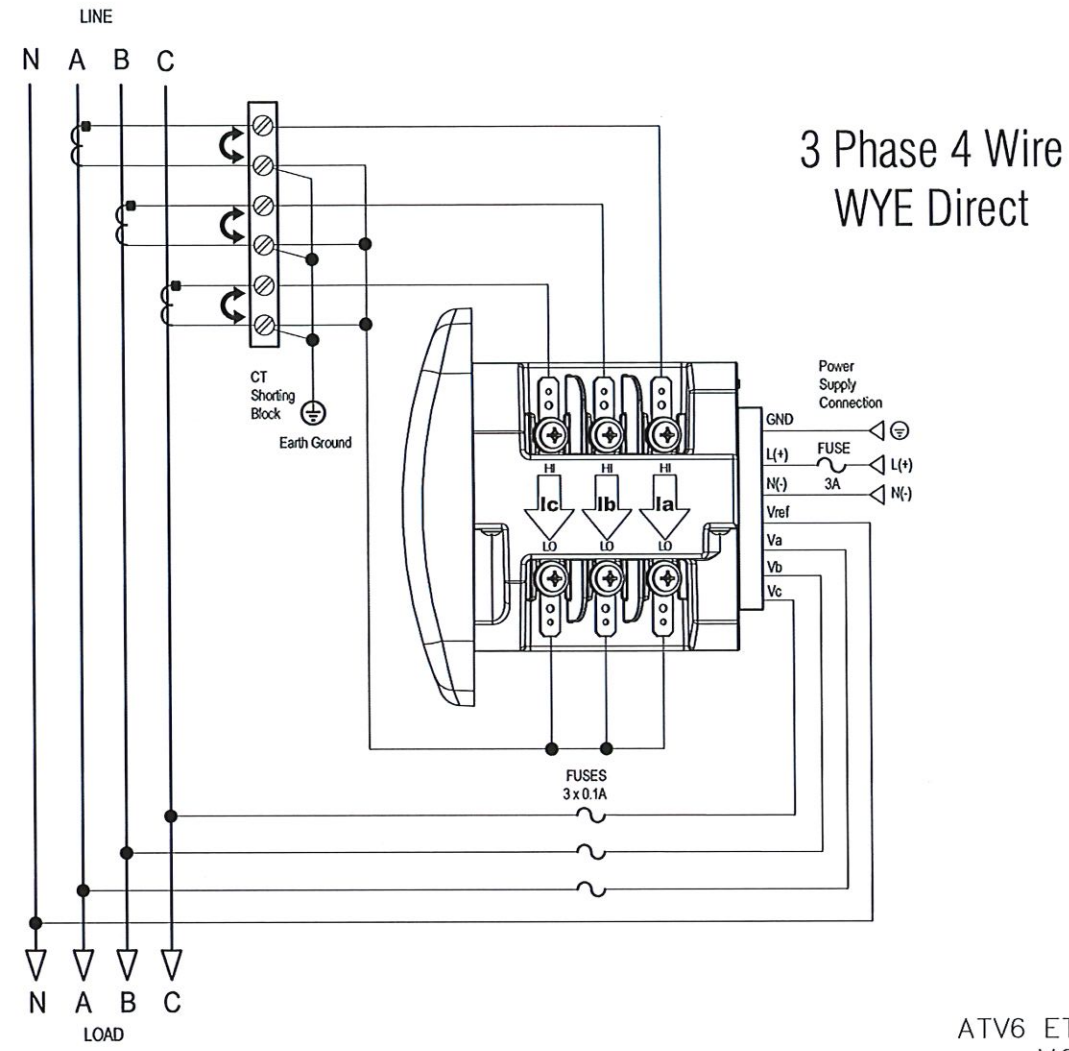
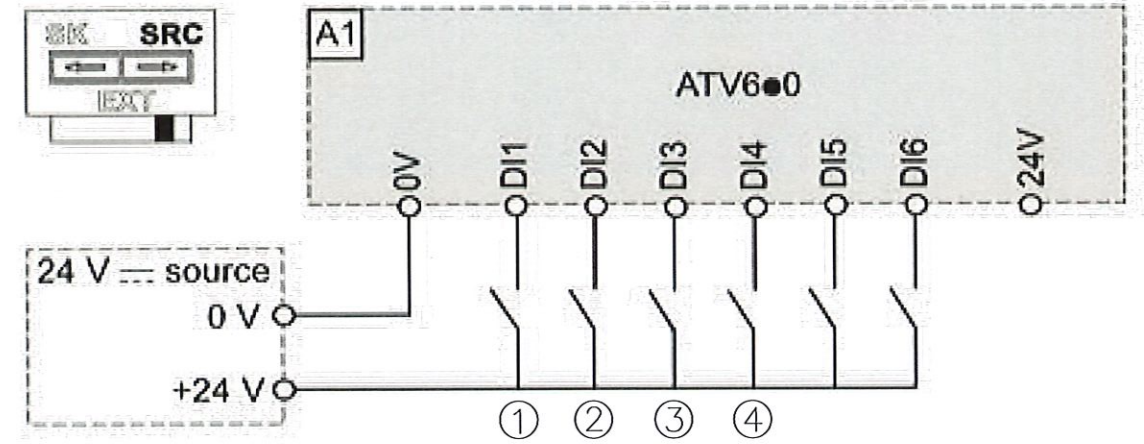
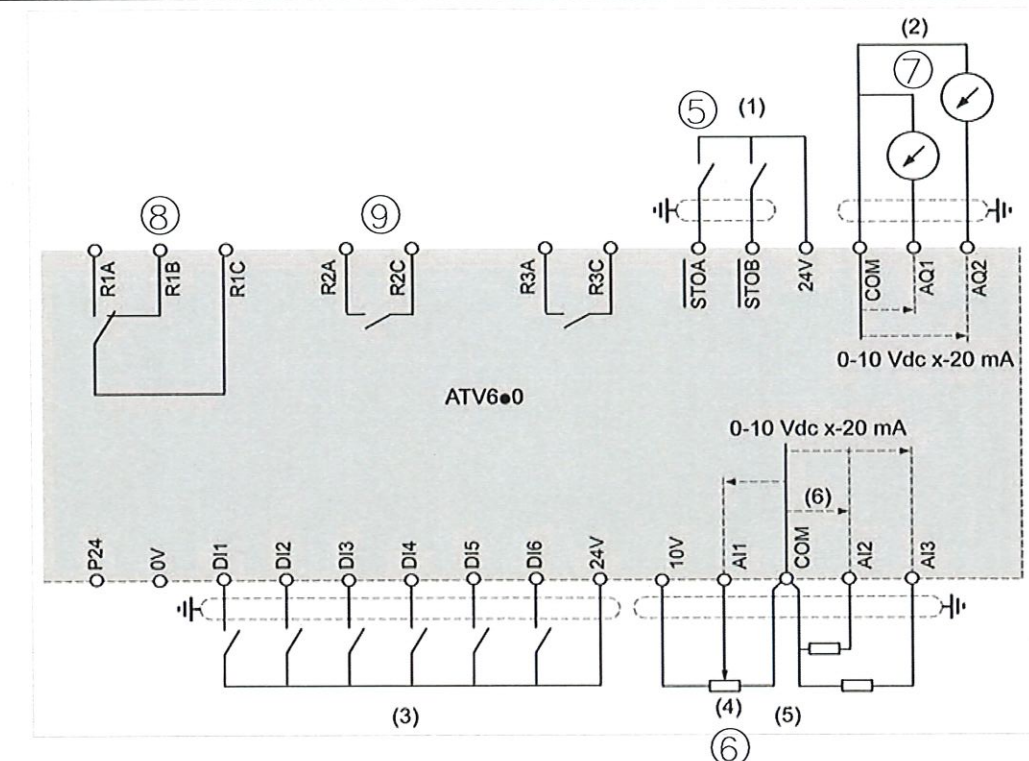
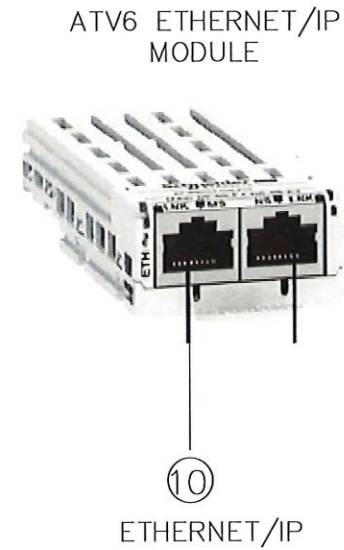


4/18/2025 9:00:42 AM - O:\2018\20181074-000\ELECTRICAL\20181074-000_ELECTRICAL_30_PERCENT.DWG - TRAVIS MEANS



SHARK 200 POWER METER
WIRING DIAGRAM
3PH, 4W, 480/277V

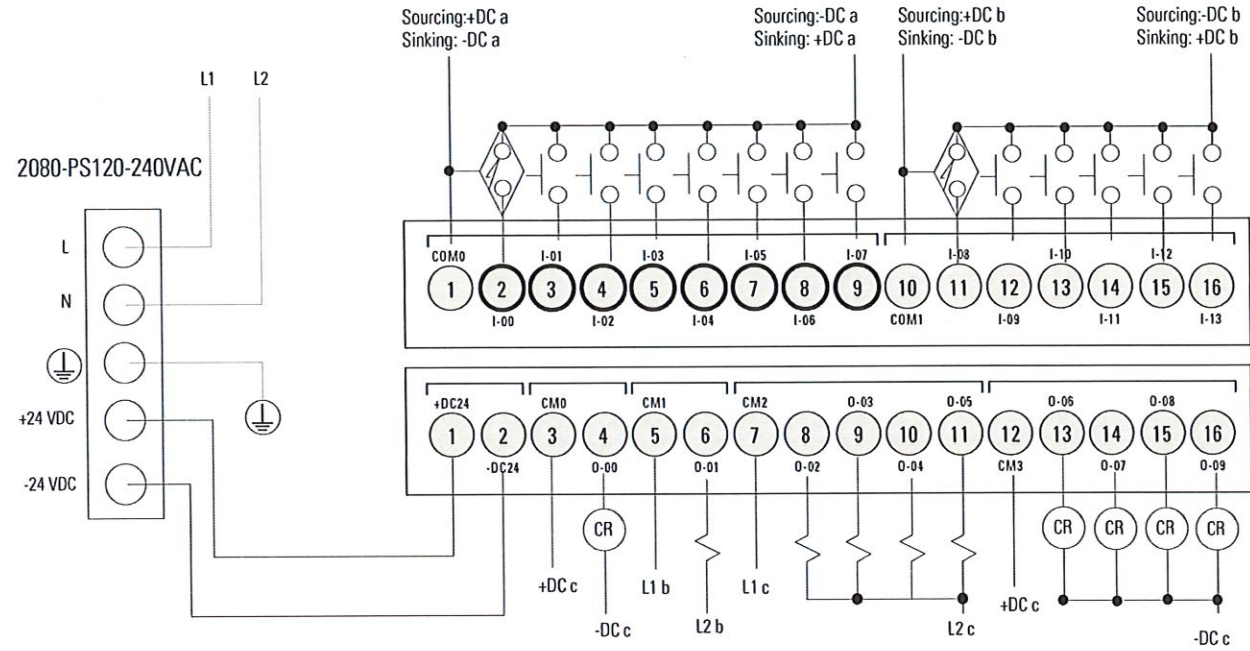


SCHNEIDER ATV630 VFD
WIRING DIAGRAM

- HARD-WIRED PUMP #1, #2 AND #3 I/O
- 1. DI1: START COMMAND FROM PLC
 - 2. DI2: PUMP OVERTEMP (3 PHASES WIRED IN SERIES) FROM DISC
 - 3. DI3: TERMINAL BOX LEAK DETECTION FROM DISC
 - 4. DI4: MOTOR HOUSING LEAK DETECTION FROM DISC
 - 5. STO A: DISCONNECT SWITCH AUX. (CONFIGURED AS DRIVE PERMISSIVE) FROM DISC
 - 6. AI1: SPEED COMMAND FROM PLC
 - 7. AQ1: SPEED FEEDBACK TO PLC
 - 8. R1: RUNNING STATUS TO PLC
 - 9. R2: FAULTED STATUS TO PLC
 - 10. ETH: PROCESS DATA

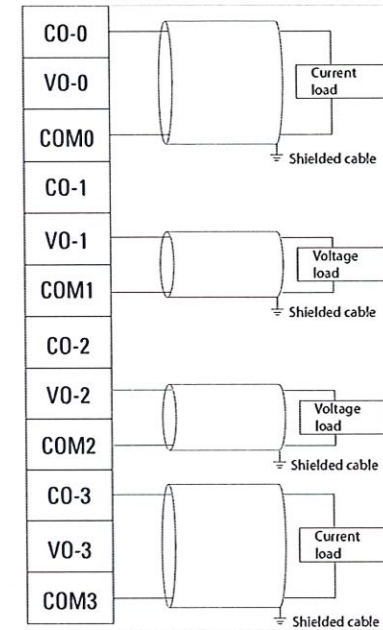
REVISIONS	DATE
DESCRIPTION	
NO.	
DATE:	APRIL 16, 2025
PROJECT NO.	20181074-000
FILE NO.	29-42-24
SCALE:	NONE

2080-LC30-24QWB, 2080-LC50-24QWB, 2080-L50E-24QWB, 2080-LC70-24QWB,
2080-LC70-24QWBK 2080-L70E-24QWB, 2080-L70E-24QWBK, 2080-L70E-24QWBN,
DC Input Configuration



PLC BASE I/O WIRING

2085-OF4



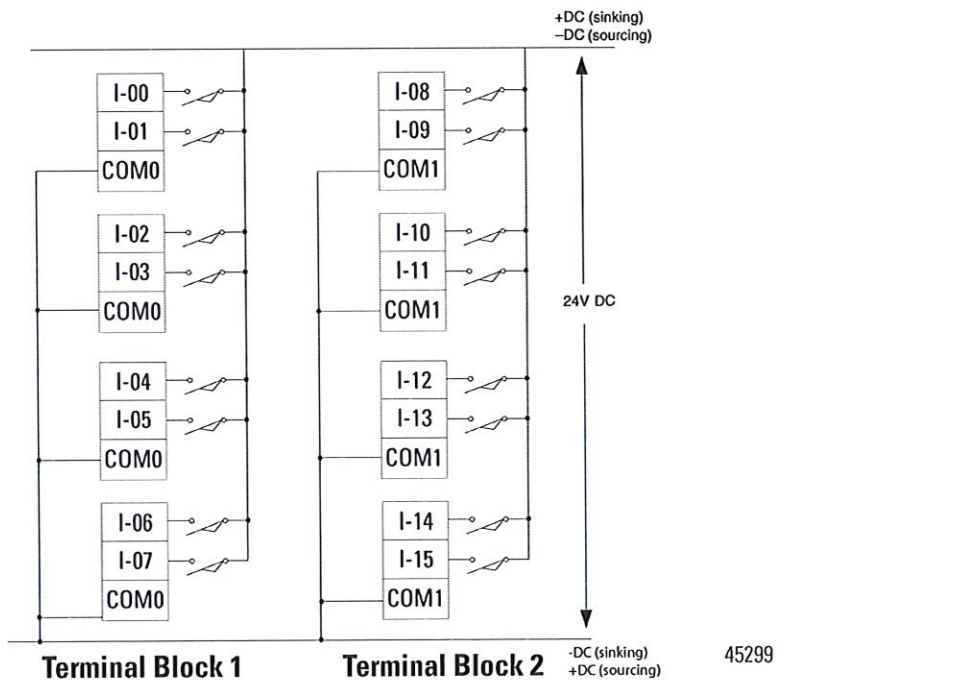
NOTES:

1. PLC IS EQUIPPED WITH AN EMBEDDED ETHERNET PORT.

45321

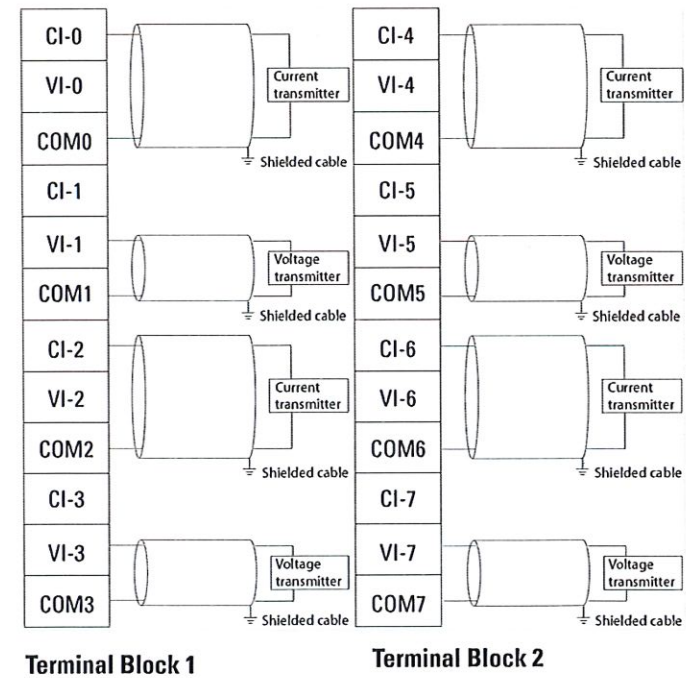
PLC 4-PT ANALOG OUTPUT EXPANSION WIRING

2085-IQ16



PLC 16-PT DISCRETE INPUT EXPANSION WIRING

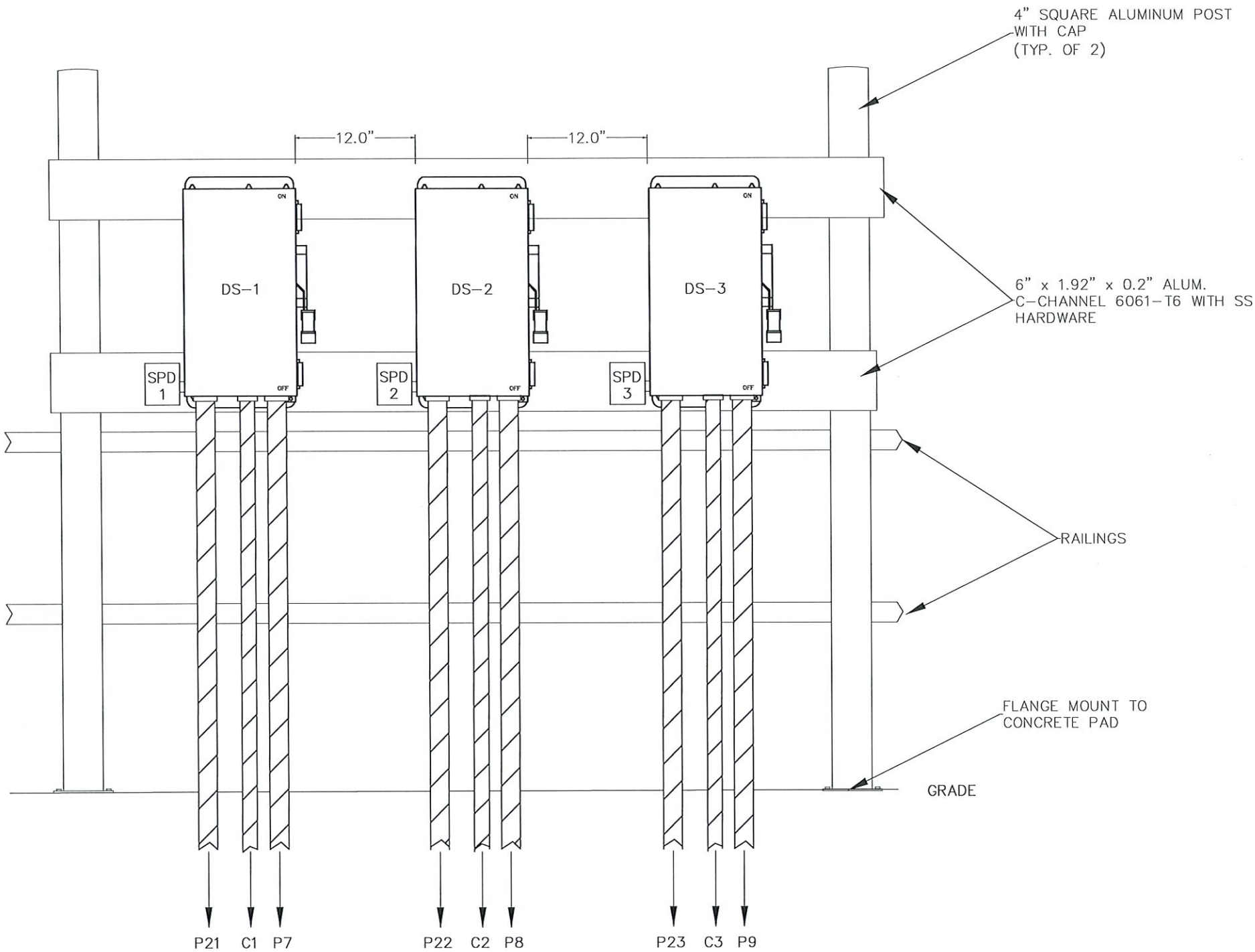
2085-IF8



PLC 8-PT ANALOG INPUT EXPANSION WIRING

NOTES:

1. ADD TERMINAL BLOCKS TO DISCONNECTS FOR CONTROL SIGNALS.
2. C1, C2, C3: (1) 8/C #16 AWG OMNISCABLE P/N AS11608.
3. MAINTAIN MINIMUM OF 42" OF CLEARANCE IN FRONT OF DISCONNECTS.



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS	DESCRIPTION	NO.	DATE

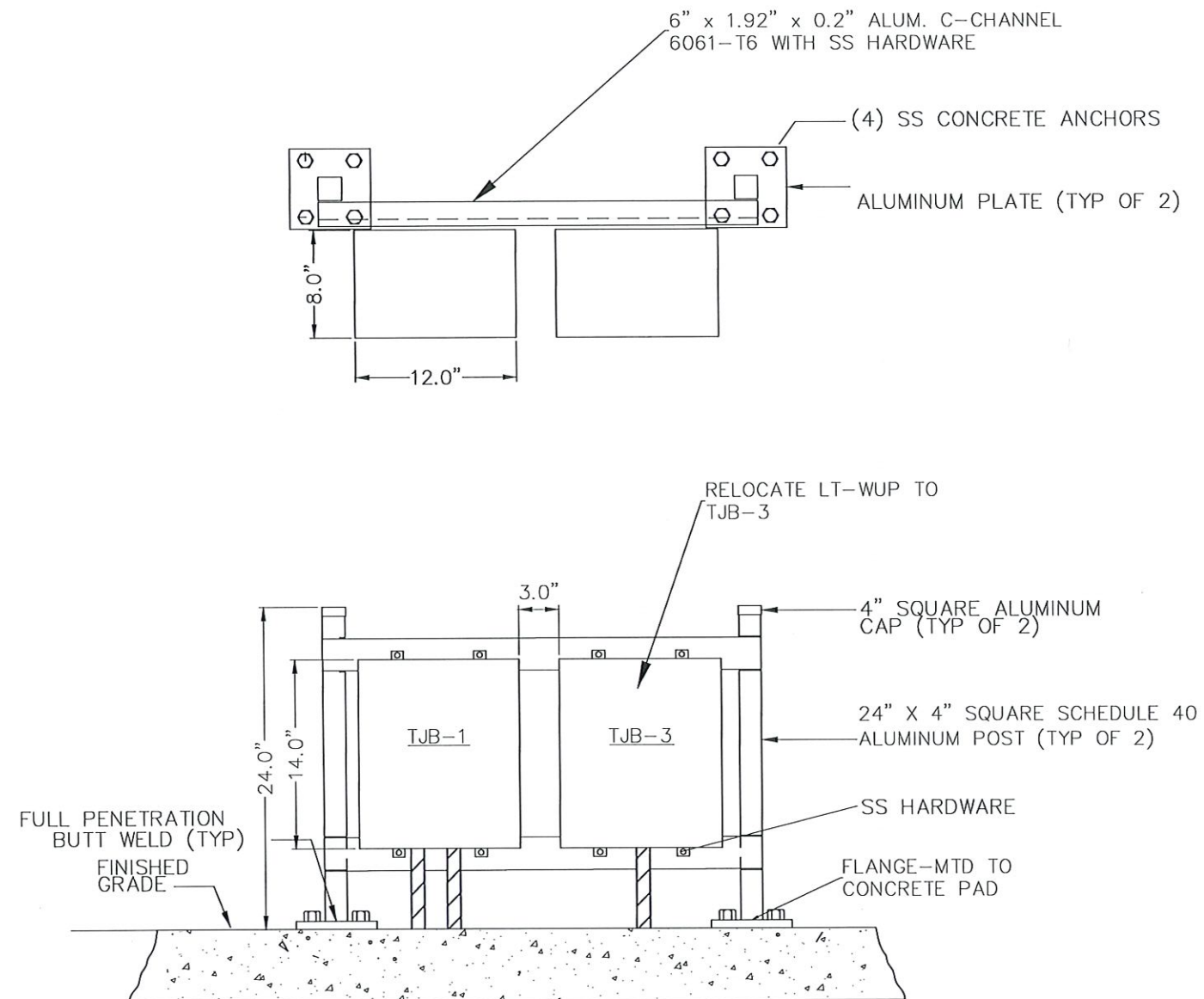
DATE: APRIL 16, 2025
PROJECT NO. 20181074-000
FILE NO. 29-42-24
SCALE: NONE

SECTION A-A
PUMP
DISCONNECTS

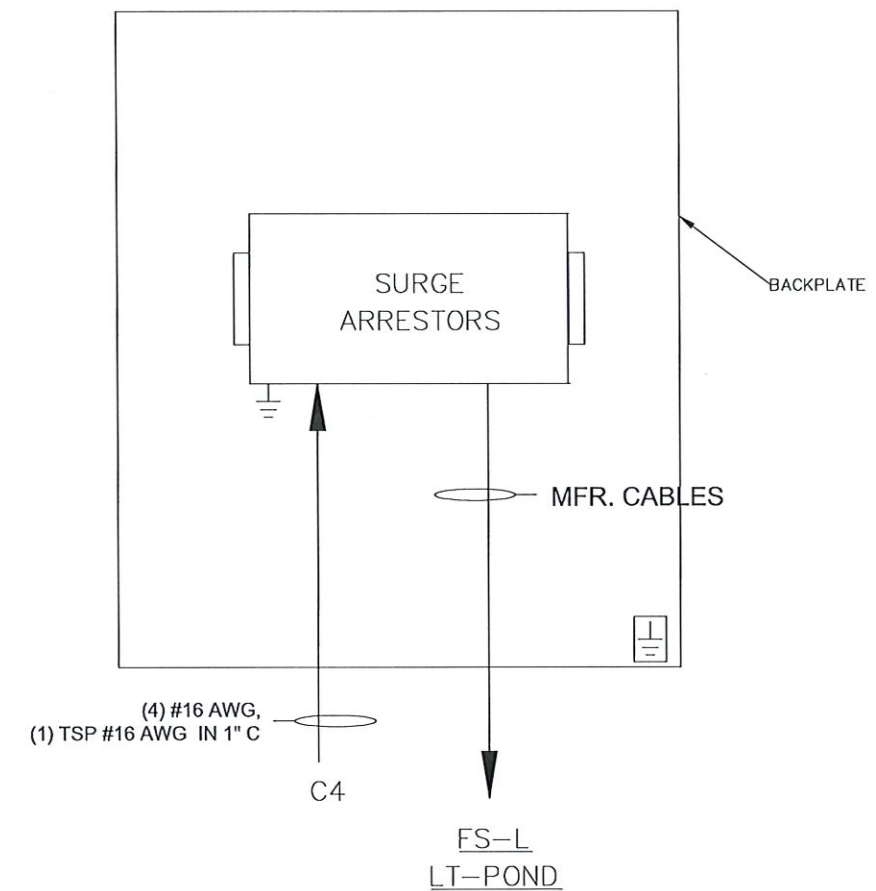
SHEET NUMBER
E-34

NOTES:

1. ALL UG CONDUIT RUNS SHALL BE SCHEDULE 80 PVC CONDUIT.
2. ALL AG CONDUIT OUTSIDE THE ELECTRICAL ROOM SHALL BE ALUMINUM RIGID CONDUIT COATED WITH MASTIC WHEN IN CONTACT WITH CONCRETE.
3. ALL CONDUIT INSIDE THE ELECTRICAL ROOM SHALL BE EMT.



SECTION B-B
LEVEL TERMINAL JUNCTION BOXES MOUNTING



SECTION B-B
TERMINAL JUNCTION BOXE TJB-1 INTERIOR VIEW



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

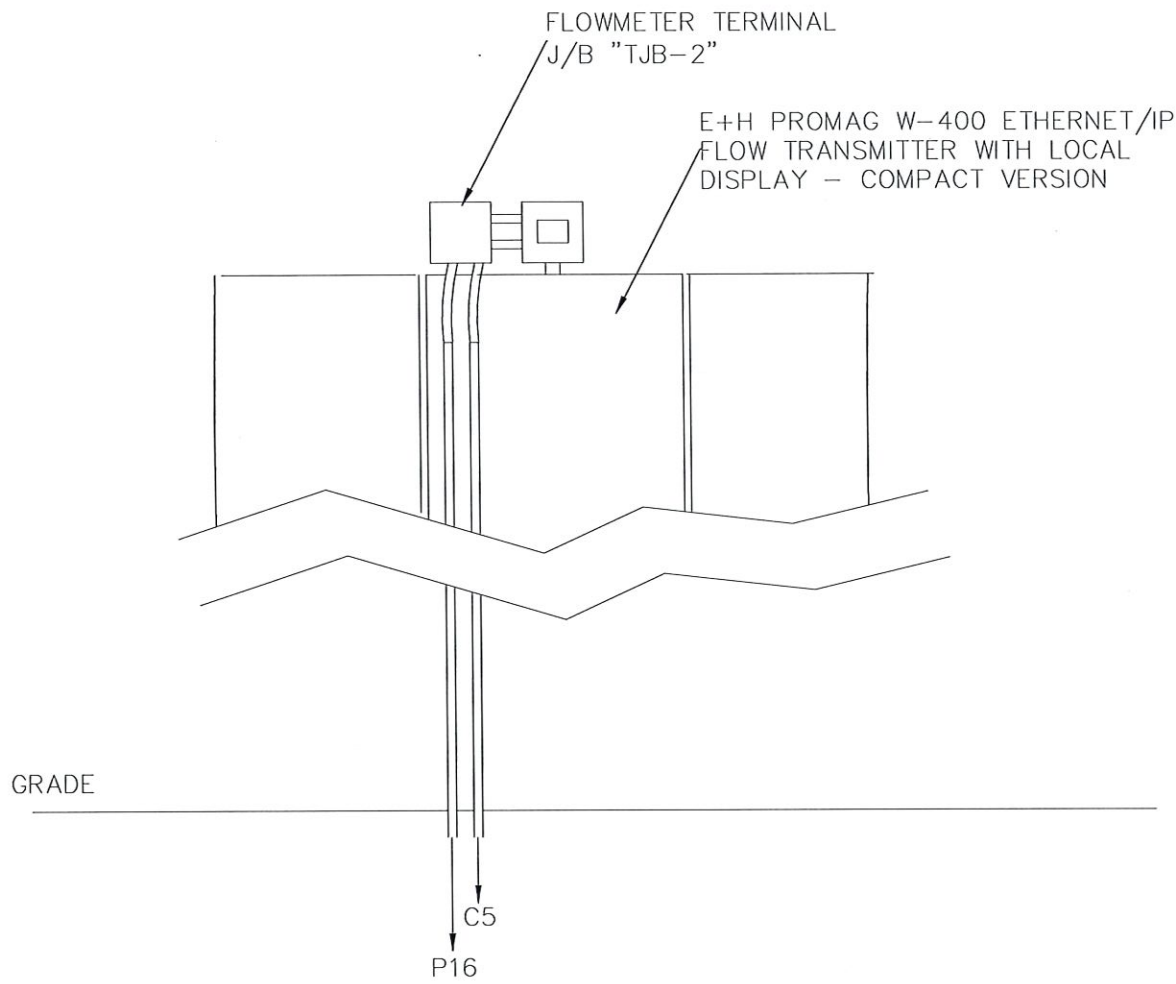
REVISIONS	
NO.	DATE DESCRIPTION

DATE: APRIL 16, 2025
PROJECT NO. 20181074-000
FILE NO. 29-42-24
SCALE: NONE

SECTION B-B
TERMINAL JB

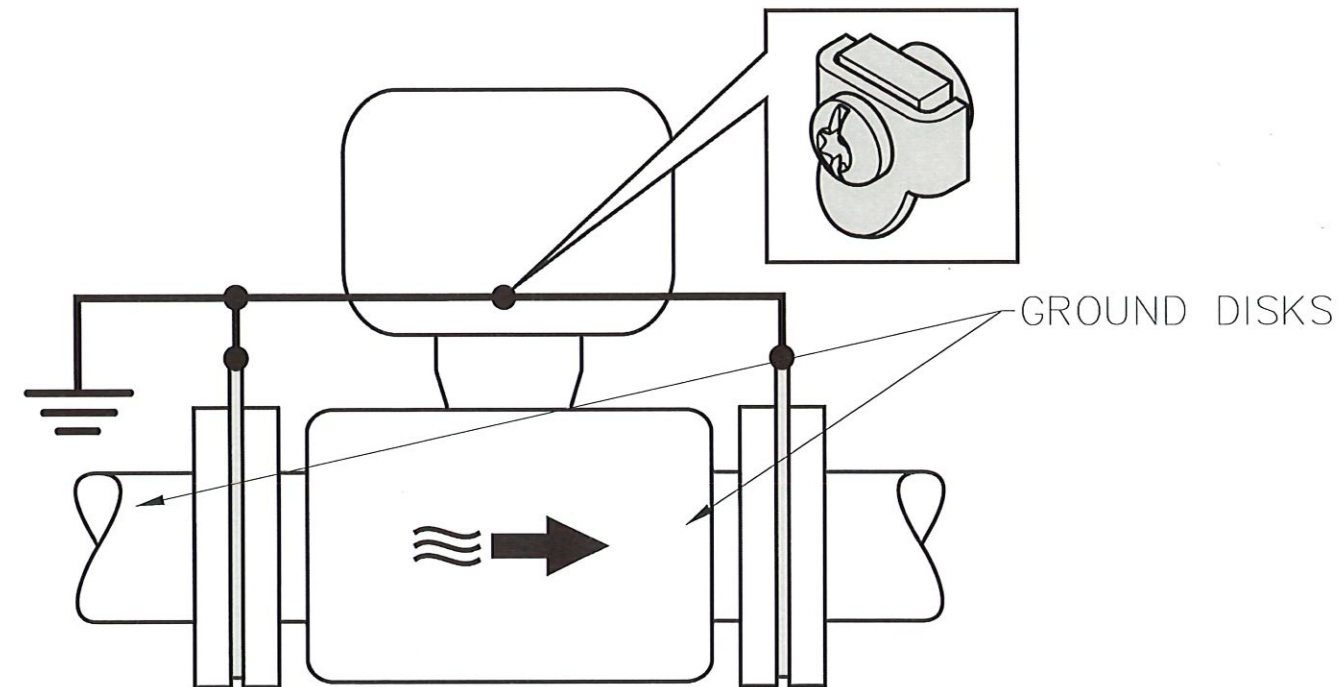
SHEET NUMBER

E-35



NOTES:

1. C5: (1) CAT-5 ETHERNET.
2. THE GROUND DISKS MUST BE CONNECTED TO THE GROUND TERMINAL VIA THE GROUND CABLE AND MUST BE CONNECTED TO GROUND POTENTIAL.
3. PROVIDE TERMINAL JUNCTION BOX "TJB-2" WITH ETHERNET SURGE PROTECTION PHOENIX P/N 2881007 AND 120V POWER SURGE PROTECTION.



4/16/2025 9:01:16 AM - C:\2018\20181074-000\ELECTRICAL\20181074-000_ELECTRICAL_30_PERCENT.DWG - TRAVIS MEANS



SOUTHWEST AGGREGATE (RESERVOIR)
 TO
 CITY OF CAPE CORAL (GATOR SLOUGH)
 RAW WATER PIPE LINE

NO.	DESCRIPTION	DATE

DATE: APRIL 16, 2025
 PROJECT NO. 20181074-000
 FILE NO. 29-42-24
 SCALE: NONE

SECTION C-C
 FLOW
 TRANSMITTER

SHEET NUMBER
E-36

WAYNE WILDEY WRIGHT, PE
FL License No. 58220



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

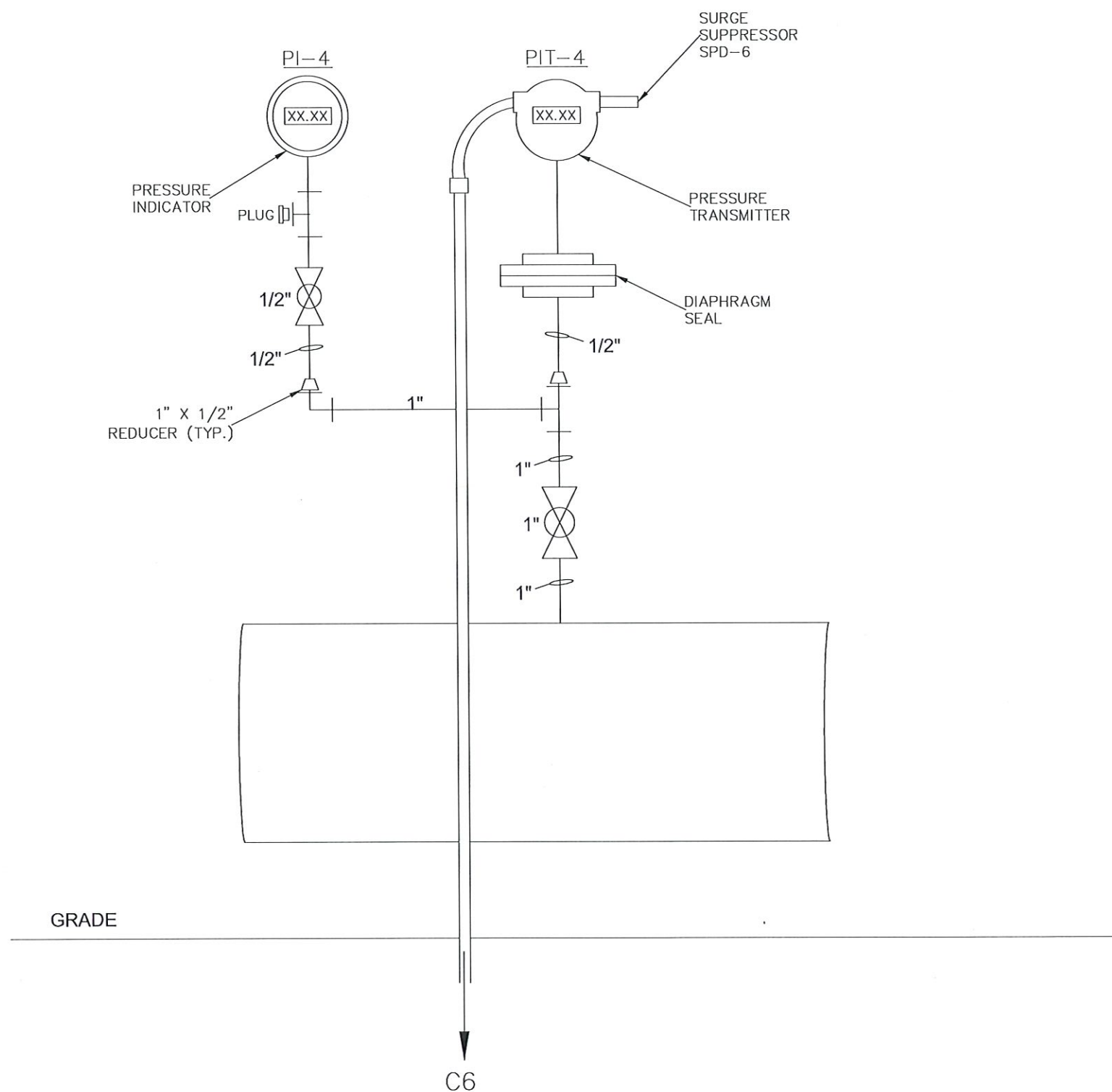
REVISIONS					
NO.	DESCRIPTION	DATE			
DATE:		APRIL 16, 2025			
PROJECT NO.		20181074-000			
FILE NO.		29-42-24			
SOURCE:		NONE			

SECTION D-D
PRESSURE
SENSORS

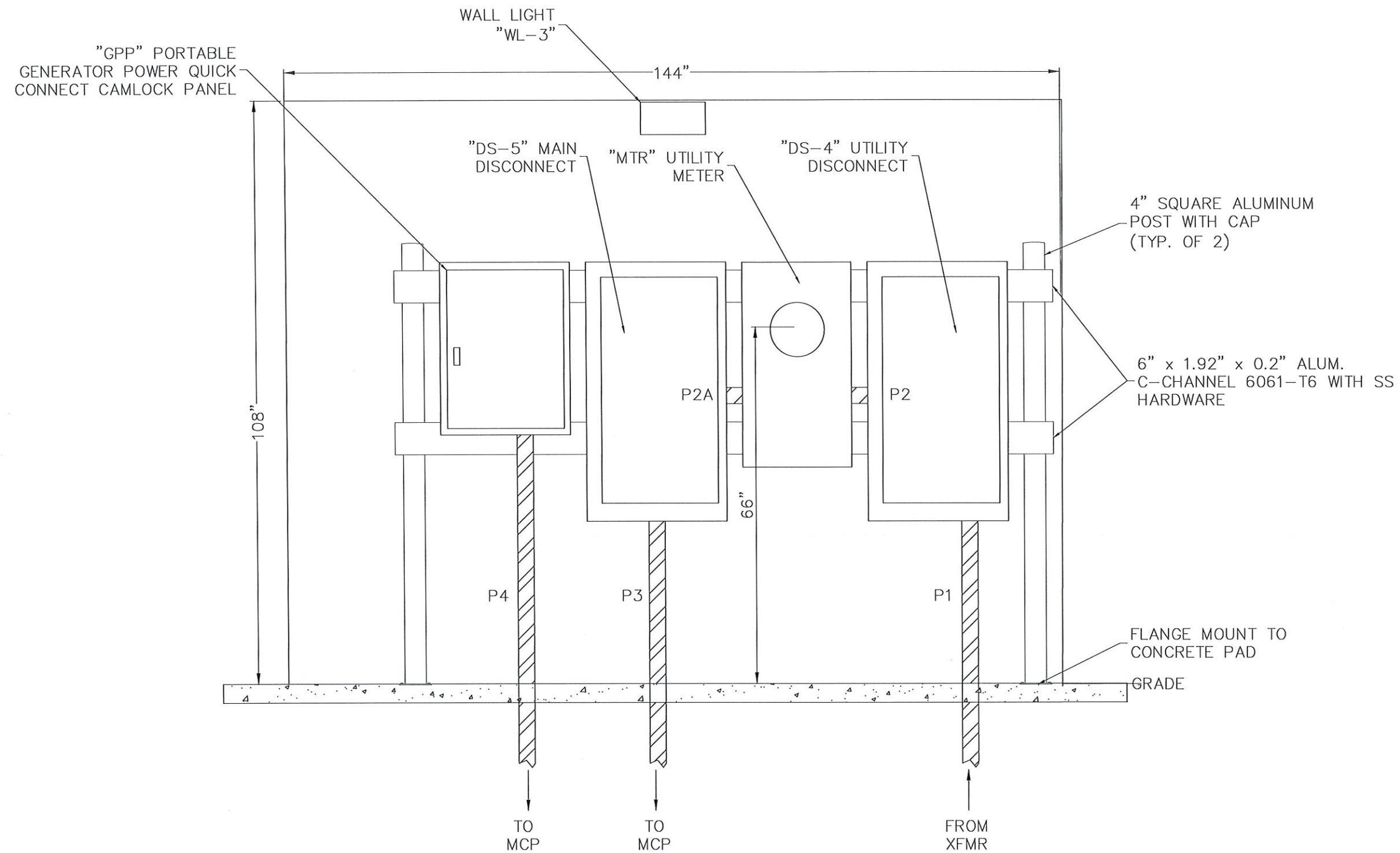
SHEET NUMBER

E-37

NOTES:
1. C6: (1) TSP, #16 AWG.



4/16/2025 9:01:23 AM - O:\2018\20181074-000\ELECTRICAL\20181074-000_ELECTRICAL_90_PERCENT.DWG - TRAVIS MEANS



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

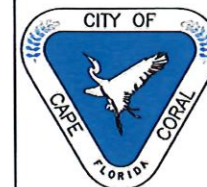
NO.	DATE	DESCRIPTION

DATE: APRIL 16, 2025
PROJECT NO. 20181074-000
FILE NO. 29-42-24
SCALE: NONE

SECTION E-E
ELEC. RM. EXT.
WEST WALL ELEV.

SHEET NUMBER

E-38



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

[illegible]

DATE:	APRIL 16, 2021
PROJECT NO.	15-0252.0
FILE NO.	29-42-2
SCALE:	AS SHOWN

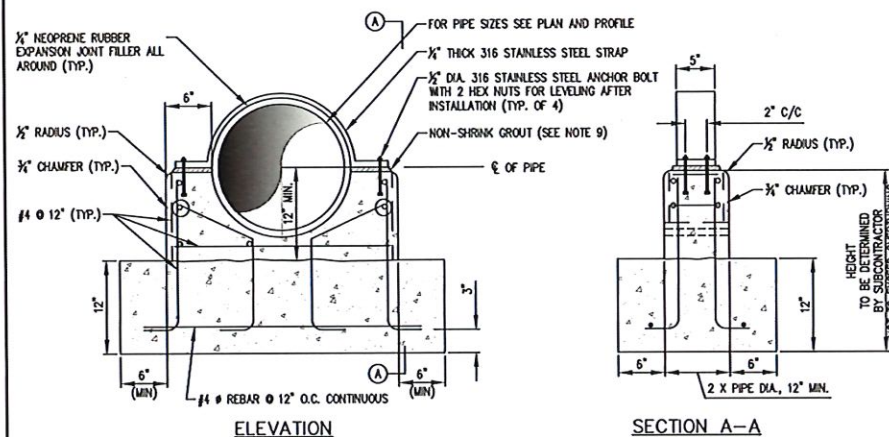
100% Design Plans
Details 1 of 16

SHEET NUMBER

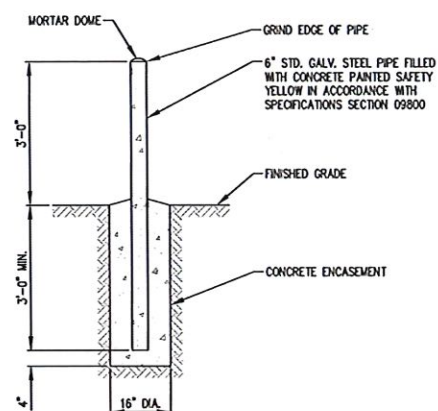
D-01

NOTES:

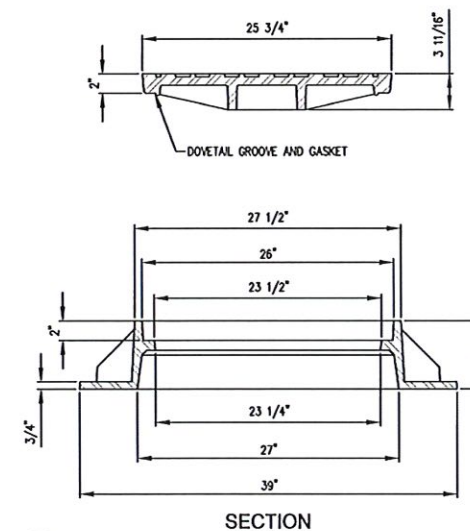
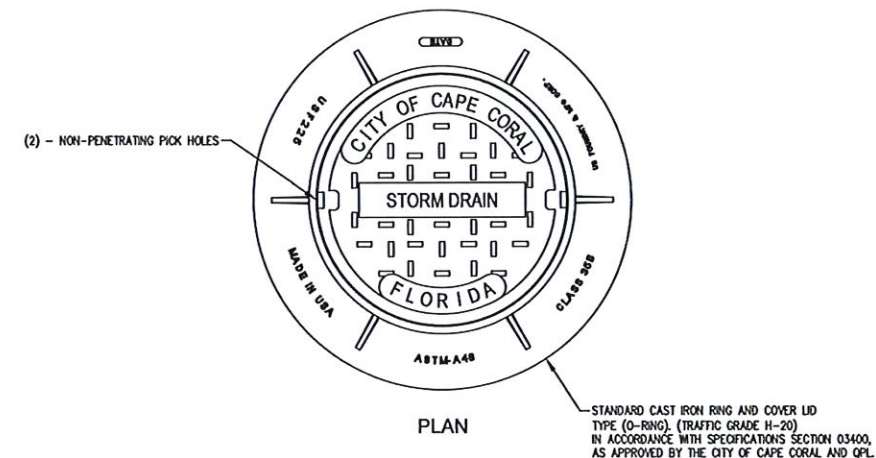
1. PRECAST MANUFACTURER SHALL DESIGN CONCRETE PIPE SUPPORT TO SUPPORT LOADS AS NOTED BELOW:
 (a) ACTUAL DEAD WEIGHT PRECAST CONCRETE PIPE SUPPORT SUPERIMPOSED PIPE AND WATERLOADS
 (EXAMPLE: 12" PIPE = $W_p + W_w = 52 \text{ lb/ft}$)
 $LL = 20 \text{ psf}$
 $WIND \text{ LOAD} = 65 \text{ PSF (ANY DIRECTION)}$
2. ALL EXPOSED EDGES AND CURVES SHALL BE CHAMFERED $3/4"$.
3. MINIMUM COVER FOR REINFORCING STEEL SHALL BE TWO INCHES, AND THREE INCHES FOR CONCRETE PLACED AGAINST GROUND.
4. ALL REINFORCING STEEL AND ACCESSORIES SHALL BE EPOXY-COATED PER SPECIFICATIONS.
5. CONTRACTOR SHALL FIELD VERIFY LOCATION OF THE TIE BACKS AND ADJUST CROSSING ALIGNMENT TO AVOID CONFLICTS BETWEEN FOOTING AND EXISTING TIEBACKS.
6. VERTICAL HEIGHT OF CONCRETE PIPE SUPPORT & FOOTING TO SUIT FIELD CONDITIONS SUCH THAT PIPE SPAN CLEARS RETAINING WALLS.
7. BACKFILL AROUND AND ON TOP OF FOOTING TO MATCH EXISTING GRADE.
8. POSITION PIPE ON AERIAL CROSSING SUCH THAT PIPE SUPPORTS ARE IMMEDIATELY BEHIND PIPE BELLS.
9. WHERE DIFFERENTIAL SETTLEMENT IS LIKELY TO OCCUR, OMIT GROUT AS DIRECTED BY ENGINEER.



W-306 CONCRETE PIER FOR PIPE SUPPORT
OVER CURB FOR ABOVE GRADE CANAL CROSSING
NOT TO SCALE

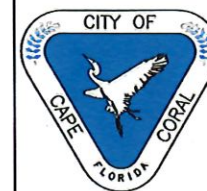


G-02 **BOLLARD**
NOT TO SCALE



G-30 **MANHOLE RING AND COVER - STORM DRAIN**
NOT TO SCALE

REVISION DATE		CITY OF CAPE CORAL UTILITIES DEPARTMENT P.O. BOX 150027 CAPE CORAL, FLORIDA 33915-0027	DETAIL NAME	DETAIL NO.	REVISION DATE		CITY OF CAPE CORAL UTILITIES DEPARTMENT P.O. BOX 150027 CAPE CORAL, FLORIDA 33915-0027	DETAIL NAME	DETAIL NO.	REVISION DATE		CITY OF CAPE CORAL UTILITIES DEPARTMENT P.O. BOX 150027 CAPE CORAL, FLORIDA 33915-0027	DETAIL NAME	DETAIL NO.
07-21-2017			CONCRETE PIER		06-01-2017			BOLLARD	G-02	06-01-2017			MANHOLE RING AND COVER	G-30
ADOPTION DATE			FOR PIPE SUPPORT OVER CURB FOR ABOVE GRADE CANAL CROSSING	W-306						ADOPTION DATE			STORM DRAIN	
08-01-2017										08-01-2017				



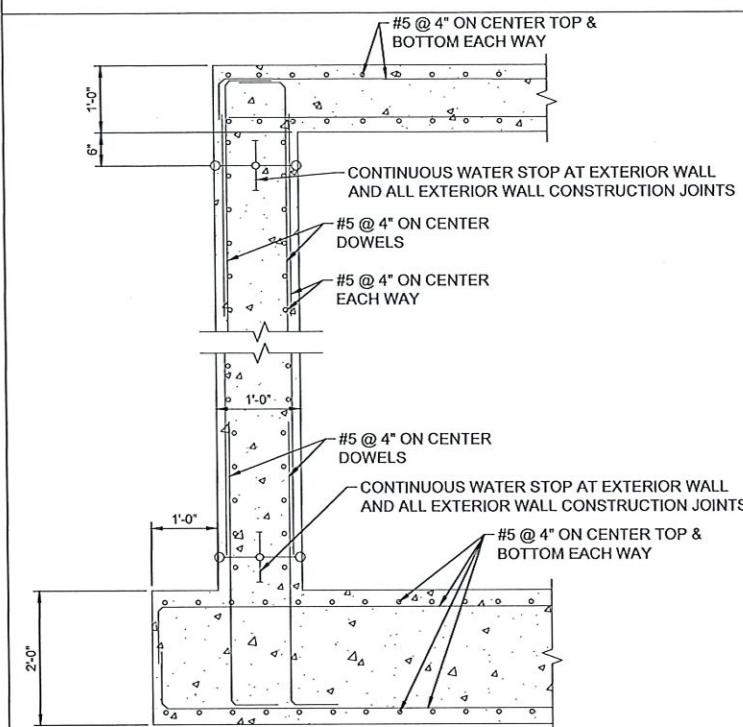
SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

[illegible]100% Design Plans
Details 2 of 16

SHEET NUMBER

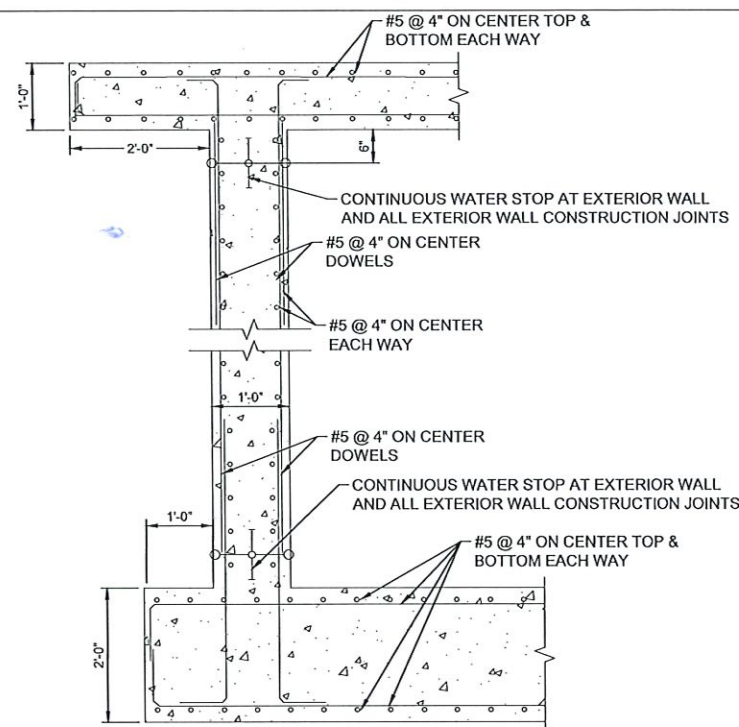
D-02

PUMP AND INTAKE STRUCTURE DETAILS



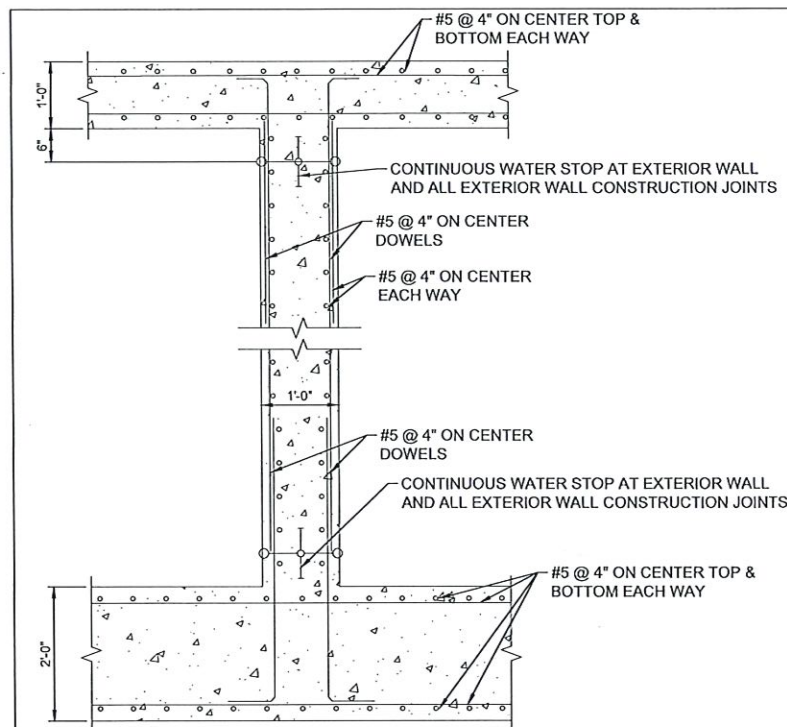
FRONT & BACK WALL - NTS

DETAIL #1



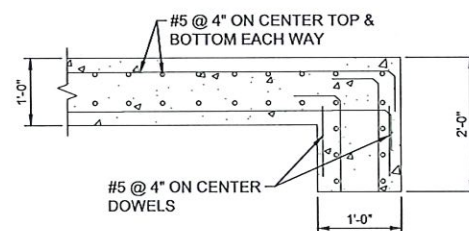
SIDE WALL - NTS

DETAIL #2



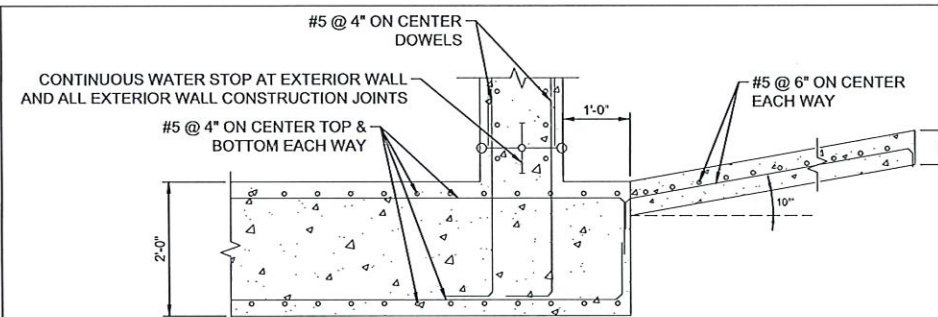
INSIDE WALL - NTS

DETAIL #3



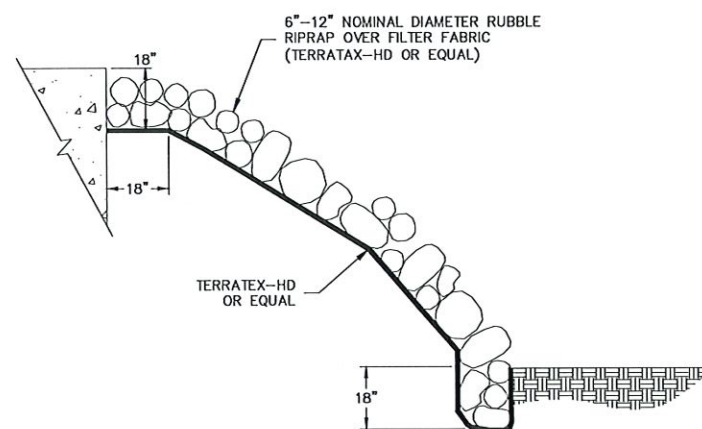
FRONT WALL - NTS

DETAIL #4



6" CONCRETE SLAB - NTS

DETAIL #5

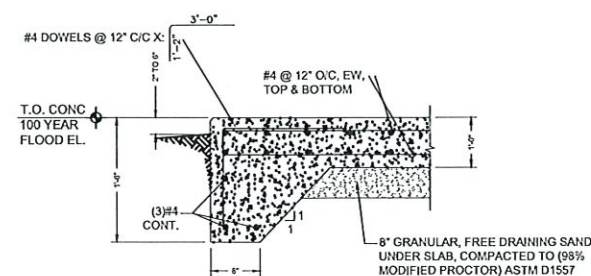


RIP RAP - NTS

DETAIL #6

STRUCTURAL NOTES:

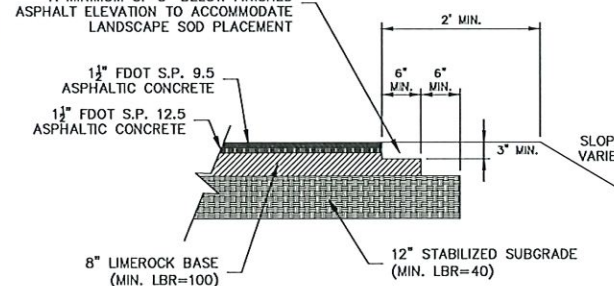
1. ALL CONCRETE SHALL BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH; W/C = 0.45
AIR CONTENT SHALL BE (+) 1%; SLUMP = 4" BEFORE ADDING WATER REDUCING AGENT.
2. ALL STEEL SHALL BE ASTM A615, GR 60.
3. ALL DIMENSIONS SHOWN ARE TYPICAL ONLY. CONTRACTOR TO VERIFY OVERALL
SLAB SIZE WITH EQUIPMENT MANUFACTURER AND ENGINEER PRIOR TO
CONSTRUCTION.
4. ALL SLABS SHALL HAVE TOOLED EDGES ON ALL SIDES



CONCRETE SLAB (TYP.) - N.T.S.

DETAIL #7

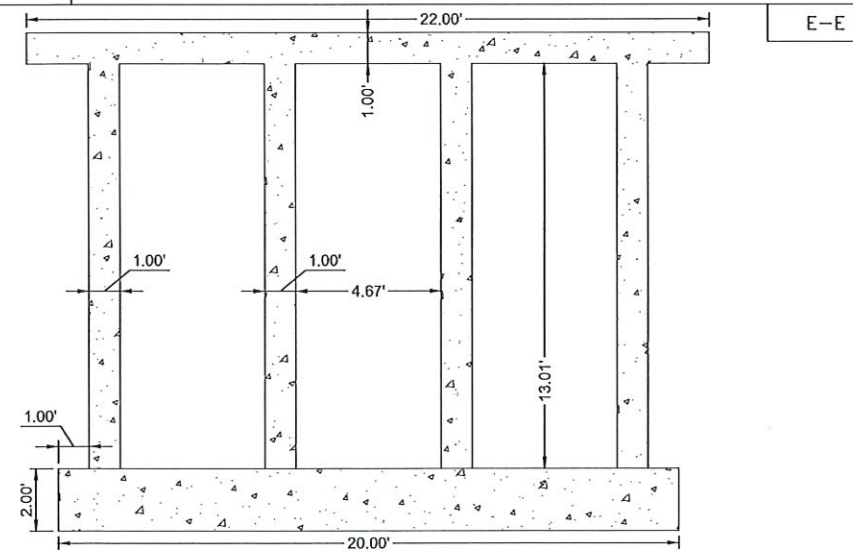
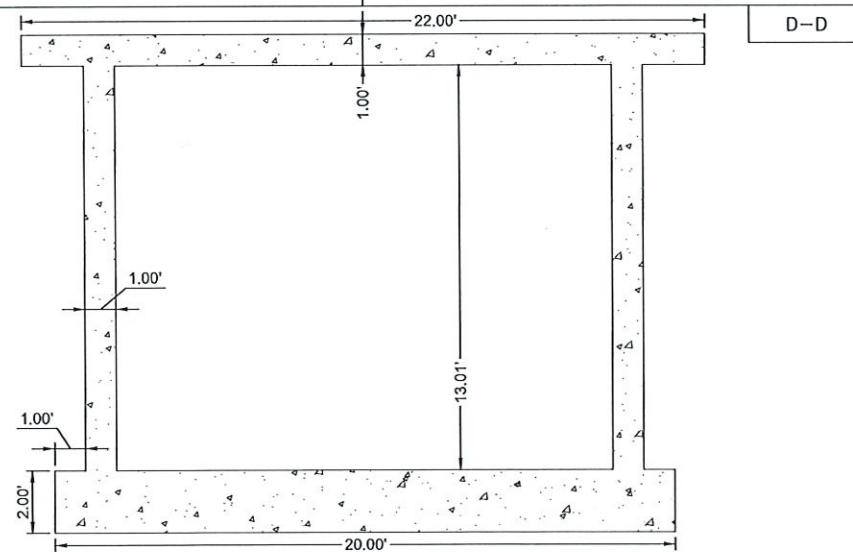
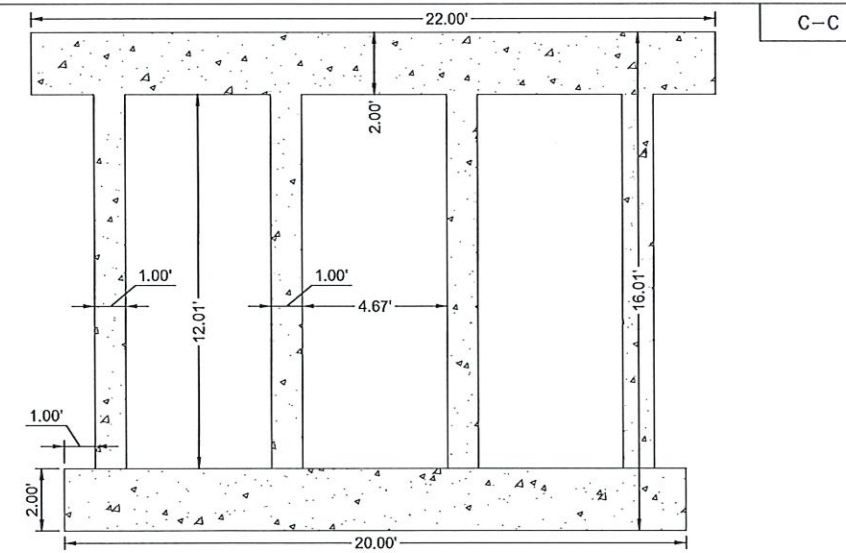
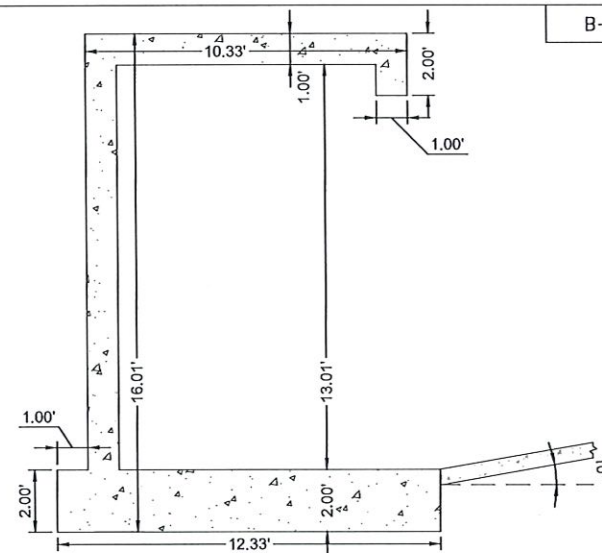
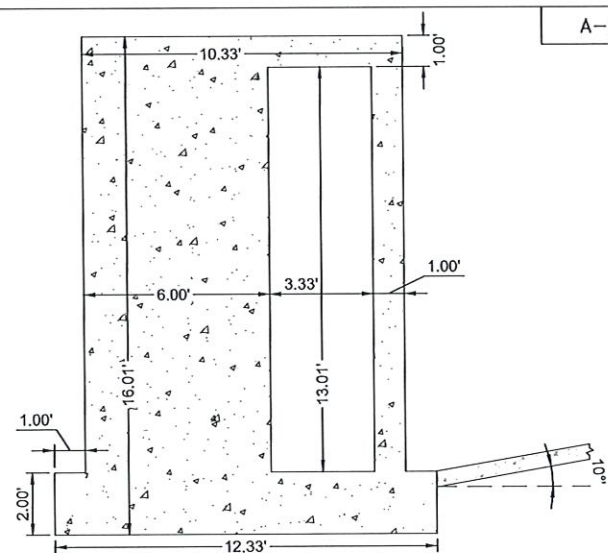
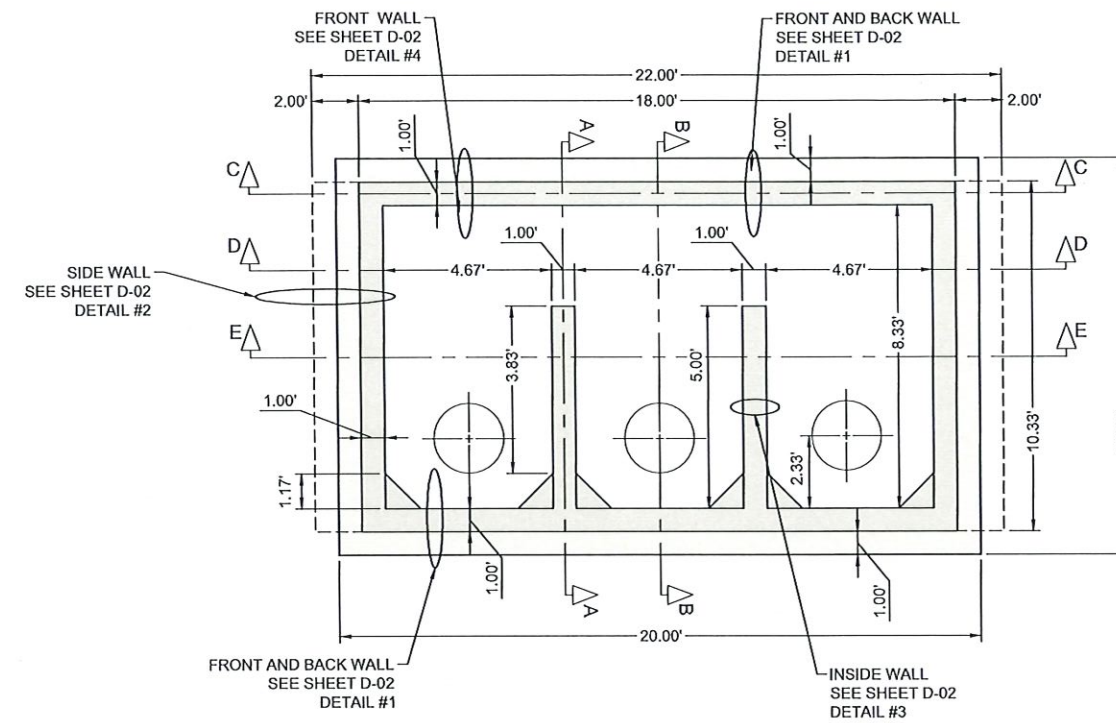
CONTRACTOR SHALL SET FINISHED GRADE
A MINIMUM OF 3" BELOW FINISHED
ASPHALT ELEVATION TO ACCOMMODATE
LANDSCAPE SOD PLACEMENT



TYPICAL PAVEMENT SECTION – NTS

DETAIL #8

PUMP AND INTAKE STRUCTURE DETAILS



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS	
NO.	DESCRIPTION
DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

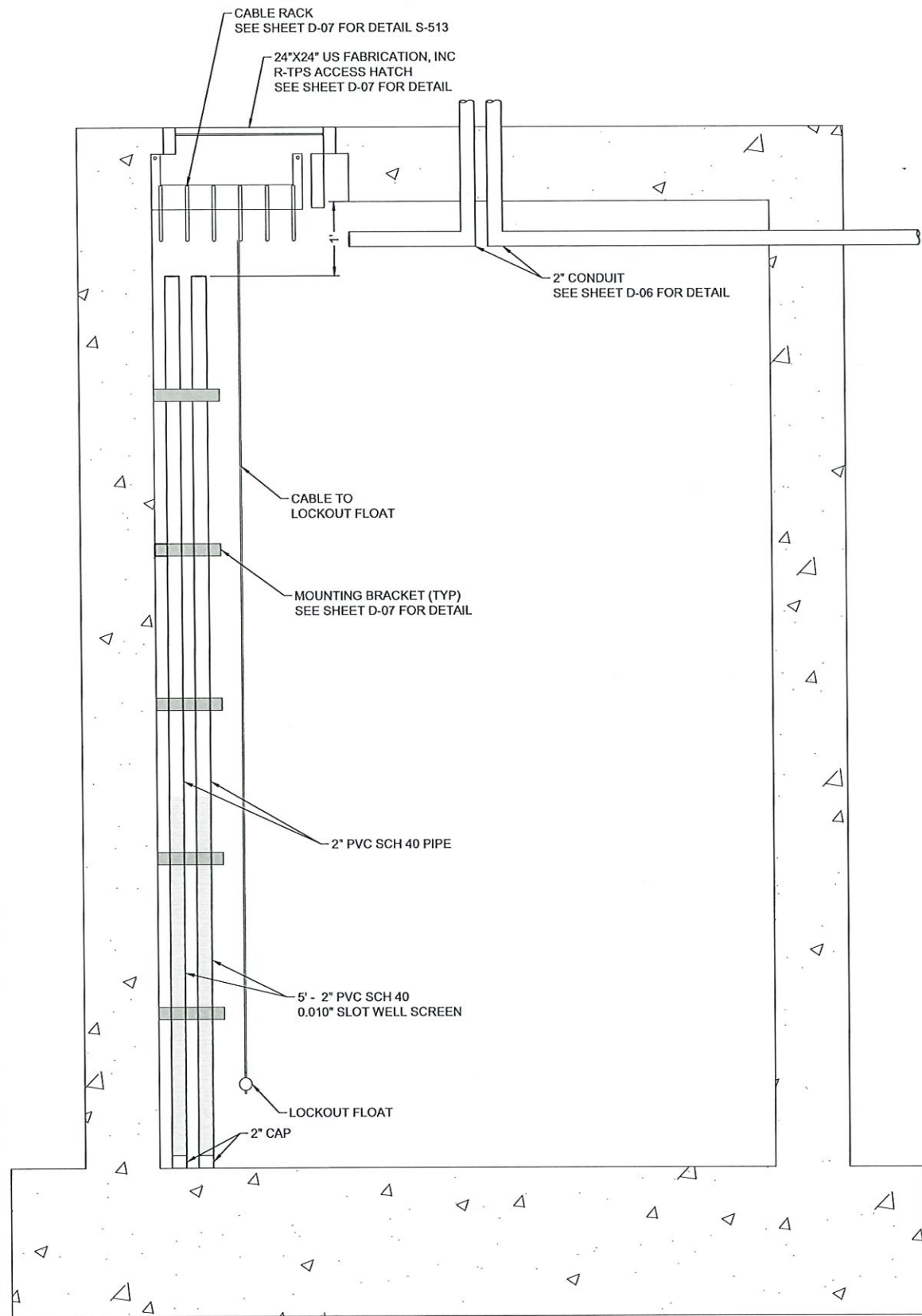
100% Design Plans
Details 3 of 16

SHEET NUMBER

D-03

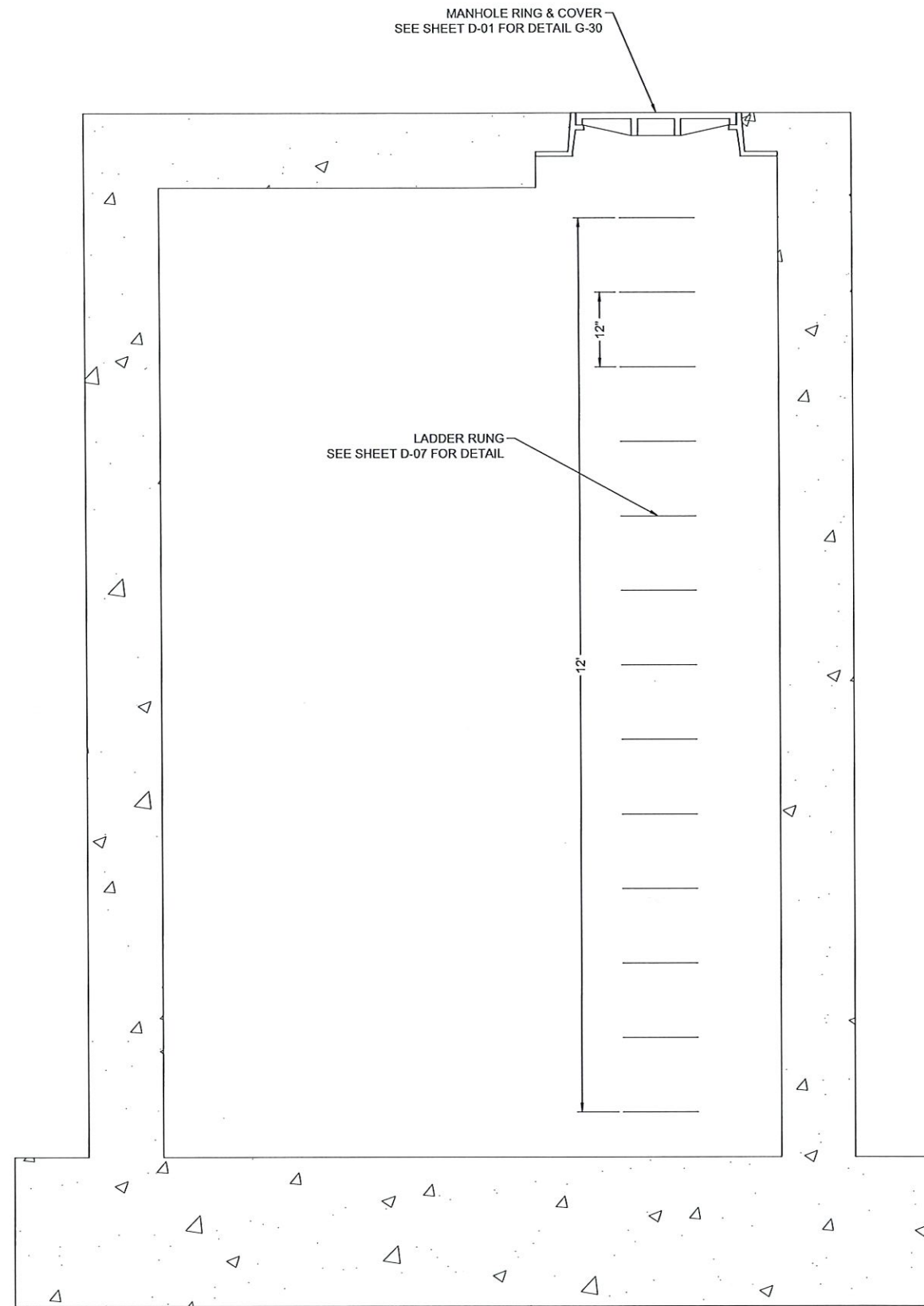
4/16/2025 9:01:27 AM - I:\FTMS01\DRAWINGS\2018\1074-000\UTILITIES\DRAWINGS\2018\1074-000_COVER.DWG - TRAVIS MEANS

4/16/2025 9:01:28 AM - \\FTNS01\DRAWINGS\2018\20181074-000\UTILITIES\DRAWINGS\20181074-000_COVER.DWG - TRAVIS MEANS



STILLING WELL
(1" = 2')

DETAIL #16



LADDER
(1" = 2')

DETAIL #17

**JOHNSON
ENGINEERING**

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0045
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAU, PE
FL License No. 69783



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS
DESCRIPTION

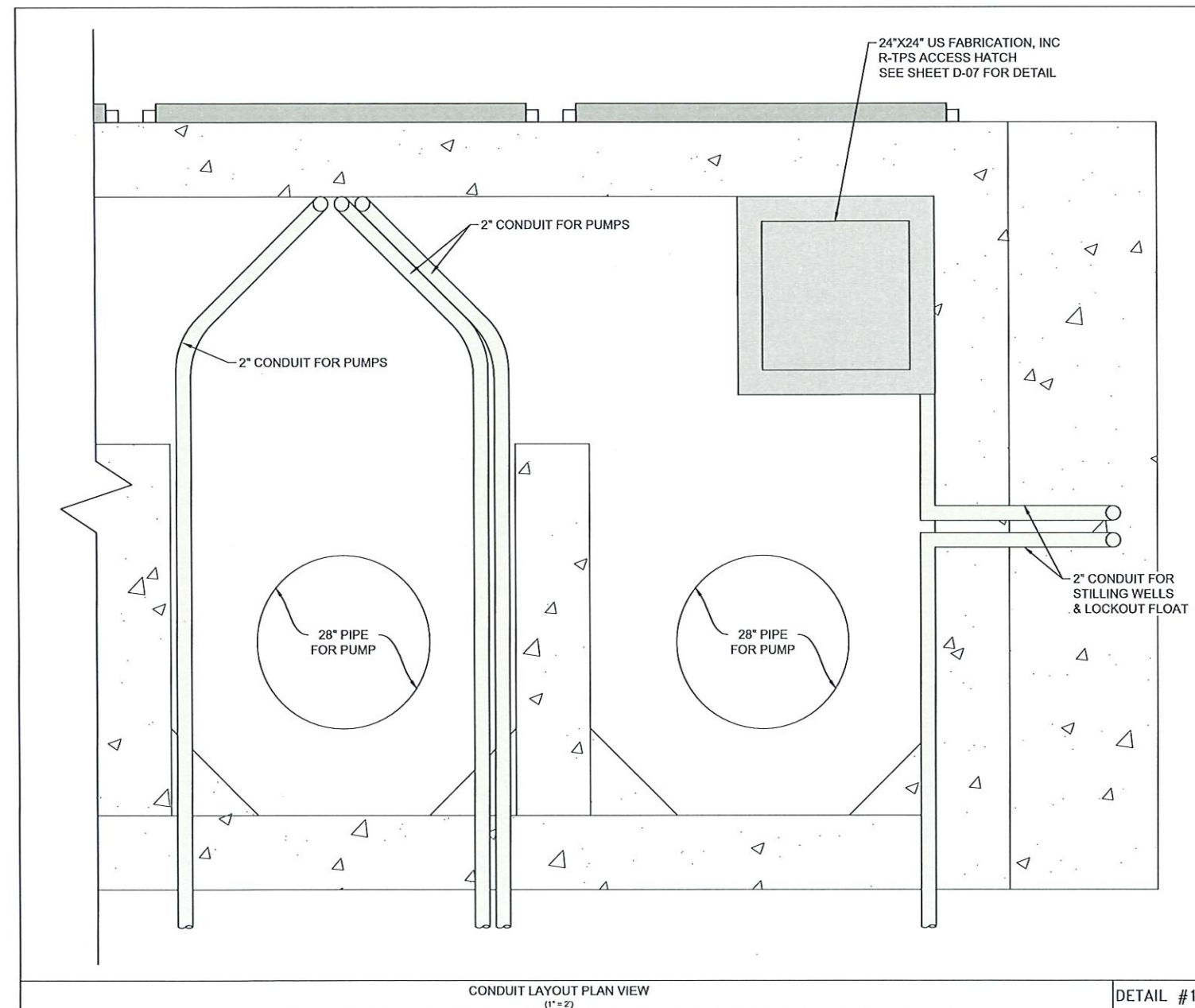
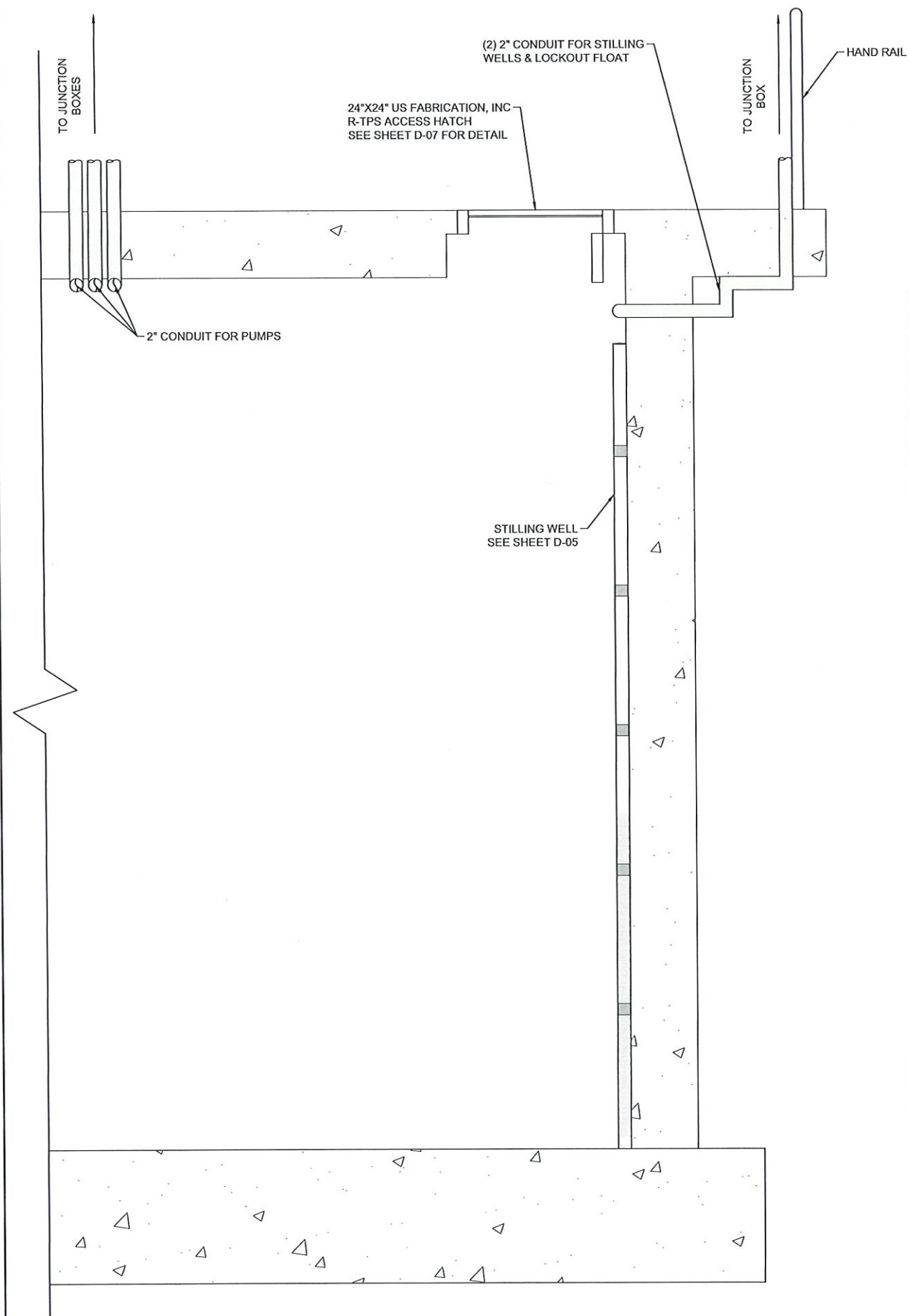
NO.	DATE	DESCRIPTION

DATE: APRIL 16, 2025
PROJECT NO. 15-0252.06
FILE NO. 29-42-24
SCALE: AS SHOWN

100% Design Plans
Details 5 of 16

SHEET NUMBER

D-05



CONDUIT LAYOUT
(1" = 2')

DETAIL #19

DETAIL #18



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

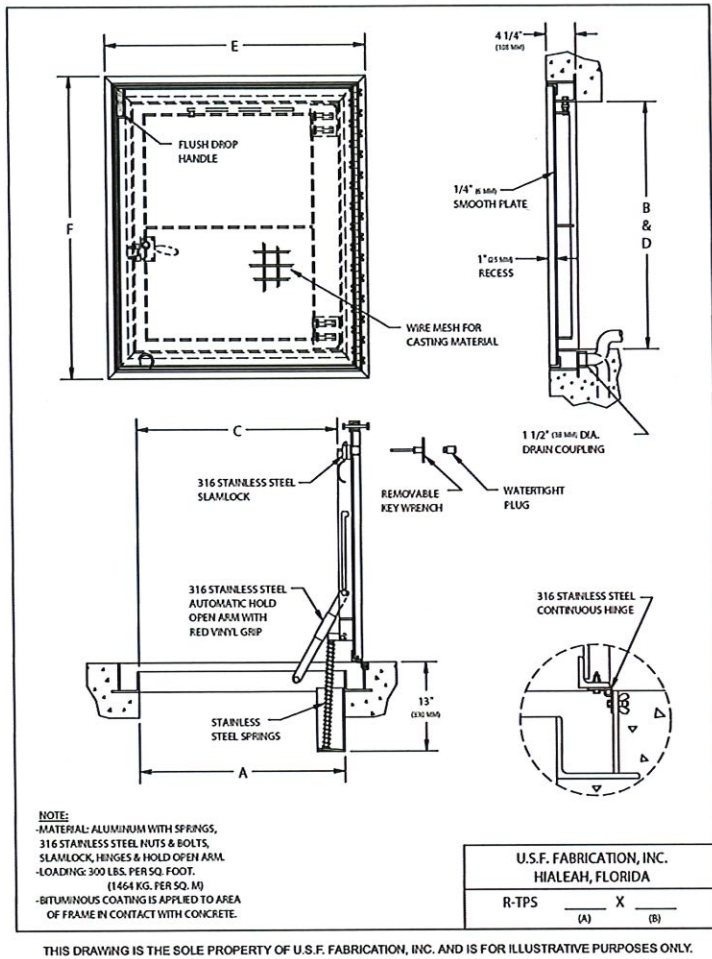
REVISIONS	
DESCRIPTION	DATE
NO.	
DATE: APRIL 16, 2025	
PROJECT NO. 15-0252.06	
FILE NO. 29-42-24	
SCALE: AS SHOWN	

100% Design Plans
Details 6 of 16

SHEET NUMBER

D-06

4/16/2025 9:01:31 AM - \\FTMSO\DRAWINGS\2018\074-000\UTILITIES\DRAWINGS\2018\074-000_COVER.DWG - TRAVIS MEANS



RECESSED TROUGH FRAME, PEDESTRIAN LOADING, SINGLE DOOR

ALUMINUM

The recessed trough frame floor access door with drainable frame is designed for interior and exterior applications where dirt and water are to be prevented from falling into the area below. The cover has a 1-inch recess to receive tile or concrete.

SPECIFICATIONS: The recessed floor access door shall be Model R-TPS as manufactured by U.S.F. Fabrication, Inc. with the size being specified on the plans. Door leaf shall be 1/4-inch thick aluminum smooth plate reinforced for a 300 p.s.f. live load; and, have a 1-inch recess to receive tile or concrete. If recess is to be filled with concrete or other cast material, the door is furnished with anchor clips and wire mesh. Both the cover and frame shall have a metal lip around the entire perimeter defining the recess. The trough frame shall be fabricated from 1/4-inch aluminum and shall have an anchor flange on all four sides. The frame shall drain water out through a 1 1/2-inch pipe coupling. The floor access door shall be equipped with a flush aluminum lifting handle that does not protrude above the cover, and a 316 stainless steel hold open arm with red vinyl grip that automatically keeps the cover in its upright, open position. The door shall have a 316 stainless steel continuous hinge that is flush with the top of the cover. The door shall have stainless steel vertical compression springs to assist in opening the door and reducing the force during closing. The door shall be equipped with a watertight 316 stainless steel slamlock with threaded plug, removable outside key, and fixed inside handle. The slamlock latches onto a 316 stainless steel striker plate that is bolted to the frame. All parts of the frame in contact with concrete shall have a coating of bituminous paint. An adhesive backed vinyl material that protects the product during shipping and installation shall cover the entire top of the frame and cover. Installation shall be in accordance with the manufacturer's attached instructions. The door shall be manufactured and assembled in the United States. Manufacturer shall guarantee the door against defects in materials and workmanship for a period of ten years.

OPTIONAL FEATURES

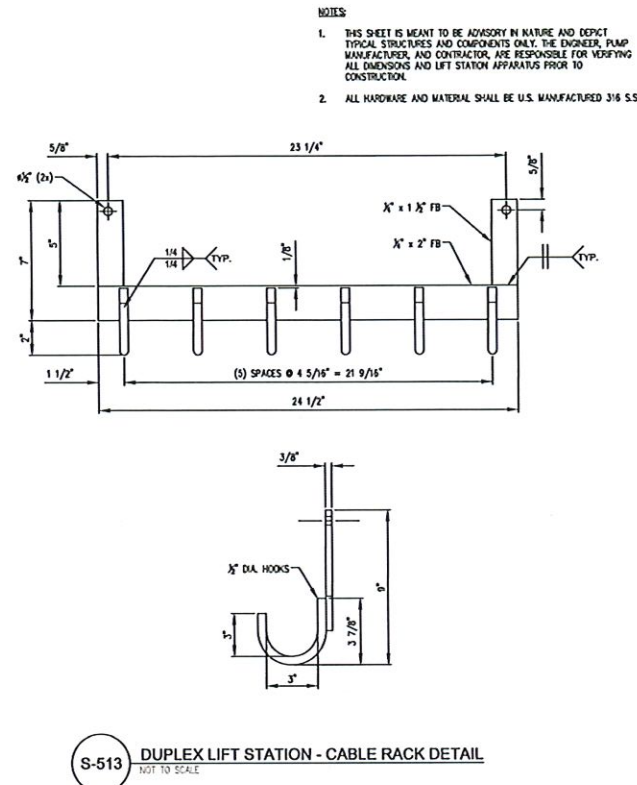
- > Recessed cylinder lock
- > Frame skirts for easy casting into a concrete top slab
- > Nut rails with stainless steel sliding nuts for attaching cable holders, brackets & other hardware
- > Fiberglass insulation with metal liner
- > Anodized finish
- > Stainless steel safety chains with aluminum support posts
- > Fall Through Protection Systems
- > Side drain coupling (instead of standard bottom drain)
- > Double door cover
- > Adjust springs for wood or tile fill in recess area.

300 P.S.F. LOADING

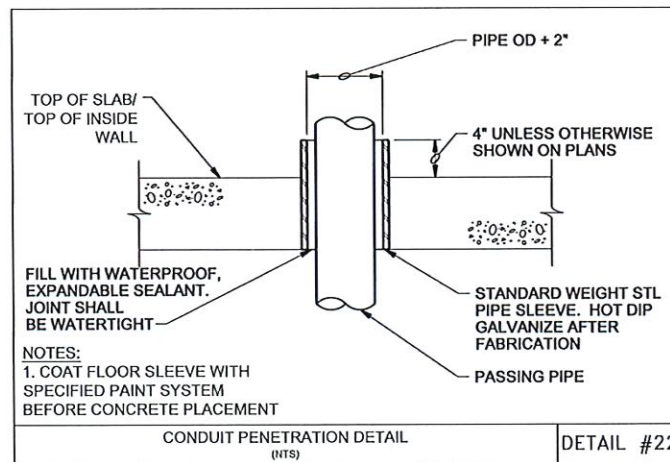
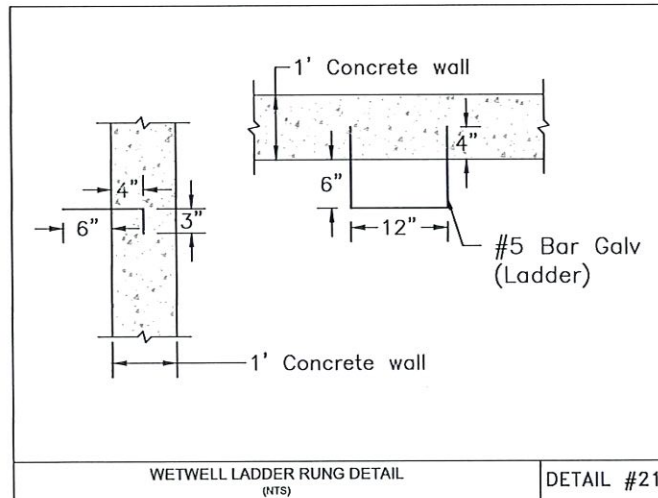
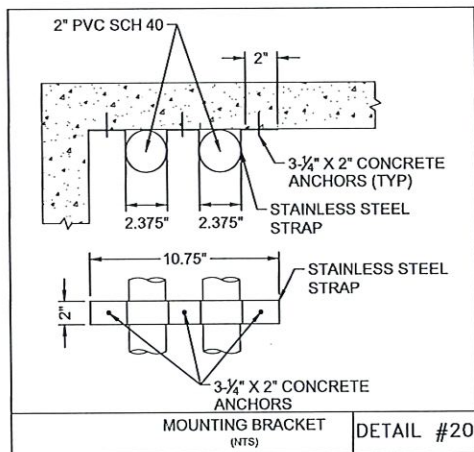
MODEL	COVER THK in. (mm)	FRAME OPENING** A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	WEIGHT* lbs. (KG)
R-TPS	1/4 (6)	24 (610)	24 (610)	23 (584)	24 (610)	32 (813)	32 (813)	80 (36)
R-TPS	1/4 (6)	24 (610)	30 (762)	23 (584)	30 (762)	32 (813)	38 (965)	90 (41)
R-TPS	1/4 (6)	24 (610)	36 (914)	23 (584)	36 (914)	32 (813)	44 (1118)	100 (45)
R-TPS	1/4 (6)	30 (762)	30 (762)	28 (711)	30 (762)	38 (965)	38 (965)	105 (48)
R-TPS	1/4 (6)	30 (762)	36 (914)	28 (711)	36 (914)	38 (965)	44 (1118)	115 (52)
R-TPS	1/4 (6)	30 (762)	48 (1219)	28 (711)	48 (1219)	38 (965)	56 (1422)	140 (64)
R-TPS	1/4 (6)	36 (914)	36 (914)	34 (864)	36 (914)	44 (1118)	44 (1118)	135 (61)

* Weight shown is of our standard hatch only, and does not include any optional features. ** Also referred to as "Actual Opening" which can vary to suit application. *** Also referred to as "Concrete Opening" when door is cast into concrete.

CUSTOM SIZES READILY AVAILABLE



REVISION DATE	CITY OF CAPE CORAL	DETAIL NAME	DETAIL NO.
07-21-2017	UTILITIES DEPARTMENT	DUPLEX LIFT STATION	S-513
ADOPTION DATE	P.O. BOX 150027	CABLE RACK DETAIL	
08-01-2017	CAPE CORAL, FLORIDA 33915-0027		



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

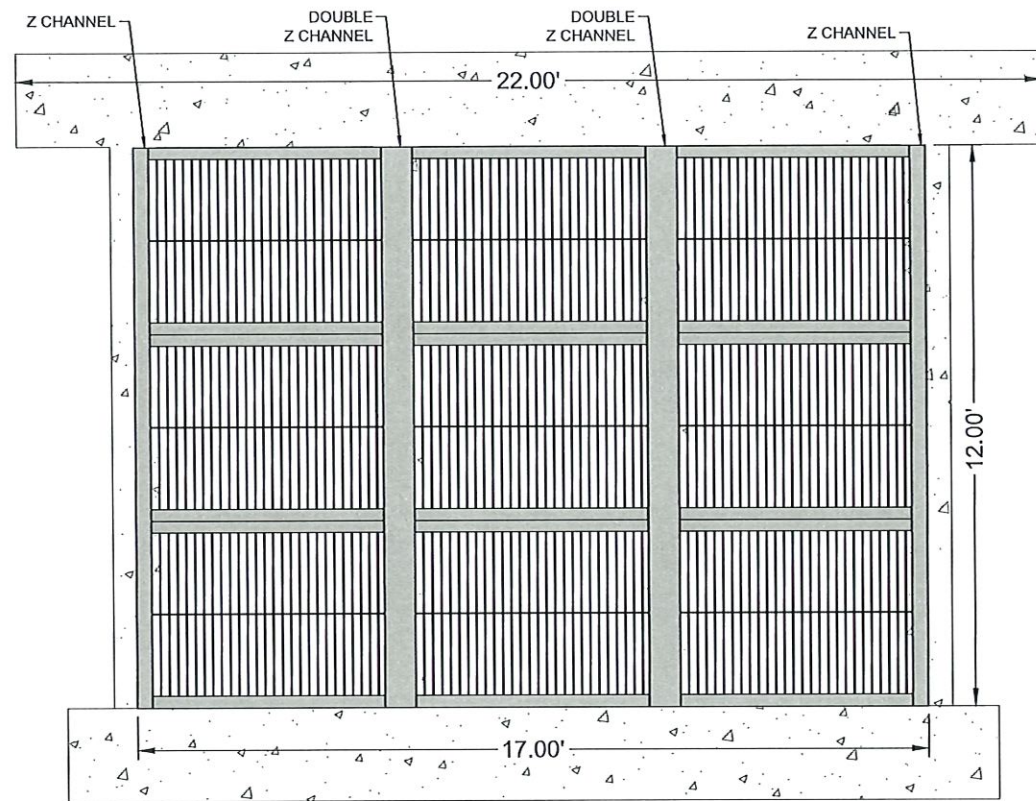
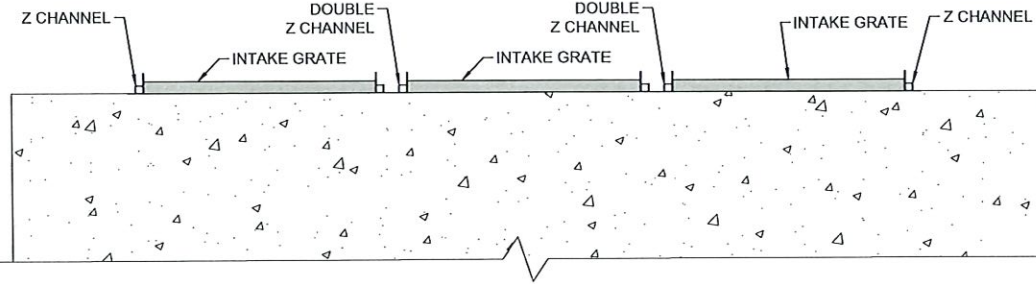
REVISIONS	DATE
DESCRIPTION	
NO.	
DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

100% Design Plans
Details 7 of 16

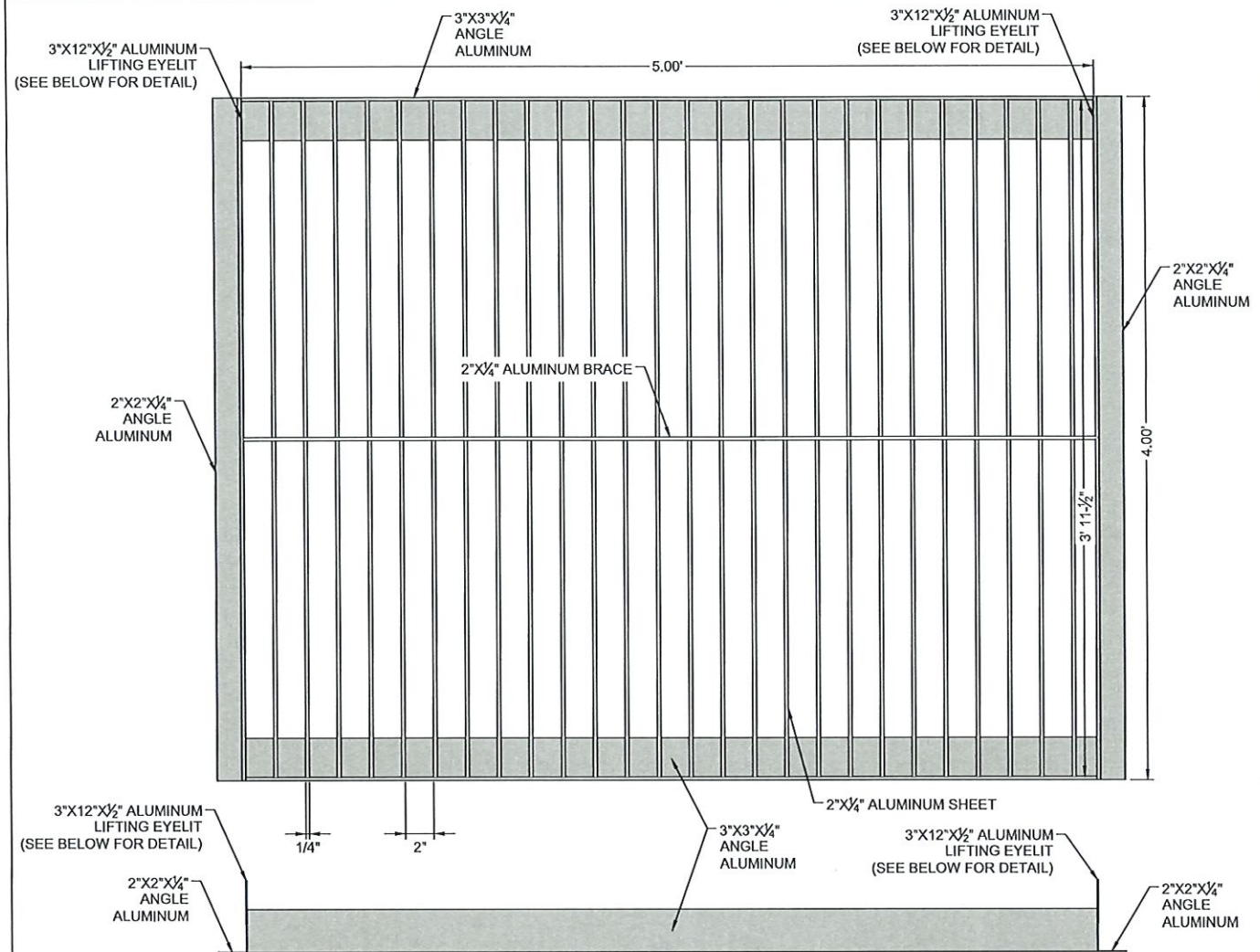
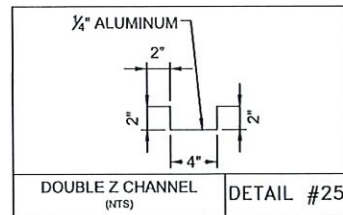
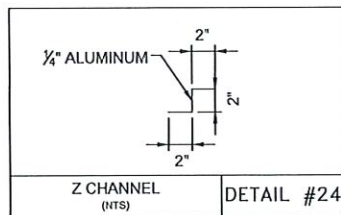
SHEET NUMBER

D-07

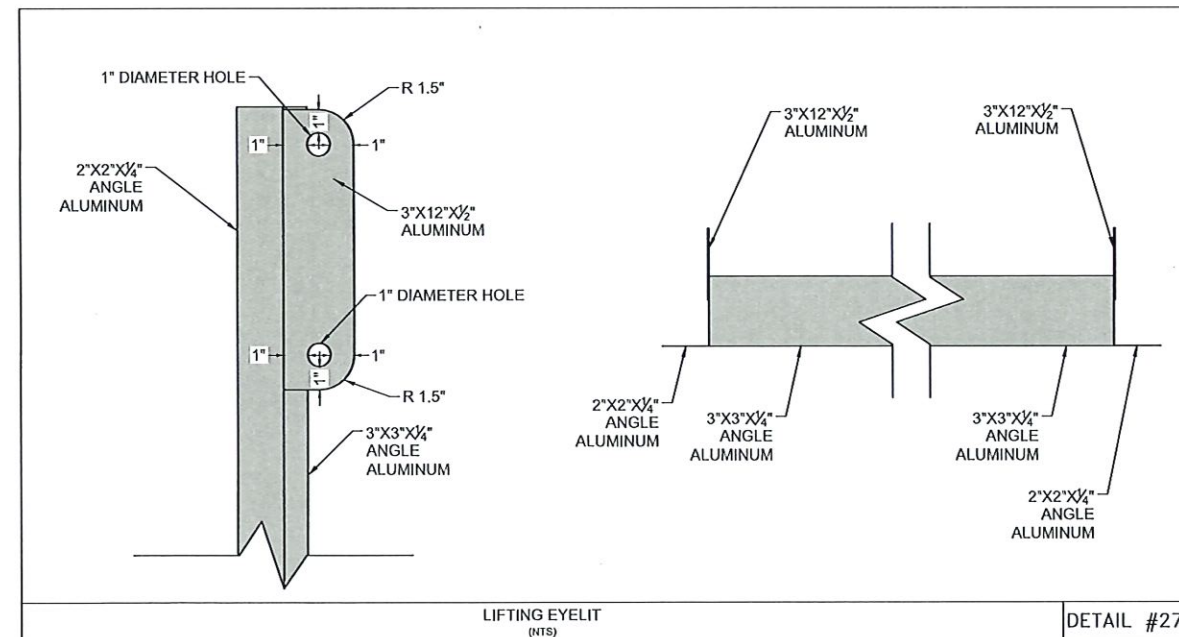
4/16/2025 9:01:32 AM - \\FTNSO1\DRAWINGS\2018\2018074-000\UTILITIES\DRAWINGS\2018\074-000_COVER.DWG - TRAVIS MEANS



DETAIL #23



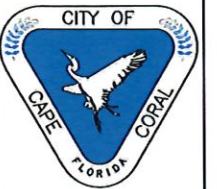
DETAIL #26



JOHNSON
ENGINEERING

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0045
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAU, PE
FL License No. 69783



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS
DESCRIPTION

DATE: APRIL 16, 2025
PROJECT NO. 15-0252.06
FILE NO. 29-42-24
SCALE: AS SHOWN

100% Design Plans
Details 8 of 16

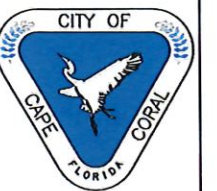
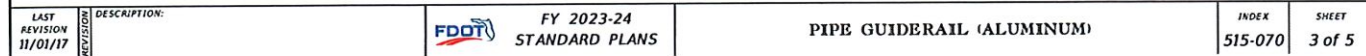
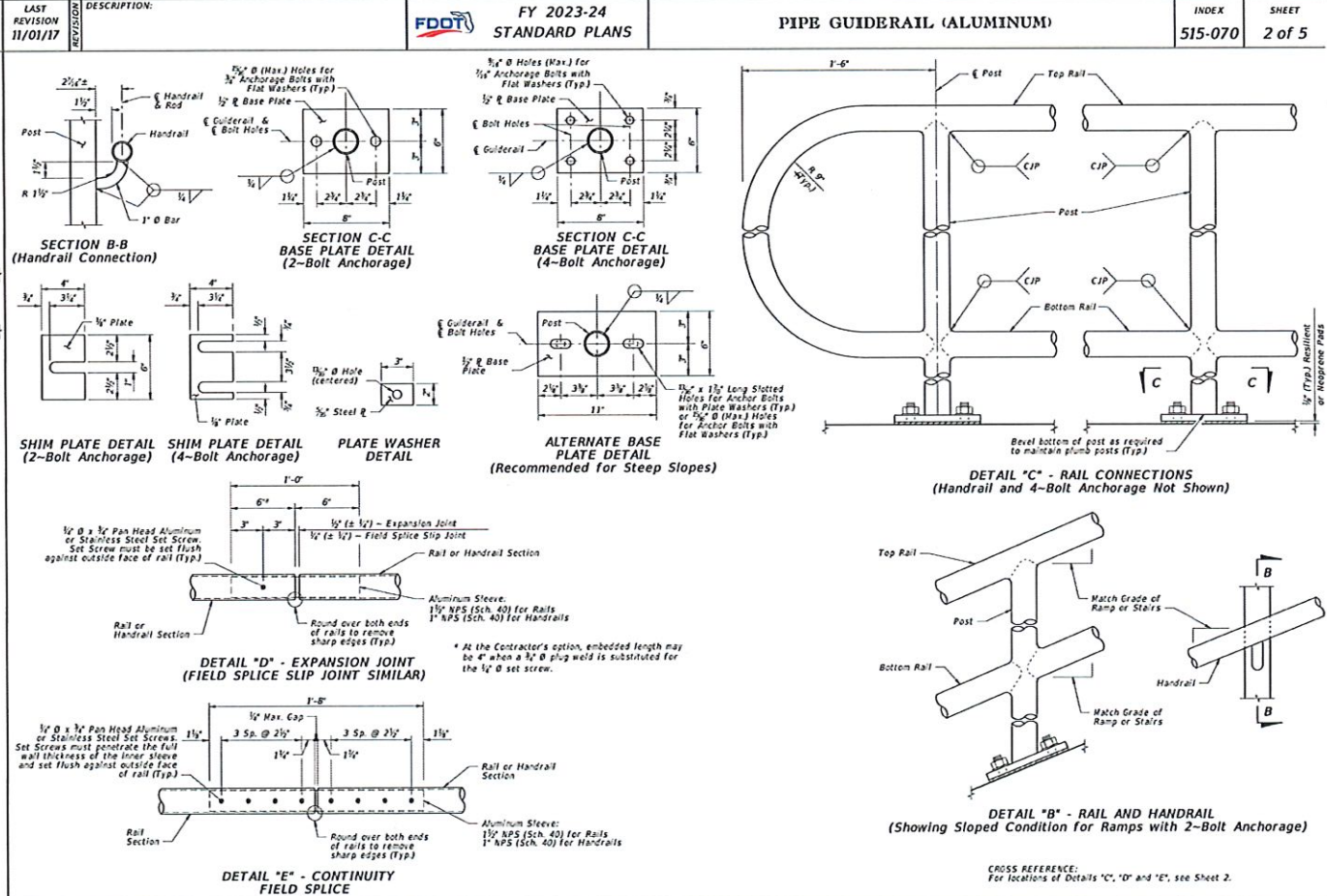
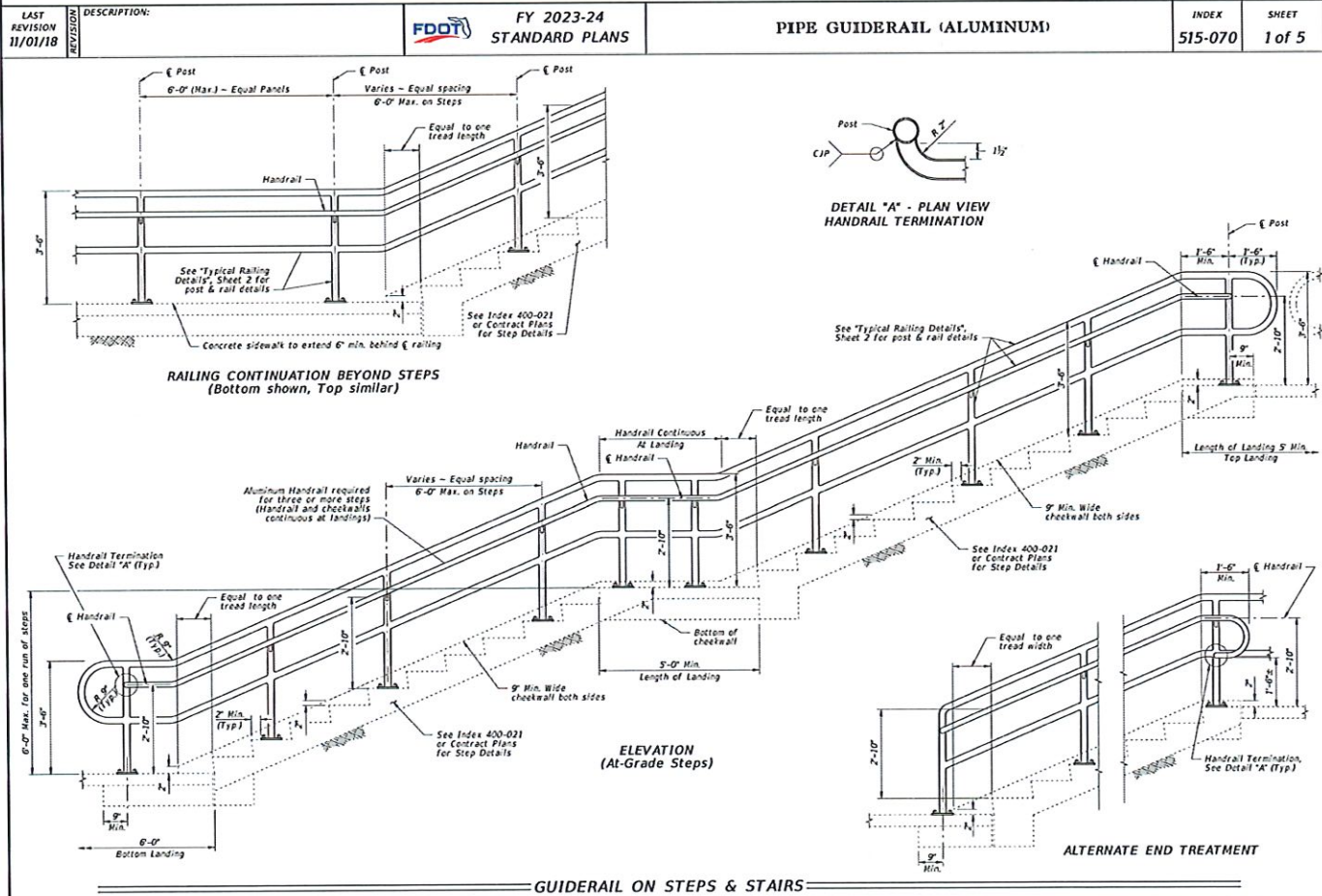
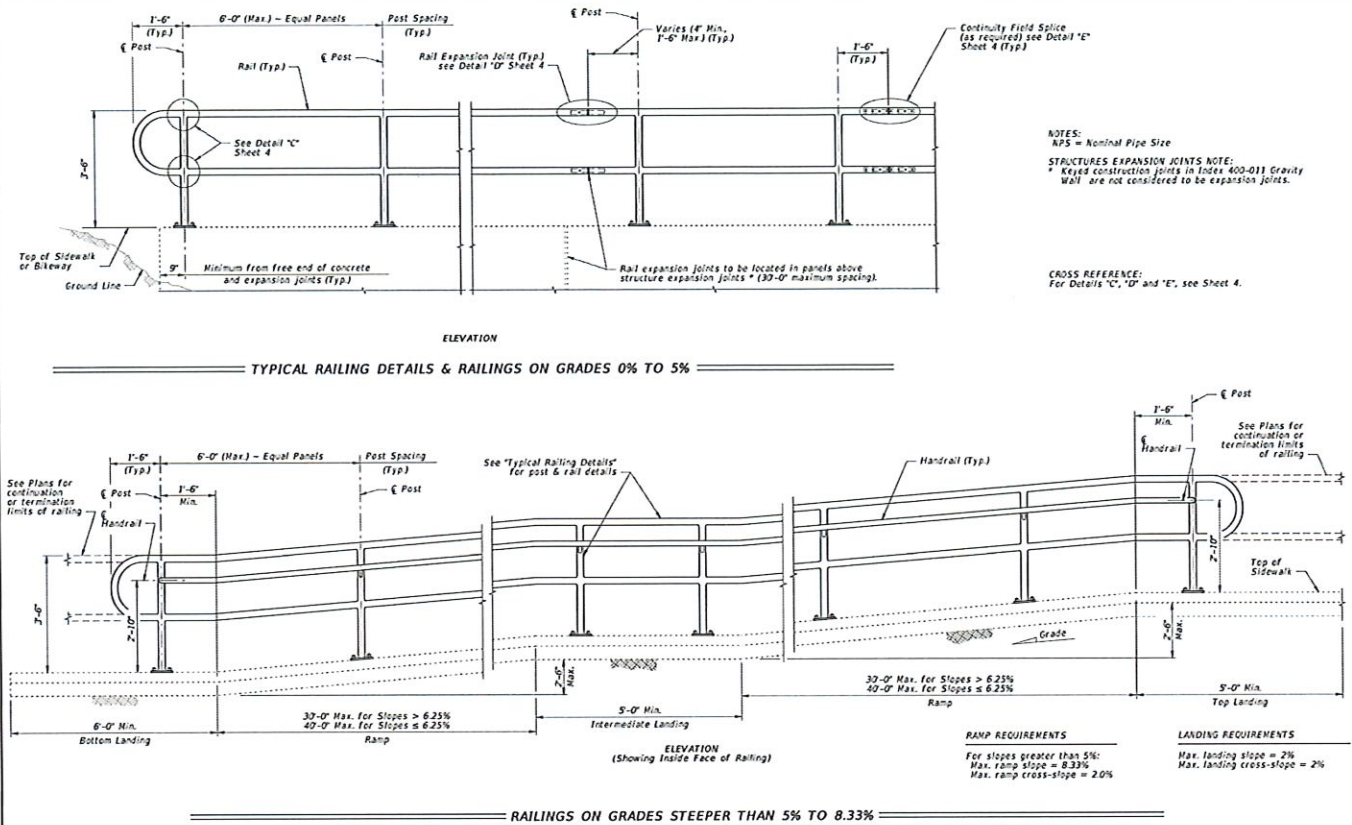
SHEET NUMBER

D-08

NOTES:
1. Shop Drawings are required.
2. Work with Specification 515.
3. Materials:
A. Pan Head Set Screws: Aluminum Alloy 2024-T4 or 7075-T73 or Stainless Steel (SS) Type 316 or 18-8 Alloy.
B. Base Plates and Cap Plates: ASTM B209, Alloy 6061-T6
C. Structural Pipe Tube and Bars: ASTM B221 or ASTM B429, Alloy 6061-T6
D. End Rails 90° bends and corner bends with a maximum 4 foot spacing: Alloy 6063-T5 is permitted.
RAILING MEMBER DIMENSIONS TABLE

MEMBER	DESIGNATION	OUTSIDE DIMENSION	WALL THICKNESS
Posts	2" NPS (Sch. 40)	2.375"	0.156"
Rails	2" NPS (Sch. 40)	2.375"	0.156"
Rail Joint/Splice Sleeves	1 1/2" NPS (Sch. 40)	1.500"	0.145"
Handrail Joint/Splice Sleeves	1" NPS (Sch. 40)	1.315"	0.133"
Handrails	1.50 OD x 1.25 Wall	1.500"	0.125"
Handrail Support Bar	1 1/2" NPS (Sch. 40)	1.500"	0.145"
Handrail Support Bar	1" Ø Round Bar	1.000"	N/A

E. Galvanized Steel Fasteners:
a. Hex Head Bolts: ASTM A 307 Type 1 or ASTM F1554 Grade 36
b. Adhesive Anchor: ASTM F1554 Grade 36 fully threaded rods
c. Hex Nuts: ASTM A563
d. Flat Washers: ASTM F436
F. Aluminum Shims: ASTM B209, Alloy 6061
G. Bearing Pads: Plain, Fabric Reinforced, or Fabric Laminated meeting requirements of Specifications 515 & 932.
4. Fabrication:
A. Place expansion joints at a maximum of 30'-0" spacing.
B. Field splices are similar to the expansion joint detail and may be approved by the Engineer to facilitate handling; but top rail must be continuous across a minimum of two posts.
C. Continuity field splice (Detail "E"); only use to make the railing continuous for unforeseen field adjustments.
D. Corners and changes in tangential longitudinal alignment may be made continuous with a 9" bend radius or terminated at adjoining sections with a standard end hoop when handrails are not required.
E. For curved longitudinal alignments, shop bend top and bottom rails and handrails to match the alignment radius.
F. For changes in tangential longitudinal alignment greater than 45°, position posts a maximum of 2'-0" each side of the corner, not at the corner apex.
5. Handrails are required and must be continuous at landings (etc.):
A. Grades Steeper than 5%
B. Three or more steps
6. Cutting of reinforcing steel is permitted for post installed anchor bolts.

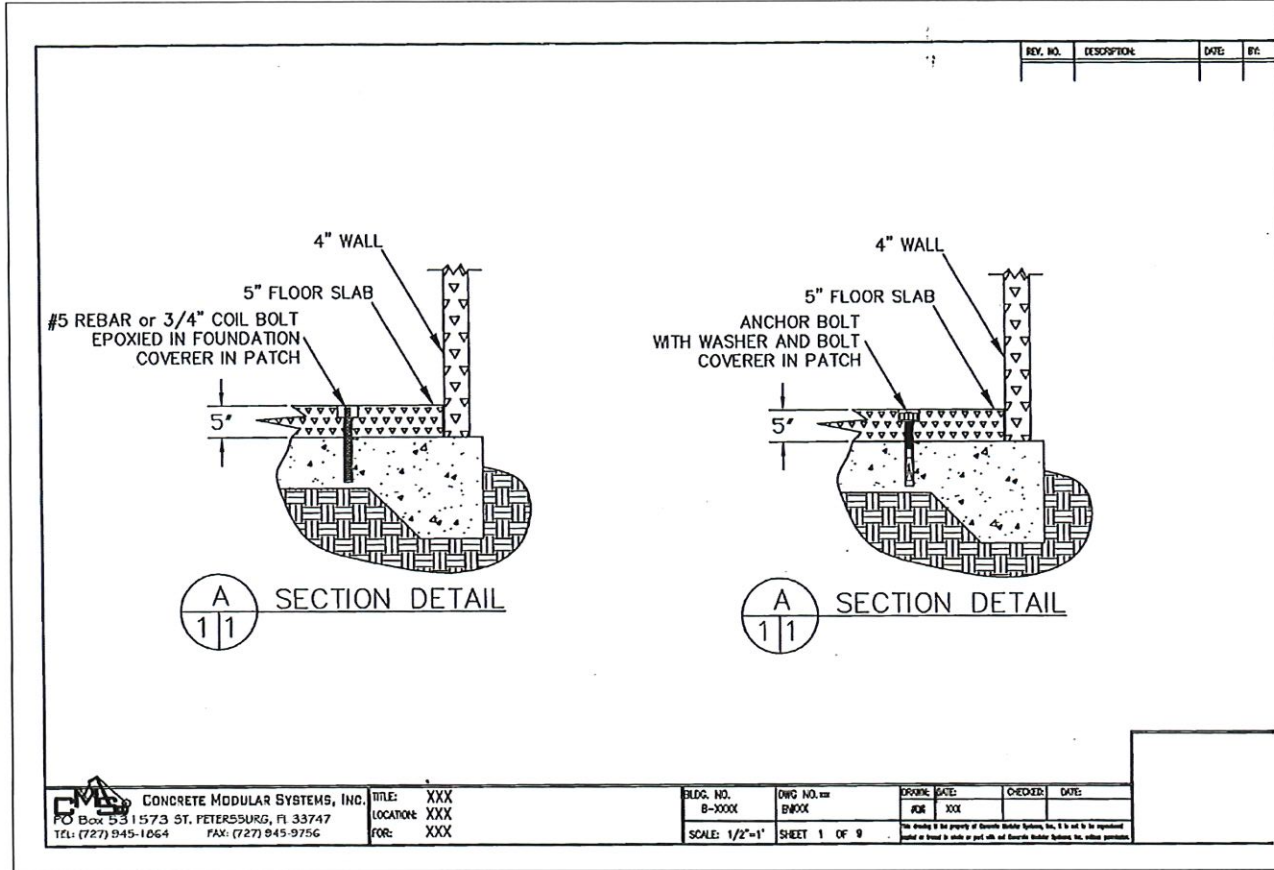
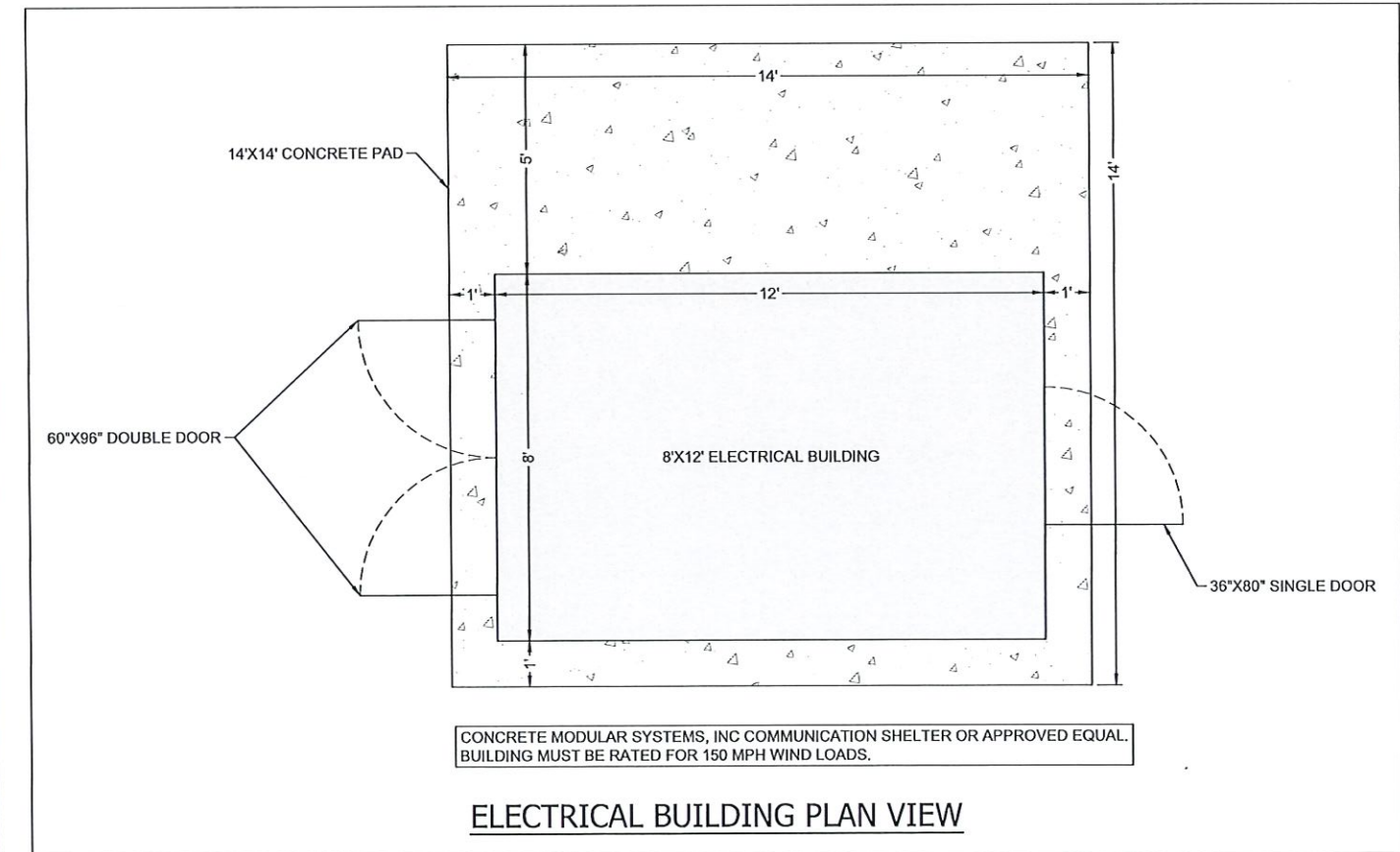
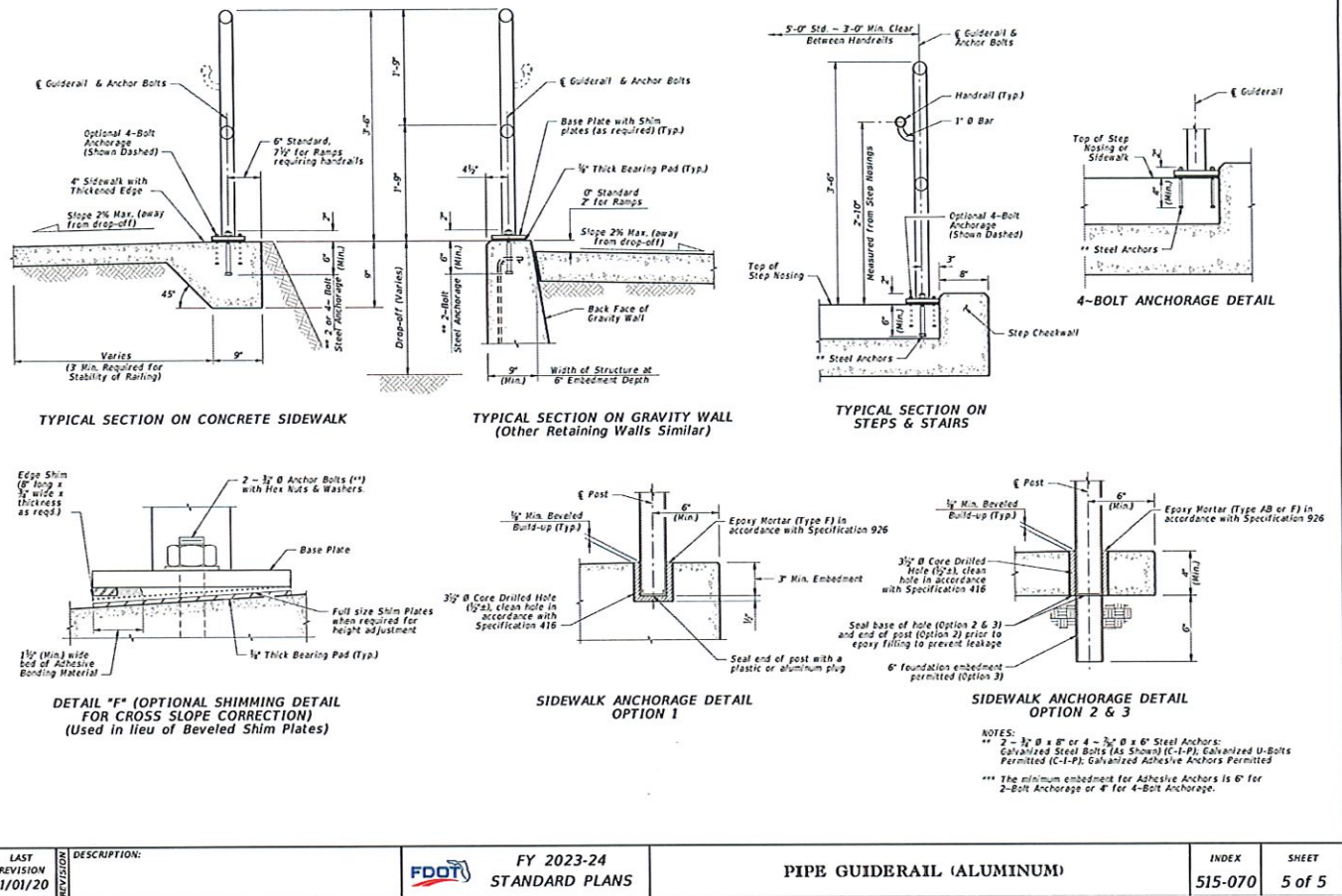


SOUTHWEST AGGREGATE (RESERVOIR) TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

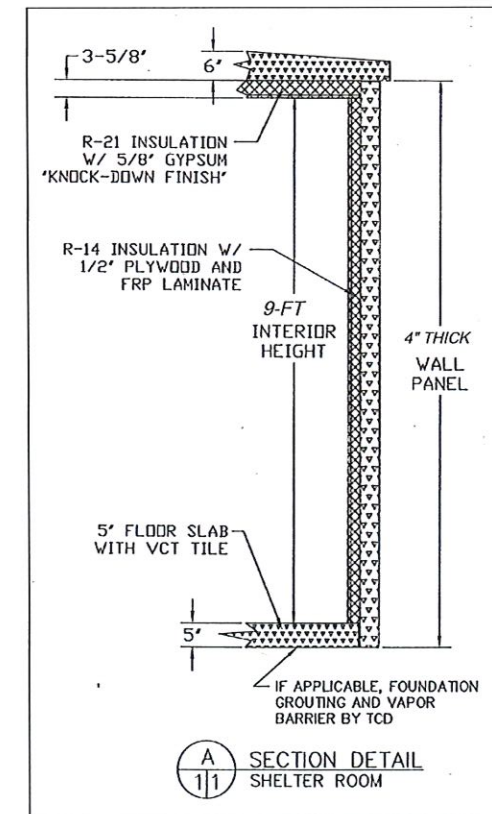
REVISIONS	DATE	DESCRIPTION
NO.		
DATE:	APRIL 16, 2025	
PROJECT NO.	15-0252.06	
FILE NO.	29-42-24	
SCALE:	AS SHOWN	

100% Design Plans
Details 9 of 16

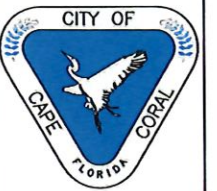
4/16/2025 9:01:36 AM - N:\FY2025\DRAWINGS\2025\181074-000\UTILITIES\DRAWINGS\20181074-000_COVER.DWG - TRAVIS MEANS



ELECTRICAL BUILDING DETAILS



ELECTRICAL BUILDING DETAILS



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS	DATE
DESCRIPTION	
NO.	
DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

100% Design Plans
Details 10 of 16

SHEET NUMBER

D-10



Inquiry No. : GCB2022001-002B
Project Name : Cape Coral SW Aggregates Raw Water Pump Station
Customer : F. J. Nugent & Associates Inc
Date : 08-12-2022

KWM.28.75.6.T.60.H.46.Z



The KPL (submersible axialflow propeller pumps) and KWM (submersible mixedflow pumps), are a pump range specifically designed for column installation from DN500 to DN1800.

- The KPL and KWM pumps are designed for applications such as:
- flood and stormwater control
 - drainage/irrigation of large quantities of water
 - raw-water intake
 - transfer and circulation of liquids in large-scale municipal sewage treatment plants
 - circulation of large quantities of water in water theme parks etc.
 - aqua culture

Note! Product picture may differ from actual product

The KPL and KWM pumps are suitable for permanent installation.

The lifting bracket facilitates easy transportation and installation on site as well as cable fixation above the cable inlet.

The pumps are made of resistant materials, such as cast iron and stainless steel. These materials ensure a proper operation.

The pumps are very service friendly with features like double shaft seal in the unique cartridge design and cable entry connector. The cartridge shaft seal allows change of shaft seal very quickly in the field without any special tools whereas the cable entry connector allow the cable to be dismantled without removing the motor top. These smartdesign features eliminates the risk of faulty installation.

To increase the efficiency the pumps are fittet with a innovative patented turbulence optimizer which reduce the turbulence between the pump casing and the column pipe.

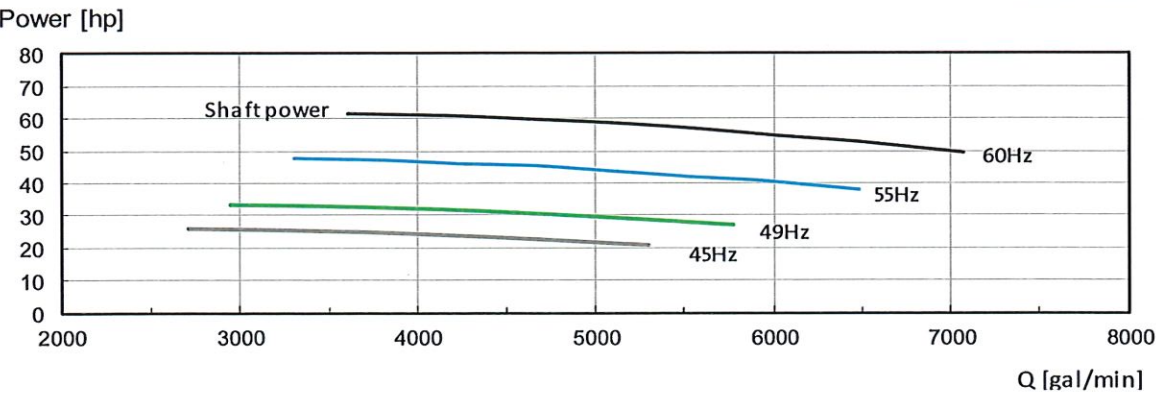
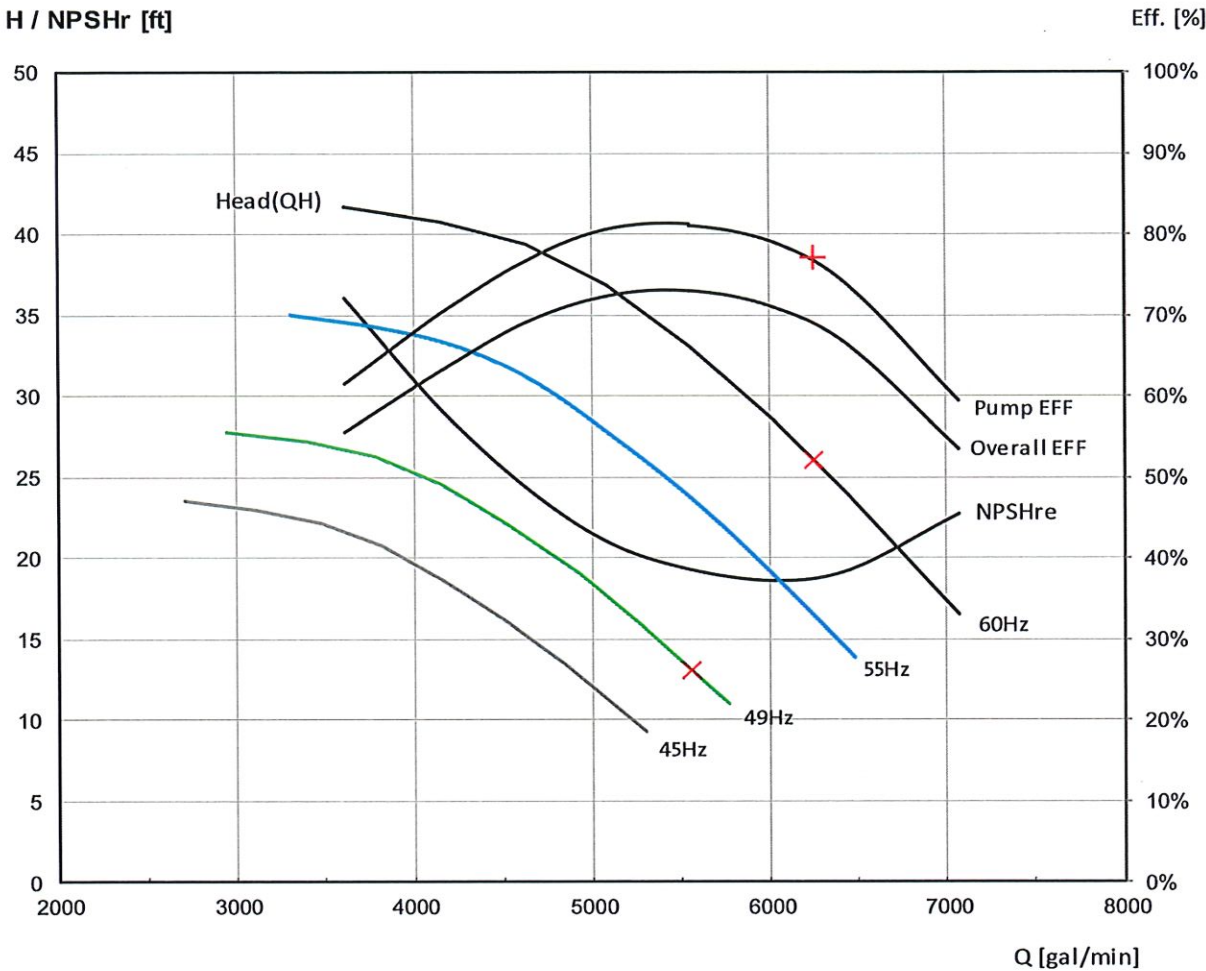


Inquiry No. : GCB2022001-002B
Project Name : Cape Coral SW Aggregates Raw Water Pump Station
Customer : F. J. Nugent & Associates Inc
Date : 08-12-2022

KWM.28.75.6.T.60.H.46.Z

Characteristic curves to ISO 9906 2B at duty point

Duty point : Flow(Q) 6250 gal/min, Head(H) 26 Ft, Pump Eff. 77 %, Overall Eff. 69.3 %, Shaft power. 54HP



※ The pump performance will be designed based on the given nominal duty point.



DAVID BRICE TROUTEAU, PE
FL License No. 69783



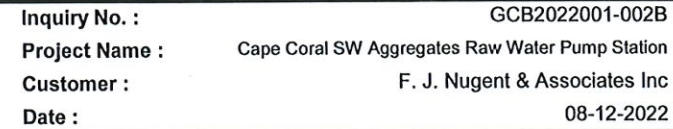
SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS	DATE
NO.	
DESCRIPTION	
DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

100% Design Plans
Details 11 of 16

SHEET NUMBER

D-11



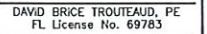
KWM.28.75.6.T.60.H.46.Z

GRUNDFOS 

Technical drawing of a vertical machine, likely a pump or motor assembly, showing dimensions W1 through W11. The drawing includes a top view and a side view. The top view shows a circular base with a central shaft and a mounting bracket. The side view shows the vertical profile of the machine, including a cylindrical body and a base. Dimensions are indicated by arrows and labels: W1 is the total height, W2 is the width of the top section, W3 is the height of the top section, W4 is the height of the main body, W5 is the height of the base, W6 is the width of the base, W7 is the width of the main body, W8 is the height of the main body, W9 is the width of the base, W10 is the width of the main body, and W11 is the height of the base.

Note! All units are in [inch] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

Inquiry No. :	GCB2022001-002B
Project Name :	Cape Coral SW Aggregates Raw Water Pump Station
Customer :	F. J. Nugent & Associates Inc
Date :	08-12-2022



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

100% Design Plans
Details 12 of 16

SHEET NUMBER

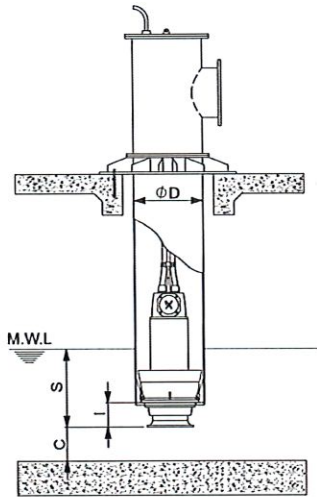
D-12

4/16/2025 9:01:41 AM - NPTNSO\DRAWINGS\2018\20181074-000\UTILITIES\DRAWINGS\20181074-000_COVER.DWG - TRAVIS MEANS

8.4.3 KWM installation requirements

The requirements for installation are shown in the table below.

ØD [in]	C [in]	I [in]	S [in]	M.W.L* [in]
28	14	15.7	51-69	65-83

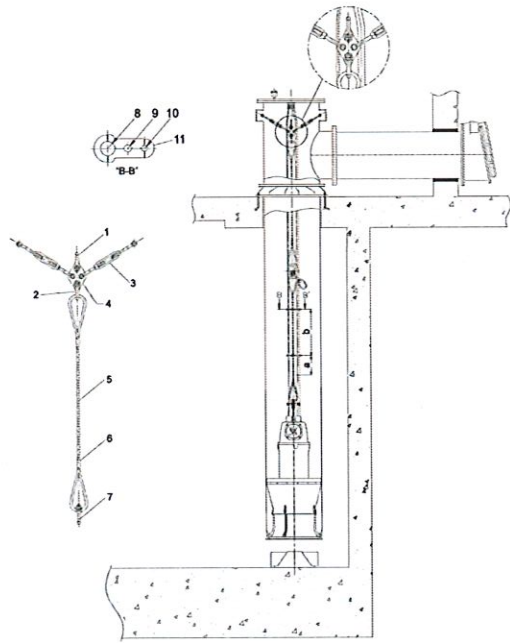


Installation dimensions, KWM pump

KPL, KPG and KWM

9.3 Cable suspension system

You must have a cable suspension system installed in column installed KPL, KPG and KWM pumps to fixate the cables in the flow. If there is no cable suspension system installed, the cable damage will occur, wire will break in the sensor cable and water will enter the motor.

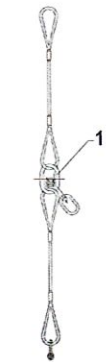


Pos.	Description
1	Shackle 1
2	Shackle 2
3	Turnbuckle
4	Wire holder
5	Wire rope
6	Wire clamp
7	Shackle 3
8	Power cable
9	Wire rope

Pos.	Description
10	Sensor cable
11	Cable clamp
a	11.8 in
b	19.7 in

KPL, KPG and KWM

9.3.1 Lifting chains



Intermediate lifting ring (optional)

The standard cable suspension system is not approved as lifting equipment. If it is to be used as lifting equipment the wire rope, the master links and the shackles must be purchased locally with the right certificates and rated for the weight of the pump and the cables.

Related Information

7.1.8 Cable suspension system

9.3.1 Lifting chains



Lifting chain with shackle, DoC, certificate and work instructions	Stainless steel (AISI 316L) Product number
Lifting chain 1102.31 lbs 6.55 ft cert. cpl.	95538174
Lifting chain 1102.31 lbs 9.84 ft cert. cpl.	95538175
Lifting chain 1102.31 lbs 13.12 ft cert. cpl.	95538176
Lifting chain 1102.31 lbs 19.68 ft cert. cpl.	95538177
Lifting chain 1102.31 lbs 26.24 ft cert. cpl.	95538178
Lifting chain 1102.31 lbs 32.80 ft cert. cpl.	95538179

Lifting chain with hook, DoC, certificate and work instructions	Stainless steel (AISI 316L) Product number	Stainless steel (AISI 316L) Product number
Lifting chain 17636 98 lbs 6.55 ft cert. cpl.	N/A	95425795
Lifting chain 17636 98 lbs 13.12 ft cert. cpl.	N/A	95425797
Lifting chain 17636 98 lbs 19.68 ft cert. cpl.	N/A	95425798
Lifting chain 17636 98 lbs 26.24 ft cert. cpl.	N/A	95425799
Lifting chain 17636 98 lbs 32.80 ft cert. cpl.	N/A	95425800
Lifting chain 4409 24 lbs 13.12 ft cert. cpl.	N/A	95425801
Lifting chain 4409 24 lbs 19.68 ft cert. cpl.	N/A	95425802
Lifting chain 4409 24 lbs 26.24 ft cert. cpl.	N/A	95425803
Lifting chain 4409 24 lbs 32.80 ft cert. cpl.	N/A	95425804
Lifting chain 7054 79 lbs 13.12 ft cert. cpl.	N/A	95425805
Lifting chain 7054 79 lbs 19.68 ft cert. cpl.	N/A	95425806
Lifting chain 7054 79 lbs 26.24 ft cert. cpl.	N/A	95425807
Lifting chain 7054 79 lbs 32.80 ft cert. cpl.	N/A	95425808
Lifting chain 17636 98 lbs 13.12 ft cert. cpl.	95425809	N/A
Lifting chain 17636 98 lbs 19.68 ft cert. cpl.	95425810	N/A
Lifting chain 17636 98 lbs 26.24 ft cert. cpl.	95425811	N/A
Lifting chain 17636 98 lbs 32.80 ft cert. cpl.	95425812	N/A

KPL, KPG and KWM

KPL, KPG and KWM

9. Accessories

Accessories must be ordered separately. Contact Grundfos.

9.1 Anti-cavitation cone

The anti-cavitation cone (ACC) provides an optimal inlet flow to a vertically installed KPL axial flow or KWM mixed-flow pump. The ACC prevents cavitation, pre-swirl, fluid separation and reduces vortices.



Anti-cavitation cone

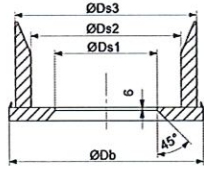
Dimensions	ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC
ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC
ACC	20.47	3.79	8.07	23.62	143.3	M16 x 250L-6ea	20-32		
100 ACC	34.25	1.42	12.09	39.37	507	M30 x 400L-6ea	35-44		
120 ACC	1040	1.65	15.75	47.24	637.75	M36 x 500L-6ea	45-58		
150 ACC	1300	1.89	20.47	15.08	1477.10	M42 x 630L-6ea	50-70		

The ACC is designed and patented by Grundfos.

Order data

Description	Product number
ACC-cavitation cone (column 20-32)	95250505
ACC-cavitation cone (column 35-44)	93339166
ACC-cavitation cone (column 45-58)	93259997
ACC-cavitation cone (column 60-72)	95414878

A seat ring is designed to be welded to the vertical column pipe, in which the axial-flow pump is installed. The seat ring keeps the pump in the optimum position during operation.



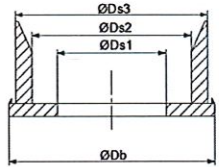
Seat ring for KPL



Seat ring for KWM

GRUNDFOS 131

KPL, KPG and KWM



Seat ring for KWM

Dimensions	Pipe DN	Model	ØDs [in]	ØDs1 [in]	ØDs2 [in]	ØDs3 [in]	Product number
28			28.89	21.82	24.76	27	95414974

JOHNSON
ENGINEERING

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0045
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAU, PE
FL License No. 69783



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

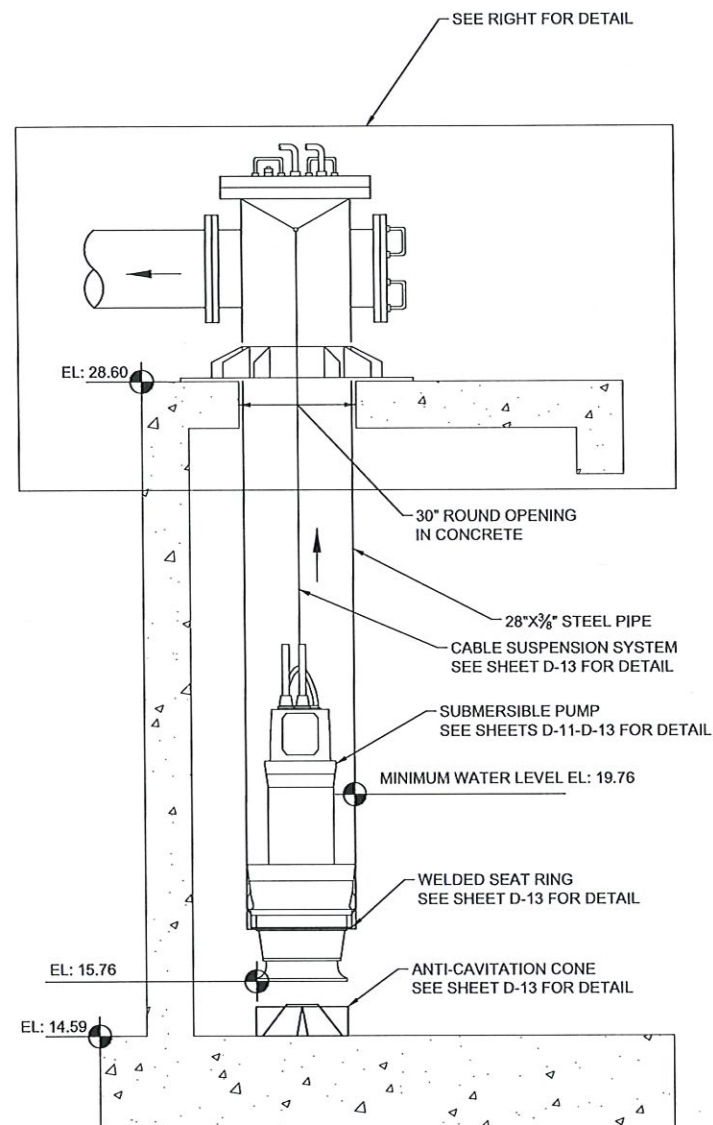
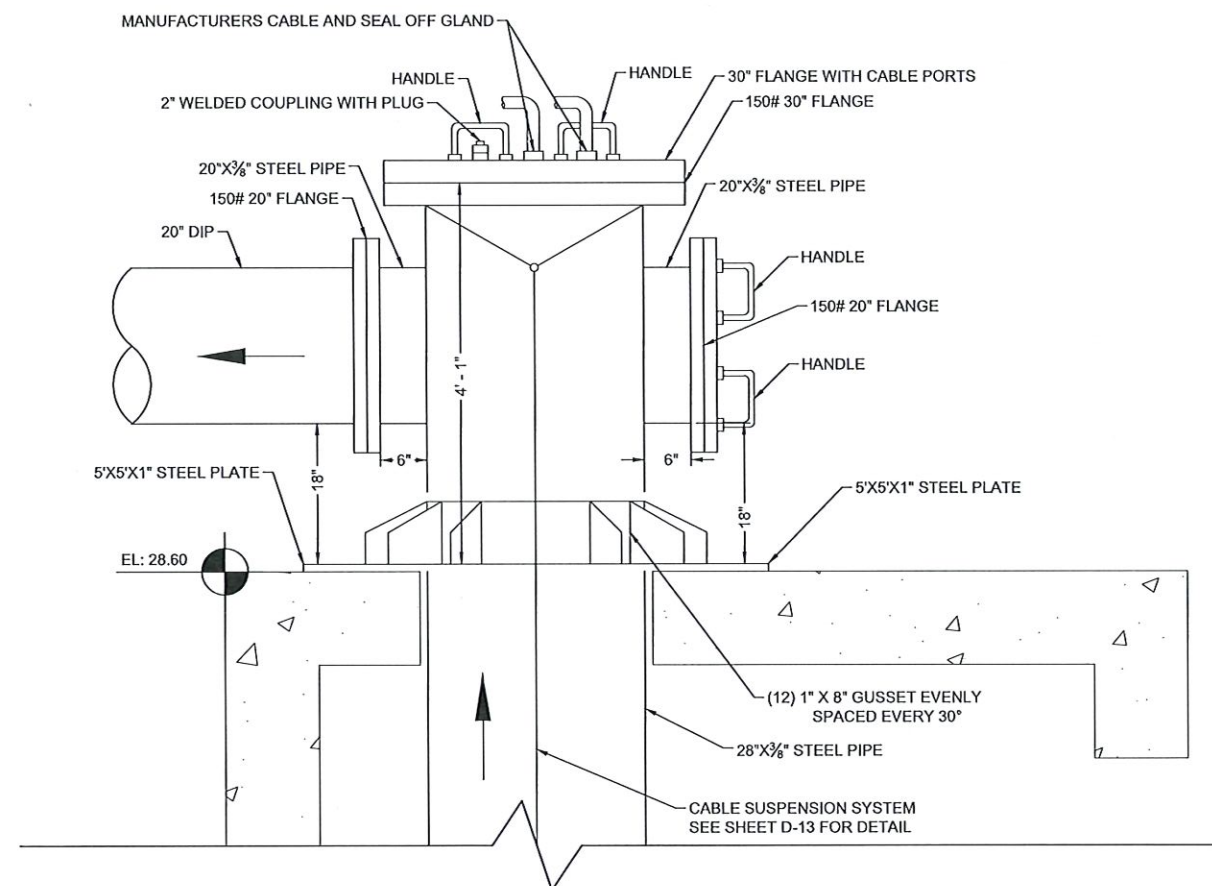
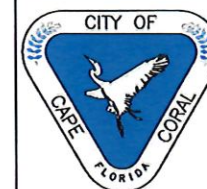
REVISIONS	DATE
DESCRIPTION	
NO.	

DATE: APRIL 16, 2025
PROJECT NO. 15-0252-06
FILE NO. 29-42-24
SCALE: AS SHOWN

100% Design Plans
Details 13 of 16

SHEET NUMBER

D-13


$$1'' = 4'$$

$$1'' = 2'$$


SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

[illegible]

DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

100% Design Plans
Details 14 of 16

SHEET NUMBER

D-14

**JOHNSON
ENGINEERING**

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAUD, PE
FL License No. 69783



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

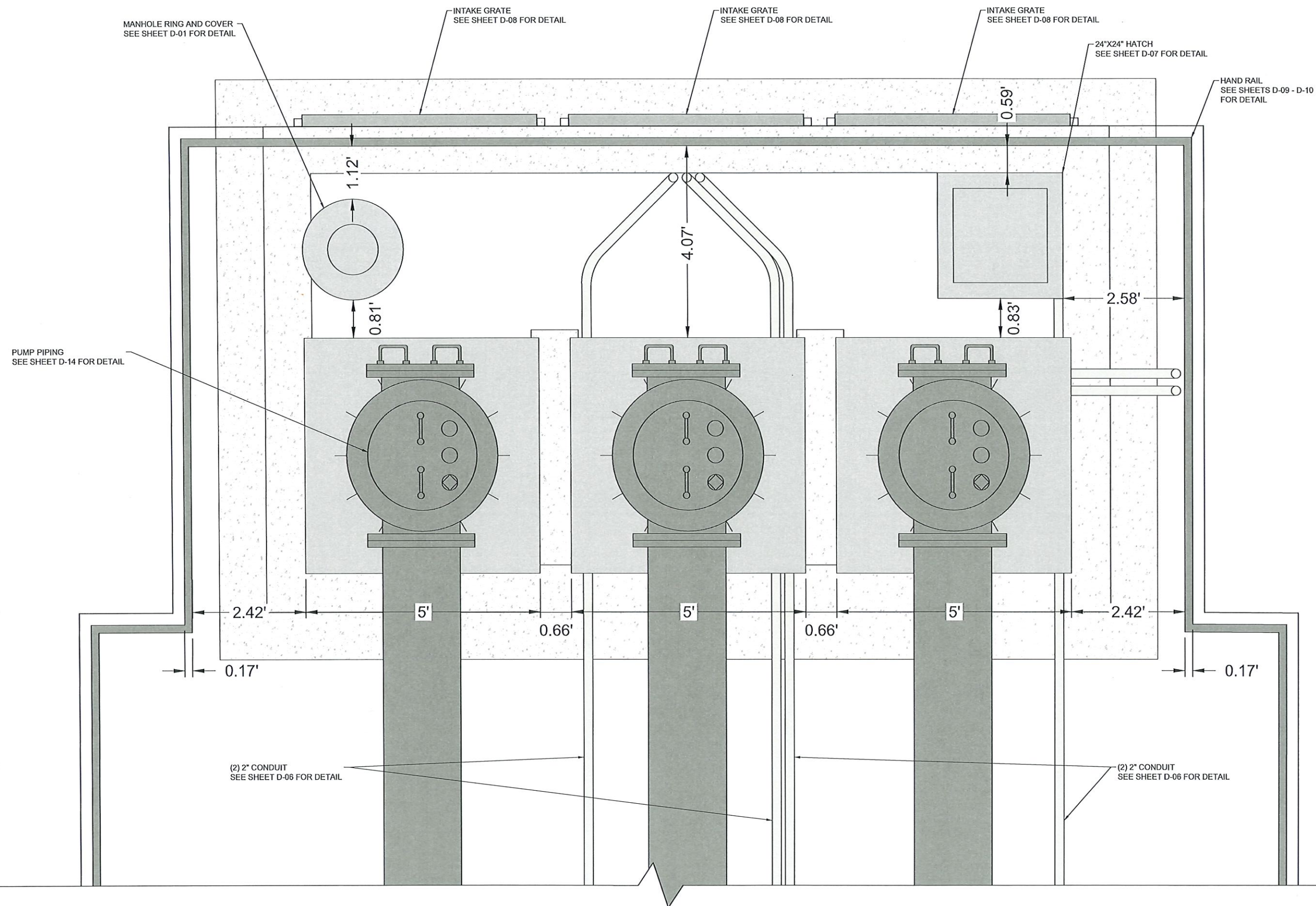
REVISIONS						
DESCRIPTION						DATE
NO.						

DATE:	APRIL 16, 2025
PROJECT NO.	15-0252.06
FILE NO.	29-42-24
SCALE:	AS SHOWN

100% Design Plans
Details 15 of 16

SHEET NUMBER

D-15



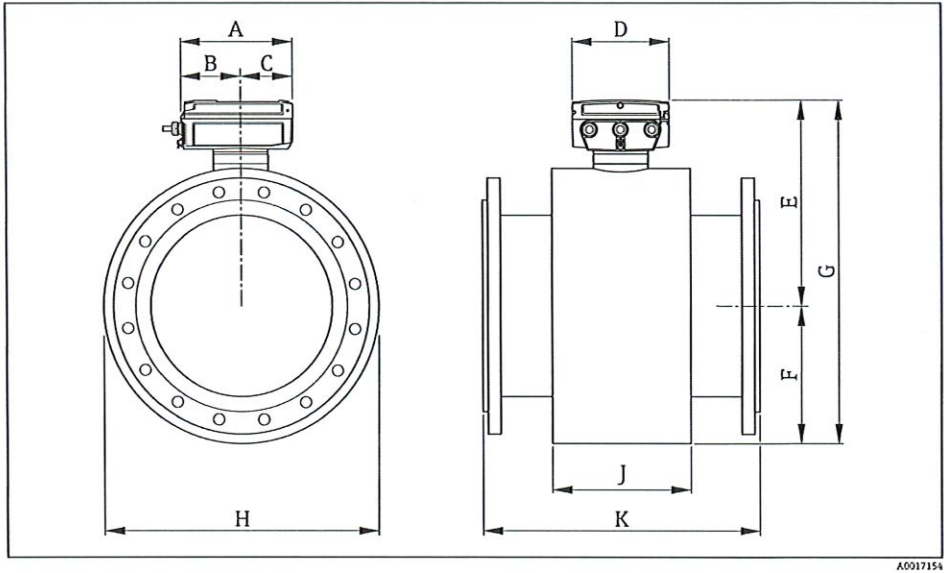
1/16/2025 9:01:44 AM - \\FTNS01\DRAWINGS\2018\1074-000\UTILITIES\DRAWINGS\2018\1074-000_COVER.DWG - TRAVIS MEANS

4/18/2025 9:01:44 AM - I:\FT\501\DRAWINGS\2018\20181074-000\UTILITIES\DRAWINGS\20181074-000_COVER.DWG - TRAVIS MEANS



FLOW METER

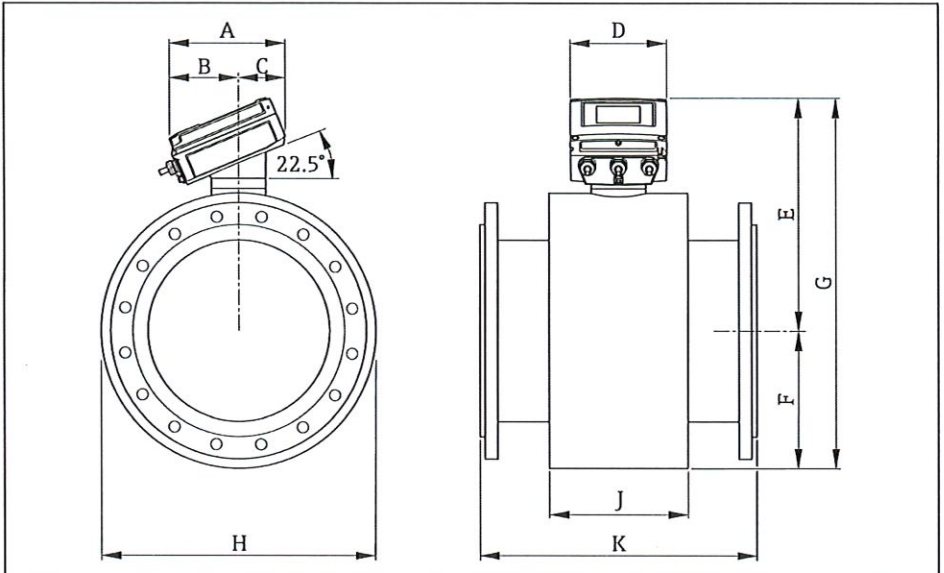
Order code for "Housing", option M "Compact, Polycarbonate" or option A "Compact, alu, coated" with DN 350 to 2000 (14 to 78")



DN ¹⁾	A	B	C	D	E	F	G	H	J	K ²⁾
[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]
30	7.60	4.06	3.54	6.57	26.1	20.1	46.2	40.3	24.6	38.4

- 1) ASME, AWWA; flanges ≤ 24 in only available according to ASME, flanges ≥ 28 in only available according to AWWA.
2) The length is independent of the selected pressure rating. Length in accordance with DVGW/ISO.

Order code for "Housing", option Q "Compact, Polycarbonate, inclined" or option R "Compact, alu, coated, tilted" with DN 350 to 2000 (14 to 78")



DN ¹⁾	A	B	C	D	E	F	G	H	J	K ²⁾
[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]	[in]
30	7.83	4.69	3.15	6.57	27.8	20.2	48.0	40.3	24.6	38.4

- 1) ASME, AWWA; flanges ≤ 24 in only available according to ASME, flanges ≥ 28 in only available according to AWWA.
2) The length is independent of the selected pressure rating. Length in accordance with DVGW/ISO.



SOUTHWEST AGGREGATE (RESERVOIR)
TO
CITY OF CAPE CORAL (GATOR SLOUGH)
RAW WATER PIPE LINE

REVISIONS	DATE
DESCRIPTION	

DATE: APRIL 16, 2025
PROJECT NO. 15-0252.06
FILE NO. 29-42-24
SCALE: AS SHOWN

100% Design Plans
Details 16 of 16

SHEET NUMBER

D-16