


GENERAL NOTES

PART I

- 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. data.
- All pipe elevations shown are invert elevations.
- Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from money owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- 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 located by the contractor two weeks in advance of construction operations at his own expense.
- Contractor shall notify the following utility companies 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
- 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 removal shall be included in the unit price bid for construction of the main.

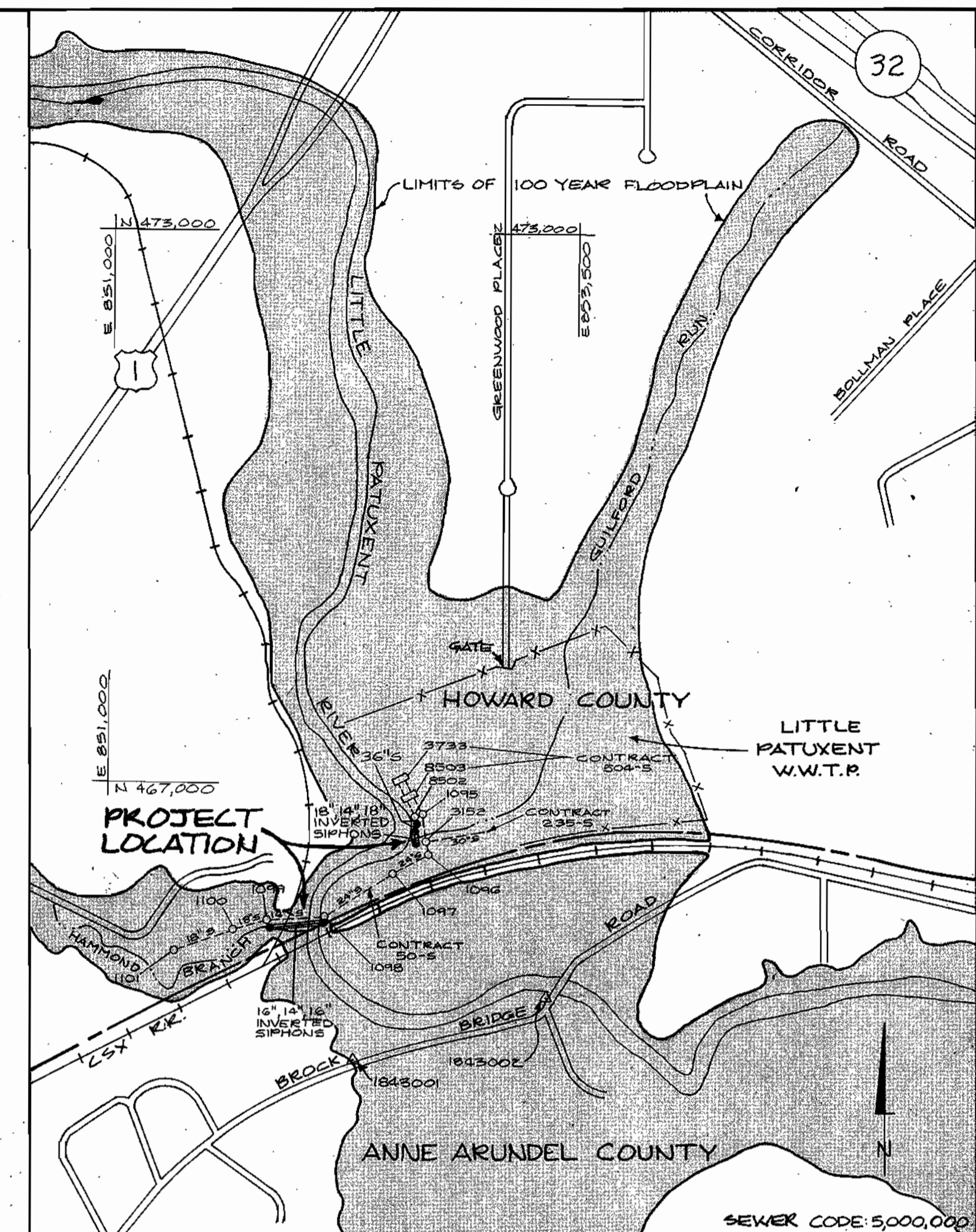
PART II - SEWER

- All sewer mains shall be D.I.P. or R.C.P., as indicated on plans.
- The contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.
- All manholes shall be 4'-0" inside diameter unless otherwise noted.
- Force mains shall be D.I.P. only.
- Manholes shown with 12" and 16" walls are for brick manholes only.
- Manholes designated W.T. in plan and profile shall have watertight frame and covers, Standard Detail C5.52. Where watertight manhole frame and cover is used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
- The Contractor shall make the necessary connections to existing and proposed manholes using mechanically wedged-in-place type connectors such as Link-Seal as manufactured by Thunderline Corporation, Z-Lok SP as manufactured by A-Lok Products, Inc. or Kor-n-Seal as manufactured by National Pollution Control Systems, Inc. All metal parts, i.e. bolts, straps, etc. shall be stainless steel.
- Manhole base shall be bedded on 6-inch granular material on firm subgrade.
- Excavation below pipes shall be backfilled with granular or select material 1/3 of way to top of pipe.
- Manhole steps shall be specified on detail C5.21 manhole cover shall be as specified on detail C5.51.
- Manhole channels shall be formed to provide a smooth hydraulic transition between pipes. Benches shall be to top of pipe as shown on plans. Manhole channels and benches shall be formed from sewer brick, grade 4M, ASTM C-32.
- Manhole shall be in accordance with ASTM C-478 except as shown.

CAPITAL PROJECT S-6146

CONTRACT NO. 20-1601

HAMMOND BRANCH PARALLEL SEWER



VICINITY MAP
SCALE: 1" = 600'
DRAINAGE AREA: LITTLE PATUXENT
TYPE OF BUILDING: N/A
NUMBER OF PARCELS: N/A
NO. OF HOUSE CONN.: N/A

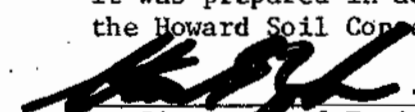
BENCHMARKS
HOWARD COUNTY 183300
HOWARD COUNTY 183302
"MISCELLANEOUS SURVEYS" BOOK #2

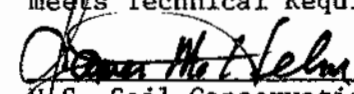
SEDIMENT CONTROL NOTES:

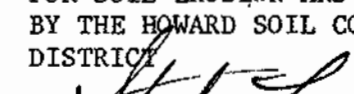
- SEDIMENT CONTROL APPROVAL IS PREDICATED ON DAILY BACKFILLING OF ALL OPEN TRENCHES
- PROVISIONS SHALL BE MADE FOR DAILY CLEAN UP OF ANY SEDIMENT THAT ACCUMULATES ON THE PUBLIC OR PRIVATE ROADS OR RIGHT-OF-WAYS
- SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH VOLUME 4, ARTICLE 15 OF THE HOWARD COUNTY DESIGN MANUAL AND THESE PLANS.

By the Engineer:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

 STEVEN G. ZAHN 8/11/88
Signature of Engineer Date


Reviewed for HOWARD S.C.D. and meets Technical Requirements
 8/11/88
U.S. Soil Conservation Service Date

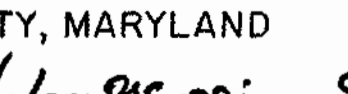
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 8/11/88
Howard S.C.D. Date

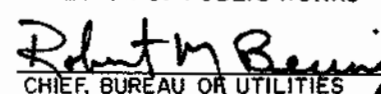
QUANTITIES			
ITEM	ESTIMATED	AS BUILT	MATERIALS/SUPPLIER
14" D.I.P.	377 LF	380.47 L.F.	
16" D.I.P.	618 LF	626.00 L.F.	
18" D.I.P.	126 LF	132.66 L.F.	
24" R.C.P.	34.5 LF	35.00 L.F.	
36" R.C.P.	52 LF	47.00 L.F.	
CL II RIP RAP	445 SY.	866.40 SY.	
5' M.H.	1	2	
6' M.H.	2	1	
INLET/OUTLET CHAMBERS	4	4	

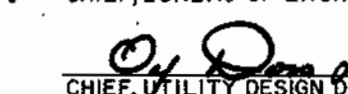
BRUNING 69150

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

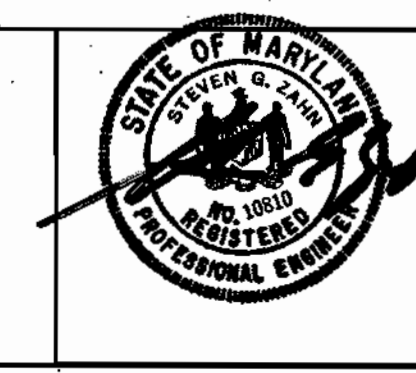
 8/11/88
DIRECTOR OF PUBLIC WORKS DATE

 8-11-88
CHIEF, BUREAU OF ENGINEERING DATE

 8-11-88
CHIEF, BUREAU OF UTILITIES DATE

 8-11-88
CHIEF, UTILITY DESIGN DIVISION DATE

DEWBERRY & DAVIS
2594 RIVA ROAD
ANNAPOLIS, MD 21401
(301) 841-6811



DES: KB			
DRN: SGW			
CHK: SGZ			
DATE: 11/17/87	BY	NO.	REVISION

LOCATION MAP OF
SANITARY SEWERS

600 SCALE MAP NO. 47 BLOCK NO. 24

HAMMOND BRANCH PARALLEL SEWER

CAPITAL PROJECT S-6146 CONTRACT NO. 20-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

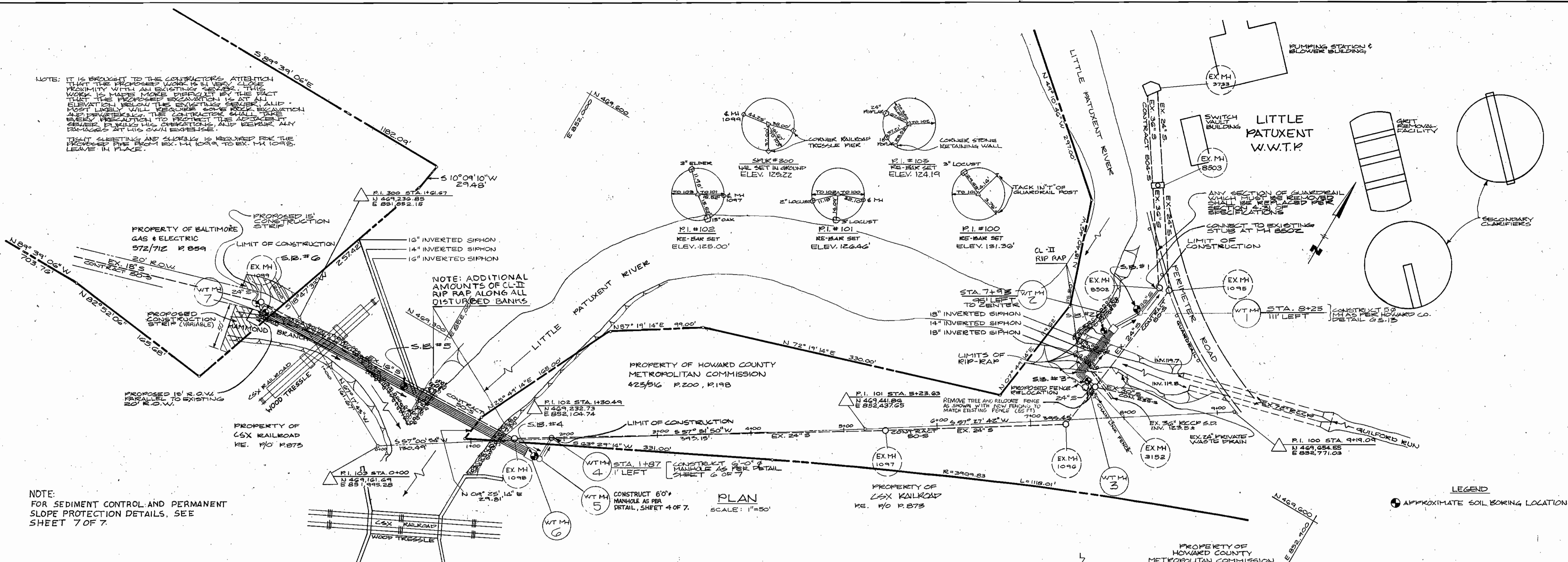
SCALE AS SHOWN
SHEET 1 OF 7

AS-BUILT G. WALLACE 2-13-90 AS-BUILT

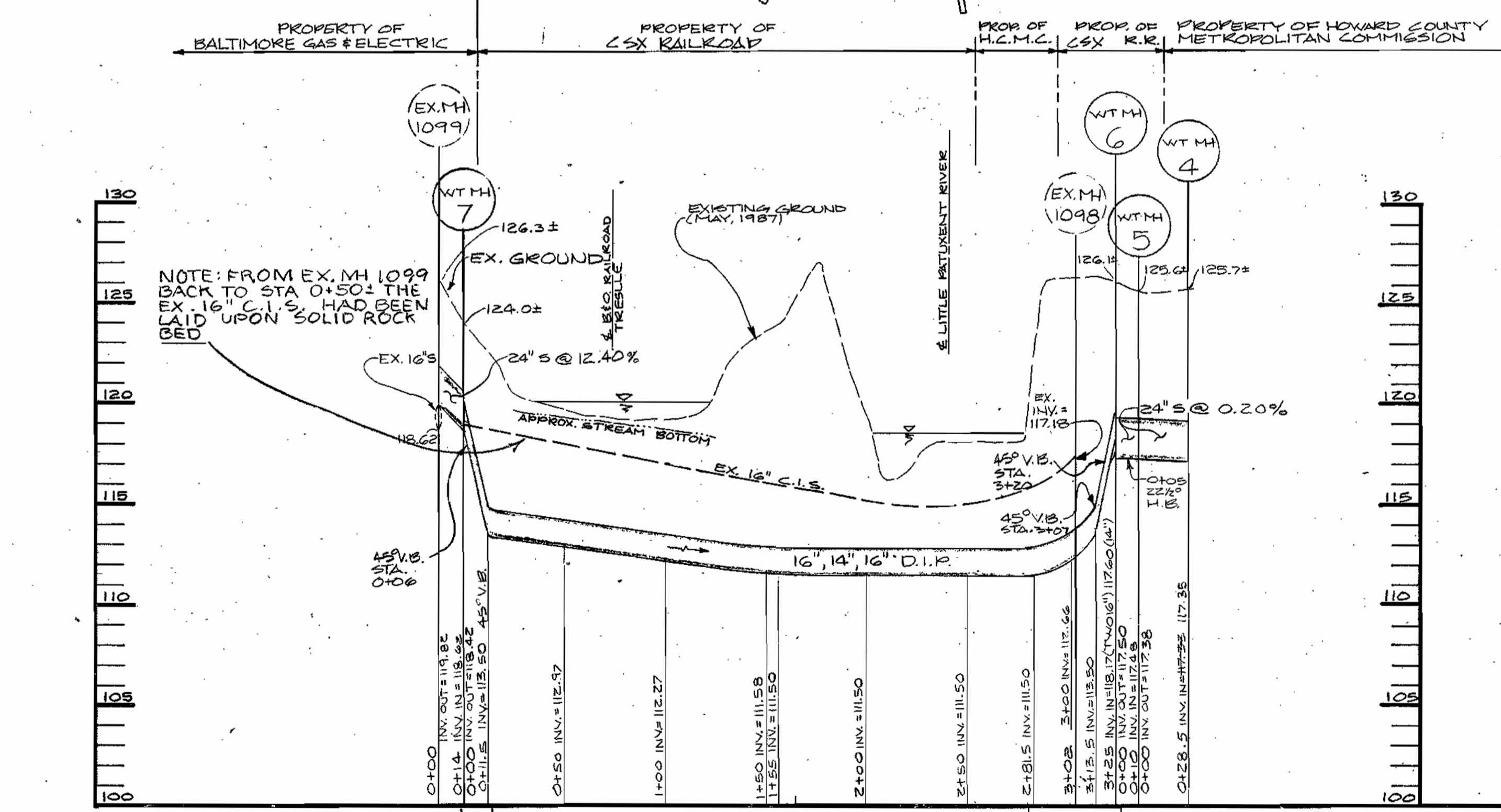
C-201-20

NOTE: IT IS BROUGHT TO THE CONTRACTOR'S ATTENTION THAT THE PROPOSED WORK IS IN VERY CLOSE PROXIMITY WITH AN EXISTING SEWER. THIS WORK IS MADE MORE DIFFICULT BY THE FACT THAT THE PROPOSED EXCAVATION IS AT AN ELEVATION BELOW THE EXISTING SEWER. ALL MOST LIKELY WILL REQUIRE SOME FORM OF PROTECTION. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PREVENT THE SEWER FROM BEING PLUNGED OR OPERATIONS ANY DAMAGE TO HIS OWN EXPOSED.

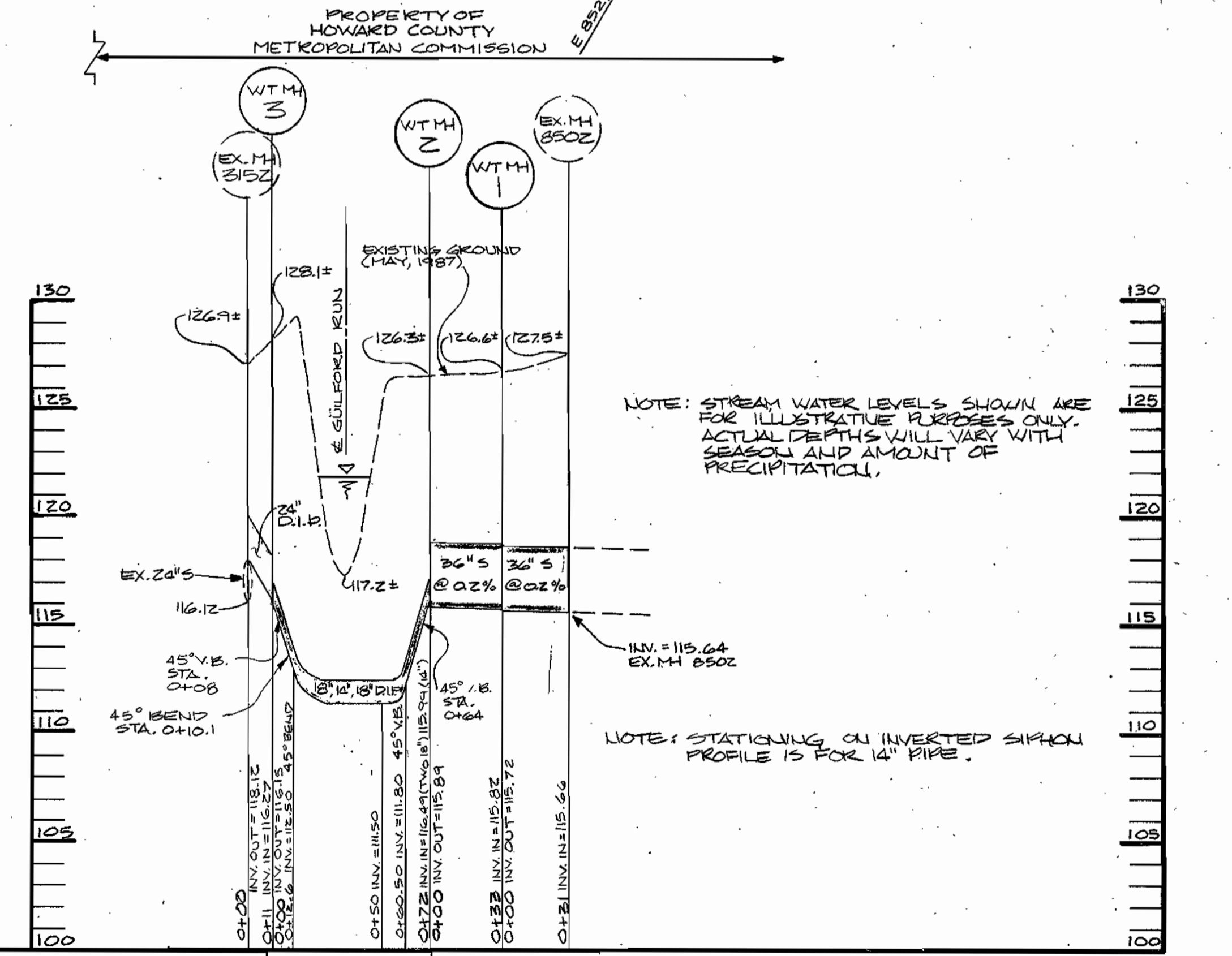
LIGHT SHEETING AND SLURRING IS REQUIRED FOR THE PROPOSED PIPE FROM EX. MH 1099 TO EX. MH 1098. LEAVE IN PLACE.



PLAN SCALE: 1"=50'



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



NOTE: STATIONING ON INVERTED SIPHON PROFILE IS FOR 14" PIPE.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Dr. William W. Weiland 8/11/88
DIRECTOR OF PUBLIC WORKS

R. Dennis Reinger 8-11-88
CHIEF, BUREAU OF UTILITIES

Debra L. Reinger 8-11-88
CHIEF, BUREAU OF ENGINEERING

Debra L. Reinger 8-11-88
CHIEF, UTILITY DESIGN DIVISION

DEWBERRY & DAVIS
2594 RIVA ROAD
ANNAPOLIS, MD 21401
(301) 841-6811

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER

DES: KB
DRN: BGV
CHK: SGZ
DATE: 11/7/87

PLAN AND PROFILE OF
SANITARY SEWERS

600' SCALE MAP NO. 47 BLOCK NO. 24

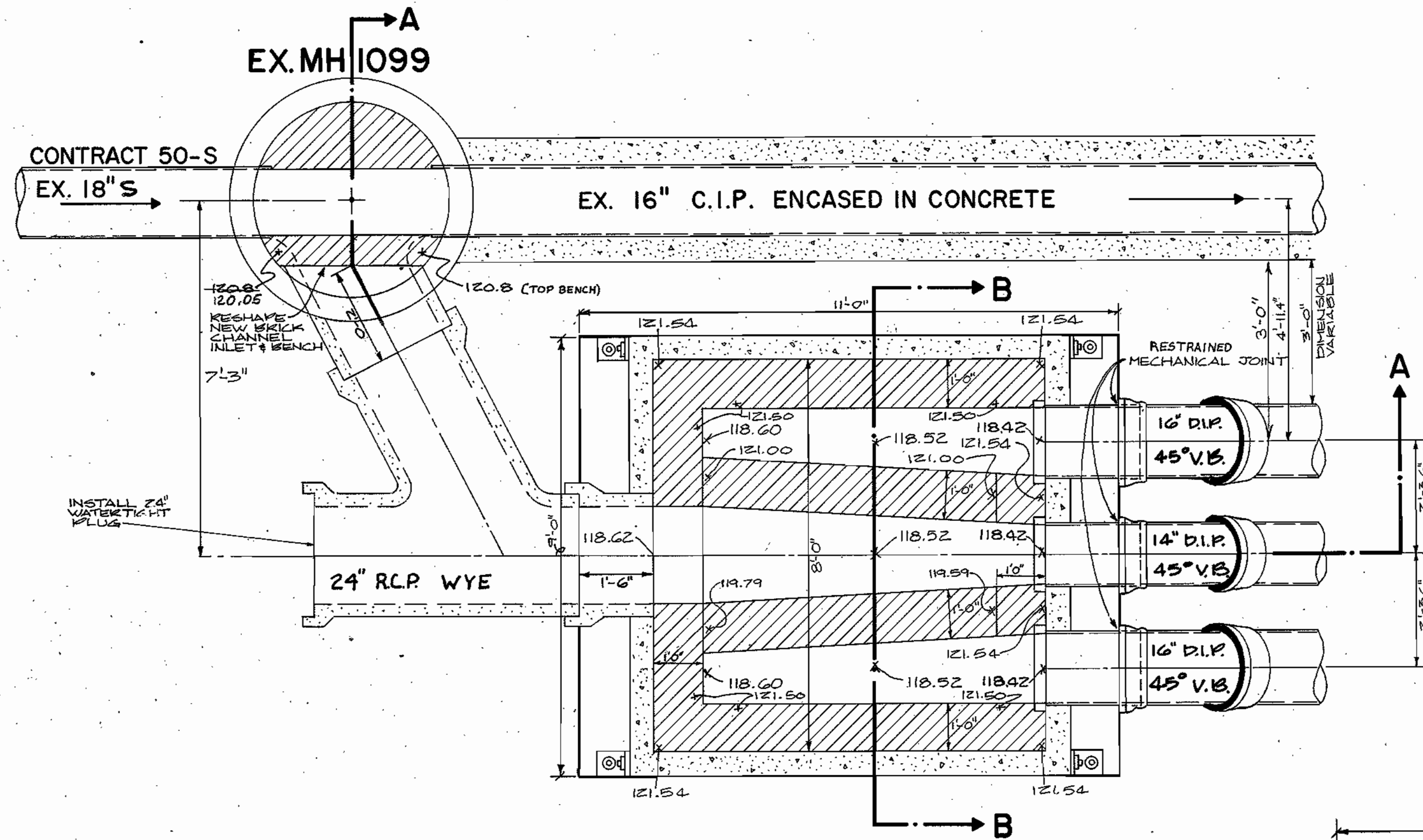
HAMMOND BRANCH PARALLEL SEWER

CAPITAL PROJECT S-6146 CONTRACT NO. 2Q-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 2 OF 7

AS-BUILT G. WALLACE 2-13-90

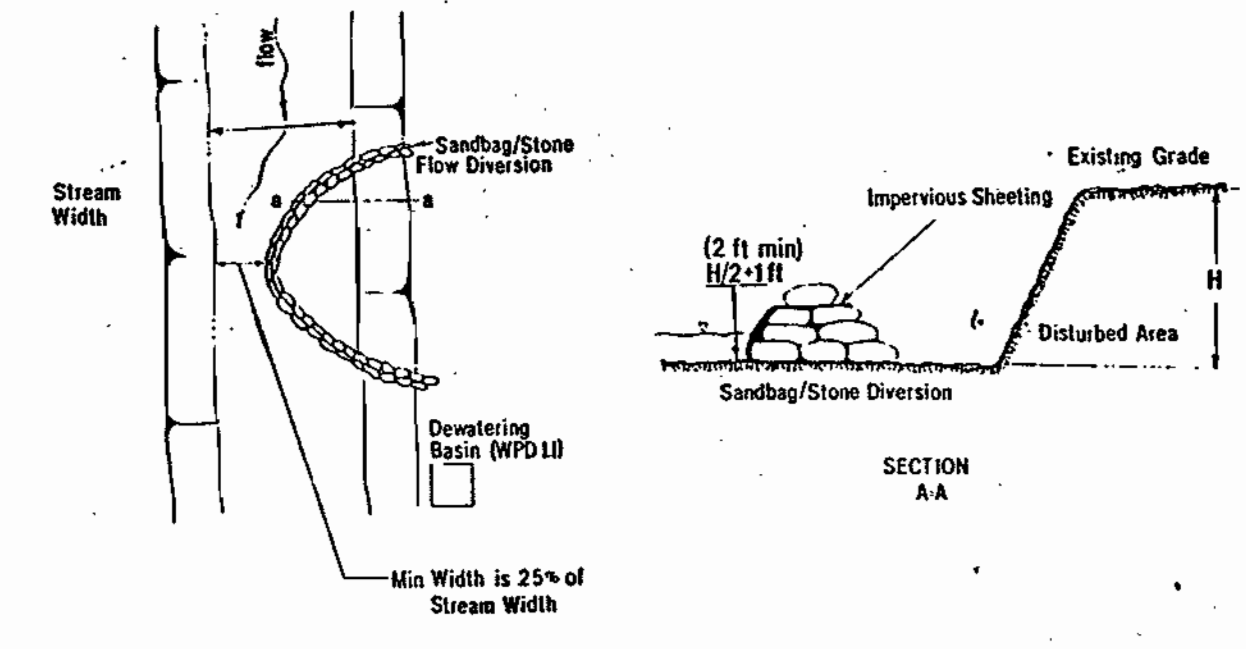
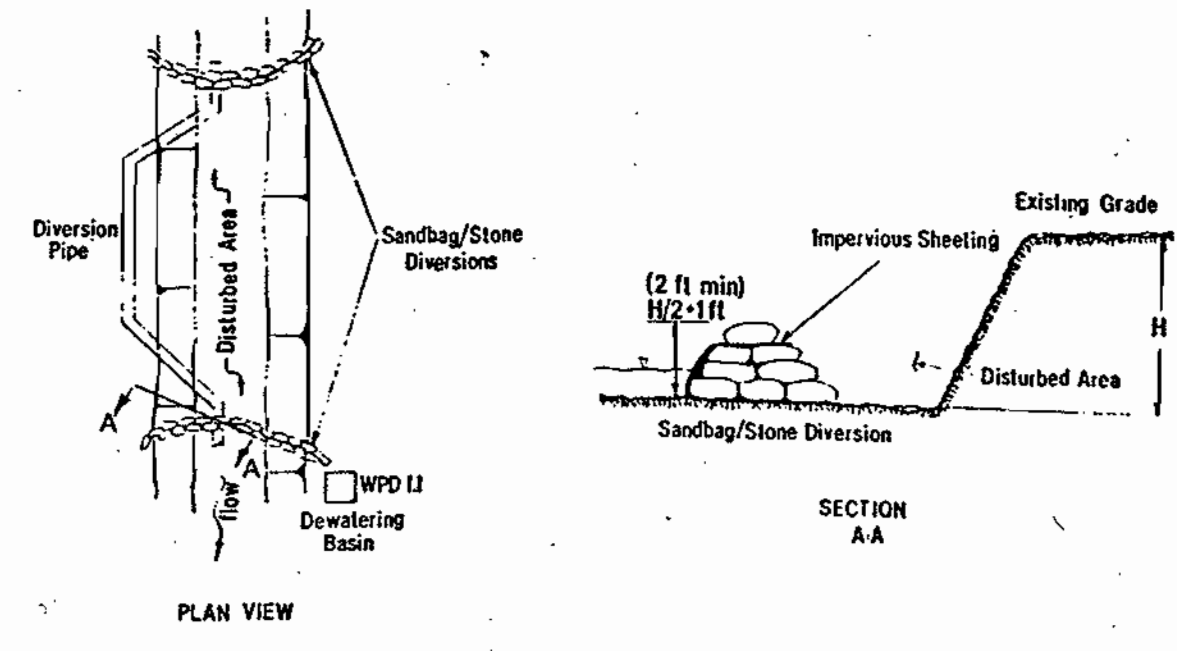
NOTE: CHANNEL FLOW LINES ARE SEMICIRCULAR TO 1/2 HEIGHT OF OUTLET PIPES (TYPICAL ALL MANHOLES)



SUGGESTED SEQUENCE OF CONSTRUCTION FOR THE IN-TO EXISTING MH 1099

1. KOR-N-SEAL MH 1099 RESHAPING NEW BRICK CHANNEL INLET & BENCH
2. INSTALL 24" WYE PIECE W/ PLOG
3. SET MH 7 IN PLACE
4. INSTALL CLOSURE PIPE BETWEEN MH 7 AND 24" WYE.

NOTE: FLOW SHALL BE MAINTAINED THROUGH EX. MH 1099 THROUGHOUT CONSTRUCTION CONTRACTOR TO MAINTAIN FLOW THROUGH EX. MH 1099 THROUGHOUT CONSTRUCTION.

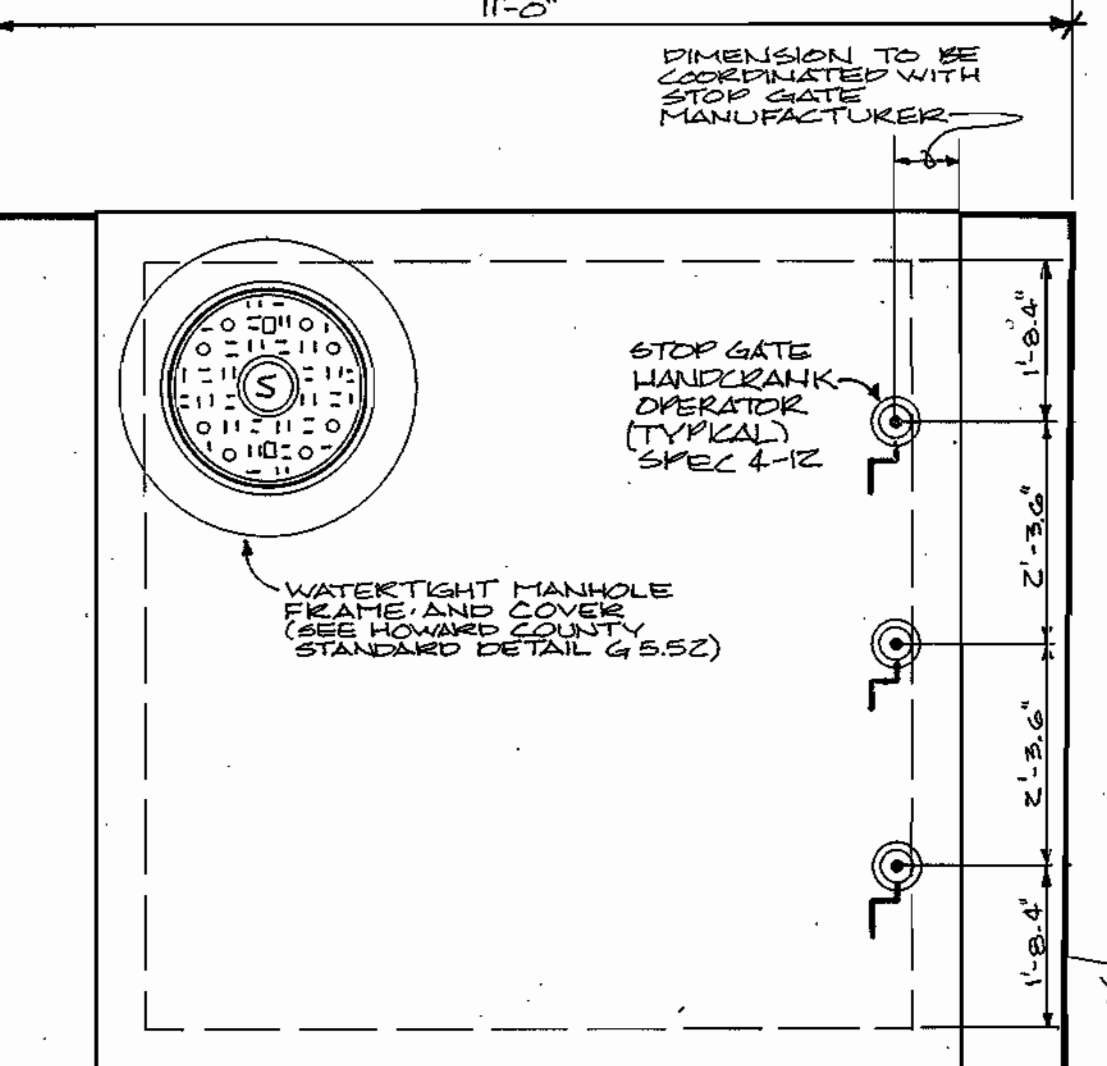


- PLAN VIEW**
1. Description: The work shall consist of installing a flow diversion structure when construction activities take place within the stream channel such as culvert construction or culvert replacement.
 1. Material Specifications:
 1. Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
 2. Stone: Stone shall be washed and have a minimum diameter of 6 inches.
 3. Sheetings: Sheetings shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
 1. Construction Requirements:
 1. All erosion and sediment control devices shall be installed as the first order of work.
 2. The height of the sandbag/stone diversion structure shall be one half the distance from the stream bed to the bank plus one foot, as indicated in section A-A.
 3. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the M&A.
 4. All dewatering of the construction area shall be pumped to a dewatering basin (WPD II) or otherwise approved on the plans by the M&A.
 5. Sheetings shall be overlapped a minimum of 18 inches.
 6. The diversion pipe shall have a minimum diameter of sufficient size to convey the normal stream flow.
 7. If necessary, silt fence or siltbates shall be installed around the perimeter of the work area.
 8. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

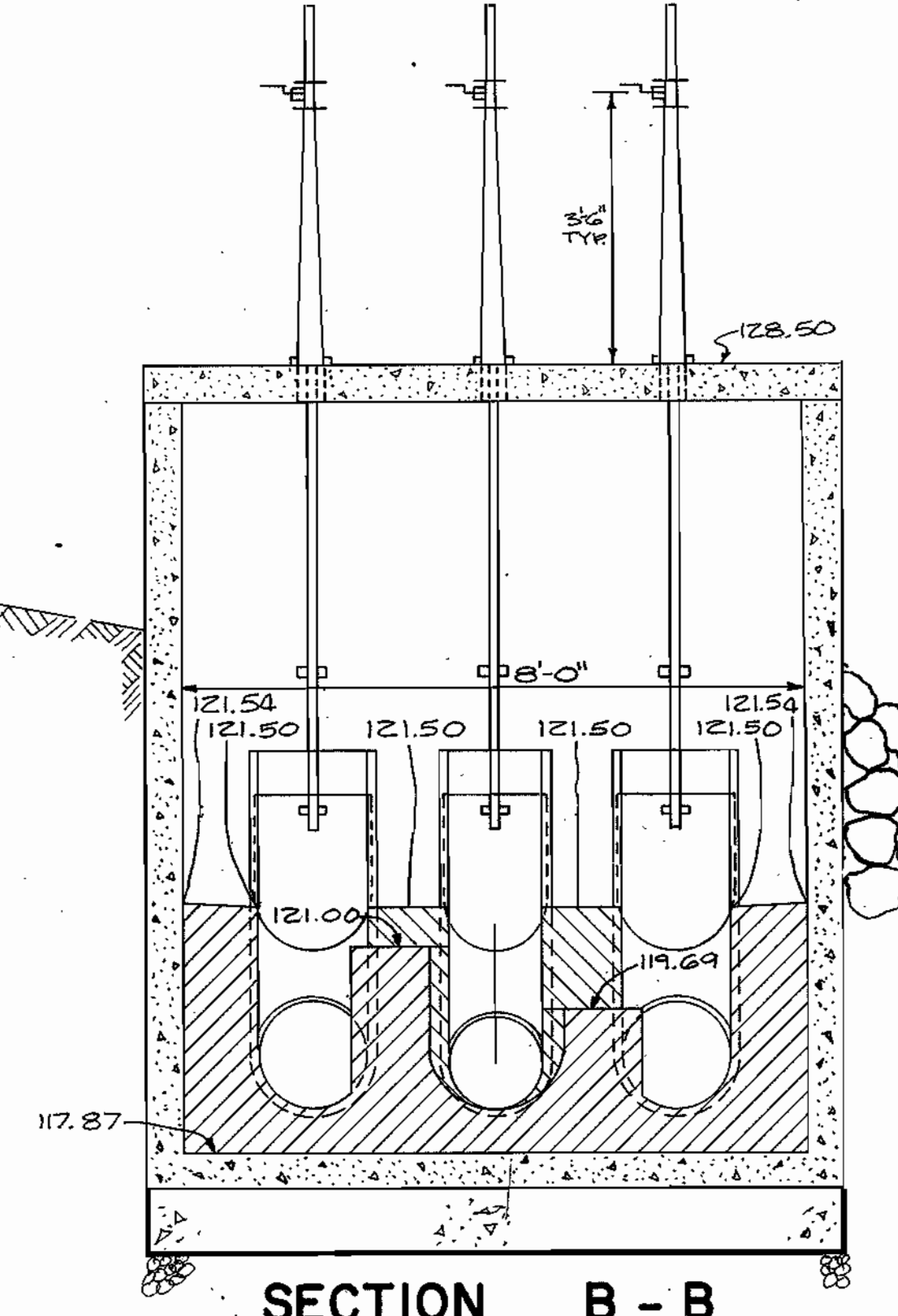
- SECTION A-A**
1. Description: The work shall consist of installing flow diversions for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.
 1. Material Specifications:
 1. Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
 2. Stone: Stone shall be washed and have a minimum diameter of 6 inches.
 3. Sheetings: Sheetings shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
 1. Construction Requirements:
 1. All erosion and sediment control devices shall be installed as the first order of work.
 2. The diversion structure shall be installed from upstream to downstream.
 3. The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
 4. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the M&A.
 5. All dewatering of the construction area shall be pumped to a dewatering basin prior to re-entering the stream.
 6. Sheetings shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
 7. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	Diversion Pipe	Approved On 1/24/86 Chief, Waterway Permits	WPD 2.2	WATER RESOURCES ADMINISTRATION	Sandbag/Stone Diversion	Approved On 1/24/86 Chief, Waterway Permits	WPD 2.3
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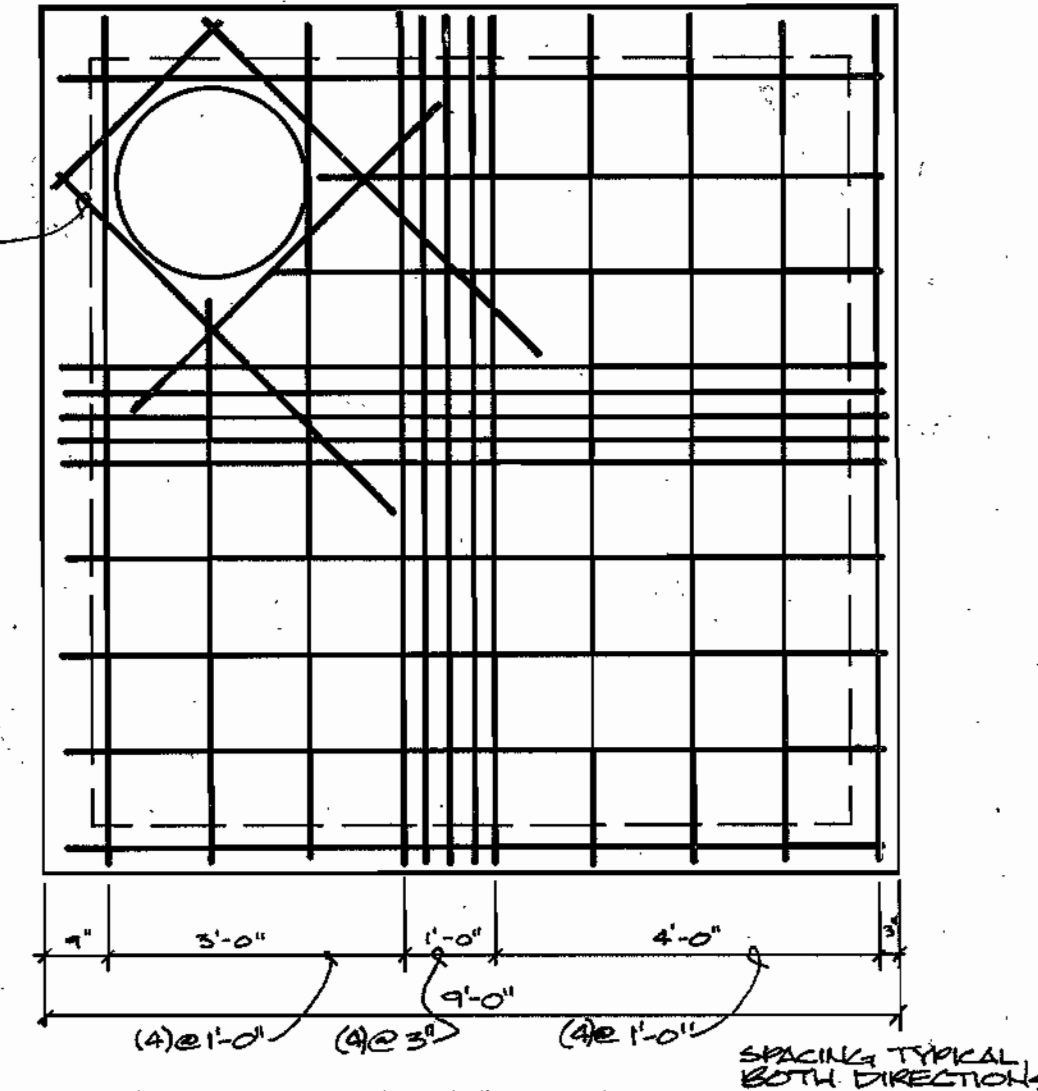
MANHOLE 7 PLAN
SCALE: 1/2" = 1'



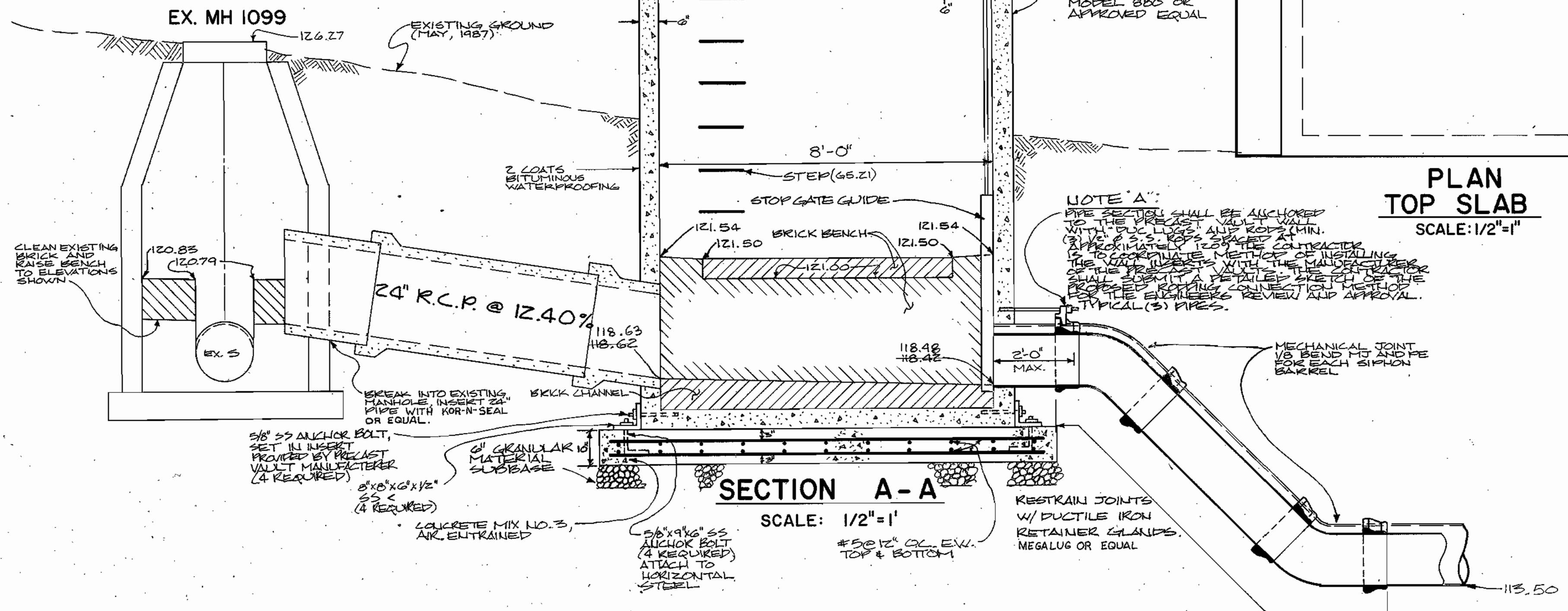
PLAN TOP SLAB
SCALE: 1/2" = 1'



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



DETAIL: TOP SLAB REINFORCING
SCALE: 1/2" = 1'



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

NOTE 'A': PIPE SECTIONS SHALL BE ALLOWED TO BE SET AS LOW AS POSSIBLE WITHIN THE 2'-0" DEPTH OF THE MANHOLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING MANHOLE AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING MANHOLE AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING MANHOLE.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: *Renwick W. Cleland* 8-11-88
Chief, Bureau of Engineering: *Clayton L. ...* 8-11-88
Chief, Bureau of Utilities: *Robert ...* 8-11-88

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(301) 841-6811

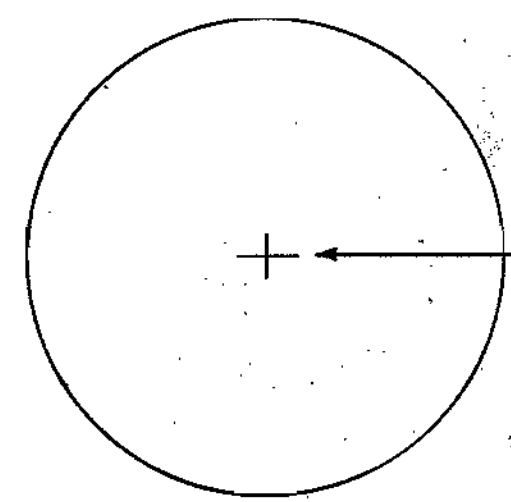


DES: KB	DRN: BGV	CHK: SZZ	DATE: 11/17/87
BY: NO.	REVISION	DATE	600' SCALE MAP NO. 47 BLOCK NO. 24

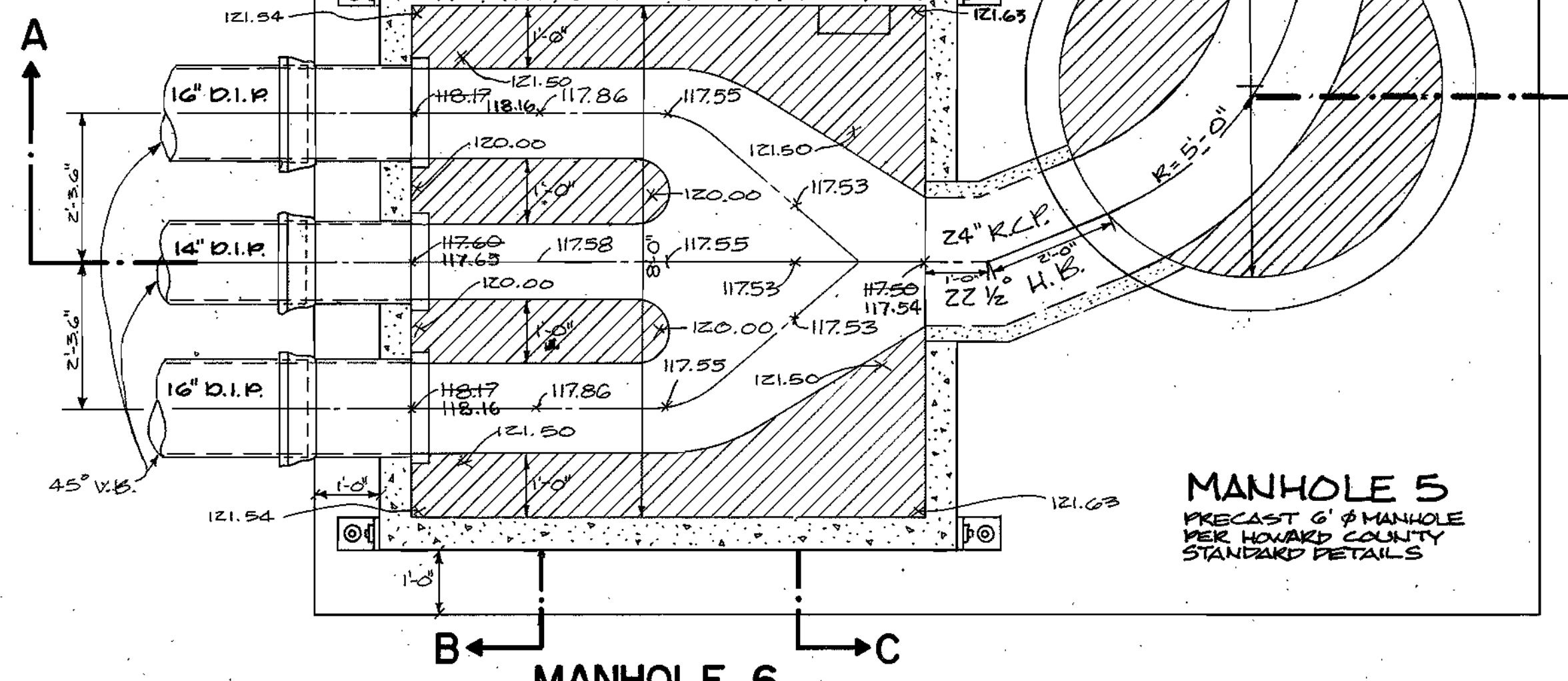
MANHOLE NO. 7
UPSTREAM INLET STRUCTURE
DETAIL SHEET

HAMMOND BRANCH PARALLEL SEWER
CAPITAL PROJECT S-6146 · CONTRACT NO. 20-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

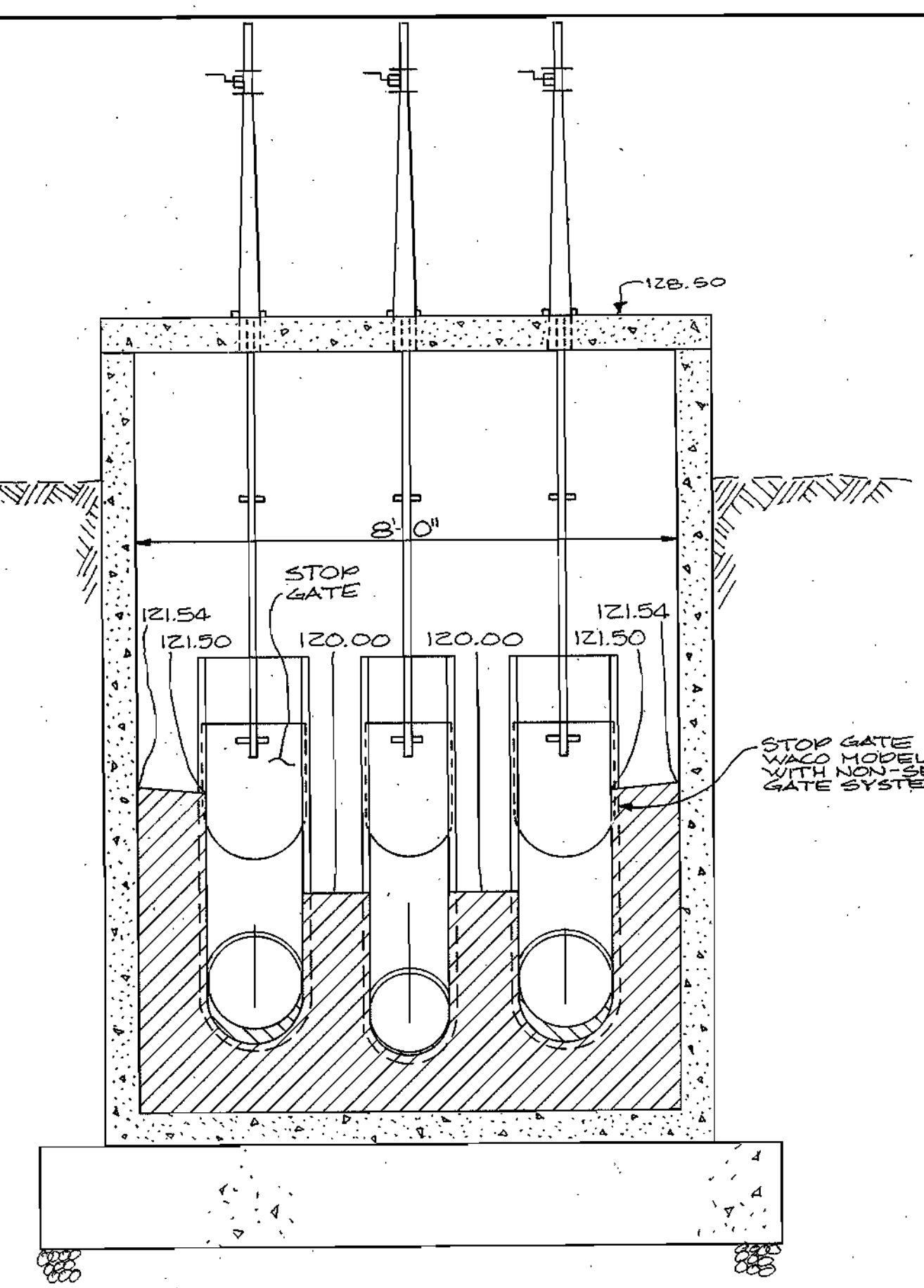
SCALE AS SHOWN
SHEET 3 OF 7



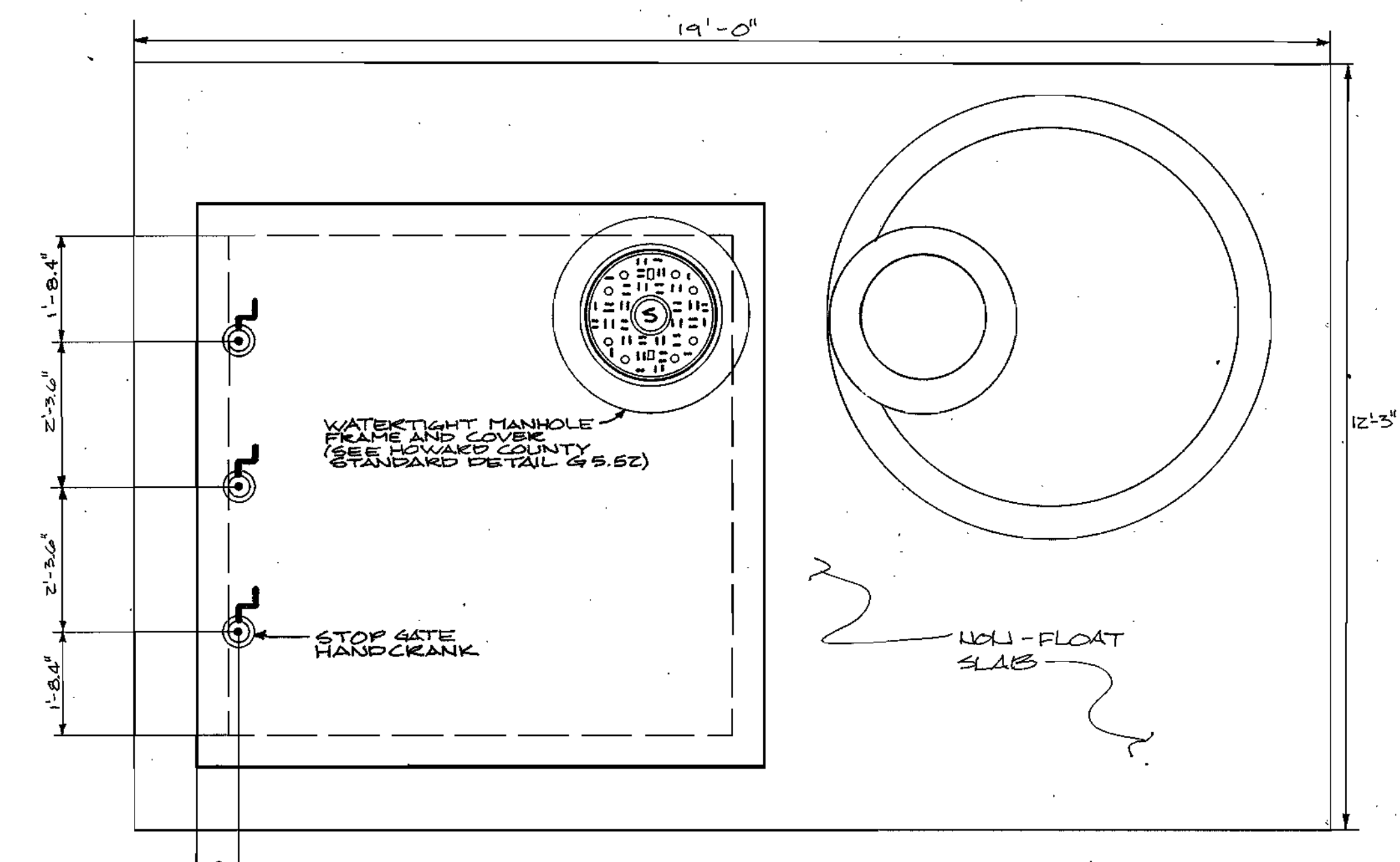
EX. MH. 1098



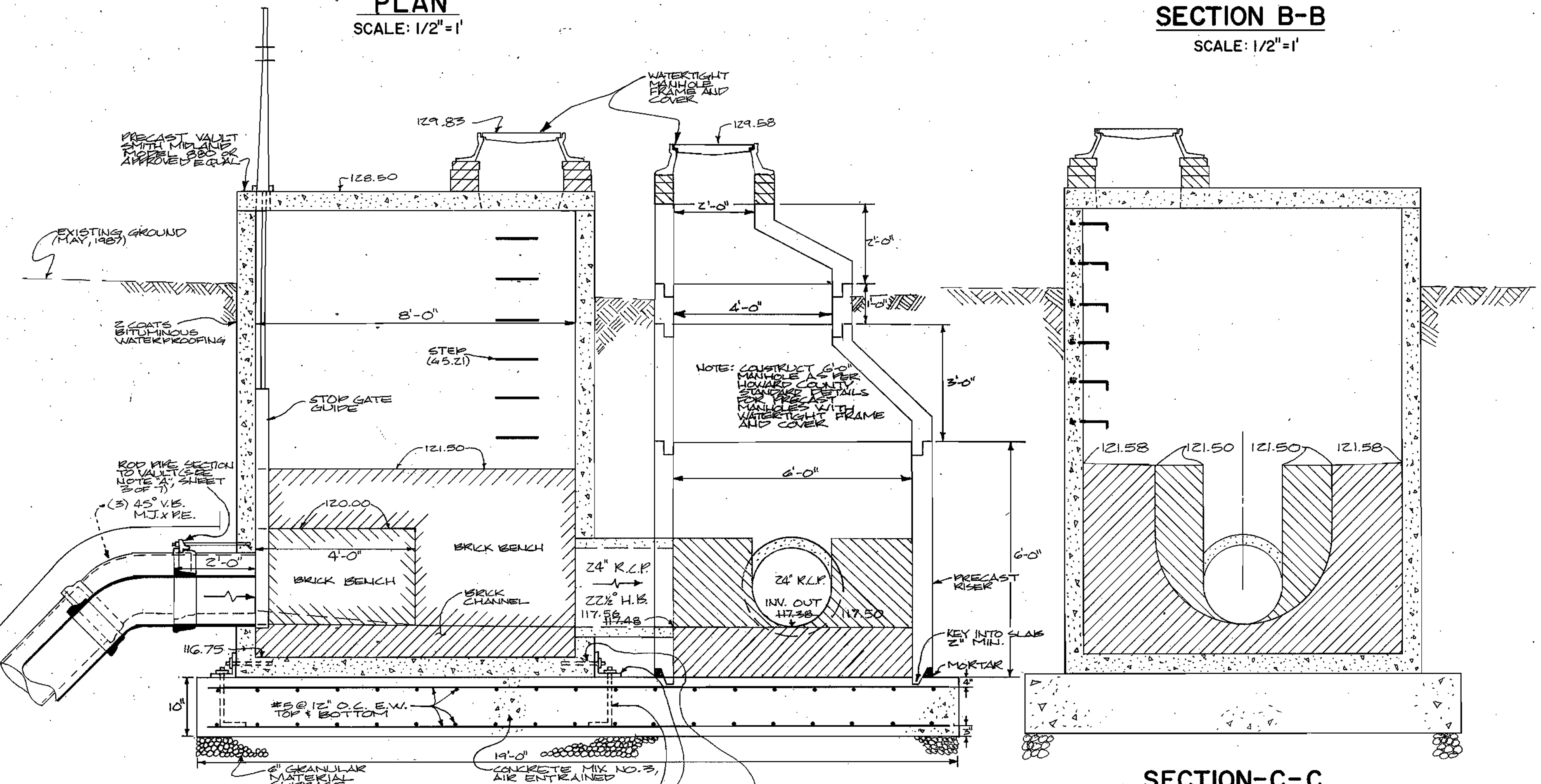
MANHOLE 6 PLAN
SCALE: 1/2"=1'



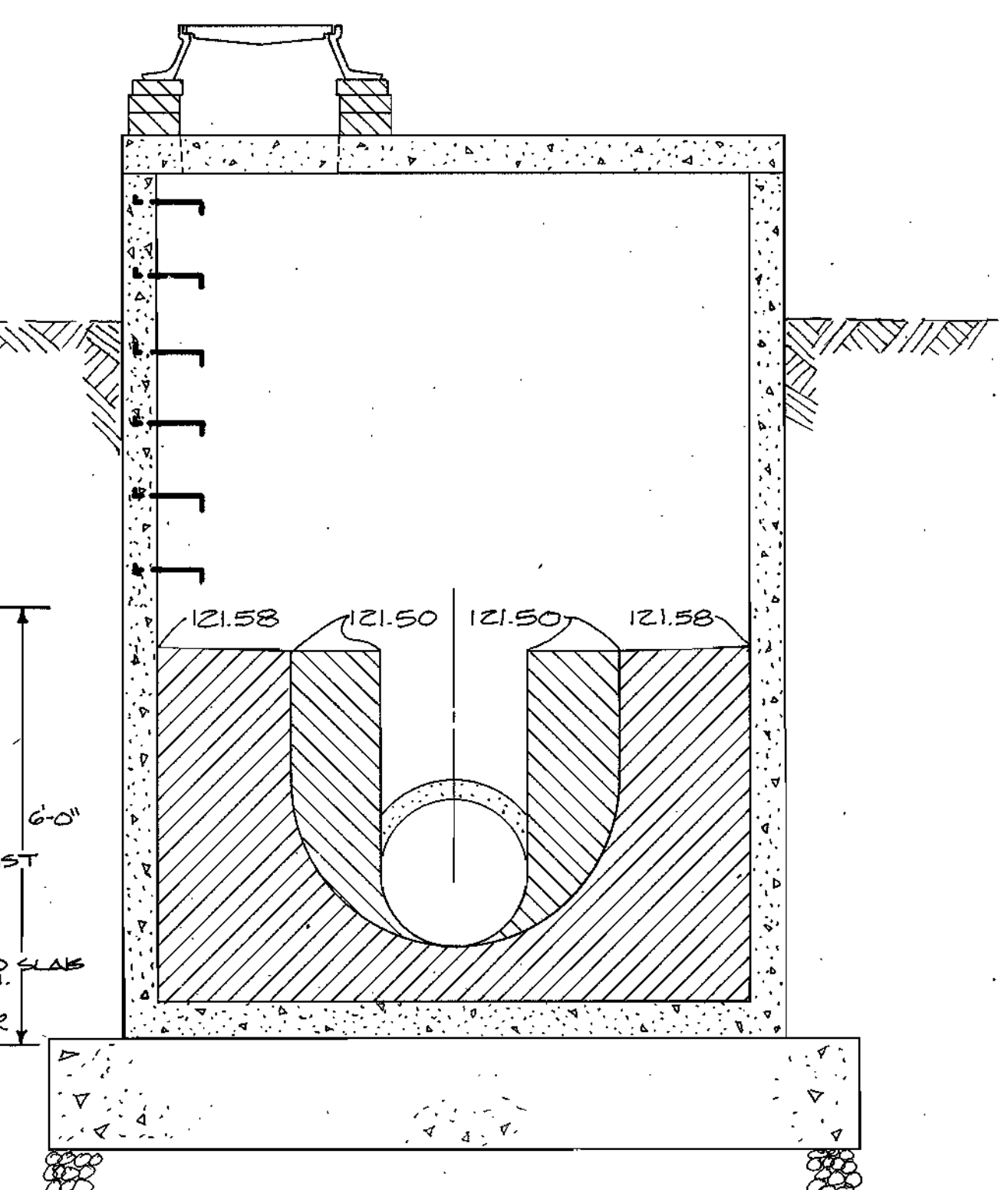
SECTION B-B
SCALE: 1/2"=1'



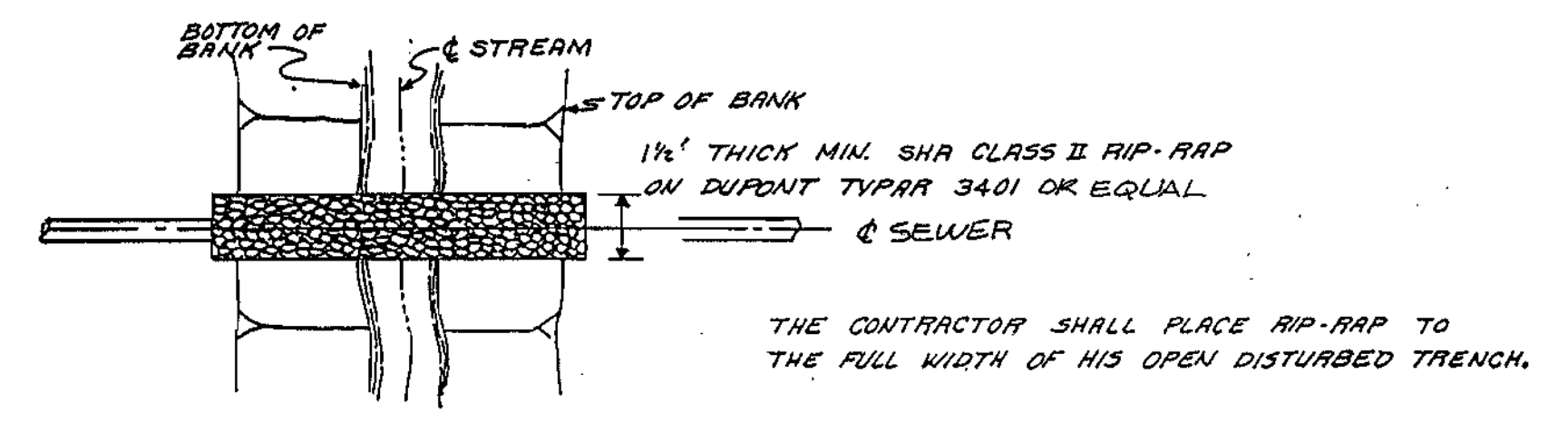
PLAN TOP SLAB
SCALE: 1/2"=1'
(SEE SHEET 3 OF 7 FOR REINFORCING DETAIL)



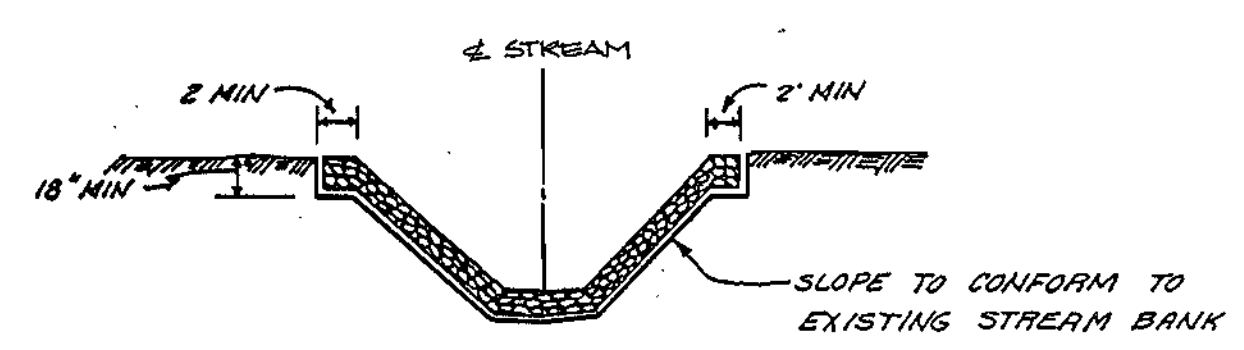
SECTION A-A
SCALE: 1/2"=1'



SECTION C-C
SCALE: 1/2"=1'



PLAN



SECTION

SMALL STREAM CROSSING DETAIL
FOR SEWER CROSSING BETWEEN MH2 AND MH3
(SEE SHEET 7 OF 7)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: *Randy Benin* 8-11-88
Chief, Bureau of Engineering: *On On Law* 8-10-88
Chief, Bureau of Utilities: *On On Law* 8-10-88

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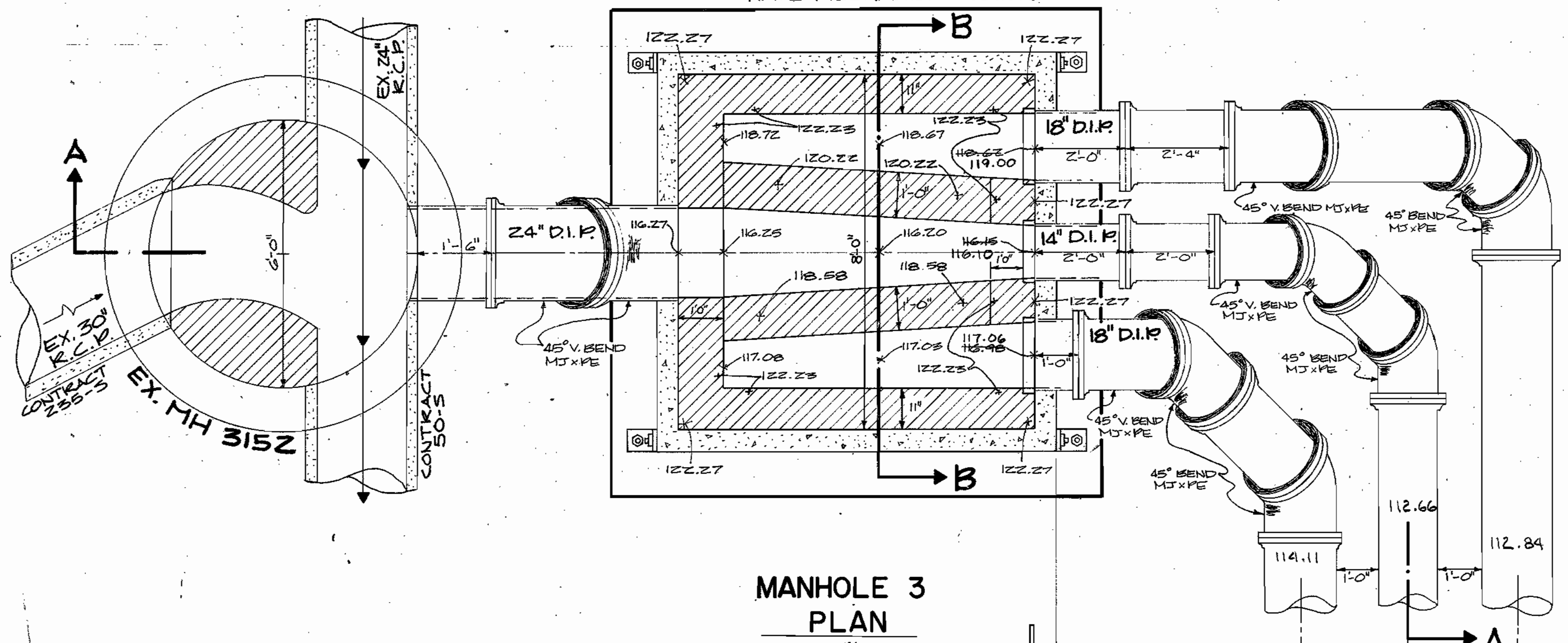
DES: KB			
DRN: EGV			
CHK: SGZ			
DATE: 11/7/87	BY NO.	REVISION	DATE

MANHOLE NO. 6
UPSTREAM OUTLET STRUCTURE
DETAIL SHEET

HAMMOND BRANCH PARALLEL SEWER
CAPITAL PROJECT S-6146 CONTRACT NO. 20-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

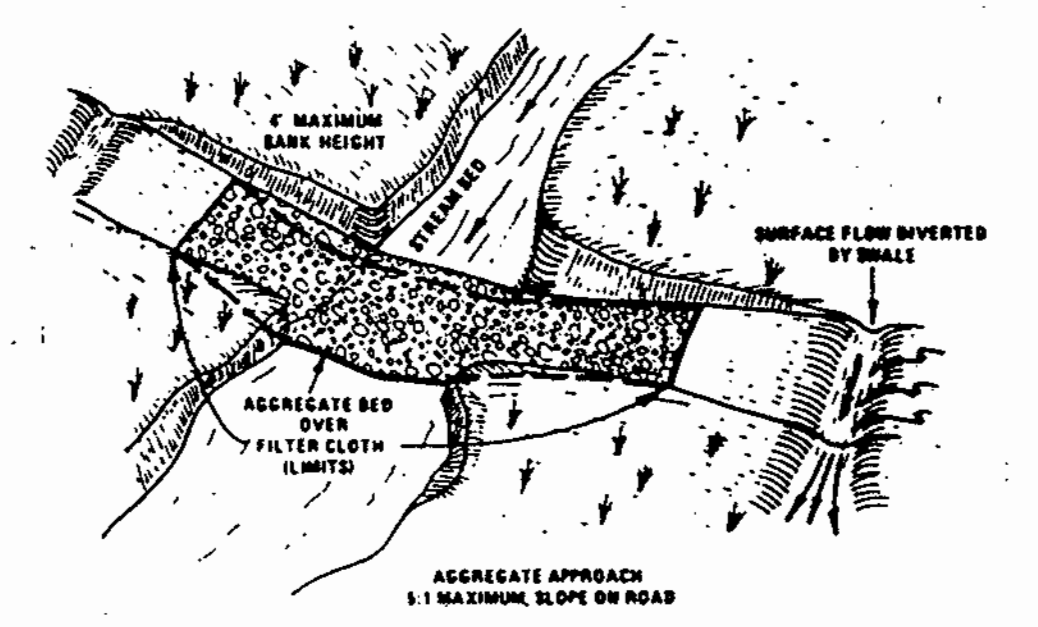
SCALE AS SHOWN
SHEET 4 OF 7

NOTE: ALL PIPING SHOWN SHALL HAVE MECHANICAL JOINTS

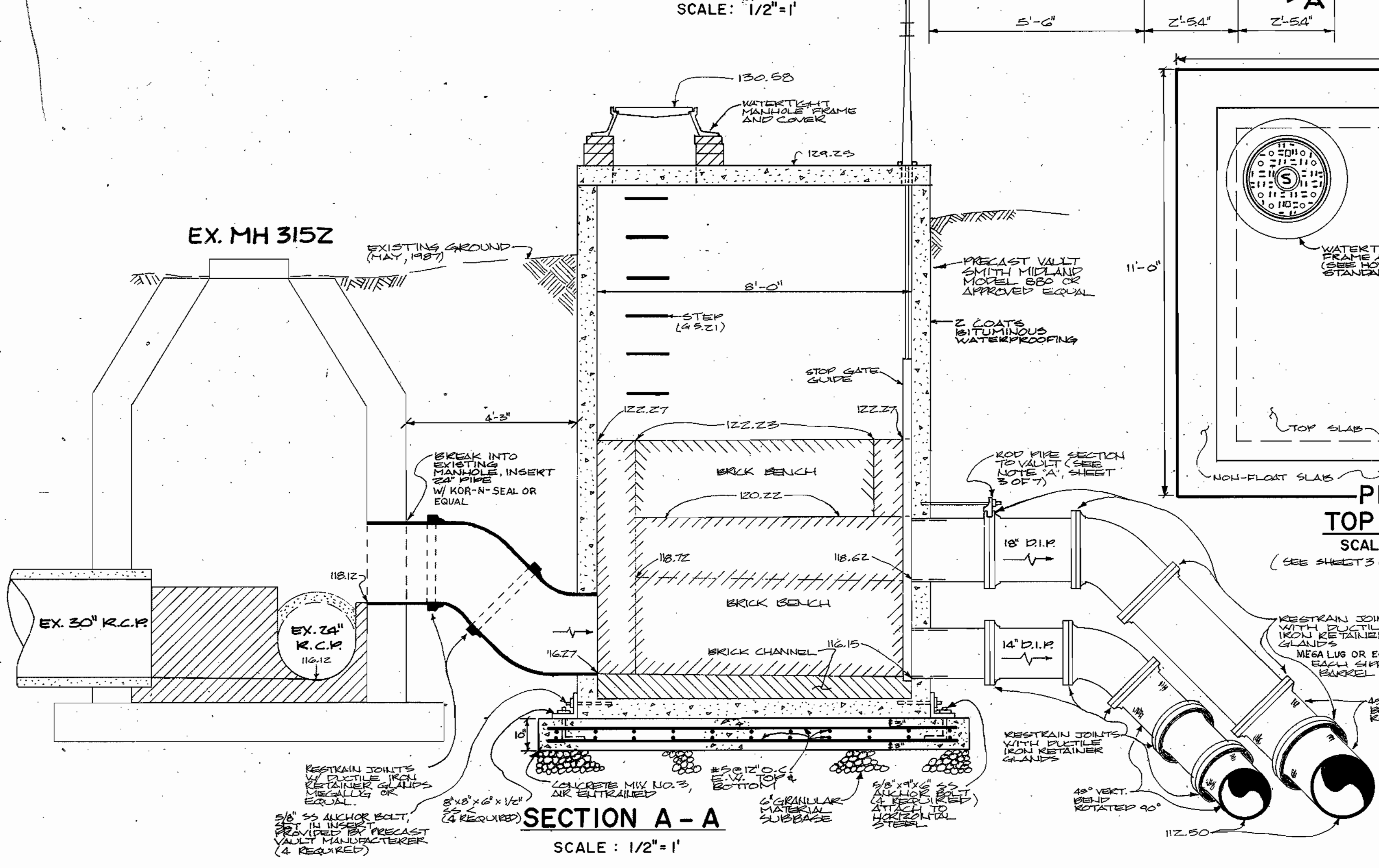


MANHOLE 3
PLAN
SCALE: 1/2"=1'

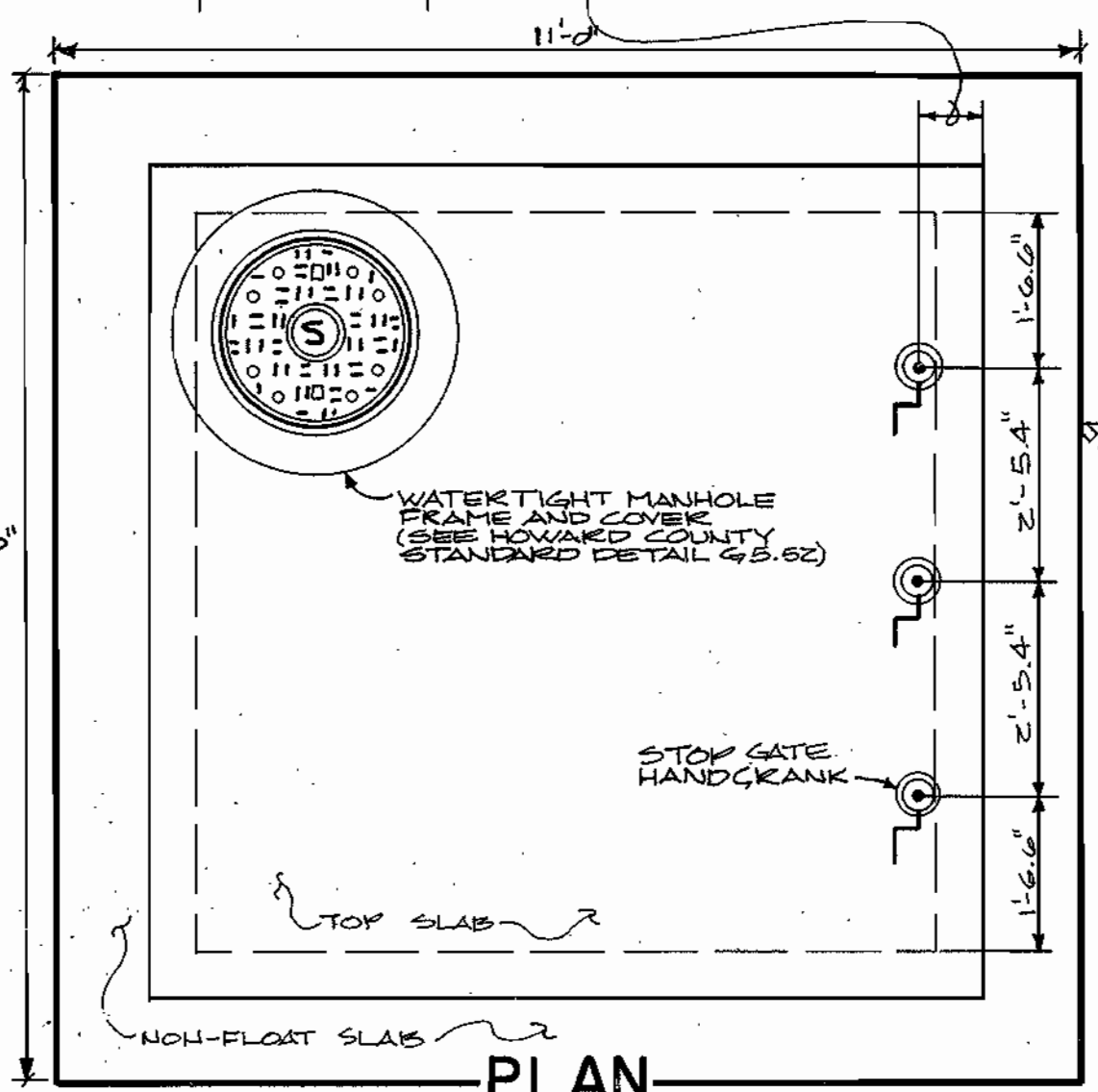
SUGGESTED SEQUENCE OF CONSTRUCTION
 1) BREAK OUT MANHOLE 3152 AT THE TOP OF THE BENCH AND INSERT 24" SEWER WITH KOR-N-SEAL PROCESS
 2) SET MANHOLE 3 IN PLACE
 3) CONNECT 24" SEWER TO MANHOLE 3.



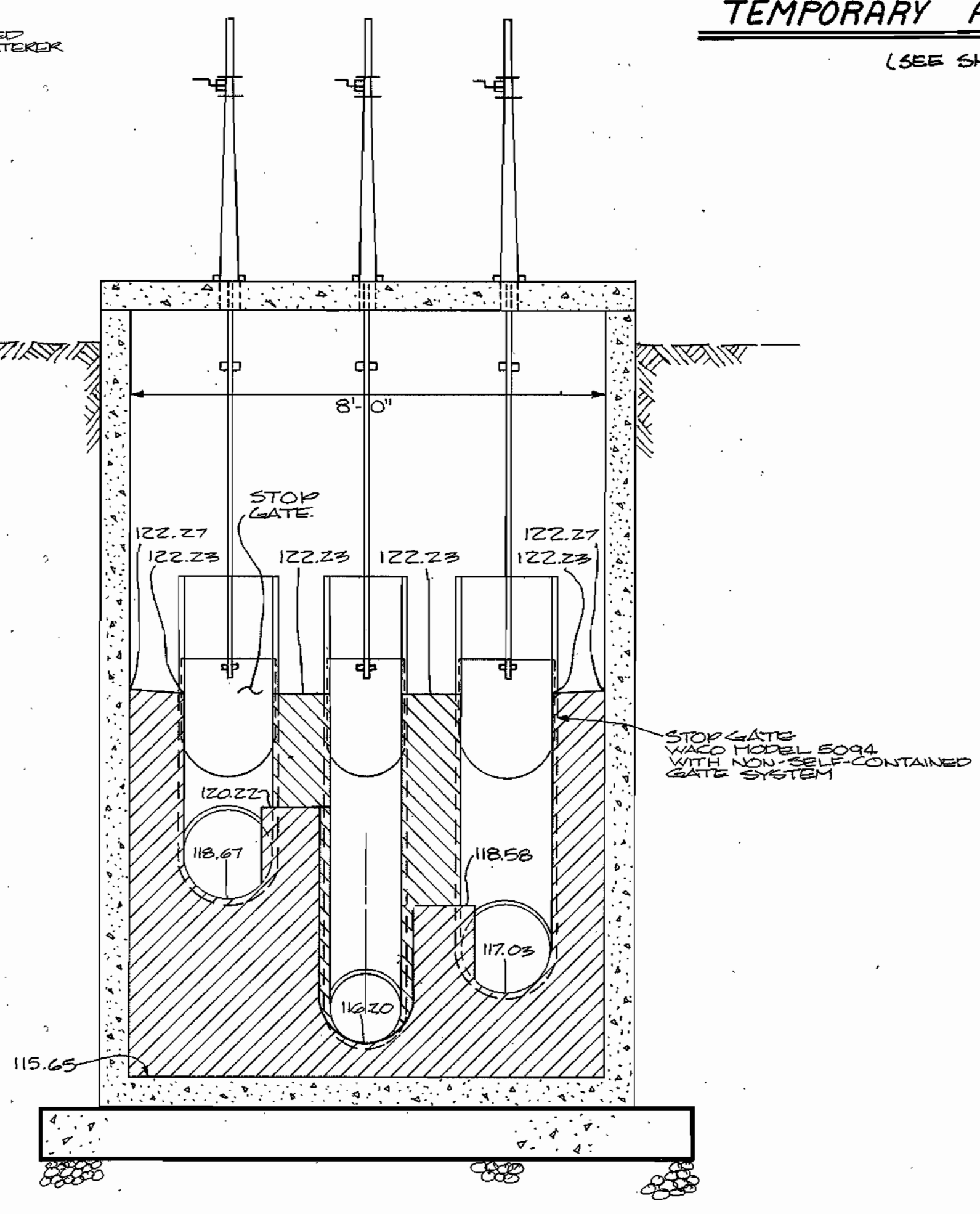
TEMPORARY ACCESS FORD
(SEE SHEET 7 OF 7)



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



PLAN
TOP SLAB
SCALE: 1/2"=1'



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

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works
 Chief, Bureau of Engineering
 Chief, Bureau of Utilities
 Date: 8-1-88

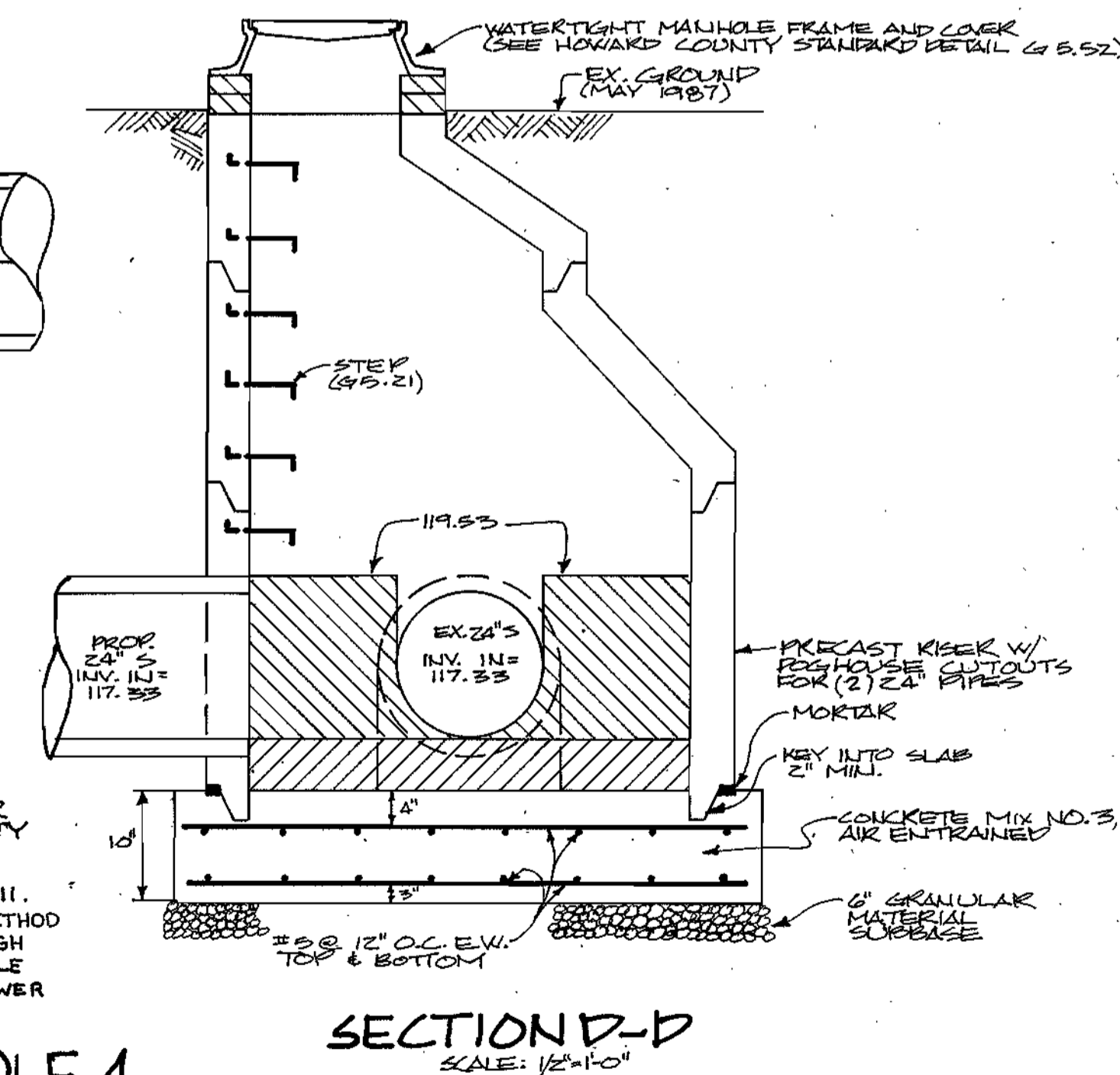
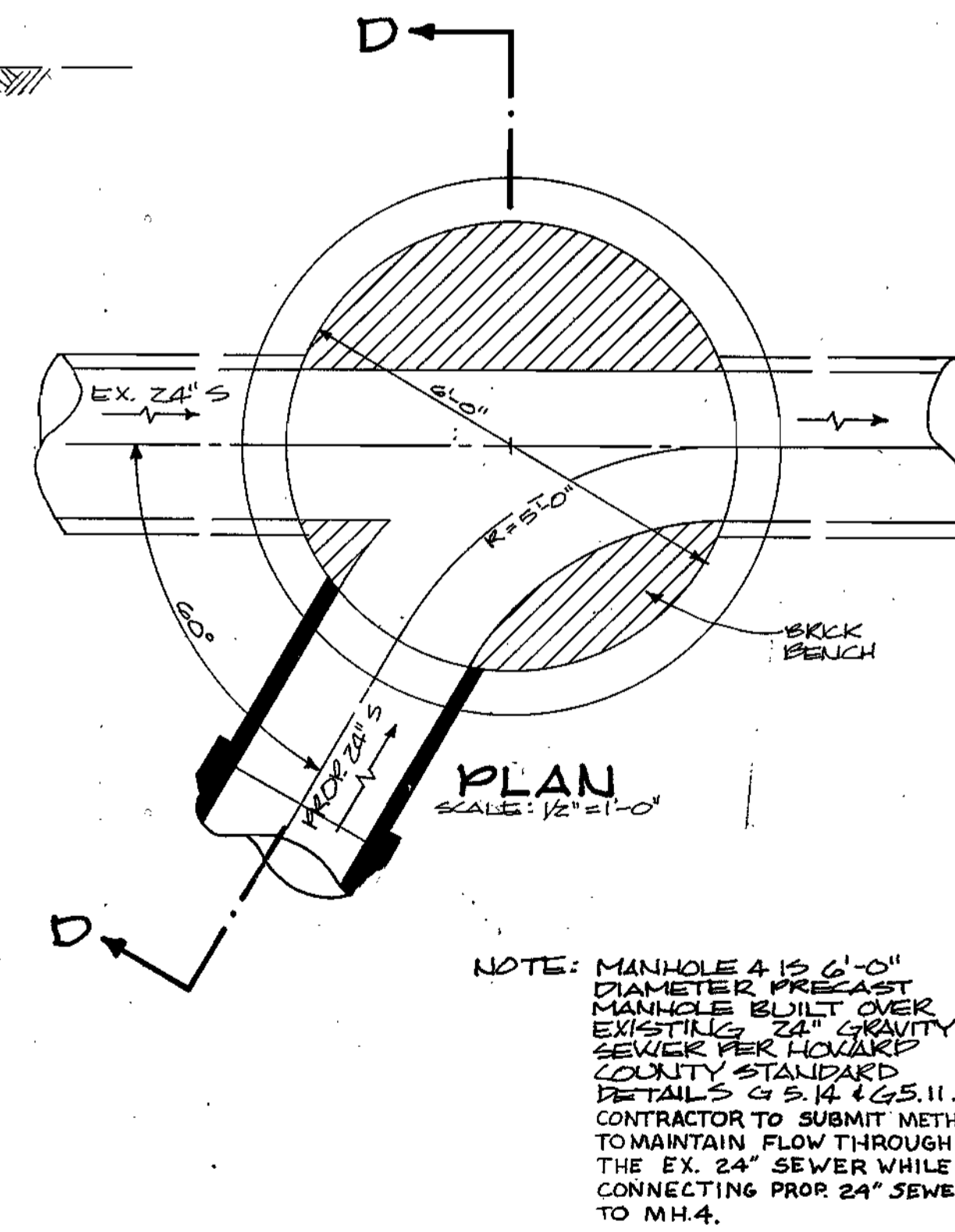
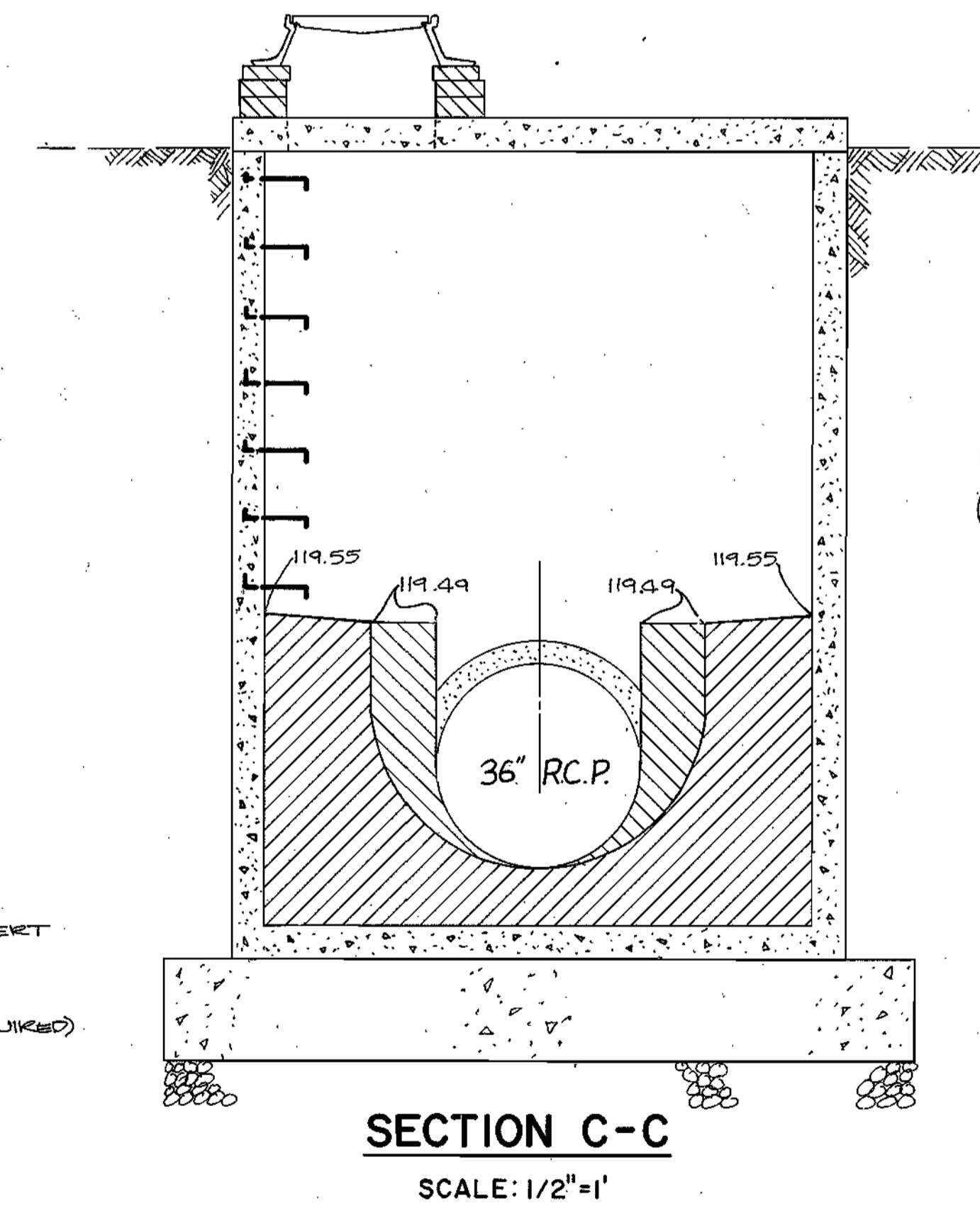
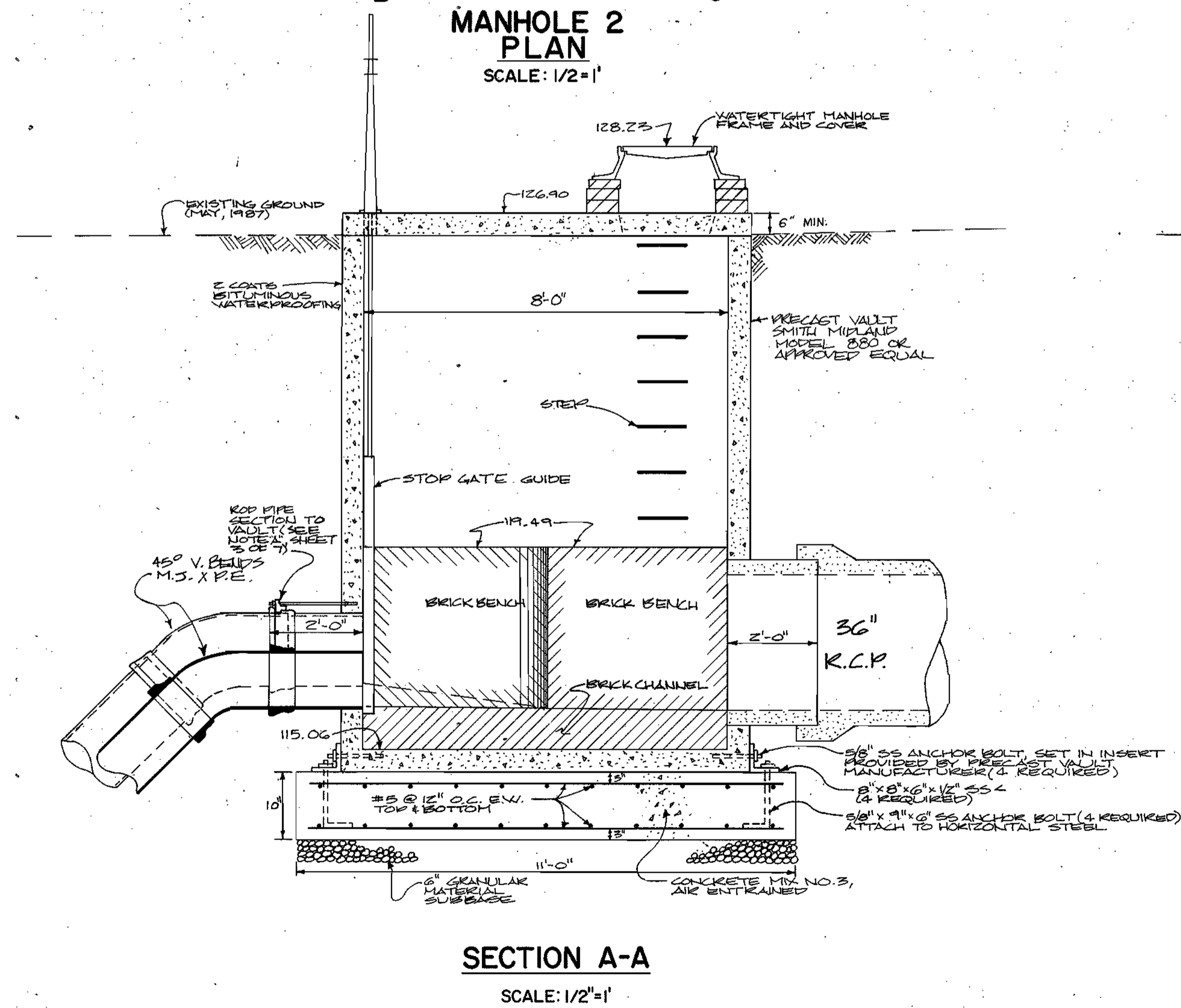
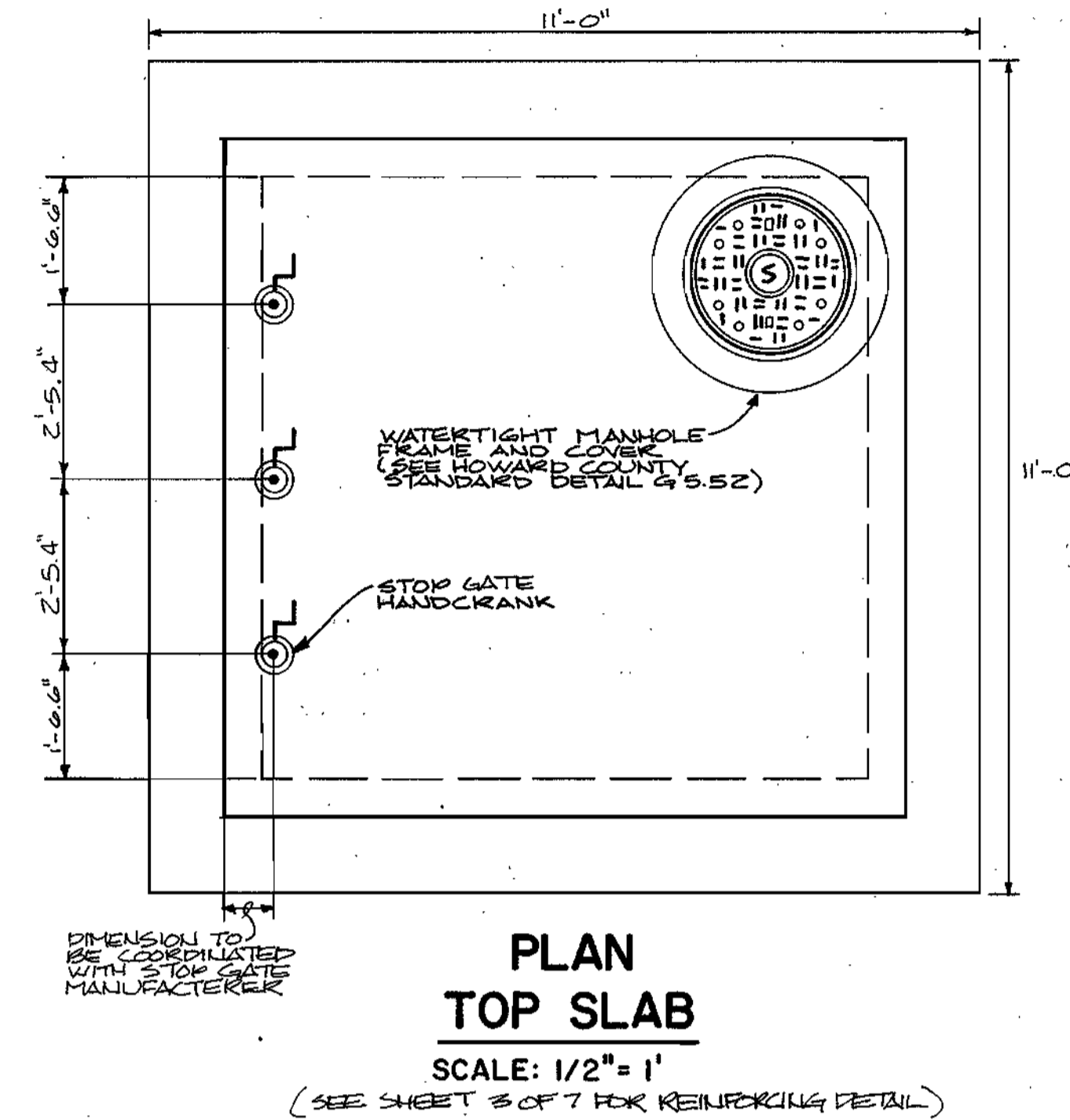
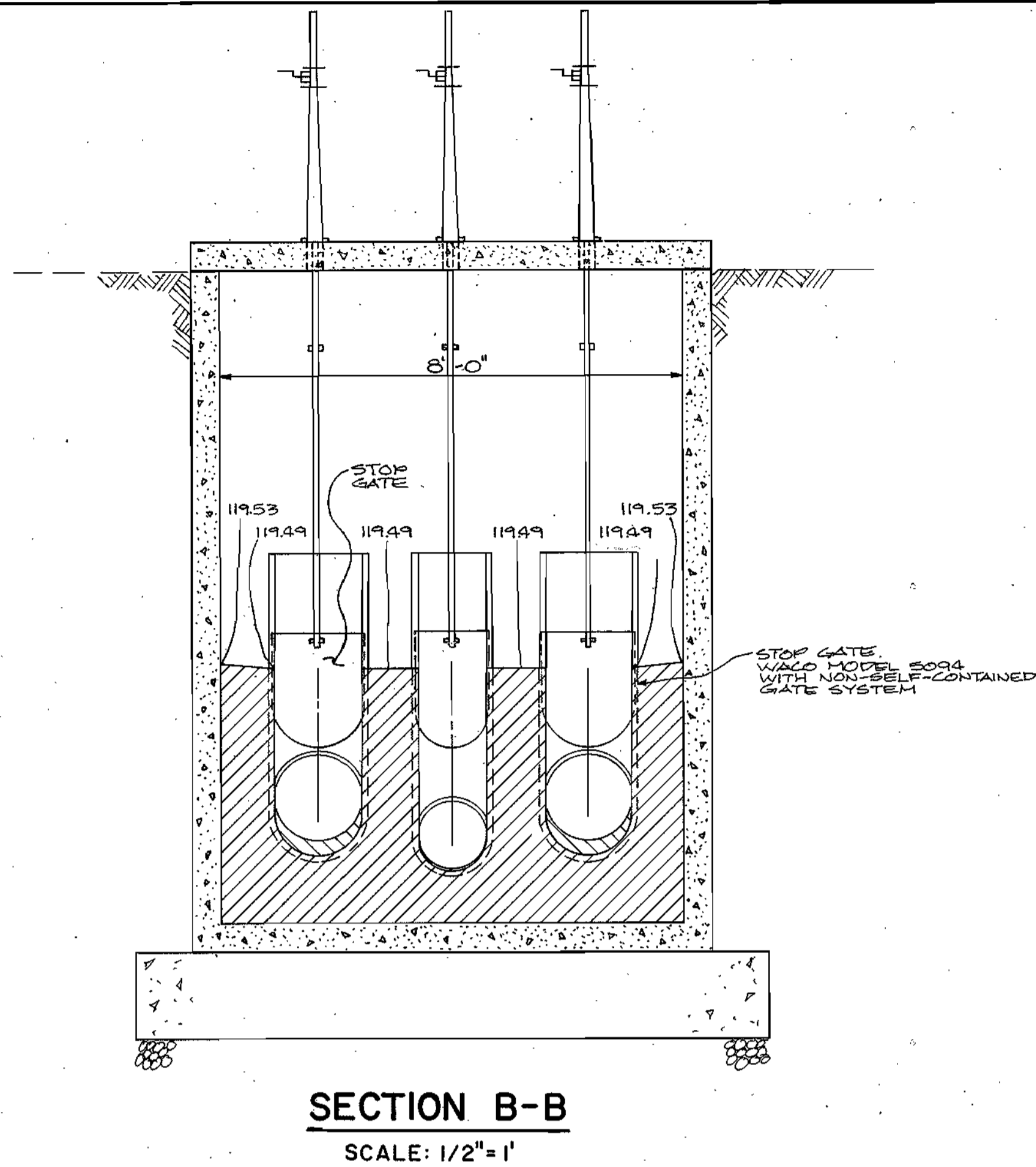
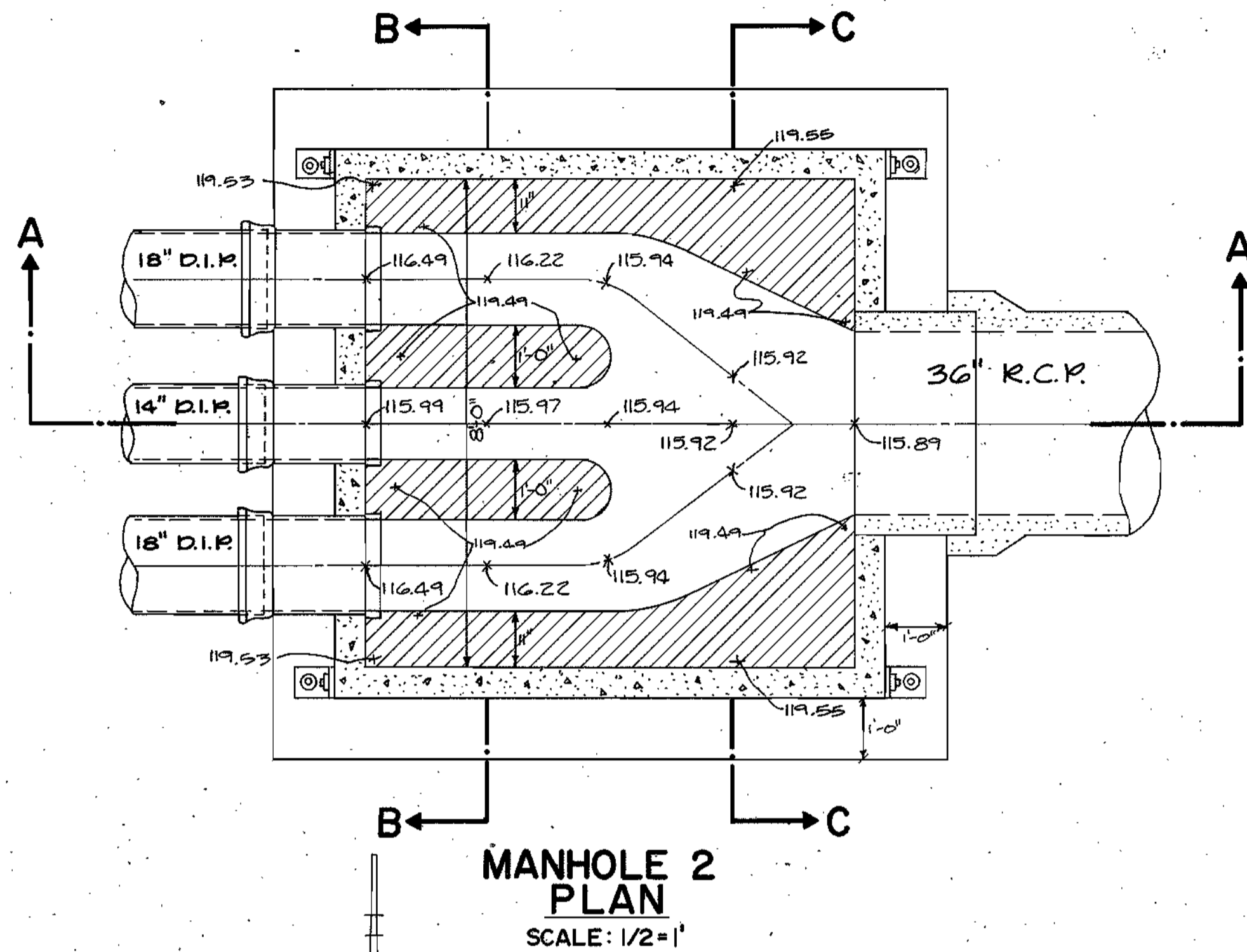
DEWBERRY & DAVIS
 2594 RIVA ROAD
 ANNAPOLIS, MD 21401
 (301) 841-6811
 Date: 8-10-88



DES: K B	BY NO.	REVISION	DATE
DRN: B G W			
CHK: S G Z			
DATE: 11/7/87			

MANHOLE NO. 3
 DOWNSTREAM INLET STRUCTURE
 DETAIL SHEET
 600' SCALE MAP NO. 47 BLOCK NO. 24

HAMMOND BRANCH PARALLEL SEWER
 CAPITAL PROJECT S-6146 CONTRACT NO. 20-1601
 ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND
 SCALE AS SHOWN
 SHEET 5 OF 7



NOTE: MANHOLE 4 IS 6'-0" DIAMETER PRECAST MANHOLE BUILT OVER EXISTING 24" GRAVITY SEWER PER HOWARD COUNTY STANDARD DETAILS 4-5.14 & 5.11. CONTRACTOR TO SUBMIT METHOD TO MAINTAIN FLOW THROUGH THE EX. 24" SEWER WHILE CONNECTING PROP. 24" SEWER TO MH.4.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Granville W. Wehner 8/11/87
DIRECTOR OF PUBLIC WORKS DATE

Clayton L. ... 8-11-88
CHIEF, BUREAU OF ENGINEERING DATE

R. ... 8-11-87
CHIEF, BUREAU OF UTILITIES DATE

Clayton L. ... 8-10-88
CHIEF, UTILITY DESIGN DIVISION DATE

DEWBERRY & DAVIS
2594 RIVA ROAD
ANNAPOLIS, MD. 21401
(301) 841-6811



DES: KLB	BY NO.	REVISION	DATE
DRN: BGV			
CHK: SGZ			
DATE: 11/17/87			

MANHOLE NO. 2
DOWNSTREAM OUTLET STRUCTURE
DETAIL SHEET

600' SCALE MAP NO. 47 BLOCK NO. 24

HAMMOND BRANCH PARALLEL SEWER
CAPITAL PROJECT S-6146 CONTRACT NO. 20-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 6 OF 7

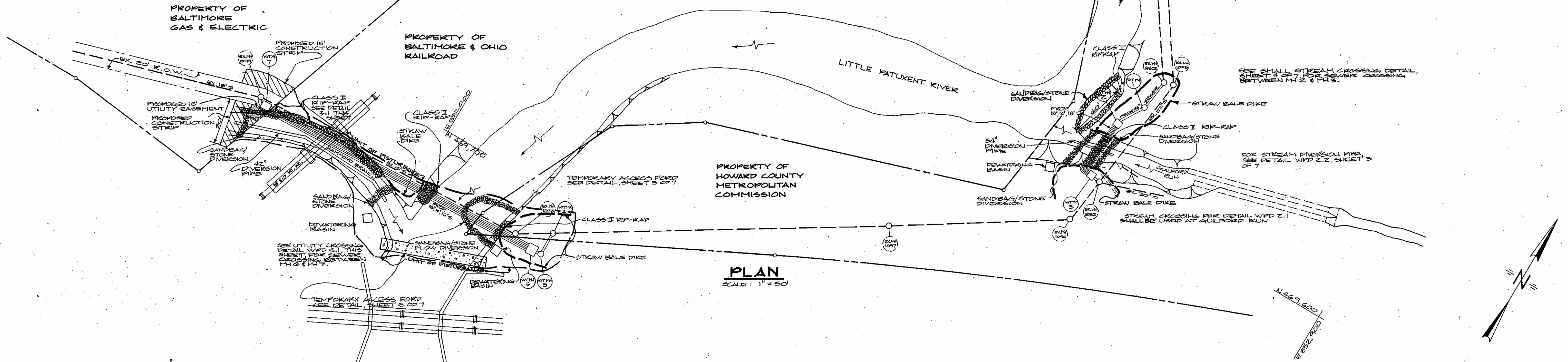
UPSTREAM SEQUENCE OF CONSTRUCTION

- OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES FROM THE APPROPRIATE AGENCIES.
- NOTIFY THE ENFORCEMENT DIVISION AT LEAST FIVE DAYS PRIOR TO INITIATION OF CONSTRUCTION AND FIVE DAYS AFTER WORK ENDS. THE ANNAPOLIS NUMBER IS (301) 474-2641.
- INSTALL TEMPORARY ACCESS FORD AS PER DETAIL SHEET 5 OF 7.
- INSTALL PERIMETER CONTROLS. THE PERIMETER CONTROLS SHALL CONSIST OF STRAW BALE DIKES AS PER THE DETAIL THIS SHEET.
- DIVERT HAMMOND BRANCH (REFER TO WPD 2.2)
- DEWATER THE CONSTRUCTION AREA. ALL DEWATERING DISCHARGES SHALL BE DIVERTED TO A DEWATERING BASIN PER WPD 1.1 BEFORE REENTERING THE STREAM.
- COMPLETE CONSTRUCTION IN HAMMOND BRANCH.
- STABILIZE THE DISTURBED BANKS USING FILTER FABRIC AND RIPRAP PER WPD 3.1.
- REMOVE HAMMOND BRANCH DIVERSION FROM UPSTREAM TO DOWNSTREAM.
- STABILIZE ALL DISTURBED AREAS.

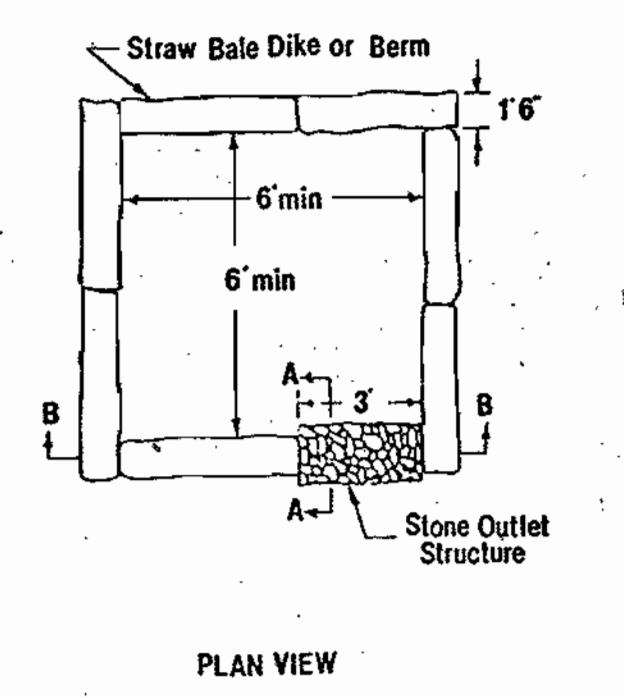
- PIVOT WESTERN HALF OF THE LITTLE PATUXENT RIVER.
- DEWATER CONSTRUCTION AREA. ALL DEWATERING DISCHARGES SHALL BE DIVERTED TO A DEWATERING BASIN AS PER WPD 1.1 BEFORE REENTERING THE RIVER.
- COMPLETE CONSTRUCTION IN THE DEWATERED AREA.
- STABILIZE THE DISTURBED BANK USING FILTER FABRIC AND RIPRAP PER WPD 3.1.
- REMOVE DIVERSION FROM UPSTREAM TO DOWNSTREAM AND REPEAT STEPS 11 THROUGH 14 FOR THE EASTERN HALF OF THE LITTLE PATUXENT RIVER.
- REMOVE DIVERSION FROM UPSTREAM TO DOWNSTREAM.
- STABILIZE ALL DISTURBED AREAS.
- REMOVE PERIMETER CONTROLS.

DOWNSTREAM SEQUENCE OF CONSTRUCTION

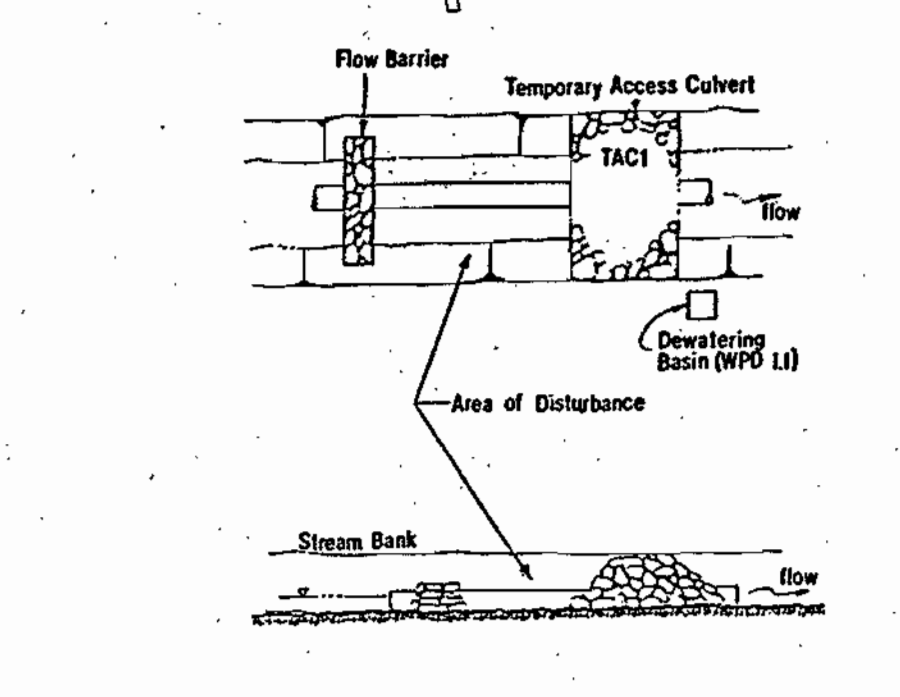
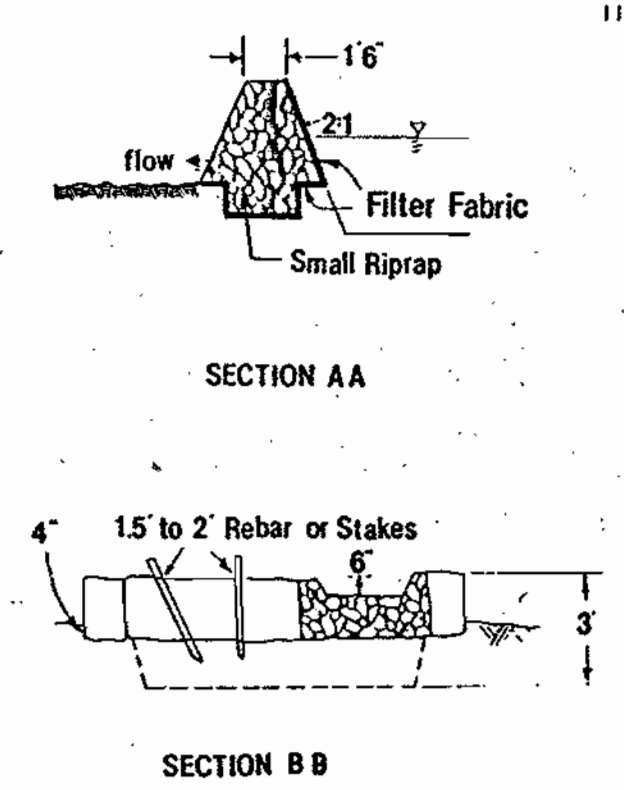
- SEE STEPS 1 AND 2 OF UPSTREAM SEQUENCE OF CONSTRUCTION. IF CONSTRUCTION BEGINS HERE BEFORE THE UPSTREAM CONSTRUCTION.
- INSTALL PERIMETER CONTROLS CONSISTING OF STRAW BALE DIKES AS PER DETAIL THIS SHEET.
- PIVOT GUILFORD RUN PER DETAIL WPD 2.1.
- DEWATER THE CONSTRUCTION AREA. ALL DEWATERING DISCHARGES SHALL BE DIVERTED TO A DEWATERING BASIN PER WPD 1.1 BEFORE REENTERING THE STREAM.
- COMPLETE CONSTRUCTION ACROSS GUILFORD RUN.
- STABILIZE THE DISTURBED BANKS USING FILTER FABRIC AND RIPRAP PER WPD 3.1.
- REMOVE GUILFORD RUN STREAM DIVERSION.
- PIVOT FLOW AROUND THE EASTERN BANK OF THE LITTLE PATUXENT RIVER AS SHOWN ON THE PLANS.
- STABILIZE THE BANK USING FILTER FABRIC AND RIPRAP PER WPD 3.1.
- REMOVE FLOW DIVERSION.



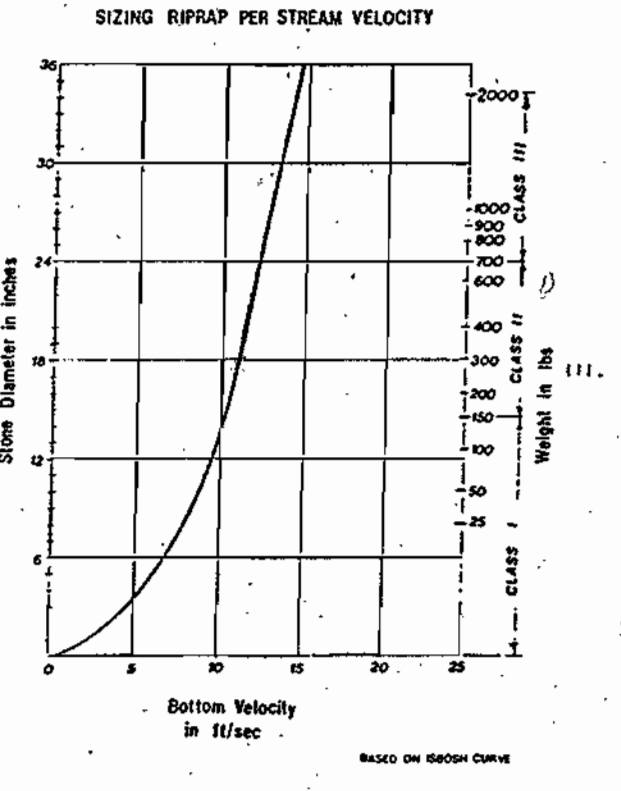
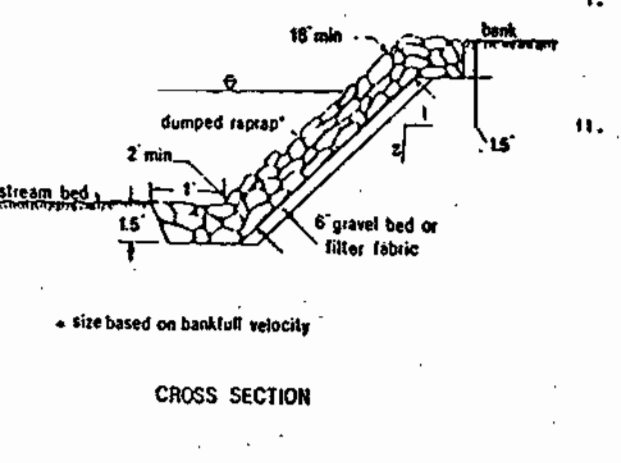
PLAN
SCALE: 1" = 50'



- 1. Description**
The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.
- 11. Material Specifications**
- Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
 - Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting only of continuous chain polymeric filaments of yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydrocarbons, oil, and rot resistant. No. 6 stone (ASTM 57) may be used on the inner-face for filtering instead of fabric.
 - Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.



- 1. Description**
The work shall consist of installing a flow diversion structure in conjunction with a temporary culvert crossing during in-stream construction such as utility crossings.
- 11. Construction Requirements**
- All erosion and sediment control devices shall be installed as the first order of business.
 - Pipes must be sized to accommodate normal stream flow.
 - The flow barrier shall be constructed of sandbags, washed riprap, or other approved material as per WPD 2.3. The materials shall be sized to withstand normal stream flow velocities.
 - All dewatering of the construction area shall be pumped to a dewatering basin (WPD 1.1) prior to re-entering the stream.
 - The temporary culvert crossing shall be constructed in accordance with Standard Detail (TAC-1), 1983 Maryland Standards and Specifications for Sediment and Erosion Control.
 - Sediment control devices shall remain in place until all disturbed areas have been stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.



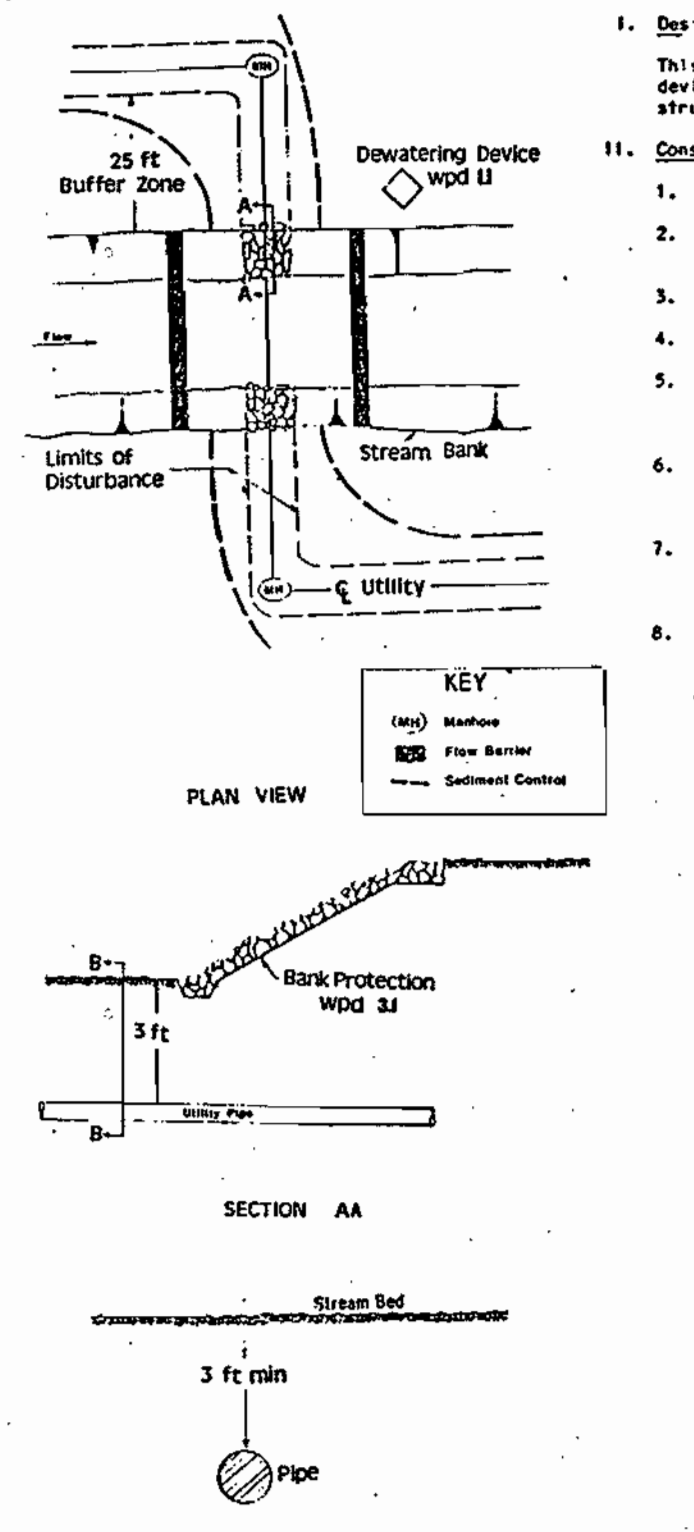
RIPRAP GRADATION

Class	Size	Amount of Total Weight	Amount of Total Weight Larger than the Given Size
Class I	100 to 2 1/2 in	100%	100%
Class II	750 to 1 1/2 in	100%	100%
Class III	2000 to 3/4 in	100%	100%

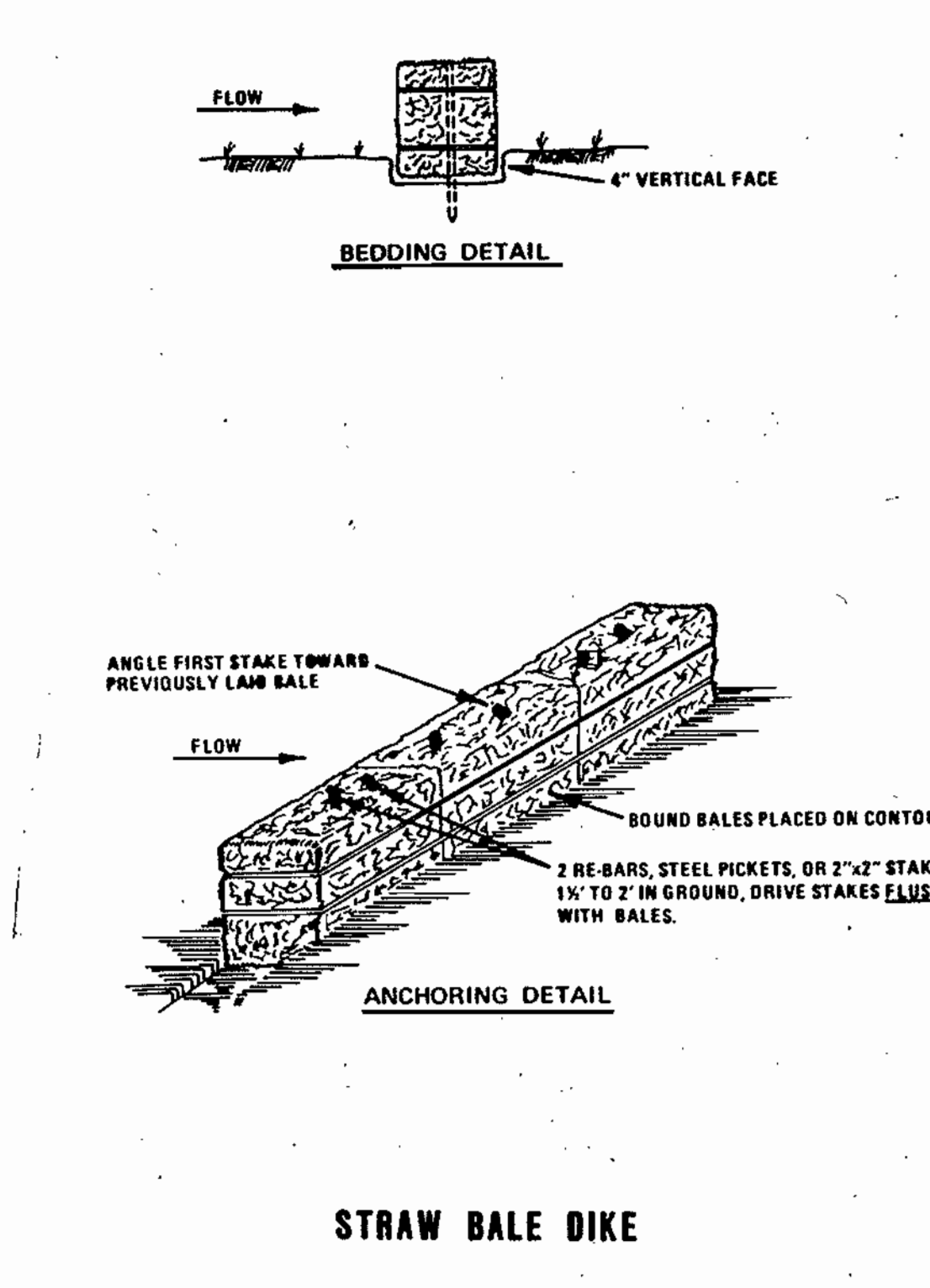
- 1. Description**
This work shall consist of protecting slopes and channels from erosion with coverings of stone in accordance with the plans and specifications shown on this drawing.
- 11. Material Specifications**
- Bedding:**
 - Bank run gravel shall meet the following requirements:

U.S. Standard sieve size	% less than
100	2 1/2 in
85 - 100	1 in
60 - 100	1/2 in
35 - 70	No. 10
20 - 50	No. 40
3 - 20	No. 200
 - Geotextile filter fabric shall meet the following requirements:

Tensile Strength	200 lbs.
Burst Strength	350 lbs.
Puncture Strength	70 lbs.
Permeability	.02 cm/sec
Elongation at Failure	30%
Minimum Lap Length	24 in
 - Riprap:**
 - The maximum weight of stone shall be based upon the bankfull stream channel velocity, using the given chart. The gradation of the stone shall be as indicated.
- 111. Construction Requirements**
- The contractor shall install all sediment and erosion control devices as a first order of business.
 - Provisions must be made to anchor the riprap at the stream bed so as to provide protection against undermining. If this cannot be accomplished by extending the toe trench as indicated in Cross Section, an alternative method of protection must be approved by the Administration.
 - Excavation for riprap shall be made in reasonably close conformity with the existing stream slope and bed.
 - A filter bedding is required under all riprap. Bedding material shall consist of either a bank run gravel or a geotextile filter fabric meeting the specifications of 11.1B above.
 - The placement of riprap shall begin with the toe. The larger stones shall be placed in the toe and along the outside edges of the limits of the slope and channel protection. The riprap shall be placed with suitable graded mass of stones with zero drop height. The placement of stones that cause extensive segregation is not allowed.
 - Any excavation voids existing along the edges of the completed slope and channel protection shall be backfilled.
 - All disturbed areas shall be permanently stabilized in accordance with an approved sediment and erosion control plan.



- 1. Description**
This work shall consist of installing erosion control devices in and adjacent to temporary stream construction such as utility crossings.
- 11. Construction Requirements**
- All erosion and sediment control devices shall be installed as the first order of work.
 - The contractor shall insure that a continuous perimeter control barrier is in place so as to minimize pollutants entering the water.
 - Excavated topsoil and subsoil shall be kept separate and replaced in their natural order.
 - All construction shall take place during stream low flows. The length of construction time shall be limited to a maximum of 5 days for each crossing.
 - All utility crossings shall be placed at least three feet beneath the stream bed unless an alternative section is specifically approved by the Administration.
 - The contractor may elect to construct the utility crossing in two stages. In this case, a WPA approved flow barrier may be constructed to keep the construction area dry.
 - Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.



WATER RESOURCES ADMINISTRATION	Dewatering Basins	Approved On: 1/24/86 WPD 1.1	WATER RESOURCES ADMINISTRATION	Culvert Pipe with Access Road	Approved On: 1/24/86 WPD 2.1	WATER RESOURCES ADMINISTRATION	Riprap	Approved On: 1/24/86 WPD 3.1	WATER RESOURCES ADMINISTRATION	Utility Crossing	Approved On: 1/24/86 WPD 5.1
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Raymond W. Hester 8/11/88
DIRECTOR OF PUBLIC WORKS DATE

Robert Bennett 8/11/88
CHIEF, BUREAU OF UTILITIES DATE

Oliver Lewis 8/10/88
CHIEF, UTILITY DESIGN DIVISION DATE

DEWBERRY & DAVIS
2594 RIVA ROAD
ANNAPOLIS, MD 21401
(301) 841-6811

STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER

DES:	DRN:	CHK:	DATE:	BY:	NO.:	REVISION:	DATE:
KB	BGW	SGZ	11/17/87				

SEDIMENT CONTROL AND STREAM DIVERSION PLAN

600' SCALE MAP NO. 47 BLOCK NO. 24

HAMMOND BRANCH PARALLEL SEWER

CAPITAL PROJECT S-6146 CONTRACT NO. 20-1601
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 7 OF 7