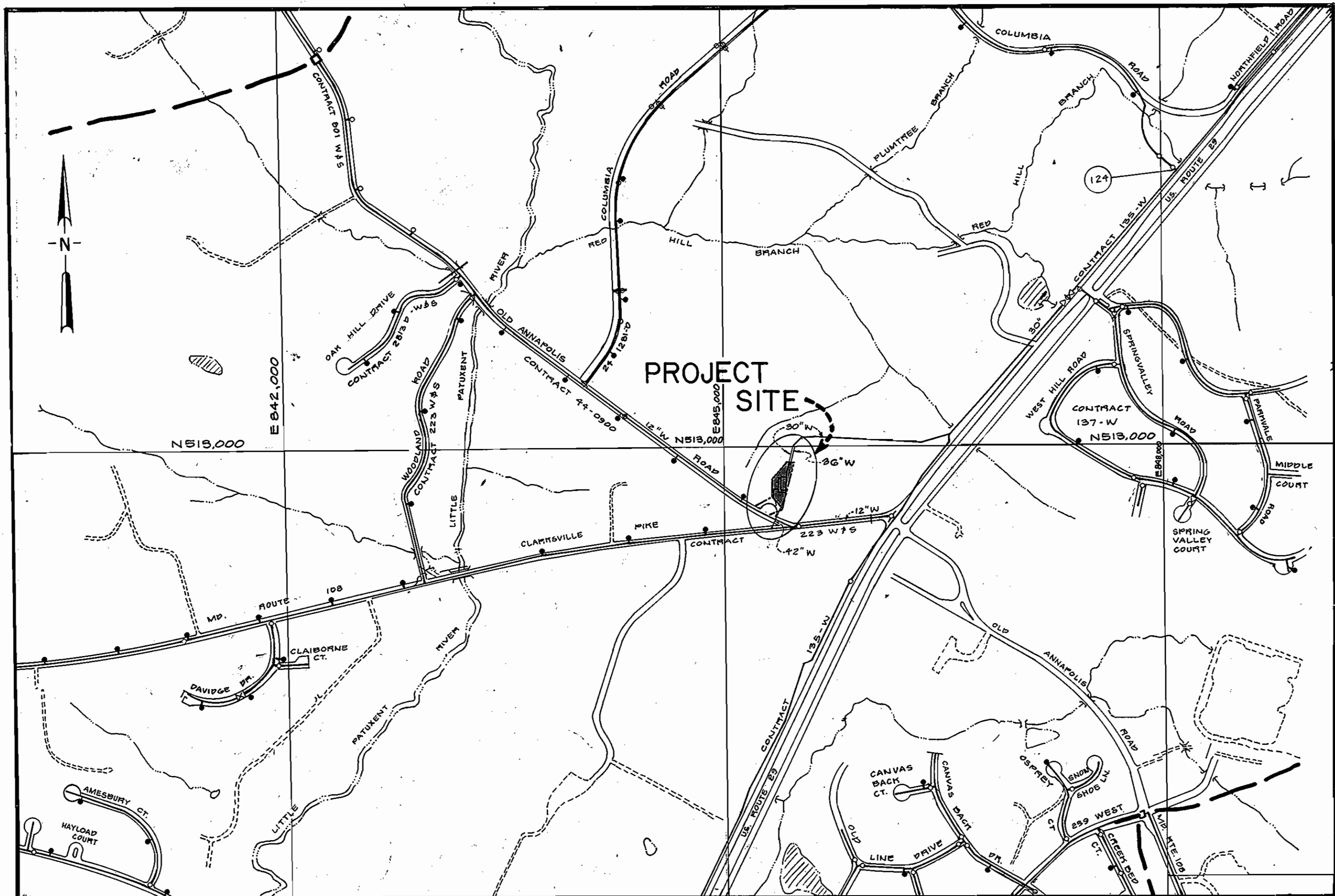


APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM  
 HOWARD COUNTY HEALTH DEPARTMENT  
 COUNTY HEALTH OFFICER DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS  
 U.S. SOIL CONSERVATION SERVICE.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING  
 PLANNING DIRECTOR DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT



Vicinity Map SCALE: 1" = 600'  
 WATER CODE (FOR COUNTY USE ONLY) = F-10

|  |   |                |                       |
|--|---|----------------|-----------------------|
| SUBDIVISION NAME<br>HOWARD COUNTY ROUTE 29 WATER PUMPING STATION |   | SECT / AREA    | PARCEL #<br>PARCEL 12 |
| PLAT # OR L/F<br>493 / 602<br>506 / 302                          | BLOCK #<br>10                             | ZONE<br>P.O.R. | ELECT. DIST.<br>2     |
| WATER CODE<br>F-10   |   | SEWER CODE     |                       |
| ADDRESS CHART  |   |                |                       |
| LOT NUMBER<br>P-12   | STREET ADDRESS<br>9500 OLD ANNAPOLIS ROAD |                |                       |

Site Analysis:

|                                    |            |                  |     |
|------------------------------------|------------|------------------|-----|
| Total Area of Site                 | 0.56 acres | No. of Employees | 0   |
| Area to be roofed or paved         | 0.18 acres | Parking Required | 0   |
| Area to be vegetatively stabilized | 0.51 acres | Parking Provided | 2   |
| Total Cut                          | 9,229 C.Y. | Zoned            | POR |
| Total Fill                         | 237 C.Y.   | Tax Map #        | 30  |
| Off-site waste/borrow location     |            |                  |     |

|      |  |
|------|--|
| 24   | Pump Curves  |
| 23   | Electrical: Wiring Schematic                           |
| 22   | Electrical: Control Panel & Telemetry Details          |
| 21   | Electrical: Site Plan, Meter Vault, Notes & Symbols    |
| 20   | Electrical: Diesel Generator, Line & Riser Diagram     |
| 19   | Electrical: Floor Plan, Schedules and Notes            |
| 18   | Mechanical: HVAC Floor Plan, Schedule, Notes & Details |
| 17   | Structural: Details                                    |
| 16   | Structural: Schedules and Details                      |
| 15   | Structural: Typical Details                            |
| 14   | Structural: Roof Plan & Sections                       |
| 13   | Structural: Foundation Plan & General Notes            |
| 12   | Mechanical: Bridge Crane & Flow Meter Details          |
| 11   | Mechanical: Miscellaneous Details                      |
| 10   | Mechanical: Surge Relief Basin & Valve Vault Details   |
| 9    | Architectural: Building Elevations                     |
| 8    | Mechanical: Building Sections                          |
| 7    | Mechanical: Floor Plan                                 |
| 6    | Site: Landscaping Plan, Driveway Profile & Headwall    |
| 5    | Site: Piping Profile                                   |
| 4    | Site: Sediment and Erosion Control Plan                |
| 3    | Site: Yard Piping Plan                                 |
| 2    | Site: Grading Plan                                     |
| 1    | Title Sheet  |
| SHT. | Title Index of Drawings                                |

**CAPITAL PROJECT W-8077**

**CONTRACT NO 44-1368**

**ROUTE 29  
 WATER PUMPING STATION  
 HOWARD COUNTY MARYLAND**

**DEPARTMENT OF PUBLIC WORKS**

- GENERAL NOTES**
- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
  - ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES.
  - ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATUM.
  - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
  - CLEAR ALL UTILITIES BY A MINIMUM OF 6".
  - FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
  - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL [ ] AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION. ANY DAMAGE TO EXISTING FACILITIES DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. (NO TEST PITS HAVE BEEN DUG FOR THIS JOB)
  - CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
    - STATE HIGHWAY ADMINISTRATION - 531-5533
    - BALTIMORE GAS & ELECTRIC CO. - CONTRACTOR SERVICES - 850-4620
    - BALTIMORE GAS & ELECTRIC CO. UNDER GROUND DAMAGE CONTROL - 859-9004
    - BALTIMORE GAS & ELECTRIC CO. TROUBLE SHOOTING - 298-9001
    - MISS UTILITY - 1-559-0100
    - COLONIAL PIPELINE CO. - 795-1390
    - BUREAU OF UTILITIES, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - 992-2366
    - C & P TELEPHONE - 1-800-257-7777
  - TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
  - CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
  - ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
  - TOPS OF WATER MAINS TO HAVE A MINIMUM OF 3'-1/2' COVER UNLESS OTHERWISE NOTED.
  - VALVES ADJACENT TO TREES SHALL BE STRAPPED TO TREES.
  - ALL YARD FITTINGS SHALL BE RESTRAINED JOINT AND ANCHORED WITH CONCRETE WHERE SHOWN IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
  - THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.

APPROVED  
 PLANNING BOARD  
 OF HOWARD COUNTY  
 DATE 9-18-85

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE 10-24-86  
 CHIEF, BUREAU OF UTILITIES DATE 10-24-86

CHIEF, BUREAU OF ENGINEERING DATE 10-24-86  
 CHIEF, UTILITIES DESIGN DIVISION DATE 10-24-86

DEWBERRY & DAVIS  
 ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD. 21401



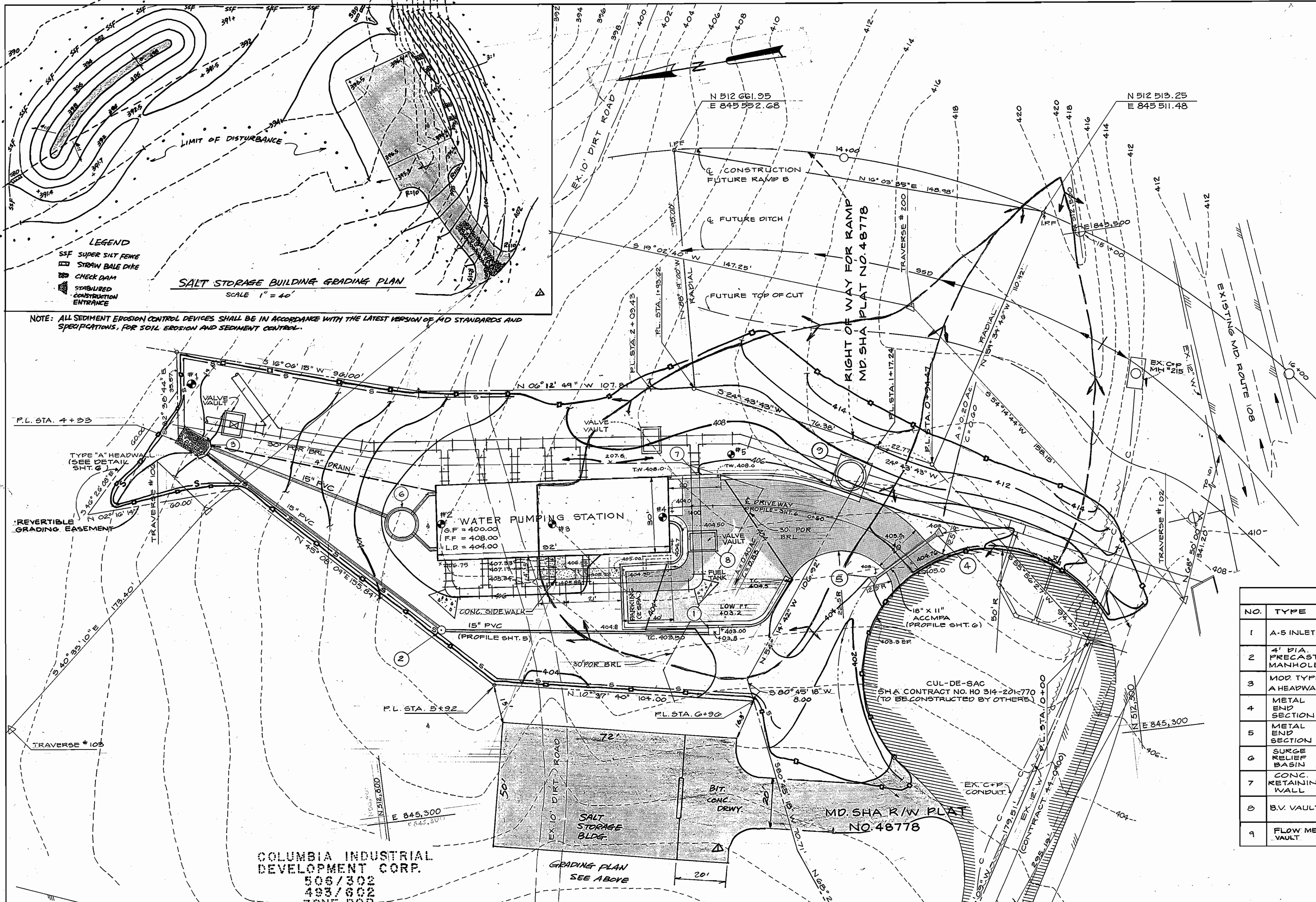
|            |     |     |          |      |  |
|------------|-----|-----|----------|------|--|
| DES: BTM   |     |     |          |      |  |
| DRN: JW/RR |     |     |          |      |  |
| CHK: SGZ   |     |     |          |      |  |
| DATE: /85  | BY: | NO. | REVISION | DATE |  |

TITLE SHEET

600' SCALE MAP NO. 30 BLOCK NO. 10

ROUTE 29  
 WATER PUMPING STATION  
 CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2ND ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
 SHEET 1 OF 24



**LEGEND:**

- EXISTING CONTOURS --- 392 ---
- PROPOSED CONTOURS --- 412 ---
- PROPOSED SPOT ELEVATIONS  $\circ$  412.2
- LIMITS OF CONSTRUCTION --- ○ ---
- DRAINAGE AREA BOUNDARY  $\rightarrow$
- SILT FENCE --- S ---
- PROPOSED DRAIN OR SEWER  $\equiv$
- EXISTING PIPING --- ---
- SOIL BORING LOCATIONS  $\oplus$  #2
- MAXIMUM SOIL BEARING CAPACITY 3000 PSF

**PIPE SCHEDULE**

| SIZE    | CLASS/GAUGE     | LENGTH | COMMENTS          |
|---------|-----------------|--------|-------------------|
| 15"     | PVC SPR-35      | 223'   | STORM DRAIN       |
| 15"     | PVC SPR-35      | 67'    | SURGE VAULT DRAIN |
| 18"x11" | ACCPMA 14 GAUGE | 25'    | DRIVE WAY CULVERT |
| 4"      | D.I.P CLASS 52  | 85'    | BLD'S DRAIN       |

**TRAVERSE POINT COORDINATES**

| TRAV. PT. | NORTH      | EAST       |
|-----------|------------|------------|
| 102       | 512 651.33 | 845 110.71 |
| 103       | 512 822.86 | 845 178.91 |
| 105       | 512 855.70 | 845 432.93 |
| 106       | 512 709.60 | 845 526.05 |
| 107       | 512 570.41 | 845 478.00 |
| 200       | 512 478.00 | 845 349.66 |

**STRUCTURE SCHEDULE**

| NO. | TYPE                    | TOP ELEV. | REMARKS                                       | LOCATION              |
|-----|-------------------------|-----------|---|-----------------------|
| 1   | A-S INLET               | 403.8     | HOWARD CO. STD. SD 4.01                       | 24' LT. PL. STA. 6+75 |
| 2   | 4' DIA. PRECAST MANHOLE | 405.0     | HOWARD CO. STD. G 5.12                        | 5' LT. PL. STA. 5+62  |
| 3   | MOD. TYPE A HEADWALL    | 397.0     | HOWARD CO. STD. SD 5.11<br>SEE DETAIL SHEET 6 | 5' LT. PL. STA. 4+45  |
| 4   | METAL END SECTION       | 404.1     | HOWARD CO. STD. SD 5.61                       | 17' LT. PL. STA. 0+73 |
| 5   | METAL END SECTION       | 403.5     | HOWARD CO. STD. SD 5.61                       | 46' LT. PL. STA. 0+77 |
| 6   | SURGE RELIEF BASIN      | 406.4     | SEE DETAIL SHEET 10                           | 45' LT. PL. STA. 3+06 |
| 7   | CONC. RETAINING WALL    | 408.0     | SEE DETAIL SHEET 17                           | 31' LT. PL. STA. 2+04 |
| 8   | B.V. VAULT              | 404.0     | SEE DETAIL SHEET 10                           | 25' LT. PL. STA. 2+04 |
| 9   | FLOW METER VAULT        | 408.0     | SEE DETAIL SHEET 12                           | 9' LT. PL. STA. 1+29  |

**COLUMBIA INDUSTRIAL DEVELOPMENT CORP.**  
506/302  
493/302  
ZONE FOR

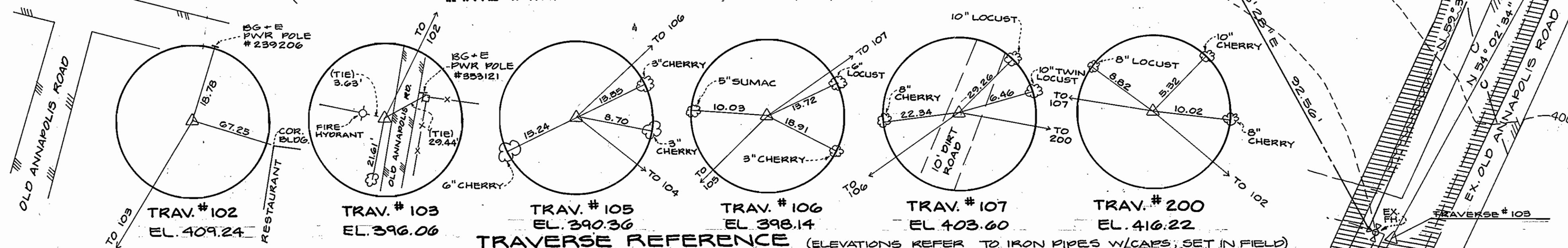
ADD A SALT STORAGE BLDG. 10/16/85



**APPROVED**  
PLANNING BOARD  
OF HOWARD COUNTY  
DATE 9-18-85

|  |  |
|--|--|
| APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM<br>HOWARD COUNTY HEALTH DEPARTMENT<br>J. J. ... 10-29-86<br>DATE                          | REVIEWED FOR HOWARD S.C.D. AND METS TECHNICAL REQUIREMENTS<br>J. J. ... 10-29-86<br>DATE |
| THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT<br>J. J. ... 10-29-86<br>DATE | APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND CONTROL<br>J. J. ... 10-29-86<br>DATE     |

**SITE PLAN**  
SCALE 1" = 20'



**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

Director of Public Works: Robert J. Davis  
Date: 10-29-86

Chief, Bureau of Engineering: ...  
Date: 10-29-86

Chief, Utilities Design Division: ...  
Date: 10-29-86

**DEWBERRY & DAVIS**  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD.

Professional Engineer Seal: Robert J. Davis, No. 10287

|             |     |      |           |       |  |
|-------------|-----|------|-----------|-------|--|
| DES: BTM    |     |      |           |       |  |
| DRN: OLL    |     |      |           |       |  |
| CHK: SGZ    |     |      |           |       |  |
| DATE: 10/85 | BY: | NO.: | REVISION: | DATE: |  |

**SITE: ROUTE 29**

**SITE GRADING PLAN**

600' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29**

**WATER PUMPING STATION**

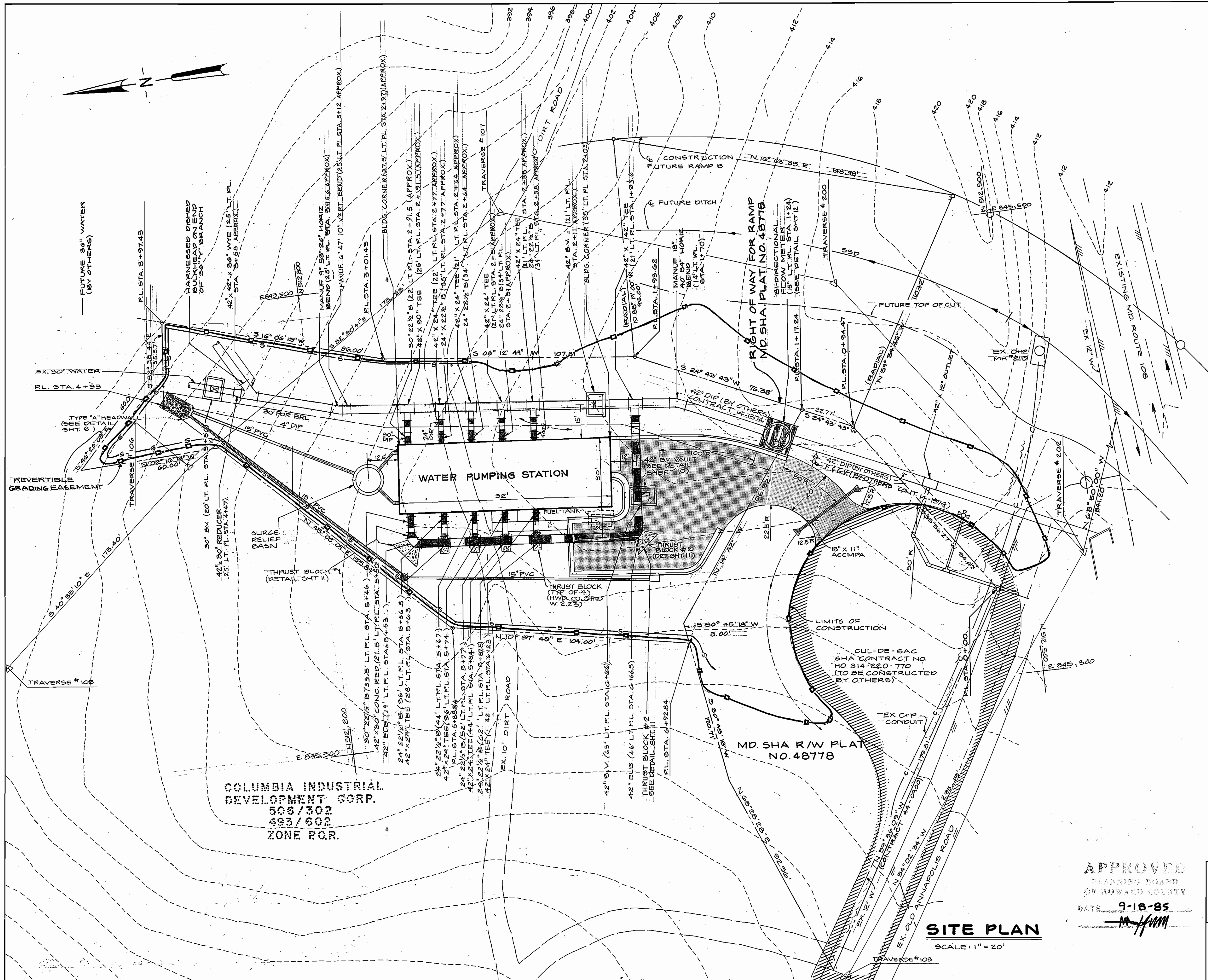
CAPITAL PROJECT NO. W-8077  
2ND ELECTION DISTRICT, HOWARD CO., MD.

CONTRACT NO. 44-1368

SCALE AS SHOWN  
SHEET 2 OF 24

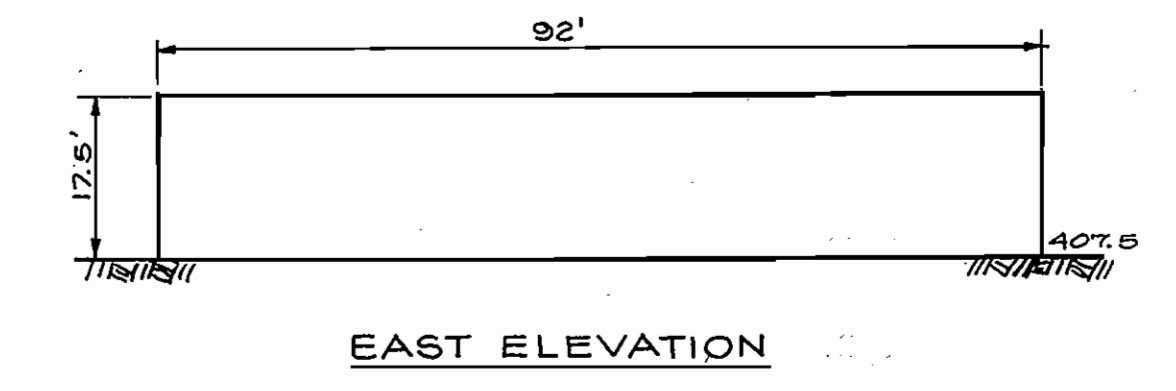
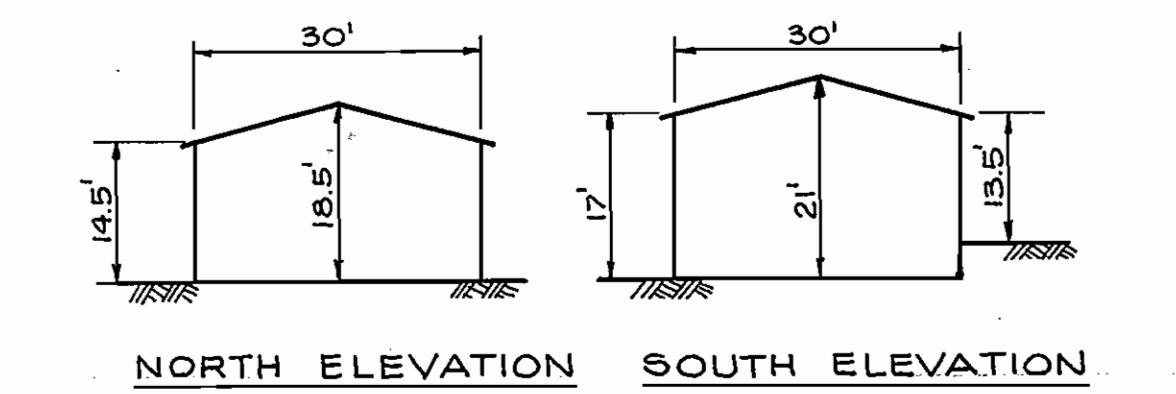
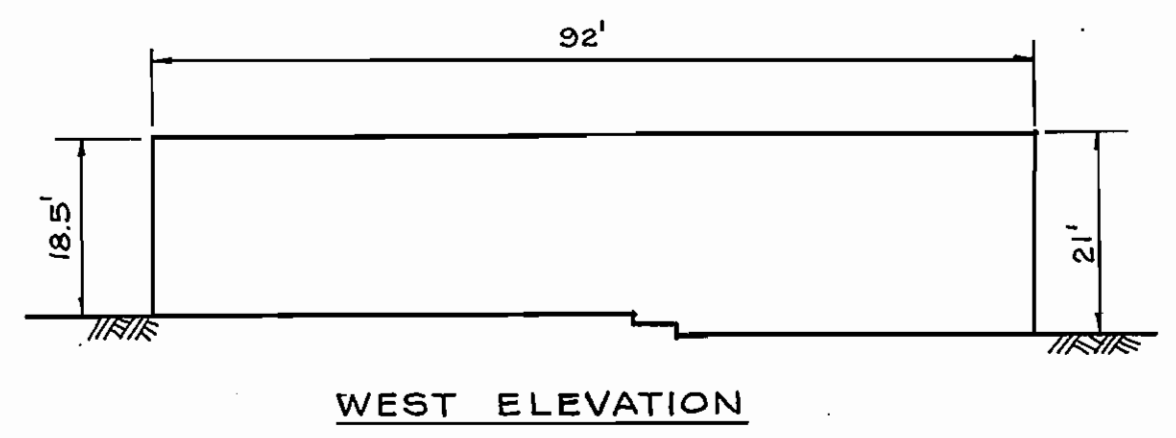
AS-BUILT 4-13-86

SDP-86-29 C-132



**LEGEND:**

|                         |                              |
|-------------------------|------------------------------|
| PROPOSED WATER MAIN     | — (thick solid line)         |
| PROPOSED DRAIN OR SEWER | — (dashed line)              |
| PROPOSED BY OTHERS      | — (thin solid line)          |
| LIMIT OF CONTRACT       | LOC                          |
| EXISTING CONTOURS       | --- 392 ---                  |
| LIMITS OF CONSTRUCTION  | — (dashed line with squares) |
| SILT FENCE              | — (line with 'S' markers)    |
| EXISTING PIPING         | — (dashed line)              |



**BUILDING PROFILES**  
 SCALE: 1" = 20'

**APPROVED**  
 PLANNING BOARD  
 OF HOWARD COUNTY  
 DATE: 9-18-85  
*[Signature]*

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM  
 HOWARD COUNTY HEALTH DEPARTMENT  
 DATE: 10/29/86  
*[Signature]*

REVIEWED FOR HOWARD S.C.D. AND HEALTH TECHNICAL REQUIREMENTS  
 DATE: 10/29/86  
*[Signature]*

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
 FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
 DATE: 10/29/86  
*[Signature]*

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*[Signature]* 10-24-86  
 DIRECTOR OF PUBLIC WORKS

*[Signature]* 10-24-86  
 CHIEF, BUREAU OF UTILITIES

DEWBERRY & DAVIS  
 ENGINEERS - ARCHITECTS - PLANNERS - SURVEYORS

2594 Riva Road, Annapolis, MD.



|             |      |
|-------------|------|
| DES: BTM    |      |
| DRN: OLL    |      |
| CHK: SGZ    |      |
| DATE: 10/85 |      |
| BY          | NO.  |
| REVISION    | DATE |

SITE:  
**YARD PIPING PLAN**

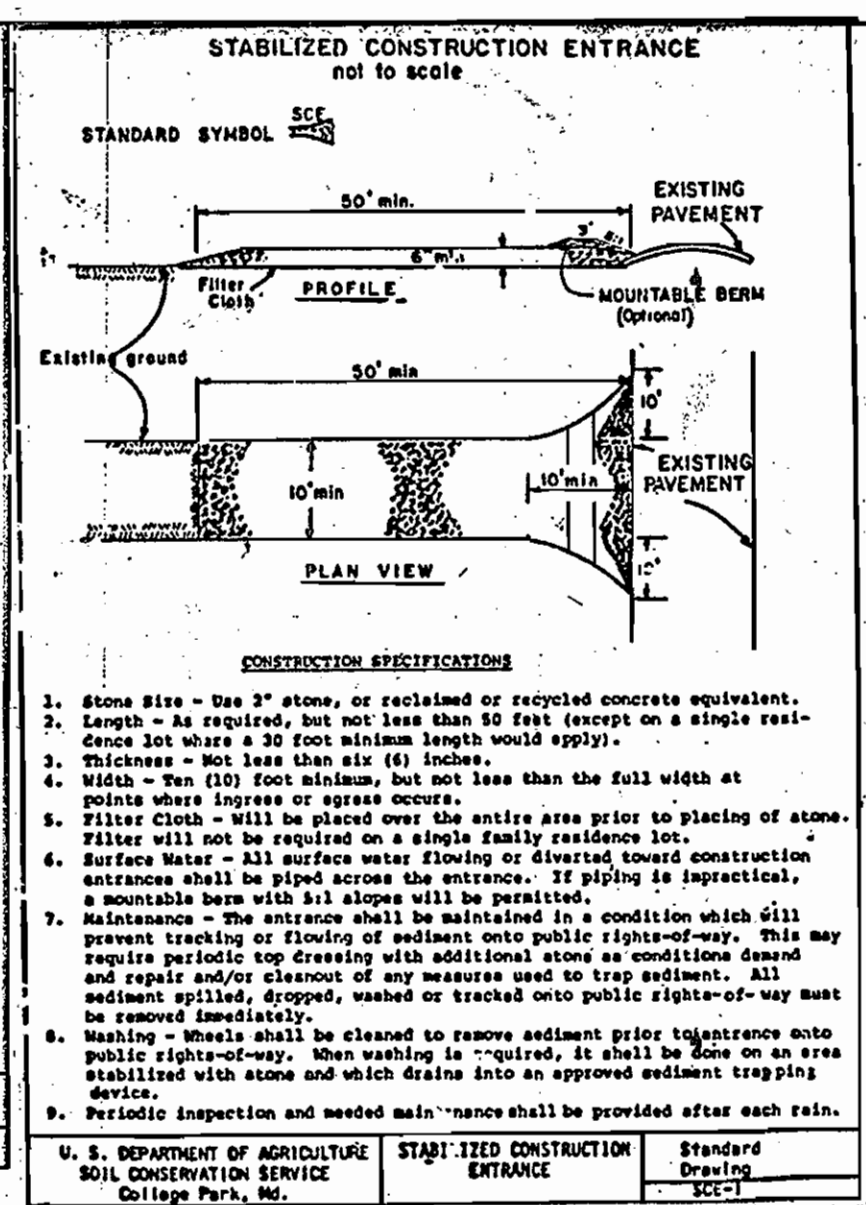
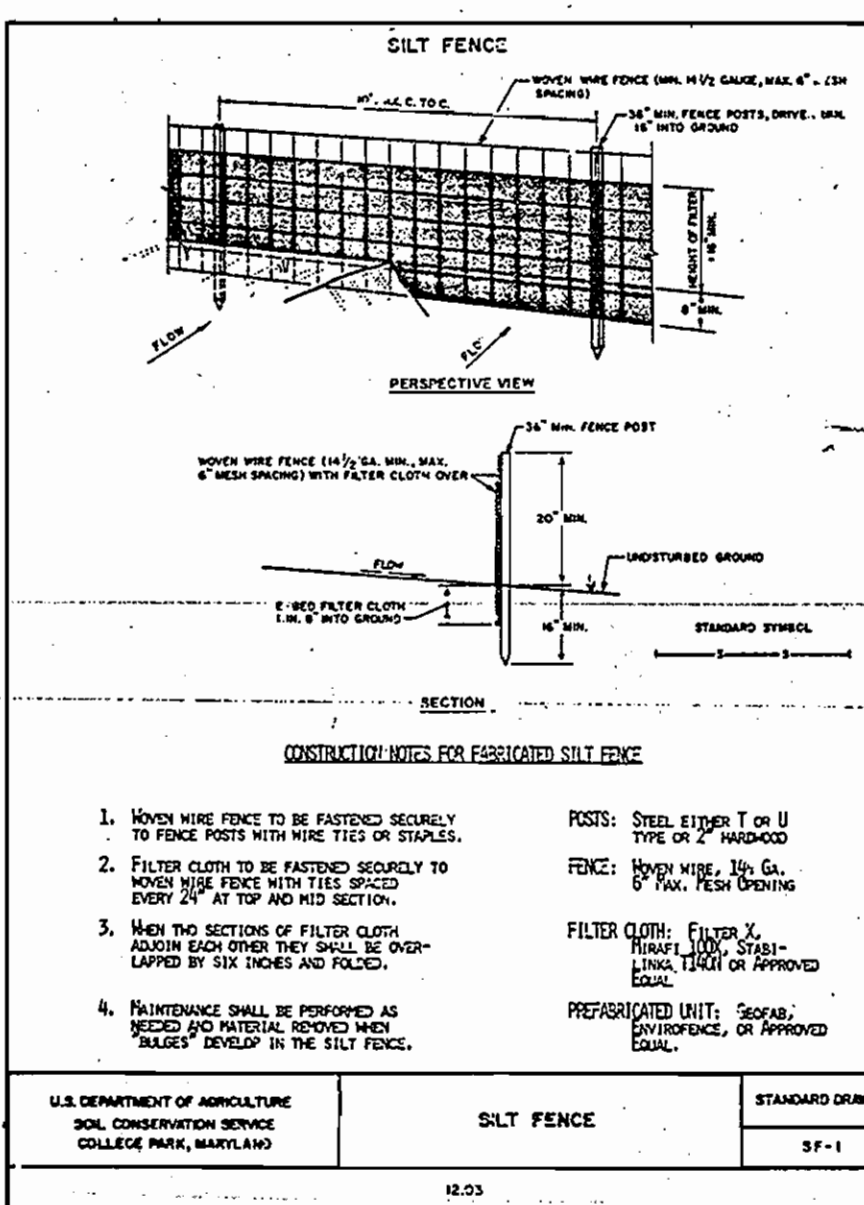
SCALE: 1" = 20'

600' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29**  
**WATER PUMPING STATION**

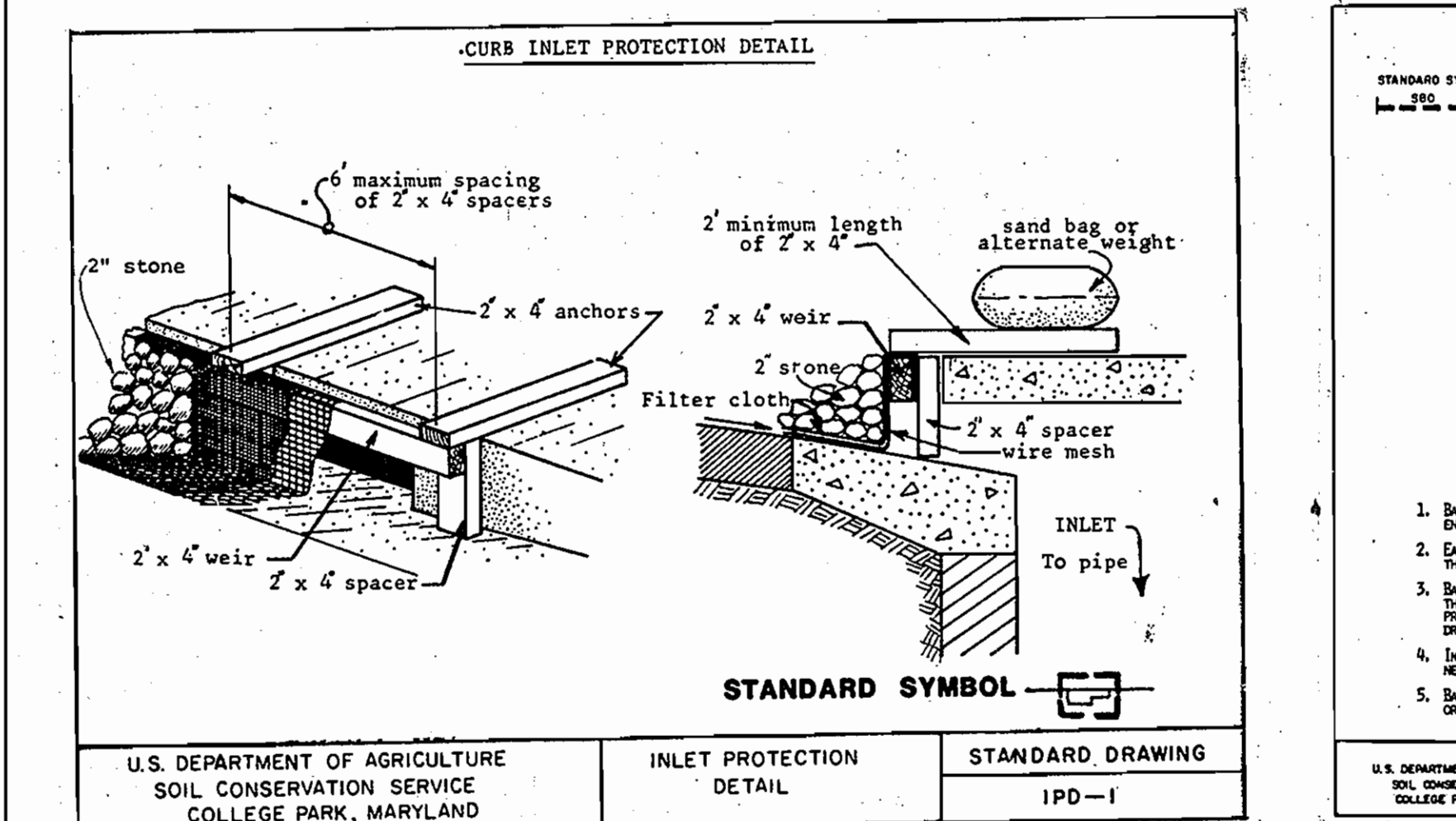
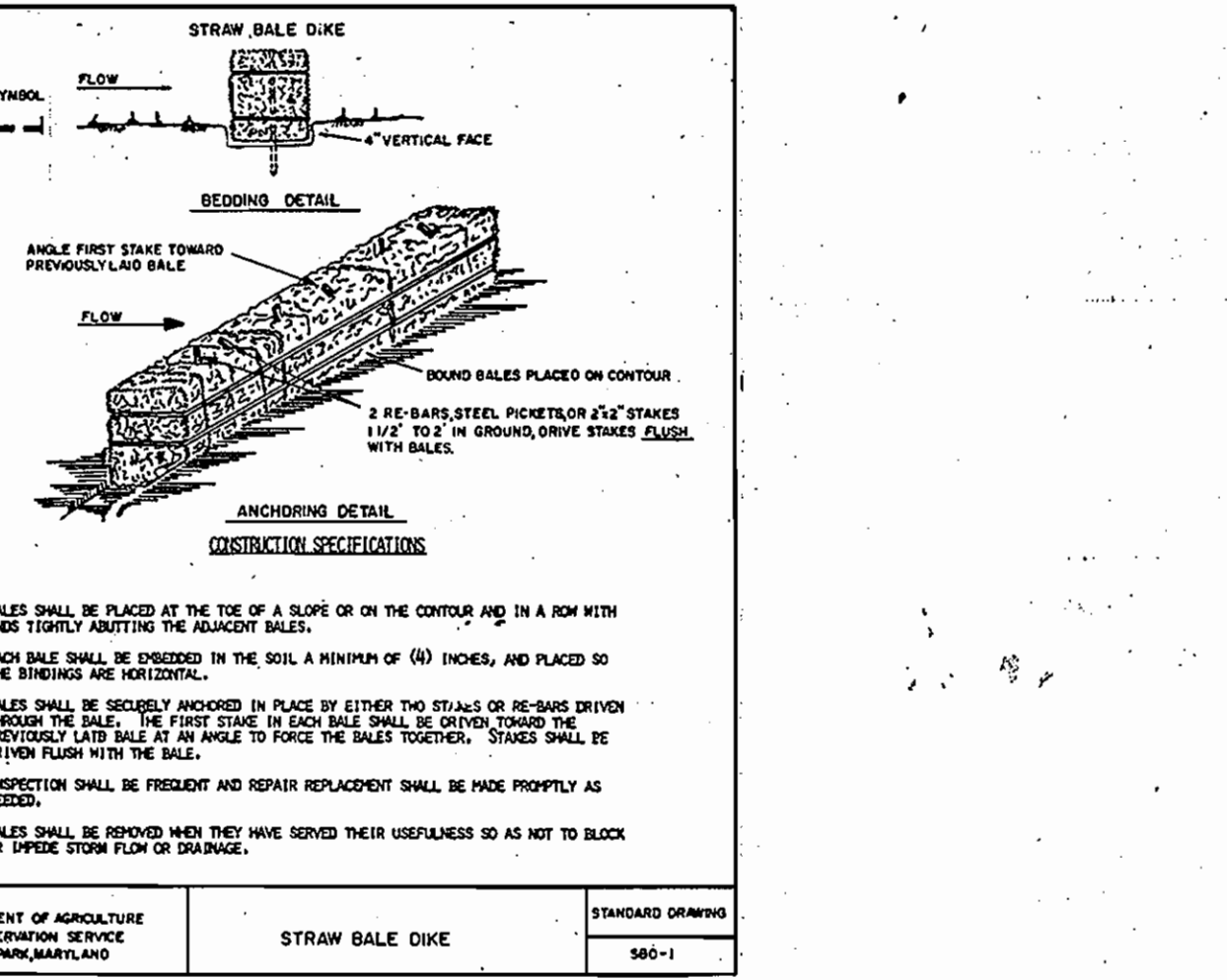
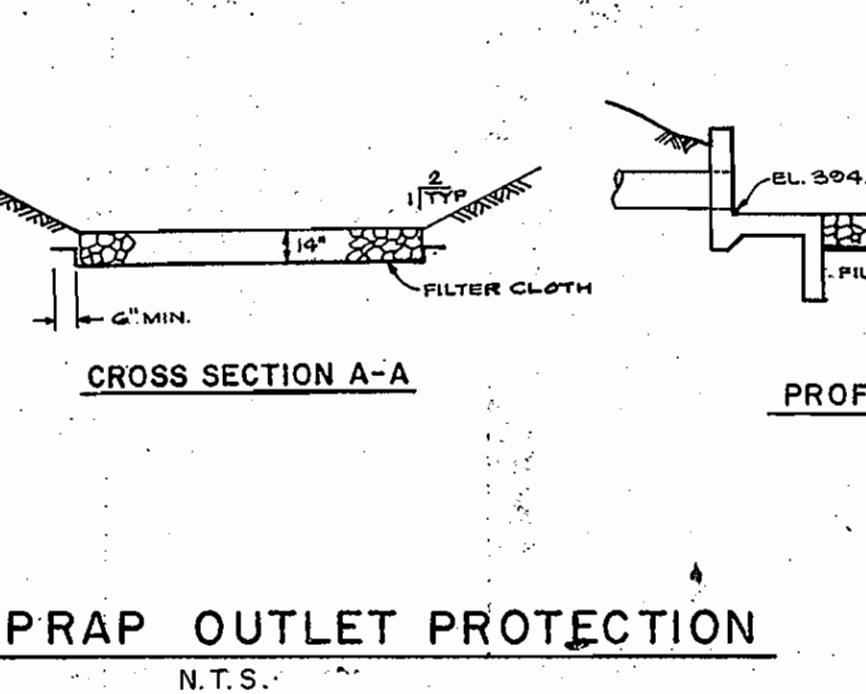
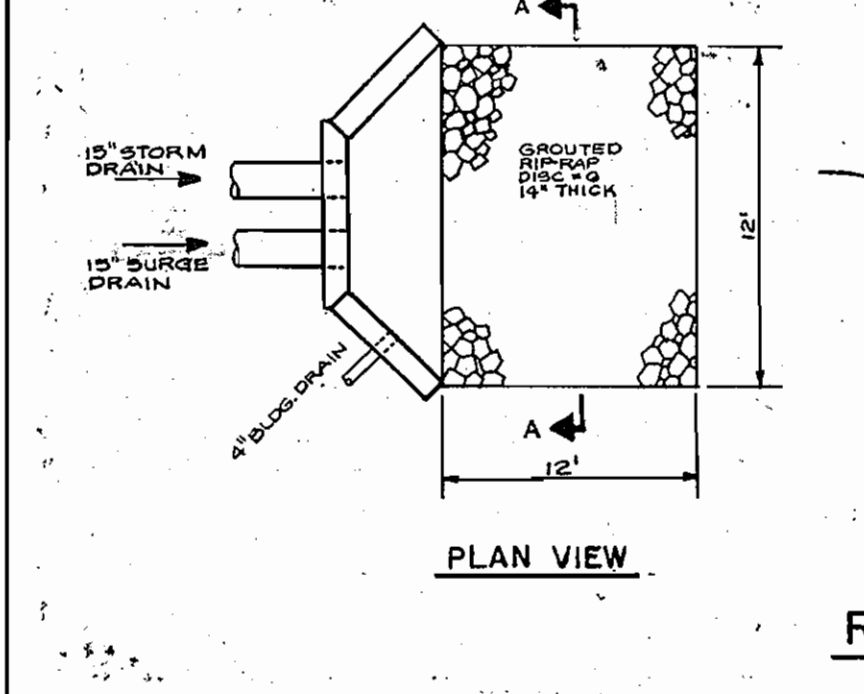
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2ND ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
 SHEET 3 OF 24



**SEQUENCE OF CONSTRUCTION**

|   |          |
|---|----------|
| 1. NOTIFY HOWARD COUNTY BUREAU OF INSPECTION AND PERMITS TO OBTAIN PERMITS FOR GRADING AND FUEL TANK (TELEPHONE: 301-992-2436).                     |          |
| 2. CONTACT MR. JOHN SHREVE OF THE MARYLAND STATE HIGHWAY ADMINISTRATION TO OBTAIN SPOIL SITE WITHIN THE SHA JURISDICTION (TELEPHONE: 301-649-2592). |          |
| 3. INSTALLATION OF SEDIMENT CONTROL MEASURES  | 1 WEEK   |
| 4. CLEARING AND GRUBBING  | 1 WEEK   |
| 5. ROUGH GRADING AND TEMPORARY STABILIZATION OF DISTURBED AREAS   | 2 WEEKS  |
| 6. INSTALLATION OF YARD PIPING  | 6 WEEKS  |
| 7. CONSTRUCTION OF PUMP STATION AND UTILITIES   | 54 WEEKS |
| 8. INSTALLATION OF BASE COURSE PAVING   | 2 WEEKS  |
| 9. FINAL PAVING, WALKS, GRADING, LANDSCAPING AND PERMANENT STABILIZATION  | 4 WEEKS  |



**OWNER'S CERTIFICATION:**

(1) (WE) CERTIFY THAT:

(A) ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS SEDIMENT AND EROSION CONTROL PLAN, AND FURTHER, AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE DEPARTMENT OF NATURAL RESOURCES OR THEIR AUTHORIZED AGENTS.

(B) ANY PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
COLLEGE PARK, MARYLAND

STANDARD DRAWING  
INLET PROTECTION DETAIL  
IPD-1

**ENGINEER'S CERTIFICATE**

I HEREBY CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICABLE AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT AND THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER.

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM

HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

PLANNING DIRECTOR

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD 21041

DES: BTM  
DRN: RR  
CHK: SGZ  
DATE: 10/85

BY: NO. REVISION DATE

SITE: SEDIMENT AND EROSION CONTROL PLAN

ROUTE 29  
WATER PUMPING STATION

CAPITAL PROJECT NO. W-8077  
2ND ELECTION DISTRICT, HOWARD CO., MD.

CONTRACT NO. 44-1368

SCALE AS SHOWN  
SHEET 4 OF 24

AS-BUILT 4-13-88

SDP-86-29 C-122

**SEDIMENT CONTROL NOTES**

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) and (Sec. 54), temporary seedings (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seedings do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector
- Site Analysis:
 

|                                    |               |                  |     |
|------------------------------------|---------------|------------------|-----|
| Total Area of Site                 | 0.56 Acres    | No. of Employees | 0   |
| Area Disturbed                     | 0.56 Acres    | Parking Required | 0   |
| Area to be roofed or paved         | 0.18 Acres    | Parking Provided | ROR |
| Area to be vegetatively stabilized | 0.33 Acres    | Zoned            | 30  |
| Total Cut                          | 3,229 Cu. yds | Tax Map #        |     |
| Total Fill                         | 237 Cu. yds   |                  |     |

 Offsite waste/borrow area location
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

**PERMANENT SEEDING NOTES**

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

**Seedbed Preparation:** Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

**Soil Amendments:** In lieu of soil test recommendations, use one of the following schedule

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

**Seeding -** For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.06 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

**Mulching -** Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

**Maintenance -** Inspect all seeded areas and make needed repairs, replacements and reseedings.

**TEMPORARY SEEDING NOTES**

Apply to graded or cleared areas likely to be redistributed where a short-term vegetative cover is needed.

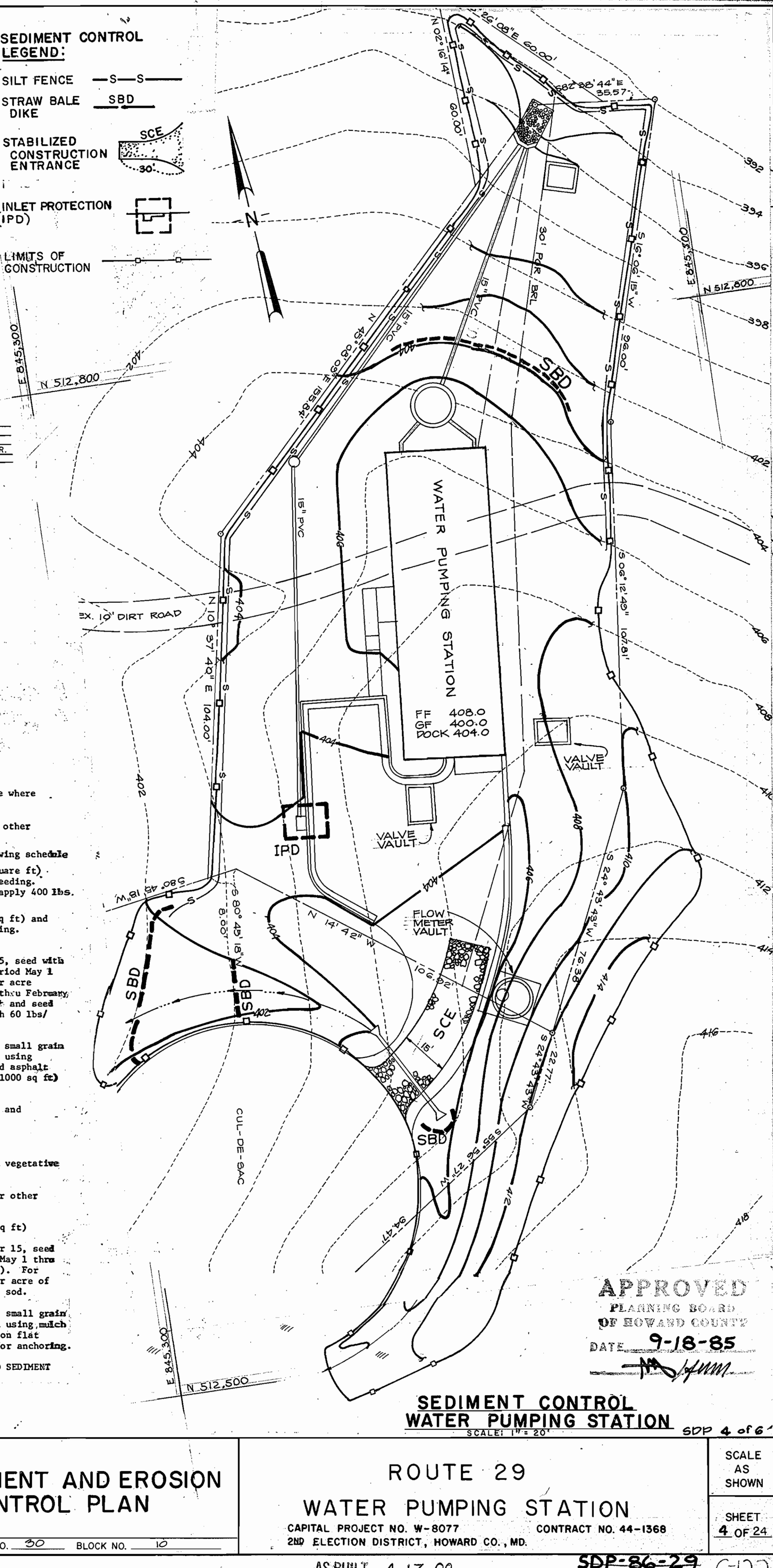
**Seedbed Preparation:** Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

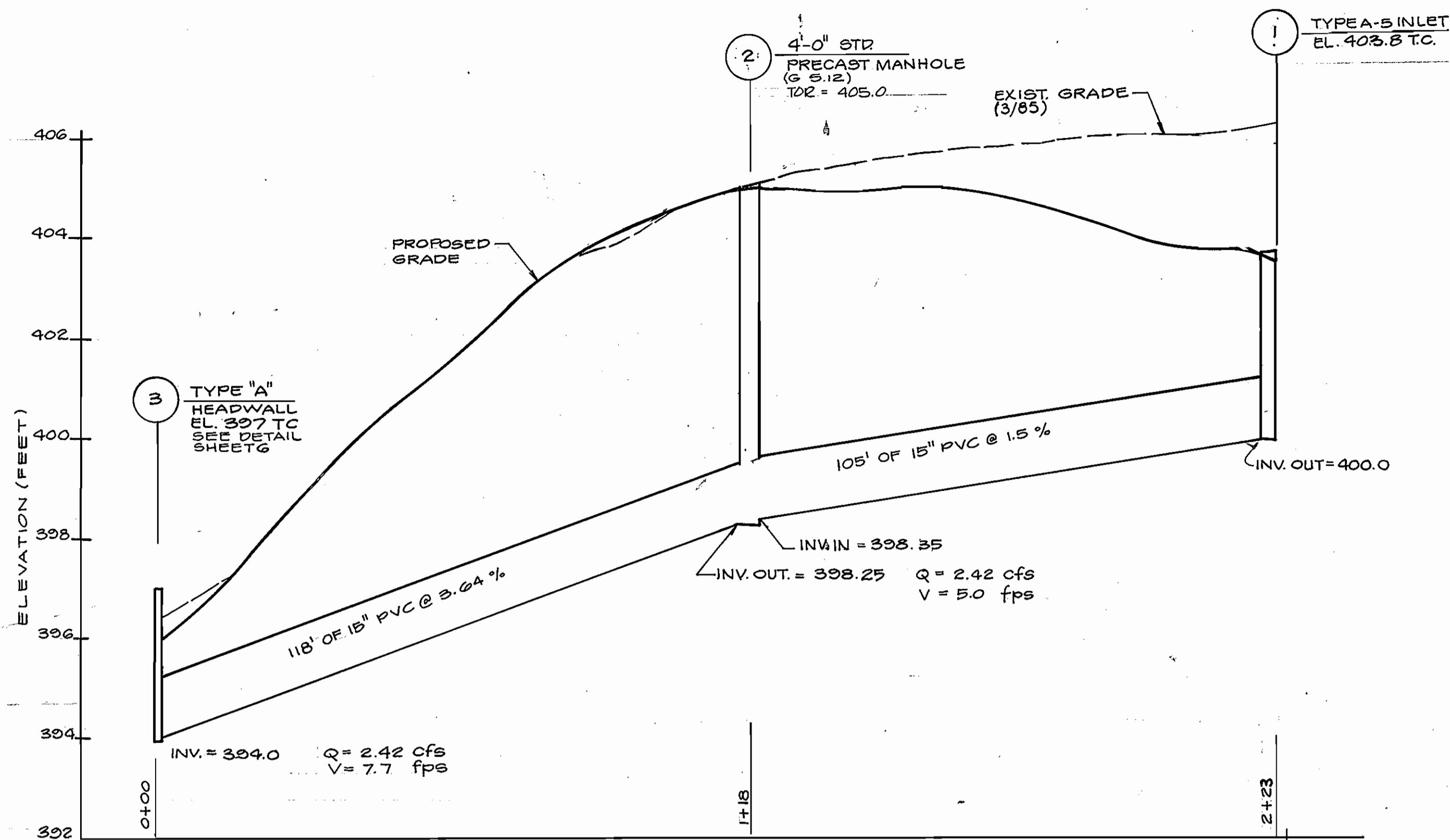
**Soil Amendment:** Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft)

**Seeding:** For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

**Mulching:** Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

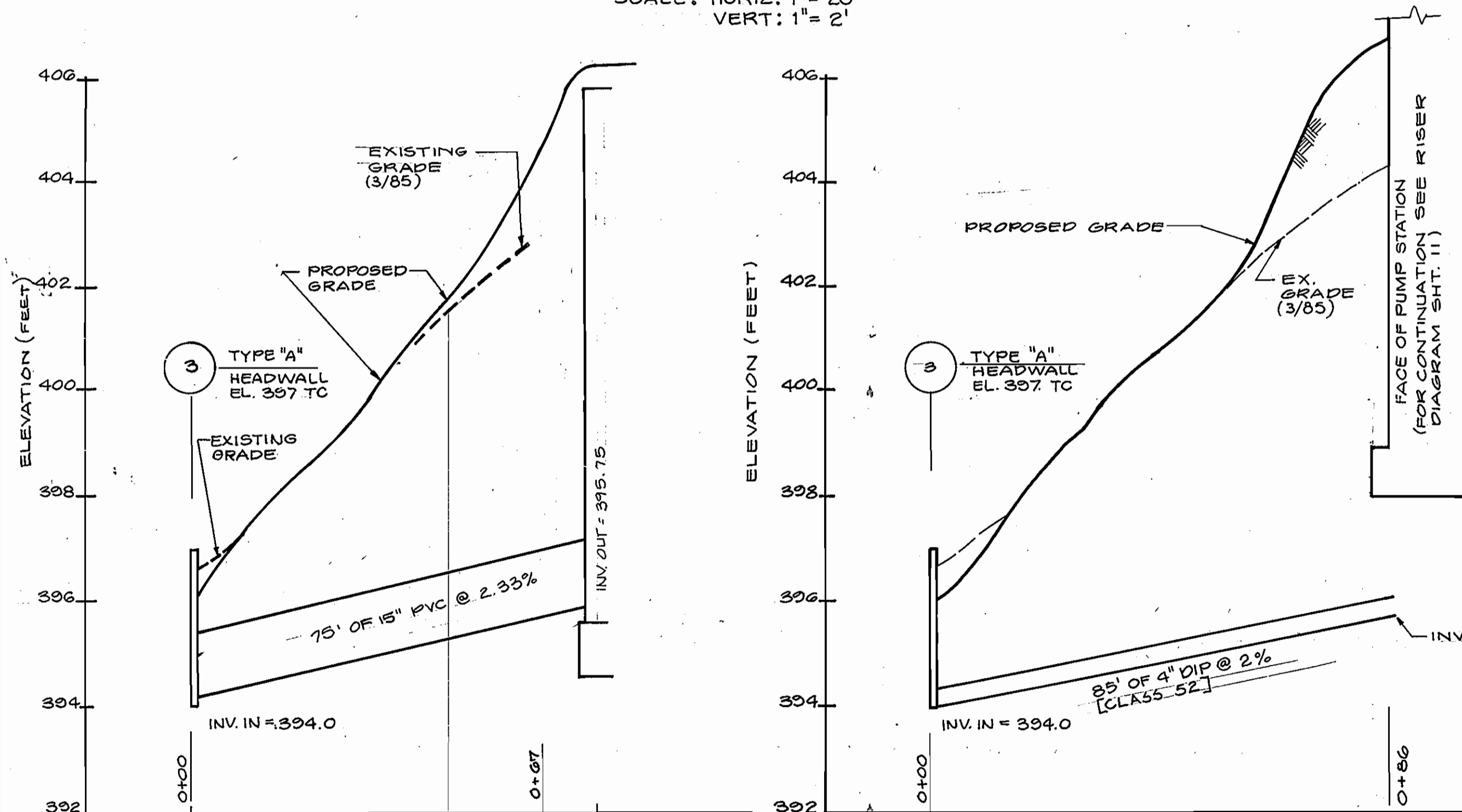
Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.





**STORM SEWER PROFILE**

SCALE: HORIZ. 1" = 20'  
VERT. 1" = 2'

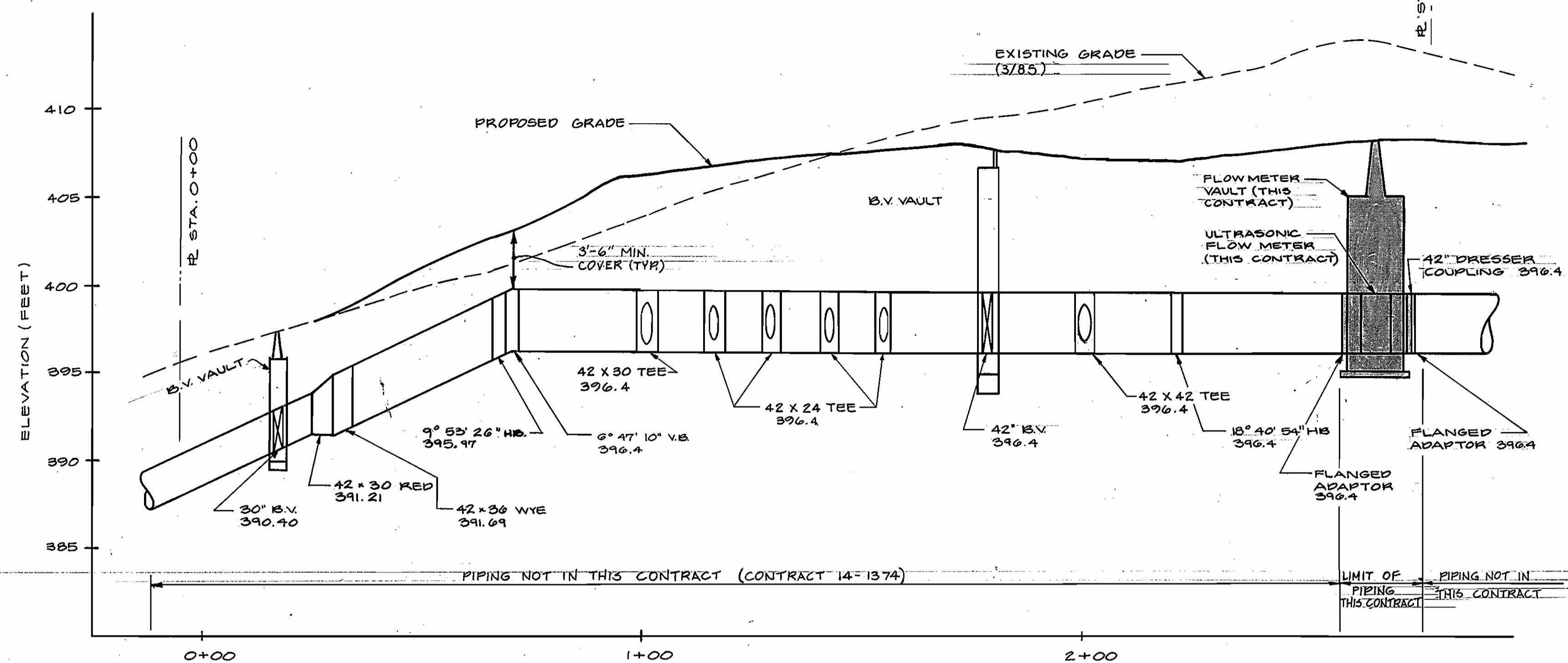


**SURGE RELIEF BASIN DRAIN**

SCALE: HORIZ. 1" = 20'  
VERT. 1" = 2'

**FLOOR DRAIN PROFILE**

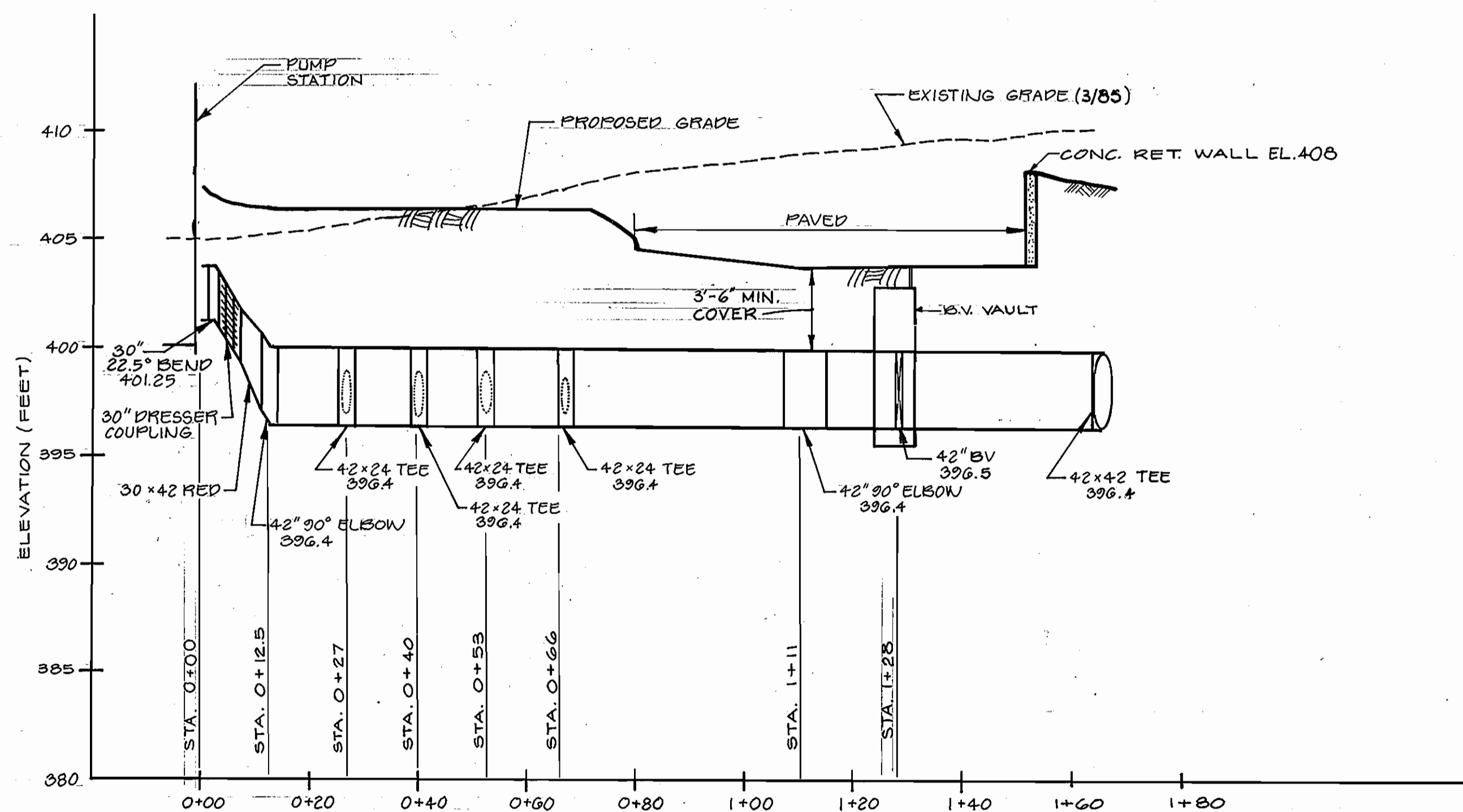
SCALE: HORIZ. 1" = 20'  
VERT. 1" = 2'



**SUCTION HEADER PROFILE**

SCALE: HORIZ. 1" = 20'  
VERT. 1" = 5'

NOTE: FLOW METER & VAULT TO BE PROVIDED UNDER THIS CONTRACT. THE REMAINDER OF THE SUCTION HEADER TO BE PROVIDED BY OTHERS. ALL GRADING SHOW TO BE PROVIDED UNDER THIS CONTRACT.



**DISCHARGE HEADER PROFILE**

SCALE: HORIZ. 1" = 20'  
VERT. 1" = 5'

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM  
HOWARD COUNTY HEALTH DEPARTMENT  
*John S. Kelly* 10-29-85  
DATE

REVIEWED FOR HOWARD S.C.D. AND HERE'S TECHNICAL REQUIREMENTS  
*James M. Hill* 10-29-85  
SIGNATURE DATE  
U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
*Stephen R. Hahn* 10-29-85  
APPROVED (HOWARD S.C.D.) DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
*Thomas J. Harriott* 10-29-85  
PLANNING DIRECTOR DATE  
*John W. Neumann* 10-29-85  
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

APPROVED  
PLANNING BOARD  
OF HOWARD COUNTY

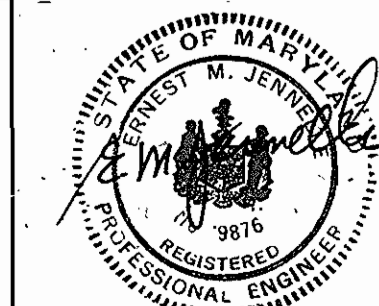
DATE 9-18-85

NOTE: EXISTING GRADE REFLECTS MARCH 1985 SURVEY

GDP 5 of 6

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
*John E. Neumann* 10-24-86  
DIRECTOR OF PUBLIC WORKS DATE  
*Ralph B. Berman* 10-24-86  
CHIEF, BUREAU OF UTILITIES DATE

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS  
2594 Riva Road, Annapolis, MD 21401



|             |    |     |          |      |  |
|-------------|----|-----|----------|------|--|
| DES: BTM    |    |     |          |      |  |
| DRN: JW     |    |     |          |      |  |
| CHK: SGZ    |    |     |          |      |  |
| DATE: 10/85 | BY | NO. | REVISION | DATE |  |

SITE:  
PIPING PROFILES  
600' SCALE MAP NO. 30 BLOCK NO. 10

ROUTE 29  
WATER PUMPING STATION  
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2ND ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 5 OF 24

AS-BUILT 4-13-88

SDP-86-29 (102)

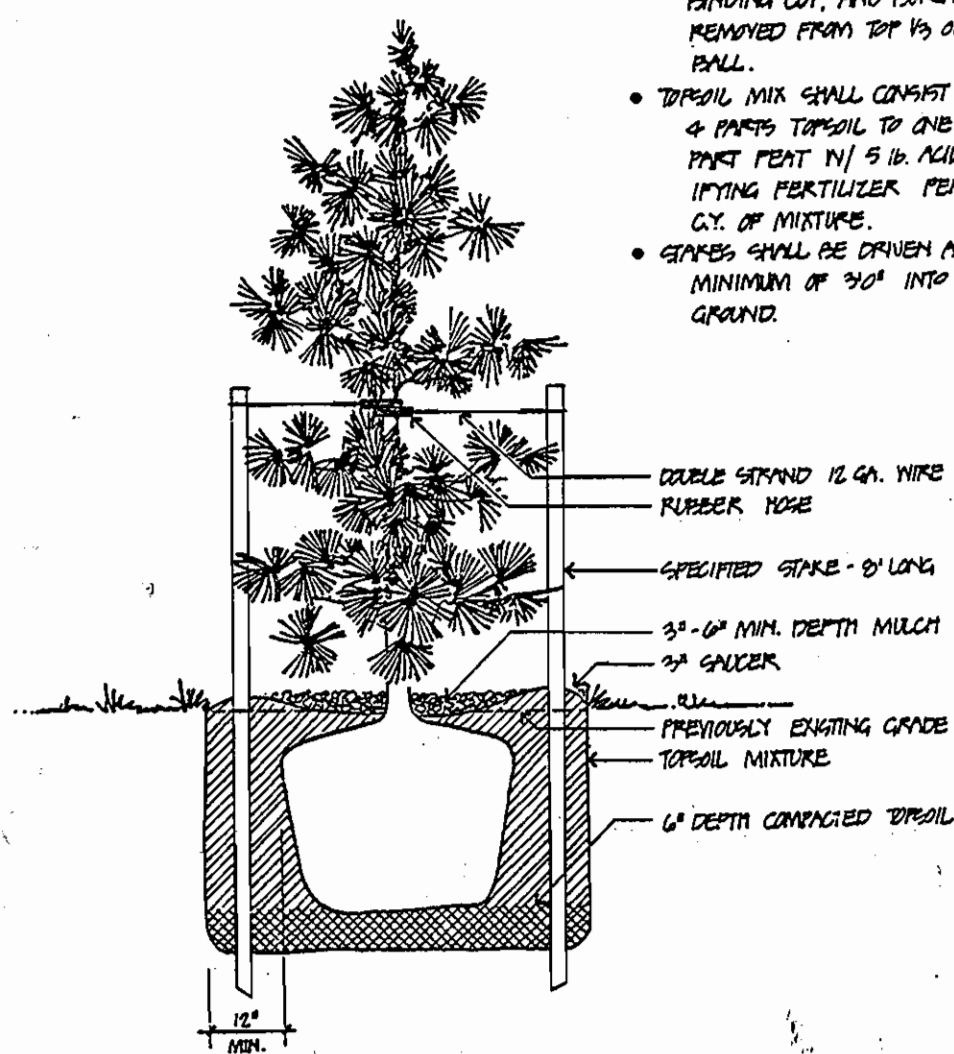
**GENERAL NOTES**

- BACKFILL TREES WITH TOPSOIL AND PEAT MOSS OR LEAF MOLD 3:1 RATIO BY VOLUME.
- ALL PLANT MATERIAL TO BE NURSERY GROWN AND TO COMPLY WITH THE "AMERICAN STANDARD FOR NURSERY STOCK" - ANSI Z60.1-1980.
- SPRAY TREES WITH ANTI-DESICCANT.
- PRUNE EVERGREENS TO GIVE COMPACT UNIFORM APPEARANCE.
- PLANT MATERIAL TYPES AND SIZES MAY VARY DUE TO MARKET AVAILABILITY AT THE TIME OF CONSTRUCTION. ANY SUBSTITUTION TO BE OF EQUIVALENT TYPE AND SIZE.

**PLANT SCHEDULE**

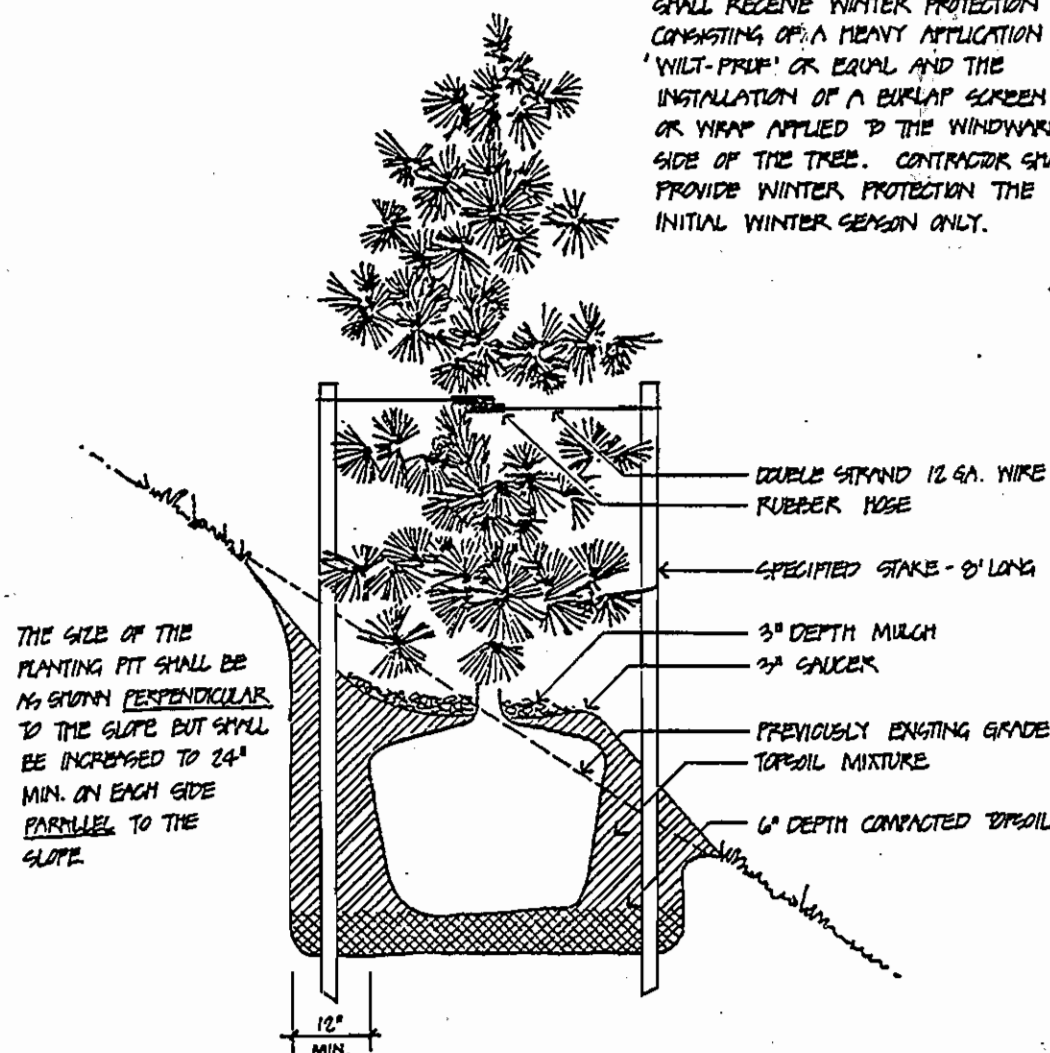
| KEY     | QUAN | BOTANICAL NAME   | COMMON NAME      | SIZE     | REMARK    |
|---------|------|------------------|------------------|----------|-----------|
| PIN-STR | 34   | PINUS STROBUS    | EAST WHITE PINE  | 6-7' HT. | B+B HEAVY |
| TSU-CAN | 8    | TSUGA CANADENSIS | CANADIAN HEMLOCK | 4-5' HT. | B+B       |

**NOTE:**  
 • PLANT SHALL BE SET AT ORIGINAL DEPTH, ALL BRACING CUT, AND BURLAP REMOVED FROM TOP 1/3 OF BALL.  
 • DRAIN MIX SHALL CONSIST OF 4 PARTS TOPSOIL TO ONE PART PEAT IN 5:1 RATIO. ADD 1/2 LB. NUTRIENT FERTILIZER PER CY. OF MIXTURE.  
 • GRADES SHALL BE DRIVEN A MINIMUM OF 3" INTO GROUND.

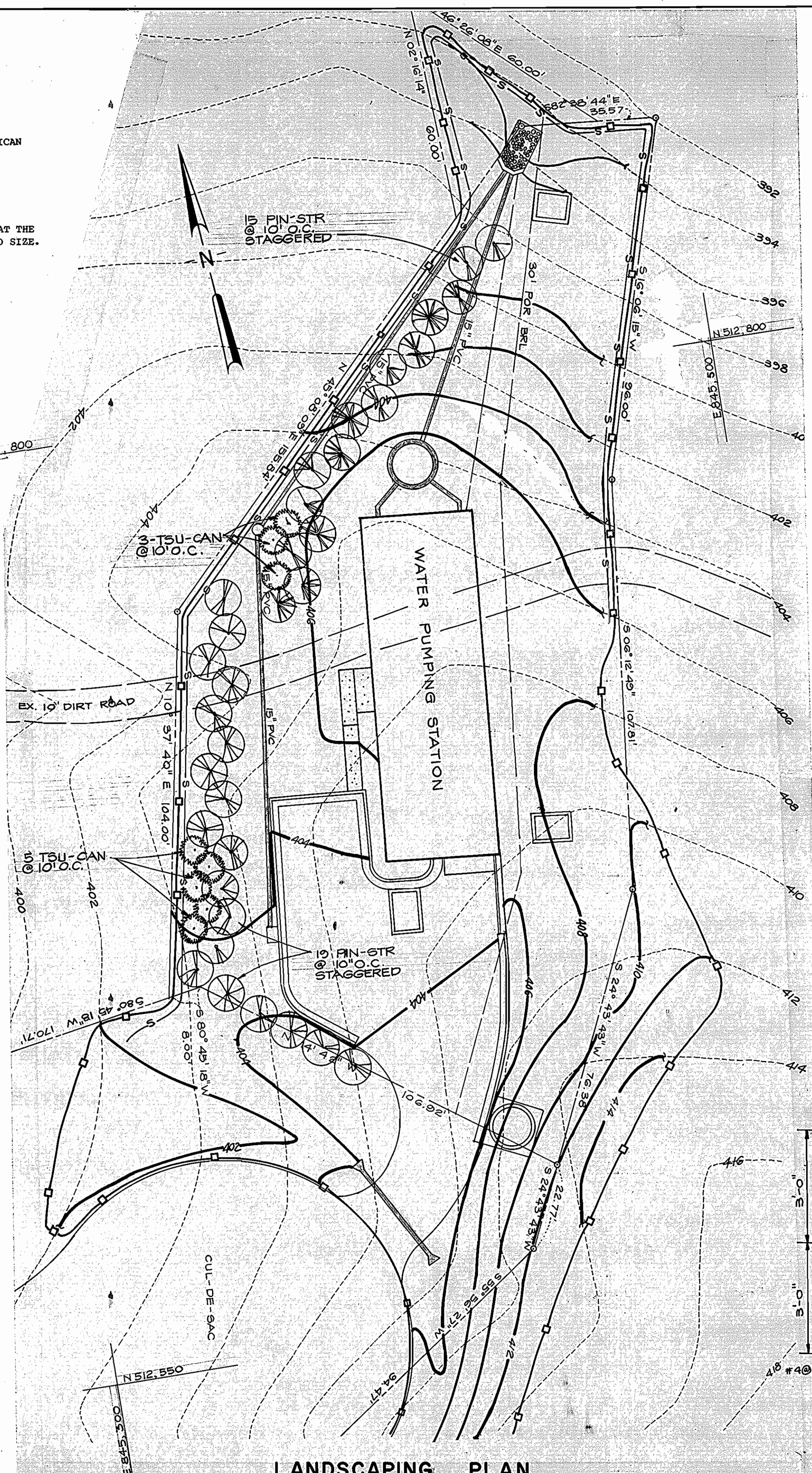


**TREE DETAIL**  
NOT TO SCALE

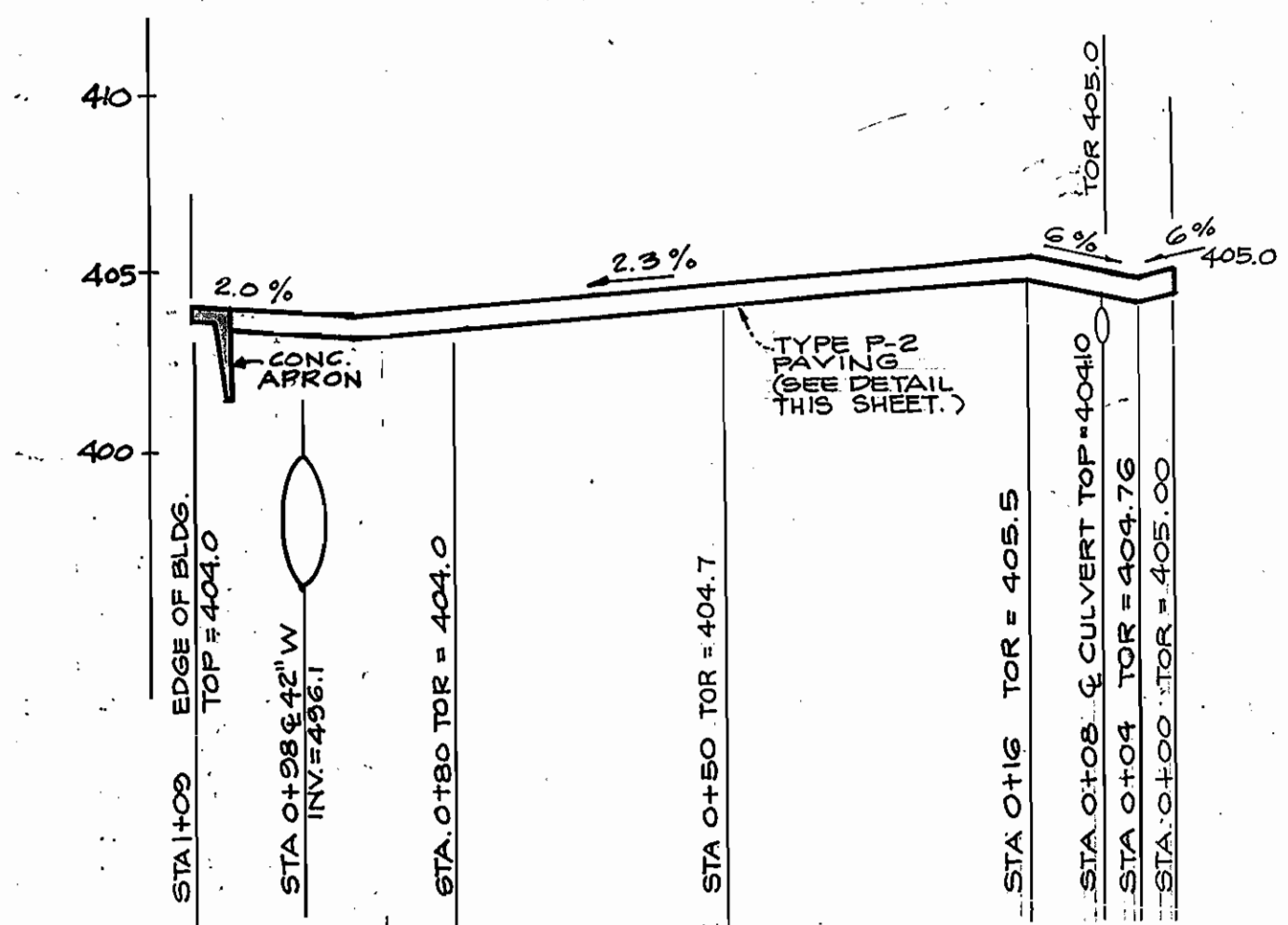
**IMPRINT NOTE:** ALL EVERGREEN TREES PLANTED ON THE WEST SIDE OF THE HILL SHALL RECEIVE WINTER PROTECTION CONSISTING OF A HEAVY APPLICATION OF "WILT-FREE" OR EQUAL AND THE INSTALLATION OF A BURLAP SCREEN OR WIND APPLIED TO THE WINDWARD SIDE OF THE TREE. CONTRACTOR SHALL PROVIDE WINTER PROTECTION THE INITIAL WINTER SEASON ONLY.



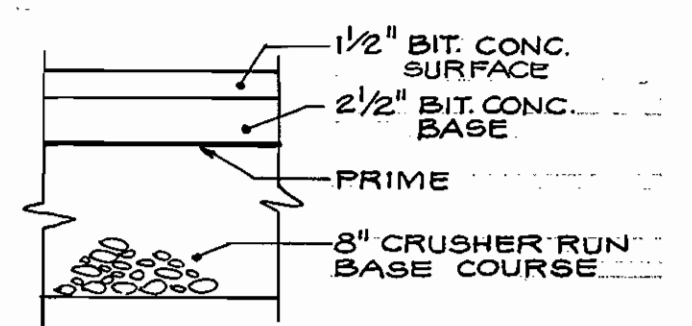
**TREE DETAIL**  
NOT TO SCALE



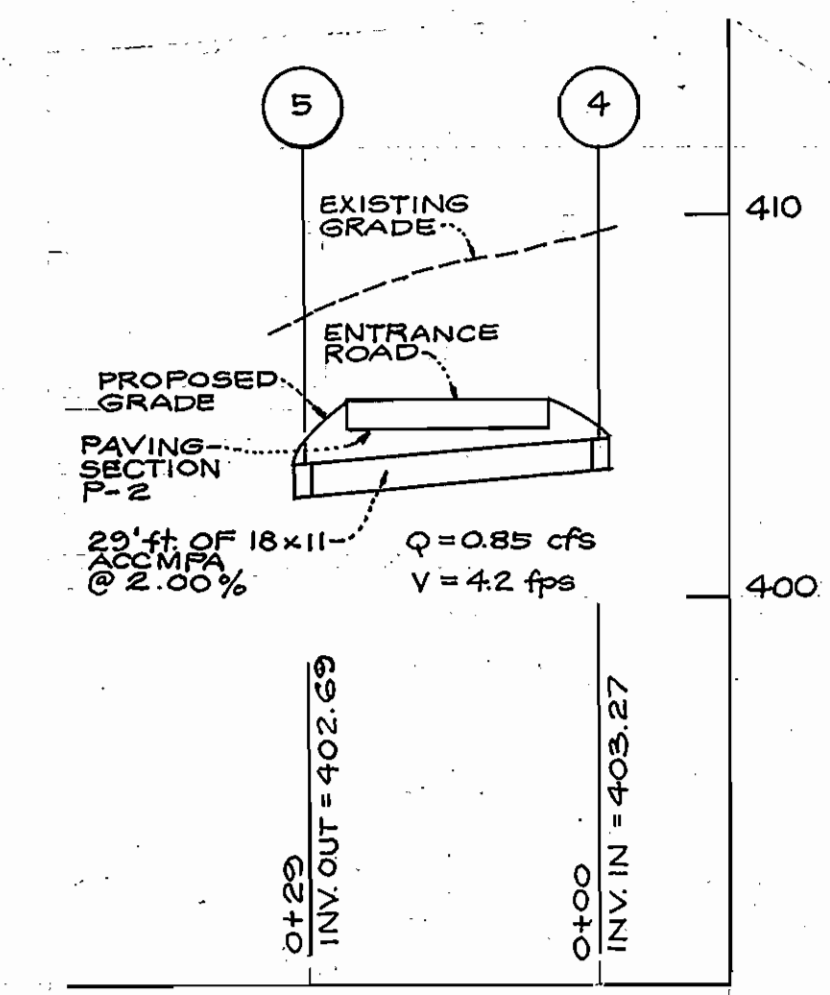
**LANDSCAPING PLAN**  
SCALE: 1" = 20'



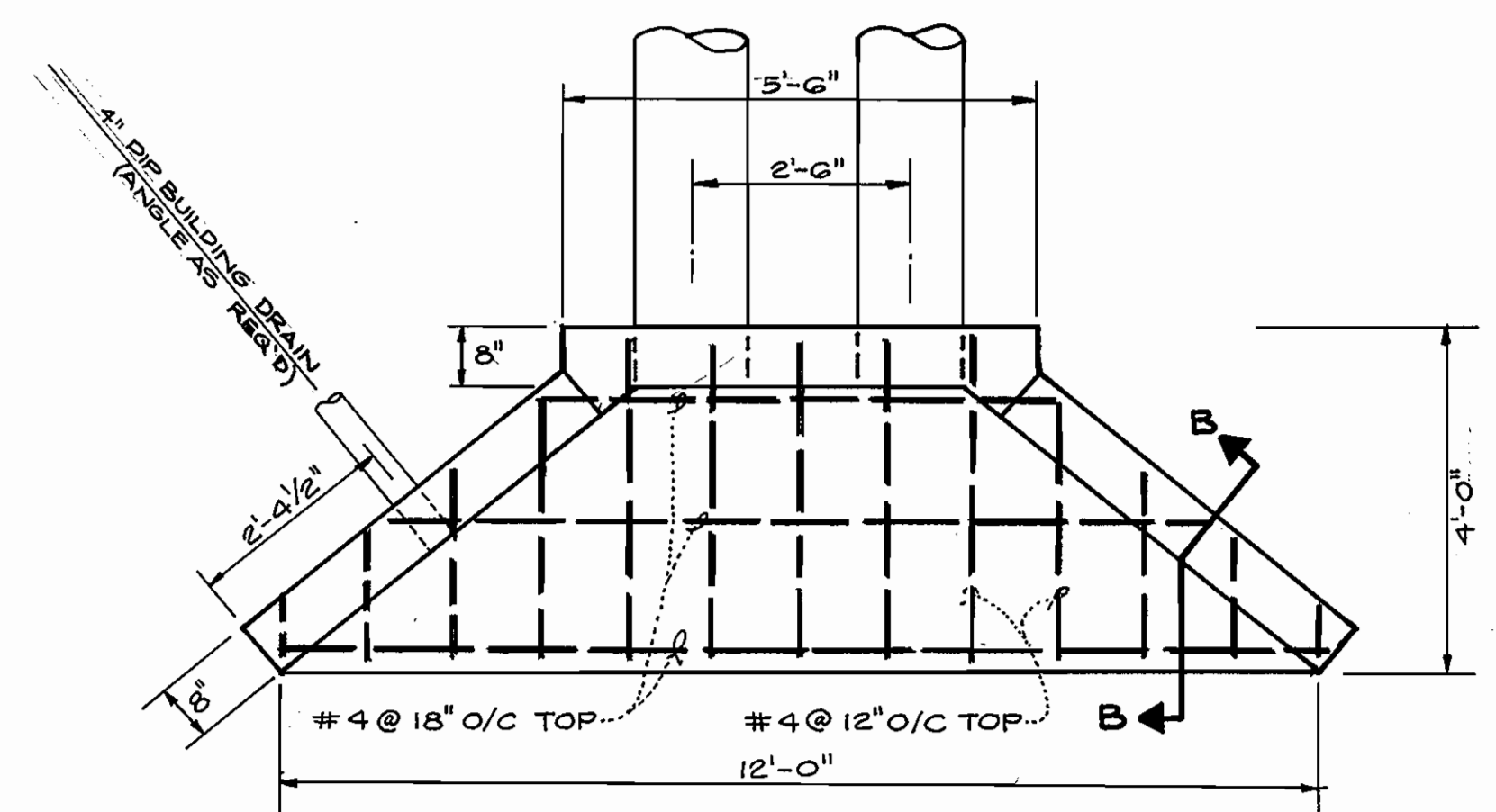
**DRIVEWAY PROFILE**  
SCALE: HOR: 1" = 20' VER: 1" = 5' (SEE SHEET 2)



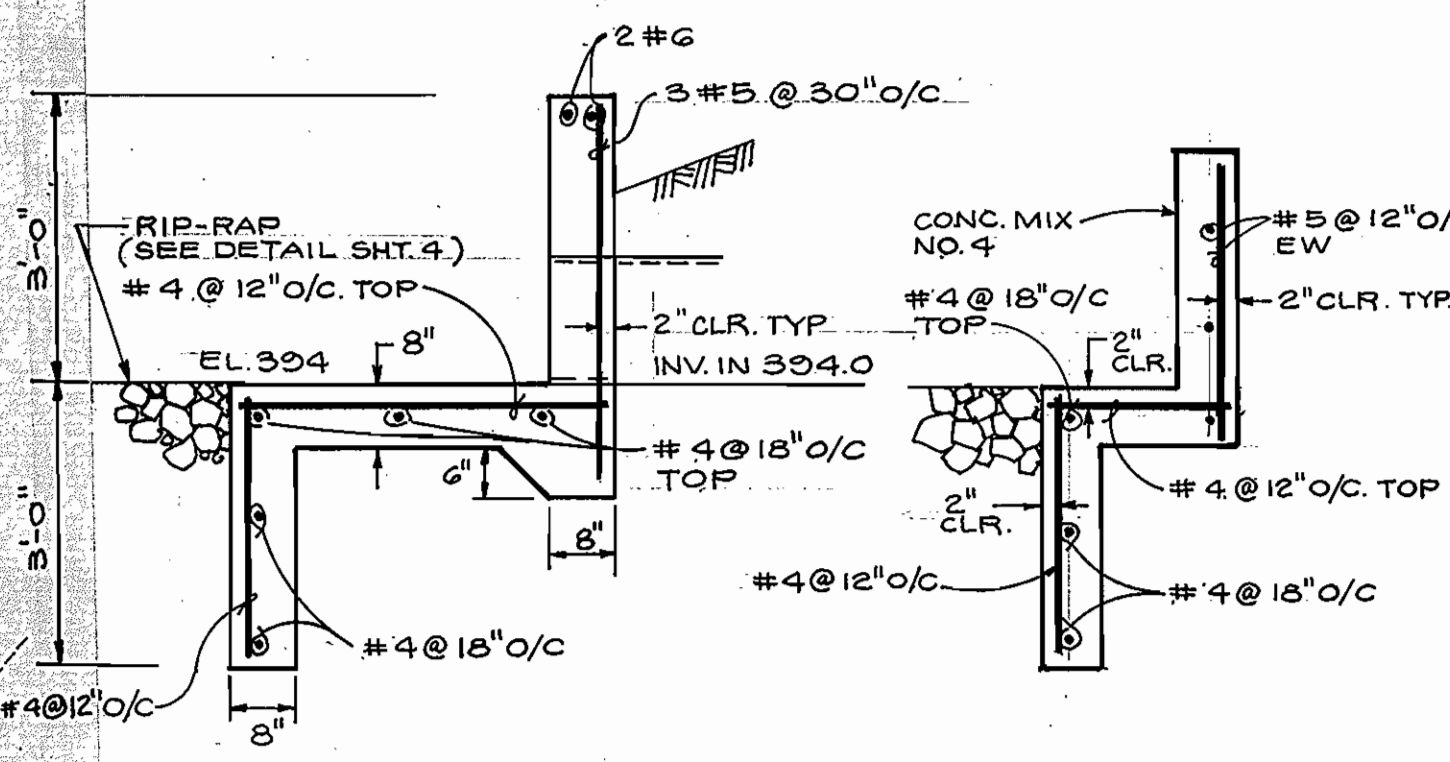
**TYPE P-2 PAVING DETAIL**  
N.T.S.



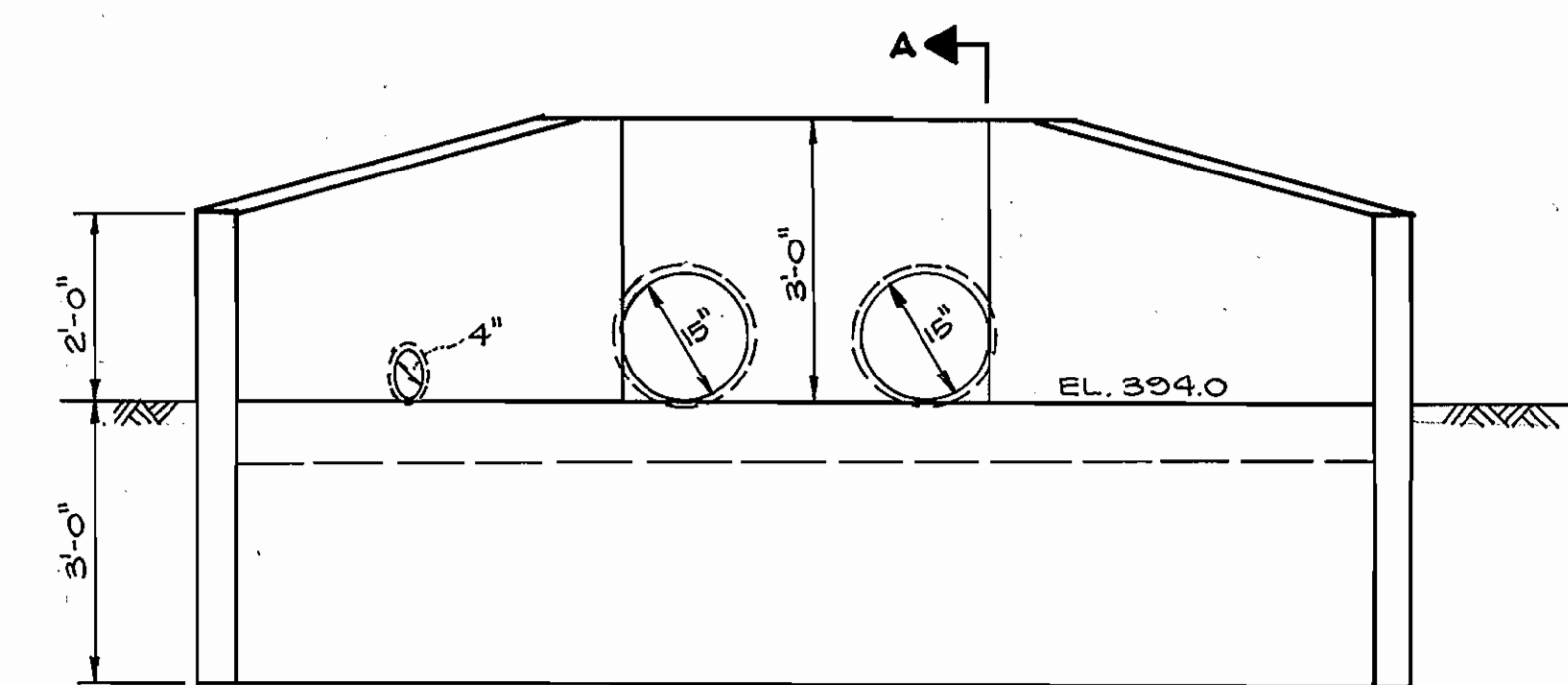
**CULVERT PROFILE**  
SCALE: HOR: 1" = 20' VER: 1" = 5'



**PLAN**  
(WITH BOTTOM SLAB REINFORCING)



**SECTION A-A SECTION B-B**



**FRONT ELEVATION**

**APPROVED**  
 PLANNING BOARD  
 OF HOWARD COUNTY  
 DATE: 9-18-85

**TYPE 'A' HEADWALL DETAILS**  
SCALE: 1/2" = 1'-0"

SDP 6 of 6

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS  
 HOWARD COUNTY HEALTH DEPARTMENT  
 SIGNATURE: [Signature] DATE: 10-29-85  
 COUNTY HEALTH OFFICER

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS  
 U.S. SOIL CONSERVATION SERVICE  
 SIGNATURE: [Signature] DATE: 10-29-85

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
 APPROVED (HOWARD S.C.D.) DATE: [Signature]

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING  
 PLANNING DIRECTOR  
 SIGNATURE: [Signature] DATE: 10-29-85  
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 DIRECTOR OF PUBLIC WORKS: [Signature] DATE: 10-28-85  
 CHIEF, BUREAU OF UTILITIES: [Signature] DATE: 10-29-85

DEWBERRY & DAVIS  
 ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS  
 2594 Riva Road, Annapolis, MD.

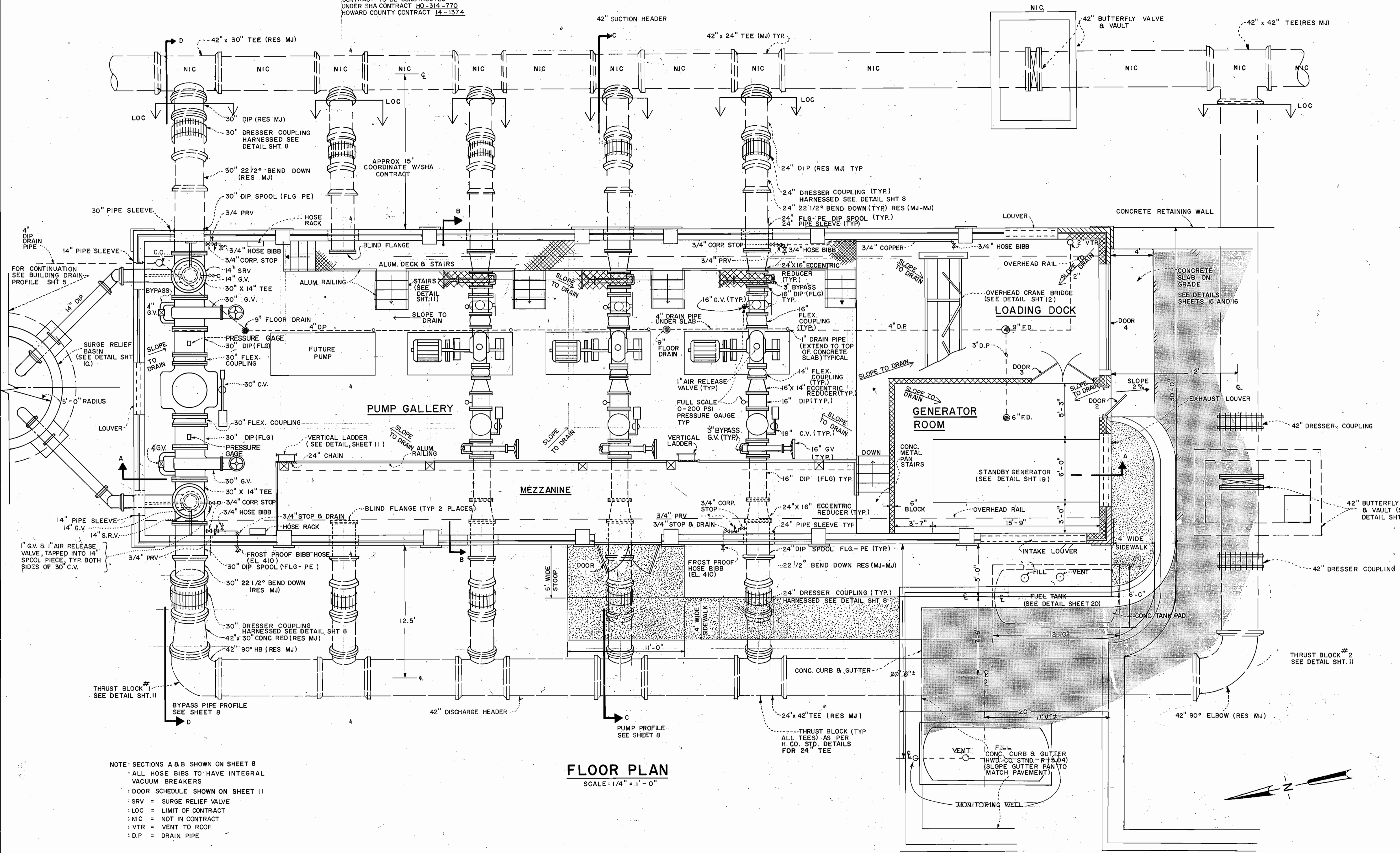
DES: BTM  
 DRN: OLL  
 CHK: SGZ  
 DATE: 10/85

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

SITE:  
**LANDSCAPE PLAN, DRIVEWAY PROFILE AND HEADWALL DETAILS**

**ROUTE 29 WATER PUMPING STATION**  
 CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2nd ELECTION DISTRICT, HOWARD CO., MD.  
 SCALE AS SHOWN  
 SHEET 6 OF 24

NOTE:  
42" WATER MAIN LABELED NOT IN CONTRACT TO BE CONSTRUCTED UNDER SHA CONTRACT HO-314-770 HOWARD COUNTY CONTRACT 14-1374



**FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

- NOTE: SECTIONS A & B SHOWN ON SHEET 8  
 : ALL HOSE BIBS TO HAVE INTEGRAL VACUUM BREAKERS  
 : DOOR SCHEDULE SHOWN ON SHEET 11  
 : SRV = SURGE RELIEF VALVE  
 : LOC = LIMIT OF CONTRACT  
 : NIC = NOT IN CONTRACT  
 : VTR = VENT TO ROOF  
 : D.P = DRAIN PIPE

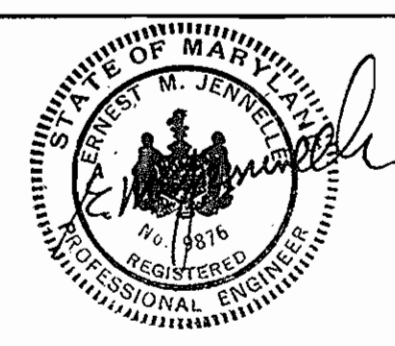
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* DATE: 10-24-85  
 Chief, Bureau of Utilities: *[Signature]* DATE: 10-24-85

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

Chief, Bureau of Engineering: *[Signature]* DATE: 10-24-85  
 Chief, Utilities Design Division: *[Signature]* DATE: 10/24/85

2594 Riva Road, Annapolis, MD. 21041



|             |  |
|-------------|--|
| DES: BTM    |  |
| DRN: OLL    |  |
| CHK: SGZ    |  |
| DATE: 10/85 |  |
| BY: NO.     |  |
| REVISION    |  |
| DATE        |  |

MECHANICAL:  
**FLOOR PLAN**

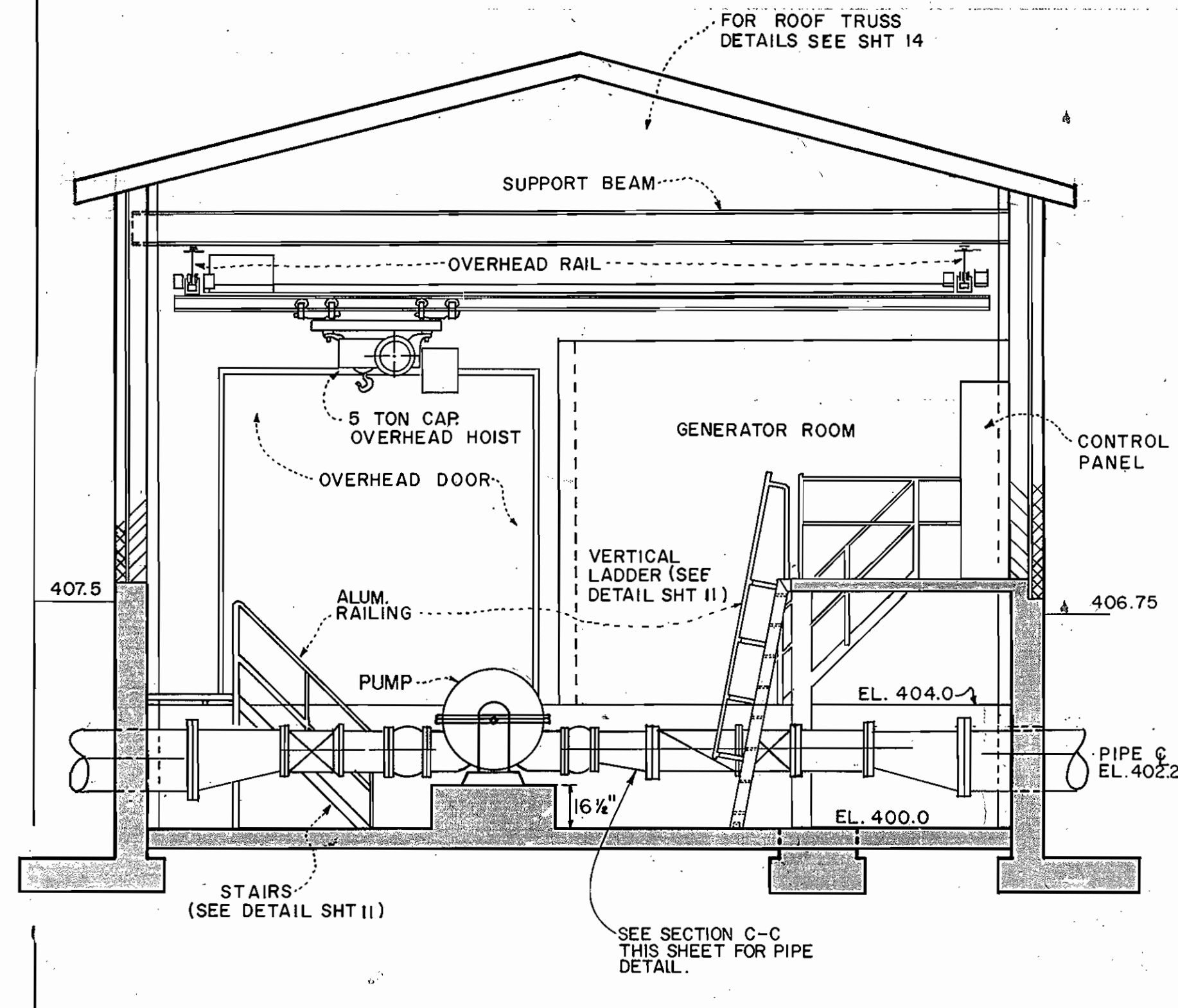
60' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29**  
**WATER PUMPING STATION**

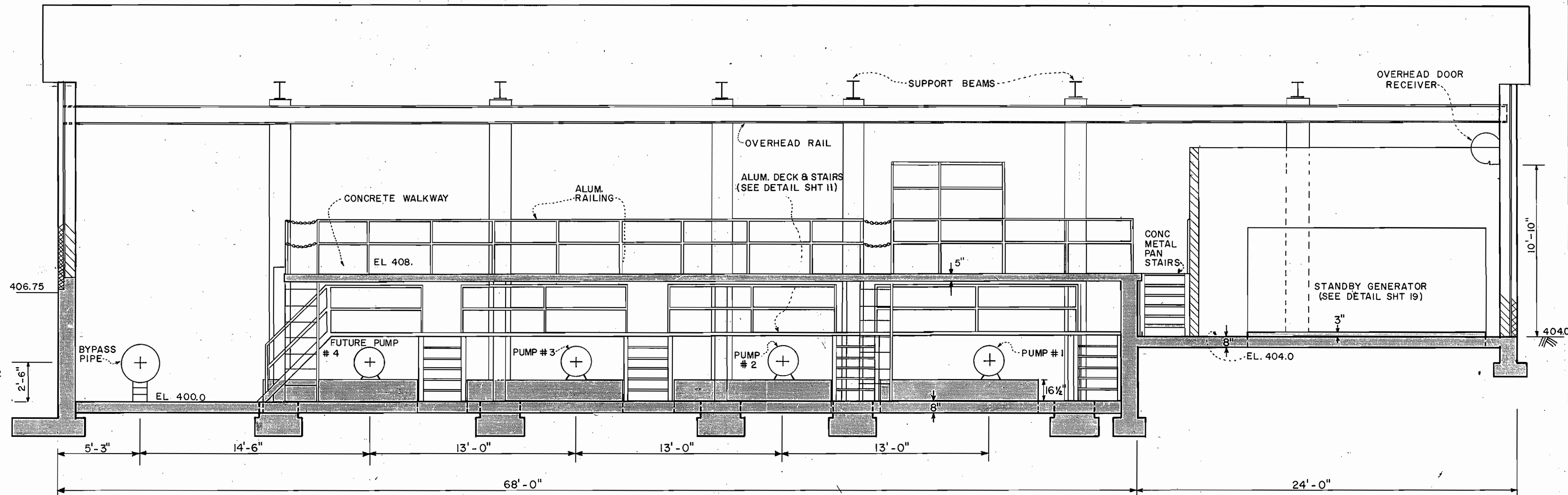
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2ND ELECTION DISTRICT, HOWARD CO., MD.

SHEET 7 OF 24

AS-BUILT 4-13-88 C-127

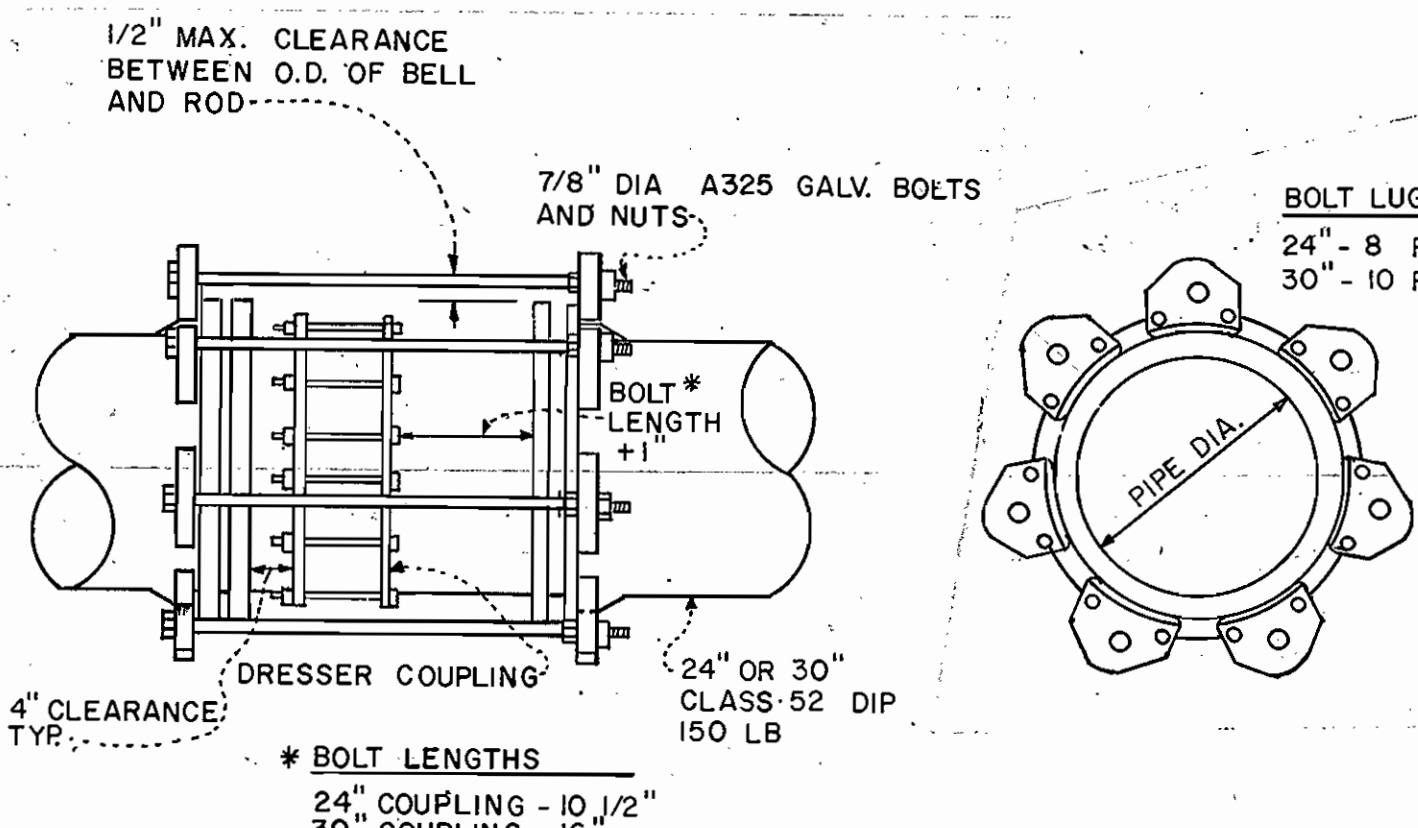


**SECTION B-B**  
SCALE: 1/4" = 1'-0"

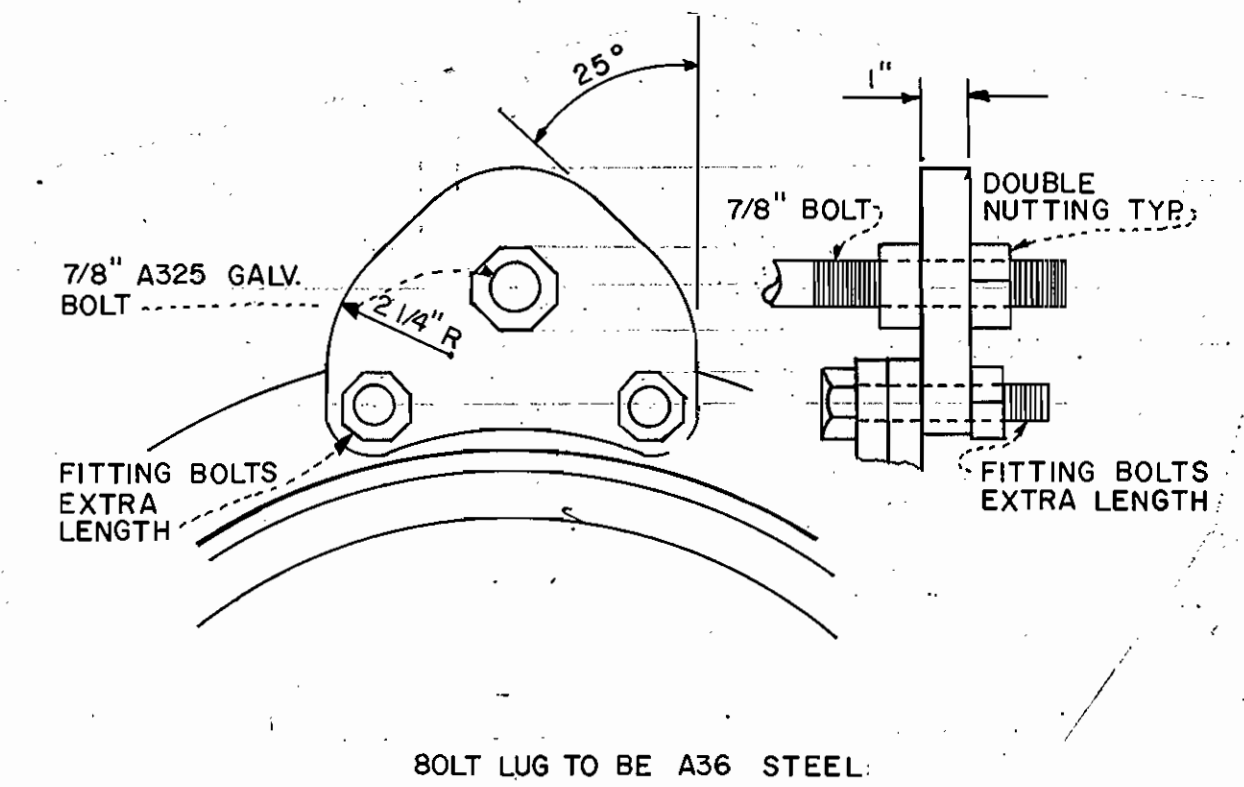


**SECTION A-A**  
SCALE: 1/4" = 1'-0"

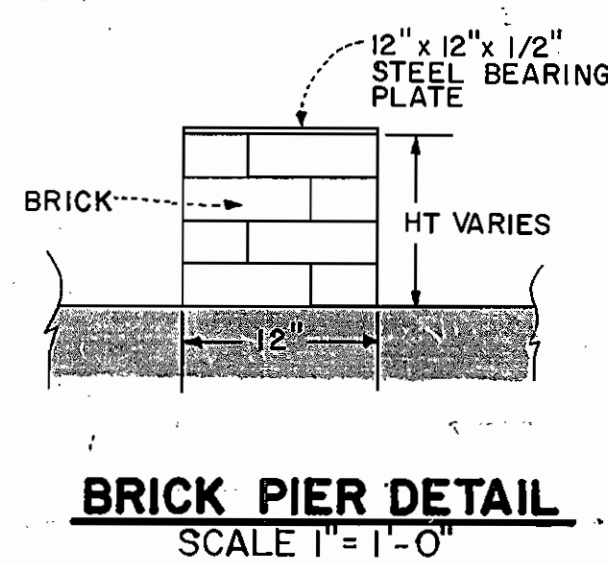
NOTE: FOR FLOOR DRAINS SEE RISER DIAGRAM SHT II



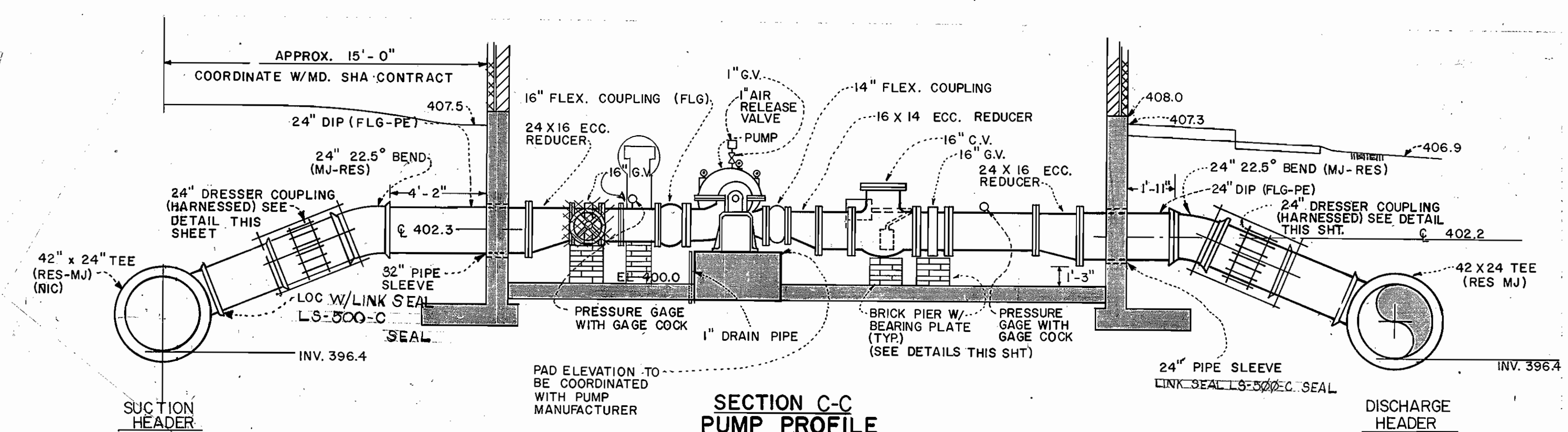
**HARNESSING DETAIL**  
NTS.



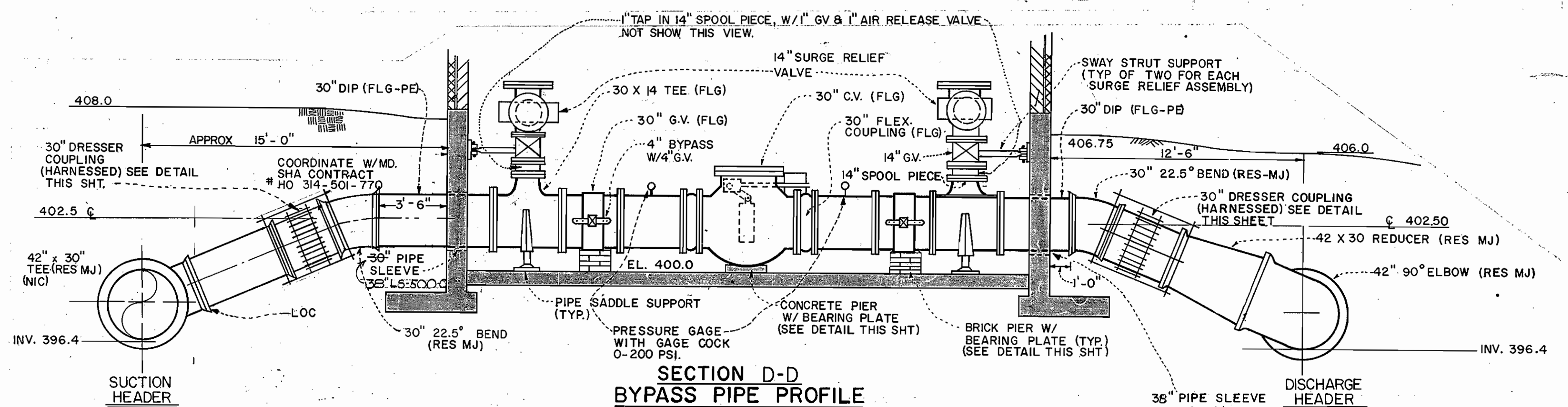
**CONCRETE PIER DETAIL**  
SCALE 1" = 1'-0"



**BRICK PIER DETAIL**  
SCALE 1" = 1'-0"



**SECTION C-C PUMP PROFILE**  
SCALE: 1/4" = 1'-0" (TYPICAL)



**SECTION D-D BYPASS PIPE PROFILE**  
SCALE: 1/4" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS



|             |    |     |          |
|-------------|----|-----|----------|
| DES: BTM    |    |     |          |
| DRN: OLL    |    |     |          |
| CHK: SGZ    |    |     |          |
| DATE: 10/85 | BY | NO. | REVISION |

MECHANICAL  
**BUILDING SECTIONS**

**ROUTE 29**  
**WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077  
2nd ELECTION DISTRICT, HOWARD CO., MD

CONTRACT NO. 44-1368

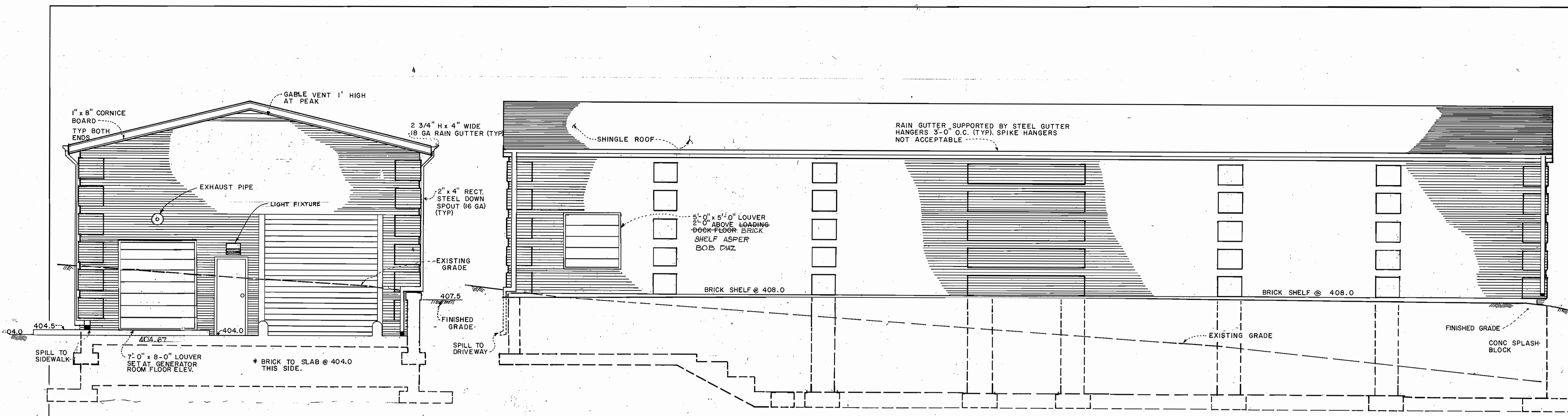
SCALE AS SHOWN

SHEET 8 OF 24

AS-BUILT 4-13-88

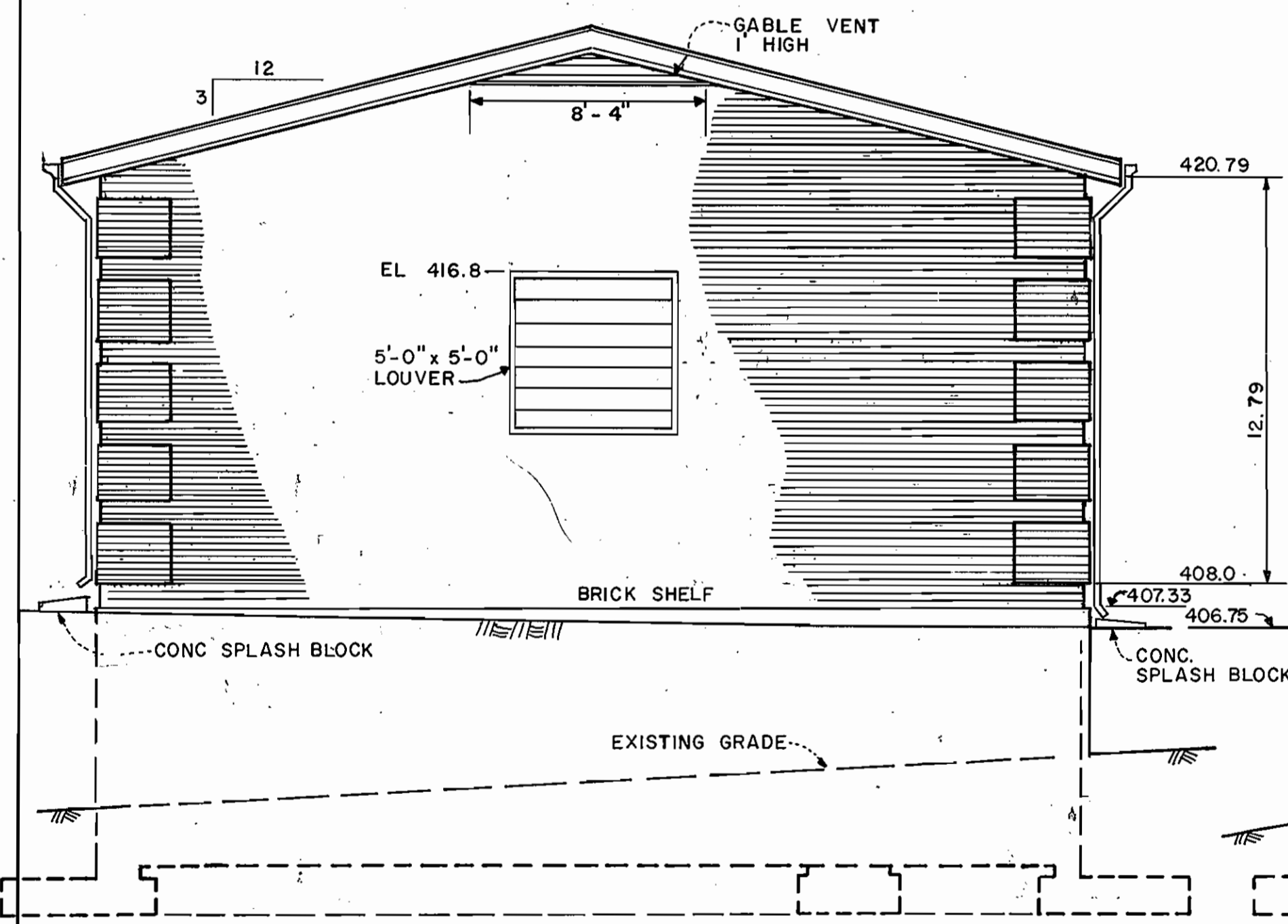
C-122



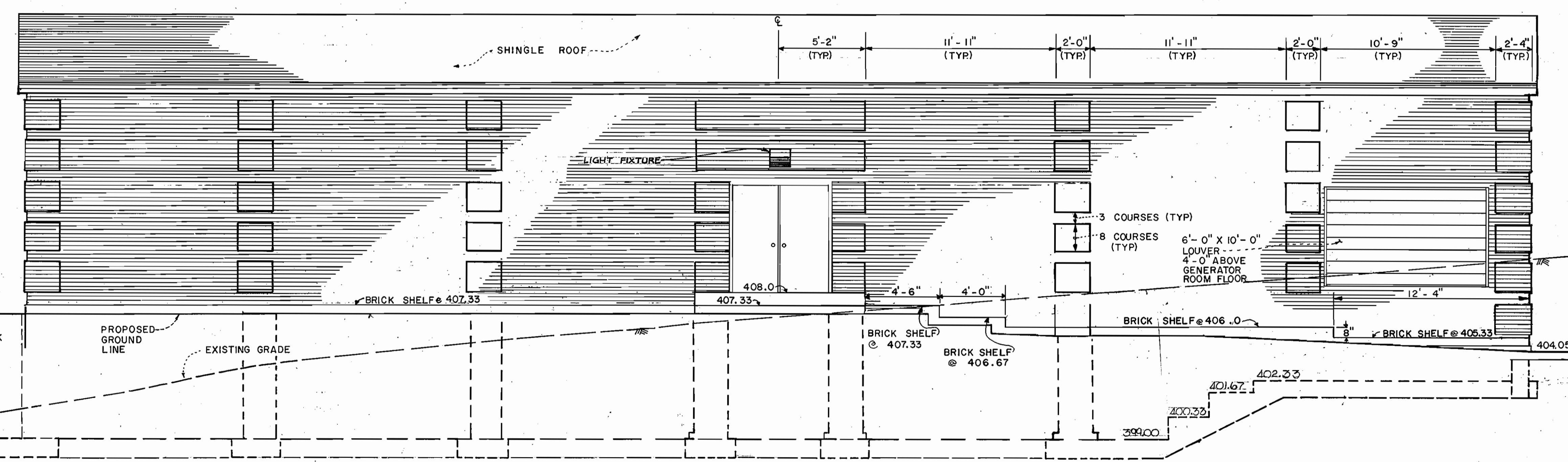


**SOUTH ELEVATION**  
SCALE: 1/4" = 1'-0"

**EAST ELEVATION**  
SCALE: 1/4" = 1'-0"



**NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**WEST ELEVATION**  
SCALE: 1/4" = 1'-0"

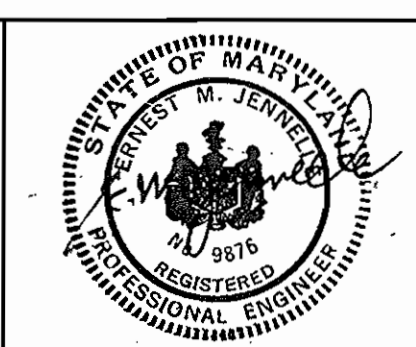
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 10-24-80  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 10-24-80  
CHIEF, BUREAU OF UTILITIES DATE

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-  
SURVEYORS

2594 Riva Road, Annapolis, MD. 21401



|             |        |          |      |
|-------------|--------|----------|------|
| DES: BTM    |        |          |      |
| DRN: JW/OLL |        |          |      |
| CHK: SGZ    |        |          |      |
| DATE: 10/85 | BY NO. | REVISION | DATE |

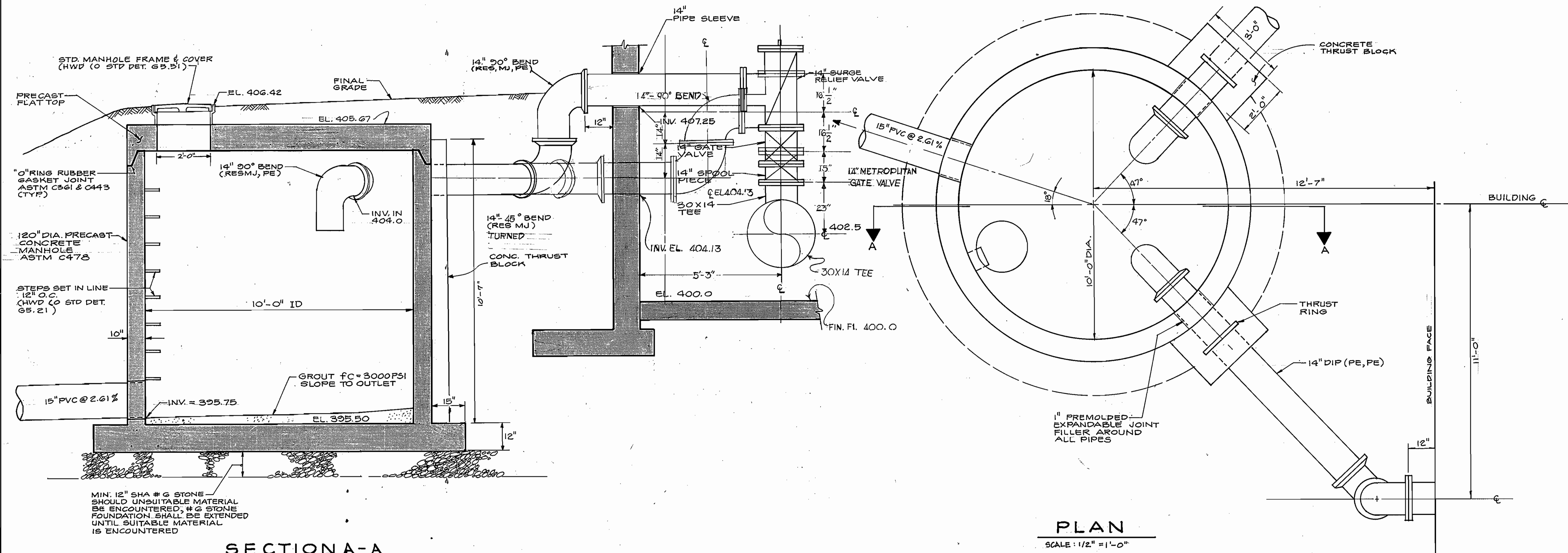
ARCHITECTURAL:  
BUILDING ELEVATIONS

600' SCALE MAP NO. 30 BLOCK NO. 12

**ROUTE 29**  
**WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2ND ELECTION DISTRICT, HOWARD CO., MD.

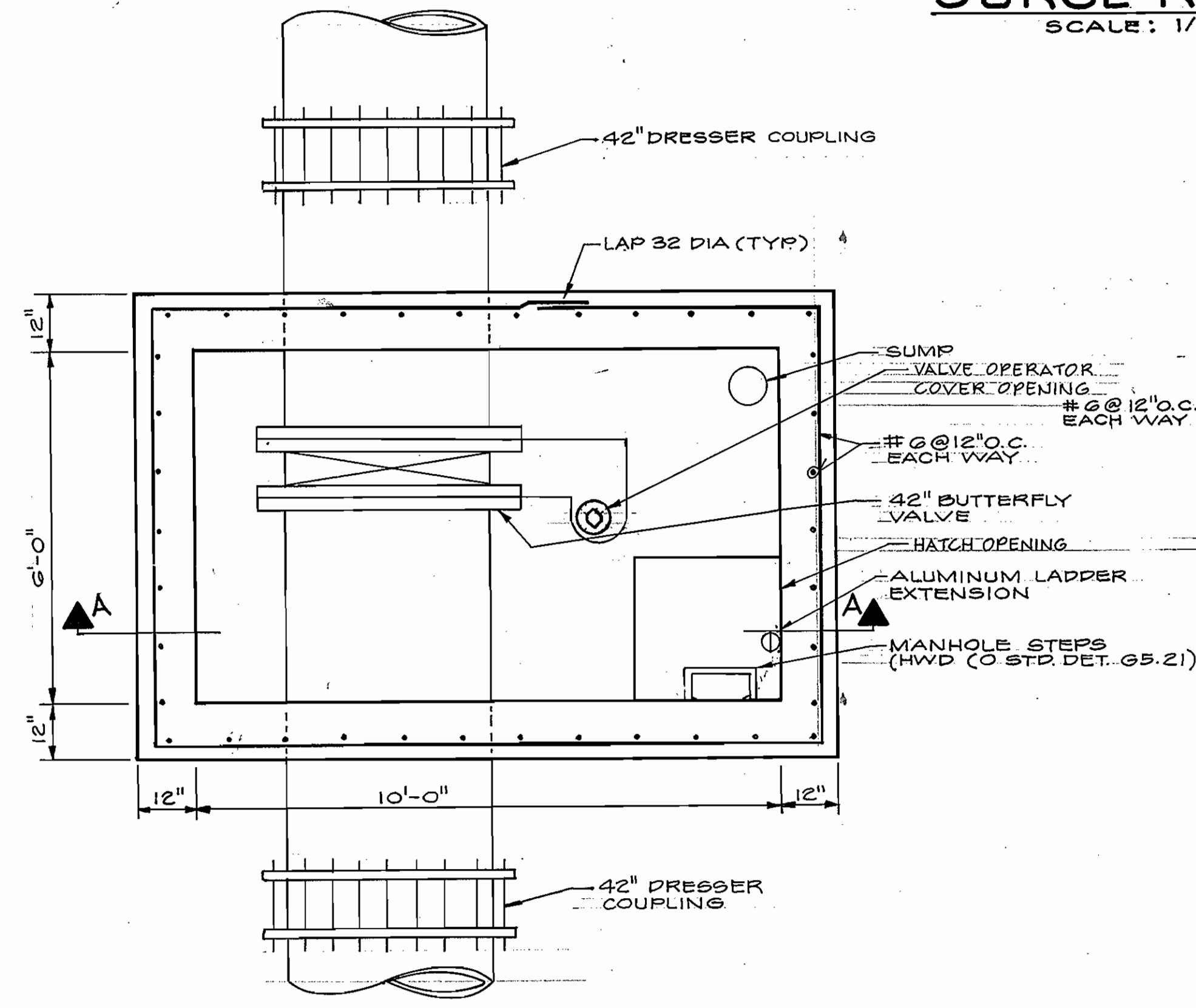
SCALE AS SHOWN  
SHEET 9 OF 24



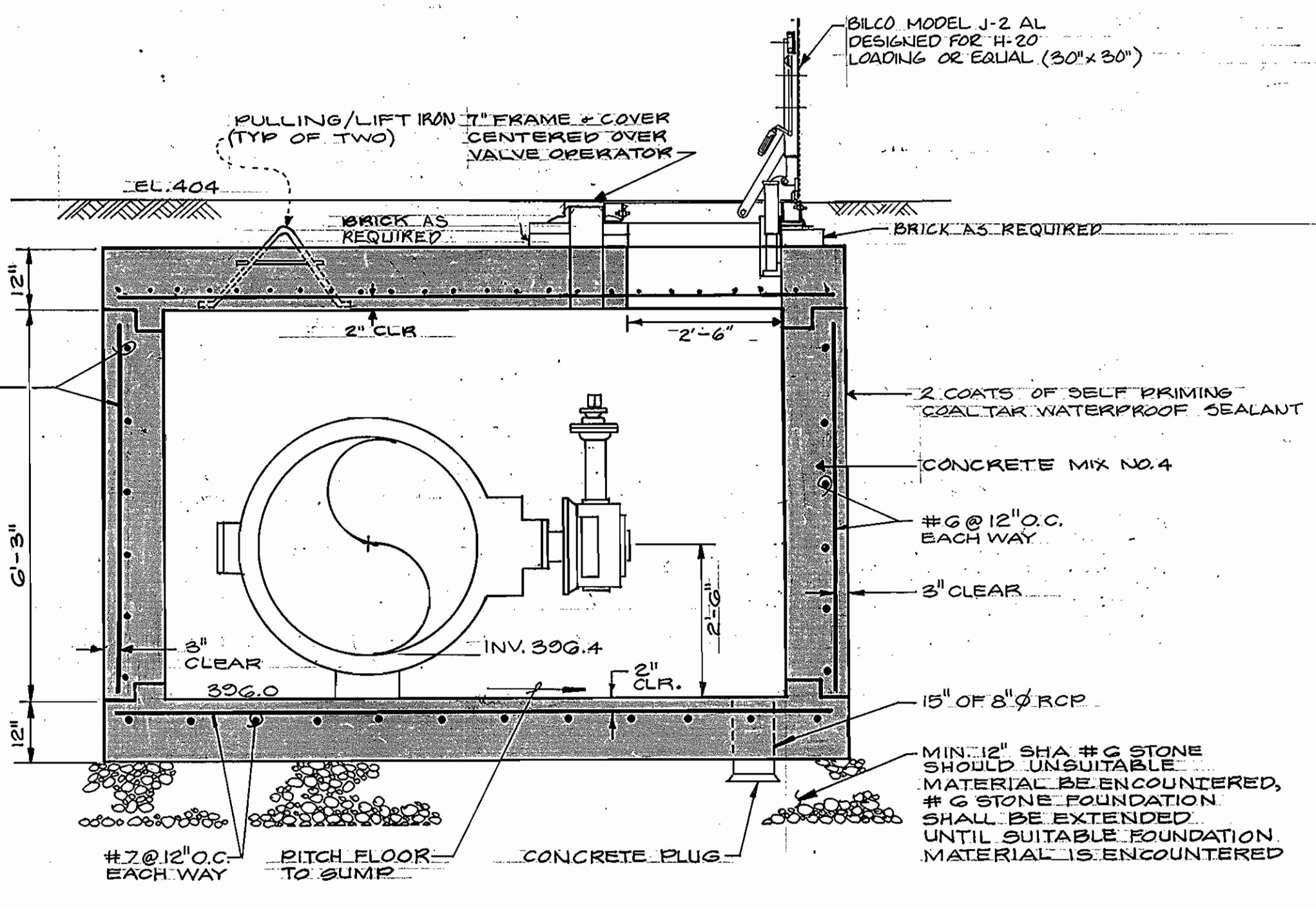
**SECTION A-A**  
SCALE: 1/2" = 1'-0"

**PLAN**  
SCALE: 1/2" = 1'-0"

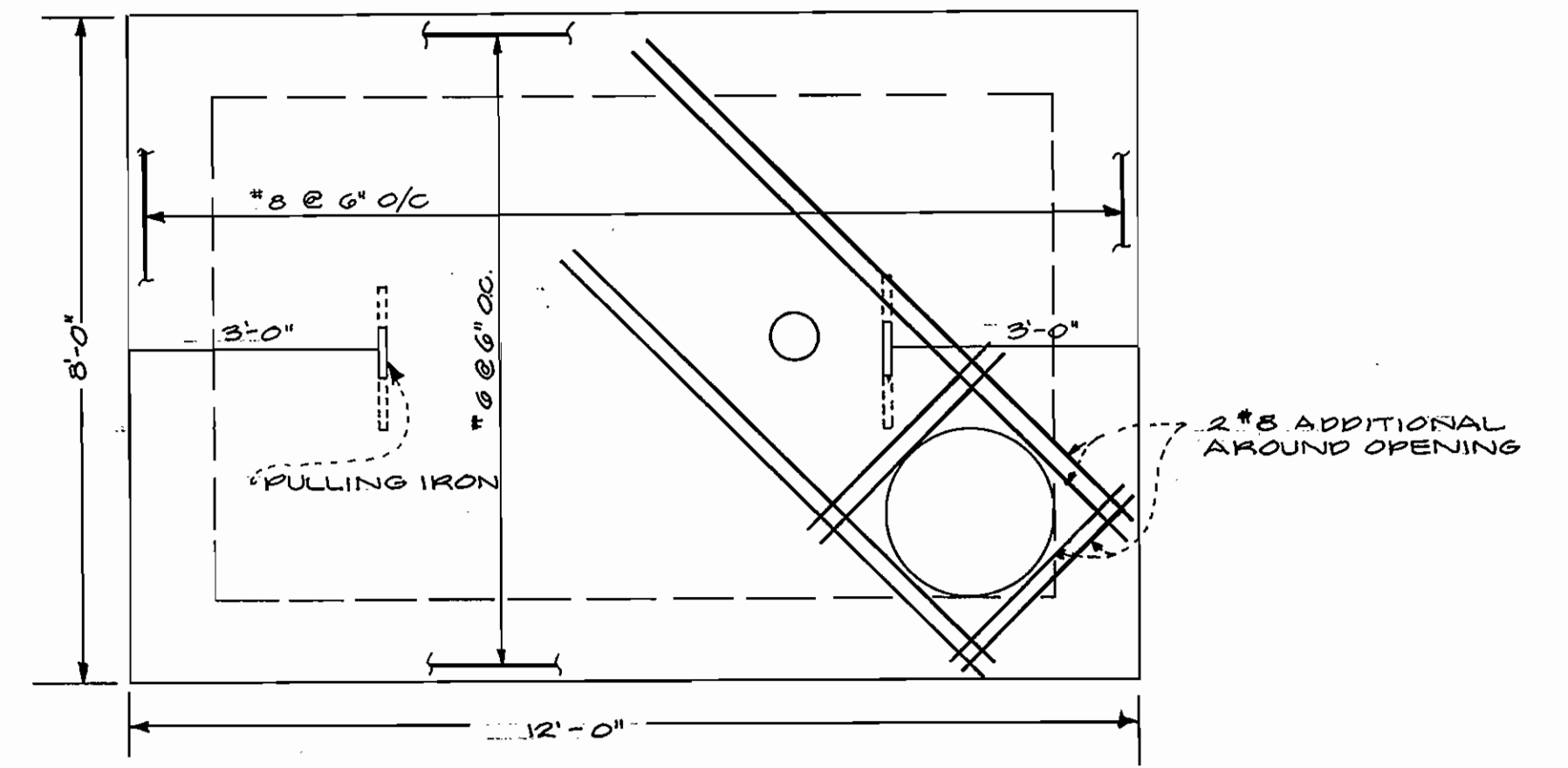
**SURGE RELIEF BASIN**  
SCALE: 1/2" = 1'-0"



**PLAN**  
SCALE: 1/2" = 1'-0"



**SECTION A-A**  
SCALE: 1/2" = 1'-0"



**PLAN TOP SLAB**  
SCALE: 1/2" = 1'-0"

- NOTES:**
1. VAULT DESIGN SHALL BE FOR H-20 TRAFFIC LOADING.
  2. REINFORCING STEEL SHALL CONFORM TO THE STANDARD SPECIFICATIONS.
  3. ALL CONCRETE MIX TO BE NO. 4.
  4. PROVIDE WATERSTOP AT JOINT BETWEEN SLAB & WALL.
  5. PRECAST VAULTS ARE ACCEPTABLE AS MFG. BY SMITH CATTLE-GUARD, AC MILLER CONCRETE PRODUCTS CO. PRECAST CONCRETE PRODUCTS CO. OR APPROVED EQUAL.

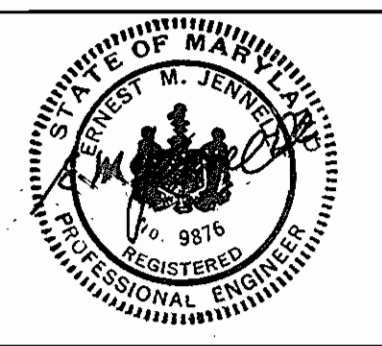
**42" BUTTERFLY VALVE VAULT**  
SCALE: 1/2" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 10-24-86  
Chief, Bureau of Engineering: *[Signature]* 10-24-86  
Chief, Utilities Design Division: *[Signature]* 10-24-86

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS  
SURVEYORS

2594 Riva Road, Annapolis, MD. 21041



|             |         |          |      |
|-------------|---------|----------|------|
| DES: BTM    |         |          |      |
| DRN: RR     |         |          |      |
| CHK: SGZ    |         |          |      |
| DATE: 10/85 | BY: NO. | REVISION | DATE |

MECHANICAL:  
**SURGE RELIEF BASIN & VALVE VAULT DETAILS**

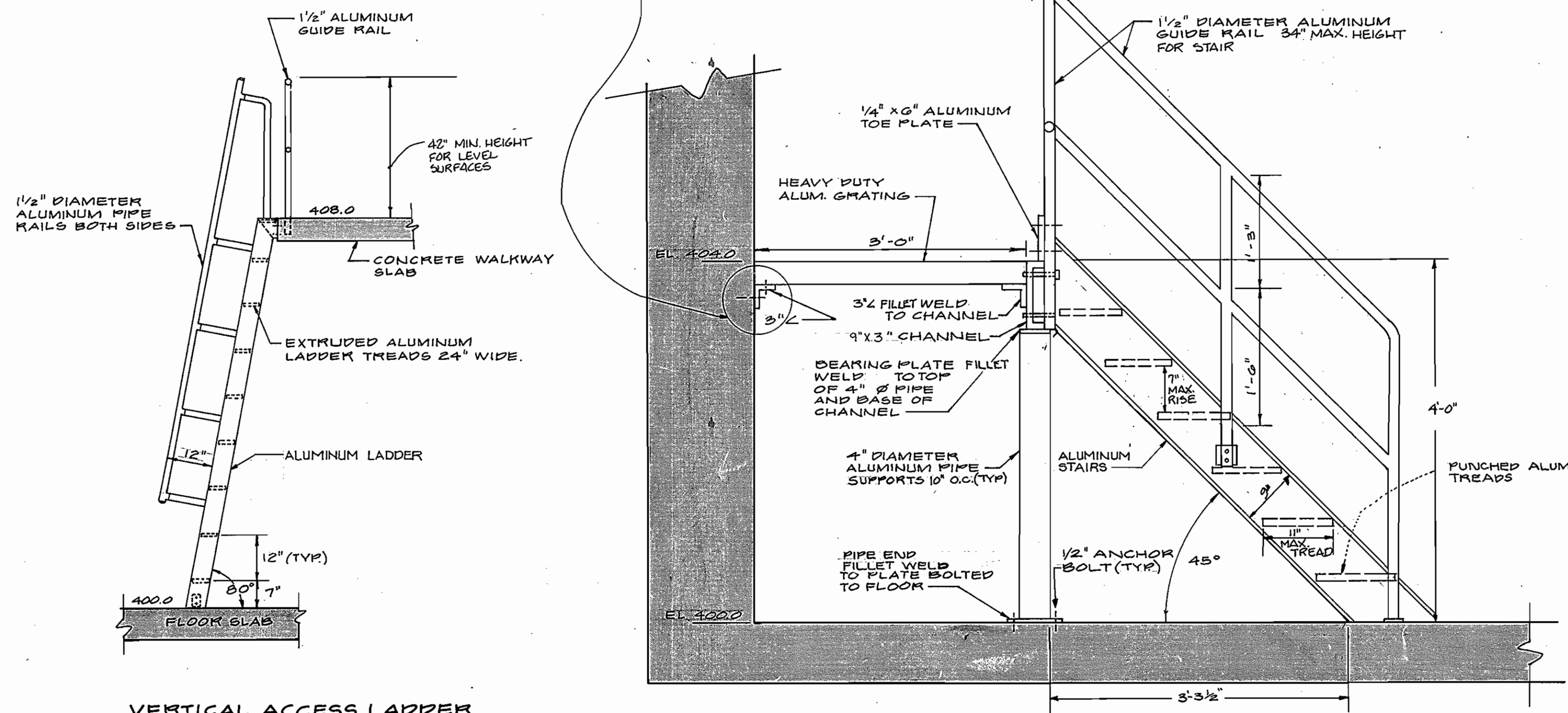
600' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29  
WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2ND ELECTION DISTRICT, HOWARD CO., MD.

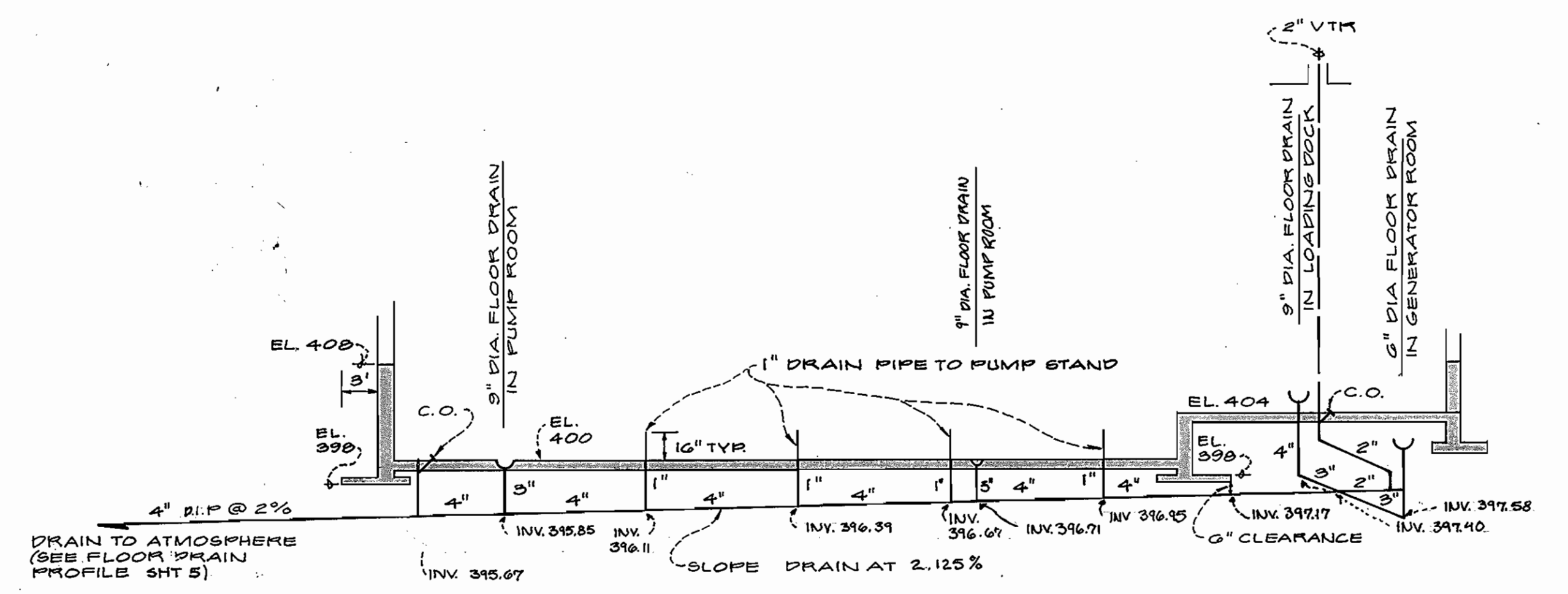
SCALE AS SHOWN  
SHEET 10 OF 24

NOTE: ALUMINUM MANUFACTURER TO COORDINATE WALL CONNECTION WITH CONCRETE CONTRACTOR



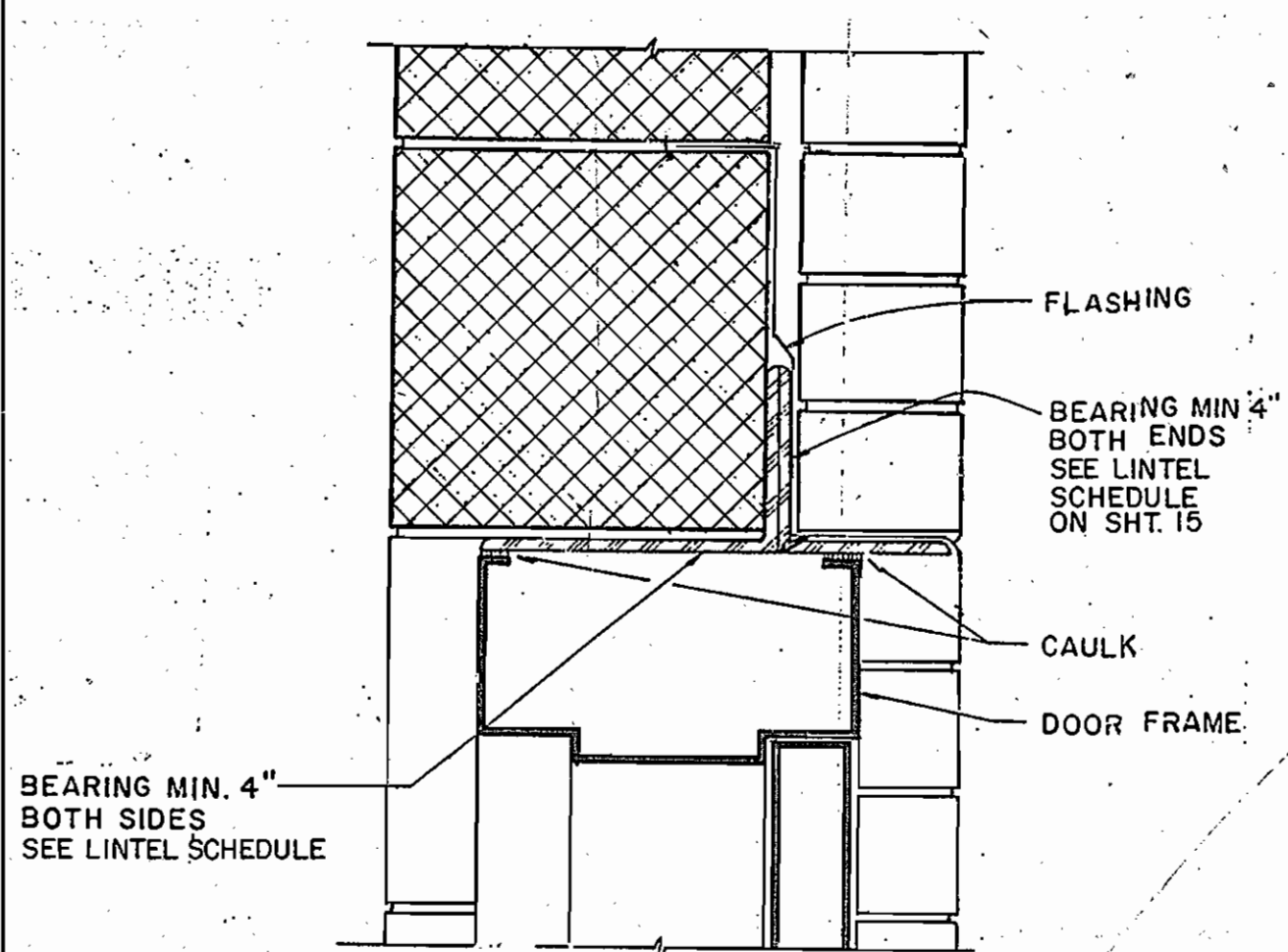
**VERTICAL ACCESS LADDER**  
SCALE: 1/2" = 1'-0"

**ALUMINUM WALKWAY & STAIR SUPPORT**  
SCALE: 1" = 1'-0"

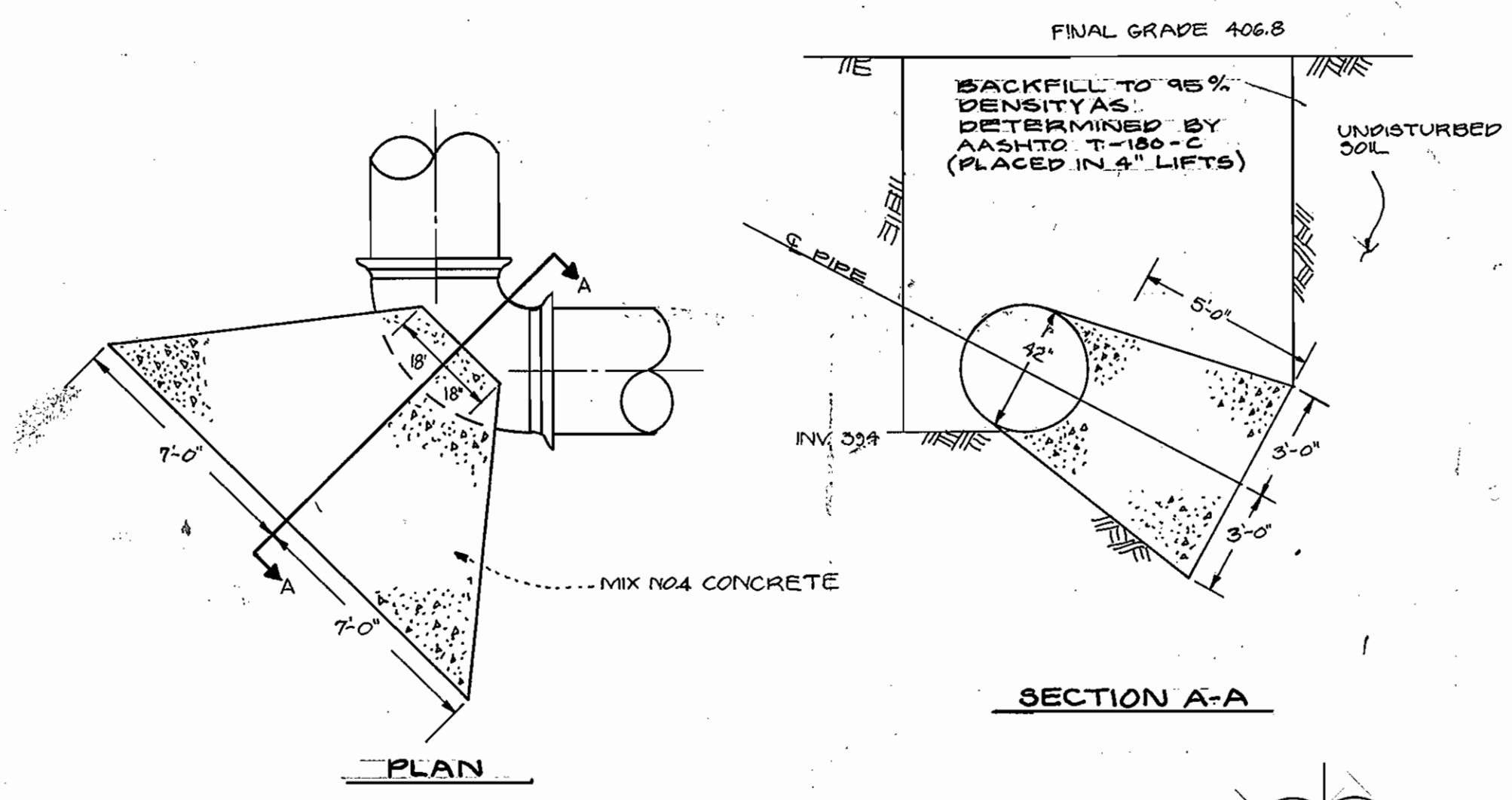


**FLOOR DRAIN RISER DIAGRAM**  
N.T.S.

| DOOR SCHEDULE |              |                |                |                            |              |             |                   |         |  |
|---------------|--------------|----------------|----------------|----------------------------|--------------|-------------|-------------------|---------|--|
| OPENING       | FROM         | TO             | LABEL          | NOMINAL OPENING DIMENSIONS | HAND & SWING | FRAME GAUGE | DOOR GAUGE        | LOCK    | COMMENTS   |
| 1             | EXTERIOR     | MEZZANINE      | MAIN ENTRANCE  | 6'-0" x 6'-8"              | RHRA         | 16          | 18                | MORTISE | PANIC EXIT, SS KICK PLATE, ASTRAGAL, FLUSH BOLT (T&B), AUTO CLOSE, THRESHOLD, HOOK STRIP, DOOR HOLD                    |
| 2             | EXTERIOR     | GENERATOR ROOM | EMERGENCY EXIT | 3'-0" x 6'-8"              | RH           | 16          | 18                | MORTISE | PANIC EXIT, SS KICK PLATE, AUTO CLOSE, DOOR HOLD, THRESHOLD, HOOK STRIP  |
| 3             | LOADING DOCK | GENERATOR ROOM | GENERATOR ROOM | 6'-0" x 6'-8"              | RHRA         | 16          | 18                | MORTISE | ASTRAGAL, SS KICK PLATE, FLUSH BOLT (T&B) AUTO CLOSE, DOOR HOLD  |
| 4             | EXTERIOR     | LOADING DOCK   |                | 10'-0" x 10'-10"           | NA           | NA          | .050" THICK ALUM. | NA      | ALUMINUM SLAT OVERHEAD ROLLING DOOR, ELEC. HOIST CONTROL WITH EXT. MOUNTED KEYPAD CONTROL AND INT. BUTTON TYPE CONTROL |

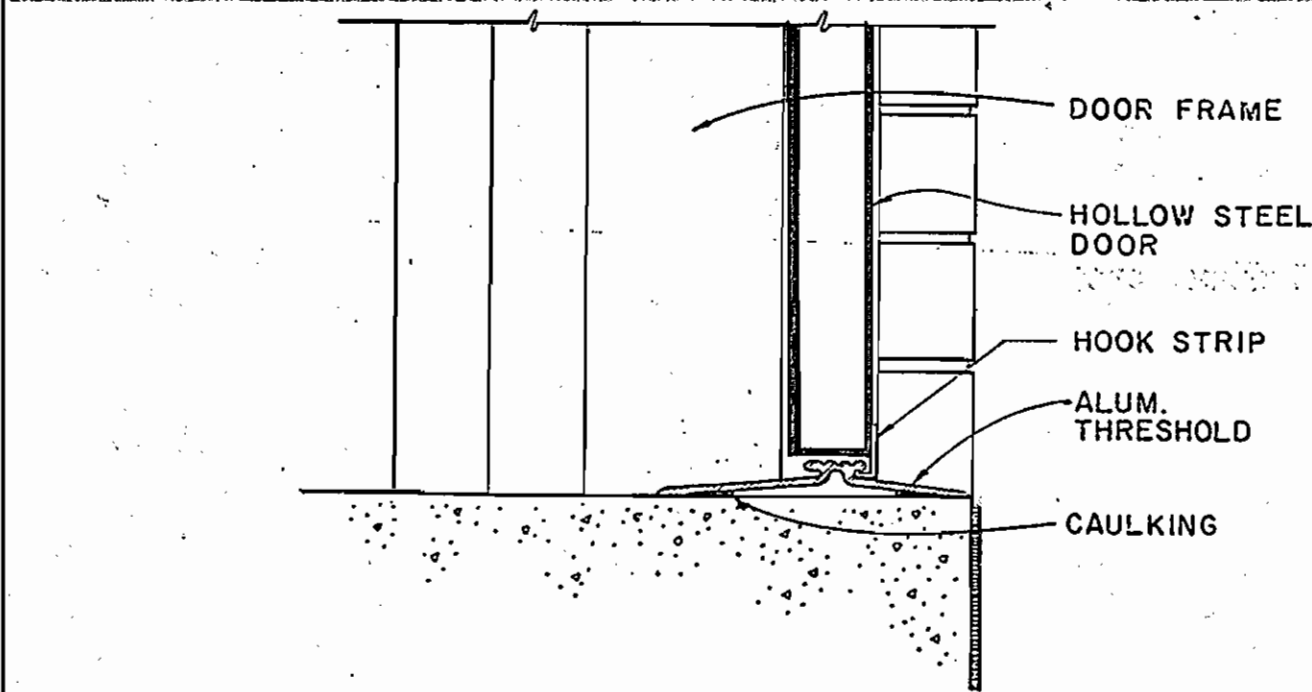


**HEAD**  
N.T.S.

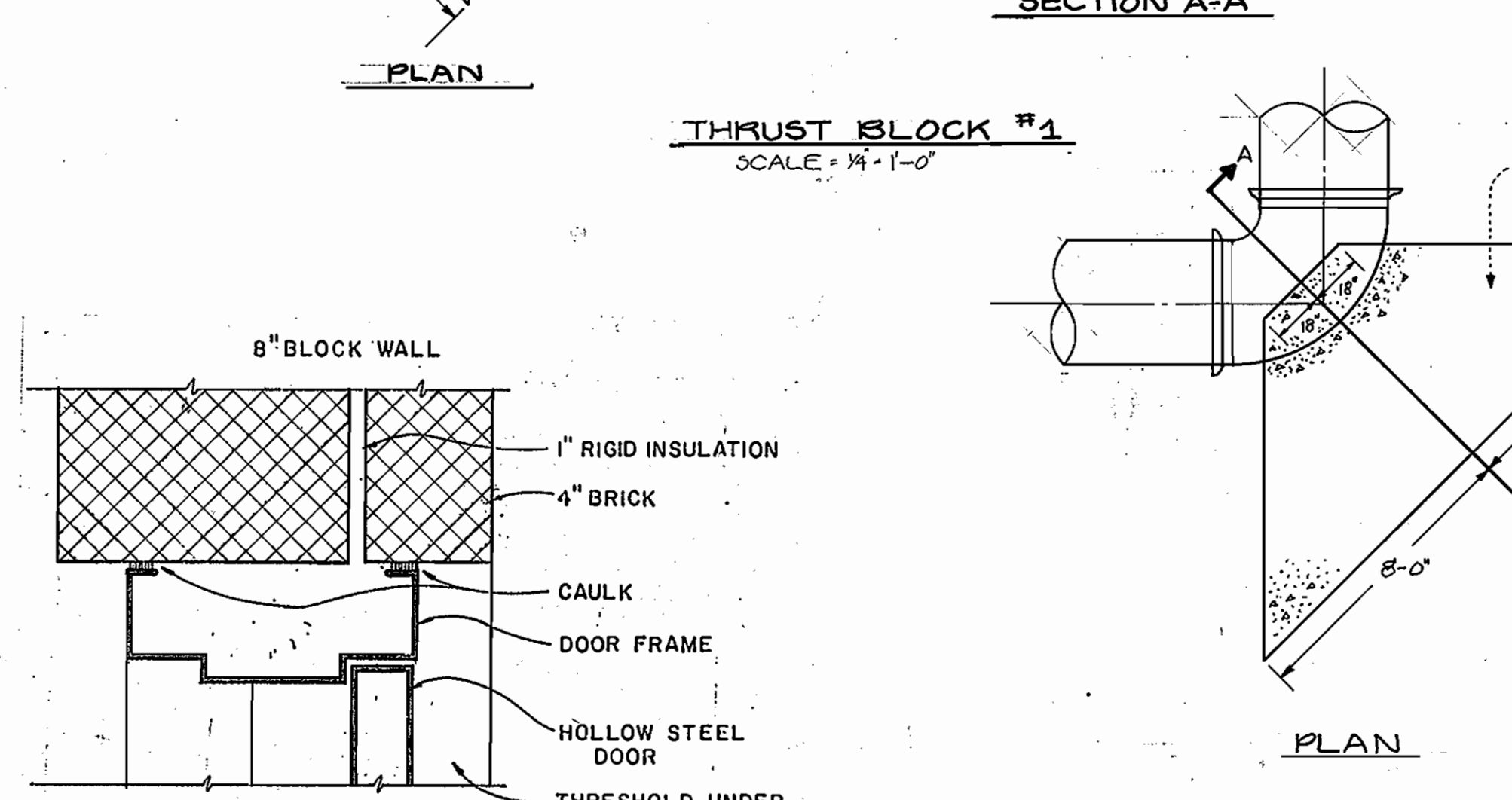


**SECTION A-A**

**THRUST BLOCK #1**  
SCALE: 1/4" = 1'-0"



**SILL**  
N.T.S.



**SECTION A-A**

**THRUST BLOCK #2**  
SCALE: 1/4" = 1'-0"

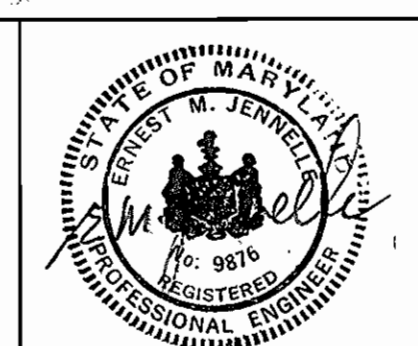
**JAMB**  
N.T.S.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *David G. Neumann* 10-14-86  
Chief, Bureau of Engineering: *Richard S. Ray* 10-24-86  
Chief, Bureau of Utilities: *Richard S. Ray* 10-24-86  
Chief, Utilities Design Division: *Richard S. Ray* 10-24-86

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS  
SURVEYORS

2594 Riva Road, Annapolis, MD. 21401



DES: BTM  
DRN: OLL  
CHK: SGZ  
DATE: 10/85

MECHANICAL:  
**MISCELLANEOUS DETAILS**

REVISION: BY NO. DATE

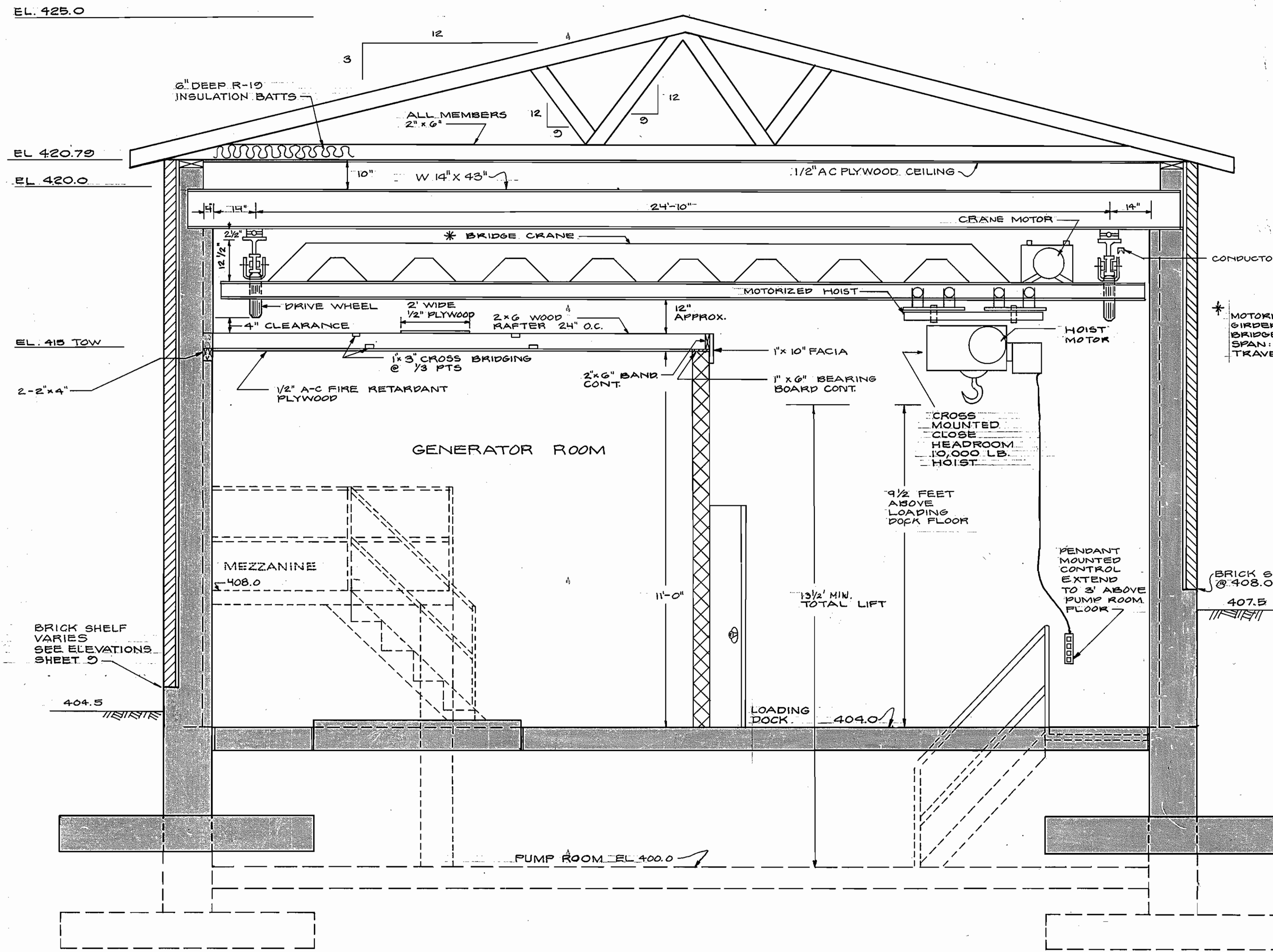
600' SCALE MAP NO. 30 BLOCK NO. 12

**ROUTE 29**  
**WATER PUMPING STATION**

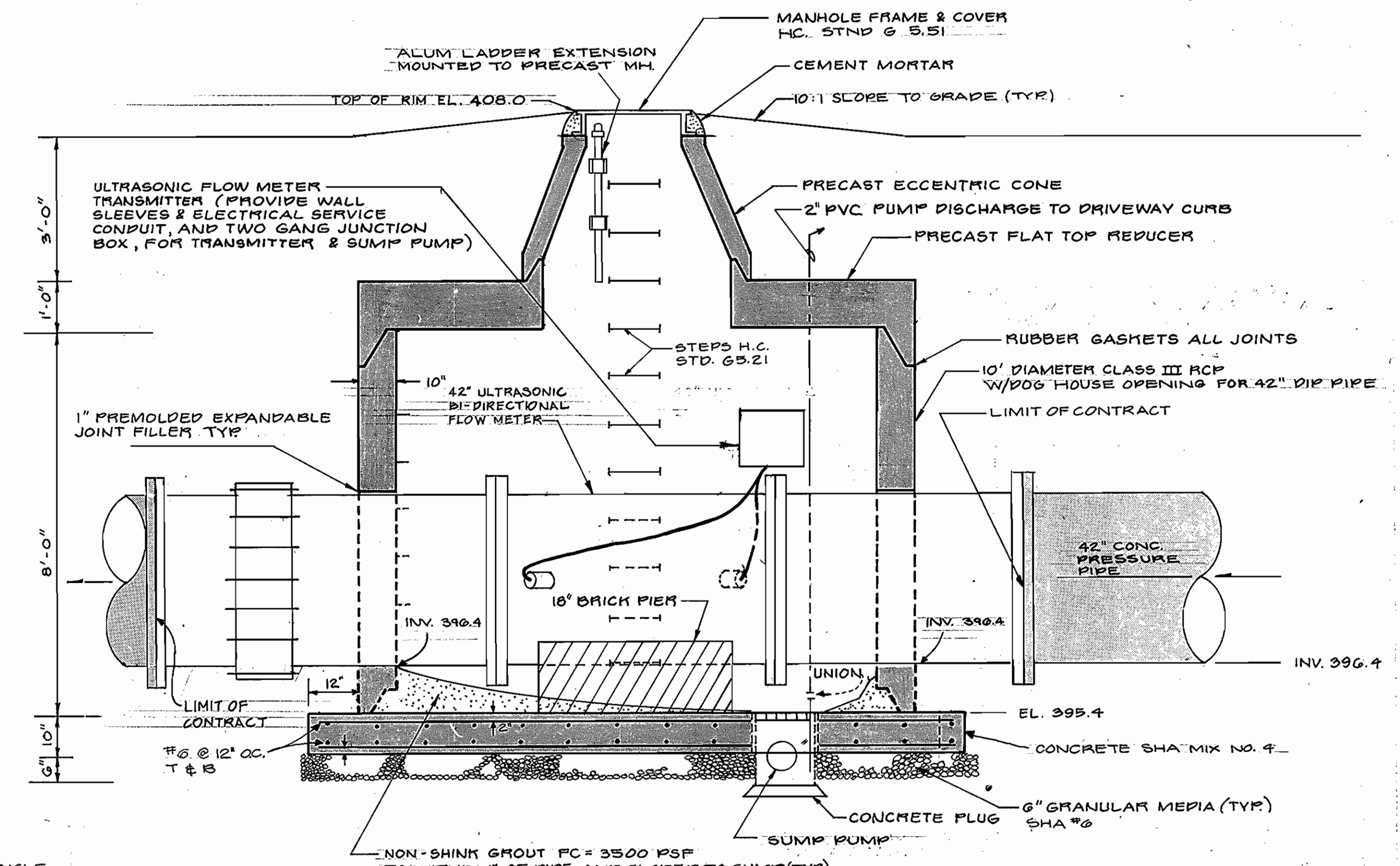
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2nd. ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 11 OF 24

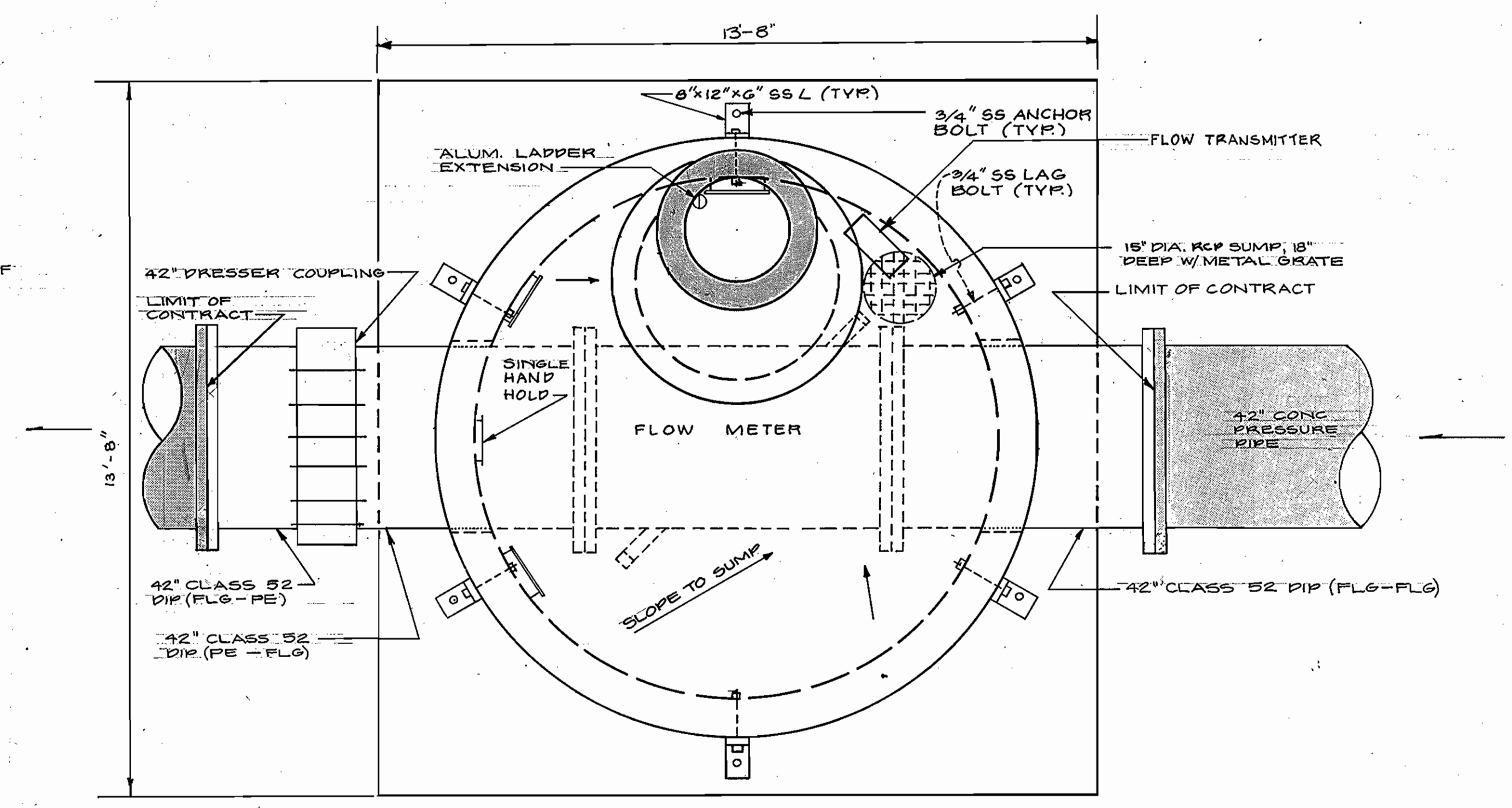
AS-BUILT 4-13-88 C-122



**BRIDGE CRANE DETAIL**  
SCALE: 1/2" = 1'-0"



**ULTRASONIC BI-DIRECTIONAL FLOW METER VAULT - SECTION VIEW**  
SCALE: 1/2" = 1'-0"



**ULTRASONIC BI-DIRECTIONAL FLOW METER VAULT - PLAN VIEW**  
SCALE: 1/2" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

10-11-86  
DATE

10-24-86  
DATE

10-24-86  
DATE

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD



|             |    |     |          |      |  |
|-------------|----|-----|----------|------|--|
| DES: BTM    |    |     |          |      |  |
| DRN: OLL    |    |     |          |      |  |
| CHK: S6Z    |    |     |          |      |  |
| DATE: 10/85 | BY | NO. | REVISION | DATE |  |

MECHANICAL:

**BRIDGE CRANE AND FLOW METER DETAILS**

600' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29 WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2nd ELECTION DISTRICT, HOWARD CO., MD

SCALE AS SHOWN  
SHEET 12 OF 24

AS-BUILT 4-13-88 C-122

- CODES AND STANDARDS**
- The BOCA Basic National Building Code/1984, With Local Amendments.
  - Building Code Requirements For Reinforced Concrete - ACI 318-83 - American Concrete Institute.
  - Manual Of Steel Construction - 8th Edition - American Institute Of Steel Construction (AISC).
  - Building Code Requirements For Concrete Masonry Structures (ACI 531-79, -83).
  - Specification For The Design And Construction Of Load-Bearing Concrete Masonry - National Concrete Masonry Association.
  - American Institute Of Timber Construction And The National Forest Products Association's National Design Specifications For Wood Construction.

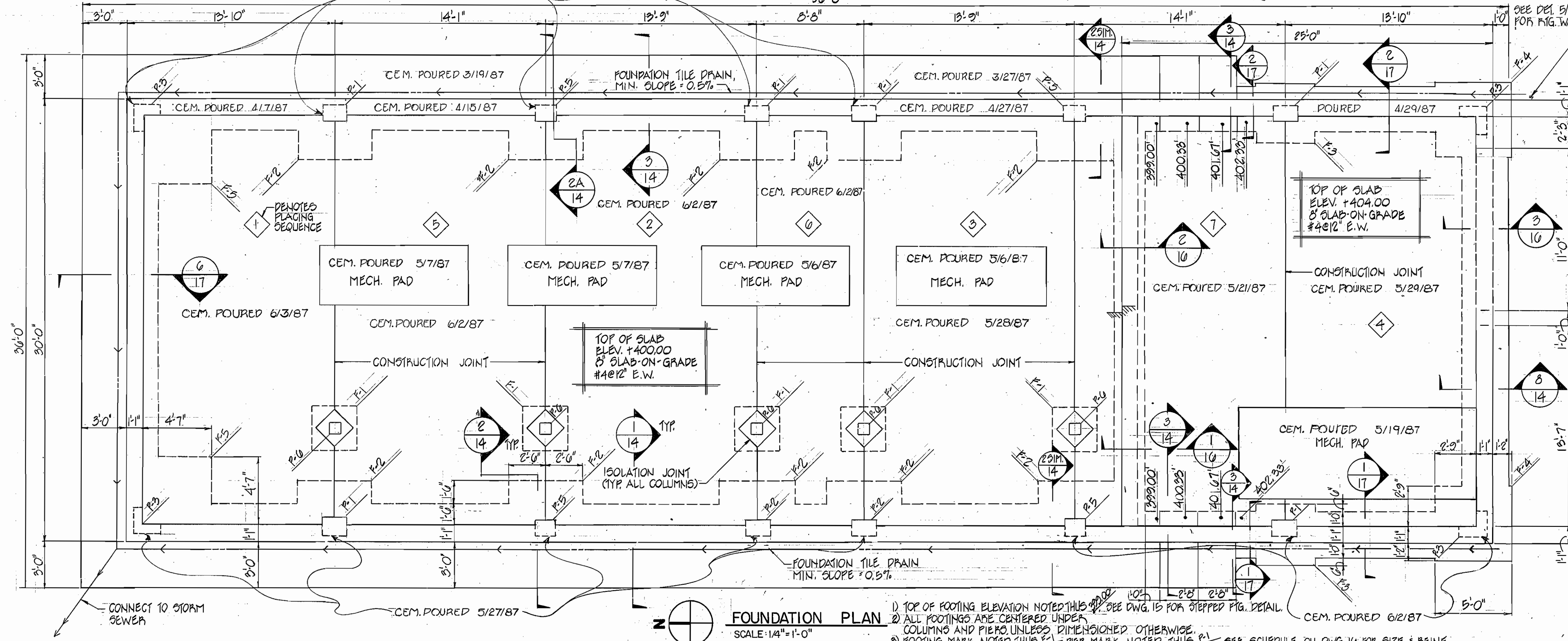
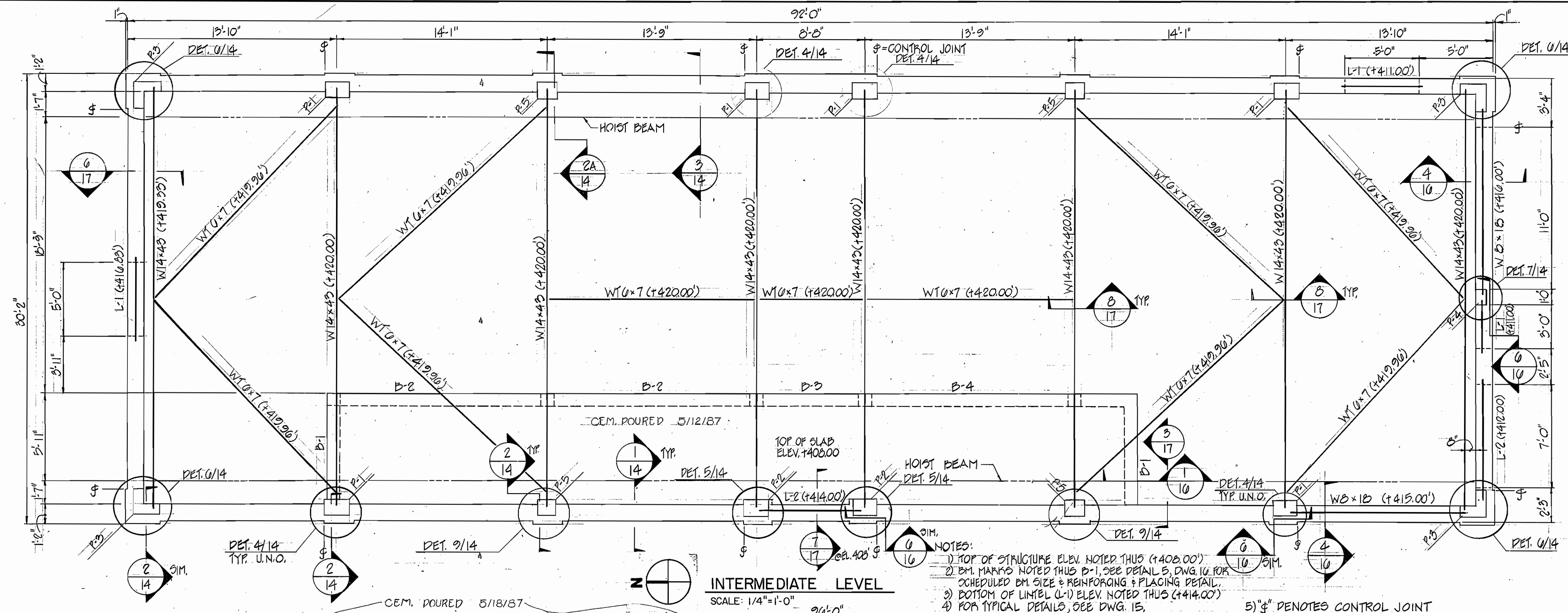
- LIVE LOADS**
- Roof.....30 PSF
  - Intermediate Level And Stairs.....100 PSF
  - Wind Loads On Vertical Surfaces:  
30 Feet High.....13 PSF

- MATERIALS**
- Concrete:
    - Normal Weight Concrete (144 PCF)
    - Compressive Strength In 28 Days Of 4000 PSI Unless Noted
    - Exterior Concrete 4000 PSI
  - Reinforcement:
    - Reinforcing Bars.....A.S.T.M. A615-Grade 60
    - Welded Wire Fabric.....A.S.T.M. A185
    - Details.....ACI 315-80
  - Structural Steel:
    - Structural Steel Rolled Shapes.....A.S.T.M. A36  
A.S.T.M. A572-Grade 50
  - Connections:
    - Bolts.....A.S.T.M. A325-F Friction Type  
3/4" Unless Noted
    - Anchors.....A.S.T.M. A307
    - Welds.....A.S.T.M. A233 Class E50-  
Electrodes AWS 1.1-75
  - Masonry:
    - Minimum  $f' = 1350$  PSI
    - Load Bearing Concrete Block.....A.S.T.M. C90
    - Non-Load-Bearing Concrete Block.....A.S.T.M. C129
    - Mortar.....A.S.T.M. 270-Type "S"
    - Grout.....A.S.T.M. C476
    - Joint Reinforcement (Truss Type).....A.S.T.M. A82

- FOUNDATIONS**
- SUBSURFACE INVESTIGATION AND REPORT INCLUDED WITH THE SPECIFICATIONS
  - Allowable Soil Bearing Pressure - 3000 PSF  
Elevations Given On Drawings Are To Tops Of Footings And Are Approximate. All Foundations Are To Bear On Undisturbed Soil Having At Least The Above Bearing Capacity.
  - Design Lateral Soil Pressure On Walls Below Grade - 60 PSF Of Wall Area Per Foot Of Depth (Restrained) 45 PSF Of Wall Area Per Foot Of Depth (Unrestrained).

- CONSTRUCTION NOTES**
- Elevations Indicated On The Drawings Are To Tops Of Elements.
  - Footings Shall Be Placed At Elevations Shown Unless Excavation Discloses An Unsatisfactory Bed. In Which Case, Footings Shall Be Lowered To A More Suitable Bed. Change In Elevation Must Be Approved By The Engineer.
  - Bottoms Of Footings Must Be Located A Minimum Of 2'-6" Below Adjacent Finished Grade.
  - This Project Has Been Designed For The Weights Of The Materials Indicated On The Drawings And For The Live Loads Indicated In The Design Data. It Is The Contractor's Responsibility To Determine Allowable Construction Loads And To Provide Proper Design And Construction Of Falsework, Formwork, Staging, Bracing, Sheet Piling, Shoring, Etc.
  - Connections For Structural Steel Shall Be Provided In Accordance With AISC Type 2 Construction. No Connection Shall Consist Of Less Than 2-3/4"  $\phi$  A325-F Bolts, Or Welds Developing Less Than 10,000 Pounds. All Welders Must Be Qualified Per Structural Welding Code Of The American Welding Society And Must Hold An Unexpired Certificate.
  - Refer To Mechanical And Plumbing Drawings For Exact Size And Location Of Mechanical Openings.
  - Horizontal Joint Reinforcement For Masonry Shall Be Truss Type "Dur-O-Wall" Placed At 16" c/c In All Walls. Reinforcement Shall Be Placed In The First Two Courses Above All Openings And In The Two Courses Above And Below Each Floor. Walls Shall Be Constructed With Full Bed And Bed Joints. Walls Shall Be Temporarily Shored And Securely Braced Until Floor Or Roof System Has Been Anchored There To. Provide A Minimum Of 24" Depth And 16" Length Of 100# Solid Masonry Block Bearing Ends Of Beams.
  - Slabs-On-Grade Unless Detailed Otherwise Shall Be 8" Thick. Slabs Shall Be Placed On A Vapor Barrier Over A 4" Thick Layer Of Porous Stone. Earth Fill Compacted In 8" Layers And Compacted To At Least 95% Of Maximum Dry Density As Determined By ASTM T-180, Method A.
  - Backfill Against Walls Below Grade Shall Not Be Placed Prior To The Floor Slab Concrete Reaching Its Specified Design Strength. Care Shall Be Taken During Placement Of Backfill Along The Wall So As Not To Overload The Wall Due To Heavy Equipment. Only Lightweight (A Maximum Of One Ton Total Weight) Equipment Shall Be Permitted Within The Critical Zone Defined As Beginning At The Base Of The Wall And Widening Upward From The Base On A 1:1 Slope.
  - Use Of Concrete Additives Containing Calcium Chloride Shall Not Be Permitted.
  - Exterior Walls Below Grade Shall Be Damp-Proofed.
  - Wood Trusses Shall Be Designed By The Truss Manufacturer For The Span, Configuration, And Loading Conditions Indicated On The Drawings. Design And Detail Of All Trusses Shall Meet The Requirements Of The Truss Plate Institute (TPI), All Applicable Building Codes, Shall Be In Accordance With The "National Specifications For Stress Grade Lumber And Its Fastenings". Complete Shop Details, Stress Diagrams, And Bearing Details Shall Be Submitted For Approval Before Fabrication Of Trusses And Shall Bear The TPI Impression. In Lieu Of Stress Diagrams, Manufacturer's Test Data May Be Submitted Showing The Allowable Capacity Of The Members. Roof Trusses Shall Be Fabricated With Hydraulically Pressed 16 Gage Treated Metal Plates Or 20 Gage Walled Steel Gusset Plates. Connections Shall Be Capable Of Transmitting The Stresses Plus All Eccentricities.

\*Designed by and with seal and signature of a professional engineer registered in the State of Maryland.



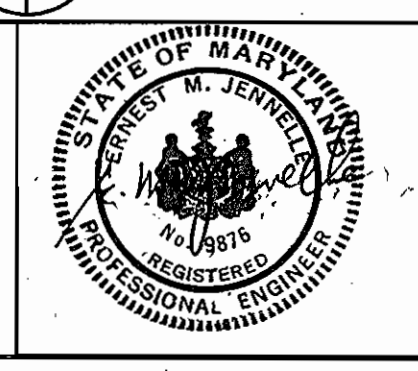
**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

10-24-86  
DATE

10-24-86  
DATE

**DEWBERRY & DAVIS**  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD 21041



|             |    |     |          |      |
|-------------|----|-----|----------|------|
| DES: AME    | BY | NO. | REVISION | DATE |
| DRN: KLT    |    |     |          |      |
| CHK: PKM    |    |     |          |      |
| DATE: 10/85 |    |     |          |      |

**STRUCTURAL FOUNDATION PLAN & GENERAL NOTES**

600' SCALE MAP NO. 30 BLOCK NO. 10

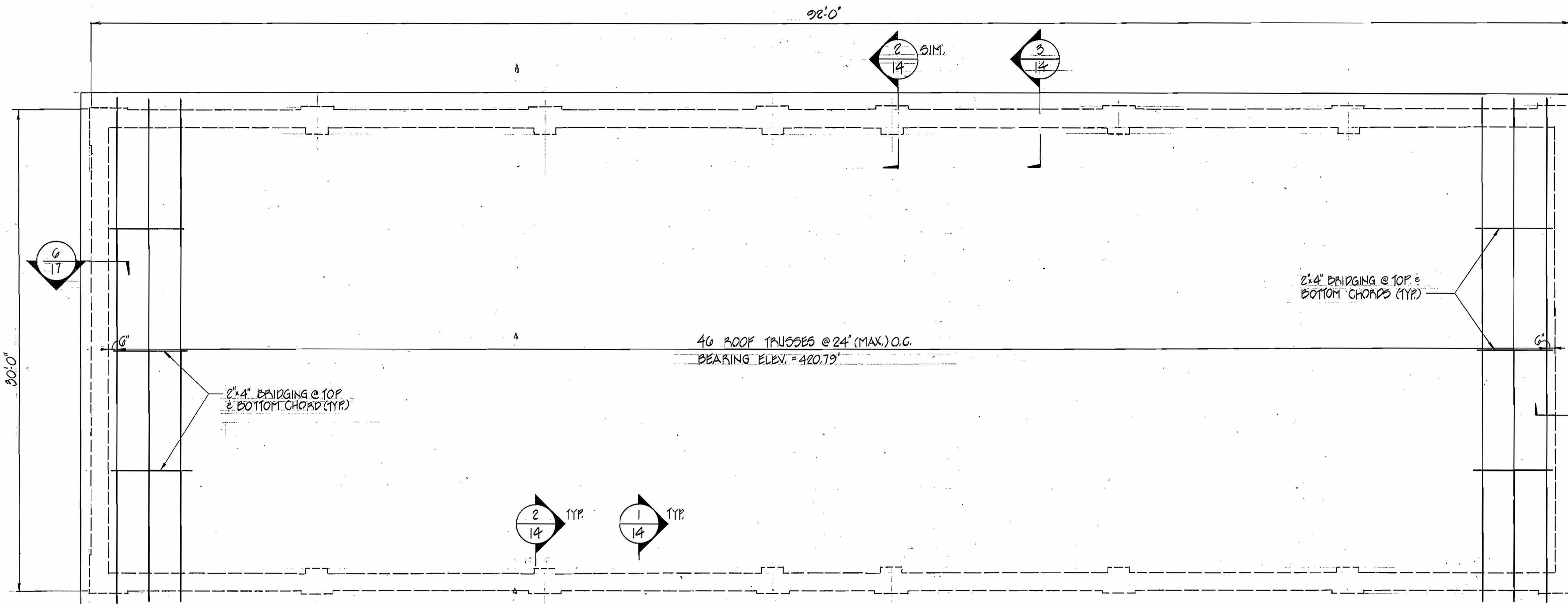
**ROUTE 29 WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368

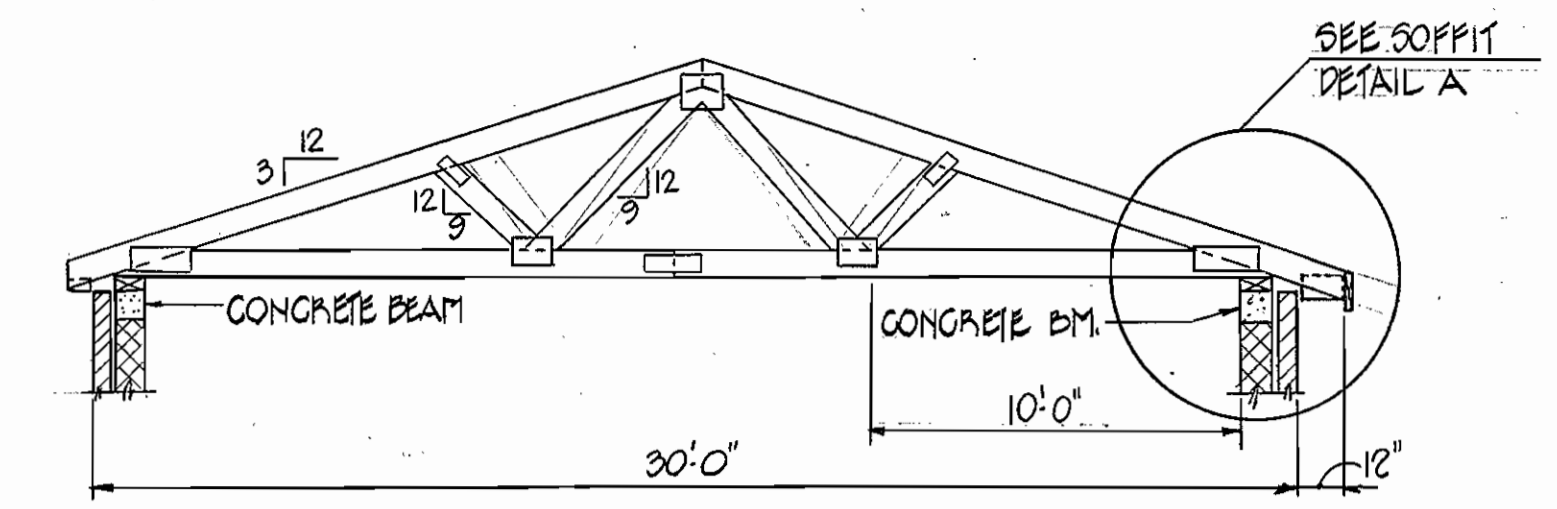
2ND ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 12 OF 24

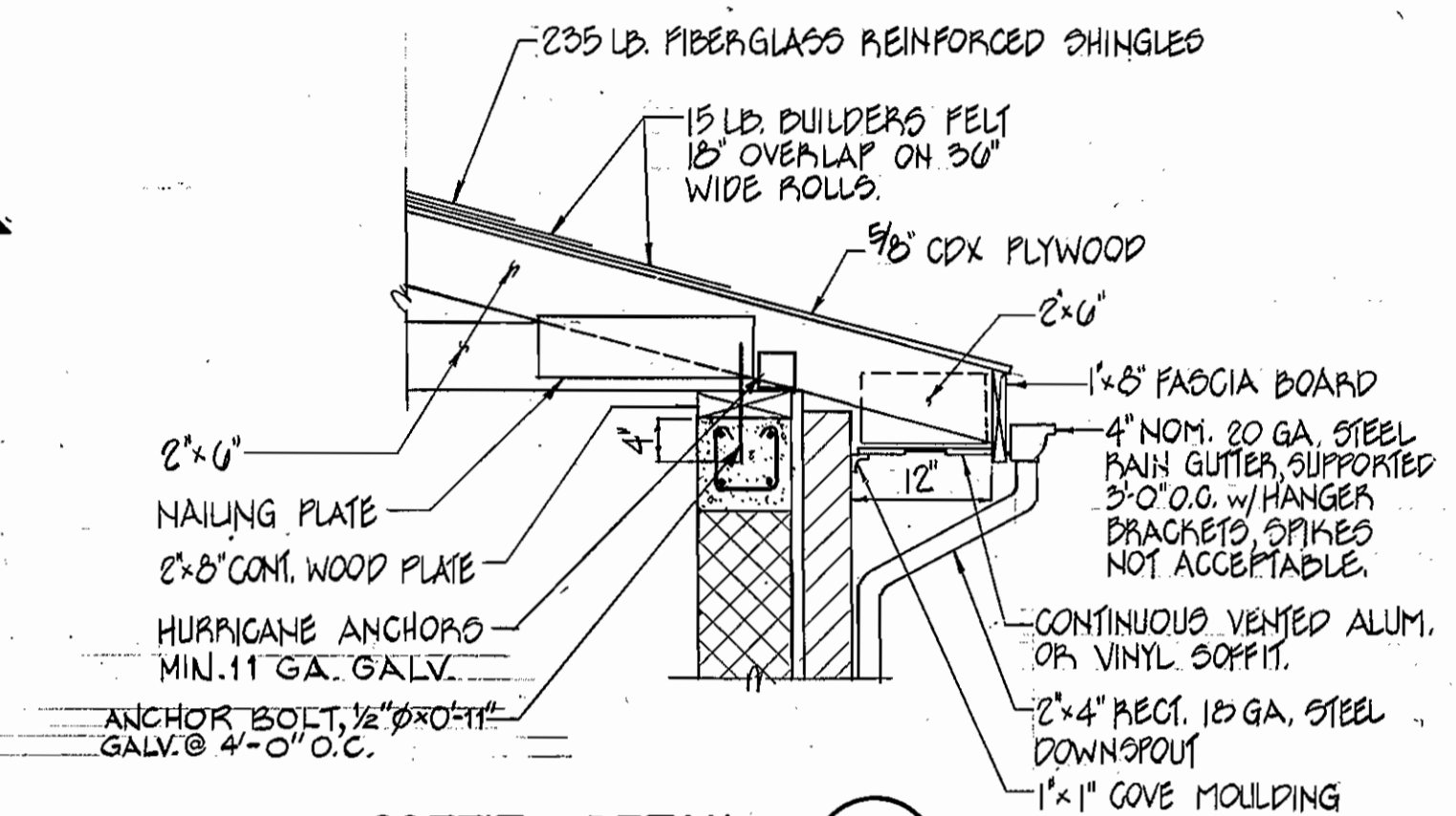
AS-BUILT 4-13-88 C-102



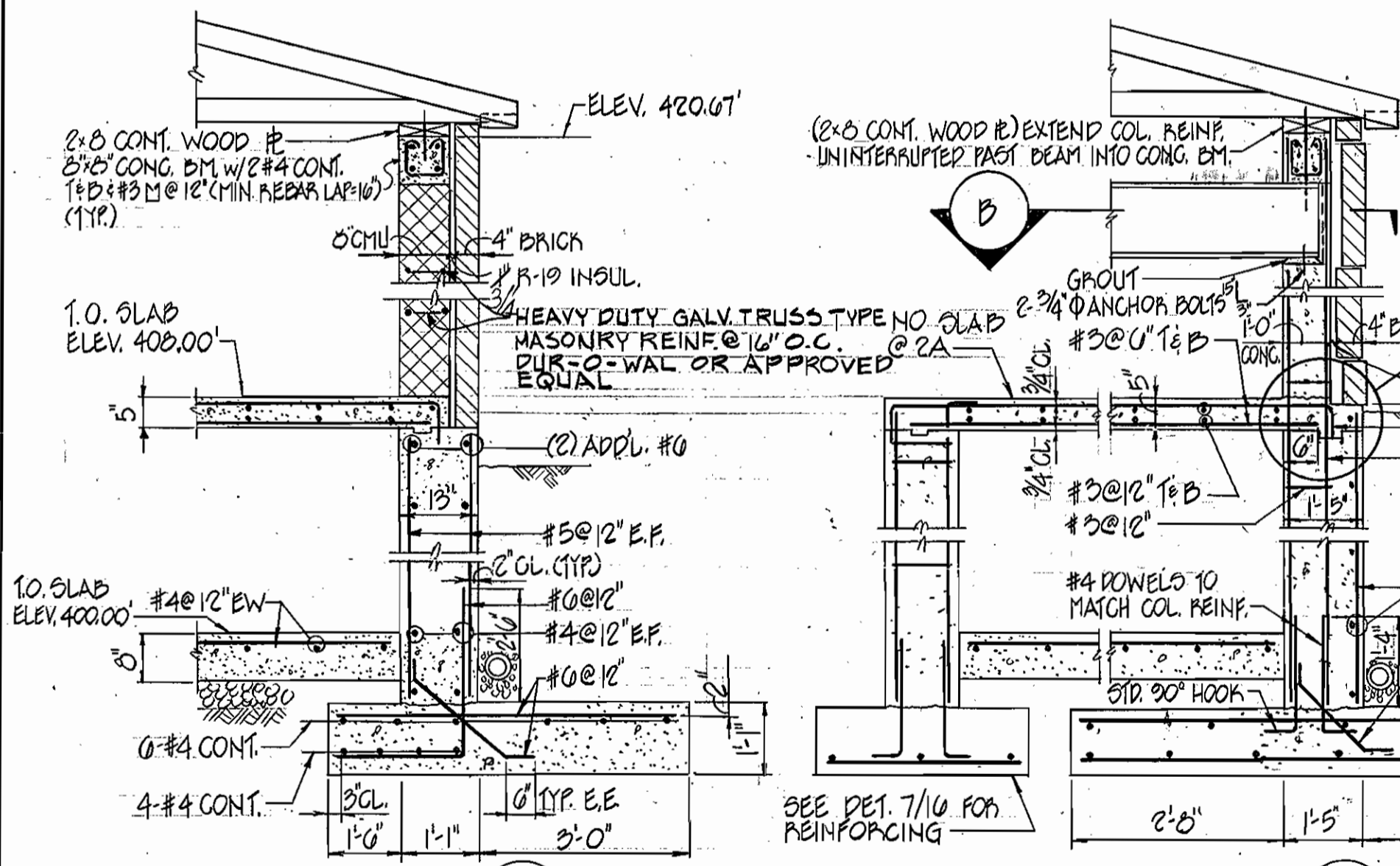
**ROOF PLAN**  
SCALE: 1/4" = 1'-0"



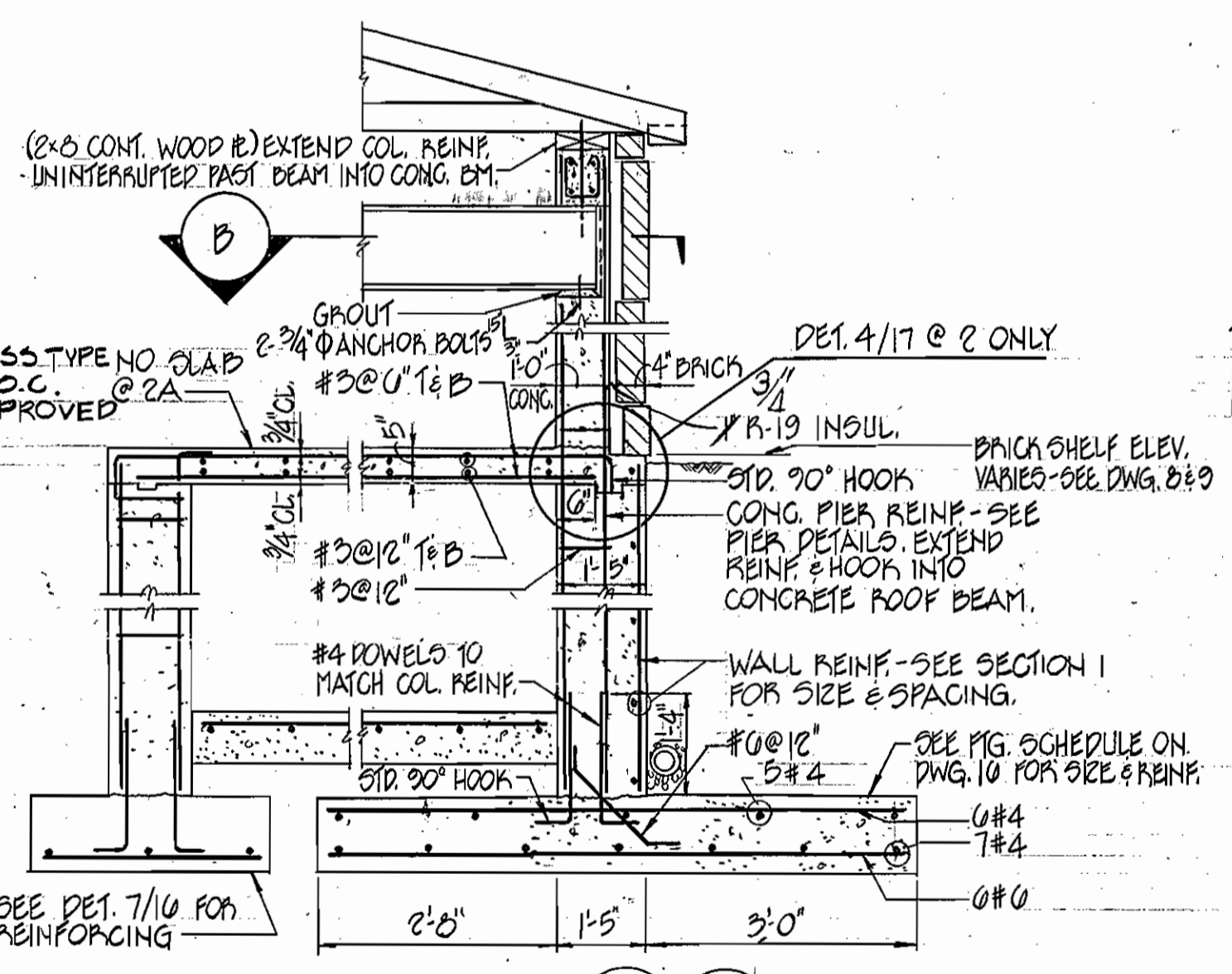
**WOOD ROOF TRUSS DETAIL**  
SCALE: 3/16" = 1'-0"



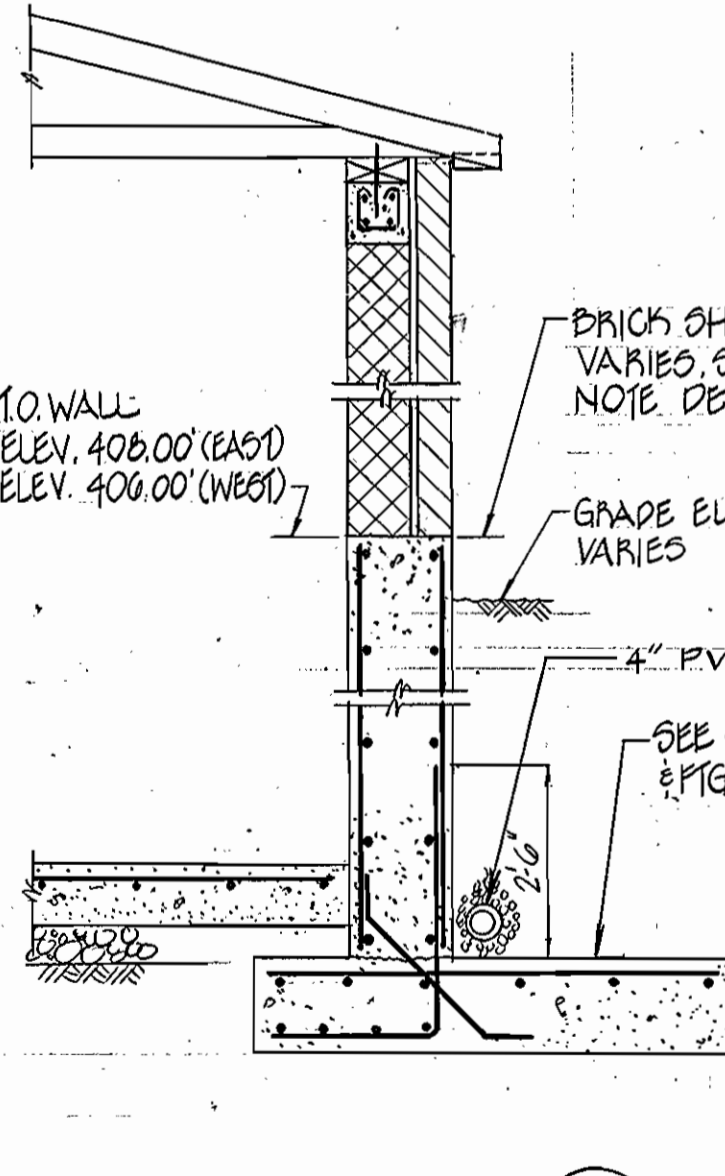
**SOFFIT DETAIL**  
SCALE: 3/4" = 1'-0"



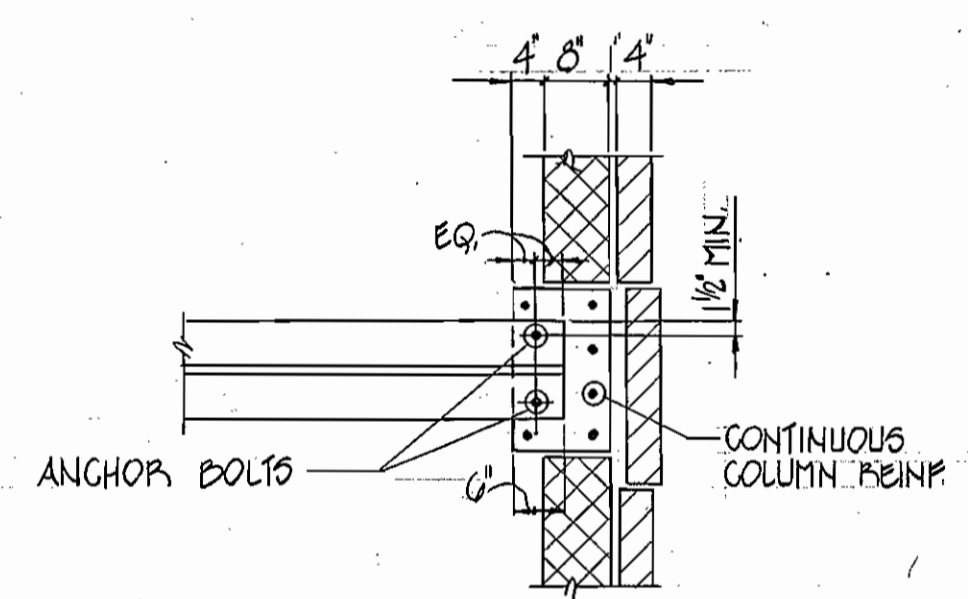
**SECTION 1**  
SCALE: 1/2" = 1'-0"



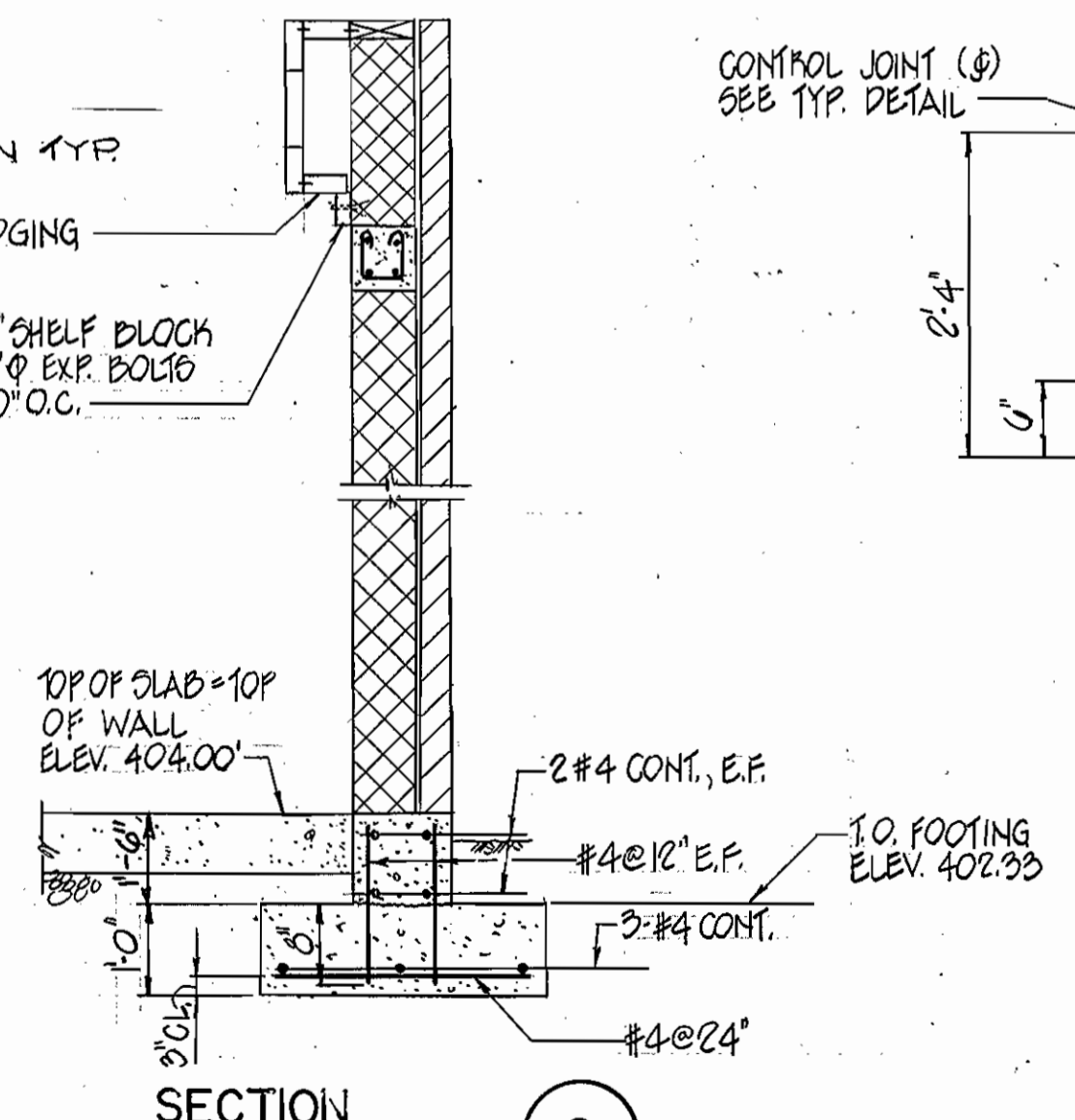
**SECTION 2**  
SCALE: 1/2" = 1'-0"



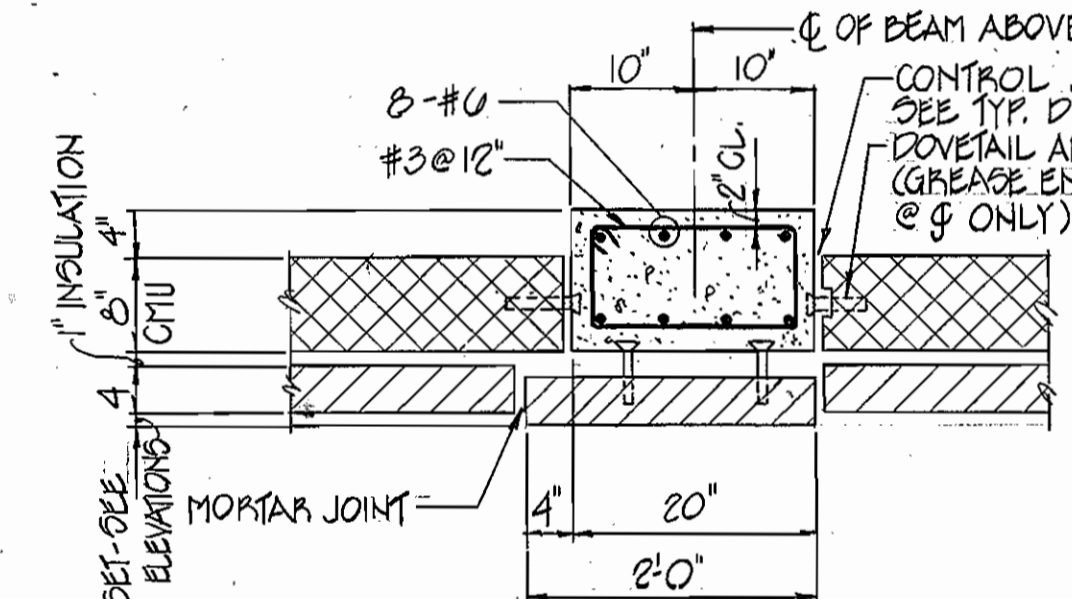
**SECTION 3**  
SCALE: 1/2" = 1'-0"



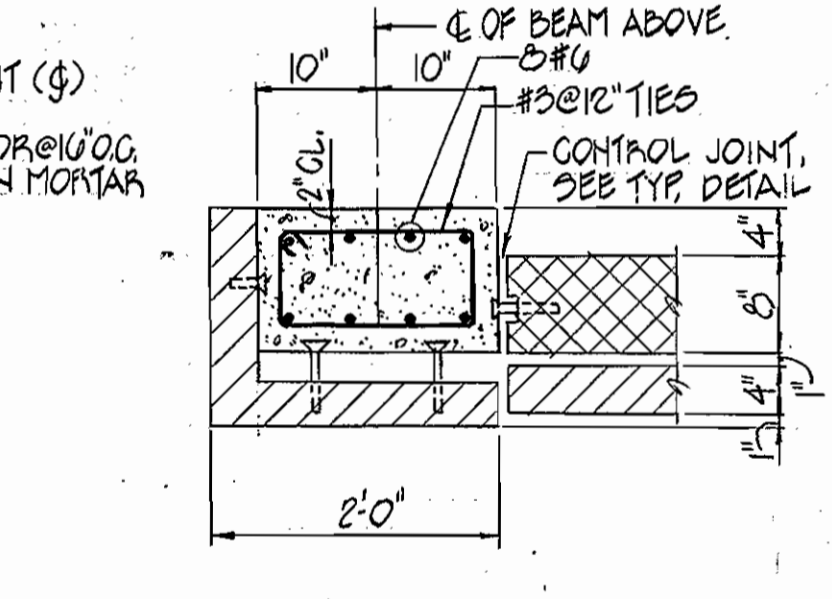
**SECTION B**  
SCALE: 1/2" = 1'-0"



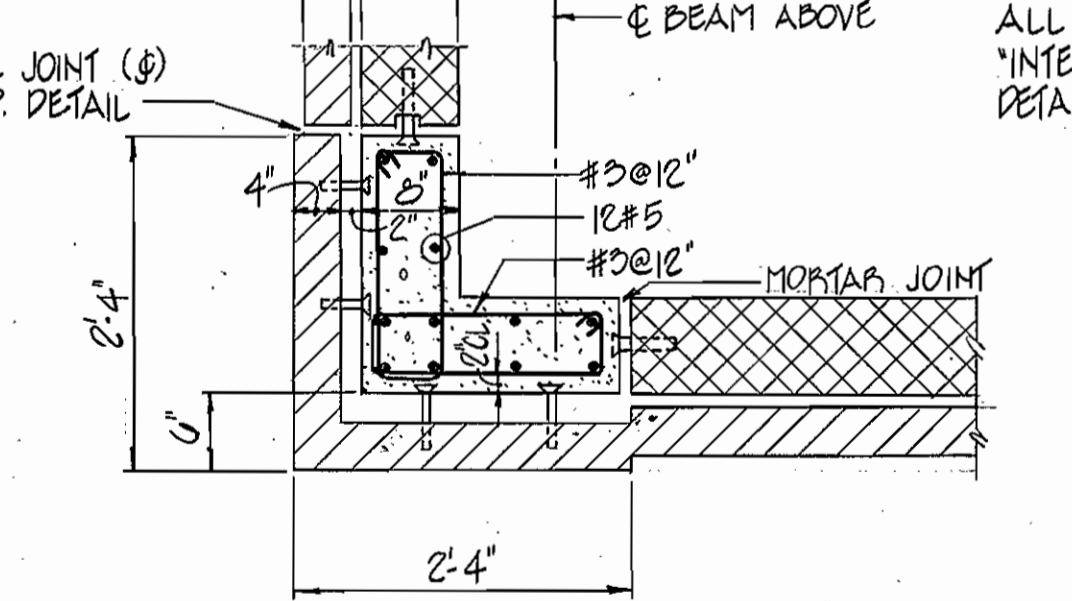
**SECTION 8**  
SCALE: 1/2" = 1'-0"



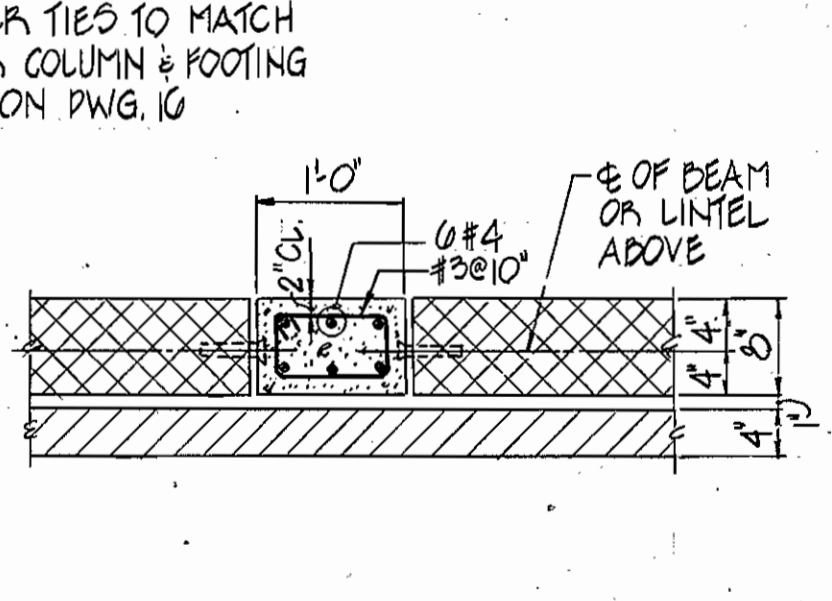
**TYPICAL PIER PLAN w/ C**  
SCALE: 3/4" = 1'-0"



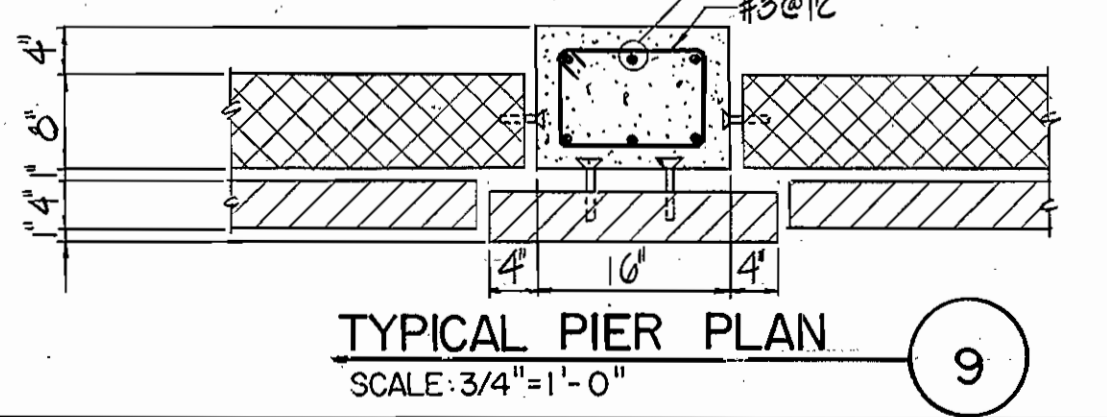
**PIER PLAN @ ENTRANCE**  
SCALE: 3/4" = 1'-0"



**PIER PLAN @ CORNER**  
SCALE: 3/4" = 1'-0"



**PIER PLAN ALONGSIDE ROLLING DOOR**  
SCALE: 3/4" = 1'-0"



**TYPICAL PIER PLAN**  
SCALE: 3/4" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

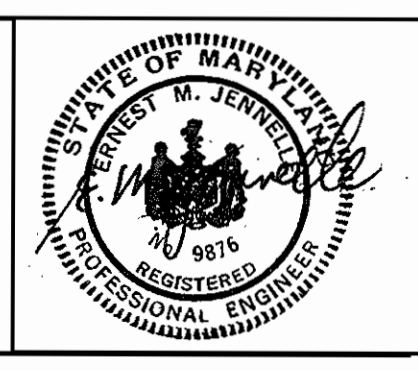
10-24-86  
DATE

20-24-86  
DATE

10-24-86  
DATE

DEWBERRY & DAVIS  
ENGINEERS - ARCHITECTS - PLANNERS - SURVEYORS

2594 Riva Road, Annapolis, MD 21041



|             |        |          |      |
|-------------|--------|----------|------|
| DES: AME    |        |          |      |
| DRN: KLT    |        |          |      |
| CHK: PKM    |        |          |      |
| DATE: 10/85 | BY NO. | REVISION | DATE |

STRUCTURAL ROOF PLAN & SECTIONS

600' SCALE MAP NO. 30 BLOCK NO. 10

ROUTE 29  
WATER PUMPING STATION

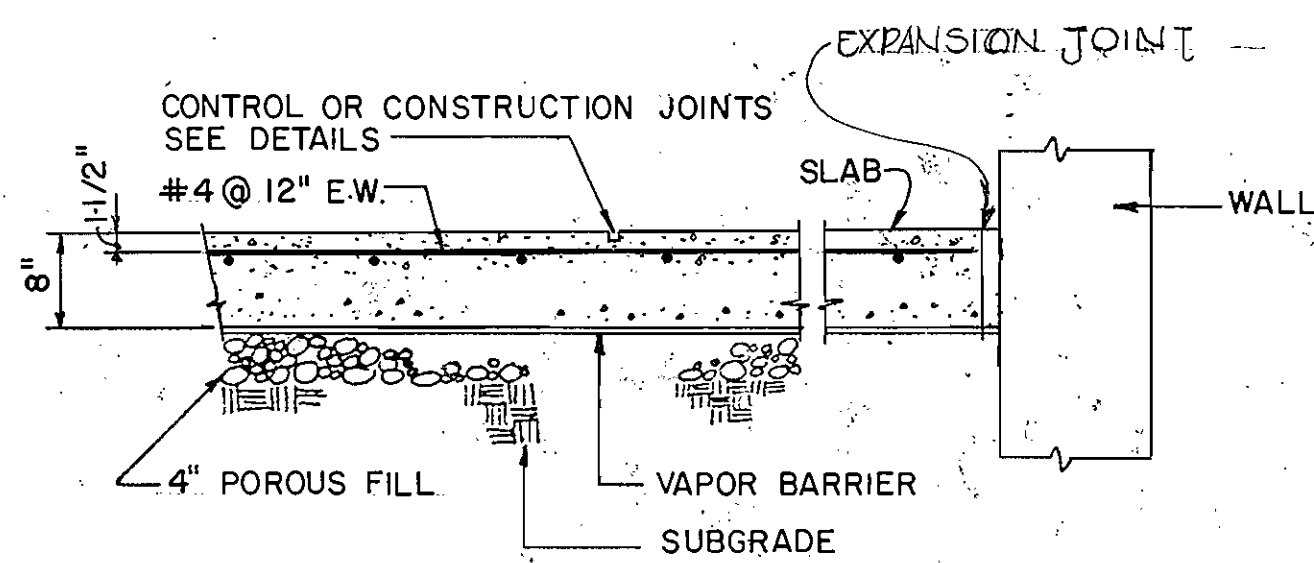
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368

2ND ELECTION DISTRICT, HOWARD CO., MD.

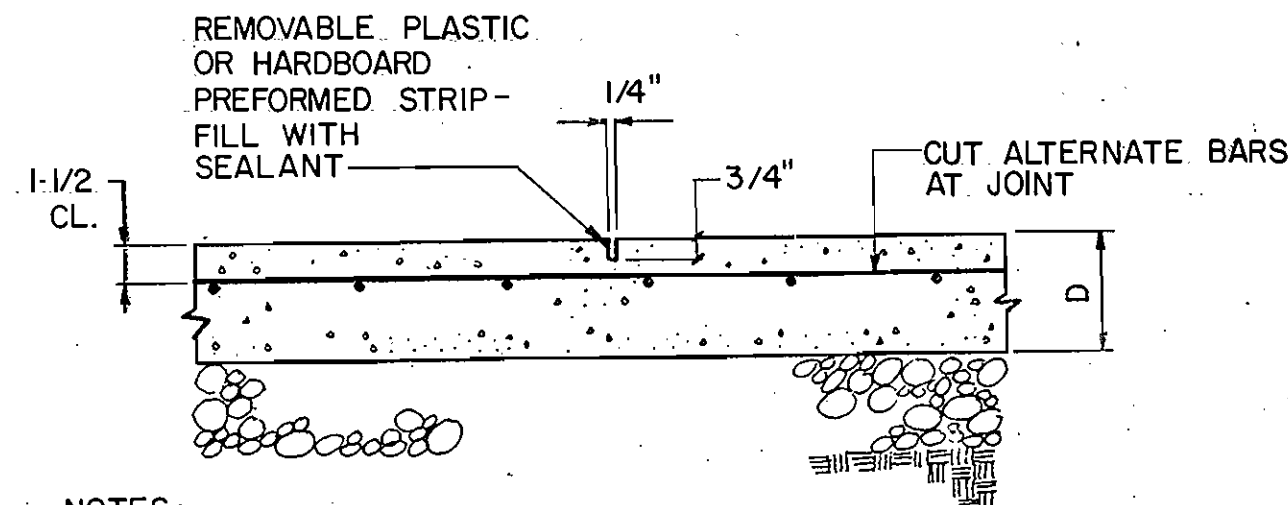
SCALE AS SHOWN

SHEET 14 OF 24

AS-BUILT 4-13-88

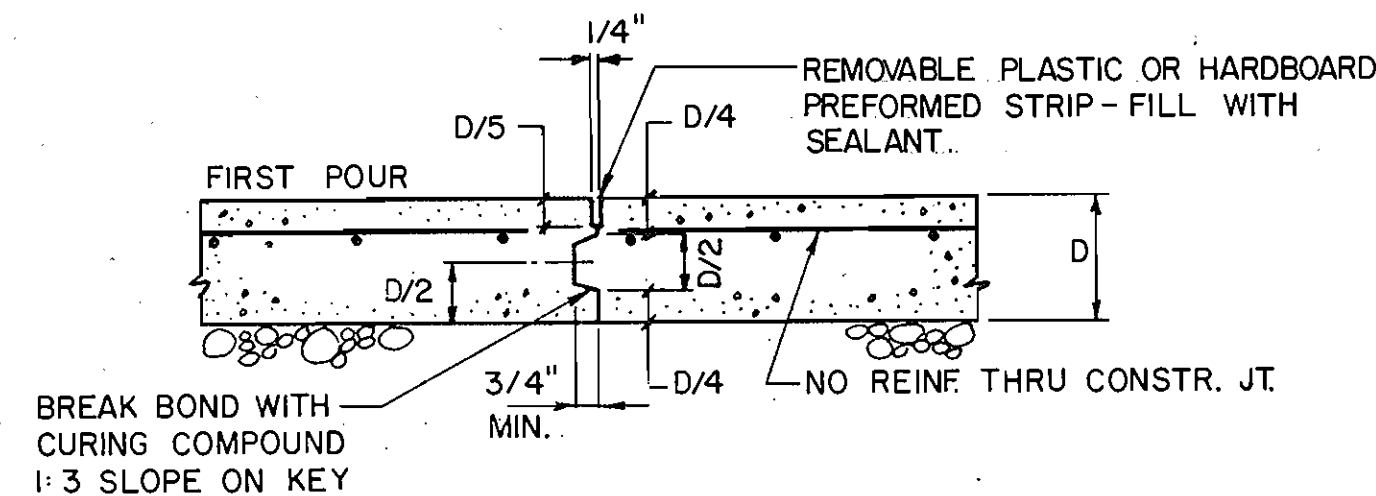


NOTES:  
 1. SEE FOUNDATION PLAN FOR SEQUENCE OF PLACING SLAB AND LOCATION OF JOINTS.  
 2. PROVIDE SUPPORTS TO HOLD REINFORCING IN POSITION.  
 3. POROUS FILL TO BE SHA #6 STONE  
**INTERIOR SLAB ON GRADE**  
 SCALE: 3/4"=1'-0"



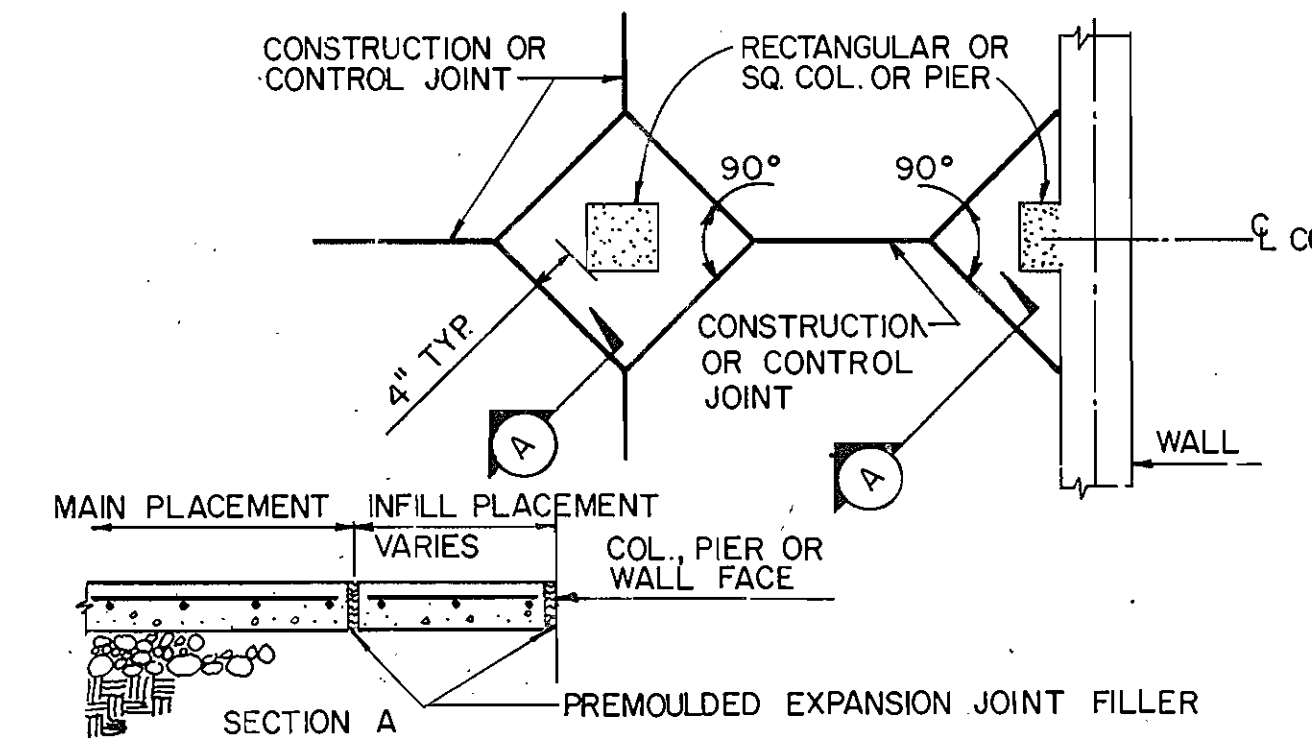
NOTES:  
 1. SEE FOUNDATION PLAN FOR LOCATION OF CONTROL JOINTS.  
 2. CONSTRUCTION JOINT MAY REPLACE CONTROL JOINT.  
 3. CONTROL JOINT TO BE FORMED WHILE CONCRETE IS STILL PLASTIC OR SAW CUT WITHIN 8 HOURS AFTER PLACEMENT OF CONCRETE.  
 4. FILL JOINT WITH SEALANT AFTER SLAB HAS CURED.  
 5. FOR SIDEWALK AND EXTERIOR SLAB-ON-GRADE PROVIDE CONTROL JOINTS AT 5'-0" O.C. MAX.

**CONTROL JOINT**



NOTES:  
 1. SEE FOUNDATION PLAN FOR LOCATION OF CONSTRUCTION JOINTS.  
 2. CONSTRUCTION JOINTS TO BE ARRANGED TO LIMIT THE AREA OF ANY CONCRETE PLACEMENT TO 5,000 S.F. SUCCESSIVE SLAB PLACEMENTS TO BE IN CHECKER BOARD OR LANE PATTERN.  
 3. FOR SIDEWALK AND EXTERIOR SLAB-ON-GRADE PROVIDE CONSTRUCTION JOINTS AT 20'-0" O.C. MAX.

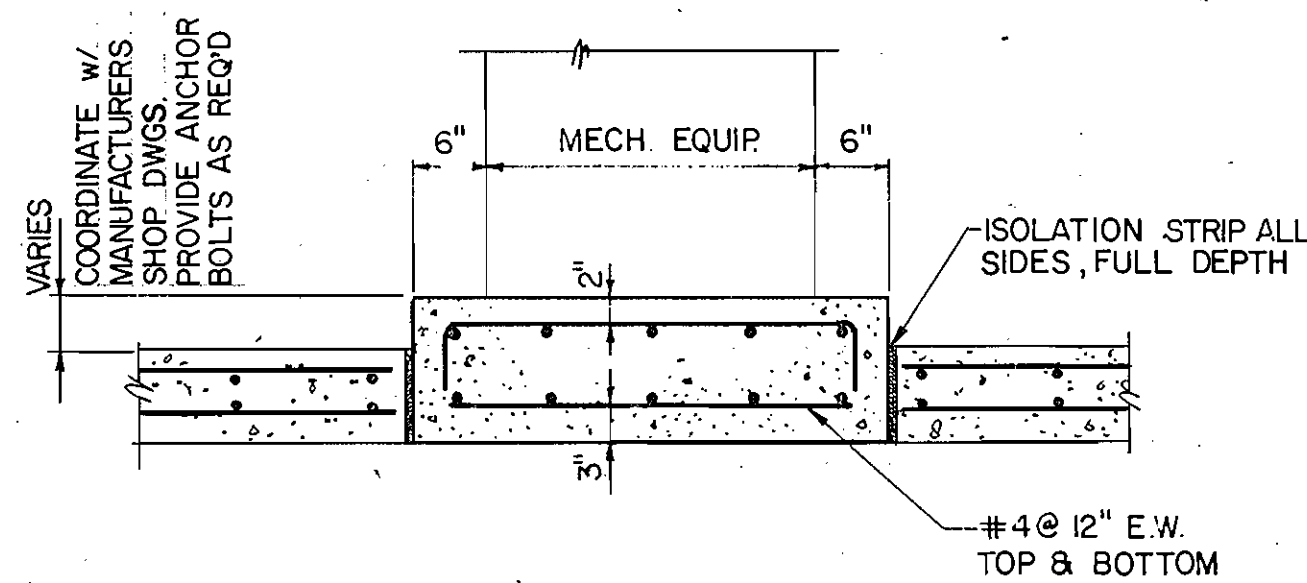
**CONSTRUCTION JOINT**



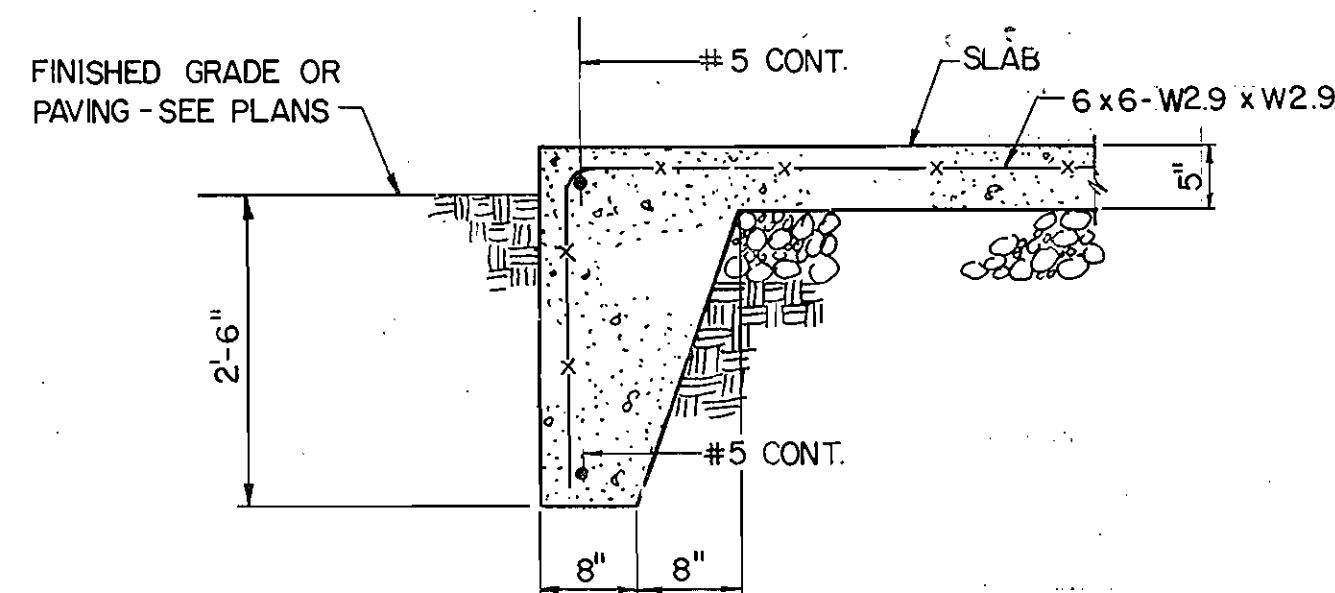
**ISOLATION JOINTS FOR SLAB ON GRADE AT COLUMNS AND PIER**  
 SCALE: 3/8"=1'-0"

**SLAB ON GRADE JOINTS**

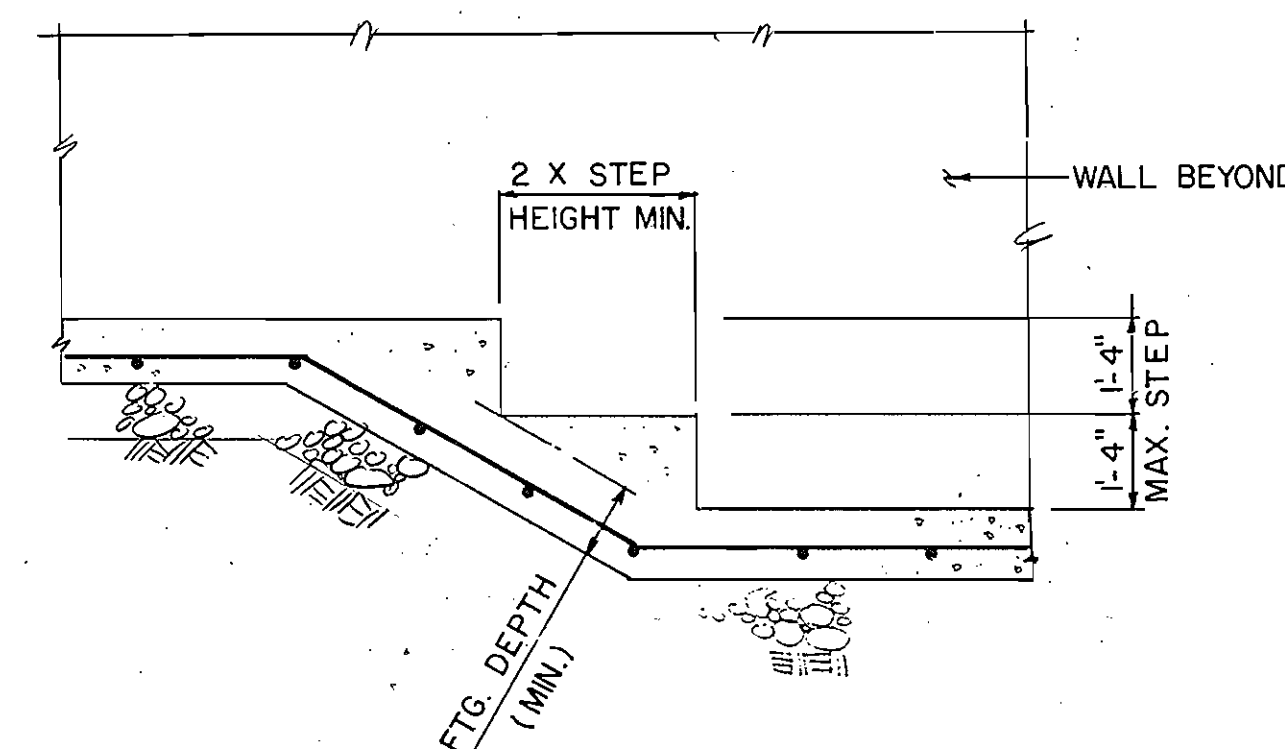
SCALE: 1"=1'-0"



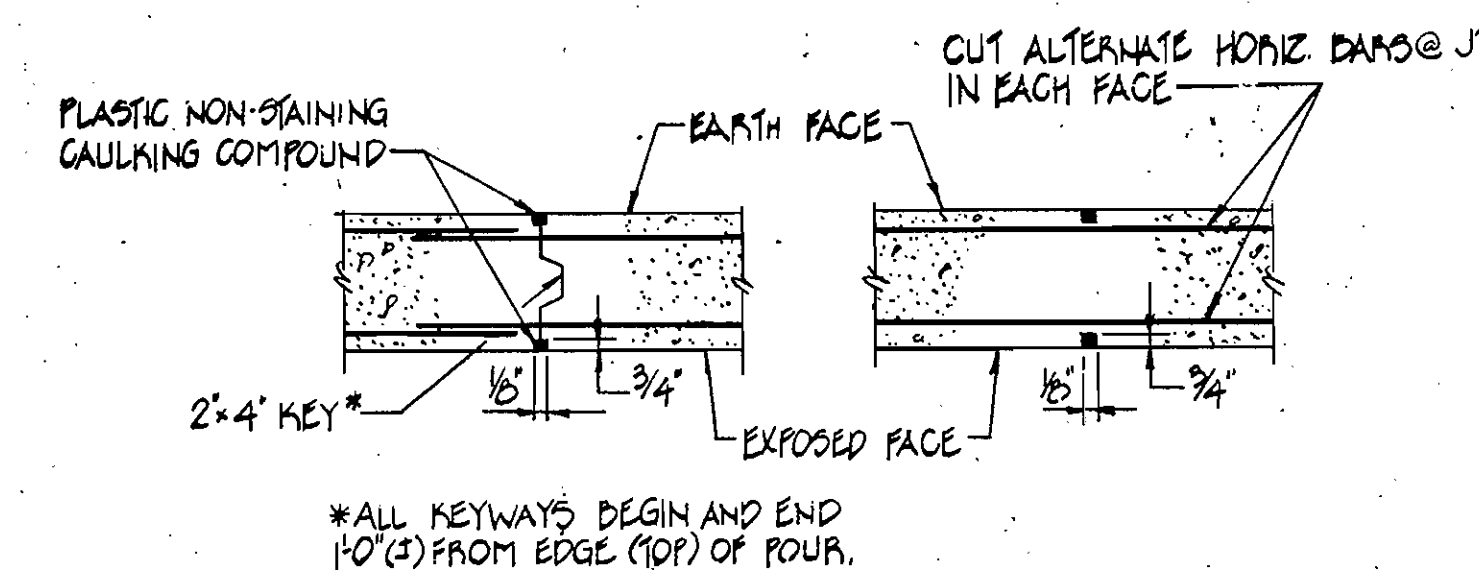
**MECH. EQUIP. PAD DETAIL**  
 SCALE: 3/4"=1'-0"



**EXTERIOR SLAB EDGE**  
 SCALE: 3/4"=1'-0"

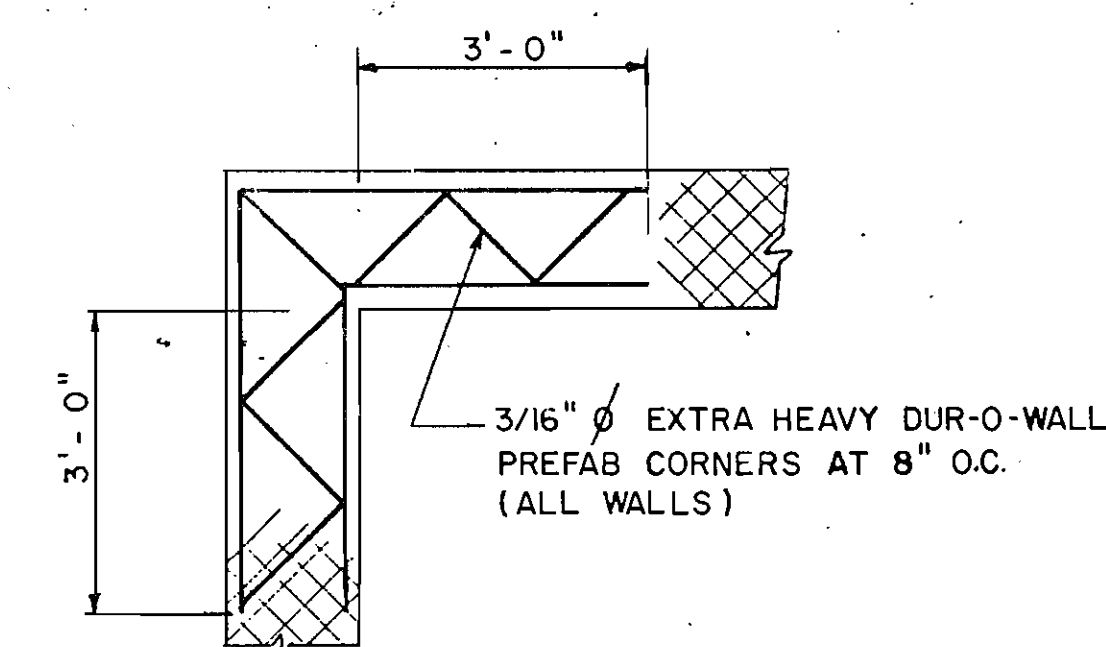


**STEPPED FOOTING DETAIL**  
 NO SCALE

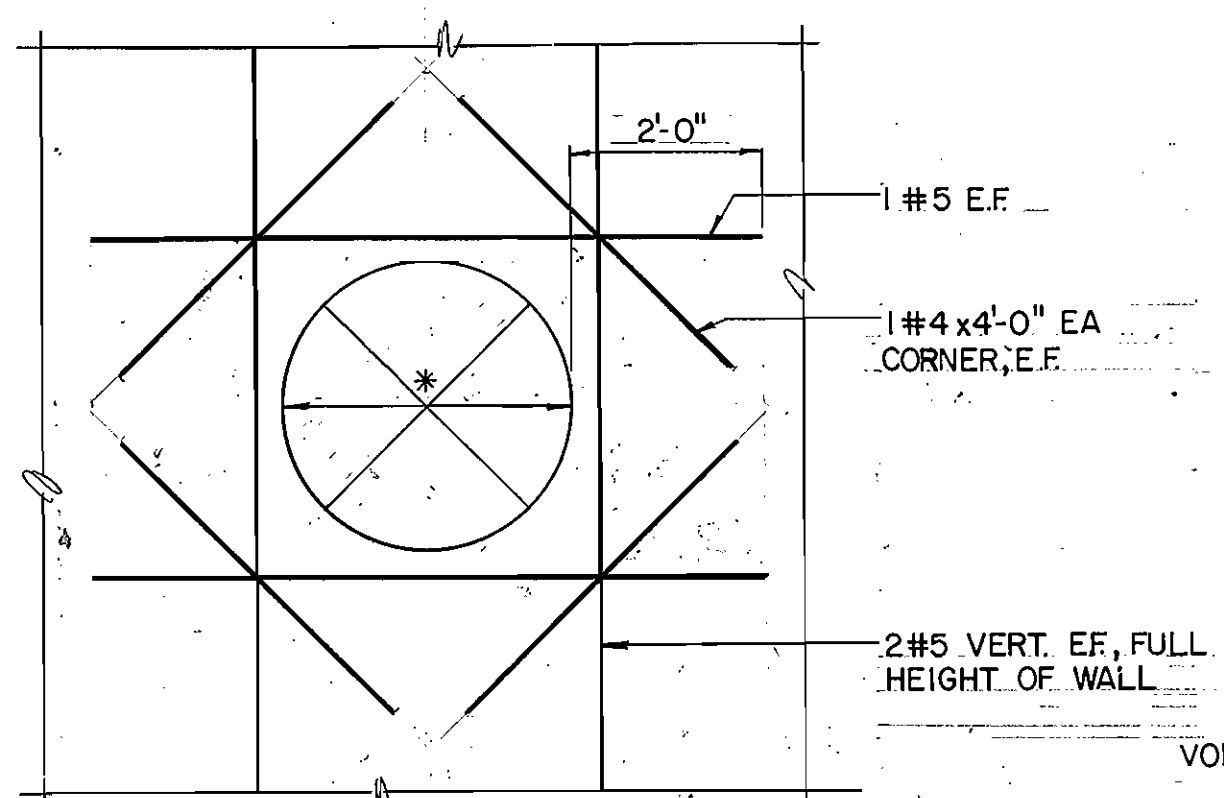


**CONSTRUCTION JOINT** CONSTRUCTION JOINT MAY REPLACE CONTROL JOINT.  
**CONTROL JOINT** PROVIDE CONTROL JOINT @ INTERVALS NOT TO EXCEED 30'

**CONCRETE WALL JOINTS**  
 SCALE: 3/4"=1'-0"

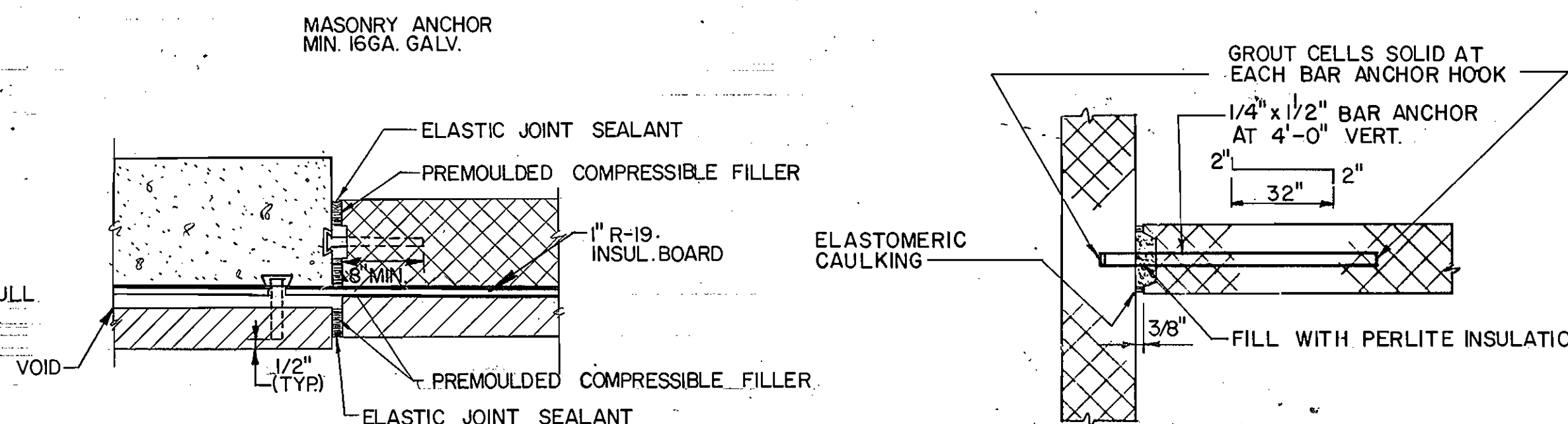


**CORNER REINFORCING DETAIL**  
 SCALE: 1/2"=1'-0"

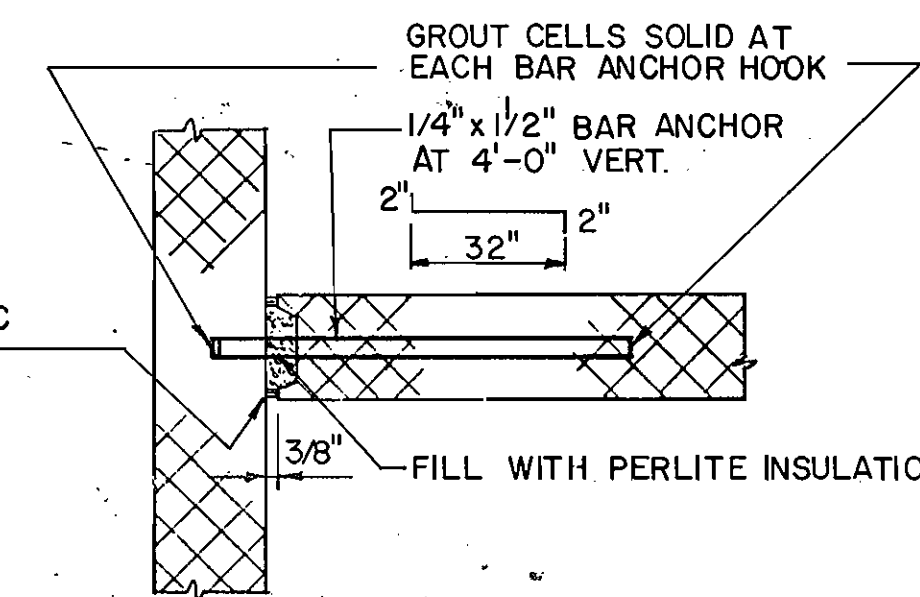


\* SEE DET. 9 / DWG. 17 FOR SECTION THROUGH WALL OPENING AT PIPE PENETRATION.

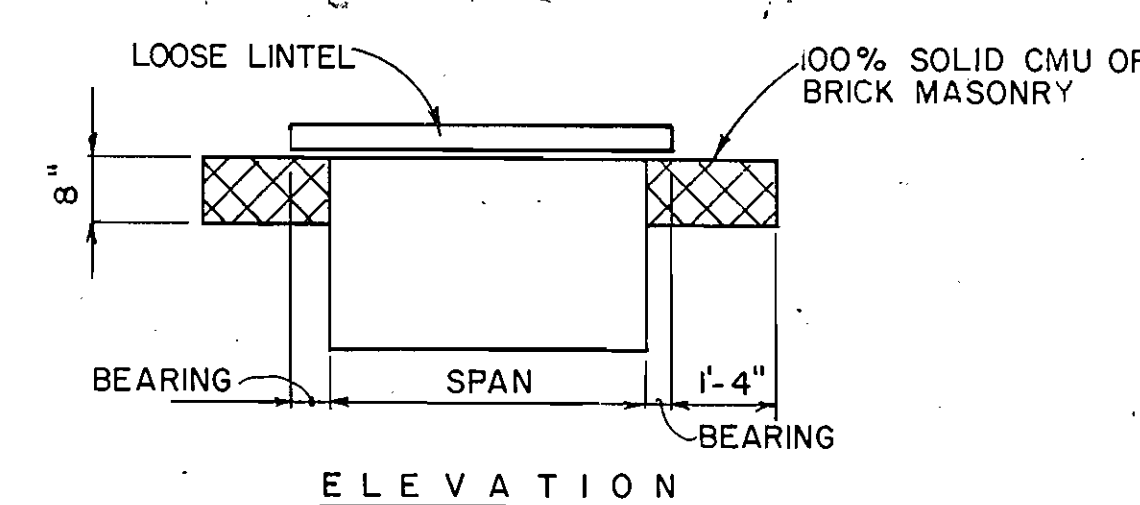
**OPENING IN CONCRETE WALL**  
 SCALE: 1/2"=1'-0"



**TYPICAL MASONRY WALL CONTROL JOINT**  
 SCALE: 1"=1'-0"



**DETAIL AT INTERSECTING WALLS**  
 SCALE: 3/4"=1'-0"

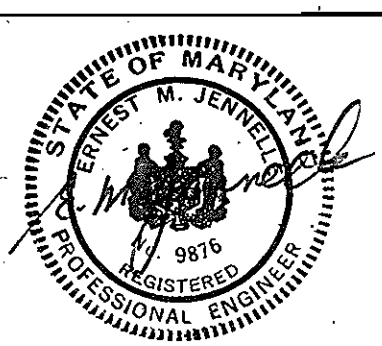


| STEEL ANGLE |                |                    |                  |         |
|-------------|----------------|--------------------|------------------|---------|
|             | SPAN           | SIZE/4" WYTHE      | SIZE/6" WYTHE    | BEARING |
| L-1         | 8" TO 5'-0"    | L 3/2 x 3/2 x 5/16 | L 5 x 3/2 x 3/16 | 5"      |
| L-2         | 5'-1" TO 8'-0" | L 4 x 3 1/2 x 5/16 | L 5 x 5 x 5/16   | 6"      |

**LOOSE LINTEL SCHEDULE & DETAIL**

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works  
 Chief, Bureau of Engineering  
 Chief, Utilities Design Division

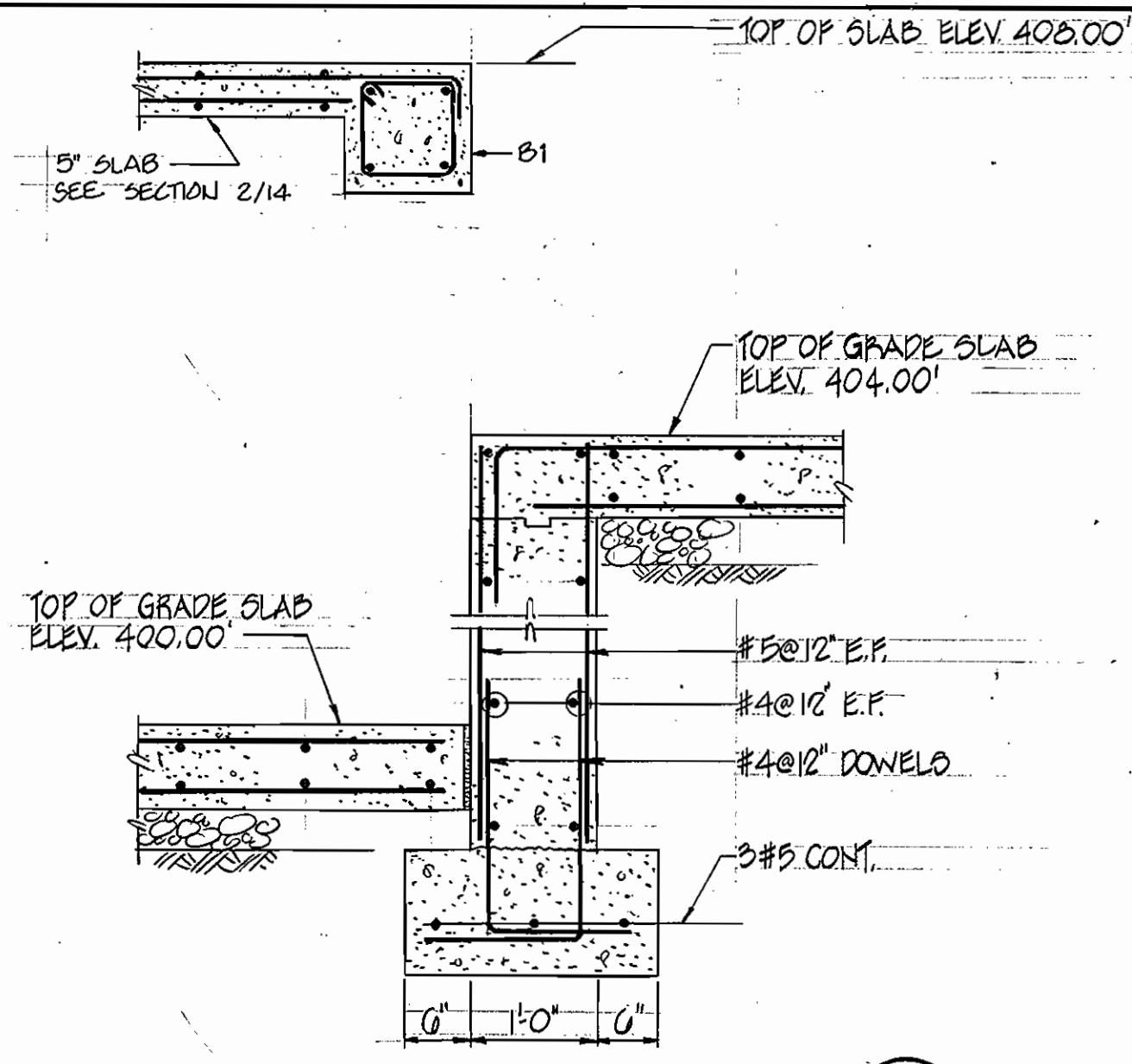
DEWBERRY & DAVIS  
 ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS  
 2594 Riva Road, Annapolis, MD 21041



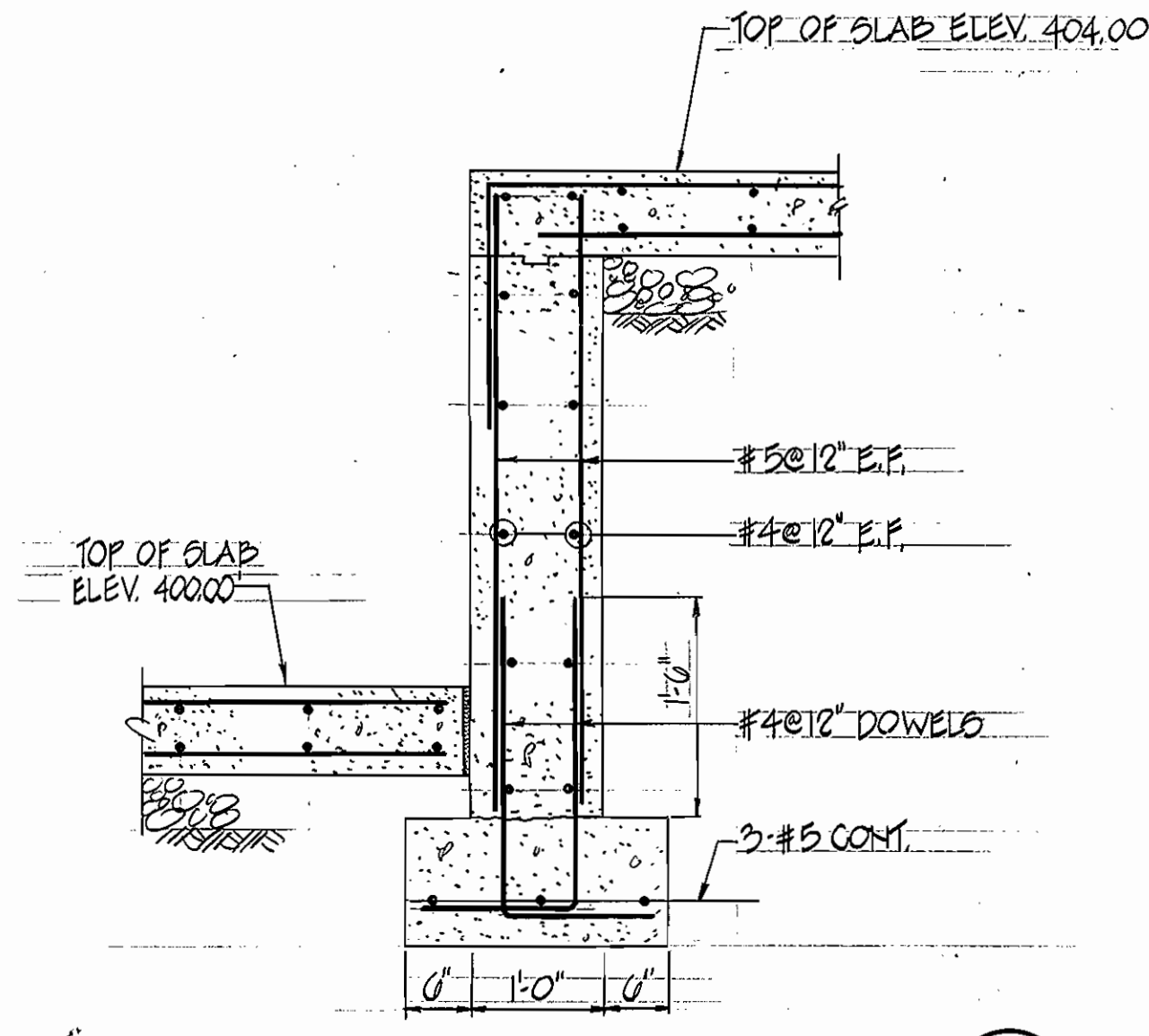
|             |    |     |          |
|-------------|----|-----|----------|
| DES: AME    |    |     |          |
| DRN: KLT    |    |     |          |
| CHK: PKM    |    |     |          |
| DATE: 10/85 | BY | NO. | REVISION |

STRUCTURAL:  
 TYPICAL DETAILS  
 600' SCALE MAP NO. 30 BLOCK NO. 10

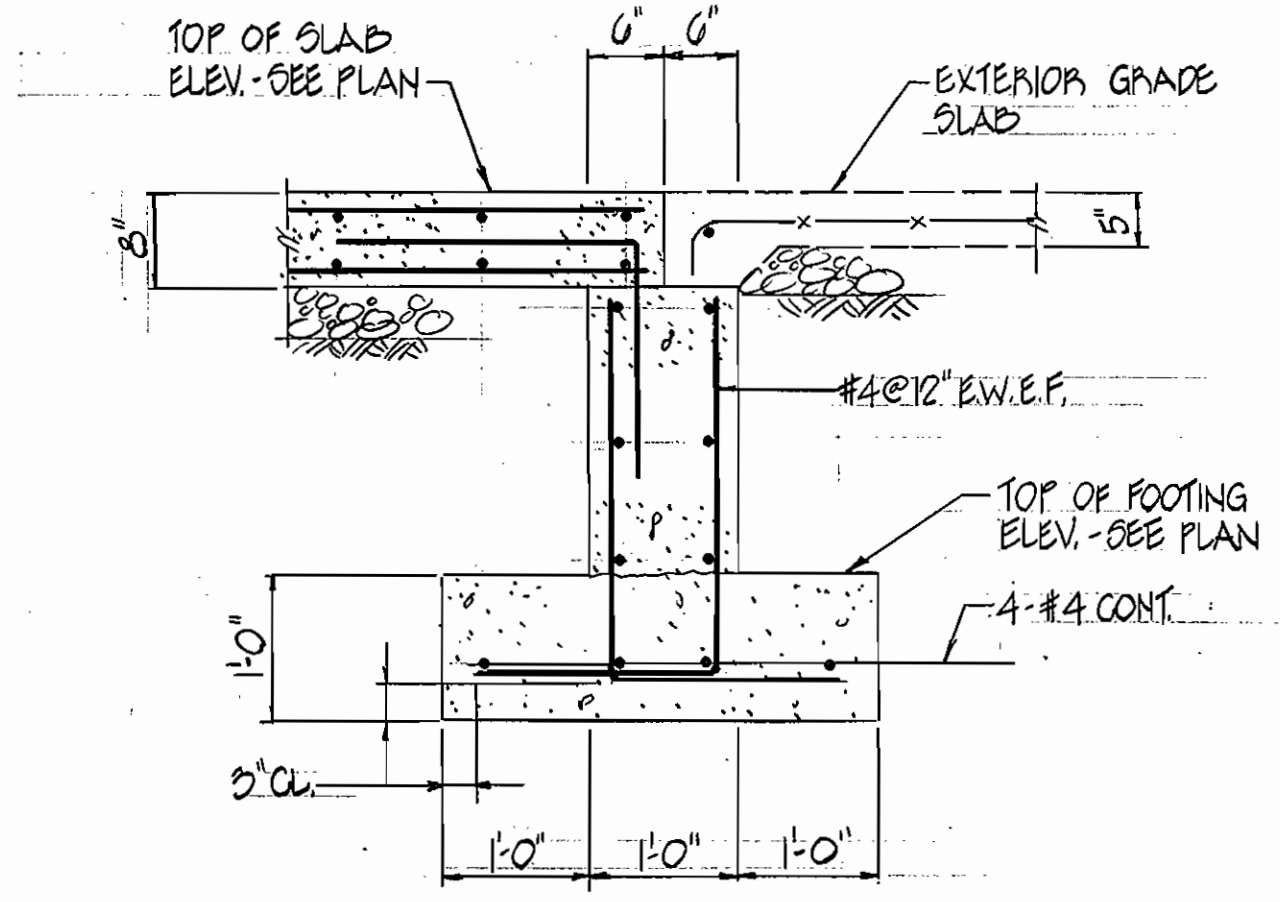
ROUTE 29  
 WATER PUMPING STATION  
 CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2ND ELECTION DISTRICT, HOWARD CO., MD  
 SCALE AS SHOWN  
 SHEET 12 OF 24  
 AS-BUILT 4-13-88



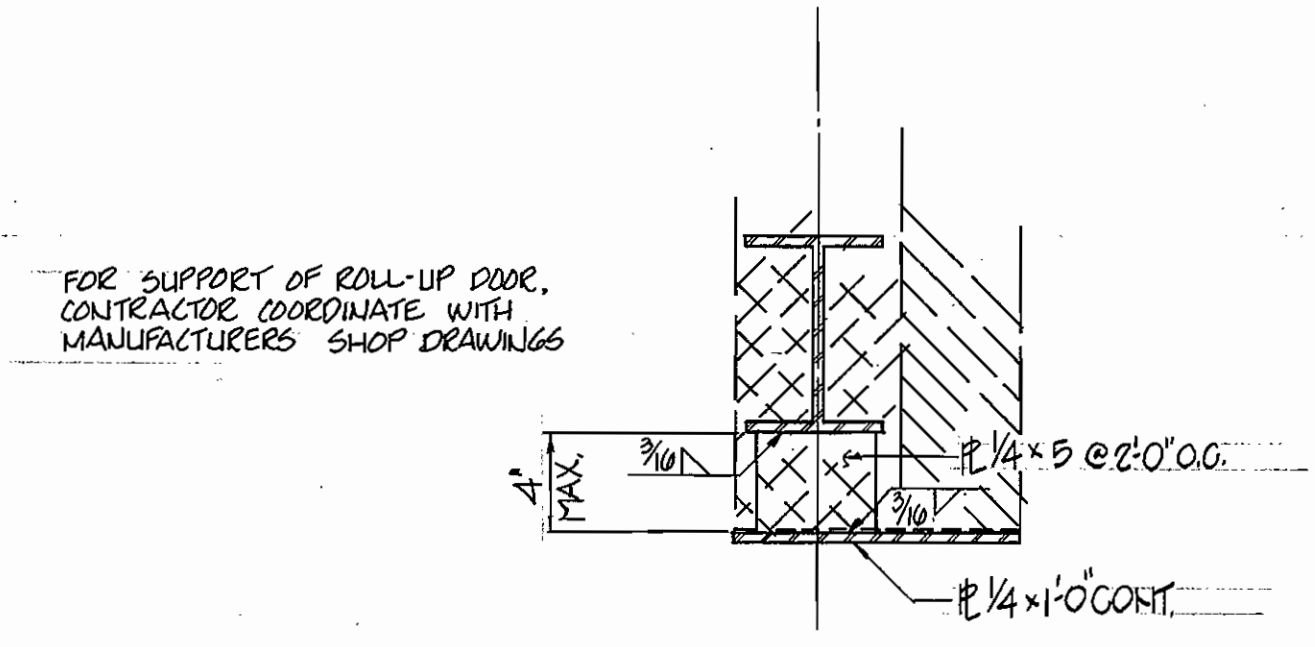
FOUNDATION WALL @ LOADING DOCK (1)  
SCALE: 3/4"=1'-0"



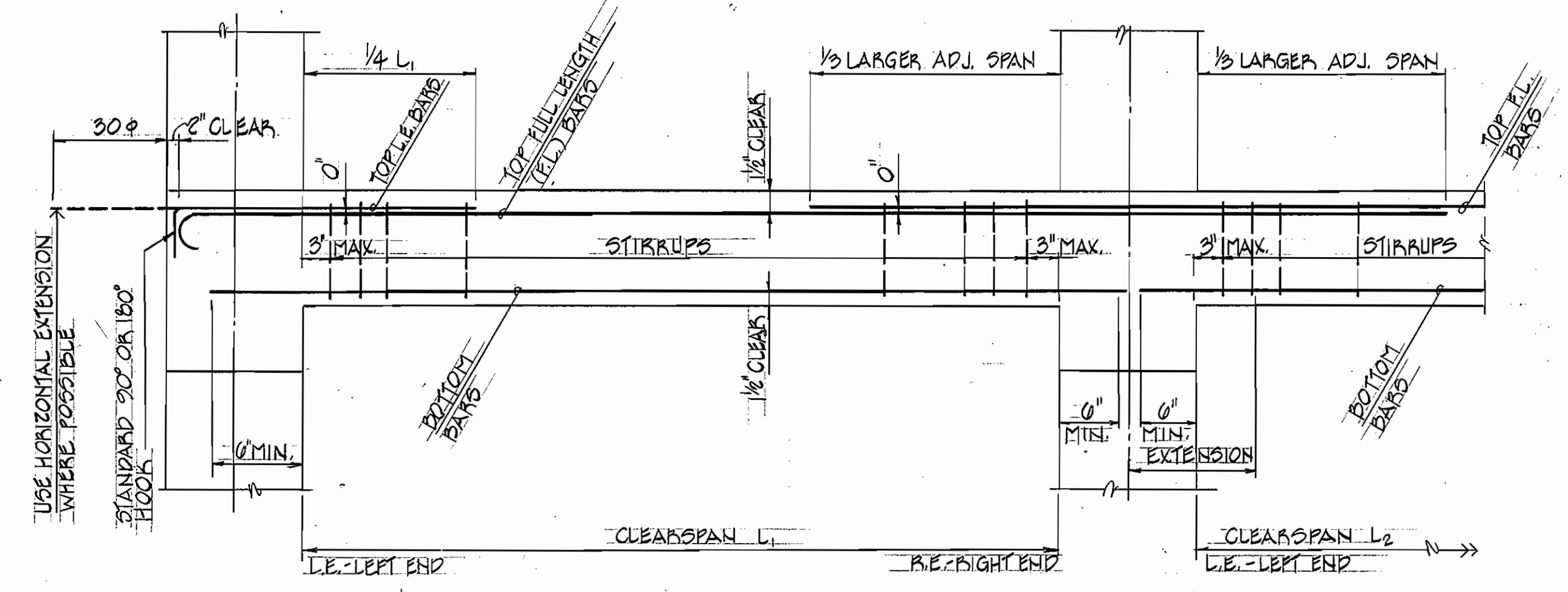
FOUNDATION WALL @ LOADING DOCK (2)  
SCALE: 3/4"=1'-0"



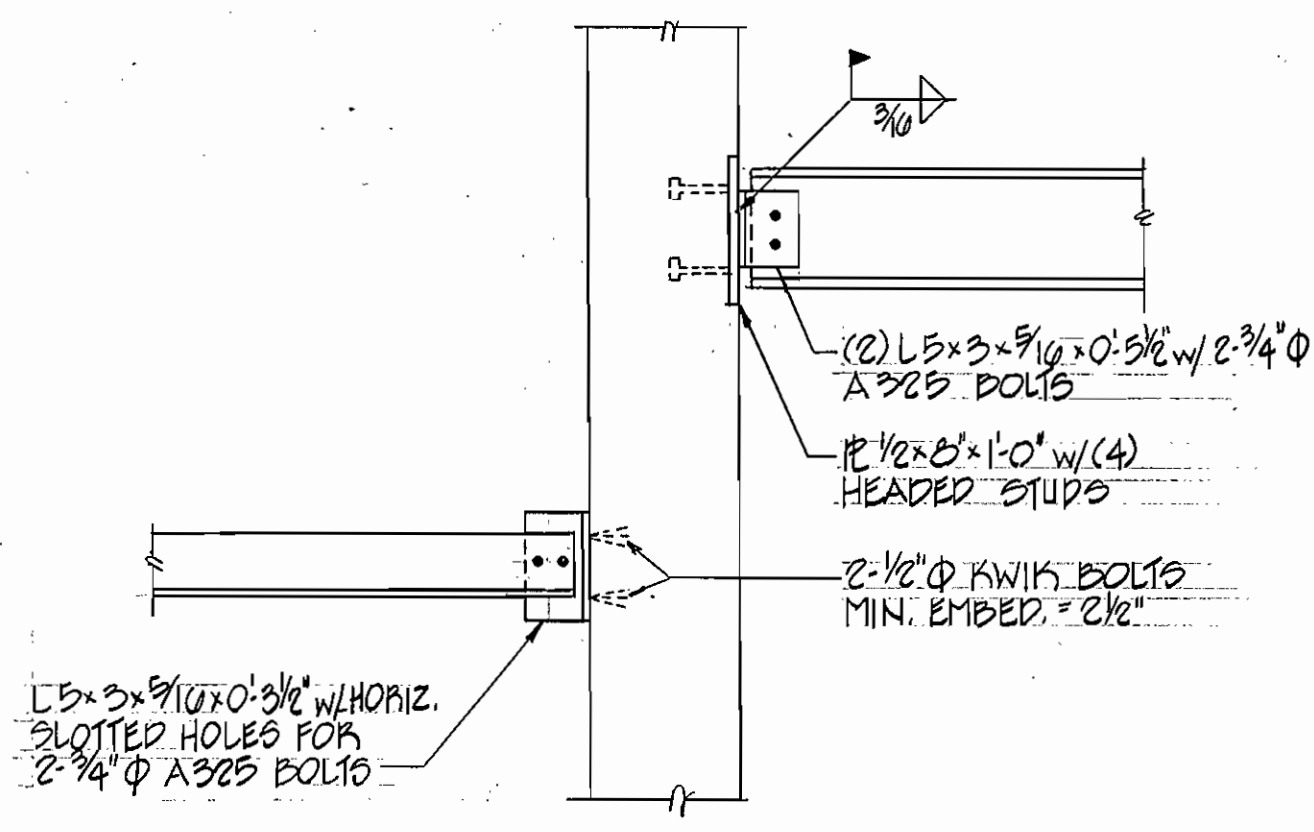
FOUNDATION WALL @ DOOR (3)  
SCALE: 3/4"=1'-0" (SOUTH END OF BLDG.)



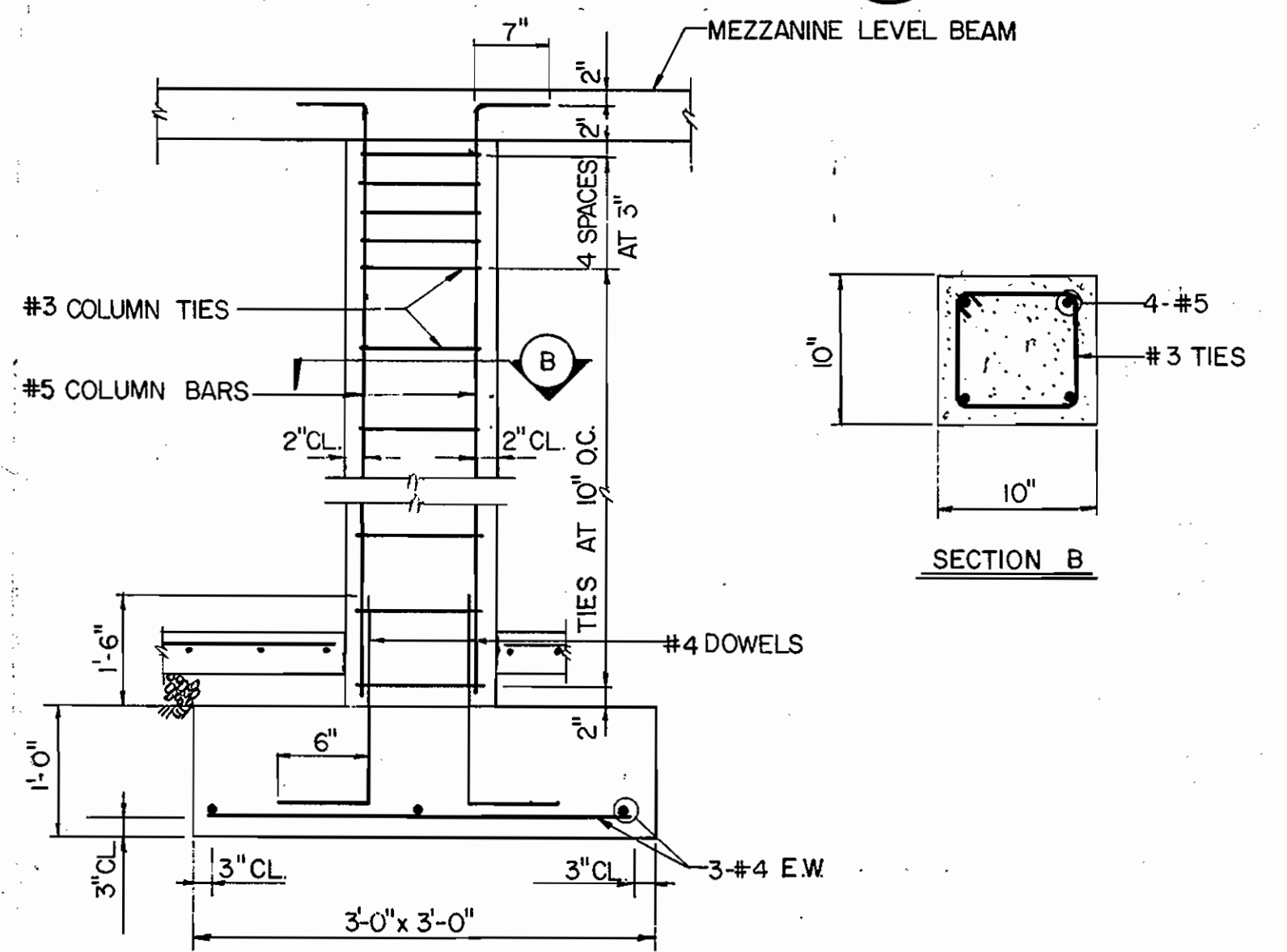
LINTEL DETAIL (4)  
SCALE: 1/2"=1'-0"



BEAM BAR BENDING AND PLACING DETAIL (5)  
N.T.S.



LINTEL CONNECTION AT PIER (6)  
SCALE: 3/4"=1'-0"



INTERIOR COLUMN & FOOTING DETAIL (7)  
SCALE: 3/4"=1'-0"

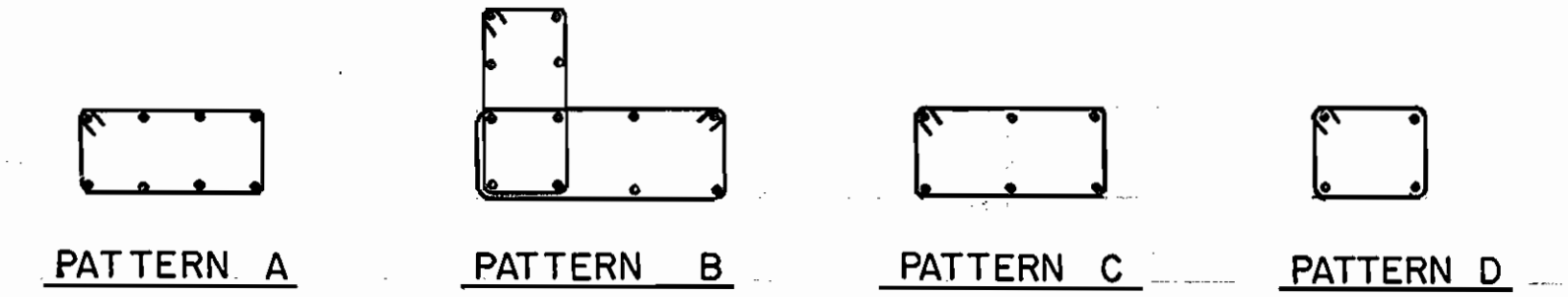
| CONCRETE BEAM SCHEDULE |      |    |             |          |      |          |      |         |                |         |  |
|------------------------|------|----|-------------|----------|------|----------|------|---------|----------------|---------|--|
| MARK                   | SIZE |    | REINFORCING |          |      | STIRRUPS |      |         |                | REMARKS |  |
|                        | W    | D  | BOTT. BARS  | TOP BARS |      | SIZE     | TYPE | SPACING | END            |         |  |
| B-1                    | 10   | 12 | 2-#4        | -        | 2-#4 | -        | #3   | □       | 10", 30", K12" | EE      |  |
| B-2                    | 10   | 12 | 2-#4        | -        | 2-#4 | -        | #3   | □       | 10", 30", K12" | EE      |  |
| B-3                    | 10   | 12 | 2-#4        | -        | -    | -        | #3   | □       | 10", 30", K12" | EE      |  |
| B-4                    | 10   | 12 | 2-#4        | -        | 2-#4 | -        | #3   | □       | 10", 30", K12" | EE      | EXTEND ALL REIN THROUGH CANTILEVER END |

SEE BEAM BAR BENDING & PLACING DETAIL ABOVE FOR LENGTH & LOCATION OF BEAM REINFORCING.

| COLUMN FOOTING SCHEDULE |                    |        |       |  |  |
|-------------------------|--------------------|--------|-------|--|--|
| FOOTING MARK            | FOOTING DIMENSIONS |        |       | FOOTING REINFORCEMENT  |  |
|                         | WIDTH              | LENGTH | DEPTH |  |  |
| F-1                     | 5'-0"              | 3'-0"  | 1'-0" | 3-#4 E.W., BOTTOM  |  |
| F-2                     | 5'-0"              | 7'-1"  | 1'-1" | 4-#6 LW, BOTTOM<br>7-#4 SW, BOTTOM<br>4-#4 LW, TOP, 2-#4 SW, TOP |  |
| F-3                     | 4'-0"              | 4'-1"  | 1'-0" | 4-#4 E.W., BOTTOM  |  |
| F-4                     | 5'-0"              | 5'-0"  | 1'-0" | 5-#4 E.W., BOTTOM  |  |
| F-5                     | 8'-8"              | 8'-8"  | 1'-1" | 9-#4 E.W., TOP & BOT.  |  |

ALL FOOTINGS ARE CENTERED ABOUT PIER & UNLESS DIMENSIONED OTHERWISE ON THE PLANS.

| PIER SCHEDULE |               |               |         |        |           |
|---------------|---------------|---------------|---------|--------|-----------|
| MARK          | DIMENSIONS    | VERT. REIN F. | PATTERN | TIES   | REMARKS   |
| P-1           | 12" x 20"     | 8-#6          | A       | #3@12" | DET. 4/14 |
| P-2           | 12" x 20"     | 8-#6          | A       | #3@12" | DET. 5/14 |
| P-3           | 8" x 22" x 8" | 12-#5         | B       | #3@12" | DET. 6/14 |
| P-4           | 8" x 12"      | 6-#4          | C       | #3@10" | DET. 7/14 |
| P-5           | 12" x 16"     | 6-#6          | C       | #3@12" | DET. 9/14 |
| P-6           | 10" x 10"     | 4-#5          | D       | #3@10" | DET. 7/10 |



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
DATE: 10-24-86  
CHIEF, BUREAU OF UTILITIES

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS  
2594 Riva Road, Annapolis, MD 21041



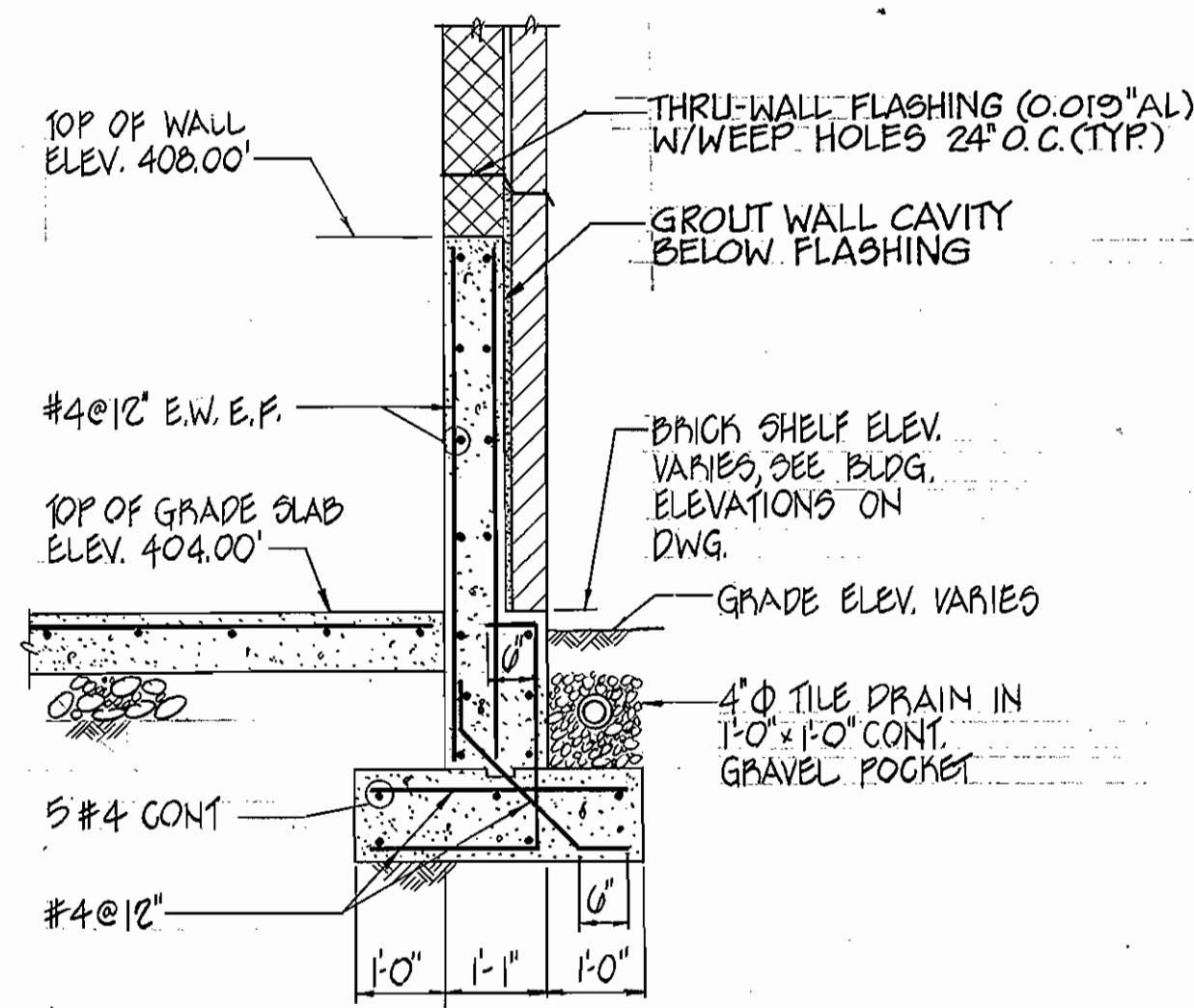
|             |  |
|-------------|--|
| DES: AME    |  |
| DRN: KLT    |  |
| CHK: PKM    |  |
| DATE: 10/85 |  |

STRUCTURAL:  
SCHEDULES & DETAILS  
600' SCALE MAP NO. 30 BLOCK NO. 10

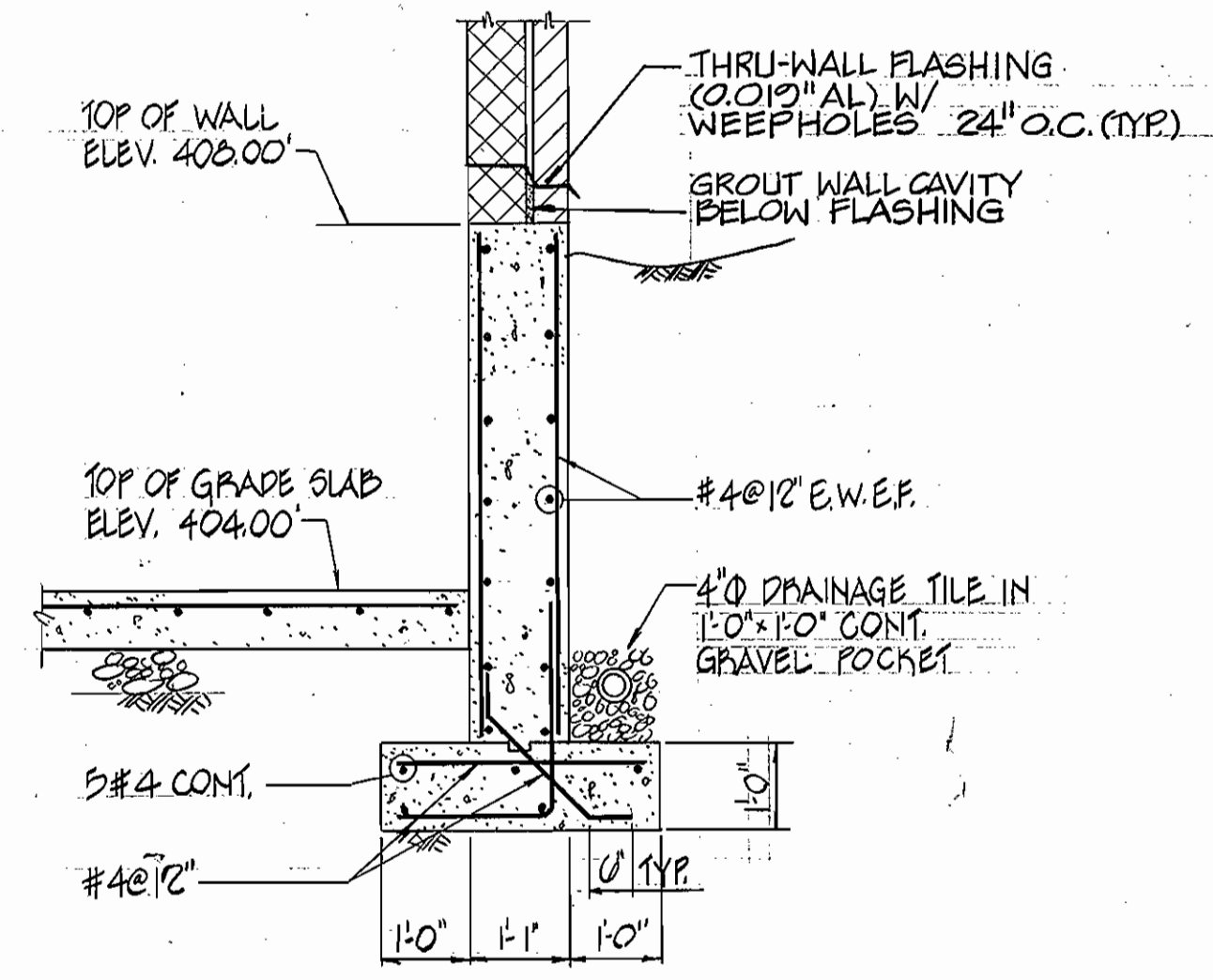
ROUTE 29  
WATER PUMPING STATION  
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
SHEET 16 OF 24

SCALE AS SHOWN

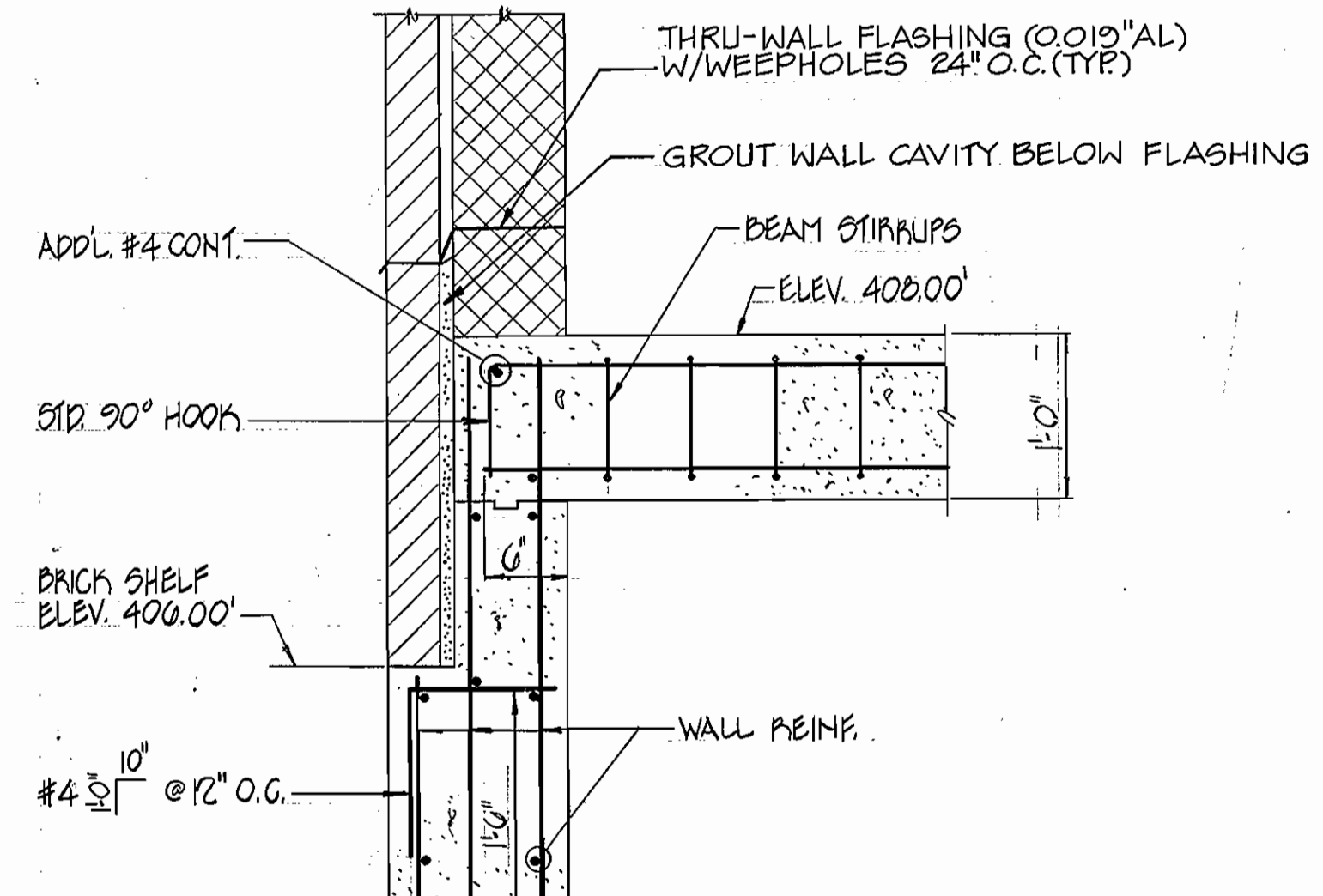




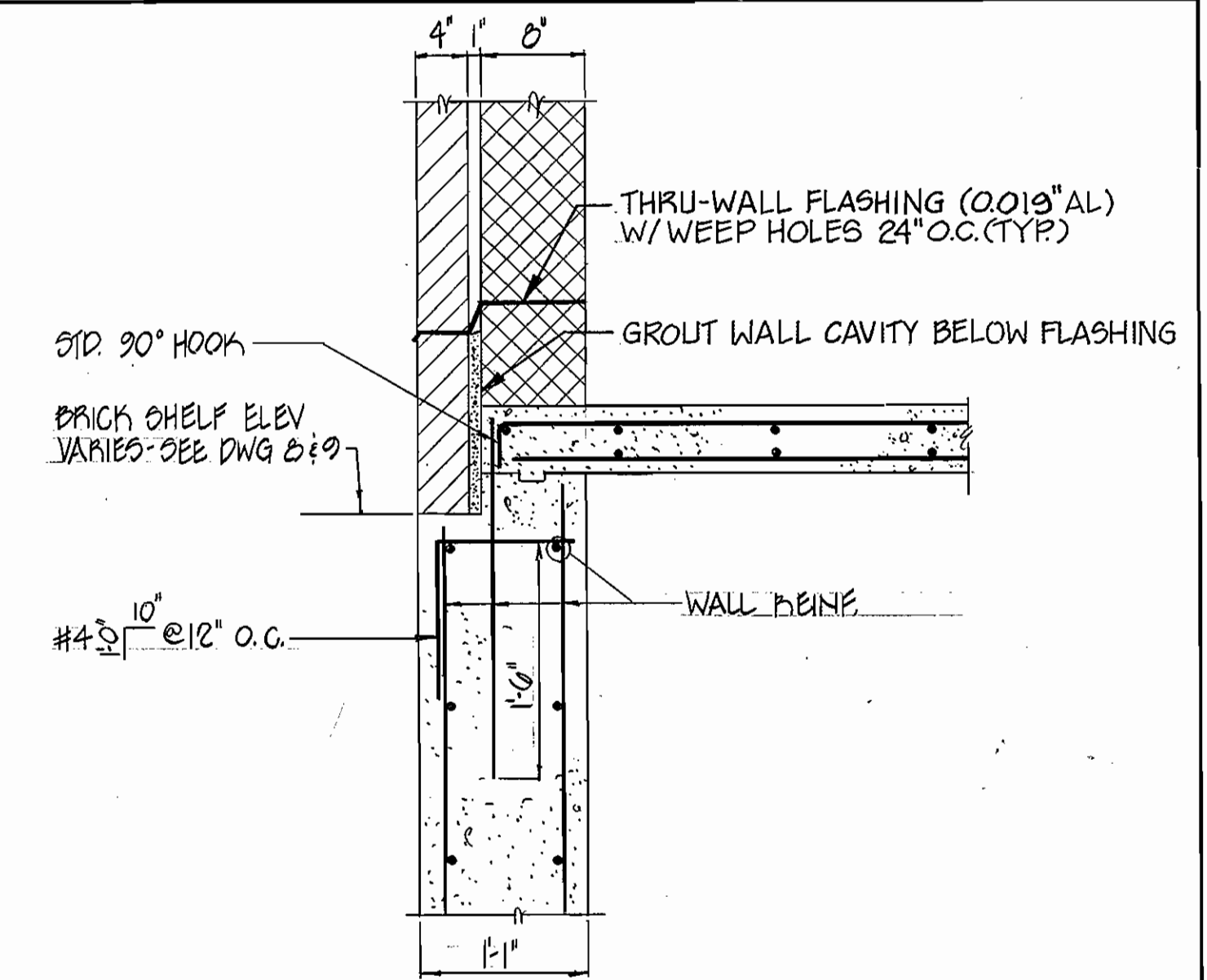
**FRONT WALL AT GENERATOR ROOM**  
SCALE: 1/2" = 1'-0"



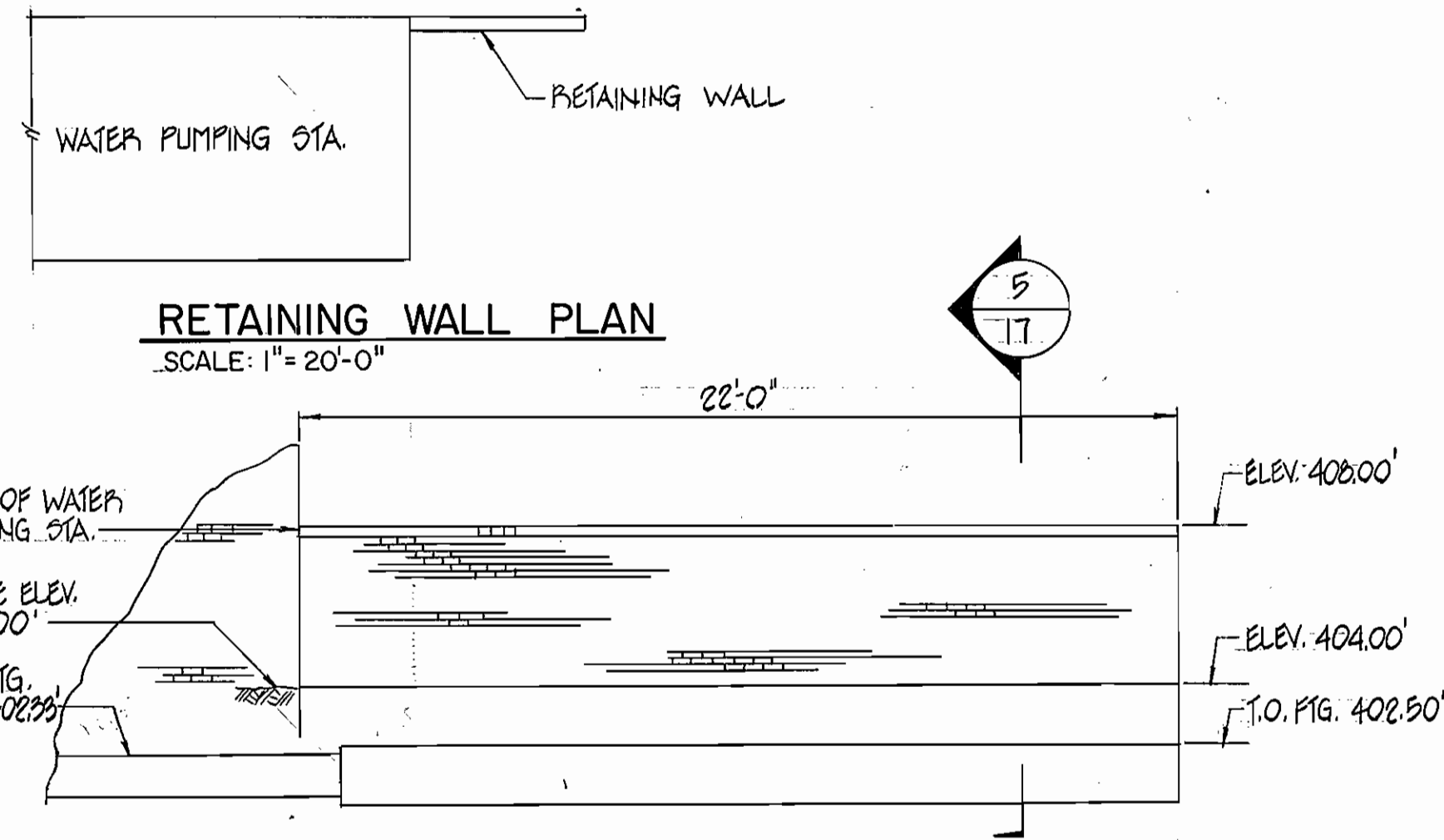
**BACK WALL AT LOADING DOCK**  
SCALE: 1/2" = 1'-0"



**BRICK SHELF DETAIL AT BEAM**  
SCALE: 1" = 1'-0"

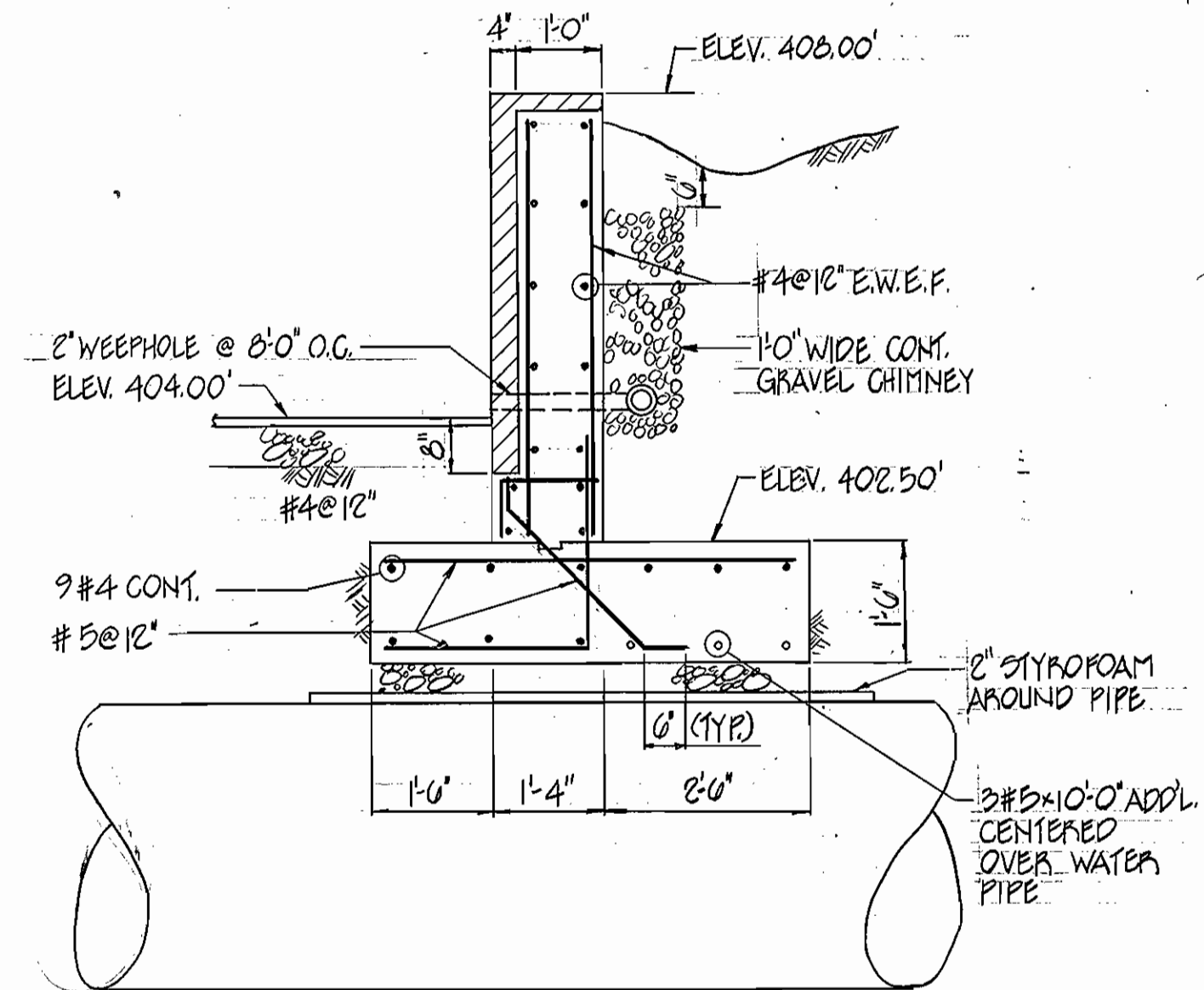


**BRICK SHELF DETAIL AT SLAB**  
SCALE: 1" = 1'-0"

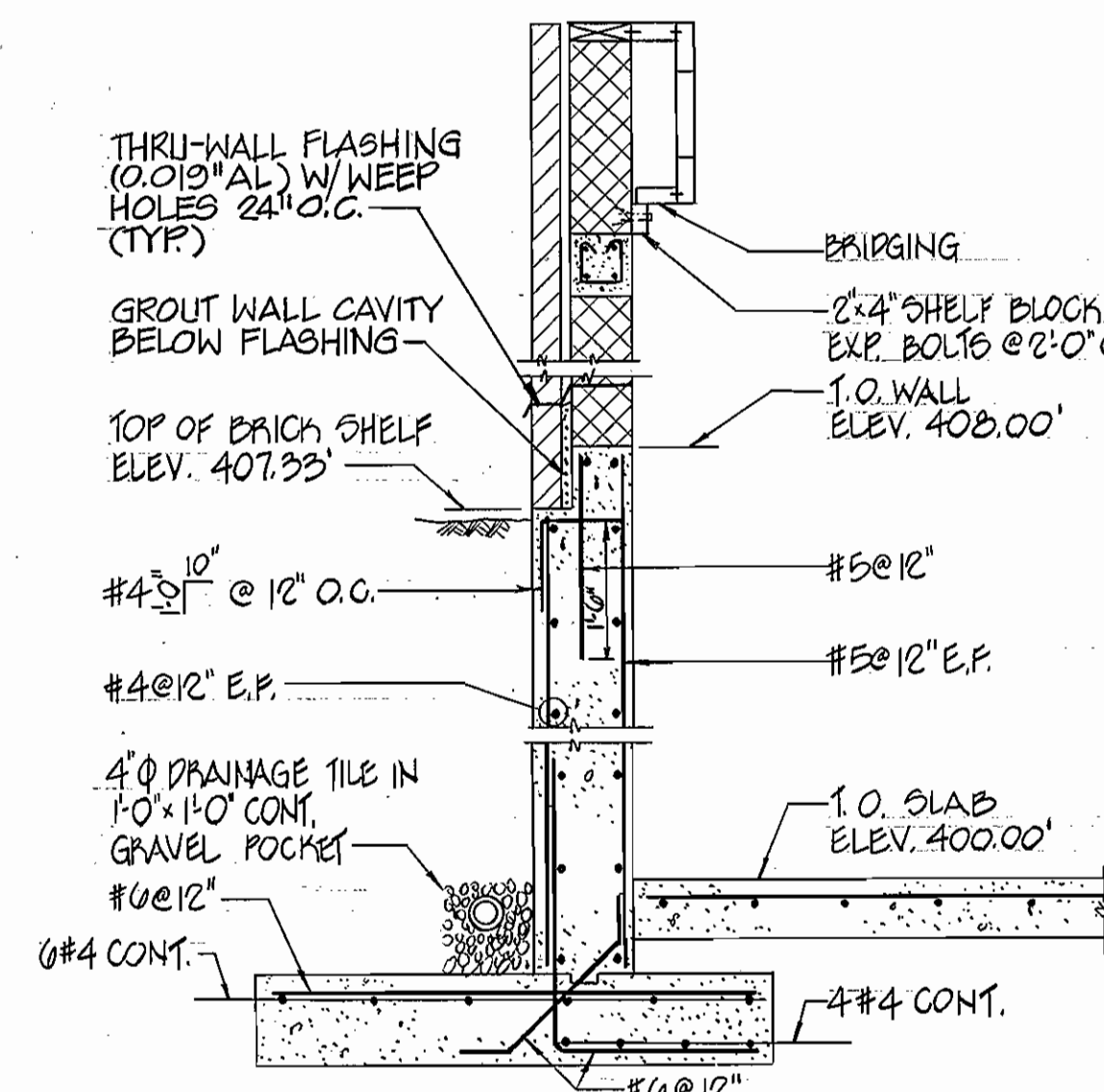


**RETAINING WALL PLAN**  
SCALE: 1" = 20'-0"

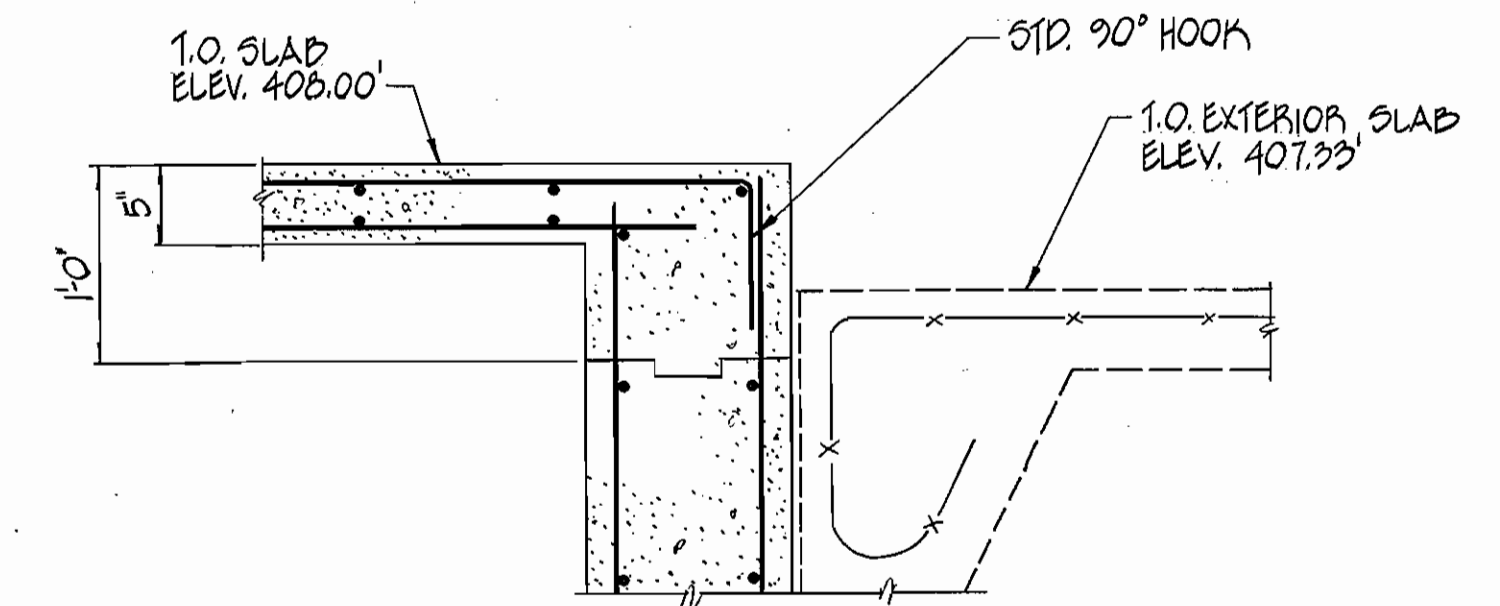
**RETAINING WALL ELEVATION**  
SCALE: 1/4" = 1'-0"



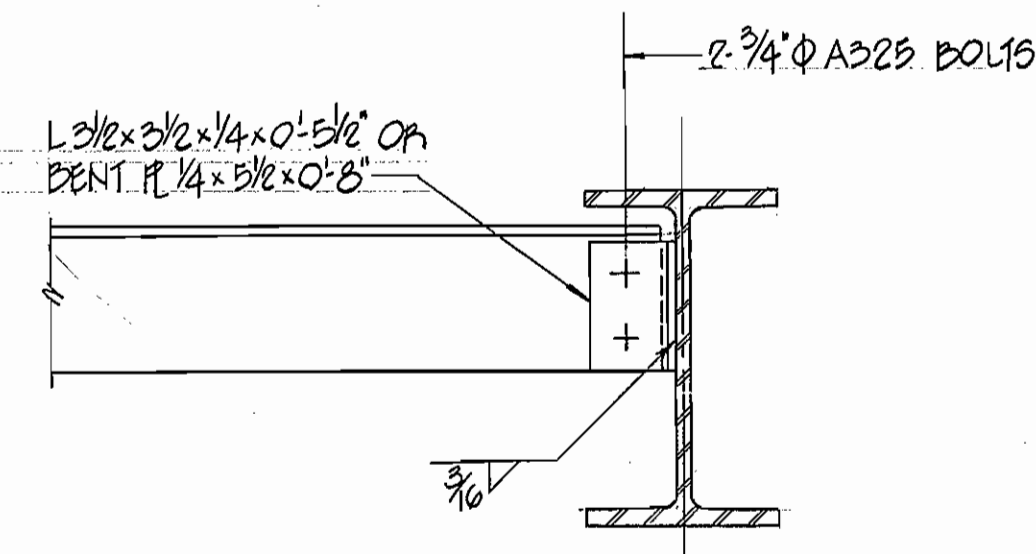
**SECTION**  
SCALE: 1/2" = 1'-0"



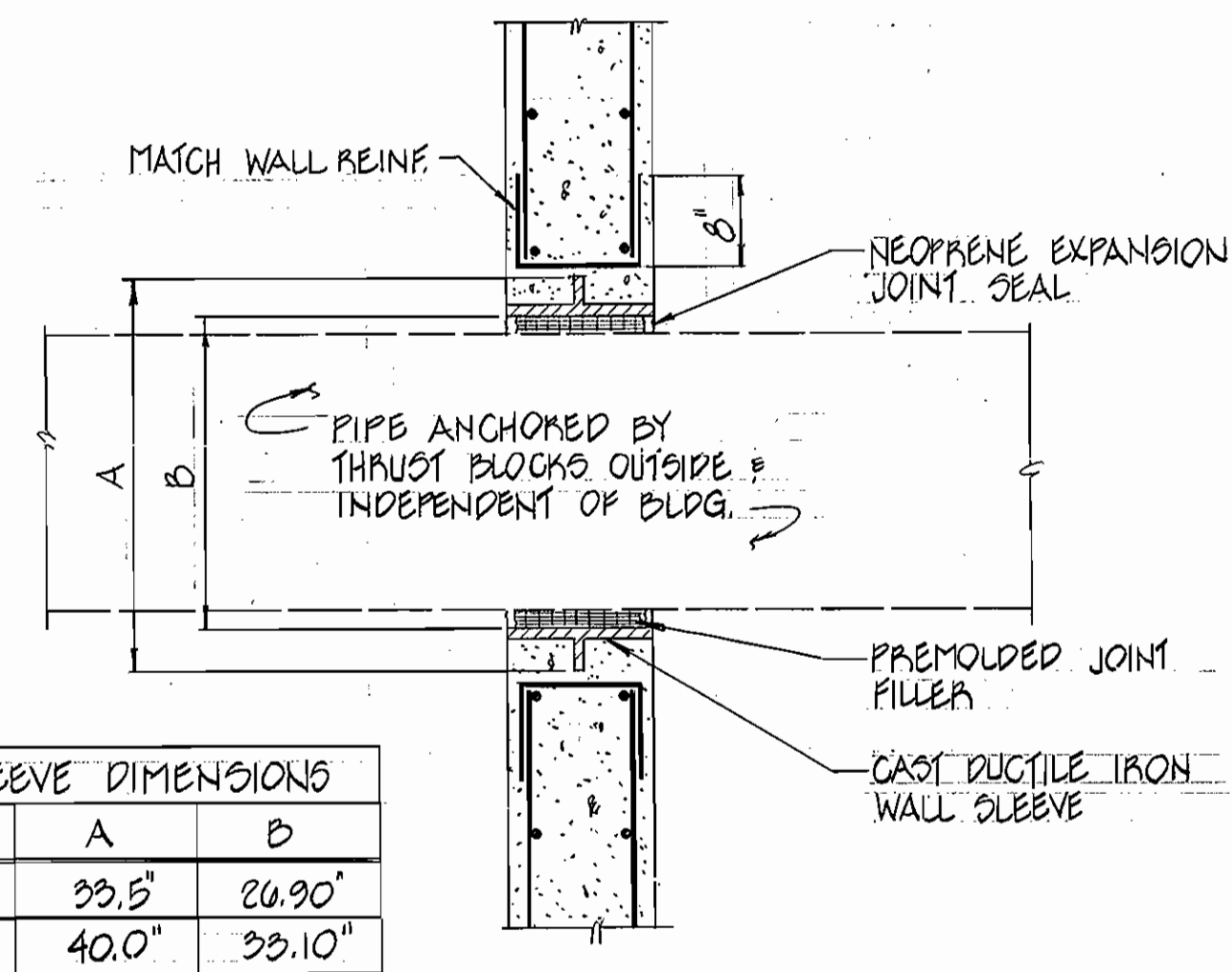
**NORTH WALL SECTION**  
SCALE: 1/2" = 1'-0"



**WALL AT MAIN ENTRANCE**  
SCALE: 1" = 1'-0"

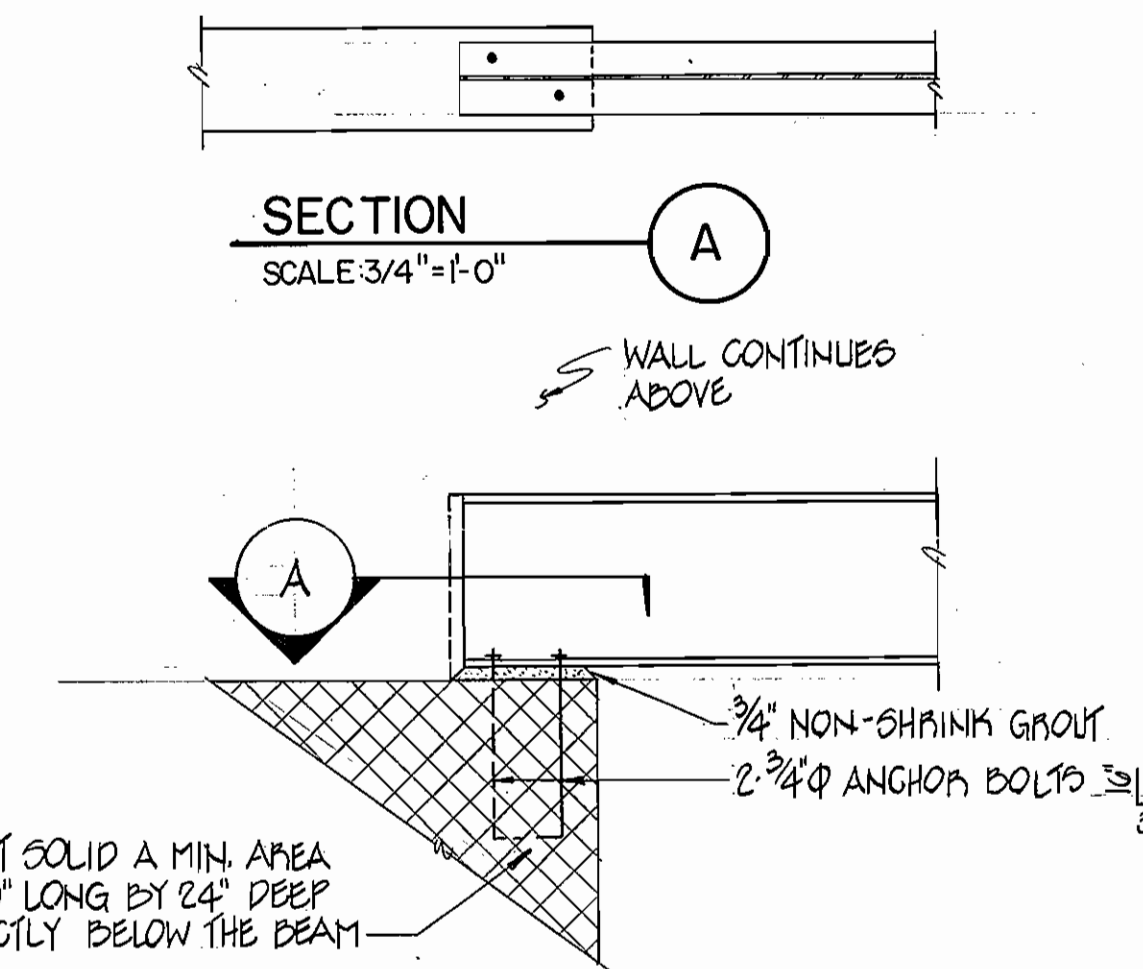


**CRANE SUPPORT BEAM BRIDGING**  
SCALE: 1/2" = 1'-0"



| PIPE DIA. | A     | B      |
|-----------|-------|--------|
| 24"       | 33.5" | 24.90" |
| 30"       | 40.0" | 33.10" |

**PIPE PENETRATION DETAIL**  
SCALE: 3/4" = 1'-0"



**BEAM BEARING DETAIL PARALLEL TO WALL**  
SCALE: 3/4" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 10-28-86  
Chief, Bureau of Engineering: *[Signature]* 10-28-86  
Chief, Bureau of Utilities: *[Signature]* 10-29-86  
Chief, Utilities Design Division: *[Signature]* 10-29-86

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

2594 Riva Road, Annapolis, MD 21041



|             |    |     |          |
|-------------|----|-----|----------|
| DES: AME    |    |     |          |
| DRN: KLT    |    |     |          |
| CHK: PKM    |    |     |          |
| DATE: 10/85 | BY | NO. | REVISION |

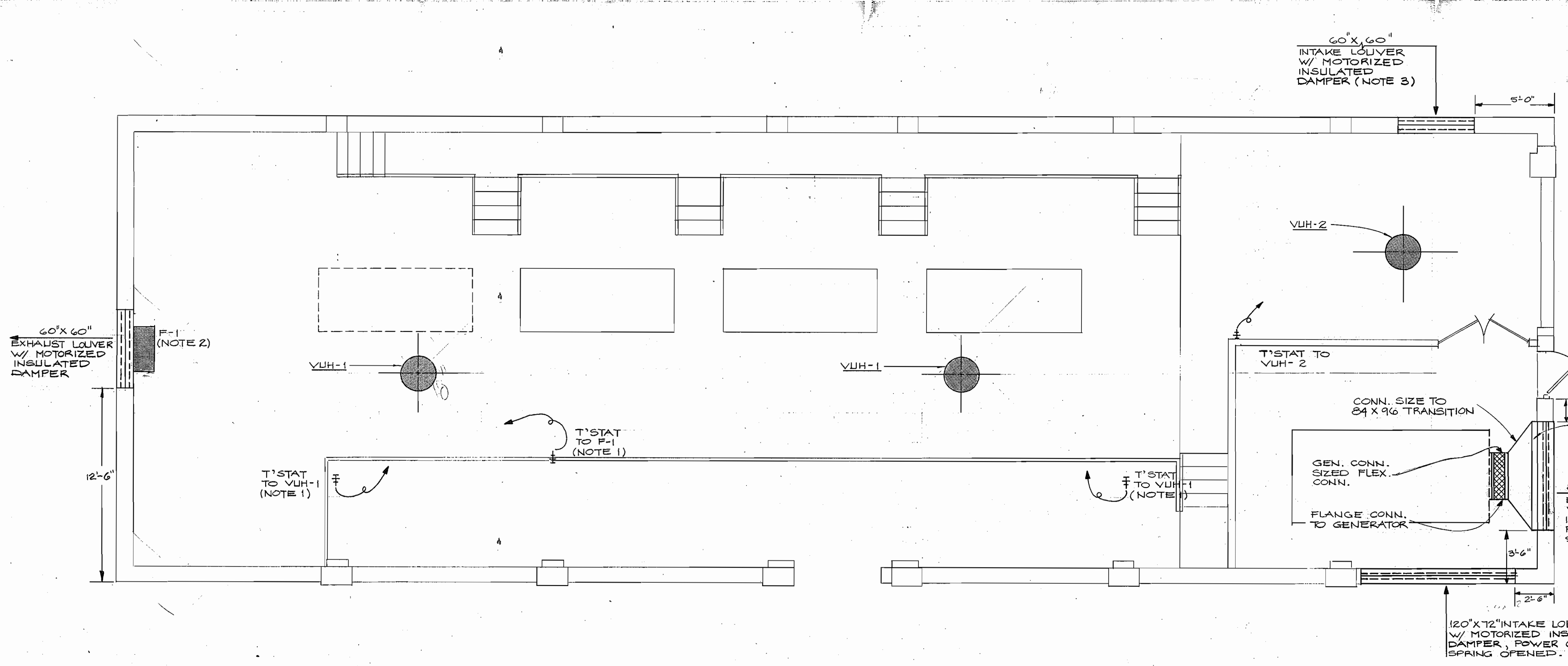
|                       |              |
|-----------------------|--------------|
| STRUCTURAL            |              |
| DETAILS               |              |
| 600' SCALE MAP NO. 30 | BLOCK NO. 10 |

ROUTE 29  
WATER PUMPING STATION

CAPITAL PROJECT NO. W-8077  
2ND ELECTION DISTRICT, HOWARD CO., MD.

CONTRACT NO. 44-1368

SCALE AS SHOWN  
SHEET 17 OF 24



**ELECTRIC UNIT HEATER: CHROMALOX**

| MARK  | CFM  | HEATING KW | CAP. MBH | VOLTAGE & PHASE | MODEL     |
|-------|------|------------|----------|-----------------|-----------|
| VUH-1 | 1300 | 15         | 51       | 480/3           | VUH-15-43 |
| VUH-2 | 450  | 5          | 17       | 480/3           | VUH-05-43 |

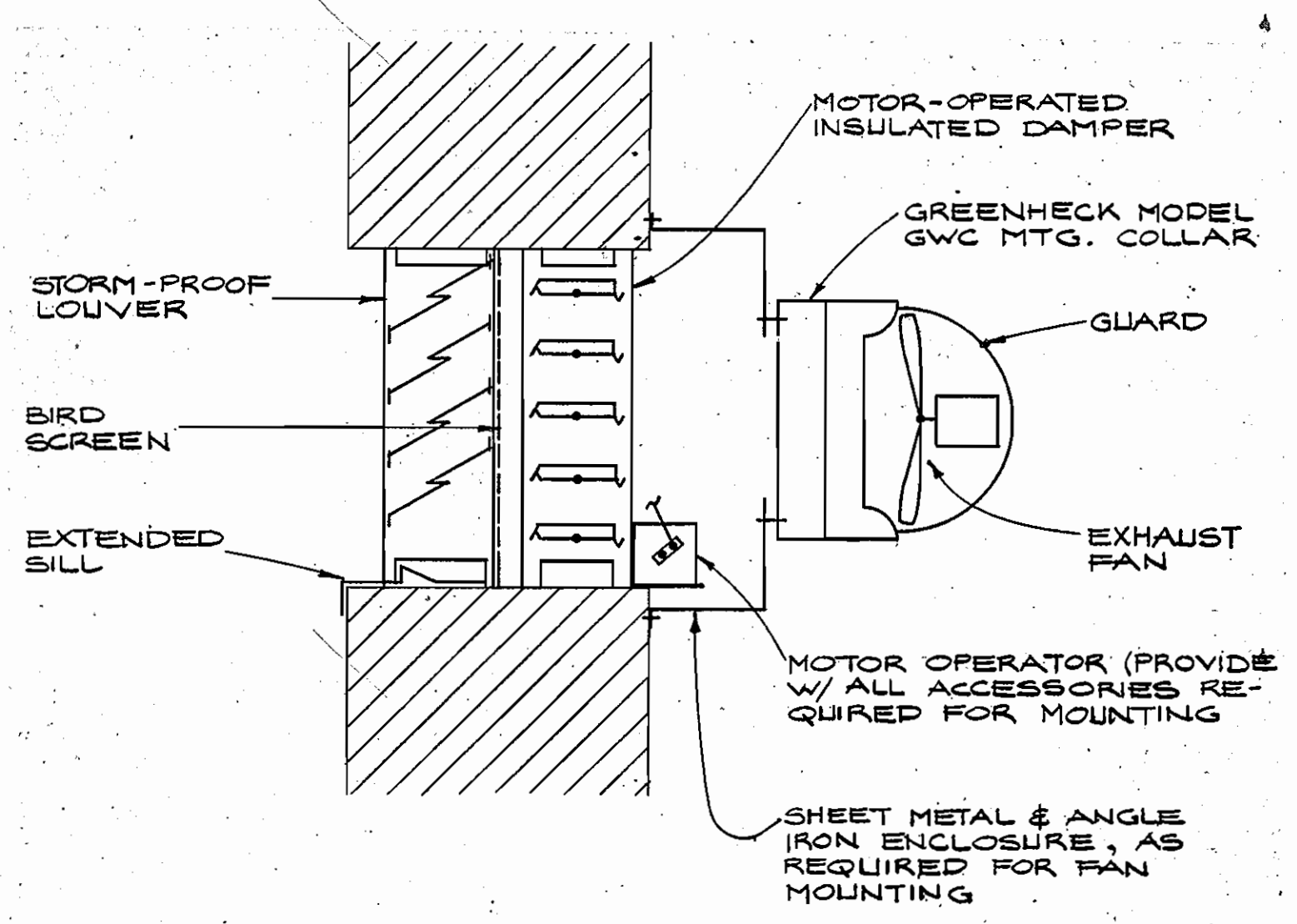
**FANS: GREENHECK**

| MARK | CAP. CFM | S.P. IN. H <sub>2</sub> O | MAX. TIP SPEED-FPM | H.P. | MODEL NO. |
|------|----------|---------------------------|--------------------|------|-----------|
| F-1  | 8292     | 1/4                       | 7681               | 1    | SBP-30    |

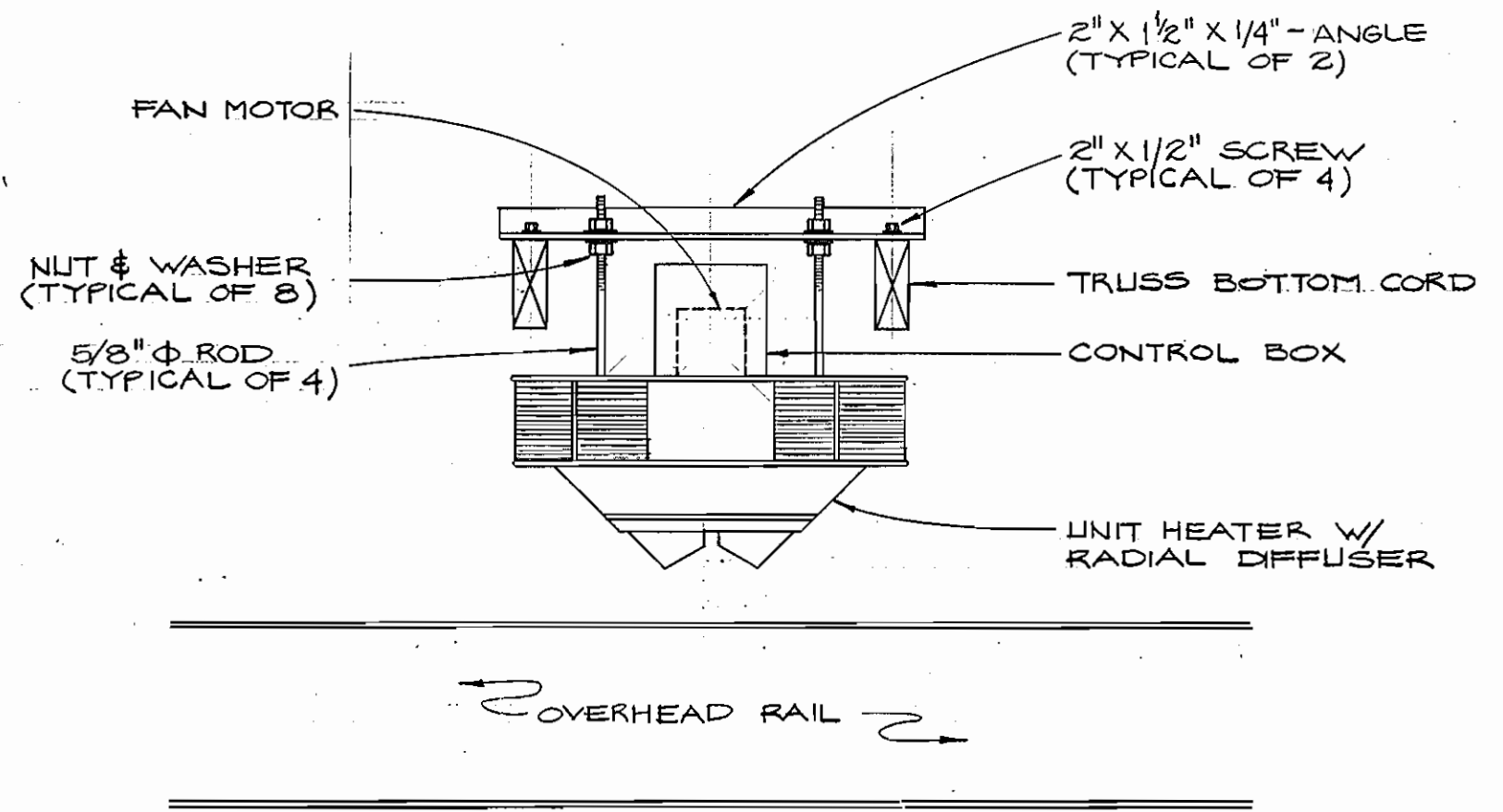
- NOTE:**
1. THERMOSTAT MOUNTED BELOW WALKWAY ON COLUMN FACE, APPROX. 5'-0" ABOVE FLOOR.
  2. MOUNT FAN AS HIGH AS POSSIBLE, SEE SIDEWALL FAN MOUNTING DETAIL.
  3. MOUNT BOTTOM OF LOUVER APPROXIMATELY 2'-0" ABOVE FINISHED GRADE, SEE TYPICAL LOUVER-DAMPER DETAIL.

**PUMP STATION FLOOR PLAN-HVAC**

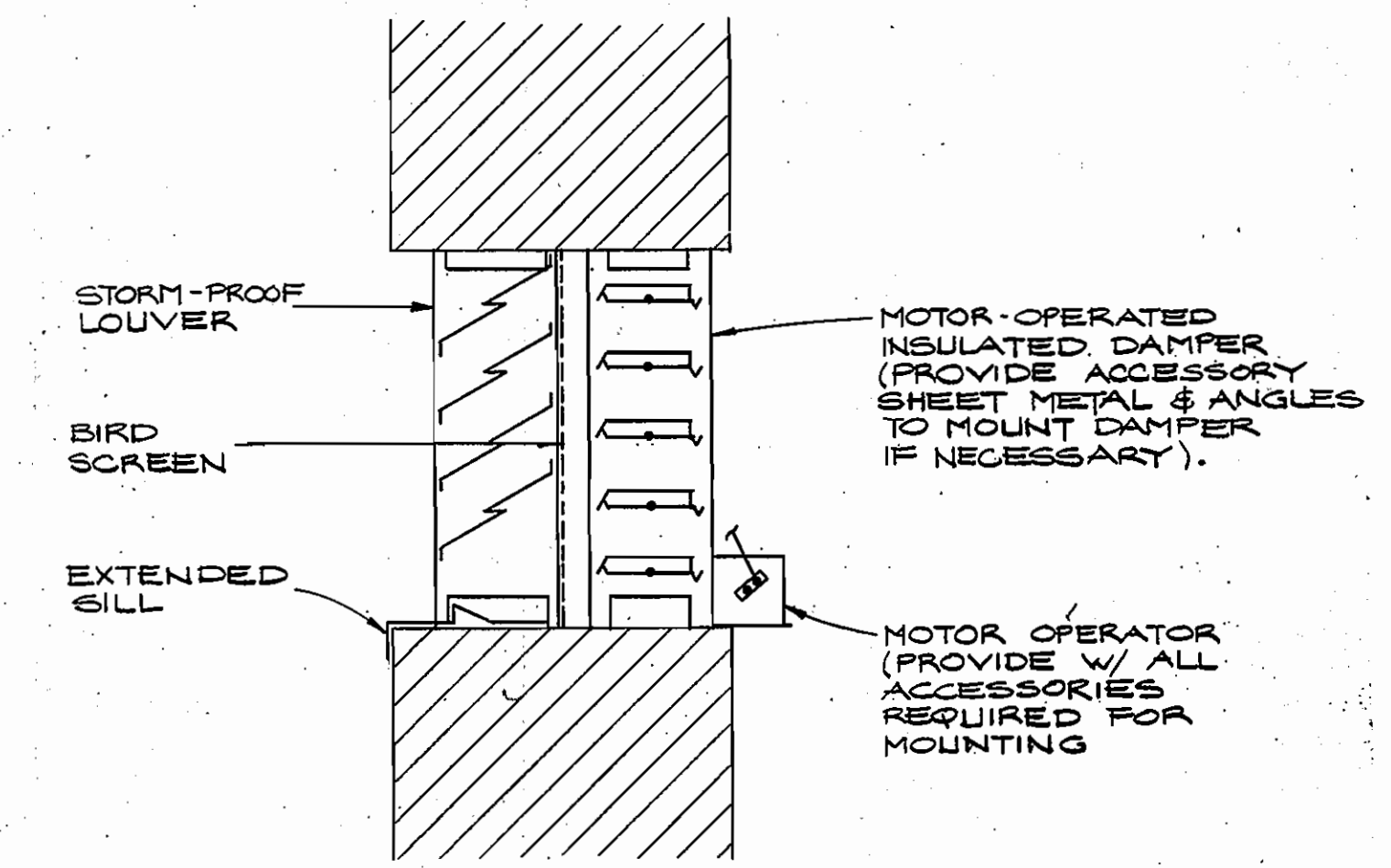
1/4" = 1'-0"



**SIDEWALL FAN MOUNTING DETAIL**  
N T S



**UNIT HEATER MOUNTING DETAIL**  
N T S



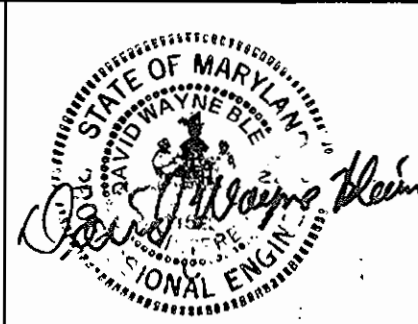
**TYPICAL LOUVER-DAMPER DETAIL**  
N T S

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John E. Nally* 10-24-86  
DIRECTOR OF PUBLIC WORKS DATE

*William S. Ryan* 10-29-86  
CHIEF, BUREAU OF ENGINEERING DATE

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS  
SURVEYORS  
2594 Riva Road, Annapolis, MD. 21401



|             |    |     |          |      |  |
|-------------|----|-----|----------|------|--|
| DES: DWB    |    |     |          |      |  |
| DRN: RR     |    |     |          |      |  |
| CHK: SGZ    |    |     |          |      |  |
| DATE: 10/85 | BY | NO. | REVISION | DATE |  |

MECHANICAL:  
PUMP STATION FLOOR PLAN  
HVAC  
SCHEDULES, NOTES & DETAILS

**ROUTE 29  
WATER PUMPING STATION**  
CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2nd. ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 18 OF 24

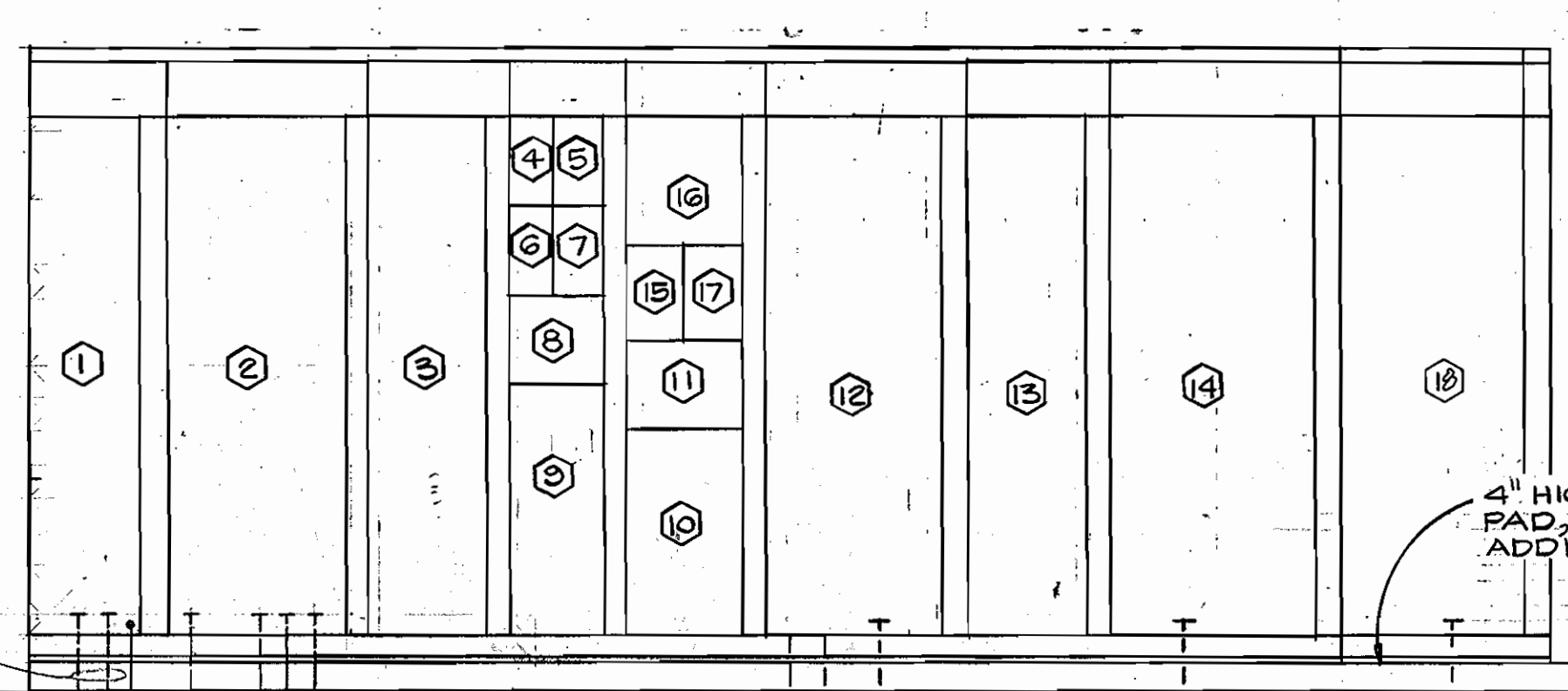


NOTE: WHERE AVAILABLE ALL ELECTRICAL EQUIPMENT SHALL BE LISTED OR LABELED BY A QUALIFIED TESTING LABORATORY

POWER CO. METER BASE FURN. BY PWR. CO., INST. BY CONTRACTOR

2-4" C. EA. W/  
3-#500 MCM CU.  
1-#350 MCM CU. NEUT.

SERVICE IS 480/277 VOLT 3Φ, 4 WIRE CABLE AT 800 AMPS NOMINAL

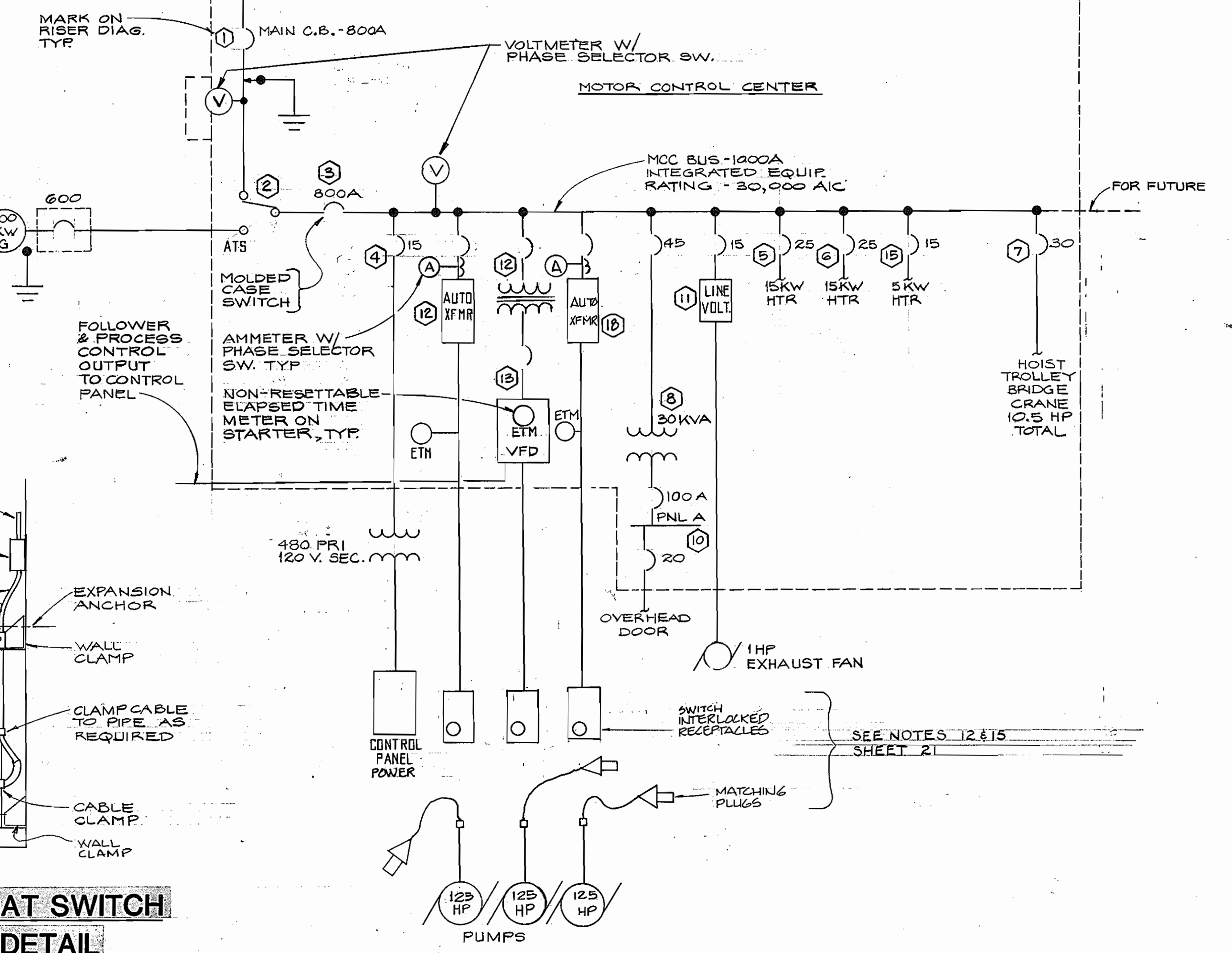


**ELECTRICAL RISER DIAGRAM**  
1/2" = 1'-0"

LUTILITY CO. TRANSFORMER

PWR CO. METER

480/277V, 3Φ, 4 WIRE



**ELECTRICAL LINE DIAGRAM**  
SCHEMATIC

4" HIGH CONC. HOUSEKEEPING PAD, EXTEND 5' FOR ADDITIONAL MCC SECTIONS

4" 3/4 TYPE 6 PORTABLE POWER CABLE IN 4" C TO PUMP (NOTE 15)

3/4" C. TO CONTROL PANEL

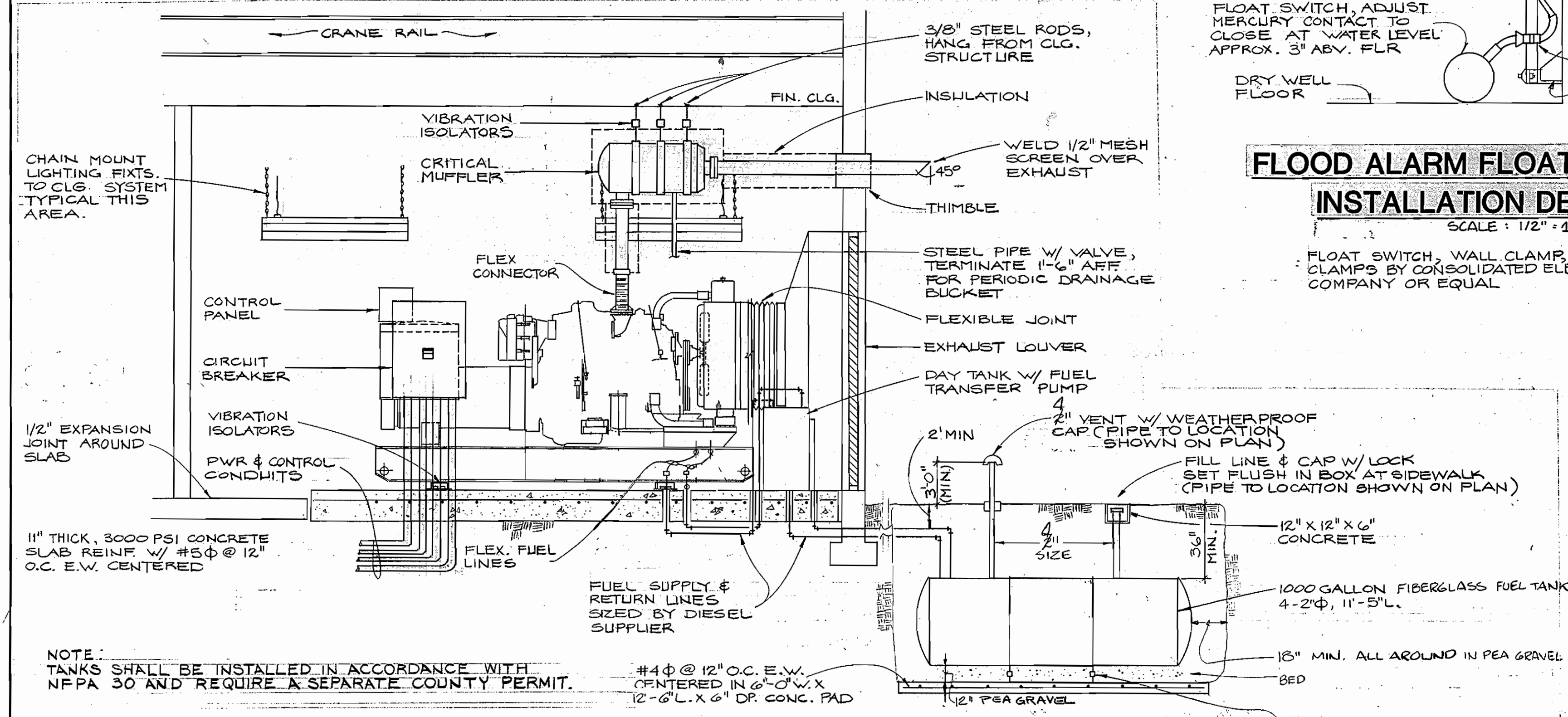
4" X 4" JUNCTION BOX SPLICE FLOAT SWITCH CORD

1" GALV. STEEL PIPE

DRY WELL FLOOR

**FLOOD ALARM FLOAT SWITCH**  
INSTALLATION DETAIL  
SCALE: 1/2" = 1'

NOTE: FLOAT SWITCH, WALL CLAMP & CABLE CLAMPS BY CONSOLIDATED ELECTRIC COMPANY OR EQUAL



**TYPICAL DIESEL GENERATOR INSTALLATION DETAIL**

NOTE: INSTALL PIPE SLEEVES SEALED W/ FLEXIBLE CAULKING FOR ALL PIPES OR CONDUITS PENETRATING THE 11" THICK CONCRETE SLAB.

**ENGINE/GENERATOR SIZING**

|   |                    |                    |
|---|--------------------|--------------------|
| INITIAL LOAD:   | KVA - 38           | KW - 38            |
| FIRST PUMP - 125 HP<br>80% TAP AUTOTRANSFORMER<br>STARTING (805) KVA X 0.64 =                 | (515)              |                    |
| STARTING POWER FAC. (515) X 0.29 =  | (149.5)            |                    |
| <b>TOTAL LOAD FIRST PUMP START</b>  | <b>(553)</b>       | <b>(187.5)</b>     |
| FIRST PUMP RUNNING  | 120                | 105                |
| 2ND PUMP - 125 HP<br>80% TAP AUTOTRANSFORMER<br>(OR VFD ADJUSTABLE CURRENT LIMIT)<br>STARTING | 515                |                    |
| RUNNING   | <120>              | <105>              |
| <b>TOTAL LOAD 2ND PUMP START</b>  | <b>673</b>         | <b>292.5</b>       |
| <b>TOTAL LOAD 2ND PUMP RUN</b>  | <b>&lt;278&gt;</b> | <b>&lt;248&gt;</b> |

NOTE: FOR CLARITY FUEL TANK IS SHOWN IN ALTERNATE LOCATION ON THE GENERATOR INSTALLATION DETAIL.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* DATE: 10-29-86  
Chief, Bureau of Engineering: *[Signature]* DATE: 10-29-86  
Chief, Utilities Design Division: *[Signature]* DATE: 10-29-86

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS  
SURVEYORS

2594 Riva Road, Annapolis, MD. 21401



|             |        |          |      |
|-------------|--------|----------|------|
| DES: DWB    |        |          |      |
| DRN: RR     |        |          |      |
| CHK: SGZ    |        |          |      |
| DATE: 10/85 | BY NO. | REVISION | DATE |

ELECTRICAL:

DIESEL GENERATOR DETAIL,  
ELECTRICAL LINE DIAGRAM,  
ELECTRICAL RISER DIAGRAM

600' SCALE MAP NO. 30 BLOCK NO. 10

**ROUTE 29**  
**WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2nd. ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 20 OF 24

ELECTRICAL SYMBOLS

| SYMBOL | DESCRIPTION  |
|--------|--|
|        | CEILING OUTLET WITH FLOURESCENT FIXTURE TYPE AS INDICATED TYPICAL.   |
|        | WALL OUTLET WITH FLOURESCENT FIXTURE.  |
|        | WALL OUTLET WITH FIXTURE   |
|        | WALL OUTLET WITH EXIT SIGN FIXTURE, FIXTURE TYPE AS INDICATED, SELF-POWERED, EMERGENCY EXIT FIXTURE.   |
|        | 120V, 3W, 1Ø, 20A DUPLEX CONVENIENCE RECEPTACLE, WALL FLUSH MOUNT, NEMA 5-20R.   |
|        | 120V, 3W, 1Ø, 20A DUPLEX CONVENIENCE RECEPTACLE WALL MOUNT, WEATHERPROOF, NEMA 5-20R.  |
|        | 120V, 3W, 1Ø, 20A DUPLEX CONVENIENCE RECEPTACLE SURFACE MOUNTED, NEMA 5-20R.   |
|        | MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION, RUN PILOT LIGHT, SURFACE OR FLUSH MOUNTED AS INDICATED.   |
|        | SELF CONTAINED, BATTERY OPERATED, EMERGENCY LIGHT  |
|        | SAFETY SWITCH, HEAVY DUTY, FUSIBLE OR NON-FUSIBLE AND POLES AS INDICATED.  |
|        | COMBINATION CIRCUIT BREAKER DISCONNECT MAGNETIC MOTOR STARTER WITH OVERLOAD PROTECTION. CONTROL CIRCUIT OPTIONS AS INDICATED ON EQUIPMENT SCHEDULE.  |
|        | CIRCUIT RUN AND CONNECTION TO DEVICE. HASH MARKS INDICATE NUMBER OF CONDUCTIONS EXCEPT GROUND. ARROW HEADS INDICATE NUMBER OF CIRCUITS. PANEL DESIGNATION AS INDICATED. BRANCH CONDUCTORS ARE #12 AWG COPPER UNLESS OTHERWISE INDICATED. |
|        | UNDER FLOOR SLAB, OR UNDERGROUND   |
|        | LIGHTING SWITCH, SINGLE POLE WP INDICATES WEATHERPROOF 3 INDICATES 3 WAY.  |
|        | MOTOR RATED SWITCH WITH PAD LOCK OFF ATTACHMENT.   |
|        | JUNCTION BOX, SIZE AS NOTED OR AS REQUIRED.  |
|        | TELEPHONE OUTLET, WALL MOUNTED HEIGHT AS INDICATED.  |

ABBREVIATION

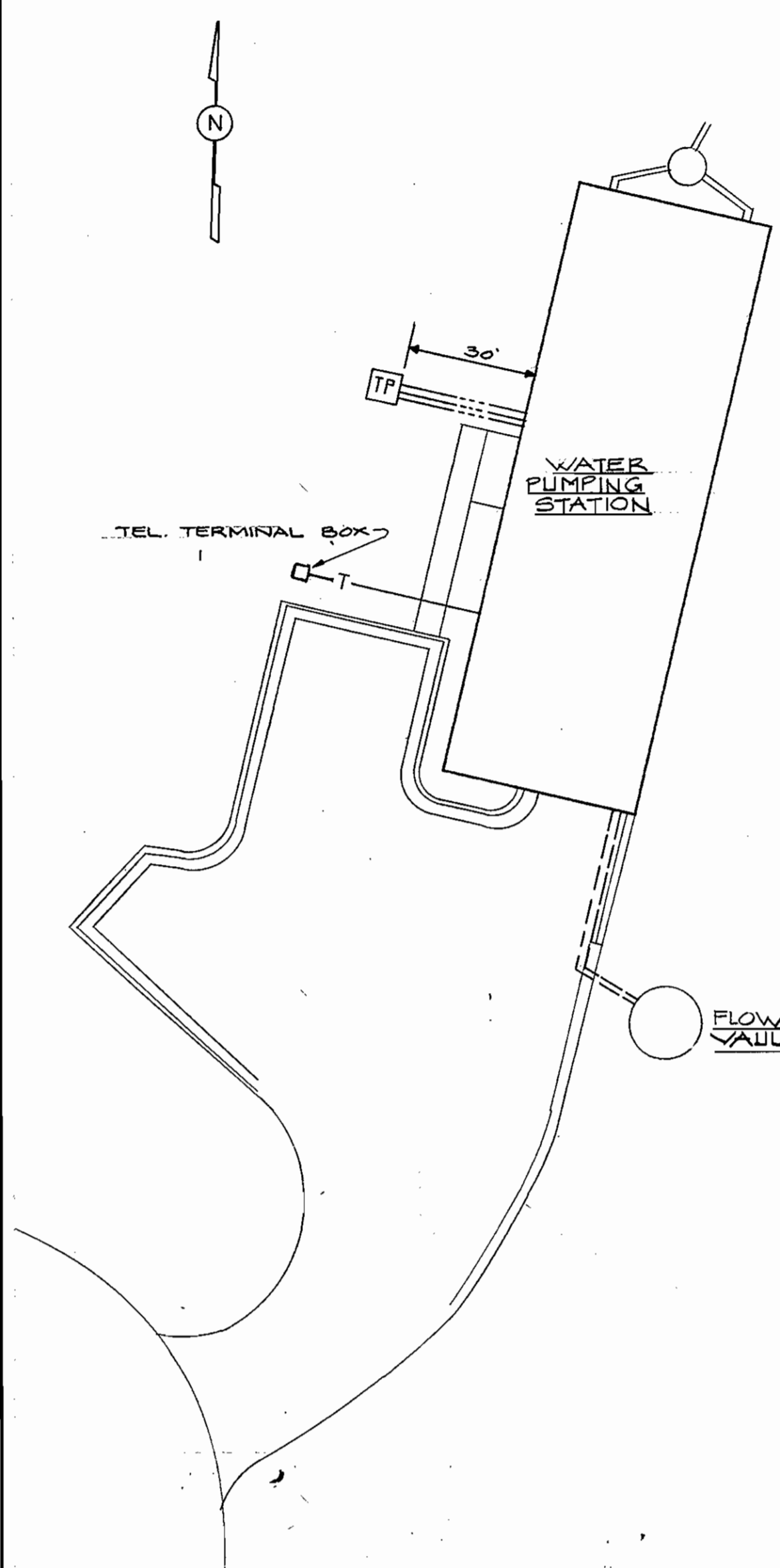
|      |   |
|------|---|
| NL   | NIGHT LIGHT CONNECT TO UNSWITCHED CIRCUIT   |
| WP   | WEATHERPROOF                                |
| TC   | TIME CLOCK                                  |
| NEMA | NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION |
| GFI  | GROUND FAULT INTERRUPTER                    |
| AFF  | ABOVE FINISHED FLOOR                        |
| C.T. | CURRENT TRANSFORMER                         |

NOTES:

- ALL RELAYS SHOWN ON SCHEMATIC CONTROL DIAGRAMS ARE 120 VOLT A.C. AND ARE SHOWN DE-ENERGIZED.
- ELECTRICIAN TO CONNECT ALL LEADS FROM THE RELAY BASES THAT LEAVE THE CONTROL PANEL TO A TERMINAL BARRIER STRIP.
- PROVIDE ONE SPARE RELAY OF EACH TYPE RELAY USED FOR REPLACEMENT USE IN MAINTENANCE.
- ALL CONTROL PANELS SHALL BE BENCH TESTED FOR CONTROL FUNCTION BEFORE DELIVERY AND INSTALLATION AT THE JOB SITE.
- ALL 4-20 MA D.C. OR 15 SECOND TIME PULSE CIRCUITS WITH CABLES NOT SUPPLIED BY INSTRUMENT SUPPLIER SHALL BE 2 CONDUCTOR #18 AWG STRANDED SHIELDED CABLE WITH VINYL JACKET INSTALLED IN RIGID METAL CONDUIT.
- REFER TO MECHANICAL PLAN FOR THERMOSTAT LOCATION AND EXACT LOCATION OF MECHANICAL EQUIPMENT. EXTEND 3/4 CONDUIT TO T STAT.
- COMPLY WITH ALL REQUIREMENTS OF THE LOCAL POWER UTILITY IN INSTALLATION OF ELECTRIC SERVICE.
- TRANSFORMER AND FUSING AS REQUIRED BY LOAD OF INSTRUMENTS, SUPPLY MAY USE MULTIPLE CIRCUITS IF DESIRED.
- CONNECT TO CONTROL PANEL POWER BUS.
- FOR ALL TELEMETRY RECEIVERS PROVIDE D.C. POWER SUPPLY AND ISOLATING RELAYS FOR ALL DIGITAL OUTPUTS.
- MOUNT FIXTURES AT ROOF TO TRUSS BOTTOM CHORDS, MOUNT FIXTURES IN GENERATOR ROOM TO CEILING, AND MOUNT FIXTURES UNDER MEZZANINE ON MEZZANINE STRUCTURE.
- INSTALL 3 SWITCH INTERLOCKED 400 AMP RECEPTACLES, RUSSELLSTOLL DSRF OR EQUAL ON EACH STARTER WITH MATCHING PLUGS, RUSSELL STOLL DS4404MP OR EQUAL, ON EACH PUMP CABLE. LEAVE ENOUGH SLACK TO PLUG EITHER PUMP INTO EITHER STARTER.
- USE ONE CABLE CONDUCTOR FOR GROUNDING. PROVIDE JUNCTION BOX AS NEEDED AT PUMP FOR CONNECTION.
- INTERLOCK THERMOSTAT ON TWO NOTED UNIT HEATERS THROUGH AUXILIARY CONTACTS IN TRANSFER SWITCH TO STOP HEATERS ON EMERGENCY POWER.
- FOR PUMP PLUG AND CABLES, ENSURE THAT RIGID CONDUIT AND CABLE EXTEND FROM PUMP MOTOR JUNCTION WIRE BOX TO WITHIN A SHORT DISTANCE OF EACH OF THE THREE (3) RECEPTACLES.

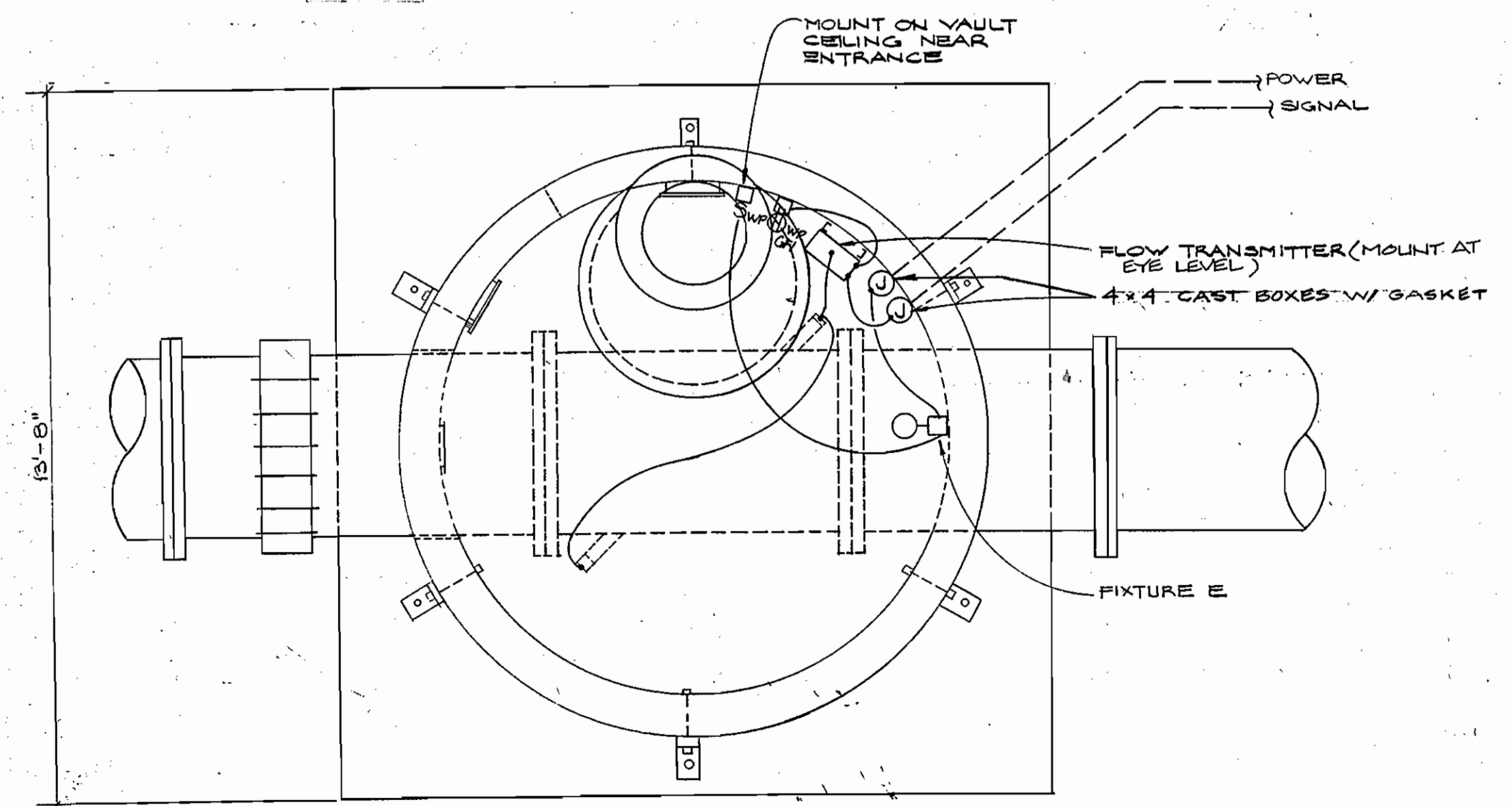
LEGEND

|                          |  |
|--------------------------|--|
| SECONDARY POWER SERVICES |  |
| UNDERGROUND              |  |
| TELEPHONE SERVICE        |  |
| U/G BRANCH CIRCUITS      |  |
| TRANSFORMER PAD          |  |

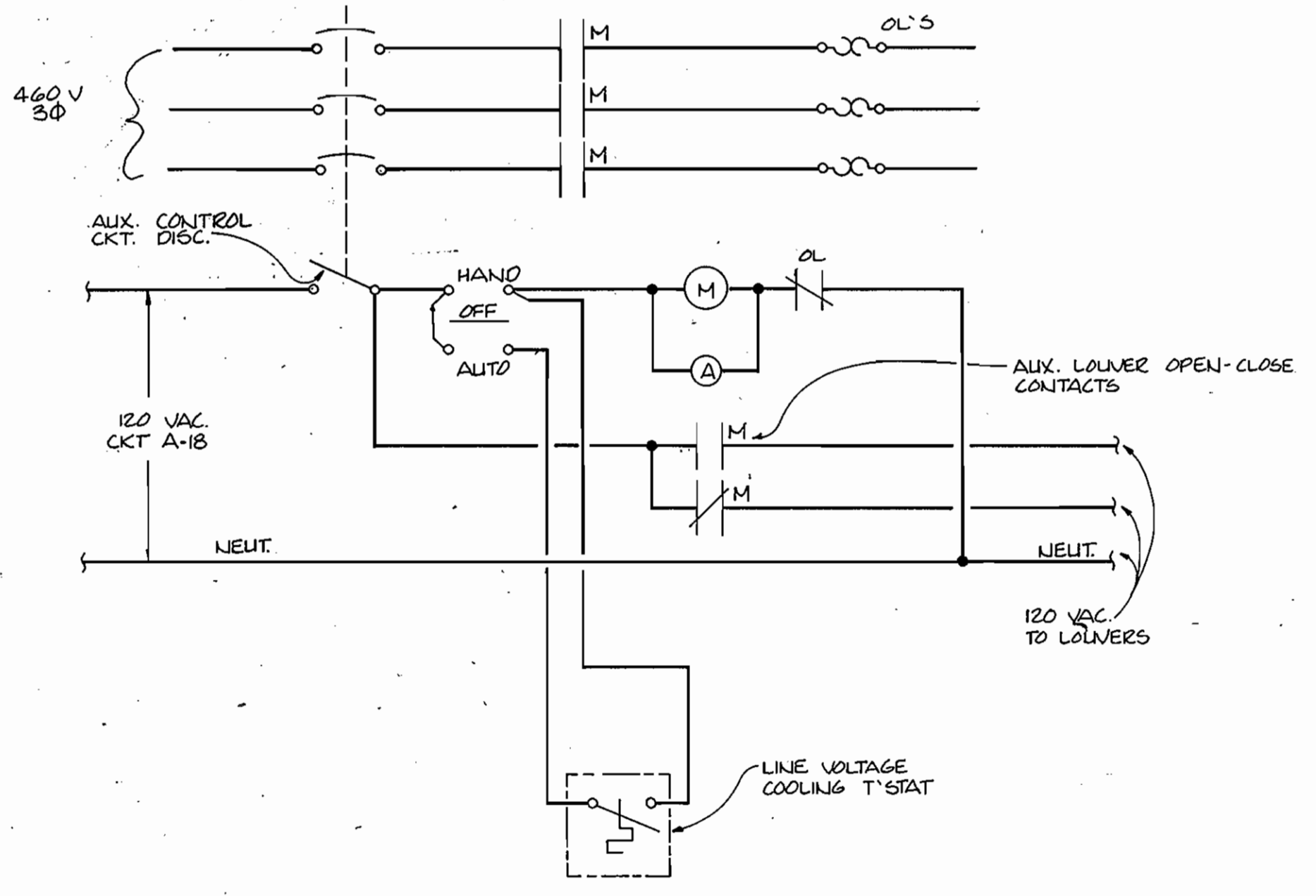


SITE PLAN-ELECTRICAL

1" = 20'-0"



ULTRASONIC BI-DIRECTIONAL FLOW METER VAULT PLAN-ELECTRICAL



SCHEMATIC WIRING EXHAUST FAN, F-1

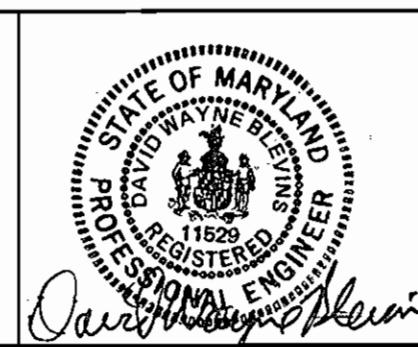
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

10-24-86  
DATE

10-24-86  
DATE

DEWBERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS  
SURVEYORS

2594 Riva Road, Annapolis, MD. 21401



|             |    |     |          |
|-------------|----|-----|----------|
| DWS: DWB    |    |     |          |
| DRN: RR     |    |     |          |
| CHK: SGZ    |    |     |          |
| DATE: 10/85 | BY | NO. | REVISION |

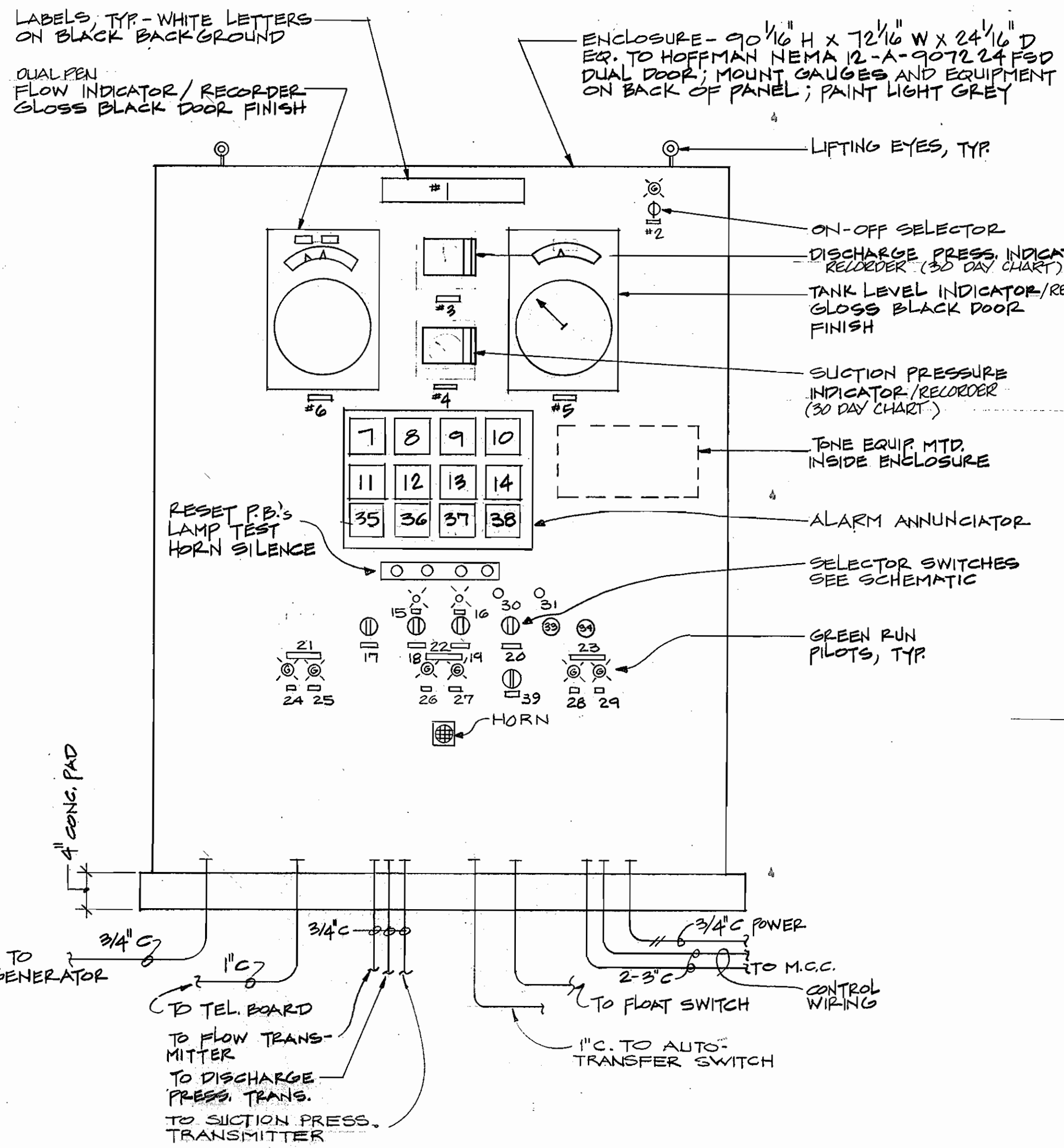
ELECTRICAL:  
SITE PLAN-ELECTRICAL  
METER VAULT PLAN  
LEGEND, NOTES & SYMBOLS

600' SCALE MAP NO. 30 BLOCK NO. 10

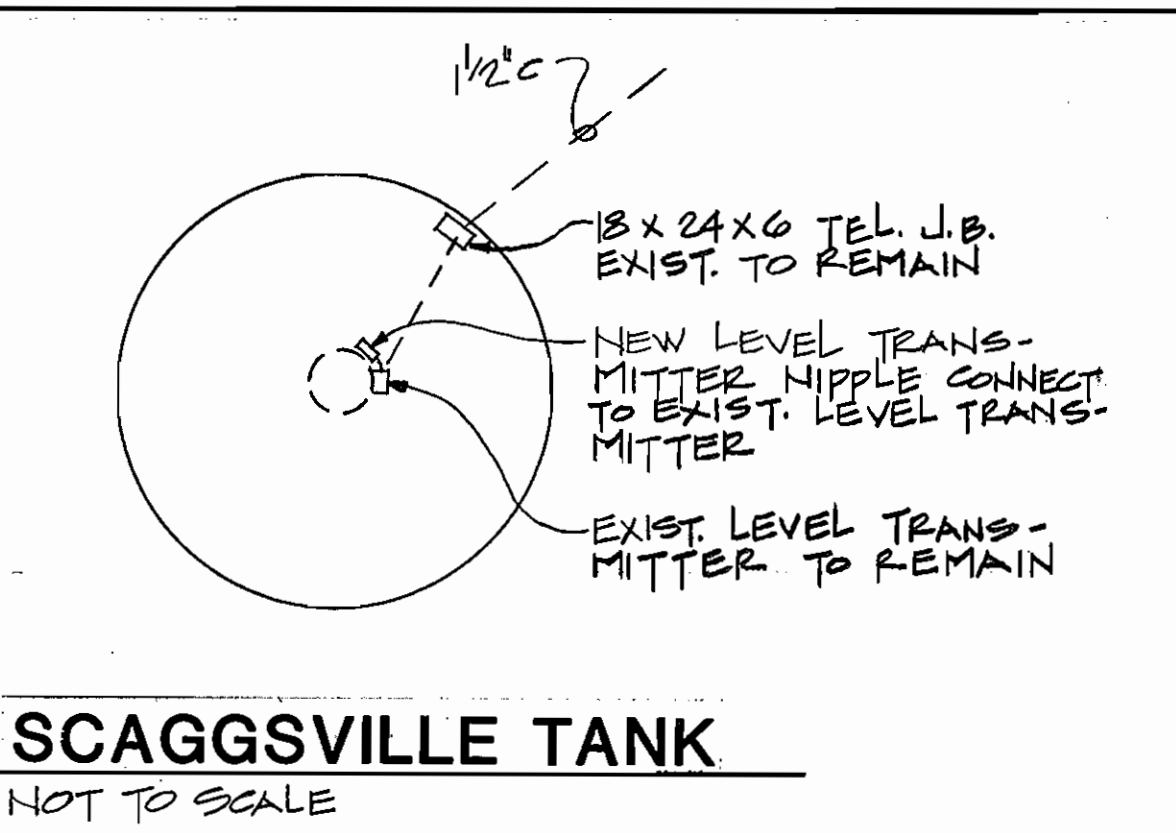
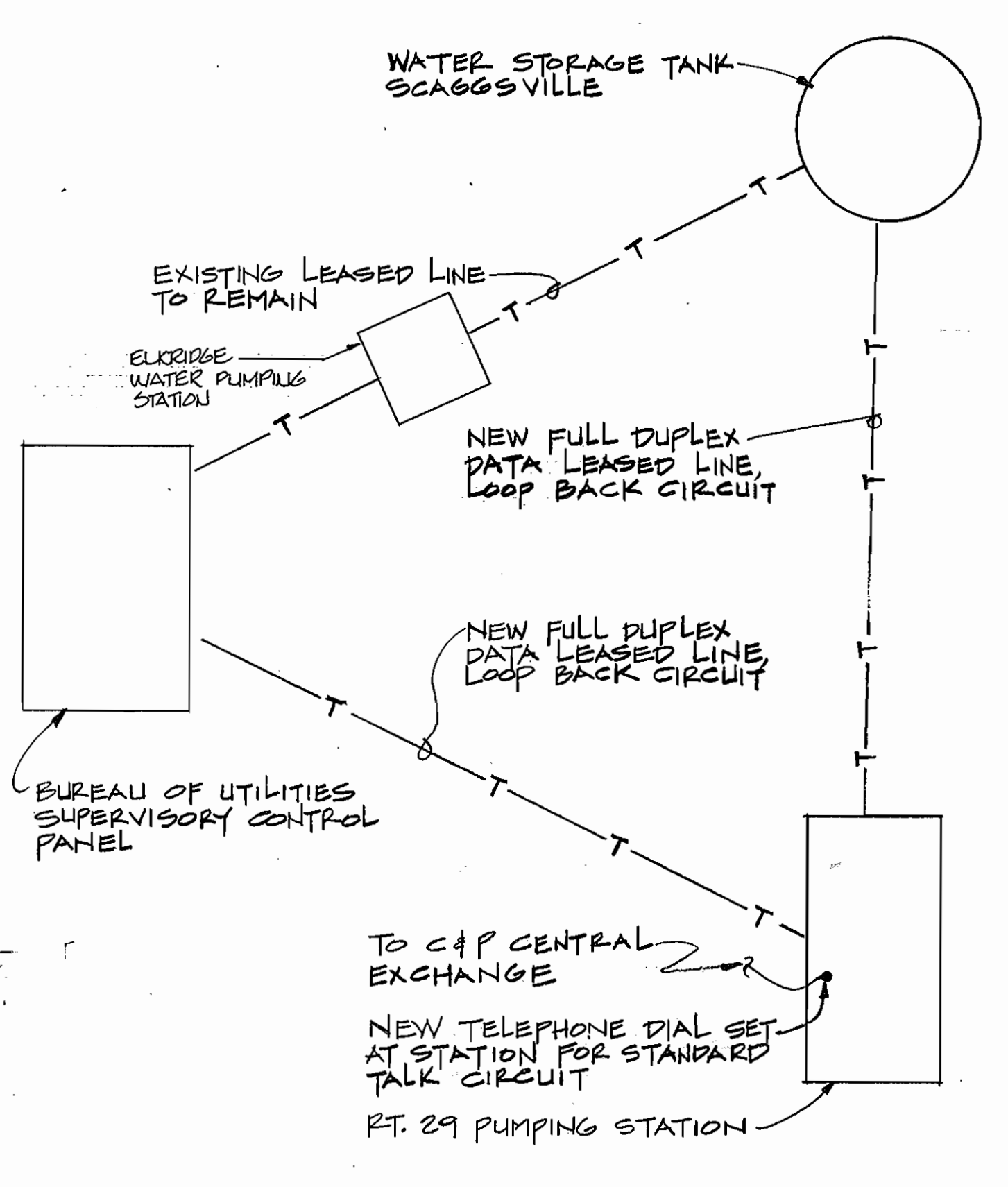
ROUTE 29  
WATER PUMPING STATION

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2nd. ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
SHEET 21 OF 24



- LEGEND**
- 1) ROUTE 29 WATER PUMPING STATION CONTROLS
  - 2) CONTROL POWER
  - 3) DISCHARGE PRESSURE
  - 4) SUCTION PRESSURE
  - 5) SCAGGSVILLE F.W.T. LEVEL
  - 6) ROUTE 29 W.P.S. FLOW (FORWARD-REVERSE)
  - 7) LOW TANK LEVEL
  - 8) POWER FAIL
  - 9) HIGH FLOOD LEVEL
  - 10) GENERATOR FAULT
  - 11) LOW SUCTION PRESSURE
  - 12) HIGH DISCHARGE PRESSURE
  - 13) LOSS OF TONE, LINE I
  - 14) LOSS OF TONE, LINE II
  - 15) LEAD PUMP RUN
  - 16) LAG PUMP RUN
  - 17) LOCAL/REMOTE SELECTOR
  - 18) LEAD PUMP CONTROL
  - 19) LAG PUMP CONTROL
  - 20) LEAD CONTROL SELECTOR
  - 21) TANK AUTO CONTROL
  - 22) REMOTE MANUAL CONTROL
  - 23) PRESSURE GOVERNOR AUTO CONTROL
  - 24) LEAD RUN
  - 25) LAG RUN
  - 26) LEAD RUN
  - 27) LAG RUN
  - 28) LEAD RUN
  - 29) LAG RUN
  - 30) KNOCKOUT FOR FUTURE PILOT
  - 31) KNOCKOUT FOR FUTURE PILOT
  - 32) GENERATOR LOW WATER TEMPERATURE
  - 33) KNOCKOUT FOR FUTURE SELECTOR
  - 34) KNOCKOUT FOR FUTURE SELECTOR
  - 35) ENGINE WATER TEMPERATURE LOW
  - 36) SPARE
  - 37) SPARE
  - 38) SPARE
  - 39) LAG CONTROL SELECTOR

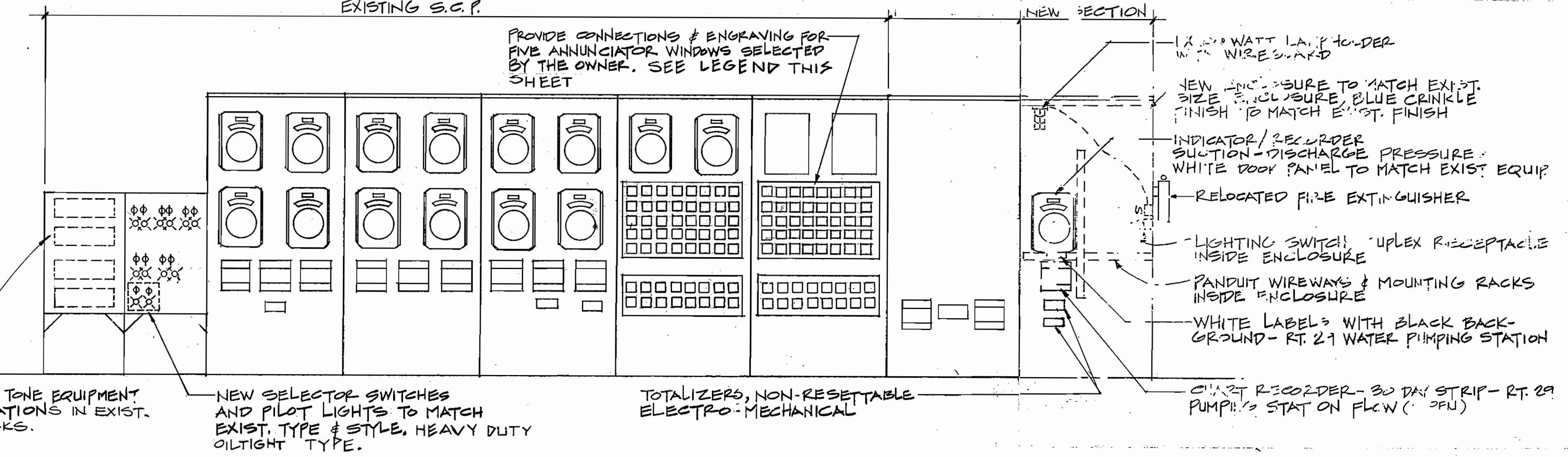


**TELEMETRING LEASED LINE, TELEPHONE LINE**  
NOT TO SCALE

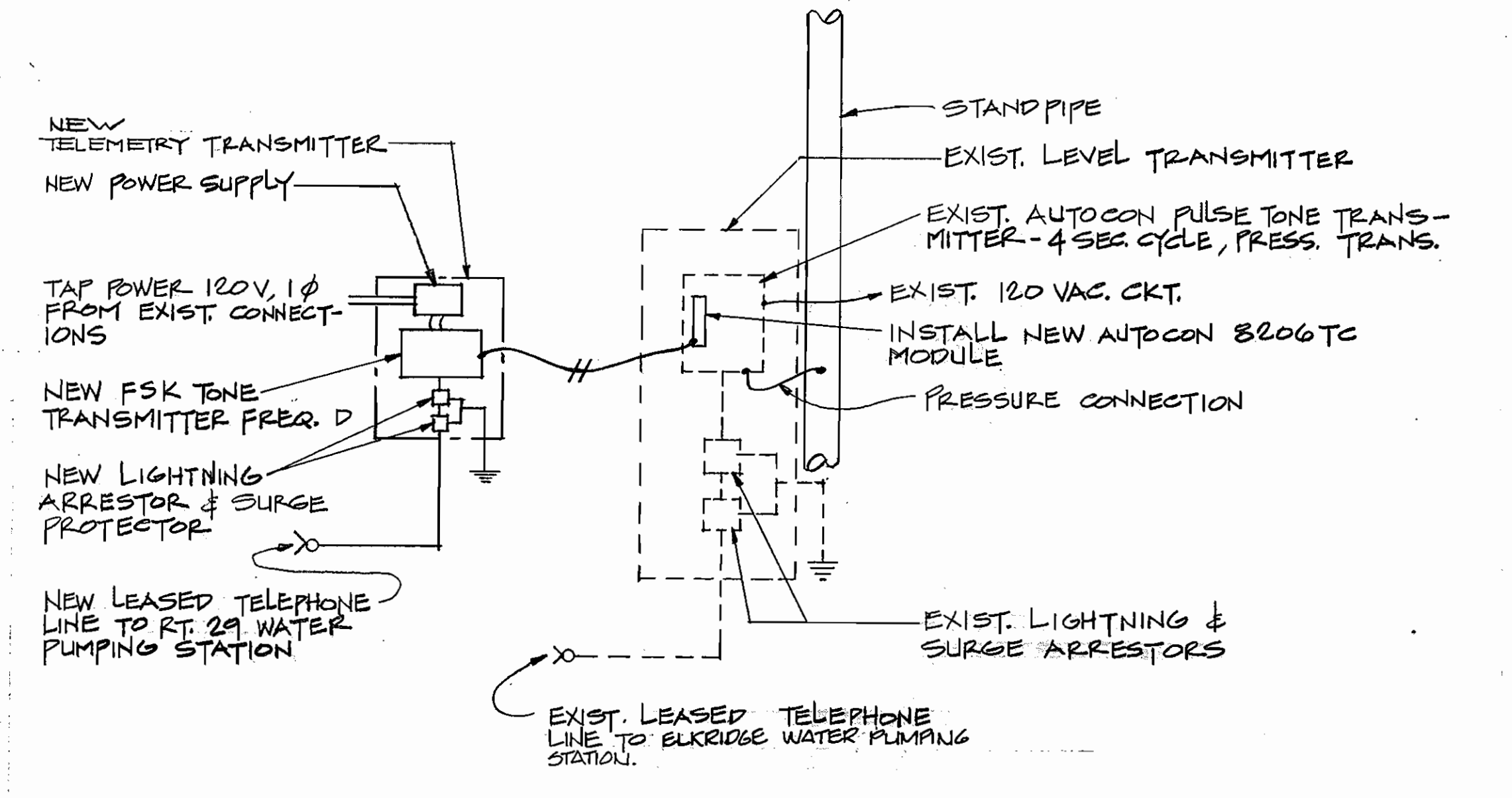
**PUMPING STATION CONTROL PANEL**

**ELEVATION DETAIL**  
NOT TO SCALE

ELEVATION IS FOR INFORMATION ONLY, CONTRACTOR SHALL SUBMIT A SUGGESTED COMPONENT LAYOUT FOR APPROVAL

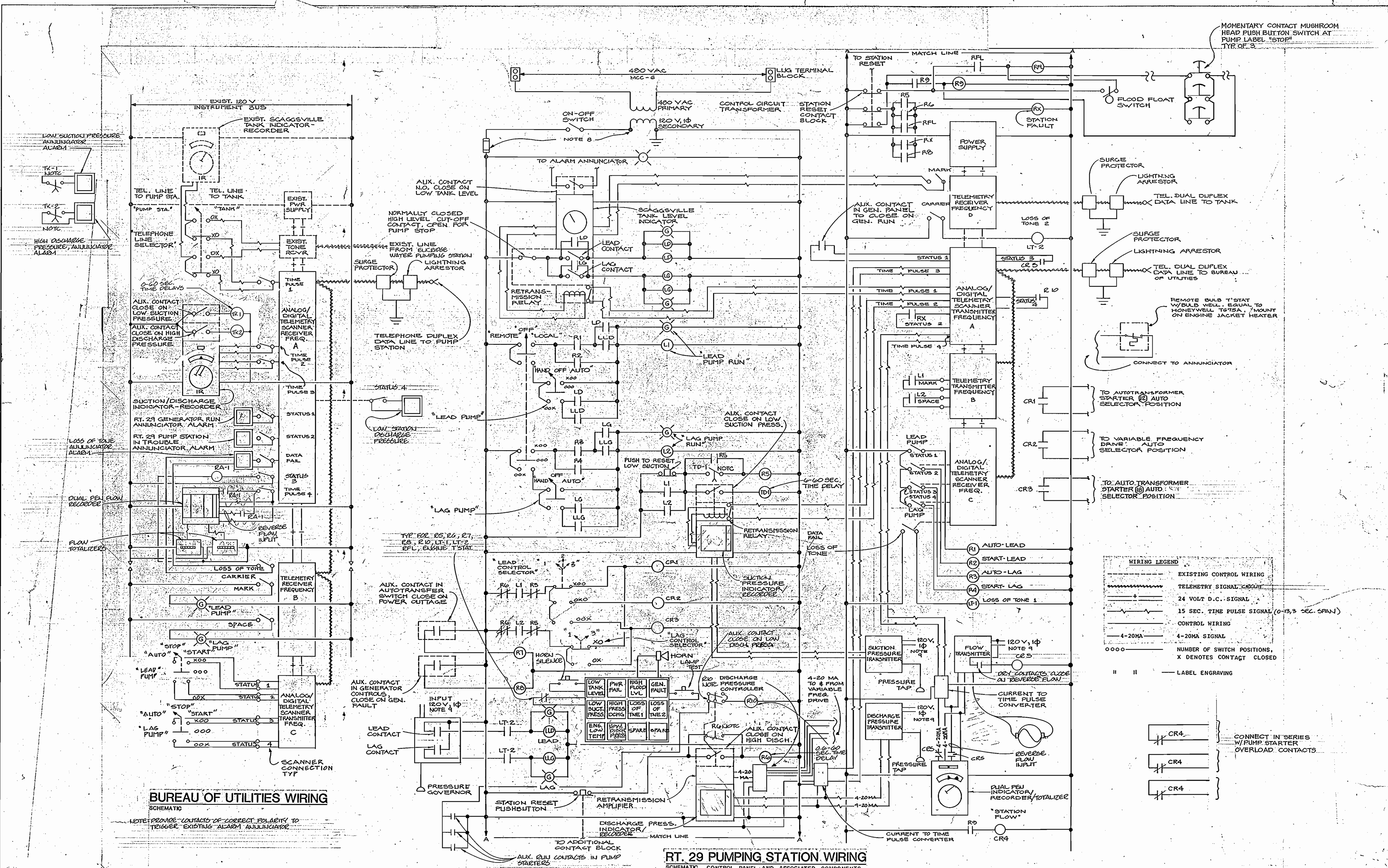


**INSTALLATION DETAIL BUREAU OF UTILITIES SUPERVISORY CONTROL PANEL**  
NOT TO SCALE



**TANK LEVEL TRANSMITTER SCHEMATIC**  
NOT TO SCALE

- ANNUNCIATOR WINDOW ENGRAVING LEGEND**
- 1) RT. 29 W.P.S. LOW SUCTION
  - 2) RT. 29 W.P.S. HIGH DISCHARGE
  - 3) RT. 29 W.P.S. GENERATOR RUN
  - 4) RT. 29 W.P.S. TEL. FAIL
  - 5) RT. 29 W.P.S. TROUBLE
  - 6) RT. 29 W.P.S. LOW DISCHARGE
- NOTE: ENGRAVING HEIGHT AND LETTERING TO MATCH EXISTING



**BUREAU OF UTILITIES WIRING**  
SCHEMATIC

**RT. 29 PUMPING STATION WIRING**  
SCHEMATIC, CONTROL PANEL AND ASSOCIATED COMPONENTS

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* DATE: 10-28-86  
Chief, Bureau of Utilities: *[Signature]* DATE: 10-28-86

DEWERRY & DAVIS  
ENGINEERS-ARCHITECTS-PLANNERS-SURVEYORS

Chief, Bureau of Engineering: *[Signature]* DATE: 10-28-86  
Chief, Utilities Design Division: *[Signature]* DATE: 10-28-86

2594 Riva Road, Annapolis, MD. 21401

DES: BTM  
DRN: RR  
CHK: SGZ  
DATE: 10/85

BY: NO.  
REVISION  
DATE

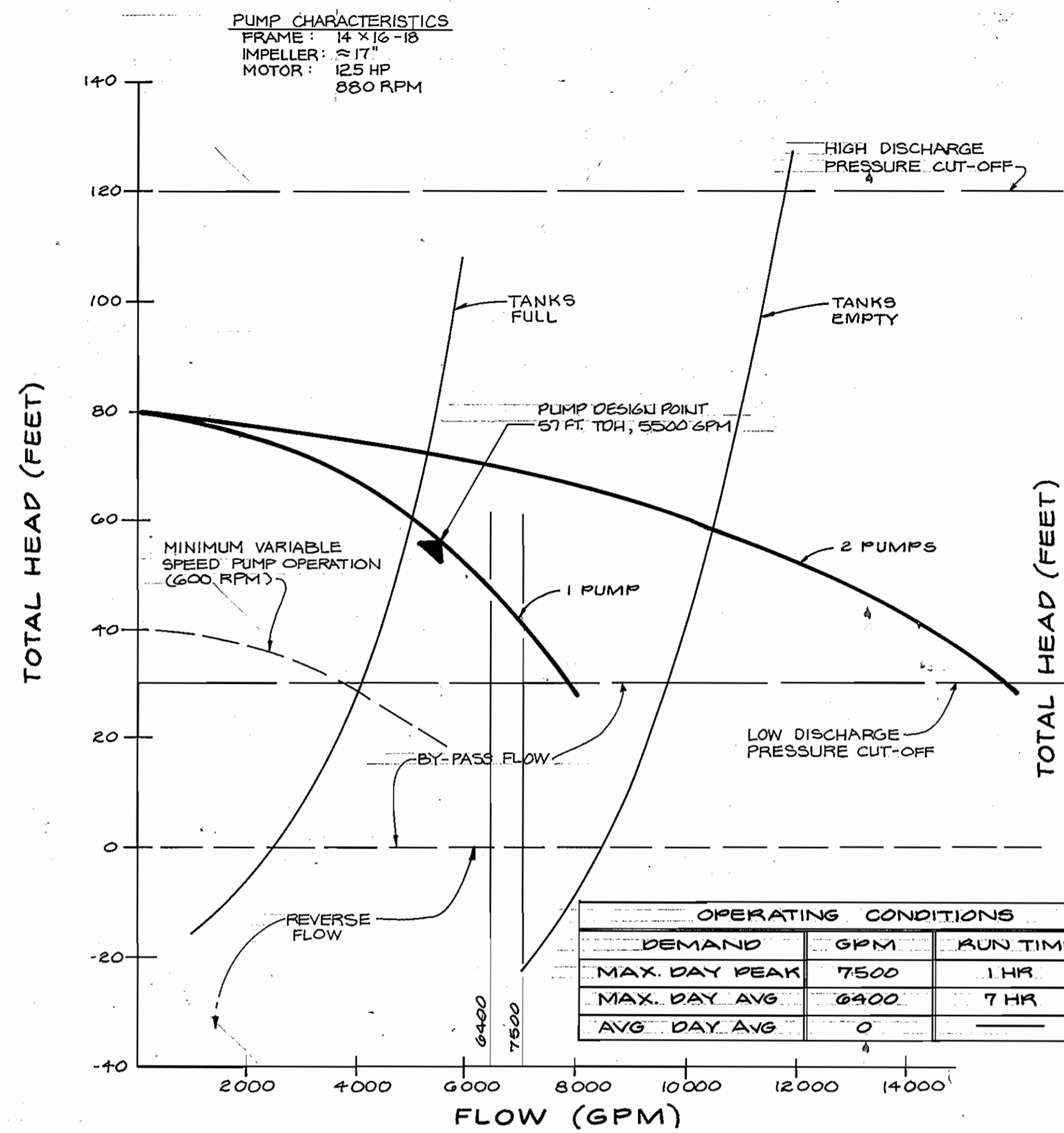
ELECTRICAL:  
WIRING SCHEMATIC

600' SCALE MAP NO. 30 BLOCK NO. 10

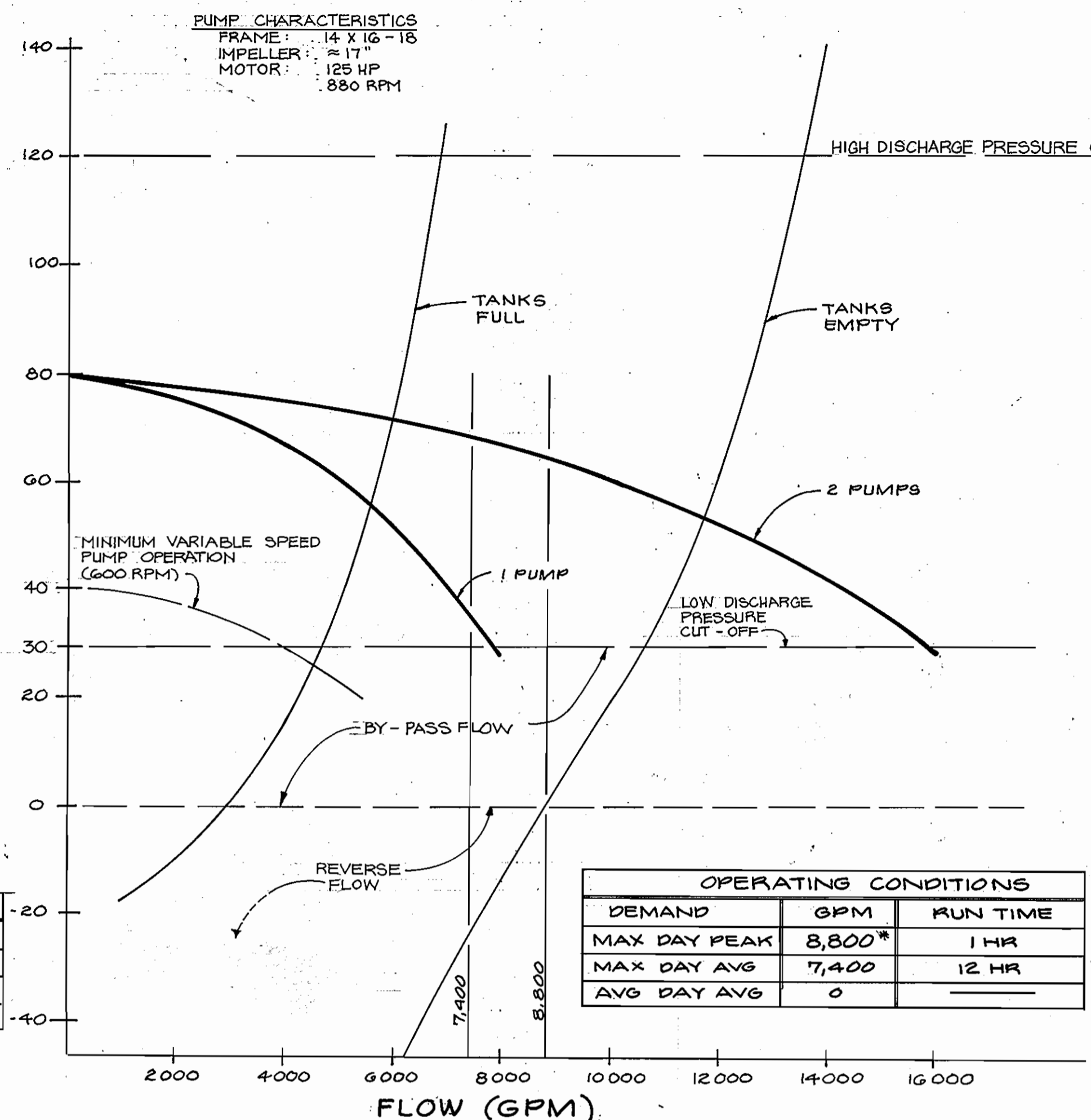
**ROUTE 29**  
**WATER PUMPING STATION**

CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
2ND ELECTION DISTRICT, HOWARD CO., MD. C-120

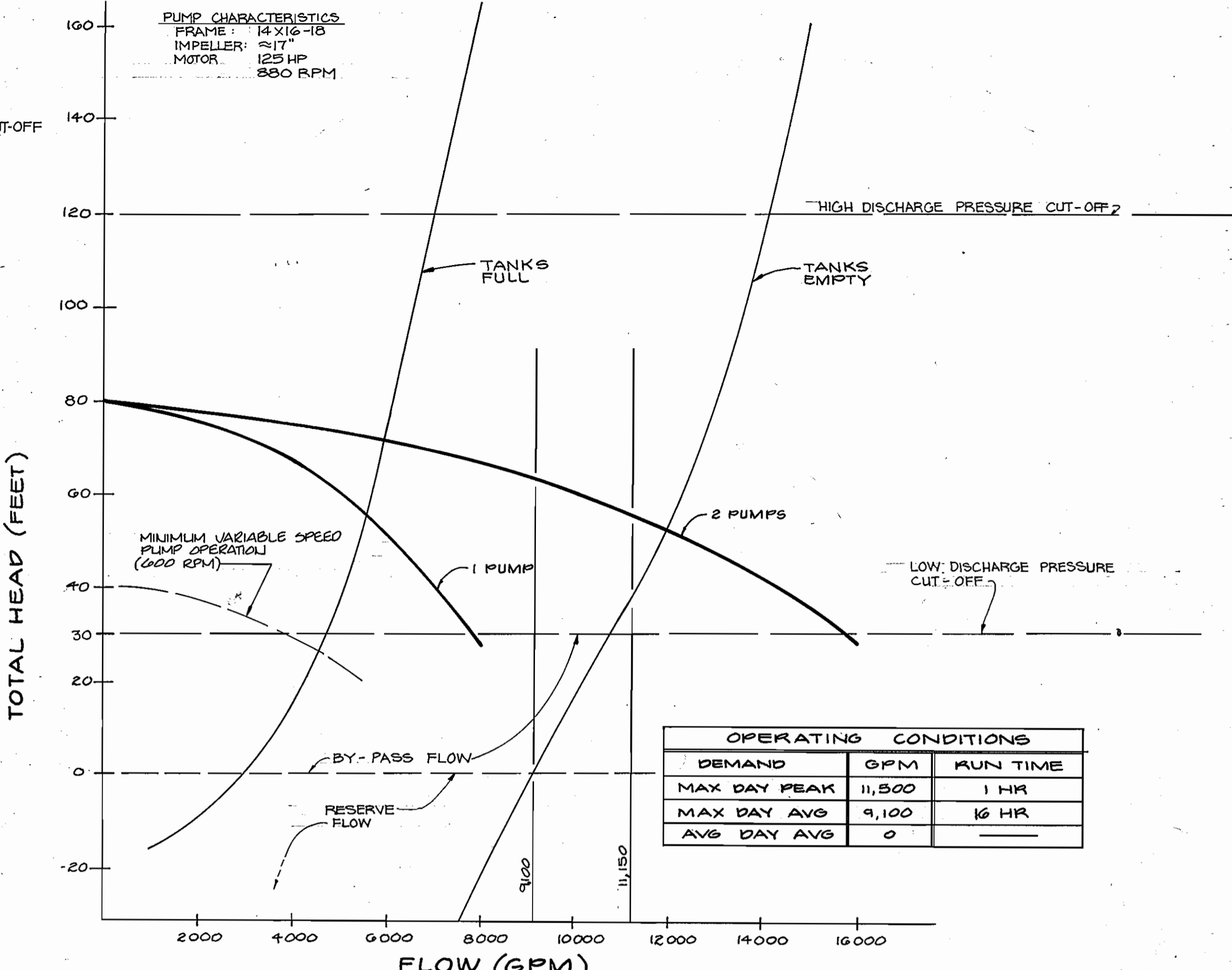
SCALE AS SHOWN  
SHEET 23 OF 24  
AS-BUILT 4-13-88



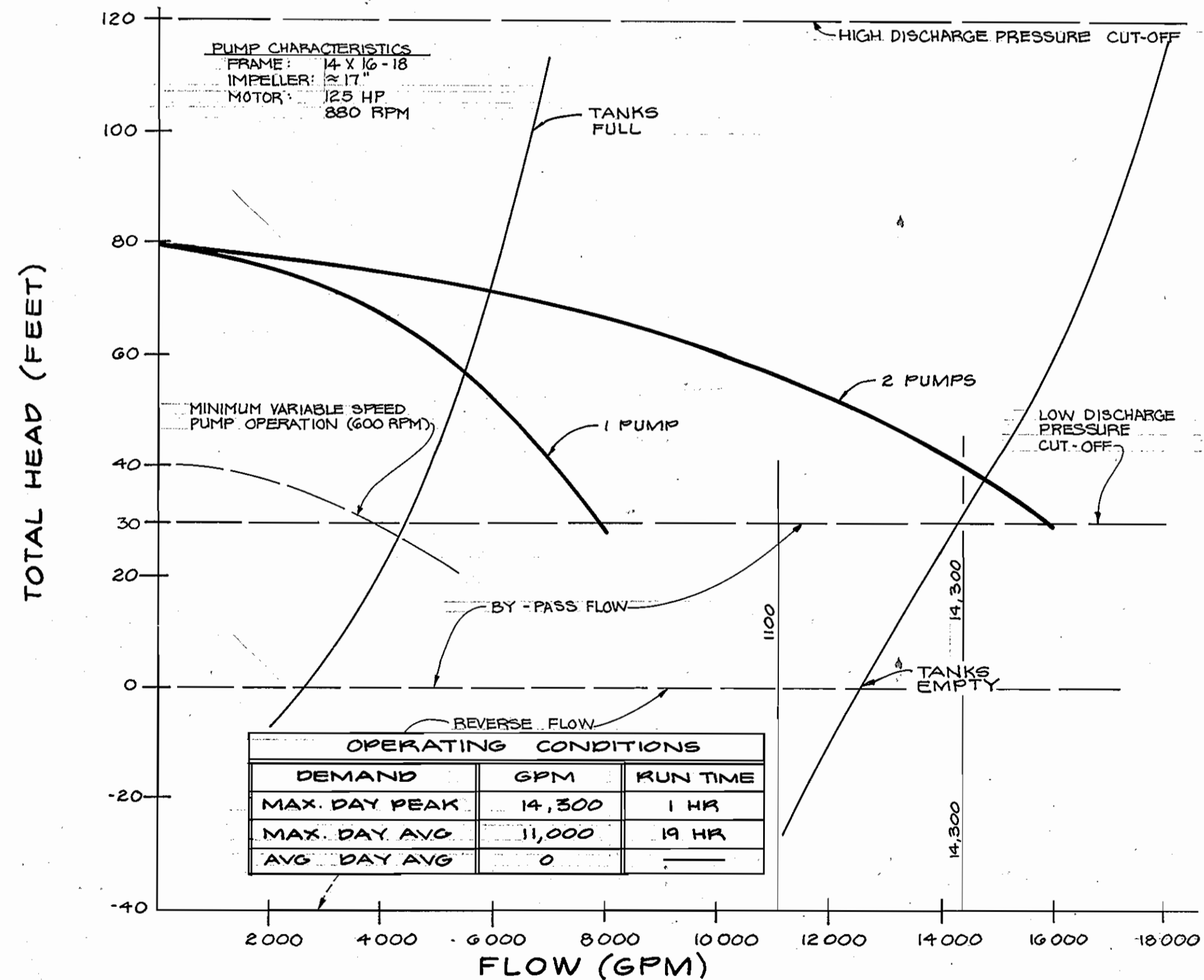
PUMP CURVES FOR YEAR 1985 DEVELOPMENT



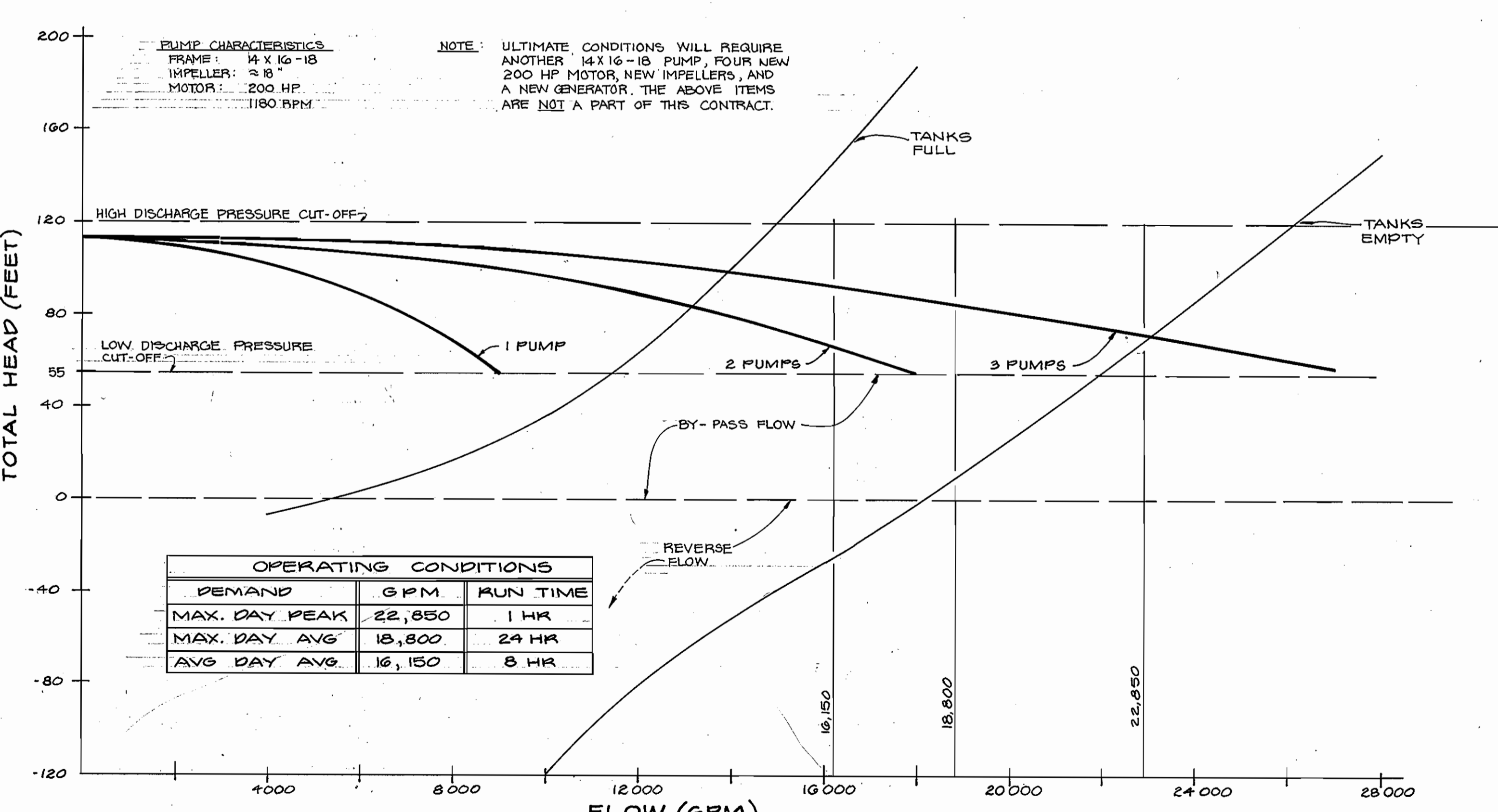
PUMP CURVES FOR YEAR 1990 DEVELOPMENT



PUMP CURVES FOR YEAR 1995 DEVELOPMENT



PUMP CURVES FOR YEAR 2005 DEVELOPMENT



PUMP CURVES FOR ULTIMATE DEVELOPMENT

| PUMP OPERATION SCHEDULE |      |       |       |         |
|-------------------------|------|-------|-------|---------|
| YEAR                    | LEAD | LAG 1 | LAG 2 | STANDBY |
| 1985                    | 535  | 543   |       |         |
| 1990                    | 535  | 543   |       |         |
| 1995                    | 535  | 543   | 535   | 543     |
| 2005                    | 535  | 543   | 535   | 543     |
| ULTIMATE                | 538  | 543   | 538   | 543     |

- NOTES:  
 1. - ELEVATION FROM SCAGGSVILLE TANK.  
 2. SHUT OFF IF GRADIENT GREATER THAN 620'

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works: *John E. Nims* 10-24-86  
 Chief, Bureau of Engineering: *Richard B. Nims* 10-24-86  
 Chief, Utilities, Design Division: *William H. Nims* 10-24-86

DEWBERRY & DAVIS  
 ENGINEERS-ARCHITECTS-PLANNERS  
 SURVEYORS  
 2594 Riva Road, Annapolis, MD. 21041



DES: BTM  
 DRN: JW  
 CHK: SGZ  
 DATE: 7/85

MECHANICAL:  
**PUMP CURVES**  
 600' SCALE MAP NO. 30 BLOCK NO. 10

ROUTE 29  
 WATER PUMPING STATION  
 CAPITAL PROJECT NO. W-8077 CONTRACT NO. 44-1368  
 2ND ELECTION DISTRICT, HOWARD CO., MD.

SCALE AS SHOWN  
 SHEET 24 OF 24