CONSTRUCTION PLANS FOR

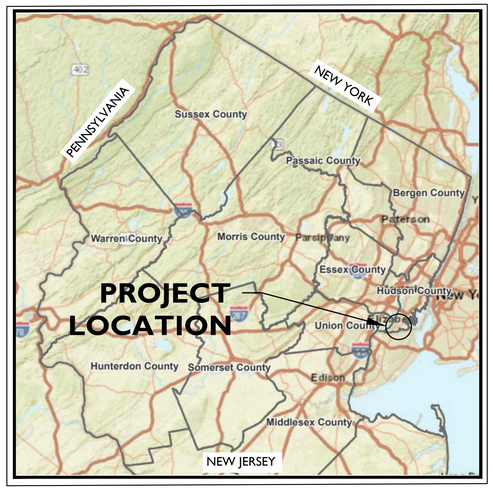
PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE

MIDDLESEX COUNTY, NEW JERSEY

DECEMBER, 2022

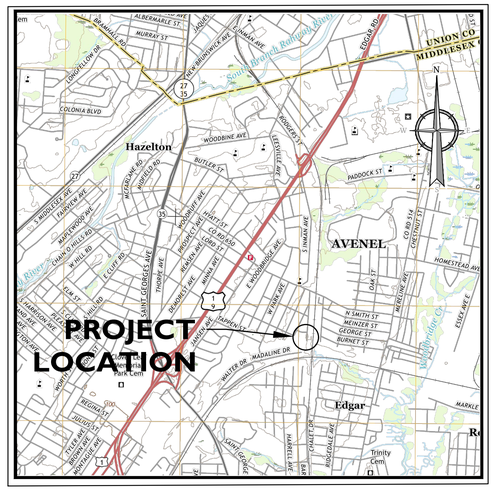
CONTRACT NO. 2022-026



LOCATION MAP

NTS

SOURCE: NJ-GEOWEB



VICINITY MAP

1" = 2000'

SOURCE: USGS

UTILITIES

ELECTRIC
PUBLIC SERVICE ELECTRIC AND GAS CO.
472 WESTON CANAL ROAD
SOMERSET, NJ 08873
(732) 764-3158

CABLE
COMCAST CABLE
800 RAHWAY AVENUE
UNION, NJ 07083
ATTN: PHILIP GIBSON
(908) 624-6779

WATER
MIDDLESEX WATER COMPANY
ENGINEERING DEPARTMENT
1500 RONSON ROAD, P.O. BOX 1500
ISELIN, NJ 08830-452
ATTN: ISIDRO BUEN
(732) 638-7533

TELEPHONE/COMMUNICATIONS
VERIZON-NEW JERSEY, INC.
999 WEST MAIN STREET
FREEHOLD, NJ 07728
ATTN: IAN CHAN
(224) 713-2566

SANITARY SEWER
TOWNSHIP OF WOODBRIDGE
DIVISION OF ENGINEERING
1 MAIN STREET
WOODBRIDGE, NJ 07095
ATTN: MICHAEL GELIN
(732) 602-6047

GAS
BUCKEYE PARTNERS, LP
9999 HAMILTON BOULEVARD
BREINGSVILLE, PA 18031
ATTN: DAVE A. JONES
(610) 283-1701

ELIZABETH GAS CO.
520 GREEN LANE
UNION, NJ 07083
ATTN: KEVIN ESCOBAR
(908) 662-8370

MIDDLESEX COUNTY UTILITIES AUTHORITY
2571 MAIN STREET P.O. BOX 1500
SAYREVILLE, NJ 08872
ATTN: KEVIN T. AIELLO
(732) 721-3800

WILLIAM GAS PIPELINE-TRANSCO
99 FARBER ROAD
PRINCETON, NJ 08540
ATTN: KEVIN YUILL
(732) 921-5623

TEXAS EASTERN GAS PIPELINE
501 COOLIDGE STREET
SOUTH PLAINFIELD, NJ 07080
ATTN: RICHARD THORNTON
(908) 821-1803

JOHN E. McCORMAC - MAYOR

TOWNSHIP COUNCIL

HOWIE BAUER	COUNCIL PRESIDENT / SECOND WARD
GREGG M. FICARRA	COUNCIL VICE-PRESIDENT / COUNCILMAN - AT - LARGE
SHARON MCAULIFFE	COUNCILWOMAN - FIRST WARD
CORY SPILLAR	COUNCILMAN - THIRD WARD
VIRBHADRA N. PATEL	COUNCILMAN - FOURTH WARD
DEBBIE MEEHAN	COUNCILWOMAN - FIFTH WARD
KYLE ANDERSON	COUNCILMAN-AT-LARGE
LIZBETH DEJESUS	COUNCILWOMAN-AT-LARGE
BRIAN SMALL	COUNCILMAN-AT-LARGE
VITO CIMILLUCA	BUSINESS ADMINISTRATOR
JOHN M. MITCH	MUNICIPAL CLERK
JAMES.P NOLAN, JR., ESQ.	DIRECTOR OF LAW
GEORGE BREW	DIRECTOR OF PUBLIC WORKS
MICHAEL GELIN, PE	MUNICIPAL ENGINEER

INDEX OF SHEETS

SHEET NUMBERS	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES AND LEGEND
3	EXISTING CONDITIONS PLAN
4	DEMOLITION PLAN
5	PUMP STATION SITE PLAN
6	MECHANICAL PLANS AND SCHEDULES
7	PUMP STATION DESIGN CALCULATIONS
8	ELECTRICAL DEMOLITION PLAN
9	NEW SINGLE LINE, ELECTRICAL SITE PLAN AND SCHEDULES
10	ELECTRICAL DETAILS
11	CONSTRUCTION DETAILS

DESIGN OF THE PUMP STATION IS IN ACCORDANCE WITH ALL AGENCIES HAVING JURISDICTION. CONSTRUCTION SHALL ADHERE TO, INCLUDING BUT NOT LIMITED TO REGULATIONS PUBLISHED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), NFPA, UNIFORM BUILDING CODE (UBC), NEMA, AND OTHERS AS APPLICABLE.

WORK PRACTICES AND CONDITIONS MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH AND SAFETY LEGISLATION.

UNDERGROUND LOCATION SERVICE CALL: 1-800-272-1000.

NOTE: LOCATION OF UTILITIES AS SHOWN ON THESE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND IS NOT GUARANTEED AS TO EXACTNESS. THE CONTRACTOR IS TO CONTACT UTILITY COMPANIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE EXACT LOCATION AND DEPTH OF ALL UTILITIES. THE CONTRACTOR SHALL USE THE UTILITY LOCATIONS SHOWN AS AN AID IN DETERMINING EXACT LOCATIONS. CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL SUPPLYING THE TOWNSHIP ENGINEER WITH THE ONE-CALL CONFIRMATION NUMBER.

Colliers Engineering & Design
www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

PROJECT NUMBER: 22002730A
DRAWING NAME: W-CVER

SHEET TITLE: COVER SHEET

SHEET NUMBER: 1 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730A\Site Plans\W-CVER.dwg|W-01 COVER By: LKEENAN

GENERAL CONSTRUCTION NOTES:

1. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM THE BEST INFORMATION AVAILABLE FURNISHED BY THE TOWNSHIP OR THE RESPECTIVE UTILITY COMPANIES, HOWEVER , NO GUARANTEE AS TO ITS ACCURACY OR COMPLETENESS IS MADE. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE USED TO ASCERTAIN EXISTING INVERTS, MATERIAL AND SIZES OF THE UTILITIES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENT AS REQUIRED TO AVOID CONFLICTS. IN THE EVENT THAT THE UTILITIES SHOWN ON THE PLAN DIFFER FROM MARKOUT/ACTUAL CONDITIONS, THE CONTRACTOR SHALL NOT BE RELIEVED OF HIS RESPONSIBILITY TO PERFORM THE WORK AT THE AMOUNT BID AND THE CONTRACTOR SHALL PERFORM THE WORK AT NO ADDITIONAL COST TO THE OWNER.

2. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER MATERIALLY FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS, IN CONTRACTOR'S OPINION, WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE OR INEFFECTIVE.

3. NO SEWER MAINS SHALL BE CONSTRUCTED WITH LESS THAN (3.5) THREE AND ONE HALF FEET OF COVER AT PROPOSED FINISH GRADE, UNLESS SPECIFICALLY SHOWN ON THE PLANS AND/OR APPROVED BY THE ENGINEER. IF AFFECTED BY CONSTRUCTION, SEWER LATERALS SHALL BE RESTORED WITH NO LESS THAN (2) TWO FEET OF COVER AT PROPOSED FINISH GRADE, UNLESS SPECIFICALLY SHOWN ON THE PLANS AND/OR APPROVED BY THE ENGINEER.

4. THE LIMIT OF DISTURBANCE SHALL BE THE RIGHT-OF-WAY LIMITS (BOUNDARY/EASEMENT LINES). THE CONTRACTOR SHALL INSTALL A SILT FENCE ALONG LIMIT OF DISTURBANCE, WHERE REQUIRED, AND SHALL CONFINE ALL CONSTRUCTION ACTIVITIES WITHIN THE RESTRICTED AREA. THE CONTRACTOR SHOULD GIVE A MINIMUM 14 DAYS NOTICE TO THE PROPERTY OWNER AND THE ENGINEER INFORMING ABOUT SCHEDULED CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF DISTURBANCE.

5. THE CONTRACTOR IS ADVISED THAT ALL TREES, STRUCTURES, AND LANDSCAPING LOCATED WITHIN LIMIT OF DISTURBANCE ARE TO BE PROTECTED AND PRESERVED WHEN NOT IN CONFLICT WITH ACCESS TO OR CONSTRUCTION OF PROPOSED FACILITIES.

6. ALL AREAS AND STRUCTURES DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE ENGINEER.

7. THE CONTRACTOR MUST COMPLY WITH STATE AND FEDERAL CONFINED SPACE REQUIREMENT & O.S.H.A. REQUIREMENTS.

8. PER NJAC 7:14A-23.6(b)4, SEWERS SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN.
WHERE APPROPRIATE SEPARATION FROM WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS, AS REQUIRED BY THE ENGINEER, FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING OR PARALLEL TO THE EXISTING WATER MAIN. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED.

9. MANHOLE RIM ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL ADJUST ELEVATIONS AS NECESSARY TO MATCH FINAL GRADES.

10. MANHOLE INVERT ELEVATIONS & PIPE ALIGNMENTS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE & PROVIDE INVERTS/ALIGNMENTS AS REQUIRED PER PLAN, PER FIELD CONDITIONS & AS REQUIRED BY THE ENGINEER.

11. DURING CONSTRUCTION OF PROPOSED PUMP STATION AND SANITARY SEWERS, CONTRACTOR SHALL ANTICIPATE LEAKING STORM LINES AND HAVE THE MEANS TO CONTROL SAME. ANY STORM DRAINAGE PIPE OR STRUCTURES DAMAGED BY THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED OR REPLACED. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS PIPE ITEMS IN THE PROPOSAL.

12. ALL ITEMS MARKED "TO BE KEPT" SHALL BE SALVAGED, OTHERWISE IT SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN OWNERS DECISION IN THIS MATTER PRIOR TO ANY REMOVAL.

13. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN SANITARY SEWER FLOWS AT ALL TIMES DURING CONSTRUCTION. IF NECESSARY, BY-PASS INSTALLATIONS SHALL BE PROVIDED AND MAINTAINED TO ASSURE AND ADEQUATE FLOW OF SANITARY SEWERS AFFECTED BY CONSTRUCTION.

14. THE CONTRACTOR SHALL TEMPORARILY RELOCATE EXISTING UTILITIES, WHICH ARE IN CONFLICT WITH CONSTRUCTION OF THE PROPOSED IMPROVEMENTS OR ACCESS AS REQUIRED TO FACILITATE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION AND BY-PASS OPERATIONS TO PERFORM THE UTILITY RELOCATION WORK. AFTER CONSTRUCTION OF PROPOSED IMPROVEMENTS IS COMPLETE THE TEMPORARILY RELOCATED UTILITIES SHALL BE REINSTALLED BACK IN THEIR ORIGINAL LOCATION, UNLESS OTHERWISE INDICATED ON THE PLANS OR ORDERED BY THE OWNER. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS AND TESTING REQUIRED TO REINSTATE ALL SERVICES BEING RELOCATED.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH LOCAL UTILITY COMPANIES.

16. PRIOR TO THE EXCAVATION FOR ANY RUN OF PIPE, THE CONTRACTOR SHALL HAVE ALL UTILITIES MARKED IN THE FIELD. THE USE OF TEST PITS FOR THE PURPOSE OF DETERMINING MAJOR UTILITY CONFLICTS OTHER THAN UTILITY SERVICE CONNECTIONS SHALL BE PAID FOR UNDER "UTILITY TEST PITS" IN THE PROPOSAL AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ARRANGE FOR ANY NECESSARY UTILITY RELOCATION AND SHALL RESCHEDULE ITS OPERATIONS ACCORDINGLY.

17. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE PROVIDED IN ACCORDANCE WITH THE "STANDARDS" PURSUANT TO THE SOIL EROSION AND SEDIMENT CONTROL ACT OF 1975 AS CURRENTLY AMENDED. (P.L. 1975, NJSA 4:24-39 ET. SEQ.).

18. THE CONTRACTOR IS RESPONSIBLE FOR THE PROJECT SAFETY, INCLUDING PROVIDING OF ALL APPROPRIATE SAFETY DEVICES AND TRAINING REQUIRED.

19. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THIS OFFICE, AS WELL AS ALL RESIDENTS AND BUSINESSES WITHIN THE PROJECT AREAS AT LEAST 72 HOURS PRIOR TO START OF CONSTRUCTION IN THOSE AREAS.

20. THE ROADS MUST REMAIN OPEN TO TRAFFIC AT ALL TIMES, UNLESS TRAFFIC IS RE-ROUTED AS PER AN APPROVED DETOUR. ACCESS TO ALL DWELLINGS/STRUCTURES MUST BE MAINTAINED AT ALL TIMES FOR EMERGENCY SERVICES.

21. THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE DEPARTMENTS, FIRST AID SQUADS, AND ANY OTHER EMERGENCY PUBLIC SERVICES THREE (3) DAYS PRIOR TO CONSTRUCTION ON ANY STREET. ACCESS TO EMERGENCY VEHICLES AND EQUIPMENT MUST BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL NOT PREVENT, OR IN ANY WAY IMPAIR, THE MOVEMENT OF EMERGENCY VEHICLES.

22. THE GENERAL NOTES APPLY TO ALL SHEETS IN THIS SET.

23. THE CONTRACTOR IS ADVISED THAT THERE ARE OVERHEAD UTILITIES PRESENT THROUGHOUT THE LIMITS OF THE PROJECT. OVERHEAD UTILITIES SHALL BE AVOIDED OR SUPPORTED AS NECESSARY TO FACILITATE CONSTRUCTION.

24. CONTRACTOR SHALL INSTALL APPROPRIATE SAFETY SIGNS AS MANUFACTURED BY SETON OR EQUAL, INCLUDING BUT NOT LIMITED TO:
DANGER - CONFINED SPACE, PERMIT REQUIRED PRIOR TO ENTRY (7" X 10")
DANGER - EQUIPMENT STARTS AUTOMATICALLY, #93-95386 (3" X 5")
DANGER - 120/240 VOLTS, #93-95-233 (3"X5")

25. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH EXISTING LOCAL, COUNTY, OR STATE REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION IN THESE MATTERS.

26. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.

27. ALL GRADING OPERATIONS SHALL PROVIDE FOR POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND STRUCTURES AND SHALL ELIMINATE PONDING AREAS.

28. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO FAMILIARIZE HIMSELF AS TO THE EXISTING CONDITIONS PRIOR TO THE BIDDING WORK.

29. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN MEANS OF INGRESS AND EGRESS TO RESIDENTS THROUGHOUT THE COURSE OF THE WORK AND TO PROVIDE ADEQUATE MAINTENANCE AND PROTECTION OF TRAFFIC.

30. THE CONTRACTOR'S LICENSED SURVEYOR SHALL PROVIDE THE CONSTRUCTION STAKEOUT FOR THE PROJECT.

31. THE CONTRACTOR WILL NOT BE PERMITTED TO STOCKPILE EXCAVATED MATERIALS OVER EXISTING UTILITY LINES. THE STOCKPILED MATERIALS SHOULD BE PLACED SUFFICIENTLY AWAY FROM THE EDGE OF ANY EXCAVATION TO PREVENT CAVING OF THE TRENCH WALL AND TO PERMIT ACCESS ALONG THE TRENCH. WITH SHEETED TRENCHES, A MINIMUM OF FIVE (5) FEET FROM THE EDGE OF SHEETING TO TOE OF SPOIL BANK MUST BE MAINTAINED.

32. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO PRECLUDE DAMAGE TO EXISTING STRUCTURES, FACILITIES, AND UTILITIES DUE TO LOSS OF LATERAL SUPPORT AND/OR CONSTRUCTION LOADINGS, SPECIFIC DETAILS NECESSARY TO ACCOMPLISH SAME SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION.

33. ALL WORK BY THE CONTRACTOR SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE NEW JERSEY STATUTE KNOWN AS CHAPTER 249 OF THE LAWS OF 1948, BEING SECTIONS 34:6-47.9, INCLUSIVE OF THE REVISED STATUTES OF NEW JERSEY, 1937, AND IN ACCORDANCE WITH THE RULES AND REGULATIONS CONCERNING PRECAUTIONS TO BE TAKEN IN THE PROXIMITY OF HIGH-VOLTAGE LINES FOR THE PREVENTION OF ACCIDENTS PROMULGATED BY THE COMMISSIONER OF THE DEPARTMENT OF LABOR AND INDUSTRY OF THE STATE OF NEW JERSEY, EFFECTIVE DECEMBER 28, 1948, ALL AS AMENDED AND SUPPLEMENTED, AND IN ACCORDANCE WITH PROVISIONS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND OF SUBPART N, PARAGRAPH 1926.550 OF THE RULES AND REGULATIONS ISSUED UNDER SAID ACT.

34. THE CONTRACTOR IS HEREIN ADVISED THAT ALL WORK TO BE PERFORMED SHALL BE GOVERNED BY THE LOCAL MUNICIPAL ORDINANCES. THIS SHALL INCLUDE THE PROVISIONS IN THEIR CODES WHICH SET FORTH PERMITTED HOURS OF CONSTRUCTION WITHIN THE MUNICIPALITY.

35. THE CONTRACTOR IS ADVISED THAT THEY ARE RESPONSIBLE TO PAY FOR, ACQUIRE AND COMPLY WITH ANY ROAD OPENING PERMITS IF REQUIRED IN CONJUNCTION WITH THE PROPOSED IMPROVEMENTS.

36. WHEN DISTURBING, REMOVING AND/OR DISPOSING OF ASBESTOS CEMENT PIPE, THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS INCLUDING BUT NOT LIMITED TO: CURRENT USEPA REGULATIONS (NESHAP, 40 CFR 61 SUBPART M): OSHA REGULATIONS (29 CFR 192658); THE CURRENT NEW JERSEY ASBESTOS HAZARD ABATEMENT SUBCODE (N.J.A.C. 5:23-8); THE CURRENT NJDEPE REGULATIONS (N.J.A.C. 7:26-1 ET. SEQ.); AND NOTIFICATION REGULATIONS (N.J.A.C. 5:23-8.8, 40 CFR 61 SUBPART M, AND N.J.A.C. 7:26-2:12).

37. THE FREEHOLD SOIL CONSERVATION DISTRICT GOVERNS SOIL EROSION AND SEDIMENT CONTROL MEASURES WITHIN THE PROJECT AREA. ACCORDINGLY ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AS PER THE REQUIREMENTS OF THE FREEHOLD SOIL CONSERVATION DISTRICT AND AS DIRECTED BY THE ENGINEER.

38. THE CONTRACTOR SHALL CONTINUOUSLY DEWATER ALL EXCAVATIONS UNTIL BACKFILLING OPERATIONS HAVE BEEN COMPLETED. PRIOR TO DISCHARGE TO STREAMS, SILT SHALL BE SETTLED OUT IN AN APPROVED SETTLING BASIN.

39. THE CONTRACTOR SHALL MAINTAIN THE FLOW OF ALL STREAMS, DRAINAGE DITCHES, STORM SEWERS, AND SANITARY SEWERS AT ALL TIMES BY A MEANS ACCEPTABLE TO THE ENGINEER AND ALL THE RESPONSIBLE AGENCIES.

40. THE CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICE FLOWS AND PRESSURES UNLESS WRITTEN APPROVAL BY THE RESPONSIBLE UTILITY COMPANY PERMITS HIM TO DO OTHERWISE.

41. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE OF NEW JERSEY WORKER HEALTH AND SAFETY ACT (N.J.A.C. 12:110 ET SEQ) AS AMENDED AND THE UNITED STATES OCCUPATIONAL SAFETY & HEALTH ACT (OSHA) (29 CFR 1910.), AS AMENDED WITH REGARD TO WORKER AND JOBSITE SAFETY.

USE OF DRAWINGS:
SUCCESSOR OF PROFESSIONAL ENGINEER UTILIZING THESE DRAWINGS MUST ABIDE BY THE RULES AND REGULATIONS CONTAINED IN 13:40-8.2 OF THE NEW JERSEY ADMINISTRATIVE CODE.

GENERAL NOTES FOR UTILITIES:

1. THE LOCATION AND ELEVATION OF ALL UTILITIES SHOWN ON THE DRAWINGS ARE BASED ON THE AVAILABLE INFORMATION FURNISHED BY WOODBRIDGE TOWNSHIP.
2. THE CONTRACTOR SHALL OBTAIN UTILITY MARK OUTS IN THE WORK AREA IN ACCORDANCE WITH ALL LOCAL, COUNTY, AND STATE LAWS PRIOR TO EXECUTE THE WORK.
3. THE CONTRACTOR SHALL PROVIDE A QUALIFIED INDEPENDENT UTILITY MARK OUT SERVICE SUBCONTRACTOR TO LOCATE AND MARK OUT ALL UTILITIES WITHIN THE LIMITS OF THE WORK USING APPROPRIATE EQUIPMENT AND METHODS PRIOR TO EXECUTE THE WORK.
4. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS OF ALL UNDERGROUND UTILITIES ENCOUNTERED WHILE CONSTRUCTING TEST PITS FOR USE IN THE PERFORMANCE OF WORK UNDER THIS CONTRACT. THESE AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. THE CONTRACTOR SHALL RESTORE ASPHALT PAVEMENT AFTER CONSTRUCTION AND UTILITY RELOCATION WORK IS PERFORMED.
6. WHERE CURBS OR WALKWAYS ARE TO BE REMOVED, ASPHALT SHALL BE SAW CUT OR REMOVED AT THE NEAREST JOINT.
7. NEW PAVING SHALL BE APPLIED ONLY WHERE EXISTING SURFACE TO BE COVERED IS DRY AND CLEAN AFTER PAVING IS COMPLETE. THE CONTRACTOR SHALL SEAL ALL THE JOINTS BETWEEN NEW AND EXISTING PAVING WITH LIQUID ASPHALT. ANY LOW SPOTS WHICH COLLECTS WATER AFTER PAVING SHALL BE SAW-CUT AND REPLACED SO THAT THE AREA PROPERLY DRAINS AT NO ADDITIONAL COST TO THE OWNER.
8. THE ENTIRE DRAINAGE SYSTEM IN THE VICINITY OF THE PROJECT AREA SHALL BE MAINTAINED AND KEPT IN OPERABLE CONDITION DURING THE CONSTRUCTION. THE EFFECTED SEGMENT OF THE DRAINAGE SYSTEM SHALL BE CLEANED AFTER THE COMPLETION OF THE CONSTRUCTION WORK BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING TEST PITS AND THE PROTECTION OF THE EXISTING UTILITIES UNDER THIS CONTRACT. UTILITIES OFFSETS WILL BE APPROVED BY THE ENGINEER ONLY IN CASE WHERE IT DEEMED NECESSARY.
10. TEMPORARY POWER AND UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
11. EXCAVATED MATERIAL SHALL BE HAULED OFFSITE. ANY SOIL TO BE STOCKPILED ON-SITE SHALL BE LOCATED IN THE DESIGNATED AREAS AS DEFINED BY THE OWNER (IF APPLICABLE) AND COVERED WITH PVC SHEETS OR TARP. SUCH PILES OF STOCKPILED SOIL SHALL NOT EXCEED SIX (6) FEET IN HEIGHT OR DIAMETER.
12. IF CONTRACTOR FINDS ANY DISCREPANCY IN / OR OMISSION FROM THESE DRAWINGS, OR IF CONTRACTOR SHOULD BE IN QUESTION AS TO THEIR MEANING AND / OR INTENT, THE CONTRACTOR SHALL SUBMIT REQUEST FOR CLARIFICATION IN WRITING.
13. THE CONTRACTOR SHALL PROMPTLY AND LEGALLY REMOVE ALL ACCUMULATED DEBRIS, GARBAGE, ETC. OUT OF THE WORK AREAS AS SOON AS POSSIBLE.
14. THE CONTRACTOR SHALL PROTECT ALL EXPOSED PORTIONS OF THE WORK AND SECURELY STORE ALL MATERIALS. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFE KEEPING OF EQUIPMENTS AND MATERIALS.

LEGEND

EXISTING		PROPOSED
12+00 PI 13+00	TRAVERSE LINE, CENTER LINE OR BASELINE (LABEL AS SUCH)	12+00 13+00
	RIGHT OF WAY LINE	
	PROPERTY LINE	
	EDGE OF PAVEMENT	
FACE BACK	CURB	FACE BACK
	DEPRESSED CURB	
	SIDEWALK	
X X	FENCES	X X
	TREELINE	
	ROADWAY SIGNS	
	WETLAND LINE	
	MUNICIPAL BOUNDARY LINE	
	'B' INLET	
	'E' INLET	
D	STORM MANHOLE	D
S	SANITARY MANHOLE	S
	FLARED END SECTION	
	HEADWALL	
	HYDRANT	
	POLE MOUNTED LIGHT	
75 74	CONTOURS	75 74
× G 29.0	SPOT ELEVATION	× G 29.0
	DIRECTION OF OVERLAND FLOW	
× TC 29.0	TOP OF CURB ELEVATION	× TC 29.0
× BC 29.0	BOTTOM OF CURB ELEVATION	× BC 29.0
	TOP OF DEPRESSED CURB ELEVATION	× TDC 29.0
CATV	CABLE TV CONDUIT	CATV
W	WATER MAIN	W
G	GAS MAIN	G
T	TELEPHONE CONDUIT	T
E	ELECTRIC CONDUIT	E
	SANITARY PIPE	
	STORM PIPE	

NOTE:
REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES, LEGENDS AND ABBREVIATIONS

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BHP	BREAK HORSE POWER
BITUM	BITUMINOUS
BM	BENCH MARK
BOT	BOTTOM
C	CENTER
CFM	CUBIC FEET PER MINUTE
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
CONSTR	CONSTRUCTION
CORP	CORPORATION
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CTL	CONTROL
CU	CUBIC
CY	CUBIC YARD
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWGS	DRAWINGS
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATION
EQUIP	EQUIPMENT
EW	EACH WAY
EX	EXPLOSION PROOF
FIN	FINISHED
F.M.	FORCE MAIN
FT	FOOT/FEET
GFI	GROUND FAULT INTERRUPTER
HMA	HOT MIX ASPHALT
H.P.	HIGH POINT
HP	HORSEPOWER
HZ	HERTZ
IBC	INTERNATIONAL BUILDING CODE
ID	INTERNAL DIAMETER
INV	INVERT
LBS	POUNDS
LF	LINEAR FOOT
L.L.V.	LONG LEG VERTICAL
L.P.	LOW POINT
MANUF	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
M.H.	MANHOLE
MIN	MINIMUM
N	NORTH
NJDOT	NEW JERSEY DEPARTMENT OF TRANSPORTATION
NO	NOTED OTHERWISE
NPT	NATIONAL PIPE THREAD
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P.E.	PLAIN END
POS	POSITION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
REINF	REINFORCED
REQD	REQUIRED
RPM	REVOLUTIONS PER MINUTE
RSC	ROLLED STEEL CHANNEL
SAN	SANITARY
SCH	SCHEDULE
SF	SQUARE FOOT(FEET)
SPECS	SPECIFICATIONS
SQ	SQUARE
S.S.	STAINLESS STEEL
STD	STANDARD
STRUCT	STRUCTURAL
SY	SQUARE YARD(S)
T/	TOP
THK	THICK
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
W/	WITH
W.C.	WATER COLUMN
WWF	WELDED WIRE FABRIC
YD	YARD

Colliers
Engineering & Design
www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 Know what's below. Call before you dig.
PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS
VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

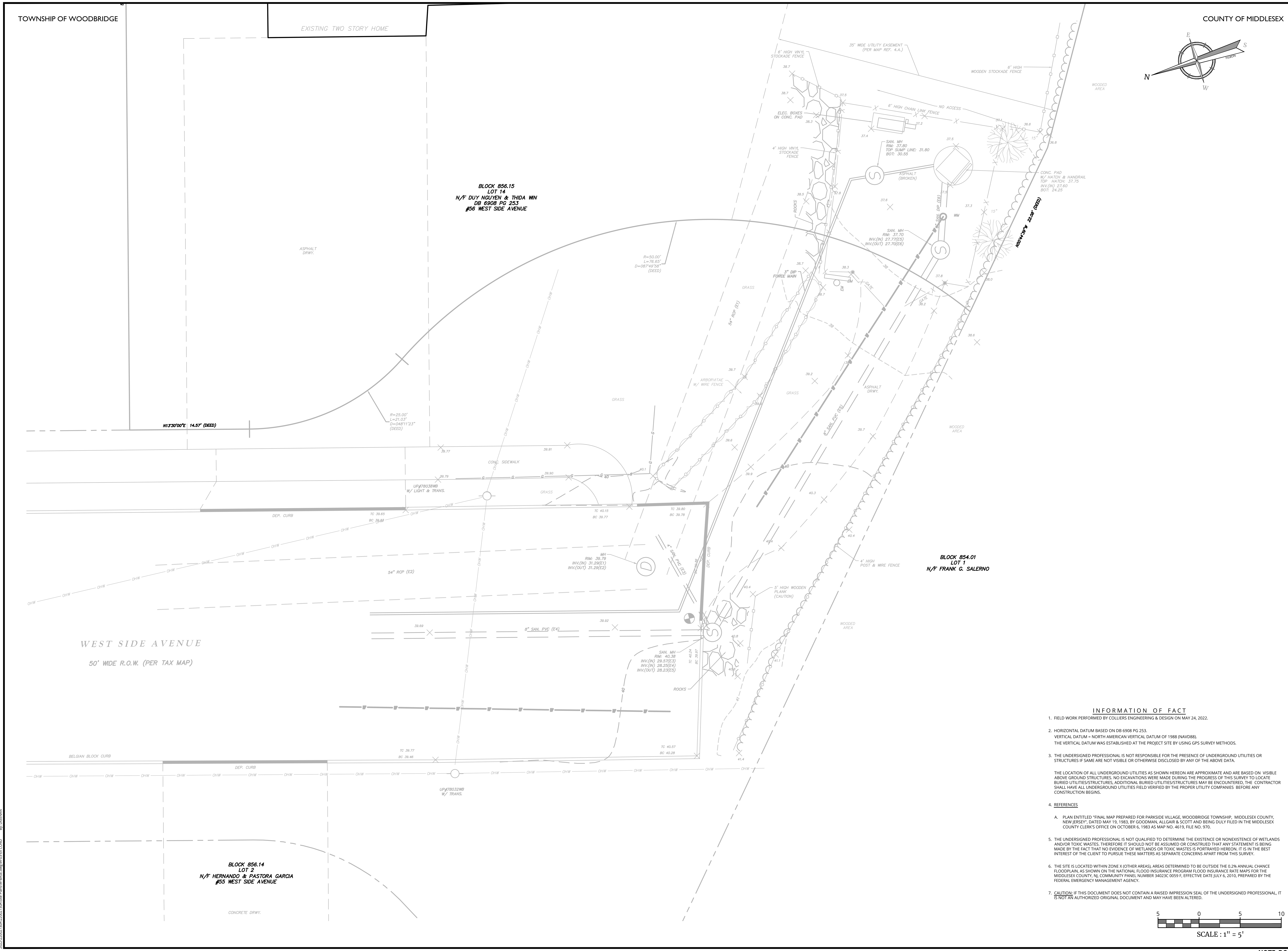
Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM
PROJECT NUMBER: 22002730A	DRAWING NAME: W-CVER		

SHEET TITLE:
GENERAL NOTES AND LEGEND

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730A\Site Plans\W-CVER.dwg\W-02-NOTES By: LKEENAN



INFORMATION OF FACT

1. FIELD WORK PERFORMED BY COLLIERS ENGINEERING & DESIGN ON MAY 24, 2022.

2. HORIZONTAL DATUM BASED ON DB 6908 PG 253.
   VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
   THE VERTICAL DATUM WAS ESTABLISHED AT THE PROJECT SITE BY USING GPS SURVEY METHODS.

3. THE UNDERSIGNED PROFESSIONAL IS NOT RESPONSIBLE FOR THE PRESENCE OF UNDERGROUND UTILITIES OR STRUCTURES IF SAME ARE NOT VISIBLE OR OTHERWISE DISCLOSED BY ANY OF THE ABOVE DATA.

   THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON VISIBLE ABOVE GROUND STRUCTURES. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES, ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED, THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES FIELD VERIFIED BY THE PROPER UTILITY COMPANIES BEFORE ANY CONSTRUCTION BEGINS.

4. REFERENCES

   A. PLAN ENTITLED "FINAL MAP PREPARED FOR PARKSIDE VILLAGE, WOODBRIDGE TOWNSHIP, MIDDLESEX COUNTY, NEW JERSEY", DATED MAY 19, 1983, BY GOODMAN, ALLGAIR & SCOTT AND BEING DULY FILED IN THE MIDDLESEX COUNTY CLERK'S OFFICE ON OCTOBER 6, 1983 AS MAP NO. 4619, FILE NO. 970.

5. THE UNDERSIGNED PROFESSIONAL IS NOT QUALIFIED TO DETERMINE THE EXISTENCE OR NONEXISTENCE OF WETLANDS AND/OR TOXIC WASTES. THEREFORE IT SHOULD NOT BE ASSUMED OR CONSTRUED THAT ANY STATEMENT IS BEING MADE BY THE FACT THAT NO EVIDENCE OF WETLANDS OR TOXIC WASTES IS PORTRAYED HEREON. IT IS IN THE BEST INTEREST OF THE CLIENT TO PURSUE THESE MATTERS AS SEPARATE CONCERNS APART FROM THIS SURVEY.

6. THE SITE IS LOCATED WITHIN ZONE X (OTHER AREAS), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR THE MIDDLESEX COUNTY, NJ, COMMUNITY PANEL NUMBER 34023C 0059 F, EFFECTIVE DATE JULY 6, 2010, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

7. CAUTION: IF THIS DOCUMENT DOES NOT CONTAIN A RAISED IMPRESSION SEAL OF THE UNDERSIGNED PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL DOCUMENT AND MAY HAVE BEEN ALTERED.

SCALE : 1" = 5'

Colliers
Engineering & Design

www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

Know what's below. Call before you dig.

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
-	-	-	-

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

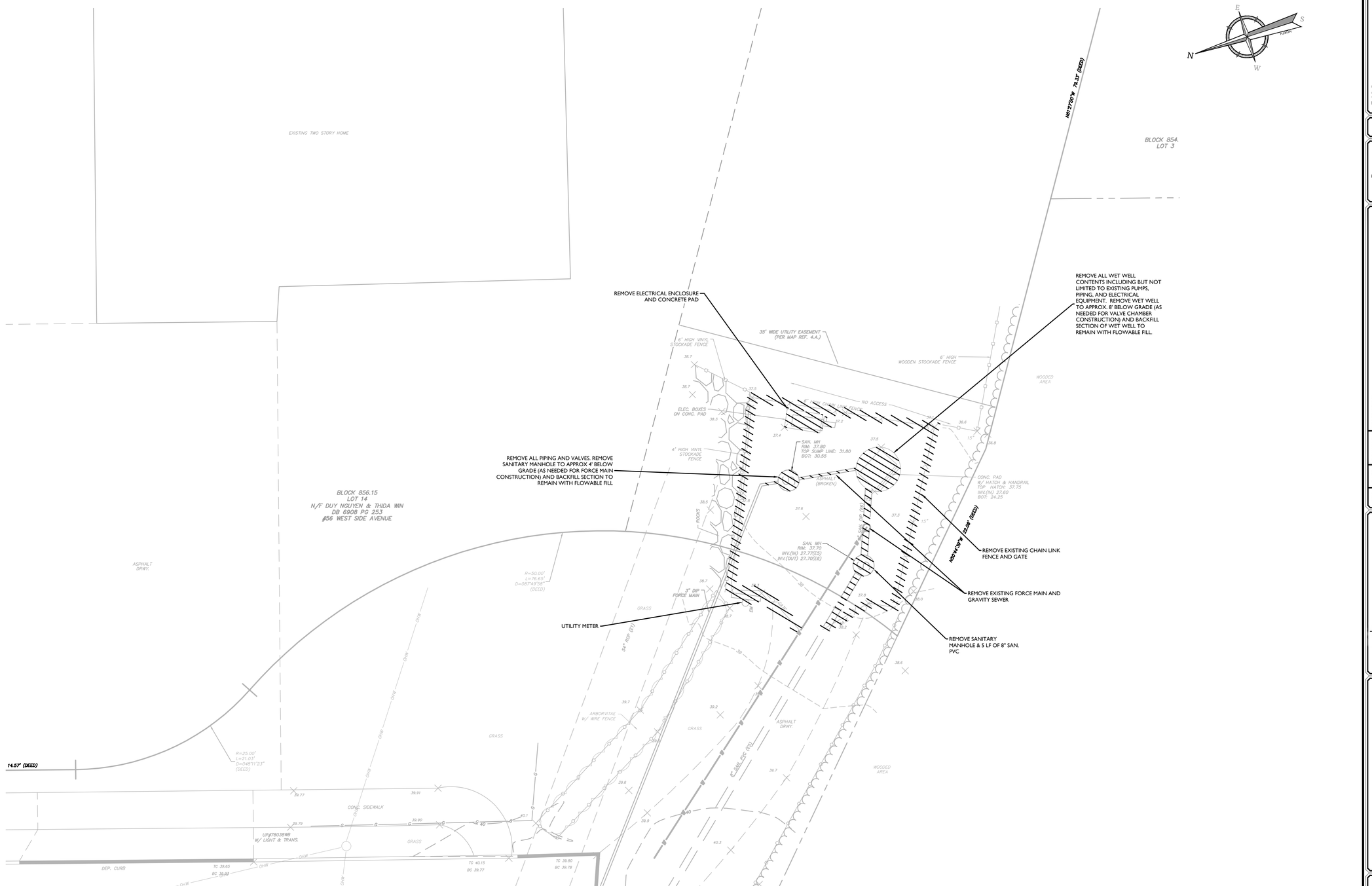
PROJECT NUMBER:	DRAWING NAME:
22002730A	W-BASE

SHEET TITLE:
EXISTING CONDITIONS PLAN

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

TOWNSHIP OF WOODBRIDGE

COUNTY OF MIDDLESEX



DEMOLITION NOTES:

1. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW AT ALL TIMES DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR SHALL PROVIDE, MAINTAIN, AND MONITOR BYPASS PUMPING EQUIPMENT SUFFICIENT TO MAINTAIN EXISTING SEWAGE FLOWS. CONTRACTOR SHALL ENSURE ABSOLUTELY NO LEAKAGE OF SEWAGE OCCURS UNDER ANY CIRCUMSTANCE DURING BYPASS PUMPING. BYPASS PUMPS ON SITE MUST BE PROVIDED WITH 100% BACKUP PUMPS. CONTINUOUS ALARMED MONITORING SHALL BE PROVIDED. CONTRACTOR TO BE NOTIFIED VIA ALARM SYSTEM SHOULD ANY LEAKS OR DISRUPTIONS IN BYPASS OCCUR. BYPASS PUMPING MUST BE IN PLACE AND APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF ANY DEMOLITION. BYPASS PUMPING SHALL BE MINIMIZED AND SHALL NOT COMMENCE UNTIL CONTRACTOR HAS PROCURED ALL NECESSARY EQUIPMENT AND MATERIALS REQUIRED FOR THE PUMP STATION UPGRADES.
2. ALL ELECTRICAL POWER AND UTILITIES SHALL BE DISCONNECTED PRIOR TO THE PUMP STATION DEMOLITION UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. CONTRACTOR SHALL REMOVE ALL EXISTING EQUIPMENT FROM DRY WELL CHAMBER AND COORDINATE WITH THE OWNER REGARDING SALVAGE OF EQUIPMENT. ALL EQUIPMENT NOT RETAINED BY THE OWNER SHALL BE PROPERLY DISPOSED OF OFFSITE. CONTRACTOR SHALL ALSO PUMP OUT WET WELL AND DISPOSE OF ALL SEWAGE AND SLUDGE. SOLIDS, ETC. PRIOR TO ABANDONING EXISTING WET WELL.
4. UPON COMPLETION OF EXCAVATIONS, THE AREA SHALL BE RE-GRADED TO MATCH EXISTING ELEVATION, AND DISTURBED AREAS OF PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH DRIVEWAY CONSTRUCTION DETAIL.

5 0 5 10

SCALE : 1" = 5'

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Colliers Engineering & Design

www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design

RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

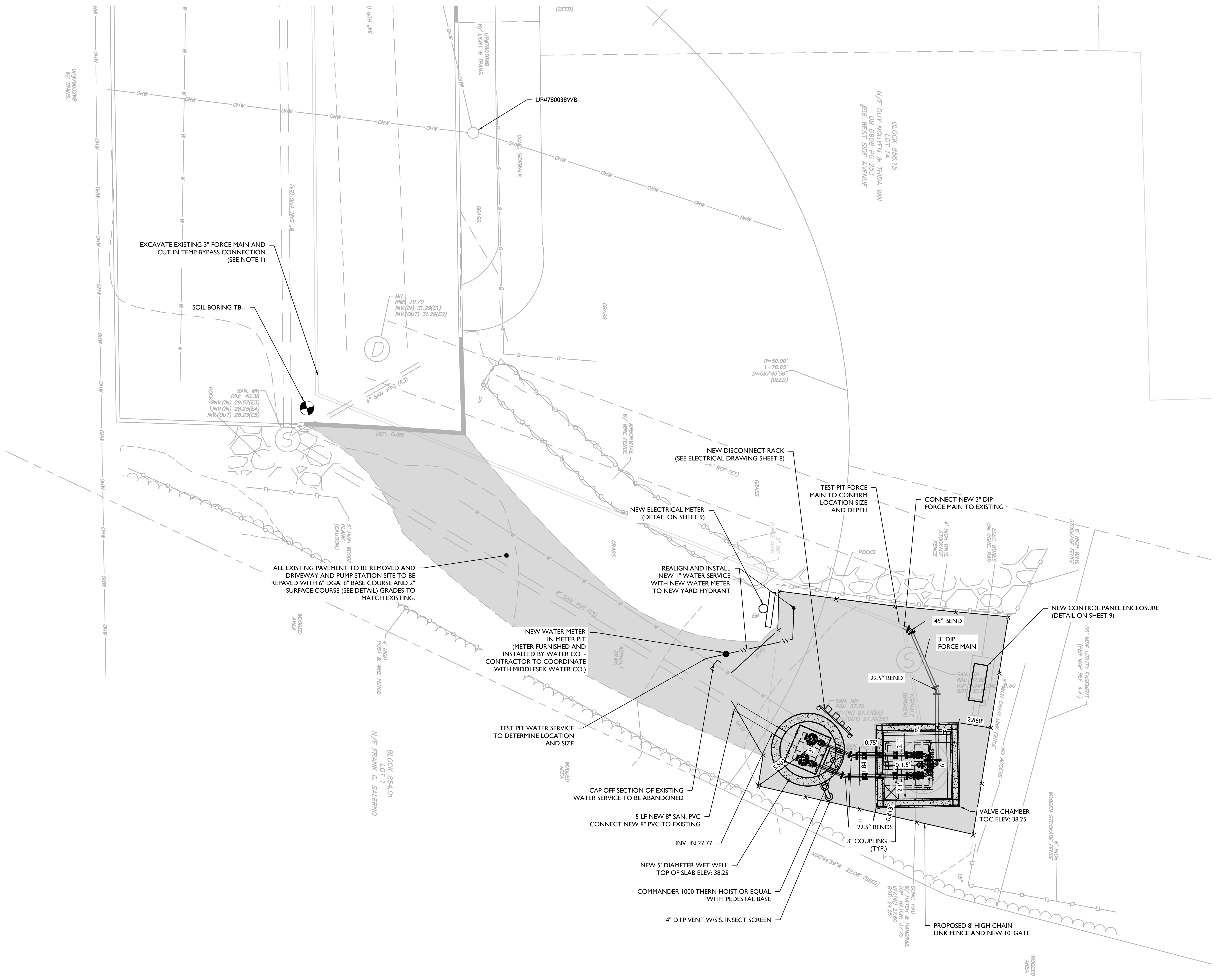
PROJECT NUMBER: 22002730A

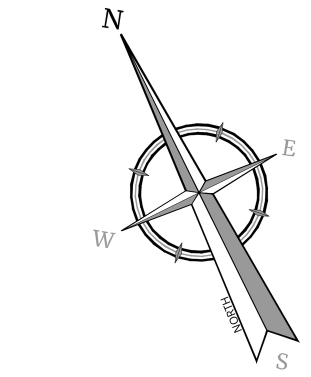
DRAWING NAME: W-DEMO

SHEET TITLE: DEMOLITION PLAN

SHEET NUMBER: 4 of 11

2022\22002730A\22002730A\Site Plan\W-DEMO.dwg\W-04 DEMO By: LKEENAN





NOTES:
1. CONTRACTOR TO CUT EXISTING FORCE MAIN AND INSTALL 3" TEE, FITTINGS, AND VALVES TO ALLOW FOR TEMPORARY CONNECTION OF BYPASS PUMP DISCHARGE PIPING DURING DEMOLITION AND CONSTRUCTION OF NEW PUMP STATION. CONTRACTOR SHALL BYPASS SEWAGE FLOW FROM GRAVITY LINE TO TEMPORARY BYPASS CONNECTION. UPON COMPLETION OF CONSTRUCTION, AND TESTING AND APPROVAL OF STATION, TEE AND VALVES SHALL BE REMOVED AND FORCE MAIN PIPING RESTORED TO ORIGINAL ALIGNMENT. FINAL LOCATION OF TEMP BYPASS CONNECTION AND BYPASS PUMP TO BE DETERMINED IN FIELD WITH OWNER SO AS TO MINIMIZE IMPACTS ON ACCESS TO THE STATION.

2022\22002730A\22002730A\Site Plans\W-UTIL.dwg\W-05-PS PLAN By: LKEENAN

GENERAL NOTES:

1. ALL ALUMINUM AND/OR STEEL MEMBERS EMBEDDED OR IN CONTACT WITH CONCRETE SHALL BE COATED WITH COAL TAR EPOXY.
2. THE 12" THICK ¾" BROKEN STONE BEDDING SHALL BE COMPACTED TO 95% RELATIVE DENSITY PRIOR TO SETTING WET WELL BASE AND POURING CONCRETE ANTI-FLOATATION COLLAR, IF REQUIRED.
3. VENTS TO BE SET 12" MINIMUM ABOVE THE 100 YEAR FLOOD PLAIN ELEVATION OR TOP SLAB, WHICHEVER IS HIGHER.
4. ALL JOINTS LARGER THAN 3" WITHIN VALVE CHAMBER SHALL BE FLANGED TYPE JOINTS. ALL JOINTS WITHIN THE WET WELL SHALL BE PER PUMP MANUFACTURER REQUIREMENTS.
5. ALL EQUIPMENT WITHIN WET WELL CHAMBER AND VALVE CHAMBER SHALL BE CORROSION RESISTANT. FURTHERMORE, THE WET WELL EQUIPMENT SHALL BE EXPLOSION PROOF. ALL FITTINGS WITHIN THE WET WELL SHALL BE CONSTRUCTED OF STAINLESS STEEL OR CORROSION RESISTANT MATERIALS.
6. ALL METAL SURFACES WITH THE EXCEPTION OF STAINLESS STEEL, GALVANIZED STEEL, AND ALUMINUM ELEMENTS SHALL BE PAINTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

   SURFACE PREPARATION

   ALL RUSTED AREAS TO BE TREATED WITH SSPC SP 11 POWER TOOL CLEANING TO BARE METAL. THE ENTIRE SURFACE TO BE COATED SHALL BE TREATED WITH SSPC 2 OR SSPC 3 HAND OR POWER TOOL CLEANING TO REMOVE ALL LOOSE PAINT AND RID THE STRUCTURE OF SURFACE CONTAMINATION. THOROUGHLY AND UNIFORMLY SCARIFY THE ENTIRE SURFACE TO CREATE A SURFACE PROFILE FOR THE OVERCOAT TO ADHERE TO.

   COATING SYSTEM

   SPOT PRIME - ALL AREAS TAKEN DOWN TO BARE METAL SHALL BE SPOT PRIMED WITH TNEMEC SERIES 135 CHEMBUILD AT 4-6 MILS DFT.

   INTERMEDIATE COAT - APPLY TNEMEC SERIES 135 CHEMBUILD AT 4-6 MILS DFT. (APPROX. 260 SQ FT/GAL)

   FINISH COAT - APPLY TNEMEC SERIES 73 ENDURA SHIELD AT 2-3 MILS DFT. (APPROX. 362 SQ FT/GAL)

   THE PAINTS SHALL BE PRODUCTS OF TNEMEC COMPANY, INC. OF KANSAS CITY, MISSOURI, OR APPROVED EQUAL
7. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL WORK REQUIRED. COORDINATE ELECTRICAL CONDUIT INSTALLATION PER ELECTRICAL PLANS.
8. CONTRACTOR SHALL ADEQUATELY SUPPORT AND RESTRAIN PIPING WITHIN WET WELL AND VALVE CHAMBER.
9. ALL PENETRATION THROUGH WET WELL WALLS SHALL BE MADE USING CORE DRILLING WITH WATER-TIGHT GASKETS INSTALLED OR CAST IN PER STRUCTURE PRE-CASTER.
10. ALL PRECAST CONCRETE CHAMBERS/STRUCTURES TO BE DESIGNED BY A PROFESSIONAL ENGINEER CURRENTLY LICENSED IN THE STATE OF NEW JERSEY IN COMPLIANCE WITH A.S.T.M. 913 "PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES" SPECIFICATIONS. DESIGN TO BE SUBMITTED FOR APPROVAL WITH SHOP DRAWING PRIOR TO FABRICATION.
11. ALL SLAB OPENINGS TO BE COORDINATED WITH EQUIPMENT MANUFACTURER.
12. ALL BOLTS, NUTS, WASHERS AND CONCRETE FASTENERS SHALL BE 316 STAINLESS STEEL.
13. THE WET WELL, VALVE CHAMBER, AND MANHOLES ARE CONSIDERED CONFINED SPACE AREAS AND ALL WORK SHALL FOLLOW THE CONFINED SPACE GUIDELINES.
14. CONTRACTOR SHALL INSTALL A PRESSURE GAUGE WITH SNUBBER AND SHUT-OFF BALL VALVE ON DISCHARGE PIPE WITHIN THE VALVE CHAMBER.
15. WET WELL AND VALVE CHAMBER ACCESS DOORS SHALL BE EQUIPPED WITH LOCKABLE DEVICES.
16. ALL SUPPORTS SHALL BE ATTACHED TO STRUCTURES WITH STAINLESS STEEL EXPANDABLE (OR ADHESIVE) ANCHOR BOLTS.
17. ALL WET WELL ACCESS DOORS SHALL BE CAST IN THE STRUCTURES BY PRECAST CONCRETE STRUCTURE MANUFACTURER.
18. CONTRACTOR SHALL VERIFY DAVIT REACH AND LOCATE ALL DAVIT MOUNTS PER EQUIPMENT MANUFACTURER'S REQUIREMENTS. HOIST BASES SHALL BE SUPPLIED WITH SUITABLE RAIN CAPS.

5 0 5 10

SCALE : 1" = 5'

Colliers Engineering & Design

www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 Know what's below. Call before you dig.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

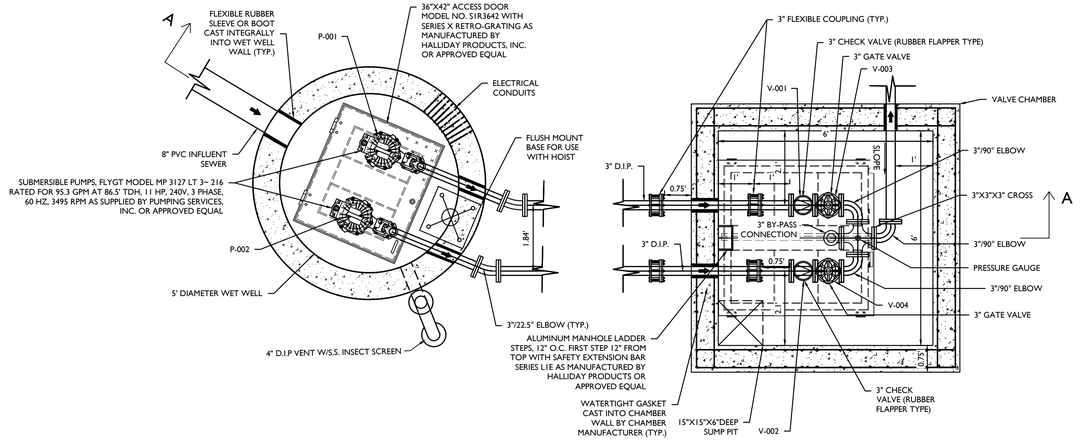
Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

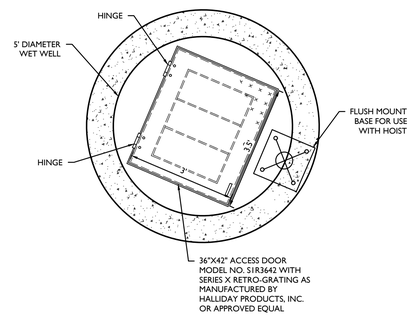
PROJECT NUMBER:	DRAWING NAME:
22002730A	W-UTIL

SHEET TITLE:
PUMP STATION SITE PLAN

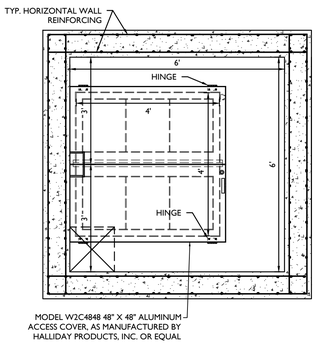
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



PUMP STATION PLAN VIEW
SCALE: ½"= 1'



TOP PLAN: WET WELL
SCALE: ½"= 1'

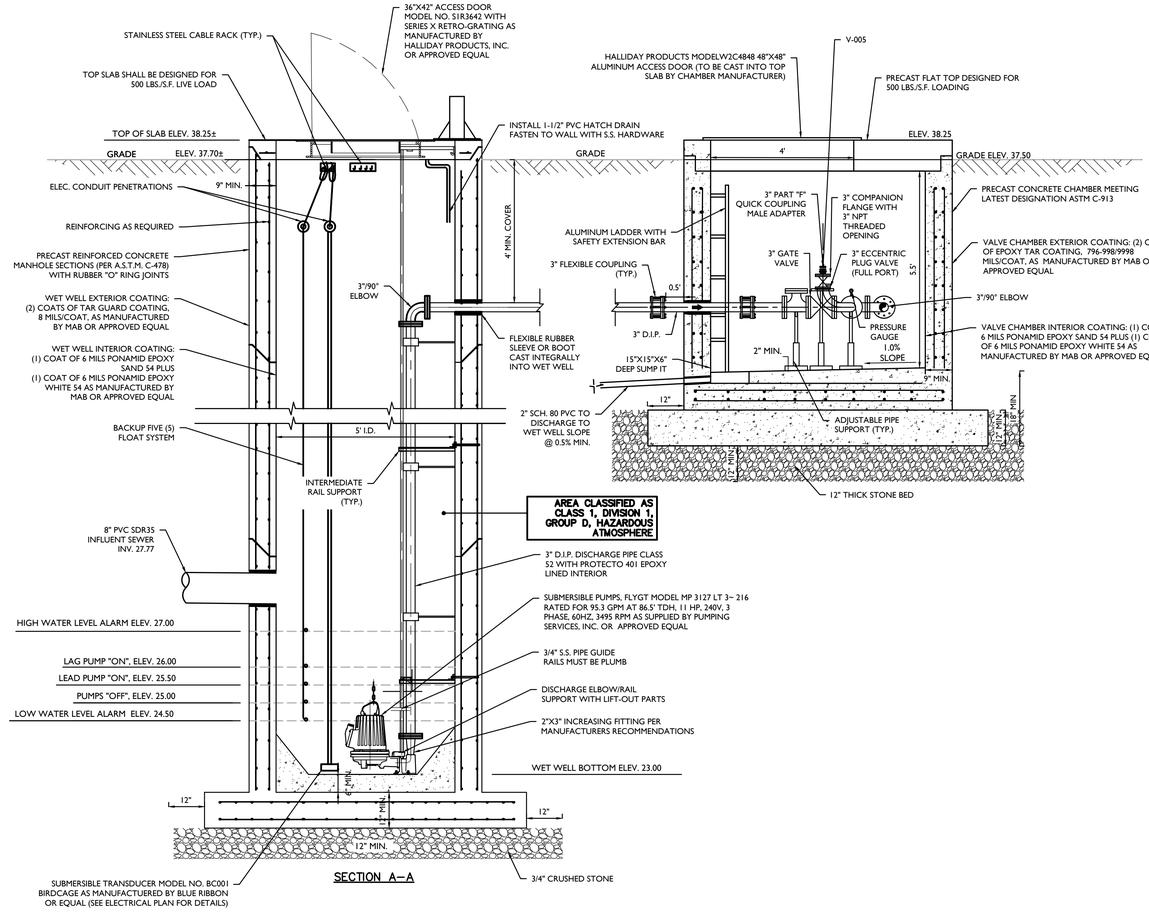


TOP PLAN: VALVE CHAMBER
SCALE: ½"= 1'

PUMP SCHEDULE								
EQUIP. TAG	DESIGN FLOW	SHUTOFF HEAD	MOTOR SIZE	MODEL (OR EQUAL)	IMPELLER DIAMETER	DISCHARGE DIAMETER	INLET DIAMETER	MAX OPERATING SPEED
P-001	95.3 GPM	115 FT	11 HP	MP 3127 LT~ 216	157 MM	2 IN	50 MM	3495 RPM
P-002	95.3 GPM	115 FT	11 HP	MP 3127 LT~ 216	157 MM	2 IN	50 MM	3495 RPM

VALVE SCHEDULE					
EQUIP. TAG	FUNCTION	DIAMETER	TYPE	MAKE (OR EQUAL)	PRESSURE RATING
V-001	P-001 BACKFLOW PREVENTION	3 INCHES	CHECK VALVE	APCO	175 PSI
V-002	P-002 BACKFLOW PREVENTION	3 INCHES	CHECK VALVE	APCO	175 PSI
V-003	P-001 ISOLATION	3 INCHES	GATE VALVE	MUELLER	175 PSI
V-004	P-002 ISOLATION	3 INCHES	GATE VALVE	MUELLER	175 PSI
V-005	BYPASS	3 INCHES	PLUG VALVE	HENRY PRATT CO	175 PSI

PUMP CONTROL LEVELS	
LOW WATER ALARM	1.50' ABOVE WET WELL BOTTOM
PUMP(S) OFF	2.00' ABOVE WET WELL BOTTOM
LEAD PUMP ON	2.50' ABOVE WET WELL BOTTOM
LAG PUMP ON	3.00' ABOVE WET WELL BOTTOM
HIGH WATER ALARM	4.00' ABOVE WET WELL BOTTOM



PUMP STATION SECTION A-A
SCALE: ½"= 1'

CONCRETE NOTES

1. COORDINATION:
CONTRACTOR TO COORDINATE ALL PIPE AND CONDUIT LOCATIONS WITH MECHANICAL AND ELECTRICAL DRAWINGS PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR EQUIPMENT AND ANCHOR BOLT LOCATIONS.

STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH MECHANICAL AND ELECTRICAL DRAWINGS TO PROPERLY LOCATE WALL PIPES, PIPE SLEEVES, ANCHOR BOLTS, BLOCKOUTS, ETC. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

2. PRECAUTIONS:
CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FLOTATION OF STRUCTURES UNTIL FULLY CONSTRUCTED AND BACKFILL IS IN PLACE AND COMPACTED.

3. DESIGN CRITERIA AND LOADS:
ACI 350 CONCRETE SANITARY ENGINEERING STRUCTURES

ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE

ASTM C 478 STANDARD SPECIFICATION FOR CIRCULAR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

ASTM C 433 STANDARD SPECIFICATIONS FOR JOINTS FOR CONCRETE PIPE AND MANHOLES, USING RUBBER GASKETS

DESIGN LIVE LOADS:
WET WELL TOP SLAB AASHTO HS20-44

4. CAST-IN-PLACE CONCRETE:
CAST-IN-PLACE CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

SLABS ON GRADE 4,000 PSI
PIPE SUPPORTS, PUMPS PADS, ENCASEMENTS 4,000 PSI

5. PRECAST CONCRETE:
PRECAST WET WELL CONCRETE SHALL HAVE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

6. REINFORCING STEEL:
REINFORCING STEEL FOR ALL BARS SHALL CONFORM TO ASTM 615, GRADE 60 OF UNITED STATES MANUFACTURE.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

7. REINFORCEMENT CLEARANCE:
CLEARANCE OF REINFORCEMENT STEEL FROM THE FACE OF CONCRETE TO THE OUTERMOST TIE OR BAR SHALL BE 2", UNLESS OTHERWISE NOTED:
8. PIPE OPENINGS
OPENINGS SHALL BE LOCATED BASED ON THE REQUIREMENTS SPECIFIED

IN THE MECHANICAL DRAWINGS. MANUFACTURER RESPONSIBLE FOR COORDINATING SIZE AND LOCATION WITH ENGINEER.

9. ALUMINUM ACCESS HATCH
ACCESS HATCH COVER SHALL BE ALUMINUM AND BE SIZED AND DETAILED TO MEET THE REQUIREMENTS OF THE SLECTED PUMPS.

10. WATERSTOPS:
WATERSTOPS SHALL BE DUMBELL STYLE, MADE OF FLEXIBLE PVC AND MEASURING 6" X 3/8".

11. COATINGS:
THE WET WELL INTERIOR SHALL RECEIVE A FIELD APPLIED CORROSION RESISTANT COATING AS PER THE DRAWINGS AND SPECIFICATIONS.

12. SHOP DRAWINGS:
THE FOLLOWING SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW. FABRICATION SHALL NOT COMMENCE UNTIL ALL REVIEWS ARE COMPLETED.

- REINFORCING STEEL
- PRECAST CONCRETE
- GROUTS
- WATERPROOF JOINTS
- LINKSEAL STYLE CONNECTION
- GASKETS
- ANCHOR BOLTS FOR PUMPS
- CONCRETE MIX DESIGNS
- ACCESS HATCHES AND FRAMES
- EXPANSION JOINT MATERIAL
- FLEXIBLE 'BOOT' CONNECTIONS
- WATERSTOPS

13. FOUNDATIONS:
REMOVE ALL ORGANIC SOIL, CLAYS AND OTHER COMPRESSIBLE MATERIALS

A MINIMUM OF 12 INCHES OF COMPACTED CRUSHED STONE SHALL BE PLACED UNDER THE WET WELL BASE SLAB.

DEWATER EXCAVATION DURING WET WELL INSTALLATION ALL WORK SHALL BE DONE IN THE "DRY".

14. DESIGN CONDITIONS VS SITE CONDITIONS:
THE WET WELL DESIGN WALL THICKNESS, BOTTOM SLAB THICKNESS AND DIMENSIONS, BOTTOM SLAB EXTENSION, AND FOUNDATION BASE COURSE ARE MINIMUM DIMENSIONS. THE STRUCTURAL DESIGN IS BASED ON THE LOADS AND CONDITIONS LISTED HERE. TO USE THESE PLANS AS-IS, THE CONTRACTOR SHALL VERIFY THAT THE SITE CONDITIONS MEET THE DESIGN CONDITIONS, INCLUDING THE GEOTECHNICAL CONDITIONS AND FLOTATION CALCULATIONS. IF THE SITE CONDITIONS VARY FROM THE DESIGN CONDITIONS, THE CONTRACTOR SHALL MODIFY THE DESIGN AS NEEDED AND PROVIDE SIGNED AND SEALED DRAWINGS TO THE ENGINEER FOR APPROVAL.

15. WET WELL CONSTRUCTION NOTES:
A. OPENING REQUIREMENTS:

GRAVITY PIPE: CAST-IN-PLACE OR CORED OPENING FOR FLEXIBLE 'BOOT' CONNECTION.
DISCHARGE PIPING: LINK SEAL TYPE PIPE SEAL.

B. WET WELL BARREL JOINTS SHALL BE SEALED WITH A SINGLE OFFSET OR O-RING STYLE GASKET PER ASTM C433.

C. TOP SLAB, BOTTOM SLAB AND WET WELL BARREL SHALL BE PRECAST.

Colliers
Engineering & Design
www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DESCRIPTION	DRAWN BY	DATE

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

PROJECT NUMBER:	DRAWING NAME:
22002730A	W-UTIL

SHEET TITLE:
MECHANICAL PLANS AND SCHEDULES

SHEET NUMBER:
6 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730A\Site Plans\W-UTIL.dwg W-06 MECH By: LKEENAN

DESIGN CALCULATIONS

I. DESIGN CAPACITY

A. AVERAGE DAILY FLOW (A.D.F.):

37	X	300 GPD / UNIT (SINGLE-FAMILY UNITS)	=	11,100 GPD
	X	140 GPD / UNIT (MULTI-FAMILY UNITS)	=	GPD
	X		=	GPD
	X		=	GPD
		A.D.F. TOTAL	=	11,100 GPD

B. PEAK INFLUENT RATE (PEAK FACTOR = 2.5)

$$\frac{\text{ADF X PEAK FACTOR}}{1440} = \frac{(11{,}000)\ X\ (2.5)}{1440} = 19.27 \text{ GPM}$$

C. DESIGN PUMP CAPACITY (MINIMUM REQUIRED) = 95 GPM

D. VELOCITY IN FORCE MAIN AT MAX. PUMPING RATE = 431 FEET / SECOND

II. WETWELL DESIGN (DUPLEX SYSTEM)

A. DESIGN CRITERIA:

1. MAXIMUM PUMP MOTOR CYCLE RATE = 20 STARTS PER HOUR (10 STARTS PER PUMP)
2. MAX DETENTION TIME AT ADF = 10 MINUTES PER NJDEP

B. PUMP CONTROL LEVEL SETTINGS:

1. PUMP CYCLING RATES ARE AT A MAXIMUM WHEN INFLOW EQUALS ONE-HALF THE DESIGN PUMPING RATE OF: 47.5
2. WETWELL VOLUME REQUIRED BETWEEN LEAD PUMP START AND PUMP SHUT OFF LEVEL:

$$V = \frac{\text{CYCLE PERIOD X (1/2) PUMP RATE}}{2}$$

$$V = \frac{3 \text{ MIN X (1/2) (95) GPM}}{2}$$

$$V = \frac{71.25 \text{ GALLONS}}{2}$$

3. WETWELL DIAMETER (D) = 5 FEET

WETWELL VOLUME = PI(D)^2 X 7.48 GAL. / C.F. = 7.48 (PI)(D)^2 = 147 GALS/FT. DEPTH

4. WET WELL LEVEL CHANGE BETWEEN PUMP STOP AND LEAD PUMP START

71.25 / 147.00 = 0.48 FEET DESIGN FOR: 6 INCHES (TO MEET DEP DETENTION TIME REQUIREMENT)

5. CONTROL ELEVATIONS

TOP OF SLAB ELEV.	38.25
INFLUENT INVERT ELEV.	27.77
HIGH WATER ALARM ELEV.	27.00
LAG PUMP ON ELEV.	26.00
LEAD PUMP ON ELEV.	25.50
ALL PUMPS OFF ELEV.	25.00
BOTTOM ELEV.	23.00

Static Head =	25.00	CIP ID Diameter		3		CIP Diameter		3.96		CIP length =	1100
	System Curve	HDPE ID Diameter		2.826		HDPE Diameter		3.5		HDPE Length =	1100
		PVC ID Diameter		3		PVC Diameter		3.5		PVC Length =	1100
	Flow Rate (GPM)	Static Head (ft)	Friction Head (ft)						Velocity (ft/s)	Velocity Head (ft)	Total Head (ft)
			DIP		HDPE		PVC				
			/100 ft	Total	/100 ft	Total	/100 ft	Total			
	0	25.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00
	50	25.00	1.67881	18.47	0.93	10.22	0.65	7.18	2.27	0.04	43.50
	75	25.00	3.55443	39.10	1.97	21.64	1.38	15.20	3.40	0.05	64.15
	100	25.00	6.05211	66.57	3.35	36.84	2.35	25.87	4.54	0.07	91.64
	125	25.00	9.14515	100.60	5.06	55.67	3.55	39.10	5.67	0.09	125.68
	150	25.00	12.8137	140.95	7.09	78.01	4.98	54.78	6.81	0.11	166.06

III. SYSTEM CURVE CALCULATIONS

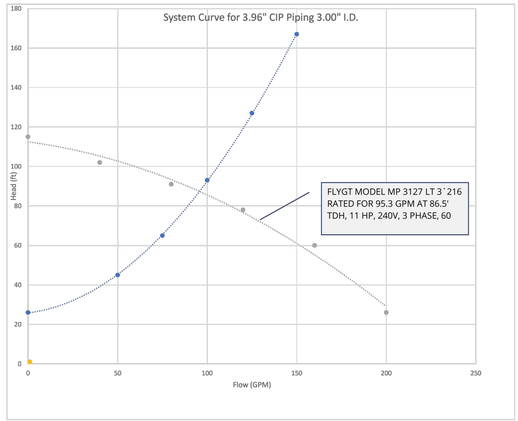
A. FRICTION LOSS:

1. PUMP STATION AND FORCE MAIN PIPING

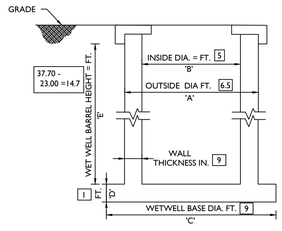
ITEM	SIZE	QUANTITY		FRICTION LOSS (EA.)		TOTAL
A. TEE			X		=	
B. 90° ELBOW	3	3	X	8	=	24
C. 45° ELBOW	3	4	X	4	=	16
D. 22.5° ELBOW	3	2	X	2	=	4
E. CHECK VALVE	3	1	X	25.5	=	51
F. GATE VALVE	3	1	X	2	=	2
G. SIDE OUTLET CROSS	3	1	X	16.4	=	16.4
H. WYE			X		=	
I. OTHER			X		=	
				TOTAL	=	113.4
3"Ø		1000		PIPE LENGTH	=	1000
				TOTAL EQUIVALENT LENGTH	=	1113 (USE 1100)

B. STATIC HEAD:

1. PIPE CENTER LINE AT DISCHARGE POINT = ELEV. 50 FT
2. LOW WATER LEVEL (ALL PUMPS OFF) = ELEV. 25 FT
3. TOTAL STATIC HEAD (B.1. - B.2.) = ELEV 25 FT



FLOTATION CALCULATIONS - CONCRETE WET WELL



ASSUMPTIONS:

1. CONCRETE (REINFORCED) = 150 LBS./FT^3
2. SATURATED SOIL = 120 LBS./FT^3
3. WATER = 62.4 LBS./FT^3
4. DIMENSIONS IN FEET
5. NO WATER IN WET WELL
6. NEGLECT TOP SLAB WEIGHT
7. NEGLECT SOIL FRICTION
8. ROUND WET WELL BASE
9. CIRCULAR WET WELL BASE
10. THE WATER TABLE IS AT GRADE

(1) BARREL WEIGHT = $(A^2 - B^2)(PI / 4)(E)(150)$ = [(_____)² - (_____)²](PI/4)(_____)(150) = _____ LB.

(2) BOTTOM SLAB WEIGHT = $(C)^2(PI/4)(D)(150)$ = (_____)²(PI/4)(_____)(150) = _____ LB.

(3) SOIL WEIGHT = $(C^2 - A^2)(PI/4)(E)(120 - 62.4)$ = [(_____)² - (_____)²](PI/4)(_____)(57.6) = _____ LB.

(4) TOTAL WEIGHT = (BARREL WEIGHT) + (BOTTOM SLAB WEIGHT) + (SOIL WEIGHT) = (____) +(____) + (____) = _____ LB.

(5) WT. OF WATER DISPLACED = $[(A)^2(PI/4)(E) + (C)^2(PI/4)(D)](62.4)$
= [(_____)²(PI/4)(_____) + (_____)²(PI/4)(_____)](62.4) = _____ LB.

SAFETY FACTOR = $\frac{\text{TOTAL WEIGHT}}{\text{WT. OF WATER DISPLACED}}$ = (4) / (5) = _(____)_ LB. / _(____)_ LB. = _____

FLOTATION CALCULATIONS - CONCRETE WET WELL		
CALCS	FORMULA	VALUE (LB.)
(1) BARREL WEIGHT	=(6.5^2 - 5^2)(PI / 4)(14.7)(150)	29,874
(2) BOTTOM SLAB WEIGHT	=(9^2)(PI/4)(1)(150)	9,543
(3) SOIL WEIGHT	=(9^2 - 6.5^2)(PI/4)(14.7)(120 - 62.4)	25,769
(4) TOTAL WEIGHT	=(1) + (2) + (3)	65,186
(5) WT. OF WATER DISPLACED	=[(6.5^2)(PI/4)(14.7)+(9^2)(PI/4)(1)](62.4)	34,408

SAFETY FACTOR = $\frac{\text{TOTAL WEIGHT}}{\text{WT. OF WATER DISPLACED}}$ = 65186 / 36869 = 1.89

Colliers Engineering & Design
www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

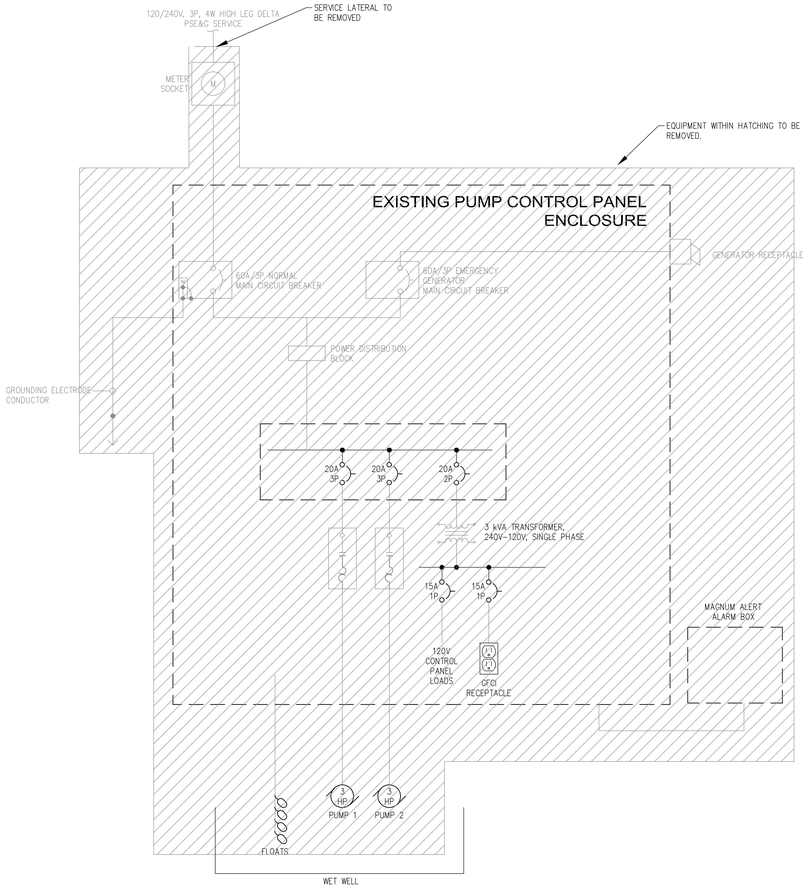
PROJECT NUMBER:	DRAWING NAME:
22002730A	W-UTIL

SHEET TITLE: PUMP STATION DESIGN CALCULATIONS

SHEET NUMBER: 7 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730A\Site Plan\W-UTIL.dwg(W-07 DSGN CALCS By: LMEMAN

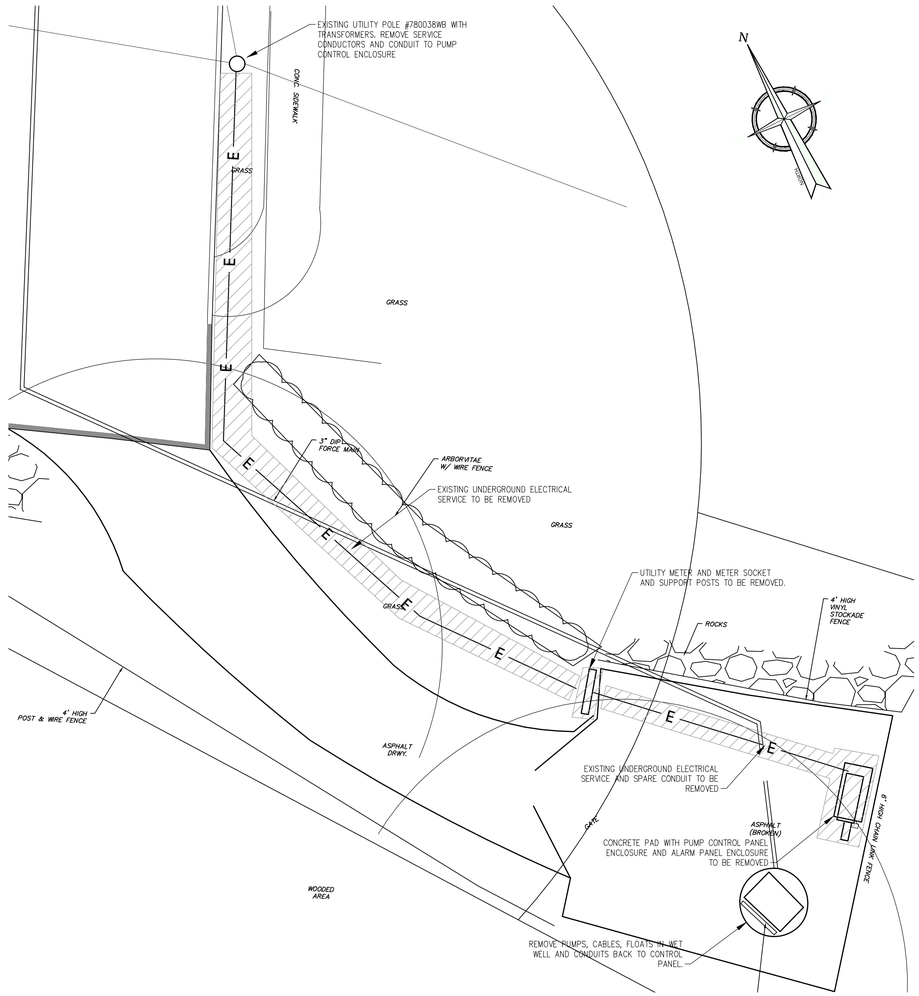


EXISTING ELECTRICAL SINGLE LINE DIAGRAM

SCALE: N.T.S.

ELECTRICAL DEMOLITION NOTES:

1. ELECTRICAL EQUIPMENT TO BE REMOVED INCLUDES CONDUIT AND CONDUCTORS FROM UTILITY TRANSFORMERS TO METER, METER TO PUMP CONTROL PANEL, PUMP CONTROL PANEL AND ENCLOSURE, ALARM PANEL AND ENCLOSURE, CONDUITS AND CONDUCTORS TO PUMPS IN WET WELL.



ELECTRICAL DEMOLITION PLAN

5 0 5 10

1"=5'-0"

ELECTRICAL NOTES:

1. ALL WORK SHALL MEET THE REQUIREMENTS OF THE LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
2. CONTRACTOR SHALL PROVIDE ELECTRICAL INSPECTION CERTIFICATION VIA UL APPROVED AGENCY HAVING AREA JURISDICTION.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL ELECTRICAL PERMITS AND ELECTRICAL INSPECTION.
4. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, AND SUPERVISION TO STORE, HANDLE, AND INSTALL EQUIPMENT AND SYSTEMS AS SHOWN ON DRAWINGS AND DESCRIBED IN NOTES. MATERIALS FURNISHED BY OTHERS SHALL BE INSTALLED COMPLETE. THE CONTRACTOR SHALL PROVIDE PROOF OF CURRENT LICENSING AS REQUIRED BY CURRENT STATE AND LOCAL REQUIREMENTS.
5. ALL MATERIAL SHALL BE NEW AND BEAR THE LABEL OR LISTING OF A NATIONALLY RECOGNIZED INDEPENDENT TESTING LABORATORY; UL, FM, ETC.
6. ALL CONDUITS RUNS ARE DIAGRAMMATICALLY SHOWN ON THE DRAWINGS. THE EXACT ROUTING OF CONDUITS SHALL BE DETERMINED BY THE ELECTRICAL CONTRACTOR. CONDUIT SHALL BE TERMINATED TO PERMIT NEAT CONNECTIONS TO EQUIPMENT. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONSTRUCTION AND DEMOLITION.
7. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRE AND CONDUIT REPRESENT SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE ACTUAL EQUIPMENT INSTALLED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
8. THE POWER AND CONTROL WIRING SHALL BE STRANDED COPPER CONDUCTORS WITH XHHW INSULATION RATED 600V. MINIMUM SIZE OF POWER CONDUCTORS SHALL BE #12 AWG, CONTROL CONDUCTOR MINIMUM SIZE SHALL BE #14 AWG.
9. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS. STRANDED COPPER EQUIPMENT GROUNDING CONDUCTORS AND BONDING JUMPERS SHALL BE INSTALLED WHERE REQUIRED. THE SURFACES WHERE GROUNDING CONNECTIONS ARE TO BE MADE SHALL BE CLEAN AND DRY. STEEL SURFACES SHALL BE GROUND OR FILED TO REMOVE ALL SCALE, RUST, GREASE AND DIRT. COPPER AND GALVANIZED STEEL SHALL BE CLEANED WITH EMERY CLOTH TO REMOVE OXIDE BEFORE MAKING CONNECTIONS.
10. ALL FIELD WIRING TERMINATIONS SHALL BE MADE AT TERMINALS LOCATED IN INDIVIDUAL COMPARTMENTS OR ENCLOSURES. USE OF WIRE NUTS OR DIRECT WIRING WILL NOT BE ACCEPTED. ALL TERMINATION POINTS SHALL BE IDENTIFIED IN THE SHOP DRAWINGS AND PERMANENTLY/CLEARLY MARKED IN ACCORDANCE WITH THE SPECIFICATIONS.
11. ALL WIRES SHALL BE NEATLY BUNDLED AND TAGGED TO INDICATE THE CONNECTED DEVICE. EACH WIRE SHALL BE TAGGED IN ACCORDANCE WITH THE WITH SPECIFICATION SECTION 16075– ELECTRICAL IDENTIFICATION.
12. CONTRACTOR SHALL COORDINATE AND SCHEDULE SHUTDOWNS AT SUITABLE TIMES TO THE OWNER. OWNER AND CONTRACTOR SHALL JOINTLY LOCK OUT AND TAG OUT BREAKERS AND SWITCHES DURING SHUTDOWN PERIODS.
13. THE CONTRACTOR SHALL PERFORM A SITE VISIT PRIOR TO BIDDING TO REVIEW ALL WORK REQUIRED. ANY EXISTING CONDITIONS FOUND WHICH WILL AFFECT THE WORK TO BE COMPLETED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING PRIOR TO BIDDING. CLAIMS FOR EXTRA WORK WILL NOT BE APPROVED FOR ANY WORK THAT MAY BE CAUSED BY EXISTING CONDITIONS, WHICH SHOULD HAVE BEEN FORESEEN SUBSEQUENT TO THE SITE VISIT.
14. CONTRACTOR SHALL FIELD LOCATE EXISTING UNDERGROUND CONDUIT AND WIRING UNDETERMINED DURING DESIGN.
15. AREA LOCATED AROUND WET WELL WITHIN 3' OF WET WELL HATCH EXTENDING FROM SURFACE TO 18" ABOVE HATCH IS ELECTRICALLY CLASSIFIED AS CLASS I DIVISION 2 LOCATION. WET WELL INTERIOR AND WITHIN 3' OF ANY VENT IS A CLASS I, DIVISION 1 LOCATION. AREA 3' TO 5' FROM ANY VENTS IS A CLASS I DIVISION 2 AREA. AREAS AROUND THE WET WELL OUTSIDE OF THESE BOUNDARIES ARE ELECTRICALLY NON–CLASSIFIED AREAS.
16. AREA WITHIN THE VALVE VAULT IS ELECTRICALLY CLASSIFIED AS A CLASS I DIVISION 2 HAZARDOUS AREA. AREAS OUTSIDE OF THE VALVE VAULT ARE ELECTRICALLY CLASSIFIED AS NON–HAZARDOUS.
17. ALL DEVICES SHALL BE ADEQUATELY IDENTIFIED WITH PERMANENT NAMEPLATE OR TAGS. WIRING SHALL BE IDENTIFIED AS TO PHASING AND CONDUCTOR IDENTIFICATION. CIRCUIT CHANGES AND ROUTING SHALL BE REFLECTED ON "RECORD" DRAWINGS. VOLTAGE AND PHASE CHARACTERISTICS SHALL BE INCLUDED ON PUMP CONTROL PANEL, DISCONNECT SWITCHES, AND PANELBOARD.
18. THE COMPLETE INSTALLATION SHALL BE TESTED AT COMPLETION OF WORK TO BE FREE OF SHORT CIRCUIT CONDITIONS. ALL INTERLOCK AND ALARM CIRCUITS SHALL BE TESTED TO VERIFY CORRECT OPERATION OF EACH DEVICE. ALL INSTRUMENT LOOPS SHALL BE CALIBRATED AND VERIFIED FOR CORRECT OPERATION.
19. RESTORE ALL AREAS TO EXISTING CONDITIONS, AFTER COMPLETION OF CONSTRUCTION.
20. THE CONTRACTOR SHALL KEEP ONE SET OF THE LATEST ISSUE OF ELECTRICAL DRAWINGS WHICH SHALL REFLECT THE ACTUAL INSTALLED CONDITIONS AND CONNECTIONS OF ALL EQUIPMENT AND DEVICES. THE CONTRACTOR SHALL PROVIDE COPIES OF ALL MAINTENANCE INFORMATION AND INSTRUCTIONS RECEIVED WITH EQUIPMENT AND SYSTEMS. ALL "RECORD" DRAWINGS, EQUIPMENT MANUALS, AND MISCELLANEOUS INFORMATION SHALL BE GIVEN TO THE ENGINEER/OWNER AT COMPLETION OF WORK.

ELECTRICAL STUDIES:

THE CONTRACTOR SHALL SUBMIT A POWER SYSTEM STUDY CONTAINING A SHORT CIRCUIT STUDY, COORDINATION STUDY, AND ARC FLASH ANALYSIS OF ALL BUSES AND PROTECTION DEVICES SHOWN ON THE SINGLE LINE DIAGRAM. THE SHORT CIRCUIT STUDY SHALL START AT THE TRANSFORMER SECONDARIES AND INCLUDE THE MAIN CIRCUIT BREAKER, MANUAL TRANSFER SWITCH, PANELBOARD, PUMP CONTROL PANEL AND PUMP DISCONNECTS.

IC&EE
Instrumentation, Control & Energy Engineering, LLC
525 ROUTE 73 NORTH, STE 104, MARLTON, NJ 08053
STATE OF NJ CERTIFICATION OF AUTHORIZATION NUMBER: 24GA28203800
P: 610-584-6374
www.ICEE-LLC.com

Colliers Engineering & Design
www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

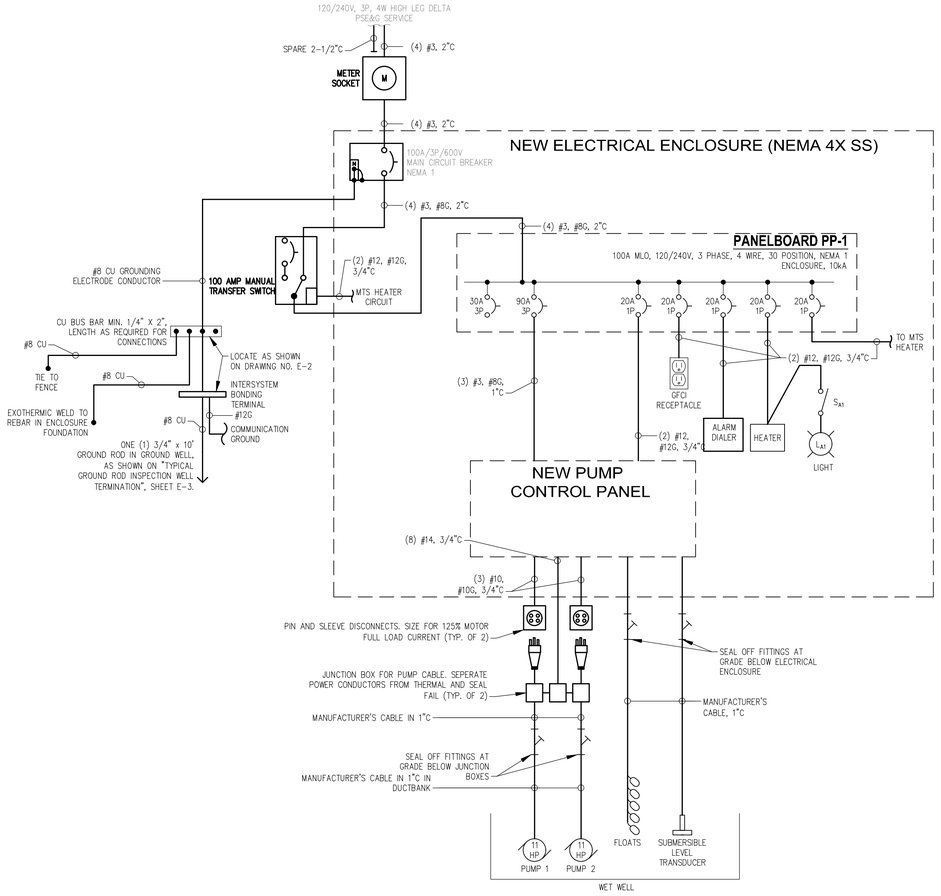
PROJECT NUMBER: 22002730A
DRAWING NAME: WOODBRIDGE PARKSIDE PS

SHEET TITLE: ELECTRICAL DEMOLITION PLAN

SHEET NUMBER: 8 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\2500730A\References\DWG from Others\Woodbridge Parkside PS.dwg[E-1 By: LKERNAN



NEW ELECTRICAL SINGLE LINE DIAGRAM

SCALE: N.T.S.

ELECTRICAL NEW WORK NOTES:

1. ELECTRICAL ENCLOSURE TO BE 72"x72"x24" NEMA 4X, STAINLESS STEEL ENCLOSURE WITH SUB PANEL. PROVIDE FACTORY SUPPORT FEET FOR FLOOR MOUNTING. BOLT TO CONCRETE PAD USING MANUFACTURER'S RECOMMENDED BOLT SIZES AND QUANTITY.
2. JUNCTION BOXES FOR PUMP CABLE AND PIN AND SLEEVE CONNECTORS TO BE MOUNTED AT RACK NEAR WET WELL. SEE SITE PLAN SHEET E-2 FOR DETAILS.

NEW PANELBOARD PP-1 SCHEDULE

SERVICE VOLTAGE 120/240 3PH 4W | MARKING PANEL PP-1 | MAIN DEVICE TYPE NA | MANUF. SQUARE D
BUS RATING & TYPE 100A COPPER | ENCLOSURE | MOUNTING SURFACE

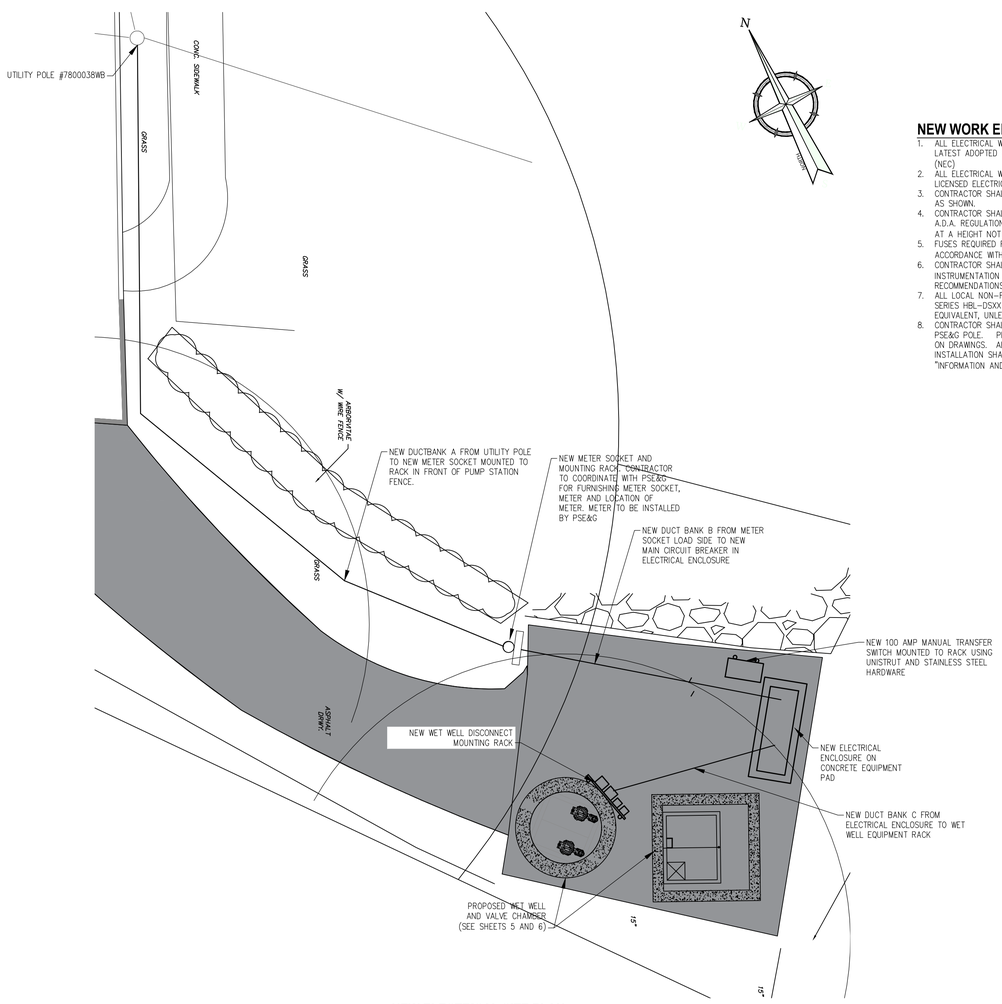
DESCRIPTION	kVA LOAD L1	L2	L3	CKT	C/B		C/B	CKT	kVA LOAD L1	L2	L3	DESCRIPTION
SPD				1	30		90	2	21.6			PUMP CONTROL PANEL
				3	30		90	4		21.6		
				5	30		90	6			21.6	
ALARM DIALER	---			7	20		20	8				PUMP CONTROL PANEL
SPACE (AVOID HIGH LEG)		---		9	---		20	10				SPACE (AVOID HIGH LEG)
MTS HEATER			---	11	20		20	12				GFCI
ALARM DIALER				13	20		20	14	0.5			HEATER AND LIGHT
SPACE (AVOID HIGH LEG)				15	---		---	16				SPACE (AVOID HIGH LEG)
SPARE				17	20		20	18				SPARE
SPARE				19	20		20	20				SPARE
SPACE (AVOID HIGH LEG)				21	---		---	22				SPACE (AVOID HIGH LEG)
SPACE				23	---		---	24				SPACE
SPACE				25	---		---	26				SPACE
SPACE (AVOID HIGH LEG)				27	---		---	28				SPACE (AVOID HIGH LEG)
SPACE				29	---		---	30				SPACE
LOAD kVA TOTAL				kVA TOTAL:								LOAD kVA TOTAL

AUTODIALER I/O POINT LIST

FUNCTION	DESCRIPTION
MONITOR	PUMP 1 RUN
MONITOR	PUMP 2 RUN
ALARM	PUMP 1 OR 2 FAIL
ALARM	LOW WET WELL LEVEL ALARM
ALARM	HIGH WET WELL LEVEL
ALARM	POWER FAIL
ALARM	HIGH HIGH

LUMINAIRE SCHEDULE

L_4 (ENCLOSURE LIGHTS)	1	COOPER LIGHTING 2-SNLED-LD4-26SL-UNV	NARROW 24" LED LIGHT FIXTURE, ONE LAMP, 2712 NOMINAL LUMENS, 5000K CCT, UNIVERSAL VOLTAGE 120-277V OPERATION



NEW WORK ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
2. ALL ELECTRICAL WORK SHALL PERFORMED BY A NEW JERSEY LICENSED ELECTRICAL CONTRACTOR.
3. CONTRACTOR SHALL INSTALL ALL NEW CONDUIT AND CONDUCTORS AS SHOWN.
4. CONTRACTOR SHALL LOCATE ALL SWITCHES IN ACCORDANCE WITH A.D.A. REGULATIONS AND ALL RECEPTACLES SHALL BE MOUNTED AT A HEIGHT NOT LESS THAN 36" ABOVE TOP OF WET WELL SLAB.
5. FUSES REQUIRED FOR INDIVIDUAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH NEC AND MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL PERFORM ALL GROUNDING FOR INSTRUMENTATION IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. ALL LOCAL NON-FUSED DISCONNECT SWITCHES SHALL BE HUBBELL SERIES HBL-DSXX AC SERIES WITH AUXILIARY CONTCT OR EQUIVALENT, UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL EXCAVATE TRENCH FOR SERVICE LATERALS TO PSE&G POLE. PROVIDE NEW CONDUITS, CONDUCTORS AS SHOWN ON DRAWINGS. ALL WORK FOR THE SERVICE LATERAL AND METER INSTALLATION SHALL MEET THE REQUIREMENTS OF PSE&G "INFORMATION AND REQUIREMENTS FOR ELECTRIC SERVICE"

NEW ELECTRICAL SITE PLAN

5 0 5 10
1"=5'-0"

BILL OF MATERIALS

ID NO	MANUFACTURER	PART NUMBER	DESCRIPTION
1	APX	APXDD727224	NEMA 4X STAINLESS STEEL ENCLOSURE, 72X72X24 WITH SUB PANEL
2	SQUARE D	NQ PANELBOARD	PANELBOARD PP-1, 120/240V, 3PH, 4W, 100A, MLO, 10KAIC MIN, 30 CIRCUIT PANEL IN NEMA 1 ENCLOSURE
3	SQUARE D	POWERPACT B-FRAME CIRCUIT BREAKER	POWERPACT B-FRAME 100AMP 3 POLE CIRCUIT BREAKER IN NEMA 1 ENCLOSURE.
4	TRYSTAR	TMTS-3	TMTS 3 ROTARY DOCKING STATION MANUAL TRANSFER SWITCH WITH 100 AMP 3-POLE CIRCUIT BREAKER, 120/240V DELTARATED 14KAIC IN NEMA 3R ALUMINUM ENCLOSURE. PROVIDE 375 WATT STRIP HEATER AND THERMOSTAT.
5	BLUE RIBBON CORP.	BD300	MULTI-PUMP ALTERNATING CONTROLLER. 4-20MA MAIN SENSOR INPUT. SCALABLE 4-20MA LEVEL OUTPUT AND FOUR PROGRAMMABLE RELAY SWITCHES. PROVIDE EXTERNAL FOUR RELAY MODULE.
6	RACO	VERBATIM VSS SERIES	ALARM DIALER WITH 8-INPUT CHANNELS, BATTERY BACK-UP, SURGE PROTECTION, 120VAC 60HZ POWER SUPPLY, BELL 212A FORMAT 1200 BAUDDMODEM.
7	HUBBELL	HBL430MI9W	INDUSTRIAL PIN AND SLEEVE CONNECTOR, 30 AMP, 600V MAX, IP67 ENCLOSURE. LOCKABLE HANDLE
8	BLUE RIBBON CORP.	BC001	BIRDCAGE SUBMERSIBLE LEVEL TRANSMITTER WITH 0.5% ACCURACY AND A LINEAR 4-20MA OUTPUT SIGNAL PROPORTIONAL TO MEASURED LEVEL.
9	SJE	DPC-4F	BACK-UP DUPLEX PUMP CONTROLLER WITH FOUR FLOAT INPUTS AND FIVE RELAY OUTPUTS
10	PRIMEX	KWKSWITCH SERIES 1053954	FOUR NO MECHANICALLY ACTIVATED FLOATS WITH CABLE. FOUR PORT MANIFOLD, WITH STAINLESS STEEL MOUNTING BRACKET, FOR QUICK CONNECTION OF FLOATS.

IC&EE
Instrumentation, Control & Energy Engineering, LLC
525 ROUTE 73 NORTH, STE 104, MARLTON, NJ 08053
STATE OF NJ CERTIFICATION OF AUTHORIZATION NUMBER: 24GA28203800
P: 610-584-6574
www.ICEE-LLC.com

Colliers Engineering & Design
www.colliersengineering.com

Copyright © 2022, Colliers Engineering & Design All Rights Reserved. This drawing and all of the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

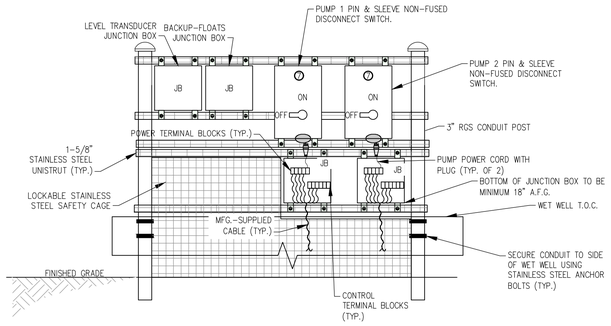
PROJECT NUMBER: 22002730A
DRAWING NAME: WOODBRIDGE PARKSIDE PS

SHEET TITLE: NEW SINGLE LINE, ELECTRICAL SITE PLAN AND SCHEDULES

SHEET NUMBER: 9 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\A2300730A\Reference\DWG from Others\Woodbridge Parkside PS.dwg E-2 By: LKERNAN



WET WELL DISCONNECT MOUNTING RACK - FRONT VIEW

SCALE: N.T.S.

A E-4 ① ②

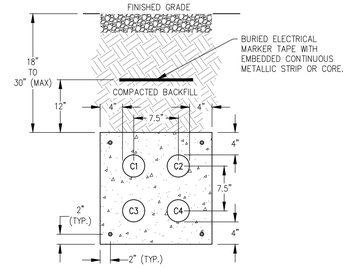
RACEWAY	SIZE	CONTENTS	DESCRIPTION	FROM	TO
1	2-1/2"	(4) #3	POWER	UTILITY TRANSFORMERS	METER
2	2-1/2"	PULLCORD WITH LABEL	SPARE	UTILITY POLE (STUB UP)	METER
RUN DUCTBANK AS REQUIRED BY "TYPICAL DUCTBANK SECTION (CONCRETE)" DETAIL, SHEET 10.					

B E-4 ① ②

RACEWAY	SIZE	CONTENTS	DESCRIPTION	FROM	TO
1	2"	(4) #3	POWER	METER	MAIN CIRCUIT BREAKER
2	2"	PULLCORD WITH LABEL	SPARE	METER ENCLOSURE	ELECTRICAL ENCLOSURE
RUN DUCTBANK AS REQUIRED BY "TYPICAL DUCTBANK SECTION (CONCRETE)" DETAIL, SHEET 10.					

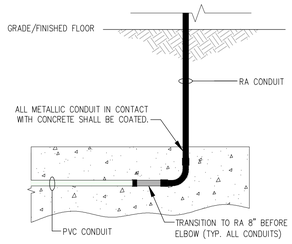
C E-4 ④ ⑤ ⑥ ① ② ③

RACEWAY	SIZE	CONTENTS	DESCRIPTION	FROM	TO
1	1"	(4) #10, #10G	PUMP 1 POWER	ELECTRICAL ENCLOSURE	WET WELL RACK
2	1"	(4) #10, #10G	PUMP 2 POWER	ELECTRICAL ENCLOSURE	WET WELL RACK
3	1"	(8) #14	THERMAL AND SEAL MONITORING	WET WELL RACK	ELECTRICAL ENCLOSURE
4	1"	(8) #14	FLOATS	WET WELL	ELECTRICAL ENCLOSURE
5	1"	(1) #18 TSP	LEVEL TRANSDUCER	WET WELL	ELECTRICAL ENCLOSURE
6	1"	PULLCORD WITH LABEL	SPARE	ELECTRICAL ENCLOSURE	STUB UP BELOW RACK
RUN DUCTBANK AS REQUIRED BY "TYPICAL DUCTBANK SECTION (CONCRETE)" DETAIL, SHEET 10.					



TYPICAL DUCTBANK SECTION (CONCRETE)

SCALE: N.T.S.

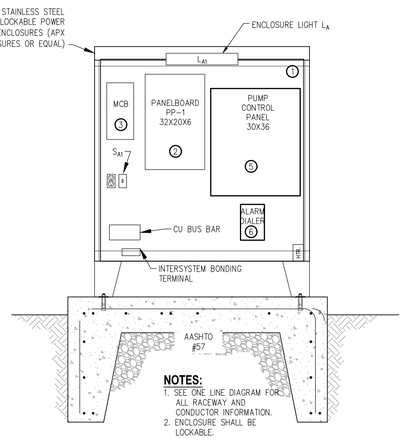


CONDUIT TRANSITION DETAIL

SCALE: N.T.S.

NOTE:

1. #4 REBAR 4 PLACES. TIE HORZ REBAR @ 48" INTERVAL W/#4 REBAR. FOR DUCT BANKS 4' WIDE AND LARGER ADD #4 REBAR CENTERED TOP AND BOTTOM. USE PLASTIC SUPPORT SPACERS W/3" MIN BETWEEN CONDUITS.
2. NUMBER OF CONDUITS TO BE ADJUSTED TO SATISFY REQUIREMENTS SHOWN ELSEWHERE ON DRAWINGS.
3. SECTION SHOWN PROVIDES TYPICAL SPACING, ADJUST NUMBER OF CONDUITS AND SIZE OF CONDUITS AS REQUIRED.
4. CONDUIT IN DUCTBANK SHALL BE PVC SCHEDULE 40.

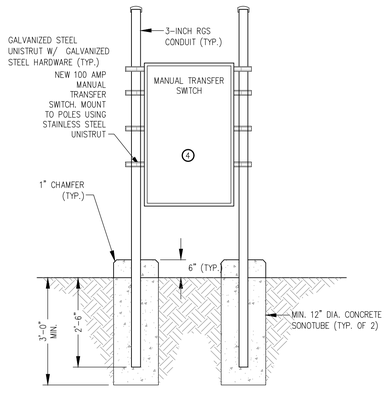


NOTES:

1. SEE ONE LINE DIAGRAM FOR ALL RACEWAY AND CONDUCTOR INFORMATION.
2. ENCLOSURE SHALL BE LOCKABLE.

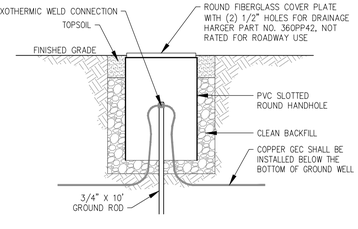
ELECTRICAL ENCLOSURE ELEVATION

SCALE: N.T.S.



MANUAL TRANSFER SWITCH RACK - FRONT VIEW

NOT TO SCALE



TYPICAL GROUND ROD INSPECTION WELL TERMINATION

SCALE: N.T.S.

Colliers Engineering & Design

www.colliersengineering.com

Copyright © 2022, Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design

RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

PROJECT NUMBER:	DRAWING NAME:
22002730A	WOODBRIDGE PARKSIDE PS

SHEET TITLE:

ELECTRICAL DETAILS

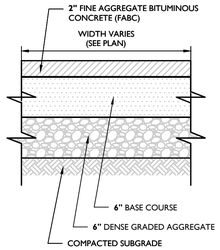
SHEET NUMBER:

10 of 11

IC&EE
Instrumentation, Control & Energy Engineering, LLC
525 ROUTE 73 NORTH, STE 104, MARLTON, NJ 08053
STATE OF NJ CERTIFICATION OF AUTHORIZATION NUMBER: 24GA28203800
P: 610-584-6574
www.ICEE-LLC.com

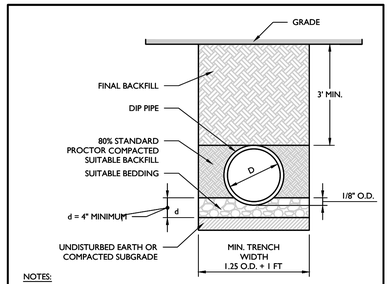
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730A\Reference\DWG from Others\Woodbridge Parkside PS.dwg E-3 By: LKIERNAN



ASPHALT DRIVEWAY (ON DGA) PAVEMENT DETAIL

NOT TO SCALE | MCNJ-SITE-PVMT-1401 | MOD: 06/10/22 05/01/18

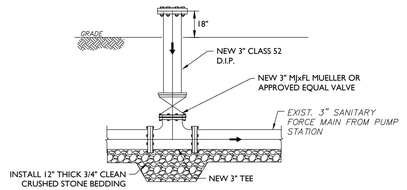


NOTES:

1. ALL FORCE MAIN PIPE SYSTEMS AND BACKFILL SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600.
2. SANITARY FORCE MAIN PIPE SHALL BE CEMENT LINED DUCTILE IRON PIPE (DIP) CLASS 52 WITH ASPHALTIC EPOXY TYPE COATING.
3. SUITABLE BEDDING MATERIAL SHALL BE SAND, GRAVEL OR 3/4" CRUSHED STONE.

DIP SANITARY PIPE BEDDING (FORCE MAIN) DETAIL

NOT TO SCALE | MCNJ-UTIL-SSWR-2801 | 05/01/17

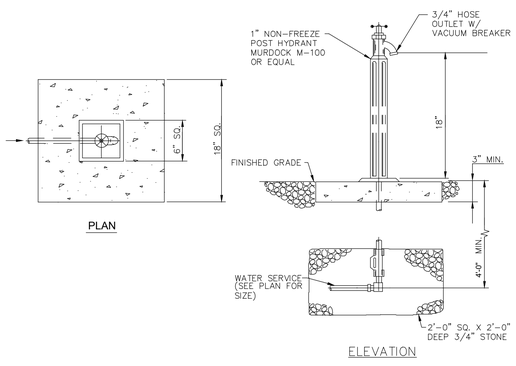


NOTES:

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY BEVELED VALVE OPERATOR AND W/VALVE BOX.
2. PIPING AND VALVES SHALL BE ADEQUATELY SUPPORTED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. WHERE REQUIRED THRUST RESTRAINT SHALL BE INSTALLED BY CONTRACTOR.
3. THE CONTRACTOR SHALL REMOVE TEMPORARY BY-PASS RISER AND INSTALL BLIND FLANGE ON VALVE, AFTER THE STATION IS COMPLETED AND PLACED IN OPERATION.

TEMPORARY BY-PASS CONNECTION DETAIL

N.T.S.



POST HYDRANT DETAIL

N.T.S.

NOT TO SCALE | GNRL-STRD-MNHL-REAS | 05/01/17

POST HYDRANT DETAIL

□ = CONTACT BEARING AREA OF BLOCK WITH EARTH, SQUARE FEET

DIAMETER (d) OF PIPE	5°-22 1/2° ELBOW	23°-45° ELBOW	46°-90° ELBOW	TEE CONNECTION	45° WYE	PLUG
	□	□	□	□	□	□
4"	1.25	2.4	4.5	3.15	2.6	3.15
6"	2.75	5.4	10.0	7.10	6.0	7.10
8"	5.0	9.6	17.8	12.5	10.5	12.5
10"	7.85	15.05	27.76	19.16	16.3	19.6
12"	11.27	21.68	40.0	28.3	23.6	28.3

NOTES:

1. BEARING AREAS ARE BASED ON UNDISTURBED SOIL WITH A BEARING CAPACITY OF 1,000 POUNDS PER SQUARE FOOT; FOR A LESSER SOIL BEARING CAPACITY THESE AREAS SHALL BE INCREASED ACCORDINGLY.
2. ALL CONCRETE THRUST BLOCKS SHALL BE CLASS "B".
3. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. NO JOINT SHALL BE COVERED WITH CONCRETE.
5. APPROVED MECHANICAL JOINT RESTRAINTS ARE REQUIRED AT ALL VERTICAL BENDS AND MAY BE USED IN LIEU OF THRUST BLOCKS AT HORIZONTAL BENDS AT THE OPTION OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.
6. A BITUMASTIC COATING SHALL BE APPLIED TO ALL BOLTS, NUTS, WASHERS, RODS, THRUST RESTRAINT BOLTS AND ALL UNCOATED HARDWARE..
7. 6 MIL. POLY SHEATHING SHALL BE PLACED BETWEEN FITTINGS AND CONCRETE THRUST BLOCKS.

TABLE OF THRUST BLOCKS

PIPE SIZE IN INCHES	90° TEE OR DEAD END PLUG			45°			22 1/2°		
	No.	SIZE		No.	SIZE		No.	SIZE	
4	2	3/4"	30'	2	3/4"	10'	2	3/4"	5'
6	2	3/4"	40'	2	3/4"	10'	2	3/4"	5'
8	4 OR 2	3/4" OR 7/8"	50'	2	3/4"	15'	2	3/4"	5'
10	4 OR 2	3/4" OR 1"	60'	2	3/4"	20'	2	3/4"	5'
12	4	7/8"	70'	2	3/4"	20'	2	3/4"	5'
14	4	1"	80'	2	3/4"	25'	2	3/4"	5'
16	4	1"	80'	2	3/4"	25'	2	3/4"	5'

NUMBER AND SIZE OF RODS REQUIRED AND PIPE LENGTH IN FEET * TO BE RESTRAINED

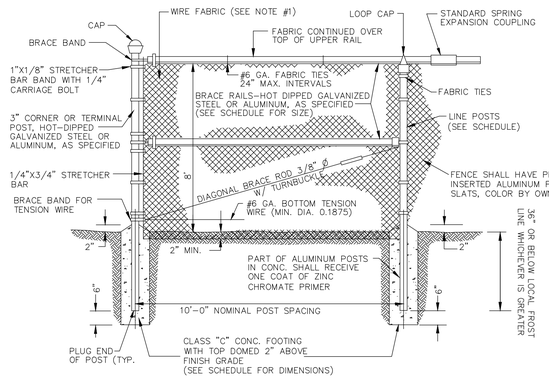
* LENGTH OF PIPE TO BE RESTRAINED IS FOR EACH SIDE OF BEND

JOINT RESTRAINT SCHEDULE

N.T.S.

NOTES:

1. USE OF MECHANICAL JOINT RETAINER GLANDS SHALL PROVIDE A THRUST RESTRAINT SYSTEM EQUIVALENT TO THAT LISTED IN THE TABLE FOR CLAMPS AND RODS.
2. LENGTHS ARE BASED ON THE FOLLOWING CRITERIA : 150 P.S.I. MAXIMUM PRESSURE AND 3'-6" OF COVER. TABLE IS FOR USE WITH C.I./D.I.P. ONLY. IF TEST CONDITIONS ARE MORE SEVERE OR LARGER PIPES ARE PROPOSED, THEN SPECIAL COMPUTATIONS MUST BE PROVIDED BY LICENSED P.E.



NOTES:

1. FENCE FABRIC SHALL BE #9 GAUGE HOT-DIPPED GALVANIZED OR ALUMINUM COATED STEEL, CORE WIRE PLUS VINYL CLAD. COLOR BY OWNER.
2. UNLESS OTHERWISE PROVIDED, FENCE DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F668, AASHTO M181.

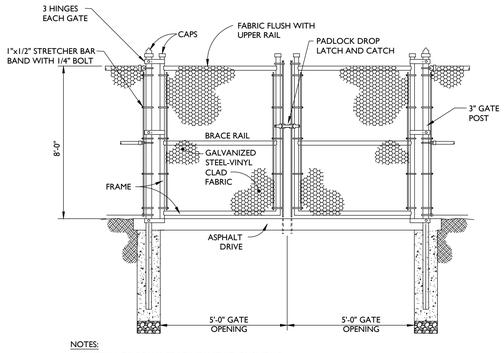
CHAIN LINK FENCE DETAIL

N.T.S.

DESCRIPTION	NOMINAL FENCE HEIGHT		
	UNDER 4'	4' – 8'	8' – 12'
MEMBER SCHEDULE			
IN-LINE POST	2"	2-1/2"	2-1/2"
TERMINAL AND CORNER POSTS	2-1/2"	3"	3"
BRACE RAILS (TOP, BOTTOM OR INTERMEDIATE)	1-3/8"	1-5/8"	1-5/8"
GATE FRAMES	1-5/8"	2"	2-1/2"
GATE POSTS (0-6' SPAN) *	2-1/2"	3"	3"
GATE POSTS (6'-12' SPAN) *	3"	3-1/2"	4"
FOOTING SCHEDULE			
FOOTING DEPTH – CORNER AND TERMINAL POSTS	3'-6"	4'-0"	4'-0"
– IN LINE POSTS	3'-0"	3'-6"	3'-6"
– GATE POSTS	3'-6"	4'-0"	4'-0"
FOOTING DIAMETER (BOTTOM) – CORNER AND TERMINAL POSTS	12"	14"	16"
– IN LINE POSTS	10"	12"	14"
– GATE POSTS	12"	14"	16"
FOOTING DIAMETER (TOP) – CORNER AND TERMINAL POSTS	10"	12"	14"
– IN LINE POSTS	8"	10"	12"
– GATE POSTS	10"	12"	14"

* SPAN AS PER SINGLE LEAF

CHAIN LINK FENCE SCHEDULE



NOTES:

1. INSTALL DIAGONAL BRACING WITH TURNBUCKLE.
2. FENCE FABRIC SHALL BE #9 GAUGE HOT-DIPPED GALVANIZED OR ALUMINUM COATED STEEL, CORE WIRE PLUS VINYL CLAD. COLOR BY OWNER.
3. UNLESS OTHERWISE PROVIDED, FENCE DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F668, AASHTO M181.

DOUBLE LEAF SWING GATE DETAIL

N.T.S.

DANGER

ENTRY PROHIBITED
AUTHORIZED PERSONNEL ONLY

PRIOR TO ENTRY INTO THIS STRUCTURE, PERSONNEL MUST COMPLY WITH SAFE WORK PRACTICE CONFINED SPACE ENTRY PROCEDURES.

POLYPROPYLENE SIGN TO BE PLACED ON UNDERSIDE OF HINGED ACCESS COVERS TO PUMP STATION AND VALVE PITS.
SIGN SHALL BE IN ACCORDANCE WITH AS 1319-1994

SAFETY SIGN DETAIL

N.T.S.

Colliers Engineering & Design

www.colliersengineering.com

Copyright © 2022. Colliers Engineering & Design All Rights Reserved. This drawing and all the information contained herein is authorized for use only by the party for whom the services were contracted or to whom it is certified. This drawing may not be copied, reused, disclosed, distributed or relied upon for any other purpose without the express written consent of Colliers Engineering & Design.

Doing Business as MASER CONSULTING

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR PARKSIDE PUMP STATION IMPROVEMENTS

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
RED BANK (Headquarters)
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	11/30/22	LJK	JM

PROJECT NUMBER: 22002730A
DRAWING NAME: W-DTLS

SHEET TITLE: CONSTRUCTION DETAILS

SHEET NUMBER: 11 of 11

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2022\22002730A\22002730AXSite Plan\W-DTLS.dwg\W-11-CNST DTLS By:LKEENAN