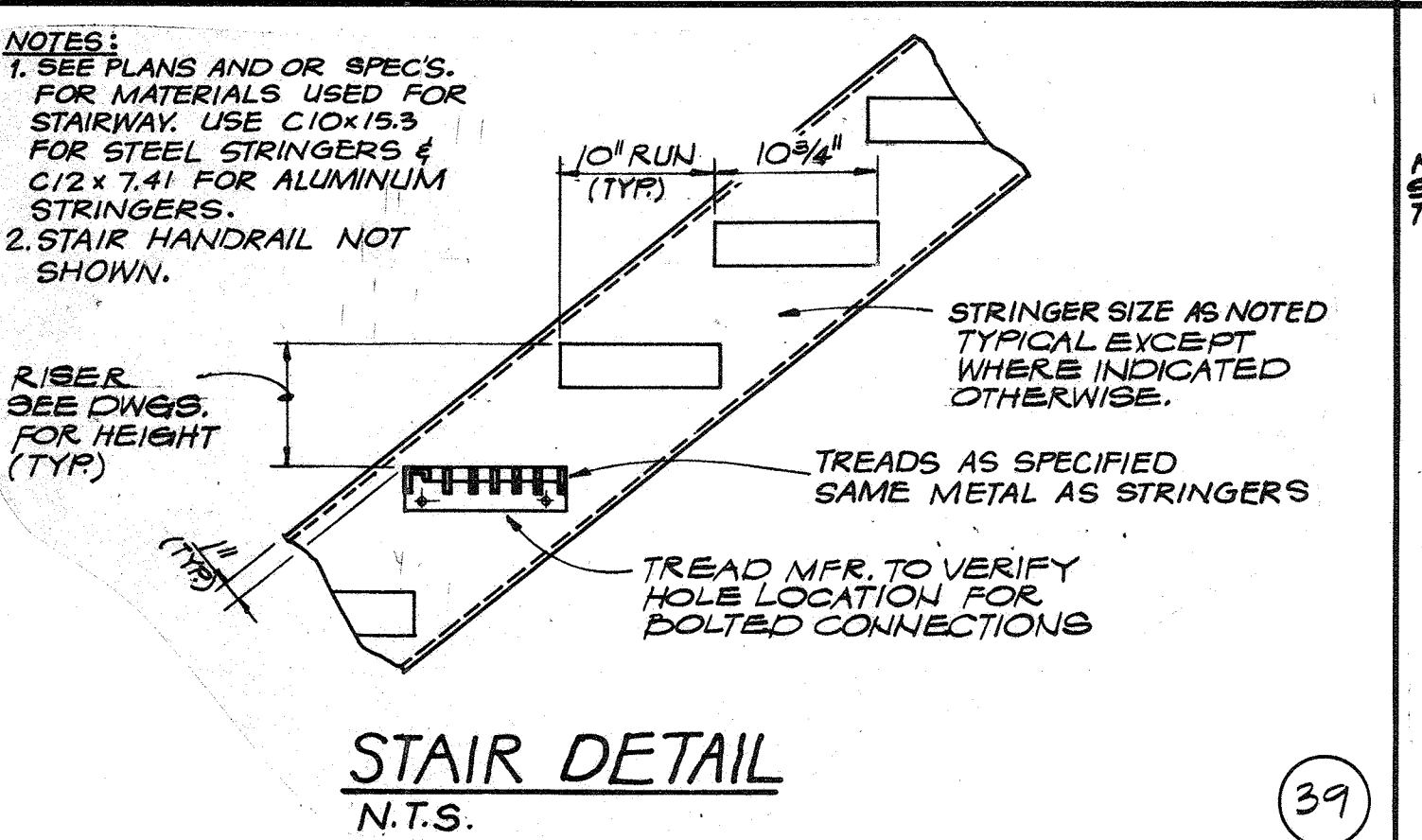
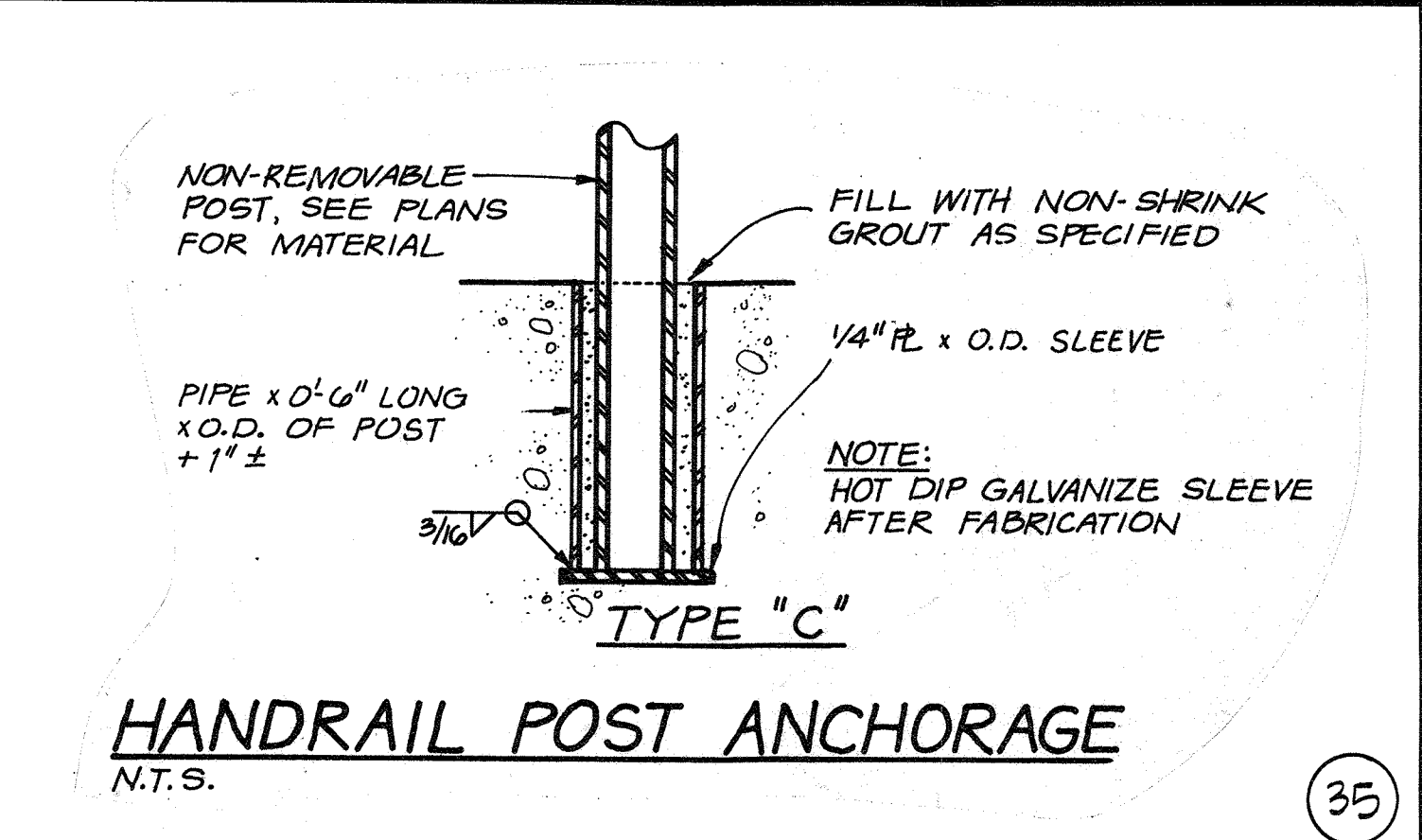
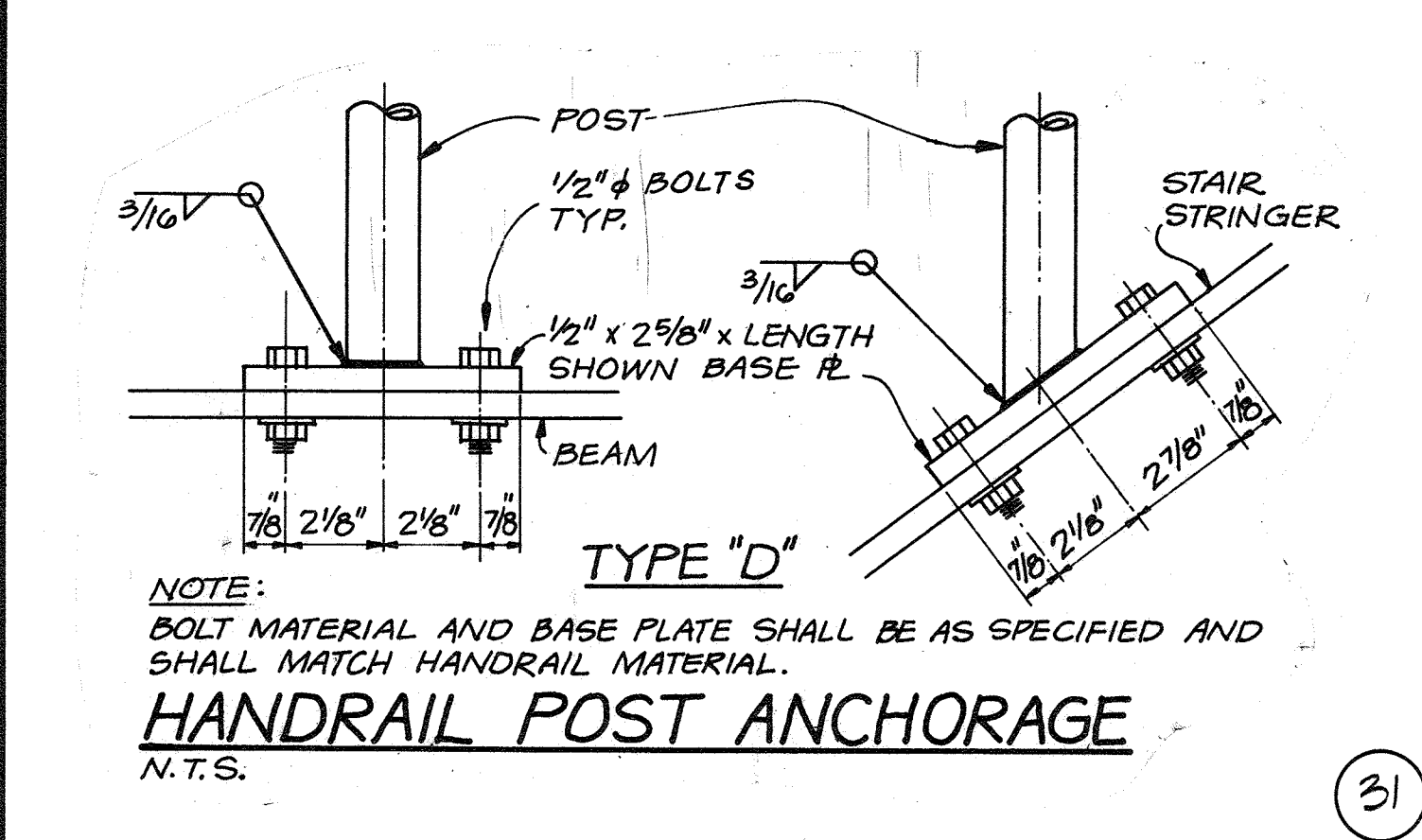
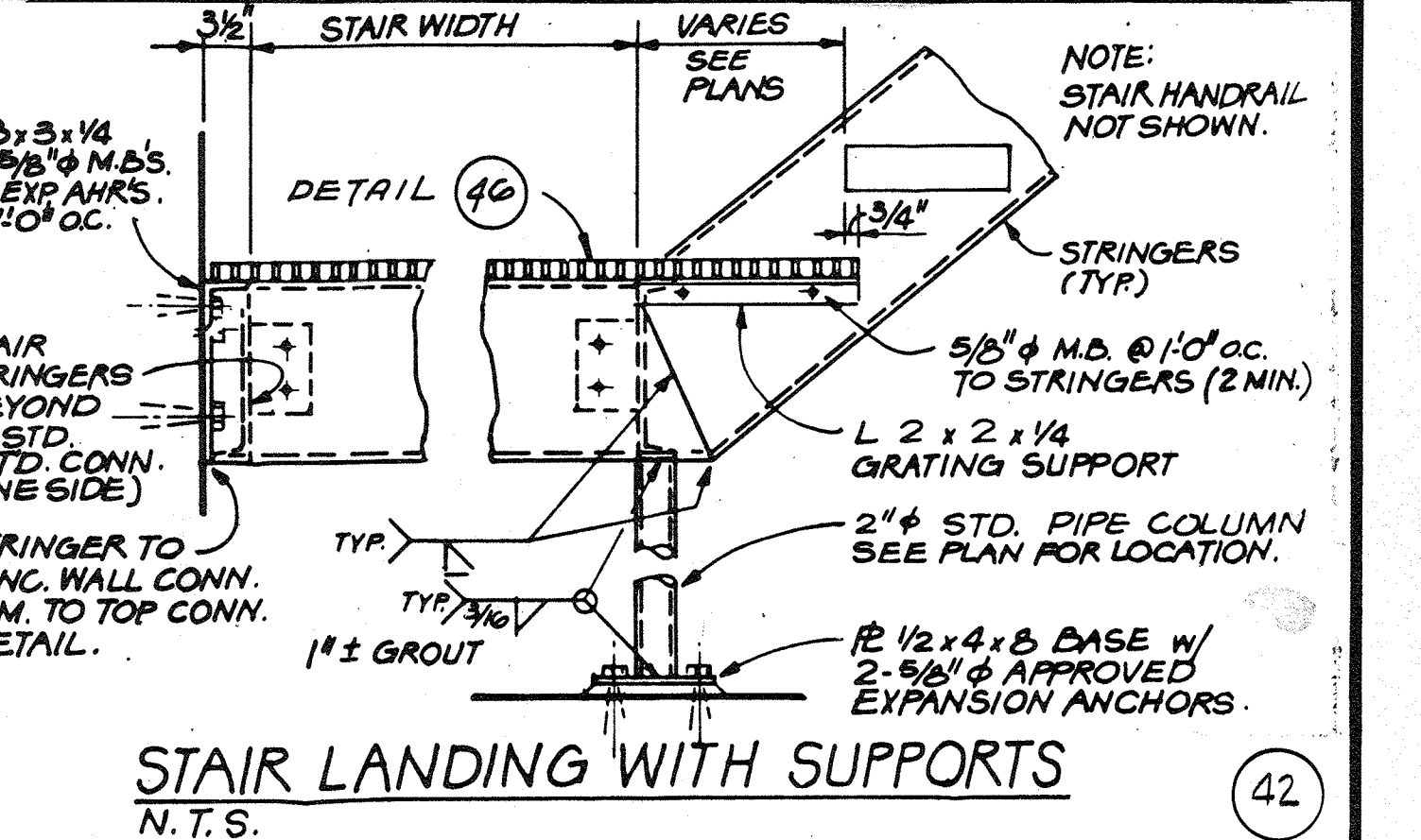
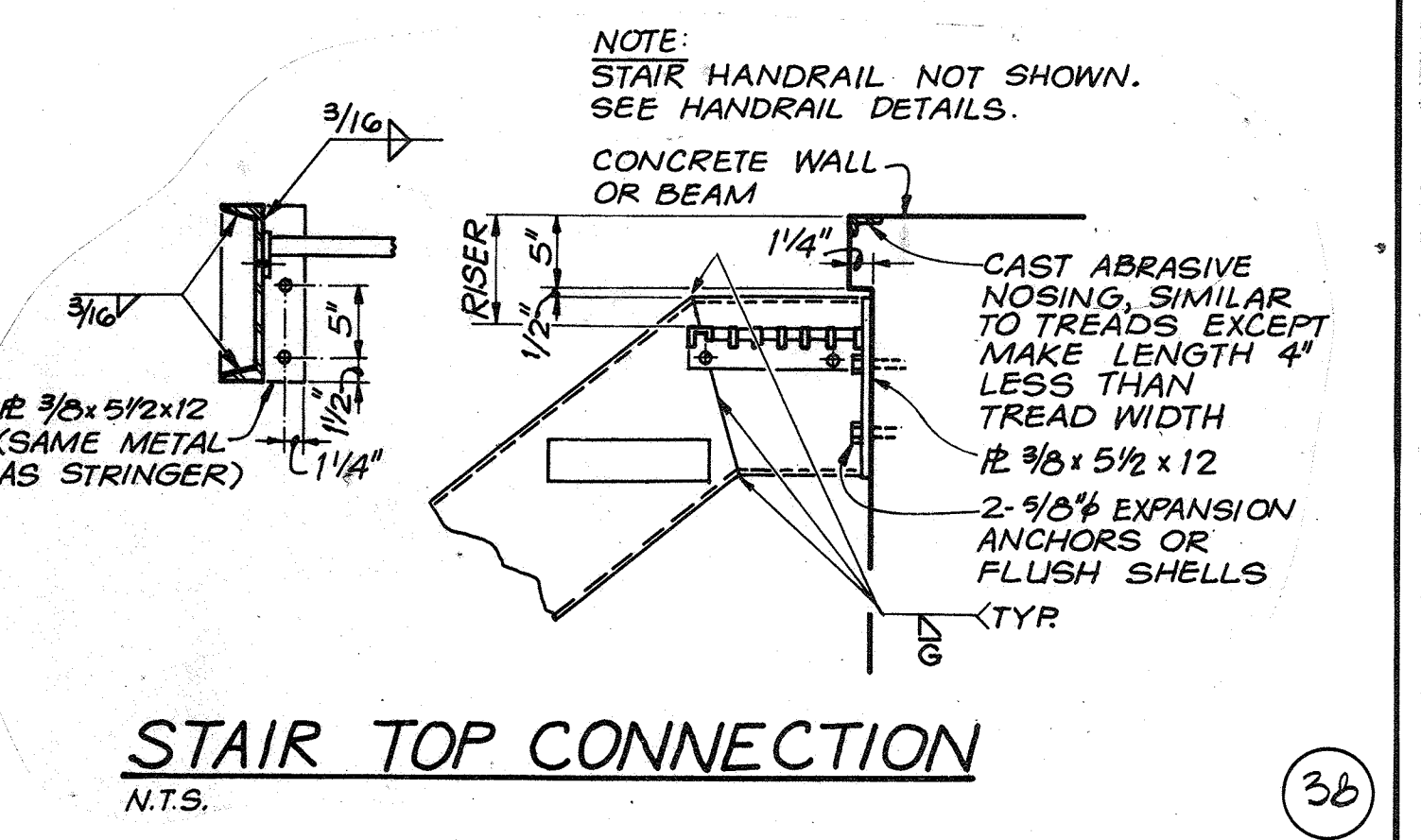
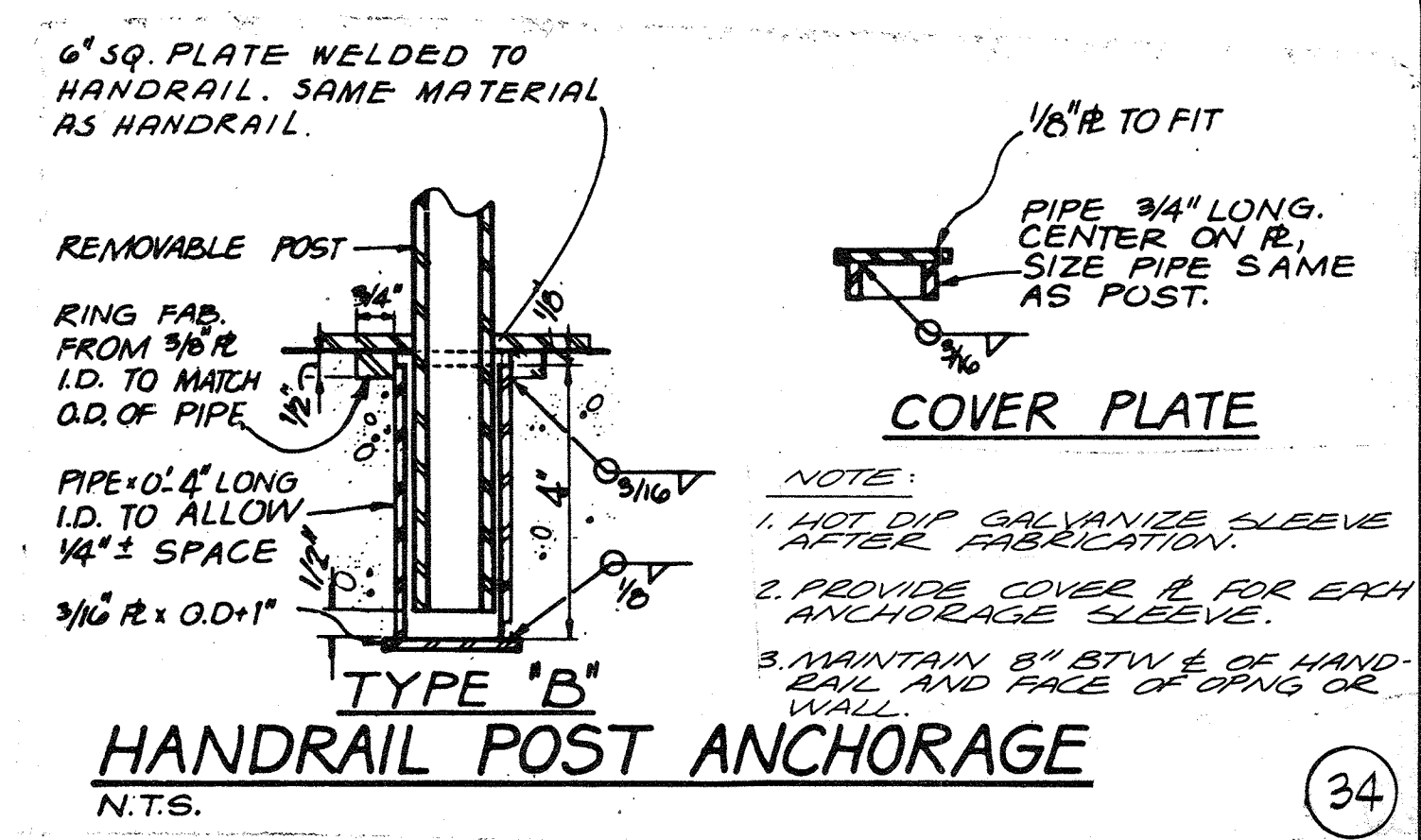
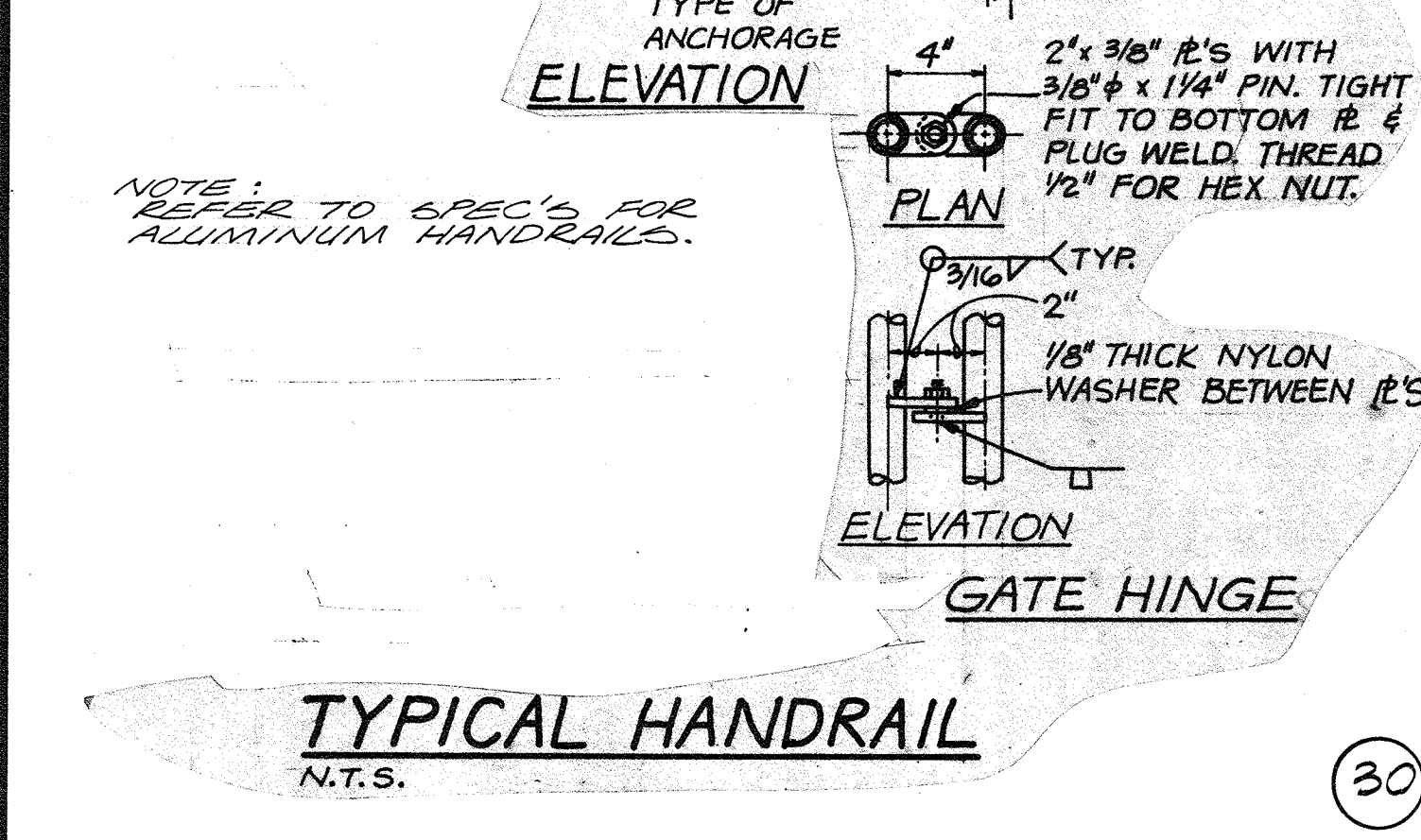
3" CLEAR FROM ANY OBJECT

TREAD (AS SPECIFIED SAME METAL AS STRINGERS)

3'-0" UNLESS OTHERWISE NOTED ON PLANS

| STAIRWAY WIDTH | BEARING BARS | |
|----------------|----------------|----------------|
| | ALUMINUM TREAD | STEEL TREAD |
| 2'-3" OR LESS | 1" x 3/16" | 3/4" x 3/16" |
| 2'-9" OR LESS | 1 1/4" x 3/16" | 1" x 3/16" |
| 3'-3" OR LESS | 1 1/2" x 3/16" | 1 1/4" x 3/16" |
| 4'-7" OR LESS | 1 3/4" x 3/16" | 1 1/2" x 3/16" |

STAIR TREADS
N.T.S.



| | |
|----------|--|
| DES. RAH | |
| DR. MAW | |
| CHK. | |
| APPD. | |

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|----------------|----------|
| NO. | DATE |
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HOWARD COUNTY, MARYLAND

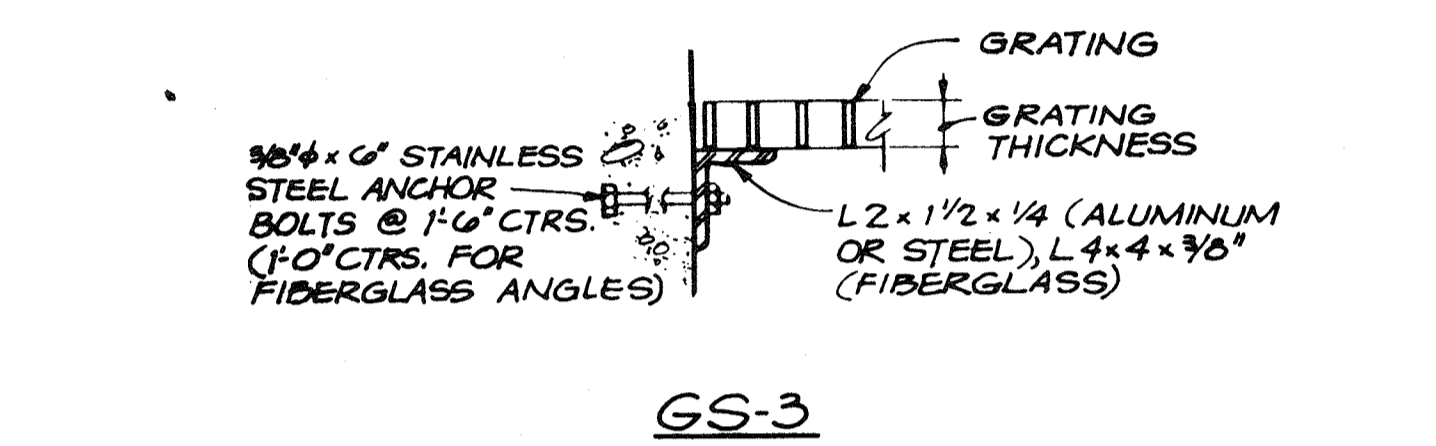
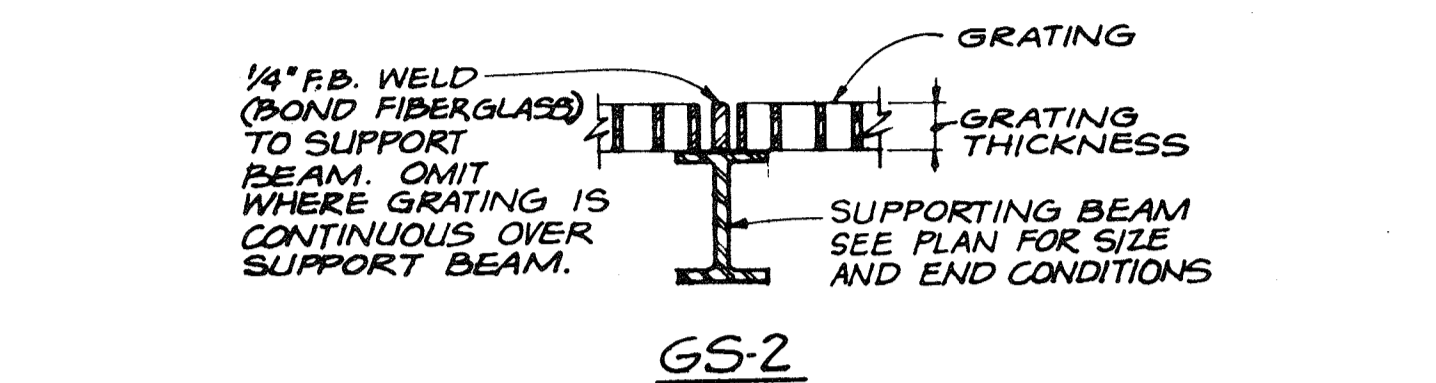
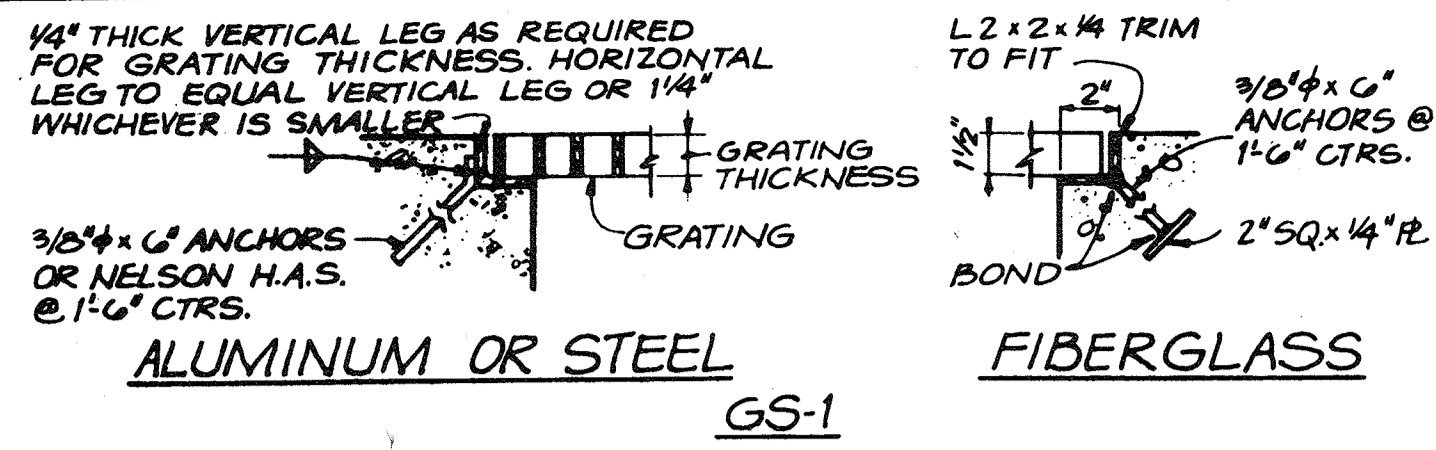
5/29/79
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SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

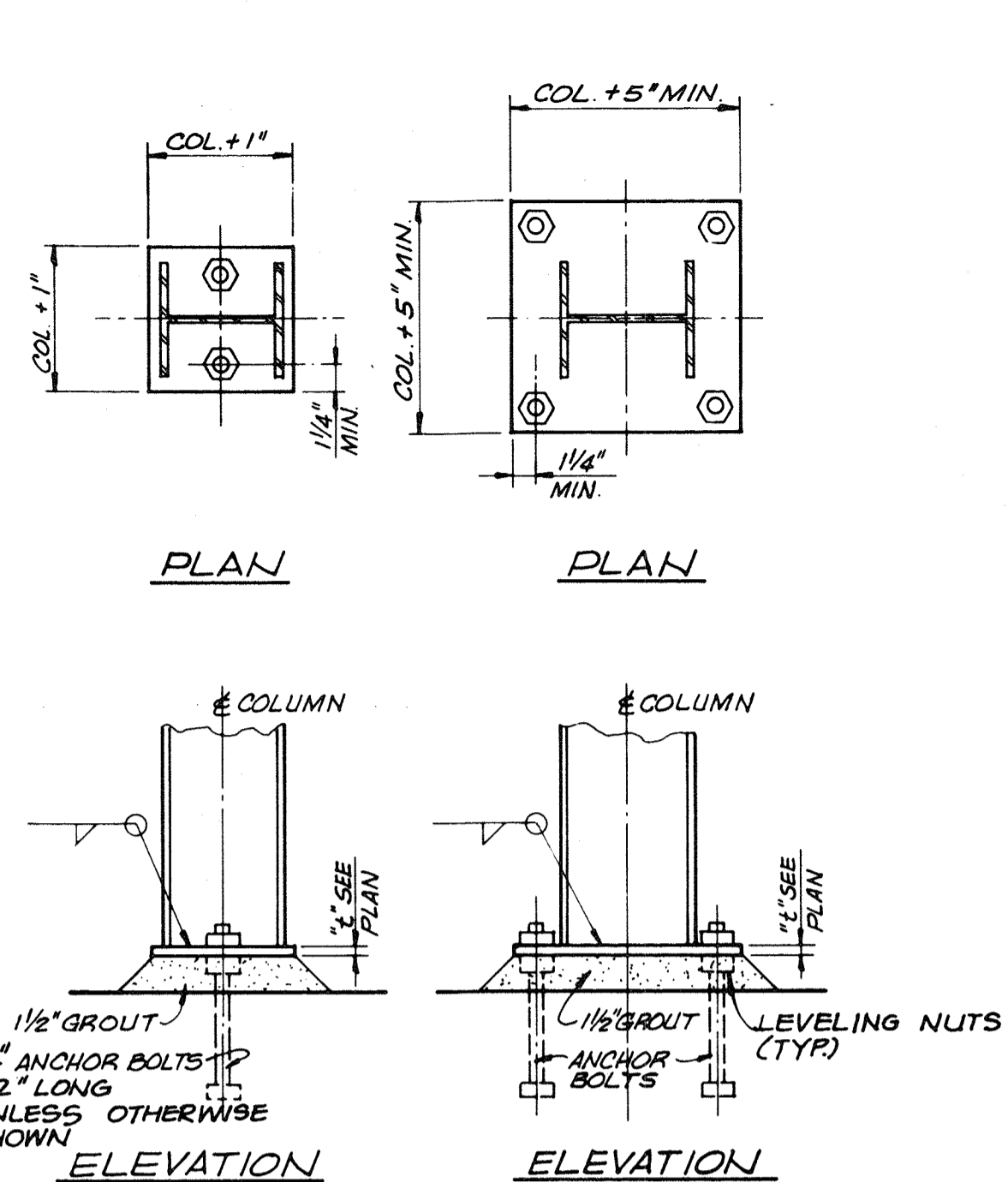
STANDARD DETAILS
STRUCTURAL

SHEET OF D-3
DATE 8-78
NO. W1078.C1



GRATING SUPPORT
N.T.S.

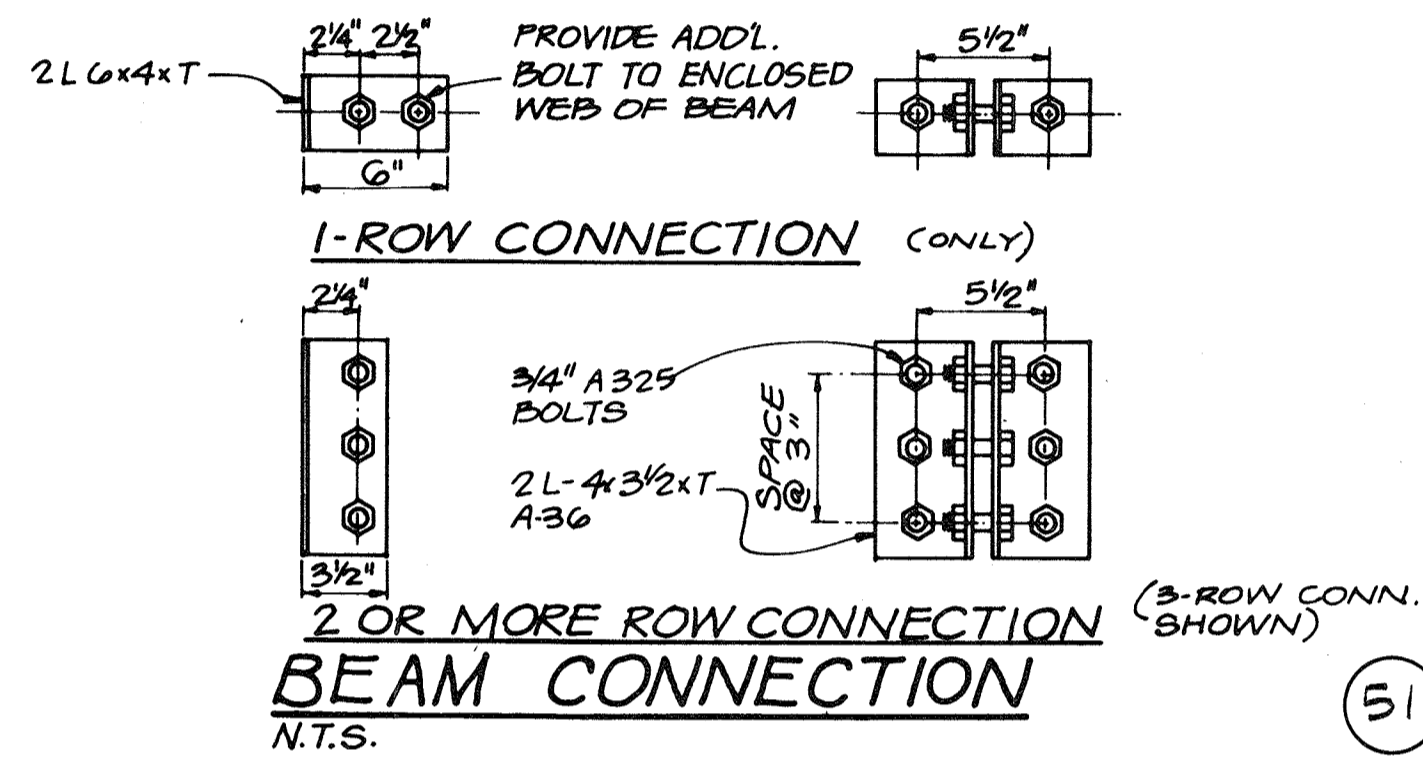
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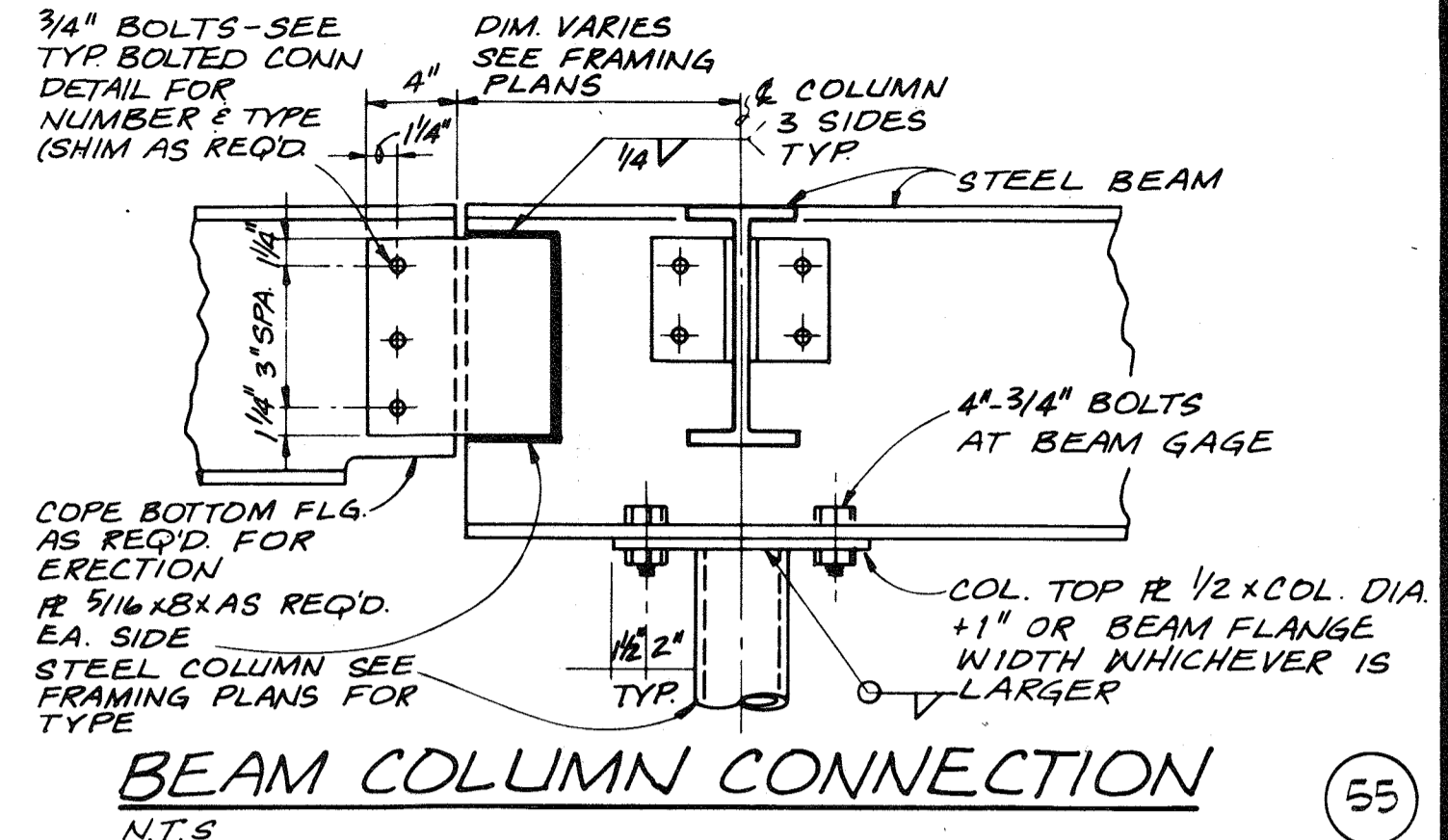
47

| NOMINAL BEAM DEPTH | ROWS OF BOLTS | LENGTH OF ANGLE | T |
|----------------------------------|---------------|-----------------|------|
| W 33, 36 | 9 | 2'-2 1/2" | 3/8" |
| W 30, 27, 24 | 7 | 1'-8 1/2" | 3/8" |
| W 21, 18 S 24, 20, 18 C 15 | 5 | 1'-2 1/2" | 3/8" |
| W 16 S 15 C 15 | 4 | 11 1/2" | 1/4" |
| W 14, 12 S 12 C 12 | 3 | 8 1/2" | 1/4" |
| W 10, 8 S 10, 8 C 10, 9, 8 | 2 | 5 1/2" | 1/4" |
| W 6 S 7, 6, 5 C 7, 6, 5 | 1 | 3" | 1/4" |

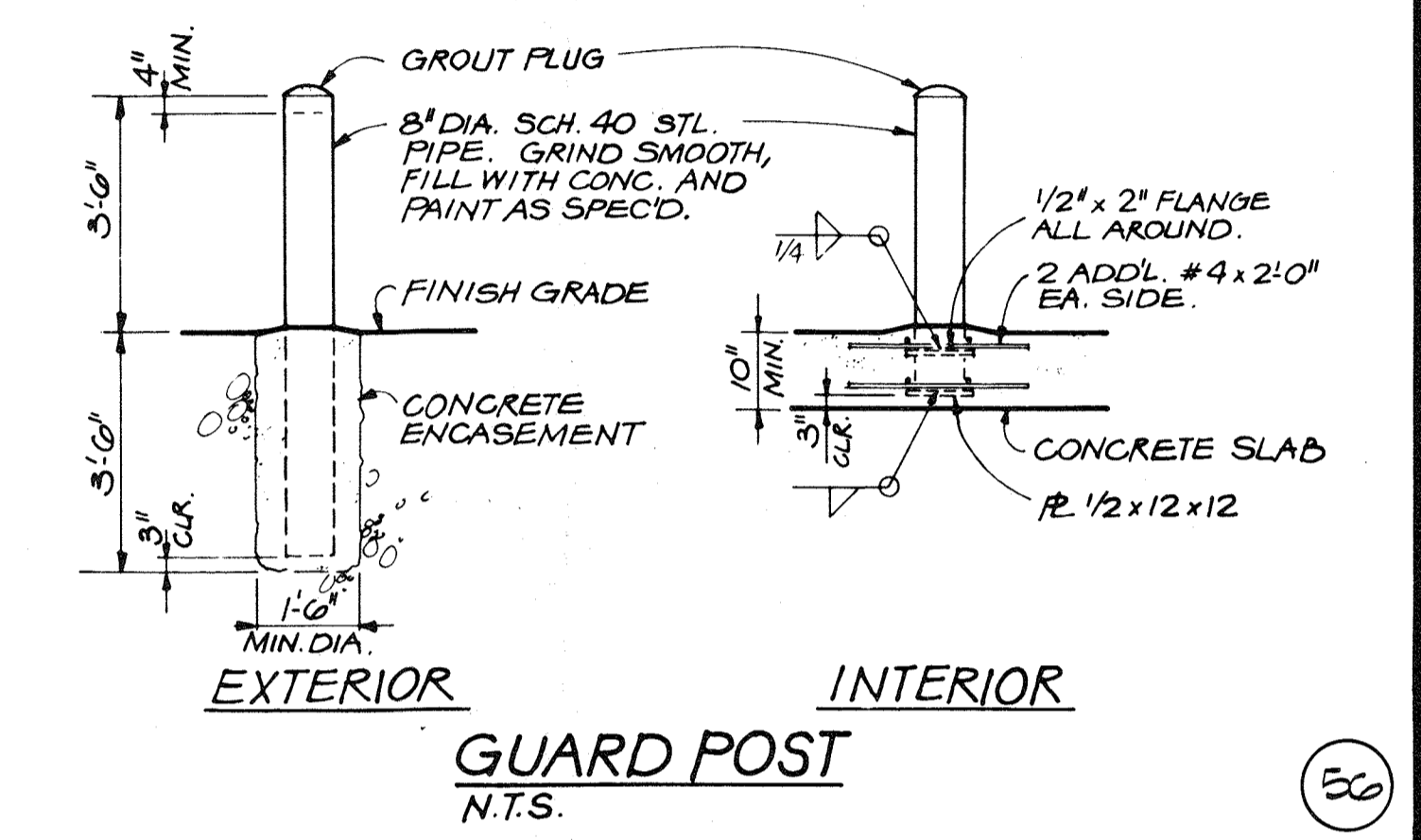
NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSED WEB



51



55



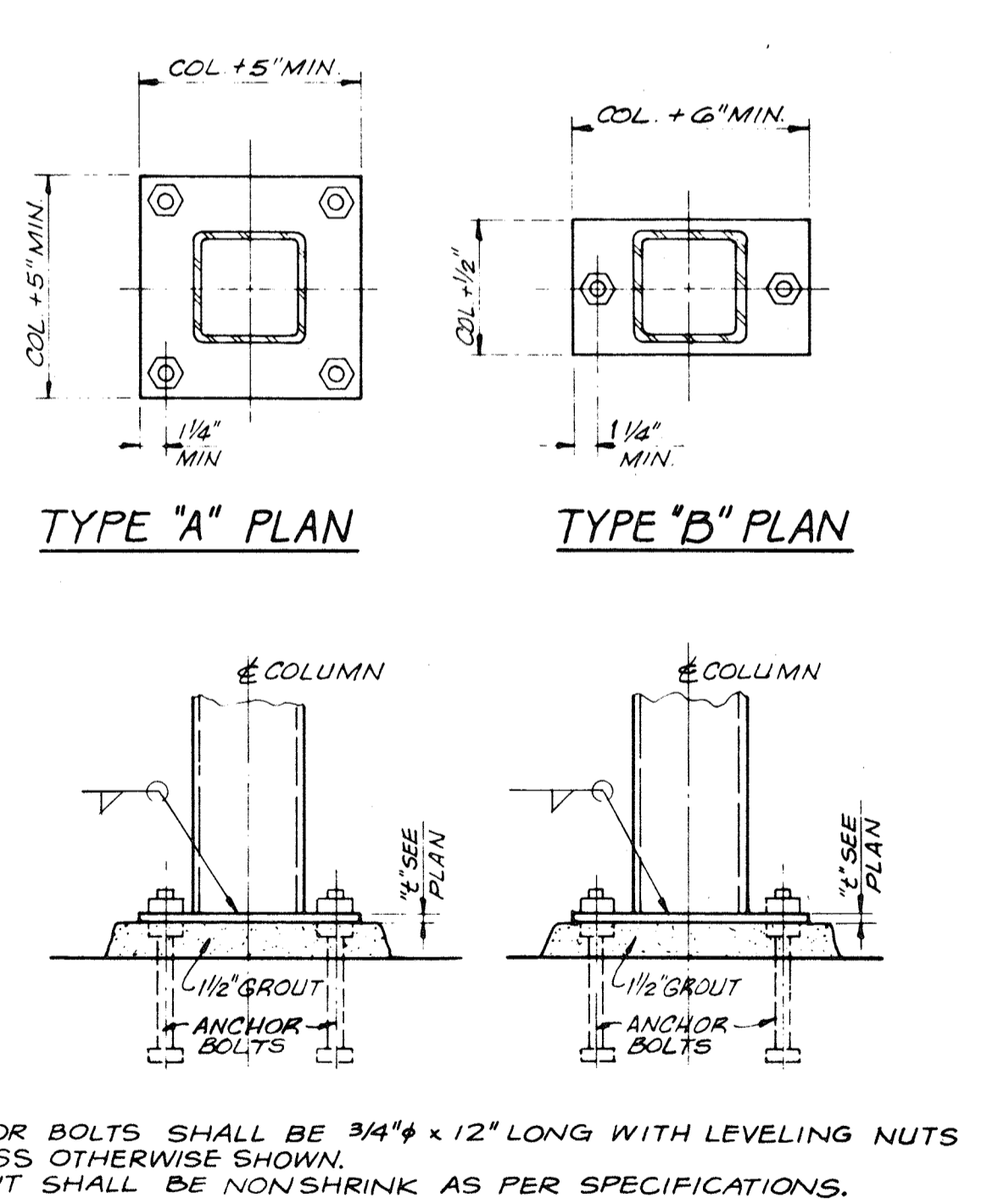
56

GRATING NOTES

- EXTEND GRATING CONTINUOUSLY OVER GATE GUIDES AND GATES.
- NOTCH GRATING SUPPORTS AT GATES AS REQUIRED.
- GRATING SPAN ← SEE PLAN.
- NORMAL WIDTH OF GRATING SECTIONS SHALL BE BETWEEN 2'-0" AND 3'-0".
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER BASED ON FIELD DIMENSIONS PRIOR TO FABRICATION.
- MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING.
- STEEL GRATING AND SUPPORT TO BE GALVANIZED UNLESS NOTED OTHERWISE ON PLANS.
- UNLESS NOTED OTHERWISE ON PLANS, GRATING THICKNESS SHALL BE AS TABULATED IN "GRATING THICKNESS TABLE".
- BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM.
- BAND ALL EDGES WITH 1/4" x DEPTH OF BEARING BAR.
- PROVIDE MISCELLANEOUS GRATING FASTENERS AS REQUIRED.
- TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 3 TYPES ALTHOUGH ALL 3 MAY NOT BE INCLUDED IN PROJECT.

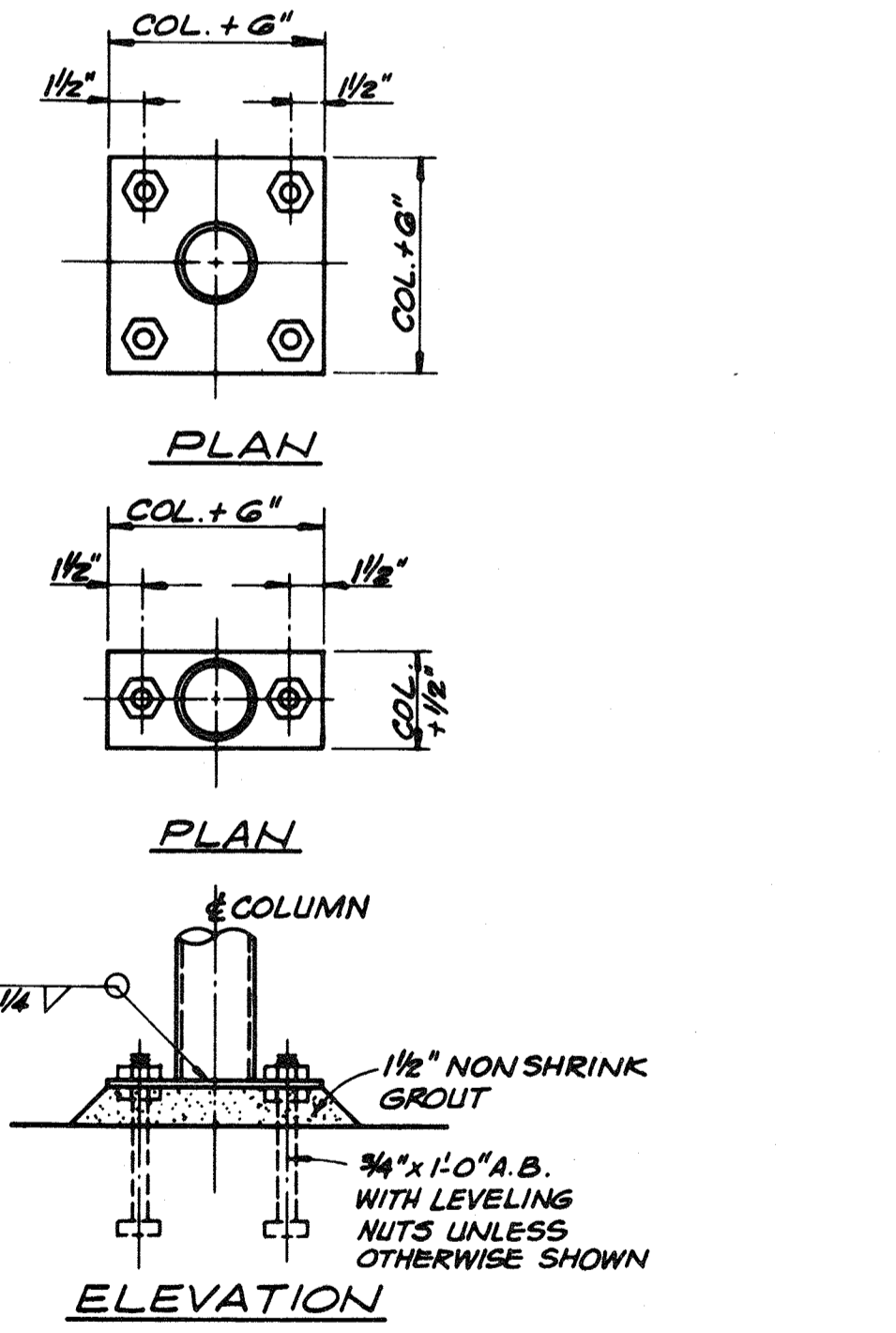
| MAXIMUM SPAN | ALUMINUM (IN) | STEEL (IN) | FIBERGLASS (IN) |
|--------------|---------------|------------|---------------------------------|
| 3'-6" | 1 1/2" | 1" | 1 1/2" |
| 4'-0" | 1 1/2" | 1" | 1 1/2" |
| 4'-6" | 1 1/2" | 1" | MAXIMUM ALLOWABLE SPAN IS 4'-0" |
| 5'-0" | 1 1/2" | 1 1/4" | |
| 5'-6" | 1 1/2" | 1 1/4" | |
| 6'-0" | 2" | 1 1/2" | |
| 6'-6" | 2 1/4" | 1 1/2" | |
| 7'-0" | 2 1/2" | 1 3/4" | |

46

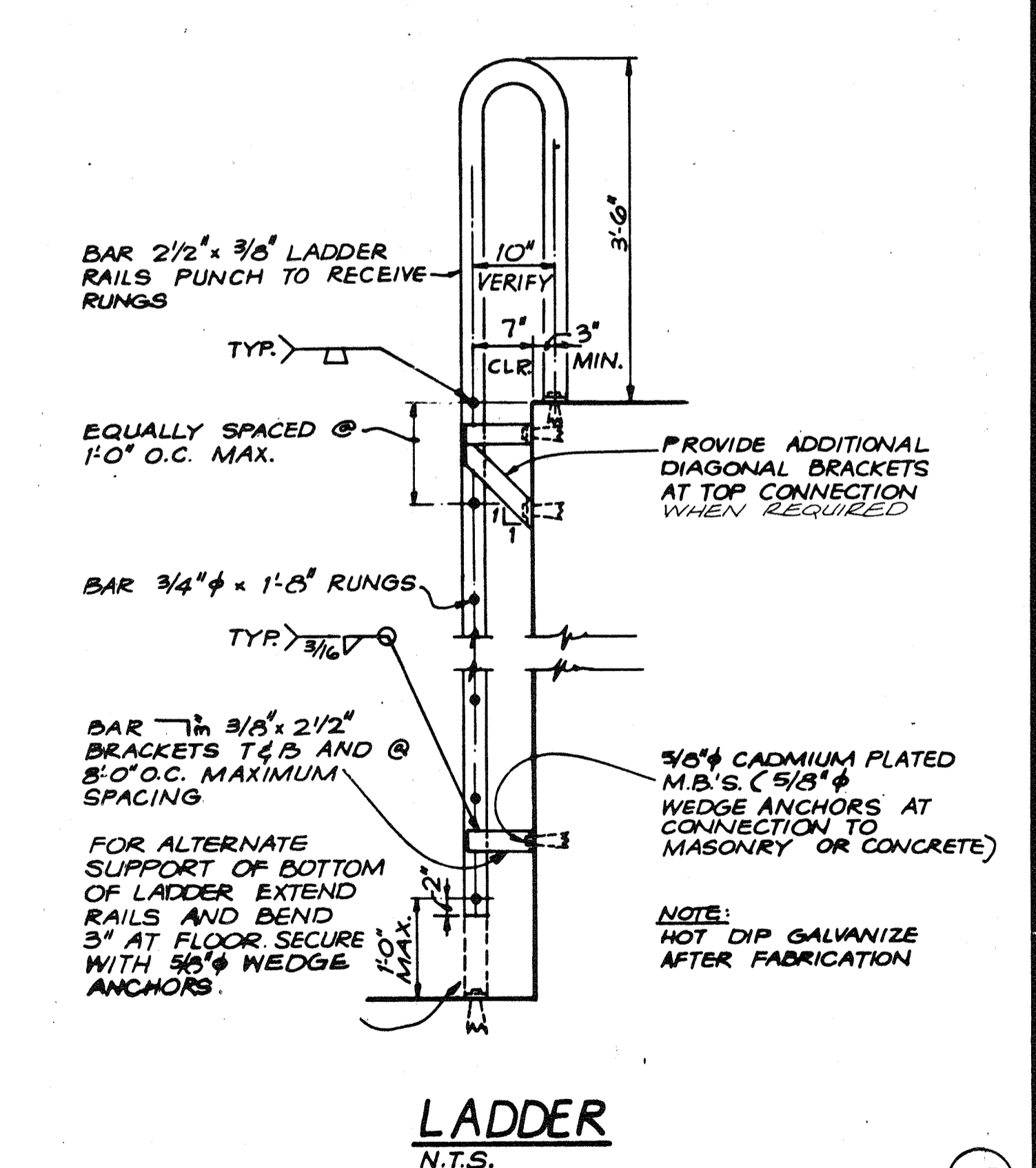


NOTES:
1. ANCHOR BOLTS SHALL BE 3/4" x 12" LONG WITH LEVELING NUTS UNLESS OTHERWISE SHOWN.
2. GROUT SHALL BE NONSHRINK AS PER SPECIFICATIONS.

49



53



57

RECORD DRAWING



| | | | | | |
|----------|------|----------|----|-------|--|
| DES. RAH | | | | | |
| DR. MAW | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | DATE | REVISION | BY | APPD. | |

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HOWARD COUNTY, MARYLAND

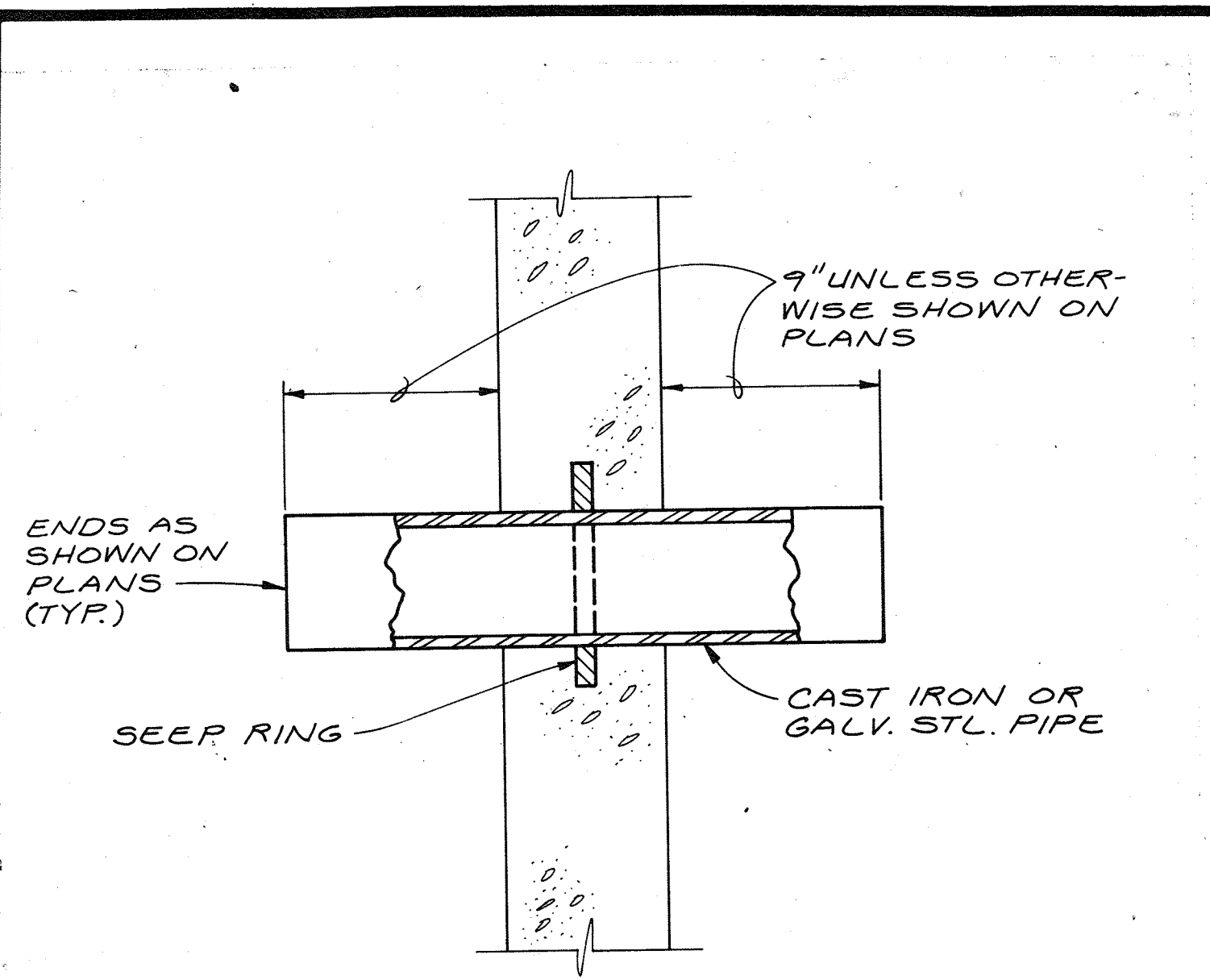
5/29/79 DATE

James H. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 763-S

STANDARD DETAILS
STRUCTURAL

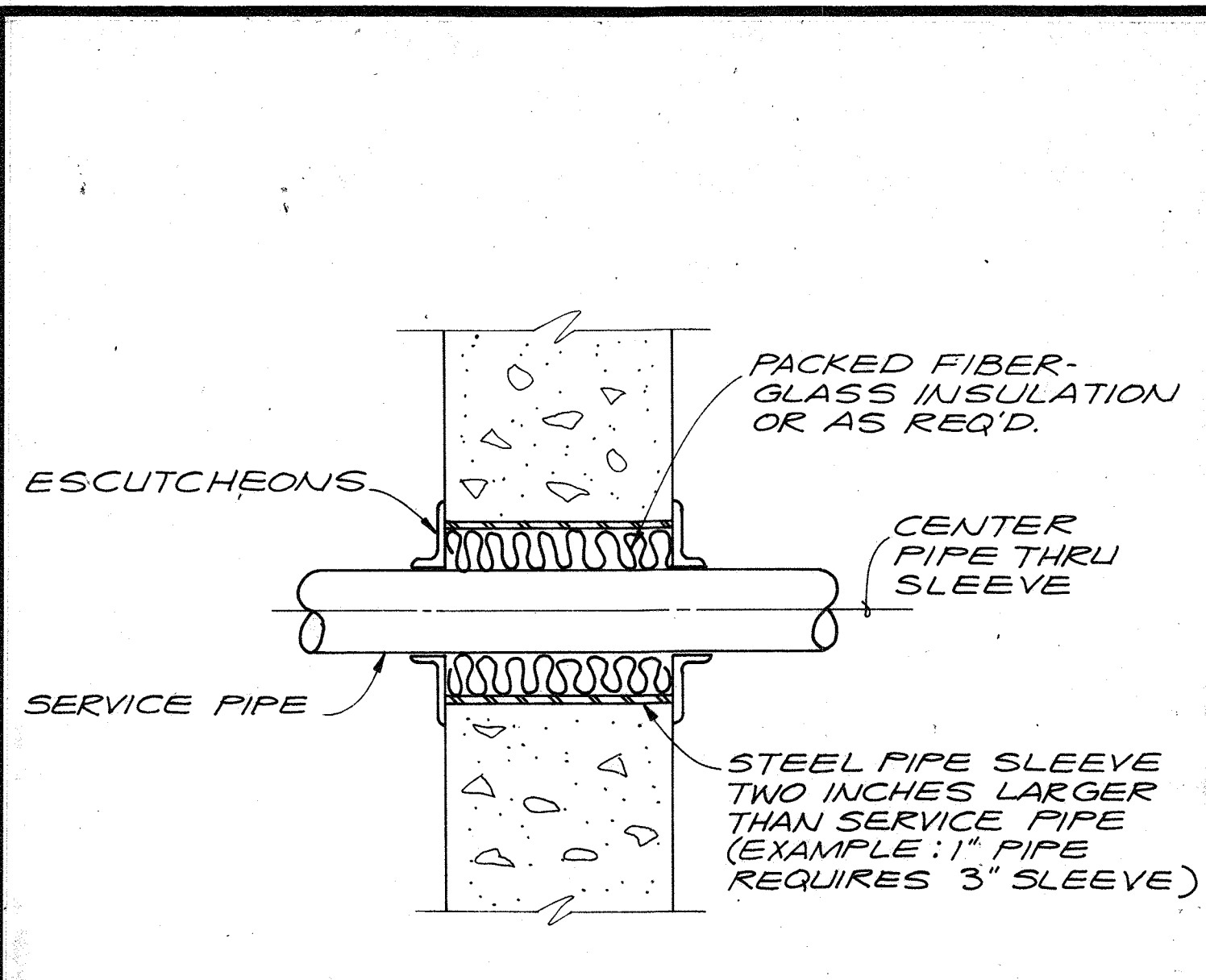
SHEET OF D-4
DATE 8-78
DWG. NO. W1078.CI



STANDARD WALL PIPE DETAIL

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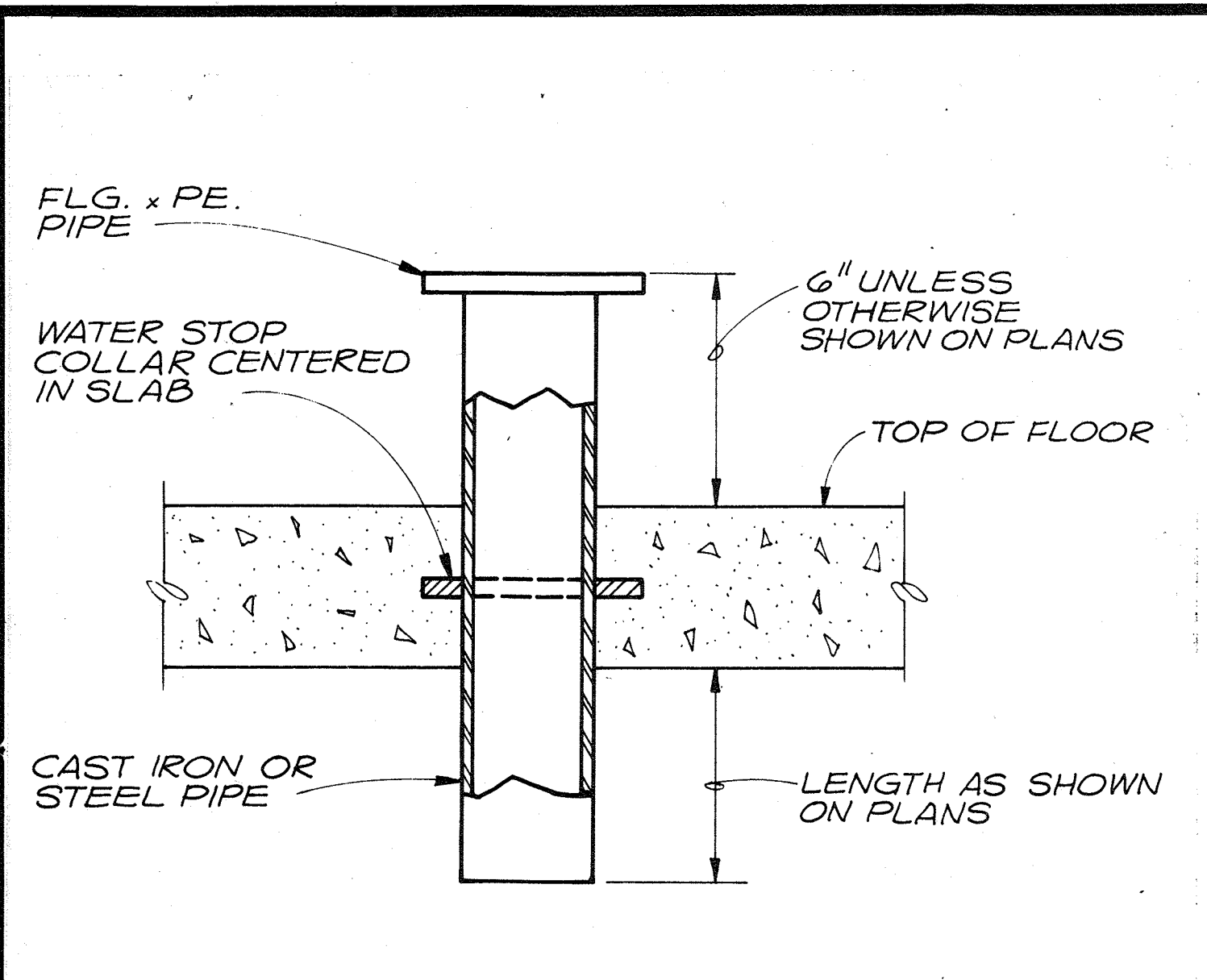
101



PIPE PENETRATION THRU MECHANICAL ROOM WALLS AND FLOORS DETAIL

N.T.S.

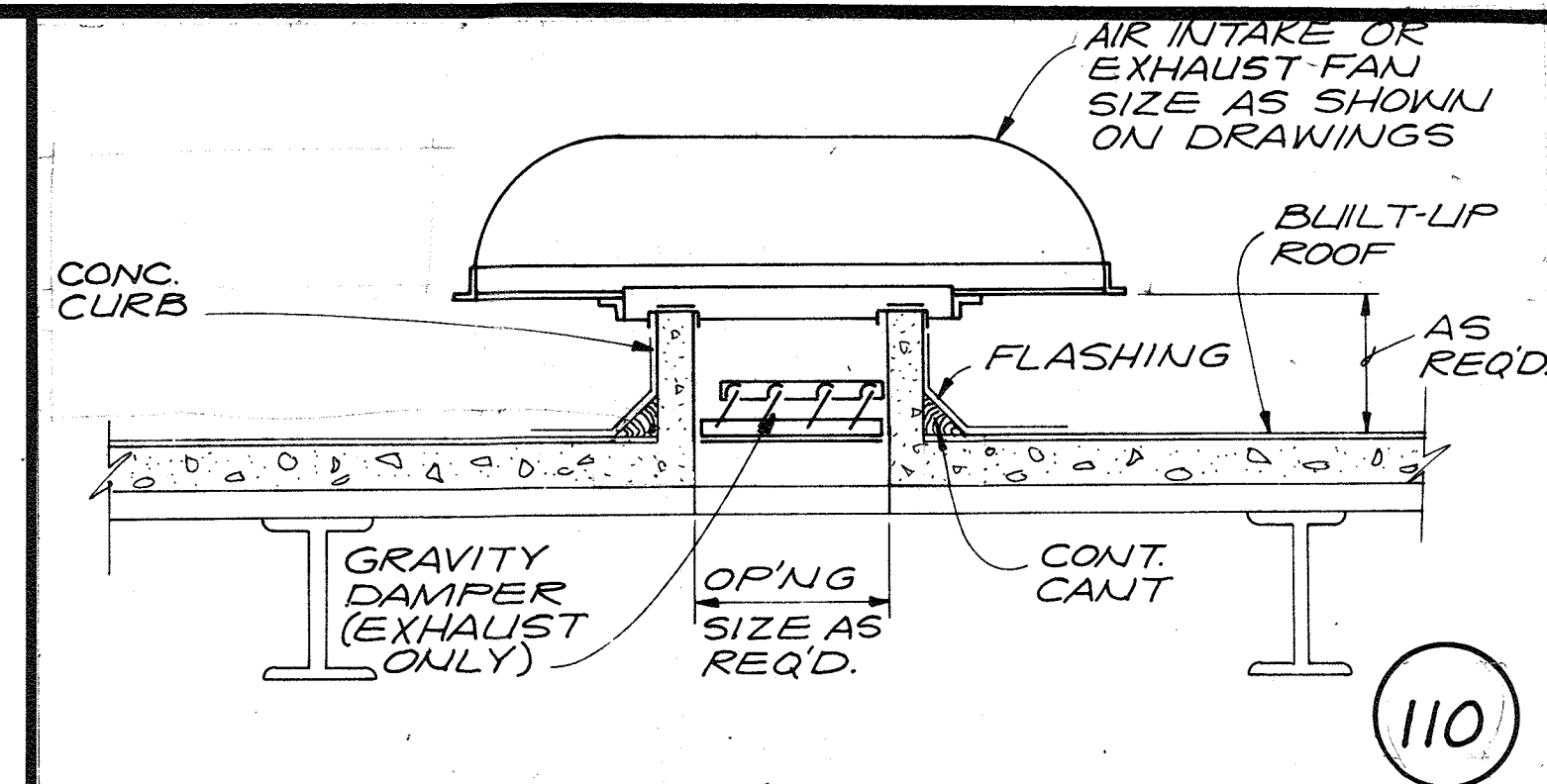
104



STYLE 3 FLOOR PIPE DETAIL

N.T.S.

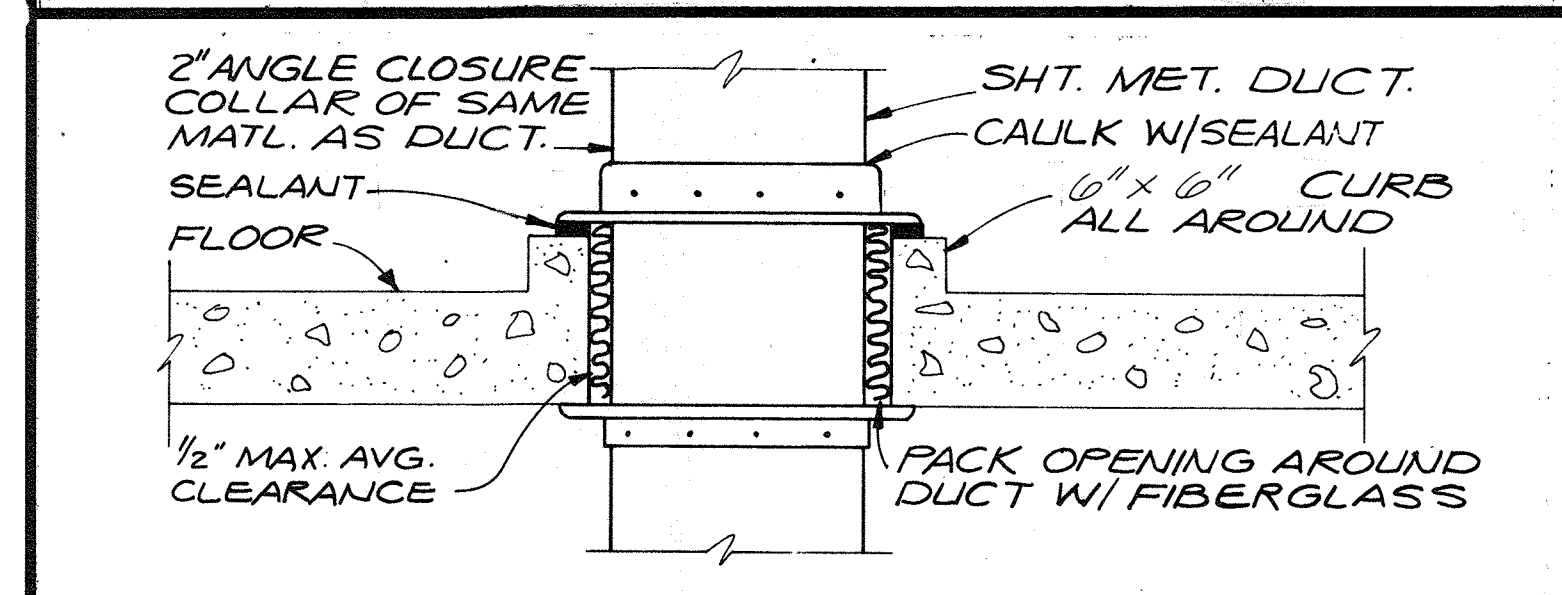
107



ROOF EXHAUST/INTAKE DETAIL

N.T.S.

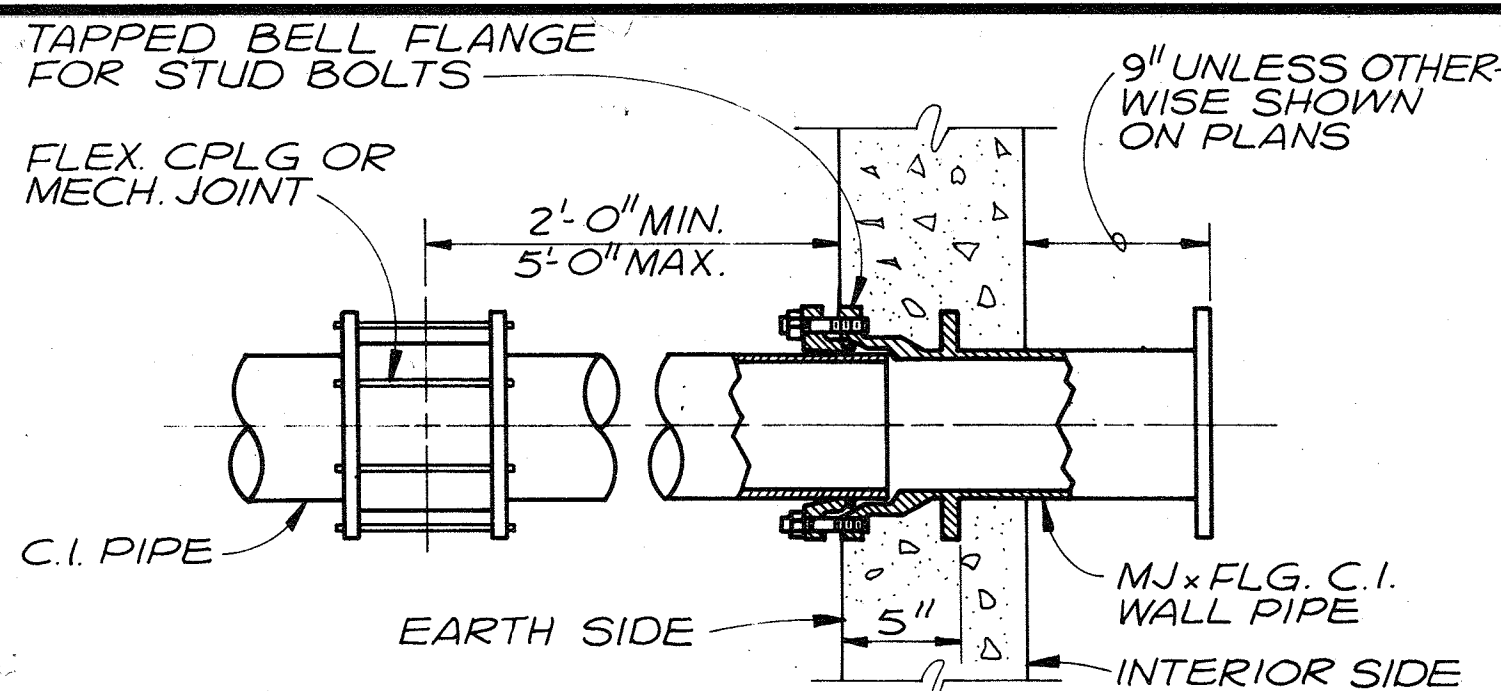
110



FLOOR PENETRATION WET AREA DETAIL

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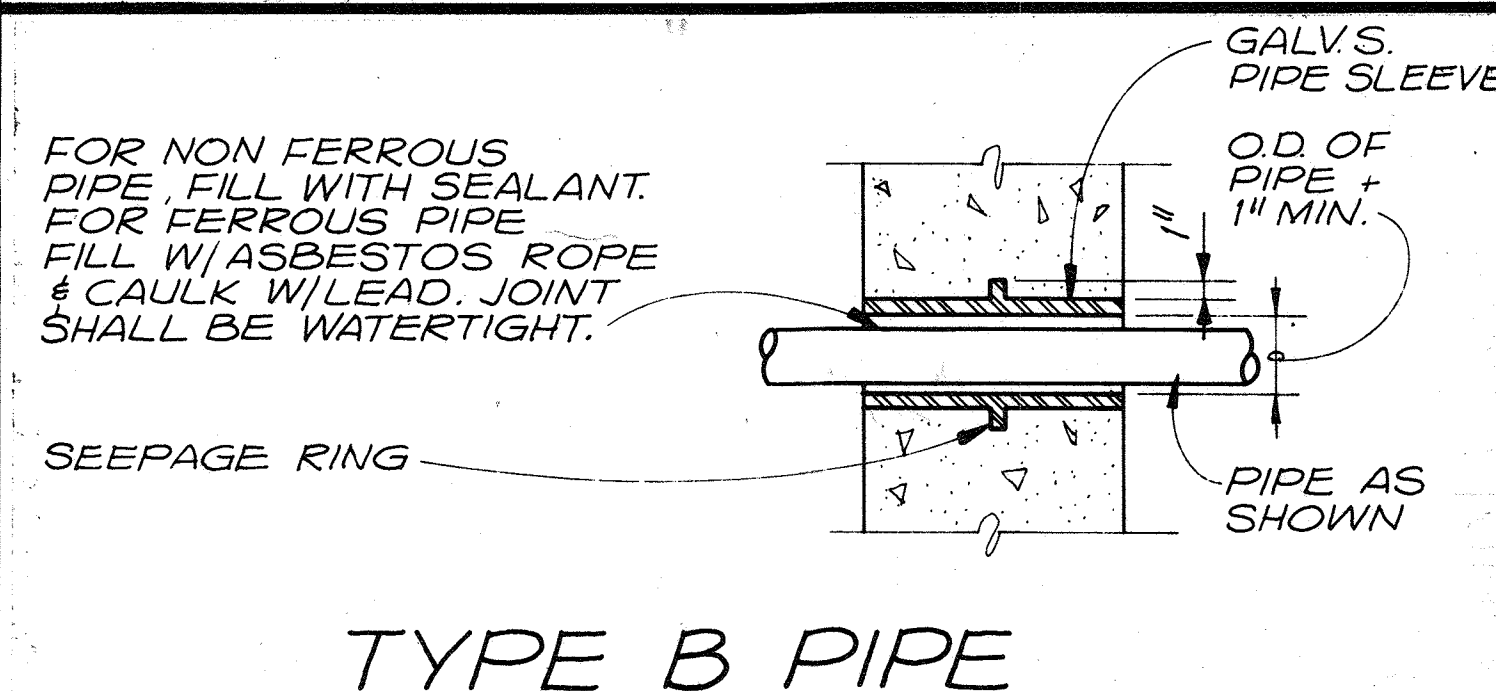
111



STANDARD WALL PIPE DETAIL

N.T.S.

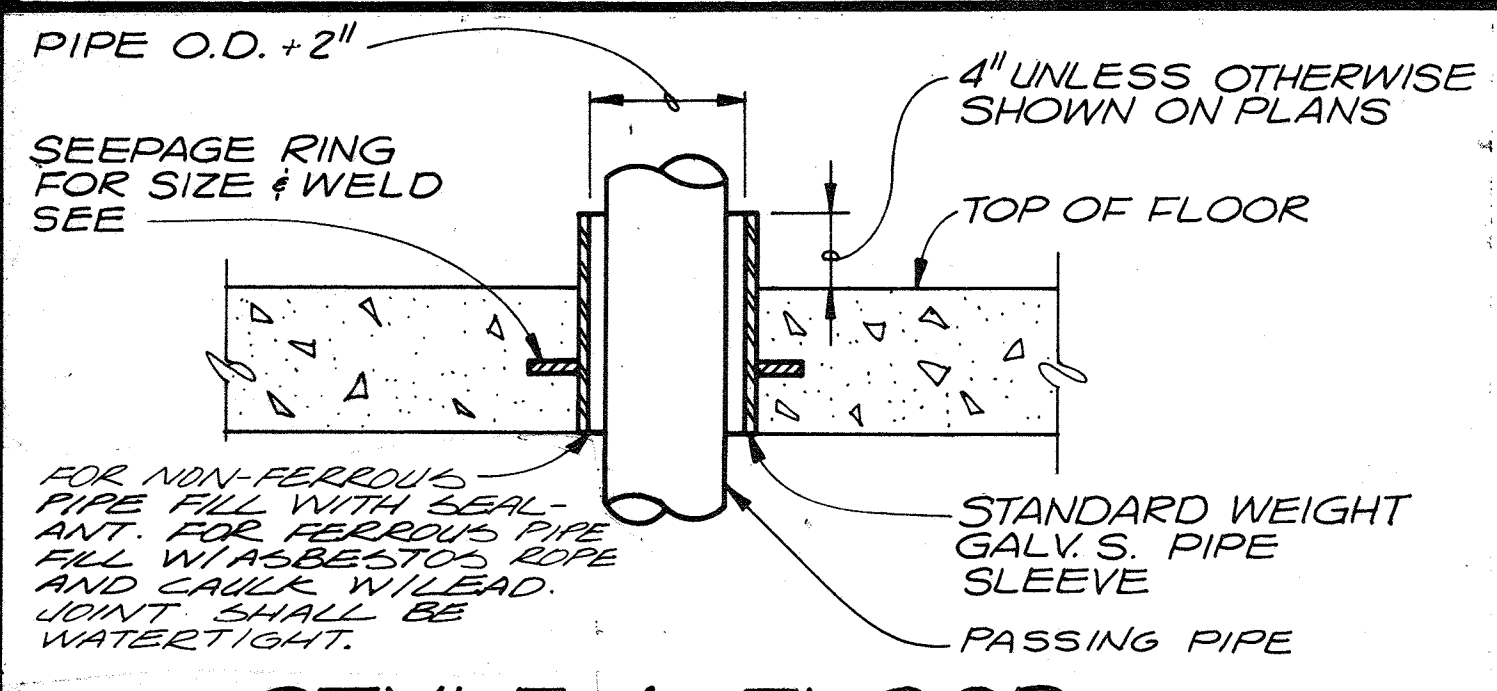
102



TYPE B PIPE SLEEVE DETAIL

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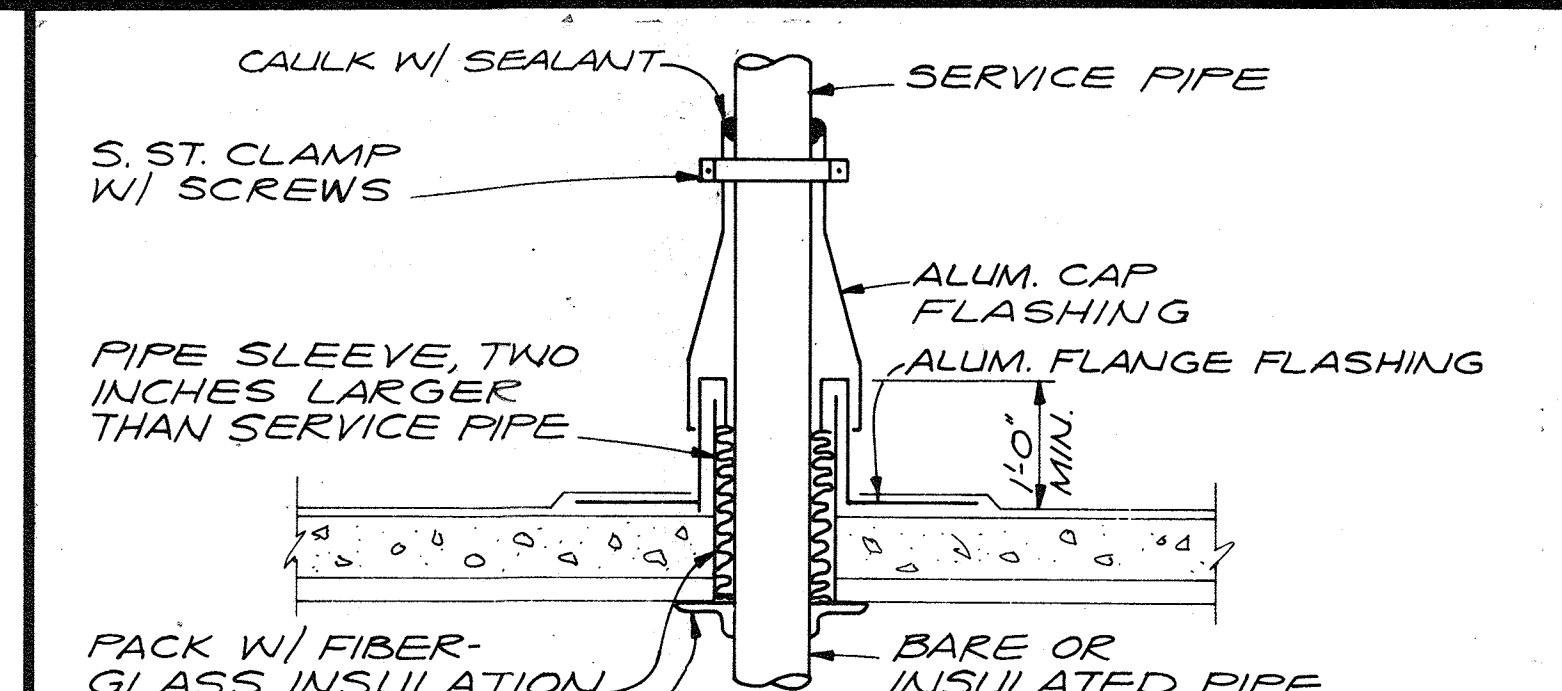
105



STYLE 1 FLOOR SLEEVE DETAIL

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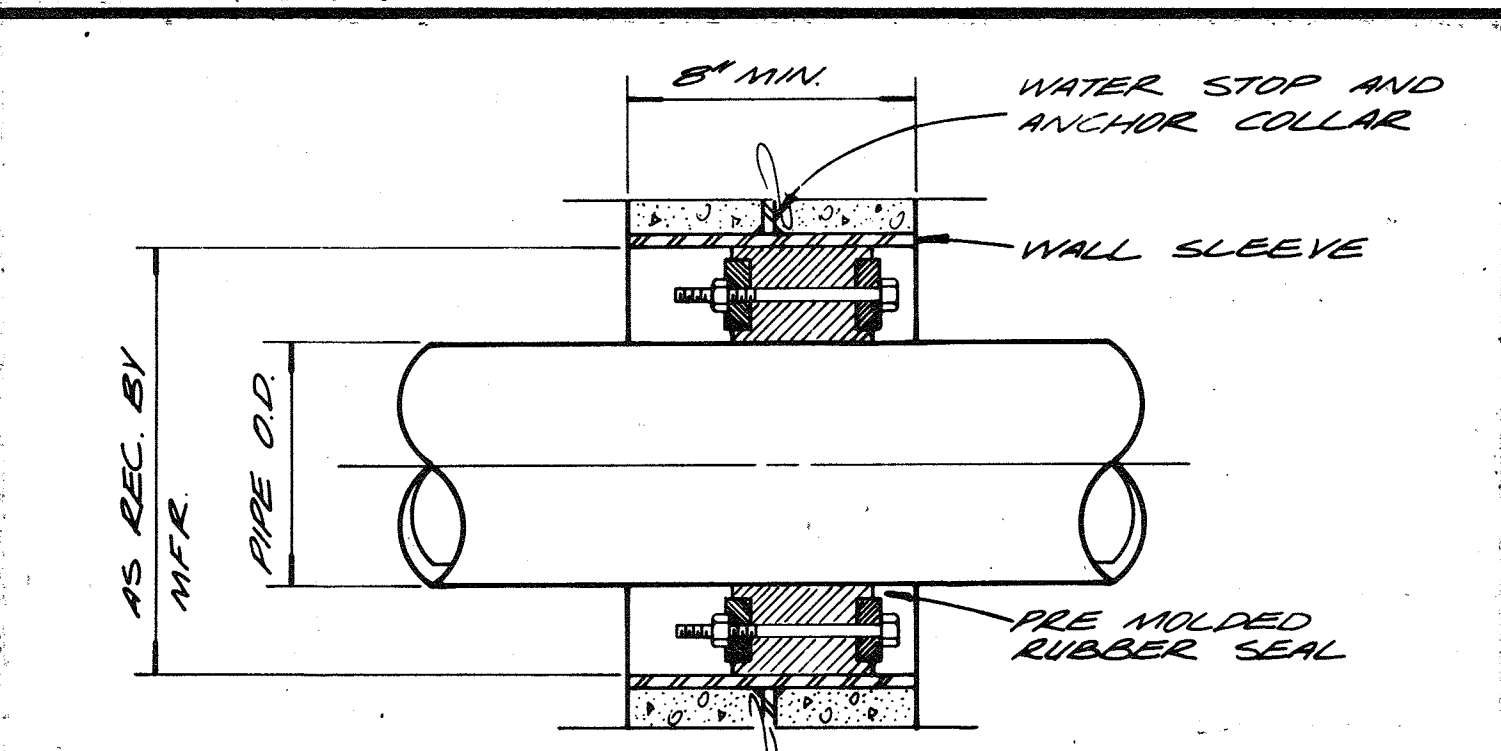
108



ROOF PENETRATION DETAIL

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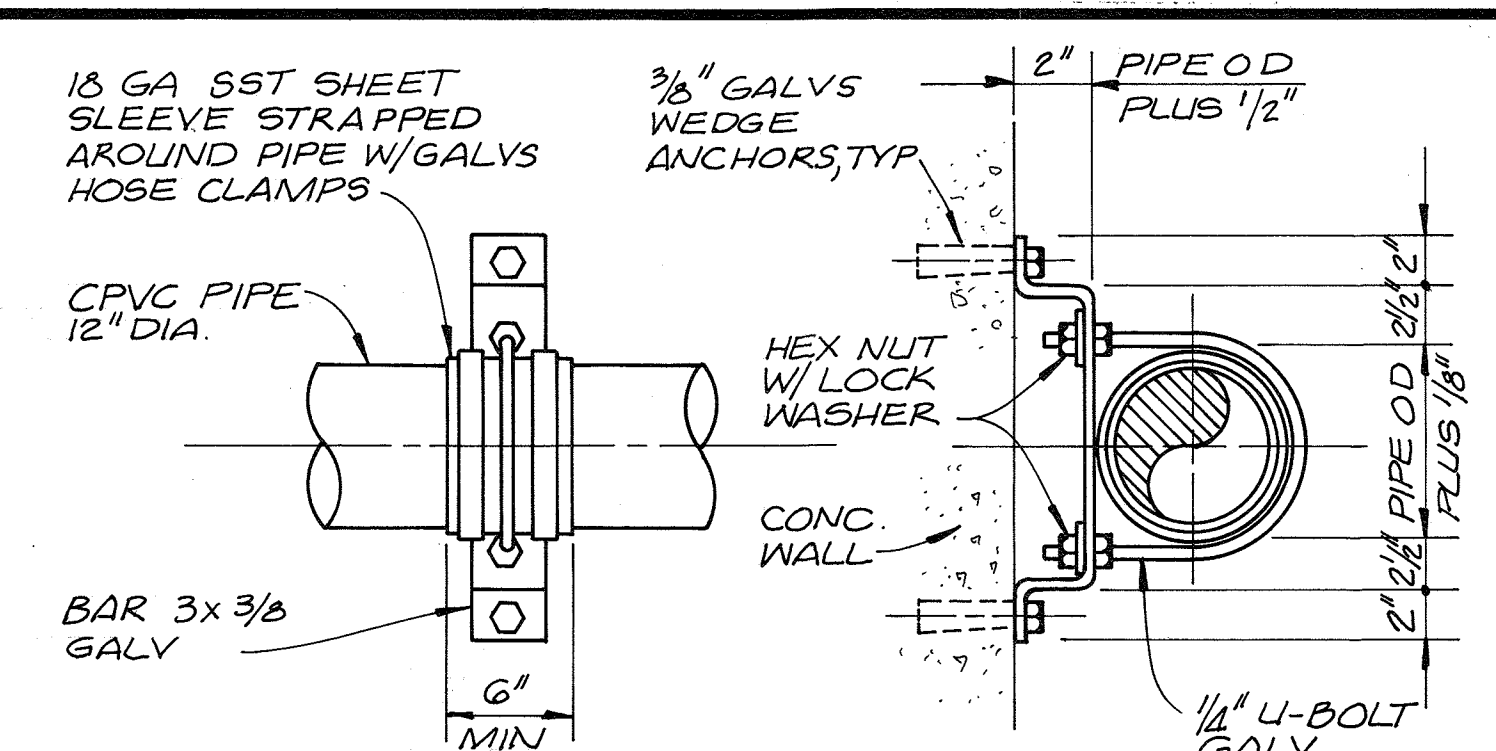
112



HYDRO-STATIC PIPE WALL CLOSURE

N.T.S.

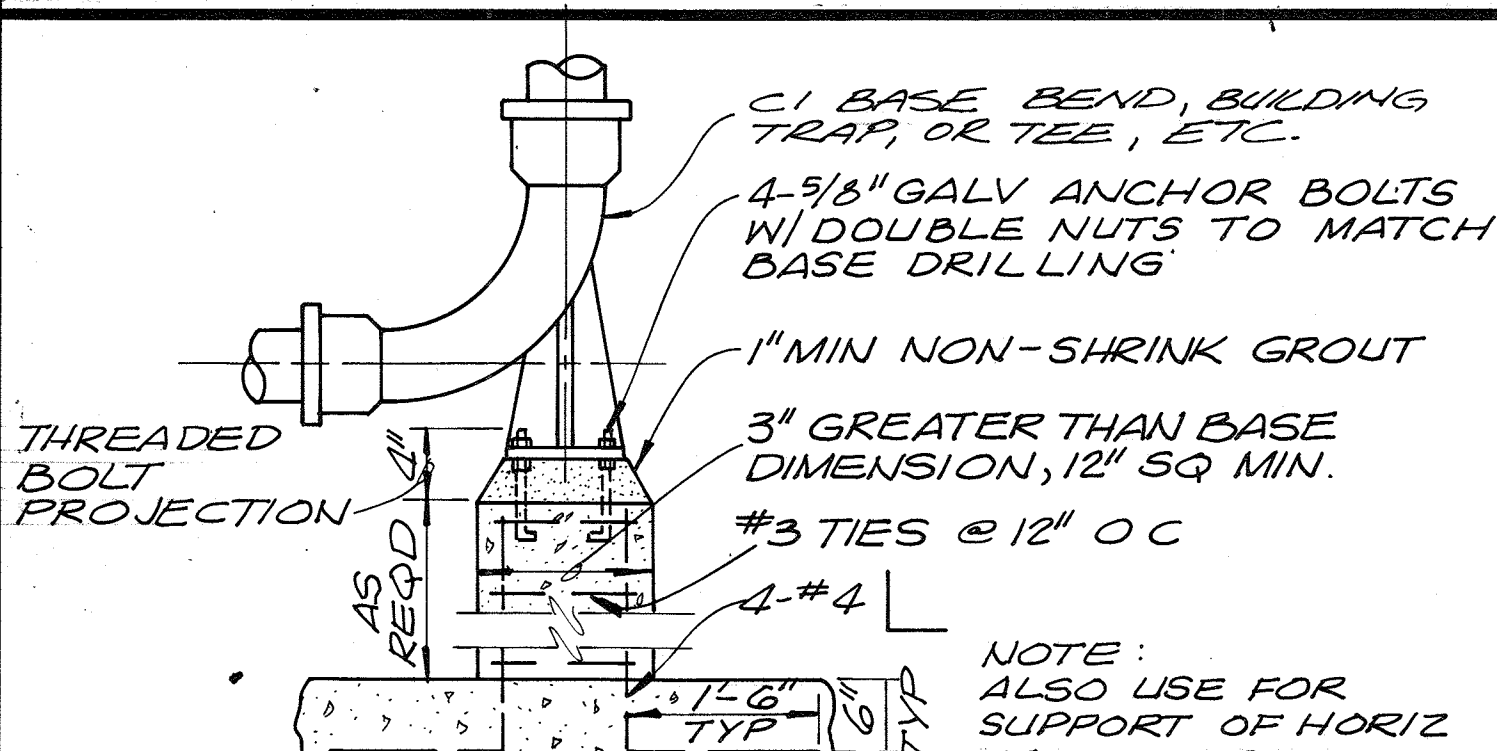
103



PIPE SUPPORT

N.T.S.

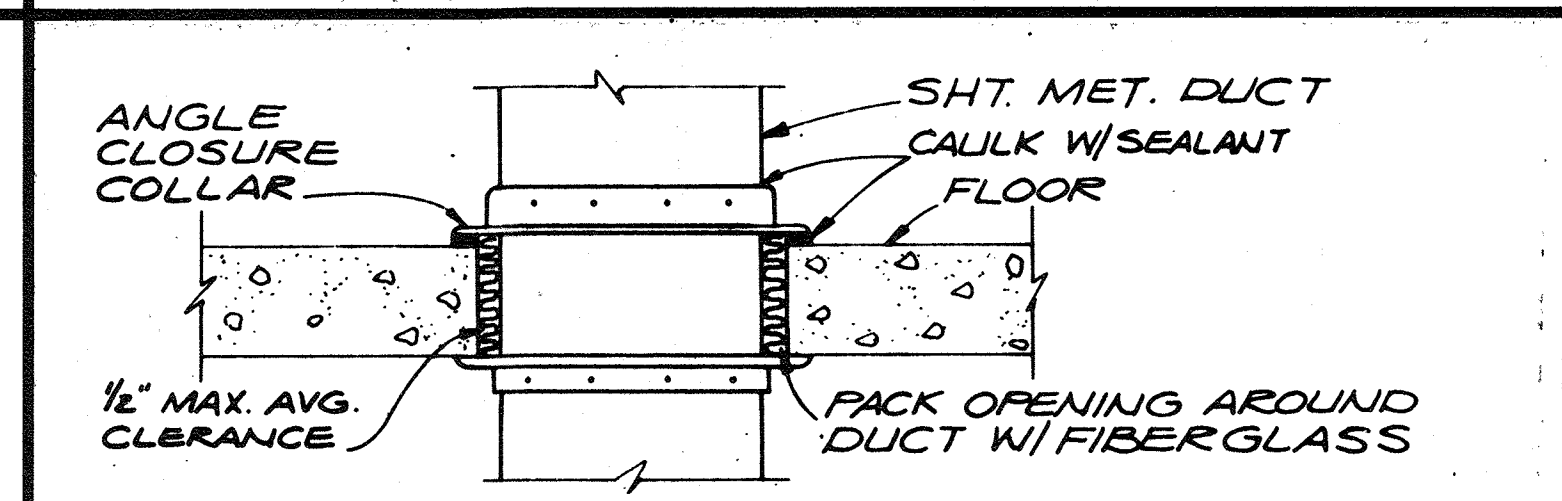
106



BASE BEND DETAIL

N.T.S.

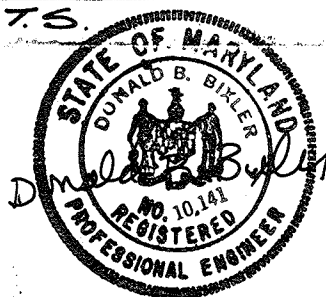
109



FLOOR PENETRATION DRY AREA DETAIL

N.T.S.

113



CH2M HILL
DES. DR. EEM. CHK. APPD.

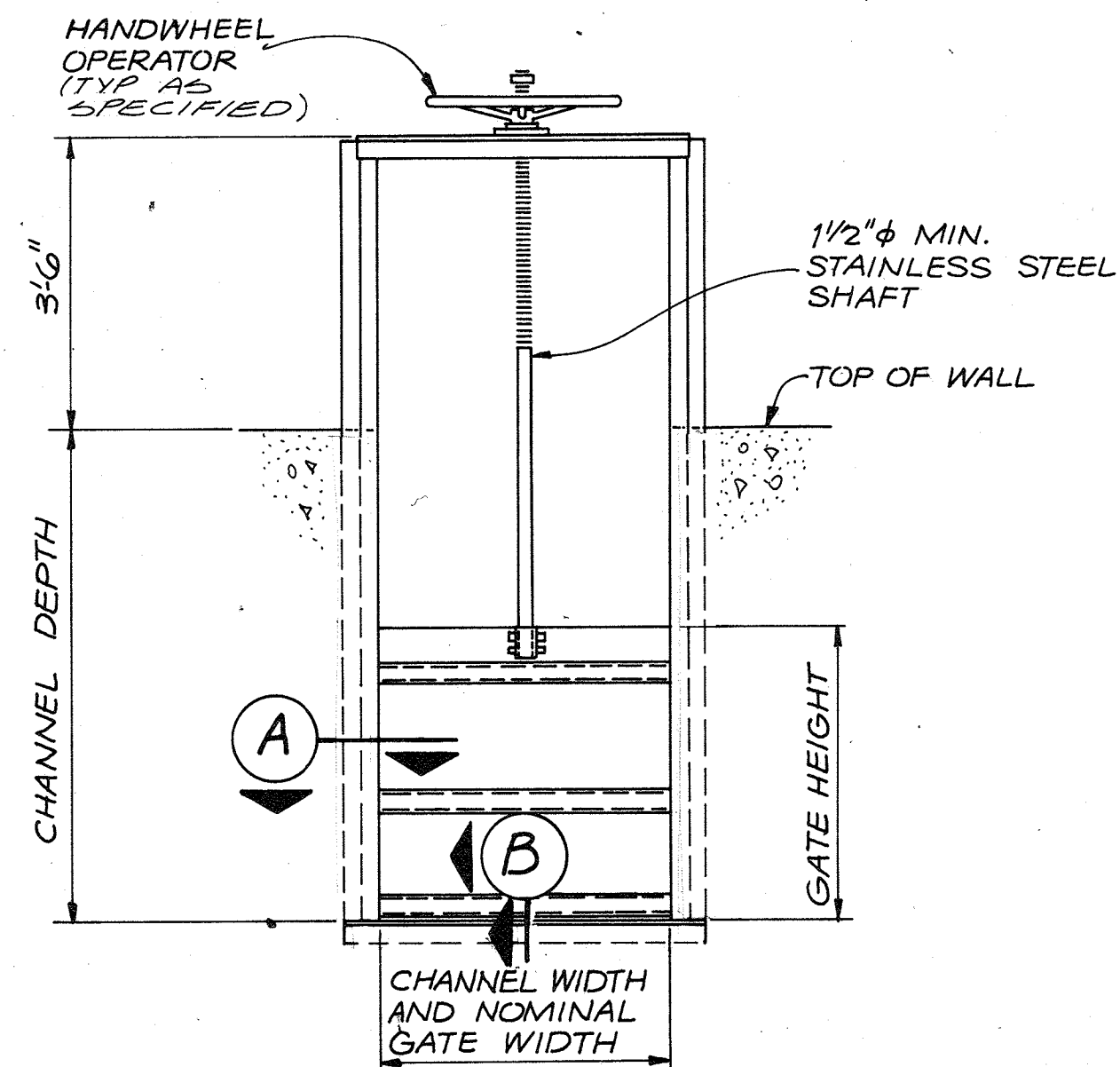
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RECORD DRAWING

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HOWARD COUNTY, MARYLAND
DATE: 5/22/77
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

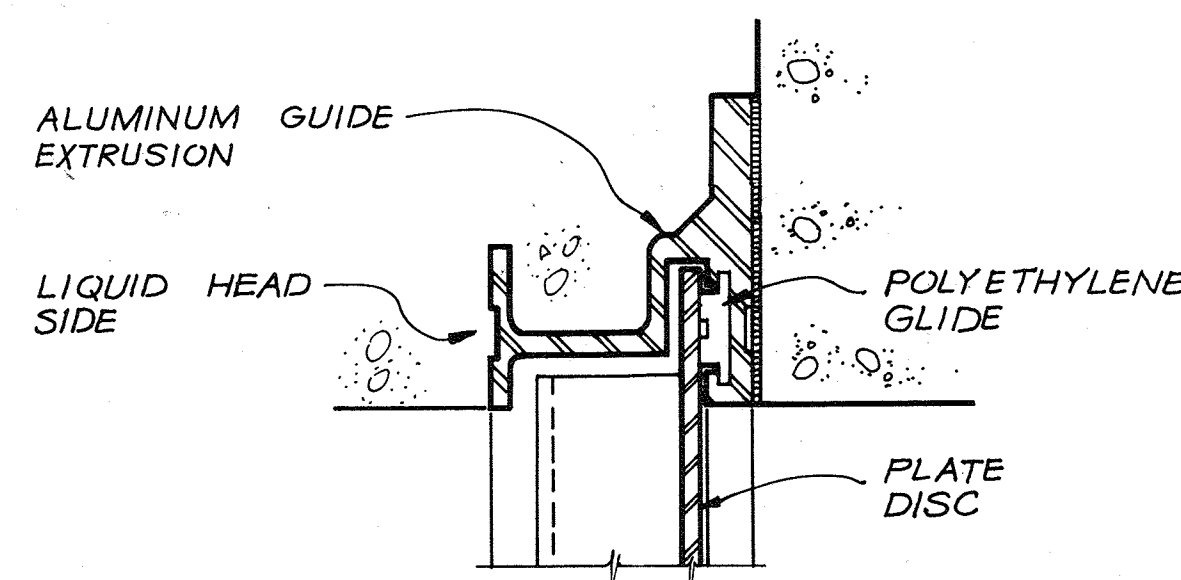
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

STANDARD DETAILS
MECHANICAL
SHEET OF D-5
DATE 8-78
DWG. NO. W1078.C1



**FABRICATED ALUMINUM
SLIDE GATES**

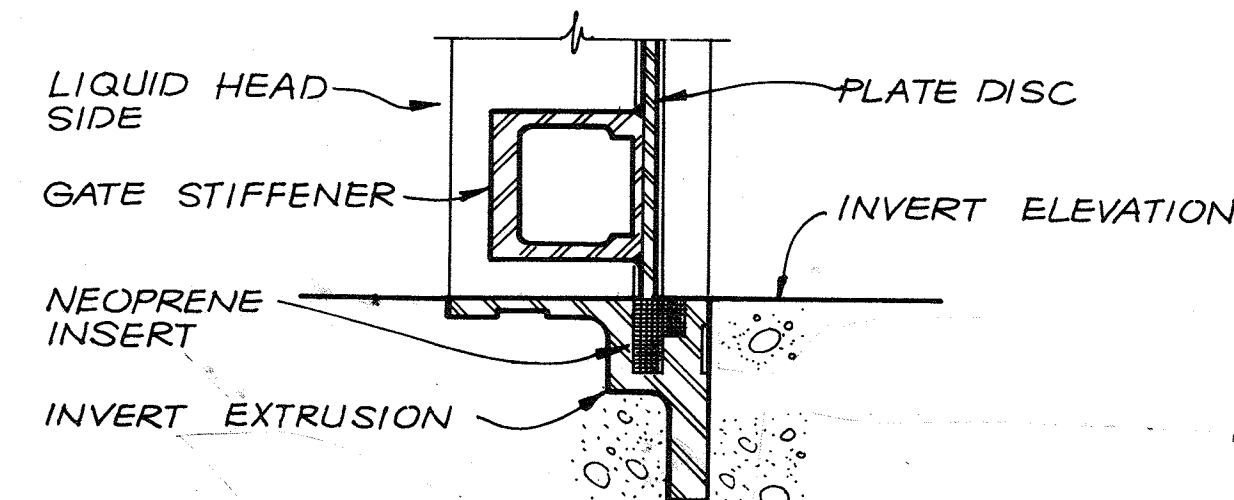
114



GUIDE CROSS SECTION (A)

N.T.S.

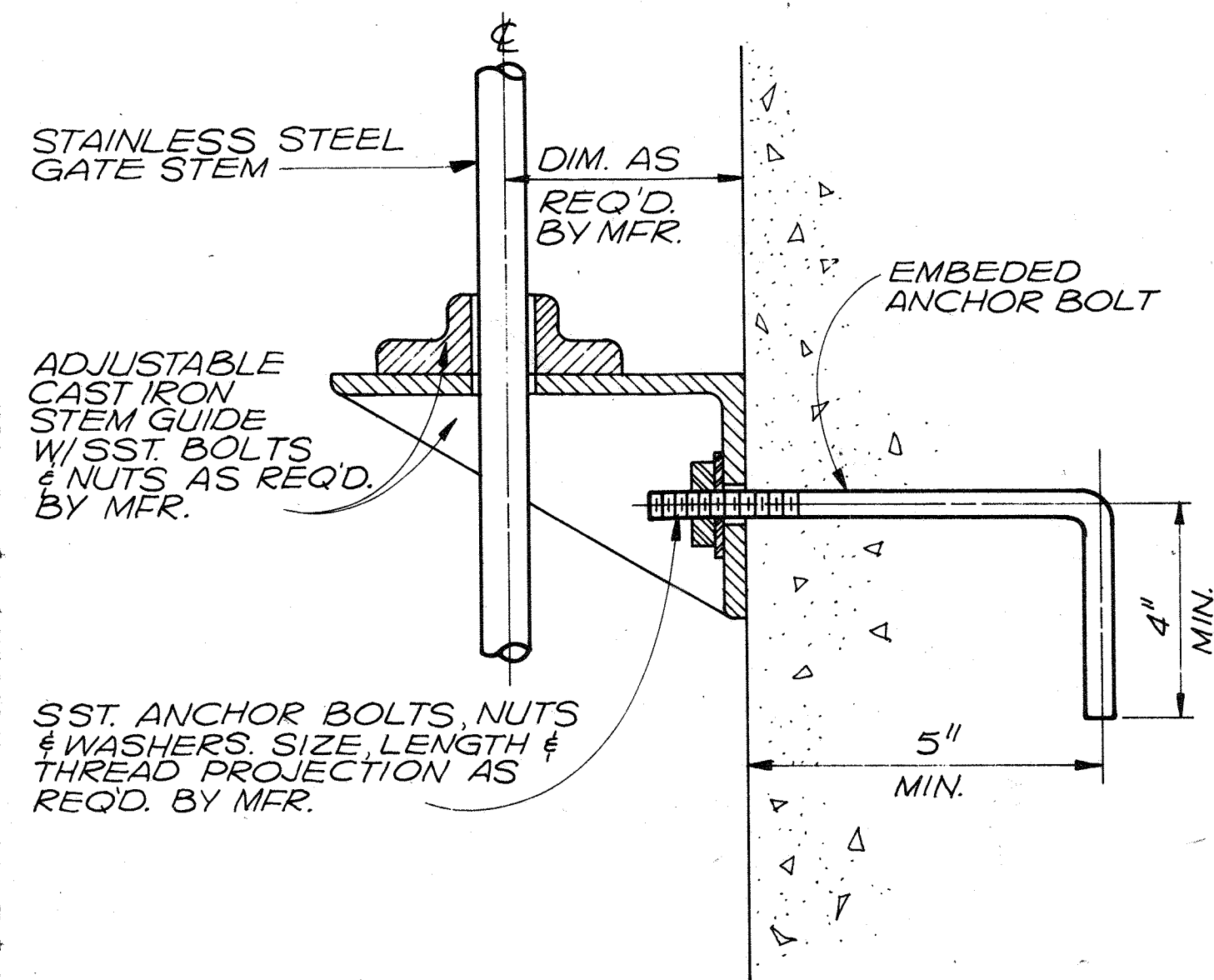
115



FLUSH INVERT (B)

N.T.S.

116

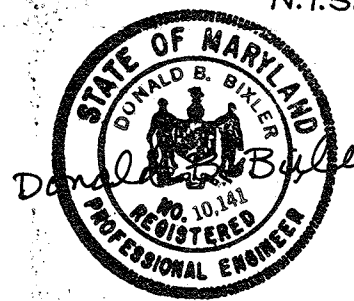


**STEM GUIDE
INSTALLATION DETAIL**

N.T.S.

118

RECORD DRAWING



| | | | | | |
|-------|--|------|----------|----|-------|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James M. Lawrence
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

STANDARD DETAILS

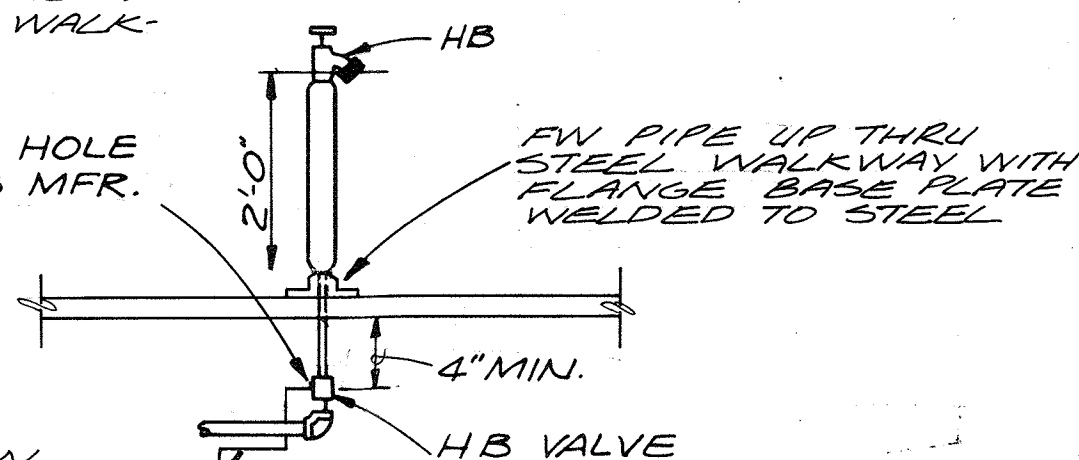
MECHANICAL

SHEET OF D-6
DATE 8-78
DWG. NO. W11078.C1

NOTE:

HB-2 INSTALLED OVER SUSPENDED SLABS AND WALKWAYS ONLY

TAPPED DRAIN HOLE BY HOSE BIBB MFR.

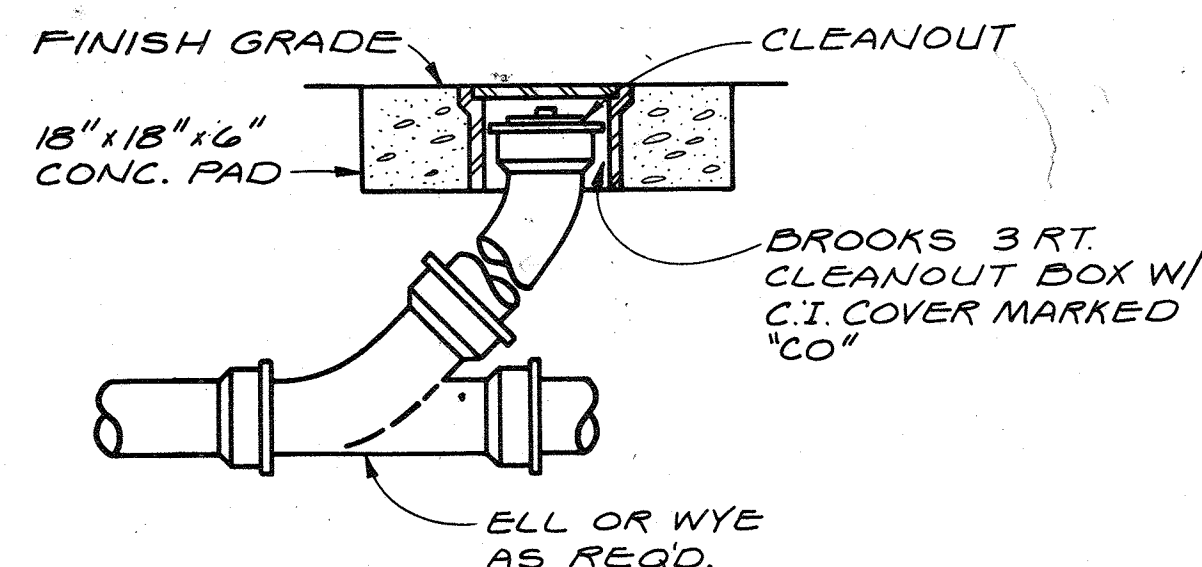


COPPER DRAIN DISCHARGE (INSUL.) TO FLOW EQUALIZATION BASIN

HOSE BIBB MOUNTING
DETAIL TYPE HB-2

N.T.S.

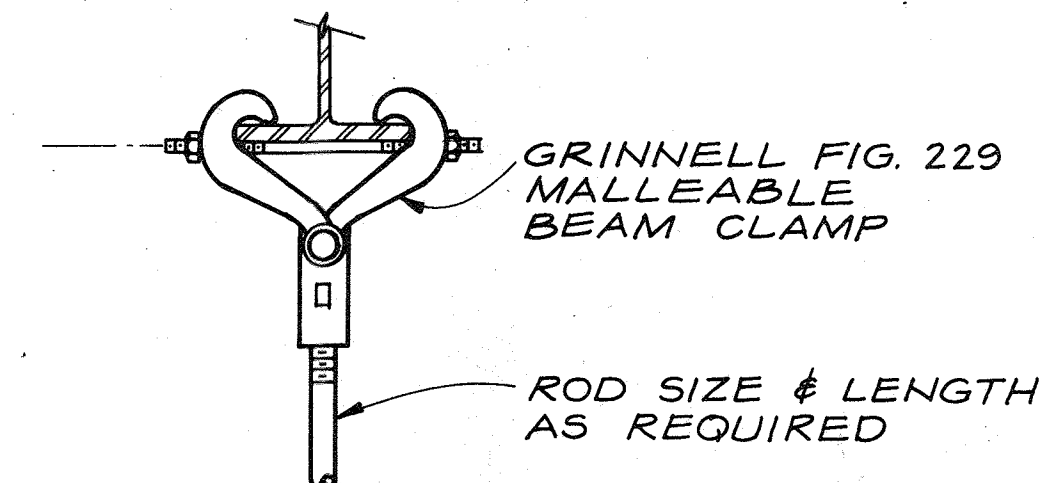
126



CLEANOUT DETAIL

N.T.S.

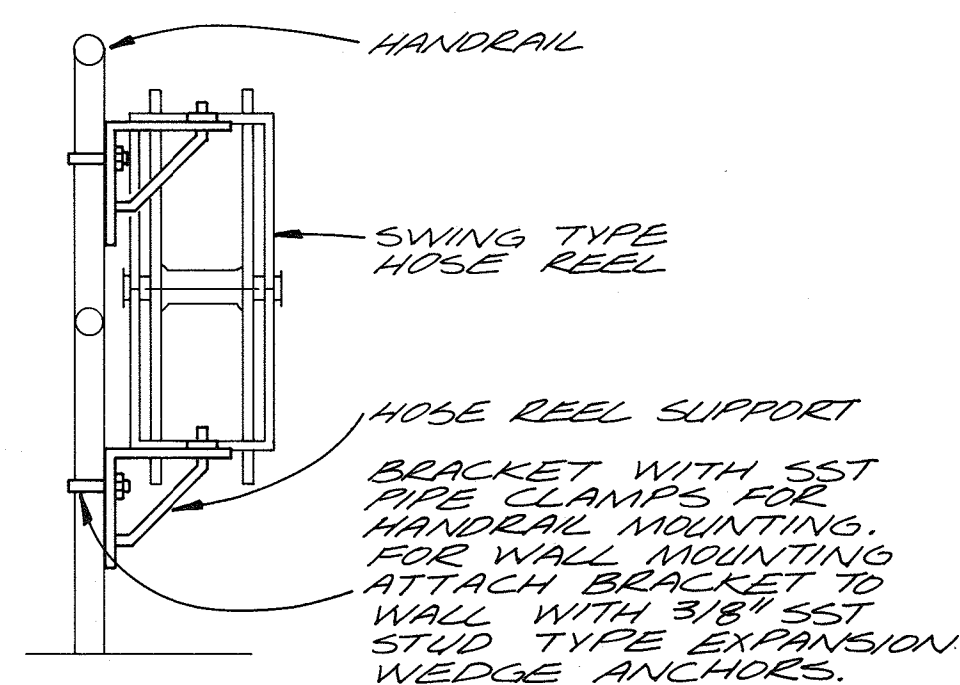
129



STANDARD PIPE HANGER
BEAM CLAMP DETAIL

N.T.S.

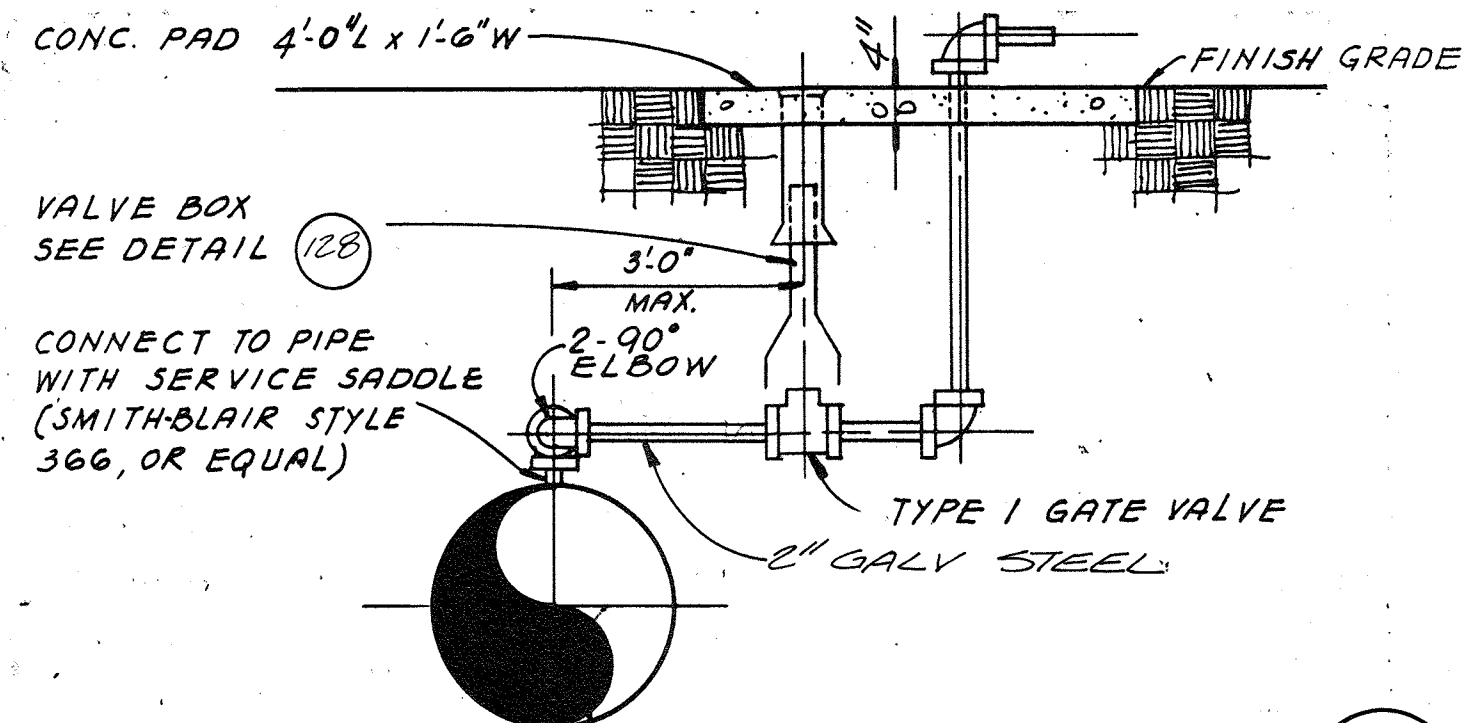
133



HOSE REEL, HR-1

N.T.S.

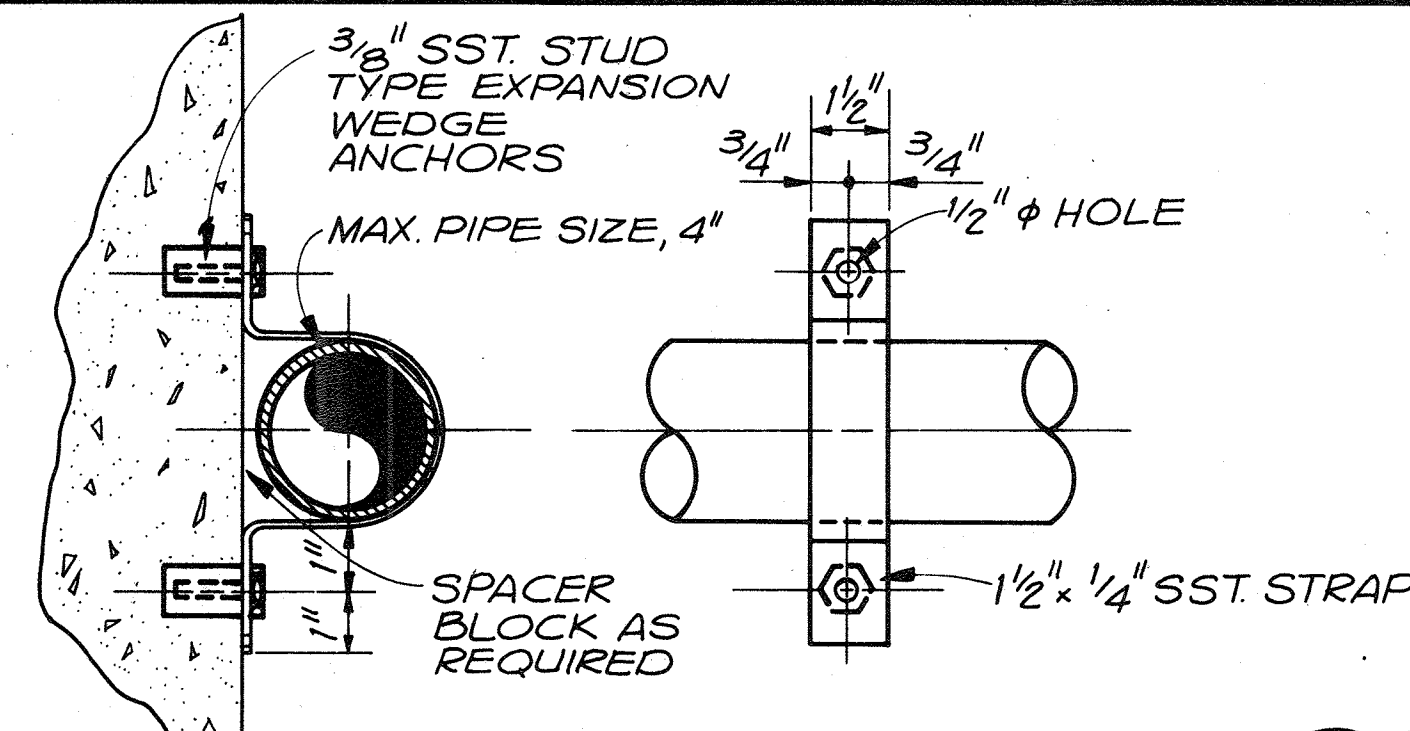
124



AIR RELEASE DETAIL

N.T.S.

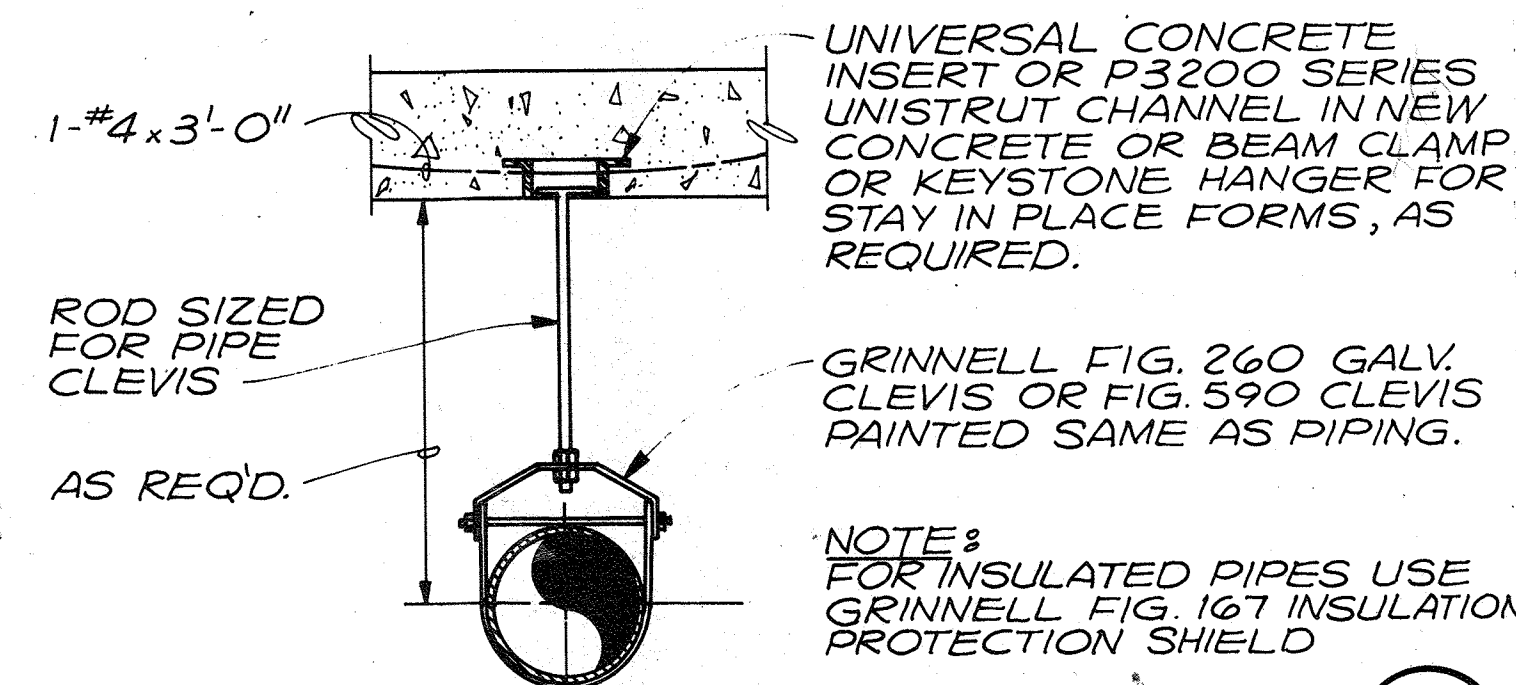
127



STD. PIPE SUPPORT TYPE

N.T.S.

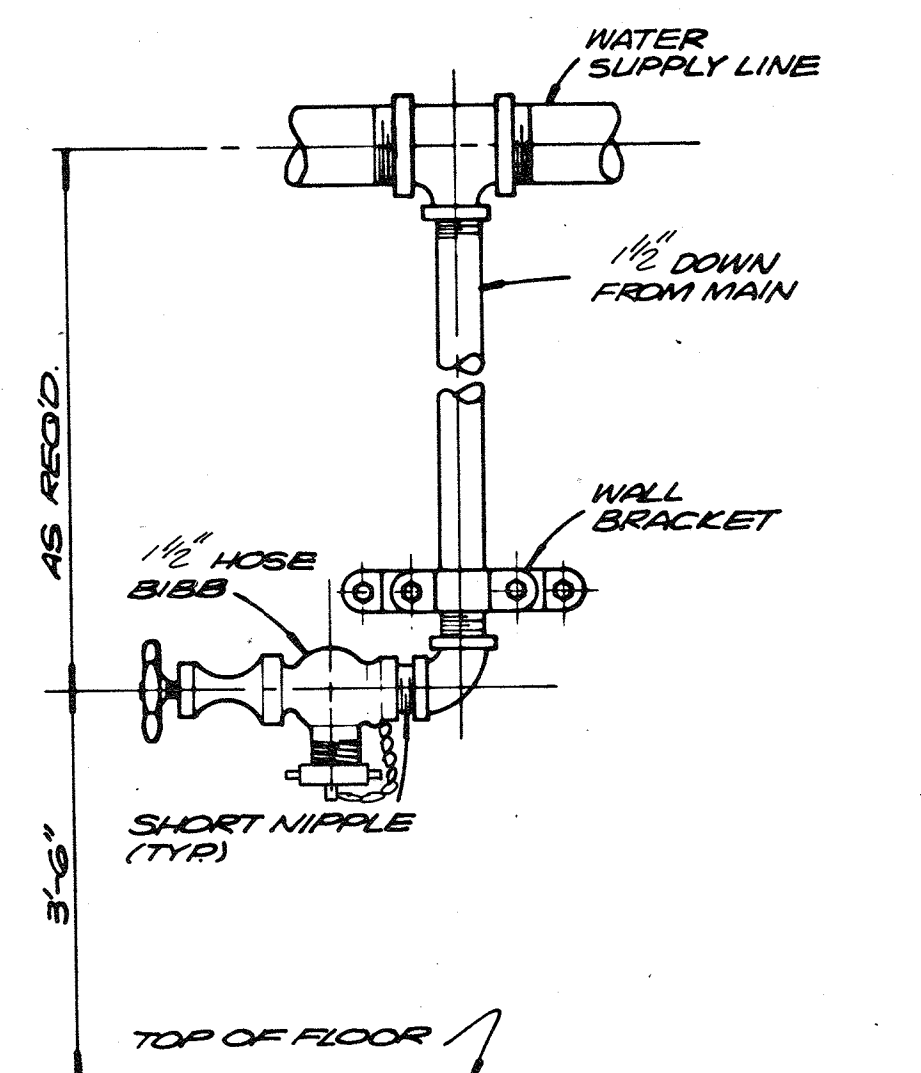
130



STD. PIPE HANGER TYPE

N.T.S.

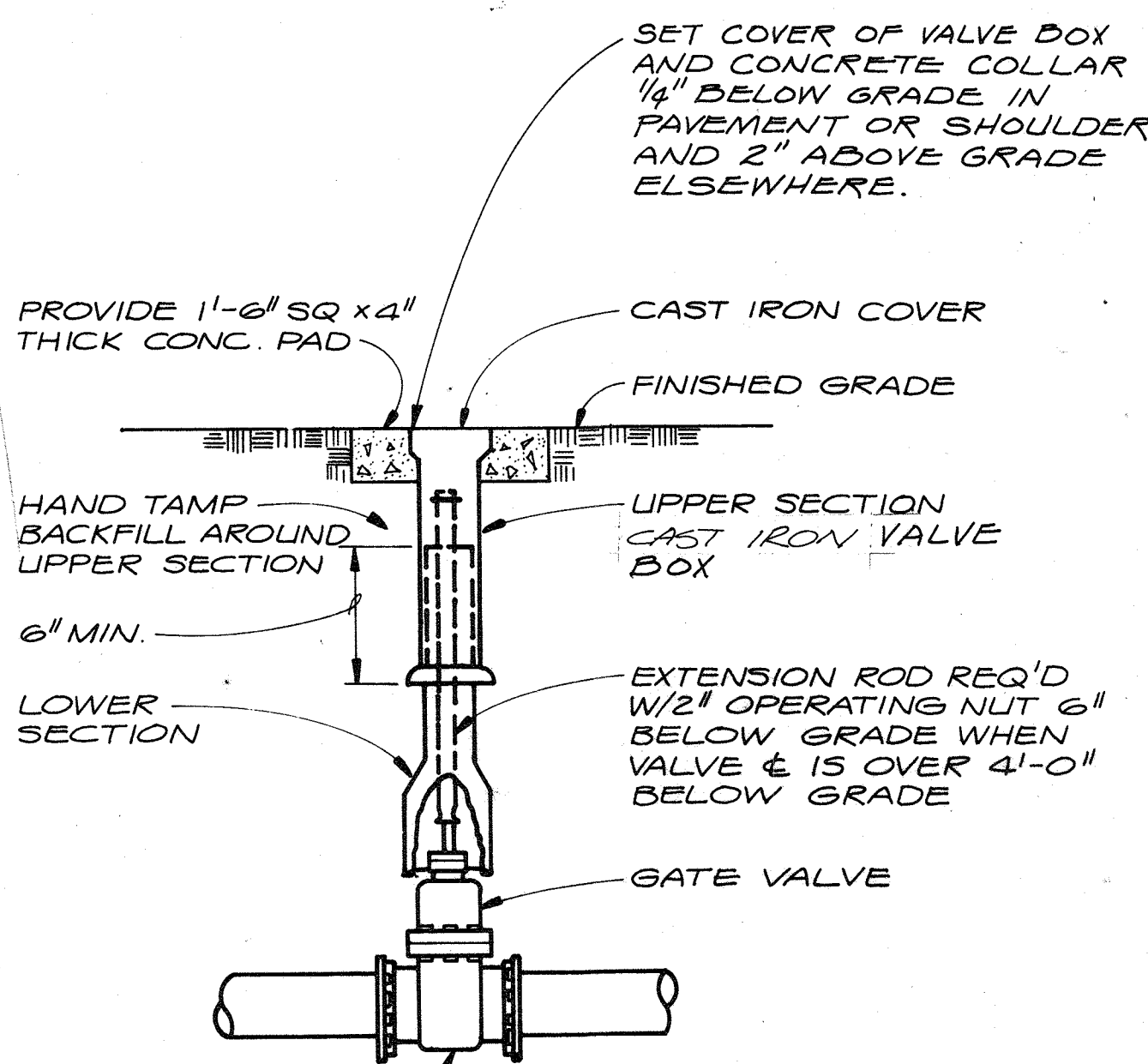
134



HOSE BIBB HB-1
DETAIL

N.T.S.

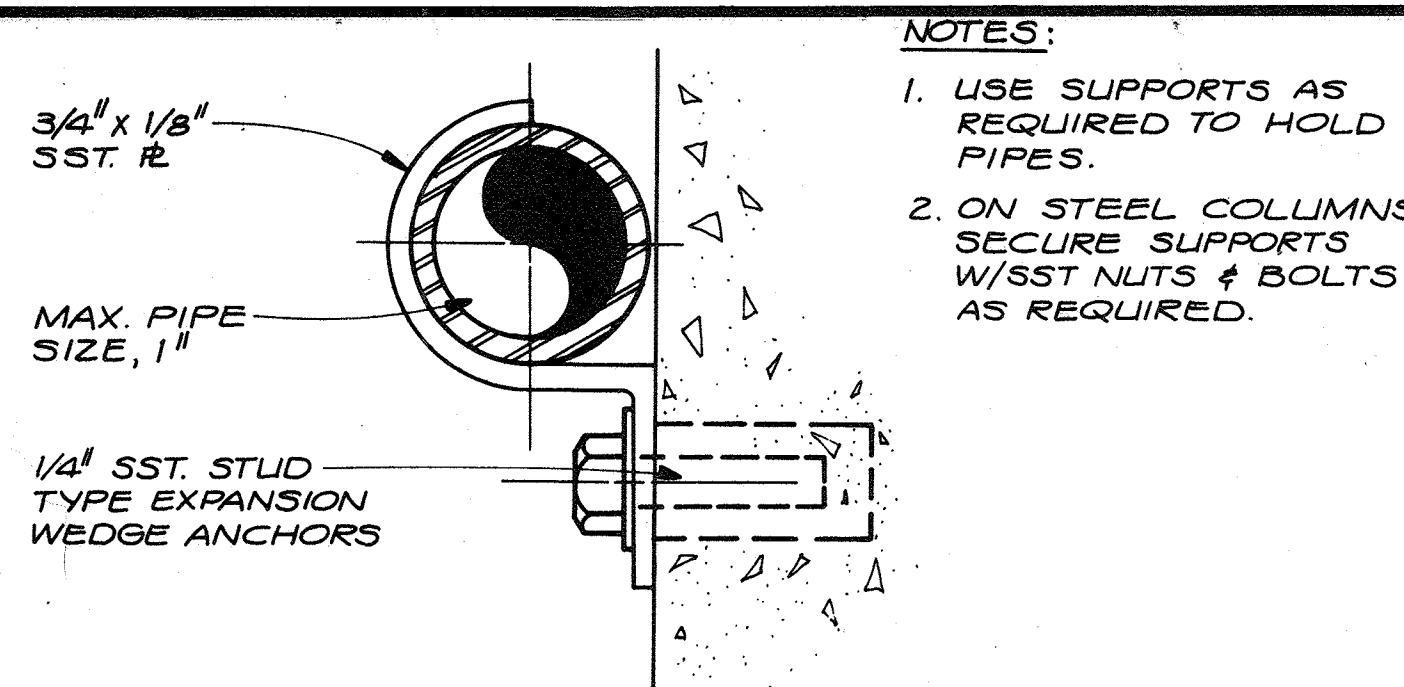
125



STANDARD GATE VALVE AND
VALVE BOX SETTING DETAIL

N.T.S.

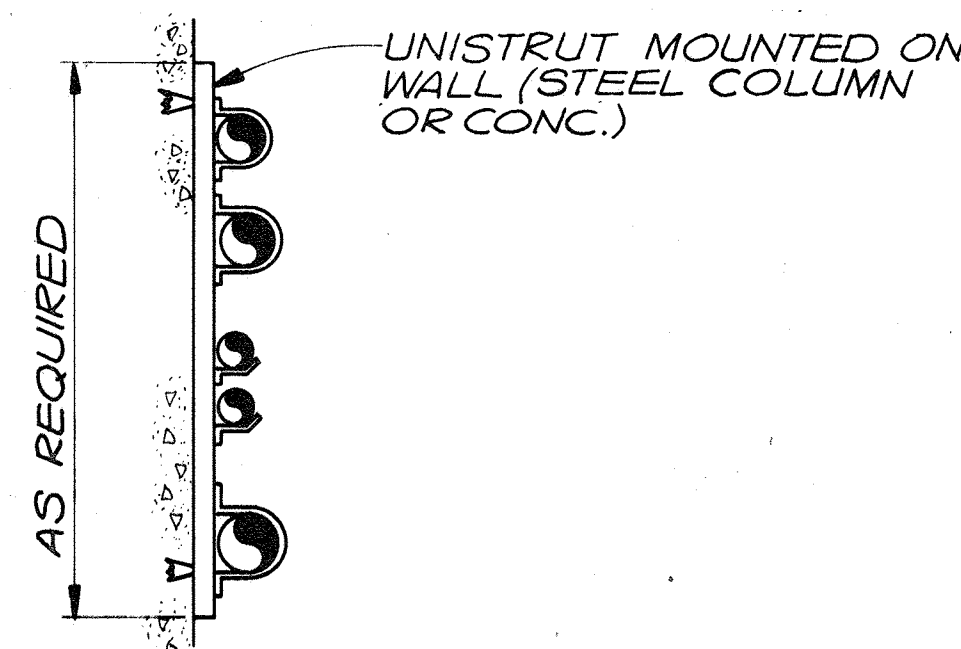
128



STD. PIPE SUPPORT TYPE

N.T.S.

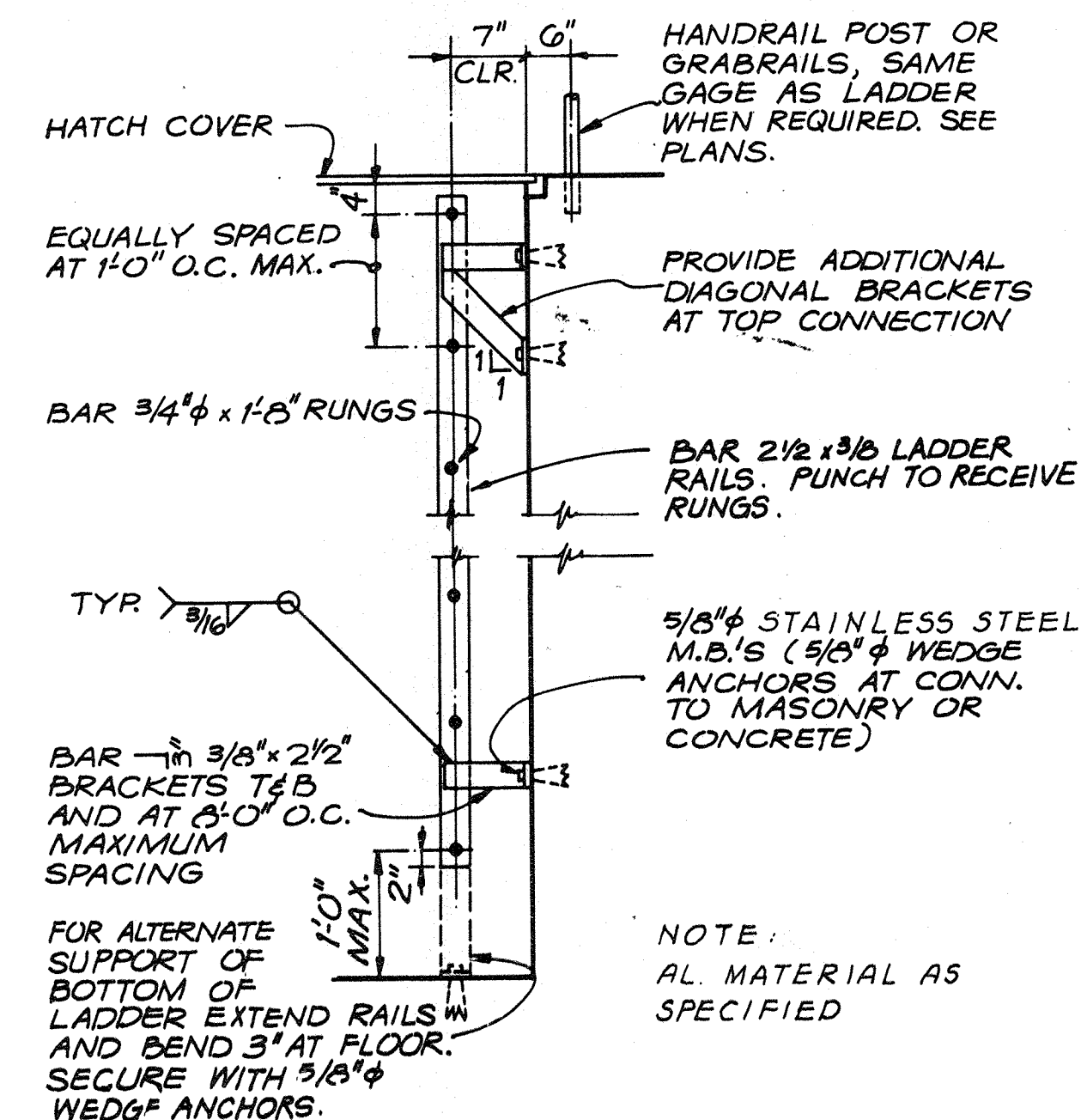
131



TYPICAL STACKED PIPE
WALL SYSTEM DETAIL

N.T.S.

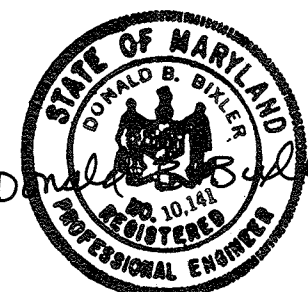
132



LADDER

N.T.S.

135



RECORD DRAWING

| | | | | | |
|-------|--|------|----------|----|-------|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

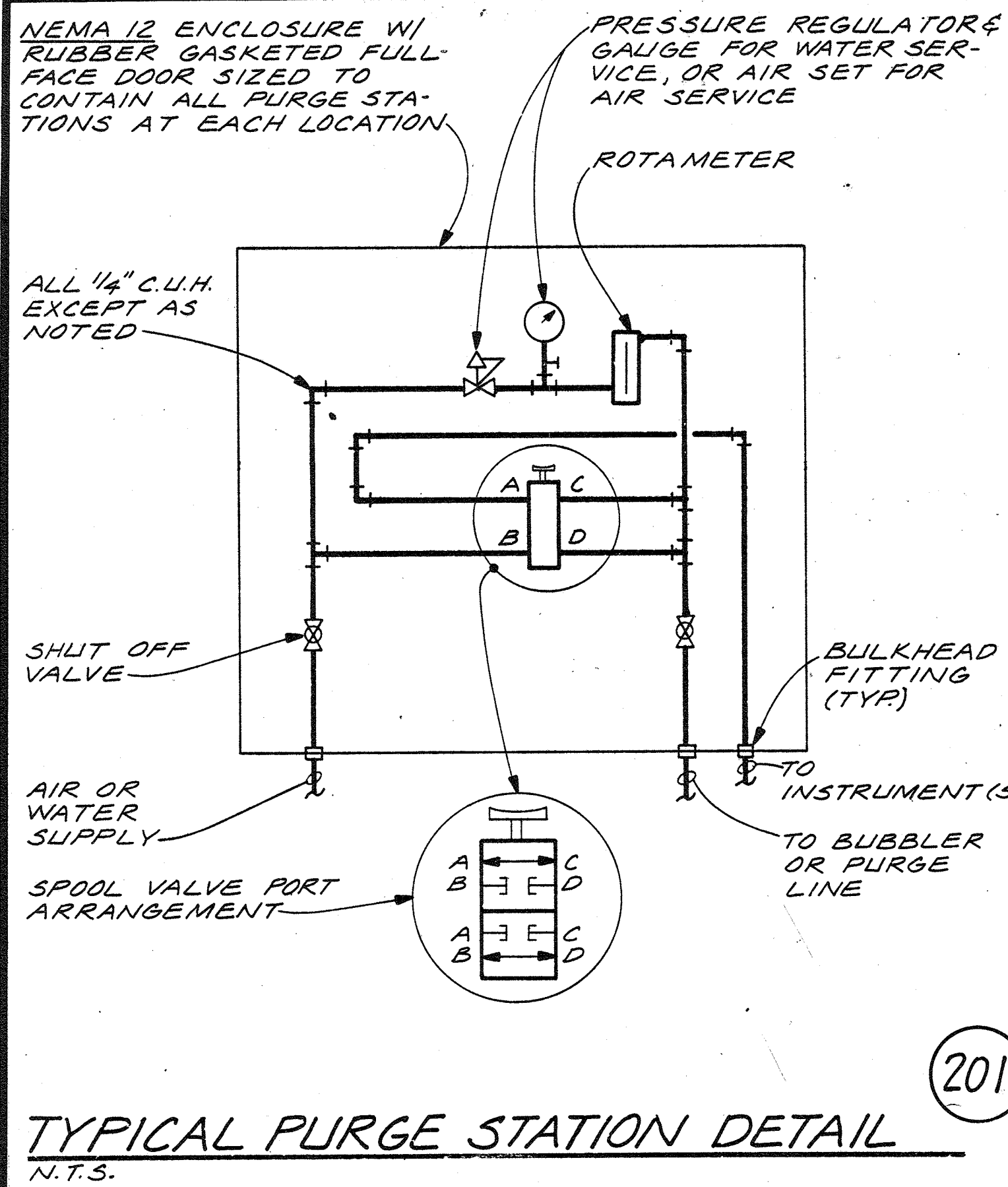
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

STANDARD DETAILS

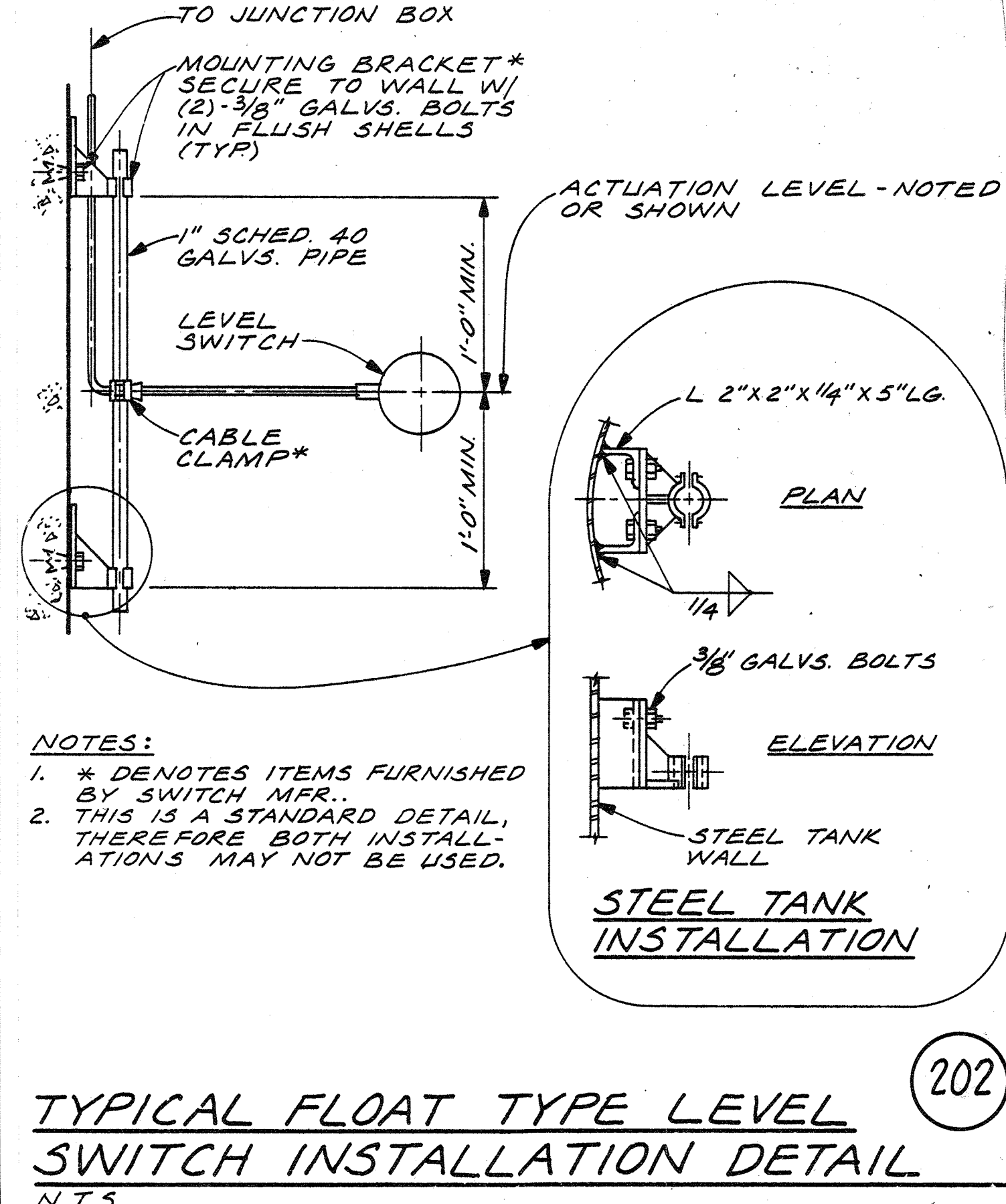
MECHANICAL

SHEET
OF
D-7
DATE 8-78
DWG.
NO. WI078.C1



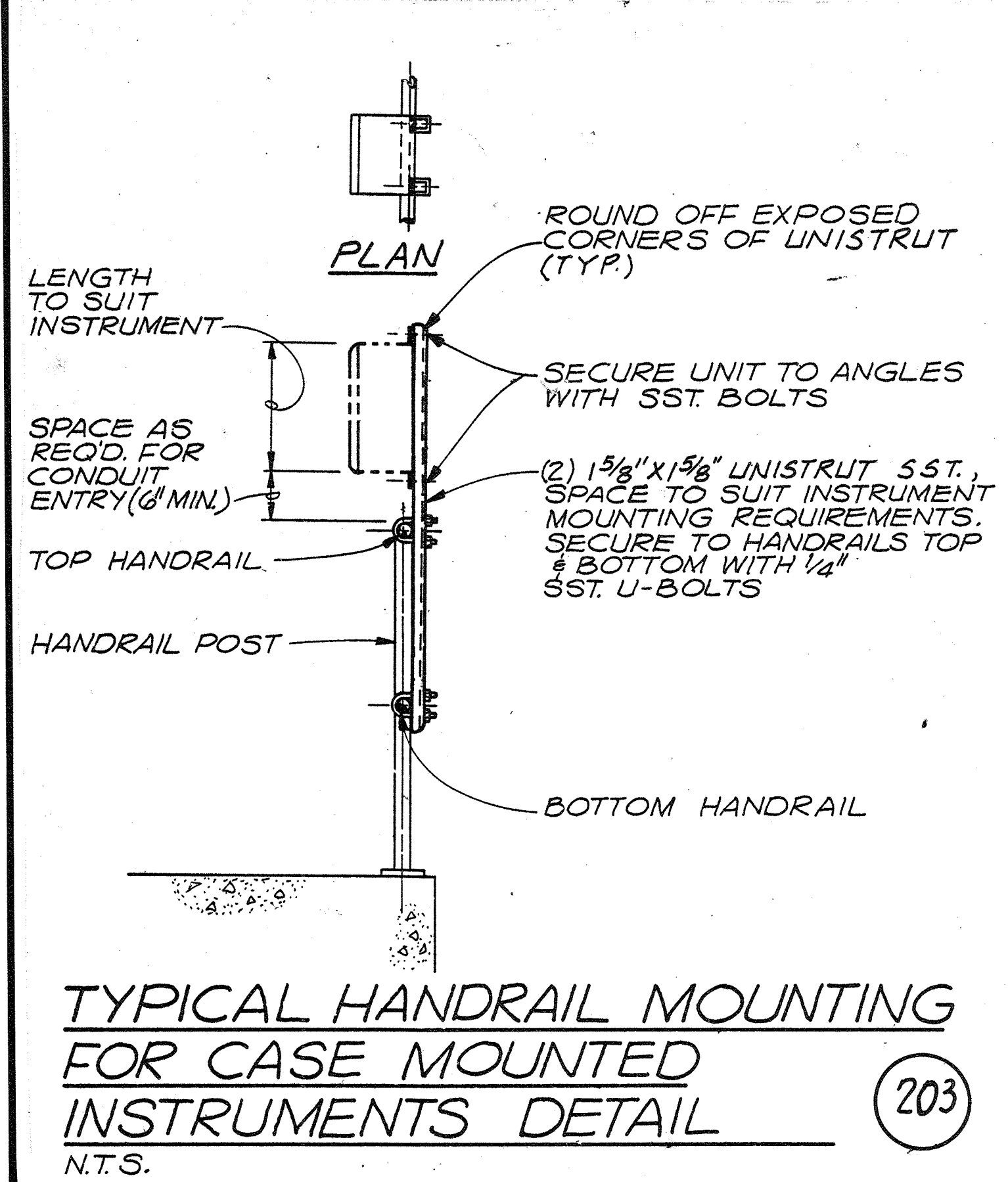
TYPICAL PURGE STATION DETAIL
N.T.S.

201



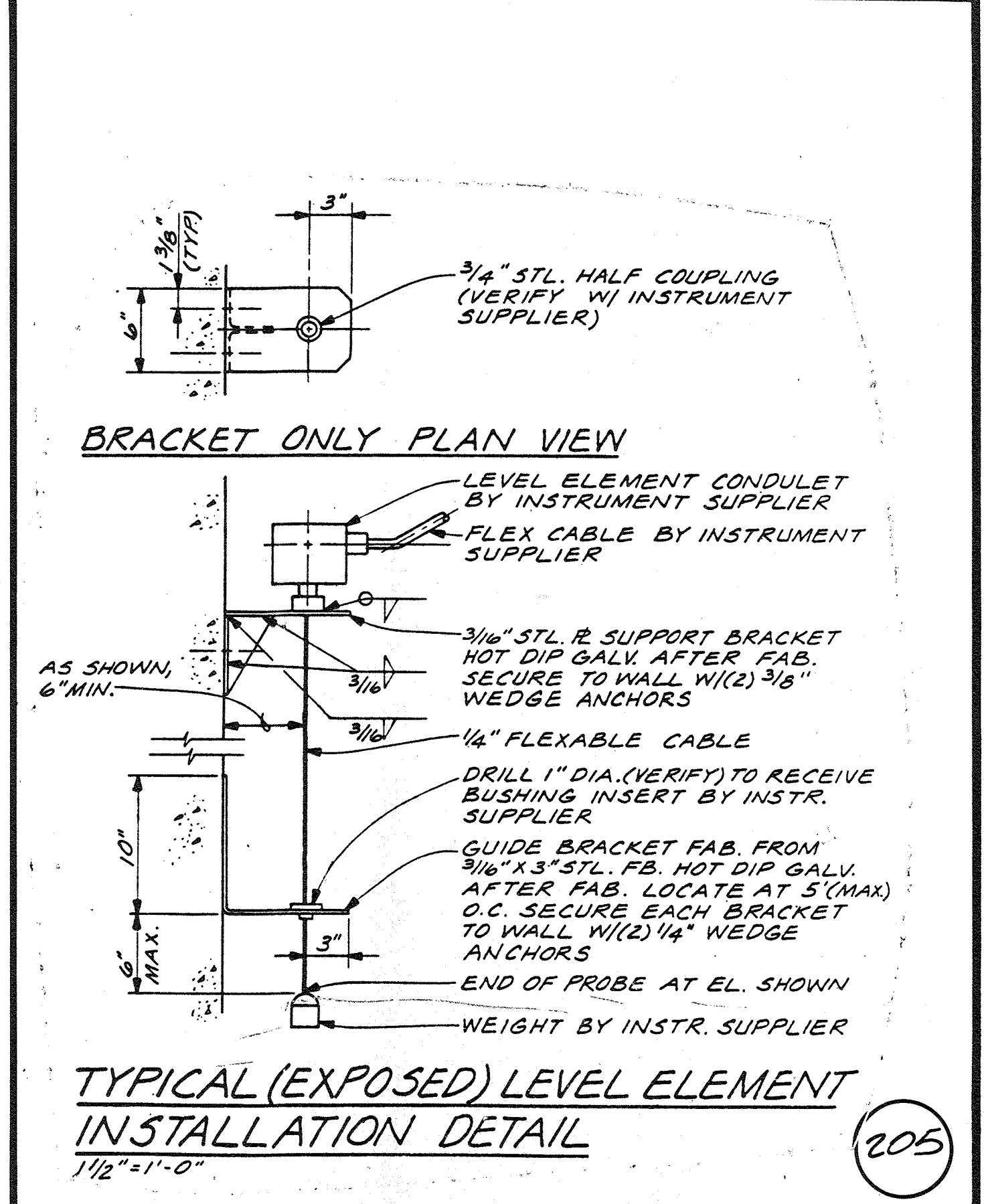
TYPICAL FLOAT TYPE LEVEL SWITCH INSTALLATION DETAIL
N.T.S.

202



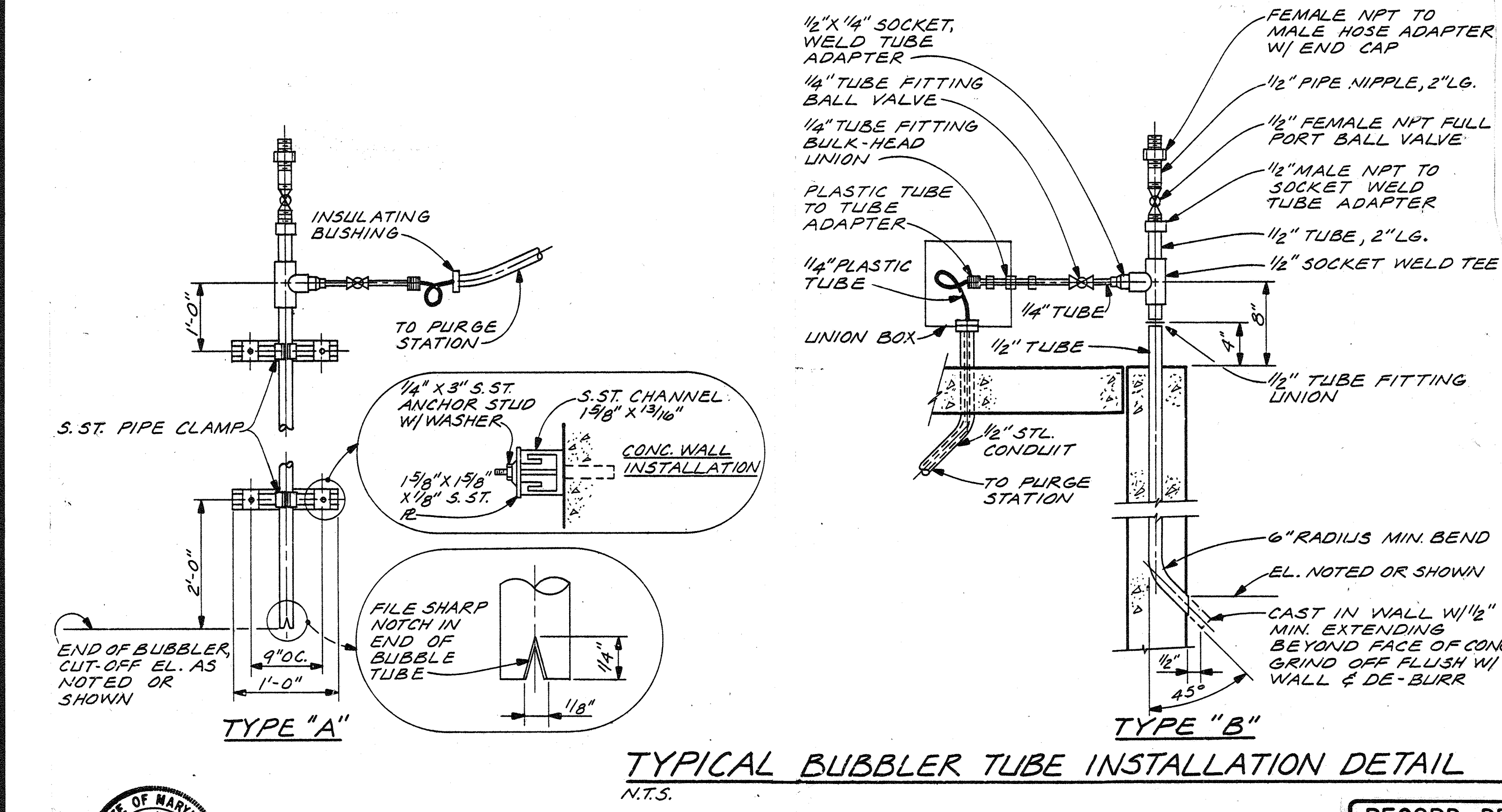
TYPICAL HANDRAIL MOUNTING FOR CASE MOUNTED INSTRUMENTS DETAIL
N.T.S.

203



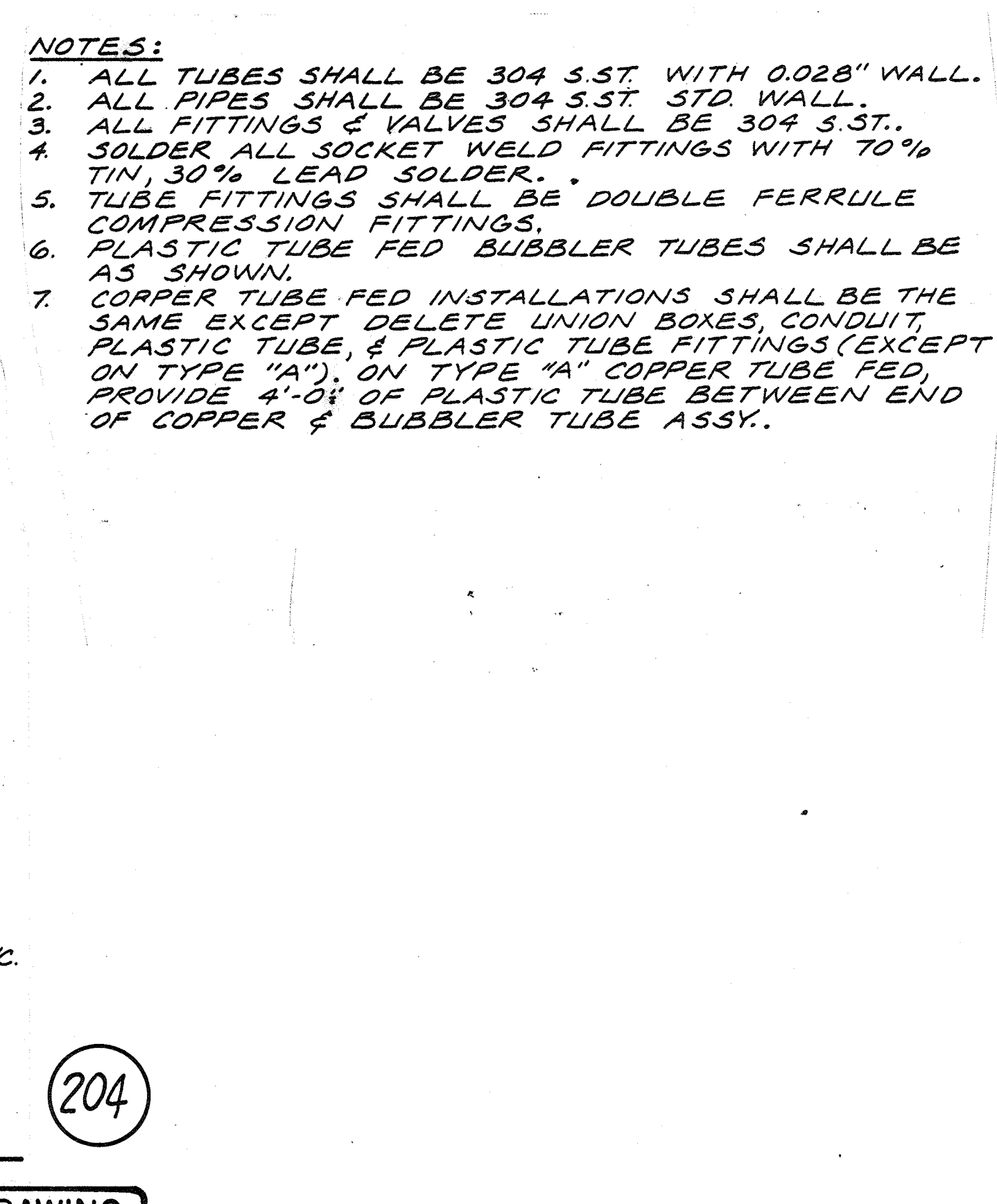
TYPICAL (EXPOSED) LEVEL ELEMENT INSTALLATION DETAIL
1/2" = 1'-0"

205



TYPICAL BUBBLER TUBE INSTALLATION DETAIL
N.T.S.

204



STANDARD PANEL MOUNTING DETAIL
N.T.S.

206

RECORD DRAWING



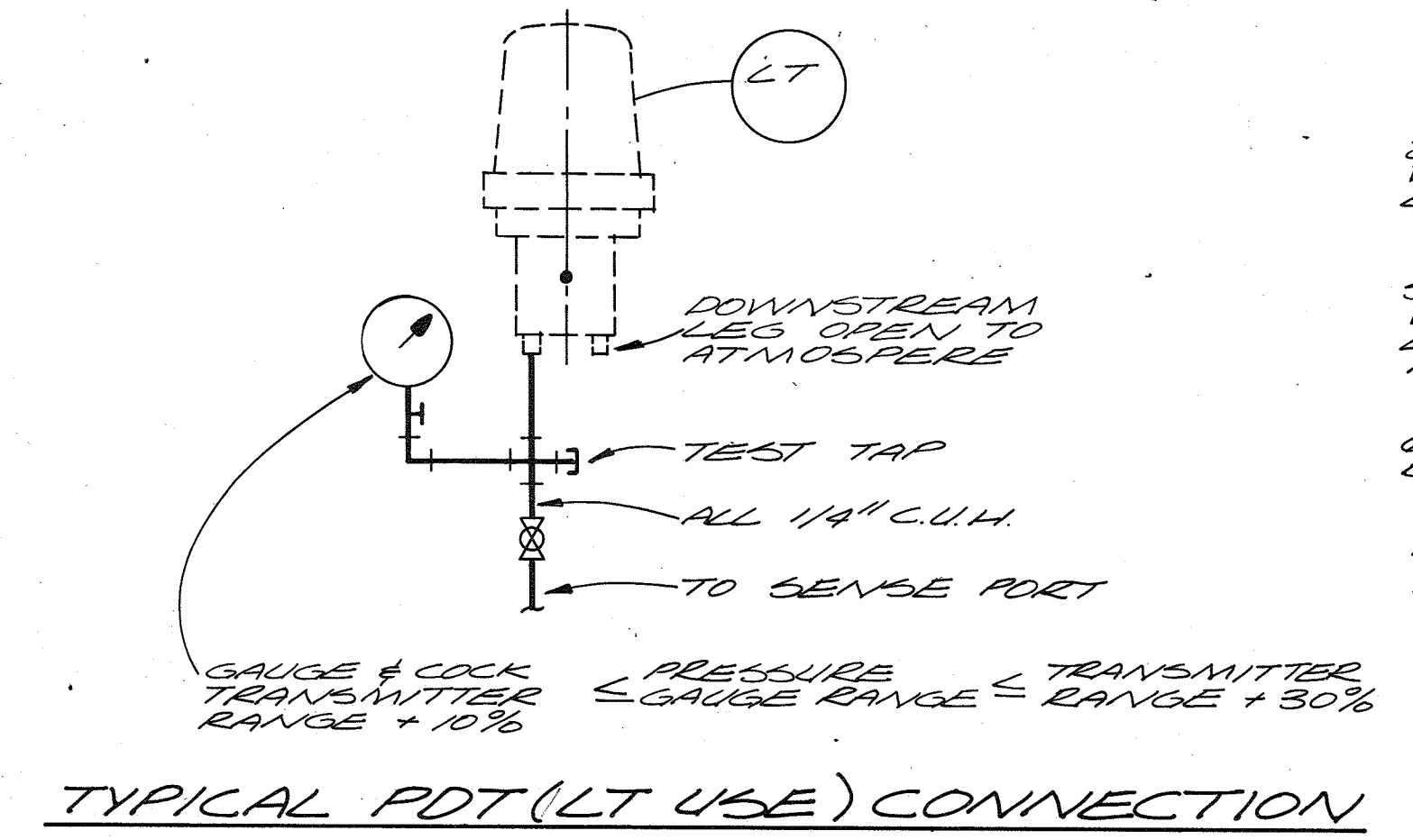
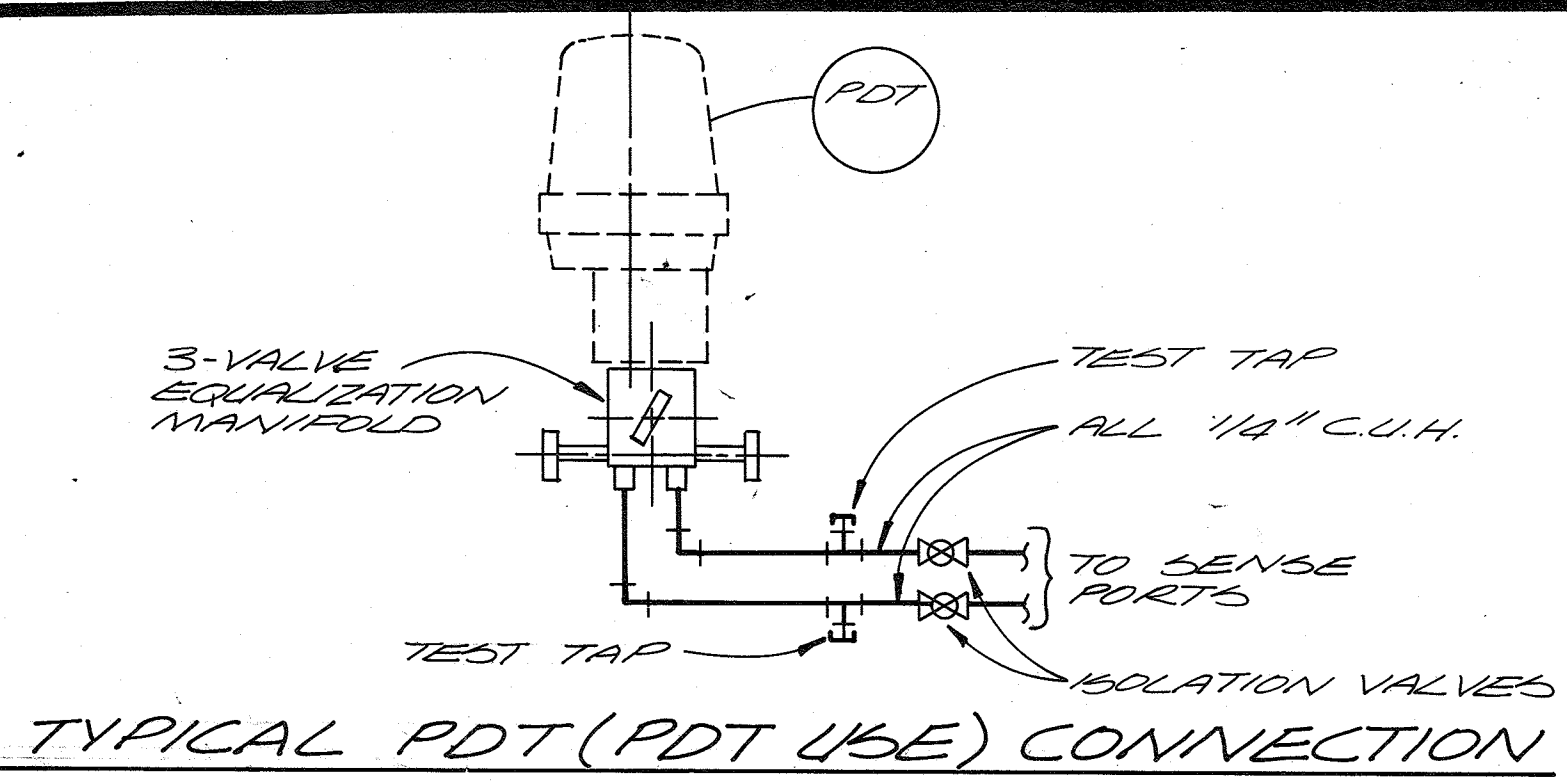
| | | | | | |
|-------|------|----------|----|-------|--|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | DATE | REVISION | BY | APPD. | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE 5/22/77
James M. Slum
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

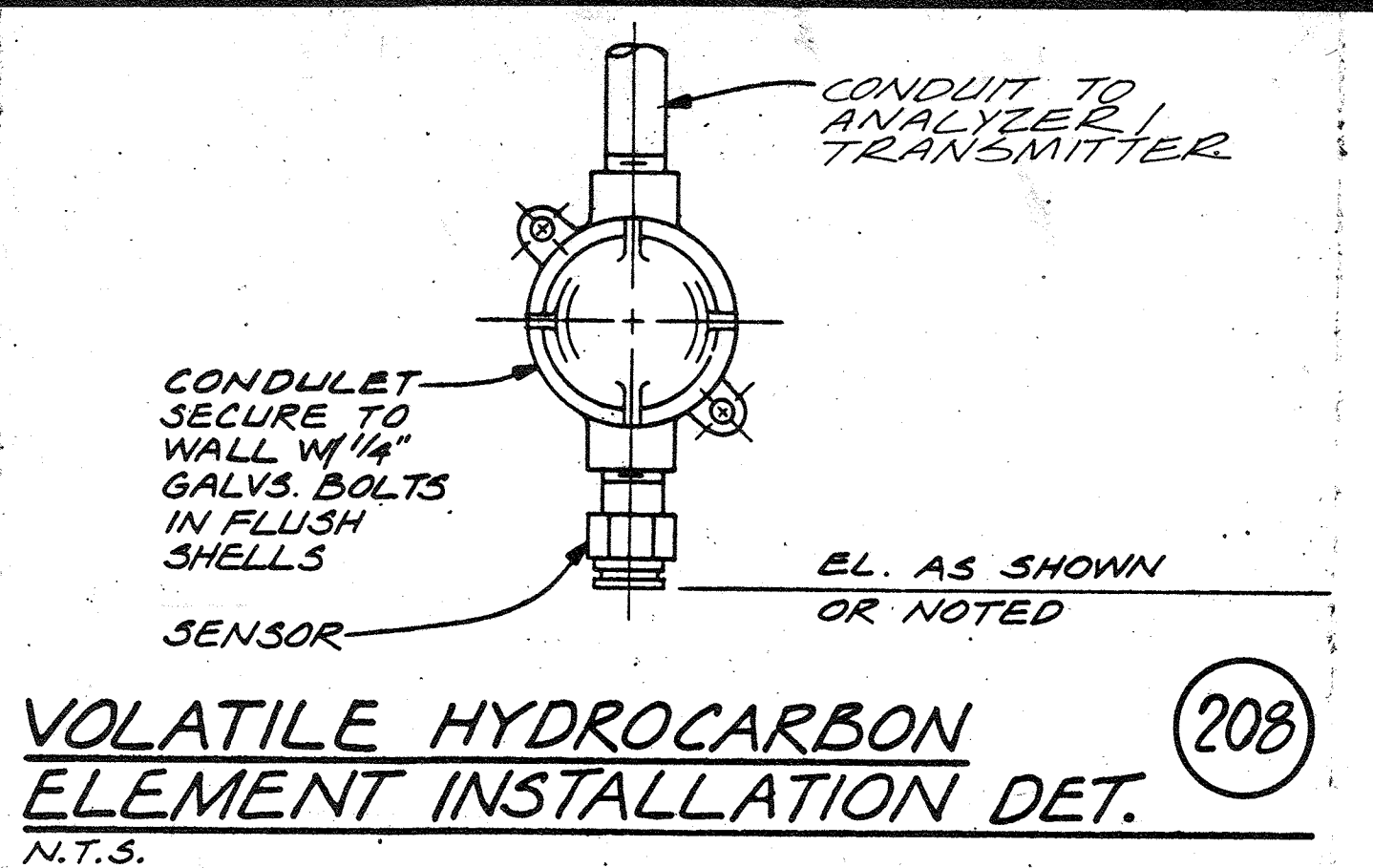
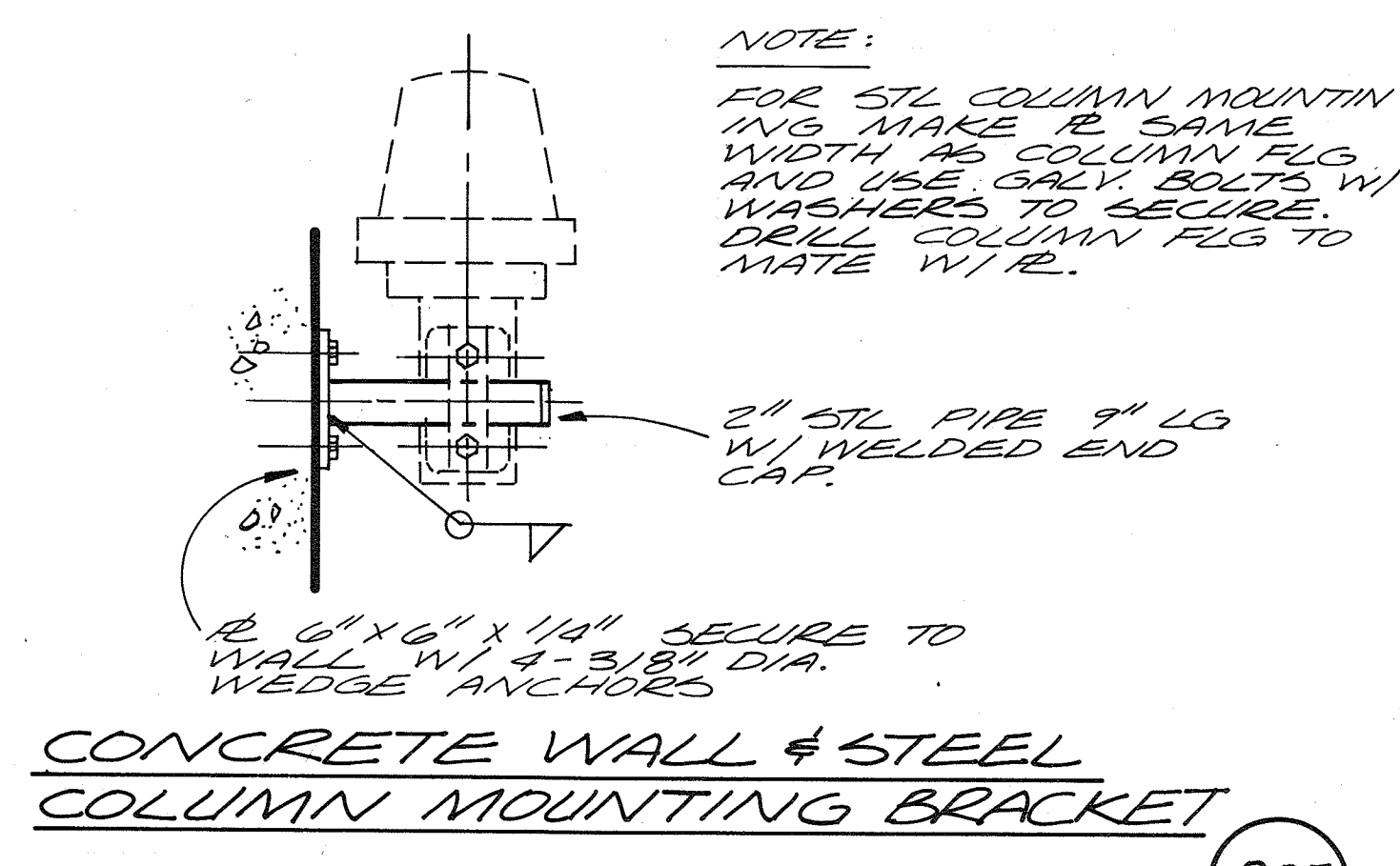
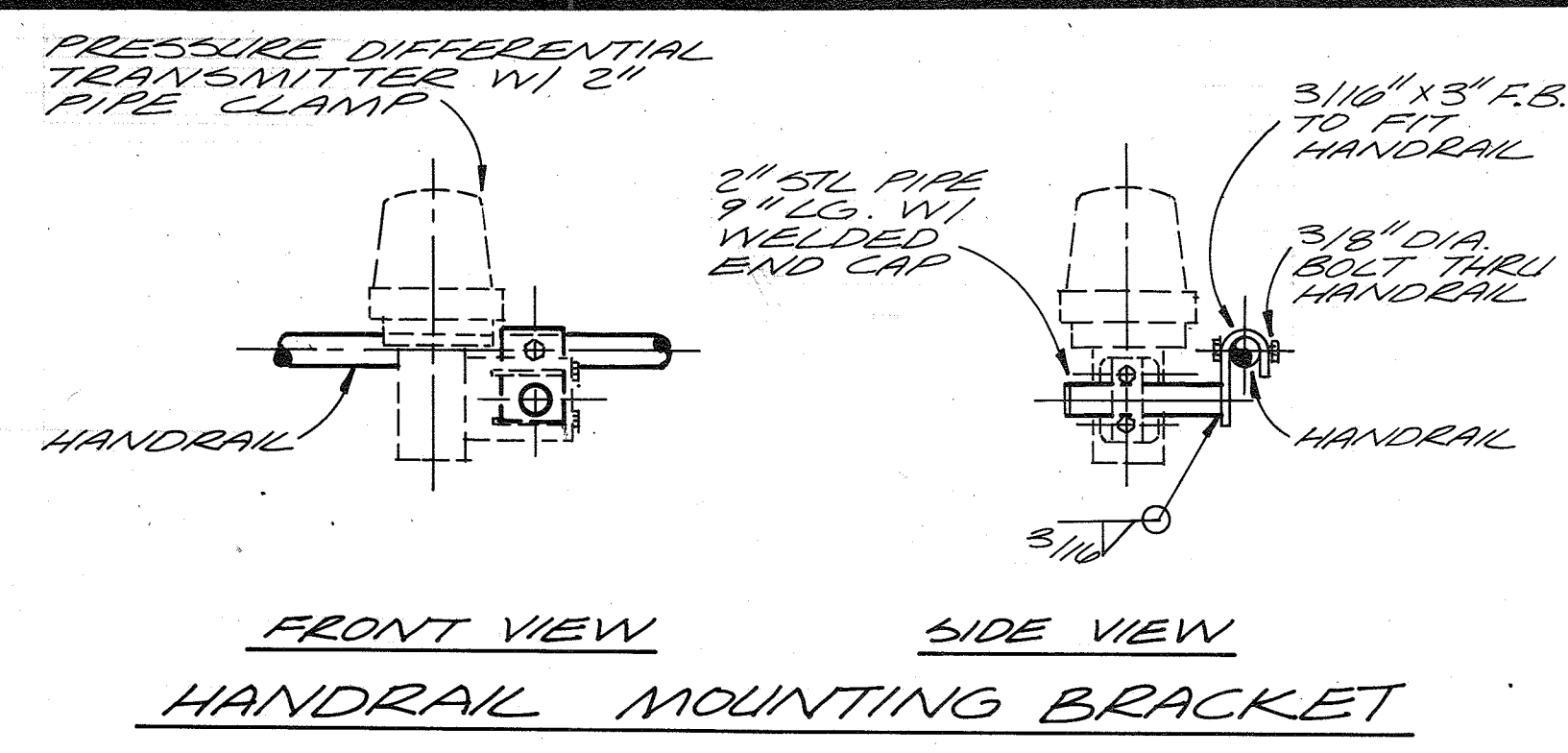
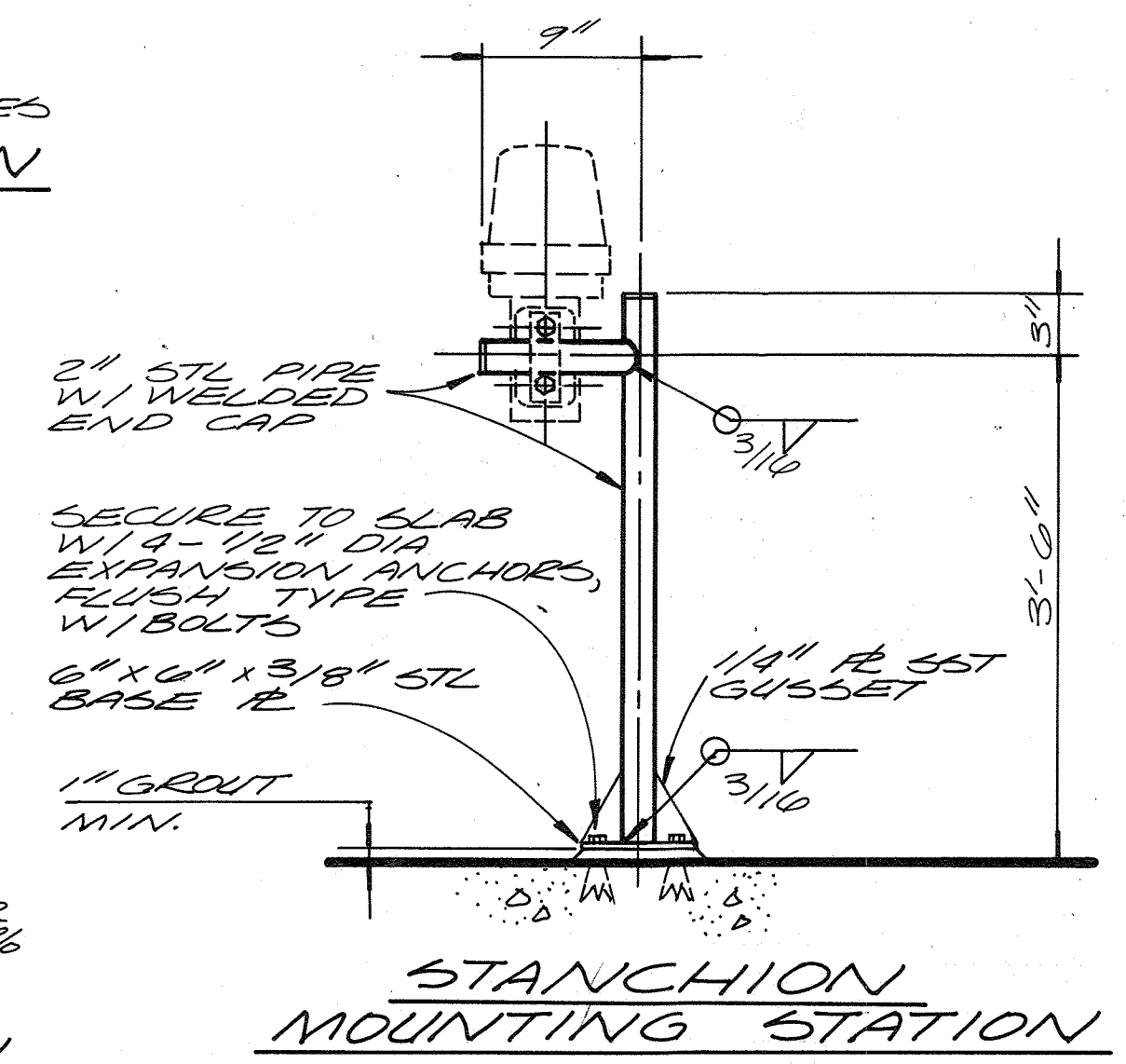
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

STANDARD DETAILS
INSTRUMENTATION & CONTROL

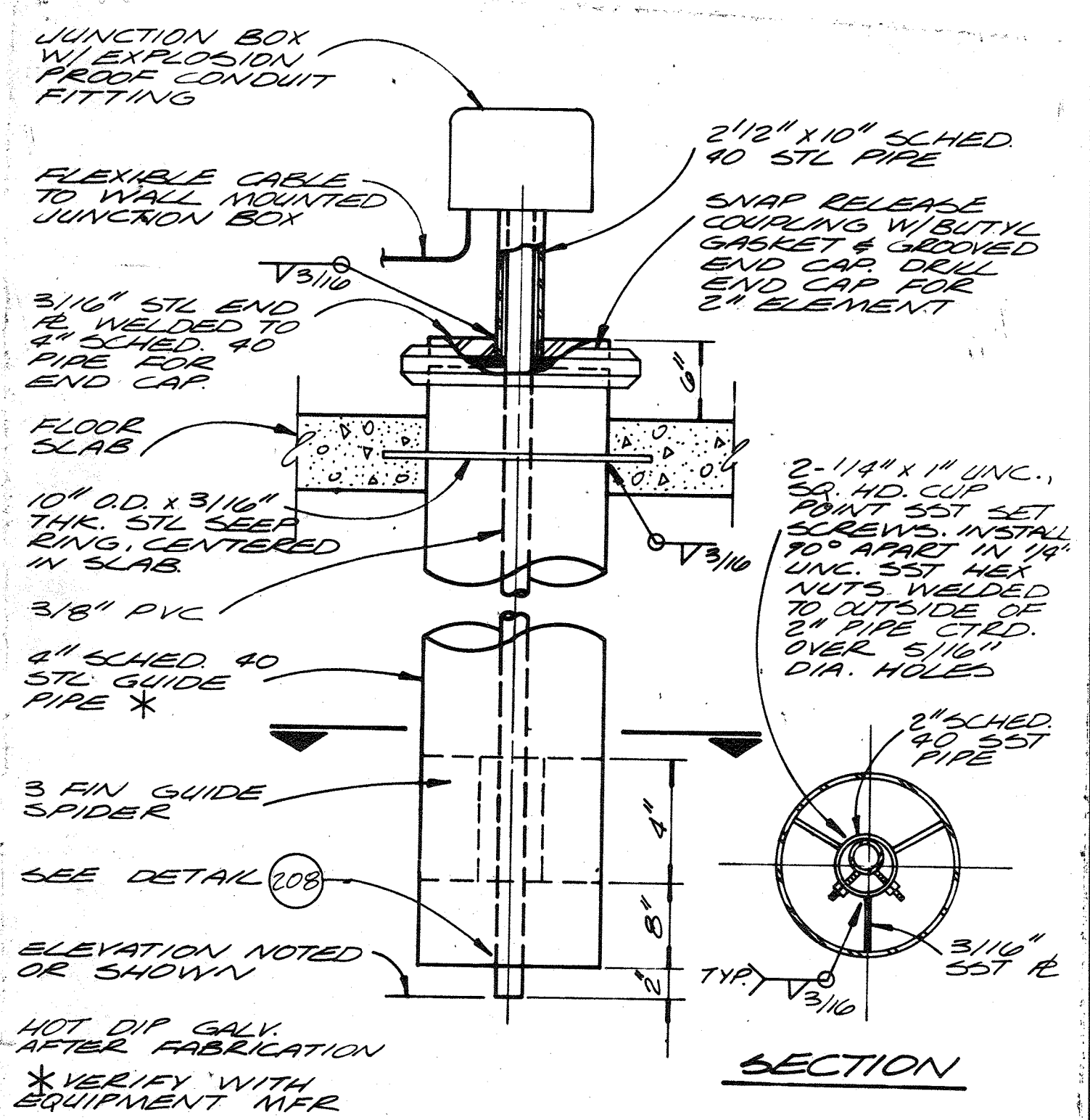
SHEET D-8
OF
DATE 8-78
DWG. NO. W1078.C1



NOTES:
1. HOT DIP GALV. BRACKETS AND STANCHIONS AFTER FABRICATION.
2. FOR PROCESS CONNECTIONS SEE MECHANICAL

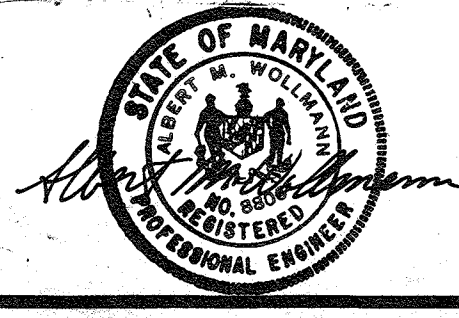


PRESSURE & PRESSURE DIFFERENTIAL TRANSMITTER INSTALLATION DETAIL



VHC ELEMENT INSTALLATION DETAIL

RECORD DRAWING



| | | | | | |
|-------|--|-----|------|----------|----------|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | NO. | DATE | REVISION | BY APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

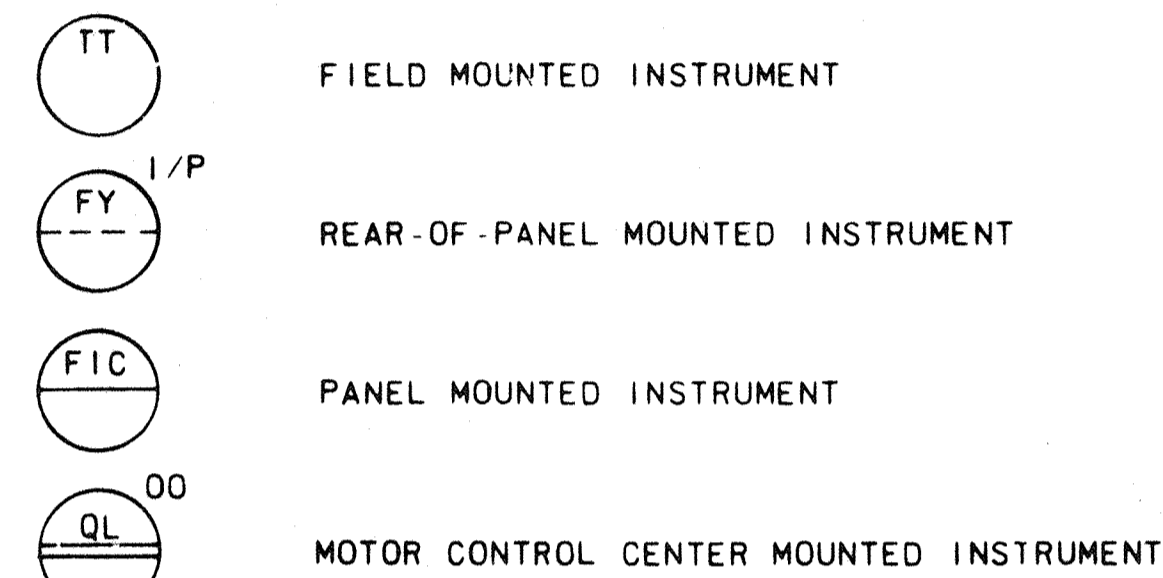
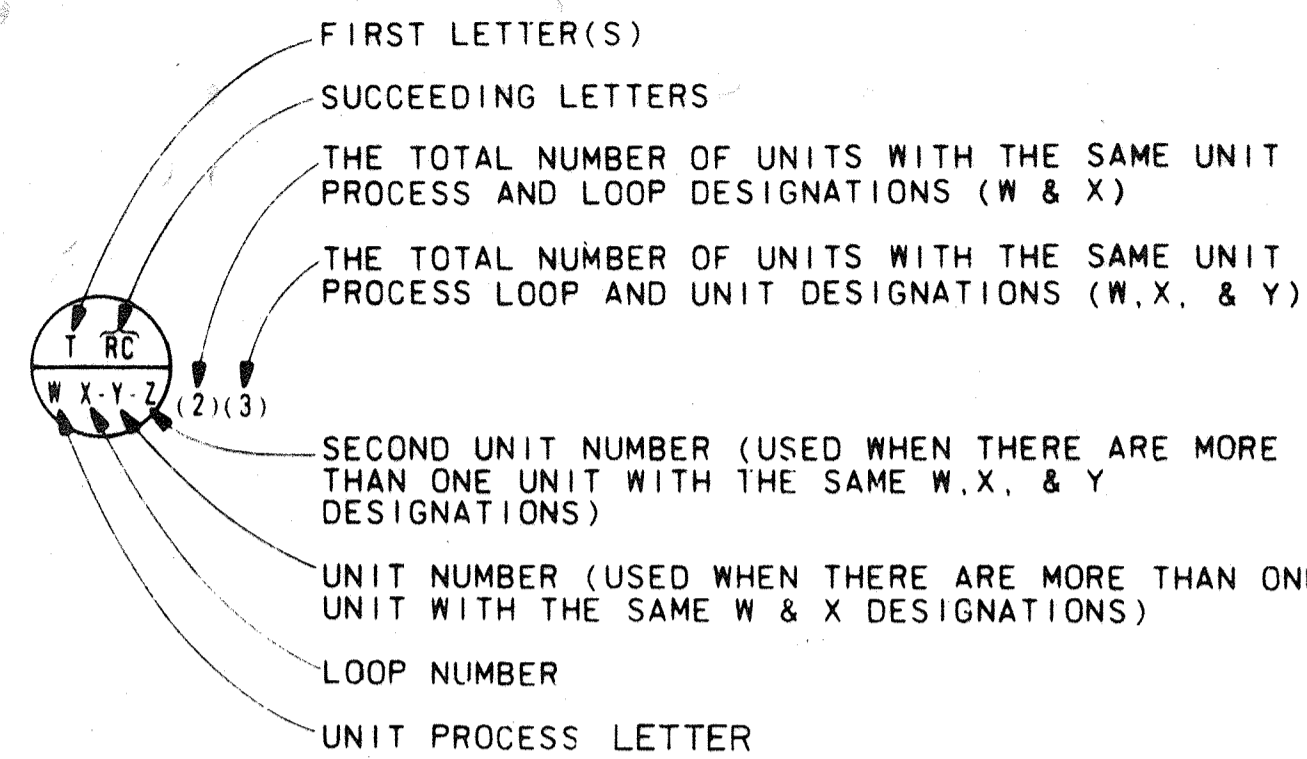
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

STANDARD DETAILS
INSTRUMENTATION & CONTROL

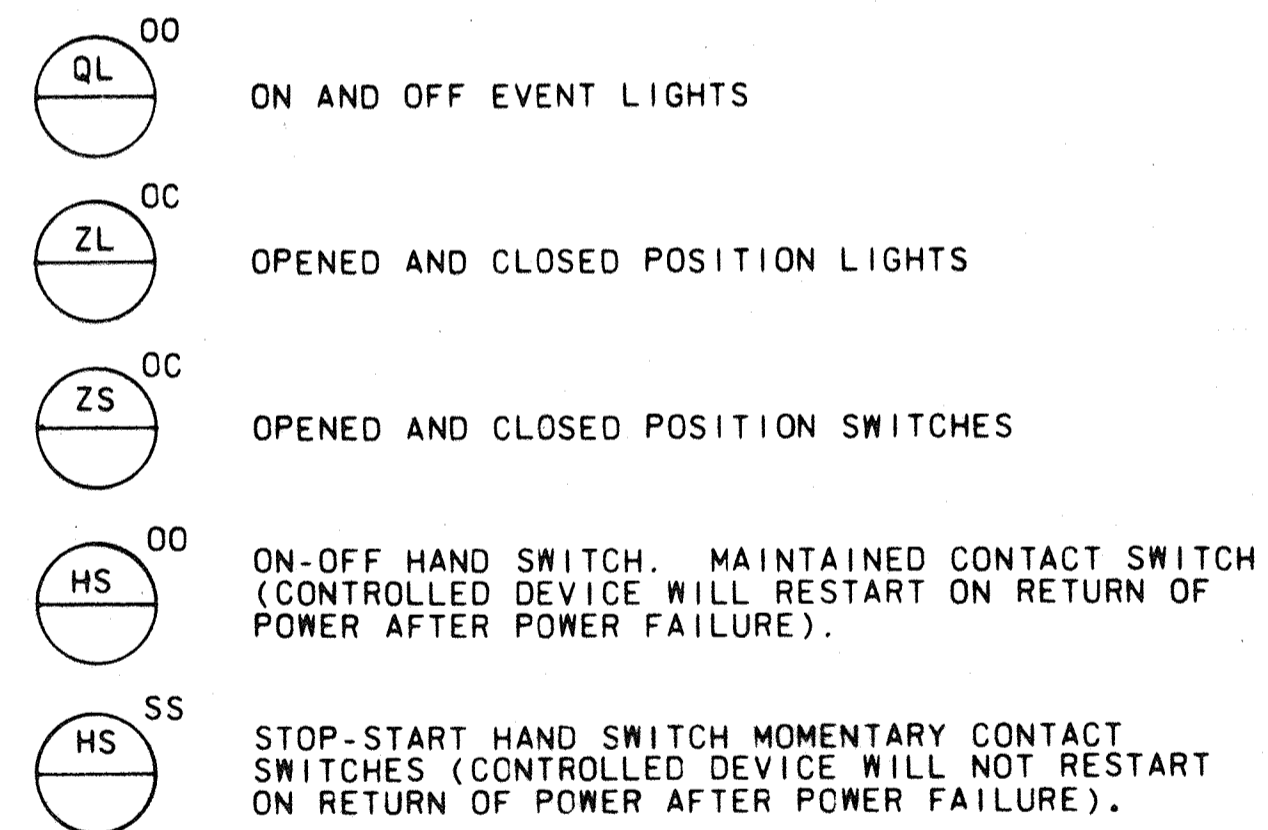
SHEET OF D-9
DATE 8-78
DWG. NO. W1078.C1

INSTRUMENT IDENTIFICATION

EXAMPLE SYMBOLS



SPECIAL CASES



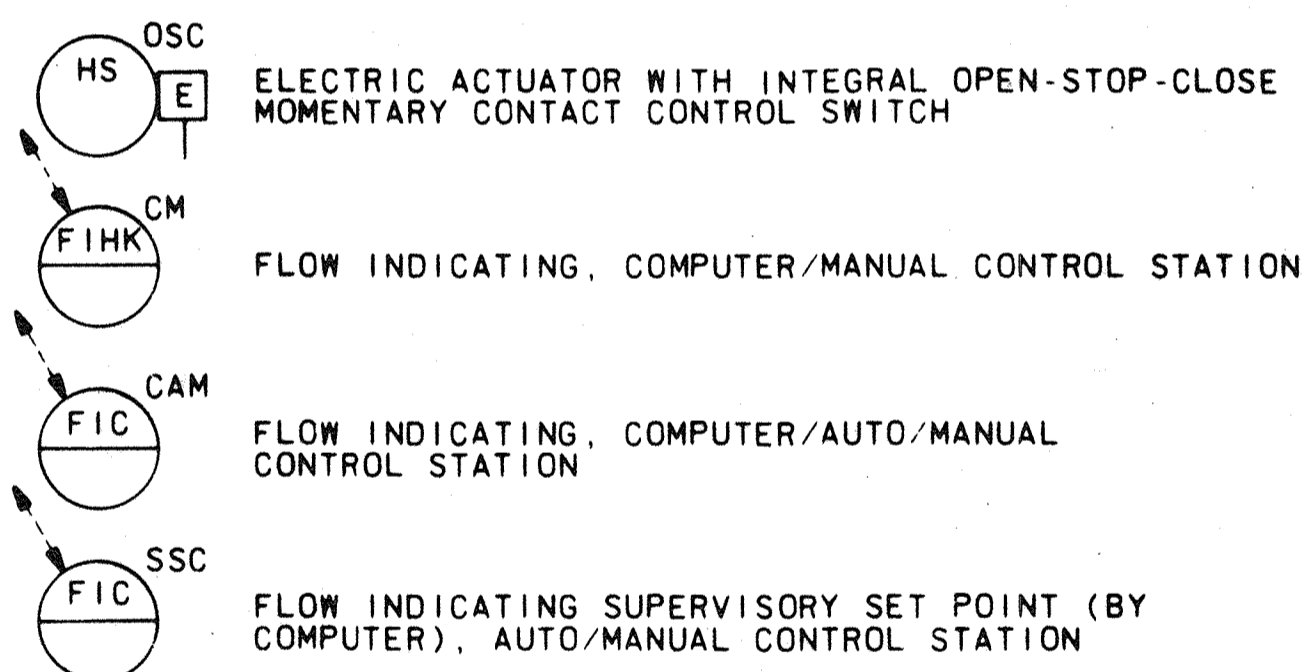
TRANSDUCERS

- A ANALOG
- D DIGITAL
- E VOLTAGE
- F FREQUENCY
- I CURRENT
- P PNEUMATIC
- PF PULSE FREQUENCY
- PD PULSE DURATION

INSTRUMENT SOCIETY OF AMERICA TABLE

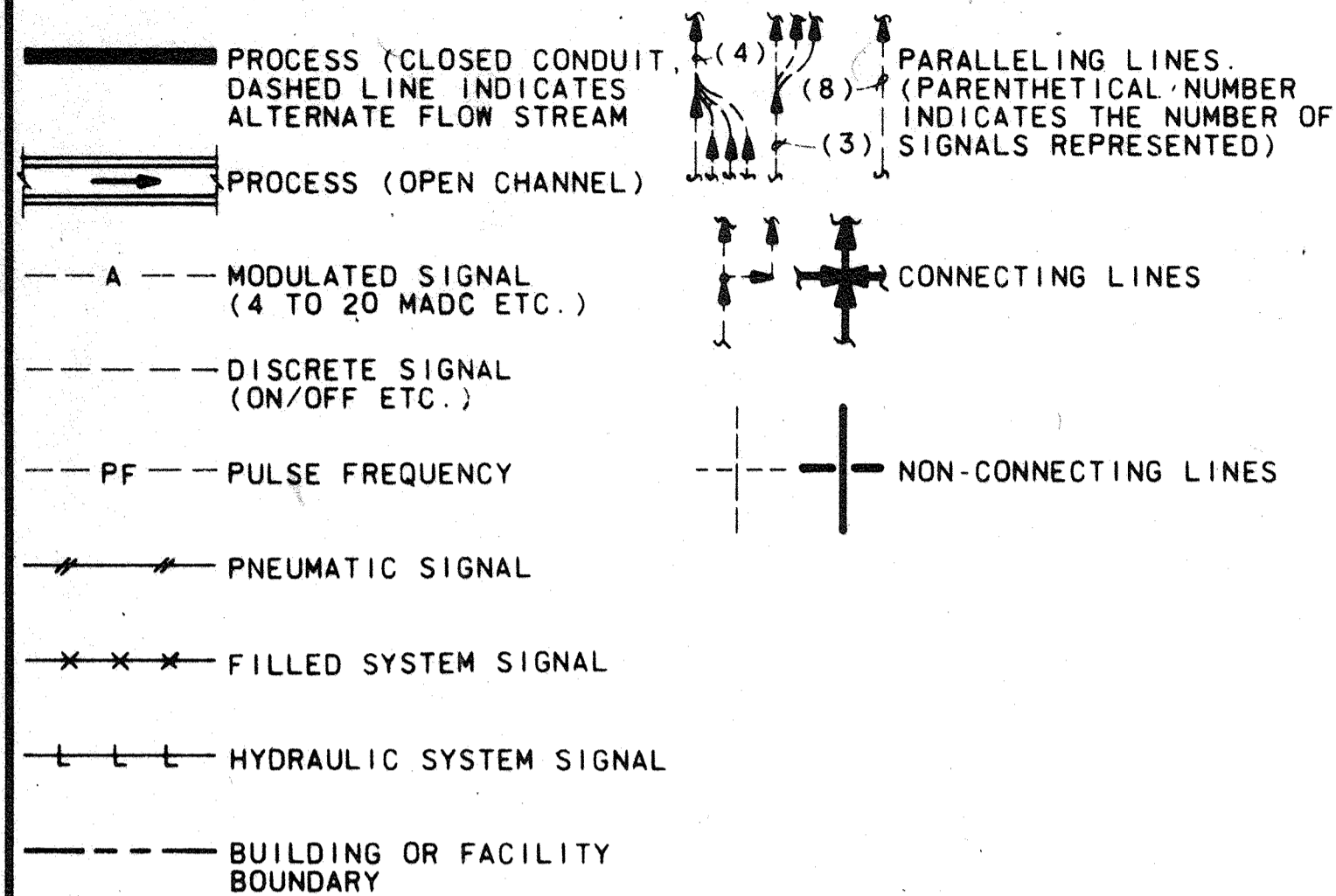
| LETTER | FIRST LETTER(S) | | SUCCEEDING LETTERS | | |
|--------|--------------------------------|--------------|-----------------------------|--|-----------------|
| | PROCESS OR INITIATING VARIABLE | MODIFIER | READOUT OR PASSIVE FUNCTION | OUTPUT FUNCTION | MODIFIER |
| A | ANALYSIS(+) | | ALARM | | |
| B | BURNER FLAME | | USERS CHOICE(+) | USERS CHOICE(+) | USERS CHOICE(+) |
| C | CONDUCTIVITY | | | CONTROL | |
| D | DENSITY (S.G.) | DIFFERENTIAL | | | |
| E | VOLTAGE | | PRIMARY ELEMENT | | |
| F | FLOW RATE | RATIO | | | |
| G | GAUGE | | GLASS | GATE | |
| H | HAND (MANUAL) | | | | HIGH |
| I | CURRENT | | INDICATE | | |
| J | POWER | SCAN | | | |
| K | TIME OR SCHEDULE | | | CONTROL STATION | |
| L | LEVEL | | LIGHT (PILOT) | | LOW |
| M | MOTION | | | | MIDDLE |
| N | USERS CHOICE(+) | | USERS CHOICE(+) | USERS CHOICE(+) | USERS CHOICE(+) |
| O | USERS CHOICE(+) | | ORIFICE | | |
| P | PRESSURE (OR VACUUM) | | POINT (TEST CONNECTION) | | |
| Q | QUANTITY OR EVENT(+) | INTEGRATE | INTEGRATE | | |
| R | | | RECORD OR PRINT | | |
| S | SPEED OR FREQUENCY | SAFETY | | SWITCH | |
| T | TEMPERATURE | | | TRANSMIT | |
| U | MULTIVARIABLE(+) | | MULTIFUNCTION(+) | | |
| V | VISCOSITY | | | VALVE | |
| W | WEIGHT OR FORCE | | WELL | | |
| X | UNCLASSIFIED(+) | | UNCLASSIFIED(+) | UNCLASSIFIED(+) | UNCLASSIFIED(+) |
| Y | USERS CHOICE(+) | | RELAY OR COMPUTE(+) | | |
| Z | POSITION | | | DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT | |

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.



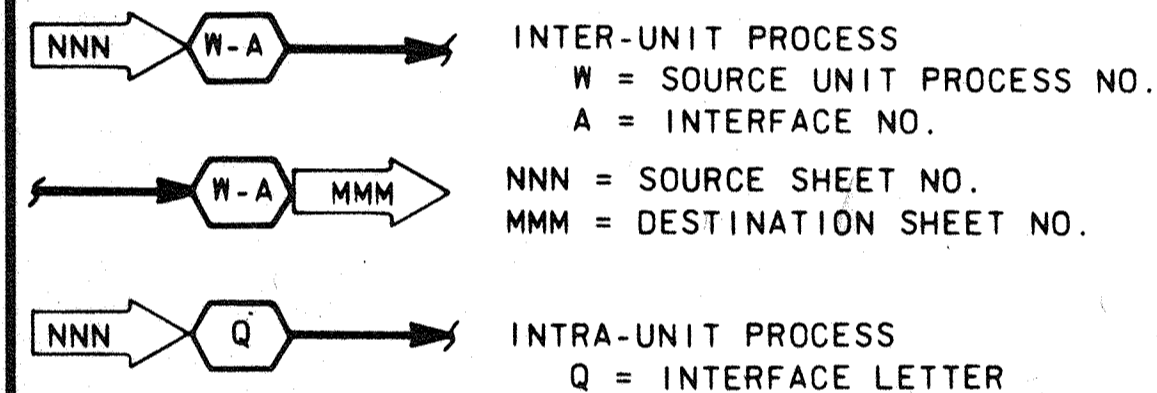
EXAMPLE: CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

LINE LEGEND

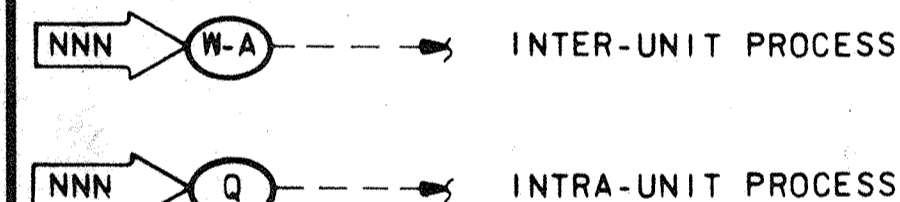


INTERFACE SYMBOLS

PROCESS

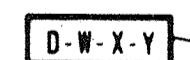


SIGNAL

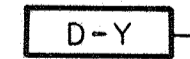


VALVE & EQUIPMENT TAG NUMBERS

EQUIPMENT TAG



VALVE & GATE TAG



- D: P = PUMP
 - T = TANK
 - M = MECHANICAL EQUIPMENT
 - V = VALVE
 - FG = FABRICATED SLIDE GATE
 - SG = SLUICE GATE
 - ARV = AIR RELEASE VALVE
 - AVRV = AIR AND VACUUM RELEASE VALVE
 - PSV = PRESSURE RELIEF VALVE
 - PCV = PRESSURE CONTROL VALVE
 - LCV = LEVEL CONTROL VALVE
 - TCV = TEMPERATURE CONTROL VALVE
- W = UNIT PROCESS NUMBER
X = LOOP NUMBER
Y = UNIT NUMBER

RECORD DRAWING

ABBREVIATIONS & LETTER SYMBOLS

- AC ALTERNATING CURRENT
- ALKY ALKALINITY
- AM AUTO-MANUAL
- CAM COMPUTER-AUTO-MANUAL
- CCS CENTRAL CONTROL SYSTEM
- CL2 CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATION)
- CM COMPUTER-MANUAL
- CNDCT CONDUCTIVITY
- COD CHEMICAL OXYGEN DEMAND
- CP-X CONTROL PANEL NO. X
- DC DIRECT CURRENT
- DO DISSOLVED OXYGEN
- FC12 FREE CHLORINE RESIDUAL
- FOS FAST-OFF-SLOW
- FOSA FAST-OFF-SLOW-AUTO
- FOSR FAST-OFF-SLOW-REMOTE
- FR FORWARD-REVERSE
- HDNS HARDNESS
- HOA HAND-OFF-AUTO
- HOR HAND-OFF-REMOTE
- LEL LOWER EXPLOSIVE LIMIT
- LOS LOCKOUT STOP
- LP-W LOCAL PANEL NO. W (W= PANEL NUMBER)
- LR LOCAL-REMOTE
- MA MANUAL-AUTO
- MBAS METHYLENE BLUE-ACTIVE SUBSTANCES
- MC MODULATE-CLOSE
- MCC-X MOTOR CONTROL CENTER NO. X
- OC OPEN-CLOSE(D)
- OCA OPEN-CLOSE-AUTO
- OO ON-OFF
- OOA ON-OFF-AUTO
- OP ORTHO PHOSPHORUS
- ORP OXIDATION REDUCTION POTENTIAL
- OSC OPEN-STOP-CLOSE
- pH HYDROGEN ION CONCENTRATION
- RM-X REMOTE MULTIPLEXING MODULE NO. X
- SF SLOWER-FASTER
- SS START-STOP
- SSC SUPERVISORY SET POINT CONTROL
- TC12 TOTAL CHLORINE RESIDUAL
- TOC TOTAL ORGANIC CARBON
- TOD TOTAL OXYGEN DEMAND
- TURB TURBIDITY
- VHC VOLATILE HYDROCARBONS
- VIB VIBRATION
- Δ DIFFERENCE
- Σ SUM
- x MULTIPLY
- = DIVIDE
- f(x) CHARACTERIZED
- ∞ RAISE TO THE Nth POWER
- √ SQUARE ROOT
- AVG AVERAGE
- 1:1 REPEAT OR BOOST
- > SELECT HIGHEST SIGNAL
- < SELECT LOWEST SIGNAL

GENERAL NOTES

1. COMPONENTS AND PANELS SHOWN WITH A (♦) ARE NOT TO BE PROVIDED UNDER SECTION INSTRUMENTATION AND CONTROLS.
2. COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
3. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.



| | | | | | |
|-------|--|--|--|--|--|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

James M. ...
CHIEF-BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

LEGEND

INSTRUMENTATION & CONTROL

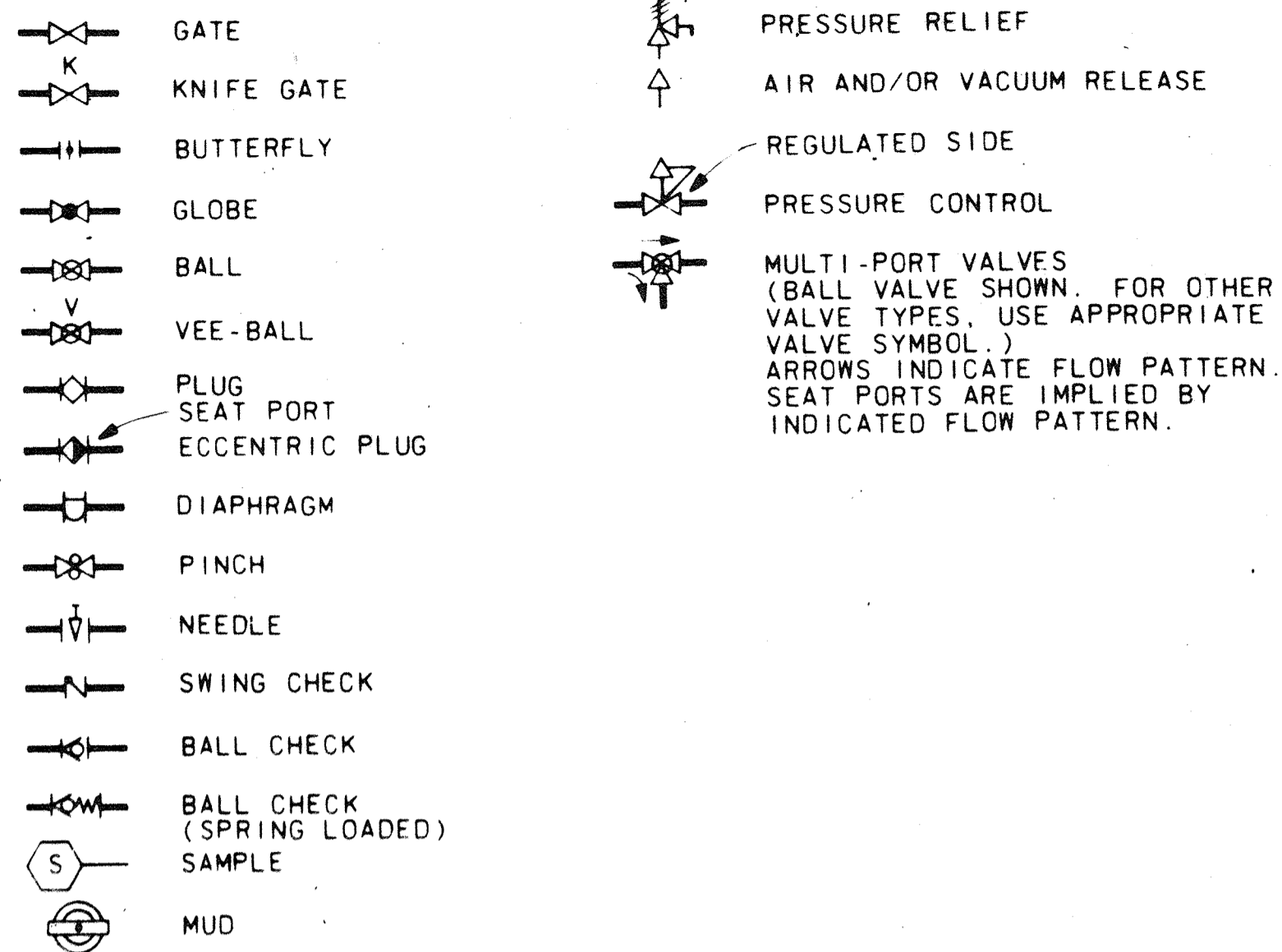
SHEET

1-1

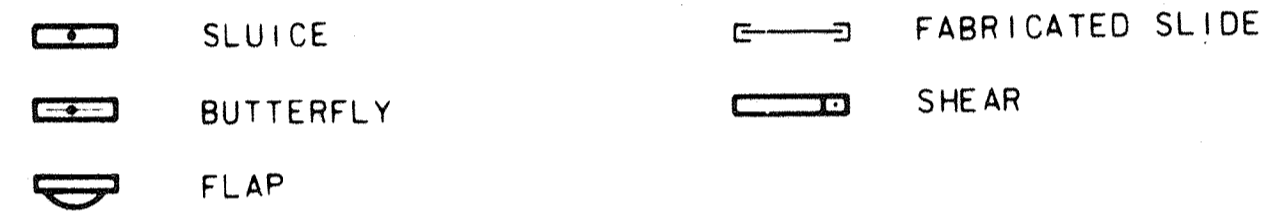
DATE 8-78

DWG. NO. W11078(C)

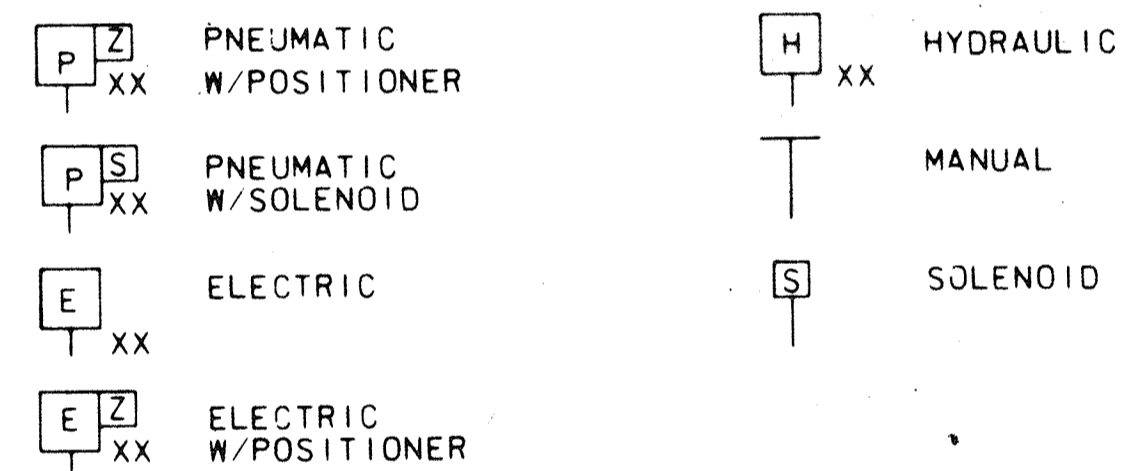
VALVE SYMBOLS



GATE SYMBOLS



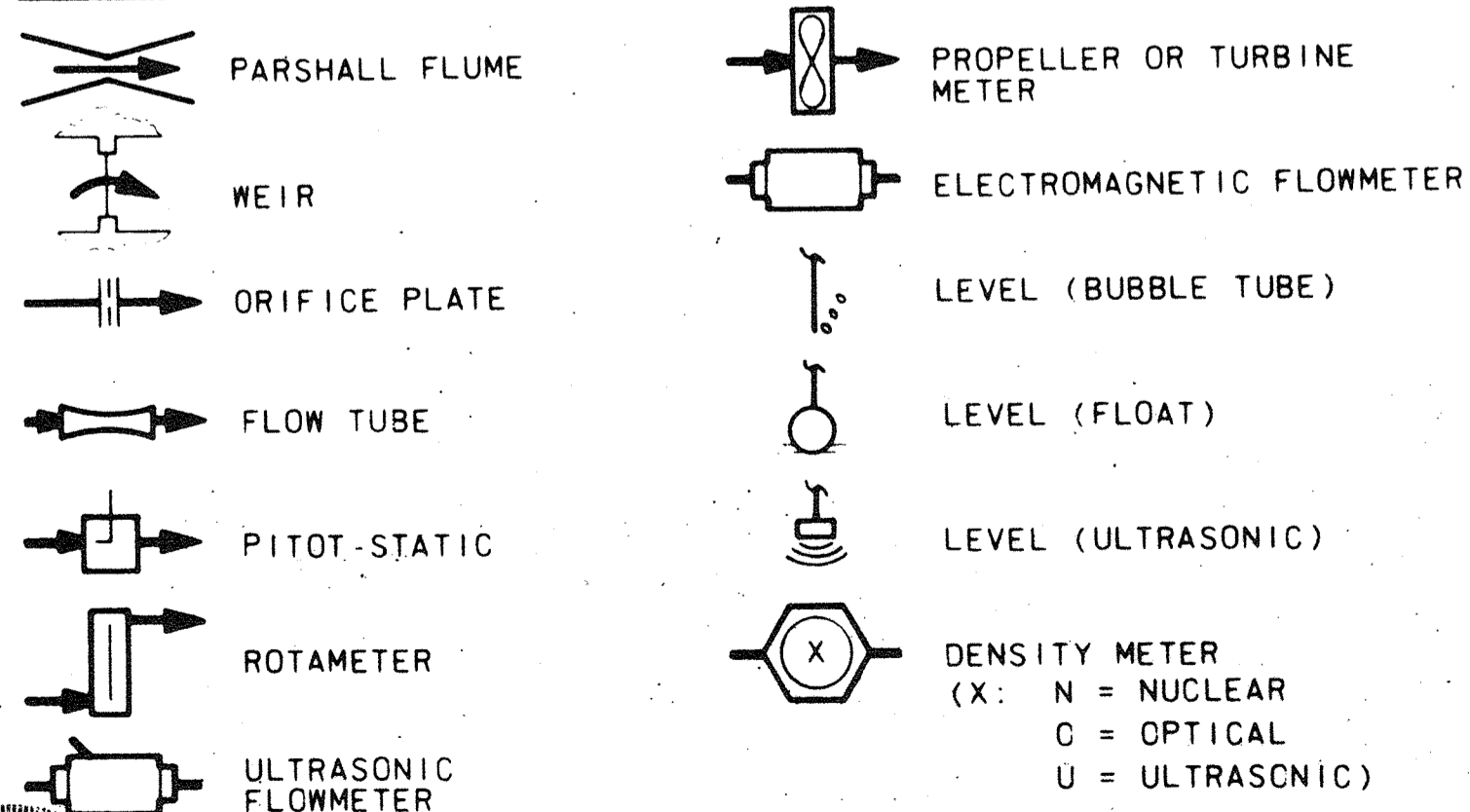
ACTUATOR SYMBOLS



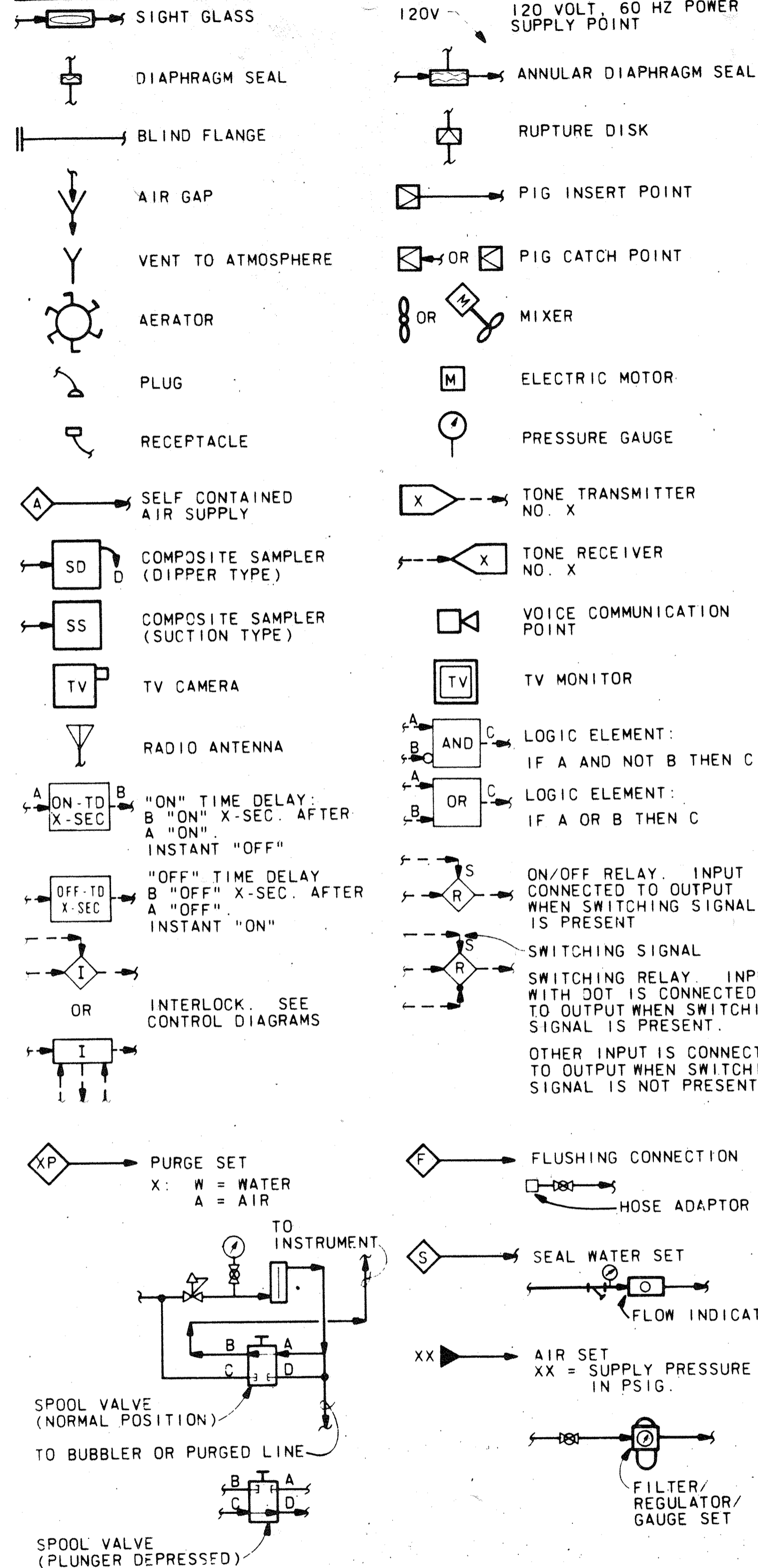
NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX: FO = FAIL OPEN
 FC = FAIL CLOSED
 FLP = FAIL TO LAST POSITION
 EO = ENERGIZE OPEN
 EC = ENERGIZE CLOSE

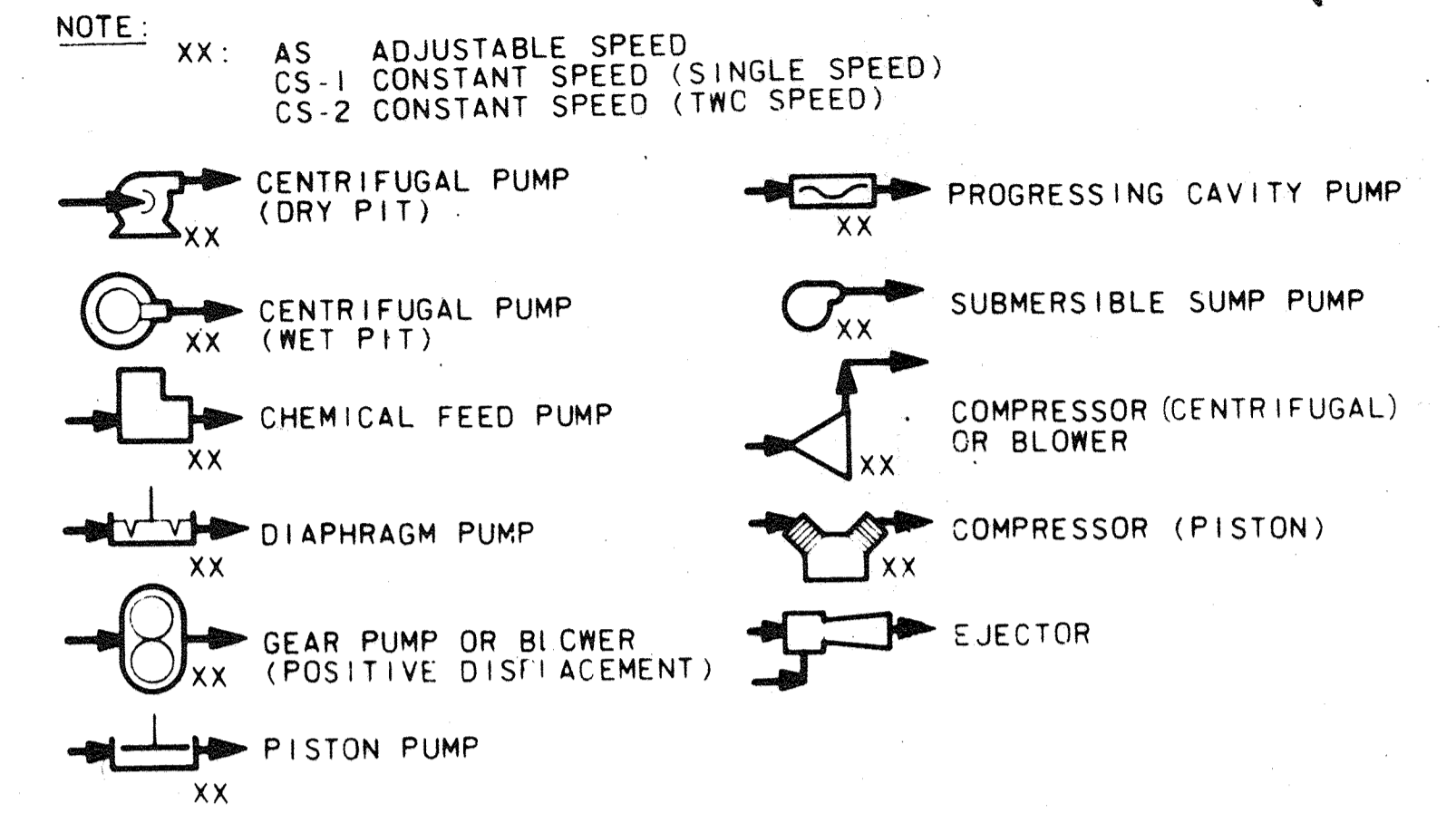
PRIMARY ELEMENT SYMBOLS



MISCELLANEOUS SYMBOLS



PUMP & COMPRESSOR SYMBOLS



RECORD DRAWING



| | | | | | |
|-------|--|------|----------|----|-------|
| DES. | | | | | |
| DR. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

slzaba
DATE

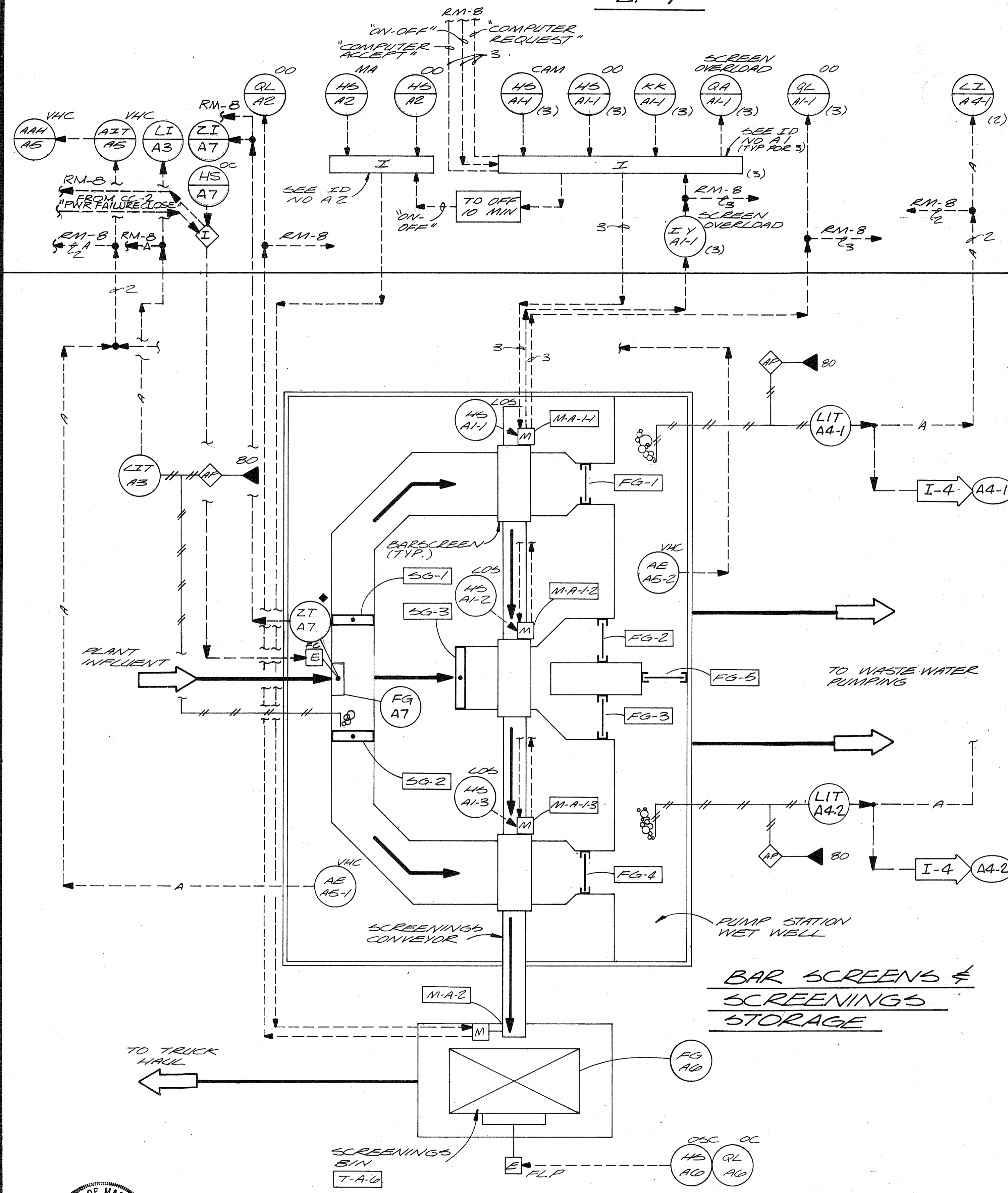
James J. Linn
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

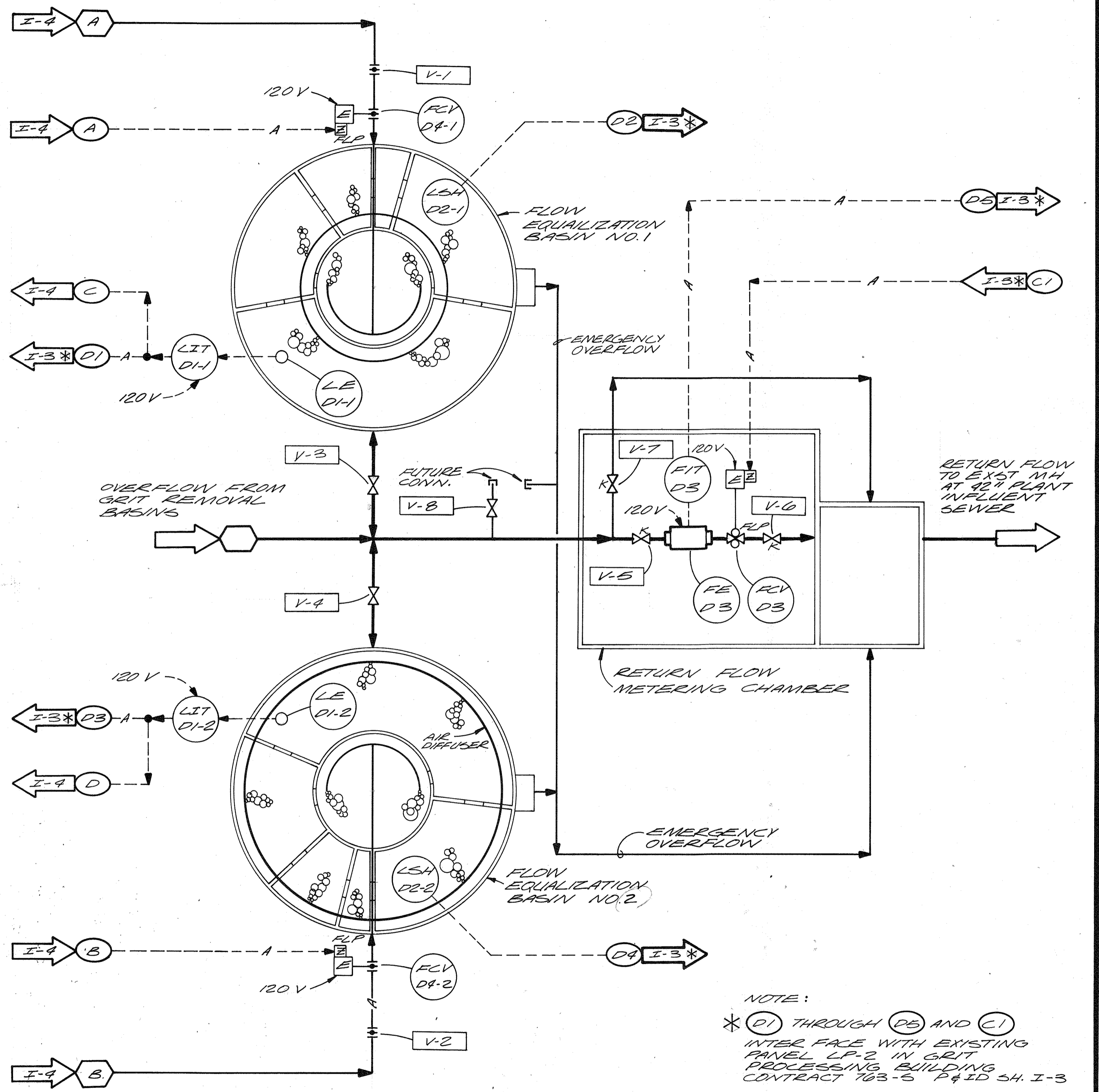
LEGEND
INSTRUMENTATION & CONTROL

SHEET
1-2
DATE 8-78
DWG.
NO. W11078.01

LP-1



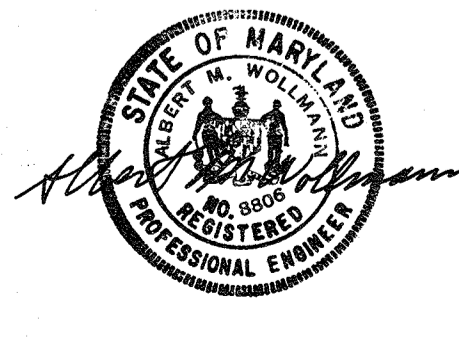
BAR SCREENS & SCREENINGS STORAGE



FLOW EQUALIZATION

NOTE:
 * (D1) THROUGH (D5) AND (C1)
 INTER FACE WITH EXISTING
 PANEL LP-2 IN GRIT
 PROCESSING BUILDING
 CONTRACT 763-5 P&ID 54, I-3

RECORD DRAWING



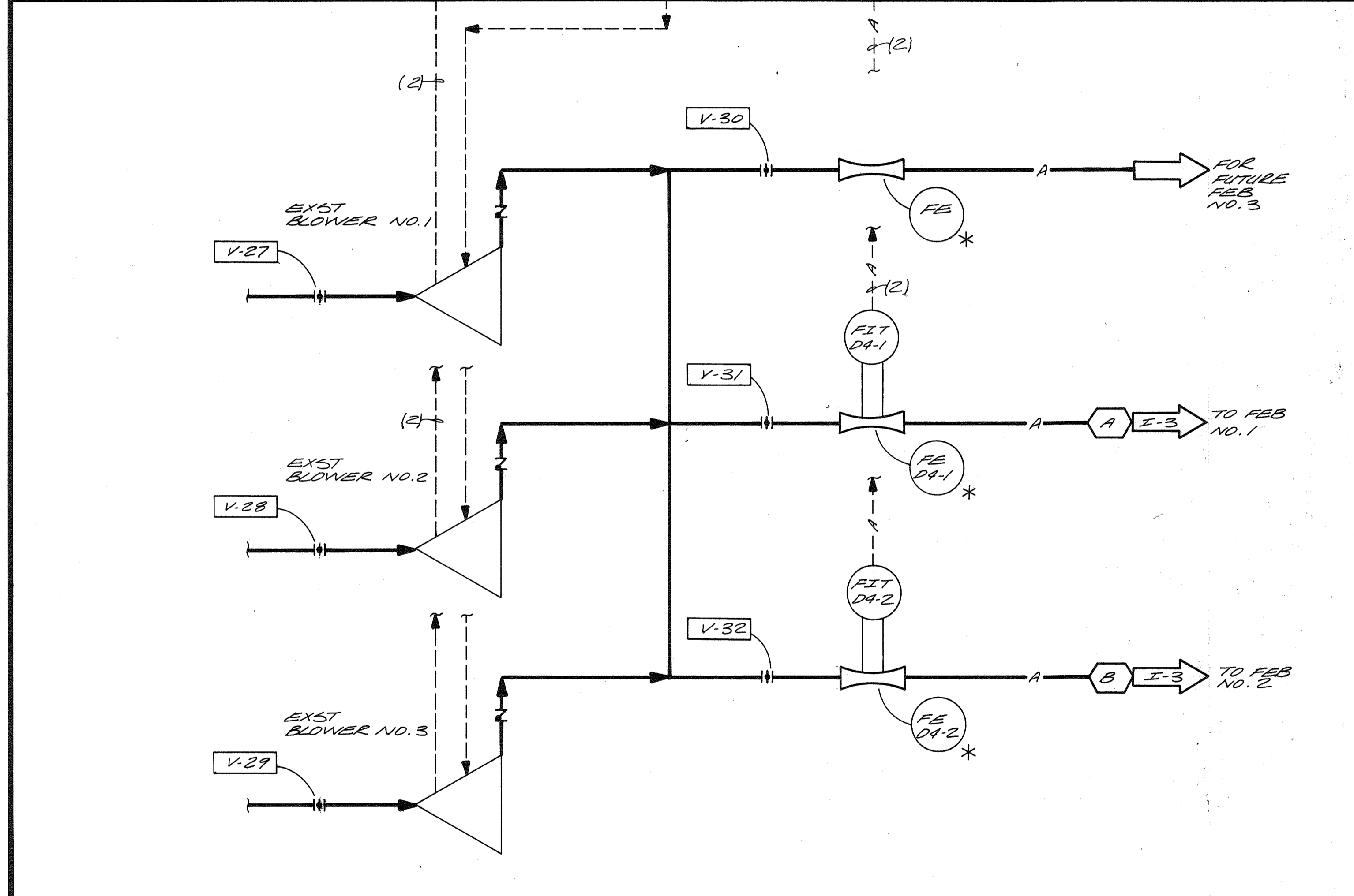
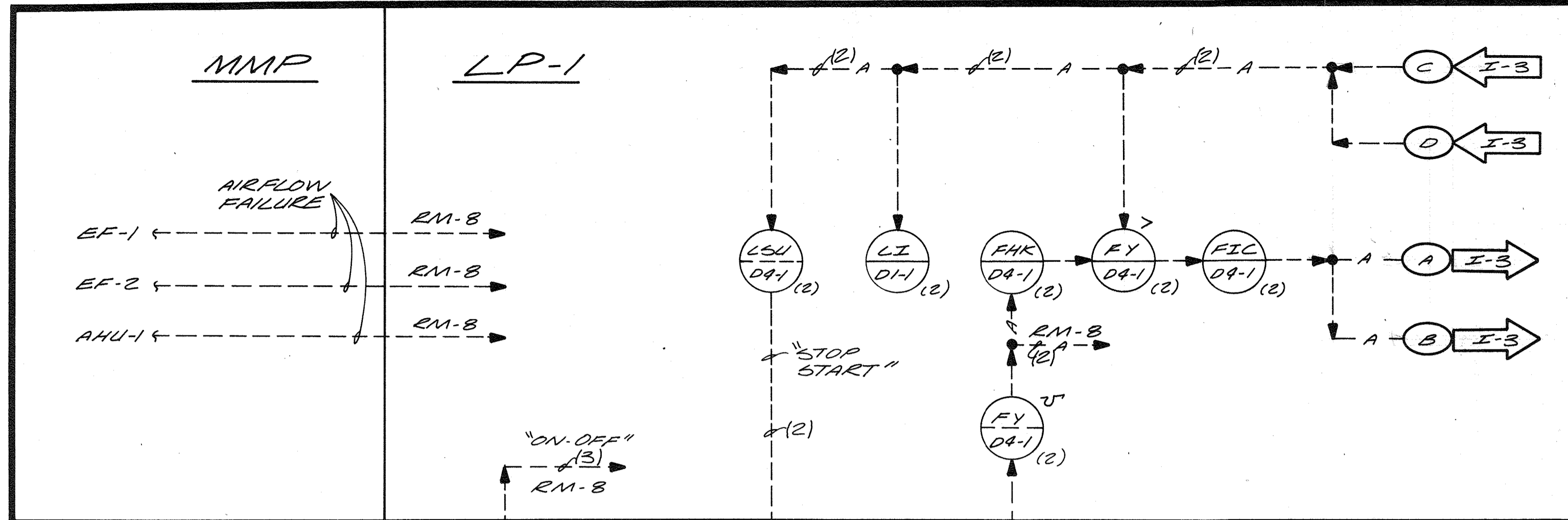
| | | | | | |
|-----------|----------|------|----------|----|-------|
| CH2M HILL | DES. DDB | | | | |
| | DR. VAW | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | NO. | DATE | REVISION | BY | APPD. |

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 James M. Sloan
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

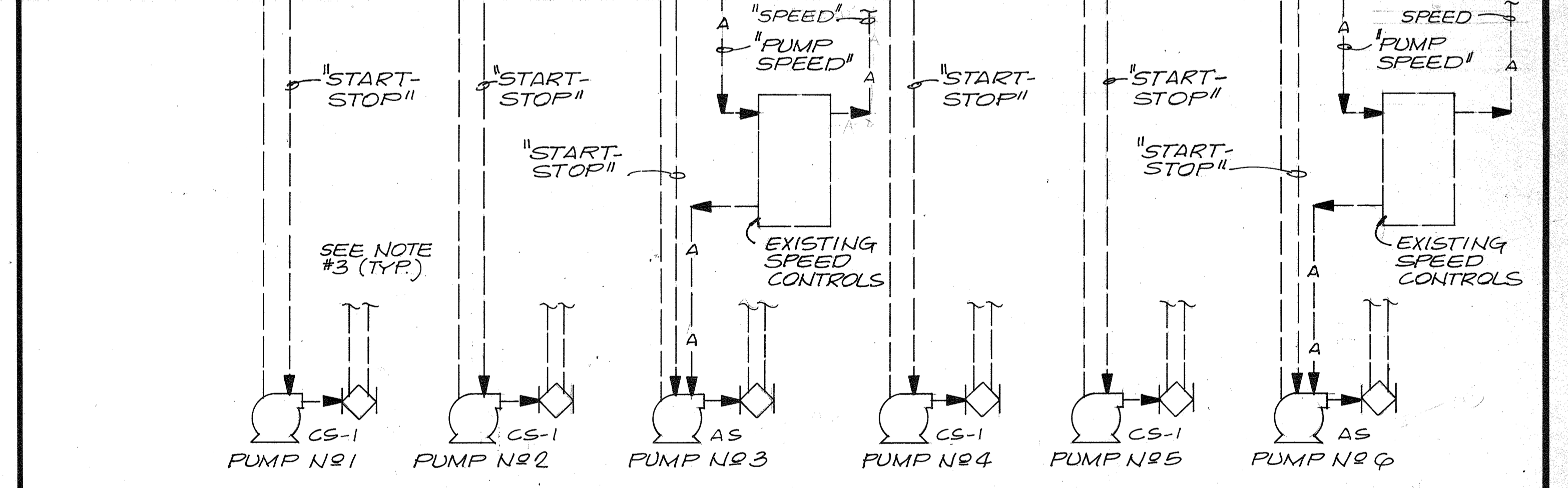
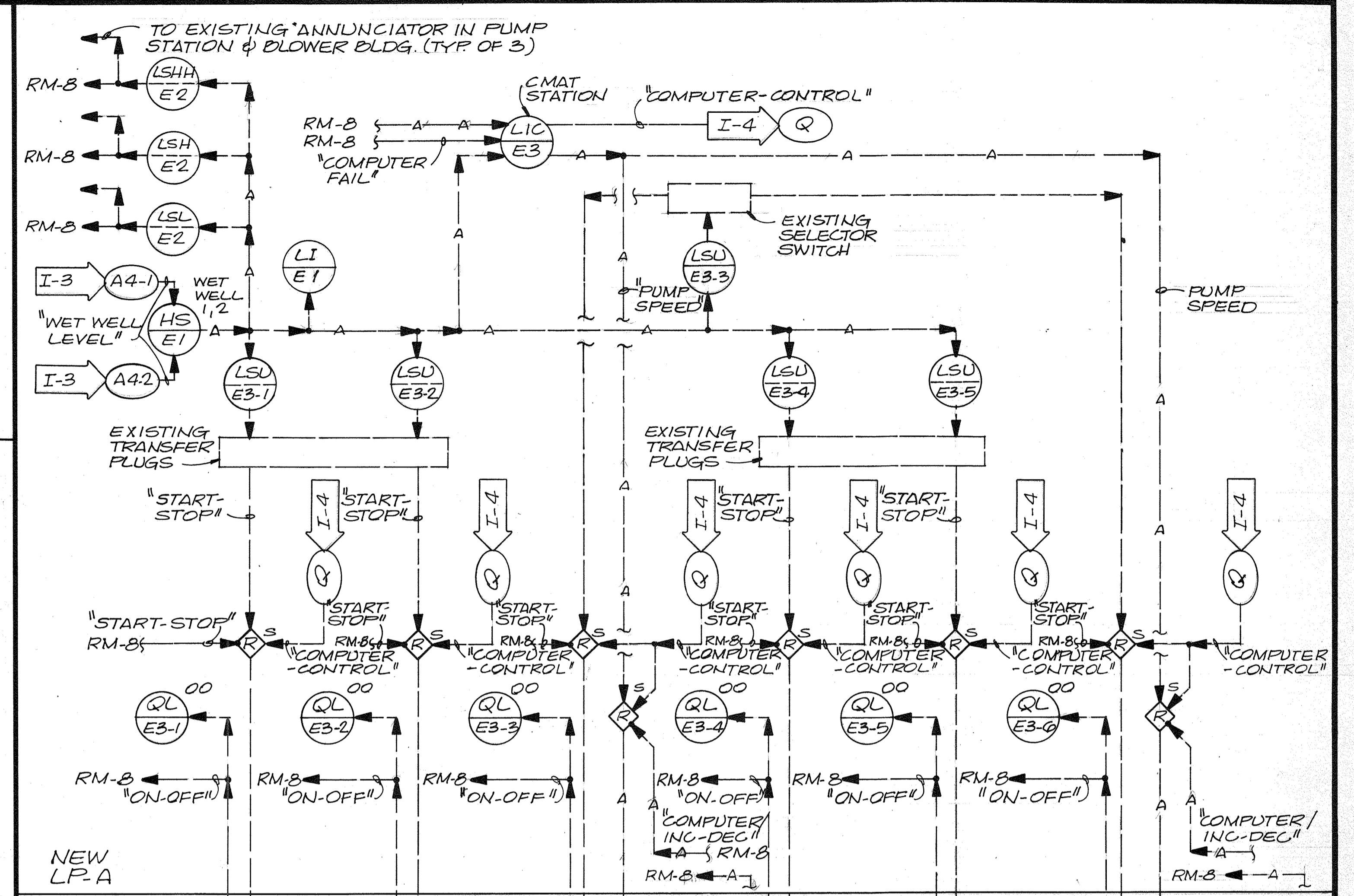
PROCESS & INSTRUMENTATION DIAGRAM
 INSTRUMENTATION & CONTROL

SHEET
 OF 1-3
 DATE 8-78
 DWG. NO. W11078.C1



EXISTING BLOWER BUILDING

* FE-DA-1&2 ARE EXISTING UNITS



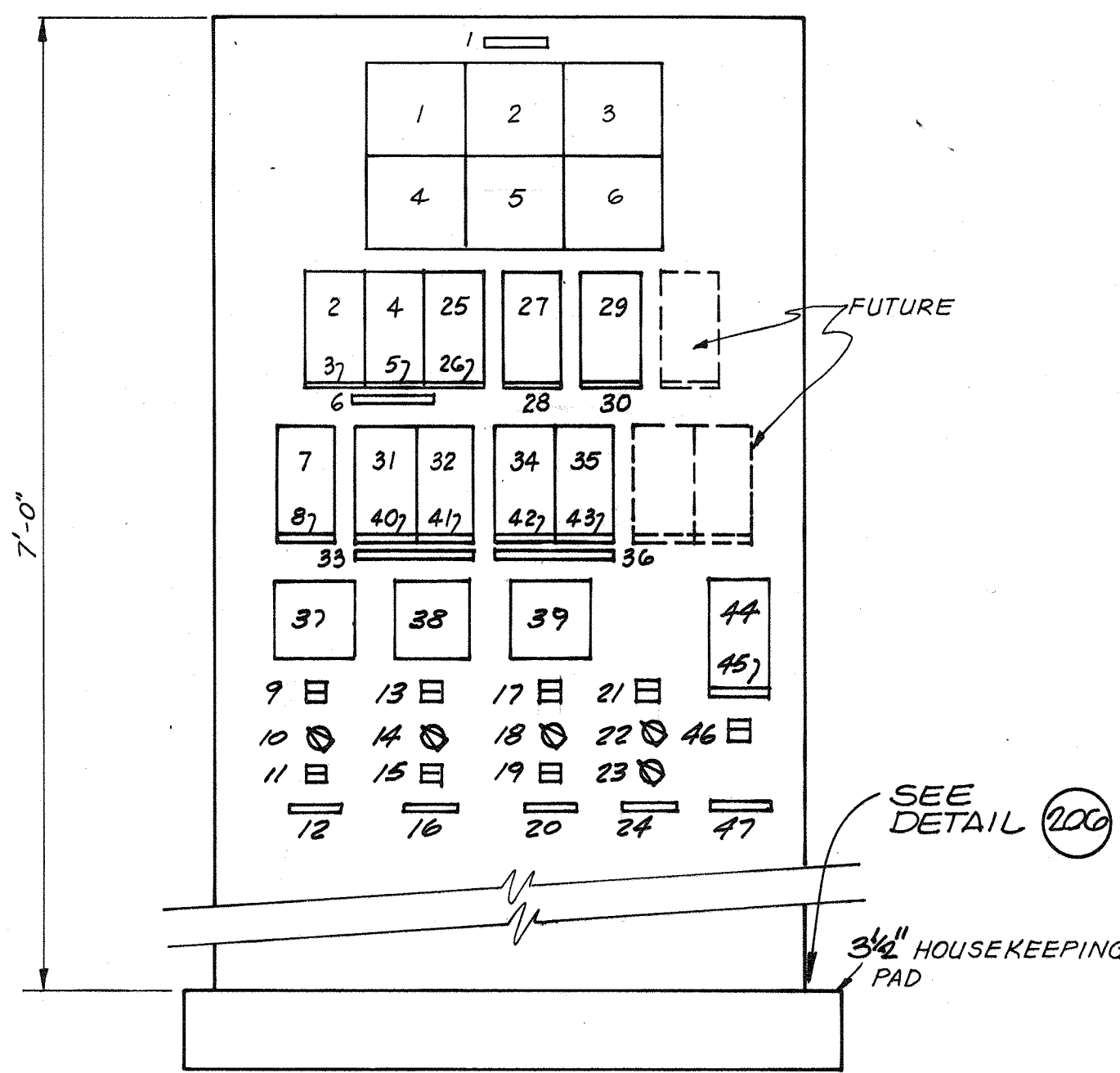
EXISTING RAW SEWAGE PUMPS

- NOTES:
1. EXISTING CONTROLS, ALARMS, WIRING, PIPING, ETC. NOT SHOWN.
 2. MODIFICATIONS TO EXISTING PUMP CONTROLS SPECIFIED IN SECT. 1344B.
 3. EXST. PUMP AUTOMATIC DISCHARGE VALVE CONTROLS NOT SHOWN. EXST. CONTROLS SHALL BE INCORPORATED INTO PROPOSED PUMP CONTROL MODIFICATIONS TO MAINTAIN INTENDED OPERATION.



| | | | | | | | | | |
|--|-----|------|----------|----|-------|---|---|---|---|
| CH2M HILL DES. D.B.B. DR. V.A.W. CHK. APPD. | NO. | DATE | REVISION | BY | APPD. | DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 5/29/79 DATE <i>James M. [Signature]</i> CHIEF - BUREAU OF ENVIRONMENTAL SERVICES | SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | PROCESS & INSTRUMENTATION DIAGRAM INSTRUMENTATION | SHEET OF 1-4 DATE 8-78 DWG. NO. W1078.C1 |
| | | | | | | | | | |

RECORD DRAWING



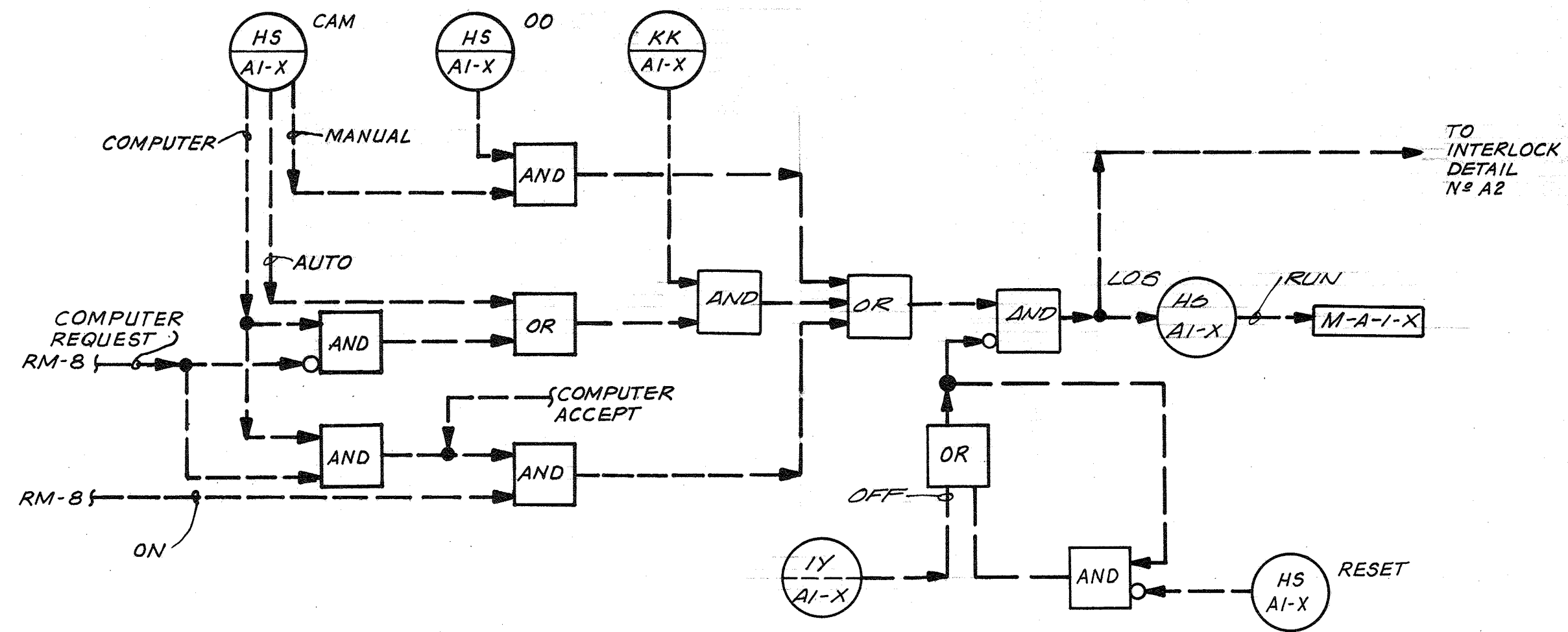
BAR SCREEN CONTROL PANEL (LP-1)
1/2" x 1'-0"

| Nº | INSCRIPTION | REMARKS |
|----|-------------------------|---------|
| 1 | BAR SCREEN Nº1 OVERLOAD | IY-AI-1 |
| 2 | BAR SCREEN Nº2 OVERLOAD | IY-AI-2 |
| 3 | BAR SCREEN Nº3 OVERLOAD | IY-AI-3 |
| 4 | SPARE | |
| 5 | VOLATILE HYDROCARBON | AAH-A5 |
| 6 | SPARE | |
| | | |
| | | |
| | | |
| | | |

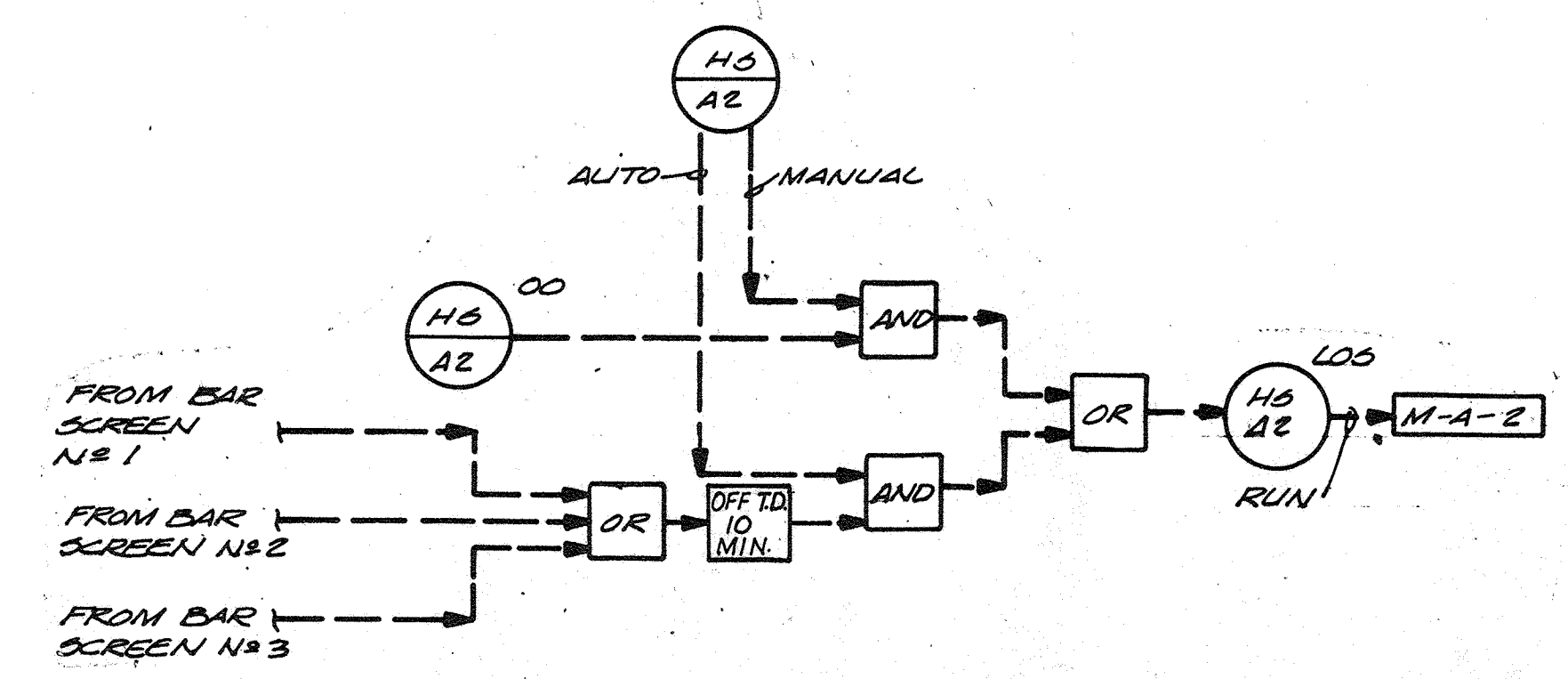
LP-1 ANNUNCIATOR PNL SCHEDULE
N.T.O.

| Nº | DESCRIPTION | INSCRIPTION |
|----|--|---------------------------------|
| 1 | 3/16" x 4/16" NAMEPLATE | BAR SCREEN CONTROL PANEL (LP-1) |
| 2 | LEVEL INDICATOR, LI-A3 | |
| 3 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | INFLUENT |
| 4 | LEVEL INDICATOR, LI-A4-1 | |
| 5 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | EFFLUENT Nº 1 |
| 6 | 3/16" x 3/16" NAMEPLATE | BAR SCREEN LEVEL |
| 7 | VOLATILE HYDROCARBON ANALYZER AIT-A5 | |
| 8 | 3/16" x 3/16" NAMEPLATE | VOLATILE HYDROCARBON |
| 9 | QL-A-1-1 [00] DOUBLE IND. LIGHT | ON/OFF |
| 10 | HS-A-1-1 [CAM] 2 POLE, 3 POSITION SWITCH | COMPUTER/AUTO/MANUAL |
| 11 | HS-A-1-1 [00] (2) 1 POLE MAINTAINED P.B. | ON/OFF |
| 12 | 3/16" x 3/16" NAMEPLATE | BAR SCREEN Nº 1 |
| 13 | QL-A-1-2 [00] DOUBLE IND. LIGHT | ON/OFF |
| 14 | HS-A-1-2 [CAM] 2 POLE, 3 POSITION SWITCH | COMPUTER/AUTO/MANUAL |
| 15 | HS-A-1-2 [00] (2) 1 POLE MAINTAINED P.B. | ON/OFF |
| 16 | 3/16" x 3/16" NAMEPLATE | BAR SCREEN Nº 2 |
| 17 | QL-A-1-3 [00] DOUBLE IND. LIGHT | ON/OFF |
| 18 | HS-A-1-3 [CAM] 2 POLE, 3 POSITION SWITCH | COMPUTER/AUTO/MANUAL |
| 19 | HS-A-1-3 [00] (2) 1 POLE MAINTAINED P.B. | ON/OFF |
| 20 | 3/16" x 3/16" NAMEPLATE | BAR SCREEN Nº 3 |
| 21 | QL-A-2 [00] DOUBLE IND. LIGHT | ON/OFF |
| 22 | HS-A-2 [MA] 2 POLE, 2 POSITION SWITCH | MANUAL/AUTO |
| 23 | HS-A-2 [00] (2) 1 POLE MAINTAINED P.B. | ON/OFF |
| 24 | 3/16" x 3/16" NAMEPLATE | CONVEYOR |
| 25 | LEVEL INDICATOR, LI-A4-2 | |
| 26 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | EFFLUENT Nº 2 |
| 27 | LEVEL INDICATOR, LI-DI-1 | |
| 28 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | LEVEL/FEB Nº 1 |
| 29 | LEVEL INDICATOR, LI-DI-2 | |
| 30 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | LEVEL/FEB Nº 2 |
| 31 | FLOW IND. CONTROLLER, FIC-D4-1 | |
| 32 | MAN. LOADING STA., FHK-D4-1 | |
| 33 | 3/16" x 4/16" NAMEPLATE | AIR FLOW/FEB Nº 1 |
| 34 | FLOW IND. CONTROLLER, FIC-D4-2 | |
| 35 | MAN. LOADING STA., FHK-D4-2 | |
| 36 | 3/16" x 4/16" NAMEPLATE | AIR FLOW/FEB Nº 2 |
| 37 | KK-AI-1, ON/OFF CYCLE TIMER | |
| 38 | KK-AI-2, ON/OFF CYCLE TIMER | |
| 39 | KK-AI-3, ON/OFF CYCLE TIMER | |
| 40 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | AIR FLOW |
| 41 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | MIN. AIR FLOW |
| 42 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | AIR FLOW |
| 43 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | MIN. AIR FLOW |
| 44 | POSITION INDICATOR, ZI-A7 | |
| 45 | NAMEPLATE (LENGTH TO MATCH) CONTROLLER | SLUICE GATE/POSITION |
| 46 | HS-A7-[00] (2) 1 POLE MAINTAINED P.B. | OPEN/CLOSE |
| 47 | 3/16" x 3/16" NAMEPLATE | INFLUENT/SLUICE GATE |

LP-1 EQUIPMENT IDENTIFICATION AND NAMEPLATE SCHEDULE
N.T.O.



INTERLOCK DETAIL Nº A1 BAR SCREENS
X=1,2,AND 3 N.T.O.



INTERLOCK DETAIL Nº A2 SCREENING CONVEYOR
N.T.O.

RECORD DRAWING



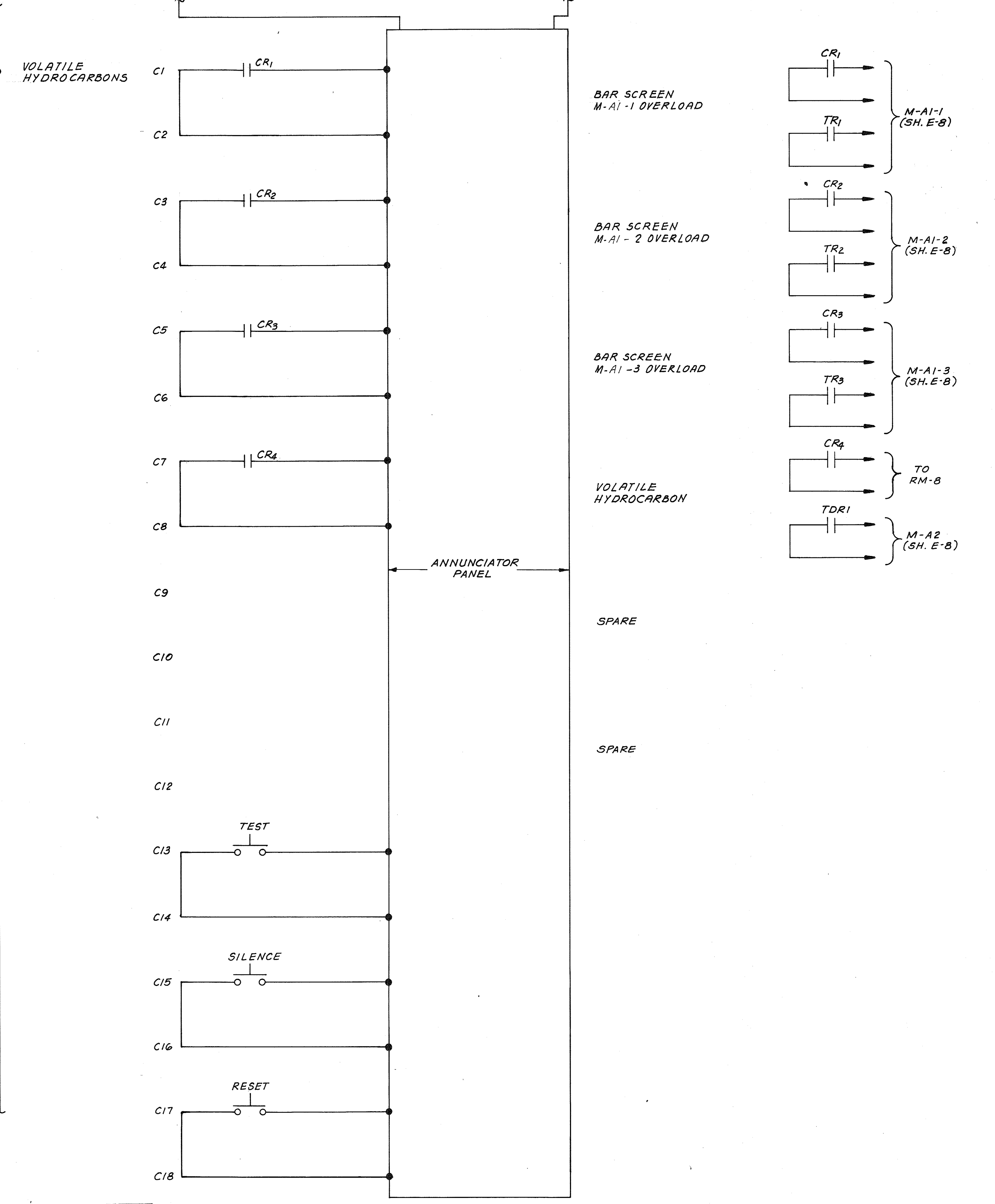
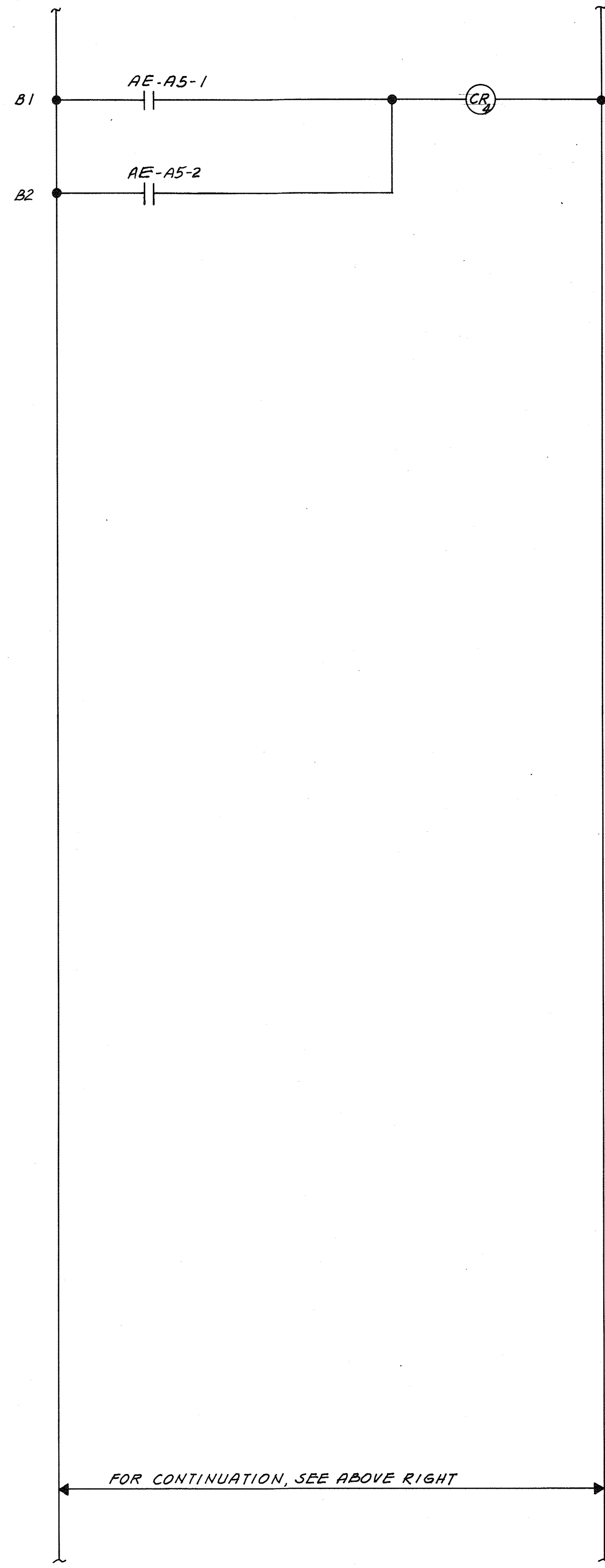
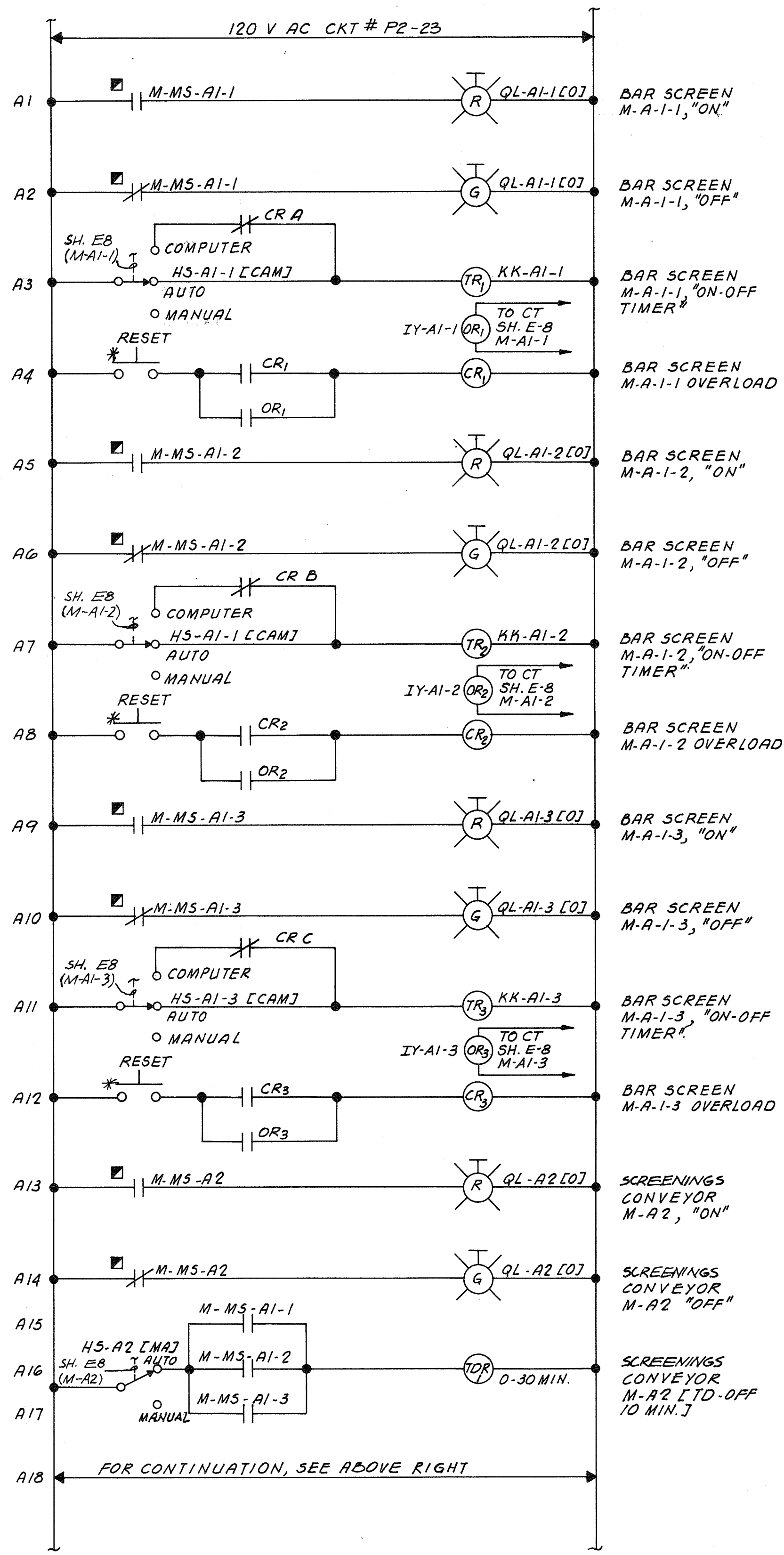
| | | | | | | | |
|-----------|--------------|-----|------|----------|----|-------|--|
| CH2M HILL | DES. BSH/DBB | | | | | | |
| | DR. EEM/UE | | | | | | |
| | CHK. | | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/23/79
DATE
James M. [Signature]
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

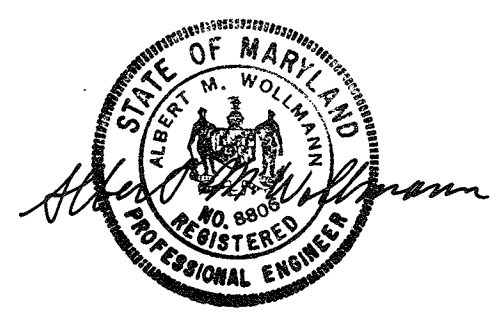
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

CONTROL PANEL & SCHEDULE
& LOGIC DIAGRAM
INSTRUMENTATION

SHEET OF I-5
DATE 8-78
DWG. NO. W11078.C1



RECORD DRAWING



| | | | | | | |
|--|-------------|-----|------|----------|----|-------|
| | DES. N.L.V. | | | | | |
| | DR. L.G. | | | | | |
| | CHK. | | | | | |
| | APPD. | NO. | DATE | REVISION | BY | APPD. |
| | | | | | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/77
DATE

James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREEN CONTROL PANEL (LP-1)
CONTROL DIAGRAMS
INSTRUMENTATION

SHEET
OF I-6
DATE 8-78
DWG.
NO. W1078.C1

ELECTRICAL LEGEND

ABBREVIATIONS OR LETTER SYMBOLS

| SYMBOL | DESCRIPTION |
|--------|--|
| | CONTROL DEVICE - FURNISHED AND INSTALLED UNDER OTHER SECTIONS; RACEWAYS, CONDUCTORS, AND CONDUCTOR END TERMINATORS FURNISHED AND INSTALLED UNDER THIS SECTION AS SHOWN. CONDUCTOR FINAL CONNECTIONS PROVIDED UNDER OTHER SECTIONS. |
| | CONNECTION POINT TO EQUIPMENT SPECIFIED. FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION. |
| | NAMEPLATE OR LEGEND PLATE - SEE SCHEDULE |
| | INDICATES RACEWAYS AND CIRCUIT NUMBERS. FIRST NUMBER IS RACEWAY AND NUMBER AFTER DASH IS CIRCUIT NUMBER. 5-E(3) INDICATES THAT THERE ARE 3 EMPTY RACEWAY NO. 5. SEE SCHEDULE. |
| | MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN. |
| | BRANCH CIRCUIT PANEL |
| | UNIT HEATER NO. 1 - SEE SCHEDULE |
| | TELEPHONE TERMINAL CABINET |
| | TERMINAL JUNCTION BOX |
| | WOUND-ROTOR MOTOR, HORSEPOWER INDICATED |
| | MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED |
| | LUMINAIRE - SEE SCHEDULE |
| | LUMINAIRE - SEE SCHEDULE |
| | LUMINAIRE AND POLE - SEE SCHEDULE |
| | WALL MOUNTED LUMINAIRE - SEE SCHEDULE |
| | FLOODLIGHTS - AIM IN DIRECTION SHOWN - SEE SCHEDULE |
| | EXIT LIGHT - SEE SCHEDULE |
| | SMALL LETTER SUBSCRIPT ON SWITCH AND LUMINAIRE INDICATES SWITCHING |
| | HOME RUN - DESTINATION SHOWN |
| | EXPOSED CONDUIT AND CONDUCTORS* |
| | CONCEALED CONDUIT AND CONDUCTORS* |
| | NOTE: *ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12 TW CONDUCTORS IN CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 TW WIRE. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. |
| | CROSSHATCHES WITH BAR INDICATE #10 TW WIRE. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. |
| | CONDUIT, DOWN |
| | CONDUIT, UP |
| | CONDUIT, STUBBED AND CAPPED AS SHOWN |
| | CABLE TRAY - SEE SPECIFICATIONS |
| | BUS DUCT - SEE SPECIFICATIONS |
| | TRENCHING FOR UTILITY COMPANY PRIMARY POWER CIRCUITS |
| | TRENCHING FOR TELEPHONE COMPANY CIRCUITS |
| | WALL SWITCH: 2 - DOUBLE POLE P - PILOT LIGHT 3 - THREE WAY K - KEY OPERATED 4 - FOUR WAY D - DIMMER WP - WEATHERPROOF |
| | MANUAL MOTOR STARTER SWITCH |
| | CONVENIENCE RECEPTACLE - DUPLEX UNLESS SPECIFIED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK R - RETRACTABLE COIL |

| SYMBOL | DESCRIPTION |
|--------|--|
| | CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE |
| | RECEPTACLE - 240V, 1Ø, AMPERAGE INDICATED |
| | RECEPTACLE, SPECIAL PURPOSE - AMPERAGE AS INDICATED |
| | DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR |
| | MULTI OUTLET ASSEMBLY |
| | WALL CLOCK WITH CLOCK HANGER CONVENIENCE RECEPTACLE |
| | TELEPHONE RECEPTACLE (OUTLET BOX ONLY) FLUSH IN FLOOR |
| | TELEPHONE RECEPTACLE (OUTLET BOX ONLY) FLUSH IN WALL |
| | FIRE ALARM STATION, MANUAL |
| | FIRE ALARM STATION, AUTOMATIC, HEAT DETECTOR |
| | FIRE ALARM BELL |
| | FIRE ALARM HORN |
| | FIRE ALARM IONIZATION DETECTOR |
| | AIR DUCT FIRESTAT |
| | GENERAL ELECTRICAL CONTROL OR WIRING DEVICE. NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE. |
| | PUSH-BUTTON STATION, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. (WP = NEMA 4 ENCLOSURE) SEE CONTROL DIAGRAMS FOR TYPE PUSH-BUTTON REQUIRED. |
| | NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE. NEMA 1 ENCLOSURE, WP = WEATHERPROOF (NEMA 3R) |
| | FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING; 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE. NEMA 1 ENCLOSURE, WP = WEATHERPROOF (NEMA 3R) |
| | CONTACTOR, MAGNETIC, NEMA SIZE INDICATED, THREE POLE, NEMA 1 ENCLOSURE, UNLESS INDICATED OTHERWISE. |
| | LIGHTING CONTACTOR, CURRENT RATING INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. |
| | STARTER MAGNETIC NEMA SIZE INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. |
| | COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED) MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. |
| | METERING FACILITIES |
| | CONTACT - NORMALLY OPEN WITH NEMA SIZE INDICATED AS APPLICABLE |
| | CONTACT - NORMALLY CLOSED WITH NEMA SIZE INDICATED AS APPLICABLE |
| | OVERLOAD RELAY HEATER |
| | MAGNETIC STARTER WITH NEMA SIZE INDICATED |
| | CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE UNLESS INDICATED OTHERWISE. |
| | CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE. |
| | CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE. |
| | FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE. |
| | SWITCH - CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE. |

| SYMBOL | DESCRIPTION | | | | | | | | | | | | | | | |
|--------|--|------|----------|--|--|------|-----|------|---|---|---|---|---|---|---|---|
| | DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE | | | | | | | | | | | | | | | |
| | DRAWOUT AIR CIRCUIT BREAKER, MEDIUM VOLTAGE | | | | | | | | | | | | | | | |
| | DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE | | | | | | | | | | | | | | | |
| | LIGHTNING ARRESTER | | | | | | | | | | | | | | | |
| | FUSE | | | | | | | | | | | | | | | |
| | CAPACITOR - KVAR INDICATED | | | | | | | | | | | | | | | |
| | METER WITH SWITCH - SCALE RANGE SHOWN | | | | | | | | | | | | | | | |
| | GROUND | | | | | | | | | | | | | | | |
| | TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE | | | | | | | | | | | | | | | |
| | PICK-UP SETTING } GROUND FAULT RELAY WITH C.T. TIME CURRENT CHARACTERISTIC | | | | | | | | | | | | | | | |
| | PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN | | | | | | | | | | | | | | | |
| | PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED | | | | | | | | | | | | | | | |
| | PUSH-BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK | | | | | | | | | | | | | | | |
| | SELECTOR SWITCH MAINTAINED CONTACT | | | | | | | | | | | | | | | |
| | TIME DELAY RELAY CONTACT NORMALLY OPEN CONTACT } TIME ACTION INDICATED TIME DELAY RELAY CONTACT NORMALLY CLOSED | | | | | | | | | | | | | | | |
| | T.C. TIME CLOSE T.O. TIME OPEN INST. INSTANTANEOUS | | | | | | | | | | | | | | | |
| | ASTERISK DENOTES AT MOTOR | | | | | | | | | | | | | | | |
| | SELECTOR SWITCH - MAINTAINED CONTACT - CHART DEFINES OPERATION: | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th rowspan="2">C.T.</th> <th colspan="3">POSITION</th> </tr> <tr> <th>HAND</th> <th>OFF</th> <th>AUTO</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>X</td> <td>0</td> <td>0</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> <td>X</td> </tr> </tbody> </table> X - CLOSED CONTACT 0 - OPEN CONTACT | C.T. | POSITION | | | HAND | OFF | AUTO | 1 | X | 0 | 0 | 2 | 0 | 0 | X |
| C.T. | POSITION | | | | | | | | | | | | | | | |
| | HAND | OFF | AUTO | | | | | | | | | | | | | |
| 1 | X | 0 | 0 | | | | | | | | | | | | | |
| 2 | 0 | 0 | X | | | | | | | | | | | | | |
| | CURRENT TRANSFORMER, NUMBER INDICATED | | | | | | | | | | | | | | | |
| | INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR | | | | | | | | | | | | | | | |
| | A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE | | | | | | | | | | | | | | | |
| | MULTI-PARTY DESK TOP COMMUNICATIONS SYSTEM STATION WITH REMOTE AMPLIFIER | | | | | | | | | | | | | | | |
| | MULTI-PARTY WALL MOUNTED COMMUNICATIONS SYSTEM STATION WITH INTEGRAL AMPLIFIER | | | | | | | | | | | | | | | |
| | CONE TYPE PAGING SPEAKER, RECESSED IN CEILING | | | | | | | | | | | | | | | |
| | INTERIOR PAGING TRUMPET SOUND REPRODUCER, 120° x 60°, WITH REMOTE AMPLIFIER, SURFACE MOUNTED | | | | | | | | | | | | | | | |
| | OUTDOOR PAGING TRUMPET SOUND REPRODUCER, 120° x 60°, WITH REMOTE AMPLIFIER, SURFACE MOUNTED | | | | | | | | | | | | | | | |
| | TERMINAL CABINET FOR COMMUNICATIONS SYSTEM | | | | | | | | | | | | | | | |
| | THERMOSTAT | | | | | | | | | | | | | | | |
| | DENOTES DEVICE AT CONTROL PANEL | | | | | | | | | | | | | | | |
| | DENOTES DEVICE AT MOTOR CONTROL CENTER | | | | | | | | | | | | | | | |

| ABBREVIATION | DESCRIPTION | ABBREVIATION | DESCRIPTION |
|--------------|---|--------------|-------------------------------------|
| A | ANMETER | M | MAGNETIC CONTACTOR COIL |
| AC | AIR COMPRESSOR | MCC | MOTOR CONTROL CENTER |
| AFF | ABOVE FINISHED FLOOR | MERC | MERCURY VAPOR |
| ASU | AIR SUPPLY UNIT | MH | MANHOLE |
| | | MMP | MECHANICAL MOUNTING PANEL |
| | | MS | MOTOR STARTER |
| B | BELL | MSP | MOTOR STARTER PANEL |
| | | | |
| C | CONDUIT | N, NEUT | NEUTRAL |
| CB | CIRCUIT BREAKER | NA | NON-AUTOMATIC |
| CC | CONTROL CABLE | NC | NORMALLY CLOSED |
| CKT | CIRCUIT | NL | NIGHT LIGHT |
| CPT | CONTROL POWER TRANSFORMER | NO | NORMALLY OPEN |
| CR | CONTROL RELAY | NP | NAMEPLATE |
| CT | CURRENT TRANSFORMER | | |
| CUH | CABINET UNIT HEATER | OL | OVERLOAD RELAY |
| | | | |
| DC | DIRECT CURRENT | PB | PUSH-BUTTON SWITCH |
| DO | DISSOLVED OXYGEN | PC | PHOTOCELL |
| | | PCP | PLANT CONTROL PANEL |
| E | EMPTY | PIP | PLANT INDICATING PANEL |
| EF | EXHAUST FAN | POP | PLANT OPERATIONS PANEL |
| EP | EXPLOSION PROOF | PS | PRESSURE SWITCH |
| ETM | ELAPSED TIME METER | PT | POTENTIAL TRANSFORMER |
| | | PVC | POLYVINYL CHLORIDE |
| FDR | FEEDER | | |
| F, FU | FUSE | RM | REMOTE MULTIPLEXER |
| FI | FLOW INDICATOR | RS | RIGID STEEL |
| FL | FLASHER MOTOR | RVNR | REDUCED VOLTAGE NON-REVERSING |
| FLUOR | FLUORESCENT | RVR | REDUCED VOLTAGE REVERSING |
| FM | FLOW METER | | |
| FS | FLOAT SWITCH | | |
| FT | FLOW TRANSMITTER | SCU | SPEED CONTROL UNIT |
| FVNR | FULL VOLTAGE NON-REVERSING | SV | SOLENOID VALVE |
| FVR | FULL VOLTAGE REVERSING | SW | SWITCH |
| | | | |
| GALV | GALVANIZED | T | THERMOWAT |
| G, GND | GROUND | TB | TERMINAL BOARD |
| GFI | GROUND FAULT INTERRUPTER | TC | TIME CLOCK |
| GFMUH | GAS FIRED MAKE UP HEATER | TD | TEMPERATURE DETECTOR RELAY |
| GFR | GROUND FAULT RELAY | TDR | TIME DELAY RELAY |
| | | TJB | TERMINAL JUNCTION BOX |
| | | TM | TIMING RELAY |
| H | HORN OR HOWLER | TR | TIMER-REPEAT CYCLE |
| HH | HANDHOLE | TS | AUTO-TRANSFORMER TEMPERATURE SWITCH |
| HID | HIGH INTENSITY DISCHARGE | TSP | TWISTED SHIELDED PAIR |
| HYAC | HEATING, VENTILATING & AIR CONDITIONING | TST | TWISTED SHIELDED TRIAD |
| | | | |
| IC | INTERRUPTING CAPACITY | | |
| INCAND | INCANDESCENT | UH | UNIT HEATER |
| | | UVR | UNDER VOLTAGE RELAY |
| J, JB | JUNCTION BOX | | |
| | | V | VOLTMETER |
| | | VP | VAPORPROOF |
| K | KEY INTERLOCK | | |
| | | WHD | WATTHOUR DEMAND METER |
| L | LIGHTING CONTACTOR | WP | WEATHERPROOF |
| LA | LIGHTNING ARRESTER | | |
| LDR | LOADING RELAY | | |
| LOS | LOCKOUT STOP PUSHBUTTON | | |
| LR | LATCHING RELAY | | |
| LS | LIMIT SWITCH | | |

NOTE:
THIS IS A STANDARD LEGEND SHEET. THEREFORE SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE PLANS.

RECORD DRAWING



| | |
|----------|----------|
| DES. | |
| DR. | |
| CHK. | |
| APPD. | |
| NO. | DATE |
| REVISION | BY APPD. |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

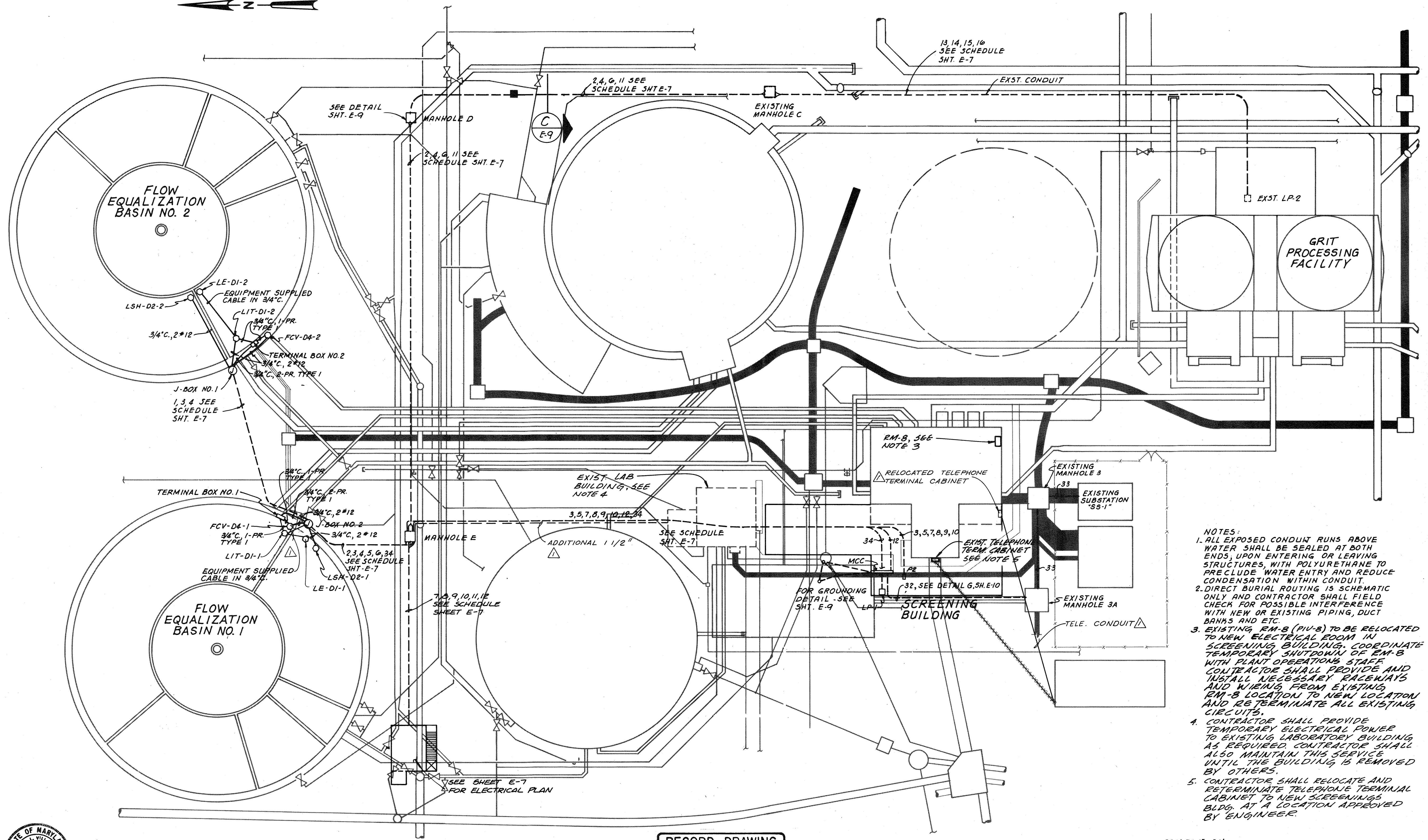
James J. ...
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SAVAGE WASTEWATER TREATMENT PLANT
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LEGEND

ELECTRICAL

SHEET
OF
DATE 8-78
DWG. NO. W1078.C1



- NOTES:**
1. ALL EXPOSED CONDUIT RUNS ABOVE WATER SHALL BE SEALED AT BOTH ENDS, UPON ENTERING OR LEAVING STRUCTURES, WITH POLYURETHANE TO PRECLUDE WATER ENTRY AND REDUCE CONDENSATION WITHIN CONDUIT.
 2. DIRECT BURIAL ROUTING IS SCHEMATIC ONLY AND CONTRACTOR SHALL FIELD CHECK FOR POSSIBLE INTERFERENCE WITH NEW OR EXISTING PIPING, DUCT BANKS AND ETC.
 3. EXISTING RM-8 (PIV-8) TO BE RELOCATED TO NEW ELECTRICAL ROOM IN SCREENING BUILDING. COORDINATE TEMPORARY SHUTDOWN OF RM-8 WITH PLANT OPERATIONS STAFF. CONTRACTOR SHALL PROVIDE AND INSTALL NECESSARY RACEWAYS AND WIRING FROM EXISTING RM-8 LOCATION TO NEW LOCATION AND RE-TERMINATE ALL EXISTING CIRCUITS.
 4. CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL POWER TO EXISTING LABORATORY BUILDING AS REQUIRED. CONTRACTOR SHALL ALSO MAINTAIN THIS SERVICE UNTIL THE BUILDING IS REMOVED BY OTHERS.
 5. CONTRACTOR SHALL RELOCATE AND RE-TERMINATE TELEPHONE TERMINAL CABINET TO NEW SCREENING BLDG. AT A LOCATION APPROVED BY ENGINEER.

For Registration Drafting Use Only

| | | |
|-----------|-----|----------|
| SCREEN | S | W1078.C1 |
| COMPOSITE | E-2 | BASE 5 |
| OVERLAY | E-2 | BASE 5 |



| | | | | | |
|----------|---------|------|--|----|-----|
| DES. NCV | | | | | |
| DR. L.G. | | | | | |
| CHK. | | | | | |
| APPD. | | | | | |
| NO. | 1-26-80 | DATE | RELOCATE TELEPHONE CONDUIT & TERMINAL CABINET, ADDITIONAL CONDUIT & BASIN #1 | BY | DLT |
| REVISION | | | | | |
| APPD. | | | | | |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/77
DATE
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

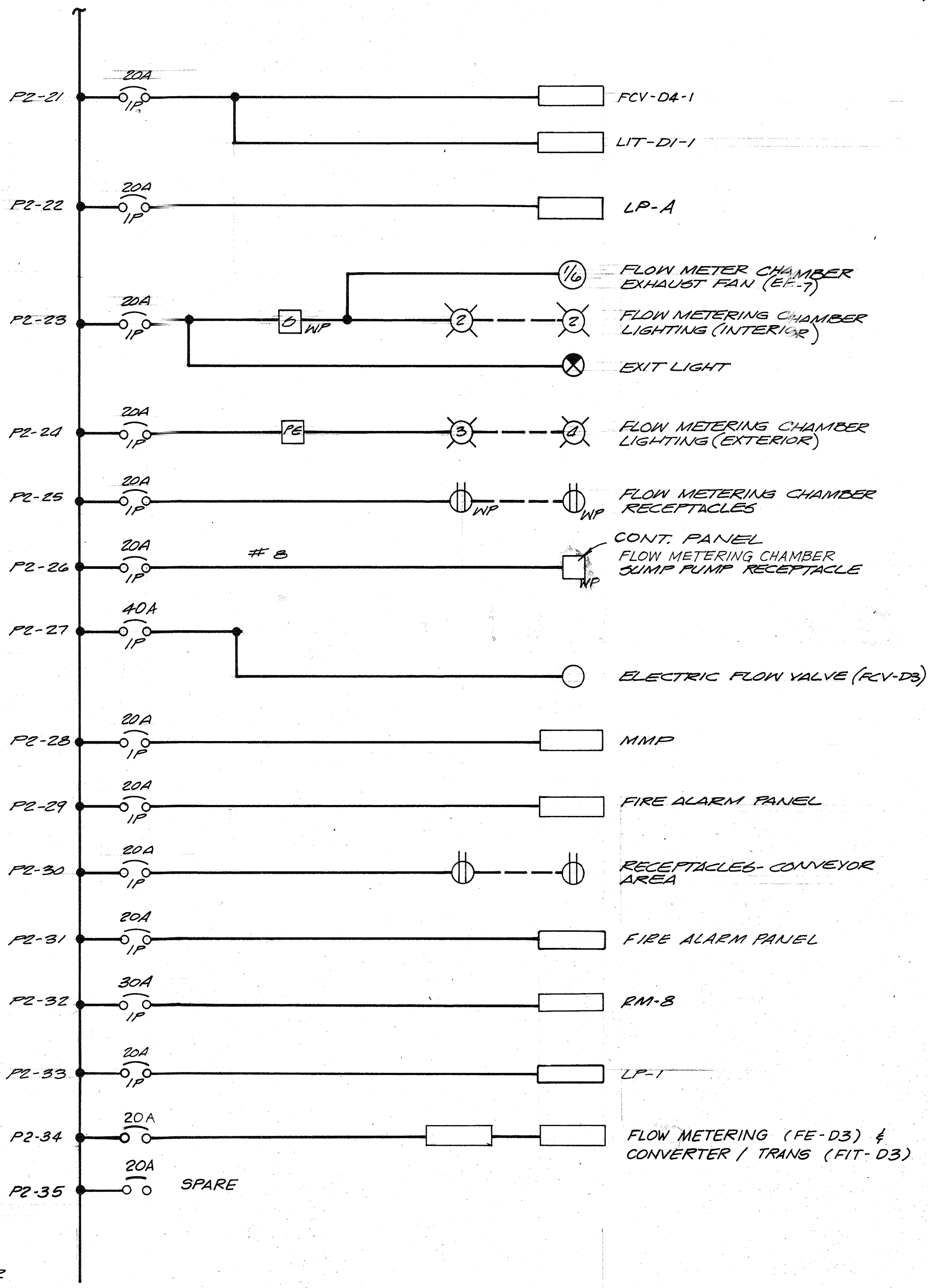
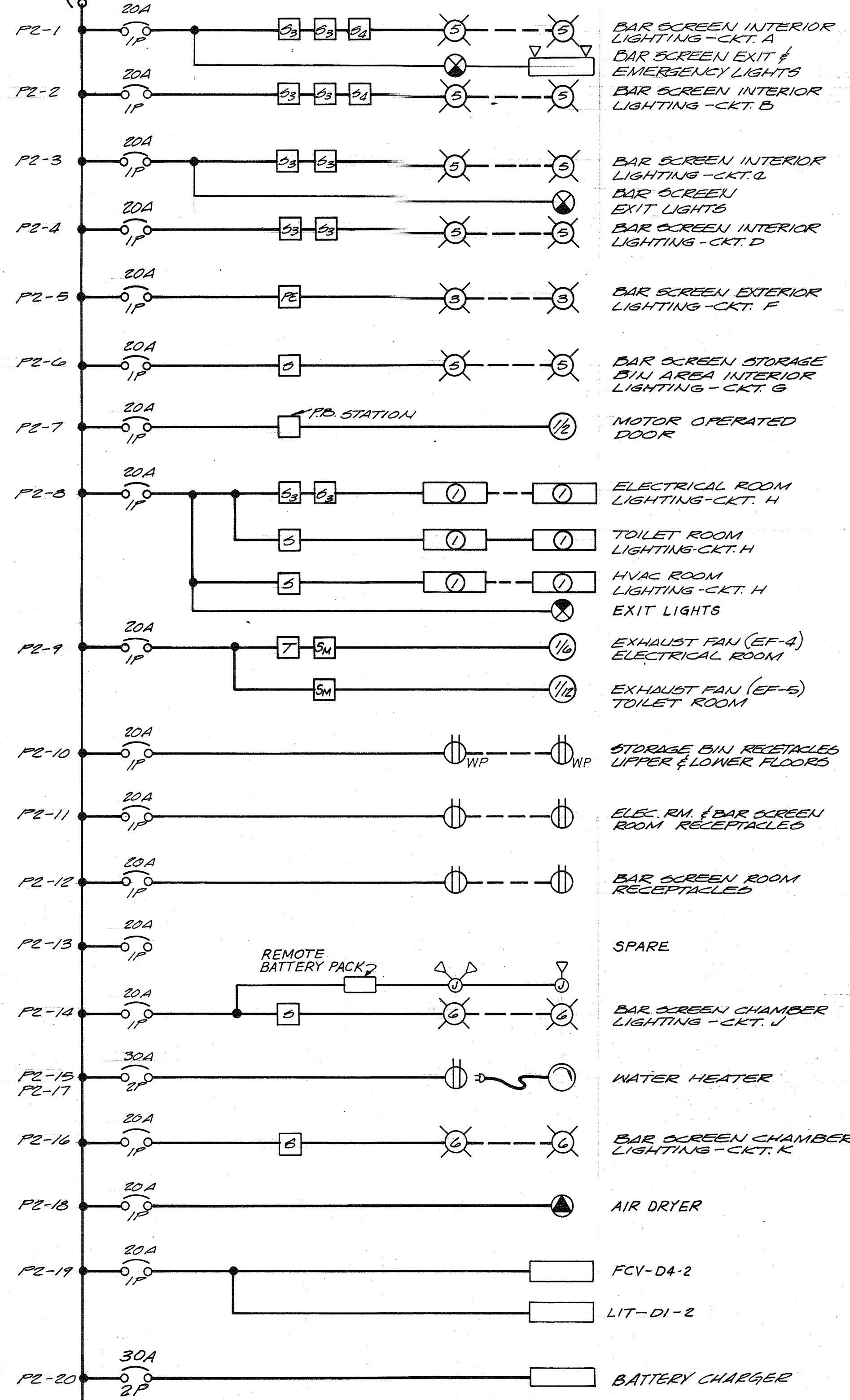
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCALE: 1" = 20'

SITE PLAN & EQUALIZATION BASINS PLAN
ELECTRICAL

SHEET OF E-2
DATE 8-78
DWG. NO. W1078.C1

45KVA, 480-208/120V
 3P, 60HZ, 0.8 PF, 4-Y₂
 1/2" C., 4#1, 1#6G



RECORD DRAWING

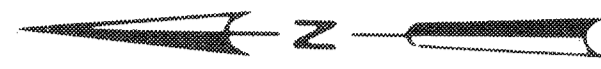


| | | | | | |
|---|-----|------|----------|----|-------|
| CH2M HILL DES. B.S.H./N.V. DR. E.E.M. JR. CHK. APPD. | NO. | DATE | REVISION | BY | APPD. |
| | | | | | |
| | | | | | |
| | | | | | |

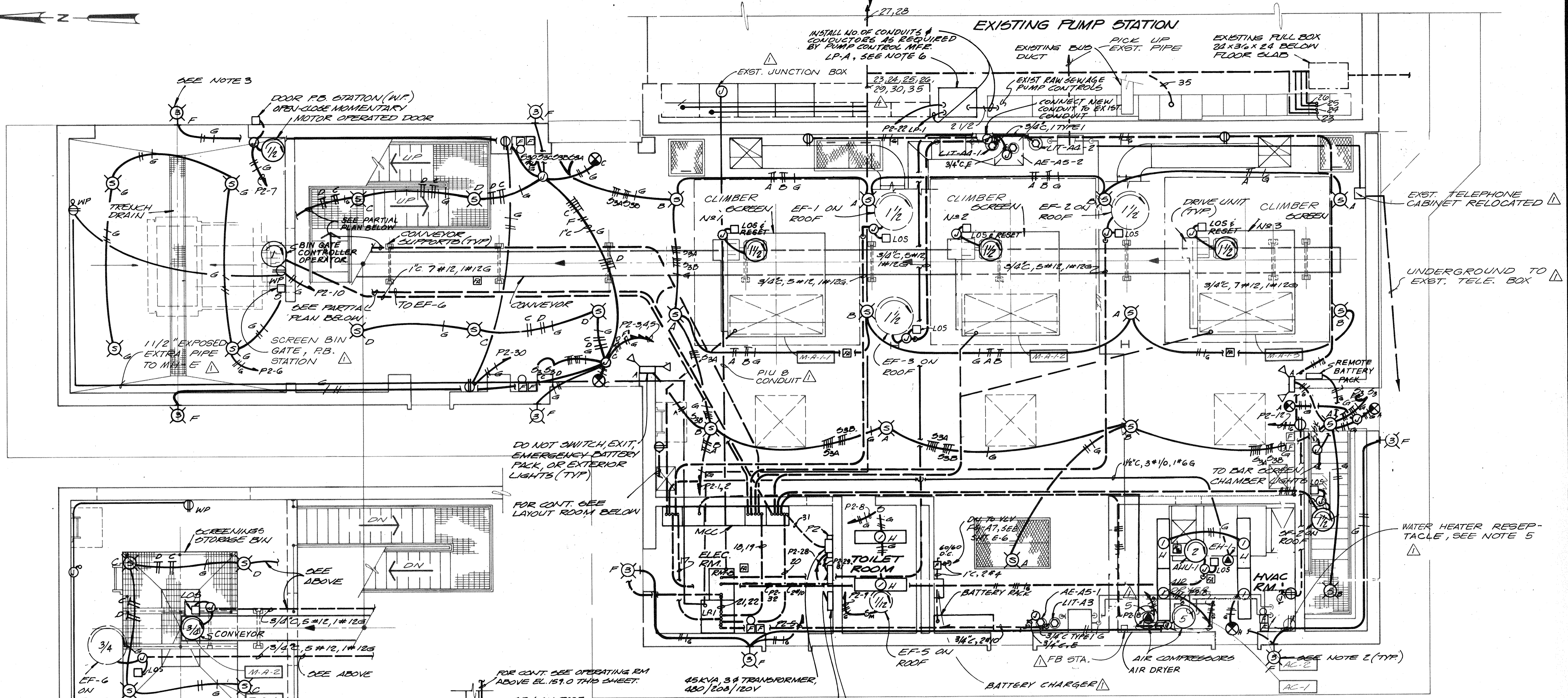
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 5/29/79
 DATE
 James M. Hill
 CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

208/120V/1 LINE DIAGRAM (P2)
 ELECTRICAL
 SHEET E-4
 OF
 DATE 8-78
 DWG. NO. W1078.C1



FOR CONTINUATION
SEE SHEET E-6



For Registration Drafting Use Only
SCREEN COMPOSITE
E-5 BASE 12
E-5 BASE 12
E-5 BASE 12
E-5 BASE 13

PARTIAL PLAN ABOVE EL. 159.0
1/8" = 1'-0"

OPERATING ROOM ABOVE EL. 142.5
1/4" = 1'-0"

ELECTRICAL ROOM - FACILITIES LAYOUT
1/4" = 1'-0"

- NOTES:
1. COORDINATE ALL LIGHT FIXTURE MOUNTING HEIGHTS WITH OTHER SPECIALTY CONTRACTORS TO AVOID CONFLICTS.
 2. WALL MOUNT EXTERIOR LIGHTING FIXTURES 9'-6" ABOVE FINISHED GRADE, UNLESS OTHERWISE INDICATED.
 3. WALL MOUNT EXTERIOR LIGHT 17'-0" ABOVE FINISHED GRADE.
 4. MOUNT PHOTOCELL ON BUILDING ROOF FACING NORTH.
 5. REPLACE PLUG W/1Ø, 2ØV. PLUG SUITABLE FOR 3ØA.
 6. CONTROL PANEL FOR RAW SEWAGE PUMPING CONTROL MODIFICATIONS.



| | | | | |
|--------------|---|----------|----|-------|
| DES. N.L.V. | 2-11-81 RELOCATE WATER HEATER, AIR COMPRESSORS, TELE & EXST. JUNCTION BOX | DLT | | |
| DR. EEM. JR. | | | | |
| CHK. | | | | |
| APPD. | | | | |
| NO. | DATE | REVISION | BY | APPD. |

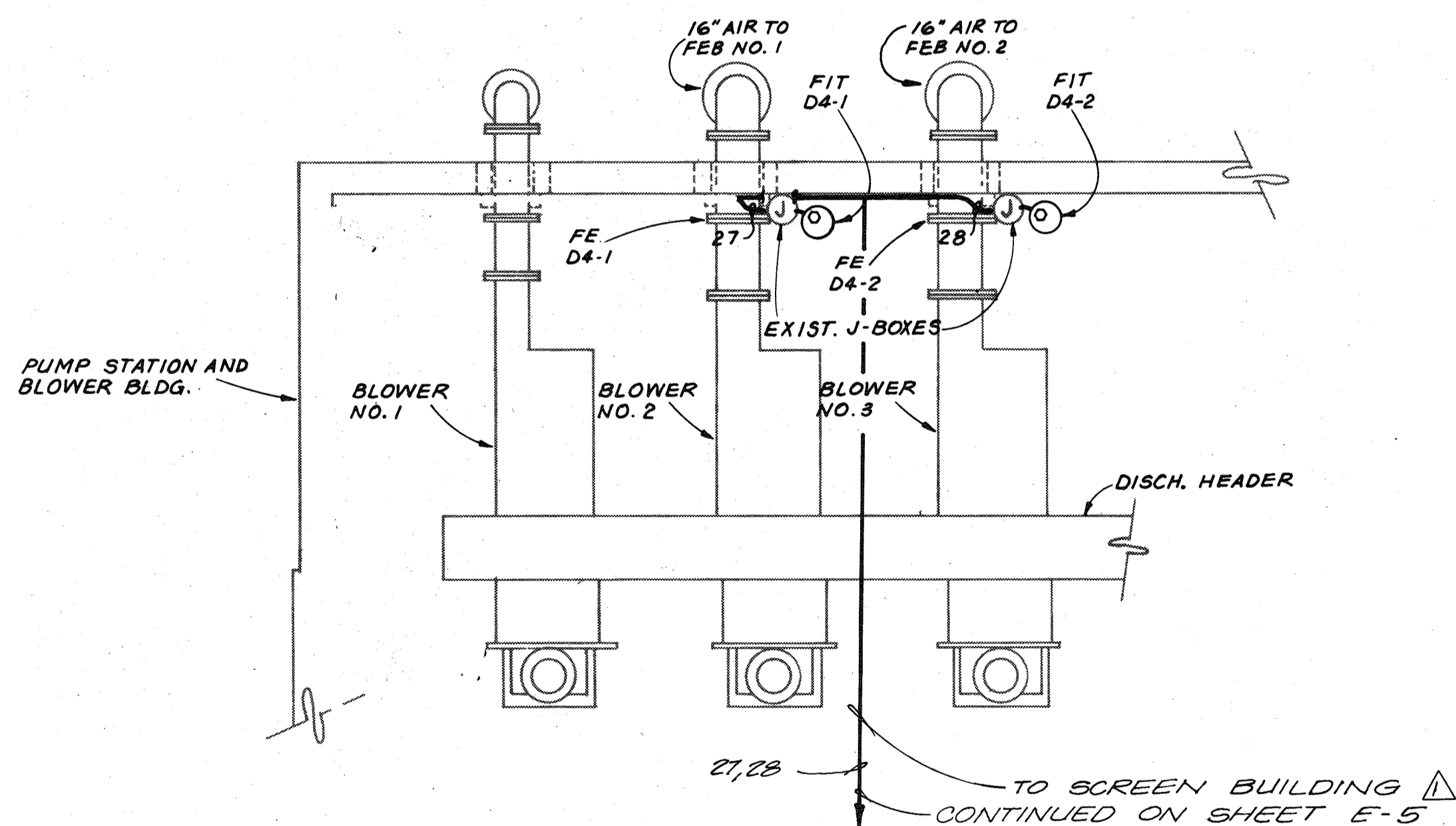
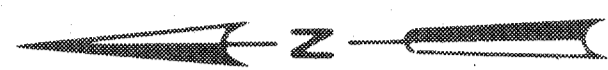
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
5/29/79
DATE
James M. Lewis
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

RECORD DRAWING

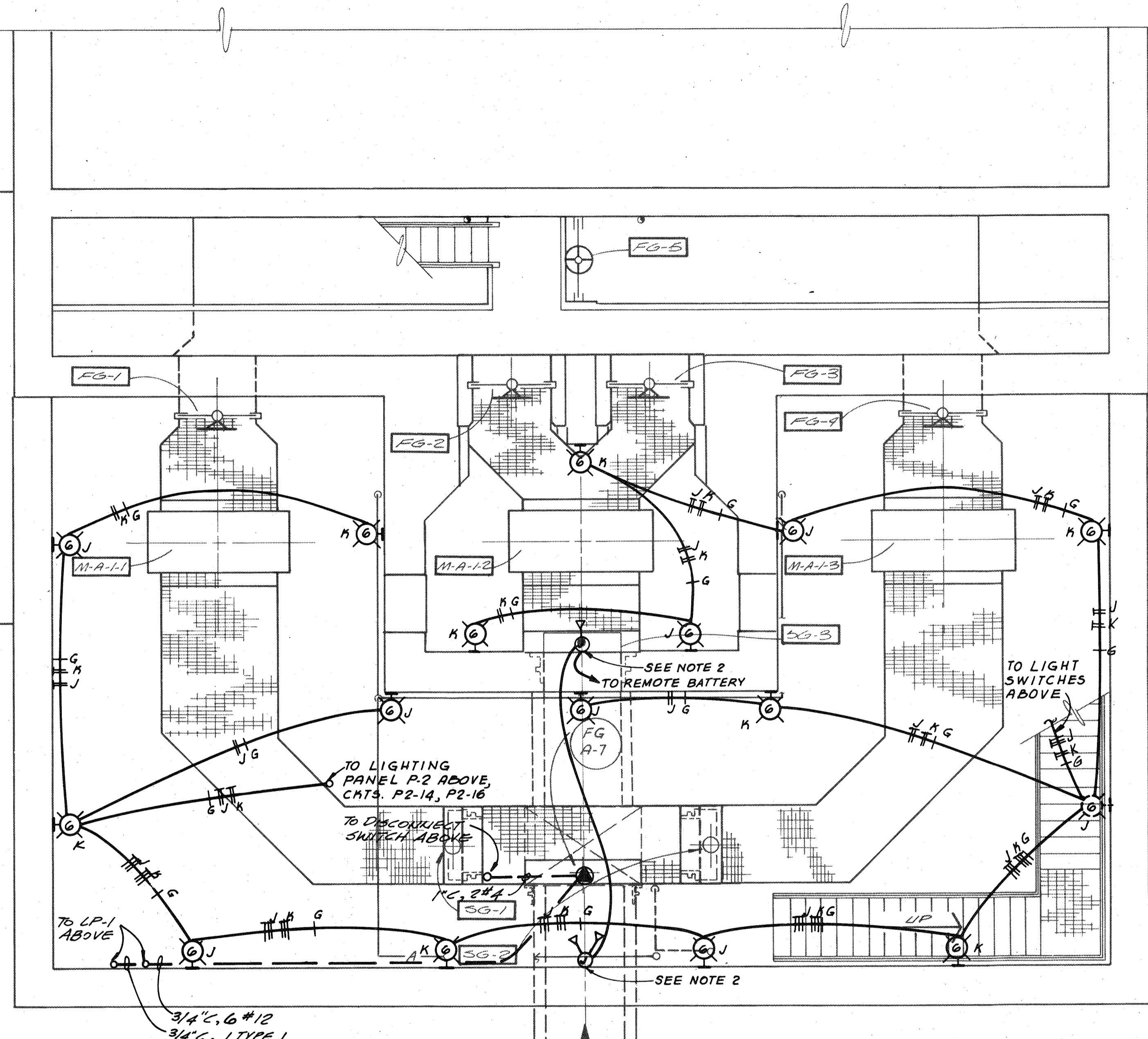
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
BAR SCREEN PLAN - UPPER FLOOR,
POWER & LIGHTING
ELECTRICAL

SHEET OF
E-5
DATE 8-78
DWG. W1078.C1
NO.



BLOWER BLDG. PARTIAL PLAN
1/4" = 1'-0"



CLIMBER SCREEN CHAMBER - PLAN AT EL. 140.0
1/4" = 1'-0"

- NOTES:
1. MOUNT LIGHTING FIXTURES, TYPE G, 8'-0" A.F.F. OR STAIRWAY.
 2. MOUNT REMOTE EXPLOSION PROOF EMERGENCY LAMPS 6'-0" A.F.F. AND CONNECT TO BATTERY PACK IN OPERATING ROOM ABOVE, SEE SH. E-5.
 3. ALL ELECTRICAL WORK IN BAR SCREEN CHAMBER SHALL CONFORM TO N.E.C. REQUIREMENTS FOR CLASS I, DIVISION I HAZARDOUS AREAS.

For Registration Drafting Use Only

| | | |
|-----------|-----|---------|
| SCREEN | S | BASE 24 |
| COMPOSITE | S | BASE 15 |
| OVERLAY | E-G | BASE 14 |
| | F-G | BASE 16 |
| | | BASE 22 |



| | | | | | |
|-----------|-------------|-----|---------|-----------------------------------|-----|
| CH2M HILL | DES. N.C.V. | | | | |
| | DR. L.G. | | | | |
| | CHK. | | | | |
| | APPD. | | | | |
| | | NO. | DATE | REVISION | BY |
| | | | 2-11-82 | CONDUIT IN BLOWER BLDG. PAR. PLAN | DLT |

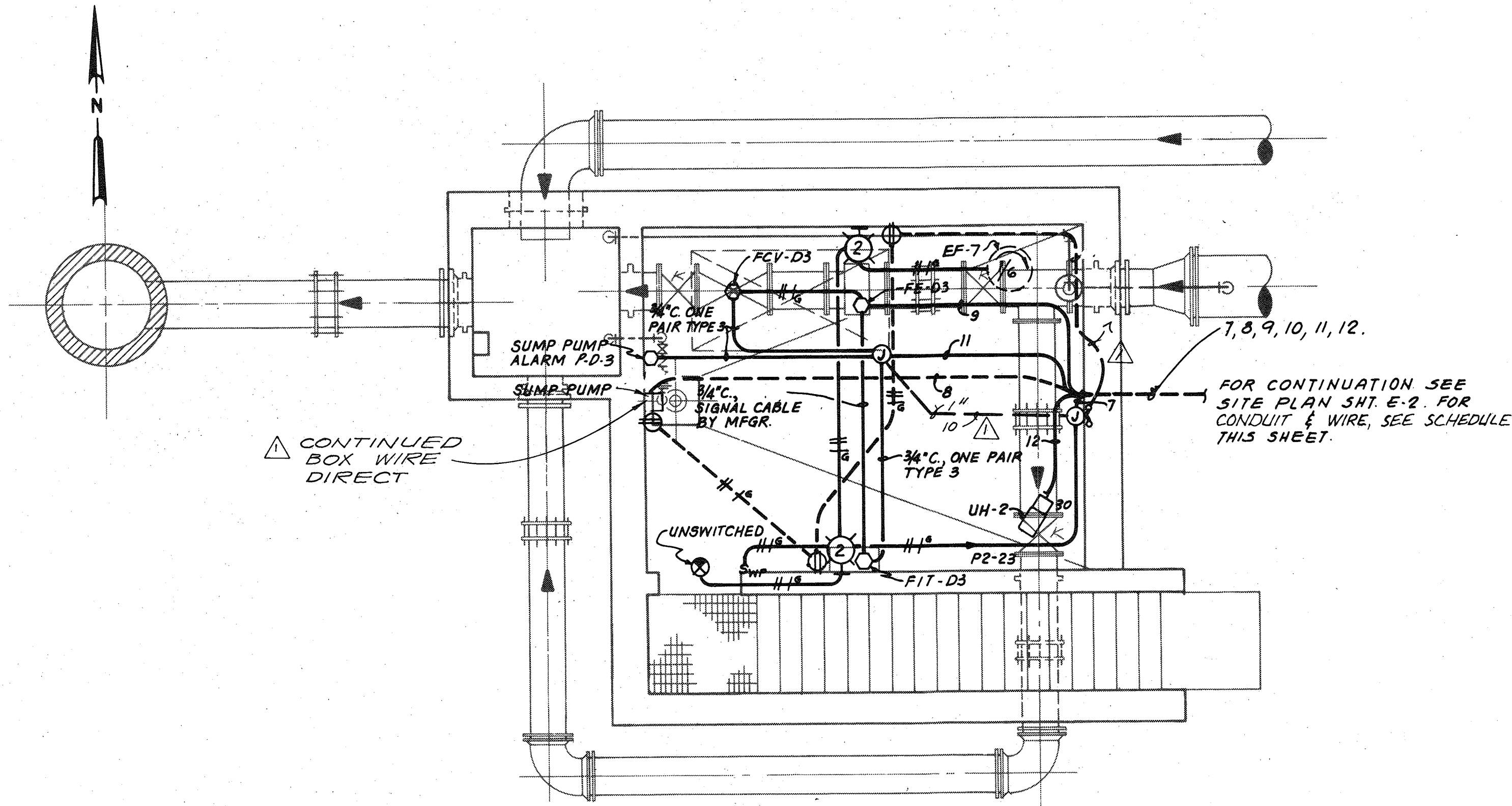
RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE 5/29/79
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

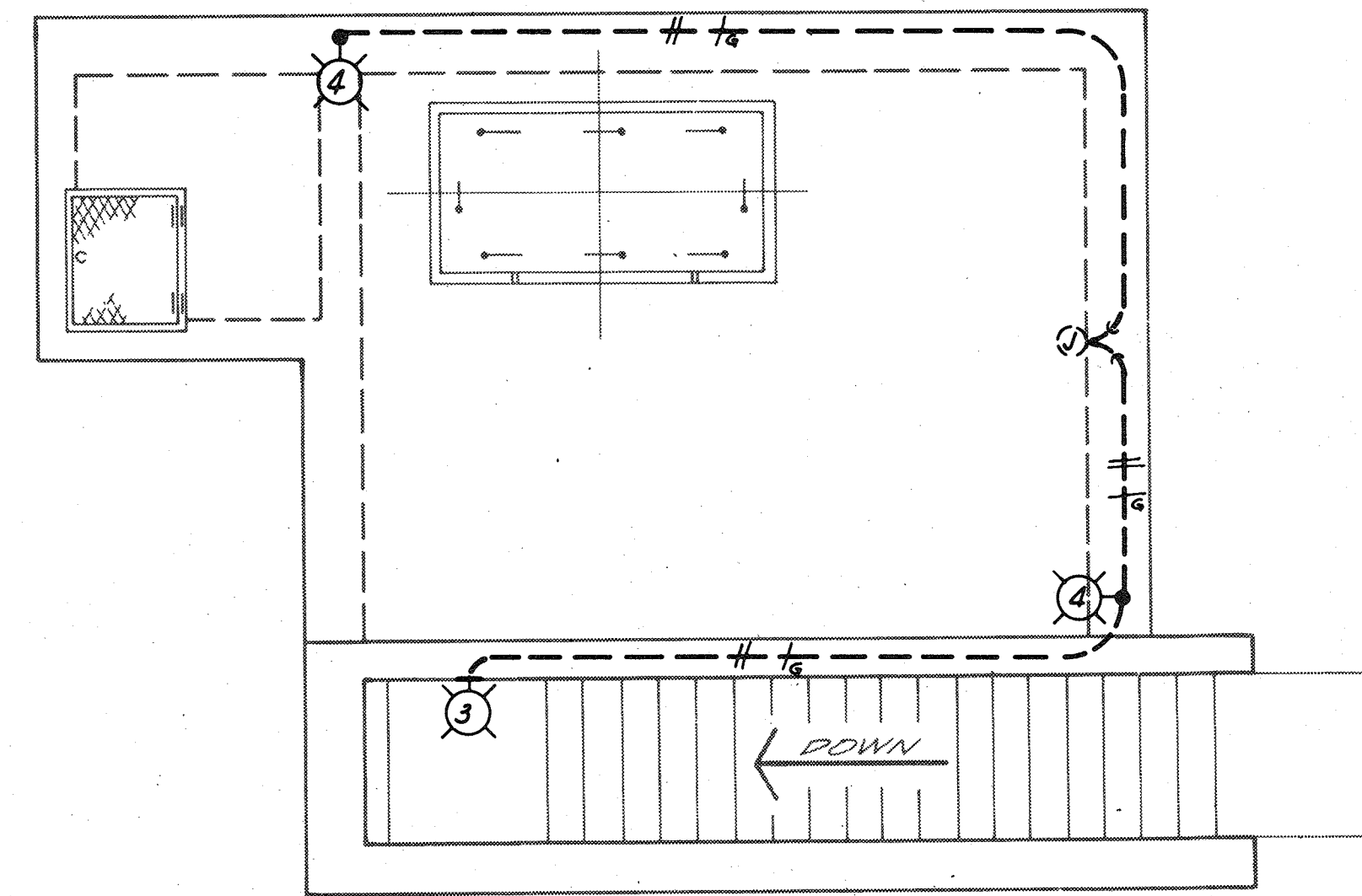
SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

SCREENING FACILITY
BAR SCREEN CHAMBER PLAN
POWER & LIGHTING
ELECTRICAL

SHEET OF E-6
DATE 8-78
DWG. NO. W11078.C1



**EQUALIZATION RETURN FLOW METERING
CHAMBER - PLAN AT EL.120.0**
1/4" = 1'-0"



**EQUALIZATION RETURN FLOW METERING
CHAMBER - PLAN AT EL.130.0**
1/4" = 1'-0"

CONDUIT AND CONDUCTOR SCHEDULE

| NO. | CONDUIT & CONDUCTOR | NOS. OF CKT(S) | FROM | TO | REMARKS |
|-----|---------------------|----------------|------------------------------------|--------------|--|
| 1 | 1" C, 2#12 | 1 | J-BOX NO.1 | J-BOX NO.2 | LSH-D2-2 |
| 2 | 1" C, 4#12 | 2 | J-BOX NO.2 | MANHOLE C | LSH-D2-1 & LSH-D2-2 |
| 3 | 1" C, 2#12 | 1 | J-BOX #1 | P2-19 | FCV-D4-2 & LIT-DI-2 |
| 4 | 1" C, 1 TYPE 3 | 1+(2SP) | TERMINAL BOX NO.2 | MANHOLE C | LIT-DI-2 |
| 5 | 1" C, 2#12 | 1 | J-BOX #2 | P2-21 | FCV-D4-1 & LIT-DI-1 |
| 6 | 1" C, 1 TYPE 3 | 1+(2SP) | TERMINAL BOX NO.1 | MANHOLE C | LIT-DI-1 |
| 7 | 1" C, 4#12, 1#12G | 2 | LIGHTS & EXH. FAN | P2-23, P2-24 | |
| 8 | 1" C, 2#8, 1#12G | 1 | SUMP PUMP RECEPT. | P2-26 | |
| 9 | 1" C, 2#12, 2#8 | 1 | FE-D3 & FCV-D3 | P2-27 | |
| 10 | 1" C, 2#12, 1#12G | 1 | RECEPTS. | P2-25 | |
| 11 | 1" C, 1 TYPE 3 | 3+(1SP) | FCV-D3 & FIT-D3 SUMP PUMP ALARM | MANHOLE C | ROUTE SUMP PUMP ALARM FROM #7 TO #34 AT M.H.-E |
| 12 | 1" C, 3#12, 1#12G | 1 | UNIT HEATER | MCC-GF | |
| 13 | 4#12 | 2 | MANHOLE C LSH-D2-1 & LSH-D2-2 | LP-2 | EXST. CONDUIT |
| 14 | 1 TYPE 3 | 1+(2SP) | MANHOLE C LIT-DI-2 | LP-2 | EXST. CONDUIT |
| 15 | 1 TYPE 3 | 1+(2SP) | MANHOLE C LIT-DI-1 | LP-2 | EXST. CONDUIT |
| 16 | 1 TYPE 3 | 2 | MANHOLE C FCV-D3 & FIT-D3 | LP-2 | EXST. CONDUIT |

CONDUIT AND CONDUCTOR SCHEDULE (CONT.)

| NO. | CONDUIT & CONDUCTOR | NOS. OF CKT(S) | FROM | TO | REMARKS |
|-----|---|----------------|-------------|-------------------|--|
| 17 | 1" C, 15#12 | 1 | MCC-1A | LP-1 | |
| 18 | 1" C, 15#12 | 1 | MCC-5A | LP-1 | |
| 19 | 1" C, 9#12 | 1 | MCC-5E | LP-1 | |
| 20 | 1" C, 15#12 | 1 | MCC-6A | LP-1 | |
| 21 | 3" C, TYPE 1 | | LP-1 | RM-8 | NO. OF CIRCUITS AS REQ'D |
| 22 | 3" C, TYPE 3 | | LP-1 | RM-8 | NO. OF CIRCUITS AS REQ'D |
| 23 | 1" C | | RM-8 | MANHOLE 3 | COMPUTER INTERFACE |
| 24 | 1" C | | RM-8 | MANHOLE 3 | COMPUTER INTERFACE |
| 25 | 3/4" C, SEE NOTE 4 | | FACP | MANHOLE 3 | FIRE ALARM INTERFACE |
| 26 | 3/4" C, SEE NOTE 4 | | FACP | MANHOLE 3 | FIRE ALARM INTERFACE |
| 27 | 1" C, 1-TYPE 1 | 1 | LP-1 | FIT-D4-1 | COND. SIZED FOR FUTURE FIT |
| 28 | 3/4" C, 1-TYPE 1 | 1 | LP-1 | FIT-D4-2 | |
| 29 | 3/4" C, 2#12 | 1 | LP-1 | CC3 | INTERLOCK WITH BLOWER #3 |
| 30 | 3/4" C, 2#12 | 1 | LP-1 | CC3 | INTERLOCK WITH BLOWER #2 |
| 31 | 1" C, 3#4, 1#8G | 1 | MCC-6B | PANEL P2 | |
| 32 | 2 SETS (3#250MCM, 1#3G, 4" C) & 2-4" C SPAREB | | MCC | MANHOLE 3A | |
| 33 | 2 SETS (3#250MCM, 1#3G, 4" C) EXISTING 4" C | | MANHOLE 3A | SUBSTATION "SS-1" | |
| 34 | 1" C, 1 TYPE 3 | 5+(2SP) | J-BOX NO. 2 | LP-1 | FCV-D4-1, FCV-D4-2 LIT-DI-1, LIT-DI-2 SUMP PUMP ALARM (SEE CONDUIT #11) |
| 35 | 3/4" C, 2#12 | 1 | LP-1 | CC2 | SLUICE GATE |

NOTES:

- 1) CONTRACTOR SHALL PROVIDE PHOTO ELECTRIC CELL FOR ALL EXTERIOR LIGHTS ON FLOW METERING CHAMBER
- 2) ALL CONDUITS ENTERING AND LEAVING STRUCTURES SHALL HAVE A WATERTIGHT SEAL TO PRECLUDE WATER ENTRY UNDER THE 100 YEAR FLOOD LEVEL (EL. 143.0) CONDUITS RUNNING EXPOSED ALONG WALL SHALL BE MOUNTED CLOSE TO CEILING.
- 3) ALL RECEPTACLES SHALL BE MOUNTED 4'-0" A.F.F. BOXES & ENCLOSURES SHALL BE NEMA TYPE G.
- 4) CONDUCTORS PROVIDED AND INSTALLED UNDER SPECIFICATION SECTION 16721

TOGETHER

For Registration Drafting Use Only

| | | |
|-----------|-----|---------|
| SCREEN | 5 | W1078C1 |
| COMPOSITE | E-7 | BASE 25 |
| OVERLAY | E-7 | BASE 25 |



| | | | | | |
|-----------|-------------|---------|---|----|-------|
| CH2M HILL | DES. N.L.V. | 2-11-82 | CONDUIT IN EQUALIZATION RETURN FLOW METERING CHAMBER @ EL.120 | BY | APPD. |
| | DR. L.G. | | | | |
| | CHK. | | | | |
| | APPD. | | | | |

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/24/79
DATE

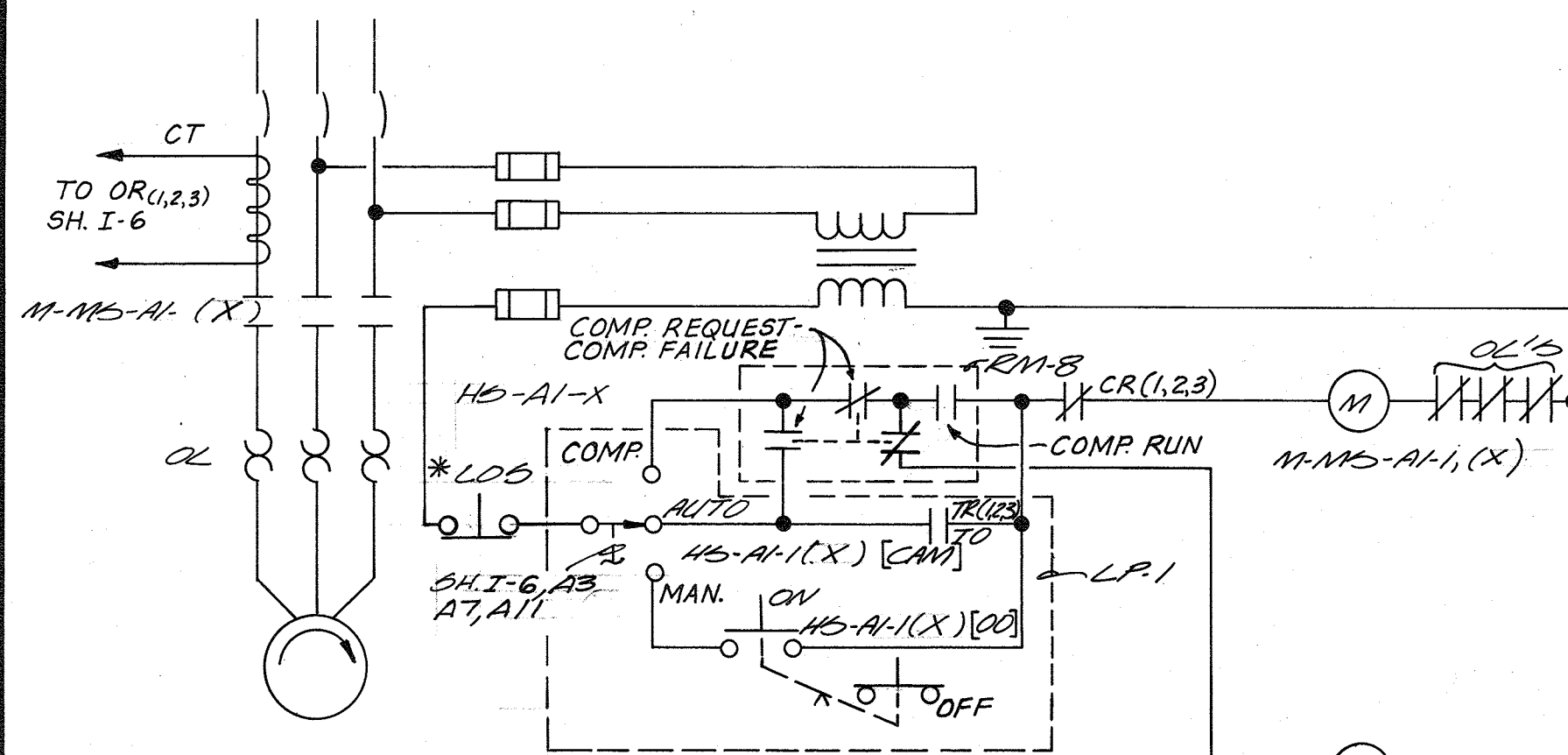
James J. Lane
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO.4
CONTRACT NO. 764-S

SCREENING FACILITY
**EQUALIZATION RETURN FLOW METERING
CHAMBER PLAN, PWR., LTG. & SCHED.S**
ELECTRICAL

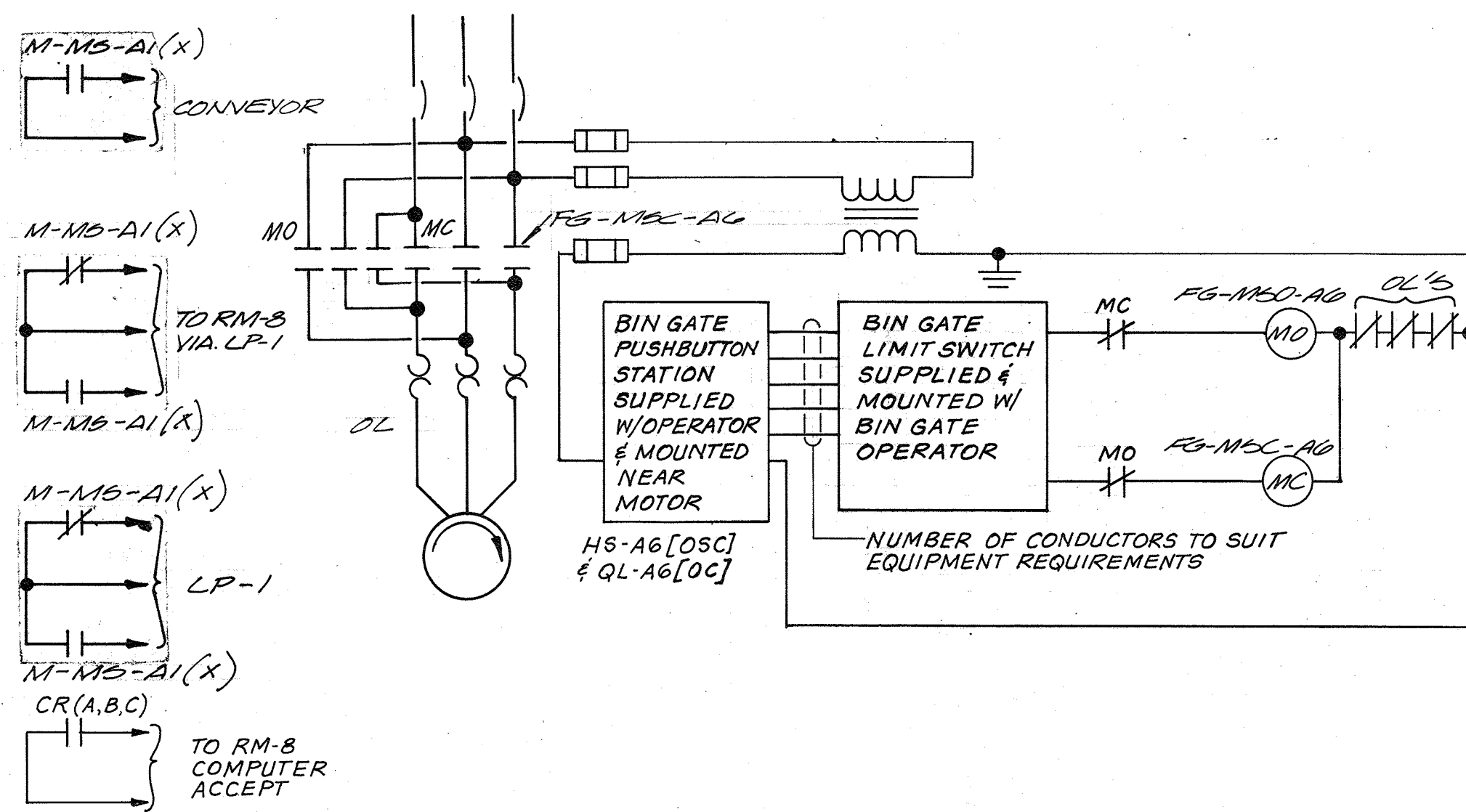
SHEET
OF
E-7
DATE 8-78
DWG.
NO. W1078C1

RECORD DRAWING

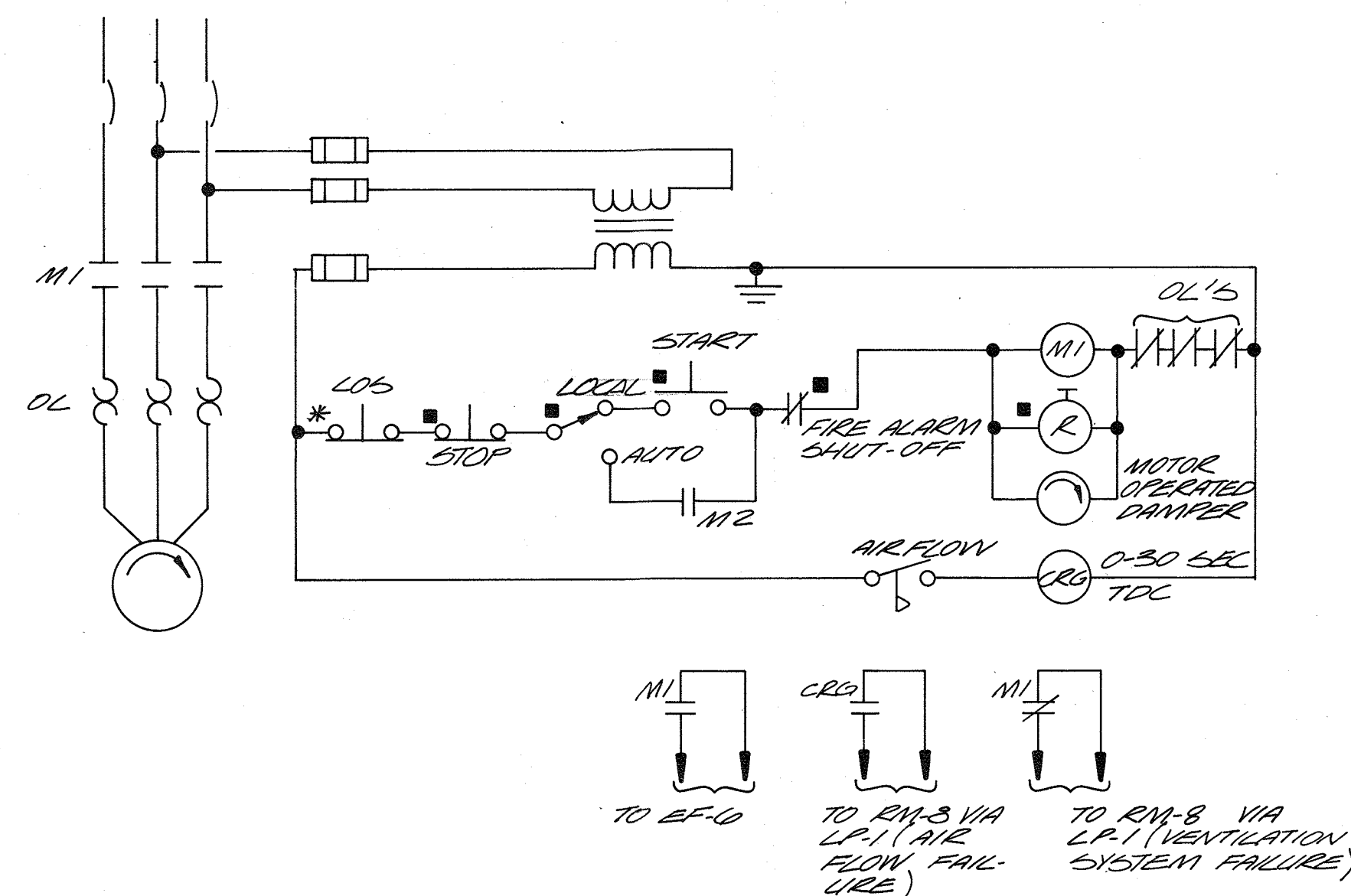


| | | | | | | |
|-----|--------|--------------|--------------|-------------|-----|-----|
| X=1 | M-A1-1 | H5-A1-1[LOS] | H5-A1-1[CAM] | H5-A1-1[DO] | TR1 | CR1 |
| X=2 | M-A1-2 | H5-A1-2[LOS] | H5-A1-2[CAM] | H5-A1-2[DO] | TR2 | CR2 |
| X=3 | M-A1-3 | H5-A1-3[LOS] | H5-A1-3[CAM] | H5-A1-3[DO] | TR3 | CR3 |

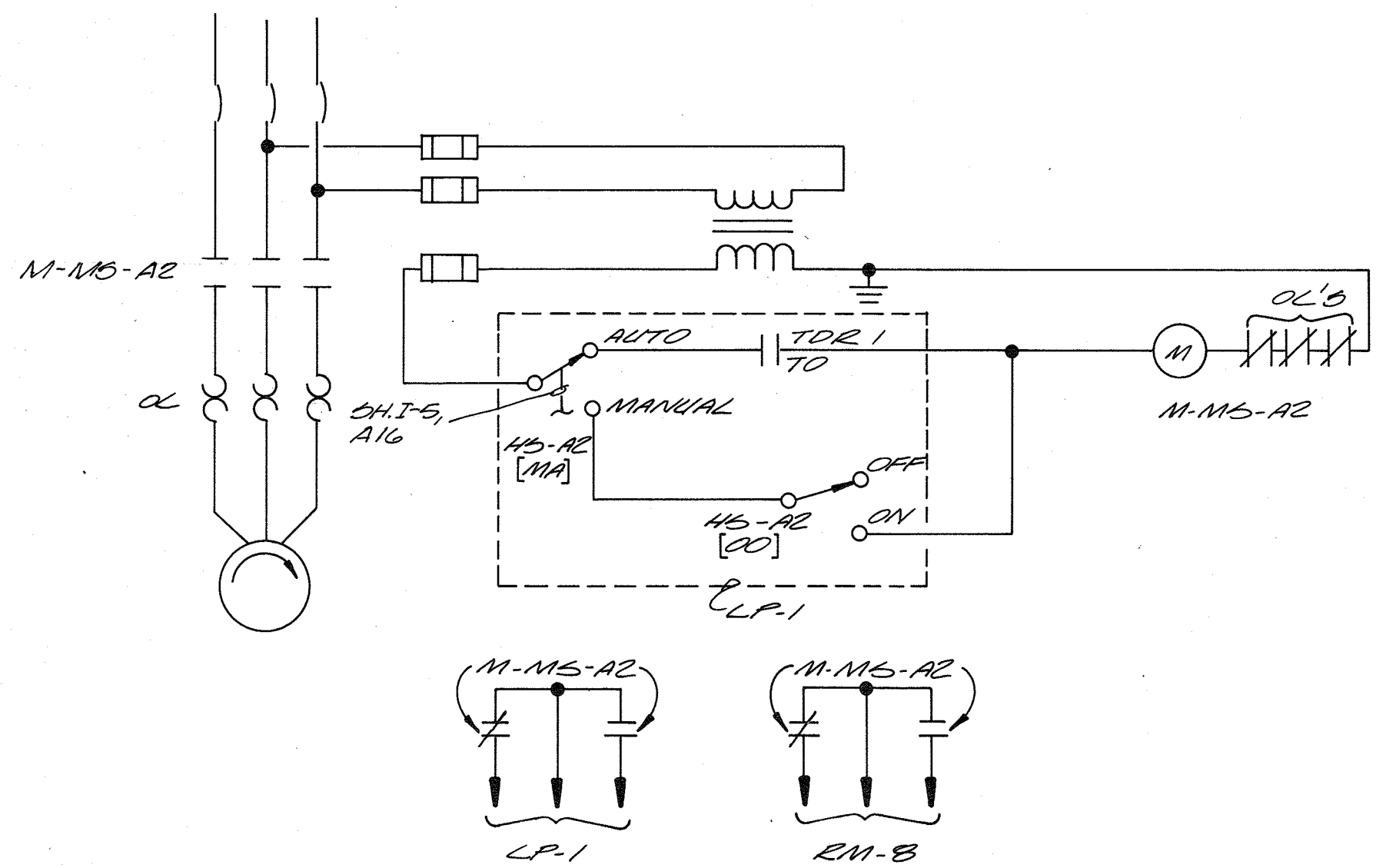
BAR SCREEN M-A 1, M-A 2, M-A 3
X=1,2,3



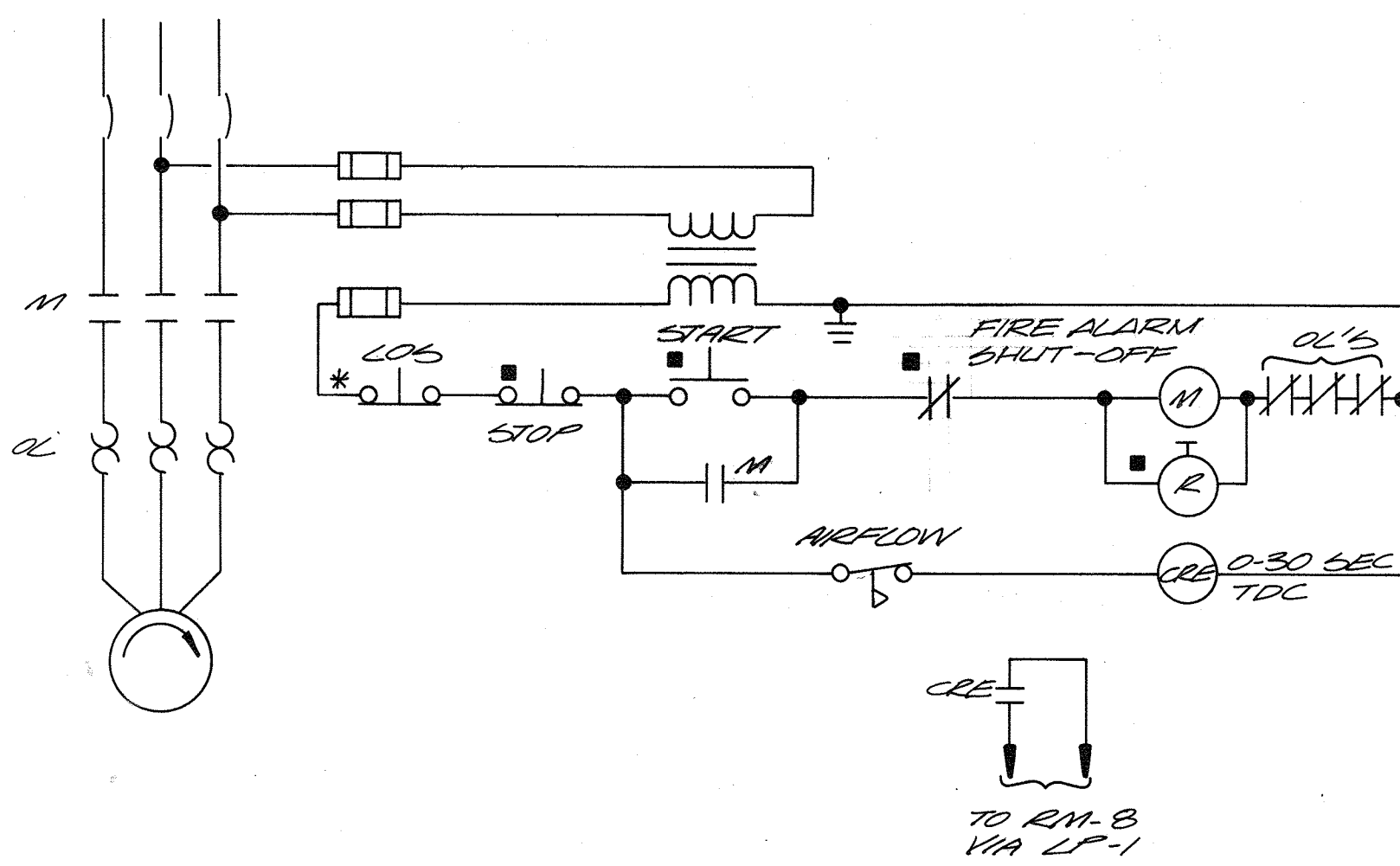
SCREENINGS BIN FG-A 0



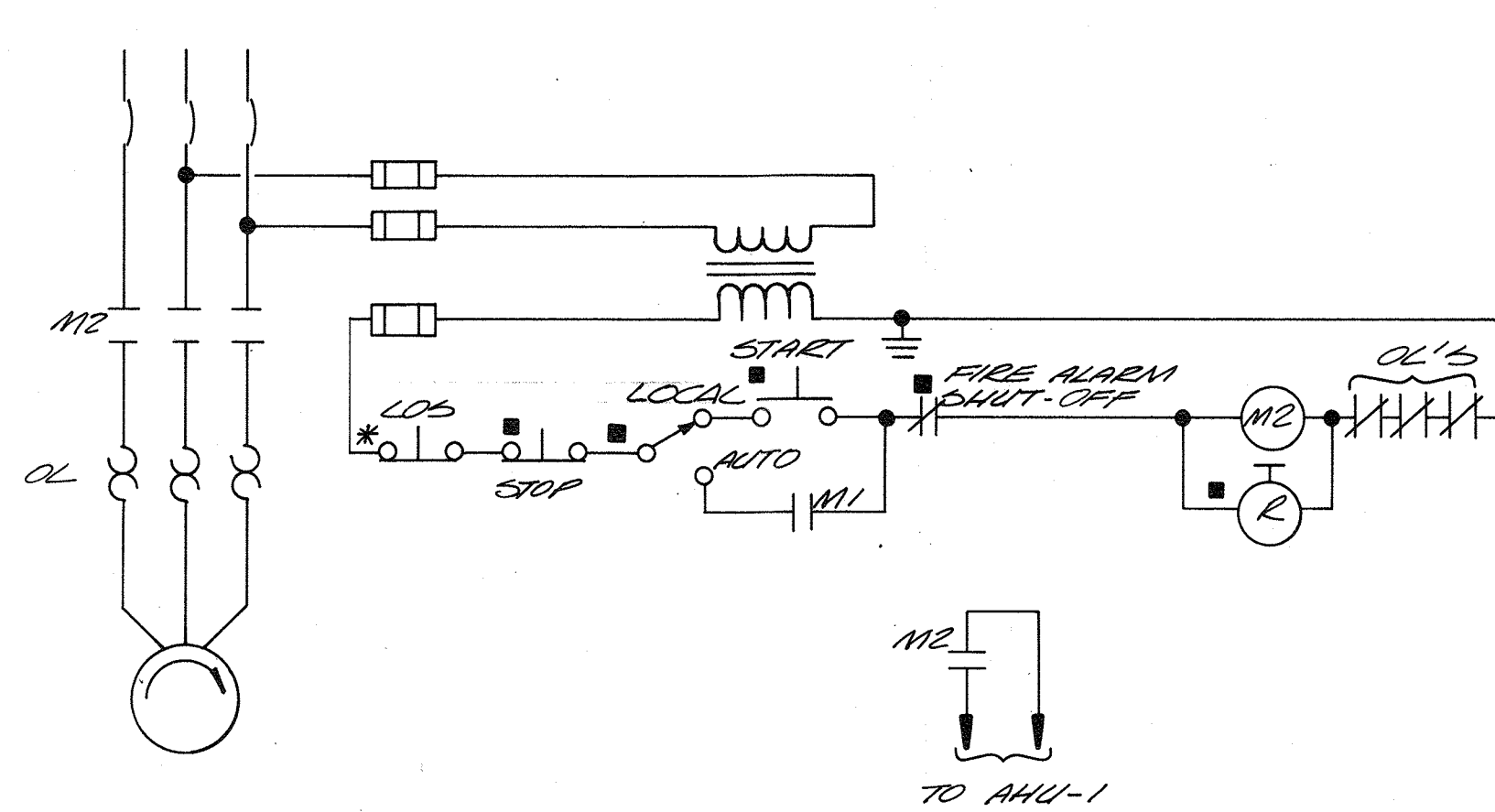
AIR HANDLING UNIT AHU-1



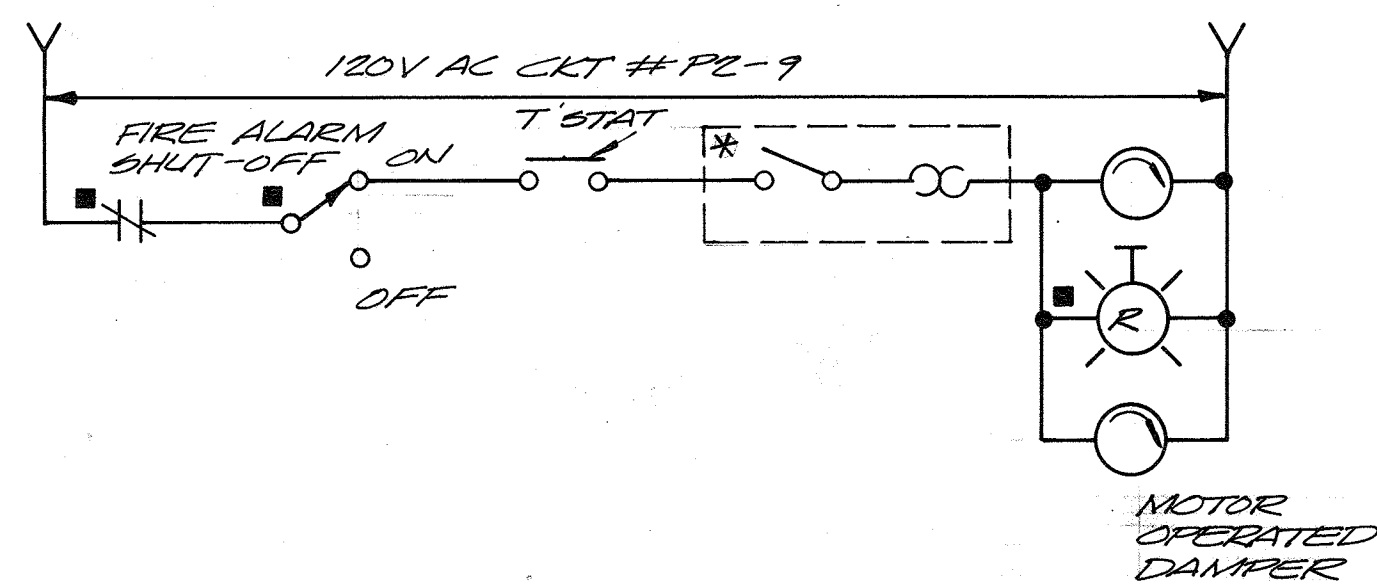
CONVEYOR M-A 2



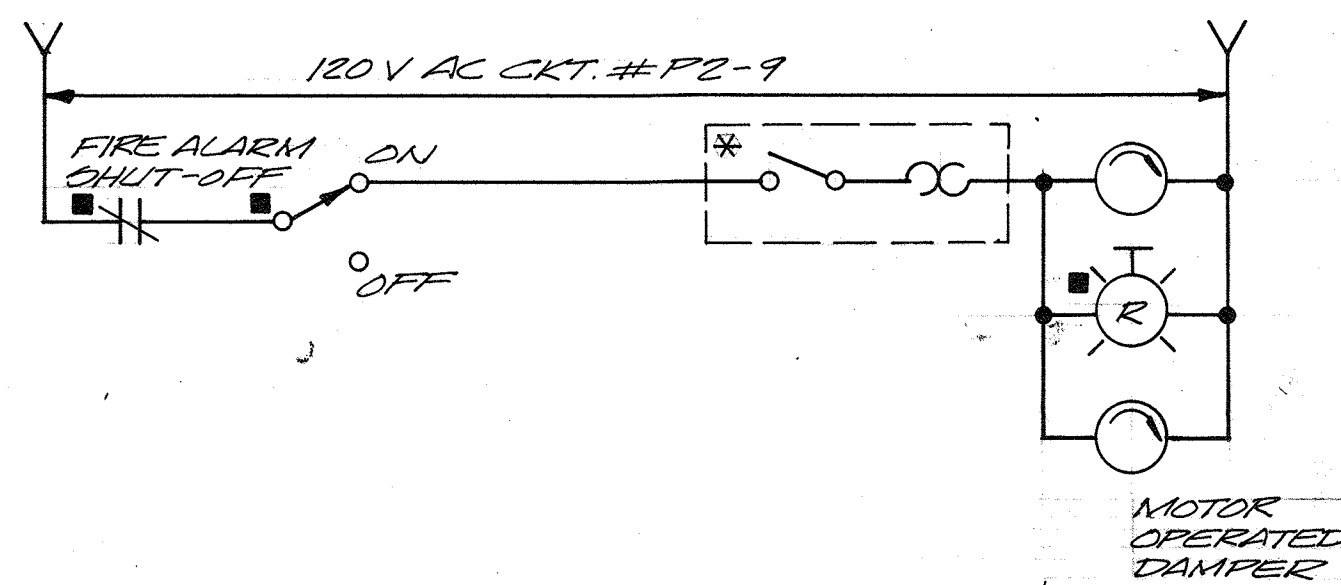
EXHAUST FANS EF-1 & EF-2



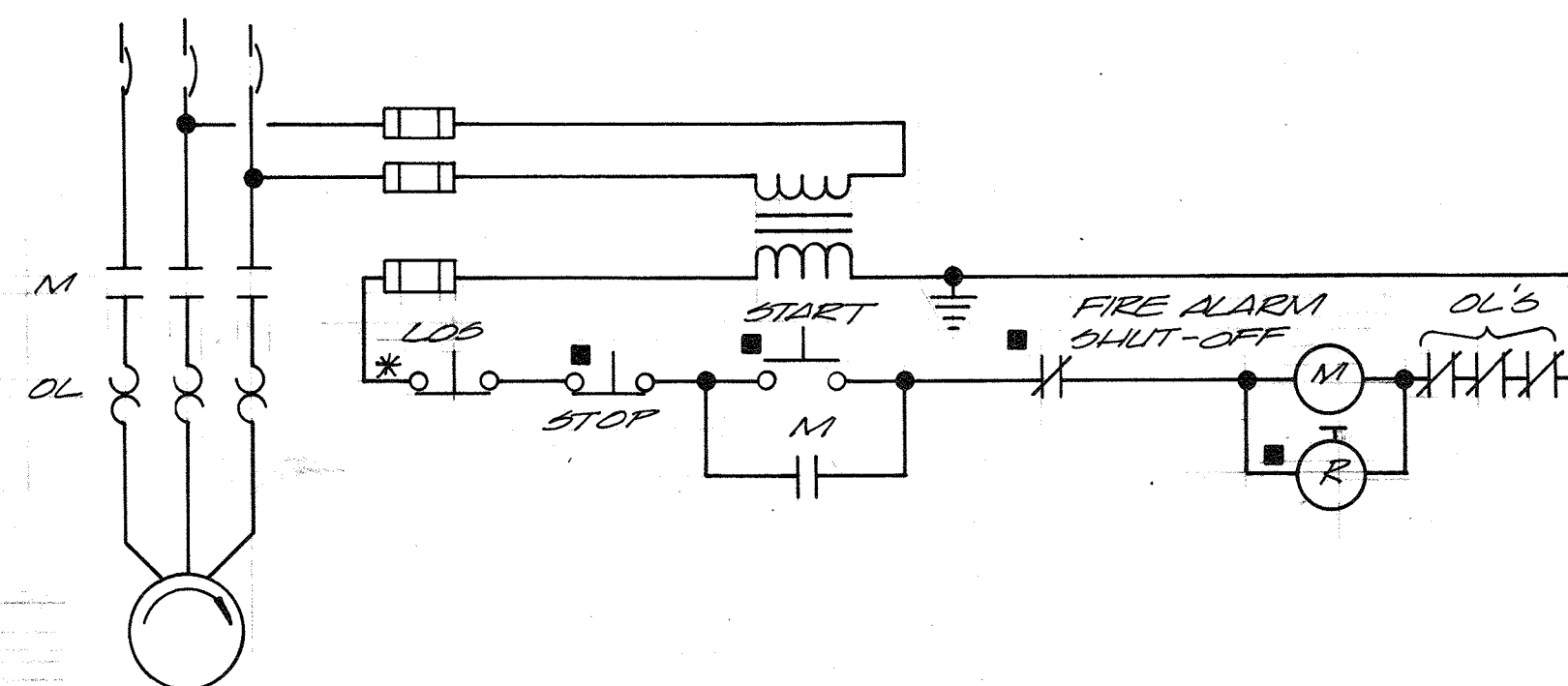
EXHAUST FAN EF-6



EXHAUST FAN EF-4



EXHAUST FAN EF-5



SUPPLY FANS SF-1 & SF-2

■ LOCATED AT OR NEAR MMP

NOTE:

- ELECTRICAL CONTRACTOR TO CLOSELY COORDINATE WITH THE HVAC CONTROL SYSTEM SUPPLIER. STARTER FURNISHED, INSTALLED AND WIRED UNDER ELEC. ALL MOTOR CONTROL EXTERIOR TO THE STARTER IS FURNISHED, INSTALLED AND WIRED UNDER HVAC.



CH2M HILL

DES. BOH/DBB
DR. EEM/VAN
CHK.
APPD.

NO. DATE REVISION BY APPD.

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

5/29/79
DATE

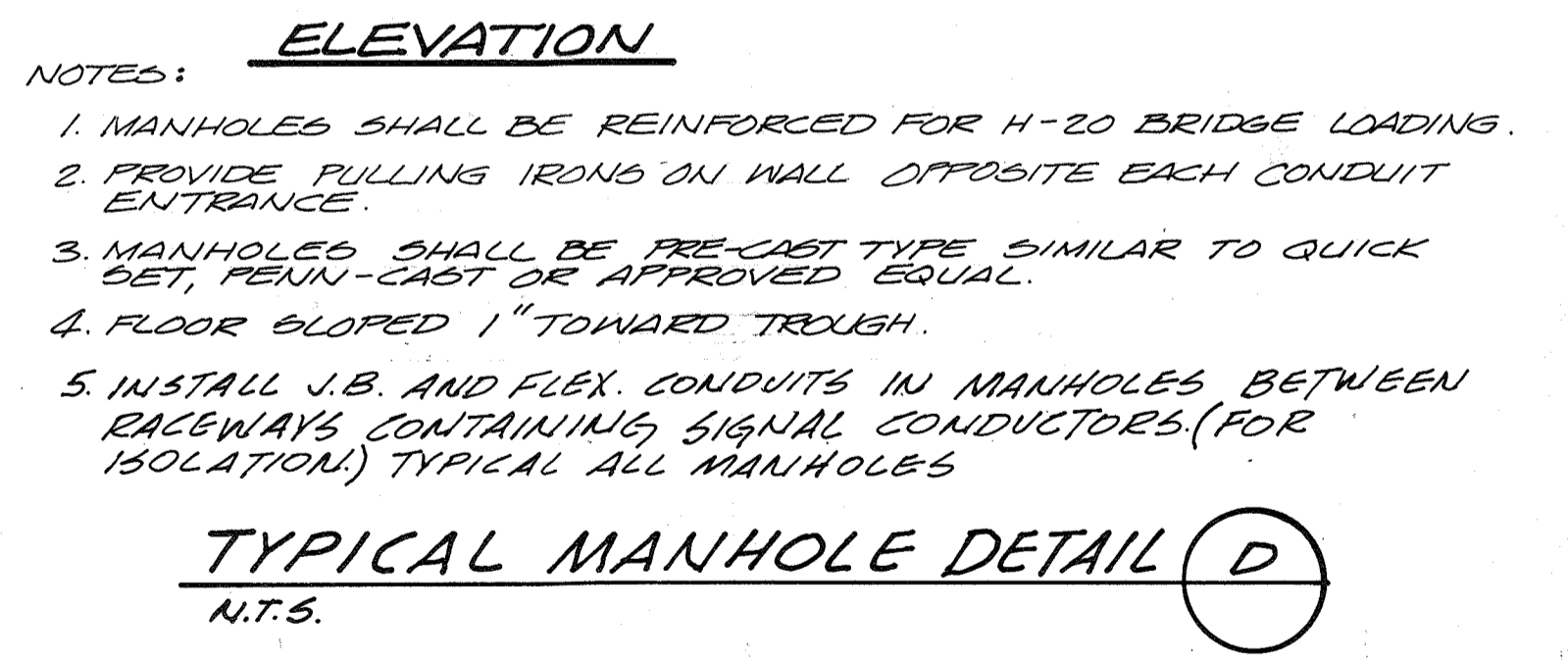
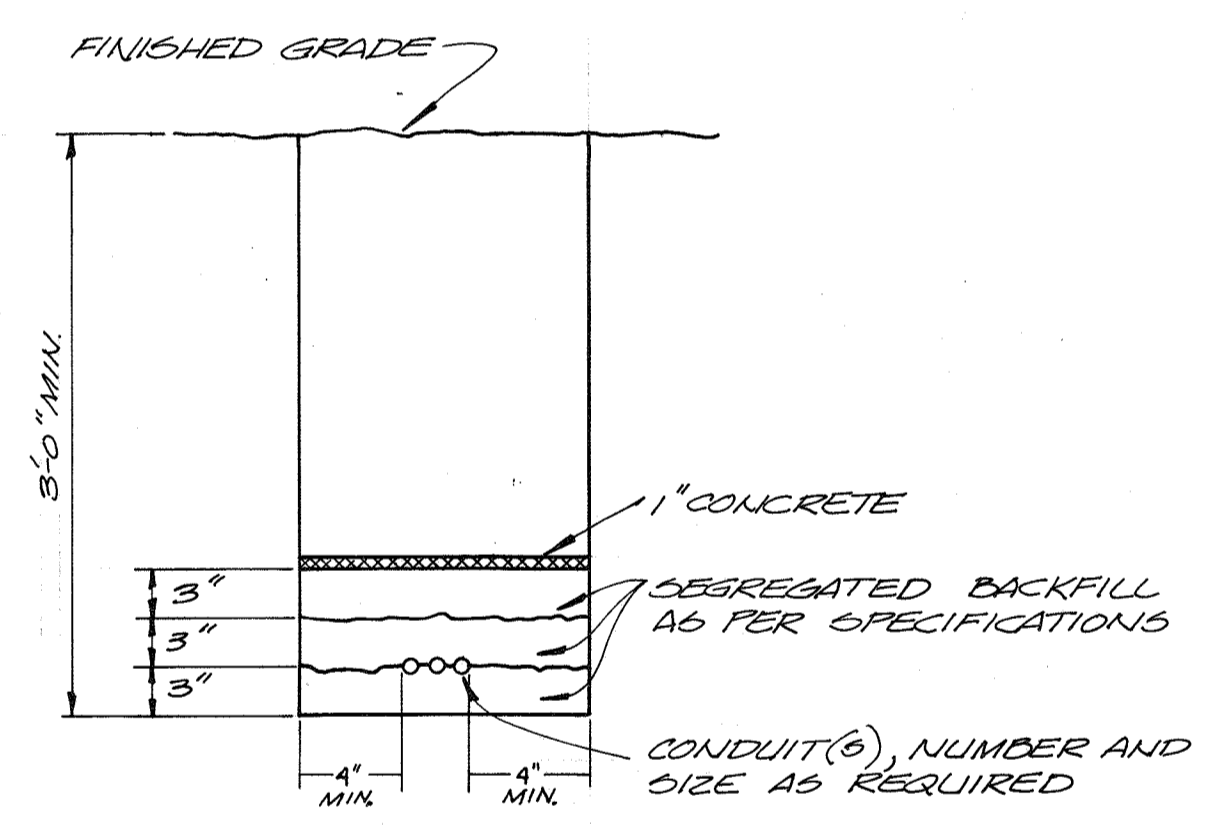
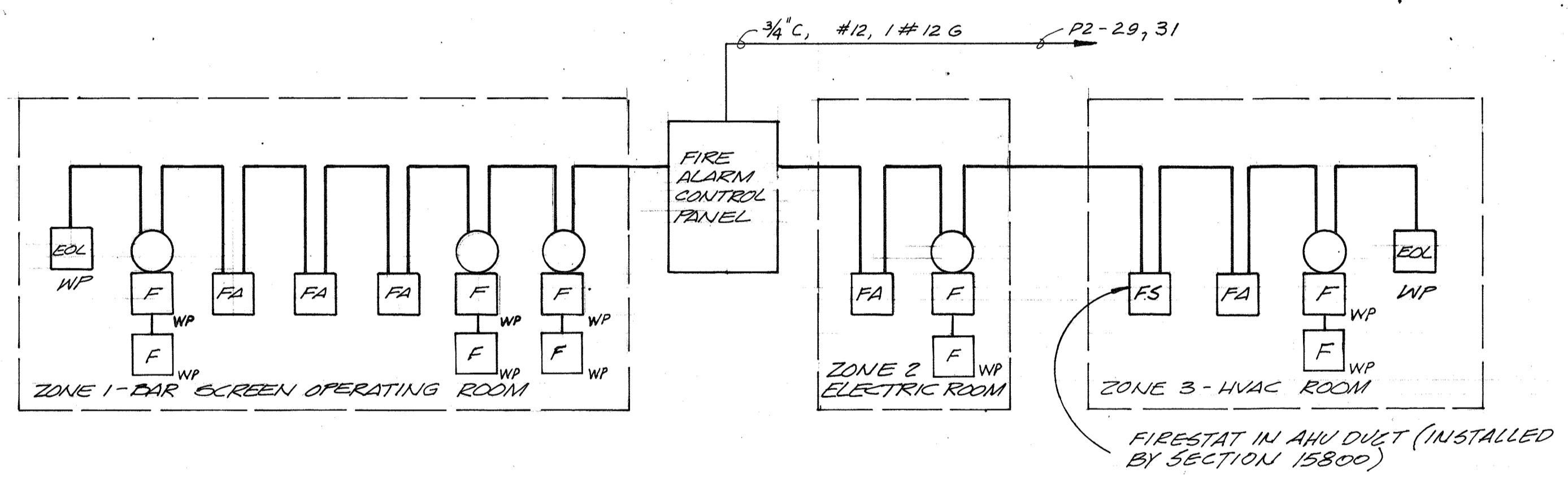
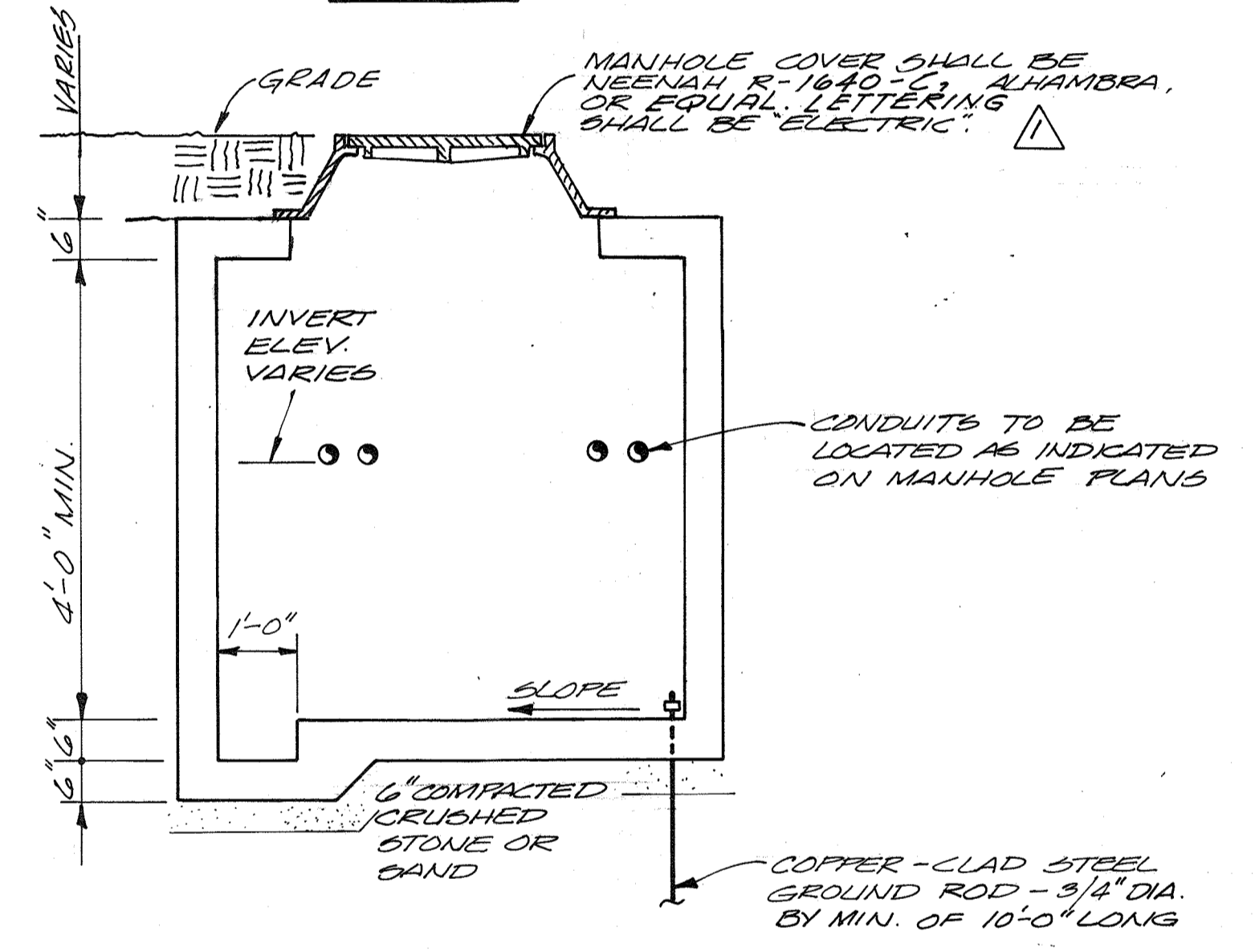
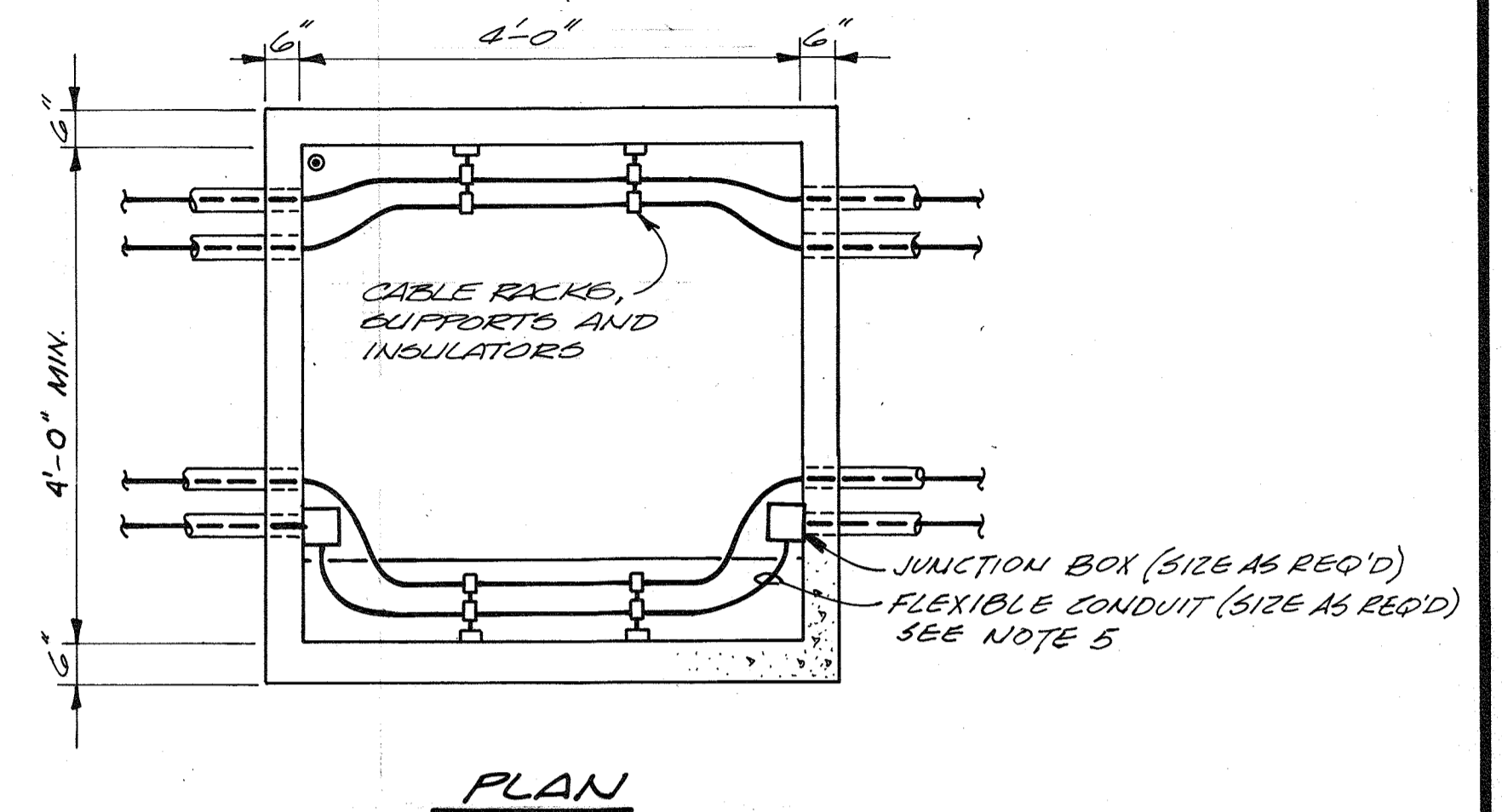
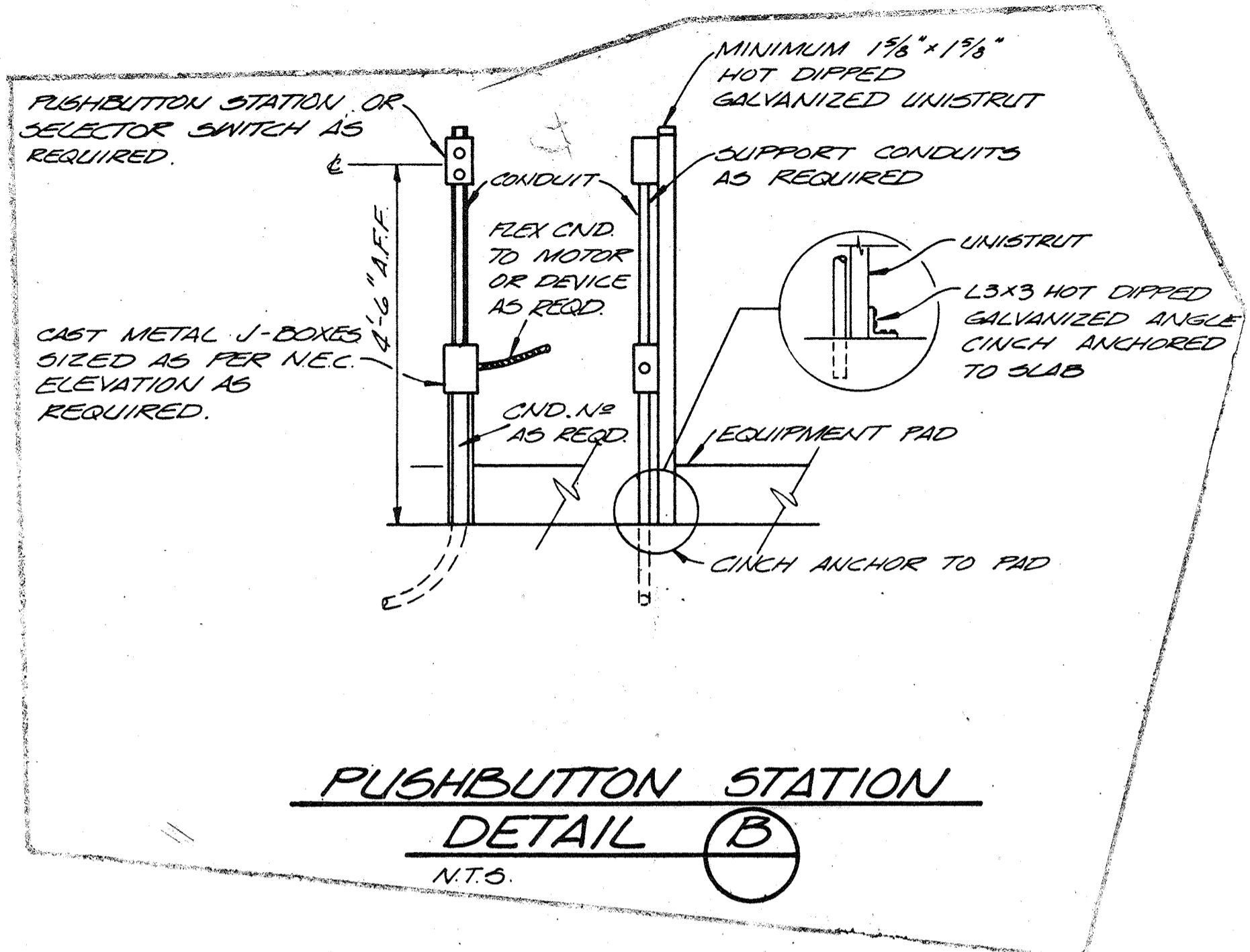
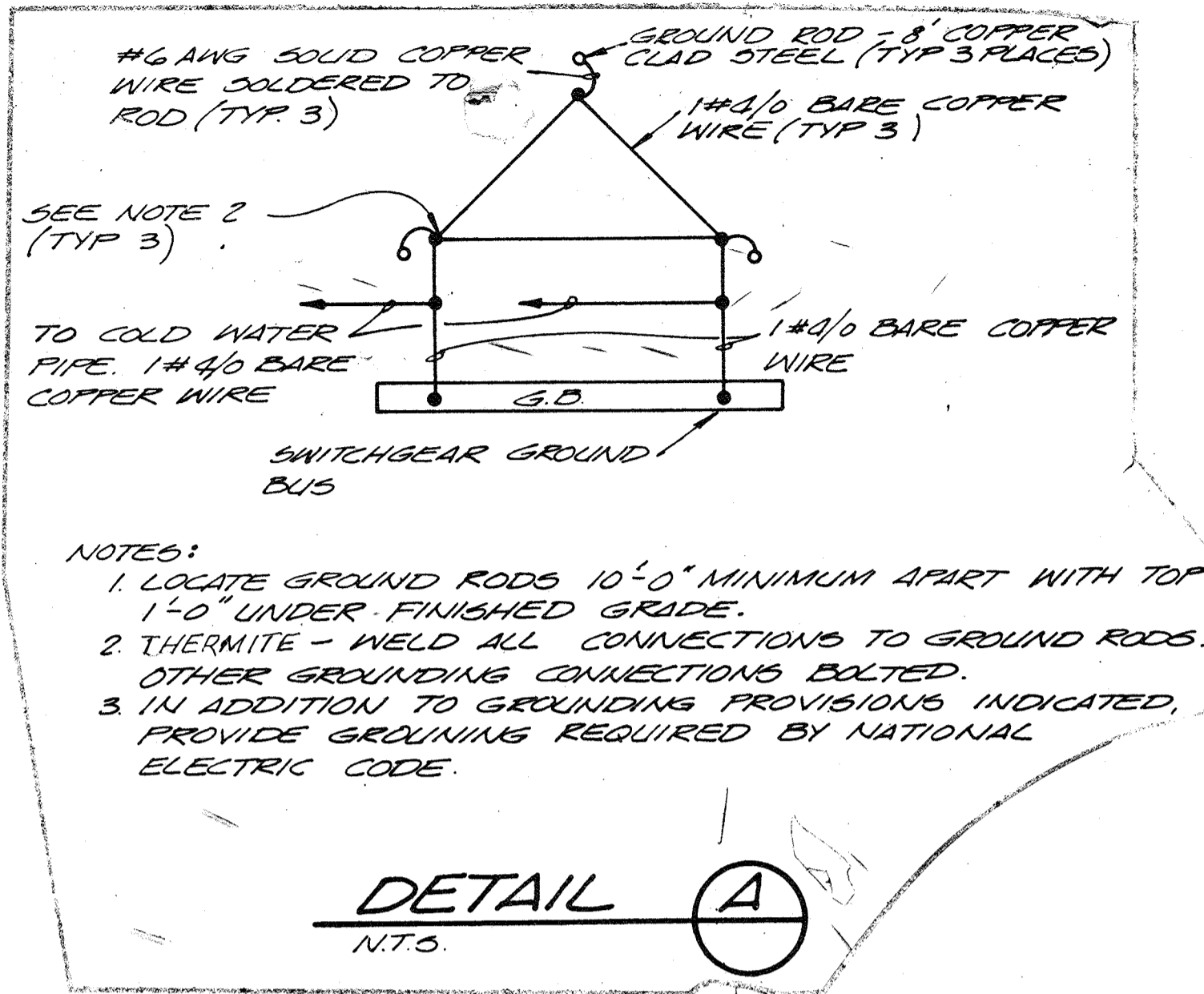
James M. ...
CHIEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
ADDITION NO. 4
CONTRACT NO. 764-S

CONTROL DIAGRAMS

ELECTRICAL

SHEET OF E-8
DATE 8-78
DWG. NO. W1078.C1



NOTES:
1. REFER TO SPECIFICATIONS SECTION 16721 FOR REQUIREMENTS

NOTES:
1. MANHOLES SHALL BE REINFORCED FOR H-20 BRIDGE LOADING.
2. PROVIDE PULLING IRONS ON WALL OPPOSITE EACH CONDUIT ENTRANCE.
3. MANHOLES SHALL BE PRE-CAST TYPE SIMILAR TO QUICK DET, PENN-CAST OR APPROVED EQUAL.
4. FLOOR SLOPED 1" TOWARD TROUGH.
5. INSTALL J.B. AND FLEX. CONDUITS IN MANHOLES BETWEEN RACEWAYS CONTAINING SIGNAL CONDUCTORS (FOR ISOLATION) TYPICAL ALL MANHOLES

CONDUIT - DIRECT BURIAL DETAIL C
N.T.S.

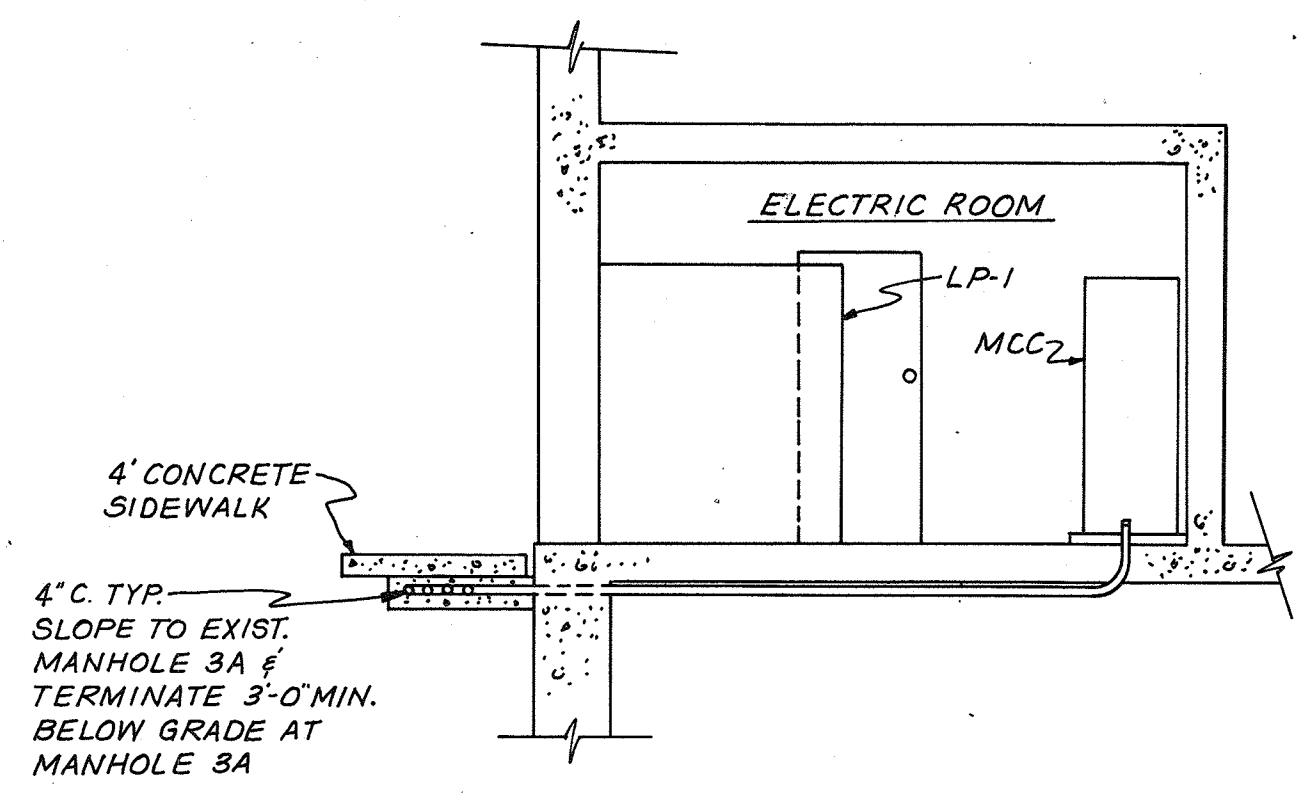
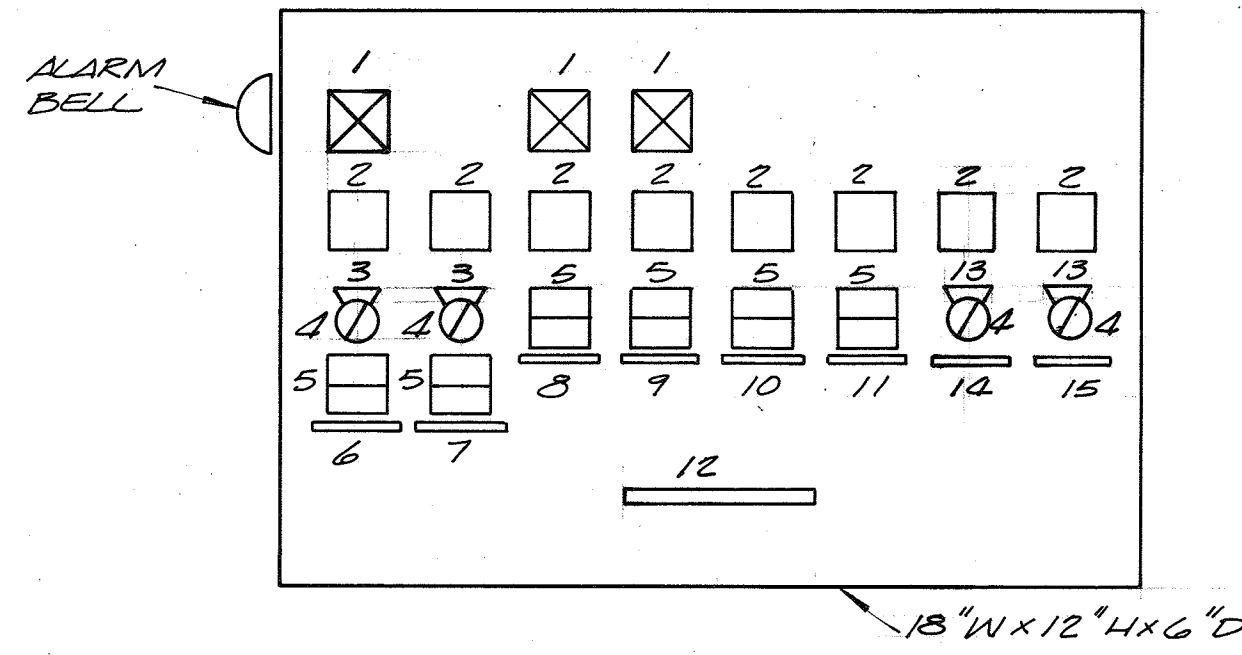
TYPICAL MANHOLE DETAIL D
N.T.S.



FIRE ALARM CONTROL DIAGRAM
N.T.S.

RECORD DRAWING

| | | | | | | | |
|--|--------------------|----------------------------|--------------------|--|---|-------------------------------------|--------------------|
| CH2M HILL DES. N.L.V. DR. EEM/EF CHK. APPD. | NO. DATE 1/3/80 | ADDENDUM NO. 1 REVISION | LG DBB BY APPD. | DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 5/29/79 DATE | SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4 CONTRACT NO. 764-S | DETAILS ELECTRICAL | SHEET OF E-9 |
| | | | | CHIEF - BUREAU OF ENVIRONMENTAL SERVICES <i>James M. ...</i> | | | DATE 8-78 |



DETAIL OF FEEDERS TO MCC (G)
E-2

| ITEM | DESCRIPTION | INSCRIPTION |
|------|-----------------------|--------------------------------|
| 1 | DETAIL 1 | AIR FLOW FAILURE |
| 2 | DETAIL 2 | RUN |
| 3 | 1/2" x 1/2" NAMEPLATE | LOCAL/AUTO |
| 4 | SELECTOR SWITCH | |
| 5 | DETAIL 3 | START/STOP |
| 6 | 1/2" x 1/2" NAMEPLATE | AHU-1 |
| 7 | 1/2" x 1/2" NAMEPLATE | EF-6 |
| 8 | 1/2" x 1/2" NAMEPLATE | EF-1 |
| 9 | 1/2" x 1/2" NAMEPLATE | EF-2 |
| 10 | 1/2" x 1/2" NAMEPLATE | EF-1 |
| 11 | 1/2" x 1/2" NAMEPLATE | EF-2 |
| 12 | 1" x 4" NAMEPLATE | MMP (MECHANICAL CONTROL PANEL) |
| 13 | 1/2" x 1/2" NAMEPLATE | ON-OFF |
| 14 | 1/2" x 1/2" NAMEPLATE | EF-4 |
| 15 | 1/2" x 1/2" NAMEPLATE | EF-5 |

PUSH TO TEST INDICATING LIGHT WITH YELLOW CONVEX LENS INSCRIPTION PER TABLE
 PUSH-TO-TEST INDICATING LIGHT WITH RED CONVEX LENS

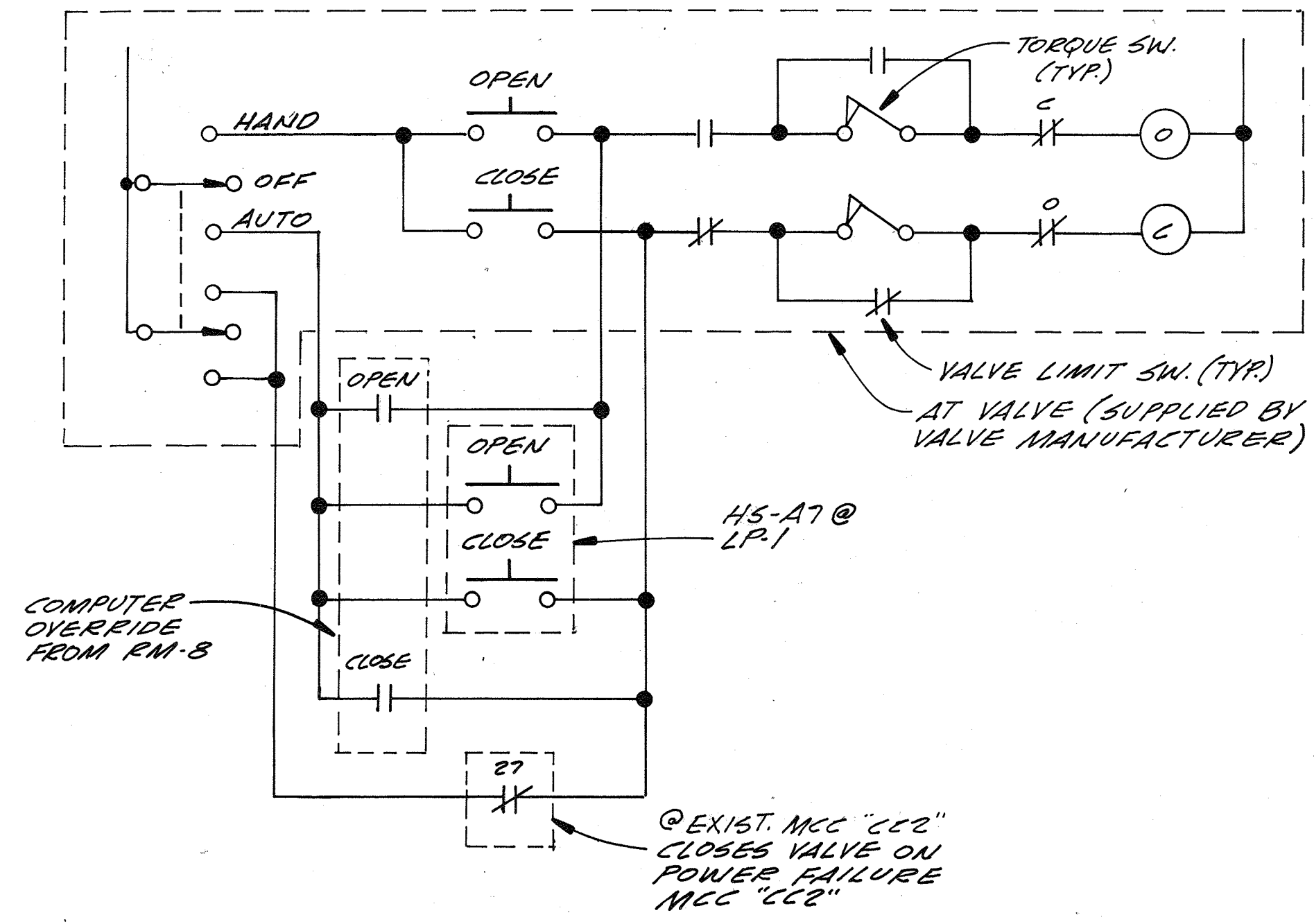
DETAIL 1
N.T.S.

DETAIL 2
N.T.S.

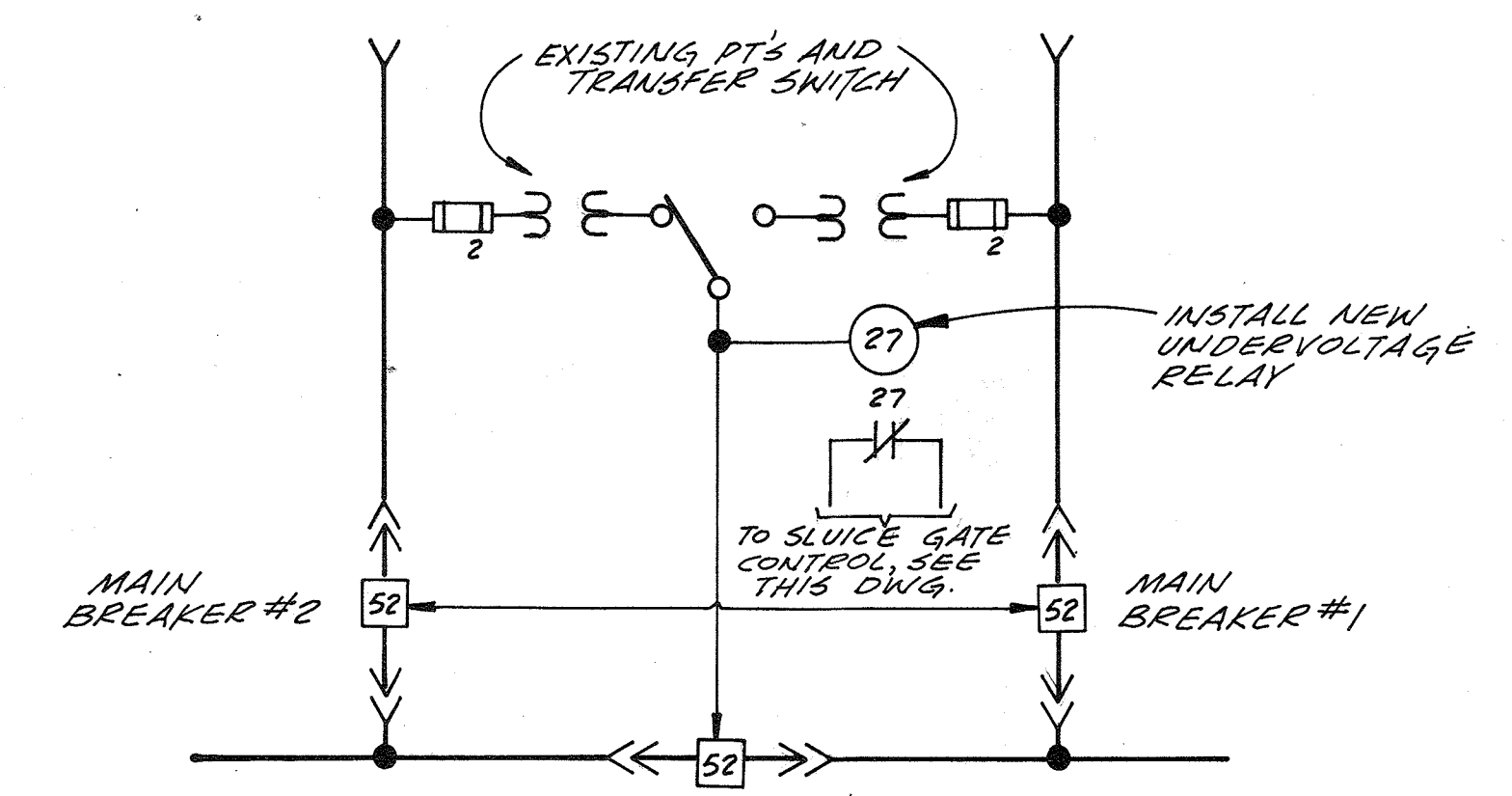
FLUSH PUSH BUTTON WITH GREEN CONCAVE LENS.
 EXTENDED PUSH BUTTON WITH RED CONCAVE LENS

DETAIL 3
N.T.S.

NOTES:
 INDICATING LIGHT - SEE DETAILS ABOVE FOR TYPE.
 OR - PUSH-BUTTON - SEE DETAILS ABOVE FOR TYPE.
 - 2 POSITION SELECTOR SWITCH - SEE TABLE.



SLUICE GATE FG-A7 CONTROL DIAGRAM



MODIFICATIONS TO EXISTING MCC "CC2"

MECHANICAL MOUNTING PANEL DETAIL (F)



| | | | | | |
|-----------|-------------|-----|------|----------|----|
| CH2M HILL | DES. N.L.V. | | | | |
| | DR. EEM | | | | |
| | CHK. | | | | |
| | APPD. | NO. | DATE | REVISION | BY |

RECORD DRAWING

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE: 5/29/79
 CHEF - BUREAU OF ENVIRONMENTAL SERVICES

SAVAGE WASTEWATER TREATMENT PLANT
 ADDITION NO. 4
 CONTRACT NO. 764-S

DETAILS
 ELECTRICAL

SHEET OF E-10
 DATE 8-78
 DWG. NO. W1078.C1