


PINE ORCHARD WATER PUMPING STATION UPGRADE

GENERAL NOTES

PART I - GENERAL

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON AUGUST 2011 BY WHITMAN, REQUARDT & ASSOCIATES, LLP.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0105 AND NO. 0043.
ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE WHITMAN, REQUARDT & ASSOCIATES, LLP.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL UTILITY POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS NOT CONTACTED THE UTILITY COMPANIES TO MAKE ARRANGEMENTS FOR BRACING OF POLES BECAUSE NO BRACINGS ARE ANTICIPATED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ANY UTILITY POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE ANY BRACING OF POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED IN THE APPENDIX OF THE SPECIFICATIONS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED HORIZONTALLY AND VERTICALLY BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AND AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T.....	1-800-252-1133
BGE (CONSTRUCTION SERVICES).....	410-637-8713
BGE (EMERGENCY).....	410-685-0123
BUREAU OF UTILITIES (HOWARD COUNTY).....	410-313-4900
COLONIAL PIPELINE CO.....	410-795-1390
MISS UTILITY.....	1-800-257-7777
STATE HIGHWAY ADMINISTRATION.....	410-531-5533
VERIZON.....	1-800-743-0033

- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.

PART II - WATER

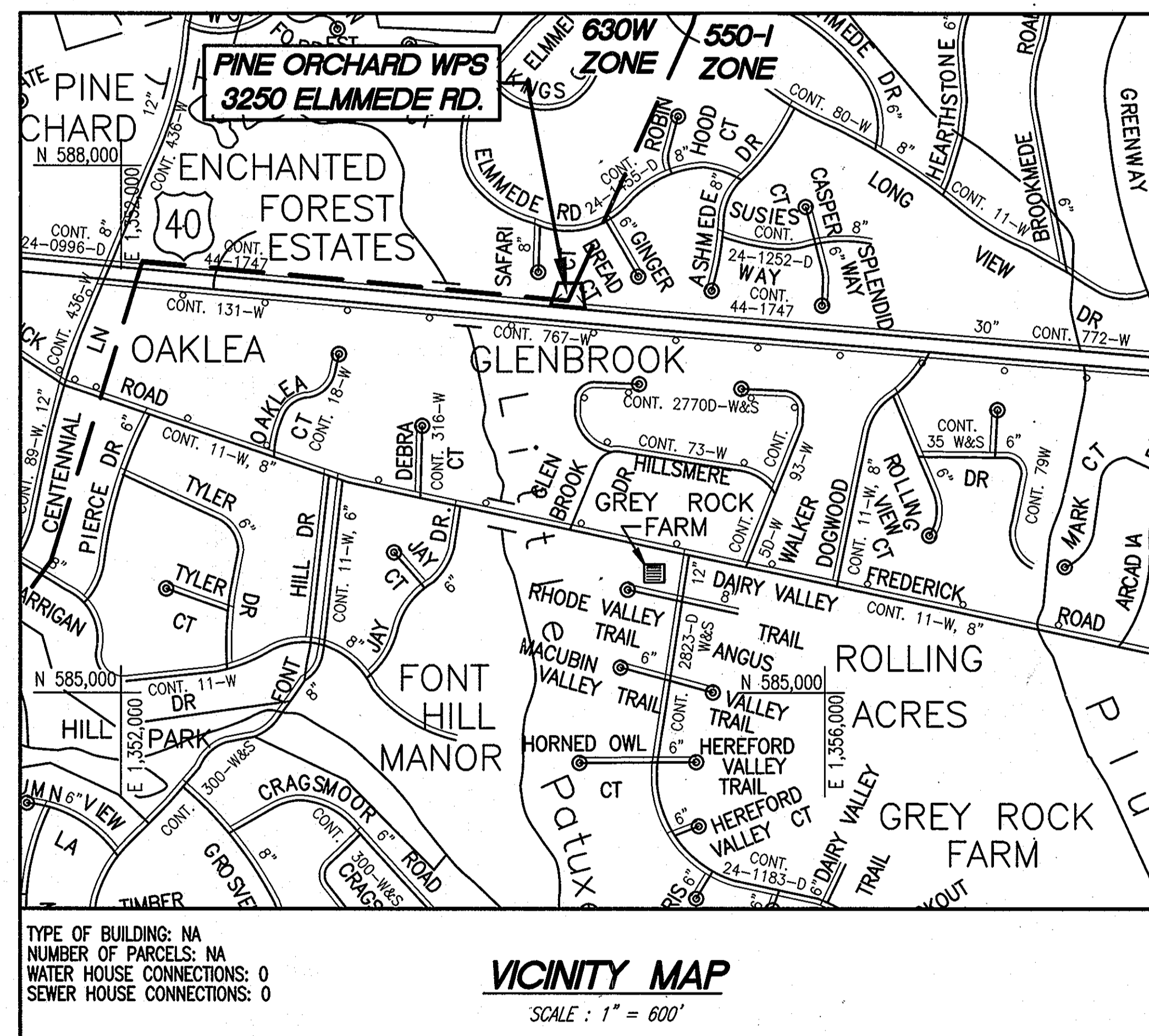
- ALL WATER MAIN PIPE SHALL BE DIP CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SEVENTEEN (17) POUND SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-1	TITLE SHEET, INDEX OF DRAWINGS, VICINITY MAP, AND GENERAL NOTES
2	C-1	SITE PLAN
3	SC-1	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
4	SC-2	SEDIMENT AND EROSION CONTROL NOTES
5	L-1	LANDSCAPE PLAN
6	A-1	FLOOR PLAN AND DETAILS
7	A-2	EXTERIOR ELEVATIONS AND DETAILS
8	A-3	EXTERIOR ELEVATIONS AND DETAILS
9	A-4	SCHEDULES AND MISCELLANEOUS DETAILS
10	S-1	STRUCTURAL GENERAL NOTES AND DETAILS
11	S-2	STRUCTURAL PLANS AND SECTIONS
12	S-3	STRUCTURAL SECTIONS AND DETAILS
13	M-1	GENERAL NOTES, LEGEND, ABBREVIATIONS, SYSTEM CHARACTERISTICS, AND DEMOLITION PLAN
14	M-2	PLANS AND DETAILS
15	E-1	ELECTRICAL LEGEND, MEZZANINE AND LOWER LEVEL PLANS - DEMOLITION
16	E-2	ELECTRICAL PLAN - NEW WORK
17	E-3	ELECTRICAL SINGLE LINE DIAGRAMS AND MCC SCHEDULE
18	I-1	INSTRUMENTATION SYMBOLS, SCHEDULE, AND LEGEND
19	I-2	PROCESS AND INSTRUMENTATION DIAGRAM (P&ID)
20	I-3	PUMP CONTROL PANEL ELEMENTARY DIAGRAM
21	I-4	VFD ELEMENTARY DIAGRAM
22	I-5	PANEL ELEVATIONS AND DETAILS
23	I-6	INSTRUMENTATION PLAN

CONTRACT NO. 44-4730

CAPITAL PROJECT NO. W-8299
HOWARD COUNTY, MARYLAND



NAME OF UTILITY CONTRACTOR:

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

John P. Robertson 1/29/13
HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEERS/ARCHITECT DESIGN 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 SOIL CONSERVATION DISTRICT."

R. J. Whitman 24478 1/31/13
SIGNATURE REGISTRATION NUMBER DATE

OWNERS/DEVELOPERS 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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

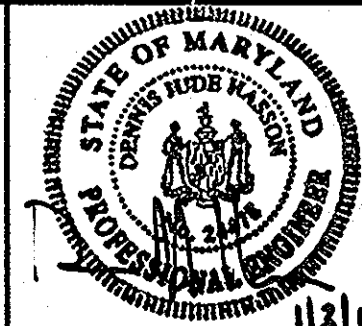
[Signature] 1.14.13
DATE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 24478, EXPIRATION DATE: 10/28/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John P. Robertson 1/29/13
DIRECTOR OF PUBLIC WORKS DATE
Robert J. Whitman 1-14-13
CHIEF, BUREAU OF UTILITIES DATE
Robert J. Whitman 1/14/13
CHIEF UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: JMR

DRN: JMR

CHK: HWL/LAP

DATE: 1/2013

TITLE SHEET, INDEX OF DRAWINGS,
VICINITY MAP, AND GENERAL NOTES

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

SCALE
AS
SHOWN

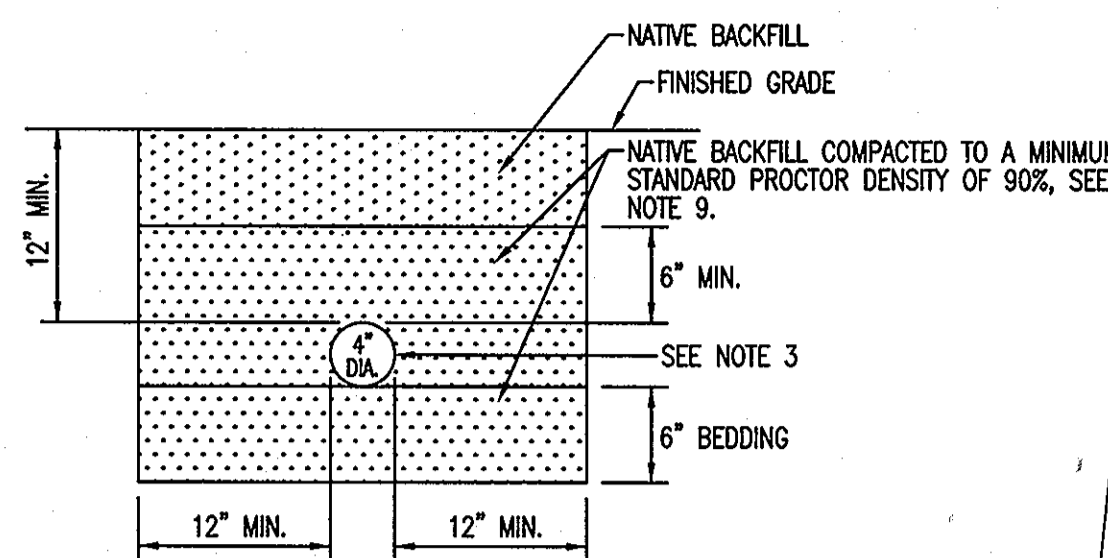
SHEET

1 OF 23

600' SCALE MAP NO. 24 BLOCK NO. 2&3 ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

NOTES:

- SLOPE GROUND TO DITCH LOCATION.
- PROVIDE SLOPE PROTECTION AT DISCHARGE POINT USING RIP-RAP WITH 4-INCH STONES. THE WIDTH OF RIP-RAP STONE PROTECTION SHALL BE 2 FEET WIDE AND SHALL BE ON THE SLOPE OF THE DRAINAGE DITCH. THE LENGTH SHALL BE 4 FEET. RIPRAP LAYER THICKNESS SHALL BE 8-INCHES MINIMUM.
- THE 4-INCH PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) WITH DUAL WALL PIPE WITH SMOOTH INTERIOR WALL AND CORRUGATED EXTERIOR WALL. PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT MEETING AASHTO M252 AND SHALL BE SOIL-TIGHT. MANUFACTURED BEND FITTINGS SHALL BE USED. THE FITTINGS SHALL CONFORM TO AASHTO M252. THE PIPE SHALL BE ADS N-12 ST IB, HANCOR SURE-LOK ST IB, OR APPROVED EQUAL.
- INSTALL A DOWNSPOUT ADAPTER SIZED FOR THE PROPOSED ROOF DRAIN AND THE NEW 4-INCH PIPE AND A 90-DEGREE BEND AT EACH DOWNSPOUT. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF DRAIN DETAILS.
- REMOVE OR ABANDON-IN-PLACE THE EXISTING BURIED DOWNSPOUT PIPING.
- DOWNSPOUT DRAIN PIPE SHALL BE PER DETAIL, THIS SHEET. MAINTAIN A MINIMUM OF 0.9% SLOPE AND PROVIDE A MINIMUM OF 12 INCHES OF COVER ON TOP OF THE PIPE. ALLOW FOR A MINIMUM 6-INCH VERTICAL SPACING BETWEEN THE DRAIN PIPE AND ANY CROSSING UTILITY.
- ALL GRADING AND DRAINAGE SHALL BE PER HOWARD COUNTY DESIGN MANUAL, VOLUME IV.
- REFER TO LANDSCAPING PLANS FOR PLANTING DETAILS IN FRONT OF STATION.
- NATIVE BACKFILL CAN BE UTILIZED IF IT MEETS CLASS I OR II PER ASTM D 2321. NO. 57 AGGREGATE CAN BE USED IN LIEU OF NATIVE SOILS.
- CONTRACTOR SHALL PROTECT THE EXISTING CONDUITS LOCATED BETWEEN THE TRANSFORMER AND THE ELECTRIC PANEL BOX AS NEEDED DURING CONSTRUCTION. NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS WITH THE PROPOSED ROOF DRAIN PIPE.
- STABILIZED CONSTRUCTION ENTRANCE IS TO BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- AT DOWNHILL GRADE INSTALL A "J" CONFIGURATION WITH SILT FENCE CURLING INTO THE PROPOSED LIMIT OF DISTURBANCE AND UPHILL 2 FEET IN ELEVATION.
- STOCKPILE SHALL BE WITHIN THE LOD. ADDITIONAL STOCKPILE AREAS, IF REQUIRED, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

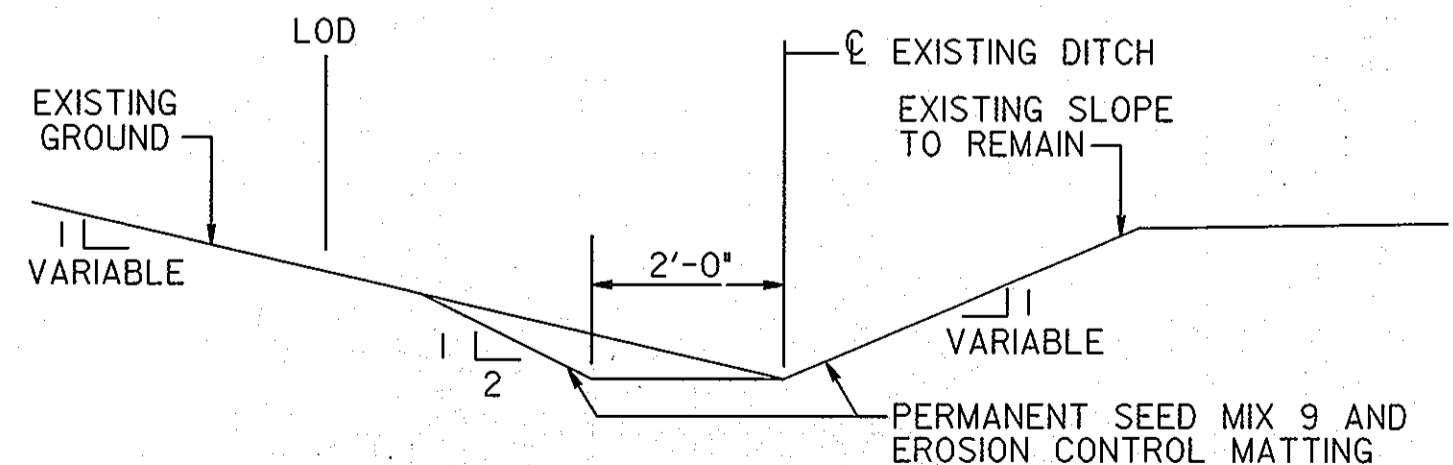


DETAIL- DRAIN PIPE TRENCH

SCALE: 1" = 1'-0"

LEGEND

EXISTING	PROPOSED	DESCRIPTION
335	---	CONTOURS
	---	BENCHMARK
	---	FLY MONUMENT
	---	GPS MONUMENT
	---	TRAVERSE MONUMENT
	---	FIRE HYDRANT
	---	WATER VALVE
	---	DOWN SPOUT
---	---	WATER MAIN
---	---	DRAIN PIPE
---	---	RIP RAP
---	---	LIMITS OF DISTURBANCE
---	---	SILT FENCE
---	---	SUPER SILT FENCE
---	---	DIVERSION FENCE
---	---	PROPERTY LINE
---	---	FENCE



TYPICAL DITCH SECTION

NOT TO SCALE

PERMANENT SEEDING CHART				SEEDING DATES
MIX NO.*	SPECIES	PLANTING RATE (lb/ac)	LOCATION	
9	TALL FESCUE (86%)	125	DRAINAGE DITCH	3/15 - 6/1 8/1 - 10/1
	ROUGH BLUEGRASS (7%)	10		
	BIRDFOOT TREFOIL (7%)	10		
3	TALL FESCUE (85%)	125	LAWN AREAS	
	PERENNIAL RYEGRASS (10%)	15		
	KENTUCKY BLUEGRASS (5%)	10		

PLAN

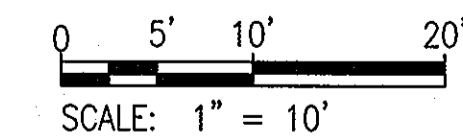
SCALE: 1" = 10'

SURVEY NOTES:

1. FOR STAKEOUT PURPOSES, LIMIT OF DISTURBANCE (LOD) WILL BE PROVIDED TO THE CONTRACTOR ELECTRONICALLY BEFORE THE START OF CONSTRUCTION.

2. HORIZONTAL AND VERTICAL INFORMATION SHOWN HEREON BASED ON HOWARD COUNTY GEODETIC CONTROLS AS ESTABLISHED BY A GPS SURVEY PERFORMED BY WHITMAN, REQUARDT AND ASSOCIATES FROM THE FOLLOWING HOWARD COUNTY GEODETIC CONTROL POINTS (MARYLAND STATE REFERENCE SYSTEM NAD '83 & NAVD '88)

	NORTH	EAST	ELEVATION
HOWARD COUNTY #0105	606,849.08	1,349,431.28	278.139
HOWARD COUNTY #0043	558,479.03	1,386,642.03	189.494



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 24478, EXPIRATION DATE: 10/28/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[Signatures]
DIRECTOR OF PUBLIC WORKS
CHIEF, BUREAU OF UTILITIES
DATE: 1/29/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: MB					
DRN: GWG					
CHK: HWL					
DATE: 1/2013					
BY NO.		REVISION		DATE	

SITE PLAN

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2

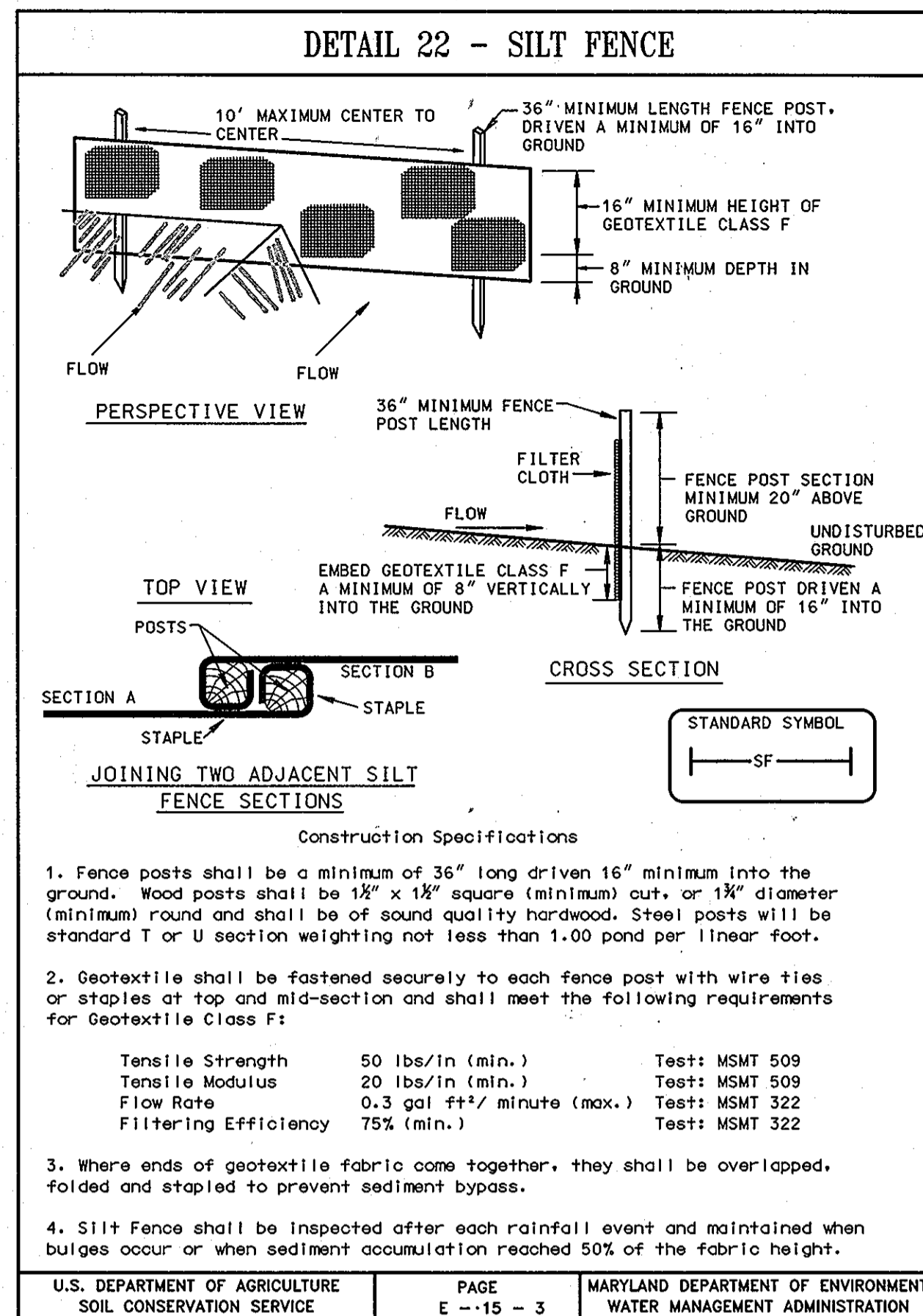
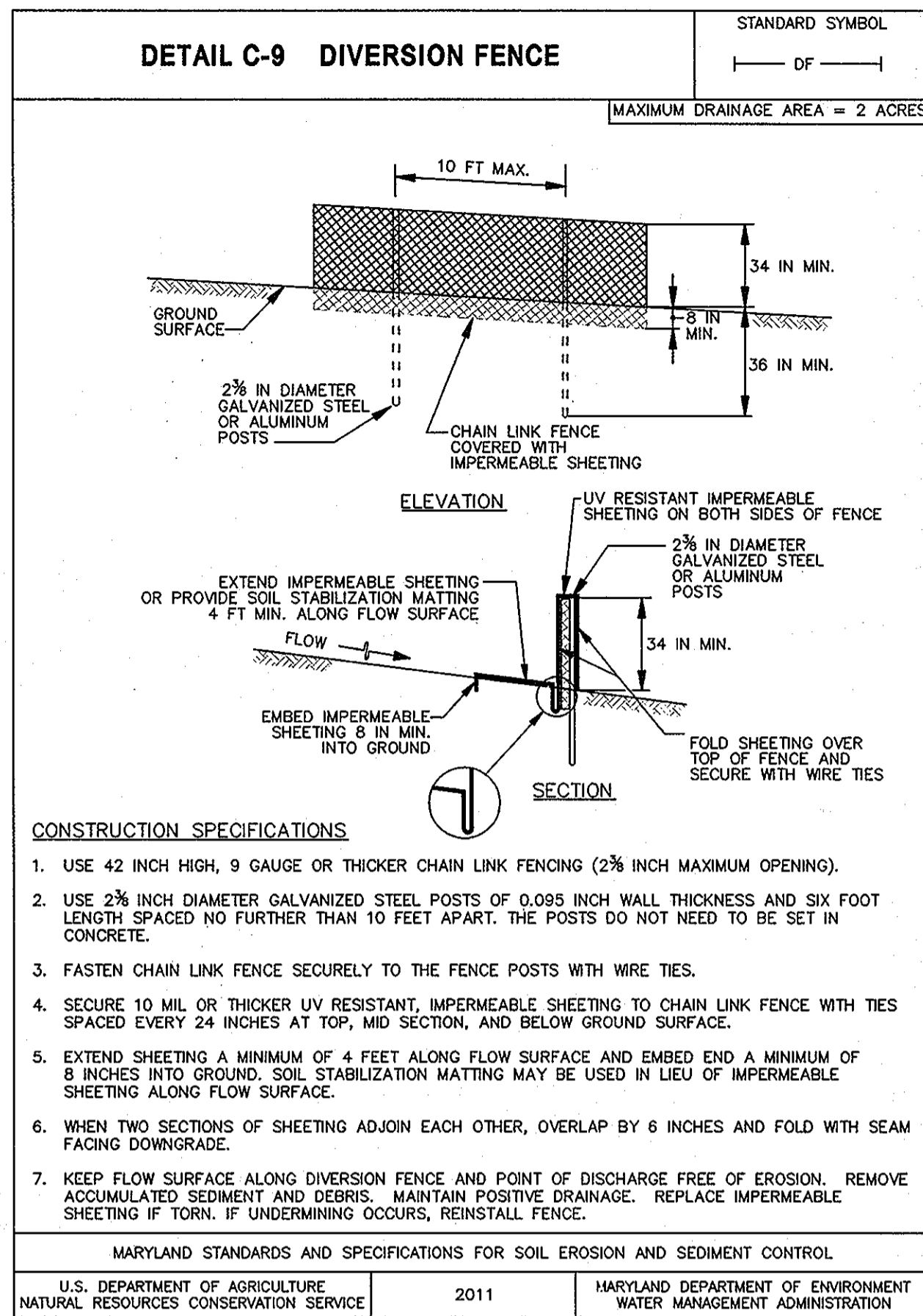
HOWARD COUNTY, MARYLAND

C-1

SCALE AS SHOWN

SHEET

2 OF 23



SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

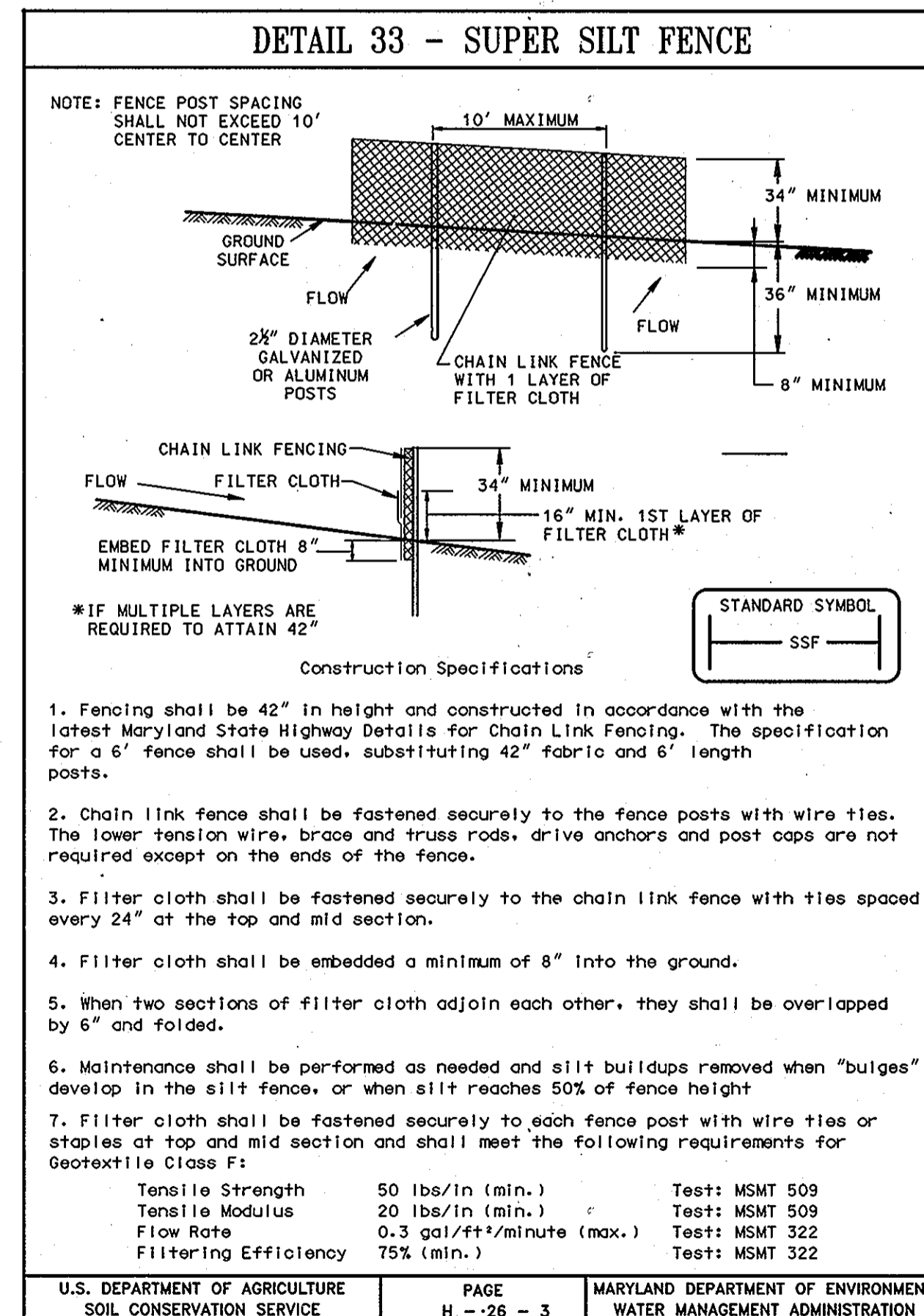
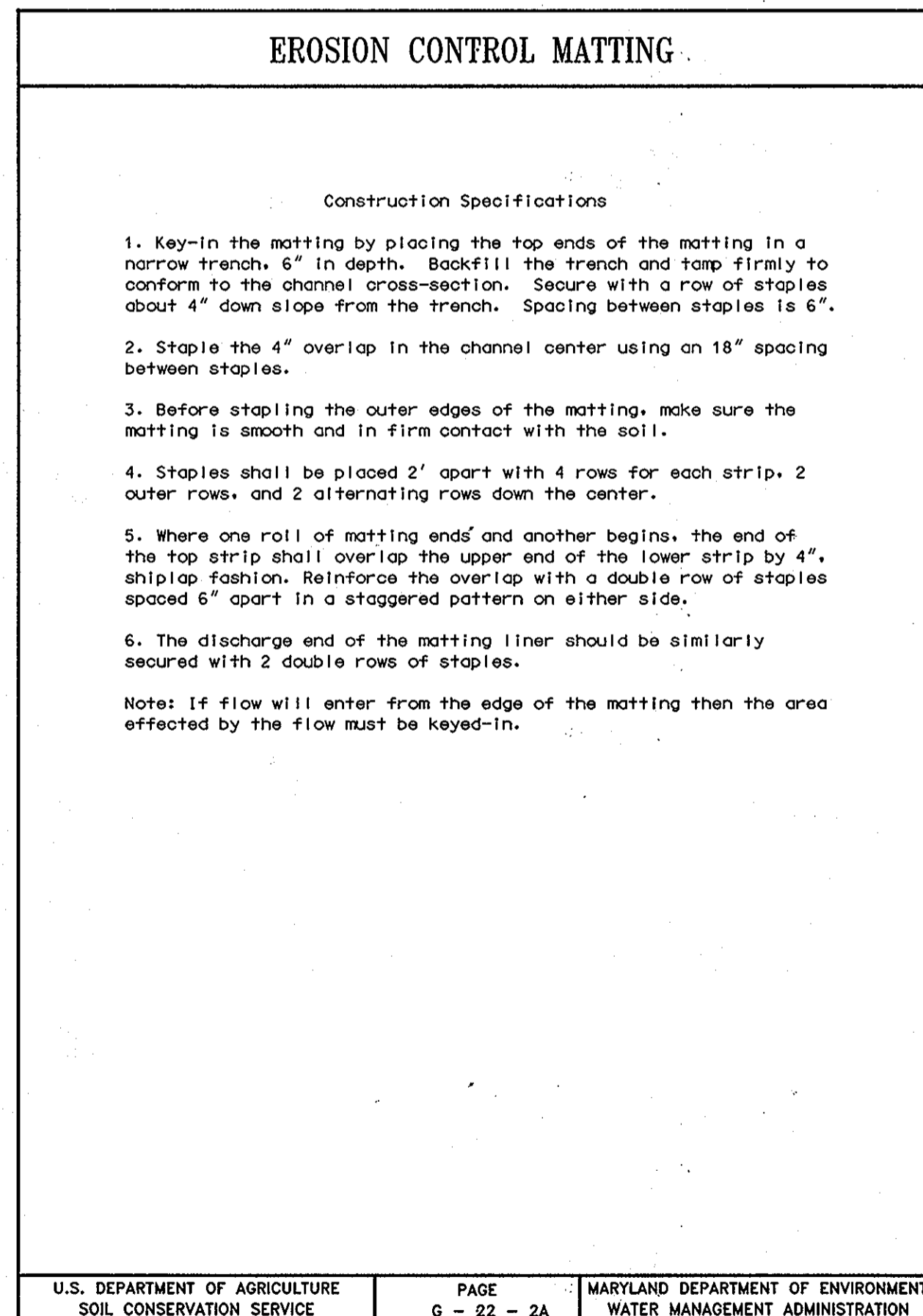
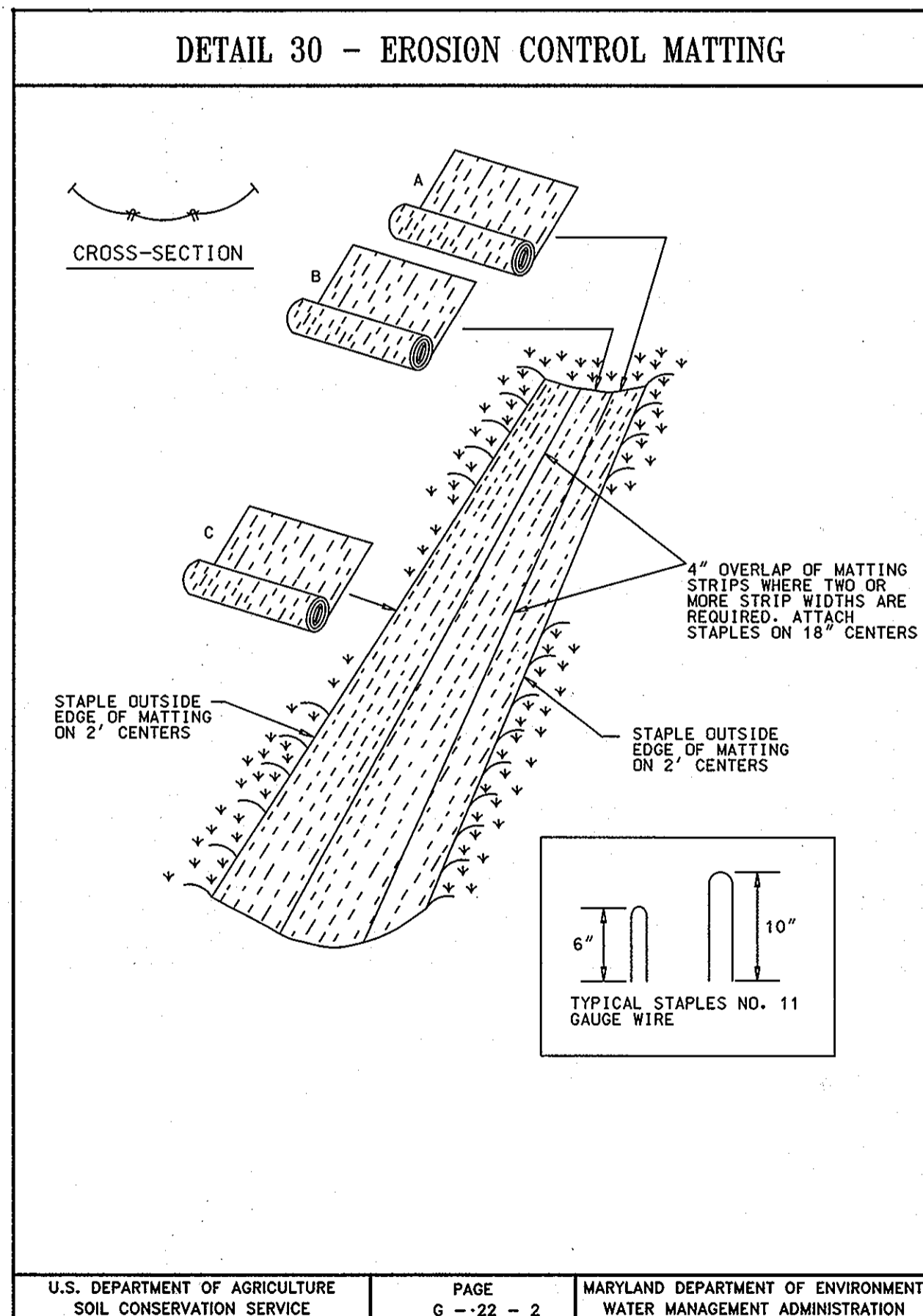
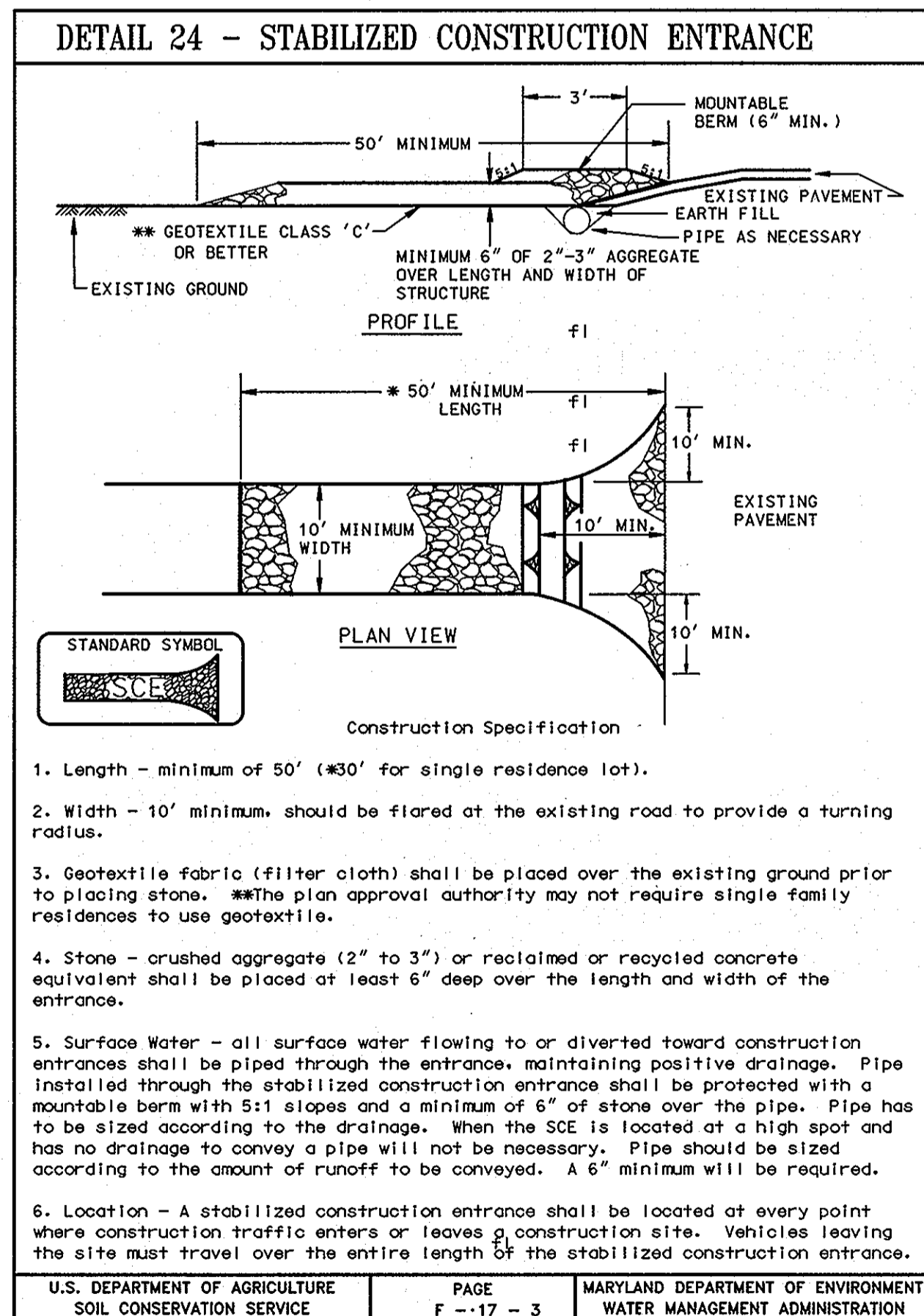
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF IS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1.
 - 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOIL TEMPORARY SEEDING, AND MULCHING (SEC. C). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	0.47 ACRES
AREA DISTURBED	0.18 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.18 ACRES
TOTAL CUT	4.5 CU. YARDS
TOTAL FILL	0 CU. YARDS

 OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY.
- SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
- SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
- CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.



SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 24478, EXPIRATION DATE: 10/28/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Jay W. ... 1/24/13
DIRECTOR OF PUBLIC WORKS DATE

Mona E. ... 1/24/13
CHIEF, BUREAU OF ENGINEERING DATE

Silvia ... 1/24/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/24/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21201

WR&A



DES:	MB				
DRN:	GWG				
CHK:	HWL				
DATE:	1/2013	BY NO.		REVISION	

SEDIMENT AND EROSION CONTROL
NOTES AND DETAILS

DATE: 600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

SC-1

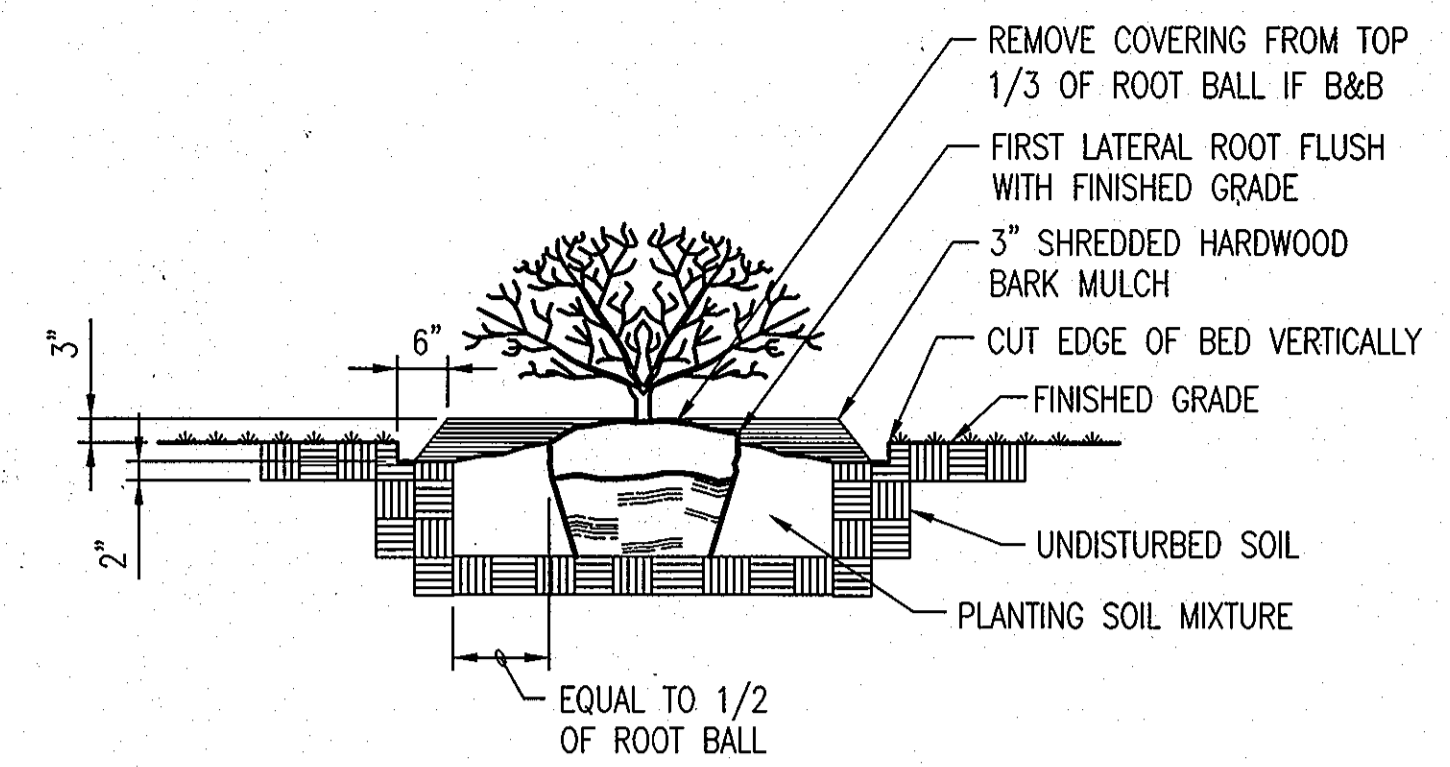
SCALE AS SHOWN

SHEET

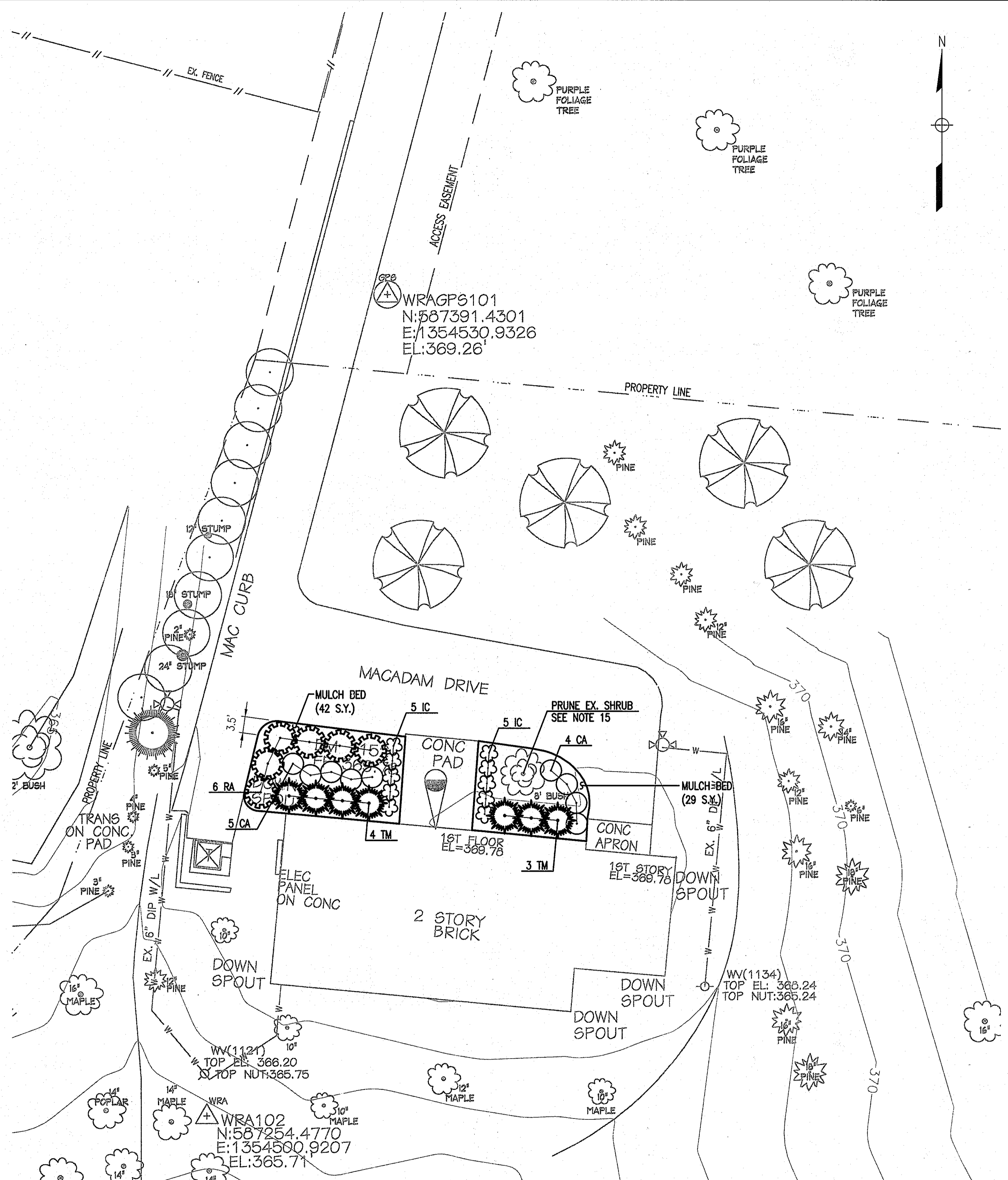
3 OF 23

LANDSCAPE NOTES

- THIS DRAWING IS FOR LANDSCAPE PURPOSES ONLY. AS-BUILT CONDITIONS MAY VARY. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITY LOCATIONS SHOWN WITHIN THE PROJECT LIMITS, AND SHALL INFORM THE ARCHITECT OF ANY DISCREPANCIES OR POTENTIAL PROBLEMS PRIOR TO COMMENCING WORK.
- LANDSCAPE MAINTENANCE OBLIGATIONS SHALL IN ACCORDANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS MANUAL AND THE HOWARD COUNTY LANDSCAPE MANUAL, ADOPTED JANUARY 4, 1993, AMENDED MARCH 2, 1998.
- ALL MULCH BEDS SHALL BE SPREAD WITH THREE INCH (3") DEEP SHREDDED HARDWOOD BARK MULCH. ALL TREES SHALL HAVE A MULCH BED FOUR FEET (4') IN DIAMETER.
- DO NOT PLANT TREES WITHIN 5'-0" OF THE CENTERLINE OF ALL UNDERGROUND UTILITY LINES. DO NOT PLANT TREES WITHIN 10'-0" OF THE CENTERLINE OF ALL OVERHEAD UTILITY LINES. "MISS UTILITY" (1-800-257-7777) MUST BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION FOR PLANT MATERIAL INSTALLATION.
- ALL DECIDUOUS TREES GREATER THAN OR EQUAL TO 6'-0" HEIGHT MUST BE STAKED.
- LANDSCAPE CONTRACTOR SHALL VERIFY PLANT MATERIAL QUANTITIES SHOWN ON PLANS WITH TOTALS IN PLANT SCHEDULE. WHERE DISCREPANCIES OCCUR BETWEEN THE PLANS AND SCHEDULE, THE PLANS SHALL GOVERN.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE FULL YEAR TO BE IN A HEALTHY GROWING CONDITION. PLANT MATERIALS WHICH DO NOT FULFILL THIS GUARANTEE SHALL BE REPLACED AT NO COST TO THE OWNER. REPLACEMENT SHALL BE GUARANTEED THROUGHOUT THE ORIGINAL GUARANTEE PERIOD. PLANTS THAT DIE WITHIN 30-60 DAYS SHALL BE REPLACED IMMEDIATELY.
- THE ONE YEAR GUARANTEE PERIOD SHALL BEGIN UPON THE OWNER'S APPROVAL OF THE PLANTING INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL ALSO PROVIDE LANDSCAPE MAINTENANCE DURING THIS PERIOD.
- THE LANDSCAPE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL WATERING DURING CONSTRUCTION AND DURING THE ONE YEAR MAINTENANCE PERIOD.
- ALL PLANTS SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE 'AMERICAN STANDARD FOR NURSERY STOCK', LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HEREAFTER REFERRED TO AS AAS STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.
- ALL PLANTS SHALL HAVE BEEN NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATIC CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
- ALL SUBSTITUTIONS OF PLANT MATERIAL SHALL BE REQUESTED IN WRITING TO THE LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER, FAILURE TO OBTAIN SUBSTITUTIONS IN WRITING MAY RESULT IN LIABILITY TO THE CONTRACTOR.
- ALL PLANT MATERIALS, TOPSOIL, MULCH FERTILIZERS, SOIL AMENITIES, PLANTING SUPPLIES AND METHODS SHALL BE SUBJECT TO THE LANDSCAPE ARCHITECT'S APPROVAL. REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT DELAY.
- ALL TREE GUYING AND/OR STAKING MATERIAL MUST BE REMOVED PRIOR TO THE EXPIRATION OF THE ONE YEAR MAINTENANCE PERIOD.
- THE EXISTING OTTO LUYKENS LAURELCHERRY SHALL BE PRUNED IMMEDIATELY AFTER FLOWERING IN THE SPRING.



PLANTING DETAIL - SHRUB
SCALE: NONE



PLAN VIEW
1" = 10'

LANDSCAPE PLANT SCHEDULE							
QUANTITY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	MATURE SIZE	SPACING
9	CA	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	2'-3'	CONT./B&B	HEIGHT: 3'-4' SPREAD: 4'-6'	3.5 O.C.
10	IC	ILEX CRENATA 'SOFT TOUCH'	SOFT TOUCH JAPANESE HOLLY	18"-24"	CONT./B&B	HEIGHT: 2'-3' SPREAD: 2'-3'	2.5 O.C.
6	RA	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	18"-24"	CONT./B&B	HEIGHT: 2'-3' SPREAD: 5'-6'	4.5 O.C.
7	TM	TAXUS X MEDIA 'EVERLOW'	EVERLOW YEW	18"-24"	CONT./B&B	HEIGHT: 3'-4' SPREAD: 4'-5'	4' O.C.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John A. ... 1/29/13
DIRECTOR OF PUBLIC WORKS DATE

Thomas E. ... 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/29/13
CHIEF, BUREAU OF UTILITIES DATE

... 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: HWP
DRN: SAZ
CHK: AUO
DATE: 1/2013

BY NO. REVISION DATE

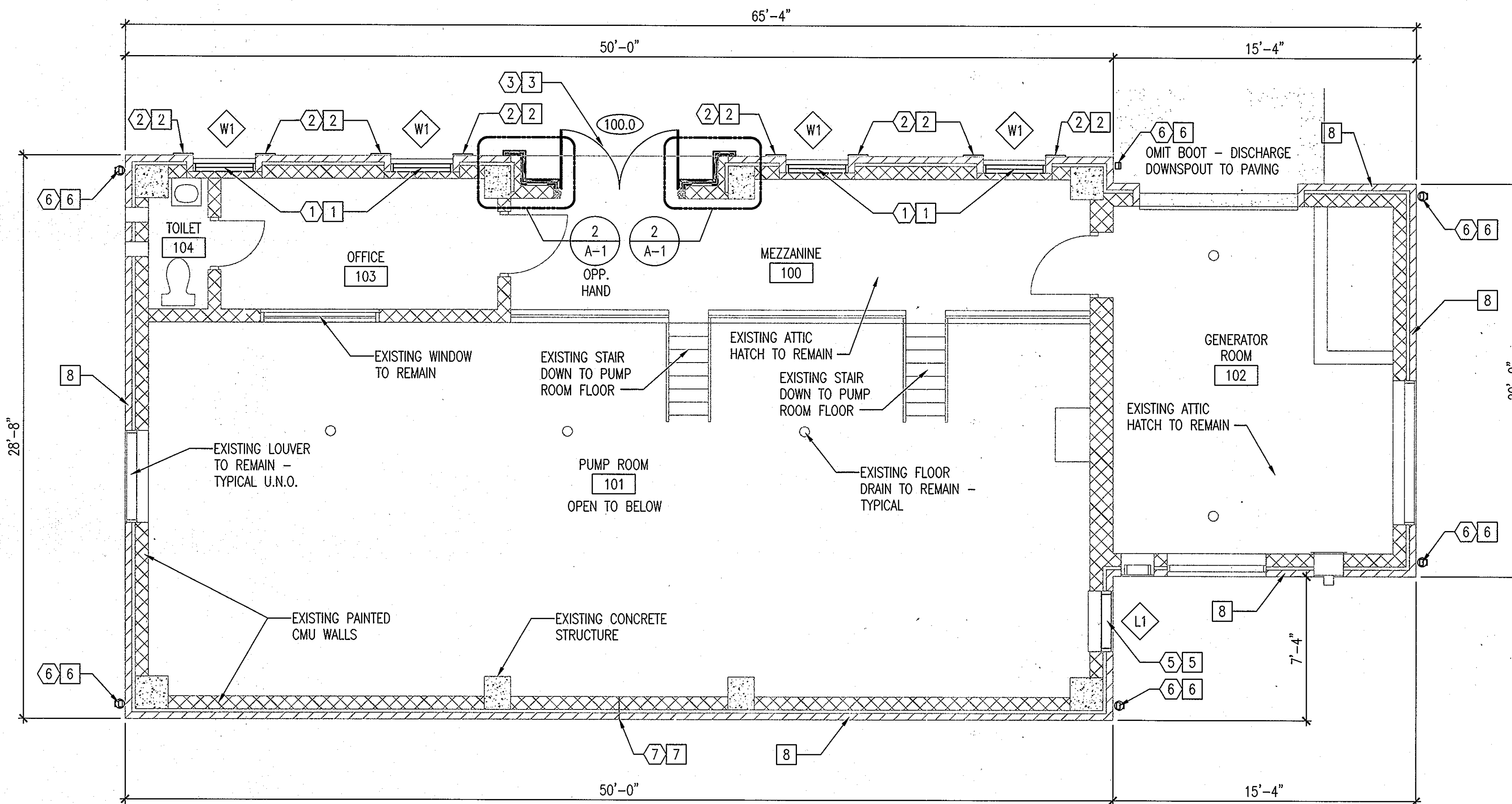
LANDSCAPE PLAN

600' SCALE MAP NO. 24 BLOCK NO. 2&3

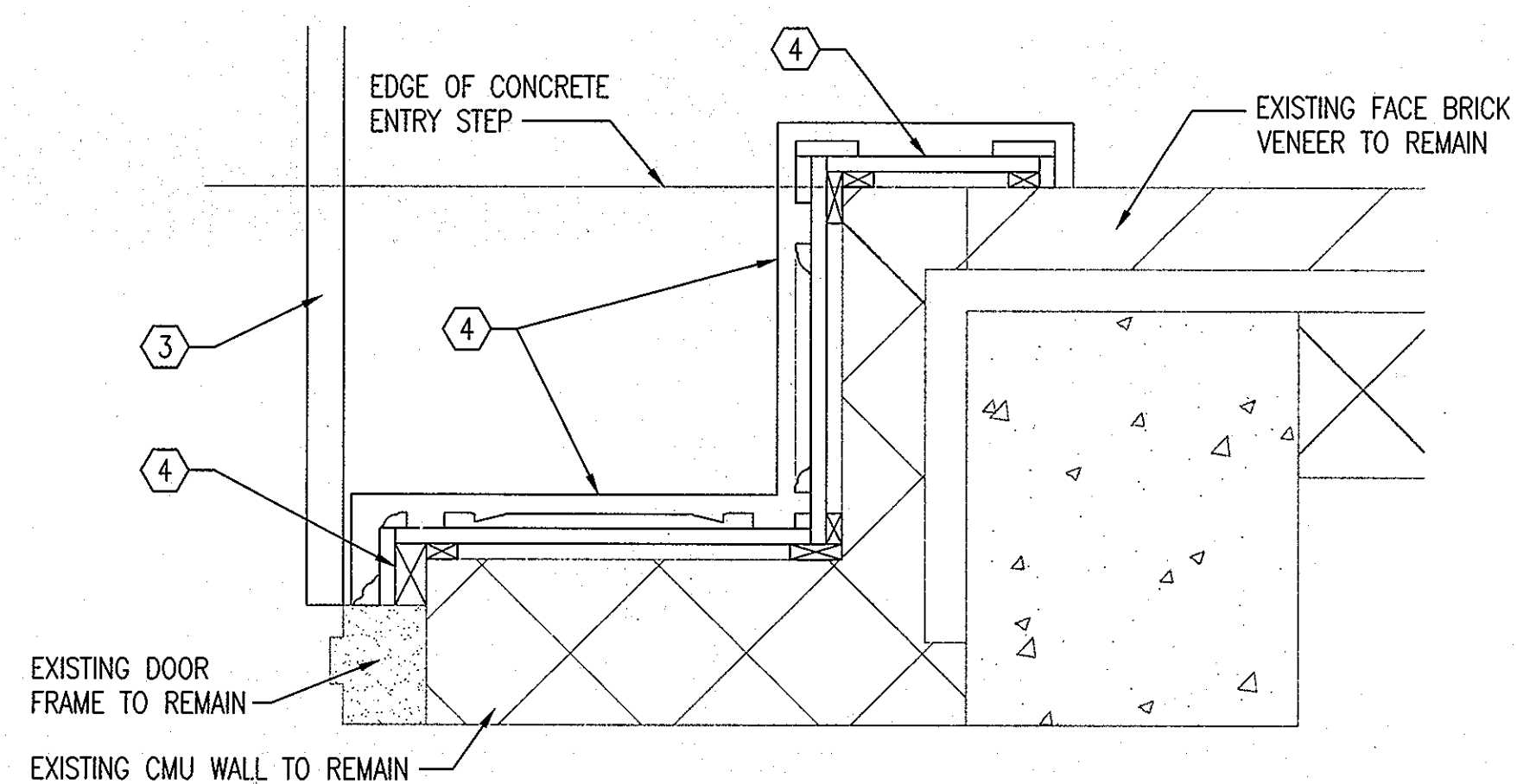
PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

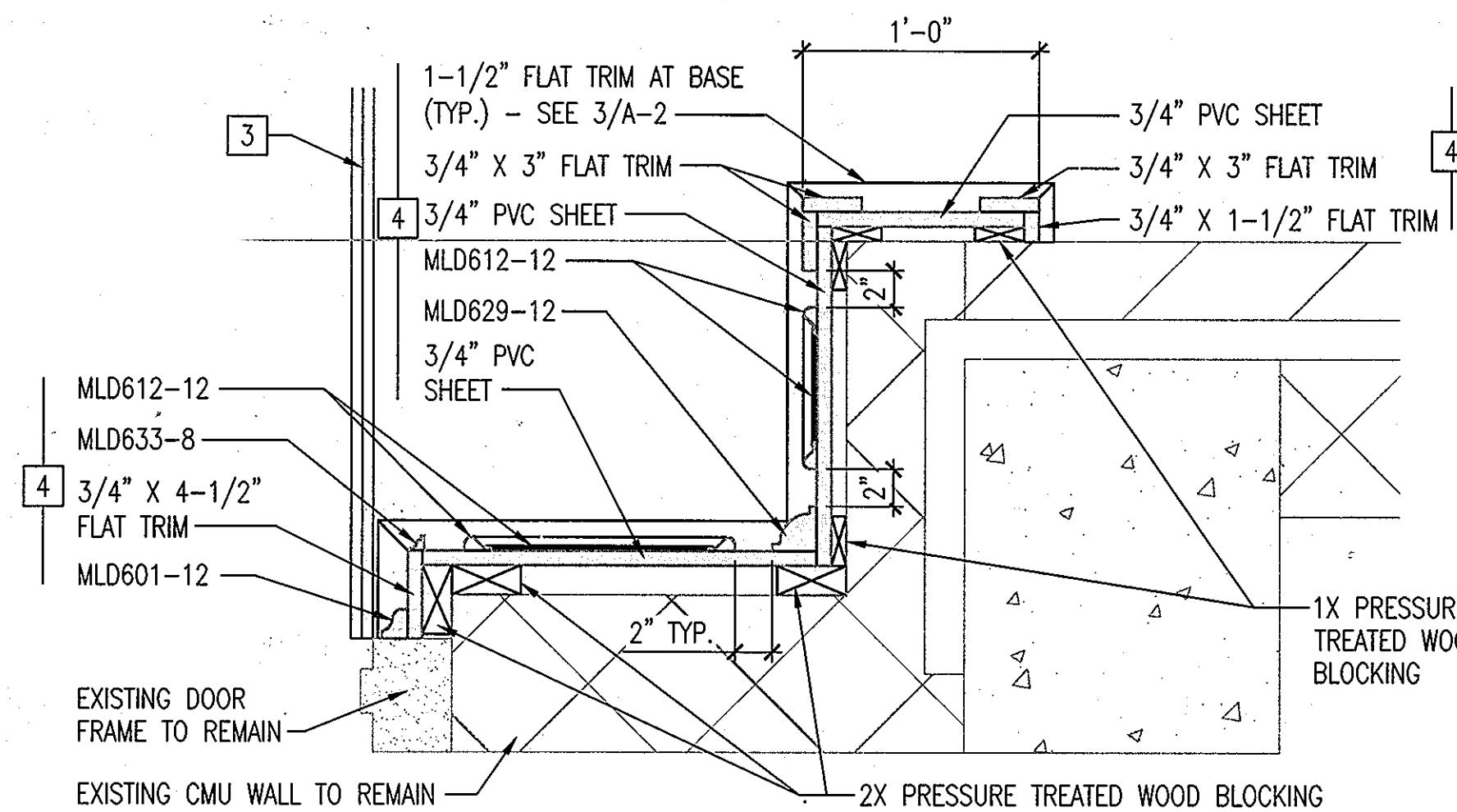
L-1
SCALE AS SHOWN
SHEET
5 OF 23



1 UPPER LEVEL FLOOR PLAN
 A-1 SCALE: 1/4" = 1'-0"



2 DOOR TRIM DETAIL - DEMOLITION
 A-1 SCALE: 1-1/2" = 1'-0"



3 DOOR TRIM DETAIL - NEW WORK
 A-1 SCALE: 1-1/2" = 1'-0"

NOTE: TRIM MODEL NUMBERS LISTED ABOVE DENOTE FYPON INC. PRODUCTS - USE OF THESE MODEL NUMBERS IS INTENDED TO PROVIDE A BASIS OF DESIGN FOR PROFILES AND SIZES OF TRIM. OTHER MANUFACTURERS MAY PRODUCE EQUAL PRODUCTS.

SELECTIVE DEMOLITION GENERAL NOTES:

- UNLESS OTHERWISE INDICATED, DEMOLITION WASTE BECOMES PROPERTY OF CONTRACTOR.
- OWNER WILL OCCUPY PORTIONS OF BUILDING IMMEDIATELY ADJACENT TO SELECTIVE DEMOLITION AREA. CONDUCT SELECTIVE DEMOLITION SO OWNER'S OPERATIONS WILL NOT BE DISRUPTED. MAINTAIN A SECURE AND WATERTIGHT ENVIRONMENT.
- COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
- DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED.
- PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. REPAIR ANY DAMAGE AT NO COST TO THE OWNER.
- NOT USED.
- CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS.

SELECTIVE DEMOLITION NOTES:

- COMPLETELY REMOVE AND DISPOSE OF EXISTING DOUBLE-HUNG METAL FRAMED WINDOWS INCLUDING GLAZING.
- COMPLETELY REMOVE AND DISPOSE OF ALL EXISTING WINDOW SHUTTERS.
- COMPLETELY REMOVE AND DISPOSE OF EXISTING HOLLOW METAL EXTERIOR PAIR OF DOORS. EXISTING HOLLOW METAL DOOR FRAME SHALL REMAIN. REMOVE ALL EXISTING DOOR HARDWARE AND COORDINATE SALVAGE OF EXISTING LOCKING MECHANISM WITH OWNER.
- COMPLETELY REMOVE EXISTING TRIM AROUND FRONT DOORWAY DOWN TO CONCRETE MASONRY WALLS AS INDICATED IN DETAIL 2 THIS SHEET.
- COMPLETELY REMOVE AND DISPOSE OF EXISTING ALUMINUM LOUVER AND SURROUNDING BLANK-OFF TRIM.
- COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS - SEE ALSO BUILDING ELEVATIONS SHEET A-2. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED CORRUGATED PLASTIC PIPING BELOW GRADE. COMPLETELY REMOVE SEALANT AND BACKER ROD IN BRICK CONTROL JOINT. CLEAN JOINT AND PREPARE SURFACES FOR PLACEMENT OF NEW SEALANT.
- NOT USED.

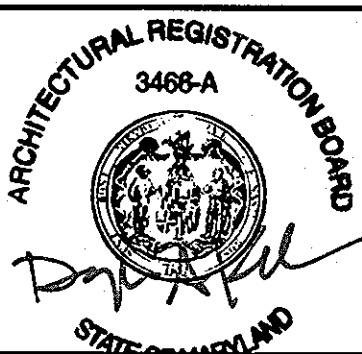
NEW CONSTRUCTION NOTES:

- PROVIDE NEW ALUMINUM CLAD WOOD WINDOWS IN EXISTING MASONRY OPENINGS. WINDOWS SHALL HAVE IMPACT RESISTANT POLYCARBONATE GLAZING WITH OBSCURING FILM APPLIED TO INTERIOR FACE OF GLAZING. SEE SPECIFICATIONS.
- PROVIDE NEW POLY/VINYL WINDOW SHUTTERS WITH WOOD GRAIN PATTERN - "BUILDERS EDGE" 15" X 63" RAISED PANEL SHUTTERS OR APPROVED EQUAL.
- PROVIDE NEW INSULATED HOLLOW METAL DOORS AND NEW HARDWARE AT FRONT DOOR. SEE SCHEDULES ON SHEET A-4 AND SPECIFICATIONS.
- PROVIDE NEW MOLDED POLYURETHANE/PVC TRIM AND PANELING AROUND FRONT ENTRY AS INDICATED ON DETAIL 3 THIS SHEET AND ON ELEVATIONS.
- PROVIDE NEW FIXED ALUMINUM LOUVER IN EXISTING MASONRY OPENING. SEE BUILDING ELEVATIONS ON SHEET A-2 AND LOUVER SCHEDULE ON SHEET A-4.
- PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS AS SHOWN ON SHEET A-2. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO UNDERGROUND PIPING.
- INSTALL SILICONE SEALANT AND COMPATIBLE BACKER ROD IN BRICK CONTROL JOINT. INSTALL PER SPECIFICATIONS AND PER MANUFACTURERS RECOMMENDATIONS.
- CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231



DES: EBL
 DRN: EBL
 CHK: ---
 DATE: 1/2013

FLOOR PLAN AND DETAILS

PINE ORCHARD WATER PUMPING
 STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299

A-1

SCALE
 AS
 SHOWN

SHEET

6 OF 23

ELECTION DISTRICT 2

HOWARD COUNTY, MARYLAND

600' SCALE MAP NO. 24 BLOCK NO. 2&3

REVISION

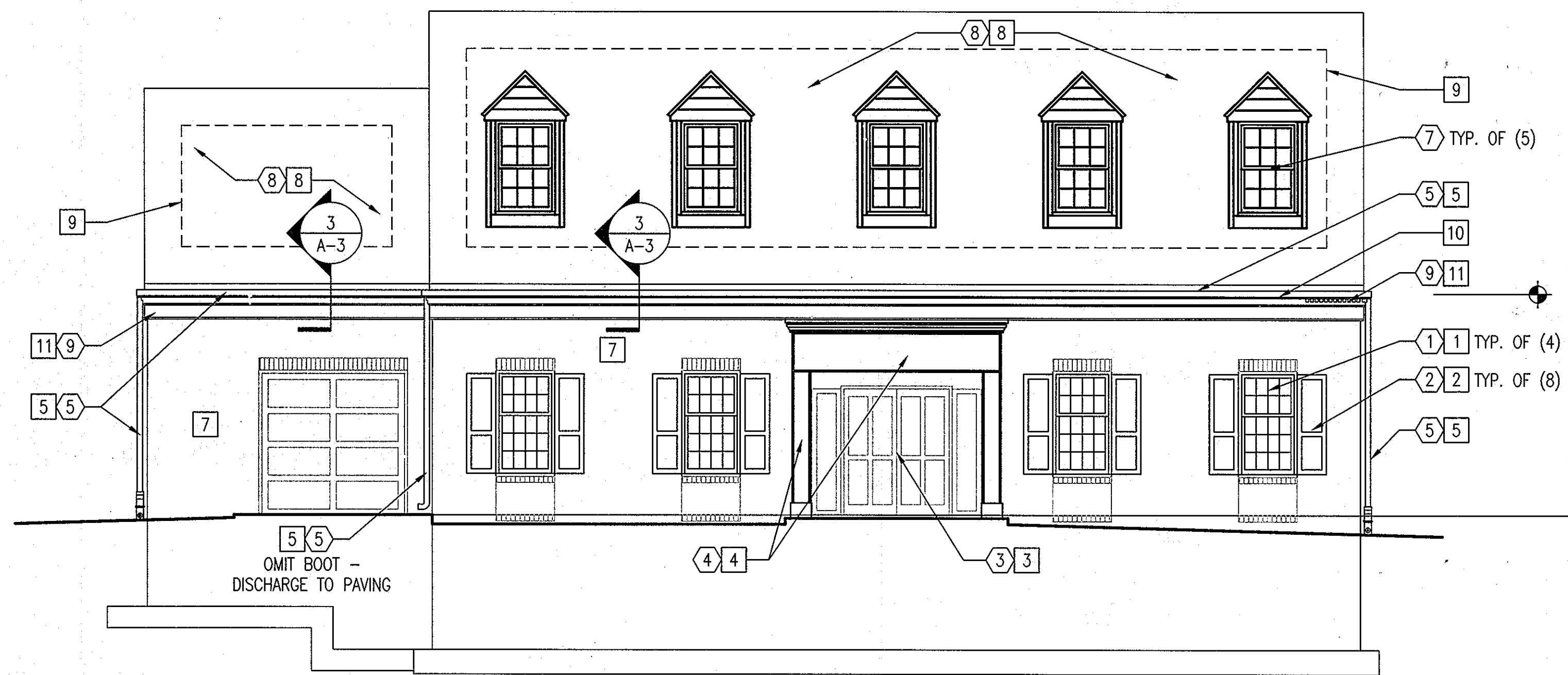
DATE

BY NO.

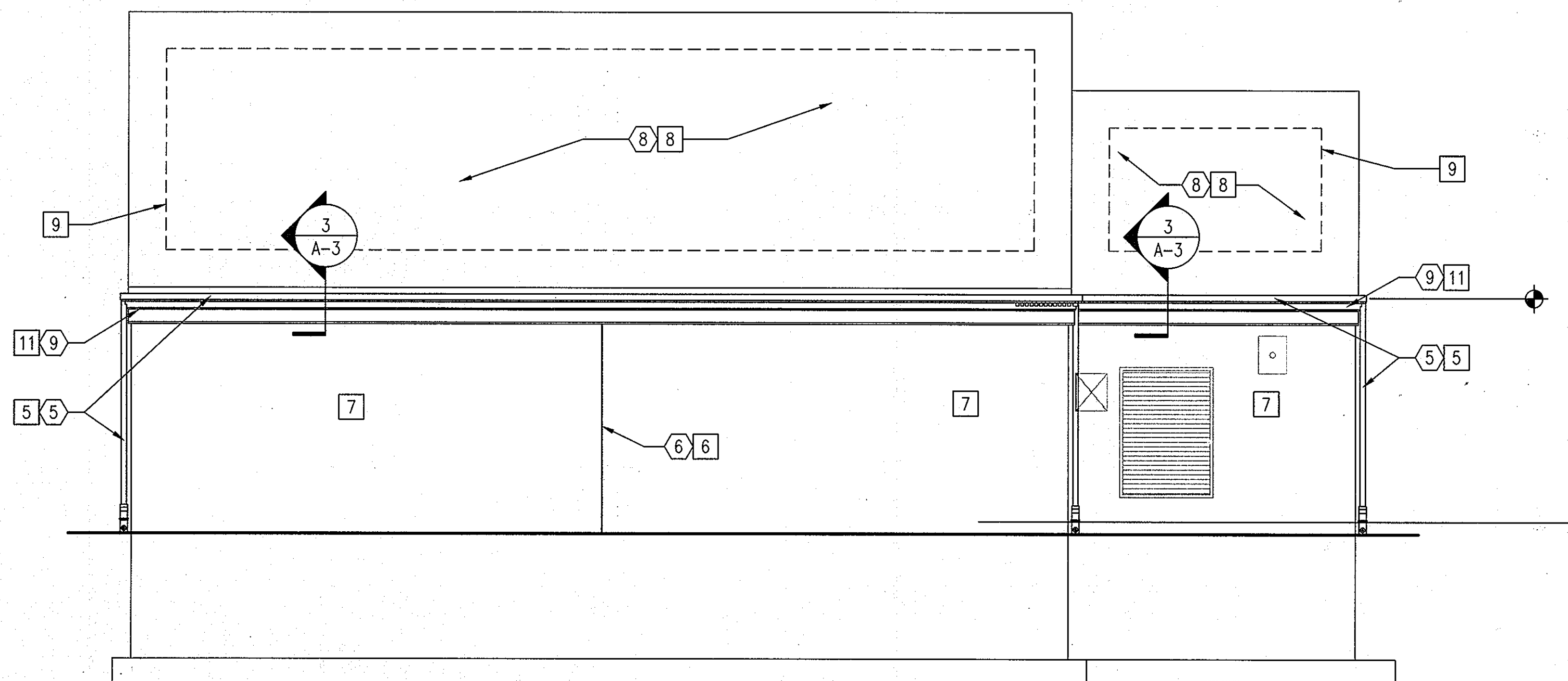
Director of Public Works: *John J. ...* 1/24/13
 Chief, Bureau of Utilities: *...* 1/24/13
 Chief, Bureau of Engineering: *...* 1/4/13
 Chief, Utility Design Division: *...* 1/14/13



FILED IN 15396-01-CAD-0399000-01.DWG



1 NORTH ELEVATION
A-2 SCALE: 3/16" = 1'-0"



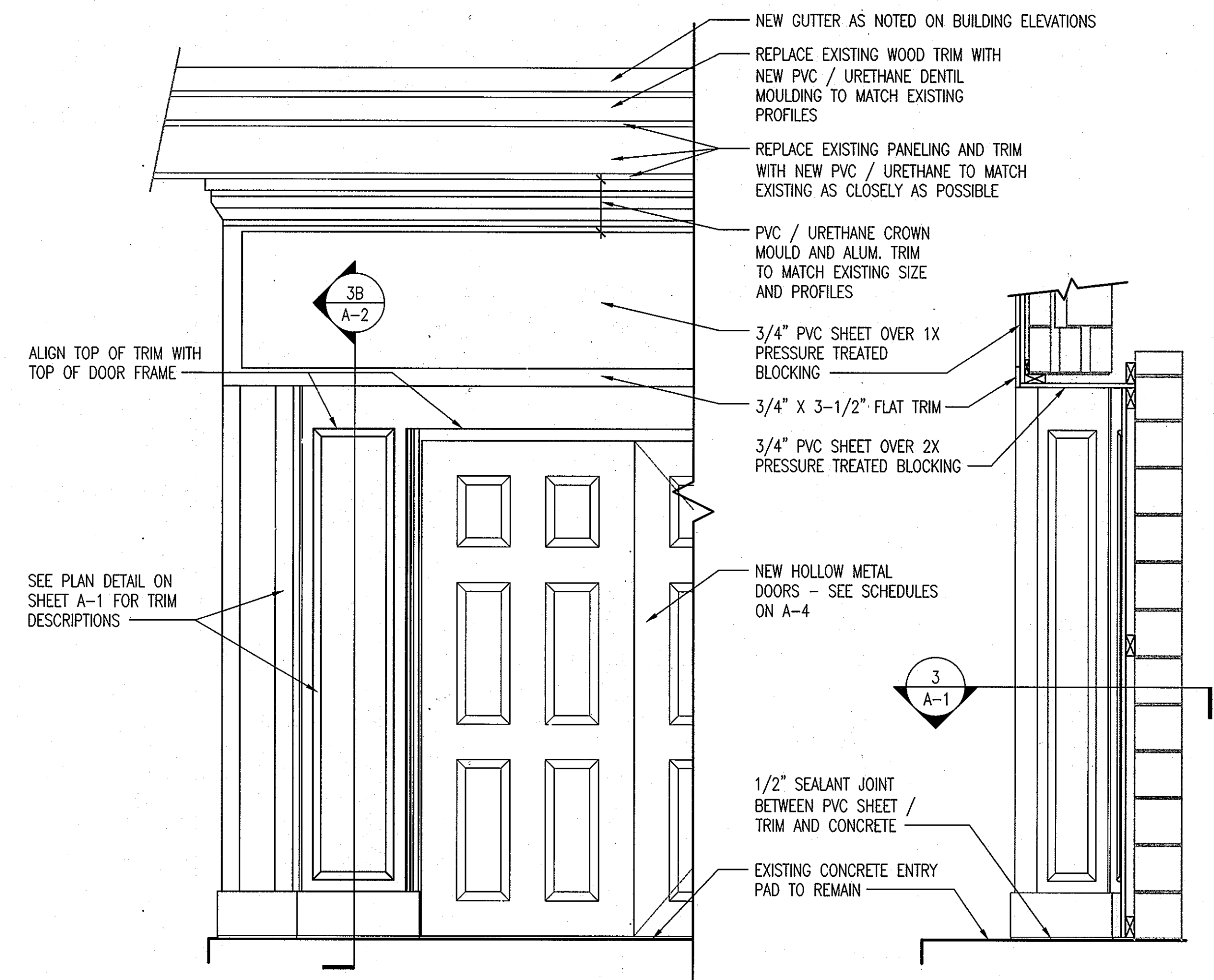
2 SOUTH ELEVATION
A-2 SCALE: 3/16" = 1'-0"

SELECTIVE DEMOLITION NOTES:

- 1 COMPLETELY REMOVE AND DISPOSE OF EXISTING DOUBLE-HUNG METAL FRAMED WINDOWS INCLUDING GLAZING.
- 2 COMPLETELY REMOVE AND DISPOSE OF ALL EXISTING WINDOW SHUTTERS.
- 3 COMPLETELY REMOVE AND DISPOSE OF EXISTING HOLLOW METAL EXTERIOR PAIR OF DOORS. REMOVE ALL EXISTING DOOR HARDWARE. EXISTING HOLLOW METAL DOOR FRAME SHALL REMAIN.
- 4 COMPLETELY REMOVE EXISTING TRIM AROUND FRONT DOORWAY DOWN TO CONCRETE MASONRY WALLS AS INDICATED IN DETAIL 2 ON SHEET A-1.
- 5 COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED PIPING BELOW GRADE.
- 6 COMPLETELY REMOVE SEALANT AND BACKER ROD IN BRICK CONTROL JOINT. CLEAN JOINT AND PREPARE SURFACES FOR PLACEMENT OF NEW SEALANT.
- 7 COMPLETELY REMOVE AND DISPOSE OF EXISTING DORMERS INCLUDING ROOFING, SIDING, TRIM, WINDOWS, AND FRAMING. CONTRACTOR SHALL EXERCISE CAUTION NOT TO DAMAGE PLYWOOD ROOF SHEATHING ON TRUSSES BELOW DORMERS.
- 8 COMPLETELY REMOVE ALL SHINGLE ROOFING AND FELT UNDERLAYMENT. PLYWOOD ROOF SHEATHING TO REMAIN. INSPECT SHEATHING AND NOTIFY OWNER IMMEDIATELY IF THERE IS ANY INDICATION OF WATER DAMAGE OR DECAY IN THE SHEATHING.
- 9 REMOVE EXISTING WOOD TRIM BELOW GUTTERS.

NEW CONSTRUCTION NOTES:

- 1 PROVIDE NEW ALUMINUM CLAD WOOD WINDOWS IN EXISTING MASONRY OPENINGS. WINDOWS SHALL HAVE IMPACT RESISTANT POLYCARBONATE GLAZING WITH OBSCURING FILM APPLIED TO INTERIOR FACE OF GLAZING. SEE SPECIFICATIONS.
- 2 PROVIDE NEW POLY/VINYL WINDOW SHUTTERS WITH WOOD GRAIN PATTERN - "BUILDERS EDGE" 15" X 63" RAISED PANEL SHUTTERS OR APPROVED EQUAL.
- 3 PROVIDE NEW INSULATED HOLLOW METAL DOORS AND NEW HARDWARE AT FRONT DOOR. SEE SCHEDULES ON SHEET A-4 AND SPECIFICATIONS.
- 4 PROVIDE NEW MOLDED POLYURETHANE TRIM AND PANELING AROUND FRONT ENTRY AS INDICATED ON DETAIL 3 THIS SHEET AND ON A-1.
- 5 PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS TO MATCH EXISTING SIZE AND PROFILE. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO PIPING.
- 6 INSTALL SILICONE SEALANT AND COMPATIBLE BACKER ROD IN BRICK CONTROL JOINT. INSTALL PER SPECIFICATIONS AND PER MANUFACTURERS RECOMMENDATIONS.
- 7 CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY".
- 8 INSTALL NEW ARCHITECTURAL SHINGLE ROOFING AND FELT UNDERLAYMENT OVER EXISTING PLYWOOD SHEATHING.
- 9 INSTALL NEW 3'-0" WIDE SELF-ADHESIVE ICE DAM MEMBRANE AT ALL ROOF EDGES.
- 10 INSTALL PRE-FINISHED ALUMINUM TRIM FLASHING BEHIND NEW GUTTERS AND OVER FRP TRIM. SEE ALSO DETAIL 3 ON SHEET A-3.
- 11 REPLACE WOOD TRIM WITH NEW PVC/URETHANE DENTIL MOULDING, PANELING, AND TRIM TO MATCH ORIGINAL PROFILES



3A: FRONT ELEVATION

3B: RETURN ELEVATION

3 ENTRANCE TRIM ELEVATION
A-2 SCALE: 3/4" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[Signature] 1/24/13
DIRECTOR OF PUBLIC WORKS
CHIEF, BUREAU OF UTILITIES

[Signature] 1/14/13
CHIEF, BUREAU OF ENGINEERING

[Signature] 1/14/13
CHIEF, UTILITY DESIGN DIVISION

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	EBL				
DRN:	EBL				
CHK:	---				
DATE:	1/2013	BY:	NO.	REVISION	DATE

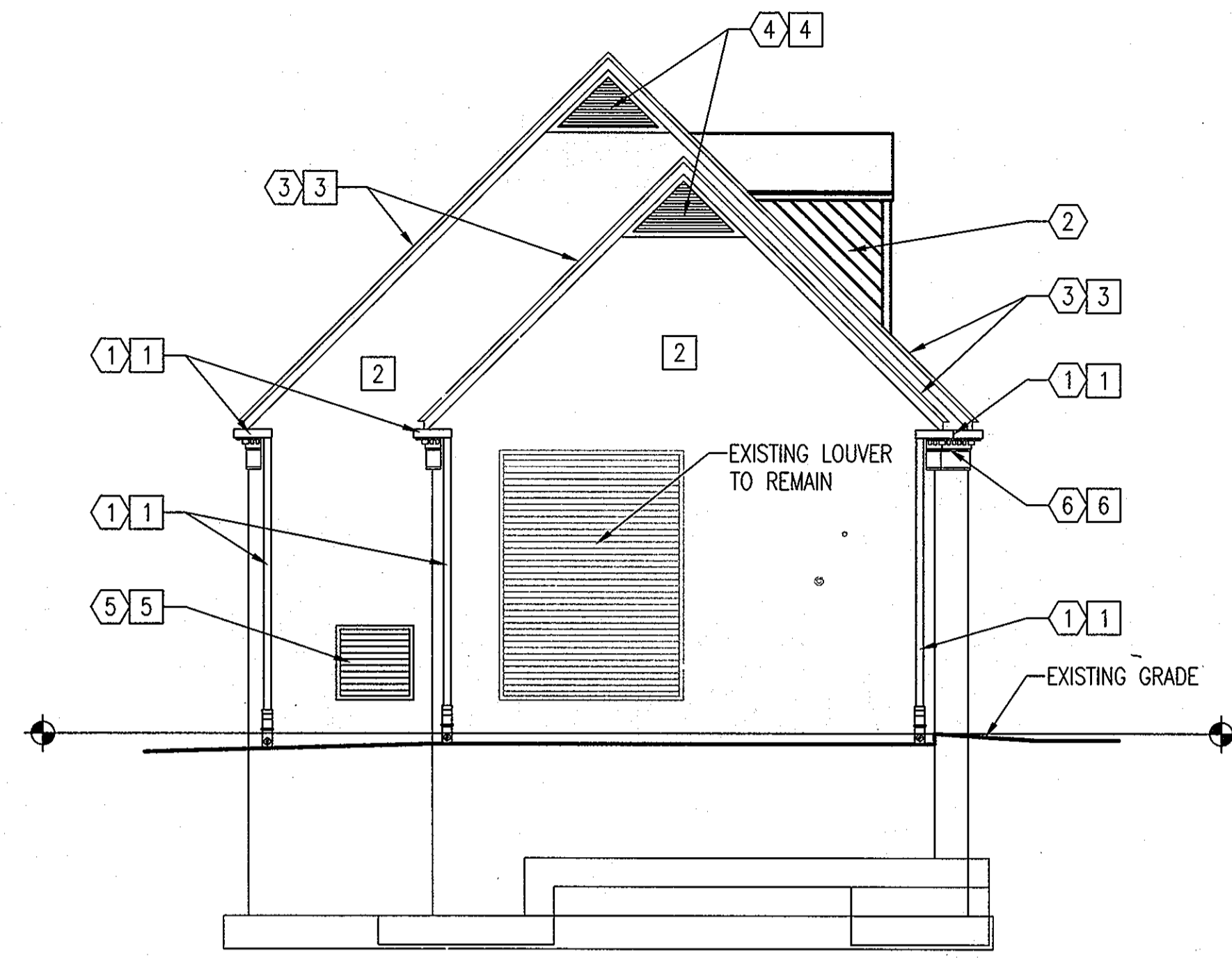
EXTERIOR ELEVATIONS AND DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

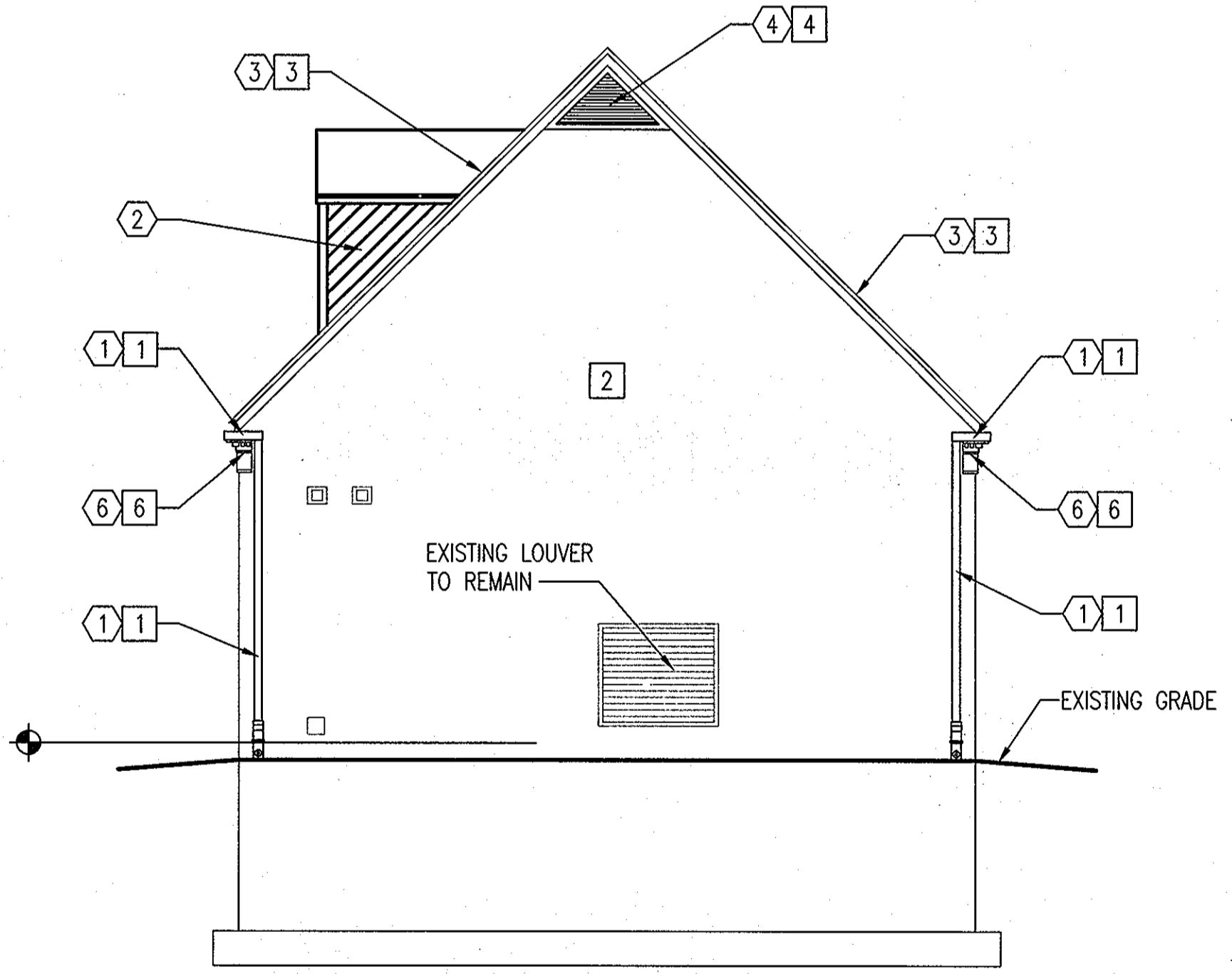
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

A-2
SCALE AS SHOWN
SHEET 7 OF 23



1 EAST ELEVATION
A-3 SCALE: 3/16" = 1'-0"



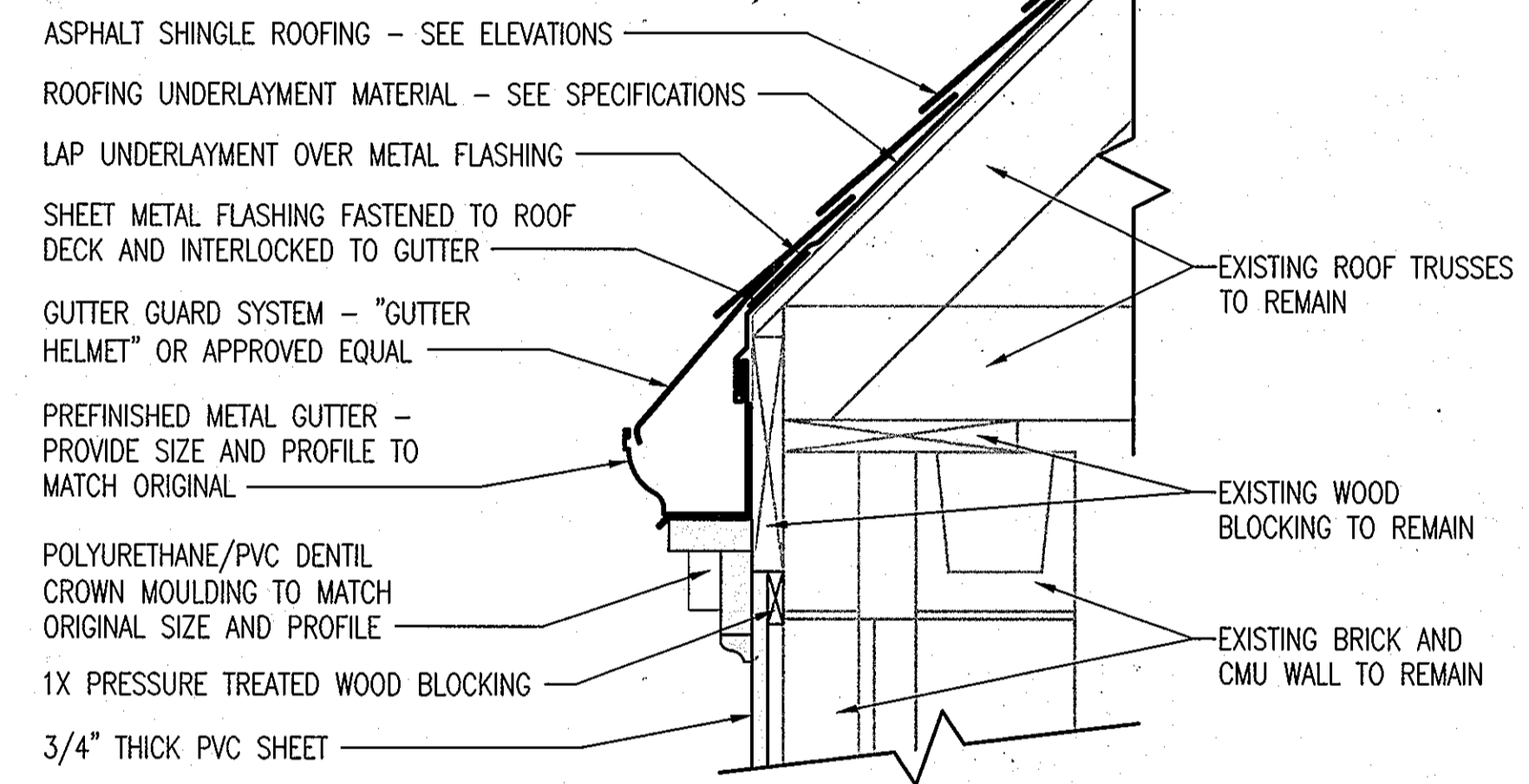
2 WEST ELEVATION
A-3 SCALE: 3/16" = 1'-0"

SELECTIVE DEMOLITION NOTES:

- 1 COMPLETELY REMOVE AND DISPOSE OF EXISTING METAL GUTTERS AND DOWNSPOUTS - SEE ALSO BUILDING ELEVATIONS SHEET A-2. SEE CIVIL FOR REMOVAL AND REPLACEMENT OF CONNECTED PIPING BELOW GRADE.
- 2 COMPLETELY REMOVE AND DISPOSE OF EXISTING DORMERS INCLUDING ROOFING, SIDING, TRIM, WINDOWS, AND FRAMING. CONTRACTOR SHALL EXERCISE CAUTION NOT TO DAMAGE PLYWOOD ROOF SHEATHING ON TRUSSES BELOW DORMERS.
- 3 COMPLETELY REMOVE ALL SHINGLE ROOFING AND FELT UNDERLAYMENT. PLYWOOD ROOF SHEATHING TO REMAIN. INSPECT SHEATHING AND NOTIFY OWNER IMMEDIATELY IF THERE IS ANY INDICATION OF WATER DAMAGE OR DECAY IN THE SHEATHING.
- 4 COMPLETELY REMOVE ALL EXISTING GABLE WALL VENTS INCLUDING LOUVER, FRAME, AND SILL FLASHING.
- 5 COMPLETELY REMOVE AND DISPOSE OF EXISTING LOUVER, BLANK-OFF PANEL AND ANY INSULATION OR FILL MATERIAL TO COMPLETELY CLEAR EXISTING MASONRY OPENING.
- 6 COMPLETELY REMOVE AND DISPOSE OF EXISTING PAINTED WOOD TRIM

NEW CONSTRUCTION NOTES:

- 1. PROVIDE NEW METAL GUTTERS AND DOWNSPOUTS AS SHOWN ON SHEET A-2. CONNECT DOWNSPOUTS TO UNDERGROUND PIPING. SEE NOTE 4 ON SHEET C-1 FOR CONNECTION TO PIPING.
- 2. CLEAN ALL EXTERIOR BRICK SURFACES OF DIRT AND ALGAE GROWTH IN ACCORDANCE WITH SPECIFICATION SECTION 04120 "MAINTENANCE OF UNIT MASONRY"
- 3. INSTALL NEW ARCHITECTURAL SHINGLE ROOFING AND FELT UNDERLAYMENT OVER EXISTING PLYWOOD SHEATHING.
- 4. PROVIDE NEW ALUMINUM GABLE VENTS IN EXISTING ROUGH OPENINGS. VERIFY ALL OPENING SIZES IN FIELD.
- 5. PROVIDE NEW ALUMINUM LOUVER (LV-1) IN EXISTING MASONRY OPENING. SET LOUVER FLUSH WITH FACE OF BRICK TO MATCH LOUVERS TO REMAIN. SEAL PERIMETER OF FRAME ON INTERIOR AND EXTERIOR WITH SILICONE SEALANT PER THE SPECIFICATIONS.
- 6. PROVIDE NEW FORMED POLYURETHANE / PVC EXTERIOR TRIM AS SHOWN ON SHEETS A-1 AND A-2. PROVIDE ADDITIONAL PRESSURE TREATED SUPPORT BLOCKING AS INDICATED.



3 ROOF EDGE DETAIL
A-3 SCALE: 1-1/2" = 1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John G. Smith 1/20/13
DIRECTOR OF PUBLIC WORKS DATE

Thomas R. Butler 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

Chris O. Lewis 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	EBL				
DRN:	EBL				
CHK:	---				
DATE:	1/2013				
BY:	NO.	REVISION	DATE	600' SCALE MAP NO.	24
				BLOCK NO.	2&3

EXTERIOR ELEVATIONS
AND DETAILS

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

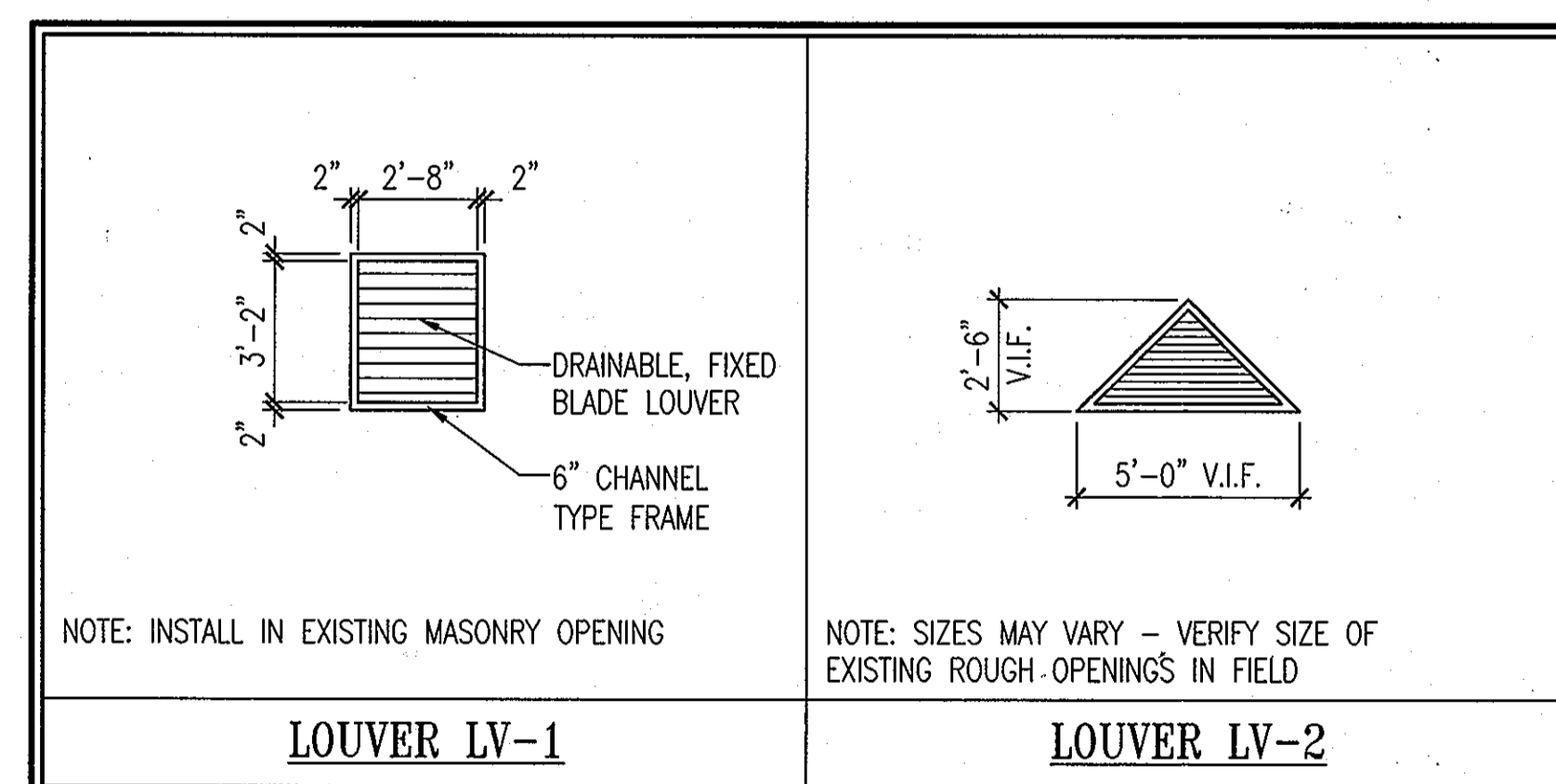
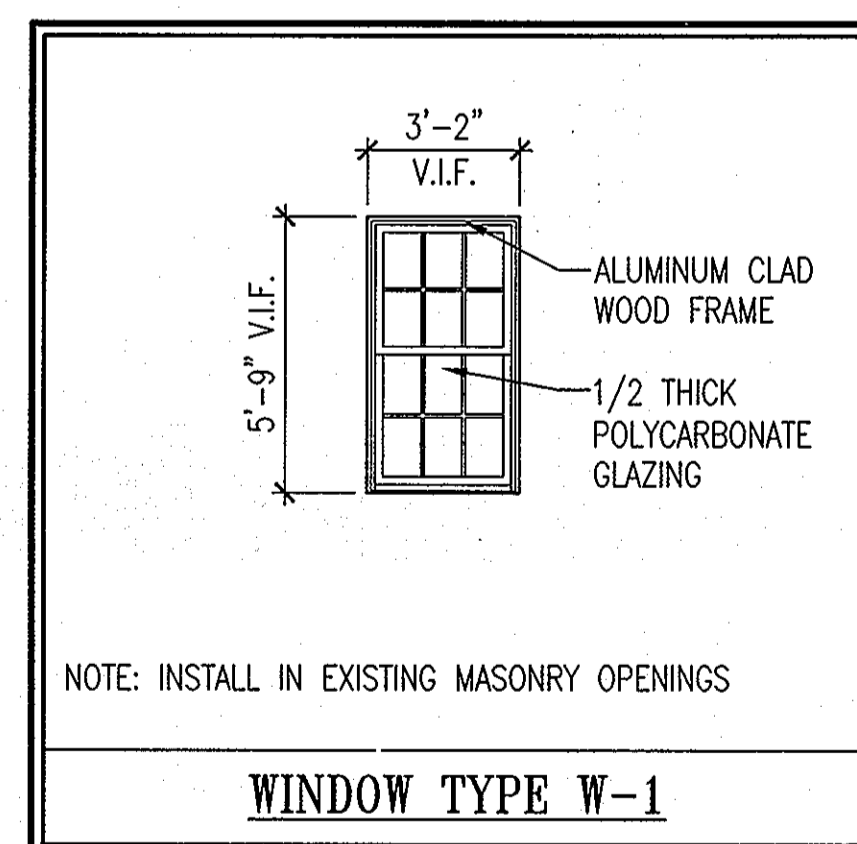
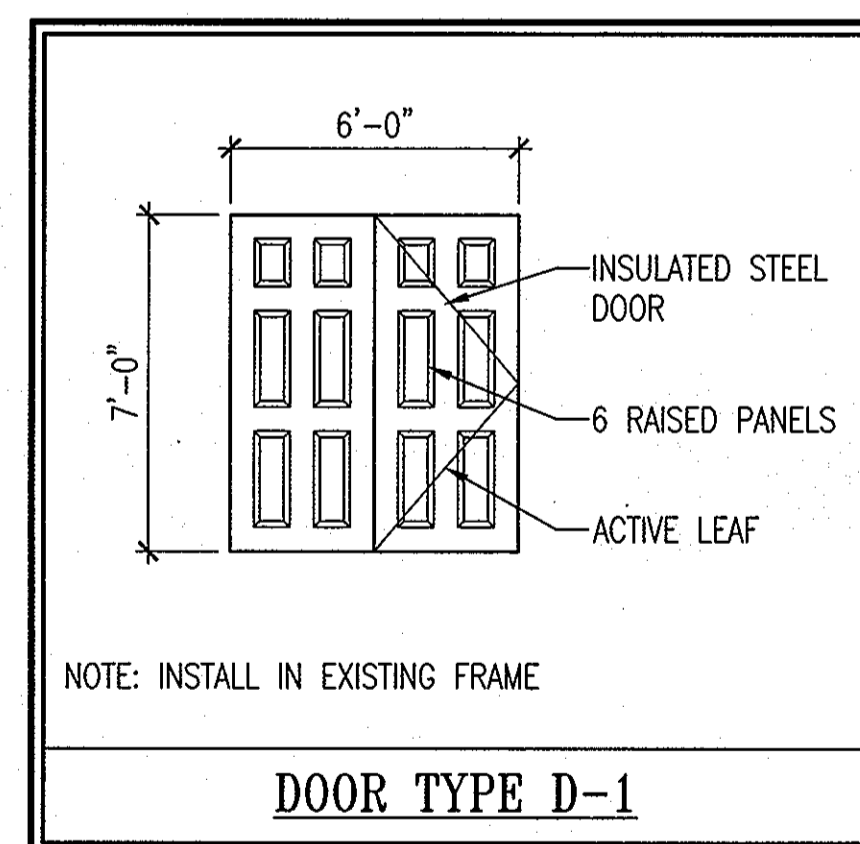
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

A-3
SCALE AS SHOWN
SHEET
8 OF 23

DOOR SCHEDULE												HARDWARE SCHEDULE														
DOOR NUMBER	NOMINAL OPENING		LOCATION (ROOM NO.)	OPENING DETAILS	FIRE RATING	DOORS				FRAMES			REMARKS	HINGES		DOOR CLOSERS		LOCKSETS		DOOR STOP		KICK PLATES	SURFACE BOLTS	WEATHER STRIP	THRESHOLD	COMMENTS
	WIDTH	HEIGHT				TYPE	THICKNESS	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		HEAVY	NRP	OUT.	INS.	PASS.	ENTRY	WALL	FLOOR					
100.0	6'-0"	7'-0"	MEZZANINE (100)	--	NOT RATED	D1	1 3/4"	HM	EP-1	ETR	ETR	EP-1	--	3 PR	YES	1	0	0	1	0'	2	2	1	1 SET	ETR	ONLY (1) LEAF ACTIVE

HARDWARE LIST					
DESIGNATION	MANUFACTURER	DESCRIPTION	FINISH	BHMA NUMBER	
HINGES	HEAVY	HAGER	FULL MORTISE HEAVY DUTY 5 KNUCKLE BALL BEARING 4.5" X 4.5"	630	A5111
	NRP	--	NON REMOVABLE PINS	630	--
DOOR CLOSER	OUT.	CORBIN-RUSSWIN	3000 SERIES OUTSWING PARALLEL ARM CLOSER	630	C02021
LOCKSET	ENTRY	CORBIN-RUSSWIN	ML2067-NSV; MORTISE LOCKSET, LATCHBOLT AND DEADBOLT, VANDAL RESISTANT LEVER HARDWARE	630	F13
DOOR STOP	FLOOR	ROCKWOOD	473 FLOOR MOUNTED STOP WITH KEEPER AND STUD TYPE ANCHOR	630	L01371
KICK PLATES		ROCKWOOD	K1050 10" X 34" X US32D X CSK (INTERIOR SIDES ONLY)	630	J102
SURFACE BOLTS		ROCKWOOD	580-8" STAINLESS STEEL SURFACE BOLT	630	L04161
WEATHERSTRIP (SET)		REESE	772C - SURFACE APPLIED DOOR SWEEP WITH POLYURETHANE INSERT	628	R3H435
		REESE	769C - STOP APPLIED WEATHER STRIP WITH POLYURETHANE BULB INSERT	628	R3H165
		REESE	103C - MEETING STILE WEATHER STRIP WITH OVERLAPPING NEOPRENE INSERTS	628	R3B635
THRESHOLD		EXISTING TO REMAIN	ETR - EXISTING TO REMAIN	--	--

EXTERIOR FINISH SCHEDULE		
MATERIALS	FINISHES	COLORS
ASPHALT SHINGLES	--	SEE SHINGLE SPECIFICATIONS
HOLLOW METAL DOORS AND FRAMES	EXTERIOR PAINTED FINISH (EP-1)	MATCH INTEGRALLY COLOR WINDOW SHUTTERS
METAL TRIM, GUTTERS, AND DOWNSPOUTS	FACTORY FINISHED 2-COAT FLUOROPOLYMER	WHITE
ALUMINUM LOUVERS	FACTORY FINISHED 2-COAT FLUOROPOLYMER	MATCH EXISTING LOUVERS AS CLOSELY AS POSSIBLE
ALUMINUM CLAD WOOD WINDOWS	FACTORY FINISHED - SEE SPECIFICATIONS	WHITE - AS SELECTED FROM MANUFACTURERS FULL RANGE
WINDOW SHUTTERS	POLYPROPYLENE/ VINYL INTEGRAL COLOR	MATCH EXISTING AS CLOSELY AS POSSIBLE



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3466-A, EXPIRATION DATE: 11-24-2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

John P. De... 1/29/13
DIRECTOR OF PUBLIC WORKS DATE

M... 1/29/13
CHIEF, BUREAU OF ENGINEERING DATE

... 1/29/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES: EBL
DRN: EBL
CHK: ---
DATE: 1/2013

BY NO. REVISION DATE

SCHEDULES AND MISCELLANEOUS DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

A-4

SCALE AS SHOWN

SHEET 9 OF 23

GENERAL NOTES:

- FIELD VERIFY ALL DIMENSIONS, LOCATIONS AND ELEVATIONS SHOWN ON CONTRACT DRAWINGS FOR EXISTING STRUCTURES. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT-RELATED FLOOR AND WALL OPENINGS, ARE DEPENDENT ON THE ACTUAL EQUIPMENT FURNISHED. VERIFY AND COORDINATE ALL SUCH ITEMS. DIMENSIONS INDICATED ON THESE DRAWINGS SHALL NOT BE ALTERED WITHOUT APPROVAL OF THE ENGINEER. STRUCTURAL DRAWINGS MAY NOT SHOW ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- FOR NOTES PERTAINING TO INDIVIDUAL STRUCTURES, SEE DRAWINGS FOR THOSE STRUCTURES.

CONCRETE NOTES:

- PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
- DETAIL AND CONSTRUCT REINFORCED CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE."
- DETAIL REINFORCING STEEL IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE SP-66, "ACI DETAILING MANUAL," WHICH INCLUDES ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
- PROVIDE REINFORCEMENT CONFORMING TO ASTM A 615, GRADE 60, DEFORMED BARS. ALL REINFORCEMENT IS DESIGNATED IN SOFT METRIC UNITS.
- PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A 185.
- UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

BEAMS, SLABS, COLUMNS AND WALLS: 2"

- SUBMIT REINFORCING STEEL DETAILS (SHOP DRAWINGS) AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
- CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.
- DETAIL ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS AS TABULATED ON THIS DRAWING.
- WHERE A SLAB IS SLOPED (TOP AND/OR BOTTOM), PROVIDE SLOPED REINFORCING PARALLEL TO THE CONCRETE SURFACE.
- SIZE AND LOCATE ANCHOR BOLTS AND EQUIPMENT PADS OR PEDESTALS TO SUIT EQUIPMENT FURNISHED.
- REVIEW ALL DRAWINGS FROM OTHER DISCIPLINES AND COORDINATE ALL OPENINGS AND EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, CONDUIT, ETC. THAT WILL BE INCORPORATED INTO CONCRETE WORK.
- PROVIDE BONDING COMPOUND AT ALL LOCATIONS IN WHICH FRESH CONCRETE COMES IN CONTACT WITH CURED CONCRETE.

CONCRETE REMOVAL NOTES:

- ALL CONCRETE REMOVAL WORK SHALL BE DONE CAREFULLY WITH MINIMUM DAMAGE TO ADJACENT WORK. DO NOT ALLOW LARGE DEBRIS WHICH CAN CAUSE DAMAGE TO FALL ON ANY EQUIPMENT OR THE SLAB BELOW.
- EXTREME CARE SHALL BE TAKEN IN REMOVING THE EXISTING CONCRETE SO AS TO NOT DAMAGE THE EXISTING WALLS SLABS, OR REINFORCING STEEL NOTED TO REMAIN. REPAIR ANY DAMAGE TO EXISTING STRUCTURES AND FACILITIES AT NO ADDITIONAL COST TO THE OWNER.

STRUCTURAL STEEL NOTES:

- FABRICATE AND ERECT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), "MANUAL OF STEEL CONSTRUCTION."
- SUBMIT ERECTION PLANS AND SHOP DETAILS AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.

- PROVIDE STRUCTURAL STEEL WIDE-FLANGE SHAPES CONFORMING TO ASTM A992, HSS MEMBERS CONFORMING TO ASTM A500, AND ALL OTHER MEMBERS CONFORMING TO ASTM A36.
- PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554.
- PROVIDE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325. PROVIDE ALL BOLTED CONNECTIONS WITH COMPRESSIBLE-WASHER-TYPE DIRECT-TENSION INDICATORS CONFORMING TO ASTM F959.
- WELD IN COMPLIANCE WITH AMERICAN WELDING SOCIETY AWS D1.1, "STRUCTURAL WELDING CODE."
- WELD ALL SHOP CONNECTIONS WITH CLASS E-70 SERIES ELECTRODES. PROVIDE FIELD CONNECTIONS WITH HIGH STRENGTH BOLTED CONNECTIONS EXCEPT WHERE NOTED.
- CONNECTIONS NOT INDICATED SHALL BE DESIGNED BY THE FABRICATOR. DESIGN BEAM CONNECTIONS FOR ONE HALF OF THE TOTAL ALLOWABLE UNIFORM LOAD FOR THE SPAN OF THE BEAM AS GIVEN IN PART 2 OF THE "MANUAL OF STEEL CONSTRUCTION". PROVIDE MINIMUM CONNECTION OF TWO 3/4" DIAMETER HIGH STRENGTH STEEL BOLTS OR WELDS OF EQUIVALENT STRENGTH.
- MILL BOTTOM OF ALL COLUMNS AND FINISH TOP OF ALL BASE PLATES IN ACCORDANCE WITH AISC SPECIFICATIONS. WELD BASE PLATES TO BOTTOM OF COLUMNS.

GRATING NOTES:

- FABRICATE ALL GRATING IN ACCORDANCE WITH THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS, "METAL BAR GRATING MANUAL"
- PROVIDE ALUMINUM GRATING (1-1/2" x 3/16").
- BAND OUTSIDE EDGES OF ALL GRATING AND ALL OPENINGS IN GRATING USING BARS OF THE SAME DEPTH AS THE BEARING BARS.
- ALL GRATING SHALL BE SERRATED.
- COAT ALL ALUMINUM IN CONTACT WITH CONCRETE AND DISSIMILAR METALS WITH BITUMINOUS PAINT ON THE CONTACT SURFACE.

DESIGN LOADS:

- DEAD LOADS:
 - STRUCTURES - ACTUAL WEIGHT
- LIVE LOADS:
 - FLOORS - 150 PSF IN AREAS NOT OCCUPIED BY EQUIPMENT.
 - EQUIPMENT - ACTUAL WEIGHT OF EQUIPMENT OR MINIMUM 150 PSF.
 - WALKWAYS AND STAIRWAYS - 100 PSF.

CODES AND STANDARDS:

- INTERNATIONAL BUILDING CODE IBC (2009) INCLUDING THE MODIFICATIONS MADE BY LOCAL JURISDICTION.
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION - THIRTEENTH EDITION."
- AMERICAN CONCRETE INSTITUTE ACI-318 (2008), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
- AMERICAN CONCRETE INSTITUTE ACI-350 (2006), "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".
- AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7 (2005), "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES."

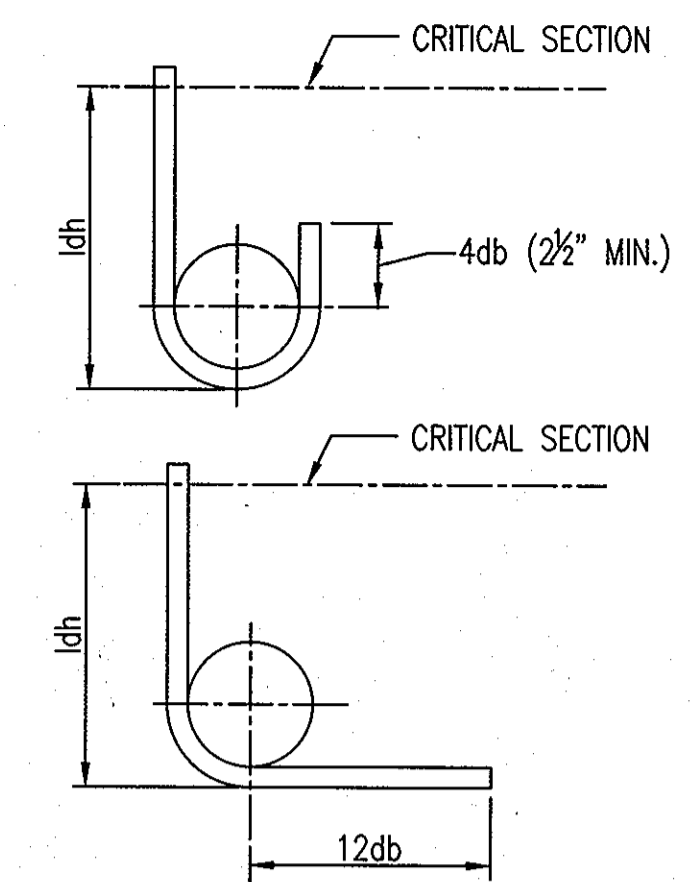
ALUMINUM NOTES:

- FABRICATE ALL STRUCTURAL ALUMINUM IN ACCORDANCE WITH THE SPECIFICATIONS OF THE ALUMINUM ASSOCIATION.
- PROVIDE ALLOY 6061-T6 STRUCTURAL ALUMINUM.
- COAT ALL ALUMINUM IN CONTACT WITH CONCRETE AND OTHER DISSIMILAR METALS WITH BITUMINOUS PAINT ON THE CONTACT SURFACE.
- USE TYPE 316 STAINLESS STEEL CONNECTION BOLTS FOR CONNECTING ALUMINUM MEMBERS.

LAP SPLICE LENGTH						MINIMUM TENSION EMBEDMENTS			
BAR SIZE		SLAB AND WALL		BEAM		STD 90° HOOK		STD 180° HOOK	
ENGLISH	SOFT METRIC	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	ldh	12db	ldh	4db
#3	#10	12"	15"	12"	15"	6"	5"	6"	3"
#4	#13	15"	20"	18"	23"	7"	6"	7"	3"
#5	#16	19"	25"	26"	34"	9"	8"	9"	3"
#6	#19	23"	29"	35"	46"	10"	9"	10"	3"
#7	#22	37"	48"	54"	71"	12"	11"	12"	4"
#8	#25	47"	61"	62"	81"	14"	12"	14"	4"
#9	#29	58"	75"	70"	91"	15"	14"	15"	5"
#10	#32	70"	91"	79"	102"	17"	16"	17"	6"
#11	#36	84"	109"	87"	114"	19"	17"	19"	6"

LAP SPLICE ASSUMPTIONS:

- CONCRETE: 4000 PSI COMPRESSIVE STRENGTH (NORMAL WEIGHT CONCRETE)
 SLAB AND WALL: 6" MINIMUM REBAR SPACING WITH CONCRETE COVER = 1.5" CLEAR
 BEAM: MINIMUM CLEAR SPACING BETWEEN BARS = 1.5 db (1.5" MIN). MINIMUM CONCRETE COVER = 1.5" CLEAR. MINIMUM STIRRUP #4@12" PROVIDED.
 TOP BAR: TOP BAR FOR SLAB AND BEAM SHALL BE DEFINED AS REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE SPLICE.

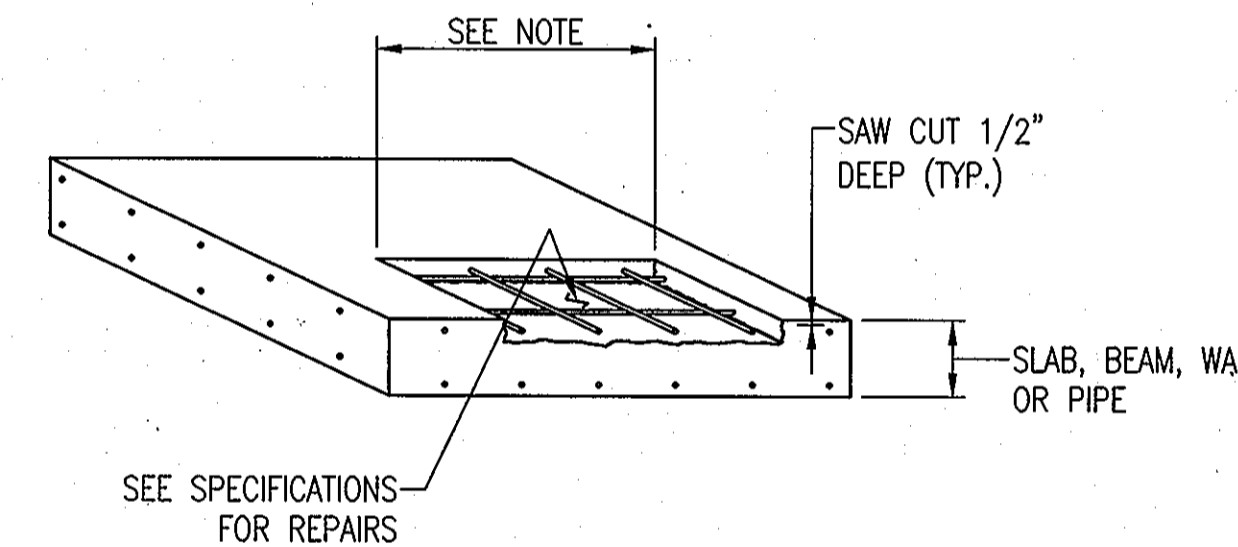


STANDARD HOOK ASSUMPTIONS:

SIDE COVER SHALL NOT BE LESS THAN 2.5"
 END COVER ON 90° HOOK SHALL NOT BE LESS THAN 2"

STANDARD 180° AND 90° END HOOKS

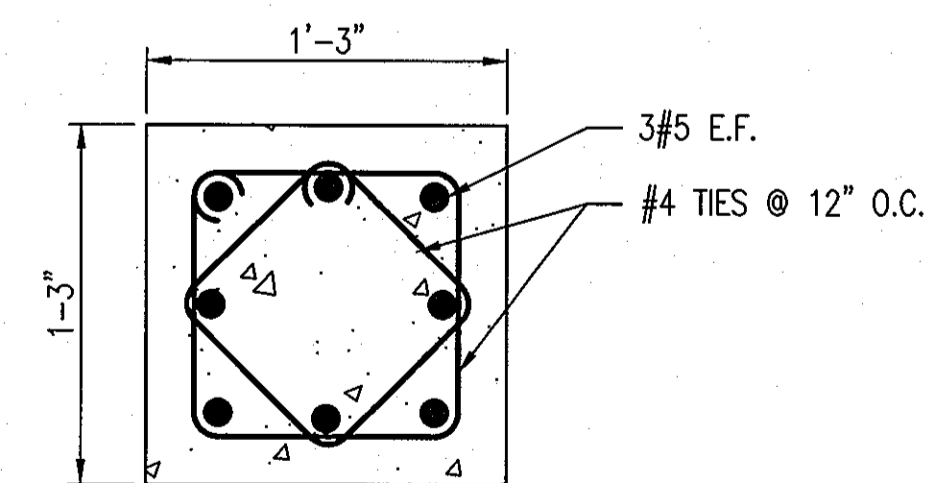
TENSION LAP SPLICE AND STANDARD HOOK LENGTH (ACI 318-08/ACI 350-06)
 (NON-EPOXY COATED)



NOTE: LIMIT OF DETERIORATED CONCRETE REMOVAL TO BE REPLACED WITH POLYMER-MODIFIED REPAIR MORTAR.

CONCRETE EQUIPMENT PAD REMOVAL REPAIR DETAIL

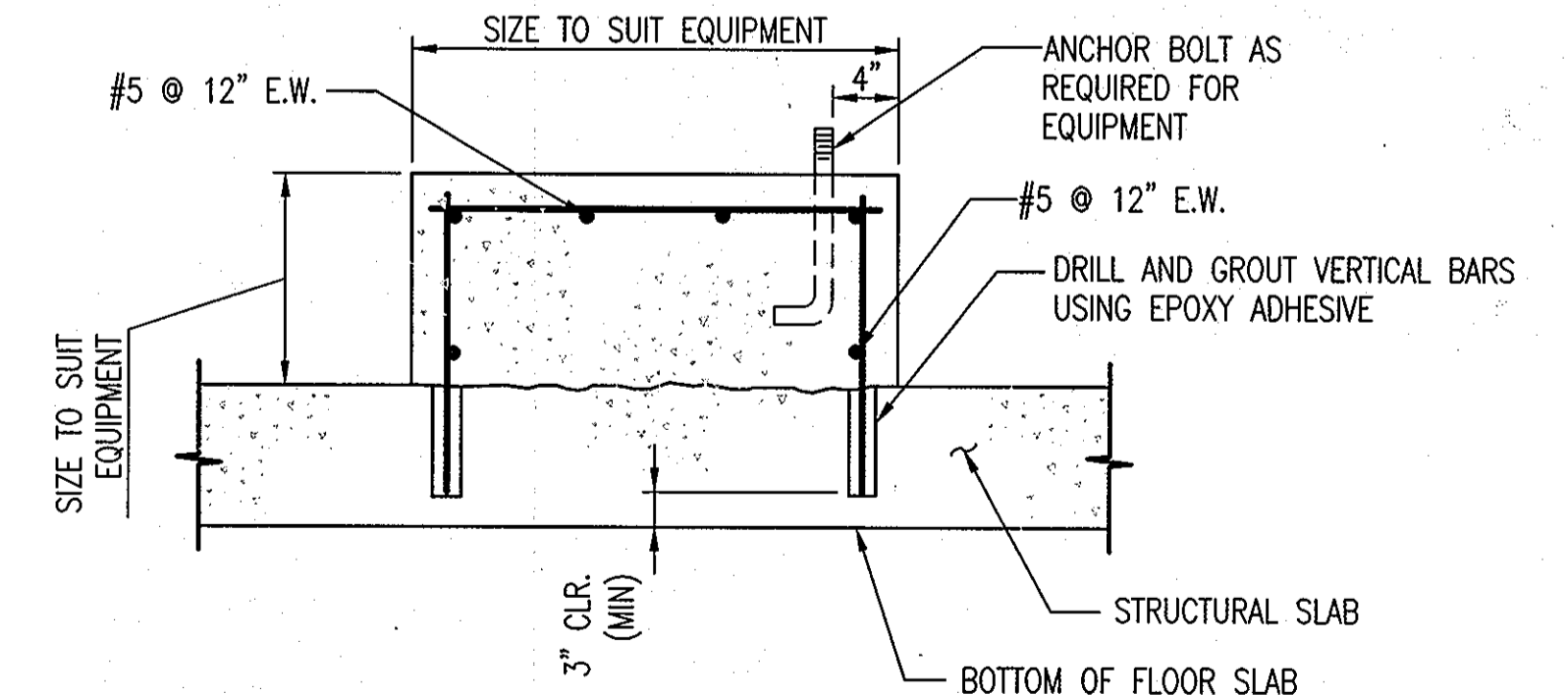
SCALE: NONE



NOTE: DRILL AND INSTALL WITH ADHESIVE 8-#5 DOWELS, MINIMUM EMBEDMENT IN FLOOR 6", TO ANCHOR PIPE SUPPORT TO FLOOR. DOWELS SHALL BE TIED TO VERTICAL BARS IN PEDESTAL. HEIGHT TO SUIT PIPES. SEE MECHANICAL FOR PIPE PEDESTAL LOCATIONS.

TYPICAL PIPE SUPPORT PEDESTAL PLAN

SCALE: NONE



TYPICAL EQUIPMENT SUPPORT

NO SCALE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9495, EXPIRATION DATE: 9/27/13."

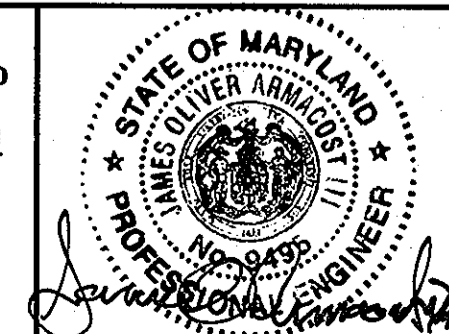
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.

John J. ... 1/29/13
 DIRECTOR OF PUBLIC WORKS DATE

Mona Z. ... 1-14-13
 CHIEF, BUREAU OF ENGINEERING DATE

... 4/1/13
 CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
 WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231



DES:	MLM				
DRN:	MLM				
CHK:	JOA				
DATE:	1/2013				
BY	NO.	REVISION	DATE	600' SCALE MAP NO.	24 BLOCK NO. 2&3

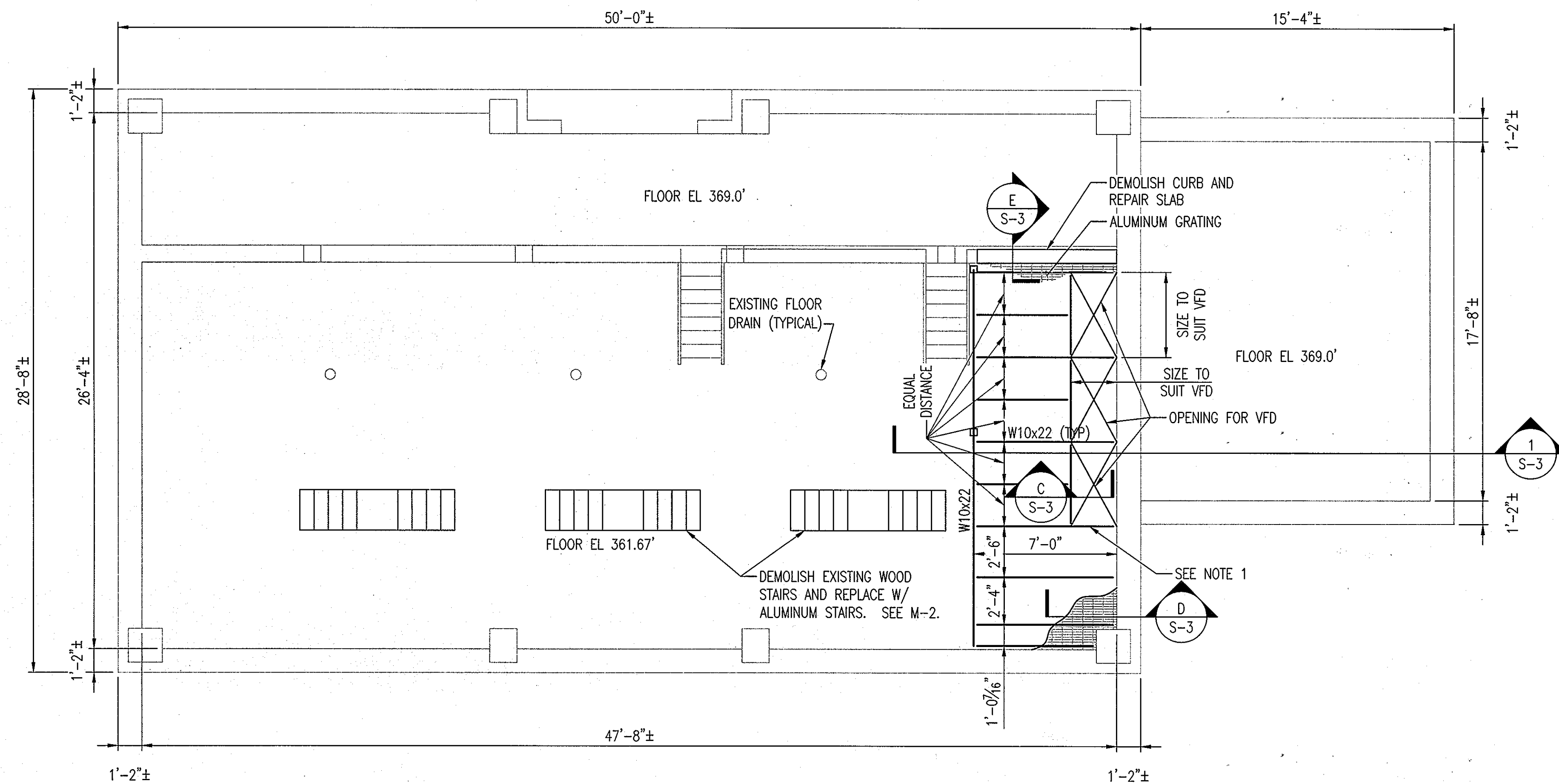
STRUCTURAL GENERAL
 NOTES AND DETAILS

PINE ORCHARD WATER PUMPING
 STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

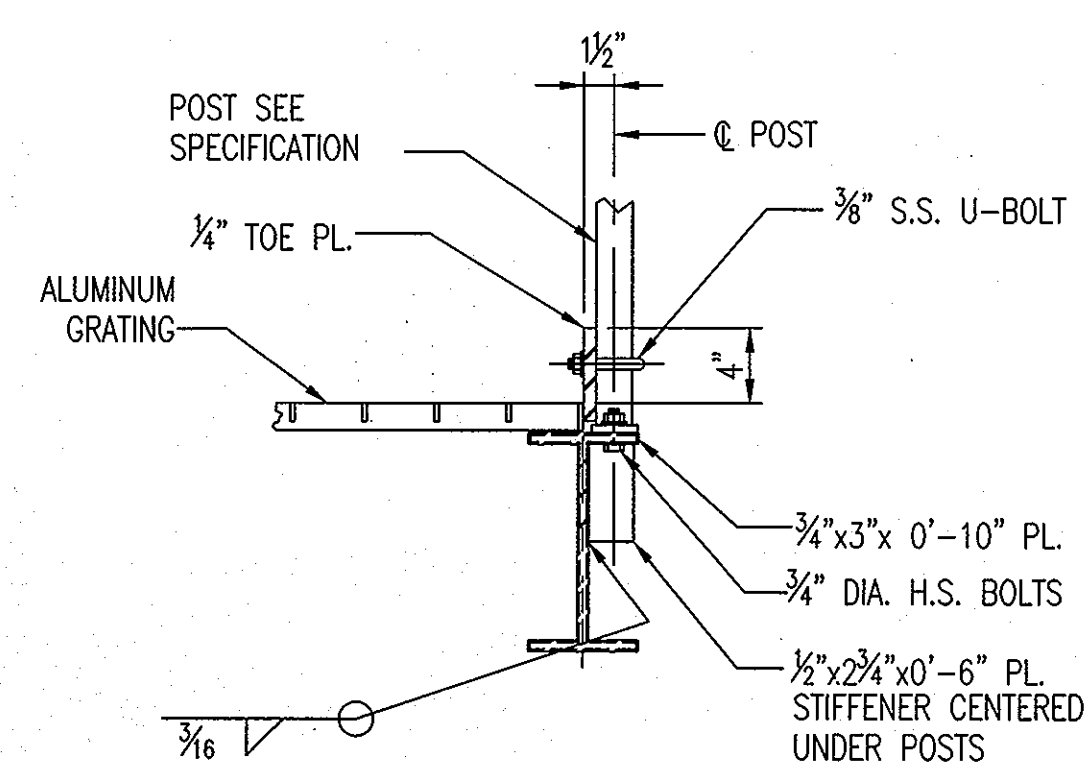
NOTES:

1. LOCATION OF STEEL SHALL SUIT VFD EQUIPMENT. IF DIMENSIONS EXCEED DIMENSIONS SHOWN BY +/- 3", VERIFY WITH ENGINEER. MOUNT VFD UNITS DIRECTLY ON STRUCTURAL FRAMING MEMBERS. COORDINATE VFD MOUNTING REQUIREMENTS WITH VFD MANUFACTURER.



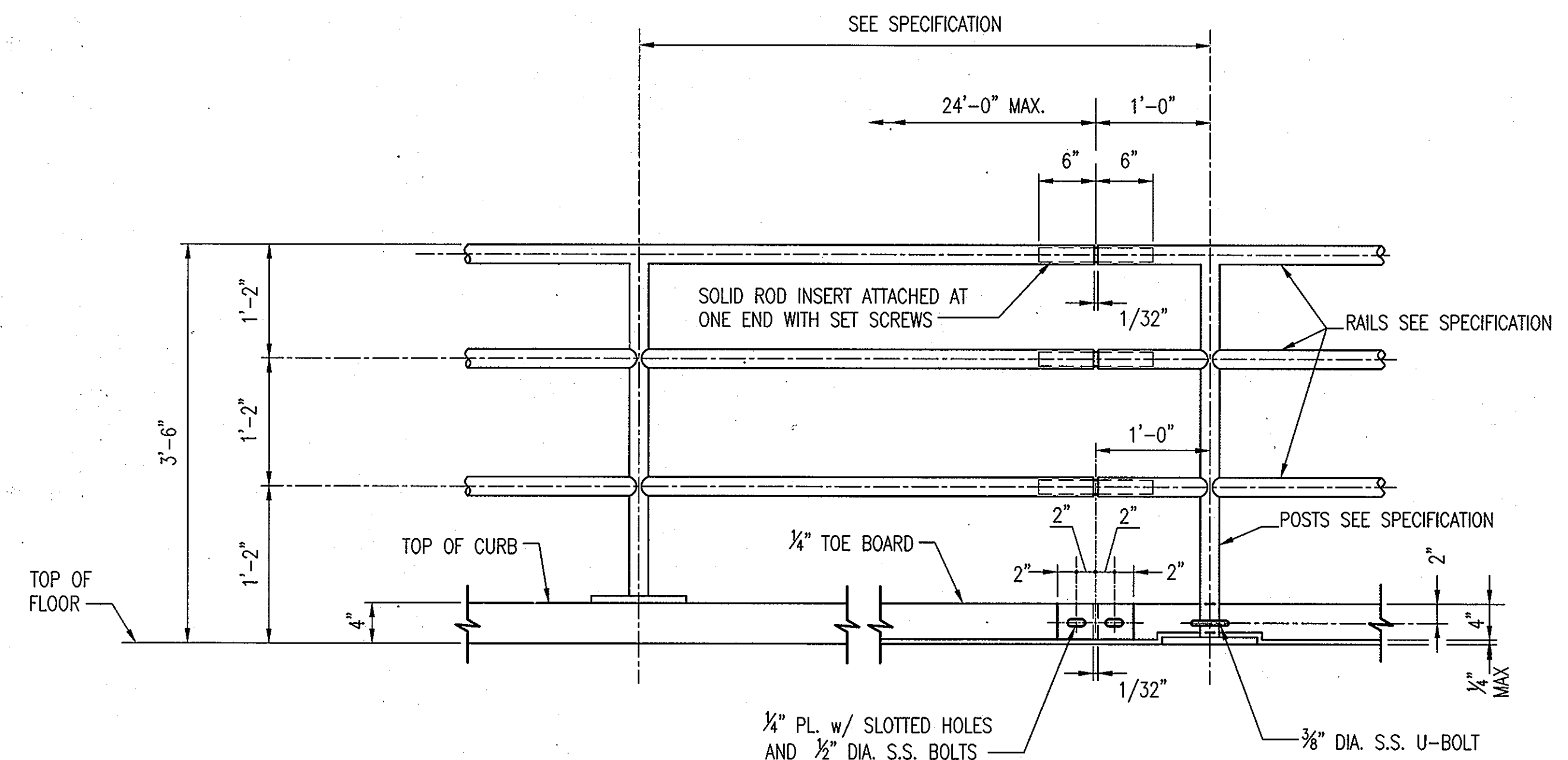
FIRST FLOOR PLAN

1/4" = 1'-0"



POST CONNECTION TO STEEL BEAMS

SCALE: NONE



NOTE:
ALL HANDRAIL COMPONENTS SHALL BE ALUMINUM,
UNLESS NOTED

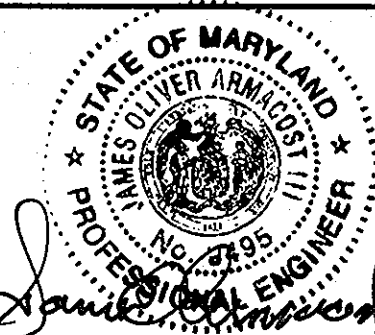
AT CURB
AT FLOOR
TYPICAL HANDRAIL ELEVATION - ALUMINUM

NO SCALE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9495, EXPIRATION DATE: 9/27/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: *Jerry Lee* 1/23/13
Chief, Bureau of Engineering: *Mona J. Butler* 1-14-13
Chief, Bureau of Utilities: *Steve Chen* 1/23/13
Chief, Utility Design Division: *W. O. ...* 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

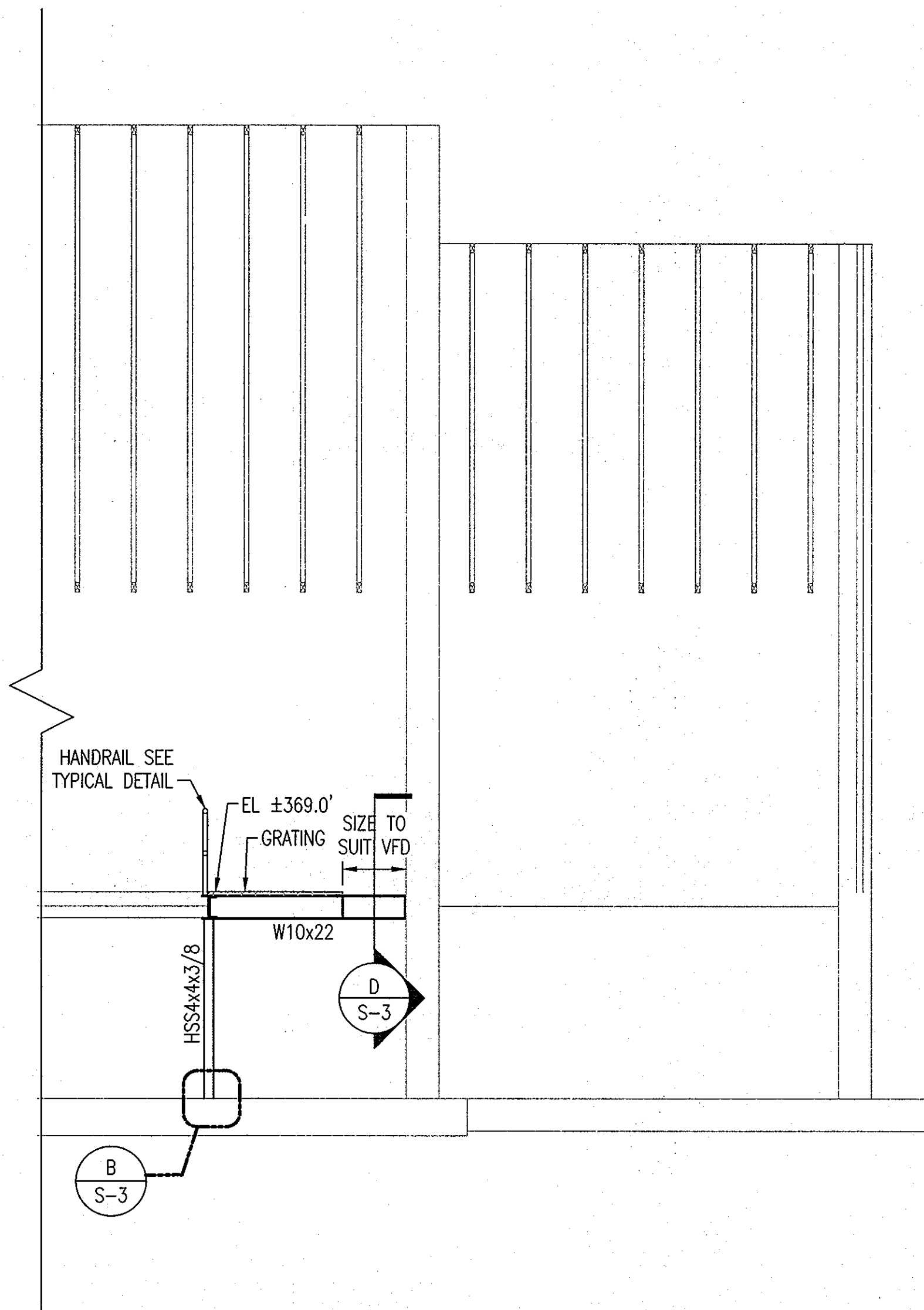


DES:	MLM		
DRN:	MLM		
CHK:	JOA		
DATE:	1/2013		
BY	NO.	REVISION	DATE

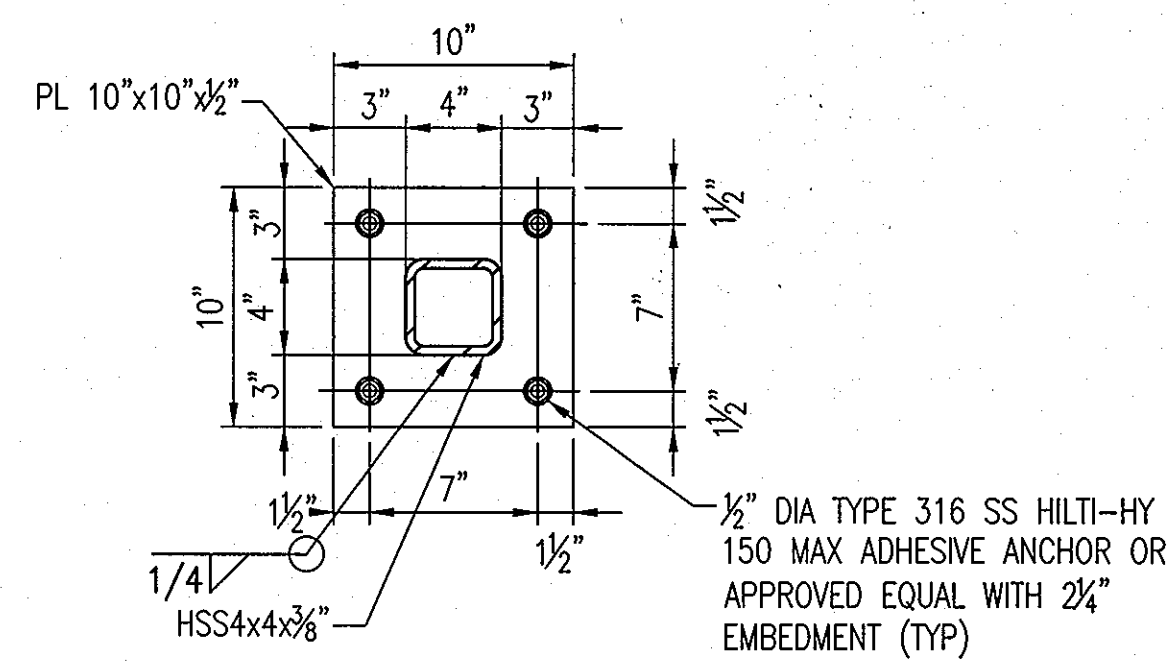
STRUCTURAL PLANS AND SECTIONS
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

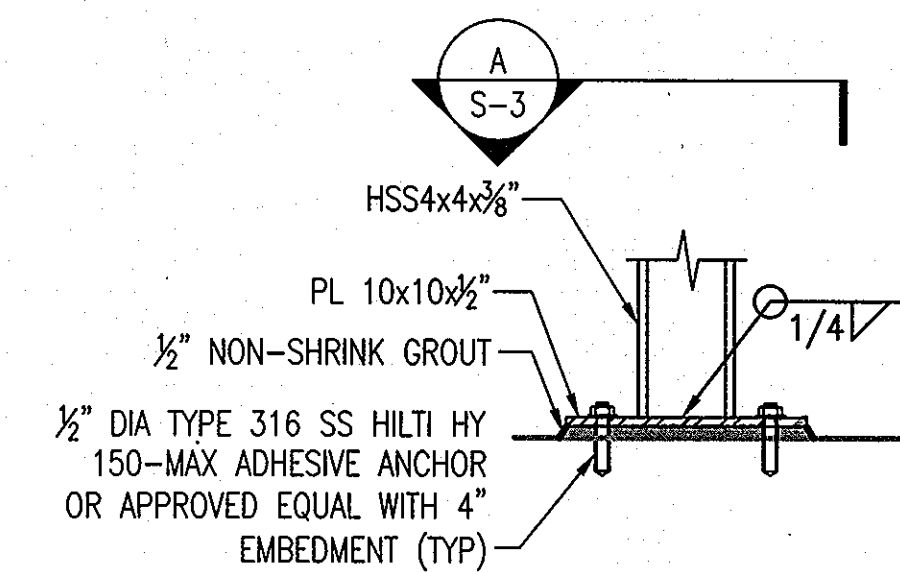
S-2
SCALE AS SHOWN
SHEET 11 OF 23



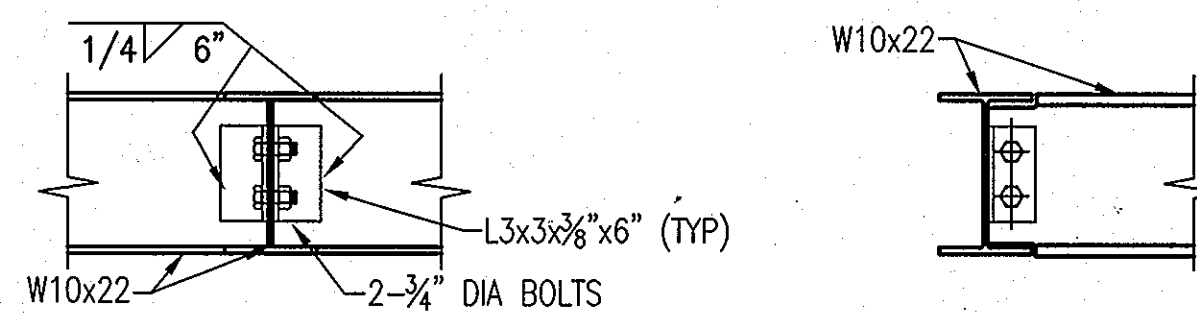
1 SECTION
S-3 1/4" = 1'-0"
REF: S-2



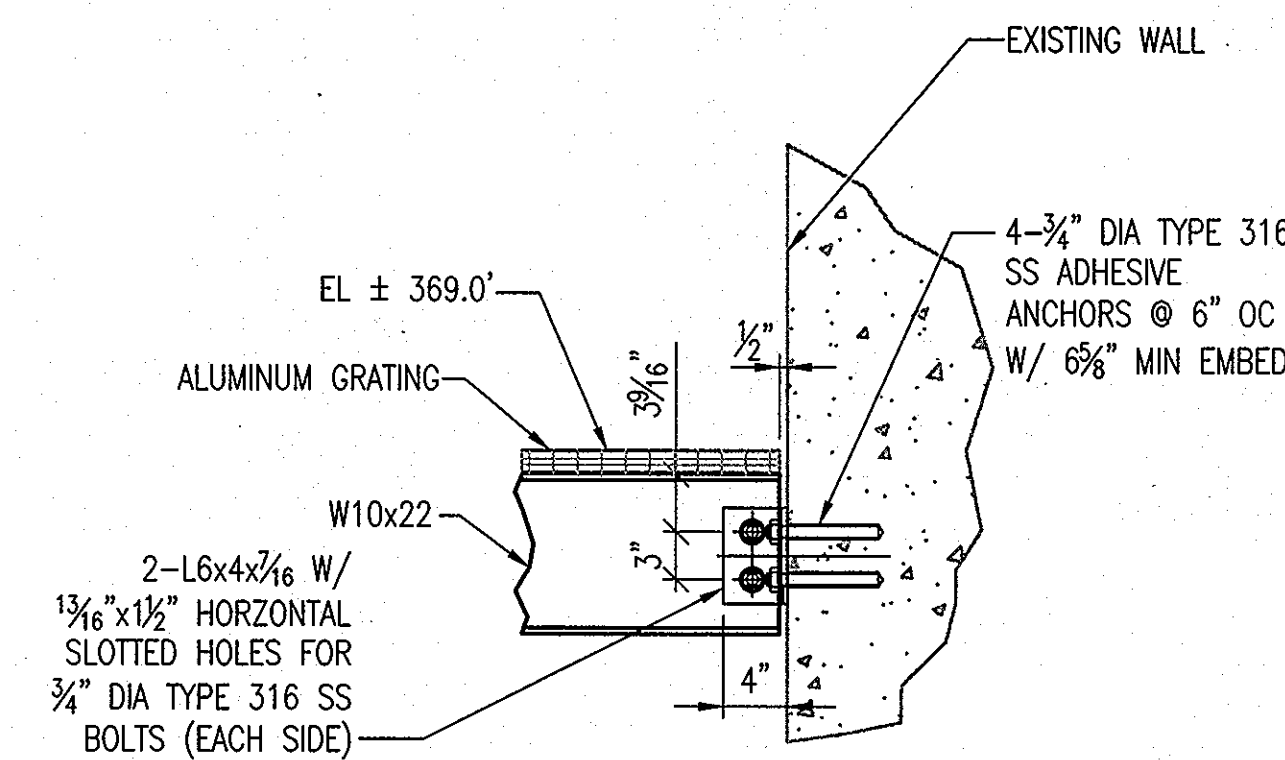
A DETAIL
S-3 1-1/2" = 1'-0"
REF: S-3



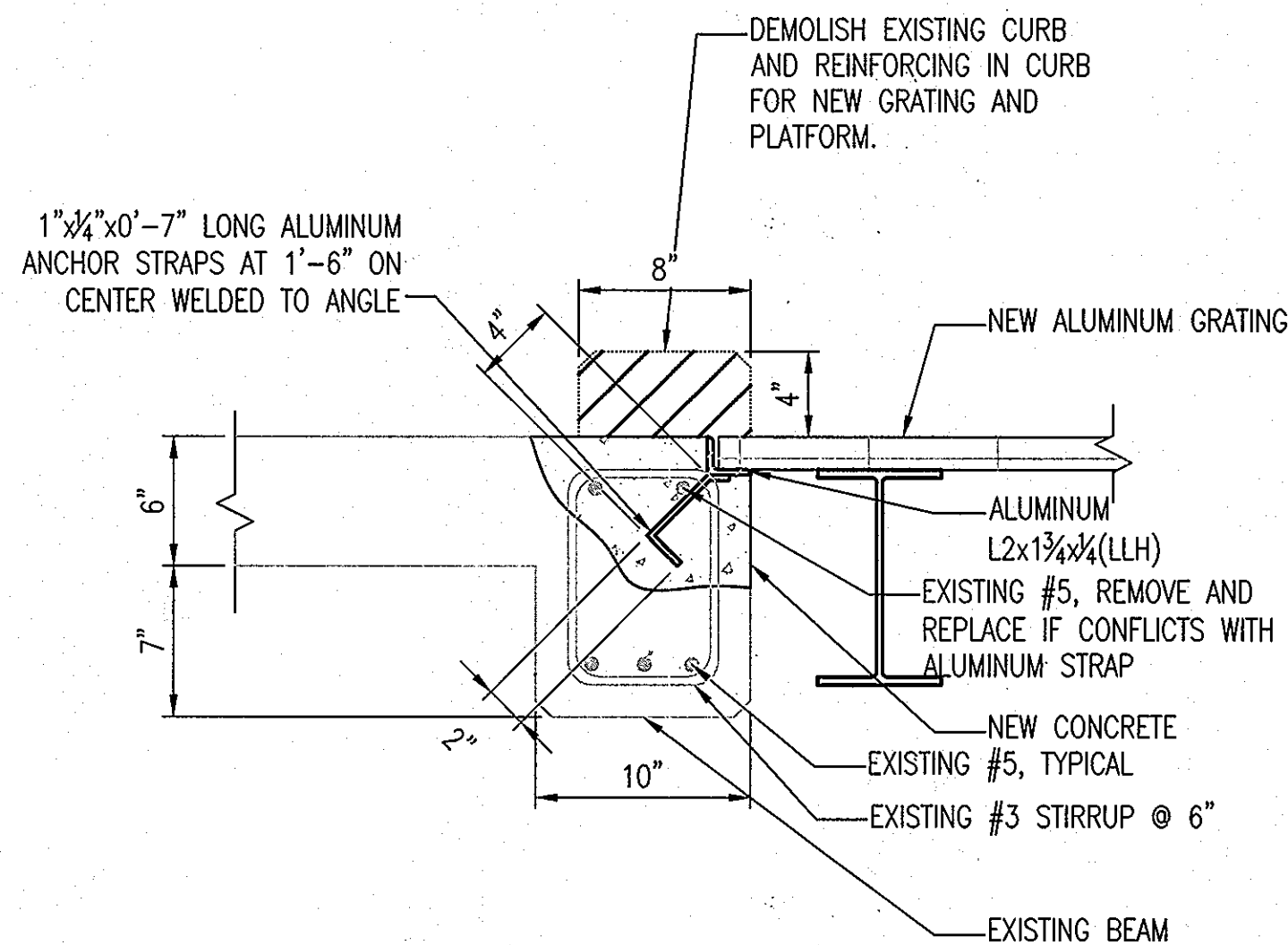
B DETAIL
S-3 1-1/2" = 1'-0"
REF: S-3



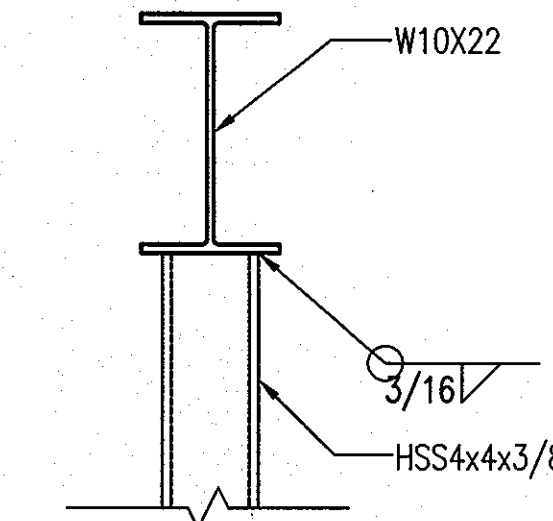
C DETAIL
S-3 1" = 1'-0"
REF: S-2



D DETAIL
S-3 1" = 1'-0"
REF: S-3



E DETAIL
S-3 1" = 1'-0"
REF: S-2



F DETAIL
S-3 1" = 1'-0"
REF: S-2

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9495, EXPIRATION DATE: 9/27/13."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231



DES: MLM
DRN: MLM
CHK: JOA
DATE: 1/2013



STRUCTURAL SECTIONS AND DETAILS

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

S-3

SCALE
AS
SHOWN

SHEET

12 OF 23

ELECTION DISTRICT 2

HOWARD COUNTY, MARYLAND

600' SCALE MAP NO. 24 BLOCK NO. 2&3

REVISION

DATE

DATE: 1/2013

John P. ...
DIRECTOR OF PUBLIC WORKS
DATE: 1/2013

Thomas R. ...
CHIEF, BUREAU OF ENGINEERING
DATE: 1-14-13

Steve ...
CHIEF, BUREAU OF UTILITIES
DATE: 1/2013

...
CHIEF, UTILITY DESIGN DIVISION
DATE: 1/2013

FILED IN 13395-00/CAD/UPP/00030-03.DWG

PIPING SYMBOLS

DOUBLE LINE	DESCRIPTION
	FLANGED JOINT
	MECHANICAL JOINT
	FLEXIBLE COUPLING
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	ELBOW, 90 DEGREE
	TEE
	WALL CASTING WITH VARIOUS CONNECTIONS TYPES AS INDICATED ON PLANS OR SECTIONS

WATERSTOP OR THRUST COLLAR AS INDICATED ON PLANS OR SECTIONS

ABBREVIATIONS

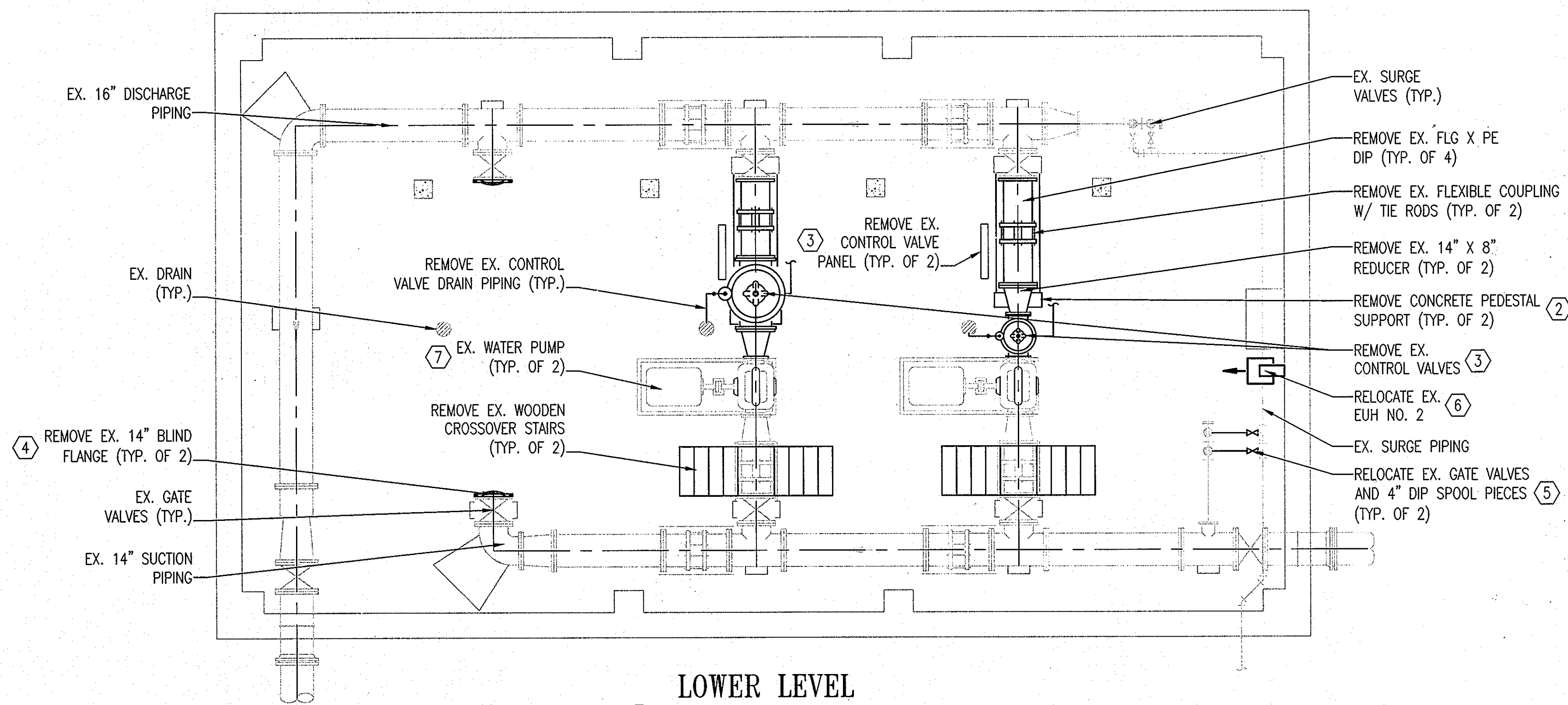
ABBREVIATION	DESCRIPTION
ASTM	AMERICAN STANDARD FOR TESTING AND MATERIALS
B	BELT
CFM	CUBIC FEET PER MINUTE
CL	CENTER LINE
EF	EXHAUST FAN
EL	ELEVATION
EUH	ELECTRIC UNIT HEATER
ETC.	ET CETERA
EX.	EXISTING
FLG	FLANGE
FT.	FEET
GBD	GRAVITY BACKDRAFT DAMPER
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ
ID	IDENTIFICATION
I.D.	INSIDE DIAMETER
MAX.	MAXIMUM
MGD	MILLION GALLONS PER DAY
MIN.	MINIMUM
NO.	NUMBER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P	PROPELLER
PE	PLAIN END
PH	PHASE
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
S.P.	STATIC PRESSURE
S.S.	STAINLESS STEEL
TYP.	TYPICAL
W/	WITH
W.C.	WATER COLUMN

GENERAL NOTES

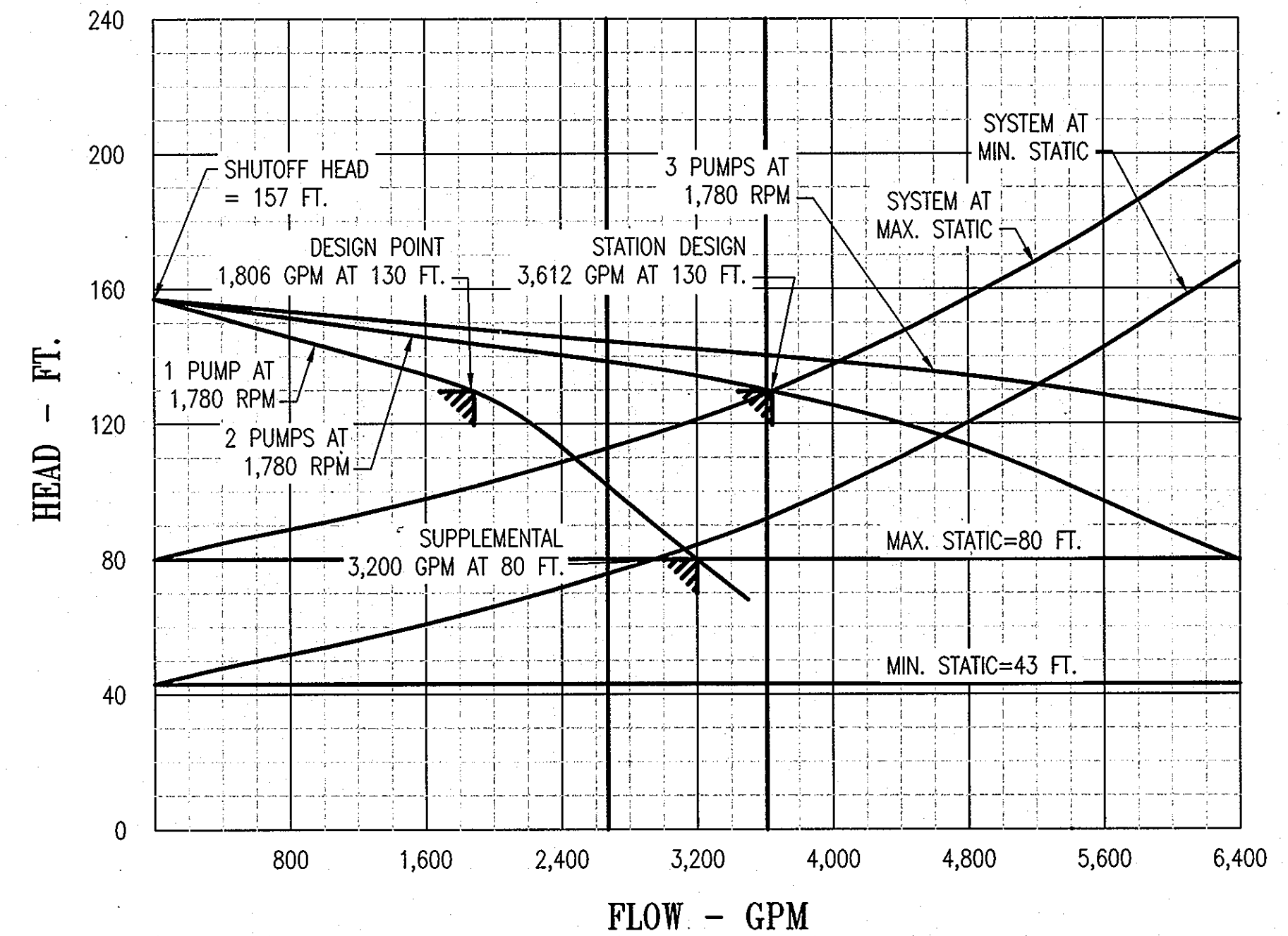
- PIPING CONNECTIONS 3 INCH AND SMALLER HAVE BEEN SCHEMATICALLY SHOWN ON PLAN AND SECTION DRAWINGS. PROVIDE DETAILED PIPE ROUTING AND ALL APPURTENANCES IN ACCORDANCE WITH RESPECTIVE SCHEMATICS. PROVIDE ALL NECESSARY FITTINGS TO MAKE CONNECTIONS.
- ALL EXPANSION JOINTS, FLANGE ADAPTERS AND FLEXIBLE COUPLINGS SHALL HAVE TIE-RODS AS SHOWN ON TYPICAL DETAILS.
- UNLESS OTHERWISE NOTED, ECCENTRIC REDUCERS SHALL BE INSTALLED FLAT SIDE ON TOP.
- UNLESS OTHERWISE NOTED, ALL DUCTILE IRON PIPING INTERNAL TO FACILITY(IES) SHALL HAVE FLANGED CONNECTIONS.
- VALVES ARE NORMALLY OPEN (N.O.) UNLESS NOTED AS NORMALLY CLOSED (N.C.).
- UNLESS OTHERWISE NOTED, ALL EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4-INCH CONCRETE HOUSEKEEPING PAD SIZED TO SUIT EQUIPMENT.
- SUPPORTS AND HANGERS ARE ONLY SHOWN WHERE SPECIFIC TYPES OR LOCATIONS ARE REQUIRED. ADDITIONAL SUPPORTS AND HANGERS SHALL BE REQUIRED AS SPECIFIED.
- SEE STRUCTURAL DRAWINGS FOR CONCRETE PIPE SUPPORT AND PEDESTAL DETAILS.

DEMOLITION NOTES:

- UNLESS OTHERWISE NOTED, ITEMS SHOWN IN BOLD ARE TO BE REMOVED.
- SEE STRUCTURAL DRAWINGS FOR CONCRETE PEDESTAL DEMOLITION.
- DISCONNECT WATER LINE FROM CONTROL VALVES. COORDINATE INSTALLATION OF NEW CONTROL VALVE WATER AND DRAIN PIPING WITH EXISTING PIPING AND DRAINS. SEE M-2 FOR INSTALLATION PLAN.
- CONTRACTOR COORDINATE REPAIRS TO EXISTING CONCRETE PEDESTAL SUPPORTS IF DAMAGED DURING REMOVAL OF BLIND FLANGES OR OTHER FITTINGS.
- SEE M-2 FOR RELOCATION OF EXISTING GATE VALVES AND 4" DIP SPOOL PIECES.
- EXISTING EUH NO. 2 TO REMAIN AND SHALL BE RELOCATED. SEE M-2 FOR RELOCATION OF EXISTING EUH NO. 2.
- REMOVE IMPELLERS IN EXISTING WATER PUMPS. SEE M-2 AND SPECIFICATIONS FOR NEW IMPELLERS AND NEW ROTATING ELEMENT AND COMPONENTS.



LOWER LEVEL DEMOLITION PLAN
 1 M-1 SCALE: 1/4" = 1'-0"



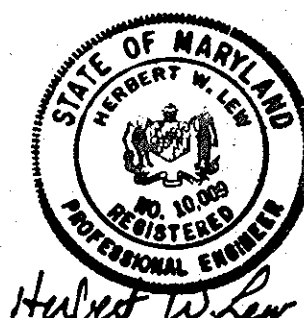
2 SYSTEM CHARACTERISTICS
 M-1 SCALE: 1/4" = 10 FT. IN VERTICAL
 1/4" = 200 GPM IN HORIZONTAL

PUMP DESIGN CRITERIA	
NUMBER OF PUMPS	1
DESIGN POINT:	1,805 GPM (MIN.) AT 130 FEET
DESIGN POINT EFFICIENCY (MINIMUM):	78%
DESIGN POINT NPSHR (MAXIMUM):	12 FEET
SUPPLEMENTAL POINT:	3,200 GPM (MIN.) AT 80 FEET
SUPPLEMENTAL POINT EFFICIENCY (MINIMUM):	77%
SUPPLEMENTAL POINT NPSHR (MAXIMUM):	38 FEET
SHUTOFF HEAD (MINIMUM):	157 FEET
SUCTION SIZE:	10 INCHES
DISCHARGE SIZE:	8 INCHES
MOTOR HORSEPOWER (MAXIMUM):	100 HP
MOTOR SPEED (MAXIMUM):	1,800 RPM
ELECTRIC SERVICE:	480 V/3 PHASE/60 HZ
OPERATION:	VARIABLE FREQUENCY DRIVE
BASIS OF DESIGN:	JT/GOULDS 8x10-12S

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 10009, EXPIRATION DATE: 9/2/2014."

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND.
 Director of Public Works: *[Signature]* 1/24/13
 Chief, Bureau of Engineering: *[Signature]* 1/14/13
 Chief, Bureau of Utilities: *[Signature]* 1/24/13
 Chief, Utility Design Division: *[Signature]* 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, MD 21231
WR&A



DES:	JMR		
DRN:	JMR		
CHK:	LAP		
DATE:	1/2013	BY:	NO.
REVISION:		DATE:	

GENERAL NOTES, LEGEND,
 ABBREVIATIONS, SYSTEM CHARACTERISTICS,
 AND
 DEMOLITION PLAN

PINE ORCHARD WATER PUMPING
 STATION UPGRADE
 CONTRACT NO. 44-4730
 CAPITAL PROJECT NO. W-8299
 ELECTION DISTRICT 2
 HOWARD COUNTY, MARYLAND

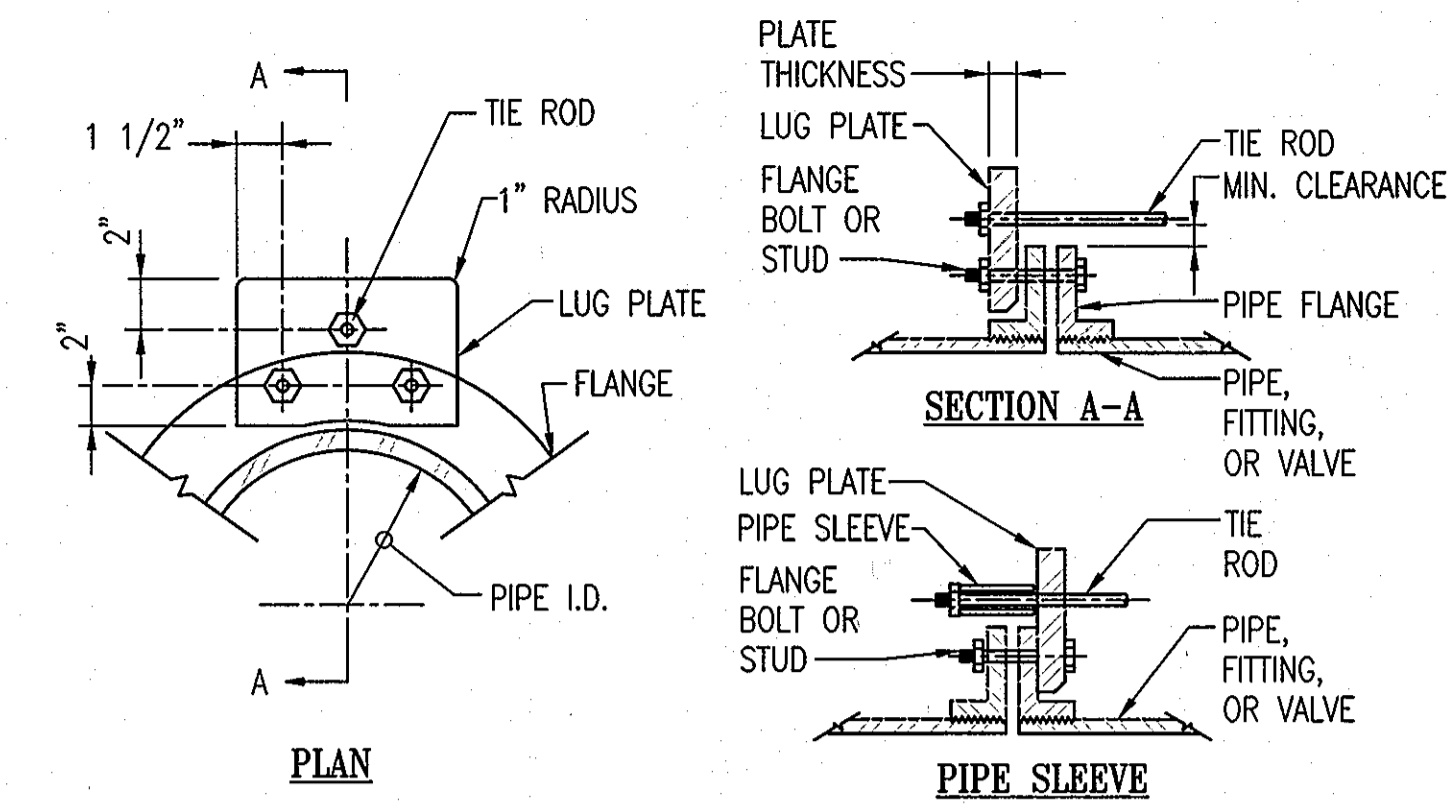
M-1
 SCALE AS SHOWN
 SHEET 13 OF 23

DRAWING NOTES:

- DIMENSIONS AND ELEVATIONS OF EXISTING EQUIPMENT AND PIPING BASED ON 1989 RECORD DRAWINGS, CONTRACT NO. 44-1748. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND ELEVATIONS.

[X] SPECIFIC NOTES:

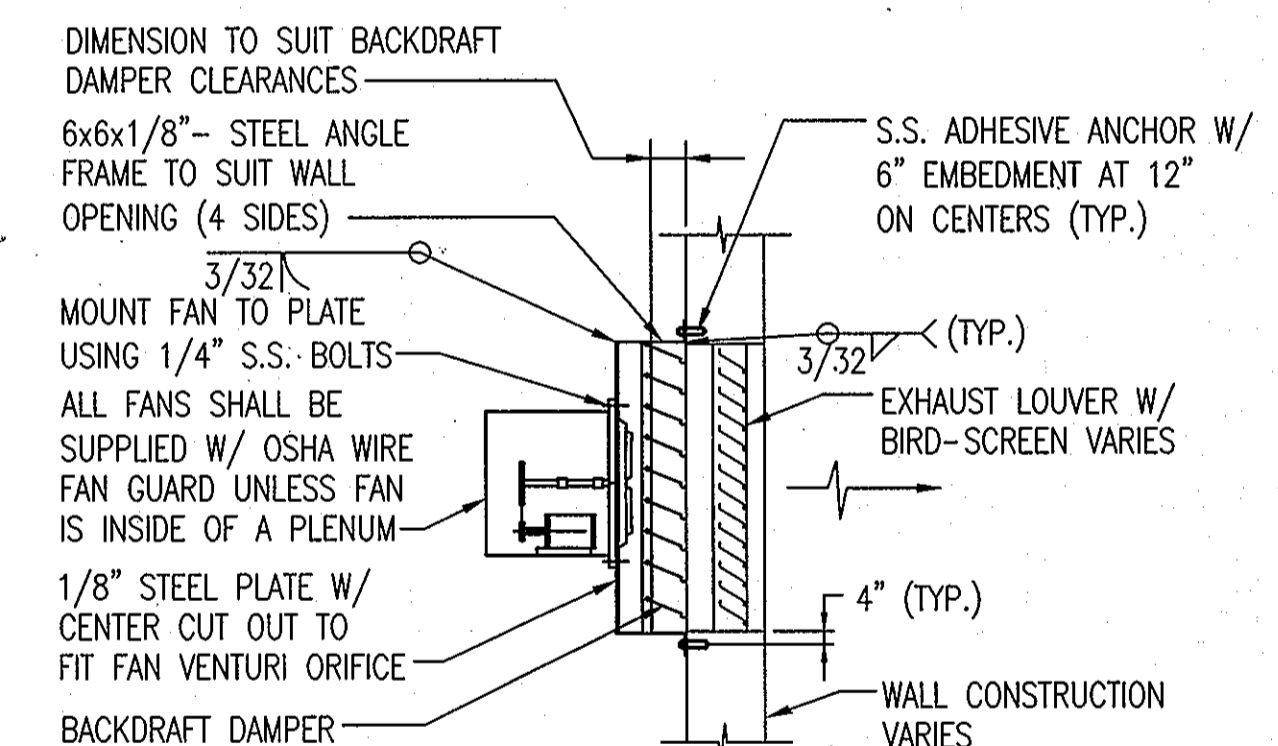
- COORDINATE 1" WATER LINE FROM EXISTING WATER PIPING TO NEW CONTROL VALVES.
- ELEVATION OF RELOCATED ELECTRIC UNIT HEATER TO REMAIN THE SAME.
- CONTRACTOR SHALL COORDINATE CONCRETE EQUIPMENT PAD HEIGHT TO SUIT ELEVATIONS OF EXISTING PIPING AND CONNECTION OF NEW WATER PUMP. PROVIDE DRAIN PIPING FROM BASE PLATE TO EXISTING FLOOR DRAIN.
- COORDINATE EXHAUST LOUVER AND GRAVITY BACKDRAFT DAMPER SIZE TO SUIT ROUGH OPENING IN THE WALL.
- PROVIDE TAPPING BOSS WITH TAPPED CONNECTION FOR PRESSURE GAUGE ASSEMBLY INSTALLATION. PROVIDE ASSEMBLY PIPING AND CAP PIPING AFTER REDUCING BUSHING.
- COORDINATE RELOCATION OF EXISTING 3/4" WATER LINE TO SUIT LOCATION OF NEW VFDs AND GRATED WALKWAY.
- THE CROSSOVER STAIRS SHALL NOT BE ANCHORED TO THE SLAB.
- RELOCATE EXISTING GATE VALVES ADJACENT TO EXISTING SURGE VALVES. REUSE EXISTING 4" DIP SPOOL PIECE. ROTATE VALVES TO ALLOW FOR ACCESS AND TO AVOID CONFLICT WITH NEW ELECTRICAL CONDUIT. PROVIDE NEW FLANGE HARDWARE.
- REPLACE EXISTING WATER PUMP IMPELLERS WITH NEW IMPELLERS SIZED TO MATCH IMPELLER SIZE IN NEW WATER PUMP NO. 3. COORDINATE WITH PUMP MANUFACTURER AND PROVIDE NEW SEALS, BEARINGS, HOUSINGS, SHAFTS, WEAR PARTS, AND OTHER NECESSARY COMPONENTS TO COMPLETE INSTALLATION OF REPLACEMENT ROTATING ELEMENT.



- NOTES:**
- ONE FLANGE CONNECTION IS SHOWN FOR CLARITY. DETAIL IS TYPICAL FOR BOTH FLANGES.
 - IF PLATE IS REQUIRED TO BE MOUNTED ON REVERSE SIDE OF FLANGE, PROVIDE A PIPE SLEEVE AND WASHER ON THE END OF THE TIE ROD SO THAT THE MAXIMUM CLEARANCE BETWEEN THE SLEEVE AND THE FLANGE CAN BE MAINTAINED.
 - FLANGE SURFACE IN CONTACT WITH LUG PLATE SHALL BE GROUND SMOOTH TO CLEAR THE CASTING IRREGULARITY AND EMBOSSED LETTERING. CONTACT SURFACE OF LUG PLATE SHALL BE MACHINED TO A ONE DEGREE TAPER FOR PIPE DIAMETERS 12-INCH AND LARGER.
 - MATERIALS SHALL BE AS FOLLOWS:
 ROD MATERIAL - ASTM A193, GRADE B7
 PLATE MATERIAL - ASTM A36
 SLEEVE MATERIAL - SCHEDULE 40 STEEL PIPE

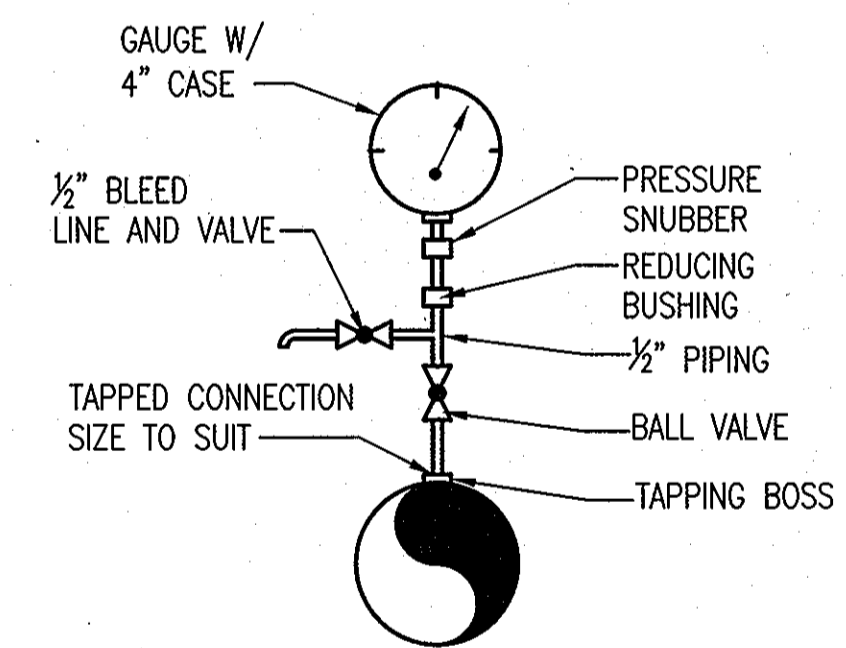
PIPE SIZE	NUMBER OF RODS	DIAMETER OF RODS	PLATE THICKNESS	PIPE SLEEVE (IF REQUIRED)	DESIGN PRESSURE PSI
12"	4	3/8"	1"	7/8"	150
14"	4	3/8"	1"	7/8"	150

A TIE ROD DETAIL
SCALE: NONE



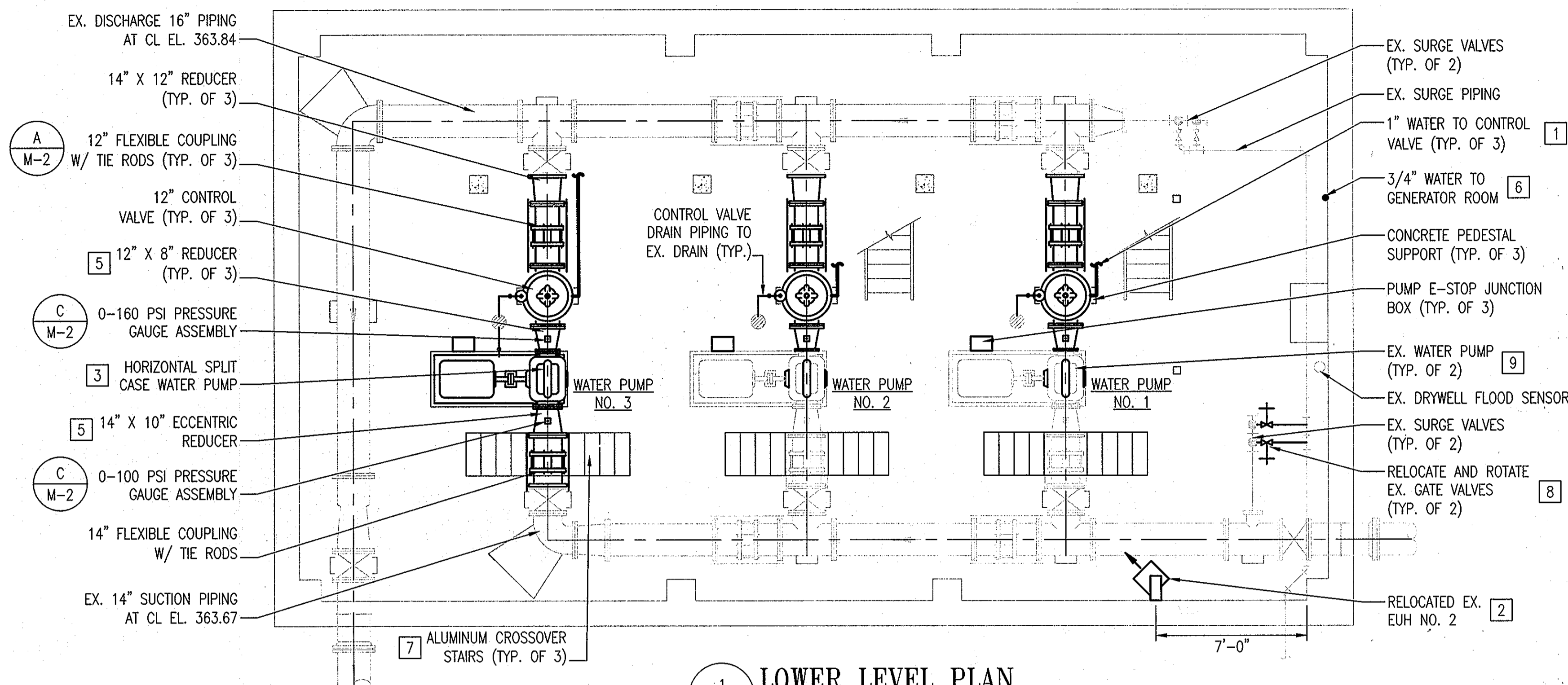
- NOTES:**
- FRAME AND PLATE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
 - ALL DAMPERS SHALL MATCH IN NOMINAL SIZE WITH THEIR RESPECTIVE LOUVERS UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. SEAL AS REQUIRED.

B EXHAUST FAN DETAIL
SCALE: NONE

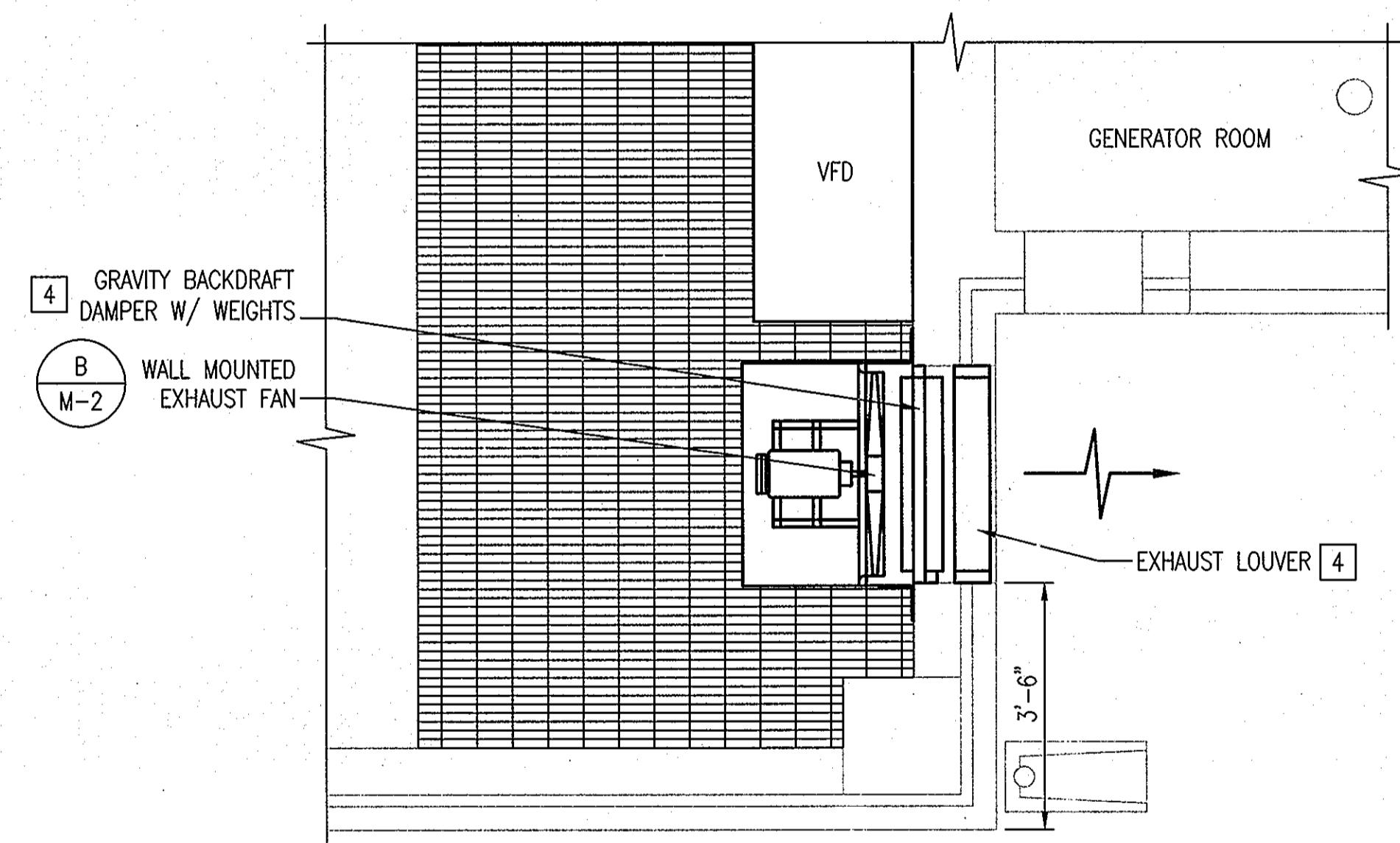


- NOTES:**
- SEE PLANS AND SCHEMATICS FOR QUANTITIES AND RANGES.

C PRESSURE GAUGE DETAIL
SCALE: NONE



1 LOWER LEVEL PLAN
SCALE: 1/4" = 1'-0"



2 ENLARGED UPPER LEVEL PLAN
SCALE: 1/2" = 1'-0"

FAN SCHEDULE

UNIT ID	TYPE	DRIVE	TOTAL CAPACITY CFM	TOTAL S.P. IN W.C.	MAX. FAN RPM	ELECTRICAL CHARACTERISTICS VOLTS/PH/Hz	MAX. MOTOR HP	DAMPER	(LOCATION, CLASSIFICATION, ETC.)
EF NO.1	P	B	5,300 (MIN.)	0.53"	1,050	480/3/60	1.0	GBD	MEZZANINE LEVEL, GBD W/ COUNTERWEIGHTS

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 10009, EXPIRATION DATE: 9/2/2014."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

[Signature] 1/20/13
DIRECTOR OF PUBLIC WORKS DATE

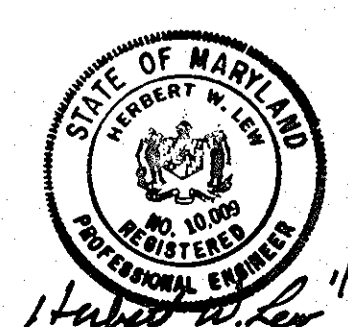
[Signature] 1/20/13
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



DES:	JMR			
DRN:	JMR			
CHK:	LAP			
DATE:	1/2013	BY:	NO.	REVISION

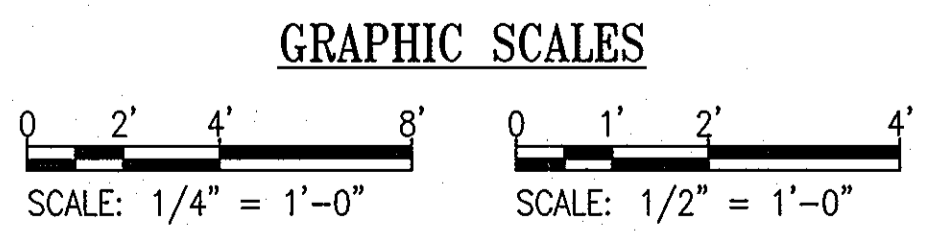
PLANS AND DETAILS

600' SCALE MAP NO. 24 BLOCK NO. 2&3

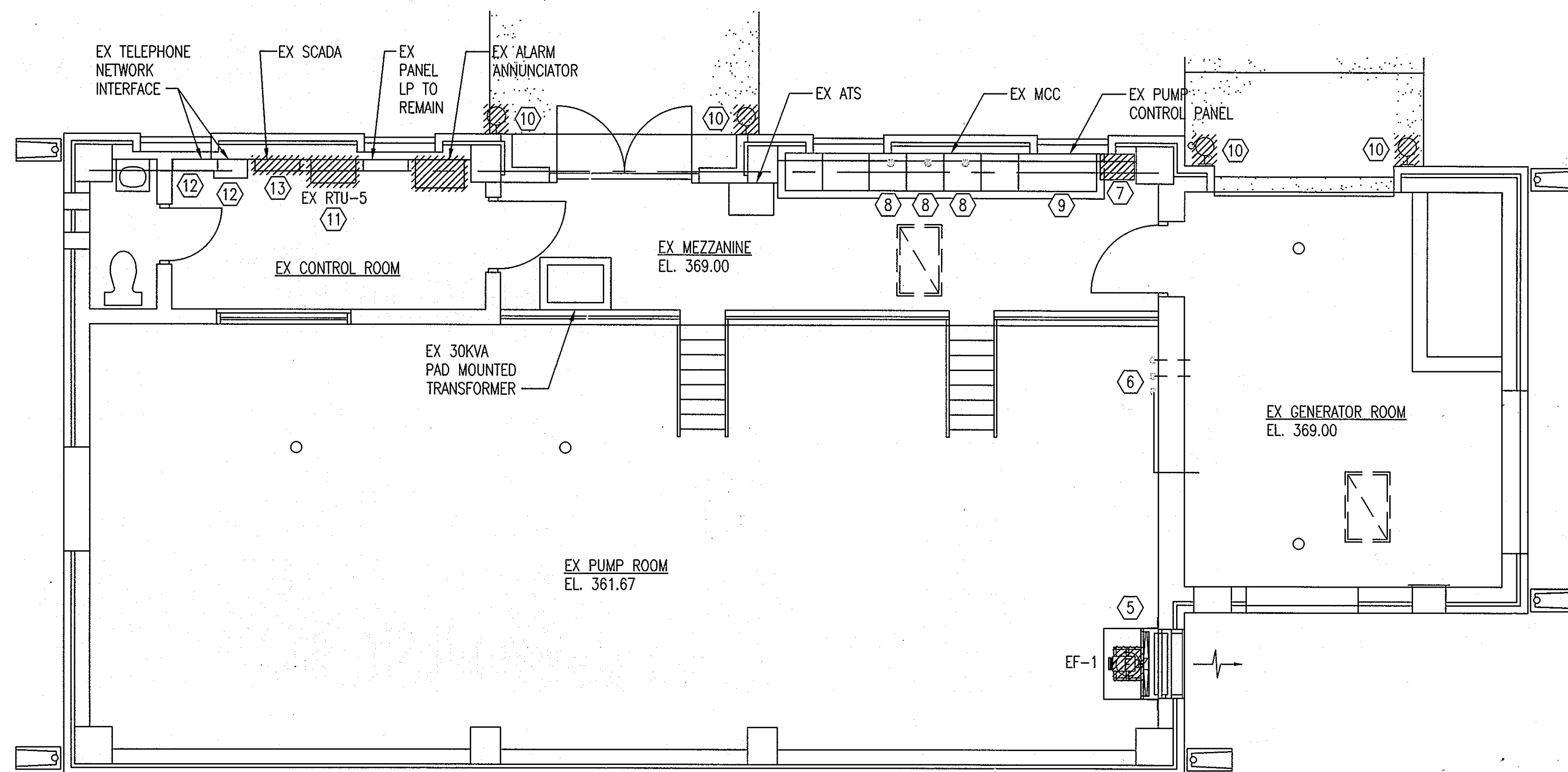
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

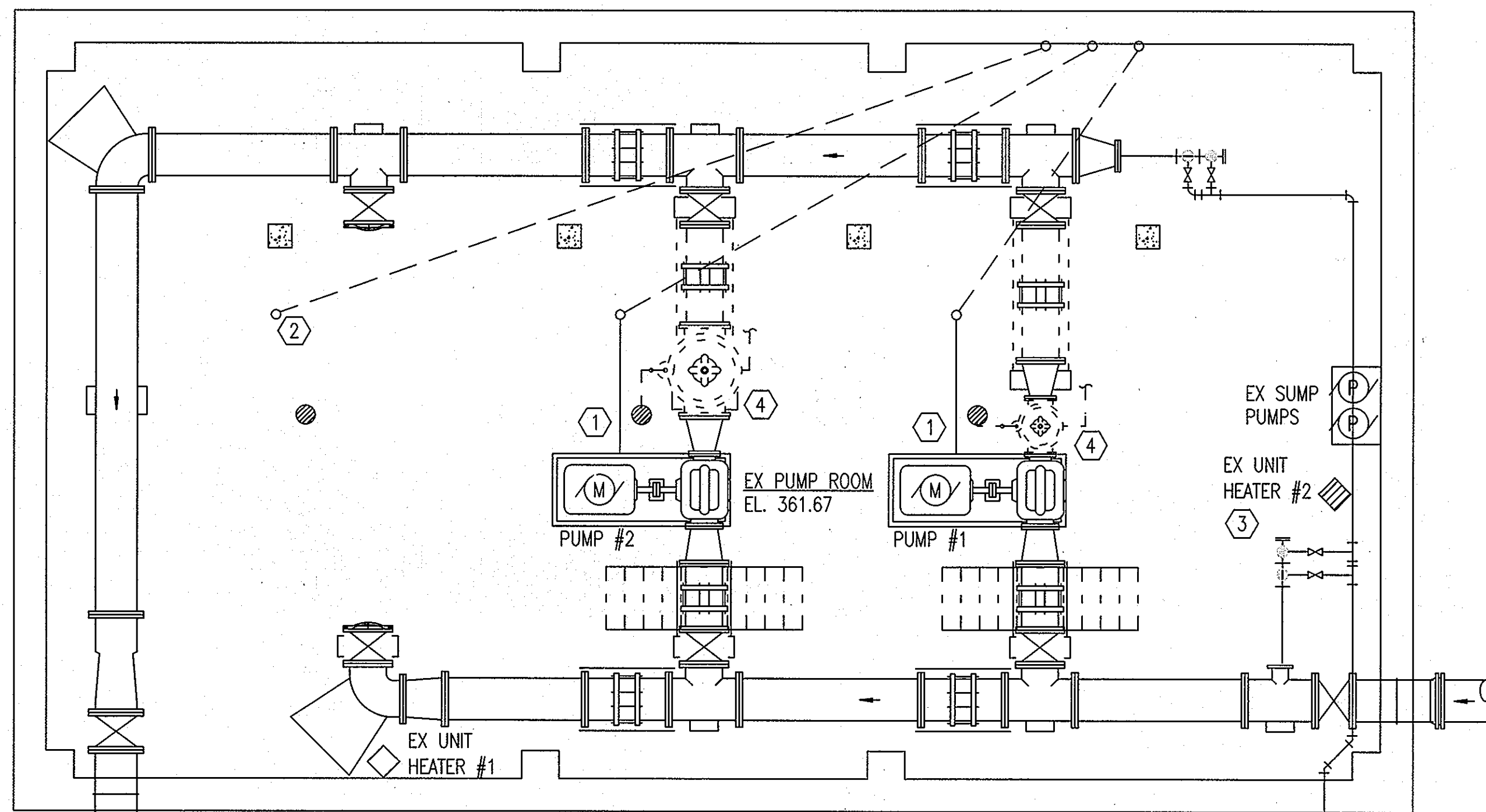
SCALE AS SHOWN
SHEET
14 OF 23



FILENAME: N:\3992-001\CAD\03\992001H-02.DWG



1 ELECTRICAL MEZZANINE PLAN - DEMOLITION
E-1 SCALE: 1/4" = 1'-0"



2 ELECTRICAL LOWER LEVEL PLAN - DEMOLITION
E-1 SCALE: 1/4" = 1'-0"

ELECTRICAL ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUTOXFMR	AUTOTRANSFORMER
C	CONDUIT, COLUMN
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONN	CONNECTION OR CONNECT
DET	DETAIL
DWG	DRAWING
ELECT	ELECTRICAL
EX.	EXISTING
HZ	HERTZ
JB	JUNCTION BOX
KW	KILOWATT
KVA	KILOVOLT AMPERE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MIN	MINIMUM
P	POLE
PB	PULL BOX
PL	PANEL
Ø	PHASE
PWR	POWER
PVC	POLYVINYL CHLORIDE
REC/RECP	RECEPTACLE
RMC	RIGID METAL CONDUIT
RTU	REMOTE TERMINAL UNIT
SSRV	SOLID STATE REDUCED VOLTAGE
SW	SWITCH
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS

ELECTRICAL LEGEND

EXISTING	NEW	DESCRIPTION
(S)	(S)	STARTER
(VFD)	(VFD)	VARIABLE FREQUENCY DRIVE (VFD)
(SSRV)	(SSRV)	SOLID STATE REDUCED VOLTAGE STARTER
(G)	(G)	GENERATOR
(M)	(M)	MOTOR; HP AS NOTED
(F)	(F)	FAN
(P)	(P)	PUMP
(T)	(T)	THERMOSTAT
(V)	(V)	VOLTMETER
(A)	(A)	AMMETER
(GND)	(GND)	GROUND
(FUSE)	(FUSE)	FUSE
(PT)	(PT)	POTENTIAL TRANSFORMER
(CT)	(CT)	CURRENT TRANSFORMER
(CSM)	(CSM)	CONDUIT SURFACE MOUNTED
(CUL)	(CUL)	CONDUIT UNDER FLOOR SLAB OR EMBEDDED
(CB)	(CB)	CIRCUIT BREAKER
(LW)	(LW)	LINEWEIGHT; HEAVY FOR NEW EQUIPMENT
(CUP)	(CUP)	CONDUIT UP
(CDN)	(CDN)	CONDUIT DOWN
(X)	(X)	EXISTING ELECTRICAL EQUIPMENT TO BE DEMOLISHED
(NO)	(NO)	NORMALLY OPEN CONTACT
(OR)	(OR)	OVERLOAD RELAY

GENERAL DEMOLITION NOTES:

- COORDINATE WORK SCHEDULE WITH COUNTY REPRESENTATIVE. DISCONNECT POWER TO PUMP MOTORS. REMOVE AUTOTRANSFORMER, CABLES, CAPACITOR, & CONDUIT FOR PUMP MOTORS #1 & 2.
 - ELECTRICAL DEVICES SHOWN ARE EXISTING TO REMAIN, UNLESS OTHERWISE NOTED.
- DEMOLITION NOTES:**
- DISCONNECT AND REMOVE EXISTING CABLES IN 2" CONDUIT EMBEDDED IN CONCRETE FLOOR FROM MCC TO MOTOR, CONDUITS TO BE REUSED.
 - EXISTING 2" SPARE CONDUIT AND STUB UP FOR PUMP #3 TO REMAIN.
 - EXISTING UNIT HEATER #2 TO BE RELOCATED. TURN OFF POWER, DISCONNECT WIRING AND STORE FOR FUTURE USE.
 - REMOVE ALL 120VAC CONTROLS INCLUDING CONDUIT AND WIRE BACK TO THE MCC, "STOP", JUNCTION BOX AND EQUIPMENT STAND.
 - TURN OFF BREAKER AND DISCONNECT TERMINAL WIRING TO EXISTING EXHAUST FAN AND INTAKE DAMPER. EXISTING CONDUCTORS AND CONDUITS TO BE REUSED.
 - SEE M-2 FOR PIPING RELOCATION.
 - EXISTING VFD (SAFRONICS FP5 VARIABLE TORQUE INVERTER) TO BE REMOVED AND RETURNED TO THE COUNTY. ELECTRICAL CONTRACTOR TO COORDINATE PUMP STATION OPERATION WITH COUNTY PRIOR TO DEMOLITION. WORK TO BE COORDINATED TO AVOID PUMP STATION SHUTDOWN. ONE PUMP TO BE OPERATIONAL AND ONE PUMP ON STAND BY AT ANY GIVEN TIME.
 - REMOVE EXISTING POWER FACTOR CORRECTION CAPACITOR LOCATED ON TOP OF MCC.
 - PUMP CONTROL PANEL TO BE REMOVED UPON STARTUP OF NEW STATION. CONTRACTOR TO COORDINATE PUMP STATION OPERATION WITH COUNTY PRIOR TO DEMOLITION.
 - REMOVE EXISTING LUMINARIES. OUTLET BOX, WIRING, AND CB TO REMAIN.
 - DEMOLISH ALL CONDUIT AND WIRE FROM PANELS TO ASSOCIATED FIELD DEVICES. PRESERVE EXISTING CONDUIT TO SUCTION AND DISCHARGE PRESSURE, AND FLOW TRANSMITTERS.
 - CONTRACTOR TO PRESERVE EXISTING TELEPHONE LINE NETWORK INTERFACE CONNECTION FOR USE WITH NEW SCADA RTU.
 - CONTRACTOR SHALL PRESERVE THE EXISTING QUINDAR QEI MODULES IN EXISTING SCADA SYSTEM TERMINAL CABINET AND TURN EQUIPMENT OVER TO COUNTY.

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH:410-356-1095 FAX:410-363-4675
E-MAIL: mail@deind.com



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 8050, EXPIRATION DATE: 08/19/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Director of Public Works: *James P. Dhillon* 1/24/13
Date: 1/24/13

Chief, Bureau of Engineering: *James P. Dhillon* 1/14/13
Date: 1/14/13

Chief, Utility Design Division: *James P. Dhillon* 1/14/13
Date: 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

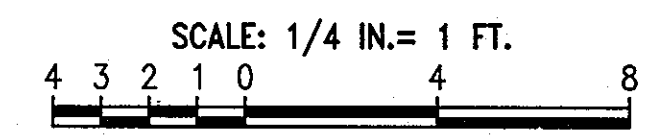
WR&A

DES:	RG				
DRN:	OM				
CHK:	RK				
DATE:	1/2013	BY:	NO.	REVISION	DATE

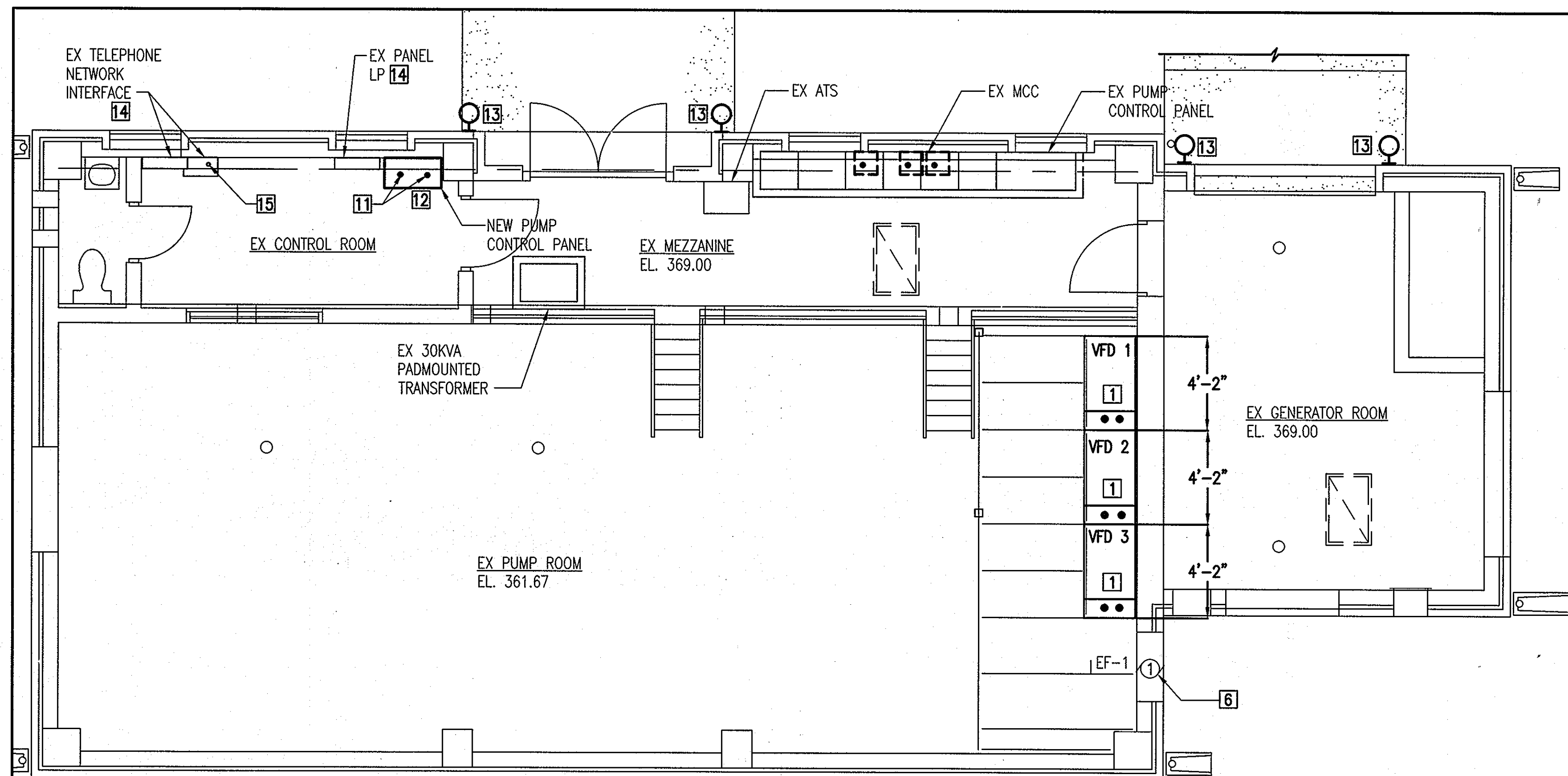
ELECTRICAL LEGEND, MEZZANINE AND LOWER LEVEL PLANS - DEMOLITION

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

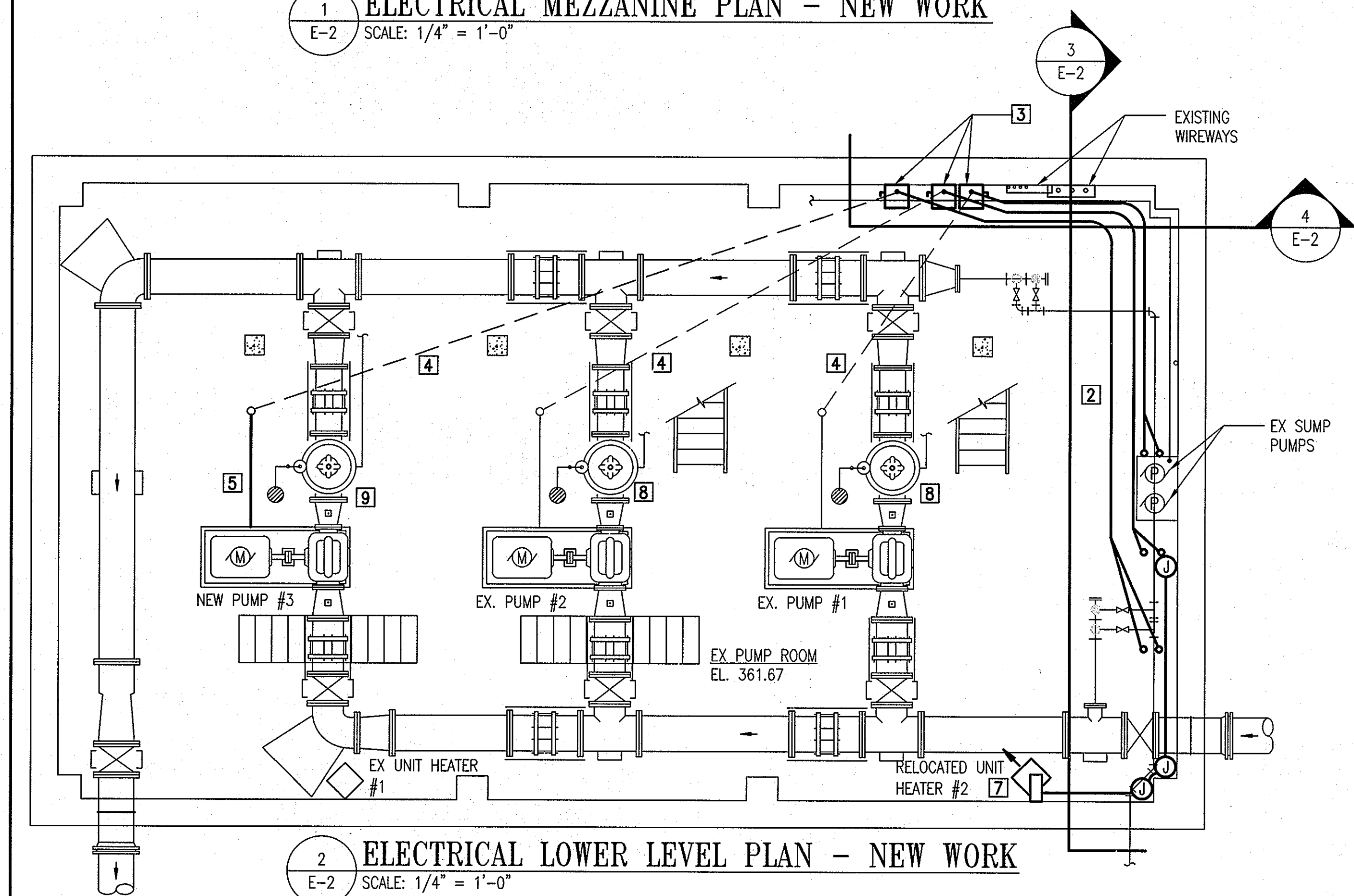
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND



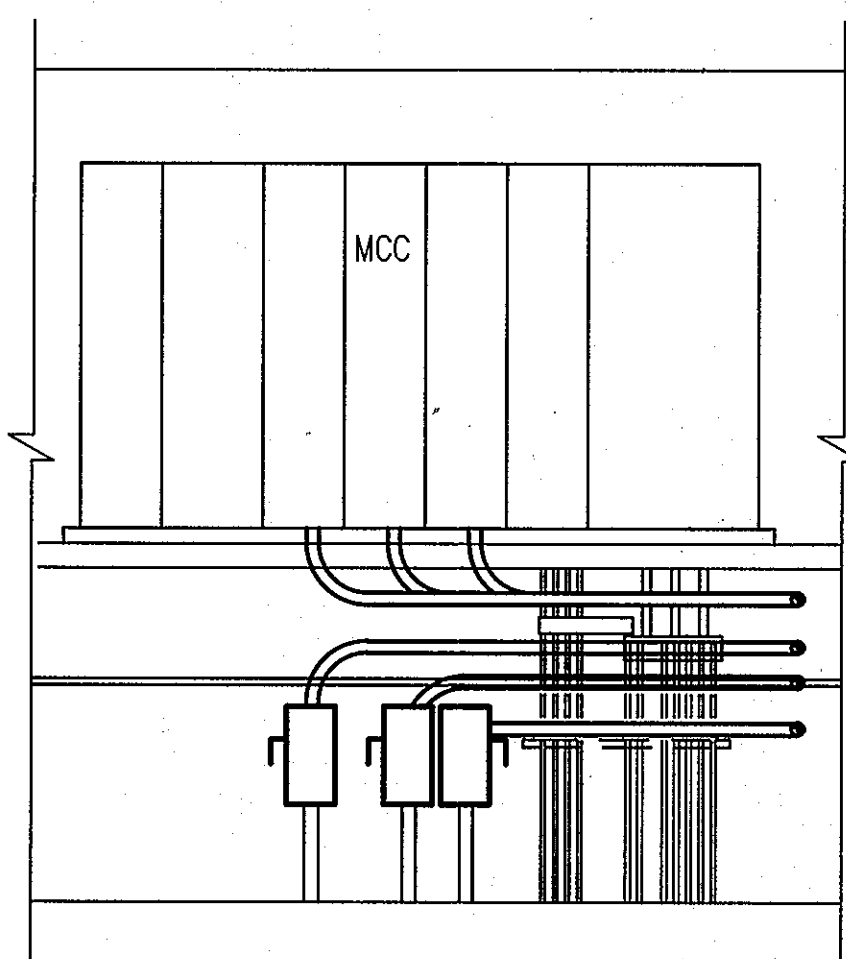
E-1
SCALE AS SHOWN
SHEET
15 OF 23



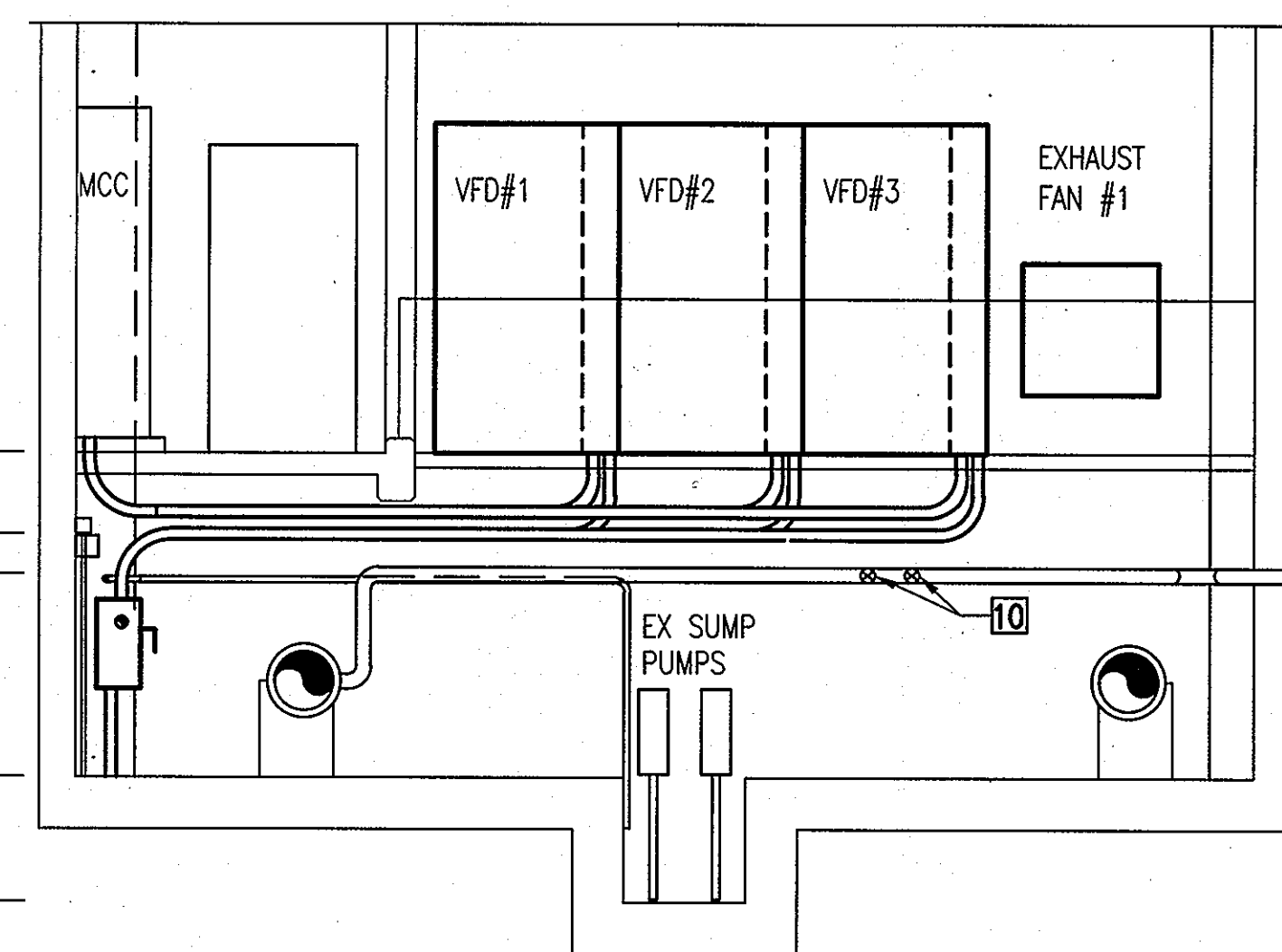
1 ELECTRICAL MEZZANINE PLAN - NEW WORK
E-2 SCALE: 1/4" = 1'-0"



2 ELECTRICAL LOWER LEVEL PLAN - NEW WORK
E-2 SCALE: 1/4" = 1'-0"



4 ELEVATION
E-2 SCALE: 1/4" = 1'-0"



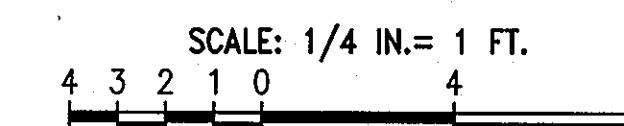
3 ELEVATION
E-2 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

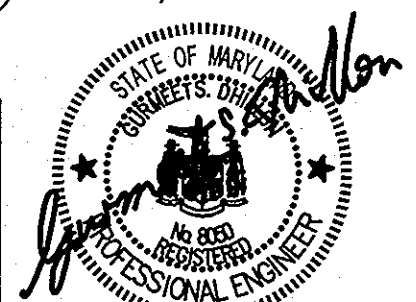
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE AND APPLICABLE CODES, RULES AND REGULATIONS.
- ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED, WIRED AND GROUNDED IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF NATIONAL ELECTRICAL CODE (NEC).
- CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH OTHER EQUIPMENT. EXPOSED CONDUITS SHALL BE RUN ON THE WALLS HORIZONTALLY AND VERTICALLY.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO EQUIPMENT.
- CONDUIT ENDS SHALL BE SUITABLY SEALED TO PREVENT TRANSMISSION OF MOISTURE THROUGH CONDUITS FROM ONE EQUIPMENT TO ANOTHER.
- CONDUITS AND WIRES SHALL BE SIZED IN ACCORDANCE WITH NEC UNO.
- CONDUITS INSTALLED EXPOSED ON EXTERIOR/INTERIOR OF BUILDING SHALL BE GALVANIZED POLYURETHANE COATED RMC.
- ALL WALL AND FLOOR PENETRATIONS FOR ELECTRICAL CONDUITS SHALL BE CORE DRILLED. PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES.
- THIS IS A MODIFICATION JOB, CONTRACTOR SHALL VERIFY DIMENSIONS IN THE FIELD.
- IF CONTRACTOR SHALL HAVE TO CUT EXISTING CONCRETE SLABS TO REMOVE/INSTALL ELECTRICAL CONDUITS, IN SUCH OCCURRENCES CONTRACTOR SHALL REPAIR EXISTING STRUCTURE TO MATCH THE ORIGINAL CONDITION.
- ALL NEW ITEMS ARE SHOWN IN BOLD PRINT AND EXISTING ITEMS IN LIGHT PRINT.
- UPDATE PANEL INDEX TO REFLECT NEW WORK.
- PROVIDE ARC FLASH HAZARD WARNING LABELS REQUIRED PER NEC 110.16.
- PROVIDE AVAILABLE FAULT CURRENT LABEL INFORMATION ON SERVICE BREAKERS A2 AND A3, REQUIRED AS PER NEC 110.24. CONTACT BGE FOR GETTING LATEST FAULT CURRENT VALUES.
- CONTRACTOR TO MAKE ADJUSTMENTS AND MODIFICATIONS BASED ON PLATFORMS ACTUAL STRUCTURAL FIELD CONDITIONS FOR PROPER INSTALLATION OF VFDs AND WIRING.
- CONTRACTOR SHALL MAKE SURE TO PROVIDE VFD UNITS THAT WOULD FIT IN THE PLATFORM PROVIDED COMPLYING WITH NEC CLEARANCES. ANY ADJUSTMENTS AND MODIFICATIONS AS A RESULT WOULD NOT ADD ANY COST TO THE OWNER.

CONSTRUCTION NOTES:

- PROVIDE NEW VFDs - 460V, 100HP, 60HZ, 124A, 18 PULSE. PERFORMANCE MEETING STANDARD IEEE 519 FOR HARMONICS WITH SSRV BYPASS STARTERS IN NEMA 12 ENCLOSURE FOR PUMP MOTORS #1, #2, & #3. THE VFDs SHALL BE LABELED BY A RECOGNIZED TESTING LABORATORY SUCH AS UL.
- PROVIDE 3-#4/0 AWG & 1-#1/0 AWG GND COPPER CABLES SUITABLE FOR VFD OPERATION IN 2" CONDUIT FROM NEW PULLBOX TO NEW VFD. DISCONNECT TO BE INTERLOCKED WITH VFD'S EXTERNAL FAULT INPUT OR STOP UNIT SO THAT IF THE DEVICE IS OPENED WHILE THE VFD IS RUNNING, IT WILL SHUT OFF THE OUTPUT OF THE VFD. IF WIRED TO THE VFD'S STOP INPUT, THE STOP METHOD MUST BE SET TO COAST. USE 2 #12 AND #12G IN 3/4" C. PROVIDE 120V FOR SIGNAL WIRING FROM VFD TO DISCONNECT. USE CIRCUITS LP-13, LP-15 AND LP-24 FOR VFD'S 1, 2, AND 3, RESPECTIVELY. PROVIDE NEW 1P, 20A CIRCUIT BREAKERS. CONDUIT RUNS TO BE FIELD COORDINATED TO AVOID CONFLICT WITH NEW AND EXISTING PIPING AND EQUIPMENT.
- CUT EXISTING CONDUIT AND PROVIDE 200A, 3P, 600V, NEMA 4 NON-FUSED DISCONNECT IN PUMP ROOM FOR VFD WIRING TO PUMP MOTOR. ELECTRICAL CONTRACTOR TO COORDINATE REROUTING OF EXISTING COPPER PIPE WITH MECHANICAL WORK IN FRONT OF PROPOSED LOCATION OF THE DISCONNECTS.
- EXISTING 2" CONDUIT EMBEDDED IN CONCRETE TO BE REUSED FOR WIRING VFD AND PUMP MOTOR.
- EXTEND CONDUIT FROM STUB UP TO PUMP MOTOR WIRING.
- CONNECT NEW EXHAUST FAN AND INTAKE DAMPER TO EXISTING CIRCUIT.
- RECONNECT RELOCATED UNIT HEATER #2. EXTEND EXISTING CIRCUIT TO NEW LOCATION.
- RECONNECT 120V CIRCUIT TO NEW CONTROL VALVE.
- PROVIDE NEW 120V CIRCUIT TO NEW CONTROL VALVE. USE 2#12 AND #12G IN 3/4" C. CONNECT TO CIRCUIT LP-25. REUSE EXISTING CB.
- COORDINATE CONDUITS AND GATE VALVE CLEARANCES WITH MECHANICAL WORK.
- EXISTING FLOOR PENETRATION TO BE REUSED FOR NEW INSTRUMENTATION PANEL. PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES OF PENETRATIONS.
- CONNECT TO LP-30. PROVIDE NEW 1P, 20A BREAKER, 2-#12 AND #12G IN 3/4" CONDUIT.
- PROVIDE NEW LUMINARIES, PROGRESS #P5737-31 OR APPROVED EQUAL WITH 15W, MEDIUM BASE, SPIRAL COMPACT FLUORESCENT. REUSE EXISTING OUTLET BOX, WIRING AND CIRCUIT BREAKER. MAINTAIN EXISTING LIGHTING CONTROL.
- PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES OF EXISTING PENETRATIONS.
- EXISTING CORE DRILLED HOLE TO BE PATCHED TO MATCH EXISTING SURFACE.



DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH: 410-356-1095 FAX: 410-363-4675
E-MAIL: mail@deldmd.com



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 8050, EXPIRATION DATE: 08/19/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: *John G. ...* 1/29/13
Chief, Bureau of Utilities: *Shirley ...* 1/28/13
Chief, Utility Design Division: *Thomas & ...* 1-14-13

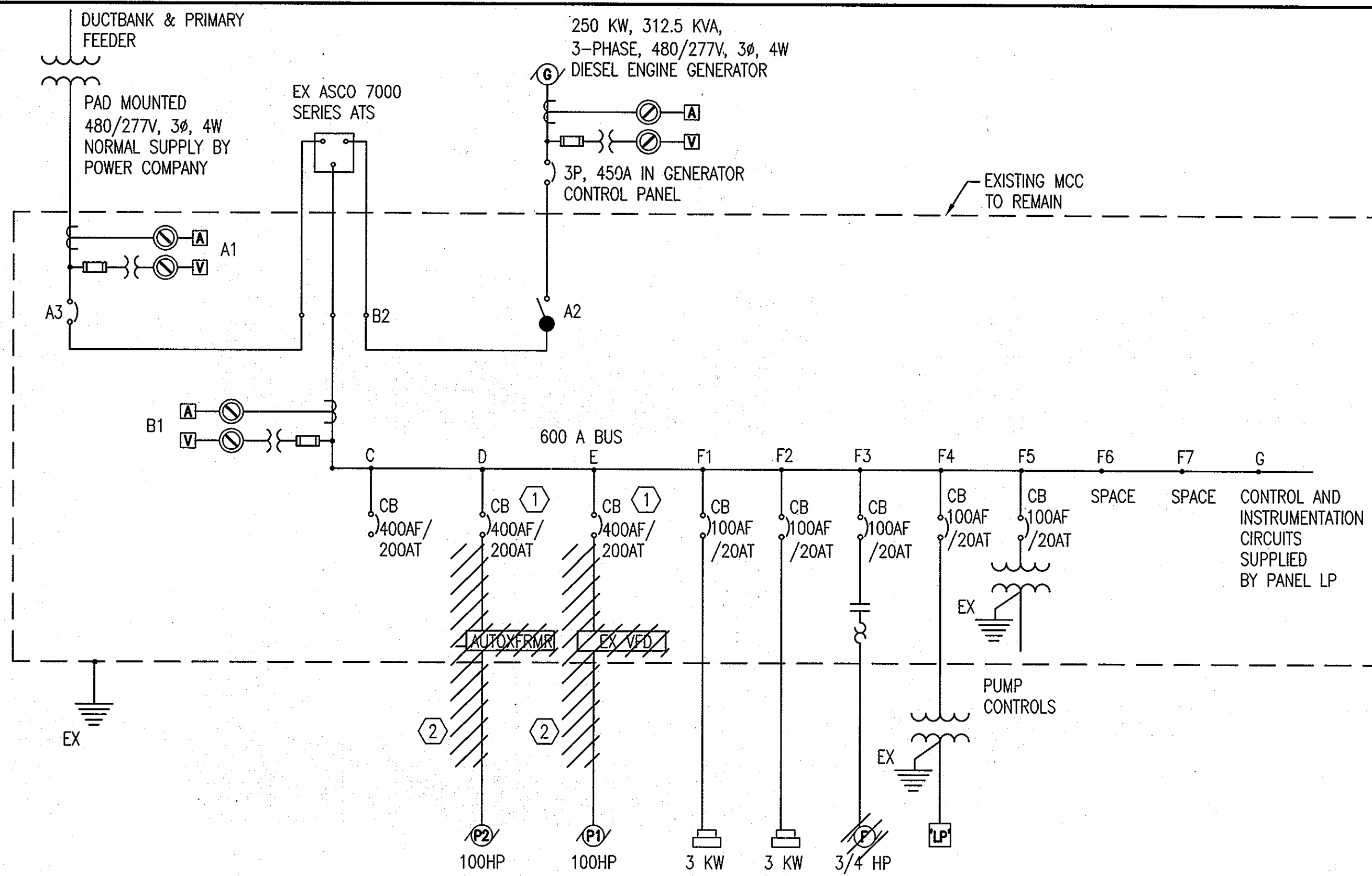
PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A

DES:	RG				
DRN:	OM				
CHK:	RK				
DATE:	1/2013				
BY:	NO.	REVISION	DATE		

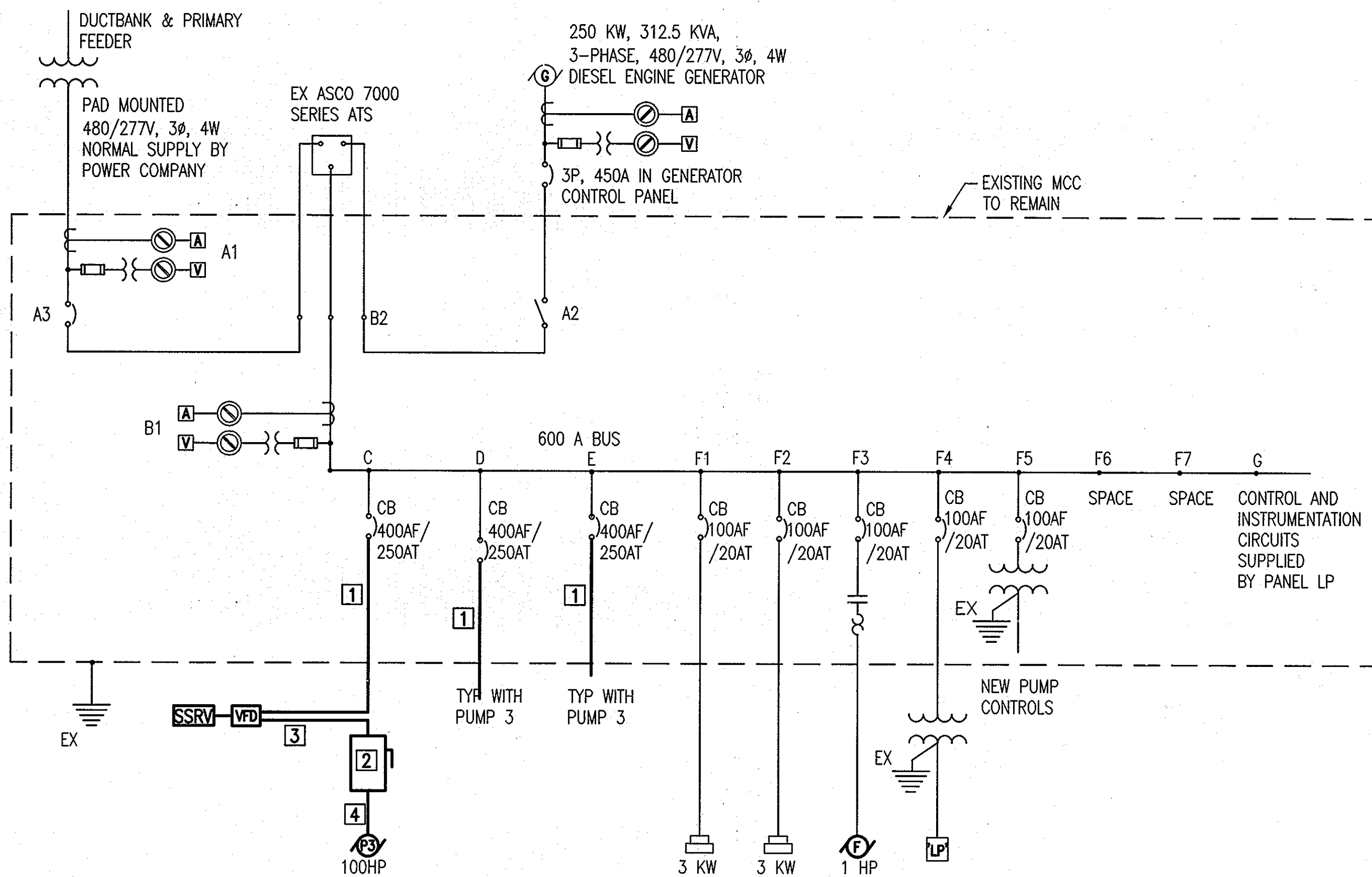
ELECTRICAL PLAN - NEW WORK
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

E-2
SCALE AS SHOWN
SHEET
16 OF 23



1 SINGLE LINE DIAGRAM - DEMOLITION
E-3 SCALE: NONE

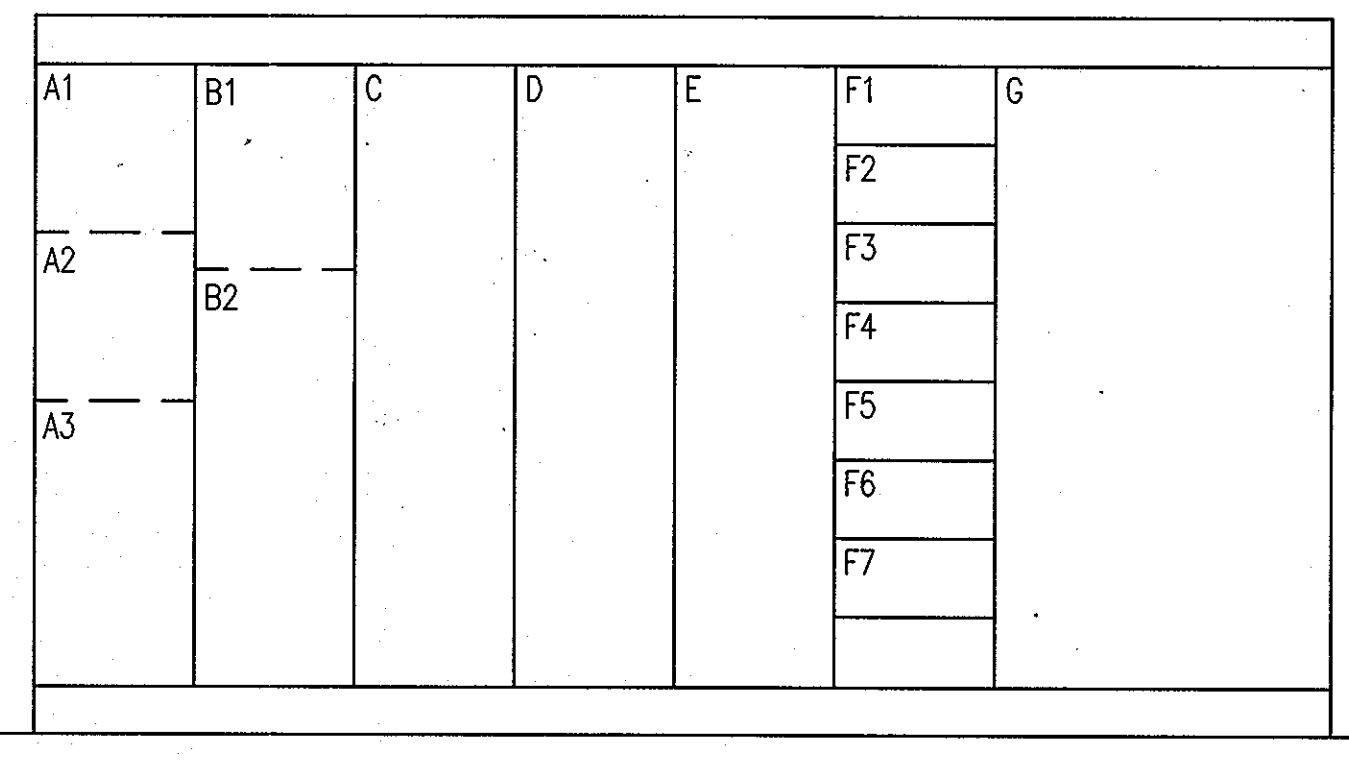


2 SINGLE LINE DIAGRAM - NEW WORK
E-3 SCALE: NONE

UNIT NO.	EQUIPMENT SERVED	LOAD	CIRCUIT BREAKER			NEMA START SIZE	AUXILIARIES	WIRING	CONDUIT	REMARKS
			POLES	TRIP	FRAME					
A1	UTILITY METERING	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
A2	GENERATOR SERVICE DISCONNECT	-	3	-	600AF	-	-	2(3#4/0 & 1#2/0G)	2 1/2"	MOLDED CASE SWITCH EXISTING TO REMAIN
A3	UTILITY SERVICE BREAKER	-	3	450AT	600AF	-	-	2(3#4/0 & 1#2/0G)	2 1/2"	EXISTING TO REMAIN
B1	MCC METERING	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
B2	AUTO TRANSFER SWITCH	-	3	-	-	-	-	-	-	EXISTING TO REMAIN
C	VFD NO. 3/WATER PUMP NO. 3	100HP	3	250AT	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
D	VFD NO. 2/WATER PUMP NO. 2	100HP	3	250AT [5]	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
E	VFD NO. 1/WATER PUMP NO. 1	100HP	3	250AT [5]	400AF	-	A,B,C,D, E,F,G,H,I	3#2/0 & 1#3G	2" [3]	SEE NEW WORK
F1	UNIT HEATER NO. 1	3.0 KW	3	20AT	400AF	-	-	-	3/4"	EXISTING TO REMAIN
F2	UNIT HEATER NO. 2	3.0 KW	3	20AT	100AF	-	-	-	3/4"	EXISTING TO REMAIN
F3	EXHAUST FAN NO. 1	1 HP	3	20AT	100AF	1	A,B,C,D	3#12 1#12G	3/4"	REUSE EX CB AND WIRING
F4	LIGHTING PANEL (LP) TRANSFORMER FEEDER BREAKER	30 KVA	3	60AT	100AF	-	-	3#6 1#10G	1"	EXISTING TO REMAIN
F5	MCC-G CPT FEEDER BREAKER	-	2	-	100AF	-	-	-	-	EXISTING TO REMAIN
F6	SPACE AND BUS	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
F7	SPACE AND BUS	-	-	-	-	-	-	-	-	EXISTING TO REMAIN
G	CONTROL/ INSTRUMENTATION PANEL	-	-	-	-	-	-	-	-	REFER TO P AND I DRAWINGS

- DEMOLITION NOTES:
- EXISTING BREAKER TO REMAIN UNLESS OTHERWISE NOTED.
 - REMOVE EXISTING CABLES, POWER FACTOR CORRECTION CAPACITOR, AND AUTOTRANSFORMER STARTER. REMOVE EXISTING CABLES FROM CIRCUIT BREAKER DOWNSTREAM TO THE PUMP MOTOR. EXISTING CONDUITS TO BE REUSED.

- CONSTRUCTION NOTES:
- REUSE EXISTING 2" CONDUIT FROM MCC TO NEW PULLBOX.
 - CUT EXISTING EMPTY CONDUIT TO ACCOMMODATE NEW DISCONNECT.
 - PROVIDE 2" CONDUIT FROM DISCONNECT UP TO NEW VFD.
 - PROVIDE 2" CONDUIT CONNECTION FROM DISCONNECT TO EXISTING STUB OUT FOR CONDUITS EMBEDDED IN CONCRETE.
 - ADJUST THE TRIP SETTING TO 250A.



3 EXISTING MOTOR CONTROL CENTER - ELEVATION
E-3 SCALE: 1/2" = 1'-0"

- MCC AUXILIARIES
- A - 480V TO 120V CONTROL POWER TRANSFORMER
 - B - RED (ON) INDICATING LIGHT
 - C - GREEN (OFF) INDICATING LIGHT
 - D - HAND/OFF/AUTOMATIC SELECTOR SWITCH
 - E - RUNNING TIME METER
 - F - VALVE POSITION INDICATING LIGHTS - GREEN(CLOSED), RED(OPEN), AMBER(FAILURE)
 - G - ALARM RESET PUSHBUTTON(S) - MOMENTARY CONTACT TYPE
 - H - AUXILIARY CONTROL/TIMING RELAY(S)
 - I - TACHOMETER

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, SUITE 204
OWINGS MILLS, MD 21117
PH:410-356-1095 FAX:410-363-4675
E-MAIL: mail@dhillon.com



"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 8050, EXPIRATION DATE: 08/19/2013."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Ray J. ... DIRECTOR OF PUBLIC WORKS
Allen ... CHIEF, BUREAU OF UTILITIES

Monica ... CHIEF, BUREAU OF ENGINEERING
... CHIEF, UTILITY DESIGN DIVISION

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A

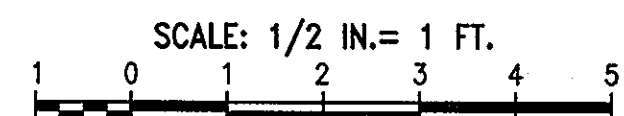
DES: RG
DRN: OM
CHK: RK
DATE: 1/2013

ELECTRICAL SINGLE LINE DIAGRAMS AND MCC SCHEDULES

DATE: 1/2013 BY NO. REVISION DATE: 600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



E-3
SCALE AS SHOWN
SHEET 17 OF 23

PROCESS AND INSTRUMENTATION

SYMBOLS

- FIELD MOUNTED DEVICE
- PANEL MOUNTED DEVICE
- INDICATING LAMP - X INDICATES LENS COLOR
R = RED, A = AMBER
G = GREEN, W = WHITE
- ABC - LETTERS INDICATE FUNCTION ACCORDING TO ISA SCHEDULE: 123 DIGITS IDENTIFY ASSOCIATED EQUIPMENT
- PROCESS FLOW
- ELECTRICAL SIGNAL
- INTERLOCK-PLC LOGIC OR HARDWIRED AS SHOWN ON DRAWINGS

EQUIPMENT SYMBOLS

- PUMP
- CHECK VALVE
- GATE VALVE
- REDUCER
- CONTROL VALVE W/ SOLENOID
- OPERATOR INTERFACE TERMINAL
- VFD/SOFT STARTER
PANEL MOUNTED KEYPAD
- NEW PIPING
- EXISTING PIPING

ABBREVIATIONS

- AI = ANALOG INPUT
- AO = ANALOG OUTPUT
- AUTO = AUTOMATIC
- ATS = AUTOMATIC TRANSFER SWITCH
- BP = BOOSTER PUMP
- CBP = COUNTY BOOSTER PUMP
- CIM = COMMUNICATION INTERFACE MODULE
- CPT = CONTROL POWER TRANSFORMER
- DI = DISCRETE INPUT
- DO = DISCRETE OUTPUT
- DPDT = DOUBLE POLE-DOUBLE THROW
- ETM = ELAPSE TIME METER
- HMI = HUMAN MACHINE INTERFACE
- I/O = INPUT/OUTPUT
- MPD = MOTOR PROTECTIVE DEVICE
- MOD = MOTOR OPERATED DAMPER
- NIC = NETWORK INTERFACE CONNECTION
- OIT = OPERATOR INTERFACE TERMINAL
- PLC = PROGRAMMABLE LOGIC CONTROLLER
- PVCC = PVC COATED
- RTU = REMOTE TELEMETRY UNIT
- SSRV = SOLID STATE REDUCED VOLTAGE
- TEMP = TEMPERATURE
- TSP = TWISTED SHIELDED PAIR
- TYP = TYPICAL
- VAC = VOLTS/ALTERNATING CURRENT
- VDC = VOLTS/DIRECT CURRENT
- VFD = VARIABLE FREQUENCY DRIVE
- WWPS = WASTEWATER PUMP STATION

MISCELLANEOUS

- # - DESIGNATION OF PLAN/SHEET NUMBER (1, 2, ETC.)
- X - DESIGNATION OF SECTION LETTER (A, B, ETC.)

INSTRUMENTATION IDENTIFICATION SCHEDULE

	FIRST LETTER		SUCCEEDING LETTER		
	VARIABLE	MODIFIER	PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTOMATIC
B	BREAKER		USER'S CHOICE	CLOSE OR STOP	BYPASS
C	COMMUNICATIONS			CONTROL	
D	DENSITY	DIFFERENTIAL		OPEN OR START	
E	VOLTAGE (EMF)		PRIMARY ELEMENT	SENSOR	
F	FLOW RATE	RATIO	FAIL	FAIL	FAIL
G	GAUGING		GLASS		LOCAL/MANUAL/HAND
H	HAND				HIGH OR OPEN
I	CURRENT		INDICATE		INTERMEDIATE
J	POWER	SCAN			
K	TIME	TIME RATE		CONTROL STATION	
L	LEVEL		LIGHT		LOW OR CLOSE
M	MOTOR	MOMENTARY	INPUT	MOTOR	MIDDLE
N	USER'S CHOICE			FORWARD	ON OR OPERATE
O				OFF	OVERLOAD
P	PRESSURE	PNEUMATIC	POINT (TEST)	POSITION	
Q	QUANTITY OR EVENT	TOTALIZE		EMERGENCY/ABNORMAL	
R	RADIOACTIVITY		RECORD OR PRINT	REMOTE	RUN
S	SPEED OR FREQUENCY	SUM	SWITCH	SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VARIABLE OR VISCOSITY			VALVE OR DAMPER	VFD / VALVE
W	WEIGHT OR FORCE		WELL		
X	MOD, LIGHT OR VALVE		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	INTERLOCK			RELAY OR COMPUTE	RESET
Z	POSITION			DRIVE OR ACTUATOR	

HAND SWITCHES

- SELECTOR SWITCH (MAINTAINED CONTACTS)
XXX = HOA : HAND-OFF-AUTO
- PUSHBUTTON (MOMENTARY CONTACTS)
XXX = RES : RESET
= ACK : ACKNOWLEDGE

INSTRUMENT, EQUIPMENT AND CONTROL DEVICE EXAMPLES

- FE = FLOW ELEMENT
- FIT = FLOW INDICATING TRANSMITTER
- PE = PRESSURE ELEMENT
- PIT = PRESSURE INDICATING TRANSMITTER
- TSH = TEMPERATURE SWITCH HIGH
- TSL = TEMPERATURE SWITCH LOW
- ZSC = POSITION SWITCH CLOSED
- ZSO = POSITION SWITCH OPEN
- FS = FLOW SWITCH
- LSL = LEVEL SWITCH LOW
- LSH = LEVEL SWITCH HIGH

ELEMENTARY WIRING SYMBOLS

- CONTROL RELAY
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- FUSE
- CIRCUIT BREAKER
- SELECTOR SWITCH
X00= REPRESENT THE NUMBER OF SWITCH POSITIONS
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- EMERGENCY STOP PUSH BUTTON
- PUSH-TO-TEST PILOT LIGHT
R=RED, G=GREEN, A=AMBER, W=WHITE
- PLC DISCRETE OUTPUT VIA INTERPOSING RELAY
- MOTOR
- TERMINAL BLOCK
- THERMOSTAT CLOSE ON RISING/TEMPERATURE
- NORMALLY OPEN LIMIT SWITCH
- NORMALLY CLOSE CONTACT TIMED OPEN
- NORMALLY CLOSE CONTACT TIMED OPEN
- FLOAT SWITCH
- MANUAL MOTOR STARTER WITH OVERLOAD AND SELECTOR SWITCH
- GROUND
- SOLENOID VALVE

GENERAL CIRCUIT/CONDUIT TAG IDENTIFICATION

TAG	CONDUIT SIZE	CONDUCTORS	NOTES
C-X (Y)	3/4" (X=2 THRU 18) 1" (X=19 THRU 30) 2" (X=31 THRU 100)	X-#14, 1-#12G	(Y) DENOTES ADDITIONAL SPARES
P-X (Y)	3/4" (X=2 THRU 14) 1" (X=15 THRU 24) 2" (X=25 THRU 80)	X-#12, 1-#12G	(Y) DENOTES ADDITIONAL SPARES
TSP-X (Y)	3/4" (X=1,2) 1" (X=3,4) 2" (X=5 THRU 16)	X-#18 TWISTED SHIELDED PAIR	(Y) DENOTES ADDITIONAL SPARES
I-M	CONDUIT SIZE AS REQUIRED	CABLE AS PROVIDED OR RECOMMENDED BY EQUIPMENT MANUFACTURER. COORDINATE CONDUIT AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.	
TEL-X	CONDUIT SIZE AS REQUIRED	TELEPHONE LINE IN ACCORDANCE WITH EXISTING COUNTY BRIDGE CONNECTIONS. COORDINATE TELEPHONE LINE WITH VERIZON AND COUNTY B.O.U.	
TOTAL CONDUCTORS REQUIRED = X + Y			

PLAN SYMBOLS

- HOME RUN CONDUIT/CABLE
- JUNCTION BOX
- CONTROL ENCLOSURE
- PRESSURE SWITCH
- PRESSURE TRANSMITTER
- FLOW METER
- FLOW TRANSMITTER
- FLOAT LEVEL SWITCH
- LIMIT SWITCH
- TEMPERATURE SWITCH
- SOLENOID VALVE

SIGNAL LINE TYPES

- ETHERNET SIGNAL
- ANALOG SIGNAL
- DISCRETE SIGNAL

SIGNAL INTERFACE

- ANALOG INPUT
- ANALOG OUTPUT
- DISCRETE INPUT
- DISCRETE OUTPUT

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Janey Lee 1/22/13
DIRECTOR OF PUBLIC WORKS DATE

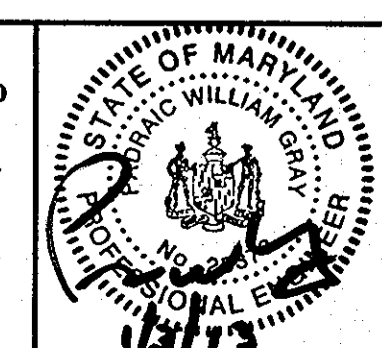
Shirley Chen 1/22/13
CHIEF, BUREAU OF UTILITIES DATE

Monica R. Butler 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

Debra 1/11/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



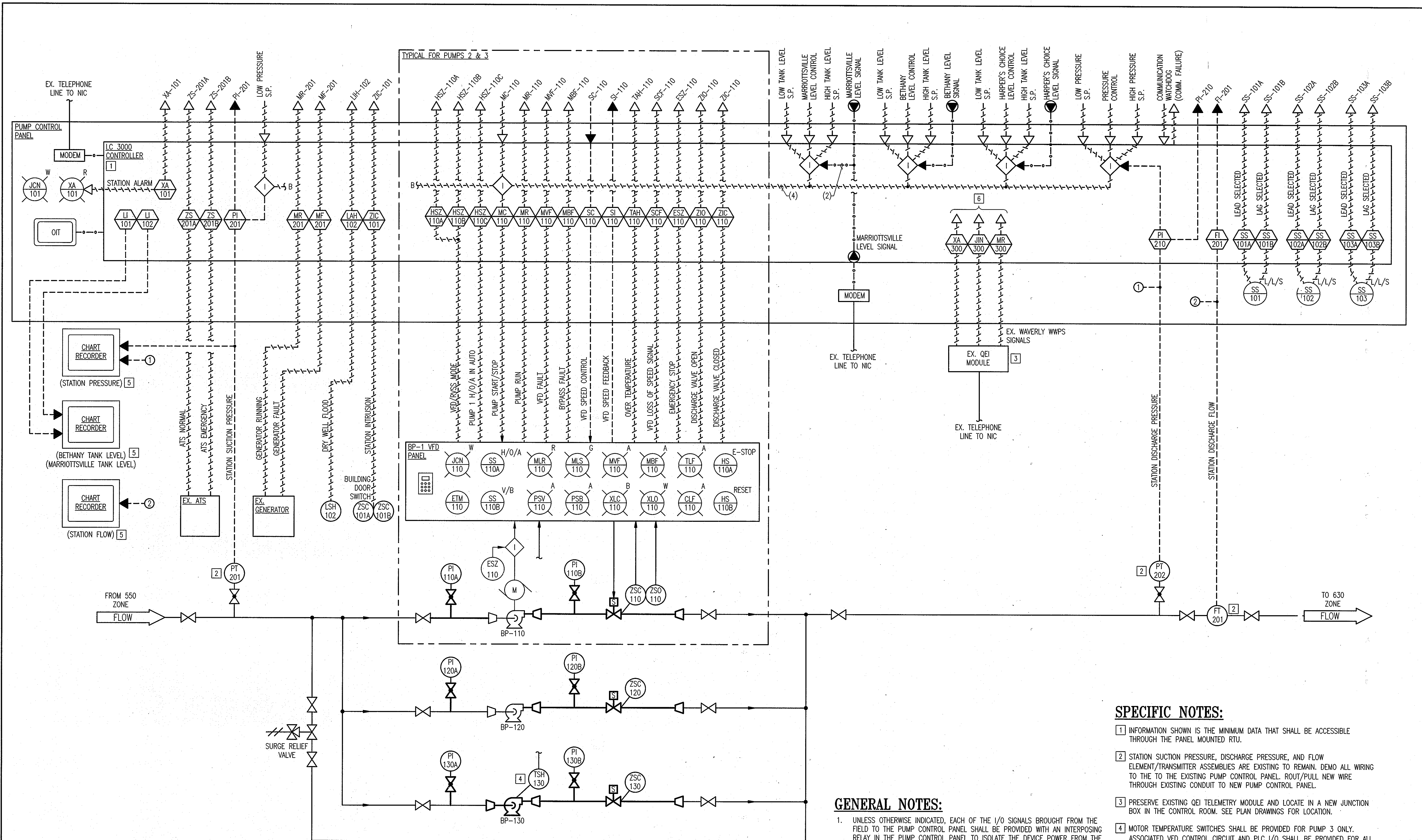
DES: GAH			
DRN: GAH			
CHK: PWG			
DATE: 1/2013	BY NO.	REVISION	DATE

INSTRUMENTATION SYMBOLS, SCHEDULE, AND LEGEND

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



SPECIFIC NOTES:

- 1 INFORMATION SHOWN IS THE MINIMUM DATA THAT SHALL BE ACCESSIBLE THROUGH THE PANEL MOUNTED RTU.
- 2 STATION SUCTION PRESSURE, DISCHARGE PRESSURE, AND FLOW ELEMENT/TRANSMITTER ASSEMBLIES ARE EXISTING TO REMAIN. DEMO ALL WIRING TO THE TO THE EXISTING PUMP CONTROL PANEL. ROUT/PULL NEW WIRE THROUGH EXISTING CONDUIT TO NEW PUMP CONTROL PANEL.
- 3 PRESERVE EXISTING QEI TELEMETRY MODULE AND LOCATE IN A NEW JUNCTION BOX IN THE CONTROL ROOM. SEE PLAN DRAWINGS FOR LOCATION.
- 4 MOTOR TEMPERATURE SWITCHES SHALL BE PROVIDED FOR PUMP 3 ONLY. ASSOCIATED VFD CONTROL CIRCUIT AND PLC I/O SHALL BE PROVIDED FOR ALL PUMPS.
- 5 ALL CHART RECORDERS TO BE LOCATED IN THE CONTROL ROOM.
- 6 WAVERLY WASTEWATER PUMP STATION SIGNALS TO SCADA.

GENERAL NOTES:

1. UNLESS OTHERWISE INDICATED, EACH OF THE I/O SIGNALS BROUGHT FROM THE FIELD TO THE PUMP CONTROL PANEL SHALL BE PROVIDED WITH AN INTERPOSING RELAY IN THE PUMP CONTROL PANEL TO ISOLATE THE DEVICE POWER FROM THE LC-150 CONTROL POWER.
2. ALL SIGNALS TO SCADA SHALL BE VIA LEASED TELEPHONE LINE TO COUNTIES EXISTING SCADA CENTRAL MONITORING SYSTEM.

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

Jay Lee 1/22/13
DIRECTOR OF PUBLIC WORKS DATE

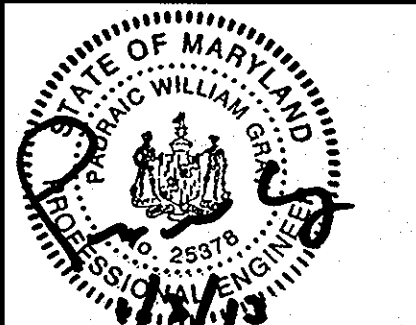
Mona S. Butler 1-14-13
CHIEF, BUREAU OF ENGINEERING DATE

Steve Olson 1/22/13
CHIEF, BUREAU OF UTILITIES DATE

Chad 1/14/13
CHIEF, UTILITY DESIGN DIVISION DATE

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231

WR&A



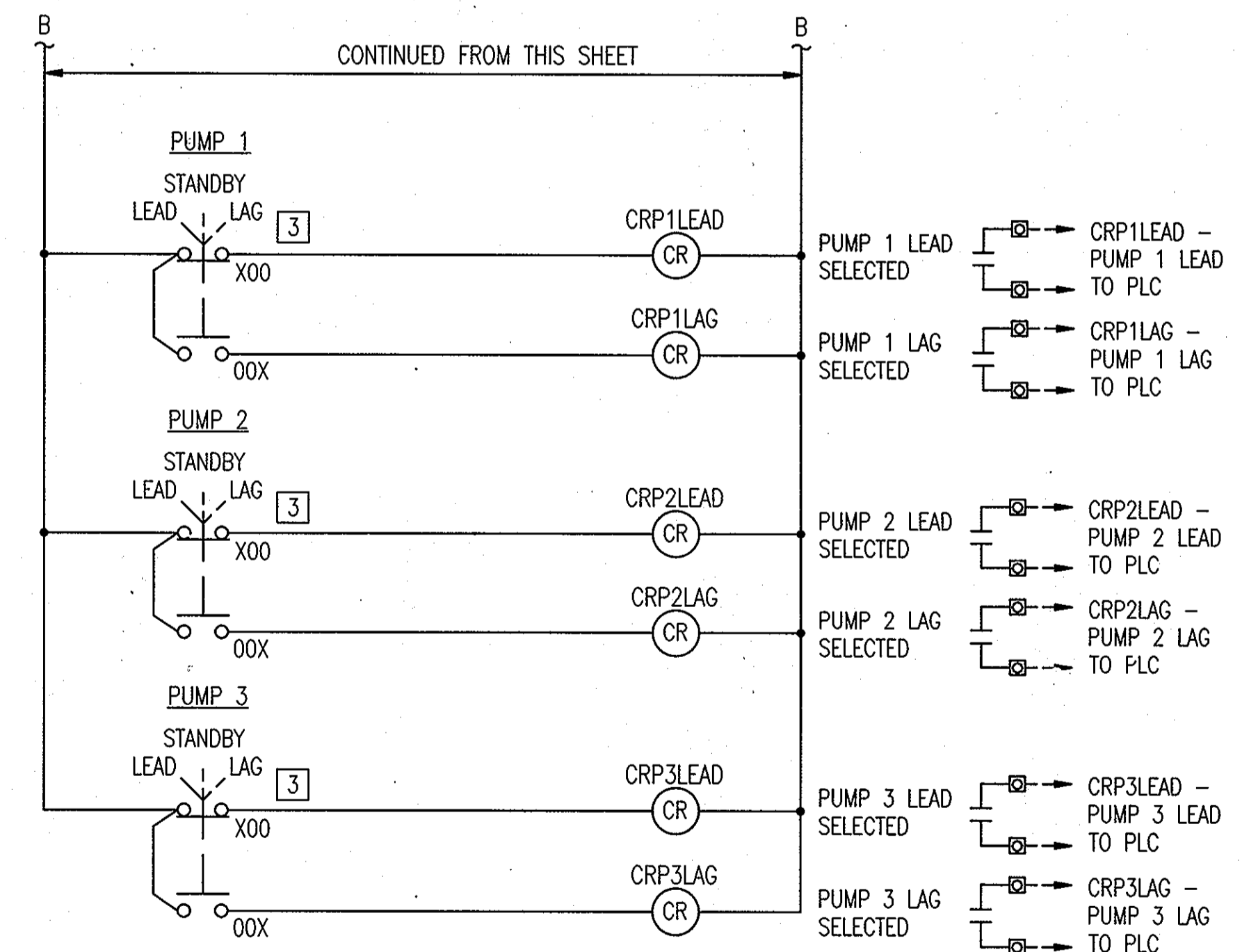
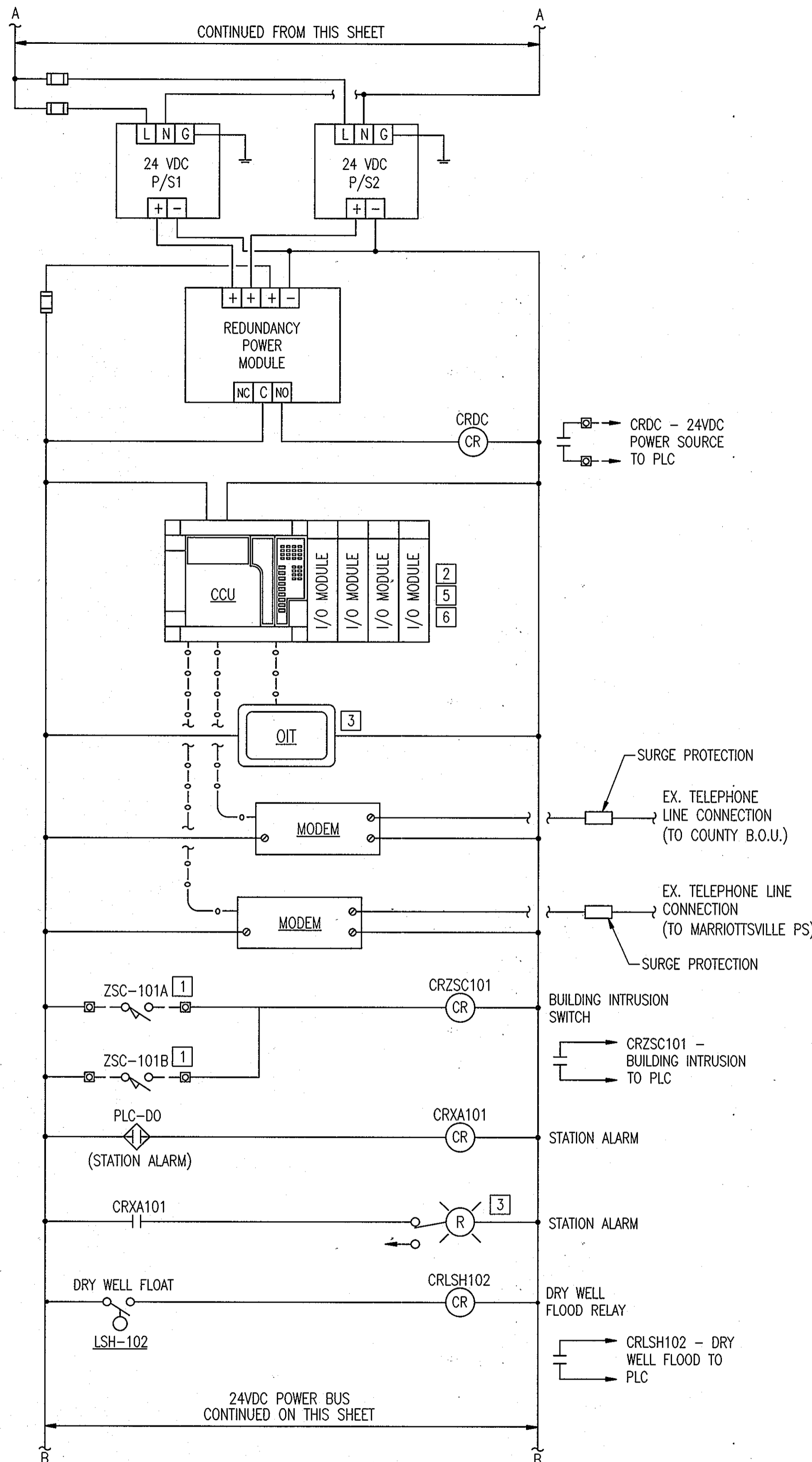
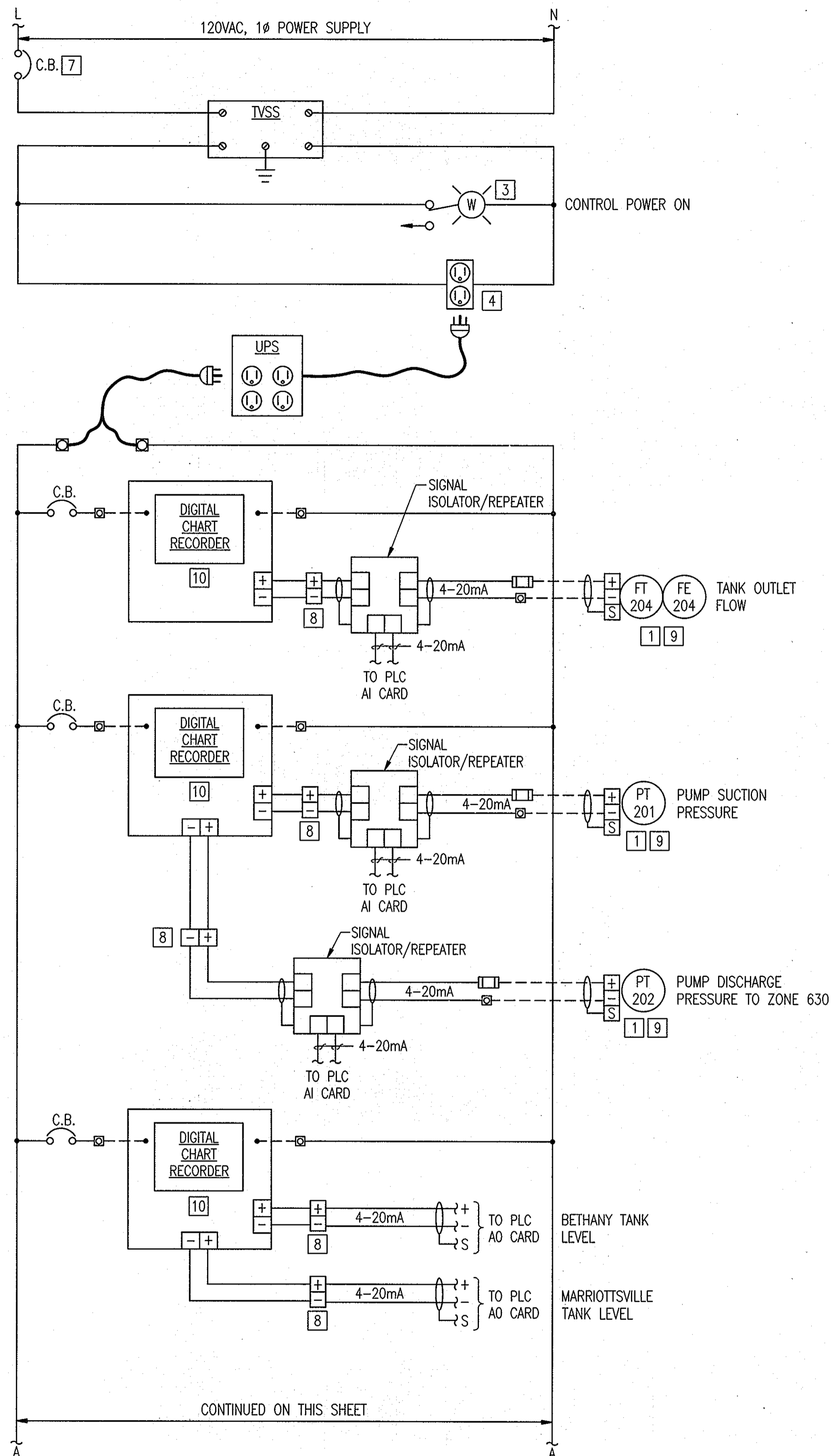
DES:	GAH				
DRN:	GAH				
CHK:	PWG				
DATE:	1/2013	BY:	NO.	REVISION	DATE

PROCESS AND INSTRUMENTATION
DIAGRAM (P&ID)

600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299

ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



GENERAL NOTES:

- UNLESS OTHERWISE INDICATED, EACH OF THE I/O SIGNALS BROUGHT FROM THE FIELD TO THE PUMP CONTROL PANEL SHALL BE PROVIDED WITH AN INTERPOSING RELAY IN THE PUMP CONTROL PANEL TO ISOLATE THE DEVICE POWER FROM THE LC-150 CONTROL POWER.
- ALL SIGNALS TO SCADA SHALL BE VIA LEASED TELEPHONE LINE TO COUNTIES EXISTING SCADA CENTRAL MONITORING SYSTEM.

SPECIFIC NOTES:

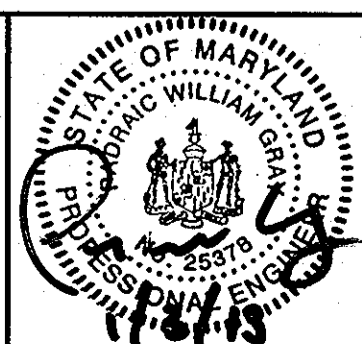
- EQUIPMENT LOCATED IN FIELD.
- NOT ALL I/O MODULES ARE SHOWN.
- EQUIPMENT LOCATED ON THE FACE OF THE PCP. ALL OTHER ITEMS ARE MOUNTED INTERIOR TO PCP.
- LABEL AS "UPS RECEPTACLE"
- ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
- NOT ALL I/O WIRING AND CONNECTIONS TO I/O CARDS ARE SHOWN. PROVIDE WIRING FOR I/O TO PLC I/O AS REQUIRED FOR ACTIVE AND SPARE I/O PER THE I/O LIST ON THE SPECIFICATIONS AND THE CONTRACT DRAWINGS, AS APPLICABLE. PROVIDE INTERPOSING RELAYS WITH SNUBBER CIRCUITS FOR DISCRETE OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE FUSES ON ANALOG INPUTS AND OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE WIRING OF ALL I/O, INCLUDING SPARES, TO FIELD TERMINAL STRIPS.
- PROVIDE PERMANENT LABEL AT EACH CB WITH CIRCUIT AND/OR EQUIPMENT BEING FED.
- LOOP POWER FOR ANALOG SIGNALS SHALL BE OBTAINED FROM THE 24VDC POWER BUS.
- STATION SUCTION PRESSURE, DISCHARGE PRESSURE, AND FLOW TRANSMITTER ASSEMBLIES ARE EXISTING TO REMAIN. DEMO ALL WIRING AND CONDUIT TO EXISTING CHART RECORDER AND TELEMETRY UNIT AND WIRE TO NEW PUMP CONTROL PANEL.
- CHART RECORDERS WALL MOUNTED REMOTELY FROM PUMP CONTROL PANEL.

1 PUMP CONTROL PANEL ELEMENTARY
I-3 NOT TO SCALE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25328, EXPIRATION DATE: 7/4/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: *John A. [Signature]* 1/24/13
Chief, Bureau of Engineering: *James B. [Signature]* 1-14-13
Chief, Bureau of Utilities: *Steve [Signature]* 1/24/13
Chief, Utility Design Division: *[Signature]* 1/11/13

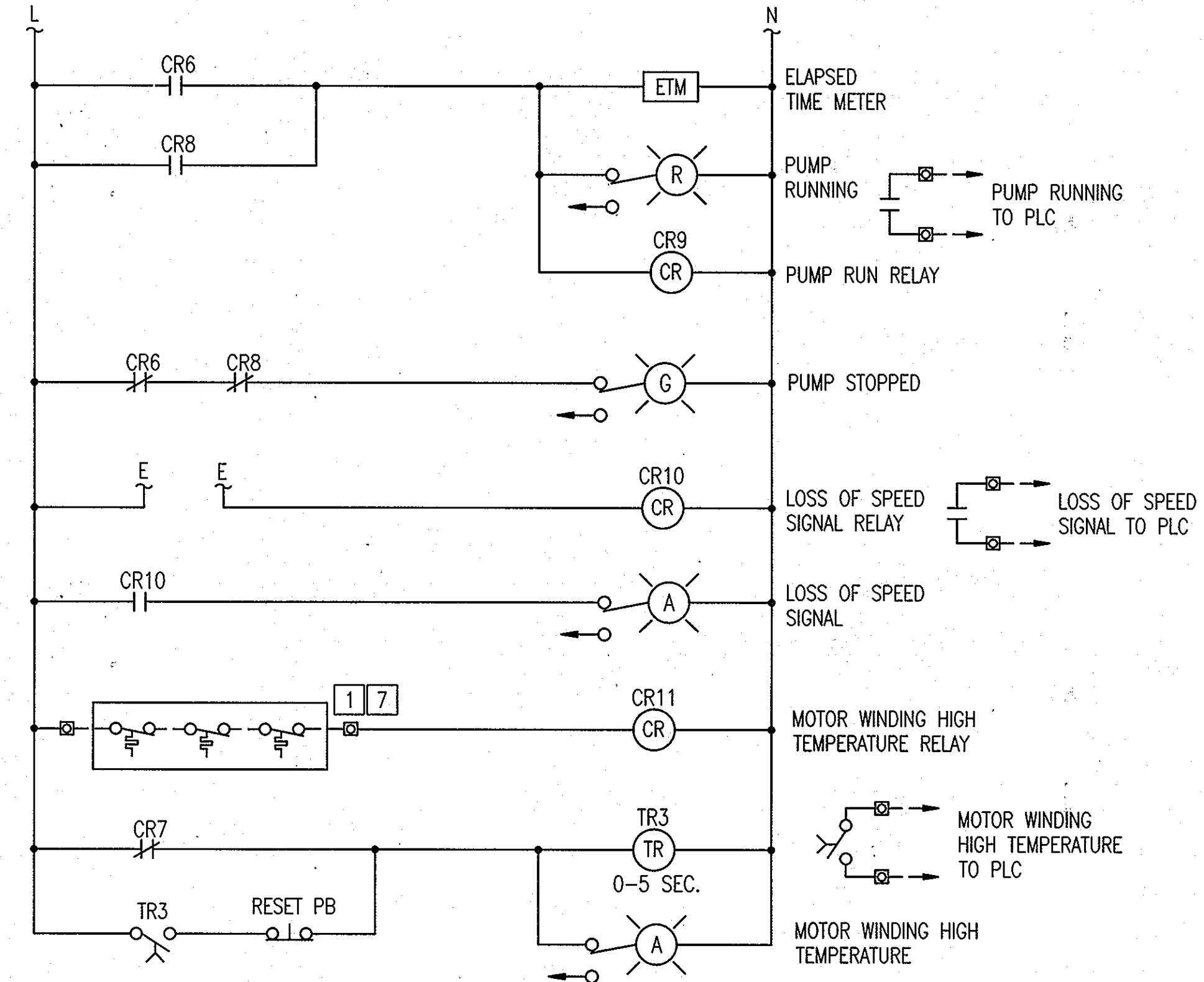
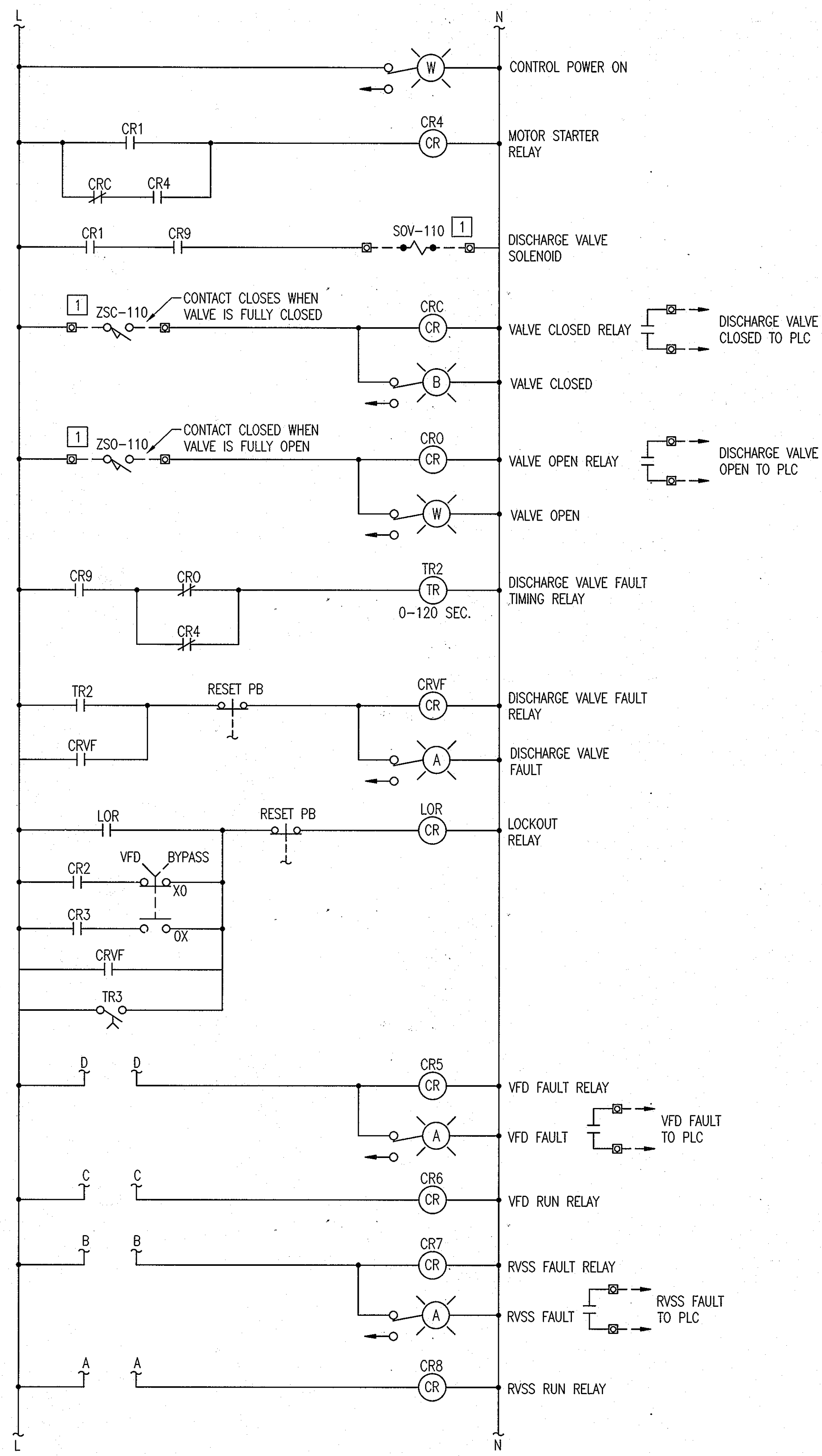
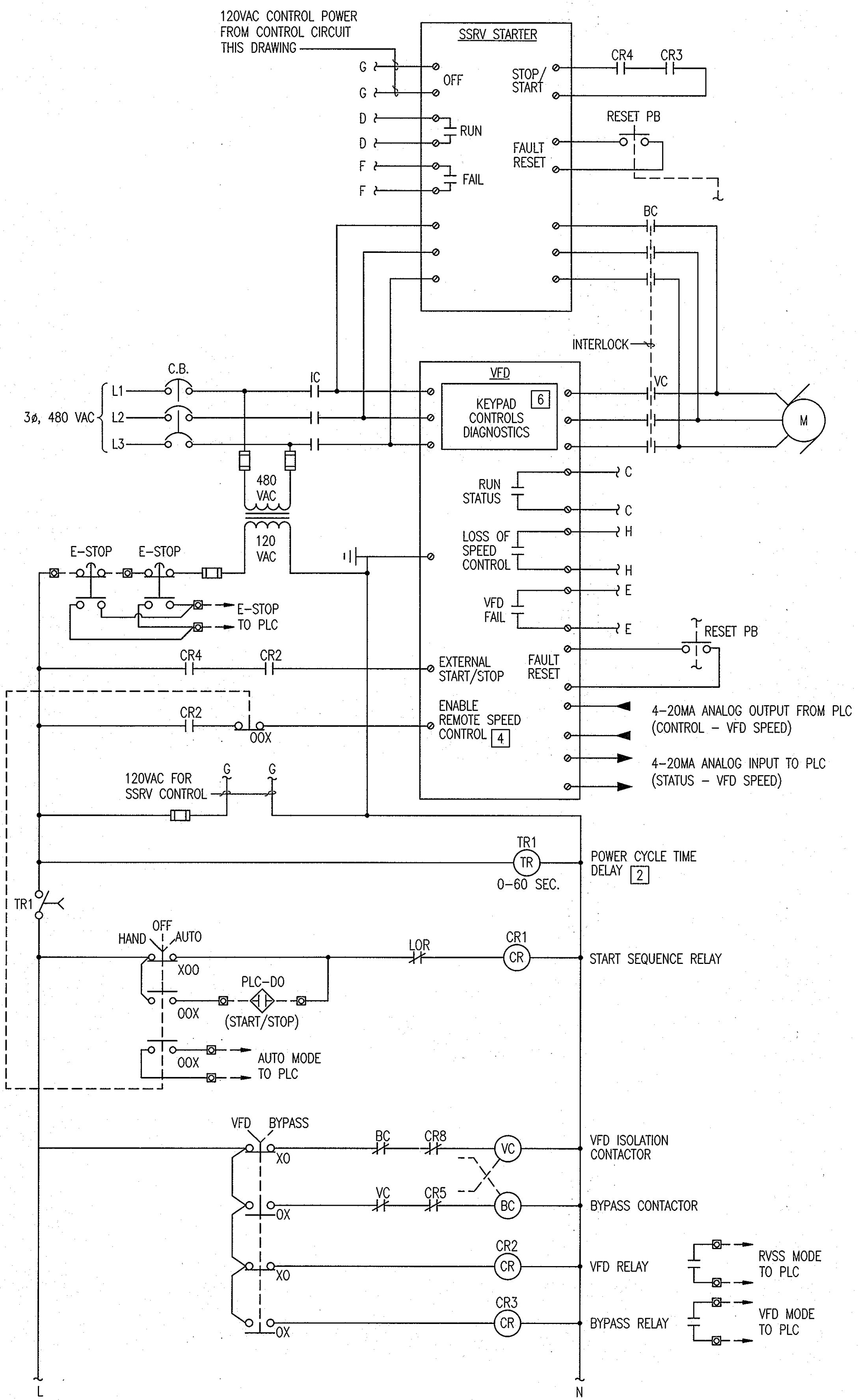
PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21201
WR&A



DES:	GAH			
DRN:	GAH			
CHK:	PWG			
DATE:	1/2013	BY NO.		
		REVISION		
		DATE		

PUMP CONTROL PANEL
ELEMENTARY DIAGRAM
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING
STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND



SPECIFIC NOTES:

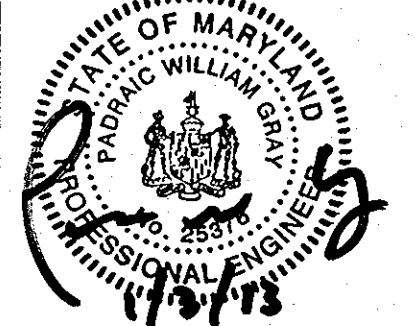
- 1 EQUIPMENT LOCATED REMOTE FROM VFD ENCLOSURE.
- 2 SET AT 10 SECOND DELAY FOR PUMP-1, 20 SECOND DELAY FOR PUMP-2 AND 30 SECONDS FOR PUMP-3
- 3 PROVIDE INDIVIDUAL CIRCUIT BREAKERS FOR VFD AND SSRV STARTER.
- 4 AUTO MODE-EXTERNAL SPEED CONTROL ENABLED.
- 5 ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
- 6 DOOR MOUNTED HMI.
- 7 MOTOR TEMPERATURE SWITCHES SHALL BE PROVIDED FOR PUMP 3 ONLY. ASSOCIATED VFD CONTROL CIRCUIT AND PLC I/O SHALL BE PROVIDED FOR ALL PUMPS.

VFD PUMP 1 CONTROL PANEL ELEMENTARY
(TYPICAL FOR PUMP 2 & 3)

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25378, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: *1/20/13*
Chief, Bureau of Engineering: *1-14-13*
Chief, Bureau of Utilities: *1/20/13*
Chief, Utility Design Division: *1/14/13*

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A



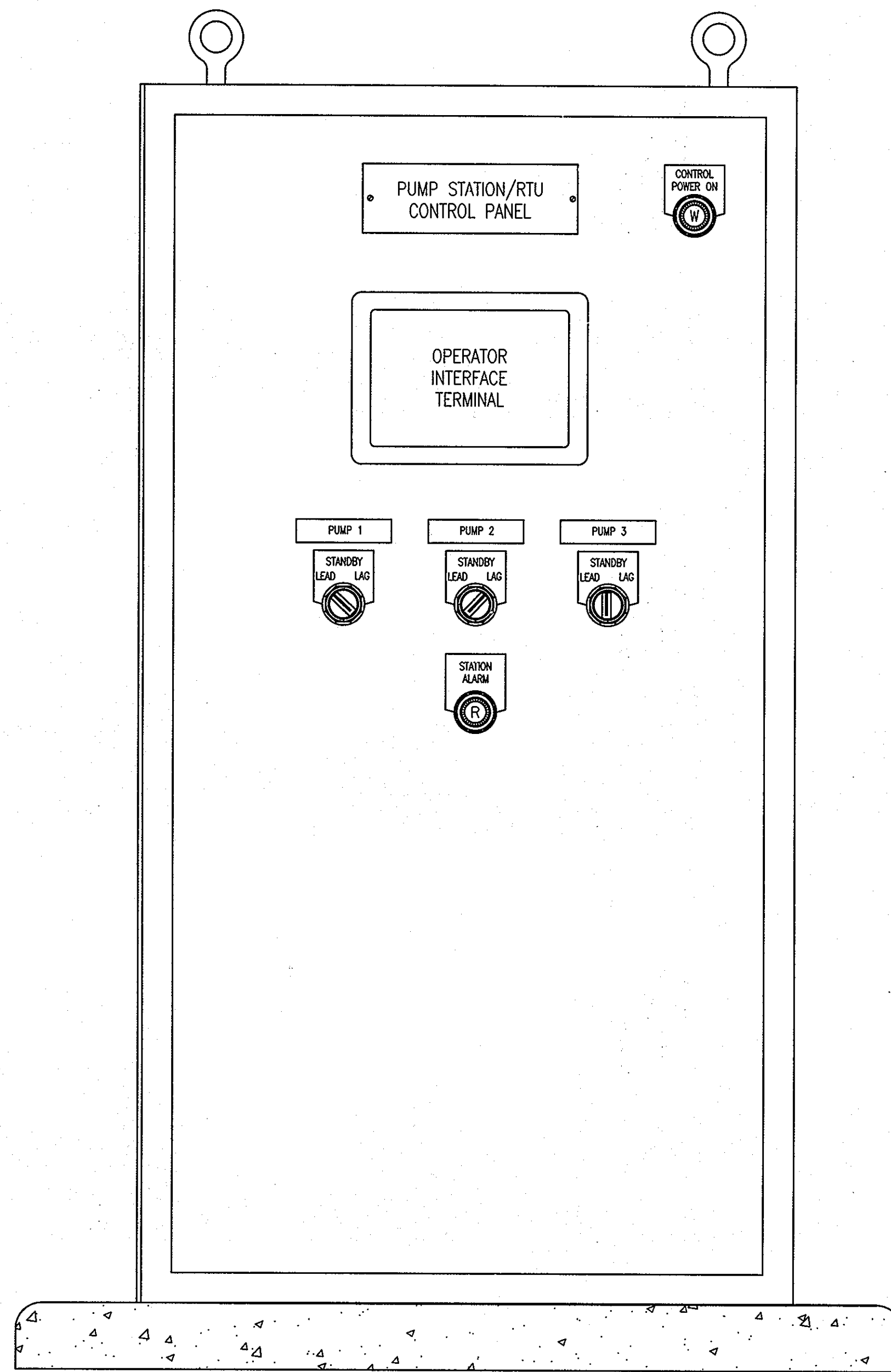
DES:	GAH			
DRN:	GAH			
CHK:	PWG			
DATE:	1/2013	BY:	NO.	
		REVISION		
		DATE		

VFD ELEMENTARY DIAGRAM
600' SCALE MAP NO. 24 BLOCK NO. 2&3

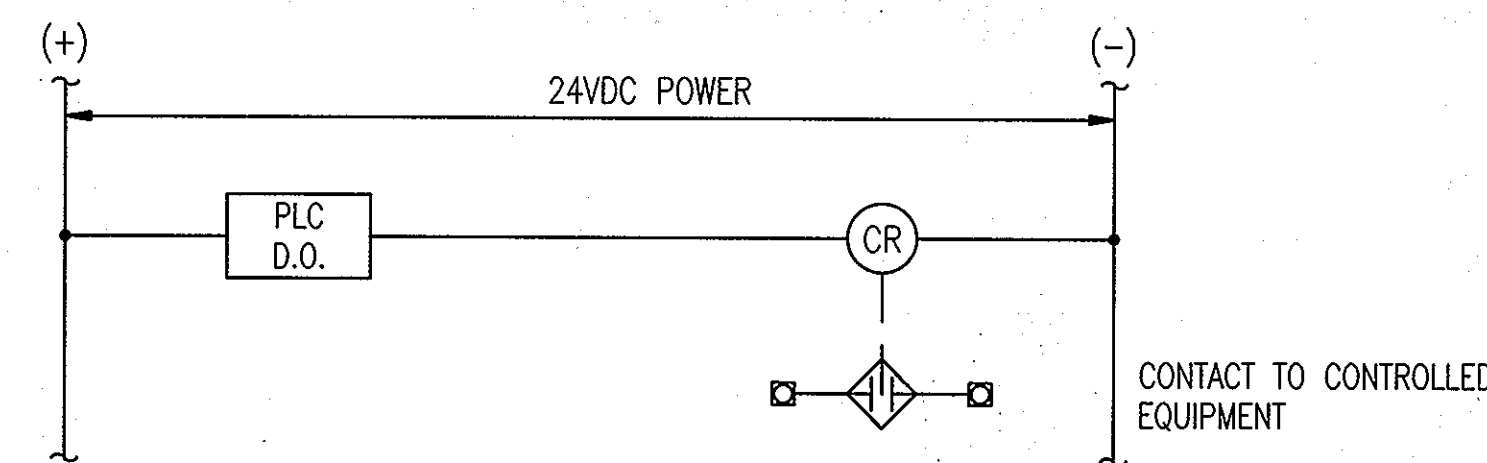
PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

SPECIFIC NOTES:

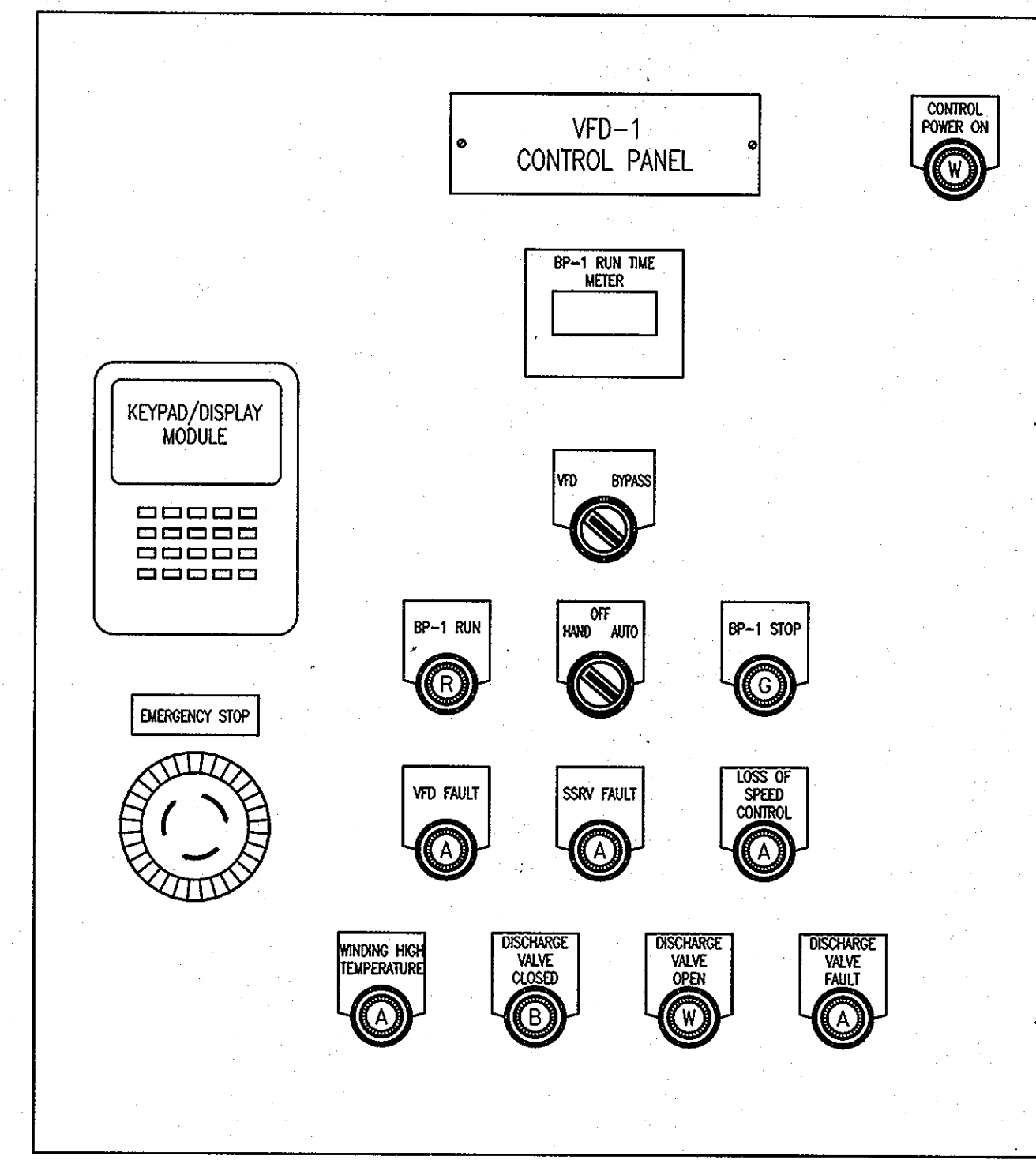
- EXISTING TELEPHONE LINE/NEW FIELD WIRING.
- NEW TELEPHONE LINE/NEW PANEL WIRING.
- 1 EXISTING WAVERLY WWPS QEI MODULE TO BE LOCATED IN NEW QEI MODULE JUNCTION BOX.



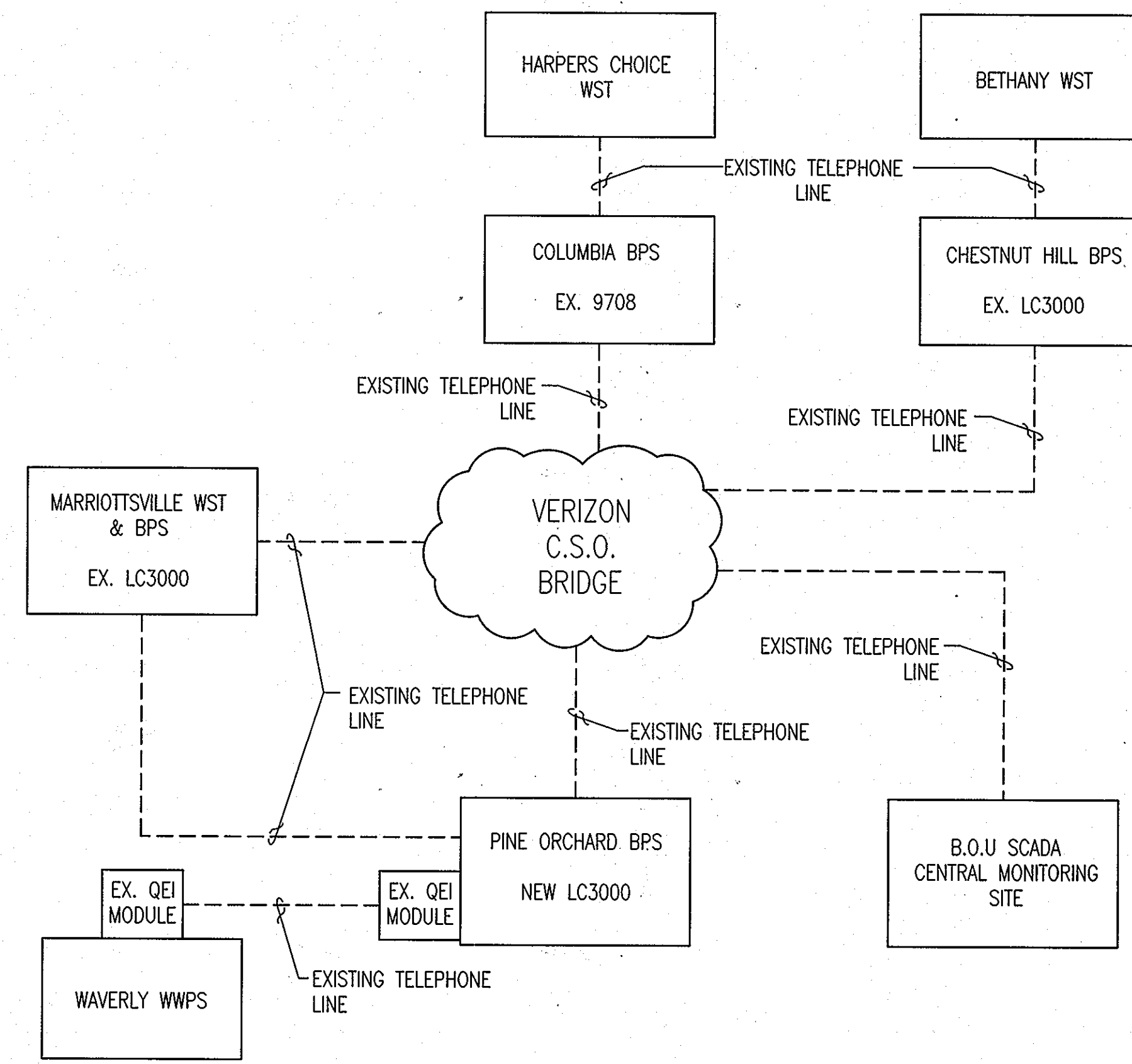
1 **PUMP STATION CONTROL PANEL ELEVATION**
1-4 NOT TO SCALE



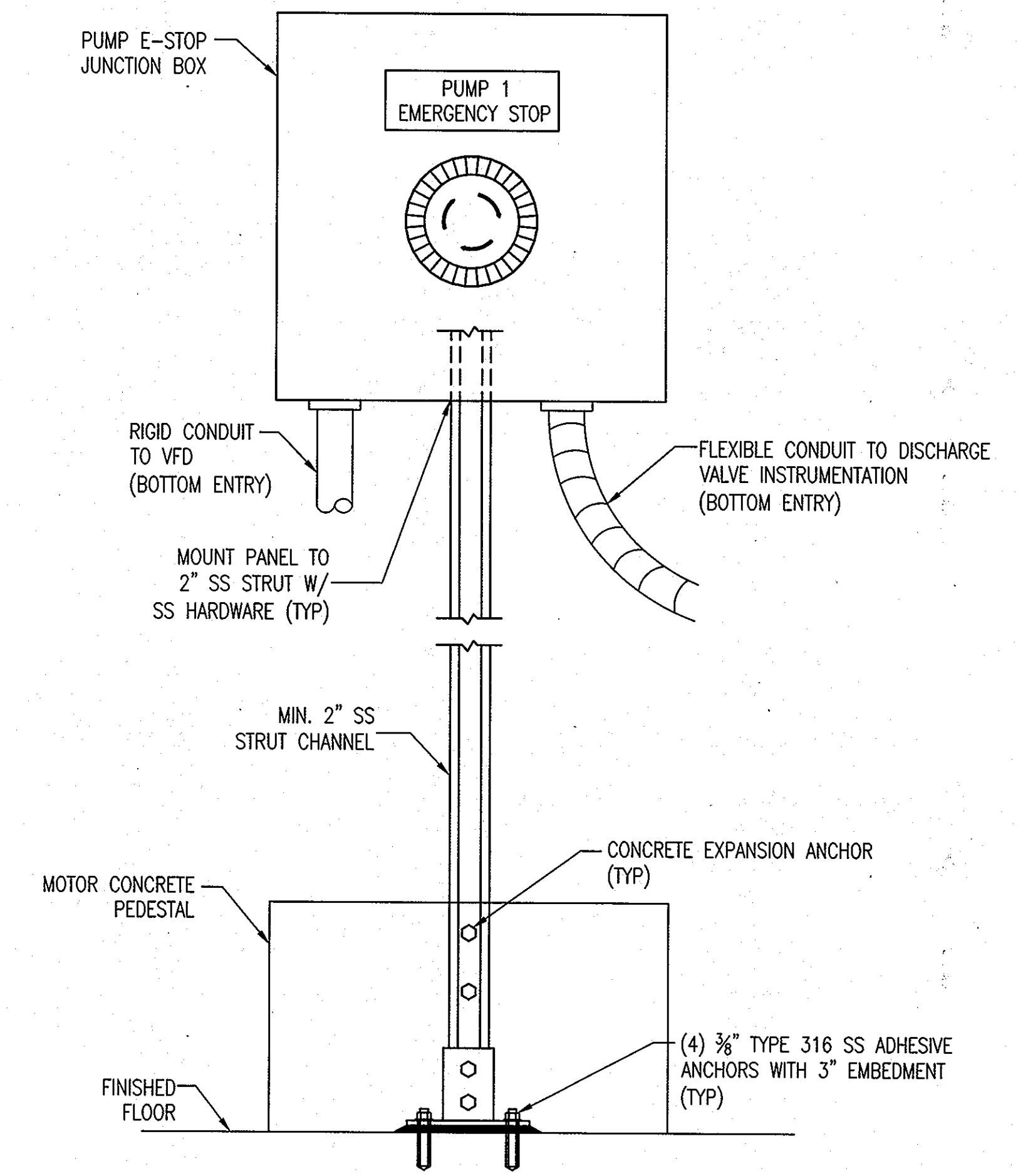
3 **PLC D.O. INTERPOSING RELAY (TYP.)**
1-4 NOT TO SCALE



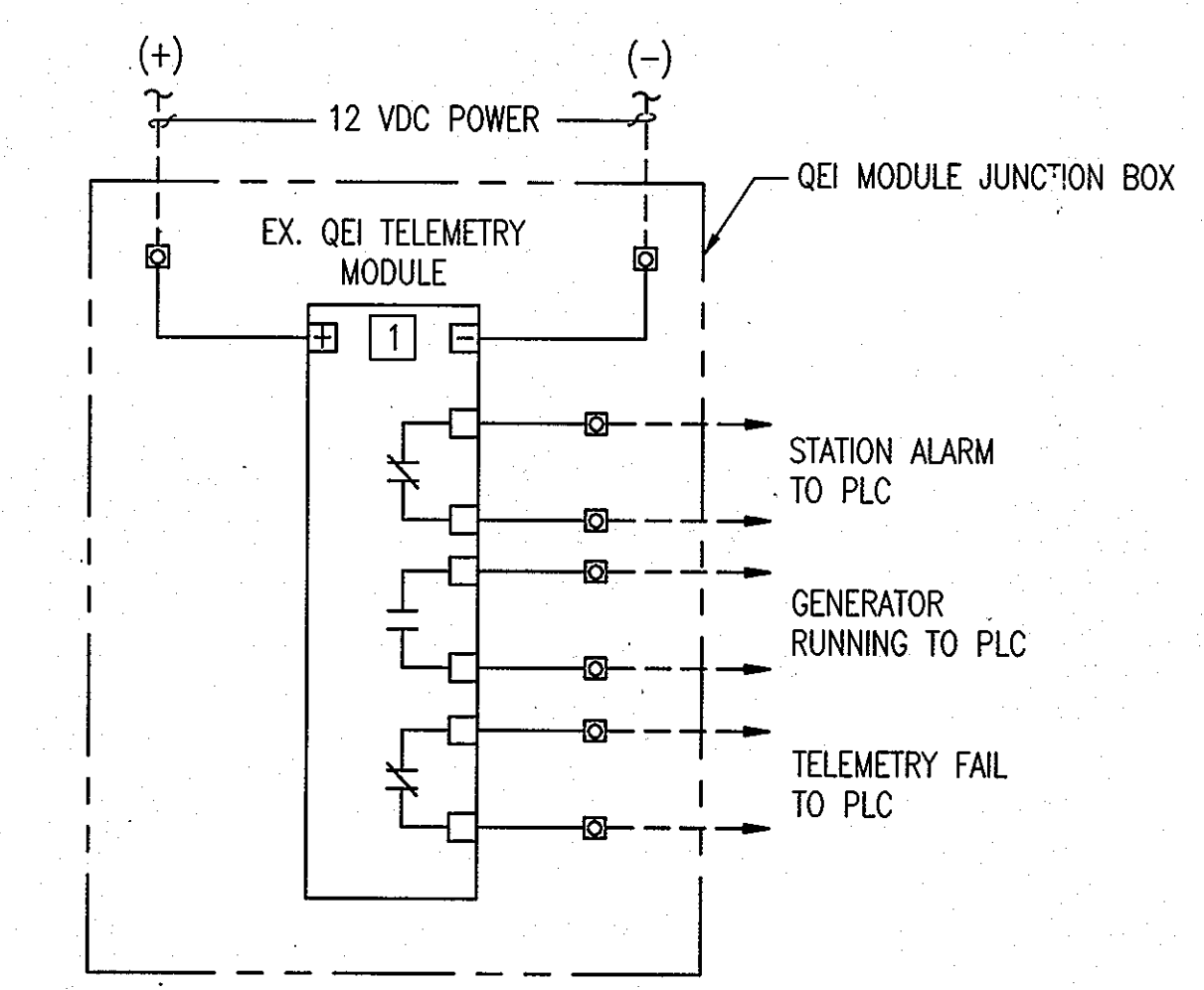
2 **VFD-1 PARTIAL PANEL ELEVATION**
1-4 NOT TO SCALE (TYPICAL FOR PUMP 2 & 3)



4 **SCADA INTERFACE SCHEMATIC**
1-4 NOT TO SCALE



5 **PUMP E-STOP JUNCTION BOX**
1-4 NOT TO SCALE



6 **QEI MODULE JUNCTION BOX**
1-4 NOT TO SCALE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25318, EXPIRATION DATE: 7/14/14."

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Prepared by: *John J. ...* 1/25/17
DATE: 1/25/17
Chief, Bureau of Utilities

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A
Chief, Bureau of Engineering
Chief, Utility Design Division

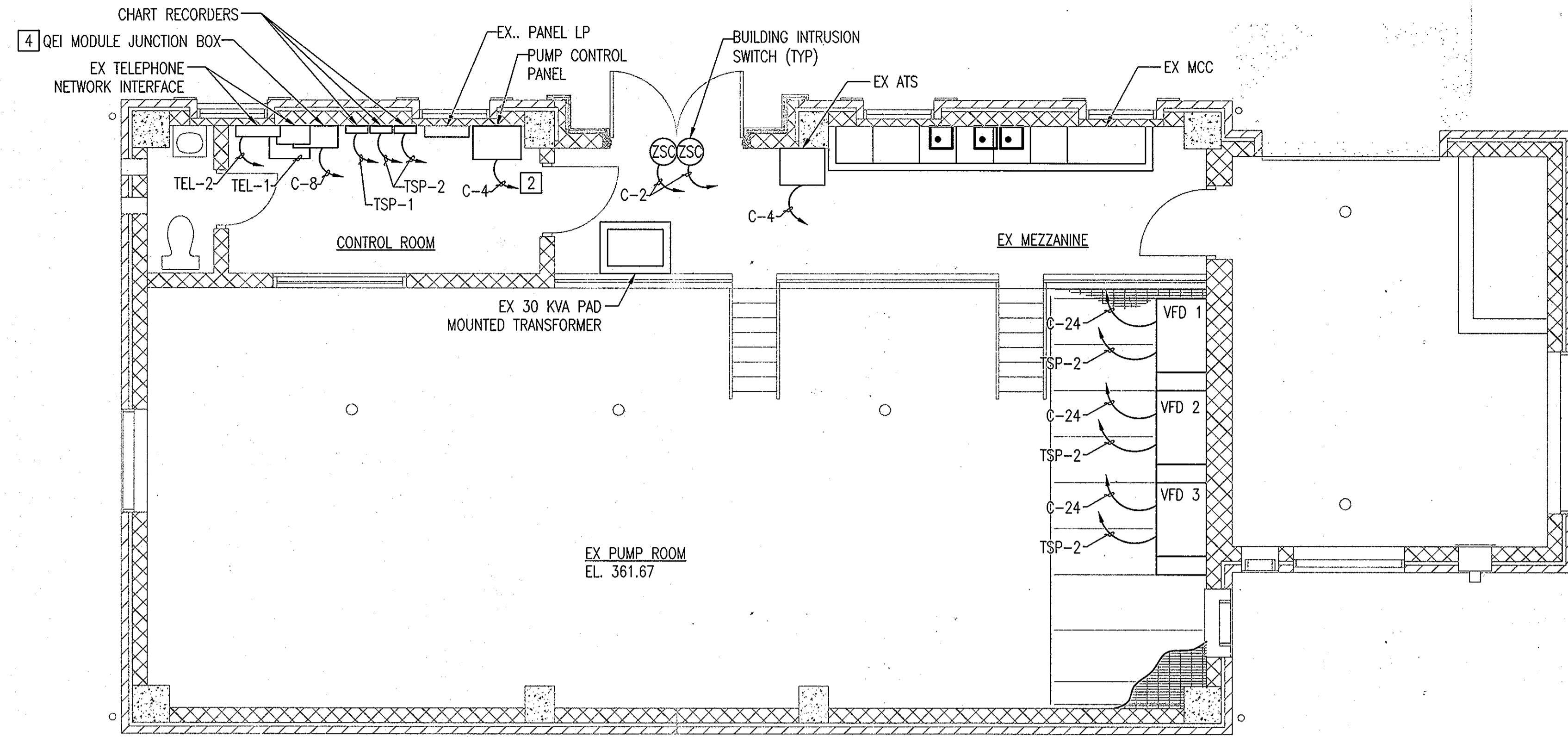


DES:	GAH				
DRN:	GAH				
CHK:	PWG				
DATE:	1/2013	BY:	NO.	REVISION	DATE

PANEL ELEVATIONS AND DETAILS
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2 HOWARD COUNTY, MARYLAND

I-5
SCALE AS SHOWN
SHEET 22 OF 23



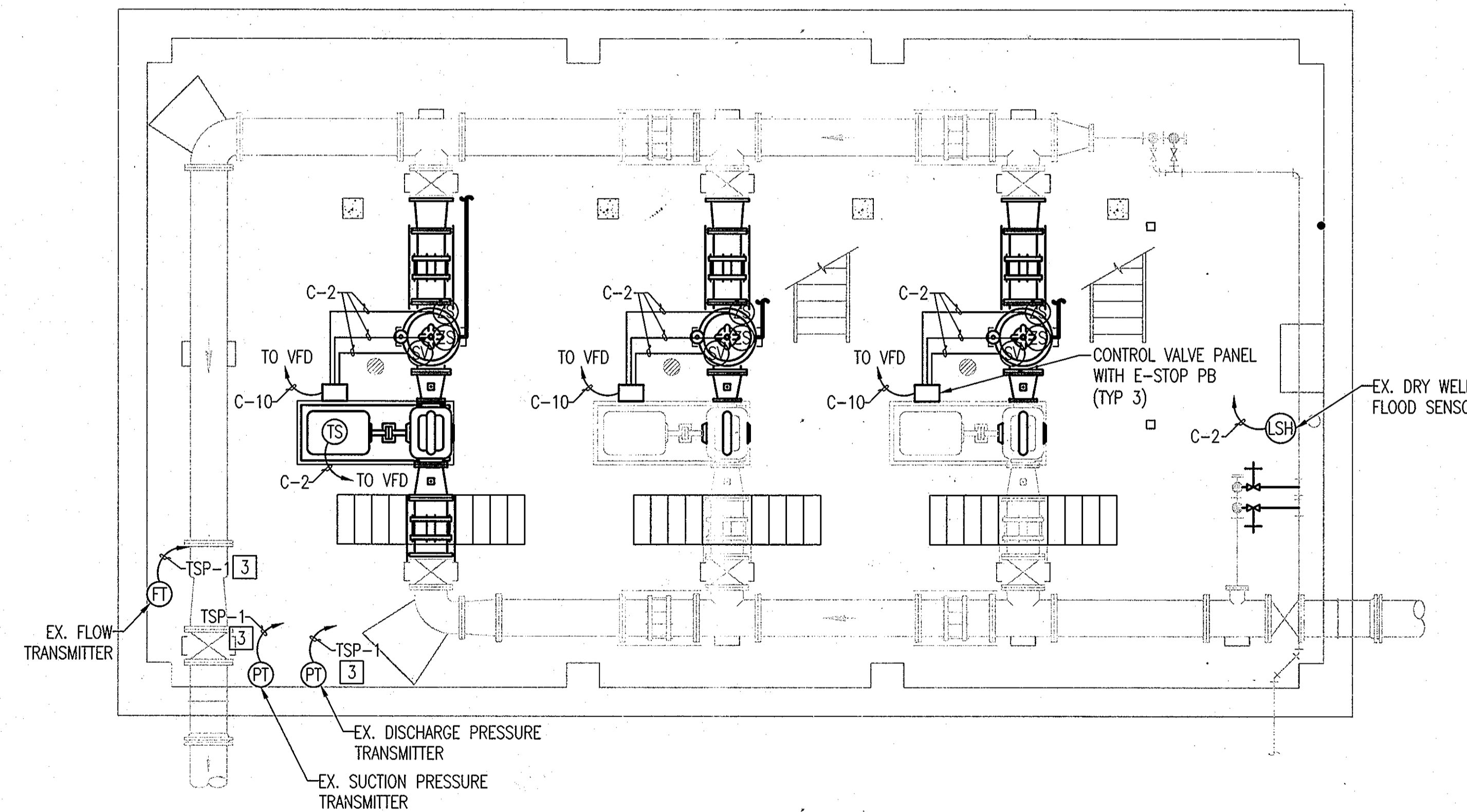
DRAWING NOTES:

1. ALL CONDUITS ARE TO BE ROUTED TO THE PUMP CONTROL PANEL UNLESS OTHERWISE SHOWN.

SPECIFIC NOTES:

- 1 WIRE 120VAC TO EXISTING VALVE JUNCTION BOX. WIRE POWER JUNCTION BOX IN SERIES WITH EXISTING STOP PUSH BUTTON.
- 2 TO GENERATOR CONTROL PANEL.
- 3 EXISTING SUCTION AND DISCHARGE PRESSURE TRANSMITTERS, AND FLOW TRANSMITTER CONDUIT IS EXISTING AND TO REMAIN. PULL NEW CABLE THROUGH EXISTING CONDUIT TO NEW PUMP CONTROL PANEL.
- 4 LOCATE QEI JUNCTION BOX BELOW EXISTING TELEPHONE INTERFACE NETWORK PANELS.

1 INSTRUMENTATION MEZZANINE PLAN
I-6 SCALE: 1/4"=1'-0"



2 INSTRUMENTATION LOWER LEVEL PLAN
I-6 1/4"=1'-0"

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 25378 EXPIRATION DATE: 7/14/14"

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.
Director of Public Works: *John A. ...* 1/29/13
Chief, Bureau of Utilities: *Steve ...* 1/29/13
Chief, Bureau of Engineering: *Morgan ...* 1-14-13
Chief, Utility Design Division: *...* 1/14/13

PREPARED BY:
WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, MD 21231
WR&A



DES:	GAH				
DRN:	GAH				
CHK:	PWG				
DATE:	1/2013	BY	NO.	REVISION	DATE

INSTRUMENTATION PLAN
600' SCALE MAP NO. 24 BLOCK NO. 2&3

PINE ORCHARD WATER PUMPING STATION UPGRADE
CONTRACT NO. 44-4730
CAPITAL PROJECT NO. W-8299
ELECTION DISTRICT 2
HOWARD COUNTY, MARYLAND

I-6
SCALE AS SHOWN
SHEET
23 OF 23