

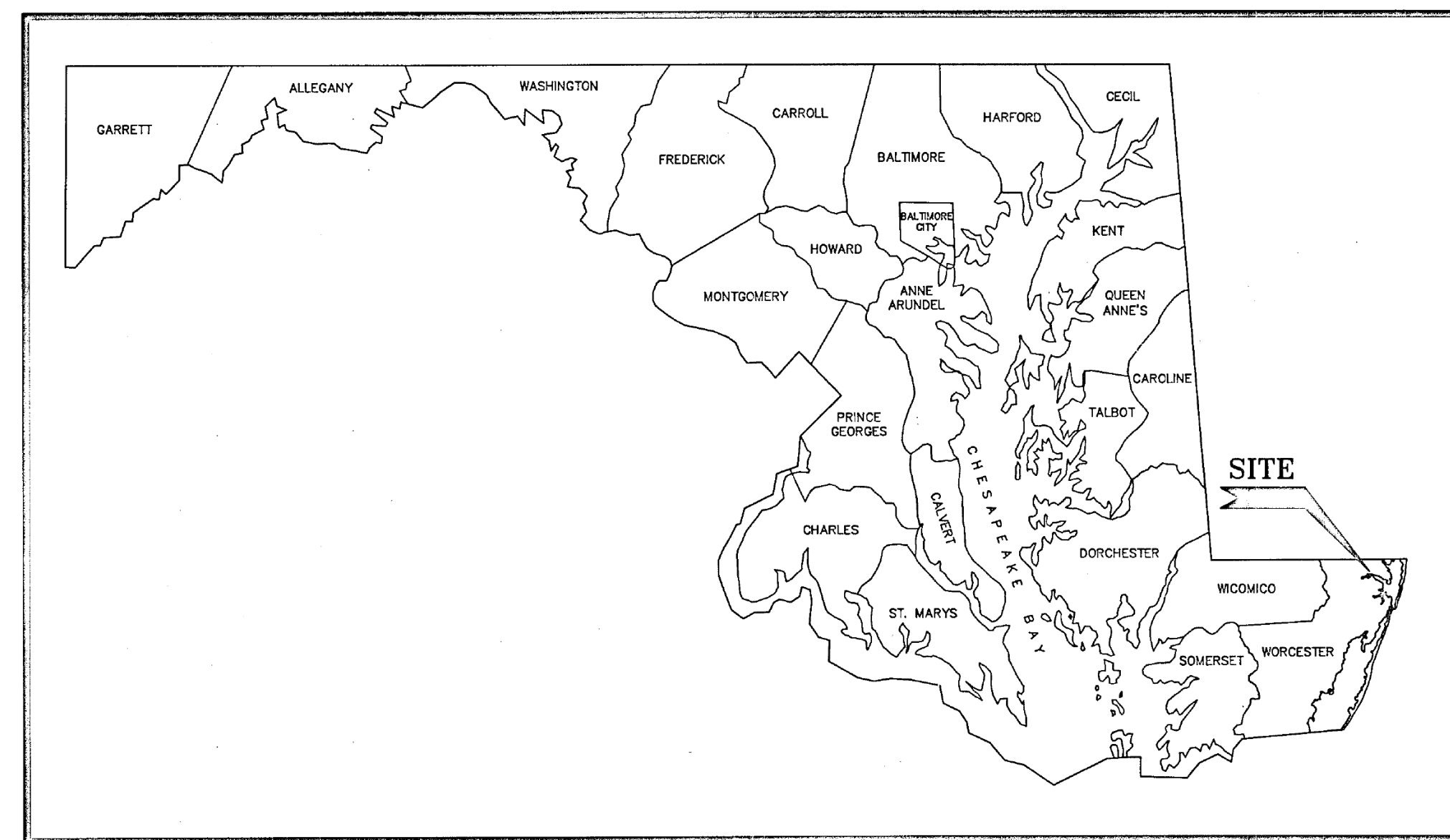
WORCESTER COUNTY SANITARY COMMISSION

OCEAN PINES SERVICE AREA

PUMP STATIONS "L" & "N" MODIFICATIONS

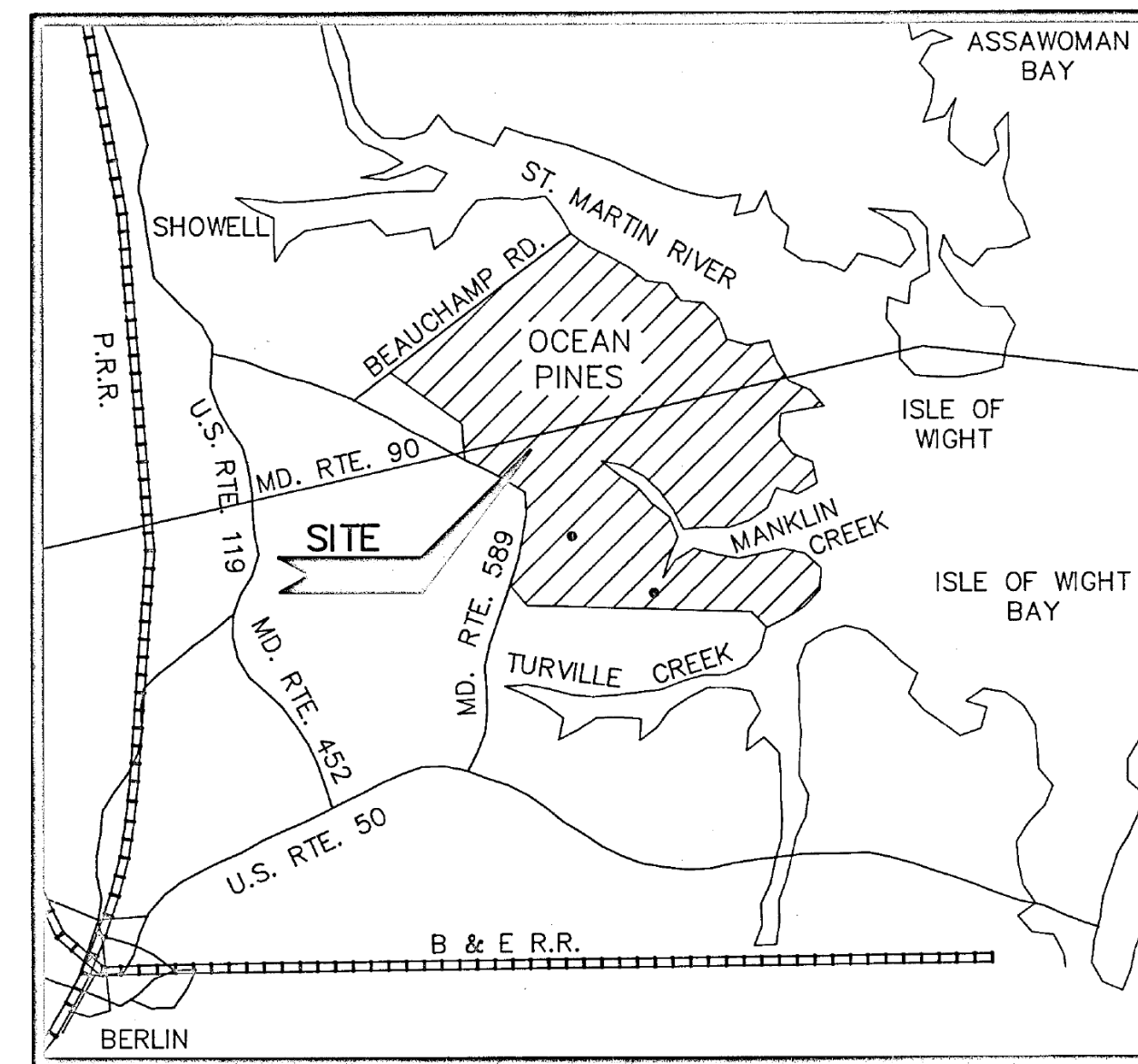
3rd ELECTION DISTRICT

WORCESTER COUNTY, MARYLAND



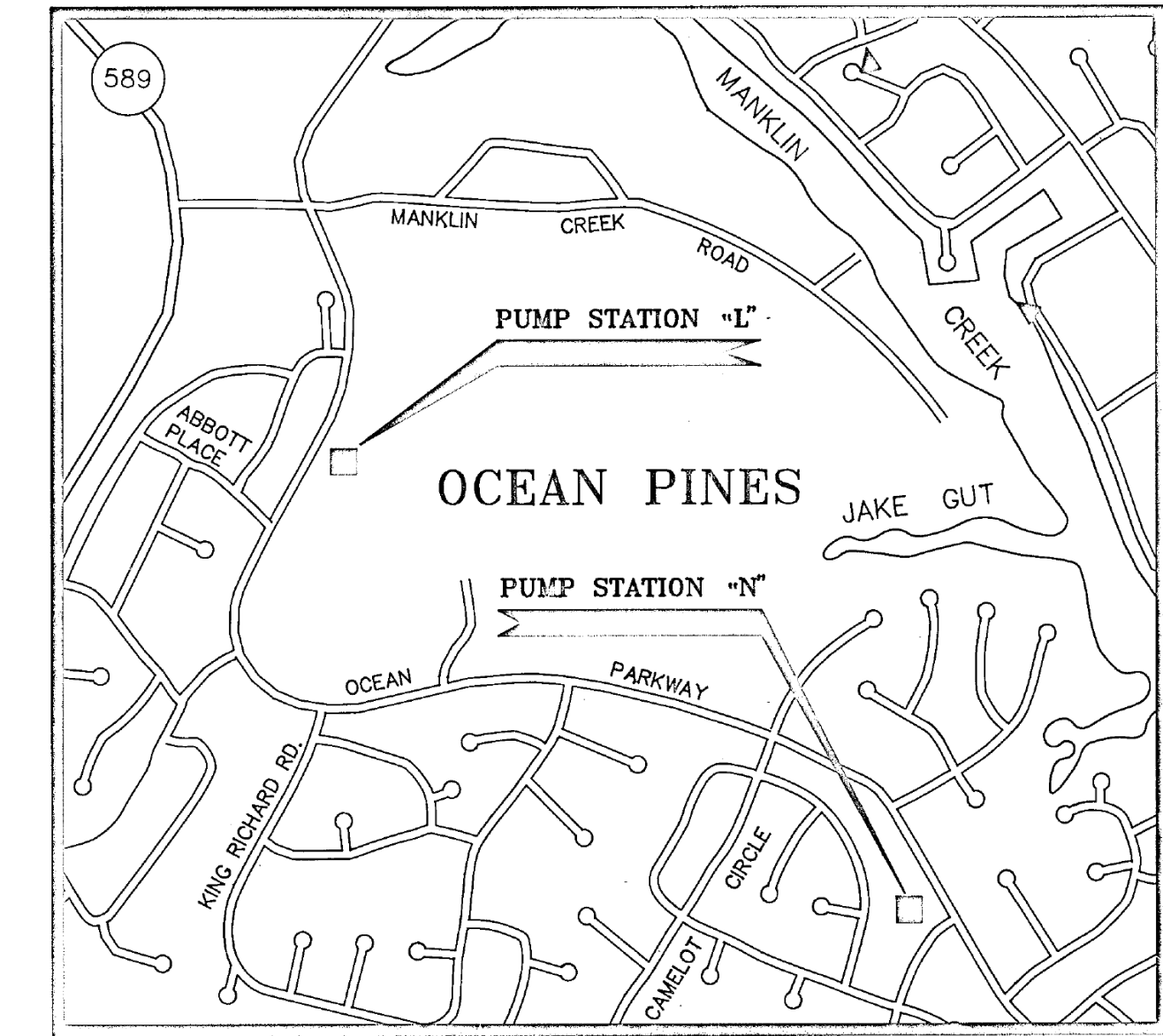
VICINITY MAP

SCALE : NONE



VICINITY MAP

SCALE : NONE



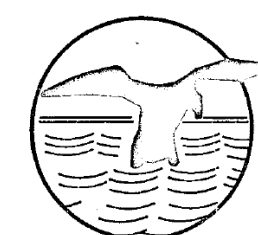
LOCATION MAP

SCALE : 1" = 1000'

AS BUILT

1994

PREPARED BY :



CONSULTING ENGINEERS AND SURVEYORS

Andrews, Miller & Assoc., Inc.

508 MARYLAND AVENUE * CAMBRIDGE, MD. 21613 * PHONE 410-228-7117

AMA JOB NO. 92092.40 * MARCH 1993

APPROVED BY
THE WORCESTER COUNTY SANITARY DISTRICT, INC.

NAME : *Edward B. Johnson*

TITLE : *Engineer* DATE : *5/27/93*

SHEET INDEX :

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2. GENERAL NOTES, SCS NOTES & DETAILS
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6. SITE PLAN - PUMP STATION "N"
7. FLOOR PLAN & BLDG. ELEVATIONS - PUMP STATION "N"
8. SEWER PROFILE & DETAILS - PUMP STATION "N"
9. SEWAGE PUMP STATION DETAIL
10. CONSTRUCTION DETAILS
11. CONSTRUCTION DETAILS
12. ELECTRICAL PLANS - PUMP STATION "L"
13. ELECTRICAL PLANS - PUMP STATION "N"
14. ELECTRICAL PLANS



Harold M. Miller, Jr.
HAROLD M. MILLER, Jr., P.E. NO. 8280

LAST REVISION MAY 11, 1993

SHEET

1 OF 14

GENERAL NOTES:

- Topographic survey performed by Andrews, Miller & Assoc., Inc., 508 Maryland Avenue, Cambridge, Maryland, (410) 228-7117.
- Vertical control based on U.S.C.G.S. Bench Mark.
- Horizontal Control for Pump Station "L" taken from a plat entitled "Plat, Station "L", Utility Lot, 3rd Election District, Worcester County, Md.", dated February 1974 as prepared by L.G. Bunting Surveys, Inc. Horizontal Control for Pump Station "N" taken from a plat entitled "Plat Showing Utility Lot "N", Section Ten, Ocean Pines, Third Election District, Worcester County, Maryland", dated January 8, 1975 as prepared by B. Calvin Burns, Certified Land Surveyor.
- Utilities: The location of underground utilities shown on the plans are for information purposes only. The contractor shall notify utility owners concerned 72 hours prior to grading operations. Contractor to contact Miss Utility of Delmarva (1-800-441-8355) prior to any excavation. "Miss Utility" ticket numbers shall be obtained and recorded for reference. All underground utilities shown on the plans are from the best available information. Conflicts of these items, shown or not shown, with proposed construction shall be coordinated by the contractor with the Engineer. It shall be the contractor's expense and responsibility to repair any waterlines, water and sewer services, electric lines, telephone lines, cable television lines and gas lines shown on the Drawings and damaged due to his construction operations.
- Before the contractor can begin his operations, he must obtain all applicable permits, licenses and/or approvals from the appropriate State, County and Worcester County Sanitary District, Inc. authorities.
- Forty-eight (48) hours prior to the start of construction activity, the contractor shall notify Ed Johnson of the Worcester County Sanitary District, Inc. (410) 641-5251 of the intent to begin work.
- The contractor will be responsible for providing all "as built" drawings that may be required.
- Any changes, additions or deletions must have written approval from the Worcester County Sanitary District, Inc. and the Engineer prior to construction.
- The contractor shall replace all disturbed surface areas in accordance with seeding notes shown hereon; or replaced in kind for surfaces other than lawn.

EROSION AND SEDIMENT CONTROL NOTES:

- Notification of Maryland Department of the Environment (M.D.E.) at least five (5) days prior to the start of work.
- Prior to start of work, the Contractor is to obtain County approval of any proposed plan changes and sequence of construction specifically relating to installation, inspection, maintenance and removal of erosion and sediment control measures.
- Sediment control measures are not to be removed until the areas served have established vegetative cover, or with the permission of Worcester County Sediment Control Inspector.
- When pumping sediment-laden water, the discharge must be directed to an approved sediment trapping measure prior to release from the site.
- All temporary stockpiles are to be located within areas protected by sediment control measures, and are to be temporarily stabilized.
- All sediment control dikes, swales, basins and flow lines to basins will be temporarily seeded immediately upon installation to reduce the contribution to sediment loading.
- Disposal of excess earth materials on State or Federal property requires MDE approval otherwise materials are to be disposed of at a location provided by the local authority.
- Temporary soil erosion control and sediment control measures are to be provided as per the approved plan prior to grading operations. Location adjustments are to be made in the field as necessary. The minimum area practical shall be disturbed for the minimum possible time.
- If grading is completed out of a seeding season, graded areas are to be temporarily stabilized by mulch and mulch anchoring. Mulch material shall be unweathered unchopped small grain straw spread at the rate of 1 1/2 to 2 tons per acre. Mulch anchoring to be accomplished by an approved method, use of a mulch anchoring tool is recommended where possible.
- Implementation of the sediment control plan shall be in accordance with the "1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control", of the Department.
- The Contractor is responsible for implementation and maintenance of the approved plan, and all other measures necessary to control, filter, or prevent sediment from leaving the site.
- In case where stormwater management structures are a part of site development, removal of sediment control structures may not be accomplished before the contributing drainage area to the stormwater management structure is stabilized. Also, proper dewatering of the sediment from the site.
- On sites where infiltration techniques are utilized for the control of stormwater, extreme care must be taken to prevent all runoff from entering the structure during construction.
- Sediment control for utility construction in areas outside of designed controls:
 - Excavated trench material shall be placed on the high side of the trench.
 - Immediately following pipe installation the trench shall be backfilled, compacted and stabilized at the end of each working day.
 - Temporary silt fence or straw bale dikes shall be placed immediately downstream of any disturbed area intended to remain disturbed longer than one working day.
- All points of construction ingress and egress shall be protected to prevent tracking of mud onto public ways.

STABILIZATION AND SEEDING NOTES:

- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within seven calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1); and fourteen days on all other disturbed or graded areas on the project site. The requirements of this subparagraph do not apply to those areas which are shown on the plan and are currently being used for material storage, or for those areas on which actual construction activities are currently being performed. Maintenance shall be performed as necessary to ensure the stabilized areas continuously meet the appropriate requirements of the "1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control".
- Stabilization of all disturbed areas is to be accomplished as follows:
 - If permanent seeding does not fall prior to May 1, temporary seeding shall be done until August 15 after which permanent seeding shall take place.
 - Seedbed preparation: Apply 15 lbs. of 10-10-10 fertilizer per 1,000 sq. ft. harrow or disk into soil to a depth of 3 to 4 inches. Apply pulverized ground limestone, 50 lbs. per 1,000 sq. ft.
 - Seeding: Apply 1.4 to 2.3 lbs. per 1,000 Kentucky 31 Tall Fescue on a moist seedbed with suitable equipment, minimum coverage 1/2 inch.
- Temporary Seeding:
 - Prepare the soil with 15 lbs. per 1,000 sq. ft. of 10-20-10 fertilizer or its equivalent. Harrow or disk fertilizer into the soil to a depth of 2 to 3 inches. Apply seed 3.2 lbs. per 1,000 sq. ft. of rye. Mulching to be placed immediately after seeding. Mulching to be uniformly spread unweathered small grain straw spread at a rate of 75 lbs. per 1,000 sq. ft.
- Mulching:
 - Immediately after permanent seeding, uniformly mulch entire area with unweathered small grain straw at a rate of 1 1/2 to 2 tons per acre. Mulch to be anchored with mulch anchoring tool on the contour or asphalt tie down methods (on ditches only).
- Sediment control for utility construction (Force Main):
 - Excavated trench material shall be placed on the high side of the trench.
 - Immediately following pipe installation the trench shall be backfilled, compacted and stabilized at the end of each working day.
 - Temporary silt fence or straw bale dikes shall be placed immediately downstream of any disturbed area intended to remain disturbed longer than one working day.

SITE DATA

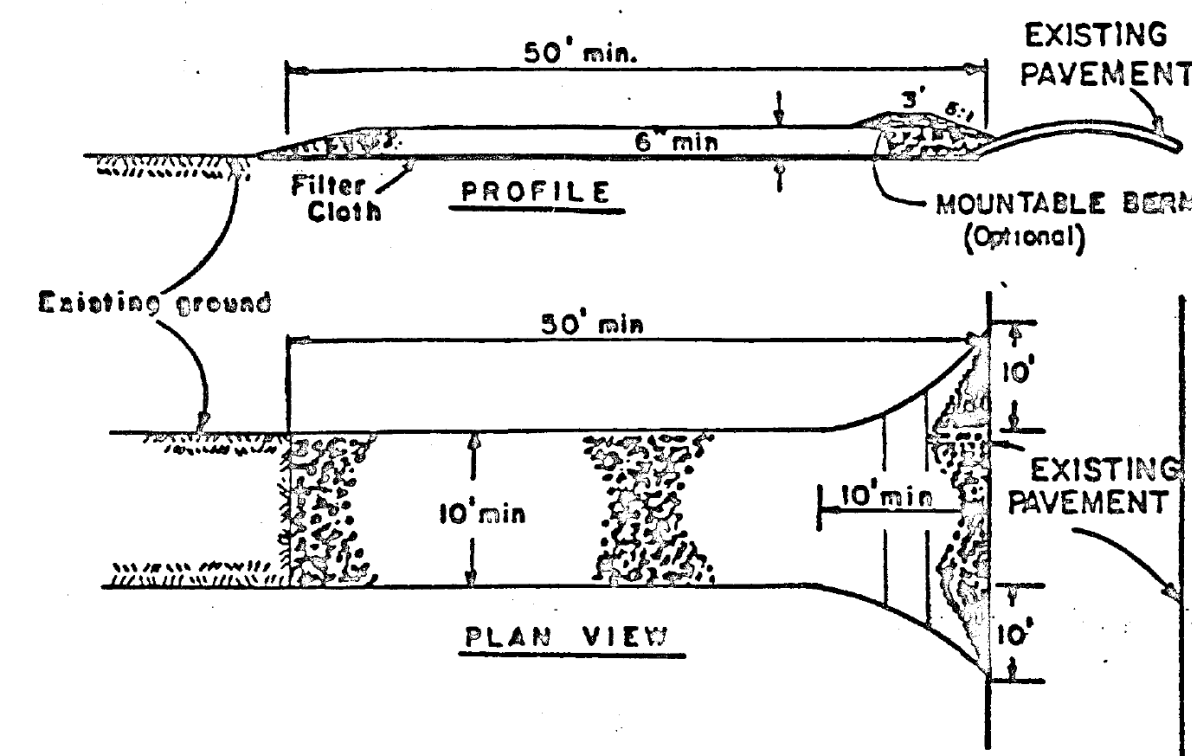
OWNER: Worcester County Sanitary District
Ocean Pines Service Area
11517 Manklin Creek Road
Berlin, Maryland 21811
(410) 641-5251
Attention: Mr. Ed Johnson

AREA OF SITE: Pump Station "L": 0.33 Acres
Pump Station "N": 0.56 Acres

AREA OF DISTURBANCE: Pump Station "L": 4,950 Sq. Ft.
Pump Station "N": 3,900 Sq. Ft.

Developer's Certification:

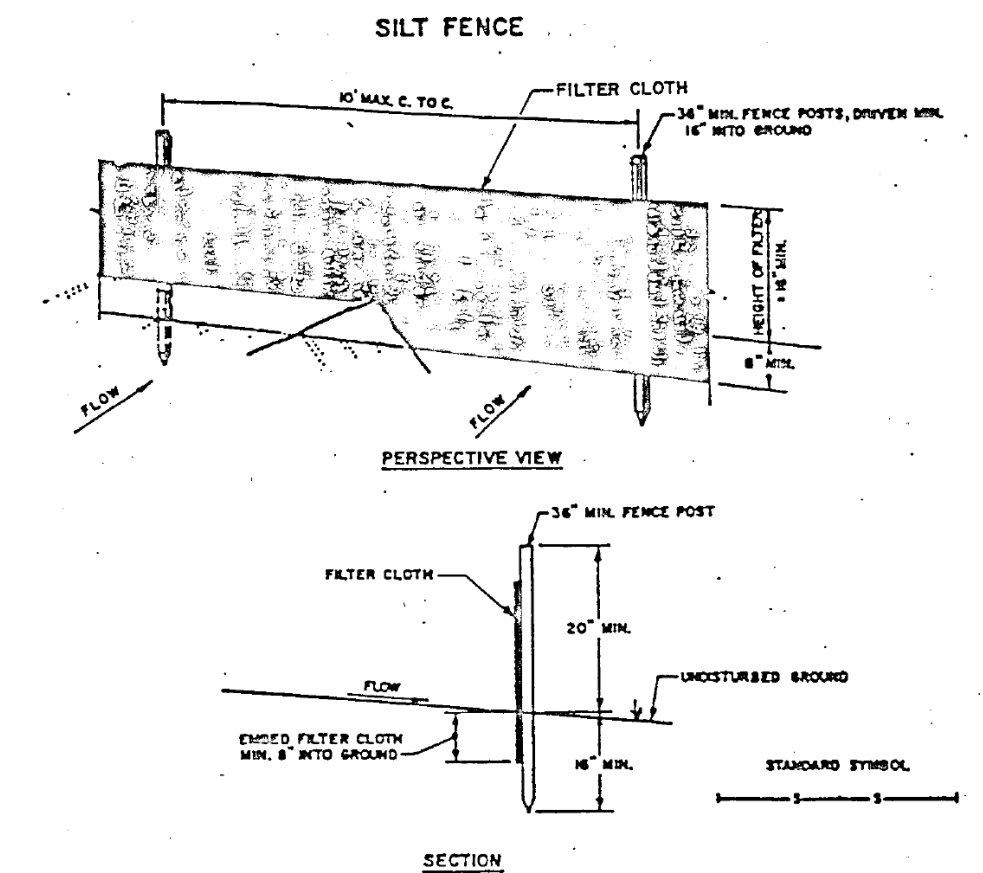
- We certify that:
 - All development and construction will be done in accordance with this sediment and erosion control plan, and further, authorize the right of entry for periodic on-site evaluation by the Worcester Soil Conservation District Board of Supervisors or their authorized agents.
 - Any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
- The developer is responsible for the acquisition of all easements, rights, and/or rights-of-way that may be required for the sediment and erosion control practices, stormwater management practices and the discharge of stormwater onto or across adjacent or downstream properties included in this plan. He is also responsible for the acquisition of all easements, rights and/or rights-of-way that may be required for grading and/or work on adjacent properties included in this plan.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within seven calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and fourteen days as to all other disturbed or graded areas on the project site.



CONSTRUCTION SPECIFICATIONS

- Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residential lot where 30 feet minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing stone. Filter Cloth will not be required on a single family residential lot.
- Surface Water - All surface water flowing or diverted toward construction entrance shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in condition which will prevent tracking or flowing of sediment onto public rights-of-way; this may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspections and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
 - Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
 - When two sections of filter cloth adjoin each other they shall be overlapped by six (6) inches and folded.
 - Maintenance shall be performed as needed and material removed when "bulges" develop in the Silt Fence.
- POSTS: Steel - Either T or U Type or 2" Hardwood
- FENCE: Woven wire, 14 gauge 6" max. mesh opening
- FILTER CLOTH: Filter X, Mirafi 100X, Stabilinka T140N, or approved equal
- PREFABRICATED UNIT: Geofab, Envirofence, or approved equal

SILT FENCE DETAIL

AS BUILT

LATEST UPDATE: MARCH 24, 1993

GENERAL NOTES & SCS DETAILS & NOTES

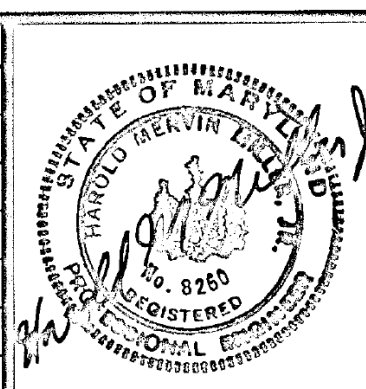


CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735

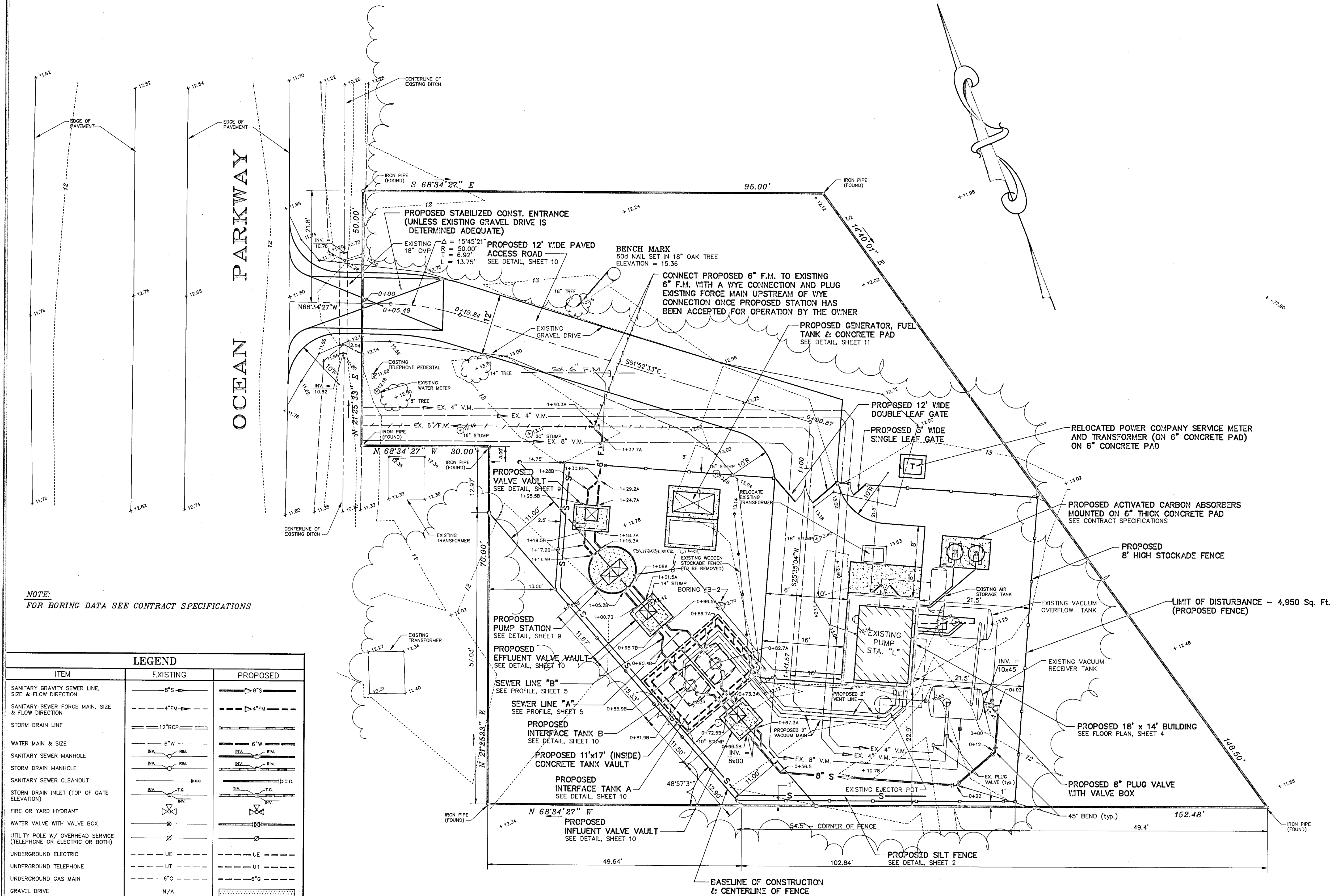
DESIGNED BY M.A.R. / G.V.M. DATE MARCH 1993
DRAWN BY M.A.R. SCALE AS SHOWN
CHECKED BY H.M.H. JOB NO. 92092.40

SHEET 2 OF 14

REVISIONS				
NO.	DATE	ITEM	BY	
1	6/16/93	REVISED AS PER WOR. SCS REVIEW COMMENTS - 6/6/93	N.A.R.	



SEWAGE SYSTEM IMPROVEMENTS
FOR
**WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA**
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

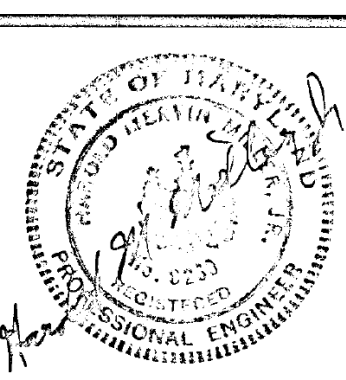


NOTE:
FOR BORING DATA SEE CONTRACT SPECIFICATIONS

ITEM	EXISTING	PROPOSED
SANITARY GRAVITY SEWER LINE, SIZE & FLOW DIRECTION	8" S	8" S
SANITARY SEWER FORCE MAIN, SIZE & FLOW DIRECTION	4" FM	4" FM
STORM DRAIN LINE	12" RCP	12" RCP
WATER MAIN & SIZE	6" W	6" W
SANITARY SEWER MANHOLE	RY	RY
STORM DRAIN MANHOLE	RY	RY
SANITARY SEWER CLEANOUT	RY	RY
STORM DRAIN INLET (TOP OF GATE ELEVATION)	RY	RY
FIRE OR YARD HYDRANT	RY	RY
WATER VALVE WITH VALVE BOX	RY	RY
UTILITY POLE W/ OVERHEAD SERVICE (TELEPHONE OR ELECTRIC OR BOTH)	RY	RY
UNDERGROUND ELECTRIC	UE	UE
UNDERGROUND TELEPHONE	UT	UT
UNDERGROUND GAS MAIN	UG	UG
GRAVEL DRIVE	N/A	N/A
CONCRETE CURB & GUTTER	N/A	N/A
CONCRETE SIDEWALK, SLAB / PAVING	N/A	N/A
IMPERVIOUS SURFACED ROAD, DRIVE OR LOT	N/A	N/A
INDIVIDUAL TREE OR BUSH	EVERGREEN DECIDUOUS	N/A
FENCE	N/A	N/A
STRUCTURE (CONCRETE, WOOD, METAL, ETC.)	N/A	N/A
DRAINAGE DITCH OR SWALE	N/A	N/A
EMBANKMENT SLOPES (DOWN)	N/A	N/A
CONTOUR	N/A	N/A
ELEVATION SPOT SHOT	N/A	N/A
BENCH MARK	N/A	N/A
PROPERTY OR RIGHT-OF-WAY LINE	N/A	N/A
CONCRETE MONUMENT	N/A	N/A
IRON ROD	N/A	N/A
CENTERLINE	N/A	N/A
CONSTRUCTION NOTE	N/A	N/A

SITE PLAN
SCALE: 1" = 10'

NO.	DATE	REVISIONS	BY
1	5/11/93	REVISED AS PER COMMENTS FROM WOR. CO. SANITARY COMM. - 5/13/93	M.A.R.
2	12/13/93	INTERFACE TANK & ASSOC. PIPING LOCATION REVISED AS PER CONTRACTOR	M.A.R.
3	12/27/93	REVISE STATIONING AS PER PROFILE	M.A.R.



SEWAGE SYSTEM IMPROVEMENTS
FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

AS BUILT

LAST REVISION: DEC 27, 1993

**SITE PLAN
PUMP STATION "L"**



CONSULTING ENGINEERS AND SURVEYORS

Andrews, Miller & Assoc., Inc.

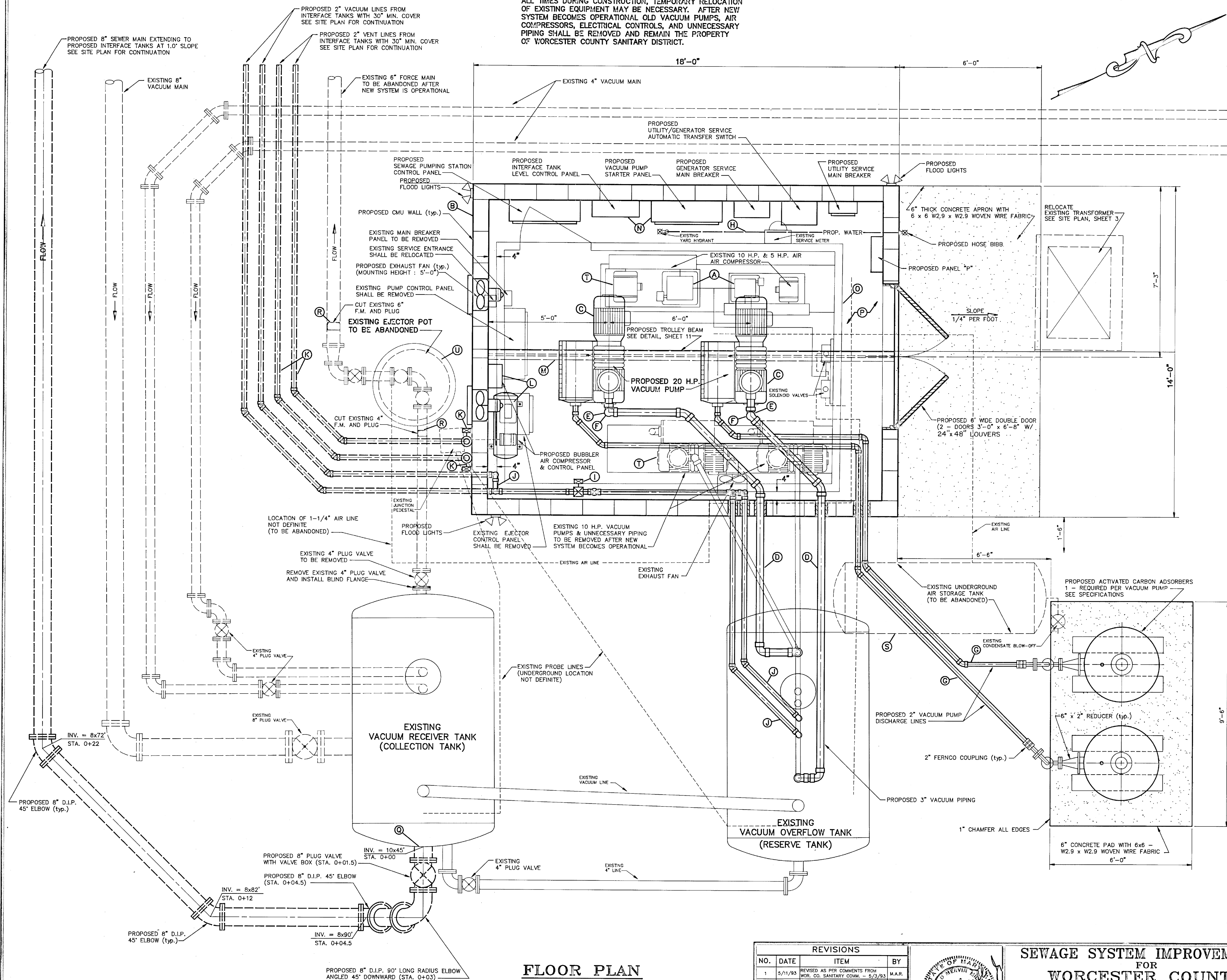
508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735

DESIGNED BY	M.A.R. / G.V.M.	DATE	MARCH 1993	SHEET 3 OF 14
DRAWN BY	M.A.R.	SCALE	1" = 10'	
CHECKED BY	H.M.M.	JOB NO.	92092-90	

NOTE :
EXISTING VACUUM STATION MUST REMAIN IN OPERATION AT ALL TIMES DURING CONSTRUCTION, TEMPORARY RELOCATION OF EXISTING EQUIPMENT MAY BE NECESSARY. AFTER NEW SYSTEM BECOMES OPERATIONAL OLD VACUUM PUMPS, AIR COMPRESSORS, ELECTRICAL CONTROLS, AND UNNECESSARY PIPING SHALL BE REMOVED AND REMAIN THE PROPERTY OF WORCESTER COUNTY SANITARY DISTRICT.

CONSTRUCTION NOTES :

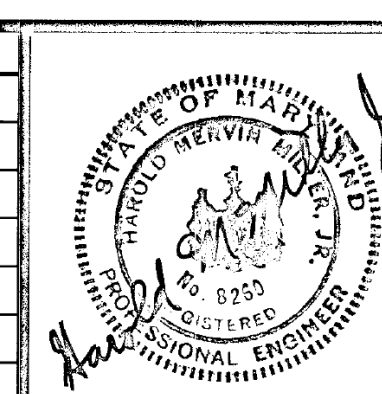
- Temporarily relocate existing air compressors and existing equipment as necessary for installation of proposed equipment.
- Construct 18' x 14' concrete building over existing fiberglass structure. See Wall Section Sheet 11.
- 20 horsepower vacuum pumps installed on existing concrete slab.
- 3" Sch 40 PVC vacuum piping, extending from 20 H.P. vacuum pump to existing vacuum overflow tank. Installed overhead and adequately supported from ceiling joist. See Piping Schematic.
- 3" PVC Ball valve mounted in vertical pipe section.
- 2" Sch 40 galvanized steel vacuum discharge piping extending from 20 H.P. vacuum pump to proposed activated carbon absorbers mounted overhead adequately supported from ceiling joist. Exterior piping shall be adequately supported or installed 24" below ground.
- Field locate existing water line and extend below grade to proposed hose bib located on exterior building wall.
- 2" vacuum solenoid valve with ball valve placed on vacuum overflow tank side mounted on concrete wall (5' above floor). See Piping Schematic, Sheet 11 (both vacuum lines).
- 2" Sch. 40 PVC vacuum supply line extending from vacuum overflow tank to interface tanks. Lines existing building shall be installed underground with 24" minimum cover.
- 2" Sch. 40 PVC vacuum vent lines extending from interface tanks to exterior building wall. 2" solenoid valves mounted on building exterior wall, piping extending up to within 6" of roof eave. See Piping Schematic Sheet 11.
- Bubbler air compressor, control panel and associated piping extending to pump station. See Piping Schematic, Sheet 11.
- Trolley beam mounted from ceiling joist. See Detail, Sheet 11.
- Electrical controls to be installed as per electrical plans (Sheets 12-14) and specifications.
- Remove and dispose of existing fiberglass building enclosure. Install 6" thick concrete floor slab with 6 x 6 w 2.9 x w 2.9 woven wire fabric flush with existing floor slab.
- Install 8" flanged steel pipe connection at bottom of vacuum receiver tank and install proposed 8" gravity sewer main.
- After vacuum station is completed cut existing force main near ejector pot and plug. Ejector pot shall be abandoned.
- Existing air storage tank shall be abandoned in place. Cut top of tank the entire length and fill with pea gravel.
- Remove existing vacuum pumps, air compressor and any equipment from old vacuum station unnecessary for operation of new station. All equipment shall remain the property of Worcester County Sanitary District.
- Existing ejector pot shall be abandoned in place by filling with pea gravel, after proposed improvements are completed.



FLOOR PLAN

SCALE : 1/2" = 1' = 0"

REVISIONS			
NO.	DATE	ITEM	BY
1	5/11/93	REVISED AS PER COMMENTS FROM WOR. CO. SANITARY COMM. - 5/3/93	M.A.R.

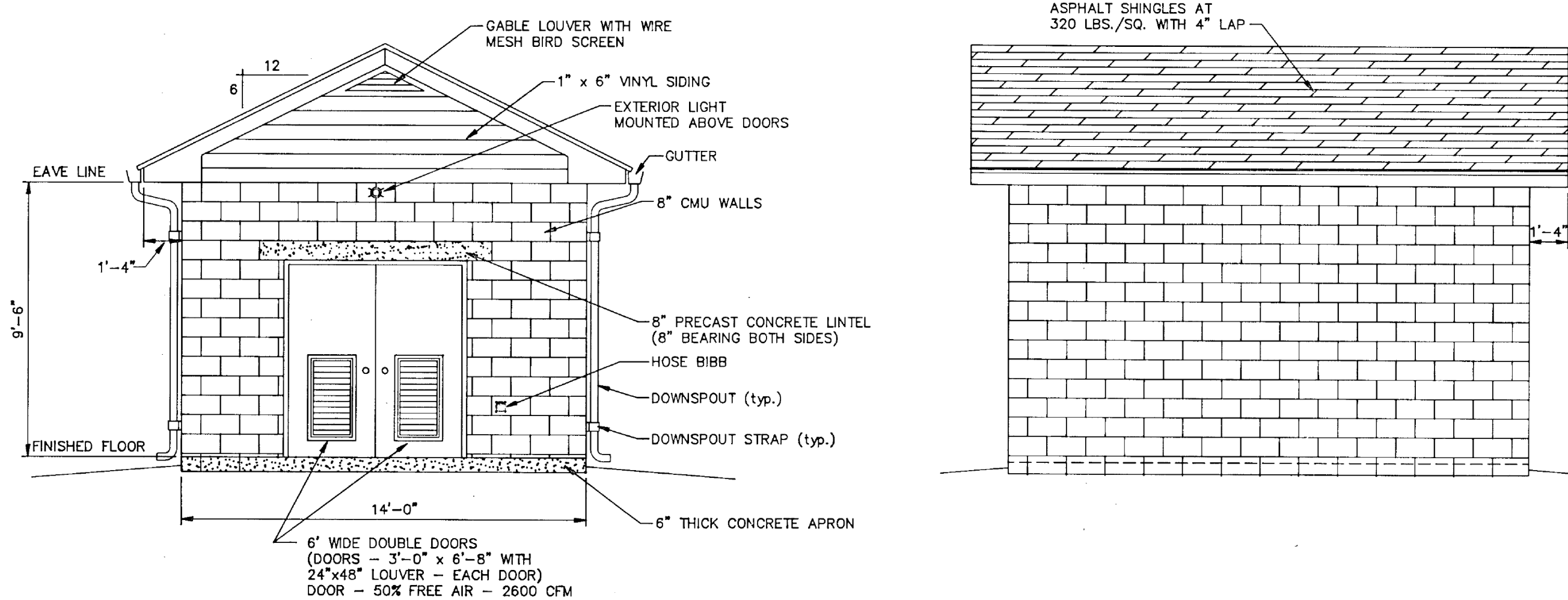
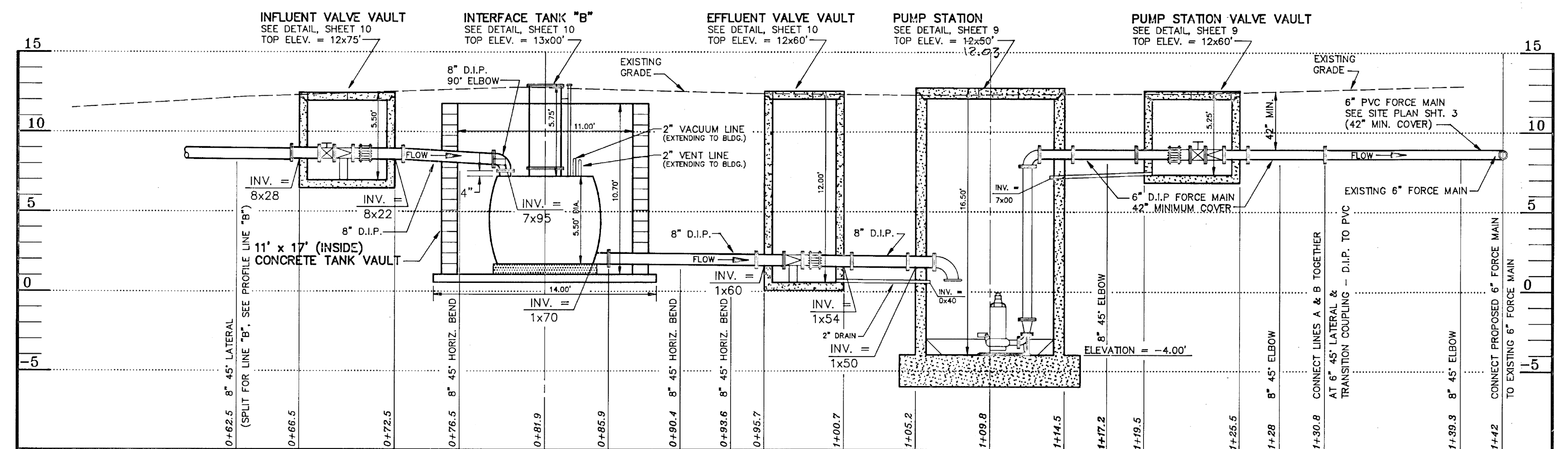
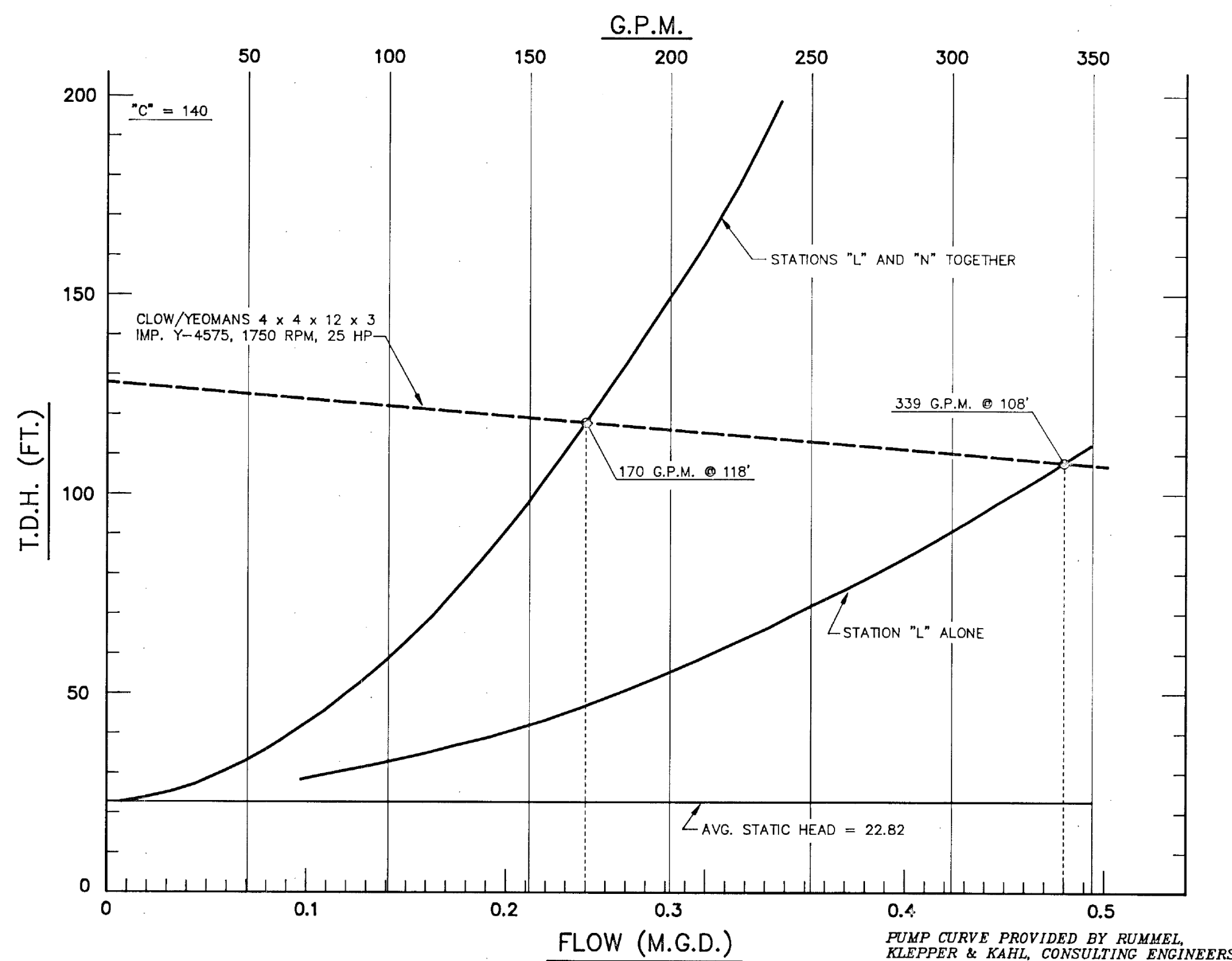
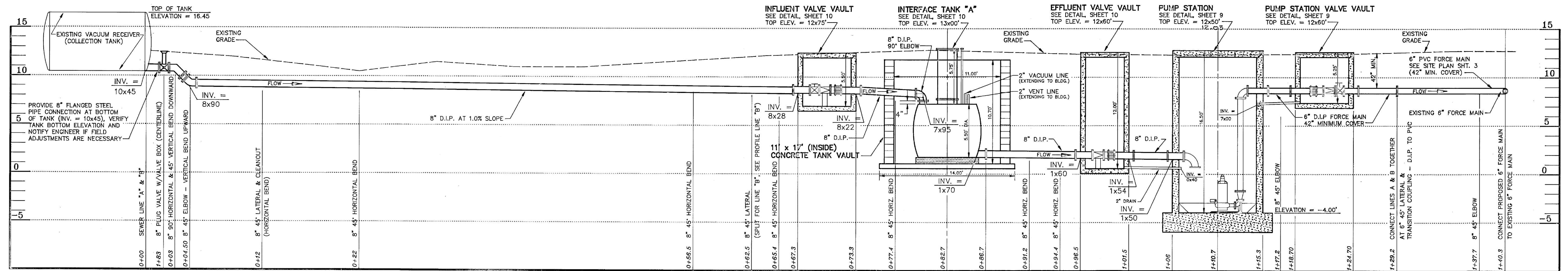


SEWAGE SYSTEM IMPROVEMENTS
FOR
WORCESTER COUNTY
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OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

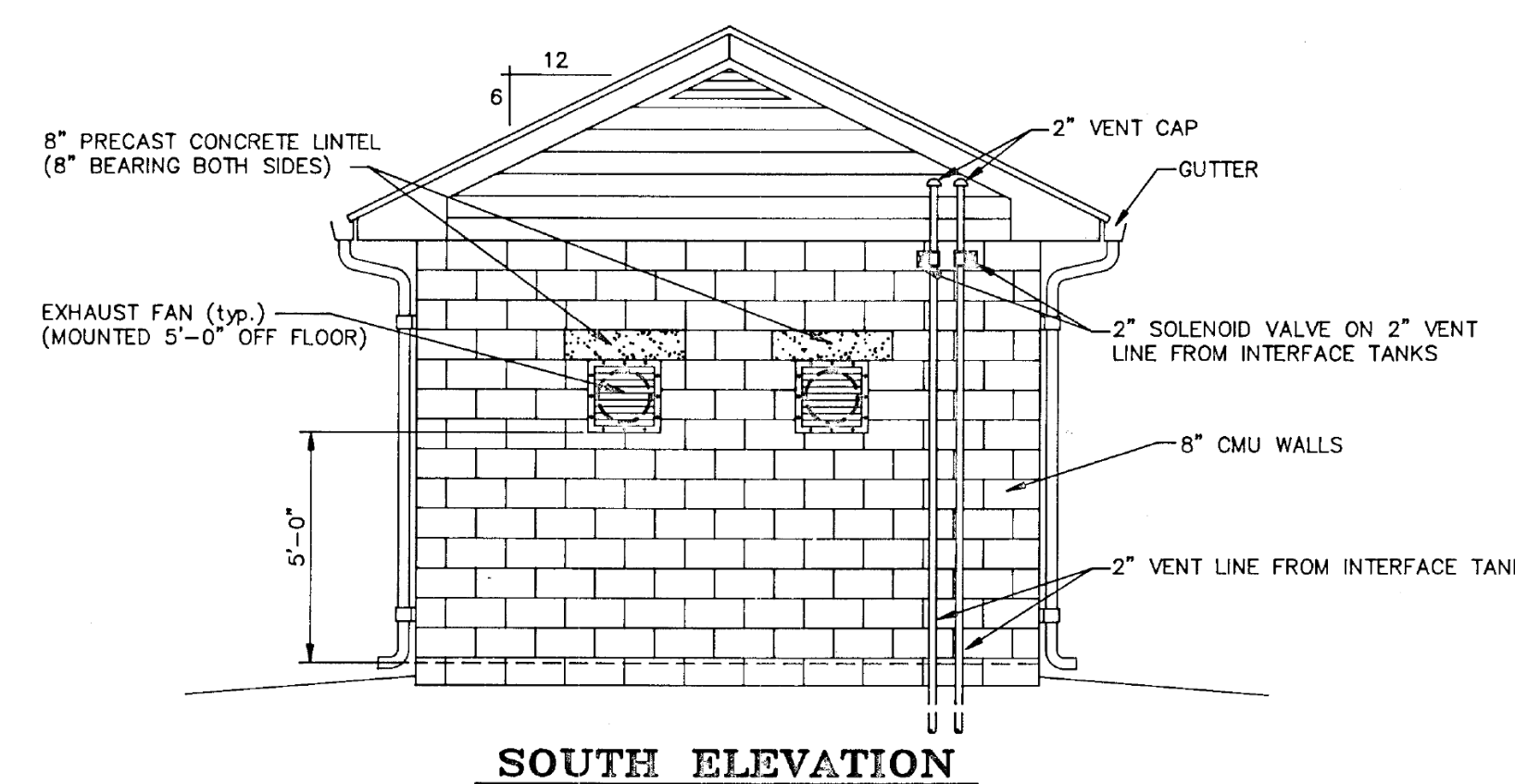
AS BUILT
FLOOR PLAN
PUMP STATION "L"

CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735

DESIGNED BY	M.A.R. / G.V.M.	DATE	MARCH 1993	SHEET 4 OF 14
DRAWN BY	M.A.R.	SCALE	1/2" = 1'-0"	
CHECKED BY	H.M.M.	JOB NO.	92092.40	



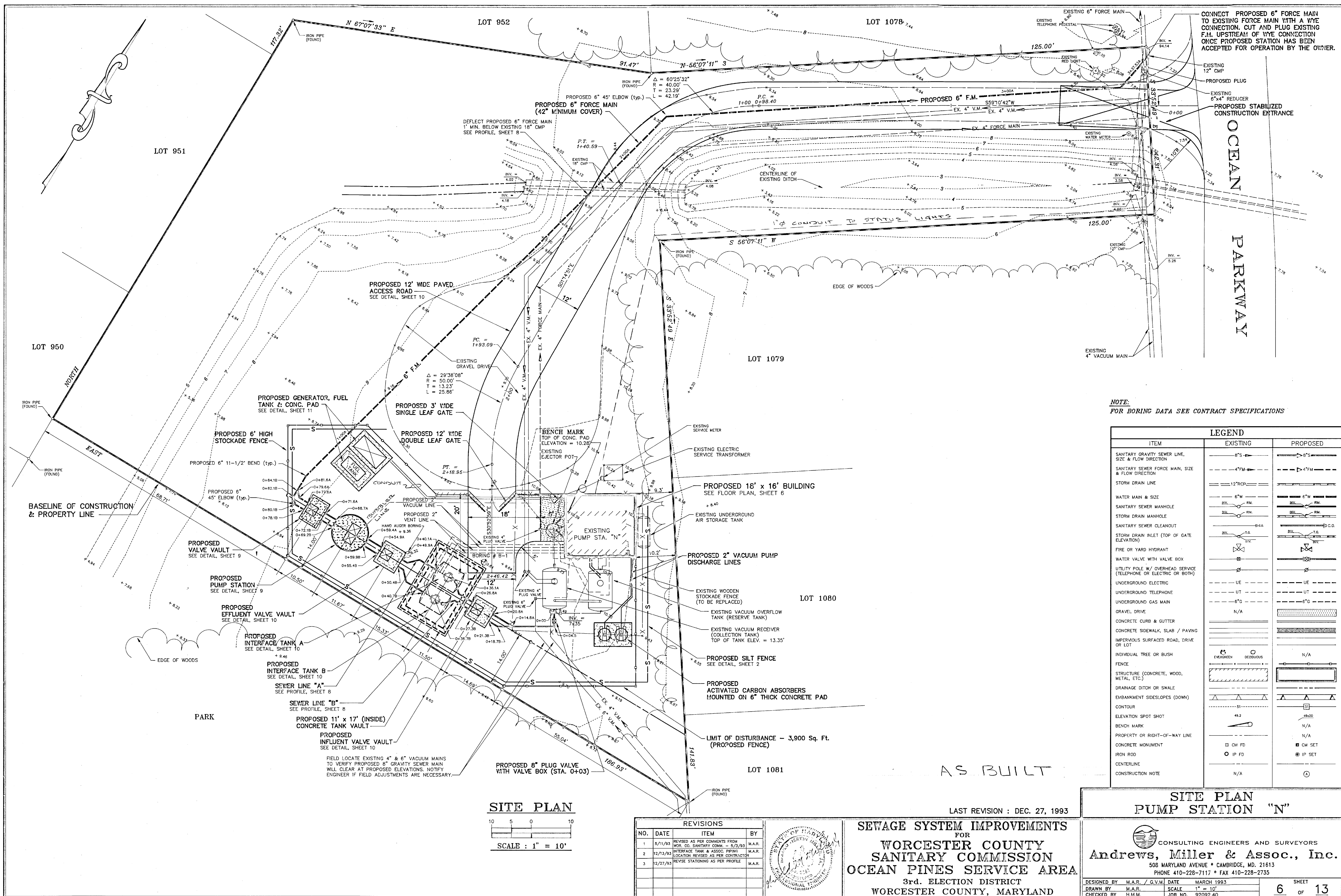
BUILDING ELEVATIONS - PUMP STATION "L"
 SCALE : 1/4" = 1'-0"



REVISIONS			
NO.	DATE	ITEM	BY
1	5/11/93	REVISED AS PER COMMENTS FROM WOR. CO. SANITARY COM. - 5/3/93	M.A.R.
2	12/27/93	INTERFACE TANK & ASSOC. PIPING M.A.R. LOCATION REVISED AS PER CONTRACTOR	M.A.R.

SEWAGE SYSTEM IMPROVEMENTS
 FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
 3rd. ELECTION DISTRICT
 WORCESTER COUNTY, MARYLAND

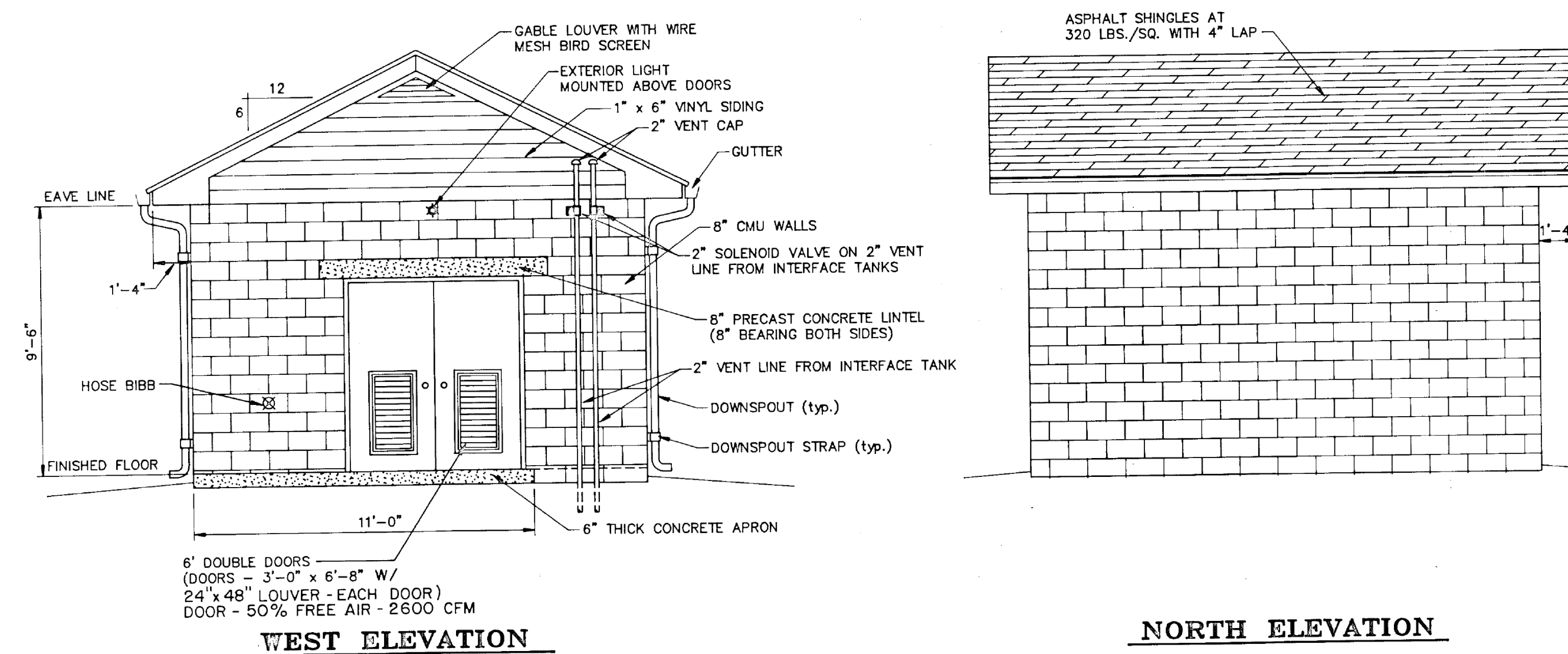
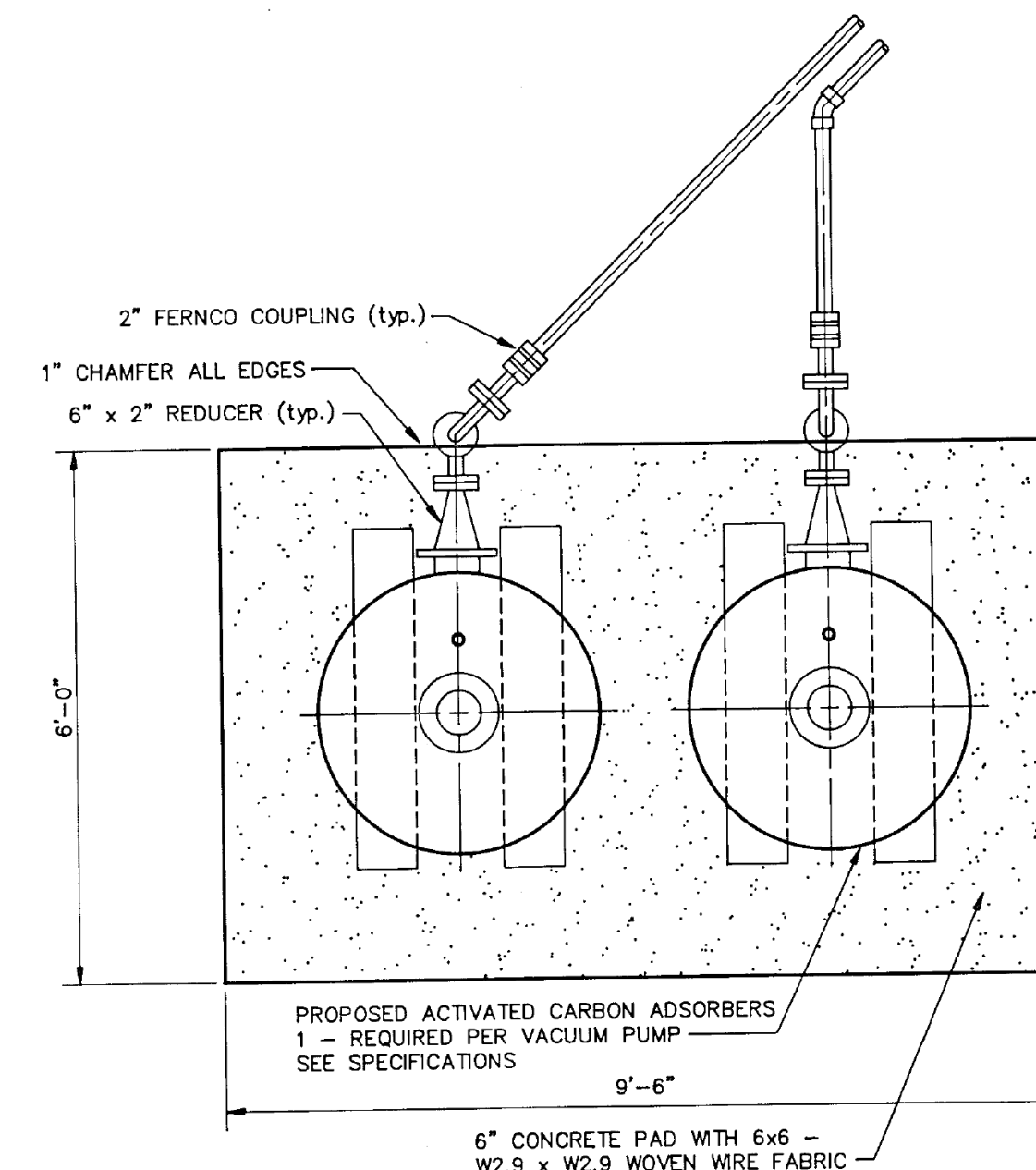
LAST REVISION : DEC. 27, 1993
SEWER PROFILES & BLDG. ELEVATIONS
PUMP STATION "L"
 CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
 508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
 PHONE 410-228-7117 • FAX 410-228-2735
 DESIGNED BY M.A.R. / G.V.M. DATE MARCH 1993
 DRAWN BY M.A.R. SCALE AS SHOWN
 CHECKED BY H.M.M. JOB NO. 92092.40
 SHEET 5 OF 14



CONSTRUCTION NOTES :

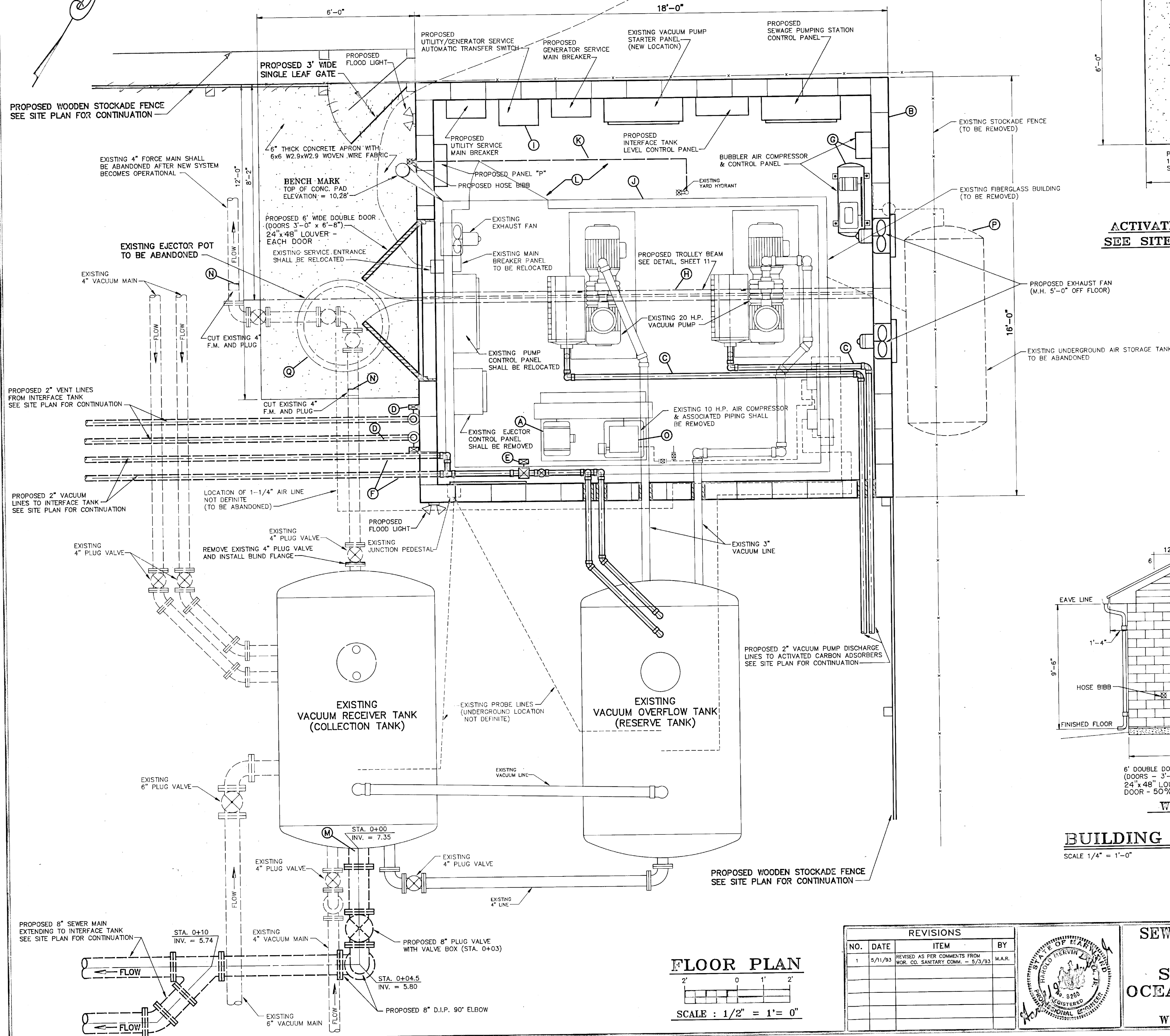
- Temporarily relocate existing air compressors and existing equipment as necessary for installation of proposed equipment.
- Construct 18' x 16' concrete building over existing fiberglass structure. See Wall Section Sheet 11.
- 2" Sch 40 galvanized steel vacuum discharge piping extending from existing vacuum pump to proposed activated carbon absorbers mounted overhead adequately supported from ceiling joist. Exterior piping shall be adequately supported or installed 24" below ground.
- 2" Sch 40 PVC vacuum vent lines extending from interface tanks to exterior building wall. 2" solenoid valves mounted on building exterior wall, piping extending up to within 6" of roof eave. See Piping Schematic Sheet 11.
- 2" vacuum solenoid valve with ball valve placed on vacuum overflow tank side mounted on concrete wall on both vacuum lines (5' above floor). See Piping Schematic, Sheet 11.
- 2" Sch 40 PVC vacuum supply line extending from vacuum overflow tank to interface tanks. Lines exiting building shall be installed underground with 24" minimum cover.
- Bubbler air compressor, control panel and associated piping extending to pump station. See Piping Schematic, Sheet 11.
- Trolley beam mounted from ceiling joist. See Detail, Sheet 11.
- Electrical controls to be installed as per electrical plans (Sheets 12-14) and specifications.
- Remove and dispose of existing fiberglass building enclosure.
- Field locate existing water line and extend to proposed hose bib located on exterior wall.
- Install 6" thick concrete floor slab with 6 x 6 w 2.9 x w 2.9 woven wire fabric flush with existing floor slab.
- Install 8" flanged steel pipe connection at bottom of vacuum receiver tank and install proposed 8" gravity sewer main.
- After vacuum station is completed cut existing force main near ejector pot and plug. Ejector pot shall be abandoned.
- Remove existing air compressor and any equipment from old vacuum station unnecessary for operation of new station. All equipment will remain the property of Worcester County Sanitary District.
- Existing air storage tank shall be abandoned in place. Cut top of tank the entire length and fill with pea gravel.
- Existing ejector pot shall be abandoned in place by filling with pea gravel after proposed improvements are complete.

ACTIVATED CARBON ADSORBERS DETAIL SEE SITE PLAN, SHEET 6 FOR LOCATION



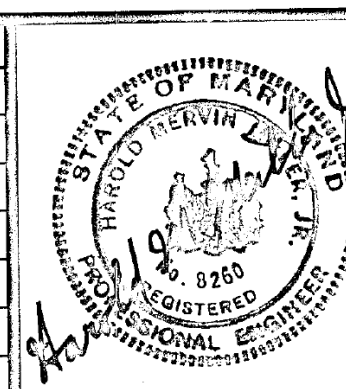
BUILDING ELEVATIONS - PUMP STATION "N" SCALE 1/4" = 1'-0"

NOTE :
EXISTING VACUUM STATION MUST REMAIN IN OPERATION AT ALL TIMES DURING CONSTRUCTION. TEMPORARY RELOCATION OF EXISTING EQUIPMENT MAY BE NECESSARY. AFTER NEW SYSTEM BECOMES OPERATIONAL OLD VACUUM PUMPS, AIR COMPRESSORS, ELECTRICAL CONTROLS, AND UNNECESSARY PIPING SHALL BE REMOVED & REMAIN THE PROPERTY OF THE WORCESTER COUNTY SANITARY DISTRICT.



FLOOR PLAN SCALE : 1/2" = 1' = 0"

REVISIONS			
NO.	DATE	ITEM	BY
1	5/11/93	REVISED AS PER COMMENTS FROM WOR. CO. SANITARY COMM. - 5/3/93	M.A.R.



SEWAGE SYSTEM IMPROVEMENTS
FOR
**WORCESTER COUNTY
SANITARY COMMISSION**
OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

AS BUILT
**FLOOR PLAN & BLDG. ELEVATIONS
PUMP STATION "N"**

CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735

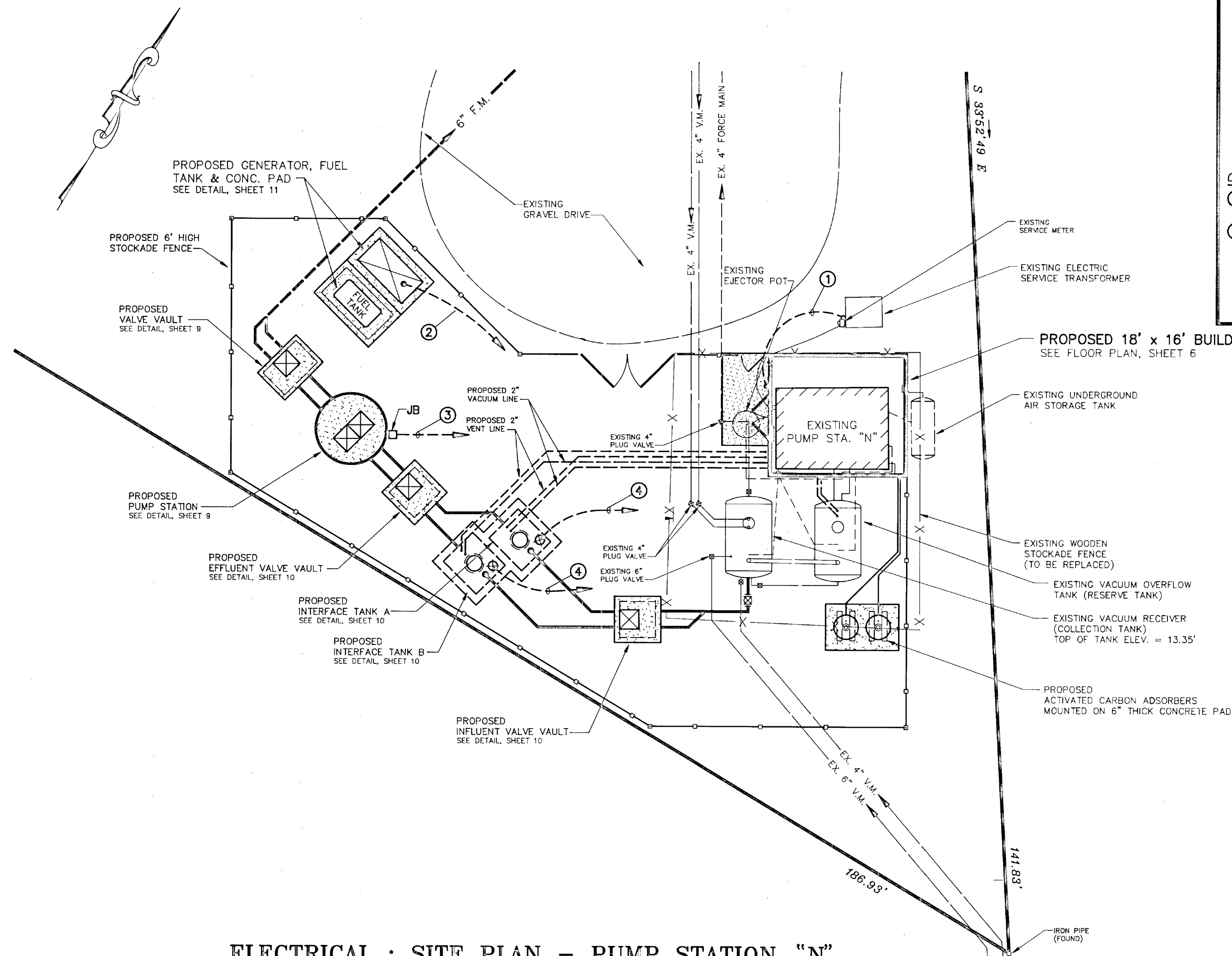
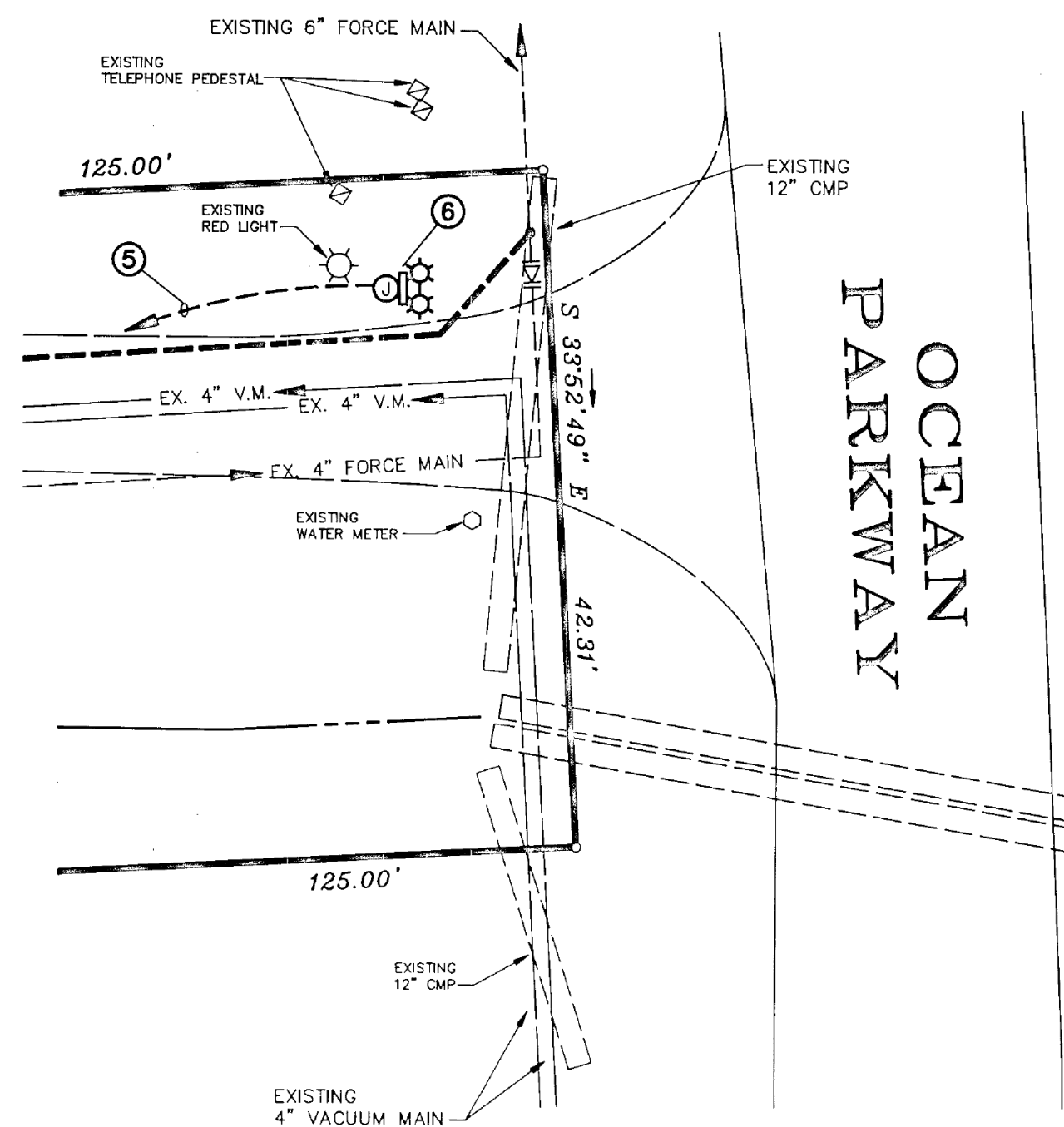
DESIGNED BY M.A.R. / G.V.M. DATE MARCH 1993
DRAWN BY M.A.R. SCALE AS SHOWN
CHECKED BY H.M.M. JOR. NO. 92092.40

SHEET
7 OF 14


 CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
 508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
 PHONE 410-228-7117 • FAX 410-228-2735

ELECTRICAL CONSTRUCTION NOTES

- ① EXTEND NEW SECONDARY SERVICE (SEE DISTRIBUTION SYSTEM DIAGRAM) FROM SERVICE ENTRANCE CIRCUIT BREAKER TO NEW POWER COMPANY TRANSFORMER. TERMINATE IN COIL OF 10' OF CABLE. PROVIDE 90° ELBOW AND 8' LENGTH OF 4" PVC CONDUIT TO POWER COMPANY.
- ② EXTEND THE FOLLOWING UNDERGROUND BACK TO PUMP BUILDING :
 - A. P-6, 3 #12 - 3/4" C. FOR BATTERY CHARGER
 - B. P-8, 3 #12 - 3/4" C. FOR FUEL TRANSFER PUMP
 - C. P-16, 3 #12 - 3/4" C. FOR JACKET HEATER
 - D. 4 #12 - 3/4" C. TO A.T.S. FOR GENERATOR START CONTROLS
 - E. GENERATOR SERVICE FEEDER (SEE DISTRIBUTION SYSTEM DIAGRAM)
- ③ EXTEND THE FOLLOWING UNDERGROUND TO SEWAGE PUMP CONTROL PANEL
 - A. 3 #3 - 1 #6 GRD. & 4 #14 CONTROL - 1-1/2" C. FOR PUMP NO. 1
 - B. 3 #3 - 1 #6 GRD. & 4 #14 CONTROL - 1-1/2" C. FOR PUMP NO. 2
 - C. 1/2" INSTRUMENT AIR LINE FOR BUBBLER CONTROL SYSTEM
 - D. 2 #12 - 3/4" C. FROM FLOAT - HIGH LEVEL ALARM
 - E. 2 #12 - 1 #12 GRD & 2 #12 CONTROL - 1" C FOR EXHAUST FAN
- ④ EXTEND 3/C #18 SHIELDED CABLE IN 3/4" CONDUIT FROM PROBE UNIT TO INTERFACE TANK LEVEL CONTROL PANEL
- ⑤ EXTEND 4 #10 - 3/4" C. TO VACUUM PUMP CONTROL PANEL
- ⑥ STATUS LIGHTS - EXACT LOCATION TO BE VERIFIED BY WORCESTER COUNTY SANITARY DISTRICT PRIOR TO INSTALLATION - SEE DETAIL SHEET 14.



ELECTRICAL : SITE PLAN - PUMP STATION "N"

SCALE : 1" = 10'

EBL ENGINEERS, INC.
 2331 YORK ROAD
 TIMONIUM, MARYLAND 21093 - 2215
 PHONE (410) 560 - 0620
 FAX (410) 560 - 0650
 CONSULTING MECHANICAL/ELECTRICAL ENGINEERS

REVISIONS			
NO.	DATE	ITEM	BY
1	5/11/93	REVISED AS PER COMMENTS FROM WOR. CO. SANITARY COMM. - 5/3/93	M.A.R.



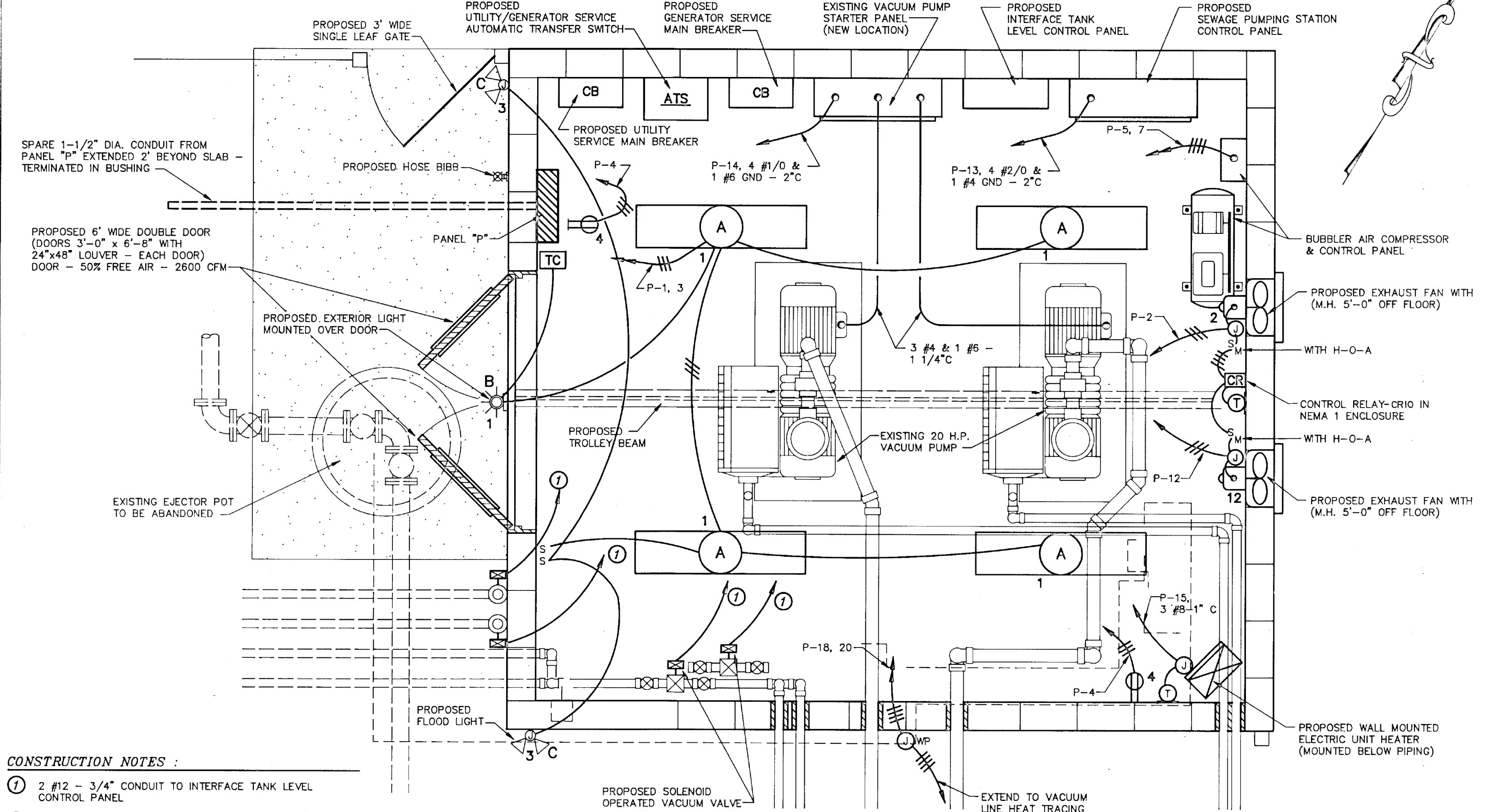
SEWAGE SYSTEM IMPROVEMENTS
 FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
 3rd. ELECTION DISTRICT
 WORCESTER COUNTY, MARYLAND

ELECTRICAL DETAILS
PUMP STATION "N"

CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.
 508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
 PHONE 410-228-7117 • FAX 410-228-2735

DESIGNED BY	P.D. - EBL	DATE	MARCH 1993	SHEET	13
DRAWN BY	J.C.D./M.A.R.	SCALE	AS SHOWN	OF	14
CHECKED BY	P.D. - EBL	JOB NO.	92092.40		

NOTE :
 SERVICE METER TO BE INSTALLED AT LOCATION REQUIRED BY UTILITY COMPANY.



CONSTRUCTION NOTES :

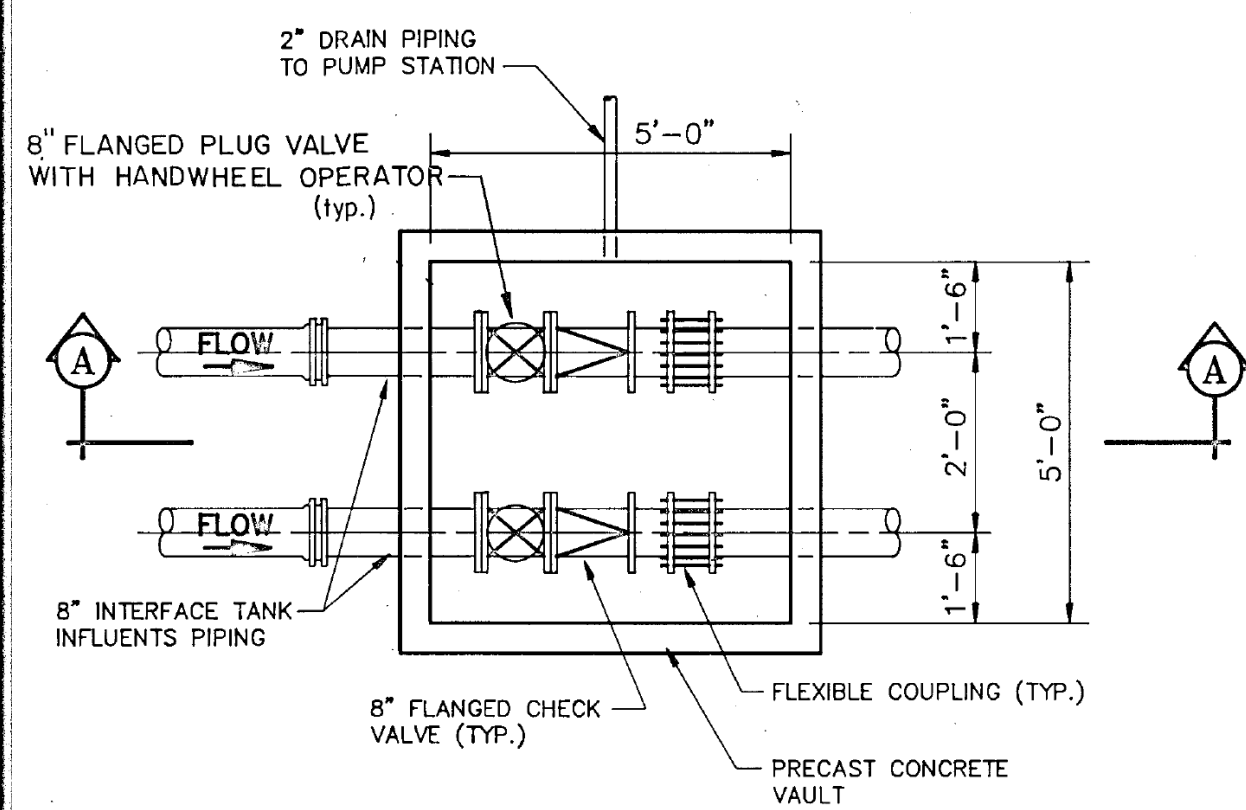
- ① 2 #12 - 3/4" CONDUIT TO INTERFACE TANK LEVEL CONTROL PANEL
- ② EXISTING PUMP BREAKERS, STARTERS AND CONTROL COMPONENTS MAY BE RE-USED. CONNECT IN ACCORDANCE WITH "VACUUM PUMP NO. 1 & NO. 2 CONTROL DIAGRAM" - SHEET 14. RE-ROUTE & RECONNECT TUBING FOR EXISTING VACUUM PRESSURE SWITCH. RE-ROUTE & RECONNECT WIRING FOR EXISTING VACUUM RECEIVER TANK HIGH LEVEL RELAY (CR). ALARM CONTROL POWER (CIRCUIT P-10) TO BE LOCATED IN PANEL.

FLOOR PLAN : ELECTRICAL - PUMP STATION "N"

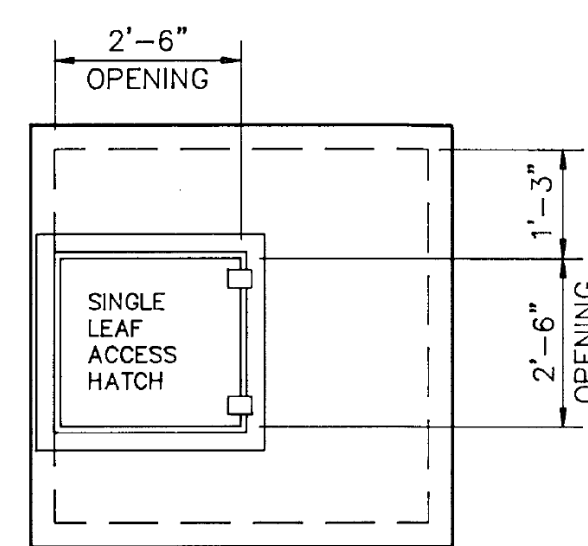
SCALE : 1/2" = 1' = 0"

EXHAUST FAN SCHEDULE						
NO.	SERVICE	CFM	FAN RPM	S.P. (IN W.G.)	TYPE/ DRIVE	ELECTRICAL HP-V/PH/HZ
EF-1 & EF-1A	GENERAL EXHAUST	2630	1725	1/8	DIRECT DRIVE PROPELLER	1/4-120/1/60
EF-2	WETWELL EXHAUST	500	900	1/2	DIRECT DRIVE UTILITY SET	1/6-120/1/60
MANUFACTURER : DAYTON						
MANUFACTURER & MODEL NO. : GREENHECK SWB-9						

LEGEND	
TC	Time Clock - Mounting Height 5'-0" (Tark Model 1101, or Equal)
ATS	Automatic Transfer Switch - M.H. 6'-0" To Top
CB	Enclosed Circuit Breaker - M.H. 5'-6" To Top
Panelboard	Panelboard - M.H. 6'-6" To Top
Solenoid Operated Valve	Solenoid Operated Valve
Thermostat	Thermostat - 5"-3"
TM	Thermal Manual Motor Starting Switch - M.H. 4'-6"
Lighting Fixture	Lighting Fixture Fluorescent - Nominal 1' x 4', 2 tube Industrial With Symmetric Reflector
Receptacle	Receptacle - Duplex, 120v, 20A - M.H. 3'-6"
S	Switch - Toggle, 1P, 20A
On Ceiling Or Walls	On Ceiling Or Walls
Underground	Underground
J	Junction Box
WP	Waterproof
GND.	Ground
C.	Conduit
P.	Poles
A.	Amperes
V.	Volts
H.P.	Horsepower
Ø	Phase
M.H.	Mounting Height To Center Of Device Or Equipment From Finished Floor Unless Otherwise Noted

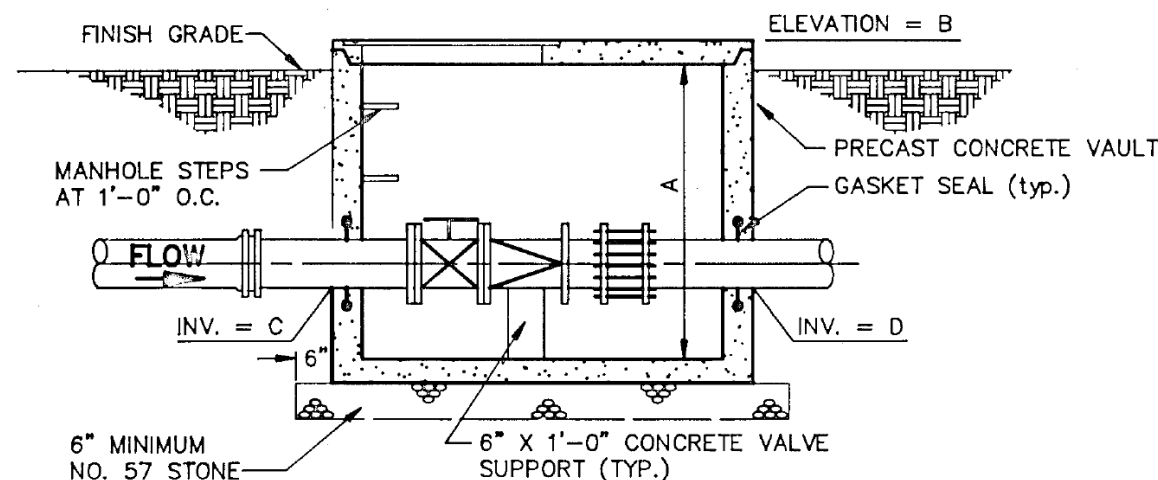


PLAN - TOP SLAB REMOVED



PLAN - TOP SLAB

ITEM	STATION "I"	STATION "N"
A	5.50'	5.50'
B	12.75'	10.00'
C	8.28'	5.70'
D	8.22'	5.64'

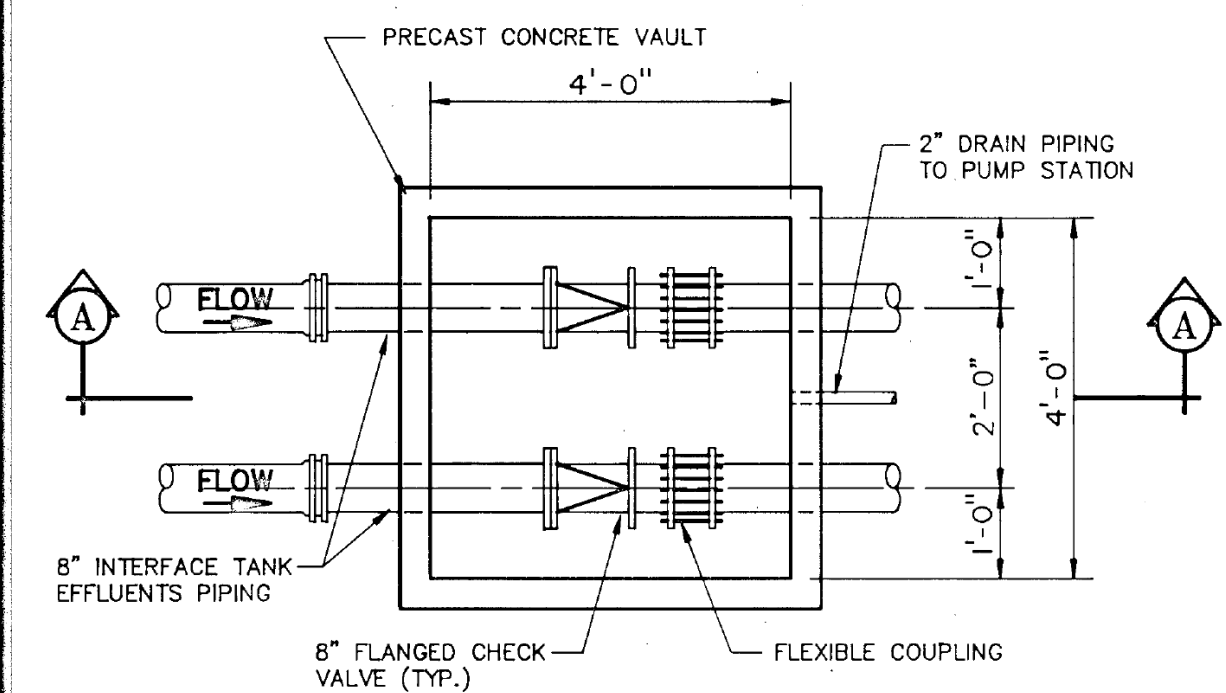


SECTION A - A

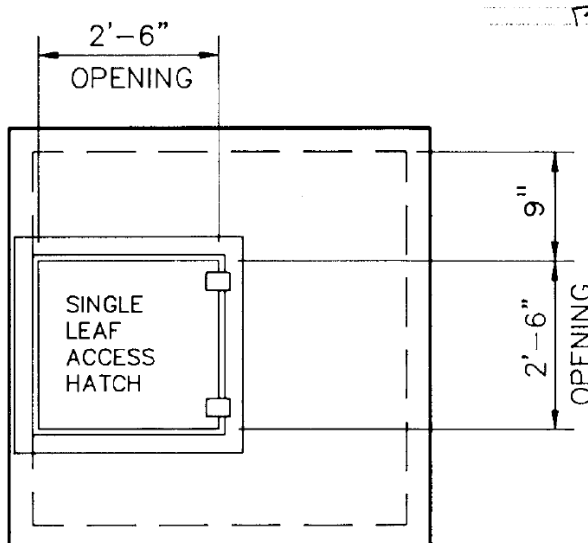
NOTE: PROVIDE A MECHANICAL JOINT WITHIN ONE FOOT OF OUTSIDE FACE OF WALLS.

INFLUENT VALVE VAULT DETAILS

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

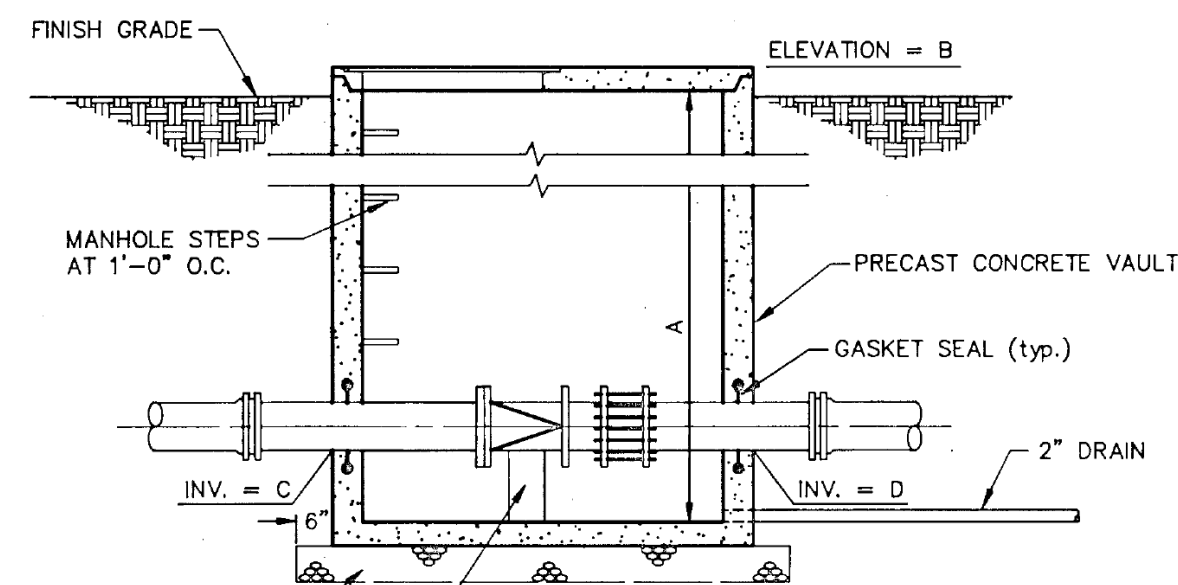


PLAN - TOP SLAB REMOVED



PLAN - TOP SLAB

ITEM	STATION "I"	STATION "N"
A	12.00'	11.50'
B	12.60'	9.40'
C	1.60'	-1.00'
D	1.54'	-1.06'

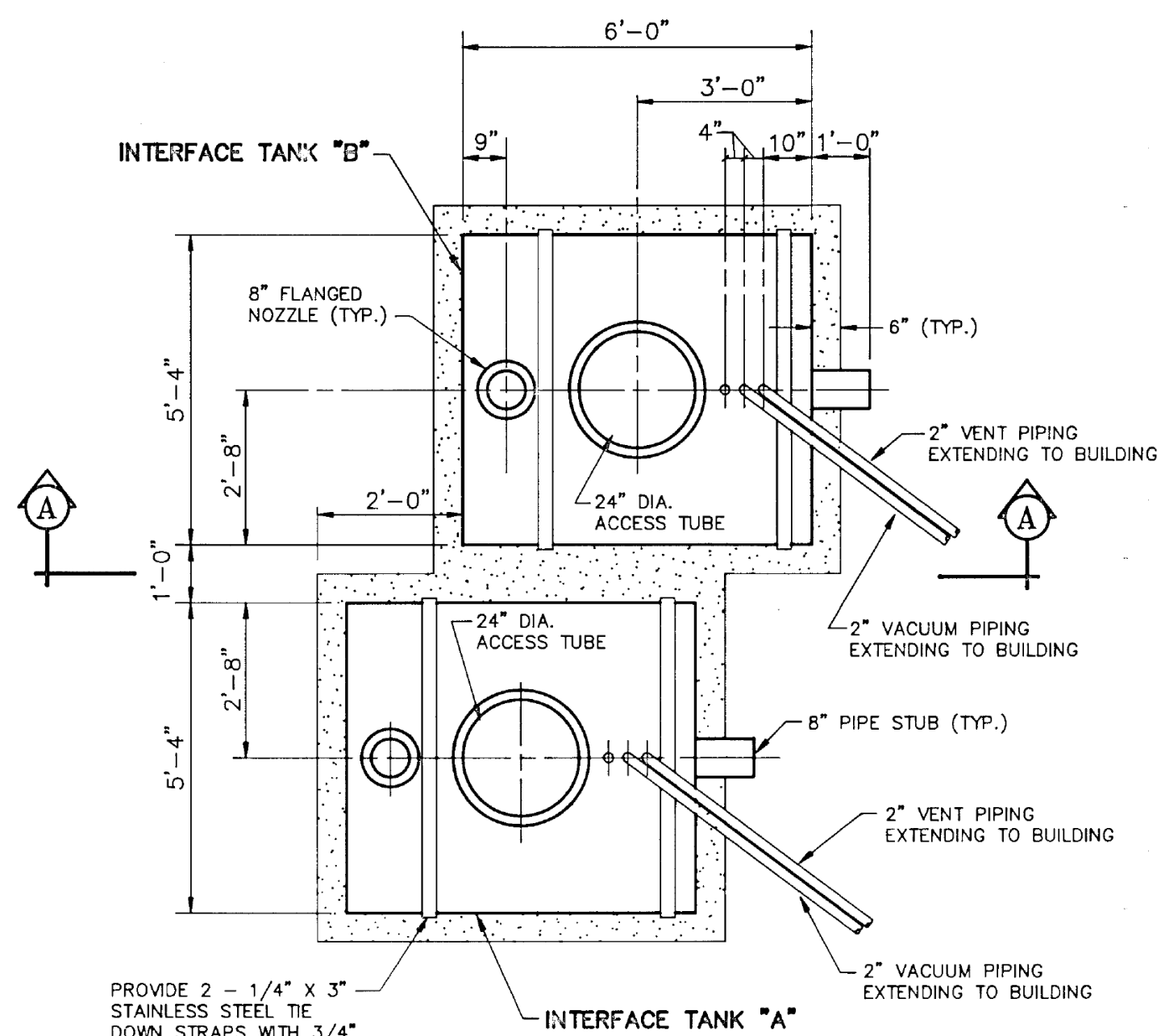


SECTION A - A

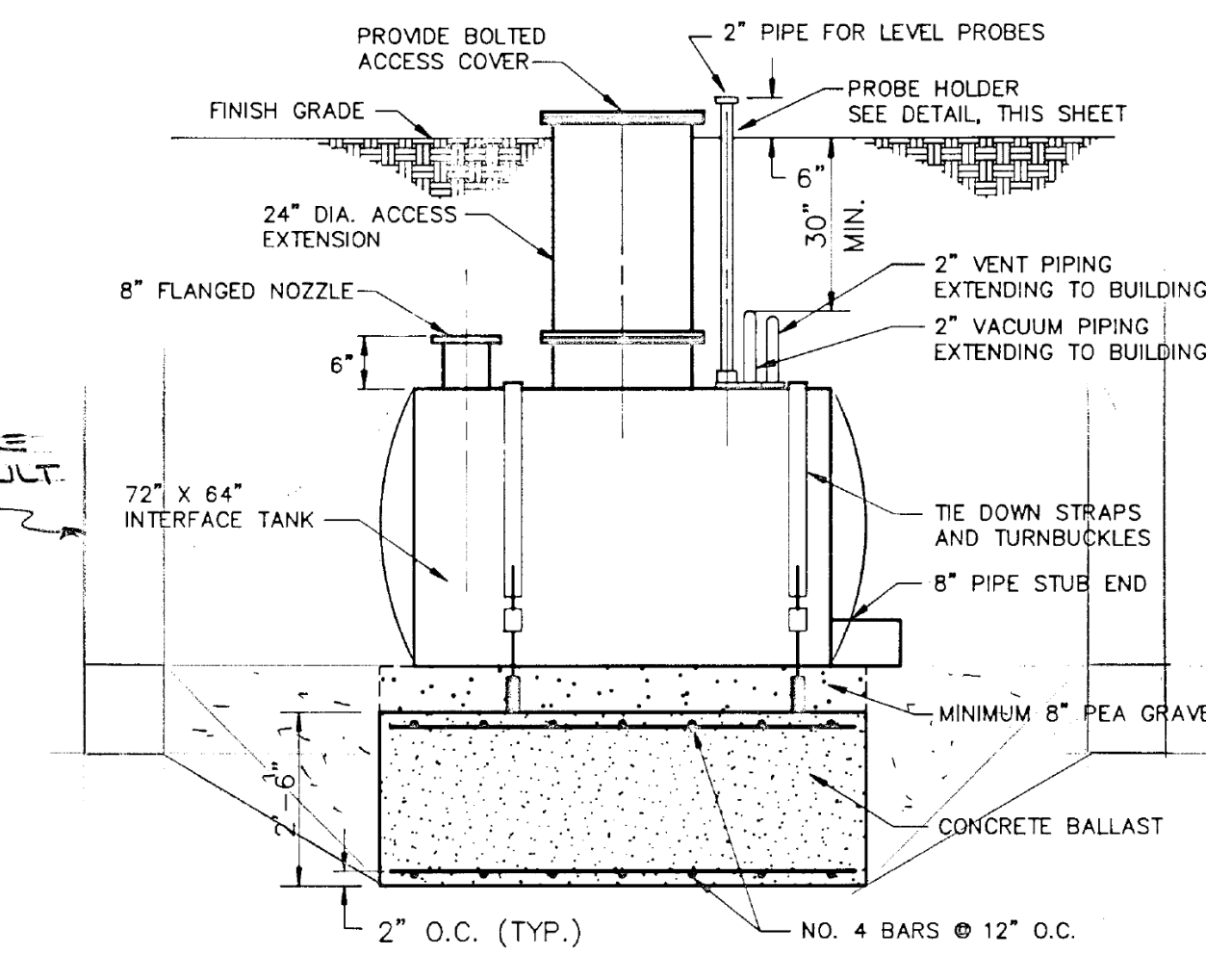
NOTE: PROVIDE A MECHANICAL JOINT WITHIN ONE FOOT OF OUTSIDE FACE OF WALLS.

EFFLUENT VALVE VAULT DETAILS

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



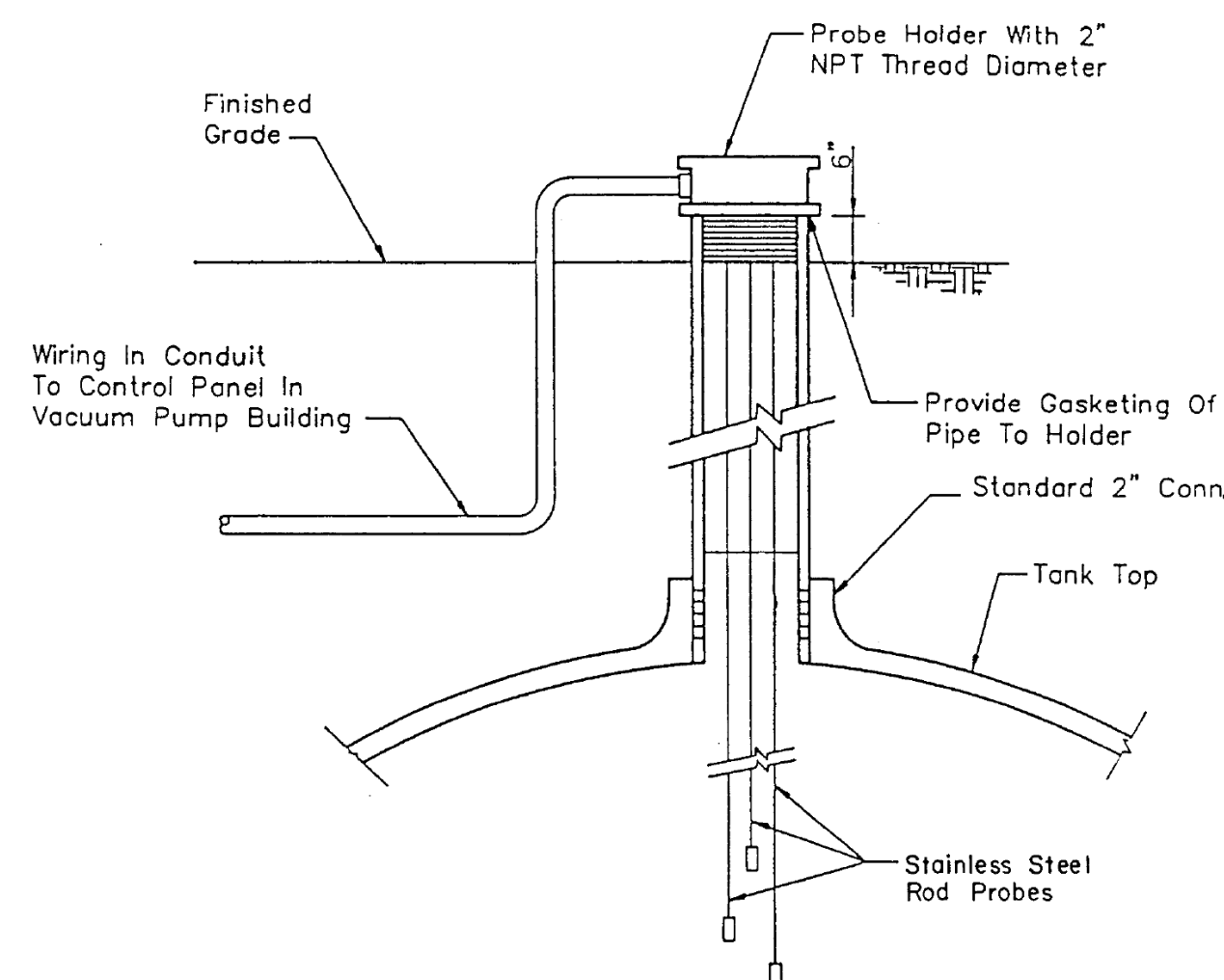
PLAN



SECTION A - A

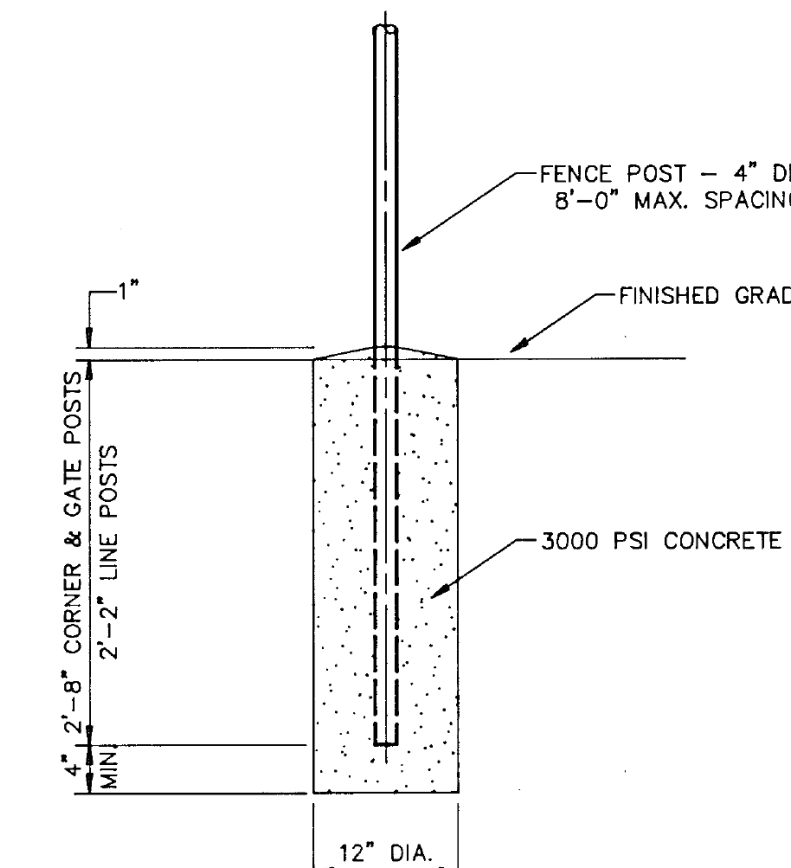
INTERFACE TANK DETAILS

SCALE 3/8"=1'-0"



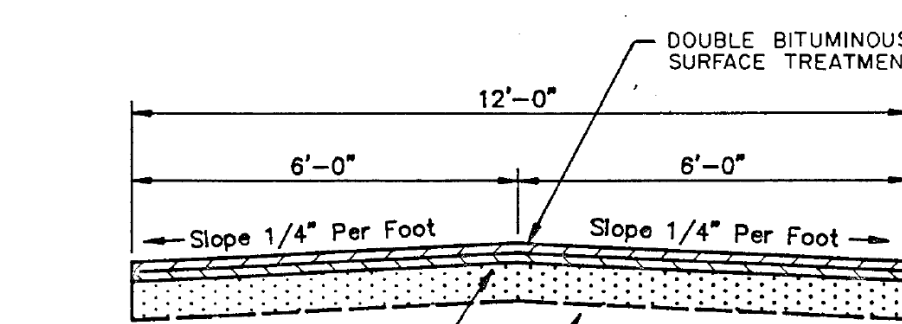
PROBE HOLDER ON INTERFACE TANK DETAIL

SCALE: NONE



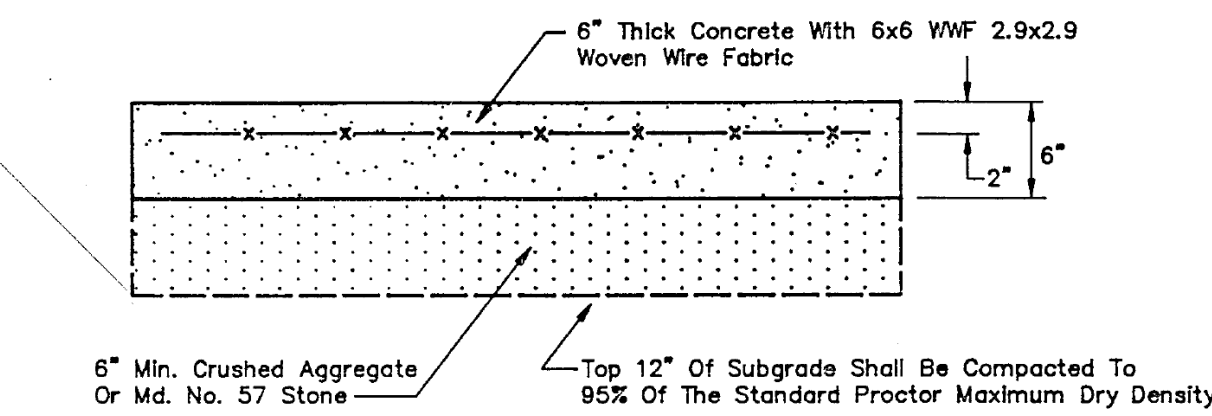
FENCE POST FOOTING

SCALE: 3/4" = 1'-0"



ACCESS ROAD SECTION

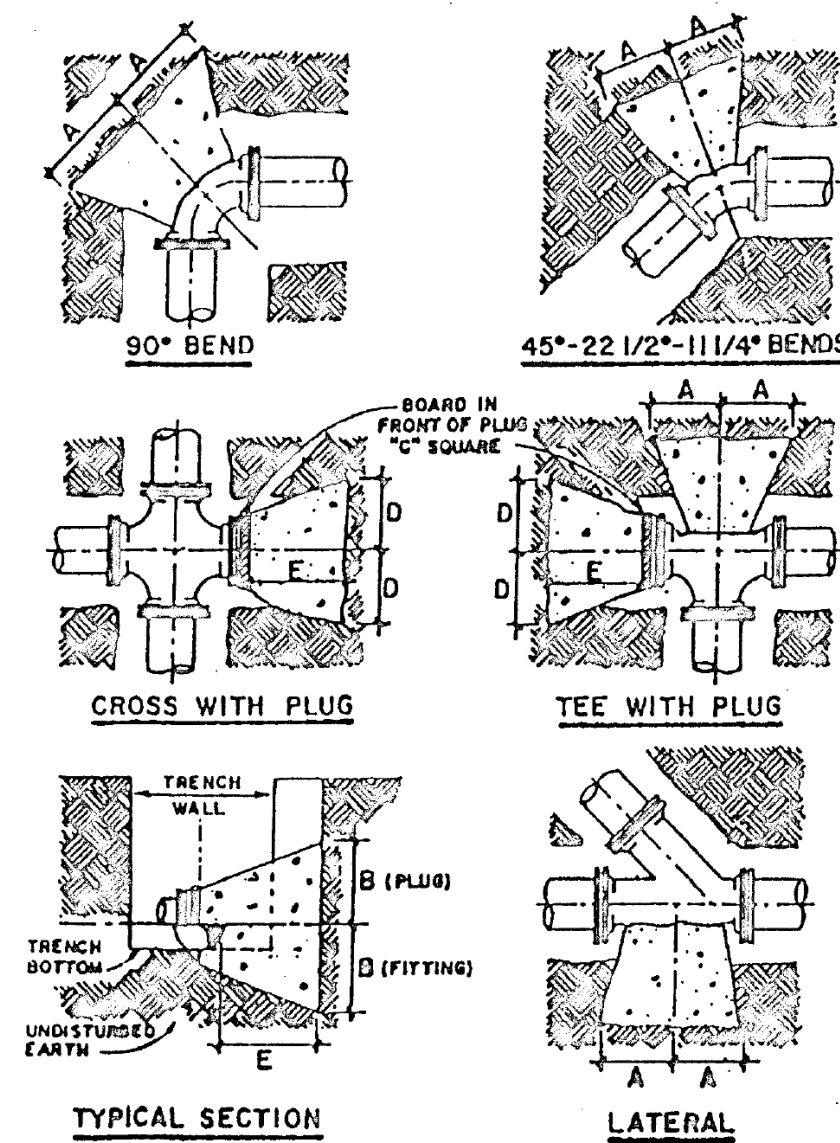
NO SCALE



CONCRETE SLAB/APRON DETAIL

NO SCALE

PROBE	STATION "I"	STATION "N"
HIGH LEVEL	6.03	3.33
LOW LEVEL	2.70	0.00
COMMON GROUND	2.20	-0.50
BOTTOM OF TANK	1.70	-1.00



TYPICAL SECTION

LATERAL

THRUST BLOCK SCHEDULE											
PIPE SIZE	HOLD DIMENSIONS	150 P.S.I. TEST PRESSURE									
		90°	45°	22 1/2°	11 1/4°	LAT.	TEE	PLUG			
INCHES	E	MIN	B	A	A	A	A	C	D	E	
2, 3 & 4	10"	7"	10"	6"	3"	5"	7"	10"	7"	6"	
6	16"	10"	18"	8"	4"	4"	10"	10"	12"	8"	
8	20"	14"	24"	10"	5"	5"	14"	14"	14"	12"	
10	26"	18"	30"	14"	7"	7"	18"	18"	18"	14"	
12	30"	20"	36"	16"	8"	8"	20"	20"	20"	20"	

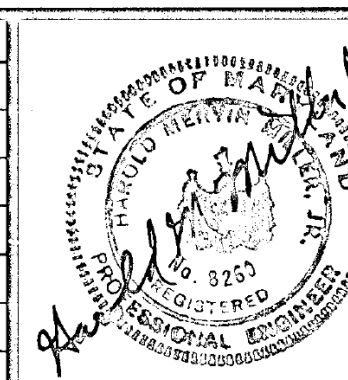
NOTE: ALL PIPES 16" DIA. AND ABOVE SHALL HAVE RESTRAINED JOINTS OR HAVE SUITABLE THRUST RESTRAINT PROVIDED OF A DESIGN APPROVED BY THE ENGINEER.

- THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED EXCAVATE ALL LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
- IN THE CASE OF FIRE HYDRANTS THE BLOCKS MAY BE OMITTED WHEN SOLID BEARING CAN BE OBTAINED.
- ON TRENCH AND BENDS EXTEND THRUST BLOCK THE FULL LENGTH AND PUT WOOD BLOCKING IN FRONT OF ALL PLUGS BEFORE POURING CONCRETE.
- ALL WOOD BLOCKING SHALL BE 4x6 L.B. CCA TREATED.
- BACKFILL SHALL CONSIST OF SUITABLE MATERIAL FROM TRENCH EXCAVATION OR SELECT BACKFILL AT THE DISCRETION OF THE ENGINEER. ANY HUCK FOUND AROUND THE EXCAVATION SHALL BE REPLACED WITH COMPACTED ACCEPTABLE MATERIAL.

AS BUILT

CONSTRUCTION DETAILS

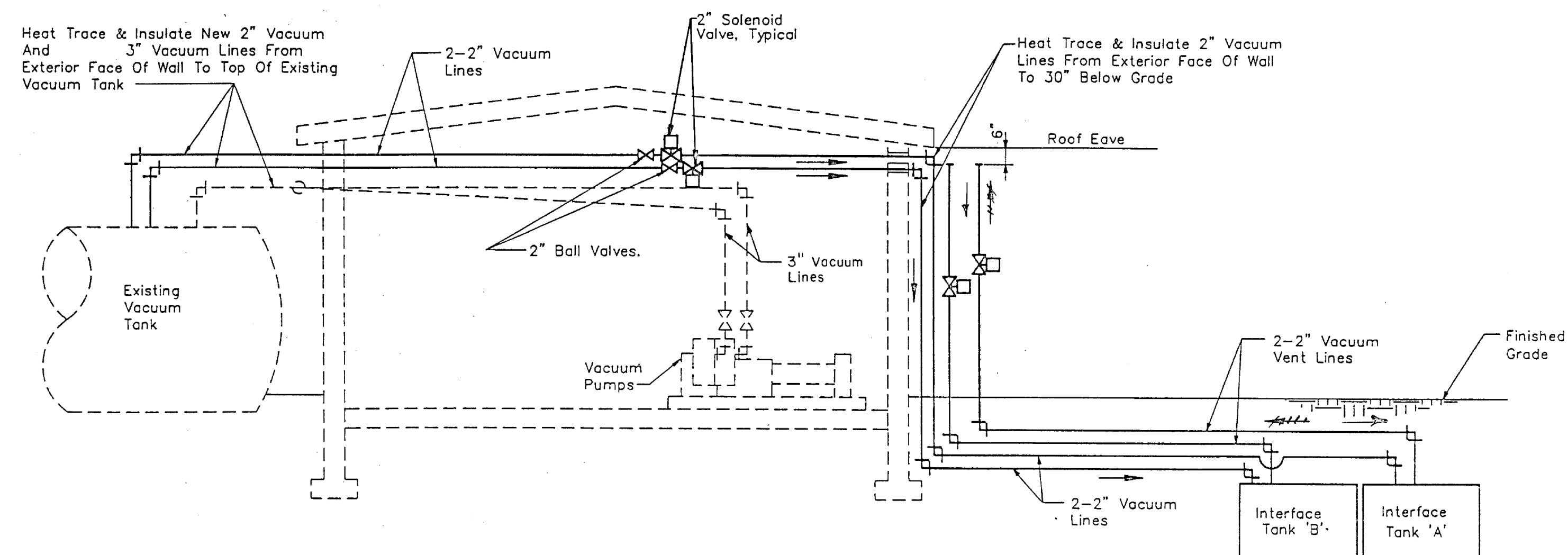
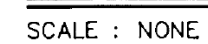
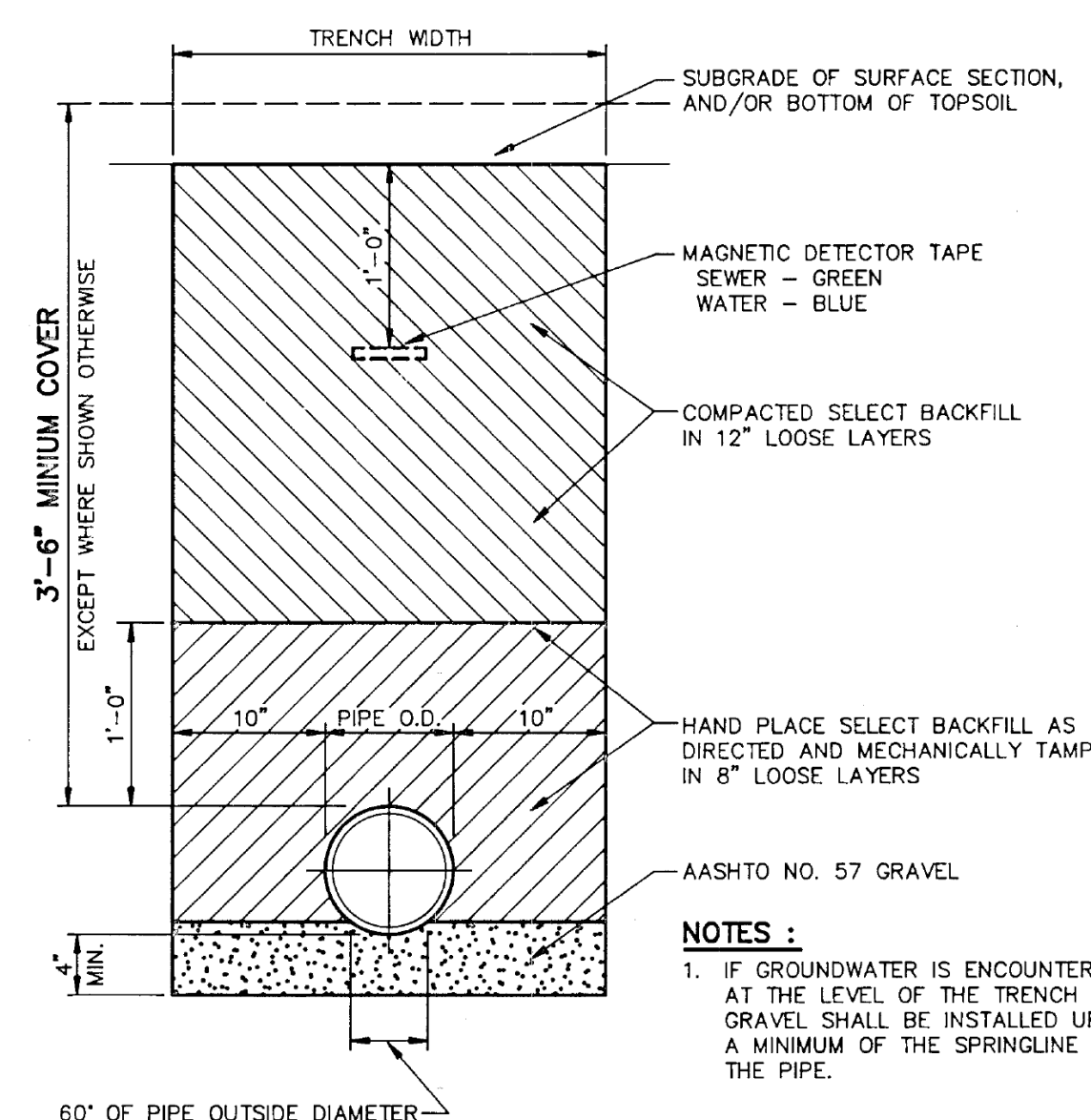
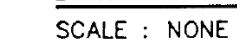
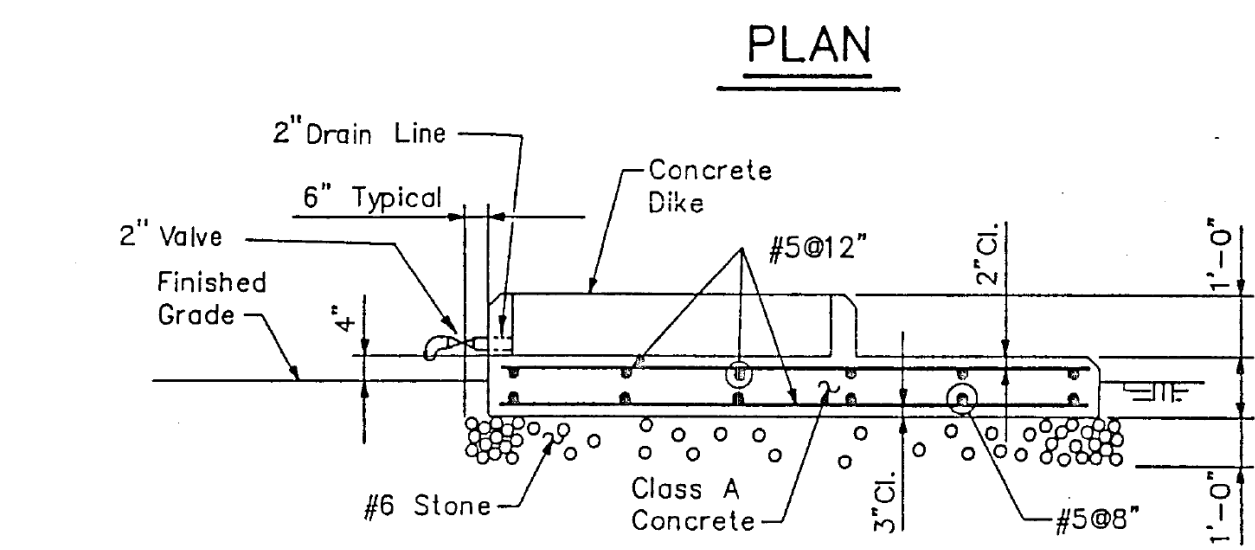
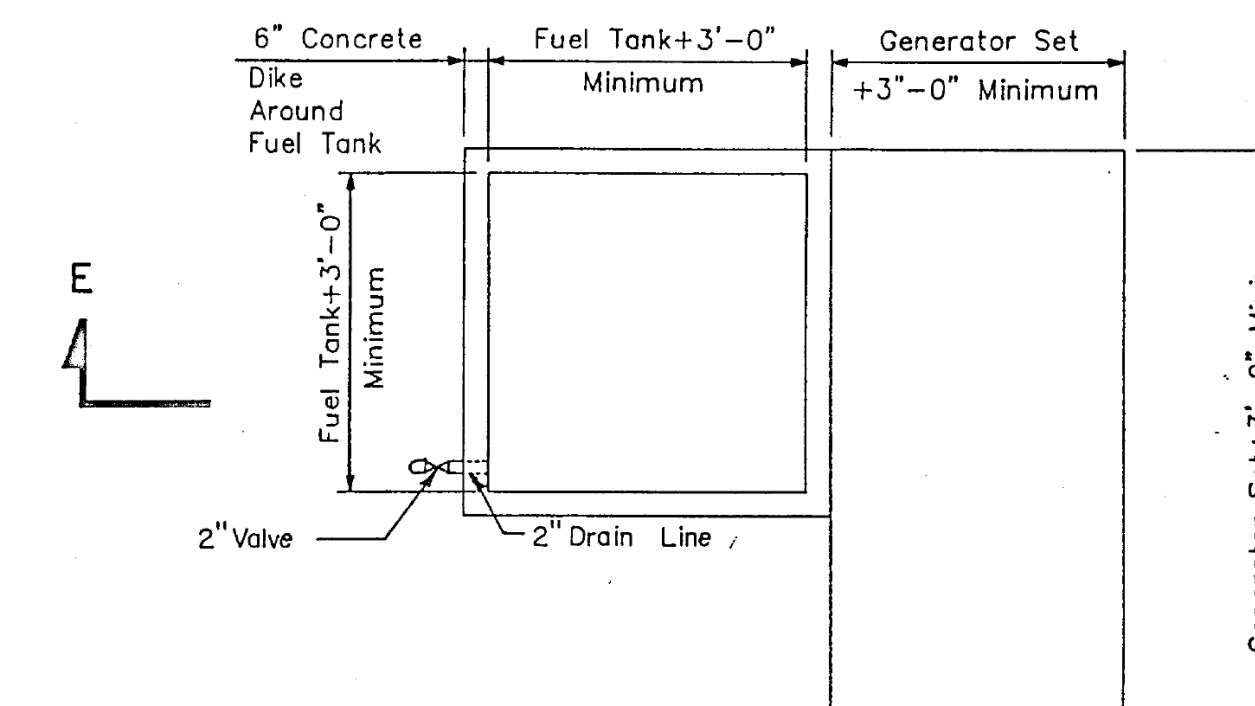
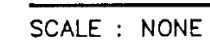
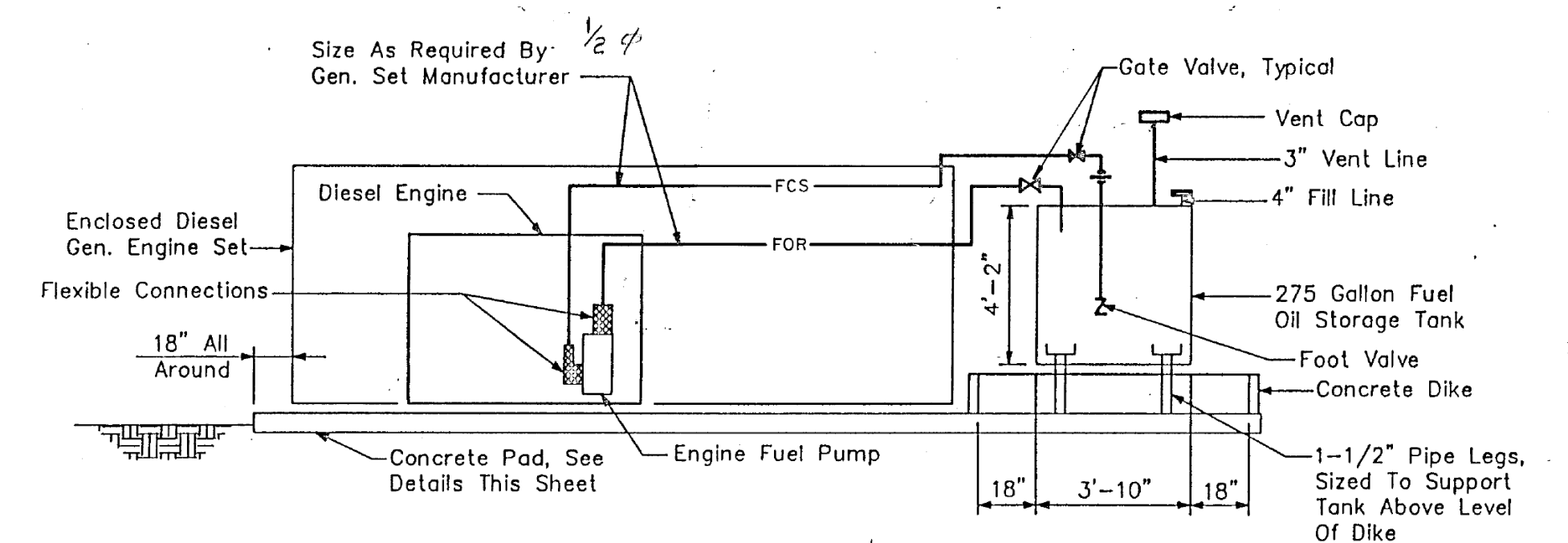
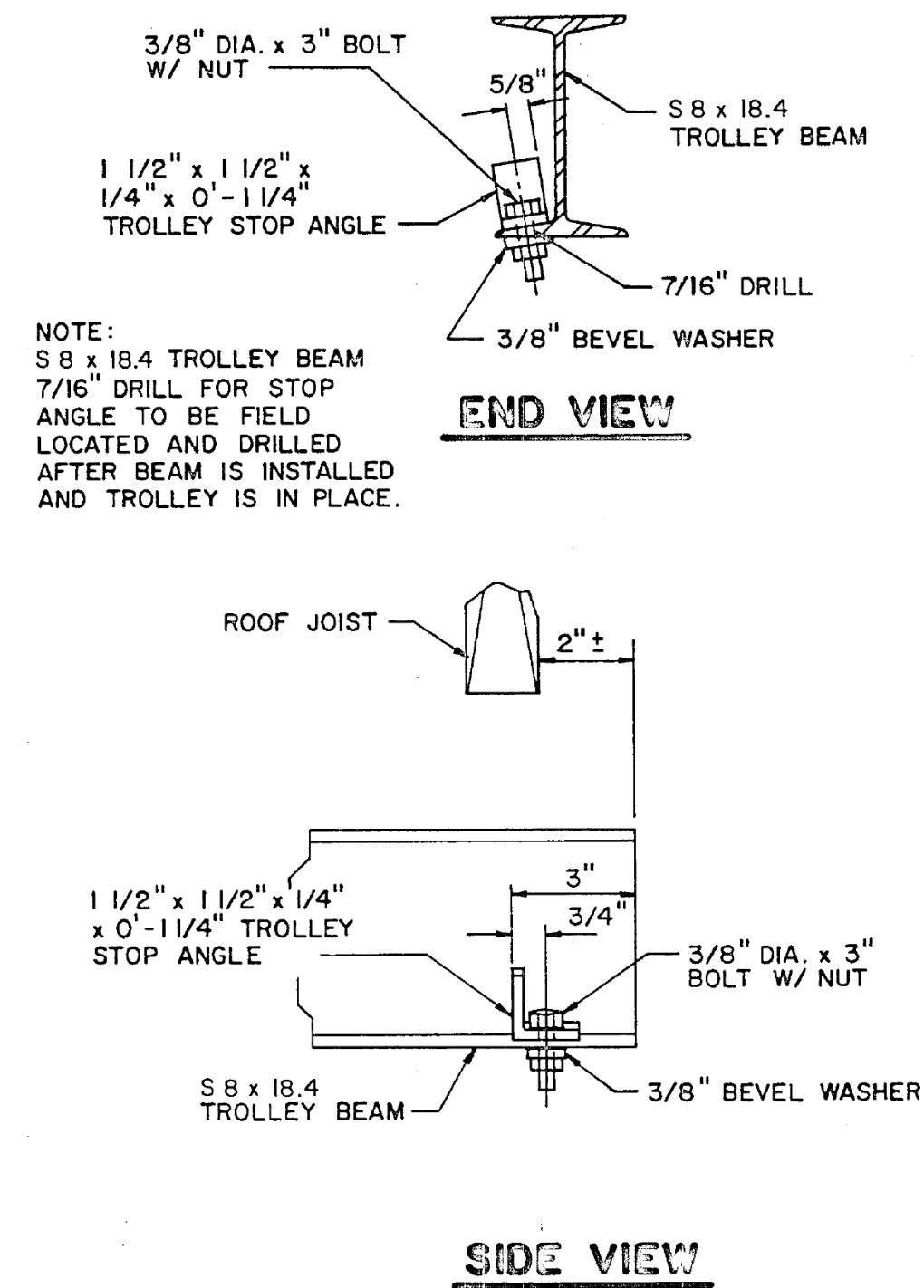
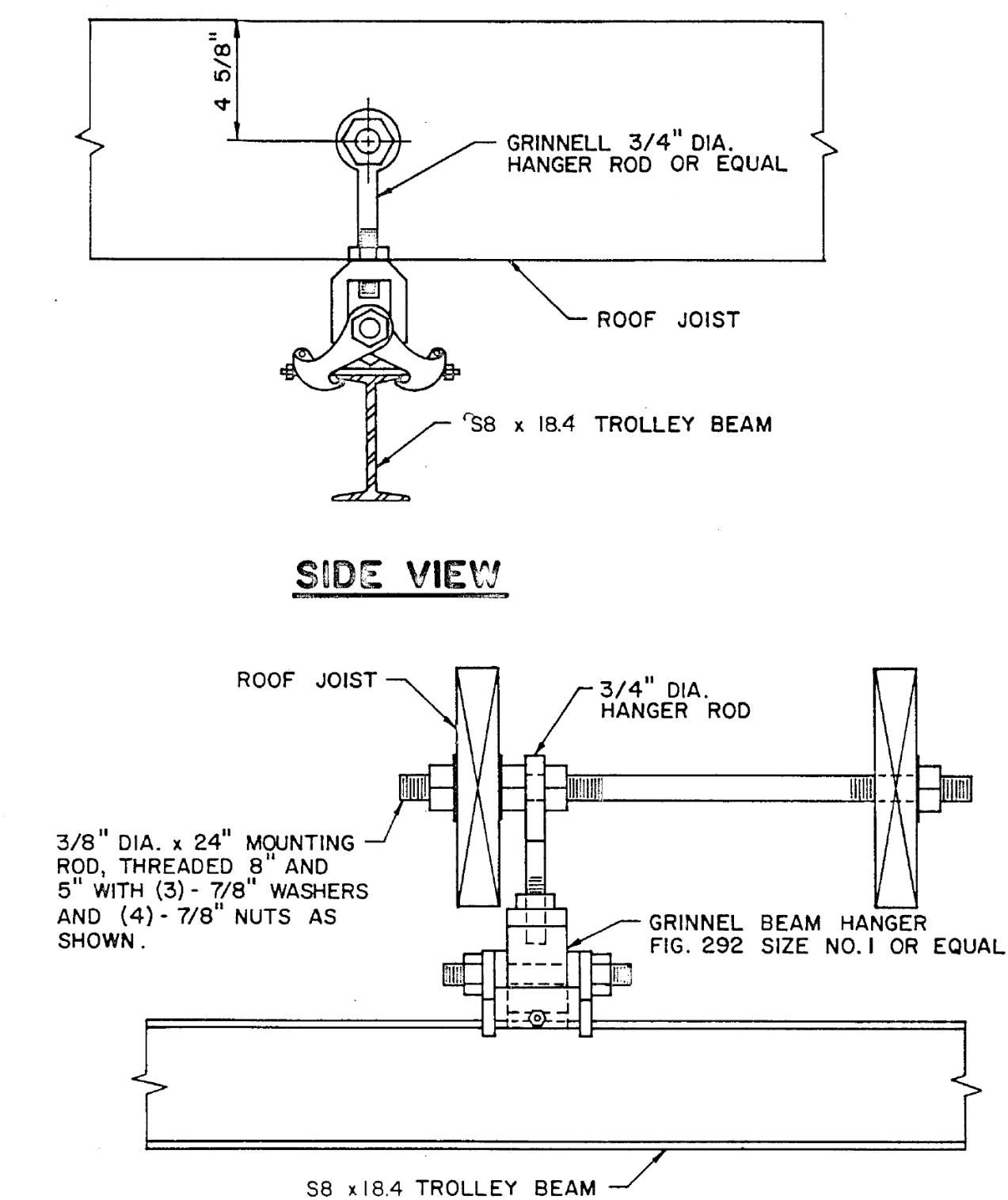
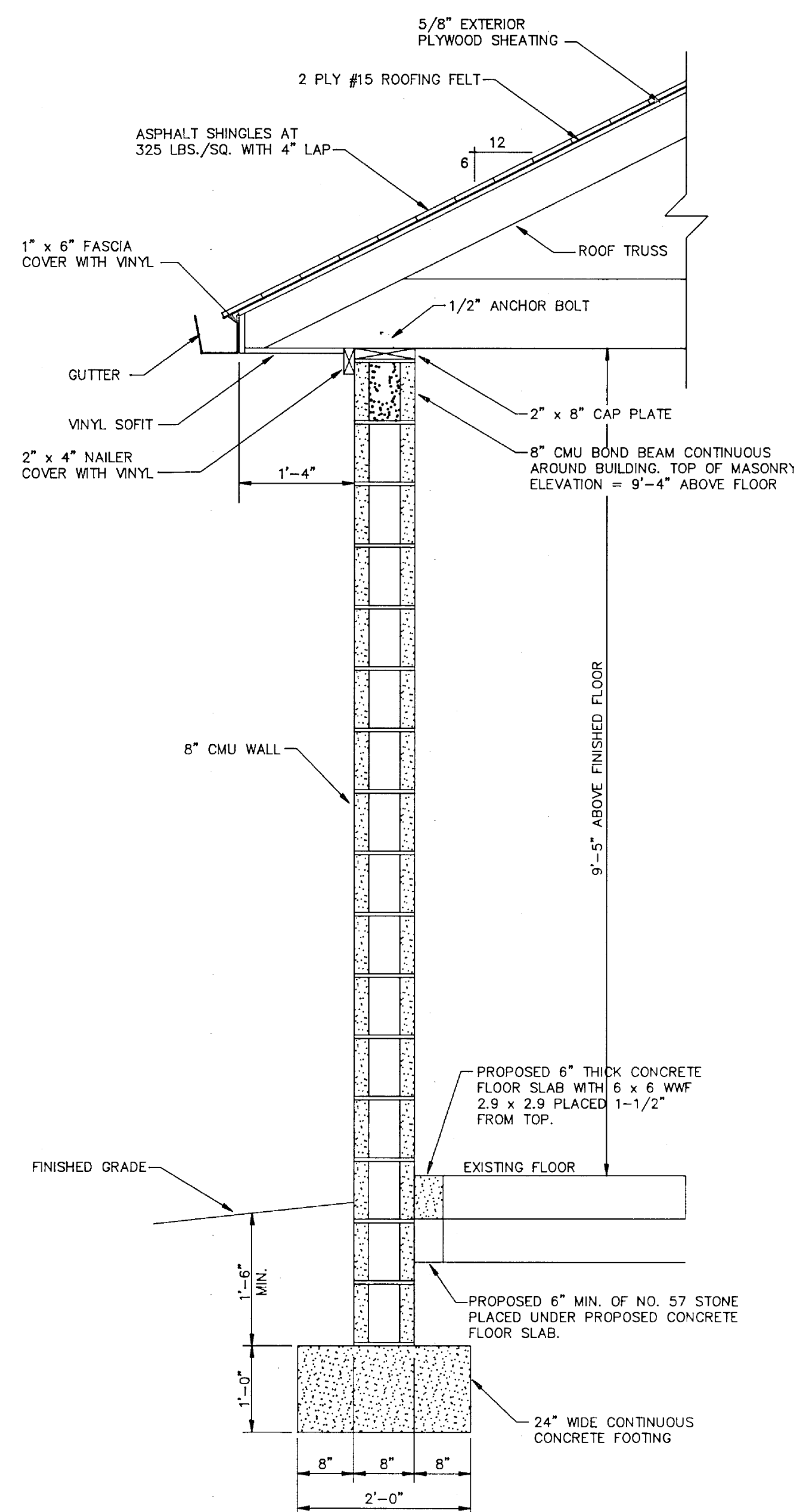
NO.	DATE	ITEM	BY
1	5-11-93	REVISED AS PER WOR. CO. SAN. COMM. - 5-3-93	M.A.R.



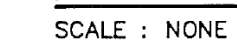
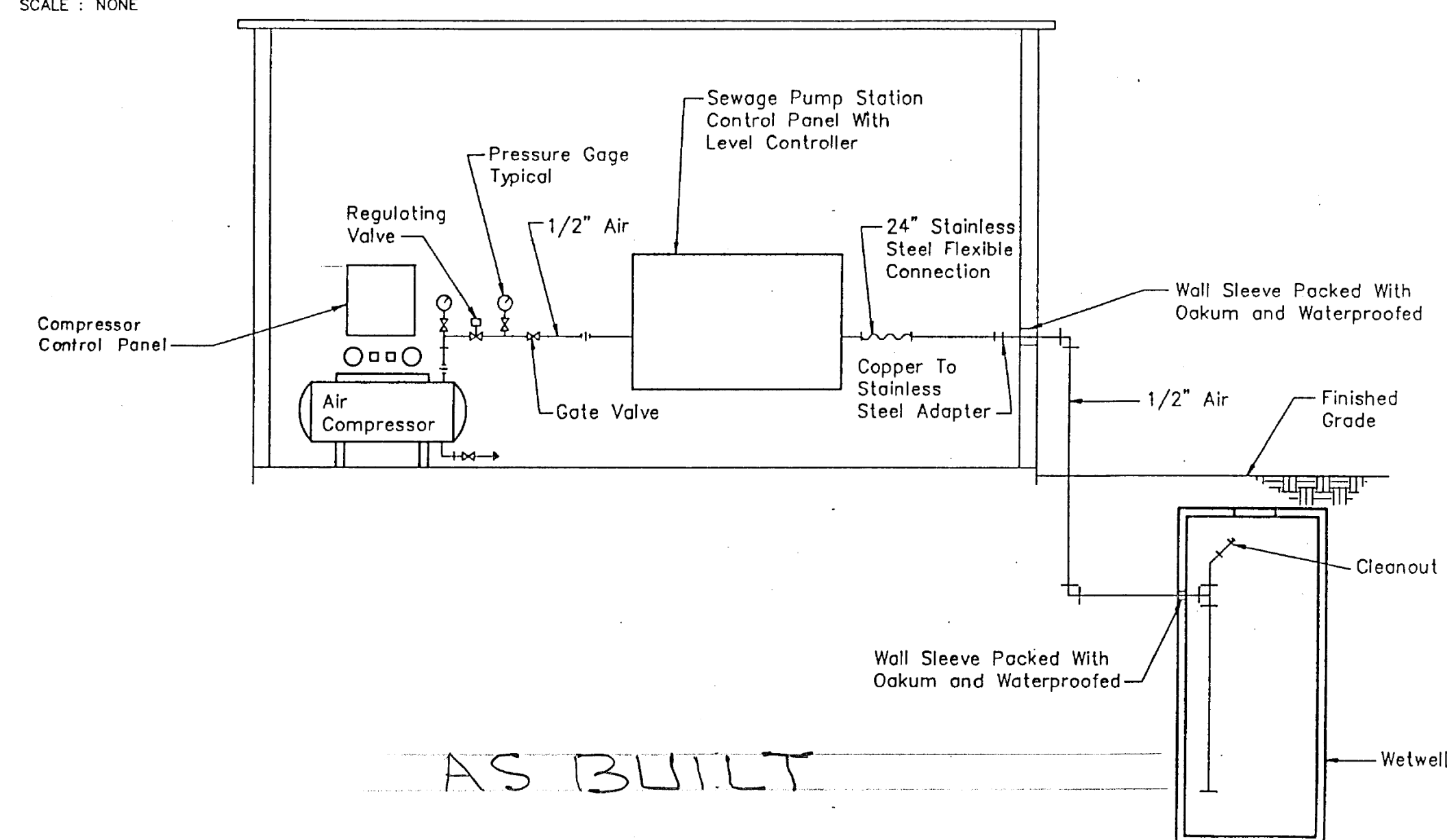
SEWAGE SYSTEM IMPROVEMENTS
FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

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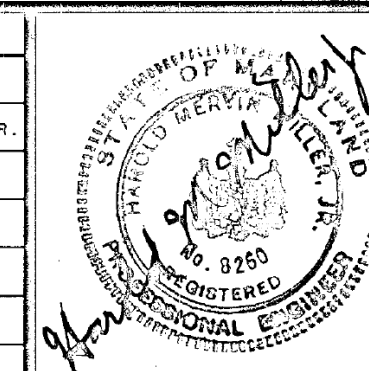
DESIGNED BY	M.A.R. / G.V.M.	DATE	MARCH 1993	SHEET	10	OF	14
DRAWN BY	J.C.D./M.A.R.	SCALE	AS SHOWN				
CHECKED BY	H.M.M.	JOB NO.	90092.40				



NOTE:
Provide Wall Brackets At 5'-0"
Spacing, For Vacuum Vent Lines.



REVISIONS			
NO.	DATE	ITEM	BY
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SEWAGE SYSTEM IMPROVEMENTS
FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

CONSTRUCTION DETAILS

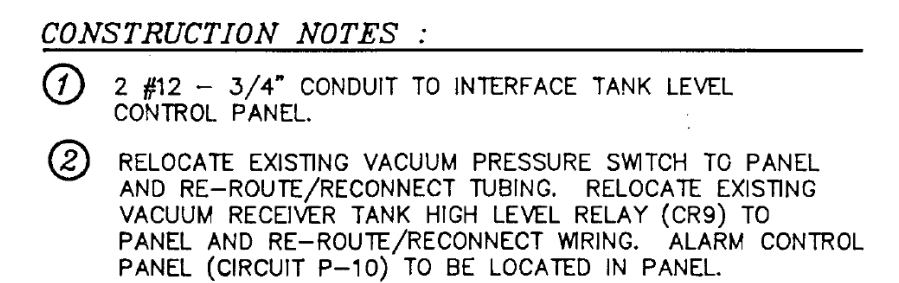


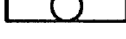
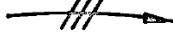
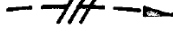
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508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735

DESIGNED BY	M.A.R. / G.V.M.	DATE	MARCH 1993
DRAWN BY	M.A.R.	SCALE	AS SHOWN
CHECKED BY	H.M.M	JOB NO	9209240

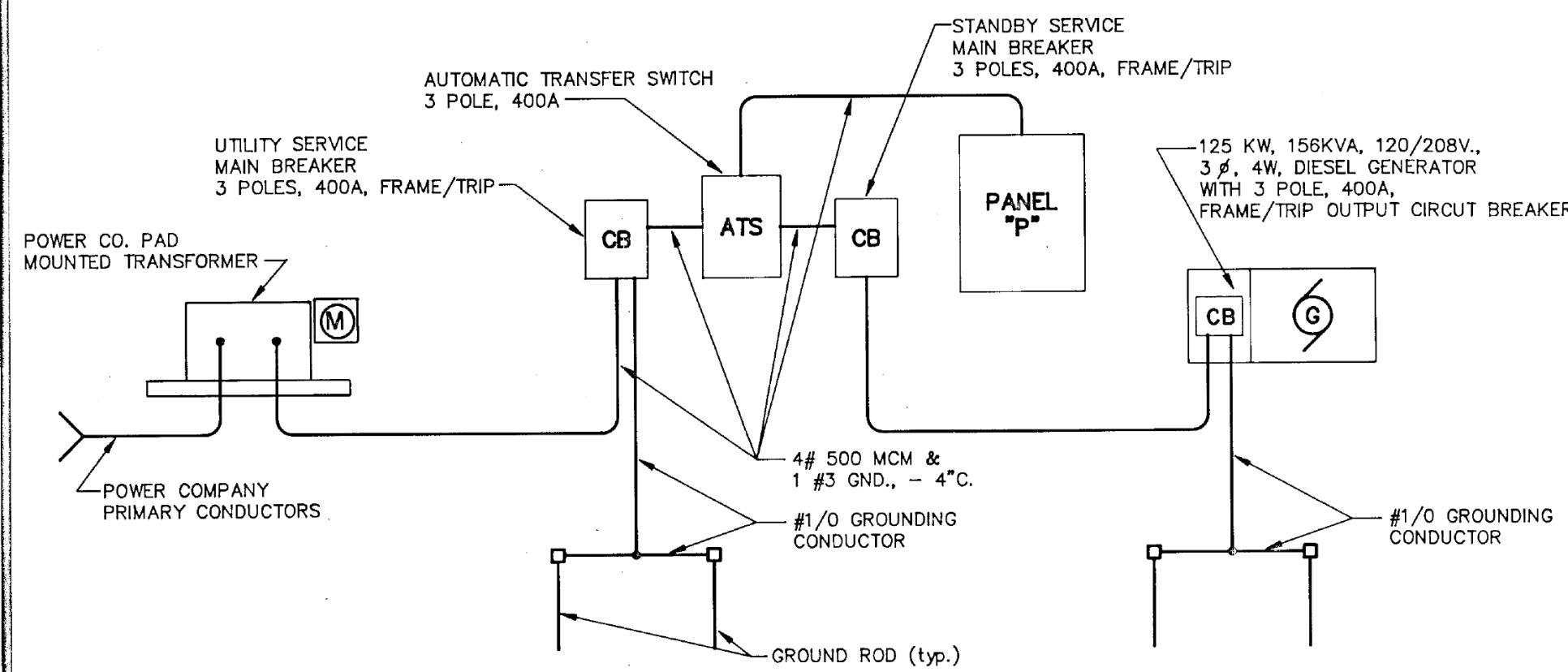
11 SHEET 14 OF

- ① EXTEND NEW SECONDARY SERVICE (SEE DISTRIBUTION SYSTEM DIAGRAM) FROM SERVICE ENTRANCE CIRCUIT BREAKER TO NEW POWER COMPANY TRANSFORMER. TERMINATE IN COIL OF 10' OF CABLE. PROVIDE 90° ELBOW AND 8' LENGTH OF 4" PVC CONDUIT TO POWER COMPANY.
- ② EXTEND THE FOLLOWING UNDERGROUND BACK TO PUMP BUILDING :
 - A. P-6, 3 #12 - 3/4" C. FOR BATTERY CHARGER
 - B. P-6, 3 #12 - 3/4" C. FOR FUEL TRANSFER PUMP
 - C. P-18, 3 #12 - 3/4" C. FOR JACKET HEATER
 - D. 4 #12 - 3/4" C. TO T-5 GENERATOR START CONTROLS
 - E. GENERATOR SERVICE FEEDER (SEE DISTRIBUTION SYSTEM DIAGRAM)
- ③ EXTEND THE FOLLOWING UNDERGROUND TO SEWAGE PUMP CONTROL PANEL.
 - A. 3 #3 - 1 #6 GRD. & 4 #14 CONTROL - 1-1/2" C. FOR PUMP NO. 1
 - B. 3 #3 - 1 #6 GRD. & 4 #14 CONTROL - 1-1/2" C. FOR PUMP NO. 2
 - C. 1/2" INSTRUMENT AIR LINE FOR RUBBER CONTROL SYSTEM
 - D. 2 #12 - 3/4" C. FROM FLOAT - HIGH LEVEL ALARM
 - E. 2 #12 - 1" 12 GRD & 2 #12 CONTROL - 1" C FOR EXHAUST FAN
- ④ 3/4" #18 SHIELDED CABLE IN 3/4" CONDUIT FROM PROBE UNIT TO INTERFACE TANK LEVEL CONTROL PANEL
- ⑤ EXTEND 4 #10 - 3/4" C. TO VACUUM PUMP CONTROL PANEL
- ⑥ STATUS LIGHTS - EXACT LOCATION TO BE VERIFIED BY WORCESTER COUNTY SANITARY DISTRICT PRIOR TO INSTALLATION - SEE DETAIL SHEET 14.



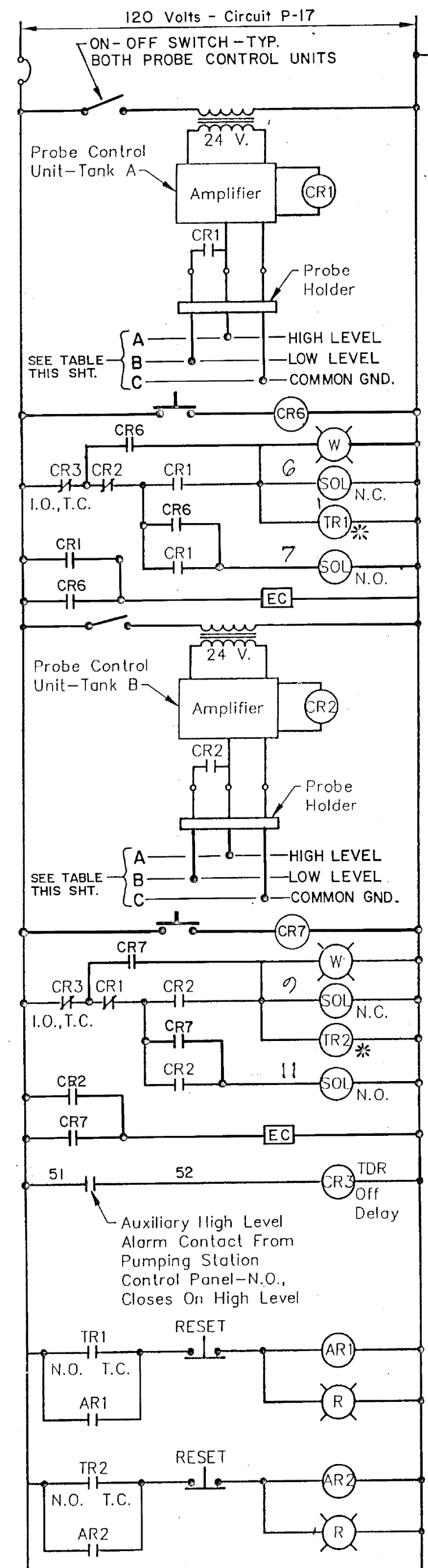
LEGEND	
	Time Clock - Mounting Height 5'-0" (Tark Model 1101, or Equal)
	Automatic Transfer Switch - M.H. 6'-0" To Top
	Enclosed Circuit Breaker - M.H. 5'-6" To Top
	Panelboard - M.H. 5'-6" To Top
	Solenoid Operated Valve
	Thermostat - 5"-3"
	Thermal Manual Motor Starting Switch - M.H. 4'-6"
	Lighting Fixture Fluorescent - Nominal 1' x 4', 2 tube Industrial With Symmetric Reflector
	Receptacle - Duplex, 120v., 20A. - M.H. 3'-6"
S	Switch - Toggle, 10A
	On Ceiling Or Walls
	Underground
	Junction Box
WP	Waterproof
GND.	Ground
C.	Conduit
P.	Poles
A.	Amperes
V.	Volts
H.P.	Horsepower
Ø	Phase
M.H.	Mounting Height To Center Of Device Or Equipment From Finished Floor Unless Otherwise Noted





DISTRIBUTION SYSTEM DIAGRAM

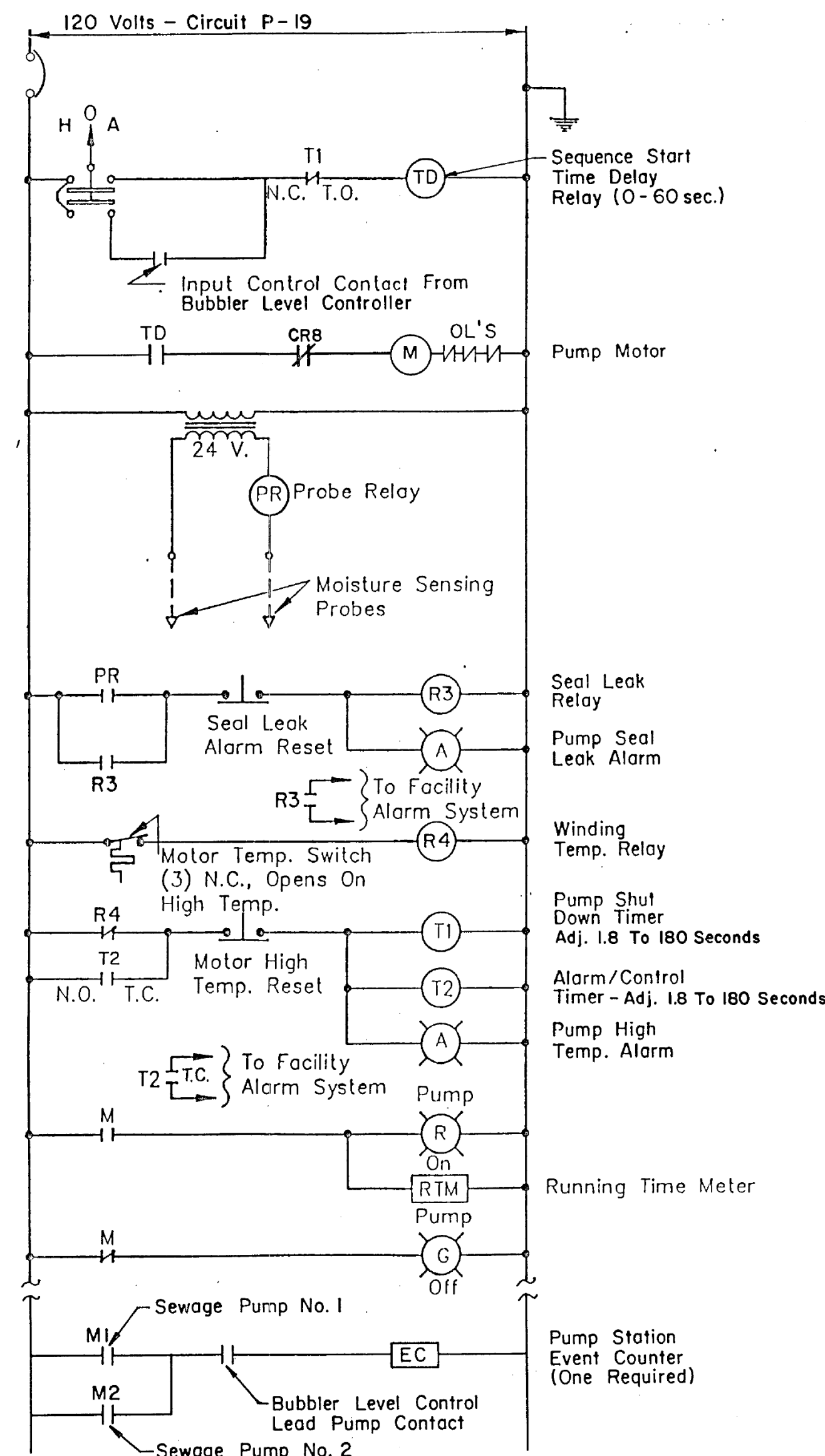
NO SCALE



INTERFACE TANK PROBE ELEVATIONS		
PROBE	STATION "L"	STATION "N"
HIGH LEVEL	6.03	3.33
LOW LEVEL	2.70	0.00
COMMON GROUND	2.20	-0.50
BOTTOM OF TANK	1.70	-1.00

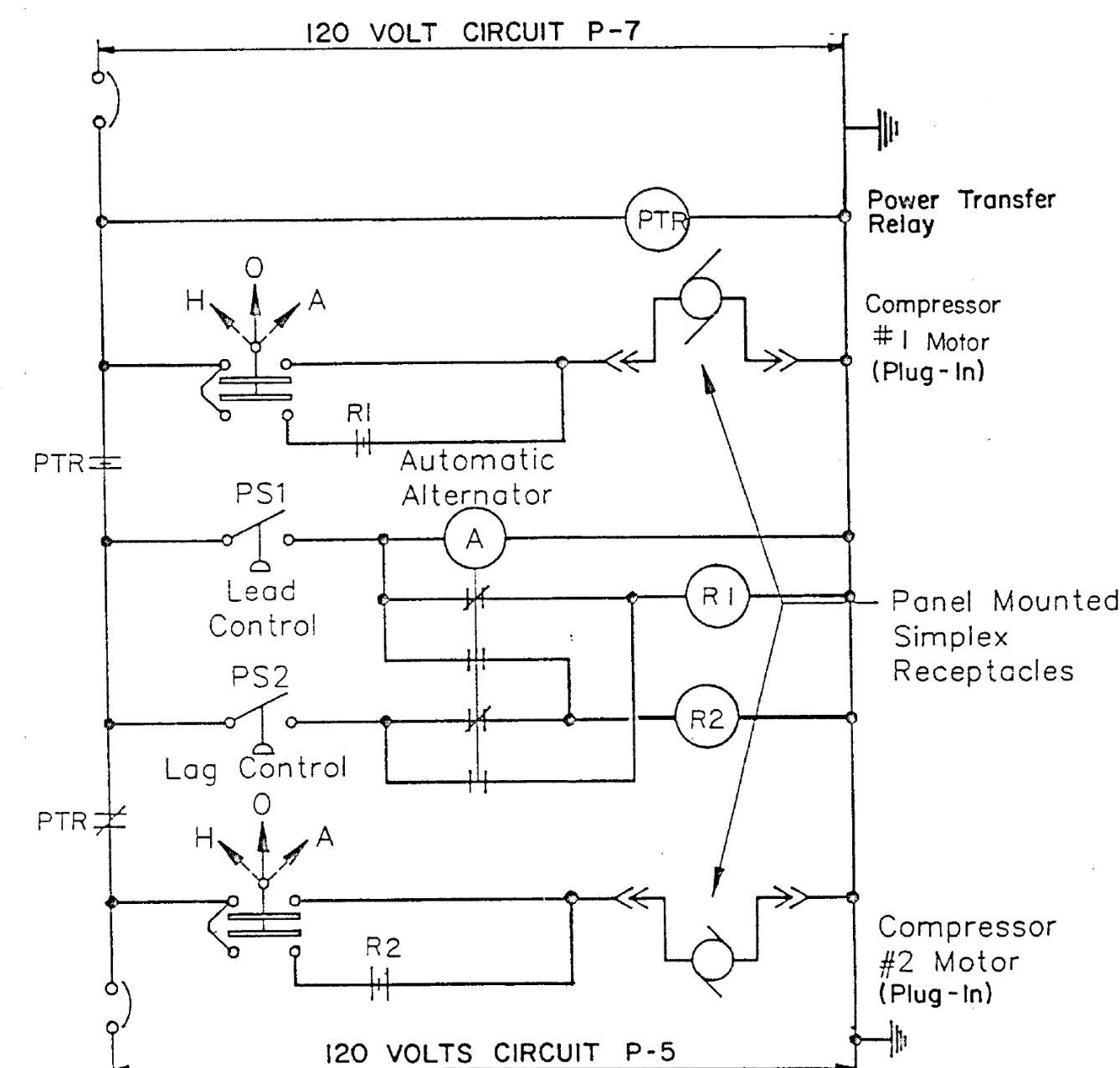
INTERFACE TANK LEVEL CONTROL DIAGRAM

NO SCALE
* - TR1 & TR2 - Adjustable 0-10 Minutes



SEWAGE PUMP CONTROL DIAGRAM

(TYPICAL FOR EACH OF TWO PUMPS PER STATION)
NO SCALE

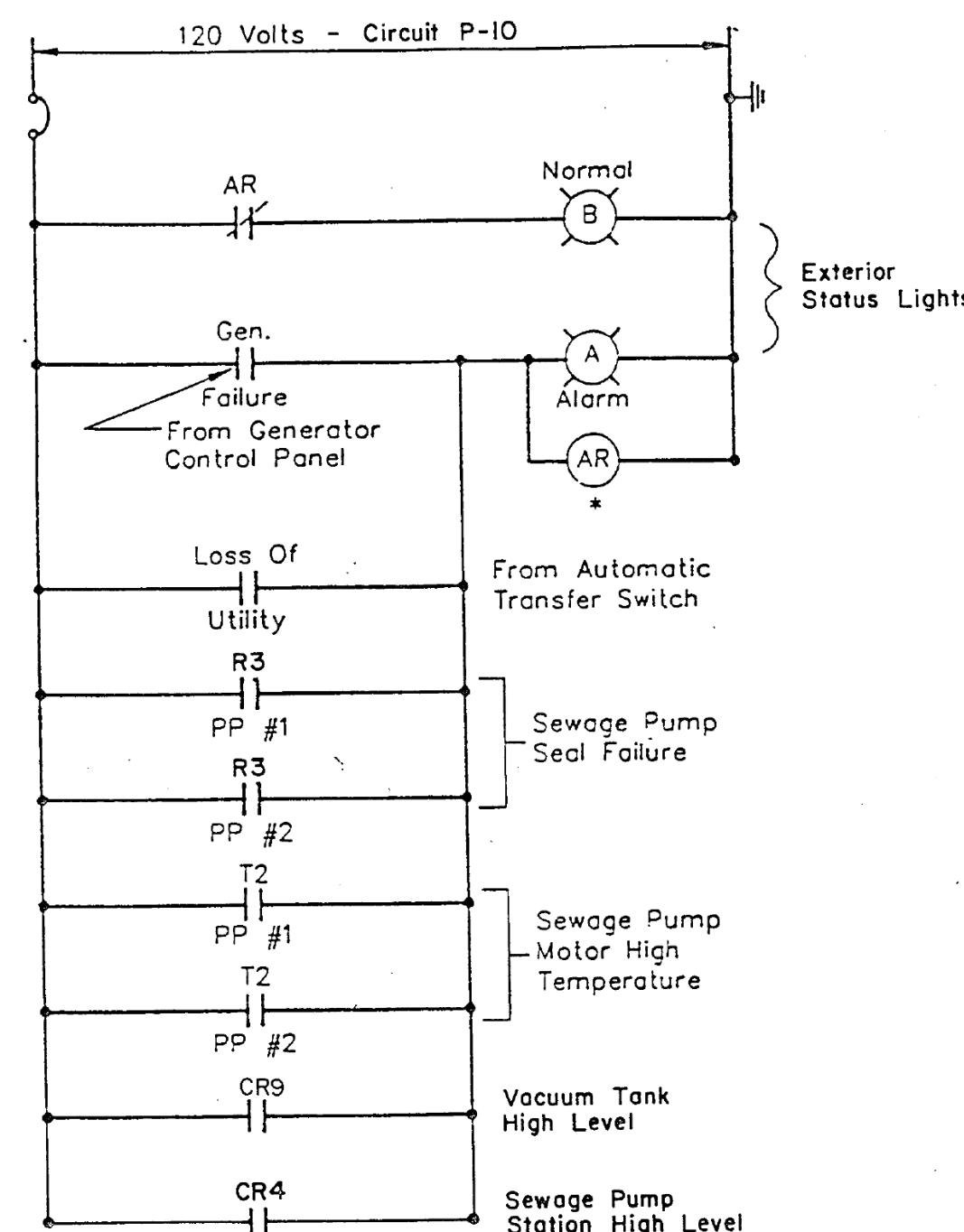


BUBBLER COMPRESSOR CONTROL DIAGRAM

NO SCALE

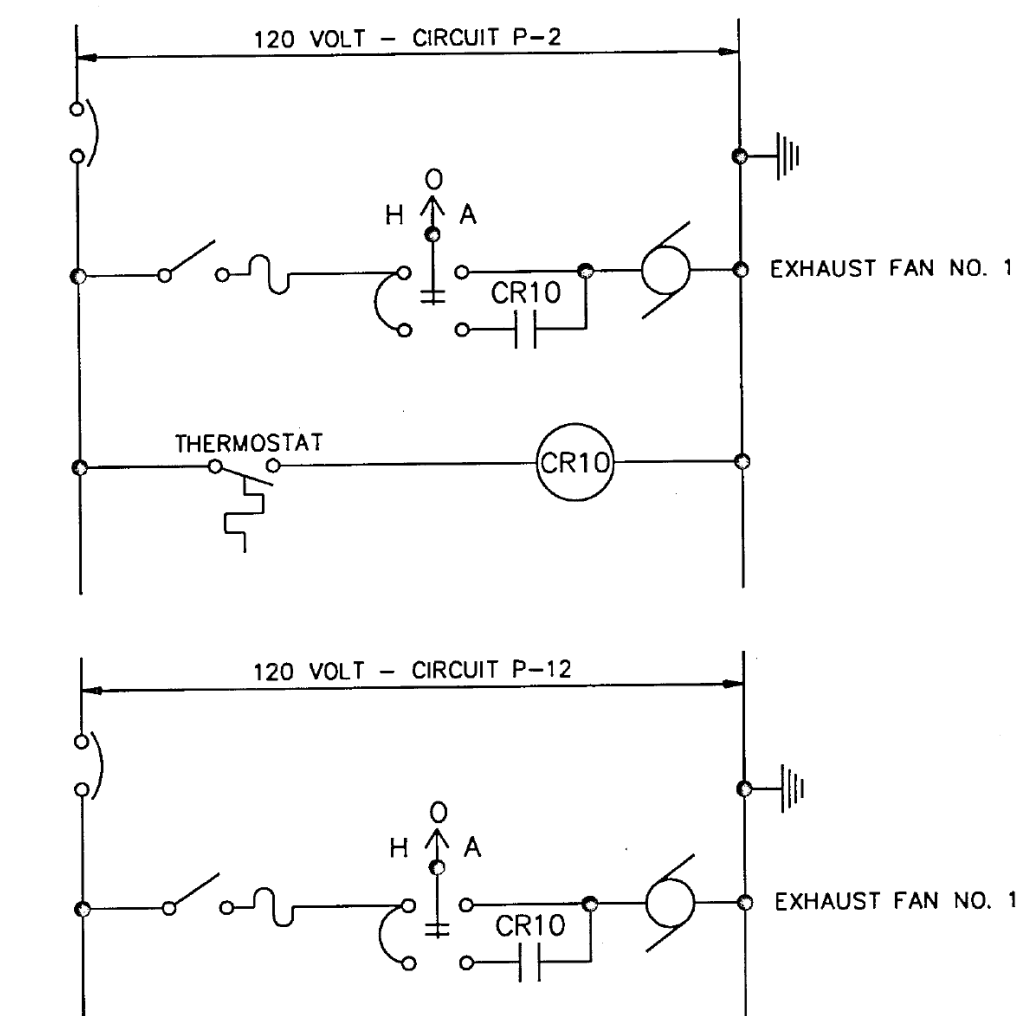
WET WELL EXHAUST FAN CONTROL DIAGRAM

NO SCALE



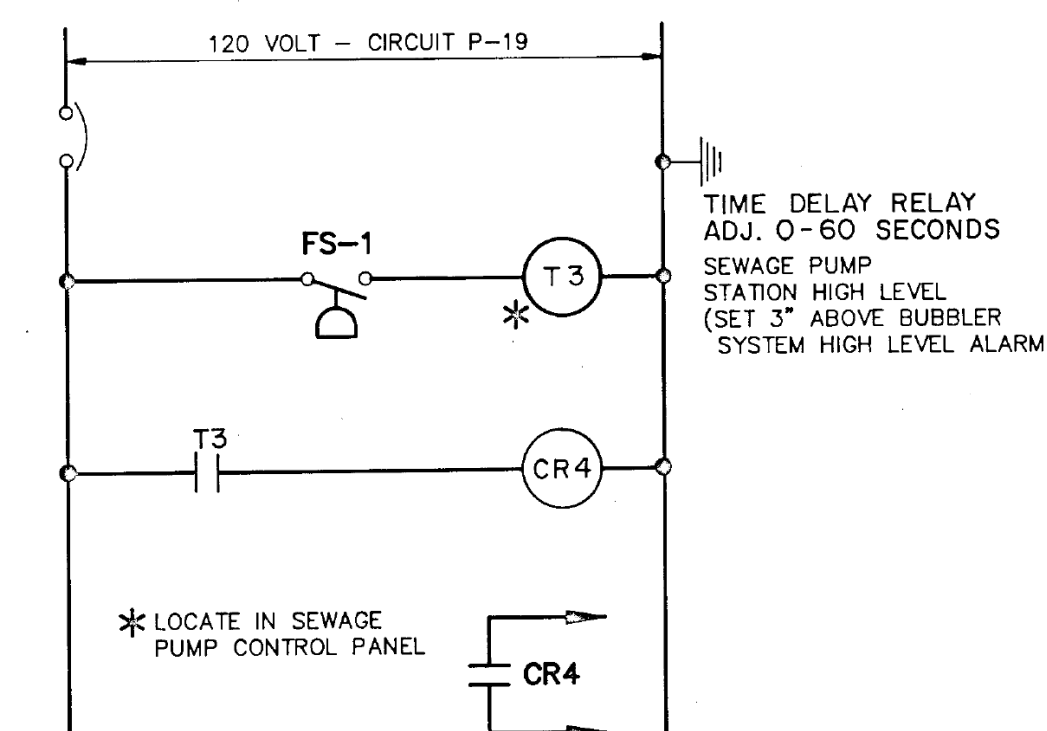
ALARM SYSTEM DIAGRAM

NO SCALE



BUILDING EXHAUST FANS CONTROL DIAGRAM

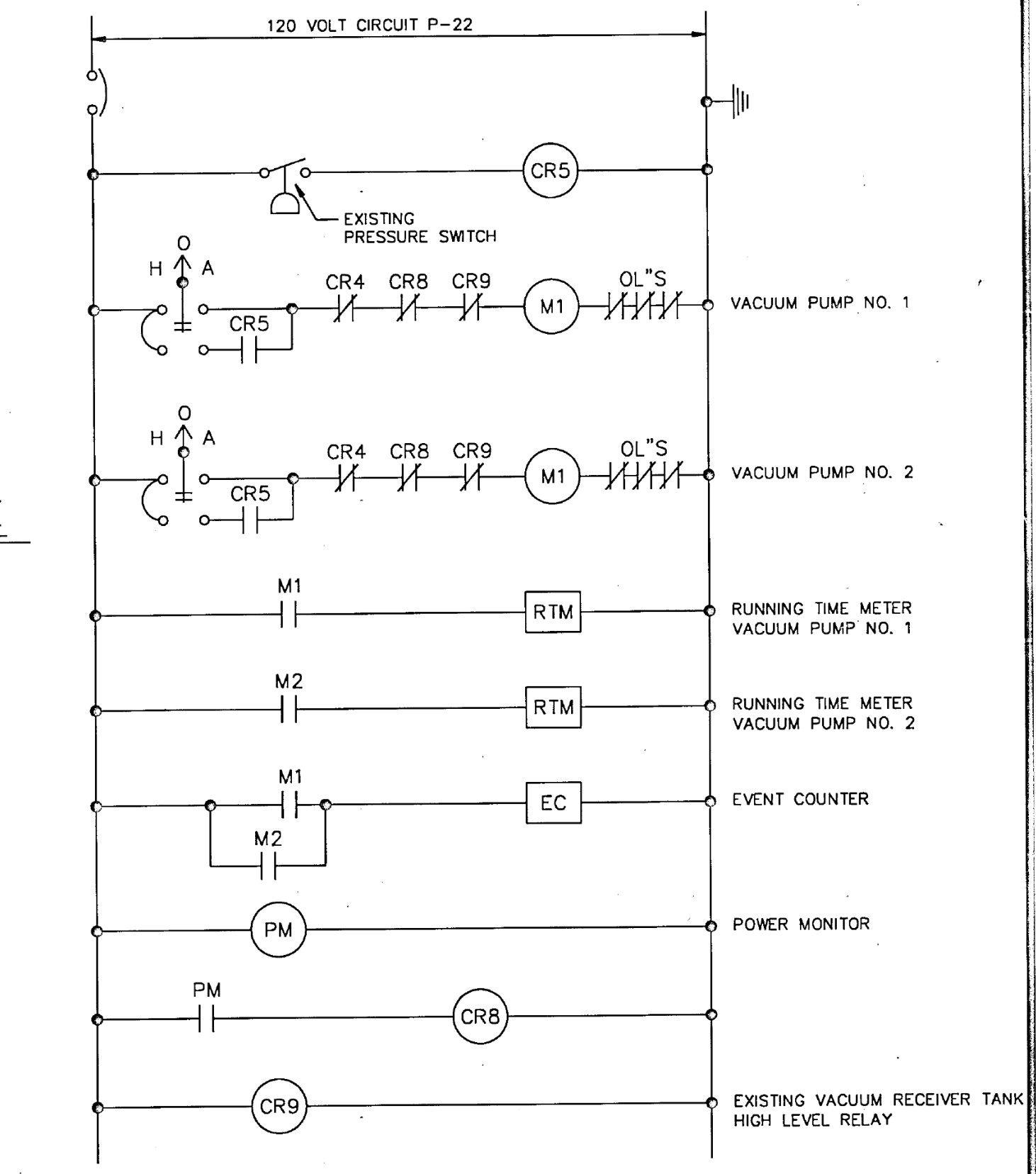
NO SCALE



**SEWAGE PUMP STATION
FLOAT ALARM CONTROL DIAGRAM**

NO SCALE

PANEL SCHEDULE P									
120/208 VOLTS, 3 PHASE, 4 WIRE - SN - SURFACE									
CIR	FOR	BREAKER	FR	POLE	CAL	CIR	FOR	BREAKER	FR
1	LIGHTS - INTERIOR	100	1	20	2	EXHAUST FAN	100	1	15
3	LIGHTS - EXTERIOR	100	1	20	4	RECEPTACLES	100	1	20
5	BUBBLER COMPRESSOR	100	1	20	6	BATTERY CHARGER	100	1	20
7	BUBBLER COMPRESSOR	100	1	20	8	FUEL TRANSFER PUMP	100	1	20
9	SPARE	100	1	20	10	ALARM SYSTEM	100	1	20
11	SPARE	100	1	20	12	SPARE	100	1	20
13	SEWAGE PUMP CONTROL PANEL	225	3	225	14	VACUUM PUMP CONTROL PANEL	225	3	175
15	UNIT HEATER	100	3	40	16	GENERATOR JACKET HEATER	100	2	20
17	SPACE & BUS	100	1	-	18	HEAT TRACE	100	1	20
19	SPACE & BUS	100	1	-	20	HEAT TRACE	100	1	20
21	SPACE & BUS	100	1	-	22	SPACE & BUS	100	1	-
23	SPACE & BUS	100	1	-	24	SPACE & BUS	100	1	-
25	SPACE & BUS	100	1	-	26	SPACE & BUS	100	1	-
27	SPACE & BUS	100	1	-	28	SPACE & BUS	100	1	-
29	SPACE & BUS	100	1	-	30	SPACE & BUS	100	1	-
31	SPACE & BUS	100	1	-	32	SPACE & BUS	100	1	-
33	SPACE & BUS	100	1	-	34	SPACE & BUS	100	1	-
35	SPACE & BUS	100	1	-	36	SPACE & BUS	100	1	-
400A. MAIN LUGS ONLY - TOP									



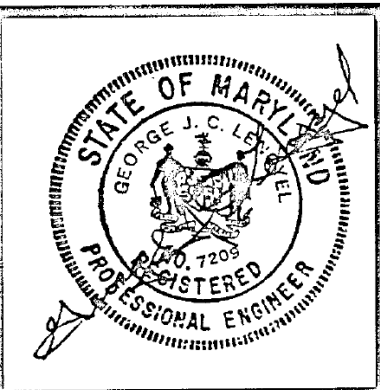
VACUUM PUMP NO.1 & NO. 2 CONTROL DIAGRAM

NO SCALE
AS-BUILT
LATEST UPDATE MARCH 31, 1993

ELECTRICAL DETAILS

EBL ENGINEERS, INC.
2331 YORK ROAD
TIMONIUM, MARYLAND 21093 - 2215
PHONE (301) 560 - 0620
FAX (301) 560 - 0650
CONSULTING MECHANICAL/ELECTRICAL ENGINEERS

REVISIONS			
NO.	DATE	ITEM	BY
1	5-13-93	REVISED AS PER WOR. CO. SAN. COMM. COMMENTS - 5-3-93	M.A.R.



SEWAGE SYSTEM IMPROVEMENTS
FOR
WORCESTER COUNTY
SANITARY COMMISSION
OCEAN PINES SERVICE AREA
3rd. ELECTION DISTRICT
WORCESTER COUNTY, MARYLAND

Andrews, Miller & Assoc., Inc.
508 MARYLAND AVENUE • CAMBRIDGE, MD. 21613
PHONE 410-228-7117 • FAX 410-228-2735
DESIGNED BY P.D. DATE MARCH 1993
DRAWN BY J.C.D./M.A.R. SCALE 1/2" = 1'-0"
CHECKED BY P.D. JOB NO. 92092.40
SHEET 14 OF 14