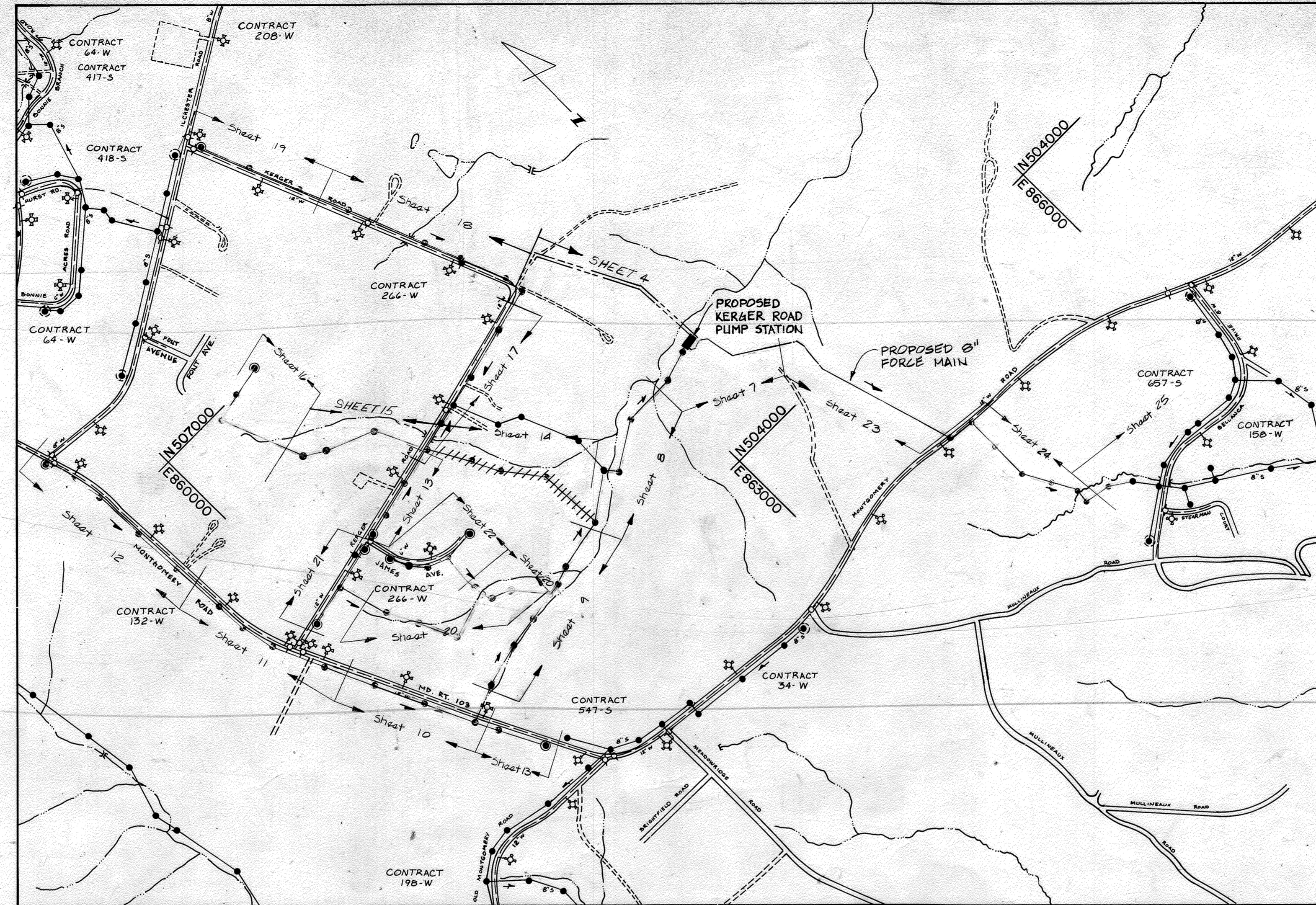


LIST OF DRAWINGS

SHEET	TITLE
1	Location Map
2	Site Development Plan
3	Grading and Sediment Control
4	Access Road Profile
5	Site Development Plan
6	Site Development Plan
7-25	Piping Plan and Profile
26	Pump Station Plan
27	Pump Station Plan
28	Pump Station Sections
29	Architectural Elevations
30	Architectural Plan
31	Architectural Details
32	Structural Details
33	Electrical Details
34	Electrical Details
35	Electrical / Mechanical Details
36	Electrical / Mechanical Details
37	Electrical / Mechanical Details
38	Miscellaneous Details



Number of SHC's 100
Drainage Area Patapsco

SCALE: 1" = 600'
VICINITY MAP

Type of buildings Residential
Number of parcels 120
Sewer code for County use only: Sewer No. _____

GENERAL NOTES

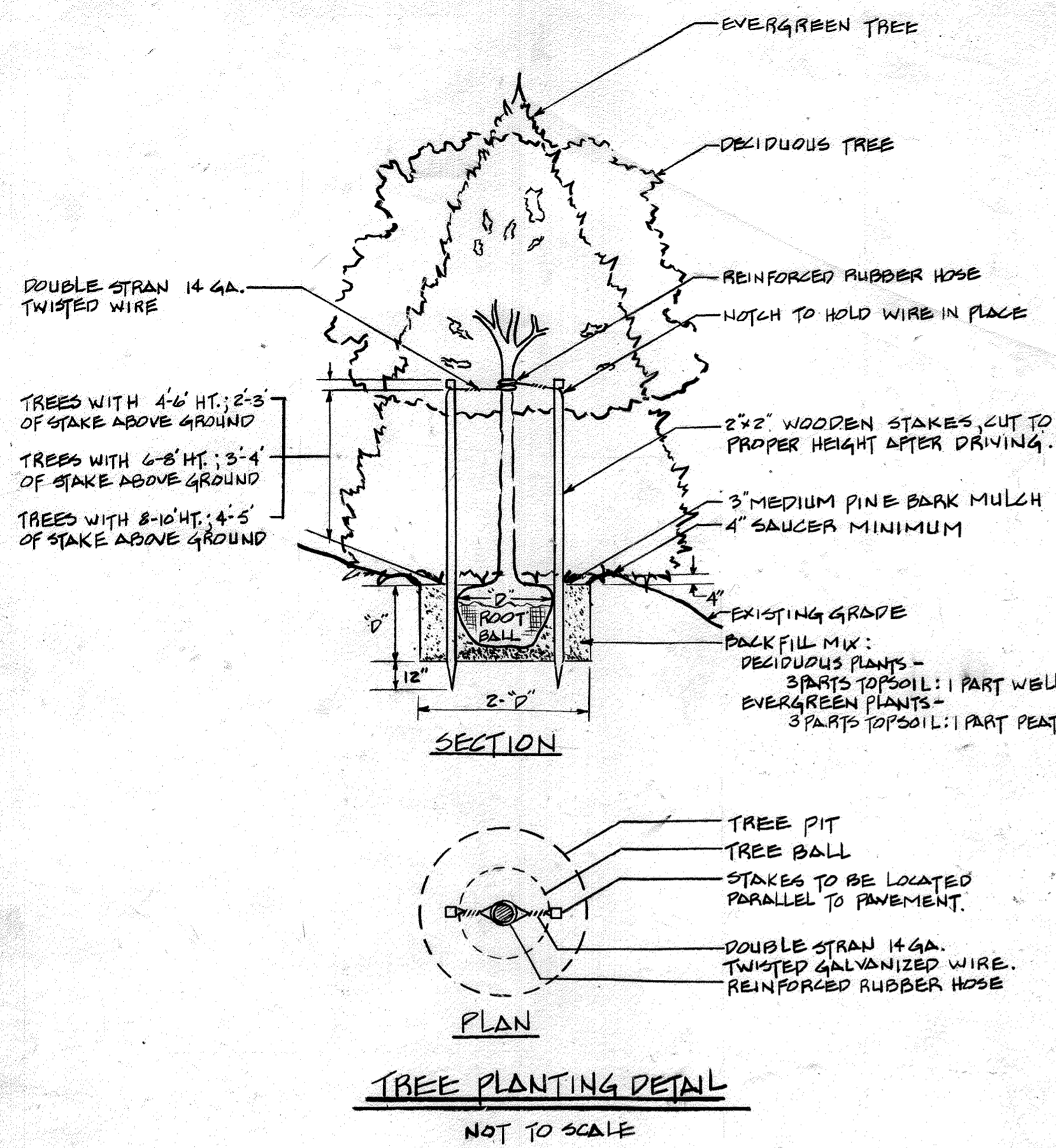
- Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. data.
- 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 \square 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 to his own satisfaction. Any damage to existing facilities due to the Contractor's negligence shall be repaired at the Contractor's expense.
- Manholes designated W.T. in plan and profile shall have watertight frame and covers, Standard Detail G.5.52. Where watertight manhole frame and cover is used, set top of frame 1'-6" above finished grade only where noted on the drawings.
- Manholes shown with 12" and 16" walls are brick manholes only.
- 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 C&P Telephone 1-800-257-7777
Bureau of Utilities, Howard County Dept. 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.
- All sewer main shall be C.S.P.X., R.C.S.P., V.C.P.X., A.C.P. Class 2400 or P.V.C. unless otherwise noted.
- 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.
- All sediment control measures, including these measures not shown on these drawings, shall be implemented in accordance with Article 15 of the Howard County Design Manual and the 1983 STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
- All House connections are to be installed by open cut.
- All buried fittings shall be buttressed in accordance with Howard County Standard Details. Δ

QUANTITIES			
ITEM	ESTIMATE	AS-BUILT	MATERIAL/SUPPLIER
6" Sewers	1,850		
8" Sewers	17,919		
10" Sewers	1,555		
12" Sewers	2,001		
Manholes	78		
8" F.M.	2,137		
Pump Sta. & Appurt.	1 L.S.		
Air/Vac. Valves	2		
Dewatering Valves	2		
8" Gate Valves	2		
2" WHC	1,650		
10" Gate Valve	1		

CAPITAL PROJECT S-6089
CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY MARYLAND
DEPARTMENT OF PUBLIC WORKS

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

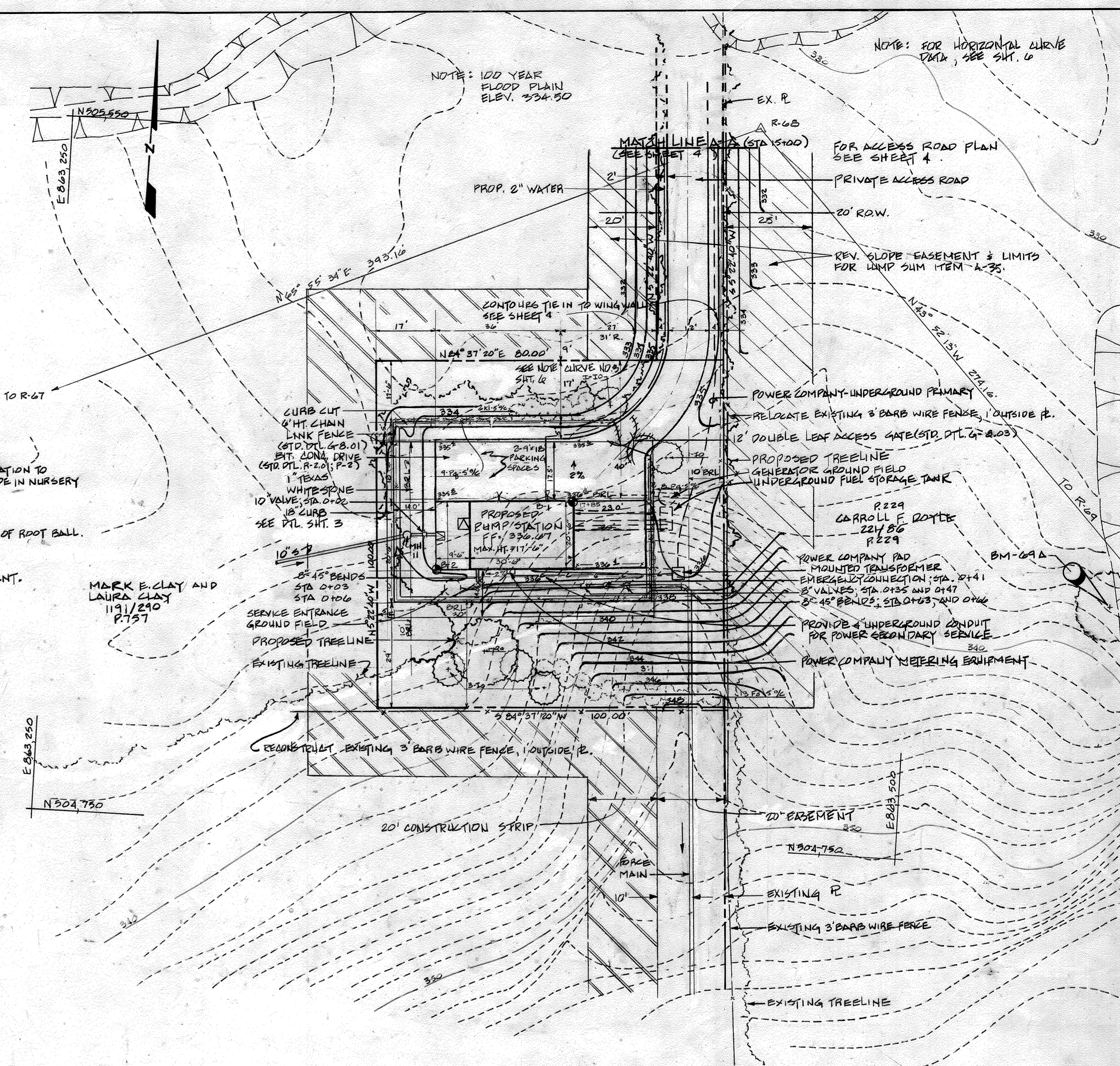
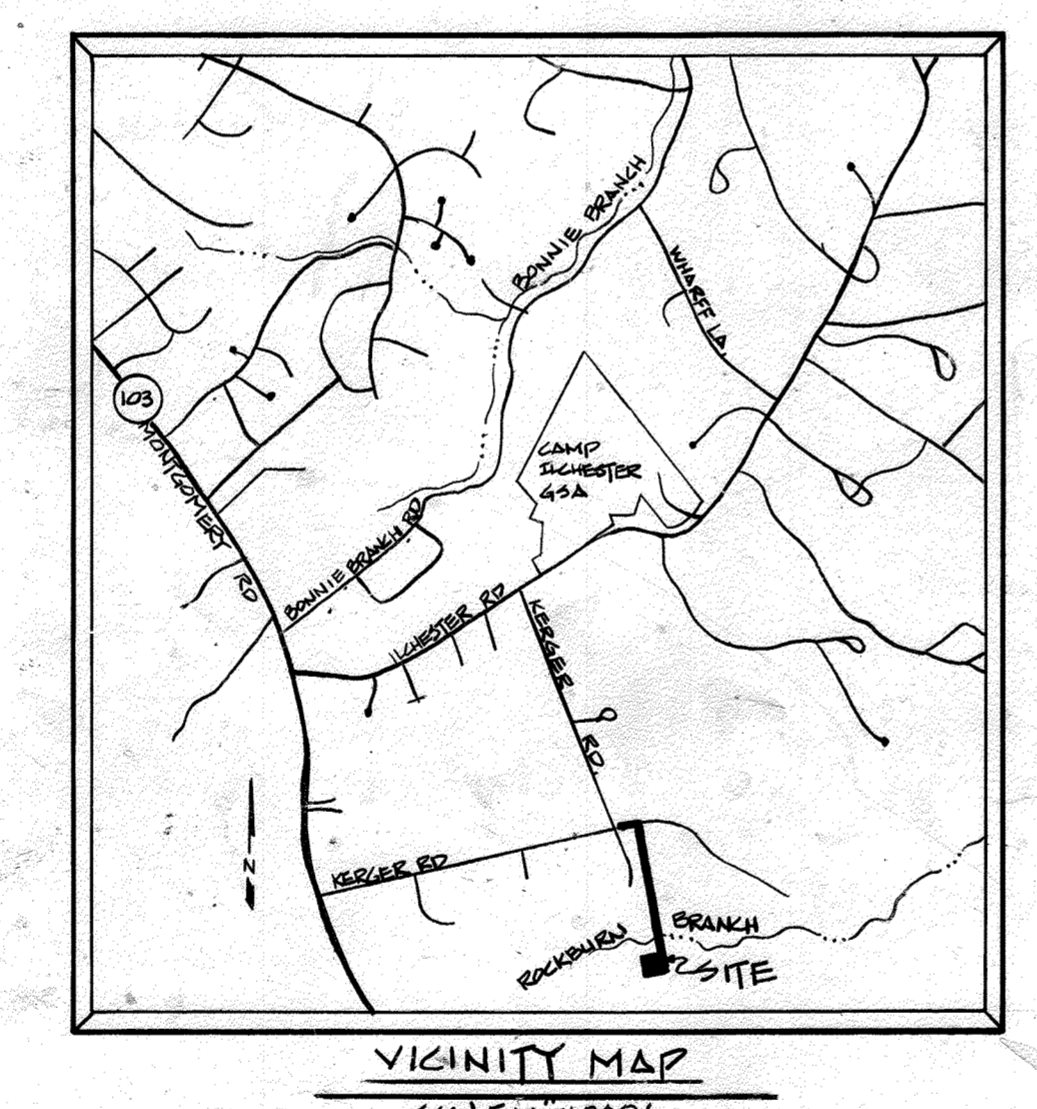
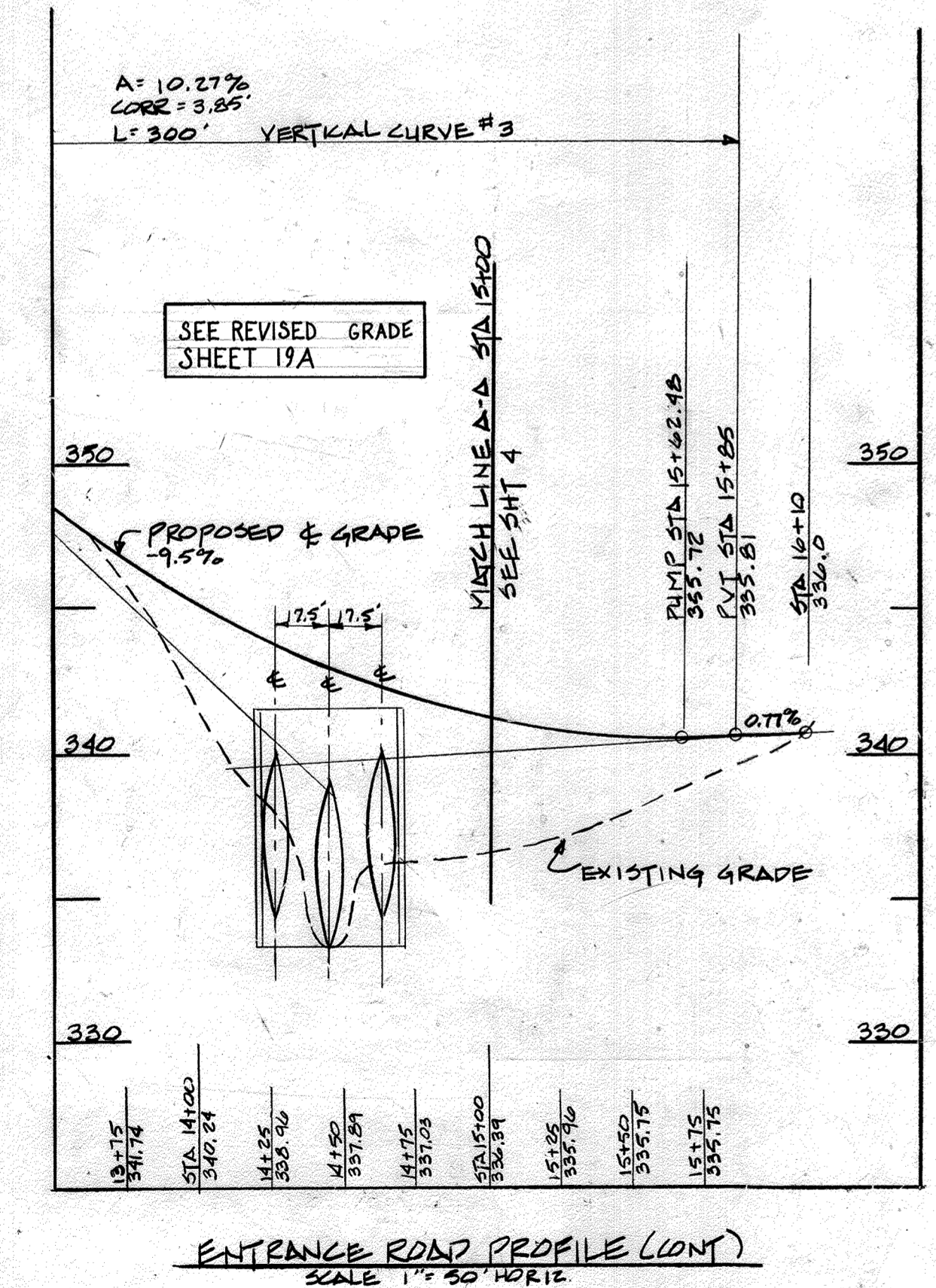
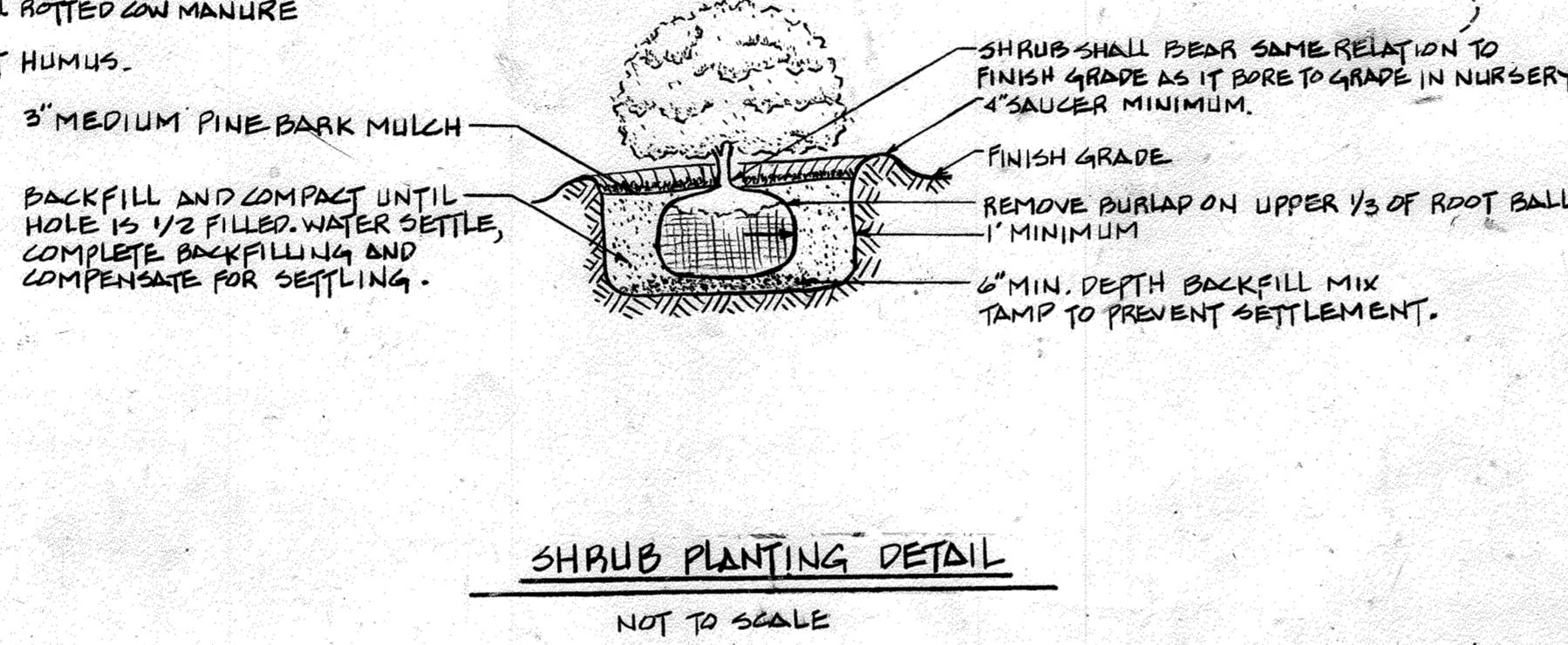
<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> 3-26-81 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>[Signature]</i> 3-25-87 CHIEF, BUREAU OF UTILITIES DATE</p>	<p>JOHN E. HARMS, JR & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND</p>		<p>DES: C. B. DRN: C. M. CHK: C. B. DATE: 5/24/85</p>	<p>LOCATION MAP KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION ELECTION DISTRICT NO. 1</p>	<p>KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215</p>	<p>SCALE AS SHOWN SHEET 1 OF 39</p>
<p>DATE: 5/24/85 BY: <i>[Signature]</i> NO. Δ ADD NOTE NO. 19. REVISION</p>				<p>DATE: 600' SCALE MAP NO. 31, 37 BLOCK NO. 14, 15, 20, 21, 22, 3, 4</p>		<p>AS-BUILT 9/6/89</p>



PLANTING SCHEDULE

KEY	QTY	SIZE	BOTANICAL NAME	COMMON NAME	SPACING	ROOT
Fs	13	2-3 FT	Forsythia suspensa	WEeping FORSYTHIA	5' O/C	B & B
Io	5	4-6 FT	Ilex opaca	AMERICAN HOLLY	10' O/C	B & B
Kl	6	2-2 1/2 FT	Kalmia latifolia	MOUNTAIN LAUREL	5' O/C	B & B
Pg	17	1 1/2-2 FT	Parthenocissus quinquefolia	VIRGINIA CREEPER	5' O/C	B & B
Qa	1	1 1/2-2 CAL.	Quercus alba	WHITE OAK	-	B & B

NOTE: ALL PLANT MATERIALS SHALL CONFORM TO THE SPECIFICATIONS SET FORTH IN THE CURRENT EDITION OF THE AMERICAN STANDARDS FOR NURSERY STOCK PUBLICATION BY THE AMERICAN ASSOCIATION OF NURSERYMEN.



ENGINEER'S CERTIFICATION

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 County Soil Conservation District.

John E. Harms, Jr. & Associates, Inc.
CONSULTING ENGINEERS
P.O. BOX 5 PASADENA, MD. 21122

Date: 3-31-87

DEVELOPER'S CERTIFICATION

"I/we certify that all development and construction will be done according to this plan, and that 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."

Howard County, Maryland
OWNER AND DEVELOPER
Liber - 784, Folio - 107
Tax Map 31, Parcel 244
Zoned R-20

Date: 3-30-87

Reviewed for Howard County S.C.D. and meets technical requirements

U.S. SOIL CONSERVATION SERVICE
Date: 3-27-87

Approved: [Signature]
HOWARD COUNTY S.C.D.

SITE ANALYSIS

AREA OF PARCEL = 0.93 AC. ; 40,173 SQ. FT.
PRESENT ZONING R-20
FLOOR AREA = 623.25 SQ. FT.
NUMBER OF EMPLOYEES N/A
PARKING SPACES REQUIRED = 2
PARKING SPACES PROVIDED = 2

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
1191/270 P 757	5341 KERGER ROAD
221/86 P 229	5329 KERGER ROAD
P 244	5337 KERGER ROAD

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT 5-6089

APPROVED: For Public Sewage Systems

HOWARD COUNTY HEALTH DEPARTMENT
3-27-87

APPROVED: Howard County Office of Planning and Zoning
3-31-87

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

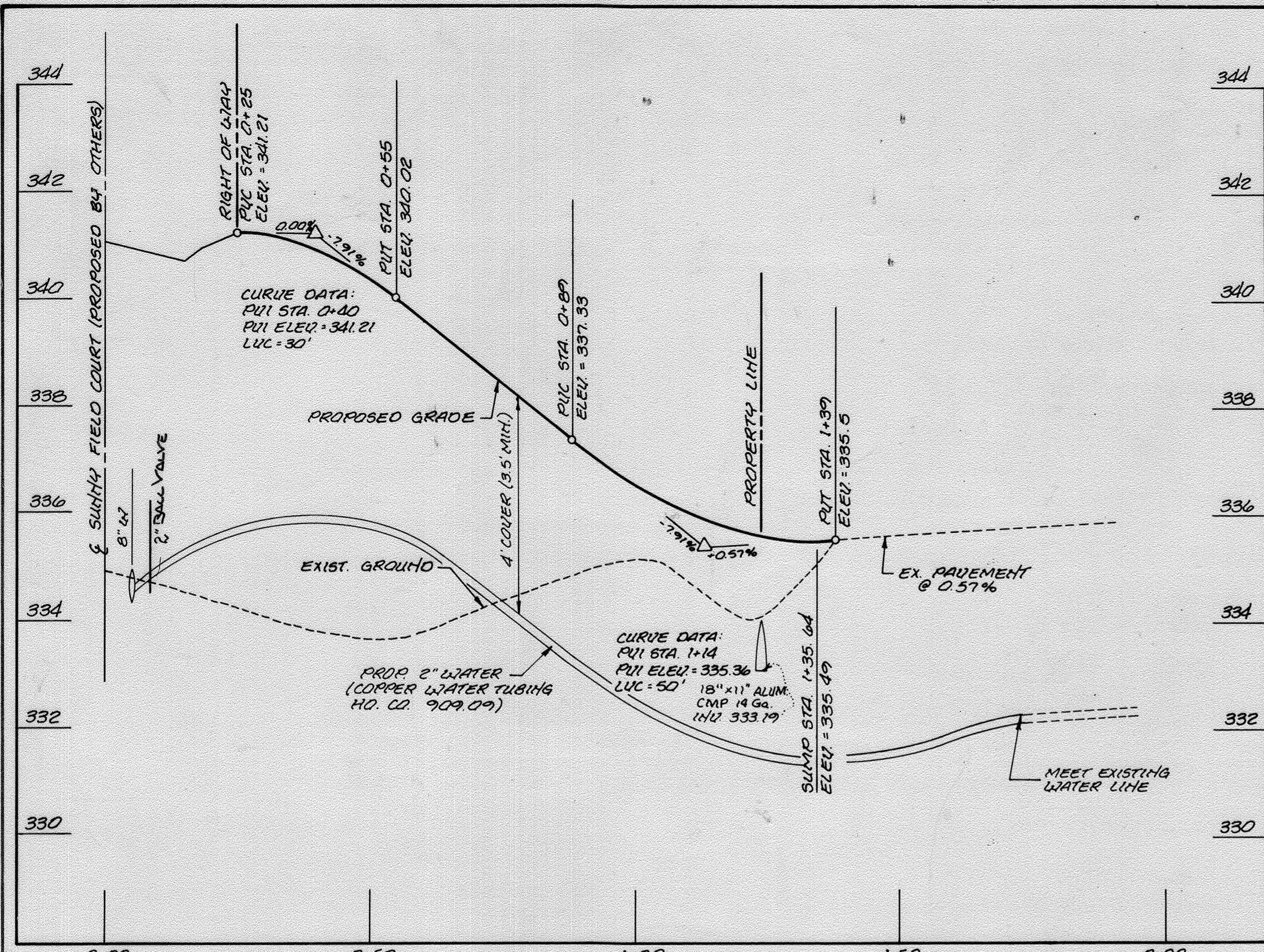
John E. Harms, Jr. & Associates, Inc.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND

DES: TJB
DRN: TJB
CHK: TJB
DATE: 5/24/85

BY: [Signature]
NO. []
REVISION []
DATE []

SITE DEVELOPMENT PLAN SHEET 1 OF 5
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION

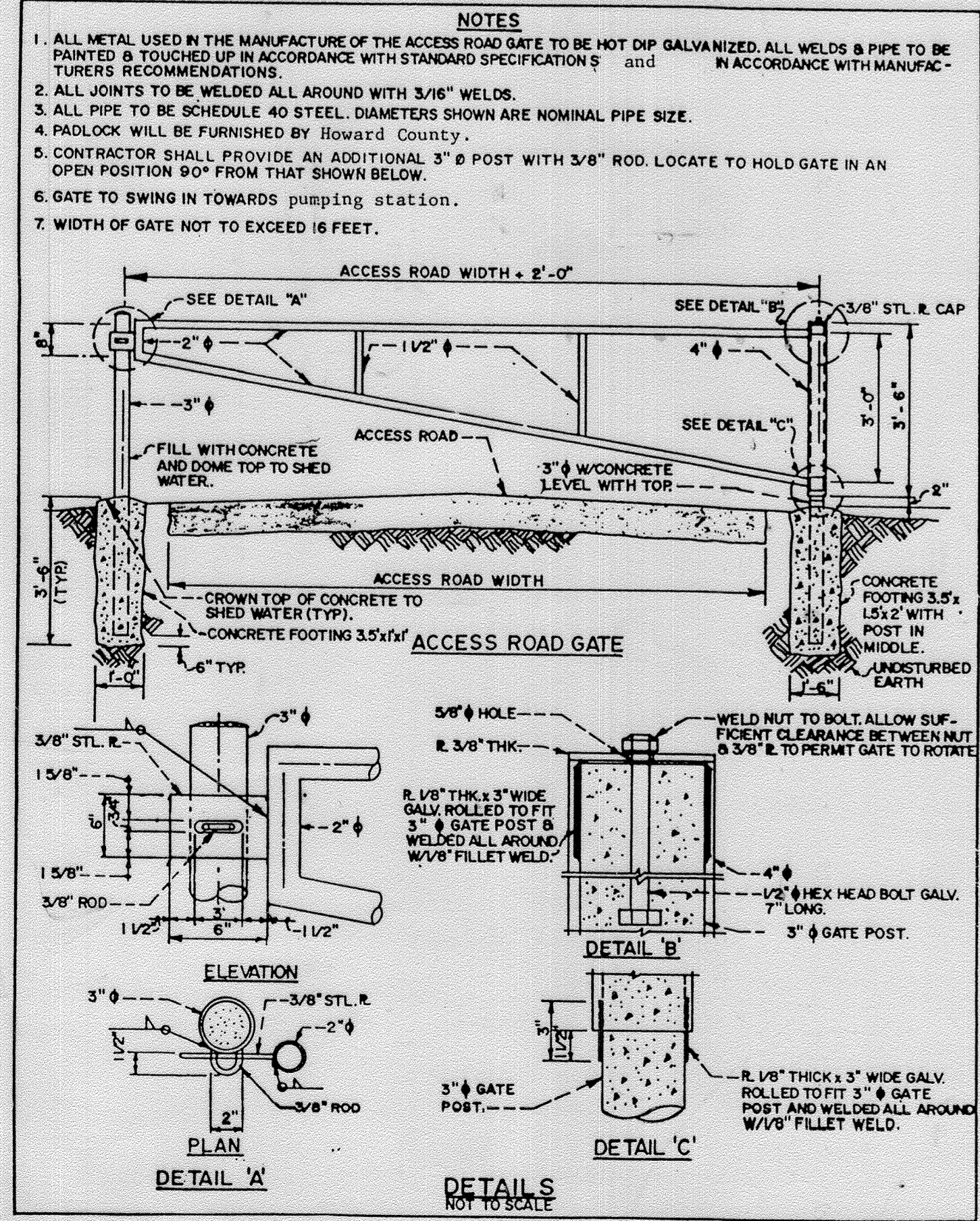
SCALE AS SHOWN
SHEET 2 OF 38
AS-BUILT 9/6/89 SDP-86-17



ENTRANCE ROAD PROFILE
SCALE: 1" = 2' V, 1" = 20' H

STRUCTURE SCHEDULE			
NO	TYPE	LOCATION	REMARKS
ES 1	18"x11" CMP END SECTION	SEE PLAN	ALUMINIZED
ES 2	18"x11" CMP END SECTION	SEE PLAN	ALUMINIZED

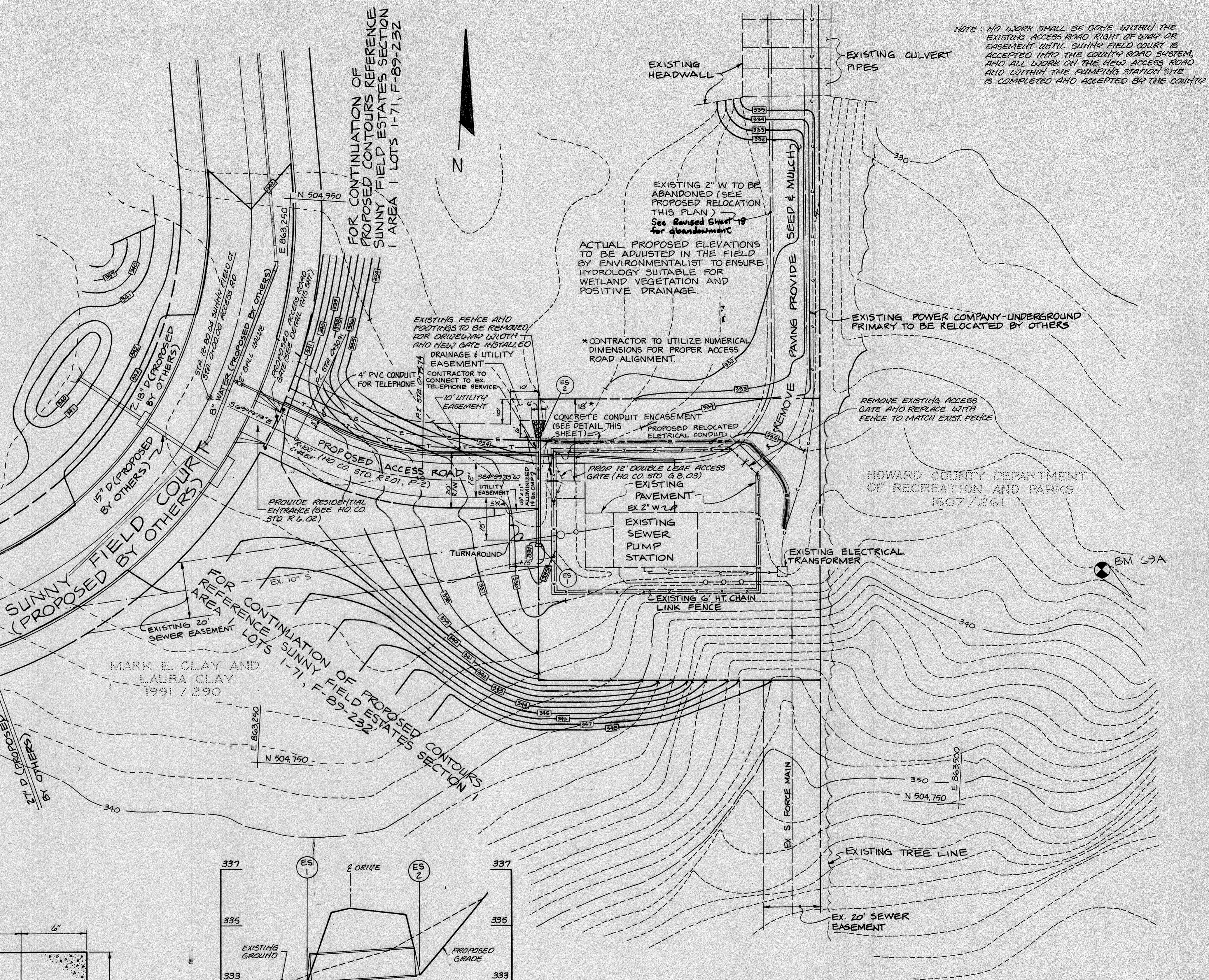
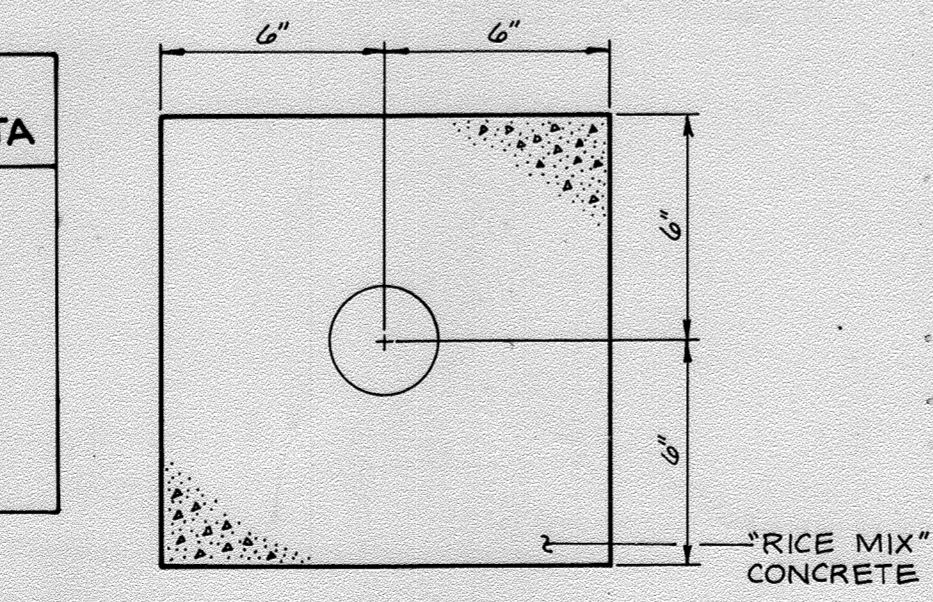
ACCESS ROAD GATE DETAIL



ACCESS ROAD HORIZONTAL CURVE DATA

PC STA.	0+30.91
PT STA.	0+75.74
Δ	25°41'09"
R	100.00'
T	22.80'
E	2.51'
D	57°17'45"
L	44.83'
CHD BRG	S 82°09'54"E
CHD DIST	44.46'

TYPICAL CONDUIT CONCRETE ENCASEMENT DETAIL
N.T.S.



SITE DEVELOPMENT PLAN
SCALE: 1" = 20'

LEGEND

- x-x- FENCE
- - - - - EXISTING GRADE
- PROPOSED GRADE

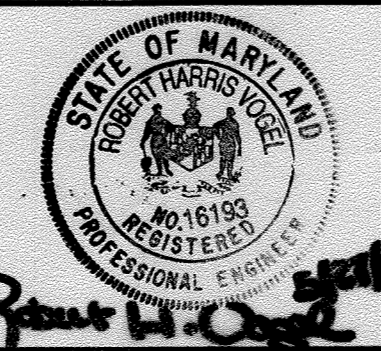
HOWARD COUNTY, MARYLAND
OWNER AND DEVELOPER
Liber - 784, Folio - 107
Tax Map 31, Parcel 244
Zoned R-20

SUBDIVISION NAME:	HOWARD CO. KERGER ROAD PUMP STATION	SECT./AREA	N/A	LOT/PARCEL #	P. 244
PLAT # OR L/F BLOCK #	784/107	ZONE	R-20	TAX/ZONE MAP	31
WATER CODE	W-5	SEWER CODE	S-5	ELEC. DIST.	1
				CENSUS TR.	6011

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 6-1-92
DATE: 5-28-92

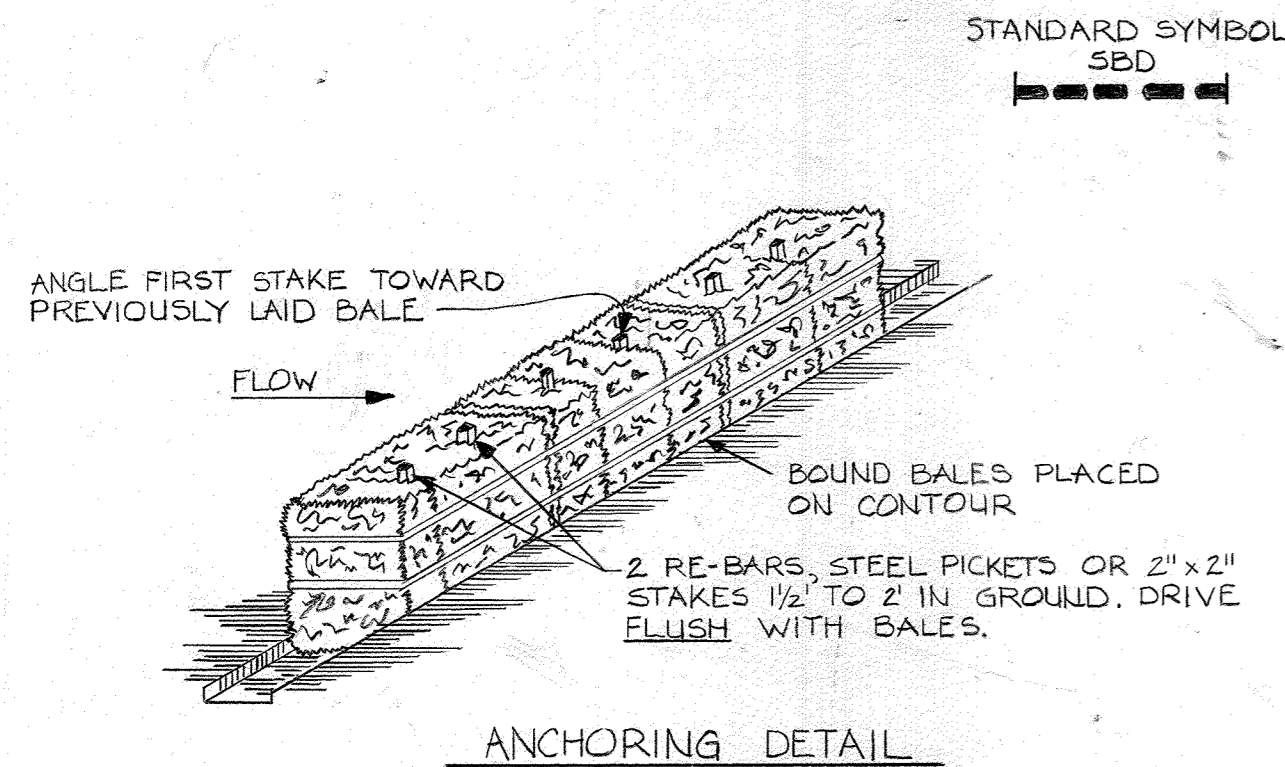
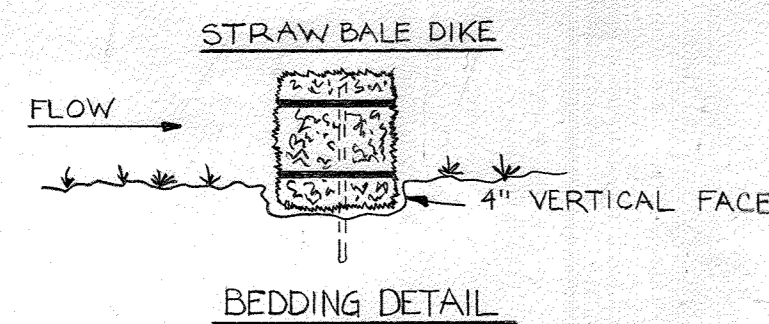
JOHN E. HARMS JR. AND ASSOCIATES INC.
CONSULTING ENGINEERS, PLANNERS - SURVEYORS
8808 CENTRE PARK DRIVE, SUITE 110
COLUMBIA, MARYLAND 21045
TELEPHONE (301) 740-5200



DES	TAB				
DRN	DGH				
CHK	RHV				
DATE	5/22/92	BY		NO.	
RELOCATE PUMP STATION ENTRANCE ROAD					
REVISION					
DATE 6/00 SCALE MAP NO. 31					

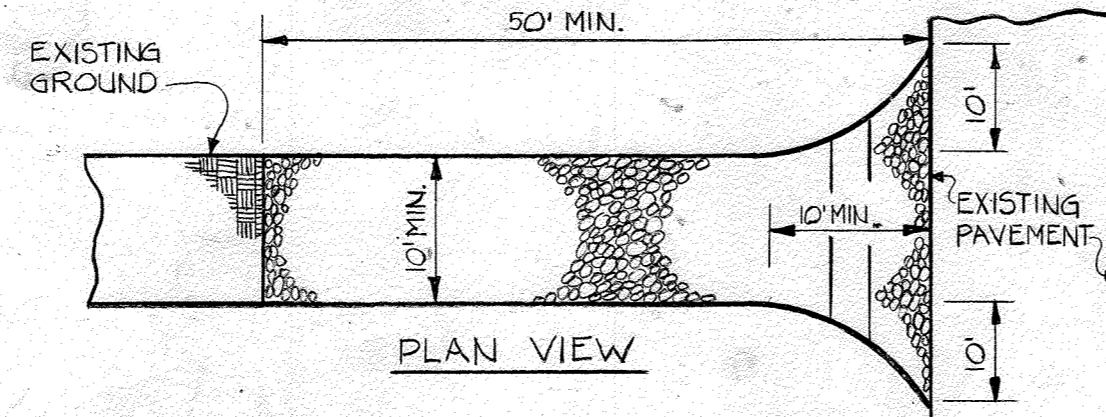
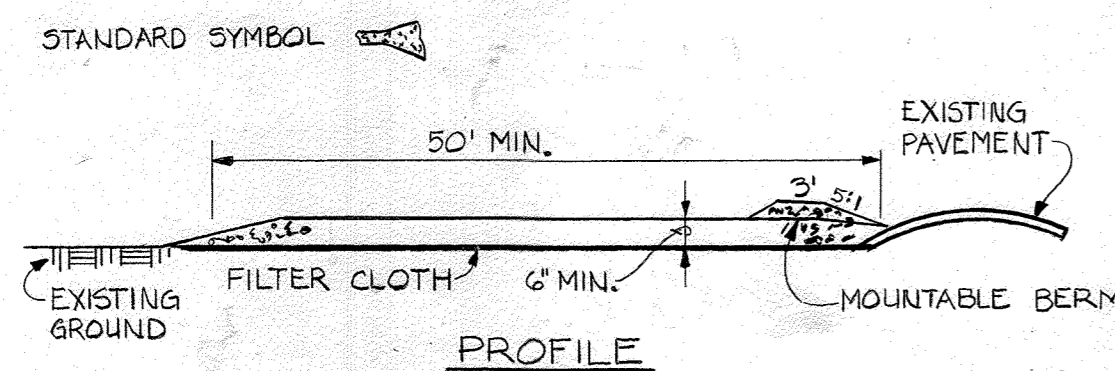
PUMPING STATION ACCESS ROAD RELOCATION

KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215
SCALE AS SHOWN
SHEET 2A OF 38



- CONSTRUCTION SPECIFICATIONS**
- BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING ADJACENT BALES.
 - EACH BALE SHALL BE EMBEDDED INTO SOIL A MINIMUM OF 4 INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
 - BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH BALE.
 - INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 - BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

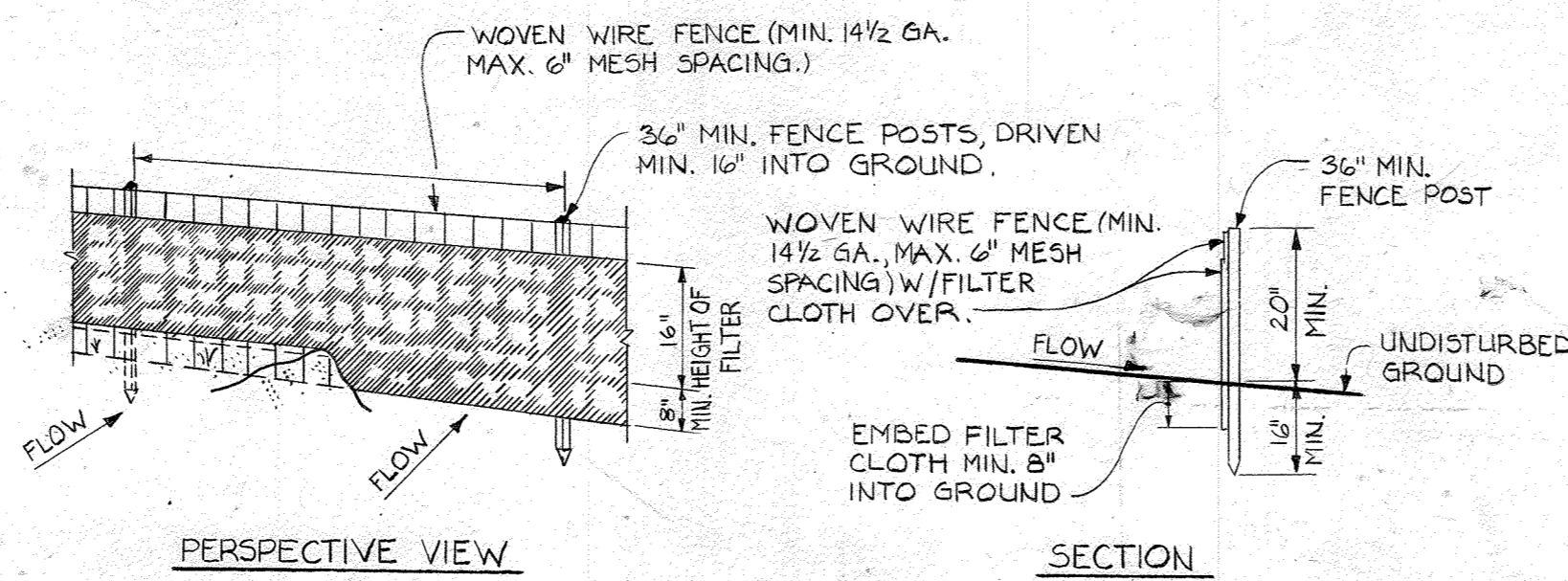
STRAW BALE DIKE DETAIL
NOT TO SCALE



- 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 RESIDENCE LOT WHERE A 30 FOOT 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 ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON SINGLE FAMILY RESIDENCE LOT.
 - SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES 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 A 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 CLEANING OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
 - WASHING- WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO RIGHT-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 INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

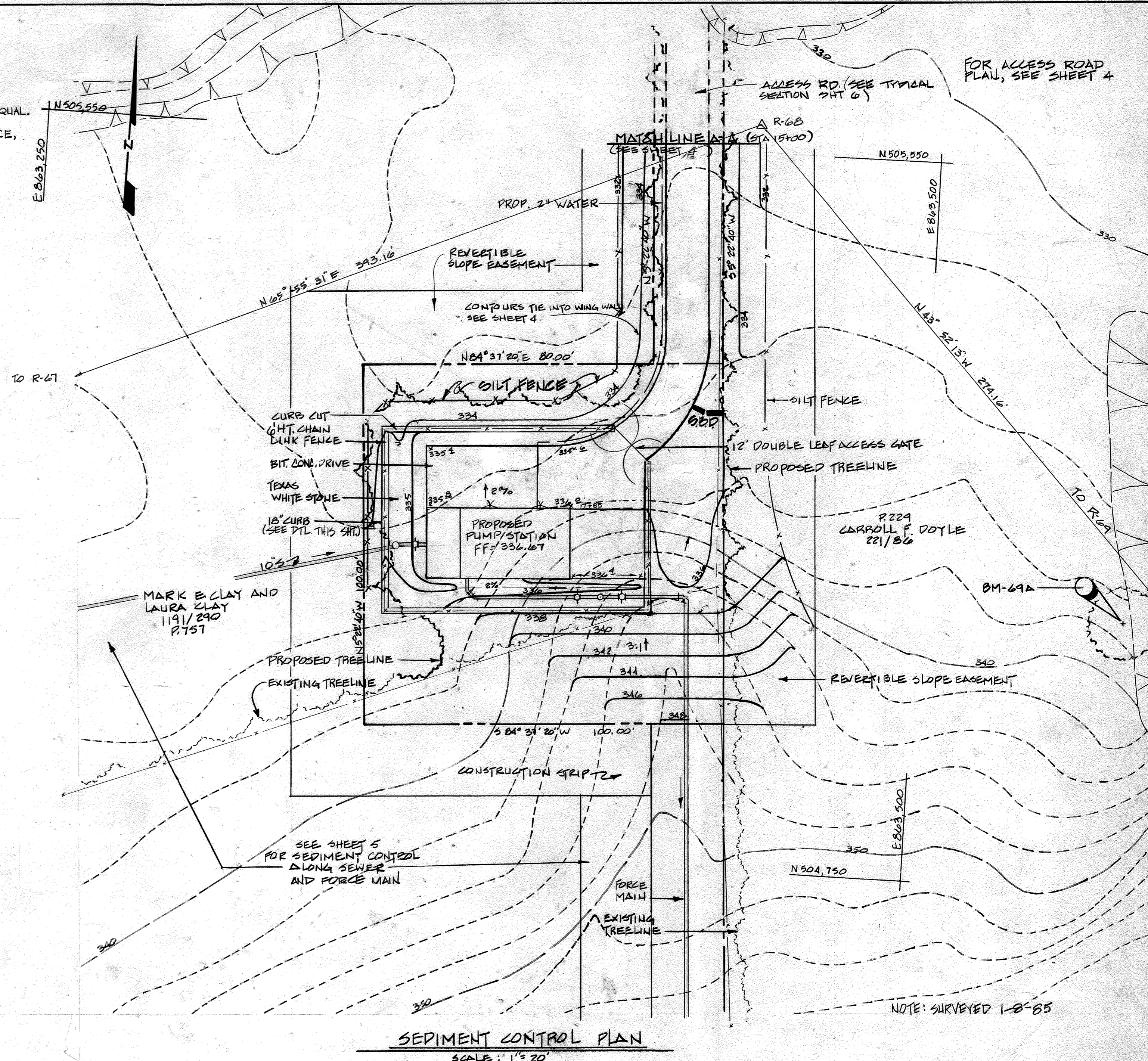
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
 - FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MIDSECTION.
 - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
 - MAINTENANCE 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, 4 GA., 6" MAX. MESH OPENING.
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILITKA T140N OR APPROVED EQUAL.
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.



SILT FENCE DTL.
NOT TO SCALE

SEDIMENT CONTROL NOTES

- THE DEVELOPER SHALL NOTIFY THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS AT LEAST 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION SHOWN HEREON (992-2433).
- DIKES, SEDIMENT TRAPS, ETC. ARE TO BE CONSTRUCTED PRIOR TO ANY ONSITE GRADING OR DISTURBANCE TO ANY EXISTING SURFACE MATERIAL AND ARE TO BE STABILIZED AS SOON AS CONSTRUCTED.
- ALL SEDIMENT STRUCTURES TO REMAIN IN PLACE UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS (992-2433).
- ACCESS ROAD SHALL BE GRAVEL SURFACED IMMEDIATELY AFTER GRADING TO PREVENT SOIL EROSION.
- ALL AREAS DISTURBED BY GRADING SHALL BE SEEDED AND MULCHED.



SEDIMENT CONTROL PLAN
SCALE: 1" = 20'

ENGINEER'S CERTIFICATION

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 County Soil Conservation District.

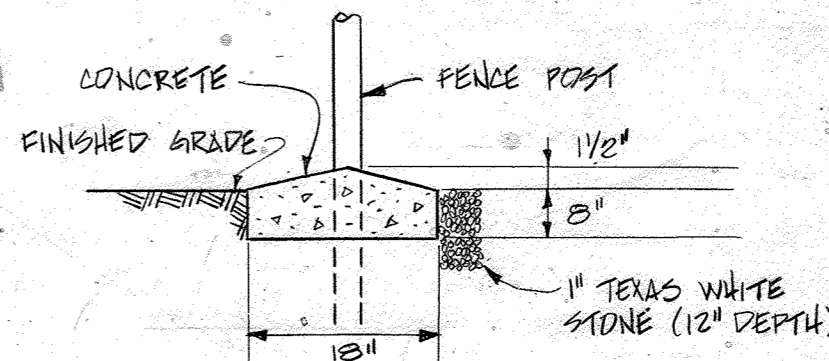
John E. Harms, Jr. Date: 12/2/85
JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5 PASADENA, MD. 21122

DEVELOPER'S CERTIFICATION

"I/We certify that all development and construction will be done according to this plan, and that 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.

William S. Riley
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS

APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-16-87



CURB DETAIL
ALONG BOTTOM OF FENCE
(PRE-MOLDED EXPANSION JOINTS @ 10' 1/2")
NOT TO SCALE

APPROVED For Public Sewage Systems

HOWARD COUNTY HEALTH DEPARTMENT
James P. ...
3-27-87

APPROVED Howard County Office of Planning and Zoning

Thomas J. ...
PLANNING DIRECTOR
3-31-87
John W. ...
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

Reviewed for Howard County S.C.D. and meets technical requirements

John W. ... Date: 3/20/87
U.S. SOIL CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard County Soil Conservation District.

Approved: *John W. ...* Date: 3/27/87
HOWARD COUNTY S.C.D.

HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER

Libert - 784 Folio - 107

Tax Map 31, Parcel 244

Zoned R-20

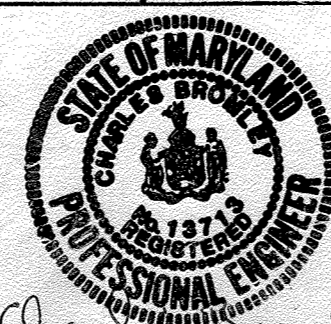
SUBDIVISION NAME	HOWARD CO.	SECT./AREA	LOT/PARCEL #
KERGER ROAD PUMP STATION	N/A		P. 244
PLAT# OR L/P	BLOCK #	TAX/ZONE MAP	ELEC. DIST. CENSUS TR.
784/107	21	R-20	1 6011
WATER CODE	SEWER CODE		
W-5	S-5		

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. ... 3-26-87
DIRECTOR OF PUBLIC WORKS
John W. ... 3-28-87
CHIEF, BUREAU OF UTILITIES

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: T.J.B.			
DRN: LF/WM			
CHK: T.J.B.			
DATE: 5/24/85	BY	NO.	REVISION

SITE DEVELOPMENT PLAN SHEET 2 OF 5
GRADING AND SEDIMENT CONTROL
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

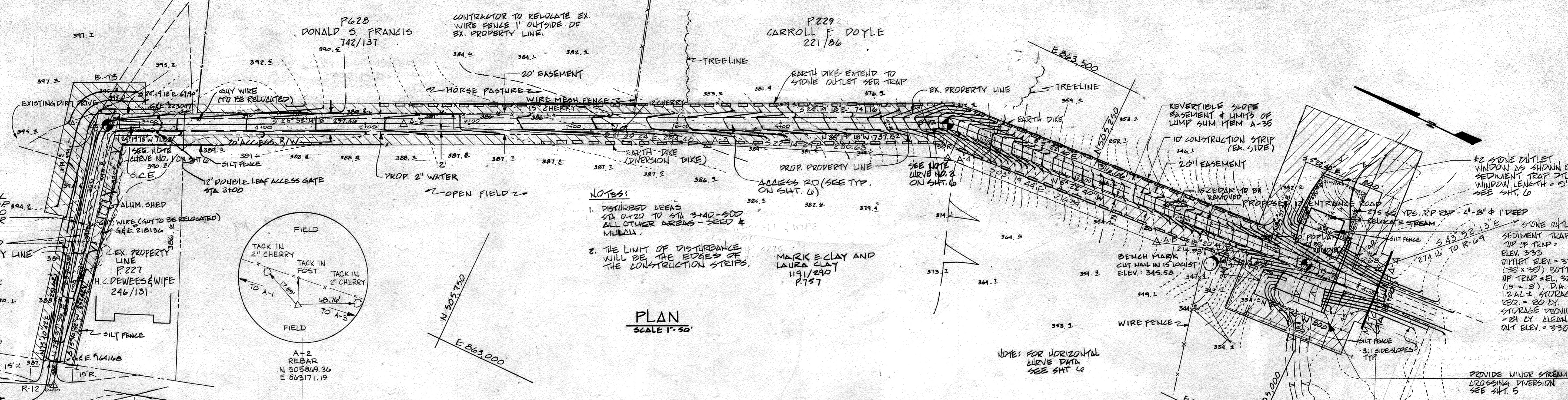
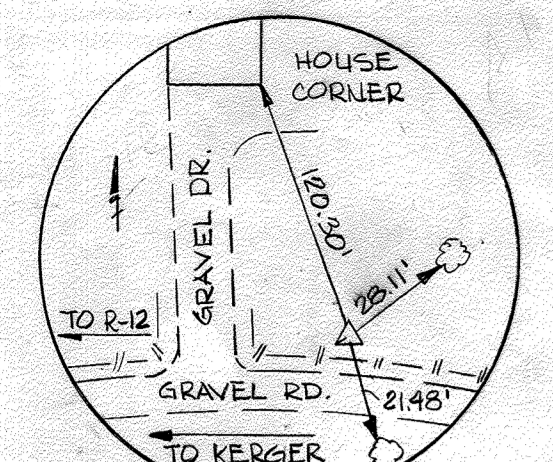
600' SCALE MAP NO. 31 BLOCK NO. 22

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

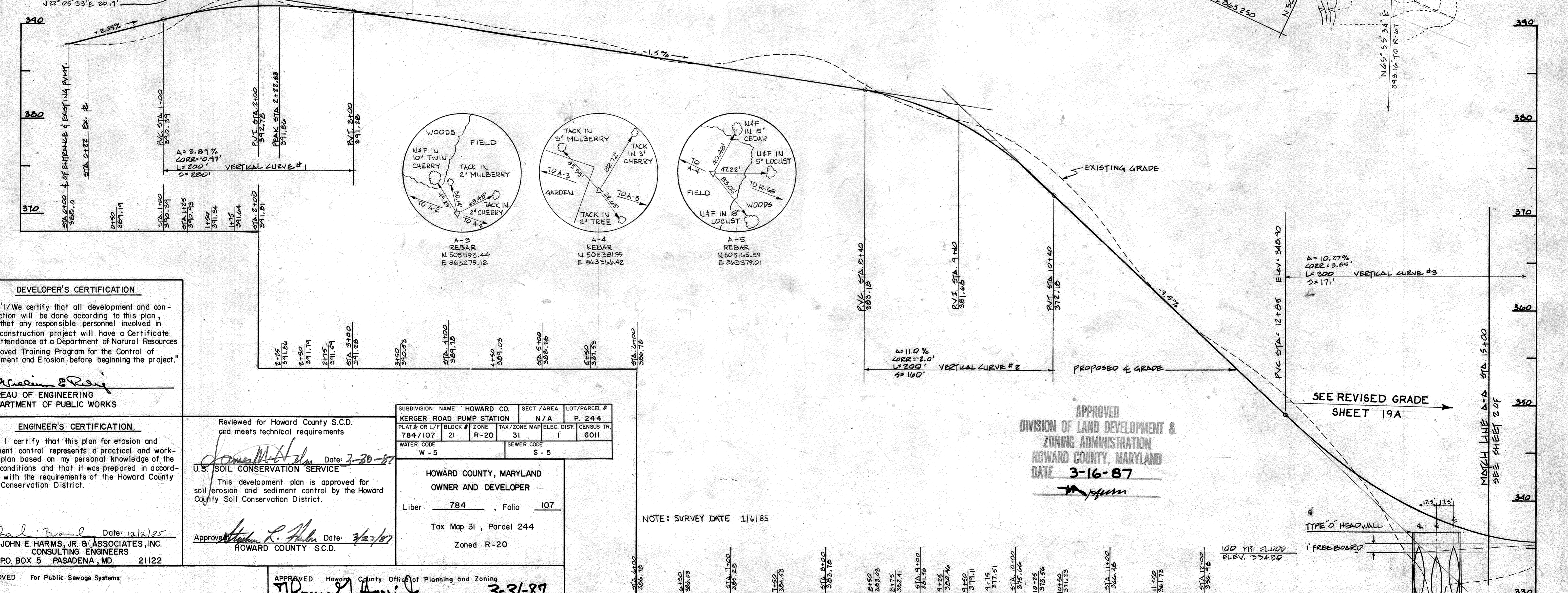
SCALE AS SHOWN

SHEET 3 OF 38



NOTES:
 1. DISTURBED AREAS STA 0+20 TO STA 3+40-500 ALL OTHER AREAS - SEED & MULCH.
 2. THE LIMIT OF DISTURBANCE WILL BE THE EDGES OF THE CONSTRUCTION STRIPS.

PLAN
 SCALE 1" = 50'



ENTRANCE ROAD PROFILE
 SCALES: HORIZONTAL 1" = 50'
 VERTICAL 1" = 5'

DEVELOPER'S CERTIFICATION
 "I/We certify that all development and construction will be done according to this plan and that 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."

Michael R. Ray
 BUREAU OF ENGINEERING
 DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION
 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 County Soil Conservation District.

John E. Harms, Jr. Date: 12/2/85
 JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5 PASADENA, MD. 21122

Reviewed for Howard County S.C.D. and meets technical requirements
 Date: 3-20-87
 U.S. SOIL CONSERVATION SERVICE
 This development plan is approved for soil erosion and sediment control by the Howard County Soil Conservation District.
 Approved: *John R. Allen* Date: 3/27/87
 HOWARD COUNTY S.C.D.

SUBDIVISION NAME	HOWARD CO.	SECT./AREA	LOT/PARCEL #
PLAT # OR L/F	BLOCK #	ZONE	TAX/ZONE MAP/ELEC. DIST. CENSUS TR.
784/107	21	R-20	31 6011
WATER CODE	SEWER CODE		
W-5	S-5		

HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 Liber 784, Folio 107
 Tax Map 31, Parcel 244
 Zoned R-20

APPROVED For Public Sewage Systems
 HOWARD COUNTY HEALTH DEPARTMENT
John R. Boyle
 COUNTY HEALTH OFFICER
 DATE: 3-27-87

APPROVED Howard County Office of Planning and Zoning
Thomas A. Harris
 PLANNING DIRECTOR
 DATE: 3-31-87
 APPROVED *John W. Lushman*
 CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION
 DATE: 3-31-87

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director: *Charles Nemy* 3-26-87
 Chief, Bureau of Engineering: *Michael R. Ray* 3-25-87
 Chief, Bureau of Utilities: *Robert E. ...* 3-25-87
 Chief, Utility Division: *Robert E. ...* 3/25/87

JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



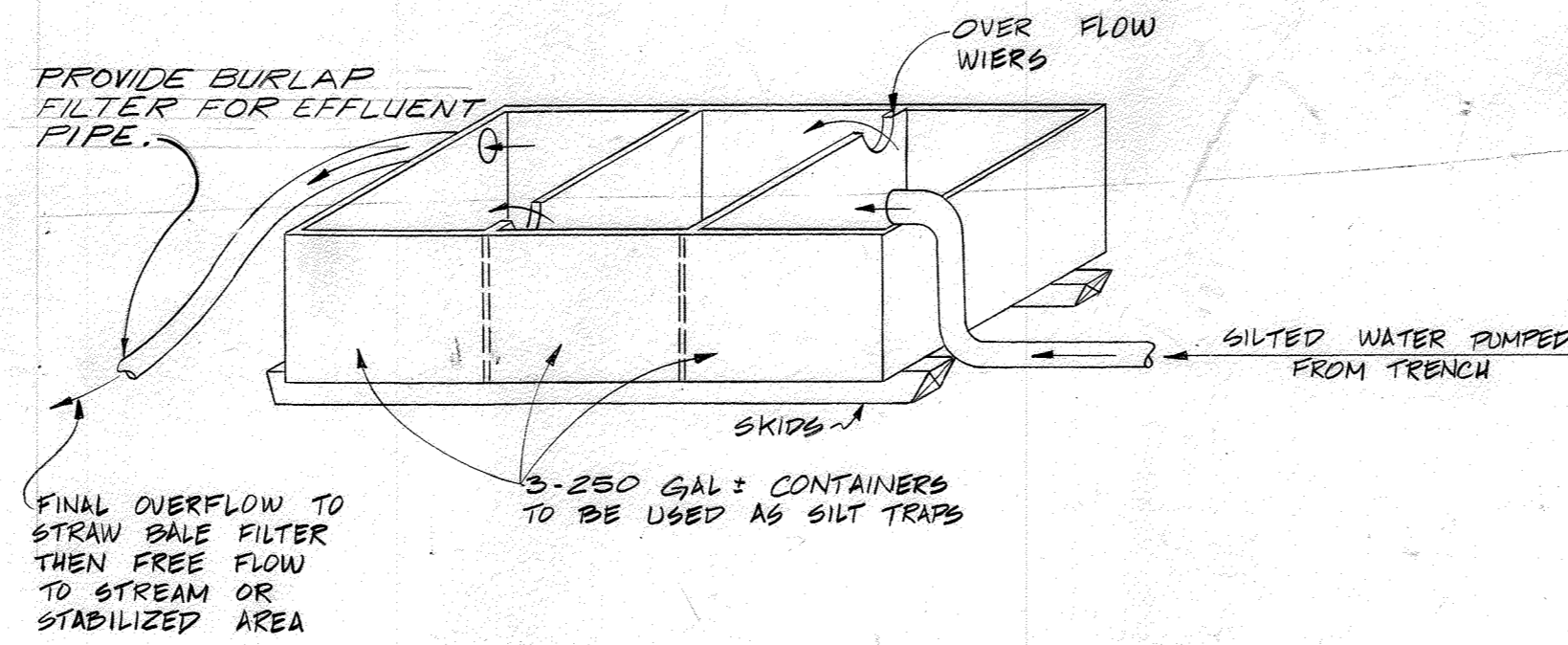
DES: T. J. B.			
DRN: T. J. B.			
CHK: C. B.			
DATE: 5/24/85	BY	NO.	REVISION

SITE DEVELOPMENT PLAN SHEET 30F 5
 ACCESS ROAD PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31 BLOCK NO. 22

KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215
 SCALE AS SHOWN
 SHEET 4 OF 38
 AS-BUILT 9/6/89 SDP-86-17

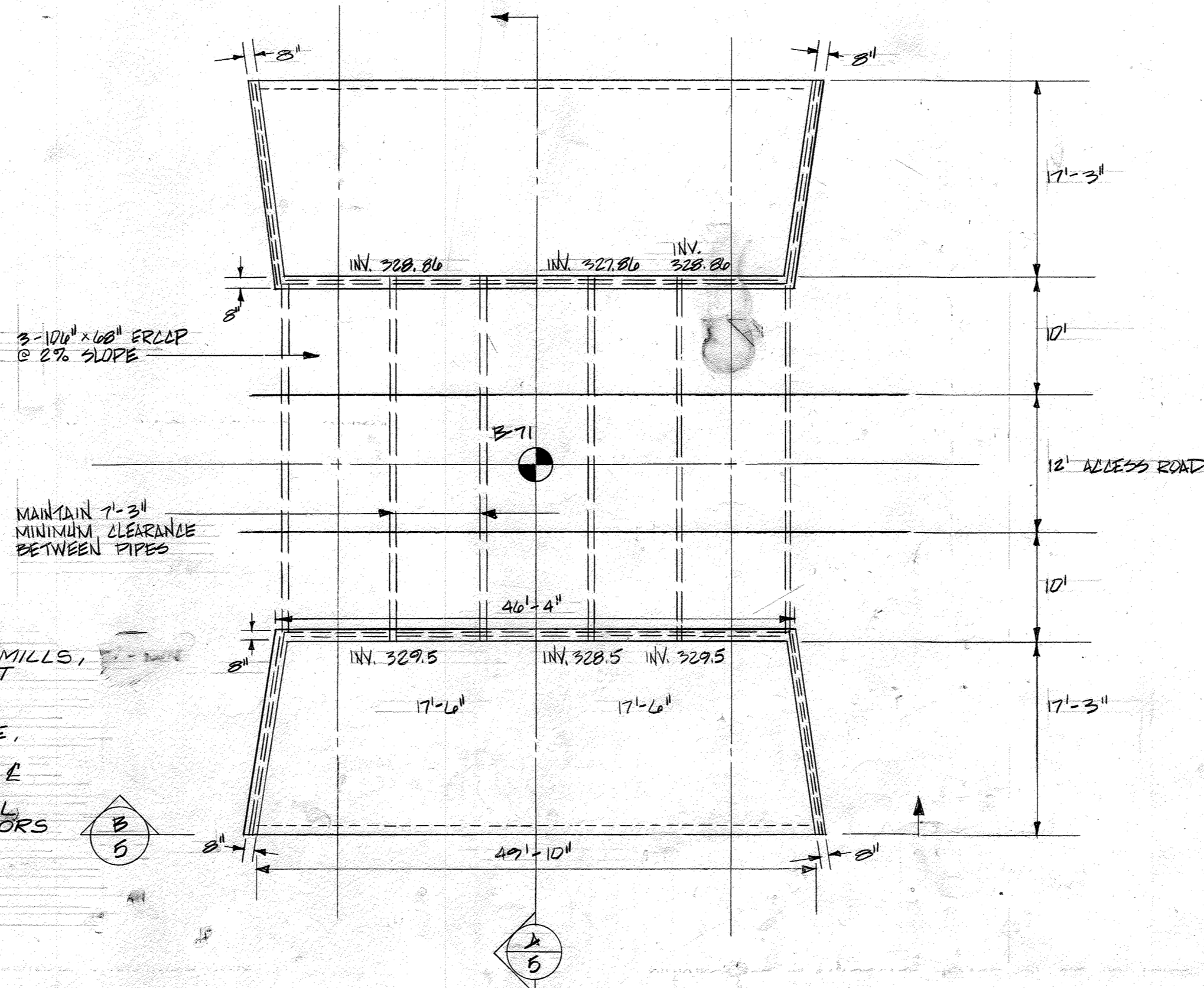
SOIL EROSION & SEDIMENT CONTROL NOTES

1. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DITCHES, 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.
2. ALL EXCAVATED MATERIAL WILL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
3. EROSION CONTROL MEASURES WILL INCLUDE SANDBAG FILTERS, GRAVEL FILTERS, STRAW MULCH, OR ANY OTHER APPLICABLE DEVICES WHICH WILL PREVENT EROSION AND SEDIMENT DAMAGE TO ADJACENT PROPERTIES, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. WHERE THE TRENCH LINE CROSSES THE NORMAL FLOW OF THE STREAM, TEMPORARY PIPES WILL BE PROVIDED. HEAD WALL WILL BE PROVIDED ON THE HIGHER SIDE TO DIVERT WATER TO THE PIPE. THIS MAY BE FORMED BY SANDBAGS COVERED BY A WEATHERPROOF COVERING. SANDBAGS WILL BE USED AT THE OUTFALL AS AN ENERGY DISSIPATOR. SEE "MINOR STREAM CROSSINGS" DETAILS, THIS SHEET.
5. SOIL EROSION CONTROL MEASURES ARE TO BE IN ACCORDANCE WITH MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN URBANIZING AREAS.
6. RESTORATION SHALL PROCEED ON EACH SECTION OF THE RIGHT OF WAY AFTER EACH 1,000 LINEAR FEET OF PIPE INSTALLATION IF IT IS NOT THE PROPER SEEDING SEASON THEN A STRAW MULCH SHALL BE SPREAD OVER THE DISTURBED AREA UNTIL FINAL RESTORATION CAN BE PERFORMED. IF AS A RESULT OF LIMITED ACCESS A PORTION OF THE RIGHT OF WAY MUST BE USED AS AN ACCESS ROAD THEN THE DISTURBED AREAS ON EITHER SIDE OF THE ACCESS ROAD SHOULD BE RESTORED. THE MAXIMUM WIDTH OF AN ACCESS ROAD SHALL BE 15 FEET. THE CONTRACTOR SHALL REGRADE AT COMPLETION OF PROJECT ALL SUCH AREAS TO CONFORM TO GENERAL TOPOGRAPHY OF THE AREA SO AS TO AVOID TRAPPING OF WATER. THE ACCESS ROAD SHALL BE VEGETATED WHEN IT IS NO LONGER USED.
7. ALL SWALES SHOULD BE EQUIPPED WITH A SEDIMENT RETENTION DEVICE TO TRAP SEDIMENT AND FILTER WATER LEAVING THE RIGHT OF WAY PRIOR TO ENTERING ANY RUNNING STREAMS.
8. A BUFFER STRIP OF UNDISTURBED GROUND SHALL BE LEFT BETWEEN THE STREAM BANK AND THE CONSTRUCTION AREA IN THOSE AREAS WHERE CONSTRUCTION COMES EXTREMELY CLOSE TO THE STREAM AND A STRAW BALE OR SANDBAG FILTER BERM SHALL BE PLACED ALONG THE TOP OF THE STREAM BANK.
9. RIP RAP - IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION AT STREAM CROSSINGS, THE CONTRACTOR WILL CONSTRUCT THE RIP RAP WHERE INDICATED ON THE PLANS AND AS DETAILED.
10. SEDIMENT REMOVAL - ALL TRAPPED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AT THE AUTHORIZED LAND FILLS PRIOR TO REMOVAL OF SEDIMENT CONTROL STRUCTURES.
11. ALL TREE REMOVAL AND REPAIR WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE STATE OF MARYLAND, DEPARTMENT OF FOREST AND PARKS.
12. ROADSIDE DITCHES AND DRAINAGE PIPES TO BE RETURNED TO ORIGINAL CONDITION FOLLOWING COMPLETION OF CONSTRUCTION.
13. ALL EXISTING INLETS SHALL BE PROTECTED BY STRAW BALES TO PREVENT TRANSPORT OF SILT INTO STORM DRAIN SYSTEMS.



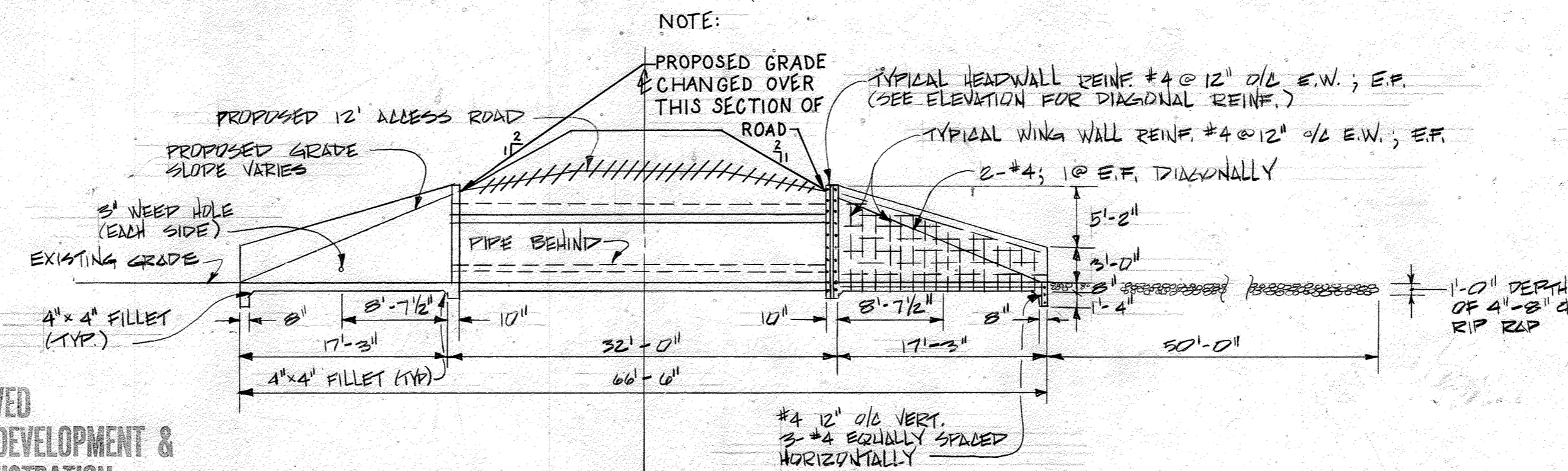
DETAIL OF MOVEABLE SILT BASIN

MAY BE USED IN LIEU OF EXCAVATED SILT BASIN NOT TO SCALE



PLAN VIEW OF HEADWALL

SCALE: 1" = 10'-0"

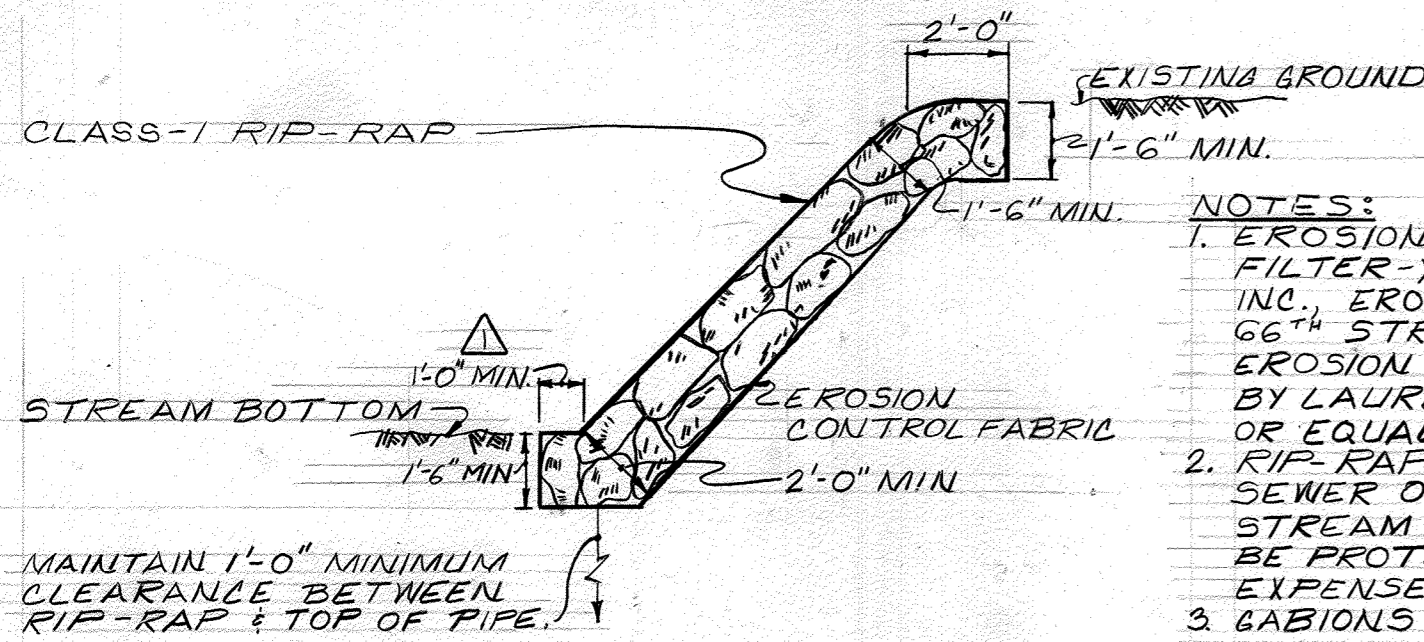


SECTION

SCALE: 1" = 10'-0"

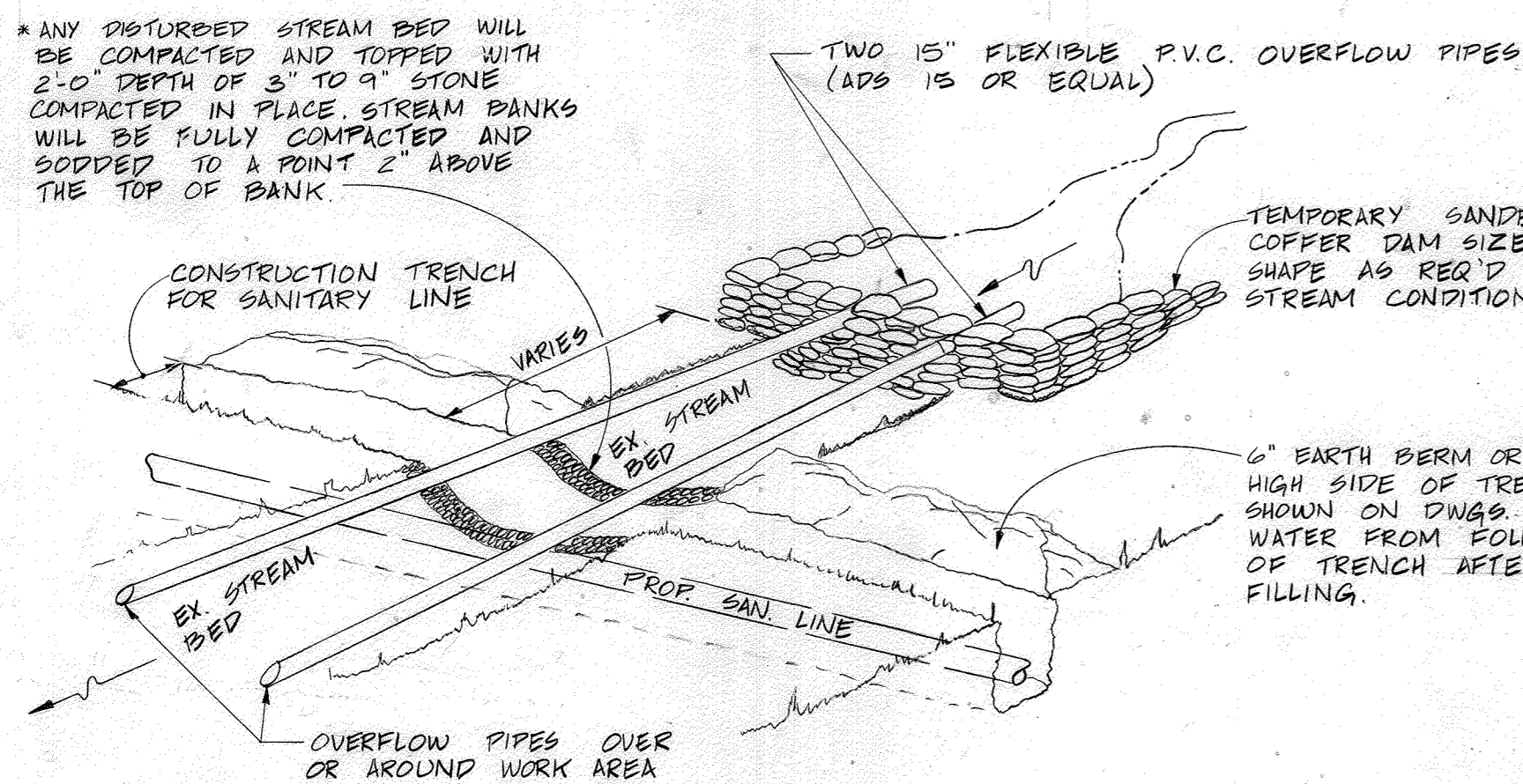
NOTES: HEADWALL PARALLEL TO ROADWAY

STEEL SHALL BE 2" CLEAR CHAMFER ALL EXPOSED EDGES 1" X 1"



RIP-RAP DETAIL

- NOTES:
1. EROSION CONTROL FABRIC SHALL BE POLY-FILTER-X AS MANUFACTURED BY LARTHAGE MILLS, INC., EROSION CONTROL DIVISION, 124 WEST 66TH STREET, CINCINNATI, OHIO; LAUREL EROSION CONTROL CLOTH AS MANUFACTURED BY LAUREL PLASTICS INC, MADISON, MAINE, OR EQUAL.
 2. RIP RAP SHALL BE PLACED 6' EACH SIDE & SEWER OR AS SHOWN. ANY DISTURBANCE TO STREAM BANKS BEYOND THESE LIMITS SHALL BE PROTECTED WITH RIP-RAP AT CONTRACTORS EXPENSE.
 3. GABIONS MAY BE USED IN LIEU OF RIP-RAP.



MINOR STREAM CROSSING DETAIL

NOT TO SCALE

* ALL EXCAVATION AT STREAM CROSSINGS SHALL BE BACKFILLED WITH STONE MEETING SHA SPECIFICATION 20.03-2

APPROVED: For Public Sewage Systems

HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER

Reviewed for Howard County S.C.D. and meets technical requirements

U.S. SOIL CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard County Soil Conservation District.

Approved: *Stephen L. Glavin* Date 3-30-87 HOWARD COUNTY S.C.D.

APPROVED Howard County Office of Planning and Zoning

PLANNING DIRECTOR

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

3-27-87 DATE

138

DEVELOPER'S CERTIFICATION

"I/We certify that all development and construction will be done according to this plan, and that 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."

BUREAU OF ENGINEERING DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION

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 County Soil Conservation District.

JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MD. 21122

HOWARD COUNTY, MARYLAND

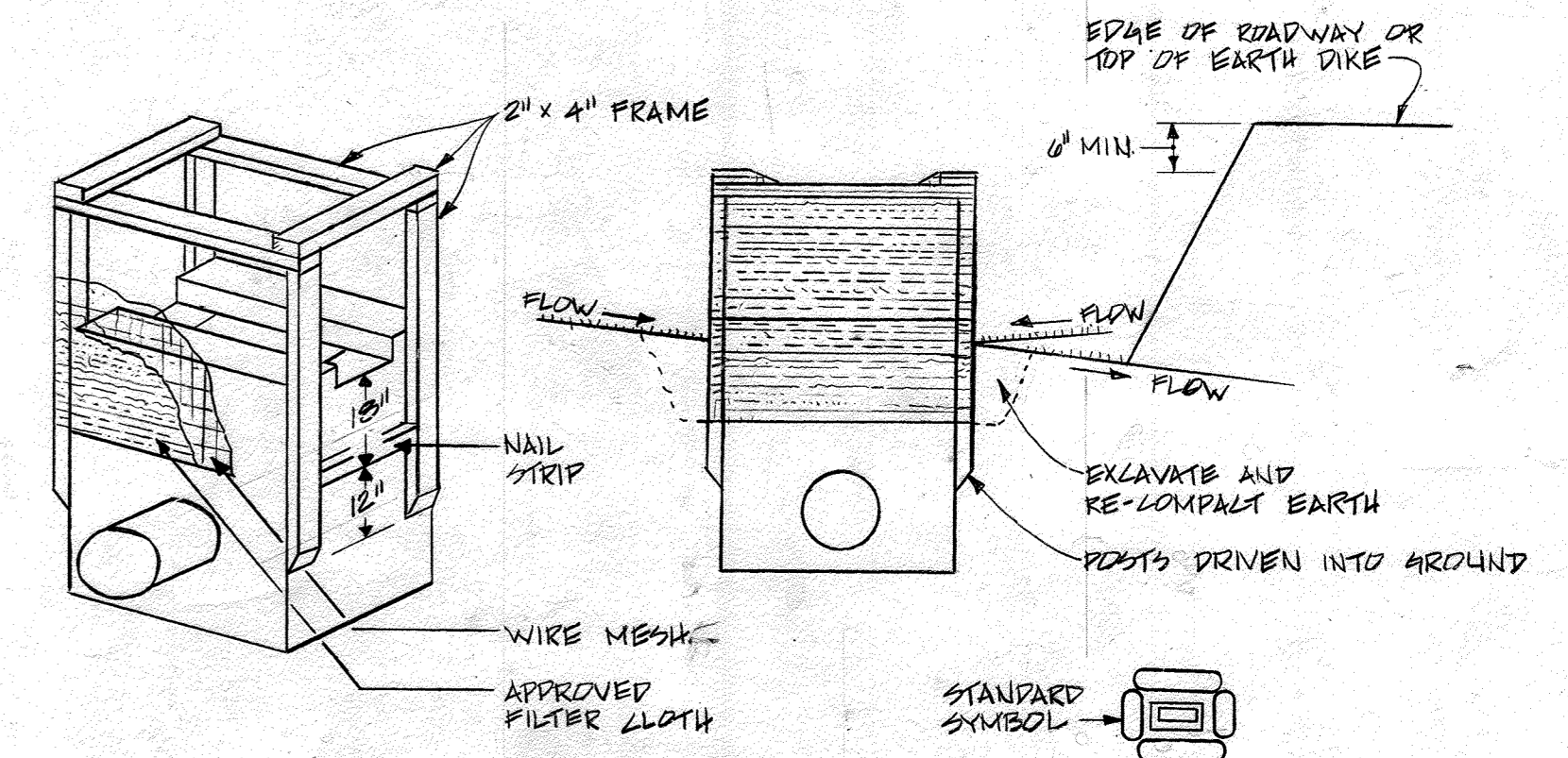
OWNER AND DEVELOPER

Liber - 784, Folio - 107

Tax Map 31, Parcel 244

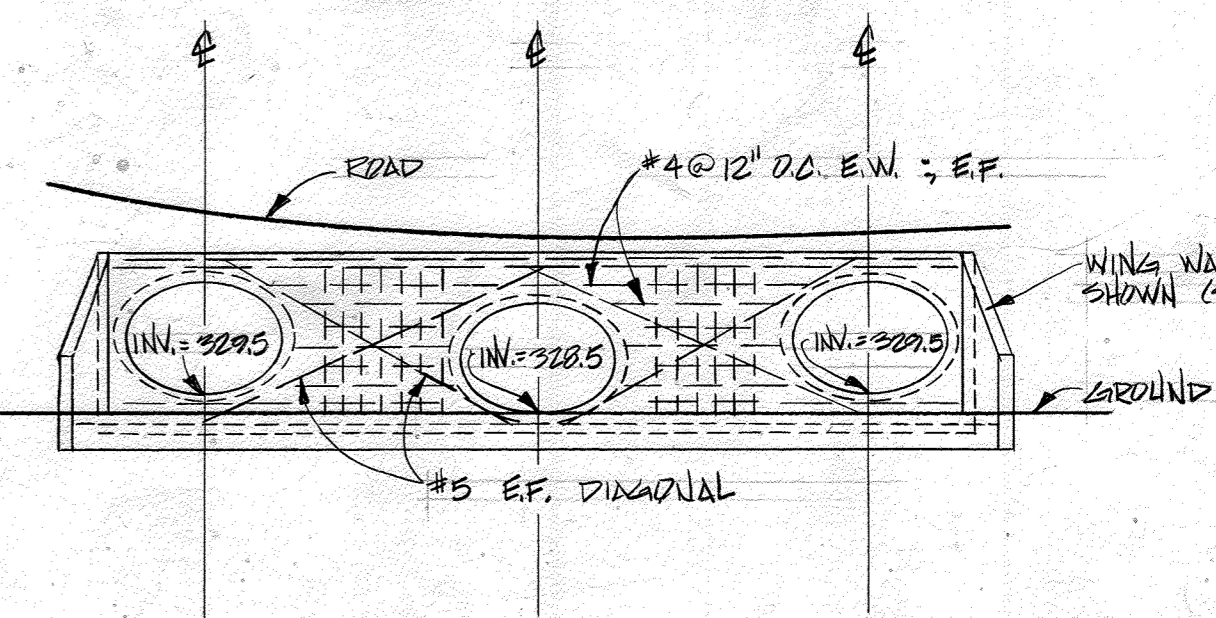
Zoned R-20

SUBDIVISION NAME	HOWARD CO.	SECT./AREA	LOT/PARCEL #
KERGER ROAD PUMP STATION	N/A	P. 244	
PLAT/ OR L/T/ BLOCK #	ZONE	TAX/ZONE MAP/ELEC. DIST.	CENSUS TR
784 / 107	R-20	31	1 6011
WATER CODE	SEWER CODE		
W - 5	S - 5		



SWALE INLET PROTECTION DETAIL

NOT TO SCALE



HEADWALL ELEVATION

SCALE: 1" = 10'-0"

APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-16-87

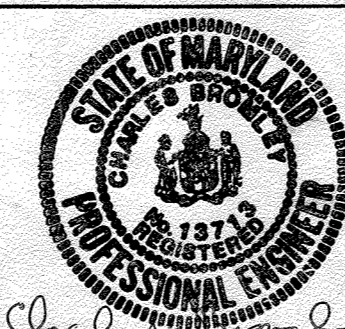
CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John F. Nunn 3-26-87
DIRECTOR OF PUBLIC WORKS DATE

Stephen L. Glavin 3-25-87
CHIEF, BUREAU OF UTILITIES DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: C.B.
DRN: L.A.F.
CHK: C.B.
DATE: 5/31/85

SITE DEVELOPMENT PLAN SHEET 4 OF 5
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 5 OF 38

AS-BUILT 9/4/89 SDP-86-11

DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT

SITE PREPARATION

- TEMPORARY PERIMETER DIKES AND SILT TRAPS, ETC., ARE TO BE PROVIDED AS PER THIS PLAN PRIOR TO GRADING OPERATIONS WITH LOCATION ADJUSTMENTS TO BE MADE IN THE FIELD AS NECESSARY AND TO BE MAINTAINED AT THE END OF WORKING DAY. THE MINIMUM AREA PRACTICAL SHALL BE DISTURBED FOR THE MINIMUM AMOUNT OF TIME POSSIBLE.
 - PERMANENT SEEDING
 - SEEDBED PREPARATION: AREA TO BE SEEDBED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF AT LEAST 3". THE TOP LAYER SHALL BE DISPERSED BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING BEGINS. IN LIEU OF SOIL TEST RESULTS, APPLY 50 LBS. OF DOLOMITIC LIMESTONE AND 25 LBS. OF 10-10-10 FERTILIZER PER 1,000 SQUARE FEET. HARROW OR DISK LINE AND FERTILIZER INTO THE SOIL TO A DEPTH OF AT LEAST 4" ON SLOPES FLATTER THAN 3:1. NO ATTEMPT SHOULD BE MADE TO DISK ANY DISKED AREA TO MAKE THE SOIL SURFACE SMOOTH AFTER DISKING.
 - SEEDING: APPLY 5-6 LBS. PER 1,000 SQUARE FEET OF KENTUCKY 31 TALL FESCUE BETWEEN FEBRUARY AND APRIL 30 OR BETWEEN AUGUST 15 AND OCTOBER 31. APPLY SEED UNIFORMLY WITH A BROADCAST SEEDER DRILL, MULTIPASSER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEEDS AND FERTILIZER, RECOMMENDED ON STEEP SLOPES ONLY) ON A MOIST, FIRM SEEDBED. MAXIMUM SEED DEPTH SHOULD BE 1/4" IN CLAYEY SOILS AND 1/2" IN SANDY SOILS WHEN USING OTHER THAN THE HYDROSEEDER METHOD. IRRIGATE IF SOIL MOISTURE IS DEFICIENT TO SUPPORT ADEQUATE GROWTH, UNTIL VEGETATION IS FIRMLY ESTABLISHED.
 - MULCHING: MULCH SHALL BE UNCHIPPED, UNWEEDTED, SMALL GRAIN STRAW APPLIED AT A RATE OF 70 TO 90 LBS. PER 1,000 SQUARE FEET. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE FREE OF POISONED NOXIOUS WEEDS WHICH ARE LAMBDA THISTLE, JOHNSONGRASS, AND QUACKGRASS. SPREAD MULCH MECHANICALLY OR UNIFORMLY BY HAND. MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY PEG AND TWINE METHOD, MULCH ANCHORING TOLL, NETTING OR LIQUID MULCH BINDERS.
 - TEMPORARY SEEDING

LINE: 50 LBS. OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET FERTILIZER: 15 LBS. OF 10-10-10 PER 1,000 SQUARE FEET SEEDS: PERMANENT RYE (MAY 15) 4.92 LBS. PER 1,000 SQUARE FEET (FEB. 1 THROUGH APRIL 30 OR AUG. 15 THROUGH NOV. 1) MILLET - 0.92 LBS. PER 1,000 SQUARE FEET (MAY 1 - AUGUST 15) SAME AS ABOVE (NOV. 2 THROUGH JAN. 31, USE MULCH ONLY)
 - NO FILLS MAY BE PLACED ON FROZEN GROUND. ALL FILL TO BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS, EA. LAYER HAVING A LOOSE THICKNESS OF NOT MORE THAN 8". ALL FILL IN ROADWAYS AND PARKING AREAS IS TO BE CLASSIFIED TYPE 2 AS PER INNE DEPT. OF TRANSPORTATION ORDINANCE SECTION 12-2027, AND COMPACTED TO 90% DENSITY. COMPACTION TO BE DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR) AND FILL WITHIN BUILDING AREA TO BE COMPACTED TO A MINIMUM OF 95% AS DETERMINED BY METHODS PREVIOUSLY MENTIONED. ALL OTHER FILLS SHALL BE COMPACTED SUFFICIENTLY SO AS TO BE STABLE AND PREVENT EROSION AND SLIDAGE.
 - PERMANENT SOD

PERMANENT SOD IS TO BE KENTUCKY 31 TALL FESCUE STATE APPROVED SOD; LIME AND FERTILIZE PER PERMANENT SEEDING SPECIFICATIONS AND LIGHTLY IRRIGATE SOIL PRIOR TO LAYING SOD. SOD IS TO BE LAID ON THE GROUND WITH ALL ENDS TIGHTLY ADJOINING. WATER AND ROLL OR TAMM SOD TO INSURE POSITIVE CONTACT WITH THE SOIL. ALL SLOPES GREATER THAN 3 TO 1, AS SHOWN, ARE TO BE PERMANENTLY SODDED. ADDITIONAL WATERING FOR ESTABLISHMENT MAY BE REQUIRED. SOD IS NOT TO BE APPLIED ON FROZEN GROUND.
- NOTES: USE OF THIS INFORMATION DOES NOT PRELUDE MEETING ALL OF THE REQUIREMENTS OF THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS."
ANY HYDROSEEDING FOR PURPOSES OF STABILIZATION SHALL BE STRAW MULCHED IMMEDIATELY.

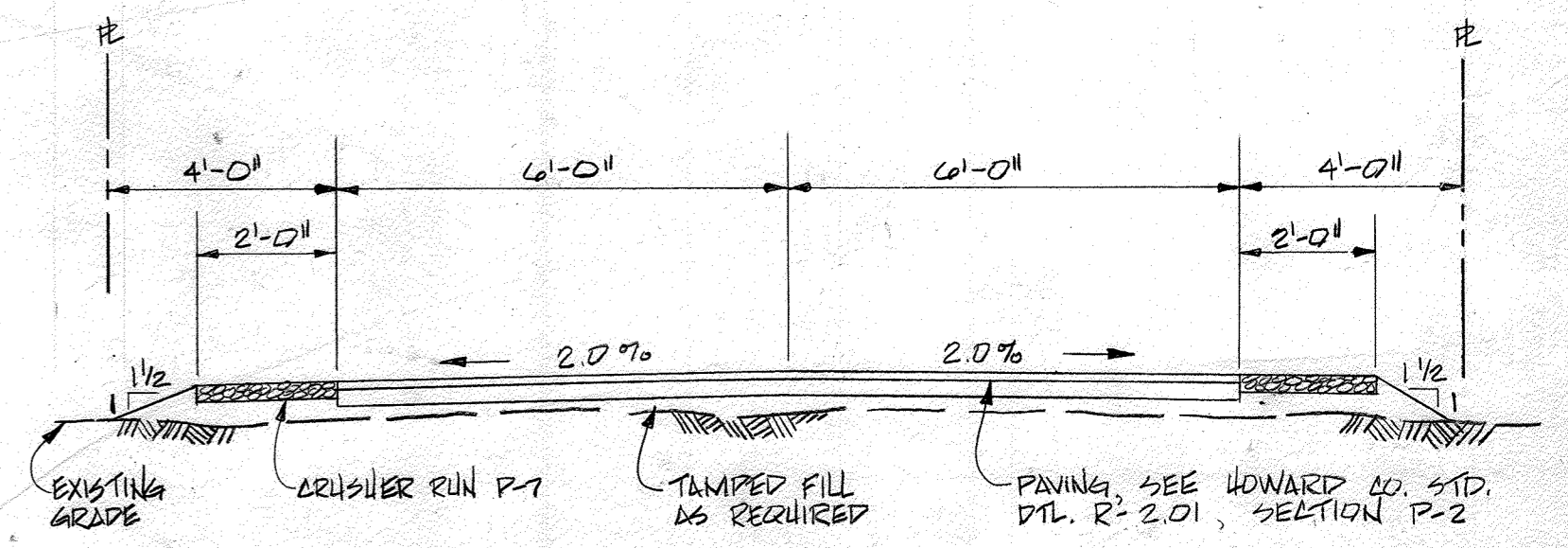
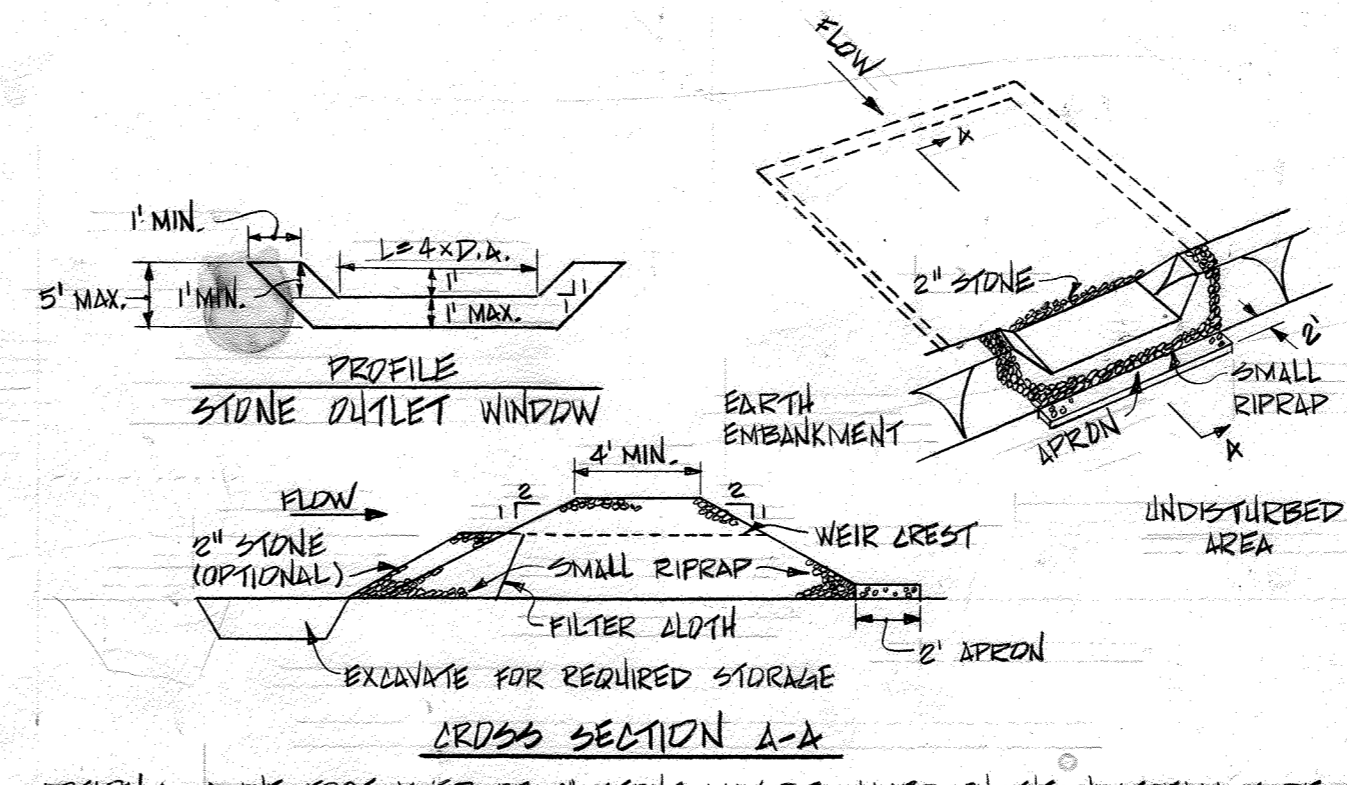
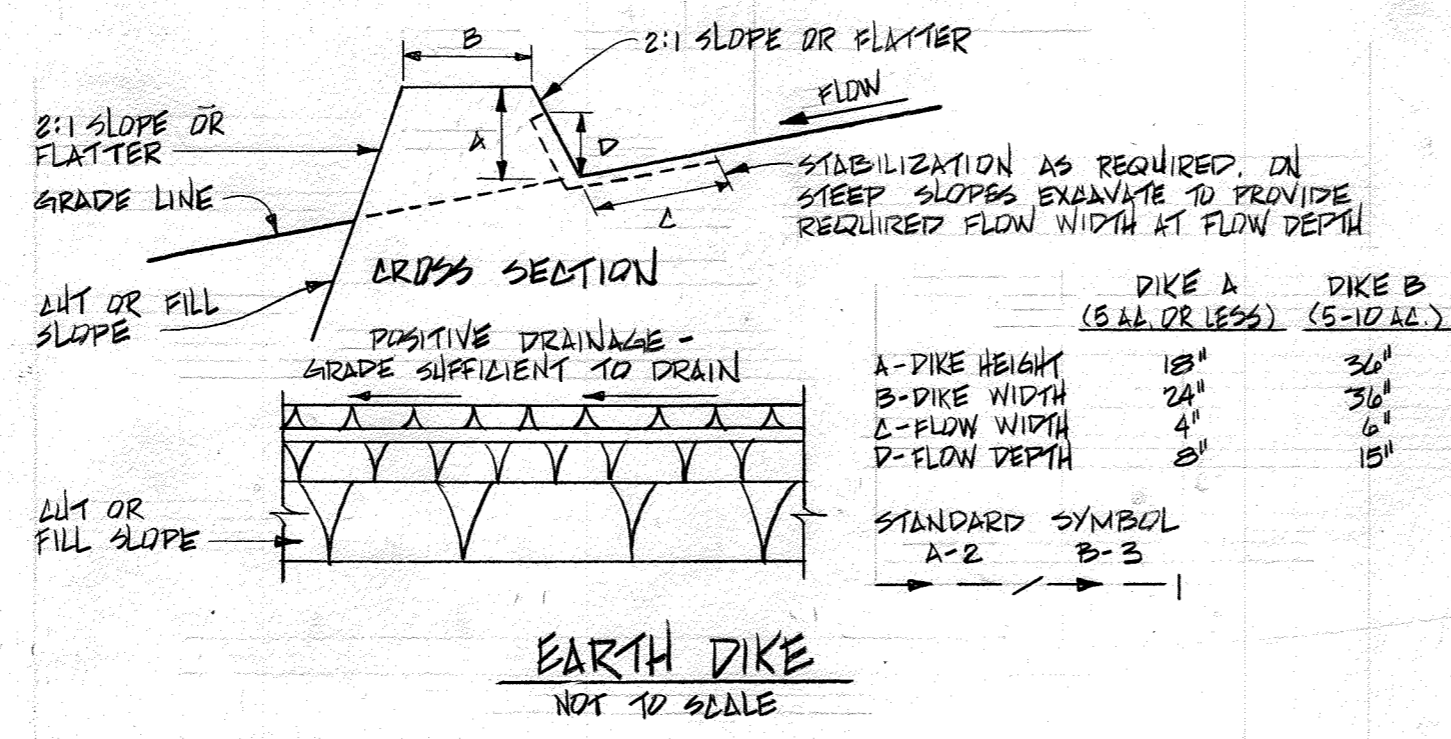
SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT FOR OVERALL PROJECT. CONSTRUCT PIPELINES AND PUMP STATION CONCURRENTLY. SEE SHT. 6 REGARDING SCHEDULE OF CONSTRUCTION PHASING FOR THE PUMP STATION.
- GRAVITY SEWER CONSTRUCTION SHALL PROCEED IN AN UPHILL FASHION BEGINNING IN THE VICINITY OF THE PUMP STATION.
- INSTALL SEDIMENT CONTROL MEASURES DOWN GRADE OF CONSTRUCTION. EXCAVATE TRENCH AND PLACE MATERIAL ON UPSTREAM SIDE OF TRENCH.
- IMMEDIATELY FOLLOWING PIPE INSTALLATION THE TRENCH SHALL BE BACKFILLED AND COMPACTED. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH REQUIREMENTS SET FORTH ON SHEETS 5 AND 6 HEREIN.
- TEMPORARY STRAW BALE DIKES SHALL BE PLACED IMMEDIATELY DOWN HILL OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED LONGER THAN ONE WORKING DAY.
- THE CONTRACTOR SHALL DISTURB AND OPEN TRENCH THE MIN. PRACTICAL AREA REQUIRED TO ACCOMPLISH THE WORK DESIGNATED FOR EACH DAY.
- THE FORCE MAIN WILL NOT BE CONSTRUCTED UNDER THE SITE DEVELOPMENT PLAN; IT WILL BE CONSTRUCTED UNDER THE CONTRACT PLANS.

SCHEDULE OF CONSTRUCTION PHASING - PUMP STATION

- CLEAR SUFFICIENT AREA TO INSTALL STONE OUTLET SEDIMENT TRAP, STONE OUTLET WINDOW, RIPRAP, DIKES AND OTHER SEDIMENT CONTROL DEVICES FROM STATION 0+00 TO STATION 14+25 (-1 WEEK).
- CLEAR GRUB, GRADE, INSTALL AND STABILIZE ACCESS ROAD TO STATION 14+00 ± (-2 WEEKS).
- CLOSE OUT STONE OUTLET SEDIMENT TRAP AT STATION 14+25 WHEN UPSTREAM DRAINAGE AREA HAS BEEN STABILIZED. INSTALL ADDITIONAL SEDIMENT CONTROL DEVICES UP TO STA. 16+00 AND INSTALL MINOR STREAM CROSSING DIVERSION (-1 WEEK).
- GRADE AND INSTALL CULVERT, HEADWALLS, RIP RAP APRON. REMOVE MINOR STREAM CROSSING DIVERSION WHEN PREVIOUS ITEMS ARE COMPLETE. GRADE AND INSTALL ACCESS ROAD TO STATION 16+00 ±. ALL SEDIMENT CONTROL DEVICES EXCEPT STONE OUTLET WINDOW AND RIPRAP MAY BE REMOVED UP TO STA 16+00 AFTER STABILIZATION WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR (-3 WEEKS).
- INSTALL REMAINING SEDIMENT CONTROL DEVICES AS SHOWN ON PUMP STATION SITE DEVELOPMENT PLAN (-1 WEEK).
- EXCAVATE & CONSTRUCT BUILDING, FORM & POUR FOOTING & BOTTOM SLAB (-13 WEEKS).
- CONSTRUCT ALL U.G. PIPING, FORM AND POUR BUILDING WALLS AND TOP SLABS (-2 WEEKS).
- CONSTRUCT ALL U.G. ELECTRIC LINES AND COMPLETE OTHER U.G. PIPING. CONSTRUCT BUILDING, BACKFILL AND COMPACT EARTH AS REQUIRED (-3 WEEKS).
- SET GENERATOR AND INSTALL ALL OTHER PUMPING STATION EQUIPMENT. COMPLETE BUILDING (-6 WEEKS).
- CONSTRUCT PAVED DRIVE AND FENCE. PLACE VEGETATIVE STABILIZATION (-3 WEEKS).
- LANDSCAPING, REMOVAL OF SEDIMENT CONTROL MEASURES, COMPLETE MISC. APPURTENANT WORK, CONNETT REMAINING PIPING TO PUMPING STATION (-2 WEEKS).

NOTE: ALL SEDIMENT CONTROL DEVICES SHALL BE INSPECTED AND MAINTAINED AFTER EACH RAIN AND THROUGHOUT CONSTRUCTION. ALL NECESSARY REPAIRS SHALL BE MADE PROMPTLY.
REFER TO CONSTRUCTION SEQUENCE ADJACENT.



CONSTRUCTION SPECIFICATIONS

- ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
- ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
- TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
- FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
- EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
- STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON; (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING LITE, OR EXCELSDOR, SOD; 2" STONE
3	5.1-8.0%	SEED WITH LITE, OR SOD; 2" STONE	LINED RIP-RAP 4"-8"
4	8.1-20%	LINED RIP-RAP 4"-8"	ENGINEERING DESIGN

- STONE TO BE 2 INCH STONE OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
- RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 3 INCHES THICKNESS AND PRESSED INTO THE SOIL.
- APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

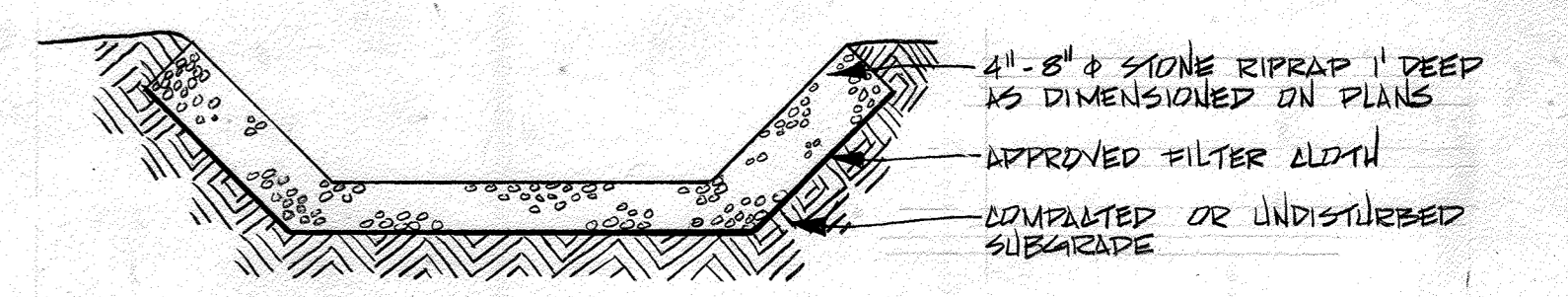
STONE OUTLET SEDIMENT TRAP

OPTION: A ONE FOOT LAYER OF 2" STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS FOR STV

- AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
- THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBSTRUCTIONAL MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TURNING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- ALL DIRT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
- THE STONE USED IN THE DUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1" THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
- SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
- THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

TYPICAL PAVING SECTION



RIPRAP OUTLET PROTECTION DETAIL

ACCESS ROAD - HORIZONTAL CURVE DATA

	CURVE NO. 1	CURVE NO. 2	CURVE NO. 3
FROM P.C. TO P.T.	STA. 2+38.22 TO STA. 2+66.15	STA. 10+53.64 TO STA. 10+70.20	STA. 15+52.50 TO STA. 15+81.56
Δ	79° 59' 58"	18° 58' 40"	45° 00' 00"
R	20.00'	50.00'	37.00'
T	16.78'	8.36'	15.33'
E	6.11'	0.69'	3.05'
DC	286° 28' 44"	114° 35' 30"	154° 51' 12"
L	27.93'	16.56'	29.06'
CHD. BRG.	56° 4' 19" E	51° 4' 50" E	517° 0' 22" W
CHD. DIST	25.71'	16.59'	28.32'

ENGINEER'S CERTIFICATION

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 County Soil Conservation District.

John E. Harms, Jr. & Associates, Inc. Consulting Engineers
P.O. Box 5 Pasadena, MD. 21122

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Bureau of Engineering Department of Public Works

APPROVED: Thomas J. Harms, Jr. Planning Director 3-31-87

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

APPROVED: For Public Sewage Systems

Howard County Health Department County Health Officer 3-27-87

Reviewed for Howard County S.C.D. and meets technical requirements
U.S. SOIL CONSERVATION SERVICE
Date: 3-30-87

HOWARD COUNTY, MARYLAND
OWNER AND DEVELOPER
Liber - 784, Folio - 107
Tax Map 31, Parcel 244
Zoned R-20

APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-16-87

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works 3-28-87
Chief, Bureau of Engineering 3-25-87
Chief, Utility Division 3/25/87

JOHN E. HARMS JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND

DES: C.B.	
DRN: L.A.F.	
CHK: C.B.	
DATE: 5/24/85	
BY NO.	REVISION

SITE DEVELOPMENT PLAN SHEET 5 OF 5
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

SCALE AS SHOWN
SHEET 6 OF 38
SDP-86-17

B.M. 69A CUT NAIL IN 40" WH. OAK
ELEV. 337.30'

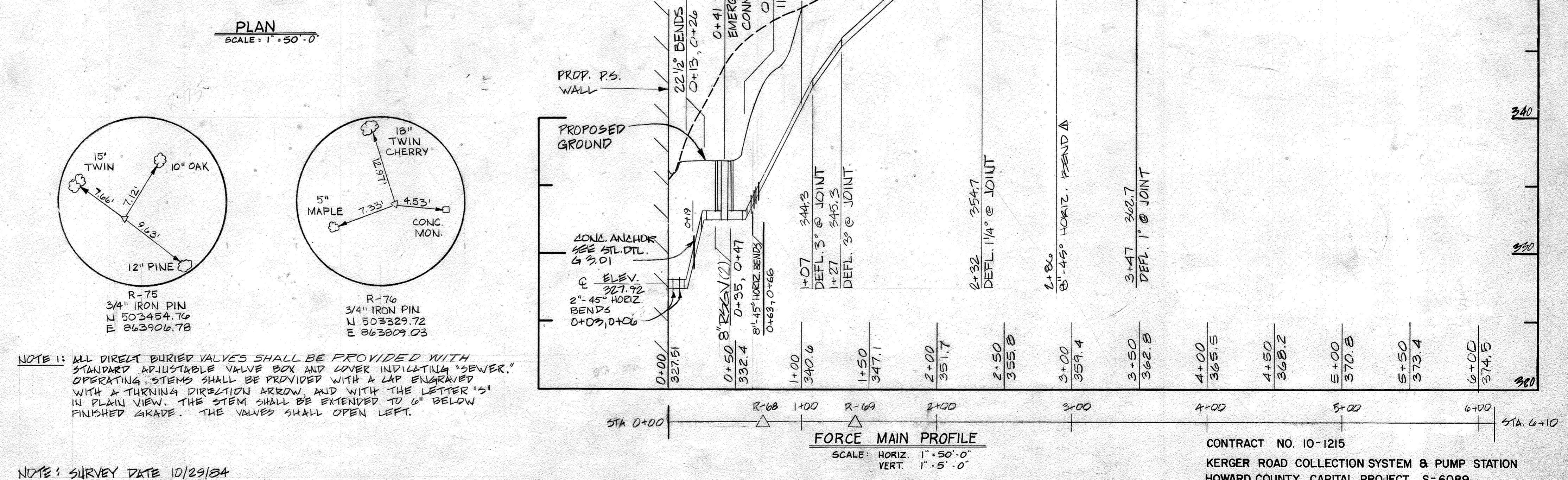
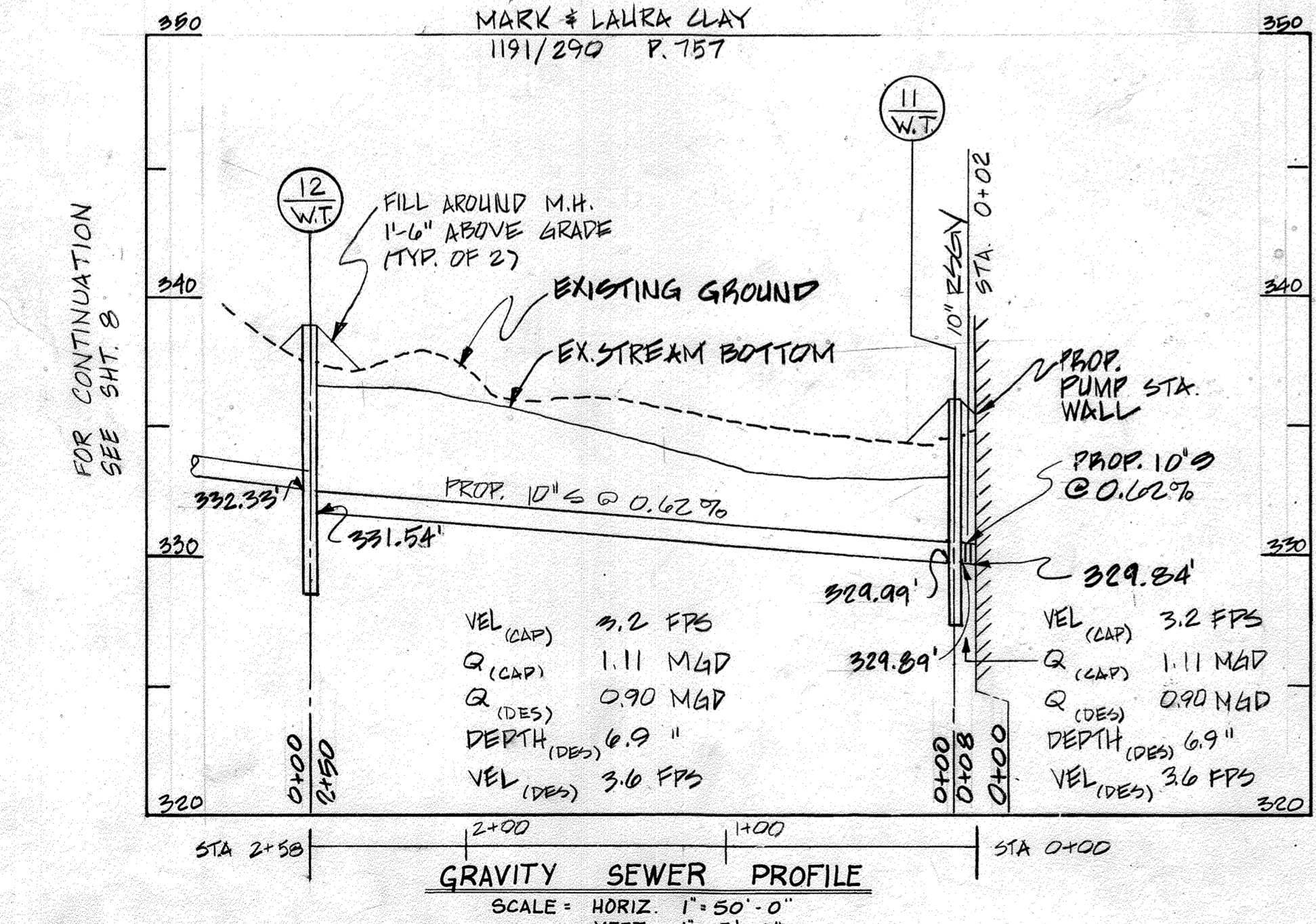
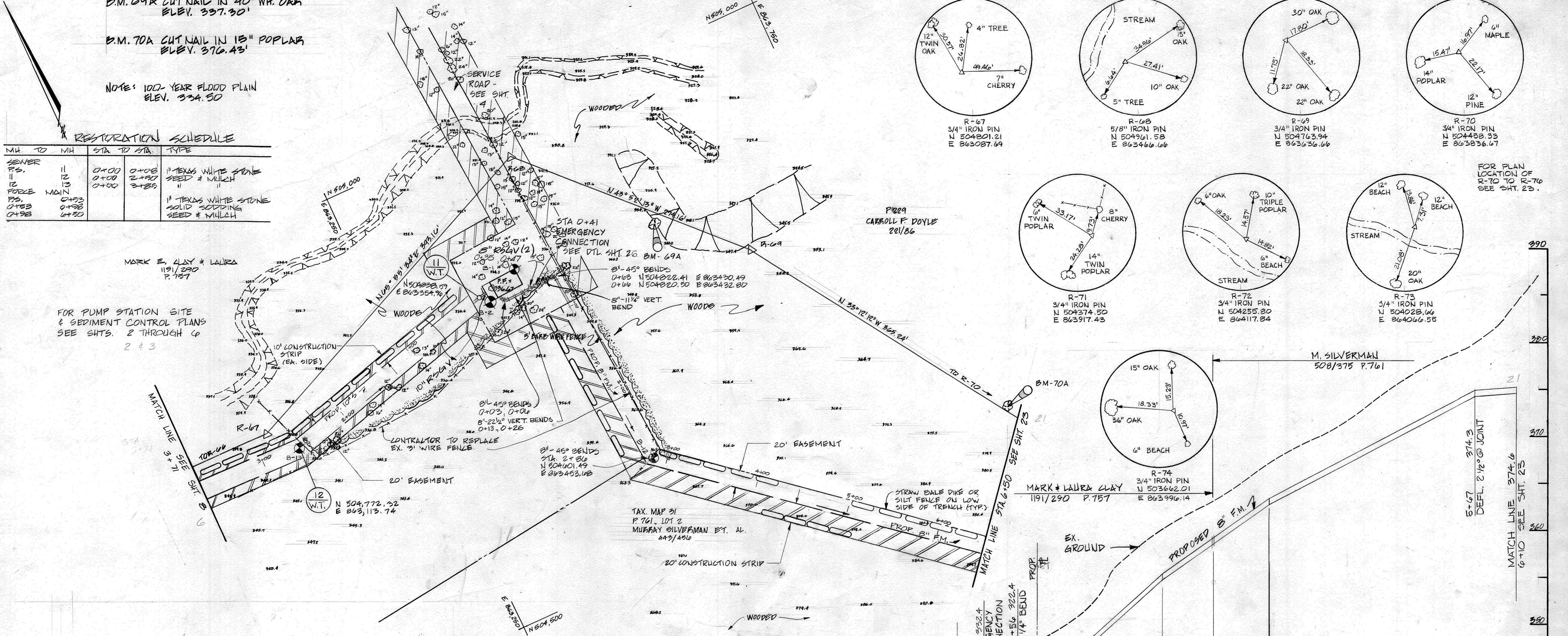
B.M. 70A CUT NAIL IN 15" POPLAR
ELEV. 316.43'

NOTE: 100-YEAR FLOOD PLAN
ELEV. 334.50

RESTORATION SCHEDULE

MH TO MH	STA TO STA	TYPE
SEWER PS. 11	0+00	11" TEXAS WHITE STONE SEED & MULCH
12	0+00	12" TEXAS WHITE STONE SEED & MULCH
FORCE MAIN	0+00	11" TEXAS WHITE STONE SEED & MULCH
PS. 0+98	0+98	11" TEXAS WHITE STONE SEED & MULCH
PS. 0+98	0+98	11" TEXAS WHITE STONE SEED & MULCH

FOR PUMP STATION SITE & SEDIMENT CONTROL PLANS SEE SHTS. 2 THROUGH 4



NOTE 1: ALL DIRECT BURIED VALVES SHALL BE PROVIDED WITH STANDARD ADJUSTABLE VALVE BOX AND COVER INDICATING "SEWER". OPERATING STEMS SHALL BE PROVIDED WITH A LAP ENGRAVED WITH A TURNING DIRECTION ARROW AND WITH THE LETTER "S" IN PLAIN VIEW. THE STEM SHALL BE EXTENDED TO 6" BELOW FINISHED GRADE. THE VALVES SHALL OPEN LEFT.

NOTE: SURVEY DATE 10/29/84

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-26-87
3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



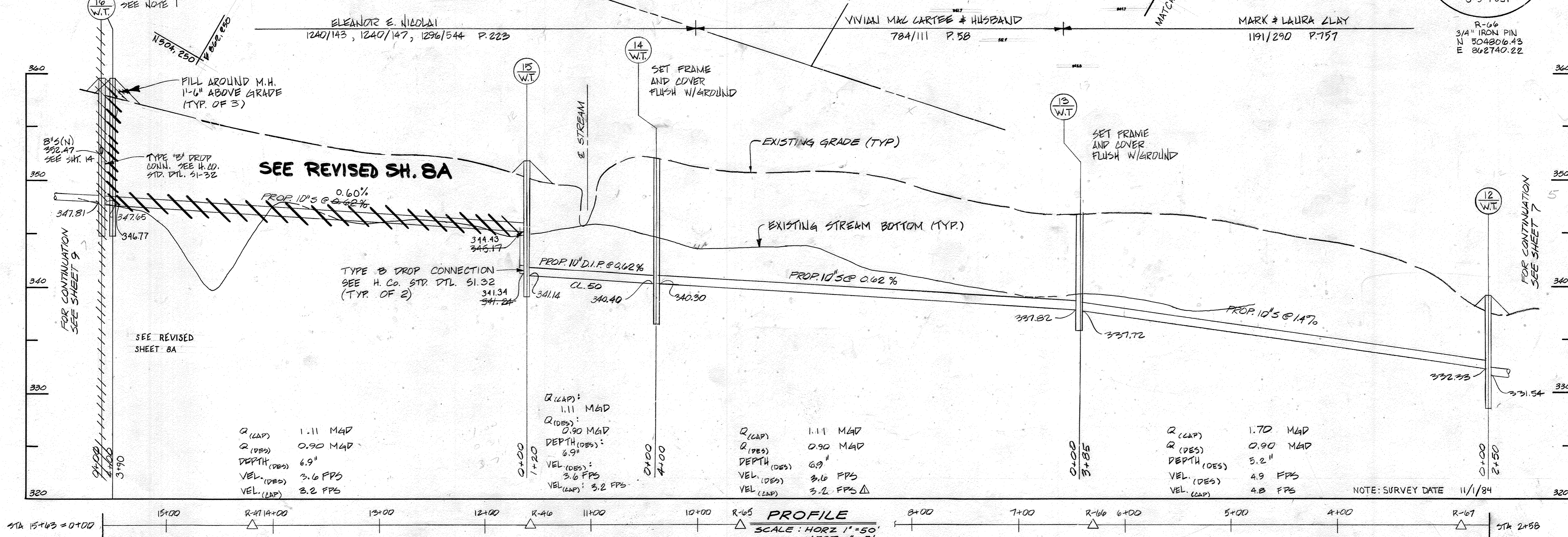
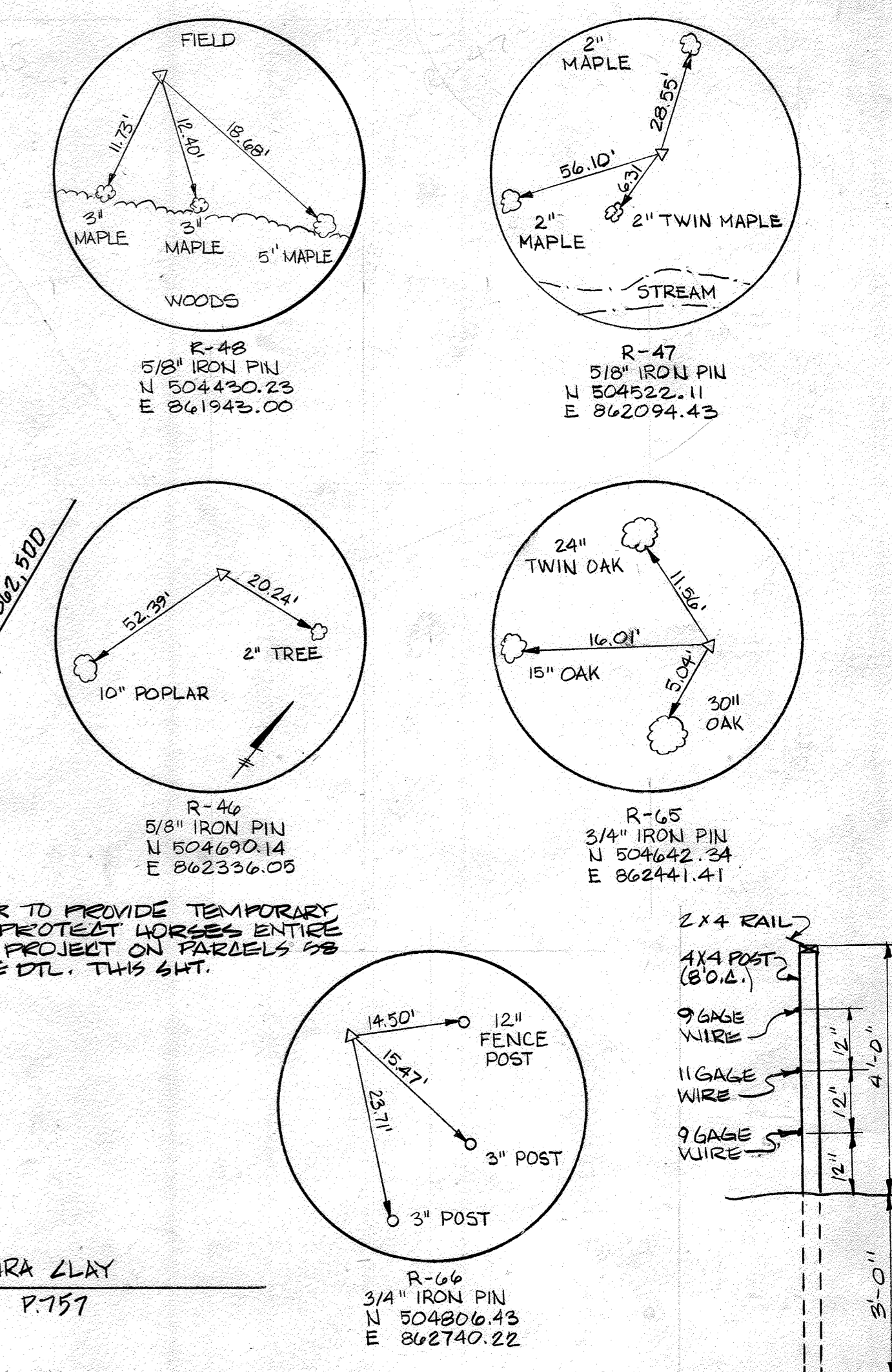
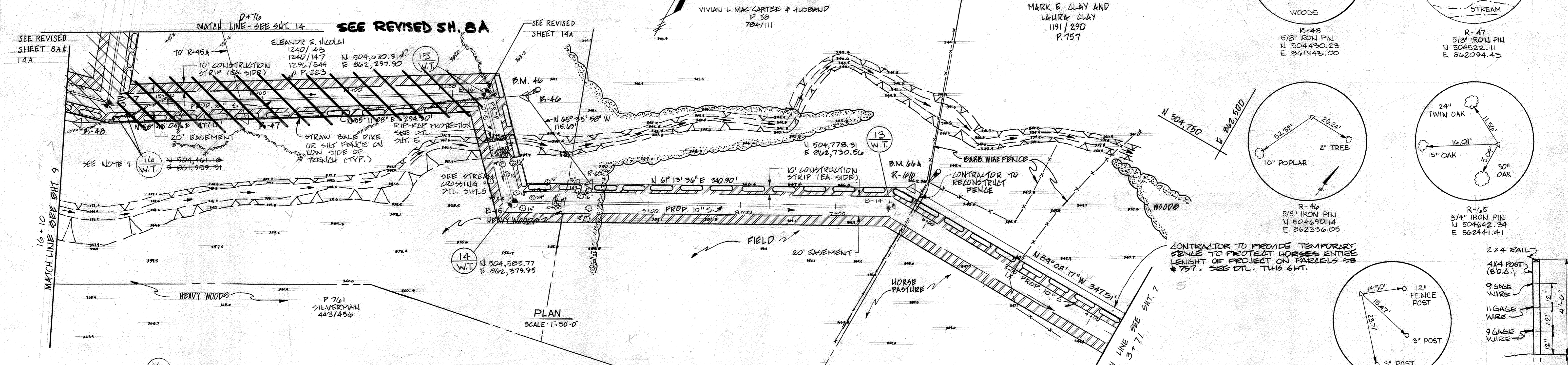
DES: C.B.
DRN: C.M.
CHK: C.B.
DATE: 5/24/85

PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

SCALE AS SHOWN
SHEET 7 OF 38
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

BENCH MARK 66-A: SPIKE IN 12" DOR. FENCE POST. ELEV. 345.69
 BENCH MARK 46: 5/8" IRON PIN (TRANSVERSE POINT). ELEV. 343.83

RESTORATION SCHEDULE					
MIL	TO MIL	STA	TO STA	TYPE	
13	14	0+00	4+00	SEED # MULCH	
14	15	0+00	0+50	"	
		0+50	0+75	RIP-RAP	
		0+75	1+20	SEED # MULCH	
15	16	0+00	4+00	"	

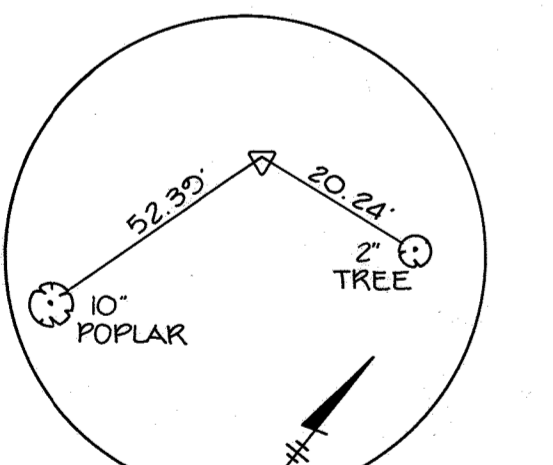
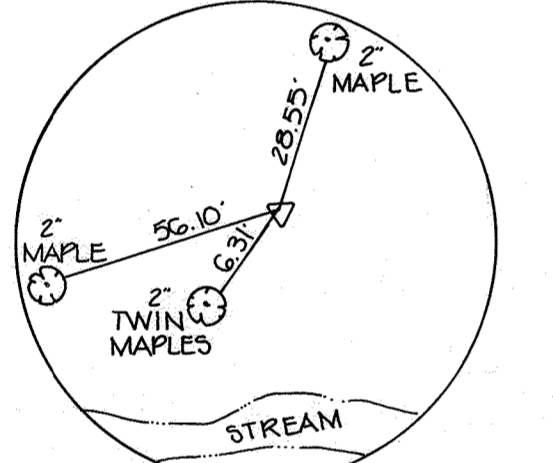
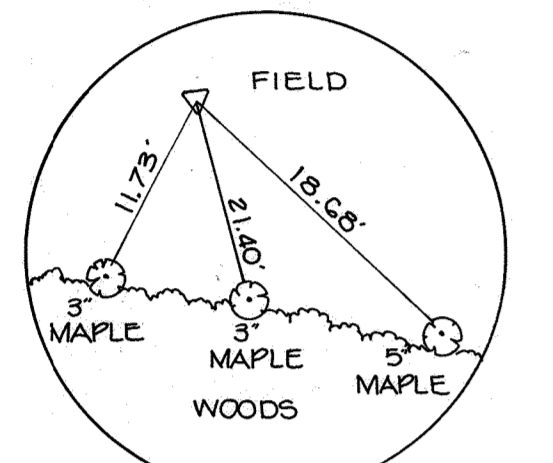
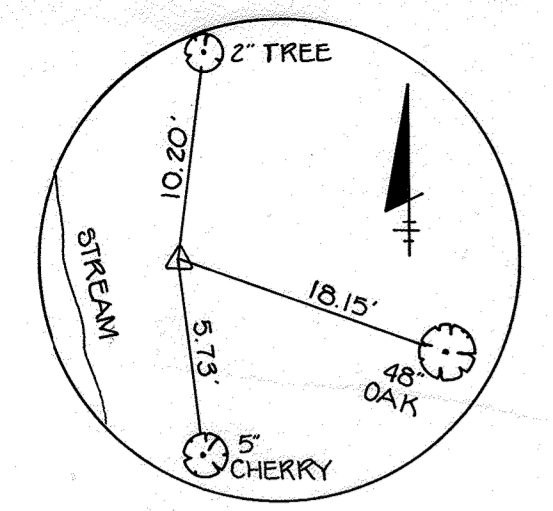
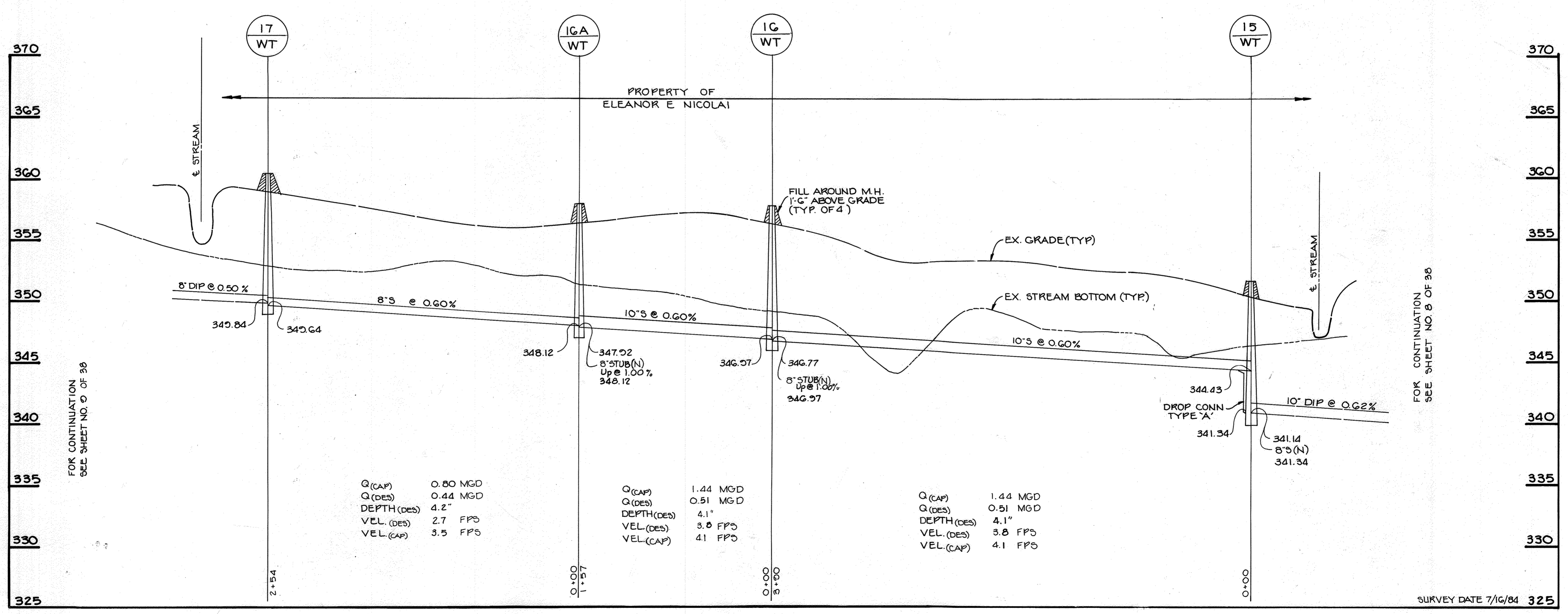
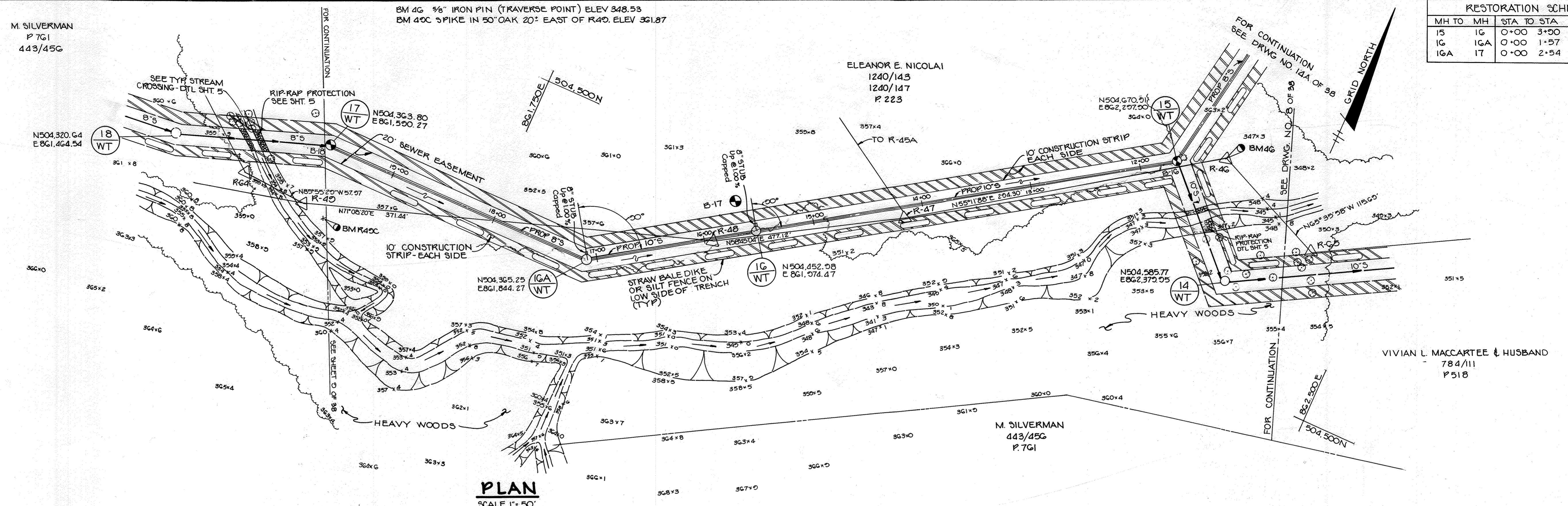


CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>John F. Neuma</i> 3-26-87 DIRECTOR OF PUBLIC WORKS DATE <i>Richard B. ...</i> 3-25-87 CHIEF, BUREAU OF UTILITIES DATE	JOHN E. HARMS, JR & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: C.B.		PIPING PLAN AND PROFILE KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION	KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215	SCALE AS SHOWN SHEET 8 OF 38
			DRN: R.N.T. CHK: C.B. DATE: 5/24/85	REVISION 1. REVISE FLOW DATA			

AS-BUILT 9/16/89

RESTORATION SCHEDULE				
MH TO	MH	STA TO	STA	TYPE
15	1G	0+00	3+00	SEED & MULCH
1G	1GA	0+00	1+57	"
1GA	17	0+00	2+54	"



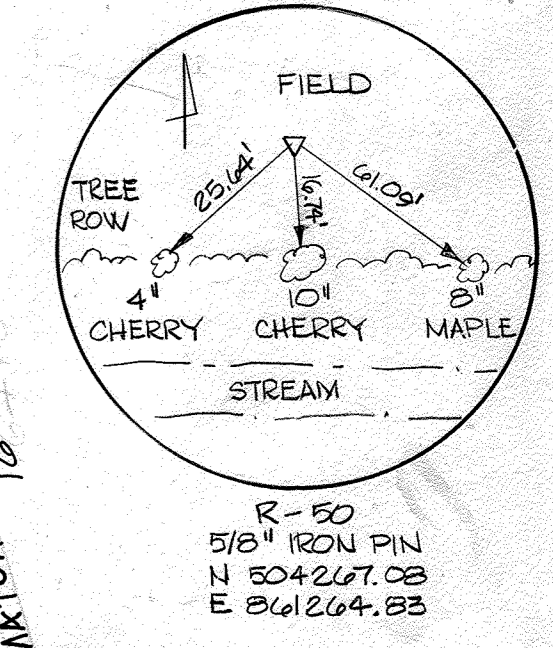
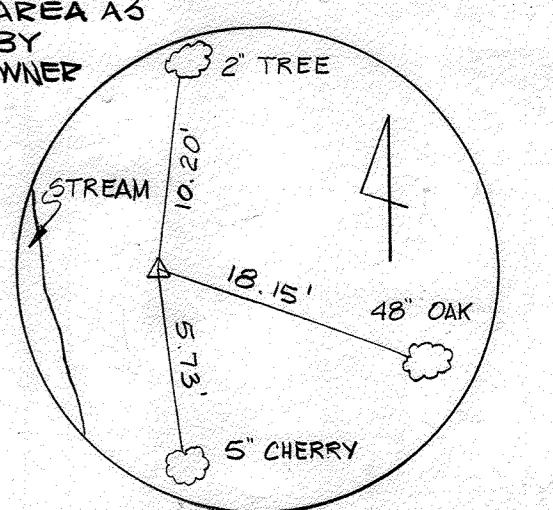
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: Robert M. Beaman Chief Bureau of Utilities: [Signature]	TRACY, SCHULTE & ASSOCIATES INC planning architecture engineering 8480 Baltimore National Pike Suite 418 Ellicott City, Maryland 21043	DES: RJW DRN: SAB CHK: JKT DATE: 4-22-88	PIPING PLAN AND PROFILE KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION	KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215	SCALE AS SHOWN
					SHEET BA. OF 38

B.M. R-52A: SPIKE IN 12" CHERRY 45' ± SOUTH OF R-52, ELEV. 376.29
 B.M. R-49C: SPIKE IN 60" OAK 20' ± EAST OF R-49, ELEV. 361.87

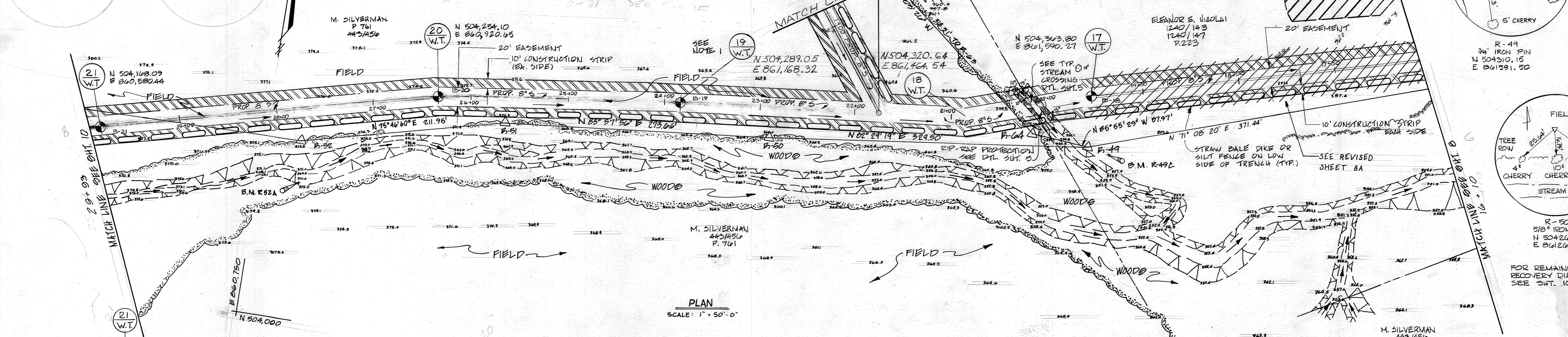
NOTE: 1. PROVIDE VENTED WATER TIGHT MANHOLE INSERT - "SEWERGUARD" BY FREDD INDUSTRIES IN PLACE OF W.T. FRAME & COVER > M.H. 19.

MH TO MH	STA. TO STA.	TYPE
16 17	0+00 3+86	SEED & MULCH
17 18	0+00 0+80	"
	0+50 0+66	RIP-RAP
18 19	0+00 2+07	SEED & MULCH
19 20	0+00 2+50	"
20 21	0+00 3+90	"

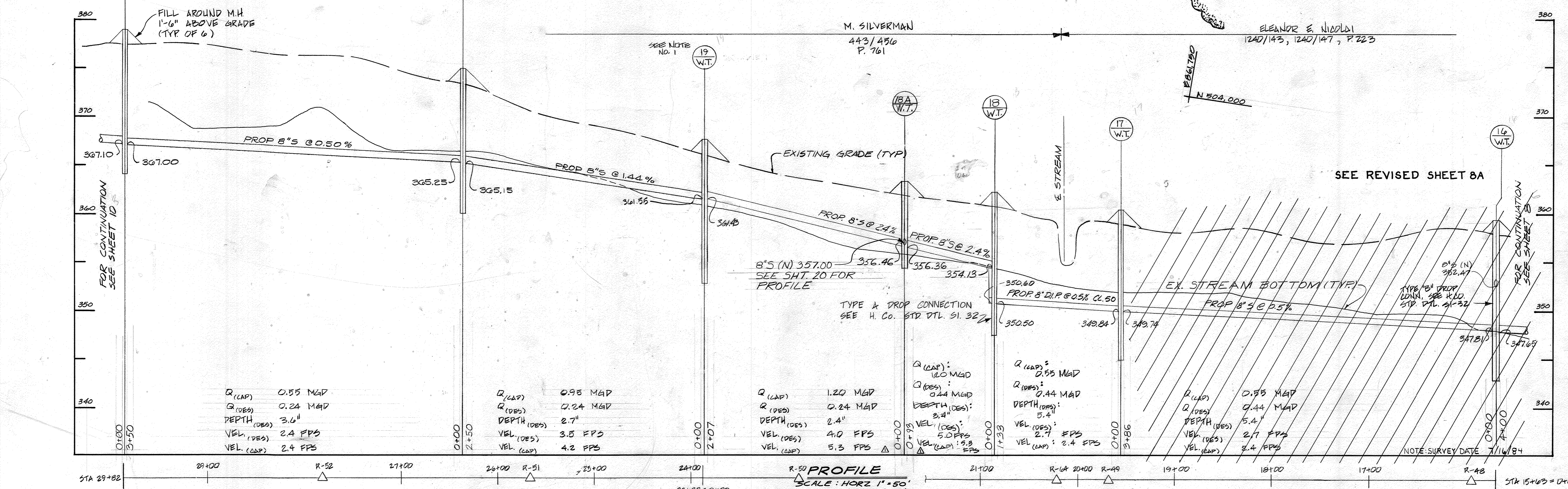
STOCKPILE AREA AS DESIGNATED BY PROPERTY OWNER



FOR REMAINING TRAVERSE RECOVERY DIAGRAMS SEE SHT. 10.



PLAN SCALE: 1" = 50'-0"



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

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John F. Neumy* 3-16-87
 Chief, Bureau of Engineering: *William R. Ray* 3-25-87
 Chief, Bureau of Utilities: *Richard L. Sporn* 3/25/87

JOHNE HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



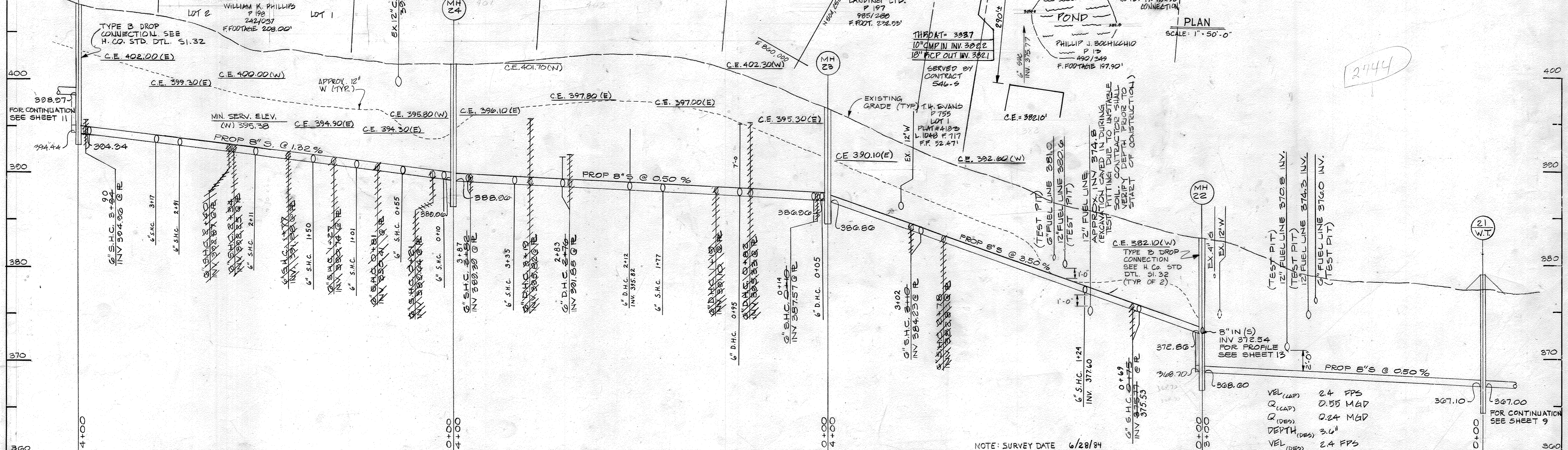
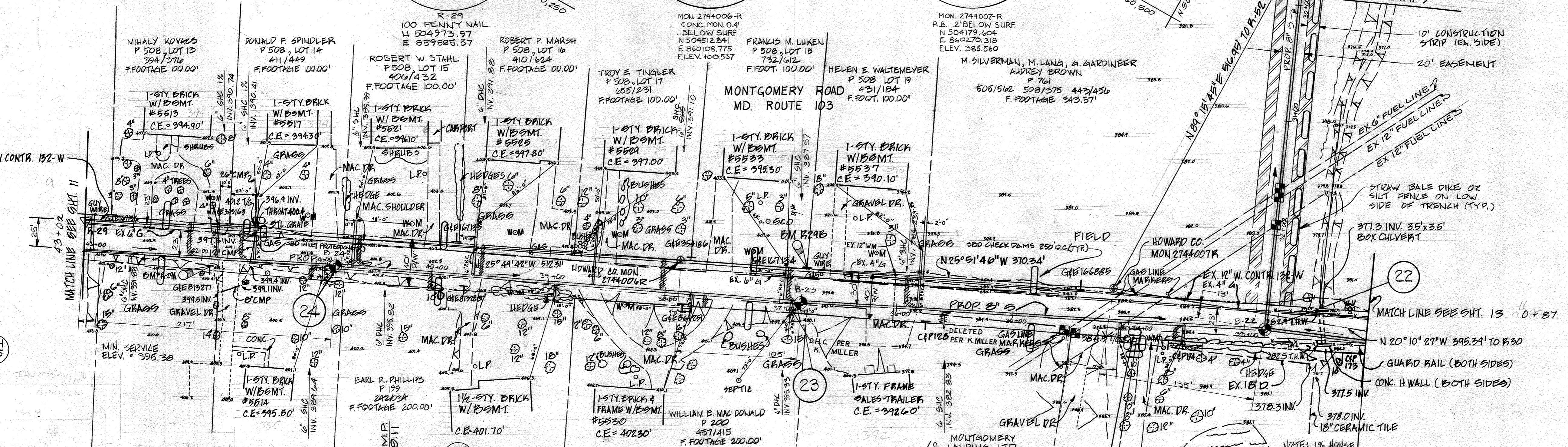
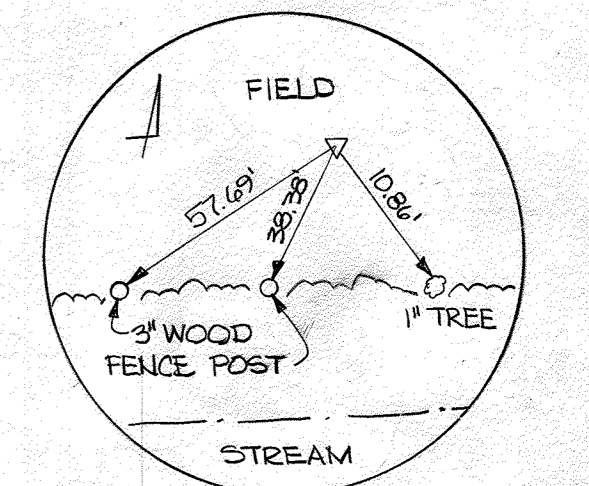
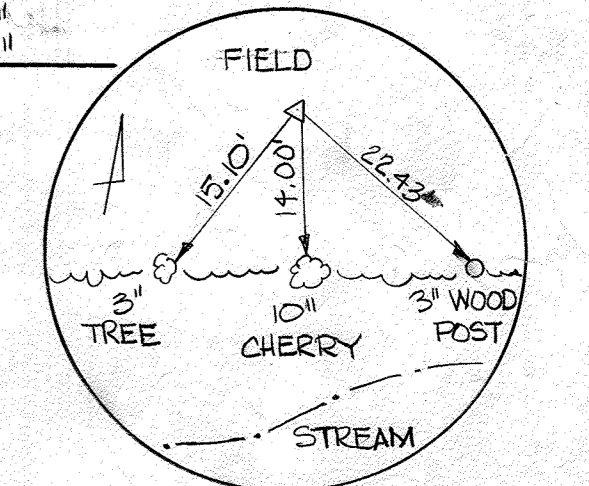
DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
REVISION	NO.
1	REVISE FLOW DATA

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31 BLOCK NO. 21

KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215
 SCALE AS SHOWN
 SHEET 9 OF 38
 AS-BUILT 9/6/89

BENCH MARK R29A; R.R. SPIKE IN G&E 813277 ELEV. 402.29'
 BENCH MARK R29B; CUT NAIL IN G&E 167134 ELEV. 397.49'

MH TO	MH	STA.	STA.	TYPE
21	22	0+00	2+00	SEED & MULLIN ROADWAY - FINISH
		2+00	3+00	SUBGRADE - FINISH, GRAVEL, OR STONE
		3+00	4+00	GRASS - SOLID SODDING
22	23	0+00	4+00	
23	24	0+00	4+00	
24	25	0+00	4+00	



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John F. Nunn* 3-26-87
 Chief, Bureau of Engineering: *William S. Ray* 3-25-87
 Chief, Bureau of Utilities: *John R. ...* 3-25-87
 Chief, Utility Division: *...* 3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND

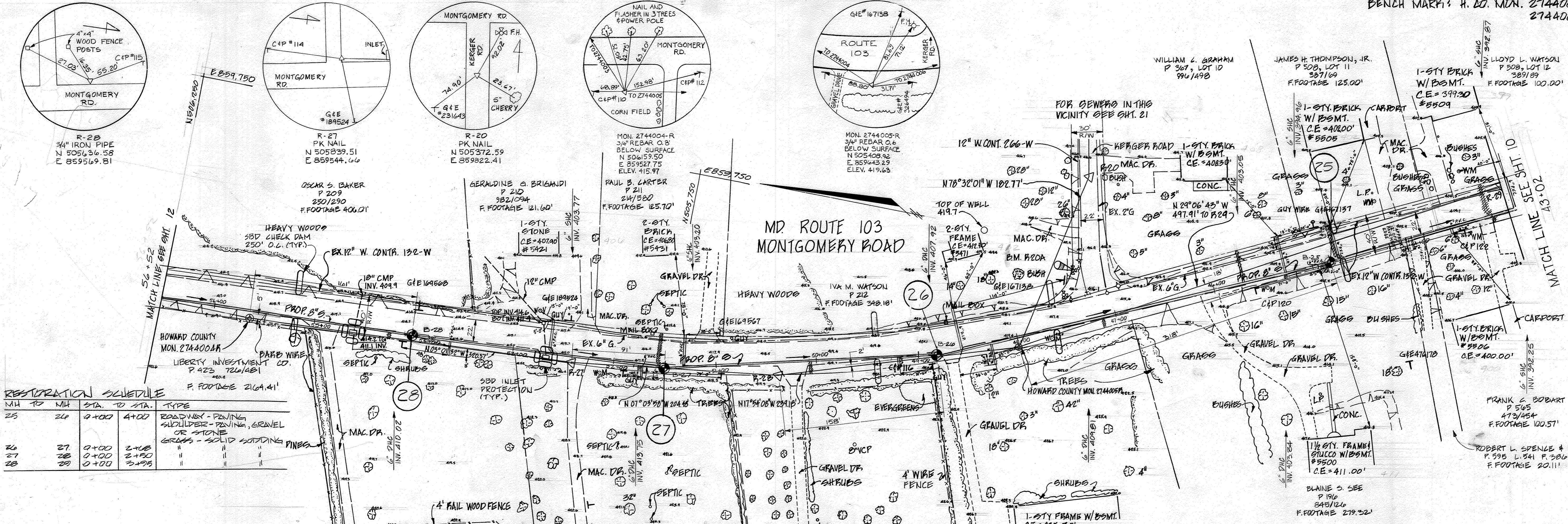


DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: NO.	
REVISION	
DATE	

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31 BLOCK NO. 20, 21

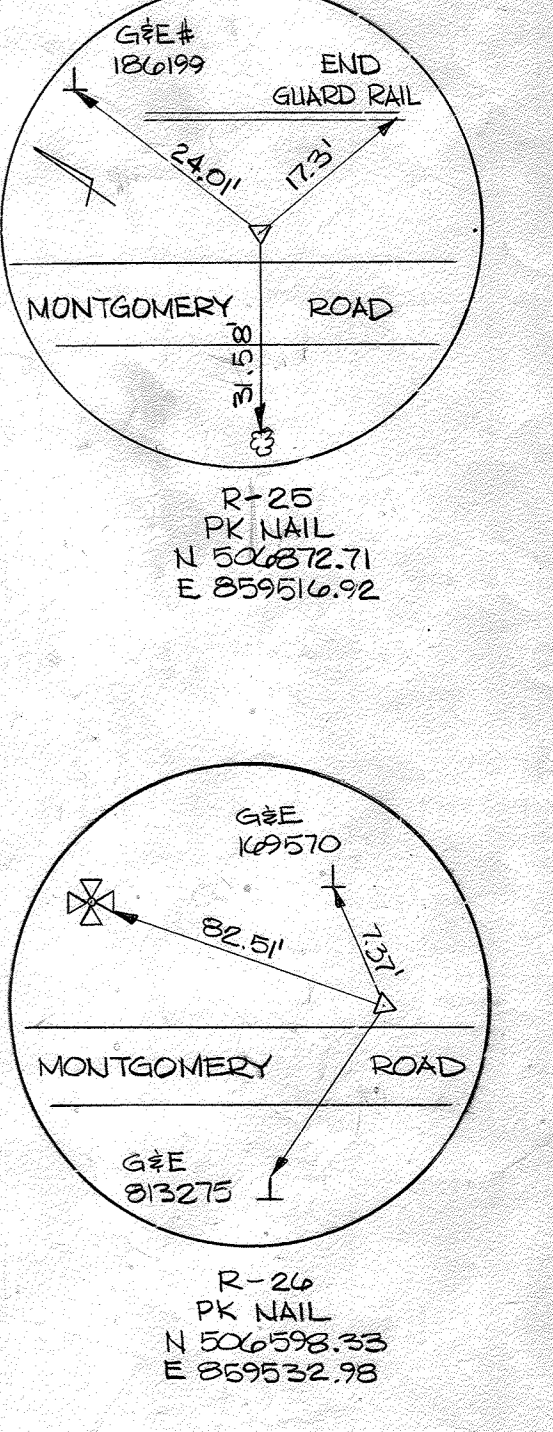
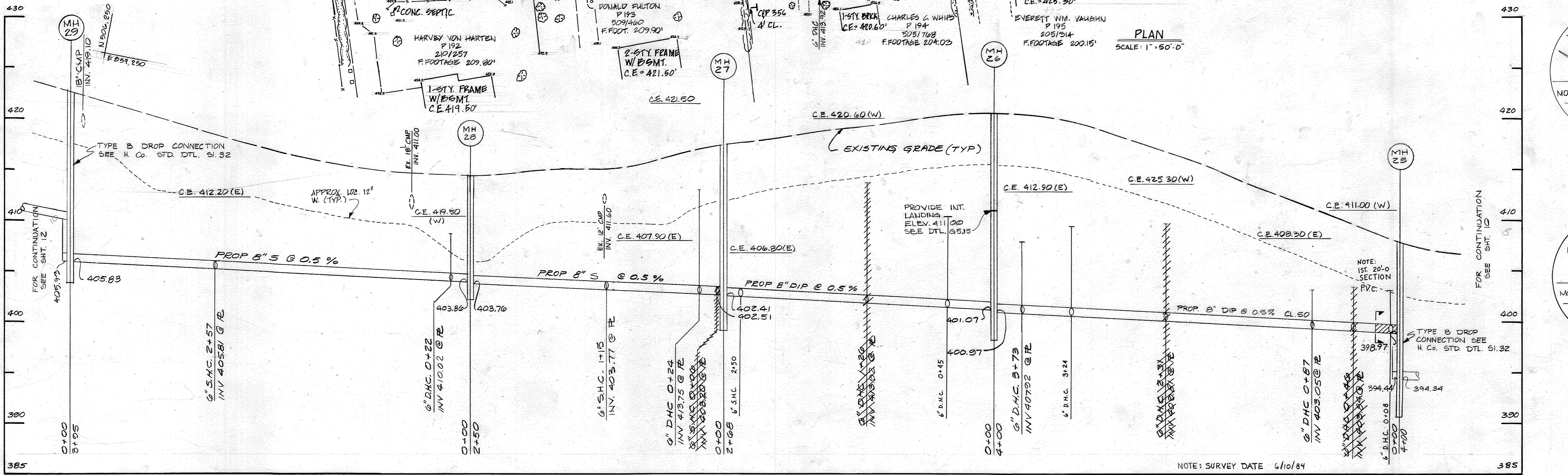
KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215
 SCALE AS SHOWN
 SHEET 10 OF 38
 AS-BUILT 9/6/89

BENCH MARK B20K; KEY NUT P.H. ELEV. 419.29
 BENCH MARKS: H. DO. MON. 2744004-R ELEV. 415.97
 2744005-R ELEV. 415.63



RESTORATION SCHEDULE

MH TO	MH TO	STA. TO STA.	TYPE
25	26	2+00 4+00	ROADWAY - PAVING SLOTTED CURB - GRANITE, GRAVEL OR STONE GRASS - SOLID SODDING PINES
26	27	0+00 2+00	"
27	28	0+00 2+00	"
28	29	0+00 2+00	"



NOTE: SURVEY DATE 6/10/84

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

W. F. Nease 3-26-87
 DIRECTOR PUBLIC WORKS DATE

William R. Ray 3-25-87
 CHIEF, BUREAU OF ENGINEERING DATE

Richard D. ... 3-25-87
 CHIEF, BUREAU OF UTILITIES DATE

Donald ... 3/25/87
 CHIEF, UTILITY DIVISION DATE

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY NO.	REVISION

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMP STATION

600' SCALE MAP NO. 31 BLOCK NO. 20

KERGER ROAD COLLECTION SYSTEM AND PUMP STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

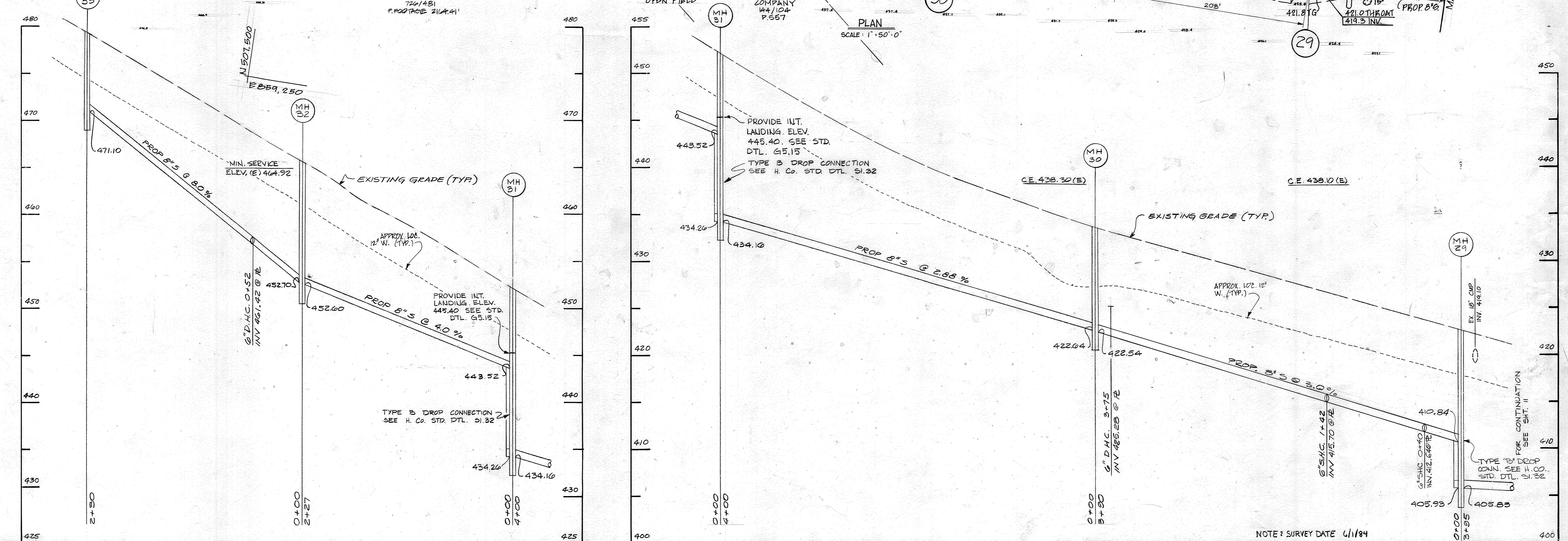
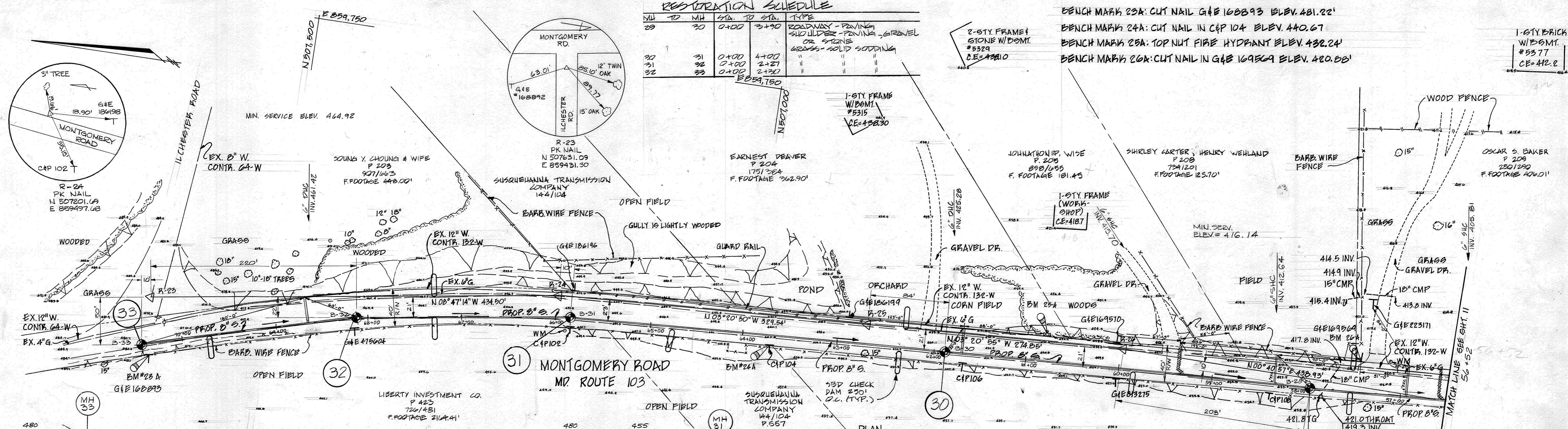
SCALE AS SHOWN
 SHEET 11 OF 38

AS-BUILT 9/6/89

MH TO	MH	STA.	TO STA.	TYPE
29	30	0+00	2+90	ROADWAY - PAVING SHOULDER - PAVING - GRAVEL OR STONE GRASS - SOLID SODDING
30	31	0+00	4+00	"
31	32	0+00	2+27	"
32	33	0+00	2+27	"

BENCH MARK 23A: CUT NAIL G#E 168893 ELEV. 481.22'
 BENCH MARK 24A: CUT NAIL IN C&P 104 ELEV. 440.67
 BENCH MARK 25A: TOP NUT FIRE HYDRANT ELEV. 432.24'
 BENCH MARK 26A: CUT NAIL IN G#E 169509 ELEV. 420.88'

1-STY. BRICK
 W/DOMT.
 #5377
 C.E. 412.2



PLAN SCALE: 1" = 50'-0"

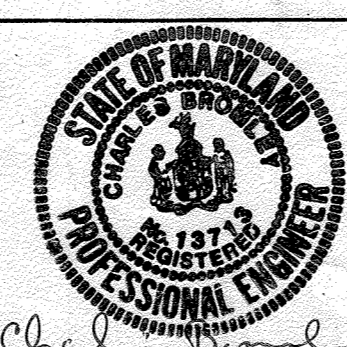
PROFILE SCALE: HORIZ 1" = 50' VERT 1" = 5'

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

NOTE: SURVEY DATE 6/1/84
 CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director: *John F. Nunn* 3-26-87
 Chief, Bureau of Engineering: *William B. Ray* 3-25-87
 Chief, Bureau of Utilities: *Robert J. ...* 3-25-87
 Chief, Utility Division: *...* 3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY NO.	
REVISION	
DATE	

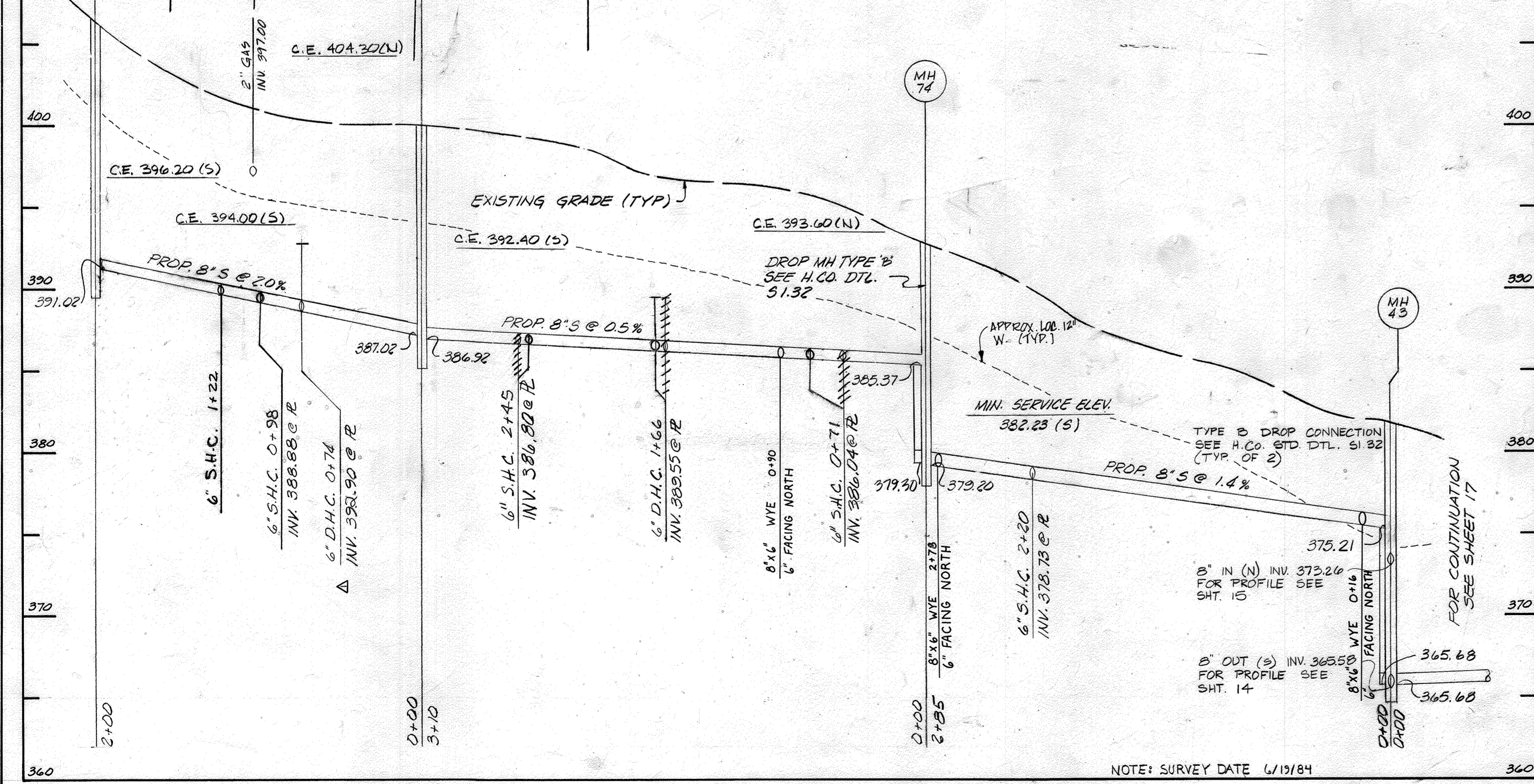
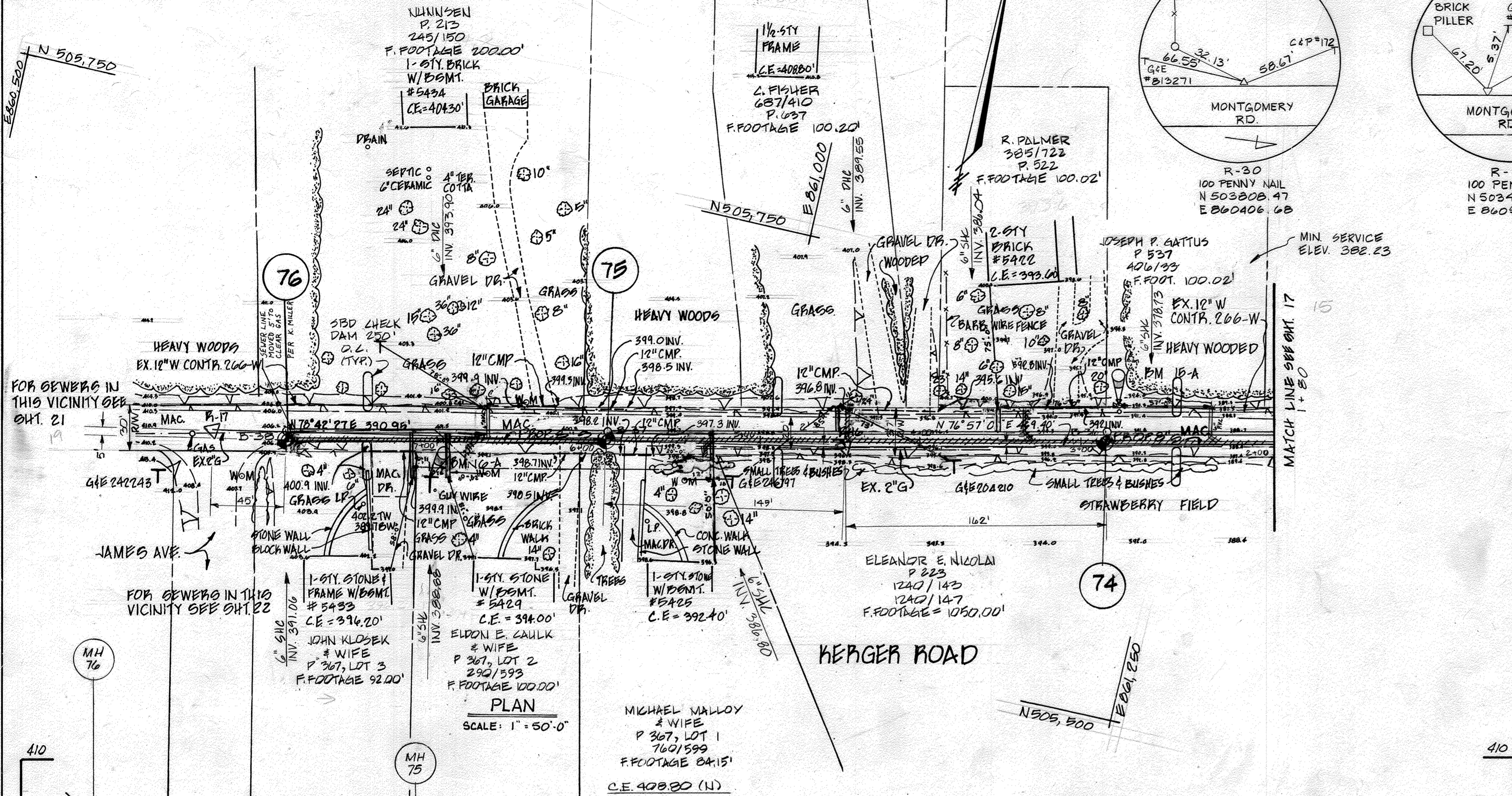
PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31 BLOCK NO. 14,20

KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

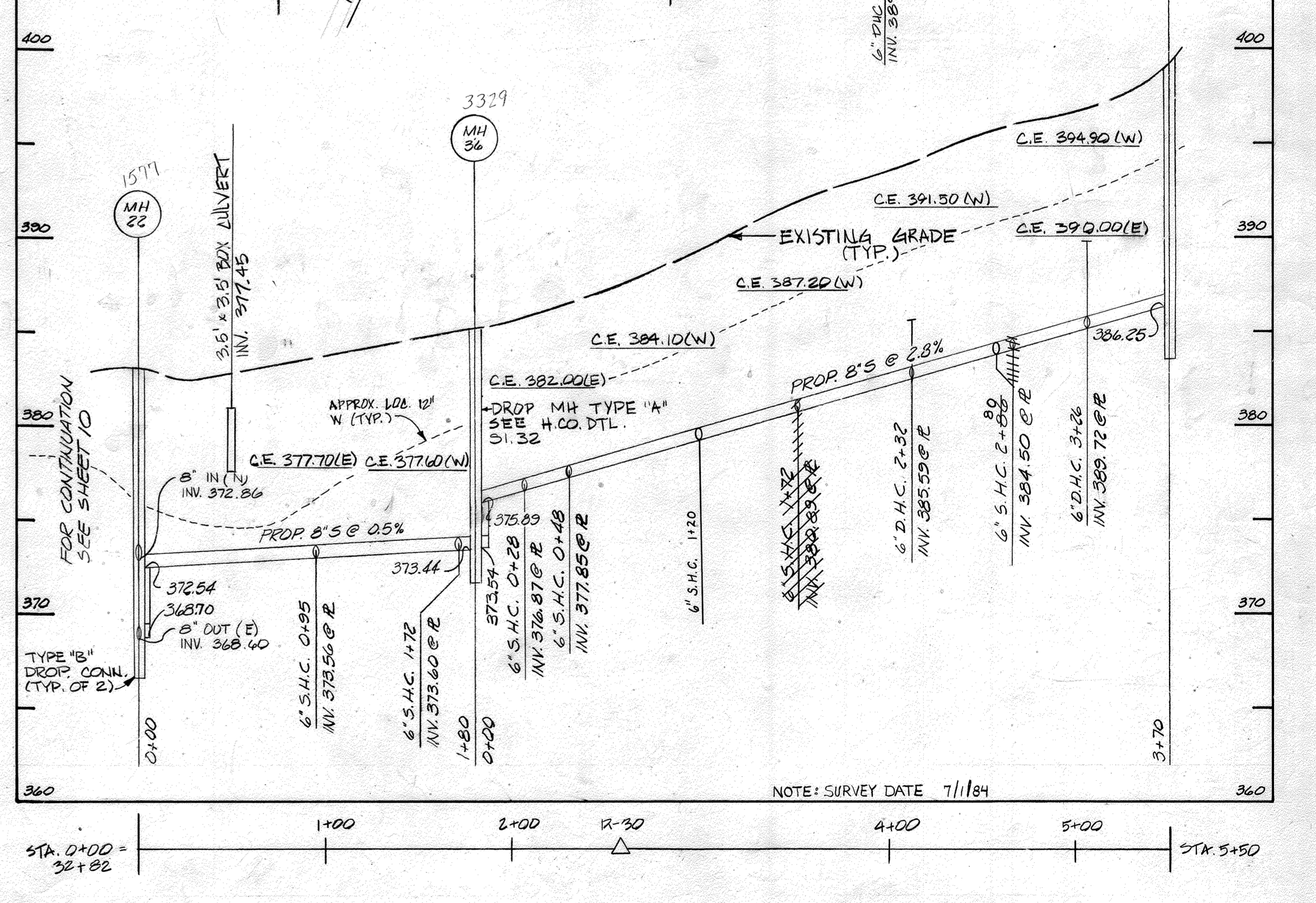
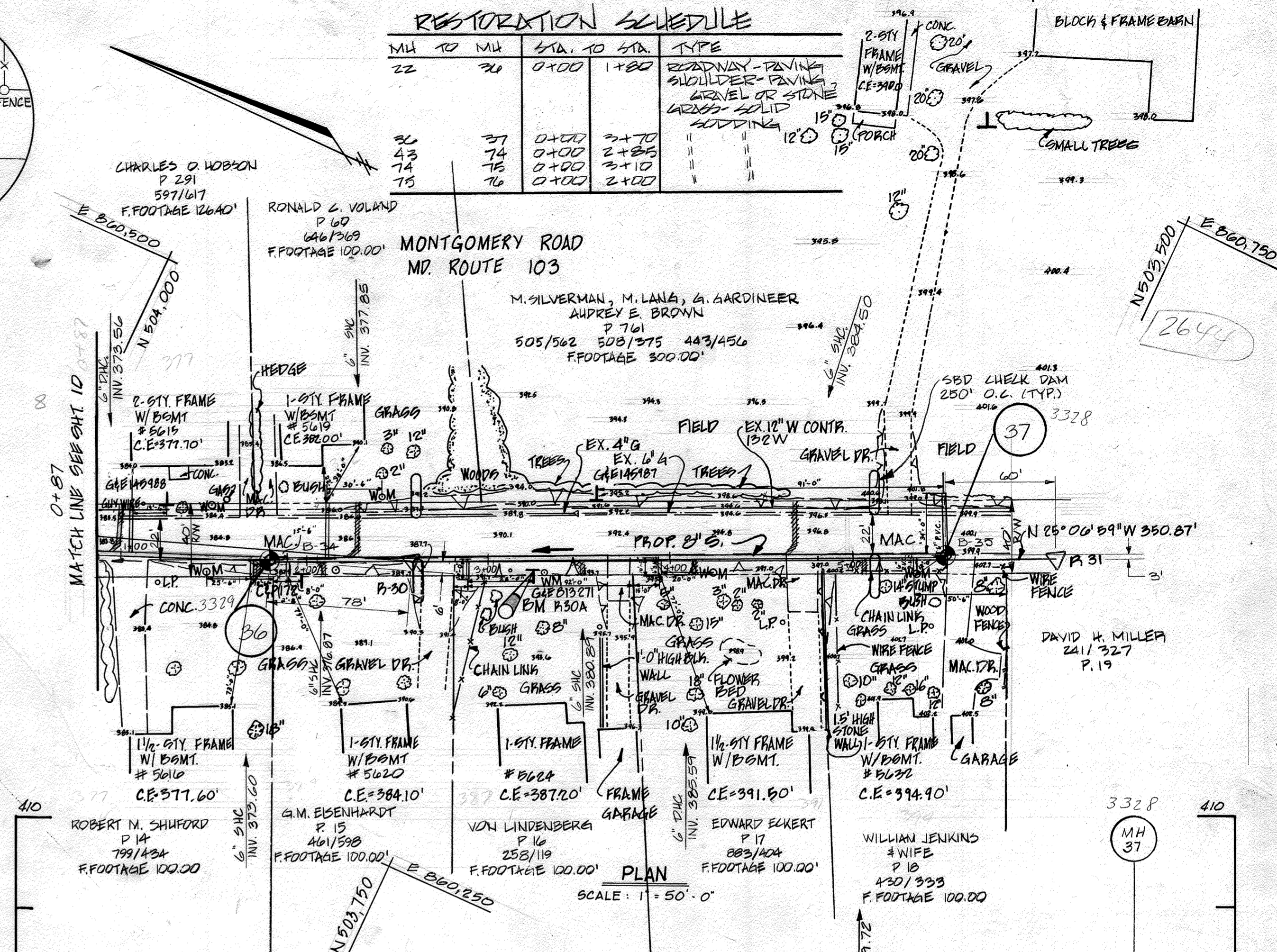
SCALE AS SHOWN
 SHEET 12 OF 38

BENCH MARK 16A; R.P. SPIKE G&E 244091 ELEV. 400.36'
 BENCH MARK 15A; KEY NUT FIRE HYDRANT ELEV. 394.81'

BENCH MARK 130A; CUT NAIL IN G&E 815271 ELEV. 392.91'



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



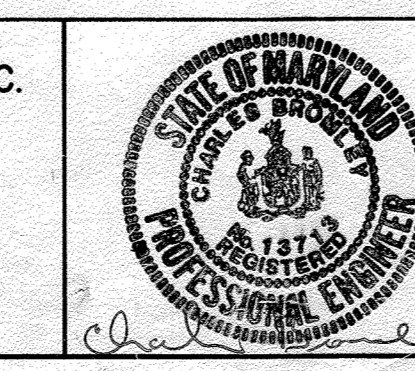
PROFILE
 SCALE: HORIZ 1"=50'
 VERT 1"=5'

RESTORATION SCHEDULE

MH TO MH	STA. TO STA.	TYPE
22	26	0+00 1+80
26	27	0+00 2+70
27	28	0+00 2+85
28	29	0+00 3+10
29	30	0+00 2+00

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *Robert W. Reinger* 3-25-87
 Chief, Bureau of Utilities

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND

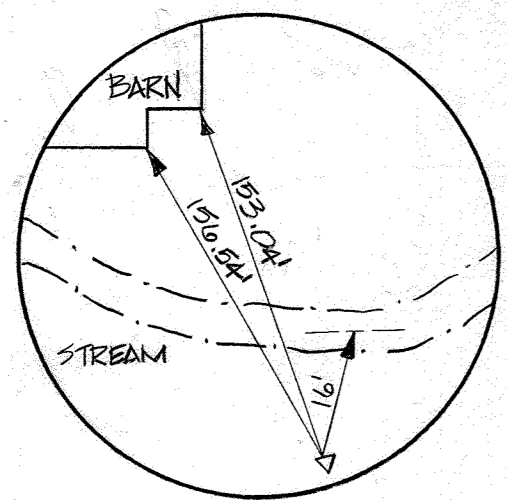


DES: C.B.	DATE: 5/24/85
DRN: W.M.M.	BY: [Signature]
CHK: C.B.	NO. []
DATE: 5/24/85	REVISION: REVISE ELEV. OF PROP HOUSE CONNECTION

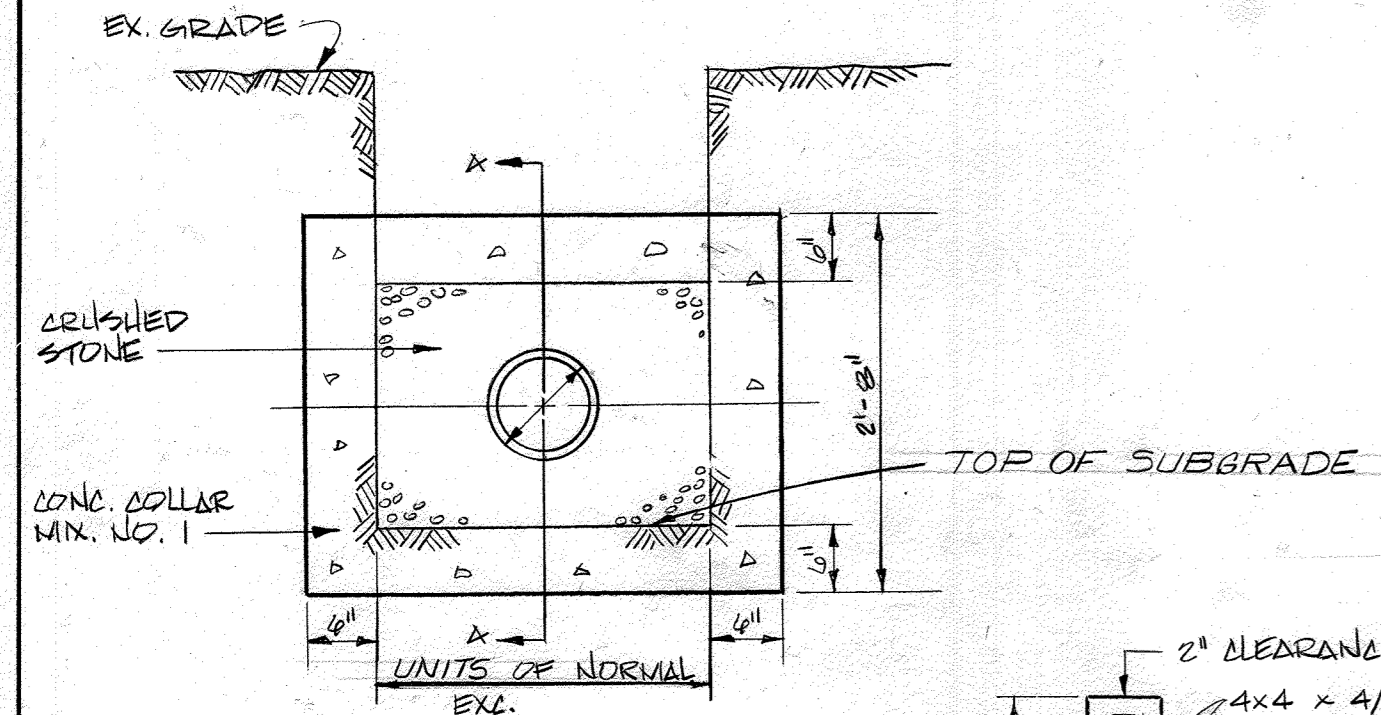
PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31:37 BLOCK NO. 21:3

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215
 SCALE AS SHOWN
 SHEET 13 OF 38
 AS-BUILT 9/6/89

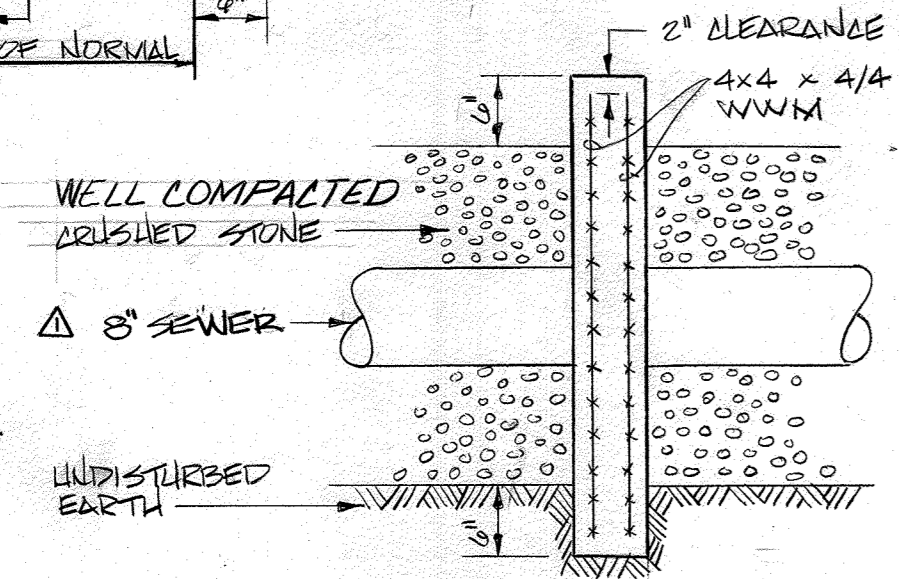
BENCH MARK 44: 5/8" IRON PIN (TRANSVERSE POINT) ELEV. 363.53
 BENCH MARK 45A: 5/8" IRON PIN (TRANSVERSE POINT) ELEV. 377.24



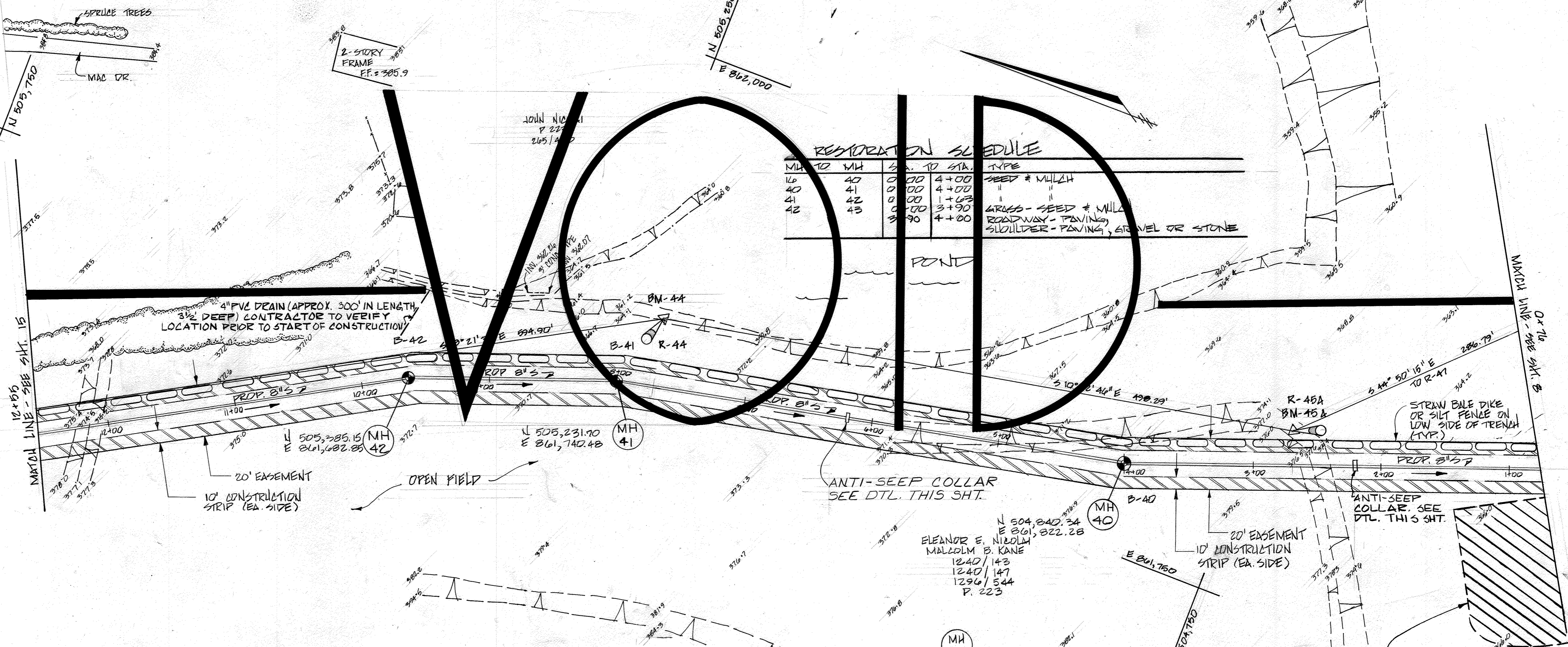
R-44
 5/8" IRON PIN
 U 505214.81
 E 261792.17



CONC. ANTI-SEEP COLLAR
 NOT TO SCALE



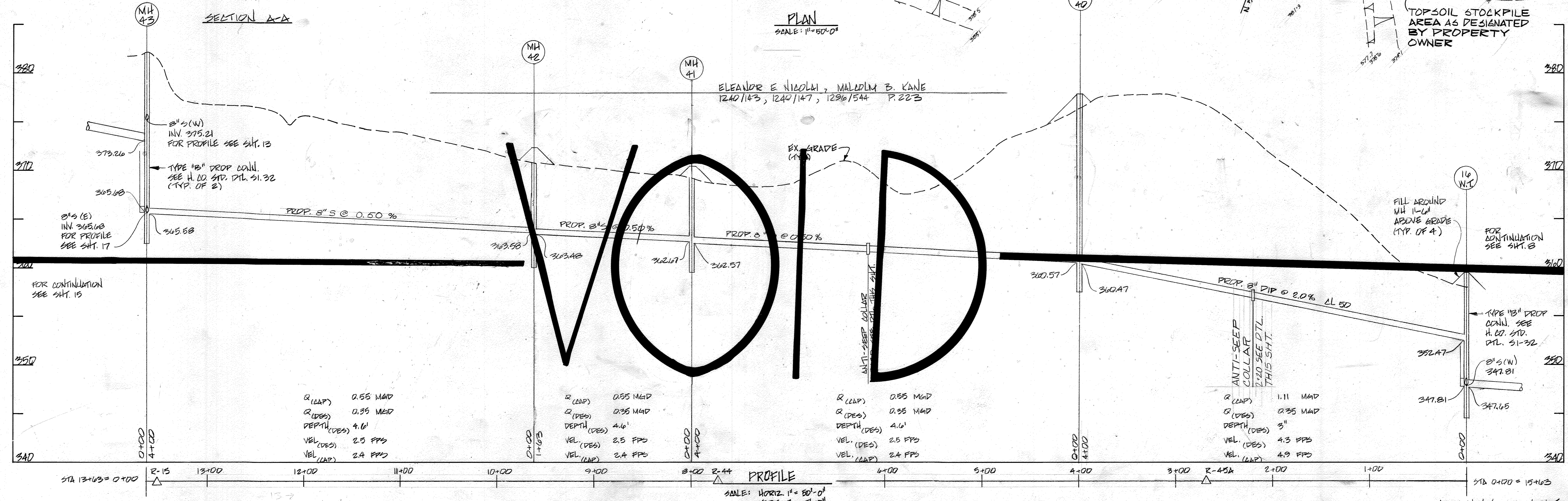
SECTION A-A



PLAN
 SCALE: 1" = 50'-0"

RESTORATION SCHEDULE

MH TO MH	STA. TO STA.	TYPE
40	4+00	SEED & MULCH
41	4+00	SEED & MULCH
42	4+00	GRASS - SEED & MULCH
43	4+00	ROADWAY - PAVING
42	4+00	SHOULDER - PAVING, GRAVEL OR STONE



PROFILE
 SCALE: HORIZ. 1" = 50'-0"
 VERT. 1" = 5'-0"

R (LAP)	0.55 MGD
R (DES)	0.35 MGD
DEPTH (DES)	4.6'
VEL. (DES)	2.5 FPS
VEL. (LAP)	2.4 FPS

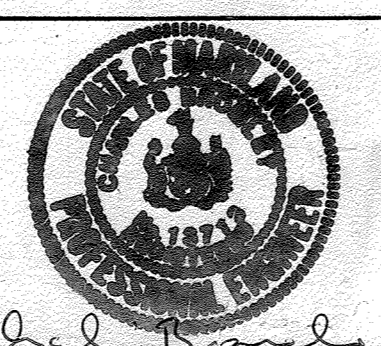
R (LAP)	0.55 MGD
R (DES)	0.35 MGD
DEPTH (DES)	4.6'
VEL. (DES)	2.5 FPS
VEL. (LAP)	2.4 FPS

R (LAP)	0.55 MGD
R (DES)	0.35 MGD
DEPTH (DES)	4.6'
VEL. (DES)	2.5 FPS
VEL. (LAP)	2.4 FPS

R (LAP)	1.11 MGD
R (DES)	0.35 MGD
DEPTH (DES)	3'
VEL. (DES)	4.3 FPS
VEL. (LAP)	4.9 FPS

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 3-26-87
 DATE
 CHIEF, BUREAU OF UTILITIES

JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



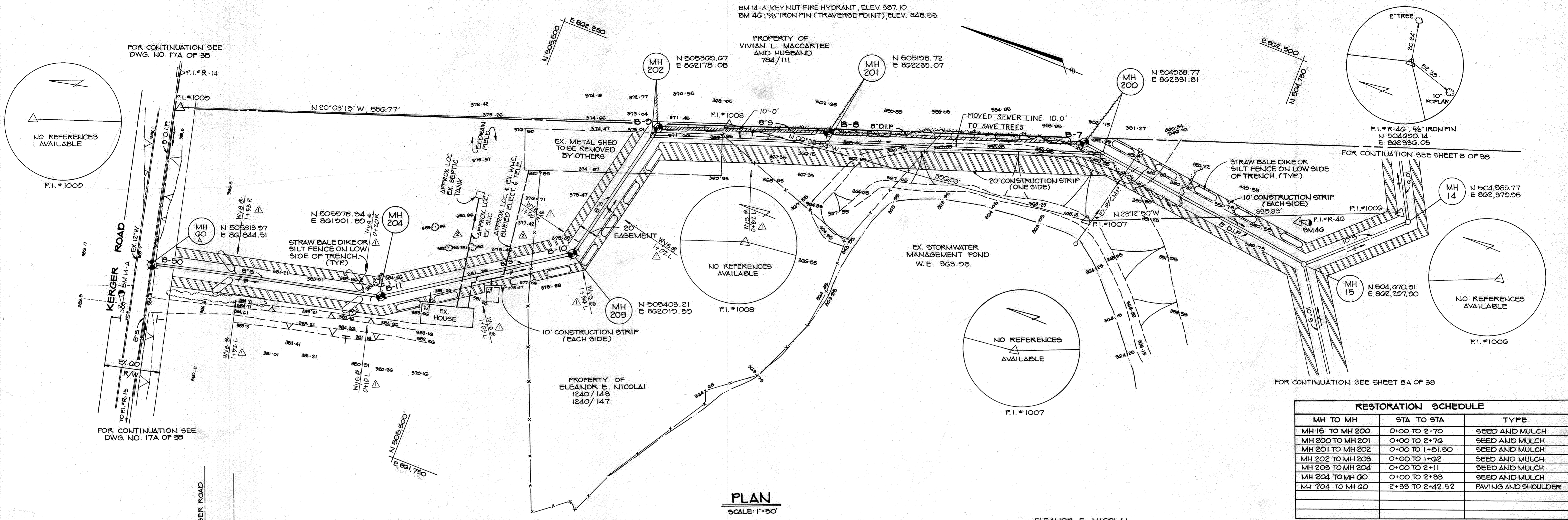
DES:	C.B.
DRN:	L.F.
CHK:	C.B.
DATE:	5/11/85
BY:	
NO.	
REVISION:	REVISE ANTI-SEEP COLLAR DETAIL
DATE:	

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

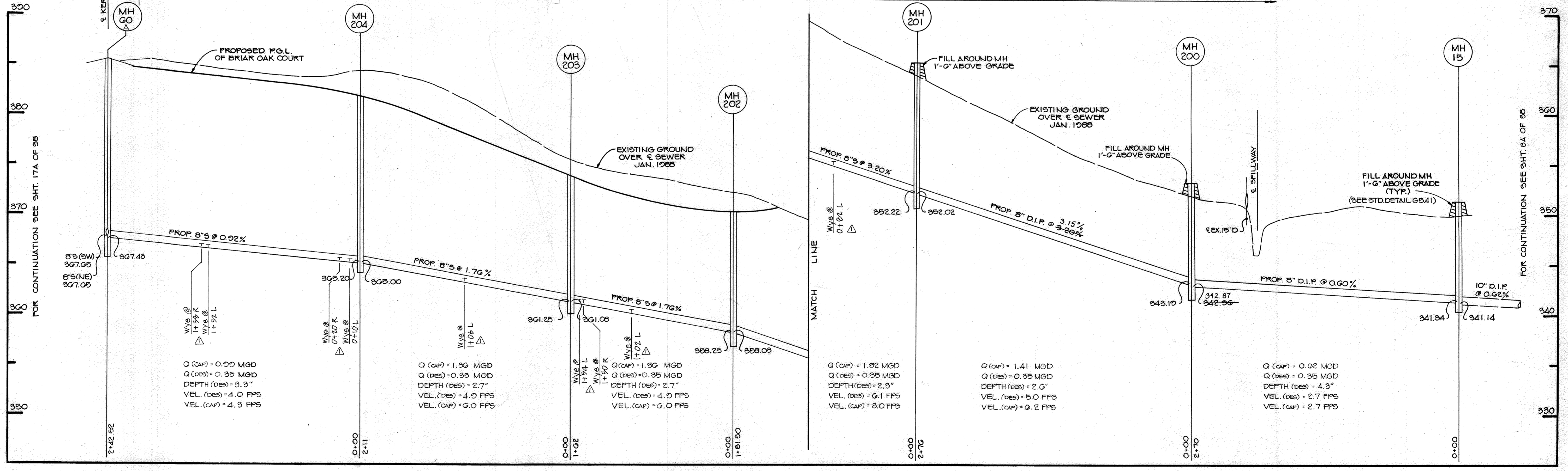
KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

SCALE AS SHOWN
 SHEET 14 OF 38

AS-BUILT 9/6/89



RESTORATION SCHEDULE		
MH TO MH	STA TO STA	TYPE
MH 15 TO MH 200	0+00 TO 2+70	SEED AND MULCH
MH 200 TO MH 201	0+00 TO 2+76	SEED AND MULCH
MH 201 TO MH 202	0+00 TO 1+01.50	SEED AND MULCH
MH 202 TO MH 203	0+00 TO 1+02	SEED AND MULCH
MH 203 TO MH 204	0+00 TO 2+11	SEED AND MULCH
MH 204 TO MH 00	0+00 TO 2+33	SEED AND MULCH
MH 204 TO MH 00	2+33 TO 2+42.52	PAVING AND SHOULDER



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

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James M. Sholes
DIRECTOR OF PUBLIC WORKS
DATE: 5-10-88

William J. Ryan
CHIEF, BUREAU OF ENGINEERING
DATE: 5/10/88

Michael J. ...
CHIEF, UTILITY DIVISION

TRACY, SCHULTE & ASSOCIATES INC.
planning architecture engineering
8480 Baltimore National Pike Suite 418
Ellicott City, Maryland 21043

Tracy Schulte

DES: J.L.R.			
DRN: J.L.R.			
CHK: R.J.W.	ADDED EX. SHC & EX. W/LC INFO.	JULY 2/88	
DATE: 5-2-88	Y.P. APP. WYS (BY C.I.P.)	6/3/88	
BY NO.	REVISION	DATE	

PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

600' SCALE MAP NO. 31 BLOCK NO. 21

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

CAPITAL PROJECT 5-G089

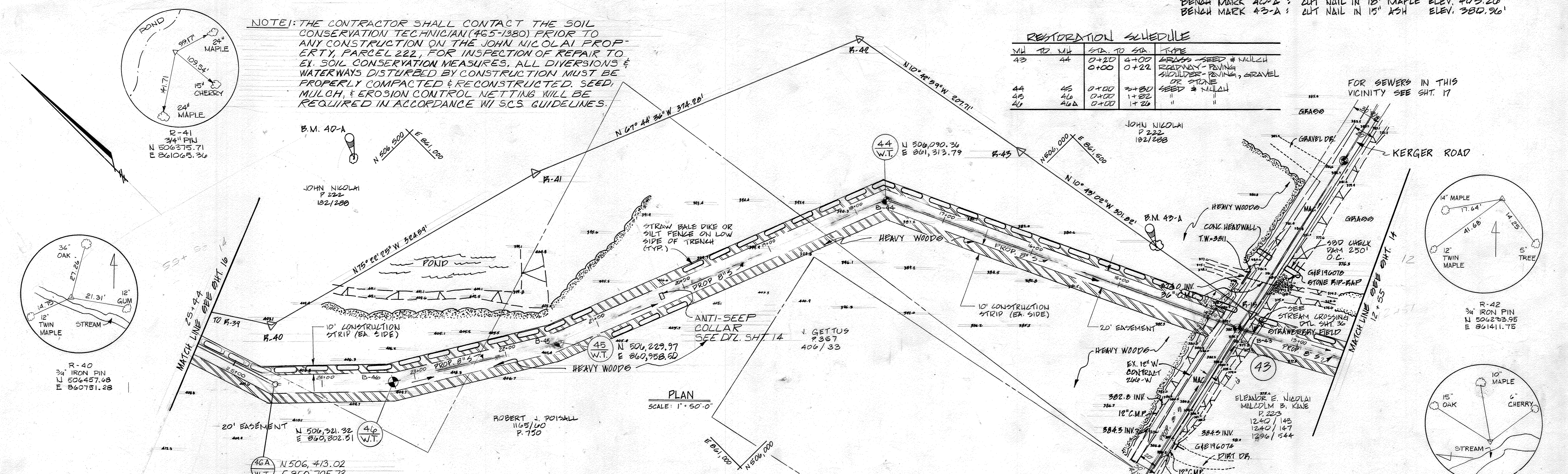
SCALE AS SHOWN
SHEET 14A OF 38
AS-BUILT 9/6/89

BENCH MARK 40-A : DIT NAIL IN 18" MAPLE ELEV. 403.20'
 BENCH MARK 43-A : DIT NAIL IN 15" X5H ELEV. 380.96'

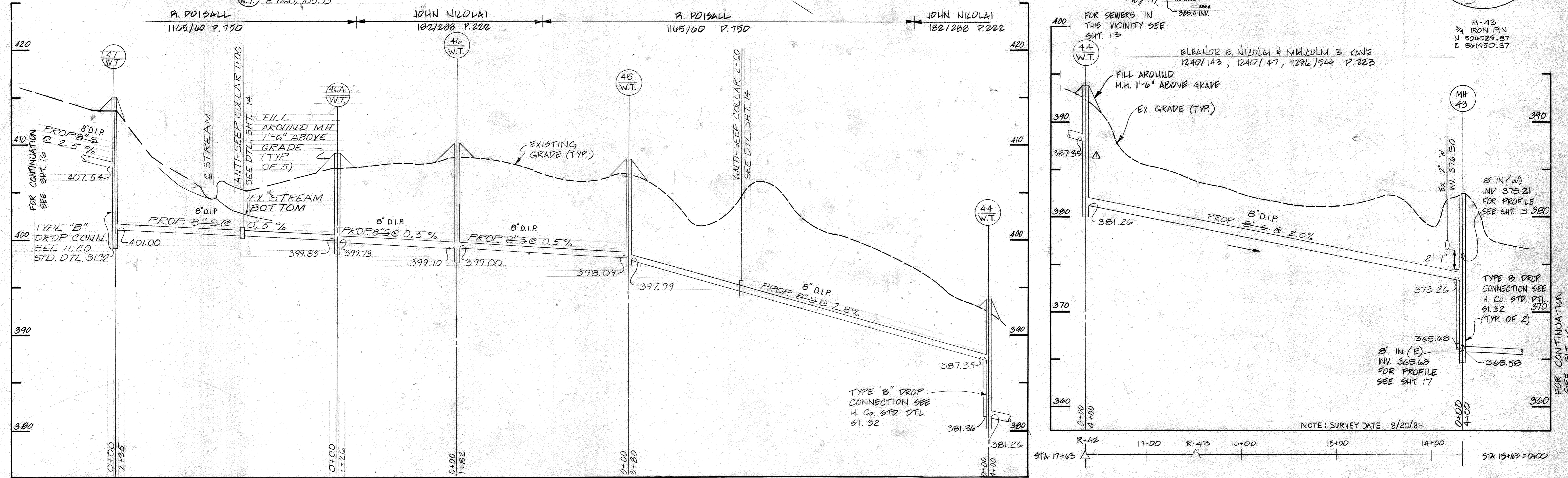
NOTE: THE CONTRACTOR SHALL CONTACT THE SOIL CONSERVATION TECHNICIAN (465-1380) PRIOR TO ANY CONSTRUCTION ON THE JOHN NICOLAI PROPERTY, PARCEL 222, FOR INSPECTION OF REPAIR TO EX. SOIL CONSERVATION MEASURES. ALL DIVERSIONS & WATERWAYS DISTURBED BY CONSTRUCTION MUST BE PROPERLY COMPACTED & RECONSTRUCTED. SEED, MULCH, & EROSION CONTROL NETTING WILL BE REQUIRED IN ACCORDANCE WITH SCS GUIDELINES.

RESTORATION SCHEDULE

MH TO STA	STA. TO STA.	TYPE
43	0+20 TO 0+22	GRASS SEED # MULCH
		ROADWAY - PAVING
		SHOULDER PAVING, GRAVEL
44	0+00 TO 0+20	OR STONE SEED # MULCH
45	0+00 TO 0+20	"
46	0+00 TO 0+20	"



PLAN
SCALE: 1" = 50'-0"



PROFILE
SCALE: HORIZ. 1" = 50'-0"
VERT. 1" = 5'-0"

PROFILE
SCALE: HORIZ. 1" = 50'-0"
VERT. 1" = 5'-0"

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

3-26-81
 DATE

3-25-87
 DATE

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.	
DRN: C.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO. []	
REVISION: REVISE INV. ELEV. @ MH 44	
DATE: []	

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

600' SCALE MAP NO. 31 BLOCK NO. 21

SCALE AS SHOWN
 SHEET 15 OF 38

AS-BUILT 9/6/89

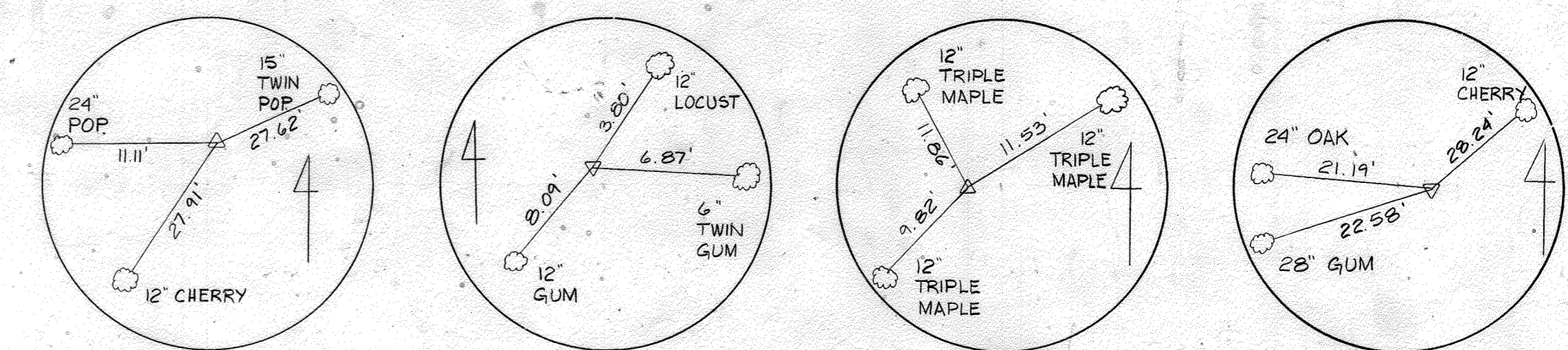
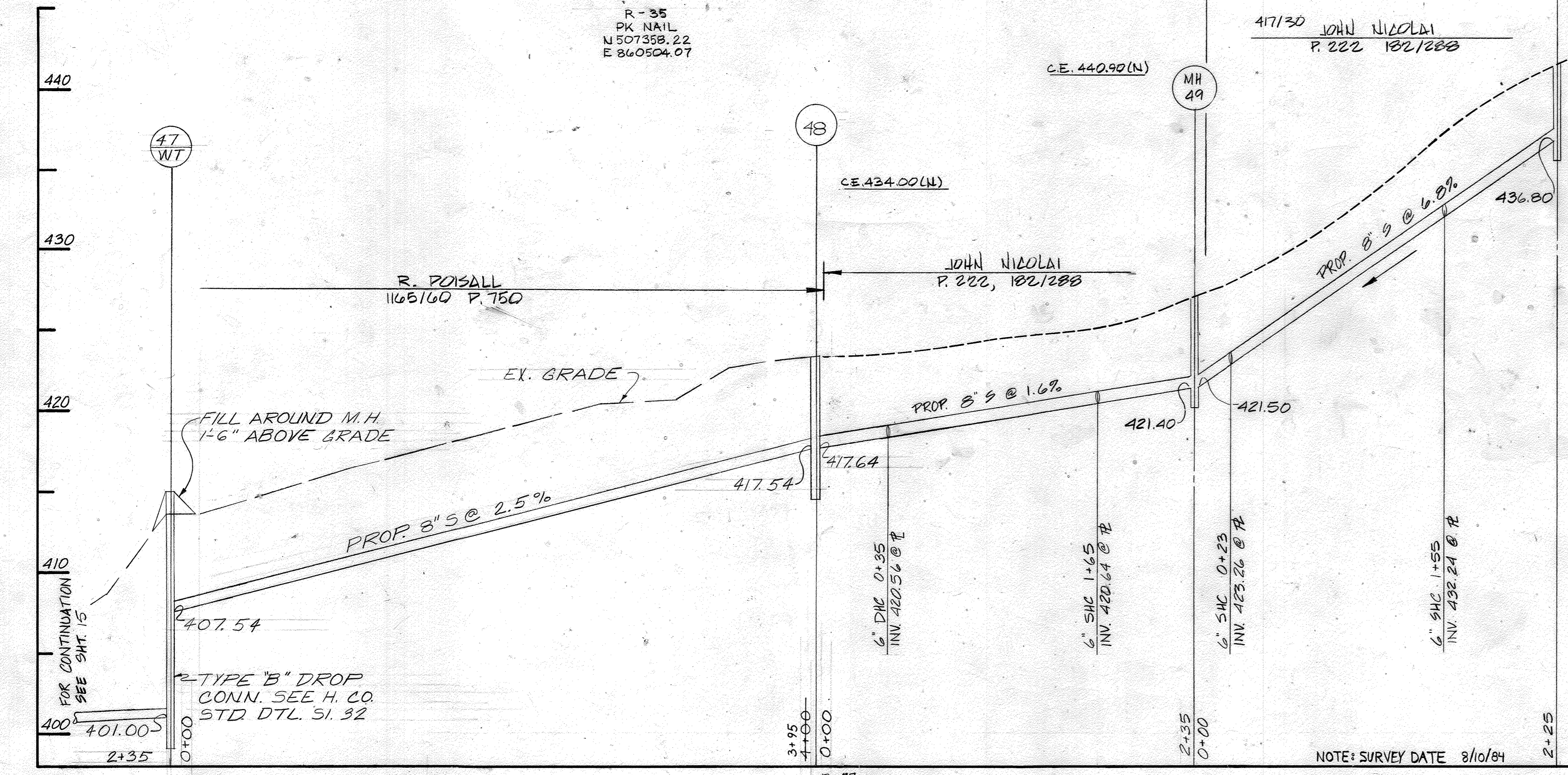
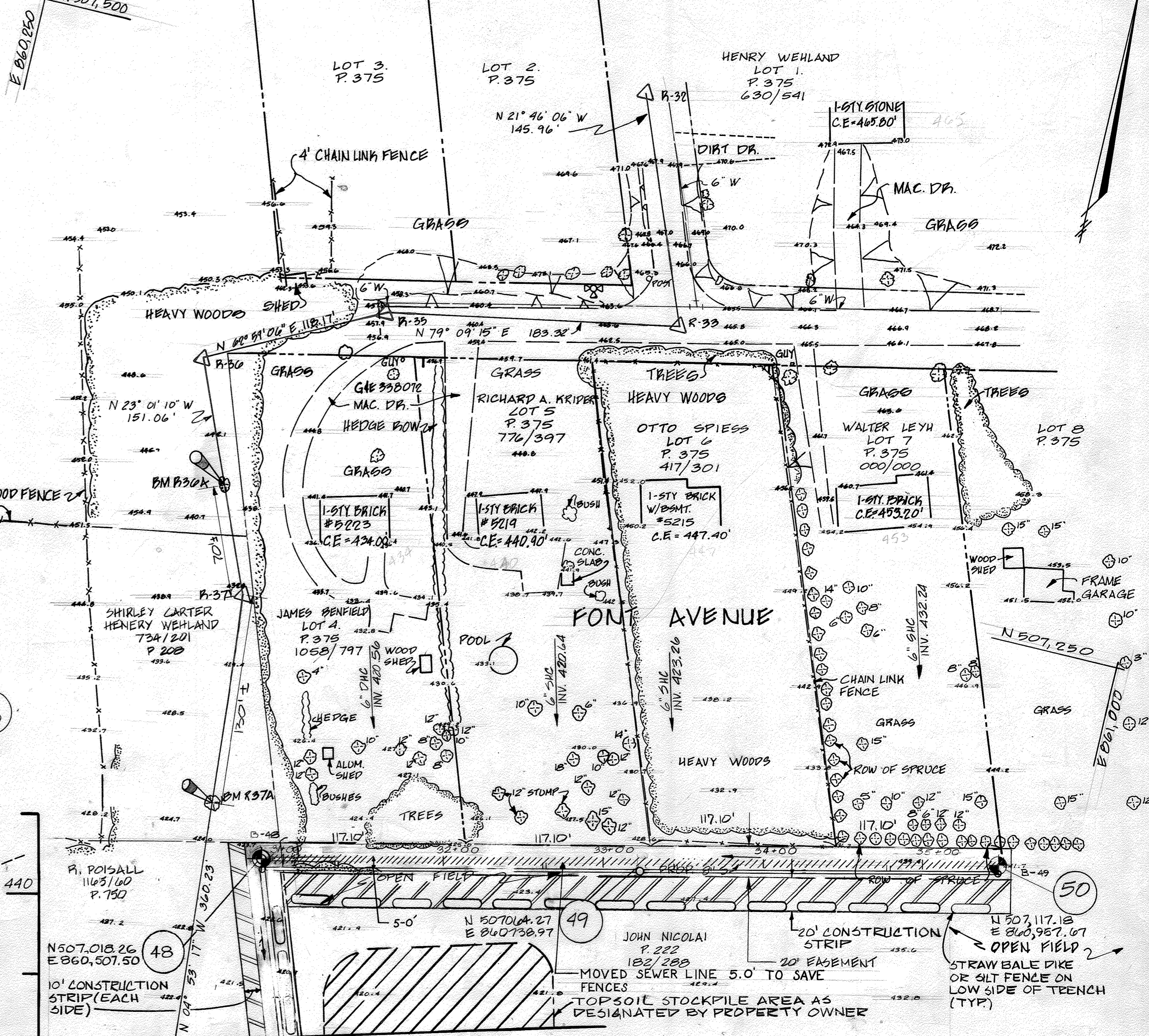
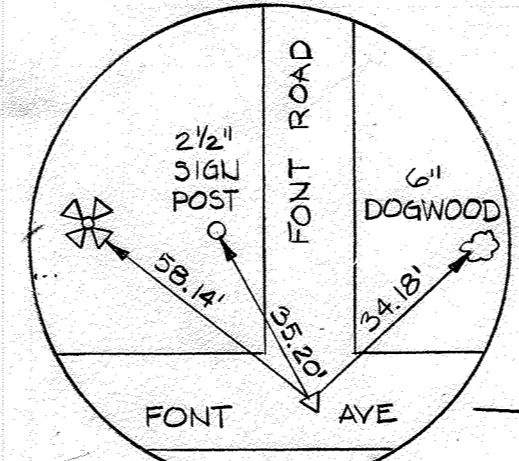
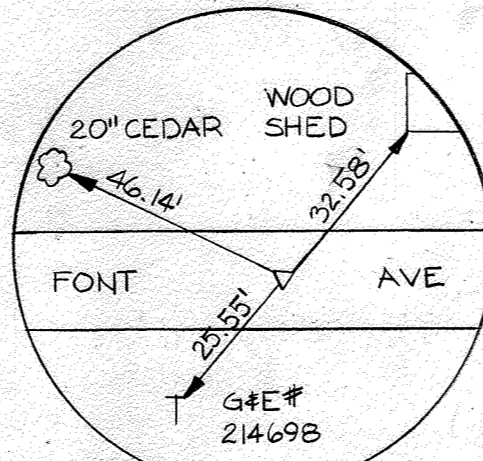
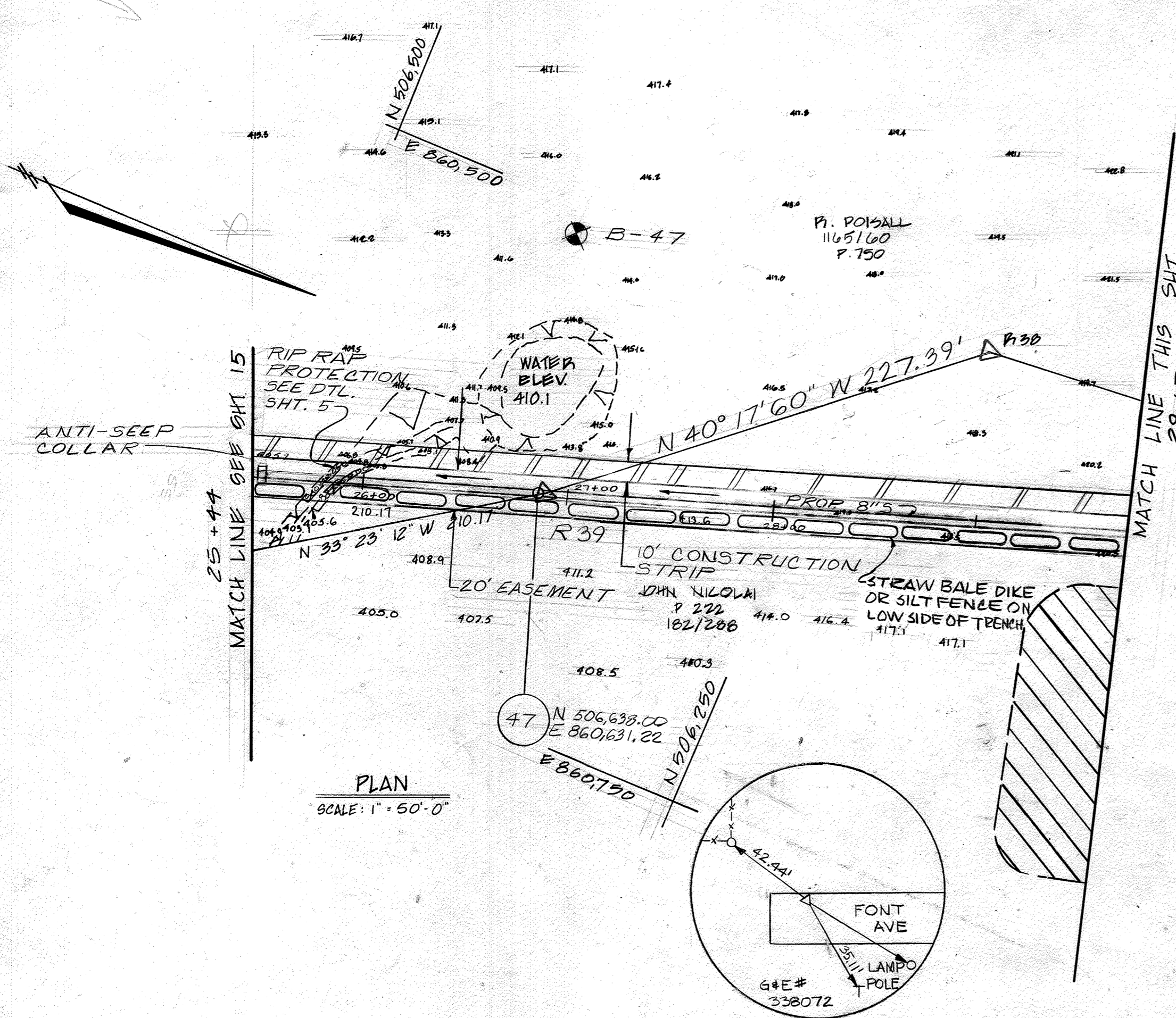
BENCH MARK B37X; CUT NAIL IN 8" CHERRY ELEV. 427.85'

RESTORATION SCHEDULE

MIL TO	MIL FROM	STA TO	STA FROM	TYPE
46A	47	0+00	2+35	SEED # MULLAH
47	48	0+00	4+00	"
48	49	0+00	2+35	"
49	50	0+00	2+25	"

SEE NOTE 1, SHT. 15

BENCH MARK B36X; CUT NAIL IN 4" OAK ELEV. 442.42'



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS



DES: C.B.	
DRN: C.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: NO.	REVISION

PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

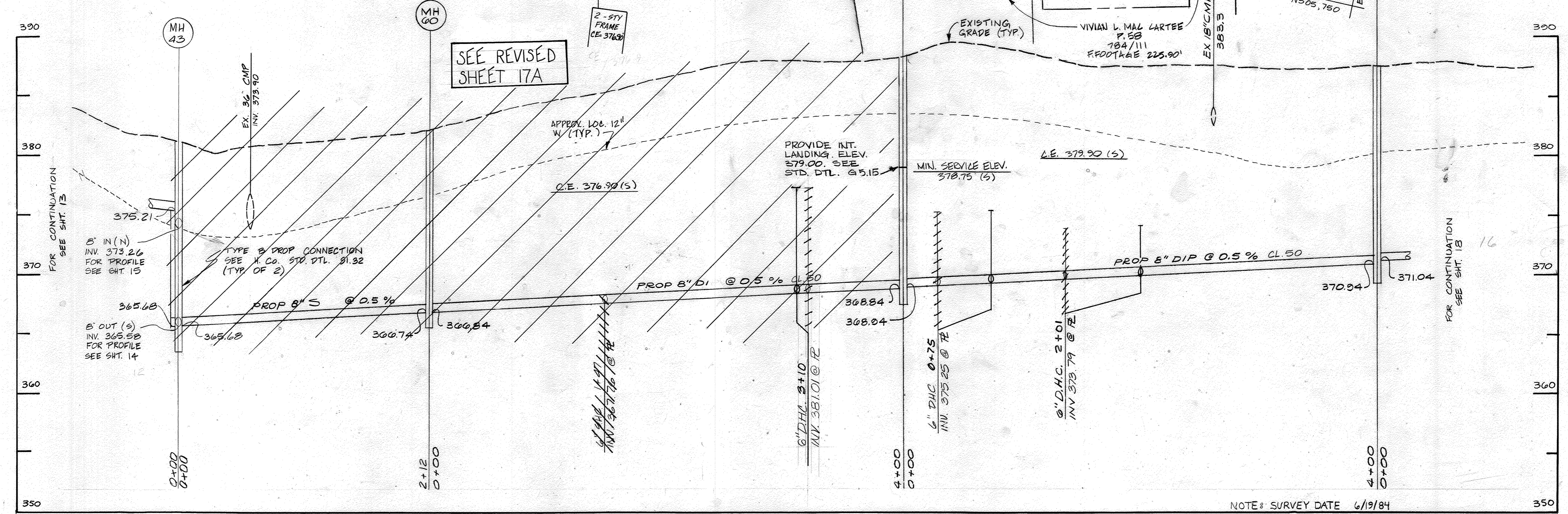
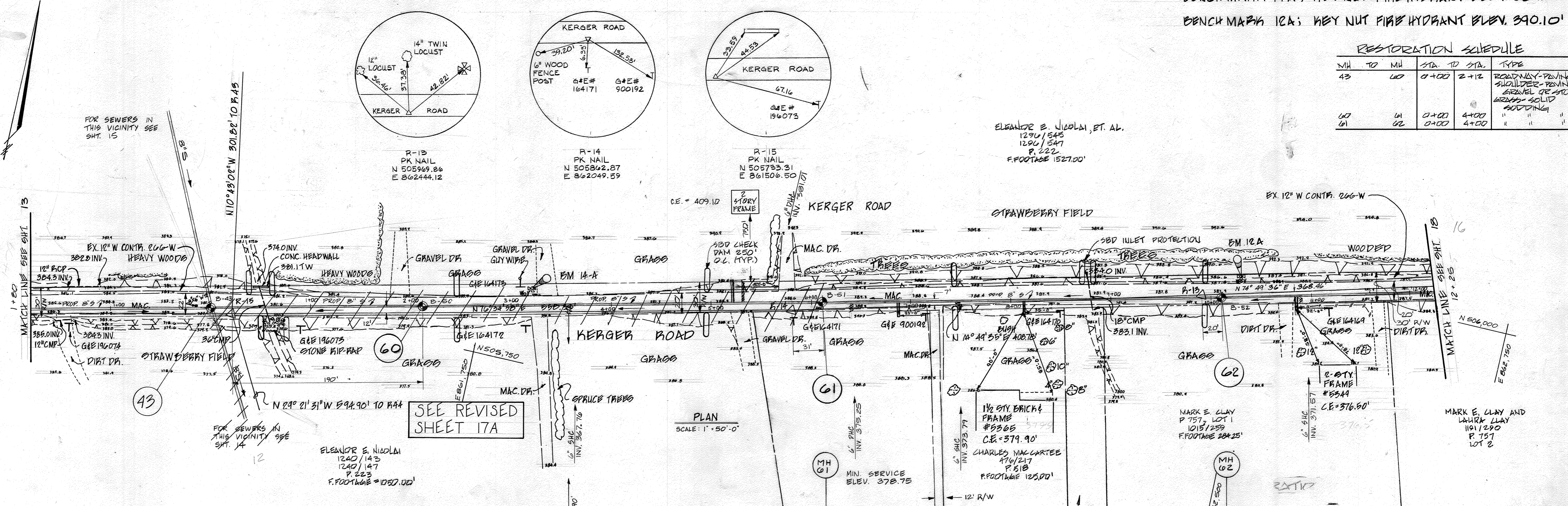
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 16 OF 38

AS-BUILT 9/6/89

BENCH MARK 14A; KEY NUT FIRE HYDRANT ELEV. 387.10'
 BENCH MARK 12A; KEY NUT FIRE HYDRANT ELEV. 390.10'

RESTORATION SCHEDULE				
MH TO MH	STA. TO STA.	TYPE	DATE	REMARKS
43	40	0+00	2+12	ROADWAY-PAVING, SUCULIDE-PAVING, GRASS SOLID ROODING
40	41	0+00	4+00	" " " "
41	42	0+00	4+00	" " " "



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

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John H. Nemy* 3-26-87
 Chief, Bureau of Utilities: *Robert M. Berman* 3-25-87

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



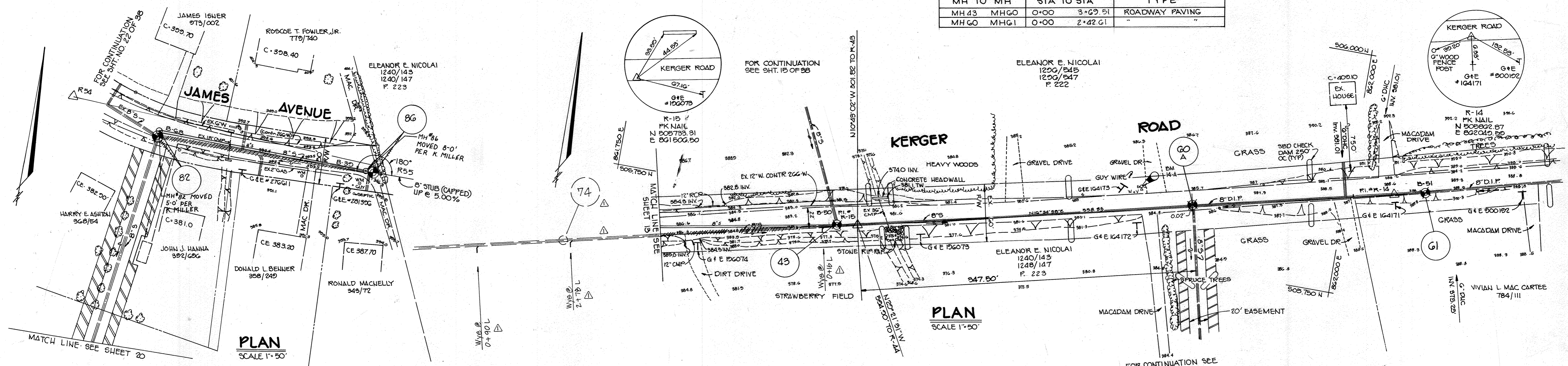
DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY	NO.
REVISION	DATE

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMP STATION
 600' SCALE MAP NO. 31 BLOCK NO. 21

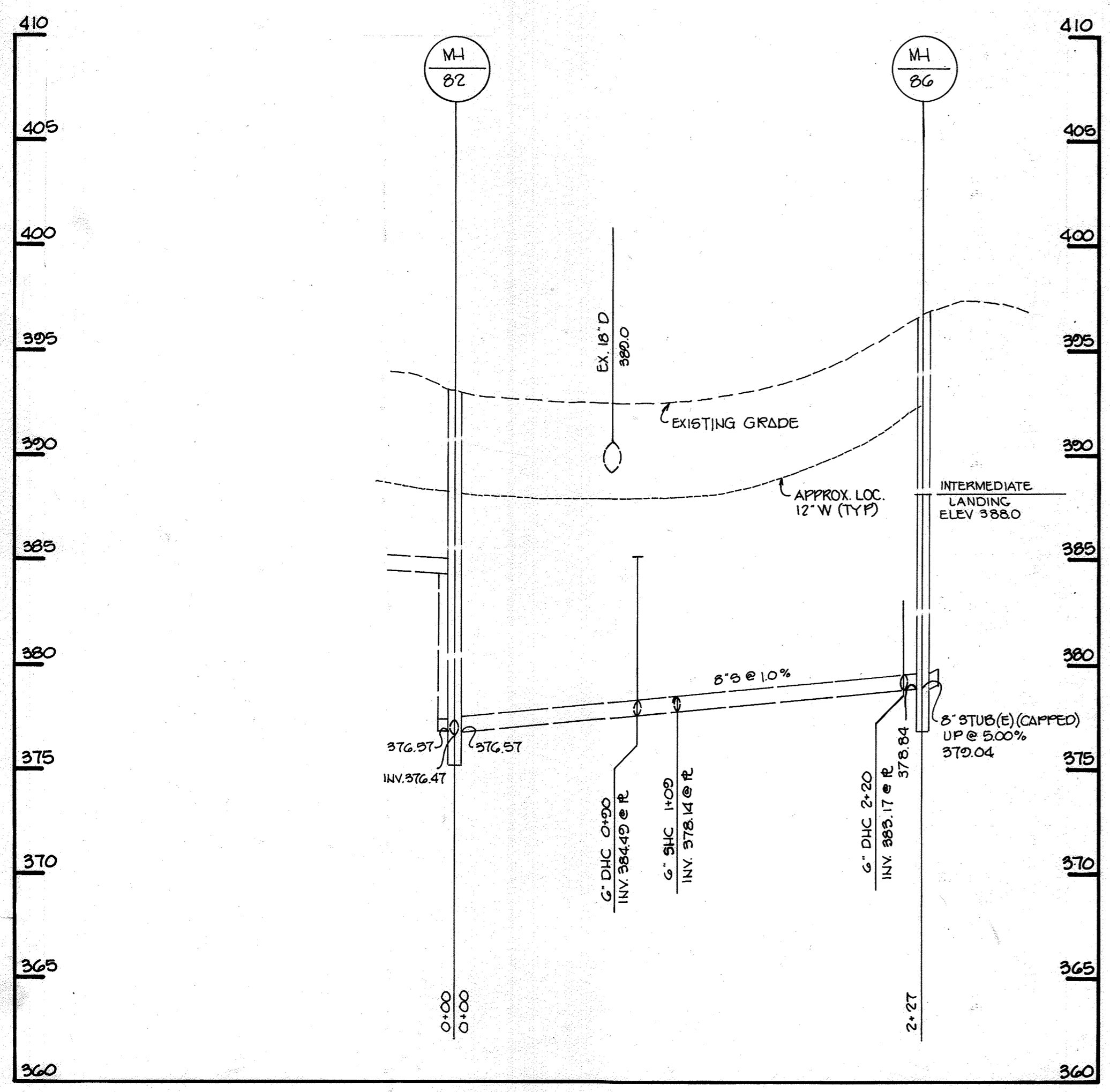
KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215
 SCALE AS SHOWN
 SHEET 17 OF 38
 AS-BUILT 9/6/89

RESTORATION SCHEDULE			
MH TO MH	STA TO STA	TYPE	
MH 43 - MH 60	0+00 - 3+69.51	ROADWAY PAVING	
MH 60 - MH 61	0+00 - 2+42.61		

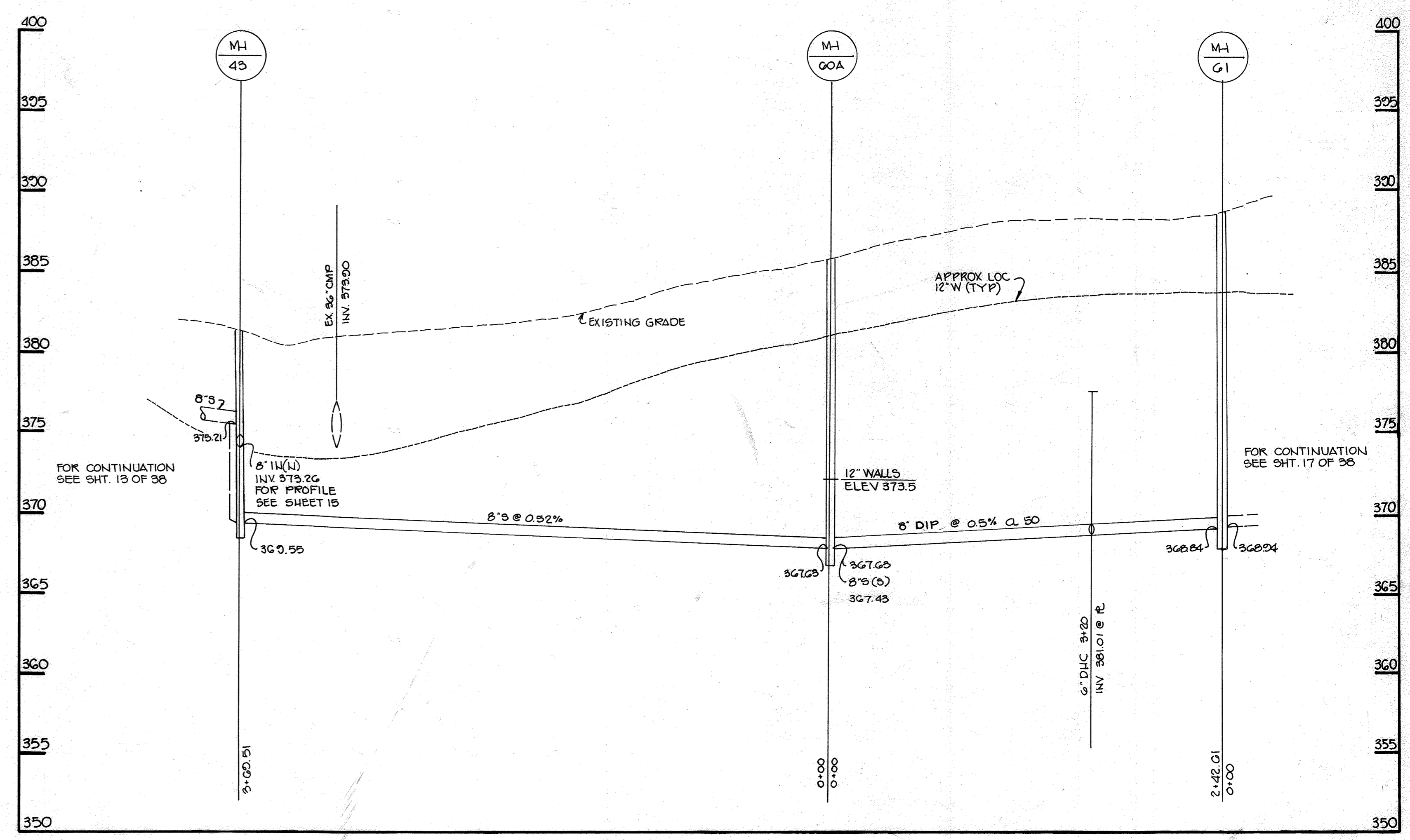
BENCHMARK 14A; KEY NUT FIRE HYDRANT ELEV 387.10'



NOTE: THIS PLAN IS SIMILAR TO SHT. 22 OF 38 EXCEPT THAT AN 8" STUB WAS ADDED TO MH 86.



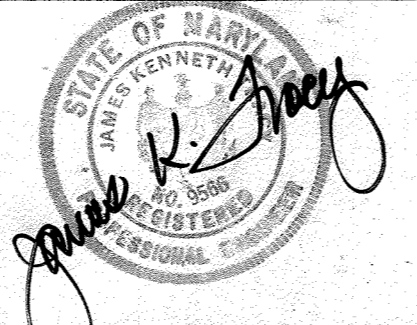
PROFILE
SCALE H-1"=50'
V-1"=5'



PROFILE
SCALE H-1"=50'
V-1"=5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

TRACY, SCHULTE & ASSOCIATES INC.
planning architecture engineering
8480 Baltimore National Pike Suite 418
Ellicott City, Maryland 21043



DES: J.L.R.	
DRN: J.L.R.	
CHK: R.J.W.	
DATE: 5-4-88	
Y.P. BY	APP. WYE AND MH 74 (BY G.L.D.)
NO.	REVISION
DATE	6/3/88

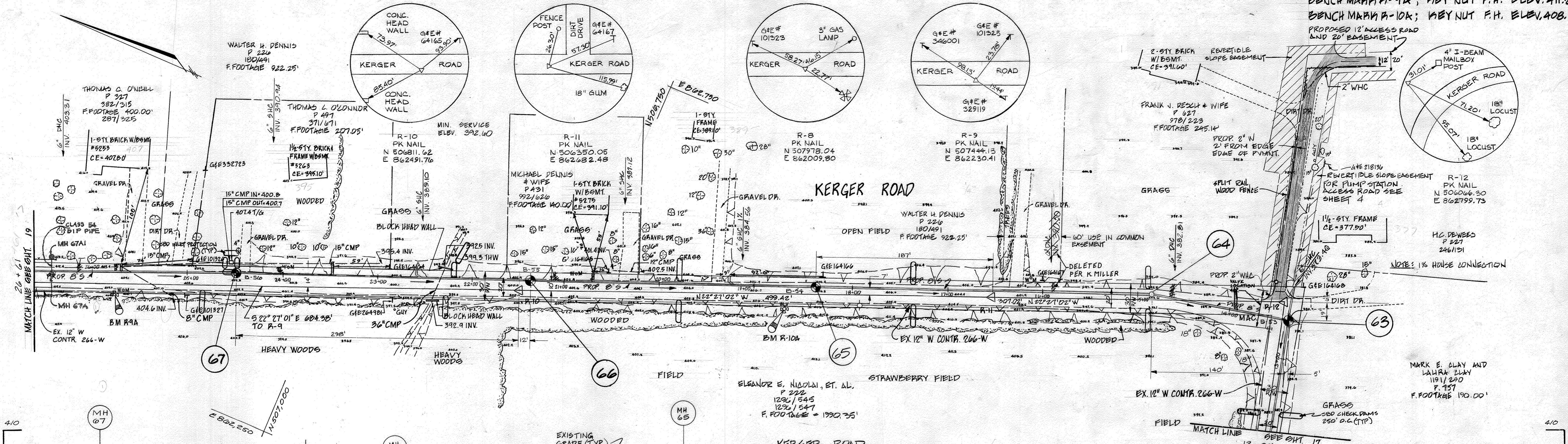
PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 21

KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 17A OF 38

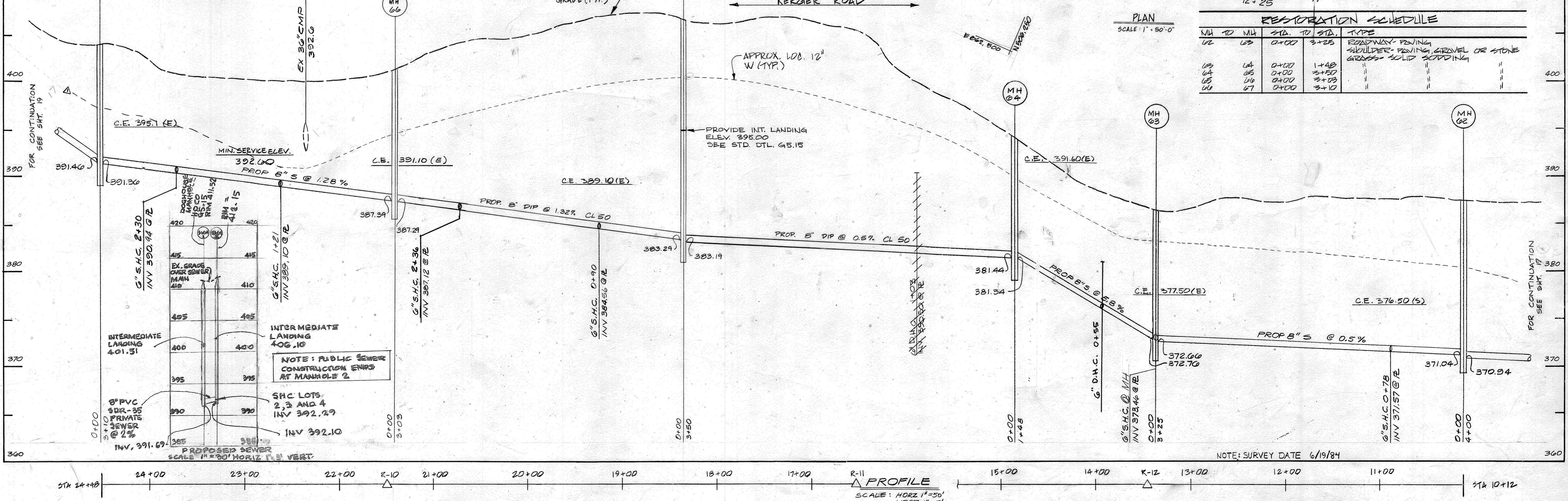
AS-BUILT 9/6/89

BENCH MARK A-9A; KEY NUT F.H. ELEV. 411.28'
 BENCH MARK A-10A; KEY NUT F.H. ELEV. 408.97'



PLAN
SCALE: 1" = 50'-0"

RESTORATION SCHEDULE			
MH TO MH	STA. TO STA.	TYPE	
62	63	0+00 - 3+25	ROADWAY - PAVING SHOULDER - PAVING, GRAVEL OR STONE GRASS - SOFT SCODDING
63	64	0+00 - 1+48	"
64	65	0+00 - 3+50	"
65	66	0+00 - 3+09	"
66	67	0+00 - 3+10	"



CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John F. Neman* 5-26-87
 Chief, Bureau of Engineering: *Richard R. ...* 3-25-87
 Chief, Bureau of Utilities: *...* 3-25-87

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



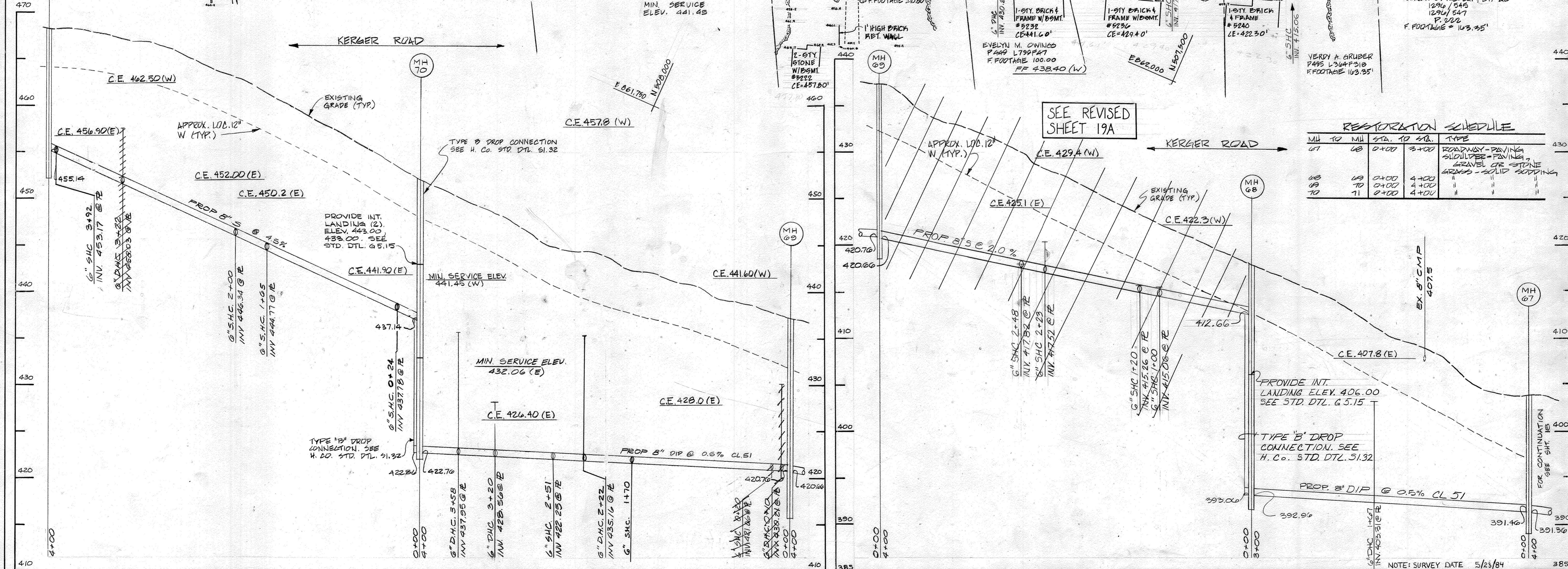
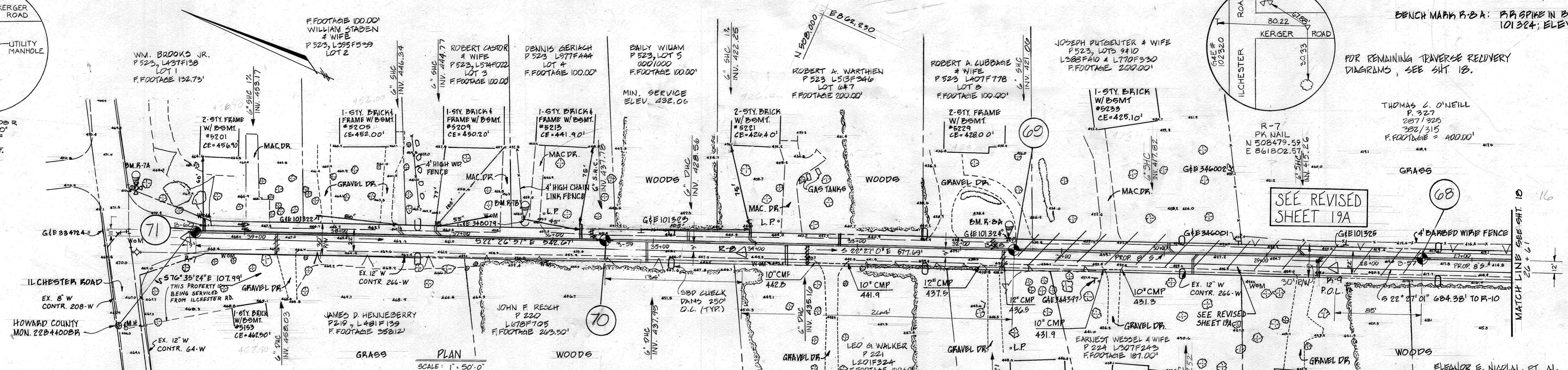
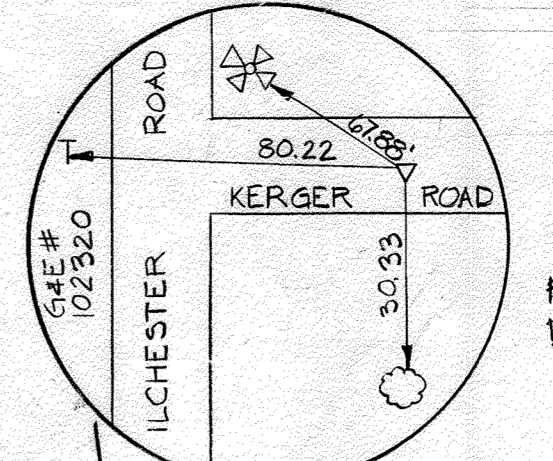
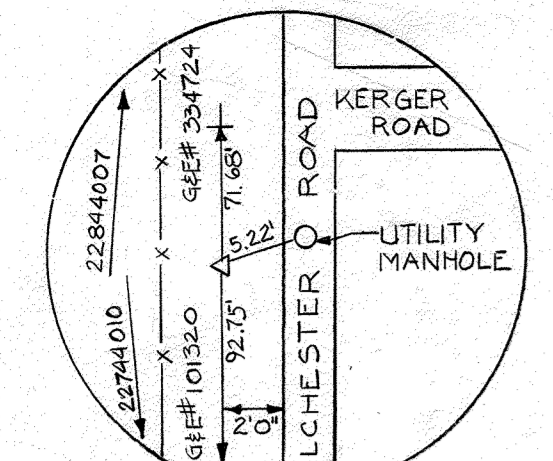
DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	WRA 2 AS BUILT FOR ADO 2/27/83
DATE: 5/24/85	REVISION: REVISE PROFILE OF EX. 12" WATER LINE

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31 BLOCK NO. 15, 21

SCALE AS SHOWN
 SHEET 18 OF 38
 AS-BUILT 9/6/89

KERGER ROAD

BENCH MARK B-7A: X-CUT KEYWAY AT ELEV. 472.75'
 BENCH MARK B-7B: RB SPIKE IN B&G POLE # 348079; ELEV. 457.33'
 BENCH MARK B-8A: RB SPIKE IN B&G POLE # 101324; ELEV. 457.78'



RESTORATION SCHEDULE

MILE TO	MILE TO	STA. TO STA.	TYPE
07	08	0+00 - 3+00	ROADWAY - PAVING
08	09	0+00 - 4+00	ROADWAY - PAVING
09	10	0+00 - 4+00	GRAVEL OR STONE
10	11	0+00 - 4+00	GRASS - SOLID SODDING

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

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: *Henry F. Nemy* 3-26-87
 Chief, Bureau of Engineering: *William E. Ray* 3-25-87
 Chief, Bureau of Utilities: *Richard Berman* 3-25-87
 Chief, Utility Division: *Paul D. Sporn* 3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.
 DRN: W.M.M.
 CHK: C.B.
 DATE: 5/24/85

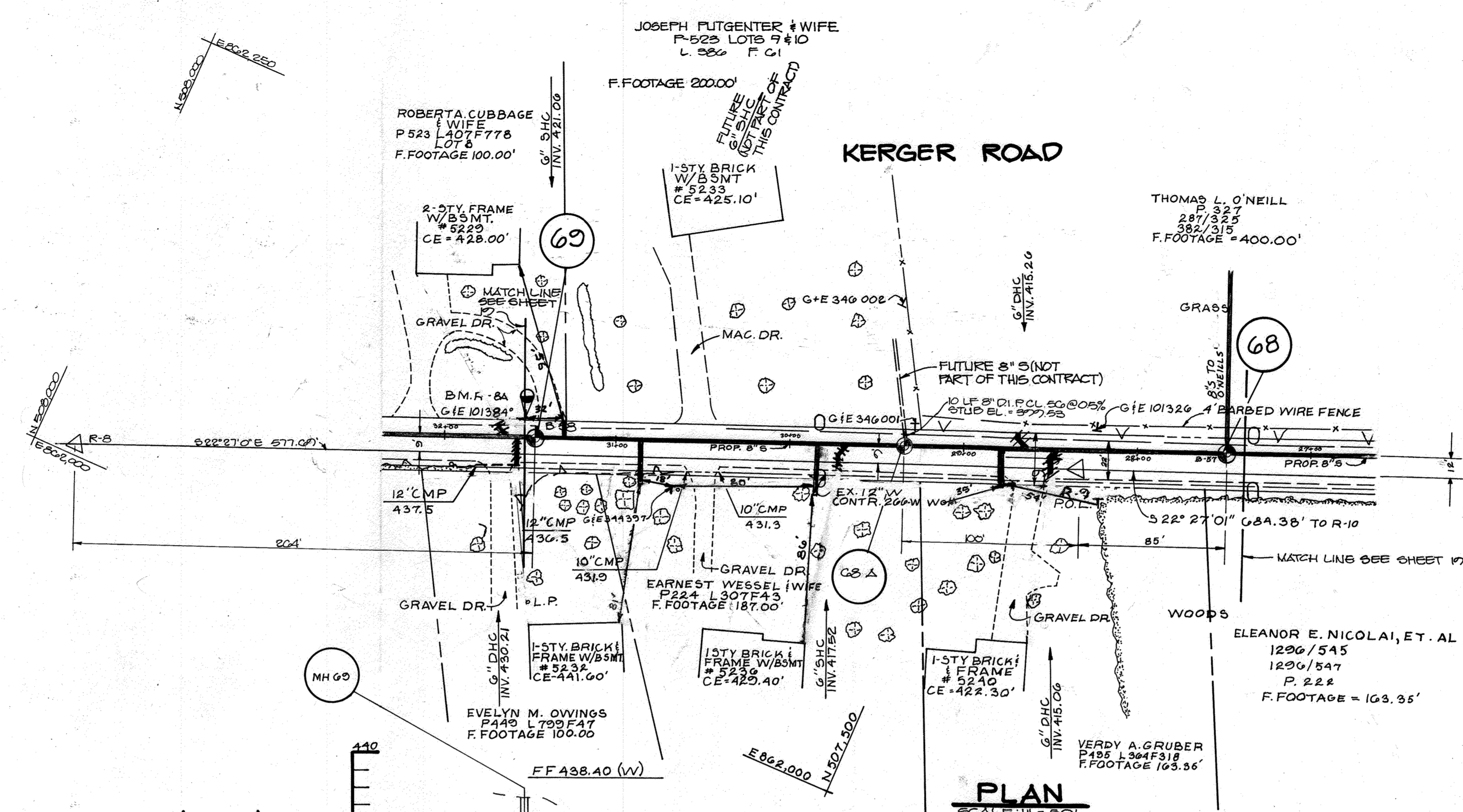
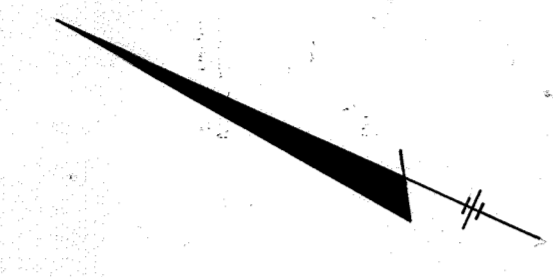
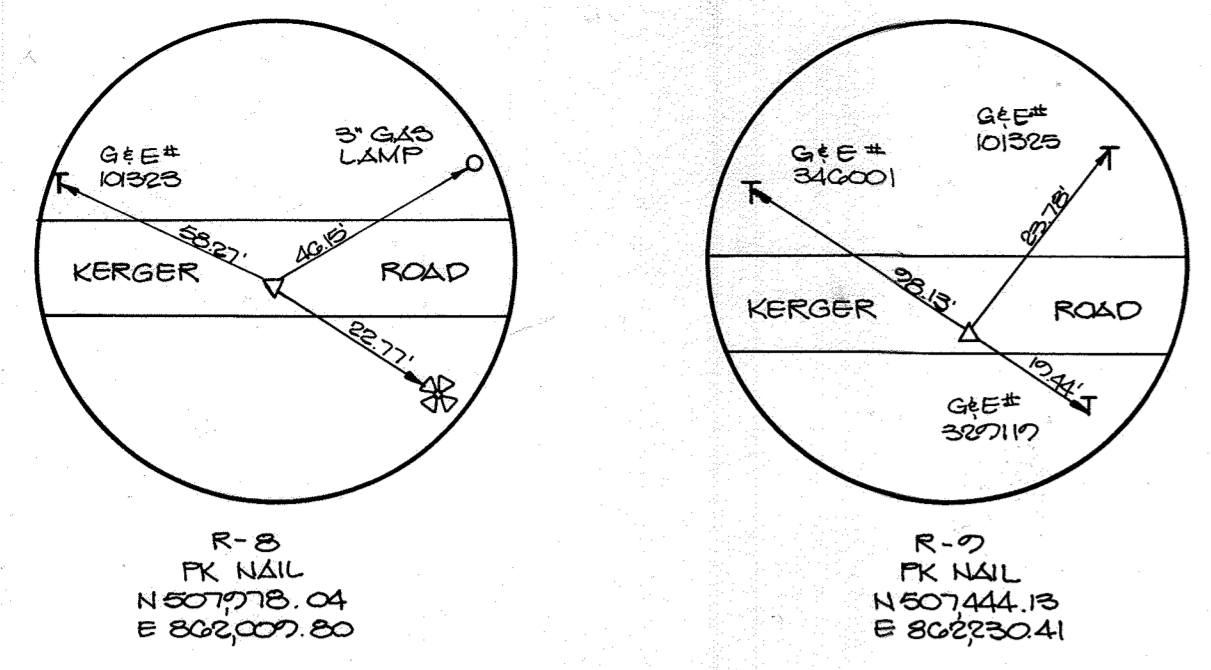
PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

600' SCALE MAP NO. 31 BLOCK NO. 15

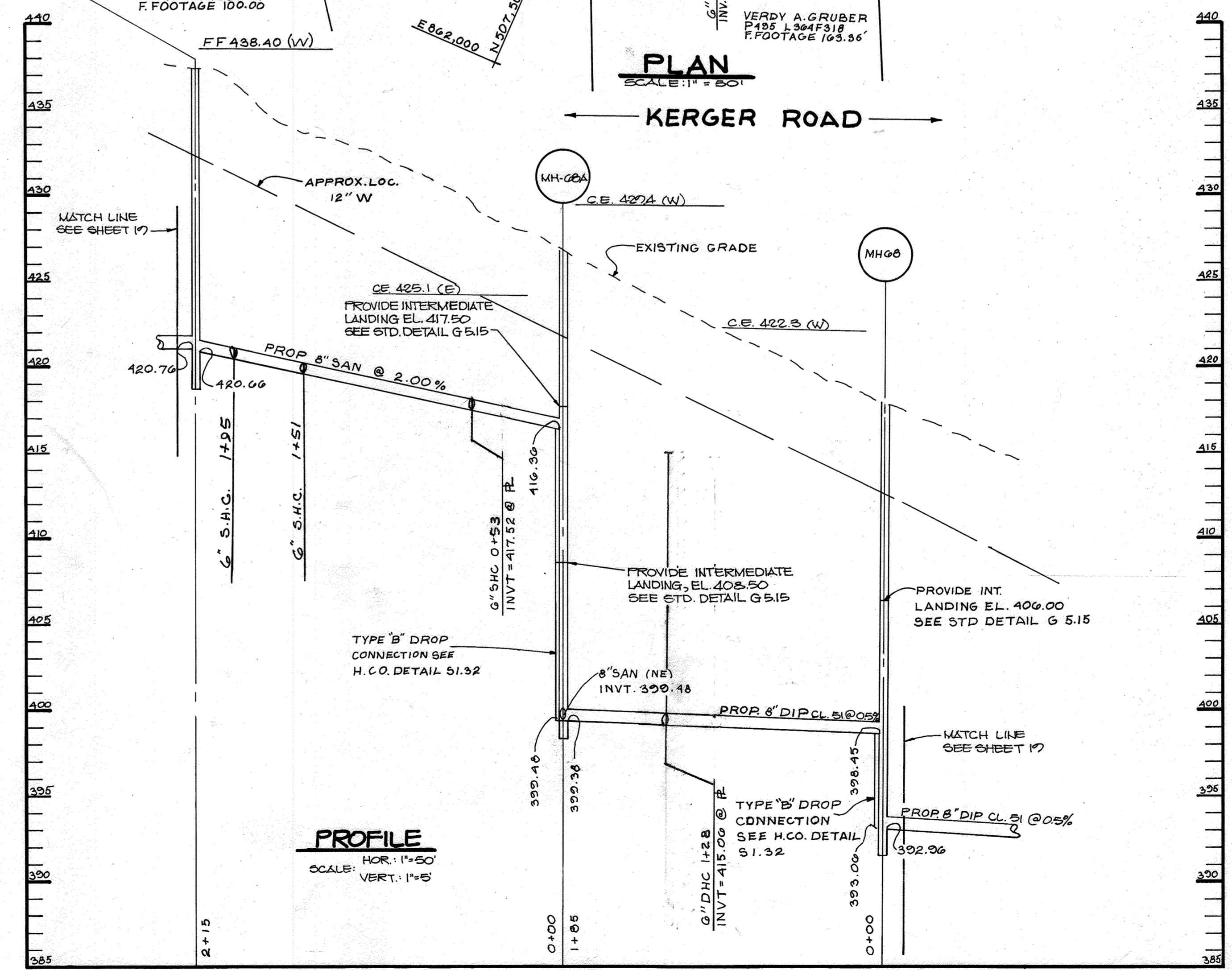
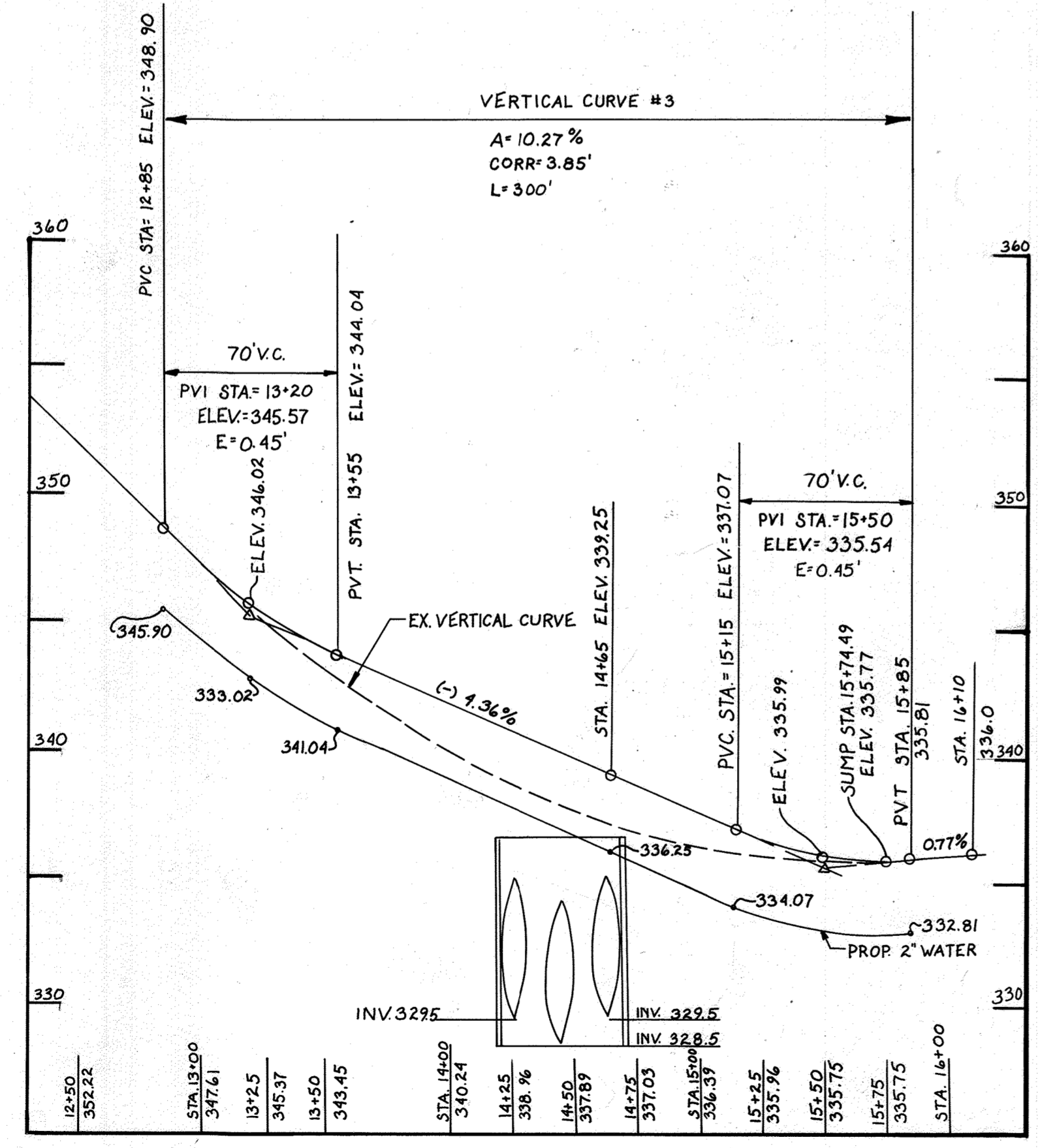
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

SCALE AS SHOWN
 SHEET 19 OF 38

BENCH MARK R-84
 RR SPIKE IN B&E POLE
 #101824, ELEV. 487.78



REVISED ENTRANCE ROAD PROFILE (CONT)
 SEE SHEET 4
 SCALE: 1"=50' HORIZ.
 1"=5' VERT.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James M. Davis 9/28/88
 DIRECTOR OF PUBLIC WORKS DATE

William E. Riley 9-28-88
 CHIEF, BUREAU OF ENGINEERING DATE

Ruth B. Bunn 9-28-88
 CHIEF, BUREAU OF UTILITIES DATE

Oliver 9-28-88
 CHIEF, UTILITY DESIGN DIVISION DATE

THE RIEMER GROUP INC.
 3105 NORTH RIDGE ROAD
 ELLICOTT CITY, MARYLAND
 (301)-461-2690



DES: M.C.M.			
DRN: K.L.M.			
CHK: J.J.B.			
DATE: 9-16-88	BY NO.	REVISION	DATE

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

60' SCALE MAP NO. 31 BLOCK NO. 15

KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

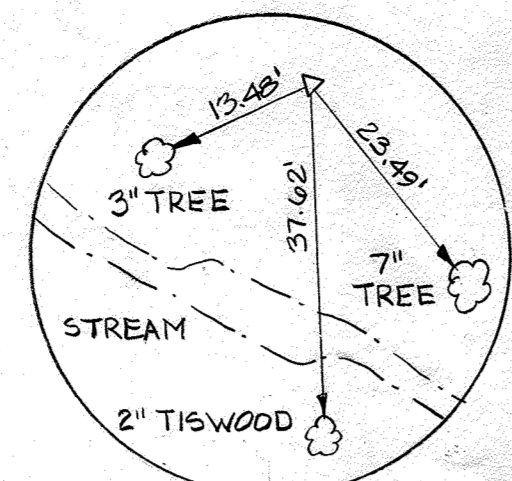
SCALE AS SHOWN
 SHEET 12 OF 38

BRUNING 44-132 69 150

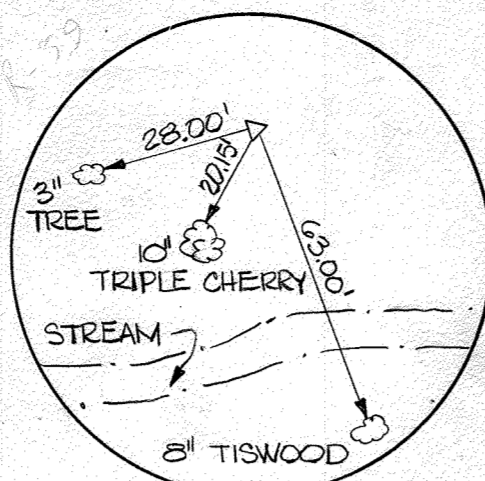
9/16/89

43203

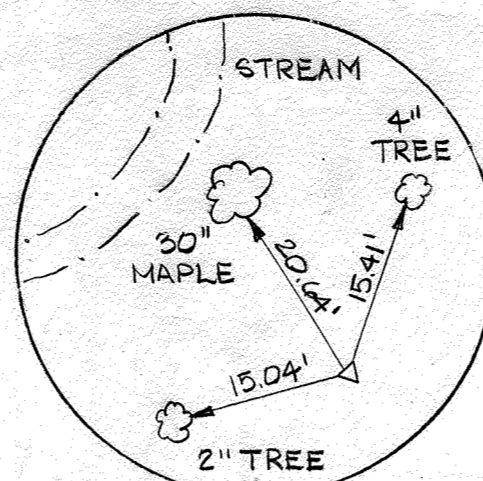
B.M. 60-A: SPIKE IN 3rd SYLVANORE, ELEV. 380.50



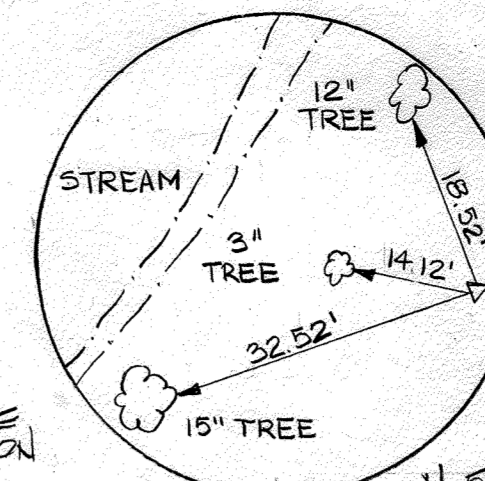
R-58
5/8" IRON PIN
N 50°02'25.65"
E 86°03'27.78"



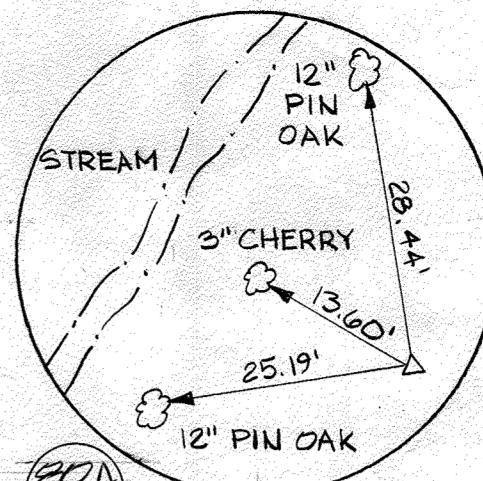
R-59
5/8" IRON PIN
N 50°49'39.11"
E 86°03'19.87"



R-60
5/8" IRON PIN
N 50°47'21.78"
E 86°05'46.18"

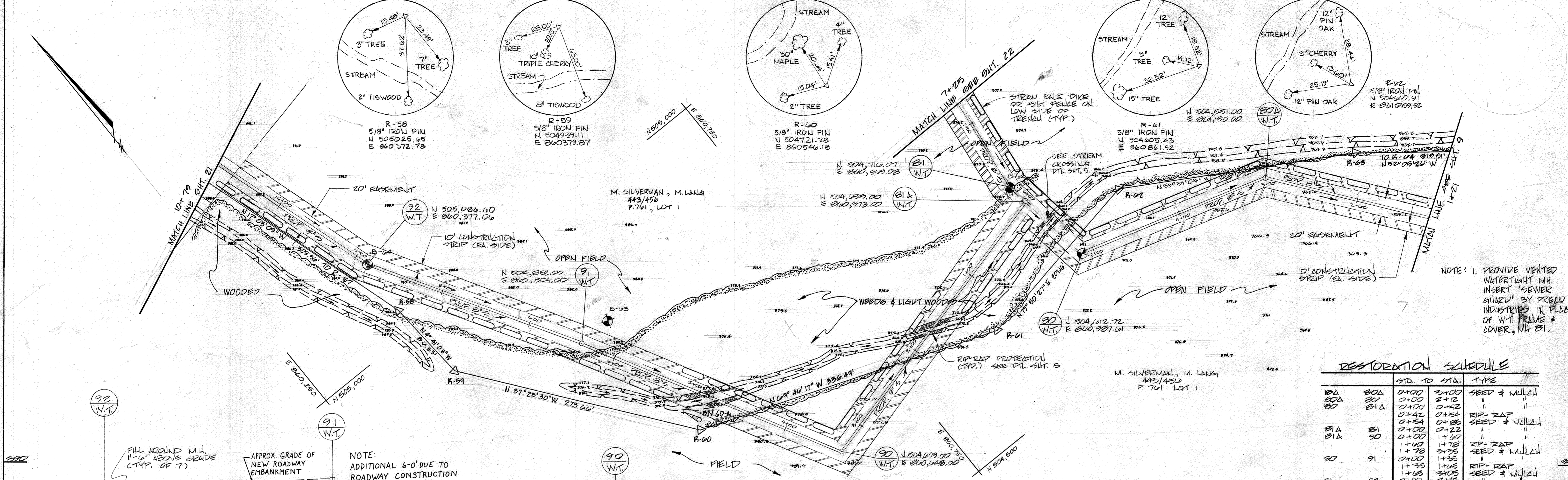


R-61
5/8" IRON PIN
N 50°46'05.43"
E 86°08'61.92"



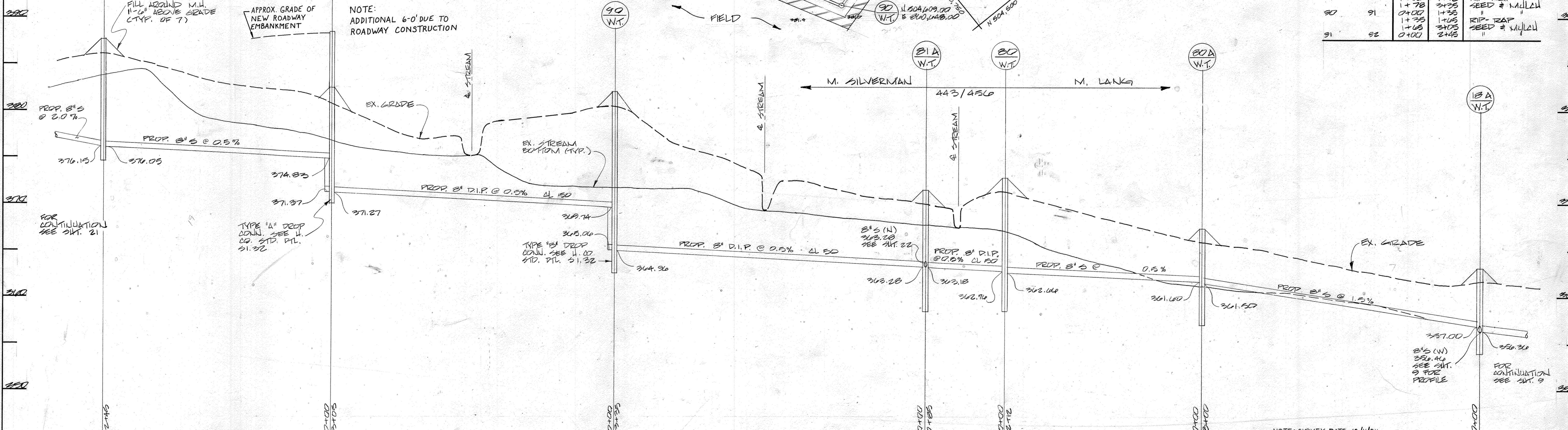
R-62
5/8" IRON PIN
N 50°46'05.43"
E 86°08'61.92"

R-63
5/8" IRON PIN
N 52°08'26" W



NOTE: 1. PROVIDE VENTED WATERTIGHT NH INSERT "SEWER GUARD" BY PREDD INDUSTRIES IN PLACE OF W.T. FRAME & COVER, NH 81.

RESTORATION SCHEDULE		STD. TO	STA.	TYPE
80A	80A	0+00	2+00	SEED & MULCH
80A	80A	0+00	2+12	"
80A	81A	0+00	0+42	"
		0+42	0+54	RIP-RAP
		0+54	0+55	SEED & MULCH
81A	81	0+00	0+22	"
81A	90	0+00	1+00	"
		1+00	1+78	RIP-RAP
		1+78	2+25	SEED & MULCH
90	91	0+00	1+35	"
		1+35	1+65	RIP-RAP
		1+65	2+03	SEED & MULCH
91	92	0+00	2+42	"



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

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-26-87
3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND

DES: C.B.
DRN: W.M.M.
CHK: C.B.
DATE: 5/24/85

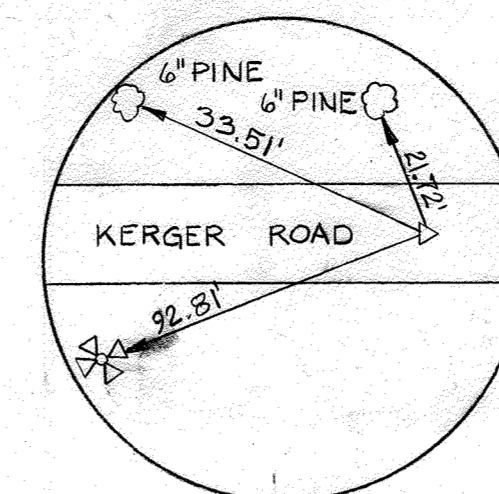
PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

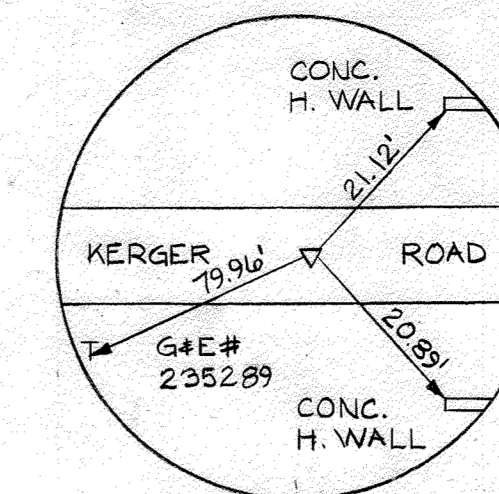
SCALE AS SHOWN
SHEET 20 OF 38

AS-BUILT 9/6/89

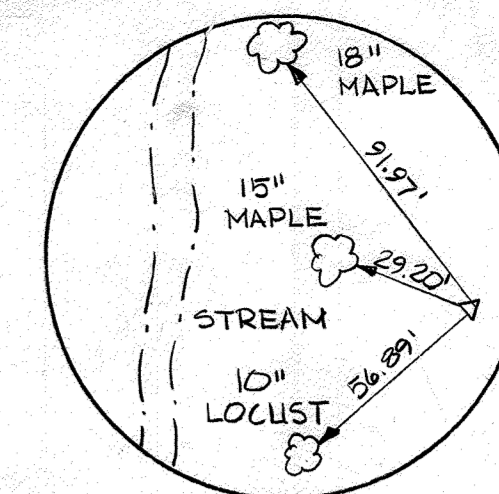
BENCH MARK 104' R.R. SPIKE G&E 244091 ELEV. 400.36



R-18
PK NAIL
N 505518.49
E 860504.16



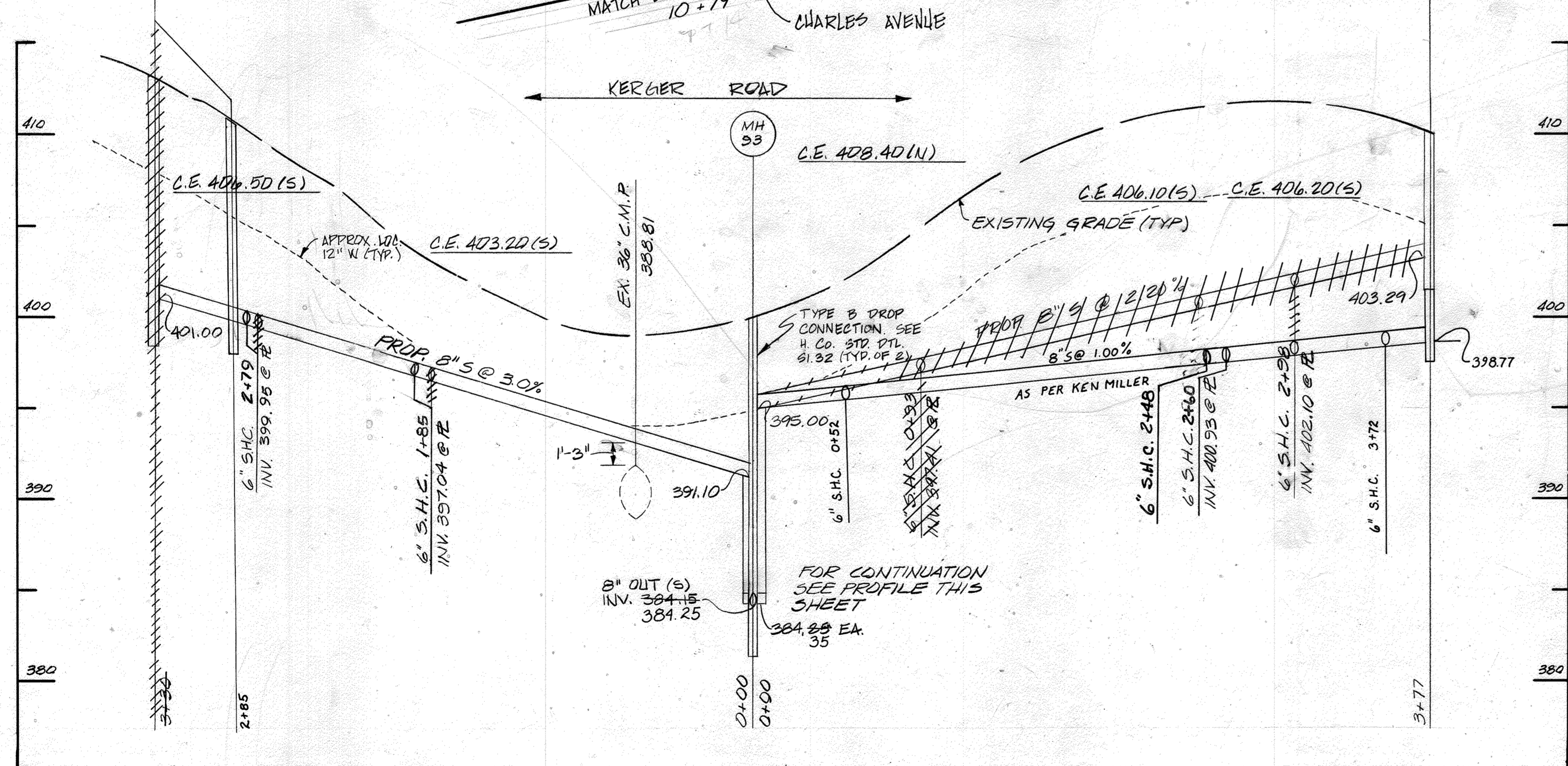
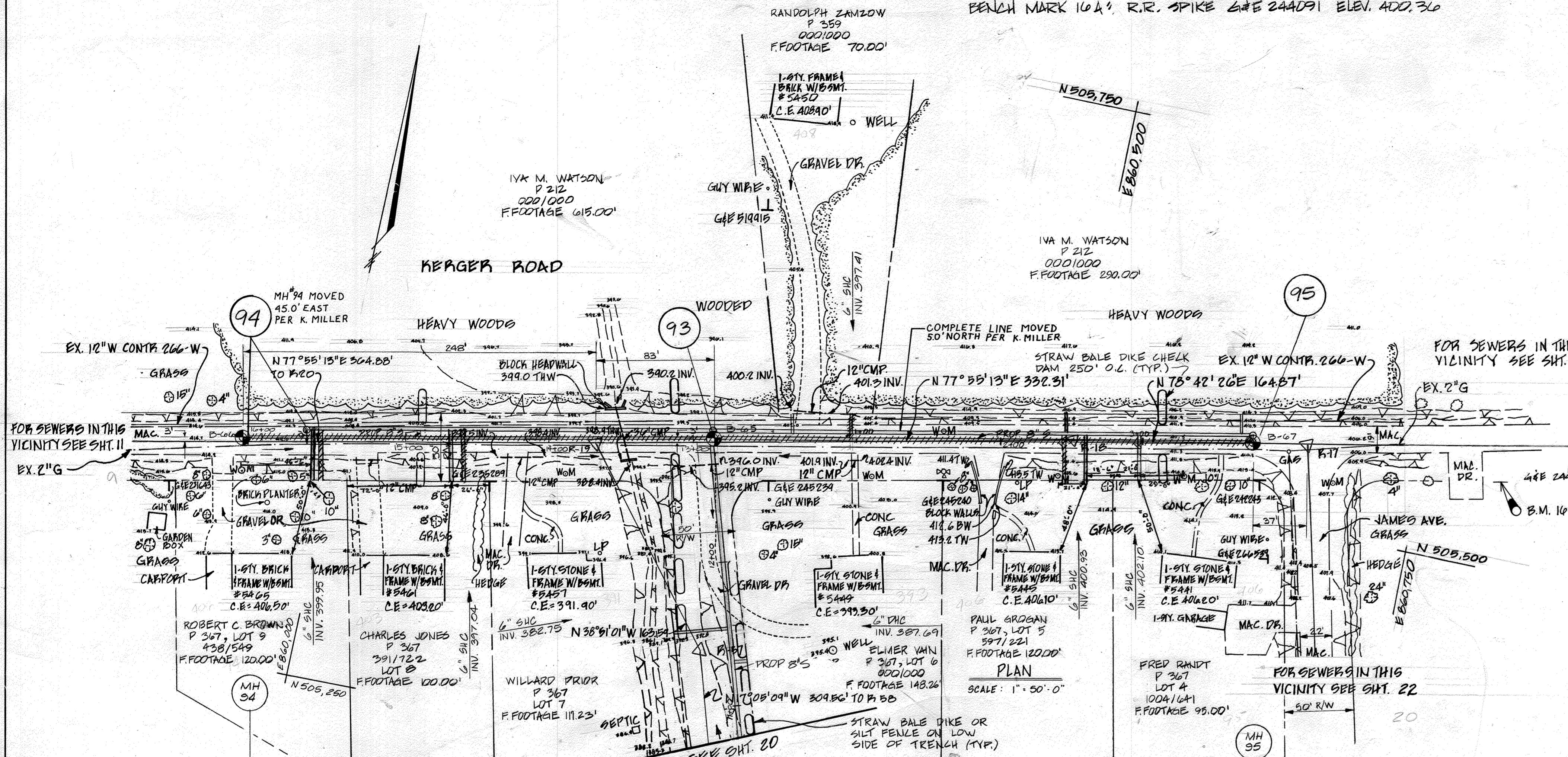
R-19
PK NAIL
N 505448.95
E 860179.21



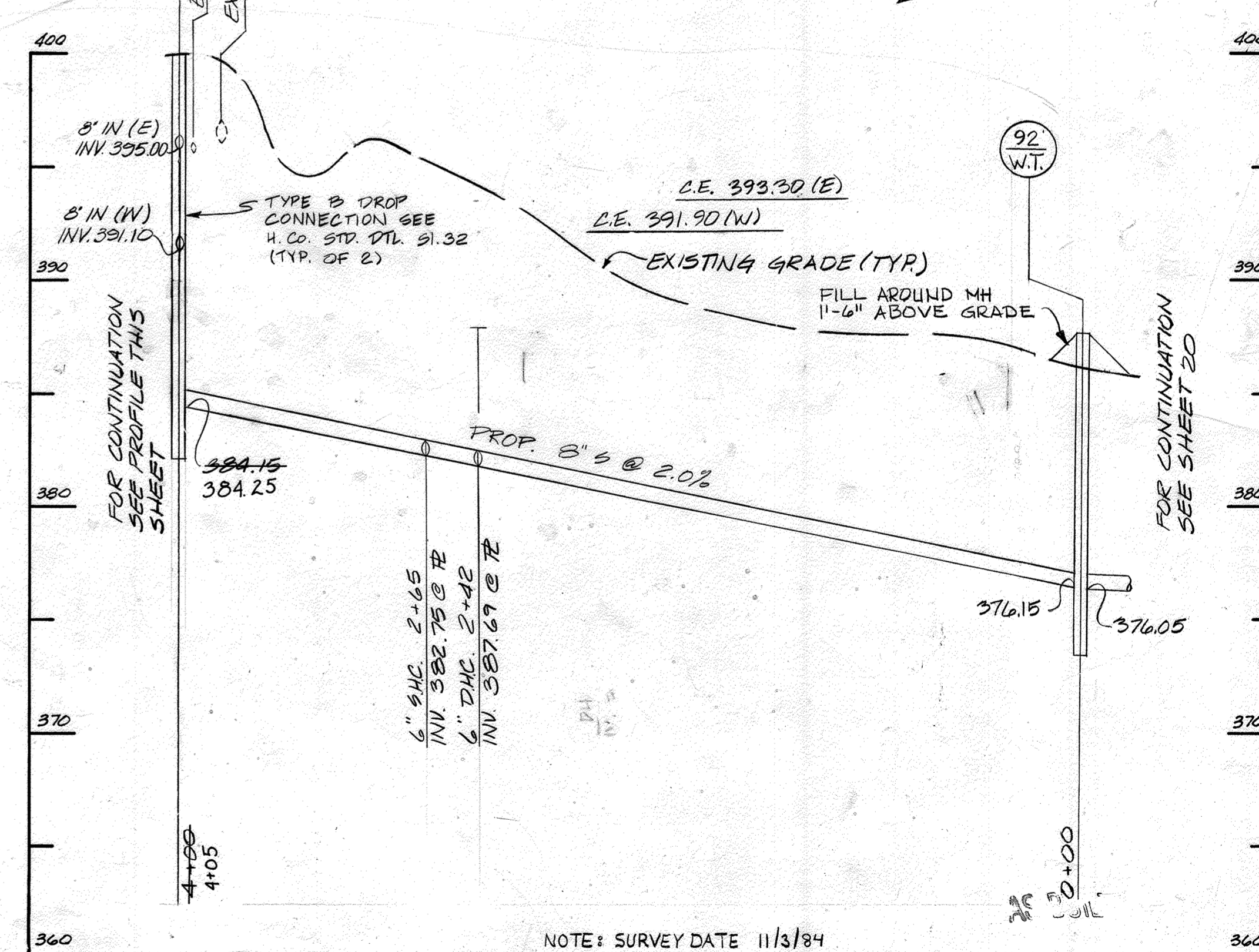
R-57
5/8" IRON PIN
U 505321.55
E 860281.83

RESTORATION SCHEDULE

MH TO MH	STA. TO STA.	TYPE	
92	93	0+00 TO 1+75 1+75 TO 3+90 3+90 TO 4+00	SEED & MULCH SOLID SODDING ROADWAY PAVING GRAVEL OR STONE GRASS SODDING
93	94	0+00 TO 2+90	" " " "
93	95	0+00 TO 2+77	" " " "



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



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

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-26-87
3-25-87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: C.B.	BY NO.	REVISION
DRN: W.M.M.		
CHK: C.B.		
DATE: 5/24/85		

PIPING PLAN AND PROFILE
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 21

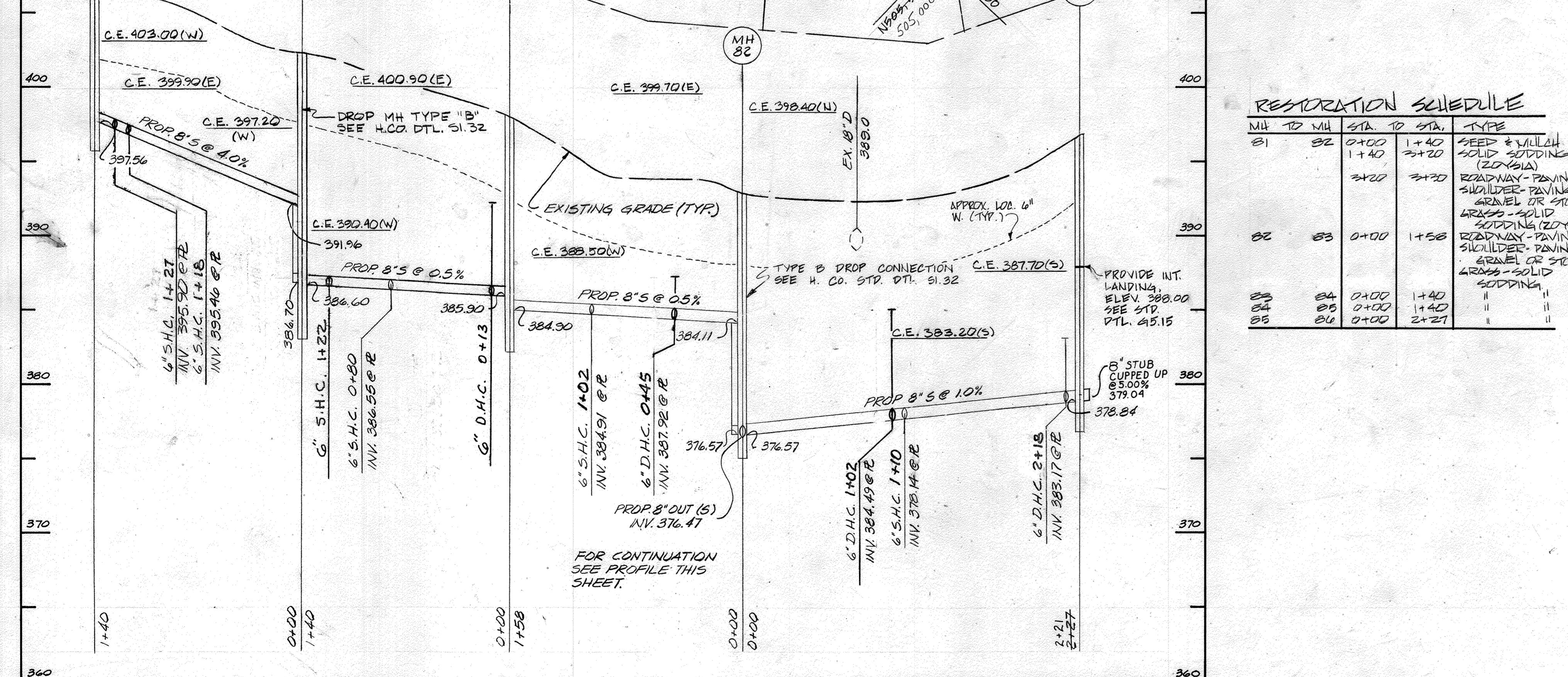
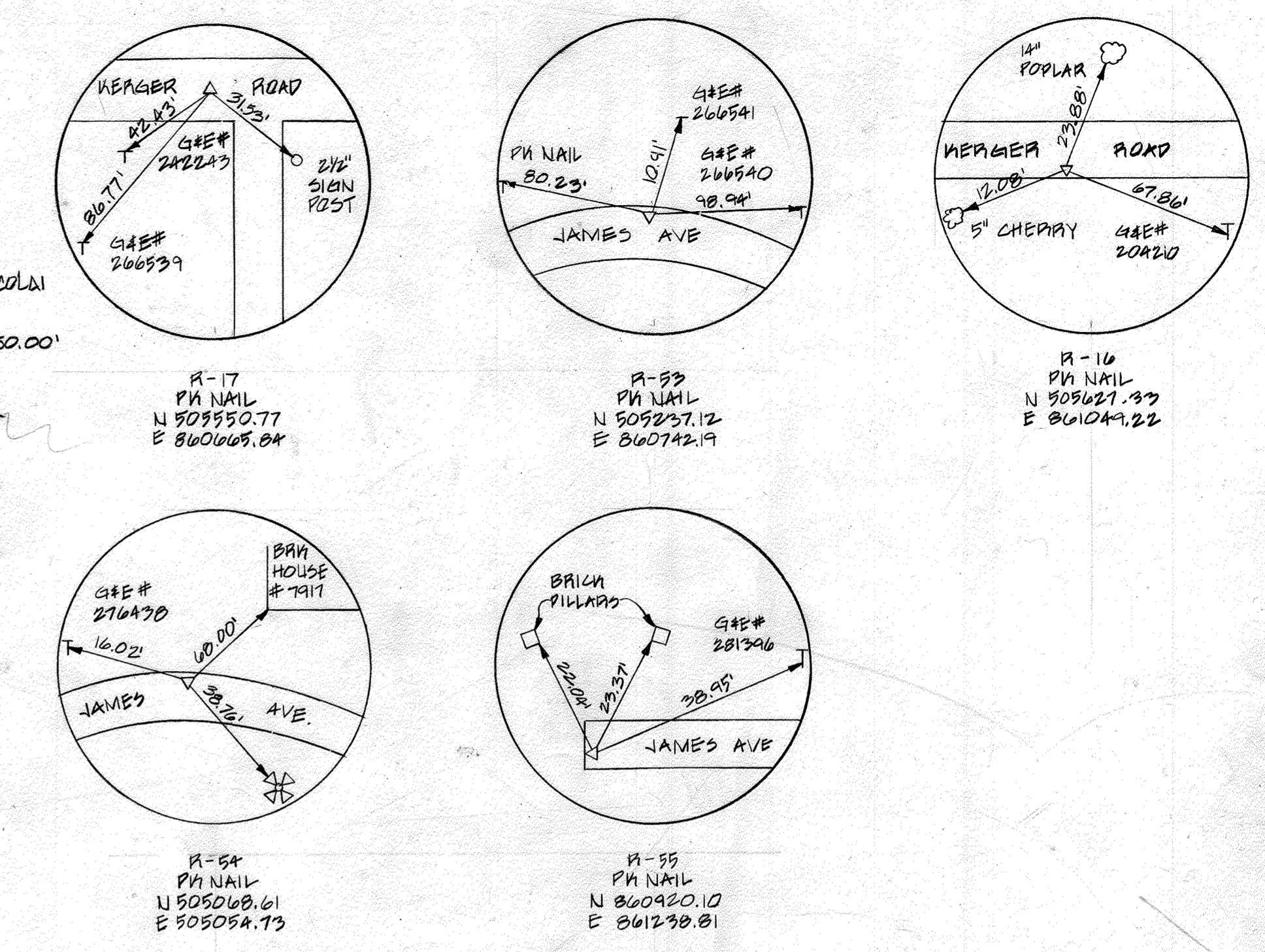
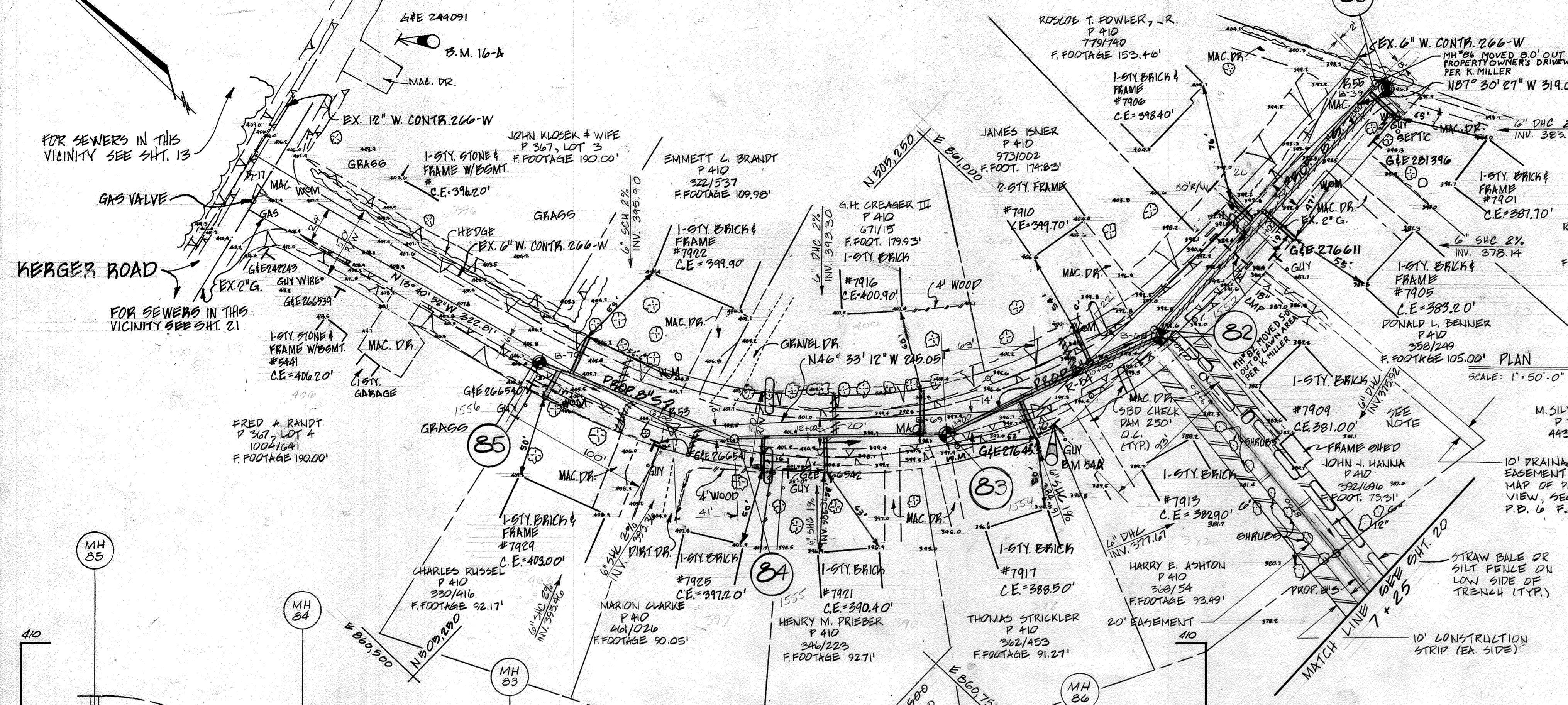
SCALE AS SHOWN
SHEET 21 OF 38
AS-BUILT 9/6/89

BENCH MARK 10-A: SPIKE G#E 244091 ELEV. 400.36'
 BENCH MARK 54-A: SPIKE G#E 270428 ELEV. 396.34'

NOTE 1: PROVIDE VENTED WATERTIGHT MH. INSERT "SEWER GUARD" BY PRECO INDUSTRIES, IN PLACE OF W.T. FRAME & COVER, MH 81.

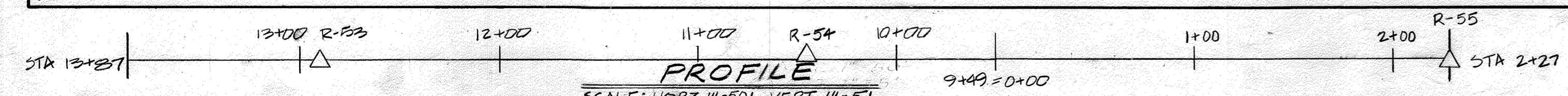
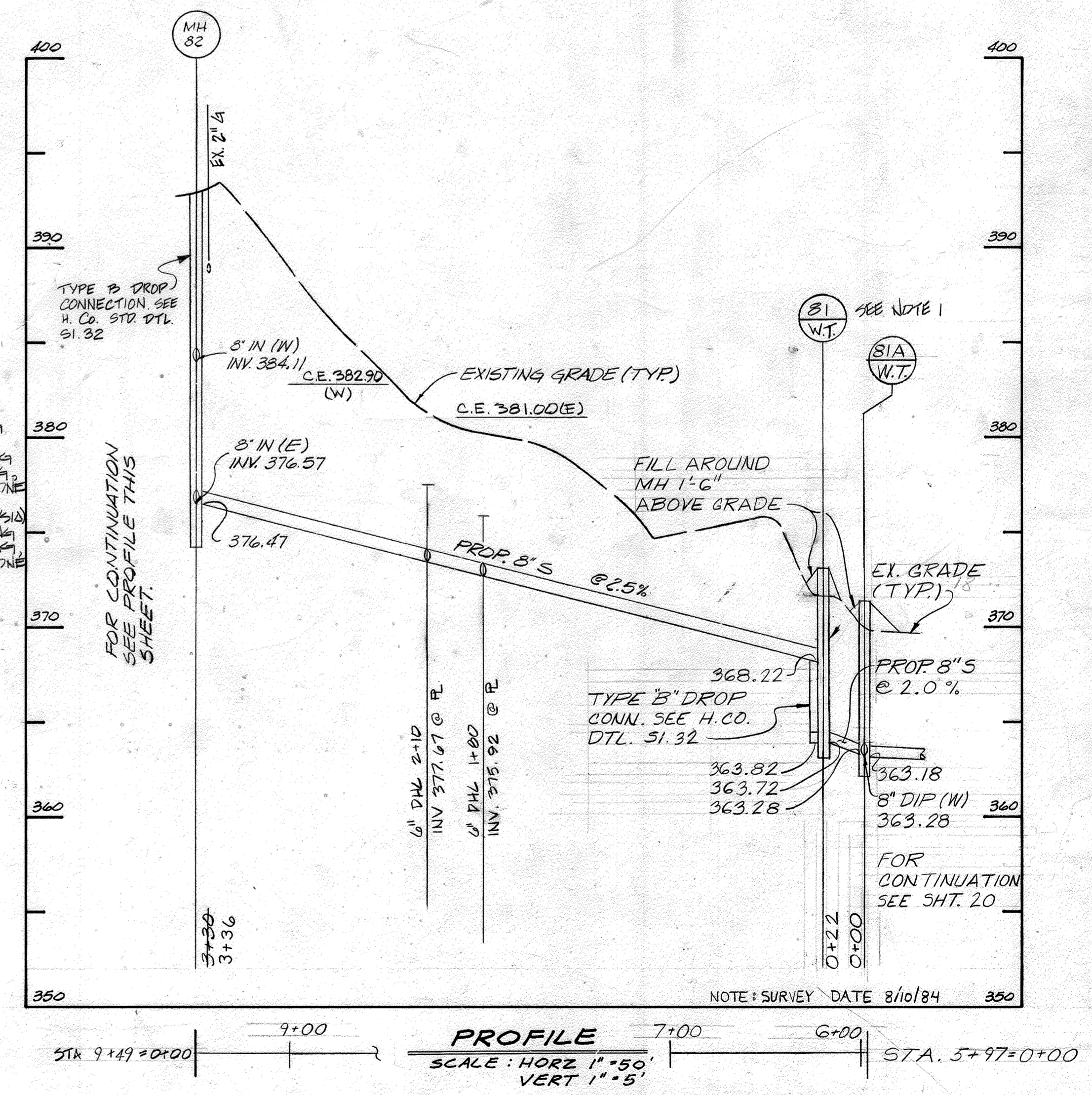
JAMES AVENUE

NOTE: 30D ALL DISTURBED AREAS, STA. 6+15 TO STA. 8+00. CONTRACTOR TO NOTE THAT J. HANNA PROPERTY, 7909 JAMES AVE., IS PLANTED WITH ZYSSIA GRASS AND SHALL BE RE-SODDED IN KIND.



RESTORATION SCHEDULE

MH TO MH	STA TO STA	TYPE
81	82	1+40 TO 2+20 SEED & MULCH SOLID SODDING (ZYSSIA)
82	83	2+20 TO 1+58 ROADWAY - PAVING SHOULDER - PAVING GRANULE OR STONE GRASS - SOLID SODDING (ZYSSIA)
83	84	0+00 TO 1+40 " " " "
84	85	0+00 TO 1+40 " " " "
85	86	0+00 TO 2+27 " " " "



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *John F. Neumir* 3-26-87
 Chief, Bureau of Engineering: *William J. Ryan* 3-25-87
 Chief, Bureau of Utilities: *Robert M. Berman* 3-25-87
 Chief, Utility Division: *Paul D. Ryan* 3/25/87

JOHN E. HARMS, JR. & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.
 DRN: W.M.M.
 CHK: C.B.
 DATE: 5/24/85

BY	NO.	REVISION	DATE

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

SCALE AS SHOWN
 SHEET 22 OF 38

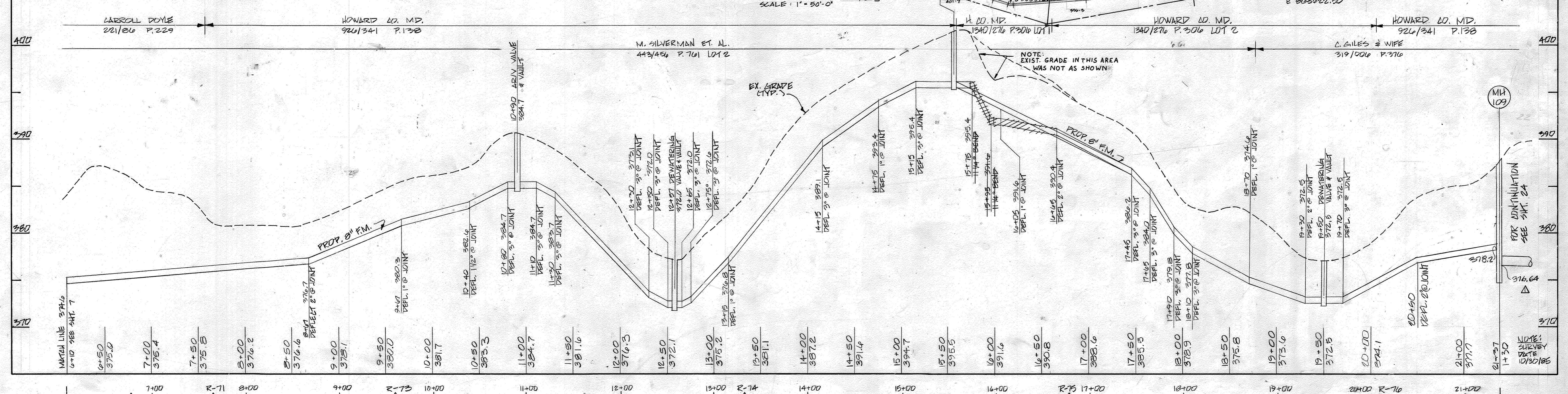
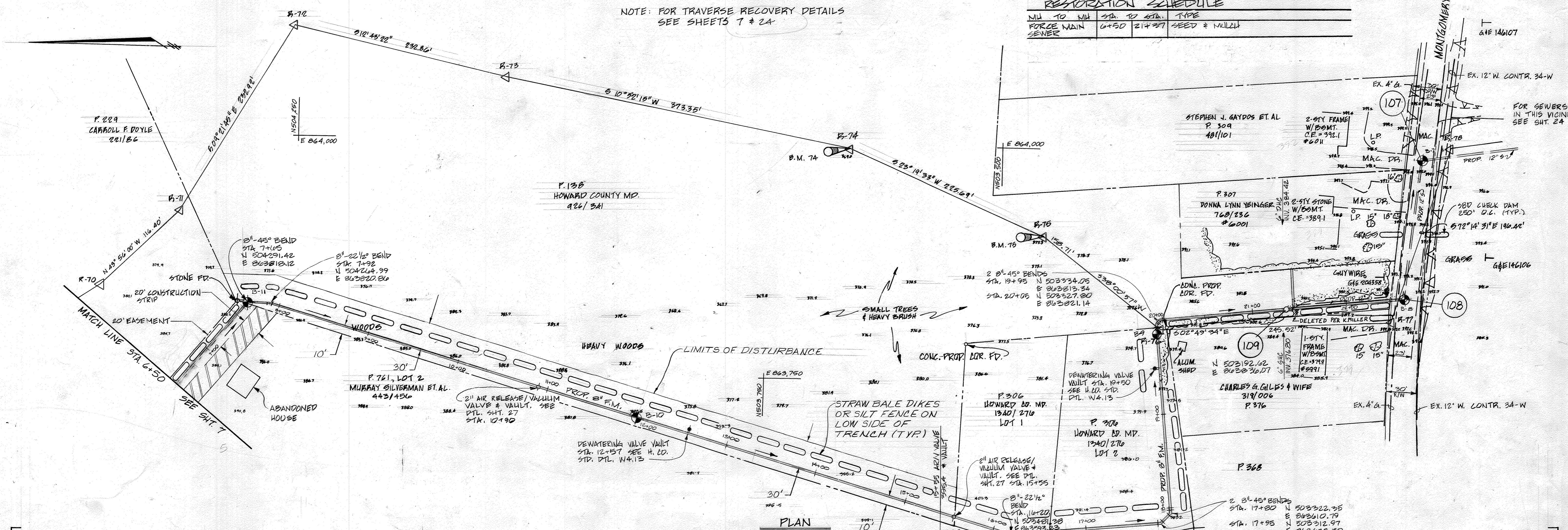
AS-BUILT 9/6/89

B.M. 74: 5/8" IRON PIN (TRANSVERSE POINT) ELEV. 319.00
 B.M. 75: 5/8" IRON PIN (TRANSVERSE POINT) ELEV. 371.26

RESTORATION SCHEDULE

MH TO MH	STA. TO STA.	TYPE
FORCE MAIN	6+50 TO 21+37	SEED & MULCH

NOTE: FOR TRAVERSE RECOVERY DETAILS SEE SHEETS 7 & 24



FORCE MAIN PROFILE
 SCALE: HORIZ. 1" = 50'-0"
 VERT. 1" = 5'-0"

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director: *Debra Nemy* 3-26-87
 Chief, Bureau of Engineering: *Michael E. Reidy* 3-25-87
 Chief, Bureau of Utilities: *Paul J. Ryan* 3/25/87

JOHNE. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: C.B.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO. []	
REVISION: REVISE PIPE ELEVATIONS AT MH 109	
DATE: []	

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 600' SCALE MAP NO. 31, 37 BLOCK NO. 22, 3

SCALE AS SHOWN
 SHEET 23 OF 38
 AS-BUILT 9/6/89

NOTE: 500' ALL DISTURBED AREAS STA. 14+10 TO STA. 18+00.

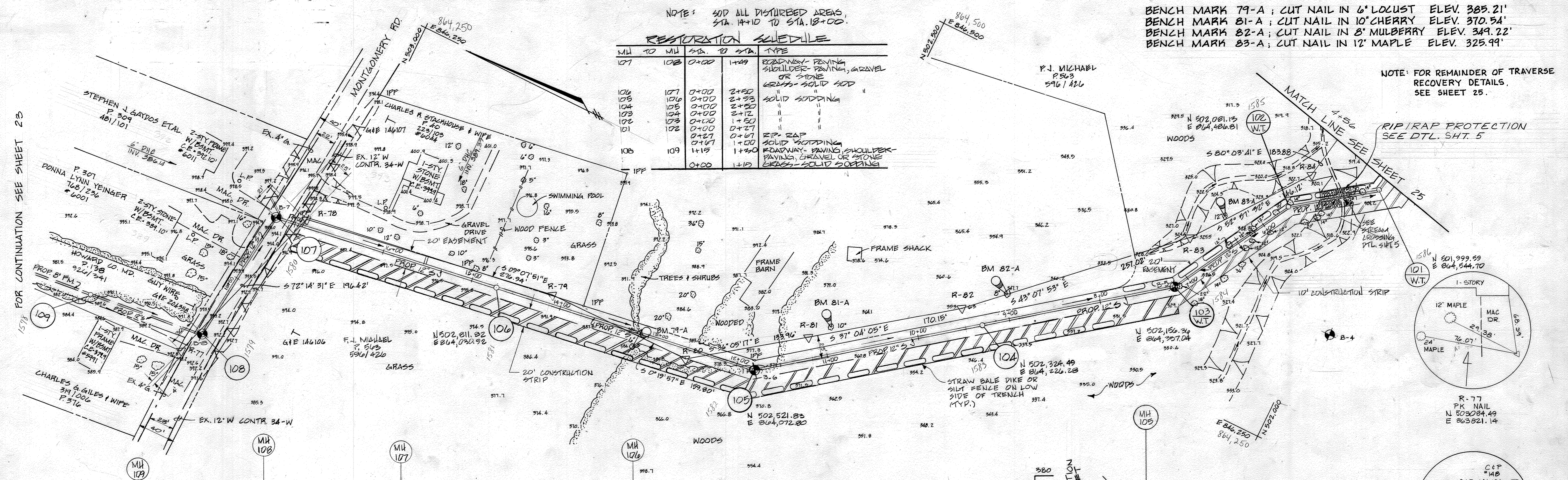
RESTORATION SCHEDULE				
MH TO MH	STA. TO STA.	TYPE	REMARKS	
107	108	0+00	1+49	ROADWAY PAVING SHOULDER PAVING, GRAVEL OR STONE GRASS - SOLID 500'
106	107	0+00	2+50	SOLID SOFTING
106	107	0+00	2+50	SOLID SOFTING
104	105	0+00	2+12	SOLID SOFTING
103	104	0+00	1+50	SOLID SOFTING
102	103	0+00	0+27	SOLID SOFTING
101	102	0+00	0+27	SOLID SOFTING
100	109	1+15	1+50	ROADWAY PAVING SHOULDER PAVING, GRAVEL OR STONE GRASS - SOLID SOFTING
100	108	0+00	1+15	ROADWAY PAVING SHOULDER PAVING, GRAVEL OR STONE GRASS - SOLID SOFTING

BENCH MARK 79-A; CUT NAIL IN 6" LOCUST ELEV. 385.21'
 BENCH MARK 81-A; CUT NAIL IN 10" CHERRY ELEV. 370.54'
 BENCH MARK 82-A; CUT NAIL IN 8" MULBERRY ELEV. 349.22'
 BENCH MARK 83-A; CUT NAIL IN 12" MAPLE ELEV. 325.99'

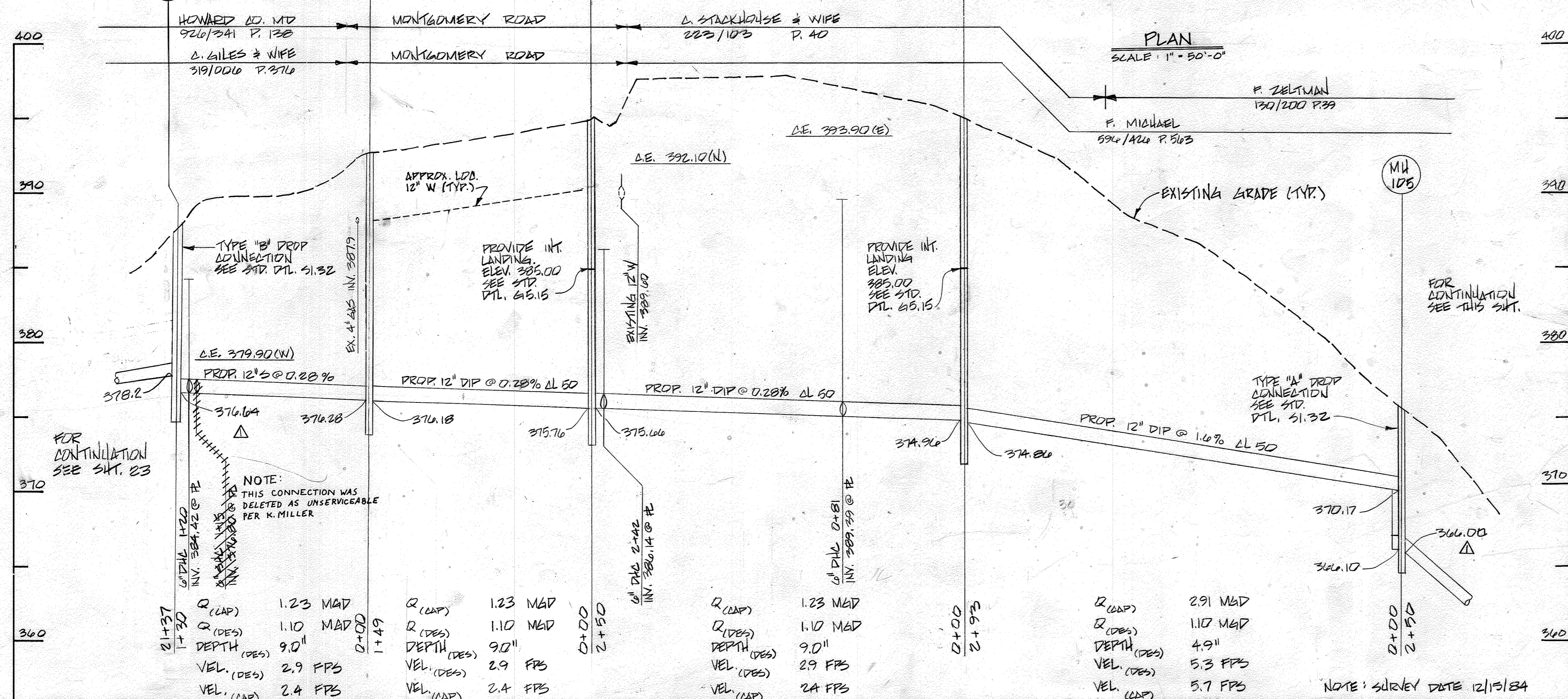
NOTE: FOR REMAINDER OF TRAVERSE RECOVERY DETAILS SEE SHEET 25.

FOR CONTINUATION SEE SHEET 23

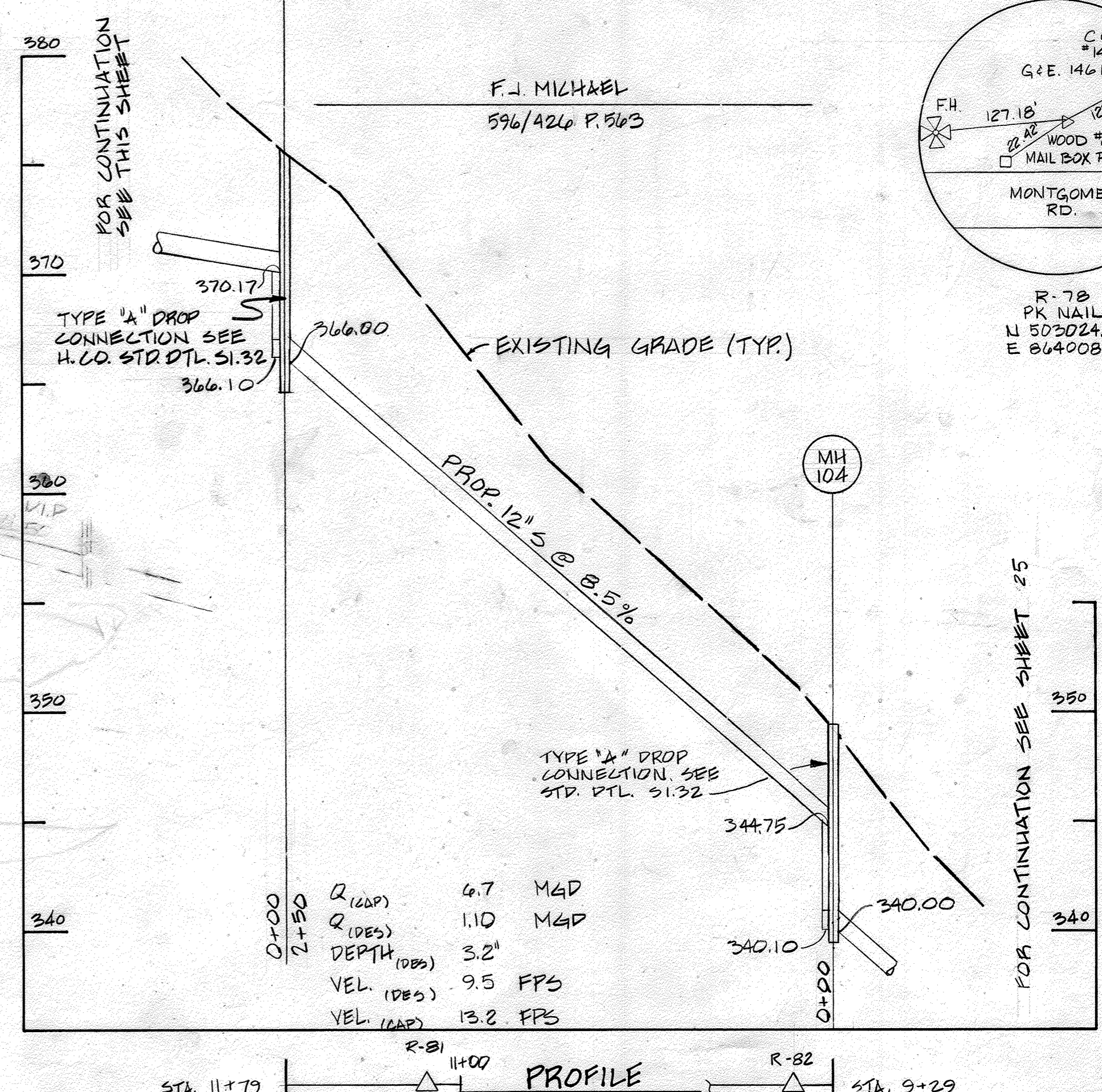
MATCH LINE 4+56 SEE SHEET 25



PLAN SCALE: 1" = 50'-0"



PROFILE SCALE: HORIZ. 1" = 50'-0" VERT. 1" = 5'-0"



PROFILE SCALE: HORIZ. 1" = 50'-0" VERT. 1" = 5'-0"

CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT 5-6089

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John F. Neuma 3-26-07
 DIRECTOR OF PUBLIC WORKS

John E. Harms, Jr. 3-25-07
 CHIEF, BUREAU OF ENGINEERING

Paul R. Ryan 3/15/07
 CHIEF, UTILITY DIVISION

JOHN E. HARMS, JR & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 P.O. BOX 5
 PASADENA, MARYLAND



DES: R.N.T.	
DRN: R.N.T.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO. []	
REVISION	
DATE	

PIPING PLAN AND PROFILE
 KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION

600' SCALE MAP NO. 37 BLOCK NO. 4

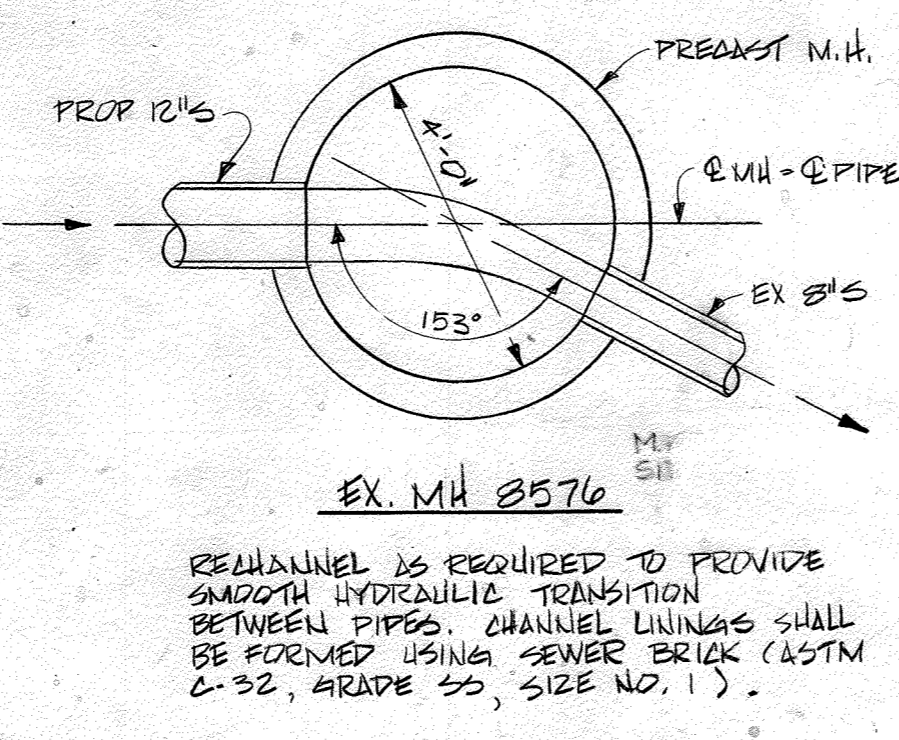
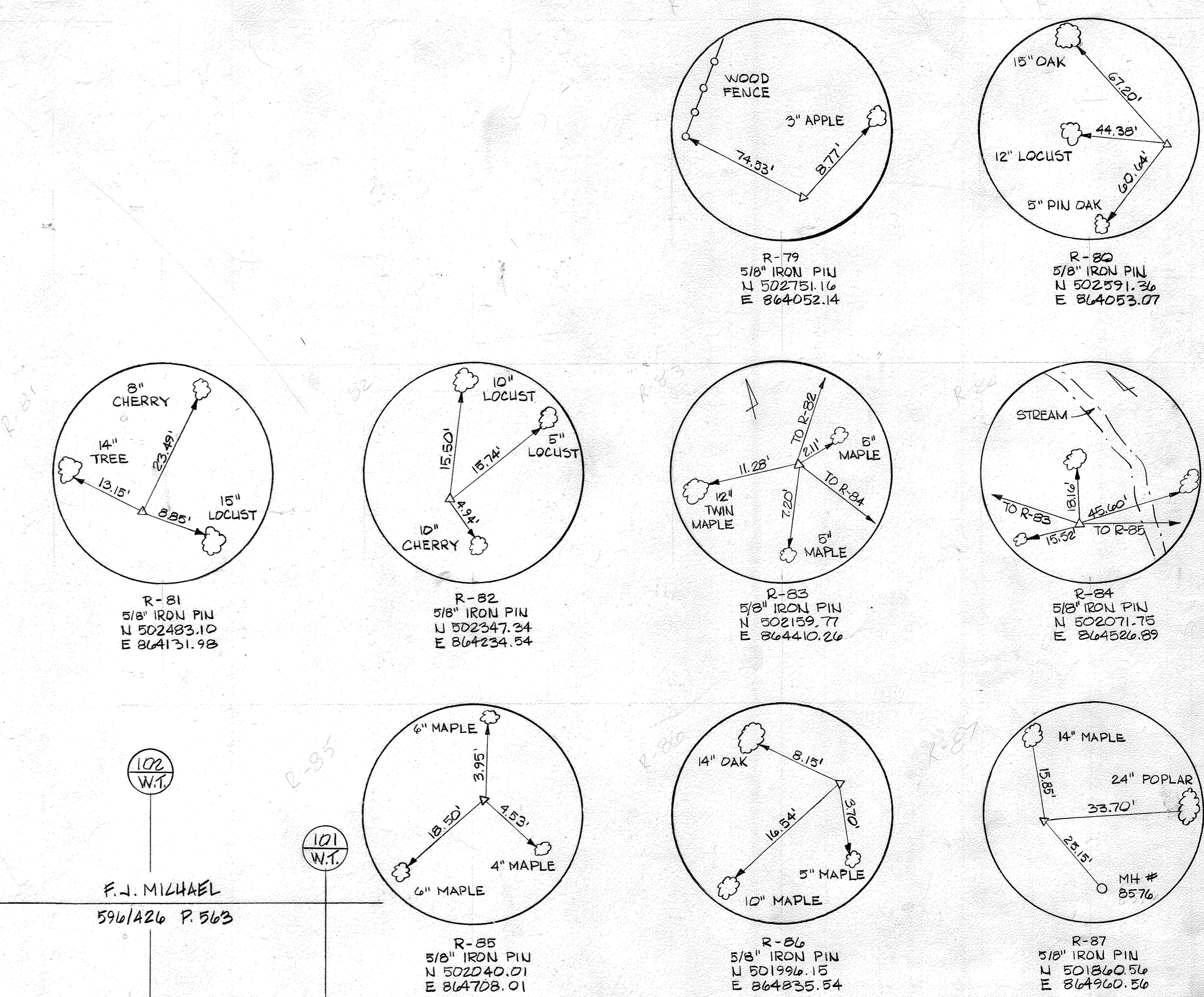
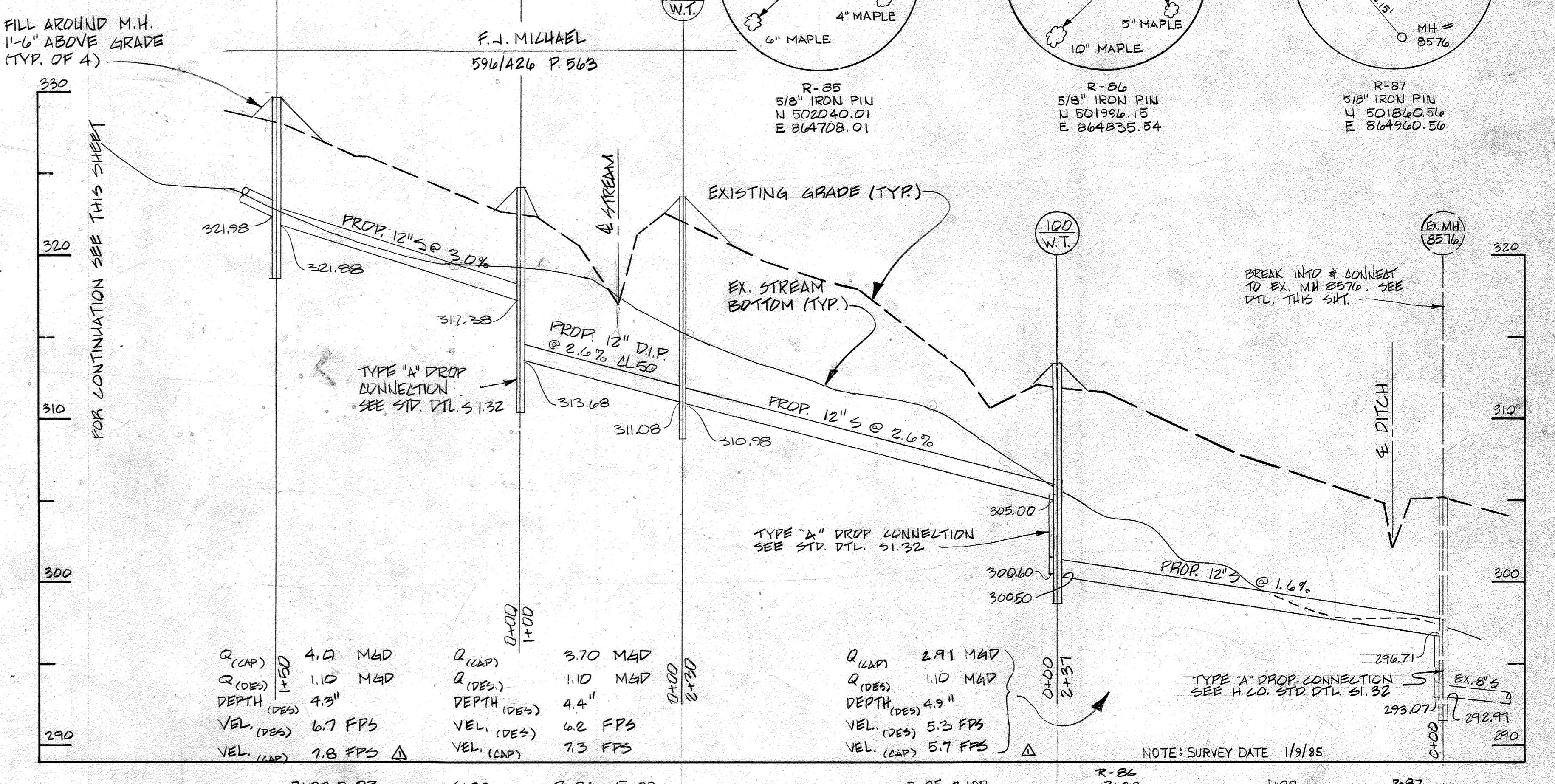
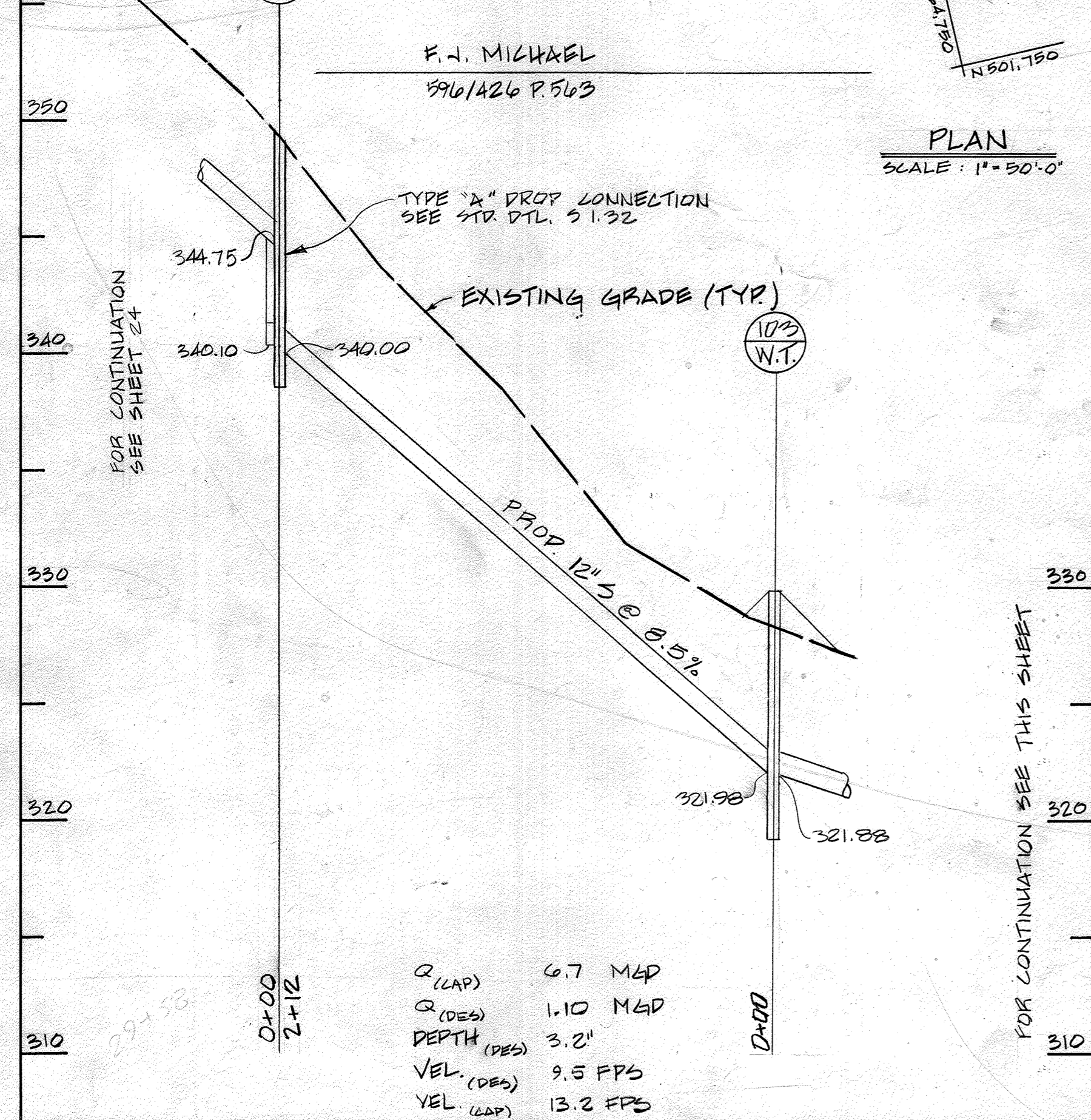
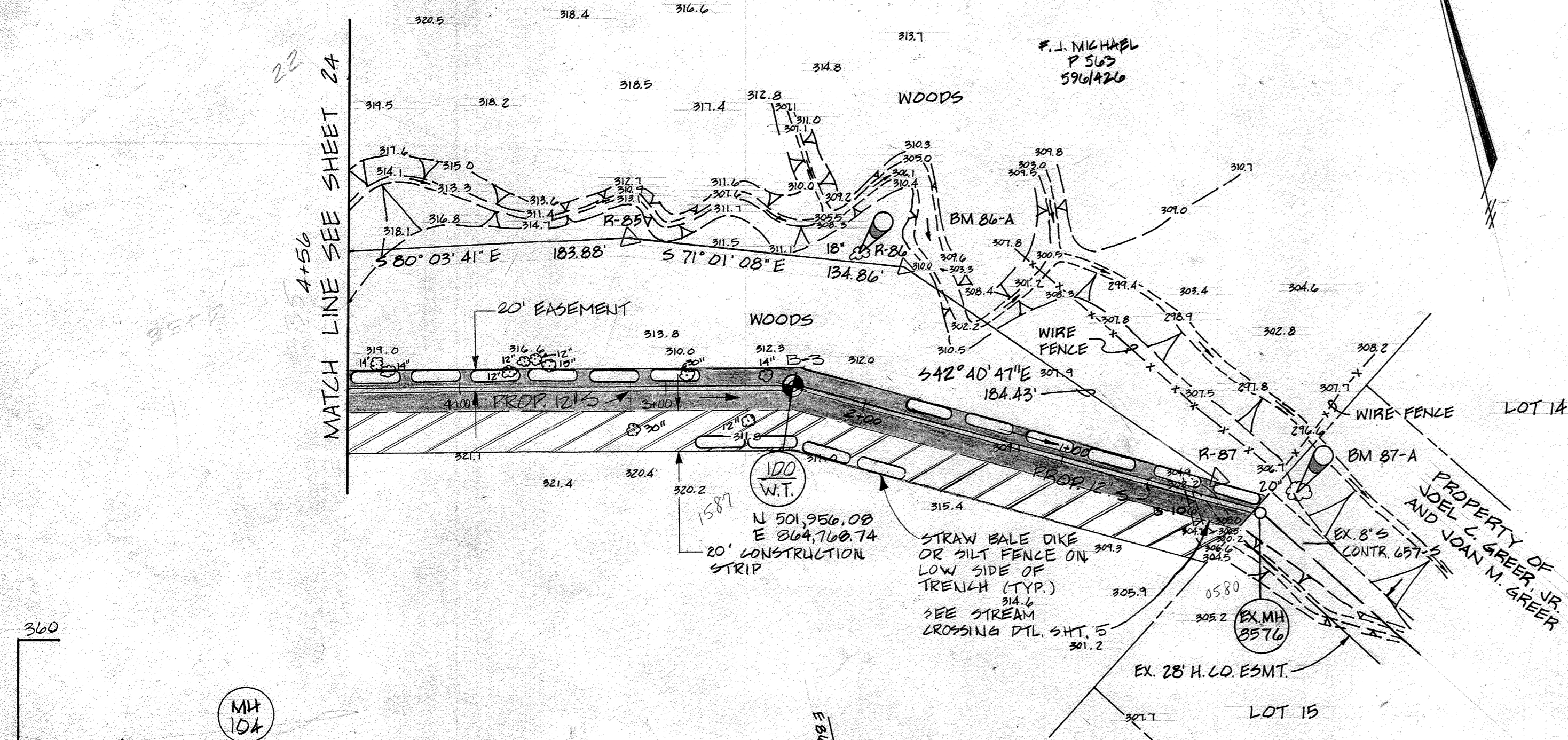
KERGER ROAD COLLECTION SYSTEM
 AND PUMPING STATION
 HOWARD COUNTY, MARYLAND
 CONTRACT NO. 10-1215

SCALE AS SHOWN
 SHEET 24 OF 38

AS-BUILT 9/6/09

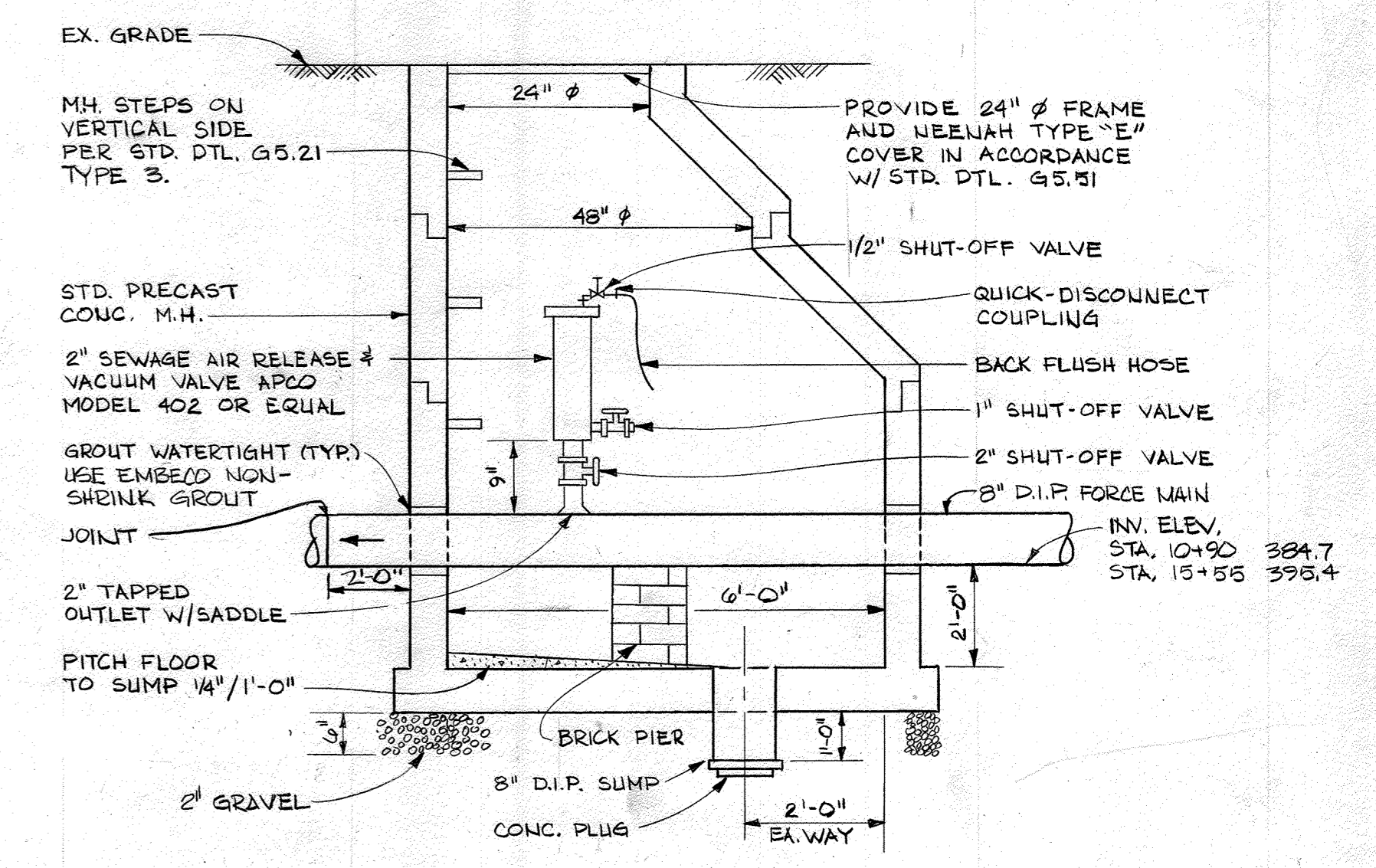
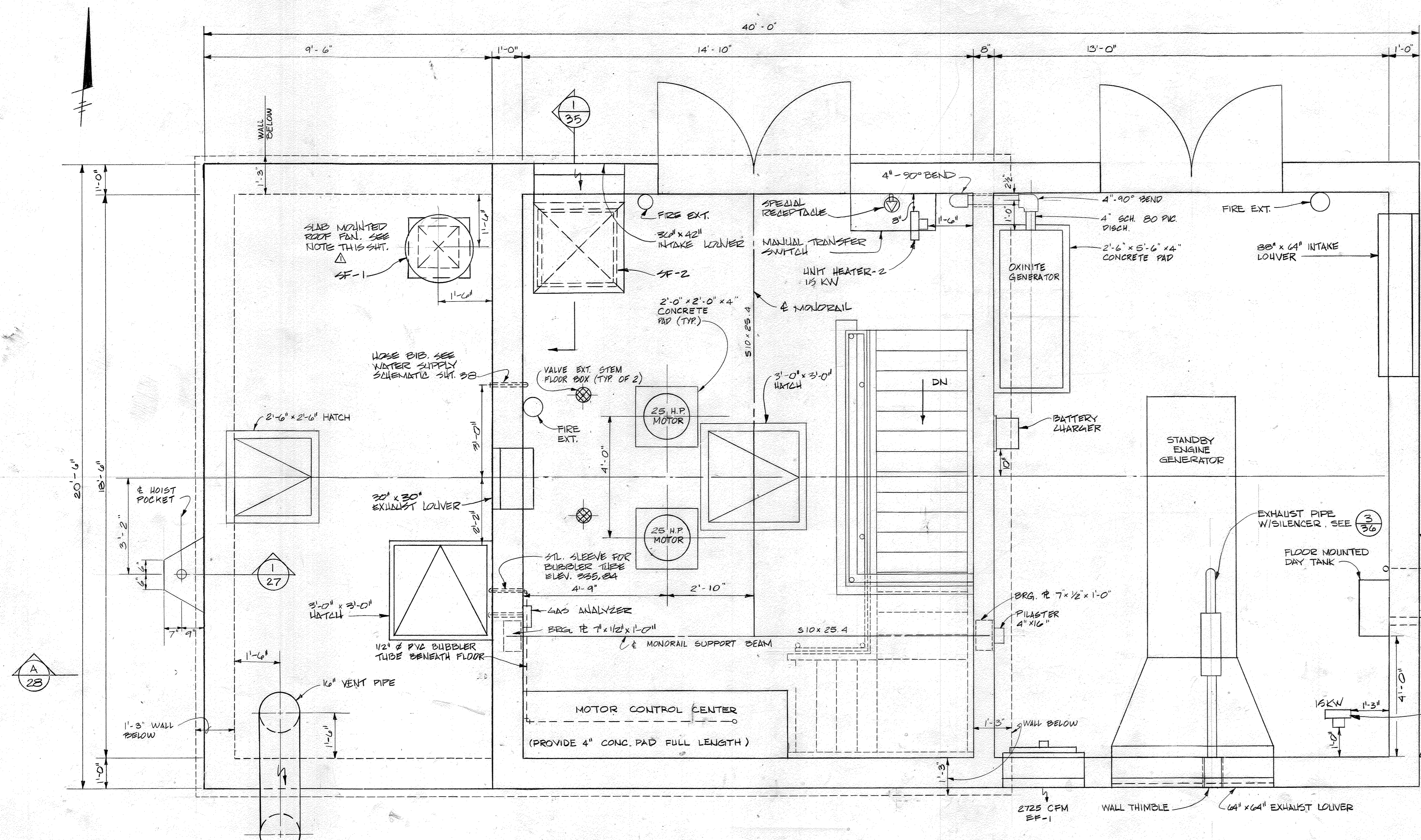
MU TO MU	STB TO STB	TYPE
100 TO 101	0+00 TO 2+30	SOLID SODDING
2+30 TO 2+70	0+00 TO 2+30	"

BENCH MARK 86-A; CUT NAIL IN 18" POPLAR ELEV. 311.46'
 BENCH MARK 87-A; CUT NAIL IN 20" POPLAR ELEV. 306.38'

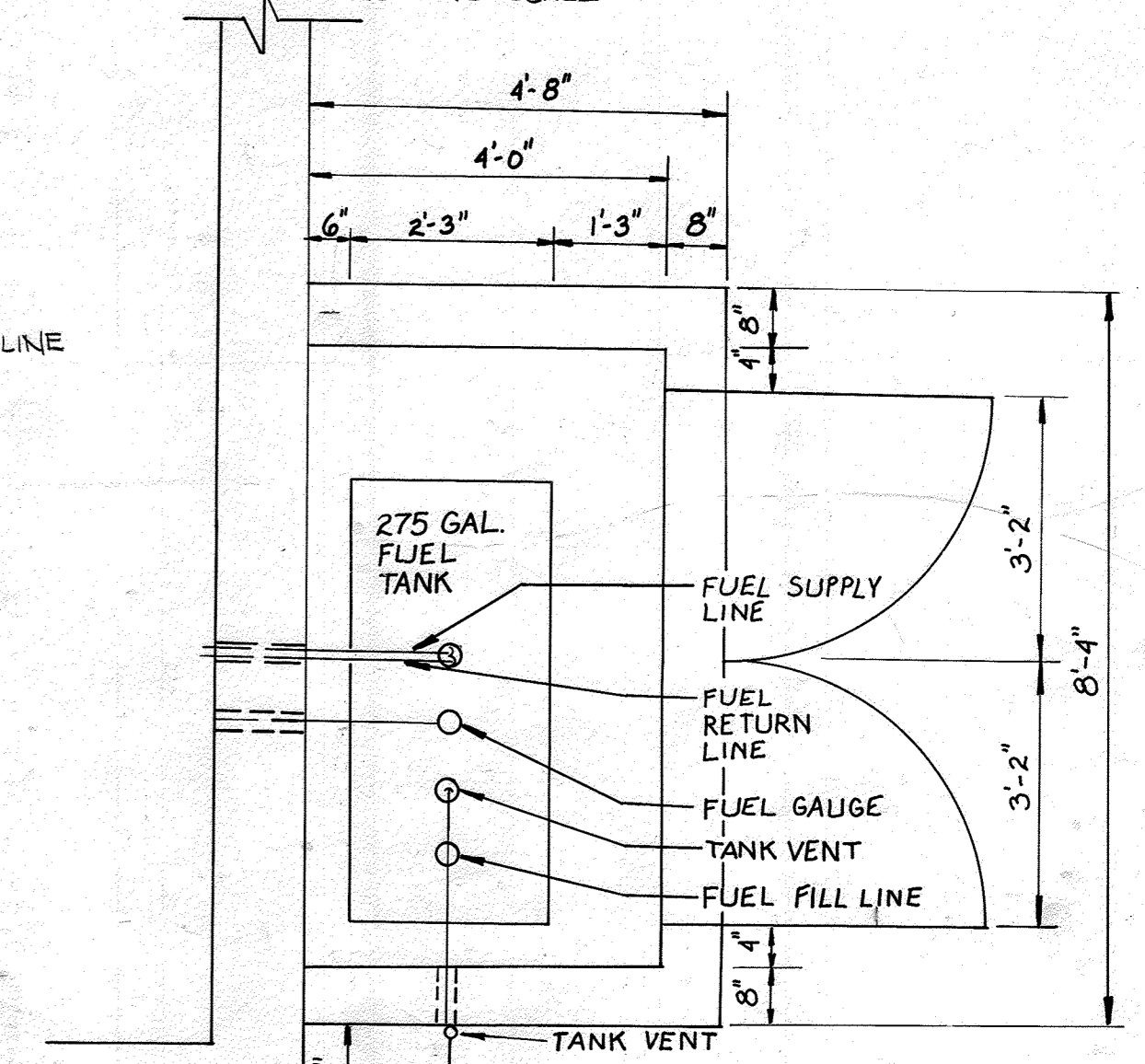


CONTRACT NO. 10-1215
 KERGER ROAD COLLECTION SYSTEM & PUMP STATION
 HOWARD COUNTY CAPITAL PROJECT S-6089

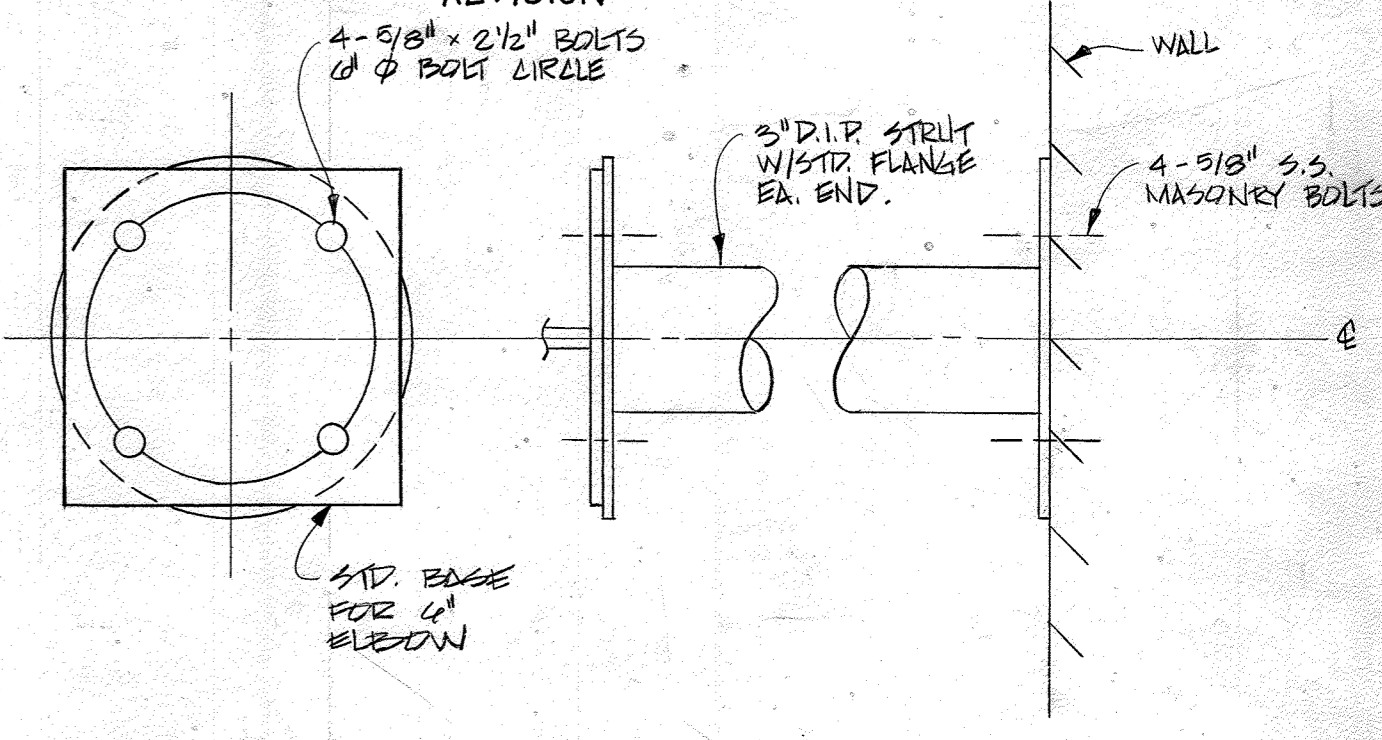
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director: F. Nummy 3-26-87 Chief, Bureau of Engineering: R. Cassin 3-25-87 Chief, Bureau of Utilities: R. ... 3-25-87	JOHN E. HARMS, JR & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: R.N.T.	PIPING PLAN AND PROFILE KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION	KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215	SCALE AS SHOWN SHEET 25 OF 38
			DRN: R.N.T. CHK: C.B. DATE: 5/24/85			



AIR RELEASE/VACUUM VALVE DTL. STA. 10+90, 15+56
NOT TO SCALE



KERGER ROAD PUMP STA. PUMP STA.-GROUND LEVEL
PLAN FUEL TANK SHED
REVISION



3-INCH D.I.P. STREET DTL.
NOT TO SCALE

NOTES: FOR FLOOR SLAB REINFORCEMENT DTL. SEE SH. 32.
EXTEND 1/2" PVC DUCT FOR S.F.-1 TO ELEV. 331.00. PROVIDE GALV. STL. WALL BRACES TOP & BOTTOM

GROUND LEVEL
SCALE: 1/2" = 1'-0"

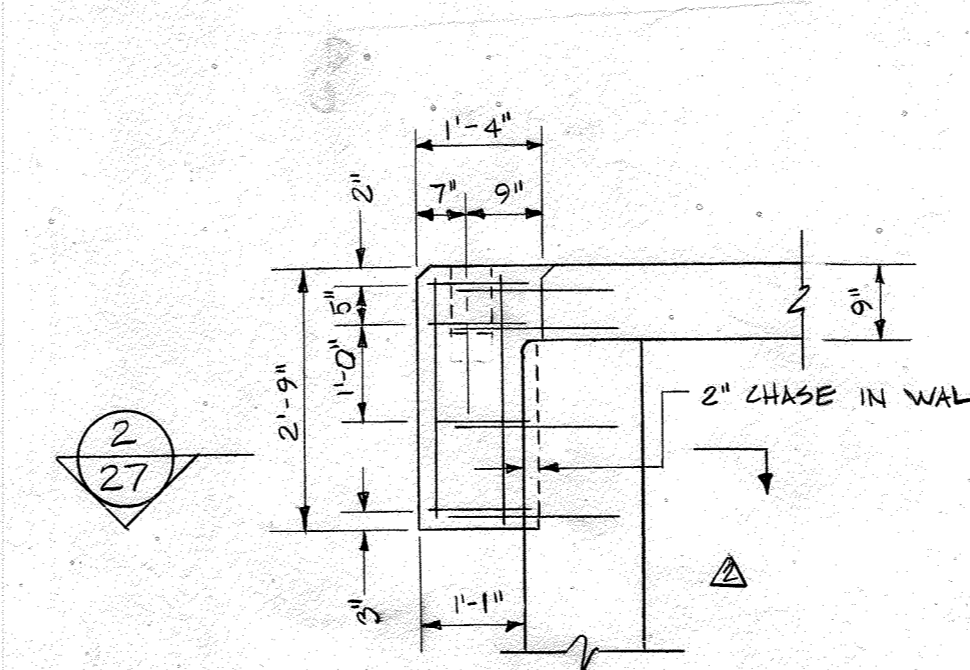
LINTELS

UNLESS NOTED OTHERWISE, LINTELS OVER MASONRY OPENINGS SHALL BE AS FOLLOWS:

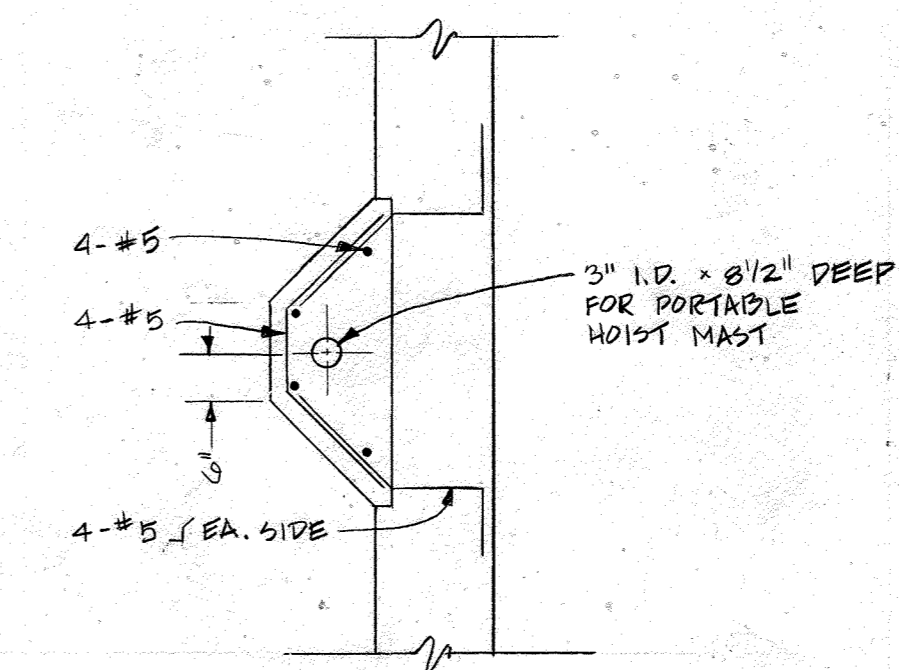
MASONRY OPS.	STEEL LINTEL
UP TO 4'-0" WIDE	1-2 1/2" x 3 1/2" x 3/8" FOR 4" OF WALL THICKNESS WITH A MIN. OF 6" BEARING EACH END.
4'-0" TO 6'-0" WIDE	1-2 5/8" x 3 1/2" x 3/8" FOR 4" OF WALL THICKNESS WITH A MIN. OF 6" BEARING EACH END.
6'-0" TO 10'-0" WIDE	1-2 1/2" x 3 1/2" x 3/8" FOR 4" OF WALL THICKNESS WITH A MIN. OF 6" BEARING EACH END.

MASONRY OPS.	PRE-CAST CONCRETE LINTELS
4" TO 4'-0"	1-7 9/16" x 3 5/8" W/ 1-3/8" Ø DEF. BAR FOR EA 4" WALL
4" TO 9'-0"	1-7 9/16" x 3 5/8" W/ 1-1/2" Ø DEF. BAR FOR EA 4" WALL

TOP OF LINTEL TO BE MARKED OR 1-BAR PLACED TOP & BOTTOM



PORTABLE HOIST SUPPORT
NOT TO SCALE

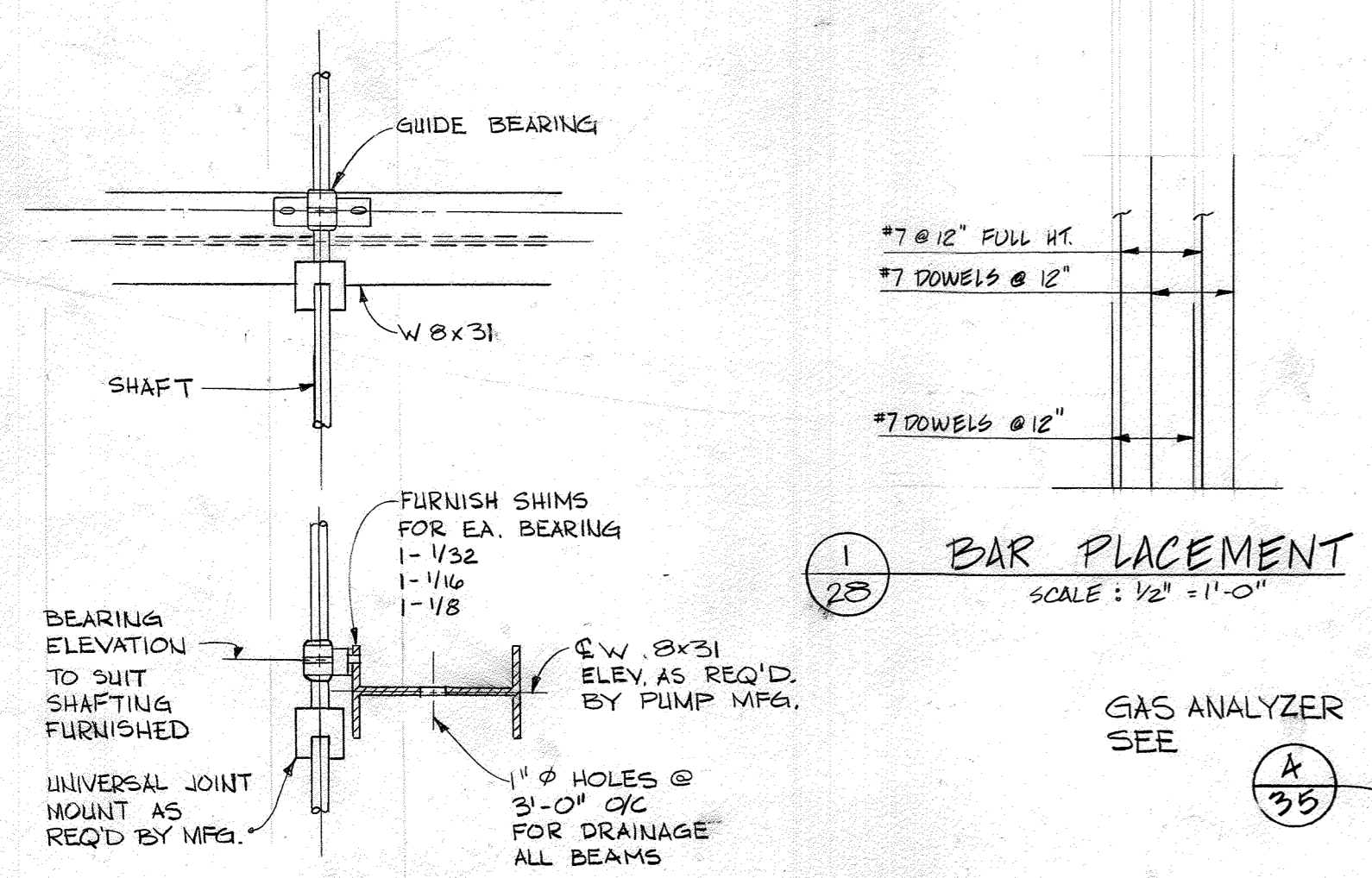


SECTION-HOIST SUPPORT
NOT TO SCALE

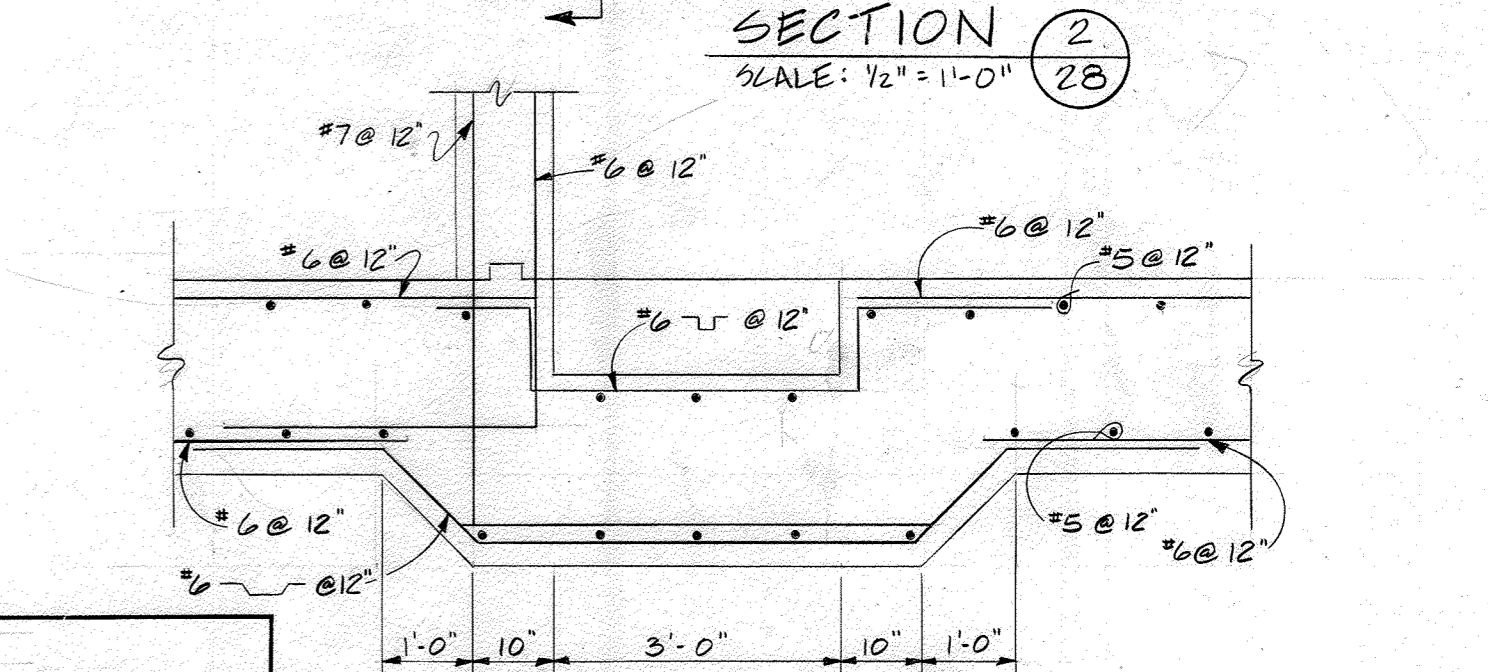
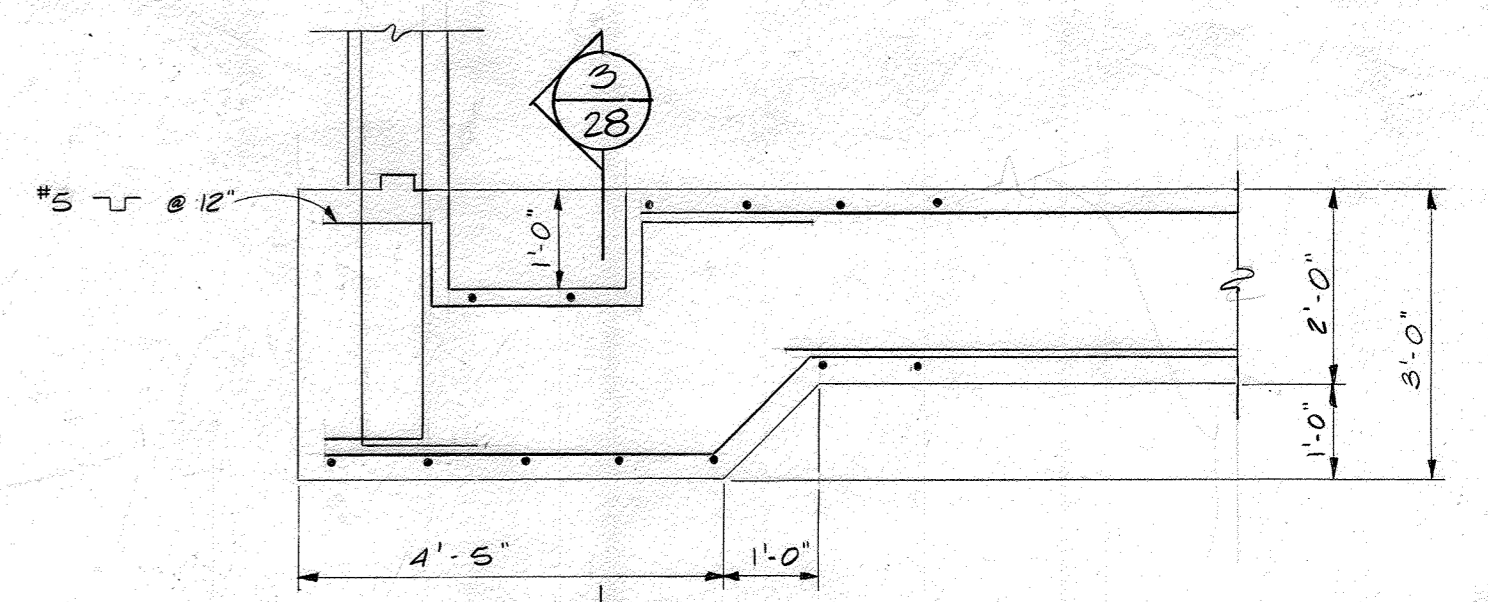
CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>George F. Nunn</i> 3-26-87 Chief, Bureau of Utilities: <i>Robert M. Berman</i> 3-25-87	JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: C.B.		PUMP STATION - PLAN KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION	KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215	SCALE AS SHOWN SHEET 27 OF 38
			DRN: C.M.				

NOTE: EXTEND 16" DIA. PVC DUCT THRU TOP SLAB INTO WETWELL. SECURE TO WALL W/ GALV. STL BRACES TOP & BOTTOM. TERMINATE DUCT AT ELEV. 321.00.

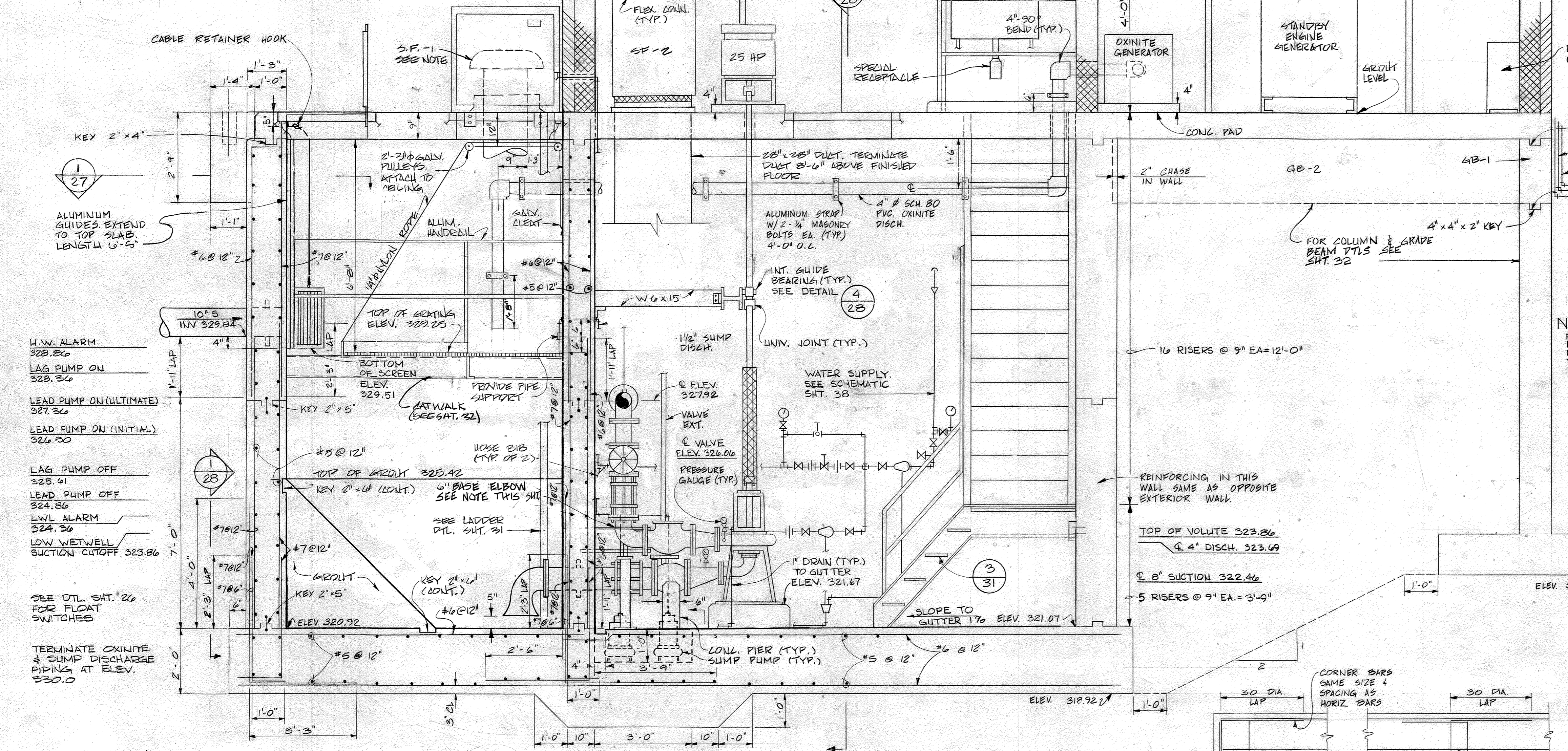


BAR PLACEMENT
SCALE: 1/2" = 1'-0"



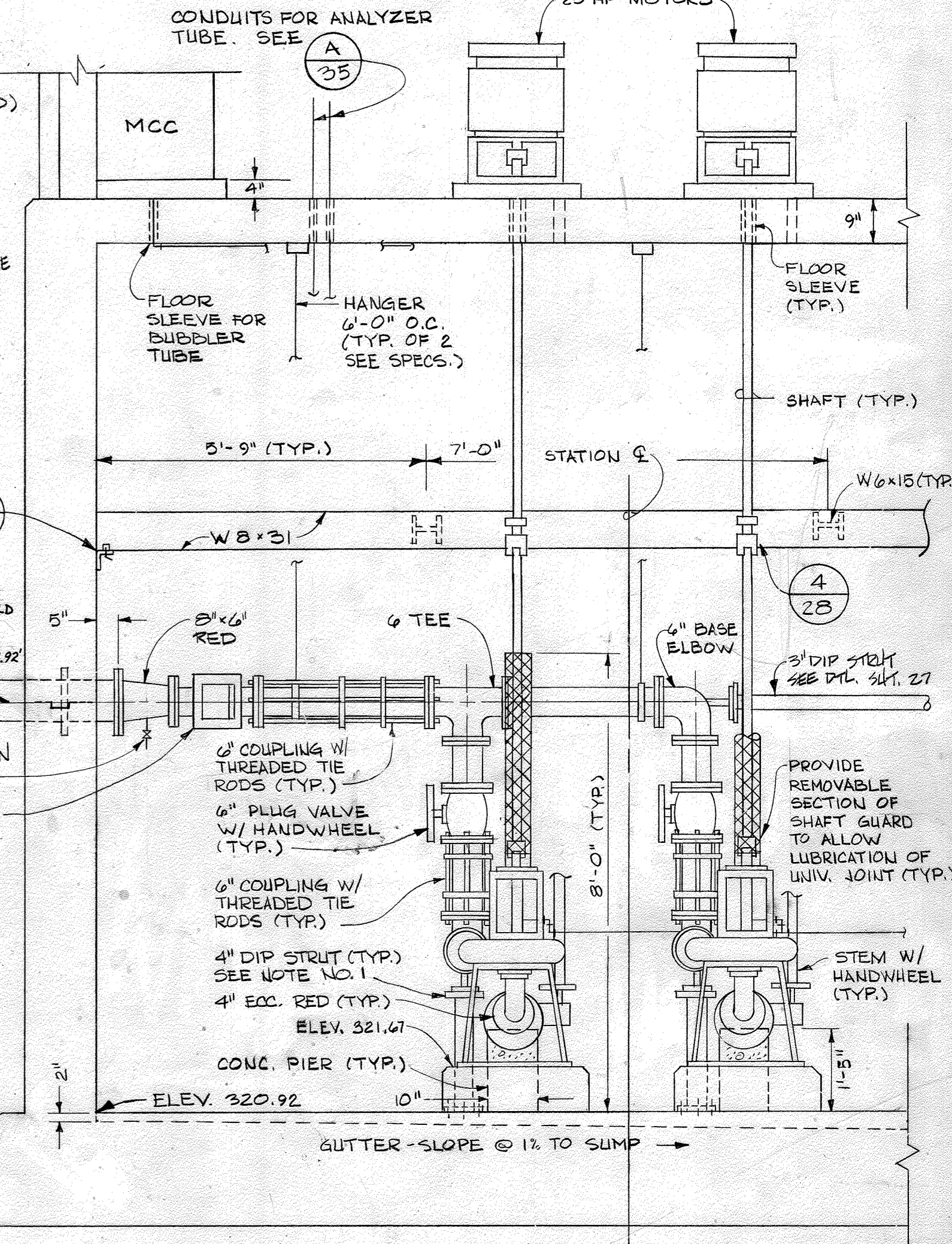
NOTE: FOR PUMP SECTION A-28 FUEL TANK SHED REVISION SEE SHEET 30

GUIDE BEARING DETAIL
NOT TO SCALE



NOTE: FOR PUMP SECTION A-28 FUEL TANK SHED REVISION SEE SHEET 30

NOTE: F.M. DISCHARGE WAS MOVED UP SO IT WOULD NOT INTERFERE WITH REGD CONSTRUCTION @ 328.92



NOTE: 6" BASE ELBOW SHALL BE PROVIDED W/ 1/4" - 3/4" DIA. GALV. STL. ALL THREADED BRACING RODS EXTENDING FROM 2" VALVE TO FLANGE (TYPICAL OF 2)

SECTION A-28
SCALE: 1/2" = 1'-0"

TYPICAL WALL CORNER DETAIL
SCALE: 1/2" = 1'-0"

TYPICAL DETAIL AT WALL INTERSECTION
SCALE: 1/2" = 1'-0"

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John F. Numa, 3-26-87, Director of Public Works
Robert R. Berman, 3-25-87, Chief, Bureau of Utilities

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND
3-25-87, Chief, Utility Division



DES: C.B.	
DRN: C.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO.:	
REVISION:	ADD NOTE FOR SUPPLY END
DATE:	

PUMP STATION - SECTIONS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

SCALE AS SHOWN
SHEET 28 OF 38
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

AS-BUILT 9/6/89

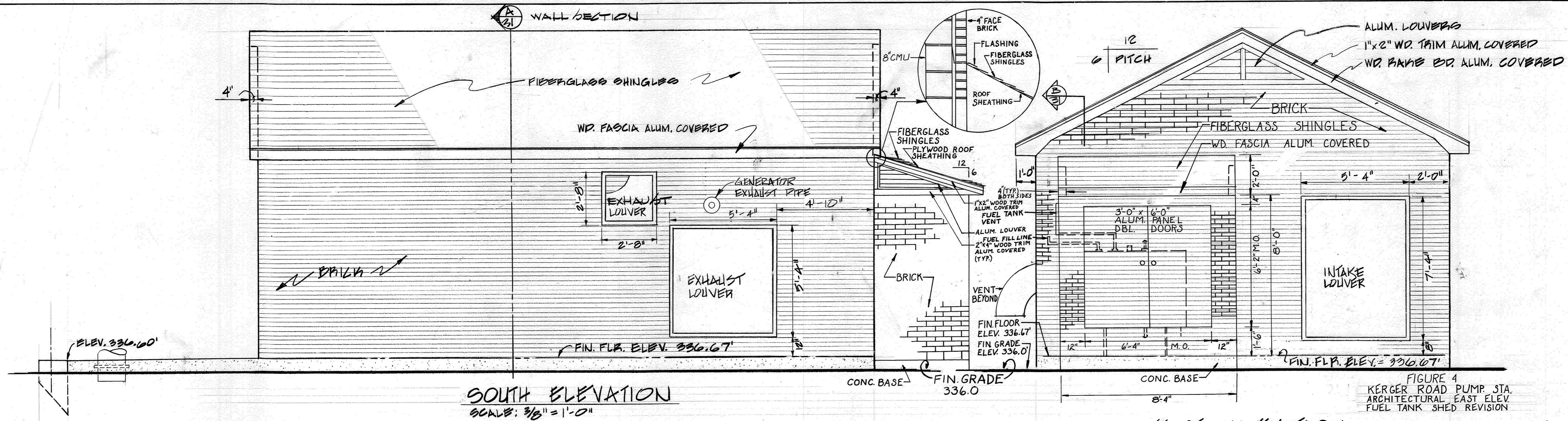
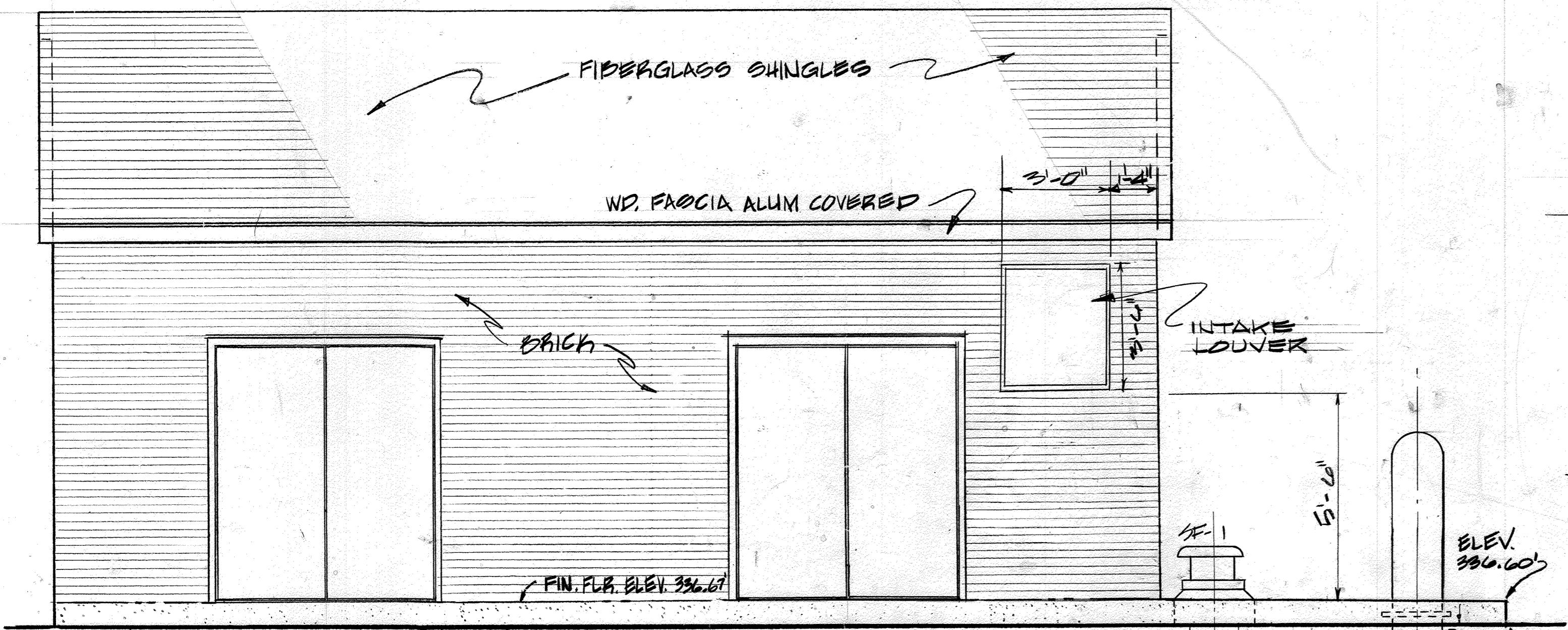
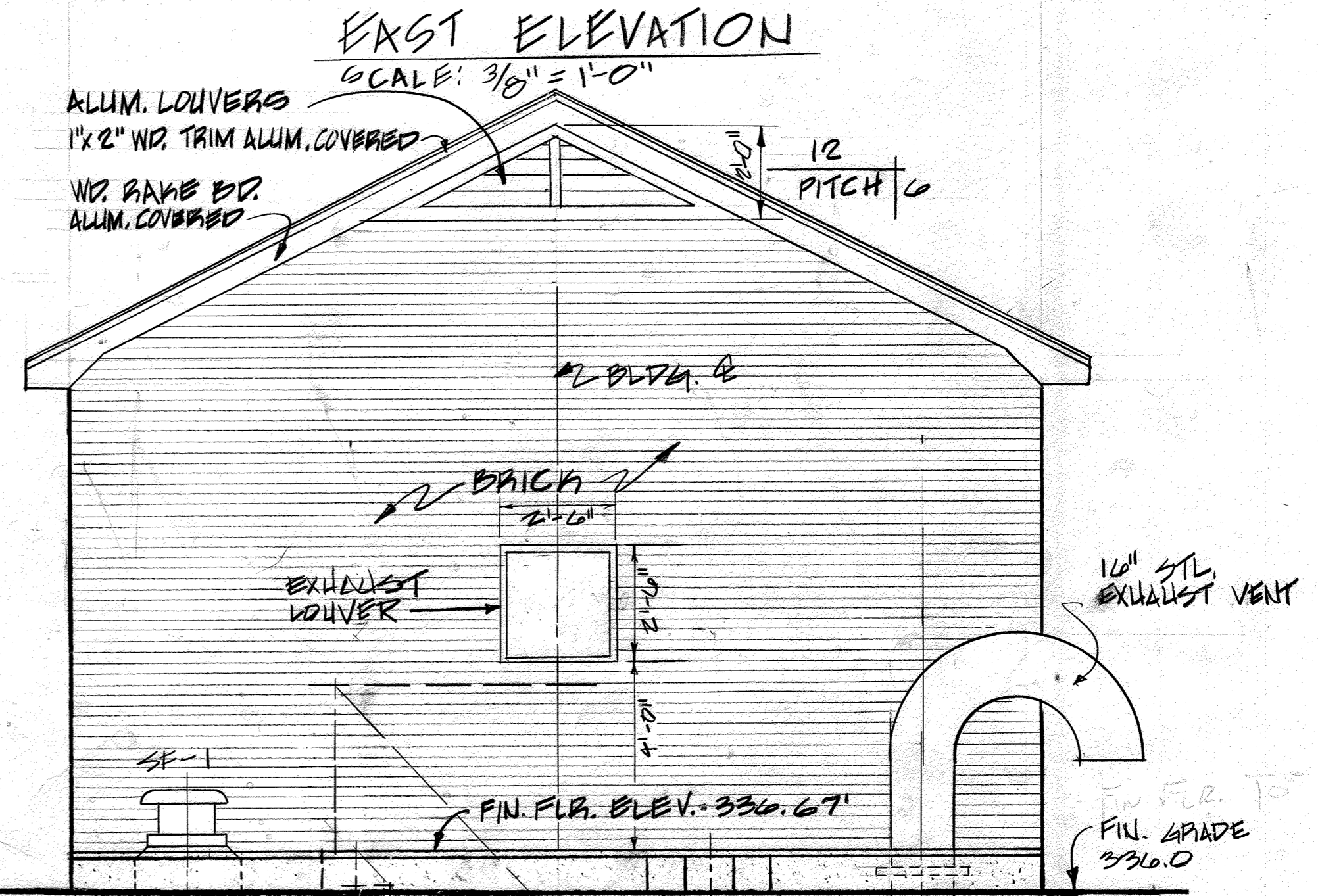


FIGURE 4
KERGER ROAD PUMP STA.
ARCHITECTURAL EAST ELEV.
FUEL TANK SHED REVISION



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



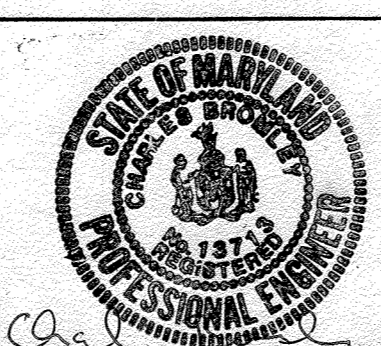
WEST ELEVATION
SCALE: 3/8" = 1'-0"

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

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-26-87
3-25-87
3-25-87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



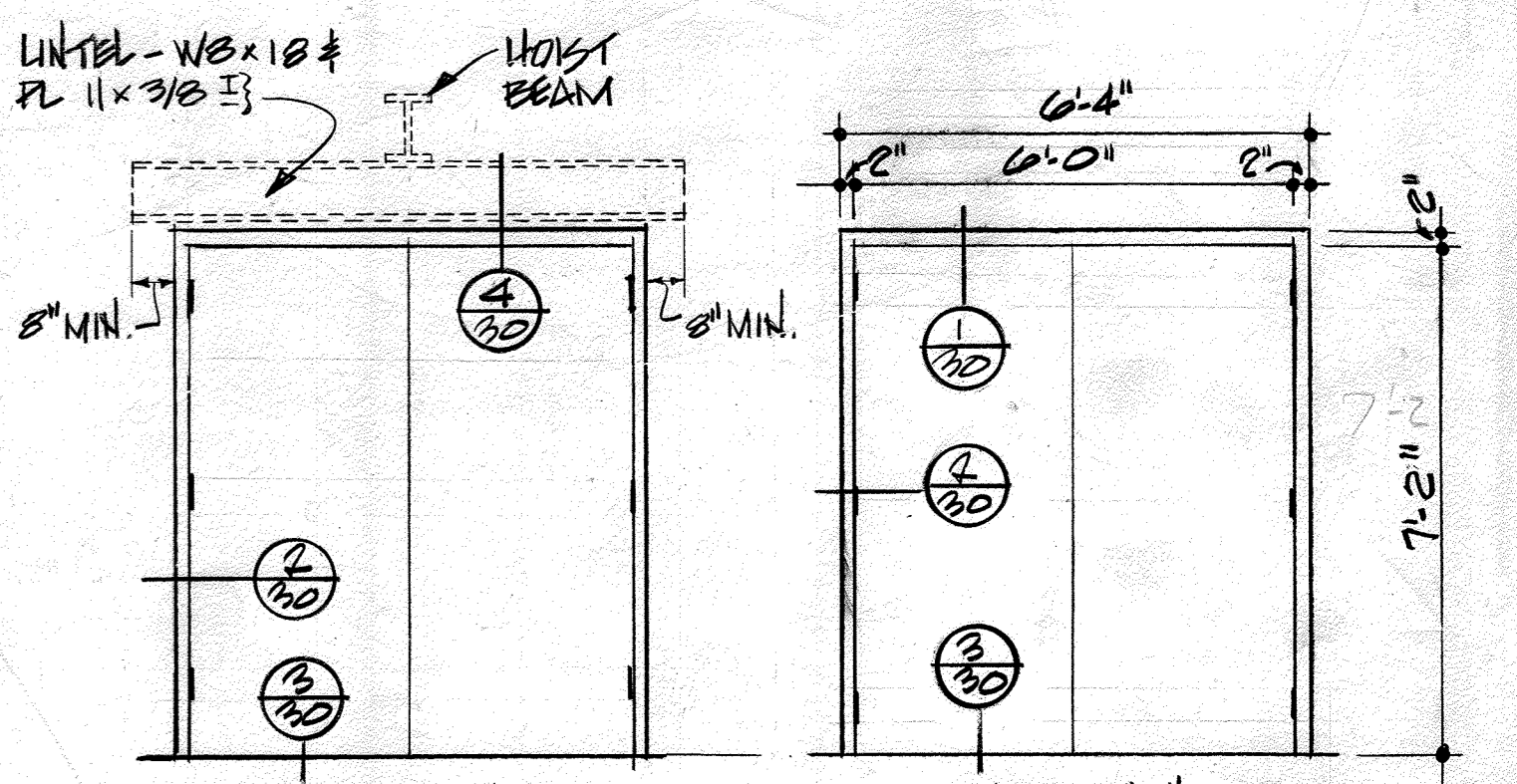
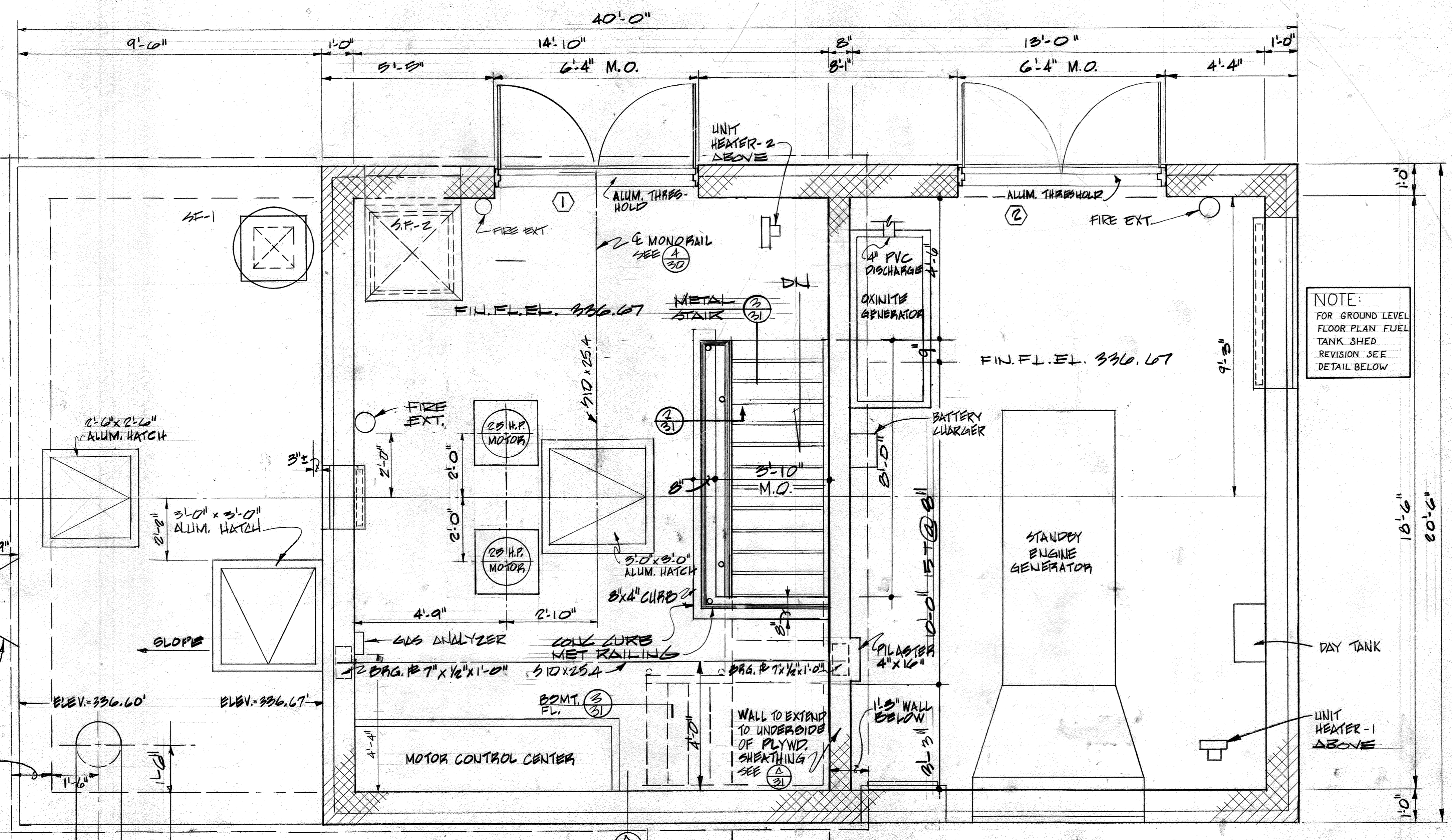
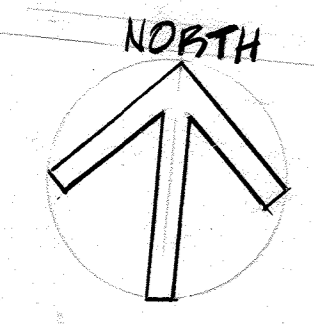
DES: W.M.M.	
DRN: W.M.M.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO. []	
EXTEND SUPPLY PLOT INTO WETWELL	
REVISION	
DATE	

ARCHITECTURAL - ELEVATIONS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

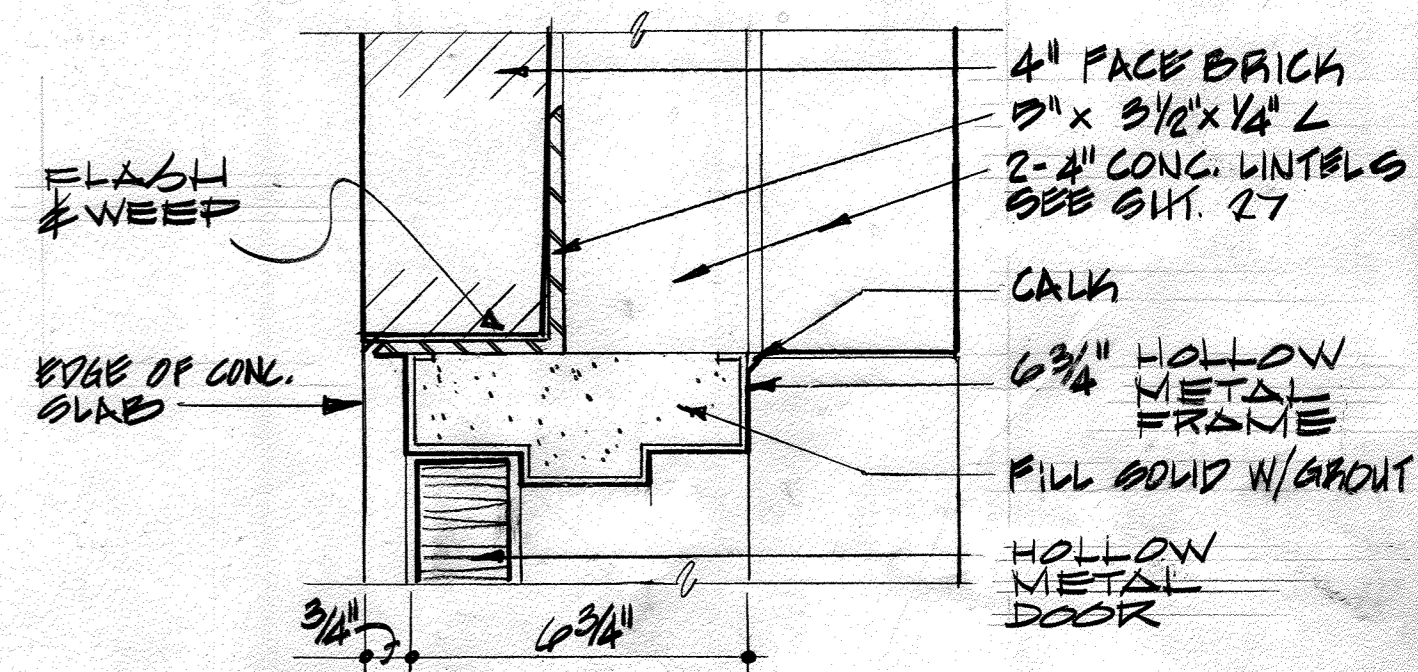
SCALE AS SHOWN
SHEET 29 OF 38

AS-BUILT 9/6/89

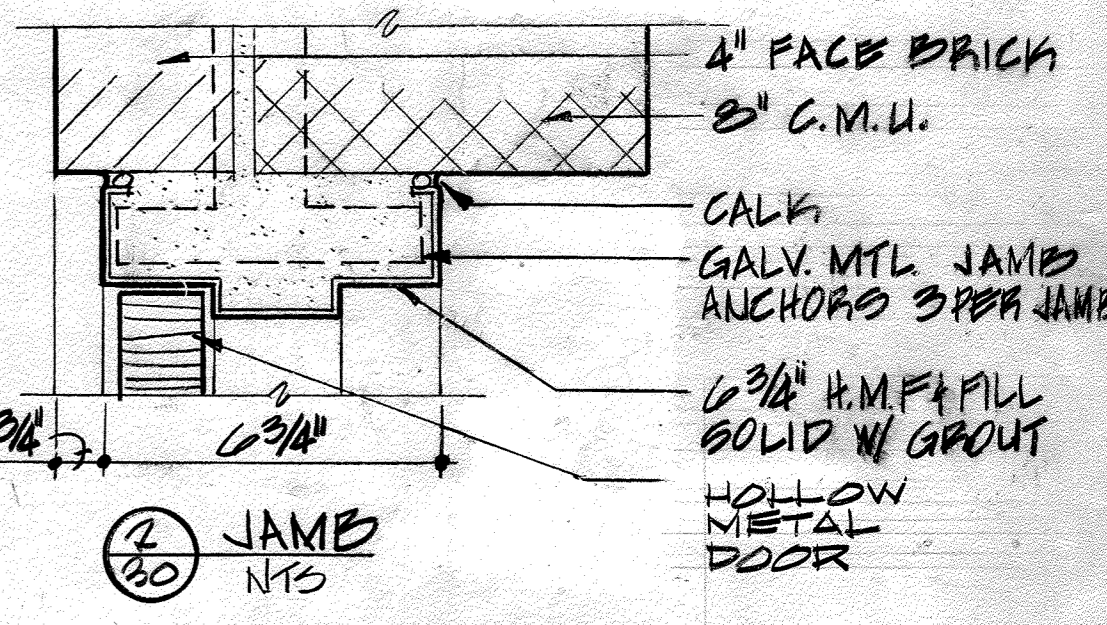


NOTE:
FOR GROUND LEVEL
FLOOR PLAN FUEL
TANK SHED
REVISION SEE
DETAIL BELOW

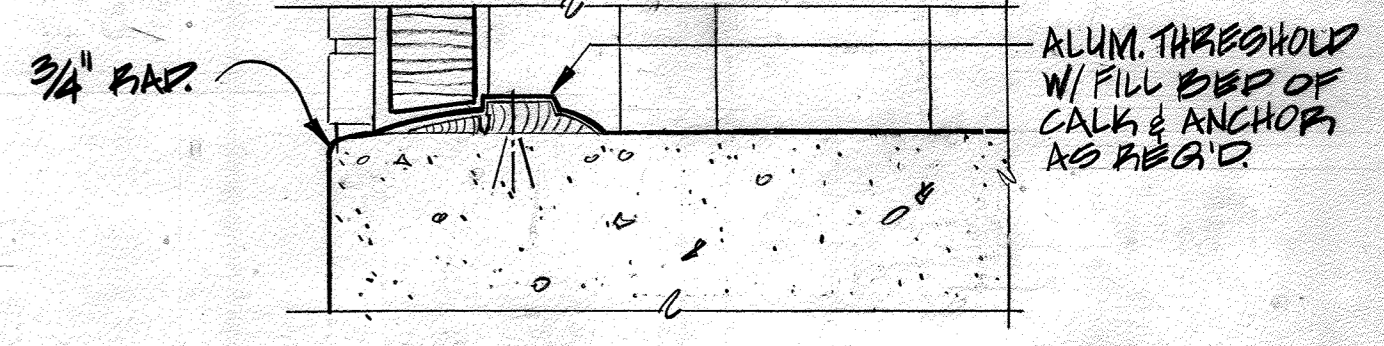
DOOR TYPES
N.T.S.



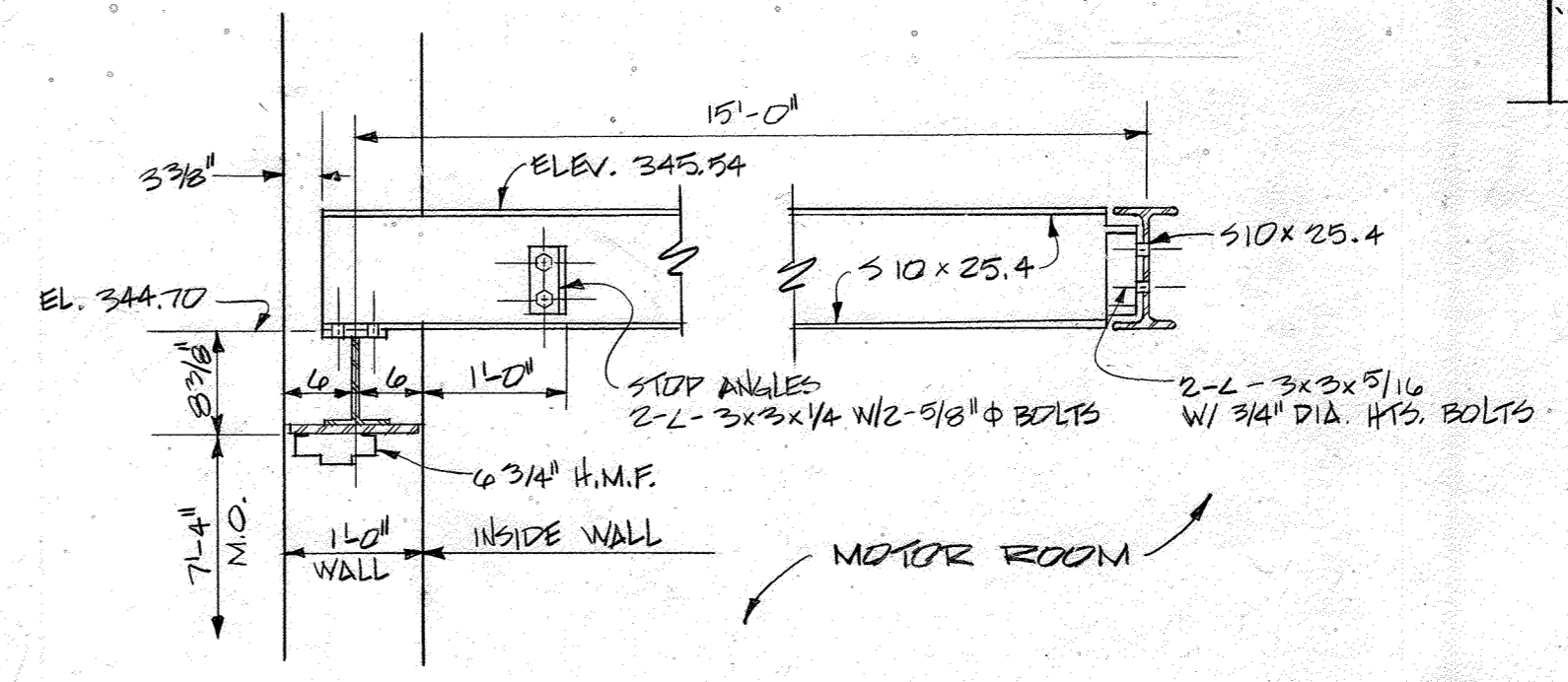
1 HEAD AT 2
N.T.S.



2 JAMB
N.T.S.

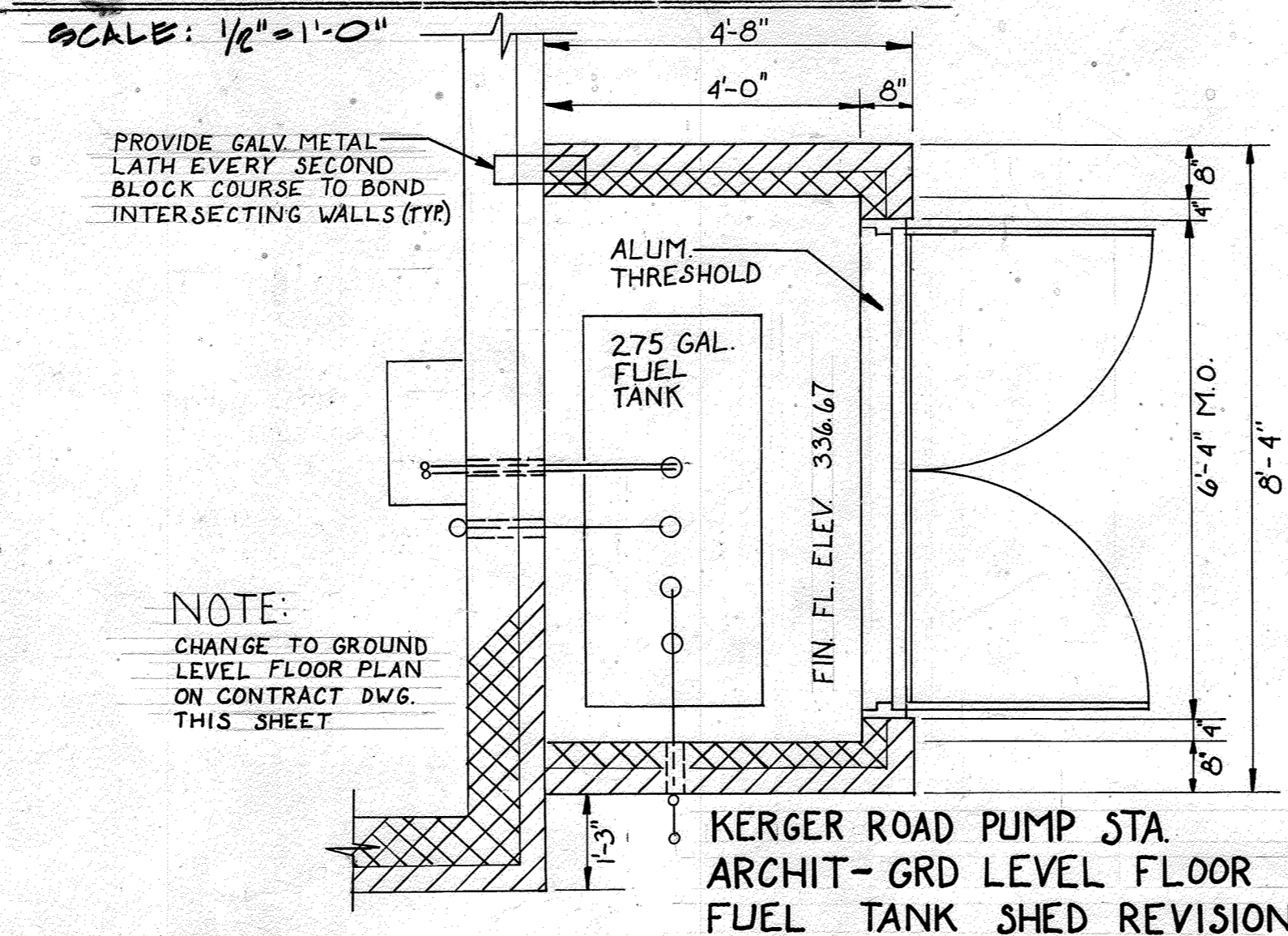


3 SILL
N.T.S.



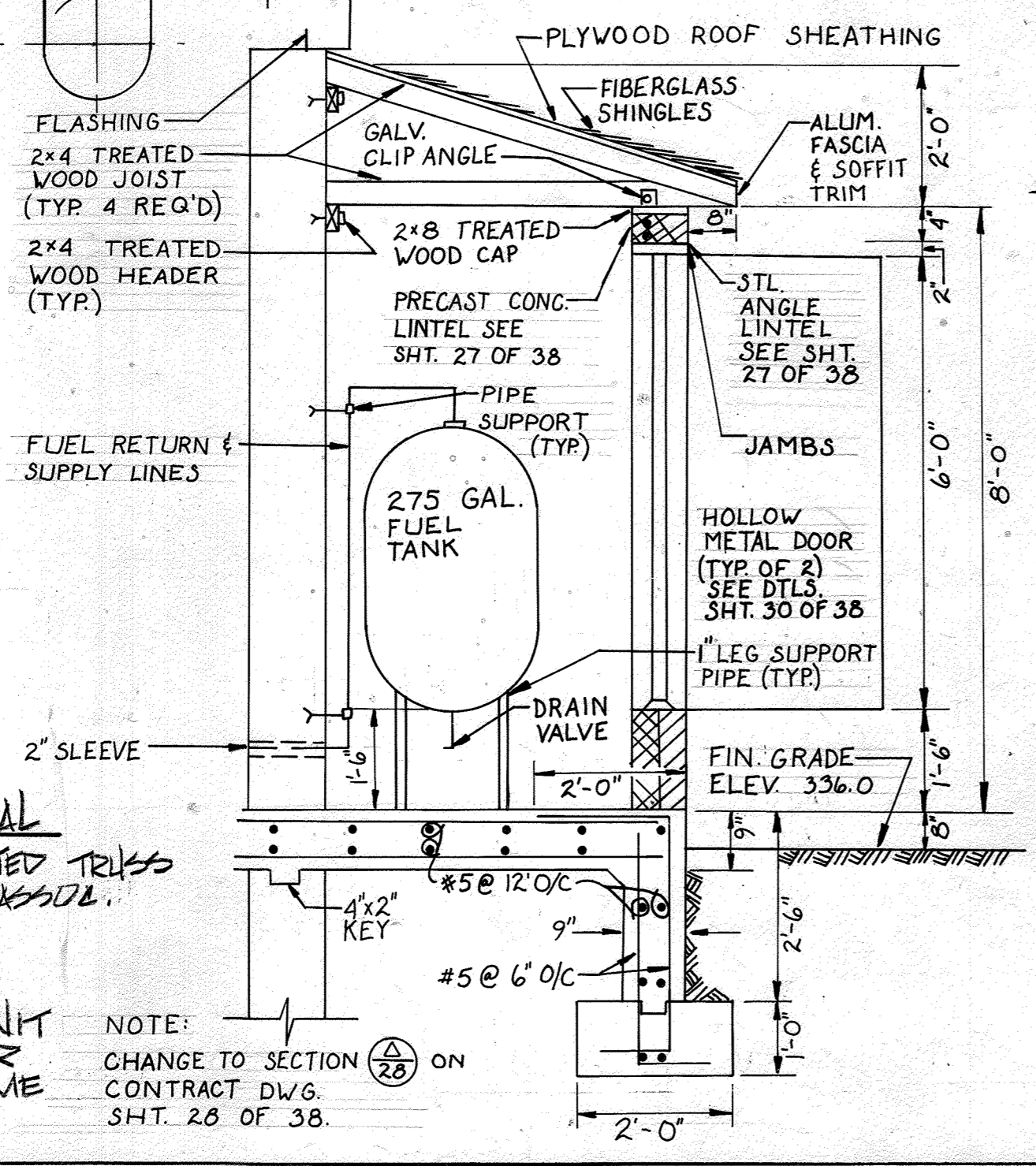
4 DOOR HEAD AT 1
N.T.S.

GROUND LEVEL FLOOR PLAN
SCALE: 1/8" = 1'-0"



KERGER ROAD PUMP STA.
ARCHIT-GRD LEVEL FLOOR PLAN
SCALE: 1/2" = 1'-0"

KERGER ROAD
PUMP STATION-
SECTION A/28
FUEL TANK SHED
REVISION
NOT TO SCALE
SEE SHEET 28 OF 38



LEGEND-ARCHITECTURAL

- MPCT : METAL PLATE CONNECTED TRUSS
- APA : AMERICAN PLYWOOD ASSOC.
- L-C : PLYWOOD GRADE
- A.B. : ANCHOR BOLT
- M.S. : MASONRY
- C.M.U. : CONC. MASONRY UNIT
- H.M.D. : HOLLOW METAL DOOR
- H.M.F. : HOLLOW METAL FRAME
- D.C. : DUCT CENTER
- M.O. : MASONRY OPENING

NOTE:
CHANGE TO SECTION
ON CONTRACT DWG.
SHT. 28 OF 38.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John E. Harms, Jr.
DIRECTOR OF PUBLIC WORKS
DATE 3-26-87

John E. Harms, Jr.
CHIEF, BUREAU OF ENGINEERING
DATE 3/25/87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



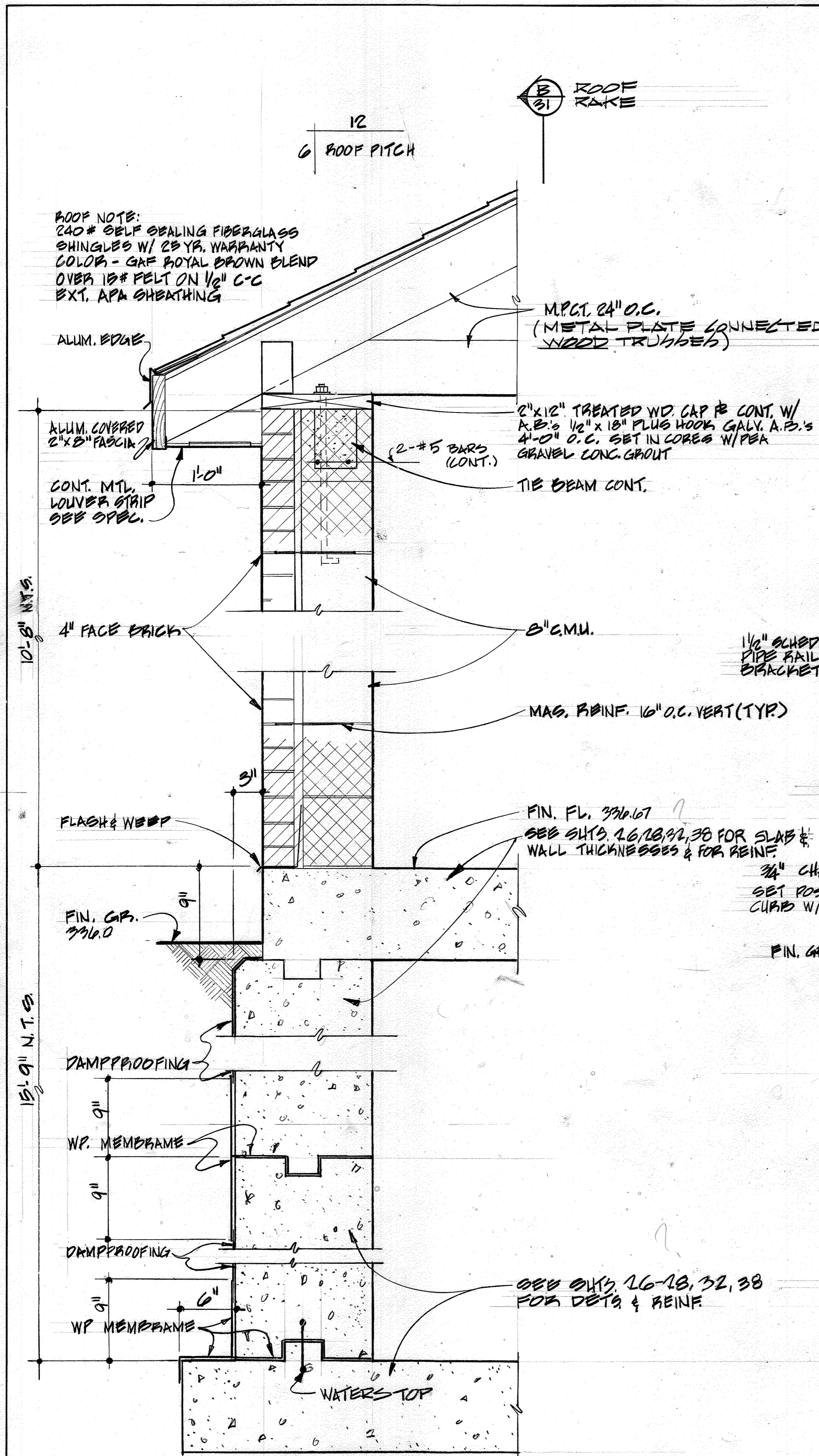
DES: G. J.	
DRN: W. M. M.	
CHK: G. J.	
DATE: 5/24/85	
BY: N.O.	
REVISION	
DATE	

ARCHITECTURAL-PLAN
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

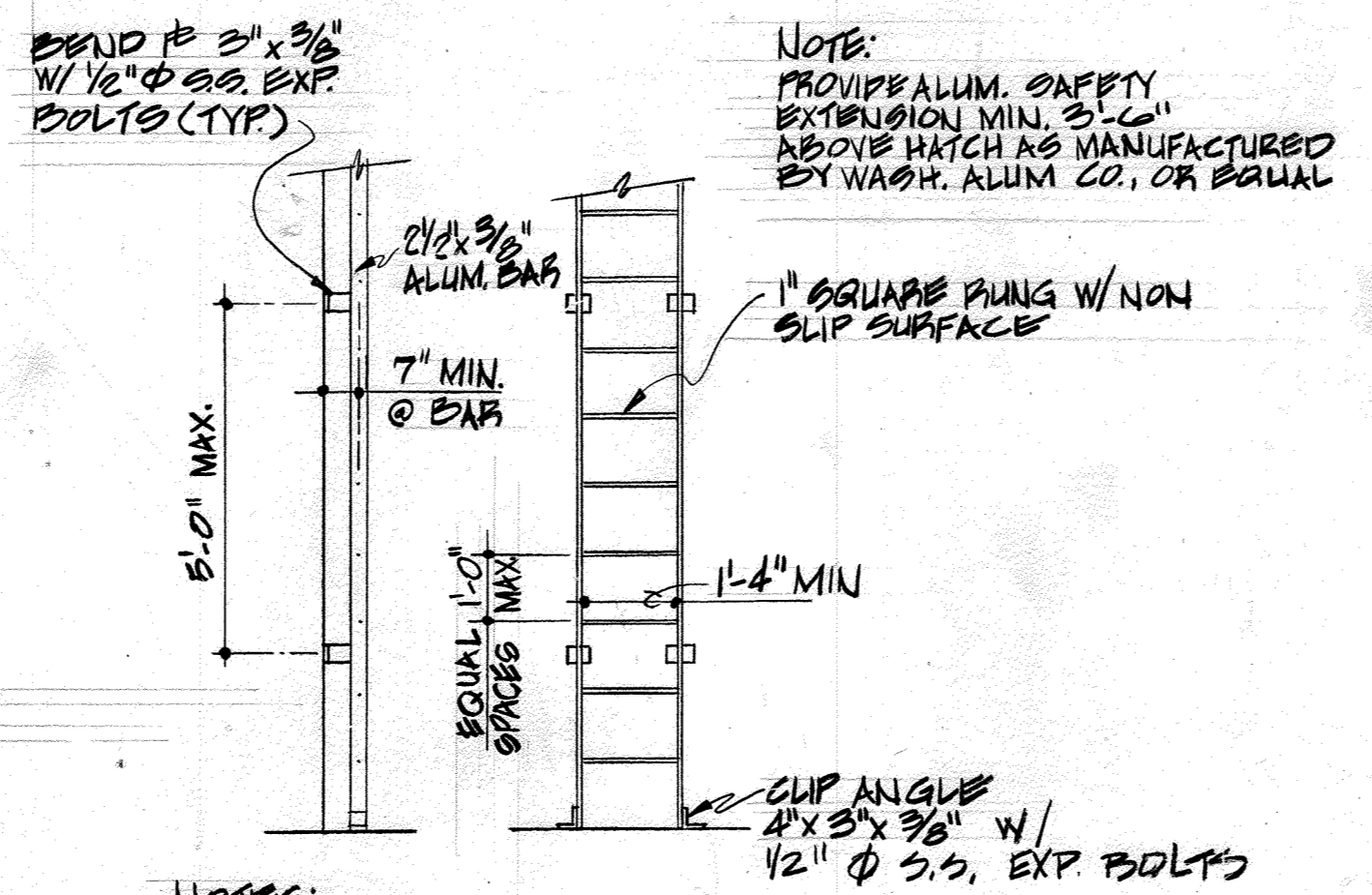
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 30 OF 38

AS-BUILT 9/6/89

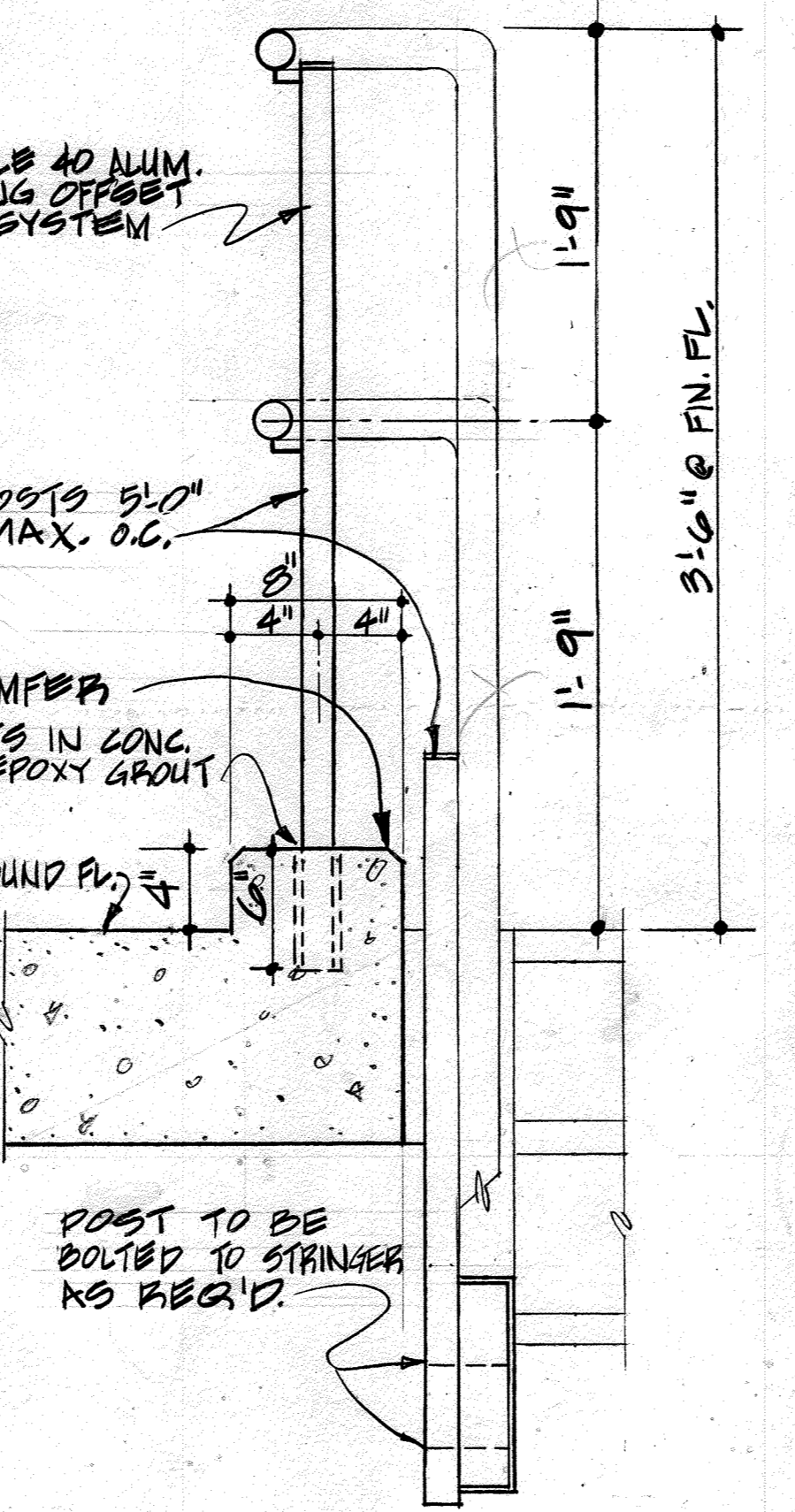


31 WALL SECTION
SCALE: 1/2" = 1'-0"

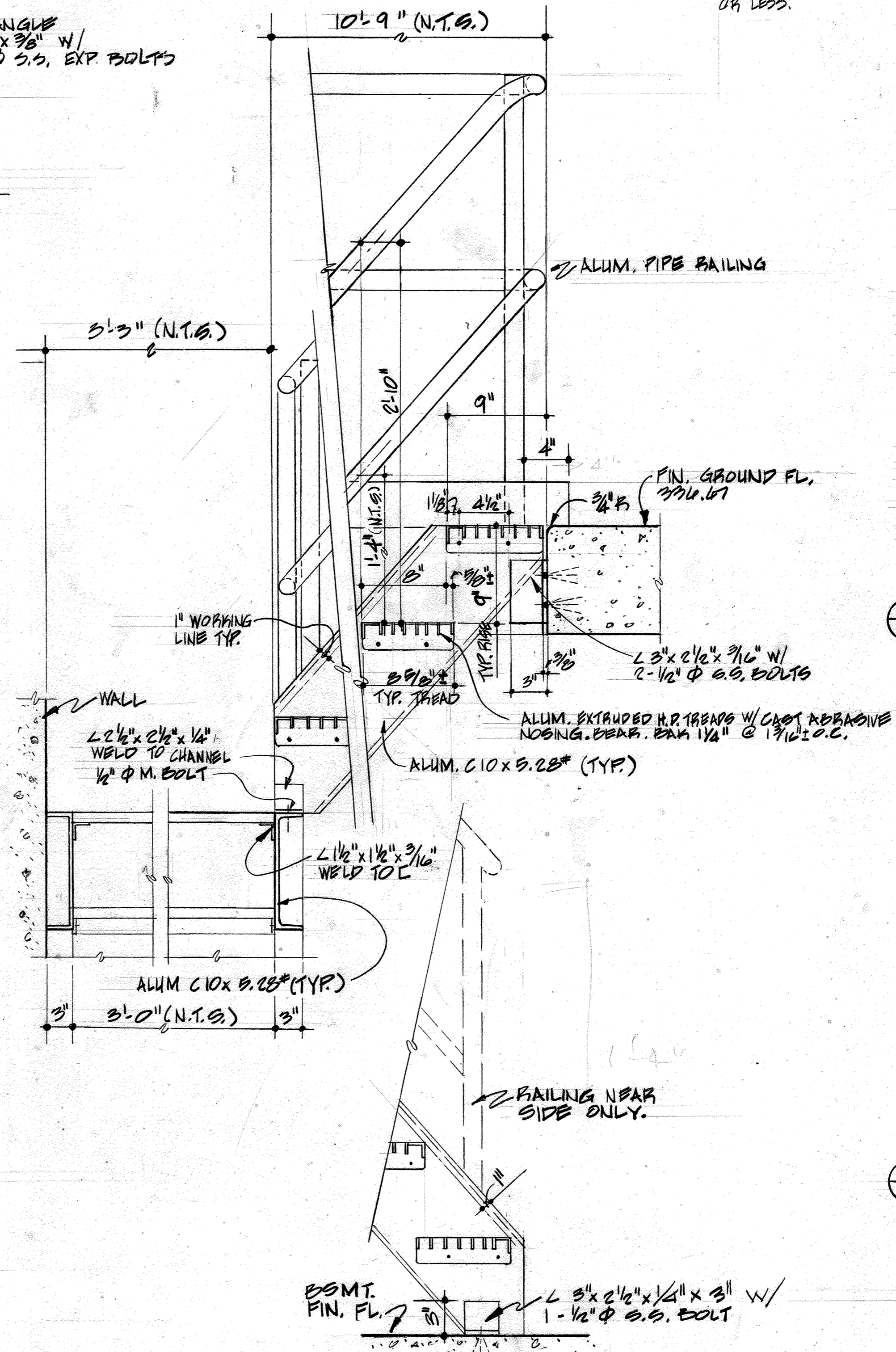


31 LADDER DETAIL
N.T.S.

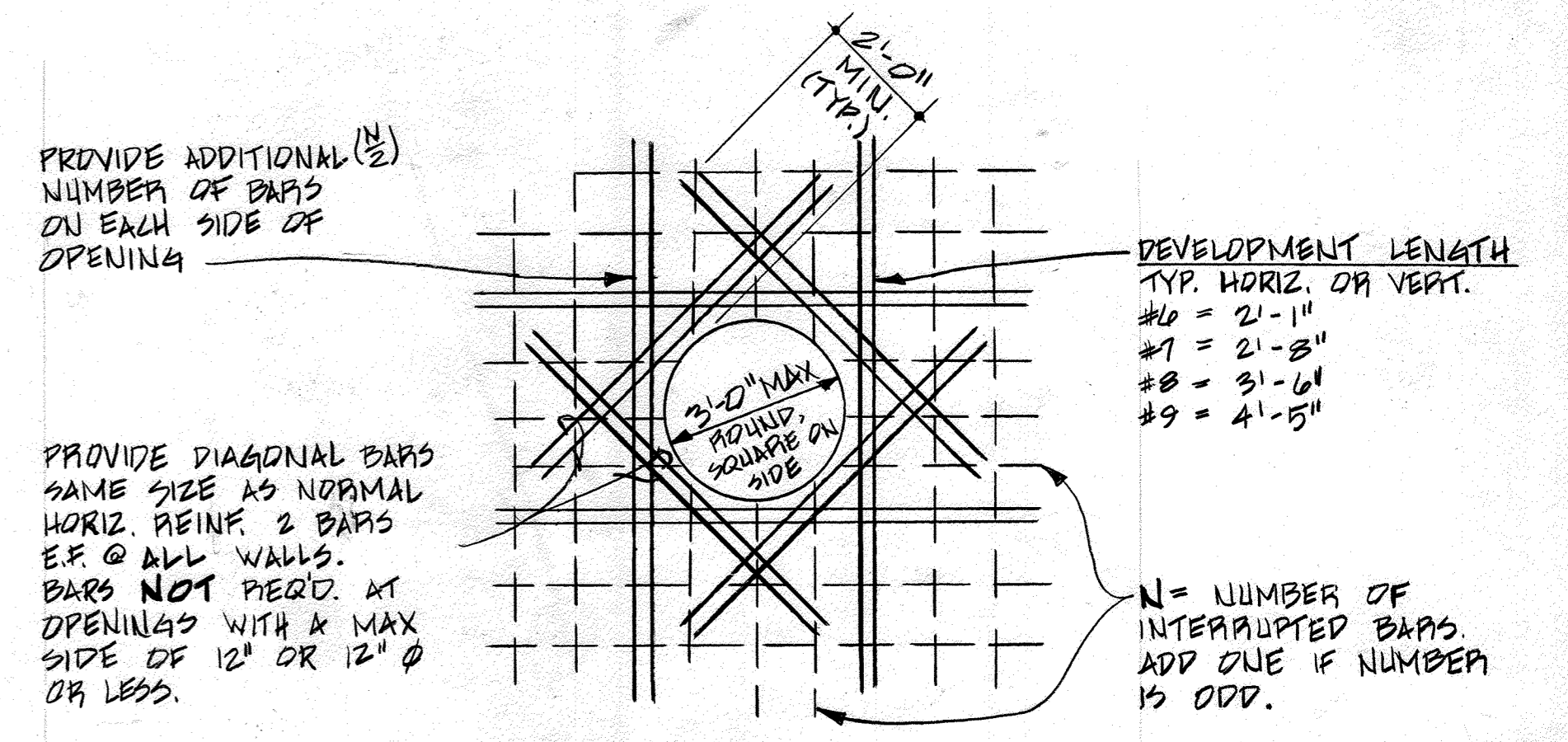
NOTES:
1. MATERIAL: ALUM. ALLOY 6063-T5
2. WELDING: SIGMA PROCESS BY CERTIFIED WELDER.



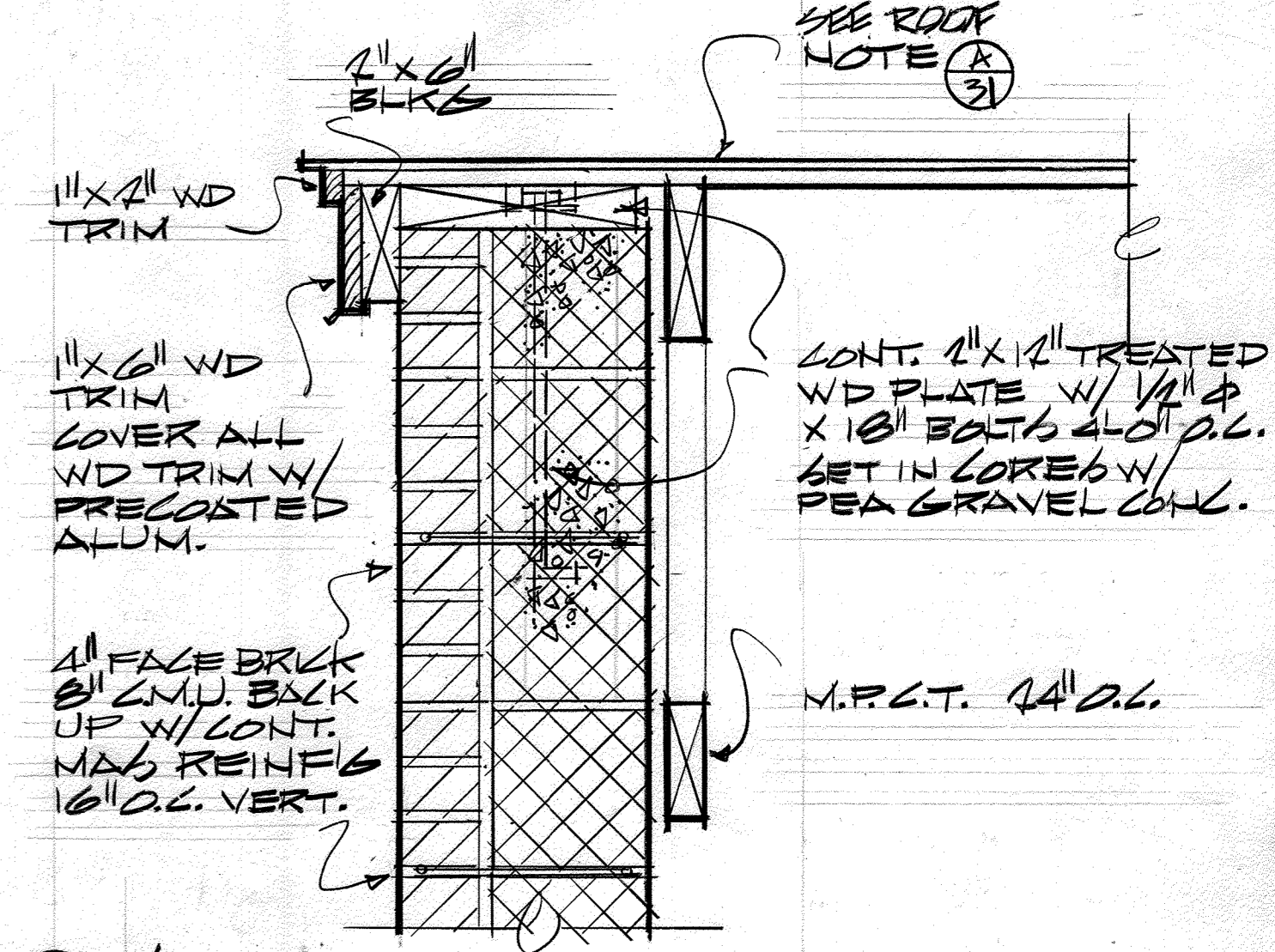
31 RAILING DETAIL
N.T.S.



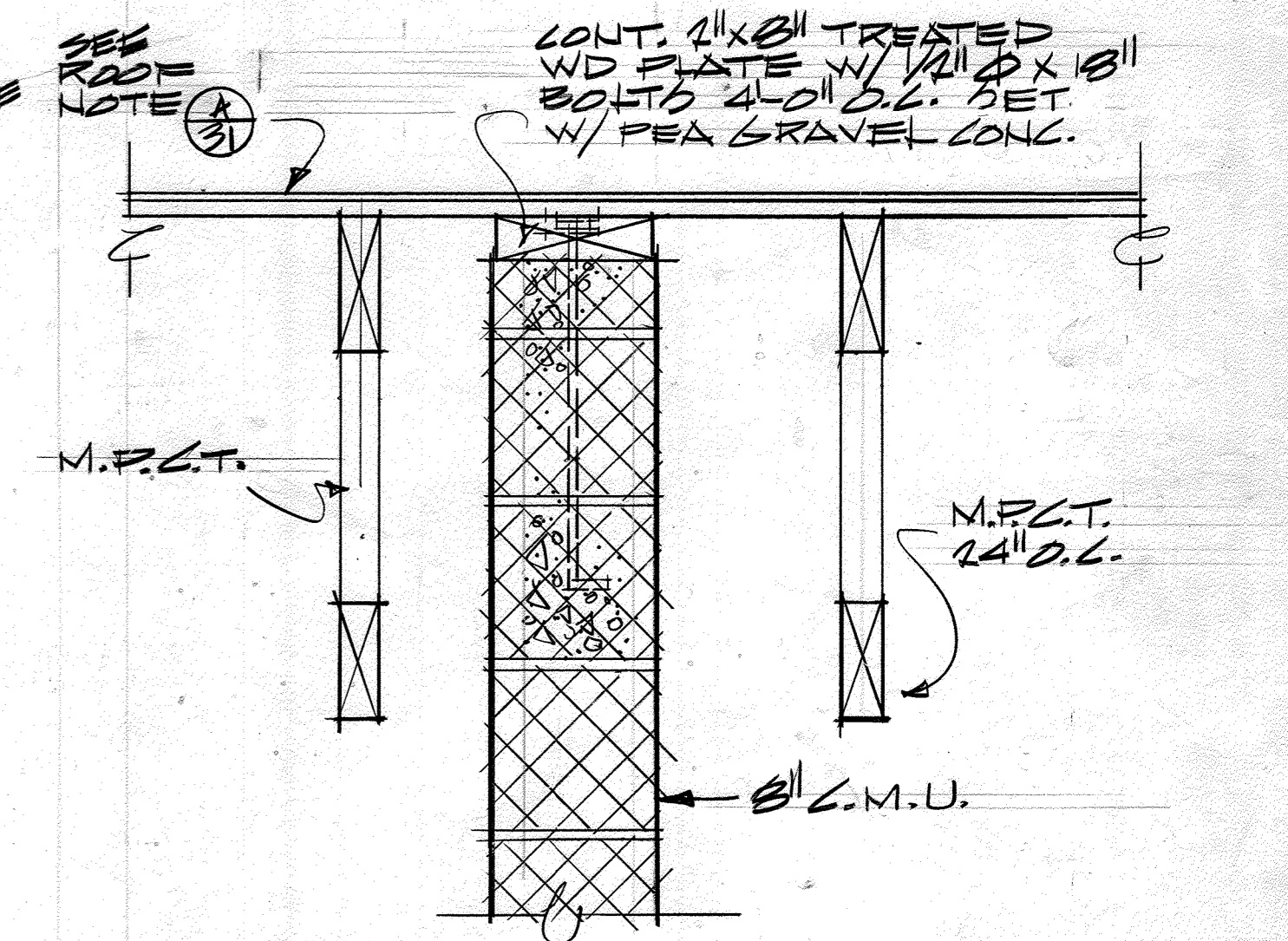
31 STAIR DETAILS
N.T.S.



31 WALL PENETRATIONS
N.T.S.



31 SECTION AT ROOF RAKE
SCALE: 1/2" = 1'-0"



31 SECTION THRU DIVIDER PARTITION
SCALE: 1/2" = 1'-0"

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John F. Nummy 3-26-87
DIRECTOR OF PUBLIC WORKS DATE

Michael R. Ray 3-25-87
CHIEF, BUREAU OF ENGINEERING DATE

Ruth Benner 3-25-87
CHIEF, BUREAU OF UTILITIES DATE

Paula Lynn 3/25/87
CHIEF, UTILITY DIVISION DATE

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: G.J.	
DRN: W.M.M.	
CHK: G.J.	
DATE: 5/24/85	
BY: NO.	
REVISION	
DATE	

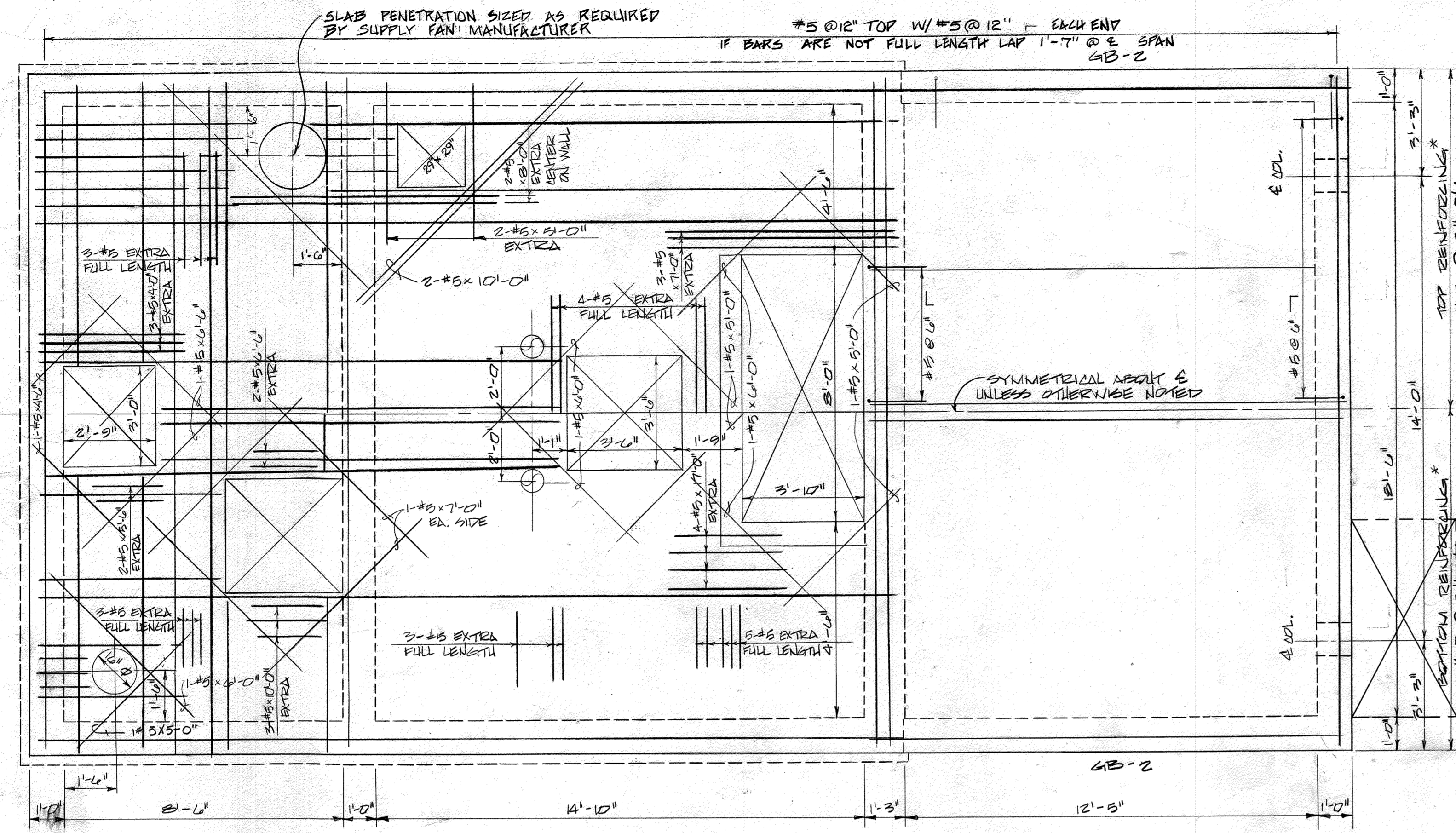
ARCHITECTURAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

600' SCALE MAP NO. 31 BLOCK NO. 22

SCALE AS SHOWN

SHEET 31 OF 38

KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

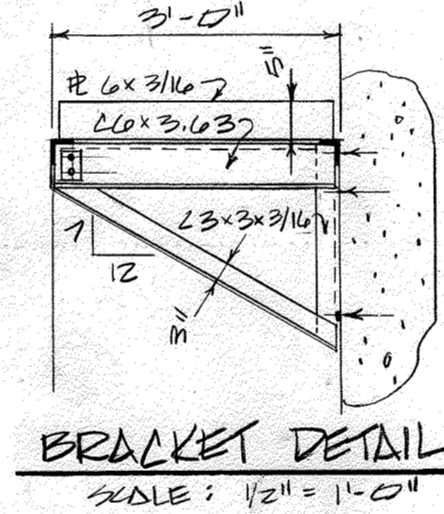


TOP SLAB REINFORCING
SCALE: 3/8" = 1'-0"

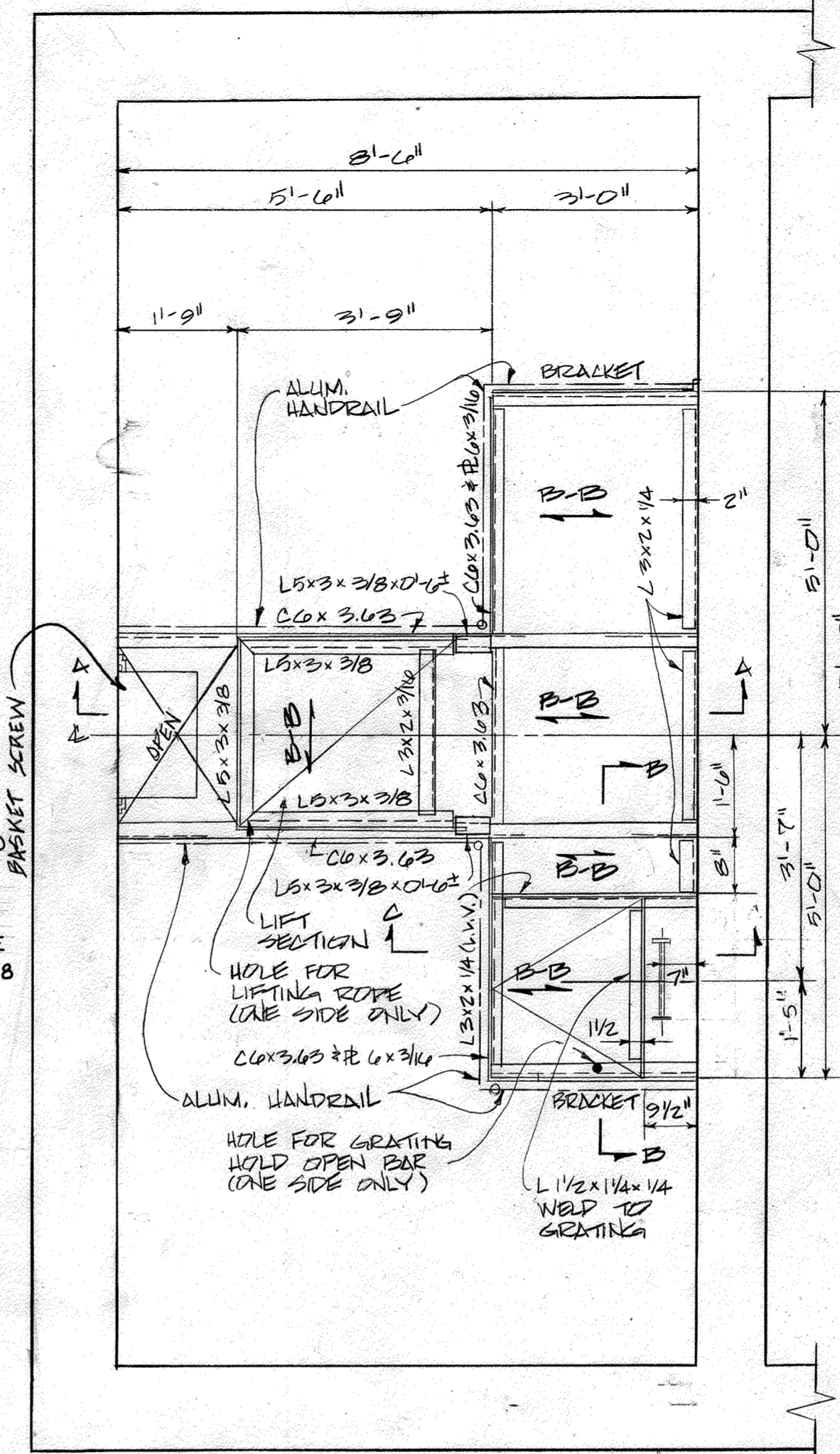
NOTES FOR CATWALK & GRATING

1. ALUMINUM SHAPES: ALL STRUCTURAL SHAPES SHALL BE ALUMINUM. ALL SHIP CONNECTIONS TO BE WELDED OR BOLTED. ALL FIELD CONNECTIONS TO BE BOLTED USING 1/2" S.S. BOLTS. ALL BOLTED CONNECTIONS TO WALLS SHALL BE 3/4" S.S. BOLTS WITH NON-CORROSIVE EXPANSION SHIELDS.
2. PIPE RAILS: ALL PIPE RAILS SHALL BE FABRICATED FROM 1 1/2" CH ALUMINUM PIPE WITH ALL PIPE CONNECTIONS WELDED. POSTS SHALL BE FIELD BOLTED TO CATWALK.

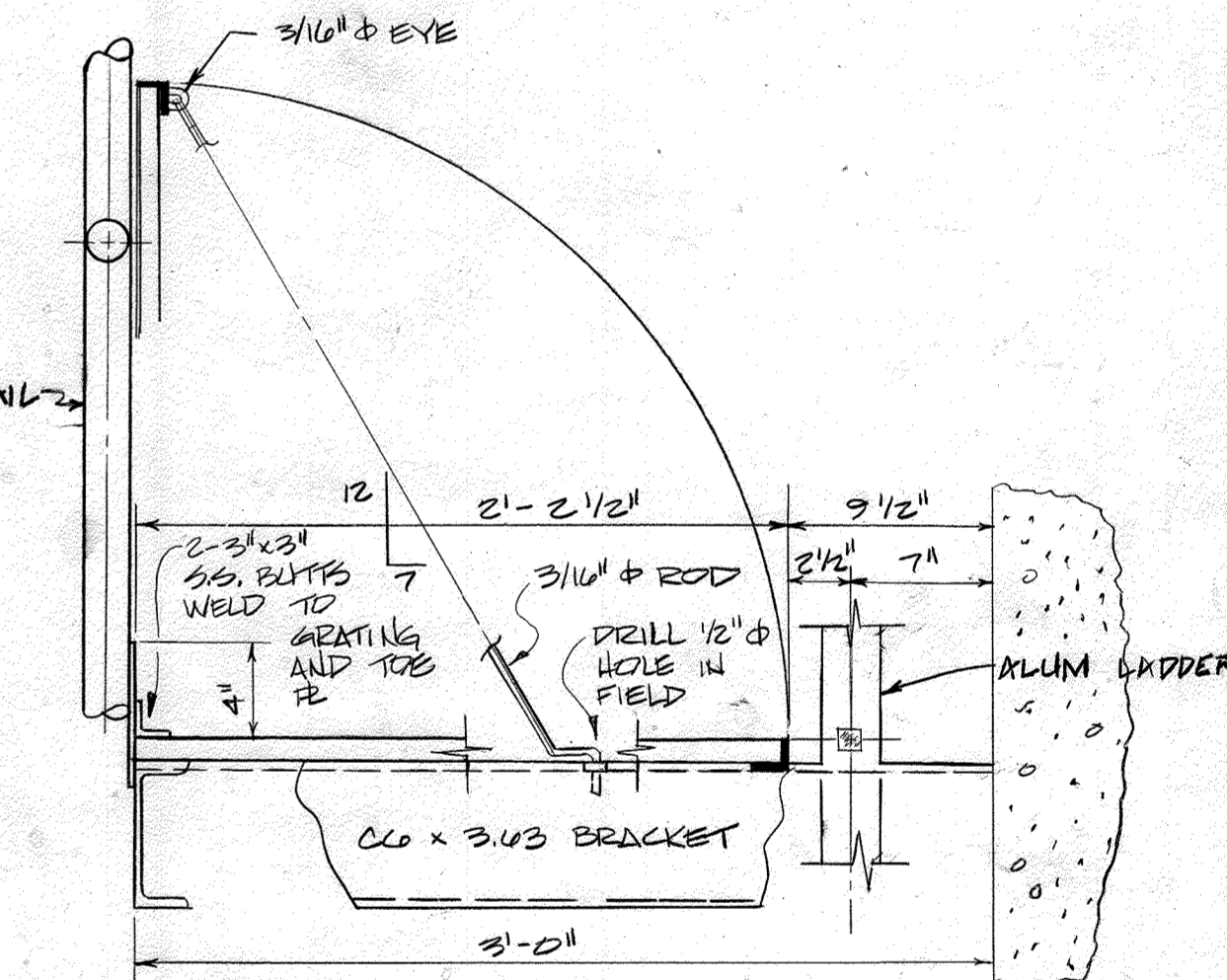
FOR ADDITIONAL TOP SLAB REINFORCING & OTHER STRUCTURAL DTLS, SEE SHTS 26-31 & 38



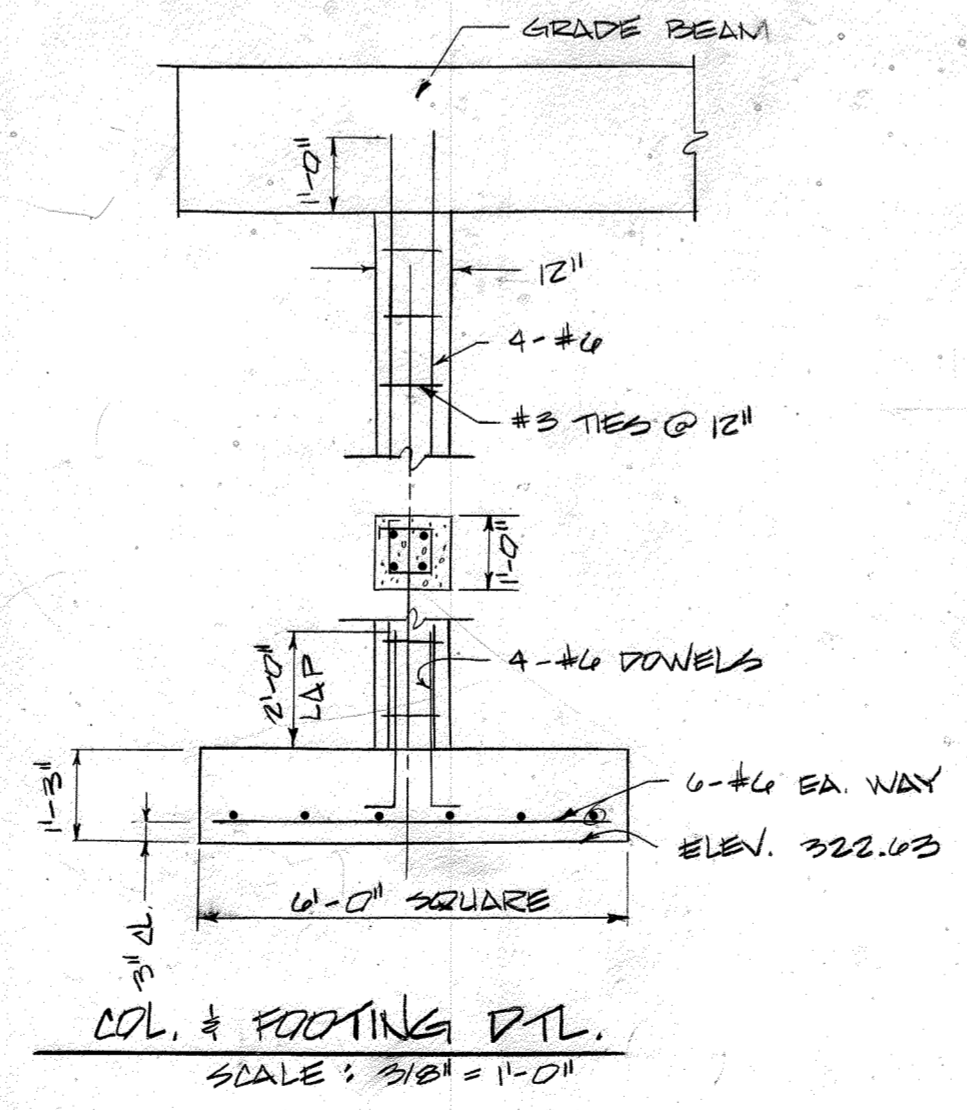
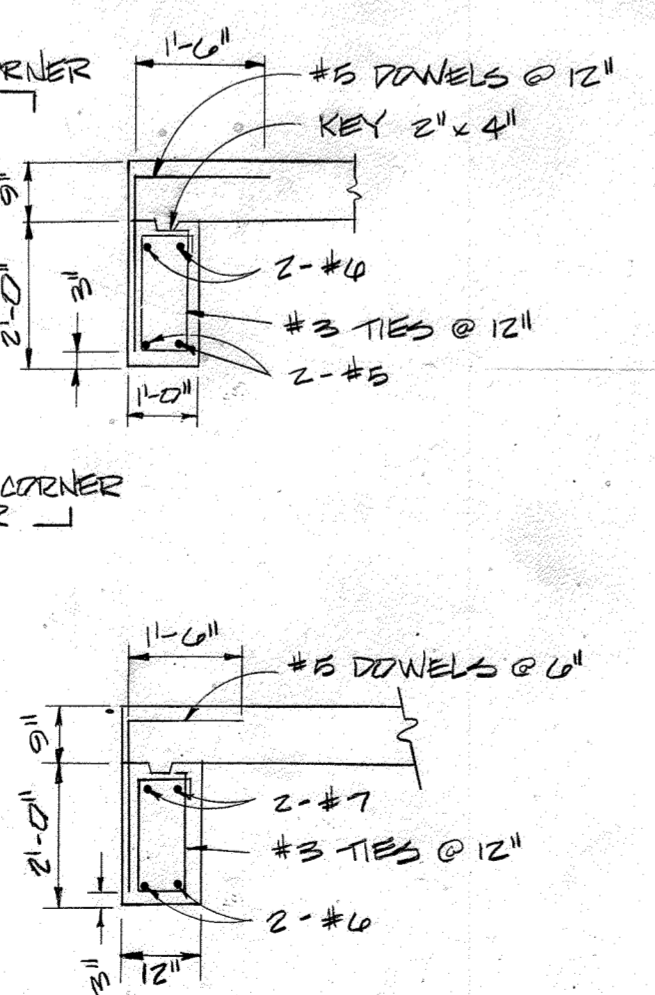
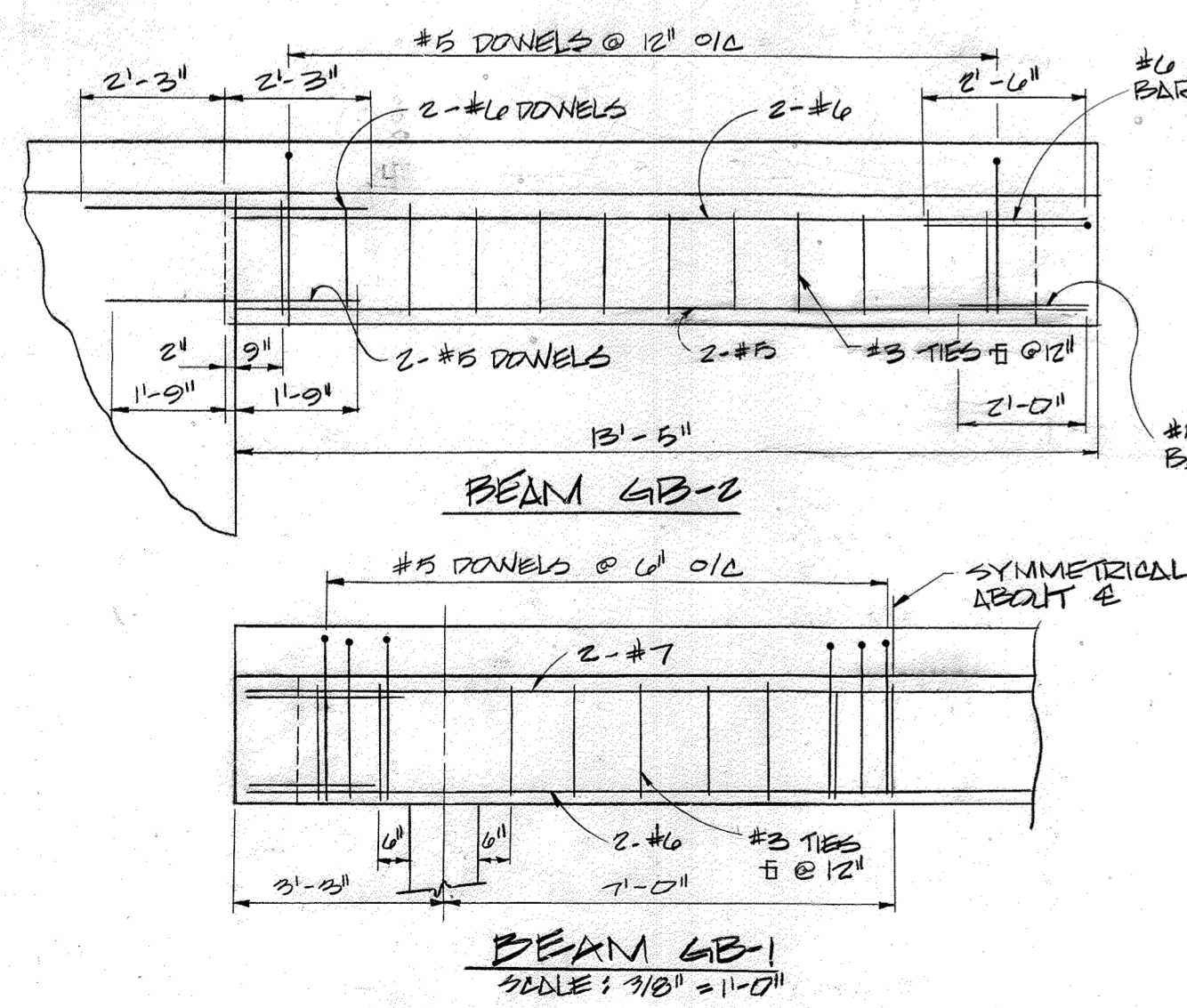
BRACKET DETAIL
SCALE: 1/2" = 1'-0"



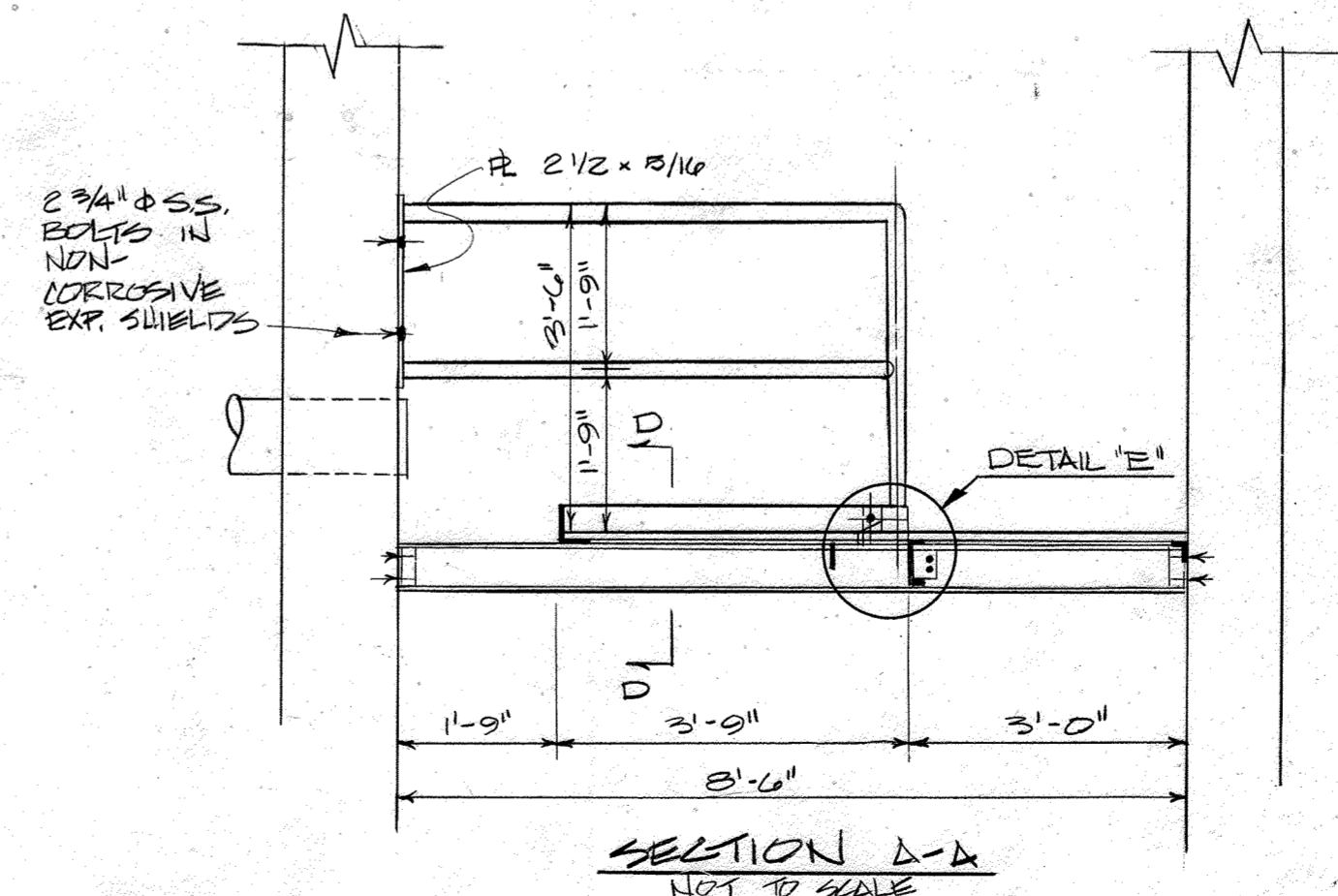
CATWALK PLAN
(TOP OF GRATING EL. 329.25)



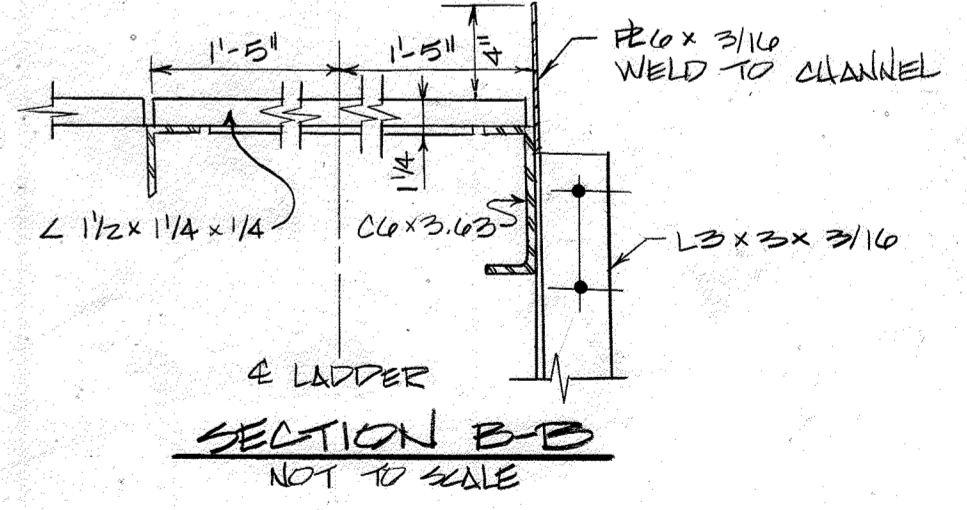
SECTION C-C
NOT TO SCALE



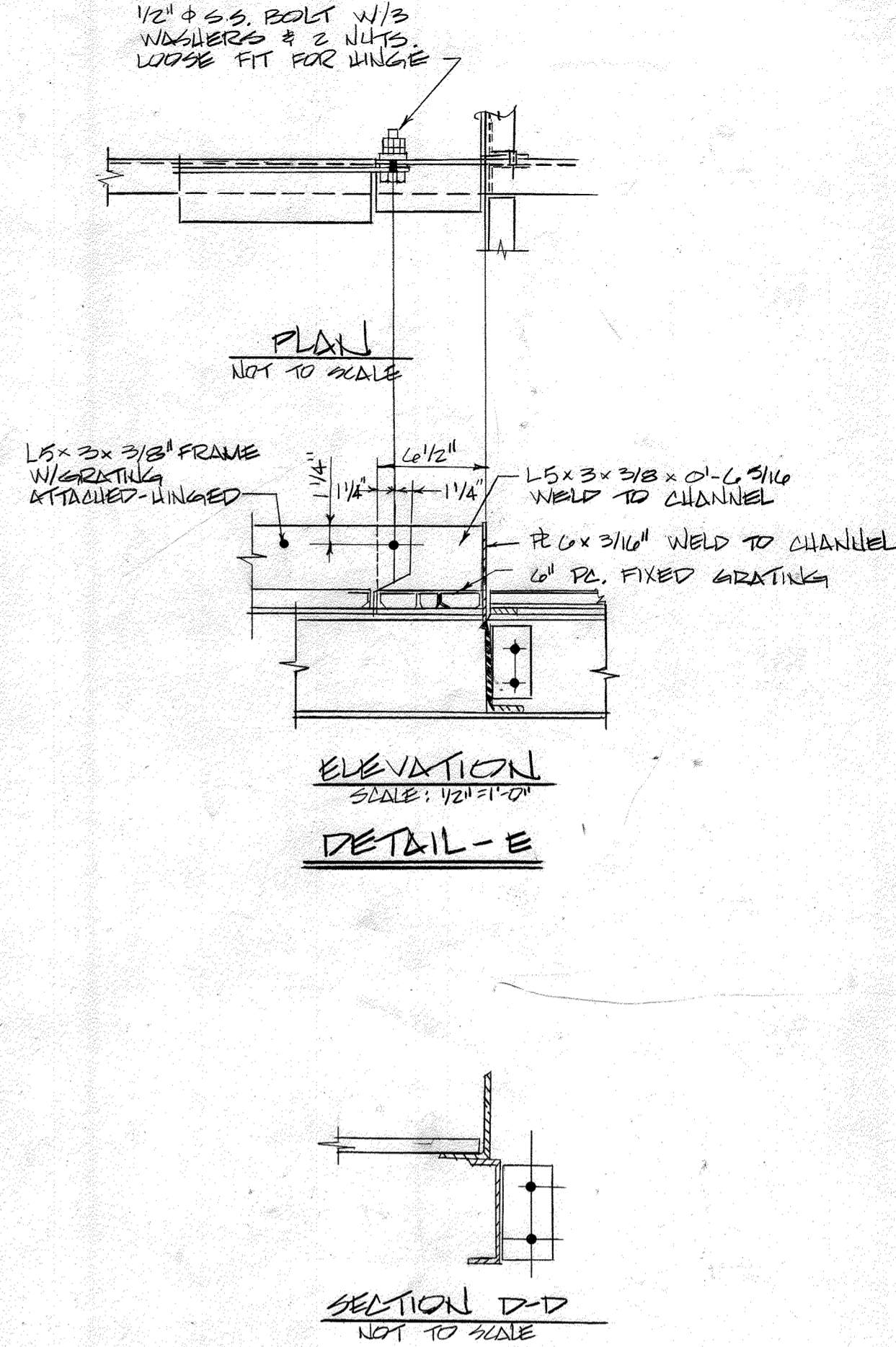
COL. & FOOTING DET.
SCALE: 3/8" = 1'-0"



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



ELEVATION DETAIL-E
SCALE: 1/2" = 1'-0"

SECTION D-D
NOT TO SCALE

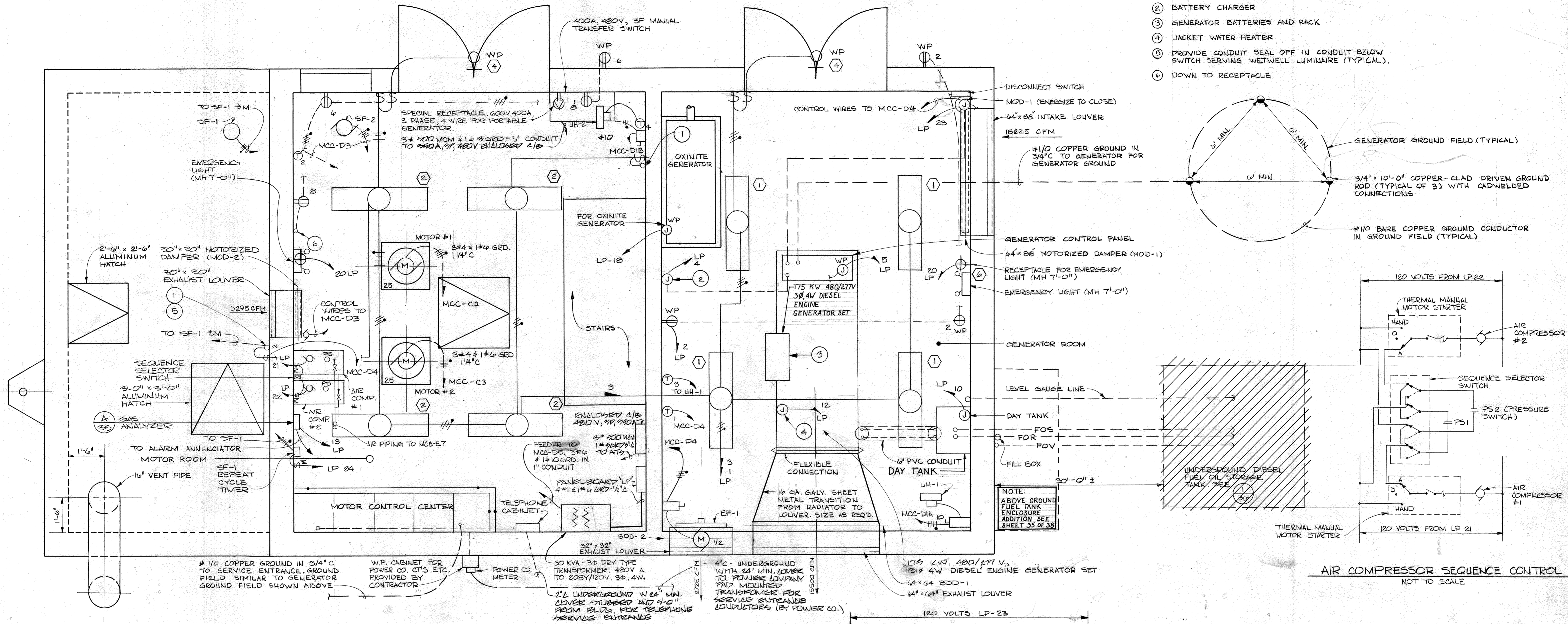
CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3-26-87 3-25-87	JOHN E. HARMS, JR & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: J.G.S.		STRUCTURAL DETAILS KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION	KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION HOWARD COUNTY, MARYLAND CONTRACT NO. 10-1215	SCALE AS SHOWN SHEET 32 OF 38
			DRN: D.E.S.				

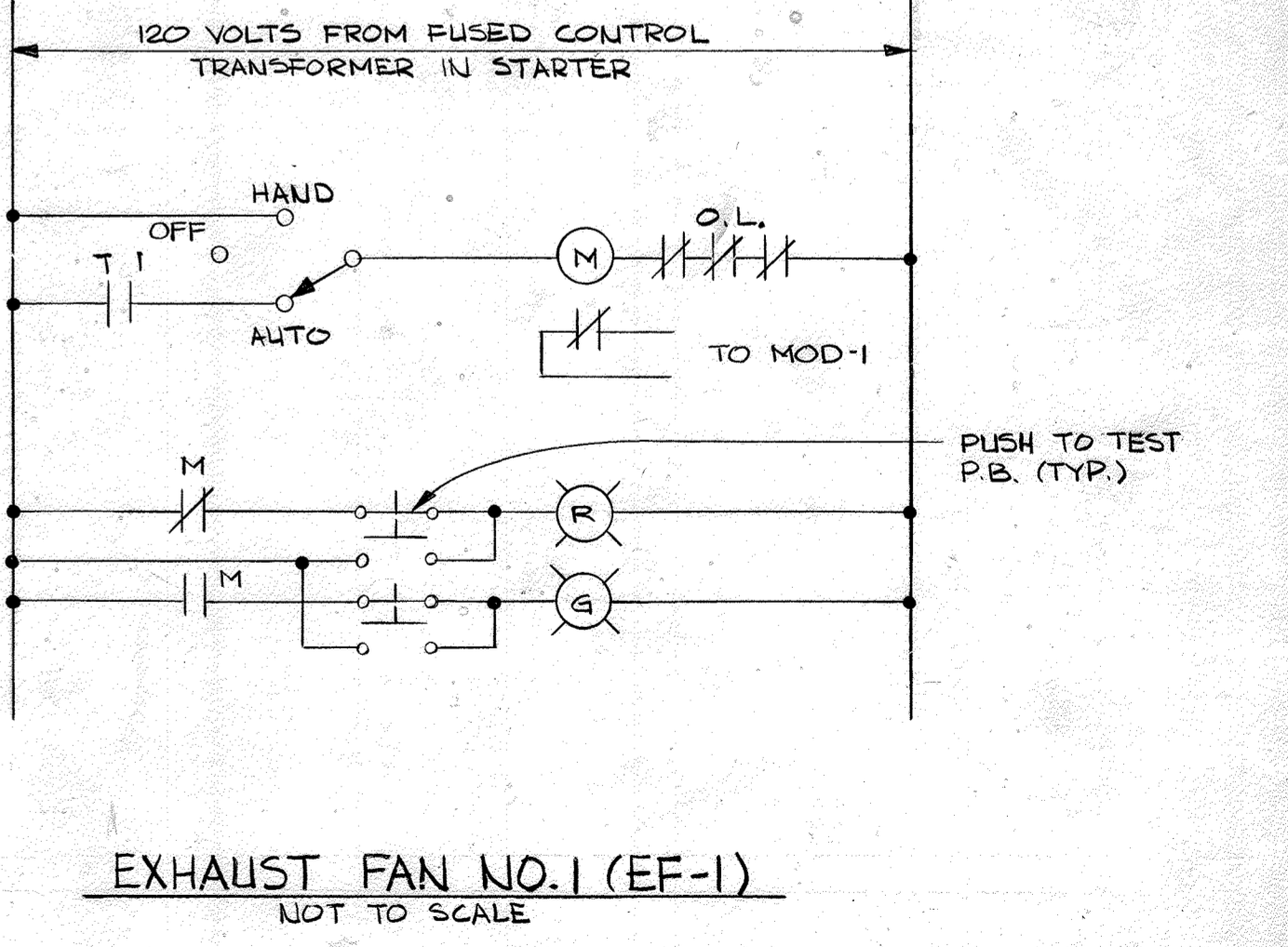
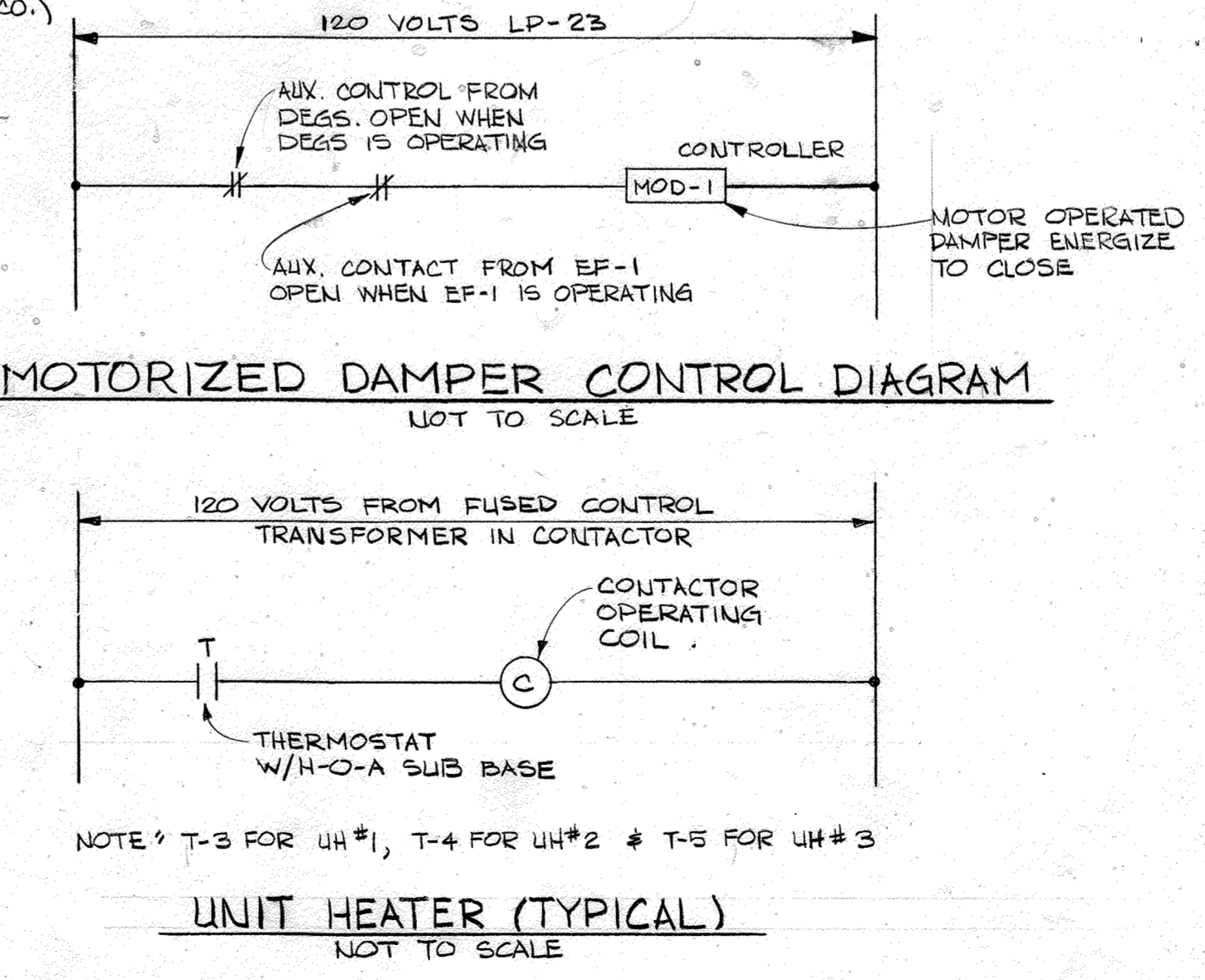
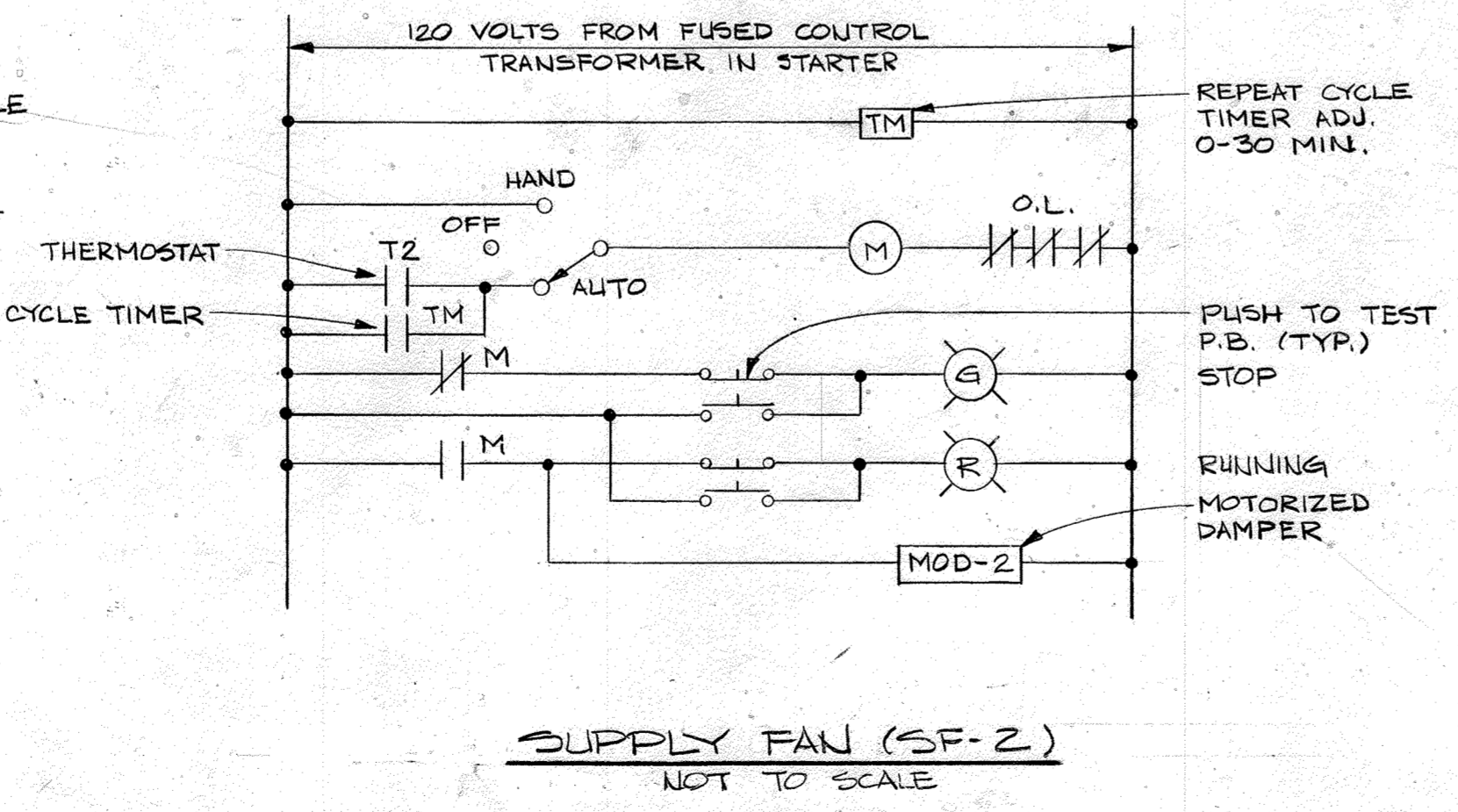
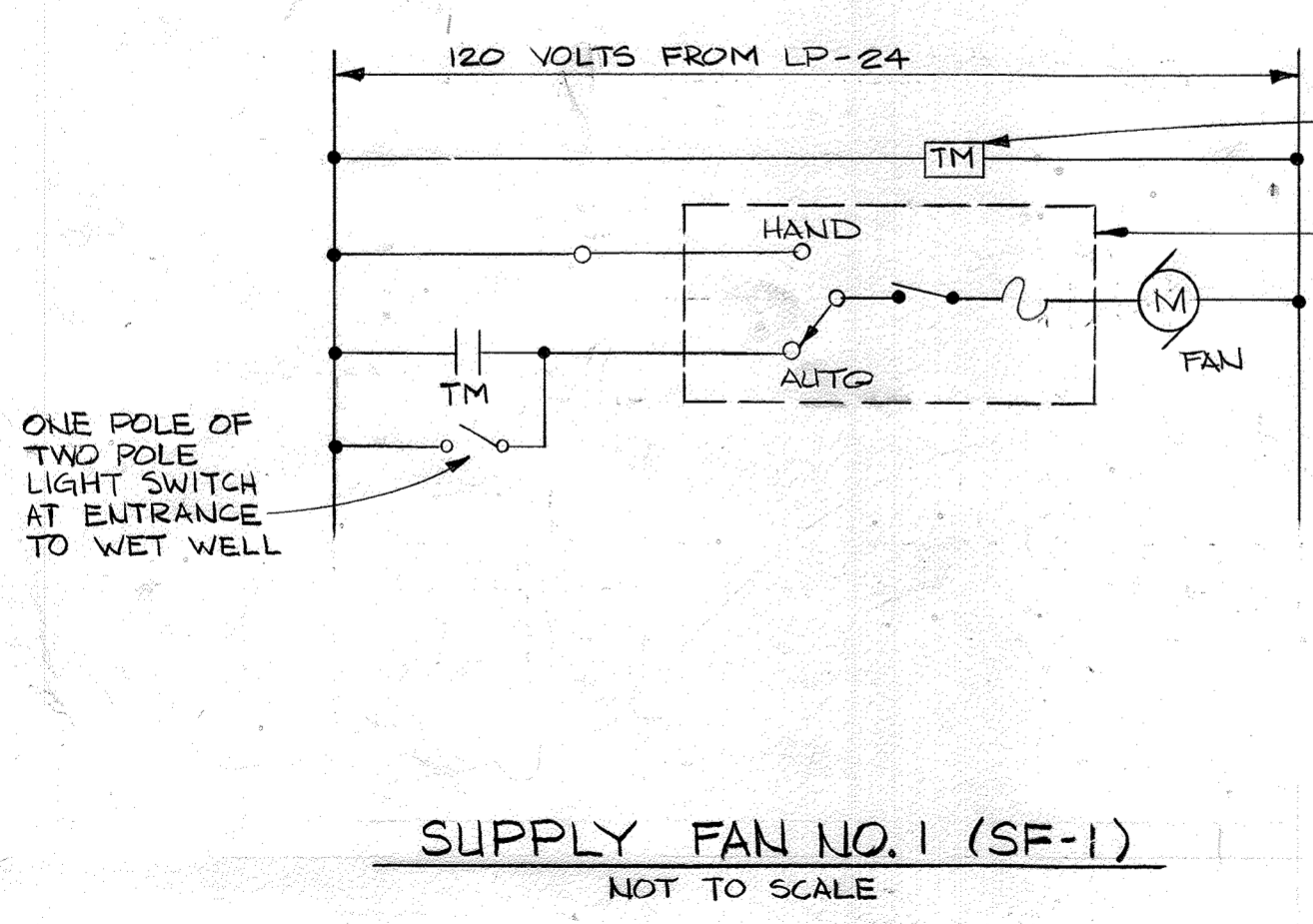
AS-BUILT 9/6/89

NOTES:

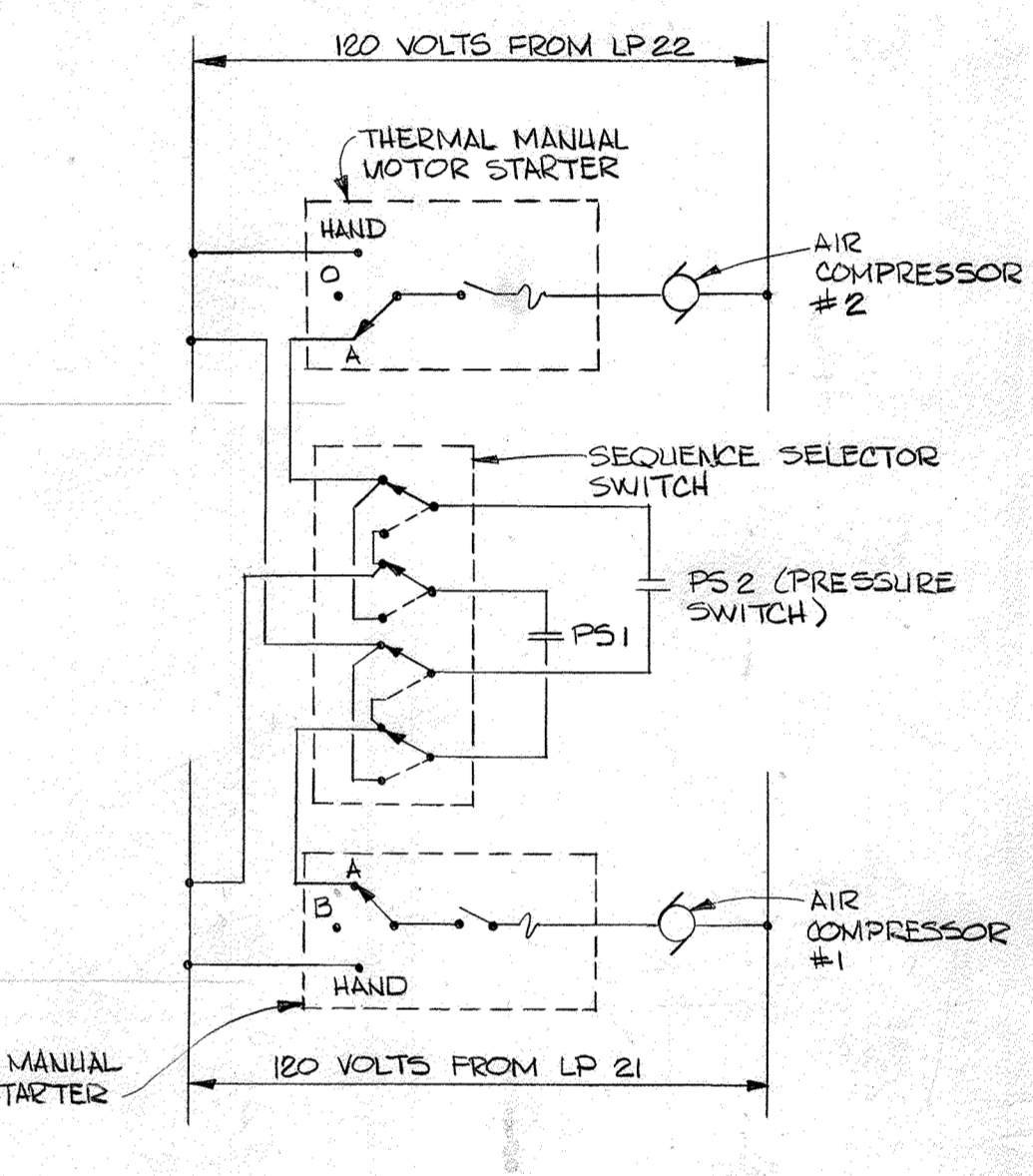
- ① DOWN TO FIXTURE BELOW
- ② BATTERY CHARGER
- ③ GENERATOR BATTERIES AND RACK
- ④ JACKET WATER HEATER
- ⑤ PROVIDE CONDUIT SEAL OFF IN CONDUIT BELOW SWITCH SERVING WETWELL LUMINAIRE (TYPICAL).
- ⑥ DOWN TO RECEPTACLE



ELECTRICAL PLAN-TOP LEVEL
SCALE: 1/2" = 1'-0"



AIR COMPRESSOR SEQUENCE CONTROL
NOT TO SCALE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John F. Neuhoff* 3-26-87
 Chief, Bureau of Engineering: *William R. Roy* 3-25-87
 Chief, Bureau of Utilities: *Robert M. Berman* 3-25-87
 Chief, Utility Division: *Paul J. ...* 3/25/87

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



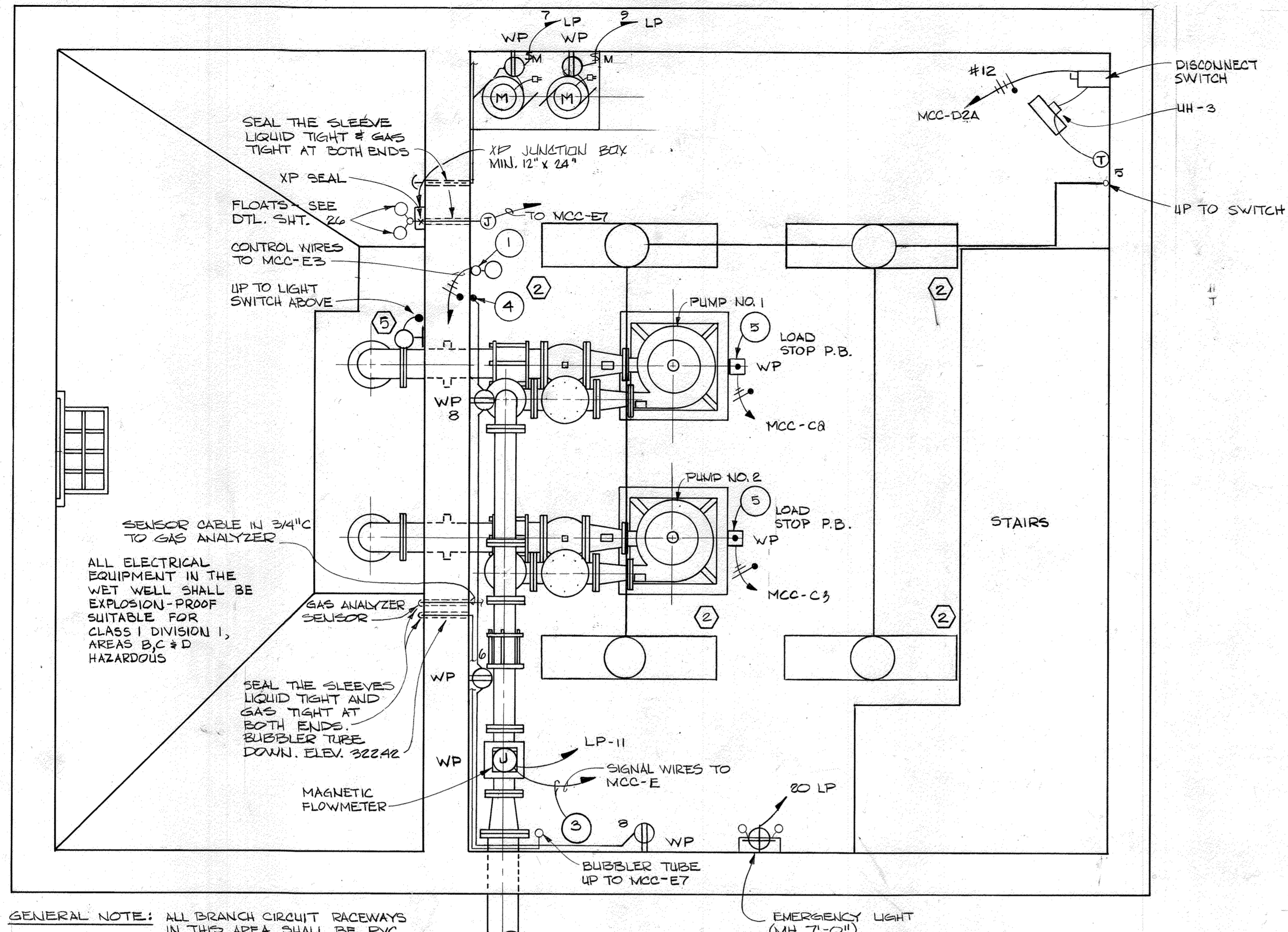
DES: C.B.	
DRN: L.F.	
CHK: C.B.	
DATE: 5/24/85	
BY: [Signature]	
NO. []	
REVISION []	
DATE []	

ELECTRICAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 33 OF 38
AS-BUILT 9/6/89



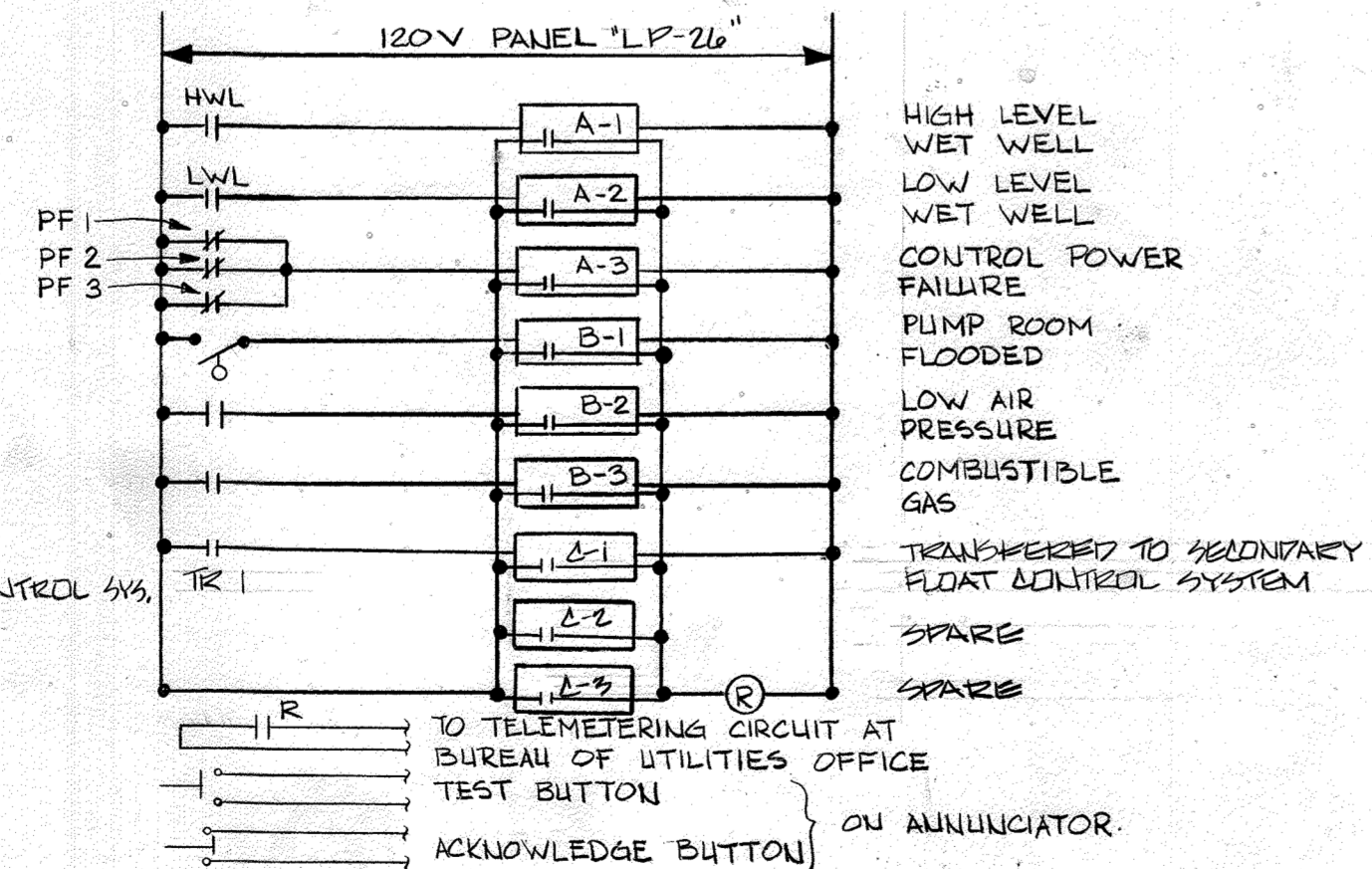
BASEMENT PLAN
SCALE: 1/2" = 1'-0"

NOTES:

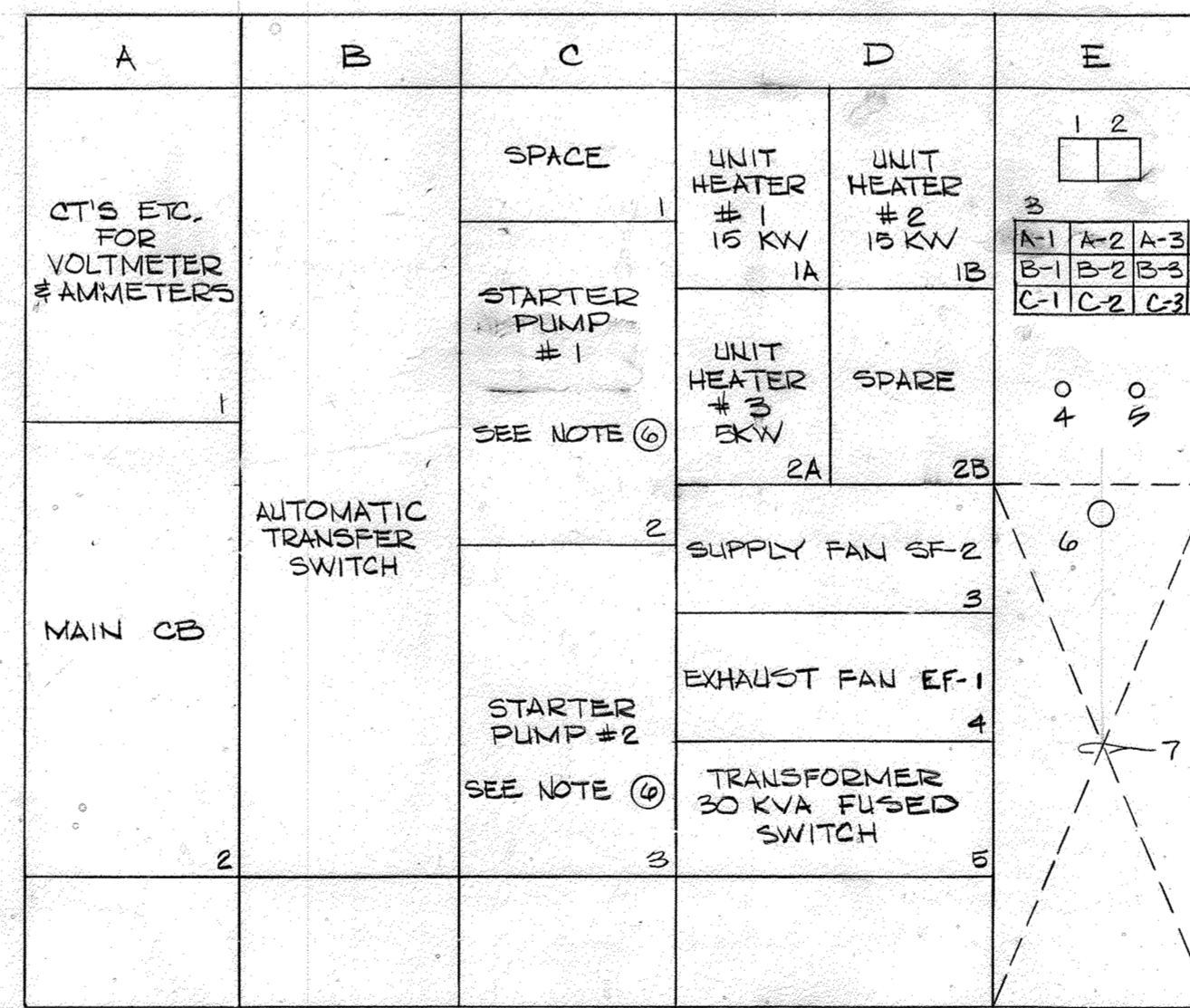
- PROVIDE PUMP ROOM FLOOD ALARM ON WALL ADJACENT TO SUMP PUMPS PROVIDE 3/4" C. 2#12 TO INSTRUMENTATION CUBICLE E-51 IN MOTOR CONTROL CENTER.
- NOT USED.
- SIGNAL WIRES AS RECOMMENDED BY MANUFACTURER IN 3/4" C. TO TOTALIZER INDICATOR-RECORDER IN MCC.
- UP TO RECEPTACLES ABOVE.
- PROVIDE KINDORF CHANNEL SUPPORT.
- SIZE STARTER FOR ULTIMATE MOTOR SIZE (40 HP) MODIFIED FOR INITIAL MOTOR SIZE (25 HP).

ANNUNCIATOR SCHEDULE

- A-1 HIGH LEVEL WET WELL
- A-2 LOW LEVEL WET WELL
- A-3 CONTROL POWER FAILURE
- B-1 PUMP ROOM FLOODED
- B-2 LOW AIR PRESSURE
- B-3 COMBUSTIBLE GAS
- L-1 TRANSFER TO SECONDARY FLOAT CONTROL SYS.
- L-2 SPARE
- L-3 SPARE



ANNUNCIATOR ALARM WIRING
NOT TO SCALE

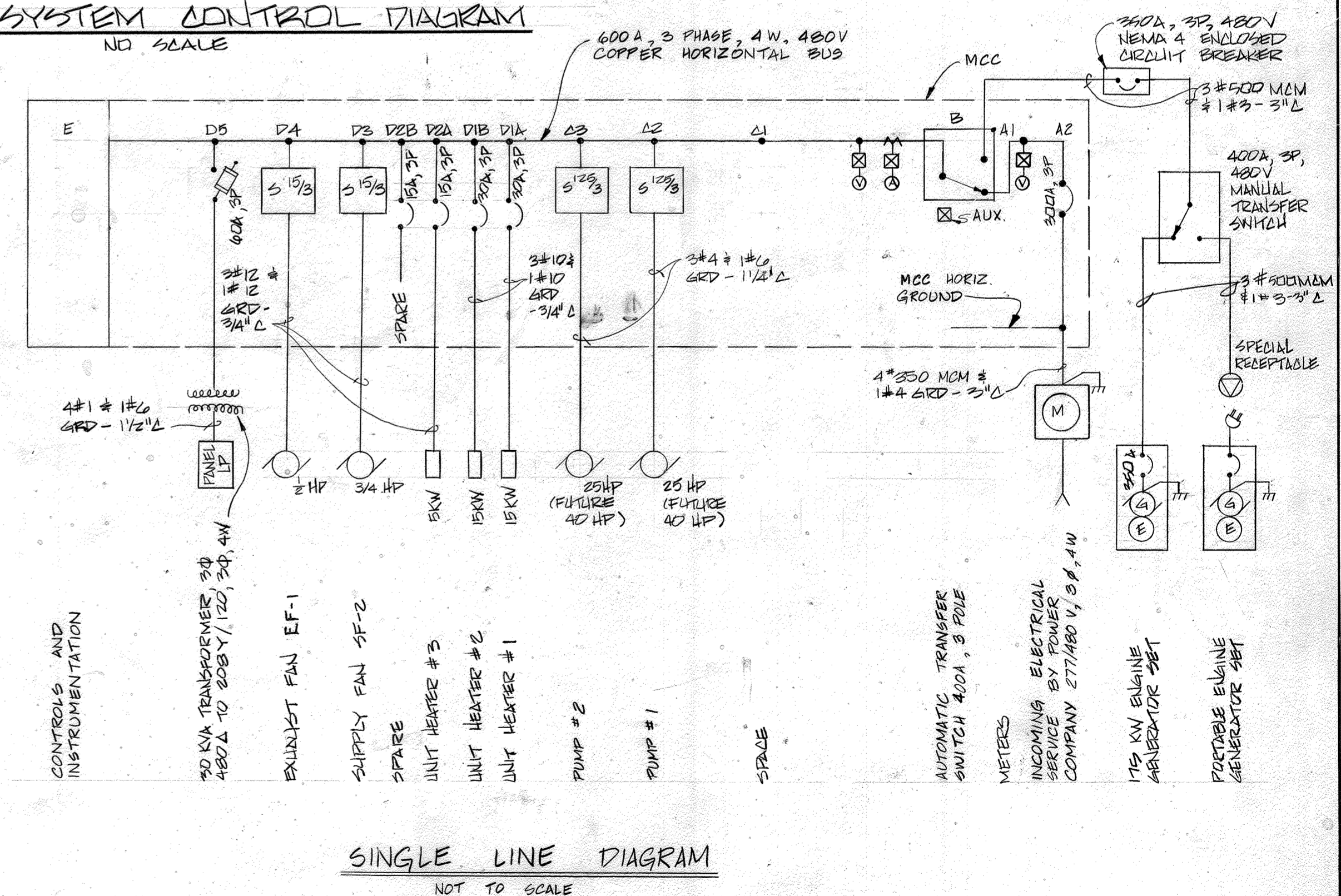
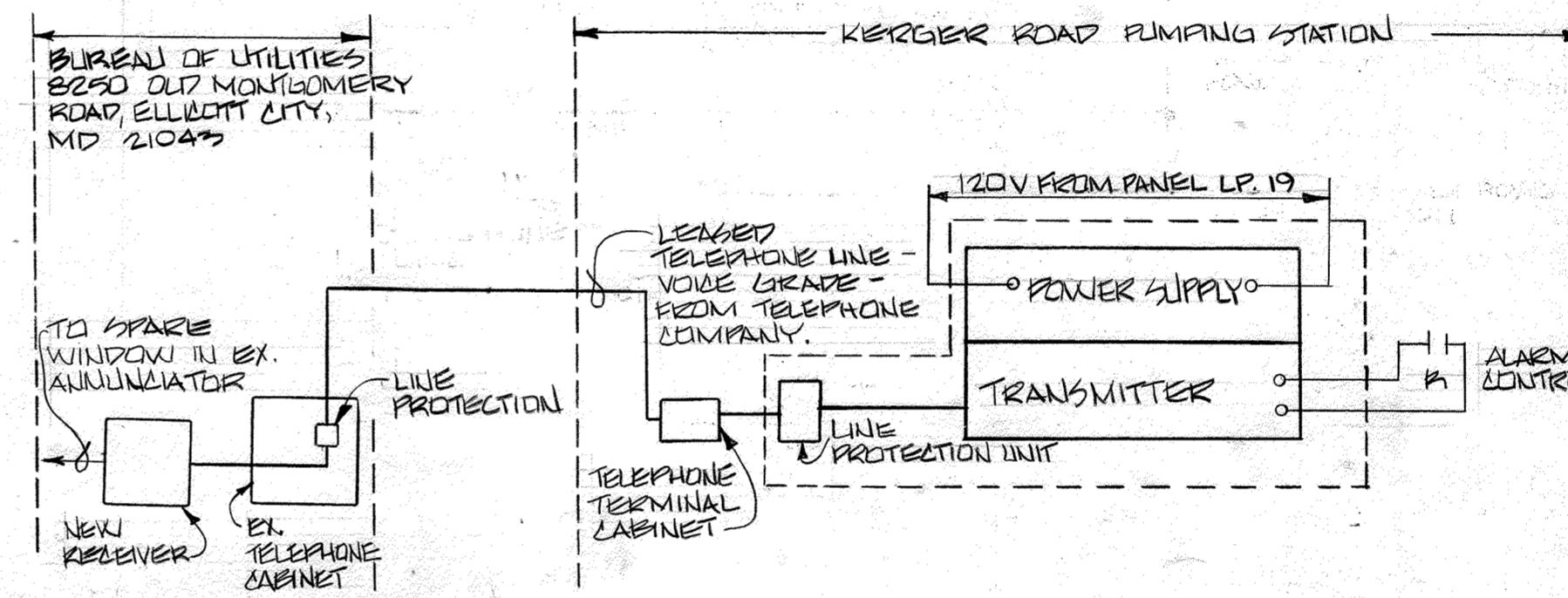
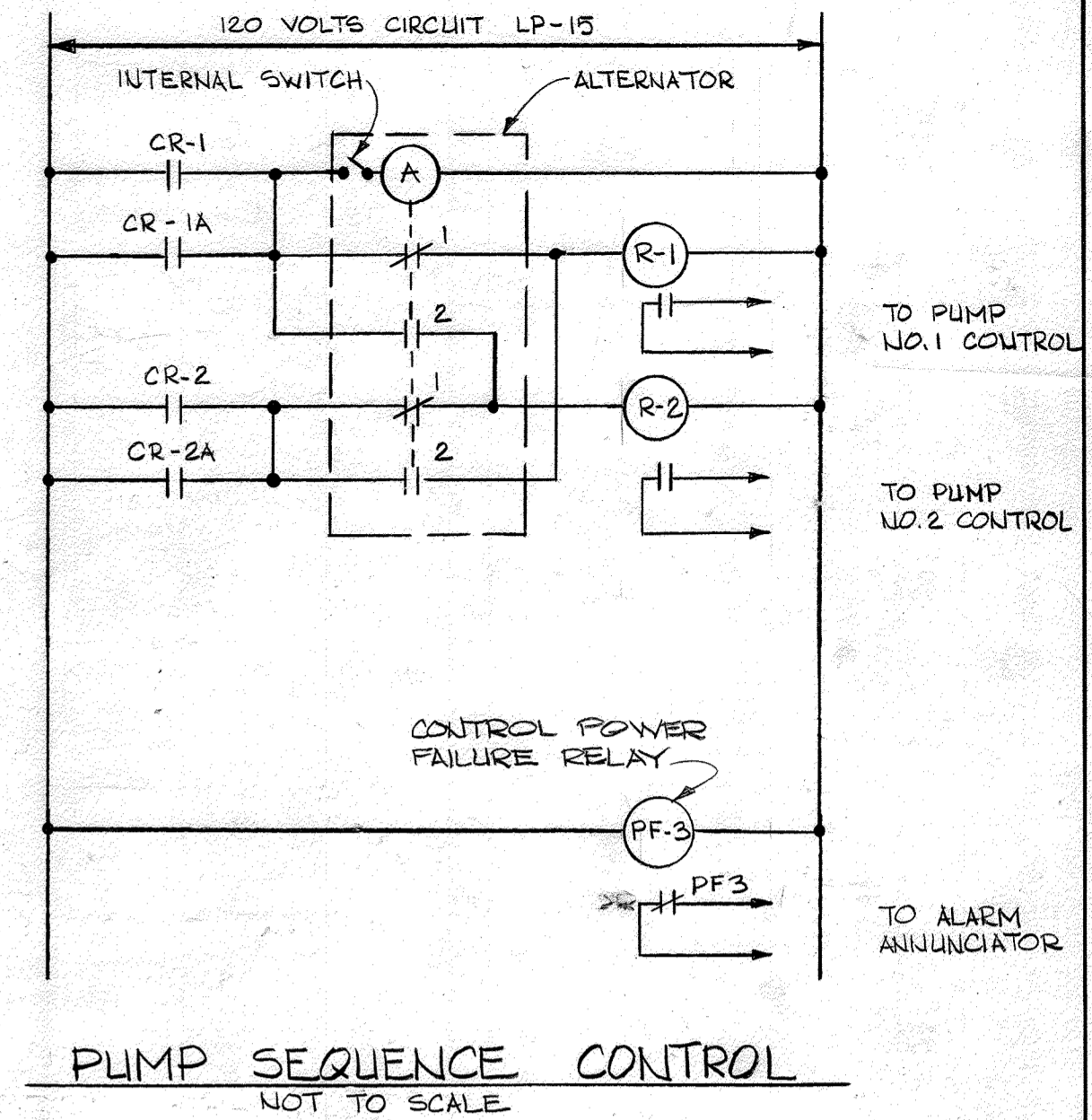


FRONT ELEVATION - MOTOR CONTROL CENTER
NOT TO SCALE

- E-1 FLOW INDICATOR RECORDER
- E-2 FLOW TOTALIZER
- E-3 ALARM ANNUNCIATOR
- E-4 LAMP TEST PUSHBUTTON
- E-5 ALARM ACKNOWLEDGE
- E-6 WETWELL LEVEL GAUGE
- E-7 BUBBLER CONTROL, FLOAT CONTROL, MR COMPRESSOR, TELEMETERING EQUIPMENT, ETC.

PANELBOARD: LP MAINS: MCB AMPS: 100 MIU AIC: 10,000
LOCATION: MOTOR ROOM VOLTS: 208Y/120 PHASE: 3 WIRES: 4+1 GND
ENCL: NEMA: ONE MOUNTING: SURFACE NOTES:

SERVES	N	CB			SOPZ			SERVES		
		P	TA	SOPZ	A	B	C			
LIGHTING	1	20	1				2	20	1	RECEPTACLES
LIGHTING	1	20	3				4	20	1	BATTERY CHARGER
GENERATOR CONTROL	1	20	5				6	20	1	RECEPTACLES
RECEPTACLE (SUMP PUMP)	1	20	7				8	20	1	RECEPTACLES
RECEPTACLE (SUMP PUMP)	1	20	9				10	20	1	DAY TANK
FLOW METER	1	20	11				12	20	1	JACKET WATER HEATER
GAS ANALYZER	1	20	13				14	20	1	PRIMARY PUMP CONTROL SYSTEM
PUMP SEQUENCE CONTROL	1	20	15				16	20	1	SECONDARY PUMP CONTROL SYSTEM
FLOW RECORDER	1	20	17				18	20	1	OXINITE GENERATOR
TELEMETRY SYSTEM	1	20	19				20	20	1	RECEPTACLE FOR EMERGENCY LIGHTS
AIR COMPRESSOR #1	1	20	21				22	20	1	AIR COMPRESSOR #2
MOD-1 GEN. ROOM	1	20	23				24	20	1	SUPPLY FAN SF-1
SPACE	1	20	25				26	20	1	ALARM SYSTEM
SPACE	1	-	27				28	-	1	SPACE
SPACE	1	-	29				30	-	1	SPACE

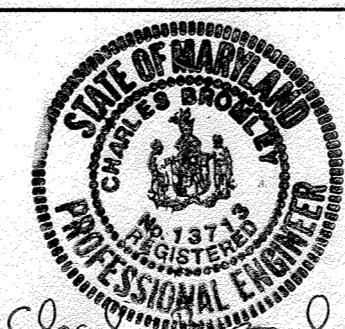


CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

3-26-87
3-28-87
DATE
DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND

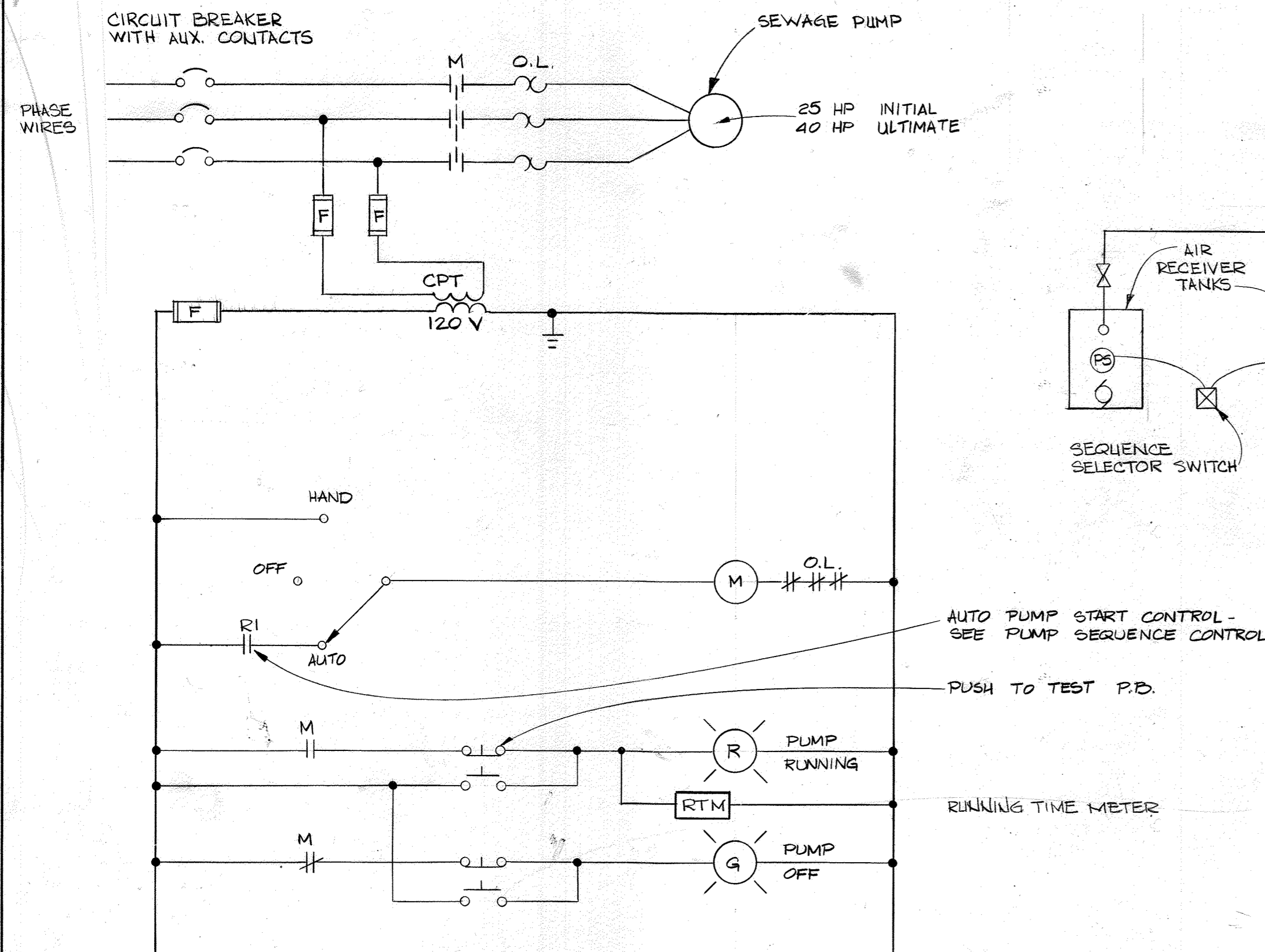


DES: C.B.	
DRN: L.F.	
CHK: C.B.	
DATE: 5/24/85	
BY: C.B.	
NO. 31	
ADD SPACES IN MCC - E3	
REVISION	
DATE	

ELECTRICAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
DATE 600' SCALE MAP NO. 31 BLOCK NO. 22

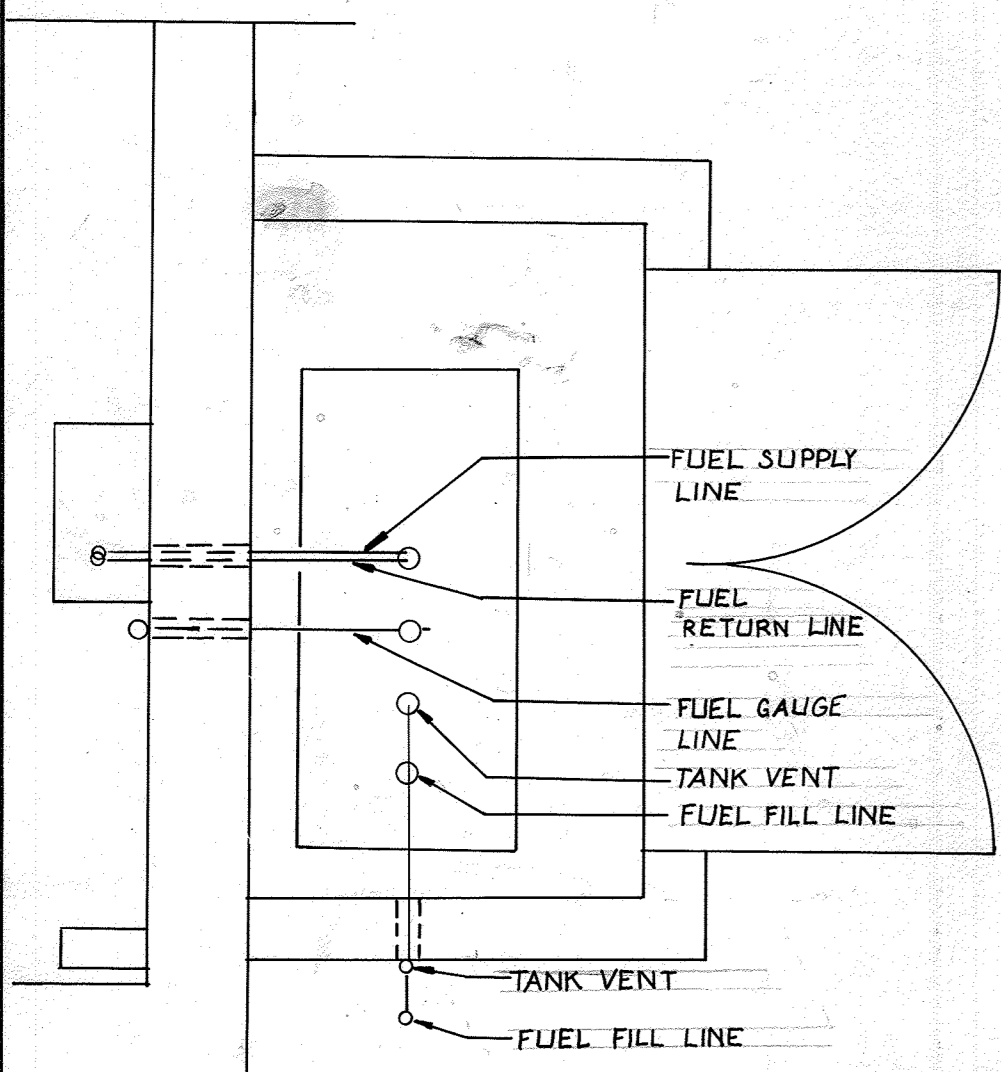
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 34 OF 38

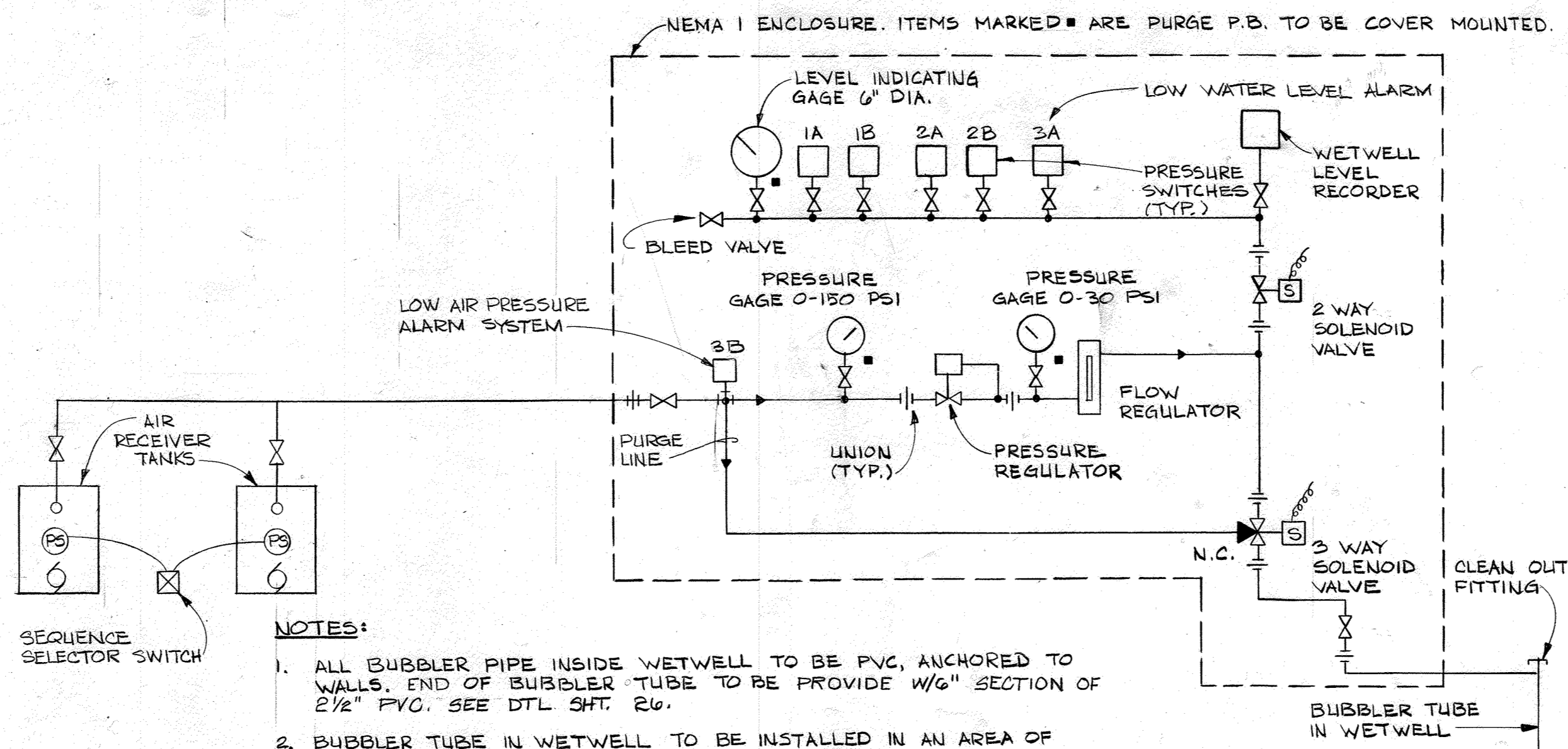


SEWAGE PUMP #1
NOT TO SCALE

(SEWAGE PUMP #2 SIMILAR EXCEPT R1 WILL BE R2.)



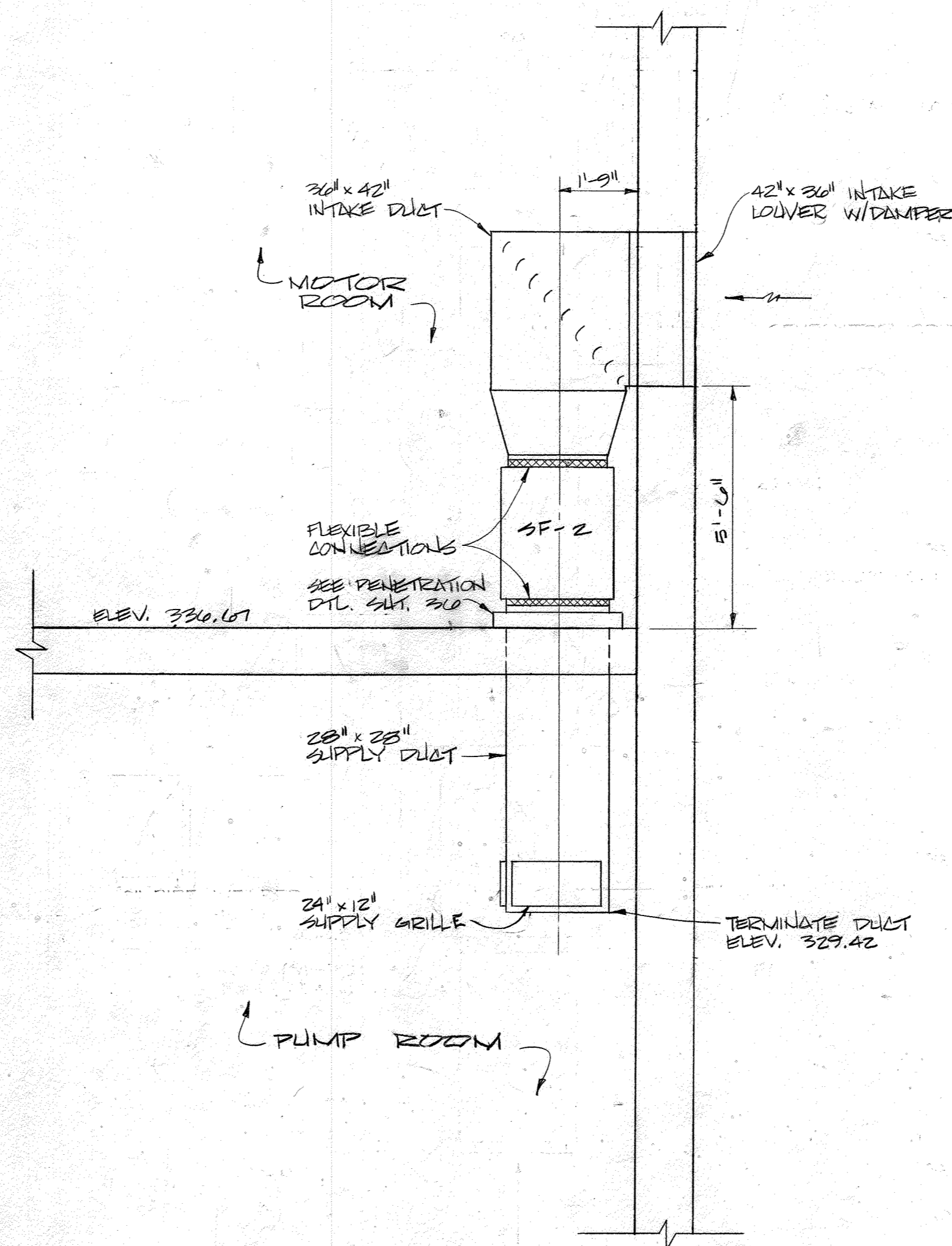
KERGER ROAD PUMP STA.
ELECTRICAL PLAN-TOP
LEVEL FUEL TANK
SHED REVISION
NOT TO SCALE
SEE SHEET 33 OF 38



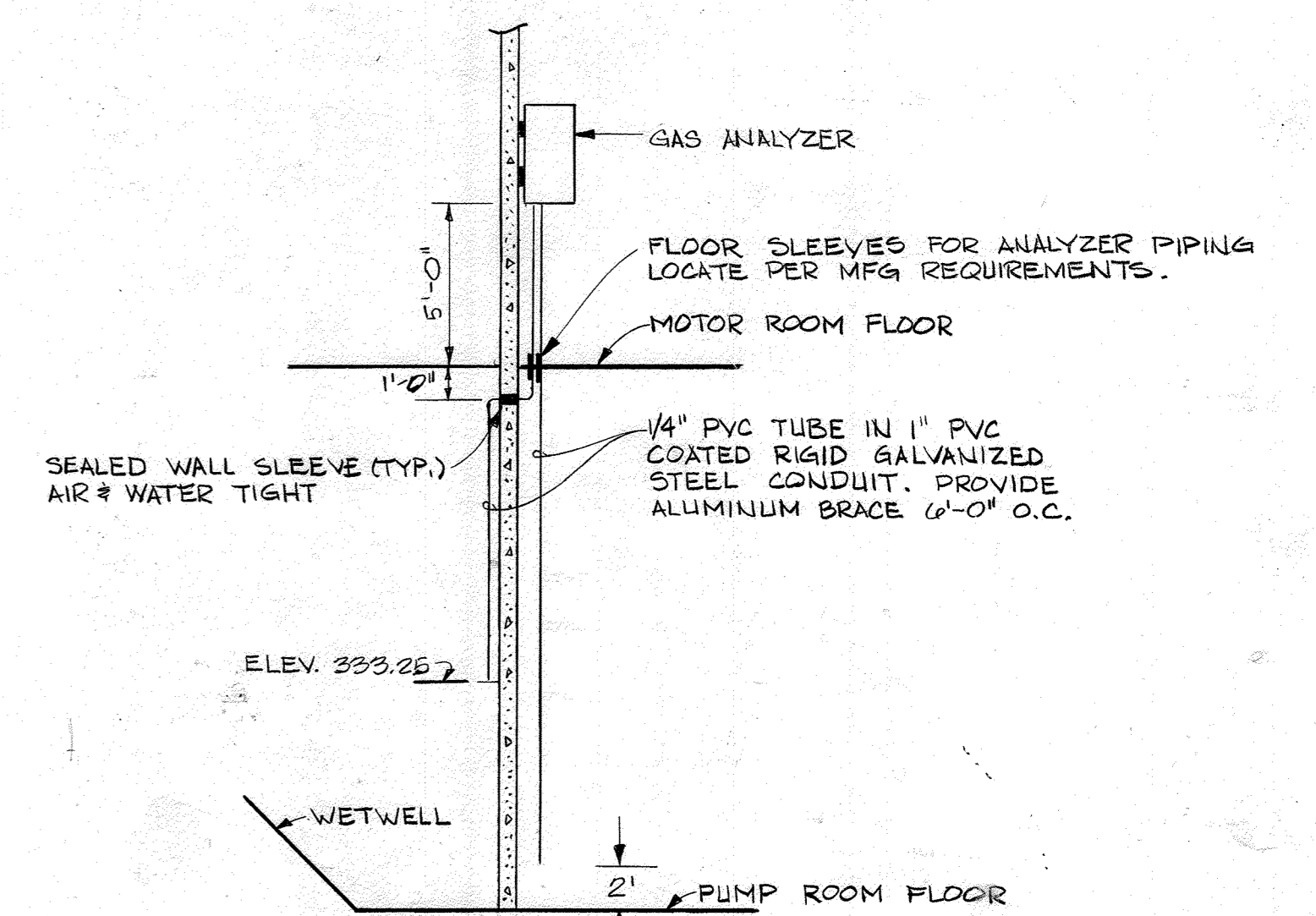
NOTES:

1. ALL BUBBLER PIPE INSIDE WETWELL TO BE PVC, ANCHORED TO WALLS. END OF BUBBLER TUBE TO BE PROVIDED W/6" SECTION OF 2 1/2" PVC. SEE DTL SHT. 26.
2. BUBBLER TUBE IN WETWELL TO BE INSTALLED IN AN AREA OF LOW TURBULANCE, AWAY FROM PUMP INTAKES.
3. PIPING BETWEEN BUBBLER TUBE IN WETWELL AND BUBBLER SYSTEM INSTRUMENT PANEL SHALL BE PVC PLASTIC.

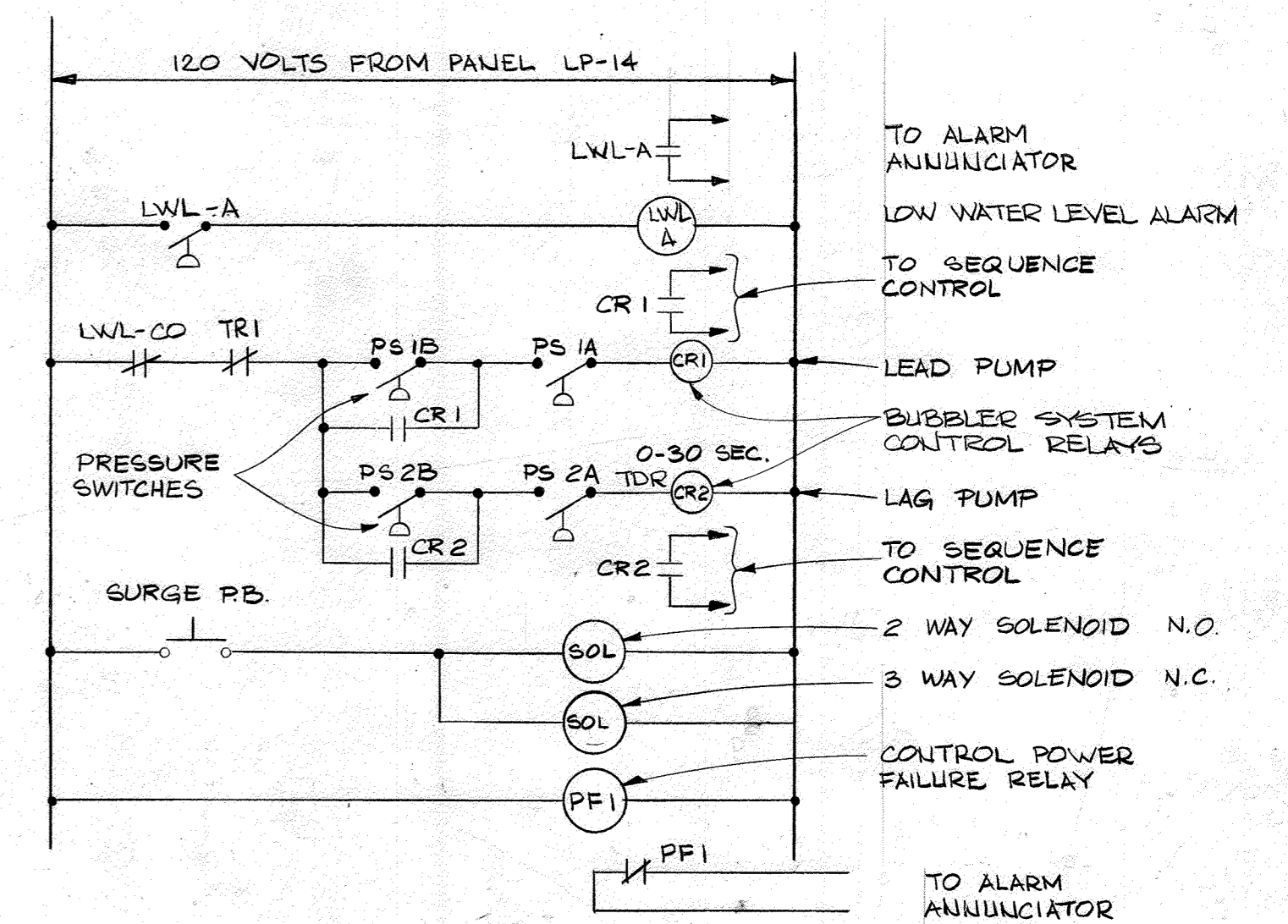
SCHEMATIC DIAGRAM-BUBBLER SYSTEM
NOT TO SCALE



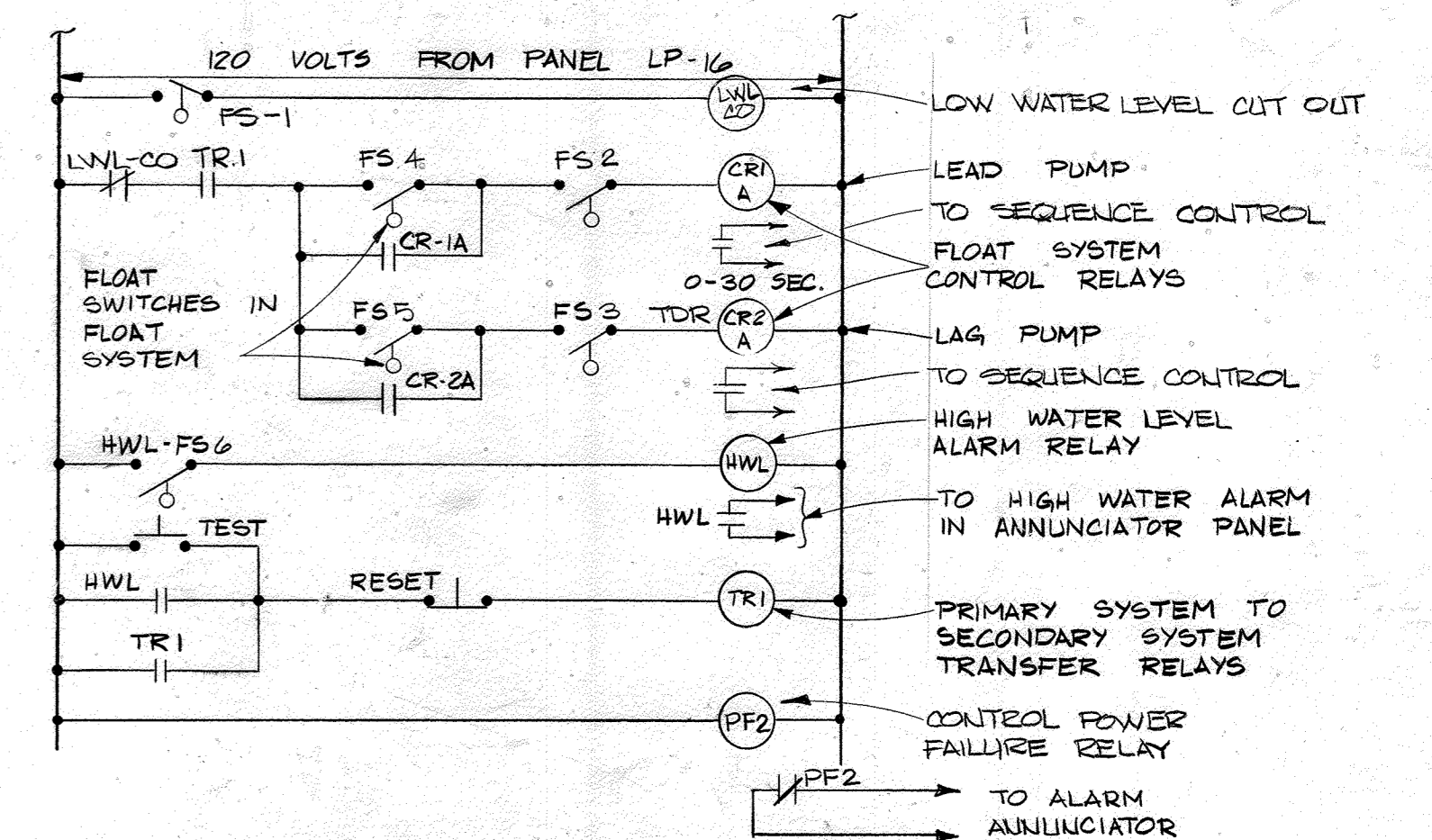
SECTION
35
NOT TO SCALE



COMBUSTIBLE GAS ANALYZER
NOT TO SCALE



(BUBBLER) PRIMARY PUMP CONTROL SYSTEM CONTROL DIAGRAM
NOT TO SCALE



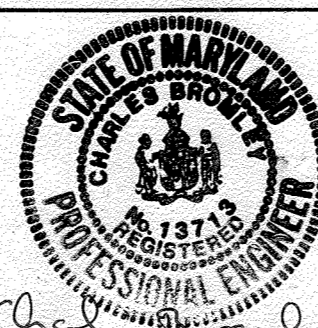
(FLOAT) SECONDARY PUMP
CONTROL SYSTEM
NOT TO SCALE

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John F. Nunn* 3-26-87
Chief, Bureau of Engineering: *Richard R. Ray* 3-25-87
Chief, Bureau of Utilities: *Robert M. Berman* 3-25-87
Chief, Utility Division: *Robert M. Berman* 3/25/87

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: C.B.
DRN: L.F.
CHK: C.B.
DATE: 5/24/85

BY	NO.	REVISION	DATE

ELECTRICAL/MECHANICAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION

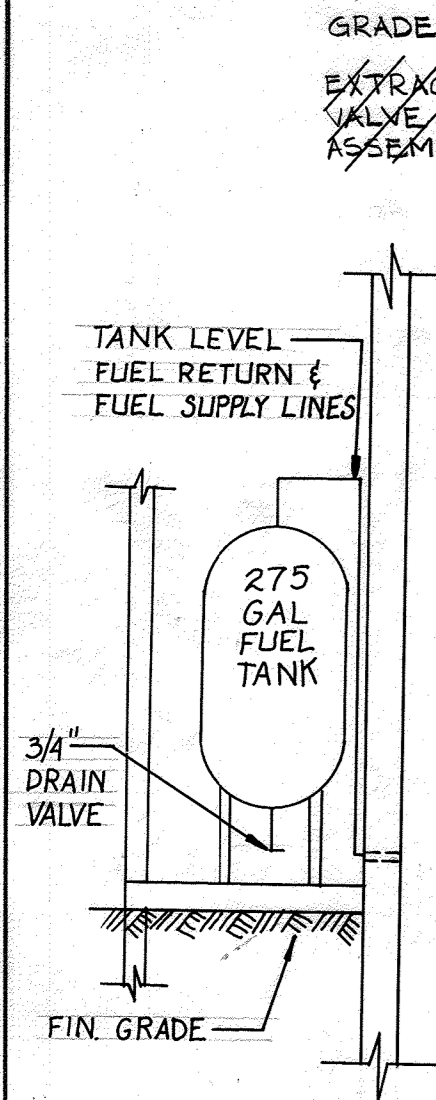
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 35 OF 38

AS-BUILT 9/6/89

NOTE: FILL BOX TO BE MOUNTED ON EAST SIDE OF BUILDING 3'-0" ABOVE FINISHED GRADE AND PROVIDED W/ LOCKING CAP.

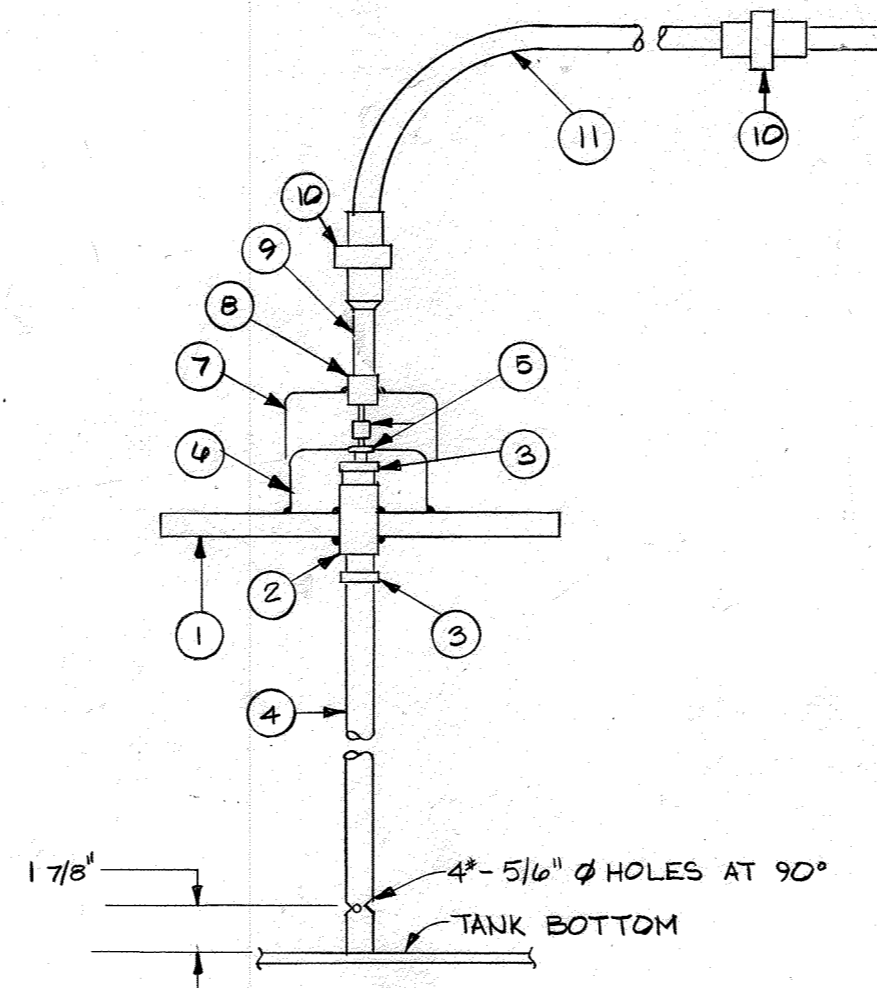
NOTE: ABOVE GROUND FUEL TANK ENCLOSURE ADDITION SEE THIS SHEET (NOT TO SCALE)



FUEL SYSTEM SCHEMATIC DIAGRAM NOT TO SCALE

LEGEND

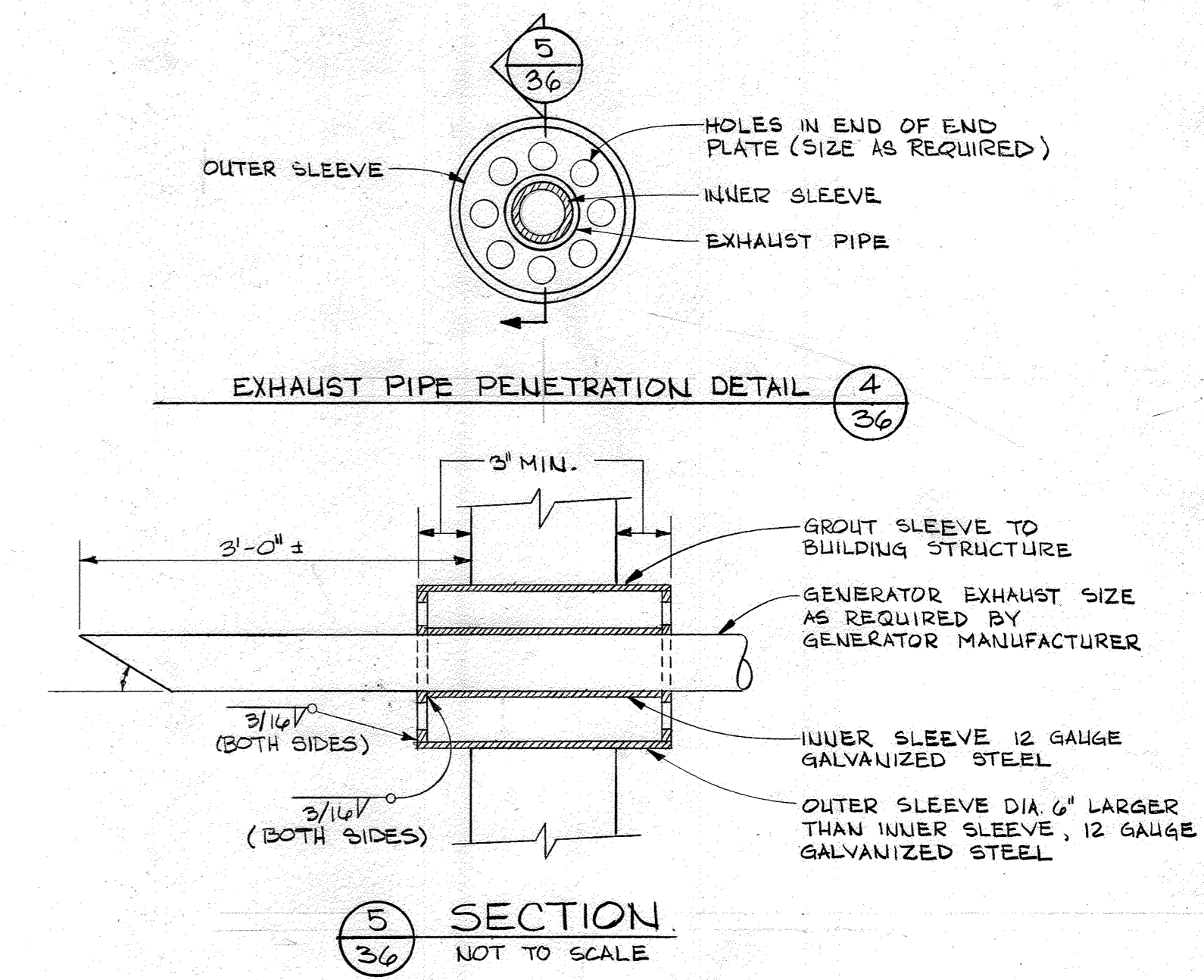
- (FS) FLOAT SWITCH
- (S) SIGHT FLOW INDICATOR
- (S) STRAINER
- (V) CHECK VALVE
- (V) VENT CAP WITH INSECT SCREEN
- (V) SHUT-OFF VALVE
- (F) FLEXIBLE COUPLING



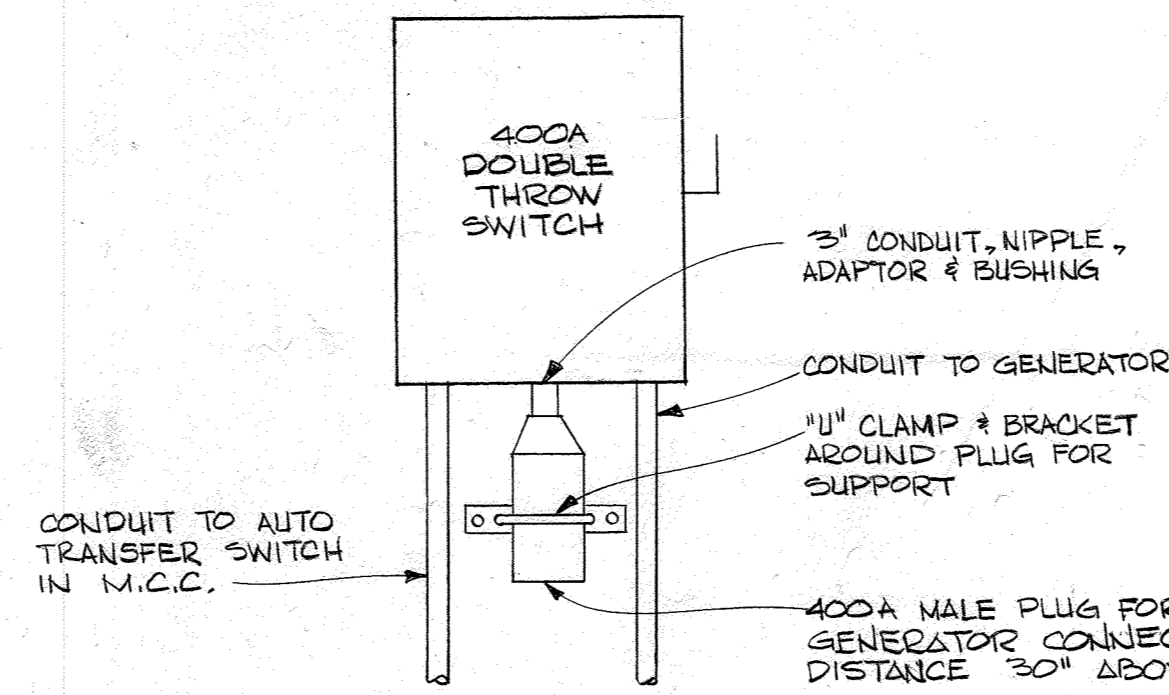
LEVEL GAGE LINE AND TANK CONNECTION DETAIL NOT TO SCALE

NOTES:

- 1 4" DIA. BLIND FLANGE, FLAT
- 2 1" DIA. SCREWED COUPLING
- 3 1" DIA. - 3/4" HEXAGONAL BUSHING
- 4 3/4" DIA. SCH. 80 PYC PIPE
- 5 TUBING AND TUBING TO PIPE FITTINGS FURNISHED WITH GAGE ASSEMBLY
- 6 3/8" DIA. NIPPLE
- 7 3/8" DIA. SCREWED CAP
- 8 1" DIA. HALF COUPLING
- 9 1" DIA. PIPE NIPPLE
- 10 1" DIA. UNION (INSTALL AS NEEDED)
- 11 1" DIA. STEEL PIPE (TO PROTECT 1/4" NYLON TUBING)



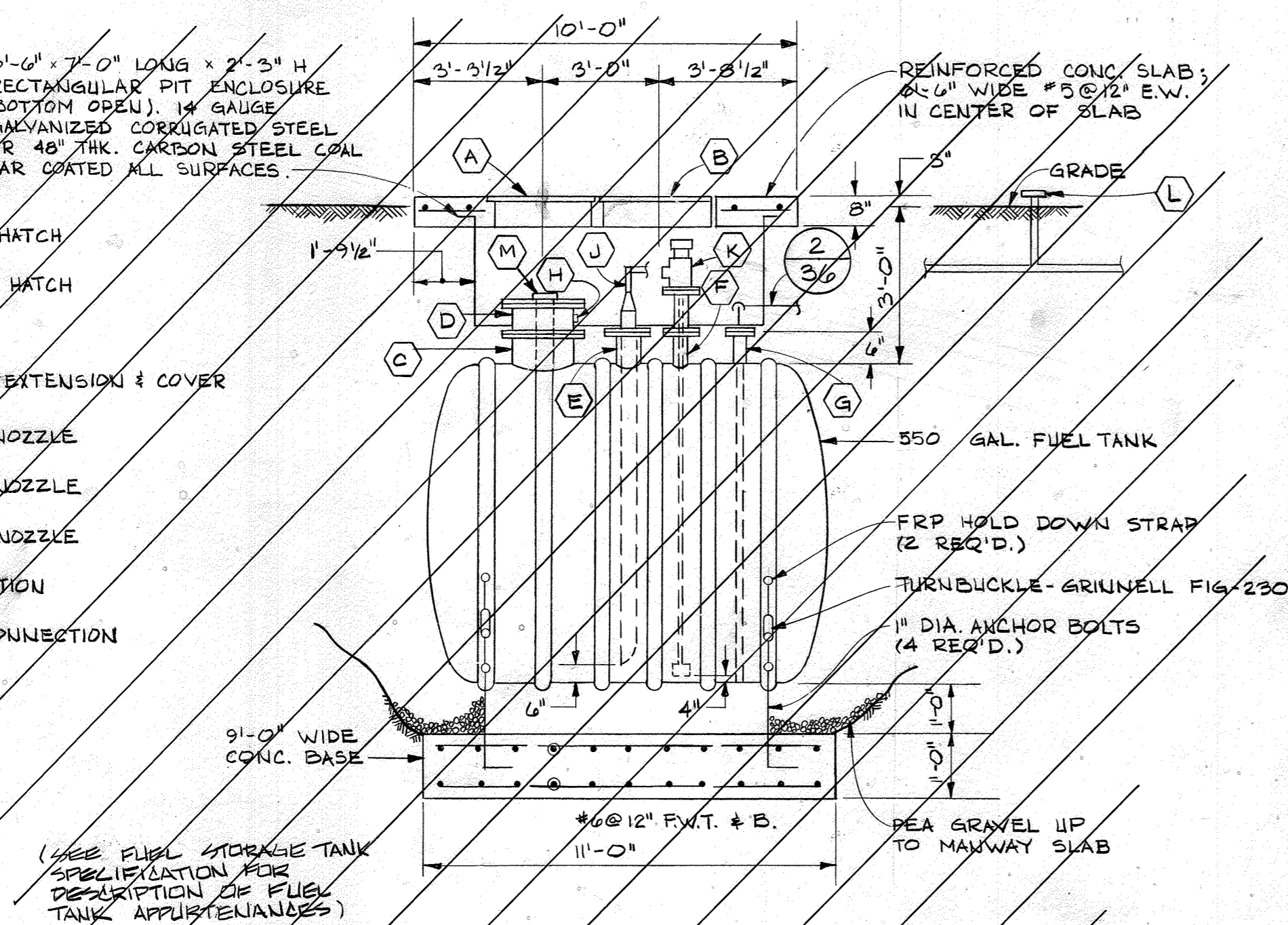
SECTION NOT TO SCALE



MANUAL TRANSFER SWITCH DTL. NOT TO SCALE

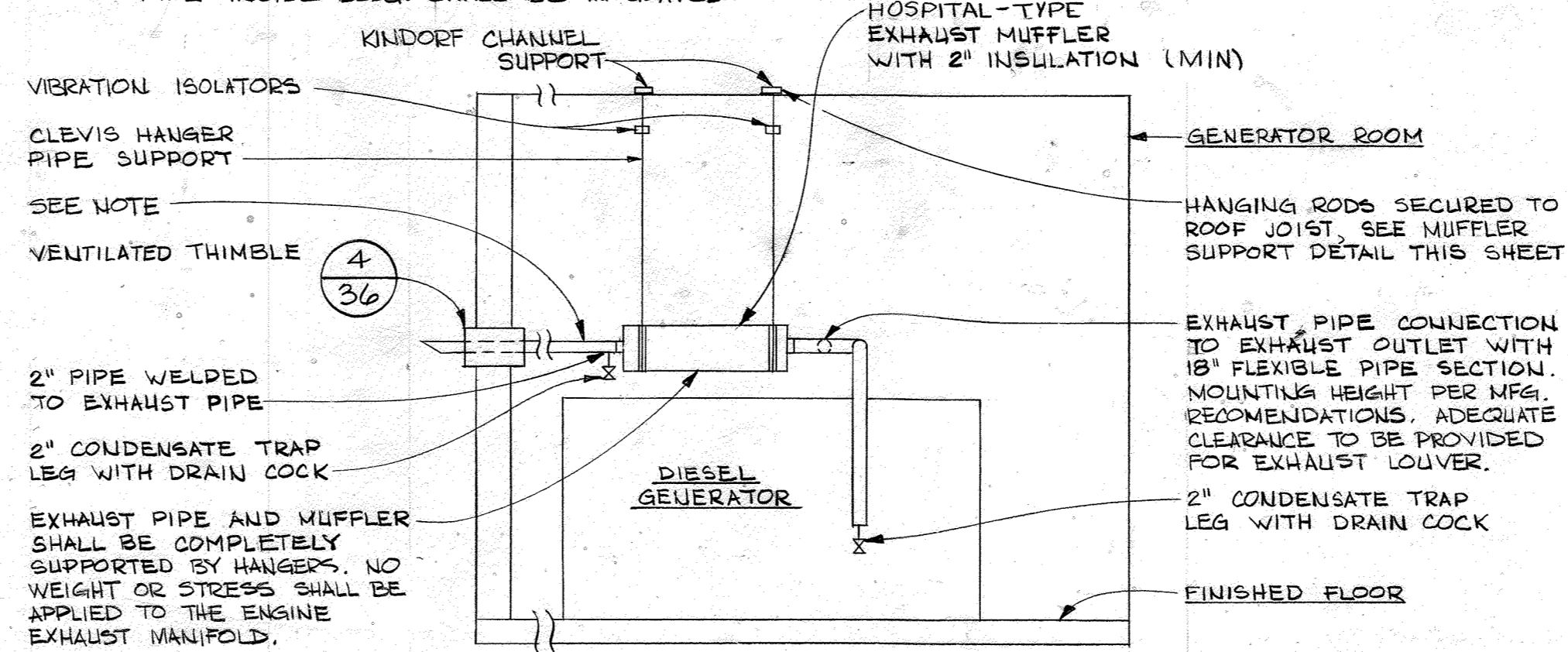
NOTES:

- (A) 24" x 24" MANWAY HATCH
- (B) 24" x 30" MANWAY HATCH
- (C) 22" DIA. MANWAY
- (D) 22" DIA. MANWAY EXTENSION & COVER
- (E) 8" DIA. FLANGED NOZZLE
- (F) 4" DIA. FLANGED NOZZLE
- (G) 4" DIA. FLANGED NOZZLE
- (H) 1/2" VENT CONNECTION
- (J) 1" FUEL RETURN CONNECTION
- (K) 1" FUEL SUPPLY
- (L) FILL BOX
- (M) TAP & PLUG IN TOP FLANGE OF 22" DIA. MANWAY EXTENSION & COVER

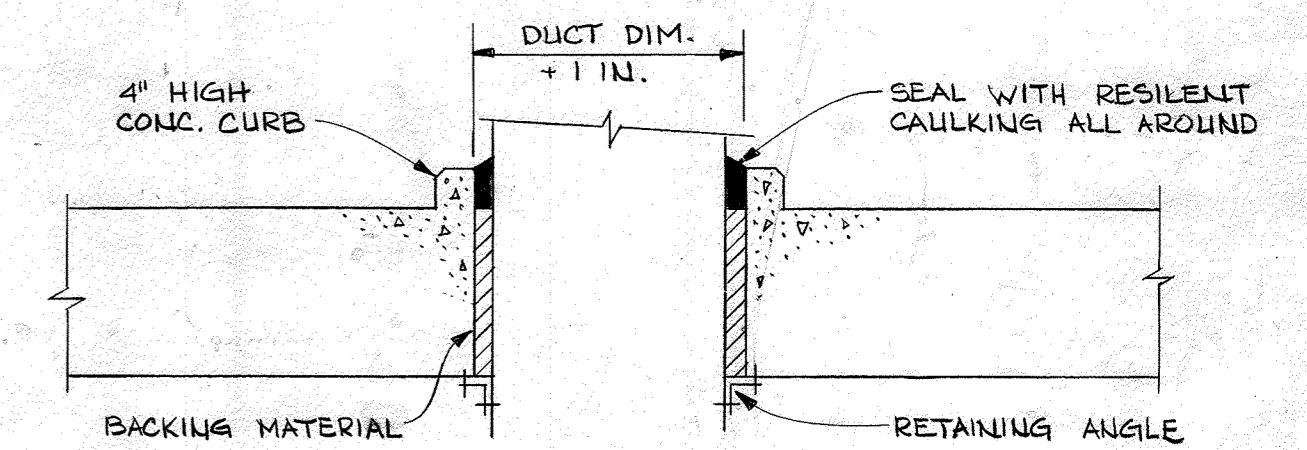


DETAIL-UNDERGROUND FUEL STORAGE TANK NOT TO SCALE

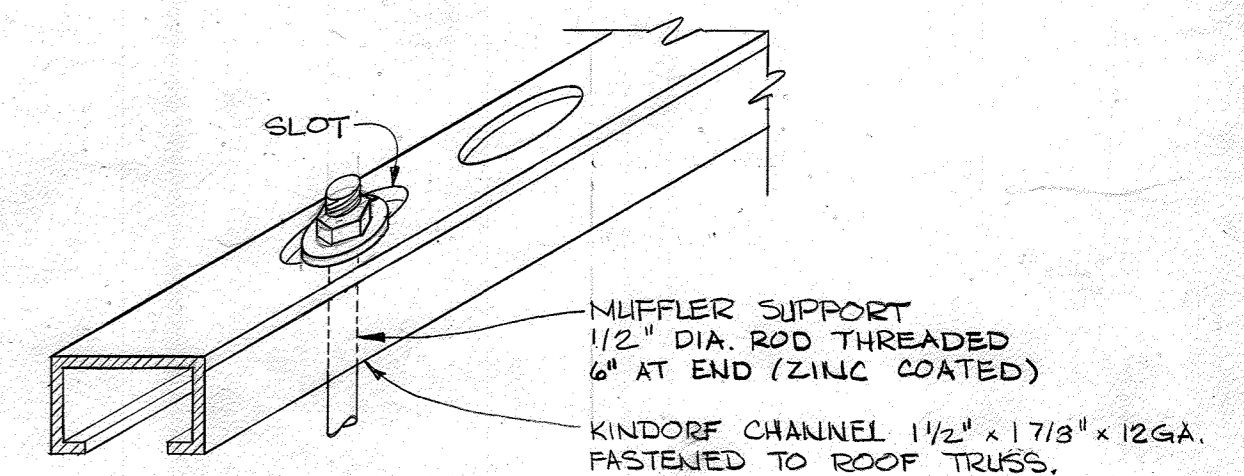
NOTE: MUFFLER AND ENTIRE LENGTH OF EXHAUST PIPE INSIDE BLDG. SHALL BE INSULATED



ELEVATION-GENERATOR EXHAUST INSTALLATION NOT TO SCALE



DUCT PENETRATION SLEEVE NOT TO SCALE



MUFFLER SUPPORT DETAIL NOT TO SCALE

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Shank F. Namy 3-26-87
DIRECTOR OF PUBLIC WORKS DATE

Richard B. Ryan 3/25/87
CHIEF, BUREAU OF ENGINEERING DATE

JOHN E. HARMS JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: C.B.			
DRN: L.A.F.			
CHK: C.B.			
DATE: 5/24/85	BY: NO.	REVISION	DATE

ELECTRICAL/MECHANICAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215

SCALE AS SHOWN
SHEET 36 OF 38

LIGHTING FIXTURE SCHEDULE					
TYPE	MANUFACTURER	CATALOG NUMBER	LAMPS	VOLT	REMARKS
①	BENJAMIN	FLB-1124-2WA	2-FA0T12RS	120	NOTE ①, ②
②	BENJAMIN	FE-1524-4	2-FA0T12RS	120	NOTE ①
③	BENJAMIN	DLW-270-120B	1-70W-HPS	120	NOTE ②
④	CROUSE-HINDS	VKHB15P	1-100W	120	
⑤	CROUSE-HINDS	EVBK-282	1-200W	120	NOTE ③
⑥	DUAL-LITE	MS-BL/EX SERIES	2	-	NOTE ④

LIGHTING FIXTURE SCHEDULE NOTES:

- ① PROVIDE SCHEDULED LUMINAIRE OR EQUAL BY CROUSE HINDS COMPANY.
- ② INSTALL LUMINAIRES ON UNDERSIDE OF JOISTS ON KINDORF CHANNEL. COORDINATE LOCATION AND INSTALLATION OF LUMINAIRES WITH LOCATION OF CRANE HOIST.
- ③ EXPLOSION-PROOF SUITABLE FOR CLASS 1 DIV. 1, GROUPS B, C & D.
- ④ FIXTURE PROVIDED WITH HEAVY DUTY WALL MOUNTING BRACKET AND BATTERY LIFE EXPECTANCY ALARM (BLEA).

UNIT HEATER SCHEDULE							
UNIT No.	LOCATION	No. OF STAGES	TOTAL KW	VOLTS	PHASE	HZ	CONTROLLED
UH-1	GENERATOR ROOM	2	15	480	3	60	T-3
UH-2	MOTOR ROOM	2	15	480	3	60	T-4
UH-3	PUMP ROOM	2	5	480	3	60	T-5

FAN SCHEDULE										
UNIT No.	SERVICE	TYPE	CFM	SP	DRIVE	VOLTS	PHASE	HZ	HP	CONTROLLED
EF-1	GENERATOR ROOM	PROPELLER	2725	0.375	DIRECT	480	3	60	1/2	H-O-A SWITCH, THERMOSTAT T-1
SF-2	MOTOR ROOM	IN-LINE CENT.	3300	0.375	DIRECT	480	3	60	3/4	H-O-A SWITCH, TIMER, THERMOSTAT T-2
SF-1	WETWELL	ROOF	1320	0.125	DIRECT	120	1	60	1/4	H-O-A SWITCH, TIMER, LIGHTSWITCH

CONVENTIONS	
SYMBOL	DESCRIPTION
②	LIGHTING FIXTURE TYPE SEE SCHEDULE
NOTE ①	APPLIES WHERE APPLICABLE TO THE DRAWING SHEET ON WHICH THE NOTE APPEARS
LPE - 2, 7	BRANCH CIRCUIT IDENTIFICATION
[Symbol]	PANELBOARD IDENTIFICATION (REF. DESIGNATION)
[Symbol]	EACH SYMBOL INDICATING A RACEWAY SEGMENT SHALL BE UNDERSTOOD TO INCLUDE 2" x 12" & 1" x 12" GRD. WIRING UNLESS OTHERWISE NOTED
#8	INDICATES WIRE SIZE
[Symbol]	CROSSHATCH LINES INDICATES PHASE AND NEUTRAL CONDUCTORS (#12 AWG U.O.N.)
[Symbol]	CROSSHATCH LINE WITH DOT ON END INDICATES A "GREEN WIRE" GROUNDING CONDUCTOR

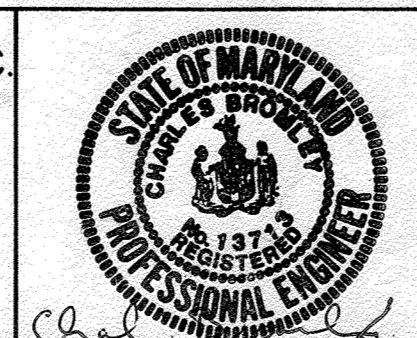
SCHEMATIC WIRING DIAGRAM LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	RED PILOT LIGHT
[Symbol]	GREEN PILOT LIGHT
[Symbol]	WHITE PILOT LIGHT
[Symbol]	NORMALLY OPEN CONTACT
[Symbol]	NORMALLY CLOSED CONTACT
[Symbol]	COIL
[Symbol]	REPEAT CYCLE TIMER (0-30 MIN. ADJUSTABLE)
[Symbol]	MOTOR
[Symbol]	MOTOR OPERATED DAMPER, NUMBER AS INDICATED
[Symbol]	FUSE
[Symbol]	PUSH TO TEST PUSHBUTTON
[Symbol]	HAND-OFF-AUTOMATIC (H-O-A) SWITCH
[Symbol]	STARTER COIL, NUMBER AS INDICATED
[Symbol]	SINGLE POLE SWITCH
[Symbol]	CONTROL POWER TRANSFORMER 480V. TO 120V, 1Ø
[Symbol]	GROUND CONNECTION
[Symbol]	TIME DELAY CLOSING SWITCH (TDS)
[Symbol]	OVERLOAD
[Symbol]	PRESSURE SWITCH (PS)
[Symbol]	FLEXI SWITCH (FS)
[Symbol]	OFF DELAY TIMER
[Symbol]	TIME DELAY OPEN SWITCH
[Symbol]	SOLENOID (SOL)
[Symbol]	PUSHBUTTON
[Symbol]	ELAPSED TIME METER
[Symbol]	LIMIT SWITCH (LS)

MECHANICAL / ELECTRICAL LEGEND			
ABBREV.	DESCRIPTION	SYMBOL	DESCRIPTION
A.	AMPS OR AMPERE	\$	SINGLE POLE SWITCH
AC.	ALTERNATING CURRENT	\$2	DOUBLE POLE SWITCH
ABBREV.	ABBREVIATION		
A.F.F.	ABOVE FINISHED FLOOR		
A.I.C.	AMPERES INTERRUPTING CAPACITY (SYM, RMS, AMPS)	⊕	DUPLEX RECEPTACLE
C	CONDUIT	⊕GFI	GROUND FAULT INTERRUPTER TYPE RECEPTACLE
CB; C/B	CIRCUIT BREAKER	⊕	SINGLE RECEPTACLE MOUNTED AT 84" (FOR EMERGENCY LIGHTS)
CKT.	CIRCUIT	⊕	JUNCTION BOX
C/T	CIRCUIT TRANSFORMER	⊕	UNIT HEATER CONNECTION
DC.	DIRECT CURRENT	⊕5	MOTOR CONNECTION - NUMBER INDICATES HORSEPOWER
DN.	DOWN	⊕	RELAY
EF.	EXHAUST FAN	⊕	CONTACTOR
EH	ELECTRIC HEATER	⊕	GENERATOR
EXP.	EXPLOSION-PROOF	⊕	CONTROL DEVICE AS INDICATED ON DRAWINGS
F; FU.	FUSE	⊕	SAFETY SWITCH
F.B.O.	FURNISHED BY OTHERS	⊕	COMBINATION MAGNETIC MOTOR STARTER & SAFETY SWITCH
FDR.	FEEDER	⊕	MANUAL MOTOR STARTER WITH THERMAL OVERLOADS
FLR.	FLOOR	⊕	PUSHBUTTON STATION
FSS.	FUSED SAFETY SWITCH	⊕	BRANCH CIRCUIT PANELBOARD
G; GRD.	GROUND	⊕	LIMIT SWITCH
GFI	GROUND FAULT INTERRUPTER	⊕	SOLENOID SWITCH
H-O-A	HAND-OFF-AUTOMATIC	○	RACEWAY UP
HP	HORSEPOWER	●	RACEWAY DOWN
HTR.	HEATER	---	RACEWAY ROUTED BELOW FLOOR SLAB
HZ	HERTZ	⊕	THERMOSTAT, NUMBER AS INDICATED
ISC	SHORT CIRCUIT AMPERE	---	RACEWAY RUN EXPOSED ON WALLS OR CEILING
JB	JUNCTION BOX	⊕	BRANCH CIRCUIT HOMERUN TO ASSOCIATED PANELBOARD WITH A MINIMUM OF 2" x 12" & 1" x 12" GRD. OR AS INDICATED BY CROSSMARKS. ARROWHEADS INDICATE NUMBER OF CIRCUITS & PENETES GROUND.
KV	KILOVOLT	⊕	TELEPHONE OUTLET
KVA	KILOVOLT AMPERE	⊕	GROUNDING
KW	KILOWATT	⊕	GROUND ROD
MCB	MAIN CIRCUIT BREAKER	⊕	FLUORESCENT LIGHTING FIXTURE
MCC	MOTOR CONTROL CENTER	⊕	FLUORESCENT LIGHTING FIXTURE; WALL MOUNTED
MCP	MOTOR CIRCUIT PROTECTOR	○	INCANDESCENT OR H.I.D. LIGHTING FIXTURE, CEILING MOUNTED
MH	MOUNTING HEIGHT	○	INCANDESCENT OR H.I.D. LIGHTING FIXTURE, WALL MOUNTED
MLO	MAIN LUG ONLY	⊕	EXIT LIGHT - BACK MOUNTED AND WITH DIRECTIONAL ARROWS AS INDICATED (WITH BATTERY BACK-UP)
MTD	MOUNTED	⊕	FL - FLEXIBLE LOUVER
NC	NORMALLY CLOSED	⊕	ELBOW WITH TURNING VANES
NEC	NATIONAL ELECTRICAL CODE	⊕	M.O.D. - MOTOR OPERATED DAMPER
N.F.S.S.	NON-FUSED SAFETY SWITCH	⊕	SUPPLY DUCT (UP & DOWN)
NO	NORMALLY OPEN	⊕	
P	POLE POLES	⊕	
PNL	PANELBOARD	⊕	
S/N	SOLID NEUTRAL	⊕	
TTC	TELEPHONE TERMINAL CABINET	⊕	
TYP	TYPICAL	⊕	
UH	UNIT HEATER	⊕	
V	VOLTS OR VOLTAGE	⊕	
W	WIRE	⊕	
WP	WEATHERPROOF	⊕	
XFMR.	TRANSFORMER	⊕	
∅	PHASE	⊕	
SS.	SELECTOR SWITCH	⊕	
EDH	ELECTRIC DUCT HEATER	⊕	
EXP	EXPLOSION-PROOF DEVICE	⊕	
OL	OVER LOAD	⊕	
LT	LIGHT	⊕	
BDD	BACKDRAFT DAMPER	⊕	
SF	SUPPLY FAN	⊕	
ELEV.	ELEVATION	⊕	
EXH	EXHAUST	⊕	
ER	EXHAUST REGISTER	⊕	
SR	SUPPLY REGISTER	⊕	
MOP	MOTOR OPERATED DAMPER	⊕	

CONTRACT NO. 10-1215
KERGER ROAD COLLECTION SYSTEM & PUMP STATION
HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
 Director of Public Works: *W. F. Nunn* 3-26-87
 Chief, Bureau of Engineering: *W. E. Roy* 3-25-87
 Director, Bureau of Utilities: *W. E. Roy* 3-25-87
 Chief, Utility Division: *W. E. Roy* 3-25-87

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: C.B.	
DRN: C.M.	
CHK: C.B.	
DATE: 5/24/85	

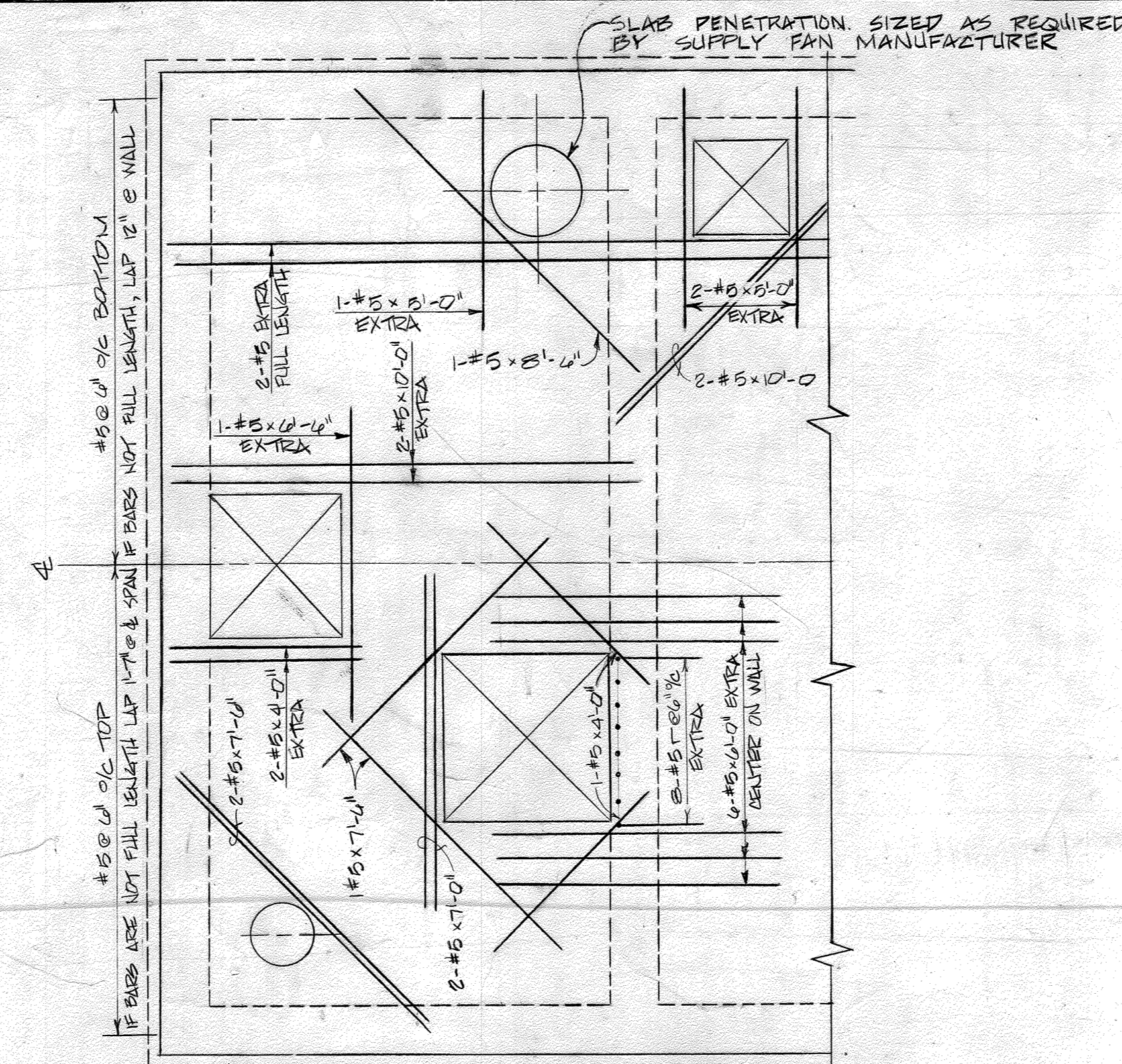
ELECTRICAL/MECHANICAL DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
600' SCALE MAP NO. 31 BLOCK NO. 22

KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215
SCALE AS SHOWN
SHEET 37 OF 38

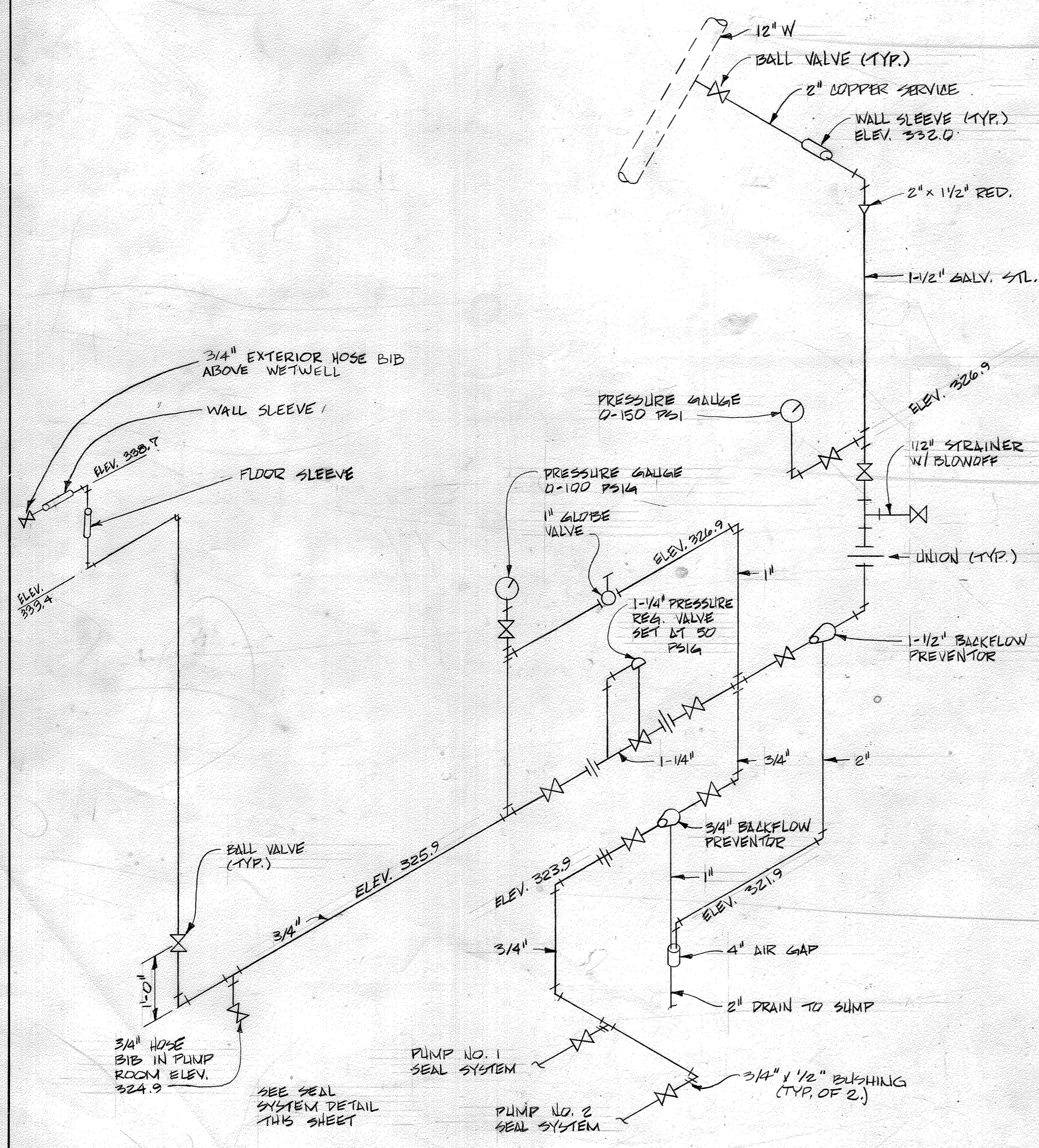
STRUCTURAL NOTES

1. CONCRETE: ALL CONCRETE SHALL BE MD STATE HIGHWAY MIX NO 3 WITH A MINIMUM COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 P.S.I.
2. REINFORCEMENT: ALL STEEL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 AND BE OF GRADE 60. ALL BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" A21 316, THE LATEST EDITION.
3. COVER: ALL STEEL REINFORCEMENT SHALL BE PLACED SO THAT IT HAS 2 INCHES OF CONCRETE COVER MINIMUM UNLESS OTHERWISE SHOWN OR NOTED ON PLANS.
4. SUPPORTS: PROVIDE BEE SUPPORTS AND SPACERS IN ACCORDANCE WITH THE A21 DETAILING MANUAL.
5. STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. ALL CONNECTIONS SHALL BE EITHER WELDED IN ACCORDANCE WITH THE AWS SPECIFICATIONS FOR BUILDING CONSTRUCTION OR BOLTED USING HIGH STRENGTH BOLTS ASTM A325.

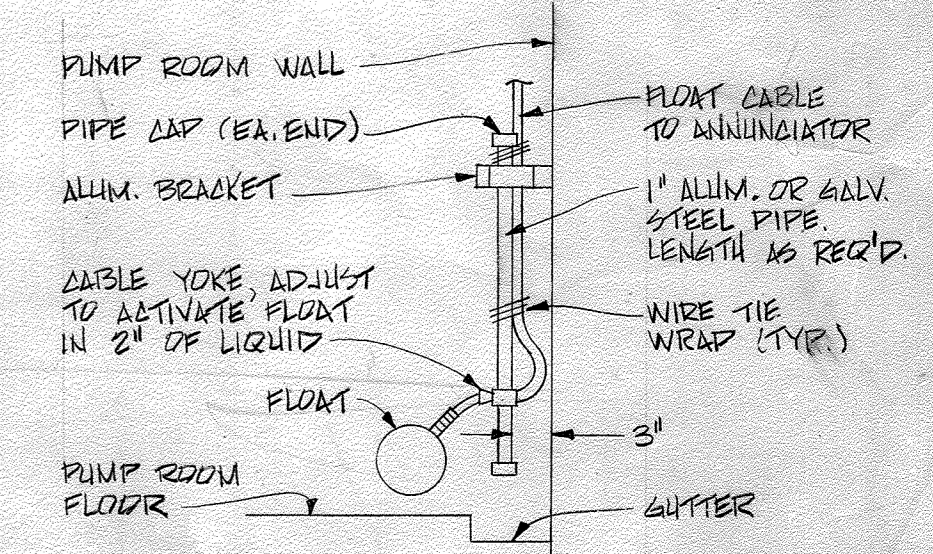
FOR ADDITIONAL STRUCTURAL NOTES & DTLS SEE SHTS 26 TO 28.



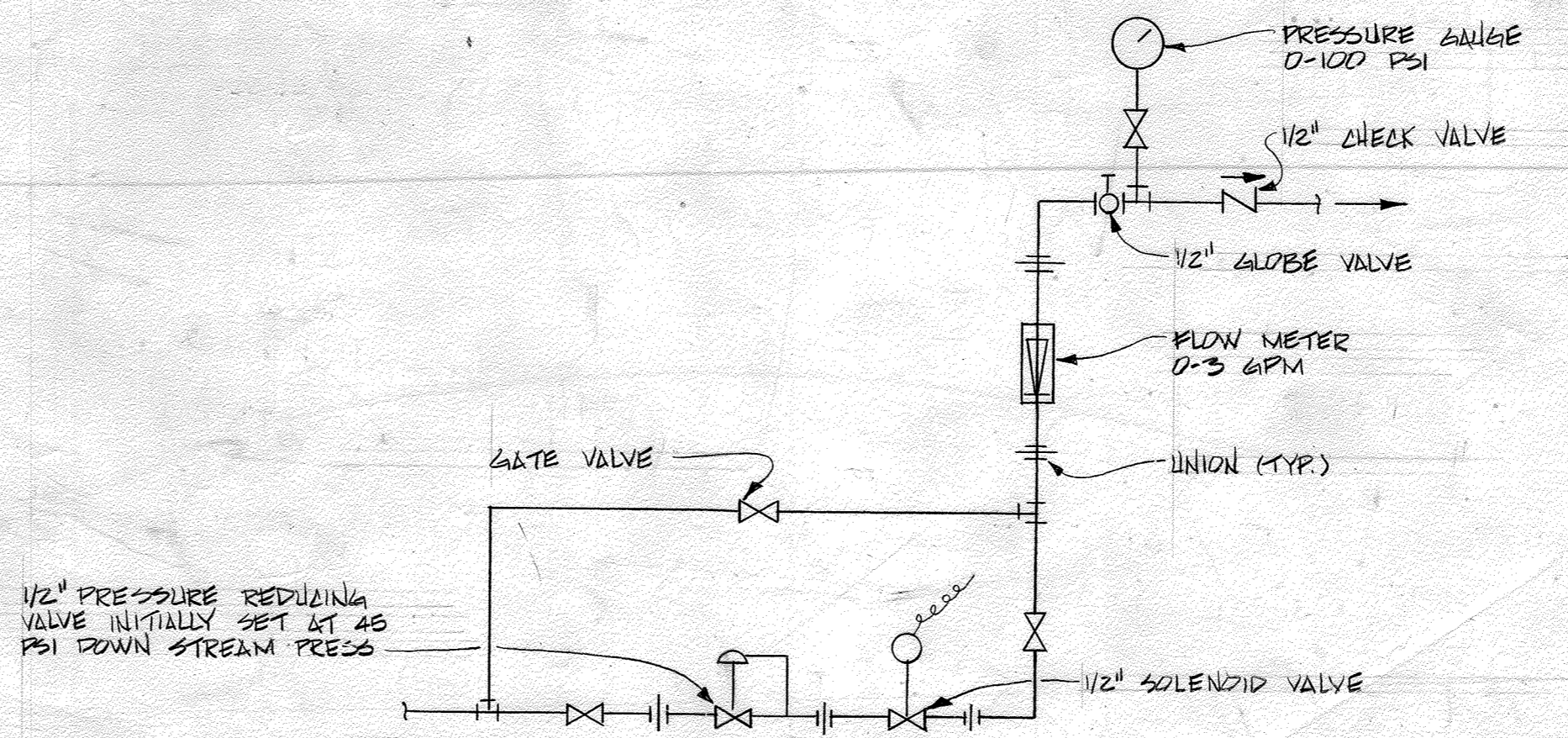
EXTRA REINFORCING TOP & BOTTOM WET WELL SLAB NOT TO SCALE



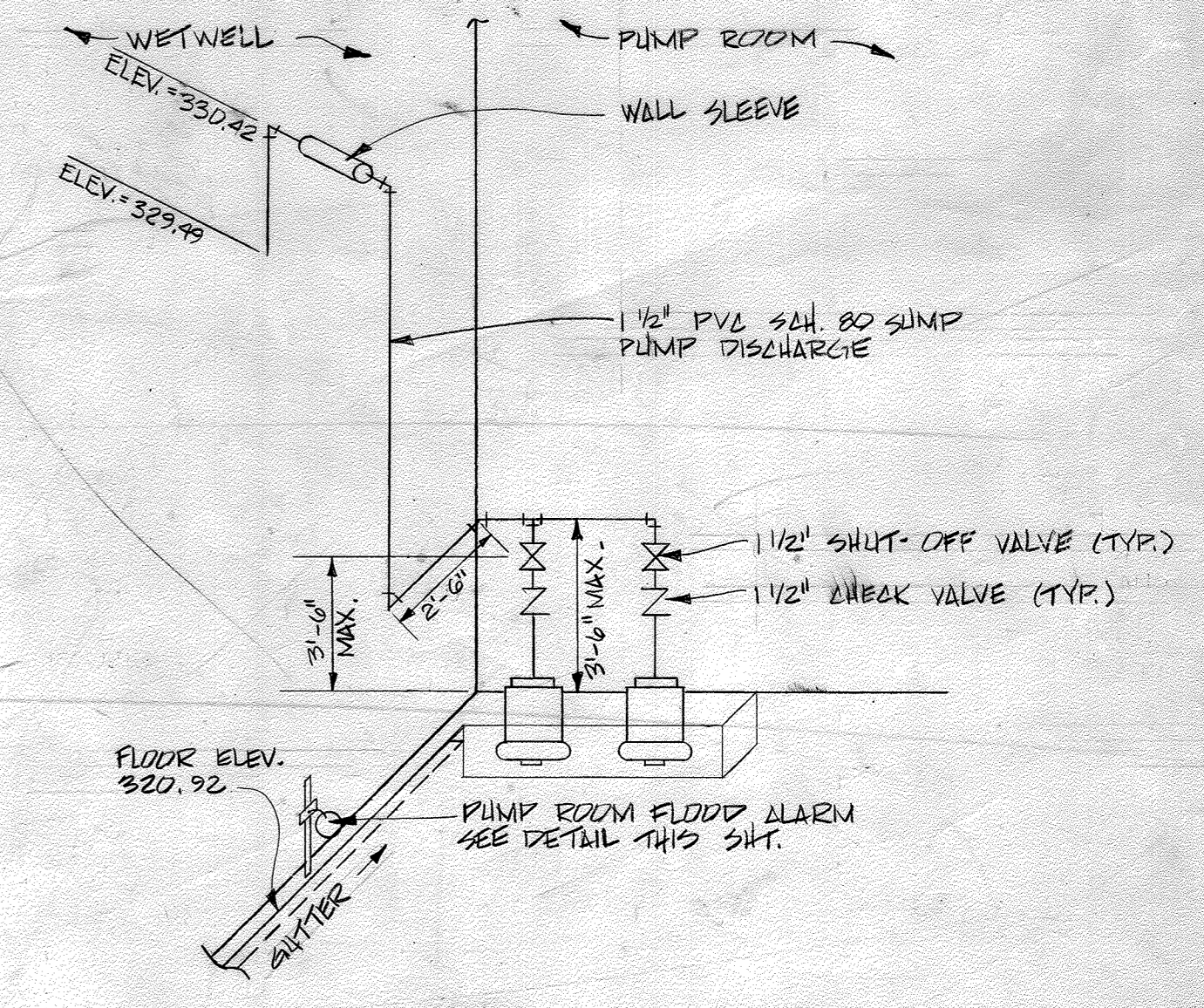
WATER SUPPLY SCHEMATIC
NOT TO SCALE



PUMP ROOM FLOOD ALARM DETAIL
NOT TO SCALE



SEALING WATER SYSTEM DETAIL
NOT TO SCALE



SUMP PUMP SCHEMATIC DIAGRAM
NOT TO SCALE

CONTRACT NO. 10-1215
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HOWARD COUNTY CAPITAL PROJECT S-6089

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3-26-87
3-25-87

JOHN E. HARMS, JR & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND



DES: J.G.S.			
DRN: C.M.			
CHK: J.G.S.			
DATE: 5/24/85	BY	NO.	REVISION

STRUCTURAL AND MISC. DETAILS
KERGER ROAD COLLECTION SYSTEM
AND PUMPING STATION
DATE: 600' SCALE MAP NO. 31 BLOCK NO. 22

SCALE AS SHOWN
SHEET 38 OF 38
KERGER ROAD COLLECTION SYSTEM AND PUMPING STATION
HOWARD COUNTY, MARYLAND
CONTRACT NO. 10-1215