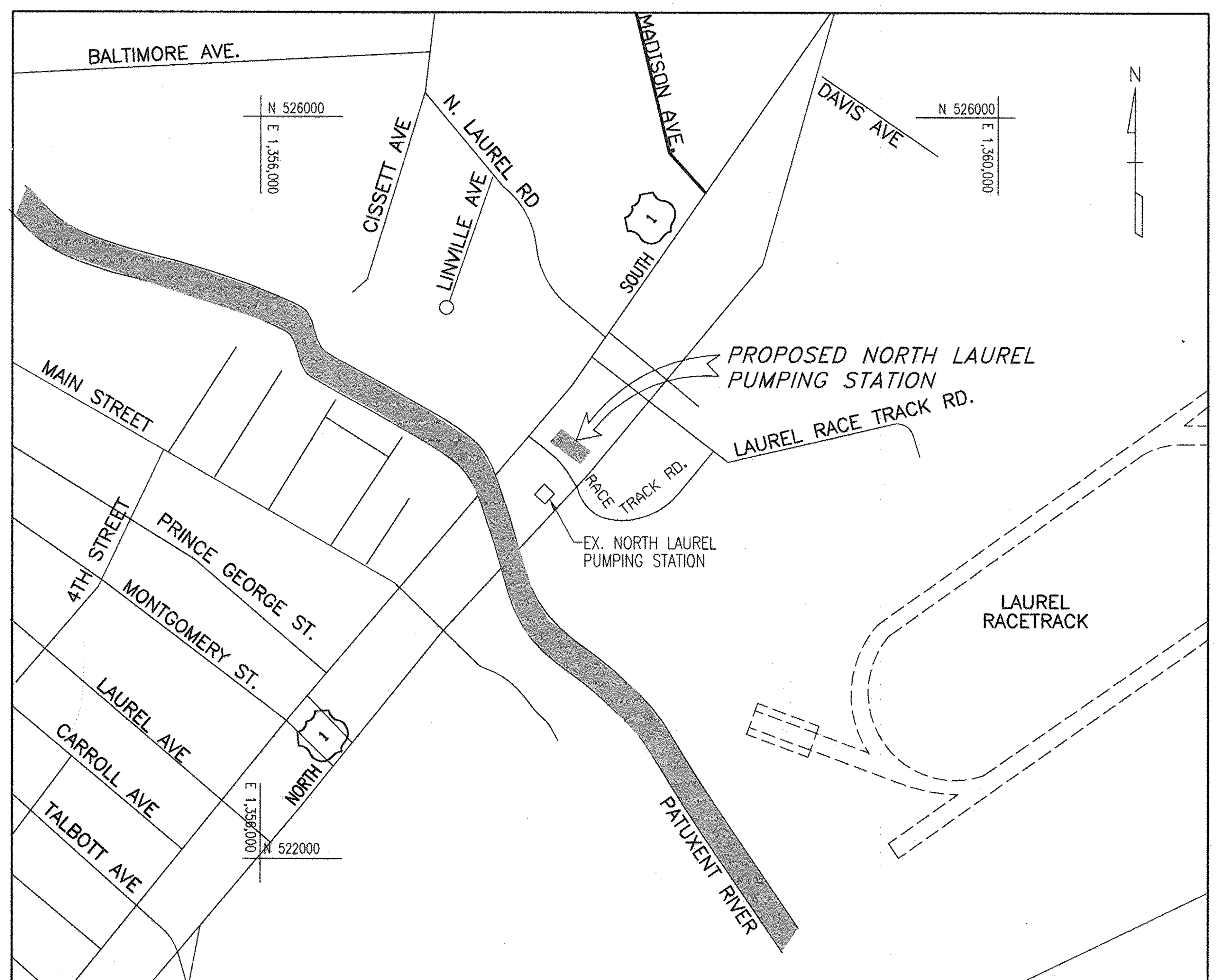
NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
HOWARD COUNTY, MARYLAND

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-1	TITLE SHEET
2	G-2	GENERAL NOTES AND LEGEND
3	C-1	STAKEOUT PLAN
4	C-2	SITE GRADING AND PAVING PLAN
5	C-3	UTILITY PLAN
6	C-4	UTILITY PROFILES
7	C-5	DETAILS
7A	C-6	ARV ON EXISTING NORTH LAUREL FORCEMAIN
8	SC-1	SEDIMENT, EROSION, AND STORMWATER CONTROL PLAN
9	SC-2	SEDIMENT AND EROSION CONTROL NOTES
10	SC-3	SEDIMENT AND EROSION CONTROL NOTES
11	SC-4	SEDIMENT AND EROSION CONTROL DETAILS
12	A-1	ARCHITECTURAL ABBREVIATIONS & LEGEND
13	A-2	WWPS AND GENERATOR BUILDING GROUND FLOOR PLANS
14	A-3	WWPS AND GENERATOR BUILDING ROOF PLANS AND DETAILS
15	A-4	WWPS BUILDING – ELEVATIONS
16	A-5	GENERATOR BUILDING – ELEVATIONS
17	A-6	BUILDING SECTIONS – WWPS BUILDING AND GENERATOR BUILDING
18	A-7	WALL SECTIONS
19	A-8	WALL SECTIONS AND DETAILS
20	A-9	WALL SECTIONS AND DETAILS
21	A-10	DETAILS
22	A-11	ENLARGED PLANS
23	A-12	WALL TYPES AND DETAILS
24	A-13	SCHEDULES AND DETAILS
25	S-1	STRUCTURAL NOTES AND TYPICAL DETAILS
26	S-2	STRUCTURAL TYPICAL DETAILS
27	S-3	STRUCTURAL TYPICAL DETAILS
28	S-4	STRUCTURAL TYPICAL DETAILS
29	S-5	STRUCTURAL LOWER LEVEL AND FOUNDATION PLAN
30	S-6	STRUCTURAL INTERMEDIATE LEVEL PLAN
31	S-7	STRUCTURAL GRADE LEVEL PLAN
32	S-8	STRUCTURAL PLANK CEILING PLAN AND DETAILS
33	S-9	STRUCTURAL SECTION THROUGH PUMPING STATION
34	S-10	STRUCTURAL SECTION THROUGH WET WELL
35	S-11	STRUCTURAL SECTION THROUGH DRY WELL
36	S-12	STRUCTURAL SECTION THROUGH STAIRS
37	S-13	STRUCTURAL ABOVE GRADE SECTIONS
38	S-14	STRUCTURAL ABOVE GRADE SECTIONS
39	S-15	STRUCTURAL GENERATOR BUILDING AND TRANSFORMER PAD PLANS
40	S-16	STRUCTURAL SECTION THROUGH GENERATOR BUILDING AND DETAILS
41	S-17	STRUCTURAL BEAM AND COLUMN DETAILS
42	S-18	STRUCTURAL DETAILS
43	M-1	GENERAL NOTES, ABBREVIATIONS AND LEGEND
44	M-2	SCHEMATICS
45	M-3	LOWER AND INTERMEDIATE PLANS AND DETAILS
46	M-4	GRADE LEVEL PLANS
47	M-5	SECTIONS AND DETAILS
48	M-6	DETAILS
49	M-7	SCHEDULES, DETAILS AND SCHEMATICS
50	E-1	ELECTRICAL SITE PLAN
51	E-2	WASTEWATER PUMPING SYSTEM – ELECTRICAL NOTES, LEGEND, ABBREVIATIONS, AND SCHEDULES
52	E-3	ELECTRICAL PLAN GRADE LEVEL
53	E-4	POWER AND LIGHTING PLANS – INTERMEDIATE AND LOWER LEVELS
54	E-5	ELECTRICAL SINGLE LINE DIAGRAM AND MOTOR CONTROL CENTER SCHEDULE
55	I-1	GENERAL NOTES, ABBREVIATIONS AND LEGENDS
56	I-2	P&ID – PUMPING STATION
57	I-3	PUMP CONTROL PANEL ELEMENTARY DIAGRAM
58	I-4	PANEL ELEVATIONS & VENTILATION CONTROL PANEL
59	I-5	RAW WASTEWATER PUMP VFD ELEMENTARY
60	I-6	VENTILATION FAN ELEMENTARY DIAGRAMS
61	I-7	INSTRUMENTATION PLAN – LOWER & GRADE LEVELS
62	I-8	INSTRUMENTATION PLAN AND MISC. DETAILS
63–70	SDP-1–SDP-8	SITE DEVELOPMENT PLANS



TYPE OF BUILDING: NA
NUMBER OF PARCELS: NA
WATER HOUSE CONNECTIONS: 0
SEWER HOUSE CONNECTIONS: 0
DRAINAGE AREA: LITTLE PATUXENT

VICINITY MAP
SCALE : 1" = 600'

SEWER CODE: 7103000
FOR COUNTY USE ONLY

DIRECTIONS: TAKE ROUTE 32 EAST FROM I–95, AND TRAVEL SOUTH ON ROUTE 1 TO RACE TRACK ROAD

THE DRAWINGS IN THIS SET ARE RECORD DRAWINGS. THEY ARE CONSTRUCTION CONTRACT DRAWINGS WHICH HAVE BEEN REVISED ON THE BASIS OF AVAILABLE FIELD INFORMATION RECORDED BY OTHERS AND/OR BY WRA DURING CONSTRUCTION OF THE CONTRACT.

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).

[illegible] JBK — 10/5/12
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."

[illegible] — P.E. 24478 — 9/17/12
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."

[illegible] — 9/25/12
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

[illegible] 10/1/12 — DIRECTOR OF PUBLIC WORKS — DATE
[illegible] 9/25/12 — CHIEF, BUREAU OF ENGINEERING — DATE
[illegible] 9/28/12 — CHIEF, BUREAU OF UTILITIES — DATE
[illegible] 9/25/12 — CHIEF, UTILITY DESIGN DIVISION GJD — DATE

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS RUDE WASSON — No. 24478 — PROFESSIONAL ENGINEER
[illegible] 9/17/12

DES:
DRN:
CHK:

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

TITLE SHEET

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

G-1

SCALE
AS SHOWN

SHEET
1 OF 70

N:\13428-001\CADD\13428001G0-00.dwg
Sep 14, 2012 - 7:53am

GENERAL NOTES:

1. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN JUNE 2007 BY WHITMAN, REQUARDT & ASSOCIATES, LLP.

3. 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. 50EM2 AND NO. 0002. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 24-INCH STEEL REBARS DRIVEN FLUSH TO THE GROUND WITH A 1-INCH PLASTIC CAP STAMPED "WRA TRAV".

4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF POLES.

6. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY VOLUME IV DESIGN MANUAL. 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.

7. 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 ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.

8. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033/410-224-9210

9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS AS NECESSARY TO PERFORM THE WORK. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS.

10. 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.

11. STOCKPILE SPOILS FROM TRENCHING OPERATIONS ON THE UPHILL SIDE OF THE TRENCH, EXCEPT DO NOT STORE OR WASTE ANY SPOILS WITHIN 100-YEAR FLOOD PLAIN. ALL EXCESS MATERIALS SHALL BE REMOVED BY CONTRACTOR.

12. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LINES, GRADES AND ELEVATIONS, AND CUT SHEETS SHALL BE PREPARED BASED ON THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.

13. THE CONTRACTOR SHALL PROVIDE A MAINTENANCE OF TRAFFIC PLAN, WHERE NECESSARY FOR APPROVAL PRIOR TO INSTALLATION OF SANITARY SEWER.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING STAGING AND STOCKPILE AREAS.

15. SEWER FLOWS SHALL NOT BE INTRODUCED TO THE NEW SEWER PIPE UNTIL DIRECTED BY THE COUNTY. REFER TO THE SEQUENCE OF CONSTRUCTION.

SANITARY SEWER NOTES:

1. SANITARY SEWER AND FORCEMAIN SHALL BE DUCTILE IRON CLASS 52, PROTECTO LINED UNLESS OTHERWISE NOTED.

2. MANHOLES SHALL BE 5'-0" PER HOWARD COUNTY STANDARD DETAIL G-5.11, UNLESS OTHERWISE CALLED OUT ON THE PLANS. AN INTERMEDIATE LANDING IS TO BE PROVIDED AT MANHOLE JOINT CLOSEST TO MID-DEPTH FOR ALL MANHOLES GREATER THAN 18 FEET IN DEPTH AND AT 10 FOOT INTERVALS FROM THE TOP WHEN MANHOLE DEPTH EXCEEDS 25 FEET. THE INTERMEDIATE LANDING SHALL BE PER HOWARD COUNTY STANDARD DETAIL G-5.16.

3. THE CONTRACTOR SHALL MAKE THE NECESSARY CONNECTIONS TO EXISTING AND PROPOSED MANHOLES USING MECHANICALLY WEDGED-IN-PLACE TYPE CONNECTIONS SUCH AS LINK-SEAL AS MANUFACTURED BY THUNDER LINE CORPORATION, Z-LOK SP AS MANUFACTURED BY A-LOK PRODUCTS, INC. OR KOR-N-SEAL AS MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC. ALL METAL PARTS, I.E. BOLTS, STRAPS, ETC. SHALL BE STAINLESS STEEL.

4. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTION OF SPILLAGE OF RAW WASTEWATER, AND SHALL HAVE MEANS AT HIS DISPOSAL (BY PASS PUMP SYSTEM, ETC.) TO USE AS NECESSARY.

5. PROVIDE PIPE JOINT 5-FEET FROM THE FACE OF EACH SIDE OF ALL PROPOSED MANHOLES.

6. ALL MANHOLES SHALL HAVE WATERTIGHT FRAME AND COVERS PER HOWARD COUNTY STANDARD DETAIL G-5.52, UNLESS OTHERWISE INDICATED ON THE PLANS.

ABBREVIATIONS

DESCRIPTION	ABBREVIATION
AMERICAN CONCRETE INSTITUTE	ACI
ALTERNATE	ALT
ALUMINUM ALLOY	AA
ALUMINIZED CORRUGATED METAL PIPE	ACMP
AREA OF STEEL	A S
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	AASHTO
AMERICAN SOCIETY OF TESTING AND MATERIALS	ASTM
AMERICAN WIRE GAUGE	AWG
AMERICAN WATER WORKS ASSOCIATION	AWWA
BITUMINOUS COATED CORRUGATED METAL PIPE	BCCMP
CAST IRON	CI
CENTER TO CENTER	C/C
CURB AND GUTTER	C&G
CENTERLINE	℄
CLEAR	CLR
CLEARANCE	CL
CONCRETE	CONC
COUNTERSINK	CSK
CUBIC	CU
CUBIC YARD	CY
DRY FILM THICKNESS	DFT
DEGREE	°
DIAMETER	DIA
DIAMETER	ø
DIAGONAL	DIAG
DUCTILE IRON	DI
DUCTILE IRON PIPE	DIP
DEPARTMENT OF PUBLIC WORKS	DPW
EACH WAY	EW
EXISTING	EX
EXPANSION	EXP
FEET	FT
FEET	'
GRADED AGGREGATE BASE	GAB
GALVANIZED	GALV
GAUGE	GA
HIGH DENSITY POLYTHYLENE	HDPE
HOT MIX ASPHALT	HMA
INSIDE DIAMETER	ID
INCH	IN.
INCH	"
JOINT	JT
RATIO OF ACTIVE LATERAL UNIT PRESSURE TO VERTICAL UNIT PRESSURE	K
POUNDS	LBS
LINEAR FOOT	LF
MANHOLE	MH
MAXIMUM	MAX
MECHANICAL	MECH
MECHANICAL JOINT	MJ
MILLIMETERS	MIL
MINIMUM	MIN
NUMBER	NO.
NUMBER	#

DESCRIPTION	ABBREVIATION
NATIONAL PIPE THREAD	NPT
NON-REINFORCED CIRCULAR CONCRETE PIPE	NRCP
NOT TO SCALE	NTS
ON CENTER	O/C
OUTSIDE DIAMETER	OD
OVERALL	OA
PRESTRESSED CONCRETE CYLINDER PIPE	PCCP
POLYTHYLENE PRE-COATED CORRUGATED STEEL PIPE	PESCP
PRESSURE REDUCING VALVE	PRV
POUNDS PER SQUARE INCH	PSI
POLYVINYL CHLORIDE	PVC
RADIUS	R.
REINFORCED CONCRETE	R.C.
REINFORCED CONCRETE ARCH PIPE	RCAP
REINFORCED CIRCULAR CONCRETE PIPE	RCCP
REINFORCED CONCRETE ELLIPTICAL PIPE	RCEP
REINFORCED CONCRETE PIPE	RCP
REINFORCEMENT	REINF
RIGHT OF WAY	R/W
STABILIZED CONSTRUCTION ENTRANCE	SCE
SCHEDULE	SCH
MARYLAND STATE HIGHWAY ADMINISTRATION	SHA
SEWER HOUSE CONNECTION	SHC
STEEL PIPE	SP
STRUCTURAL PLATE PIPE	SPP
SQUARE	SQ
STAINLESS STEEL	SS
STORM WATER MANAGEMENT	SWM
TERMINAL	TERM
TYPICAL	TYP
VOLTS	V
COEFFICIENT OF FRICTION BETWEEN FILL MATERIAL AND SIDES OF TRENCH	μ'
SQUARE MEMBER	□
C SHAPED MEMBER	⊏

LEGEND

EXISTING	PROPOSED	DESCRIPTION
77	77	CONTOUR
		CURB AND GUTTER
		SIGN
		TREELINE
		TREE
S S		SANITARY SEWER OR FORCEMAIN & MANHOLE
		REDUCER, TEE, VALVE & FIRE HYDRANT
W W	2"W, 2"NPW	WATER AND NON-POTABLE WATER MAIN
D D		STORM DRAIN
G G G		GAS MAIN AND MH
E E E		ELECTRICAL CONDUIT & MH
T T	CC	TELEPHONE CONDUIT & MH
CTV		CABLE TELEVISION
X X		FENCE WIRE
//		FENCE WOOD
	LOD	LIMITS OF DISTURBANCE
	SF	SILT FENCE
	SSF	SUPER SILT FENCE
FP		100 YEAR FLOOD PLAIN
WUS		WATERS OF THE UNITED STATES
WET		WETLAND BOUNDARY
WB		WETLAND BUFFER
SB		STREAM BANK 100 FOOT BUFFER
		TRAVERSE POINT
	B8-XX	BORING LOCATION AND NUMBER
	TP-XX	TEST PIT\HOLE
		BENCHMARK
		PROPERTY LINE
		PERMANENT EASEMENT
		TEMPORARY CONSTRUCTION STRIP
		NEW PAVEMENT LIMITS
		RIP RAP
		STORMWATER CONTROL FACILITY (MICRO-BIORETENTION)
X X X X X		EXISTING PIPE OR MANHOLE TO BE REMOVED
G G G		GROUND CONDUCTOR AND GROUND ROD
	*	OUTSIDE LIGHT

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

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS FUDE HUDSON — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES:	
DRN:	
CHK:	

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

GENERAL NOTES AND LEGEND

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

SCALE AS SHOWN

SHEET 2 OF 70

G-2

N:\13428-001\CADD\13428001G0-00.dwg
Sep 14, 2012 - 7:58am

EDGE OF PAVING STAKEOUT		
POINT	NORTH	EAST
R1	524,279.81	1,357,497.91
R2	524,264.65	1,357,544.78
R3	524,286.37	1,357,587.78
R4	524,280.45	1,357,643.85
R5*	524,233.09	1,357,702.65
R6*	524,216.50	1,357,721.36
R7	524,171.34	1,357,681.19
R8	524,173.99	1,357,678.20
R9	524,223.40	1,357,661.43
R10	524,218.37	1,357,612.85
R11	524,250.55	1,357,611.98
R12	524,253.42	1,357,608.74
R13	524,274.90	1,357,591.69
R14	524,254.14	1,357,550.59
R15	524,207.16	1,357,535.11

STORMWATER MANAGEMENT STAKEOUT		
POINT	NORTH	EAST
SW1	524,218.87	1,357,536.51
SW2	524,228.48	1,357,592.41

*REFERS TO TRANSFORMER PAD STAKEOUT AS WELL AS EDGE OF PAVEMENT

GENERATOR STAKEOUT		
POINT	NORTH	EAST
G1	524,231.47	1,357,595.06
G2	524,254.41	1,357,615.41
G3	524,239.81	1,357,631.87
G4	524,216.87	1,357,611.52

PUMPING STATION STAKEOUT		
POINT	NORTH	EAST
PS1	524,196.47	1,357,637.54
PS2	524,210.93	1,357,650.37
PS3	524,199.87	1,357,662.83
PS4	524,212.34	1,357,673.89
PS5	524,193.32	1,357,695.34
PS6	524,164.89	1,357,670.13
PS7	524,183.91	1,357,648.68
PS8	524,185.41	1,357,650.01

PIG VAULT STAKEOUT		
POINT	NORTH	EAST
V1	524,206.50	1,357,690.88
V2	524,212.85	1,357,696.52
V3	524,205.22	1,357,705.12
V4	524,198.87	1,357,699.48

BASELINE CONSTRUCTION STAKEOUT			
CURVE	DESCRIPTION	NORTH	EAST
–	POS STA. 100+00.00	524,243.6949	1,357,506.5959
DRIVEWAY 1	PC STA. 100+77.91	524,278.8219	1,357,586.1394
DRIVEWAY 1	PI STA. 101+09.16	524,292.9087	1,357,604.0280
DRIVEWAY 1	PT STA. 101+32.80	524,272.1761	1,357,637.4027
–	POE STA. 102+21.81	524,213.1127	1,357,703.9926

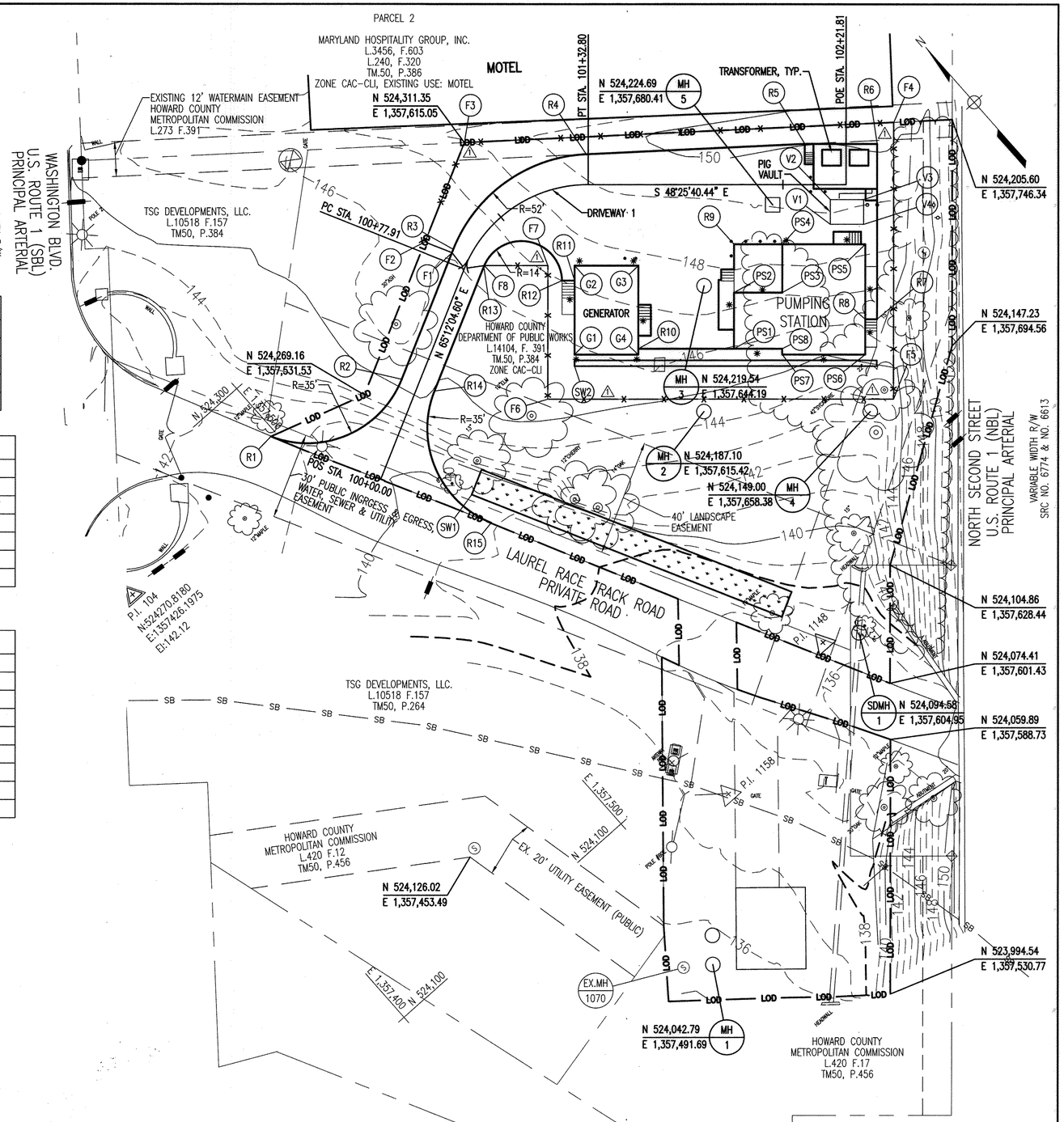
BASELINE CURVE DATA	
CURVE	DRIVEWAY 1
DELTA	68°22'14.96"
Dc	124°33'21.75"
R	46.00'
L	54.89'
T	31.24'
E	9.61'

FENCE STAKEOUT		
POINT	NORTH	EAST
F1	524,285.81	1,357,586.67
F2	524,294.74	1,357,582.16
F3	524,311.35	1,357,615.05
F4	524,218.30	1,357,730.57
F5	524,146.89	1,357.667.23
F6	524,226.08	1,357.577.95
F7	524.260.53	1,357.608.50
F8	524.275.10	1.357.592.09

NOTE:
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 PREFORMED 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 #50EM2	524,102.78	1,357,191.12	141.36
HOWARD COUNTY #0002	544,836.52	1,340,825.33	444.385
BENCH MARK #50BM1	(TRIANGULATED)	(TRIANGULATED)	181.923



PLAN
SCALE: 1"= 20'

AS-BUILT

AS BUILT REPLACEMENT SHEET 2/16

0 10' 20' 40'
SCALE: 1" = 20'

C-1

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: 10/28/17.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/16/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/14/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/8/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS ROSS WATSON — No. 24478 — PROFESSIONAL ENGINEER — 2/9/16

DES: –
DRN: –
CHK: –

BY	NO.	REVISION	DATE
WRA	1	ADDED CHAIN LINK FENCE AND STAKEOUT	6/26/15
	2	AS-BUILTS	2/16

STAKEOUT PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

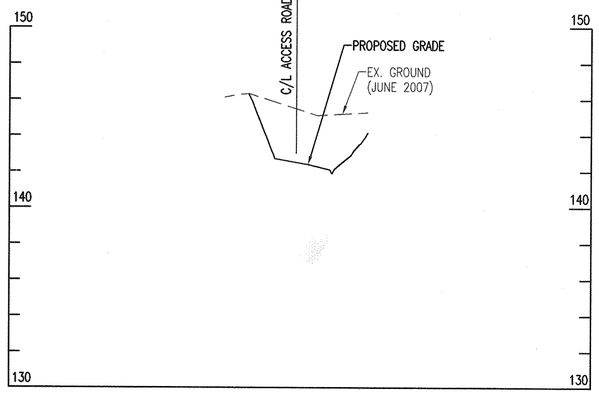
SCALE AS SHOWN

SHEET 3 OF 70

N:\13428-001\CADD\13428001C1-01.dwg
Feb 10, 2016 - 8:35am

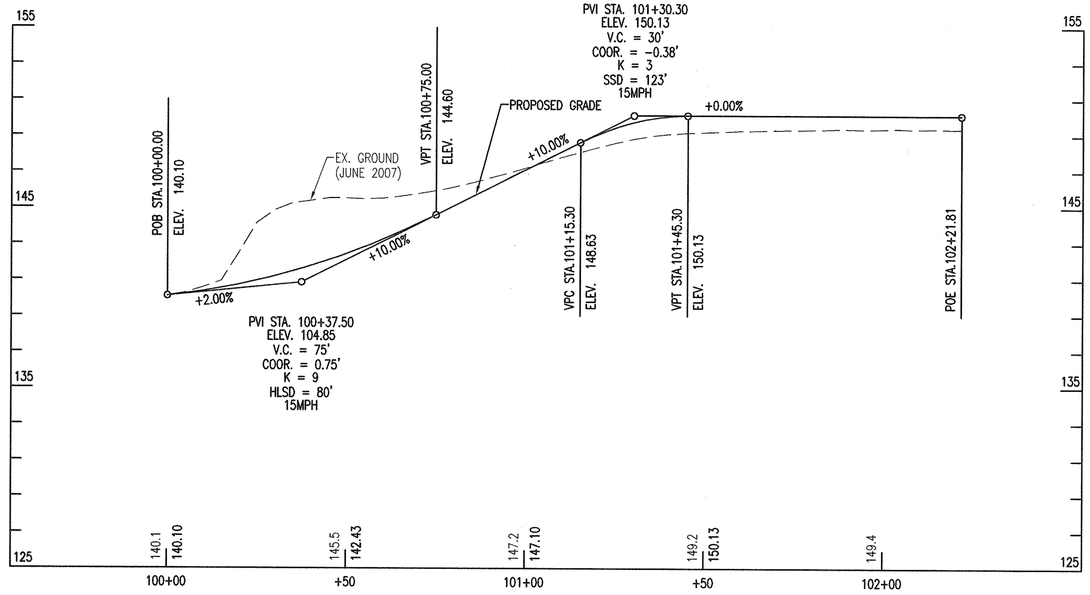
SITE GRADING AND PAVING PLAN:

1. THE SITE IS WITHIN A 100-YEAR FLOODPLAIN (ELEVATION 152.5). PUMPING STATION FIRST FLOOR ELEVATION IS 154.5.
2. PLACE GUARD POSTS AS SHOWN PER DETAIL, DRAWING S-4.
3. THE ACCESS ROAD AND NEW PAVEMENT SHALL BE PER HOWARD COUNTY STANDARD DETAIL R-2.01, SECTION P-4 WITH CBR OF 5 TO <7. SEE SPECIFICATIONS FOR ALL PAVING REQUIREMENTS.
4. UTILITY TRENCH REPAIR ACROSS LAUREL RACE TRACK ROAD SHALL BE PER HOWARD COUNTY STANDARD DETAIL G-4.01.
5. FOR STORMWATER DETAILS, LANDSCAPING, AND SEEDING AND MULCHING, SEE DRAWINGS C-5 AND SC-1.
6. FOR SEDIMENT AND EROSION CONTROL MEASURES, AND TREE REMOVAL, SEE DRAWING SC-1.



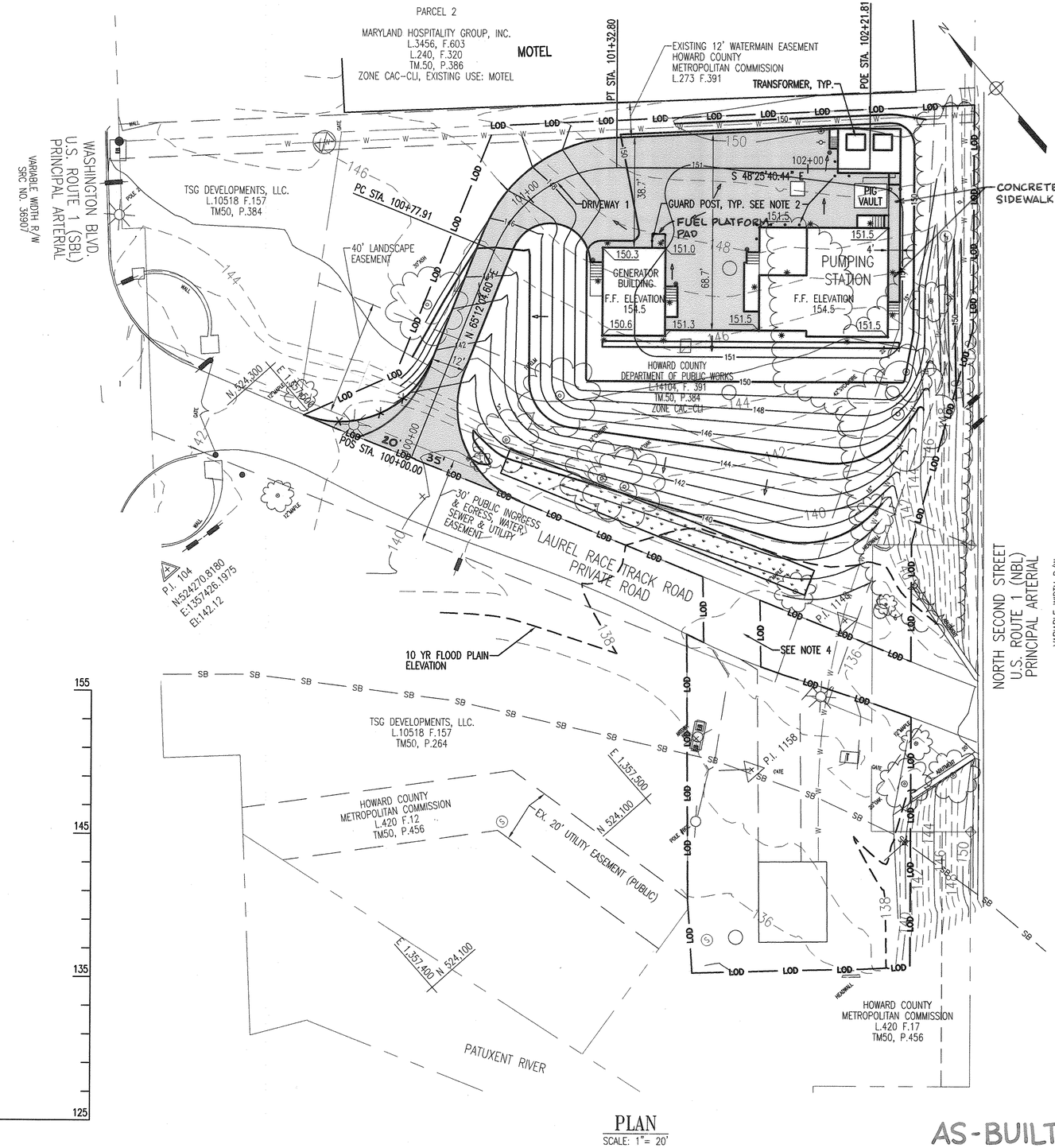
ROAD SECTION AT STA. 100+50

SCALE: HORIZ. 1"= 20'
VERT. 1"= 4'



ROAD PROFILE

SCALE: HORIZ. 1"= 20'
VERT. 1"= 4'



PLAN

SCALE: 1"= 20'

AS-BUILT

SCALE: 1" = 4'

SCALE: 1" = 20'

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

DIRECTOR OF PUBLIC WORKS — DATE 10/4/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DEBORAH TODD PASSOS — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: -
DRN: -
CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SITE GRADING AND PAVING PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 70

C-2

N:\13428-001\CADD\13428001C1-02.dwg
Sep 14, 2012 - 7:02am

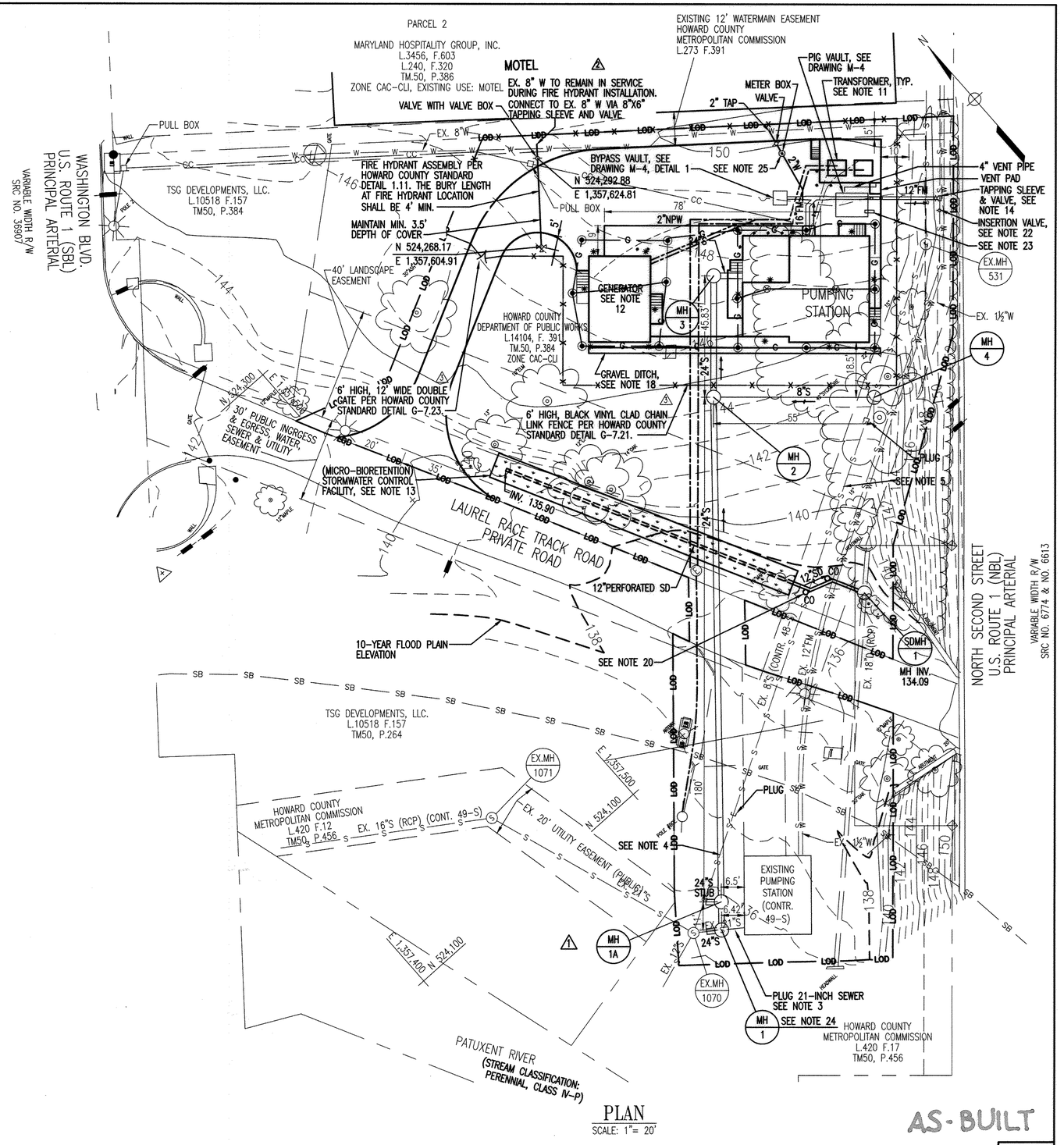
UTILITY NOTES:

1. ALL MANHOLES SHALL HAVE 24–INCH WATERTIGHT FRAMES AND COVERS, UNLESS OTHERWISE INDICATED, PER HOWARD COUNTY STANDARD DETAIL G–5.52.
2. FOR TRENCH SECTION SEE HOWARD COUNTY STANDARD DETAIL G–2.11.
3. INSTALL TEMPORARY PLUG IN THE 21–INCH SEWER (TO BE ABANDONED IN FUTURE). REFER TO CONSTRUCTION SEQUENCE.
4. CONTRACTOR SHALL PROTECT AND SUPPORT THE SEWER DURING CONSTRUCTION. SEWER TO BE ABANDONED AT A LATER DATE.
5. ABANDON THE EXISTING 8–INCH SEWER, REMOVE PORTIONS OF SEWER AS NECESSARY TO PERFORM THE WORK, AND PLUG THE PIPELINES AT BOTH ENDS AS SHOWN AND PER HOWARD COUNTY STANDARD SPECIFICATIONS. REFER TO CONSTRUCTION SEQUENCE.
6. ALL NEW FORCEMAIN PIPING SHALL BE RESTRAINED JOINT.
7. BYPASS PUMPING SYSTEM FOR INSTALLATION OF PIPELINES WILL BE A RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN, INCLUDING PUMPS, PIPE MATERIAL, ETC. THE PLAN SHALL INCLUDING THE FOLLOWING CONSTRAINTS:
   a. BYPASS PUMPING CAPACITY OF THE 8–INCH SEWER SHOULD BE 0.7 MGD
   b. BYPASS PUMPING CAPACITY OF THE EXISTING 12–INCH FORCEMAIN AND SEWERS NEAR MH–1 SHOULD BE 3.8 MGD.
8. CONTRACTOR TO FIELD VERIFY INVERTS PRIOR TO CONSTRUCTION.
9. SEE PIPELINE PROFILES ON DRAWING C–4.
10. FOR FORCEMAIN CONNECTION PIG VAULT AND VALVING DETAIL, SEE DRAWINGS M–4 AND M–5.
11. PROPOSED UTILITY TRANSFORMER AND PAD, SEE DRAWING S–15.
12. PROPOSED GENERATOR BUILDING AND PAD, SEE DRAWING S–15.
13. FOR DETAILS OF STORMWATER CONTROL FACILITY (MICRO–BIORETENTION) SEE SHEET SC–1.
14. THE TAPPING SLEEVE & VALVE LOCATION SHALL BE TEST PITTED BY THE CONTRACTOR PRIOR TO INSTALLATION.
15. SEE E–1 FOR ELECTRICAL SITE PLAN.
16. ALL SANITARY SEWER AND FORCEMAIN PIPING SHALL BE CLASS 52 DUCTILE IRON PIPE WITH PROTECTO 401 LINING.
17. SEE MECHANICAL DRAWINGS FOR BACKFLOW PREVENTER DETAIL.
18. FOR DETAIL, SEE SHEET C–5.
19. FOR PIPE PROFILES, SEE SHEET C–4.
20. INSTALL A 12"X 6"WYE TO PROVIDE A 6–INCH CLEAN OUT AT EACH BEND AS SHOWN (SEE PROFILE ON SHEET C–4). INSTALL A 45 DEGREE BEND ON THE 6–INCH CLEAN OUT AND BRING IT UP TO GRADE USING A 6–INCH SCHEDULE 40 PVC OR CAST IRON SOIL PIPE. THE CLEANOUT COVER, ASSEMBLY DETAILS, AND MATERIALS SHALL BE PER HOWARD COUNTY STANDARD DETAIL S–2.22.
21. DELETED
22. INSTALL 12–INCH INSERTION VALVE APPROXIMATELY 7 FEET AWAY FROM THE TAPPING SLEEVE AND VALVE. REFER TO THE SPECIFICATIONS.
23. INSTALL 3–FEET OF 12–INCH FORCEMAIN AND CAP FOR FUTURE CONNECTION. SEE DETAIL 1 ON DRAWING M–4.
24. REPLACE A PORTION OF THE 21–INCH SEWER AS SHOWN. THE 21–INCH SEWER IS TO REMAIN INTACT THROUGH MANHOLE 1 AND SHALL CONNECT TO EXISTING 21–INCH SEWER. THIS APPROACH WOULD REMOVE THE NEED TO BY–PASS PUMP THIS CONNECTION FOR EXTENDED PERIODS OF TIME, UNTIL THE NEW SEWER WOULD BE READY TO RECEIVE FLOWS. REFER TO THE SPECIFICATIONS (DOCUMENT C) FOR REQUIREMENTS. WHEN INSTRUCTED BY HOWARD COUNTY, THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE THE 21–INCH PIPELINE FROM MANHOLE 1 TO ALLOW THE FLOW FROM THE 21–INCH SEWER TO DISCHARGE TO MANHOLE 1. THE 21–INCH PIPELINE SHALL NOT BE REMOVED UNTIL ALL DOWNSTREAM PIPE AND PUMPING FACILITIES HAS BEEN CONSTRUCTED, TESTED, AND APPROVED TO RECEIVE THE FLOW.
25. INSTALL WATER SERVICE CONNECTION PER HOWARD COUNTY STANDARD DETAIL W–3.2.1. 2" WATER METER SHALL BE INSTALLED PER HOWARD COUNTY STANDARD DETAIL W–3.34.

⚠

MANHOLE SCHEDULE			
STRUCTURE	TYPE	STD. DETAIL *	INTERM. LANDING
MH–1	60–INCH DOGHOUSE	G–5.14	NO
MH–1A	60–INCH	G–5.13	NO
MH–2	60–INCH	G–5.13	YES
MH–3	60–INCH	G–5.13	YES
MH–4	48–INCH DOGHOUSE	G–5.12/S–1.32	YES
BYPASS VAULT	5–FOOT VAULT	NA	NO
SDMH–1	48–INCH WITH DROP CONNECTION	SHA MD 384.01	NO

STANDARD DETAILS ARE INCLUDED IN THE SPECIFICATIONS. FOR THE DOGHOUSE PORTION OF THE SHA MD 384.01 DETAIL, REFER TO DETAIL G–5.14



PLAN
SCALE: 1"= 20'

AS-BUILT

AS BUILT REPLACEMENT SHEET 2/16

0 10' 20' 40'
SCALE: 1" = 20'

C–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. 24478, EXPIRATION DATE: 10/28/17.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/30/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/30/16
CHIEF, BUREAU OF UTILITIES — DATE 6/30/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/30/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 – 235 – 3450

STATE OF MARYLAND — THOMAS HUGH KEARSON — PROFESSIONAL ENGINEER — 10/27/16

DES:– DRN:– CHK:–

BY	NO.	REVISION	DATE
	⚠1	ADDED MANHOLE 1A – REF: RFI 22	4/30/14
	⚠2	ADDED HYDRANT – DR NO. 6	5/2/14
	⚠3	ADDED CHAIN LINK FENCE	6/26/15
WRA	⚠4	AS-BUILTS	2/16

UTILITY PLAN

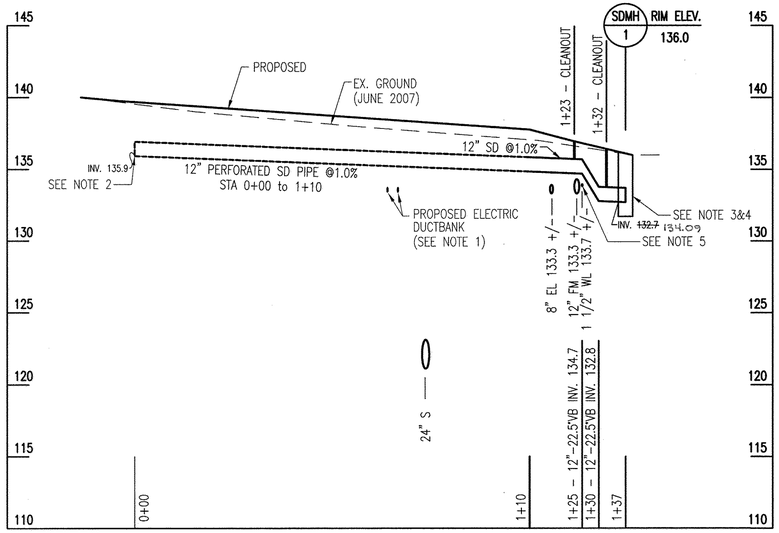
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S–6189
CONTRACT NO. 20–4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 70

N:\13428–001\CADD\13428001C1–03–future.dwg
May 19, 2016 – 8:34am

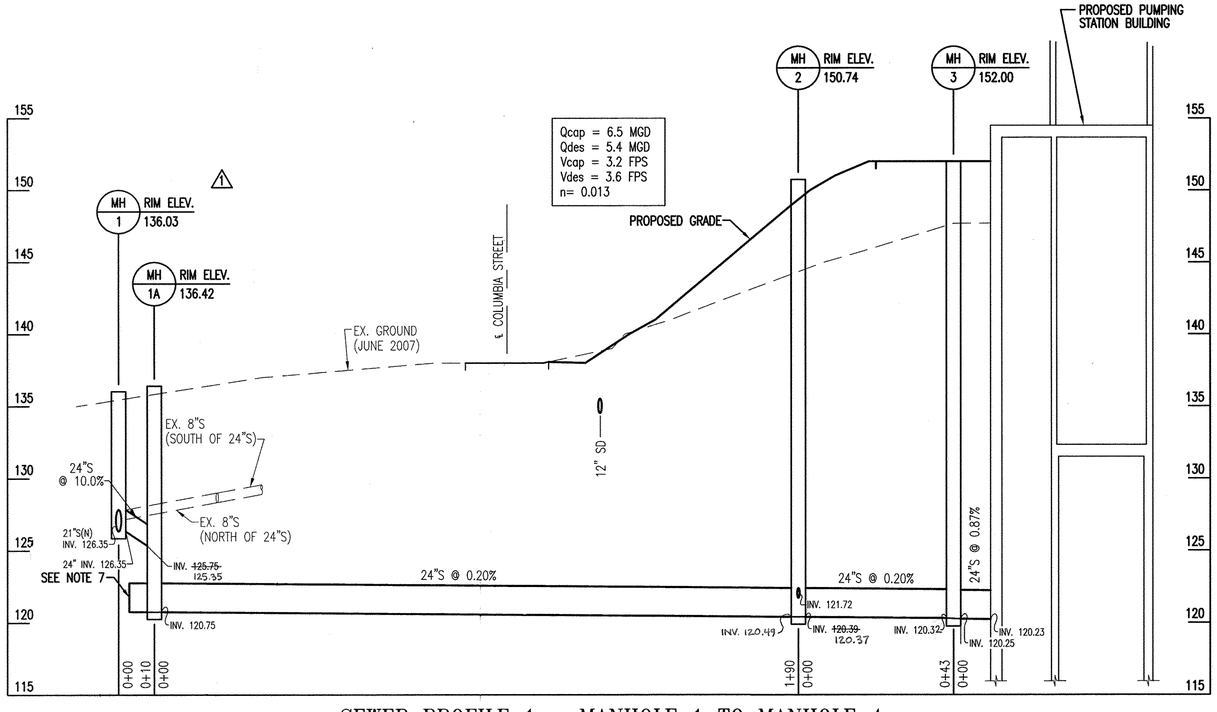


STORM DRAIN PROFILE

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

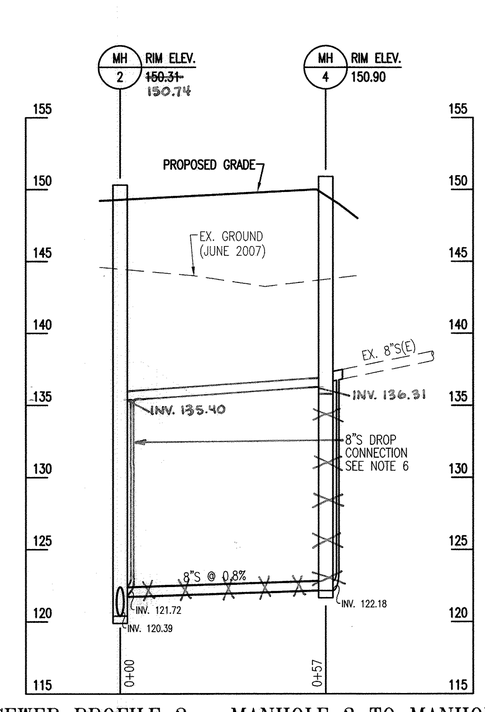
NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF THE DUCTBANK.
2. THE UPSTREAM END OF THE 12-INCH STORMDRAIN SHALL BE CAPPED PRIOR TO INSTALLATION.
3. CONTRACTOR IS REQUIRED TO TEST PIT UTILITIES INCLUDING EXISTING STORM DRAIN, PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO DETERMINE DEPTH OF EXISTING STORM DRAIN PRIOR TO ORDERING MATERIALS AND MAKING A CONNECTION.
5. PROTECT EXISTING SEWER, FORCEMAIN, AND WATER PIPING DURING CONSTRUCTION. MAINTAIN ADEQUATE CLEARANCE TO INSTALL THE STORM DRAIN. SEWER, FORCEMAIN AND WATER PIPING TO BE ABANDONED AT A LATER DATE.
6. INSTALL TYPE B DROP CONNECTION PER HOWARD COUNTY STANDARD DETAIL S-1.32.
7. INSTALL 5 FEET OF 24-INCH SEWER AT 0.14% SLOPE AND CAP FOR FUTURE CONNECTION.



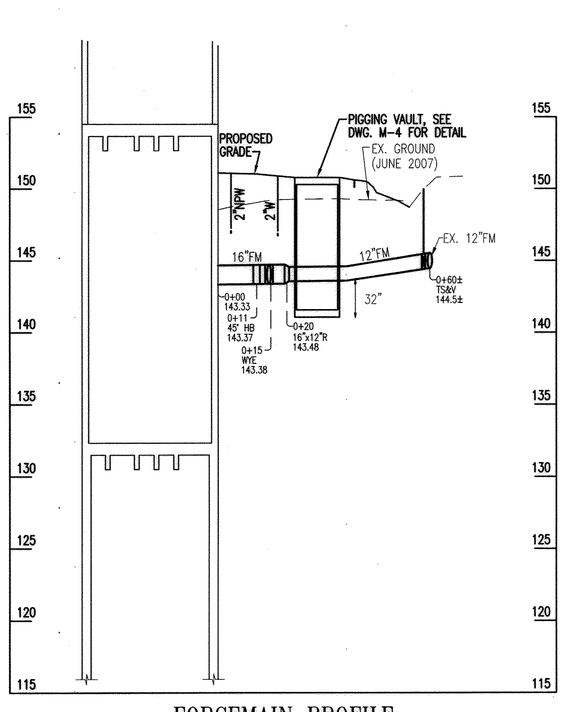
SEWER PROFILE 1 - MANHOLE 1 TO MANHOLE 4

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



SEWER PROFILE 2 - MANHOLE 3 TO MANHOLE 5

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



FORCEMAIN PROFILE

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

AS-BUILT

0 5' 10' SCALE: 1" = 5'

0 10' 20' 40' SCALE: 1" = 20'

AS BUILT REPLACEMENT SHEET 2/16

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: 10/20/17.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/2016
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/14/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/8/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS ROSS KASSOY — 24478 — PROFESSIONAL ENGINEER — 7/9/16

DES: -
DRN: -
CHK: -

BY	NO.	REVISION	DATE
WRA	1	ADDED MANHOLE 1A - REF: RFI 22	4/30/14
WRA	2	AS-BUILTS	2/16

UTILITY PROFILES

600' SCALE MAP NO. 30 BLOCK NO. 10

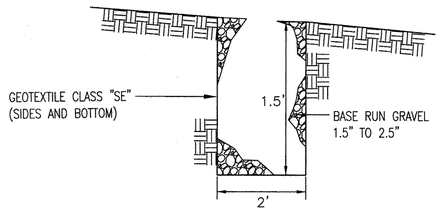
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 6 OF 70

C-4

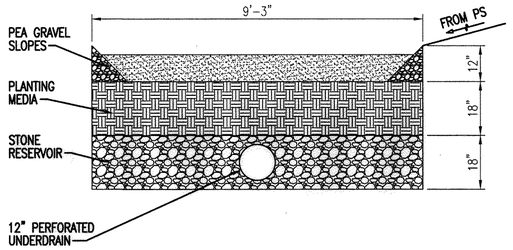
N:\13428-00\CADD\13428001C1-04.dwg
Feb 10, 2016 - 8:09am



DETAIL - SWM GRAVEL DITCH

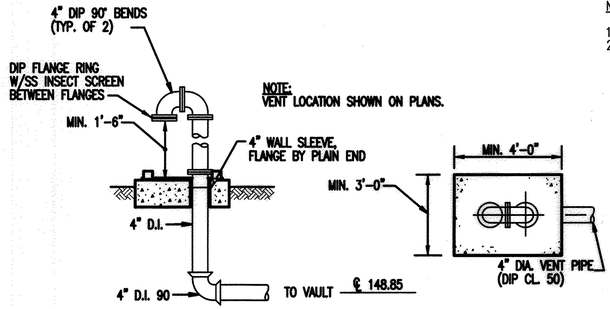
NOT TO SCALE

NOTE: SEE DRAWING SC-1 FOR MICRO-BIORETENTION LANDSCAPE DETAILS.



SECTION - MICRO-BIORETENTION FACILITY

SCALE: 1"= 20'

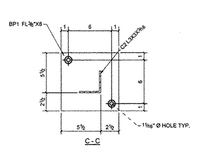


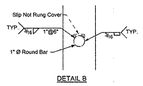
NOTES:

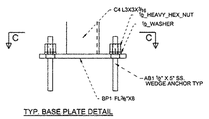
1. SEE DRAWINGS M-4 AND M-5 FOR ADDITIONAL DETAILS.
2. VENT STACK TO BE PROVIDED PER DETAIL, THIS SHEET. FOR VENT PIPE/VENT LOCATION, SEE DRAWING C-3.

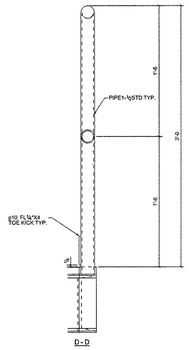
VACUUM VALVE VENT STACK DETAIL

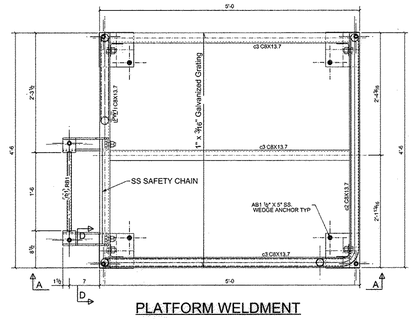
NOT TO SCALE

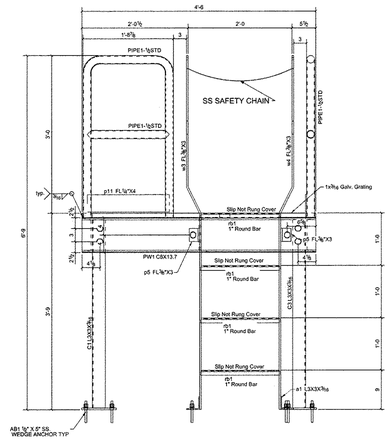


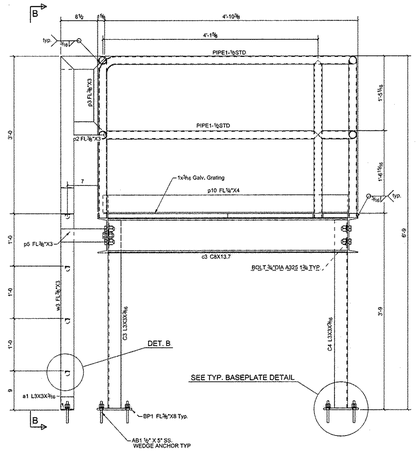












NOTES:
1. All parts to be hot dipped galvanized.
2. Add sufficient vent holes for galvanizing.

REV.	REVISION DESCRIPTION:	DATE	DWN	CHK.
2	Revised per P.E. comments	6/11/15	KO	
1	Released for Submittal	6/10/15	KO	

GENERAL NOTES

PREP-FINISH: SP2/GALVANIZED
HOLES: 13/16" DIA.NO. WELDS: 1/4" FILLET U.N.O. PAINT: N/A
DESCRIPTION: FILL STATION PLATFORM — DRAWN BY: KO — DATE: 06/10/2015
PROJECT NAME: NORTH LAUREL PUMP STATION — CHKD. BY: JR — DATE: 06/10/2015
CUSTOMER: JOHNSTON CONSTRUCTION — PLOT DATE:

SF INDUSTRIAL
TURNKEY FABRICATION/INSTALLATION
8287 Lincoln Highway Fredericksburg, PA 17026
Phone: 717-202-0848 Fax: 717-202-4758

JOB NO.	SCOPE INDEX	SHT. NO.	REV.
150593		E1	2

Mark Skidmore

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: 10/28/17.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/16/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/14/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/8/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS RUSS WEIDER — No. 24478 — PROFESSIONAL ENGINEER — 6/27/16

	BY	NO.	REVISION	DATE
DES: -	WRA	/1	AS-BUILTS	2/16
DRN: -				
CHK: -				
■				

DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

AS BUILT REPLACEMENT SHEET 2/16

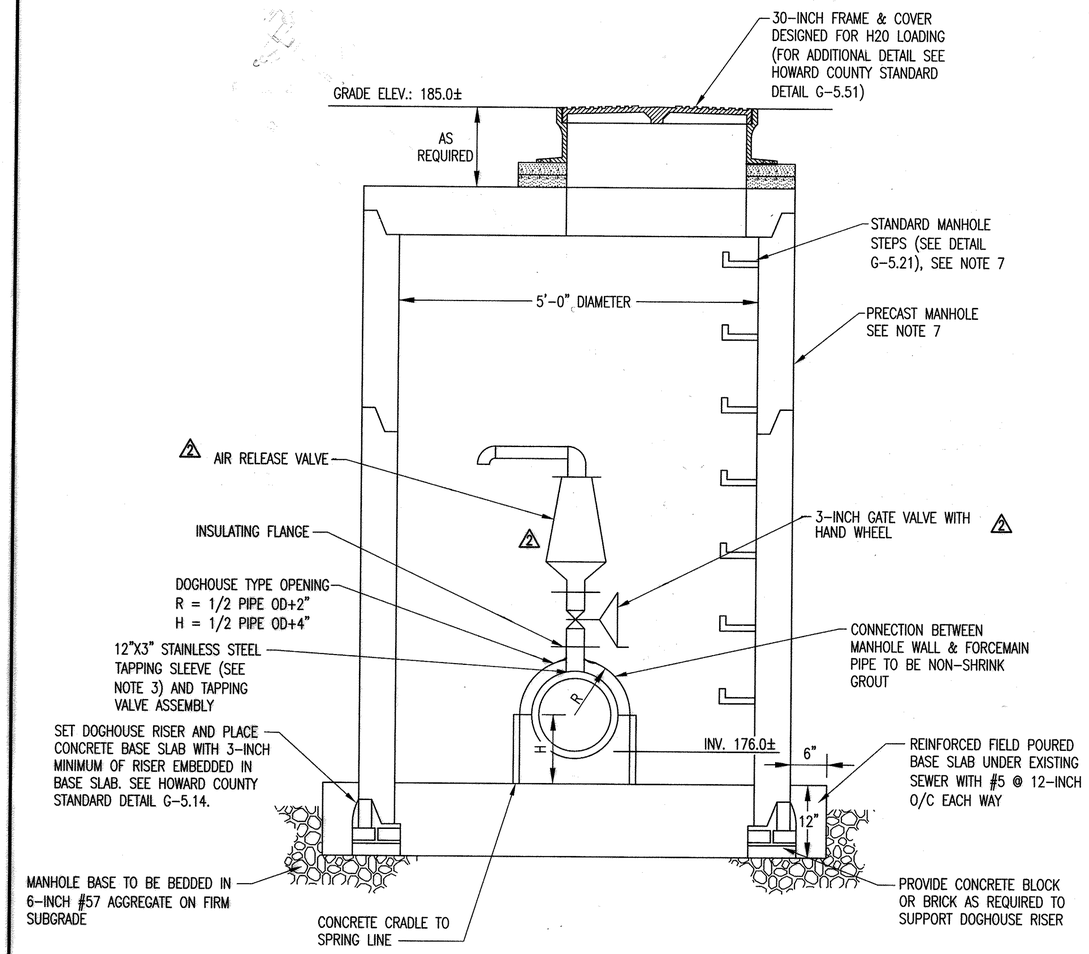
0 1' 2' 4'
SCALE: 1/2" = 1'-0"

C-5

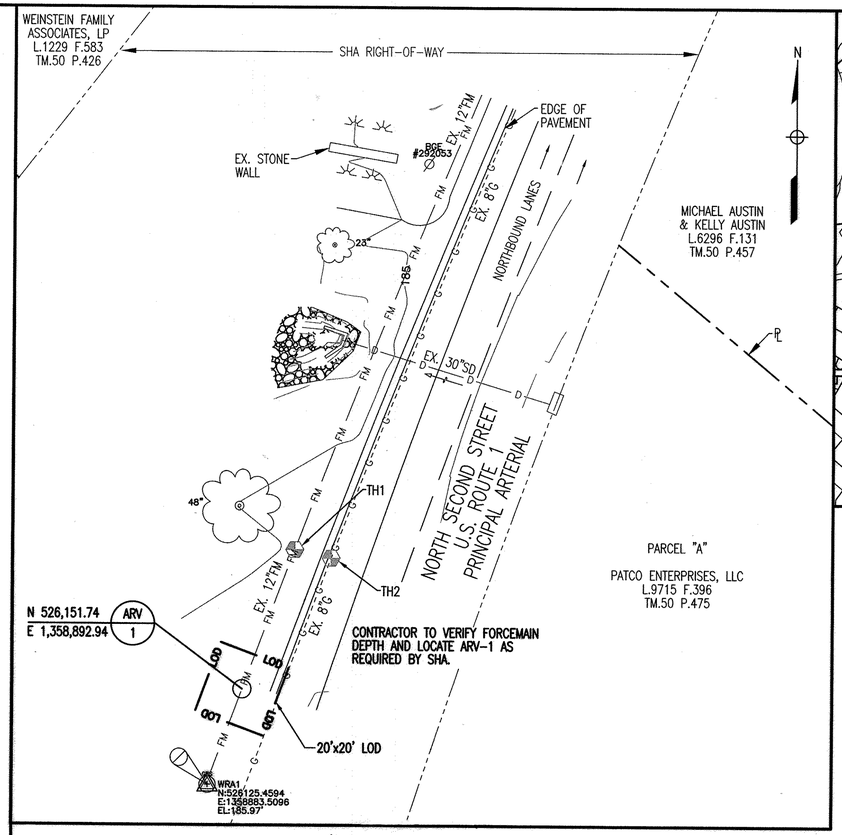
SCALE AS SHOWN

SHEET 7 OF 70

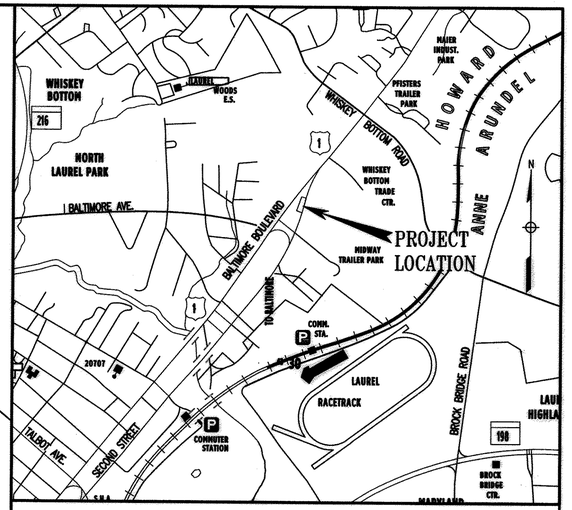
N:\18428-001\CADD\18428001C1-05.dwg
May 16, 2016 - 1:57pm



AIR RELEASE/VACUUM VALVE DETAIL
SCALE: 1" = 1'



3 PLAN
SCALE: 1"= 20'



VICINITY MAP
SCALE: 1"= 100'

TEST PIT INFORMATION

TEST PIT NO.	SIZE (TYPE)	DEPTH TO TOP OF PIPE	MATERIAL
1	12"FM	7.82'	CAST IRON
2	8"G	3.48'	STEEL

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH HOWARD COUNTY IF THE CONTRACTOR REQUIRES A SHUT DOWN OF THE FORCEMAIN AS NECESSARY TO PERFORM THE WORK. ANY DOWNTIME SHALL BE MINIMIZED AND CLOSELY COORDINATED WITH THE COUNTY. NIGHT WORK MAY BE REQUIRED.
2. THE WORK PERFORMED SHALL REQUIRE A SHA PERMIT. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS SET FORTH IN THE PERMIT. THE CONTRACTOR SHALL NOT IMPACT TRAFFIC ON ROUTE 1 DURING CONSTRUCTION.
3. PROVIDE A 12-INCH BY 3-INCH TAPPING SLEEVE WITH FLANGE CONNECTION. THE SLEEVE SHALL HAVE A FULL CIRCUMFERENTIAL SEAL, ALL STAINLESS STEEL TAPPING SLEEVE WITH SIDE LIFTER BARS, AS MANUFACTURED BY ROMAC INDUSTRIES, INC., CATALOG NUMBER SST-12.75 TO 14.80 (CONTRACTOR TO VERIFY SLEEVE OD PRIOR TO CONSTRUCTION) x 3" OR APPROVED EQUAL.
2 4. THE AIR RELEASE/VACUUM VALVE SHALL BE A COMBINATION 3-INCH AIR VALVE FOR WASTEWATER, SINGLE BODY AS MANUFACTURED BY A.R.I., SERIES D-020, PN16. THE VALVE SHALL BE STAINLESS STEEL WITH FLANGED ENDS TO CONNECT AS SHOWN.
5. THE SURVEY CONTROL POINT IS A BENCHMARK WRA1 (N: 526,125.4594, E: 1,358,883.5096, ELEV.: 185.97').
6. RESTORE THE SITE TO EXISTING CONDITIONS UPON COMPLETION.
7. REFER TO HOWARD COUNTY STANDARD DETAIL G-5.11 FOR ADDITIONAL MANHOLE DETAILS AND DETAIL G-5.21 FOR MANHOLE STEPS. MANHOLE SHALL NOT HAVE A CONE SECTION.
8. FOR ITEMS NOT SPECIFIED OR DETAILED HEREIN, REFER TO THE HOWARD COUNTY VOLUME IV DESIGN MANUAL.
9. CONSTRUCTION SEQUENCE NOTE:
   THE ARV SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO TESTING OF THE NEW STATION.

LEGEND

185	MAJOR CONTOUR
	MINOR CONTOUR
	RIGHT-OF-WAY
	PROPERTY LINE
FM	EX. FORCEMAIN
G	EX. GAS
D	EX. STORM DRAIN
	RIP-RAP
	TREE
	ELECTRIC POLE
	LIGHT
	TEST PIT LOCATION
LOD	LIMIT OF DISTURBANCE
	ARV MANHOLE

AS-BUILT

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: 10/28/17.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/9/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/9/16

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — MICHAEL BOWEN — No. 24478 — PROFESSIONAL ENGINEER — 6/9/16

DES: MB
DRN: AM
CHK: HL

BY	NO.	REVISION	DATE
MB	1	ADDED DRAWING	8/2013
MB	2	CHANGED VALVE TYPE AND ADDED HAND WHEEL	9/2014
MB	3	CHANGED LOCATION OF ARV VAULT	3/2015
WRA	4	AS-BUILTS	3/16

ARV ON EXISTING NORTH LAUREL FORCEMAIN

600' SCALE MAP NO. 30 | BLOCK NO. 10

AS BUILT REPLACEMENT SHEET 2/16

0 6" 1' 2' SCALE: 1" = 1'-0"
0 10' 20' 40' SCALE: 1" = 20'

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

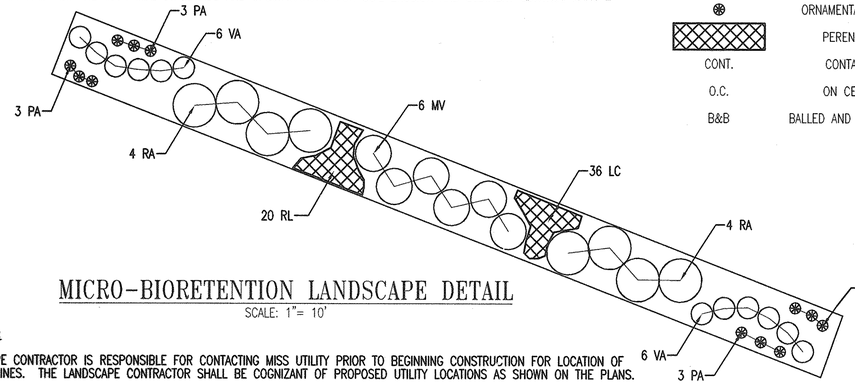
SHEET 7A OF 70

C-6

R:\13428-001\CADD\13428001C2-01_A.dwg
Feb 17, 2016 - 11:04am

NOTES:

1. CONTRACTOR WILL BE ALLOWED TO REMOVE THE SUPER SILT FENCE ONLY FOR INSTALLATION OF GRAVITY SEWER.
2. ON 2:1 SLOPE UTILIZE SEED MIX NO. 1, OTHERWISE USE MDE SEED MIX NO. 3 PER DRAWING SC-3 AND AS SHOWN. SEED MIXES ARE PER THE 1994 MDE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL.



MICRO-BIORETENTION LANDSCAPE DETAIL

SCALE: 1"= 10'

LANDSCAPE NOTES:

1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY PRIOR TO BEGINNING CONSTRUCTION FOR LOCATION OF ALL UTILITY LINES. THE LANDSCAPE CONTRACTOR SHALL BE COGNIZANT OF PROPOSED UTILITY LOCATIONS AS SHOWN ON THE PLANS.
2. 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 NURSERYMAN. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL BRANCHED, AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECTS, PESTS AND MECHANICAL INJURIES.
3. 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.
4. 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. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OF RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
5. ALL TREES SHALL BE INSTALLED IN ACCORDANCE WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
6. FOR SEEDING REQUIREMENTS, SEE THE EROSION AND SEDIMENT CONTROL DETAIL SHEET.
7. ALL PLANT MATERIALS, TOPSOIL, MULCH FERTILIZERS, SOIL AMENITIES, PLANTING SUPPLIES AND METHODS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT DELAY.
8. 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.
9. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
10. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS.
11. THE LANDSCAPE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL WATERING DURING CONSTRUCTION AND DURING THE ONE YEAR MAINTENANCE PERIOD.
12. 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.
13. 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.

LANDSCAPE PLANT SCHEDULE

QUANTITY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	MATURE SIZE	MIN. SPACING
TREES							
3	AR	ACER RUBRUM 'FRANKSRED'	RED SUNSET RED MAPLE	2-1/2" CAL.	B&B	HEIGHT: 50'-60' SPREAD: 35'-45'	25' O.C.
4	PS	PINUS STROBUS 'FASTIGIATA'	COLUMNAR WHITE PINE	7'-8' HT.	B&B	HEIGHT: 35'-50' SPREAD: 12'-15'	12' O.C.
SHRUBS							
8	RA	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	15"-18"	B&B/CONT.	HEIGHT: 2'-3' SPREAD: 5'-6'	6' O.C.
12	VA	VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	#2	CONT.	HEIGHT: 0.5'-2' SPREAD: 2'-4'	4' O.C.
6	MV	VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM	24"-30"	B&B/CONT.	HEIGHT: 4'-6' SPREAD: 4'-6'	6' O.C.
ORNAMENTAL GRASS							
12	PA	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	#1	CONT.	HEIGHT: 1.5'-2' SPREAD: 1.5'-2'	3' O.C.
PERENNIALS							
20	RL	RUDBECKIA LACINIATA 'GOLDQUELLE'	TALL CONEFLOWER	#1	CONT.	HEIGHT: 3'-4'	24" O.C.
36	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	#1	CONT.	HEIGHT: 3'	18" O.C.

LEGEND

	DECIDUOUS SHRUBS
	ORNAMENTAL GRASS
	PERENNIALS
CONT.	CONTAINER
O.C.	ON CENTER
B&B	BALLED AND BURLAPPED

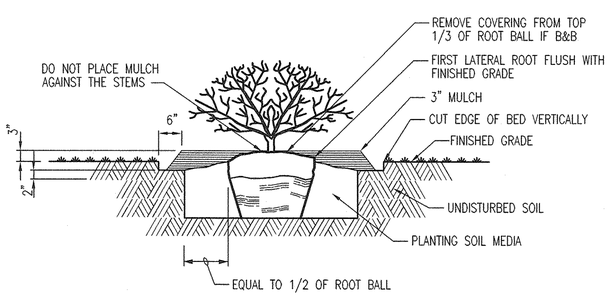
LANDSCAPE CERTIFICATION

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND REGULATIONS AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF NOTICE, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Robert Disney — DEVELOPER — 9/25/12 — DATE

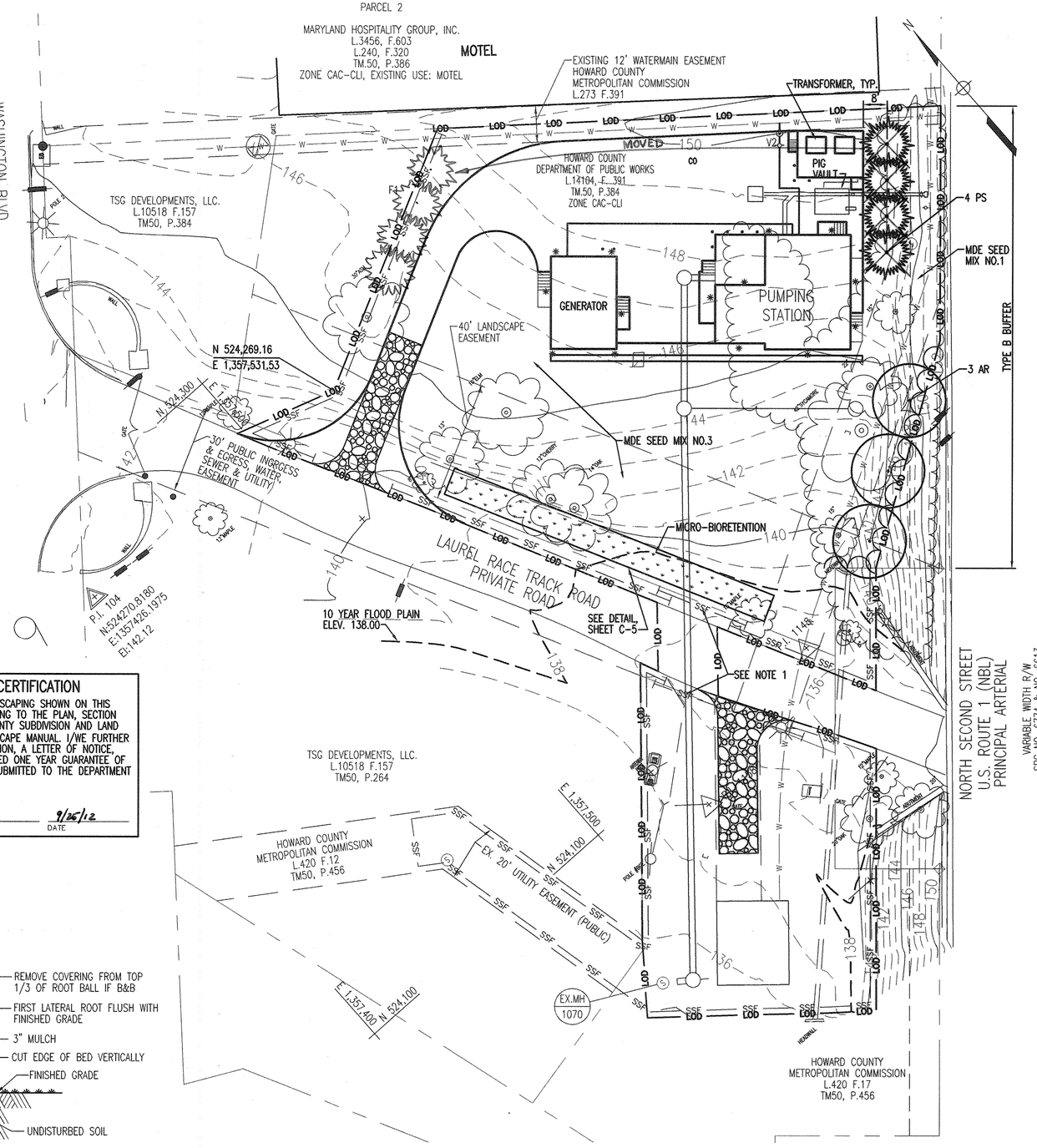
TYPE B BUFFER REQUIREMENTS

LENGTH	TREES REQUIRED	TREES PROVIDED
152 L.F.	1 SHADE TREE/50 L.F. = 3 1 EVERGREEN TREE/40 L.F. = 4	SHADE TREES = 3 EVERGREEN TREES = 4



PLANTING DETAIL - SHRUB

NOT TO SCALE



PLAN

SCALE: 1"= 20'

AS-BUILT

0 10' 20' 40'

SCALE: 1" = 20'

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: 10/09/12.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/6/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DONALD JUDE RASON — No. 24478 — PROFESSIONAL ENGINEER — 9/25/12

DES: - DRN: - CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT, EROSION AND STORMWATER CONTROL PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 70

SC-1

N:\10428-001\CADD\10428001SC1-01.dwg
Sep 14, 2012 - 7:53am

PROJECT SEQUENCE OF CONSTRUCTION

1. NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS (410-313-1855) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE AND OBTAIN GRADING PERMIT. (1 DAY)
3. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY. (7 DAYS)
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE(S). (10 DAYS)
5. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS UPON COMPLETION OF THE INSTALLATION WORK NOTED ABOVE. (1 DAY)
6. WITH THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, CLEAR AND GRUB THE REMAINDER OF THE SITE AND STABILIZE IMMEDIATELY. (21 DAYS)
7. BEGIN EXCAVATION AND INSTALLATION OF UTILITIES. WORK SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED IN ONE DAY PER STANDARD SEDIMENT CONTROL NOTE NO. 11. STABILIZE WORK AREA AT THE END OF EACH WORK DAY. (430 DAYS)
8. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. (7 DAYS)
9. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE(S). (2 DAYS)
10. STABILIZE ALL DISTURBED AREAS. (14 DAYS)
11. FOLLOWING APPROVAL FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS. (7 DAYS)
12. NO WORK SHALL BE PERMITTED IN ANY STREAMS BETWEEN MARCH 1, AND JUNE 15, INCLUSIVE.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOOD PLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY CLASSIFICATION OF THE STREAM:
   USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF THE AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

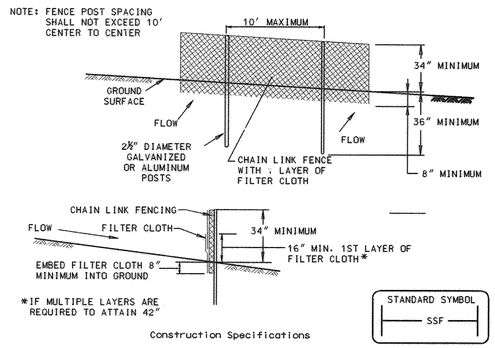
STANDARD SEDIMENT CONTROL NOTES

1. 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).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A)7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. 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.
5. 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, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. 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.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	0.9 ACRES
AREA DISTURBED	0.9 ACRES
AREA TO BE ROOFED OR PAVED	0.2 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.7 ACRES
TOTAL CUT	600 CU. YARDS
TOTAL FILL	1,700 CU. YARDS

   OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. 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.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY.
12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
14. 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.

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

AS-BUILT

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SC-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. 24478, EXPIRATION DATE: 10/27/13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION R/D — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CALVERT STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — DENNIS TUDE HANSEN — No. 24478 — PROFESSIONAL ENGINEER — 9/27/12

DES: - DRN: - CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 9 OF 70

N:\15429-001\CADD\15429001SC1-02.dwg
Sep 14, 2012 - 7:50am

SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS

SITE PREPARATION

i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTEE OF THE PRODUCER.

iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98–100% WILL PASS THROUGH A #20 MESH SIEVE.

iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION

i. TEMPORARY SEEDING

a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"–5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

ii. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.

1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"–5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

d. MIX SOIL AMENDMENTS INTO THE TOP 3"–5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"–3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

e. SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.

D. SEED SPECIFICATIONS

i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW.
ALL SEED SHALL BE SUBJECT TO RE–TESTING BY A RECOGNIZED SEED LABORATORY.
ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

ii. INOCULANT – THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN–FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.

NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75'–80'F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 lbs. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 lbs. PER ACRE; K20 (POTASSIUM): 200 lbs. PER ACRE.

b. LIME – USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON–SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL

a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

ii. WOOD CELLULOSE FIBER MULCH (WCFM)

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER–LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO–TOXIC.

f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS – MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.

iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

i. A MULCH ANCHORING TOOL IS A TRACTOR–DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS – SUCH AS ACRYLIC DLR (AGRO–TACK), DCA–70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'–15' WIDE AND 300'–3,000' LONG.

I. INCREMENTAL STABILIZATION – CUT SLOPES

i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.

ii. CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.

b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.

c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.

d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

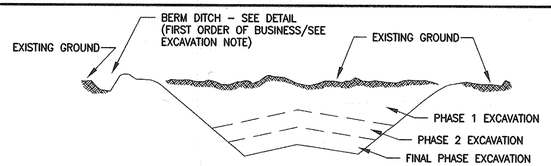


FIGURE 4: INCREMENTAL STABILIZATION – CUT

J. INCREMENTAL STABILIZATION OF EMBANKMENTS – FILL SLOPES

i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.

ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS

iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON–EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.

b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.

c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.

d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

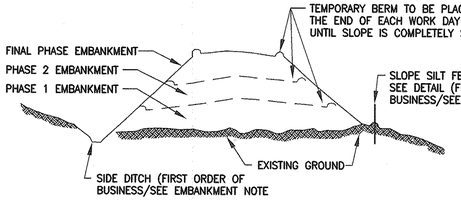


FIGURE 5: INCREMENTAL STABILIZATION – FILL

SECTION II – TEMPORARY SEEDING

VEGETATION – ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES – TEMPORARY SEEDING

i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.

ii. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26					FERTILIZER RATE (10–10–10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
	RYE PLUS FOXTAIL MILLET	150	3/1–4/30 5/1–8/14 8/15–11/15	1"	600 lb/ac (15 lb/1000sf)	2 tons/ac 100 lb/1000sf

SECTION III – PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES – PERMANENT SEEDING

i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR OR AESTHETIC TREATMENT MAY BE FOUND IN USDA–SCS FIELD OFFICE TECHNICAL GUIDE, SECTION 342 – CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.

ii. THIS SITE HAS A DISTURBED AREA OVER 5 ACRES, THEREFORE, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.

iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46–0–0) AT 3–1/2 lbs. PER 1000 sq. ft. (150 lbs/ac), IN ADDITION TO THE ABOVE, SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25					FERTILIZER RATE (10–20–20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	TALL FESCUE (75%) CANADA BLUEGRASS (10%) KENTUCKY BLUEGRASS (10%) REDTOP (5%)	150	3/1–5/15 AND 8/15–10/15	1"	90 lb/ac (2.0 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	2 tons/ac (100 lb/ 1000 sf)
3	TALL FESCUE (85%) PERENNIAL RYEGRASS (10%) KENTUCKY BLUEGRASS (10%)	125 15 10	3/1–5/15 AND 8/15–10/15	1"				

SECTION IV – SOD

TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. GENERAL SPECIFICATIONS

i. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

ii. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

iii. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.

iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

v. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

i. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

ii. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

iii. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

iv. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

i. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.

iii. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

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: 10/27/13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 – 235 – 3450

STATE OF MARYLAND — DENNIS HUDE HESSION — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: – DRN: – CHK: –

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S–6189
CONTRACT NO. 20–4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

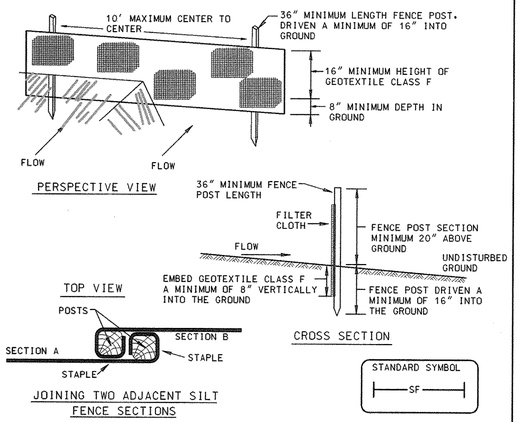
SC-3

SCALE AS SHOWN

SHEET 10 OF 70

N:\13439–001\CADD\13439001SC1–03.dwg
Sep 14, 2012 - 7:51am

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

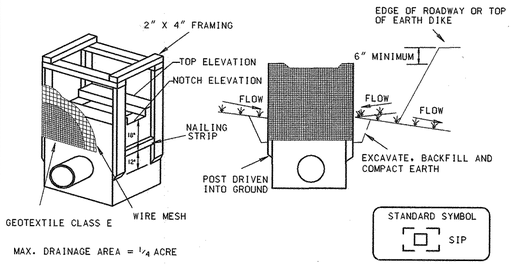
Silt Fence Design Criteria

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

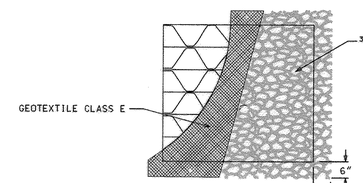
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

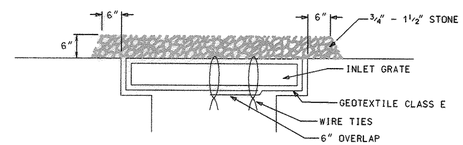
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B – AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



Construction Specifications

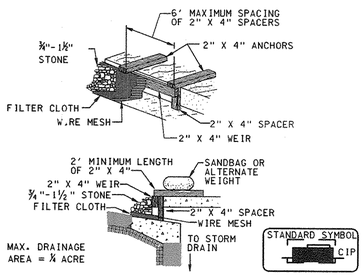
1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place ¾" to 1½" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

PA

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



CONSTRUCTION SPECIFICATIONS

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.

2. Place a continuous piece of approved filter cloth (40-80 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 6' apart).

4. Place the assembly against the inlet throat and nail minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbag or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the ½" x ½" wire mesh and the filter cloth to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter cloth in such a manner to prevent water from entering the inlet under or around the filter cloth.

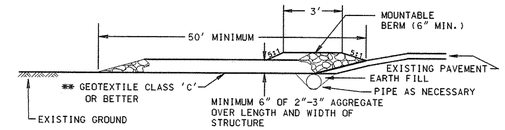
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

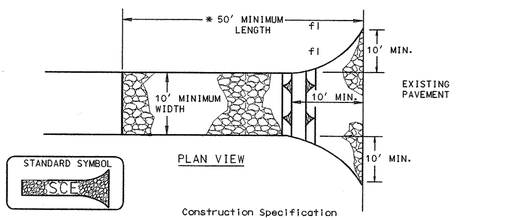
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

PA

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE





Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

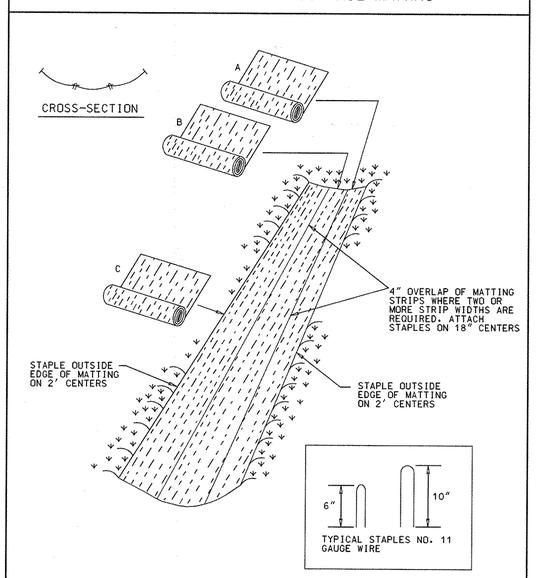
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 – EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

AS-BUILT

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SC-4

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: 6/28/13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — 9/25/12 — DATE
CHIEF, BUREAU OF UTILITIES — 9/25/12 — DATE
CHIEF, UTILITY DESIGN DIVISION RJD — 9/25/12 — DATE

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 – 235 – 3450

STATE OF MARYLAND — DENNIS JUDE WASSON — No. 24478 — PROFESSIONAL ENGINEER — 9/19/12

DES: –
DRN: –
CHK: –

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT AND EROSION CONTROL DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 11 OF 70

N:\13428-001\CADD\13428001S21-04.dwg
Sep 14, 2012 - 7:54am

ARCHITECTURAL ABBREVIATIONS

ABV	ABOVE
AC	AIR CONDITIONING (CONDITIONER)
AD	ACCESS DOOR (OR PANEL)
ADA	AAMERICAN WITH DISABILITIES ACT
ADD	ADDENDUM
ADJ	ADJACENT
AES	ABOVE EXISTING SLAB
AF	ACCESS FLOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
APC	ACOUSTICAL PANEL CEILING (LAY-IN)
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASP	ASPHALT
ATC	ACOUSTICAL TILE CEILING (CONCEALED SUSPENSION)
AWP	ACOUSTICAL WALL PANEL
BB	BULLETIN BOARD (GLASS COVERD)
BC	BOTTOM OF CURB
BD	BOARD
BEN	BENCH
BETW	BETWEEN
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOS	BOTTOM OF SLAB
BOT	BOTTOM
BR	BRICK
BR/S	BACKER ROD AND SEALANT
C	CONDUIT
C/C	CENTER TO CENTER
CB	CHALK BOARD
CAB	CABINET
CARP	CARPET
CARPT	CARPET TILE
CEM	CEMENT
CER	CERAMIC
CI	CAST IRON
CG	CORNER GUARD
CH	CEILING HEIGHT
CJ	CONTROL JOINT
CL	CENTERLINE
CLOS	CLOSET
CLG	CEILING
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAR OPENING
COL	COLUMN
COMP	COMPACTED
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONV	CONVECTOR
CRS	COURSES
CR	COLD ROLLED
CSK	COUNTERSUNK
CSPE	CHLOROSULFONATED POLYETHYLENE ELASTOMER
CT	CERAMIC TILE
CTR	COUNTER
CW	COLD WATER
CX	CONNECT TO EXISTING
D	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN	DOWN
DIR	DIRECTORY
DO	DOOR OPENING
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EM	ENTRY MAT
EP	ETHYLENE PROPYLENE-BASED (SINGLE PLY ROOFING)
EPB	ELECTRIC PANEL BOX
EPDM	ETHYLENE-PROPYLENE-DIENE MEMBRANE
EPS	EXPANDED POLYSTYRENE
EPX	EPOXY
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EW	EACH WAY
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWCA	ELECTRIC WATER COOLER - ACCESSIBLE
EXIST	EXISTING
EXP	EXPANSION OR EXPOSED
EXT	EXTERIOR
F	FILLER
FC	FAN COIL UNIT
FD	FLOOR DRAIN OR FIRE DAMPER
FDR	FOLDING DOOR (WOOD OR FABRIC)
FE	FIRE EXTINGUISHER ON BRACKET
FEC	FIRE EXTINGUISHER CABINET
FH	FLAT HEAD
FIRE T	FIRE TREATED
FIN	FINISH OR FINISHED
FIX	FIXTURE
FL	FLASHING
FLM	FULL LENGTH MIRROR
FLR	FLOOR
FR	FIRE RATED
FRC	FIBER-REINFORCED COATING
FS	FOLDING SHELF
FSS	FOLDING SHOWER SEAT
FT	FOOT OR FEET
FTG	FOOTING
FWP	FABRIC-WRAPPED PANEL (FABRICATED; TACKABLE; ACOUSTICAL PANEL)
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GEN	GENERAL
GL	GLASS
GLM	GLASS UNIT MASONRY (GLASS BLOCK)
GMU	GLAZED MASONRY UNIT
GRD	GROUND
GP	GYPSUM PLASTER
GRT	GROUT
GVP	GYPSUM VENEER PLASTER
GYPB	GYPSUM BOARD (WALL OR CEILING)
GYPBS	GYPSUM BOARD SHAFT-WALL ASSEMBLY
H	HEAD
HB	HORIZONTAL BLIND
HDW	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HT	HEIGHT
HTR	HEATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HOT WATER
ID	INSIDE DIAMETER
IN	INCH
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
J	JAMB
JC	JANITOR'S CLOSET
JS	JOINT SEALANT
JT	JOINT
KIT	KITCHEN
L	LINTEL
LAB	LABORATORY
LAV	LAVATORY
LG	LONG
LIN	LINOLEUM FLOOR COVERING
LLV	LONG LEG VERTICAL
LOC	LOCATION
LOCK	LOCKER
LP	LOW POINT
LT	LIGHT
LTG	LIGHTING
LV	LOUVER
M	MIRROR OR MEN
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MC	MEDICINE CABINET
MET	METAL
MDF	MEDIUM DENSITY FIBERBOARD
MFB	MINERAL FIBER BLANKET
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
MO	MASONRY OPENING
MP	METAL PANEL
MR	MOP RACK
MTD	MOUNTED
MTL	METAL
N	NORTH
NA	NOT APPLICABLE
ND	SANITARY NAPKIN DISPENSER
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFF	OFFICE
OHD	OVERHEAD COILING DOOR
OHG	OVERHEAD COILING GRILLE
PAV	PAVER TILE
PC	PIECE
PF	PLASTIC FABRICATION
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PREFAB	PREFABRICATED
PRES T	PRESSURE TREATED
PT	PAINT
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RISER OR RADIUS
RB	RESILIENT WALL BASE AND ACCESSORIES (VINYL BASE; RUBBER BASE; TREADS; NOSINGS; EDGINGS)
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN OR ROUND
REQ'D	REQUIRED
RF	RESILIENT FLOORING (VINYL; RUBBER; VINYL COMPOSITION; SHEET FLOORING)
REBAR	REINFORCING BAR
REINF	REINFORCED OR REINFORCING
RESF	RESINOUS FLOORING
REQ	REQUIRED
RET	RETURN
REV	REVISION
RH	ROBE HOOK
RM	ROOM
RO	ROUGH OPENING
RWR	RECESSED WASTE RECEPTACLE
RV	ROOF VENT
RX	REMOVE EXISTING
S	SILL, SOUTH OR SINGLE
SC	SPECIAL COATING (OTHER THAN PAINT SYSTEMS)
SCH	SCHEDULE OR SCHEDULED
SCR	SHOWER CURTAIN ROD
SD	SOAP DISPENSER OR STORM DRAIN
SECT	SECTION
SF	SQUARE FOOT
SFT	STRUCTURAL FACING TILE
SH	SHOWER
SHT	SHEET
SIM	SIMILAR
SJ	STEEL JOIST
SND	SANITARY NAPKIN DISPOSAL
SOD	SECTIONAL OVERHEAD DOOR (STEEL; ALUMINUM; PLASTIC PANEL)
SPEC	SPECIFICATION
SP	STAND PIPE
SQ	SQUARE
SS	STAINLESS STEEL OR SERVICE SINK
SSM	SOLID SURFACING MATERIAL
STAT	STATIONARY
STL	STEEL
STRUCT	STRUCTURAL OR STRUCTURE
SUSP	SUSPENDED
SWR	SURFACE-MOUNTED WASTE RECEPTACLE
SYS	SYSTEM
T	TILE
TOB	TOWEL BAR
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TC	TOP OF CURB
TCD	TOILET SEAT COVER DISPENSER
TEL	TELEPHONE
TER	TERRAZZO
TH	THICK
TO	TOP OF
TOC	TOP OF CURB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TOILET PARTITION (WATER CLOSET; URINAL; SHOWER: SCREEN)
TPD	TOILET PAPER DISPENSER
TR	TREAD
TS	TRANSITION STRIP
TYP	TYPICAL
U	UNIT
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
V	VENT
VB	VERTICAL BLIND
VDB	VISUAL DISPLAY BOARD (HINGED CONFERENCE UNIT)
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VP	VAPOR BARRIER
VS	VERTICAL STANDPIPE
W	WOMEN, WIDTH, WEST OR WOVEN
W/	WITH
WC	WATER CLOSET OR WALL COVERING (VINYL OR TEXTILE WALL COVERING; WALL PAPER)
WD	WOOD
WH	WEEP HOLE
WHT	WHITE
WO	WINDOW OPENING
WP	WATERPROOF OR WORKING POINT
WR	WATER RESISTANT OR WASTE RECEPTACLE
WT	WEIGHT
WWF	WOVEN WIRE FABRIC

LEGEND

- CONCRETE MASONRY UNITS
- GYPSUM BOARD PARTITIONS
- BATT INSULATION
- CONCRETE
- METAL PATTERN
- DOOR NUMBER SYMBOL
- LOUVER NUMBER SYMBOL
- WINDOW NUMBER SYMBOL
- PARTITION TYPES
- NUMBER-DRAWING NOTE SYMBOL
- REVISION
- NORTH ARROW (CONSTRUCTION NORTH)
- DETAIL SYMBOL — LETTER INDICATES SECTION NUMBER INDICATES PLAN DETAIL; SHEET NUMBER WHERE DRAWN
- SECTION/ELEVATION INDICATOR — LETTER INDICATES SECTION NUMBER INDICATES ELEVATION; SHEET NUMBER WHERE DRAWN
- ELEVATION LEVEL INDICATOR
- JS-# JOINT SEALANT- SEE JOINT SEALANT SCHEDULE IN SPECIFICATIONS

BUILDING CODE INFORMATION:

BUILDING CODE: IBC 2012
OCCUPANCY CLASSIFICATION: FACTORY F-2
TYPE OF CONSTRUCTION: II-B, NON-COMBUSTIBLE

FIRE RESISTANCE RATINGS OF BUILDING ELEMENTS - TABLE 601 & 602

- STRUCTURAL FRAME: 0 HR
- BEARING WALLS: 0 HR
- NON-BEARING WALLS AND PARTITIONS: 0 HR
- FLOOR CONSTRUCTION: 0 HR
- ROOF CONSTRUCTION: 0 HR

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/20/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

ARCHITECT License #6069
EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

AS-BUILT

ARCHITECTURAL ABBREVIATIONS & LEGEND

600' SCALE MAP NO. 30 | BLOCK NO. 10

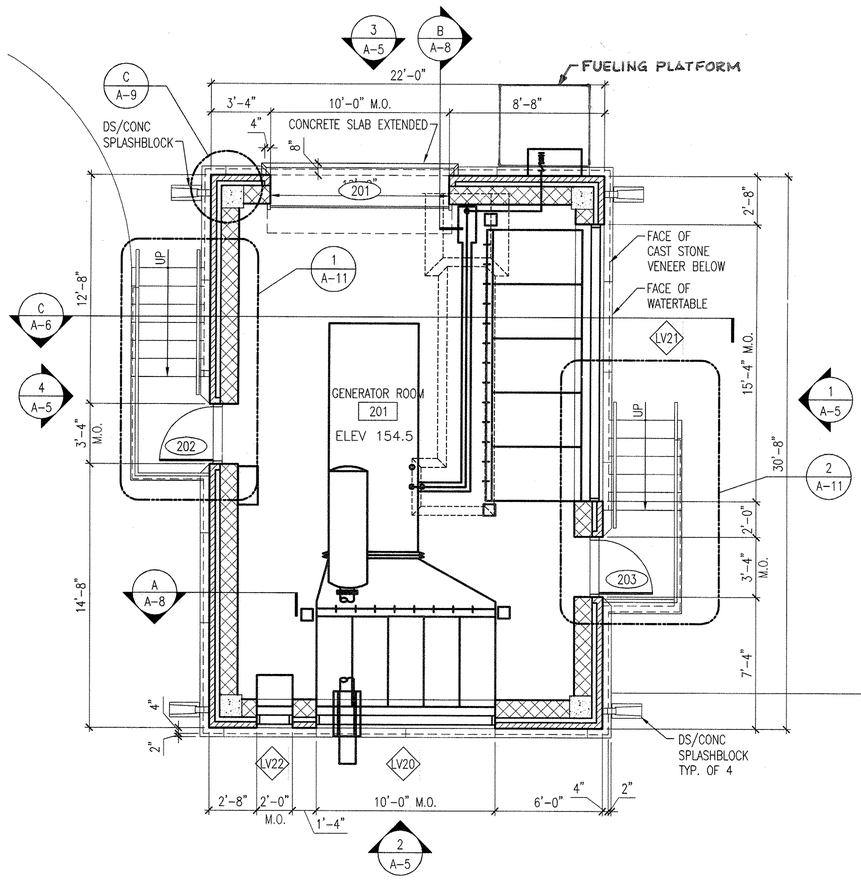
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

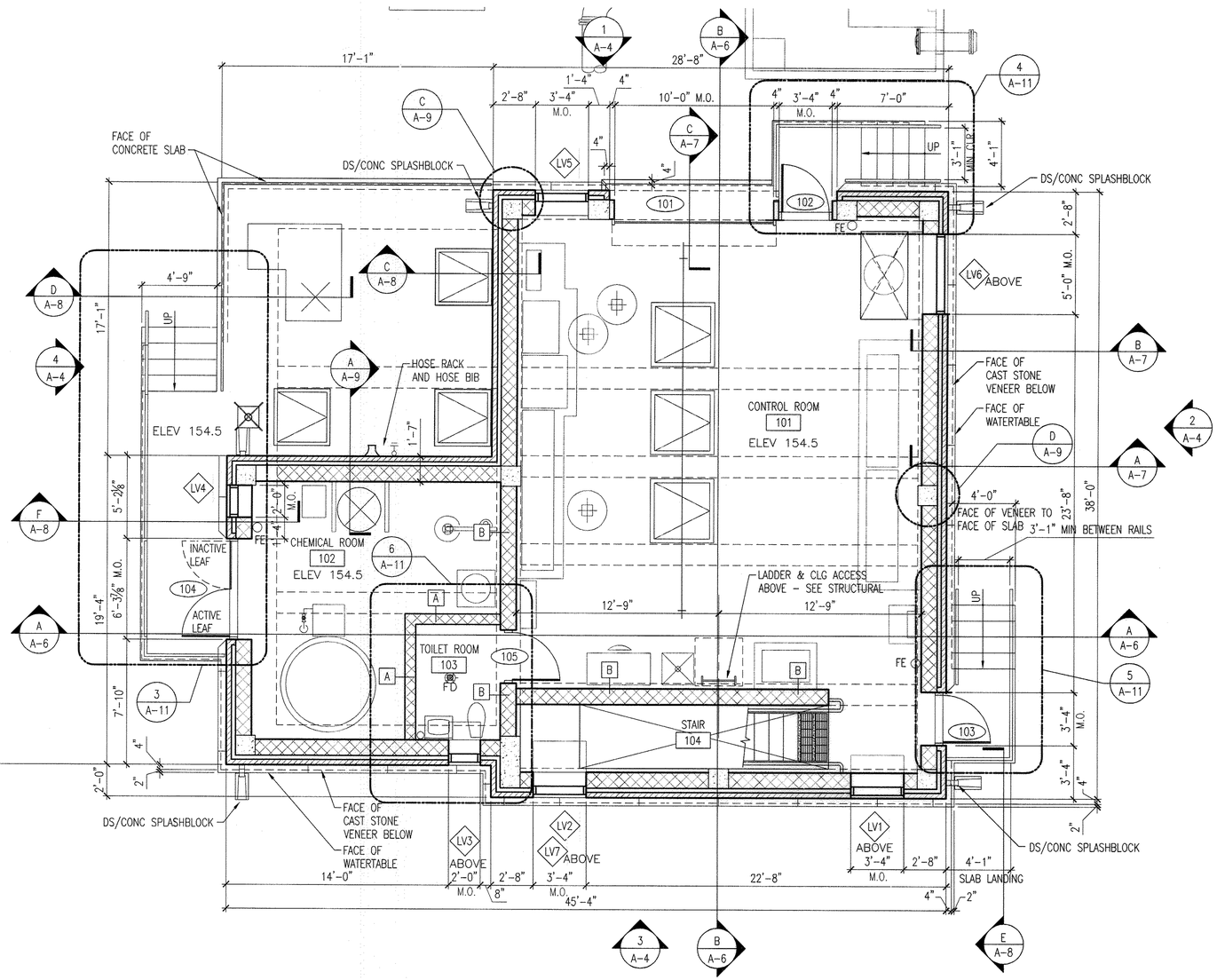
SHEET 12 OF 70

A-1

N:\19200-0101\CADD\19200101-01.dwg
Sep 11, 2012 - 2:47pm



2 A-2 GENERATOR BUILDING - GROUND FLOOR PLAN
1/4"=1'-0



1 A-2 WWPS BUILDING - GROUND FLOOR PLAN
1/4"=1'-0

AS-BUILT

GRAPHIC SCALE
0 2' 4' 8'
SCALE: 1/4" = 1'-0"

A-2

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

ARCHITECT License #6069
EDWARD IN-HUA MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

WWPS AND GENERATOR BUILDING
GROUND FLOOR PLANS

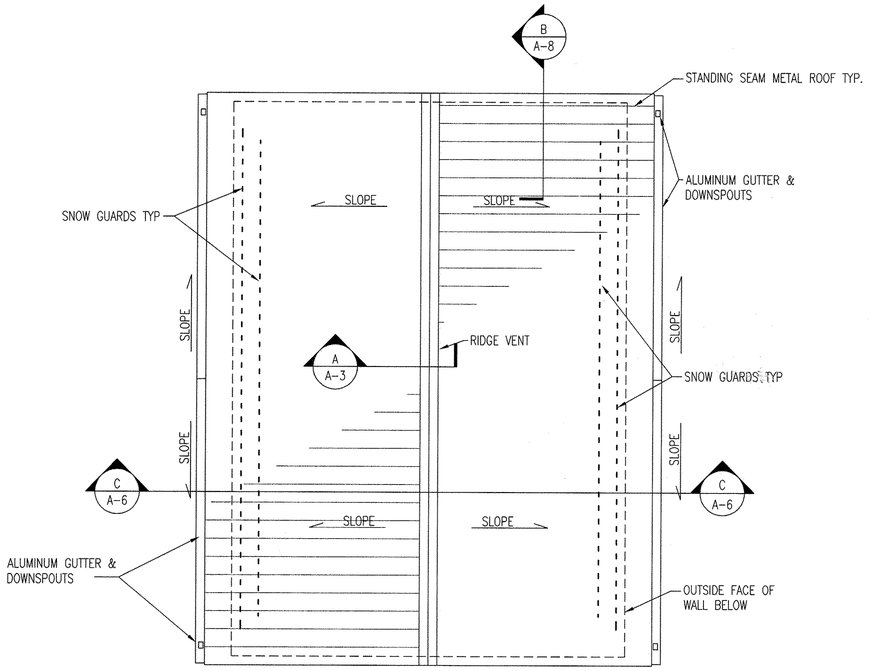
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

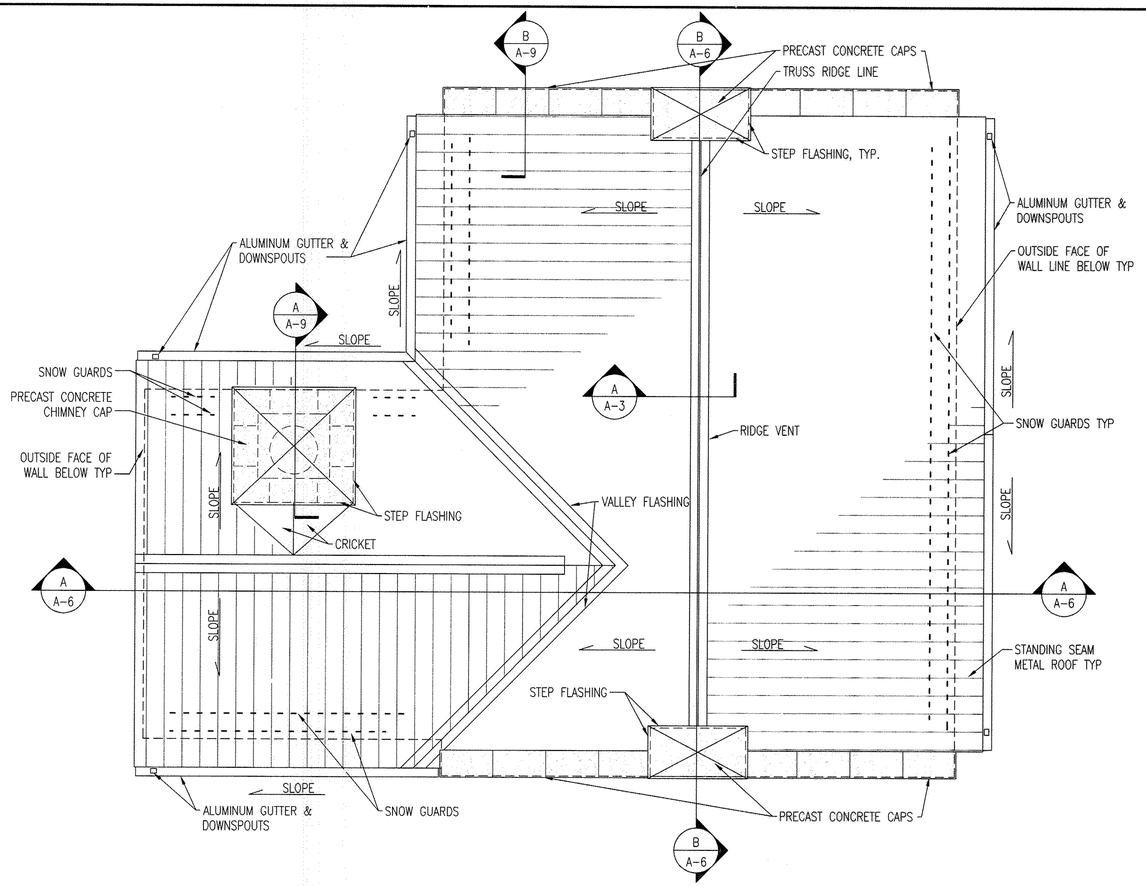
SCALE AS SHOWN

SHEET 13 OF 70

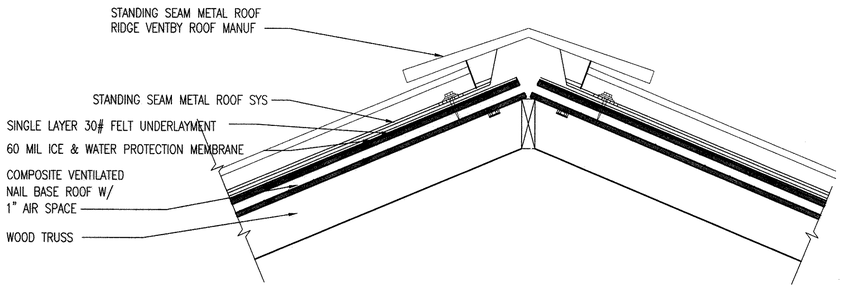
N:\13405-001\CADD\13405001A1-01-#a.dwg
Sep 11, 2015 - 8:07am



1 A-3 ROOF PLAN - GENERATOR BUILDING
SCALE: 1/4" = 1'-0"



2 A-3 ROOF PLAN - WWPS BUILDING
SCALE: 1/4" = 1'-0"



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

GRAPHIC SCALE
0 2' 4' 8'
SCALE: 1/4" = 1'-0"
0 4" 8" 16"
SCALE: 1 1/2" = 1'-0"

AS-BUILT

A-3

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12 R/D

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

WWPS AND GENERATOR BUILDING
ROOF PLANS AND DETAILS

600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

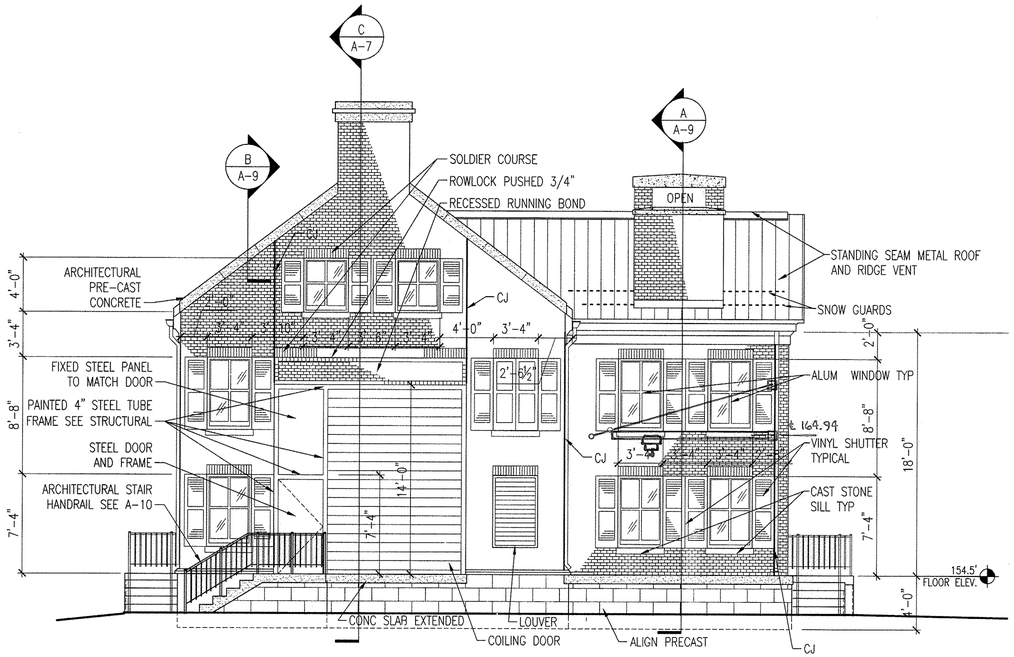
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

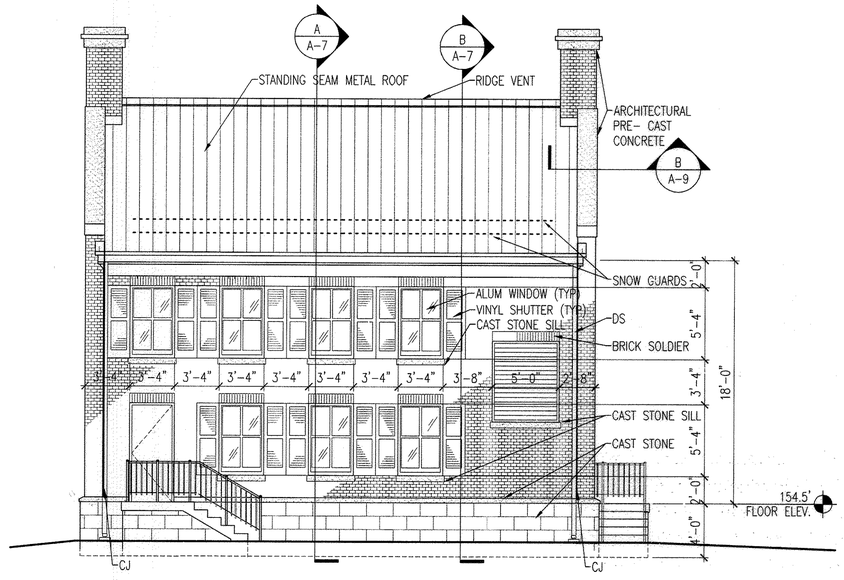
SCALE AS SHOWN

SHEET 14 OF 70

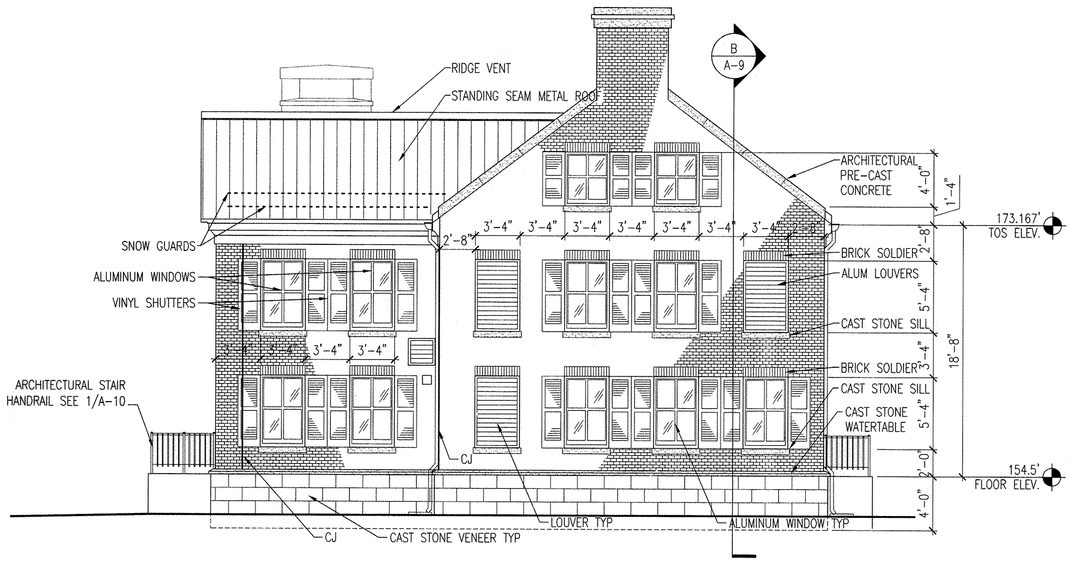
N:\19438-001\CADD\19438001A1-03.dwg
Sep 11, 2012 - 8:47am



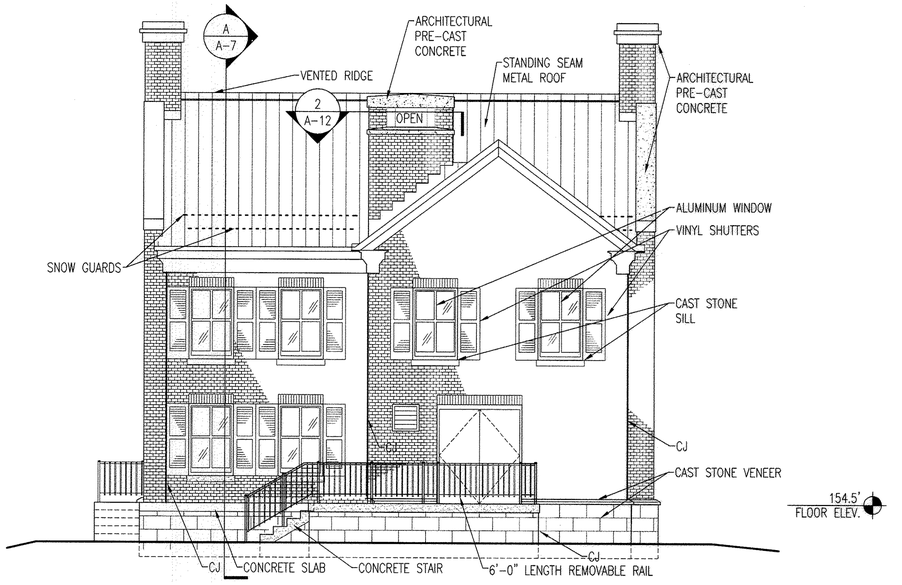
1 A-4 **NORTH ELEVATION**
3/16"=1'-0
REF: A-2



2 A-4 **EAST ELEVATION**
3/16"=1'-0
REF: A-2



3 A-4 **SOUTH ELEVATION**
3/16"=1'-0
REF: A-2



4 A-4 **WEST ELEVATION**
3/16"=1'-0
REF: A-2

AS-BUILT

0 2' 4' 6' 10'
SCALE: 3/16" = 1'-0"

A-4

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

ARCHITECT
License #8069
EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

WWPS BUILDING - ELEVATIONS

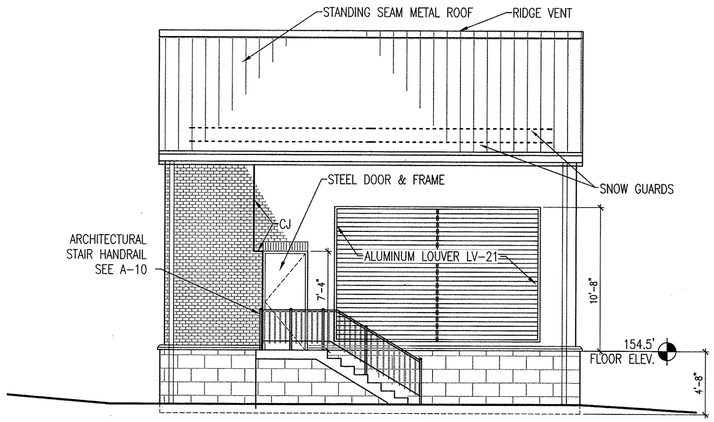
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

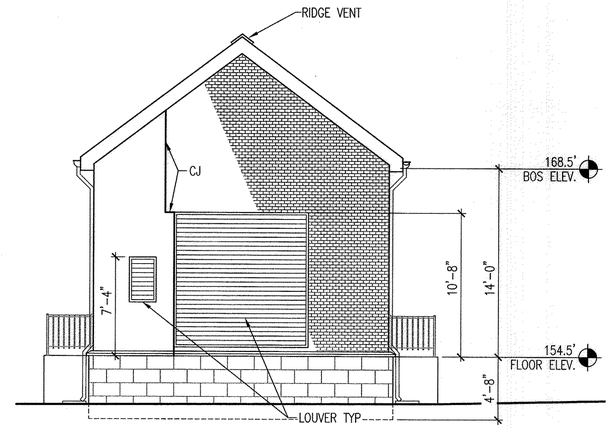
SCALE AS SHOWN

SHEET 15 OF 70

N:\13428-001\CADD\13428001A2-01.dwg
Sep 11, 2012 - 9:48am



1 / A-5 EAST ELEVATION – GENERATOR BUILDING
3/16"=1'-0
REF: A-2

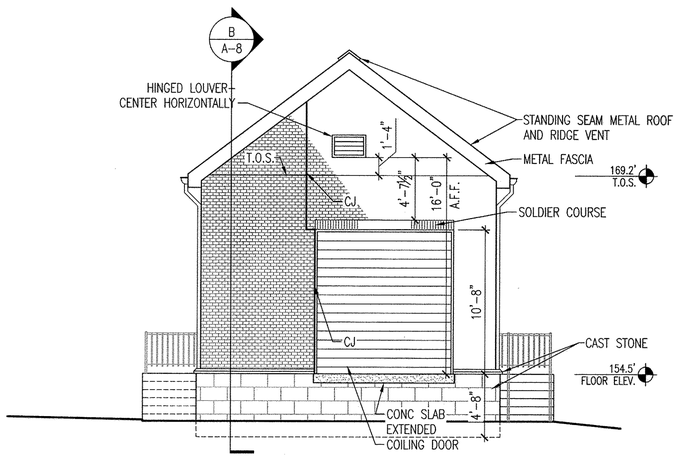


2 / A-5 SOUTH ELEVATION – GENERATOR BUILDING
3/16"=1'-0
REF: A-2

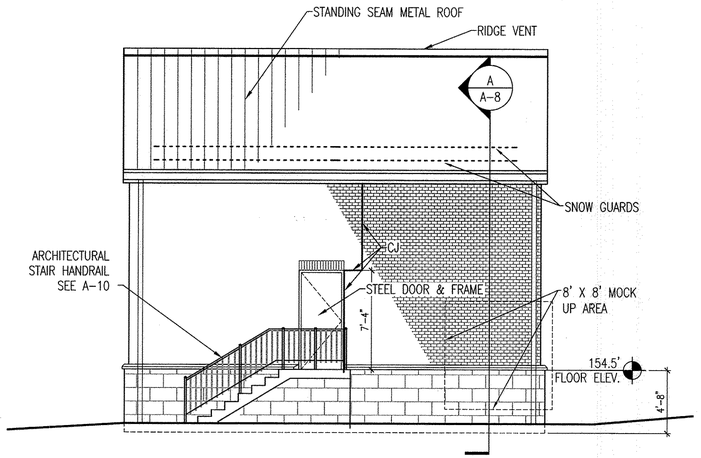
EXTERIOR FINISH SCHEDULE

GROUT-FLAMINGO BRIXMENT, OLD COLONIAL

MATERIAL	FINISHES	COLORS
EXTERIOR BRICK –	OLD VIRGINIA EXTRUDED – ~~BERKELEY BLEND~~ POPLAR FOREST	~~NATURAL COLOR GROUT~~ –
CAST STONE –	~~NATURAL TO MATCH GROUT ABOVE~~ –CONTINENTAL CAST STONE	–DARK BUFF LIMESTONE
CONCRETE SLAB –	NATURAL TO MATCH GROUT ABOVE –	–
STAIR RAIL –	ARCHITECTURAL ALUMINUM –FLUOROPOLYMER FINISH SYSTEM	COLOR – BLACK
WINDOW / SHUTTERS – EAGLE DOUBLE HUNG	2 OVER 2 SIMULATED DIVIDED – ALUMINUM WINDOW	COLOR – BLACK
– SHUTTERS BLACK	TRADITIONAL SLAT – VINYL – 2 PANEL – FIXED TO BRICK	COLOR – BLACK
DOORS –	–MANUFACTURER STANDARD FINISH SYSTEM	COLOR – BLACK
EXHAUST VENTS / LOUVERS –	–MANUFACTURER KYNAR FINISH SYSTEM	COLOR – BLACK
ALUMINUM DENTIL, CROWN AND FASCIA –	–MANUFACTURER STANDARD FINISH SYSTEM	COLOR – BLACK
STANDING SEAM METAL ROOF AND VENTS –	–MANUFACTURER KYNAR FINISH SYSTEM	COLOR – BLACK



3 / A-301 NORTH ELEVATION – GENERATOR BUILDING
3/16"=1'-0
REF: A-101



4 / A-5 WEST ELEVATION – GENERATOR BUILDING
3/16"=1'-0
REF: A-2

AS-BUILT

0 2' 4' 6' 10'
SCALE: 3/16" = 1'-0"

AS BUILT REPLACEMENT SHEET 2/16

A-5

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2016

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/10/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/9/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/8/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 – 235 – 3450

ARCHITECT
License #6069
EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	2	AS-BUILTS	2/16
	1	ADDED LOUVER – DR NO. 8	1/30/15

GENERATOR BUILDING – ELEVATIONS

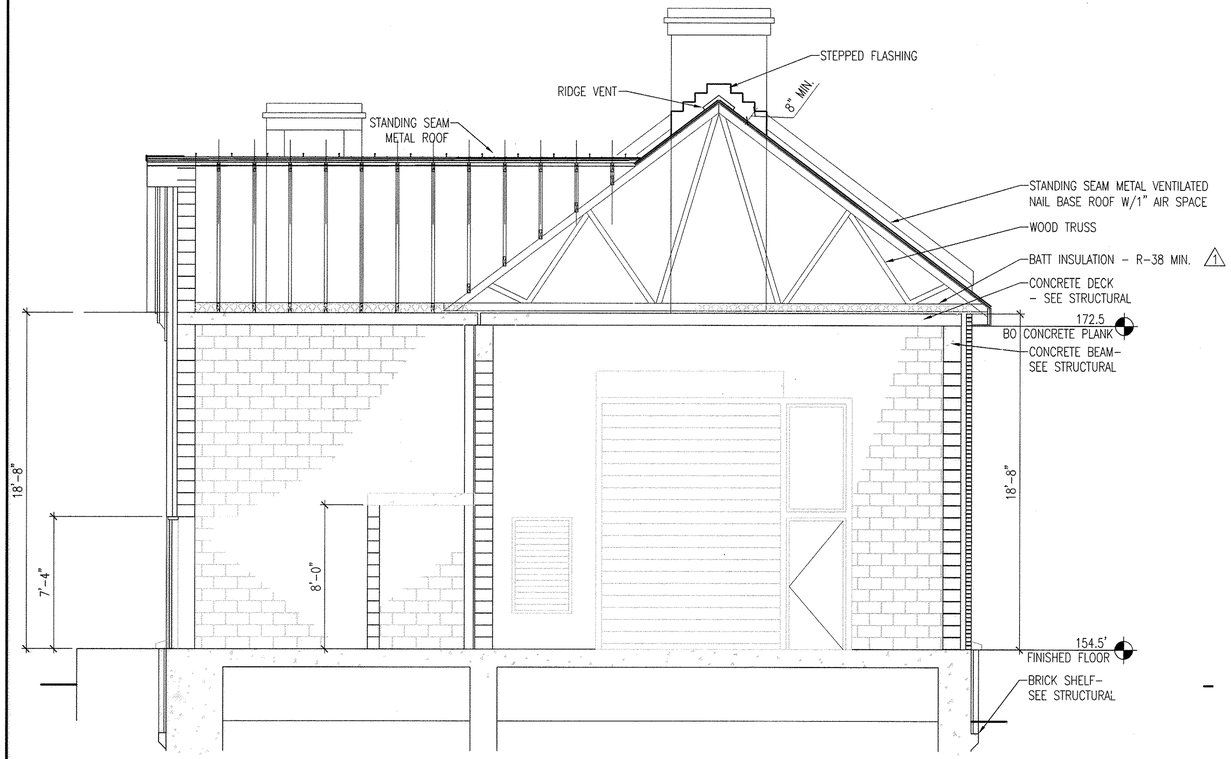
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

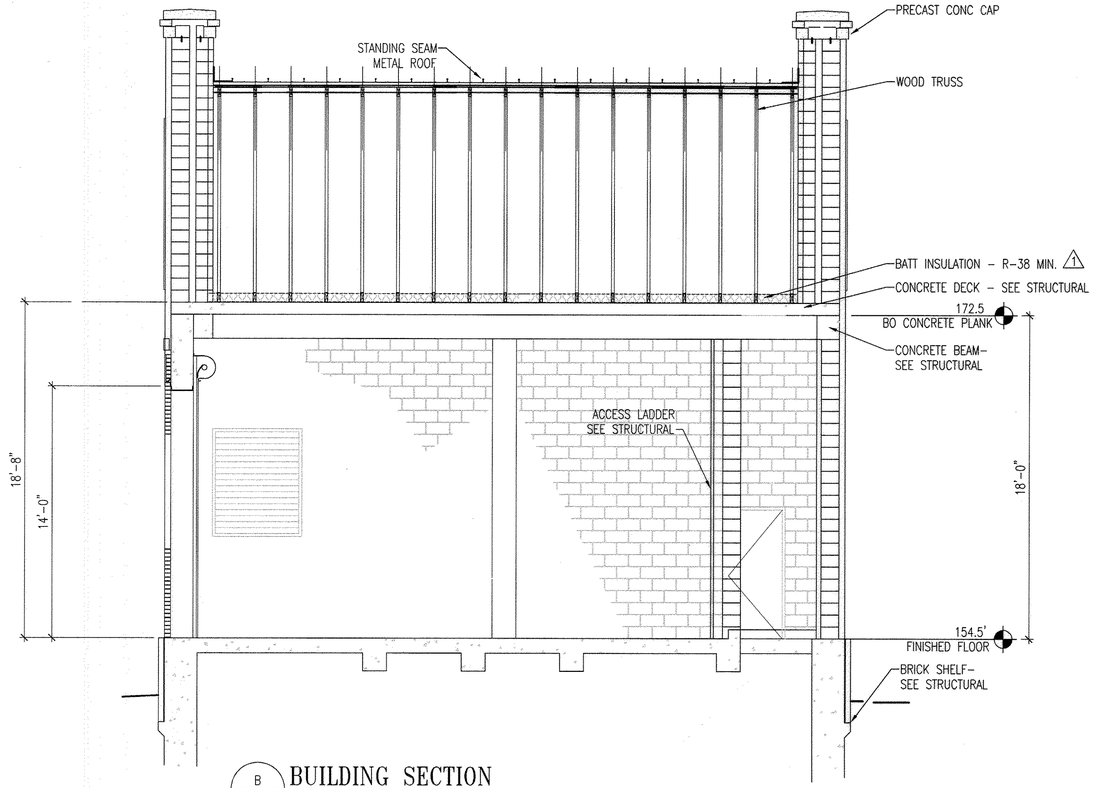
SCALE AS SHOWN

SHEET 16 OF 70

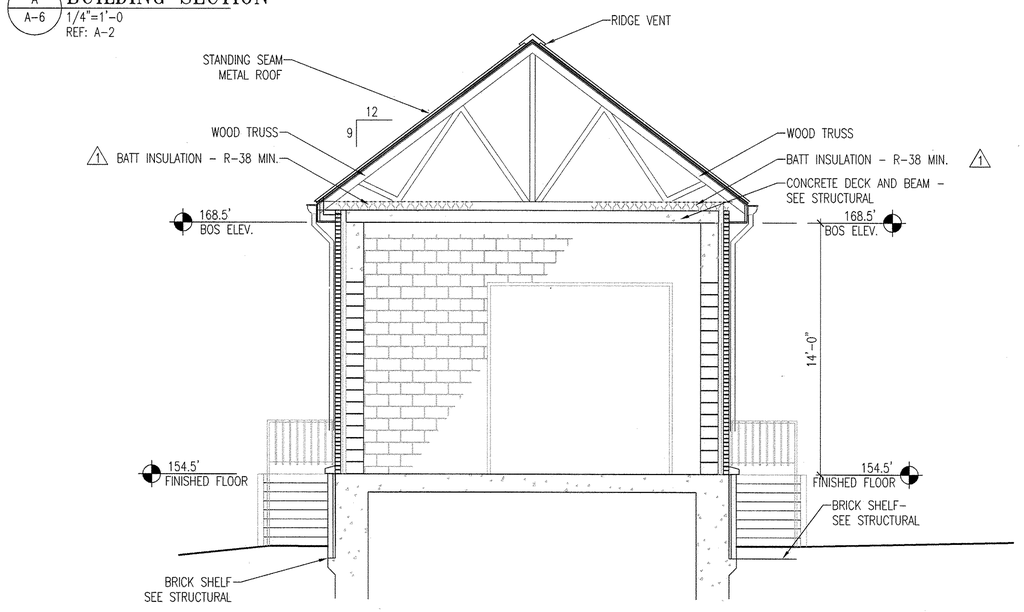
C:\Users\gzanzermiller\appdata\local\temp\AcPublish_8660\136280182-02.dwg
Feb 11, 2016 - 8:00am



A/A-6 BUILDING SECTION
1/4"=1'-0
REF: A-2



B/A-6 BUILDING SECTION
1/4"=1'-0
REF: A-2



C/A-6 BUILDING SECTION - GENERATOR BUILDING
1/4"=1'-0
REF: A-2

AS-BUILT

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

A-6

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
EM	1	BUILDING PERMIT REVISIONS	7/19/2013
WRA	2	AS-BUILTS	2/16

BUILDING SECTIONS - WWPS BUILDING AND GENERATOR BUILDING

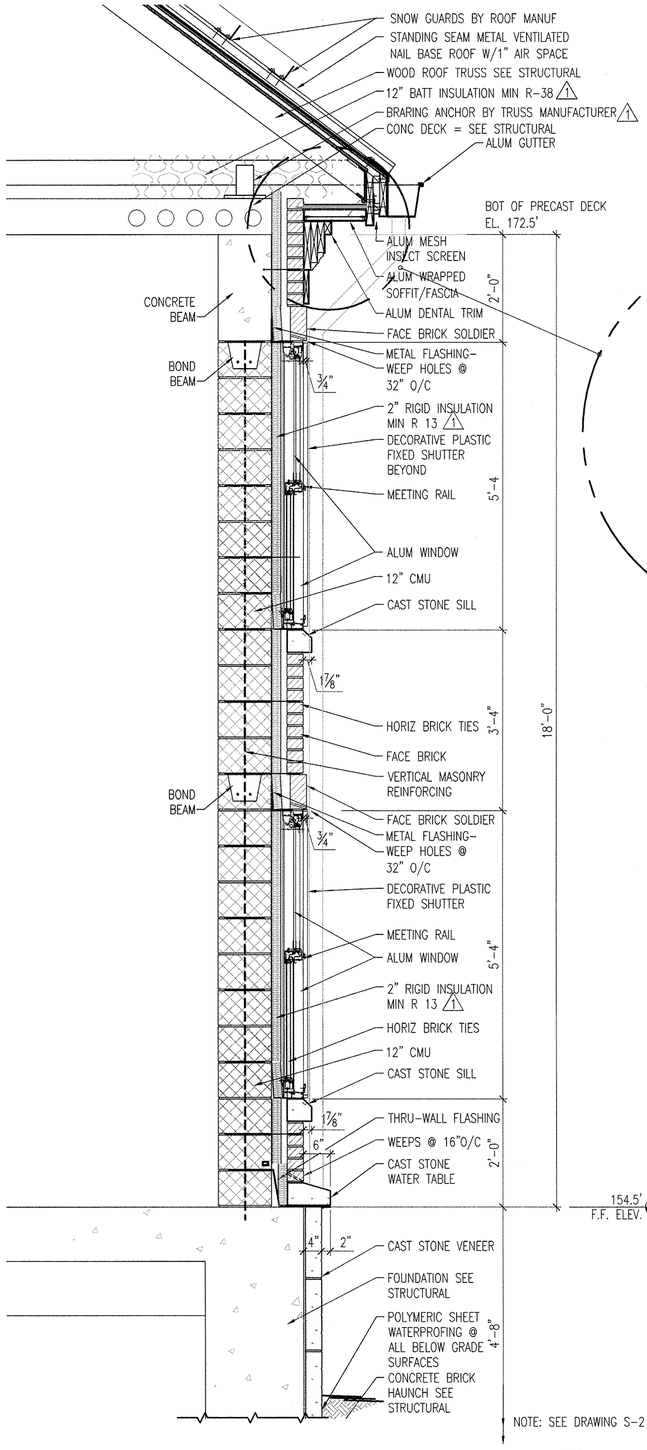
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

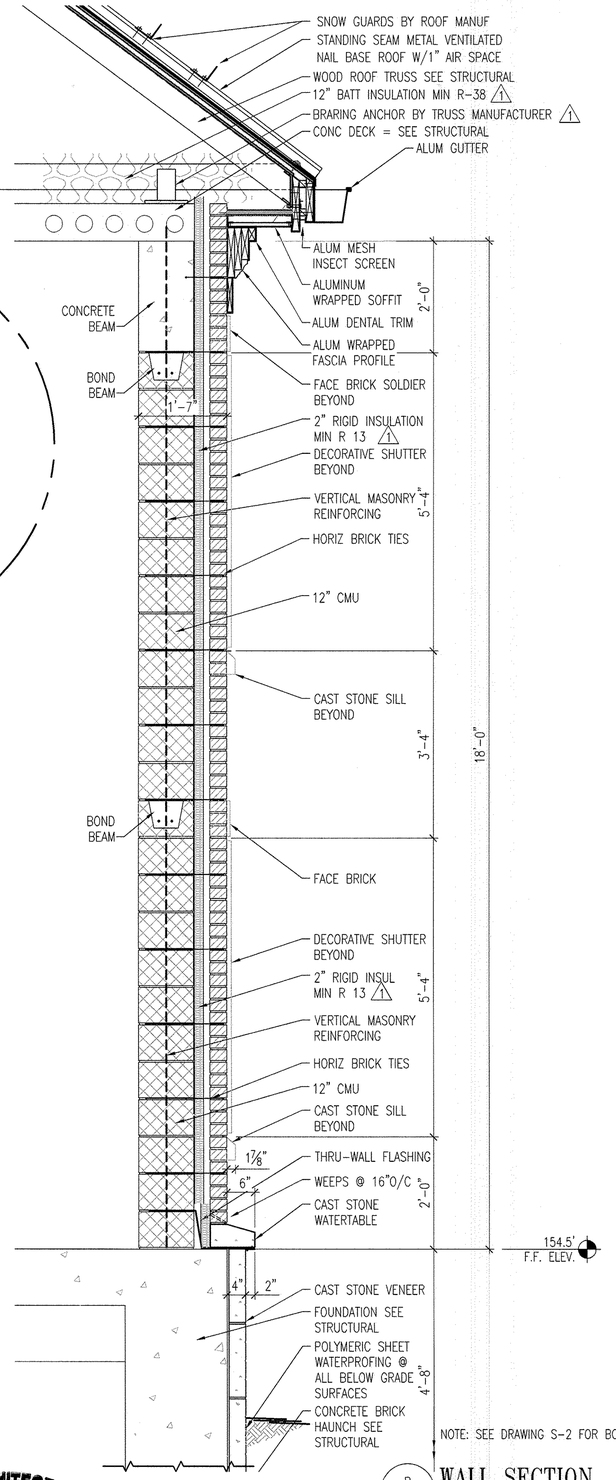
SHEET 17 OF 70

N:\13439-001\CADD\13439001S-01.dwg
Jul 23, 2013 - 1:43pm

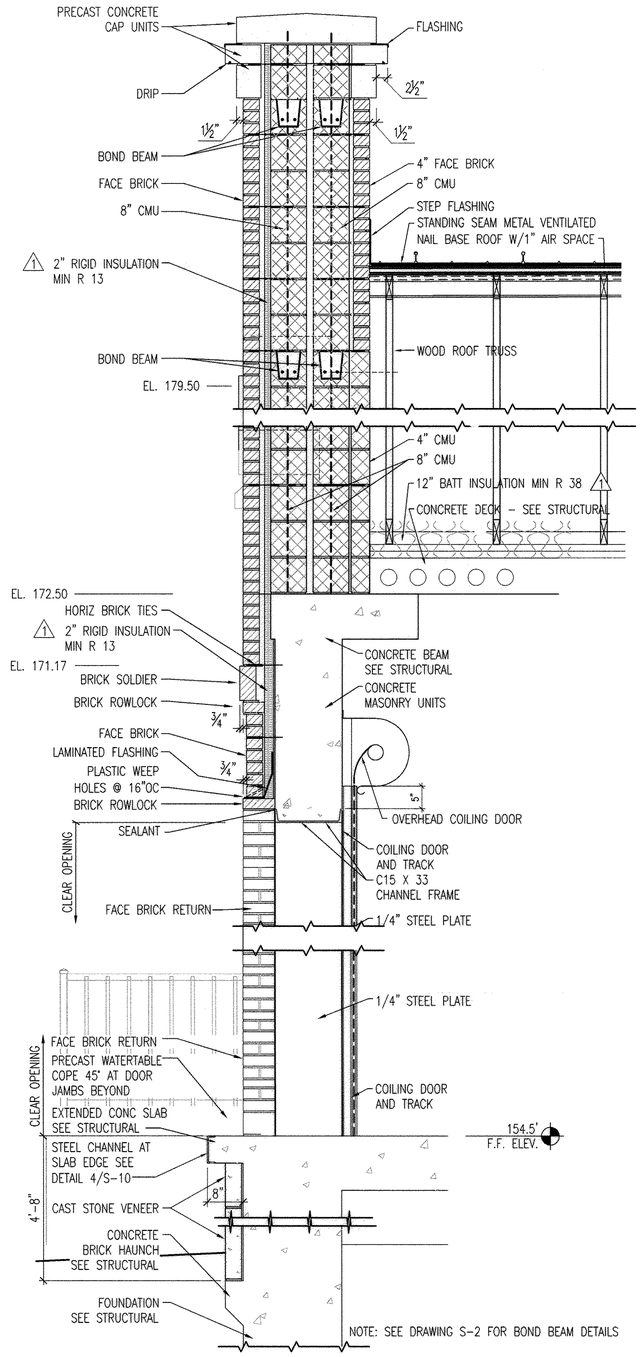


1 / A-7 PROFILE DETAIL
1 1/2"=1'-0
REF: A-2

A / A-7 WALL SECTION
3/4"=1'-0
REF: A-2



B / A-7 WALL SECTION
3/4"=1'-0
REF: A-2



C / A-7 WALL SECTION
3/4"=1'-0
REF: A-2

0 1' 2' 3'
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 ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/6/13
CHIEF, BUREAU OF UTILITIES — DATE 8/6/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
EM / WRA	1 / 2	BUILDING PERMIT REVISIONS / AS-BUILTS	7/19/2013 / 2/16

WALL SECTIONS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-0189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

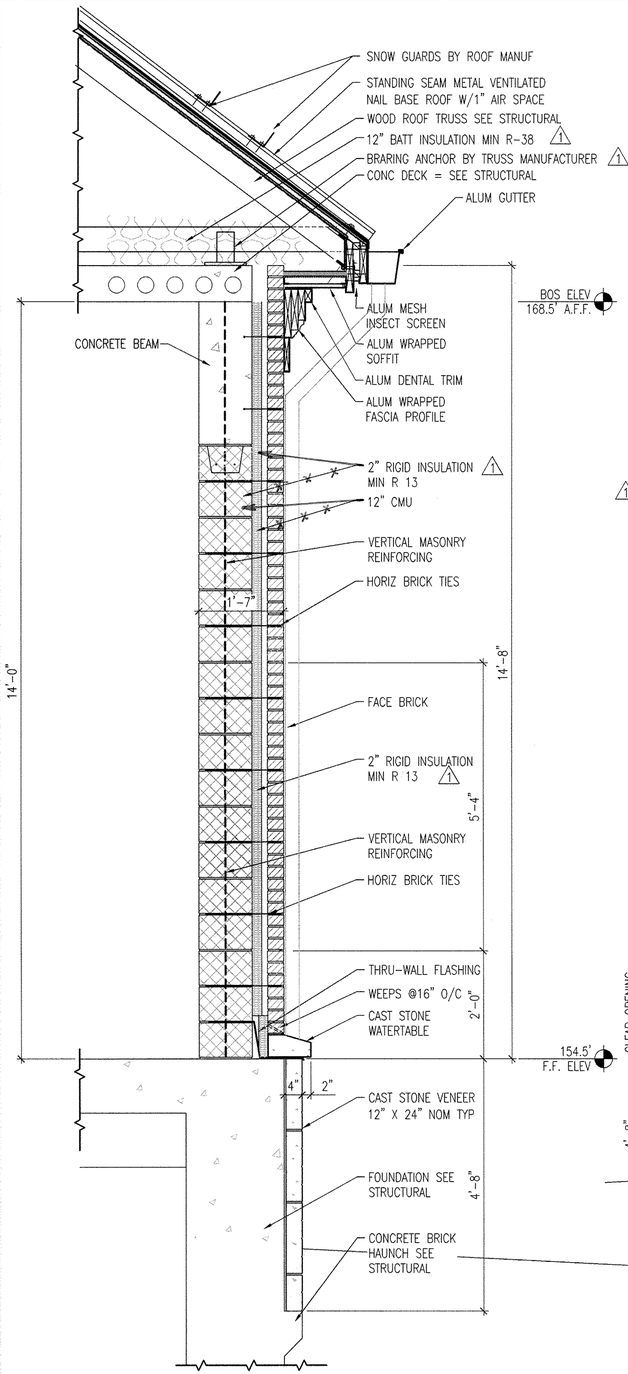
AS-BUILT

SCALE AS SHOWN

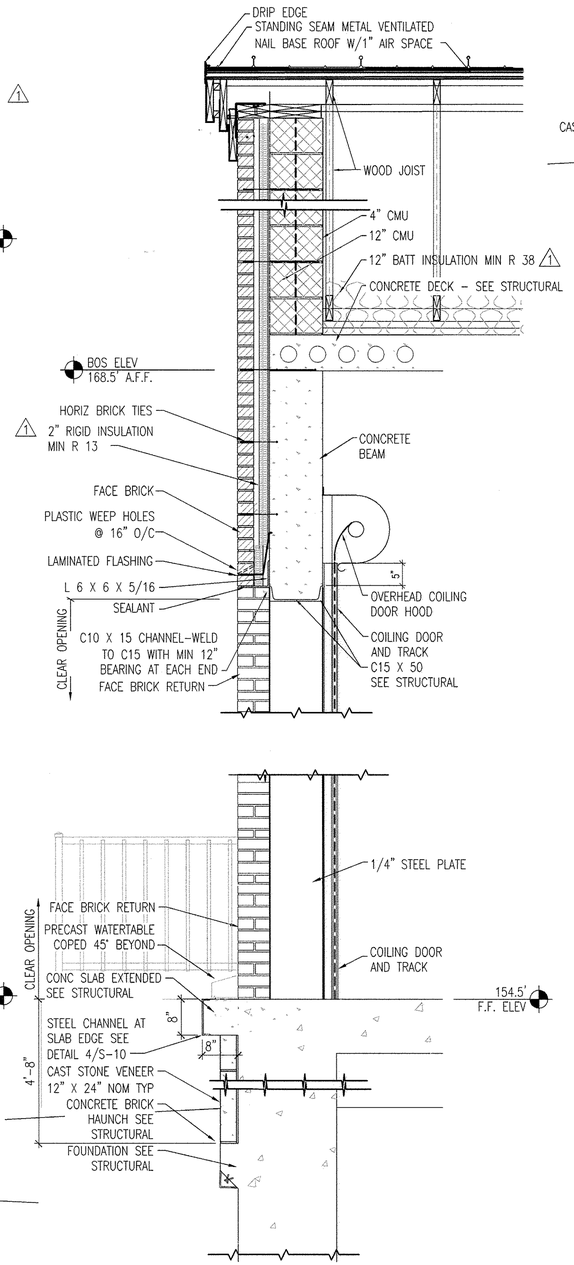
SHEET 18 OF 70

A-7

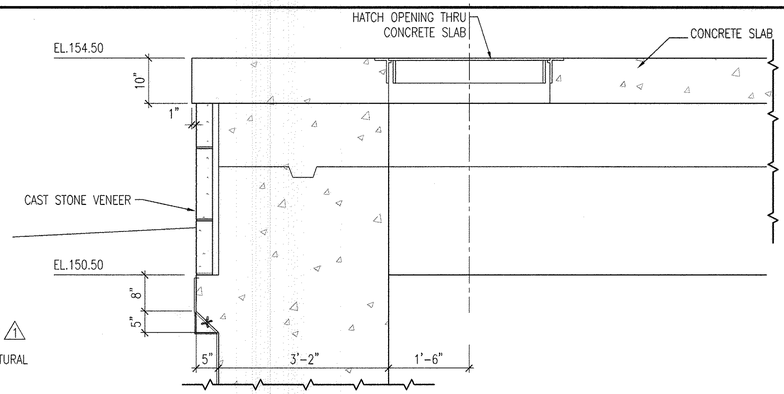
H:\13428-001\CADD\13428001A3-02.dwg
Jul 25, 2013 - 1:40pm



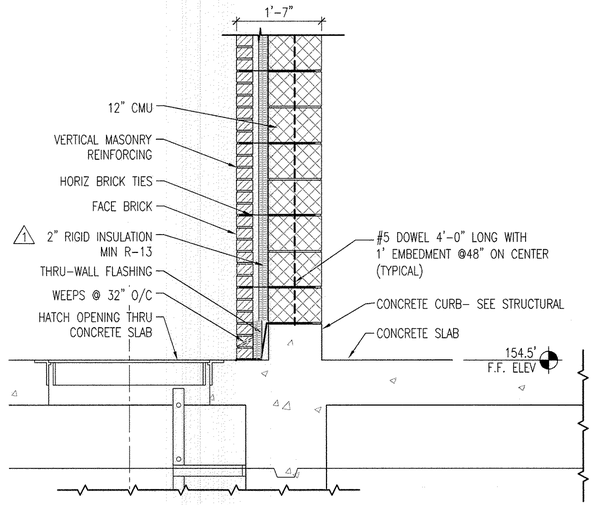
A A-8 WALL SECTION
3/4"=1'-0
REF: A-2



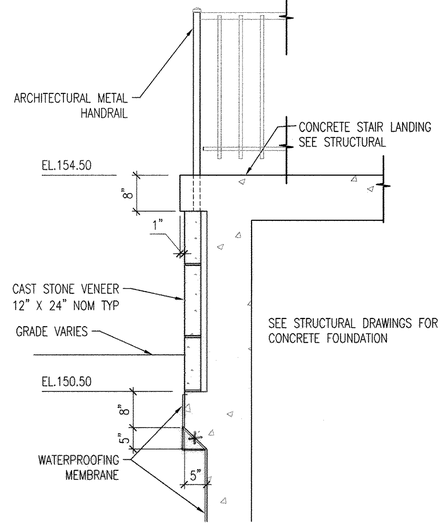
B A-8 WALL SECTION
3/4"=1'-0
REF: A-2



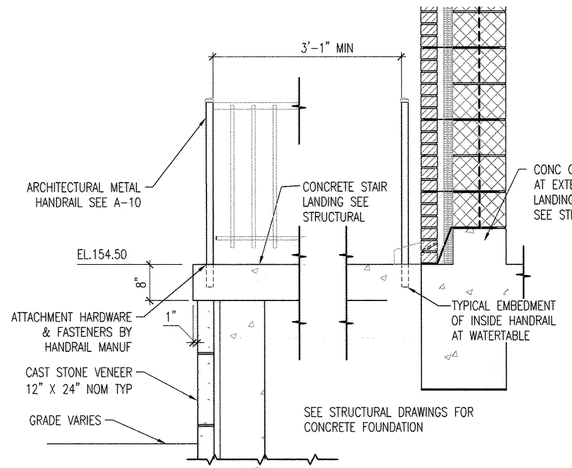
D A-8 PARTIAL WALL SECTION
3/4"=1'-0
REF: A-2



C A-8 PARTIAL WALL SECTION
3/4"=1'-0
REF: A-2



E A-8 PARTIAL WALL SECTION
3/4"=1'-0
REF: A-2



F A-8 PARTIAL WALL SECTION
3/4"=1'-0
REF: A-2

AS-BUILT

GRAPHIC SCALES
0 1' 2' 3'
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 ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

EDWARD THOMAS MILLER — STATE OF MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/1/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: EM
DRN: PKI
CHK: JHD

BY	NO.	REVISION	DATE
EM	1	BUILDING PERMIT REVISIONS	7/19/2013
WRA	2	AS-BUILTS	2/16

WALL SECTIONS AND DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

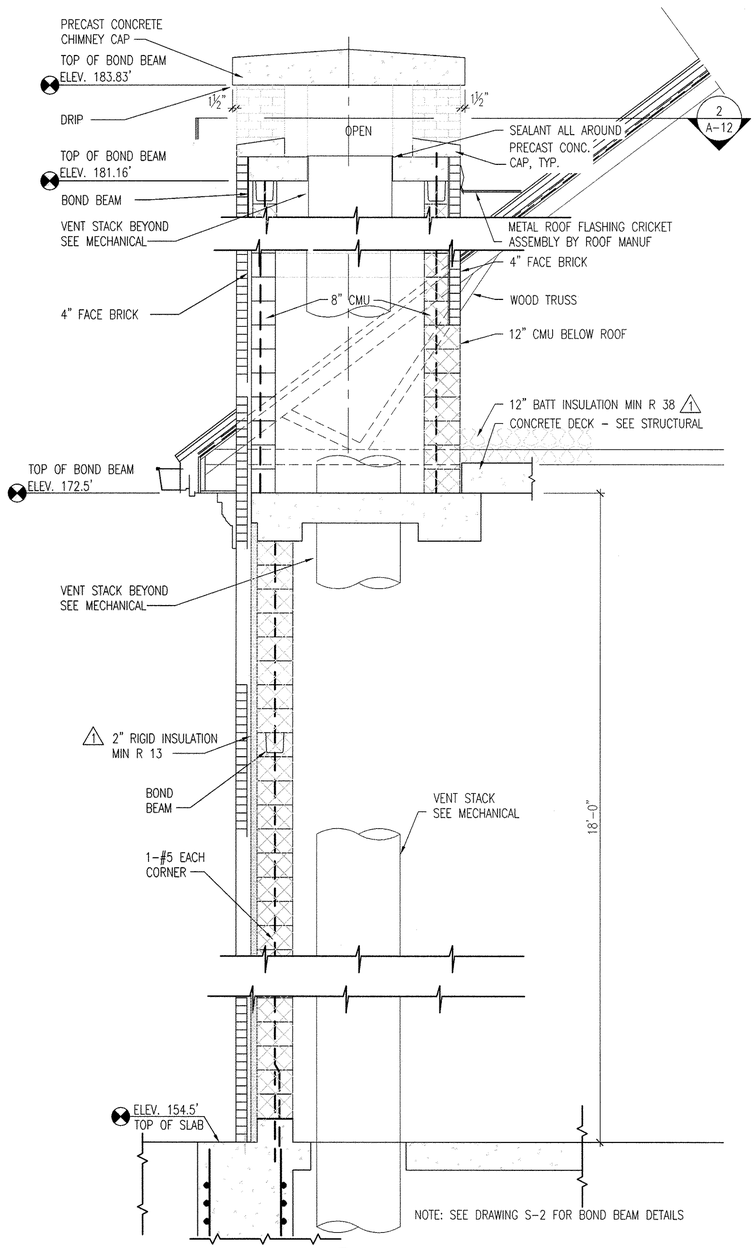
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-468
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

A-8

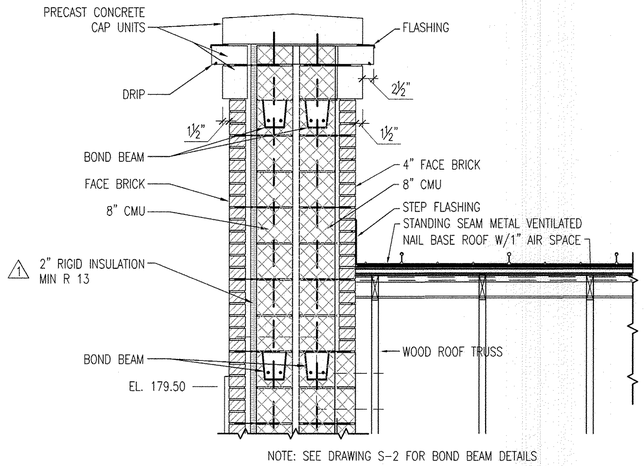
SCALE AS SHOWN

SHEET 19 OF 70

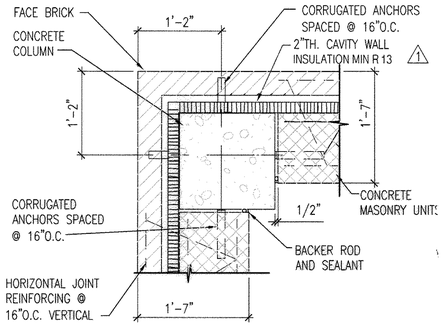
N:\18409-001\CADD\1842809\18-08.dwg
Jul 23, 2013 - 1:44pm



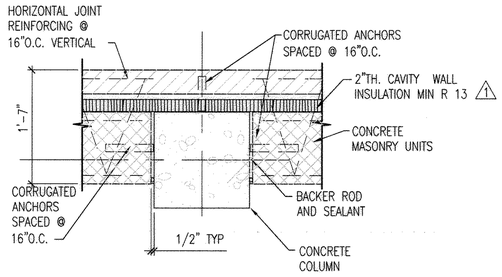
A / A-9 WALL SECTION
1/2"=1'-0
REF: A-3, A-4



B / A-9 PARTIAL WALL SECTION
3/4"=1'-0
REF: A-3, A-4



C / A-9 MASONRY PLAN SECTION
1"=1'-0
REF: A-3, A-4



D / A-9 MASONRY PLAN SECTION
1"=1'-0
REF: A-3, A-4

GRAPHIC SCALES

0 6" 1' 2'
SCALE: 1" = 1'-0"

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

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

AS-BUILT

A-9

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069
EDWARD THOMAS MILLER
STATE OF MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: EM
DRN: PKI
CHK: JHD

BY	NO.	REVISION	DATE
EM	1	BUILDING PERMIT REVISIONS	7/19/2013
WRA	2	AS-BUILTS	2/16

WALL SECTIONS AND DETAILS

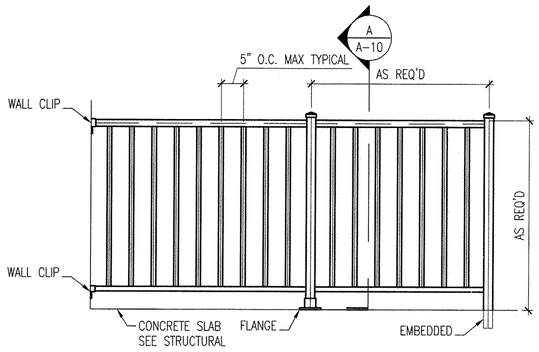
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

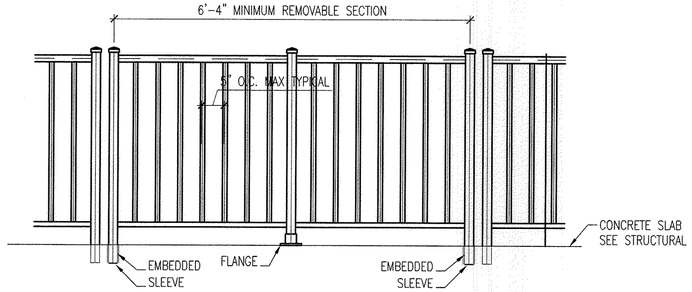
SCALE AS SHOWN

SHEET 20 OF 70

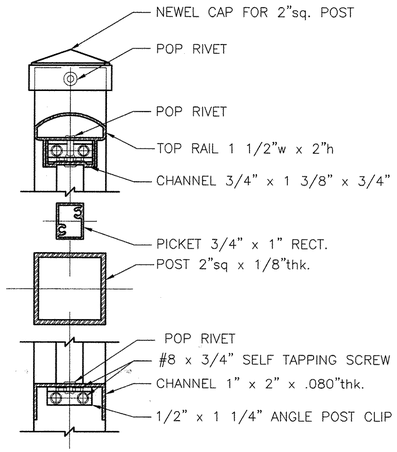
N:\13400-2001\CADD\13428001A0-04.dwg
Jul 25, 2013 - 1:43pm



1 A-10 **HANDRAIL DETAIL**
NOT TO SCALE
REF: A-3, A-4



2 A-10 **REMOVABLE HANDRAIL DETAIL**
NOT TO SCALE
REF: A-3, A-4, A-11



A A-10 **HANDRAIL CROSS SECTION**
6"=1'-0
REF: A-2, A-11

AS-BUILT

GRAPHIC SCALES
0 1" 2" 4"
SCALE: 6" = 1'-0"

A-10

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/20/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12 RJD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

ARCHITECT
License #6069
EDWARD THOMAS HILL
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JHD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

DETAILS

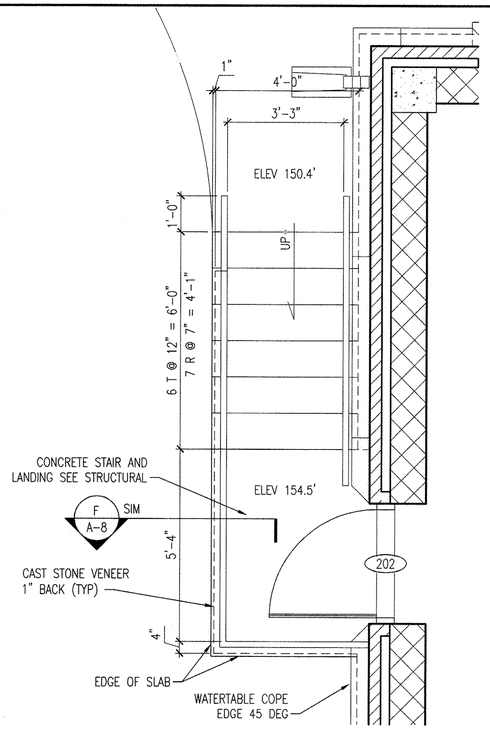
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

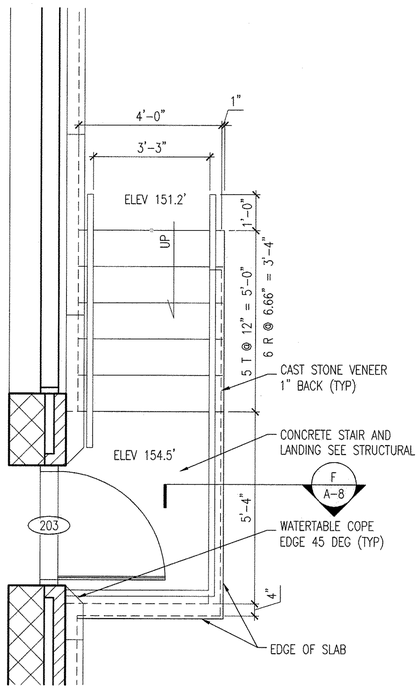
SHEET 21 OF 70

N:\13428-001\CADD\13428001A4-00.dwg
Sep 11, 2012 - 9:48am



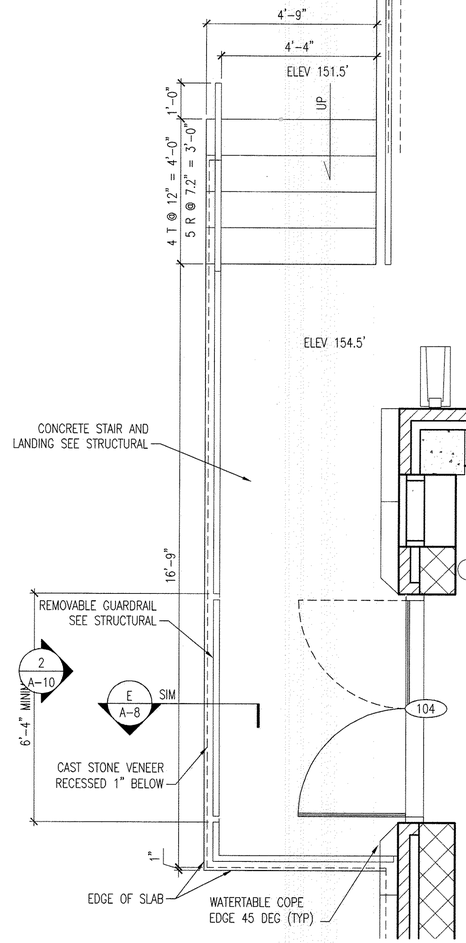
GENERATOR BLDG WEST
ENLARGED STAIR

1 / A-11 — 1/2"=1'-0
REF: A-2



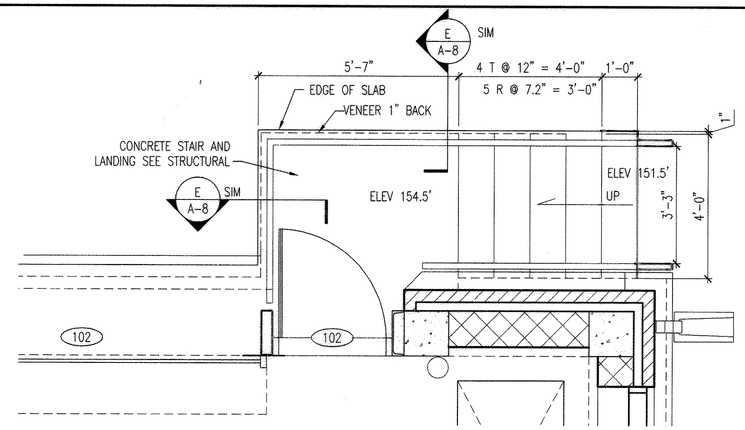
GENERATOR BLDG EAST
ENLARGED STAIR

2 / A-11 — 1/2"=1'-0
REF: A-2



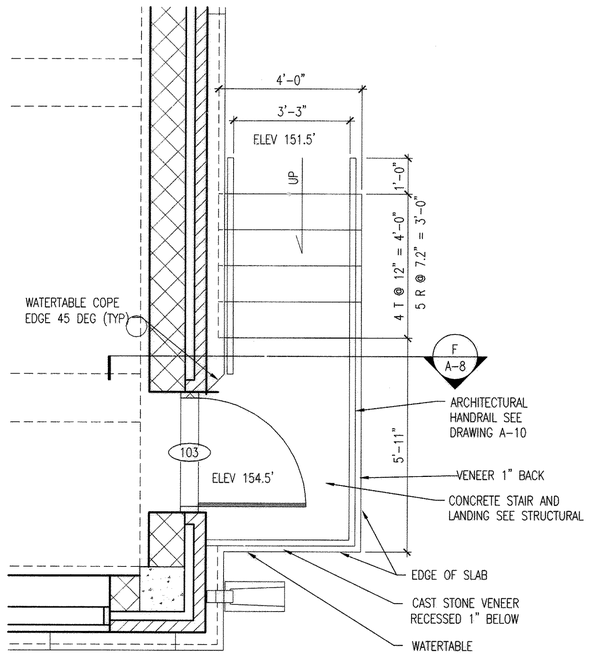
WWPS BUILDING WEST
ENLARGED STAIR

3 / A-11 — 1/2"=1'-0
REF: A-2



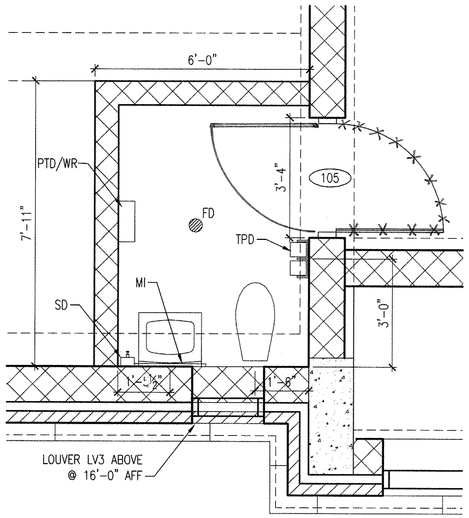
WWPS BUILDING NORTH
ENLARGED STAIR

4 / A-11 — 1/2"=1'-0
REF: A-2



WWPS BUILDING EAST
ENLARGED STAIR

5 / A-11 — 1/2"=1'-0
REF: A-2



ENLARGED PLAN
TOILET ROOM ACCESSORIES

6 / A-11 — 1/2"=1'-0
REF: A-2

TOILET ACCESSORY MOUNTING HEIGHTS

SD	SOAP DISPENSER [WALL MOUNTED]	44" TO SOAP OUTLET
PTD/WR	PAPER TOWEL DISPENSER/WASTE RECEPTACLE	40" TO PAPER OUTLET
TPD	TOILET PAPER DISPENSER	28" TO CENTERLINE OF ROLL
WR	WASTE RECEPTACLE	36" TO TOP
MI	24x36 MIRROR	4" FROM SINK TO BOTTOM OF MIRROR

GENERAL NOTES:

1) SEE SHEET A-10 FOR HANDRAIL PROFILE AND DETAILS

GRAPHIC SCALE
0 1' 2' 4'
SCALE: 1/2" = 1'-0"

AS-BUILT

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT
License #6069
EDWARD THOMAS MILLER
STATE OF MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/20/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: EM
DRN: PKI
CHK: JFD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

ENLARGED PLANS

600' SCALE MAP NO. 30 | BLOCK NO. 10

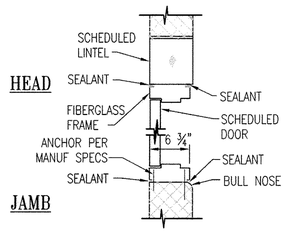
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

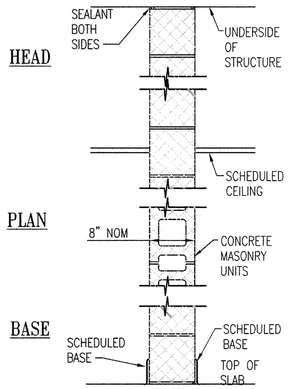
A-11

SCALE AS SHOWN

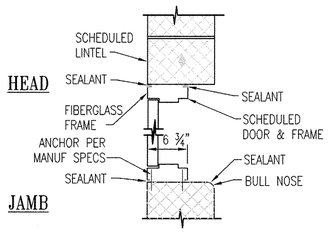
SHEET 22 OF 70

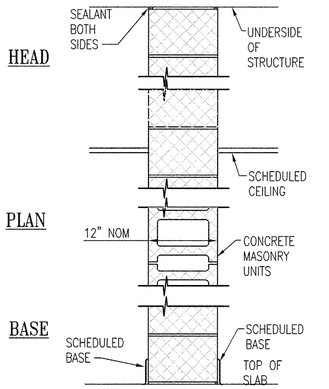
N:\13426-001\CADD\13426001A4-01.dwg
Sep 11, 2012 - 9:46am





A WALL TYPE

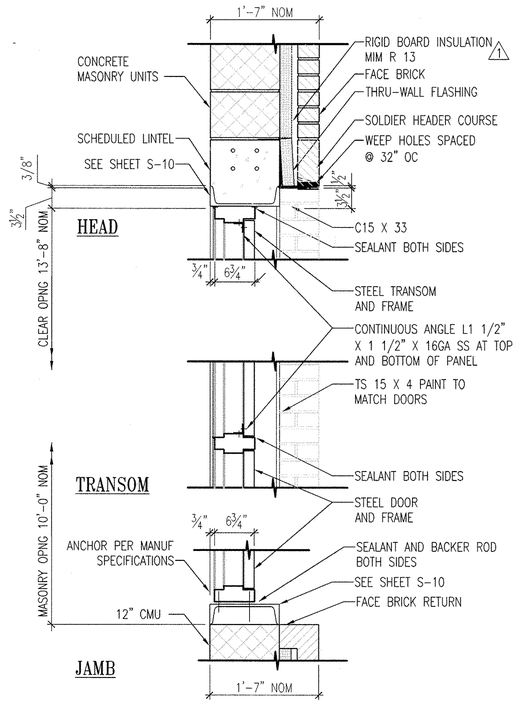




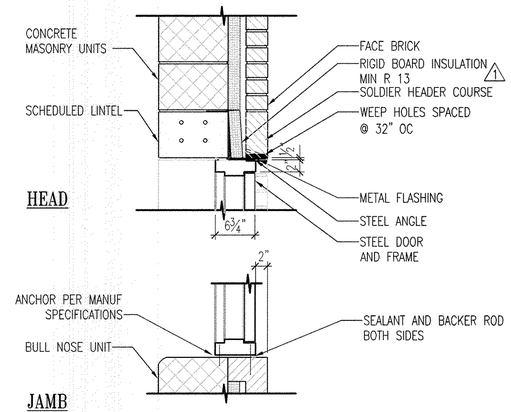
B WALL TYPE

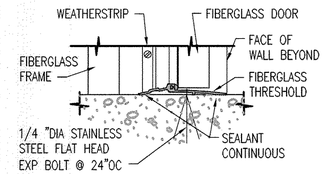
NOTE: SEE STRUCTURAL DRAWINGS S-1 AND S-2 FOR MASONRY REINFORCING.

1 / A-12 WALL TYPES
SCALE: 1" = 1'-0"
REF: A-2

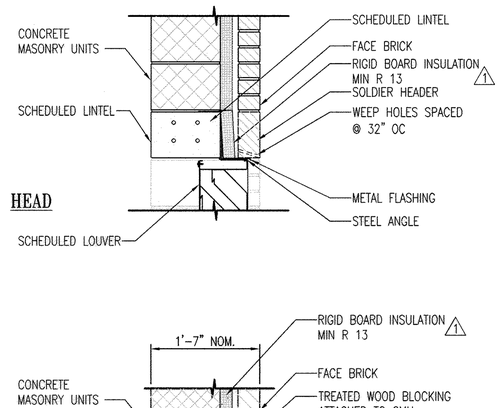


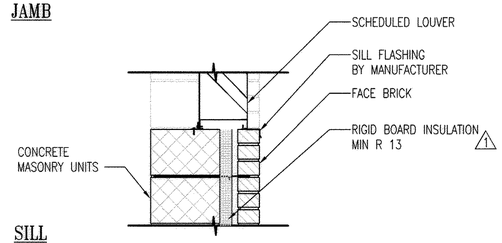
4 / A-12 DOOR DETAIL
SCALE: 3" = 1'-0"
REF: A-13



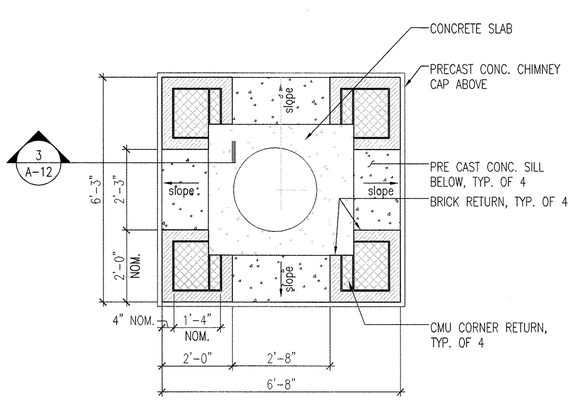


5 / A-12 DOOR DETAIL
SCALE: 3" = 1'-0"
REF: A-13

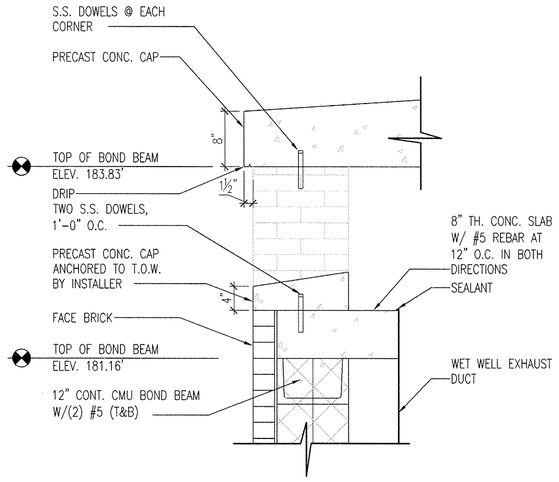




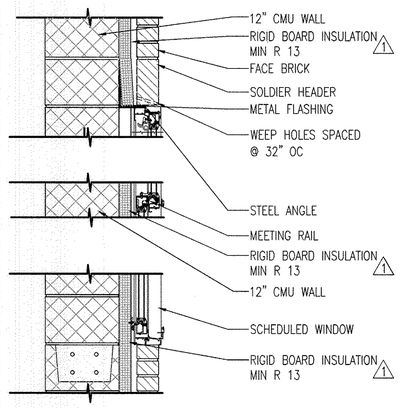
6 / A-12 LOUVER DETAIL
SCALE: 1" = 1'-0"
REF: A-13



2 / A-12 CHIMNEY DETAIL
SCALE: 1/2" = 1'-0"
REF: A-4, A-9



3 / A-12 CHIMNEY DETAIL
SCALE: 1/2" = 1'-0"
REF: A-4



7 / A-12 DETAIL
SCALE: 1" = 1'-0"
REF: A-13

GRAPHIC SCALES
0 2" 4" 8"
SCALE: 3" = 1'-0"
0 6" 1' 2'
SCALE: 1" = 1'-0"
0 1' 2' 4'
SCALE: 1/2" = 1'-0"

AS-BUILT

A-12

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/6/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

EDWARD THOMAS MILLER
STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JHD

BY	NO.	REVISION	DATE
EM	1	BUILDING PERMIT REVISIONS	7/19/2013
WRA	2	AS-BUILTS	2/16

WALL TYPES AND DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 23 OF 70

C:\Temp\Drawing\AsPublish_5784\1526B001A6-12.dwg
Jul 25, 2013 - 1:49pm

SAMPLE-SYMBOL

DOOR SCHEDULE

MK	HDW SET	DOORS				FRAMES					LINTEL	REMARKS	FINISH	
		WIDTH (NOM)	LOCATION	TYPE	MATL	TYPE	MATL	HEAD	JAMB	SILL			DOOR	FRAME
101	--	10'-0" X 14'-0"	CONTROL ROOM	D	STEEL	4	STEEL	4/A-12	4/A-12	C/A-7	-	OVERHEAD DOOR	-	-
102	HW-2	3'-0" X 7'-0"	CONTROL ROOM	A	STEEL	1	STEEL	7/A-12	7/A-12	5/A-12	-	FIXED STEEL TRANSOM	-	-
103	HW-2	3'-0" X 7'-0"	CONTROL ROOM	A	STEEL	1	STEEL	5/A-12	5/A-12	5/A-12	-		-	-
104	HW-1	(2) 3'-0" X 7'-0"	CHEMICAL ROOM	A	STEEL	2	STEEL	5/A-12	5/A-12	5/A-12	-		-	-
105	HW-3	3'-0" X 7'-0"	TOILET ROOM	B	STEEL	1	STEEL	1/A-12	1/A-12	1/A-12	-		-	-
201	--	10'-0" X 10'-8"	GENERATOR ROOM	C	STEEL	3	STEEL	B/A-8	B/A-8	B/A-8	-	OVERHEAD DOOR	-	-
202	HW-2	3'-0" X 7'-0"	GENERATOR ROOM	A	STEEL	1	STEEL	5/A-12	5/A-12	5/A-12	-		-	-
202	HW-2	3'-0" X 7'-0"	GENERATOR ROOM	A	STEEL	1	STEEL	5/A-12	5/A-12	5/A-12	-		-	-

SAMPLE-SYMBOL

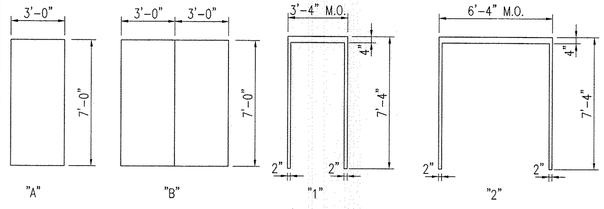
LOUVER SCHEDULE

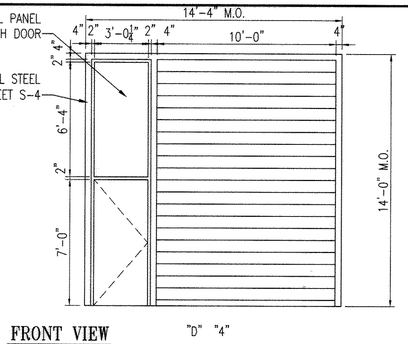
NO.	SIZE (L X H)	TYPE	MATL	DEPTH	DETAILS			LINTEL	REMARKS
					HEAD	JAMB	SILL		
LV1	3'X4" X 5'-4"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV2	3'X4" X 5'-4"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV3	2'-0" X 2'-0"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV4	2'-0" X 2'-0"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV5	3'-4" X 5'-4"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV6	5'-0" X 5'-4"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV7	3'X4" X 5'-4"	DRAINABLE	ALUM	6"	6/A-12	6/A-12	6/A-12	-	
LV8	NOT USED	-	-	-	-	-	-	-	-
LV9	NOT USED	-	-	-	-	-	-	-	-
LV20	10'-0" X 10'-0"	ACOUSTICAL	ALUM	8"	6/A-12	6/A-12	6/A-12	-	-
LV21	15'-4" X 10'-0"	ACOUSTICAL	ALUM	8"	6/A-12	6/A-12	6/A-12	-	-
LV22	2'-0" X 3'-4"	ACOUSTICAL	ALUM	8"	6/A-12	6/A-12	6/A-12	-	-

SAMPLE-SYMBOL

WINDOW SCHEDULE

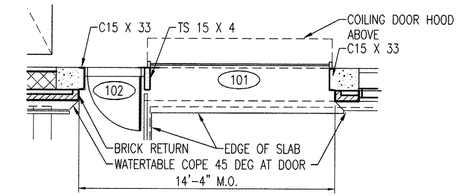
NO	TYPE	MATL	NOM WO SIZE (W X H)	DETAILS			LINTEL	REMARKS
				HEAD	JAMB	SILL		
W-1	I	ALUM	3'-4" X 5'-4"	7/A-12	7/A-12	7/A-12	-	FRAME COLOR: BLACK
W-2	II	ALUM	3'-4" X 4-0"	7/A-12	7/A-12	7/A-12	-	FRAME COLOR: BLACK





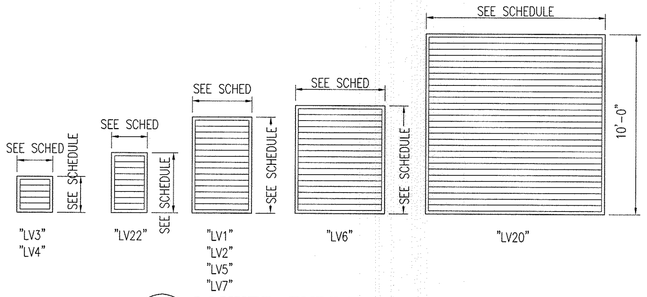
1 / A-13 **DOOR & FRAME TYPES**
SCALE: 1/4" = 1'-0"
REF: A-2, A-4, A-5

FRONT VIEW

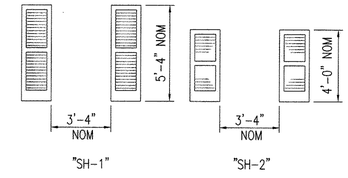


PLAN VIEW

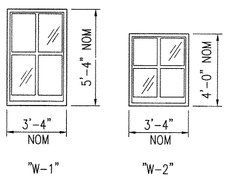
5 / A-13 **PLAN DETAIL**
SCALE: 1/4" = 1'-0"
REF: A-2, A-4, A-5



2 / A-13 **LOUVER TYPES**
SCALE: 1/4" = 1'-0"
REF: A-2, A-4, A-5



3 / A-13 **SHUTTER TYPES**
SCALE: 1/4" = 1'-0"
REF: A-2, A-4, A-5



4 / A-13 **WINDOW TYPES**
SCALE: 1/4" = 1'-0"
REF: A-2, A-4, A-5

LINTEL SCHEDULE

TYPE	STYLE	OPENINGS UP TO:	STEEL / REINFORCING
A	TYPE A PRECAST CONCRETE (6" OR 8" x 8")	6"TH=8'-6" 8"TH=8'-0"	2 - #5 (T & B)
C	TYPE C PRECAST CONCRETE (10" OR 12" x 8")	10"TH=8'-4" 12"TH=7'-8"	3 - #5 (T & B)
E	TYPE E STEEL ANGLES SINGLE OR MULTIPLE CONFIGURATION (1 2 3)	8'-4"	L 6" X 6" X 5/16"
F	TYPE E STEEL ANGLES SINGLE OR MULTIPLE CONFIGURATION	9'-0"	L 5" X 5" X 5/16"

NOTES:
1. LINTELS SPANNING MASONRY OPENINGS UP TO 8'-0" SHALL HAVE 8" MIN. BEARING EACH END.
2. LINTELS SPANNING MASONRY OPENINGS 10'-0" OR GREATER SHALL HAVE 12" MIN. BEARING EACH END.
3. ADDITIONAL LINTELS MAY BE REQUIRED FOR MECHANICAL AND ELECTRICAL SERVICES, OR OTHER MISCELLANEOUS WALL OPENINGS. THESE LINTELS SHALL MATCH TYPE, REINFORCING, SIZE AND BEARING REQUIREMENTS INDICATED ON THE LINTEL SCHEDULE.

ROOM FINISH SCHEDULE

DESCRIPTION	FLOOR	BASE	WALLS				CEILING		REMARKS
			N	E	S	W	TYPE	HEIGHT	
101 CONTROL ROOM	CONC/PT	-	CMU-PT	CMU-PT	CMU-PT	CMU-PT	EXP	18'-0"	
102 CHEMICAL ROOM	CONC/PT	-	CMU-PT	CMU-PT	CMU-PT	CMU-PT	EXP	18'-0"	
103 TOILET ROOM	CONC/PT	-	CMU-PT	CMU-PT	CMU-PT	CMU-PT	EXP	8'-8"	
201 GENERATOR ROOM	CONC/PT	-	CONC-PT	CONC-PT	CONC-PT	CMU&CONC -PT	EXP/PT	14'-0"	

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 6069, EXPIRATION DATE: 7-10-2014.

ARCHITECT License #6069

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

EDWARD THOMAS MILLER — STATE OF MARYLAND

DES: EM
DRN: PKI
CHK: JHD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

AS-BUILT

SCHEDULES AND DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

A-13

SCALE AS SHOWN

SHEET 24 OF 70

N:\13428-001\CADD\13428001A6-13.dwg
Sep 11, 2012 - 9:47am

STRUCTURAL NOTES

GENERAL NOTES:

1. 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.
2. 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.
3. LOCATIONS OF BORINGS AND BORING LOGS ARE INCLUDED IN SPECIFICATIONS.

FOUNDATION NOTES:

1. DESIGN BEARING PRESSURE SHALL BE 2000 PSF.
2. KEEP ALL EXCAVATIONS DRY. STANDING WATER WILL NOT BE ALLOWED IN EXCAVATIONS. PLACE A LAYER OF 10 MIL VAPOR BARRIER AND CRUSHED STONE UNDER ALL SLABS ON GRADE. DEPTH OF STONE LAYER SHALL BE AS SHOWN ON DRAWINGS. ALL EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE PLACING ANY CONCRETE OR CRUSHED STONE.
3. FOR MECHANICAL AND ELECTRICAL WORK TO BE INCORPORATED IN FOUNDATION WORK, SEE MECHANICAL AND ELECTRICAL DRAWINGS.
4. FILL ALL EXCESS EXCAVATION BELOW THE ELEVATION OF THE CONCRETE AS SPECIFIED.
5. DO NOT PLACE BACKFILL AGAINST SUBSTRUCTURE WALLS UNTIL UPPER BRACING FLOORS ARE IN PLACE FOR A MINIMUM OF SEVEN DAYS.

CONCRETE NOTES

1. PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS.
2. DETAIL AND CONSTRUCT REINFORCED CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE."
3. DETAIL REINFORCING STEEL IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AND ACI SP-66, "ACI DETAILING MANUAL."
4. PROVIDE REINFORCEMENT CONFORMING TO ASTM A 615, GRADE 60, DEFORMED BARS.
5. PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A 185.
6. UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:
   A. BOTTOM BARS IN FOOTINGS AND IN SLABS ON EARTH OR CRUSHED STONE: 3"
   B. BEAMS, SLABS, COLUMNS AND WALLS EXPOSED TO GROUND, WEATHER, PROCESS LIQUID OR VAPORS AFTER REMOVAL OF FORMS: 2"
   C. BEAMS, COLUMNS, WALLS AND PIERS NOT EXPOSED TO WEATHER OR PROCESS LIQUID OR VAPORS: 1-½"
   D. STRUCTURAL SLABS NOT EXPOSED TO GROUND, WEATHER, PROCESS LIQUID, VAPORS OR TRUCK TRAFFIC: 1"
   E. STRUCTURAL SLABS NOT EXPOSED TO GROUND, WEATHER, PROCESS LIQUID OR VAPORS, BUT SUBJECT TO TRUCK TRAFFIC:
      TOP OF SLAB: 1-½"
      BOTTOM OF SLAB: 1"
7. SUBMIT REINFORCING STEEL DETAILS (SHOP DRAWINGS) AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
8. CHAMFER ALL EXPOSED CONCRETE EDGES ¾" UNLESS OTHERWISE NOTED.
9. DETAIL ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS AS TABULATED ON THIS DRAWING.
10. POUR CONCRETE SLABS AND WALLS BETWEEN INDICATED JOINTS, ALLOWING A MINIMUM ELAPSED PERIOD OF 3 DAYS BETWEEN ADJACENT POURS.
11. PROVIDE JOINTS AS DETAILED ON THE DRAWINGS. NO ADDITIONAL JOINTS SHALL BE USED NOR ANY OMITTED EXCEPT BY WRITTEN AUTHORIZATION FROM THE ENGINEER. APPROVED ADDITIONAL JOINTS SHALL NOT RESULT IN ADDITIONAL EXPENSE TO THE OWNER.
12. WHERE A BEAM FRAMES INTO A WALL, IF A CONSTRUCTION JOINT IS NOT INDICATED AT THE BOTTOM OF THE BEAM, PROVIDE A POCKET IN THE WALL FOR BEAM BEARING. DEPTH OF THE POCKET SHALL BE THE FULL THICKNESS OF THE WALL.
13. WHERE A SLAB IS SLOPED (TOP AND/OR BOTTOM), PROVIDE SLOPED REINFORCING PARALLEL TO THE SLOPING CONCRETE SURFACE.
14. PROVIDE ⅜" THICK PVC, 9" WIDE WATER STOP OF THE TWO-BULB TYPE AS SHOWN ON THE DRAWINGS.
15. SIZE AND LOCATE ANCHOR BOLTS AND EQUIPMENT PADS OR PEDESTALS TO SUIT EQUIPMENT FURNISHED.
16. 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.
17. PROVIDE BONDING COMPOUND AT ALL LOCATIONS IN WHICH FRESH CONCRETE COMES IN CONTACT WITH CURED CONCRETE.

CONCRETE MASONRY NOTES:

1. CONSTRUCT MASONRY IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI-530/ ASCE 5/ TMS 402, 2008 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
2. PROVIDE HOLLOW LIGHTWEIGHT LOAD-BEARING CONCRETE MASONRY UNITS MEETING THE REQUIREMENTS OF ASTM C 90.
3. PROVIDE MORTAR CONFORMING TO THE REQUIREMENTS OF ASTM C-270, TYPE M OR S. CEMENT USED FOR MORTAR SHALL BE PORTLAND CEMENT.
4. PROVIDE GROUT CONFORMING TO THE REQUIREMENTS OF ASTM C 476 COARSE GROUT, WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
5. PROVIDE CONCRETE MASONRY UNITS WITH A MINIMUM COMPRESSIVE STRENGTH (F'm) OF 1,350 PSI.
6. PROVIDE REINFORCING BARS CONFORMING TO ASTM A 615, GRADE 60.
7. IN ADDITION TO THE MASONRY WALL REINFORCEMENT SHOWN ON THE DRAWINGS, FURNISH THE FOLLOWING:
   #5 VERTICAL REINFORCEMENT SHALL BE PROVIDED AT CORNERS, WITHIN 16 INCHES OF EACH SIDE OF OPENINGS, WITHIN 8 INCHES OF EACH SIDE OF MOVEMENT JOINTS AND WITHIN 8 INCHES OF THE ENDS OF THE WALLS.

STRUCTURAL STEEL NOTES:

1. FABRICATE AND ERECT STRUCTURAL STEEL CONFORMING TO THE REQUIREMENTS OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), "MANUAL OF STEEL CONSTRUCTION".
2. SUBMIT ERECTION PLANS AND SHOP DETAILS AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
3. PROVIDE STRUCTURAL STEEL WIDE-FLANGE SHAPES CONFORMING TO ASTM A992, HSS MEMBERS CONFORMING TO ASTM A500, AND ALL OTHER MEMBERS CONFORMING TO ASTM A36.
4. PROVIDE ANCHOR BOLTS CONFORMING TO ASTM F1554.
5. PROVIDE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325. PROVIDE ALL BOLTED CONNECTIONS WITH COMPRESSIBLE-WASHER-TYPE DIRECT-TENSION INDICATORS CONFORMING TO ASTM F959.
6. WELD IN COMPLIANCE WITH AMERICAN WELDING SOCIETY AWS D1.1, "STRUCTURAL WELDING CODE."
7. WELD ALL SHOP CONNECTIONS WITH CLASS E-70 SERIES ELECTRODES. PROVIDE FIELD CONNECTIONS WITH HIGH STRENGTH BOLTED CONNECTIONS EXCEPT WHERE NOTED.
8. 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 (2)-¾" DIAMETER HIGH STRENGTH STEEL BOLTS OR WELDS OF EQUIVALENT STRENGTH.
9. MILL BOTTOM OF ALL COLUMNS AND FINISH TOP OF ALL BASE PLATES IN ACCORDANCE WITH AISC SPECIFICATIONS. WELD BASE PLATES TO BOTTOM OF COLUMNS.
10. ALL STRUCTURAL STEEL SHALL BE GAL.VANIZED.

ALUMINUM NOTES:

1. FABRICATE ALL STRUCTURAL ALUMINUM IN ACCORDANCE WITH THE SPECIFICATIONS OF THE ALUMINUM ASSOCIATION.
2. PROVIDE ALLOT 6061-T6 STRUCTURAL ALUMINUM. ALL METAL IN THE WET WELL SHALL BE ALUMINUM WITH STAINLESS STEEL FASTENERS.
3. COAT ALL ALUMINUM IN CONTACT WITH CONCRETE AND OTHER DISSIMILAR METALS WITH BITUMINOUS PAINT ON THE CONTACT SURFACE.
4. USE TYPE 316 STAINLESS STEEL CONNECTION BOLTS FOR CONNECTING ALUMINUM MEMBERS.
5. PROVIDE ALUMINUM GRATING BEARING BARS OF DEPTH AND THICKNESS INDICATED ON PLANS. ALL EXTERIOR GRATING SHALL BE SERRATED. BAND OUTSIDE EDGES OF ALL GRATING AND THE OPENINGS IN THE GRATING USING ALUMINUM BARS OF THE SAME DEPTH AS THE BEARING BARS.

CODES AND STANDARDS:

1. INTERNATIONAL BUILDING CODE IBC (2012) INCLUDING THE MODIFICATIONS MADE BY LOCAL JURISDICTION.
2. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "STEEL CONSTRUCTION" - THIRTEENTH EDITION.
3. AMERICAN CONCRETE INSTITUTE ACI-318 (2008), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
4. AMERICAN CONCRETE INSTITUTE ACI-350 (2006), "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."
5. AMERICAN CONCRETE INSTITUTE ACI-530/ ASCE 5/ TMS 402, (2005) "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES."
6. ALUMINUM ASSOCIATION "ALUMINUM DESIGN MANUAL" (2005).
7. AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7 (2010), "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES."
8. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (2002)."

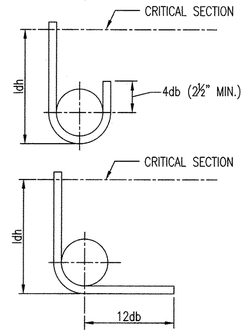
⚠ DESIGN LOADS:

1. DEAD LOADS:
   A. STRUCTURES: ACTUAL WEIGHT
   B. WEIGHT OF SOIL - 100 PCF FOR RESISTING UPLIFT
   C. WEIGHT OF SOIL - 120 PCF FOR DEAD LOAD
2. LIVE LOADS:
   A. FLOORS - 150 PSF IN AREAS NOT OCCUPIED BY EQUIPMENT OR TRUCK LOADING.
   B. EQUIPMENT - ACTUAL WEIGHT OF EQUIPMENT OR MAXIMUM OF 150 PSF.
   C. STAIRS: 100 PSF
   D. HANDRAIL - 200 LBS AT EACH POST OR 50 PLF ALONG THE TOP RAIL, WHICHEVER IS GREATER.
   E. TRUCK: HS-20 AASHTO LOADING
   F. MONORAIL: 5 TON
3. ROOF LIVE LOADS: 30 PSF (NO REDUCTIONS ALLOWED)
4. ROOF SNOW LOAD:
   A. GROUND SNOW LOAD (Pg): 25 PSF
   B. REQUIRED FLAT ROOF SNOW LOAD, (Pf): 22 PSF
   C. EXPOSURE FACTOR (Ce): 1.0
   D. SNOW LOAD IMPORTANCE FACTOR (I): 1.1
   E. THERMAL FACTOR (Ct): 1.0
5. WIND LOAD:
   A. ULTIMATE DESIGN WIND SPEED, Vult: 120 MPH
   B. NOMINAL DESIGN WIND SPEED, Vasd = Vult*(0.6)^0.5 = 93 MPH
   C. RISK CATEGORY: III
   D. WIND EXPOSURE CATEGORY: C
   E. INTERNAL PRESSURE COEFFICIENT: +/- 0.18
   F. COMPONENTS AND CLADDING: 32 PSF
6. SEISMIC LOAD:
   A. RISK CATEGORY: III
   B. SEISMIC IMPORTANCE FACTOR: 1.25
   C. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER AT SHORT PERIODS: Ss=0.158
   D. MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETER AT ONE-SECOND: S1=0.05
   E. SITE CLASSIFICATION: D
   F. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER AT SHORT PERIODS: SDS = 0.1685
   G. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER AT ONE-SECOND: SD1 = 0.080
   H. SEISMIC DESIGN CATEGORY: B
   I. BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE FRAME
   J. DESIGN BASE SHEAR: 42 KIPS
   K. SEISMIC RESPONSE COEFFICIENT: Cs = 0.0702
   L. RESPONSE MODIFICATION FACTOR: R = 3.0
   M. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE.

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"	13"	12"	13"	6"	5"	6"	3"
#4	#13	14"	18"	16"	21"	6"	6"	6"	3"
#5	#16	17"	22"	23"	30"	8"	8"	8"	3"
#6	#19	20"	26"	32"	41"	9"	9"	9"	3"
#7	#22	33"	43"	49"	63"	11"	11"	11"	4"
#8	#25	42"	54"	56"	72"	12"	12"	12"	4"
#9	#29	52"	67"	63"	81"	14"	14"	14"	5"
#10	#32	63"	82"	71"	92"	16"	16"	16"	6"
#11	#36	75"	97"	78"	102"	17"	17"	17"	6"

LAP SPLICE ASSUMPTIONS:

CONCRETE: 5000 PSI COMPRESSIVE STRENGTH (NORMALWEIGHT 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.



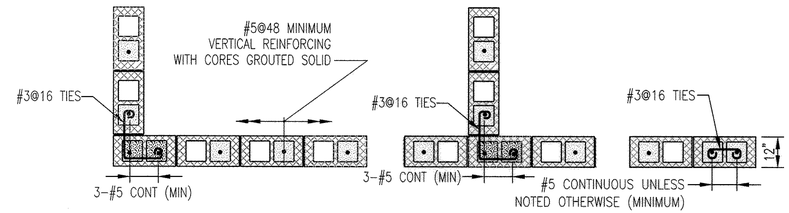
STANDARD HOOK ASSUMPTIONS:

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)

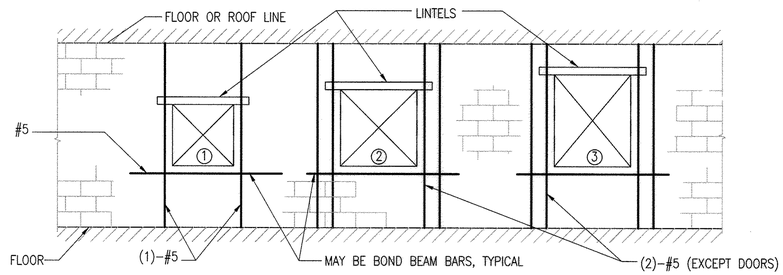
(NON-EPOXY COATED)



AT CORNER AT INTERSECTION AT FREE END

TYPICAL CMU WALL REINFORCING DETAILS

① OPENING 2'-0" OR LESS
② OPENING 2'-0" BUT LESS THAN 4'-0"
③ OPENING EQUALS 4'-0"



NOTES
1. FOR LINTEL INFORMATION, SEE LINTEL SCHEDULE ON A-13

TYPICAL CMU OPENING REINFORCEMENT

NO SCALE

AS-BUILT

S-1

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 — DATE 6/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ANNUNZIATA — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
HLH	1	BUILDING PERMIT REVISIONS	7-19-2013
WRA	2	AS-BUILTS	2/16

STRUCTURAL NOTES AND TYPICAL DETAILS

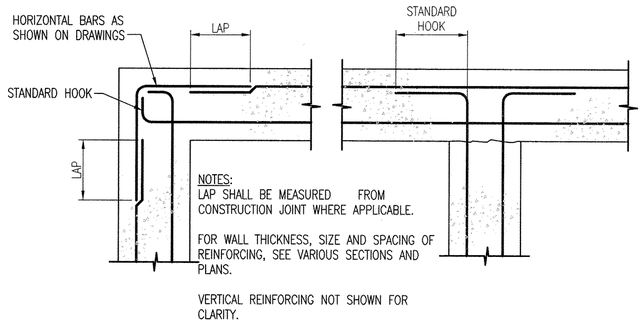
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

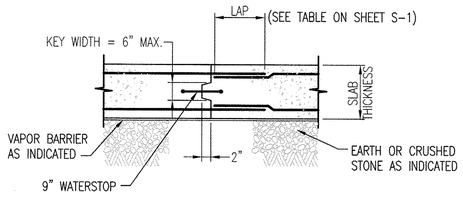
SHEET 25 OF 70

N:\15208-001\CADD\15208001S0-01.dwg
Jul 25, 2013 - 2:54pm



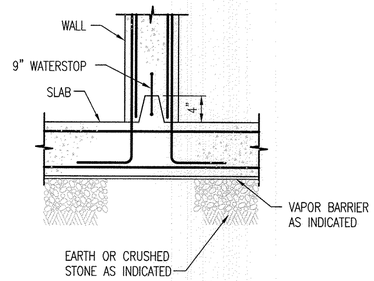
REINFORCING DETAILS AT WALL INTERSECTIONS

NO SCALE



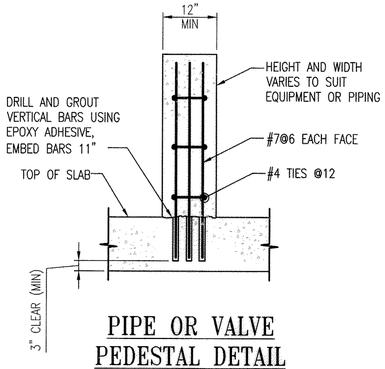
CONSTRUCTION JOINT IN SLAB ON GRADE

NO SCALE



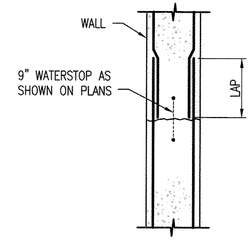
HORIZONTAL CONSTRUCTION JOINT IN WALLS

NO SCALE



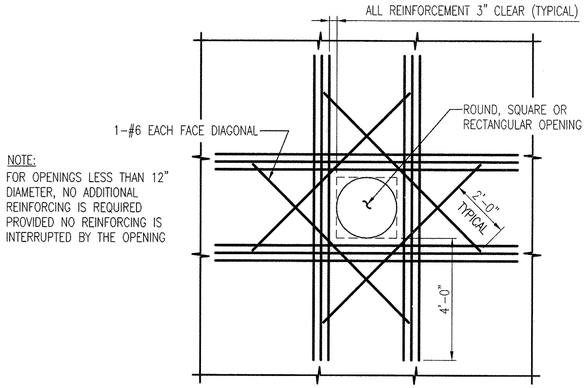
PIPE OR VALVE PEDESTAL DETAIL

NO SCALE



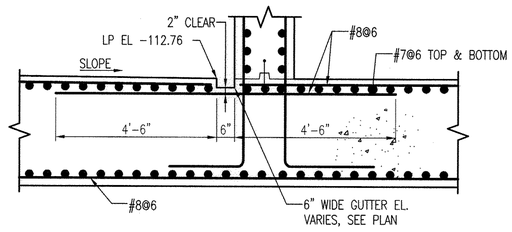
HORIZONTAL CONSTRUCTION JOINT IN WALLS

NO SCALE



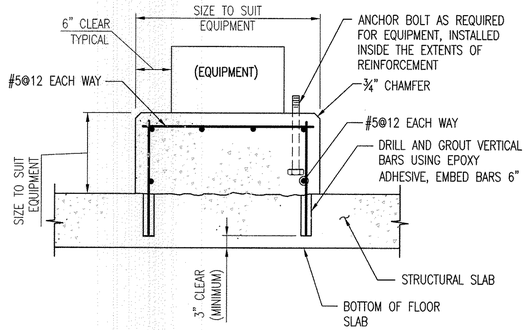
ADDITIONAL REINFORCING AROUND OPENINGS

SCALE: NONE



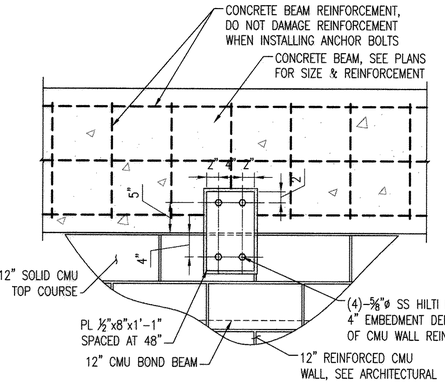
TYPICAL GUTTER DETAIL

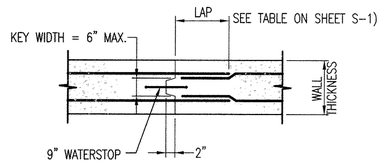
NO SCALE



TYPICAL EQUIPMENT SUPPORT

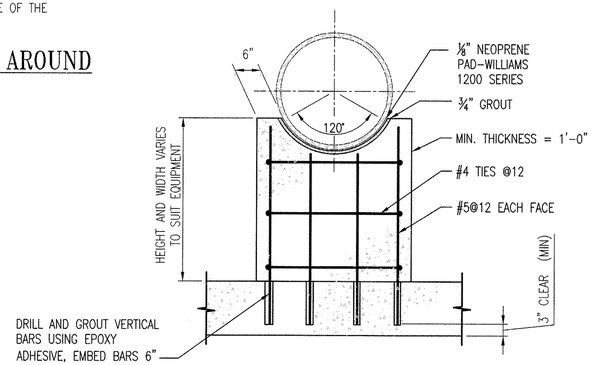
NO SCALE





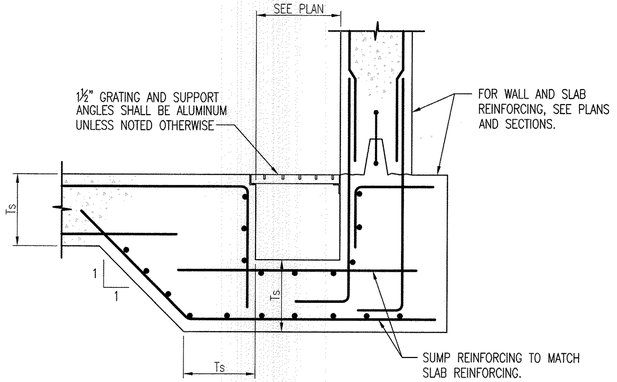
VERTICAL CONSTRUCTION JOINT IN WALL

NO SCALE



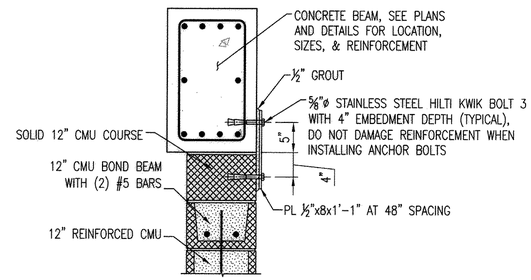
TYPICAL PIPE AND VALVE SUPPORT

NO SCALE



TYPICAL SUMP DETAIL

NO SCALE



TYPICAL TOP OF CMU WALL CONNECTION

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 — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMENTI III — NO. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

WRA	NO.	REVISION	DATE
	1	AS-BUILTS	2/16

AS-BUILT

STRUCTURAL TYPICAL DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

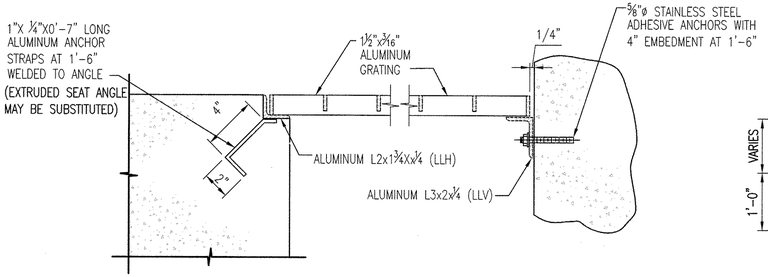
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 26 OF 70

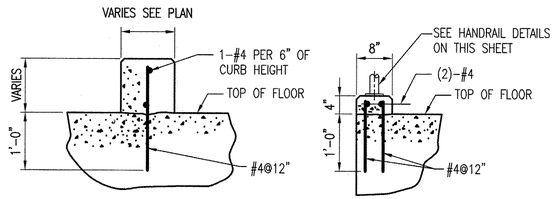
S-2

N:\13428-001\CADD\13428001S0-02.dwg
Sep 10, 2012 - 5:14pm



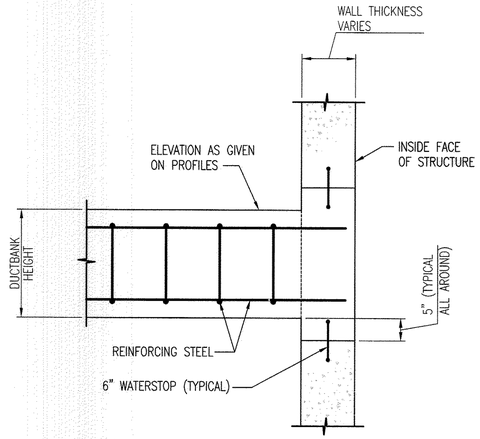
TYPICAL EDGE ANGLE DETAIL

SCALE: NONE



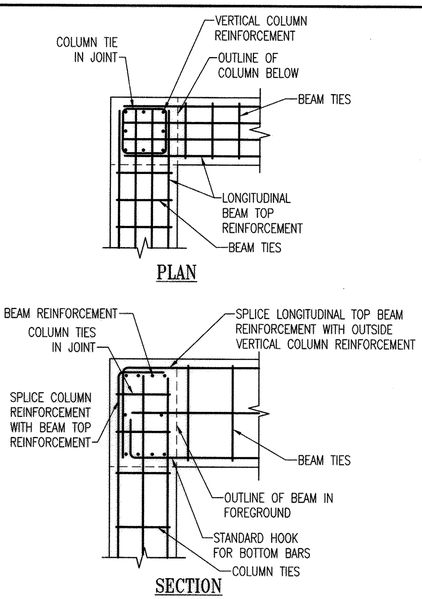
TYPICAL CURB DETAILS

NO SCALE



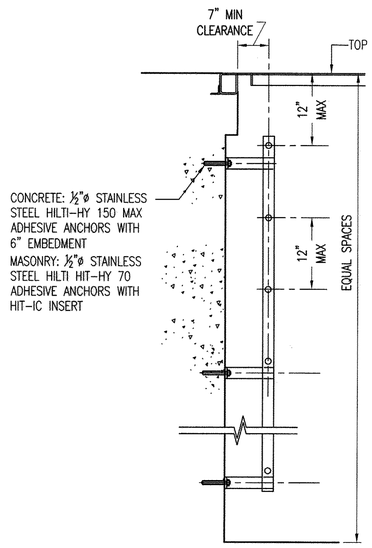
TYPICAL DUCTBANK CONNECTION DETAIL

NO SCALE

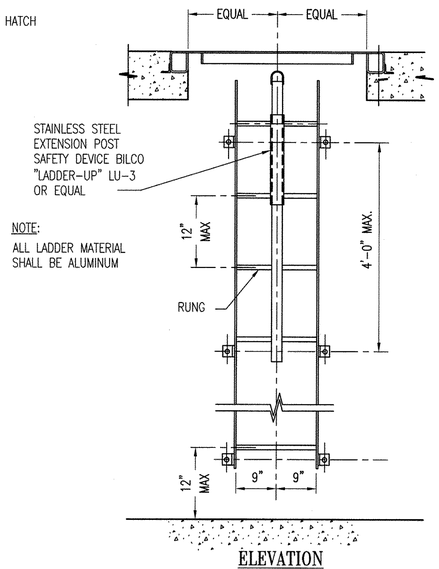


TYPICAL BEAM TO COLUMN REINFORCEMENT DETAIL

NO SCALE

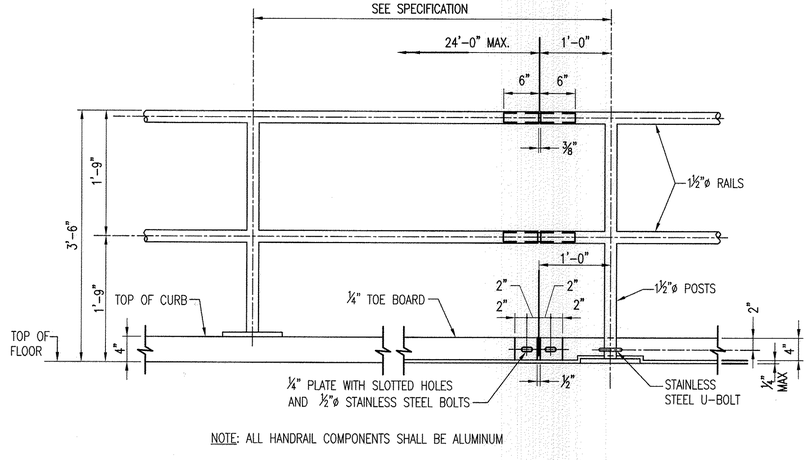


SECTION



ELEVATION

TYPICAL LADDER DETAILS

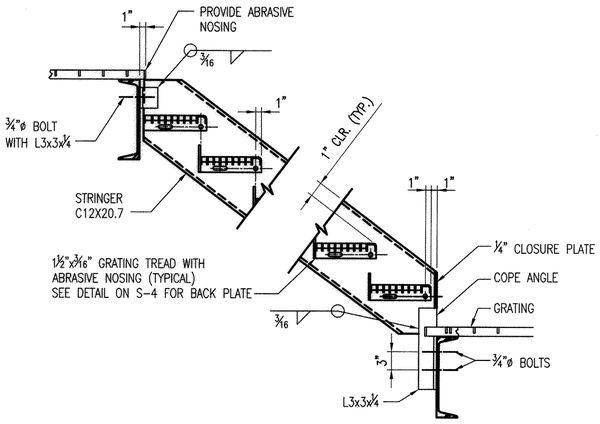


NOTE: ALL HANDRAIL COMPONENTS SHALL BE ALUMINUM

AT CURB AT FLOOR

TYPICAL HANDRAIL ELEVATION

NO SCALE



STAIR CONNECTION TO STEEL BEAMS

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 — DATE 10.1.12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12 RJD

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CALVERT STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMSTRONG III — NO. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL TYPICAL DETAILS

600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

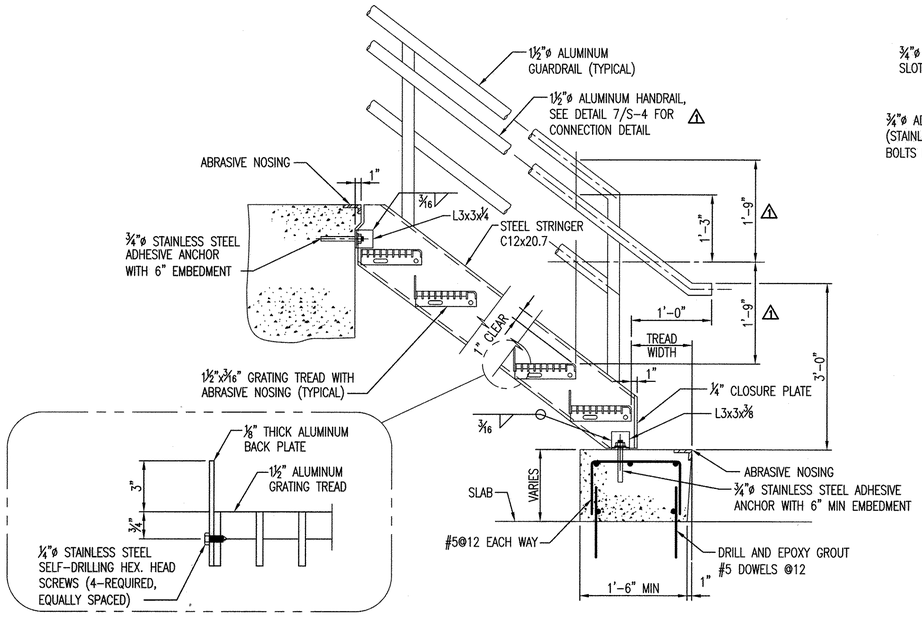
AS-BUILT

S-3

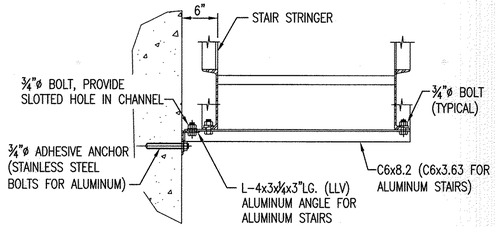
SCALE AS SHOWN

SHEET 27 OF 70

N:\13428-001\CADD\13428001S9-03.dwg
Sep 10, 2012 - 5:14pm

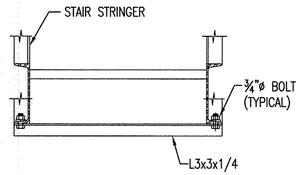


1 / S-4 STAIR CONNECTION TO CONCRETE DETAIL
SCALE: NONE



NOTE :
PROVIDE BRACE AT MID SPAN FOR STAIRS WITH HORIZONTAL SPAN OF MORE THAN 10 FEET.

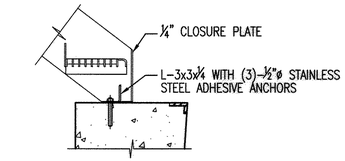
STAIRS AT WALL



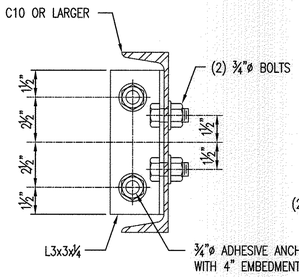
NOTE :
SEE PLAN FOR BRACING LAYOUT.

FREESTANDING STAIRS

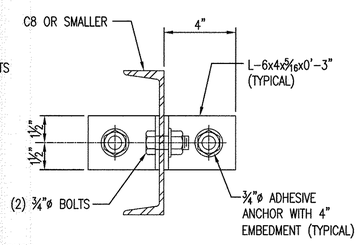
2 / S-4 STAIR BRACING DETAIL
SCALE: NONE



3 / S-4 TOE BOARD AT CONCRETE STEP
SCALE: 1" = 1'-0"

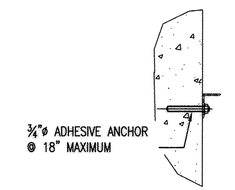


10" AND LARGER

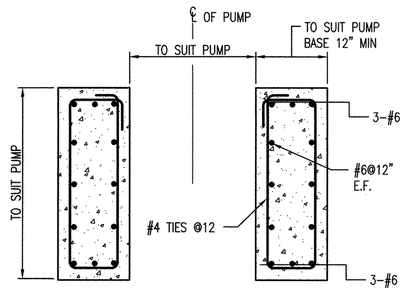


8" AND SMALLER

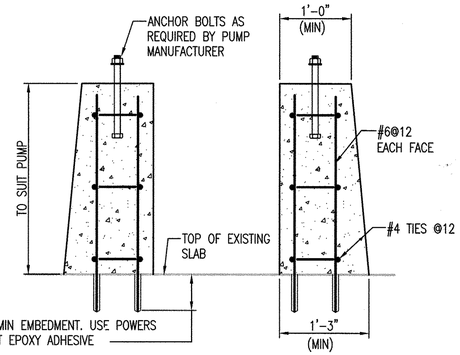
4 / S-4 CHANNEL CONNECTION TO WALL
SCALE: 1" = 1'-0"



5 / S-4 ANGLE CONNECTION TO WALL
SCALE: 1" = 1'-0"

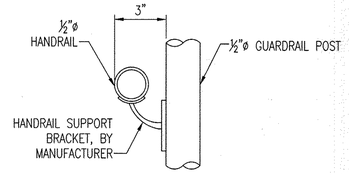


PLAN

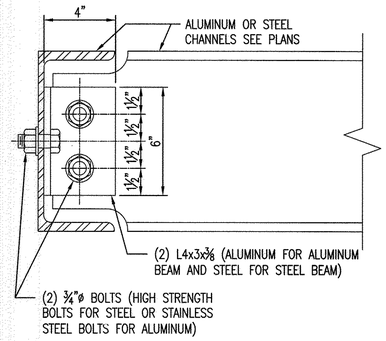


SECTION

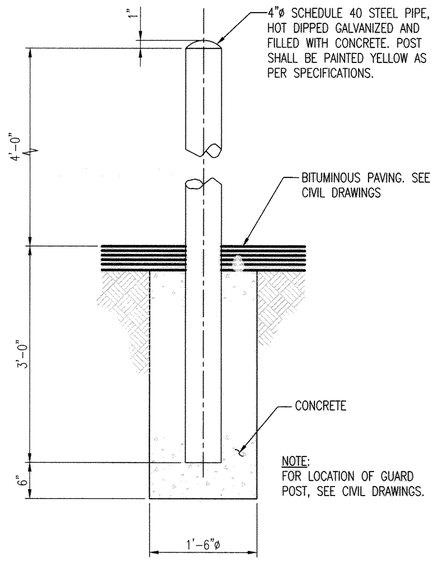
TYPICAL PUMP SUPPORT
NO SCALE
(SEE MECHANICAL DRAWINGS FOR LOCATION)



⚠ 7 / S-4 HANDRAIL TO GUARDRAIL CONNECTION DETAIL
SCALE: 1" = 1'-0"



6 / S-4 CHANNEL TO CHANNEL CONNECTION DETAIL
SCALE: 1" = 1'-0"



TYPICAL GUARD POST DETAIL
NO SCALE

AS-BUILT

S-4

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. 9493, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES H. LEWIS ARMIGER — No. 9493 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
HLH	⚠1	BUILDING PERMIT REVISIONS	7-19-2013
WRA	⚠2	AS-BUILTS	2/16

STRUCTURAL TYPICAL DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

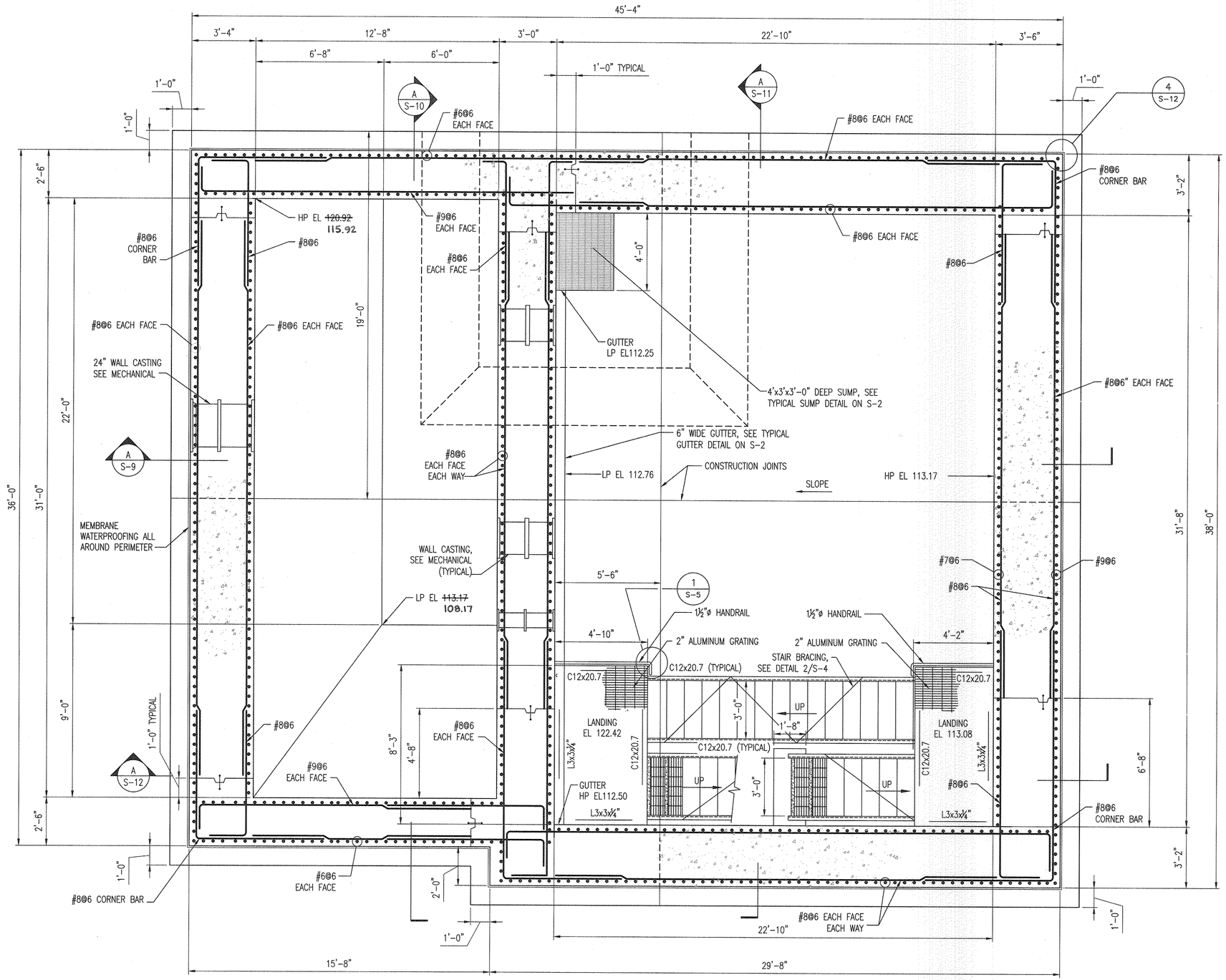
SCALE AS SHOWN

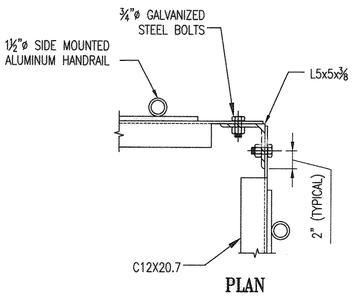
SHEET 28 OF 70

N:\19495-001\CADD\19495001S-04.dwg
Jul 24, 2013 - 8:29pm

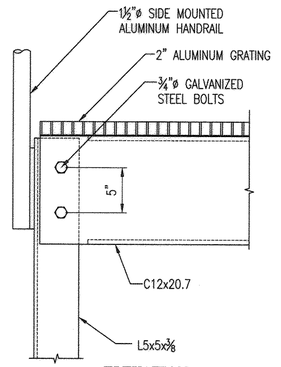
GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED





PLAN



ELEVATION

1 / S-5 PLATFORM CONNECTION DETAIL

SCALE: 1 1/2" = 1'-0"
REF: S-5

LOWER LEVEL AND FOUNDATION PLAN

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

GRAPHIC SCALES

0 1' 2' 3' 5'
SCALE: 3/8" = 1'-0"

0 4" 8" 16"
SCALE: 1 1/2" = 1'-0"

AS-BUILT

S-5

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. 9895, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/5/12
CHIEF, BUREAU OF ENGINEERING — Thomas J. Butler — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — R.D. — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — LOUIS V. VARACALLI — No. 9895 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL LOWER LEVEL AND FOUNDATION PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

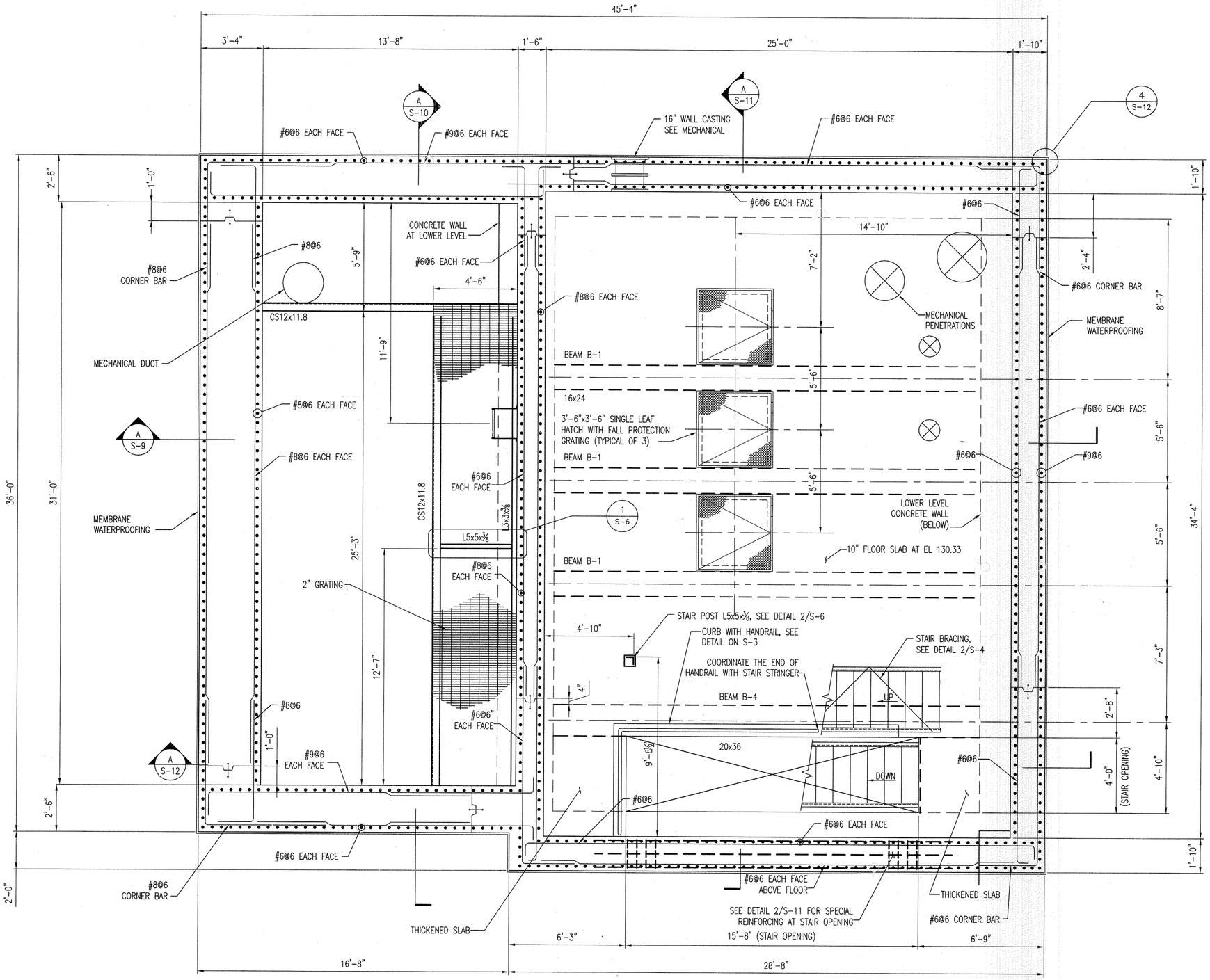
SCALE AS SHOWN

SHEET 29 OF 70

N:\18408-001\CADD\134280151-60.dwg
Sep 12, 2013 - 8:22am

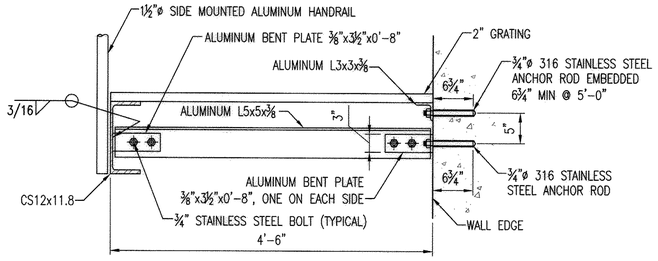
GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED.
2. ALL METAL IN WET WELL SHALL BE ALUMINUM WITH STAINLESS STEEL FASTENERS.



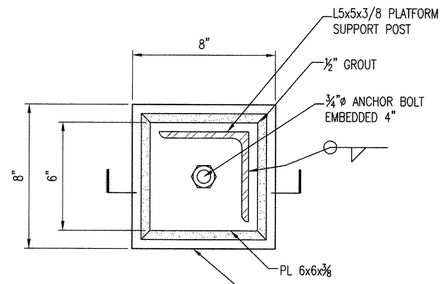
INTERMEDIATE LEVEL PLAN

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

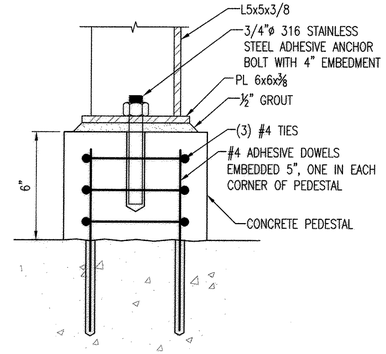


1/S-6 ALUMINUM PLATFORM DETAIL

SCALE: 1" = 1'-0"
REF: S-6



PLAN



SECTION

2/S-6 POST BASE CONNECTION DETAIL

SCALE: 3" = 1'-0"
REF: S-6

GRAPHIC SCALES

SCALE: 3/8" = 1'-0" (0, 1', 2', 3', 5')
SCALE: 1" = 1'-0" (0, 6", 1', 2')
SCALE: 3" = 1'-0" (0, 2", 4", 8")

AS-BUILT

S-6

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: 9-23-13

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/27/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMENTROUT — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
INTERMEDIATE LEVEL PLAN

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

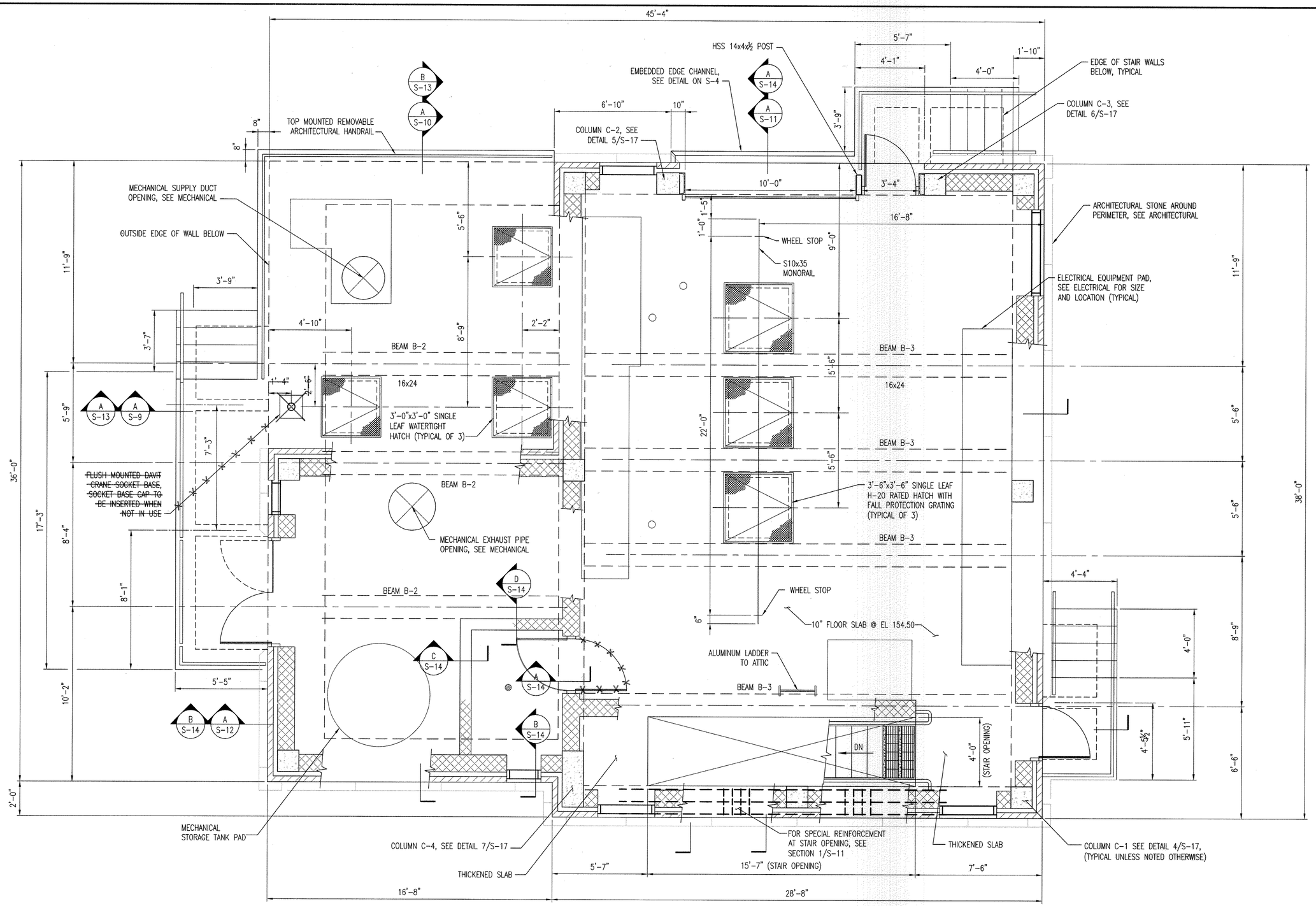
SCALE AS SHOWN

SHEET 30 OF 70

N:\13428-001\CADD\13428001S1-01.dwg
Sep 10, 2012 - 5:14pm

GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED.



GRADE LEVEL PLAN

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

GRAPHIC SCALE

0 1' 2' 3' 5'

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

AS-BUILT

S-7

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. 9995, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/28/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARNOLD — 9995 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
GRADE LEVEL PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

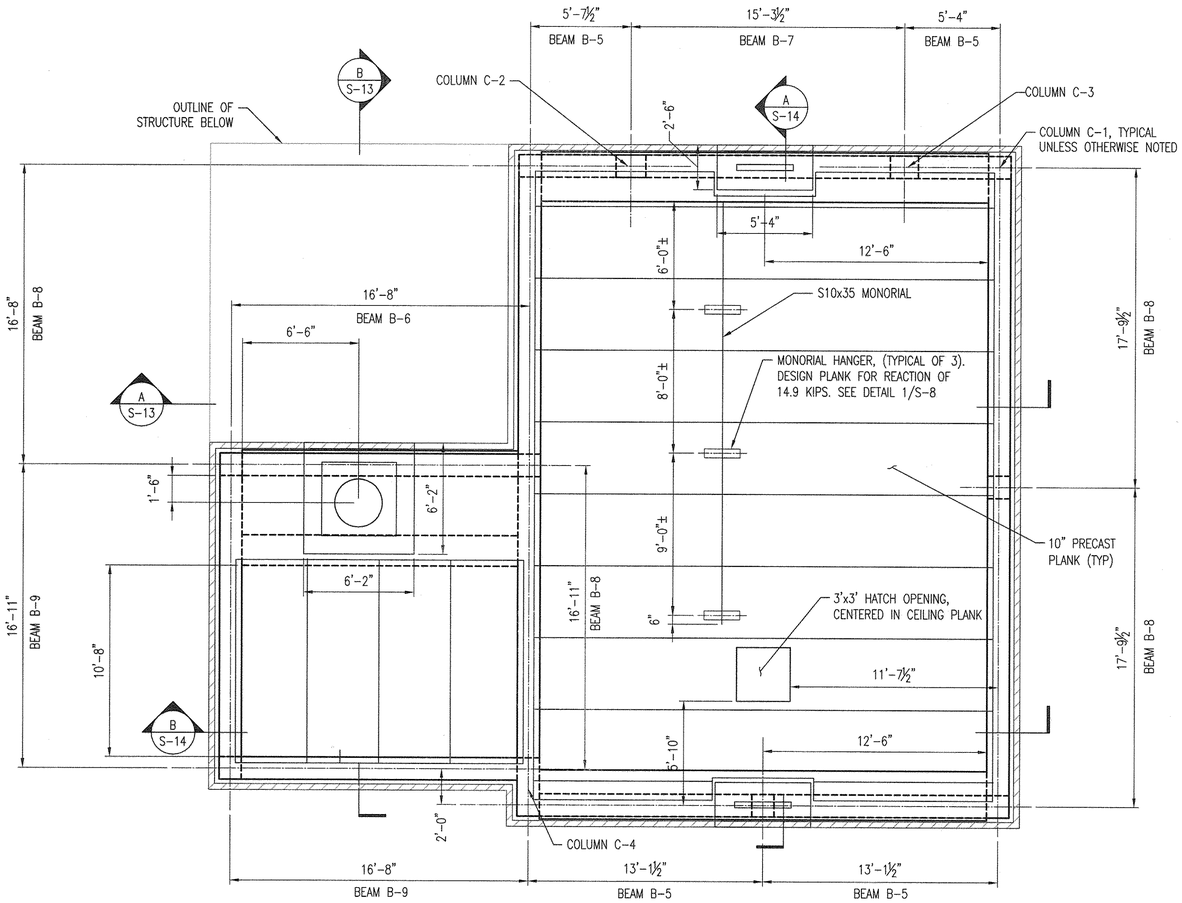
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 31 OF 70

R:\13458-001\CADD\13458001S1-02.dwg
Sep 10, 2012 - 3:14pm

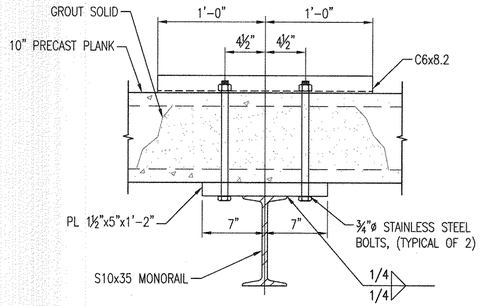


CEILING PLANK PLAN

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

GENERAL NOTES

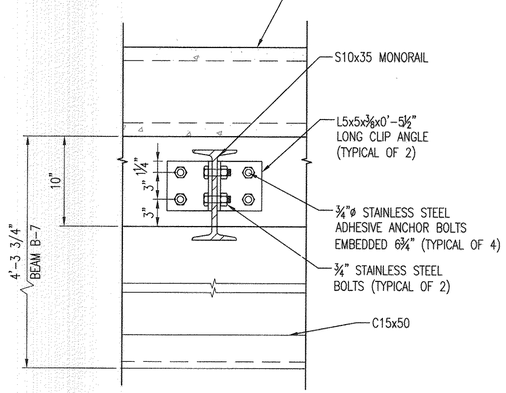
1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED.



NOTE: FABRICATOR TO MARK HOLLOW CORES TO PREVENT DRILLING THROUGH PRESTRESSING STRANDS

1/S-8 MONORAIL TO PRECAST PANEL CONNECTION

SCALE: 1-1/2" = 1'-0"
REF: S-8



2/S-8 MONORAIL END CONNECTION TO BEAM

SCALE: 1-1/2" = 1'-0"
REF: S-8

GRAPHIC SCALES

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

0 4" 8" 16"
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 ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9665, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CALVERT STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMENTROUT III — No. 9665 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL PLANK
CEILING PLAN AND DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

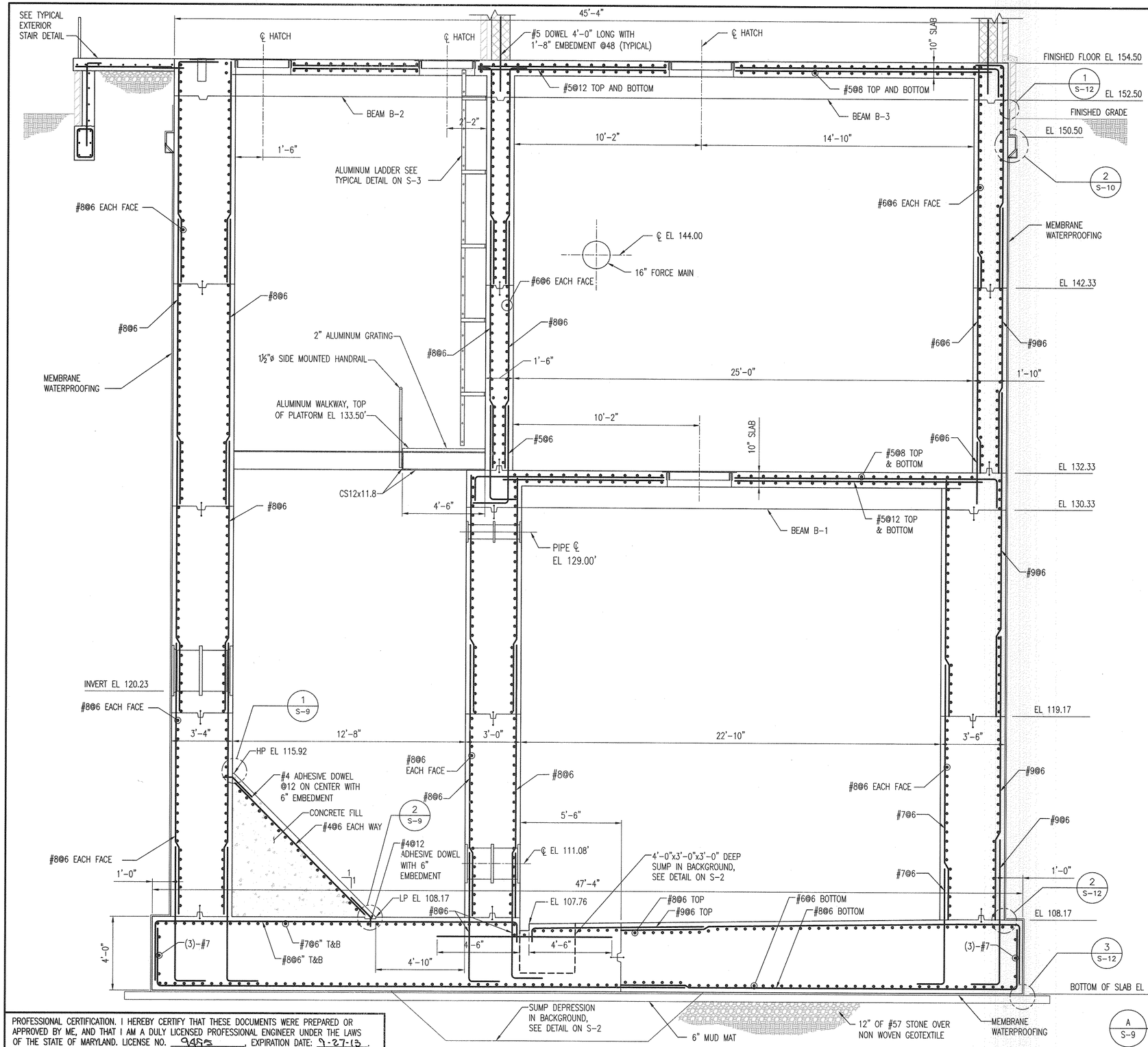
AS-BUILT

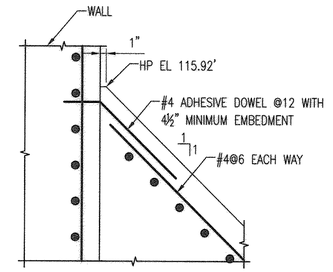
S-8

SCALE
AS SHOWN

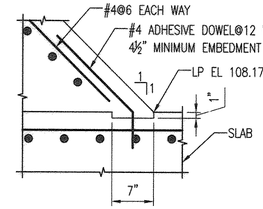
SHEET
32 OF 70

N:\19428-001\CADD\PS\20001S1-03.dwg
Sep 10, 2012 - 8:41pm





1 S-9 **CONCRETE FILL END DETAIL**
SCALE: 1" = 1'-0"
REF: S-9



2 S-9 **CONCRETE FILL END DETAIL**
SCALE 1" = 1'-0"
REF: S-9

GRAPHIC SCALES

0 1' 2' 3' 5'
SCALE: 3/8" = 1'-0"

0 6" 1' 2'
SCALE: 1" = 1'-0"

A S-9 **SECTION THROUGH PUMPING STATION**
SCALE 3/8" = 1'-0"
REF: S-5, S-6, S-7

AS-BUILT

S-9

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. 9485, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/28/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — LOUIS VINCENT ARMBRUSTER III — No. 9485 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL SECTION THROUGH PUMPING STATION

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

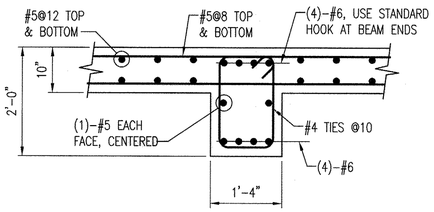
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

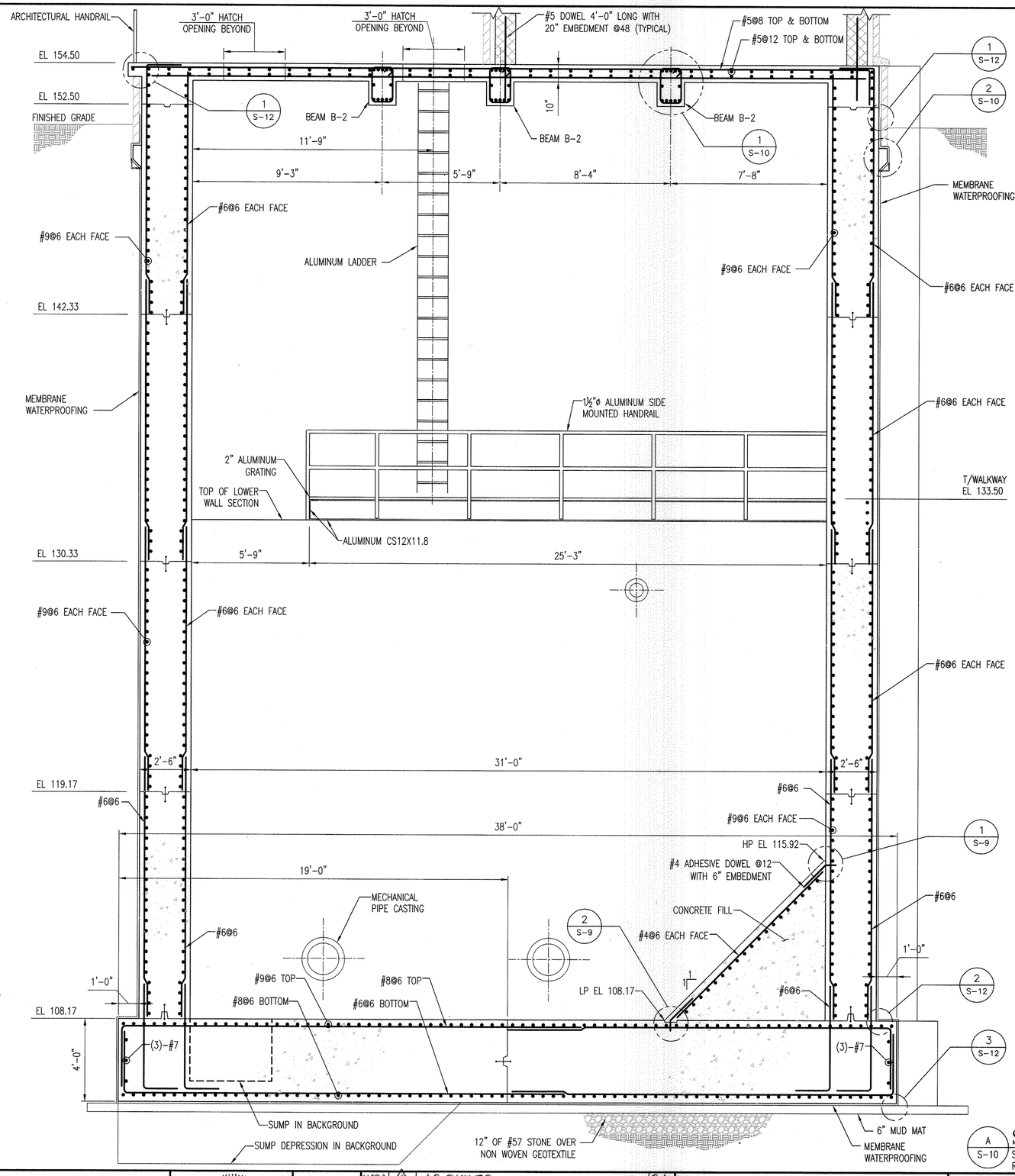
SCALE AS SHOWN

SHEET 33 OF 70

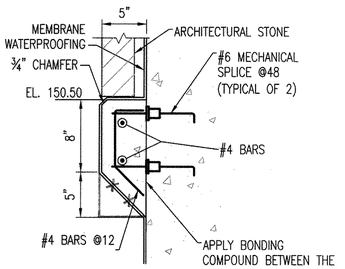
N:\13428-001\CADD\13428001S5-01.dwg
Sep 10, 2012 - 5:14pm



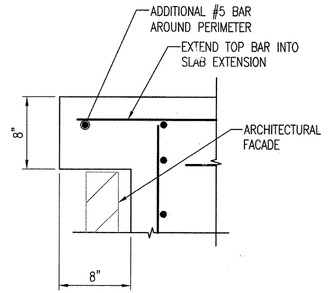
1 S-10 **BEAM B-2 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-10



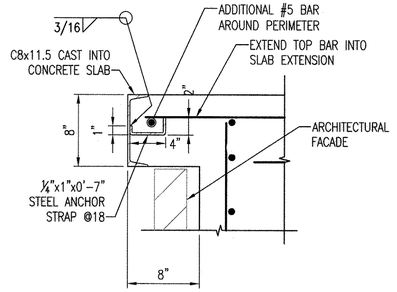
A S-10 **SECTION THROUGH WET WELL**
SCALE: 3/8" = 1'-0"
REF: S-5, S-6, S-7



2 S-10 **CORBEL DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-10



3 S-10 **SLAB EXTENSION DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-10, S-13, S-14



4 S-10 **SLAB EXTENSION AT GARAGE DOOR DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-11, S-14, S-16

GRAPHIC SCALES

0 1' 2' 3' 5'
SCALE: 3/8" = 1'-0"

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

0 4" 8" 16"
SCALE: 1 1/2" = 1'-0"

0 2" 4" 8"
SCALE: 3" = 1'-0"

AS-BUILT

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. 9995, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/6/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — OLIVER ARMSTRONG III — 9995 — REGISTERED PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
SECTION THROUGH WET WELL

600' SCALE MAP NO. 30 | BLOCK NO. 10

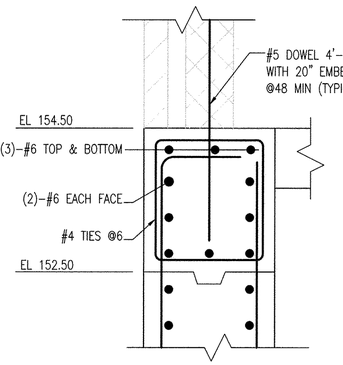
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

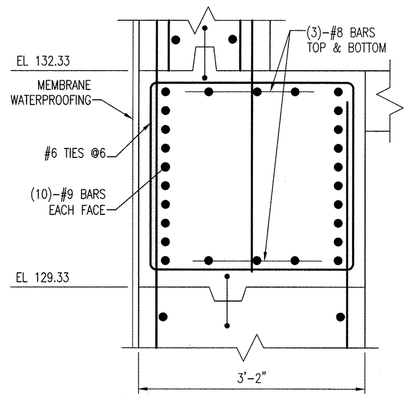
SHEET 34 OF 70

S-10

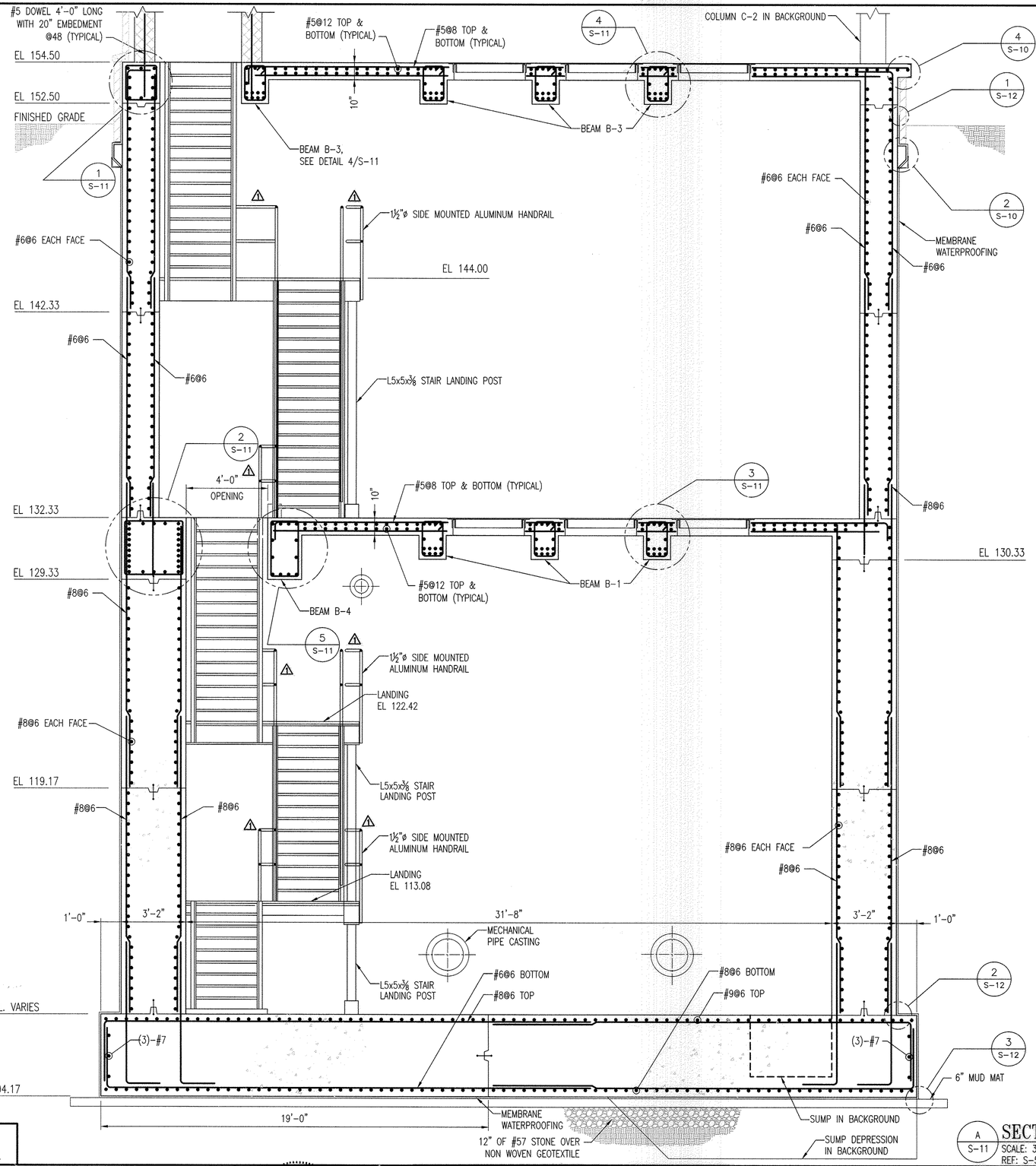
R:\13428-001\CADD\13428010S3-02.dwg
Sep 10, 2012 - 5:14pm



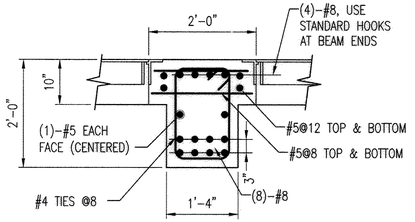
1 / S-11 BEAM DETAIL
SCALE: 1" = 1'-0"
REF: S-7 & S-11



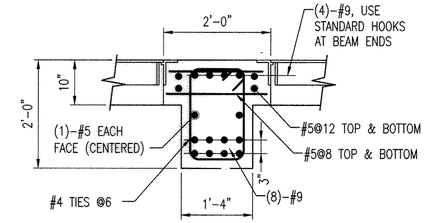
2 / S-11 BEAM DETAIL
SCALE: 1" = 1'-0"
REF: S-6 & S-11



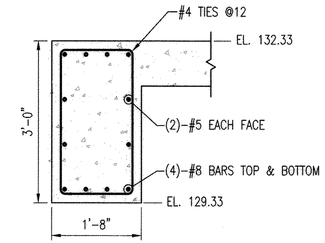
A / S-11 SECTION THROUGH DRY WELL
SCALE: 3/8" = 1'-0"
REF: S-5, S-6, S-7



3 / S-11 BEAM B-1 DETAIL
SCALE: 3/4" = 1'-0"
REF: S-11



4 / S-11 BEAM B-3 DETAIL
SCALE: 3/4" = 1'-0"
REF: S-11



5 / S-11 BEAM B-4 DETAIL
SCALE: 3/4" = 1'-0"
REF: S-11

GRAPHIC SCALES

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

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

SCALE: 1" = 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. 9495, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — OLIVER ARMOUR — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
HLH	1	BUILDING PERMIT REVISIONS	7-19-2013
WRA	2	AS-BUILTS	2/16

STRUCTURAL
SECTION THROUGH DRY WELL

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

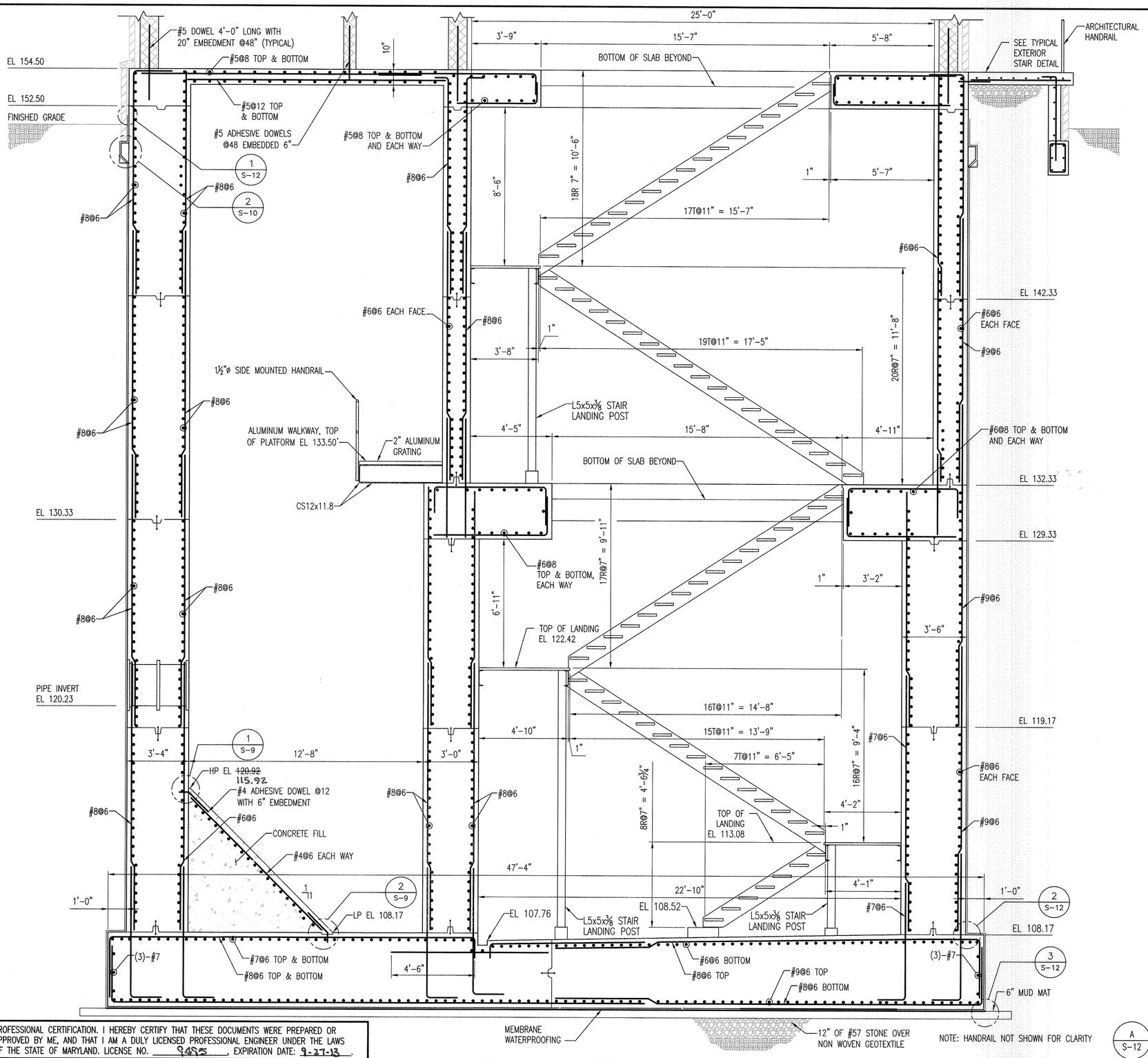
AS-BUILT

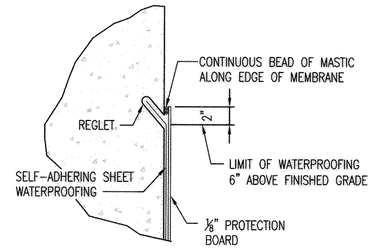
S-11

SCALE AS SHOWN

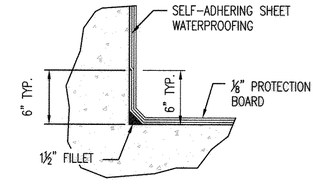
SHEET 35 OF 70

N:\13428-001\CADD\13428001S9-03.dwg
Jul 24, 2013 - 2:14pm

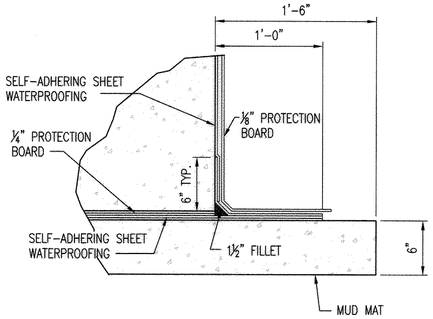




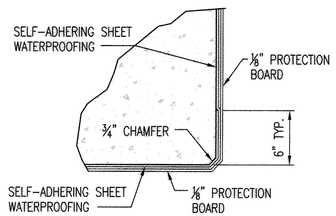
1 S-12 **WATERPROOFING DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-9, S-10, S-11, S-12



2 S-12 **WATERPROOFING DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-9, S-10, S-11, S-12



3 S-12 **WATERPROOFING DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-9, S-10, S-11, S-12



4 S-12 **WATERPROOFING DETAIL**
SCALE: 1 1/2" = 1'-0"
REF: S-5, S-6

A S-12 **SECTION THROUGH STAIRS**
SCALE: 3/8" = 1'-0"
REF: S-5, S-6, S-7

GRAPHIC SCALES

0 1' 2' 3' 5'
SCALE: 3/8" = 1'-0"

0 4" 8" 16"
SCALE: 1 1/2" = 1'-0"

AS-BUILT

S-12

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. 9925, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — 9/25/12 DATE
CHIEF, BUREAU OF UTILITIES — 9/26/12 DATE
CHIEF, UTILITY DESIGN DIVISION — 9/25/12 DATE

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER AMBERSON — No. 29925 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
SECTION THROUGH STAIRS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

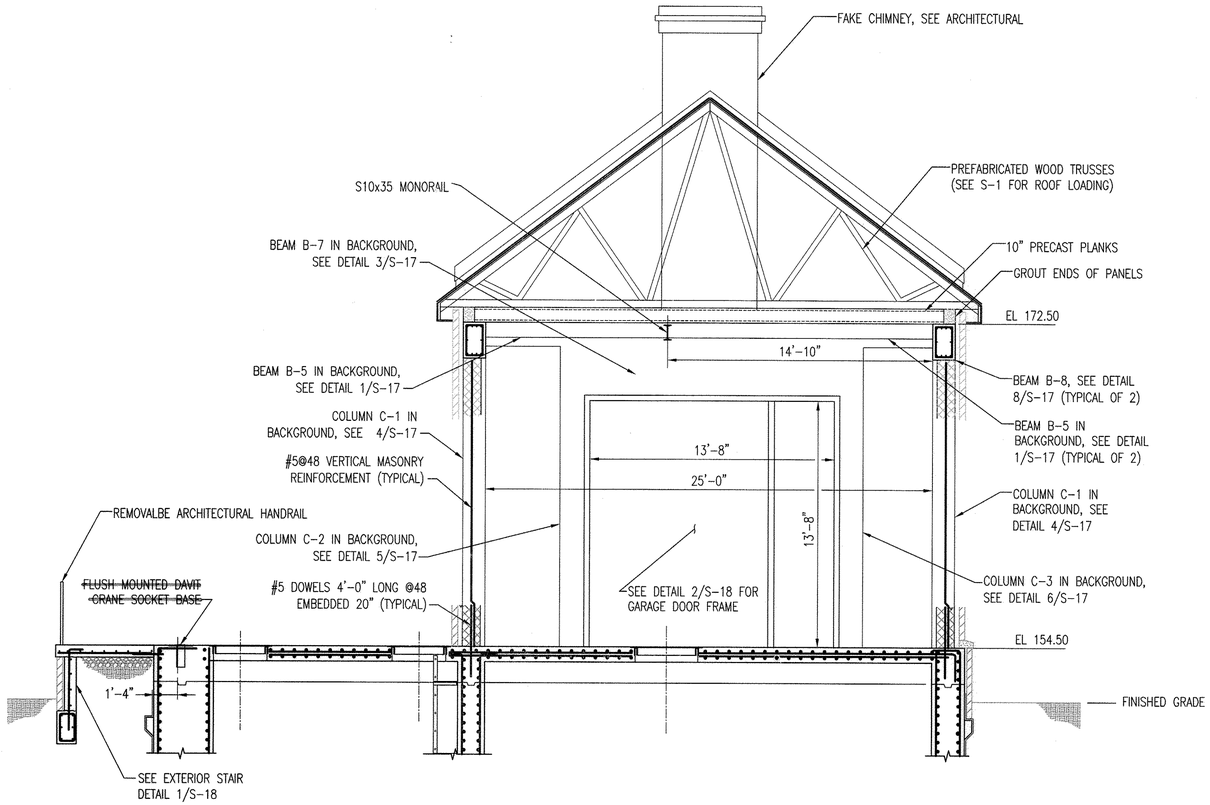
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

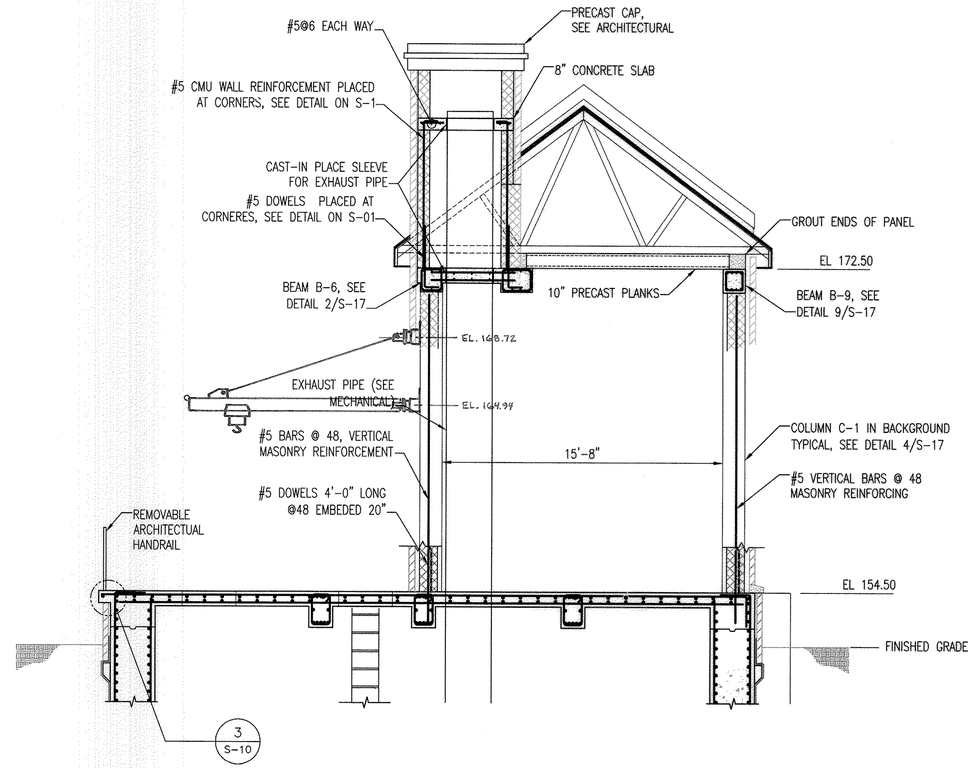
SCALE AS SHOWN

SHEET 36 OF 70

N:\13428-00\CADD\13428001S3-04.dwg
Sep 10, 2012 - 5:15pm



A / S-13 SECTION
SCALE: 1/4" = 1'-0"
REF: S-7, S-8



B / S-13 SECTION
SCALE: 1/4" = 1'-0"
REF: S-7, S-8

GRAPHIC SCALE
0 2' 4' 8'
SCALE: 1/4" = 1'-0"

AS-BUILT

S-13

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 — DATE 10/6/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMENTI III — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
ABOVE GRADE SECTIONS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

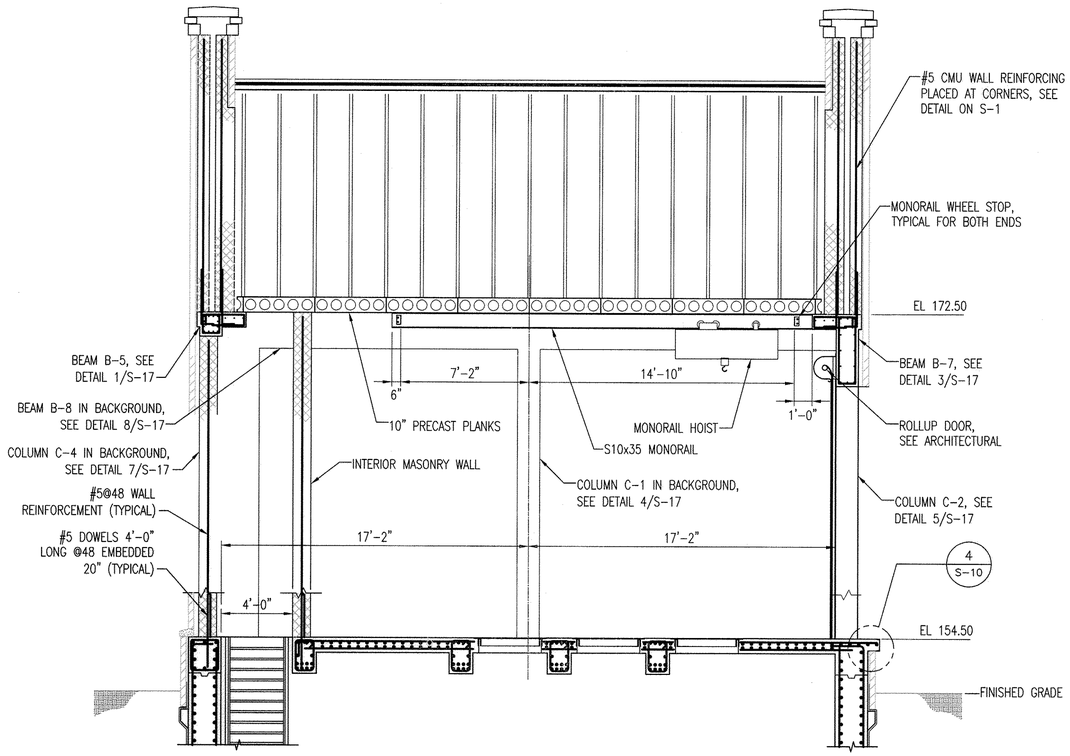
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

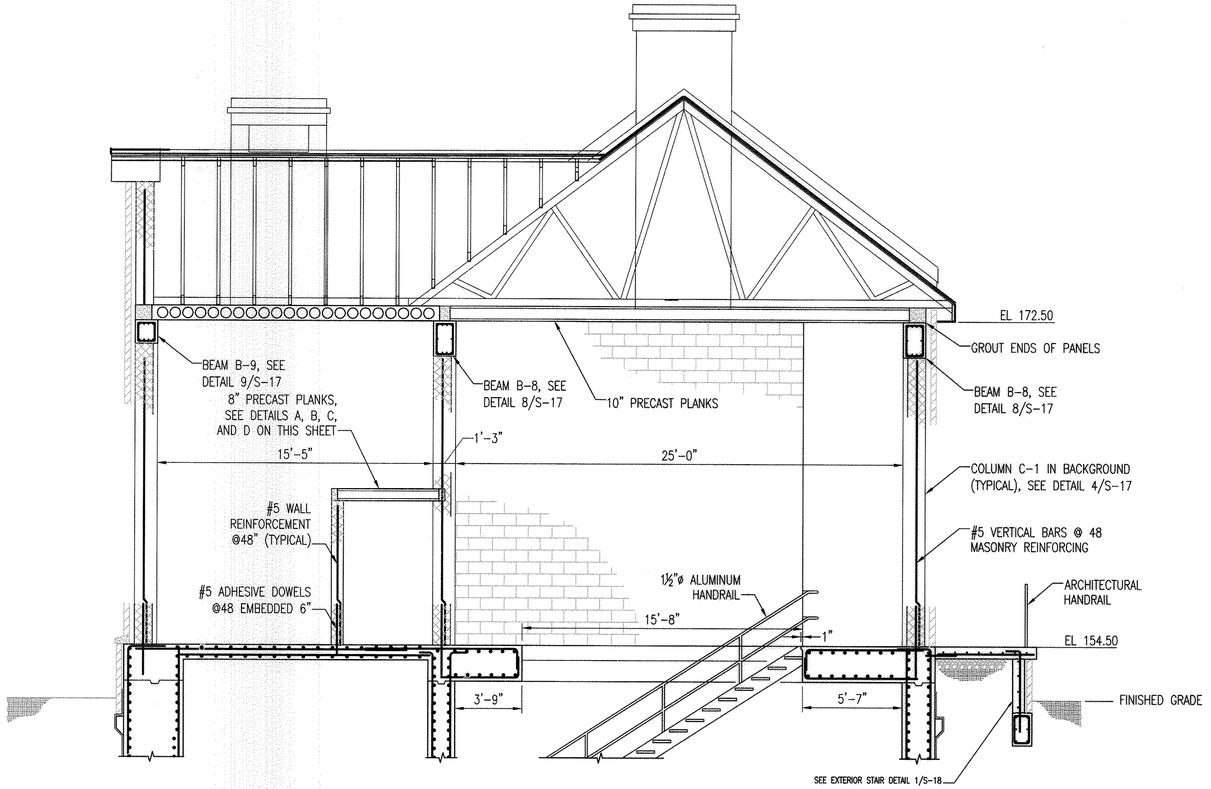
SCALE AS SHOWN

SHEET 37 OF 70

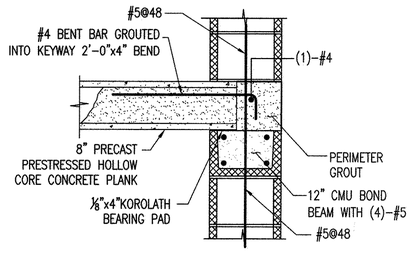
N:\13428-001\CADD\13428001S3-05.dwg
Sep 10, 2012 - 3:15pm



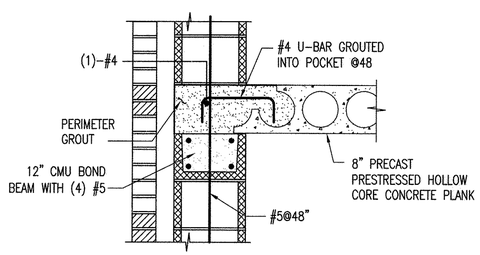
A S-14 SECTION
SCALE: 1/4" = 1'-0"
REF: S-7, S-8



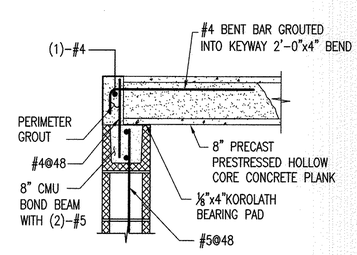
B S-14 SECTION
SCALE: 1/4" = 1'-0"
REF: S-7, S-8



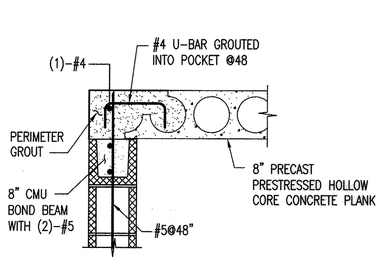
A S-14 EXTERIOR END BEARING
SCALE: 1" = 1'-0"
REF: S-7



B S-14 EXTERIOR SIDE LAP
SCALE: 1" = 1'-0"
REF: S-7



C S-14 INTERIOR END BEARING
SCALE: 1" = 1'-0"
REF: S-7



D S-14 INTERIOR SIDE LAP
SCALE: 1" = 1'-0"
REF: S-7

GRAPHIC SCALE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

0 6" 1' 2'
SCALE: 1" = 1'-0"

AS-BUILT

S-14

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 — DATE
CHIEF, BUREAU OF ENGINEERING — 9/25/12 DATE
CHIEF, BUREAU OF UTILITIES — 9/28/12 DATE
CHIEF, UTILITY DESIGN DIVISION — 9/25/12 DATE

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMSWORTH — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL
ABOVE GRADE SECTIONS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

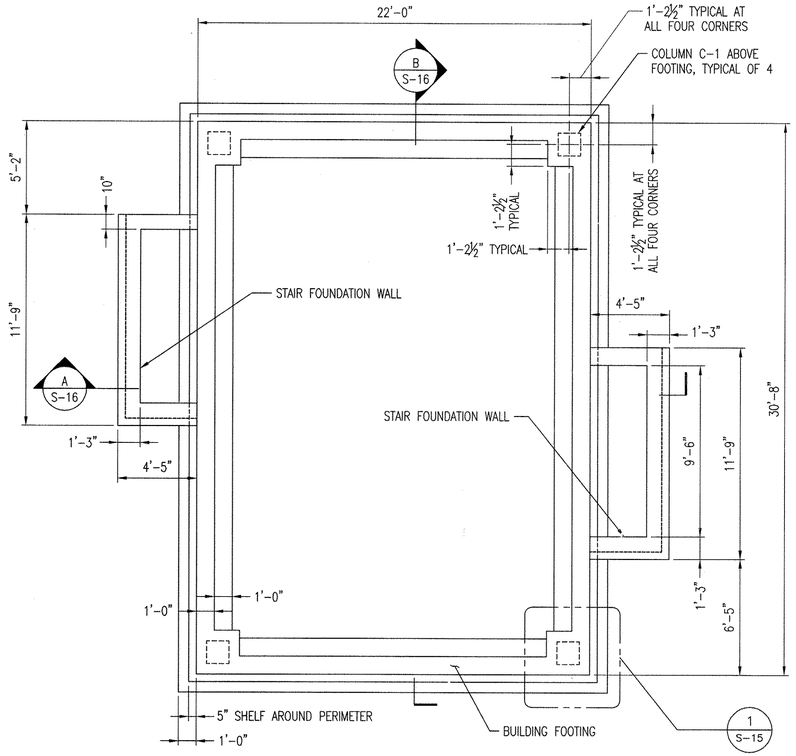
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

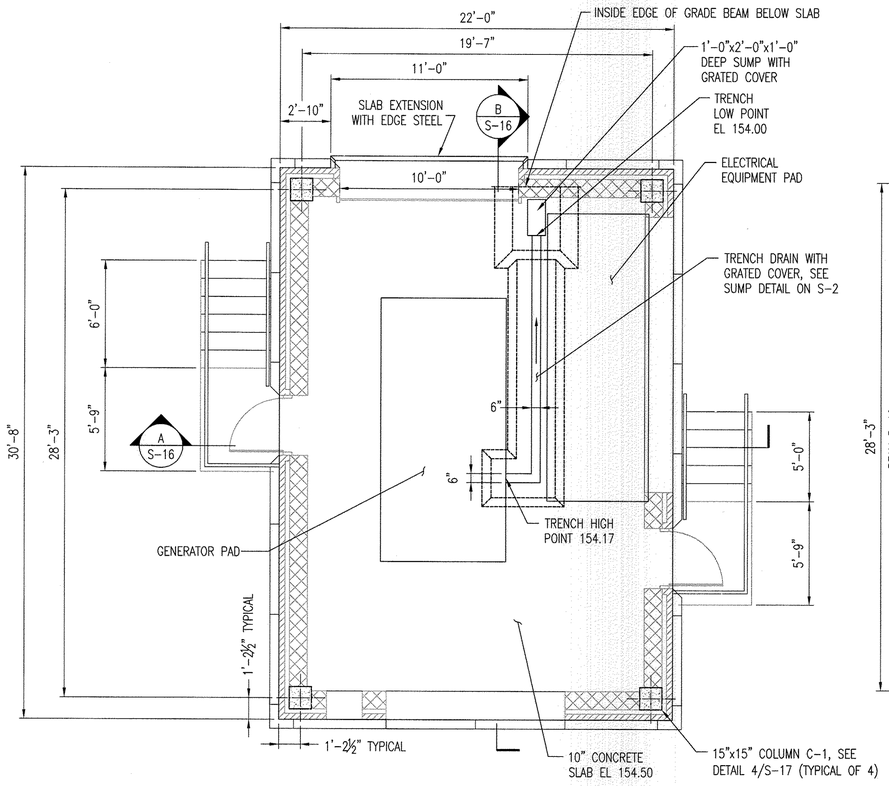
SHEET 38 OF 70

R:\13428-001\CADD\13428001S5-06.dwg
Sep 10, 2012 - 5:15pm



GENERATOR BUILDING FOUNDATION PLAN

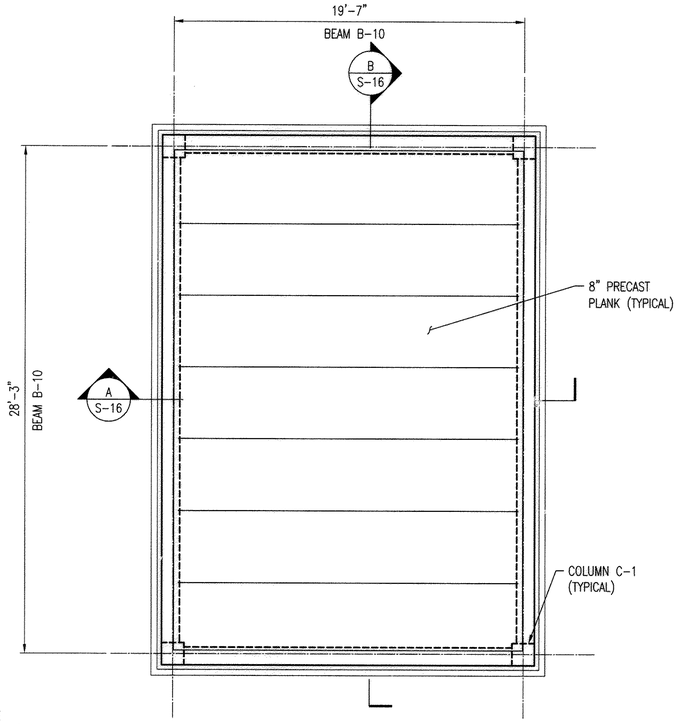
SCALE: 1/4" = 1'-0"



NOTE: FOR LOCATIONS AND SIZES OF CONCRETE PADS, SEE ELECTRICAL. FOR PAD CONSTRUCTION DETAILS, SEE TYPICAL SUPPORT DETAIL ON S-2.

GENERATOR BUILDING GRADE LEVEL PLAN

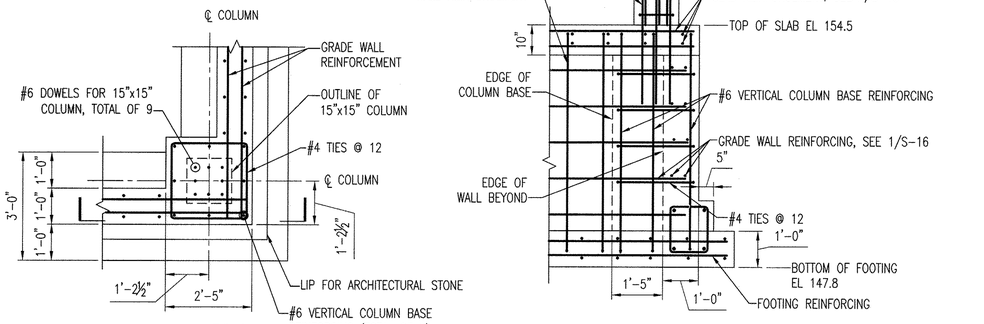
SCALE: 1/4" = 1'-0"



NOTE: THE PLANKS SHALL BE DESIGNED TO SUPPORT AN ADDITIONAL 100 LB POINT LOAD ANYWHERE ON THE PANEL.

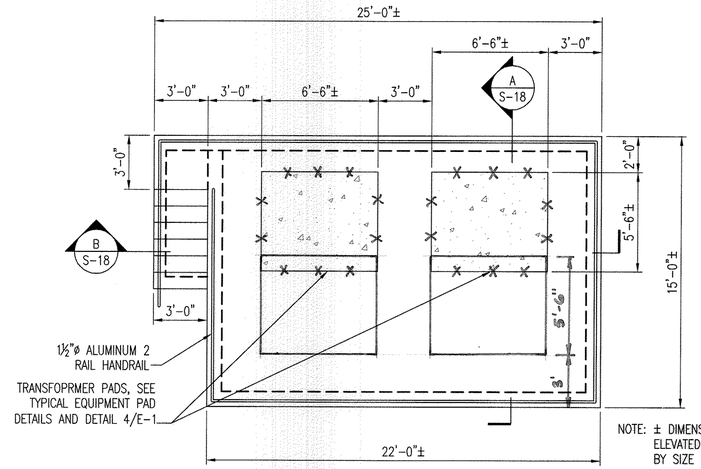
GENERATOR BUILDING CEILING PLAN

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



GENERATOR BUILDING COLUMN BASE DETAIL

1 / S-15 — SCALE: 1/2" = 1'-0" REF: S-15



NOTE: ± DIMENSIONS ARE APPROXIMATE, ELEVATED PAD SIZE IS GOVERNED BY SIZE OF TRANSFORMER PADS NEEDED. SEE 4/E-1.

ELEVATED TRANSFORMER PAD PLAN

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

AS-BUILT

GRAPHIC SCALE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

0 1' 2' 4'
SCALE: 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 ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9498, EXPIRATION DATE: 9-27-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/16/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMIGER — No. 9498 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL GENERATOR BUILDING AND TRANSFORMER PAD PLANS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

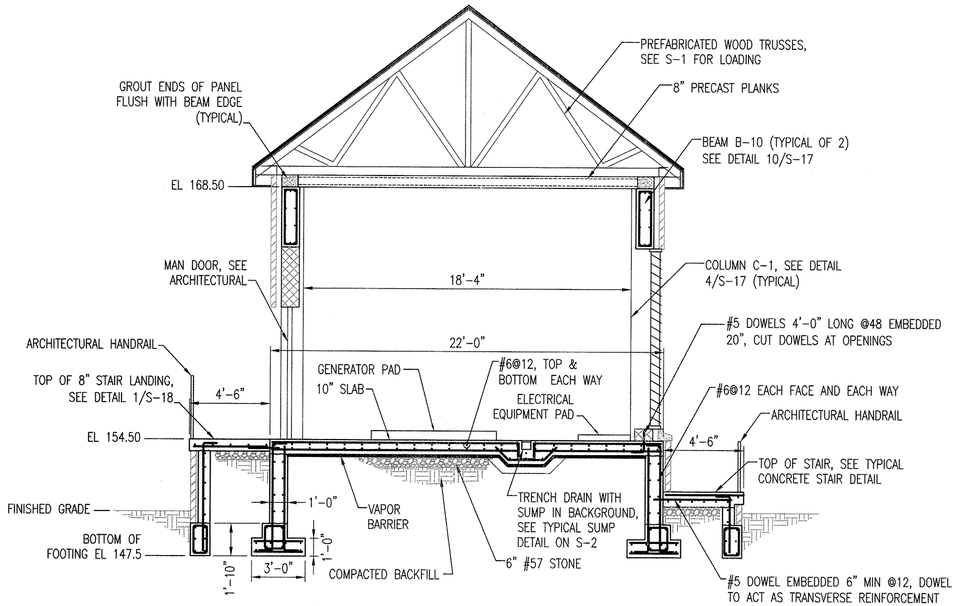
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

S-15

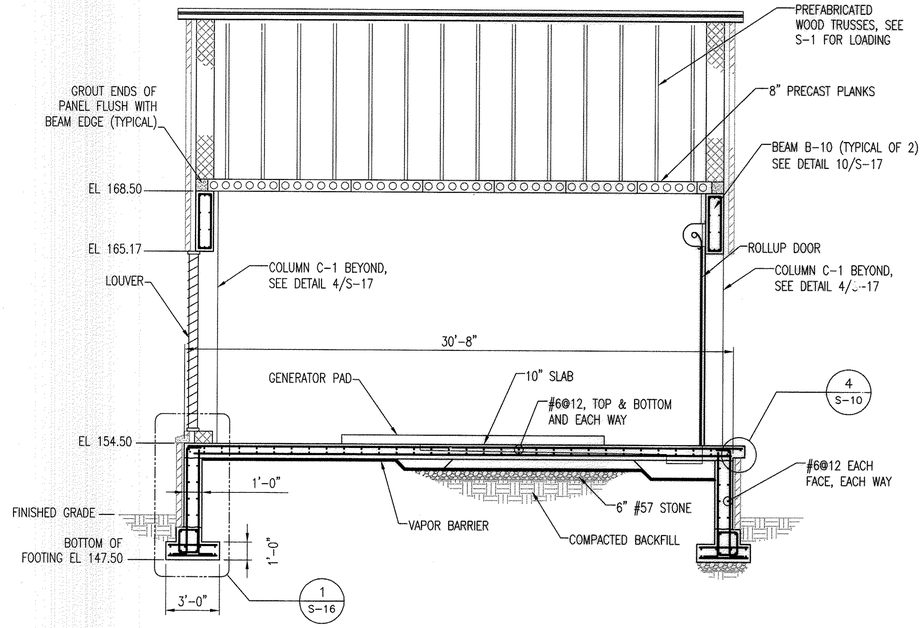
SCALE AS SHOWN

SHEET 39 OF 70

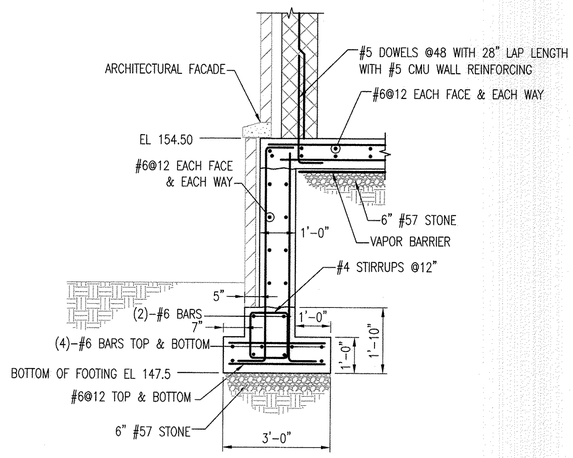
N:\13409-001\CADD\13409001S5-07.dwg
Sep 10, 2012 - 5:13pm



A S-16 SECTION
SCALE: 1/4" = 1'-0"
REF: S-15



B S-16 SECTION
SCALE: 1/4" = 1'-0"
REF: S-15



1 S-16 GENERATOR BUILDING FOUNDATION DETAIL
SCALE: 1/2" = 1'-0"
REF: S-16

AS-BUILT

GRAPHIC SCALES

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

0 1' 2' 4'
SCALE: 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 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 — DATE 10/4/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/13
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/13 RJD

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — LAURIE S. VAN DYKE — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL SECTION THROUGH GENERATOR BUILDING AND DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

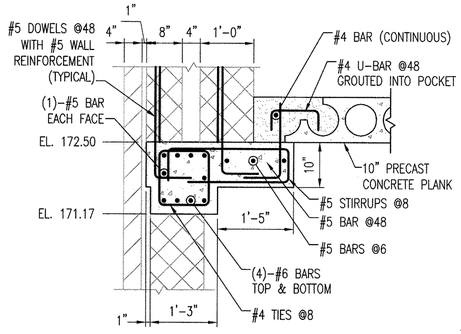
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

S-16

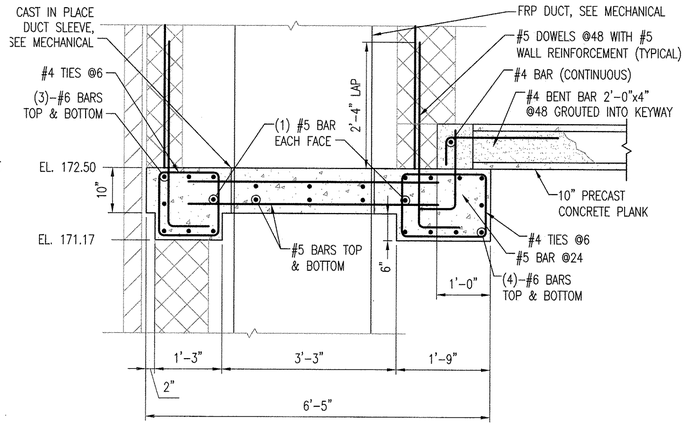
SCALE AS SHOWN

SHEET 40 OF 70

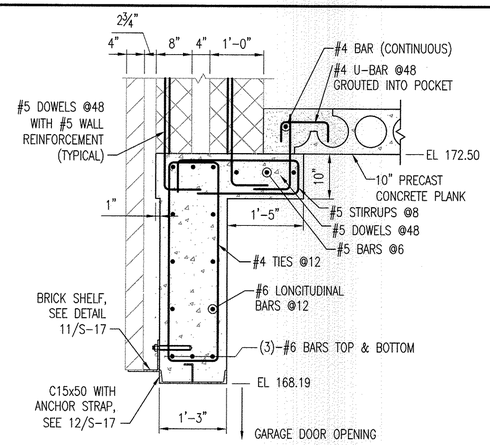
N:\13439-001\CADD\13439001S3-06.dwg
Sep 10, 2012 - 5:19pm



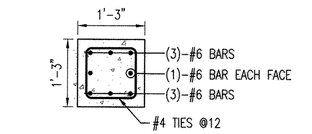
1 S-17 **BEAM B-5 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-8



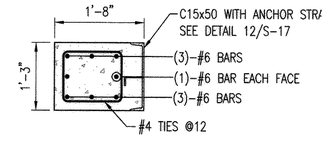
2 S-17 **BEAM B-6 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-8



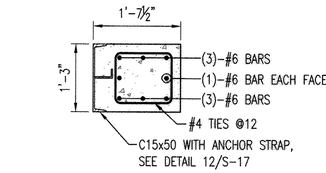
3 S-17 **BEAM B-7 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-8



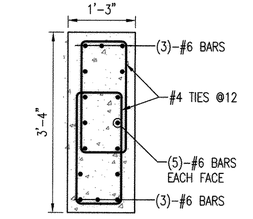
4 S-17 **COLUMN C-1 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-7, S-8, S-15



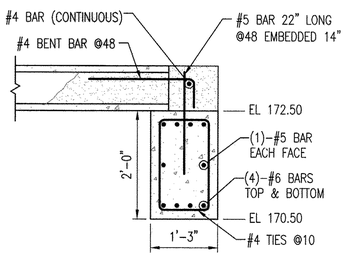
5 S-17 **COLUMN C-2 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-7, S-8



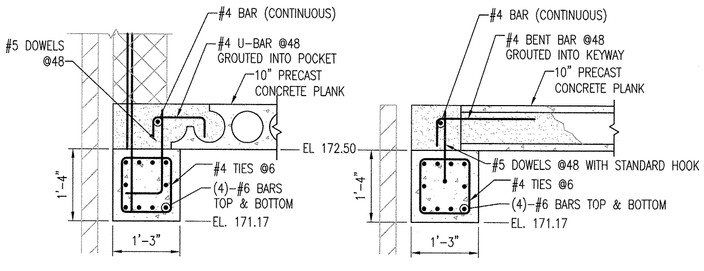
6 S-17 **COLUMN C-3 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-7, S-8



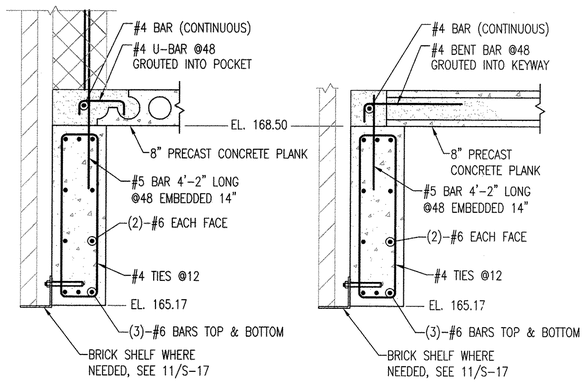
7 S-17 **COLUMN C-4 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-7, S-8



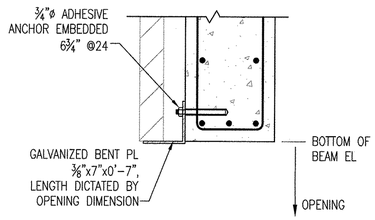
8 S-17 **BEAM B-8 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-8



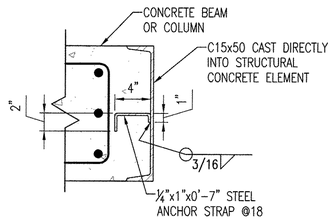
9 S-17 **BEAM B-9 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-8



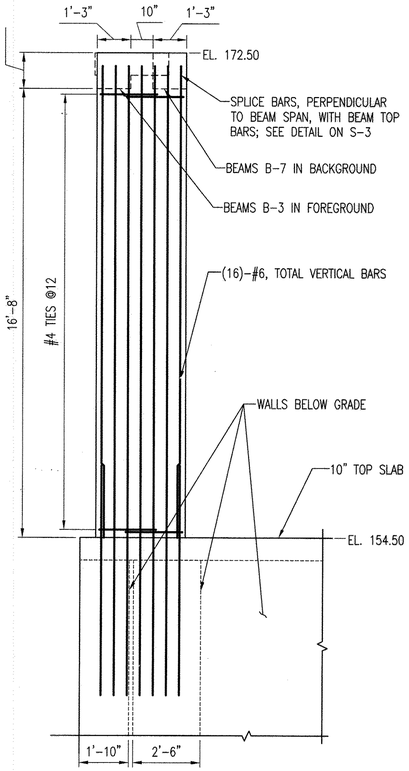
10 S-17 **BEAM B-10 DETAIL**
SCALE: 3/4" = 1'-0"
REF: S-15



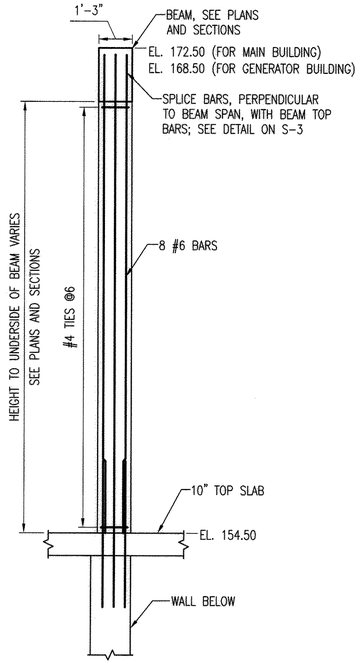
11 S-17 **TYPICAL BRICK SHELF ANGLE DETAIL**
SCALE: 1" = 1'-0"



12 S-17 **TYPCIAL ANCHOR STRAP DETAIL**
SCALE: 1 1/2" = 1'-0"



13 S-17 **COLUMN C-4 ELEVATION**
SCALE: 3/8" = 1'-0"
REF: S-7, S-8



NOTE: COLUMNS C-2 AND C-3 ARE SIMILAR TO ABOVE DETAIL

14 S-17 **COLUMN C-1 ELEVATION**
SCALE: 3/8" = 1'-0"
REF: S-7, S-8, S-15

GRAPHIC SCALES

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

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

SCALE: 1" = 1'-0"

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

AS-BUILT

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 — DATE 10/16/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — JAMES OLIVER ARMENTROUT II — No. 9495 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

STRUCTURAL DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

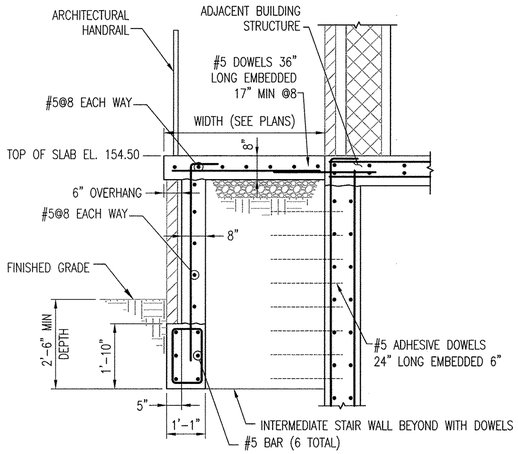
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

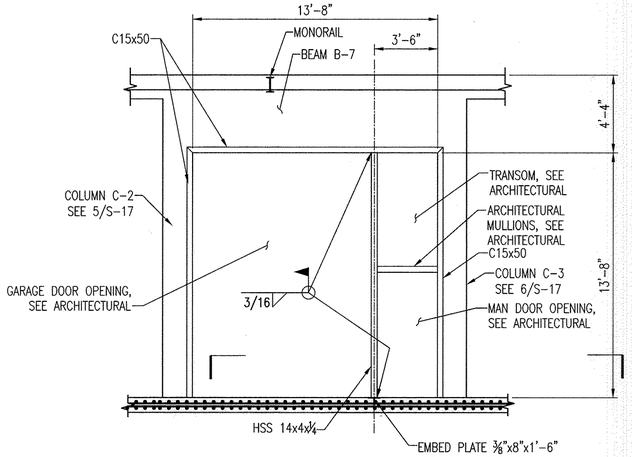
S-17

SCALE AS SHOWN

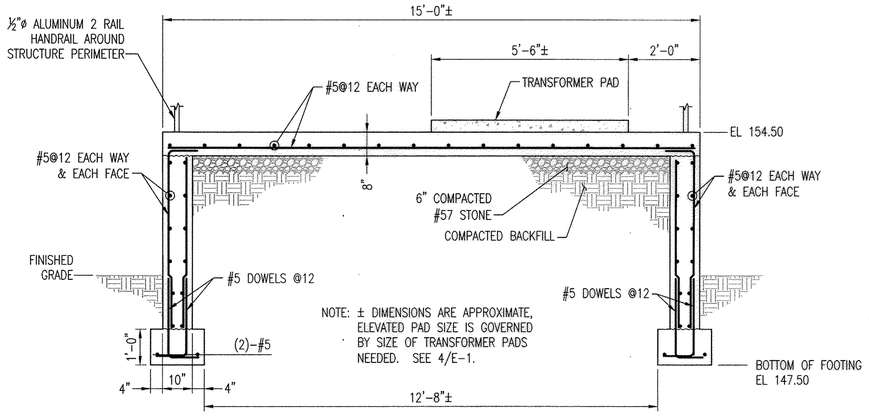
SHEET 41 OF 70

N:\13428-001\CADD\13428001S5-01.dwg
Sep 10, 2012 - 5:15pm

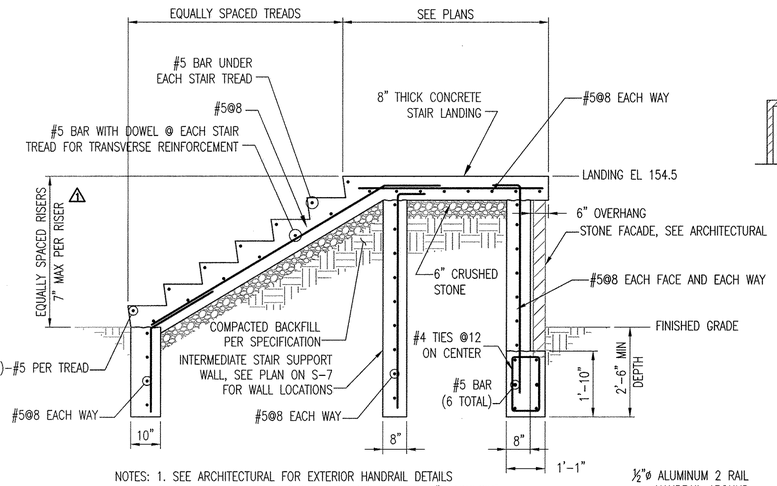




INTERIOR ELEVATION

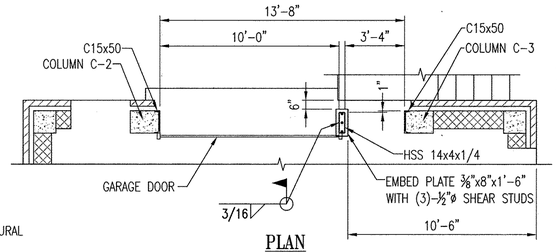


A S-18 SECTION THROUGH TRANSFORMER PAD
SCALE: 1/2" = 1'-0"
REF: S-15



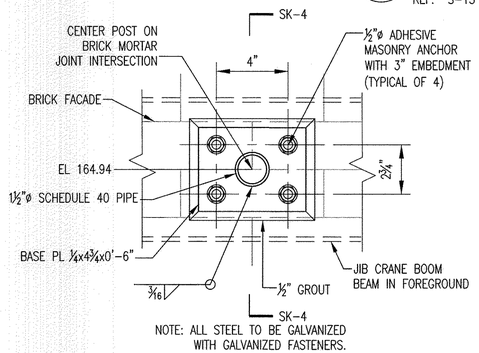
NOTES: 1. SEE ARCHITECTURAL FOR EXTERIOR HANDRAIL DETAILS
2. ALL END WALL REBARS SHALL BE SPLICED WITH #5 ADHESIVE DOWELS 24" LONG EMBEDDED 6" INTO THE CONCRETE STRUCTURE.

1 S-18 TYPICAL EXTERIOR STAIR DETAIL
SCALE: 1/2" = 1'-0"



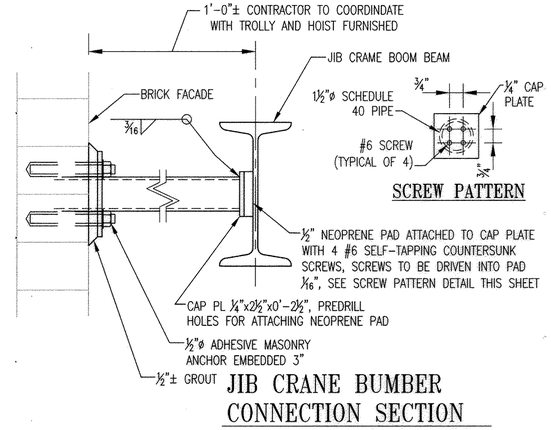
PLAN

2 S-18 GARAGE DOOR FRAME
SCALE: 1/4" = 1'-0"
REF: S-13

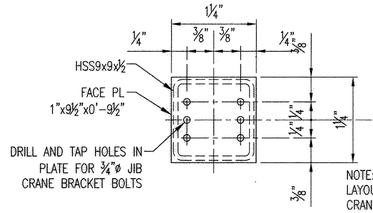


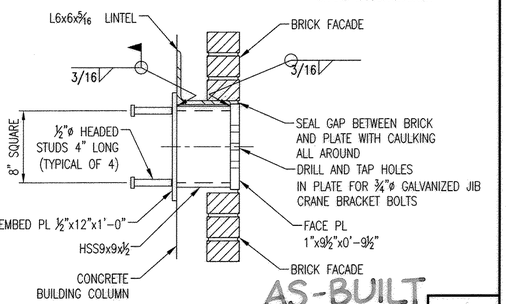
NOTE: ALL STEEL TO BE GALVANIZED WITH GALVANIZED FASTENERS.

JIB CRANE BUMPER CONNECTION ELEVATION



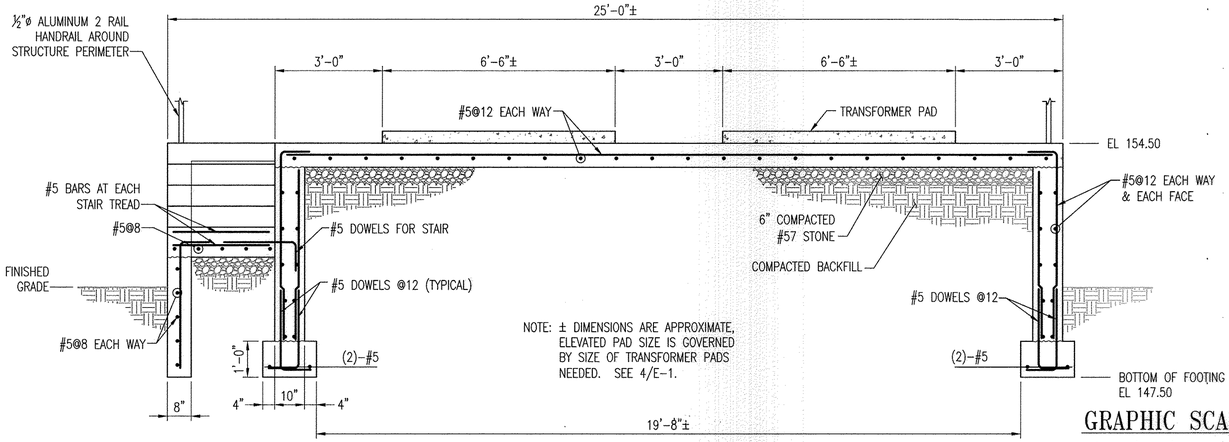
JIB CRANE BUMBER CONNECTION SECTION





AS-BUILT

SPACER CONNECTION DETAILS



NOTE: ± DIMENSIONS ARE APPROXIMATE, ELEVATED PAD SIZE IS GOVERNED BY SIZE OF TRANSFORMER PADS NEEDED. SEE 4/E-1.

B S-18 SECTION THROUGH TRANSFORMER PAD
SCALE: 1/2" = 1'-0"
REF: S-15

GRAPHIC SCALE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

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

AS BUILT REPLACEMENT SHEET 2/16

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. 23309, EXPIRATION DATE: 8/25/16.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 6/16/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/8/16
CHIEF, BUREAU OF UTILITIES — DATE 6/14/16
CHIEF, UTILITY DESIGN DIVISION — DATE 6/6/16

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — STEVEN V. GIRI — No. 23309 — PROFESSIONAL ENGINEER

DES: HLH
DRN: HLH
CHK: SVD

BY	NO.	REVISION	DATE
HLH	1	BUILDING PERMIT REVISIONS	7-19-2013
WRA	2	AS-BUILTS	2/16

STRUCTURAL DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

S-18

SCALE AS SHOWN

SHEET 42 OF 70

C:\Users\gcunzermiller\appdata\local\temp\AcPublish_8660\1342800ISS-02.dwg
Feb 11, 2016 - 8:03am

GENERAL NOTES

1. ALL MECHANICAL WORK SHALL BE COORDINATED WITH CIVIL, ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND INSTRUMENTATION DRAWINGS AND SPECIFICATIONS.

2. STRUCTURAL ELEVATIONS PROVIDED FOR CLARITY. SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR FF ELEVATIONS AND FLOOR SLOPE

3. COORDINATE CEILING HUNG EQUIPMENT WITH THE LOCATION OF ELECTRICAL POWER AND LIGHTING TO ENSURE THAT THERE ARE NO CONFLICTS.

4. ALL PIPING AND DUCTWORK PASSING THRU FLOORS AND INTERIOR WALLS SHALL BE SLEEVED AND SEALED WITH A SEGMENTED RUBBER COMPRESSION SEAL ON BOTH WALL FACES TO MAKE WATER TIGHT UNLESS OTHERWISE NOTED OR SHOWN.

5. ALL DUCTILE WALL CASTINGS SHALL HAVE A WATER STOP / THRUST COLLAR POSITIONED IN THE CENTER OF THE WALL, UNLESS OTHERWISE NOTED.

6. PIPING CONNECTIONS 3" AND SMALLER HAVE BEEN SCHEMATICALLY SHOWN ON PLAN DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETAILED PIPE ROUTING AND ALL APPURTENANCES IN ACCORDANCE WITH RESPECTIVE SCHEMATICS. CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS TO MAKE CONNECTIONS.

7. ALL INTERNAL STATION WASTEWATER PIPING SHALL HAVE FLANGED FITTINGS, UNLESS OTHERWISE NOTED.

8. SEE STRUCTURAL DRAWINGS FOR CONCRETE PIPE SUPPORTS AND PEDESTALS.

9. COORDINATE THE LOCATION OF VALVE SUPPORTS SO THAT ACCESS TO THE VALVE BEARING(S) IS NOT RESTRICTED.

10. MINIMUM SLOPE FOR DRAINS SHALL BE 1/4" PER LINEAR FOOT UNLESS OTHERWISE NOTED.

11. VALVES ARE NORMALLY OPEN (N.O.) UNLESS OTHERWISE NOTED (N.C.)

12. ALL PIPING BELOW SLAB SHALL BE ENCASED IN CONCRETE UNLESS OTHERWISE NOTED OR SHOWN.

13. FOR FLANGED JOINTS BURIED OR SUBMERGED, BOLTS, NUTS AND OTHER HARDWARE SHALL BE OF 304 18-8 STAINLESS STEEL. ISOLATORS SHALL BE USED PER SPECIFICATION.

14. ALL EXPANSION JOINTS, FLANGE ADAPTERS AND FLEXIBLE COUPLINGS SHALL BE RESTRAINED WITH TIE-RODS. SEE TIE-ROD DETAIL.

15. ALL EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4-INCH CONCRETE HOUSEKEEPING PAD SIZED TO SUIT EQUIPMENT, UNLESS OTHERWISE NOTED.

16. METAL FABRICATIONS WITH BURS, SHARP EDGES OR POSE A HAZARD SHALL BE MADE DULL/BLUNT OR SHALL BE PROVIDED WITH AN APPROPRIATE COVERING THAT SHALL MITIGATE AND DRAW ATTENTION TO THE HAZARD.

17. ALL HOSE BIBS AND HOSE RACKS SHALL BE INSTALLED 3.5 FEET ABOVE THE FINISHED FLOOR, UNLESS OTHERWISE NOTED.

18. ALL VENTS THRU THE ROOF SHALL EXTEND A MINIMUM OF 8 INCHES ABOVE THE ROOF LINE.

19. ALL BURIED PIPING BELOW THE BUILDING STRUCTURE SHALL BE OF THE RESTRAINED JOINT TYPE.

20. MAINTAIN DETAILED RED LINE AS BUILT DRAWINGS ON THE JOB SITE DURING CONSTRUCTION TO DOCUMENT CONSTRUCTION CHANGES AND INFORMATION AS DELINEATED IN THE SPECIFICATIONS. RED LINE AS BUILT DRAWINGS SHALL BE MADE AVAILABLE FOR PERIODIC REVIEW DURING THE PROGRESS MEETINGS.

21. PROVIDE DUCT TRANSITIONS BETWEEN THE ACOUSTICAL SILENCER PACKS AND THE WALL LOUVER. TRANSITIONS SHALL BE AS GRADUAL AS POSSIBLE, FLEXIBLE DUCT CONNECTIONS MAY BE USED IN LIEU OF RIDGED DUCT MATERIALS.

22. COORDINATE THE PUMP DISCHARGE FITTING SIZE AND MAKE ADJUSTMENTS IN THE PIPE SIZE TO SUIT.

23. PROVIDE AS BUILT SPOT ELEVATIONS AT THE CENTER OF ALL VALVES, PIPE RUNS AND OTHER MECHANICAL COMPONENTS, INCLUDING THE LEVELS IN THE WET WELL.

24. PROVIDE LADDER-UP'S ON ALL LADDERS MATERIALS SHALL BE SUITABLE FOR THE LOCATION THAT THE EQUIPMENT IS INSTALLED.

EQUIPMENT IDENTIFICATION LEGEND

(-x) SUFFIX IDENTIFIER : REPRESENTS SEQUENTIAL EQUIPMENT NUMBERING

FACILITIES EQUIPMENT (DDD-x)

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ACU-X	AIR CONDENSERS UNIT	PG-X	PRESSURE GAUGE
AHU-X	AIR HANDLING UNIT	RWP-X	RAW WASTEWATER PUMP
BBH-X	BASE BOARD HEATER	SAG-X	SUPPLY AIR GRILLE
CSCP-X	CHEMICAL SYSTEM CONTROL PANEL	SF-X	SUPPLY FAN
CV-X	CHECK VALVE	SP-X	SUMP PUMP
EF-X	EXHAUST FAN	SRV-X	SURGE RELIEF VALVE
EHT-X	ELECTRIC HOIST TROLLEY	SG-X	SLUCE GATE
EUH-X	ELECTRIC UNIT HEATER	VCP-X	VENTILATION CONTROL PANEL
FM-X	FLOW METER	WH-X	WATER HEATER
M	MOTOR		
MG-X	MECHANICAL GRINDER		
MGCP-X	MECHANICAL GRINDER CONTROL PANEL		
MOD-X	MOTOR OPERATED DAMPER		

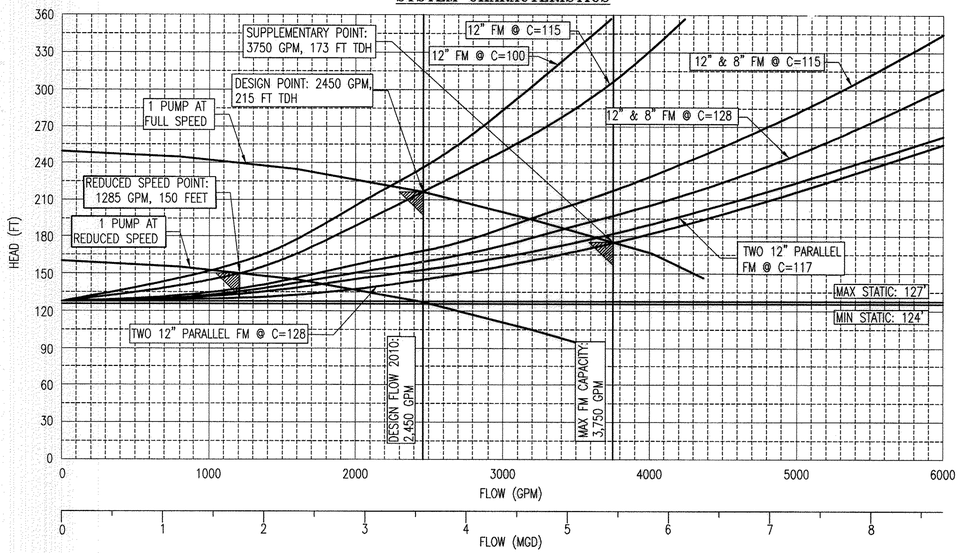
GENERAL NOMENCLATURE

ABBREVIATION	DESCRIPTION	DESCRIPTION	ABBREVIATION
AAV	AIR ADMITANCE VALVE	LWL	LOW WATER LEVEL
ADF	AVERAGE DAILY FLOW	MAX	MAXIMUM
ARV	AIR RELEASE VALVE	MGD	MILLION GALLONS PER DAY
ASTM	AMERICAN STANDARD FOR TESTING MATERIALS	MIN	MINIMUM
BOD	BOTTOM OF DUCT	MJ	MECHANICAL JOINT
CI	CAST IRON	N.C.	NORMALLY CLOSED
CL	CENTER LINE	N.O.	NORMALLY OPEN
CO	CLEAN OUT	NRS	NON RISING STEM
CP	CONTROL PANEL	NTS	NOT TO SCALE
DEG	DEGREES	OD	OUTSIDE DIAMETER
DIA	DIAMETER	PE	PLAIN END
DIP	DUCTILE IRON PIPE	PPD	POUNDS PER DAY
DN	DOWN	PPM	PARTS PER MILLION
DO	DISSOLVED OXYGEN	PSI	POUNDS PER SQUARE INCH
EL	ELEVATION	PSIG	POUNDS PER SQUARE INCH GAUGE
ES	EMERGENCY SHOWER	PVC	POLYVINYL CHLORIDE
EX	EXISTING	RJ	RESTRAINED JOINT
FF	FINISHED FLOOR	RPM	REVOLUTIONS PER MINUTE
FD	FLOOR DRAIN	RVSS	REDUCED VOLTAGE SOLID STATE
F.C.O.	FLOOR CLEAN OUT	SAG	SUPPLY AIR GRILLE
FC	FLUSHING CONNECTION	SCH	SCHEDULE
FLG	FLANGE	SHT	SHEET
FOB	FLAT ON BOTTOM	S.P.	STATIC PRESSURE
FOT	FLAT ON TOP	SS	STAINLESS STEEL
FPM	FEET PER MINUTE	TC	THRUST COLLAR
FPS	FEET PER SECOND	TDH	TOTAL DYNAMIC HEAD
FT	FEET	TYP	TYPICAL
GPD	GALLONS PER DAY	V	VENT
GPH	GALLONS PER HOUR	VFD	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
HP	HORSEPOWER	W.L.	WATER LEVEL
H/P	HIGH POINT	WS	WATER STOP
HWL	HIGH WATER LEVEL		
HZ	HERTZ		
ID	INSIDE DIAMETER		
INV	INVERT		
KW	KILOWATT		
LB/LBS	POUND/POUNDS		
LBS/HR	POUNDS PER HOUR		

HEATING AND VENTILATION SYMBOLS

SYMBOL	DESCRIPTION	ABBREVIATION
24X12 / 12X24 (PLAN / ELEV)	DUCT SIZE - RECTANGULAR (FIRST DIMENSION ON PLAN OR ELEVATION IS SIDE SHOWN)	
FOB	DUCT TRANSITION - FLAT ON BOTTOM	
FOT	DUCT TRANSITION - FLAT ON TOP	
	FLOW ARROW	
FAN	FLEXIBLE CONNECTION AT FAN SUCTION AND DISCHARGE	
	FLEXIBLE CONNECTION	
	HEAT TRACING	HT
DOWN	INCLINED DROP IN DUCT WITH RESPECT TO AIR FLOW	DN.
UP	INCLINED RISE IN DUCT WITH RESPECT TO AIR FLOW	
M	MOTOR OPERATED DAMPER (XXX-X DENOTES IDENTIFICATION)	MOD-XX
UP DOWN	RETURN OR EXHAUST AIR DUCT	
	SQUARE ELBOW WITH TURNING VANES	
UP DOWN	SUPPLY AIR DUCT	
T F	THERMOSTAT (FREEZE)	
T H	THERMOSTAT (HIGH TEMPERATURE)	
T VX	THERMOSTAT (VENT) (X DENOTES AUXILIARY FUNCTION)	
VD	VOLUME DAMPER	

SYSTEM CHARACTERISTICS



NON-CLOG CENTRIFUGAL PUMP DESIGN CRITERIA

MANUFACTURER	FAIRBANKS MORSE	SUPPLEMENTARY POINT CAPACITY	3750 GPM
MODEL	5436L	SUPPLEMENTARY POINT HEAD	173 FT
RPM	1800 RPM	SUPPLEMENTARY POINT EFFICIENCY (MIN)	70 %
HP (MAX)	250	SUPPLEMENTARY POINT NPSHR (MAX)	20 FT
SHUT OFF HEAD (MIN)	253 FT	REDUCED SPEED POINT CAPACITY	1285 GPM
DESIGN POINT CAPACITY	2450 GPM	REDUCED SPEED POINT HEAD	150 FT
DESIGN POINT HEAD	215 FT	REDUCED SPEED RPM	1428 RPM +/-
DESIGN POINT EFFICIENCY (MIN)	70%		
DESIGN POINT NPSHR (MAX)	15 FT		

GENERAL SYMBOLS

SYMBOL	DESCRIPTION	ABBREVIATION
	BACKFLOW PREVENTER	BFP
	BALL VALVE	BV
	CALIBRATION CYLINDER	
	COLD WATER	CW
	CLEAN OUT	
	EMERGENCY SHOWER	
	FLANGE ADAPTOR	FA
	FLEXIBLE COUPLING WITH TIE RODS	
	FLEXIBLE HOSE	
	FLOOR DRAIN	
	FLOOR CLEANOUT	
	FLOW ARROW	
	FLOW METER	
	GATE VALVE	GTV
	HOSE BIBB	HB
	HOSE RACK	
	HOSE REEL	
	HOSE VALVE	
	HUB DRAIN	
MP	METERING PUMP	
	NON-FREEZE WALL HYDRANT	
	PIPE BREAK	
	PIPE CAP	

SYMBOL	DESCRIPTION	ABBREVIATION
	PIPE ELBOW-TURNED DOWN	
	PIPE ELBOW-TURNED UP	
	PIPE FACING UP	
	PIPE GUIDE/SLEEVE	
	PIPE HANGERS	
	PIPE TEE-OUTLET DOWN	
	PIPE TEE-OUTLET UP	
	PLUG VALVE	
	PRESSURE GAUGE WITH DIAPHRAGM SEAL	
	PRESSURE GAUGE WITH STOPCOCK	
	PRESSURE REDUCING VALVE	
P	PROCESS PUMP	
	CONCENTRIC REDUCER OR INCREASER	
	ECCENTRIC REDUCER OR INCREASER	
	ROOF DRAIN	
	SURGE RELIEF VALVE	
	SWING CHECK VALVE	
	TRENCH DRAIN	
	UNION	
	WYE STRAINER	

ENGINEERING UNITS/TERMS

DESCRIPTION	ABBREVIATION
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BTUH	BRITISH THERMAL UNIT PER HOUR
C	HAZEN WILLIAMS COEFFICIENT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CM	CENTIMETER
dBA	DECIBELS (CORRECTED)
DEG C	DEGREE CELSIUS
DEG F	DEGREE FAHRENHEIT
F.A.	FREE AREA
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
GAL	GALLONS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ
IN	INCH
KG	KILOGRAM
KW	KILOWATT
L/M	LITERS PER MINUTE
L/S	LITERS PER SECOND
LF	LINEAR FOOT
LB OR LBS	POUNDS
LBS/HR	POUNDS PER HOUR
MBH	1,000 BRITISH THERMAL UNITS PER HOUR
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
PA, KPA	PASCAL, KILO-PASCAL
PPD	POUNDS PER DAY
PPM (MG/L)	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
SPM	STROKES PER MINUTE
U	THERMAL RESISTANCE (I/R)
RPM	REVOLUTIONS PER MINUTE
TDH	TOTAL DYNAMIC HEAD
W.C.	WATER COLUMN
WG	WATER GAUGE

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. 10003, EXPIRATION DATE: 9/5/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/16/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. LAW — NO. 10,003 — REGISTERED PROFESSIONAL ENGINEER
Herbert W. Law 9/28/12

DES: BPW
DRN: BPW
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

AS-BUILT

GENERAL NOTES, ABBREVIATIONS AND LEGEND

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

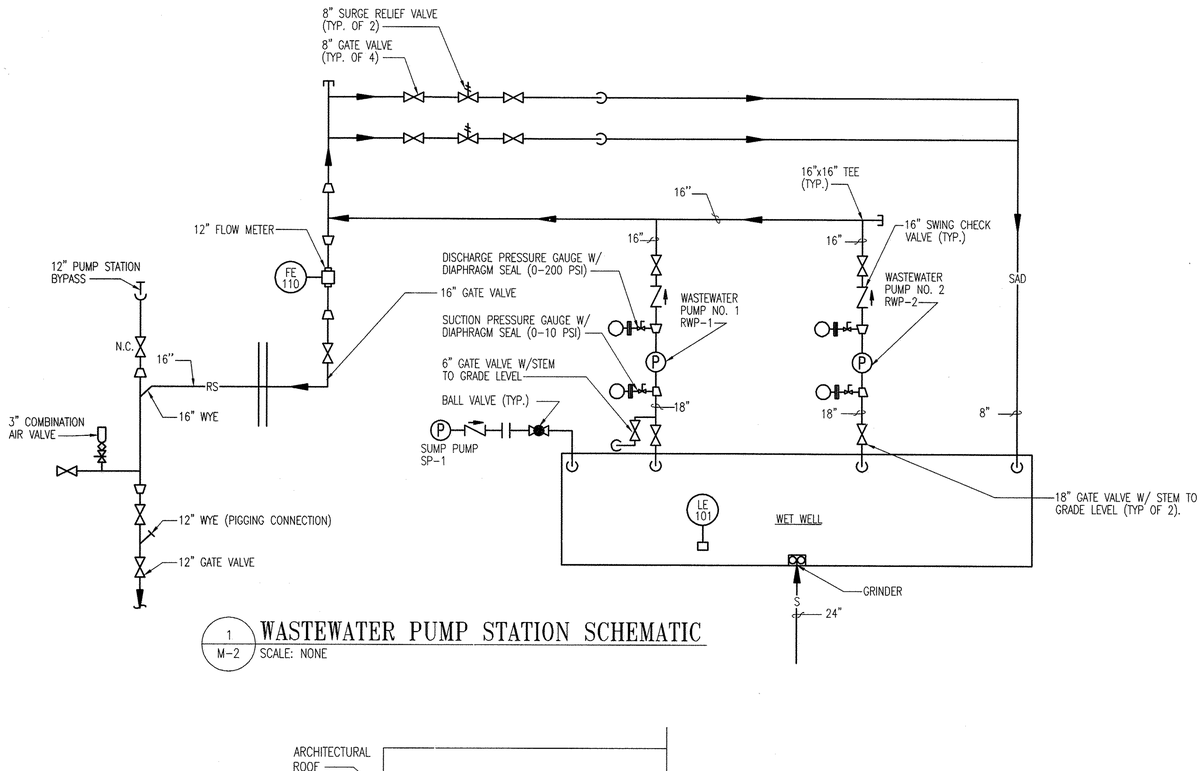
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

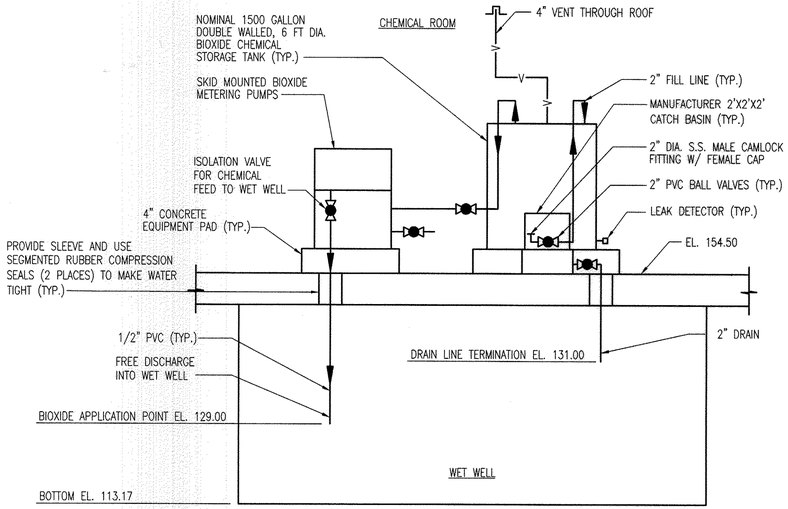
SHEET 43 OF 70

M-1

C:\Temp\Drawing Publish_4968\134280W0-0-01.dwg
Sep 12, 2012 - 9:28am



1 / M-2 WASTEWATER PUMP STATION SCHEMATIC
SCALE: NONE



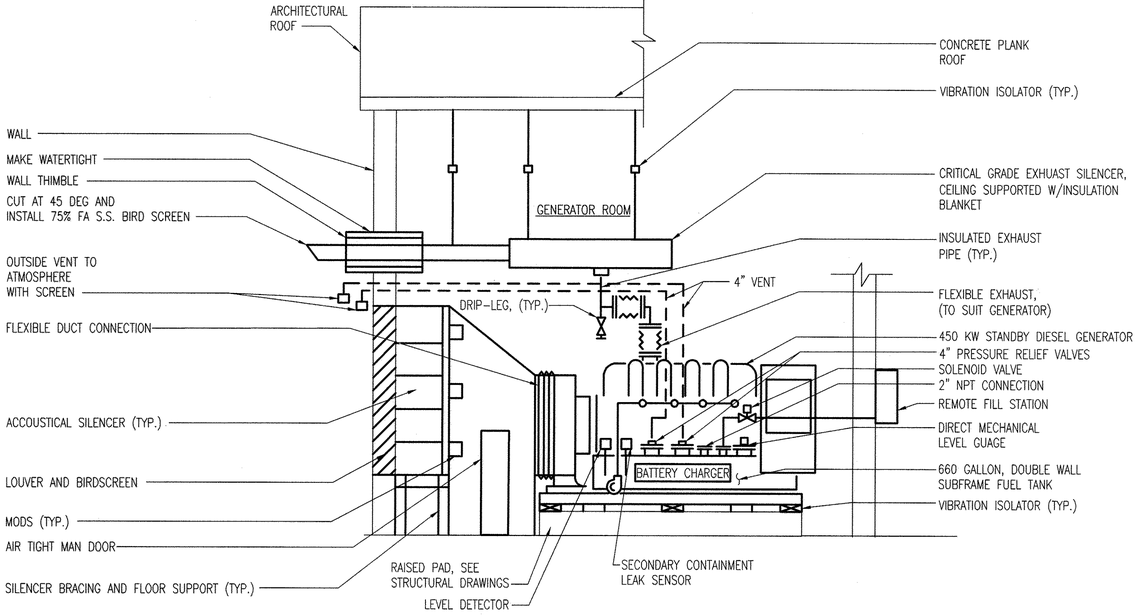
3 / M-2 BIOXIDE ODOR CONTROL SYSTEM SCHEMATIC
SCALE: NONE

GENERAL NOTES:

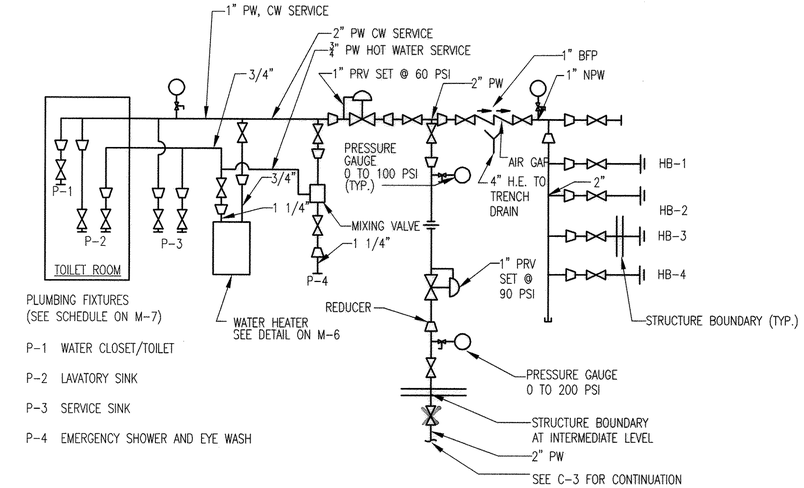
1. SEE M-1 FOR ADDITIONAL NOTES, LEGEND AND LIST OF ABBREVIATIONS.

DRAWING NOTES:

1. ALL CONNECTIONS TO GENERATOR SHALL BE FLEXIBLE TO MITIGATE VIBRATION. ALL FLEXIBLE CONNECTIONS SHALL BE POSITIONED SO THEY WILL NOT RUB UP AGAINST OTHER COMPONENTS. PROVIDE RUBBER SLEEVE AT CONTACT POINT IN THE EVENT THAT RUBBING CANNOT BE AVOIDED.
2. GENERATORE SHALL BE PROVIDED WITH A LOW-FUEL AND RUPTURE BASIN ALARM. ALARM SHALL BE WIRE TO INTEGRAL CONTROL PANEL.
3. COORDINATE SIZE OF GENERATOR MOUNTING PAD WITH GENERATOR MANUFACTURER.
4. PROVIDE VIBRATION ISOLATORS BETWEEN GENERATOR AND CONCRETE PAD AS RECOMMENDED BY THE GENERATOR MANUFACTURER.
5. INSTALL MOD(S) ON OUTSIDE OF PLENUM WHERE POSSIBLE.
6. PLENUM BRACING AND FLOOR SUPPORT SHALL BE SUITABLE FOR 300 LB/SQ. FT. LOADING.
7. INSTALL BACKFLOW PREVENTERS AND PRESSURE REDUCING VALVES NO HIGHER THAN 4 FEET ABOVE FINISHED FLOOR FOR EASE OF MAINTENANCE ACCESS.
8. PROVIDE NON-POTABLE WATER SAFETY SIGNS AT EACH HOSE BIBB LOCATION IN ACCORDANCE WITH ANSI Z535 AND OSHA 1910.145 STANDARDS.



2 / M-2 STANDBY DIESEL GENERATOR FUEL OIL SYSTEM SCHEMATIC
SCALE: NONE



4 / M-2 POTABLE AND NON-POTABLE WATER SYSTEM SCHEMATIC
SCALE: NONE

HOSE BIBB SCHEDULE

FIXTURE	TYPE	SIZE	LOCATION/SERVICE
HB-1	HB	1"	DRY-PIT (WEST WALL), SEE M-3
HB-2	HB	1"	INTERMEDIATE LEVEL (WEST WALL), SEE M-3
HB-3	NFWH	1"	OUTSIDE CONTROL ROOM (WEST WALL), SEE M-4
HB-4	HB	1"	GENERATOR BUILDING (WEST WALL), SEE M-4

AS-BUILT

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. 10003, EXPIRATION DATE: 3/6/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — 9/25/12 — DATE
CHIEF, BUREAU OF UTILITIES — 9/25/12 — DATE
CHIEF, UTILITY DESIGN DIVISION — 9/25/12 — DATE

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. LAW — NO. 10.003 — ENGINEER — PROFESSIONAL ENGINEER
Herbert W. Law 9/12/12

DES: BPW
DRN: LAQ
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SCHEMATICS

600' SCALE MAP NO. 30 — BLOCK NO. 10

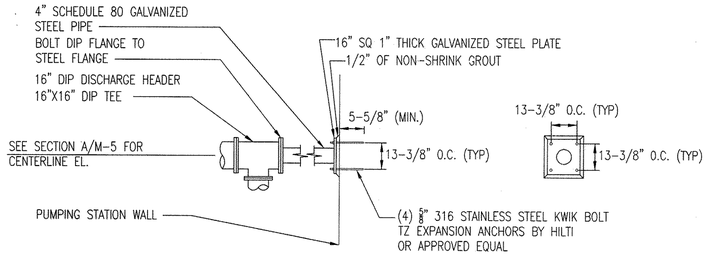
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

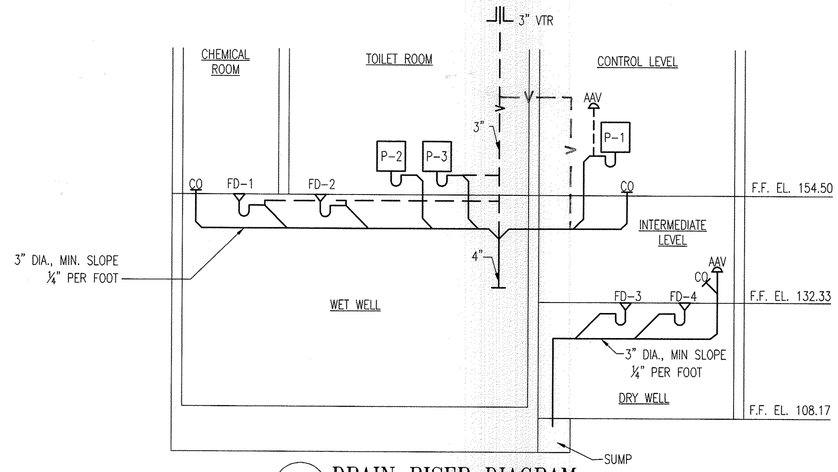
SHEET 44 OF 70

M-2

C:\Temp\Drawing\AcPublish_4060\13428M1-0-01.dwg
Sep 12, 2012 - 9:26am



A / M-3 PIPE STANCHION ANCHOR DETAIL
NONE



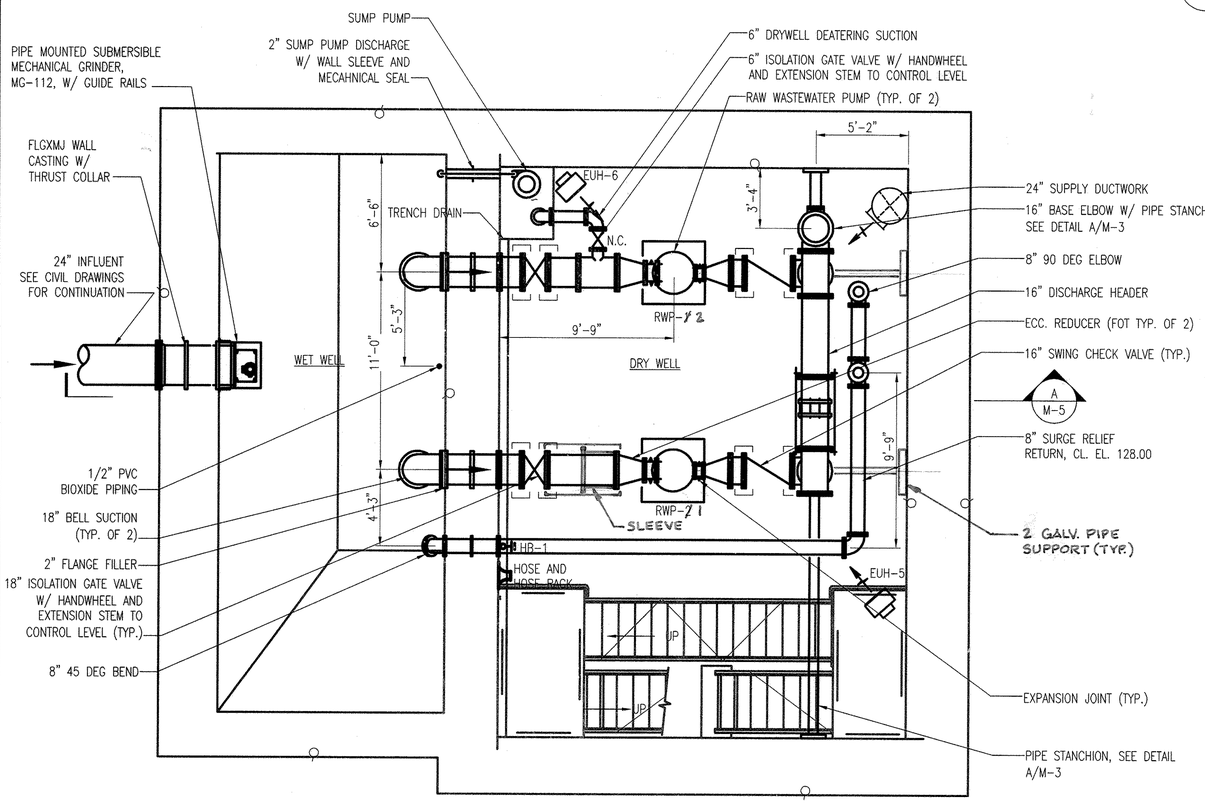
B / M-3 DRAIN RISER DIAGRAM
SCALE: NONE

GENERAL NOTES:

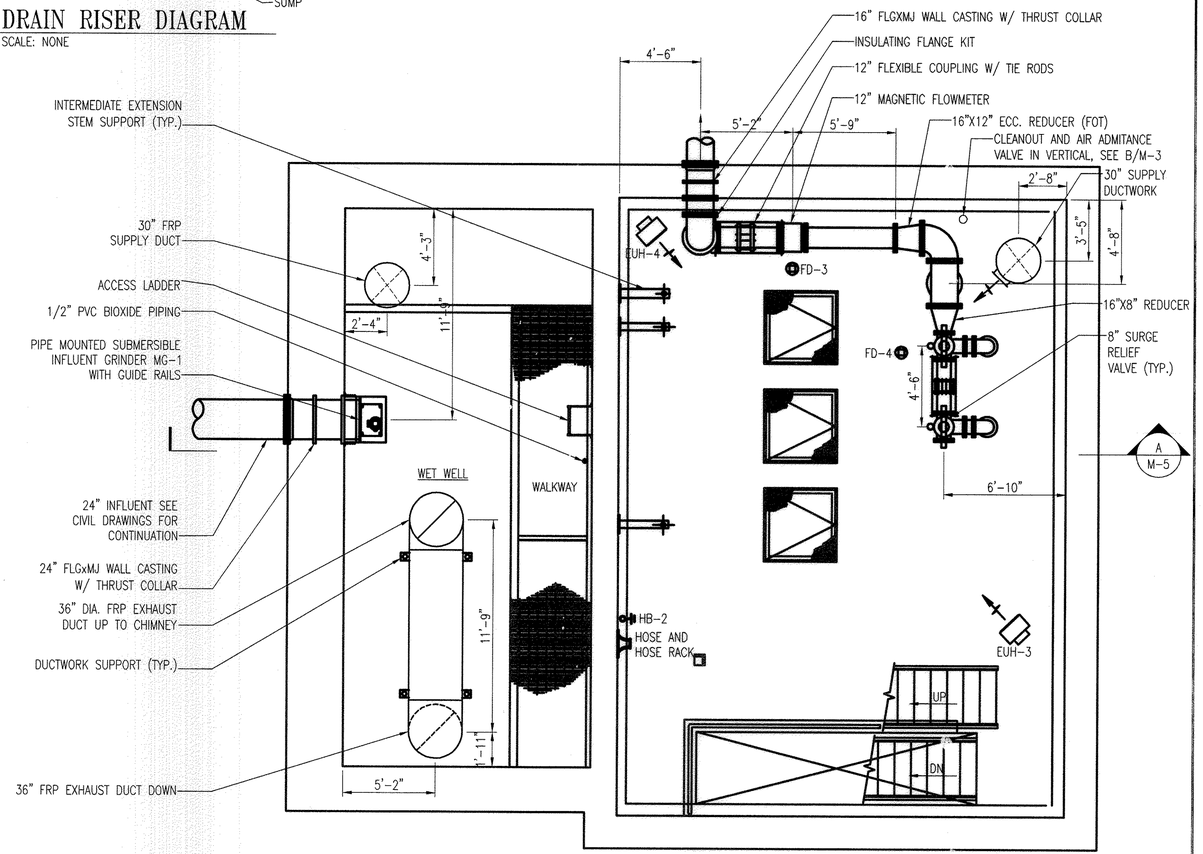
1. SEE M-1 FOR ADDITIONAL NOTES, LEGEND AND LIST OF ABBREVIATIONS.
2. SEE M-6 AND M-7 FOR ADDITIONAL DETAILS AND SCHEDULES.

DRAWING NOTES:

1. PROVIDE MAGNETIC FLOW METER W/ A MINIMUM OF 5 PIPE DIAMETERS UPSTREAM OF THE CENTER OF THE FLOW METER AND 2 PIPE DIAMETERS AFTER.
2. PROVIDE SPOOL PIECE FOR FLOW METER, LABEL "FM SPOOL".
3. GROUT AND SEAL OPENINGS BETWEEN PUMP BASE AND CONCRETE PAD AFTER INSTALLATION.
4. COORDINATE ORIENTATION AND LOCATION OF VALVE OPERATORS AND EXTENSION STEMS TO ENSURE THERE ARE NO CONFLICTS, PROVIDE UNIVERSAL JOINTS AS NECESSARY.
5. SUPPORT DUCTWORK IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE INSULATING FLANGE KIT ON 16" DISCHARGE PIPE BEFORE IT PASSES THROUGH EXTERIOR WALL



1 / M-3 LOWER LEVEL PLAN
1/4" = 1'-0"



2 / M-3 INTERMEDIATE LEVEL PLAN
1/4" = 1'-0"

AS-BUILT

GRAPHIC SCALE
0 2' 4' 8'
SCALE: 1/4" = 1'-0"

M-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. 10009, EXPIRATION DATE: 2/3/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. LEE — NO. 10009 — REGISTERED PROFESSIONAL ENGINEER
Herbert W. Lee 9/24/12

DES: BPW
DRN: LAQ
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

LOWER AND INTERMEDIATE PLANS AND DETAILS

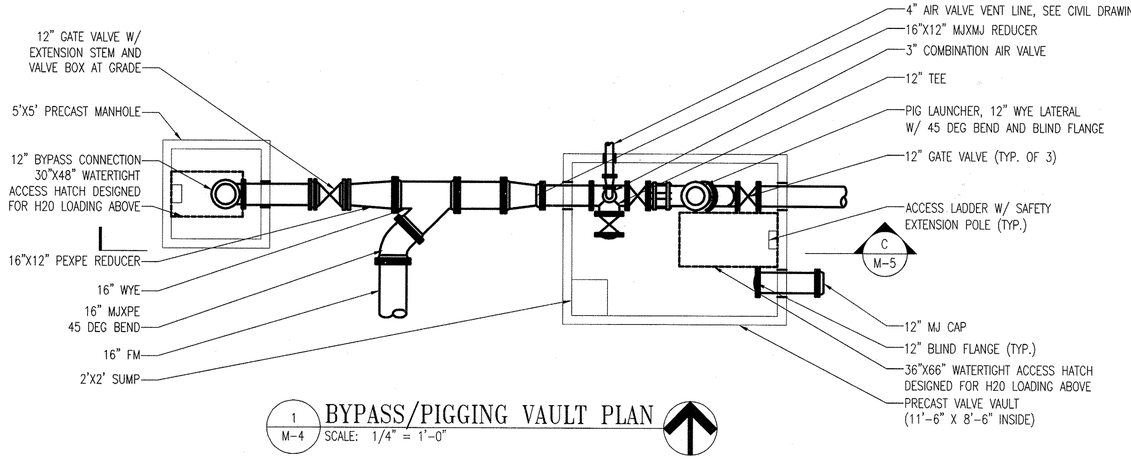
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 45 OF 70

C:\Temp\Drawing\AcePublish_6952\134228\2-1-01.dwg
Sep 12, 2012 - 8:28am



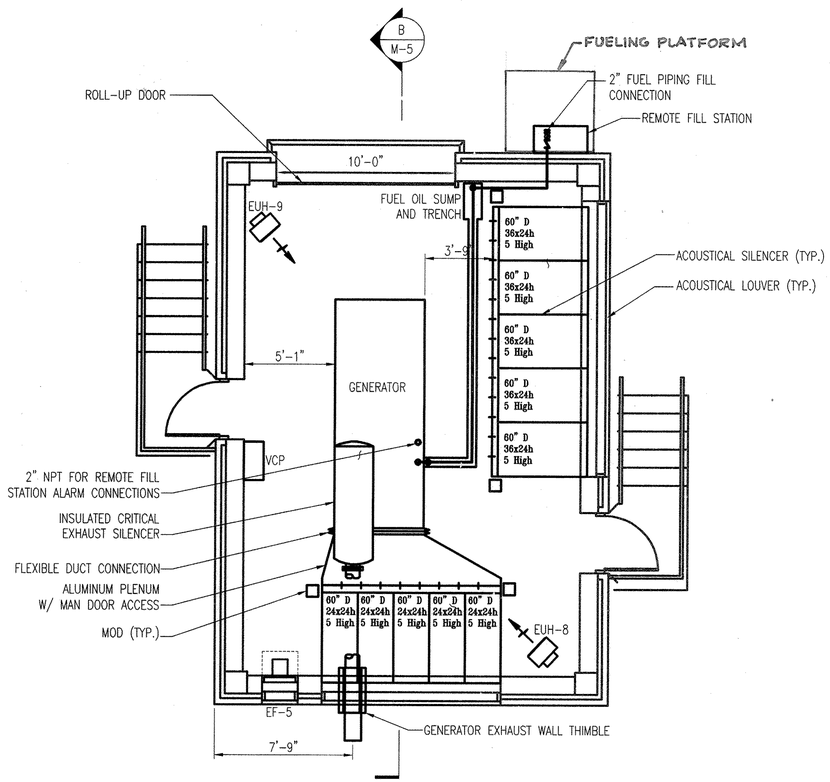
1 M-4 BYPASS/PIGGING VAULT PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

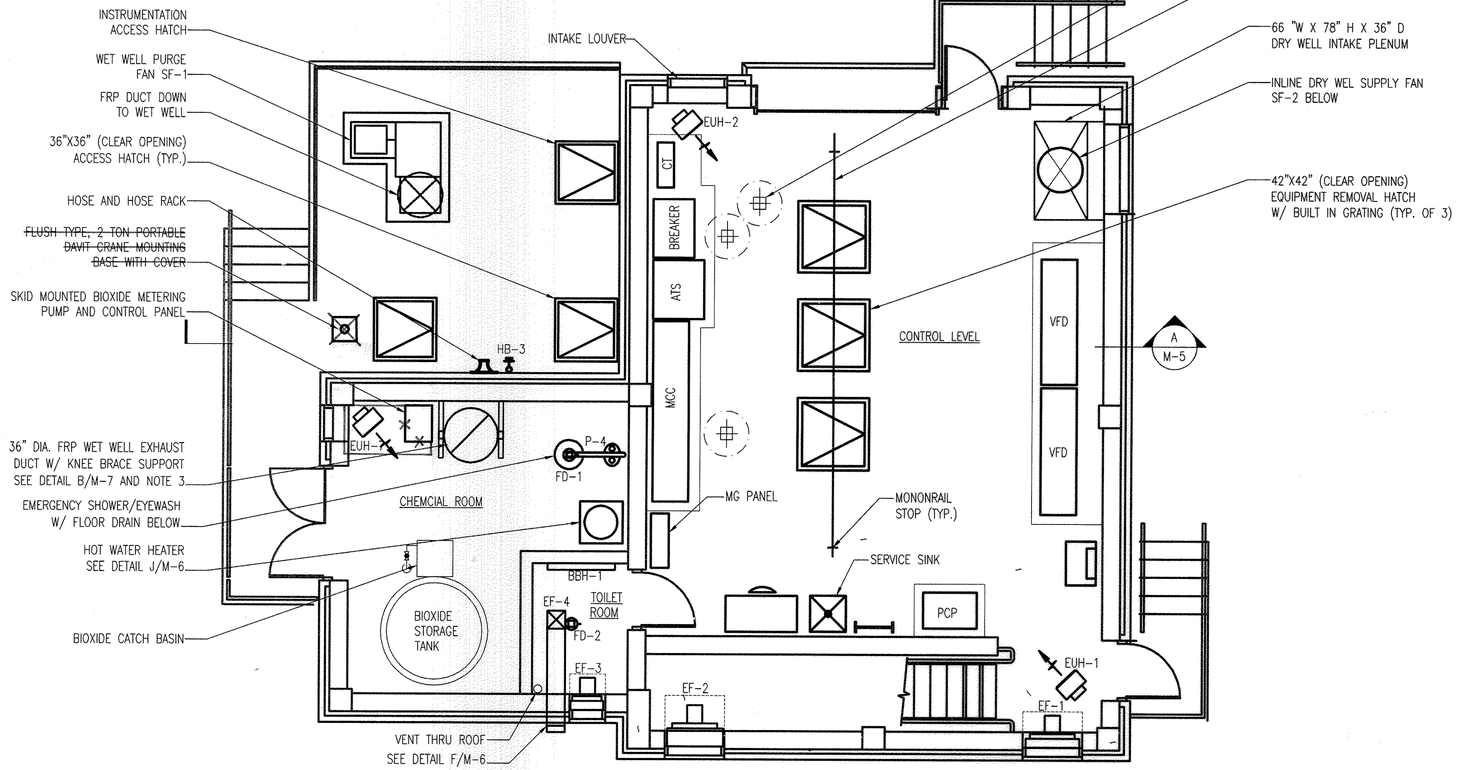
1. SEE M-1 FOR ADDITIONAL NOTES, LEGEND AND LIST OF ABBREVIATIONS.
2. SEE M-6 AND M-7 FOR ADDITIONAL DETAILS AND SCHEDULES.

DRAWING NOTES:

1. ALL BURIED MECHANICAL JOINTS SHALL BE RESTRAINED.
2. PROVIDE UNIVERSAL JOINTS AND INTERMEDIATE SUPPORTS TO LOCATE VALVE OPERATING NUTS FOR GATE VALVES TO AVOID INTERFERENCE W/ ELECTRICAL EQUIPMENT ON CONTROL LEVEL AS NECESSARY.
3. EXHAUST DUCT SHALL REDUCE TO 30" DIAMETER, 12" BELOW CEILING, BEFORE ENTERING CHIMNEY ABOVE.



2 M-4 GRADE LEVEL GENERATOR BUILDING PLAN
SCALE: 1/4" = 1'-0"



3 M-4 GRADE LEVEL PUMP STATION PLAN
SCALE: 1/4" = 1'-0"

AS-BUILT

GRAPHIC SCALE

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

M-4

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. 10003, EXPIRATION DATE: 9/2/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — 9/25/12 DATE
CHIEF, BUREAU OF UTILITIES — 9/26/12 DATE
CHIEF, UTILITY DESIGN DIVISION — 9/25/12 DATE

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND HERBERT W. LEE No. 19100 REGISTERED PROFESSIONAL ENGINEER
9/24/12

DES: BPW
DRN: LAQ
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

GRADE LEVEL PUMP STATION AND GENERATOR BUILDING PLANS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 46 OF 70

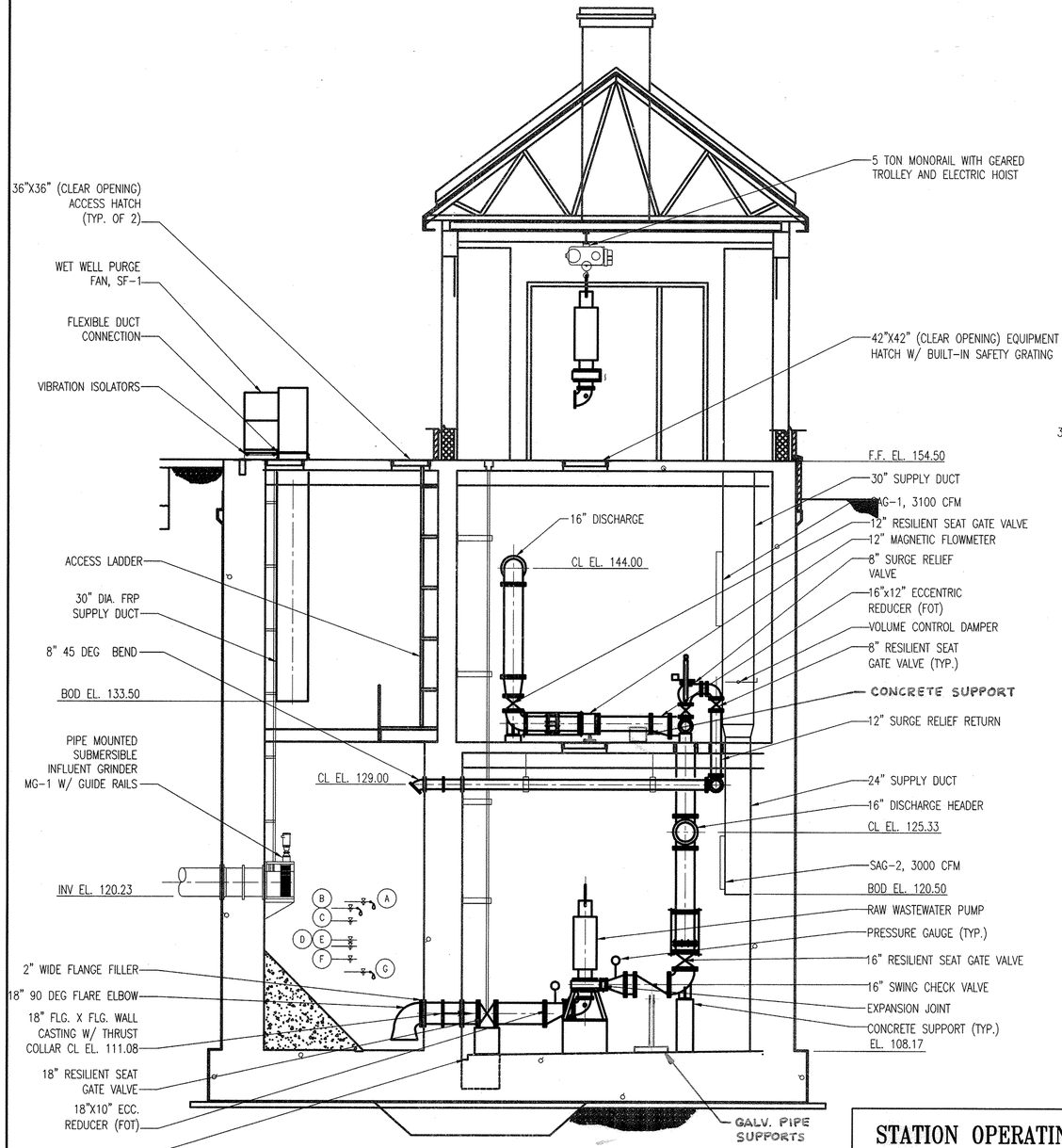
C:\Temp\Drawing\AcPublish_4960\19429M2-1-02.dwg
Sep 12, 2012 - 9:08am

GENERAL NOTES:

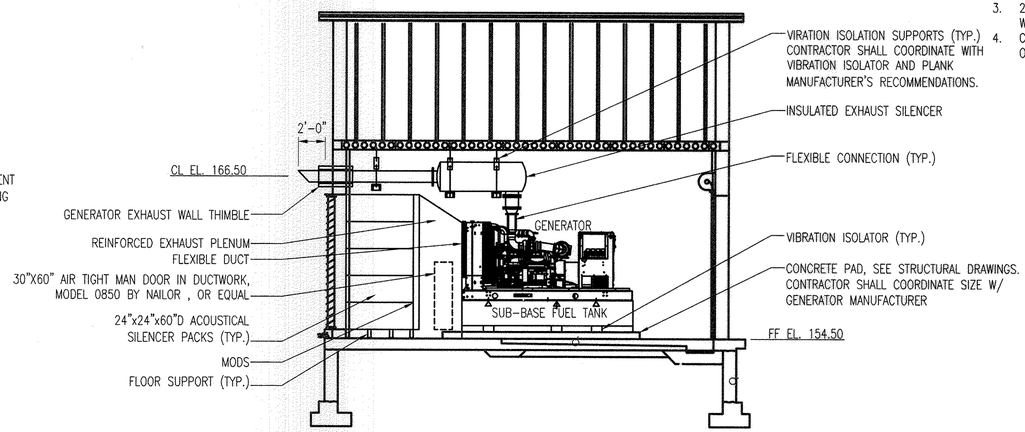
1. SEE M-1 FOR ADDITIONAL NOTES, LEGEND AND LIST OF ABBREVIATIONS.

DRAWING NOTES:

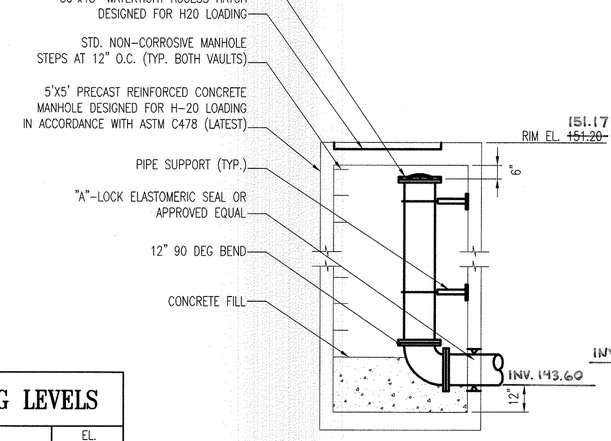
1. GENERATOR EXHAUST PLENUM SHALL TERMINATE AT FINISHED FLOOR. ANCHOR TO FLOOR WITH HILTI KWIK BOLT TZ EXPANSION ANCHORS, SEAL AND MAKE AIR TIGHT.
2. SIZE PIPING CONNECTIONS TO SUIT PUMP SUCTION AND DISCHARGE.
3. 2" SPD NOT SHOWN FOR CLARITY, SHALL PENETRATE WALL AT CL. EL. 129.00.
4. COORDINATE LOCATION AND ORIENTATION OF VALVE OPERATORS WITH OWNER.



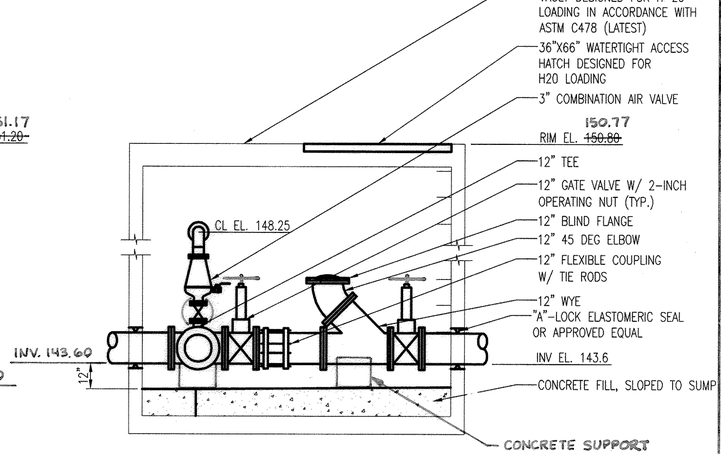
A / M-5 SECTION
SCALE : 3/16"=1'-0"



B / M-5 SECTION
SCALE: 3/16" = 1'-0"



BYPASS VAULT



PIGGING VAULT

C / M-5 BYPASS VAULT/PIGGING VAULT SECTIONS
SCALE: 3/16" = 1'-0"

STATION OPERATING LEVELS

MARK	LEVEL	EL.
A	BACKUP FLOAT LAG PUMP START	119.83
B	LAG PUMP START/HWL ALARM/ BACKUP FLOAT LEAD PUMP START	119.33
C	LEAD PUMP START	118.33
D	MAINTAIN LEVEL	116.83
E	LAG PUMP STOP	116.33
F	LEAD PUMP STOP	115.33
G	BACKUP FLOAT PUMPS STOP/LWL ALARM	114.33

AS-BUILT

GRAPHIC SCALE
0 2' 4' 6' 10'
SCALE: 3/16" = 1'-0"

M-5

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: 9/3/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. HEW — No. 10009 — REGISTERED PROFESSIONAL ENGINEER — 7/19/12

DES: BPW
DRN: LAQ
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SECTION AND DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

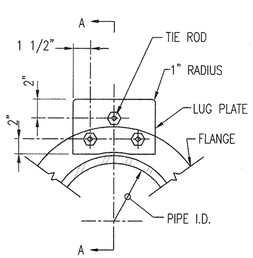
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

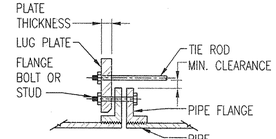
SCALE AS SHOWN

SHEET 47 OF 70

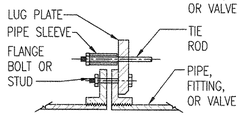
C:\Temp\Drawing\AsPublish_46621\3428M4-1-01.dwg
Sep 12, 2012 - 8:27am



PLAN



SECTION A-A

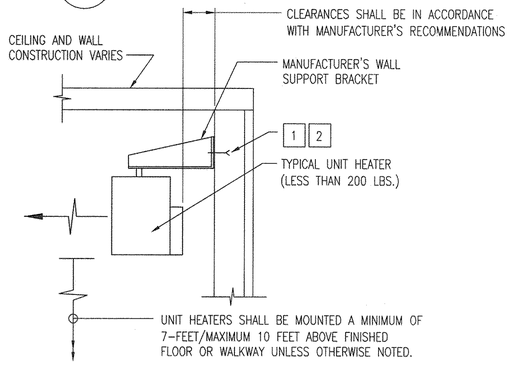


PIPE SLEEVE

NOTES:
1. ONE FLANGE CONNECTION IS SHOWN FOR CLARITY. DETAIL IS TYPICAL FOR BOTH FLANGES.
2. 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.
3. 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.
4. 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
6"	2	3/4"	5/8"	1"	150
8"	2	3/4"	3/4"	1"	150
12"	4	3/4"	1"	1"	150
16"	4	3/4"	1"	1"	150

A / M-6 TYPICAL TIE-ROD DETAIL
SCALE: NONE



B / M-6 TYP. UNIT HEATER INSTALLATION
SCALE: NONE

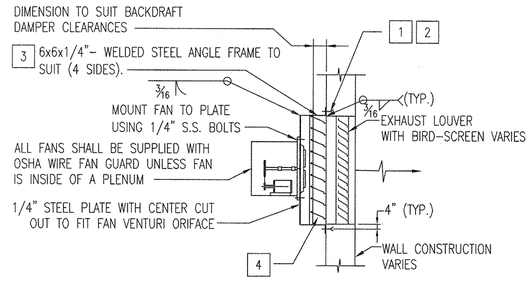
NOTES:

1 FOR BLOCK WALL ANCHORING USE ADHESIVE ANCHOR FOR HOLLOW MASONRY, S.S. WITH 6-INCH EMBEDMENT SPACED AT 12-INCHES ON-CENTER.

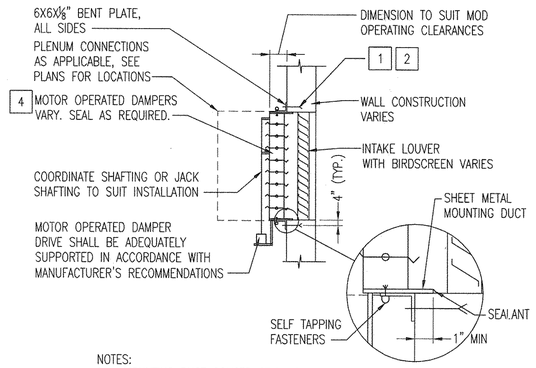
2 FOR CONCRETE WALL ANCHORING USE 1/2 INCH DIA. S.S. ADHESIVE ANCHORS WITH 6 INCH EMBEDMENT SPACED AT 12 INCHES ON CENTER.

3 FRAME AND PLATE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

4 ALL DAMPERS SHALL MATCH IN NOMINAL SIZE WITH THEIR RESPECTIVE LOUVERS UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. WHERE MULTIPLE FANS SHARE A LOUVER, THE BACKDRAFT DAMPERS SHALL BE PARTITIONED FOR EACH RESPECTIVE FAN. SEAL AS REQUIRED.

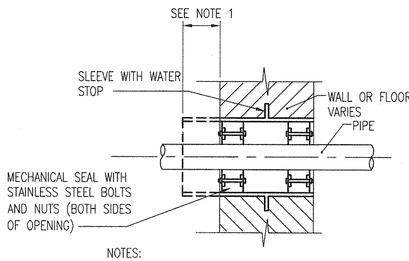


C / M-6 EXHAUST FAN TYPICAL DETAIL
SCALE: NONE



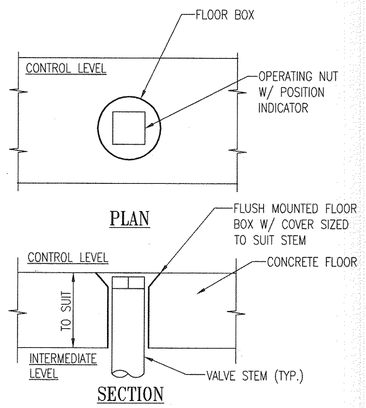
NOTES:
1. MOUNTING DUCT CONSTRUCTION SHALL BE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION FOR 4" STATIC PRESSURE CLASS, REGARDLESS OF OPERATING PRESSURE.
2. DAMPER, DUCT, AND MOUNTING ANGLE SHALL BE CONSTRUCTED OF THE SAME MATERIAL.
3. DAMPER DRIVE LOCATION SHOWN IS GENERAL ARRANGEMENT. DRIVE LOCATION SHALL BE ADJUSTED AS NECESSARY TO AVOID INTERFERENCE WITH OTHER EQUIPMENT AND WALKWAYS.

D / M-6 INTAKE DETAIL
SCALE: NONE

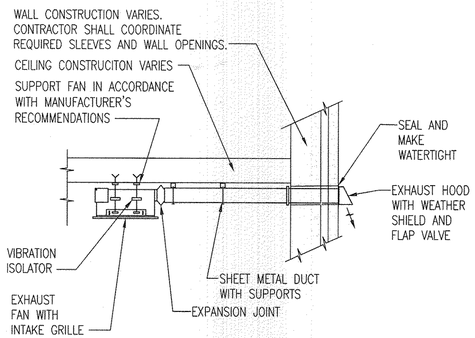


NOTES:
1. FOR FLOOR INSTALLATION EXTEND WALKWAY SIDE OF SLEEVE 4 INCHES ABOVE FINISHED FLOOR.
2. IF EXISTING CONCRETE WALL, CORE DRILL TO DIAMETER RECOMMENDED BY MECHANICAL SEAL MANUFACTURER. CORE DRILLED OPENINGS DO NOT REQUIRE PIPE SLEEVE BUT CONCRETE SURFACE SHALL BE SMOOTH. PREPARE AND COAT EXPOSED REBAR IN ACCORDANCE WITH DIV.9 SPECIFICATIONS. GROUT FILL AND/OR MACHINE AS NECESSARY.

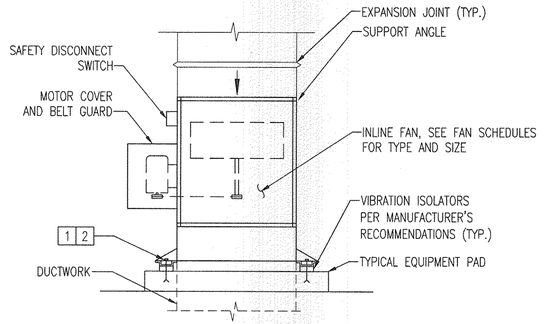
E / M-6 TYPICAL FLOOR/WALL SLEEVE
SCALE: NONE



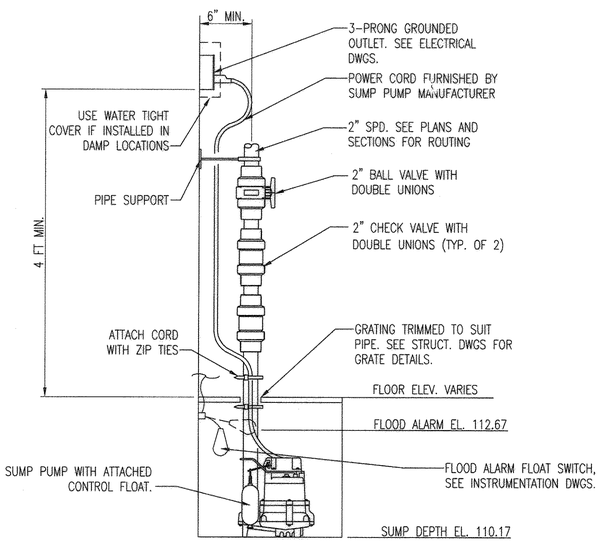
H / M-6 FLOOR BOX DETAIL
SCALE: NONE



F / M-6 TOILET ROOM EXHAUST FAN
SCALE: NONE

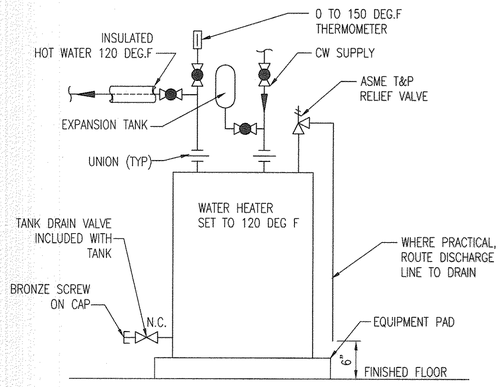


G / M-6 INLINE CENTRIFUGAL FAN
SCALE: NONE



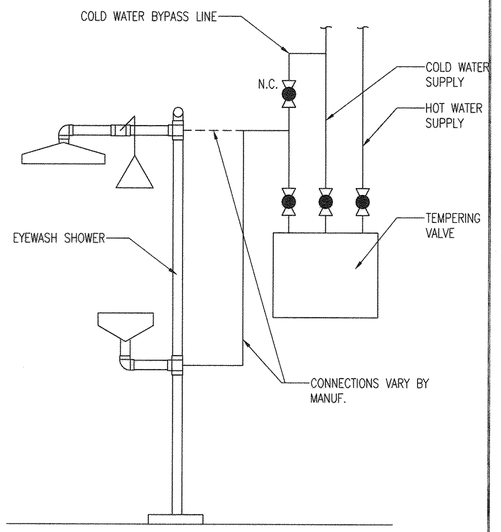
NOTES:
1. PIPE SUPPORTS SHALL NOT BE USED BETWEEN BALL VALVE AND PUMP TO ALLOW FOR COMPONENT REMOVAL.
2. PROVIDE BUSHING AS NECESSARY TO CONNECT PUMP TO 2" PIPING.

I / M-6 SIMPLEX SUMP PUMP DETAIL
SCALE: NONE



NOTES:
1. PROVIDE EXPANSION TANK WHERE REQUIRED BY PLUMBING CODE. SIZE IN ACCORDANCE WITH CODE.

J / M-6 ELECTRIC HOT WATER HEATER DETAIL
SCALE: NONE



NOTES:
1. VALVES SHALL BE LOCATED WITHIN 6 FEET OF FINISHED FLOOR.

K / M-6 EYEWASH SHOWER DETAIL
SCALE: NONE

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 — DATE
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/26/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. HWL — NO. 10009 — REGISTERED PROFESSIONAL ENGINEER — 9/12/12

DES: BPW
DRN: LAQ
CHK: HWL

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

M-6

SCALE AS SHOWN

SHEET 48 OF 70

C:\Temp\Drawing\AcPublish_4952\134286S-01.dwg
Sep 12, 2012 - 9:27am

SUPPLY FAN SCHEDULE

UNIT I.D.	TYPE	DRIVE	TOTAL CAPACITY CFM	TOTAL S.P. IN W.C.	MAX. FAN RPM	ELECTRICAL CHARACTERISTICS VOLTS/PH/HZ	MAX. MOTOR HP	DAMPER	REMARKS
SF-1	C	B	7900	0.75	1500	460/3/60	5	N/A	WET WELL SUPPLY
SF-2	C	B	6100	0.400	500	460/3/60	¾	M.O.	DRY WELL SUPPLY, DUCTED TO INTERMEDIATE LEVEL AND LOWER LEVEL

EXHAUST FAN SCHEDULE

UNIT I.D.	TYPE	DRIVE	TOTAL CAPACITY CFM	TOTAL S.P. IN W.C.	MAX. FAN RPM	ELECTRICAL CHARACTERISTICS VOLTS/PH/HZ	MAX. MOTOR HP	DAMPER	REMARKS
EF-1	P	B	2950	0.350	700	460/3/60	¾	G	CONTROL LEVEL EXHAUST
EF-2	P	B	5500	0.250	800	460/3/60	1½	G	DRY WELL EXHAUST
EF-3	P	D	600	0.250	800	460/3/60	½	G	CHEMICAL ROOM
EF-4	P	B	75	0.375	1280	115/1/60	.06	G	TOILET ROOM
EF-5	P	D	800	0.250	1200	460/3/60	½	G	GENERATOR ROOM

P = PANEL M.O. = MOTOR OPERATED

B = BELTED G = GRAVITY

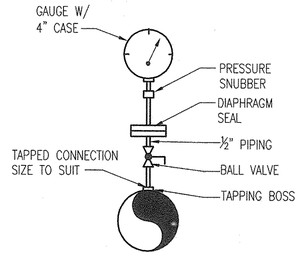
C = CENTRIFUGAL D = DIRECT DRIVE

UNIT HEATER SCHEDULE

UNIT I.D.	KW	ELECTRICAL CHARACTERISTICS VOLTS/PH/HZ	REMARKS
EUH-1,2	7.5	480/3/60	CONTROL LEVEL
EUH-3,4,5,6	5	480/3/60	DRY WELL/INTERMEDIATE LEVEL
EUH-7	4	480/3/60	CHEMICAL ROOM
EUH-8,9	7.5	480/3/60	GENERATOR ROOM
BBH-1	0.5	120/1/60	TOILET ROOM

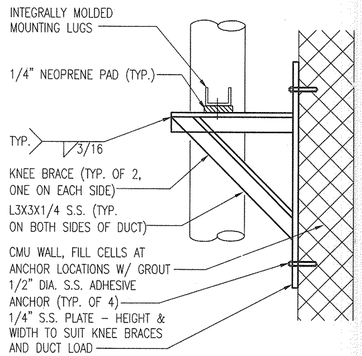
PLUMBING FIXTURE SCHEDULE

FIXTURE	DESCRIPTION	CW	HW	VENT	SAN	REMARKS
P-1	WATER CLOSET/TOILET	1/2"	--	3"	4"	TOILET ROOM (FLOOR MOUNTED)
P-2	LAVATORY SINK	1/2"	1/2"	2"	2"	TOILET ROOM (WALL MOUNTED)
P-3	SERVICE SINK	1/2"	1/2"	2"	2"	CONTROL ROOM (FLOOR MOUNTED)
P-4/ FD-1	EMERGENCY SHOWER/EYE WASH AND FLOOR DRAIN	1 1/4"	--	--	4"	CONTROL LEVEL(FREE STANDING) FLOOR SLOPED TO FD-1
FD-2	TOILET ROOM FLOOR DRAIN	--	--	3"	4"	TOILET ROOM (FLOOR MOUNTED)
FD-3	INTERMEDIATE FLOOR, FLOOR DRAIN	--	--	--	4"	PLUMB TO TRENCH IN LOWER LEVEL
FD-4	INTERMEDIATE FLOOR, FLOOR DRAIN	--	--	--	4"	PLUMB TO TRENCH IN LOWER LEVEL



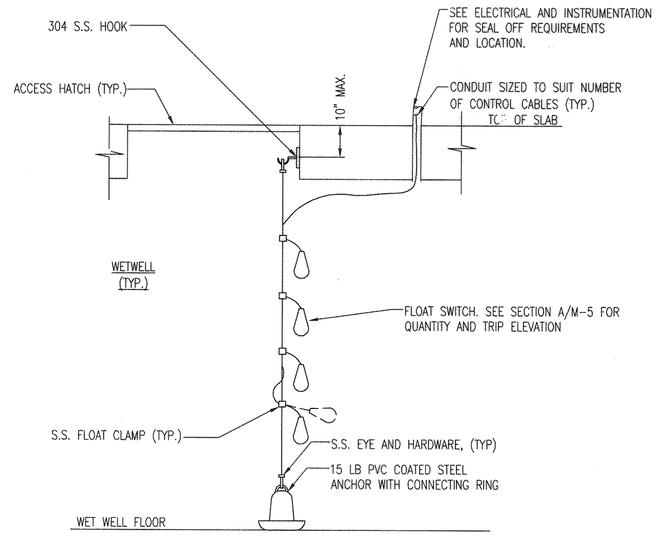
NOTES:
1. SERVICE SADDLE MAY BE USED IN LIEU OF TAPPING BOSS.
2. SUCTION PRESSURE GAUGE RANGE: 0-15 PSIG
   DISCHARGE PRESSURE GAUGE RANGE: 0-200 PSIG

A / M-7 DIAPHRAGM SEAL PRESSURE GAUGE
SCALE: NONE



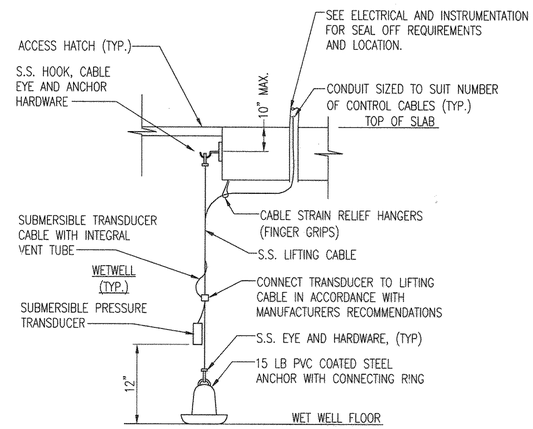
SECTION

B / M-7 FRP DUCT VERTICAL SUPPORT DETAIL
SCALE: NONE



NOTES:
1. INDIVIDUAL FLOAT CABLES SHALL NOT BE "GANGED" TOGETHER. EACH FLOAT SHALL BE ABLE TO BE REMOVED WITHOUT DISTURBING OTHER FLOATS.

C / M-7 FLOAT SWITCH DETAIL
SCALE: NONE



D / M-7 SUBMERSIBLE LEVEL TRANSDUCER DETAIL
SCALE: NONE

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. 10003, EXPIRATION DATE: 9/8/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — HERBERT W. HWL — PROFESSIONAL ENGINEER — 9/12/12

DES: BPW	WRA	1	AS-BUILTS	2/16
DRN: BPW				
CHK: HWL				
	BY	NO.	REVISION	DATE

SCHEDULES, DETAILS AND SCHEMATICS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

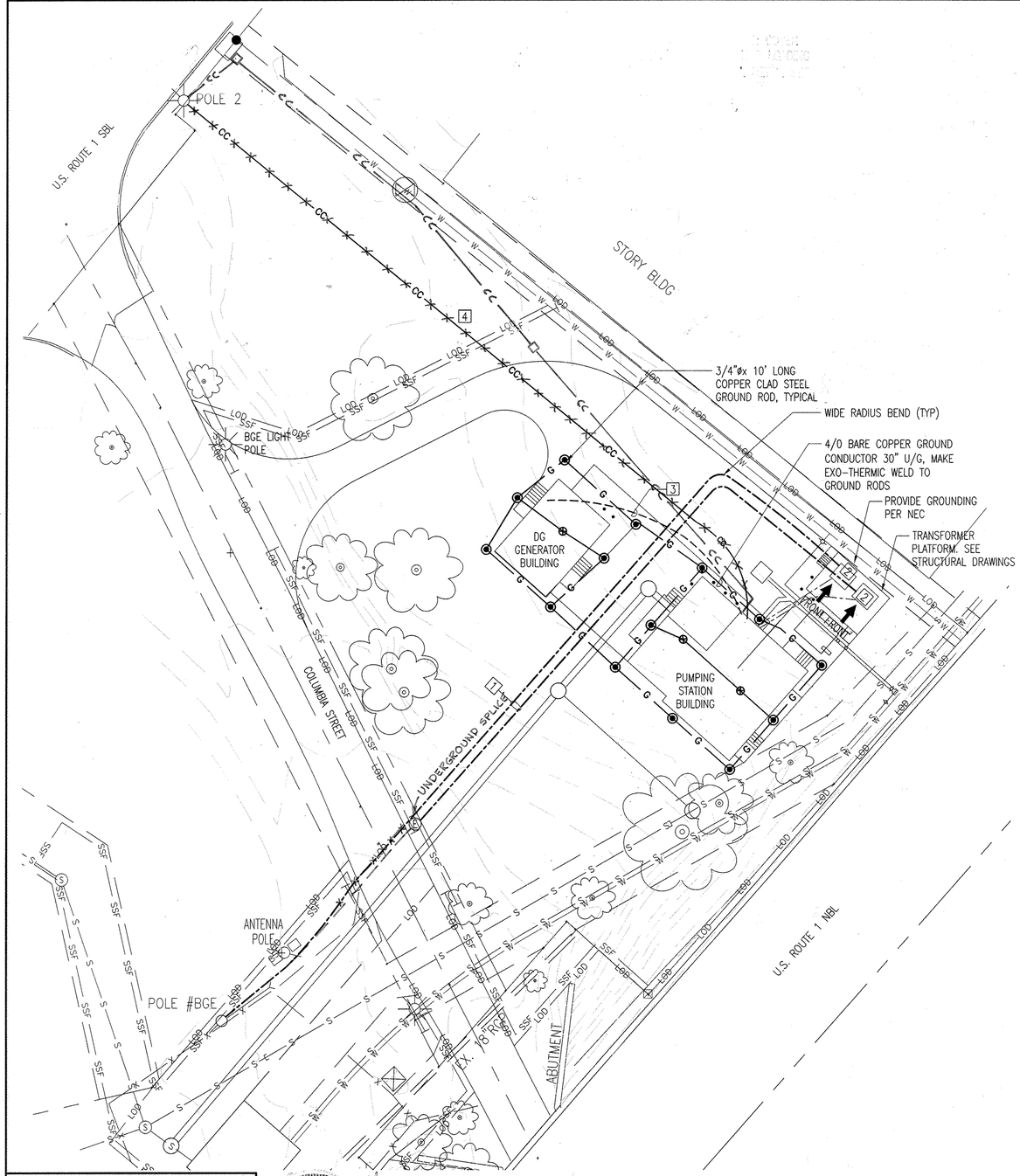
AS-BUILT

M-7

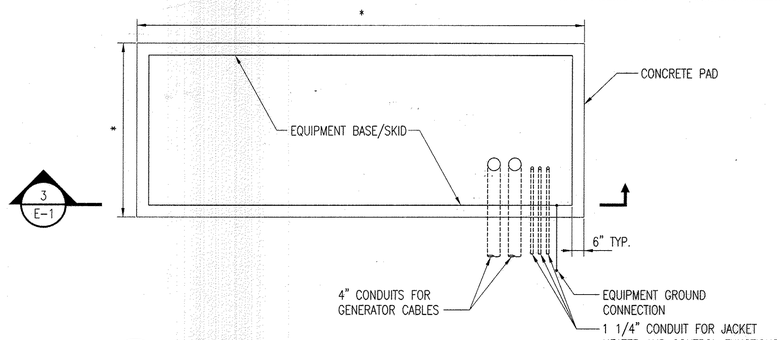
SCALE AS SHOWN

SHEET 49 OF 70

C:\Temp\Drawing List\Publish_68501_13428MS-02.dwg
Sep 12, 2012 - 9:27am

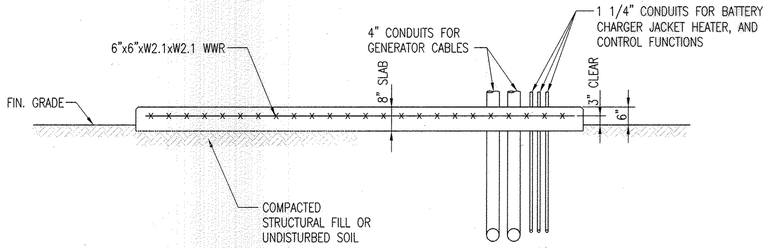


1 / E-1 **SITE PLAN**
SCALE: 1"=20'-0"

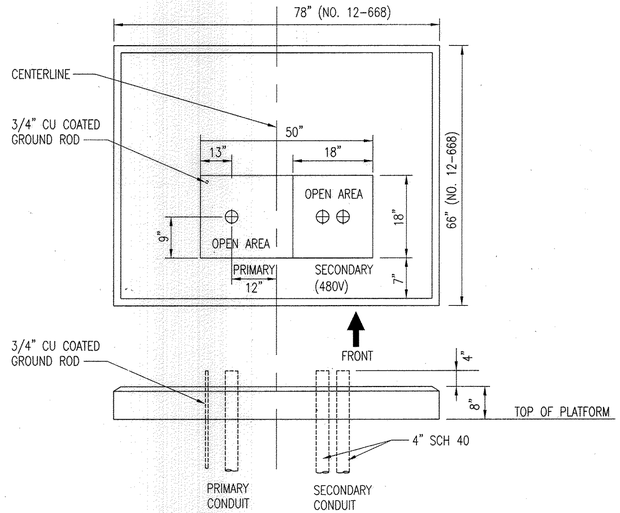


2 / E-1 **DIESEL GENERATOR PAD - PLAN**
SCALE: NONE

1. * - DIMENSION TO MATCH EQUIPMENT SUPPLIED.
2. LOCATE CONDUITS/FUEL PIPING TO SUIT SITE CONDITIONS.
3. COORDINATE WITH STRUCTURAL DRAWINGS.



3 / E-1 **DIESEL GENERATOR PAD - SECTION**
SCALE: NONE



4 / E-1 **480 VOLT TRANSFORMER PAD DETAIL (TYPICAL OF 2)**
SCALE: NONE

1. SECONDARY CONDUIT SHALL BE CENTERED SYMMETRICALLY WITHIN 18"x16".
2. APPROXIMATE WEIGHT OF CAST IN PLACE CONCRETE PAD IS 2200 POUNDS (NO. 12-668).
3. 12-668 NUMBERS REFER TO BGE MATERIAL NUMBERS.
3. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.

GENERAL NOTES:

1. FOR EQUIPMENT DETAILS SEE SINGLE LINE DIAGRAM AND EQUIPMENT NOTES DWG. E-5.

2. FOR LEGEND, GENERAL NOTES SEE DWG. E-2.

3. FOR MORE INFORMATION REGARDING ELECTRICAL REQUIREMENTS FOR CONTROL PANELS AND VENTILATION DEVICES REFER TO P & ID DRAWINGS.

SPECIFIC NOTES □:

1. 2-4"C DIRECT BURIED DUCTBANK 3'-0" BELOW GRADE BY CONTRACTOR. PRIMARY CABLES BY BGE. CONTRACTOR TO COORDINATE SIZE AND QUANTITY OF CONDUITS WITH ELECTRIC UTILITY BGE.

2. TRANSFORMER MOUNTING SUPPORTS ON PLATFORM TO BE PROVIDED BY THE CONTRACTOR PER BGE REQUIREMENTS. SEE 4/E-1 FOR MORE INFORMATION.

3. SEE DUCTBANK SECTION 3/E-3 FOR CIRCUITS CONNECTING PUMPING STATION AND GENERATOR BUILDING.

4. 2-2" PVC SCH.80 24" UNDERGROUND FOR TELECOM CABLES. COORDINATE EXACT LOCATION WITH PROVIDER AND OWNER. SEE 2/E-3 FOR SECTION.

GRAPHIC SCALE
20' 0 20' 40' 60'
SCALE 1 IN = 20 FT

AS-BUILT

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, # 204
OWINGS MILLS, MD 21117
(P)410.356.1095 (F)410.363.4675

STATE OF MARYLAND — SHIRLEY A. DHILLON — No. 19396 — PROFESSIONAL ENGINEER — 8.4.12

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: 08-10-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 9/6/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/26/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WRA
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: RG
DRN: VL/OM
CHK: RDK

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

ELECTRICAL SITE PLAN

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 50 OF 70

E-1

ELECTRICAL ABBREVIATIONS:

A, AMP	AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CONN	CONNECTION OR CONNECT
CP	CONTROL PANEL
CSCP	CHEMICAL SYSTEM CONTROL PANEL
DET	DETAIL
DWG	DRAWING
EF	EXHAUST FAN
ELECT	ELECTRICAL
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
EX.	EXISTING
FVNR	FULL VOLTAGE NON-REVERSING
GENCP	GENERATOR CONTROL PANEL
G, GRD	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HP	HORSEPOWER
Hz	HERTZ
KA	KILO AMPERES
KAIC	KILOAMPERES INTERRUPTING CAPACITY
KCMIL	THOUSAND CIRCULAR MILLS
KW	KILOWATT
KVA	KILOVOLT AMPERE
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MIN	MINIMUM
MG	MECHANICAL GRINDER
MH	MANHOLE, MOUNTING HEIGHT
MOT	MOTOR
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
P	POLE
PB	PULL BOX
PCP	PUMP CONTROL PANEL
PNL	PANEL
PWR	POWER
PVC	POLYVINYL CHLORIDE
REC/RECP	RECEPTACLE
RMC	RIGID METAL CONDUIT
RTU	REMOTE TERMINAL UNIT
SCH	SCHEDULE
SF	SUPPLY FAN
SS	STAINLESS STEEL
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TTB	TELEPHONE TERMINAL BOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT AMPERE
VCP	VENTILATION CONTROL PANEL
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WP	WEATHER PROOF

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH ELECTRIC POWER AND TELEPHONE UTILITY COMPANY.

2. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES, RULES AND REGULATIONS.

3. ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED, WIRED AND GROUNDED IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF NATIONAL ELECTRICAL CODE (NEC) AND LOCAL CODES.

4. 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.

5. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO EQUIPMENT. CONDUIT ENDS SHALL BE SUITABLY SEALED TO PREVENT TRANSGRESS OF MOISTURE THROUGH CONDUITS FROM ONE EQUIPMENT TO OTHER.

6. CONDUITS AND WIRES SHALL BE SIZED IN ACCORDANCE WITH NEC UON. MINIMUM CONDUIT SIZE SHALL BE 3/4" UON, AND MINIMUM WIRE SIZE SHALL BE #12AWG UON FOR POWER CIRCUITS.

7. CONDUITS INSTALLED EXPOSED ON EXTERIOR/INTERIOR OF BUILDING SHALL BE POLYURETHANE COATED GALVANIZED RMC.

8. WALL AND FLOOR PENETRATIONS FOR ELECTRICAL CONDUITS SHALL BE CORE DRILLED. PROVIDE SEGMENTED RUBBER COMPRESSION SEALS ON BOTH SIDES.

9. PROVIDE ALL REQUIRED PULL AND JUNCTION BOXES FOR INSTALLATION OF THE WIRING IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS THOUGH THE BOXES MAY NOT BE INDICATED ON THE DRAWINGS. ALL JUNCTION AND PULL BOXES SHALL BE LABELED WITH THEIR VOLTAGE AND USAGE.

10. FINAL LOCATION FOR ALL ELECTRICAL EQUIPMENT, INCLUDING RECEPTACLES, JUNCTION BOXES FOR SPECIFIED EQUIPMENT, LIGHTING FIXTURES, SWITCHES, ETC. SHALL BE APPROVED BY THE COUNTY PRIOR TO INSTALLATION.

11. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS ARE BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS APPROVED BY THE COUNTY MAY BE MADE BY THE CONTRACTOR AT HIS EXPENSE TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.

12. ALL ALARM INDICATION AND CONTROL WIRING IN JUNCTION BOXES SHALL BE WIRED TO NUMBERED TERMINAL STRIPS AND IDENTIFIED AS TO START AND END OF RUN.

13. ALL ELECTRICAL EQUIPMENT INSTALLED AGAINST CONCRETE OR MASONRY WALLS SHALL BE INSTALLED WITH 1/4" SPACERS BETWEEN THE EQUIPMENT AND THE MOUNTING SURFACE. SPACERS SHALL BE STAINLESS STEEL, PVC, OR NYLON.

14. ELECTRICAL ENCLOSURES LOCATED OUTDOORS SHALL BE WEATHERPROOF NEMA 4X, UON.

15. THE CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS AND CORRECTLY PHASING CIRCUITS IN PANELBOARDS.

16. ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA-4, UON.

17. LIGHTNING PROTECTION CONTRACTOR TO DESIGN AND INSTALL LIGHTING PROTECTION SYATEM PER SPECIFICATIONS.

LEGEND:

- COMBINATION STARTER
- JUNCTION BOX
- VFD — VARIABLE FREQUENCY DRIVE (VFD)
- SSRV — SOLID STATE REDUCED VOLTAGE STARTER
- M — MOTOR; HP AS NOTED
- T — THERMOSTAT
- PM — POWER MONITOR, MONITORS,PHASE VOLTAGE CURRENT, kVA, kW, kVAR
- GROUND
- FUSE
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CONDUIT SURFACE MOUNTED
- G — ELECTRIC GROUND GRID DIRECT BURIED
- —CC— CONDUIT FOR COMMUNICATIONS WIRING 1 1/4" TYP.
- CONDUIT UNDER FLOOR SLAB OR EMBEDDED, STUB-UP ENDS AT 4" AFF
- MEDIUM VOLTAGE CONDUCTORS IN CONCRETE ENCASED DUCTBANK
- CIRCUIT BREAKER
- $ — SWITCH 20A, 125V, HEAVY DUTY
- $3 — SWITCH 20A, 125V, 3 WAY, HEAVY DUTY
- DISCONNECT SWITCH
- DISCONNECT SWITCH NON-FUSED, 30A, 3P, 480V, NEMA-4 ENCLOSURE, UON
- GROUND ROD
- LIGHTNING ARRESTER ROD
- GFI/WP — DUPLEX GFI RECEPTACLE 20A, 125V, GROUND FAULT CIRCUIT INTERRUPTER/WEATHER PROOF, MH 4'-0" AFF
- DUPLEX RECEPTACLE 20A, 125V, NEMA 5R-20, MH 1'-6" AFF
- DUPLEX RECEPTACLE 20A, 125V, NEMA 5R-20, MH 4'-0" AFF
- SIMPLEX RECEPTACLE, SPECIAL PURPOSE, VERIFY CONFIGURATION, MH 1'-6" AFF
- ELECTRIC UNIT HEATER - EUH
- E — EXISTING ELECTRICAL MANHOLE
- VOICE OUTLET, RJ45, MH 42" AFF
- ST — FVNR STARTER, NUMBER INDICATES NEMA SIZE

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION	MOUNTING	LAMPS NO	LAMPS WATTS	LAMPS TYPE	MANUFACTURER AND CATALOG NO.	VOLTS	REMARKS
	FLUORESCENT FIXTURE WITH ELECTRONICS BALLAST, APERTURE FOR 5% UPWARD LIGHT	CHAIN HUNG FROM CEILING	3	32	T8	LITHONIA LIGHTING EJA 3 32 120 ES	120	9'-0" AFF
	FLUORESCENT FIXTURE WITH ELECTRONICS BALLAST, APERTURE FOR 5% UPWARD LIGHT	SURFACE WALL	2	32	T8	LITHONIA LIGHTING DM 2 32 120 ES AR	120	8'-0" AFF
XP	METAL HALIDE WALL PACK SUITABLE FOR HAZARDOUS LOCATION CLASS1, DIVISION1	SURFACE WALL	1	175	METAL HALIDE	CROUSE HINDS EVLS CX 9 2 170	120	VANDAL RESISTANT, SEE NOTE 3
WL	WALL LIGHT SUITABLE FOR WET LOCATION	WALL 9'-0" AFF	1	150	PMH	LIGHTOLIER AD09BKB3BDHE OR EQUAL	120	SINGLE FUSE, PHOTOCELL, VANDAL RESISTANT
	DUAL HEAD EMERGENCY LIGHT WITH BATTERY BACK UP FOR MIN. 90 MINUTES	CEILING SURFACE	2	6	HALOGEN PAR 36	RUDD LIGHTING EMHC12100 OR EQUAL	120	SELF DIAGNOSTIC WITH TEST SWITCH AND INDICATOR. SEE NOTE 1
	DUAL HEAD EMERGENCY/EXIT LIGHT WITH BATTERY BACK UP FOR MIN. 90 MINUTES	WALL10'-0"AFF	2	8	LED/HALOGEN PAR 36	RUDD LIGHTING EXPCRWH-HO OR EQUAL	120	SELF DIAGNOSTIC WITH TEST SWITCH AND INDICATOR. SEE NOTE 1

NOTE:

1. EMERGENCY AND EXIT LIGHTS SHALL BE WIRED TO THE NEARBY CIRCUITS BUT AHEAD OF CONTROLLING SWITCHES.
2. ALL LIGHTING FIXTURE TO BE UL LISTED.
3. EXPLOSION PROOF FOR HAZARDOUS AREA.

PANELBOARD: "P"

Main Device: MCB 60AT | Device Family: BOLT ON | Bus Rating: 100A | 3 PHASE 4 WIRE | Mounting: FRAME SUPPORT | Fault Duty: 10KAIC | Voltage: 120/208V | Enclosure: NEMA-4 | Neutral : 100%

LOCATION: CONTROL ROOM

CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø	CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø
1	20	1	LTS	INTERMEDIATE & LOWER LEVELS	1220			2	20	1	REC	CONTROL ROOM & EXTERIOR			1080
3	20	1	S	SPARE		–		4	20	1	REC	RESTROOM		180	
5	20	1	PNL	CHEMICAL SYSTEM CONTROL PANEL			200	6	20	1	REC	CHEMICAL ROOM			720
7	20	1	LTS	EXTERIOR LIGHTS	1440			8	20	1	S	SPARE	–		
9	20	1	LTS	PUMP STATION GRADE LEVEL & EF-4		1640		10	20	1	PNL	PUMP CONTROL PANEL		1000	
11	20	1	MOT	SIMPLEX SUMP PUMP			500	12	20	1	S	SPARE			–
13	20	1	S	SPARE	–			14	20	1	S	~~SPARE~~ CONTROL PANEL REC	–		
15	20	1	S	SPARE		–		16	20	1	S	SPARE		–	
17	15	1	HTR	BASEBOARD HEATER			500	18	20	1	REC	DRYPIT INTERMEDIATE LEVEL			720
19	20	1	S	SPARE	–			20	20	1	S	SPARE	–		
21	20	1	S	SPARE		–		22	20	1	REC	DRYPIT LOWER LEVEL		900	
23	20	1	S	SPARE			–	24	20	1	S	SPARE			–
25	20	1	REC	TTB	500			26	20	2	MOT	DOOR CONTROLLER	500		
27	20	1	S	SPARE		–		28	–	–	–	–		–	
29	20	1	S	SPARE			–	30	20	1	LTS	WET WELL LIGHTING			460
CONNECTED LOAD VA					3160	1640	1200	1580	2580	1900					

CONNECTED LOAD A ø 4740 VA | B ø 4220 VA | C ø 3100 VA | CONNECTED LOAD: 12060 VA | FULL LOAD AMPS: 33.47 A

PANELBOARD: "HG"

Main Device: MCB 50AT * | Device Family: BOLT ON | Bus Rating: 125A | 3 PHASE 4 WIRE | Mounting: FRAME SUPPORT | Fault Duty: 10KAIC | Voltage: 480/277V | Enclosure: NEMA-4 | Neutral : 100%

LOCATION: GENERATOR RM

CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø	CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø
1	15	3	HTR	EUH-9	2500			2	15	3	HTR	EUH-8	2500		
3	–	–	–	–		2500		4	–	–	–	–		2500	
5	–	–	–	–			2500	6	–	–	–	–			2500
7	40	3	EQPT	MINI-POWER CENTER	5000			8	20	1	S	SPARE	–		
9	–	–	–	–		5000		10	20	1	S	SPARE		–	
11	–	–	–	–			5000	12	20	1	S	SPARE			–
13	20	1	S	SPARE	–			14	20	1	S	SPARE	–		
15	20	1	S	SPARE		–		16	20	1	S	SPARE		–	
17	15	1	S	SPARE			–	18	20	1	S	SPARE			–
19	20	1	S	SPARE	–			20	20	1	S	SPARE	–		
21	20	1	S	SPARE		–		22	20	1	S	SPARE		–	
23	20	1	S	SPARE			–	24	20	1	S	SPARE			–
CONNECTED LOAD VA					7500	7500	7500	2500	2500	2500					

CONNECTED LOAD A ø 10000 VA | B ø 10000 VA | C ø 10000 VA | CONNECTED LOAD: 30000 VA | FULL LOAD AMPS: 36 A

* SUITABLE FOR SERVICE DISCONNECT.

PANELBOARD: "LG"

Main Device: MCB 60AT | Device Family: BOLT ON | Bus Rating: 100A | 3 PHASE 4 WIRE | Mounting: FRAME SUPPORT | Fault Duty: 10KAIC | Voltage: 120/208V | Enclosure: NEMA-4 | Neutral : 100%

LOCATION: GENERATOR RM

CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø	CKT NO	TRIP AMP	POLE NO	LOAD TYPE	LOAD SERVED	LOAD - VA A ø	B ø	C ø
1	20	1	LTS	GENERATOR RM LIGHTS & REC	960			2	20	1	PNL	REMOTE FILLING STATION			200
3	20	1	LTS	GENERATOR BUILDING EXTERIOR		1080		4	30	2	HTR	GEN JACKET HEATER *		1872	
5	20	1	PNL	VCP-1 GENERATOR RM			500	6	–	–	–	–			1872
7	20	1	PNL	GENERATOR CP	500			8	20	1	MOT	GEN RM MOD 1 TO 10	100		
9	20	2	MOT	DOOR CONTROLLER		500		10	20	1	S	SPARE		–	
11	–	–	–	–			500	12	20	1	S	SPARE			–
13	20	1	S	SPARE	–			14	20	1	MOT	GEN RM MOD 11 TO 17	100		
15	20	1	S	SPARE		–		16	20	1	S	SPARE		–	
17	20	1	S	SPARE			–	18	20	1	S	SPARE			–
19	20	1	S	SPARE	–			20	20	1	EQP	GEN BATTERY CHARGER	1000		
21	20	1	S	SPARE		–		22	20	1	S	SPARE		–	
23	20	1	S	SPARE			–	24	20	1	S	SPARE			–
CONNECTED LOAD VA					1460	1580	1000	1400	1872	1872					

NOT USED - SELF CONTAINED 24V

CONNECTED LOAD A ø 2860 VA | B ø 3452 VA | C ø 2872 VA | CONNECTED LOAD: 9184 VA | FULL LOAD AMPS: 25.5 A

* PROVIDE 2#10 & #12G IN 3/4".

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, # 204
OWINGS MILLS, MD 21117
(P)410.356.1095 (F)410.363.4675

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: 08-10-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/27/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: RG | DRN: VL/OM | CHK: RDK

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

AS-BUILT

WASTEWATER PUMPING SYSTEM-ELEC NOTES, LEGEND, ABBREVIATIONS, AND SCHEDULES

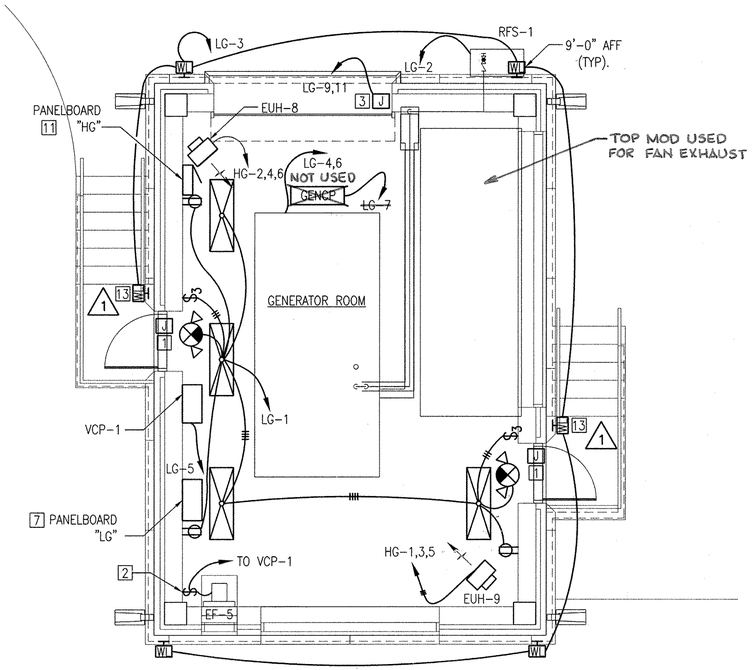
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

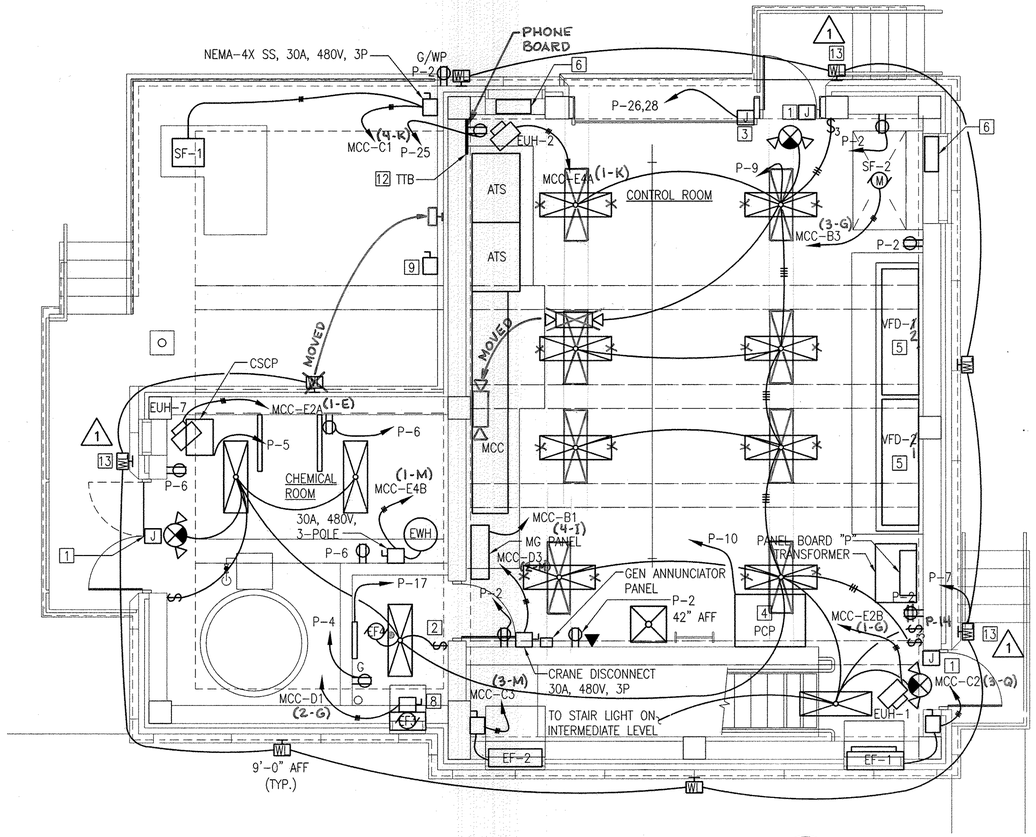
SHEET 51 OF 70

E-2



1 E-3 GRADE LEVEL GENERATOR BUILDING PLAN

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

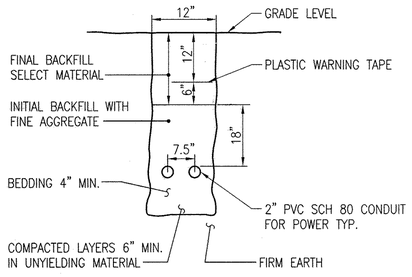


4 E-3 ELECTRICAL PLAN - GRADE LEVEL

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

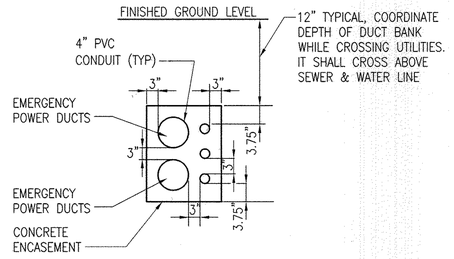
NOTES □:

1. PROVIDE JUNCTION BOX & EMPTY 3/4" CONDUIT TO PCP PANEL FOR INTRUSION ALARM. COORDINATE EXACT REQUIREMENTS. WIRING BY OTHERS.
2. MOTOR RATED SWITCH.
3. PROVIDE JUNCTION BOX AND EMPTY 3/4" CONDUIT FOR DOOR CONTROL. COORDINATE EXACT REQUIREMENTS. WIRING BY OTHERS.
4. PUMP CONTROL PANEL, REFER TO INSTRUMENTATION DRAWINGS FOR MORE INFORMATION.
5. FOR VFD AND BYPASS SSRV STARTER DOOR-MOUNTED CONTROLS ELEMENTARY DIAGRAMS AND STARTER DETAIL, SEE INSTRUMENTATION DRAWINGS.
6. POWER AND CONTROL TO MOTOR OPERATED DAMPERS SUPPLIED AND INTERLOCKED WITH SUPPLY FANS. SEE INSTRUMENTATION DRAWINGS FOR MORE INFORMATION.
7. PROVIDE A MINI POWER CENTER. A COMBINATION OF 15 KVA, 3 PHASE, 480-208/120V DELTA-WYE TRANSFORMER AND 24 POLE PANELBOARD.
8. LOCATE 30A, 480V, 3P DISCONNECT NEAR EF-3 ABOVE TOILET IN CEILING SPACE.
9. DISCONNECT 30A, 480V, 3P IN NEMA-4X, SS ENCLOSURE FOR MOTOR GRINDER. COORDINATE LOCATION. CONNECT DISCONNECT THRU MG PANEL AS PER MANUFACTURER'S REQUIREMENT. USE RACEWAY AND WIRE AS REQUIRED.
10. TELECOM CONDUIT, PROVIDE MINIMUM OF 12" SEPARATION WHEN CONVERGING WITH INCOMING ELECTRIC WIRING.
11. 480/277V, 100AF/50AT MCB, BOLT, 30-POLE PANELBOARD IN NEMA 4 ENCLOSURE.
12. PROVIDE GROUNDING REQUIRED PER SPECIFICATIONS.
13. PROVIDE LUMINAIRE WITH FACTORY INSTALLED 100W QUARTZ RESTRIKE. 1



2 E-3 DIRECT BURIED CONDUIT FOR COMMUNICATION TRENCHING & BEDDING DETAIL

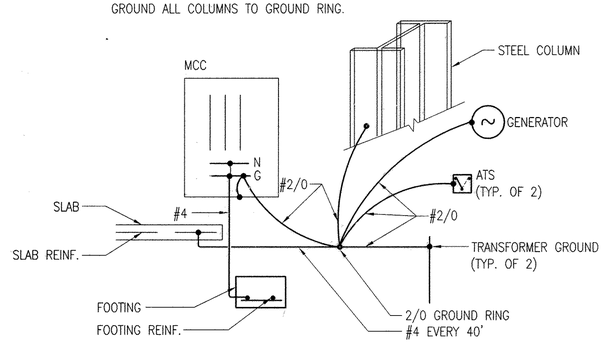
SCALE: NONE



3 E-3 2W X 2H DUCTBANK SECTION

SCALE: NONE

NOTE:
GROUND ALL COLUMNS TO GROUND RING.



5 E-3 SYSTEM GROUND DETAIL

SCALE: NONE

AS-BUILT

GRAPHIC SCALE

4 3 2 1 0 4 8

SCALE: 1/4 IN.= 1 FT.

E-3

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, # 204
OWINGS MILLS, MD 21117
(P)410.356.1095 (F)410.363.4675

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: 08-10-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: RG
DRN: OM/VL
CHK: RK

BY	NO.	REVISION	DATE
WRA	2	AS-BUILTS	2/16
	1	DEI BUILDING PERMITS REVISIONS	7/19/13

ELECTRICAL PLAN
GRADE LEVEL

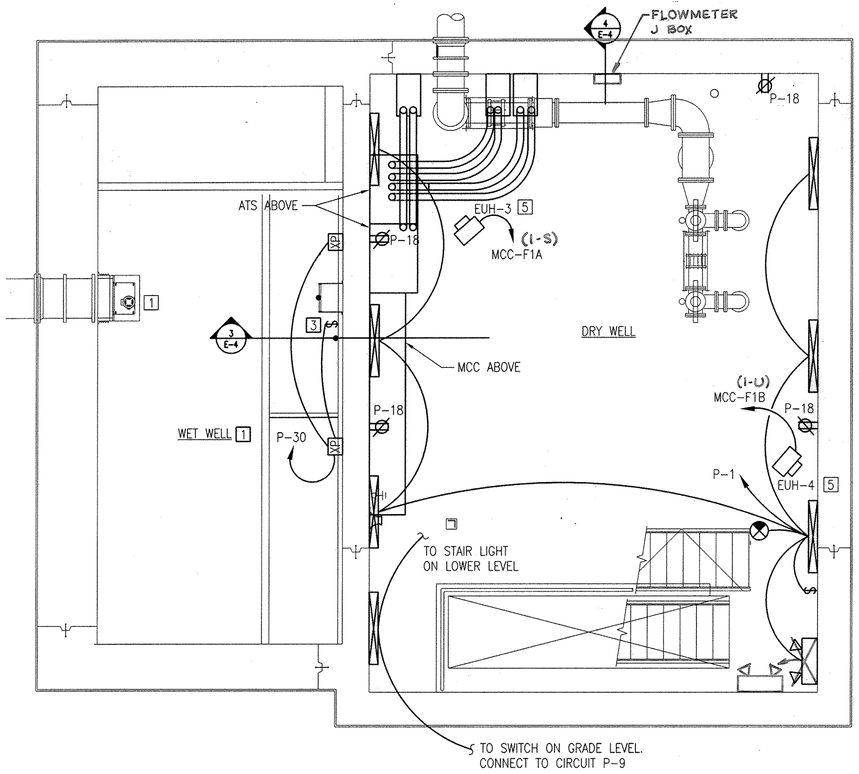
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

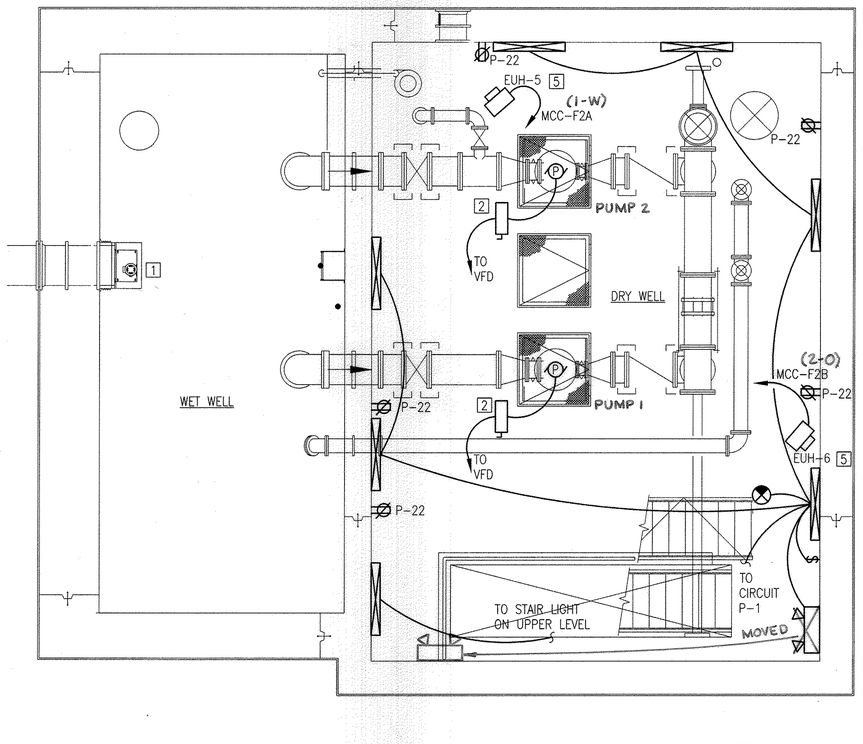
SCALE AS SHOWN

SHEET 52 OF 62



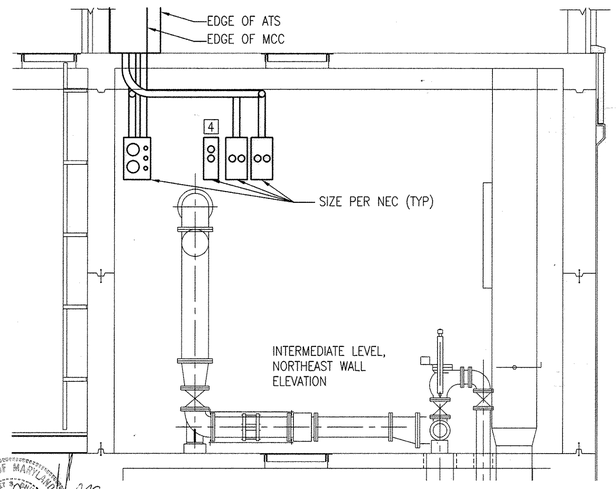
1 E-4 ELECTRICAL PLAN – INTERMEDIATE LEVEL

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



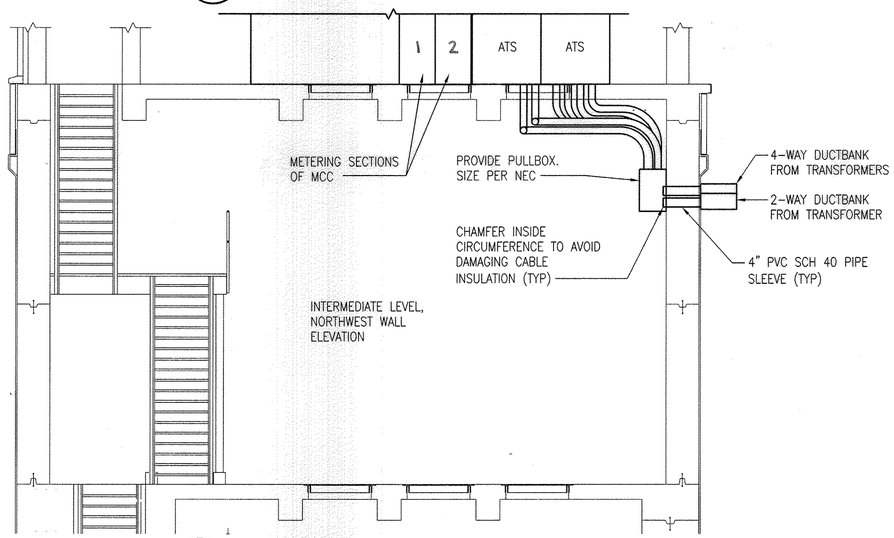
2 E-4 ELECTRICAL PLAN – LOWER LEVEL

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



3 E-4 CONDUITS THRU-WALL ELEVATION

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



4 E-4 CONDUITS THRU-WALL ELEVATION

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

NOTES □:

1. PROVIDE MATERIALS AND METHODS REQUIRED PER NEC FOR CLASS 1, DIVISION 1, GROUP D, HAZARDOUS LOCATION CLASSIFICATION.
2. NON-FUSED PUMP NEMA-4X, SS DISCONNECT, 600 V, 400 A, 3-POLE, MOUNTED ON UNI-STRUT RIGIDLY ANCHORED ON FLOOR.
3. MOUNT SWITCH ACCESSIBLE UPON ENTERING HATCH IN EXPLOSION PROOF ENCLOSURE.
4. PROVIDE PULLBOX FOR TELECOM, SIZE PER NEC.
5. COORDINATE LOCATION WITH MECHANICAL.

AS-BUILT

GRAPHIC SCALE

4 3 2 1 0 4 8

SCALE: 1/4 IN.= 1 FT.

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, # 204
OWINGS MILLS, MD 21117
(P)410.356.1095 (F)410.363.4675

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — 12-12

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: 08-10-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/16/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: RG
DRN: VL/OM
CHK: RDK

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	3/16

POWER AND LIGHTING PLANS
INTERMEDIATE AND LOWER LEVELS

600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

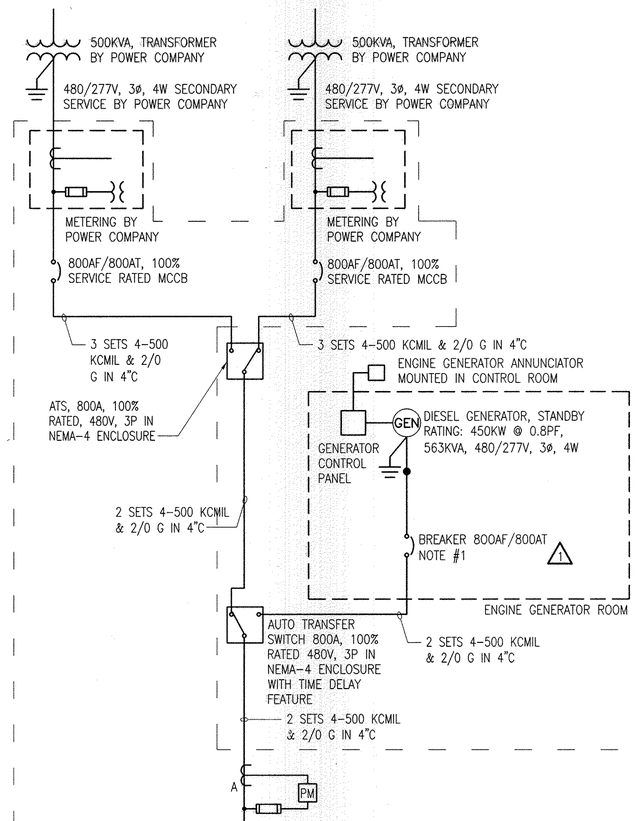
SCALE AS SHOWN

SHEET 53 OF 70

E-4

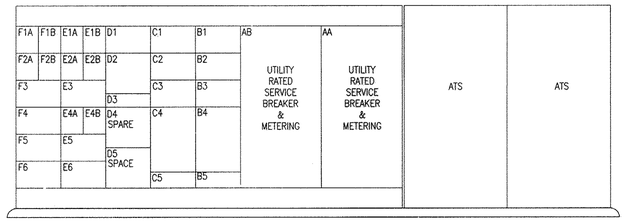
MOTOR CONTROL CENTER SCHEDULE ⚠1

BUCKET NUMBER	NAME PLATE DATA	DEVICE DESCRIPTION	BREAKER FRAME	BREAKER POLE	BREAKER CALIB.	BREAKER KAIC	VA	REMARKS
AA	UTILITY POWER MAIN BREAKER	SERVICE RATED BREAKER FOR UTILITY POWER	800	3	800	65	–	
A1	TVSS AND POWER MONITORING	TVSS, POWER MONITORING	800	3	800	65	–	
B1	MECHANICAL GRINDER MG-1	MCCB	100	3	15	22	6,318	STARTER IN MG PANEL
B2	SPD	MCCB	100	3	60	22	–	
B3	DRY PIT/CONTROL LEVEL SUPPLY FAN SF-2	MCCB COMBINATION STARTER NEMA SIZE 1/FVNR	100	3	15	22	1,330	
B4	WASTEWATER PUMP #1	MCCB	600	3	600	65	251,070	ONE PUMP USED AT ANY TIME
B5	SPACE	–	–	–	–	–	–	
C1	WET WELL SUPPLY FAN SF-1	MCCB COMBINATION STARTER NEMA SIZE 1/FVNR	100	3	15	22	6,318	
C2	CONTROL LEVEL EXHAUST FAN-1	MCCB COMBINATION STARTER NEMA SIZE 1/FVNR	100	3	15	22	1,330	
C3	CONTROL LEVEL EXHAUST FAN-2	MCCB COMBINATION STARTER NEMA SIZE 1/FVNR	100	3	15	22	2,494	
C4	WASTEWATER PUMP #2	MCCB	600	3	600	65	251,070	ONE PUMP USED AT ANY TIME
C5	SPACE	–	–	–	–	–	–	
D1	CHEMICAL ROOM EXHAUST FAN-3	MCCB COMBINATION STARTER NEMA SIZE 1/FVNR	100	3	20	22	914	
D2	PANELBOARD "HG"	MCCB	100	3	60	22	30,000	
D3	HOIST CRANE	MCCB	100	3	25	22	9,145	
D4	SPARE	MCCB	100	3	100	22	–	
D5	SPACE	–	–	–	–	–	–	
E1A	SPARE	MCCB	100	3	20	22	–	
E1B	SPARE	MCCB	100	3	20	22	–	
E2A	EUH CHEMICAL ROOM & CONTROL ROOM EUH-7	MCCB	100	3	15	22	4,000	
E2B	EUH DRY PIT LOWER LEVEL EUH-1	MCCB	100	3	20	22	7,500	
E3	SPARE	MCCB	100	3	20	22	–	
E4A	EUH DRY PIT LOWER LEVEL EUH-2	MCCB	100	3	20	22	7,500	
E4B	ELECTRIC WATER HEATER	MCCB	100	3	20	22	12,000	
E5	SPARE	MCCB	100	3	20	22	–	
E6	SPARE	MCCB	100	3	20	22	–	
F1A	EUH DRY PIT INTERMEDIATE LEVEL EUH-3	MCCB	100	3	20	22	5,000	
F1B	EUH DRY PIT INTERMEDIATE LEVEL EUH-4	MCCB	100	3	20	22	5,000	
F2A	EUH DRY WELL EUH-5	MCCB	100	3	20	22	5,000	
F2B	EUH DRY WELL EUH-6	MCCB	100	3	20	22	5,000	
F3	SPARE	MCCB	100	3	20	22	–	
F4	SPARE	MCCB	100	3	20	22	–	
F5	SPARE	MCCB	100	3	20	22	–	
F6	30KVA, 480-120/208V TRANSFORMER FOR REC, CONTROL POWER SUPPLY & SMALL MOTORS	MCCB	100	3	50	22	9,880	
	TOTAL CONNECTED LOAD = 369,799 CONNECTED AMPS = 445.00						369,799	

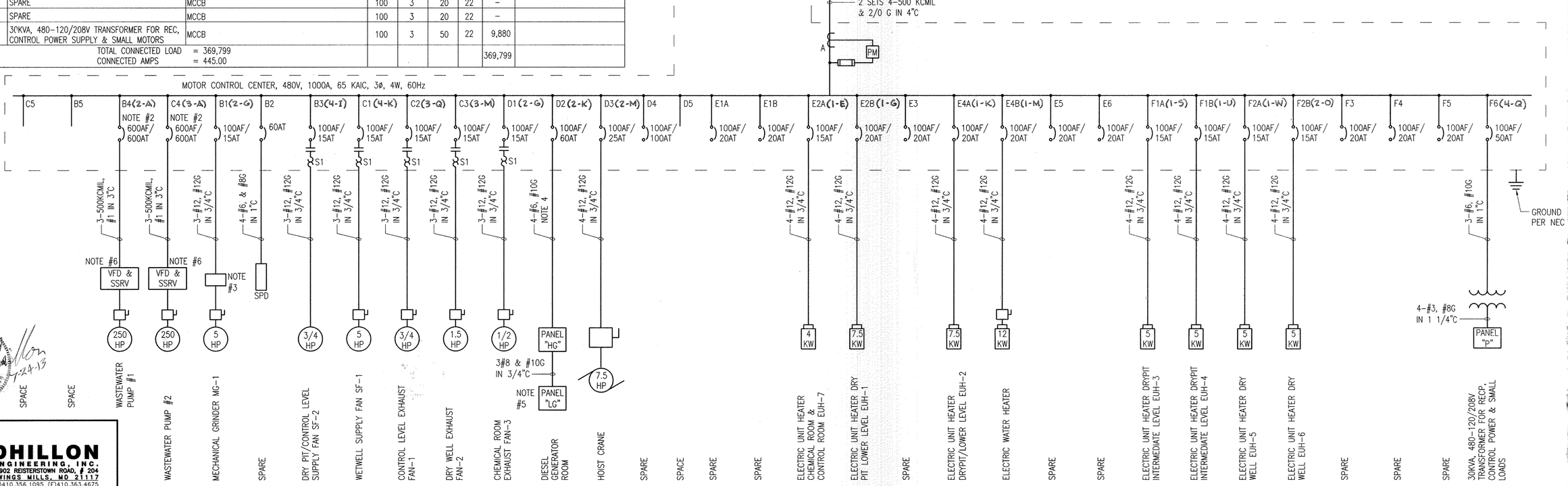


NOTES:

1. PROVIDE GFI ALARM FOR GENERATOR BREAKER.
2. WASTEWATER PUMP BREAKER 600V, 600AF/600AT, ADJUSTABLE OVERCURRENT TRIP FROM 50 TO 100% AND SHORT TIME MAGNETIC TRIP ADJUSTABLE FROM 500% TO 800%, 65 KAIC RATED.
3. GRINDER STARTER PROVIDED BY GRINDER SUPPLIER.
4. FROM MCC TO PULL BOX IN PUMP HOUSE IN 1" CONDUIT AND ONWARD TO 480/277V PANEL IN GENERATOR ROOM VIA DUCTBANK.
5. MINI-POWER CENTER WITH 15KVA, 480VΔ/120/208VY TRANSFORMER AND PANEL "LG". REFER TO E-2 AND E-3 FOR MORE INFORMATION.
6. ⚠1 PROVIDE NEW VFD'S – 460V, 250HP, 302A, 18-PULSE, 3ø, PERFORMANCE MEETING STANDARD IEEE 519 FOR HARMONICS WITH SSRV BYPASS STARTERS IN NEMA-12 ENCLOSURE FOR EACH MOTOR.



1 / E-5 **MOTOR CONTROL CENTER**
SCALE: 3/8" = 1'-0"



2 / E-5 **SINGLE LINE DIAGRAM**
SCALE: NONE

GRAPHIC SCALE
1 0 1 2 3 4 5 6 7 8 9 10
SCALE: 3/8 IN. = 1 FT.

AS-BUILT

STATE OF MARYLAND — ROBERT E. WHITMAN — No. 19320 — REGISTERED PROFESSIONAL ENGINEER — 7/24/13

DHILLON ENGINEERING, INC.
10902 REISTERSTOWN ROAD, # 204
OWINGS MILLS, MD 21117
(P)410.356.1095 (F)410.363.4675

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: 08-10-13.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 8/6/13
CHIEF, BUREAU OF ENGINEERING — DATE 8/1/13
CHIEF, BUREAU OF UTILITIES — DATE 8/5/13
CHIEF, UTILITY DESIGN DIVISION — DATE 7/31/13

WRA
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: RG
DRN: VL/OM
CHK: RDK

BY	NO.	REVISION	DATE
WRA	/2	AS-BUILTS	3/16
	1	DEI BUILDING PERMITS REVISIONS	7/19/13

ELECTRICAL SINGLE LINE DIAGRAM AND MOTOR CONTROL CENTER SCHEDULE

600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 54 OF 62

E-5

PROCESS AND INSTRUMENTATION SYMBOLS

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

EQUIPMENT SYMBOLS

- PUMP
- CHECK VALVE
- GATE VALVE
- REDUCER
- (S) CONTROL VALVE W/ SOLENOID
- CHART RECORDER
- VFD/SOFT STARTER PANEL MOUNTED KEYPAD
- NEW PIPING
- EXISTING PIPING

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
RTD–X (Y)	3/4" (X=1,2) 1" (X=3,4) 2" (X=5 THRU 16)	X–#22 3–WIRE RTD CABLE	(Y) DENOTES ADDITIONAL SPARES
M–X	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	

ABBREVIATIONS

AI = ANALOG INPUT
AO = ANALOG OUTPUT
AUTO = AUTOMATIC
ATS = AUTOMATIC TRANSFER SWITCH
B.O.U. = BUREAU OF UTILITIES
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
MPR = MOTOR PROTECTION RELAY
MOD = MOTOR OPERATED DAMPER
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

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		MOTOR	MIDDLE
N	USER'S CHOICE		INPUT	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

(HS XXX) SELECTOR SWITCH (MAINTAINED CONTACTS)

XXX = H/O/A : HAND–OFF–AUTO
L/L/S : LEAD–LAG–STANDBY

MISCELLANEOUS

(# OR X / I–#)

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

PLAN SYMBOLS

- HOME RUN CONDUIT/CABLE
- (J) JUNCTION BOX
- CONTROL ENCLOSURE
- (T) TELEPHONE NETWORK INTERFACE CONNECTION
- (T V) THERMOSTAT
- (T H) THERMOSTAT, HIGH TEMP.
- (T F) FREEZESTAT

INSTRUMENT, EQUIPMENT AND CONTROL DEVICE EXAMPLES

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

SIGNAL LINE TYPES

- ETHERNET SIGNAL
- ANALOG SIGNAL
- DISCRETE SIGNAL

SIGNAL INTERFACE

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

GENERAL NOTES

1. ALL WORK SHOWN SHALL BE NEW UNLESS OTHERWISE NOTED AS EXISTING.
2. SEE ELECTRICAL DRAWINGS FOR POWER DISTRIBUTION, DISCONNECT REQUIREMENTS, EQUIPMENT LOCATIONS AND FEEDER REQUIREMENTS.
3. MOTOR STARTER ELEMENTARIES SHOWN ARE INTENDED TO DEPICT THE GENERAL CONTROLS REQUIREMENT FOR THAT PARTICULAR PIECE OF EQUIPMENT AND DO NOT NECESSARILY INDICATE ALL THE REQUIREMENTS OF THE MOTOR STARTER. SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR SPECIFIC MOTOR STARTER REQUIREMENTS.
4. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS AND POWER REQUIREMENTS. CONTRACTOR SHALL COORDINATE EQUIPMENT LOCATIONS SUCH AS NOT TO CAUSE INTERFERENCE WITH NEW AND/OR EXISTING EQUIPAMENT.
5. ENCLOSURE DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS. ENCLOSURES SHALL BE SIZED TO ACCOMMODATE EQUIPMENT, CONTROLS AND COMPONENTS AS SHOWN, SPECIFIED AND REQUIRED FOR AN OPERABLE SYSTEM.
6. CIRCUITS SHOWN SHALL BE INSTALLED 3/4" CONDUITS UNLESS INDICATED OTHERWISE.
7. ALL PENETRATIONS THROUGH EXISTING SOLID CONCRETE STRUCTURES WHERE SLEEVES HAVE NOT BEEN PROVIDED SHALL BE CORE DRILLED AND SIZED TO ACCEPT MECHANICAL LINK SEALS. THROUGH NON–FIRE RATED WALLS, CORE HOLES AND SEAL AROUND CONDUIT WITH NON–SHRINK GROUT. THROUGH EXTERIOR WALL, SEAL WATERTIGHT WITH SILICONE MASONRY SEALANT.
8. ALL DISCRETE OUTPUTS FROM THE PUMP CONTROLLERS SHALL BE PROVIDED WITH INTERPOSING RELAYS.

ELEMENTARY WIRING SYMBOLS

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

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: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/4/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 – 235 – 3450

STATE OF MARYLAND — PUBLIC WILLIAM GRAY — 25378 — REGISTERED PROFESSIONAL ENGINEER — 9/25/12

DES: GAH
DRN: GAH
CHK: PWG

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

AS-BUILT

GENERAL NOTES, ABBREVIATIONS AND LEGEND

600' SCALE MAP NO. 30 — BLOCK NO. 10

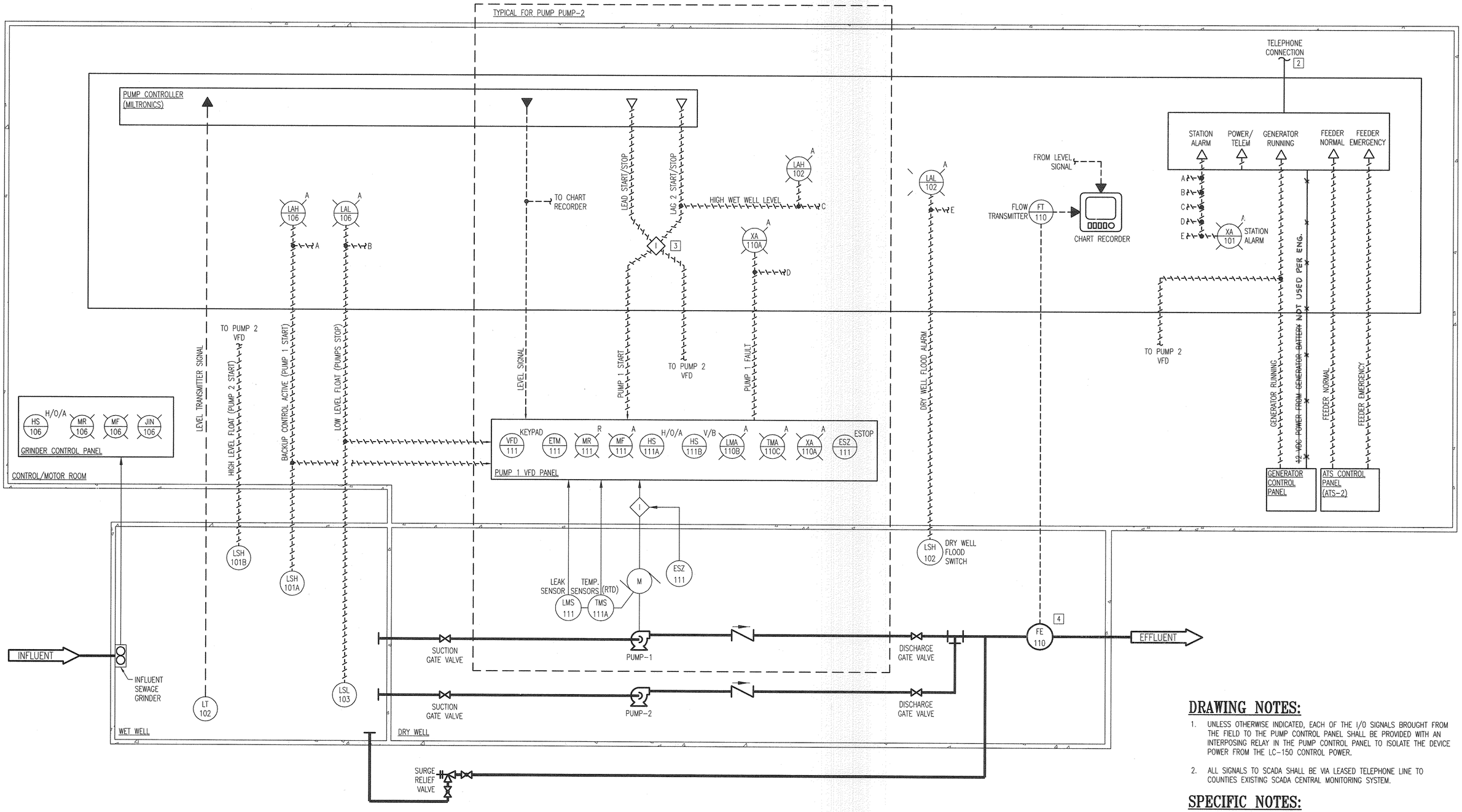
NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S–6189
CONTRACT NO. 20–4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 55 OF 70

I–1

H:\13428–2011\CADD\13428010–01.dwg
Sep 14, 2012 – 8:23am



DRAWING 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.

SPECIFIC NOTES:

[1] EQUIPMENT LOCATED IN THE ELECTRICAL CONTROL CABINET. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL CONTROL CABINET LAYOUT.

[2] CONTRACTOR TO PROVIDE LEASED TELEPHONE LINE IN ACCORDANCE WITH EXISTING BRIDGED CONNECTIONS. COORDINATE WITH VERIZON AND B.O.U. FOR LINE REQUIREMENTS.

[3] HARDWIRED ALTERNATING RELAY FOR PUMP ALTERNATION CONTROL.

[4] FLOW METER LOCATED ON INTERMEDIATE LEVEL OF PUMP STATION.

AS-BUILT

I-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. 25378, EXPIRATION DATE: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — CRAIG WILLIAM GRAY — ENGINEER — 9/14/2012

DES: GAH	WRA	1	AS-BUILTS	2/16
DRN: GAH				
CHK: PWG				
	BY	NO.	REVISION	DATE

P&ID - PUMPING STATION

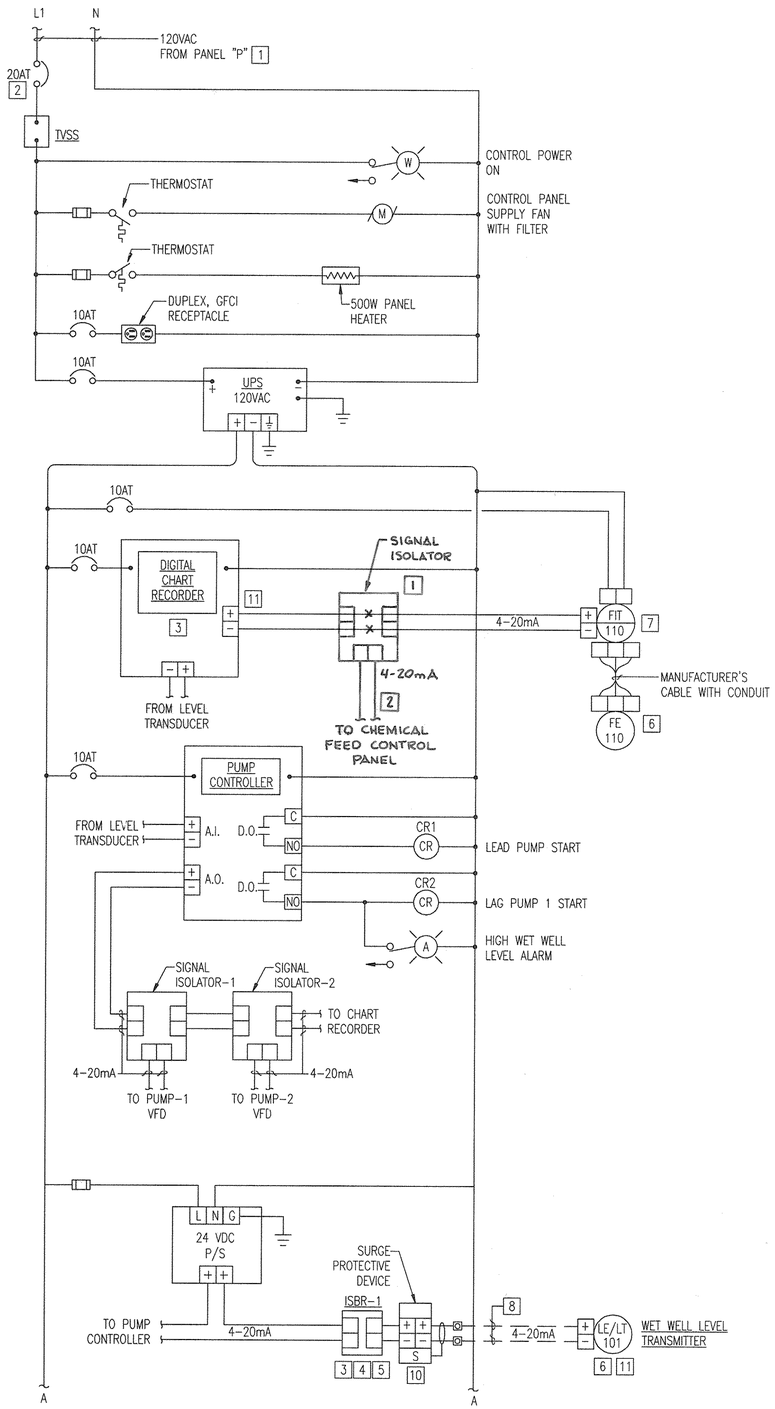
600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

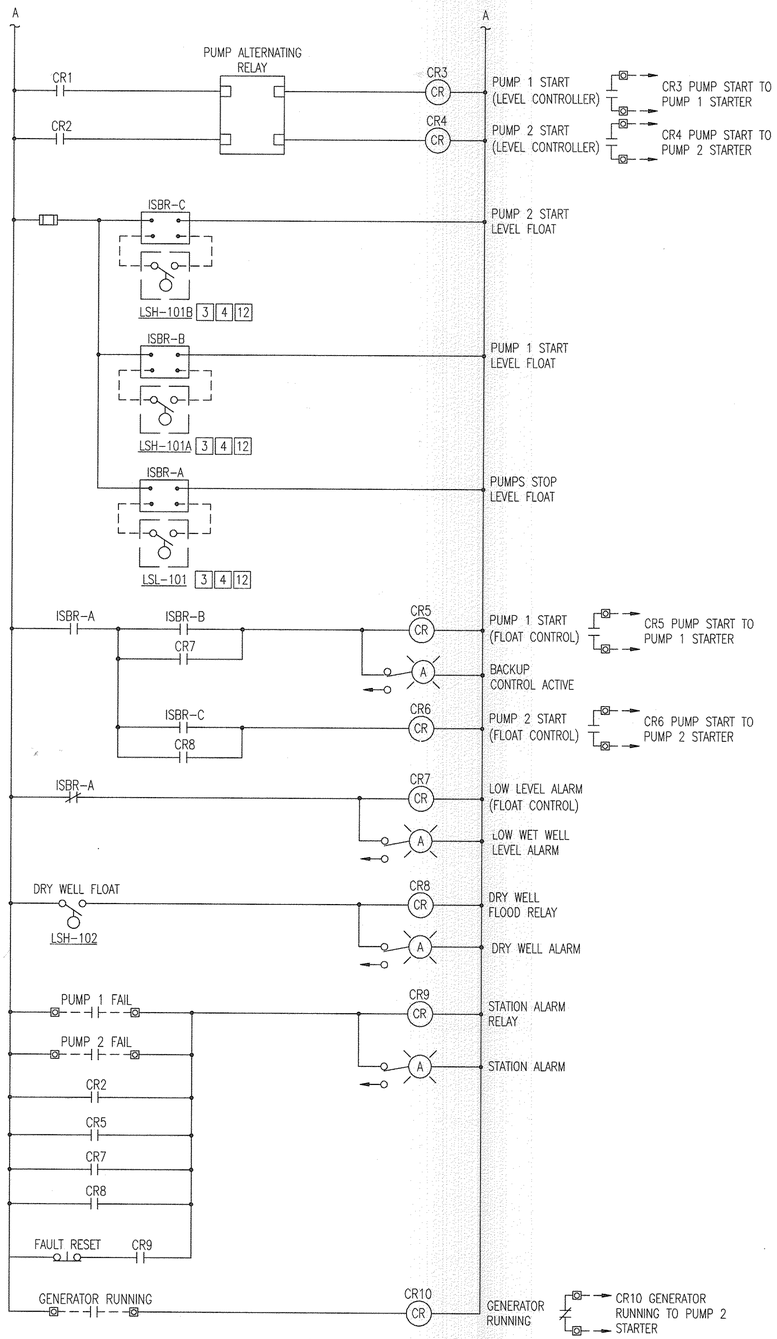
SCALE AS SHOWN

SHEET 56 OF 70

R:\13428-001\CADD\13428015-02.dwg
Sep 14, 2012 - 8:23am



1 / I-3 PUMP CONTROL PANEL ELEMENTARY
NOT TO SCALE

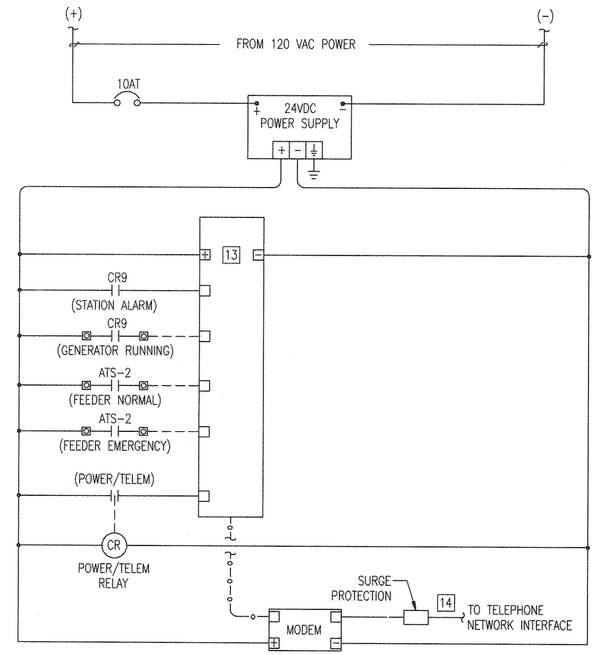


1 / I-3 PUMP CONTROL PANEL ELEMENTARY
NOT TO SCALE

SPECIFIC NOTES:

1. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC PANELBOARD CIRCUITS.
2. MOUNT CIRCUIT BREAKER INSIDE PCP. LABEL WITH CIRCUIT NUMBER.
3. ALL INTRINSICALLY SAFE BARRIER RELAYS SHALL BE MOUNTED IN SAME LOCATION WITHIN PUMP STATION CONTROL PANEL, AND SHALL BE PHYSICALLY SEPARATED BY METAL BARRIER FROM CONTROL PANEL COMPONENTS. PROVIDE PERMANENT NAMEPLATE IN ACCORDANCE WITH UL-698A AT LOCATION INDICATING:

   "INTRINSICALLY SAFE RELAYS AND CIRCUITRY".
4. INTRINSICALLY SAFE WIRING CIRCUITS SHALL ENTER CONTROL PANEL AT SAME LOCATION, SHALL BE PHYSICALLY SEPARATED FROM ALL OTHER PANEL WIRING BY A MINIMUM OF 2 INCHES, AND SHALL BE INSTALLED ACCORDANCE WITH APPLICABLE NEC AND UL-698A REQUIREMENTS.
5. INTRINSICALLY SAFE BARRIER RELAYS FOR LEVEL TRANSDUCER CIRCUITS SHALL BE BY SAME MANUFACTURER AS TRANSDUCERS AND COMPATIBLE WITH THE TRANSDUCERS. ISBR SHALL PROVIDE UL LISTED INTRINSICALLY SAFE CIRCUIT AND BARRIER FOR WIRING FROM TRANSMITTER LOCATED IN CLASS I, DIVISION 1 GROUP D, HAZARDOUS LOCATION. PROVIDE GROUNDING OF ISBRS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
6. EQUIPMENT LOCATED REMOTE FROM PCP.
7. FIT-110 ANALOG FLOW SIGNAL DOES NOT REQUIRE LOOP POWER FROM DIGITAL RECORDER.
8. MANUFACTURER'S CABLE. PROVIDE VAPOR TIGHT CABLE SEALS AT POINT WHERE INDIVIDUAL CONDUCTORS ARE SEPARATED FROM CABLE SHEATH.
9. LOOP POWER FOR WET WELL LEVEL TRANSMITTER SHALL BE OBTAINED FROM THE 24VDC POWER BUS.
10. PROVIDE LIGHTNING/SURGE PROTECTION INTEGRAL WITH TRANSDUCER.
11. LEVEL TRANSDUCER LOCATED IN WET WELL. WET WELL CLASSIFIED AS CLASS I, DIVISION 1 GROUP D, HAZARDOUS LOCATION.
12. FLOAT SWITCHES ARE LOCATED IN THE WET WELL. WET WELLS ARE CLASSIFIED AS CLASS 1, DIVISION 1, GROUP D, HAZARDOUS LOCATIONS.
13. SCADA I/O MODULE TO BE LOCATED IN THE PUMP CONTROL PANEL.
14. CONTRACTOR TO PROVIDE LEASED TELEPHONE LINE IN ACCORDANCE WITH EXISTING BRIDGED CONNECTIONS. COORDINATE WITH VERIZON AND B.O.U. FOR LINE REQUIREMENTS.



2 / I-3 SCADA I/O MODULE ELEMENTARY
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. 25378, EXPIRATION DATE: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12 RJD

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — PADRAIC WILLIAM O'REILLY — No. 25378 — REGISTERED PROFESSIONAL ENGINEER
9/14/2012

DES: GAH
DRN: GAH
CHK: PWG

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

PUMP CONTORL PANEL ELEMENTARY

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

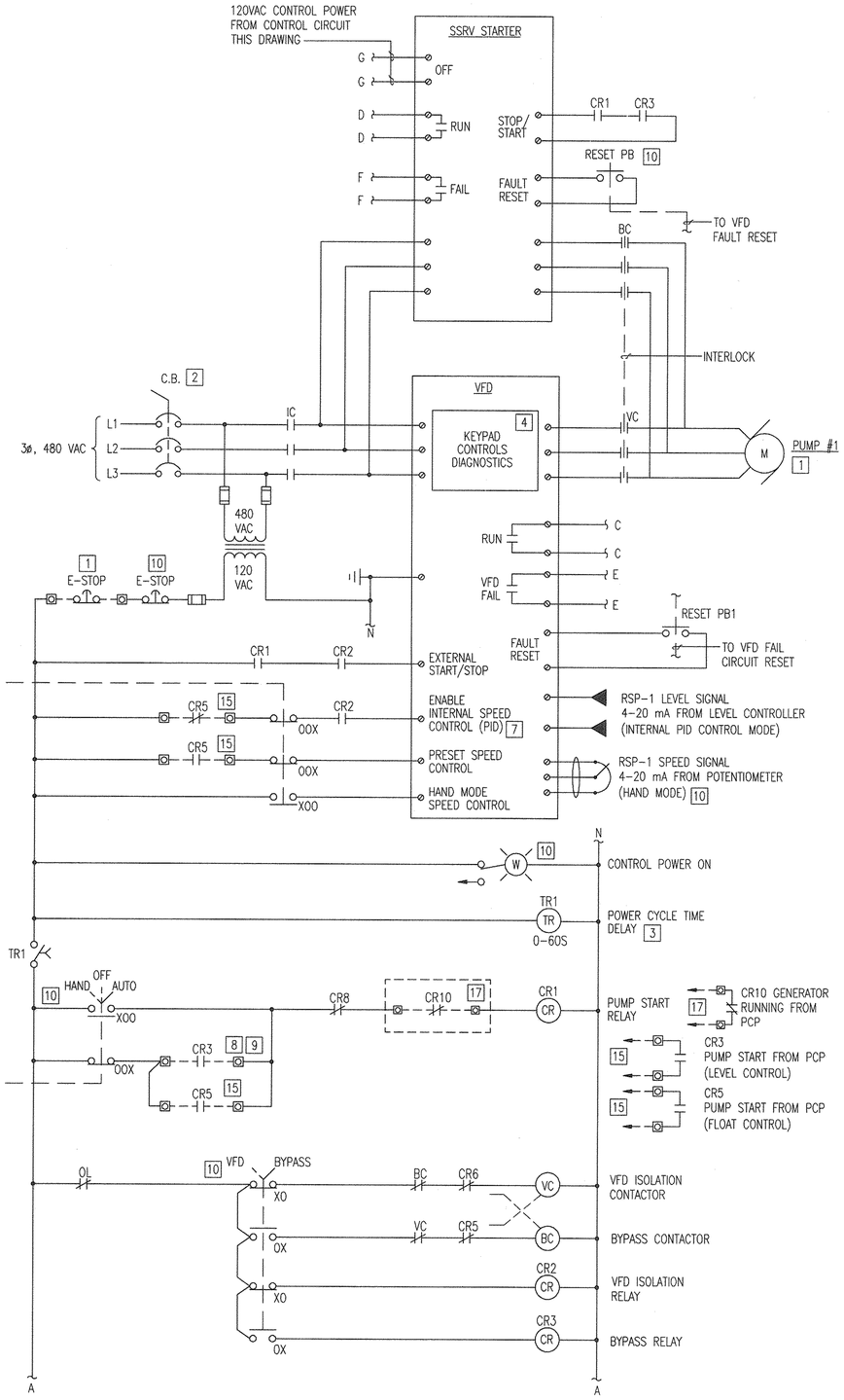
SCALE: AS SHOWN

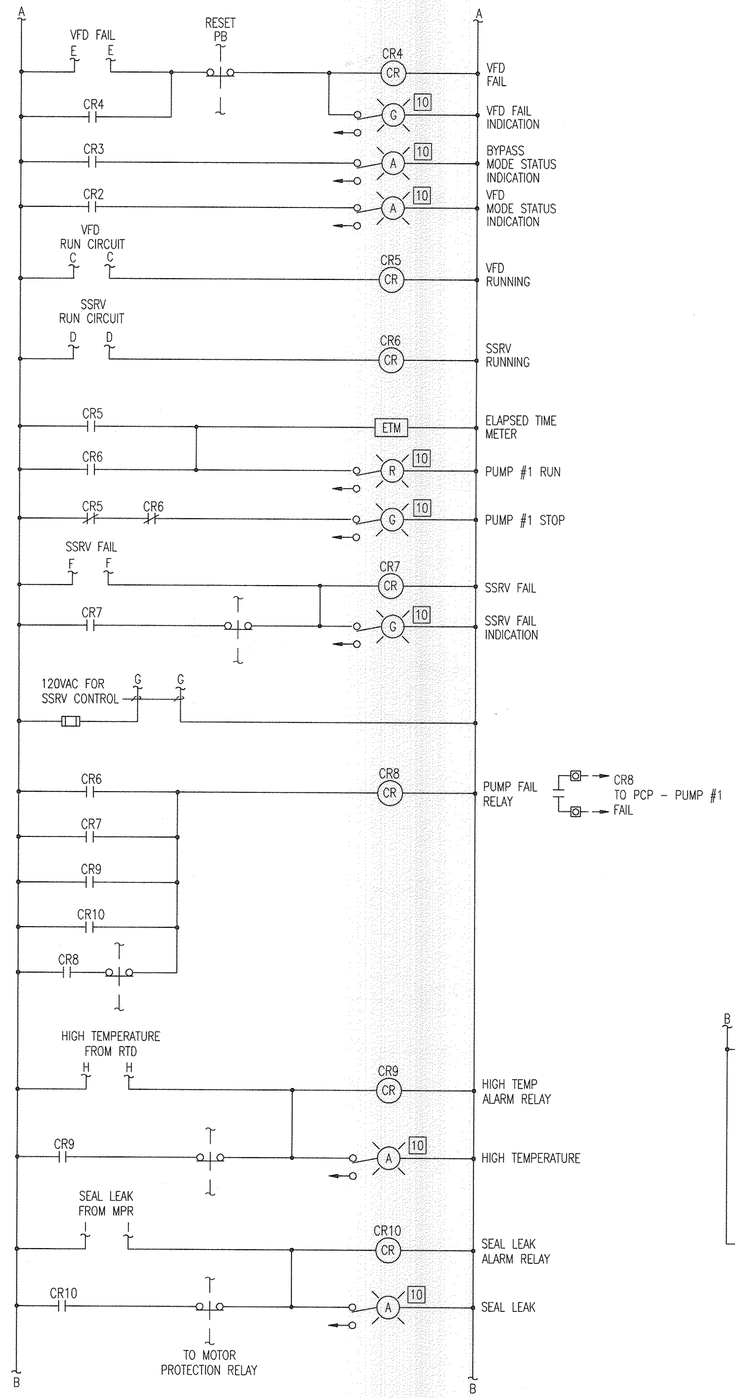
SHEET 57 OF 70

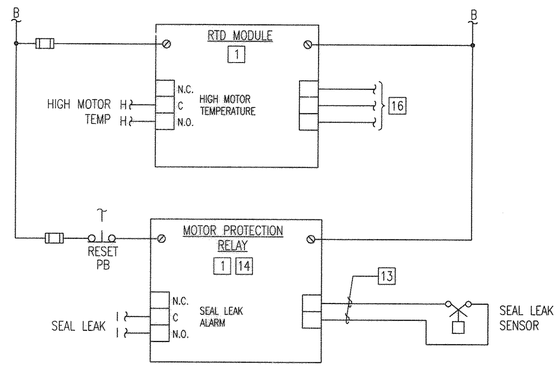
AS-BUILT

I-3

N:\13428-001\CADD\13428015-03.dwg
Sep 14, 2012 - 8:23am







SPECIFIC NOTES

1. EQUIPMENT LOCATED REMOTE FROM VFD ENCLOSURE.
2. MAIN CIRCUIT BREAKER FOR VFD ENCLOSURE EQUIPMENT.
3. SET AT 10 SECOND DELAY FOR PUMP #1, 20 SECOND DELAY FOR PUMP #2.
4. DOOR MOUNTED HMI.
5. MOTOR PROTECTION RELAY SHALL BE FURNISHED BY PUMP MANUFACTURER, AND SHALL BE COMPATIBLE WITH PUMP MOTOR PROTECTIVE DEVICES. PUMP MANUFACTURER SHALL FURNISH RELAY TO VFD MANUFACTURER FOR INSTALLATION IN VFD ENCLOSURE.
6. PROVIDE 24 VDC CONTROL RELAYS FOR INTERFACING WITH MOTOR PROTECTION RELAY AND WIRING. RELAYS SHALL BE PROVIDED WITH CONTACTS RATED MINIMUM OF 2 AMPERES AT 120 VAC FOR VFD CONTROL CIRCUIT.
7. AUTO MODE-INTERNAL SPEED CONTROL ENABLED. SPEED CONTROL BASED ON LEVEL SIGNAL FROM LEVEL CONTROLLER.
8. ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
9. 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.
10. EQUIPMENT MOUNTED ON THE FACE OF THE VFD PANEL.
11. COORDINATE WITH PROTECTION RELAY SUPPLIER FOR POWER SUPPLY REQUIREMENTS.
12. MOTOR SENSOR FURNISHED WITH AND LOCATED AT MOTOR. SENSORS ARE FACTORY CONNECTED TO CONTROL CABLE WITH PUMP.
13. PROVIDE SHIELDED CABLE FOR CONNECTIONS AT PROTECTION RELAY. CONNECT SHIELDS ON CONDUCTORS PER MANUFACTURER'S INSTRUCTION.
14. CONTRACTOR SHALL FURNISH MOTOR FAULT, MONITORING AND ALARM SYSTEM MEETING THE DESIGN INTENT INDICATED HEREIN AND AS SPECIFIED FOR COMPATIBILITY WITH THE SUPPLIED MOTOR.
15. TYPICAL FOR VFD #1 ONLY. USE RELAY "CR8" FOR VFD #2 ONLY.
16. RTD SENSOR INPUTS FROM PUMP/MOTOR. NOT ALL INPUTS ARE SHOWN. PROVIDE TYPE AND QUANTITY AS REQUIRED BY THE SPECIFICATIONS.
17. TYPICAL FOR VFD #2 ONLY. THE GENERATOR IS SIZED TO OPERATE (1) PUMP ONLY. CR10 CONTACT WILL PREVENT PUMP #2 FROM RUNNING WHEN THE GENERATOR IS IN OPERATION. SEE ELECTRICAL DRAWINGS AND SPECS FOR MORE DETAILS.

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: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — WILLIAM P. WHITMAN — No. 25378 — PROFESSIONAL ENGINEER
9/19/2012

DES: GAH
DRN: GAH
CHK: PWG

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

RAW SEWAGE PUMP
VFD ELEMENTARY

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 58 OF 70

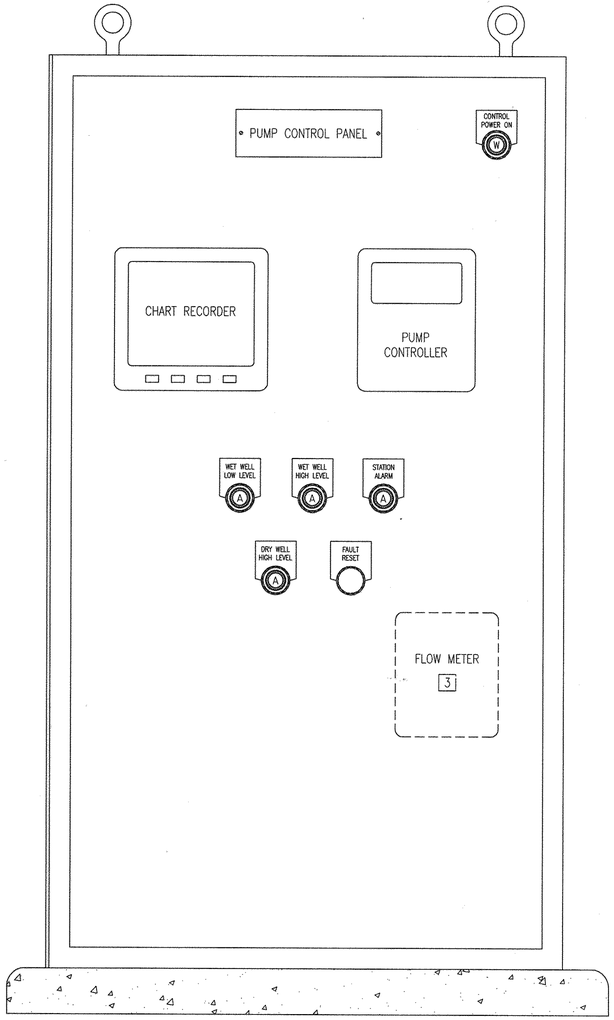
AS-BUILT

I-4

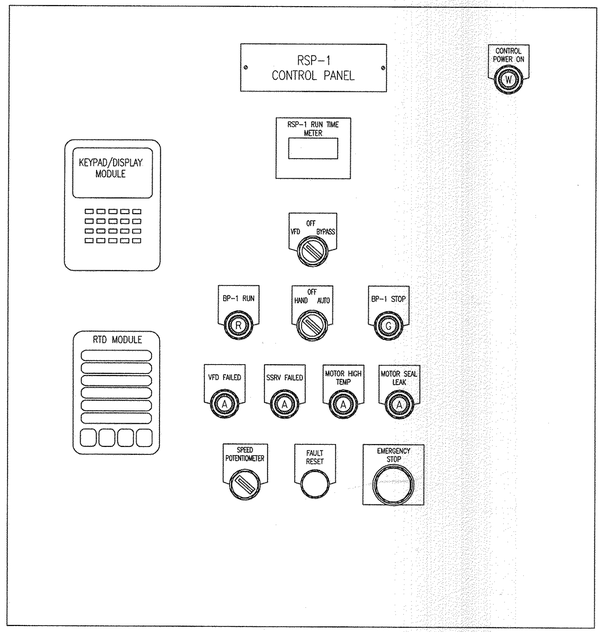
N:\13428-001\CADD\13428001S-04.dwg
Sep 14, 2012 - 8:23am

SPECIFIC NOTES

1. EQUIPMENT LOCATED REMOTE FROM STARTER.
2. REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC PANELBOARD CIRCUITS.
3. FLOW METER LOCATED INSIDE PUMP CONTROL PANEL



1 / I-5 **PUMP CONTROL PANEL ELEVATION**
NOT TO SCALE



2 / I-5 **VFD-1 PARTIAL PANEL ELEVATION**
NOT TO SCALE (TYPICAL FOR RSP-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. 25318, EXPIRATION DATE: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES: GAH
DRN: GAH
CHK: PWG

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

PANEL ELEVATIONS

600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

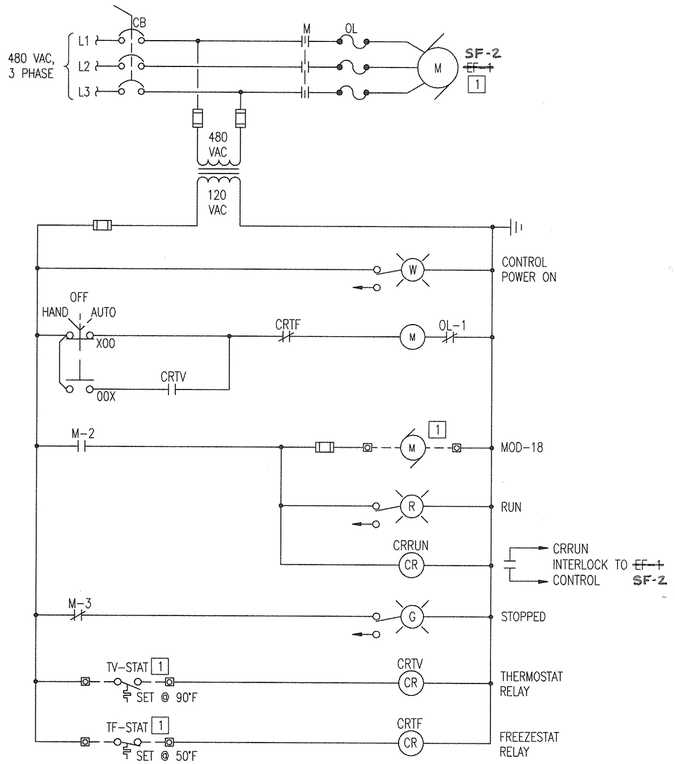
SCALE AS SHOWN

SHEET 59 OF 70

AS-BUILT

I-5

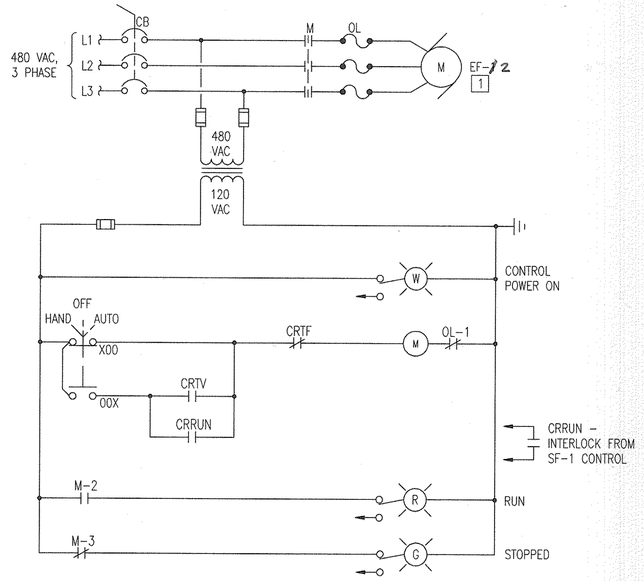
M:\13428-001\CADD\13428001I5-105.dwg
Sep 14, 2012 - 8:23am



CONTROL ROOM SUPPLY FAN SF-1 2 MOTOR STARTER CONTROL ELEMENTARY

3 / I-6

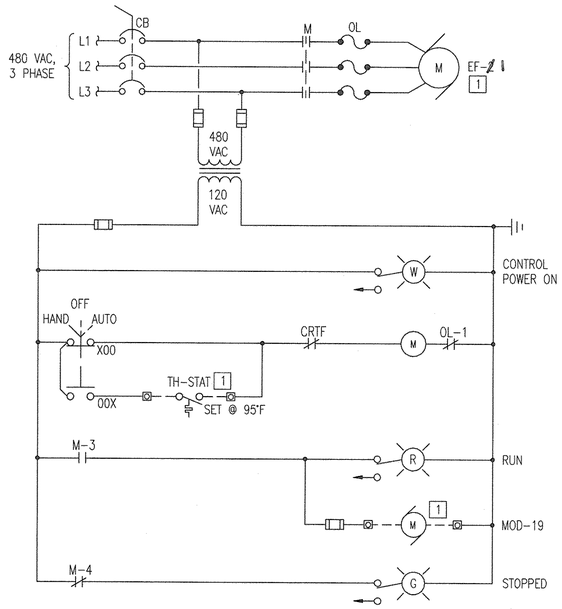
NOT TO SCALE



CONTROL ROOM EXHAUST FAN EF-1 2 MOTOR STARTER CONTROL ELEMENTARY

1 / I-6

NOT TO SCALE



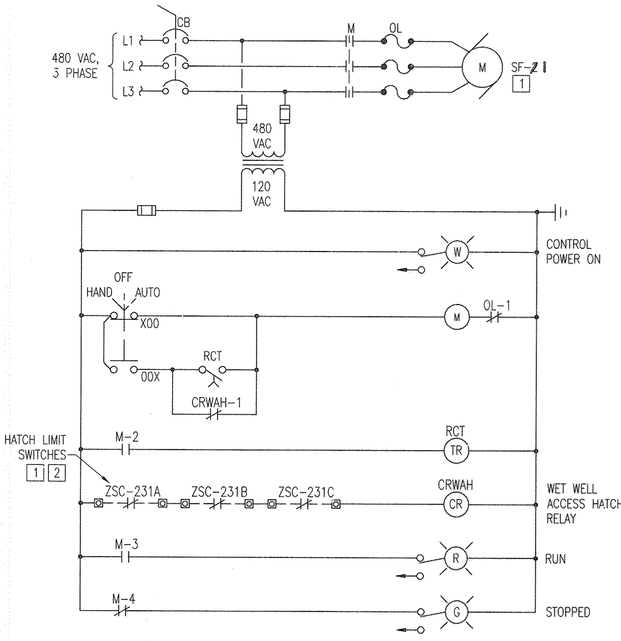
CONTROL ROOM EXHAUST FAN EF-2 1 MOTOR STARTER CONTROL ELEMENTARY

2 / I-6

NOT TO SCALE

SPECIFIC NOTES

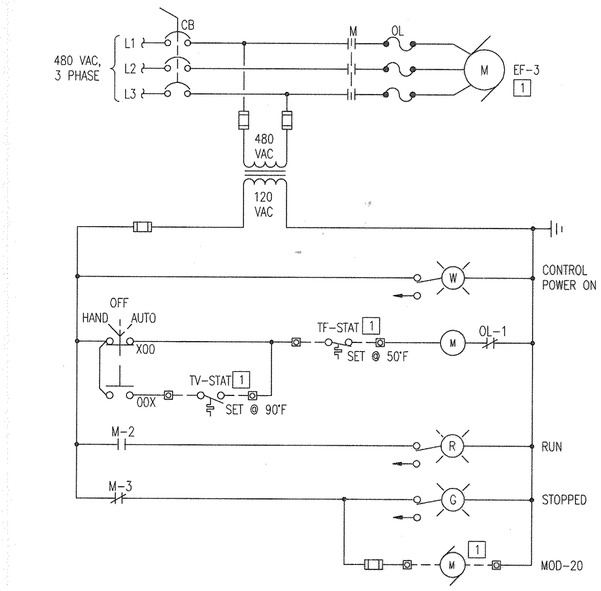
1. EQUIPMENT LOCATED REMOTE FROM STARTER.
2. SWITCHES SHOWN WITH HATCHES IN THE CLOSED POSITION.



WET WELL SUPPLY FAN SF-2 1 MOTOR STARTER CONTROL ELEMENTARY

4 / I-6

NOT TO SCALE



CHEMICAL ROOM EXHAUST FAN EF-3 MOTOR STARTER CONTROL ELEMENTARY

5 / I-6

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. 25378, EXPIRATION DATE: 7/14/2014.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12

CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12

CHIEF, BUREAU OF UTILITIES — DATE 9/24/12

CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — PAUL W. NEWCOMB — 9/13/2012

DES: GAH	WRA	1	AS-BUILTS	2/16
DRN: GAH				
CHK: PWG				
■	BY	NO.	REVISION	DATE

VENTILATION FAN
ELEMENTARY DIAGRAMS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 60 OF 70

AS-BUILT

I-6

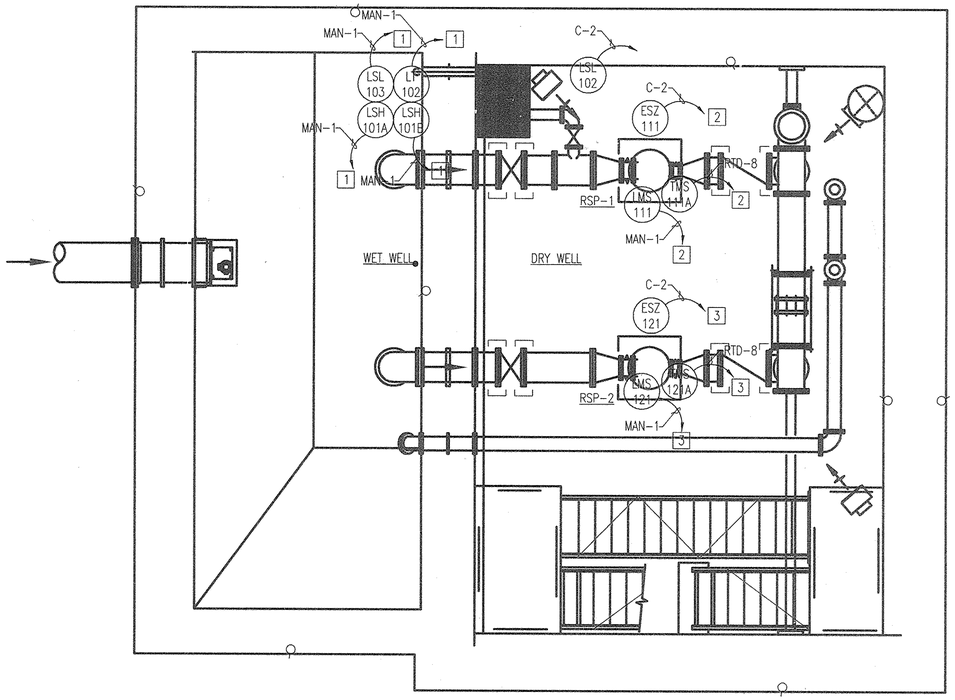
N:\13428-001\CADD\13428015-06.dwg
Sep 14, 2012 - 8:23am

DRAWING NOTES

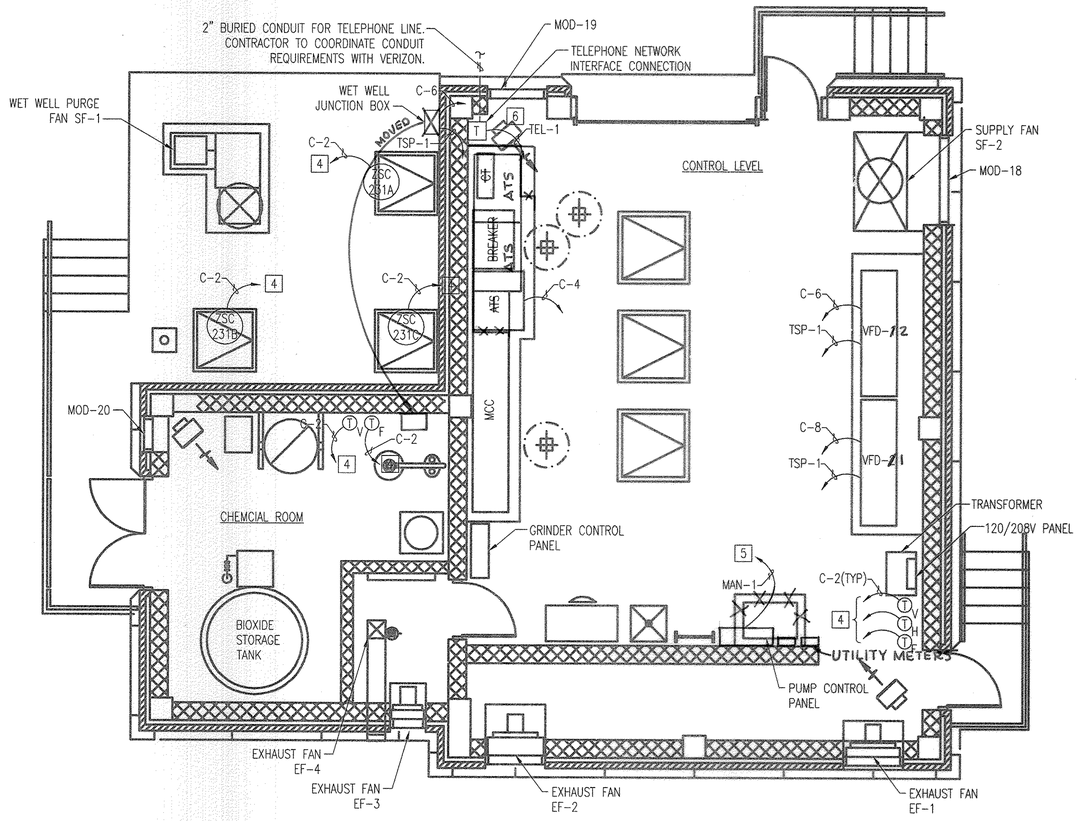
1. ALL CONDUITS SHALL BE ROUTED TO THE PUMP CONTROL PANEL UNLESS OTHERWISE NOTED.
2. PROVIDE LABELS ON CONDUIT INDICATING "INTRINSICALLY SAFE CIRCUITS".
3. PROVIDE CABLE SEALS WHERE CABLE ENTERS ENCLOSURE IN ACCORDANCE WITH NEC REQUIREMENTS FOR HAZARDOUS LOCATIONS.
4. PROVIDE CONDUIT SEAL OFF FITTINGS SUITABLE FOR CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATIONS WHERE CONDUITS ENTER OF LEAVE WET WELL.
5. FLOAT SWITCH CABLES SHALL NOT BE INSTALLED IN WET WELL UNLESS CONDUIT SEAL OFF FITTINGS ARE INSTALLED ER REQUIREMENTS OF NEC FOR CLASS I, GROUP D, DIVISION 1 HAZARDOUS LOCATIONS.

SPECIFIC NOTES

1. TO WET WELL JUNCTION BOX.
2. TO PUMP 1 VFD CONTROL PANEL
3. TO PUMP 2 VFD CONTROL PANEL.
4. TO MOTOR CONTROL CENTER (MCC)
5. TO FLOW METER LOCATED ON INTERMEDIATE LEVEL. SEE M-DRAWINGS FOR FLOW METER LOCATION.
6. TELEPHONE NETWORK INTERFACE CONNECTION TO BE SUPPLIED AND INSTALLED BY VERIZON.



1 / I-7 **INSTRUMENTATION PLAN - LOWER LEVEL**
SCALE: 1/4" = 1'-0"



2 / I-7 **INSTRUMENTATION PLAN - GRADE LEVEL**
SCALE: 1/4" = 1'-0"

AS-BUILT

0 2' 4' 8'
SCALE: 1/4" = 1'-0"

I-7

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. 25878, EXPIRATION DATE: 7/14/2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/24/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — PAMELA WILLIAMS — 21677 — REGISTERED PROFESSIONAL ENGINEER
9/19/2012

DES: GAH	WRA	/1	AS-BUILTS 2/16
DRN: GAH			
CHK: PWG			
■	BY	NO.	REVISION DATE

INSTRUMENTATION PLAN - LOWER & GRADE LEVELS

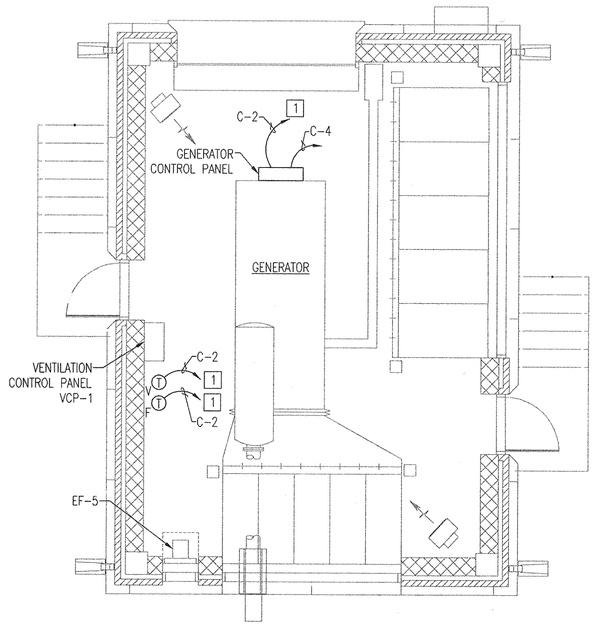
600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

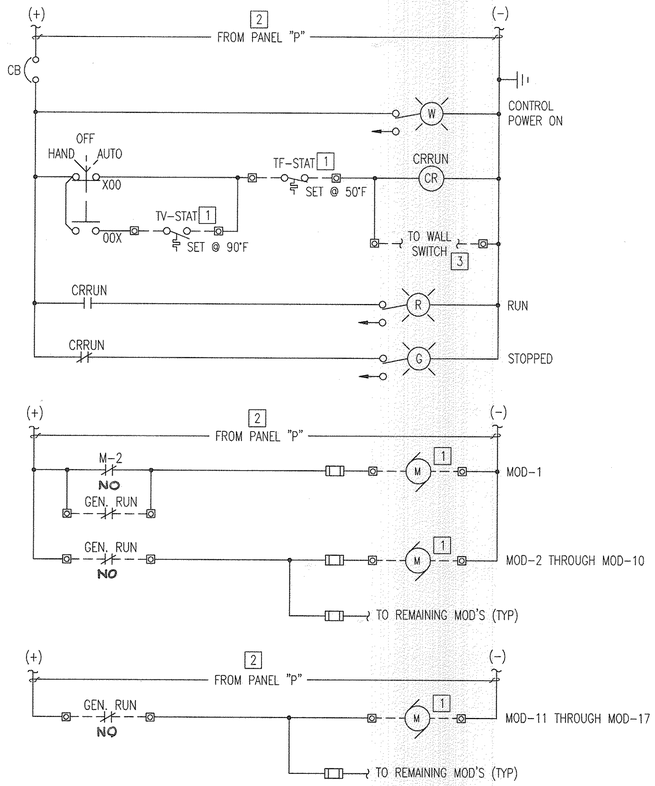
SCALE AS SHOWN

SHEET 61 OF 70

W:\13428-001\CADD\13428001I5-07.dwg
Sep 14, 2012 - 2:03pm



1 / I-8 **INSTRUMENTATION PLAN – GENERATOR ROOM**
SCALE: 1/4" = 1'-0"



3 / I-8 **GENERATOR ROOM EXHAUST FAN EF-5 MOTOR STARTER CONTROL ELEMENTARY**
NOT TO SCALE

DRAWING NOTES

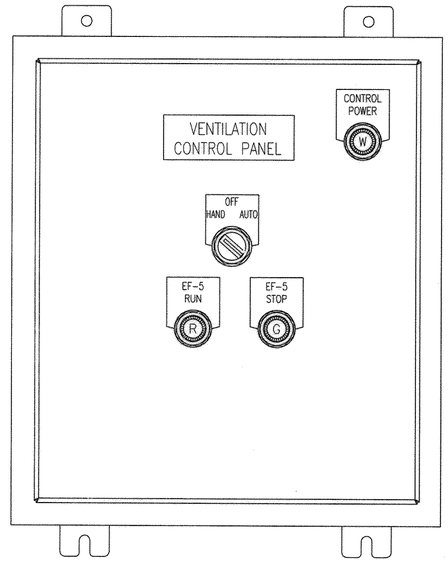
1. ALL CONDUITS SHALL BE ROUTED TO THE PUMP CONTROL PANEL UNLESS OTHERWISE NOTED.

SPECIFIC NOTES

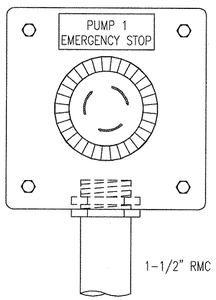
1 TO VENTILATION CONTROL PANEL.

2 REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC PANELBOARD CIRCUITS.

3 REFER TO ELECTRICAL DRAWINGS FOR LOCATION AND DETAILS.



4 / I-8 **VENTILATION CONTROL PANEL (VCP-1) ELEVATION**
NOT TO SCALE



2 / I-8 **PUMP E-STOP PEDASTAL**
NOT TO SCALE

SCALE: 1/4" = 1'-0"
AS-BUILT

I-8

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. 25376, EXPIRATION DATE: 7/14/2014

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 10/15/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

STATE OF MARYLAND — CRAIG WILLIAM LUNDBERG — 21677 — REGISTERED PROFESSIONAL ENGINEER
9/19/2012

DES: GAH
DRN: GAH
CHK: PWG

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

INSTRUMENTATION PLAN AND MISC. DETAILS

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 62 OF 70

NORTH LAUREL WASTEWATER PUMPING STATION

SITE DEVELOPMENT PLAN

CONTRACT NO. 20-4680

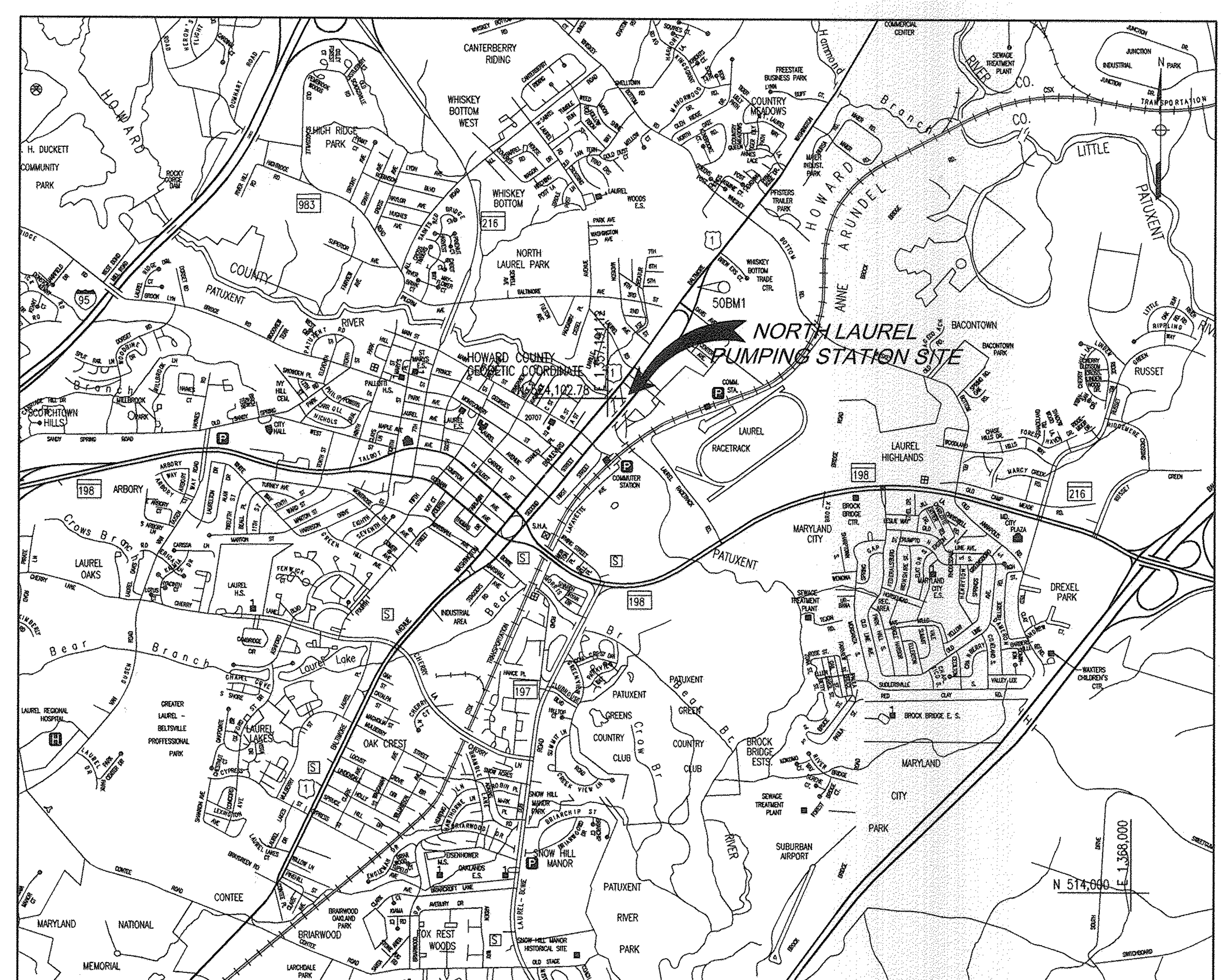
HOWARD COUNTY, MARYLAND

CAPITAL PROJECT NO. S-6189

DPZ #SDP-12-041

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY SPECIFICATIONS AND DETAILS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS (410) 313-6125 AND BUREAU OF ENVIRONMENTAL SERVICES AT (410) 313-6444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE SUBJECT PROPERTY IS ZONED CAC-CLI PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING REGULATION AMENDMENTS EFFECTIVE JULY 28, 2006.
4. NO GRADING, REMOVAL OF VEGETATIVE COVER OF TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
5. WAIVER PETITION, WP-11-081, TO WAIVER OF SECTION 16.1205(a)(7) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, WHICH REQUIRES THE RETENTION OF SPECIMEN TREES (30 INCH DIAMETER AT BREAST HEIGHT OR GREATER) THAT ARE NOT CONTAINED WITHIN OTHER PRIORITY FOREST RETENTION AREAS, WAS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING ON NOVEMBER 10, 2011 SUBJECT TO THE FOLLOWING CONDITIONS (1) THE PERIMETER LANDSCAPING OBLIGATION MUST BE FULFILLED UNDER THE SITE DEVELOPMENT PLAN PROCESS, AND (2) APPROVAL OF THIS WAIVER IS FOR THE REMOVAL OF TWO SPECIMEN TREES AS SHOWN ON THE WAIVER PETITION EXHIBIT/FOREST STAND DELINEATION PLAN. NO OTHER SPECIMEN TREES MAY BE REMOVED.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM: HORIZONTAL NAD'83/91 VERTICAL NAVD'88.
7. TOPOGRAPHICAL FIELD SURVEYS OF THE SITE WERE PERFORMED BY WHITMAN REQUARDT AND ASSOCIATES LLP (WRA) IN DECEMBER 2006. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY HOWARD COUNTY RECORDS AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION.
8. APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER WELL IN ADVANCE OF CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
9. STORMWATER MANAGEMENT FOR THE PROPOSED SITE DEVELOPMENT WILL BE ADDRESSED BY NON-STRUCTURAL STORMWATER MANAGEMENT CREDITS AND VIA A MICRO-BIORETENTION FACILITY TO BE MAINTAINED BY HOWARD COUNTY RECREATION AND PARKS.
10. THE CONTRACTOR SHALL PERMANENTLY STABILIZE AND SEED ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
11. ALL DRIVEWAYS ARE MAINTAINED BY THE COUNTY.
12. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT AS GOVERNMENT FACILITIES ARE EXEMPT TO APFO IN GENERAL PER DESIGN MANUAL VOLUME III; SECTION 4.7.
13. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER, UNLESS NOTED OTHERWISE.
14. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGES. ANY DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
16. DAMAGE TO EXISTING SIGNS. GUARDRAILS AND OTHER MINOR SITE FEATURES IN THE LIMIT OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
17. OTHER DPZ FILE REFERENCES RELATED TO THIS PROJECT: ECP-11-031, WP-11-081, S-10-004, P-11-004.
18. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
19. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
20. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
21. WATER IS PUBLIC, THE DRAINAGE AREA IS LITTLE PATUXENT.
22. SEWER IS PUBLIC, CONTRACTS 29-S, 49-S IN LITTLE PATUXENT DRAINAGE AREA.
23. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY GREENMAN-PEDERSEN, INC., DATED JULY 2004, AND WAS APPROVED ON JUNE 20, 2011.



ADC MAP 5169
GRID F3 & F4

VICINITY MAP
SCALE : 1" = 2000'

SEWER CODE: 7103000
FOR COUNTY USE ONLY

DIRECTIONS: TAKE ROUTE 32 EAST FROM I-95, AND TRAVEL SOUTH ON ROUTE 1 TO RACE TRACK ROAD

NOTE: HORIZONTAL AND VERTICAL INFORMATION SHOWN HEREON BASED ON HOWARD COUNTY GEODETIC CONTROLS AS ESTABLISHED BY A GPS SURVEY PREFORMED 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 #50EM2	524,102.78	1,357,191.12	141.36
HOWARD COUNTY #0002	544,836.52	1,340,825.33	444.385
BENCH MARK #50BM1	(TRIANGULATED)	(TRIANGULATED)	181.923

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA	0.7 AC.
LIMIT OF DISTURBANCE (LOD)	0.9 AC.
AREA OF PLAN SUBMISSION	0.7 AC.
WETLANDS	0 AC.
WETLAND BUFFER	0 AC.
FOREST	0 AC.
SLOPES 15% TO <25%	0.03 AC.
SLOPES 25%>	0.08 AC.
PROPOSED SITE USE	PUMPING STATION
PROPOSED IMPERVIOUS AREA	0.2 AC.
FLOOD PLAIN AND BUFFER	0.9 AC.
GREEN AREA	0 AC.
ERODIBLE SOILS	0 AC.
PRESENT ZONING	CAC-CLI
APPLICABLE DPZ REFERENCES	ECP-11-031, WP-11-081
STREAMS AND BUFFERS	0.11 AC.

DRAWING/SHEET INDEX

DWG.	SHEET	DESCRIPTION
SDP-1	63	COVER SHEET
SDP-2	64	EXISTING CONDITIONS PLAN
SDP-3	65	DRAINAGE AREA PLAN
SDP-4	66	SITE DEVELOPMENT PLAN
SDP-5	67	SEDIMENT AND EROSION CONTROL PLAN
SDP-6	68	SEDIMENT AND EROSION CONTROL NOTES AND DETAIL
SDP-7	69	SEDIMENT AND EROSION CONTROL NOTES
SDP-8	70	SEDIMENT AND EROSION CONTROL DETAILS

GENERAL NOTES CONT.

24. THE WETLAND STUDY FOR THIS PROJECT WAS PREPARED BY WR&A IN AUGUST 2010. THERE ARE NO WETLANDS ON THIS SITE.
25. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
26. THE ENTIRE SITE IS WITHIN THE LIMITS OF THE FLOODPLAIN. IN ACCORDANCE WITH SECTION 16.115(c)(2) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE DEPARTMENT OF PLANNING AND ZONING, UPON THE ADVISE OF THE DEPARTMENT OF PUBLIC WORKS, AUTHORIZES THE CLEARING, EXCAVATING, FILLING, ALTERING DRAINAGE, OR IMPERVIOUS PAVING ON LAND LOCATED WITHIN THE FLOODPLAIN. ANY PROPOSED CONSTRUCTION OF A STRUCTURE LOCATED WITHIN A FLOODPLAIN SHALL BE SUBJECT TO THE REQUIREMENTS OF THE HOWARD COUNTY BUILDING CODE. A MDE APPROVAL FOR TRACKING NO. 200565058 WAS GRANTED IN AUGUST 2010.
27. DISTURBANCE WITHIN THE STREAM BUFFER HAS BEEN ACCEPTED AS A NECESSARY DISTURBANCE IN ACCORDANCE WITH SECTION 16.116(c)(1) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SINCE IT IS NECESSARY FOR REMOVAL OF THE PUBLIC PUMPING STATION.
28. A SIMPLIFIED FOREST STAND DELINEATION PLAN WAS PREPARED BY WHITMAN, REQUARDT AND ASSOCIATES, LLP DATED OCTOBER 26, 2010.
29. IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION IS REQUIRED FOR THIS SITE, HOWEVER SINCE THE ENTIRE SITE IS LOCATED WITHIN THE FLOODPLAIN AREA THE AFFORESTATION OBLIGATION IS 0.0 ACRES.
30. THE PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH THE SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF THE SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT APPLICATIONS.
31. PARKING REQUIREMENT IS 2 SPACES.
32. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. LANDSCAPING IS ONLY REQUIRED ALONG SOUTHERN PERIMETER OF THE PROPERTY BY PROVIDING THREE SHADE AND FOUR EVERGREEN TREES. THE LANDSCAPING FOR THE WESTERN AND NORTHERN PROPERTY BOUNDARY WILL BE COMPLETED BY TSG DEVELOPMENTS WITH THE LAUREL PARK STATION SUBDIVISION PLAN, AND DPZ HAS DETERMINED LANDSCAPING IS NOT PRACTICAL ON THE EASTERN BOUNDARY DUE TO THE EXISTING EASEMENT AND LOCATION OF THE PROPOSED STATION. FINANCIAL SURETY IS NOT REQUIRED FOR THIS PROJECT BECAUSE IT IS A COUNTY CAPITAL PROJECT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/12

DIRECTOR — DATE 11/2/12

OWNER:	PERMIT INFORMATION CHART					
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. BOB DIAZ VOICE 410-313-6153	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING N/A			
	PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION				PARCEL NO. 384 456	
	L/F 14104/126 420/17	GRID 10	ZONING CAC-CLI	TAX ZONE MAP 50	ELEC. DIST. 2	CENSUS TRACT 606903

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.

ADDRESS CHART

LOT/PARCEL	STREET ADDRESS
P. 384	~~10159~~ 10141 WASHINGTON BLVD.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/1/12

CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12

CHIEF, BUREAU OF UTILITIES — DATE 9/28/12

CHIEF, UTILITY DESIGN DIVISION — RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS JUDE HASSON — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

	BY	NO.	REVISION	DATE
DES: -	WRA	1	AS-BUILTS	2/16
DRN: -				
CHK: -				

COVER SHEEET

600' SCALE MAP NO. 30 | BLOCK NO. 10

AS-BUILT

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SDP-1

SCALE
AS SHOWN

SHEET 63 OF 70

AUGUST 2012

SDP-12-041

N:\13428-001\CADD\SDP-13428001-01.dwg
Sep 14, 2012 - 7:54am

NOTES:

1. THE ENTIRE AREA IS WITHIN THE 100-YEAR FLOODPLAIN, ELEV. 152.50. 10-YEAR FLOOD PLAIN ELEVATION IS ELEV. 138.0 (SHOWN).

LEGEND

	EXISTING	PROPOSED
SLOPES 15% TO <25%		
SLOPES >25%		
CONTOUR	145	145
SANITARY SEWER	S	
SANITARY SEWER MANHOLE	S	
STORM DRAIN		
TREE LINE		
TREE		
SPECIMEN TREE MARKED FOR REMOVAL		
TREES TO BE REMOVED		
STREAM BUFFER	SB	
SILT FENCE	SF	
SUPER SILT FENCE	SSF	
STABILIZED CONSTRUCTION ENTRANCE		
MICRO BIO-RETENTION/PLANTING BED		
IMPERVIOUS AREA		
LIMIT OF DISTURBANCE	LOD	
PROPERTY LINE		
OUTSIDE LIGHT		

PARCEL 2
MARYLAND HOSPITALITY GROUP, INC.
L.3456, F.603
L.240, F.320
TM.50, P.386
ZONE CAC-CLI, EXISTING USE: MOTEL
MOTEL

EXISTING 12' WATERMAIN EASEMENT
HOWARD COUNTY
METROPOLITAN COMMISSION
L.273 F.391

WASHINGTON BLVD.
U.S. ROUTE 1 (SBL)
PRINCIPAL ARTERIAL
VARIABLE WIDTH R/W
SRC NO. 3690'

N 524,400
E 1,357,400

S51°09'54"E 300.83'

TSG DEVELOPMENTS, LLC.
L.10518 F.157
TM50, P.384

HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
L.14104, F. 391
TM.50, P.384
ZONE: CAC-CLI

40' LANDSCAPE EASEMENT

SPECIMEN TREE (MARKED FOR REMOVAL)

TREES TO BE REMOVED (NOT SPECIMEN)

20' EX. PAVEMENT

LAUREL RACE TRACK ROAD
PRIVATE ROAD

30' PUBLIC INGRESS & EGRESS, WATER, SEWER & UTILITY EASEMENT

10 YEAR FLOODPLAIN ELEV. 138.0

GEODETIC COORDINATE
50EMT1

P.I. 104
N 524270.8180
E 1357426.1975
EL 142.12

P.I. 1158

HOWARD COUNTY METROPOLITAN COMMISSION
L.420 F.17
TM50, P.456

EXISTING PUMPING STATION

TSG DEVELOPMENTS, LLC.
L.10518 F.157
TM50, P.264

100-FOOT PATUXENT RIVER STREAM BUFFER
(STREAM CLASSIFICATION: PERENNIAL, CLASS IV)

HOWARD COUNTY METROPOLITAN COMMISSION
L.420 F.12
TM50, P.456

EX. 20' UTILITY EASEMENT (PUBLIC)

E 1,357,500
N 524,100

E 1,357,400
N 524,100

Patuxent River (STREAM CLASSIFICATION: PERENNIAL, CLASS IV-P)

NORTH SECOND STREET
U.S. ROUTE 1 (NBL)
PRINCIPAL ARTERIAL
VARIABLE WIDTH R/W
SRC NO. 6774 & NO. 6613

SPECIMEN TREE (MARKED FOR REMOVAL)

E 1,357,700
N 524,100

PLAN
SCALE: 1"= 20'

FOREST CONSERVATION WORKSHEET

Net Tract Area

A.	Total Tract Area	A=	1.30
B.	Deductions (The Entire Site is in the Floodplain)	B=	1.30
C.	Net Tract Area Net Tract Area = Total Tract (A) – Deductions (B)	C=	0.00

Land Use Category:

D.	Afforestation Threshold (Net Tract Area [C] x 0.15)	D=	0.00
E.	Conservation Threshold (Net Tract Area [C] x 0.2)	E=	0.00

Existing Forest Cover

F.	Existing Forest Cover within the Net Tract Area	F=	0.00
G.	Area of Forest Above Conservation Threshold If the Existing Forest Cover (F) is greater than the Conservation Threshold (E), the G = F – E; otherwise G = O	G=	0.00

Breakeven Point

H.	Breakeven Point (Amount of forest that must be retained so that no Mitigation is required) (1) If the Area of Forest Above Conservation Threshold (G) is greater than 0, then H = (0.2 x the Area of Forest Above Conservation Threshold (G)) + the Conservation Threshold (E) (2) If the Area of Forest Above Conservation Threshold (G) is equal to 0, then H = Existing Forest Cover (F)	H=	0.00
I.	Forest Clearing Permitted Without Mitigation I = Existing Forest Cover (F) – Breakeven Point (H)	I=	0.00

Proposed Forest Clearing

J.	Total Area of Forest to be Cleared	J=	0.00
K.	Total Area of Forest to be Retained K = Existing Forest Cover (F) – Forest to be cleared (J)	K=	0.00

Planting Requirements

If the Total Area of Forest to be Retained (K) is at or above the Breakeven Point (H), no planting is required., and no further calculations are necessary (L=0, M=O, N=O, P=O, Q=O, R=0)
Otherwise, calculate the planting requirement(s) as follows:

L.	Reforestation for Clearing Above the Conservation Threshold (1) If the Total Area of Forest to be Retained (K) is greater than the Conservation Threshold (E), then L = the Area of Forest to be Cleared (J) x 0.25 (2) If the Forest to be Retained (K) is less than or equal to Conservation Threshold (E), then L = Area of Forest Above Conservation Threshold (G) x 0.25	L=	0.00
M.	Reforestation for Clearing Below the Conservation Threshold (1) If Existing Forest Cover (F) is greater than the Conservation Threshold (E) and the Forest to be Retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 x (Conservation threshold (E) – Forest to be Retained (K)) (2) If existing Forest Cover (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 x Forest to be Cleared (J)	M=	0.00
N.	Credit for Retention Above the Conservation Threshold If the area of forest to be Retained (K) is greater than the Conservation Threshold (E), then N = K – E; Otherwise N=0	N=	0.00
P.	Total Reforestation Required P = L + M – N	P=	0.00
Q.	Total Afforestation Required If existing Forest cover (F) is less than the Afforestation Threshold (D), then Q = Afforestation Threshold (D) – Existing Forest Cover (F)	Q=	0.00
R.	Total Planting Requirement R = P+Q	R=	0.00

SOIL LEGEND		
SOIL SYMBOL	HS6	SOIL DESCRIPTION
Cp	C	CODOUS AND HATBORO SOILS, 0-2% SLOPES
UtD	D	URBAN LAND UDRTHENTS COMPLEX, 0-15% SLOPES
Fa	C	FALLINGSTON SANDY LOAM, 0-2% SLOPES

AS-BUILT

0 10' 20' 40'
SCALE: 1" = 20'

SDP-2

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/6/12
DIRECTOR — DATE 11/8/12

OWNER:	PERMIT INFORMATION CHART					
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. BOB DIAZ VOICE 410-313-6153	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING N/A			
	PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION			PARCEL NO. 384 456		
	L/F 14104/126 420/17	GRID 10	ZONING CAC-CLI	TAX ZONE MAP 50	ELEC. DIST. 2	CENSUS TRACT 606903

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

DIRECTOR OF PUBLIC WORKS — DATE 10/5/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS RIDE MASON — No. 24478 — PROFESSIONAL ENGINEER — 9/4/12

DES: - DRN: - CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

EXISTING CONDITIONS PLAN

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

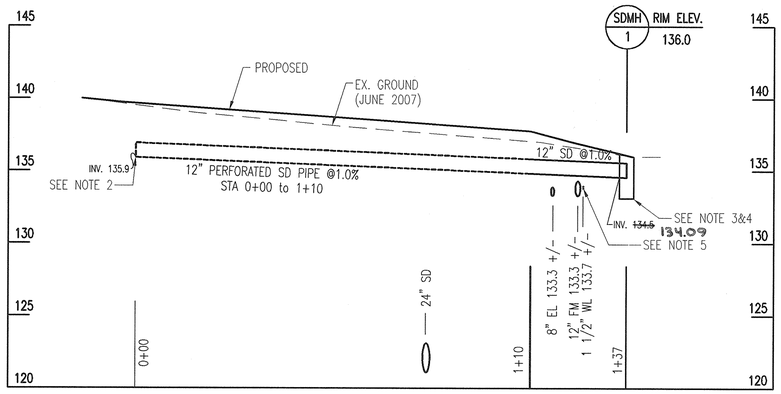
SCALE AS SHOWN

SHEET 64 OF 70

AUGUST 2012

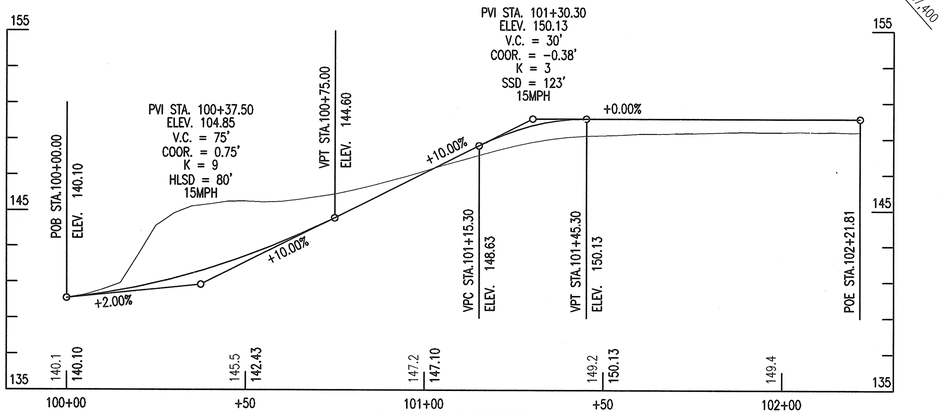
SDP-12-041

N:\13428-001\CADD\SDP-13428001-02.dwg
Sep 14, 2012 - 7:55am



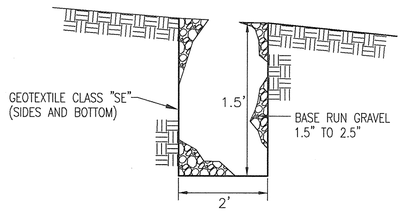
PROFILE – STORM DRAIN

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



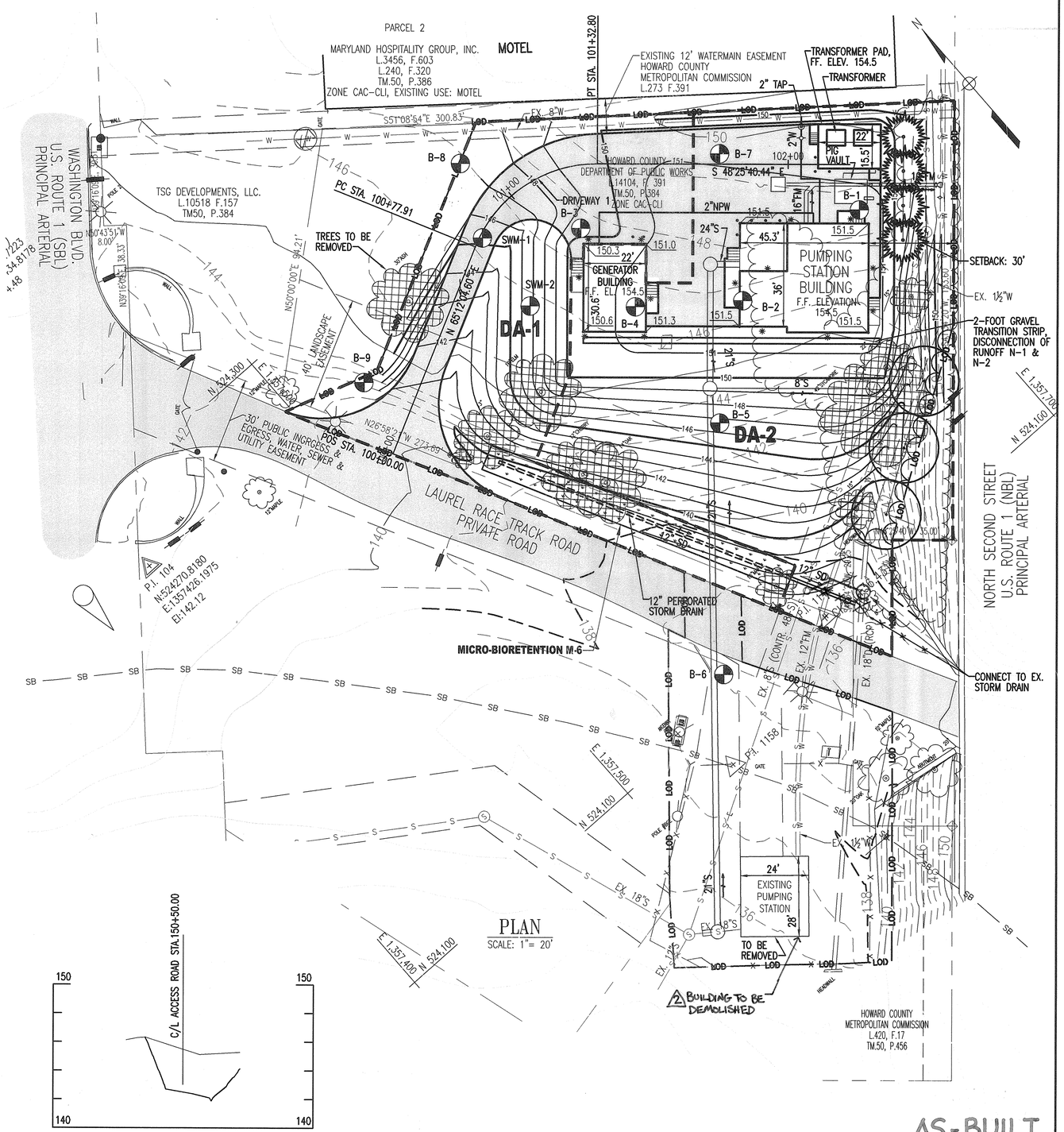
ROAD PROFILE

SCALE: HORIZ. 1"= 20'
VERT. 1"= 4'



DETAIL – SWM GRAVEL DITCH

NOT TO SCALE



PLAN

SCALE: 1"= 20'

ROAD SECTION AT STA. 100+50

SCALE: HORIZ. 1"= 20'
VERT. 1"= 4'

TABLE: STORMWATER REQUIREMENTS

DRAINAGE AREA	AREA (AC.)	ESD PRACTICE	ESDv (FT^3)	Rev (AC=FT)	RCN	VOLUME CAPTURED (FT^3)
DA-1	0.23	MICRO-BIORETENTION M-6	629	0.00083	77	1,070
DA-2	0.47	ROOFTOP DISCONNECTION (PUMPING STATION & GENERATOR) N-1 NON-ROOFTOP DISCONNECTION N-2	677	0.00091	77	506
TOTAL	0.7		1,306	0.00174		1,576

IN ACCORDANCE WITH CHAPTER 4 OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT DESIGN MANUAL, TERRAIN FACTORS WERE EVALUATED FOR PLACEMENT OF THE MICRO-BIORETENTION. PHYSICAL LOCATION WAS BASED ON FEASIBILITY FACTORS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/12
DIRECTOR — DATE 9/26/12

OWNER:	PERMIT INFORMATION CHART					
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. BOB DIAZ VOICE 410-313-6153	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING N/A			
	PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION			PARCEL NO. 384 456		
	L/F 14104/126 420/17	GRID 10	ZONING CAC-CLI	TAX ZONE MAP 50	ELEC. DIST. 2	CENSUS TRACT 606903

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.

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS TODD WAGNER — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: -
DRN: -
CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16
WRA	2	DEMOLITION OF OLD NORTH LAUREL WASTEWATER PUMP STATION	6/18

DRAINAGE AREA PLAN

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

AS-BUILT

0 10' 20' 40'
SCALE: 1" = 20'

SDP-3

SCALE AS SHOWN

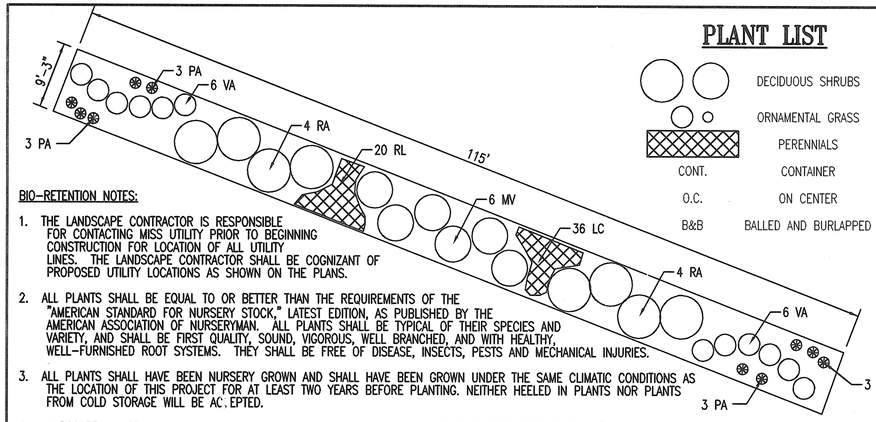
SHEET 65 OF 70

AUGUST 2012

SDP-12-041

N:\13428-001\CADD\SDP-13428001-03.dwg
Sep 14, 2012 - 7:58am

PLANT LIST



DECIDUOUS SHRUBS
ORNAMENTAL GRASS
PERENNIALS
CONT. CONTAINER
O.C. ON CENTER
B&B BALLED AND BURLAPPED

NOTES:

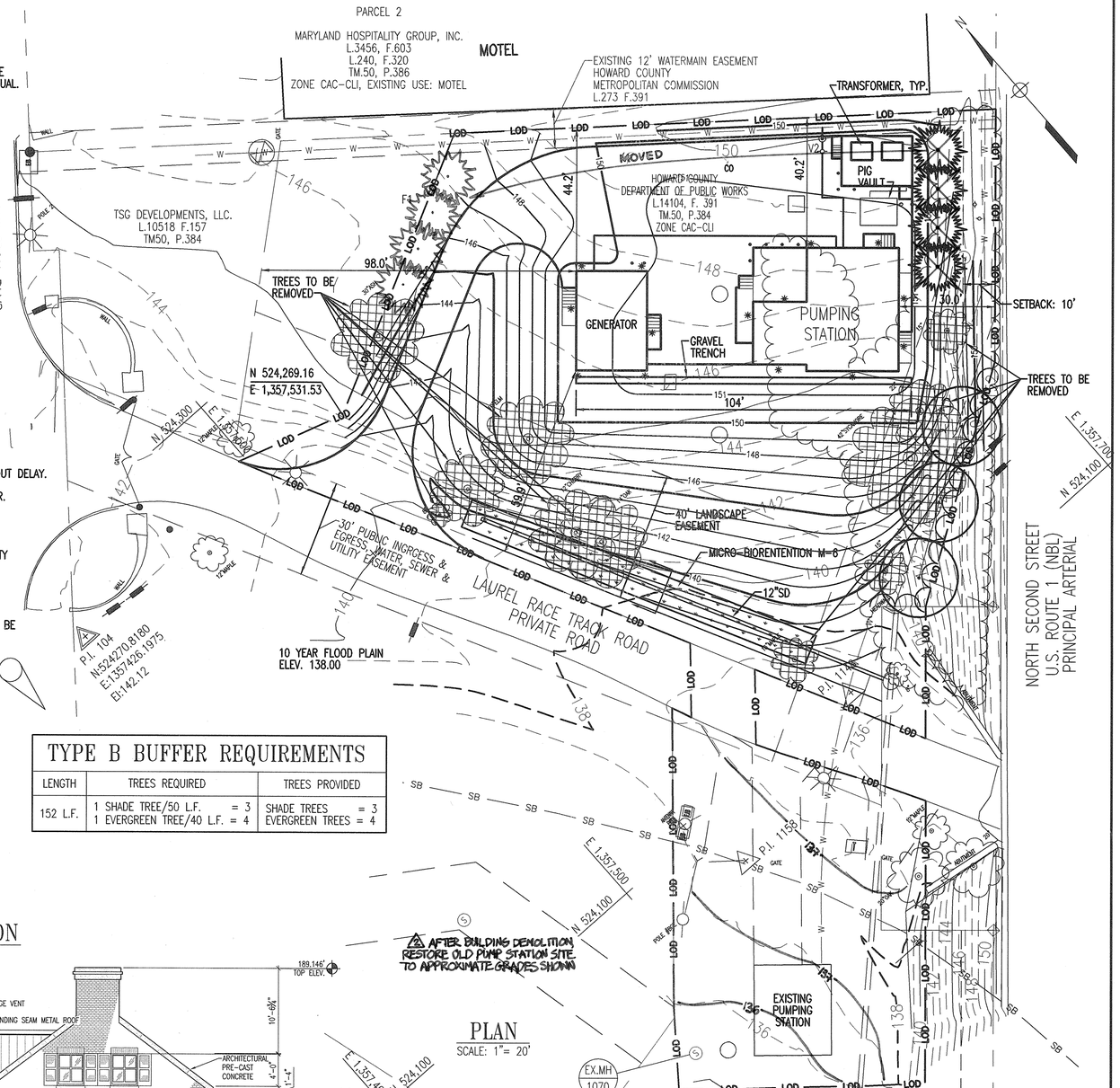
1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. THE ENTIRE AREA IS WITHIN THE 100-YEAR FLOODPLAIN ELEVATION 152.50.
3. SEE SDP-3 FOR 12-INCH STORM DRAIN PROFILE.

BIO-RETENTION NOTES:

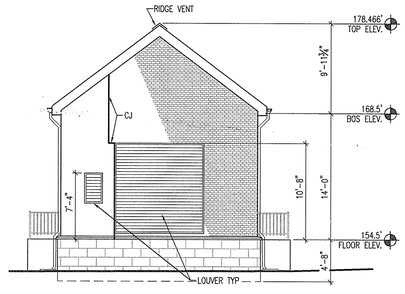
1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY PRIOR TO BEGINNING CONSTRUCTION FOR LOCATION OF ALL UTILITY LINES. THE LANDSCAPE CONTRACTOR SHALL BE COGNIZANT OF PROPOSED UTILITY LOCATIONS AS SHOWN ON THE PLANS.
2. ALL PLANTS SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL BRANCHED, AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECTS, PESTS AND MECHANICAL INJURIES.
3. 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 AC.EPTED.
4. 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. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OF RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
5. THE LANDSCAPE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL WATERING DURING CONSTRUCTION AND DURING THE ONE YEAR MAINTENANCE PERIOD.
6. FOR SEEDING REQUIREMENTS, SEE THE EROSION AND SEDIMENT CONTROL DETAIL SHEET.
7. ALL PLANT MATERIALS, TOPSOIL, MULCH FERTILIZERS, SOIL AMENITIES, PLANTING SUPPLIES AND METHODS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT DELAY.
8. 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.
9. 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.
10. 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.
11. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
12. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH, PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS.

LANDSCAPE PLANT SCHEDULE

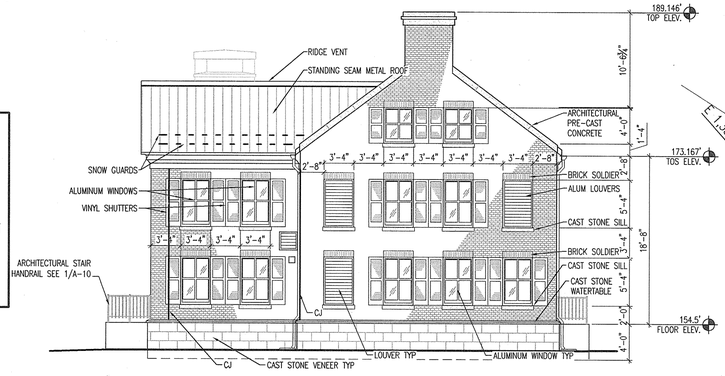
QUANTITY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	MATURE SIZE	MIN. SPACING
TREES							
3	AR	ACER RUBRUM 'FRANKSRED'	RED SUNSET RED MAPLE	2-1/2" CAL.	B&B	HEIGHT: 50'-60' SPREAD: 35'-45'	25' O.C.
4	PS	PINUS STROBUS 'FASTIGIATA'	COLUMNAR WHITE PINE	7'-8' HT.	B&B	HEIGHT: 35'-50' SPREAD: 12'-15'	12' O.C.
SHRUBS							
8	RA	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	15"-18"	B&B/CONT.	HEIGHT: 2'-3' SPREAD: 5'-6'	6' O.C.
12	VA	VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	#2	CONT.	HEIGHT: 0.5'-2' SPREAD: 2'-4'	4' O.C.
6	MV	VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM	24"-30"	B&B/CONT.	HEIGHT: 4'-6' SPREAD: 4'-6'	6' O.C.
ORNAMENTAL GRASS							
12	PA	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	#1	CONT.	HEIGHT: 1.5'-2' SPREAD: 1.5'-2'	3' O.C.
PERENNIALS							
20	RL	RUDBECKIA LACINIATA 'GOLDQUELLE'	TALL CONEFLOWER	#1	CONT.	HEIGHT: 3'-4'	24" O.C.
36	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	#1	CONT.	HEIGHT: 3'	18" O.C.



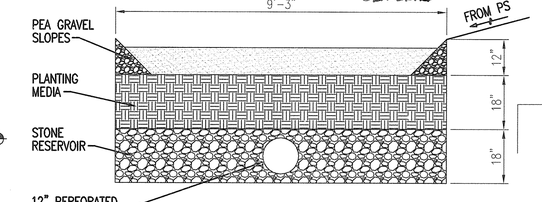
PLAN
SCALE: 1"= 20'



GENERATOR BUILDING SOUTH ELEVATION
SCALE: 1/8" = 1'=-0"



PUMPING STATION SOUTH ELEVATION
SCALE: 1/8" = 1'=-0"



CROSS-SECTION FOR M-6
SCALE: 1"= 20'

TYPE B BUFFER REQUIREMENTS

LENGTH	TREES REQUIRED	TREES PROVIDED
152 L.F.	1 SHADE TREE/50 L.F. = 3 1 EVERGREEN TREE/40 L.F. = 4	SHADE TREES = 3 EVERGREEN TREES = 4

HOWARD COUNTY
METROPOLITAN COMMISSION
L.420, F.17
TM.50, P.456

AS-BUILT
0 4' 8' 16'
SCALE: 1/8" = 1'-0"
0 10' 20' 40'
SCALE: 1" = 20'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/12
DIRECTOR — DATE 11/2/12

LANDSCAPE CERTIFICATION

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND REGULATIONS AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF NOTICE, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER — DATE 9/25/12

OWNER:	PERMIT INFORMATION CHART					
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. BOB DIAZ VOICE 410-313-6153	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING N/A			
	PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION					PARCEL NO. 384 456
	L/F 14104/126 420/17	GRID 10	ZONING CAC-CLI	TAX ZONE MAP 50	ELEC. DIST. 2	CENSUS TRACT 606903

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.

SPECIMEN TREE TABLE

Label	Common Name	Scientific Name	DBH	Condition	Stand
T1	White Ash	*Fraxinus americana*	39.0"	Fair-Poor	N/A
T2	Sycamore	*Platanus occidentalis*	42.0"	Poor	N/A

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/26/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, UTILITY DESIGN DIVISION R.D — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS WADE PARSONS — No. 24478 — PROFESSIONAL ENGINEER — 9/26/12

DES: - DRN: - CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16
WRA	2	DEMOLITION OF OLD NORTH LAUREL WASTEWATER PUMP STATION	6/18

SITE DEVELOPMENT PLAN
600' SCALE MAP NO. 30 BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

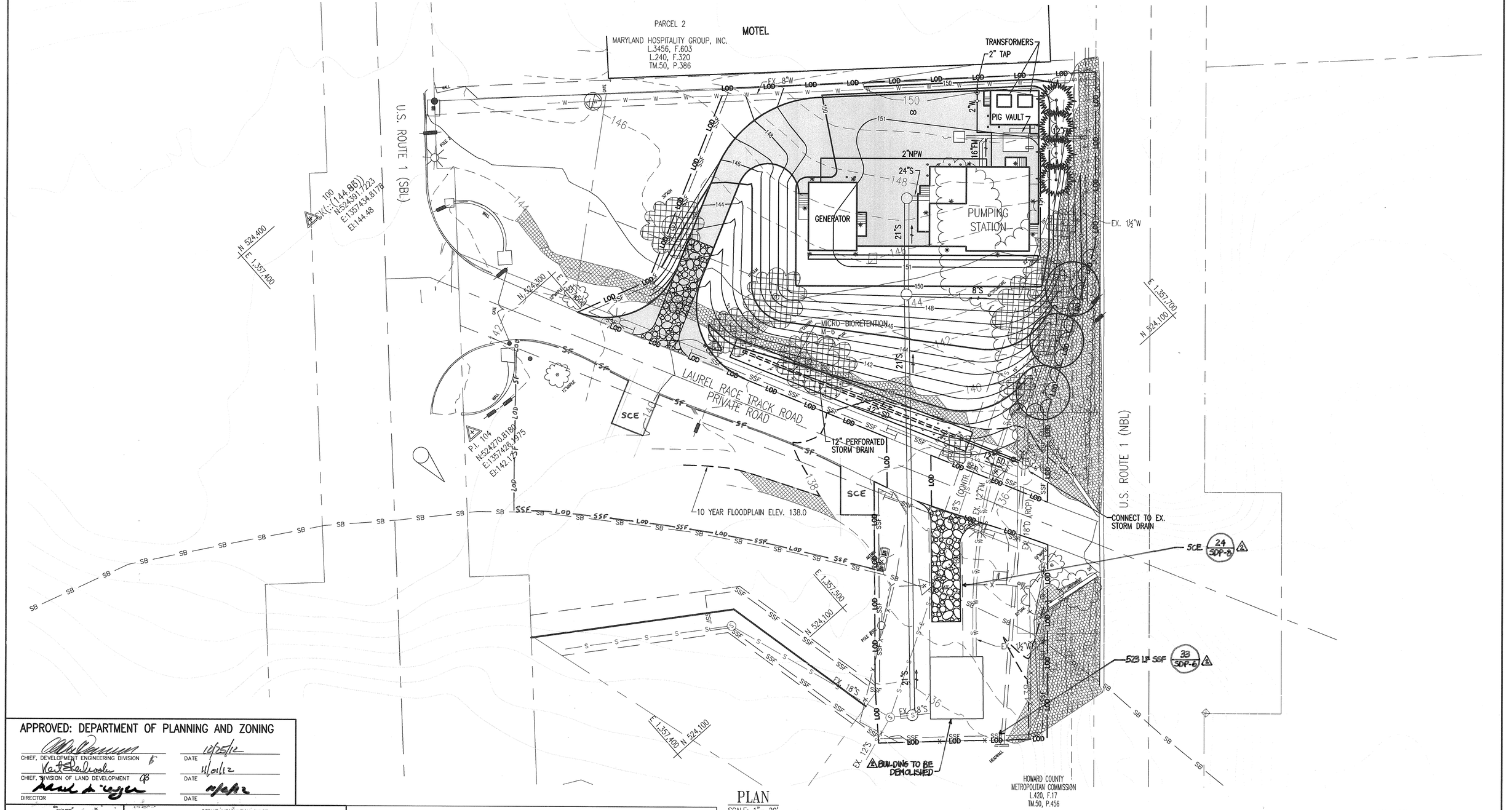
SHEET 66 OF 70

SDP-4

N:\13628-001\CADD\SDP-13628001-04.dwg
Sep 14, 2012 - 7:45am

AUGUST 2012

SDP-12-041



PLAN
SCALE: 1" = 20'

0 10' 20' 40'
SCALE: 1" = 20'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 10/25/12
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 11/01/12
DIRECTOR	DATE 11/01/12

OWNER:

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MD. 21045
ATTN: MR. BOB DIAZ

VOICE 410-313-6153

PERMIT INFORMATION CHART

WATER CODE:	SEWER CODE:	BUILDING	
PUBLIC	PUBLIC	N/A	

PROJECT NAME:			PARCEL NO.
NORTH LAUREL WASTEWATER PUMPING STATION			384, 456

I/P	GRID	ZONING	TAX ZONE MAP	ELEC. DIST.	CENSUS TRACT
14104/126, 420/17	10	CAC-CLI	50	2	606903

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.

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT 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."

Robert Diaz — 9/26/12
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
ROBERT DIAZ

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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. L. — 9/17/12
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

AS-BUILT
HOWARD SOIL CONSERVATION DISTRICT — DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/25/12	CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12	CHIEF, UTILITY DESIGN DIVISION R.D. — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS JUDE WILSON — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: -
DRN: -
CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16
WRA	2	DEMOLITION OF OLD NORTH LAUREL WASTEWATER PUMP STATION	6/18

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. 30 | BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 67 OF 70

SDP-5

AUGUST 2012

SDP-12-041

N:\13428-00\CADD\SDP-13428001-05.dwg
Sep 14, 2012 - 7:56am

STANDARD SEDIMENT CONTROL NOTES

1. 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).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A)7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. 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.

5. 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, SOD, 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.

6. 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.

7. SITE ANALYSIS:

TOTAL AREA OF SITE	0.9 ACRES
AREA DISTURBED	0.9 ACRES
AREA TO BE ROOFED OR PAVED	0.2 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.7 ACRES
TOTAL CUT	600 CU. YARDS
TOTAL FILL	1,700 CU. YARDS
OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. 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.

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY.

12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.

14. 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 .NDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

PROJECT SEQUENCE OF CONSTRUCTION (NEW PUMP STATION) ⚠1

1. NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS (410-313-1855) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE AND OBTAIN GRADING PERMIT. (1 DAY)
3. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY. (7 DAYS)
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE(S). (10 DAYS)
5. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS UPON COMPLETION OF THE INSTALLATION WORK NOTED ABOVE. (1 DAY)
6. WITH THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, CLEAR AND GRUB THE REMAINDER OF THE SITE AND STABILIZE IMMEDIATELY. (21 DAYS)
7. BEGIN EXCAVATION AND INSTALLATION OF UTILITIES. WORK SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED IN ONE DAY PER STANDARD SEDIMENT CONTROL NOTE NO. 11. STABILIZE WORK AREA AT THE END OF EACH WORK DAY. (430 DAYS)
8. CONNECT TO EXISTING UTILITIES WHERE APPLICABLE. (7 DAYS)
9. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE(S). (2 DAYS)
10. STABILIZE ALL DISTURBED AREAS. (14 DAYS)
11. FOLLOWING APPROVAL FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS. (7 DAYS)
12. NO WORK SHALL BE PERMITTED IN ANY STREAMS BETWEEN MARCH 1, AND JUNE 15, INCLUSIVE.

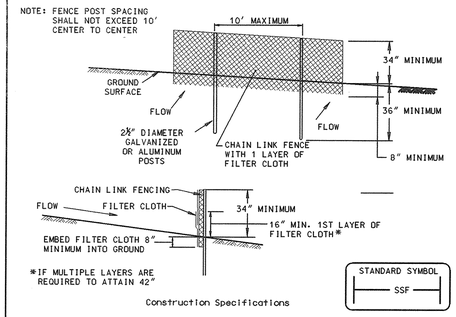
BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOOD PLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOOD PLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY CLASSIFICATION OF THE STREAM:
   USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF THE AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

⚠2 PROJECT SEQUENCE OF CONSTRUCTION (OLD PUMP STATION DEMOLITION)

1. NOTIFY MISS UTILITY (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.
2. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS (410-313-1855) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON-SITE AND OBTAIN GRADING PERMIT. (1 DAY)
3. CLEAR AND GRUB FOR SEDIMENT AND EROSION CONTROL MEASURES OR DEVICES ONLY. (3 DAYS)
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INCLUDING STABILIZED CONSTRUCTION ENTRANCE(S). (5 DAYS)
5. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS UPON COMPLETION OF THE INSTALLATION WORK NOTED ABOVE. (1 DAY)
6. WITH THE APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS, PROCEED TO DEMOLITION WORK. (1 DAY)
7. DEMOLISH OLD NORTH LAUREL WASTEWATER PUMP STATION AS SPECIFIED. (60 DAYS)
8. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE STABILIZED CONSTRUCTION ENTRANCE(S). (2 DAYS)
9. STABILIZE ALL DISTURBED AREAS. (14 DAYS)
10. FOLLOWING APPROVAL FROM THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE ANY REMAINING AREAS. (3 DAYS)
11. NO WORK SHALL BE PERMITTED IN ANY STREAMS BETWEEN MARCH 1, AND JUNE 15, INCLUSIVE.

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/23/12

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/12

DIRECTOR — DATE n/a

OWNER:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MD 21045
ATTN: MR. BOB DIAZ
VOICE 410-313-6153

PERMIT INFORMATION CHART

WATER CODE:	SEWER CODE:	BUILDING	
PUBLIC	PUBLIC	N/A	

PROJECT NAME:		PARCEL NO.
NORTH LAUREL WASTEWATER PUMPING STATION		384, 456

L/F	GRID	ZONING	TAX ZONE MAP	ELEC. DIST.	CENSUS TRACT
14104/126 420/17	10	CAC-CLI	50	2	606903

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.

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT 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 OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 8/25/12
ROBERT DIAZ

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 9/17/12

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

AS-BUILT

HOWARD SOIL CONSERVATION DISTRICT — DATE

SDP-6

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/28/12

CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12

CHIEF, BUREAU OF UTILITIES — DATE 9/25/12

CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12 RJD

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

STATE OF MARYLAND — DENNIS TUDOR HAGON — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: - DRN: - CHK: -

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16
WRA	2	DEMOLITION OF OLD NORTH LAUREL WASTEWATER PUMP STATION	6/18

SEDIMENT AND EROSION CONTROL NOTES AND DETAIL

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 68 OF 70

AUGUST 2012

SDP-12-041

N:\13428-801\CADD\SDP-13428801-06.dwg
Nov 14, 2012 - 7:56am

SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS

SITE PREPARATION

i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTEE OF THE PRODUCER.

iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98–100% WILL PASS THROUGH A #20 MESH SIEVE.

iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION

i. TEMPORARY SEEDING

a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"–5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

ii. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.

1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"–5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

d. MIX SOIL AMENDMENTS INTO THE TOP 3"–5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"–3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

e. SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.

D. SEED SPECIFICATIONS

i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW.
ALL SEED SHALL BE SUBJECT TO RE–TESTING BY A RECOGNIZED SEED LABORATORY.
ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

ii. INOCULANT – THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN–FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.

NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°–80°F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 lbs. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 lbs. PER ACRE; K20 (POTASSIUM): 200 lbs. PER ACRE.

b. LIME – USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON–SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL

a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

ii. WOOD CELLULOSE FIBER MULCH (WCFM)

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER–LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO–TOXIC.

f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS – MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.

iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

i. A MULCH ANCHORING TOOL IS A TRACTOR–DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS – SUCH AS ACRYLIC DLR (AGRO–TACK), DCA–70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'–15' WIDE AND 300'–3,000' LONG.

I. INCREMENTAL STABILIZATION – CUT SLOPES

i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.

ii. CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.

b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.

c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.

d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

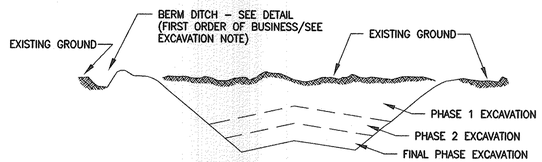


FIGURE 4: INCREMENTAL STABILIZATION – CUT

J. INCREMENTAL STABILIZATION OF EMBANKMENTS – FILL SLOPES

i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.

ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS

iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON–EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.

b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.

c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.

d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

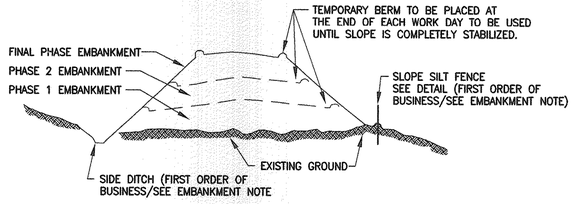


FIGURE 5: INCREMENTAL STABILIZATION – FILL

SECTION II – TEMPORARY SEEDING

VEGETATION – ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES – TEMPORARY SEEDING

i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.

ii. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26					FERTILIZER RATE (10–10–10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
	RYE PLUS FOXTAIL MILLET	150	3/1–4/30 5/1–8/14 8/15–11/15	1"	600 lb/ac (15 lb/1000sf)	2 tons/ac 100 lb/1000sf

SECTION III – PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES – PERMANENT SEEDING

i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR OR AESTHETIC TREATMENT MAY BE FOUND IN USDA–SCS FIELD OFFICE TECHNICAL GUIDE, SECTION 342 – CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.

ii. THIS SITE HAS A DISTURBED AREA OVER 5 ACRES, THEREFORE, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.

iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46–0–0) AT 3–1/2 lbs. PER 1000 sq. ft. (150 lbs/ac), IN ADDITION TO THE ABOVE, SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25					FERTILIZER RATE (10–20–20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	CREEPING RED FESCUE (30%) CHEWINGS FESCUE (30%) ROUGH BLUE GRASS (20%) CATALINA PERENNIAL RYEGRASS (20%)	200	3/1–5/15 AND 8/15–10/15	1"	90 lb/ac (2.0 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	2 tons/ac (100 lb/ 1000 sf)

SECTION IV – SOD

TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. GENERAL SPECIFICATIONS

i. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

ii. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

iii. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.

iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

v. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

i. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

ii. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

iii. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

iv. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

i. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.

iii. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/01/12
DIRECTOR — DATE 10/26/12

OWNER:
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
9250 BENDIX ROAD
COLUMBIA, MD 21045
ATTN: MR. BOB DIAZ
VOICE 410–313–6153

PERMIT INFORMATION CHART

WATER CODE:	SEWER CODE:	BUILDING	
PUBLIC	PUBLIC	N/A	
PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION			PARCEL NO. 384 456

L/F	GRID	ZONING	TAX ZONE MAP	ELEC. DIST.	CENSUS TRACT
14104/126 420/17	10	CAC–CLI	50	2	606903

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT 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 OF DEVELOPER (PRINT NAME BELOW SIGNATURE) ROBERT DIAZ. — DATE 9/25/12

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 9/17/12

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

AS-BUILT

HOWARD SOIL CONSERVATION DISTRICT — 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: 10/28/2013.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/11/12
CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12
CHIEF, BUREAU OF UTILITIES — DATE 9/28/12
CHIEF, UTILITY DESIGN DIVISION RJD — DATE 9/25/12

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 – 235 – 3450

STATE OF MARYLAND — DENNIS TUDE WASKO — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: – DRN: – CHK: –

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION
CAPITAL PROJECT NO. S–6189
CONTRACT NO. 20–4680
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SDP–7

SCALE AS SHOWN

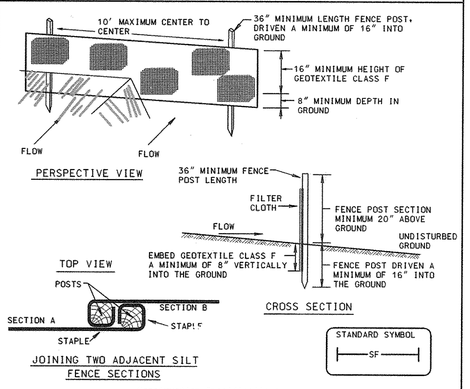
SHEET 69 OF 70

AUGUST 2012

SDP–12–041

N:\13428–00\CADD\SDP–13428001–07.dwg Sep 14, 2012 – 7:56am

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE

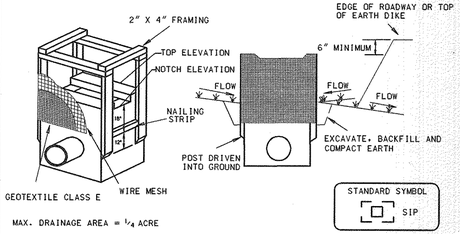
Silt Fence Design Criteria

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

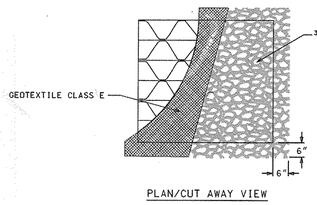
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

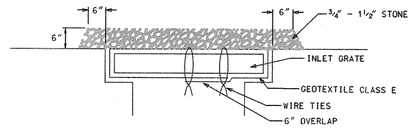
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B – AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



Construction Specifications

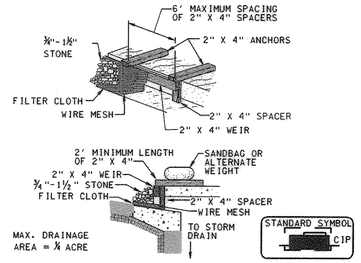
1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place ¾" to 1½" stone, 4"–6" thick on the grate to secure the fabric and provide additional filtration.

PA

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



CONSTRUCTION SPECIFICATIONS

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.

2. Place a continuous piece of approved filter cloth (40-80 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 6' apart).

4. Place the assembly against the inlet throat and nail minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbag or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the ½" x ½" wire mesh and the filter cloth to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter cloth in such a manner to prevent water from entering the inlet under or around the filter cloth.

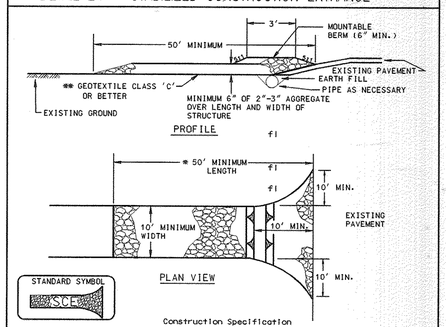
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

PA

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

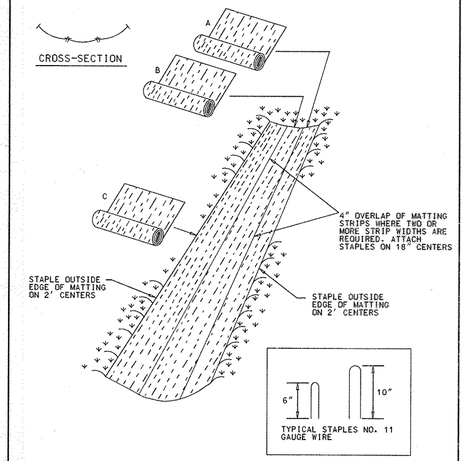
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 – EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using an 18" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.

5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G – 22 – 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 10/25/12

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/31/12

DIRECTOR — DATE 11/2/12

OWNER:	PERMIT INFORMATION CHART					
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD COLUMBIA, MD 21045 ATTN: MR. BOB DIAZ VOICE 410-313-6153	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING: N/A			
	PROJECT NAME: NORTH LAUREL WASTEWATER PUMPING STATION			PARCEL NO. 384 456		
	L/F 14104/126 420/17	GRID 10	ZONING CAC-CLI	TAX ZONE MAP 50	ELEC. DIST. 2	CENSUS TRACT 606903

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.

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT 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 OF DEVELOPER (PRINT NAME BELOW SIGNATURE) ROBERT DIAZ — DATE 9/25/12

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 9/17/12

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION

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

AS-BUILT

HOWARD SOIL CONSERVATION DISTRICT — DATE

SDP-8

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND.

DIRECTOR OF PUBLIC WORKS — DATE 10/25/12

CHIEF, BUREAU OF UTILITIES — DATE 9/28/12

CHIEF, BUREAU OF ENGINEERING — DATE 9/25/12

CHIEF, UTILITY DESIGN DIVISION — DATE 9/25/12

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 – 235 – 3450

STATE OF MARYLAND — DENNIS RUDE MASON — No. 24478 — PROFESSIONAL ENGINEER — 9/17/12

DES: –
DRN: –
CHK: –

BY	NO.	REVISION	DATE
WRA	1	AS-BUILTS	2/16

SEDIMENT AND EROSION CONTROL DETAILS

600' SCALE MAP NO. 30 — BLOCK NO. 10

NORTH LAUREL WASTEWATER PUMPING STATION

CAPITAL PROJECT NO. S-6189
CONTRACT NO. 20-4680

2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 70 OF 70

AUGUST 2012

SDP-12-041

N:\13428-001\CADD\SDP-13428001-08.dwg
Sep 14, 2012 - 7:26am