

**DRAIN COMMISSION
LENAWEE COUNTY, MI**

**ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS**

CWSRF PROJECT NUMBER: 5728-01

SEPTEMBER 2021

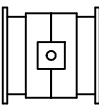


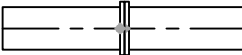
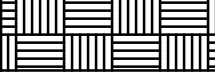

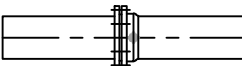
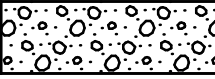
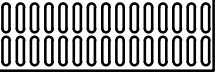
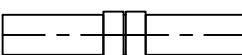
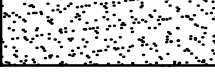

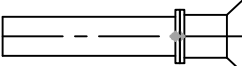
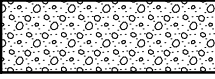

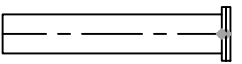
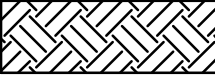

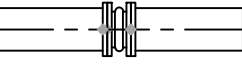
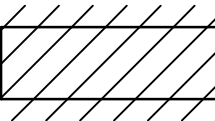


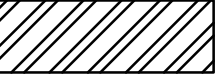
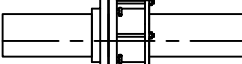

















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ISSUED FOR BID



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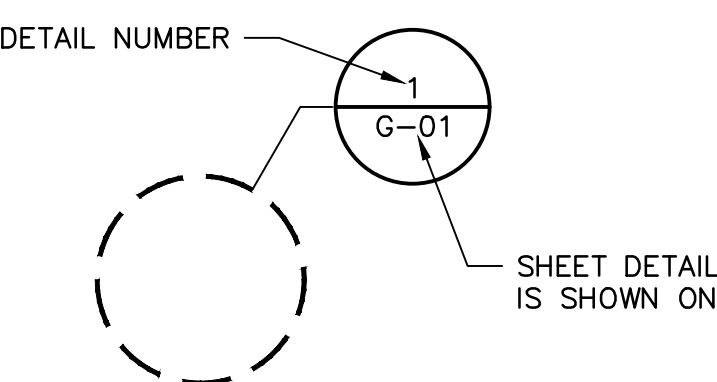
LEGEND AND SYMBOLS		
MECHANICAL	CIVIL/SITE	STRUCTURAL
 FLOW METER (FLM)	 UNDISTURBED SOIL	 GRATING
 FLANGED	 ROCK	 PLANK GRATING
 MECHANICAL JOINT	 SUBBASE	 TRENCH COVER
 CPVC/PVC/COPPER	 MUDMAT	 RIGID INSULATION
 FLANGED FLARE	 SELECT BACKFILL	 CMU
 BLIND FLANGE	 GENERAL FILL	 CONCRETE
 EXPANSION JOINT	 DEMOLITION	 GROUT
 FLEXIBLE COUPLING	LEGEND	 STEEL
 FLANGED COUPLING ADAPTER	EXISTING	 CHECKERED PLATE
 TIED COUPLING	⊙ STORM MANHOLE	 BRICK
 PLUG VALVE (PV)	■ SQUARE INLET BASIN	
 CHECK VALVE (CV)	▣ SQUARE CATCH BASIN	
 SOLENOID ACTUATOR	⊙ ROUND CATCH BASIN	
 MOTOR ACTUATOR	⊙ SANITARY MANHOLE	
 90° DI ELBOW	⊙ SIGNAL POLE	
 90° DI ELBOW (DOWN)	⊙ GUY ANCHOR	
 45° DI ELBOW	⊙ LIGHT POLE	
 45° DI ELBOW (DOWN)	⊙ POWER POLE	
 90° DI TEE	⊙ POWER & LIGHT POLE	
 90° DI TEE (DOWN)	⊙ COMMUNICATIONS POLE	
 DI REDUCER	⊙ POST	
 90° DI LR ELBOW	⊙ ELECTRIC METER	
 90° DI LR ELBOW (DOWN)	⊙ ELECTRIC MANHOLE	
 MECHANICAL SEAL	⊙ ELECTRIC BOX/CONDUIT	
	⊙ FIRE HYDRANT	
	⊙ GAS SERVICE VALVE	
	⊙ GAS VALVE	
	⊙ GAS VENT	
	⊙ WATER VALVE	
	⊙ MAIL BOX	
	⊙ ROCK	
	⊙ 1 POST SIGN	
	⊙ 2 POST SIGN	
	⊙ EVERGREEN TREE	
	⊙ DECIDUOUS TREE	
	⊙ STUMP	
	⊙ BUSH/SHRUB	
	⊙ IPF IRON PIN/PIPE FOUND	
	⊙ MONUMENT BOX FOUND	

ELEVATION BASIS
ELEVATIONS ARE BASED ON NGVD23 DATUM.

DISCIPLINE DESIGNATOR

G	GENERAL
I	INSTRUMENTATION
D	DEMOLITION
C	CIVIL (SITE)
P	MECHANICAL (PROCESS)
E	ELECTRICAL

DETAIL MARKERS

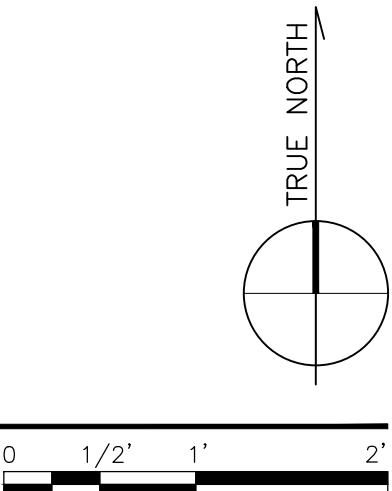


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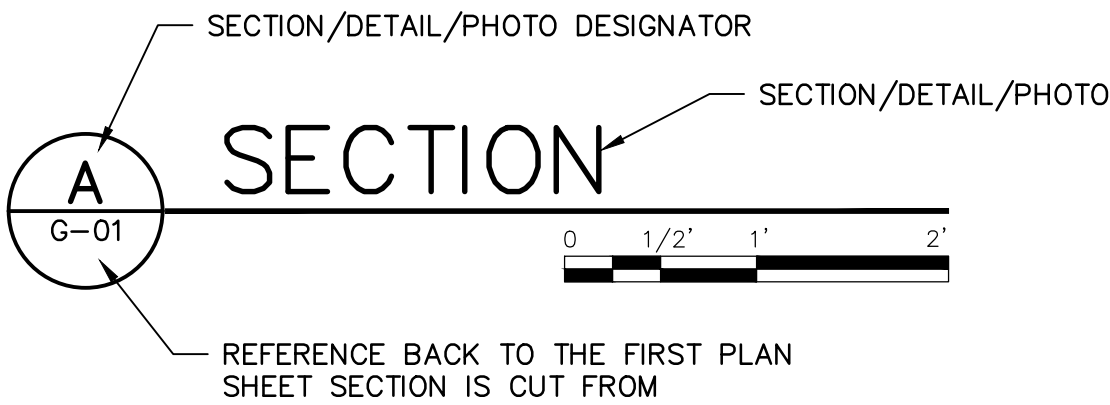
ABBREVIATIONS

&	AND	DI	DUCTILE IRON	INV	INVERT	QTY	QUANTITY
ABD	ABANDONED	EF	EACH FACE	IP	IRON PIPE	RED	REDUCER
AFF	ABOVE FINISHED FLOOR	EW	EACH WAY	K	KIP (1000 LB)	REINF	REINFORCE (D) (ING) (MENT)
AGGR	AGGREGATE	ESMT	EASEMENT	LAB	LABORATORY	ROW	RIGHT OF WAY
ABC	AGGREGATE BASE COURSE	EP	EDGE OF PAVEMENT	LIN	LINEAR	RD	ROOF DRAIN
ALT	ALTERNATE	EFL	EFFLUENT	LF	LONG FOOT	SAN	SANITARY SEWER
AL	ALUMINUM	EL	ELEVATION	LLH	LONG LEG HORIZONTAL	SWD	SIDE WATER DEPTH
ASPH	ASPHALT	ELL	ELBOW	LLV	LONG LEG VERTICAL	SQ FT	SQUARE FOOT
BC	BACK OF CURB	ENGR	ENGINEER	LP	LOW POINT	SQ IN	SQUARE INCH
B/B	BACK TO BACK	EST	ESTABLISHED	LR	LONG RADIUS	SQ YD	SQUARE YARD
BFP	BACKFLOW PREVENTER	EX	EXISTING	MH	MANHOLE	SST	STAINLESS STEEL
BL	BASE LINE	EXP	EXPANSION	MFGR	MANUFACTURER	STM	STORM SEWER
BP	BASE PLATE	EXT	EXTERIOR	MO	MASONRY OPENING OR MODULAR OPENING	TB-XX	TEST BORING-XX (E.G. TB-1)
BRG	BEARING	F/F	FACE TO FACE	MAX	MAXIMUM	THK	THICKNESS
BM	BENCH MARK	FGL	FIBERGLASS	MJ	MECHANICAL JOINT	TBR	TO BE REMOVED
BF	BLIND FLANGE	FD	FLOOR DRAIN	MGD	MILLION GALLONS PER DAY	T&B	TOP AND BOTTOM
BOT	BOTTOM	'	FOOT	MIN	MINIMUM	TB	TOP OF BEAM
BTU	BRITISH THERMAL UNIT	FTG	FOOTING	MTD	MOUNTED	TC	TOP OF CONCRETE
BLDG	BUILDING	FDN	FOUNDATION	MW	MASONRY WALL	TC	TOP OF CURB
CO2	CARBON DIOXIDE	GALV	GALVANIZED	NPW	NON-POTABLE WATER	TF	TOP OF FOOTING
CO	CARBON MONOXIDE	GPD	GALLONS PER DAY	NRS	NON-RISING STEM	TDH	TOTAL DYNAMIC HEAD
CI	CAST IRON	GPH	GALLONS PER HOUR	NC	NORMALLY CLOSED	TYP	TYPICAL
CB	CATCH BASIN	GPM	GALLONS PER MINUTE	NO	NORMALLY OPEN	UV	ULTRAVIOLET
CL, C	CENTER LINE	GR	GRAD (E) (ING)	NTS	NOT TO SCALE	UON	UNLESS OTHERWISE NOTED
C/C	CENTER TO CENTER	GRAV	GRAVEL	NO OR #	NUMBER	VAC	VACUUM
CO	CLEANOUT	GRTG	GRATING	OC	ON CENTER	VGC	VORTEX GRIT CHAMBER
CW	COLD WATER	GCL	GRIT CLASSIFIER	OPNG	OPENING	WF	WALL FAUCET
COL	COLUMN	GP	GRIT PUMP	OPP	OPPOSITE	WW	WASTEWATER
CONC	CONCRETE	GND	GROUND	ORIG	ORIGINAL	WC	WATER CLOSET
CMU	CONCRETE MASONRY UNIT	GV	GATE VALVE	O/O	OUT TO OUT	WHA	WATER HAMMER ARRESTER
CJ	CONSTRUCTION JOINT	HDR	HEADER	OF	OUTSIDE FACE	WM	WATER MAIN
CGF	CONTROL DENSITY FILL	HVAC	HEATING, VENTILATING & AIR CONDITIONING	WF	WIDE FLANGE	WD	WIDTH
CPLG	COUPLING	HORIZ	HORIZONTAL	PCC	PRECAST CONCRETE	WL	WIND LOAD
X SECT	CROSS SECTION	HB	HOSE BIB	PERIM	PERIMETER	W/	WITH
CFM	CUBIC FEET PER MINUTE	HM	HOLLOW METAL	PERP	PERPENDICULAR	W/O	WITHOUT
CV	CHECK VALVE	HP	HIGH POINT	PL	PLATE	WTP	WATER TREATMENT PLAN
DL	DEAD LOAD	HW	HOT WATER	PW	POTABLE WATER		
DEMO	DEMOLITION	HWR	HOT WATER RETURN	PCF	POUNDS PER CUBIC FOOT		
DET	DETAIL	HWS	HOT WATER SUPPLY	PREFAB	PREFABRICATED		
DIA or Ø	DIAMETER	HWT	HOT WATER TANK	PPS	PERFORATED PLATE SCREEN		
DN	DOWN	"	INCH	PS CONC	PRESTRESSED CONCRETE		
DS	DOWNSPOUT	INF	INFLUENT	PL, PL	PROPERTY LINE OR PLATE		
DR	DRAIN	ID	INSIDE DIAMETER	PV	PLUG VALVE		
DMH	DROP MANHOLE	INSUL	INSULATION	PVC	POLYVINYL CHLORIDE		
				PW	PARAPET WALL		

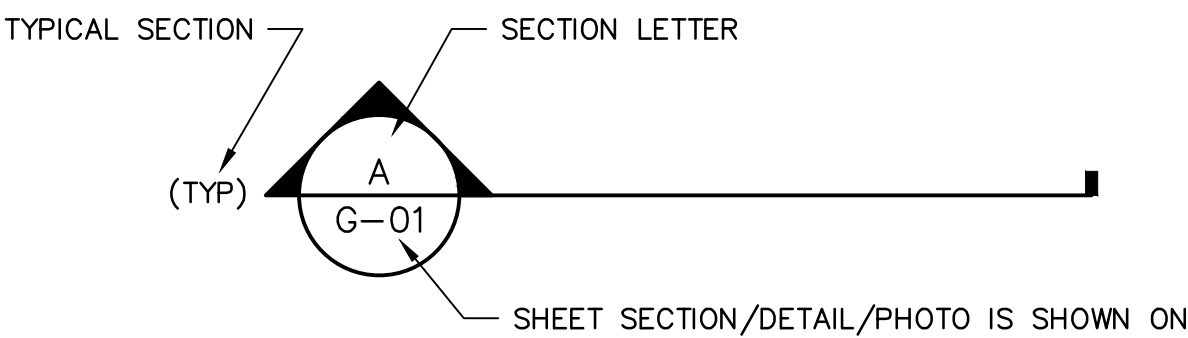
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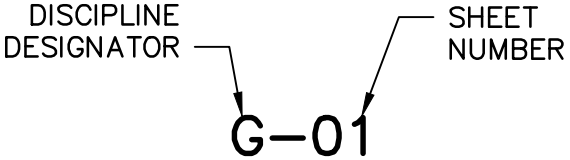
SECTION



SECTION MARKERS



SHEET NUMBER IDENTIFICATION



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGLE SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: SYMBOLS
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

GENERAL

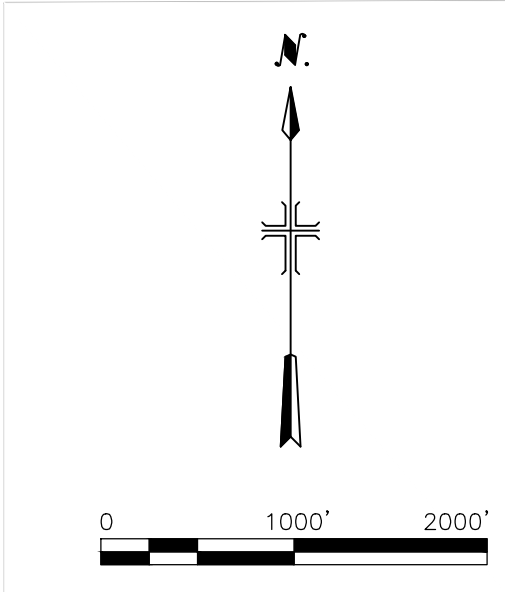
SYMBOLS, NOTES
AND ABBREVIATIONS

SCALE: AS NOTED

G-1

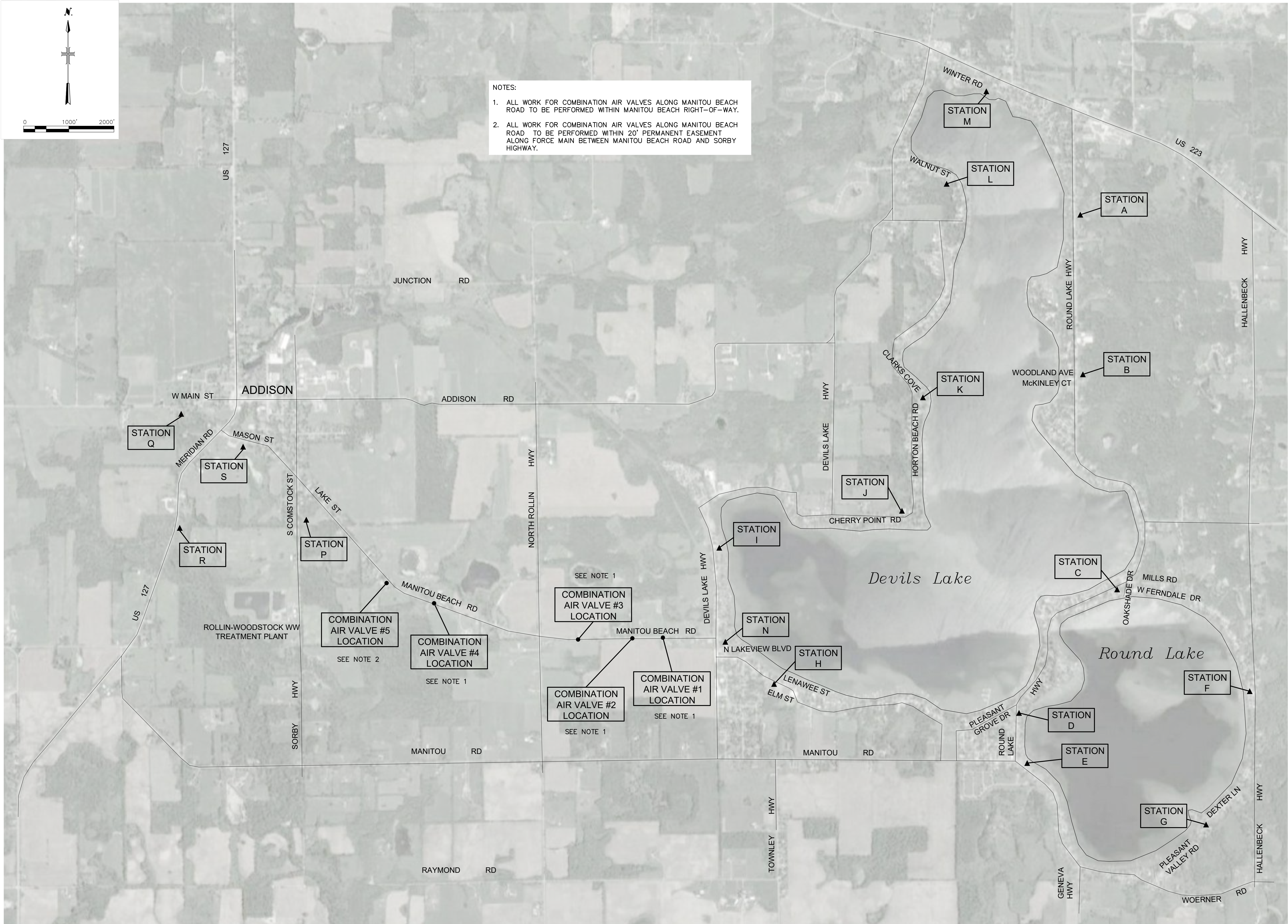
SHEET 1 OF 24

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NOTES:

1. ALL WORK FOR COMBINATION AIR VALVES ALONG MANITOU BEACH ROAD TO BE PERFORMED WITHIN MANITOU BEACH RIGHT-OF-WAY.
2. ALL WORK FOR COMBINATION AIR VALVES ALONG MANITOU BEACH ROAD TO BE PERFORMED WITHIN 20' PERMANENT EASEMENT ALONG FORCE MAIN BETWEEN MANITOU BEACH ROAD AND SORBY HIGHWAY.



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



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LENAWEE COUNTY
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2021

DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: LOCATION MAP
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

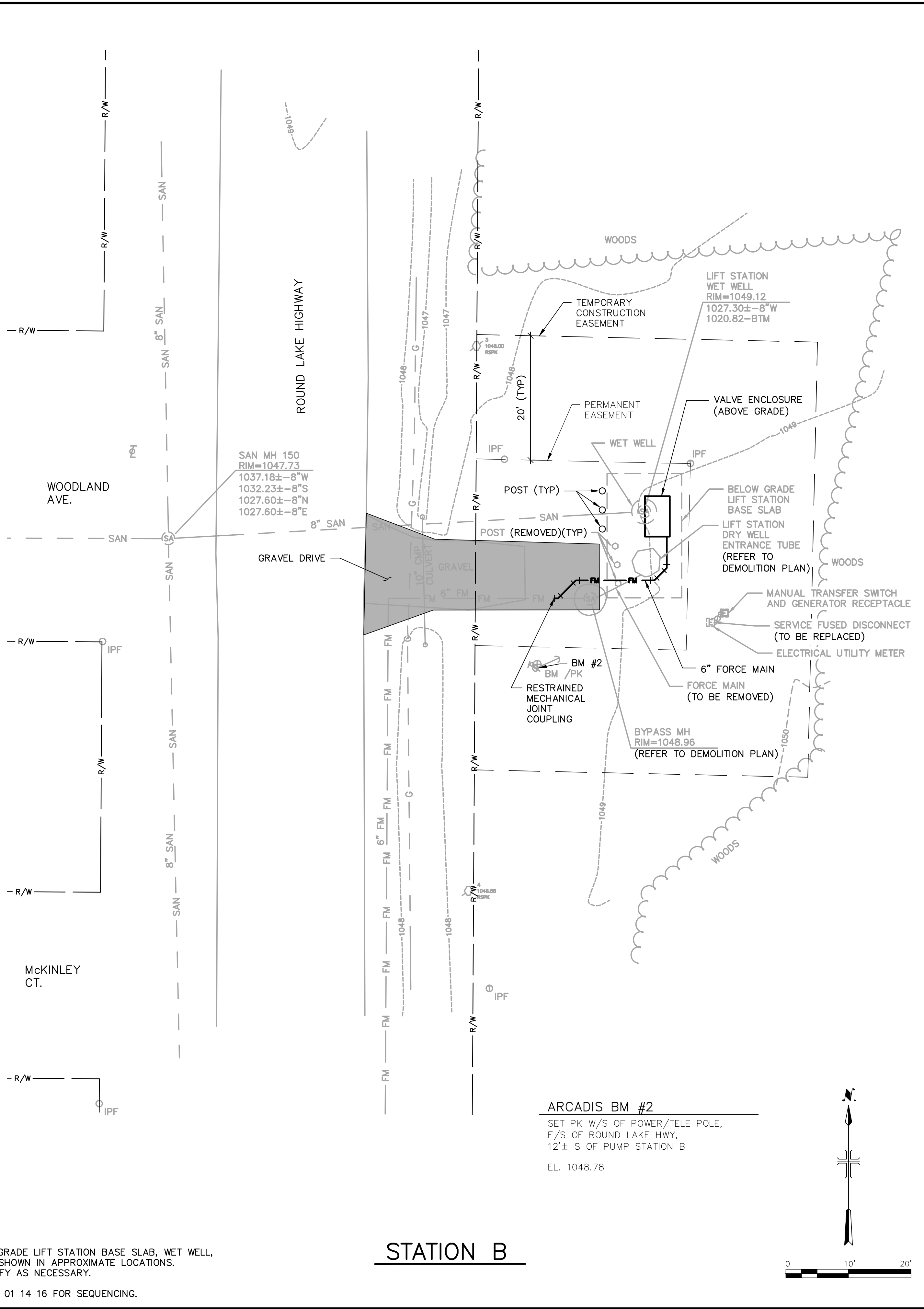
SHEET TITLE

GENERAL
LOCATION MAP

SCALE: 1" = 1000'

G-2

SHEET 2 OF 24



CONSULTANTS

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LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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FILE NAME: A-B

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DRAWN BY: S. PITTMAN

CHECKED BY: T. HARMSEN

SHEET TITLE

CIVIL

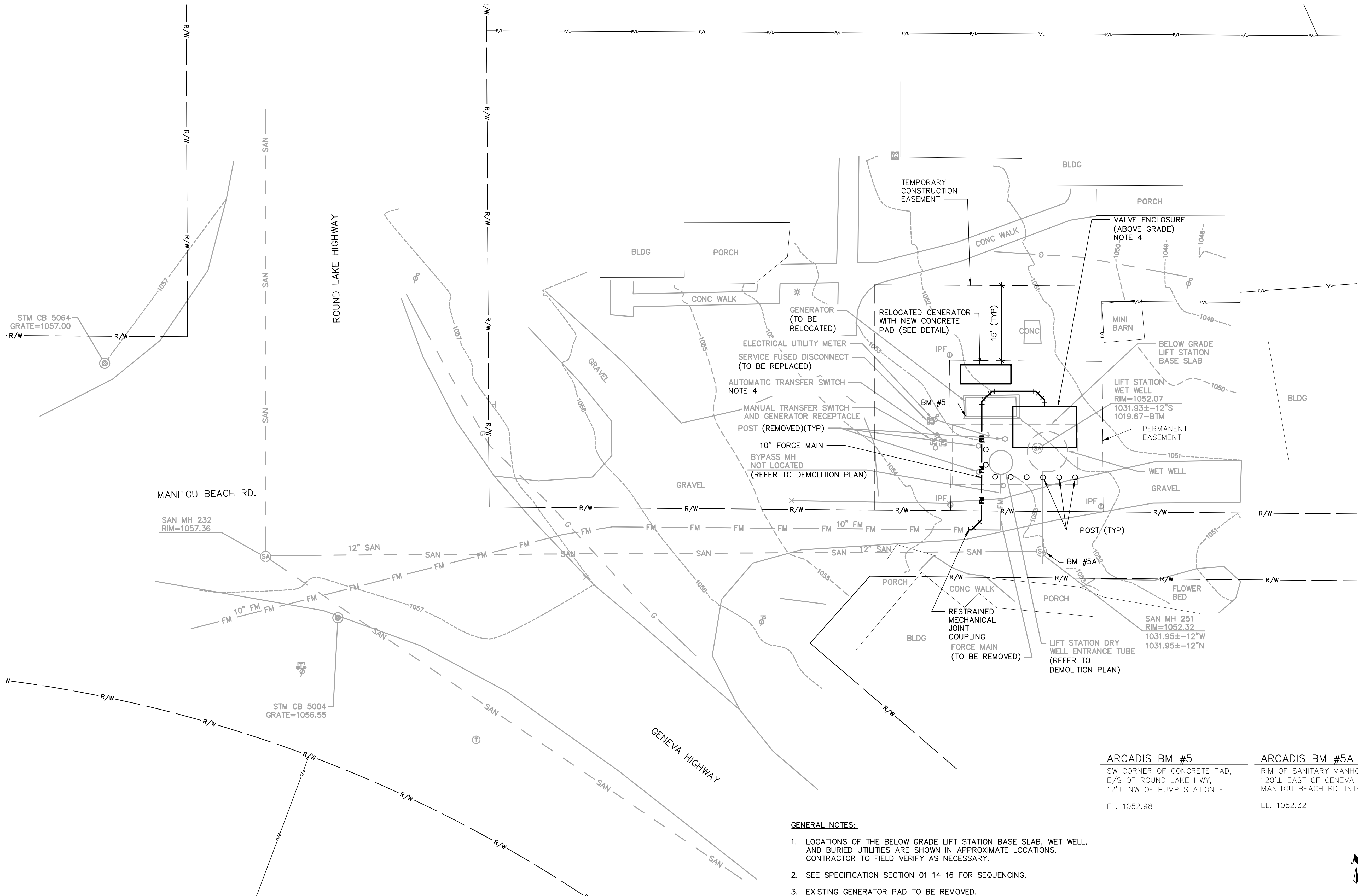
LIFT STATION A & B SITE PLAN

SCALE: AS SHOWN

C-1

SHEET 3 OF 24

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STATION E

GENERAL NOTES:

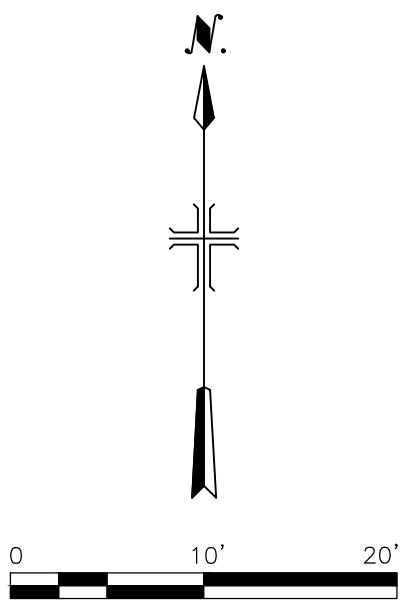
1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
3. EXISTING GENERATOR PAD TO BE REMOVED.
4. PROVIDE 3/4"C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEW LIFT STATION PUMP CONTROL PANEL FOR ATS EMERGENCY POWER POSITION INDICATION. UTILIZE EXISTING SPARE NORMALLY OPEN (NO) A3 CONTACT IN ATS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.

ARCADIS BM #5

SW CORNER OF CONCRETE PAD,
E/S OF ROUND LAKE HWY,
12'± NW OF PUMP STATION E
EL. 1052.98

ARCADIS BM #5A

RIM OF SANITARY MANHOLE,
120'± EAST OF GENEVA HWY &
MANITOU BEACH RD. INTERSECTION.
EL. 1052.32



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



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NO.	DATE	ISSUED FOR	BY

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2021

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PROJECT NO.: 30027906
FILE NAME: E
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: F. HARMSSEN

SHEET TITLE

CIVIL

LIFT STATION E
SITE PLAN

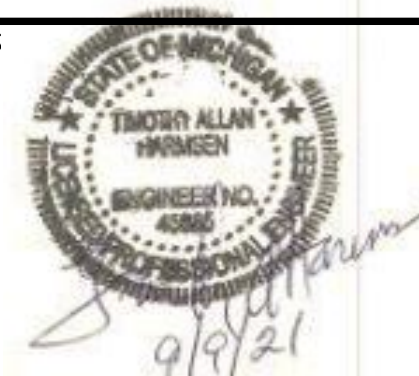
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C-3

SHEET 5 OF 24

CONSULTANTS

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LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

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NO.	DATE	ISSUED FOR	BY

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DATE:	SEPTEMBER 2021
PROJECT NO.:	30027906
FILE NAME:	F-G
DESIGNED BY:	K. CELIAN
DRAWN BY:	S. PITTMAN
CHECKED BY:	T. HARMSEN

SHEET TITLE

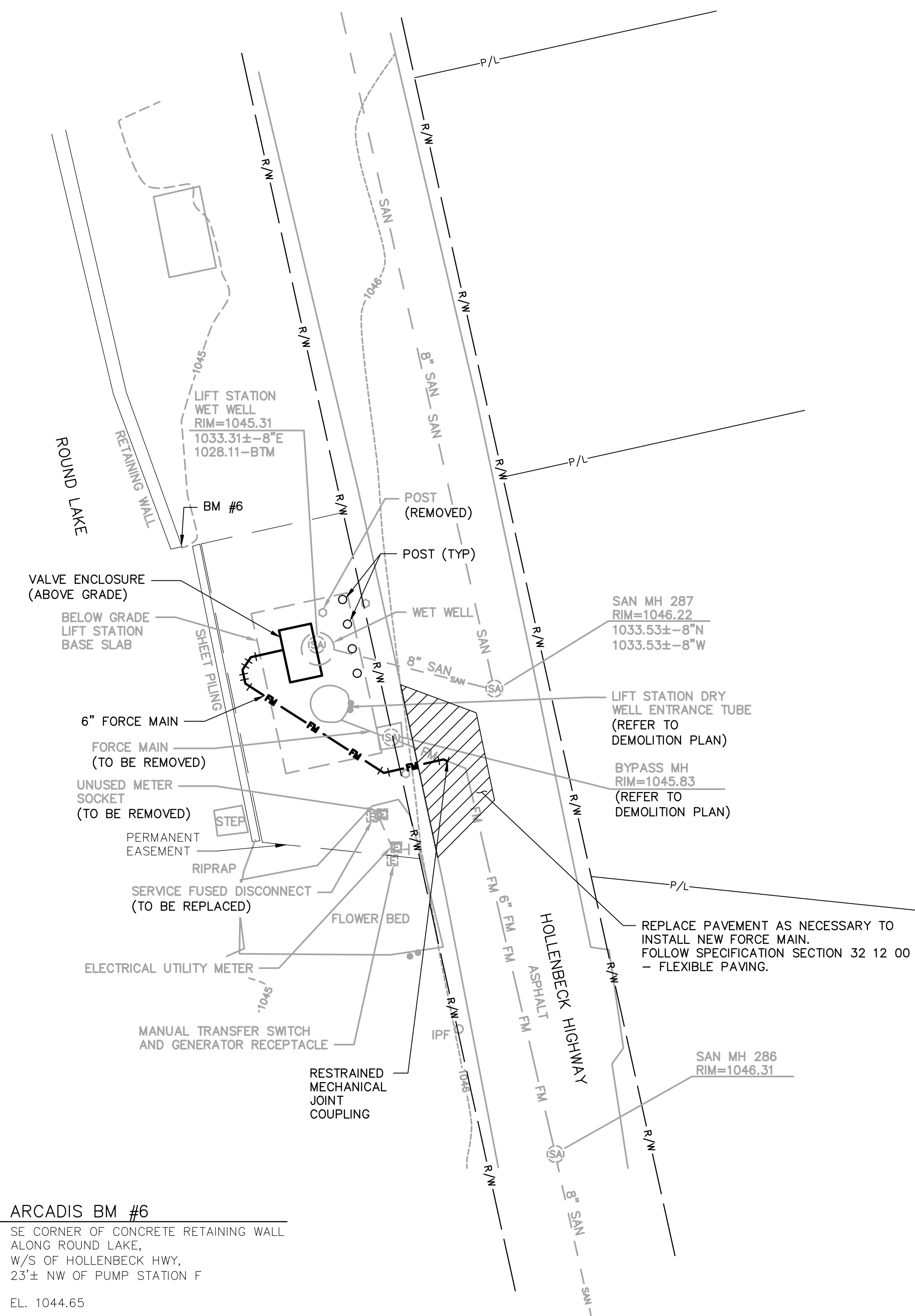
CIVIL

LIFT STATION F & G SITE PLAN

SCALE: AS SHOWN

C-4

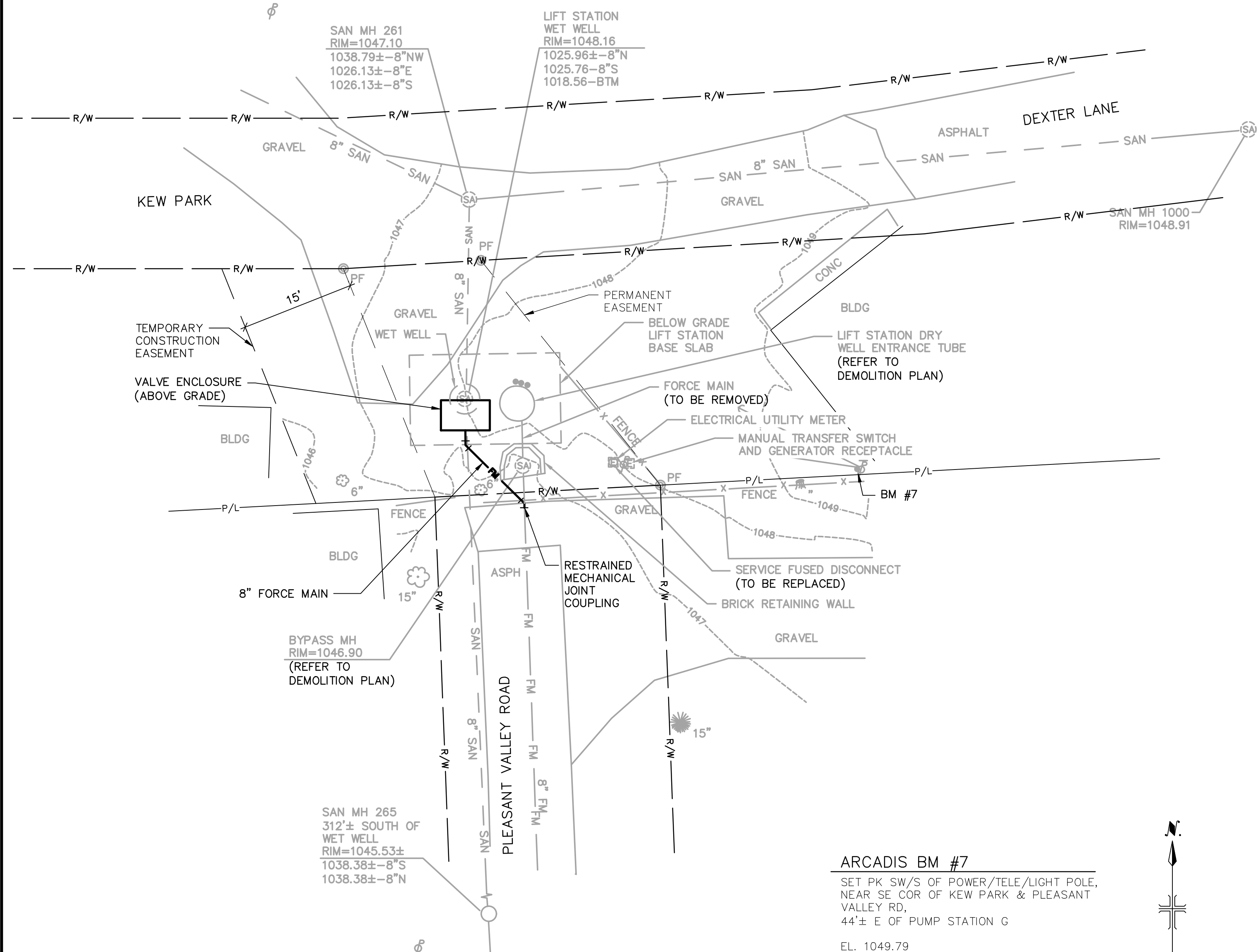
SHEET 6 OF 24



STATION F

GENERAL NOTES:

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.

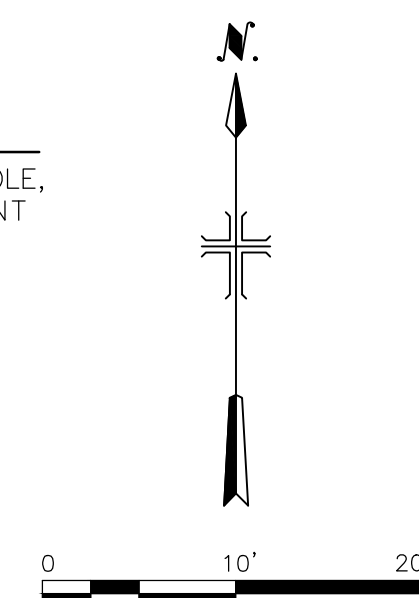


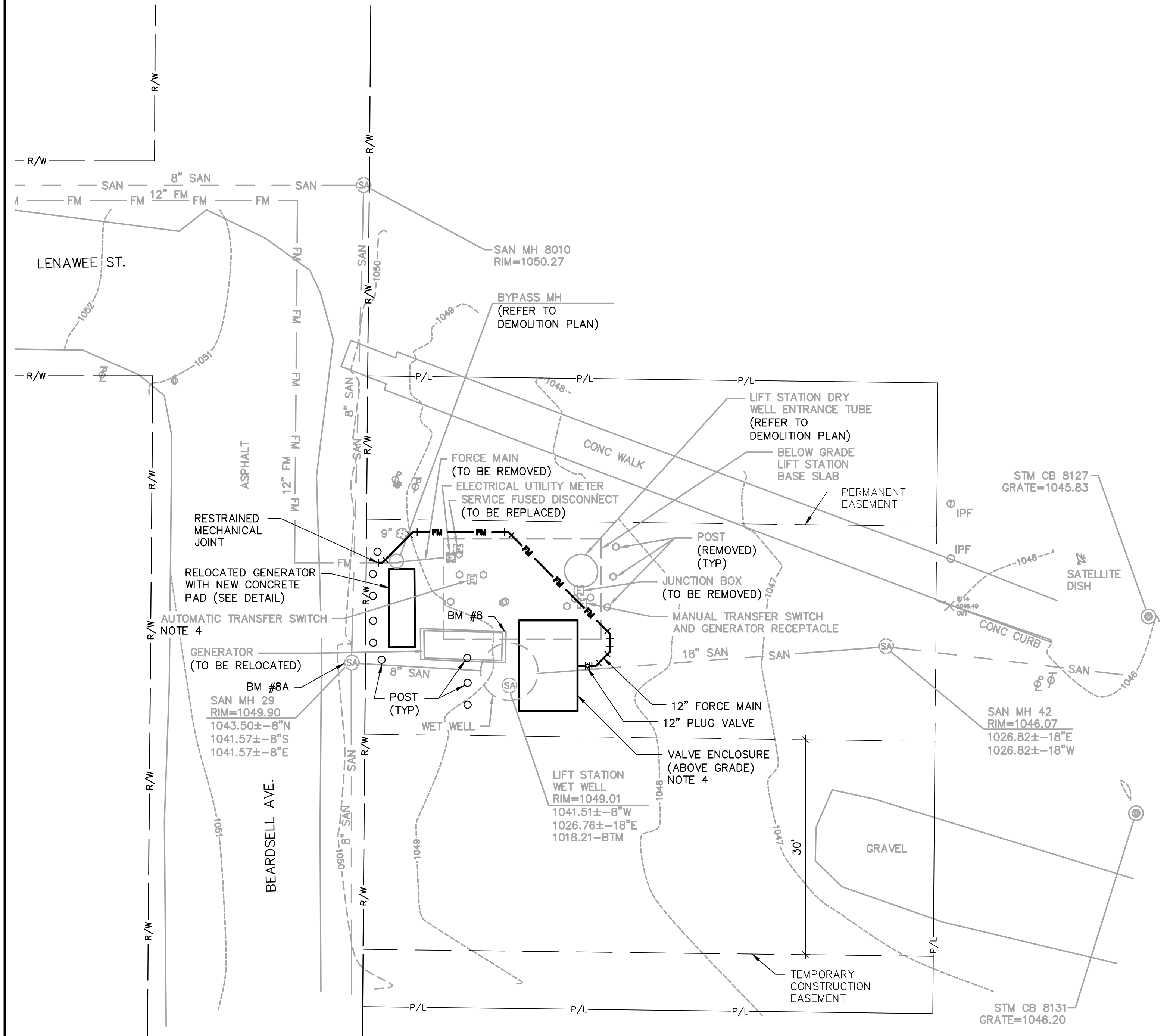
STATION G

ARCADIS BM #7

SET PK SW/S OF POWER/TELE/LIGHT POLE,
NEAR SE COR OF KEW PARK & PLEASANT
VALLEY RD,
44'± E OF PUMP STATION G

EL. 1049.79





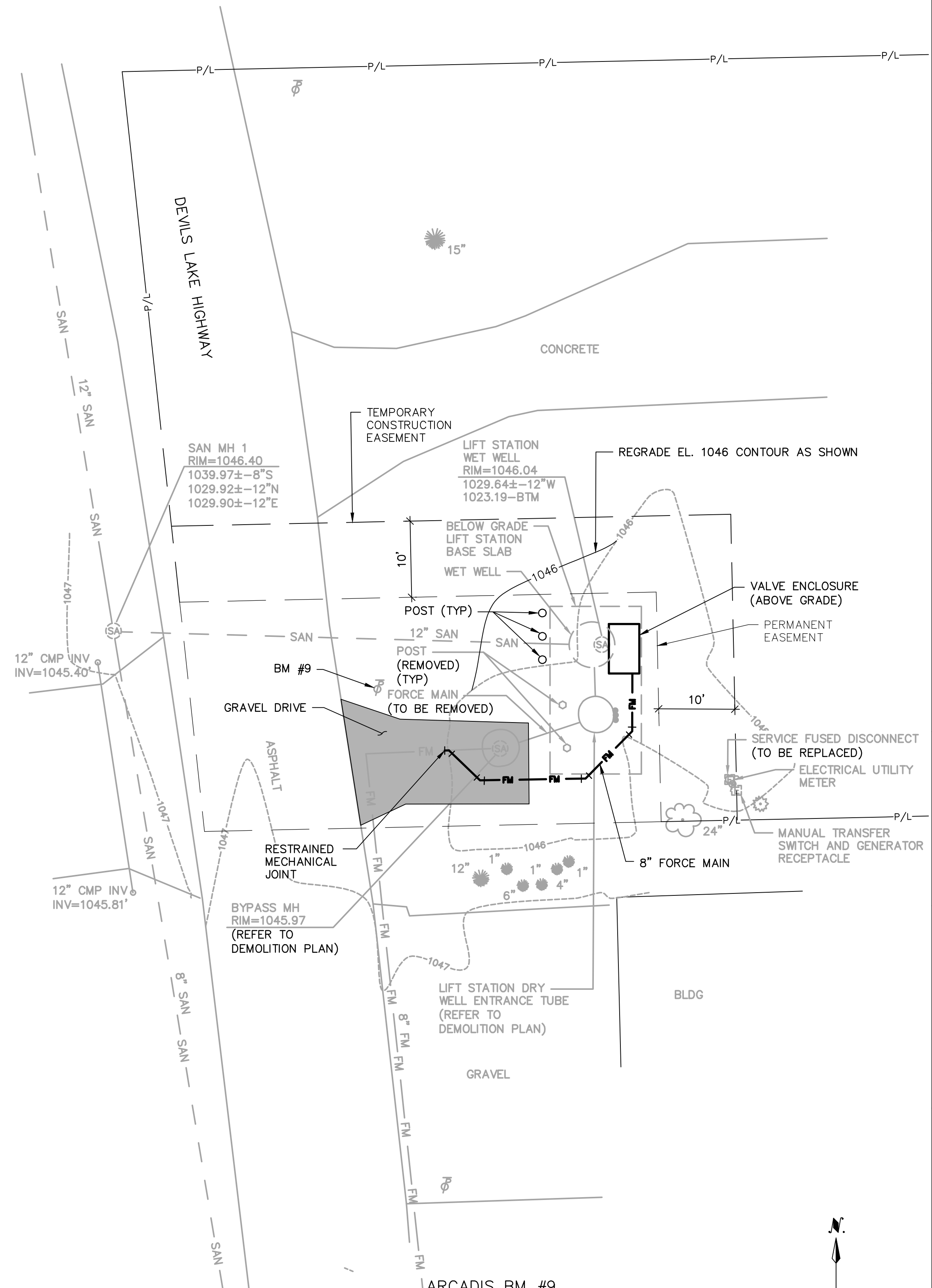
ARCADIS BM #8A
RIM OF SANITARY MANHOLE
E/S OF BEARDSSELL AVE,
45'± SOUTH OF LENAWEЕ ST.
EL. 1049.90

ARCADIS BM #8
NE CORNER OF CONCRETE PAD,
E/S OF BEARDSSELL AVE,
13'± SW OF PUMP STATION H
EL. 1049.91

STATION H

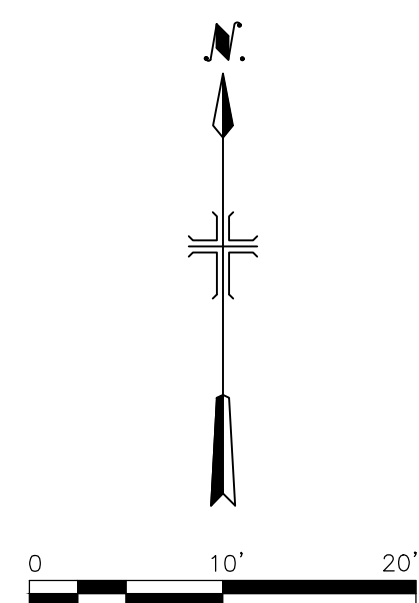
GENERAL NOTES:

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
3. EXISTING GENERATOR PAD TO BE REMOVED.
4. PROVIDE 3/4"C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEW LIFT STATION PUMP CONTROL PANEL FOR ATS EMERGENCY POWER POSITION INDICATION. UTILIZE EXISTING SPARE NORMALLY OPEN (NO) A3 CONTACT IN ATS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.



ARCADIS BM #9
SET PK W/S OF POWER/TELE POLE,
E/S OF DEVILS LAKE HWY,
AT PUMP STATION I
EL. 1046.64

STATION I



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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1	8/18/21	EGLE SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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2021

DATE:	SEPTEMBER 2021
PROJECT NO.:	30027906
FILE NAME:	H-I
DESIGNED BY:	K. CELIAN
DRAWN BY:	S. PITTMAN
CHECKED BY:	F. HARMSSEN

SHEET TITLE

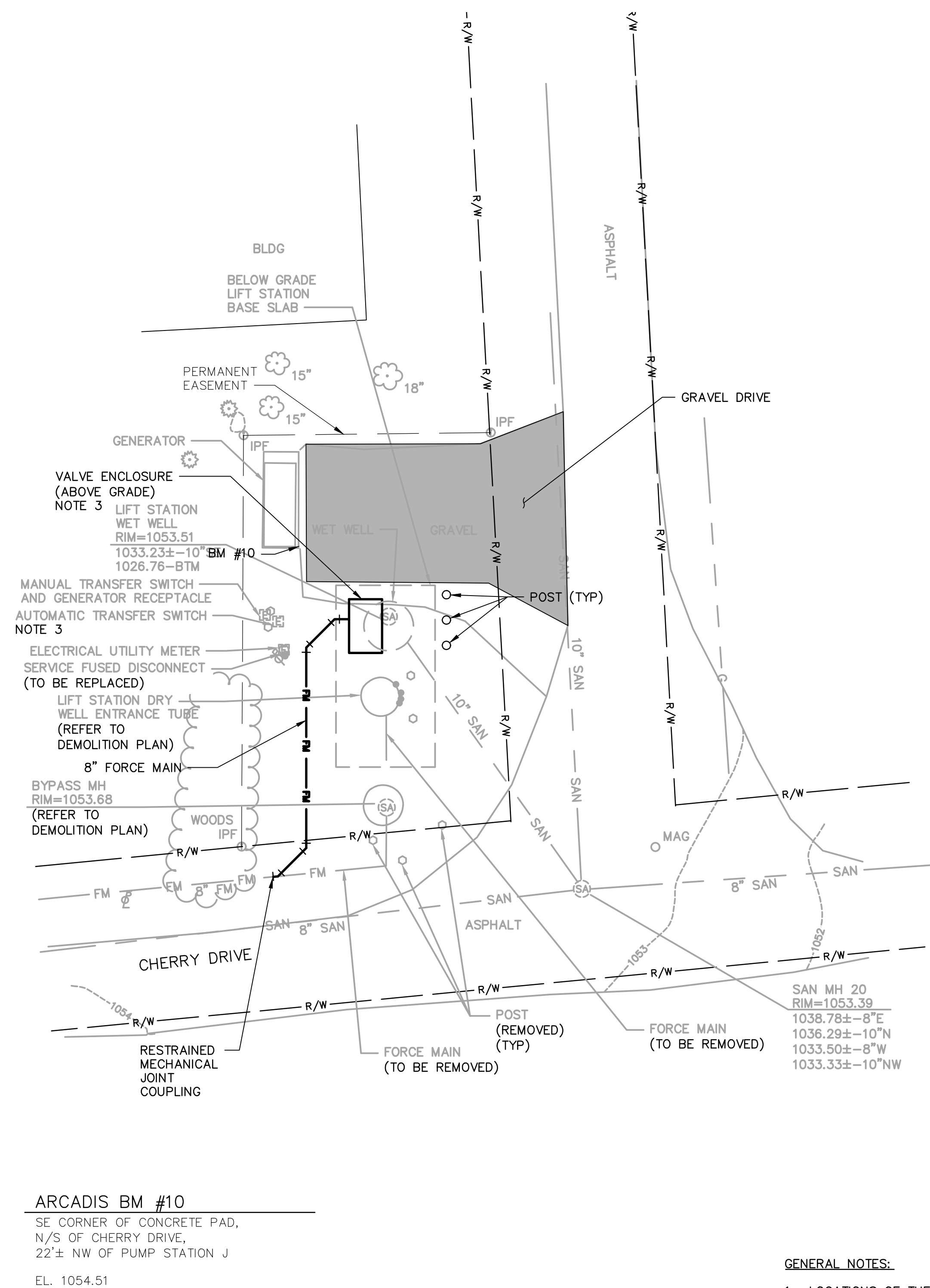
CIVIL

LIFT STATION H & I SITE PLAN

SCALE: AS SHOWN

C-5

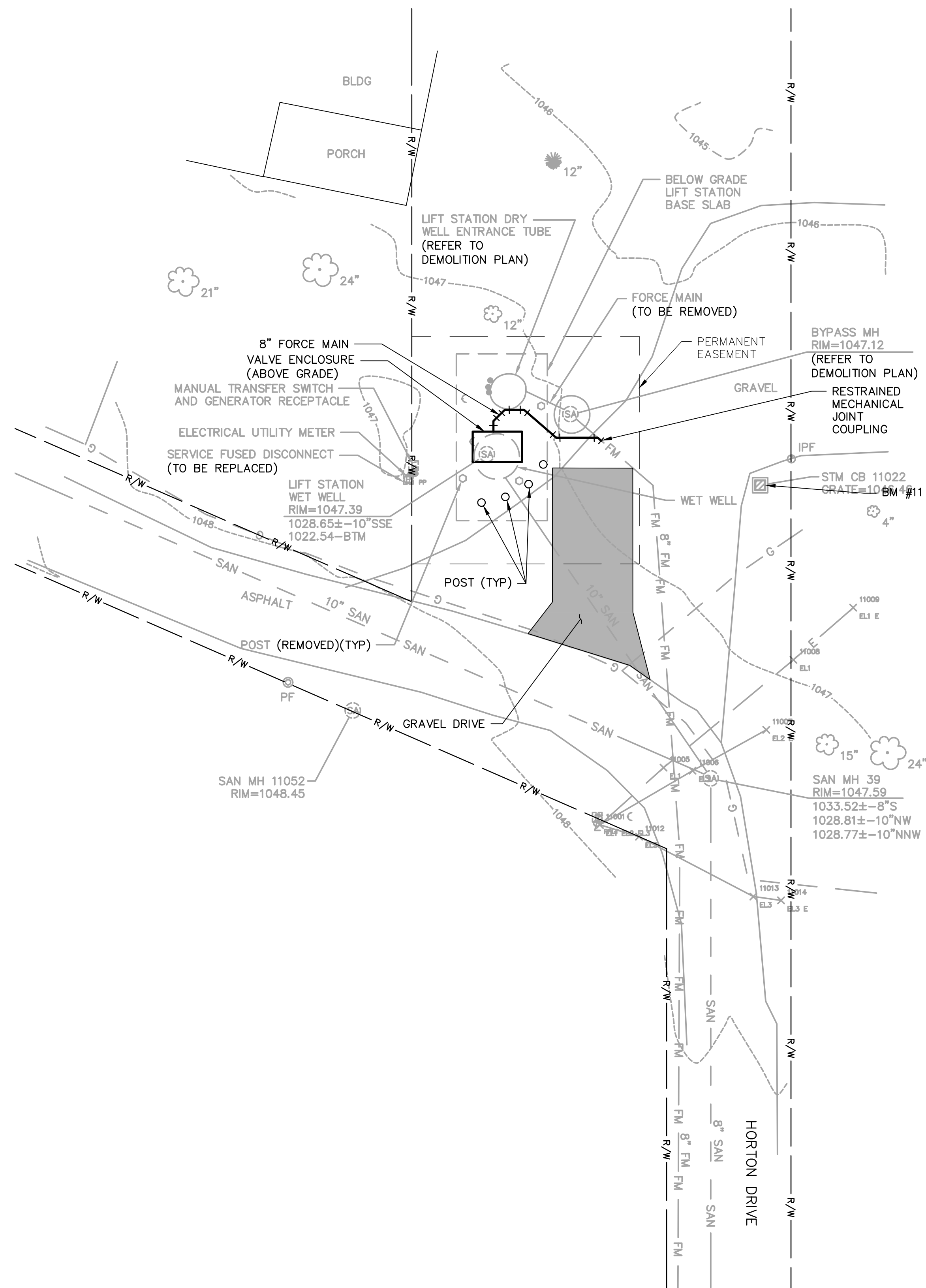
SHEET 7 OF 24



STATION J

GENERAL NOTES:

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
3. PROVIDE 3/4"C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEW LIFT STATION PUMP CONTROL PANEL FOR ATS EMERGENCY POWER POSITION INDICATION. UTILIZE EXISTING SPARE NORMALLY OPEN (NO) A3 CONTACT IN ATS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.

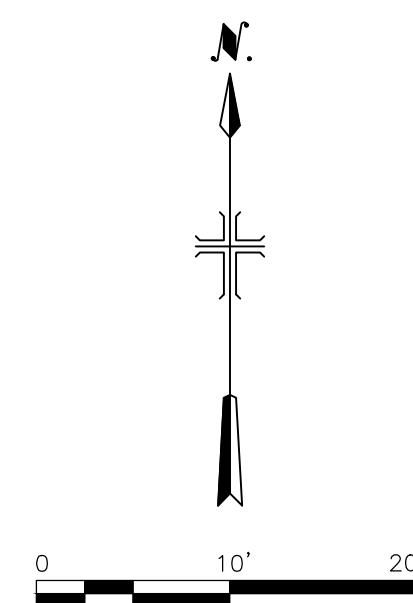


STATION K

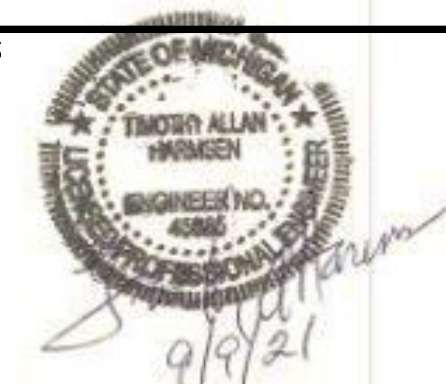
ARCADIS BM #11

USED RIM OF CATCH BASIN GRATE,
NORTH OF HORTON DRIVE CURVE,
29'± E OF PUMP STATION K

EL. 1046.46



CONSULTANTS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021

PROJECT NO.: 30027906

FILE NAME: J-K

DESIGNED BY: K. CELIAN

DRAWN BY: S. PITTMAN

CHECKED BY: L. HARMSE

SHEET TITLE

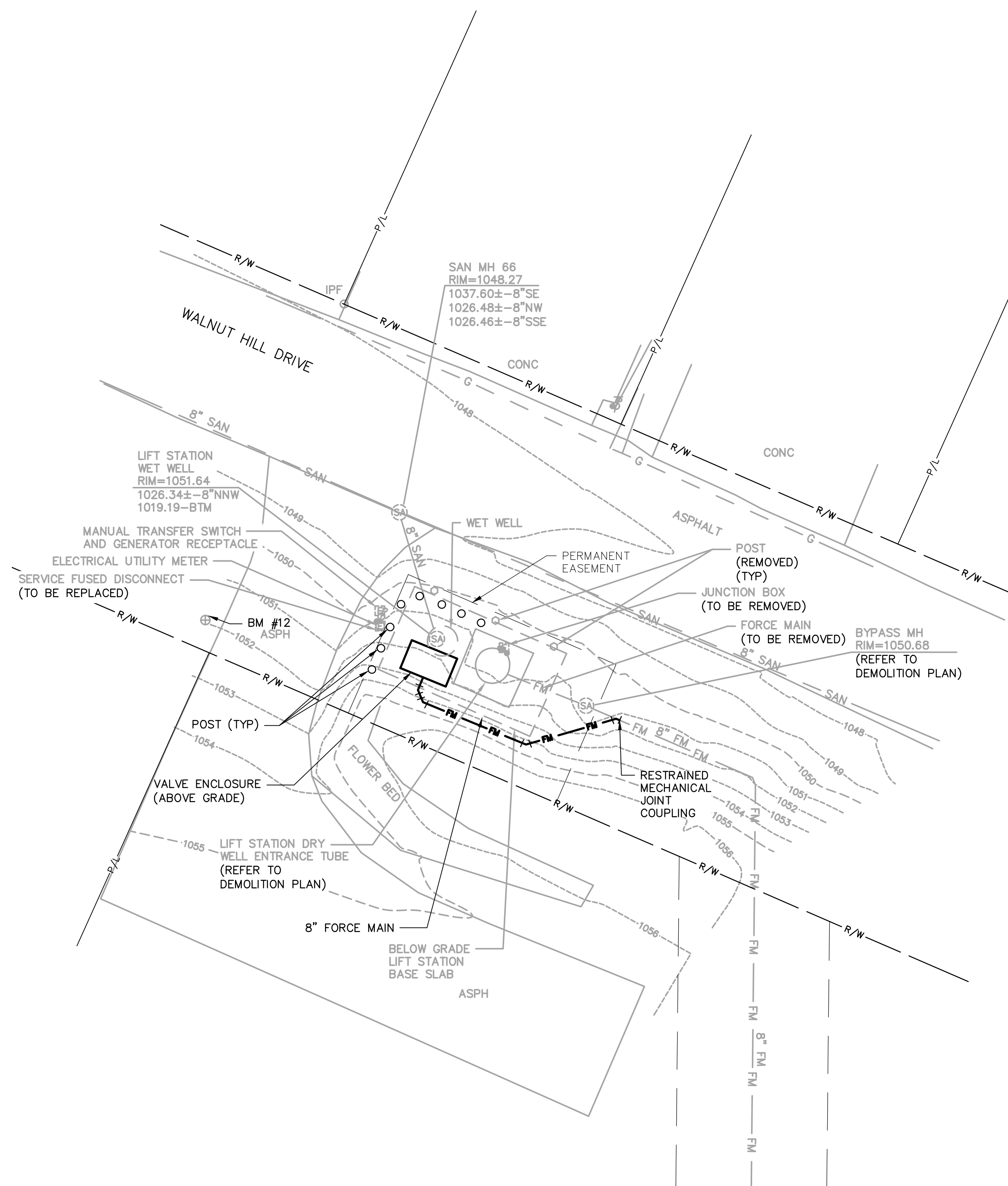
CIVIL

LIFT STATION J & K SITE PLAN

SCALE: AS SHOWN

C-6

SHEET 8 OF 24



ARCADIS BM #12

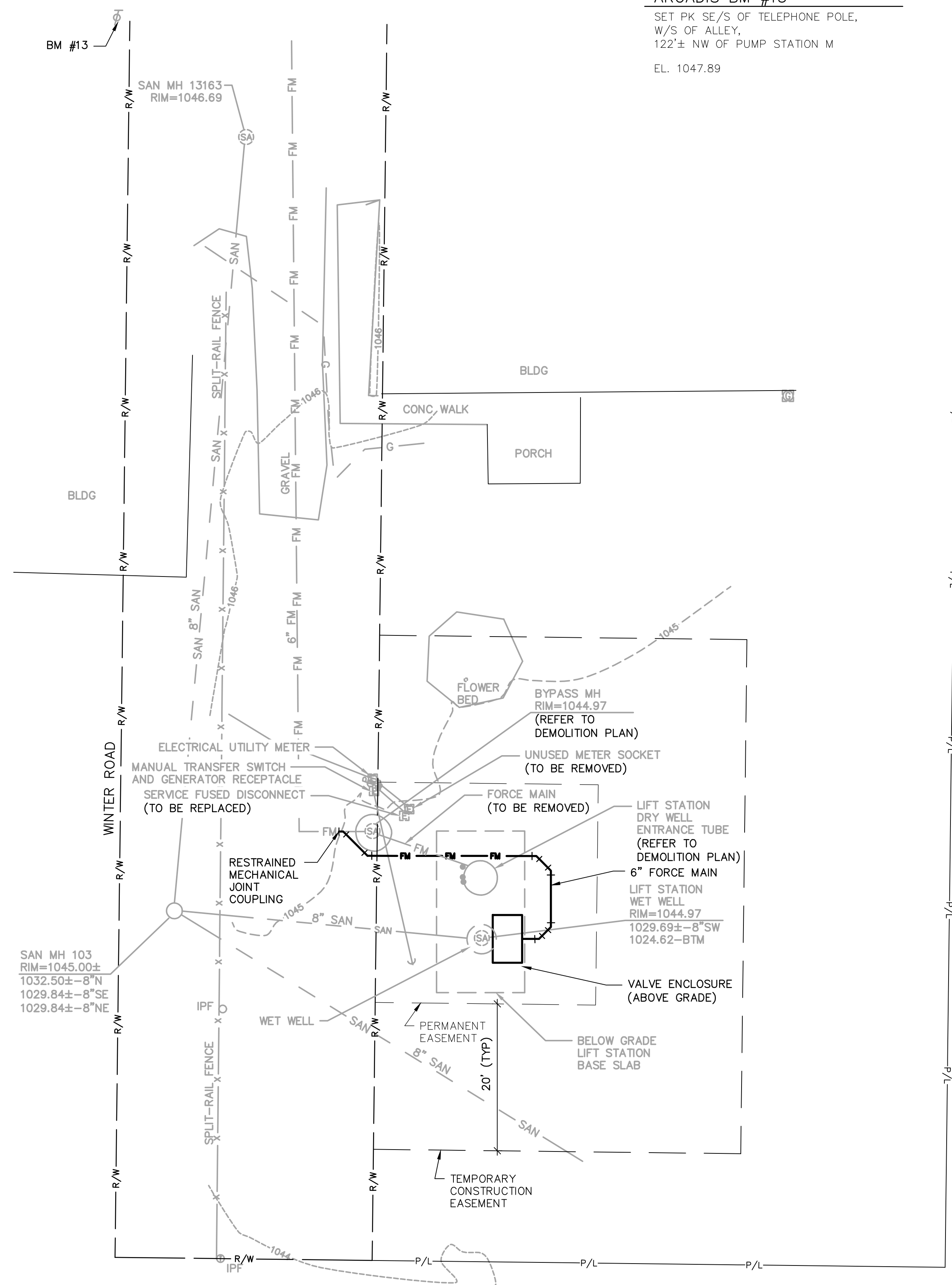
FD IP S/S OF WALNUT HILL DR,
38'± W OF PUMP STATION L

EL. 1052.27

STATION L

GENERAL NOTES:

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.

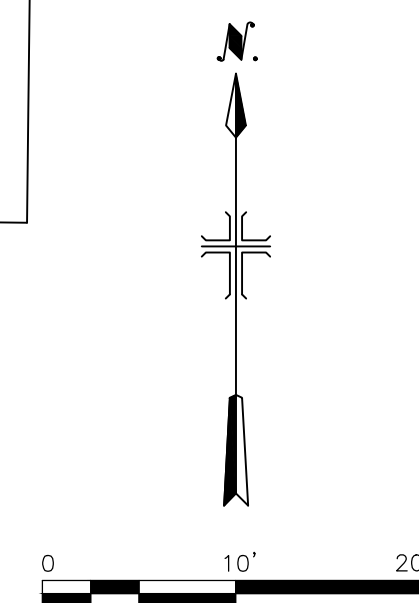


STATION M

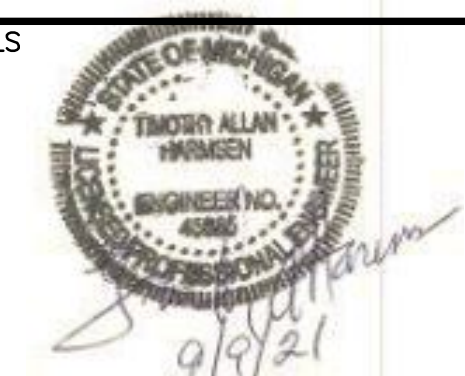
ARCADIS BM #13

SET PK SE/S OF TELEPHONE POLE,
W/S OF ALLEY,
122'± NW OF PUMP STATION M

EL. 1047.89



CONSULTANTS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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1	8/18/21	EGLE SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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2021

DATE: SEPTEMBER 2021

PROJECT NO.: 30027906

FILE NAME: L-M

DESIGNED BY: K. CELIAN

DRAWN BY: S. PITTMAN

CHECKED BY: T. HARMSEN

SHEET TITLE

CIVIL

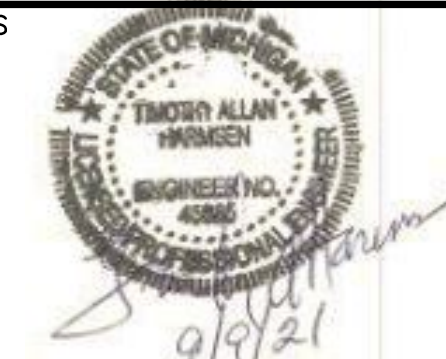
LIFT STATION L & M
SITE PLAN

SCALE: AS SHOWN

C-7

SHEET 9 OF 24

SEALS



ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL E SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

DATE:	SEPTEMBER 2021
PROJECT NO.:	30027906
FILE NAME:	N-1
DESIGNED BY:	K. CELIAN
DRAWN BY:	S. PITTMAN
CHECKED BY:	T. HARMSEN

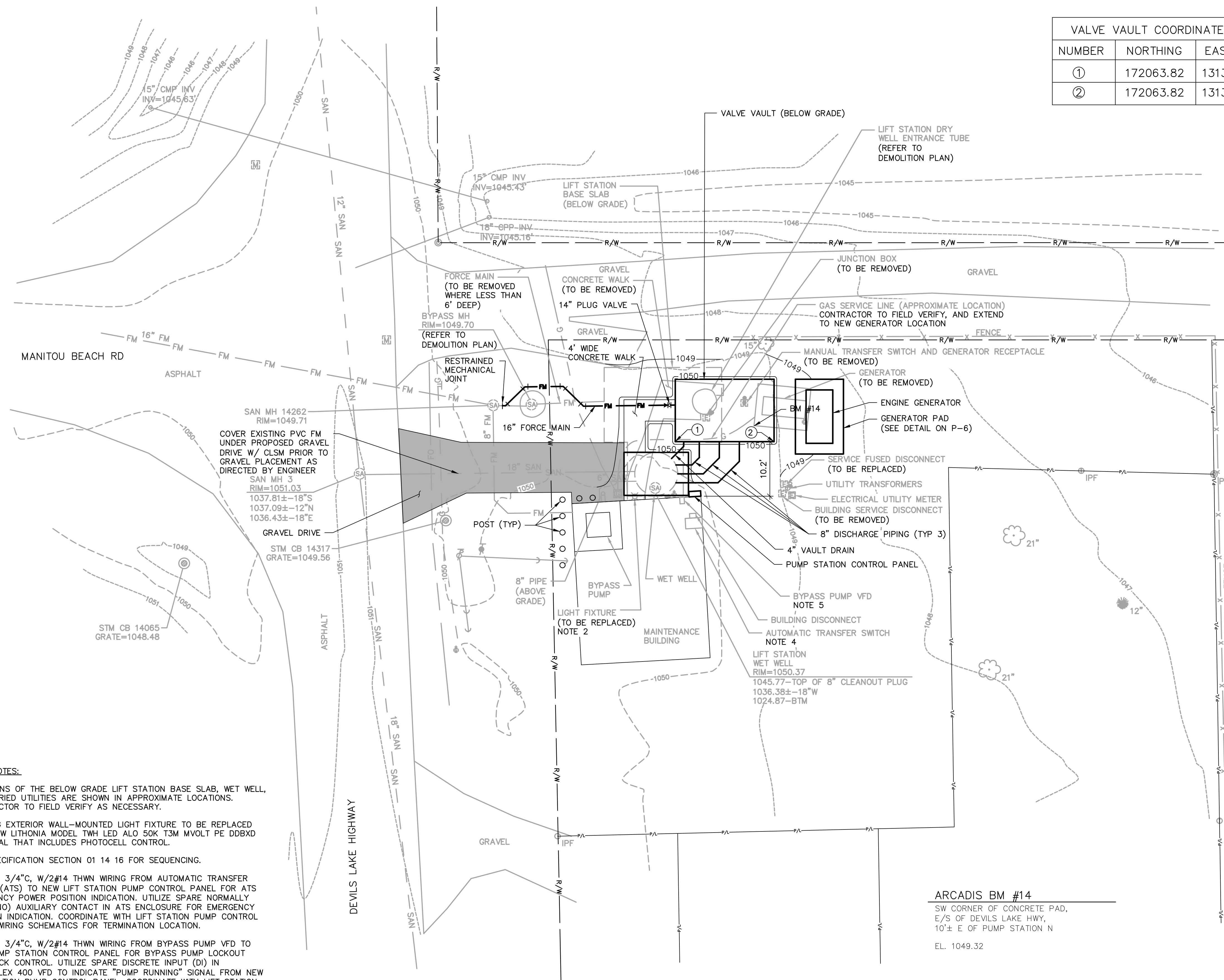
CIVIL

LIFT STATION N SITE PLAN

C-8

SHEET 10 OF 24

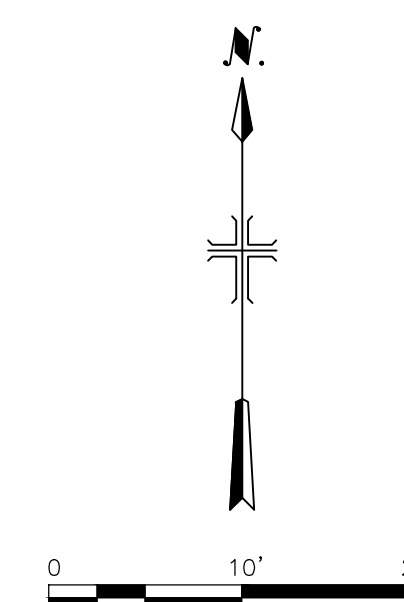
VALVE VAULT COORDINATE TABLE		
NUMBER	NORTHING	EASTING
①	172063.82	13138839.0
②	172063.82	13138857.5

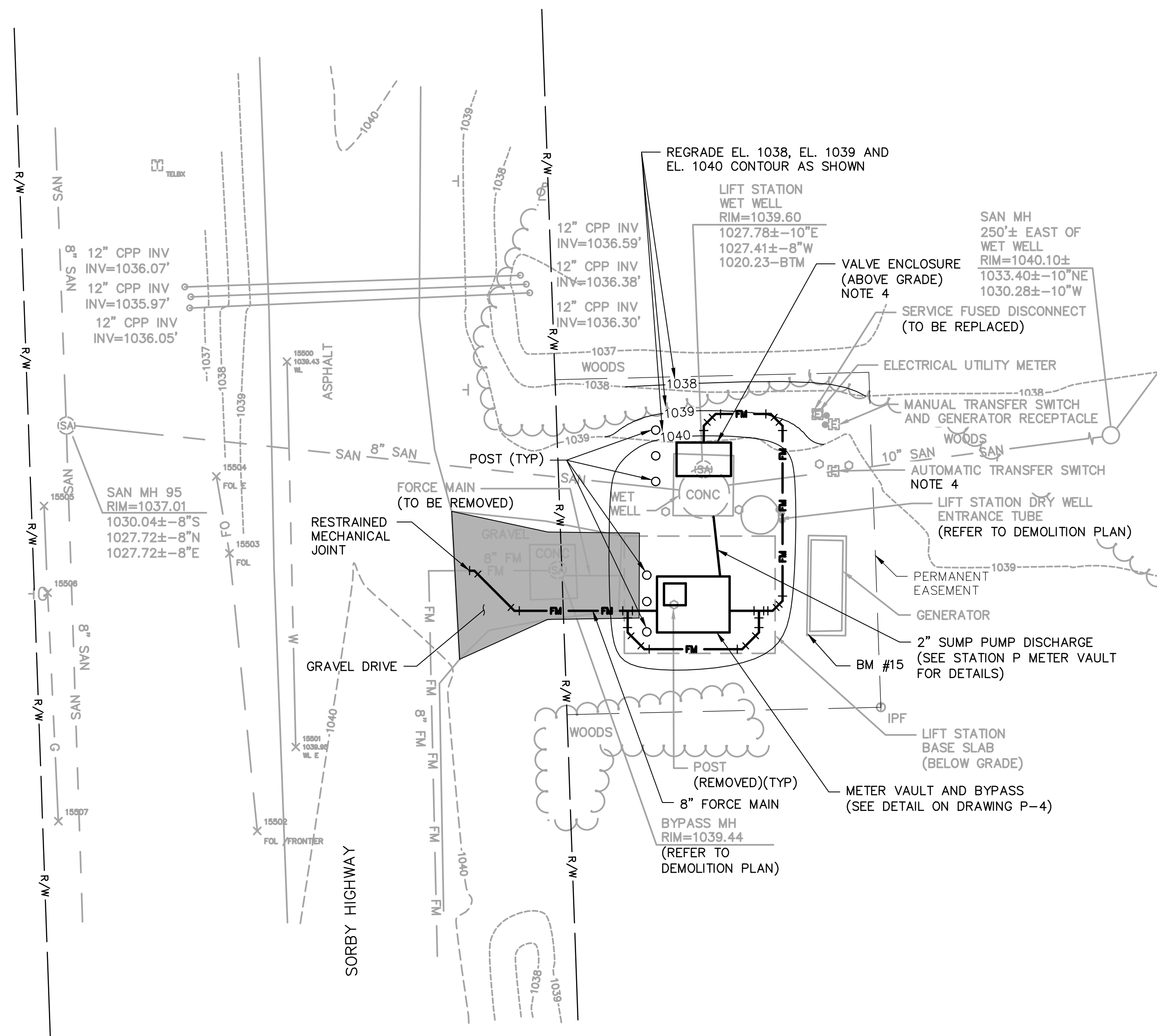


EL. 1049.32

1. LOCATIONS OF THE BELOW GRADE LIFT STATION SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. EXISTING EXTERIOR WALL-MOUNTED LIGHT FIXTURE TO BE REPLACED WITH NEW LITONIA MODEL TWH LED ALO 50K T3M MVOLT PE DBBXD OR EQUAL THAT INCLUDES PHOTOCCELL CONTROL.
3. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
4. PROVIDE 3/4"C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEW LIFT STATION PUMP CONTROL PANEL FOR ATS EMERGENCY POWER POSITION INDICATION. UTILIZE SPARE NORMALLY OPEN (NO) AUXILIARY CONTACT IN ATS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.
5. PROVIDE 3/4"C, W/2#14 THWN WIRING FROM BYPASS PUMP VFD TO NEW PUMP STATION CONTROL PANEL FOR BYPASS PUMP LOCKOUT INTERLOCK CONTROL. UTILIZE SPARE DISCRETE INPUT (DI) IN POWERFLEX 400 VFD TO INDICATE "PUMP RUNNING" SIGNAL FROM NEW LIFT STATION PUMP CONTROL PANEL. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.

STATION N



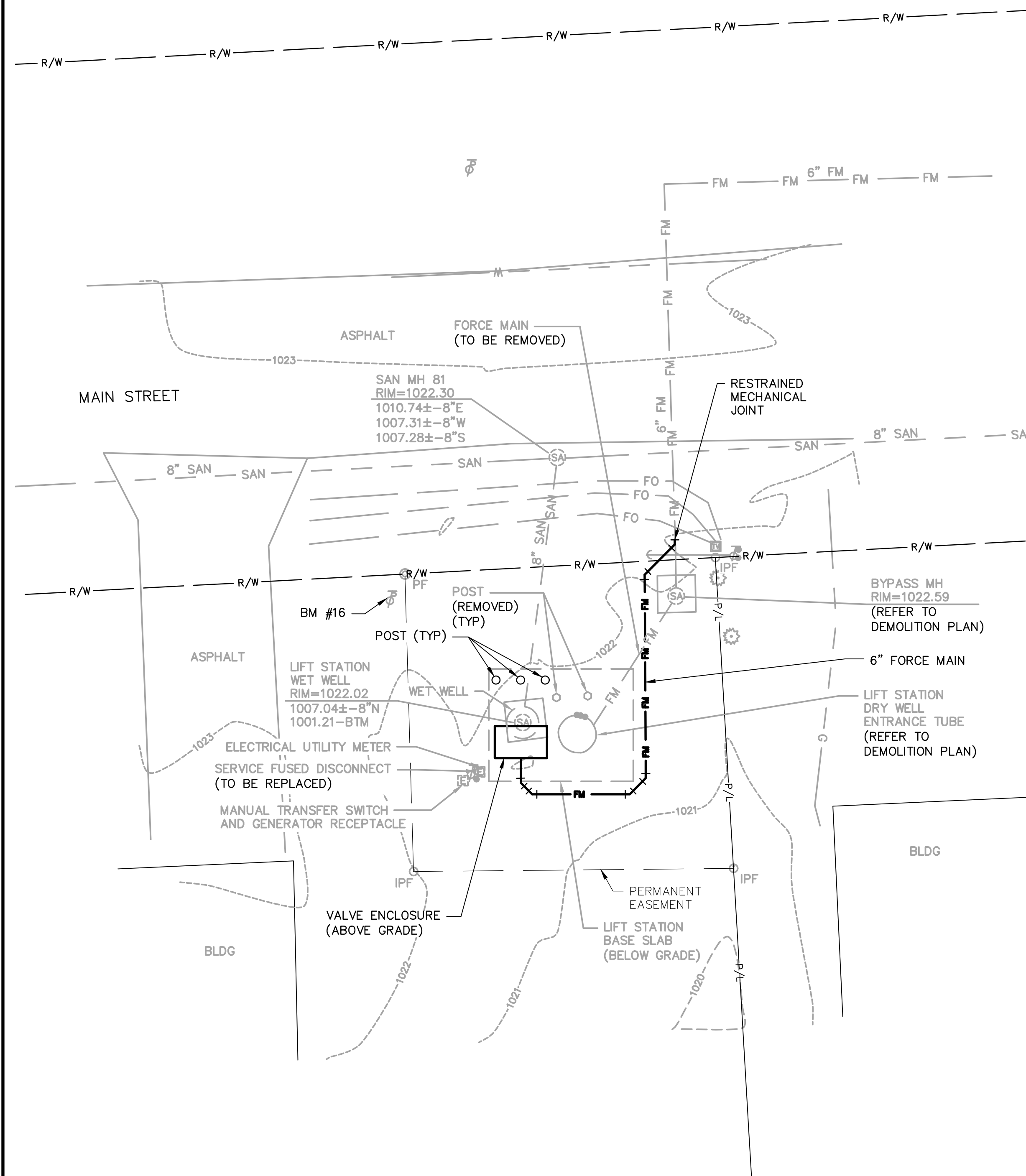


ARCADIS BM #15
SW CORNER OF CONCRETE PAD,
E/S OF SORBY HWY,
15'± SE OF PUMP STATION P
EL. 1041.01

STATION P

GENERAL NOTES:

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
3. PROVIDE 3/4" C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEARBY LIFT STATION PUMP CONTROL PANEL. FOR ATS EMERGENCY POWER POSITION INDICATION, UTILIZE EXISTING SPARE NORMALLY OPEN (NO) A3 CONTACT IN ITS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.

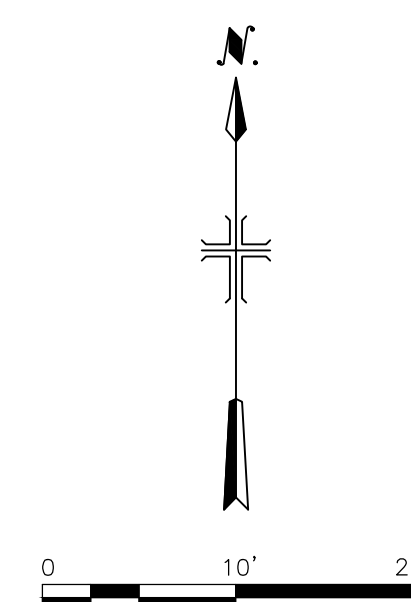


ARCADIS BM #16

SET PK NW/S OF POWER/TELE POLE,
S/S OF MAIN ST,
26'± NW OF PUMP STATION Q

EL. 1022.51

STATION Q



CONSULTANTS

LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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1	8/18/21	EGLE SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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2021

DATE:	SEPTEMBER 2021
PROJECT NO.:	30027906
FILE NAME:	P-Q
DESIGNED BY:	K. CELIAN
DRAWN BY:	S. PITTMAN
CHECKED BY:	T. HARMSSEN

SHEET TITLE

CIVIL

LIFT STATION P & Q
SITE PLAN

SCALE: AS SHOWN

C-9

SHEET 11 OF 24

SET PK SW/S OF POWER POLE,
W/S OF STEER ST.,
35'± NE OF PUMP STATION R

STATION R

1. LOCATIONS OF THE BELOW GRADE LIFT STATION BASE SLAB, WET WELL, AND BURIED UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY AS NECESSARY.
2. SEE SPECIFICATION SECTION 01 14 16 FOR SEQUENCING.
3. EXISTING GENERATOR PAD TO BE REMOVED.
4. PROVIDE 3/4" C, W/2#14 THWN WIRING FROM AUTOMATIC TRANSFER SWITCH (ATS) TO NEW LIFT STATION PUMP CONTROL PANEL FOR ATS EMERGENCY POWER POSITION INDICATION. UTILIZE EXISTING SPARE NORMALLY OPEN (NO) A3 CONTACT IN ATS ENCLOSURE FOR EMERGENCY POSITION INDICATION. COORDINATE WITH LIFT STATION PUMP CONTROL PANEL WIRING SCHEMATICS FOR TERMINATION LOCATION.

NE CORNER OF CONCRETE PAD,
S/S OF MASON ST.,
7'± S OF PUMP STATION S

STATION S

RIM OF SANITARY MANHOLE,
N/S OF MASON ST.,
75'± N OF PUMP STATION S

STATION S



SEALS



ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGLE SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

DATE: SEPTEMBER 2021

PROJECT NO.: 30027906

FILE NAME: R-S

DESIGNED BY: K. CELIAN

DRAWN BY: S. PITTMAN

CHECKED BY: T. HARMSEN

CIVIL

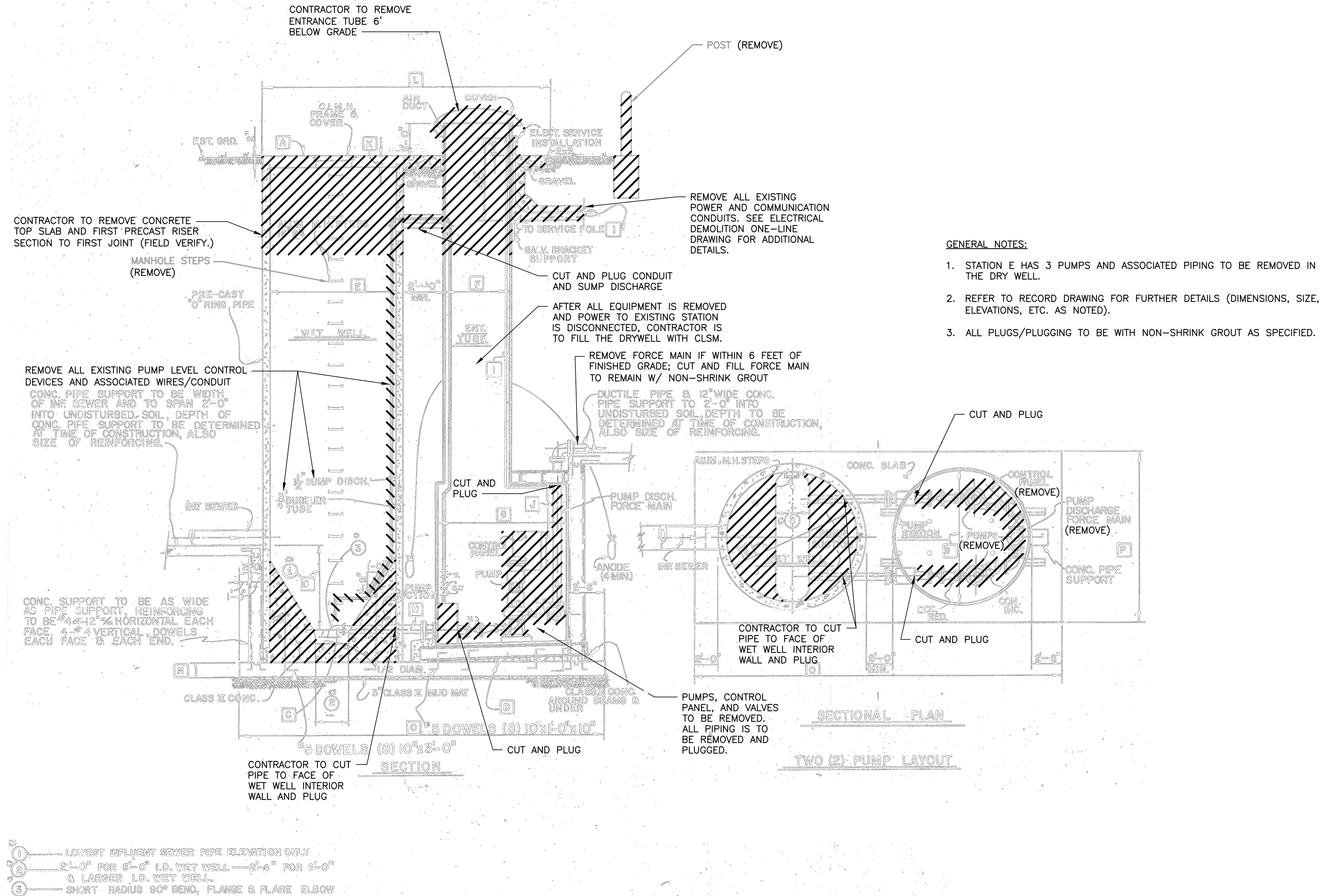
LIFT STATION R & S
SITE PLAN

SCALE: AS SHOWN

C-10

SHEET 12 OF 24

User:SPITTMAN Spec:AUS-NC5MOD File:C:\USERS\SPITTMAN\ARCADIS\LOC\ROLLINWOODSTOCK\UFT STA. IMPR - GENERAL\DRAWING\GENERAL\13-DEMO.DWG Scale:1:3/4 Saved:Date:9/7/2021 Time:10:23 Plot Date: Pittman, Steve, 9/8/2021, 07:40 Layout:13



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 13-DEMO
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

DEMOLITION

DEMOLITION PLAN FOR
LIFT STATIONS
A-G, I-M, Q-S

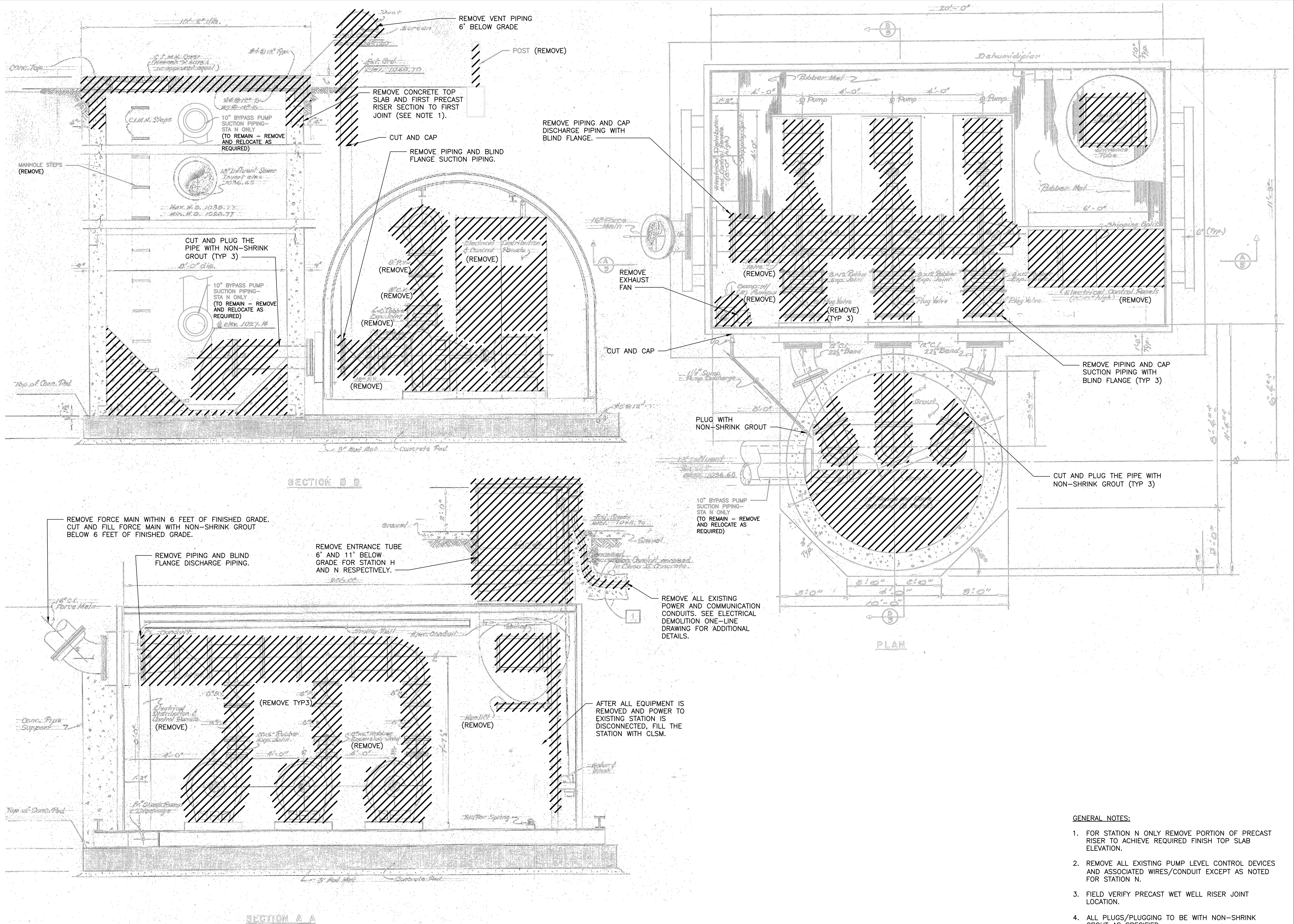
SCALE:

NOT TO SCALE

D-1

SHEET 13 OF 24

User: SPITTMAN Spec: AUS - NCSMOD File: C:\Users\SPITTMAN\ARCADIS\LCDR ROLLINWOODSTOCK LIFT STA IMPR - GENERAL DRAWING\GENERAL\14-DEMO.DWG Scale: 1:3/4 Saved: 9/7/2021 Time: 10:26 Plot Date: Pittman, Steve: 9/9/2021: 07:43 : Layout: 14



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

ARCADIS

CONSULTANTS

SEALS



LENAAEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

NO.	DATE	ISSUED FOR	BY
2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGLE SUBMITTAL	TAH

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 14-DEMO
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSSEN

SHEET TITLE

DEMOLITION

DEMOLITION PLAN FOR
LIFT STATIONS
H AND N

GENERAL NOTES:

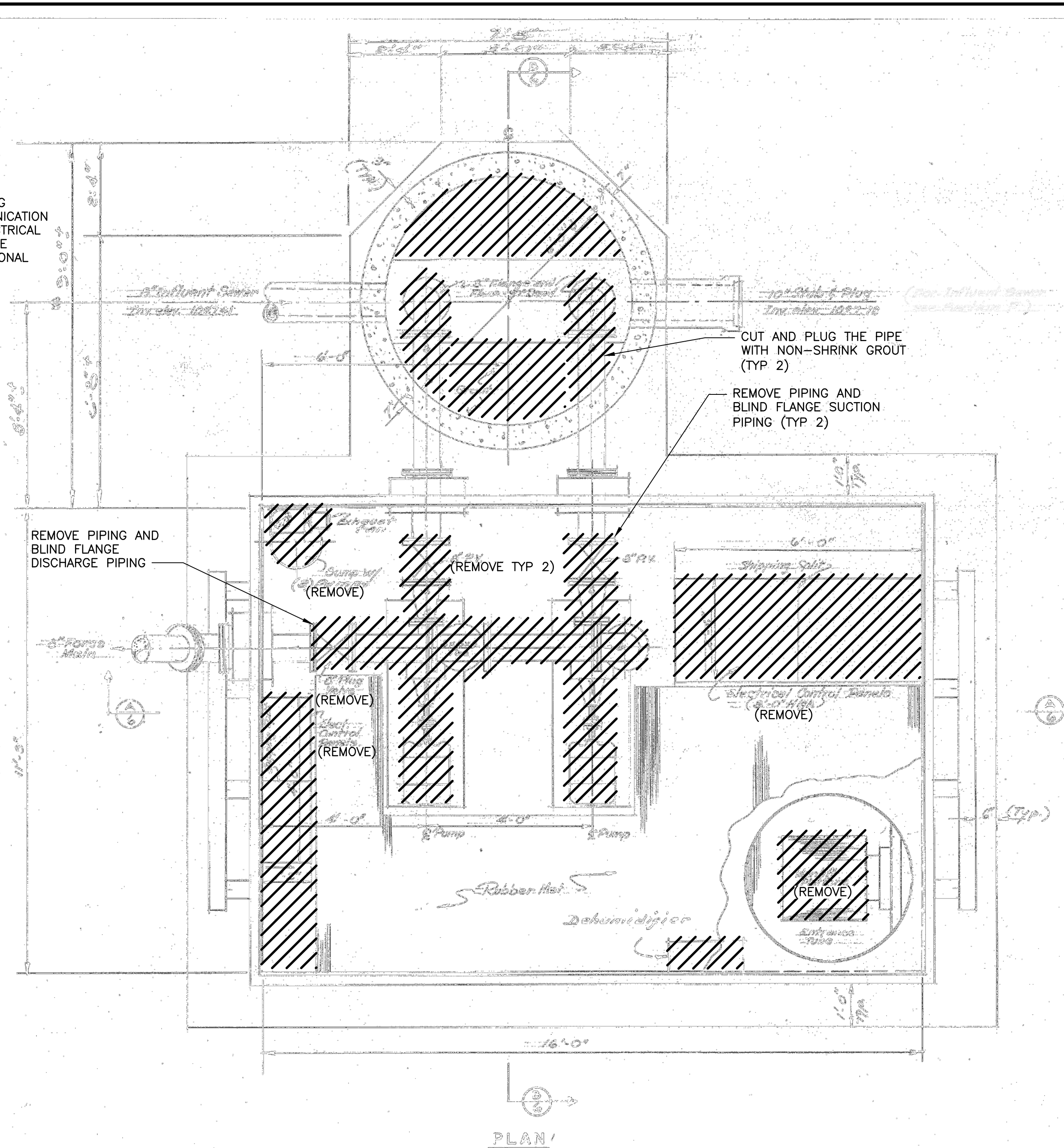
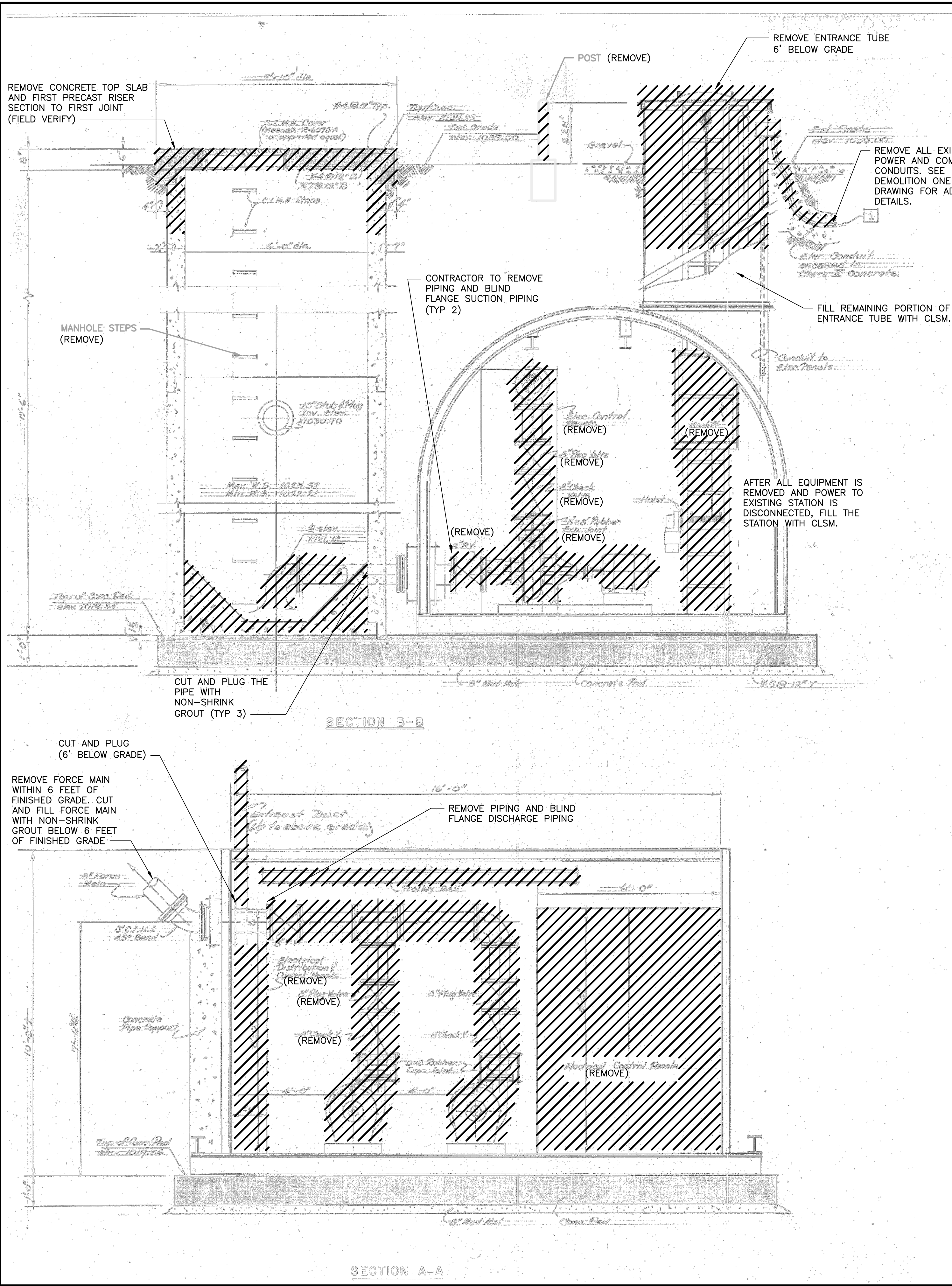
- FOR STATION N ONLY REMOVE PORTION OF PRECAST RISER TO ACHIEVE REQUIRED FINISH TOP SLAB ELEVATION.
- REMOVE ALL EXISTING PUMP LEVEL CONTROL DEVICES AND ASSOCIATED WIRES/CONDUIT EXCEPT AS NOTED FOR STATION N.
- FIELD VERIFY PRECAST WET WELL RISER JOINT LOCATION.
- ALL PLUGS/PLUGGING TO BE WITH NON-SHRINK GROUT AS SPECIFIED.

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

D-2

SHEET 14 OF 24

User:SPITMAN Spec:AUS-NC500D File:C:\USERS\SPITMAN\ARCADIS\LOC\ROLLINWOODSTOCK LIFT STA. IMPR - GENERAL\DRAWING\GENERAL\15-DEMO.DWG Scale:1:3/4 Saved:9/7/2021 10:28 Plot Date: Pittman, Steve, 9/8/2021 07:45 Layout:15



GENERAL NOTES:

1. ALL PLUGS/PLUGGING TO BE WITH NON-SHRINK GROUT AS SPECIFIED.
2. REMOVE ALL EXISTING PUMP LEVEL CONTROL DEVICES AND ASSOCIATED WIRES/CONDUIT.

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



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LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

NO.	DATE	ISSUED FOR	BY
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1	8/18/21	EGL SUBMITTAL	TAH

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 15-DEMO
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

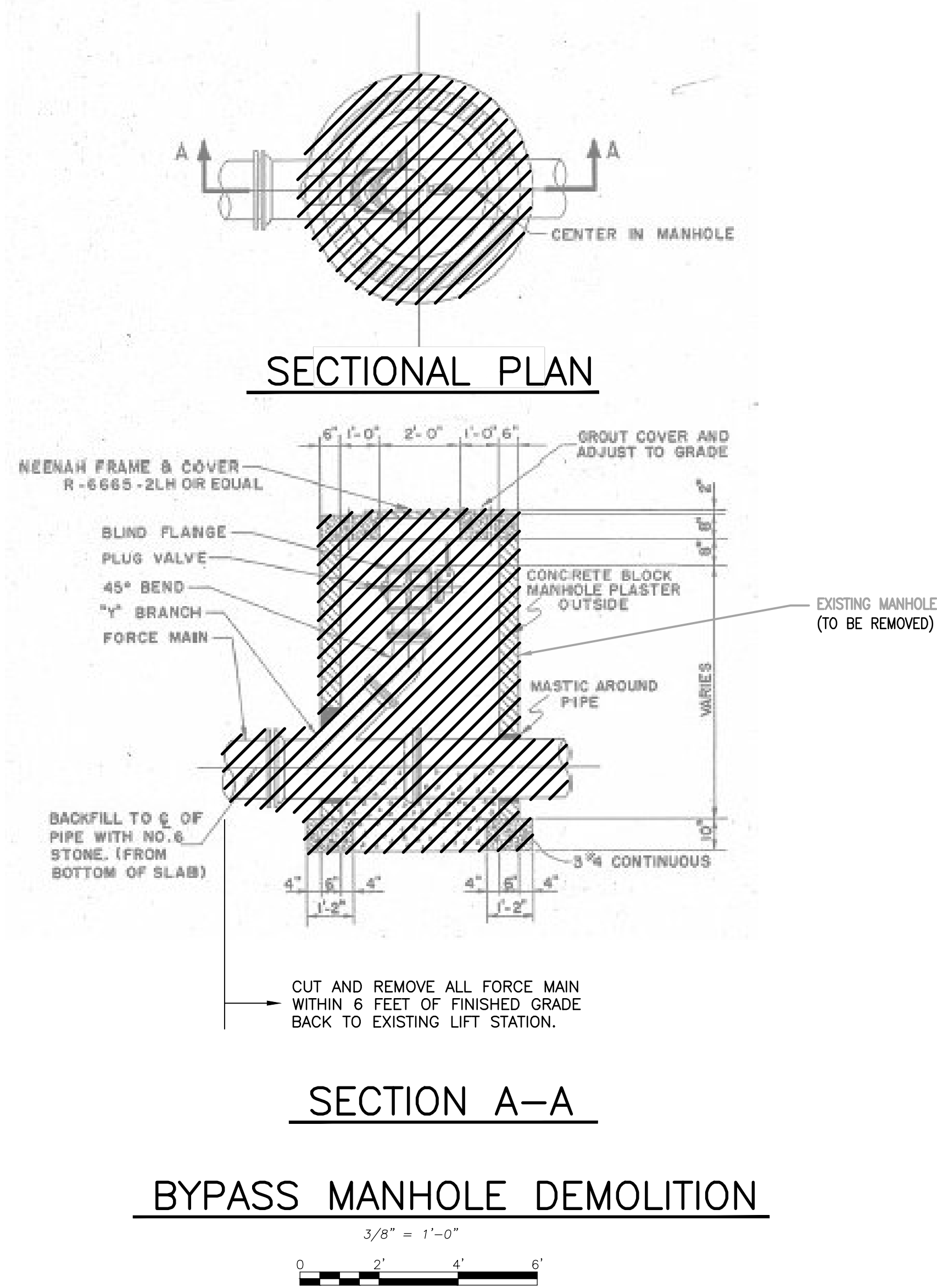
DEMOLITION

DEMOLITION PLAN FOR
LIFT STATION P

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

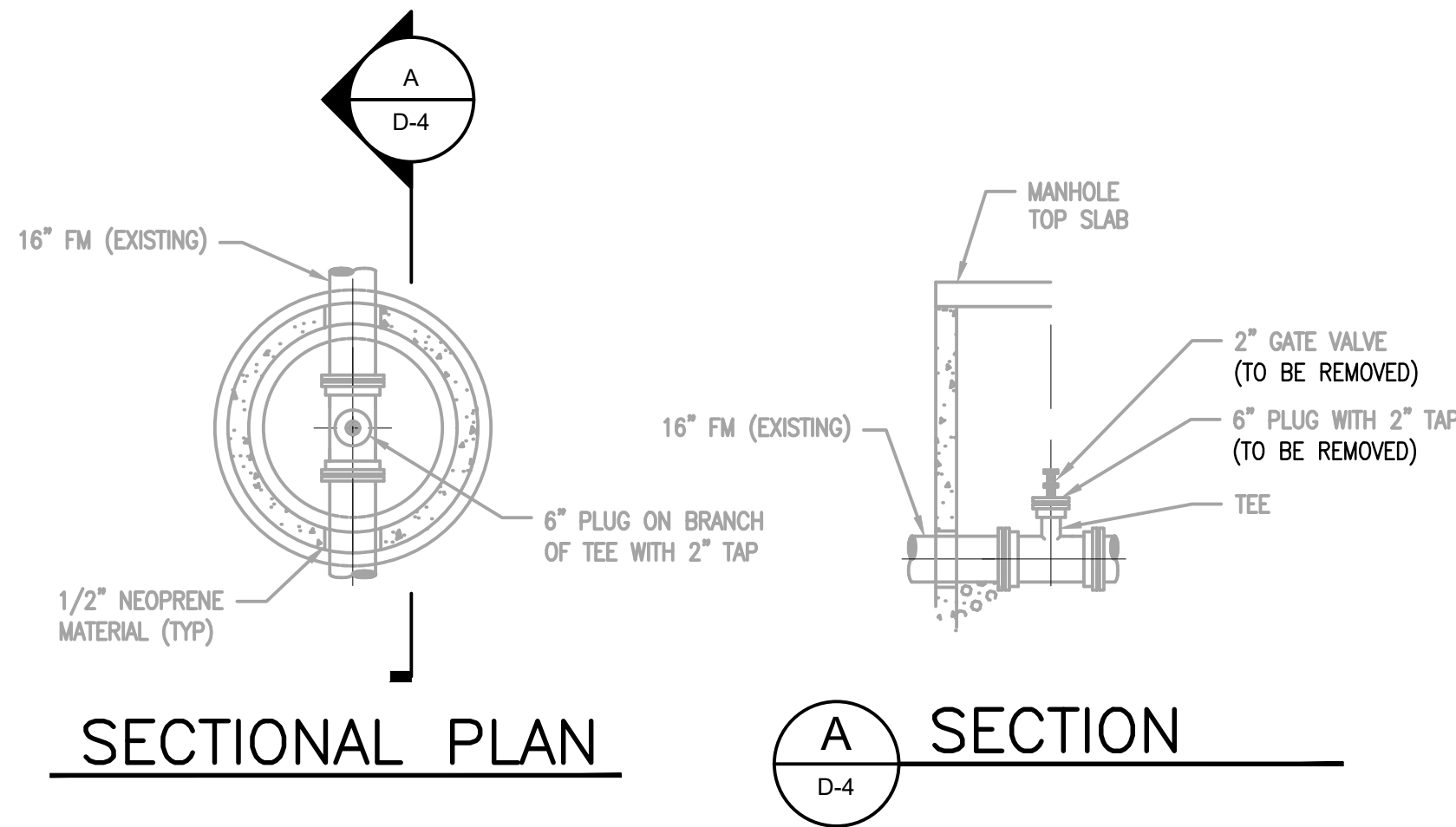
D-3

SHEET 15 OF 24



GENERAL NOTES:

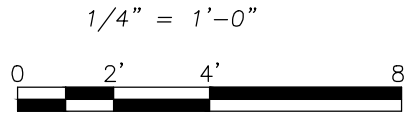
1. CONTRACTOR TO COORDINATE BYPASS MANHOLE REMOVAL WITH OWNER. SEE SPECIFICATION SECTION XXXXX COORDINATION WITH OWNERS OPERATION.



NOTE:

1. CONTRACTOR TO VERIFY TEE DIMENSIONS.

EXISTING AIR RELEASE VALVE IN MANHOLE DEMOLITION DETAIL



LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

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1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 16-DEMO BYPASS MH
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

DEMOLITION

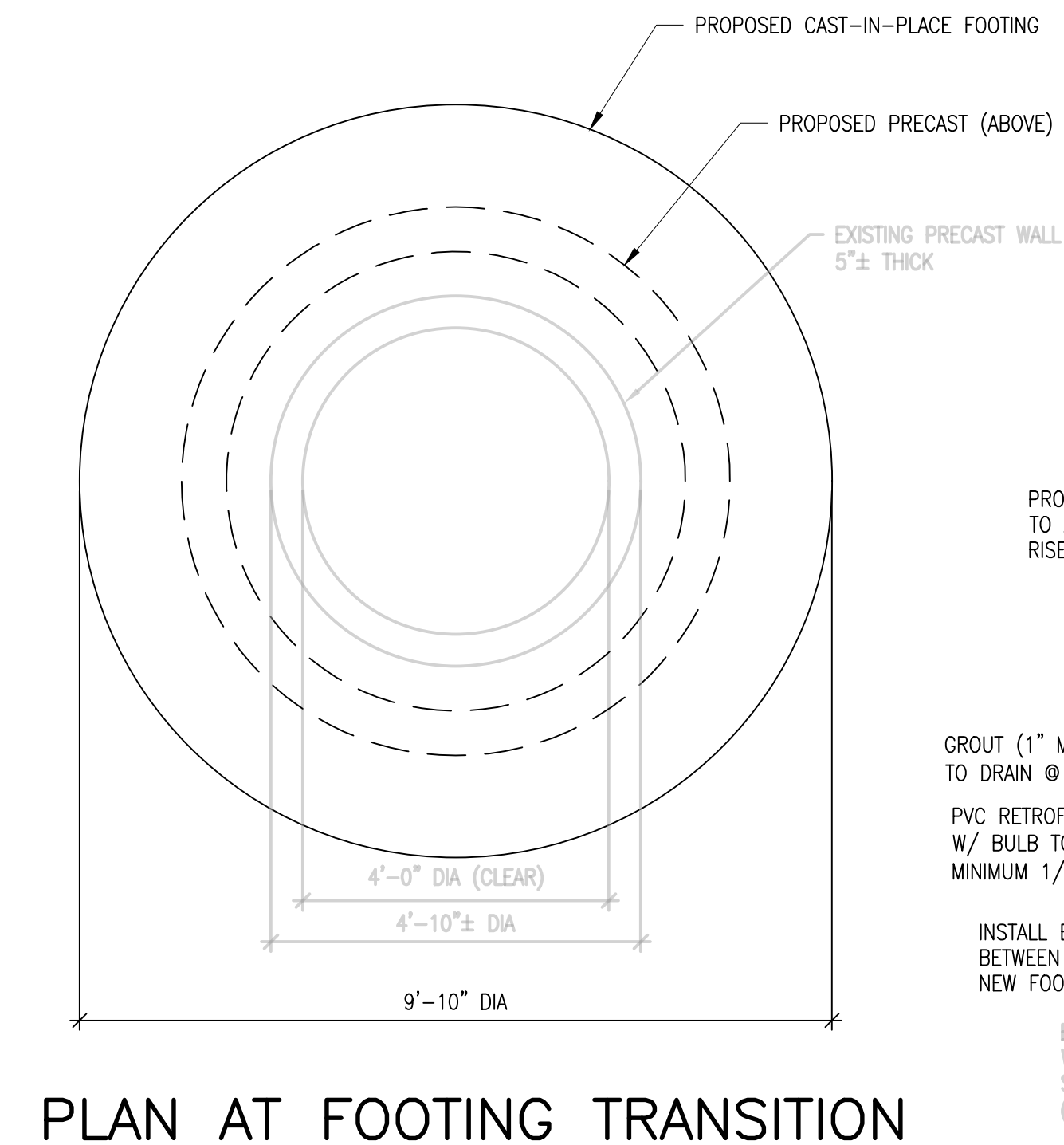
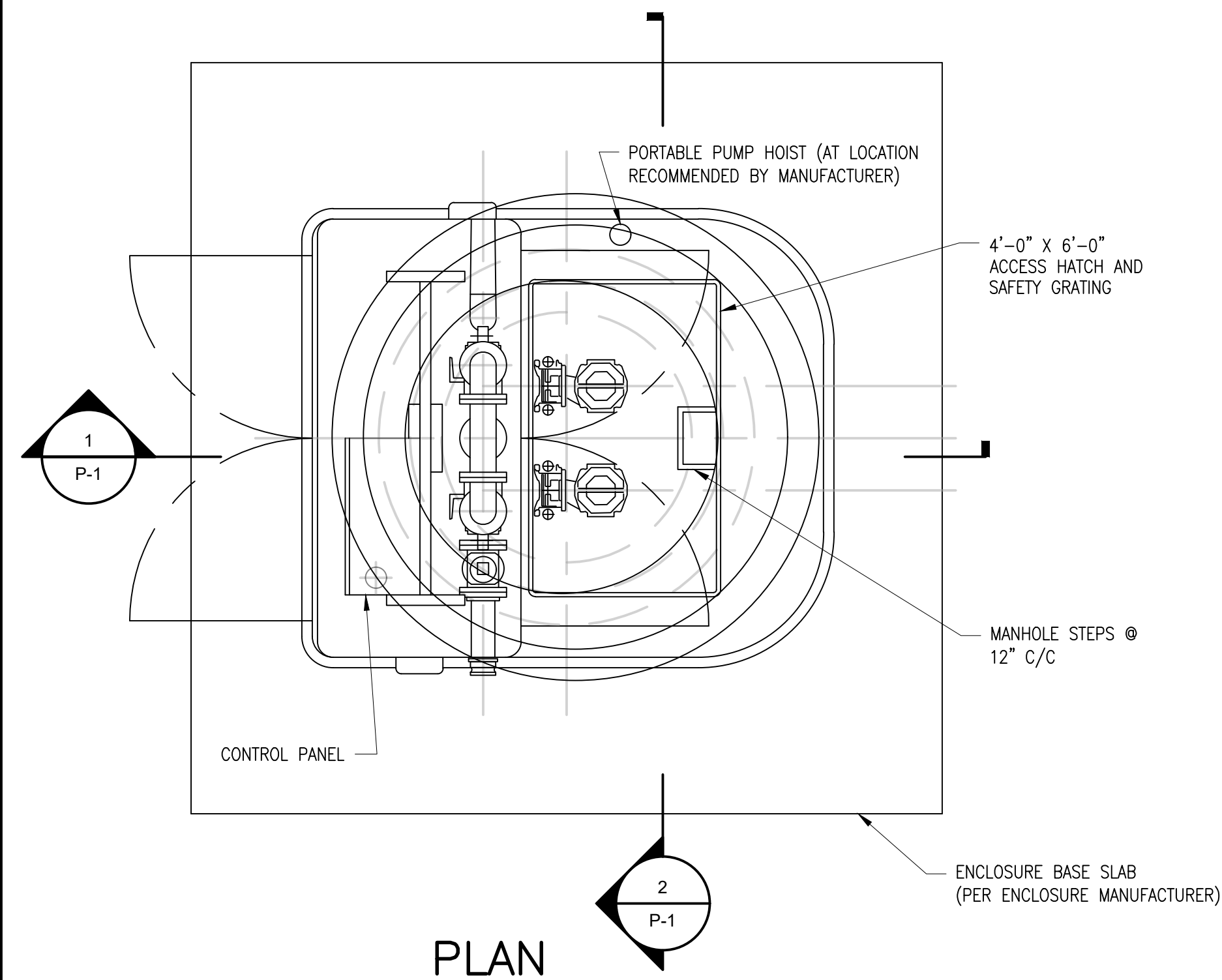
DEMOLITION PLAN FOR
BYPASS MANHOLE AND
AIR RELEASE VALVE IN
MANHOLE

SCALE:

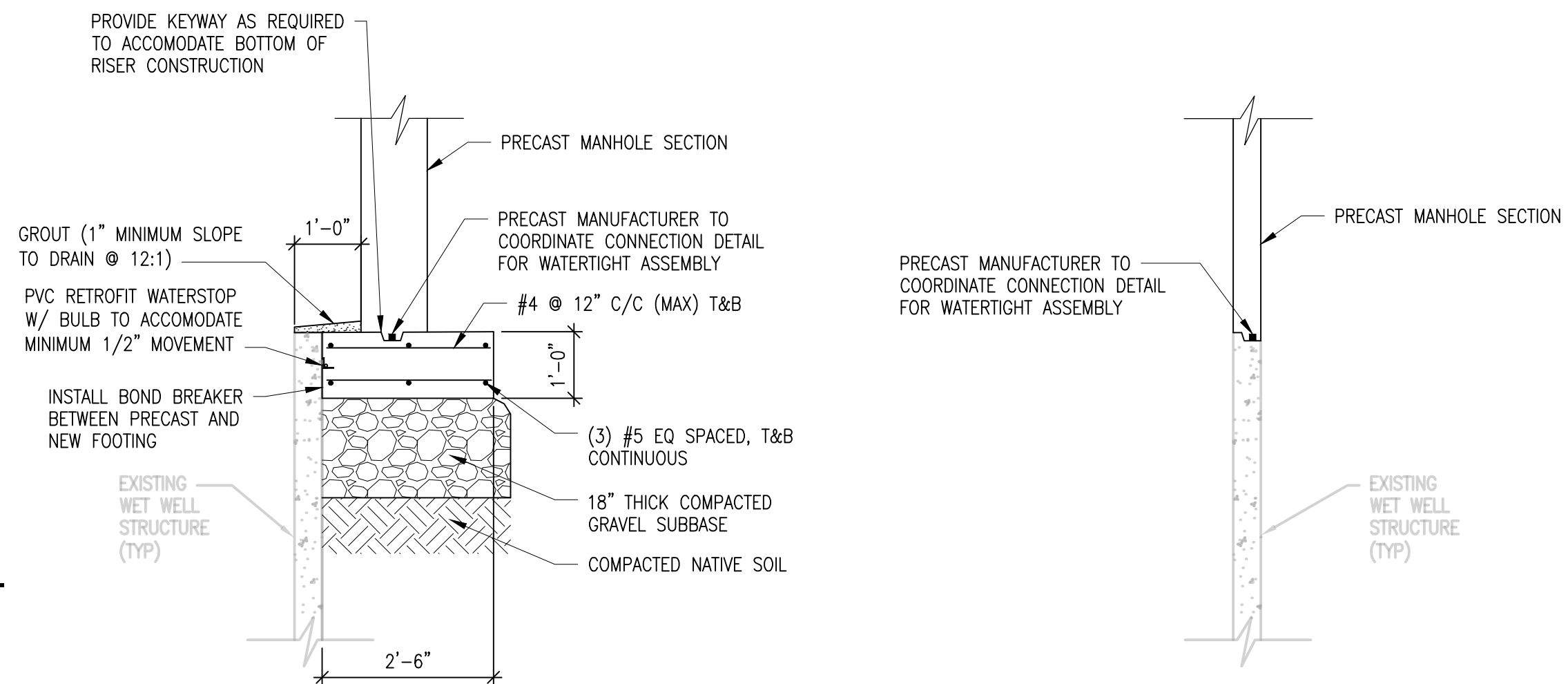
AS NOTED

D-4

SHEET 16 OF 24



	Elevations				Wet Well Dimensions		Pipe Sizes		Pumps			Valves	Bypass Suction Pipe Size	
Lift Station	A	B	C (1)	C (2)	D	E	F	G	H	No.	Flow	TDH	Size	I
A	1050.56	1031.26		-	1045.06	4'-0"	6'-0"	4"	6"	2	200	42	4"	4"
B	1049.12	1020.82	1027.30	-	1043.62	4'-0"	6'-0"	4"	6"	2	320	54	4"	4"
C	1045.57	1024.36	1029.85	-	1040.67	6'-0"	6'-0"	6"	8"	2	500	30	4"	6"
D	1046.39	1025.89	1032.28	-	1040.89	6'-0"	6'-0"	6"	8"	2	700	18	6"	6"
F	1045.31	1028.11	1033.31	-	1039.81	4'-0"	6'-0"	4"	6"	2	215	14	4"	4"
G	1048.16	1018.56	1025.76	1025.96	1042.66	4'-0"	6'-0"	4"	8"	2	380	43	4"	4"
I	1046.71	1023.19	1029.64	-	1041.21	6'-0"	6'-0"	6"	8"	2	740	53	6"	6"
J	1053.51	1026.76	1033.23	-	1048.01	6'-0"	6'-0"	4"	8"	2	640	63	4"	6"
K	1047.39	1022.54	1028.56	-	1041.89	6'-0"	6'-0"	6"	8"	2	520	31	6"	6"
L	1051.64	1019.19	1026.34	-	1046.14	4'-0"	6'-0"	4"	8"	2	380	67	4"	4"
M	1044.97	1024.62	1029.69	-	1039.47	4'-0"	6'-0"	4"	6"	2	200	34	4"	4"
P	1040.60	1020.23	1027.41	1027.78	1035.1	6'-0"	6'-0"	6"	8"	2	700	50	6"	6"
Q	1022.02	1001.21	1007.04	-	1016.52	4'-0"	6'-0"	4"	6"	2	200	45	4"	4"
R	1018.05	999.00	1005.75	-	1012.55	4'-0"	6'-0"	4"	6"	2	310	63	4"	4"
S	1026.26	997.86	1003.13	-	1020.76	4'-0"	6'-0"	4"	6"	2	370	73	4"	4"



TRANSITION TYPE 1
CAST-IN-PLACE DETAIL

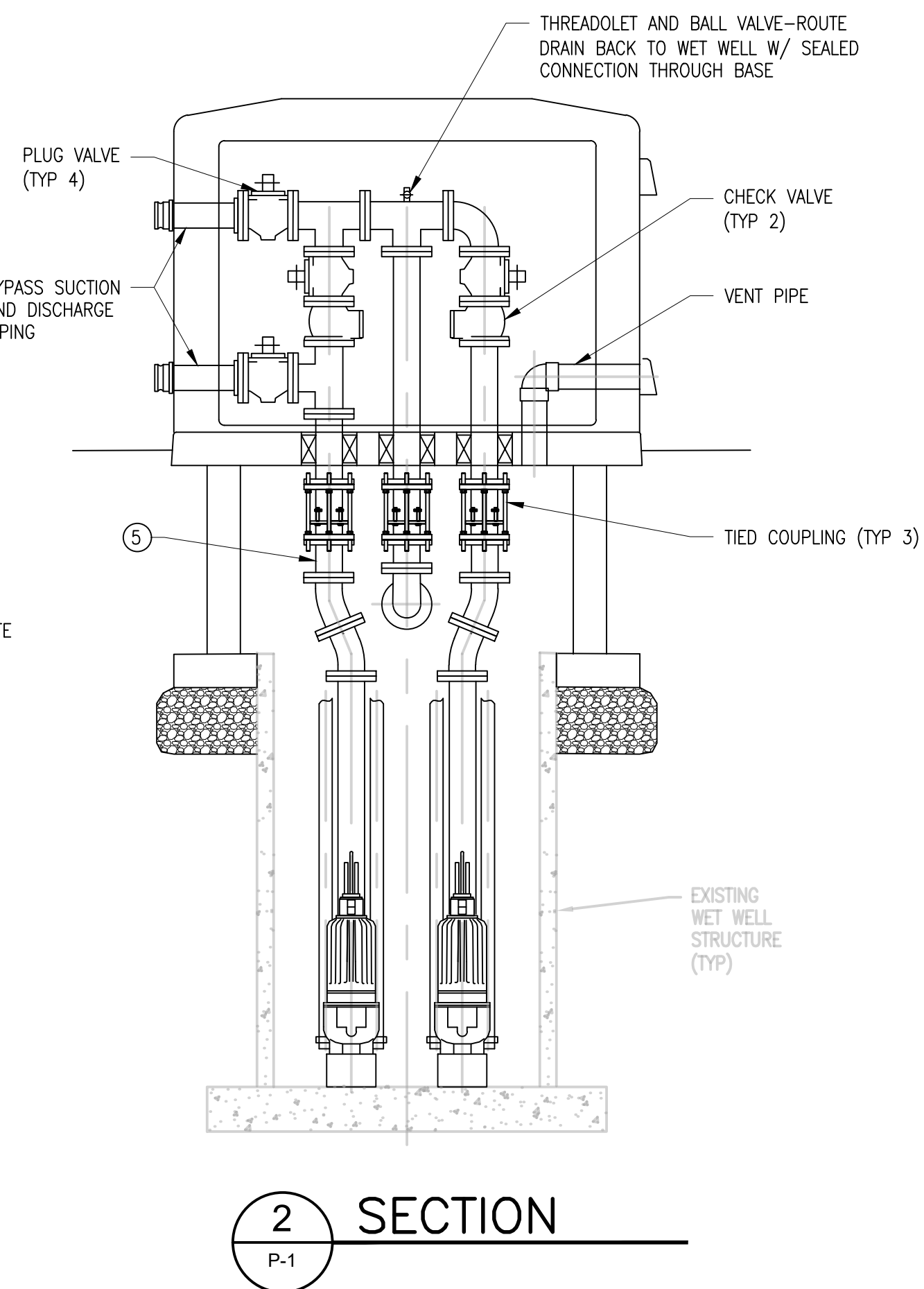
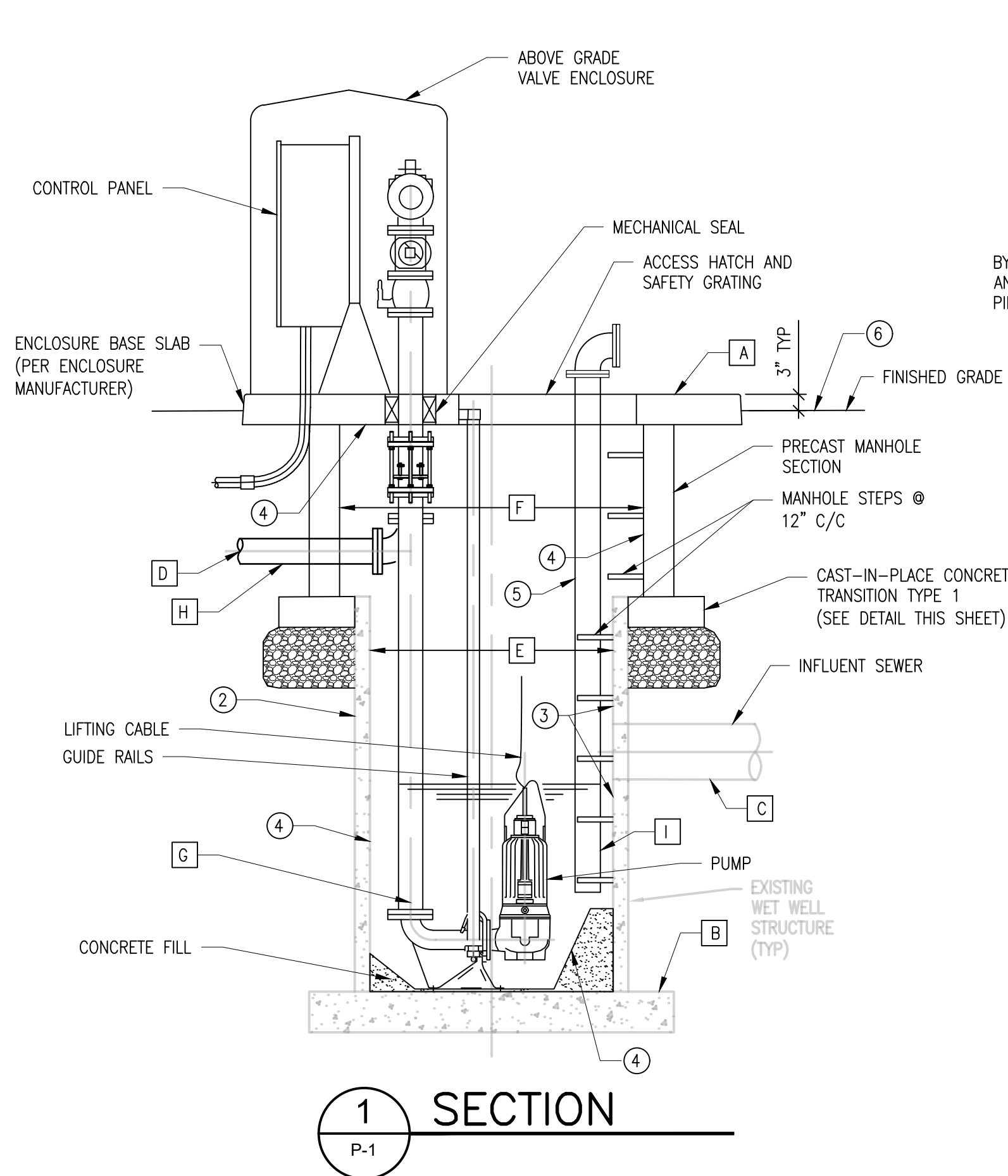
NOTE:

DETAIL TYPICAL FOR LIFT STATIONS
A, B, F, G, L, M, Q, R, & S.

TRANSITION TYPE 2 CAST-IN-PLACE DETAIL

NOTE:

DETAIL TYPICAL FOR LIFT STATIONS
C, D, I, J, K, & P.



1 SECTION
P-1

2 SECTION
P-1

LIFT STATION DETAILS

NOT TO SCALE

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS



SEALS



LENAAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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2021

DATE: SEPTEMBER 2021

PROJECT NO.: 30027906


FILE NAME: 17-LIFT STA-DUPLEX

DESIGNED BY: K. CELIAN

DRAWN BY: S. PITTMAN

CHECKED BY: T. HARMSSEN

SHEET TITLE

SHEET TITLE
<div style="text-align: center;">  </div>

CIVIL

LIFT STATION DETAILS

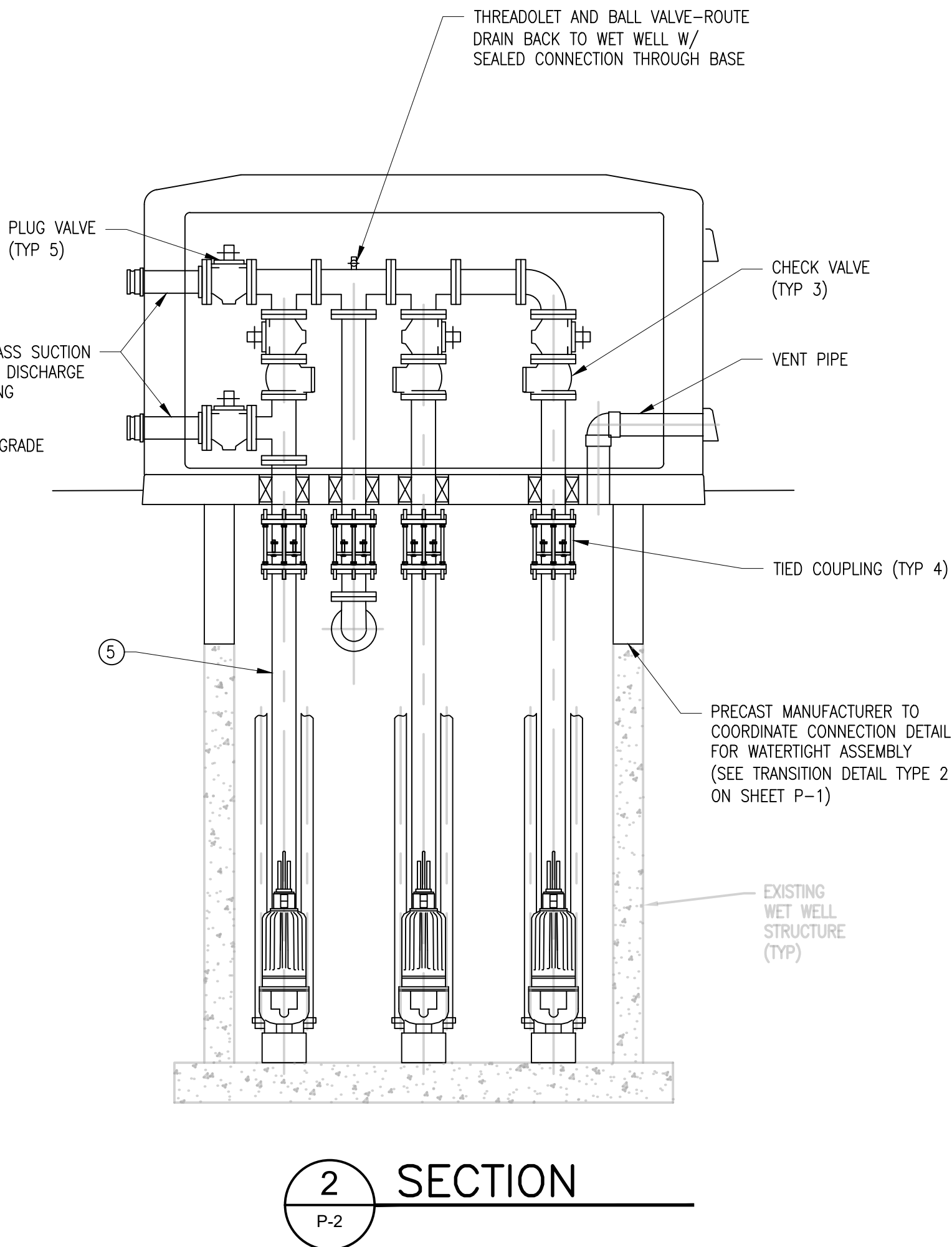
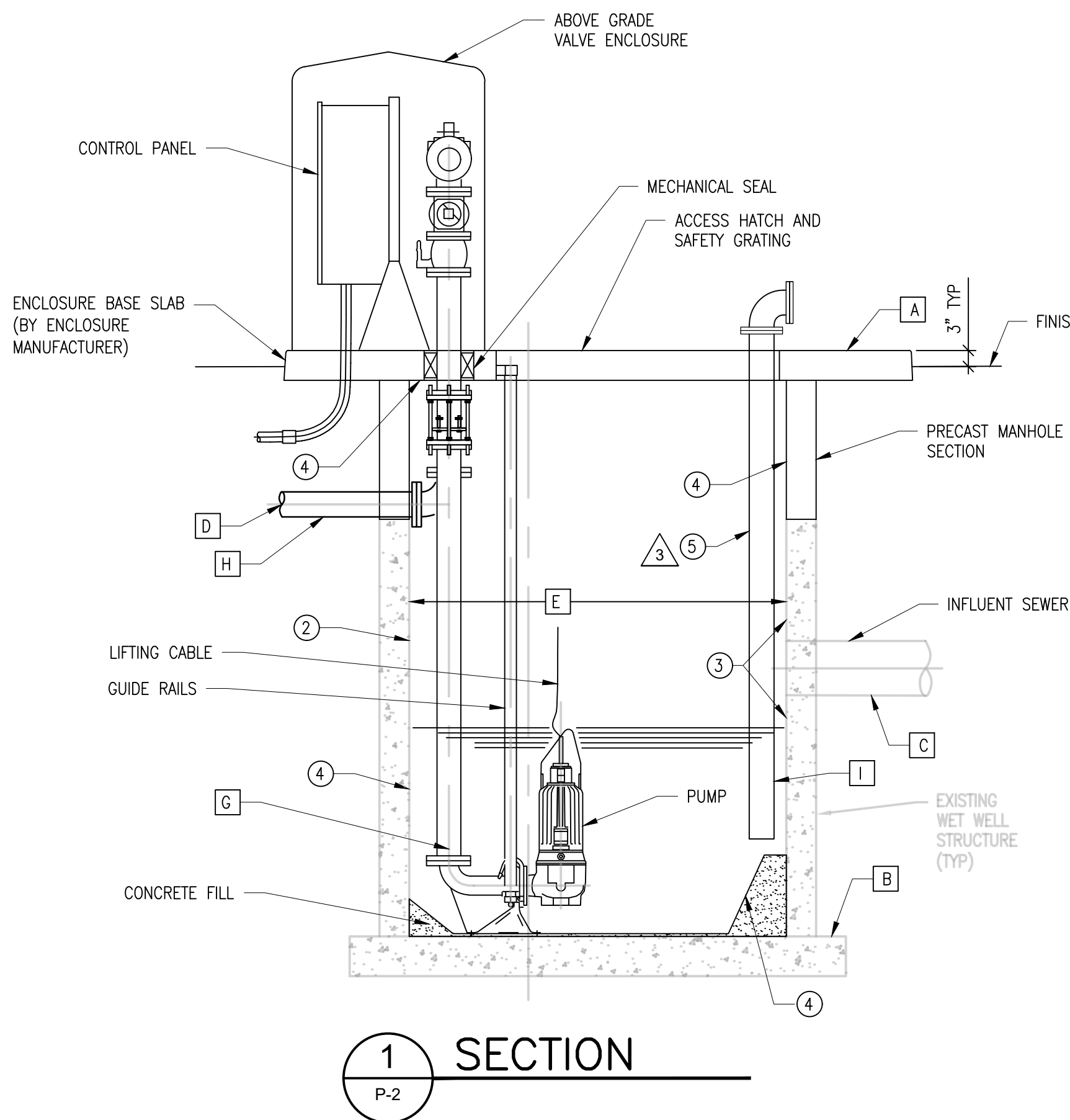
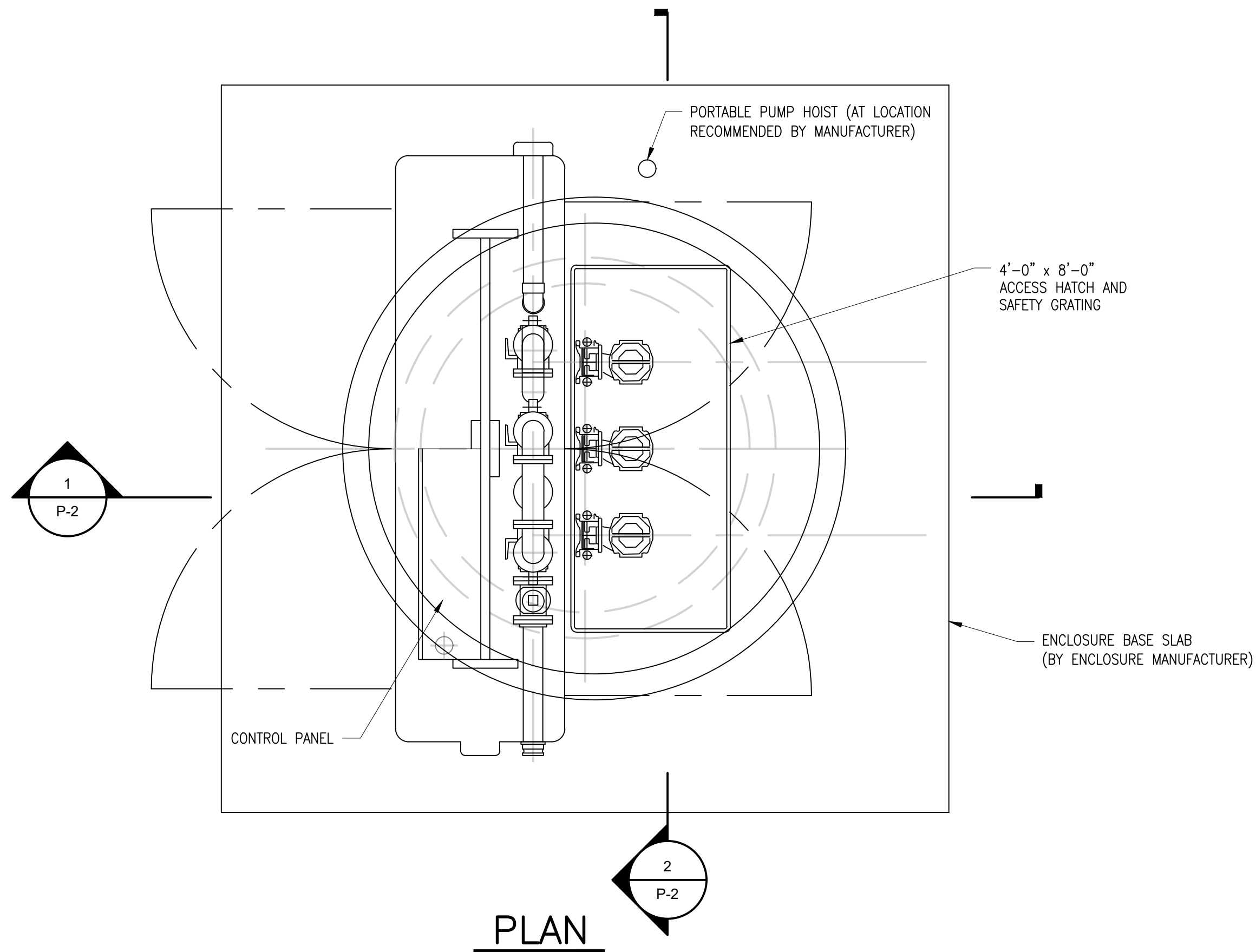
DUPLEX STATIONS

SCALE: NOT TO SCALE

P-1

SHEET 17 OF 24

User:SPITMAN Spec:AUS-NC5MOD Filer:C:\USERS\SPITMAN\ARCADIS\LOC\ROLLINWOODSTOCK LIFT STA. IMPR - GENERAL\DRAWING\GENERAL\18-LIFT STA-TRIPLEX.DWG Scale:1:1 SavedDate:9/7/2021 Time:10:33 Plot Date: Pittman, Steve: 9/8/2021; 07:49 : Layout:18



LIFT STATION DETAILS

NOT TO SCALE

Lift Station	Elevations					Wet Well Dimensions		Pipe Sizes		Pumps			Valves	Bypass Suction Pipe Size
	A	B	C (1)	C (2)	D	E		G	H	No.	Flow	TDH	Size	I
E	1052.07	1019.67	1031.93	-	1046.57	8'-0"		6"	10"	3	600	28	6"	6"
H	1049.01	1018.21	1041.51	1026.76	1043.51	8'-0"		6"	12"	3	850	54	6"	6"

KEY NOTES

WET WELL REHABILITATION WORK AS DIRECTED BY ENGINEER.

- CLEAN EXISTING WET WELLS IN ACCORDANCE WITH SECTION 33 01 30.42 - CLEANING OF WET WELLS.
- PERFORM CONCRETE REPAIRS TO EXISTING WET WELL IN ACCORDANCE WITH SECTION 33 01 30.81 - WET WELL REHABILITATION.
- PERFORM CRACK INJECTION GROUTING AT CRACKS AND LEAKS IN ACCORDANCE WITH SECTION 33 01 30.81 - WET WELL REHABILITATION.
- APPLY COATING SYSTEM TO EXISTING WET WELL AND NEW WET WELL SECTION AND BASE IN ACCORDANCE WITH SECTION 33 01 30.82 - EPOXY LINING OF CONCRETE WET WELLS.
- BYPASS PUMP SUCTION PIPING CONFIGURATION TO BE DETERMINED BY PUMP MANUFACTURER, EITHER THROUGH PUMP DISCHARGE LINE OR SEPARATE LINE.

GENERAL NOTES

- EXTENT OF CONCRETE FILL PER PUMP MANUFACTURER'S RECOMMENDATIONS.
- ABOVE GRADE VALVE ENCLOSURE LAYOUT MAY VARY DEPENDING ON MANUFACTURER.
- STATION H IS TO HAVE A WALK-IN ENCLOSURE COMPRISED OF SAME MATERIAL SPECIFIED IN SECTION 33 32 00 - PACKAGED SANITARY DRAIN LIFT STATIONS. MAXIMUM SIZE 130 SQUARE FEET.

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

NO.	DATE	ISSUED FOR	BY
2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL SUBMITTAL	TAH

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2021

DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 18-LIFT STA-TRIPLEX
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

CIVIL

LIFT STATION DETAILS
TRIPLEX STATIONS

SCALE:

NOT TO SCALE

P-2

SHEET 18 OF 24

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

 **ARCADIS**

A circular professional engineer seal for the State of Michigan. The outer ring contains the text "STATE OF MICHIGAN" at the top and "LICENSED PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center of the seal contains the name "LISA A BOWE", the title "ENGINEER", the license number "No. 1201039565", and the expiration date "12/31/21". A blue ink signature is written across the seal, and the date "5/5/21" is handwritten in blue ink at the bottom right.

ROLLIN-WOODSTOCK SANITARY DRAIN LIFT STATION IMPROVEMENTS

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1	8/18/21	EGL E SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

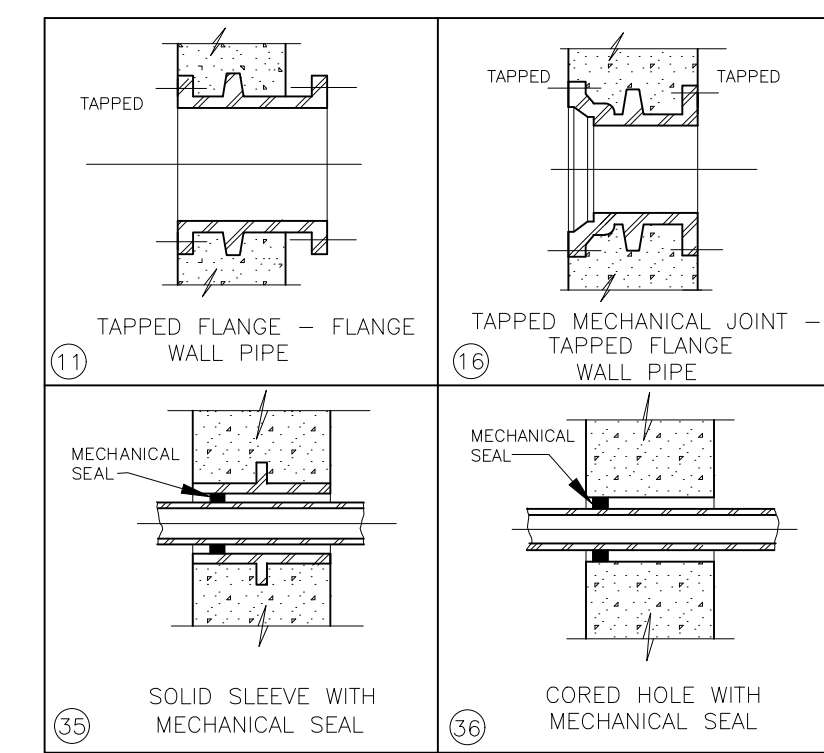
DATE:	SEPTEMBER 2021
PROJECT NO.:	30027906
FILE NAME:	19—STA N WET WELL
DESIGNED BY:	K. CELIAN
DRAWN BY:	S. PITTMAN
CHECKED BY:	T. HARMSEN

CIVIL

STATION N
WET WELL DETAILS

P-3

19 OF 24



DAVIT CRANE MAST WELL

8" PLATE

8" PLATE

3 1/2" DIAMETER

CL

CL

2

P-3

[illegible]

2 SECTION
P-3

NO SCALE

SECTIONAL PLAN



WET WELL REHABILITATION WORK AS DIRECTED BY ENGINEER

- ① CLEAN EXISTING WET WELLS IN ACCORDANCE WITH SECTION 33 01 30.42 – CLEANING OF WET WELLS.
- ② PERFORM CONCRETE REPAIRS TO EXISTING WET WELL IN ACCORDANCE WITH SECTION 33 01 30.81 – WET WELL REHABILITATION.
- ③ PERFORM CRACK INJECTION GROUTING AT CRACKS AND LEAKS IN ACCORDANCE WITH SECTION 33 01 30.81 – WET WELL REHABILITATION.
- ④ APPLY COATING SYSTEM TO EXISTING WET WELL AND NEW WET WELL SECTION AND BASE IN ACCORDANCE WITH SECTION 33 01 30.82 – EPOXY LINING OF CONCRETE WET WELLS.

GENERAL NOTES

1. CONCRETE FILLET PER PUMP MANUFACTURER'S RECOMMENDATIONS.
2. CONTRACTOR TO ADJUST BYPASS PUMP SUCTION ACCORDINGLY TO NOT INHIBIT EQUIPMENT BEING PULLED FROM ACCESS HATCH.
3. CONTRACTOR TO COORDINATE ACCESS HATCH SIZE AND LOCATION WITH MANUFACTURER TO VERIFY REMOVAL OF PUMPS THROUGH HATCH. CONTRACTOR TO MAKE ADJUSTMENTS NECESSARY. MINIMUM HATCH SIZE IS SHOWN.
4. FLOOR DOOR AND TOP SLAB TO BE DESIGNED FOR 300 PSF LIVE LOAD.

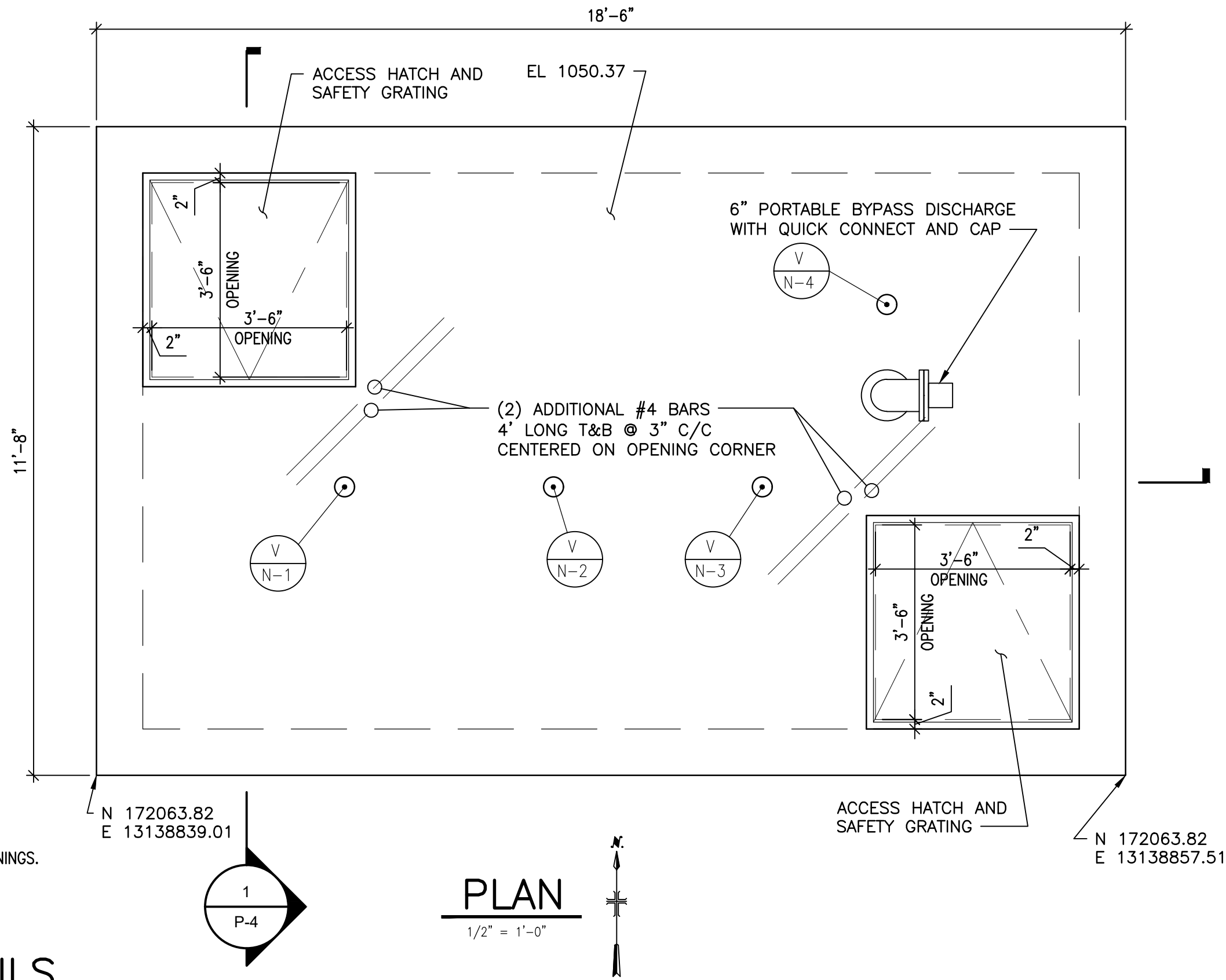
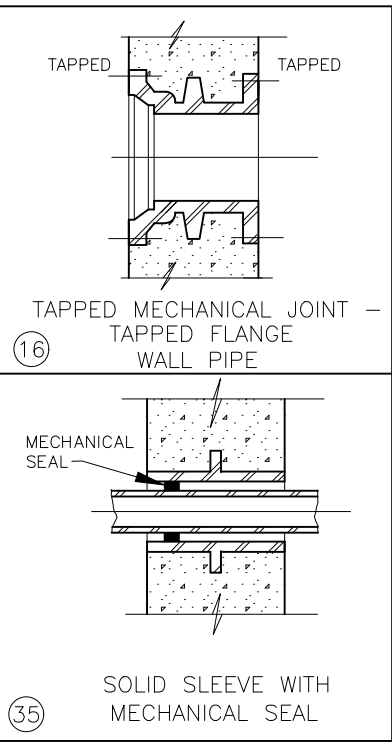
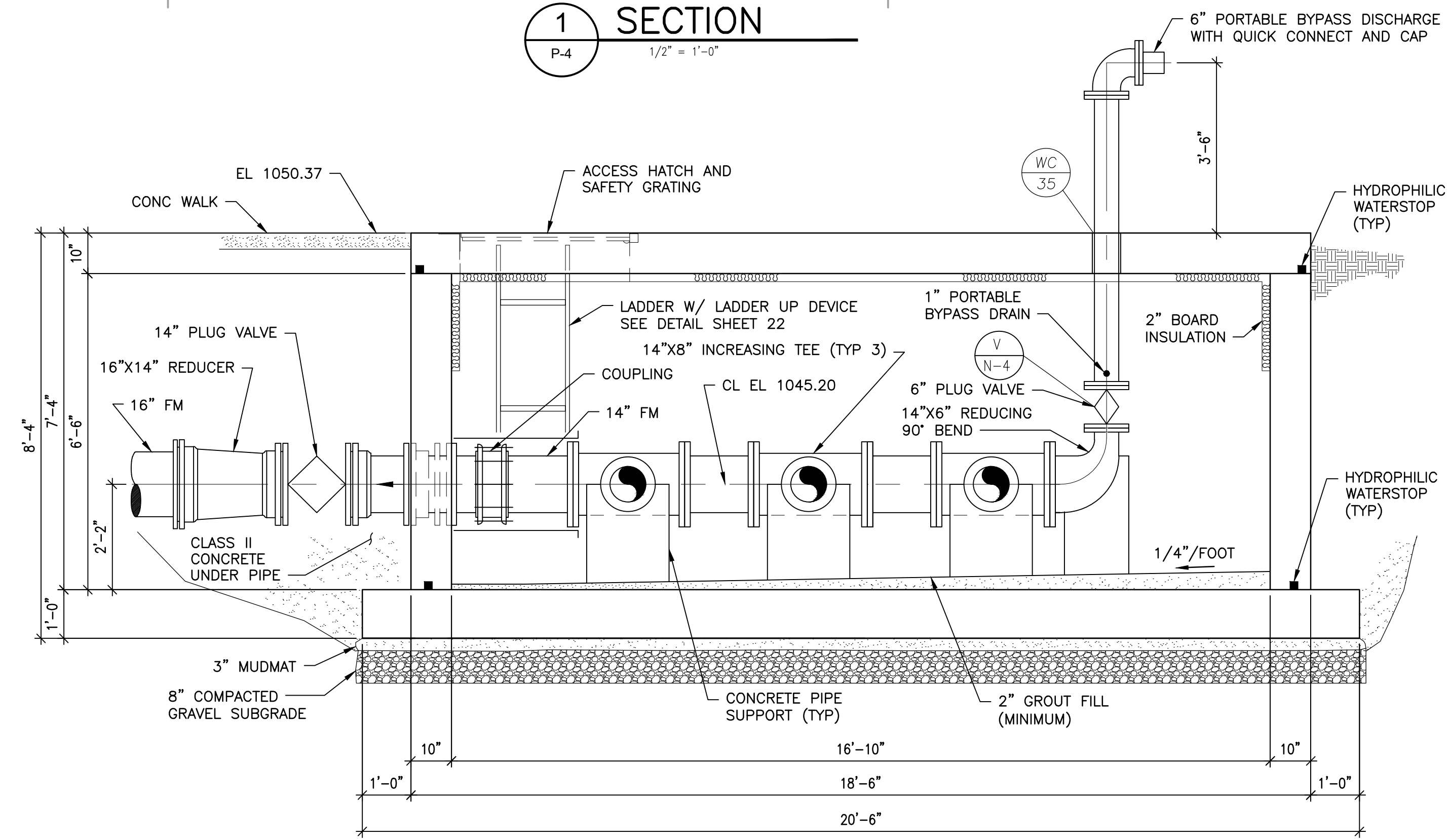
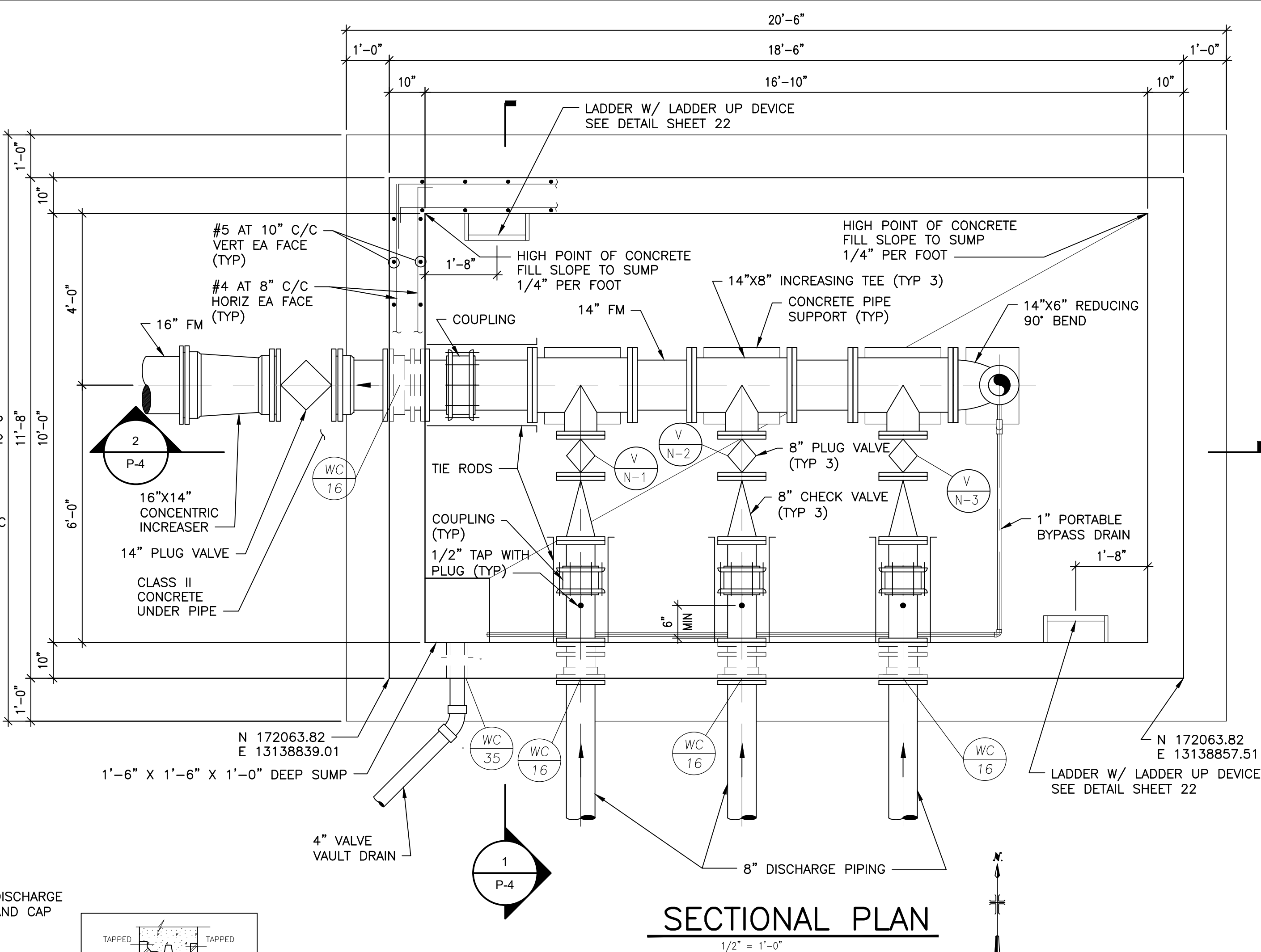
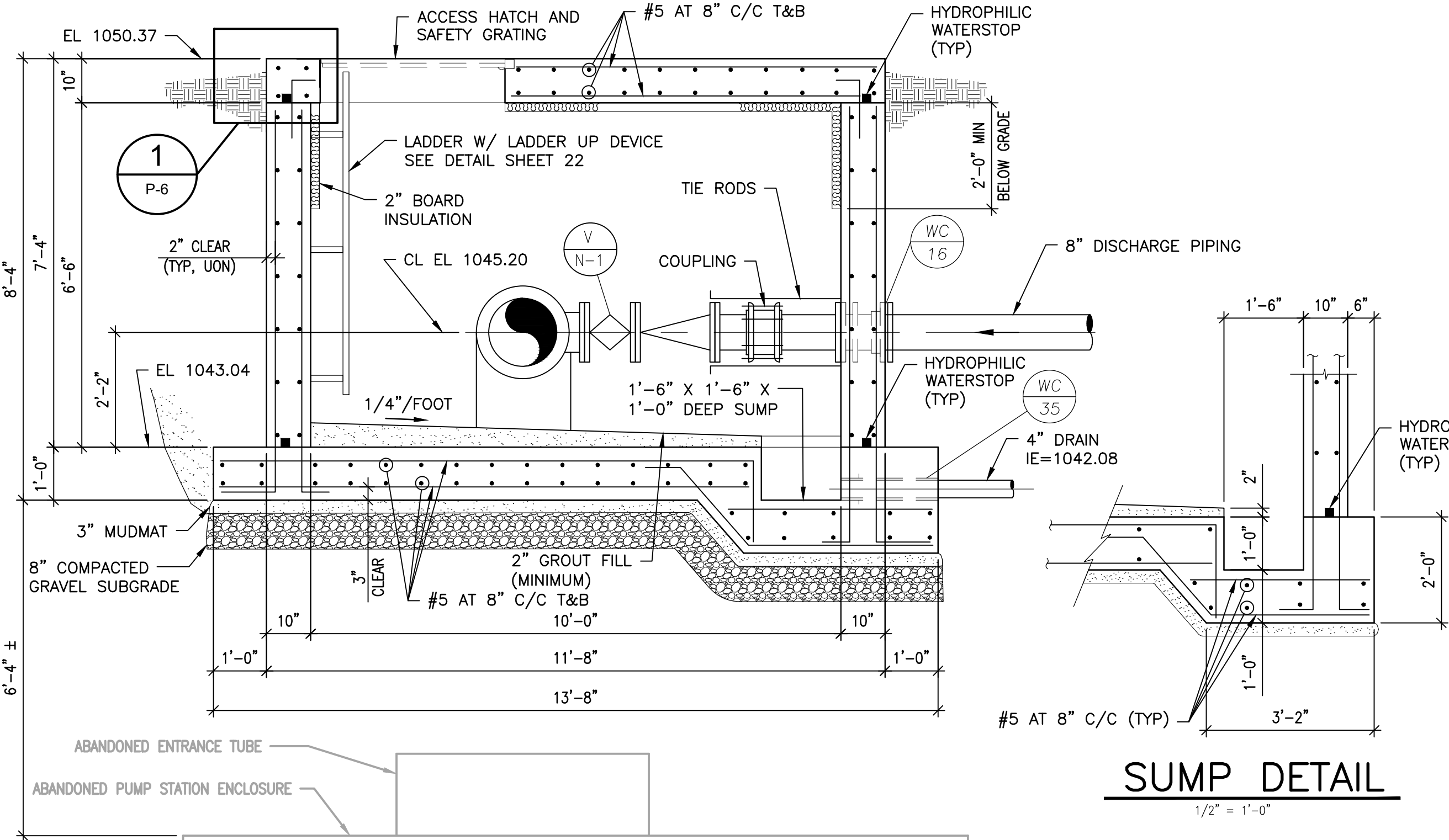
STATION N WET WELL DETAILS

$$1/2'' = 1'-0''$$

User:SPITTMAN Spec:AUS-NGS0005 File:C:\USERS\SPITTMAN\ARCADIS\LOC\ROLLINWOODSTOCK\LIFT STA IMPR - GENERAL\DRAWING\GENERAL\20-STN VALVE VAULT.DWG Scale:1:1 Saved:9/9/2021 Time:10:36 Plot Date: Pittman, Steve 9/9/2021 14:39 : Layout:20

VALVE SCHEDULE							
LOCATION	NO	TYPE	SIZE	ENDS	RATING	OPERATOR	REMARKS
VALVE VAULT	N-1	PLUG VALVE	8"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
VALVE VAULT	N-2	PLUG VALVE	8"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
VALVE VAULT	N-3	PLUG VALVE	8"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
VALVE VAULT	N-4	PLUG VALVE	6"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	

NOTE: UNLESS INDICATED IN THE VALVE SCHEDULE, THE PRESSURE RATING SHALL BE AS SPECIFIED IN SECTION 40 05 08.



- GENERAL NOTES:
1. PROVIDE 300 PSF RATED FLOOR DOOR WITH SAFETY GRATING AT ALL OPENINGS.
 2. PROVIDE WATERSTOP AT ALL CONSTRUCTION JOINTS.
 3. SEE SHEET G-1 FOR ADDITIONAL NOTES.

STATION N VALVE VAULT DETAILS

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

ARCADIS

CONSULTANTS

LISA A. BOWE
ENGINEER
No. 4201038855
9/9/21

SEALS

TRUDY ALAN
ENGINEER
No. 4386
9/9/21

LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021

PROJECT NO.: 30027906

FILE NAME: 20-STN N VALVE VAULT

DESIGNED BY: K. CELIAN

DRAWN BY: S. PITTMAN

CHECKED BY: T. HARMSSEN

SHEET TITLE

CIVIL

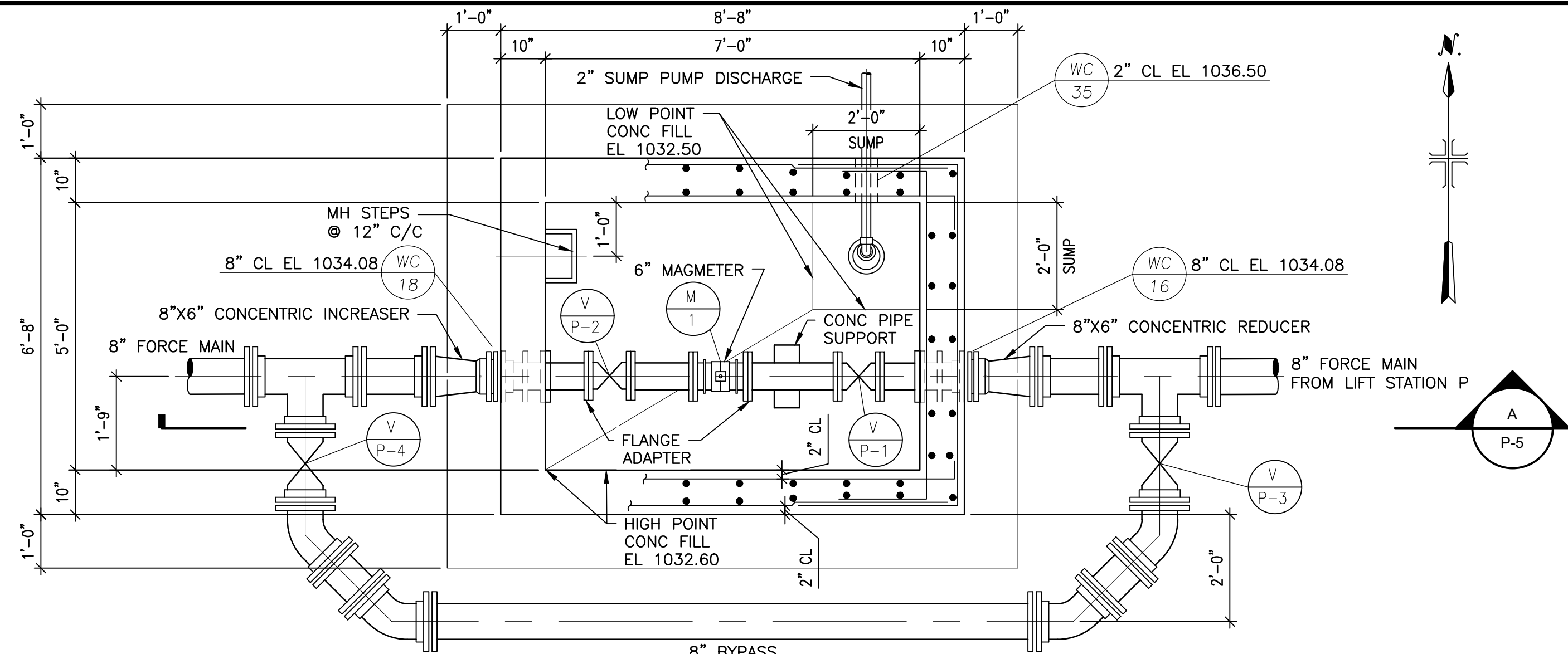
STATION N
VALVE VAULT DETAILS

SCALE:

P-4

SHEET 20 OF 24

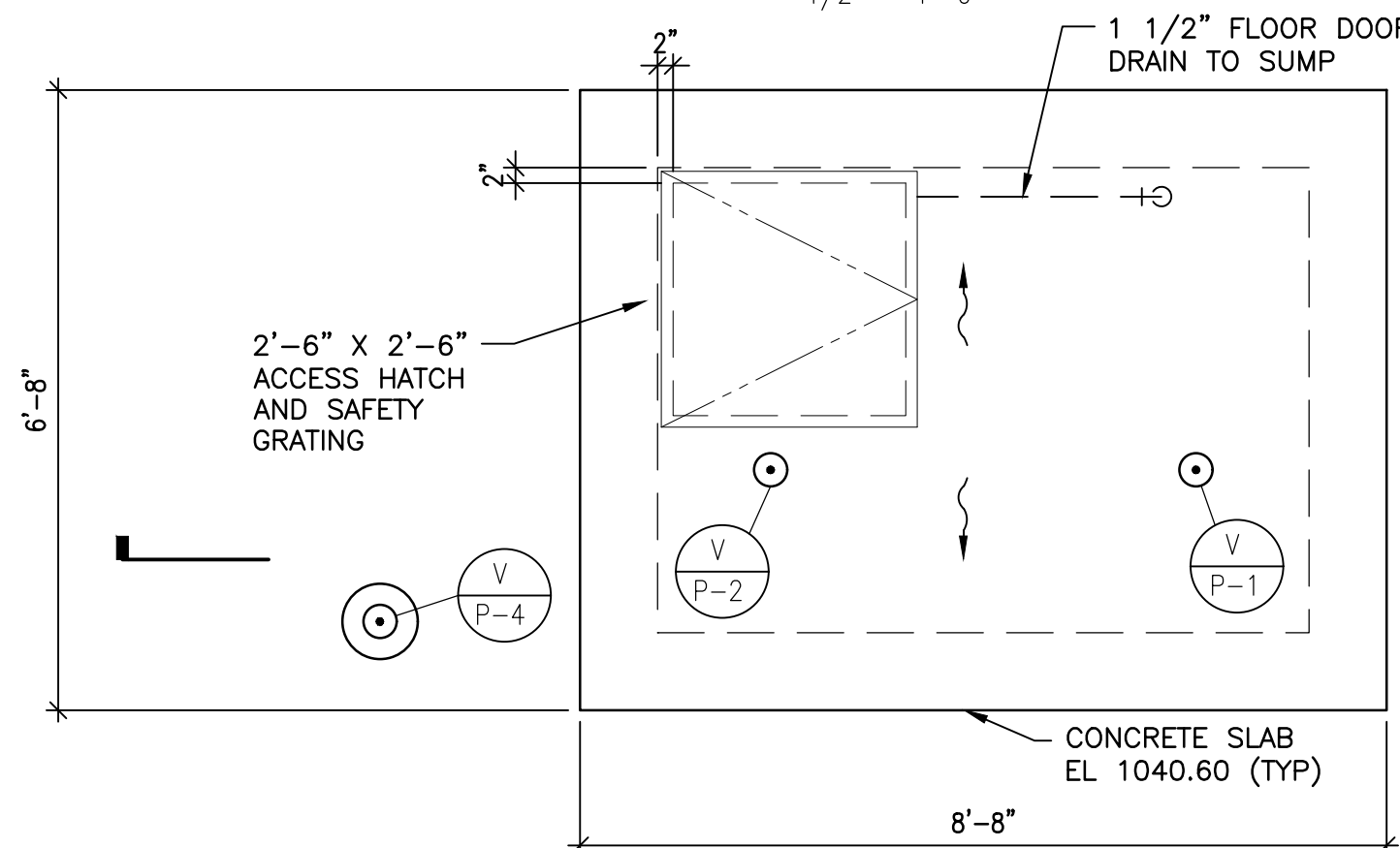
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SECTIONAL PLAN

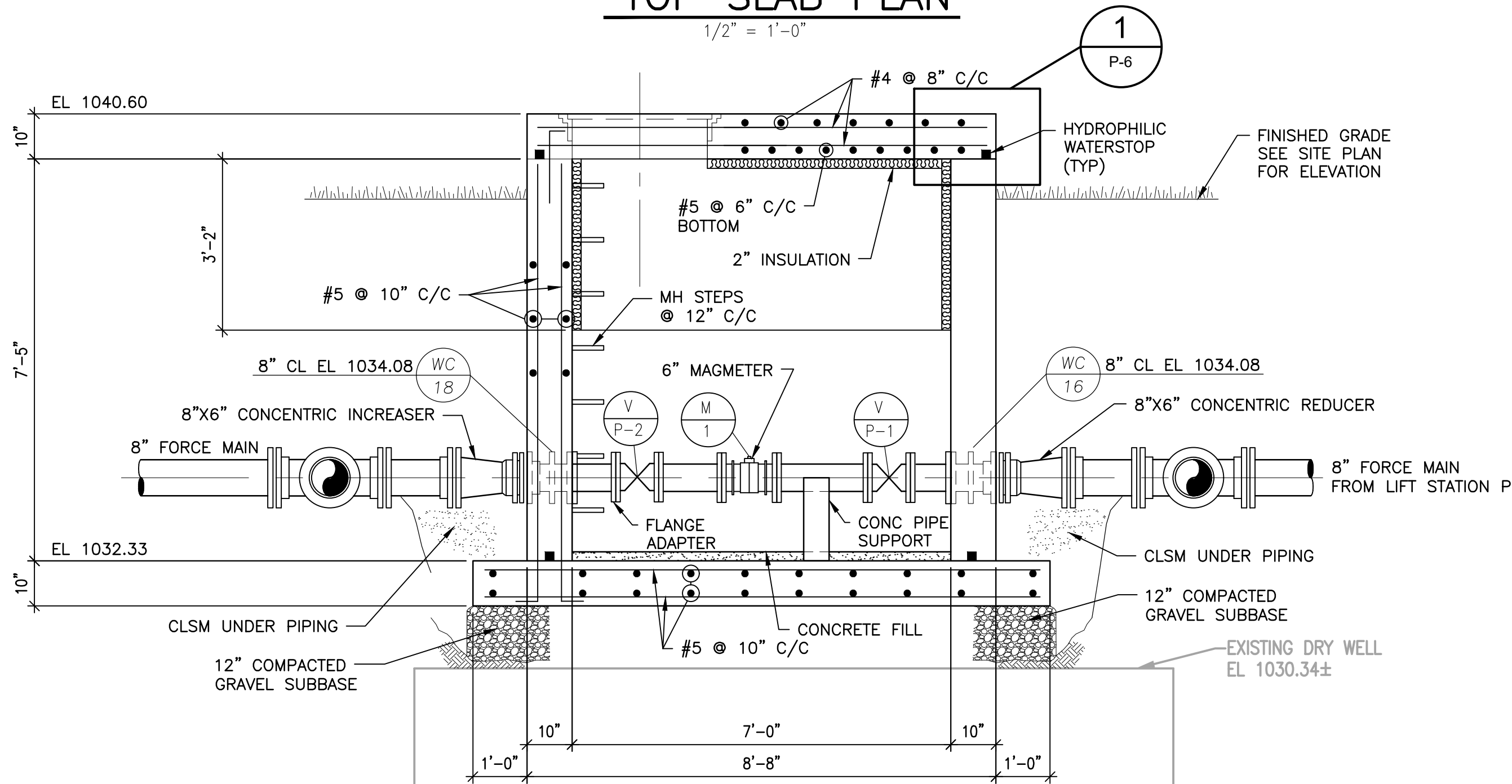
1/2" = 1'-0"

NOTE:
ALL PIPING IN METER VAULT
SHALL BE DUCTILE IRON.



TOP SLAB PLAN

1/2" = 1'-0"



SECTION A

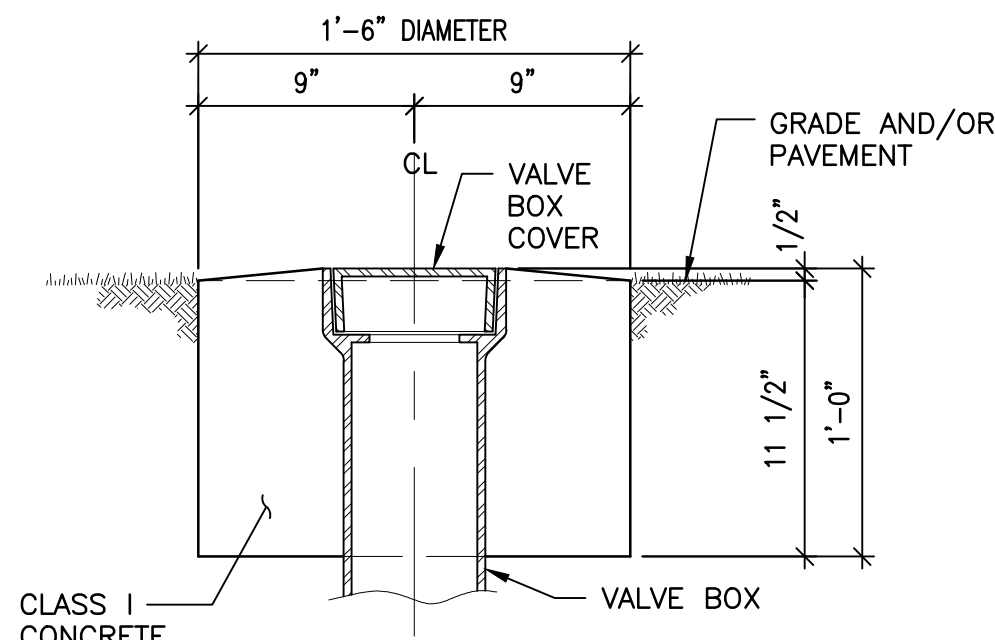
1/2" = 1'-0"

STATION P METER VAULT DETAILS

1/2" = 1'-0"

VALVE SCHEDULE							
LOCATION	NO	TYPE	SIZE	ENDS	RATING	OPERATOR	REMARKS
METER VAULT	P-1	PLUG VALVE	6"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
"	P-2	PLUG VALVE	6"	FLANGED JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
"	P-3	PLUG VALVE	8"	MECHANICAL JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	
METER VAULT	P-4	PLUG VALVE	8"	MECHANICAL JOINT		GEAR ACTUATOR, OPERATING NUT, EXTENSION STEM, VALVE BOX	

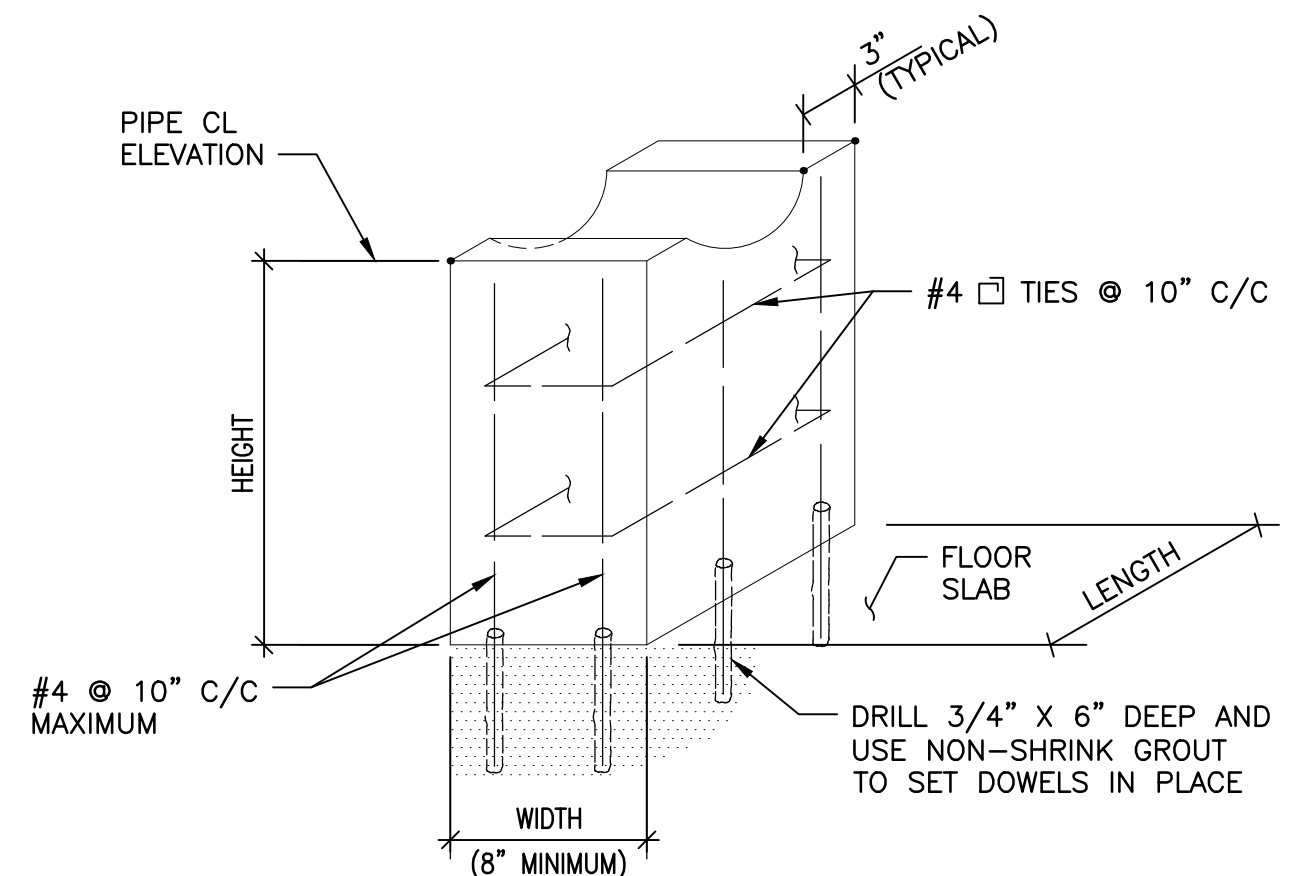
NOTE: UNLESS INDICATED IN THE VALVE SCHEDULE, THE PRESSURE RATING SHALL BE AS SPECIFIED IN SECTION 40 05 08.



SECTION

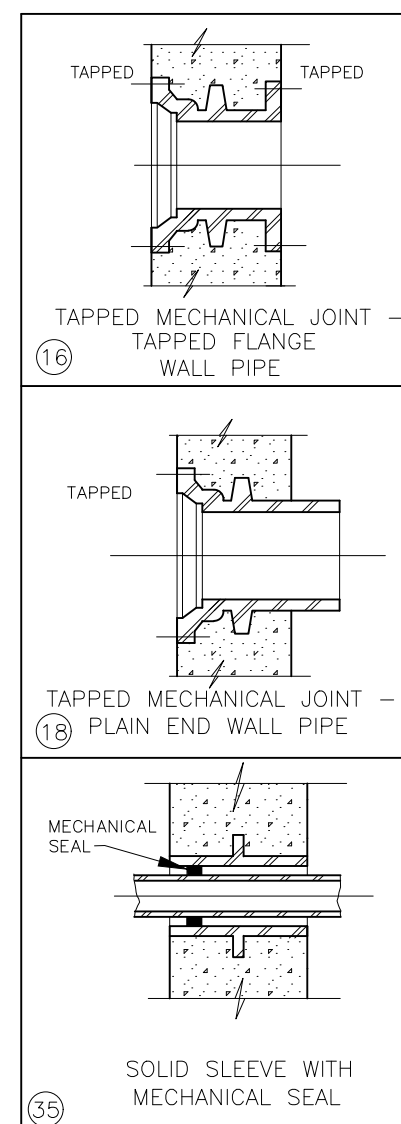
VALVE BOX DETAIL

1 1/2" = 1'-0"

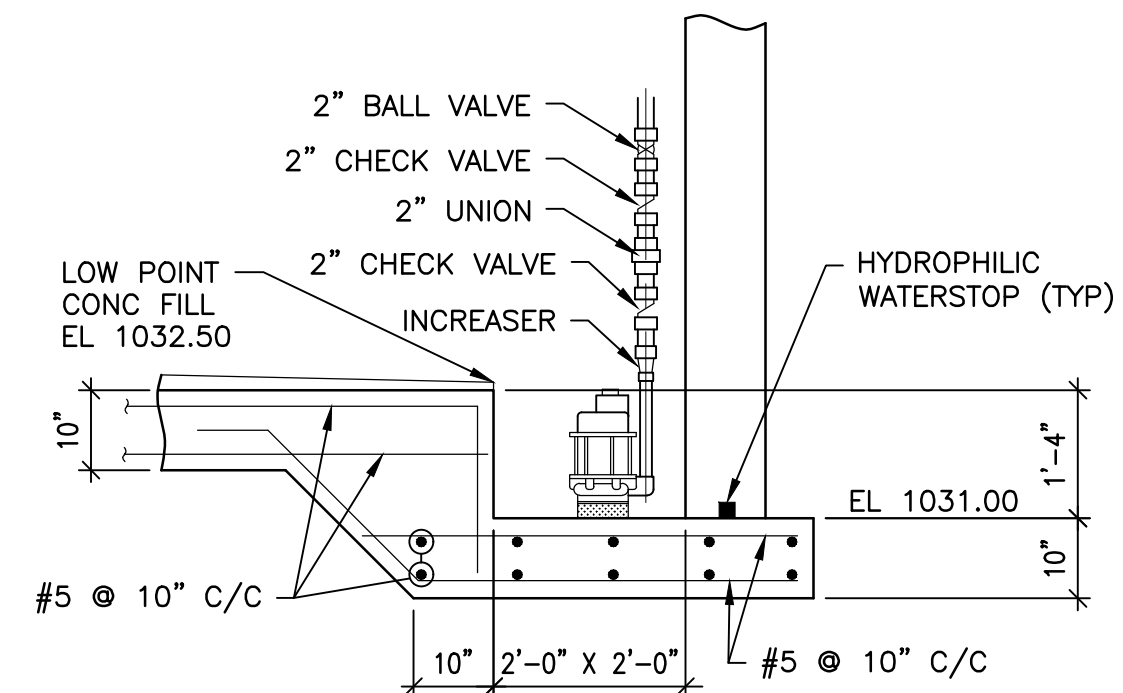


CONCRETE PIPE SUPPORT DETAIL

NO SCALE



WALL CASTINGS



SECTION

SUMP PUMP DETAIL

1/2" = 1'-0"

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

ARCADIS

CONSULTANTS



SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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2021

DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 21-STA P METER VAULT
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

CIVIL

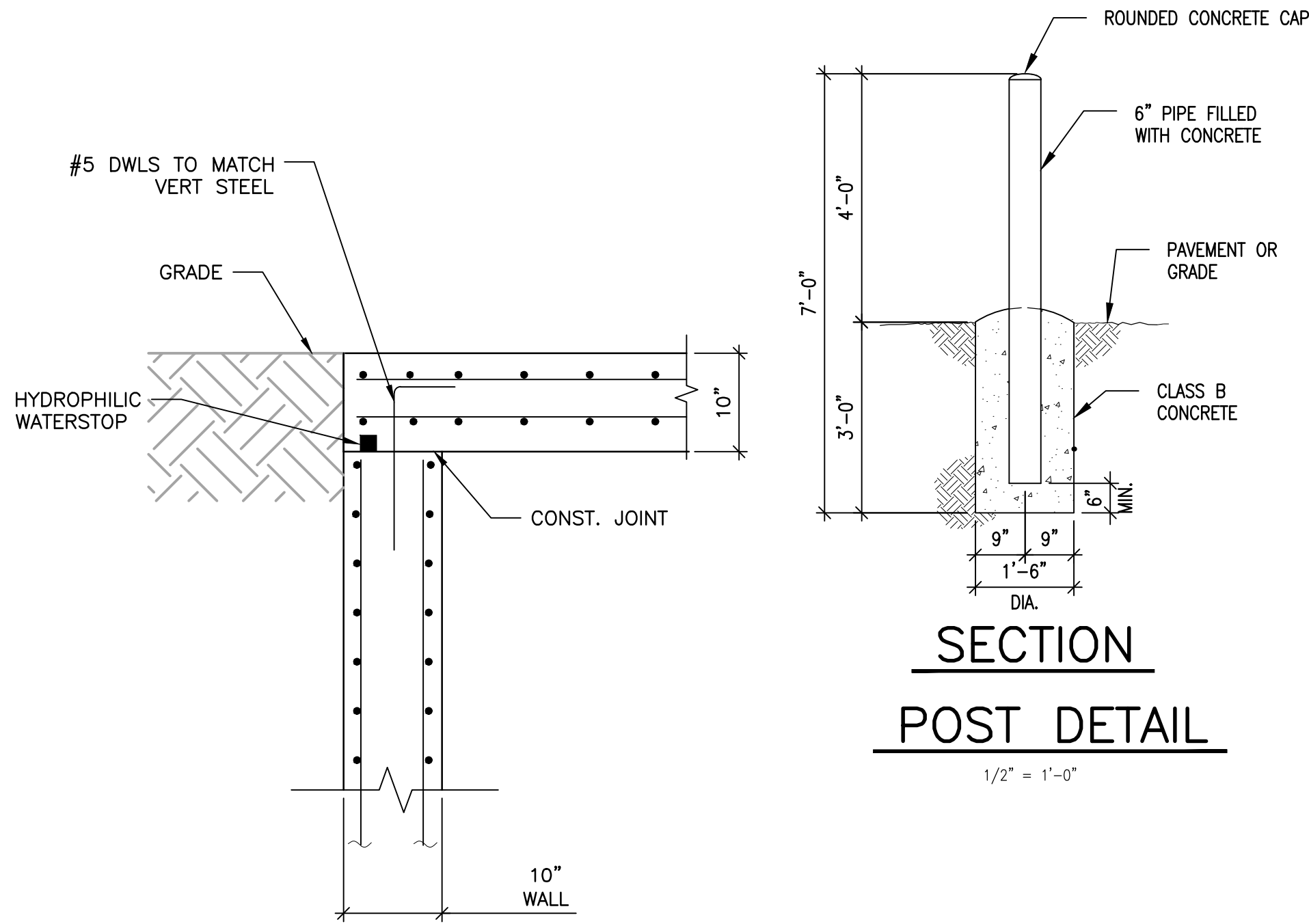
STATION P
METER VAULT DETAILS

SCALE:

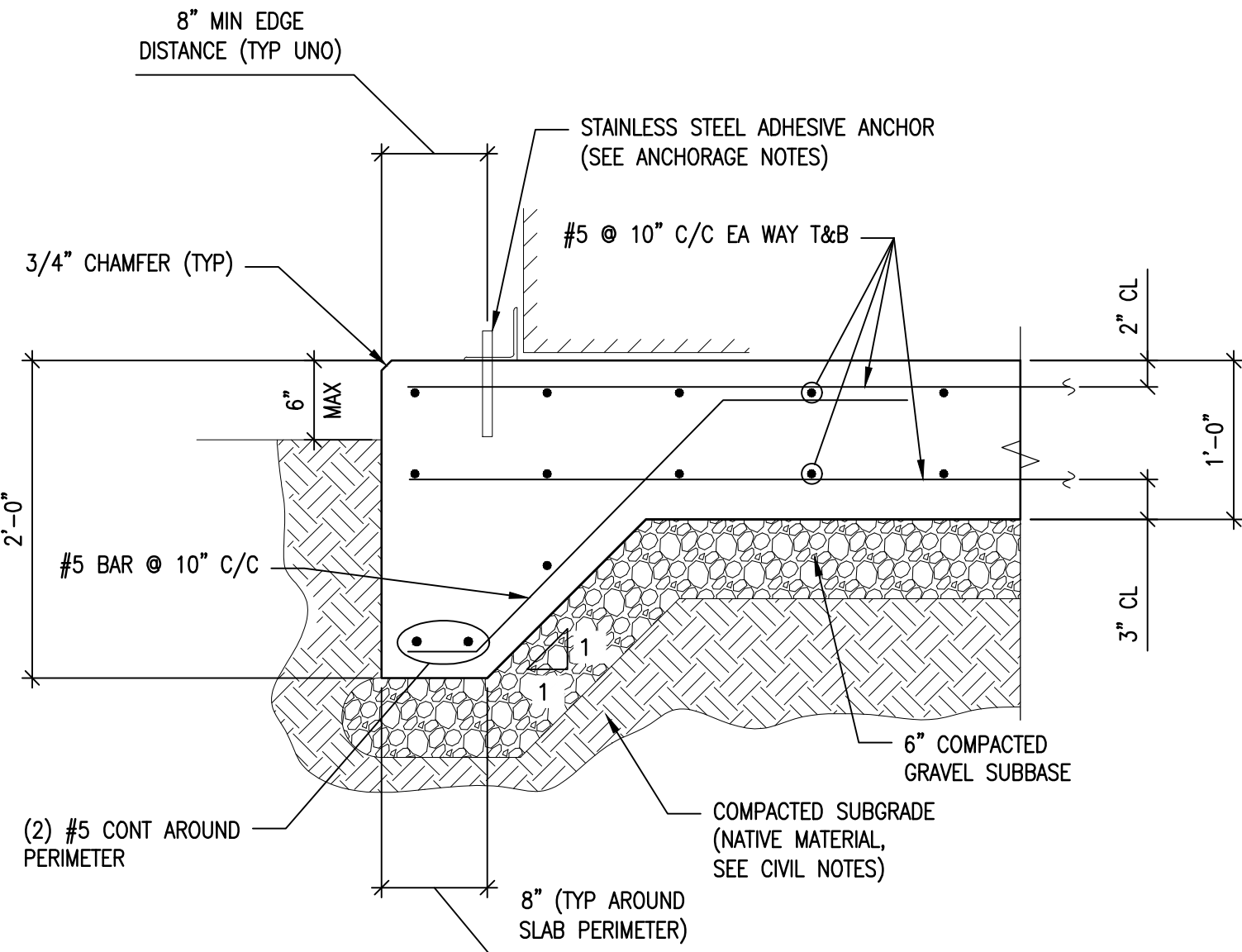
P-5

SHEET 21 OF 24

User:SPITTMAN Spec:AUS-NC5MOD File:C:\USERS\SPITTMAN\ARCADIS\LOC\ROLLINWOODSTOCK\UFT STA IMPR - GENERAL\DRAWING\GENERAL\22-MISC DETAILS.DWG Scale:1:1 SavedDate:9/9/2021 Time:14:36 Plot Date: Pittman, Steve; 9/9/2021; 15:12 ; Layout:22



1
P-6
DETAIL
TOP SLAB
NOT TO SCALE



ANCHORAGE NOTES:

1. UNLESS OTHERWISE NOTED, ALL EQUIPMENT ANCHOR LOCATIONS SHALL BE DESIGNED AND PROVIDED BY THE EQUIPMENT MANUFACTURER. ANCHORAGE SHALL BE VERIFIED BY DESIGNER OF RECORD PRIOR TO INSTALLATION.
2. GROUT SOLID ANY VOIDS BETWEEN THE EQUIPMENT ANCHOR POINTS AND THE TOP OF CONCRETE PAD.

GENERATOR PAD SECTION

1" = 1'-0"

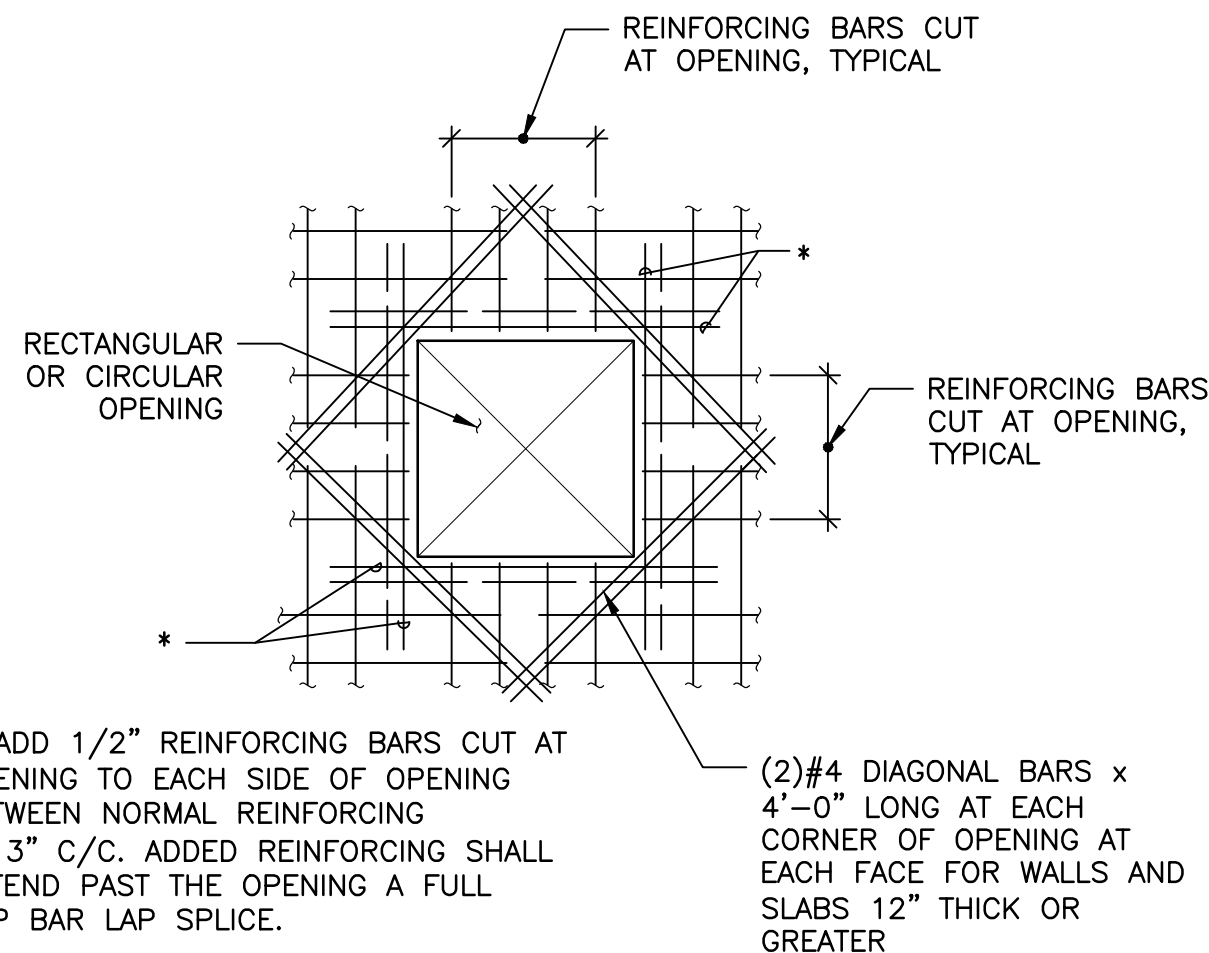
STRUCTURAL CONCRETE NOTES

CAST-IN-PLACE CONCRETE

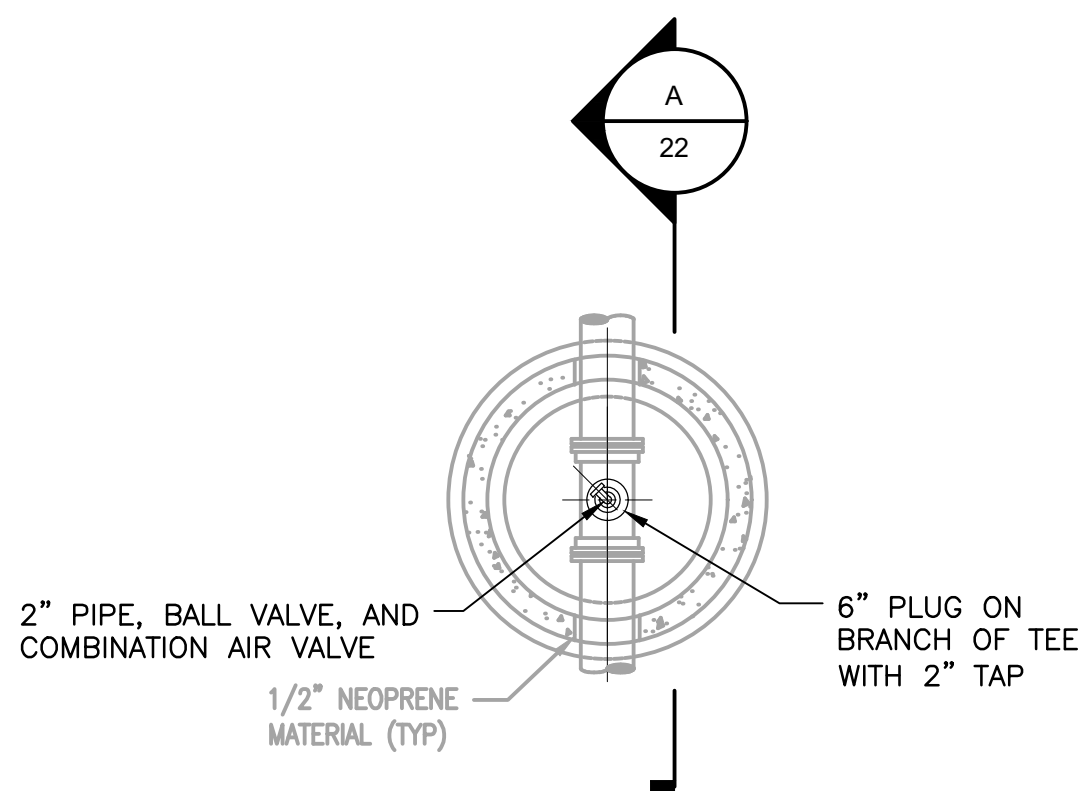
1. COMPLY WITH THE LATEST VERSIONS OF ACI 301, ACI 318, AND REFERENCED STANDARDS UNLESS SPECIFICALLY NOTED OTHERWISE.
2. COMPRESSIVE STRENGTH OF CONCRETE IN 28 DAYS: 4500 PSI. ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 POUNDS PER CUBIC FOOT.
3. REINFORCING BARS: ASTM A615 - GRADE 60. BAR SIZES ARE SHOWN IN INCH-POUND SIZES, EG. #4.
4. MINIMUM REINFORCING LAP SPLICES: #3 - 19"; #4 - 25"; #5 - 31"
5. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 1-1/2 HOURS AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES.
6. PLACE SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. DO NOT DEVIATE FROM REQUIRED POSITION. UNLESS REINFORCEMENT AS NOTED, MAINTAIN CONCRETE COVER FOR REINFORCEMENT AS NOTED.
7. PRESUMPTIVE ALLOWABLE SOIL BEARING CAPACITY: 1,500 PSF

CONCRETE COVER

FOOTINGS AND CONCRETE FORMED AGAINST EARTH:	3 INCHES
CONCRETE EXPOSED TO THE WEATHER:	2 INCHES
CONCRETE IN CONTACT WITH THE GROUND:	2 INCHES
SLAB-ON-GRADE (TOP/INTERIOR SURFACE):	1-1/2 INCHES



PLAN OR ELEVATION
TYPICAL REINFORCING AROUND OPENINGS
IN SLABS AND WALLS
NOT TO SCALE



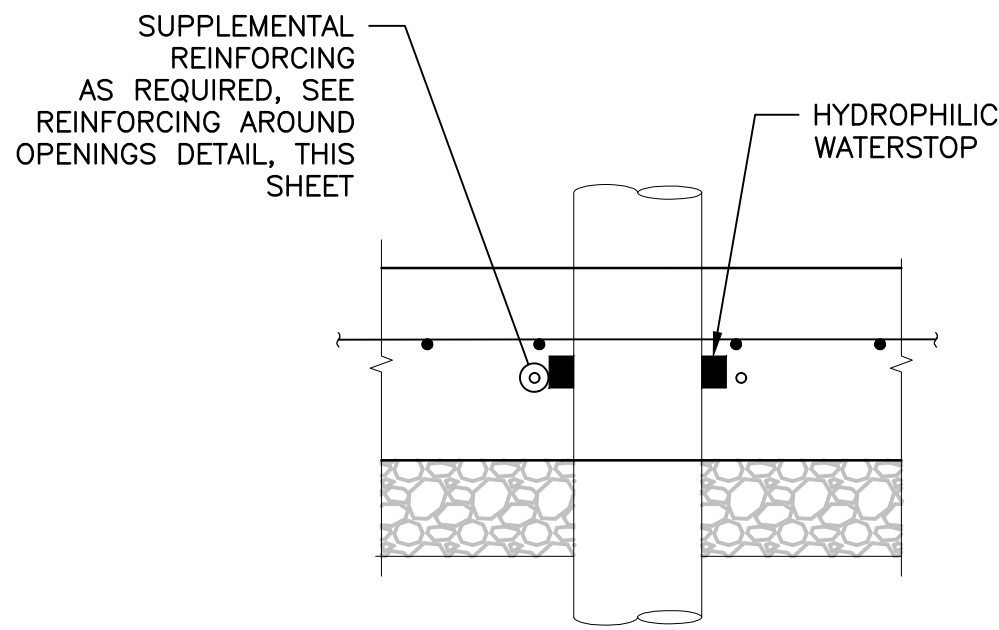
SECTIONAL PLAN

NOTES:

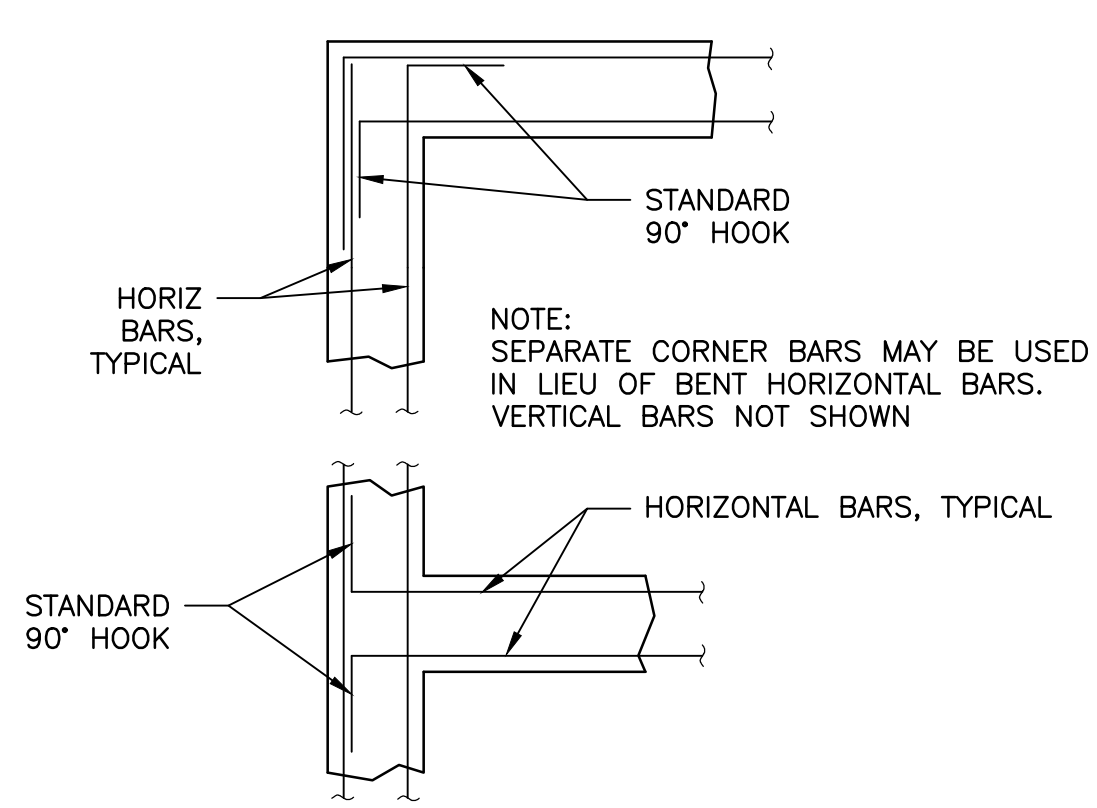
1. CONTRACTOR TO COORDINATE INSTALLATION WITH OWNER.
2. CONTRACTOR TO VERIFY TEE DIMENSIONS, MATERIAL OF CONSTRUCTION AND TYPE OF JOINT.
3. TYPICAL DETAIL FOR 5 LOCATIONS FROM STATION N TO THE WASTEWATER TREATMENT PLANT. REFER TO DRAWING G-2 FROM THIS SET AND PUMPING STATION AND FORCE MAIN SECTION C RECORD DRAWINGS FOR LOCATIONS OF AIR RELEASE MANHOLES.
4. INSTALL COMBINATION AIR VALVE IN ACCORDANCE WITH SECTION 40 05 08 - VALVES AND MISCELLANEOUS PIPING APPURTENANCES.

AIR RELEASE VALVE IN MANHOLE DETAIL

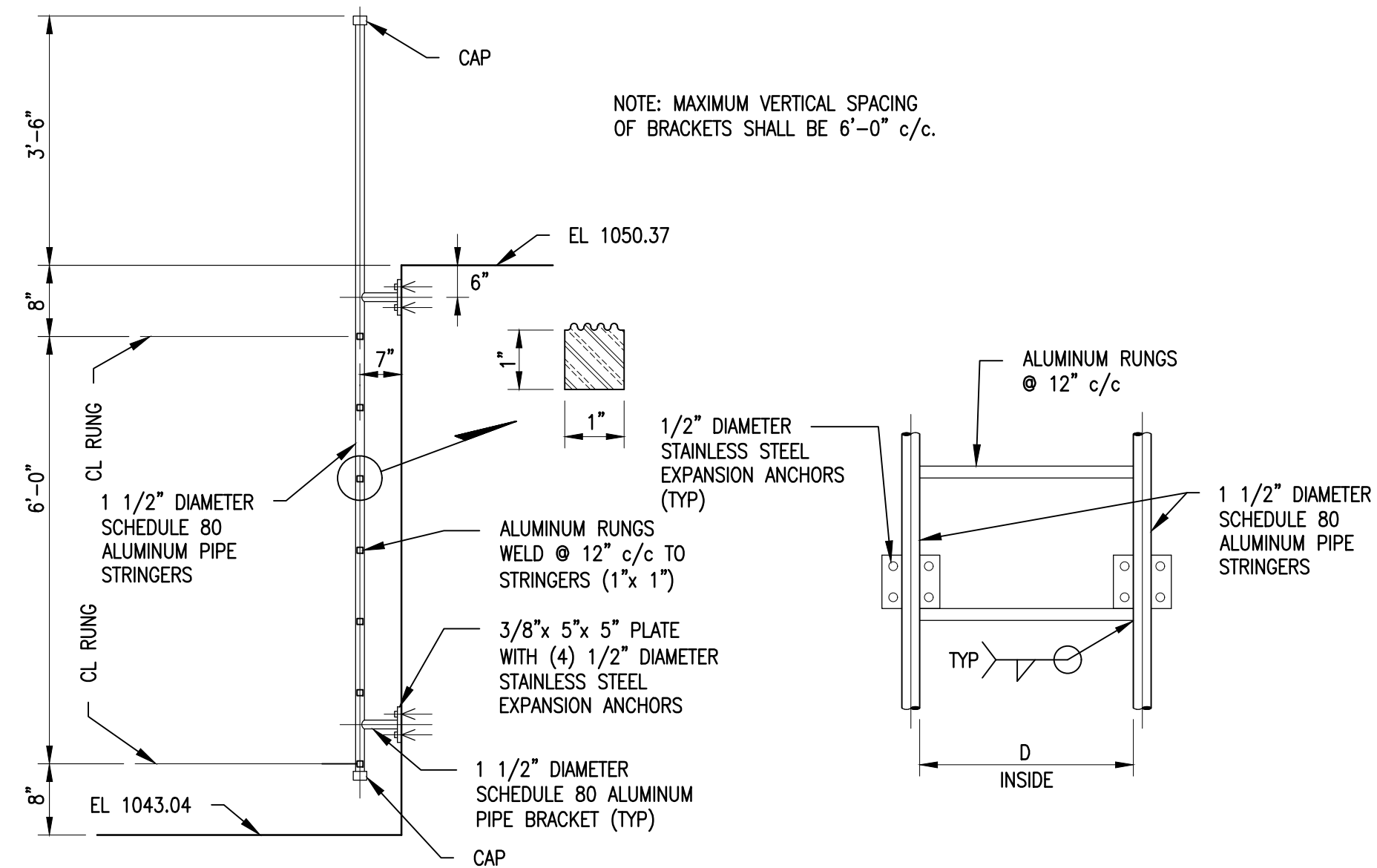
1/4" = 1'-0"



SECTION
PIPE PENETRATION
NOT TO SCALE



SECTIONAL PLAN
TYPICAL WALL INTERSECTION
REINFORCING DETAILS
NOT TO SCALE



SECTION
LADDER DETAIL
1/2" = 1'-0"

ELEVATION

TYPICAL 1 1/2" DIAMETER
PIPE LADDER
1" = 1'-0"

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

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SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

NO.	DATE	ISSUED FOR	BY
2	9/9/21	ISSUED FOR BID	TAH
1	8/18/21	EGL SUBMITTAL	TAH
NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: 22-MISC DETAILS
DESIGNED BY: K. CELIAN
DRAWN BY: S. PITTMAN
CHECKED BY: T. HARMSEN

SHEET TITLE

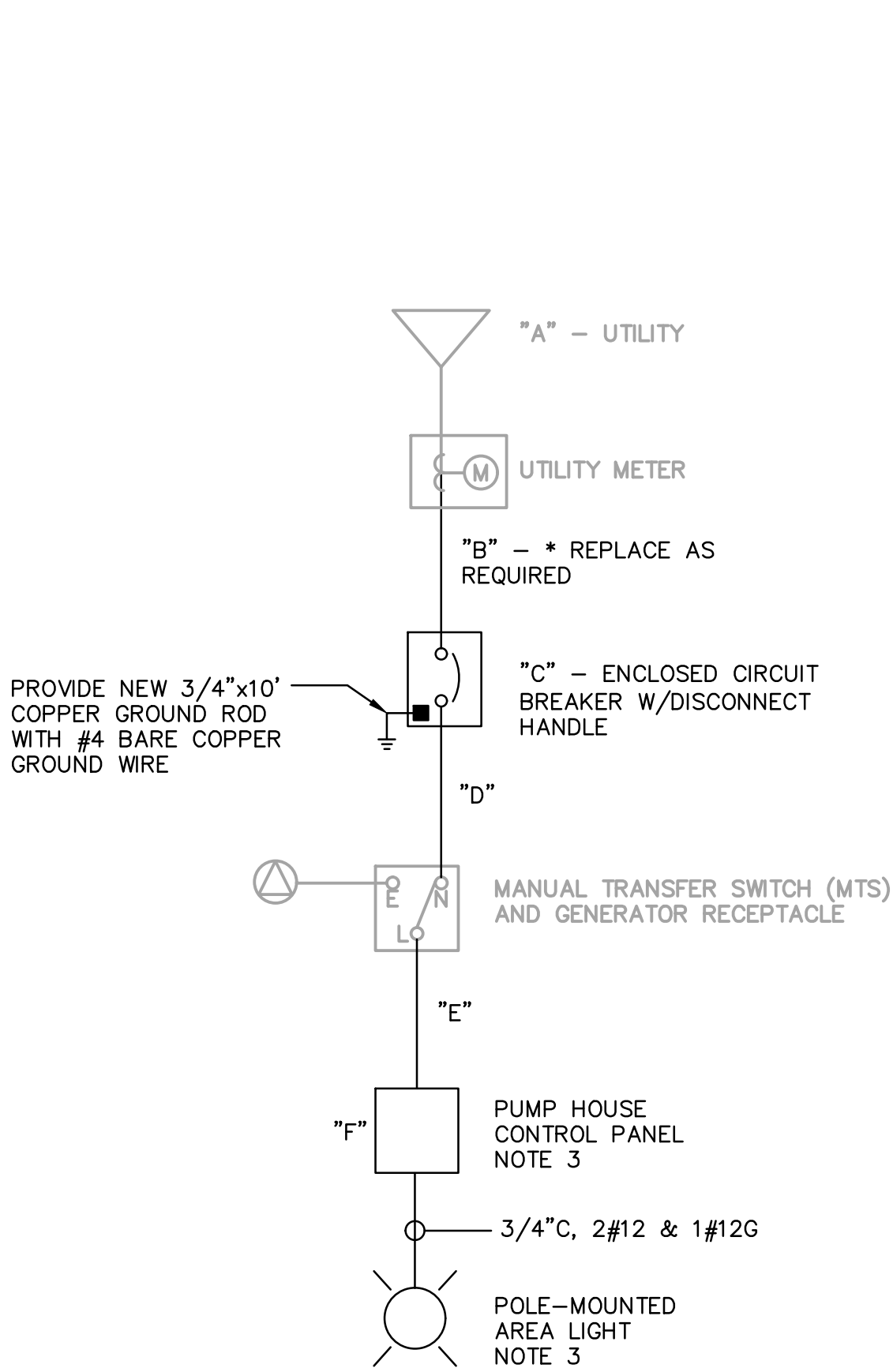
CIVIL
MISCELLANEOUS DETAILS

SCALE:

P-6

SHEET 22 OF 24

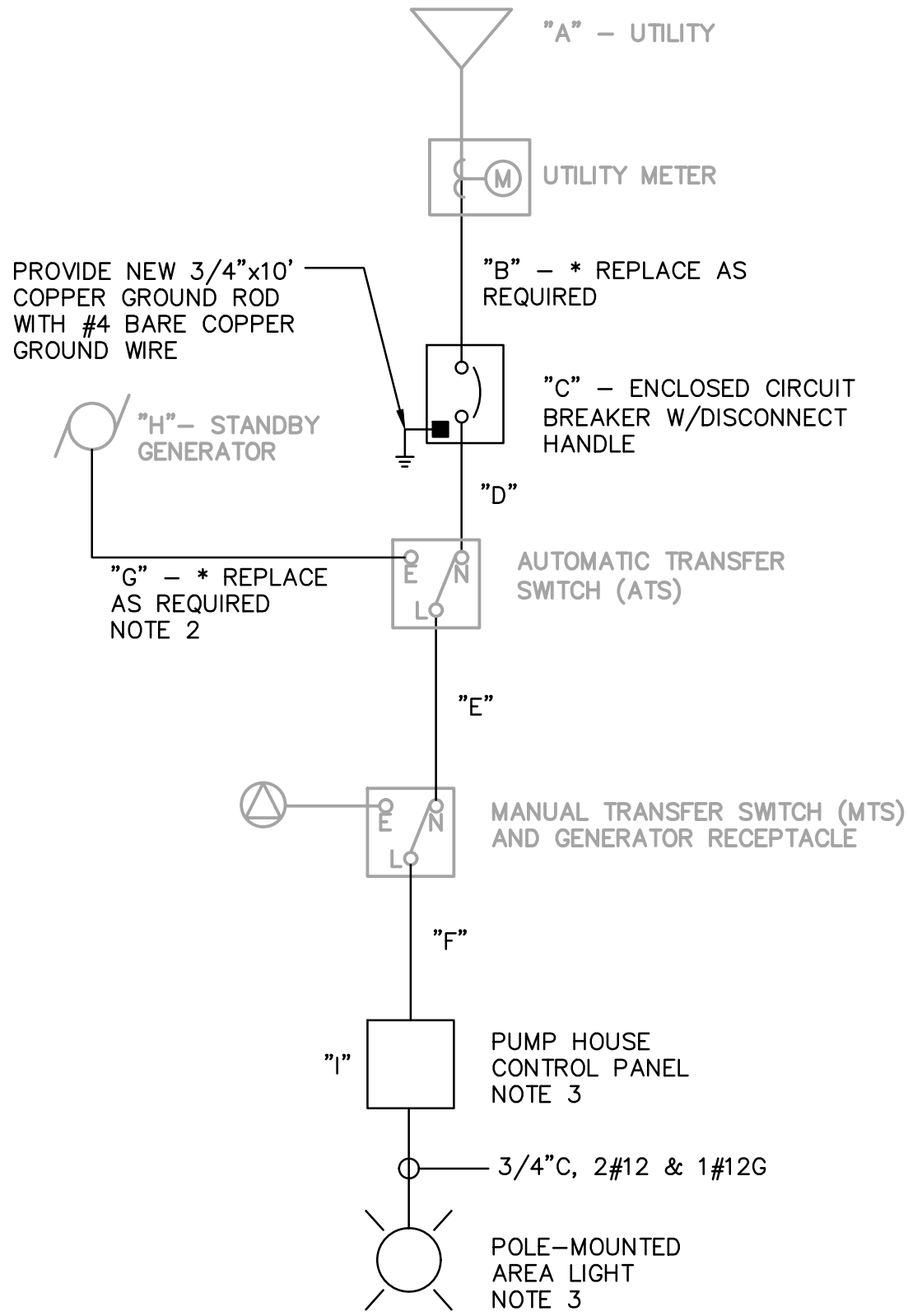
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ONE-LINE DIAGRAM (TYPICAL) LIFT STATIONS:
A, B, C, F, G, I, K, L, M, Q, R

LIFT STATION	"A" - EXISTING UTILITY DATA	"B" - CONDUIT & WIRE	"C" - ENCLOSED CIRCUIT BREAKER	"D" - CONDUIT & WIRE	"E" - CONDUIT & WIRE	"F" - EST. LOAD (KVA)
A	240V, 3-PHASE, OPEN DELTA, 19.5KVA	1" C, 3#6	60A, 240V, 3P, NEMA 3R	1" C, 3#6 & 1#10G	1" C, 3#6 & 1#10G	15.1
B	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	25.8
C	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	20.8
F	240V, 3-PHASE, OPEN DELTA, 19.5KVA	1" C, 3#6	60A, 240V, 3P, NEMA 3R	1" C, 3#6 & 1#10G	1" C, 3#6 & 1#10G	10.5
G	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	25.8
I	240V, 3-PHASE, OPEN DELTA, 58.5KVA	2" C, 3#2/0	175A, 240V, 3P, NEMA 3R	2" C, 3#2/0 & 1#6G	2" C, 3#2/0 & 1#6G	47.3
K	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	20.8
L	240V, 3-PHASE, OPEN DELTA, 48.8KVA	1-1/2" C, 3#1/0	150A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	37.4
M	240V, 3-PHASE, OPEN DELTA, 19.5KVA	1" C, 3#6	60A, 240V, 3P, NEMA 3R	1" C, 3#6 & 1#10G	1" C, 3#6 & 1#10G	15.1
Q	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	20.8
R	240V, 3-PHASE, OPEN DELTA, 48.8KVA	1-1/2" C, 3#1/0	150A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	37.4

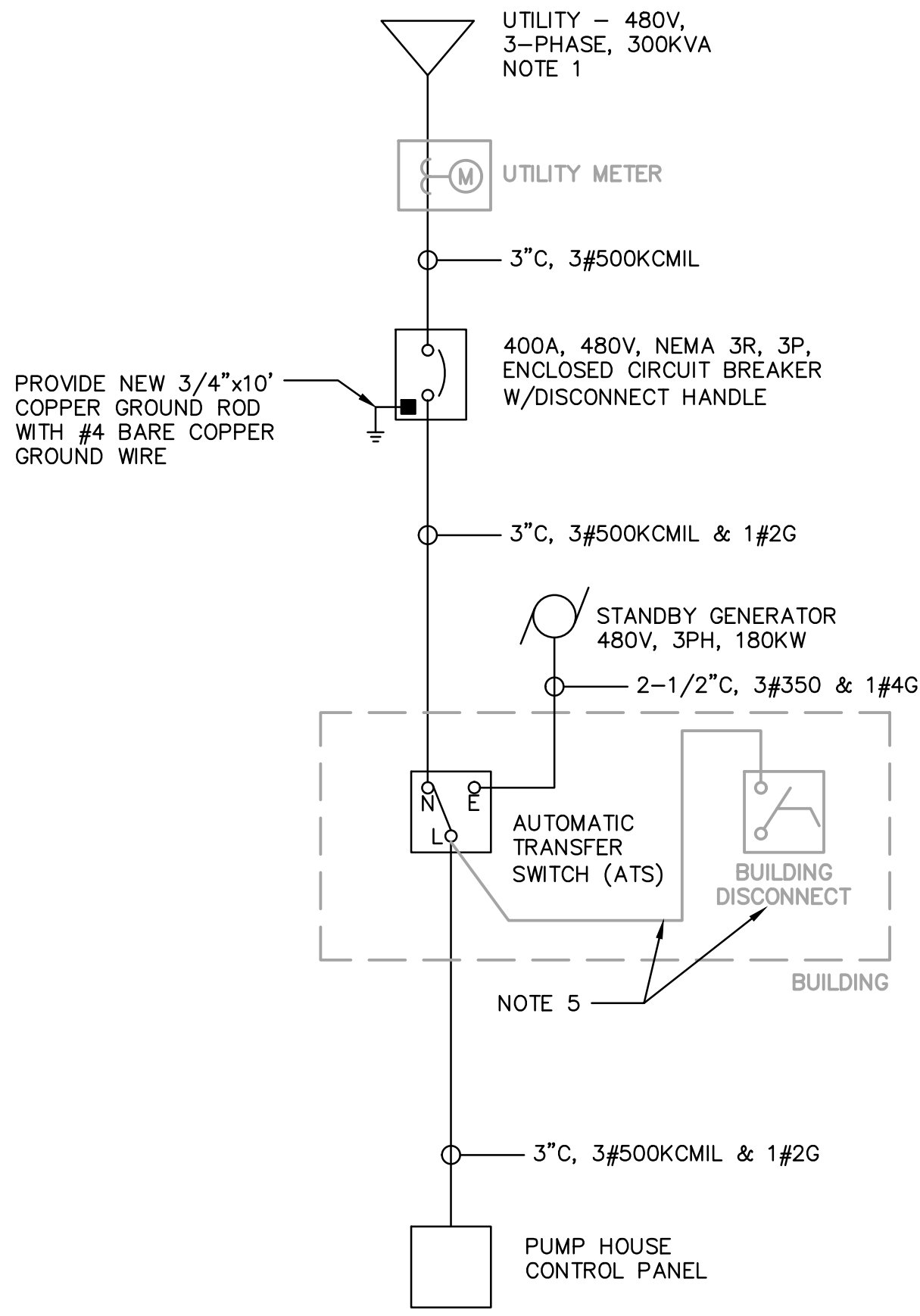
ONE-LINE TABLE LIFT STATIONS:
A, B, C, F, G, I, K, L, M, Q, R



ONE-LINE DIAGRAM (TYPICAL) LIFT STATIONS:
D, E, H, J, P, S

LIFT STATION	"A" - EXISTING UTILITY DATA	"B" - CONDUIT & WIRE	"C" - ENCLOSED CIRCUIT BREAKER	"D" - CONDUIT & WIRE	"E" - CONDUIT & WIRE	"F" - CONDUIT & WIRE	"G" - CONDUIT & WIRE	"H" - GENERATOR DATA	"J" - EST. LOAD (KVA)
D	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	EXISTING - TO REMAIN	240V, 3PH, 40KW	25.8
E	240V, 3-PHASE, OPEN DELTA, 39KVA	1-1/2" C, 3#1/0	125A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	EXISTING - TO REMAIN	240V, 3PH, 40KW	20.8
H	480V, 3-PHASE, OPEN DELTA, 97.5KVA	1-1/2" C, 3#1/0	150A, 480V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/4" C, 3#2 & 1#8G	480V, 3PH, 60KW	69.8
J	240V, 3-PHASE, OPEN DELTA, 58.5KVA	2" C, 3#2/0	175A, 240V, 3P, NEMA 3R	2" C, 3#2/0 & 1#6G	2" C, 3#2/0 & 1#6G	2" C, 3#2/0 & 1#6G	EXISTING - TO REMAIN	240V, 3PH, 60KW	59.0
P	480V, 3-PHASE, OPEN DELTA, 58.5KVA	1-1/4" C, 3#2	100A, 480V, 3P, NEMA 3R	1-1/4" C, 3#2 & 1#8G	1-1/4" C, 3#2 & 1#8G	1-1/4" C, 3#2 & 1#8G	EXISTING - TO REMAIN	480V, 3PH, 60KW	47.3
S	240V, 3-PHASE, OPEN DELTA, 48.8KVA	1-1/2" C, 3#1/0	150A, 240V, 3P, NEMA 3R	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	1-1/2" C, 3#1/0 & 1#6G	240V, 3PH, 60KW	37.4

ONE-LINE TABLE LIFT STATIONS:
D, E, H, J, P, S



ONE-LINE DIAGRAM LIFT STATION: N

NOTES:

- EXISTING STATION N ELECTRIC SERVICE HAS (2) 100KVA TRANSFORMERS WIRED IN AN OPEN DELTA CONFIGURATION (130KVA). CONTRACTOR TO PURCHASE AND INSTALL AN ADDITIONAL 100KVA TRANSFORMER TO MATCH EXISTING AND WIRE IN A TRADITIONAL CLOSED DELTA TO INCREASE SERVICE CAPACITY TO 300KVA. REMOVE AND REINSTALL ALL TRANSFORMERS WITH NEW MOUNTING HARDWARE FOR SYMMETRICAL (3) TRANSFORMER INSTALLATION.
- EXISTING GENERATORS AT STATIONS 'E', 'H', AND 'S' TO BE RELOCATED PER THE PLAN DRAWINGS. EXISTING CONDUIT TO BE REMOVED, REWORKED OR REPLACED AS REQUIRED. EXISTING GENERATOR WIRING TO BE REMOVED AND REPLACED AS INDICATED IN THE ONE-LINE TABLES THIS SHEET.
- CONTRACTOR TO PROVIDE SPARE BREAKER IN PUMP HOUSE CONTROL PANEL TO FEED NEW AREA LIGHT. PROVIDE SWITCH FOR NEW AREA LIGHT INSIDE NEW VALVE ENCLOSURE.
- CONTRACTOR TO VERIFY UTILITY TRANSFORMER KVA RATINGS MEET OR EXCEED VALUES LISTED IN COLUMN "A" EXISTING UTILITY DATA OF THE RESPECTIVE PUMP STATIONS, AND ARE SUFFICIENT TO SUPPORT ALL NEW ELECTRICAL LOADS. NOTIFY ENGINEER OF ANY DEFICIENCIES. UTILITY KVA RATINGS ARE ESTIMATES BASED ON STANDARD TRANSFORMER SIZES DERATED TO 65% BASED ON (2) TRANSFORMERS WIRED IN AN OPEN DELTA CONFIGURATION.
- EXISTING BUILDING DISCONNECT (MOUNTED TO SIDE OF ATS) AND CONDUCTORS TO BE DISCONNECTED AND REMOVED FROM EXISTING ATS. BUILDING DISCONNECT TO BE REINSTALLED AND CONNECTED TO NEW ATS. REWORK AND EXTEND CONDUIT AND WIRING AS REQUIRED.

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.

ARCADIS

CONSULTANTS

SEALS

LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2021

COPYRIGHT: ARCADIS U.S., INC.

DATE: SEPTEMBER 2021

PROJECT NO.: 30027906

FILE NAME: ONE-LINES

DESIGNED BY: J. SIMPSON

DRAWN BY: T. GARDINER

CHECKED BY: D. OBERLE

SHEET TITLE

ELECTRICAL

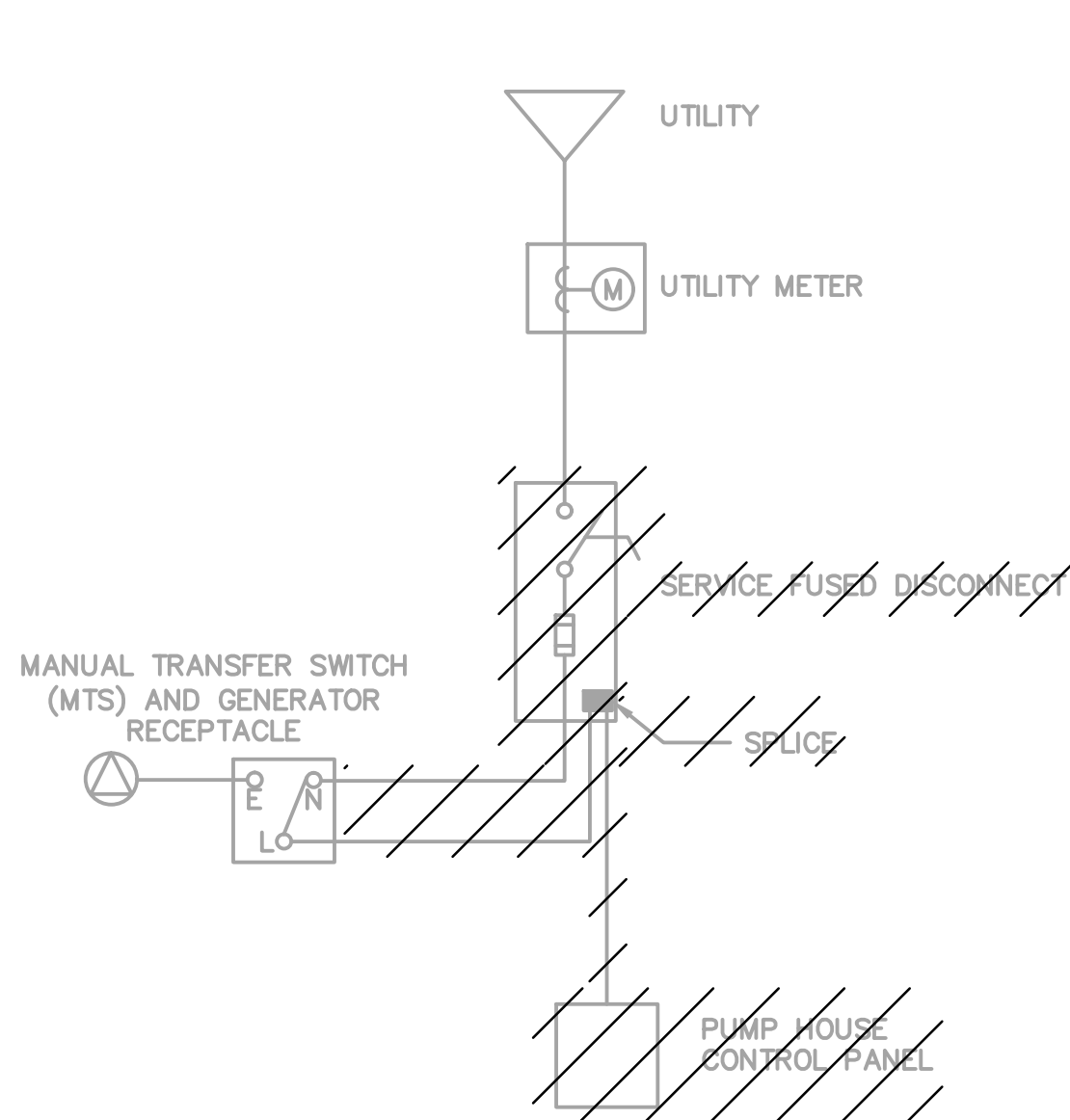
ELECTRICAL ONE-LINE
DIAGRAMS

SCALE: AS SHOWN

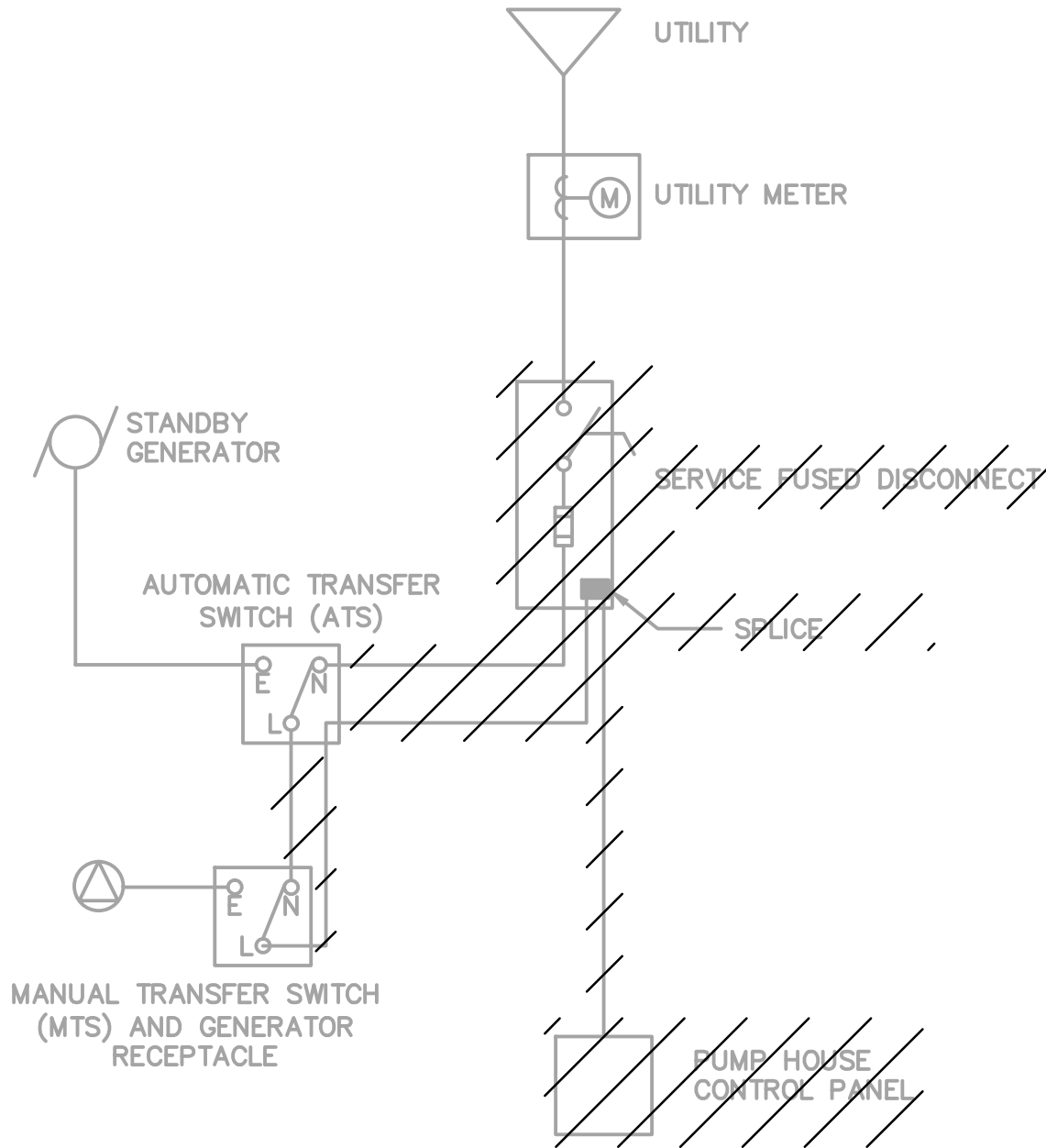
E-1

SHEET 23 OF 24

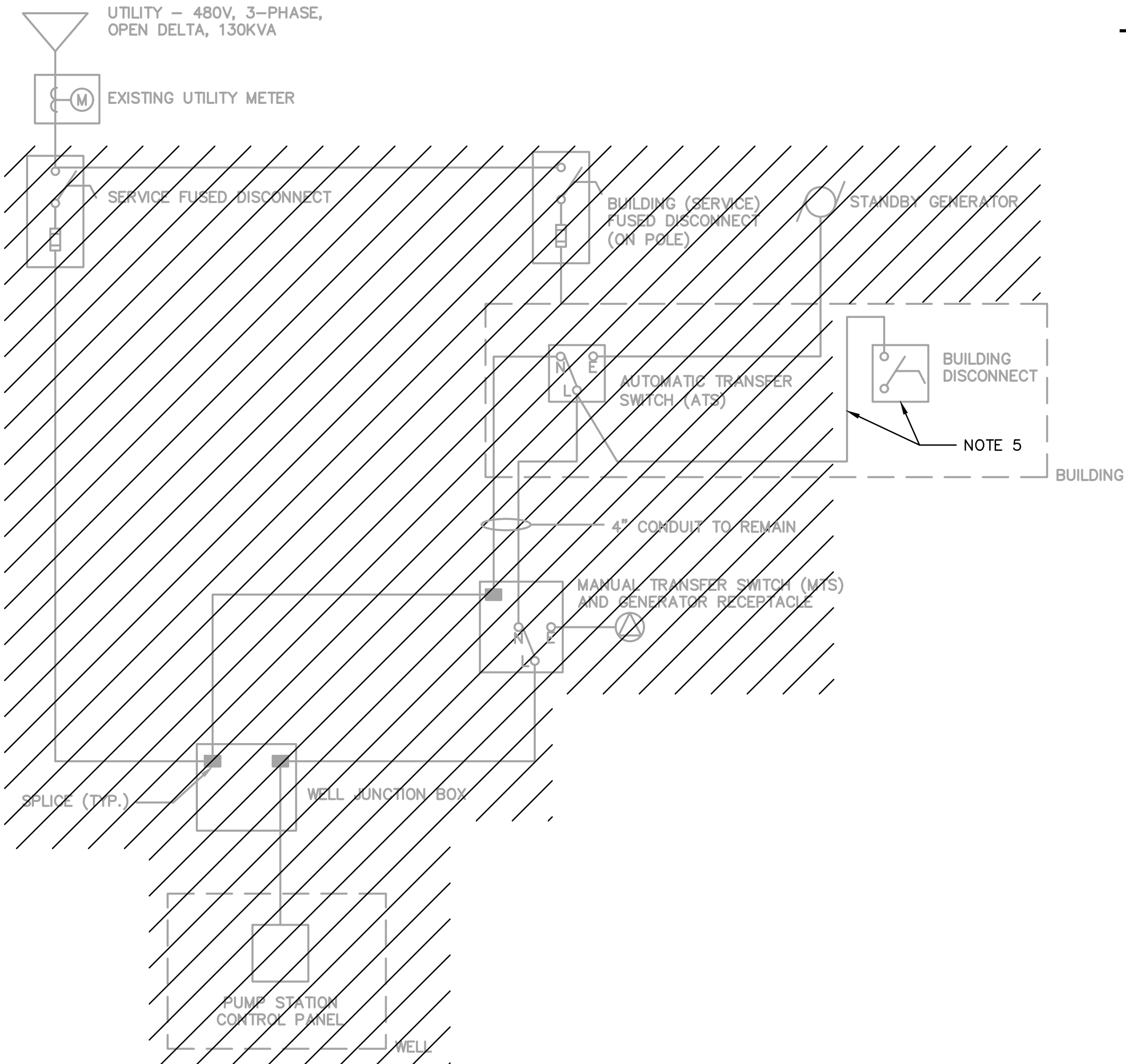
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DEMO ONE-LINE DIAGRAM (TYPICAL) LIFT STATIONS:
A, B, C, F, G, I, K, L, M, Q, R



DEMO ONE-LINE DIAGRAM LIFT STATIONS:
D, E, H, J, P, S



DEMO ONE-LINE DIAGRAM LIFT STATION: N

EXISTING EQUIPMENT OR
EXISTING CONDUIT AND WIRE
NEW EQUIPMENT OR
NEW CONDUIT AND WIRE
TO BE REMOVED

NOTES:

- DEMO EXISTING EQUIPMENT, CONDUIT AND WIRE AS INDICATED. ALL CONDUITS SHALL BE COMPLETELY REMOVED AND NOT ABANDONED IN PLACE.
- ALL ASSOCIATED CONTROLS AND COMMUNICATIONS CONDUITS ASSOCIATED WITH DEMOLISHED EQUIPMENT SHALL ALSO BE REMOVED.
- EXISTING EQUIPMENT RACKS AND STRUCTURES TO REMAIN AND BE REUSED AS MUCH AS POSSIBLE.
- EXISTING UNUSED METER SOCKET ENCLOSURE AT STATIONS 'F' AND 'M' TO BE REMOVED.
- EXISTING BUILDING DISCONNECT (MOUNTED TO SIDE OF ATS) AND CONDUCTORS TO BE DISCONNECTED AND REMOVED FROM EXISTING ATS. BUILDING DISCONNECT TO BE REINSTALLED AND CONNECTED TO NEW ATS. REWORK AND EXTEND CONDUIT AND WIRING AS REQUIRED.

LEGAL ENTITY: ARCADIS OF MICHIGAN, LLC.



CONSULTANTS

SEALS



LENAWEE COUNTY
DRAIN COMMISSION

ROLLIN-WOODSTOCK
SANITARY DRAIN LIFT STATION
IMPROVEMENTS

ARCADIS PROJ. NO. 30027906

2	9/9/21	ISSUED FOR BID	DMO
1	8/18/21	EGL E SUBMITTAL	DMO
NO.	DATE	ISSUED FOR	BY

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2021

DATE: SEPTEMBER 2021
PROJECT NO.: 30027906
FILE NAME: DEMOLITION ONE-LINES
DESIGNED BY: J. SIMPSON
DRAWN BY: T. GARDINER
CHECKED BY: D. OBERLE

SHEET TITLE

ELECTRICAL
ELECTRICAL DEMOLITION
ONE-LINE DIAGRAMS

SCALE: NOT TO SCALE

ED-2

SHEET 24 OF 24