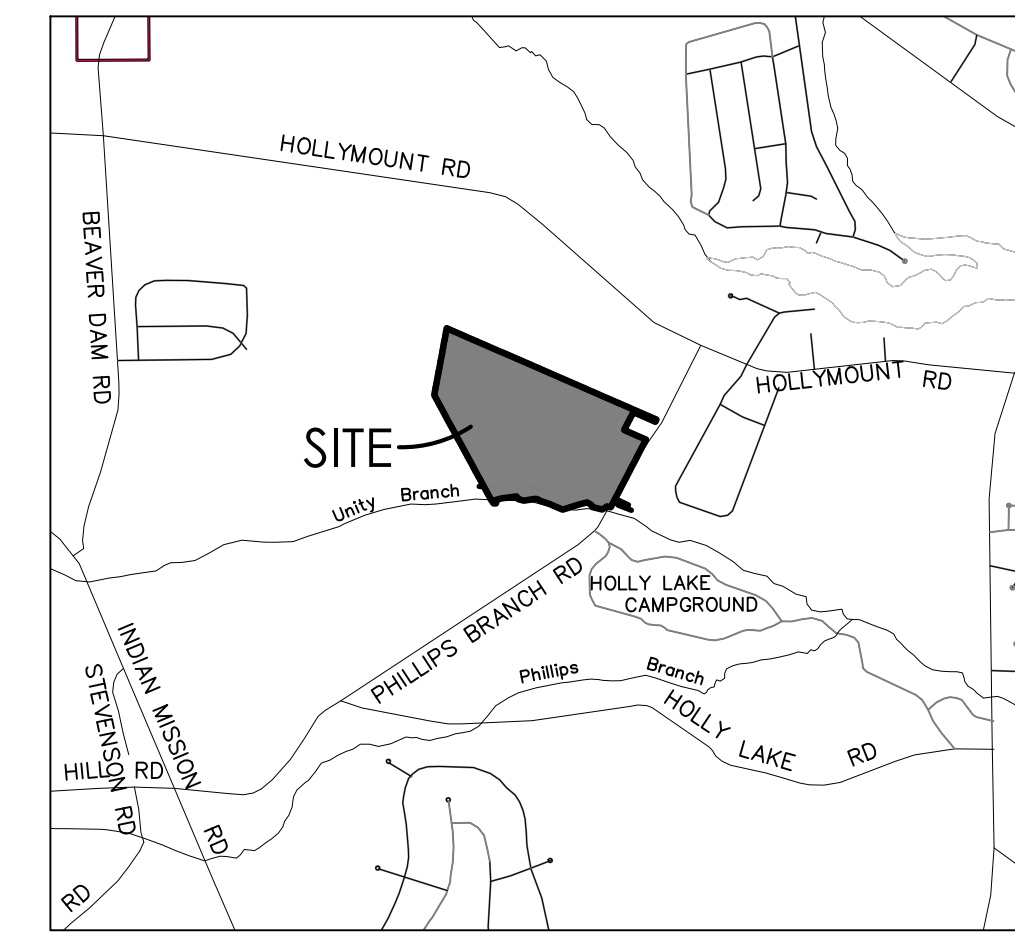


ROADWAY, STORM DRAIN, SEWER, WATER, & ESC

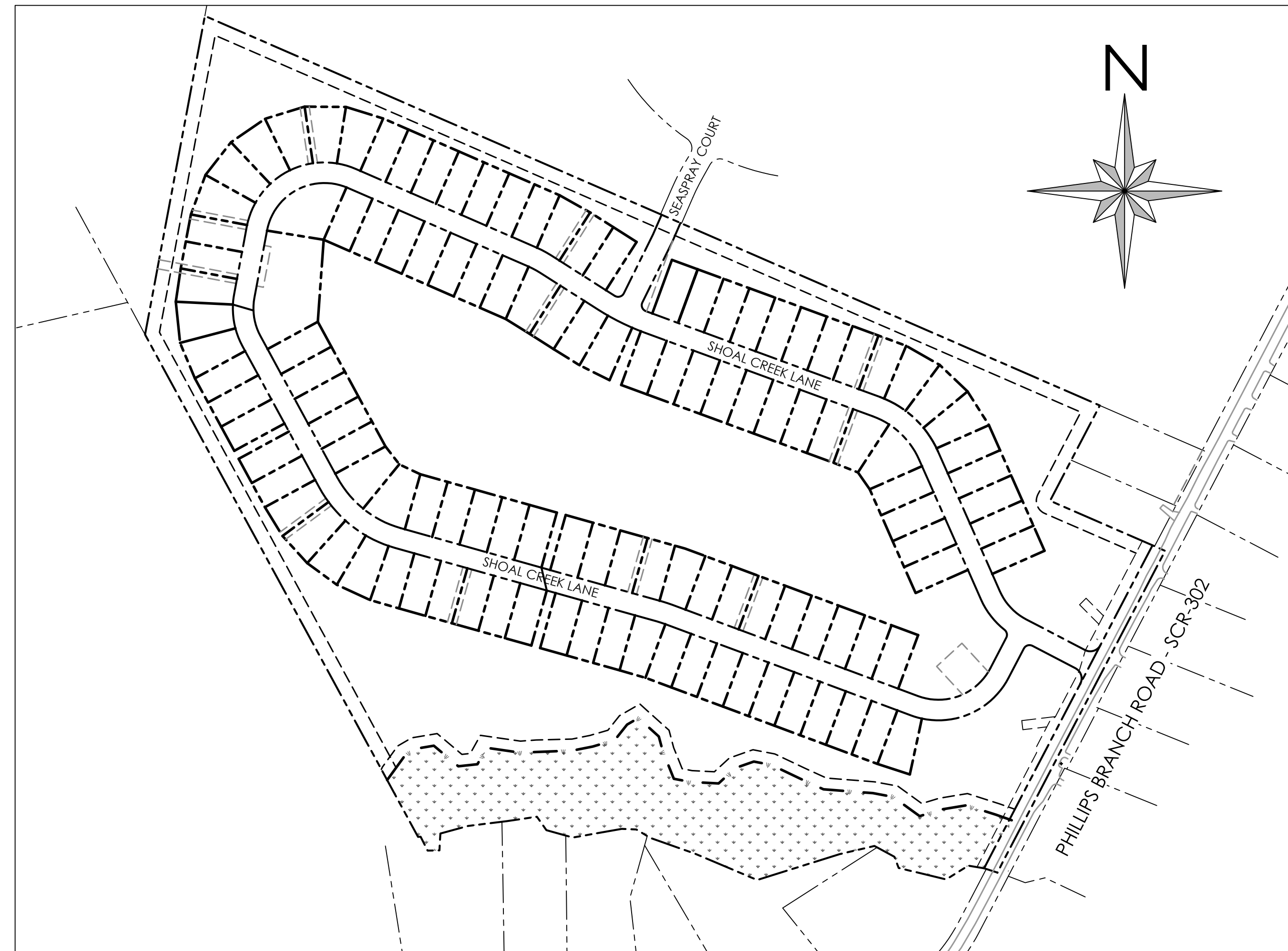
FOR RIVERWOOD

INDIAN RIVER HUNDRED
SUSSEX COUNTY, DELAWARE
FOR
RIVERWOOD DEVELOPMENT, LLC



VICINITY MAP
SCALE: 1"=200'

	EXISTING	PROPOSED
PROPERTY LINE	---	---
EASEMENT LINE	---	---
SETBACK LINE	---	---
CONCRETE MONUMENT FOUND	CMF □	N/A
IRON PIPE FOUND	IPF ●	N/A
BENCH MARK	▲ ELEV.	N/A
SPOT ELEV. LABEL	x 19.25	19.25
MAJOR CONTOUR	---10---	---10---
MINOR CONTOUR	---7---	---7---
ROAD CENTERLINE	---	---
EDGE OF CONCRETE	---	---
EDGE OF PAVEMENT	---	---
EDGE OF GRAVEL	---	N/A
PAINT STRIPE	---	---
CURB	---	---
PAVEMENT HATCH	▨	▨
CONCRETE HATCH	▨	▨
BUILDING OUTLINE	---	---
SIDEWALK	---	---
SIDEWALK HATCH	▨	▨
FENCE LINE	x	N/A
SIGN	▭	N/A
EDGE OF WETLAND	W	N/A
FLOODPLAIN	---	N/A
STORM MANHOLE	⊙	⊙
CURB INLET	⊙	⊙
YARD INLET	⊙	⊙
STORM PIPE	---	---
RIP RAP	▨	▨
SANITARY MANHOLE	⊙	⊙
SANITARY CLEANOUT	○	○
SANITARY PIPE	SS	SS
WATER VALVE	W	W
WATER PIPE	W	W
FIRE HYDRANT	⊕	⊕
OVERHEAD ELECTRIC	E	N/A
UNDERGROUND ELECTRIC	E	N/A
UNDERGROUND TELECOMMUNICATIONS	TC	N/A
UTILITY POLE	⊙	N/A
LIGHT POLE	★	N/A
DECIDUOUS TREE	●	N/A
CONIFEROUS TREE	●	N/A
TREE LINE	---	---



SITE
1" = 200'

SITE DATA:

OWNER: RIVERWOOD DEVELOPMENT, LLC
30435 SOUTHAMPTON BRIDGE ROAD
SALISBURY, MD 21804

APPLICANT/
DEVELOPER: RIVERWOOD DEVELOPMENT, LLC
30 EAST PINE STREET
GEORGETOWN, DE 19947
PHONE: 302-444-4442
CONTACT: JAMIE KING, ESQ

ENGINEER: SOLUTIONS IPEM
303 NORTH BEDFORD STREET
GEORGETOWN, DE 19947
PHONE: 302-297-9215
CONTACT: JIM ERIKSEN, PE

TAX MAP: 234-17.00-3.00
SITE AREA = 58.6 ± ACRES

PROPOSED USE: AR-1 CLUSTER SUBDIVISION
117 SINGLE FAMILY LOTS
DENSITY = 117 UNITS / 58.60 AC = 1.997 UNITS/AC
PERMITTED DENSITY = 2.0 UNITS/AC
MIN. LOT AREA = 7,500 S.F.
MIN. LOT WIDTH = 60'
MAXIMUM BUILDING HEIGHT: 42'

EXISTING ZONING: AR-1

PROPOSED BUILDING SETBACKS:
FRONT: 25' (15' CORNER LOT)
SIDE: 10'
REAR: 10'

FLOOD ZONE: THE PROPERTY IS LOCATED WITHIN FLOOD ZONE AE (SPECIAL HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, NO BASE ELEVATIONS DETERMINED) AND ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FIRM MAP NUMBER 10005C0340K MAP REVISED MARCH 16, 2015

WATER SUPPLY: ARTESIAN WATER COMPANY, INC.

SANITARY SEWER: ARTESIAN WASTEWATER MANAGEMENT, INC.

SOIL CLASSIFICATIONS:
FHA: FORT MOTT-HENELOPEN COMPLEX, 0 TO 2 PERCENT SLOPES
FHB: FORT MOTT-HENELOPEN COMPLEX, 2 TO 5 PERCENT SLOPES
FMA: FORT MOTT LOAMY SAND, 0 TO 2 PERCENT SLOPES
LO: LONGMARSH AND IDANTOWN SOILS, FREQUENTLY FLOODED

TOPOGRAPHY AND BOUNDARY SHOWN HEREIN ARE AS PROVIDED BY SOLUTIONS IPEM LLC.

OPEN SPACE = 27 ± AC (46% ± OF DEVELOPED AREA)
OPEN SPACE A = 4 ± AC (15% ± OF OPEN SPACE)
OPEN SPACE B = 13 ± AC (45% ± OF OPEN SPACE)
OPEN SPACE C = 10 ± AC (37% ± OF OPEN SPACE)

EXISTING WOODLANDS = 56.81 ± AC
WOODLANDS TO REMAIN = 9.86 ± AC

NOTES:

- ALL ON-SITE STREETS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER UNTIL DEDICATION TO THE HOMEOWNERS ASSOCIATION. THE PERPETUAL MAINTENANCE OF THE STREETS SHALL BE BY THE RESPECTIVE ORGANIZATION.
- STORMWATER MANAGEMENT AND STORM DRAINAGE SHALL BE IN ACCORDANCE WITH THE SUSSEX COUNTY CONSERVATION DISTRICT AND SUSSEX COUNTY ENGINEERING REQUIREMENTS. THE SITE IS TO BE TREATED BY MULTIPLE WET PONDS. MAINTENANCE OF THE ON-SITE STORMWATER MANAGEMENT FACILITIES AND STORM DRAINAGE SYSTEM SHALL BE BY THE OWNER UNTIL DEDICATION TO THE HOMEOWNERS ASSOCIATION. THE PERPETUAL MAINTENANCE OF THE ABOVE PROACTIVE SHALL BE BY THE RESPECTIVE ORGANIZATION.
- ALL OPEN SPACE, INCLUDING BUFFERS AND FOREST STRIPS, SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- FOR ANY NEW DEVELOPMENT LOCATED IN WHOLE OR IN PART WITH 50 FEET OF THE BOUNDARY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES, NO IMPROVEMENT REQUIRING AN OCCUPANCY APPROVAL FOR A RESIDENTIAL TYPE USE SHALL BE CONSTRUCTED WITHIN 50 FEET OF THE BOUNDARY OF THE LANDS USED PRIMARILY FOR AGRICULTURAL PURPOSES.
- POTABLE WATER, SANITARY SEWER, STORM DRAINAGE, STREET PAVEMENT SHALL BE CONSTRUCTED BY DEVELOPER. PHASING OF IMPROVEMENTS SHALL BE PER COUNTY AND CONSERVATION DISTRICT REQUIREMENTS.
- THIS PROPERTY IS LOCATED IN THE VICINITY OF LAND USED PRIMARILY FOR AGRICULTURAL PURPOSES ON WHICH NORMAL AGRICULTURAL PURPOSES AND ACTIVITIES HAVE BEEN AFFORDED THE HIGHEST PRIORITY USE STATUS. IT CAN BE ANTICIPATED THAT SUCH USES NOW OR IN THE FUTURE, INVOLVE NOISE, DUST, MANURE AND OTHER ODORS, THE USE OF AGRICULTURAL CHEMICALS AND NIGHTTIME FARM OPERATIONS. THE USE AND ENJOYMENT OF THIS PROPERTY IS EXPRESSLY CONDITIONED ON ACCEPTANCE OF ANY ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM NORMAL AGRICULTURAL USES AND ACTIVITIES.
- THE PROPERTY IS NOT LOCATED WITHIN ANY TRANSPORTATION IMPROVEMENT DISTRICTS.
- ALL SUBDIVISION LOTS SHALL HAVE FIVE FOOT WIDE EASEMENTS ALONG ALL LOT LINES FOR A TOTAL EASEMENT WIDTH OF 10 FEET ALONG A LOT LINE COMMON TO TWO LOTS. EASEMENTS ALONG PERIMETER (RIGHT-OF-WAY AND OPEN SPACE) SHALL BE 10 FEET IN WIDTH.
- ARTESIAN WATER COMPANY INC. AND ARTESIAN WASTEWATER MANAGEMENT INC. ARE HEREBY GRANTED UNINTERRUPTED AND PERPETUAL EASEMENT WITHIN THE PRIVATE COMMUNITY STREET RIGHT-OF-WAY AND OPEN SPACE.

CONSTRUCTION PLANS

1 - COVER SHEET	19 - BULK GRADING PLAN C	37 - FIRE MARSHAL PLAN	55 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 5
2 - GENERAL NOTES	20 - BULK GRADING PLAN D	38 - WATER PLAN A	56 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 6
3 - EXISTING CONDITIONS	21 - DETAILS 1	39 - WATER PLAN B	57 - POST CONSTRUCTION SITE SWM
4 - INDEX PLAN	22 - DETAILS 2	40 - WATER PLAN C	58 - POST CONSTRUCTION SWM PLAN - POND 1
5 - ROAD AND STORM DRAIN PLAN A	23 - DETAILS 3	41 - WATER PLAN D	59 - POST CONSTRUCTION SWM PLAN - POND 2
6 - ROAD AND STORM DRAIN PLAN B	24 - SANITARY SEWER INDEX	42 - WATER PROFILES 1	60 - POST CONSTRUCTION SWM PLAN - POND 3
7 - ROAD AND STORM DRAIN PLAN C	25 - SANITARY SEWER PLAN A	43 - WATER PROFILES 2	61 - POST CONSTRUCTION SWM PLAN - POND 4
8 - ROAD AND STORM DRAIN PLAN D	26 - SANITARY SEWER PLAN B	44 - ARTESIAN WATER NOTES AND DETAILS	62 - POST CONSTRUCTION SWM PLAN - POND 5
9 - ROAD PROFILES 1	27 - SANITARY SEWER PLAN C	45 - ARTESIAN WATER DETAILS	63 - PHASING PLAN
10 - ROAD PROFILES 2	28 - SANITARY SEWER PLAN D	46 - EROSION AND SEDIMENT CONTROL COVER	E-1 - PUMP STATION SITE PLAN & LEGEND
11 - DETAILED INTERSECTION GRADING	29 - SANITARY SEWER PROFILES 1	47 - STORMWATER AND BULK EARTHWORK PHASING PLAN	E-2 - S.E.C. DIAGRAM & DETAIL
12 - STORM DRAIN PROFILES 1	30 - SANITARY SEWER PROFILES 2	48 - PRE-CONSTRUCTION SITE SWM PLAN	E-3 - DETAILS, DIAGRAM, & SCHEDULE
13 - STORM DRAIN PROFILES 2	31 - SANITARY SEWER PROFILES 3	49 - CONSTRUCTION SITE SWM PLAN	
14 - STORM DRAIN PROFILES 3	32 - SANITARY SEWER DETAILS 1	50 - STORM DRAIN OUTFALL CONSTRUCTION DETAILS	
15 - STORM DRAIN PROFILES 4	33 - SANITARY SEWER DETAILS 2	51 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 1	
16 - STORM DRAIN PIPE AND STRUCTURE CHARTS	34 - PUMP STATION SITE PLAN	52 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 2	
17 - BULK GRADING PLAN A	35 - PUMP STATION DETAILS 1	53 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 3	
18 - BULK GRADING PLAN B	36 - PUMP STATION DETAILS 2	54 - EROSION AND SEDIMENT CONTROL NOTES & DETAILS 4	

PRELIMINARY PLAT INDEX

- COVER
- EXISTING CONDITIONS
- PERLIMINARY PLAT A
- PRELIMINARY PLAT B
- PRELIMINARY PLAT C
- PRELIMINARY PLAT D

DELDOT PLAN INDEX

- TITLE
- LEGEND
- CONSTRUCTION & MOT NOTES
- PLAN SHEET INDEX
- TYPICAL SECTIONS 1
- TYPICAL SECTIONS 2
- HORIZONTAL & VERTICAL CONTROL
- PHASE 1 CONSTRUCTION & GRADING PLAN
- CONSTRUCTION PLANS
- 11-13 - GRADING PLANS
- PROFILES & CONSTRUCTION DETAILS
- 15-16 - SIGNING AND STRIPING PLANS
- 17-23 - PHILLIPS BRANCH ROAD CROSS SECTIONS
- 24-25 - MOT & EROSION SEDIMENT CONTROL PLANS



Date: 1/10/2024

NO.	DATE	DESCRIPTION
1	6/16/2023	ADDED SCD COMMENTS
2	6/29/2023	ADDED ARTESIAN WATER & SEWER COMMENTS
3	7/19/2023	ADDED ARTESIAN WATER & SEWER COMMENTS
4	10/11/2023	REVISE SEWER CONNECTIONS AND FOREMAN
5	12/16/2023	UPDATED PHASING AND SEWER CONNECTION
6	1/10/2024	ADDED ARTESIAN SEWER COMMENTS

WELAND STATEMENT

I, Edward M. Launay, PWS, STATES THAT THE BOUNDARIES OF WATERS OF THE UNITED STATES INCLUDING WETLANDS SUBJECT TO THE CORPS OF ENGINEERS REGULATORY PROGRAM DELINEATED UPON THIS PLAN HAVE BEEN DETERMINED USING MY PROFESSIONAL JUDGMENT IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, ATLANTIC GULF COAST REGIONAL SUPPLEMENT, REGULATIONS AND SUPPLEMENTAL GUIDANCE (33 CFR 328.3(a)(8)), Waters of the U.S., Definition/CECW-OR, (10-7-1991), Questions and Answers on the 1987 CDE Manual/CECW-OR, 9-26-1990, RCL 90-7/CECW-OR, 3-4-1992, Clarification and Interpretation of the 1987 Manual). THIS DELINEATION HAS NOT BEEN CONDUCTED FOR USDA PROGRAM OR AGRICULTURAL PURPOSES.

EDWARD M. LAUNAY, PWS No. 875 DATE 7/19/2023
SOCIETY OF WETLAND SCIENTISTS
CORPS OF ENGINEERS
CERTIFIED WELAND DELINEATOR WDCP93MD05100368

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THESE DRAWINGS HAVE BEEN PREPARED UNDER MY SUPERVISION.

JIM ERIKSEN, PE DATE

DEVELOPER'S CERTIFICATION

THE DEVELOPER, RIVERWOOD DEVELOPMENT, LLC, HEREBY CERTIFIES THAT THESE DRAWINGS HAVE BEEN APPROVED.

JAMIE KING, ESQ DATE 7/20/23

APPROVED, SUSSEX COUNTY ENGINEER AGREEMENT #1188

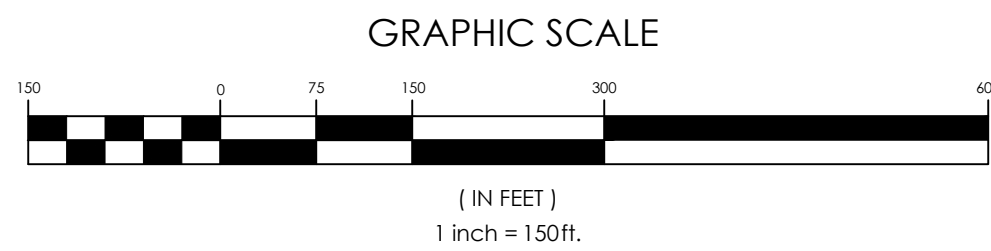
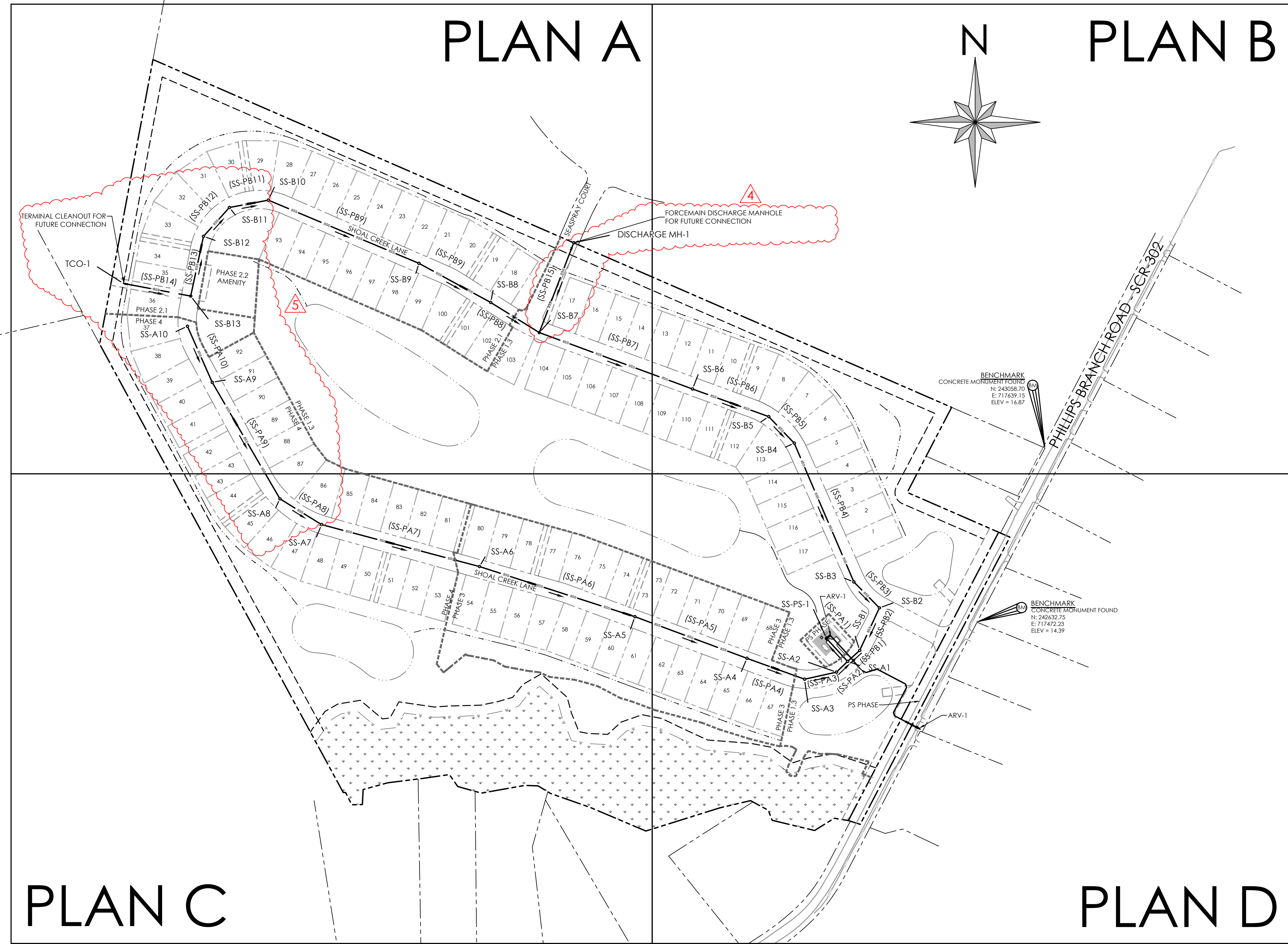
HANS MEDLARZ, PE DATE

COVER SHEET
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G20098
Scale:	1"=200'
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE

Sheet No.: 1

File Name: G20098-Cover.dwg



SANITARY SEWER STRUCTURE CHART				
NAME	RIM ELEV.(FT)	INVERT-IN ELEV.(FT) (1)	INVERT-IN ELEV.(FT) (2)	INVERT-OUT ELEV.(FT)
SS-PS-1	14.43	4.31	N/A	9.27
SS-A1	12.52	4.78	N/A	4.61
SS-A2	12.60	5.83	N/A	5.78
SS-A3	13.27	7.85	N/A	7.80
SS-A4	15.04	9.09	N/A	9.04
SS-A5	16.10	10.50	N/A	10.45
SS-A6	20.06	12.37	N/A	12.32
SS-A7	20.92	13.42	N/A	13.37
SS-A8	21.66	14.45	N/A	14.40
SS-A9	22.79	16.68	N/A	16.63
SS-A10	22.67	N/A	N/A	17.67
SS-B1	12.76	4.95	N/A	4.90
SS-B2	13.20	5.34	N/A	5.29
SS-B3	12.94	5.66	N/A	5.61
SS-B4	14.95	6.82	N/A	6.77
SS-B5	15.45	7.14	N/A	7.09
SS-B6	16.44	7.79	N/A	7.74
SS-B7	18.62	9.04	9.04	8.99
SS-B8	18.26	9.51	N/A	9.46
SS-B9	18.48	10.16	N/A	10.11
SS-B10	20.02	11.61	N/A	11.56
SS-B11	20.40	11.75	N/A	11.70
SS-B12	20.77	12.08	N/A	12.03
SS-B13	21.98	12.73	N/A	12.68
SS-B14	22.63	N/A	N/A	13.80
SS-B15	23.53	N/A	N/A	11.08
TCO-1	22.63	N/A	N/A	13.80
DISCHARGE MH-1	17.08	N/A	N/A	11.08

SANITARY SEWER PIPE TABLE						
NAME	SIZE (IN)	MATERIAL	LENGTH (FT)	SLOPE (%)	UP INVERT (FT)	DOWN INVERT (FT)
SS-PA1	10	Ductile Iron	76.19	0.40	4.61	4.31
SS-PA2	8	PVC - SDR 26	38.00	2.63	5.78	4.78
SS-PA3	8	PVC - SDR 26	80.00	2.46	7.80	5.83
SS-PA4	8	PVC - SDR 26	150.00	0.79	9.04	7.85
SS-PA5	8	PVC - SDR 26	292.58	0.46	10.45	9.09
SS-PA6	8	PVC - SDR 26	400.00	0.46	12.32	10.50
SS-PA7	8	PVC - SDR 26	400.00	0.30	13.37	12.32
SS-PA8	8	PVC - SDR 26	120.00	0.65	14.40	13.62
SS-PA9	8	PVC - SDR 26	330.00	0.66	16.63	14.45
SS-PA10	8	PVC - SDR 26	150.00	0.66	17.67	16.68
SS-PB1	8	PVC - SDR 26	400.00	0.30	4.90	4.78
SS-PB2	8	PVC - SDR 26	114.67	0.30	5.29	4.95
SS-PB3	8	PVC - SDR 26	89.11	0.30	5.61	5.34
SS-PB4	8	PVC - SDR 26	370.00	0.30	6.77	5.66
SS-PB5	8	PVC - SDR 26	90.00	0.30	7.09	6.82
SS-PB6	8	PVC - SDR 26	198.42	0.30	7.74	7.14
SS-PB7	8	PVC - SDR 26	400.00	0.30	8.99	7.79
SS-PB8	8	PVC - SDR 26	140.00	0.30	9.46	9.04
SS-PB9	8	PVC - SDR 26	200.00	0.30	10.11	9.51
SS-PB10	8	PVC - SDR 26	400.00	0.30	11.56	10.16
SS-PB11	8	PVC - SDR 26	97.00	0.30	11.70	11.41
SS-PB12	8	PVC - SDR 26	95.00	0.30	12.03	11.75
SS-PB13	8	PVC - SDR 26	149.54	0.40	12.68	12.08
SS-PB14	8	PVC - SDR 26	167.50	0.64	13.80	12.73
SS-PB15	8	PVC - SDR 26	235.53	0.87	11.08	9.04

SITE DATA:

OWNER: RIVERWOOD DEVELOPMENT, LLC
30435 SOUTHAMPTON BRIDGE ROAD
SALISBURY, MD 21804

APPLICANT/
DEVELOPER: RIVERWOOD DEVELOPMENT, LLC
30 EAST PINE STREET
GEORGETOWN, DE 19947
PHONE: 302-644-4442
CONTACT: JAMIE KING, ESQ

ENGINEER: SOLUTIONS IPEM
303 NORTH BEDFORD STREET
GEORGETOWN, DE 19947
PHONE: 302.297.9215
CONTACT: JIM ERIKSEN, PE

- TAX MAP: 234-17.00-3.00
SITE AREA = 58.6 ± ACRES
- PROPOSED USE: AR-1 CLUSTER SUBDIVISION
117 SINGLE FAMILY LOTS
- EXISTING ZONING: AR-1
- FLOOD ZONE: THE PROPERTY IS LOCATED WITHIN FLOOD ZONE AE (SPECIAL HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, NO BASE ELEVATIONS DETERMINED) AND ZONE X (AREAS DETERMINED TO OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FIRM MAP NUMBER 10005C0340K MAP REVISED MARCH 16, 2015
- WATER SUPPLY: ARTESIAN WATER COMPANY, INC.
- SANITARY SEWER: ARTESIAN WASTEWATER MANAGEMENT, INC.
- TOPOGRAPHY AND BOUNDARY SHOWN HEREIN ARE AS PROVIDED BY SOLUTIONS IPEM LLC.

SEWER PLAN SHEETS

- 24 - SANITARY SEWER INDEX
- 25 - SANITARY SEWER PLAN A
- 26 - SANITARY SEWER PLAN B
- 27 - SANITARY SEWER PLAN C
- 28 - SANITARY SEWER PLAN D
- 29 - SANITARY SEWER PROFILES 1
- 30 - SANITARY SEWER PROFILES 2
- 31 - SANITARY SEWER PROFILES 3
- 32 - SANITARY SEWER DETAILS 1
- 33 - SANITARY SEWER DETAILS 2
- 34 - PUMP STATION SITE PLAN
- 35 - PUMP STATION DETAILS 1
- 36 - PUMP STATION DETAILS 2
- E-1 - PUMP STATION SITE PLAN & LEGEND
- E-2 - S.E.C. DIAGRAM & DETAIL
- E-3 - DETAIL, DIAGRAM, & SCHEDULE

NOTES:

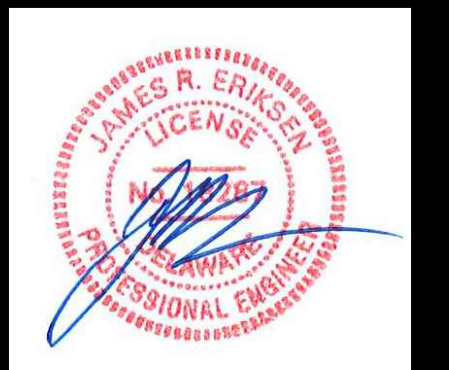
- THE SANITARY SEWER AND FORCE MAIN SHALL CONFORM TO THE ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARDS AND SPECIFICATIONS AND COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
- ARTESIAN WASTEWATER MANAGEMENT, INC. WILL OWN, OPERATE, AND MAINTAIN THE ON-SITE COMMUNITY WASTEWATER TREATMENT SYSTEM. THE ON-SITE COMMUNITY WASTEWATER PLAN WILL BE OPERATED UNDER THE PUBLIC SERVICE COMMISSION.
- AN AGREEMENT FOR OPERATION AND MAINTENANCE OF THE ON-SITE COMMUNITY WASTEWATER SYSTEM MUST BE MAINTAINED IN ACCORDANCE WITH DNREC REQUIREMENTS.
- TOTAL NUMBER OF LATERALS ASSOCIATED WITH THESE PLANS IS 118 (INCLUDING AMENITY AREA).
- ALL PVC GRAVITY-FED SANITARY SEWER PIPES SHALL BE GREEN SDR-26.
- FORCE MAIN SHALL BE PVC C900 GREEN PIPE.
- CONTRACTOR TO COORDINATE CONSTRUCTION SEQUENCING WITH ARTESIAN TO AVOID SERVICE INTERRUPTIONS AS PRACTICABLE.
- POOL BACKWASH WILL NOT BE ALLOWED TO TIE INTO THE SEWER SYSTEM. CARTRIDGE SYSTEM SHALL BE UTILIZED.



303 North Bedford Street
Georgetown, DE 19947
T. 302.297.9215

3033 Manthill Mill Road
Salisbury, MD 21804
T. 410.572.8833

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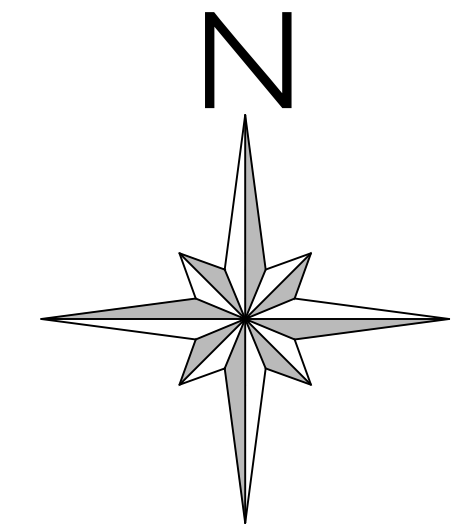
Date: 1/10/2024

NO.	DATE	DESCRIPTION
1	6/16/2023	ADDRESSED SCD COMMENTS
2	6/29/2023	ADDRESSED ARTESIAN WATER & SEWER COMMENTS
3	7/19/2023	ADDRESSED ARTESIAN WATER & SEWER COMMENTS
4	10/11/2023	REVISE SEWER CONNECTIONS AND FORCE MAIN
5	12/6/2023	UPDATED PHASING AND SEWER CONNECTION
6	1/10/2024	ADDRESSED ARTESIAN SEWER COMMENTS

SANITARY SEWER INDEX

for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G20098
Scale:	1" = 150'
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE



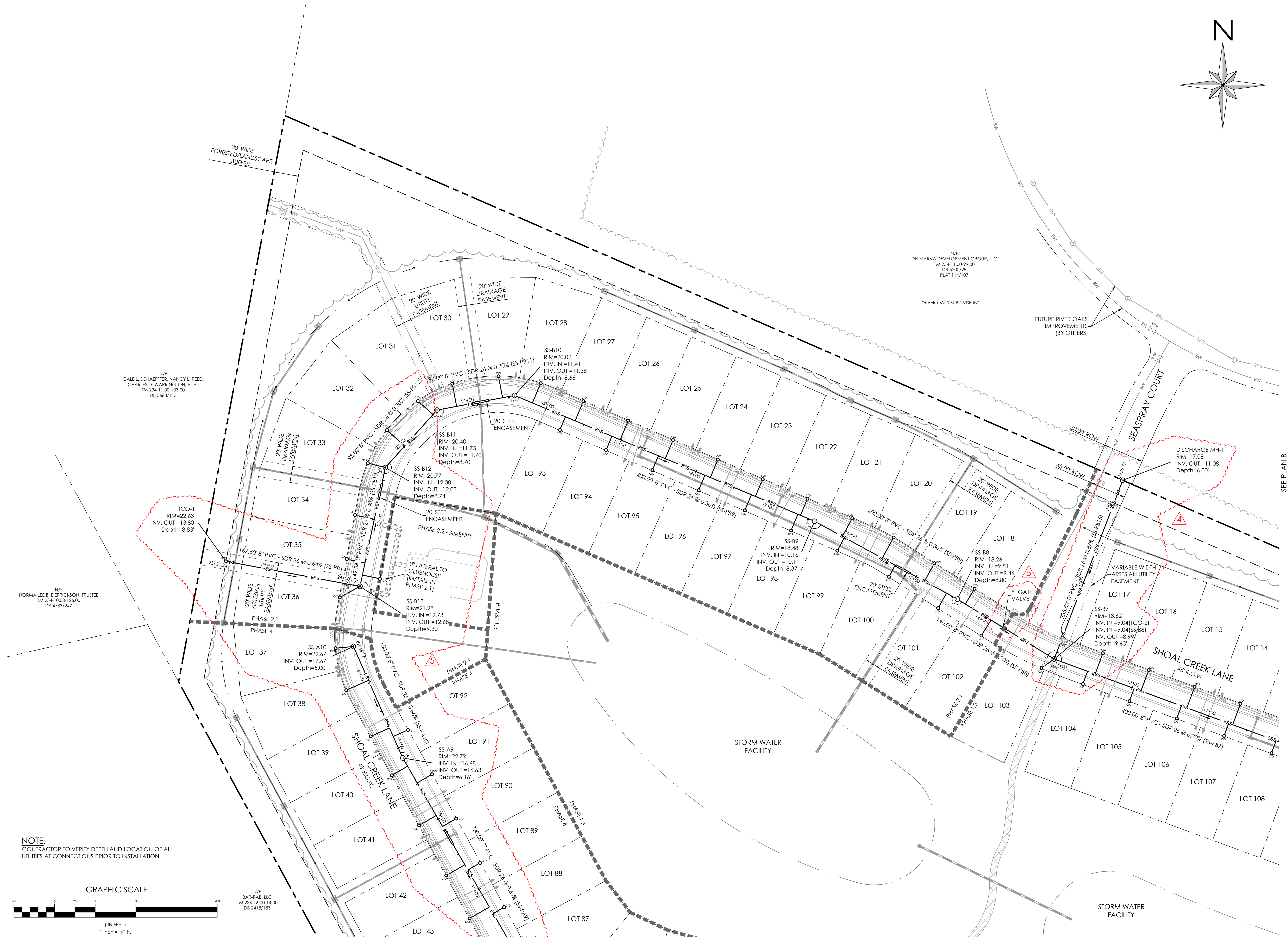
Date: 1/10/2024

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for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022	Job Number:	G20098	Scale:	1"=50'	Drawn By:	EDT	Designed By:	AMW	Approved By:	JRE
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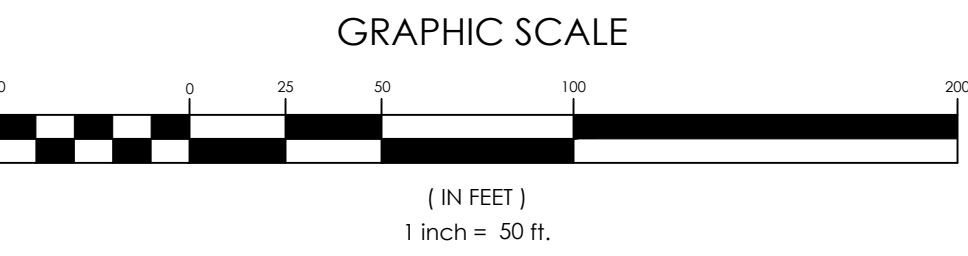


N/F
GALE L. SCHAEFFER, NANCY L. REED,
CHARLES D. WARRINGTON, ET AL.
TM 234-11.00-103.00
DB 5668/113

N/F
NORMA LEE B. DERRICKSON, TRUSTEE
TM 234-10.00-126.00
DB 4783/247

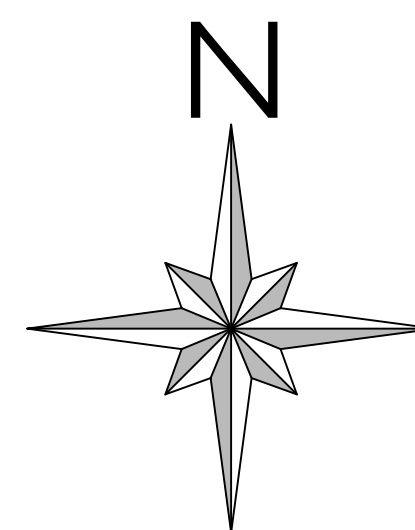
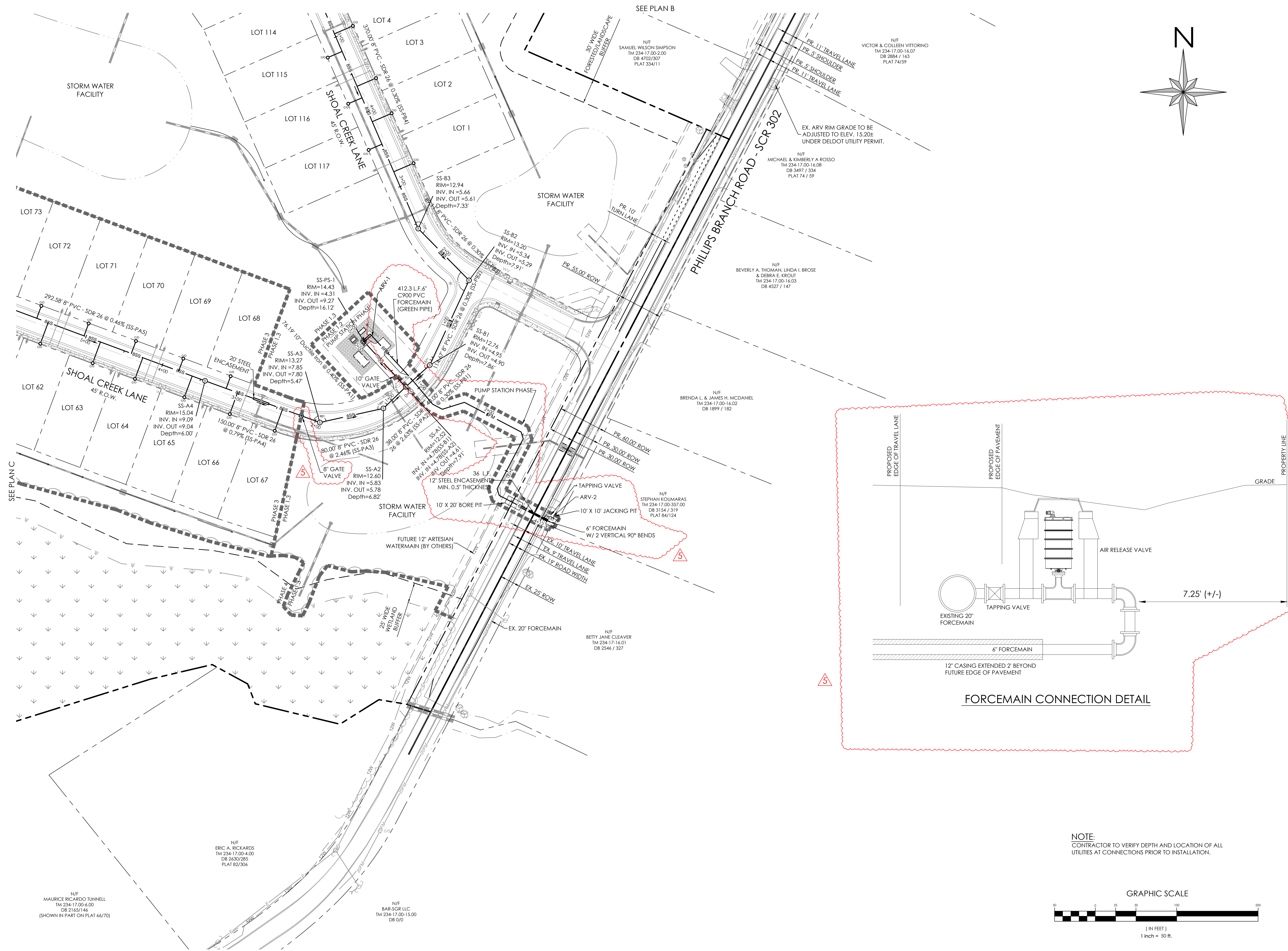
N/F
BAR-RAB, LLC
TM 234-16.00-14.00
DB 2418/183

NOTE:
CONTRACTOR TO VERIFY DEPTH AND LOCATION OF ALL
UTILITIES AT CONNECTIONS PRIOR TO INSTALLATION.



SEE PLAN B

SEE PLAN C



solutions
 CONSULTING ENGINEERS

303 North Bedford Street
 Georgetown, DE 19847
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Date: 1/10/2024

NO.	DATE	DESCRIPTION
1	6/16/2023	ADDRESS SCD COMMENTS
2	6/29/2023	ADDRESS ARTESIAN WATER & SEWER COMMENTS
3	7/19/2023	ADDRESS ARTESIAN WATER & SEWER COMMENTS
4	10/11/2023	REVISE SEWER CONNECTIONS AND FORCEMAIN
5	12/6/2023	UPDATED PHASING AND SEWER CONNECTION
6	1/10/2024	ADDRESS ARTESIAN SEWER COMMENTS

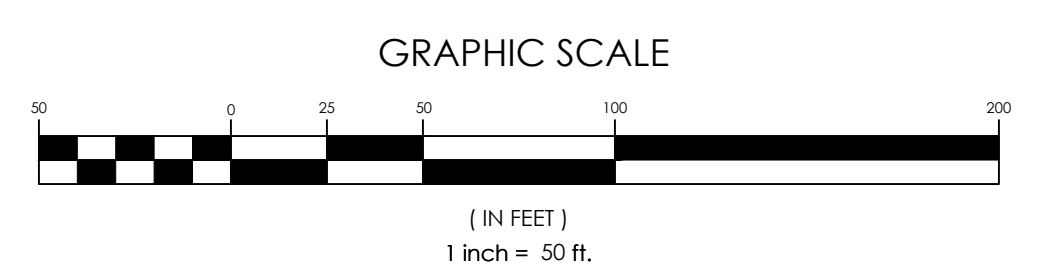
SANITARY SEWER PLAN 'D'
 for
RIVERWOOD
 SUSSEX COUNTY, DELAWARE
 INDIAN RIVER HUNDRED

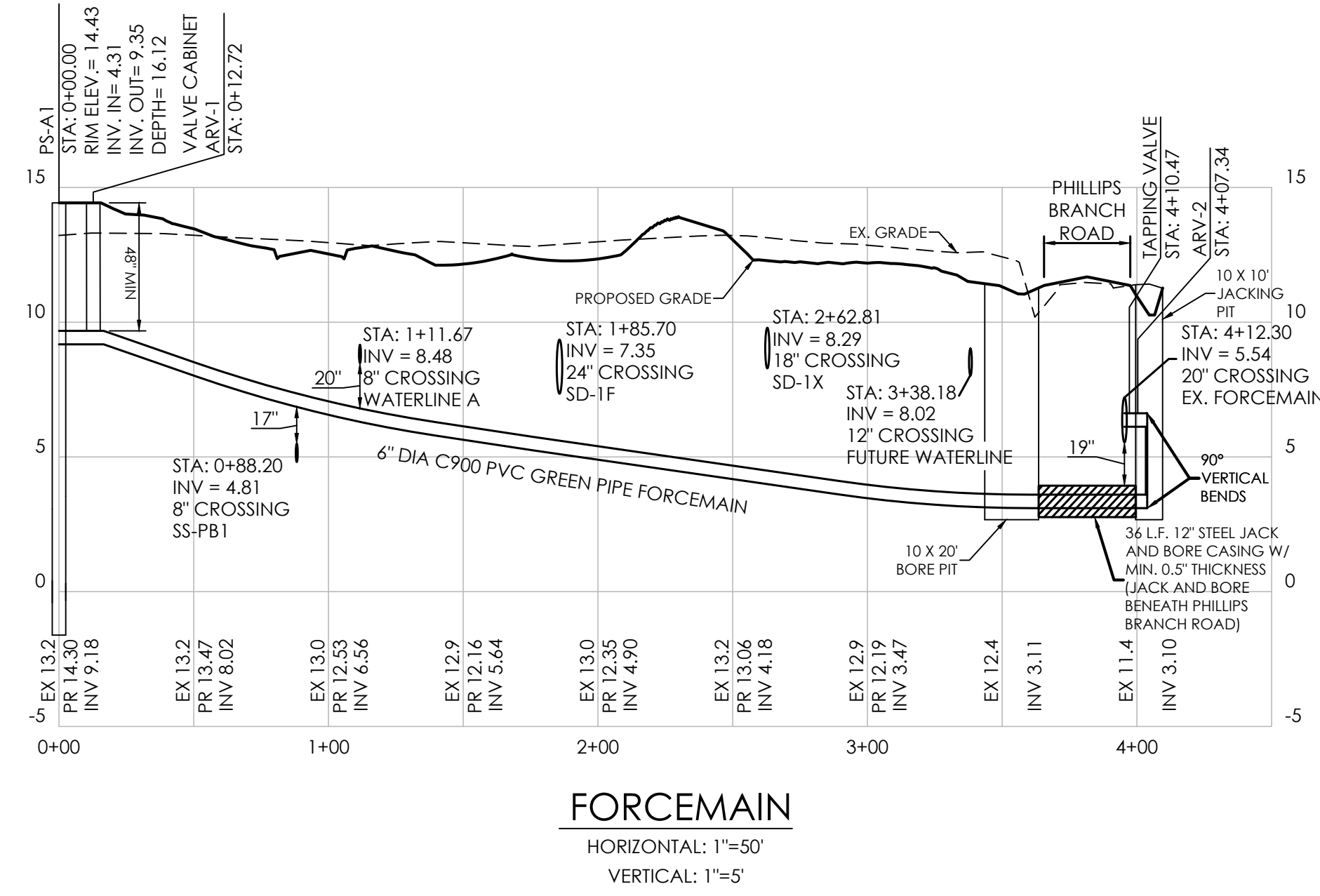
Date:	10-25-2022	Job Number:	G20098	Scale:	1"=50'	Drawn By:	EDT	Designed By:	AMW	Approved By:	JRE
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Sheet No.: **28**

File Name: G20098-Sewer.dwg

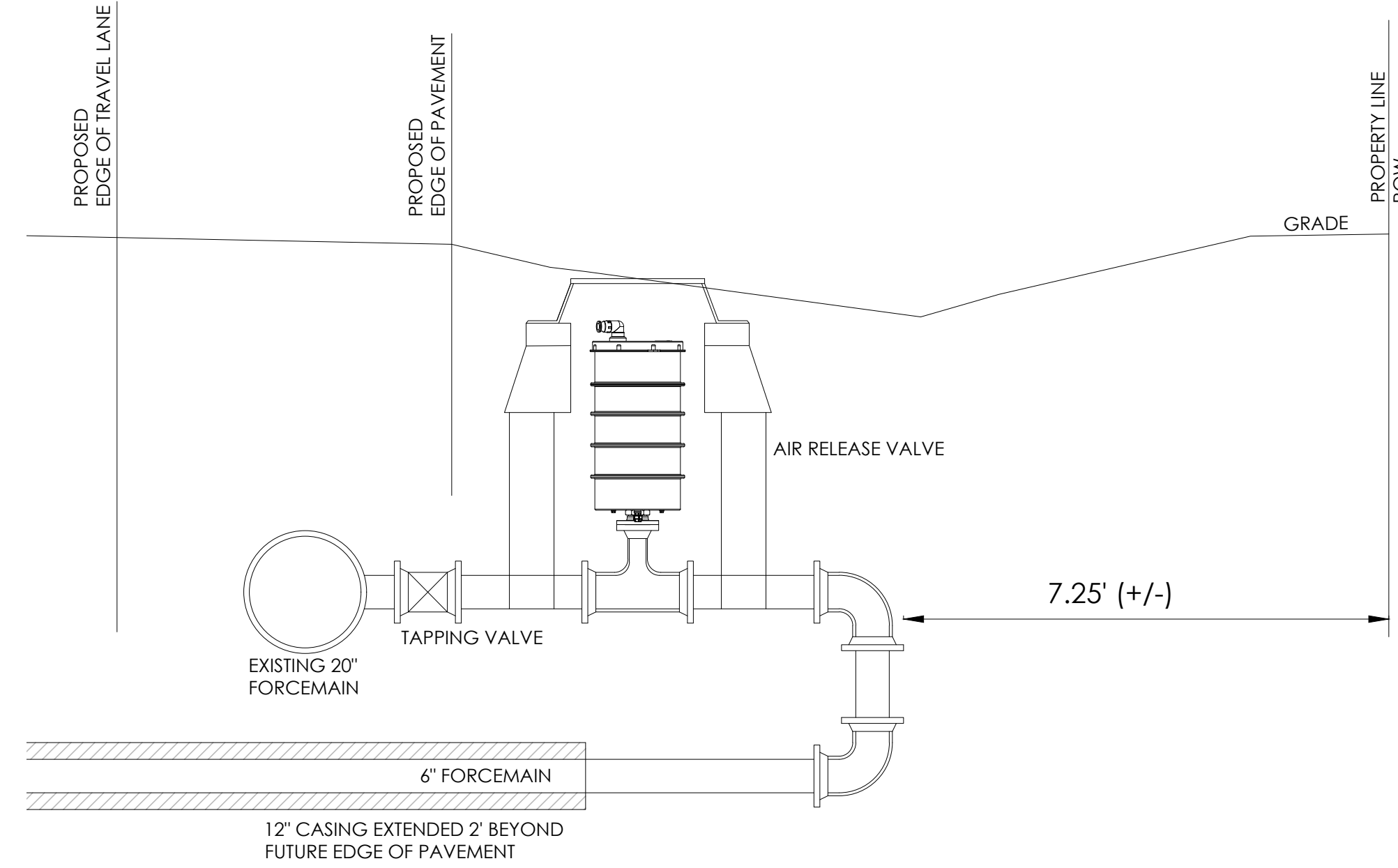
NOTE:
 CONTRACTOR TO VERIFY DEPTH AND LOCATION OF ALL UTILITIES AT CONNECTIONS PRIOR TO INSTALLATION.





- NOTES:
- ENCASEMENT PIPE SHALL BE WELDED STEEL PIPE. THE ENCASEMENT PIPE SHALL HAVE A MINIMUM TENSILE STRENGTH OF 60,000 PSI, A MINIMUM YIELD STRENGTH OF 35,000 PSI, AND MINIMUM WALL THICKNESS OF 0.2". THE WALL THICKNESS OF THE ENCASEMENT PIPE IS A MINIMUM. THE CONTRACTOR MAY INCREASE THE THICKNESS IF CONDITIONS OR METHODOLOGY REQUIRE. POLYETHYLENE CASING SPACERS, MODEL C1, AS MANUFACTURED BY ADVANCE PRODUCTS AND SYSTEMS INC. OR APPROVED EQUAL SHALL BE USED. CASING SPACERS SHALL BE INSTALLED EVERY 8 FEET OR PER MANUFACTURER'S RECOMMENDATIONS (WHICHEVER IS MORE STRINGENT).
 - EXISTING FM INVERT WAS PROVIDED BY ARTESIAN BASED ON TEST PITS PERFORMED BY ARTESIAN.

- NOTES:
- ALL PVC GRAVITY-FED SANITARY SEWER PIPE SHALL BE GREEN SDR 26 PVC UNLESS OTHERWISE NOTED.
 - ALL FORCE MAINS SHALL BE C900 PVC GREEN PIPE.
 - SEWERS CROSSING WATER MAINS SHALL BE LAID OUT TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. THE CROSSING SHALL BE ARRANGED SO THE SEWER JOINTS WILL BE EQUIDISTANT, AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS. CONCRETE ENCASEMENT SHALL BE REQUIRED WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION.
 - ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE SEWER PIPE. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION CONCRETE ENCASEMENT SHALL BE REQUIRED TO BE INSTALLED IN MINIMUM OF 5' ON EITHER SIDE OF THE CROSSING POINT ON THE LOWEST UTILITY.
 - RIVER OAKS MH SS-A11 IS NOT EXISTING AND SHALL BE INSTALLED BY OTHERS IN FUTURE.



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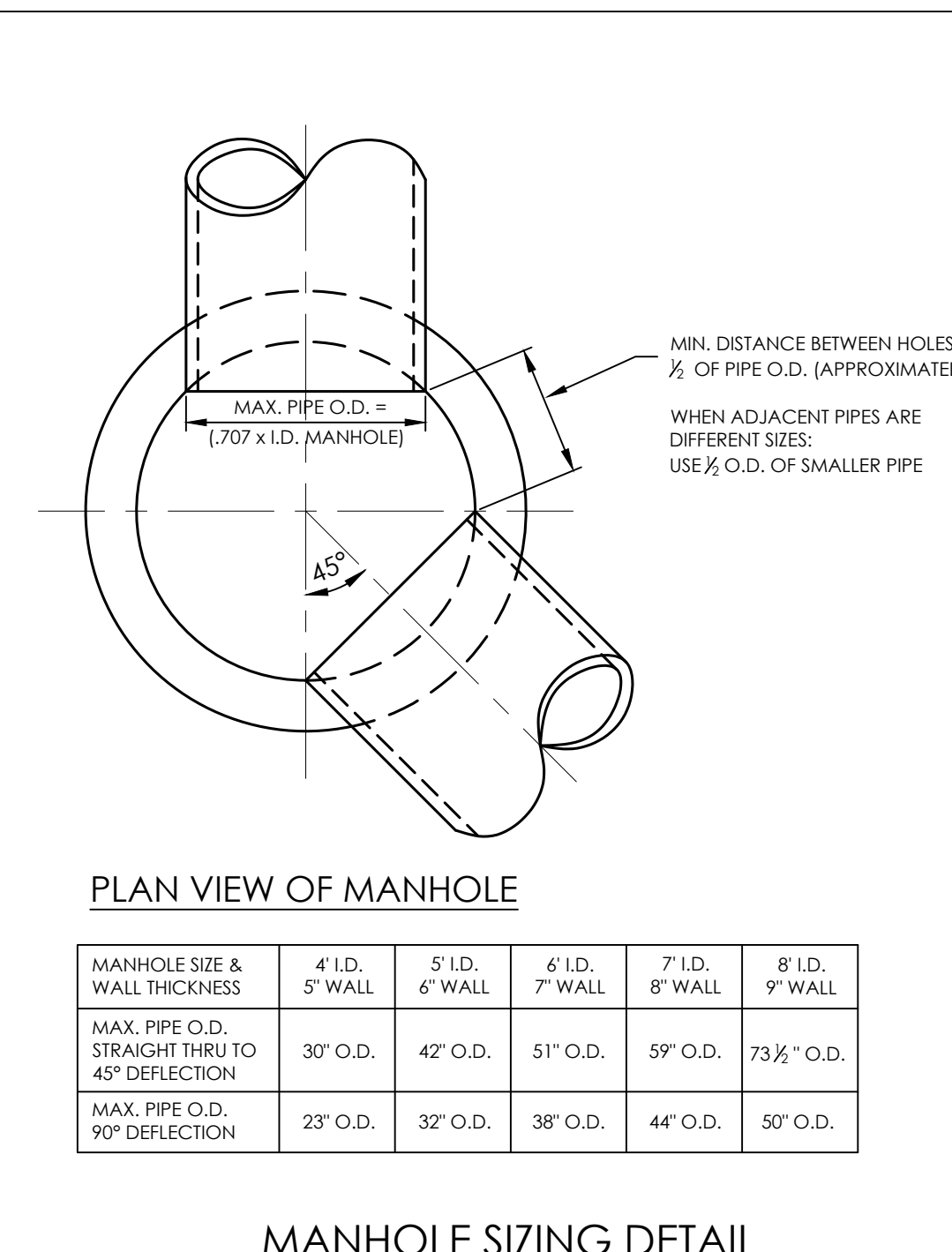
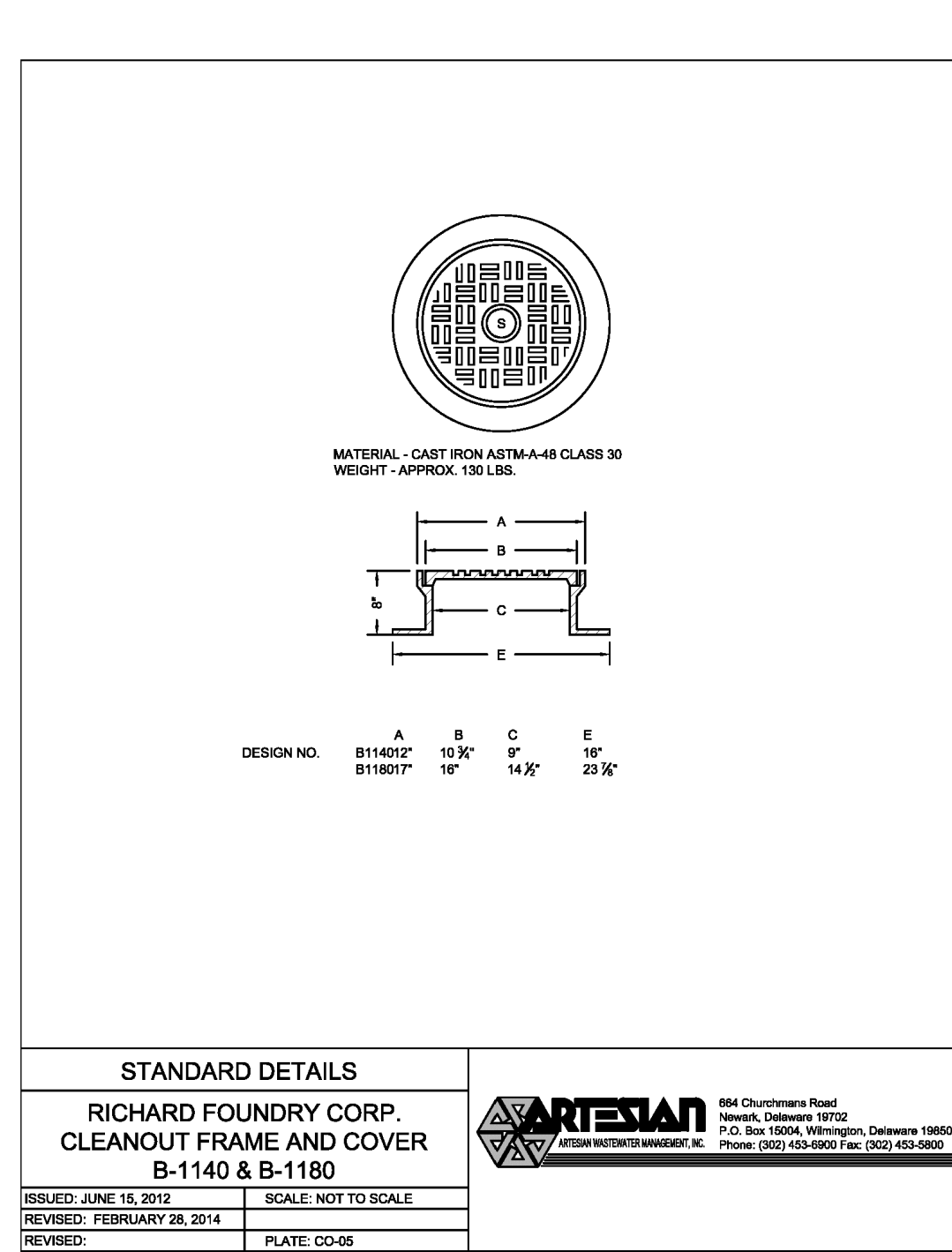
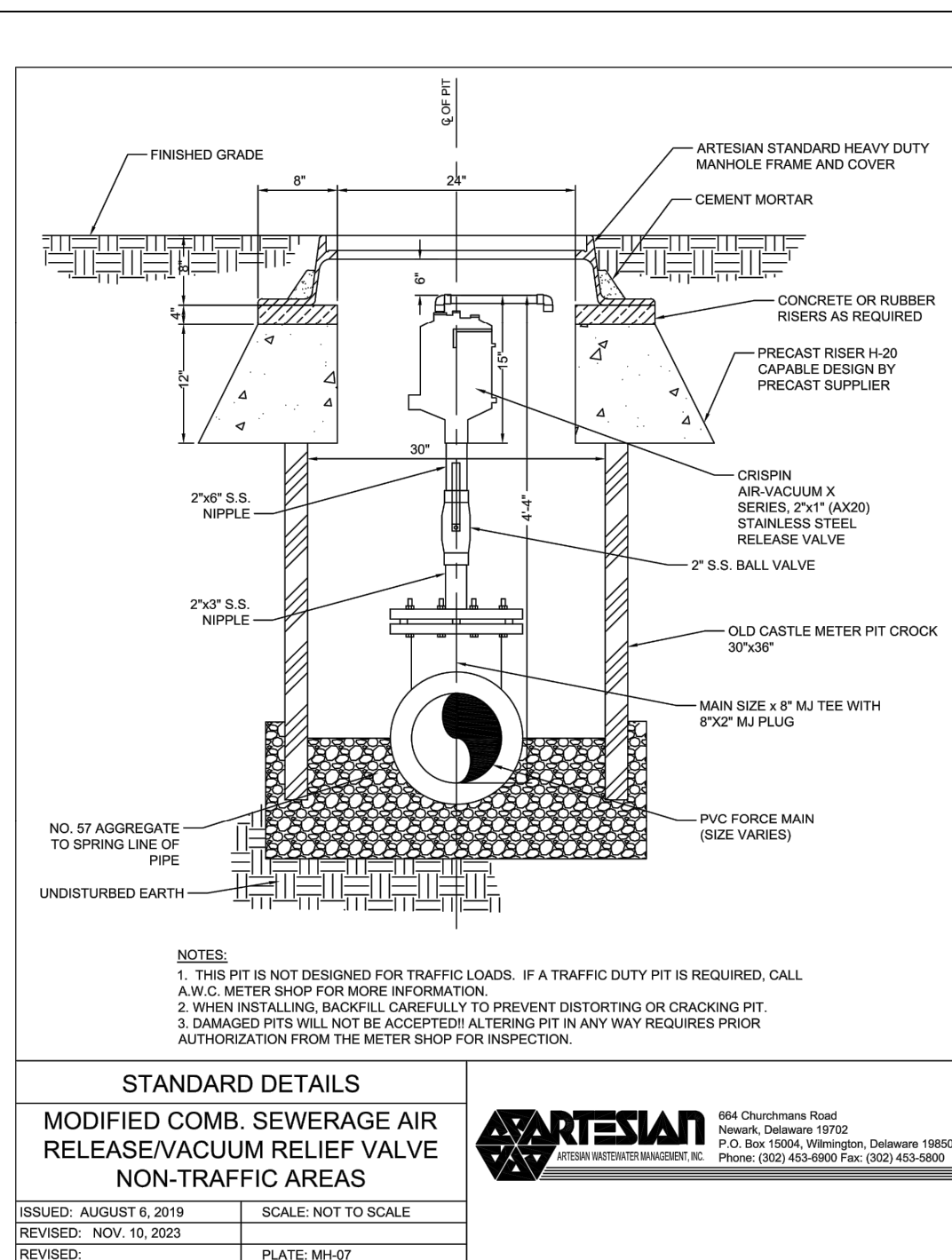
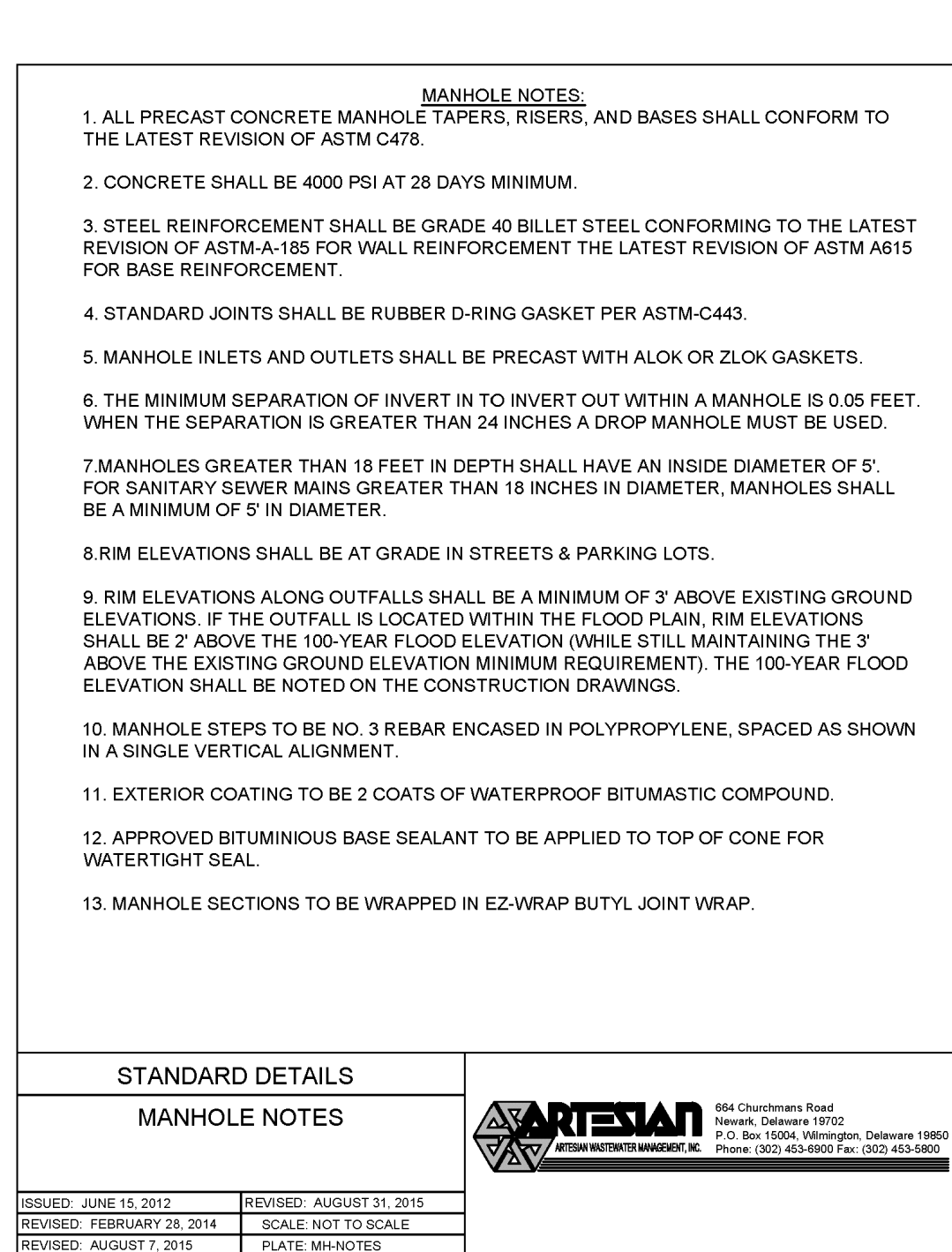
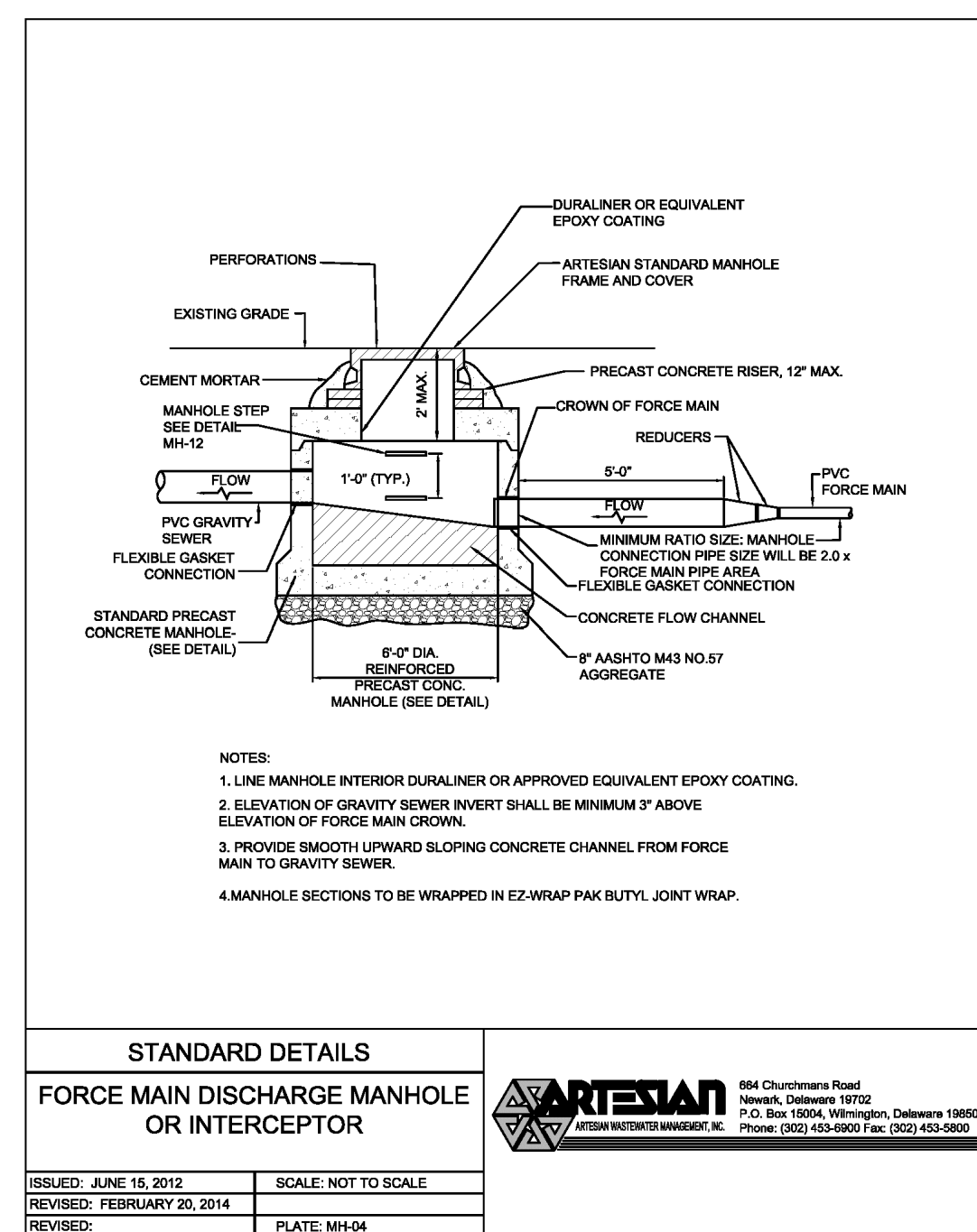
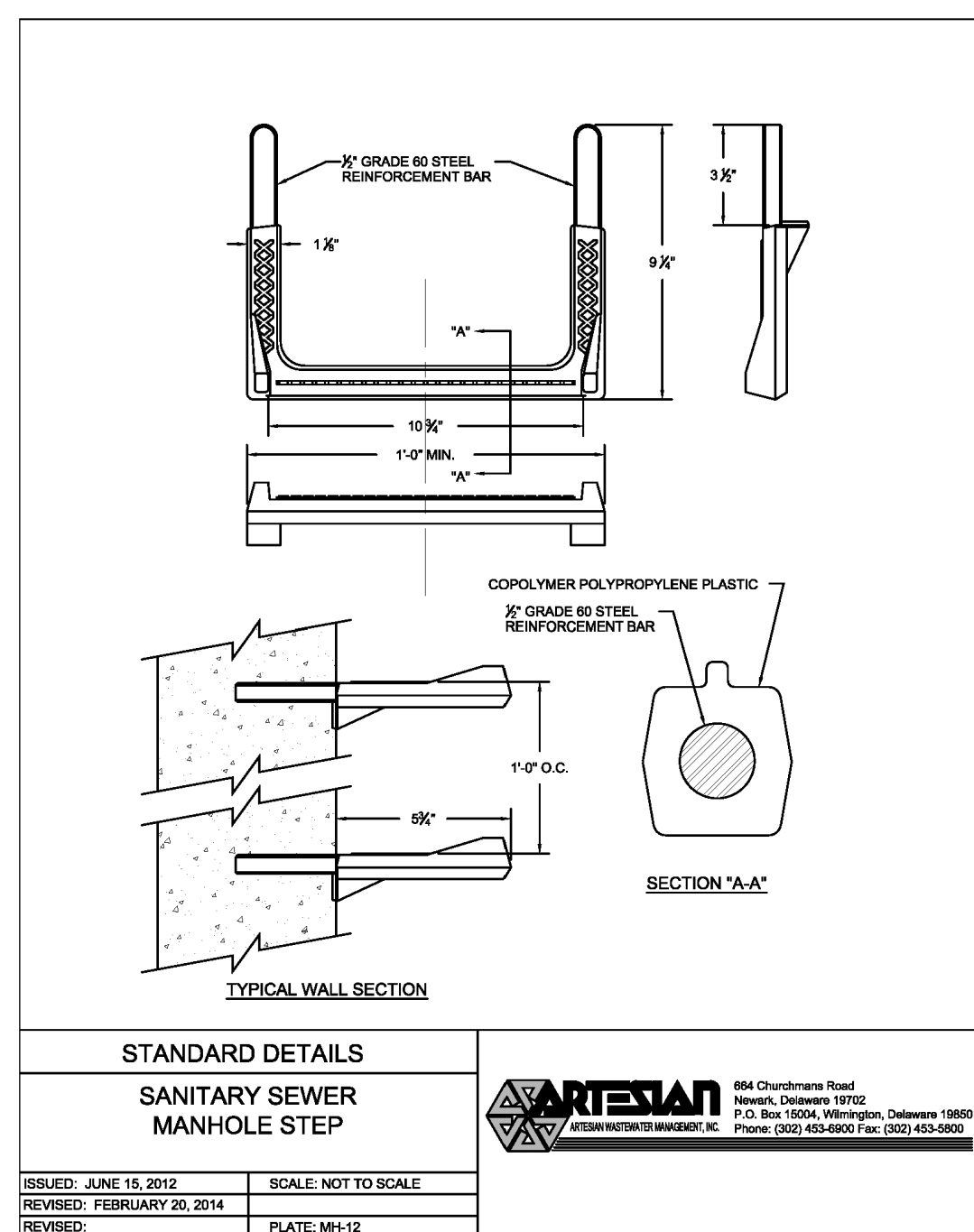
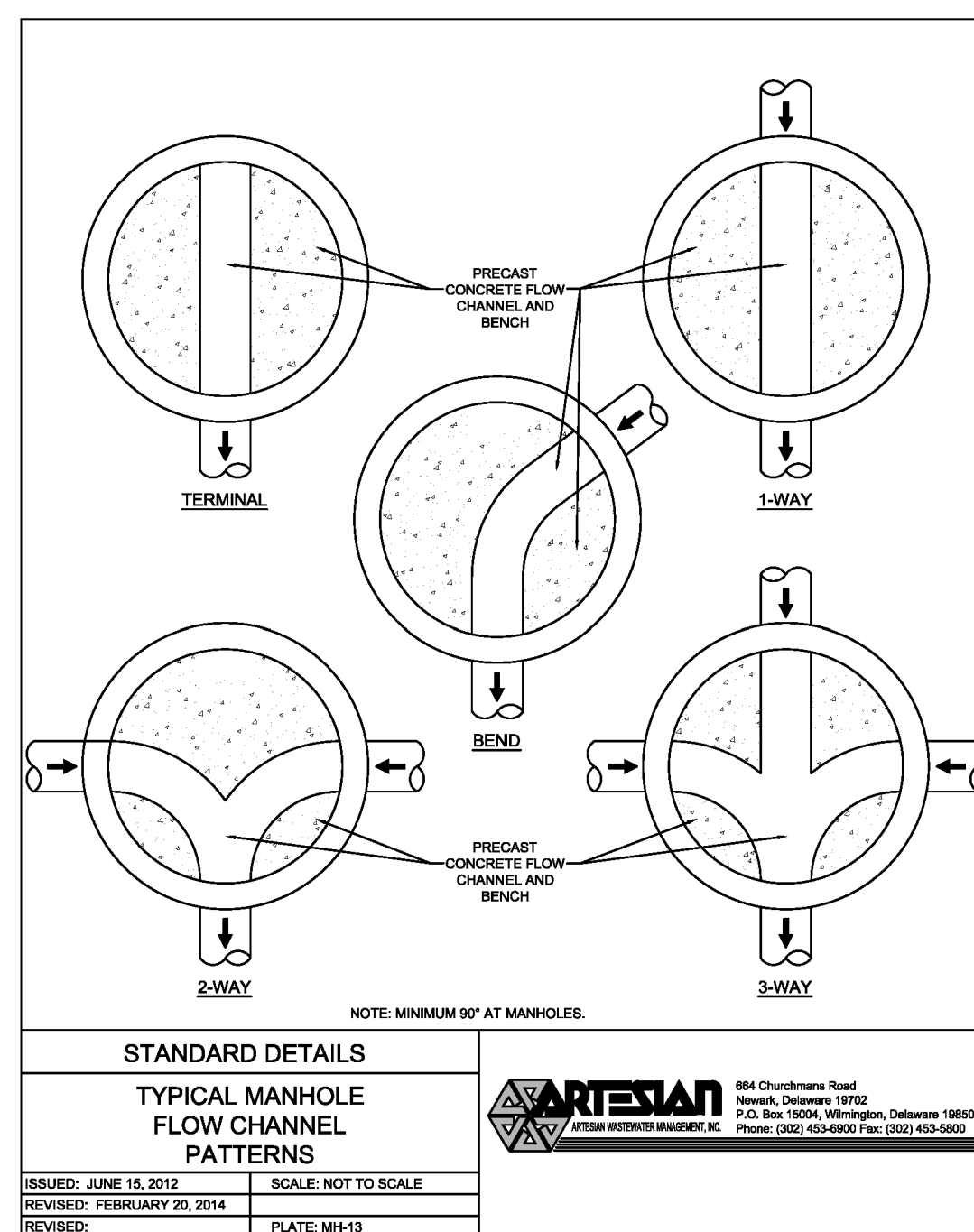
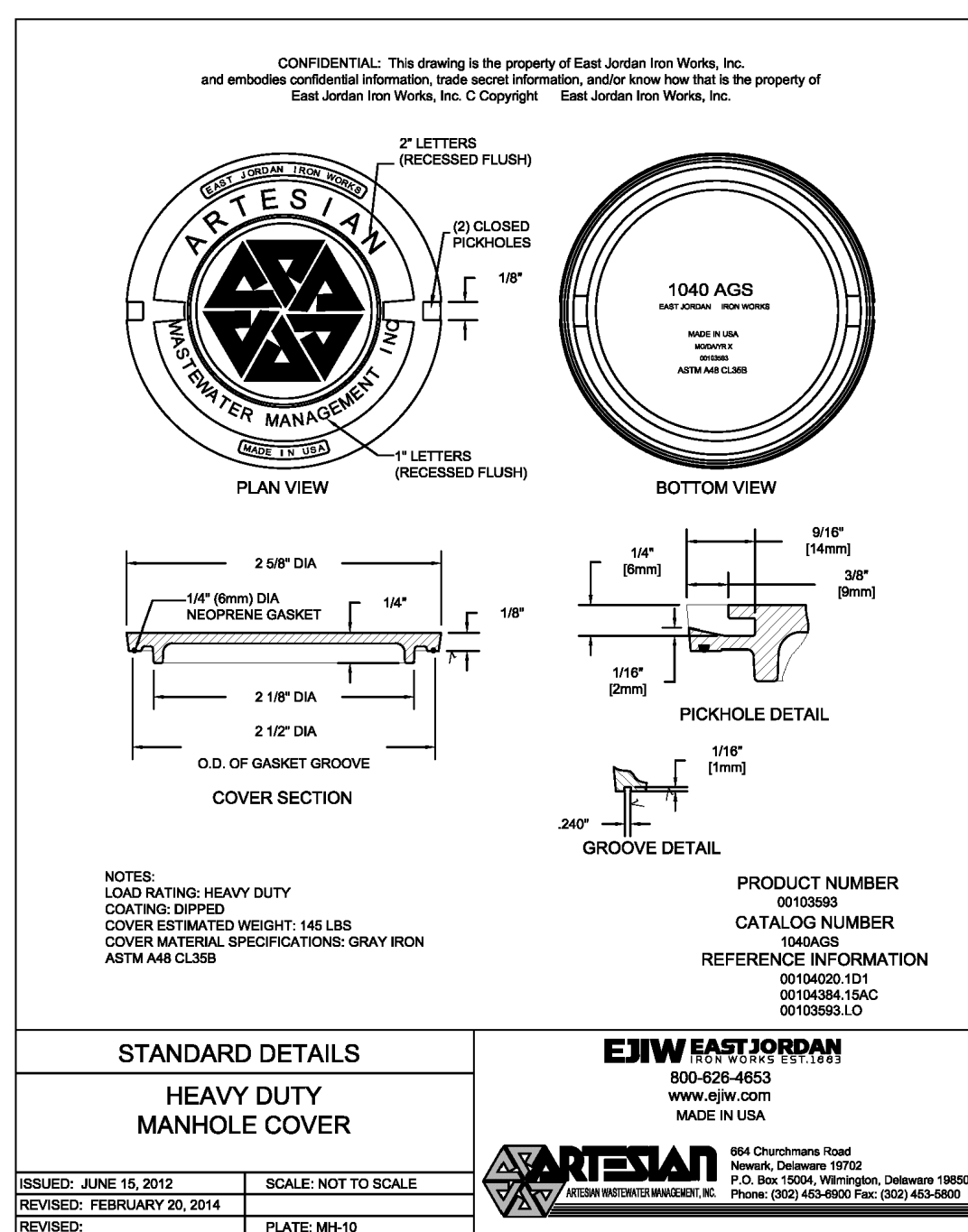
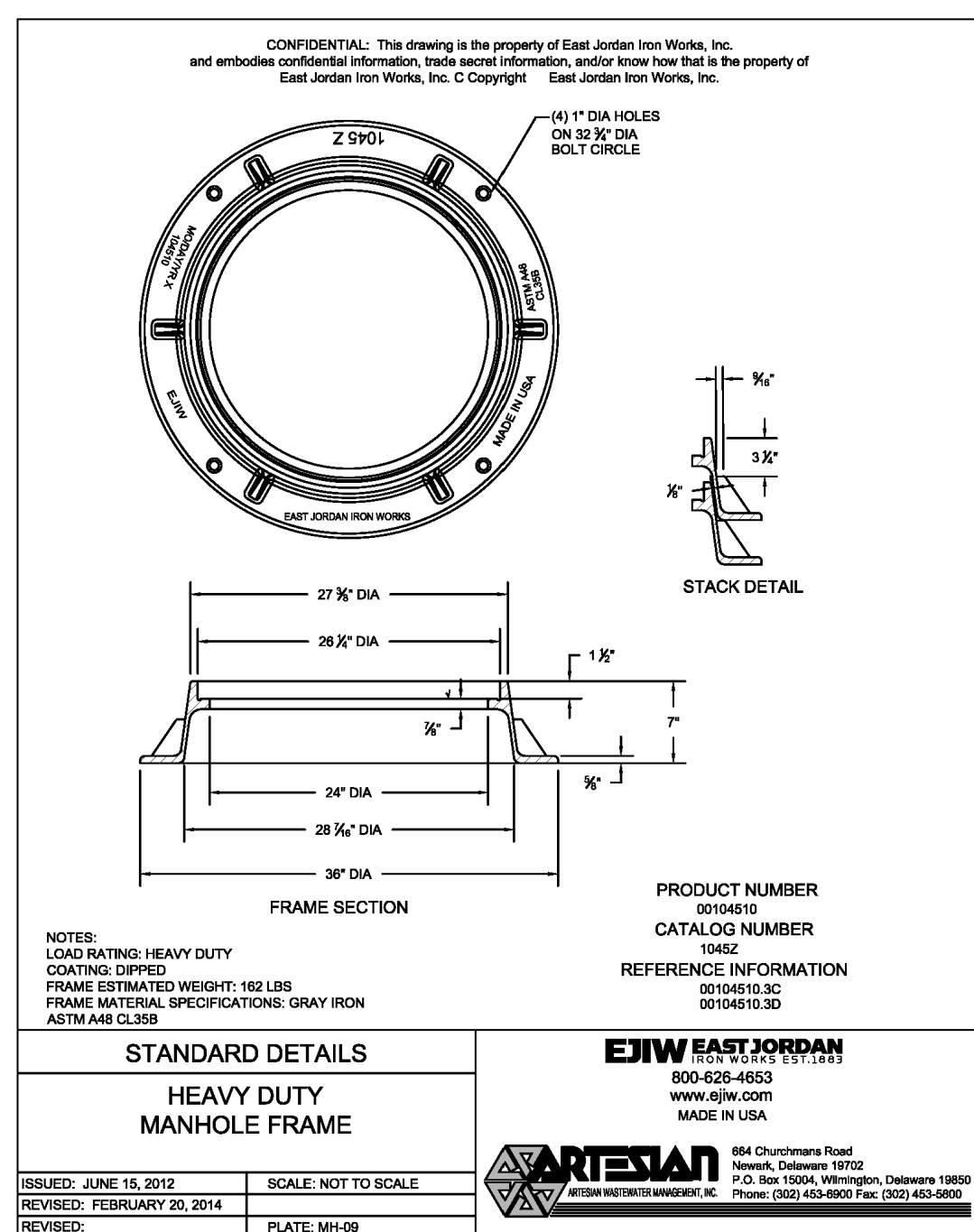
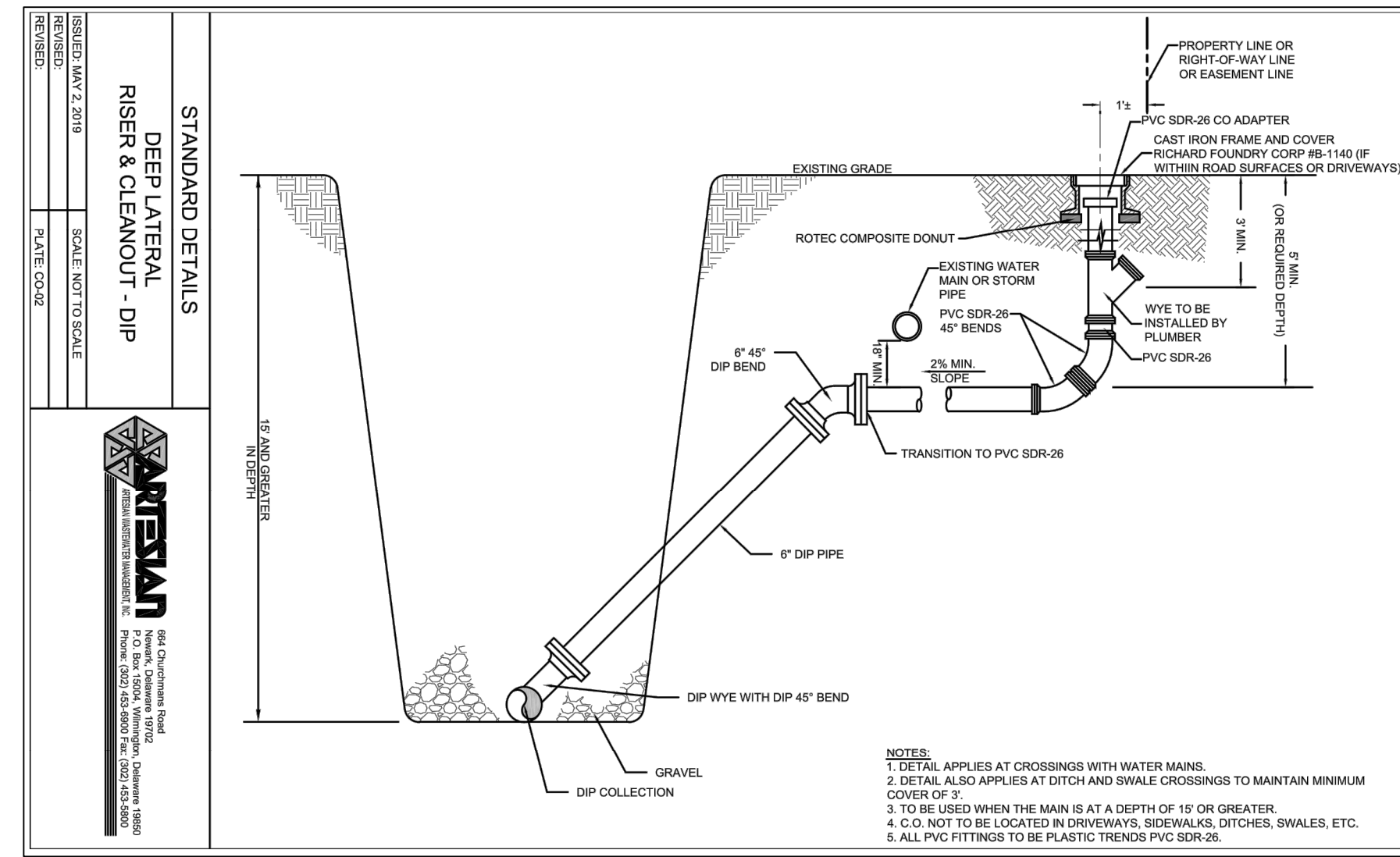
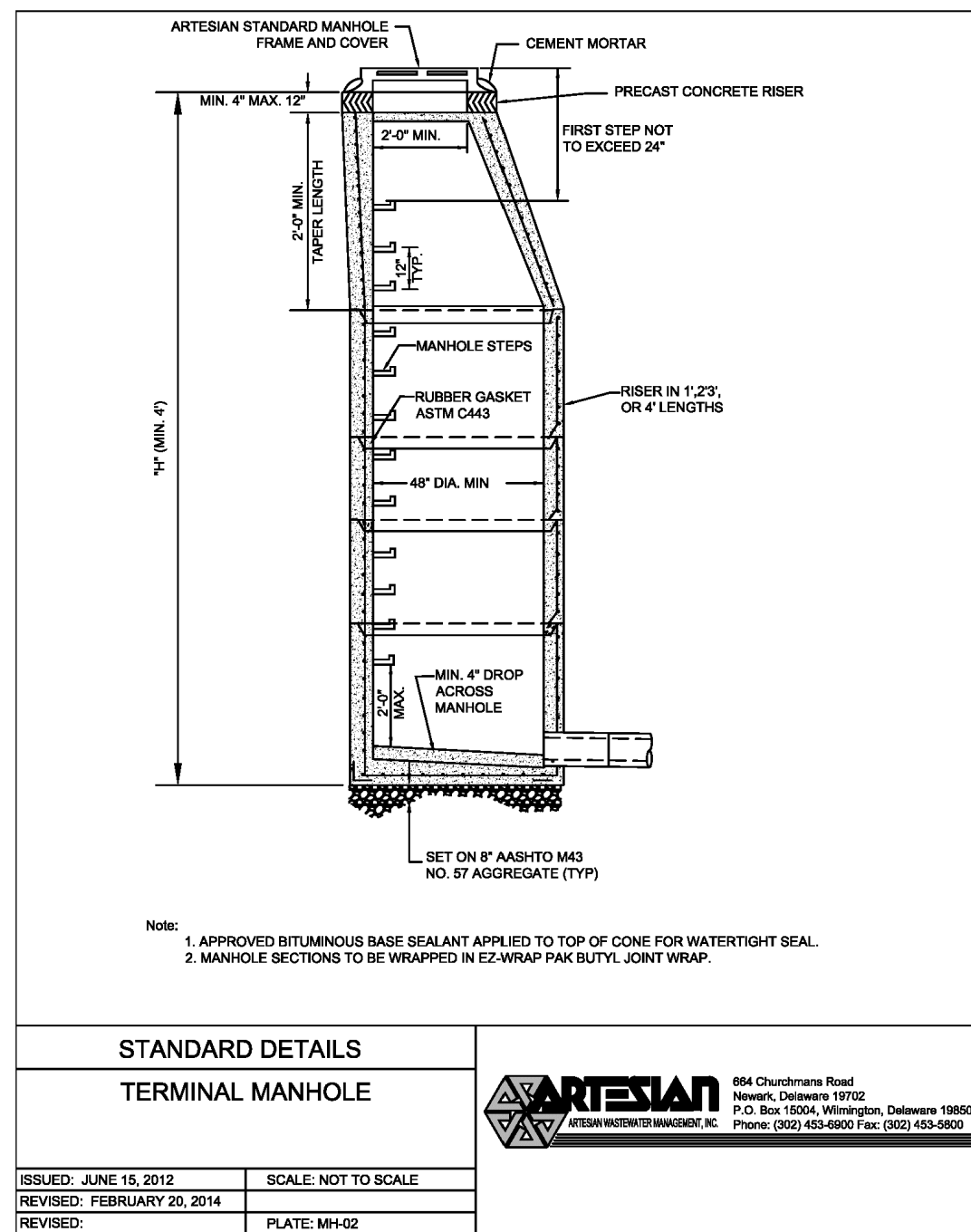
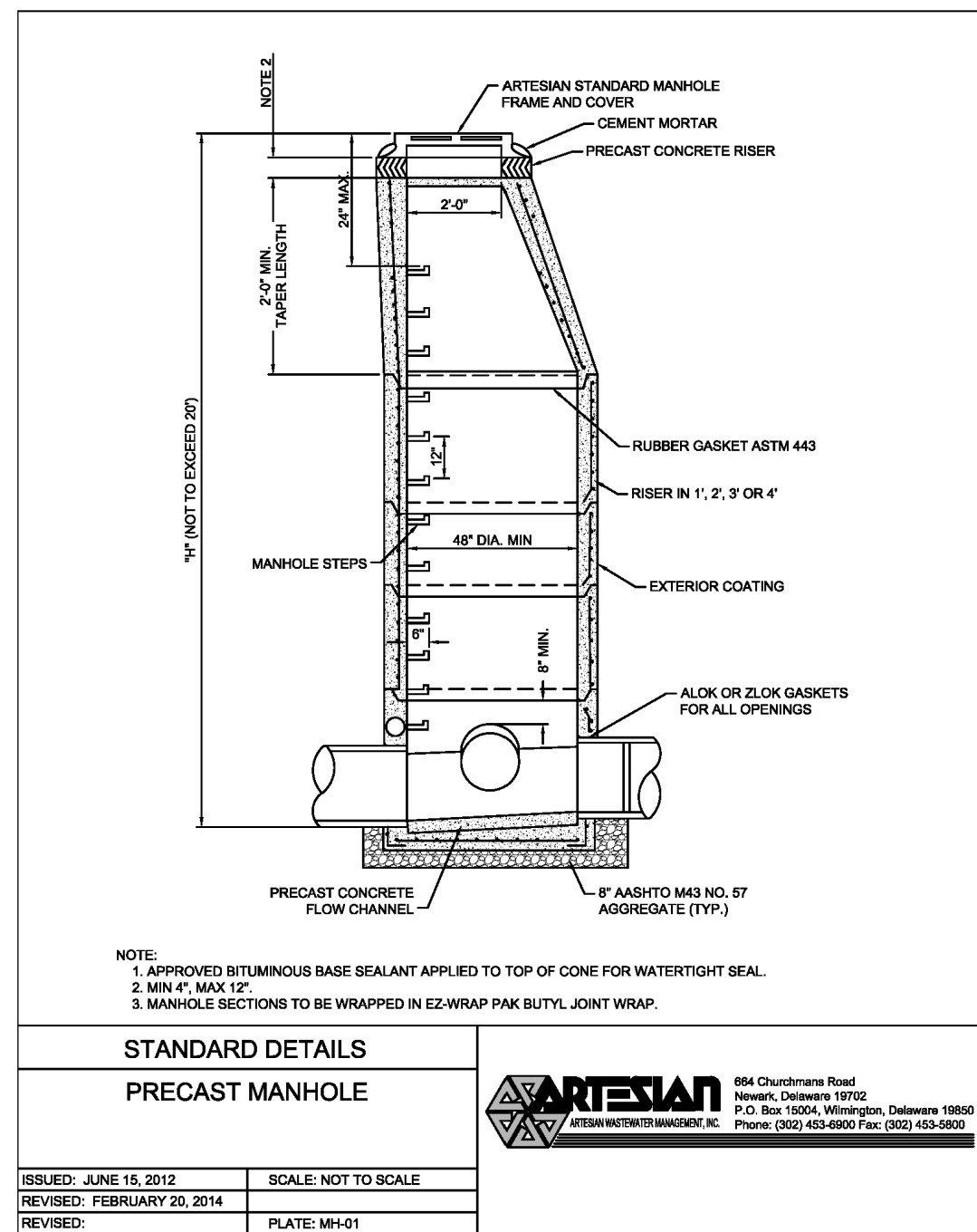
SANITARY SEWER PROFILES 3
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G20098
Scale:	1"=50' (H), 1"=5'(V)
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE

Sheet No.:

31

File Name:
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solutions
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DATE: 1/10/2024

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SANITARY SEWER DETAILS 1

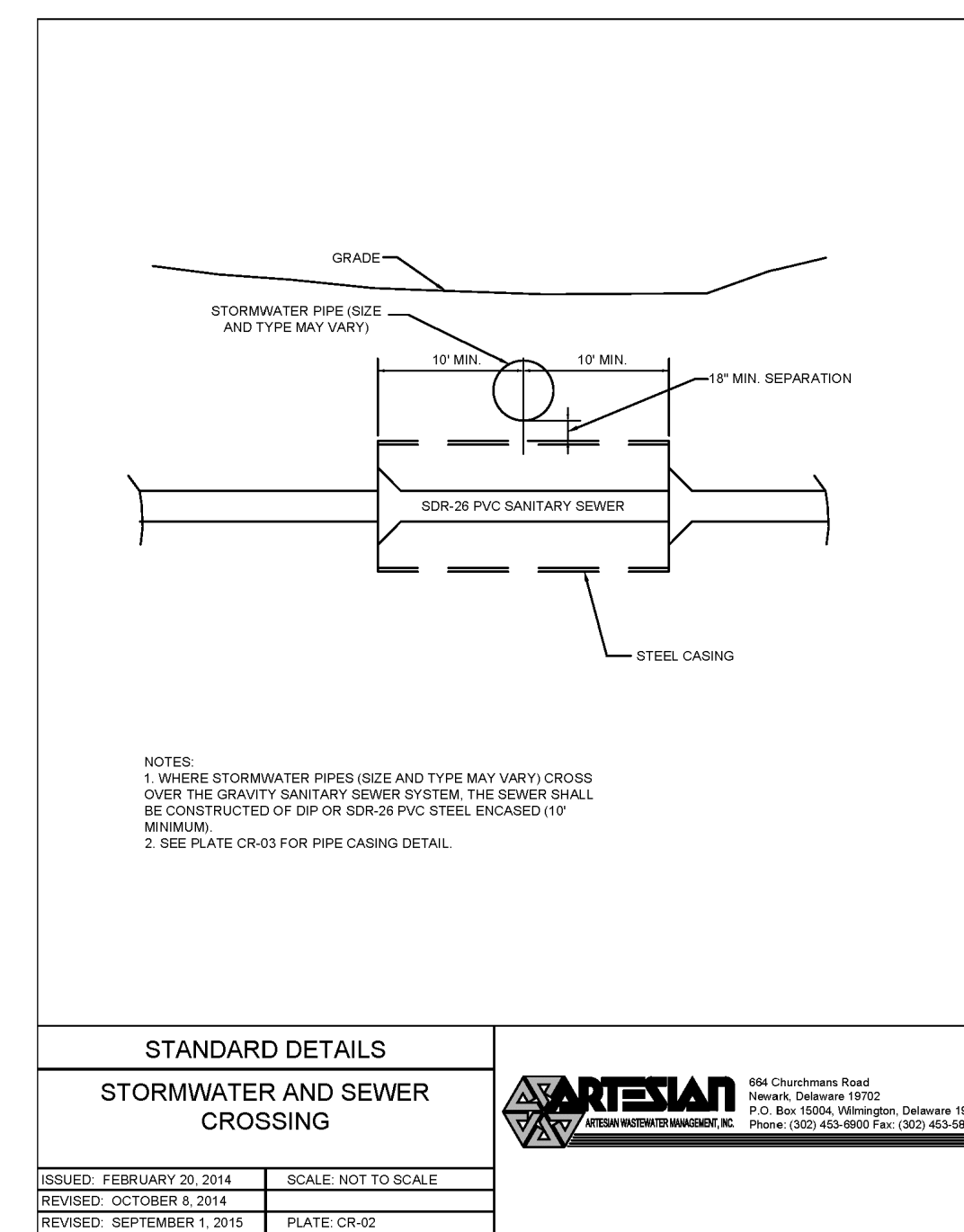
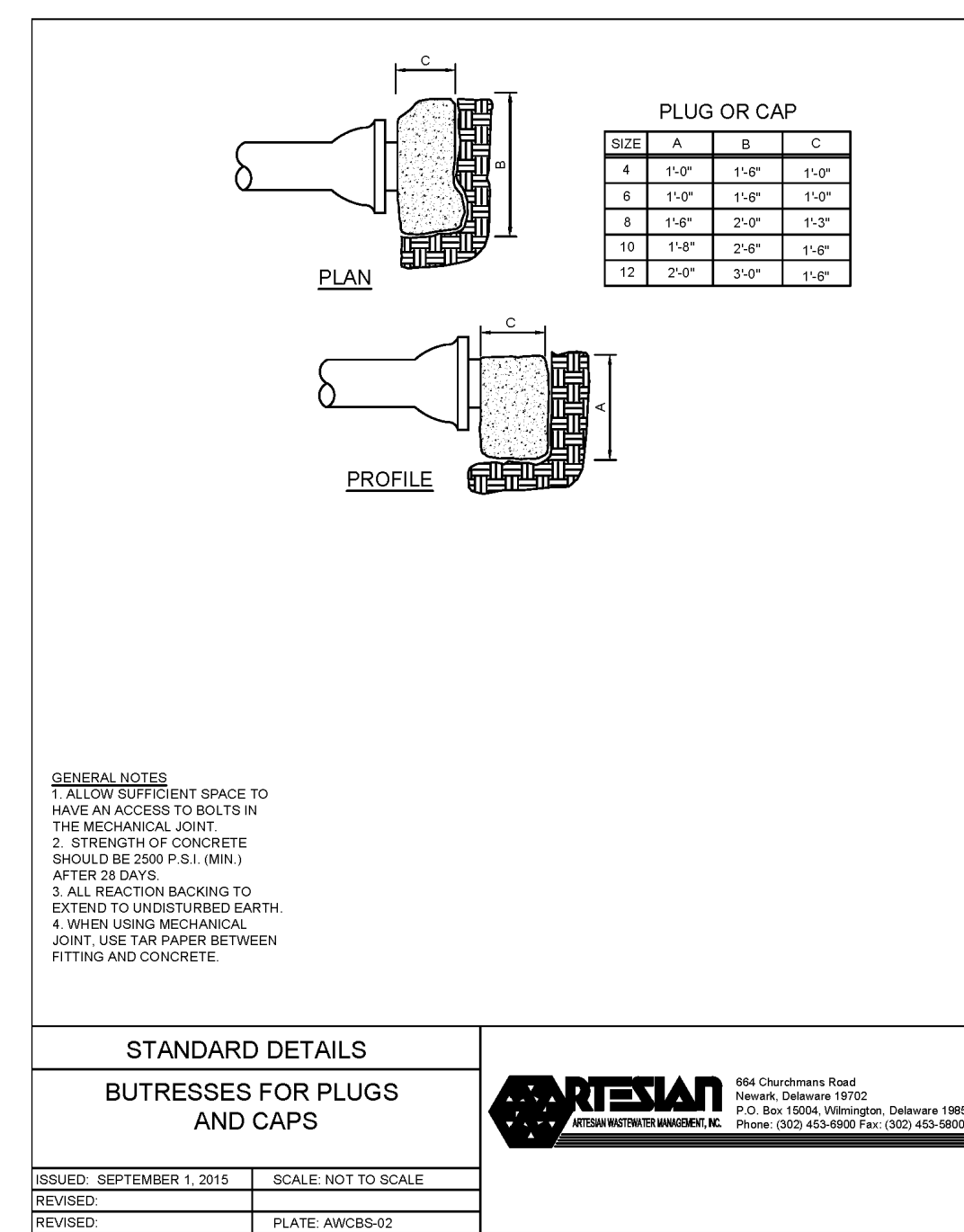
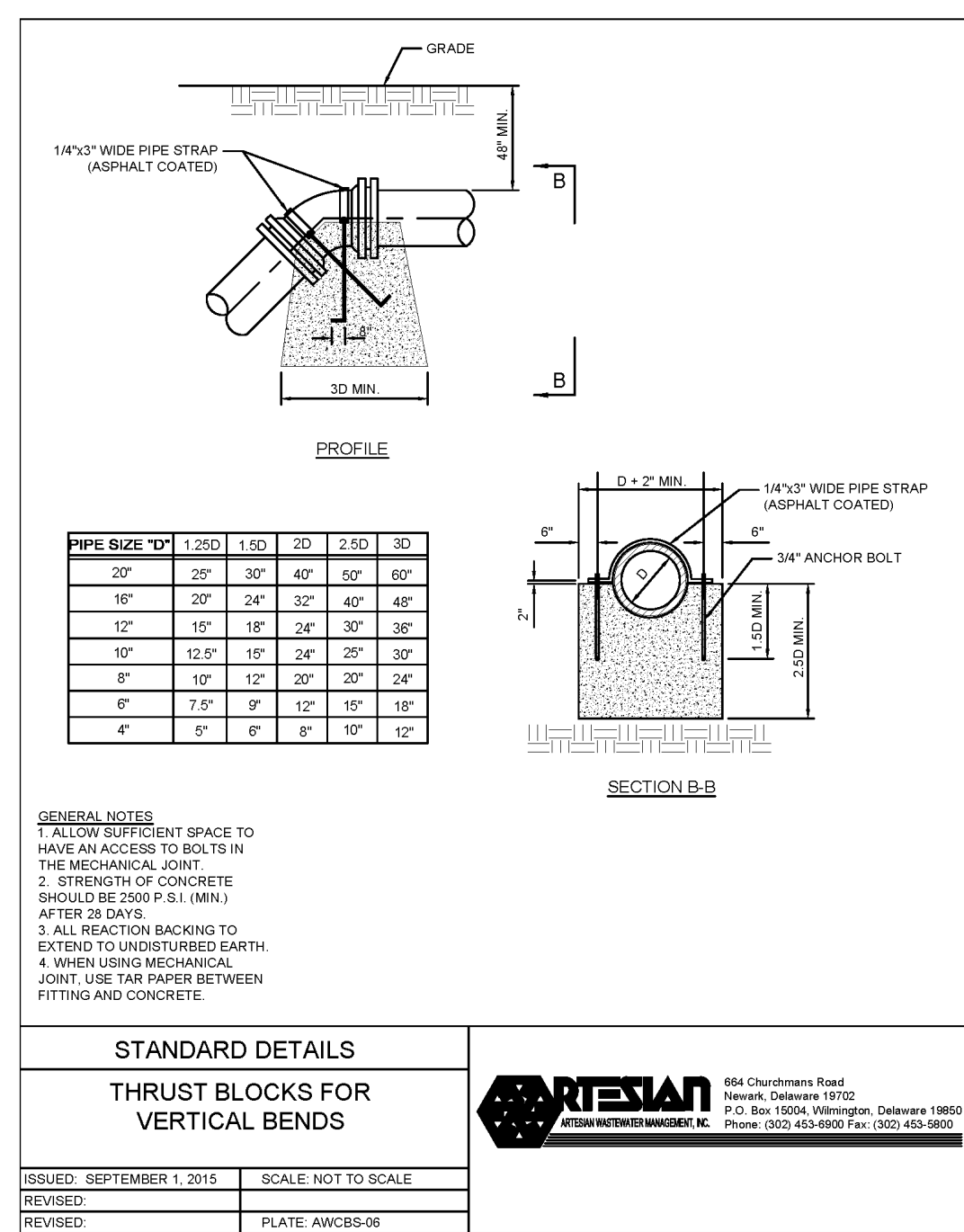
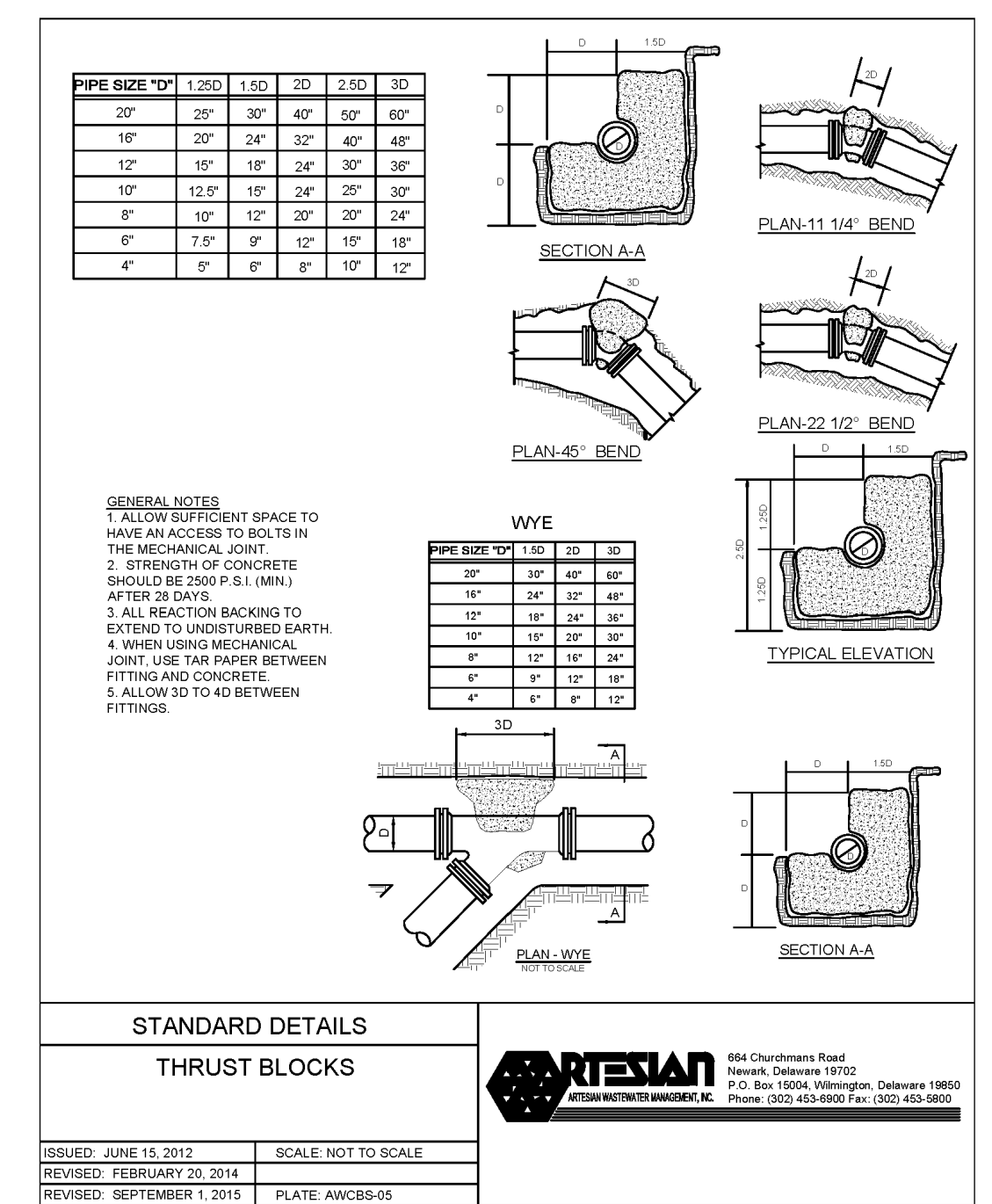
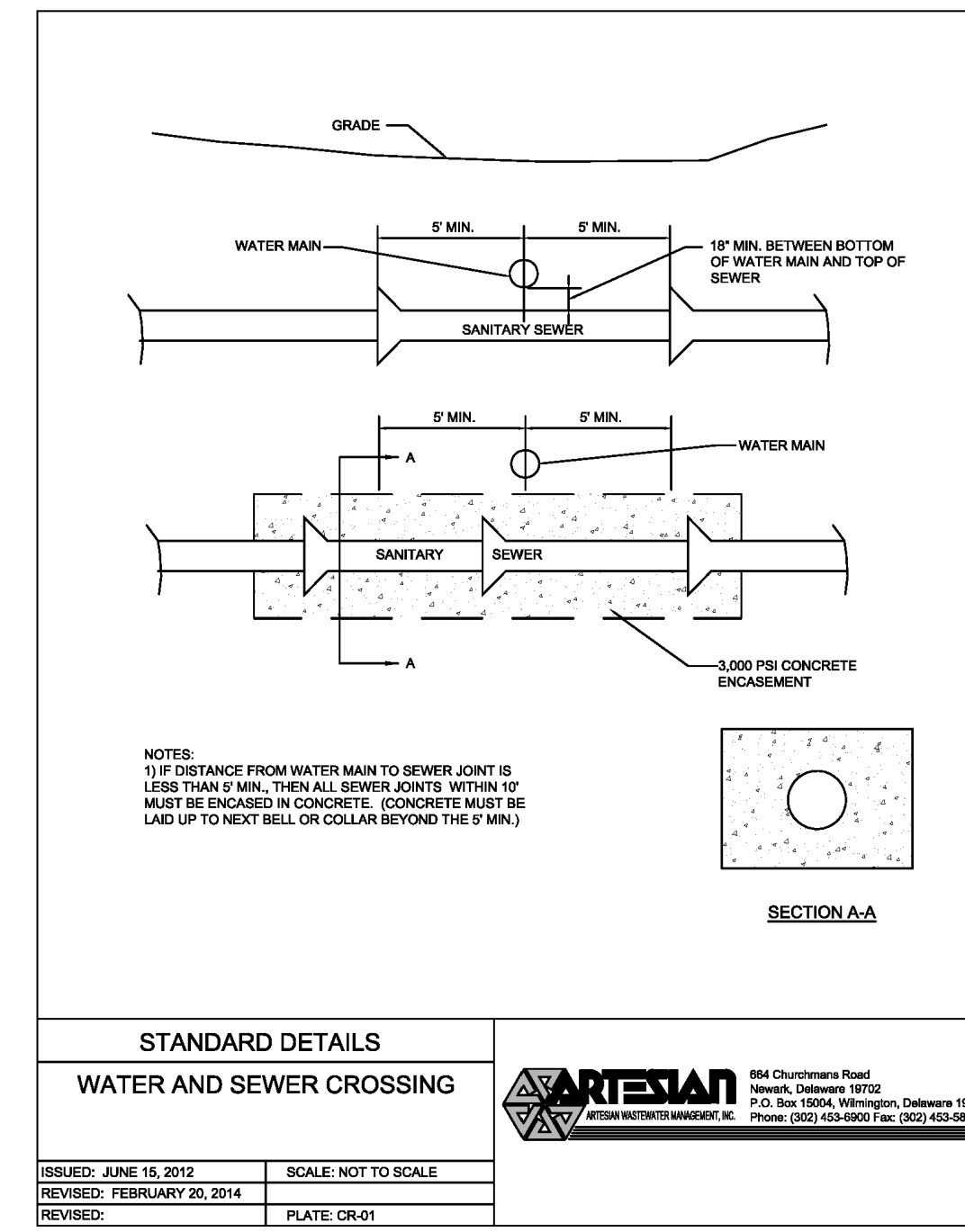
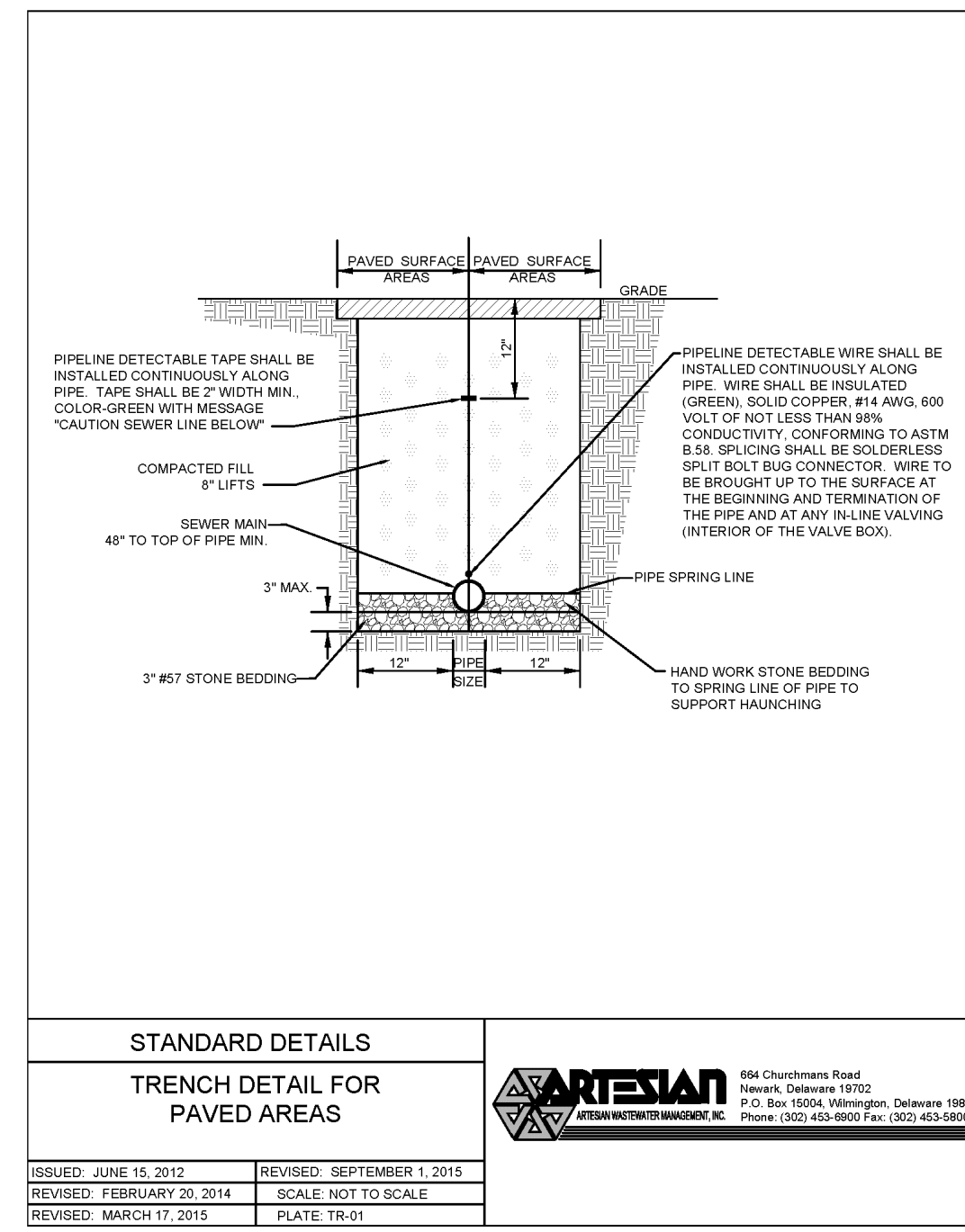
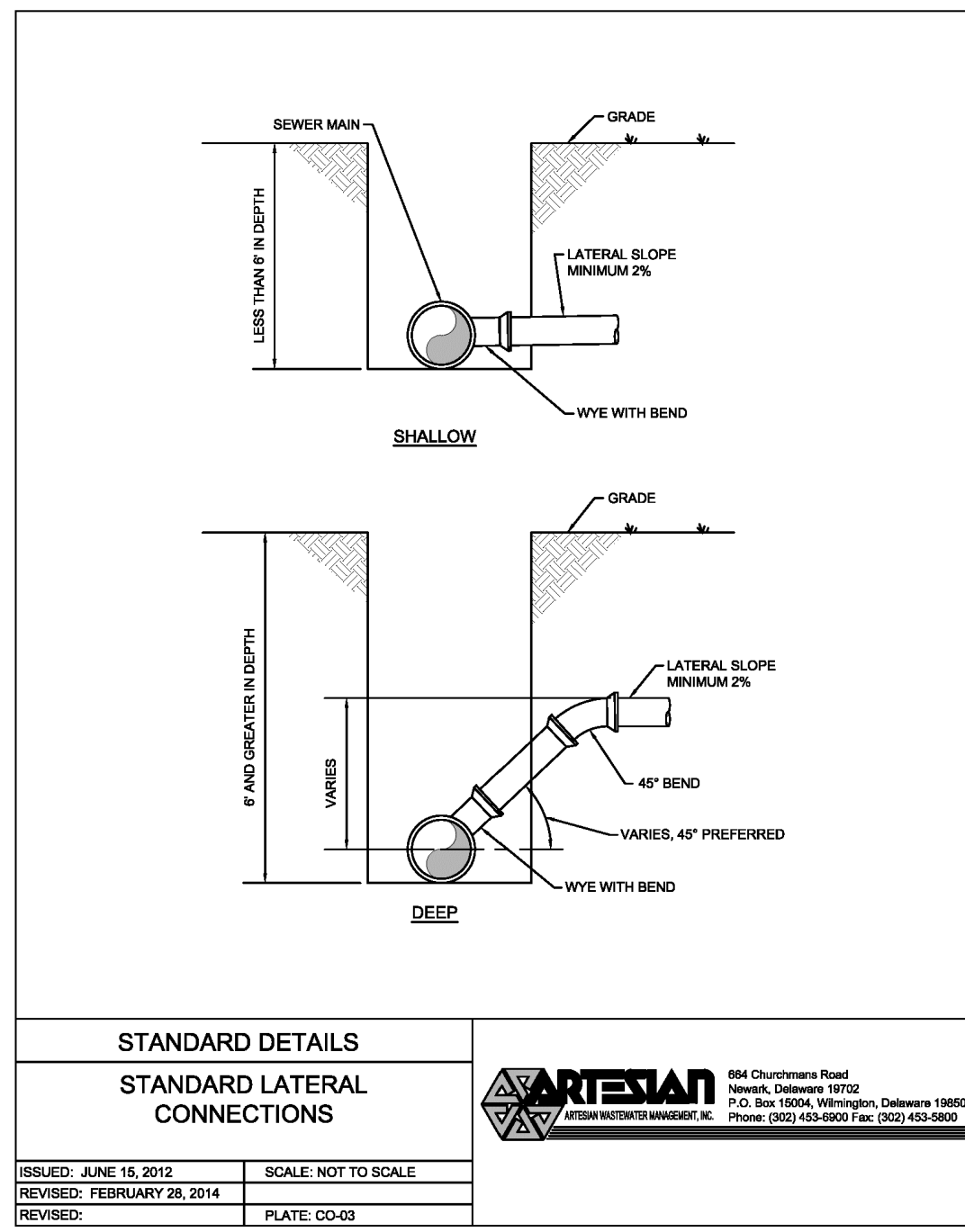
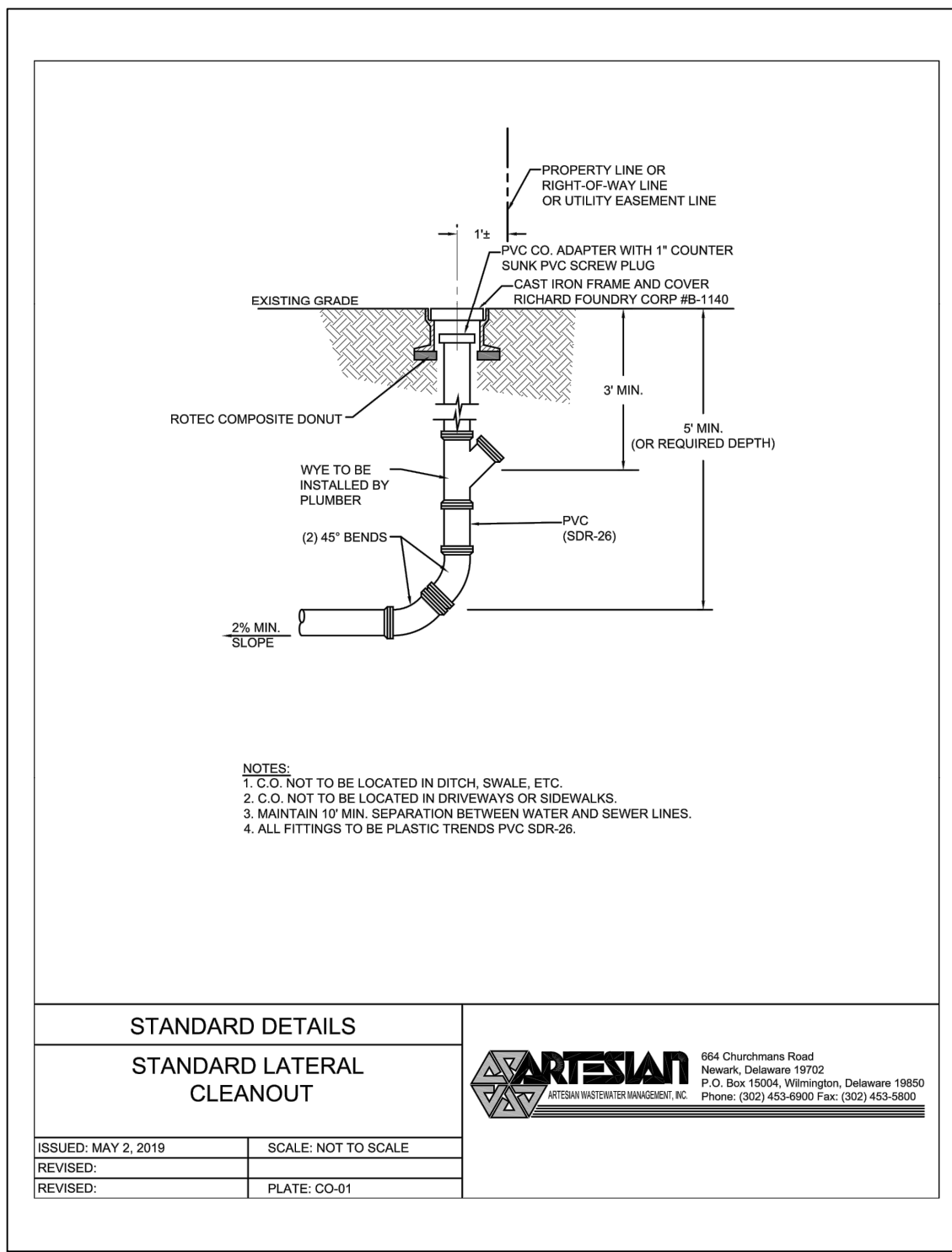
for

RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date: 10-25-2022
Job Number: G20098
Scale: AS NOTED
Drawn By: JRE
Designed By: AMW
Approved By: JRE

Sheet No.: 32

File Name: G20098-Sewer-Details.dwg



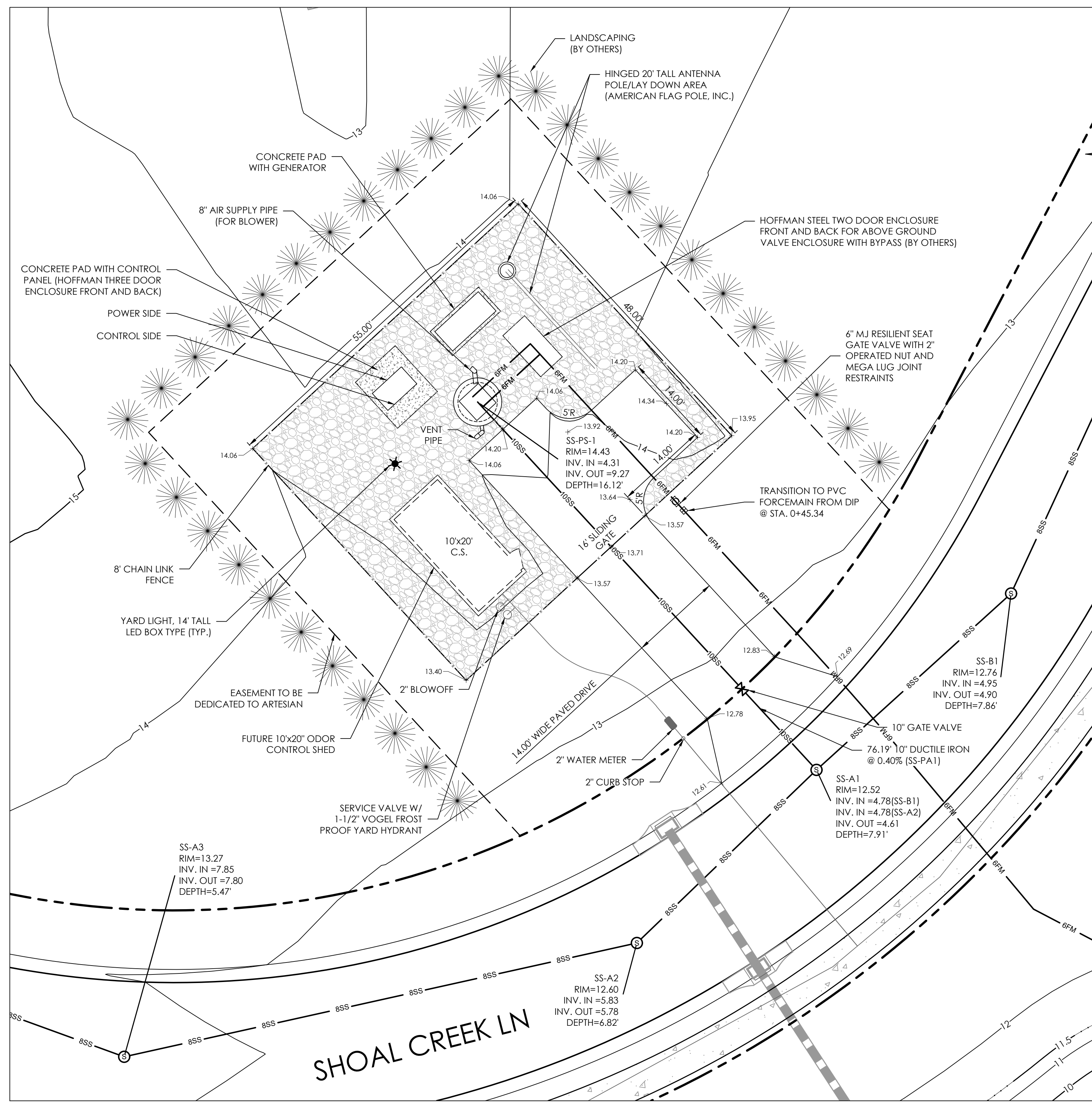
Date: 1/10/2024

REVISIONS		DESCRIPTION
NO.	DATE	DESCRIPTION
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SANITARY SEWER DETAILS 2
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G20098
Scale:	AS NOTED
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE

Sheet No.:



SITE PLAN - PUMP STATION
SCALE: 1" = 10'

DESIGN FLOW

The pump station will serve 315 EDUs (See Pump Station Calculations, hereon)

COLLECTION SYSTEM

The collection system will consist of 8" PVC SDR-26 & 10" diameter ductile iron pipe and associated manholes. All sewer materials and installation shall be per Artesian Wastewater Management Standards.

TRANSMISSION

The new 6" diameter PVC force main will be installed from the proposed pump station to an existing 20" forcemain at Phillips Branch Rd.

Diameter = 6" PVC

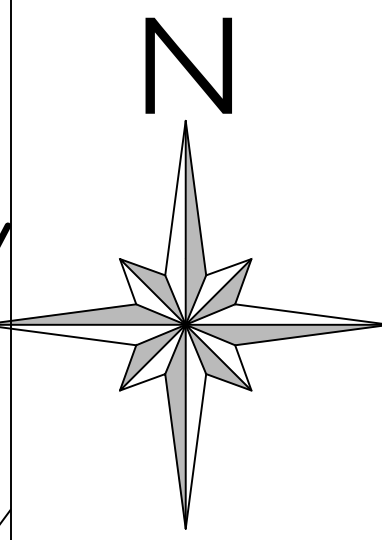
Design Flow = 210 gpm

Static Head = 42 feet (Elevation of plant - 1.01' = 41 feet per Artesian)

PUMP STATION CALCULATIONS

Community	Homes	Amenities	Total EDUs
RIVERWOOD	117	2	119
WARRINGTON	107	2	109
RIVER OAKS	85	2	87
TOTAL	309	6	315

Number of EDU's	=	315
Base Flow (240 GPD/EDU)	=	75,600 GPD 52.50 GPM
Peak Factor (Per Equation)	=	4.0
Peak Flow	=	302,400 GPD 210 GPM
Volume = 2 min. x 210 GPM	=	420 GALLONS
8" Diameter, 1.2 ft Depth (160 GALLONS)		
PIPING	=	6" @ 2.38 FPS



NP 3102 SH 3~ Adaptive 257

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.

Technical specification

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft/s

Configuration

Motor number N3102-920 18-10-2AS-W IE3 7.2hp	Installation type P - Semi permanent, Wet
Impeller diameter 125 mm	Discharge diameter 125 mm
Discharge diameter 3 inch	Inlet diameter 100 mm
Maximum operating speed 3600 rpm	Number of blades 2
Max. fluid temperature 40 °C	

Pump Information

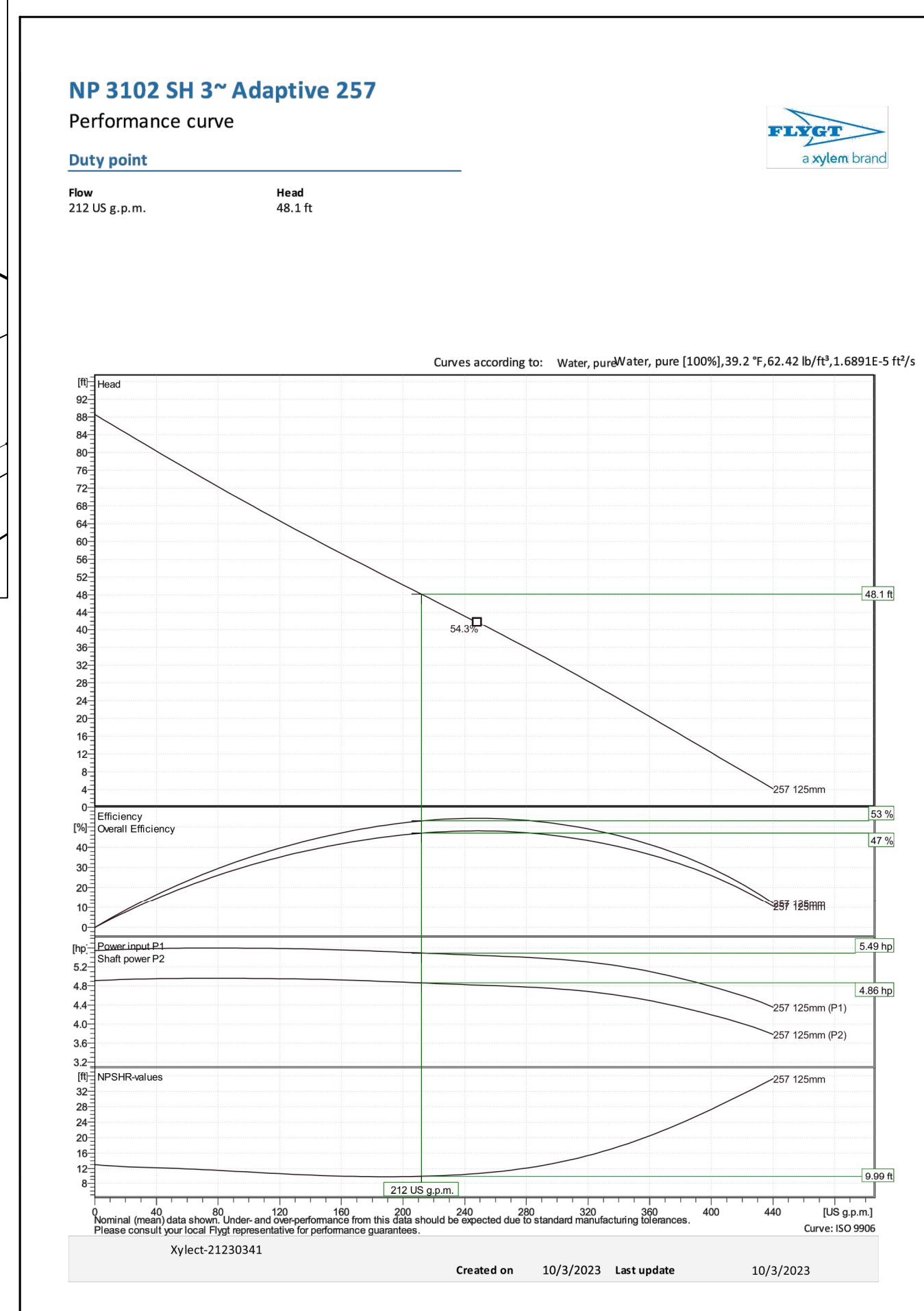
Impeller diameter 125 mm	Material Hard-Iron™
Discharge diameter 3 inch	Stator housing material Grey cast iron
Inlet diameter 100 mm	
Maximum operating speed 3600 rpm	
Number of blades 2	

Material

Impeller: Hard-Iron™
Stator housing material: Grey cast iron

Project: Xylect-21230341
Created on: 10/3/2023
Last update: 10/3/2023

PUMP SPECIFICATIONS



SYSTEM CURVE

Friction loss calculation

Pumped fluid	Static head	Layout
Water, pure	41	Wet well installation
Flow 210 US g.p.m.	Number of pumps 1	Calculation model Colebrook-White
Viscosity 1.69E-5 ft/s	Nature of system Single head pump	

Type: ϕ (inch) 7 or L Qty. v (ft/s) k (inch) ΔH (ft)

ϕ = Diameter v = Velocity k = Pipe roughness ΔH = Friction head

Force Main - Metal / Ductile iron cement lining
PN 16 / DN 100 (118x44 mm) / Used piping / Old Pipes

Pipe length	Static head	Friction loss	Total head
4.016	50 ft	1	5.32
4.016	0.6	2	5.32
4.016	0.8	1	5.32
4.016	0.4	1	5.32
4.016	0.3	1	5.32
Total friction head			3.596

Force Main - Plastic / PVC
PN 16 / DN 150 (160x11.9 mm) / Used piping / Old Pipes

Pipe length	Static head	Friction loss	Total head
5.362	440 ft	1	2.983
5.362	2.4	8	2.983
Total friction head			3.082

Force Main - Plastic / PE100 (HDPE) PE 4710
SDR 11 (PN 16) / DN 500 (560x50.8 mm)

Pipe length	Static head	Friction loss	Total head
19.69	16100 ft	1	0.2214
19.69	3	10	0.2214
19.69	1.5	5	0.2214
Total friction head			0.1933
Friction loss head			6.871 ft
Total static head			41 ft
Total head			47.87 ft

Project: Xylect-21230341
Created on: 10/3/2023
Last update: 10/3/2023

HEAD CALCULATIONS



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PUMP STATION SITE PLAN

for

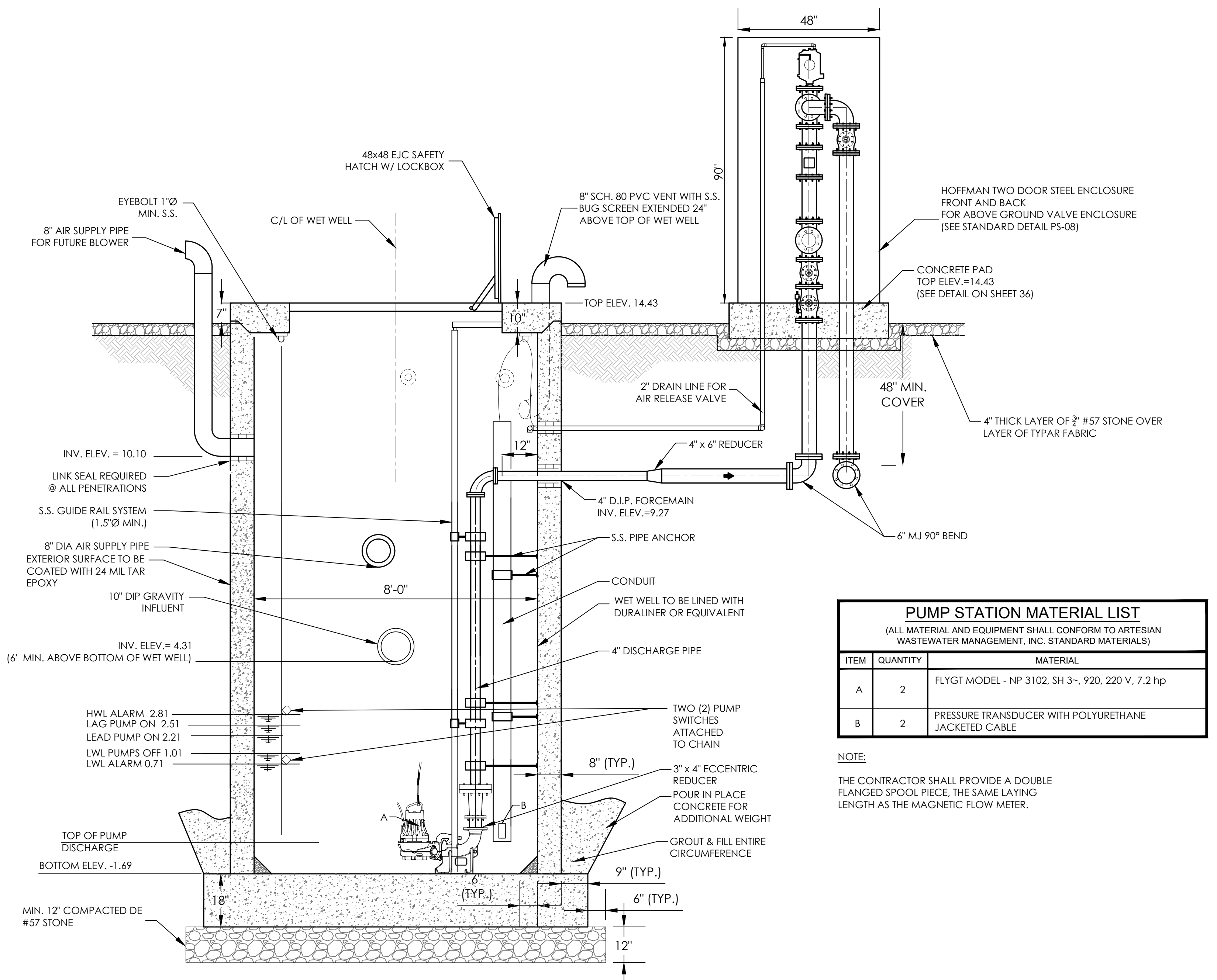
RIVERWOOD

SUSSEX COUNTY, DELAWARE

INDIAN RIVER HUNDRED

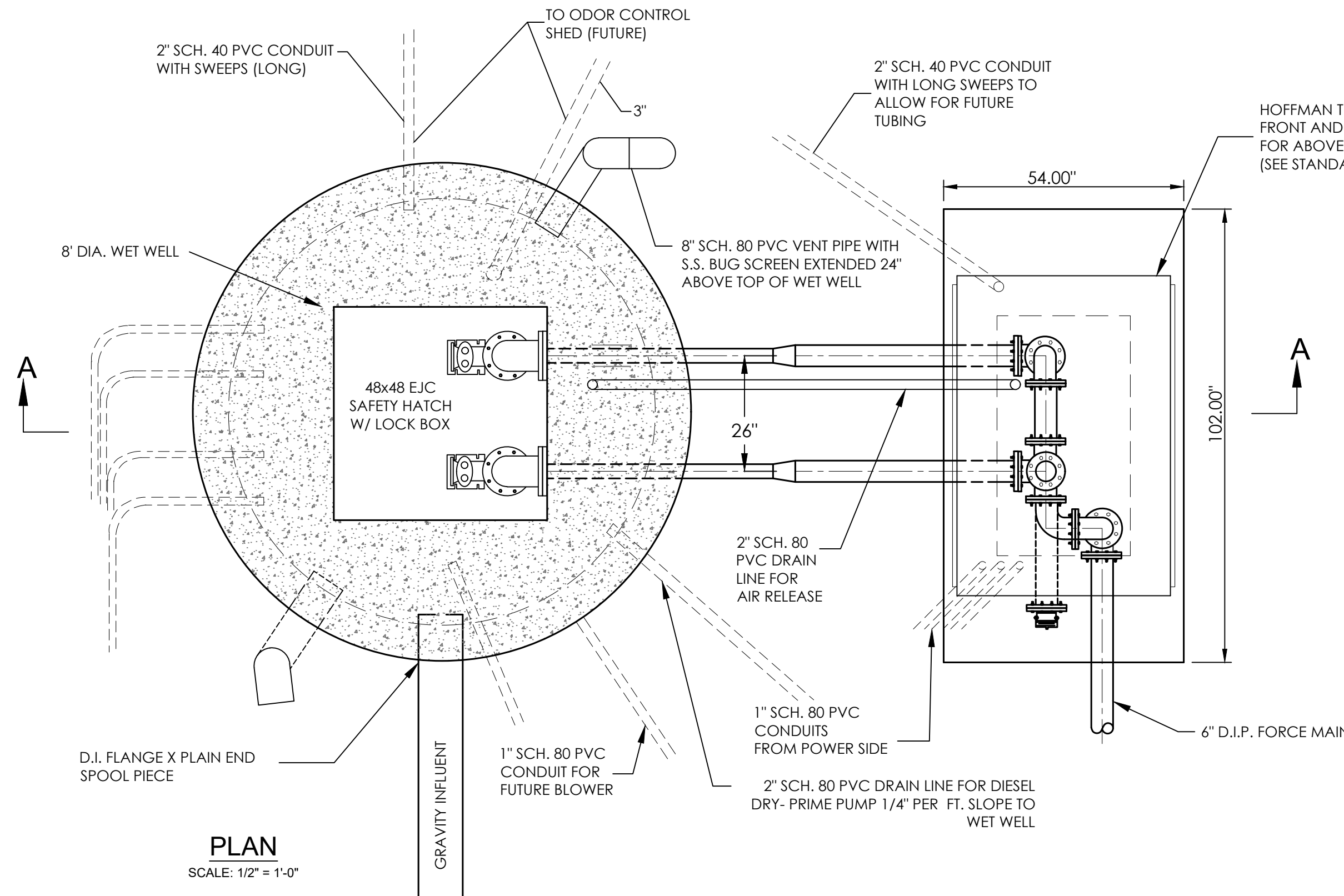
Date:	10-25-2022	Job Number:	G20079	Scale:	AS NOTED	Drawn By:	EDT	Designed By:	AMW	Approved By:	JRE
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Sheet No.:



PUMP STATION MATERIAL LIST		
(ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARD MATERIALS)		
ITEM	QUANTITY	MATERIAL
A	2	FLYGT MODEL - NP 3102, SH 3-- , 920, 220 V, 7.2 hp
B	2	PRESSURE TRANSDUCER WITH POLYURETHANE JACKETED CABLE

NOTE:
THE CONTRACTOR SHALL PROVIDE A DOUBLE FLANGED SPOOL PIECE, THE SAME LAYING LENGTH AS THE MAGNETIC FLOW METER.



WETWELL BOUANCY CALCULATIONS

Input Parameters		Calculated Parameters	
Flood Elevations =	12 feet	Wet Well Height (not including lid) =	15.28667 feet
Inside Diameter =	8 feet	Wet Well Height (including lid) =	16.12 feet
Wall Thickness =	8 inches = 0.66667 feet	Total Excavated Depth (Top of lid to Bottom of base) =	17.62 feet
Top Elevation =	14.43 feet	Outside Diameter =	9.33333 feet
Bottom of Tank Elevation =	-1.69 feet	Base Diameter =	10.83333 feet
Width of Hatch =	48 inches = 4 feet	Depth of Soil on Footer =	15.28667 feet
Length of Hatch =	48 inches = 4 feet	Lid Radius =	4.66667 feet
Lid Diameter =	112 inches = 9.333 feet	Wet Well Inside Radius =	4 feet
Lid Thickness =	10 inches = 0.833 feet	Wet Well Outside Radius =	4.66667 feet
Base Thickness =	18 inches = 1.5 feet	Base Radius =	5.41667 feet
Footing Kickout =	9 inches = 0.75 feet	Wet Well Submerged Height =	13.69 feet
Inlet Pipe Elevation =	4.31 feet		
Depth of Concrete Ballast =	0 inches = 0 feet		
Desired Factor of Safety =	1.2		

Constants

Density of Water =	62.43 lbs/ft ³
Density of Soil =	110 lbs/ft ³
Density of Concrete =	150 lbs/ft ³

Formulas
Volume of Cylinder = πr²h
Weight = Volume x Density

Weight

Volume of Lid Including Hatch = π(Lid Radius)² x (Lid Thickness)
= 57.01409 ft³

Volume of Lid Excluding Hatch = (Volume of Lid Including Hatch) - [(Width of Hatch) x (Length of Hatch) x (Lid Thickness)]
= 43.68076 ft³

Weight of Lid Excluding Hatch = 6552.113 lbs.

Volume of Wet Well Structure = π(WetWell Outside Radius)² x (Wet Well Height)
= 1045.866 ft³

Inside Volume of Wet Well = π(WetWell Inside Radius)² x (Wet Well Height)
= 768.3917 ft³

Volume of Wet Well Wall = (Volume of Wet Well) - (Inside Volume of Wet Well)
= 277.4748 ft³

Weight Wet Well Wall = 41621.22 lbs

Volume of Base = π(Base Radius)² x (Base Thickness)
= 138.2628 ft³

Weight of Base = 20739.42 lbs

Volume of Concrete on Footer = [π(Base Radius)² x (Depth of Concrete Ballast)] - [π(WetWell Outside Radius)² x (Depth of Concrete Ballast)]
= 0 ft³

Weight of Concrete on Footer = 0 lbs

Volume of Soil on Footer = [π(Base Radius)² x (Depth of Soil on Footer)] - [π(WetWell Outside Radius)² x (Depth of Soil on Footer)]
= 363.1851 ft³

Weight of Soil on Footer = 39950.36 lbs

Total Weight = (Weight of Lid Excluding Hatch) + (Weight of Wet Well Wall) + (Weight of Base) + (Weight of Concrete on Footer) + (Weight of Soil on Footer)
= 108863.1 lbs

Bouyancy

Base Bouyancy = (Volume of Base) x (Density of Water)
= 8631.747 lbs

Volume of Bouyant Wet Well = π(WetWell Outside Radius)² x (Wet Well Submerged Height)
= 936.6275 ft³

Bouyancy of Wet Well = 58473.65 lbs

Volume of Bouyant Material on Footer = [π(Base Radius)² x (Wet Well Submerged Height)] - [π(WetWell Outside Radius)² x (Wet Well Submerged Height)]
= 325.2511 ft³

Bouyancy of Material on Footer = 20305.42 lbs

Total Bouyancy = (Base Bouyancy) + (Bouyancy of Wet Well) + (Bouyancy of Material on Footer)
= 87410.82 lbs

Bouyancy Factor of Safety

Desired Factory of Safety = 1.2

$$\frac{\text{(Total Weight)}}{\text{(Total Bouyancy)}} = \frac{108863.1134}{87410.82167} = 1.25$$

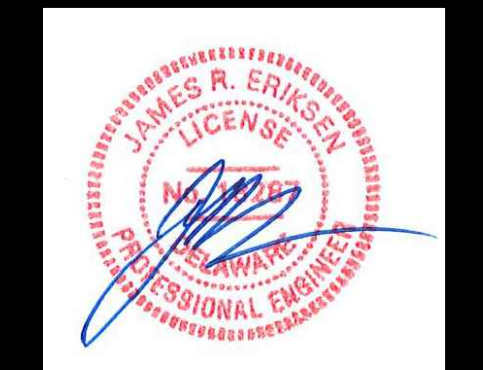
Meets Safety Factor Requirements



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PUMP STATION DETAILS 1

for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G20079
Scale:	1" = 1'-0"
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE

Sheet No.:



Date: 1/10/2024

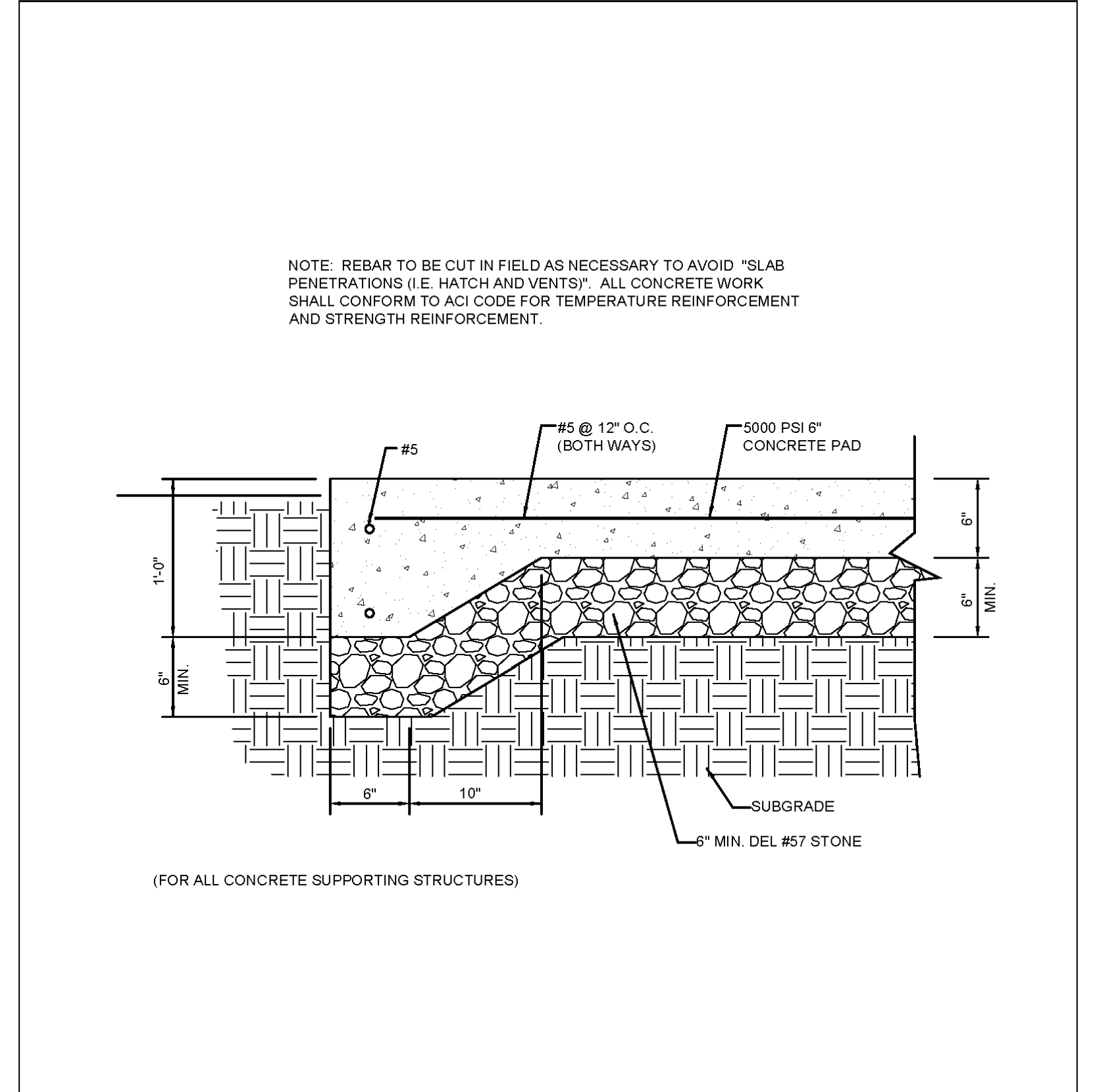
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PUMP STATION DETAILS 2

for
RIVERWOOD
 SUSSEX COUNTY, DELAWARE
 INDIAN RIVER HUNDRED

Date:	10-25-2022
Job Number:	G200798
Scale:	1"=10'
Drawn By:	EDT
Designed By:	AMW
Approved By:	JRE

Sheet No.:

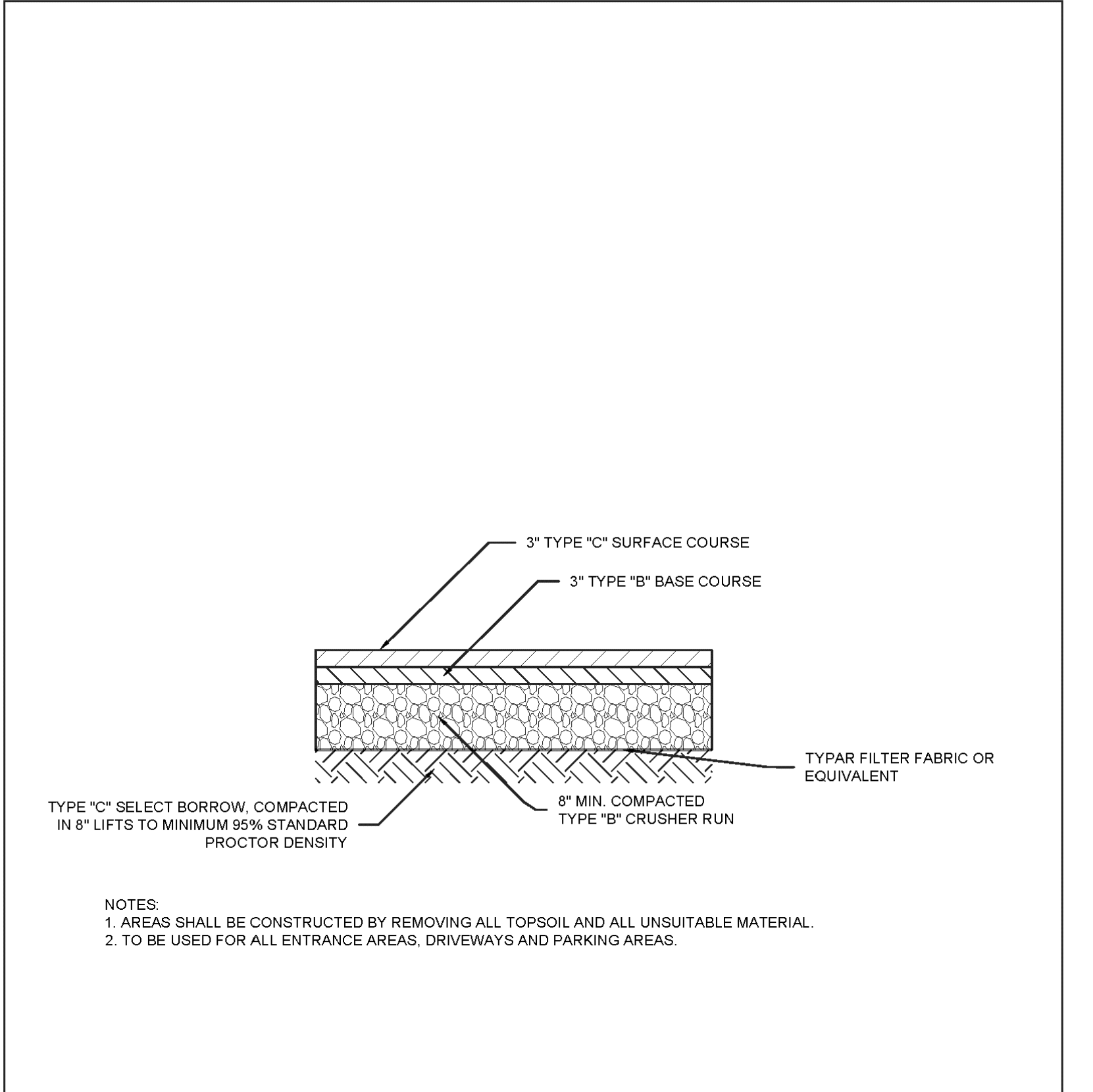


STANDARD DETAILS

PUMP STATION EQUIPMENT CONCRETE PAD TYPICAL SECTION

664 Churchmans Road
 Newark, Delaware 19702
 P.O. Box 15004, Wilmington, Delaware 19850
 Phone: (302) 453-8900 Fax: (302) 453-5800

ISSUED: JUNE 15, 2012	SCALE: NOT TO SCALE
REVISED: FEBRUARY 20, 2014	
REVISED: SEPTEMBER 1, 2015	PLATE: PS-02

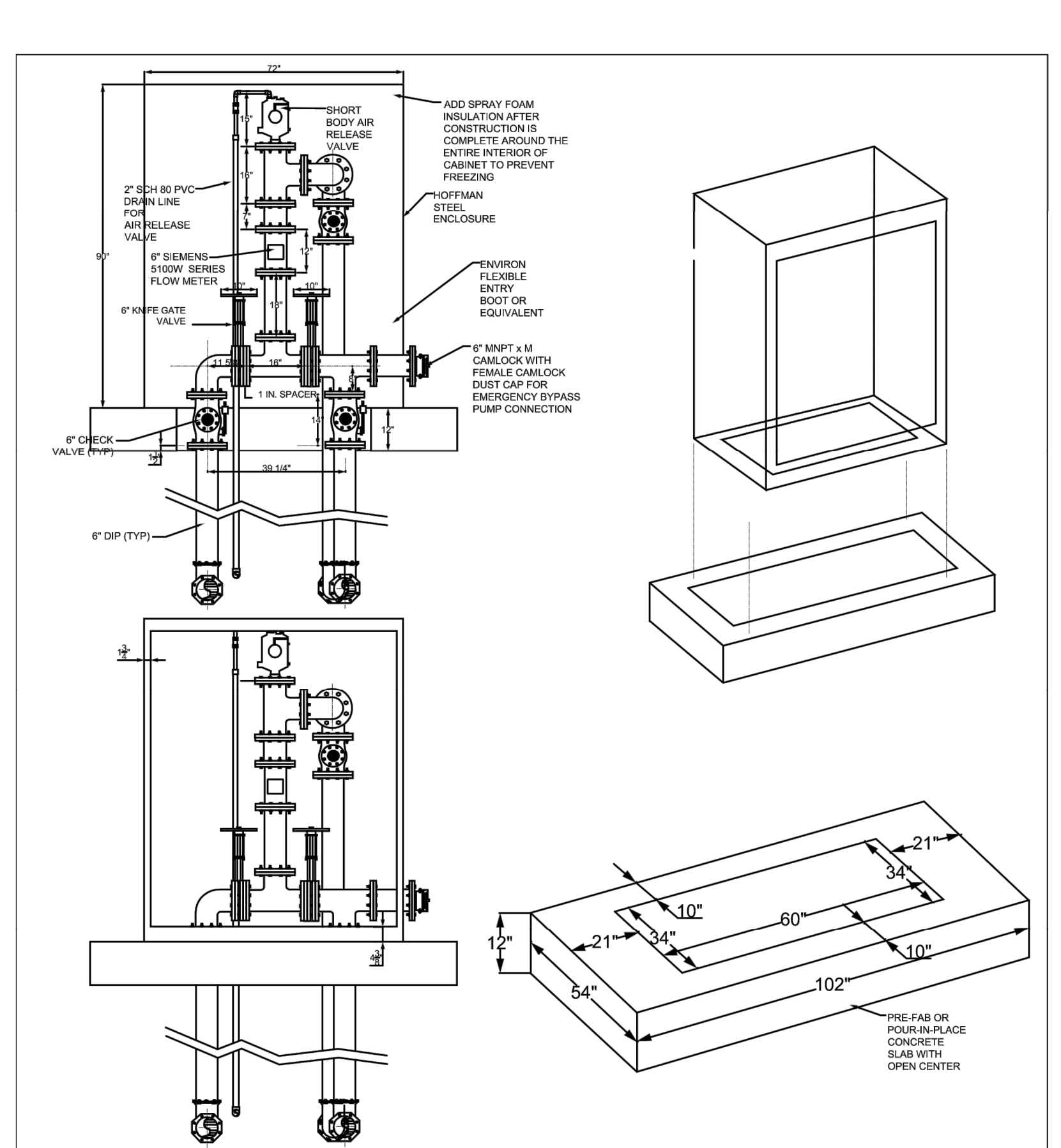
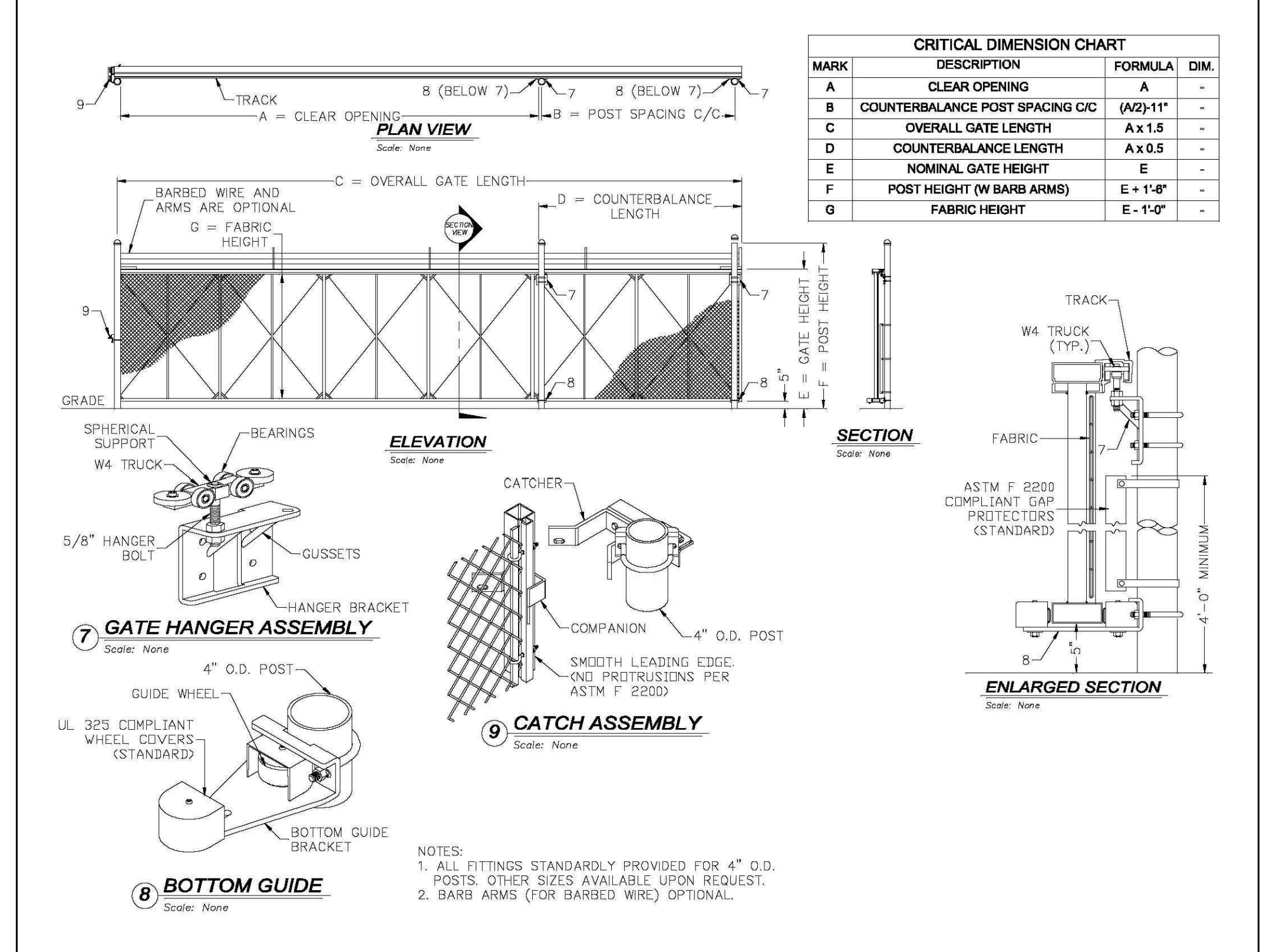


STANDARD DETAILS

PUMP STATION DRIVEWAY PAVEMENT SECTION

664 Churchmans Road
 Newark, Delaware 19702
 P.O. Box 15004, Wilmington, Delaware 19850
 Phone: (302) 453-8900 Fax: (302) 453-5800

ISSUED: JUNE 15, 2012	SCALE: NOT TO SCALE
REVISED: FEBRUARY 20, 2014	REVISED: JUNE 20, 2016
REVISED: SEPTEMBER 1, 2015	PLATE: PS-03

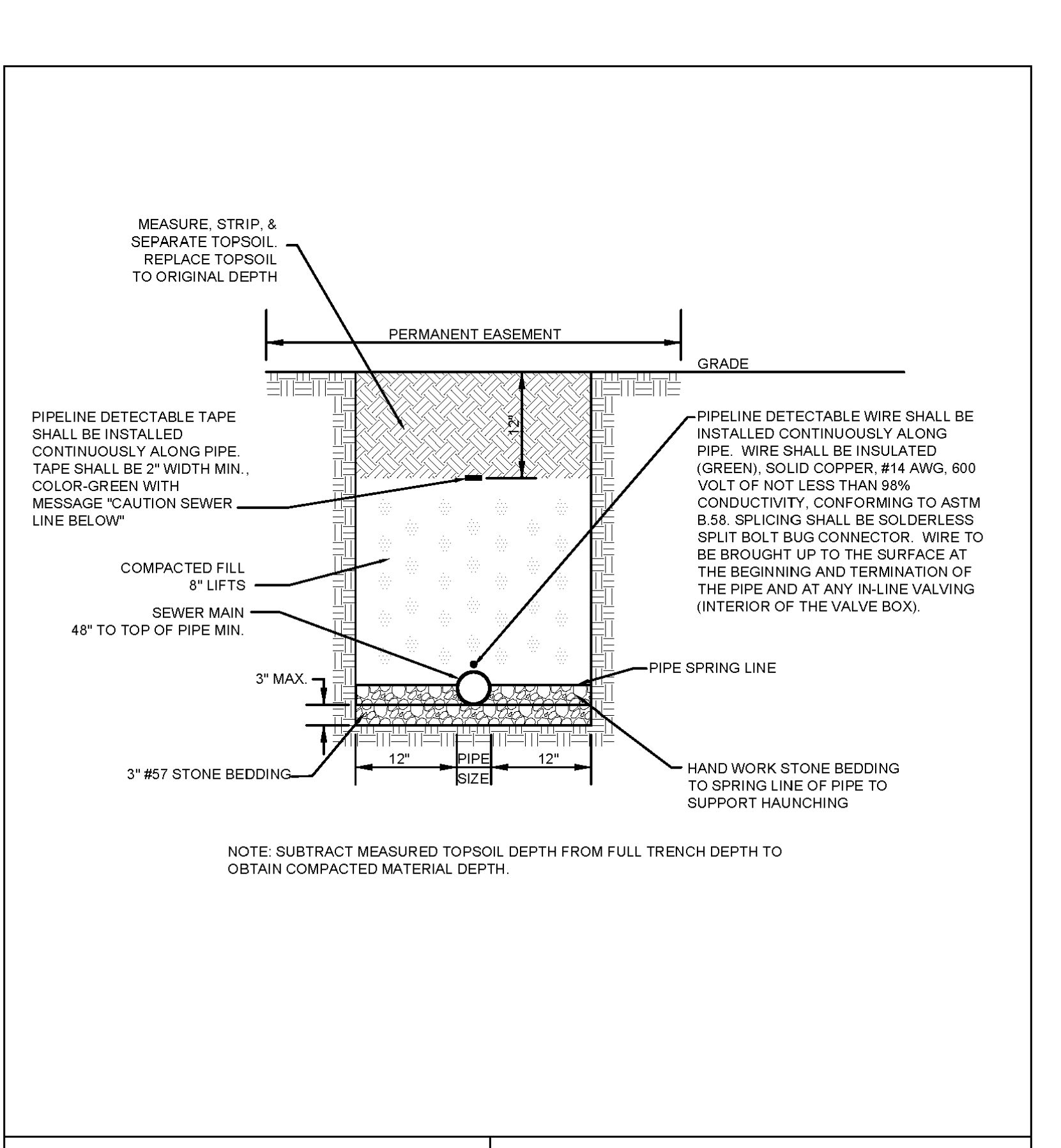


STANDARD DETAILS

6-INCH ABOVE GRADE VALVE ENCLOSURE WITH BYPASS

664 Churchmans Road
 Newark, Delaware 19702
 P.O. Box 15004, Wilmington, Delaware 19850
 Phone: (302) 453-8900 Fax: (302) 453-5800

ISSUED: JANUARY 31, 2019	SCALE: NOT TO SCALE
REVISED:	
REVISED:	PLATE: PS-08

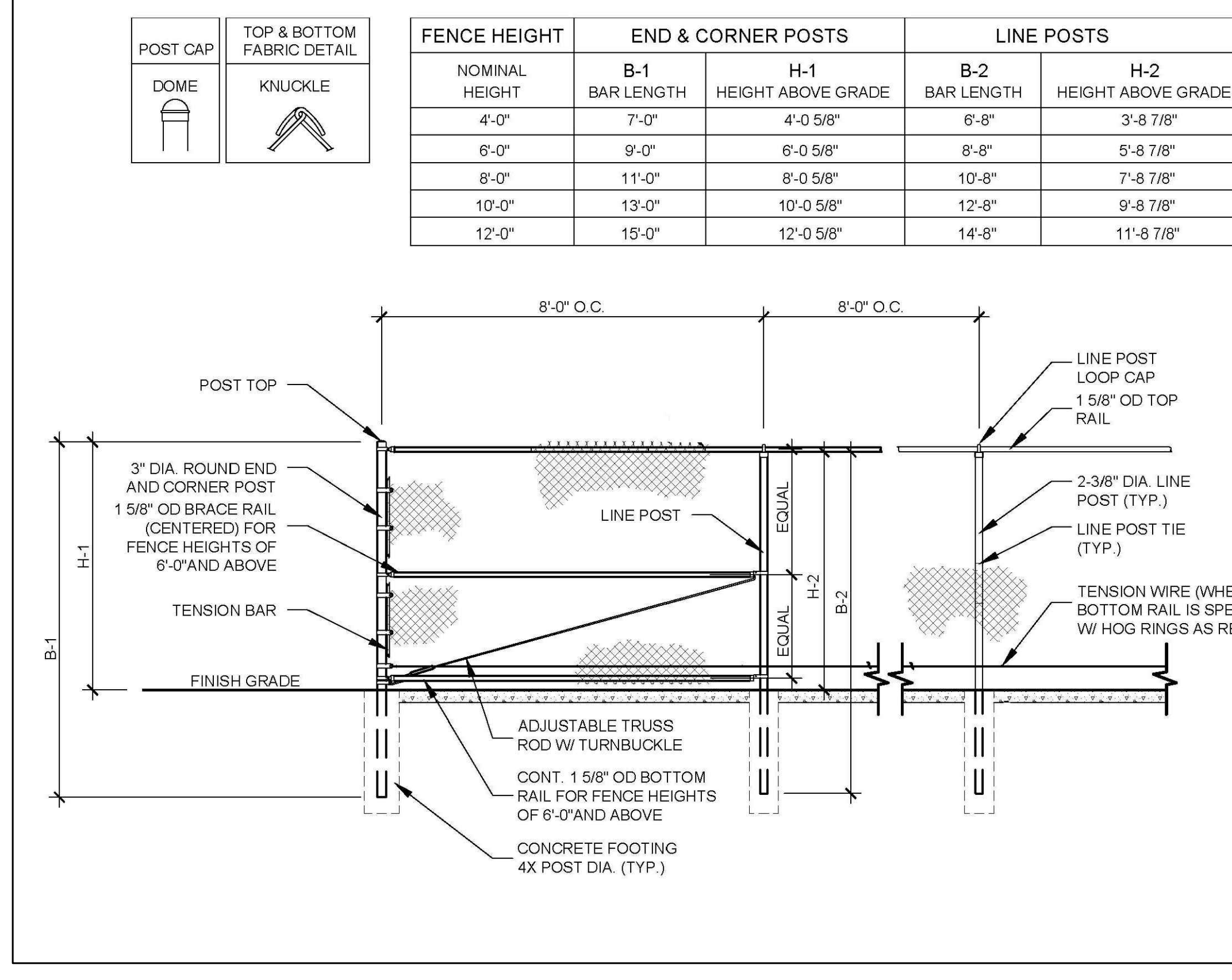


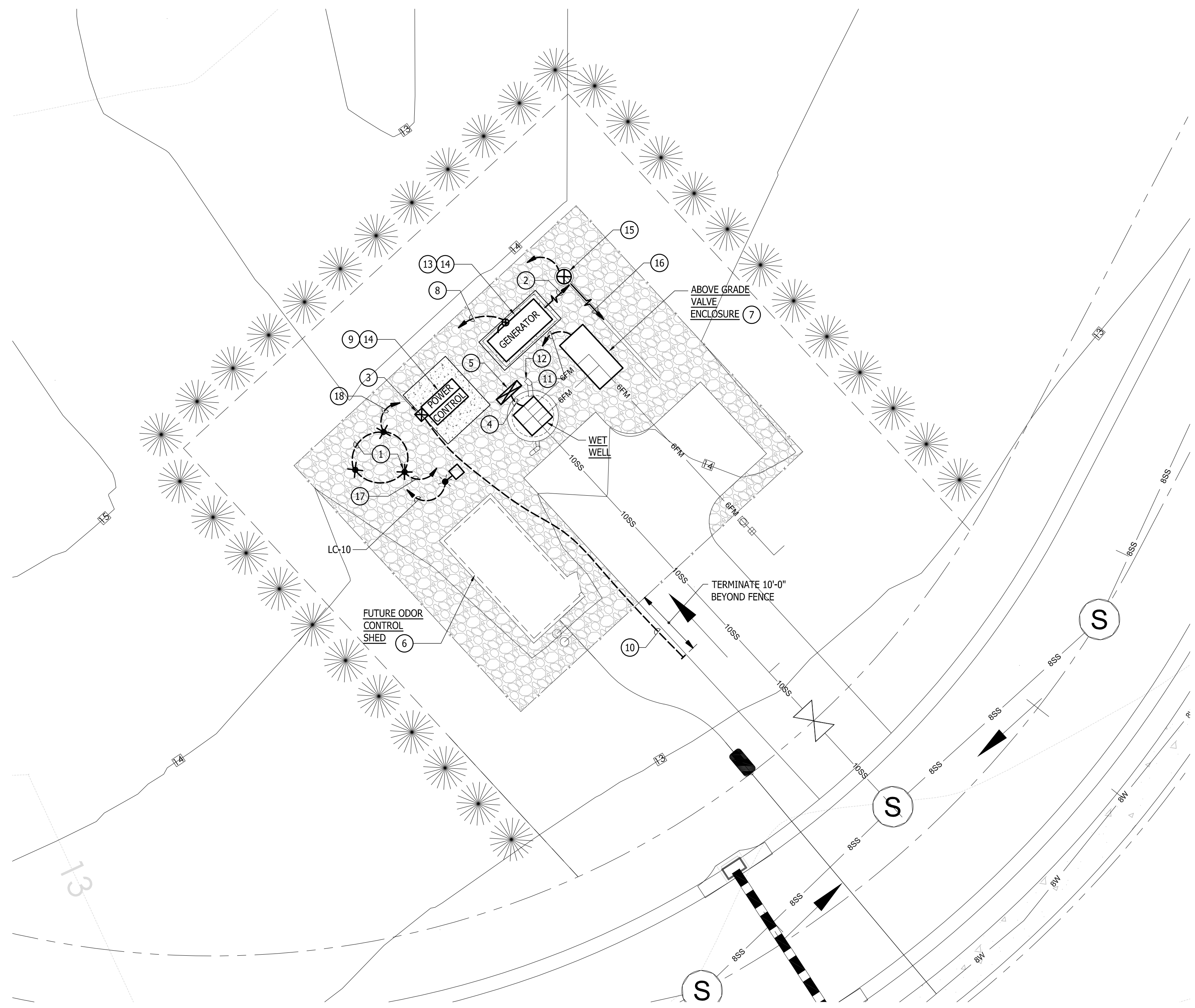
STANDARD DETAILS

TRENCH DETAILS FOR UNPAVED AREAS

664 Churchmans Road
 Newark, Delaware 19702
 P.O. Box 15004, Wilmington, Delaware 19850
 Phone: (302) 453-8900 Fax: (302) 453-5800

ISSUED: JUNE 15, 2012	REVISED: SEPTEMBER 1, 2015
REVISED: FEBRUARY 20, 2014	SCALE: NOT TO SCALE
REVISED: MARCH 17, 2015	PLATE: TR-02





SITE PLAN PUMP STATION
SCALE: 1" = 10'-0"

SHEET NOTES:

- ① GROUND GRID CONSISTING OF THREE (3) DRIVEN GROUND RODS (3/4" DIA. X 10'-0" LONG, ONE PIECE COPPER CLAD STEEL) INTERCONNECTED WITH #1/0 BARE COPPER CONDUCTOR. ALL UG. CONNECTIONS SHALL BE EXOTHERMIC WELDED.
- ② DIRECTION OF ENGINE EXHAUST & RADIATOR DISCHARGE.
- ③ SERVICE METER - MOUNT ON EXTERIOR OF SERVICE EQUIPMENT CABINET UTILIZING VERTICAL ALUMINUM CHANNEL SUPPORTS (MINIMUM 1-1/2" SQUARE X 12 GAUGE) SECURED WITH STAINLESS STEEL THRU-BOLT ASSEMBLIES.
- ④ PUMP MOTOR & LEVEL SENSING CONDUITS TO SERVICE EQUIPMENT CABINET VIA EQUIPMENT MOUNTING PEDESTAL. SEE SINGLE LINE DIAGRAM, SHEET NO. E-2.
- ⑤ EQUIPMENT MOUNTING PEDESTAL - REFER TO DETAIL, SHEET NO. 3 & SINGLE LINE DIAGRAM, SHEET NO. E-2.
- ⑥ REFER TO SINGLE LINE DIAGRAM, SHEET NO. E-2, FOR FUTURE ELECTRICAL POWER SUPPLY PROVISIONS.
- ⑦ FURNISH & INSTALL TWO (2) UTILITY HEATERS, LOCATED ON OPPOSITE WALLS OF THE ENCLOSURE. SEE SINGLE LINE DIAGRAM, SHEET NO. E-2, FOR ELECTRICAL CONNECTIONS. HEATERS SHALL BE 500 WATT, 120VOLT, WITH INTEGRAL LINE VOLTAGE THERMOSTAT (40°F TO 70°F RANGE). FURNISH Q MARK CATALOG NO. WHT500, OR EQUAL.
- ⑧ GENERATOR SUPPLY, CONTROL, ALARM & AUXILIARY POWER CIRCUITS TO SERVICE EQUIPMENT CABINET - SEE SINGLE LINE DIAGRAM, SHEET NO. E-2.
- ⑨ FREE STANDING, PAD MOUNTED SERVICE EQUIPMENT CABINET "SEC". SEE DETAIL/ ELEVATION, SHEET NO. E-3.
- ⑩ 4" C. (SCHEDULE 80 PVC) TURNOUT FOR INCOMING 240/120V., 1Φ, 3 WIRE DELAWARE ELECTRIC COOPERATIVE (DEC) SERVICE CONDUCTORS.
- ⑪ HEATER CIRCUITS & FLOW METER SIGNAL CONDUITS TO SERVE EQUIPMENT CABINET - SEE SINGLE LINE DIAGRAM, SHEET NO. E-2.
- ⑫ AIR SUPPLY PIPE FOR FUTURE WET WELL VENT FAN. SEE SINGLE LINE DIAGRAM, SHEET NO. E-2, FOR FUTURE ELECTRICAL CONNECTION PROVISIONS.
- ⑬ PAD MOUNTED & ENCLOSED DIESEL ENGINE DRIVEN GENERATOR SET - SEE SINGLE LINE DIAGRAM, SHEET NO. E-2.
- ⑭ SEE CONCRETE PAD DETAIL, SHEET NO. E-3.
- ⑮ SCADA ANTENNA POLE - SEE POLE/FOUNDATION DETAIL, SHEET NO. E-3. SEE SINGLE LINE DIAGRAM, SHEET NO. E-2 FOR CONDUIT FROM S.E.C.
- ⑯ POLE HINGE DIRECTION FOR LAY DOWN.
- ⑰ 1 #2 - 3/4" C. TO S.E.C. GROUND BUS.
- ⑱ 1 #2 - 3/4" C. TO GENERATOR PAD RE-BAR & GENERATOR SKID.

ELECTRICAL LEGEND

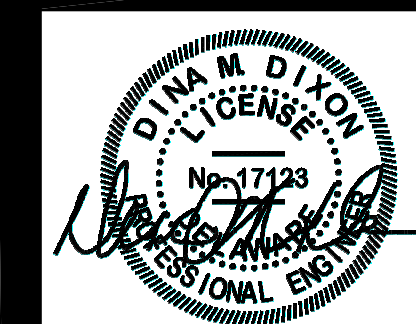
ABBREVIATIONS:

- A. AMP OR AMPERES
- A.F.F. ABOVE FINISHED FLOOR
- BRKR. BREAKER
- C. CONDUIT
- CFM CUBIC FEET/MINUTE
- CTD. COATED
- DEC. DELAWARE ELECTRIC COOPERATIVE
- DIA. DIAMETER
- DT. DISTRIBUTION TERMINAL
- ELEV. ELEVATION
- EUC. EASTON UTILITIES COMMISSION
- G.F.I. GROUND FAULT INTERRUPTER
- GND. GROUND
- GRS. GALVANIZED RIGID STEEL
- H.O.A. HAND OFF AUTOMATIC
- HP. HORSEPOWER
- HZ. HERTZ
- J.B. JUNCTION BOX
- K.V.A. KILOVOLT AMPERES
- KW. KILOWATTS
- LED. LIGHT EMITTING DIODE
- LR. LINE REACTOR
- M.H. MOUNTING HEIGHT - TO CENTER OF DEVICE OR EQUIPMENT UNLESS OTHERWISE INDICATED.
- P. POLE OR POLES
- PCP. PUMP CONTROL PANEL
- PLC. PROGRAMMABLE LOGIC CONTROLLER
- PVC. POLYVINYL CHLORIDE
- Ø. PHASE
- RPM. REVOLUTIONS PER MINUTE
- RTU. REMOTE TERMINAL UNIT
- SCADA. SUPERVISORY CONTROL AND DATA ACQUISITION
- SCH. SCHEDULE
- S.L.D. SINGLE LINE DIAGRAM
- S.P. STATIC PRESSURE
- TYP. TYPICAL
- UG. UNDERGROUND
- UPS. UNINTERRUPTIBLE POWER SUPPLY
- V. VOLT OR VOLTS
- VFD. VARIABLE FREQUENCY DRIVE CONTROLLER
- WP. WEATHERPROOF
- WW. WET WELL

SYMBOLS:

- ☐ POLE MOUNTED LED AREA LUMINAIRE - SEE DETAIL, THIS SHEET.
- S SWITCH - SINGLE POLE, M.H. 4'-0".
- ⊕, ⊖, ⊗ RECEPTACLE - 20A., 125V. - SIMPLEX, DUPLEX, DUPLEX G.F.I.
- JB, ⊕, ⊖ JUNCTION BOX
- # MOTOR - NUMBER DENOTES HORSEPOWER.
- CONDUIT-EXPOSED
- CONDUIT-IN OR UNDER FLOOR SLAB OR UNDERGROUND. } 2 #12 & 1 #12 GND.- 3/4" C. UNLESS OTHERWISE NOTED.
- ⋯ HOMERUN TO PANEL - NO. OF ARROWS INDICATES NO. OF CIRCUITS AND NO. OF CROSSLINES INDICATES NO. OF #12 CONDUCTORS.
- G UNDERGROUND GAS SERVICE
- # DENOTES REFERENCE TO SHEET NO.
- CB ENCLOSED CIRCUIT BREAKER
- ⊗ DISCONNECT SWITCH, NON-FUSED
- ⊗ SPECIAL EQUIPMENT OR DEVICE AS NOTED
- T THERMOSTAT
- T THERMAL MANUAL MOTOR STARTER,
- ATS AUTOMATIC TRANSFER SWITCH
- PCP PUMP CONTROL PANEL
- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR
- M SERVICE METER
- DT DISTRIBUTION TERMINAL
- LR 5% LINE TERMINAL
- VFD VARIABLE FREQUENCY DRIVE CONTROLLER
- FM FLOW METER
- AD AUTOMATIC TELEPHONE DIALER
- UPS UNINTERRUPTIBLE POWER SUPPLY
- VM VOLTAGE MONITOR
- OIT OPERATORS INTERFACE TERMINAL
- PR PAPERLESS RECORDER
- GA GAS (HYDROGEN SULFIDE) ANALYZER
- GS GAS (HYDROGEN SULFIDE) SENSOR
- GB GROUND BAR
- ⊥ DENOTES GROUND CONNECTION

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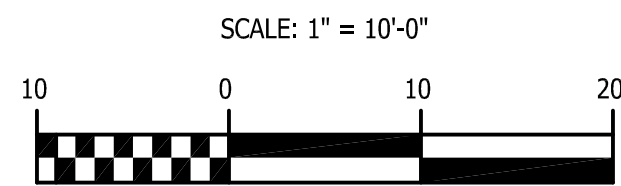
Date: / /2023

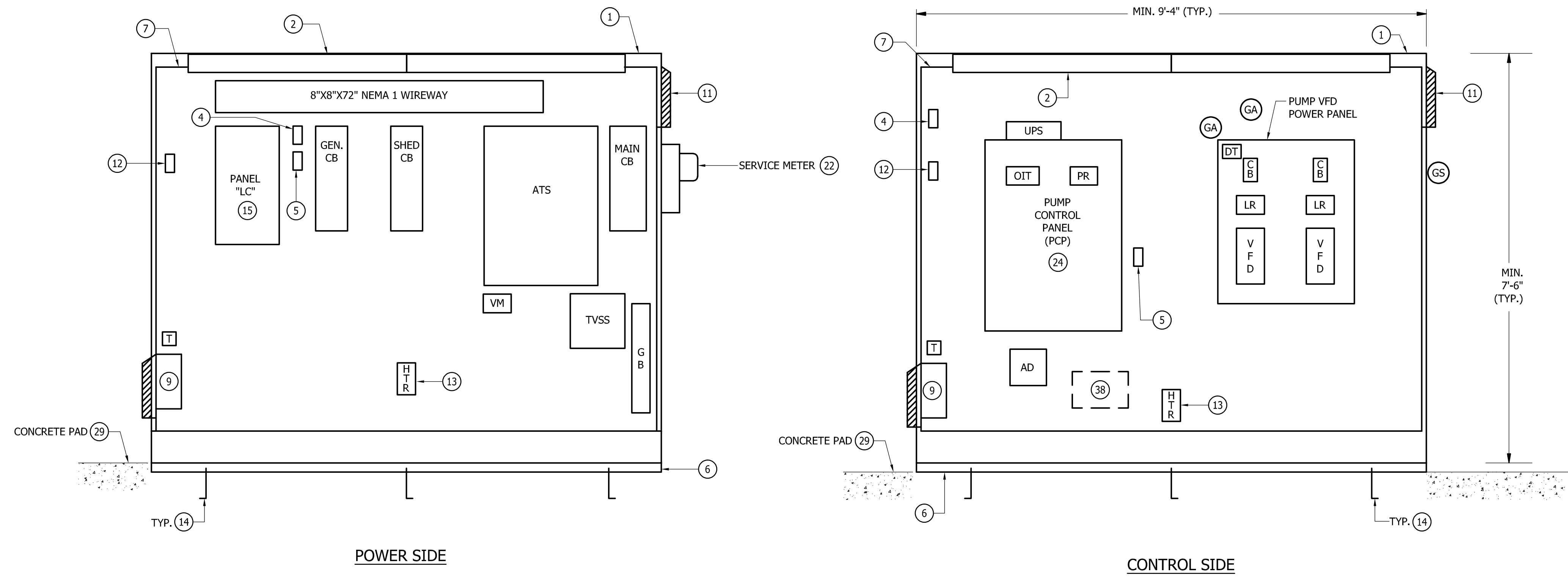
REVISIONS	
NO.	DESCRIPTION

PUMP STATION SITE PLAN & LEGEND
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date:	11-30-2023
Job Number:	G20098
Scale:	AS SHOWN
Drawn By:	JLP
Designed By:	DKJ
Approved By:	DKJ

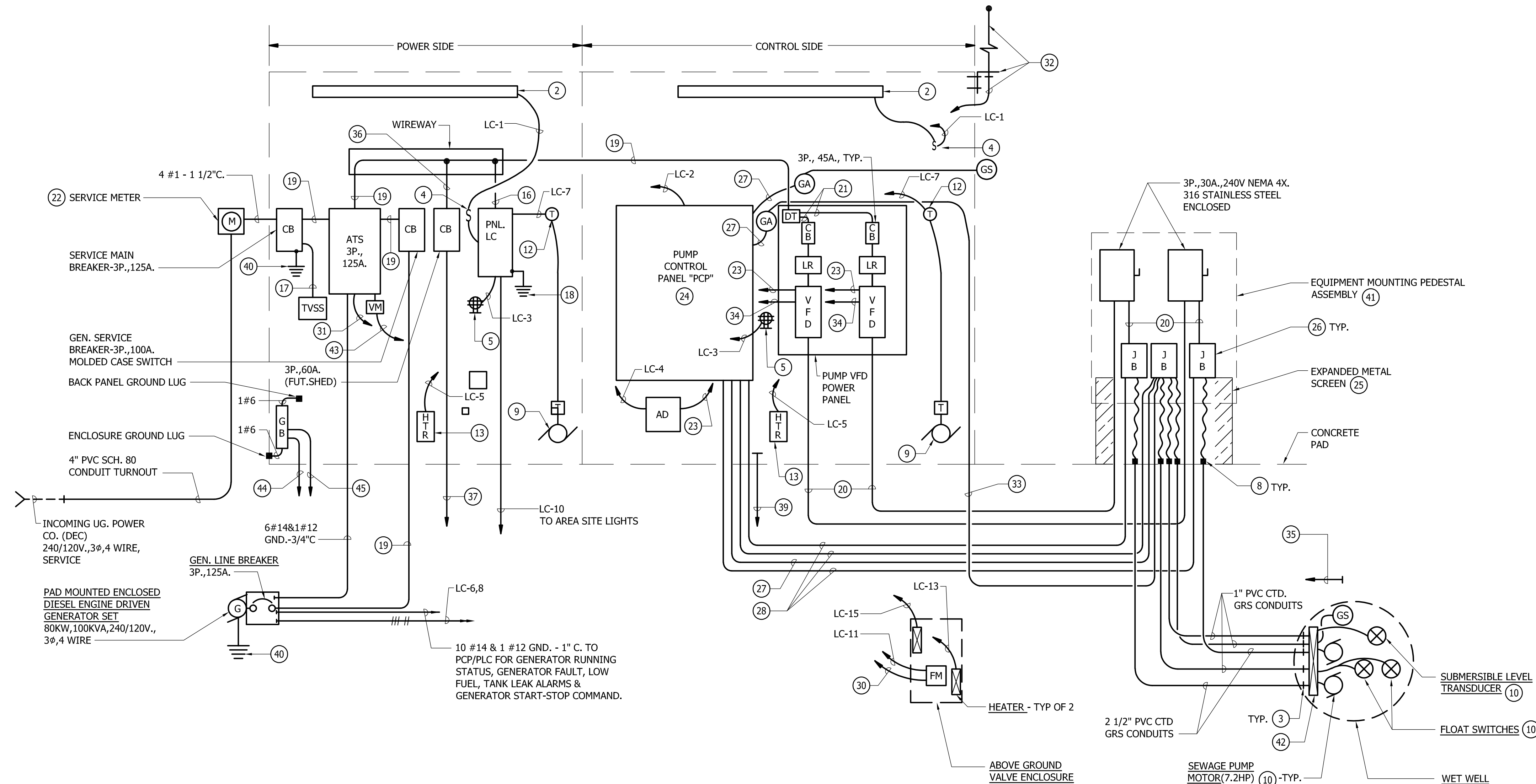
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DETAIL - ELEVATION OF SERVICE EQUIPMENT CABINET
SCALE: 3/4"=1'-0"

NOTE:
FRONT/REAR ACCESS CABINET-48" TOTAL DEPTH.

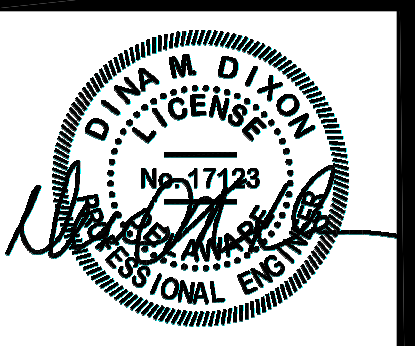


SHEET NOTES:

- 1 SERVICE EQUIPMENT CABINET, MINIMUM SIZE AS INDICATED - SEE SPECIFICATIONS SECTION 16100.
- 2 48" LED LIGHT FIXTURE. MOUNT TOWARDS FRONT OF CABINET.
- 3 TERMINATE CONDUIT 4" INSIDE WET WELL. PROVIDE INSULATED TYPE BUSHING & STAINLESS STEEL CABLE STRAIN RELIEF GRIP. REFER TO TYPICAL DETAIL, SHEET NO. E-3.
- 4 LIGHT SWITCH FOR INTERIOR CABINET LIGHTS.
- 5 DUPLEX G.F.I. RECEPTACLE.
- 6 1 1/2" x 3" STAINLESS STEEL BASE CHANNELS, FULL LENGTH FRONT AND BACK. PROVIDE FINISH TO MATCH CABINET.
- 7 WHITE FINISHED INTERIOR MOUNTING BACK PANEL.
- 8 CONDUIT SEALING BUSHINGS WITH GLAND LOCKING COLLAR, OZ GEDNEY TYPE CS BG, OR EQUAL.
- 9 COOLING AIR FAN PACKAGE: 560 CFM, 1650 RPM, 115V., 1Ø, 35 WATTS COMPLETE W/STAINLESS STEEL GRILLE, ALUMINUM AIR FILTER, COMPOSITE AIR PLENUM & COMPOSITE FINGER GUARD. FURNISH HOFFMAN CATALOG NO. A-PA10AXFN, OR EQUAL.
- 10 WITH INTEGRAL CABLE(S) COMPLETE TO JB.
- 11 AIR EXHAUST GRILL ASSEMBLY: CONSISTING OF 11.62" x 13.00" STAINLESS STEEL GRILLE, ALUMINUM AIR FILTER & MOUNTING HARDWARE. FURNISH HOFFMAN CATALOG NO. A-EXGR10, OR EQUAL.
- 12 COOLING AIR FAN THERMOSTAT: ADJUSTABLE RANGE OF 70° F TO 140° F, ANODIZED ALUMINUM HOUSING, RATED 12.5 AMPS AT 120VOLT. FURNISH HOFFMAN CATALOG NO. D-TEMA, OR EQUAL.
- 13 HEATER: 400 WATTS, 115V., 1Ø, ANODIZED ALUMINUM HOUSING WITH INTEGRAL THERMOSTAT & FAN. FURNISH HOFFMAN CATALOG NO. D-AH4001B, OR EQUAL.
- 14 3/4" DIA. x 10" LONG "L" STAINLESS STEEL ANCHOR BOLT ASSEMBLY, FRONT AND BACK, SET IN CONCRETE PAD.
- 15 SEE PANEL SCHEDULE, SHEET NO. E-3 FOR BRANCH BREAKER SIZES & USAGE.
- 16 3 #8 & 1 #10 GND. - 1" C. - DO NOT USE "HIGH LEG" PHASE FOR SINGLE PHASE SUPPLY TO PANEL "LC".
- 17 4 #8 & 1 #8 GND. - 1" C.
- 18 1 #6 - 3/4" C. TO GROUND GRID.
- 19 4 #1 & 1 #6 GND. - 2" C.
- 20 3 #10 & 1 #10 GND. - 3/4" C.
- 21 3 #10 & 1 #10 GND.
- 22 SECURE TO CABINET UTILIZING VERTICAL CHANNEL SUPPORTS AS DESCRIBED IN NOTE 3, SHEET NO. E-1.
- 23 14 #14 & 1 #12 GND. - 1 1/4" C. TO PCP/PLC.
- 24 PUMP CONTROL PANEL (PCP) - REFER TO SPECIFICATION SECTION, 16920.
- 25 PROVIDE STAINLESS STEEL, NO. 6 GAUGE MINIMUM, WIRE METAL MESH SCREEN TO ENCLOSE/PROTECT CABLES. ATTACH TO S.E.C. WITH STAINLESS STEEL HARDWARE. SUBMIT FABRICATION DRAWINGS FOR REVIEW PRIOR TO CONSTRUCTION.
- 26 18" HIGH X 8" DEEP X 12" WIDE NEMA 4X JUNCTION BOX, STAINLESS STEEL CONSTRUCTION WITH HINGED LOCKABLE COVER, INTERIOR BACKPLATE WITH WHITE FINISH & SQUARE D TERMINAL BLOCKS FOR ALL INCOMING & OUT GOING WIRING
- 27 2/C #18 SHIELDED CABLE IN 3/4" C. TO PCP/PLC.
- 28 4 #14 & 1 #12 GND. - 3/4" C. TO PCP/PLC.
- 29 SEE TYP. CONCRETE PAD DETAIL, SHEET NO. E-3.
- 30 2/C #18 SHIELDED CABLE IN 3/4" C. TO PCP/PLC.
- 31 4 #14 & 1 #12 GND. - 3/4" C. TO PCP/PLC FOR ATS NORMAL POSITION & EMERGENCY POSITION STATUS SIGNALS.
- 32 CELLULAR ANTENNA BRACKET MOUNTED TO S.E.C. (STAINLESS STEEL ANGLE BRACKET THRU BOLT SECURED TO S.E.C. W/STAINLESS STEEL HARDWARE) WITH ANTENNA CABLE TO AUTO-DIALER.
- 33 3/C #18 SHIELDED CABLE IN 3/4" C.
- 34 3-2/C #18 SHIELDED CABLES IN 3/4" C. TO PCP/PLC.
- 35 PROVIDE 1" EMPTY CONDUIT WITH PULL LINE TO CONTROL SIDE OF S.E.C. TERMINATE WITHIN SIX INCHES OF THE AIR SUPPLY PIPE AT THE WET WELL FOR FUTURE ELECTRICAL CONNECTIONS.
- 36 4 #6 & 1 #8 GND. - 1 1/4" C.
- 37 1 1/2" EMPTY CONDUIT WITH PULL LINE. EXTEND TO WITHIN THREE FEET OF THE FUTURE ODOR CONTROL SHED & TERMINATE FOR FUTURE ELECTRICAL CONNECTION.
- 38 ALLOW SPACE IN CABINET FOR FUTURE RADIO & ANTENNA CABLE LIGHTNING ARRESTOR.
- 39 1 1/4" C. TO SCADA POLE FOR FUTURE ANTENNA CABLE.
- 40 1 #4 - 3/4" C. TO GROUND GRID.
- 41 REFER TO DETAIL, SHEET NO. E-3.
- 42 PROVIDE SIX HOOK, STAINLESS CABLE BRACKET ASSEMBLY CONERY MFG. INC. U-TYPE NO. 6 AHB, OR EQUAL. SECURE TO CONCRETE FACE UTILIZING CONERY STAINLESS STEEL WEDGE ANCHORS. COORDINATE INSTALLATION WITH STRUCTURAL ENGINEER. SUPPORT CABLES UTILIZING APPROPRIATE STAINLESS STEEL CABLE STRAIN RELIEF DEVICES W/EYE HOOKS.

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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 DELAWARE, LICENSE NO. 17123, EXPIRATION DATE: 06/30/2024.

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NO.	DATE	DESCRIPTION

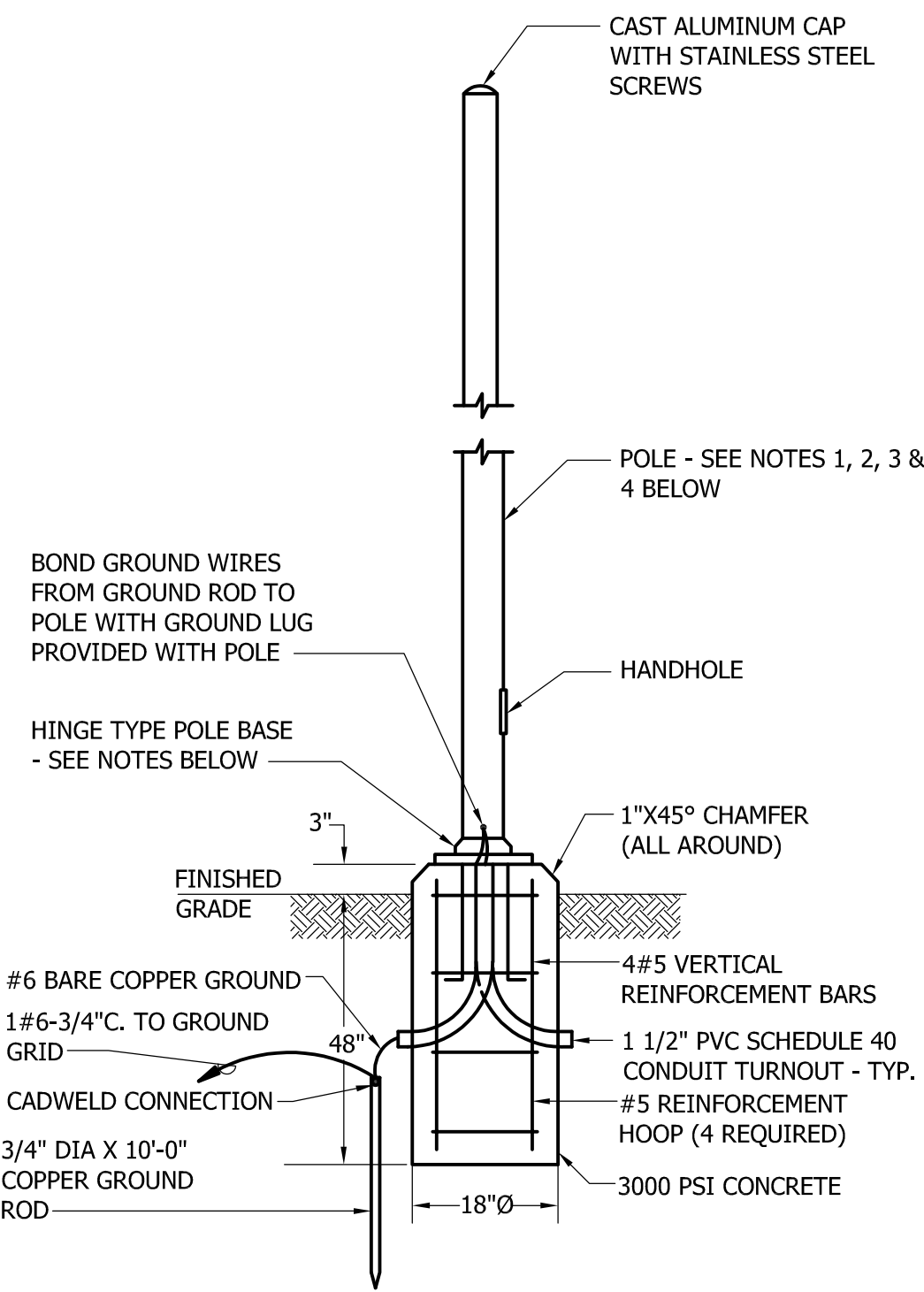
S.E.C. DIAGRAM & DETAIL
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date: 11-30-2023
Job Number: G20098
Scale: AS SHOWN
Drawn By: JLP
Designed By: DJL
Approved By: DJL

Sheet No.: E-2
File Name: G20098-pump

Gipe Associates, Inc.
CONSULTING ENGINEERS
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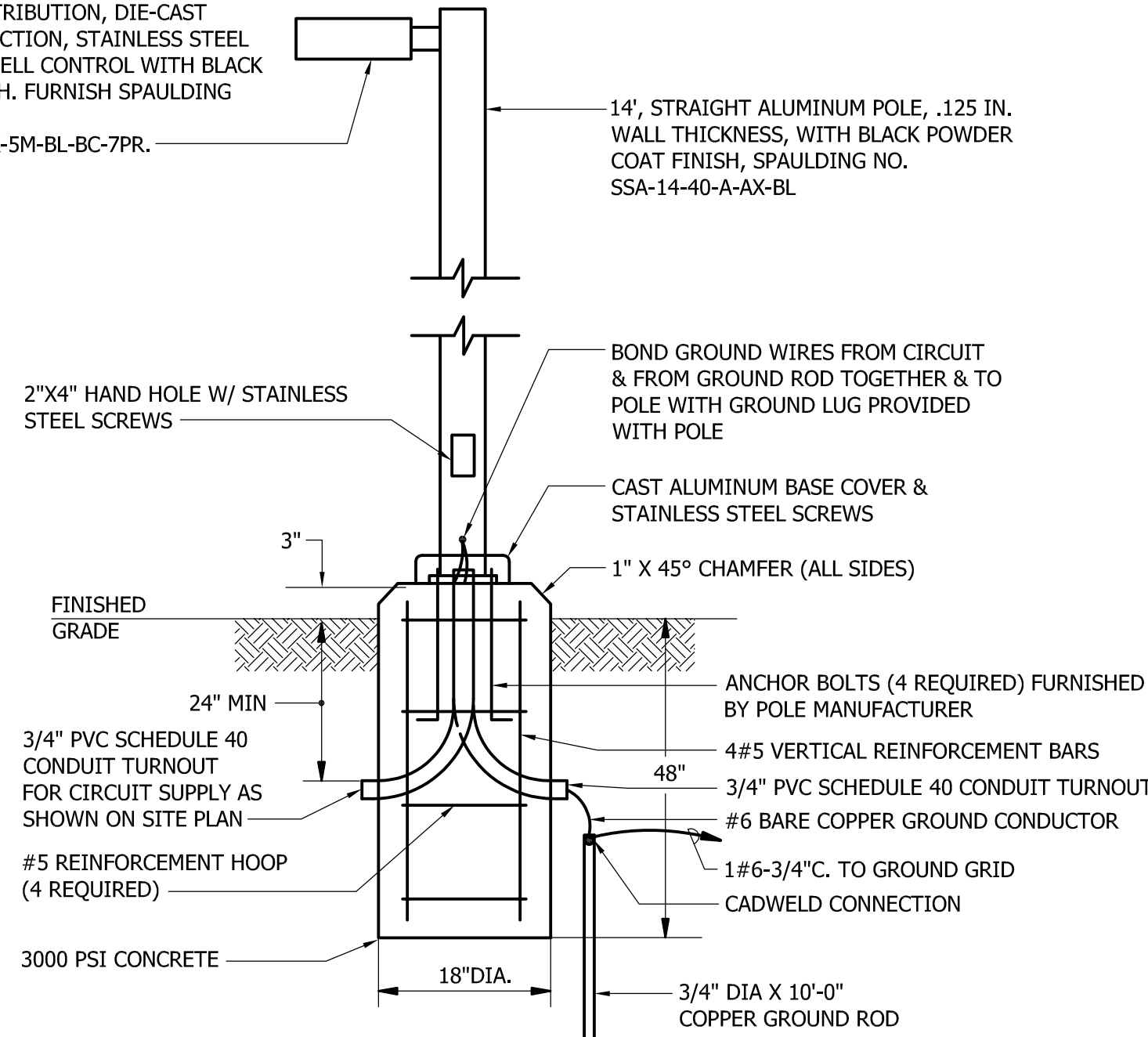


DETAIL - SCADA ANTENNA POLE/FOUNDATION
SCALE: NONE

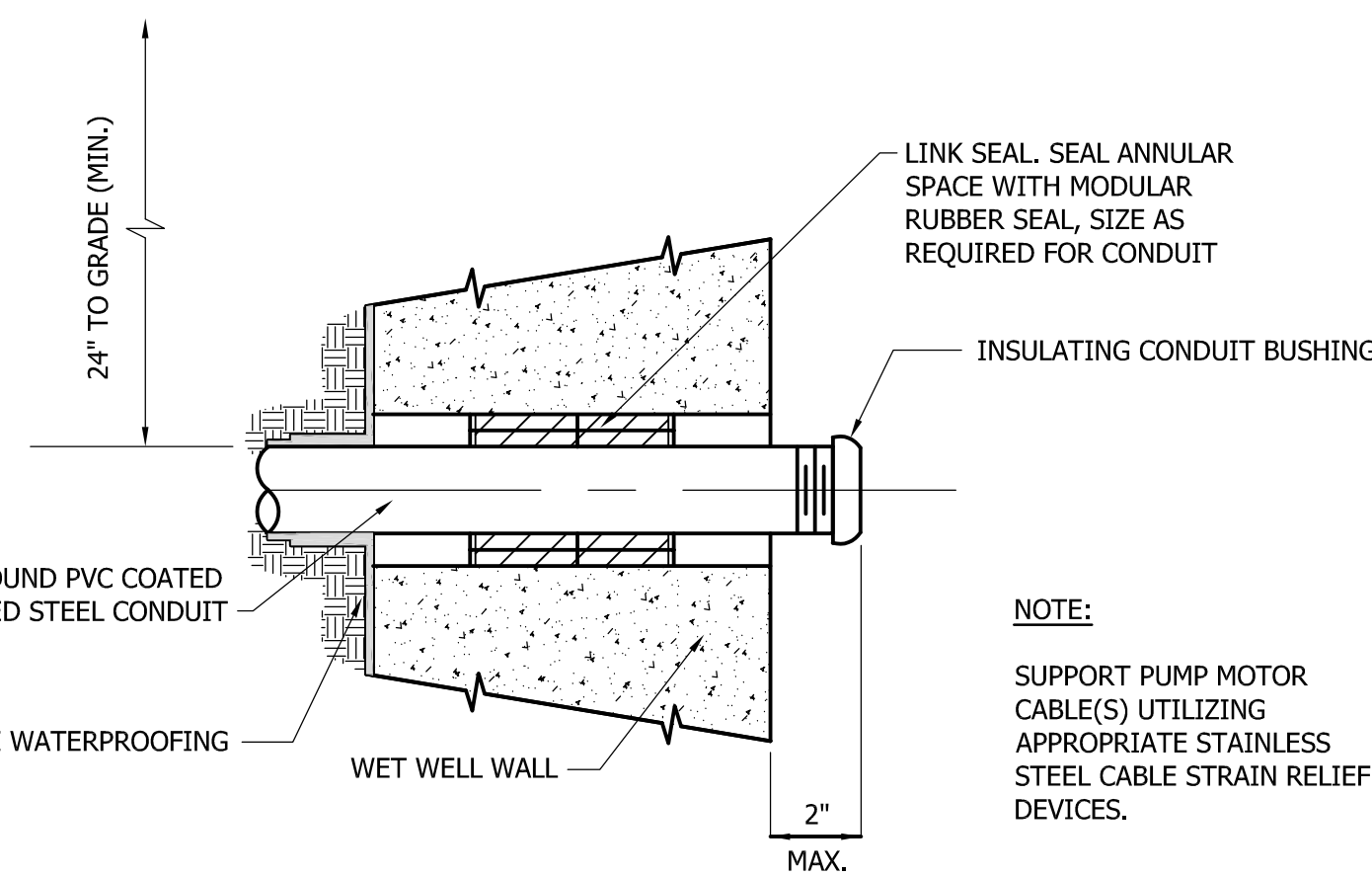
NOTES:

- POLE HEIGHT SHALL BE 20'.
- POLE SHALL BE HINGED ALUMINUM.
- MOUNTING STUDS SHALL BE POURED INTO CONCRETE BASE PER MANUFACTURERS RECOMMENDATIONS. LAGS OR DRIVE PINS WILL NOT BE PERMITTED.
- FURNISH LITHONIA LIGHTING POLE NO. RSAH 205C, OR EQUAL.

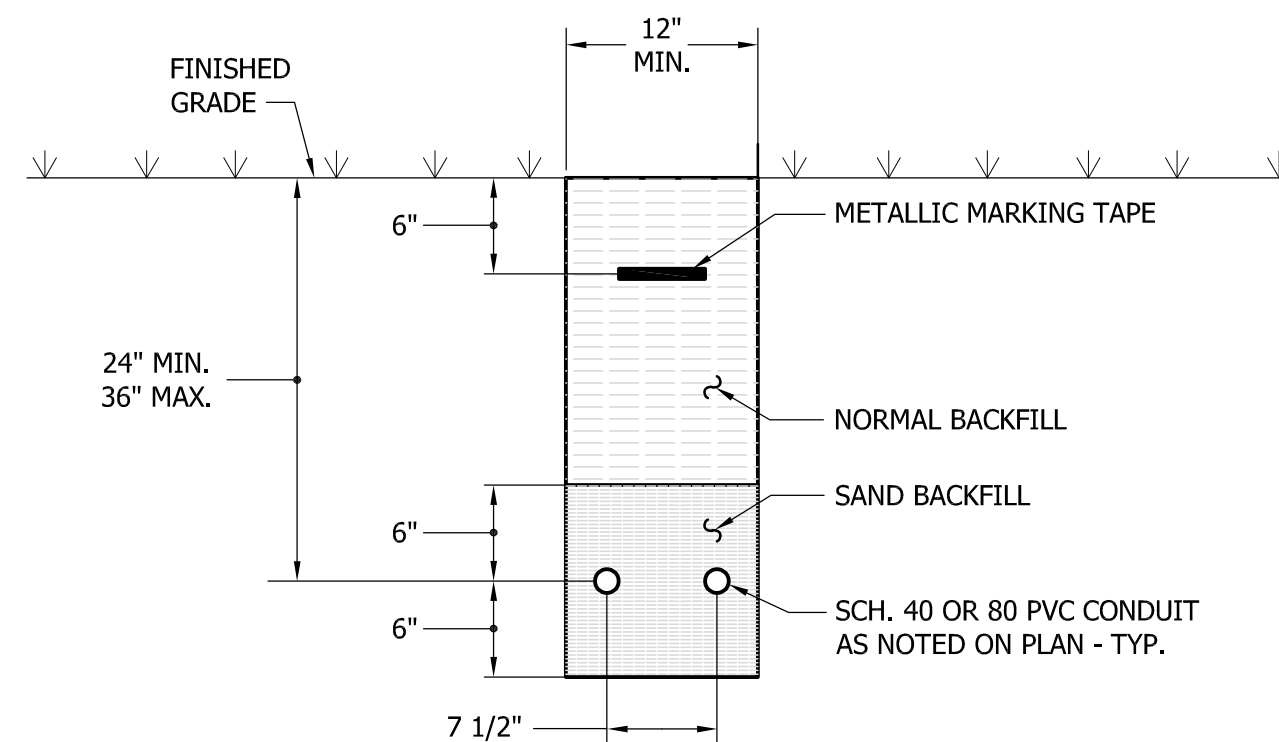
38 WATT, 32 HIGH BRIGHTNESS LED'S LIGHT FIXTURE TYPE V DISTRIBUTION, DIE-CAST ALUMINUM CONSTRUCTION, STAINLESS STEEL HARDWARE, PHOTOCELL CONTROL WITH BLACK POWDER COAT FINISH. FURNISH SPAULDING "CIMARRON SERIES" NO. CR1S-A-32L-U-3K-5M-BL-BC-7PR.



DETAIL - LIGHT FIXTURE AND POLE/FOUNDATION
SCALE: NONE



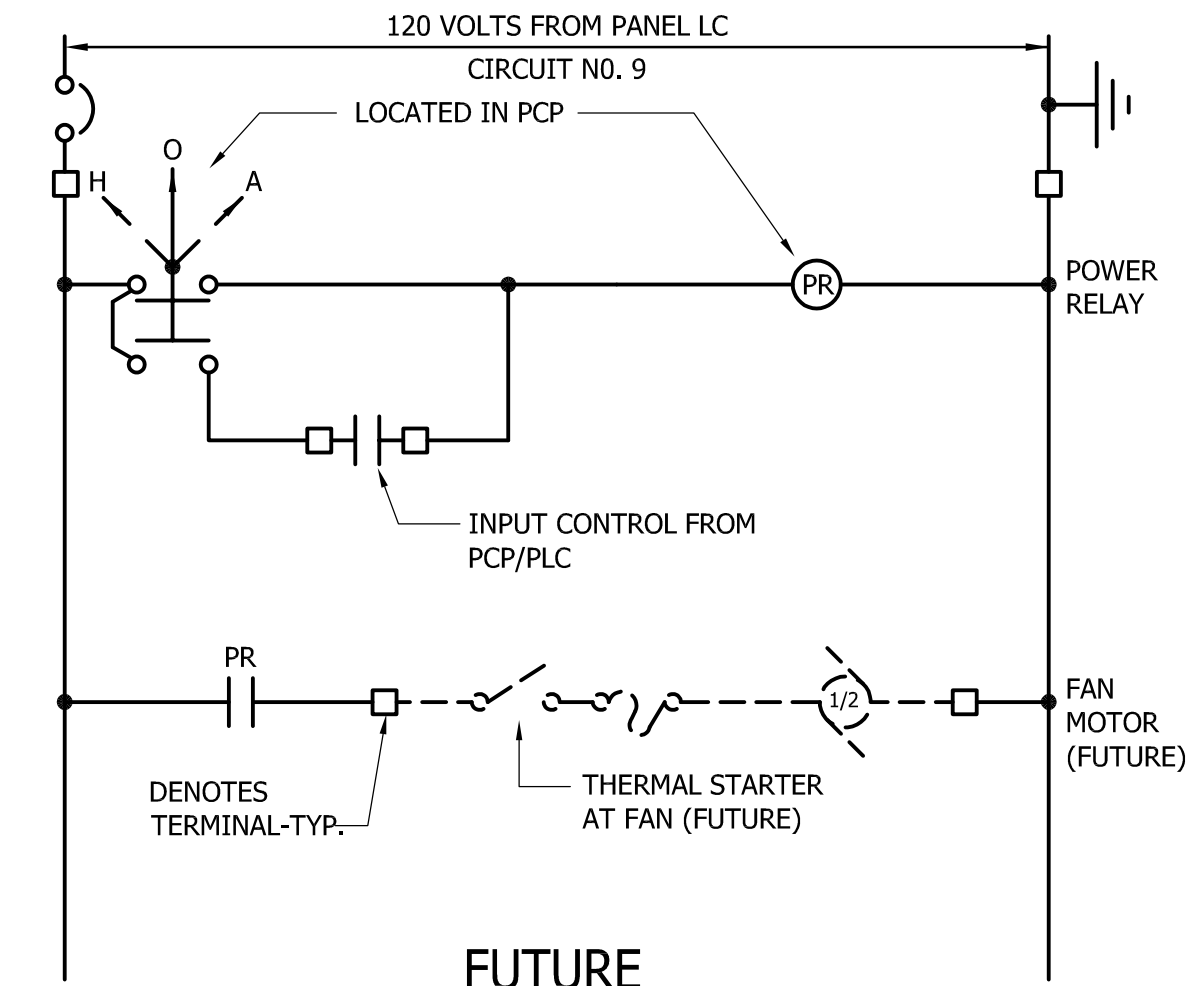
TYPICAL WET WELL ELECTRICAL CONDUIT ENTRY DETAIL
NOT TO SCALE



UNDERGROUND PVC CONDUIT INSTALLATION DETAIL
NOT TO SCALE

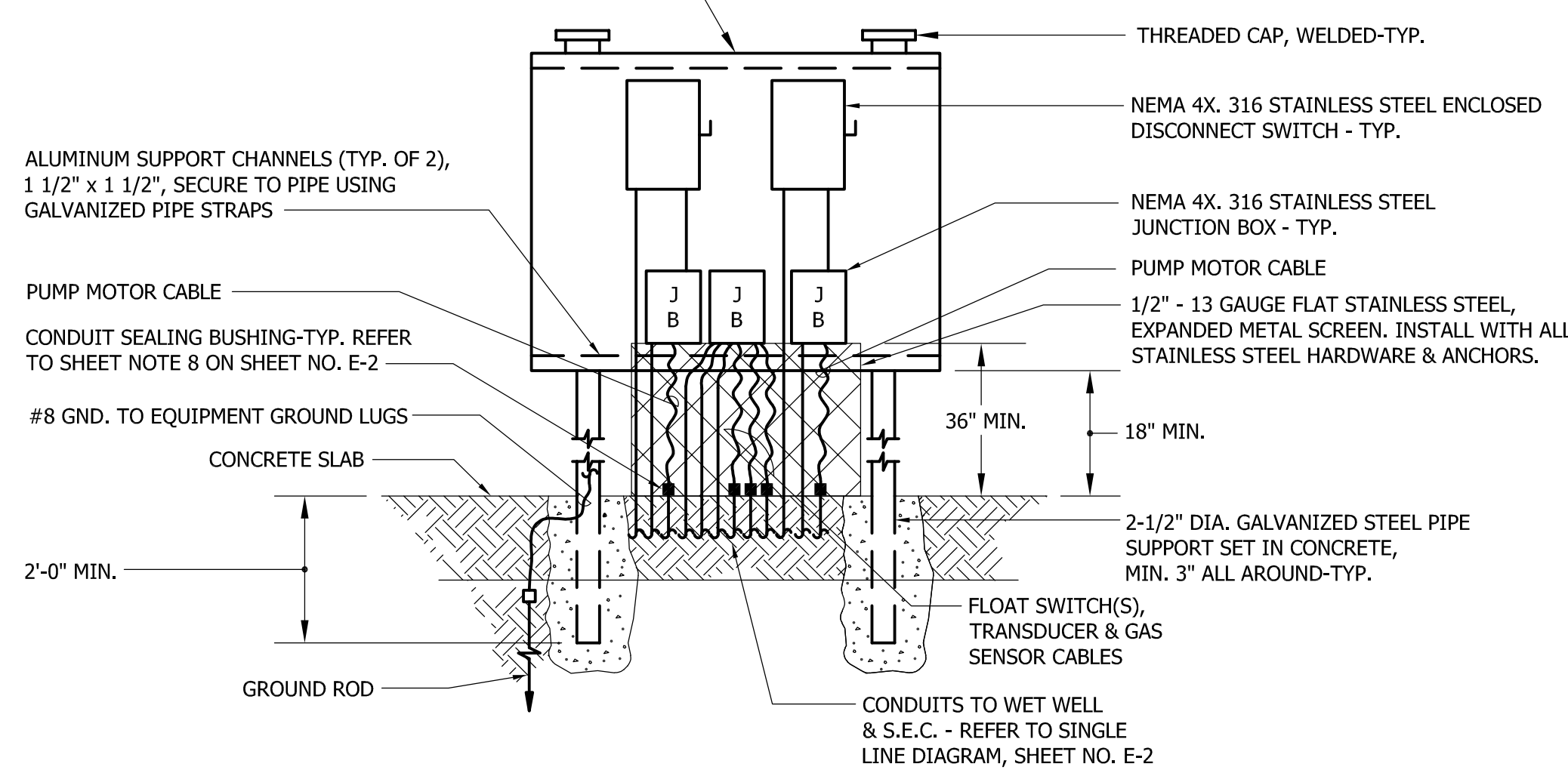
PANEL SCHEDULE : "LC" 240/120V., 1 PHASE, 3 WIRE 100 A. BUS CAPACITY
50 A. MAIN BREAKER

CIRC. NO.	FOR	BREAKERS			CIRC. NO.	FOR	BREAKERS		
		FRM.	P	TRIP			FRM.	P	TRIP
1	S.E.C. LIGHTS	100	1	20	2	PCP	100	1	20
3	S.E.C. RECEPTACLE	100	1	20	4	AUTO DIALER	100	1	20
5	S.E.C. HEATERS	100	1	20	6	GEN. BLOCK HEATER	100	1	20
7	S.E.C. COOLING FANS	100	1	20	8	GEN. BATTERY CHARGER	100	1	20
9	W.W. VENT FAN (FUTURE)	100	1	20	10	SITE LIGHT	100	1	20
11	FLOW MTRG. SYS.	100	1	20	12	SPARE	100	1	20
13	VALVE ENCL. HEATER	100	1	20	14	SPARE	100	1	20
15	VALVE ENCL. HEATER	100	1	20	16	SPACE W/BUS	-	1	-



FUTURE WET WELL VENTILATION FAN CONTROL DIAGRAM

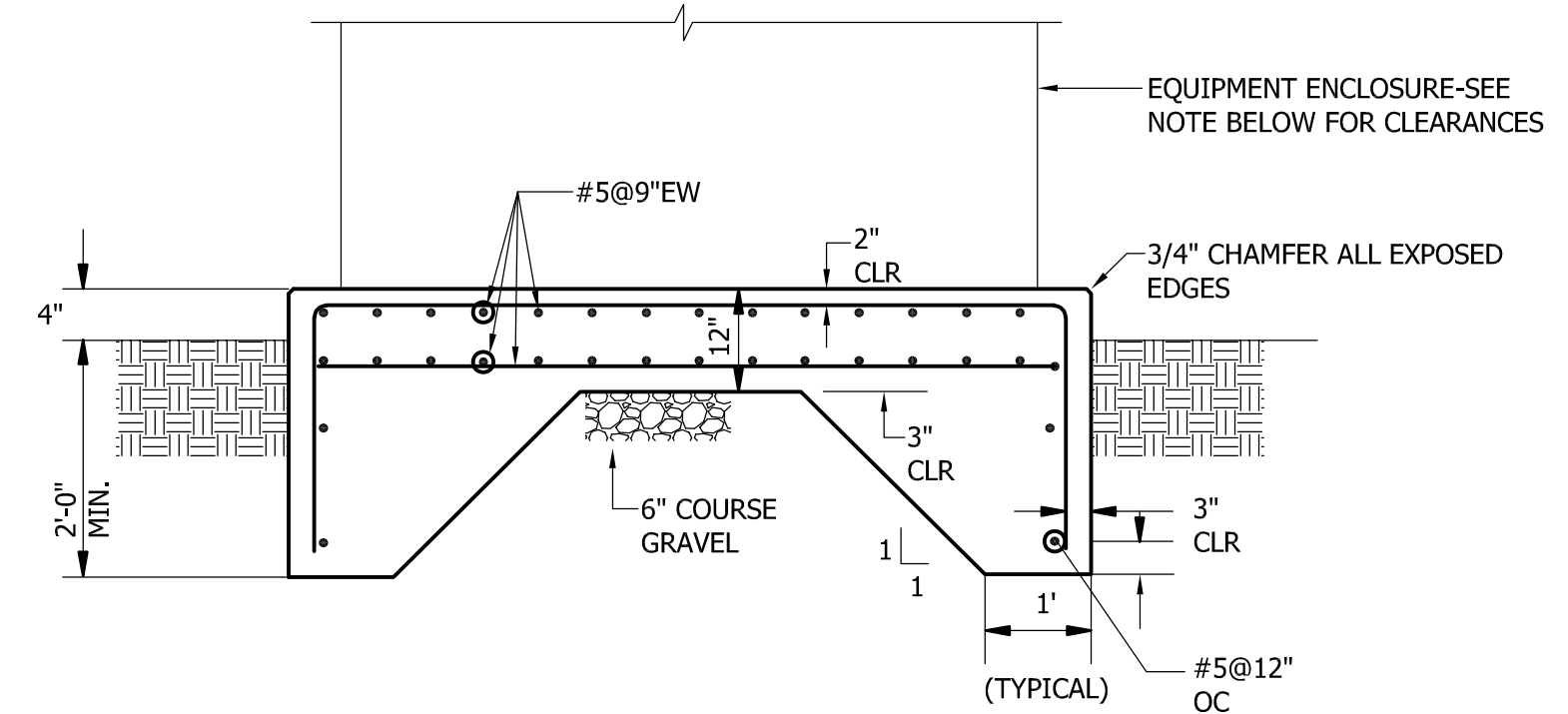
3/8" THICK ALUMINUM BACKPLATE (4' MIN. WIDTH x 4' MIN. HEIGHT, EXACT SIZE TO SUIT EQUIPMENT), SECURELY BOLT TO HORIZONTAL SUPPORT CHANNELS.



DETAIL - EQUIPMENT MOUNTING PEDESTAL
NO SCALE

NOTE:

BACK TO FACE TOWARDS WET WELL, FRONT TOWARDS THE S.E.C.



DETAIL - TYPICAL GENERATOR/SERVICE EQUIPMENT CONCRETE PAD
SCALE: NONE

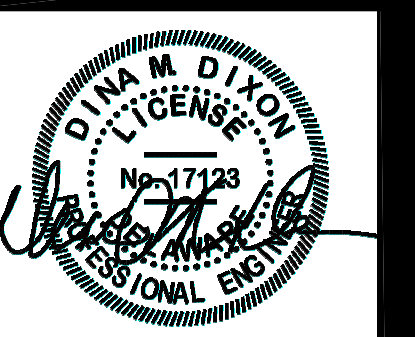
CLEARANCES:

- GENERATOR - 12" ON ALL SIDES.
- SERVICE EQUIPMENT CABINET - 3'-0" ON CONTROL SIDE & POWER SIDE; 6" ON BOTH ENDS.
- SECURE GENERATOR TO PAD (WITH STAINLESS STEEL ANCHOR BOLT ASSEMBLIES) AS RECOMMENDED BY THE GENERATOR MANUFACTURER.

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Date: / /2023

NO.	DATE	DESCRIPTION

DETAILS, DISGRAM & SCHEDULE
for
RIVERWOOD
SUSSEX COUNTY, DELAWARE
INDIAN RIVER HUNDRED

Date: 11-30-2023
Job Number: G20098
Scale: AS SHOWN
Drawn By: JLP
Designed By: DKJ
Approved By: DKJ

Sheet No.:

E-3

File Name: G20098-pump

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