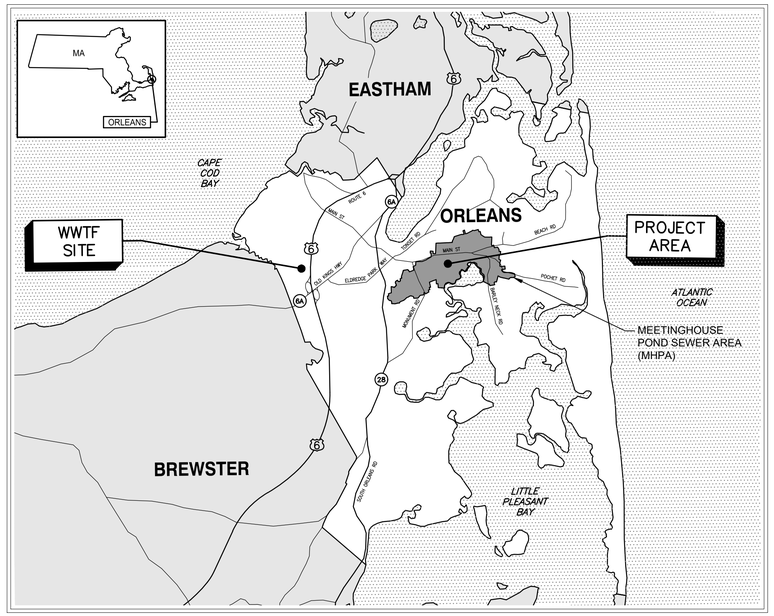
TOWN OF ORLEANS, MA

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION

CONTRACT NO. 2022-01
SRF NO. 7150
MARCH 2023



LOCATION PLAN

APPROXIMATE SCALE: 1" = 5000'

0 5000 10,000 20,000

SCALE: 1"=5000'

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

GENERAL

SHEET TITLE

COVER SHEET AND LOCATION PLAN

SHEET NUMBER

00 G-001

PATH+FILENAME: Z:\CHELMSFORD-HSCHL110CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\G\00 G-001.DWG
LAST UPDATE: Friday, March 3, 2023 8:52:00 AM
PLOT DATE: Friday, March 3, 2023 1:57:56 PM

INDEX OF DRAWINGS

GENERAL

SHEET NO.	TITLE
00 G–001	COVER SHEET AND LOCATION PLAN
00 G–002	INDEX OF DRAWINGS
00 G–003	KEY PLAN SHEET 1 OF 2
00 G–004	KEY PLAN SHEET 2 OF 2

CIVIL

SHEET NO.	TITLE
00 C–001	LEGEND, ABBREVIATIONS AND GENERAL NOTES
04 C–100	PLAN AND PROFILE SEWER SCHOOL ROAD
04 C–101	PLAN AND PROFILE SEWER MONUMENT ROAD
04 C–102	PLAN AND PROFILE SEWER UNCLE VICKS WAY
04 C–103	PLAN AND PROFILE SEWER MONUMENT ROAD
04 C–104	PLAN AND PROFILE SEWER POND ROAD
04 C–105	PLAN AND PROFILE SEWER POND ROAD
04 C–106	PLAN AND PROFILE SEWER FINLAY ROAD
04 C–107	PLAN AND PROFILE SEWER FINLAY ROAD
04 C–108	PLAN AND PROFILE SEWER FINLAY ROAD
04 C–109	PLAN AND PROFILE SEWER FINLAY ROAD
04 C–110	PLAN AND PROFILE SEWER LAKE FARM LANE
04 C–111	PLAN AND PROFILE SEWER MAIN STREET
04 C–112	PLAN AND PROFILE SEWER MAIN STREET
04 C–113	PLAN AND PROFILE SEWER MAIN STREET
04 C–114	PLAN AND PROFILE SEWER MAIN STREET
04 C–115	PLAN AND PROFILE SEWER BARLEY NECK ROAD
04 C–116	PLAN AND PROFILE SEWER POCHET ROAD
04 C–117	PLAN AND PROFILE SEWER POCHET ROAD
04 C–118	PLAN AND PROFILE SEWER POCHET ROAD
04 C–119	PLAN AND PROFILE SEWER POCHET ROAD
04 C–120	PLAN AND PROFILE SEWER GREAT OAK ROAD
04 C–121	PLAN AND PROFILE SEWER GREAT OAK ROAD
04 C–122	PLAN AND PROFILE SEWER GREAT OAK ROAD
04 C–123	PLAN AND PROFILE SEWER PINE RIDGE LANE & OAK LANE
04 C–124	PLAN AND PROFILE SEWER BEACH ROAD
04 C–125	PLAN AND PROFILE SEWER BEACH ROAD
04 C–126	PLAN AND PROFILE SEWER COLE PLACE
04 C–127	PLAN AND PROFILE SEWER BARLEY NECK ROAD
04 C–128	PLAN AND PROFILE SEWER BARLEY NECK ROAD
04 C–129	PLAN AND PROFILE SEWER BARLEY NECK ROAD
04 C–130	PLAN AND PROFILE SEWER HARVEYS LANE
04 C–131	PLAN AND PROFILE SEWER RIVER ROAD
04 C–132	PLAN AND PROFILE SEWER RIVER ROAD
04 C–133	PLAN AND PROFILE SEWER RIVER ROAD
04 C–134	PLAN AND PROFILE SEWER LINDEN LANE & PACKET LANDING
04 C–135	PLAN AND PROFILE SEWER MINISTER PRIM
04 C–136	PLAN AND PROFILE SEWER KAREN WAY
04 C–137	PLAN AND PROFILE SEWER KAREN WAY
04 C–138	PLAN AND PROFILE SEWER DEERWOOD LANE
04 C–139	PLAN AND PROFILE SEWER LOOMIS LANE
04 C–140	PLAN AND PROFILE SEWER LOOMIS LANE
04 C–141	PLAN AND PROFILE SEWER MANTO ROAD
04 C–142	PLAN AND PROFILE SEWER CHENEY ROAD
04 C–143	PLAN AND PROFILE SEWER LEWIS ROAD
04 C–144	PLAN AND PROFILE SEWER GRIST ROAD
04 C–145	PLAN AND PROFILE SEWER MILL LANE
04 C–146	PLAN AND PROFILE SEWER NATURAL DRIVE
04 C–147	PLAN AND PROFILE SEWER LARBOARD LANE
04 C–148	PLAN AND PROFILE SEWER CEDAR WAY
04 C–149	PLAN AND PROFILE SEWER HIGH TIDE LANE
04 C–150	PLAN AND PROFILE SEWER POND VIEW ROAD
04 C–151	PLAN AND PROFILE SEWER WINDY HILL LANE
04 C–152	PLAN AND PROFILE SEWER NAUSET FARMS WAY
04 C–153	PLAN AND PROFILE SEWER GESNER ROAD
04 C–154	PLAN AND PROFILE SEWER MEETINGHOUSE ROAD
04 C–155	PLAN AND PROFILE SEWER OFF MAIN STREET (191 MAIN STREET)
04 C–156	PLAN AND PROFILE SEWER BAXTER LANE 1 OF 2
04 C–157	PLAN AND PROFILE SEWER BAXTER LANE 2 OF 2
04 C–158	PLAN AND PROFILE SEWER REVEREND TREAT ROAD AND BAYBERRY WAY
04 C–159	PLAN AND PROFILE SEWER PACKET LANDING
04 C–401	EXISTING CONDITIONS, DEMOLITION AND EROSION CONTROL – PUMPING STATION NO. 4
04 C–402	SITE PLAN – PUMPING STATION NO. 4
04 C–403	ENLARGED PLAN – PUMPING STATION NO. 4
99 C–501	DETAILS I
99 C–502	DETAILS II
99 C–503	DETAILS III
99 C–504	DETAILS IV
99 C–505	DETAILS V
99 C–506	DETAILS VI
99 C–507	DETAILS VII
99 C–508	DETAILS VIII
99 C–509	DETAILS IX
99 C–601	TRAFFIC MANAGEMENT TYPICAL APPLICATIONS I
99 C–602	TRAFFIC MANAGEMENT TYPICAL APPLICATIONS II
99 C–603	TRAFFIC MANAGEMENT DETAILS & TEMPORARY SIGN SUMMARY

STRUCTURAL

SHEET NO.	TITLE
00 S–001	STRUCTURAL NOTES AND ABBREVIATIONS
99 S–501	STRUCTURAL STANDARD DETAILS

MECHANICAL PROCESS

SHEET NO.	TITLE
00 D–001	PROCESS LEGEND
00 D–002	GENERAL NOTES AND ABBREVIATIONS
00 D–003	SCHEDULES
00 D–004	PROCESS FLOW DIAGRAM I
00 D–005	PROCESS FLOW DIAGRAM II
04 D–101	PUMPING STATION NO. 4 PLAN AND SECTION
10 D–101	FACILITY LOWER PART PLAN
10 D–301	FACILITY SECTIONS
15 D–101	SBR LOWER PLAN I
15 D–102	SBR LOWER PLAN II
15 D–103	SBR UPPER PLAN I
15 D–104	SBR UPPER PLAN II
15 D–301	SBR SECTIONS
99 D–501	DETAILS

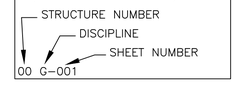
ELECTRICAL

SHEET NO.	TITLE
00 E–001	ELECTRICAL LEGEND, SYMBOLS AND ABBREVIATIONS
00 E–601	ELECTRICAL SCHEDULES I
00 E–602	ELECTRICAL SCHEDULES II
04 E–001	PUMP STATION NO. 4 – ELECTRICAL SINGLE LINE DIAGRAM
04 E–002	PUMP STATION NO. 4 – ELECTRICAL SITE PLAN
04 E–101	PUMP STATION NO. 4 – ELECTRICAL POWER PLAN
04 E–601	PUMP STATION NO. 4 – RISER DIAGRAMS
04 E–602	PUMP STATION NO. 4 – ELECTRICAL WIRING SCHEMATICS
10 E–001	WWTF – ELECTRICAL SINGLE LINE DIAGRAM – MODIFICATIONS
10 E–002	WWTF – ELECTRICAL SINGLE LINE DIAGRAM II – MODIFICATIONS
10 E–101	WWTF – LOWER LEVEL – ELECTRICAL POWER PLAN I
10 E–102	WWTF – LOWER LEVEL – ELECTRICAL POWER PLAN II
10 E–201	WWTF – GRADE LEVEL – ELECTRICAL POWER PLAN I
10 E–202	WWTF – GRADE LEVEL – ELECTRICAL POWER PLAN II
10 E–601	WWTF – ELECTRICAL RISER DIAGRAMS
10 E–602	WWTF – ELECTRICAL WIRING SCHEMATICS
99 E–501	ELECTRICAL DETAILS I
99 E–502	ELECTRICAL DETAILS II
99 E–503	ELECTRICAL DETAILS III
00 FA–001	FIRE ALARM LEGEND, ABBREVIATIONS, AND GENERAL NOTES
10 FA–101	WWTF – LOWER LEVEL – FIRE ALARM SYSTEM PLAN I
10 FA–102	WWTF – LOWER LEVEL – FIRE ALARM SYSTEM PLAN II
10 FA–201	WWTF – GRADE LEVEL – FIRE ALARM SYSTEM PLAN I
10 FA–202	WWTF – GRADE LEVEL – FIRE ALARM SYSTEM PLAN II

INSTRUMENTATION

SHEET NO.	TITLE
00 DI–001	INSTRUMENTATION LEGEND, ABBREVIATIONS AND GENERAL NOTES
00 DI–601	SYSTEM ARCHITECTURE
04 DI–601	PUMP STATION 4 P&ID
04 DI–602	PUMP STATION 4 ODOR CONTROL P&ID
10 DI–603	SBR TRANSFER PUMPS P&ID
10 DI–610	SBR BLOWERS P&ID
15 DI–601	SBRS P&ID
99 DI–601	MISCELLANEOUS SIGNALS

SHEET DESIGNATION LEGEND
(TYP. OF ALL SHEETS)



STRUCTURE NUMBER:

04	PUMPING STATION NO. 4
10	WASTEWATER TREATMENT FACILITY
15	SBR No. 1 & SBR No. 2

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

3/1/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NO SCALE

DISCIPLINE

GENERAL

SHEET TITLE

INDEX OF DRAWINGS

SHEET NUMBER

00 G-002

PATH/FILENAME: Z:\CHELMSFORD-JSC\HL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSE\EPS\900_CAD_GIS\910_CAD\20\SHEETS\G\00 G-002.DWG
LAST UPDATE: Friday, March 3, 2023 8:54:05 AM
PLOT DATE: Friday, March 3, 2023 1:52:52 PM

GENERAL NOTES

1. HORIZONTAL DATUM IN U.S. SURVEY FEET IS REFERENCED TO THE MASSACHUSETTS STATE PLANE, MAINLAND COORDINATE SYSTEM (NAD83).
2. VERTICAL DATUM IN U.S. SURVEY FEET IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. THE INFORMATION SHOWN HEREON IS BASED ON THE REFERENCED DATA ACCUMULATION PLANS. THESE PLANS DO NOT REPRESENT A PROPERTY OR BOUNDARY SURVEY, AND THE PROPERTY LINES SHOWN DO NOT REPRESENT A LAND SURVEYOR'S PROPERTY BOUNDARY OPINION. THE BOUNDARY INFORMATION SHOWN ON THESE PLANS WAS COMPILED FROM OTHER MAPS, RECORD RESEARCH, AND OTHER SOURCES OF INFORMATION. THE BOUNDARIES SHOWN HEREON SHALL NOT BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF AN ACCURATE ON THE GROUND SURVEY, AND ARE SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.
4. SIDELINES OF RIGHTS OF WAY AND PROPERTY LINES ARE AS SHOWN ON PLANS PREPARED BY BSC GROUP, ENTITLED: "MEETINGHOUSE POND AREA SANITARY SEWER PROJECT": OCTOBER 8, 2021 AND SUBSEQUENT DATES. WHERE SUPPLEMENTAL RIGHT OF WAY AND PROPERTY LINE INFORMATION WAS REQUIRED, TOWN OF ORLEANS AND/OR MASS GIS DATA WAS USED. UPDATED AND SUPPLEMENTAL BUILDING LOCATIONS ARE BASED ON PLANIMETRICS FROM BLUE SKY AERIAL SURVEY OF SPRING 2021.
5. LOCATION OF WATER, SEWER, TELEPHONE, ELECTRIC, AND GAS LINES ARE APPROXIMATE, BASED UPON RECORD LOCATION INFORMATION PROVIDED TO BSC GROUP, INC. AND FOR REFERENCE ONLY.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AT NO ADDITIONAL COST TO THE OWNER.
7. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE STATE STATUES AND U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS (O.S.H.A). COPIES OF O.S.H.A.'S STANDARDS MAY BE PURCHASED FROM THE U.S GOVERNMENT PRINTING OFFICE. THE CONTRACTOR ALONE WILL BE RESPONSIBLE FOR THE EXECUTION OF THE WORK IN ACCORDANCE WITH ALL APPLICABLE HEALTH AND SAFETY REQUIREMENTS.
8. THE CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN AND SHALL PROVIDE COPIES OF SAME TO THE ENGINEER.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AND SHALL PROVIDE ALL NECESSARY CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE AND STRENGTH TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS AT THE COMPLETION OF EACH DAY'S WORK.
10. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF THE LOCAL MUNICIPALITY AND THE STATE WHEN WORKING IN THEIR RIGHTS OF WAY.
11. NO WORK, STORAGE, OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY EASEMENTS OR PUBLIC RIGHTS OF WAY WITHOUT WRITTEN PERMISSION OF THE PROPERTY OWNER.
12. ALL CONSTRUCTION ACTIVITY SHALL BE CONFINED TO THE AREA WITHIN THE LIMIT OF WORK AS SHOWN ON THE PLANS. LIMIT OF WORK SHALL BE DEFINED AS THE SERVICE RECIPIENTS PROPERTY LINE AND THE ADJACENT RIGHT-OF-WAY. RIGHTS OF ENTRY AND/OR EASEMENTS HAVE BEEN OBTAINED FOR ALL PROPERTIES INCLUDED IN THIS PROJECT.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING A SITE FOR DISPOSAL OF ALL EXCAVATED UNACCEPTABLE MATERIAL THAT IS UNSUITABLE FOR USE AS BACKFILL AND ALL OTHER EXCESS EXCAVATED MATERIALS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THE LOCATION OF THE DISPOSAL SITE AND WRITTEN PERMISSION FOR USE OF THE SITE FROM THE PROPERTY OWNER. THE COST FOR SECURING AND MAINTAINING THE DISPOSAL SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
14. IF AT ANY TIME THE CONSTRUCTION EXCAVATION REVEALS ANY ARTICLE OF HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE, WORK AT THE LOCATION WILL CEASE AND THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
15. THE CONTRACTOR SHALL COORDINATE ALL WORK AS NECESSARY WITH MASSDOT AND THE TOWN OF ORLEANS AND/OR ITS REPRESENTATIVES.
16. WORKING HOURS WITHIN THE TOWN ARE 7:00 A.M. TO 5:00 P.M., MONDAY THROUGH FRIDAY OR AS SPECIFIED IN THE MASSDOT PERMIT AND SPECIFICATIONS. PERMISSION IS REQUIRED FROM THE TOWN VIA THE ENGINEER TO WORK ON SUNDAY, LEGAL HOLIDAYS, OR ANY WEEKDAY NIGHT PAST THE HOURS SPECIFIED. THIS PERMISSION MUST BE REQUESTED 72 HOURS IN ADVANCE. SUNDAY WORK WILL ONLY BE ALLOWED IN CASE OF EMERGENCY.
17. EXISTING VALVES OR HYDRANTS SHALL BE OPERATED BY THE MUNICIPAL OWNER. THE CONTRACTOR SHALL COORDINATE WITH THE MUNICIPAL OWNER OF THE WATER SYSTEM.
18. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER IN CONFORMANCE WITH ALL APPLICABLE CODES AND IN A PROPER AND WORKMANLIKE MANNER.
19. CONTRACTOR TO SUBMIT WORK SCHEDULE INCLUDING NECESSARY UTILITY RELOCATIONS BASED ON RESULTS OF TEST PITS. NO PIPE INSTALLATION SHALL OCCUR PRIOR TO APPROVAL OF THE SCHEDULE AND COMPLETION OF TEST PITS.
20. THE CONTRACTOR IS RESPONSIBLE FOR SEQUENCING OF ALL WORK TO AVOID CONFLICTS BETWEEN ALL NEW WORK.
21. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC MANAGEMENT PLAN FOR ALL WORK PRIOR TO THE START OF CONSTRUCTION TO SHOW HOW TRAFFIC FLOW WILL BE MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR SHALL FURNISH ALL PROTECTIVE AND/OR WARNING DEVICES AS REQUIRED TO CONTROL TRAFFIC AND PROTECT THE PUBLIC IN ALL WORK AREAS.
22. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH LOCAL AND STATE GUIDELINES.
23. THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY THE WORK AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN EMERGENCY RESPONSE PLAN. THIS PLAN SHALL BE COORDINATED WITH THE ENGINEER, THE TOWN AND ALL EMERGENCY DEPARTMENTS.
24. PRIOR TO CLOSING ANY ROADWAY (PARTIALLY OR COMPLETELY), MUNICIPAL POLICE, THE TOWN AND LOCAL FIRE OFFICIALS SHALL BE NOTIFIED. THE CONTRACTOR SHALL COMPLY WITH ANY CONDITIONS SET BY THE PUBLIC SAFETY OFFICIALS, IN CONJUNCTION WITH THE OWNER AND ENGINEER.
25. CONTRACTOR TO PROVIDE AND MAINTAIN SEDIMENTATION AND EROSION CONTROL MEASURES TO PROTECT ALL CATCH BASINS, DRAINAGE INLETS AND SWALES IN THE CONSTRUCTION ZONE.
26. ALL EROSION CONTROL MEASURES FOR THE WORK ZONE SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION.
27. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF THE EXISTING FEATURES AND STRUCTURES WITHIN AND ADJACENT TO THE WORK. CONTRACTOR SHALL BOX ALL TREES, SHRUBS, FLOWER BOXES, AND HEDGES BEFORE PLACING EARTH AGAINST OR NEAR THEM. IN THE EVENT OF DAMAGE, REPAIRS OR REPLACEMENT SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AS APPROVED BY THE ENGINEER.
28. EXCAVATION OF ANY TYPE SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT UNDERGROUND UTILITIES OR STRUCTURES ARE NOT DAMAGED. ALL ROADWAYS, PARKING AREAS, SIDEWALKS AND OTHER STRUCTURES DISTURBED BY CONSTRUCTION IN OR OUTSIDE THE PROJECT AREA SHALL BE RETURNED TO THEIR ORIGINAL CONDITION OR BETTER. ALL COSTS RELATED TO THE REPAIR OF DAMAGED UTILITIES OR STRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
29. CONTRACTOR SHALL SAW-CUT ALL PAVEMENT, ROADS, AND DRIVEWAYS TO BE DISTURBED DURING CONSTRUCTION.
30. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING PROPER AND ADEQUATE TRENCH SHORING AND BRACING AT ALL TIMES IN ACCORDANCE WITH REQUIRED SAFETY STANDARDS.
31. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AT EACH SITE RECEIVING SEWER SERVICE, INCLUDING BUT NOT LIMITED TO, INVERT ELEVATIONS AT EACH MANHOLE, DEPTH AND LOCATION OF EXISTING PIPING TO ON-SITE WASTE DISPOSAL SYSTEMS (OWDS) AND THE LOCATION OF EXISTING OWDS.
32. ALL NEW GRAVITY SEWER SERVICES SHALL BE 6" DIAMETER PVC UNLESS OTHERWISE NOTED. ALL NEW LOW PRESSURE SEWER SERVICES SHALL BE 1-1/4" DIAMETER UNLESS OTHERWISE NOTED
33. ALL NEW PRECAST SEWER MANHOLE INVERTS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH DETAILS.

GENERAL NOTES - (CONT.)

35. ALL UNEXCAVATED ROCK WITHIN 3'-0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES AND STUBS, AND DOWN TO A HORIZONTAL PLANE 6-INCHES BELOW THE BOTTOMS OF SUCH CONNECTIONS, BRANCHES AND STUBS, SHALL BE REMOVED.
36. ROCK REMOVAL BY THE MECHANICAL METHOD SHALL CONSIST OF CUTTING AWAY ROCK AT TRENCH BOTTOM TO FORM A LEVEL BEARING SURFACE 6" BELOW INVERT ELEVATION OF PIPE.
37. NO TREES OR TREE LIMBS ALONG THE ENTIRE ROUTE OF CONSTRUCTION ON PUBLIC WAYS SHALL BE CUT UNLESS OTHERWISE DIRECTED BY THE ENGINEER AND APPROVED BY THE TOWN.
38. THE CONTRACTOR SHALL EXERCISE CARE TO PREVENT DAMAGE TO ROOT SYSTEMS OF EXISTING TREES OR SHRUBS IN LOCATIONS OF NEW SEWER LINES.
39. THE LOCATIONS OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN AND UTILITY COMPANIES INVOLVED TO VERIFY IN THE FIELD THE EXACT LOCATION, SIZE, AND MATERIAL OF CONSTRUCTION OF MAINS AND SERVICES TO PREVENT DAMAGE, LOSS OF SERVICE DURING CONSTRUCTION AND FOR REPLACEMENT OF SERVICES. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" 72-HOURS PRIOR TO ANY EXCAVATION.
40. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE DEPTH OF EXISTING UTILITY CROSSINGS EITHER BELOW OR ABOVE THE NEW PIPING. METHODS FOR DETERMINING DEPTHS TO UTILITIES WILL BE BY TEST PITS OR BY VACUUM EXCAVATION, WHICHEVER IS DEEMED ACCEPTABLE AT THE SPECIFIC LOCATION.
41. EXISTING UTILITIES TO REMAIN IN SERVICE DURING CONSTRUCTION. ANY INTERRUPTION OF SERVICE SHALL BE COORDINATED WITH THE ENGINEER AND APPROVED BY THE TOWN.
42. EXISTING UTILITIES INTERFERING WITH THE WORK SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER.
43. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ARRANGEMENTS FOR ANCHORING, SUPPORTING AND/OR RELOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL COSTS SHALL BE INCLUDED IN THE UNIT PRICES BID. IN THE EVENT OF DAMAGE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ALL REPAIRS.
44. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING FIRE HYDRANTS AT ALL TIMES. SHOULD AN EXISTING HYDRANT NEED TO BE TAKEN OUT OF SERVICE, THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE DEPARTMENT 24 HOURS PRIOR TO TAKING IT OUT OF SERVICE.
45. IF WATER MAINS NEED TO BE RE-LAYED AS A RESULT OF NEW PIPELINE CONSTRUCTION, THE WATER MAINS SHALL BE LAID A MINIMUM OF 10-FEET HORIZONTALLY FROM AN EXISTING SEWER OR STORM SEWER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WHEN WATER MAINS MUST CROSS ABOVE A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18-INCHES BELOW THE BOTTOM OF THE WATER MAIN. WHERE RE-LAYED WATER MAINS ARE SHOWN TO CROSS SEWERS, THE RE-LAYED WATER MAIN SHALL BE INSTALLED SO THAT A FULL LENGTH OF WATER MAIN CROSSES THE SEWER MIDWAY BETWEEN THE JOINTS OF THE WATER MAIN.
46. CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS TO OBTAIN WATER FOR FLUSHING, CHLORINATION, AND TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, FURNISHING, INSTALLING, AND REMOVING ALL NECESSARY MATERIAL (TAPS, CORPORATIONS, AND SERVICE PIPE) REQUIRED FOR PROPER TESTING AND CHLORINATION OF WATER MAINS.
47. AFTER TESTING, ALL CORPORATIONS INSTALLED FOR TESTING AND CHLORINATION SHALL BE REMOVED AND REPLACED WITH BRASS PLUGS. WATER TIGHTNESS OF BRASS PLUGS SHALL BE OBSERVED VISUALLY UNDER PRESSURE.
48. ALL ROAD CUTS SHALL BE RESTORED WITH SUB-BASE MATERIAL AT THE END OF EACH WORK DAY. CONTRACTOR SHALL MAINTAIN ROAD CUTS UNTIL THE TEMPORARY/PERMANENT PAVEMENT IS INSTALLED.
49. TEMPORARY TRENCH PAVEMENT SHALL BE INSTALLED AT THE END OF EACH WEEK AND DAILY FOR STATE ROADS UNLESS OTHERWISE DIRECTED BY THE OWNER. PERMANENT TRENCH PAVEMENT SHALL BE INSTALLED 90 TO 180 DAYS AFTER PIPELINE INSTALLATION UNLESS OTHERWISE DIRECTED BY THE OWNER.
50. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO PRE-CONSTRUCTION GRADES UPON COMPLETION OF SEWER CONSTRUCTION, EXCEPT WHERE PERMANENT GRADE CHANGES ARE SPECIFICALLY NOTED OR ORDERED.
51. ALL ROADS AND DRIVEWAYS SHALL BE REPLACED TO COMPLY WITH MASSDOT REQUIREMENTS AND TOWN OF ORLEANS SPECIFICATIONS AS APPLICABLE.
52. ALL PAVED GUTTERS (ASPHALT WING), ALL STONE CURBS, AND ALL CONCRETE CURB ALONG ROADWAYS DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND AT NO ADDITIONAL COST TO THE OWNER.
53. ALL EXISTING FRAMES, COVERS, BOXES, ETC. SHALL BE RAISED TO FINISH GRADES PRIOR TO PLACEMENT OF PAVEMENT WEARING COURSE.
54. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WASTE BUILDING MATERIAL, CONCRETE, MASONRY, TREES, SHRUBS, DEBRIS AND OTHER MATERIALS NECESSARY FOR THE SATISFACTORY COMPLETION OF THE WORK AND AS REQUIRED BY THE OWNER. CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS.
55. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS CLEANING OF MUD, DIRT AND DEBRIS OFF STREETS. WHEN SUCH MUD, DIRT OR DEBRIS IS DEPOSITED THERE AS A RESULT OF HIS CONSTRUCTION ACTIVITY. ANY DEBRIS, MUD, OR DELETERIOUS MATERIAL FROM THE PROJECT WILL BE REMOVED FROM THE STREET AND SURROUNDING STREETS BY CONTRACTOR AT THE END OF EACH WORKING DAY, OR BEFORE, IF DIRECTED BY THE OWNER OR ENGINEER.
56. USE WATER SPRINKLING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING IN THE AIR.
57. CONTRACTOR IS RESPONSIBLE FOR REPLACING ALL EXISTING PAVEMENT MARKINGS INCLUDING CENTER LINES, EDGE LINES, STOP LINES, CROSSWALKS AND LETTERING FOLLOWING PLACEMENT OF TEMPORARY PAVEMENT AND FOLLOWING PERMANENT PAVEMENT OR AS DIRECTED BY THE ENGINEER. THERMOPLASTIC PLASTIC ROAD PAINT SHALL BE UTILIZED FOR ALL PAVEMENT MARKING IN STATE ROADWAYS. ACETONE ROAD PAINT SHALL BE UTILIZED FOR ALL ROADWAY MARKING IN TOWN ROADWAYS. REFER TO SECTION 02503, PAVING, CURBING, SIDEWALKS AND ROADWAYS.

ABBREVIATIONS

B.B.	BITUMINOUS BERM
BIT. CURB	BITUMINOUS CURB
BIT. CONC.	BITUMINOUS CONCRETE
B.O.E.	BOTTOM OF EXPLORATION
BM	BENCH MARK
CB	CATCH BASIN
CI	CAST IRON
CICL	CEMENT LINED CAST IRON
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
CONN.	CONNECT
CS	CARBON STEEL
DI	DUCTILE IRON
DICL	DUCTILE IRON CEMENT LINED
DMH	DRAINAGE MANHOLE
DOE	DEPTH OF EXPLORATION
DYL	DOUBLE YELLOW LINE
ELEC	ELECTRICAL
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EP	EXISTING PAVEMENT
EXIST.	EXISTING
FT	FEET
FM	FORCE MAIN
G	GAS
GAR	GARAGE
GC	GRANITE CURB
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
LP	LOW PRESSURE
LSA	LANDSCAPED AREA
MB	MAIL BOX
MIN	MINIMUM
NTS	NOT TO SCALE
PL	PLASTIC
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R	RIM
RCP	REINFORCED CONCRETE PIPE
S	SLOPE
SMH	SEWER MANHOLE
SWL	SINGLE WHITE LINE
SYL	SINGLE YELLOW LINE
STA	STATION
TBM	TEMPORARY BENCHMARK
TMH	TELEPHONE MANHOLE
T.O.P.	TOP OF PIPE
TRANS	TRANSFORMER
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
WTFC	WATERTIGHT FRAME AND COVER
W/	WITH
WF	WETLAND FLAG

LEGEND

EXISTING		NEW	
CBDH	CONCRETE BOUND WITH DRILL HOLE		LIMIT OF WORK
CB	CONCRETE BOUND		EROSION PROTECTION
MHB	MASS HIGHWAY BOUND		SEDIMENTATION CONTROL AT CATCH BASIN
IRF	IRON ROD FOUND		TEST PIT
	ROUND CATCH BASIN		DEMOLITION - (REMOVE AND LEGALLY DISPOSE OF)
	CATCH BASIN		
	DOUBLE CATCH BASIN		STRUCTURE
	CULVERT		
	DRAIN MANHOLE		ACCESS HATCH
	DRAINAGE HEADWALL		VENT
S	SEWER MANHOLE	S	SEWER MANHOLE
S	DISPOSAL SYSTEM COVER		CENTERLINE
	CESSPOOL		GRAVITY SEWER AND FLOW DIR.
	ELECTRIC BOX		SEWER SERVICE LINE
E	ELECTRIC MANHOLE		SEWER FORCEMAIN
	GAS VALVE		PIPING LESS THAN 12" DIAM.
	TELEPHONE BOX		PLUG VALVE
T	TELEPHONE MANHOLE		REDUCER
	WATER GATE	2+00	STATIONING
	IRRIGATION CONTROL VALVE		STORM DRAIN AND FLOW DIR.
	FIRE HYDRANT		CATCH BASIN
	UTILITY POLE WITH RISER		LEACHING BASIN AND EXTENT OF GRAVEL
	UTILITY POLE	E	ELECTRICAL DUCT
	UTILITY POLE WITH LIGHT		PROJECT PAVEMENT RESTORATION LIMITS
	UTILITY POLE WITH LIGHT AND RISER		EDGE OF PAVEMENT AND CAPE COD BERM
	UTILITY POLE WITH TRANSFORMER	25	CONTOUR AND ELEVATION
	GUY	25.4 ×	SPOT ELEVATION
	DECIDUOUS TREE		GUARD POST
	CONIFER TREE		PARKING SPACES
	SHRUB		PAINTED AREA - NO PARKING
	SIGN (SINGLE POSTED)		PROPOSED TREE LINE
	SIGN (DOUBLE POSTED)	PS4-1	BORING LOCATION AND NUMBER
TS	TRAFFIC SIGNAL	MW-1	MONITORING WELL AND NUMBER
	POST		
MW	MONITORING WELL		
B-X	BORING LOCATION AND ID		
	LIGHT POLE		
	FLAG POLE		
FDC	FIRE DEPARTMENT CONNECTION		
	VENT		
108.6 + WF-X	SPOT ELEVATION		
	WETLAND FLAG		
	WETLAND 100' BUFFER		
	PROPERTY LINE		
	FENCE		
S S	SEWER LINE		
FM	SEWER FORCEMAIN		
D D	DRAIN LINE		
W W	WATER LINE		
G G	GAS LINE		
UGE	UNDERGROUND ELECTRIC		
UGC	UNDERGROUND CABLE		
T T	TELEPHONE LINE		
OHW	OVERHEAD WIRES		
52	INTERMEDIATE CONTOURS		
50	INDEX CONTOURS		
	EXISTING TREELINE		
	100 YR FLOOD EXTENT		
	WETLAND		
	WETLAND AND COASTAL BANK BUFFERS		
	BUILDING		

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

1	3-01-2023	ISSUE FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60652634

Designed By:	M. DONAGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

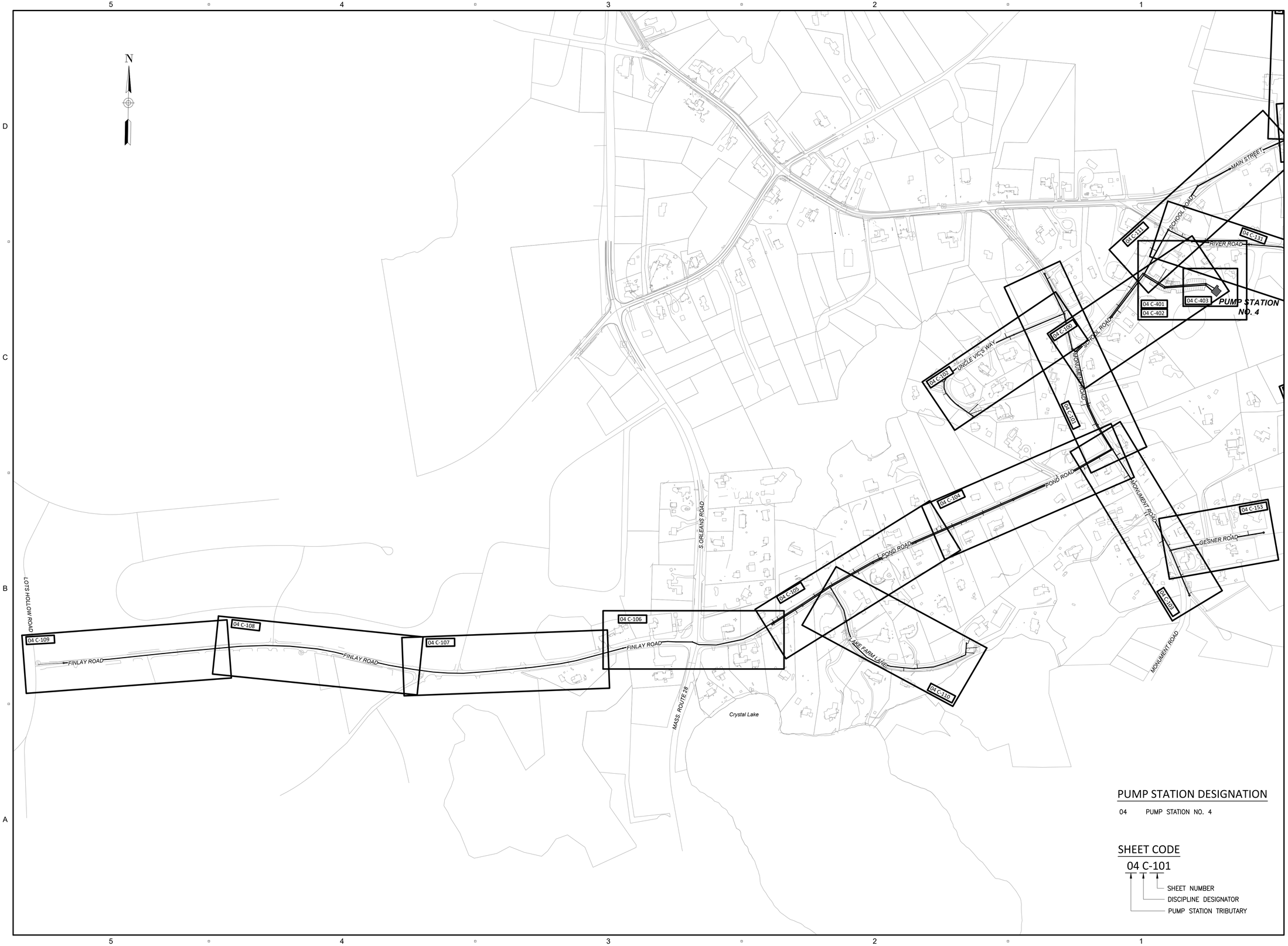
SHEET TITLE

LEGEND, ABBREVIATIONS AND GENERAL NOTES

SHEET NUMBER

00 C-001

PATHFILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20\SHEETS\C\00 C-001.DWG
LAST UPDATE: Thursday, September 29, 2022 1:48:22 PM
PLOT DATE: Friday, March 3, 2023 2:11:04 PM



PUMP STATION DESIGNATION

04 PUMP STATION NO. 4

SHEET CODE

04 C-101

- SHEET NUMBER
- DISCIPLINE DESIGNATOR
- PUMP STATION TRIBUTARY

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

03/01/23
COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

GENERAL

SHEET TITLE

KEY PLAN
SHEET 1 OF 2

SHEET NUMBER

00 G-003

Last saved by: GREBENNIKOVS(2023-01-12) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\MEETINGHOUSE_KEY_MAP.DWG

PUMP STATION DESIGNATION

04 PUMP STATION NO. 4

SHEET CODE

04 C-101

- SHEET NUMBER
- DISCIPLINE DESIGNATOR
- PUMP STATION TRIBUTARY

Last saved by: GREBENNIKOVS\(2023-01-12) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02 CAD\MEETINGHOUSE_KEY_MAP.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

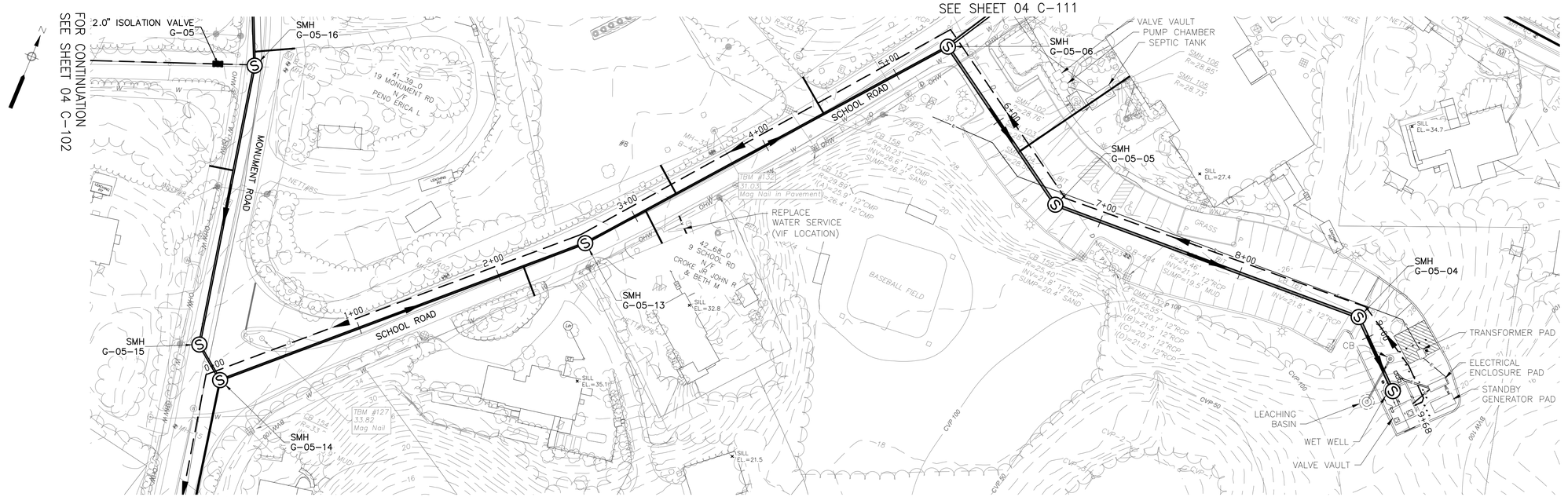
GENERAL

SHEET TITLE

KEY PLAN
SHEET 2 OF 2

SHEET NUMBER

00 G-004



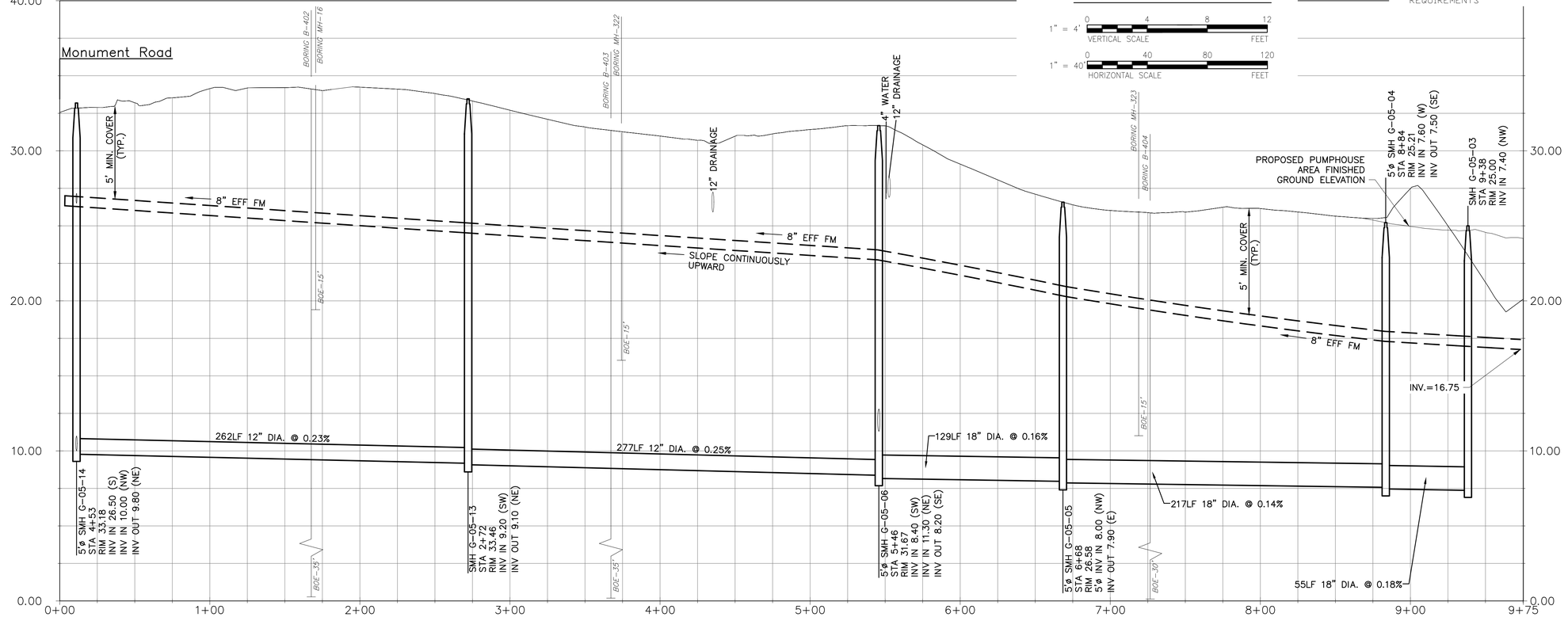
PLAN - SCHOOL ROAD

SCALE: 1"=40'

PROFILE - SCHOOL ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER SCHOOL ROAD

SHEET NUMBER

04 C-100

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-100

FOR CONTINUATION
SEE SHEET 04 C-103

FOR CONTINUATION
SEE SHEET 04 C-104

FOR CONTINUATION
SEE SHEET 04 C-102

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - MONUMENT ROAD

SCALE: 1"=40'

PROFILE - MONUMENT ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

THOMAS E. PARECE CIVIL No. 34463 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

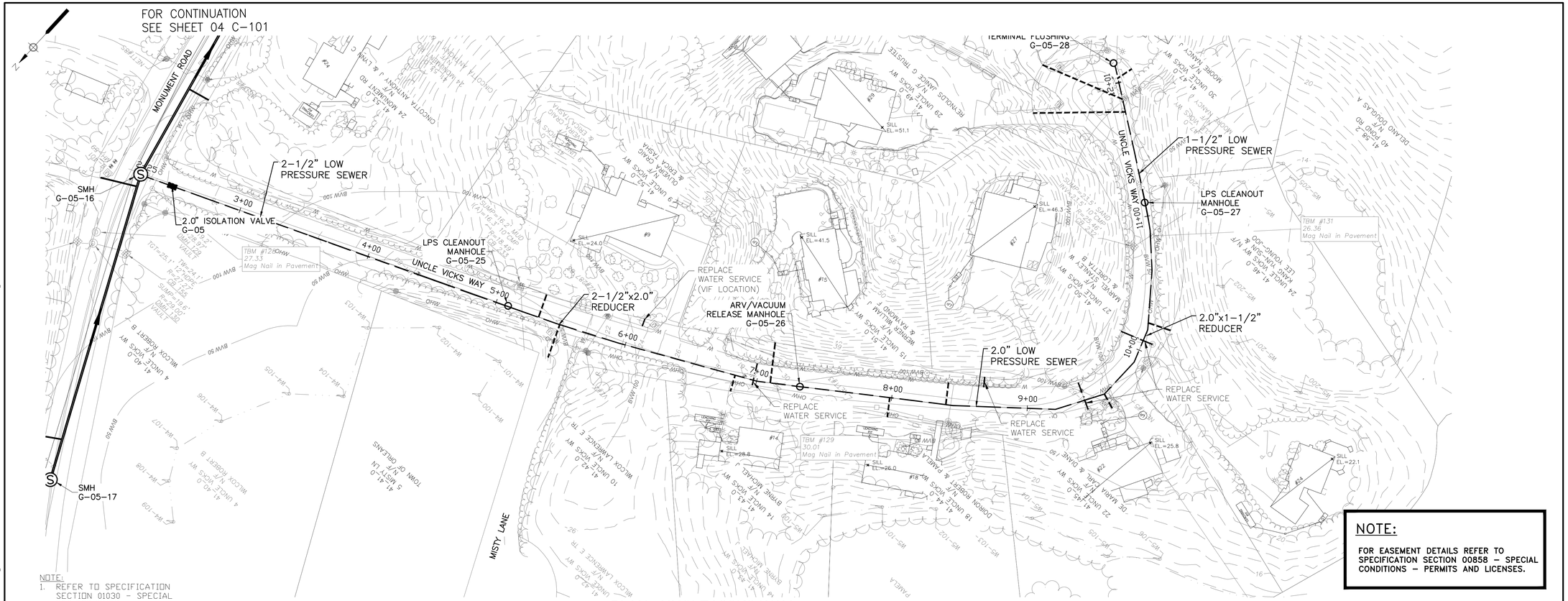
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER MONUMENT ROAD

SHEET NUMBER

04 C-101



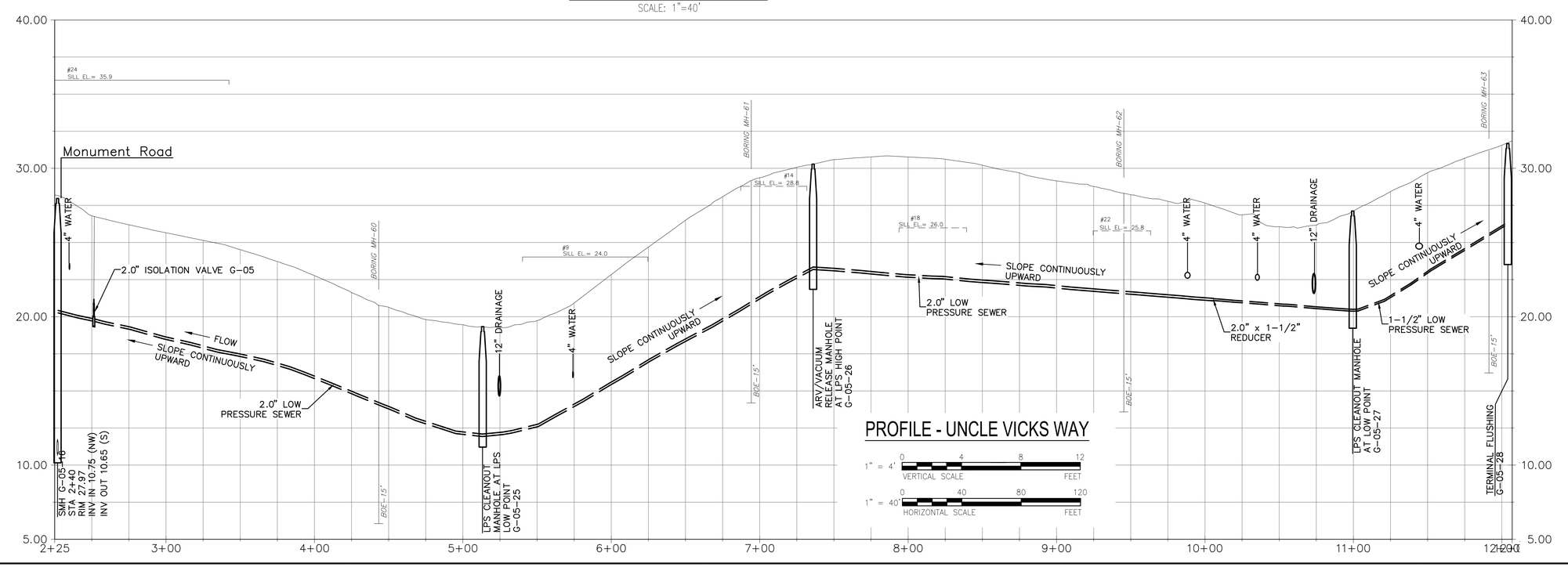
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

PLAN - UNCLE VICKS WAY

SCALE: 1"=40'



PROFILE - UNCLE VICKS WAY

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

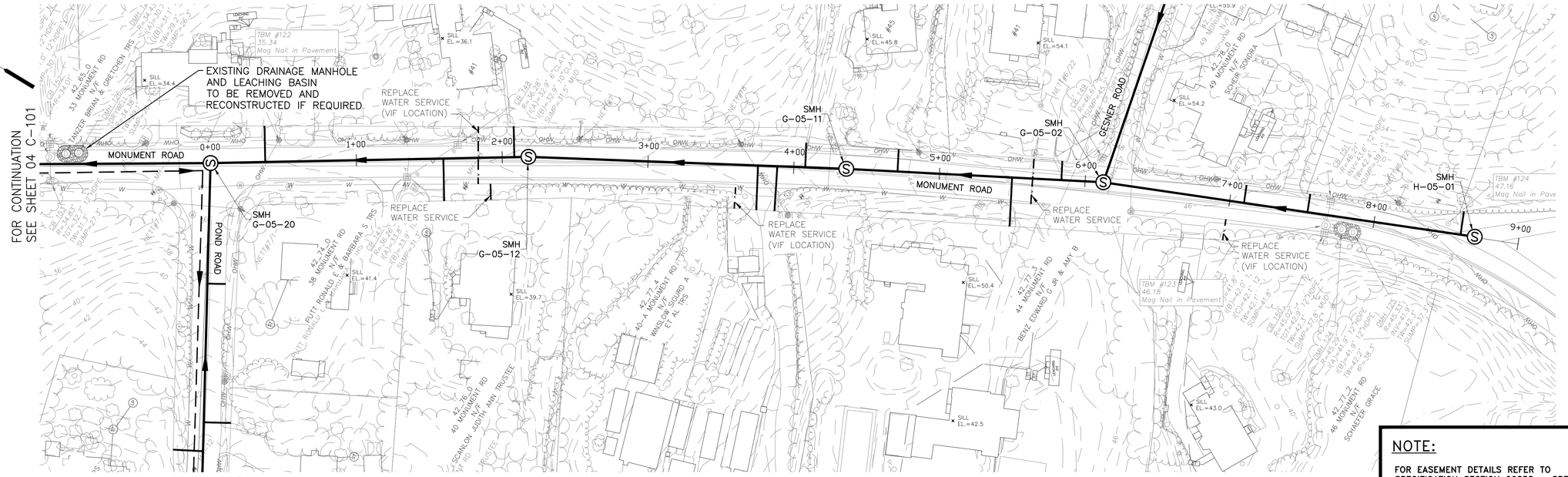
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER UNCLE VICKS WAY

SHEET NUMBER

04 C-102



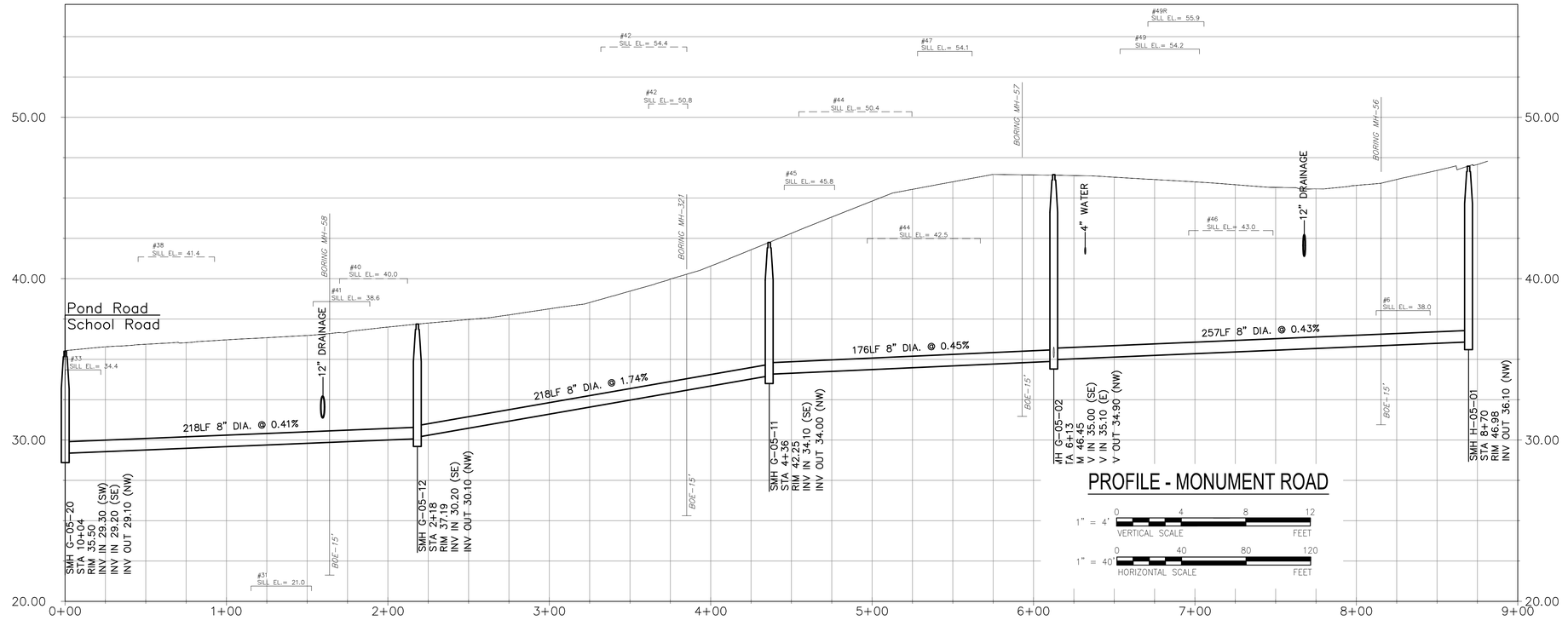
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - MONUMENT ROAD

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - MONUMENT ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

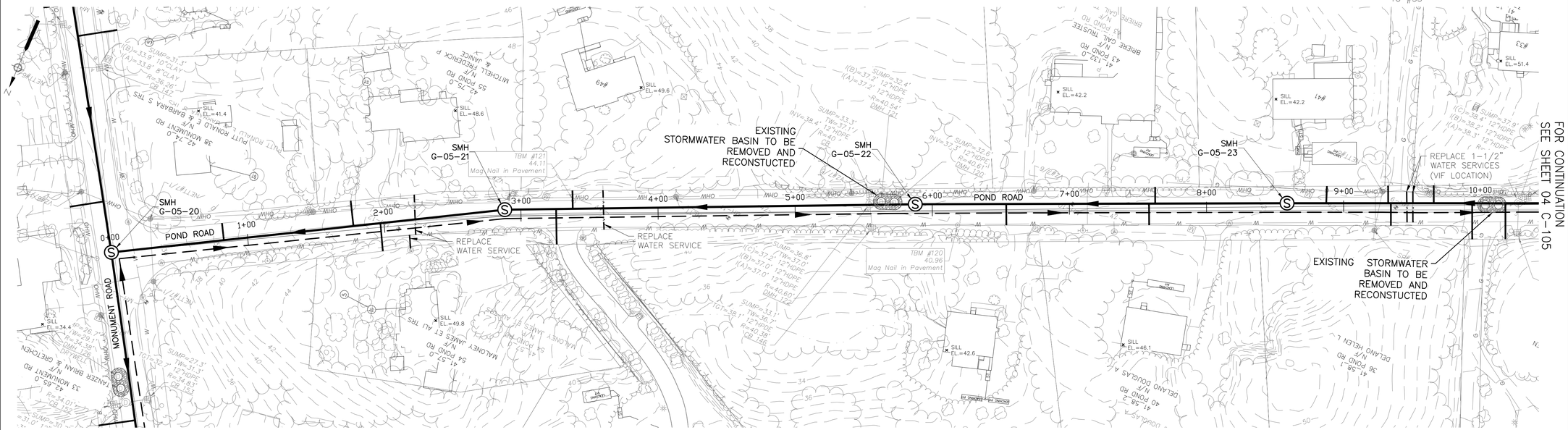
SHEET TITLE

PLAN AND PROFILE SEWER MONUMENT ROAD

SHEET NUMBER

04 C-103

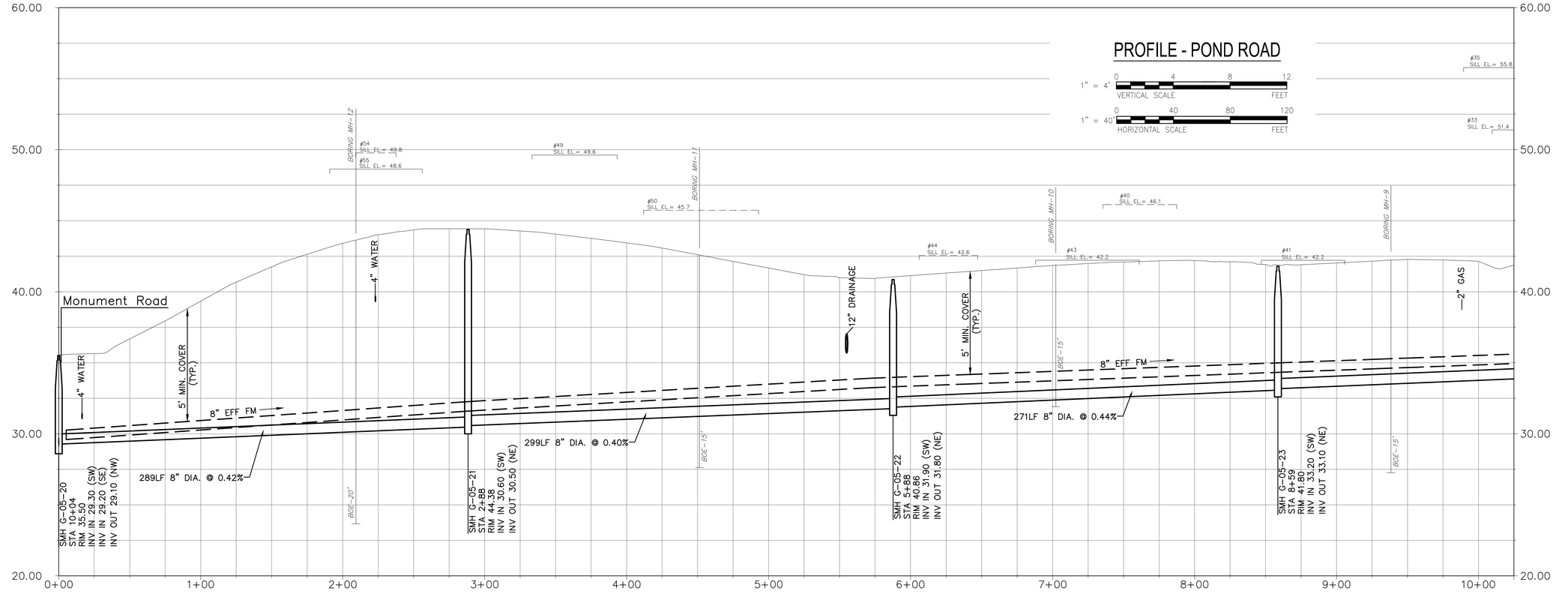
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - POND ROAD

SCALE: 1"=40'



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

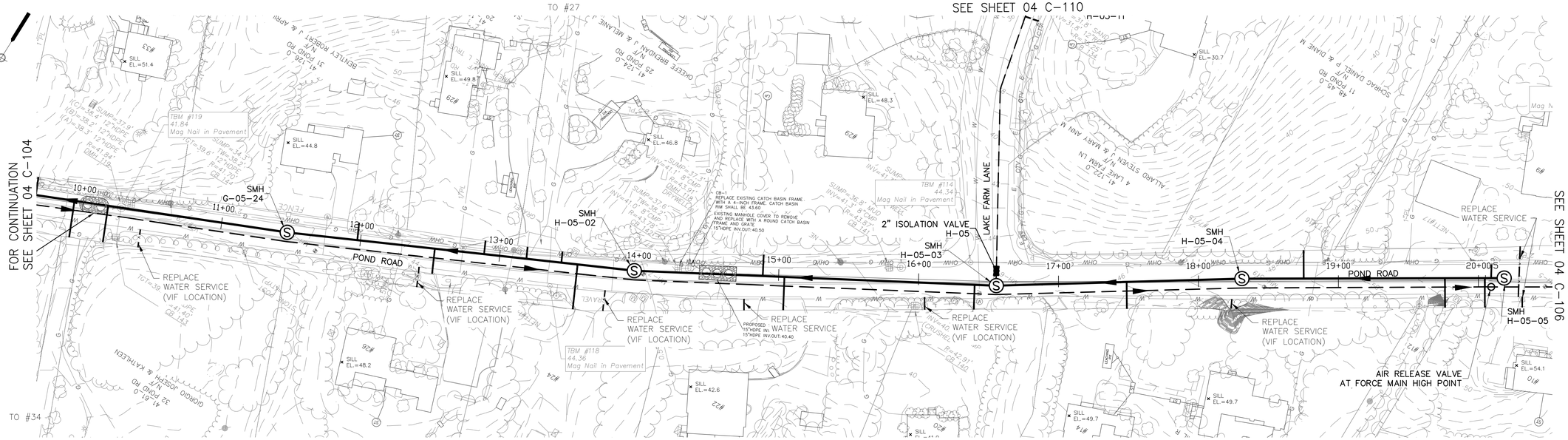
SHEET TITLE

PLAN AND PROFILE SEWER POND ROAD

SHEET NUMBER

04 C-104

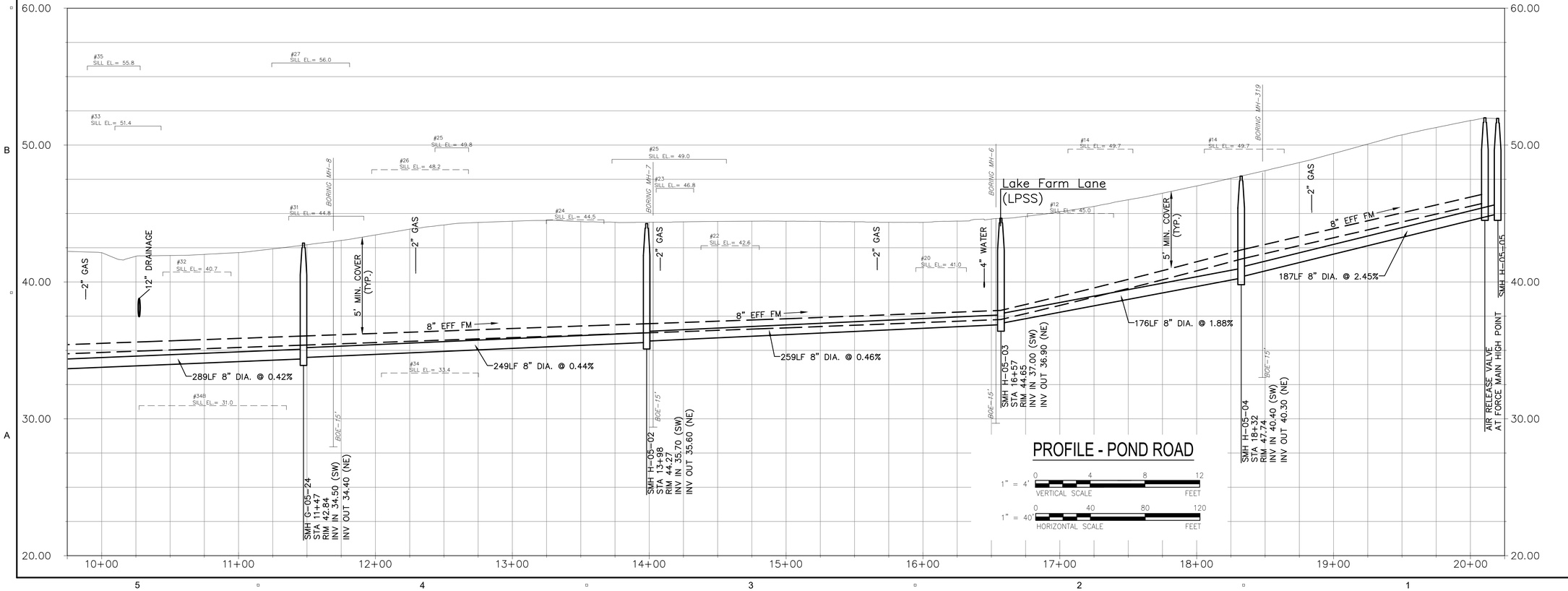
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - POND ROAD

SCALE: 1"=40'



PROFILE - POND ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

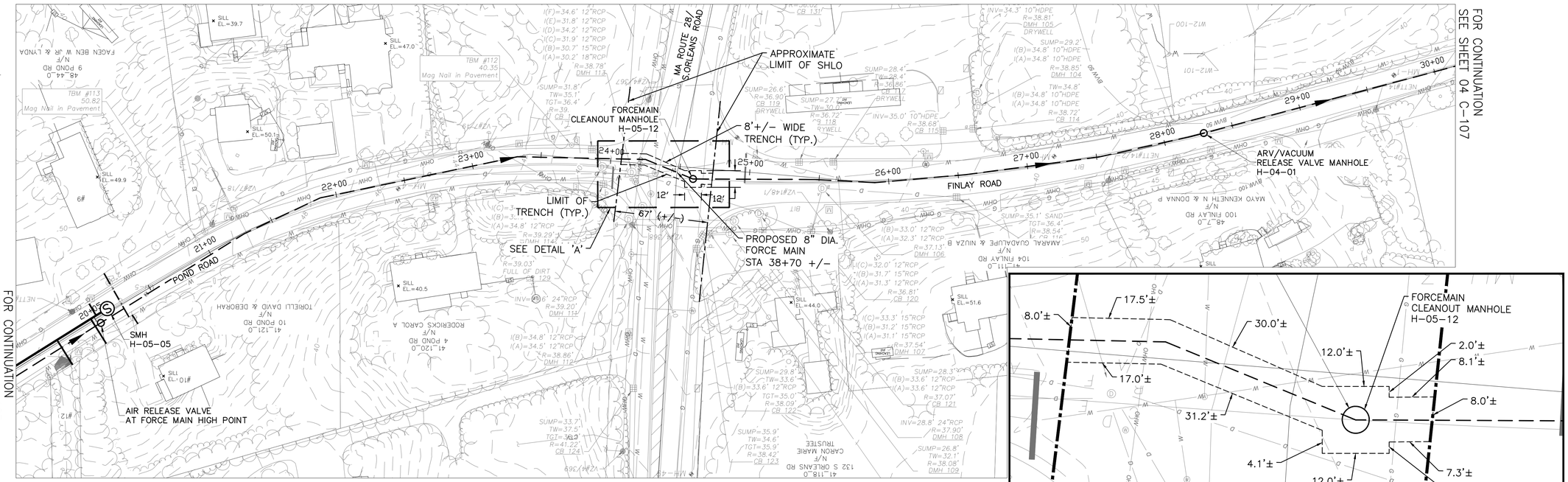
SHEET TITLE

PLAN AND PROFILE SEWER POND ROAD

SHEET NUMBER

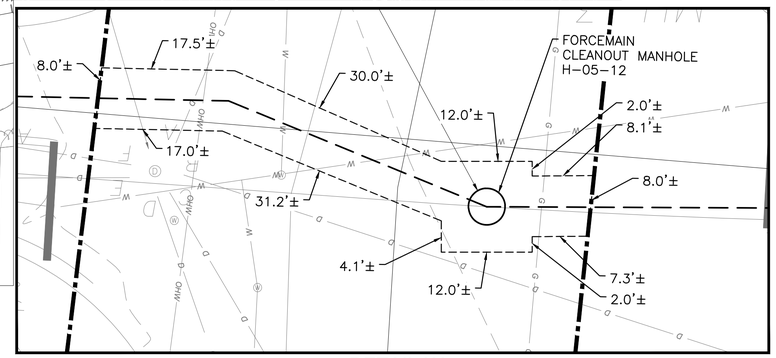
04 C-105

Last saved by: GREBENNIKOVS\(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - FINLAY ROAD

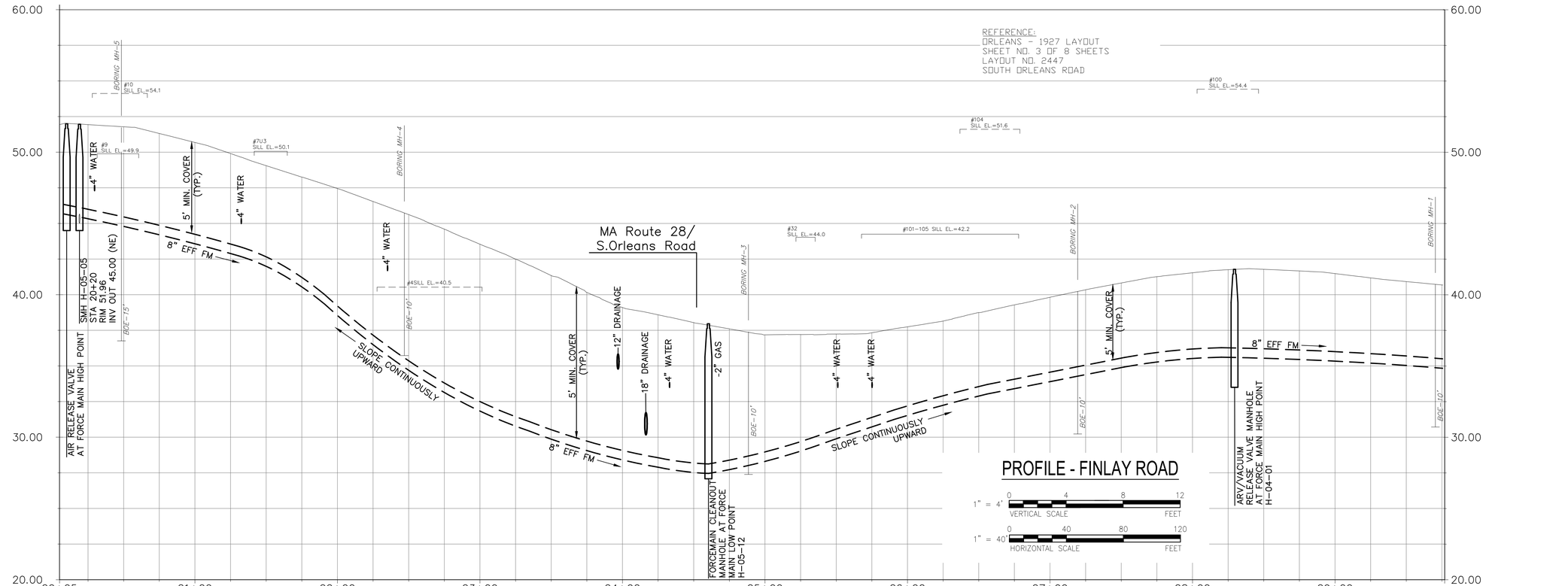
SCALE: 1"=40'



DETAIL 'A'

SCALE: 1"=10'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - FINLAY ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
	12-02-22	ADD TRENCH DIM. IN SHLO
	11-22-22	SHOW TRENCH LIMITS IN SHLO
1	~~03-08-23~~	~~ADD SHORING~~

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

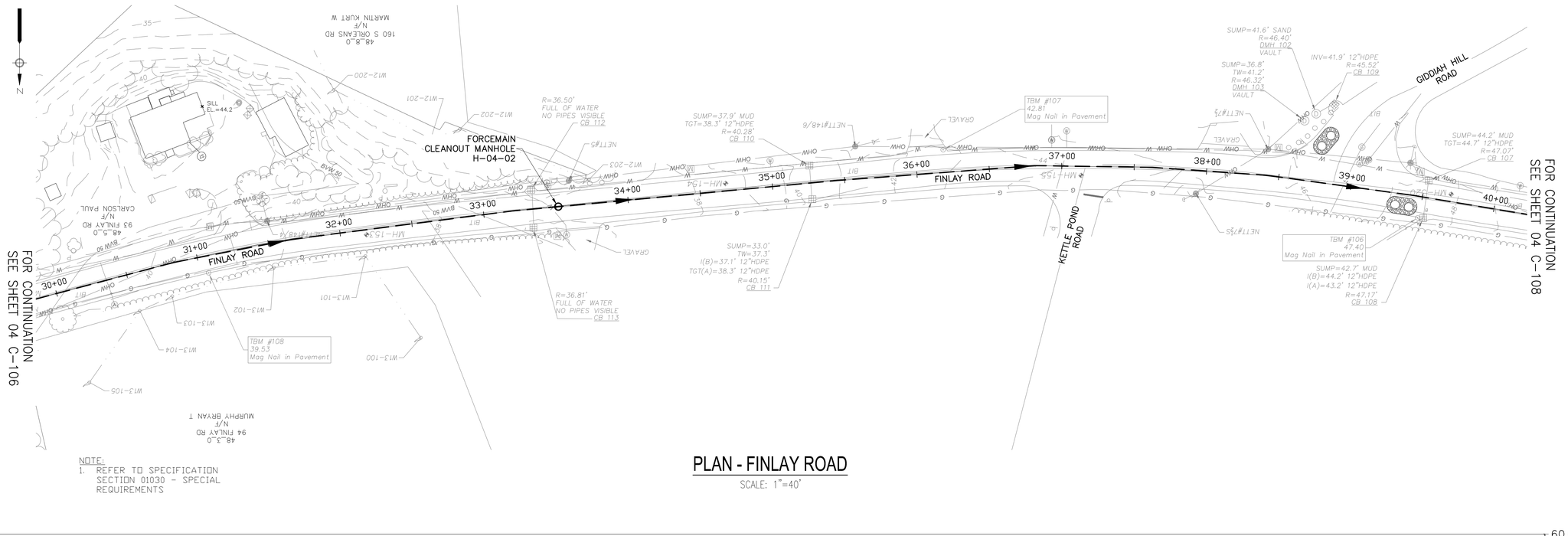
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER FINLAY ROAD

SHEET NUMBER

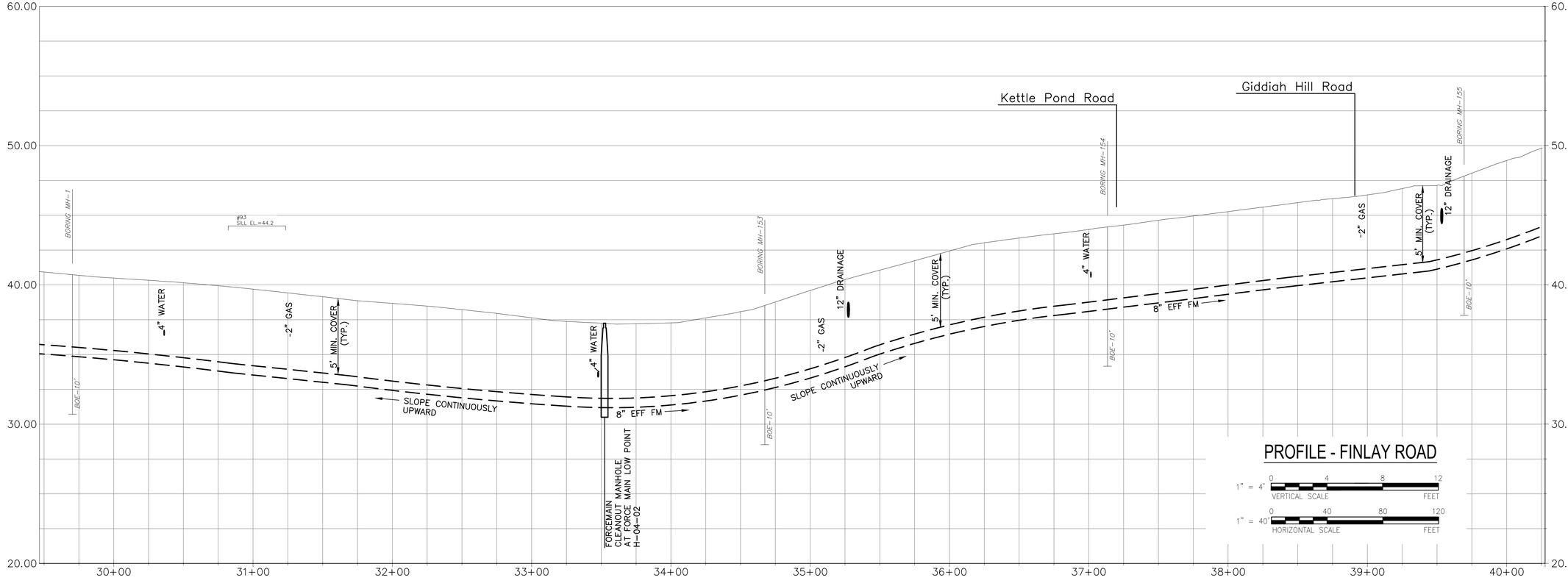
04 C-106



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - FINLAY ROAD

SCALE: 1"=40'



PROFILE - FINLAY ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

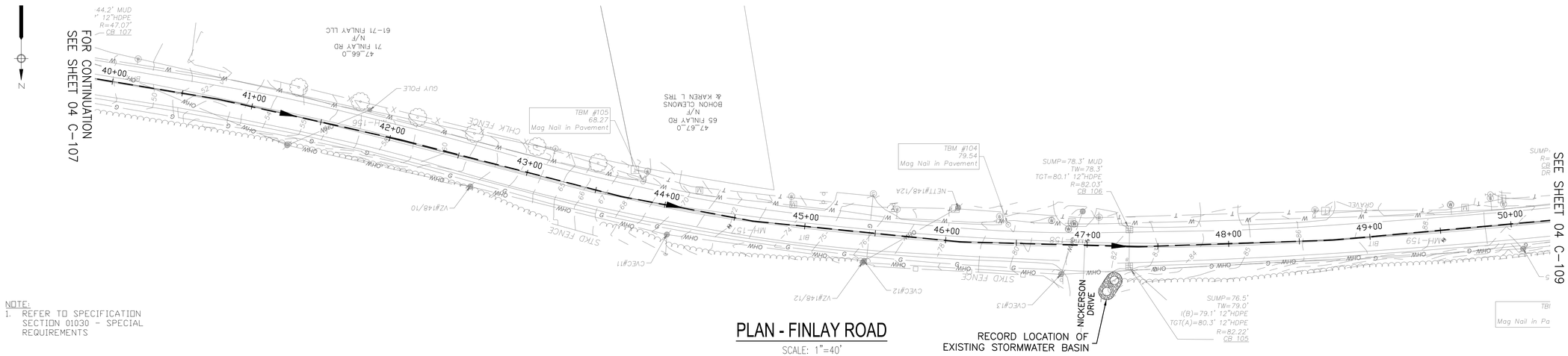
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER FINLAY ROAD

SHEET NUMBER

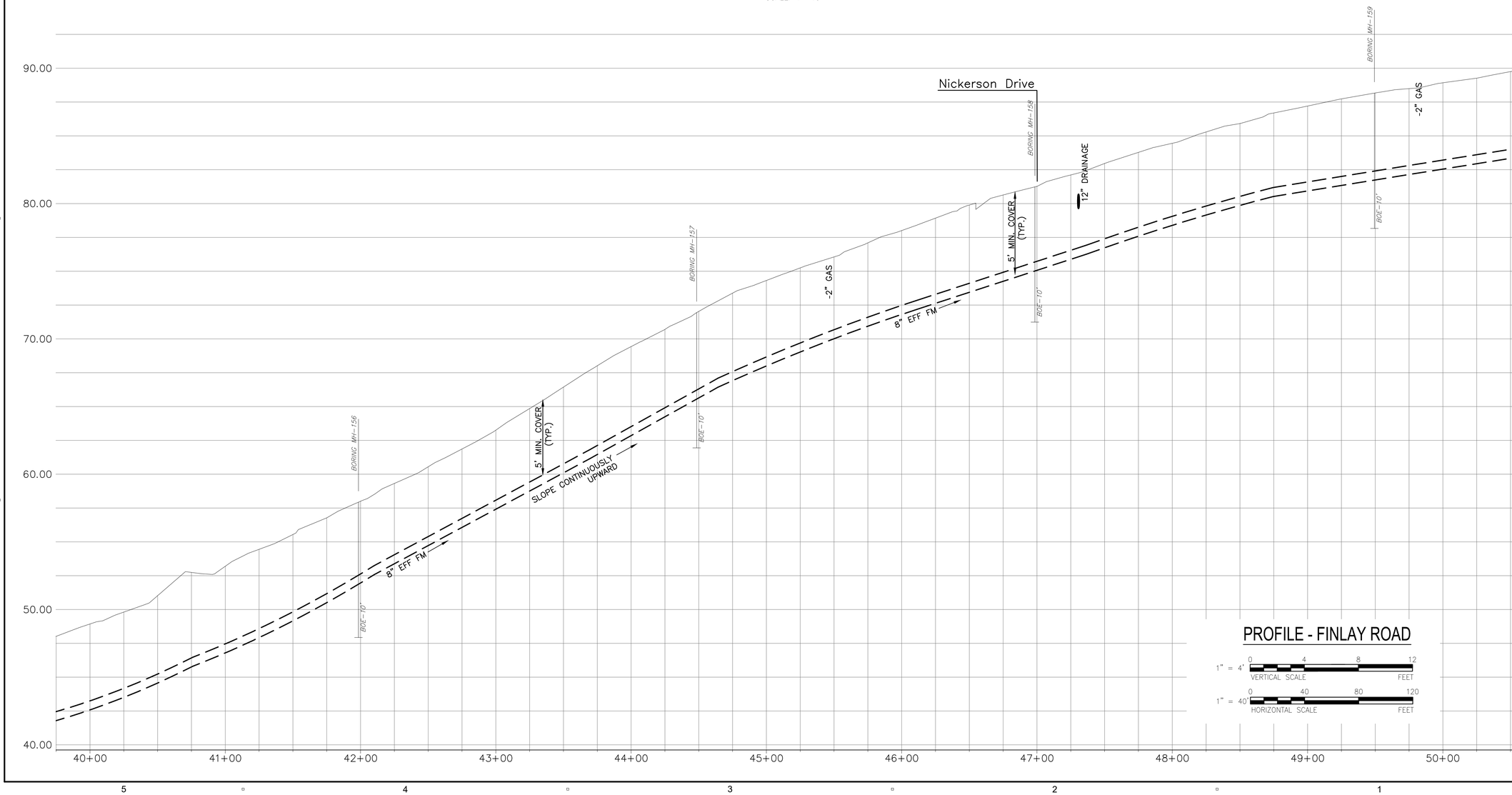
04 C-107



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - FINLAY ROAD

SCALE: 1"=40'



PROFILE - FINLAY ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

03/01/23
COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

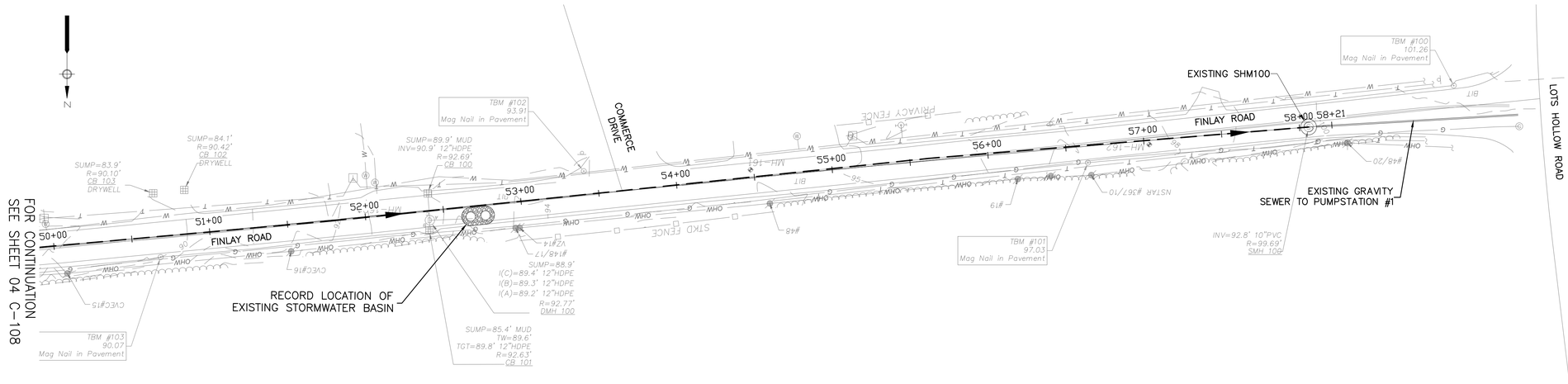
SHEET TITLE

PLAN AND PROFILE SEWER FINLAY ROAD

SHEET NUMBER

04 C-108

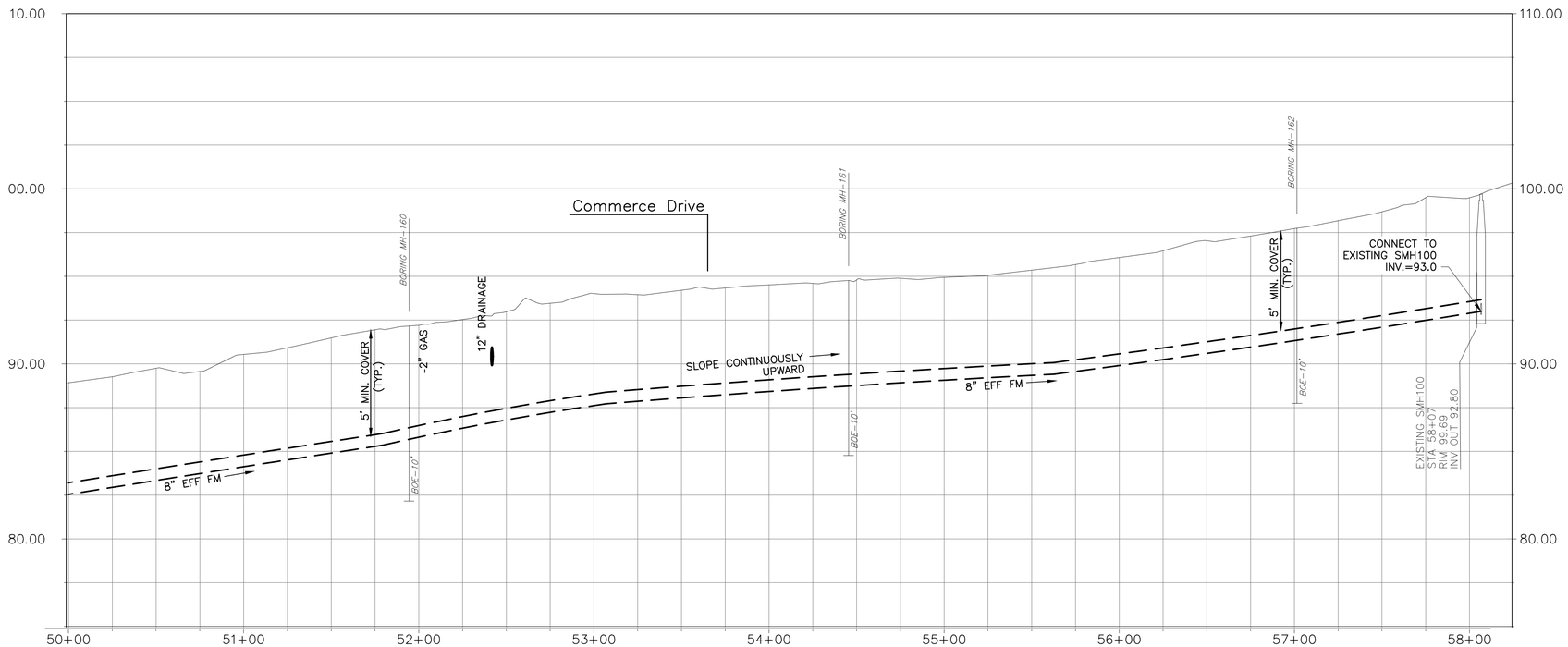
Last saved by: GREBENNIKOVS (2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - FINLAY ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - FINLAY ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/31/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

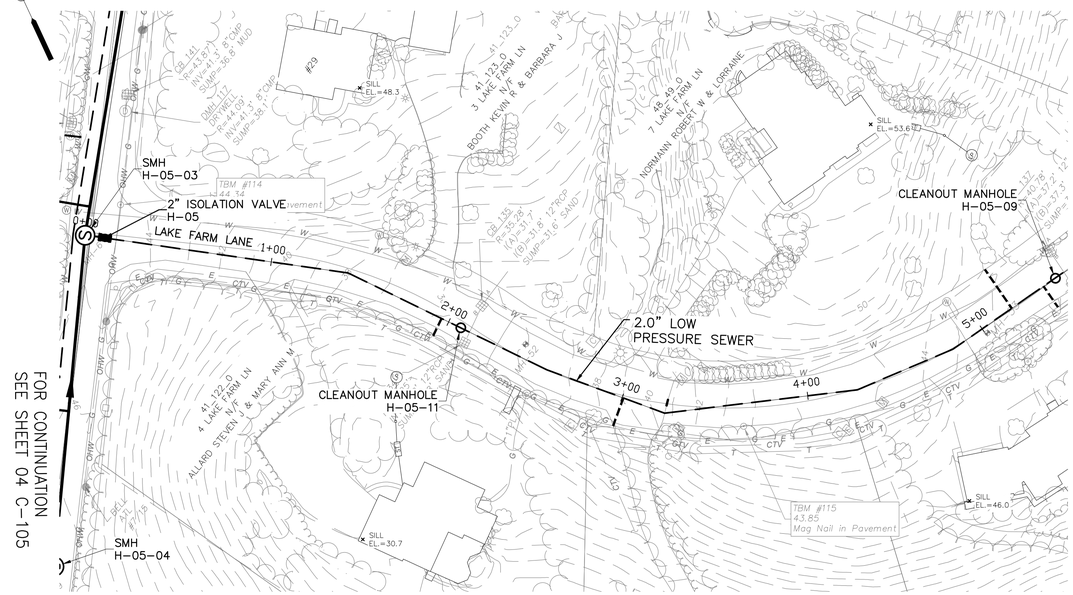
SHEET TITLE

PLAN AND PROFILE SEWER FINLAY ROAD

SHEET NUMBER

04 C-109

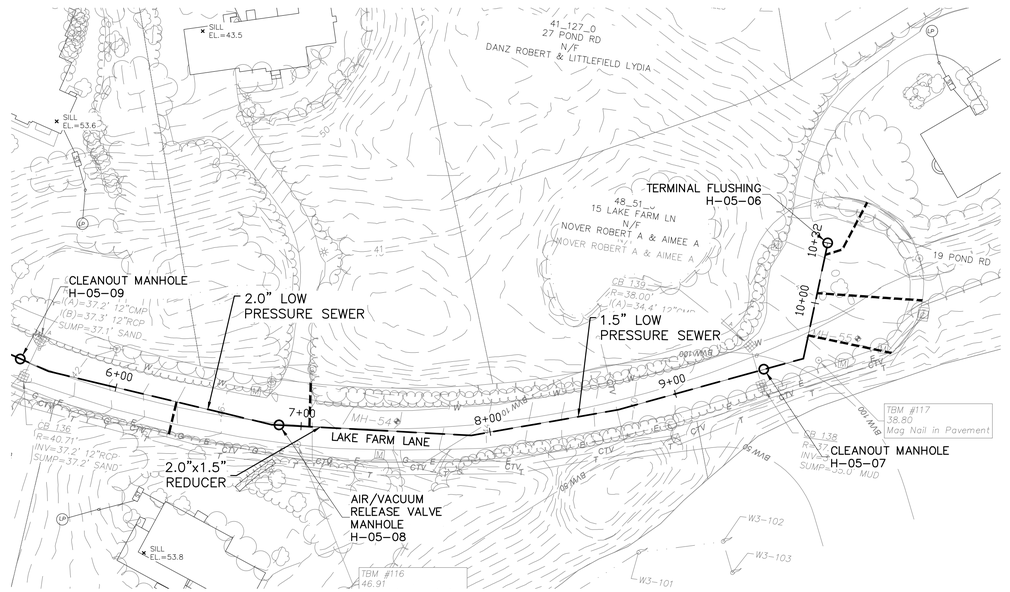
FOR CONTINUATION
SEE SHEET 04 C-105



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - LAKE FARM LANE

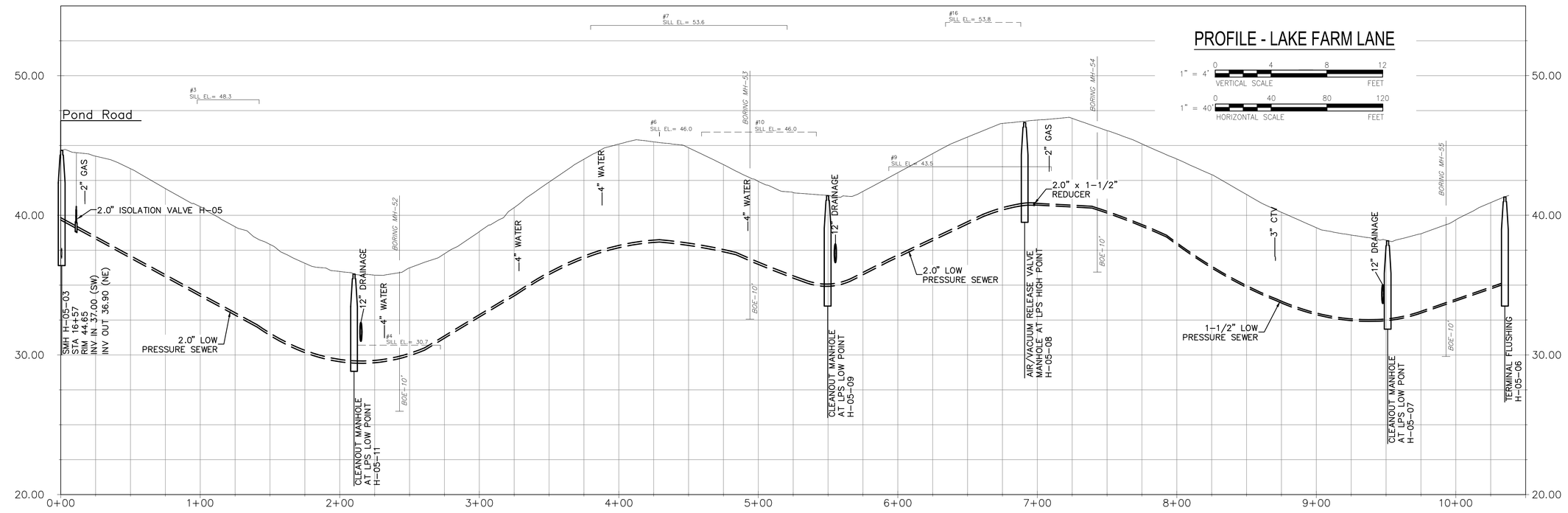
SCALE: 1"=40'



NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

PROFILE - LAKE FARM LANE



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

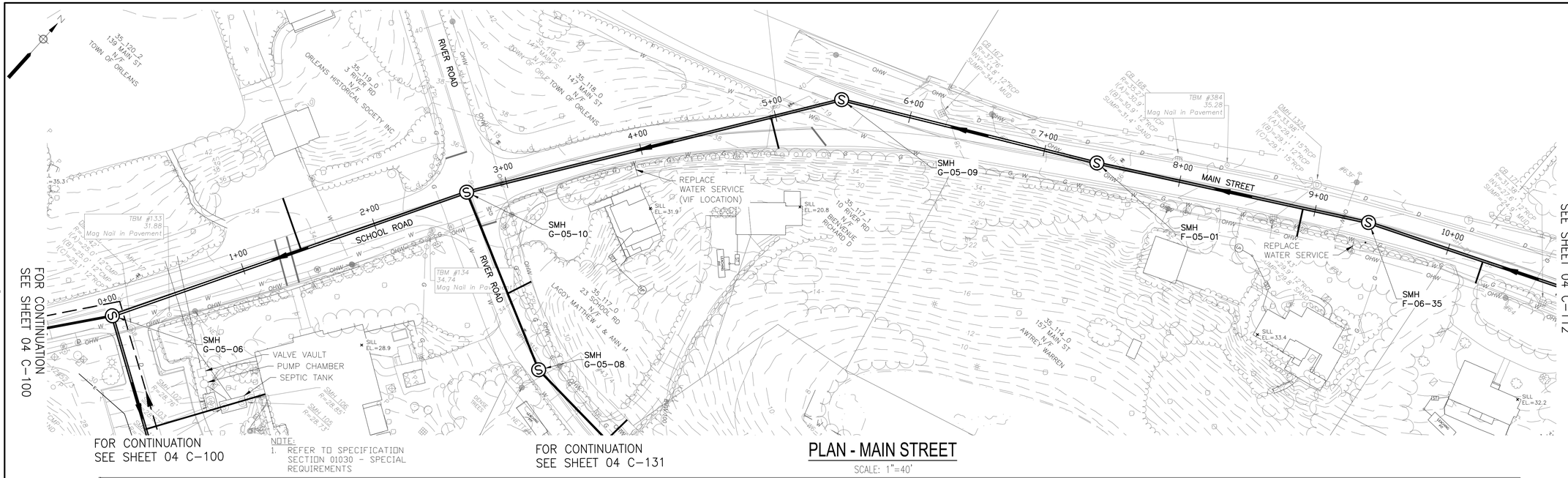
SHEET TITLE

PLAN AND PROFILE SEWER LAKE FARM LANE

SHEET NUMBER

04 C-110

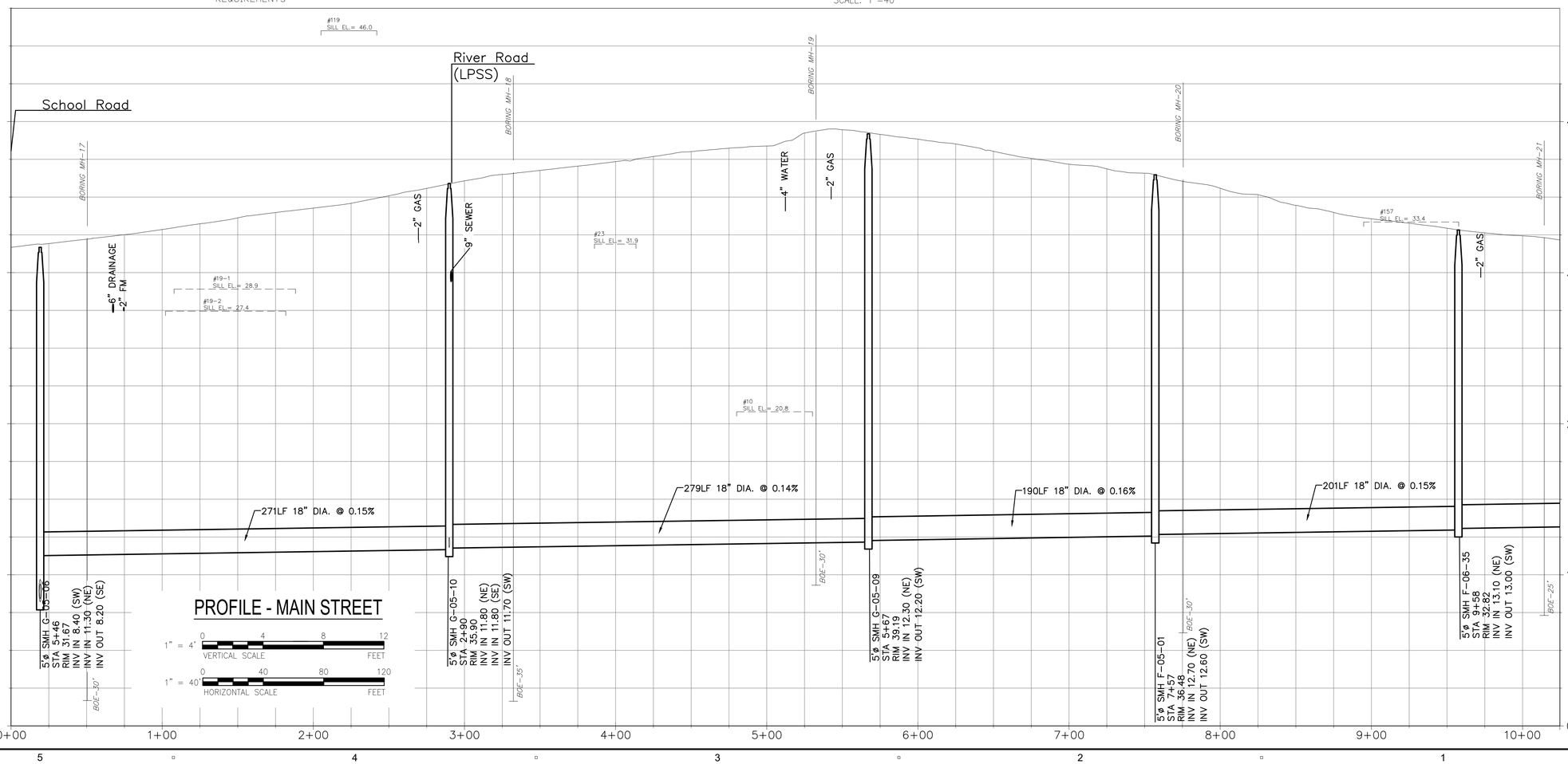
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - MAIN STREET

SCALE: 1"=40'



PROFILE - MAIN STREET

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER MAIN STREET

SHEET NUMBER

04 C-111

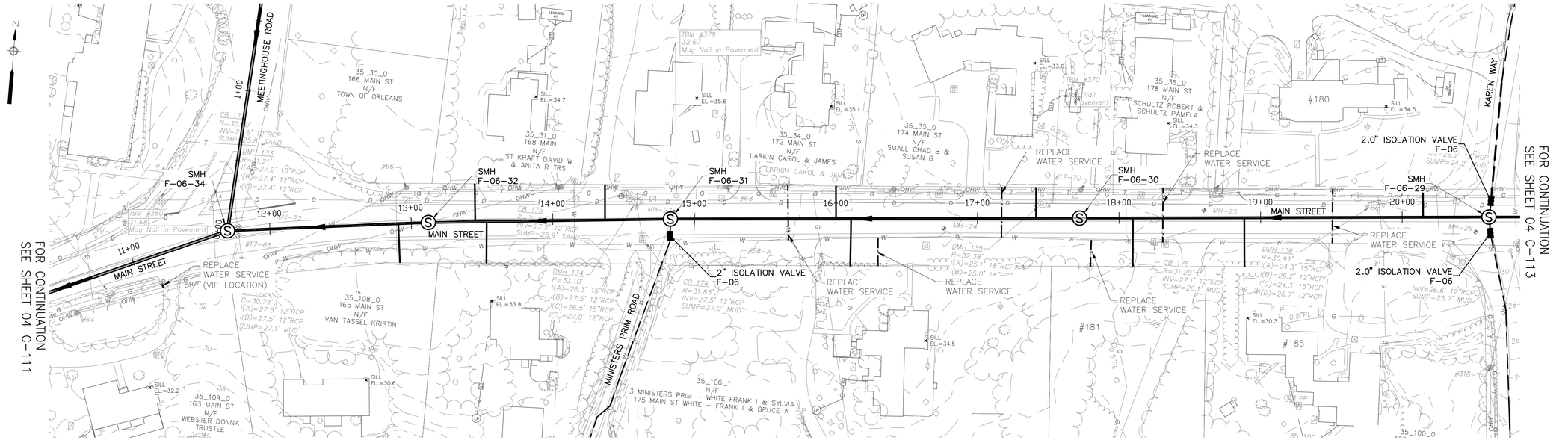
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-154

FOR CONTINUATION
SEE SHEET 04 C-136

FOR CONTINUATION
SEE SHEET 04 C-111

FOR CONTINUATION
SEE SHEET 04 C-113



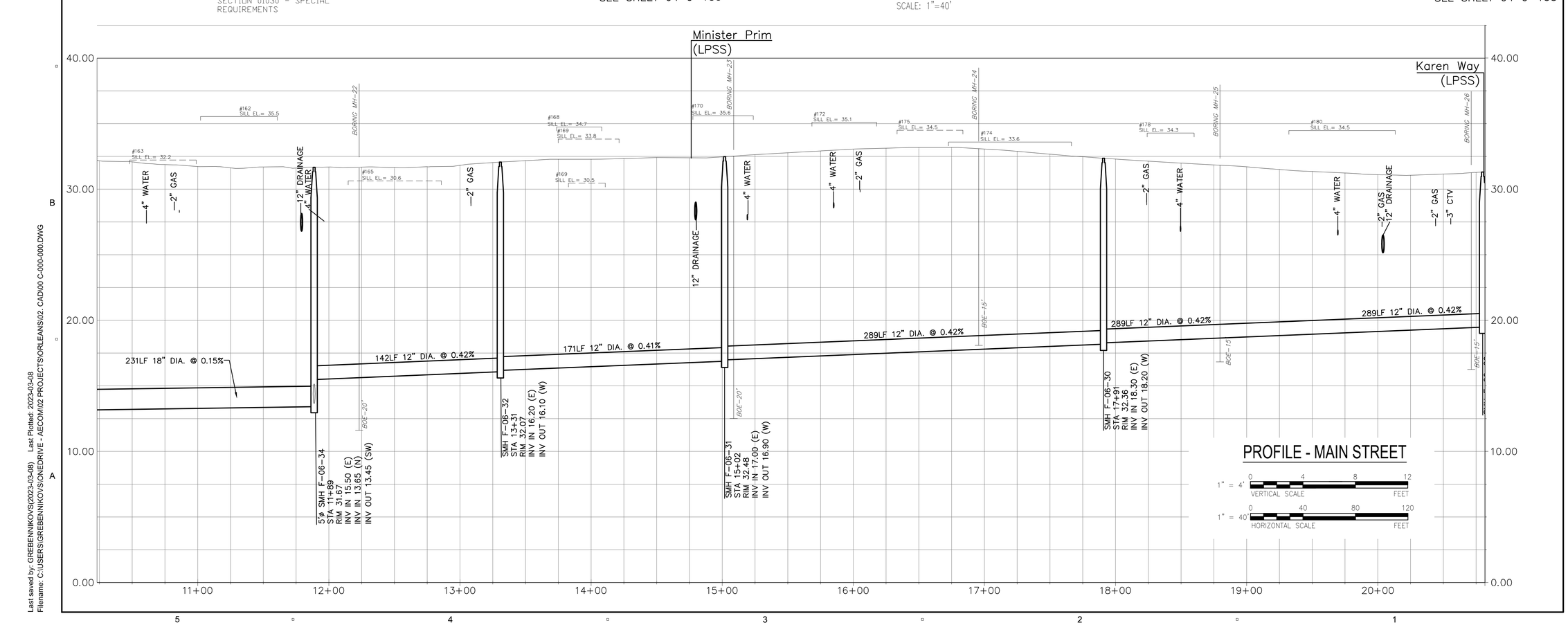
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

FOR CONTINUATION
SEE SHEET 04 C-135

FOR CONTINUATION
SEE SHEET 04 C-138

PLAN - MAIN STREET

SCALE: 1"=40'



PROFILE - MAIN STREET

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

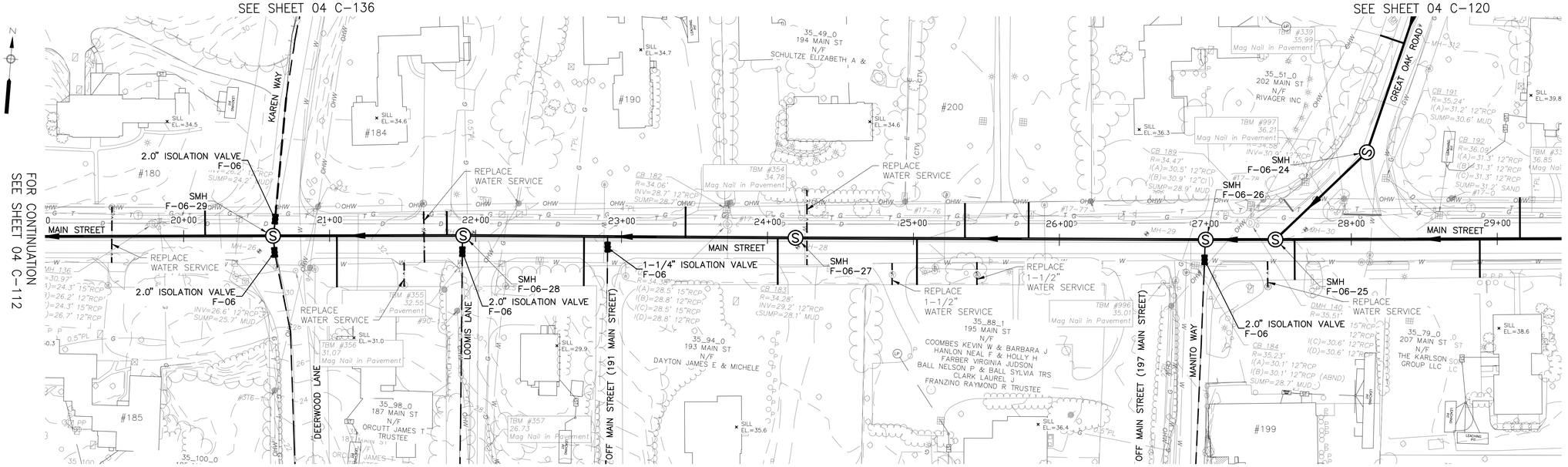
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER MAIN STREET

SHEET NUMBER

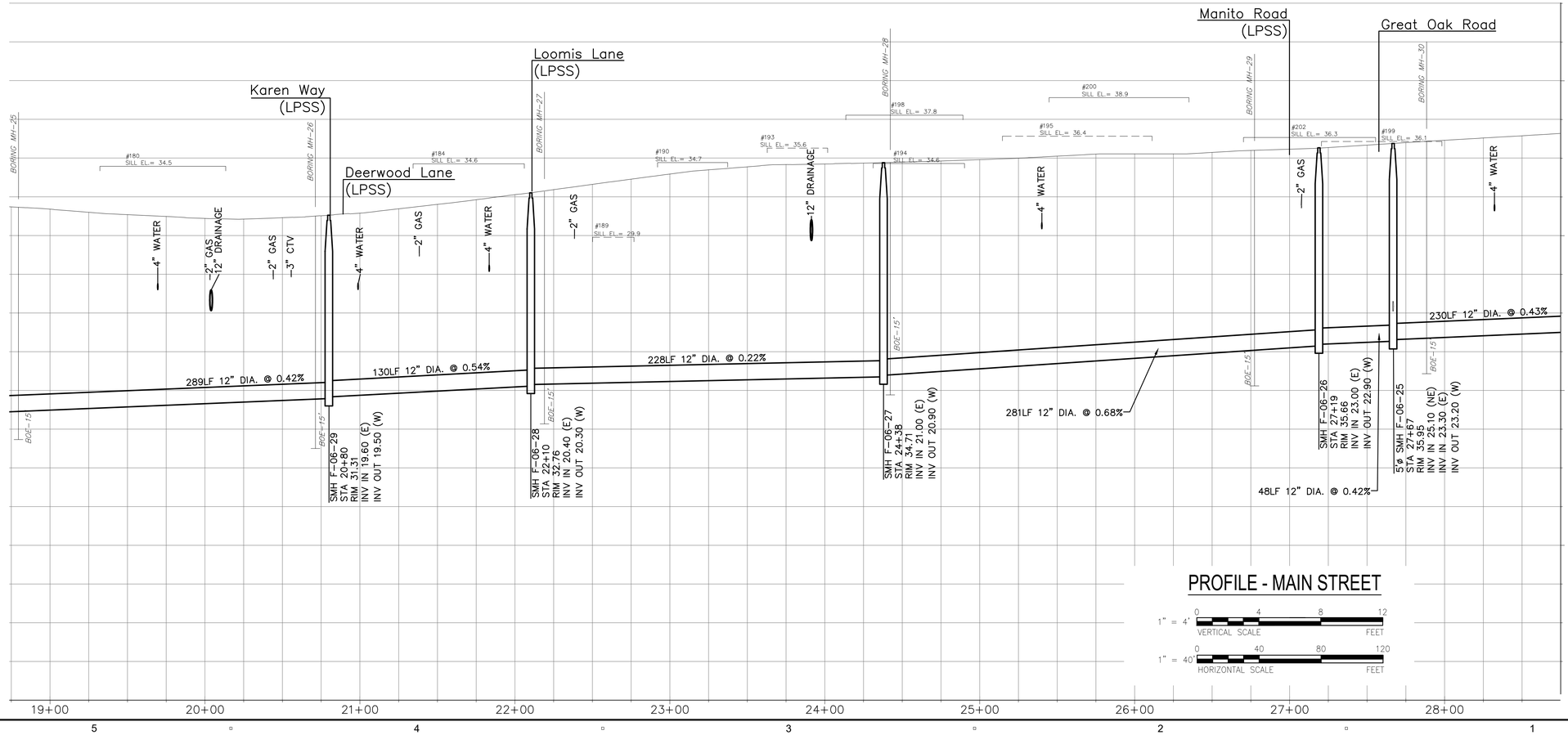
04 C-112



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - MAIN STREET

SCALE: 1"=40'



PROFILE - MAIN STREET

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS THOMAS E. PARECE CIVIL No. 34463 REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

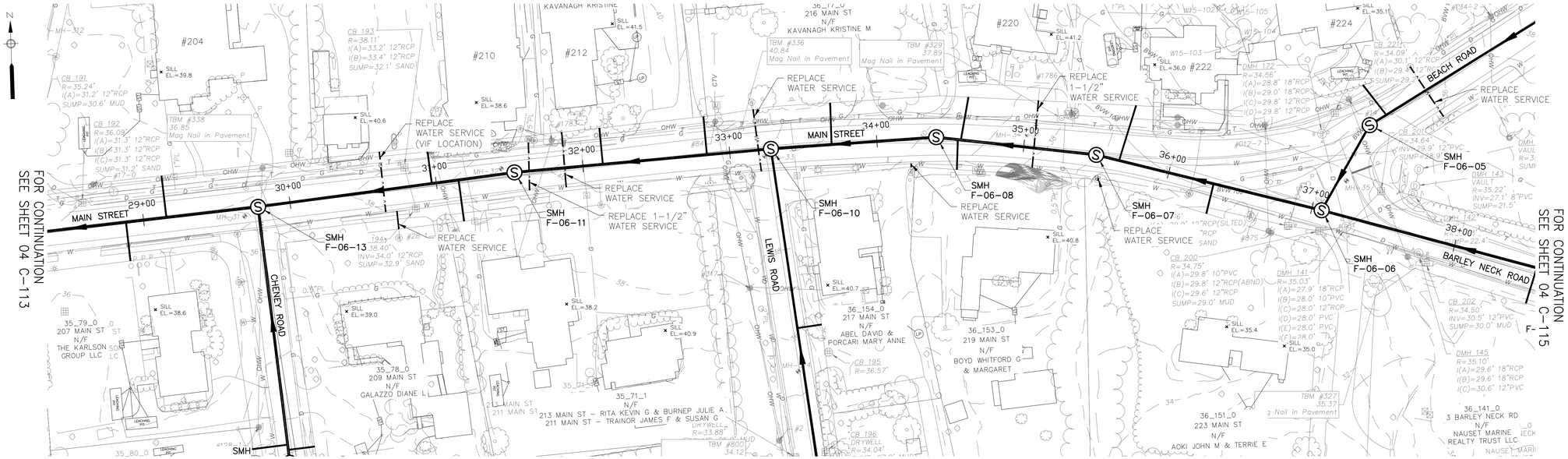
PLAN AND PROFILE SEWER MAIN STREET

SHEET NUMBER

04 C-113

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-124



FOR CONTINUATION
SEE SHEET 04 C-113

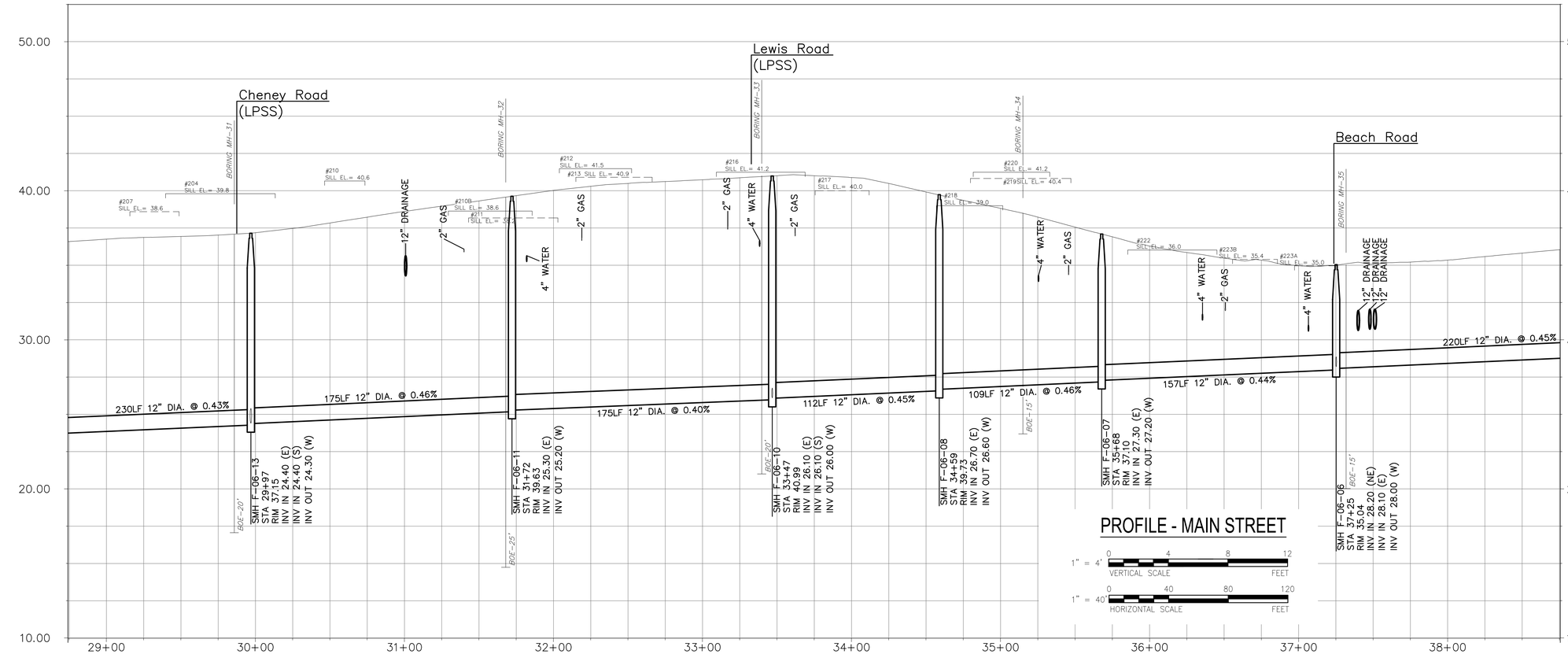
FOR CONTINUATION
SEE SHEET 04 C-142

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

FOR CONTINUATION
SEE SHEET 04 C-143

PLAN - MAIN STREET
SCALE: 1"=40'

FOR CONTINUATION
SEE SHEET 04 C-115



PROFILE - MAIN STREET

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

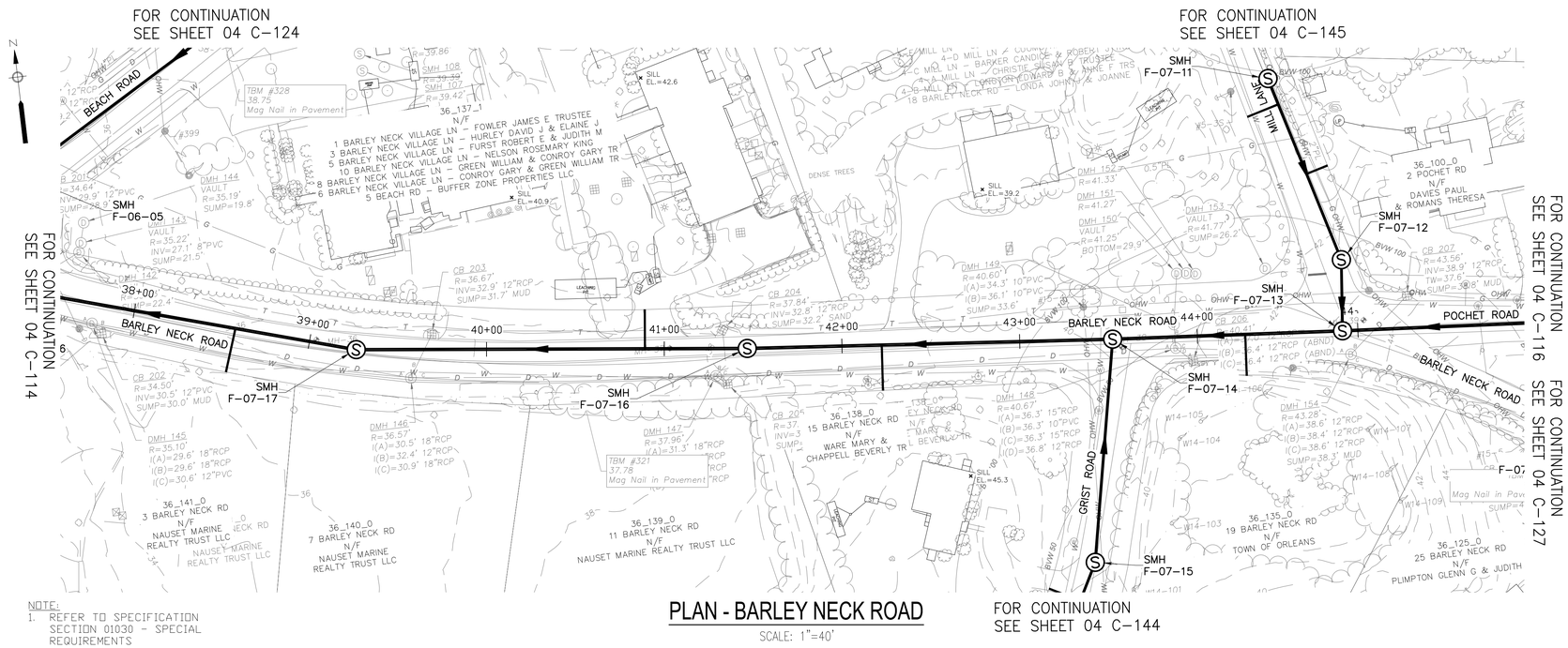
SHEET TITLE

PLAN AND PROFILE SEWER MAIN STREET

SHEET NUMBER

04 C-114

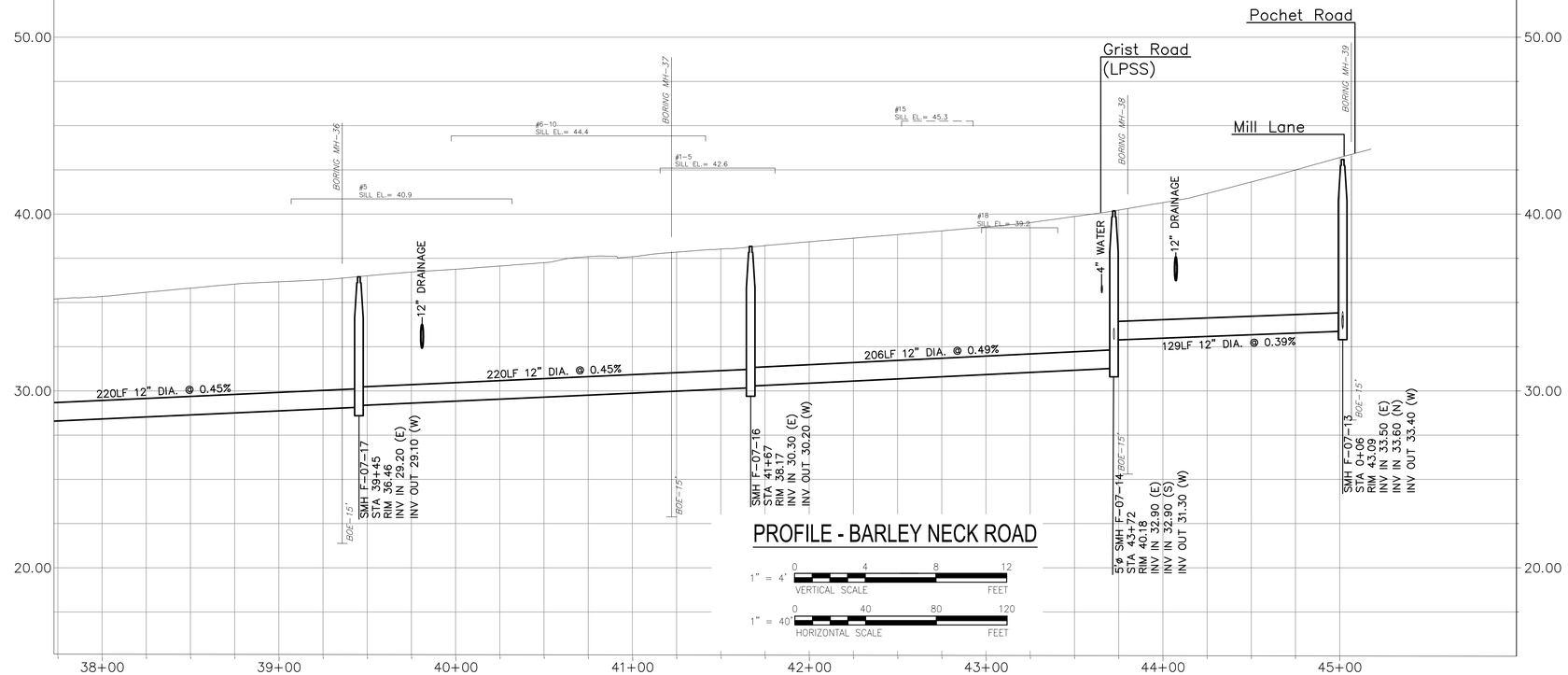
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - BARLEY NECK ROAD

SCALE: 1"=40'



PROFILE - BARLEY NECK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

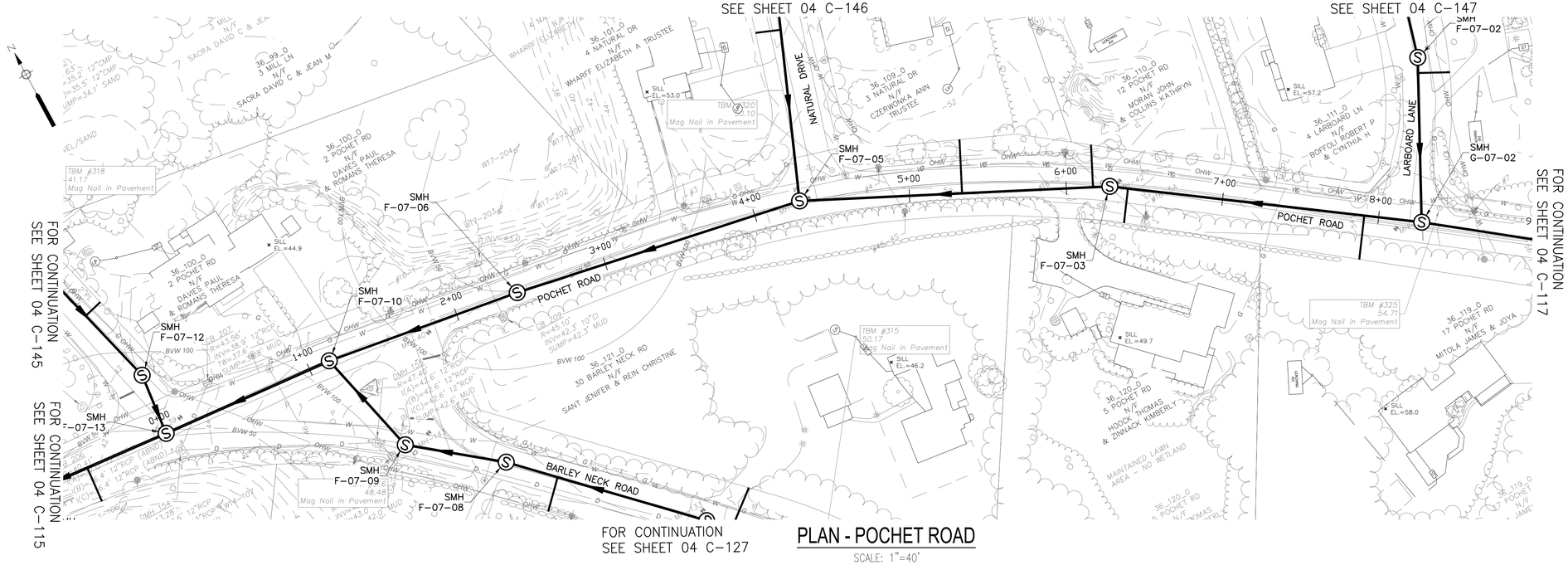
SHEET TITLE

PLAN AND PROFILE SEWER BARLEY NECK ROAD

SHEET NUMBER

04 C-115

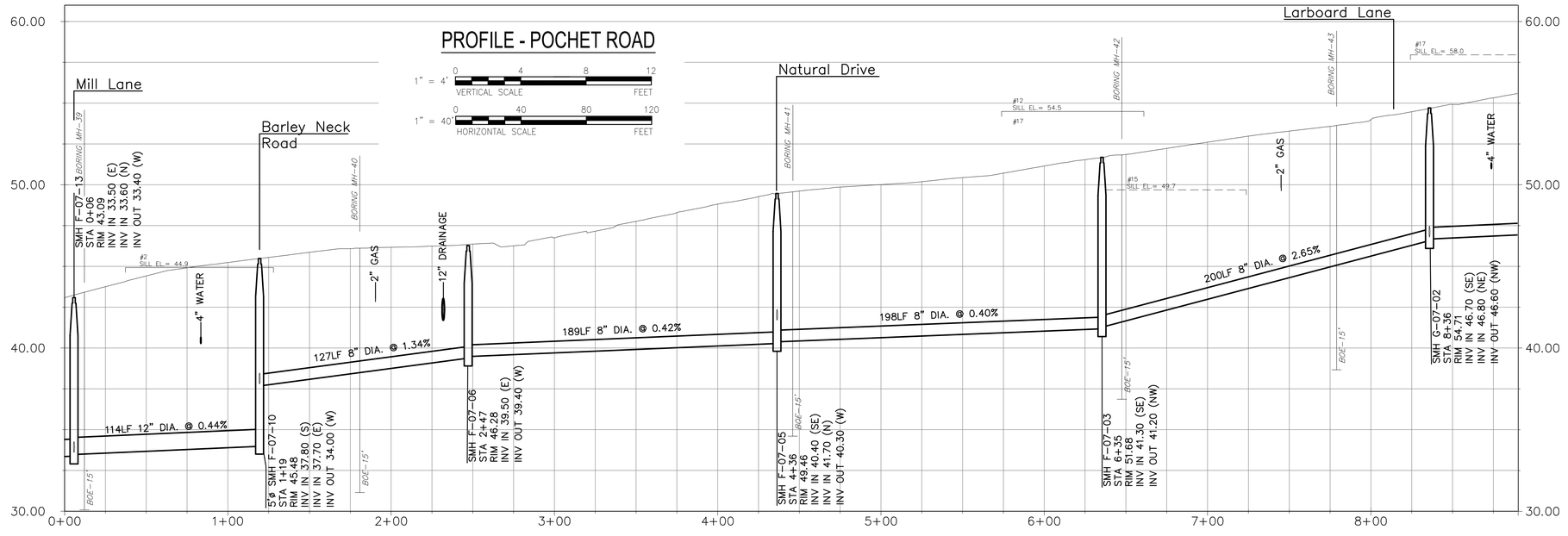
Last saved by: GREBENNIKOVS (2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - POCHET ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

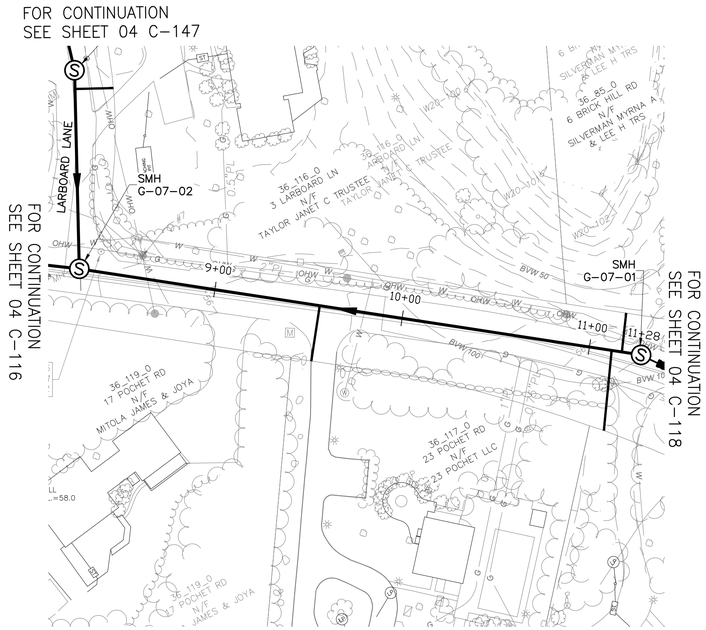
SHEET TITLE

PLAN AND PROFILE SEWER POCHET ROAD

SHEET NUMBER

04 C-116

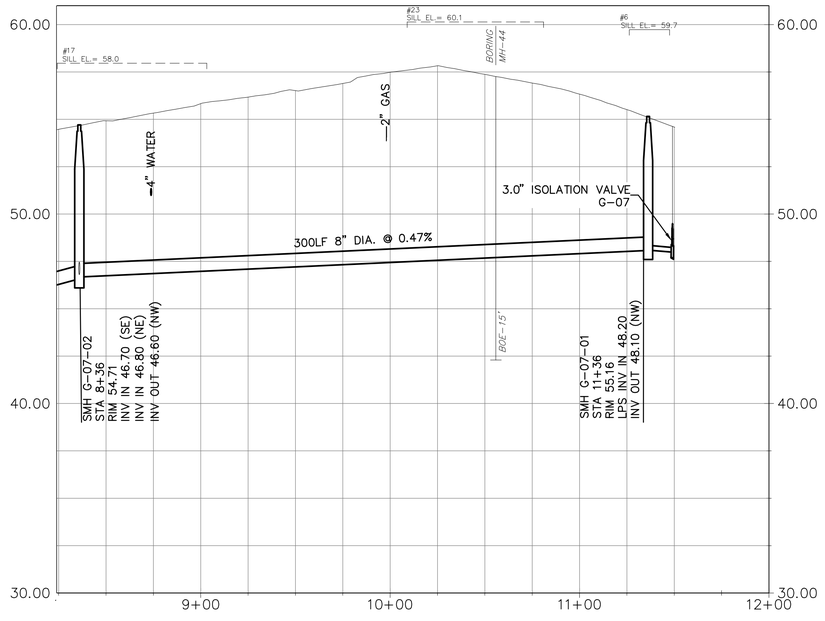
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - POCHET ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - POCHET ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

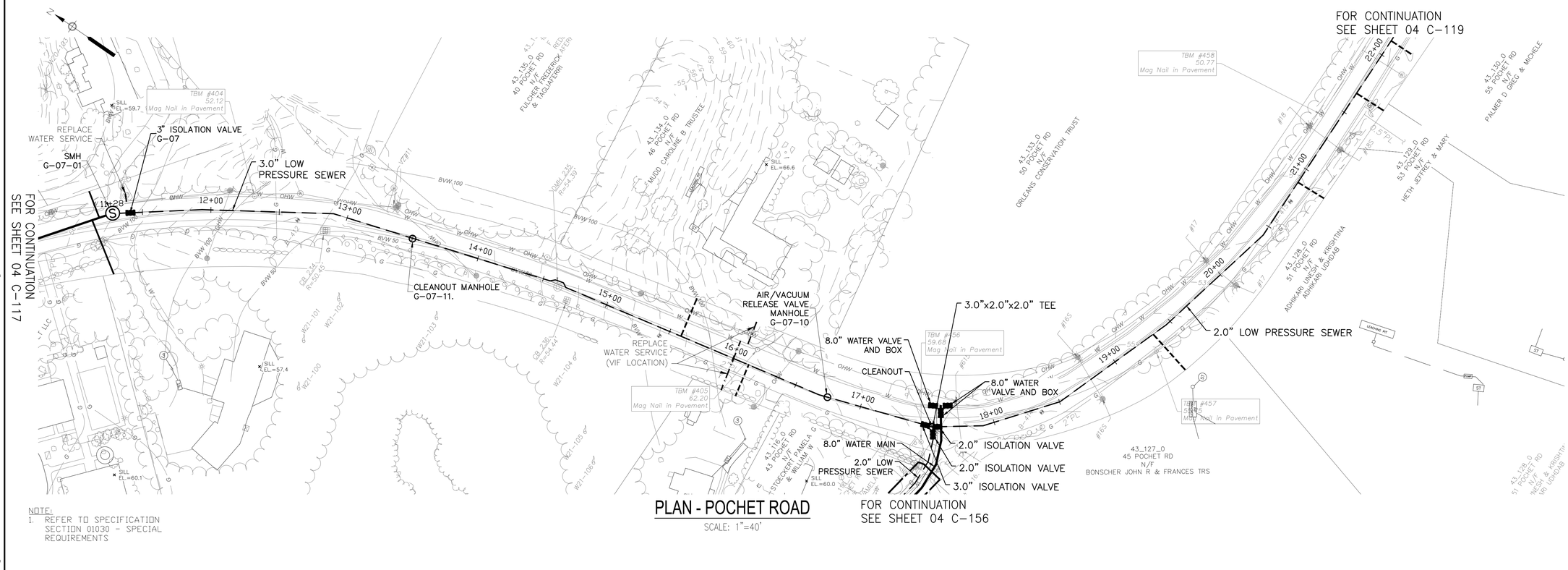
SHEET TITLE

PLAN AND PROFILE SEWER POCHET ROAD

SHEET NUMBER

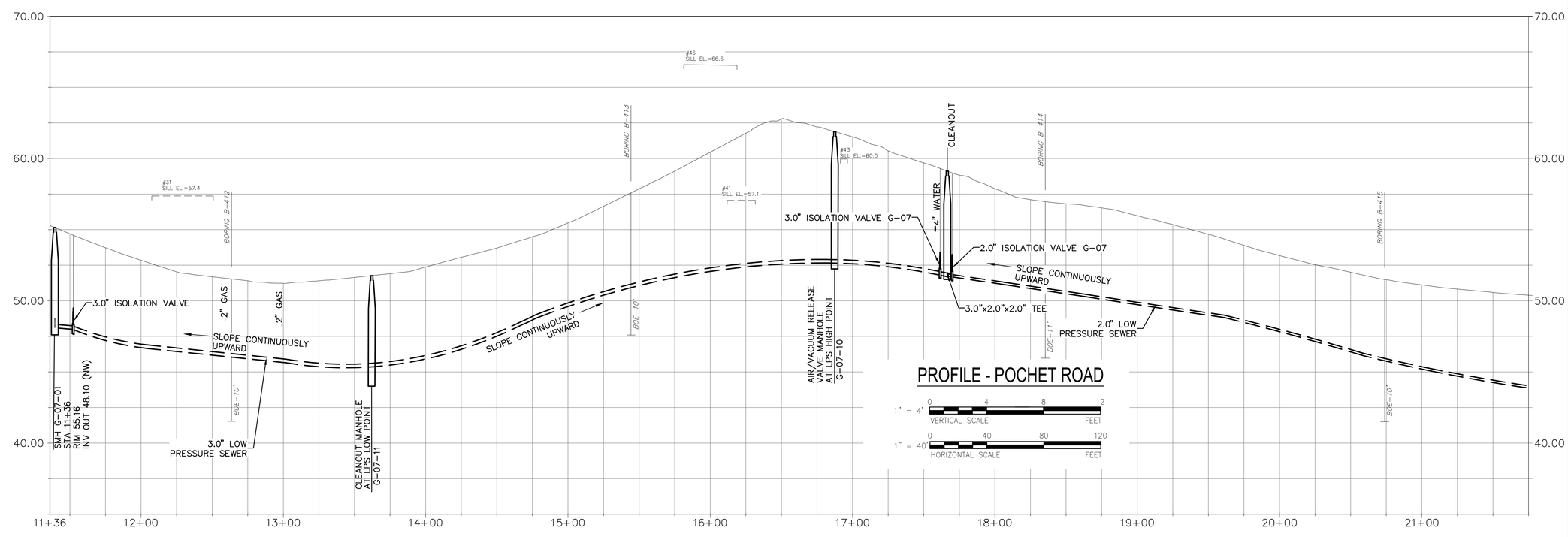
04 C-117

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - POCHET ROAD

SCALE: 1"=40'



PROFILE - POCHET ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

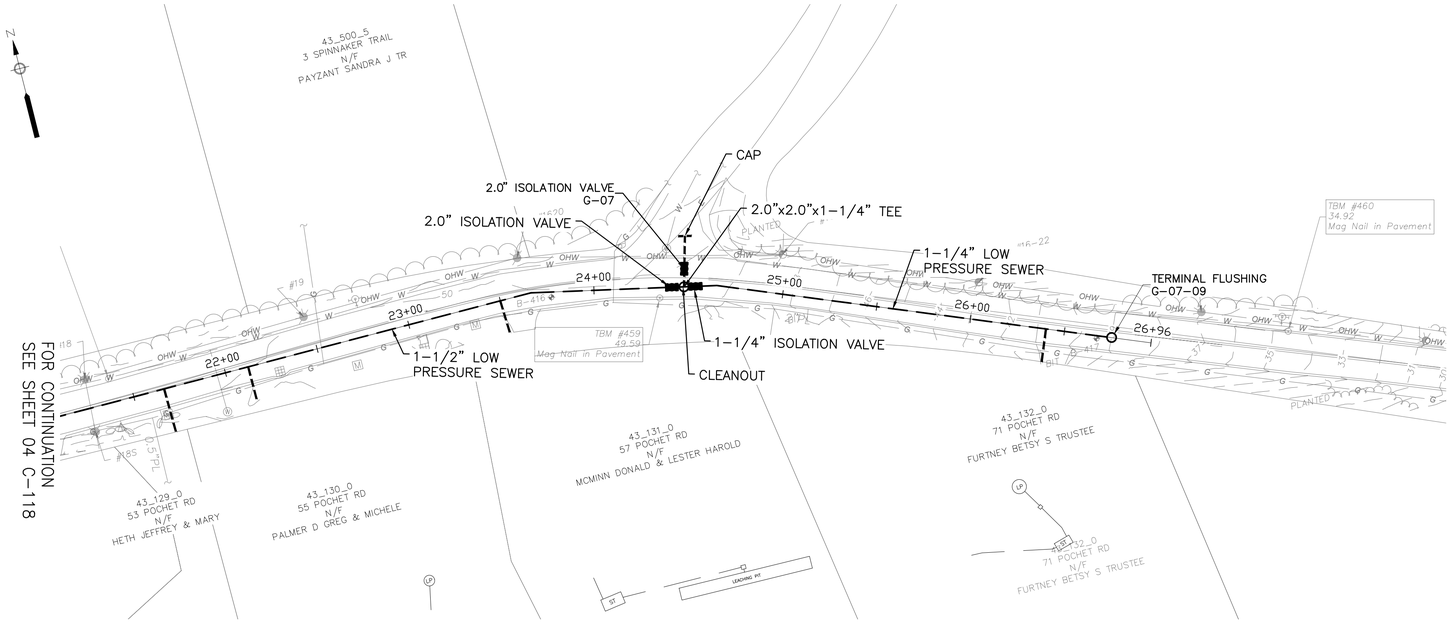
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER POCHET ROAD

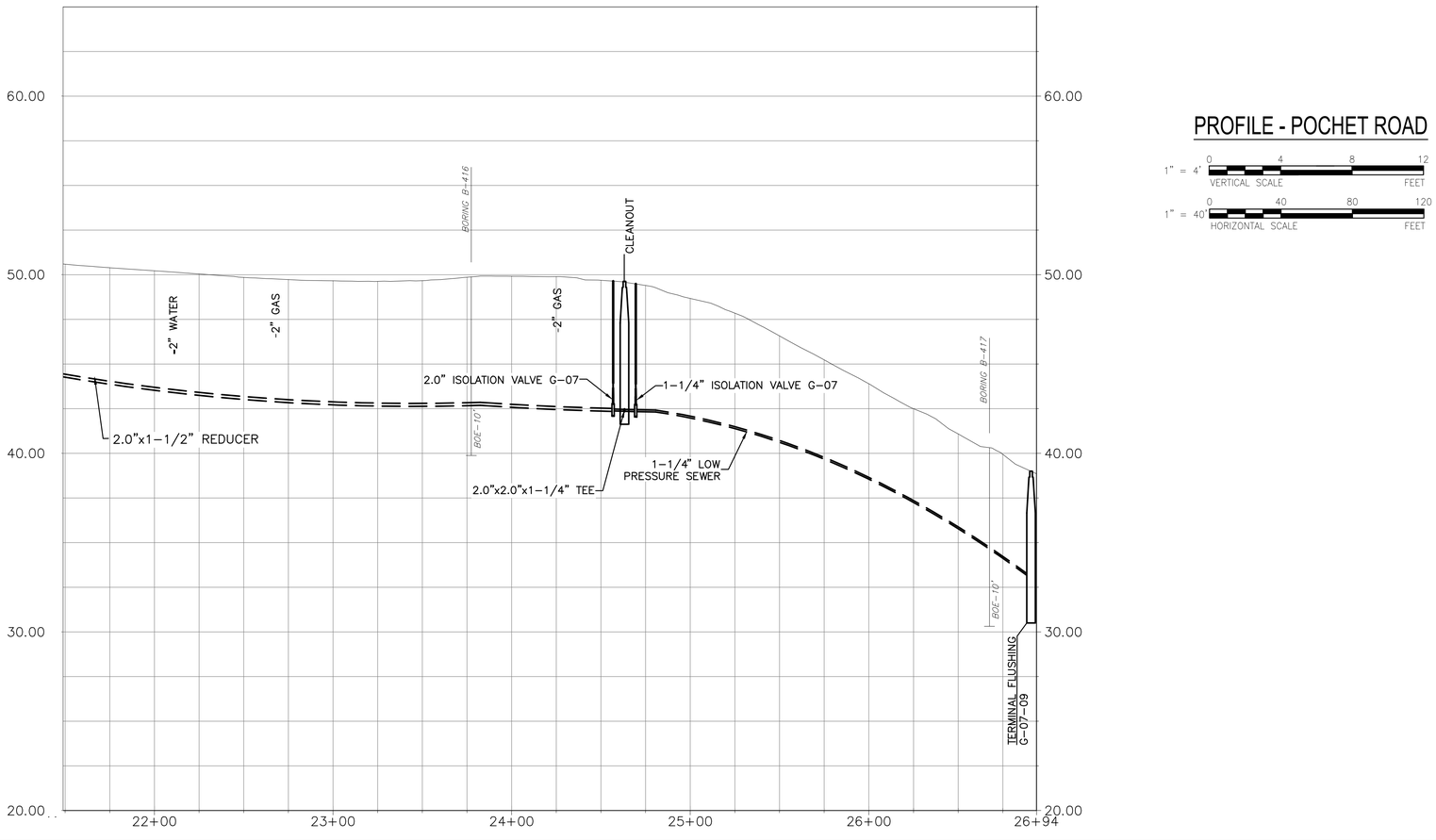
SHEET NUMBER

04 C-118



PLAN - POCHET ROAD

SCALE: 1"=40'



PROFILE - POCHET ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

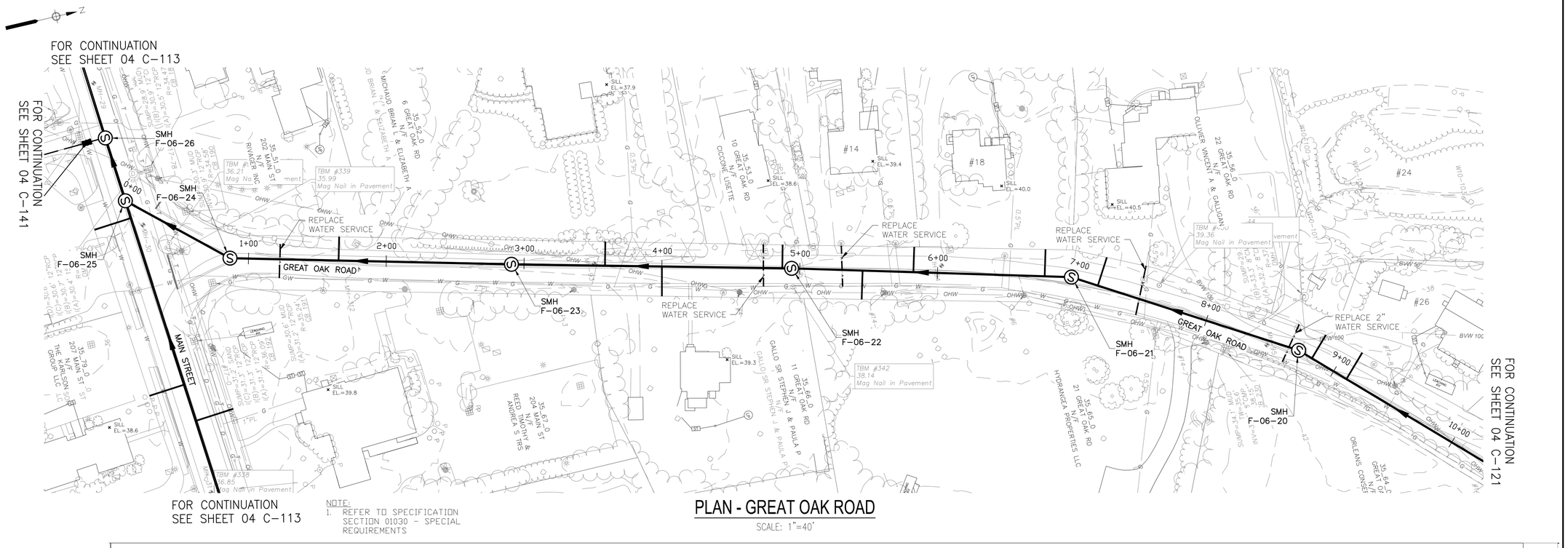
SHEET TITLE

PLAN AND PROFILE SEWER POCHET ROAD

SHEET NUMBER

04 C-119

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



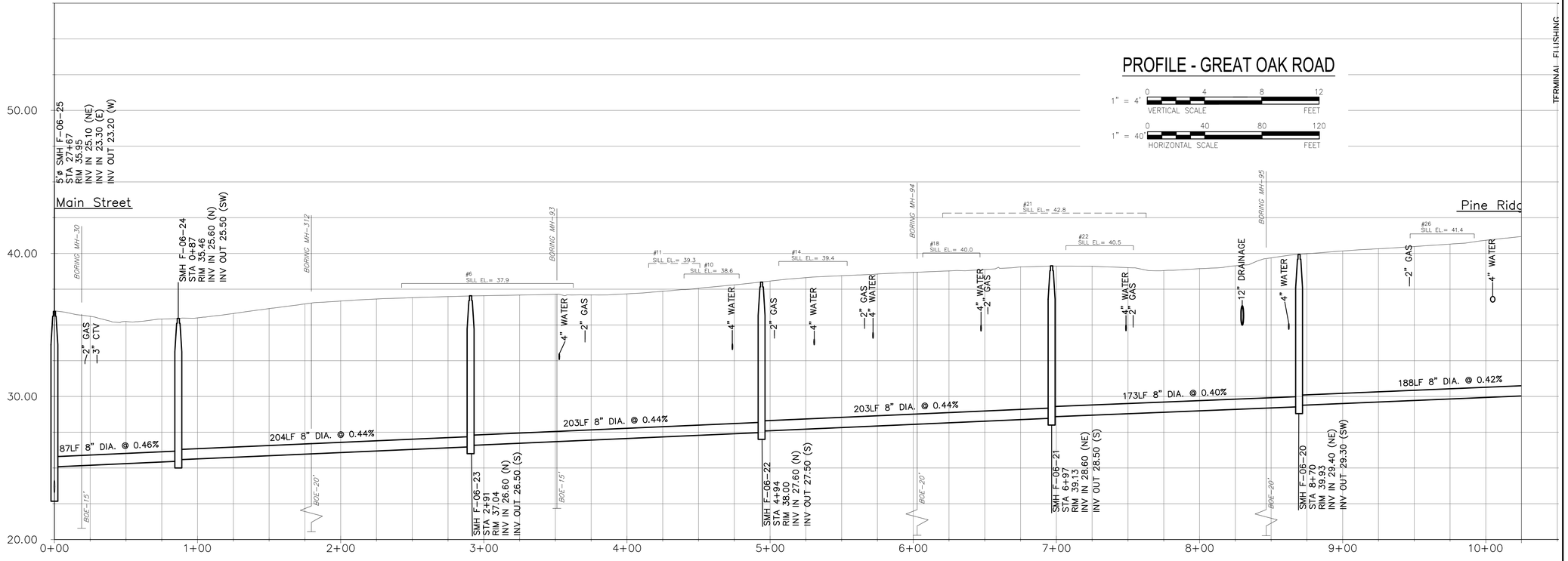
PLAN - GREAT OAK ROAD

SCALE: 1"=40'

PROFILE - GREAT OAK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/31/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

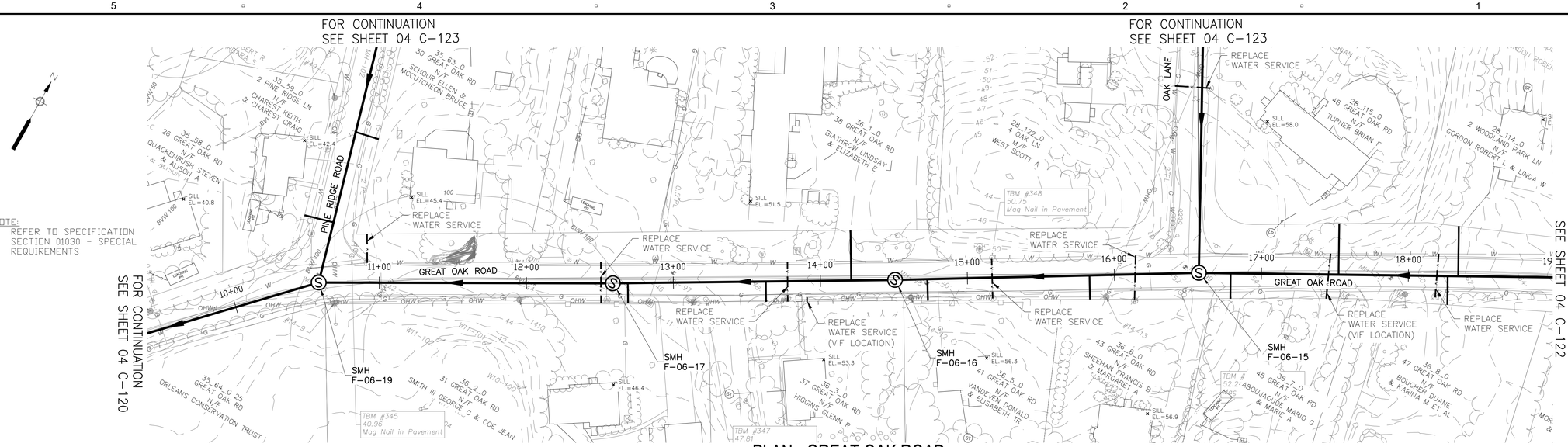
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER GREAT OAK ROAD

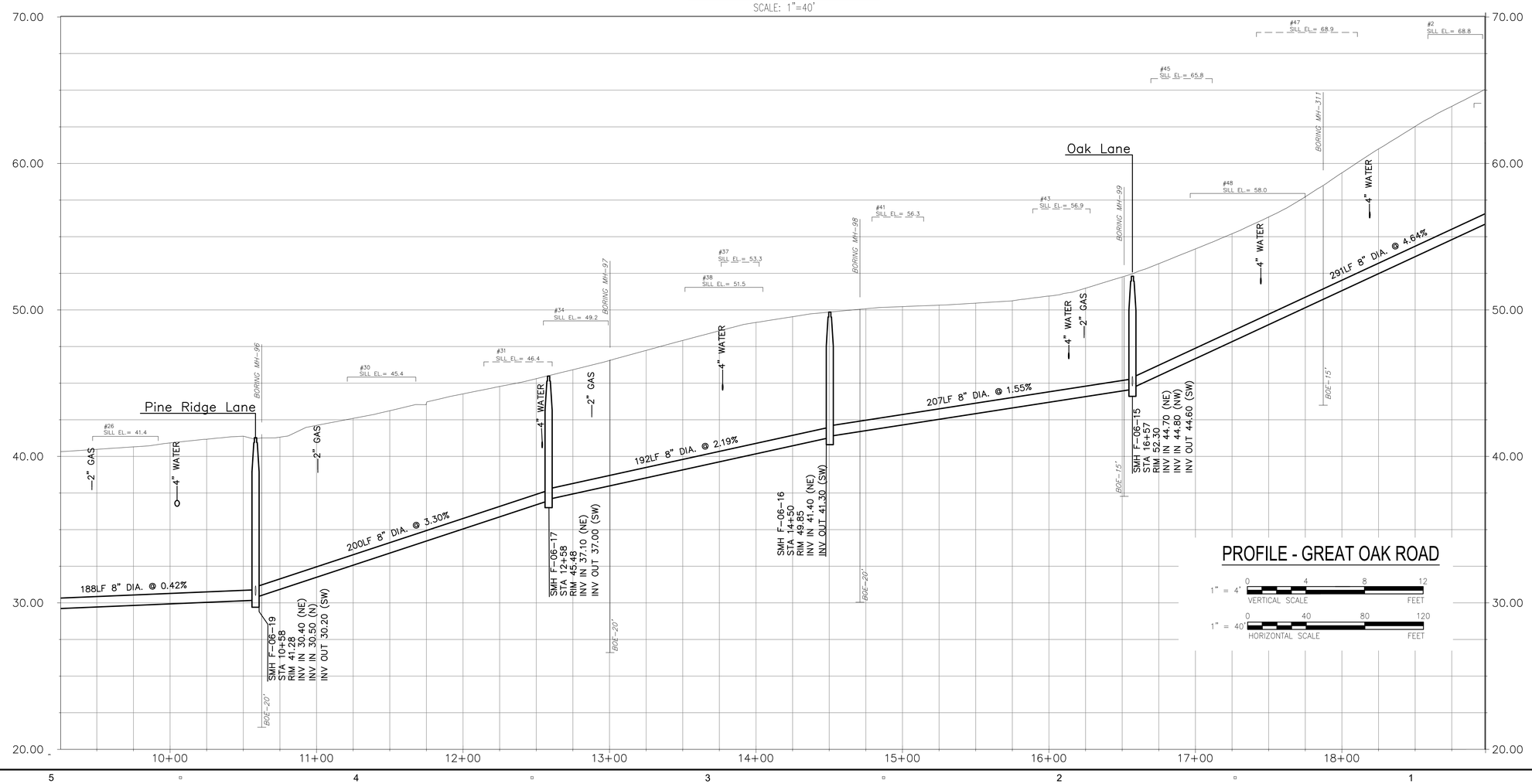
SHEET NUMBER

04 C-120



PLAN - GREAT OAK ROAD

SCALE: 1"=40'



PROFILE - GREAT OAK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

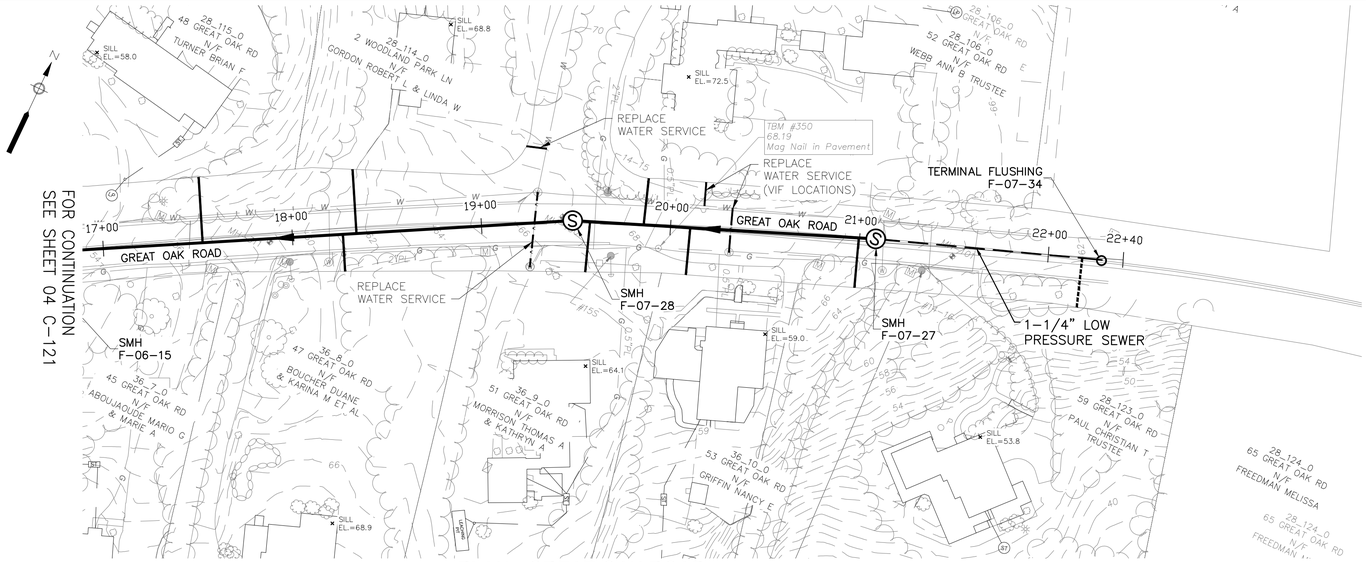
SHEET TITLE

PLAN AND PROFILE SEWER GREAT OAK ROAD

SHEET NUMBER

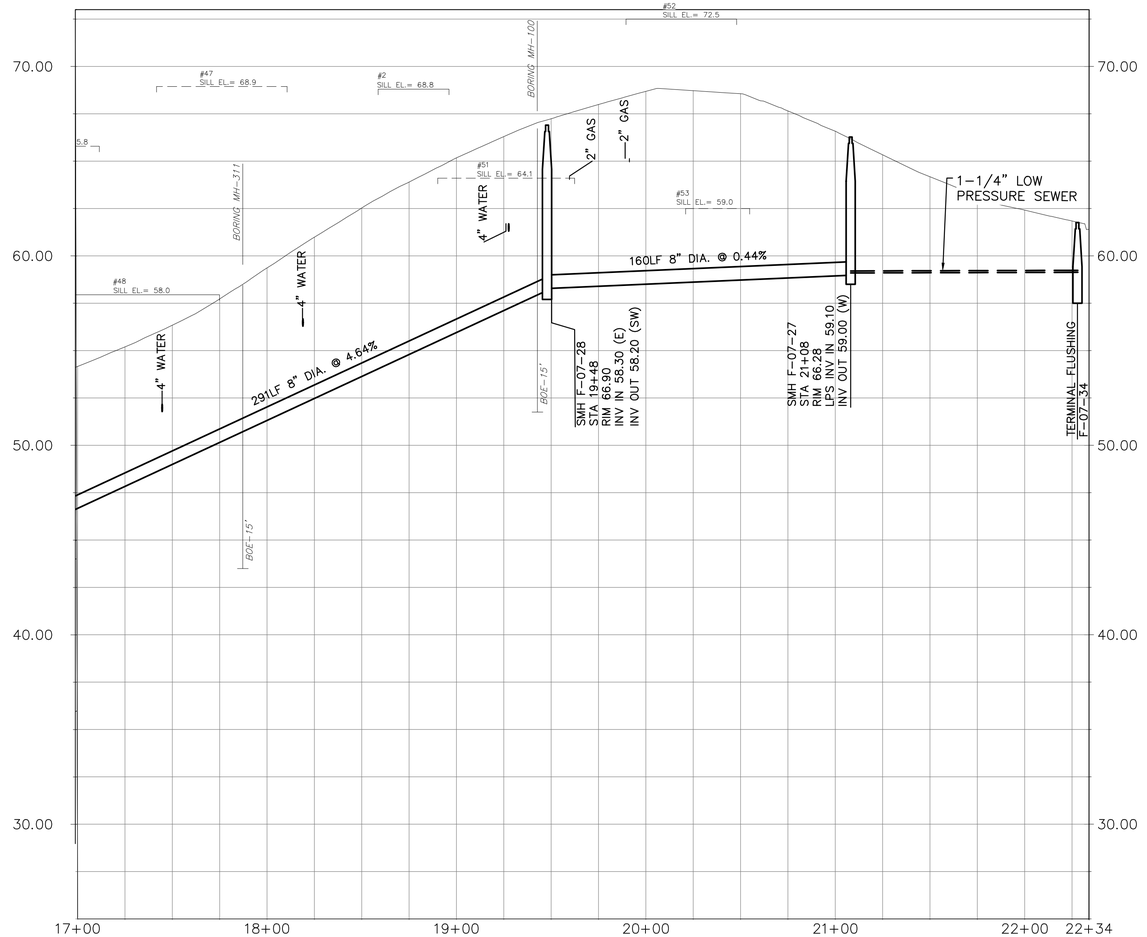
04 C-121

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - GREAT OAK ROAD

SCALE: 1"=40'



PROFILE - GREAT OAK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

03/01/23
COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

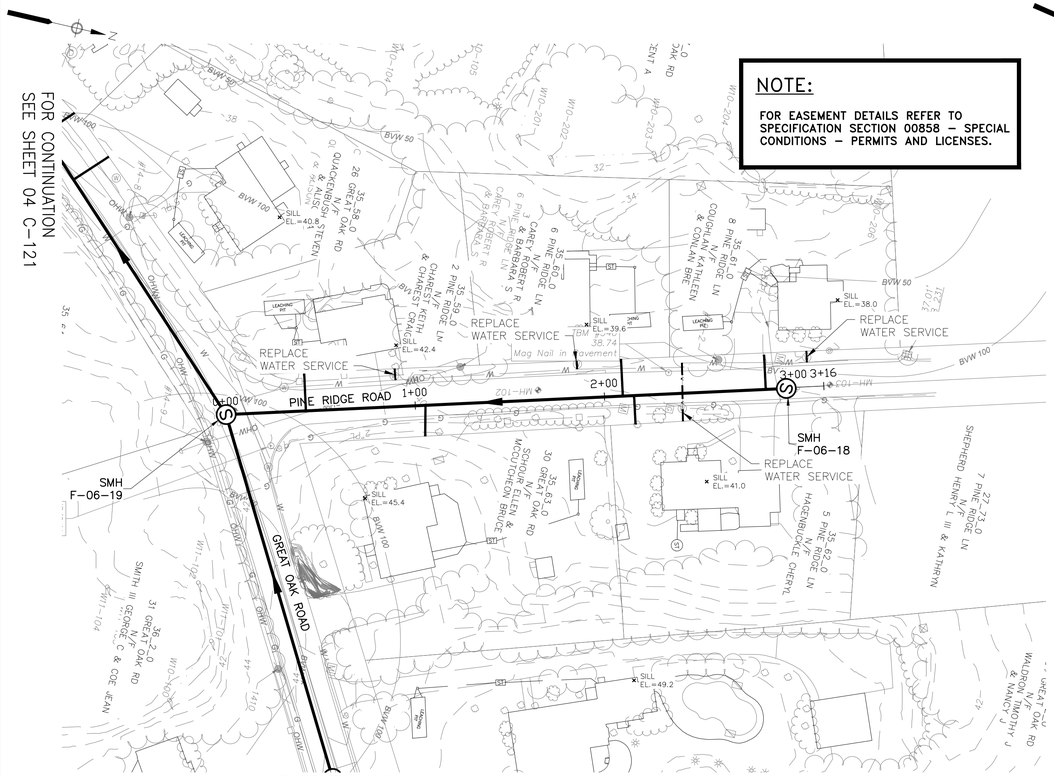
CIVIL

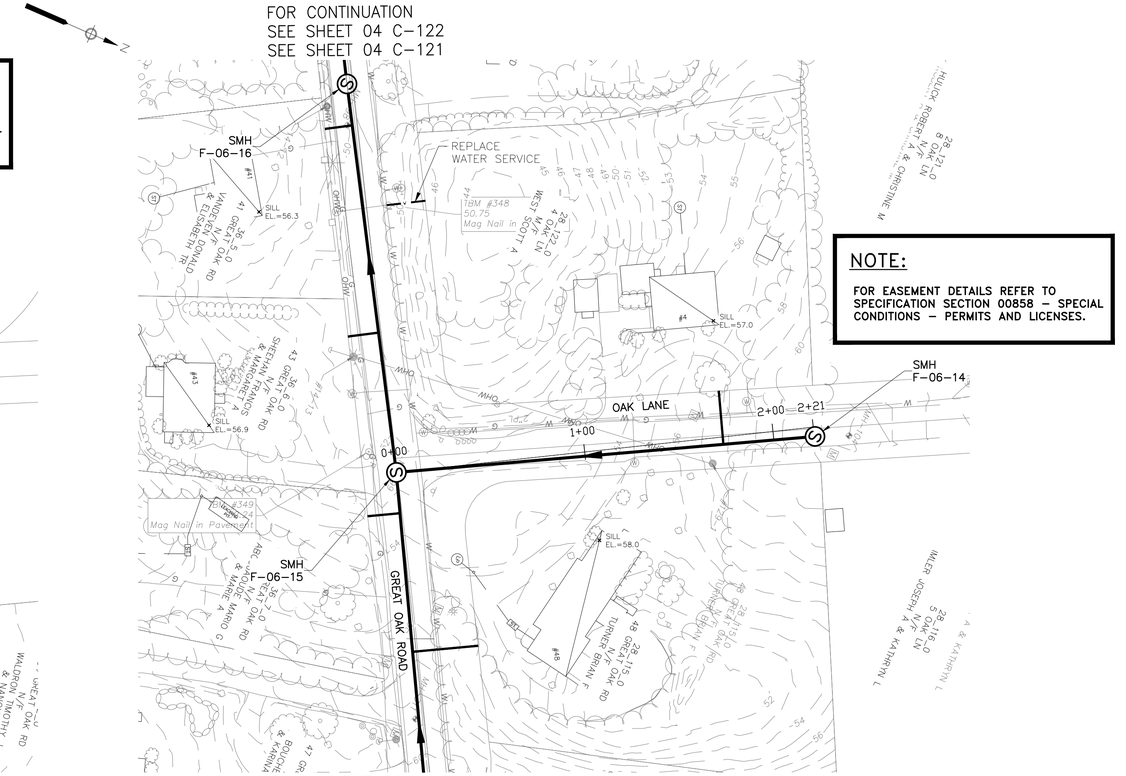
SHEET TITLE

PLAN AND PROFILE SEWER GREAT OAK ROAD

SHEET NUMBER

04 C-122

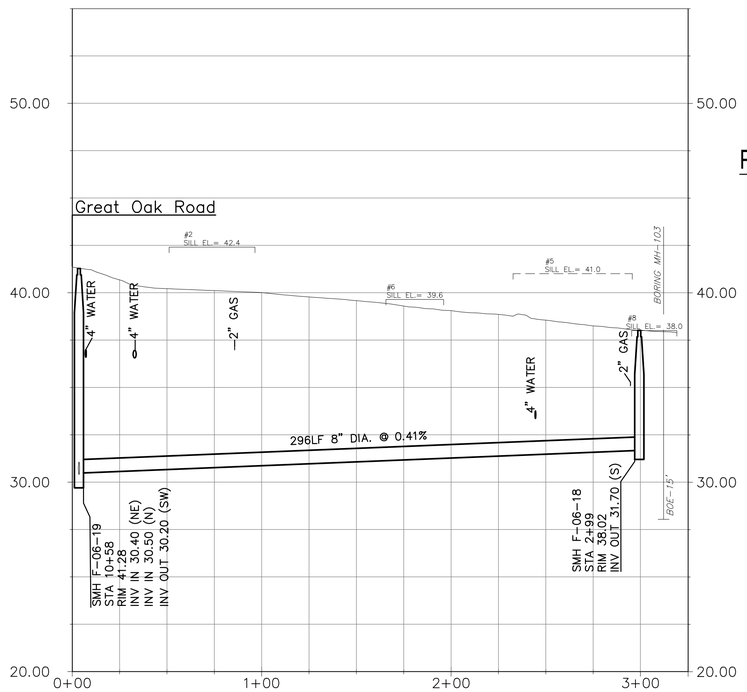




NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - PINE RIDGE LANE & OAK LANE

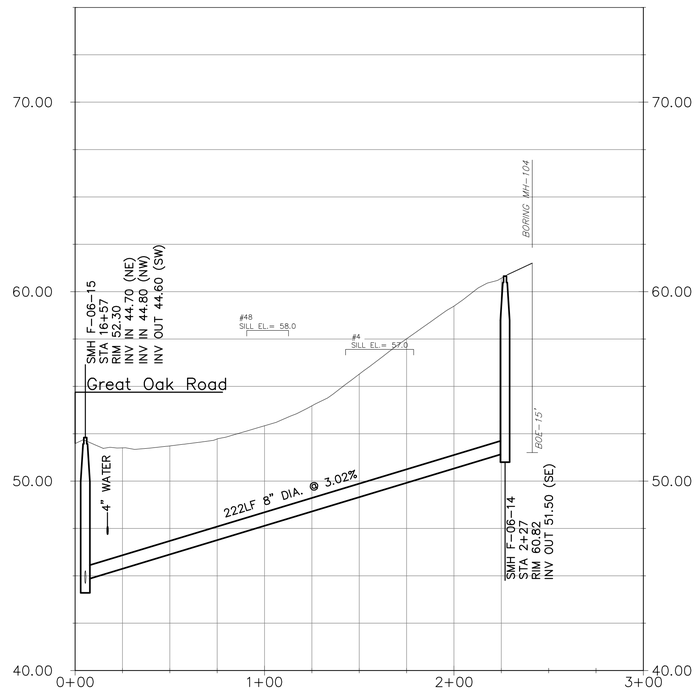
SCALE: 1"=40'



PROFILE - PINE RIDGE LANE & OAK LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

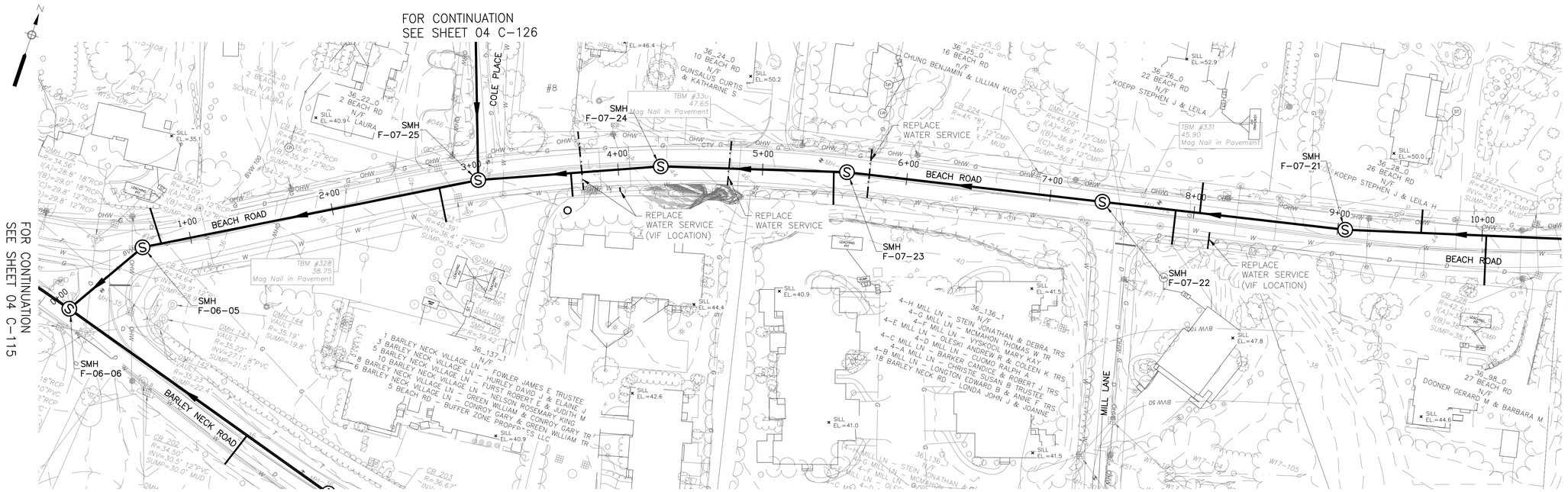
SHEET TITLE

PLAN AND PROFILE SEWER PINE RIDGE LANE & OAK LANE

SHEET NUMBER

04 C-123

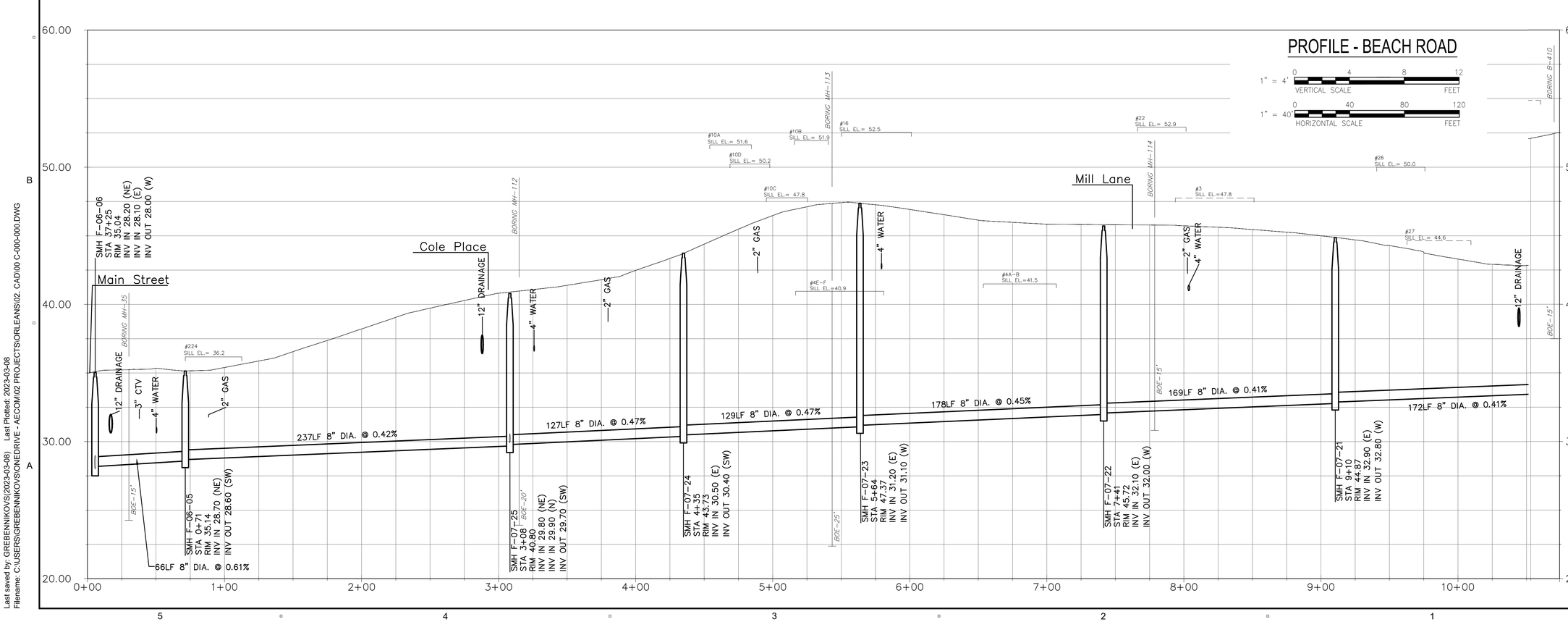
Last saved by: GREBENNIKOVS\(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - BEACH ROAD

SCALE: 1"=40'



Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
A	03/08/2023	ADDENDUM NO. 1

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

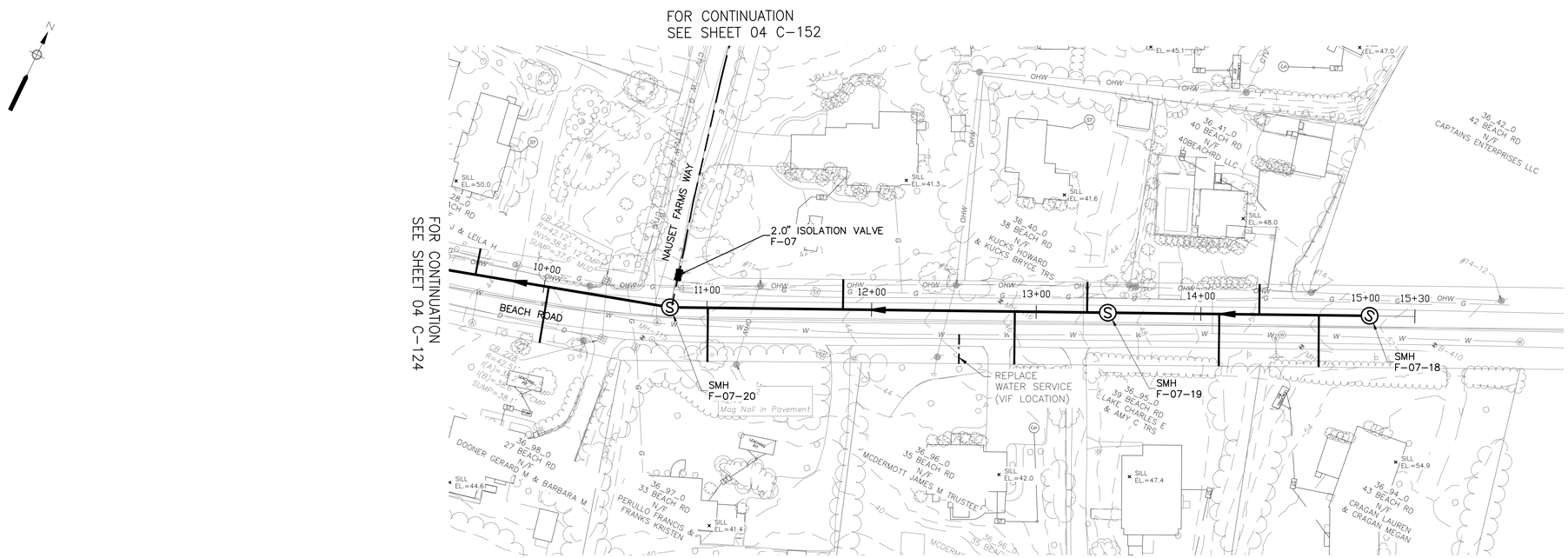
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER BEACH ROAD

SHEET NUMBER

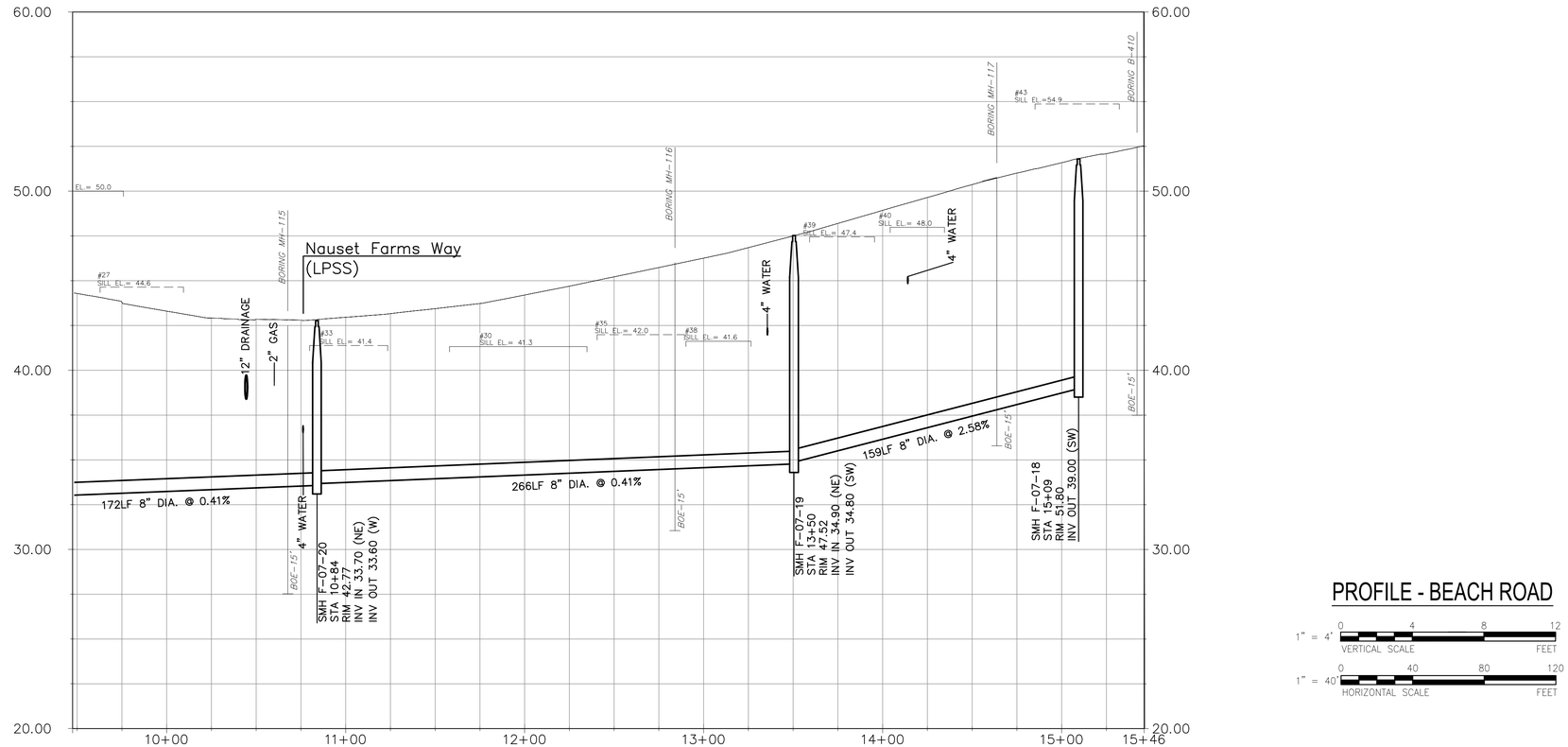
04 C-124



PLAN - BEACH ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - BEACH ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

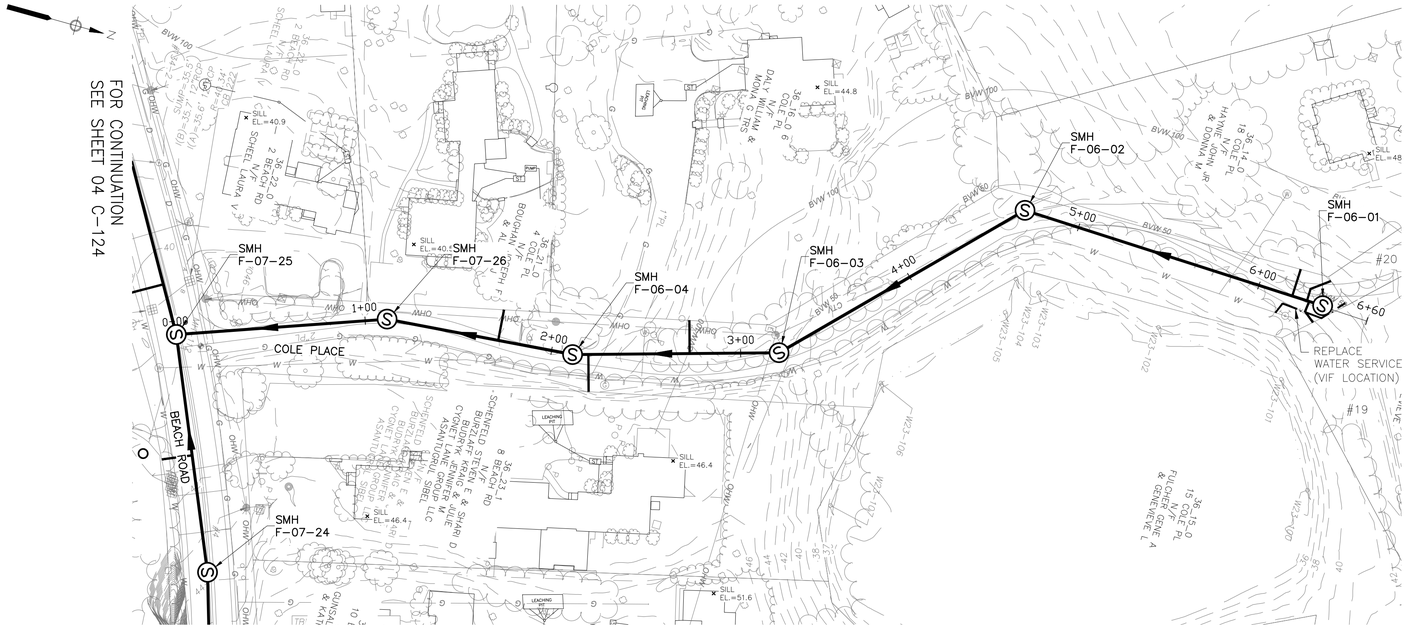
SHEET TITLE

PLAN AND PROFILE SEWER BEACH ROAD

SHEET NUMBER

04 C-125

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



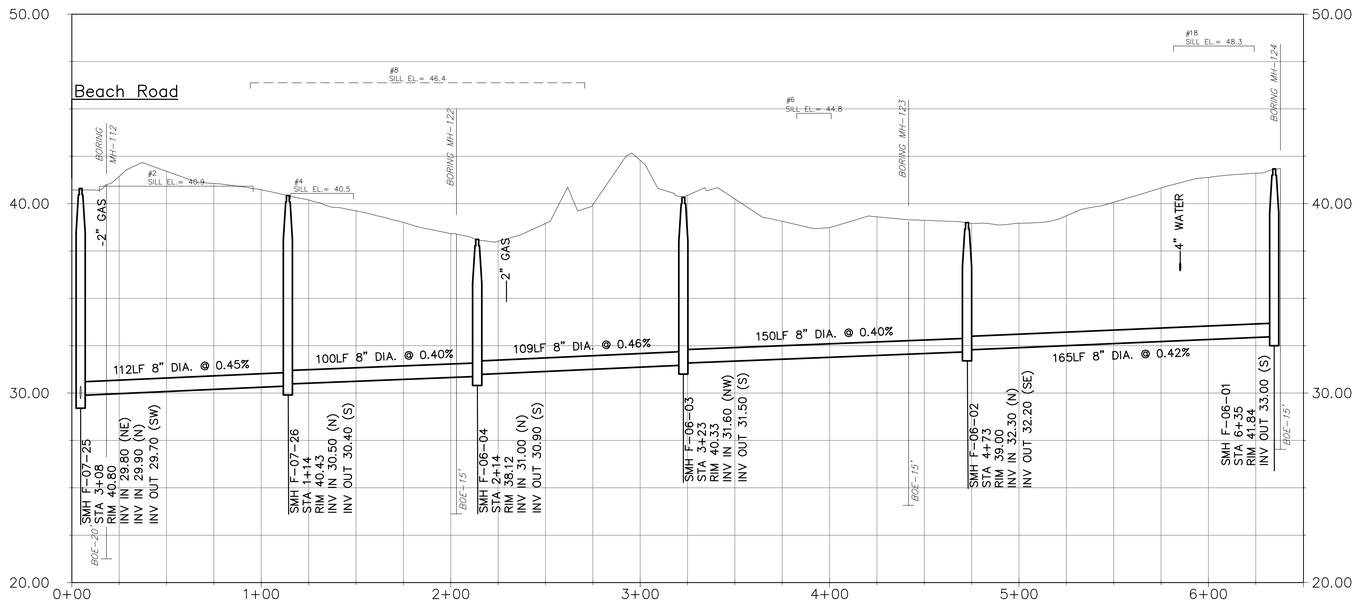
PLAN - COLE PLACE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - COLE PLACE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

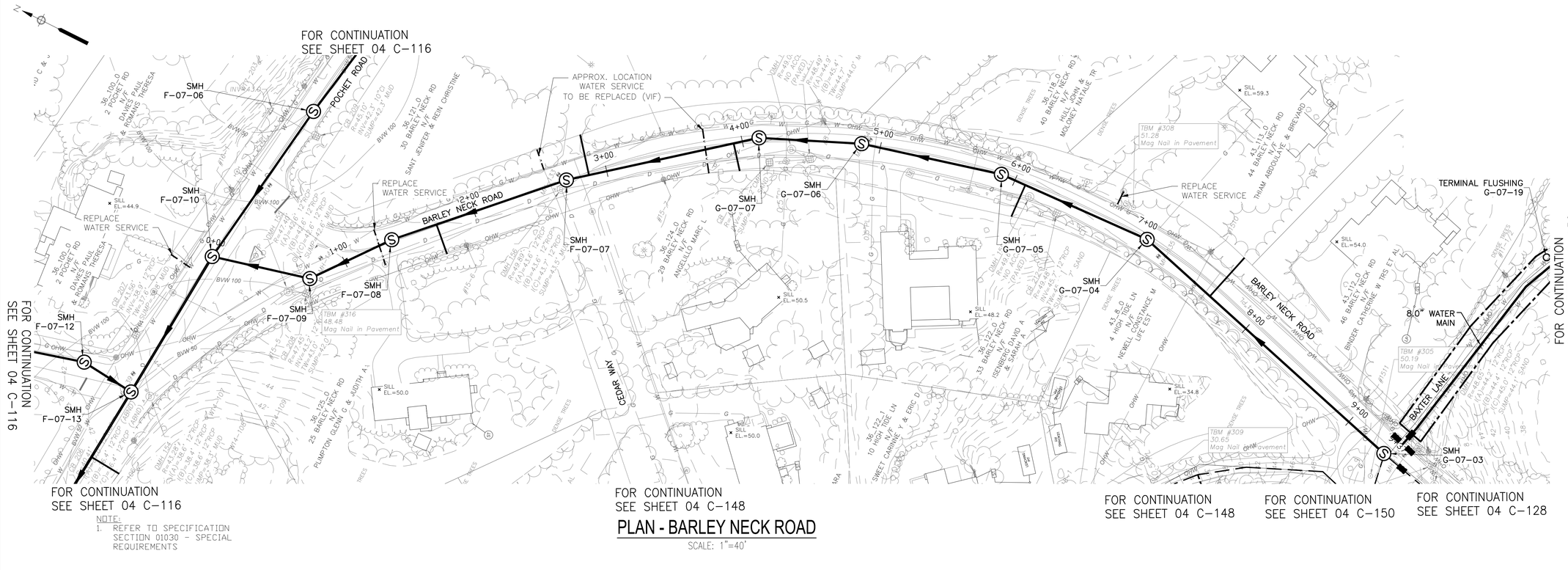
SHEET TITLE

PLAN AND PROFILE SEWER COLE PLACE

SHEET NUMBER

04 C-126

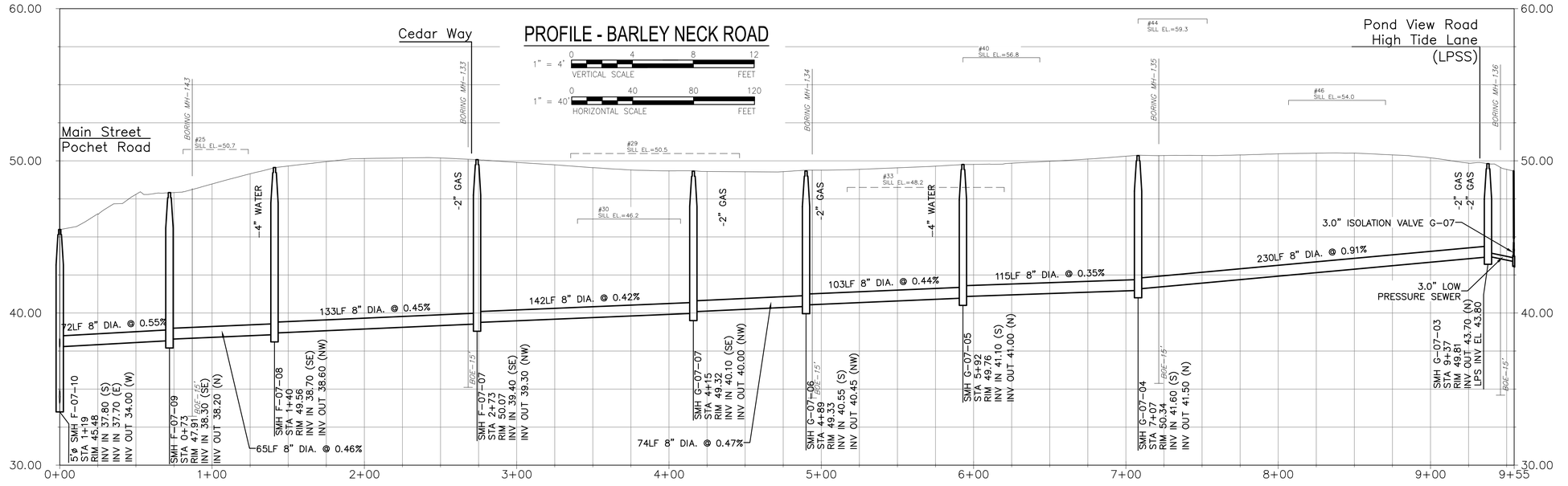
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - BARLEY NECK ROAD

SCALE: 1"=40'



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

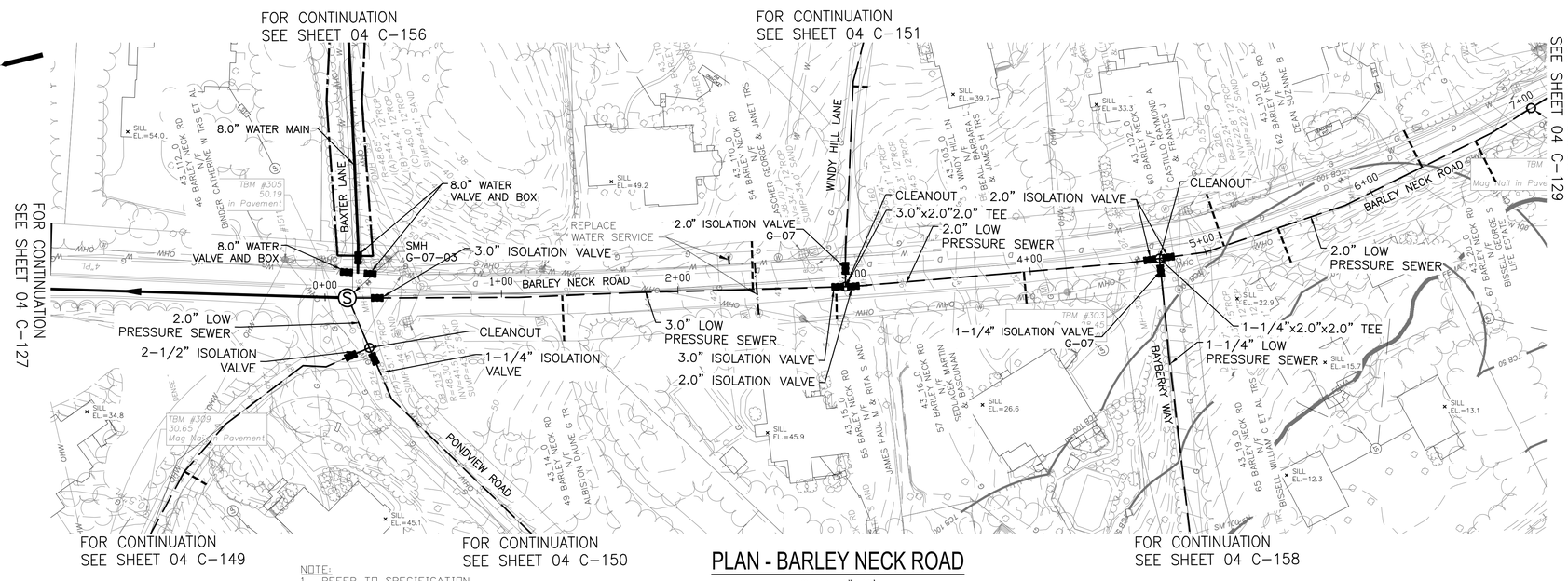
SHEET TITLE

PLAN AND PROFILE SEWER BARLEY NECK ROAD

SHEET NUMBER

04 C-127

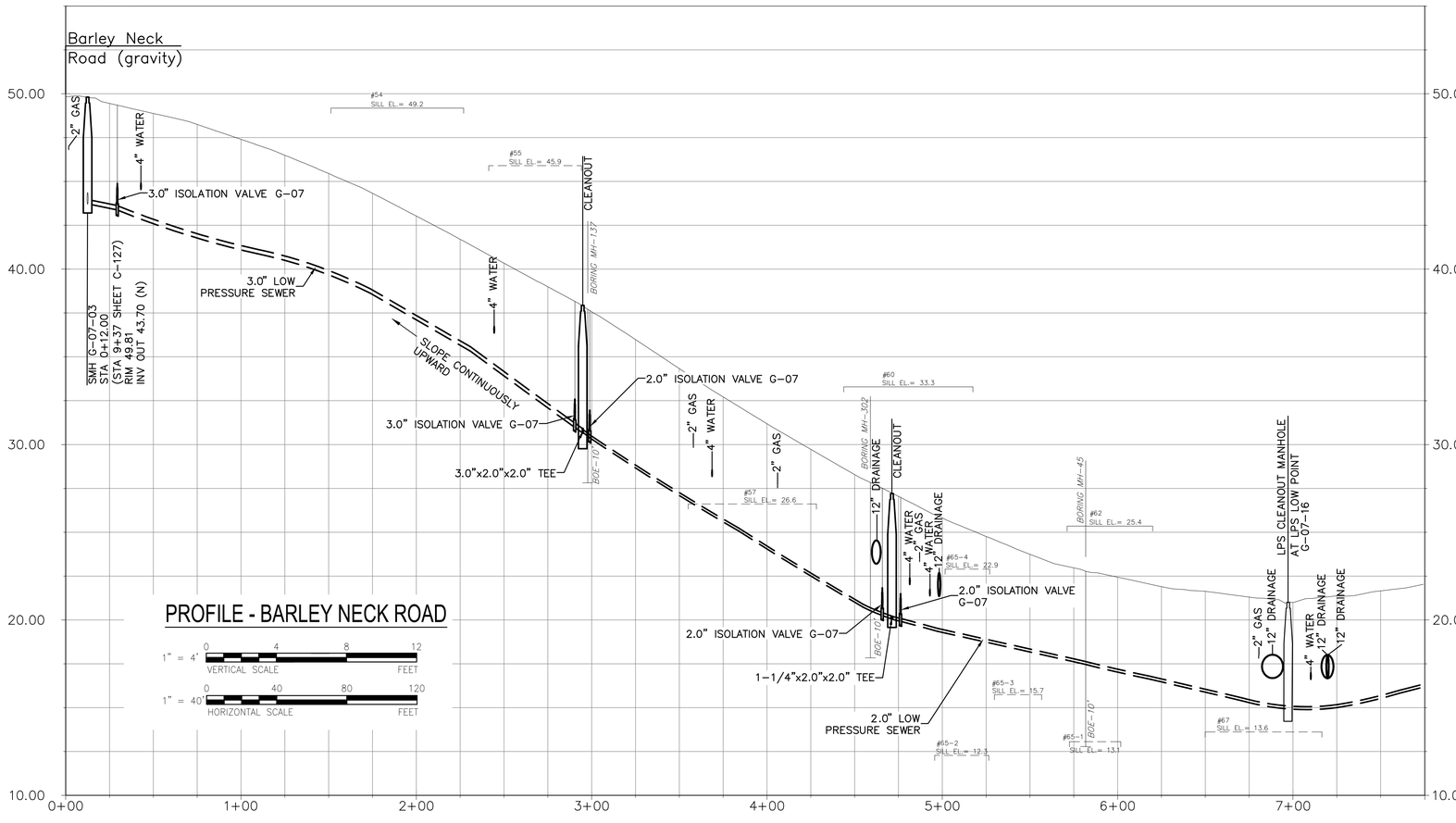
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - BARLEY NECK ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - BARLEY NECK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

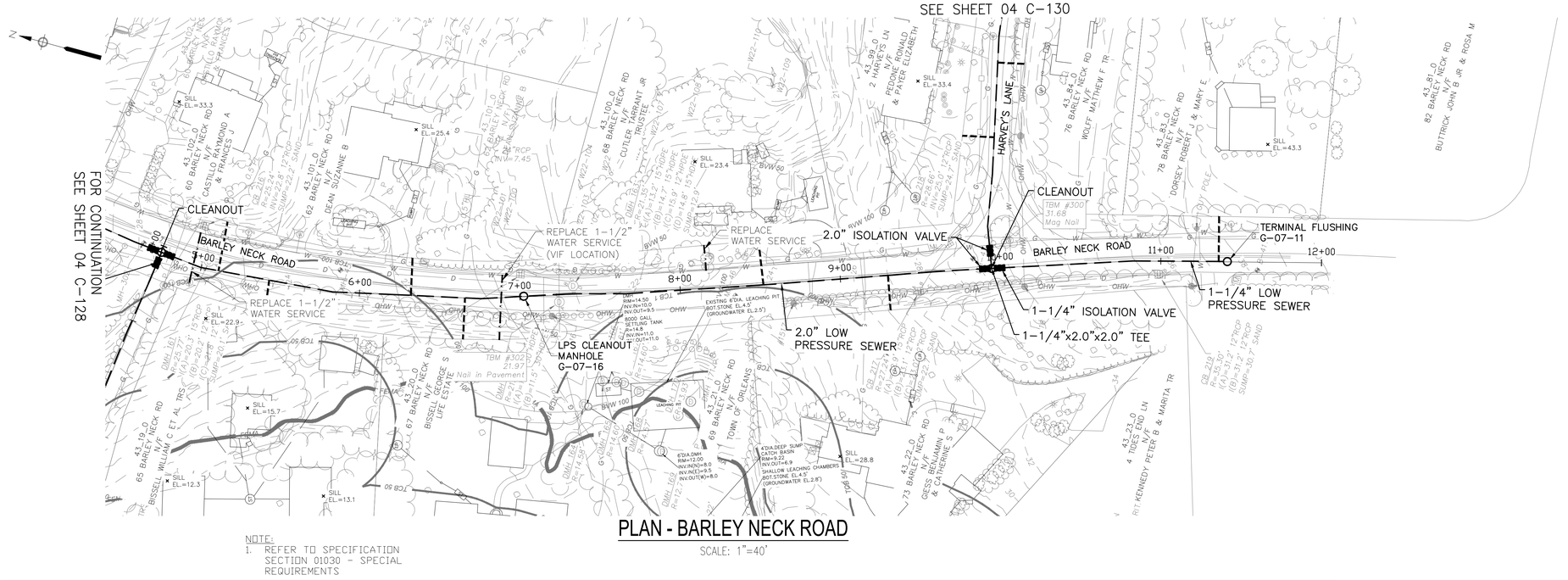
SHEET TITLE

PLAN AND PROFILE SEWER BARLEY NECK ROAD

SHEET NUMBER

04 C-128

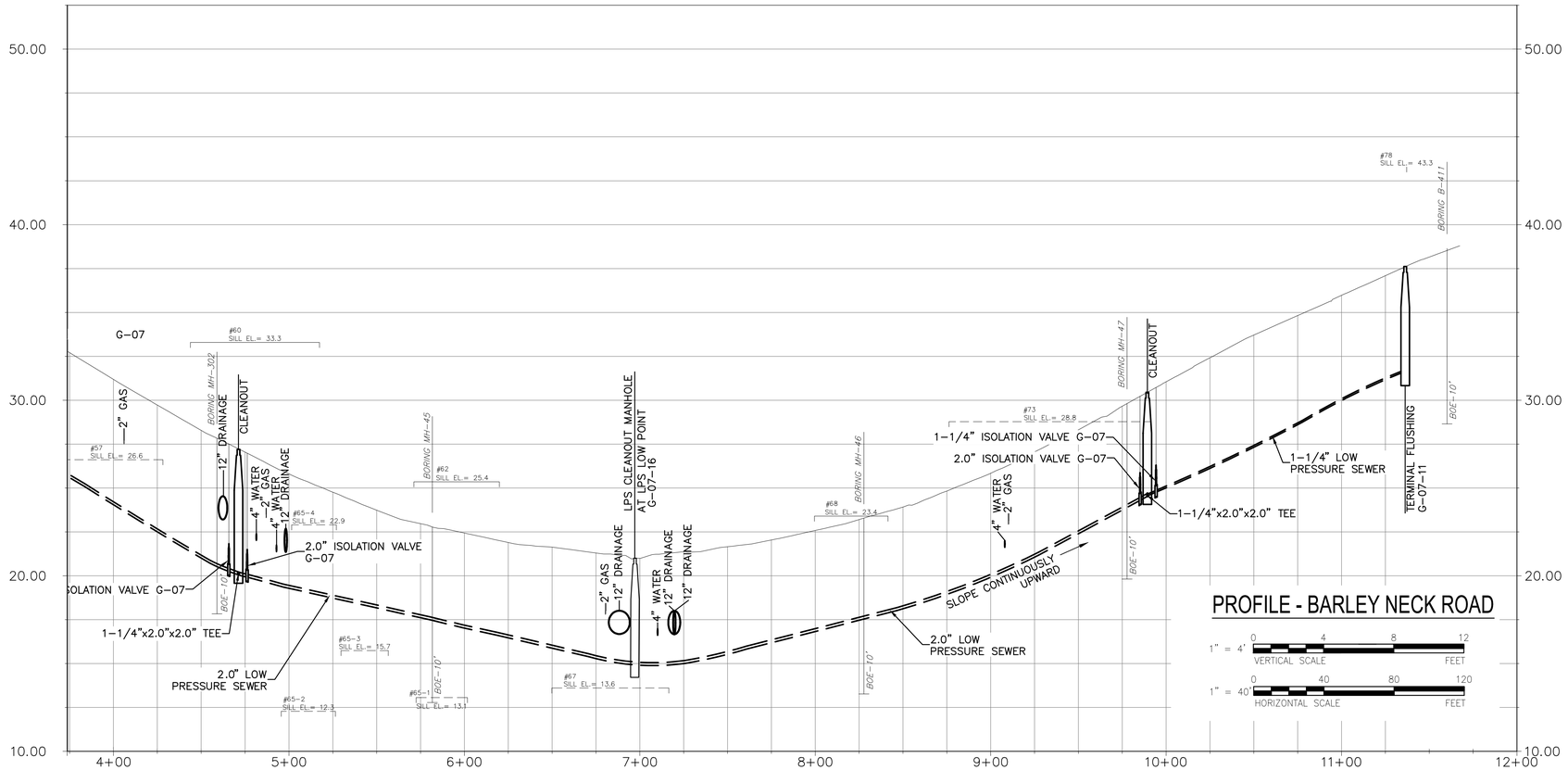
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - BARLEY NECK ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - BARLEY NECK ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)
1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

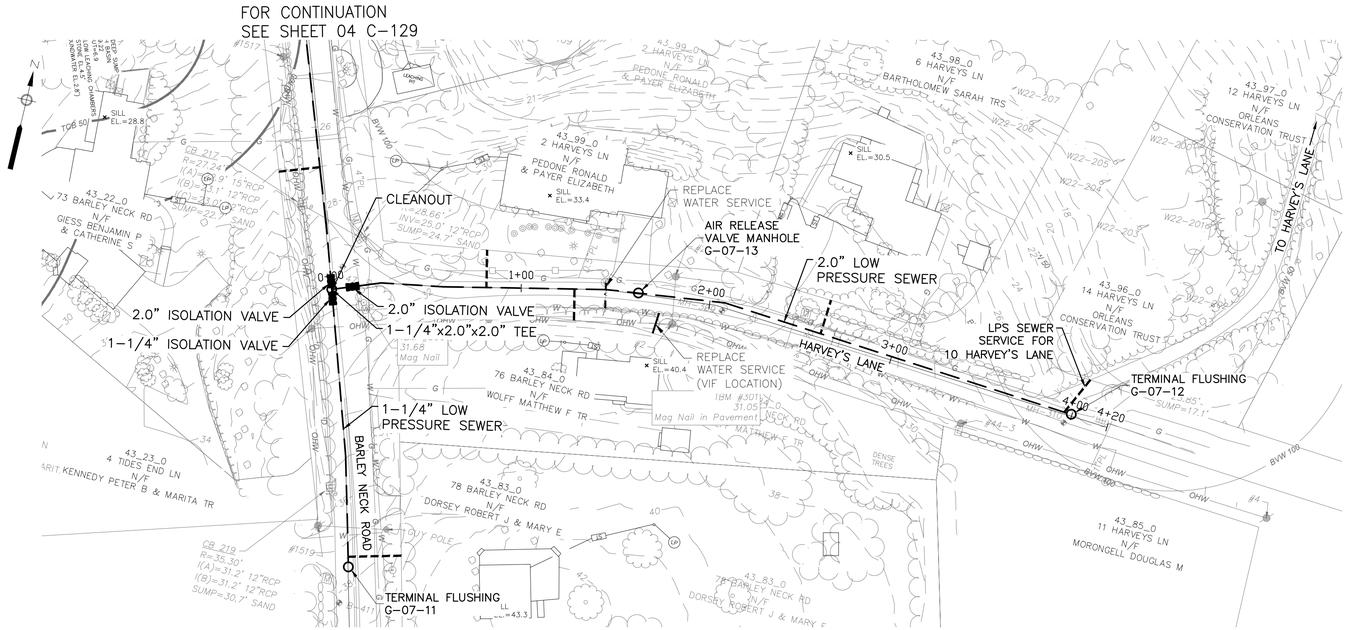
SHEET TITLE

PLAN AND PROFILE SEWER BARLEY NECK ROAD

SHEET NUMBER

04 C-129

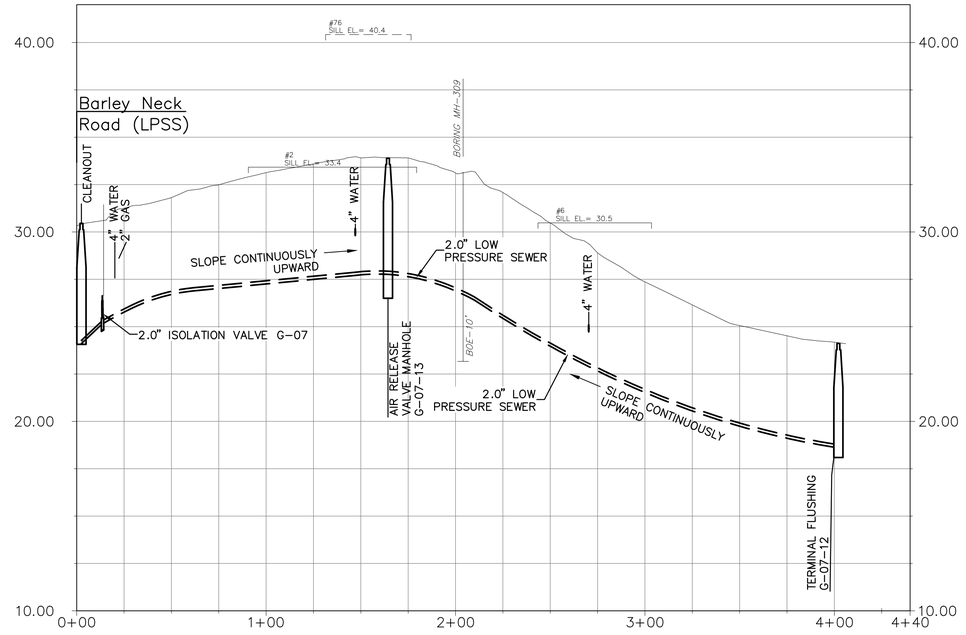
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - HARVEYS LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - HARVEYS LANE

1" = 4' (VERTICAL SCALE) 0 4 8 12 FEET

1" = 40' (HORIZONTAL SCALE) 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

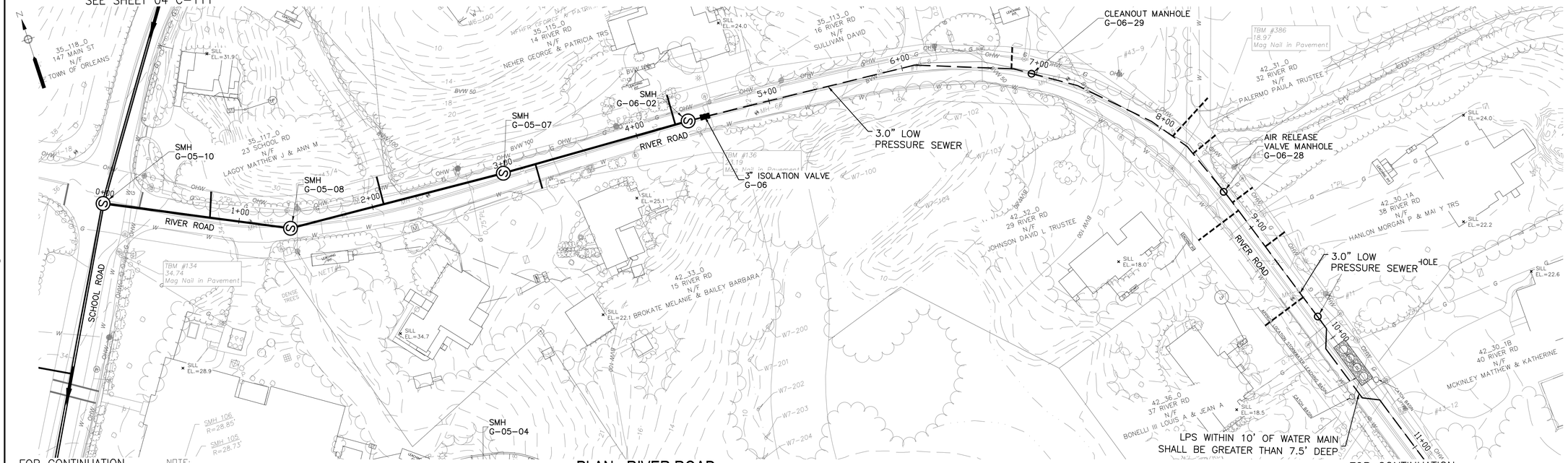
SHEET TITLE

PLAN AND PROFILE SEWER HARVEYS LANE

SHEET NUMBER

04 C-130

FOR CONTINUATION
SEE SHEET 04 C-111

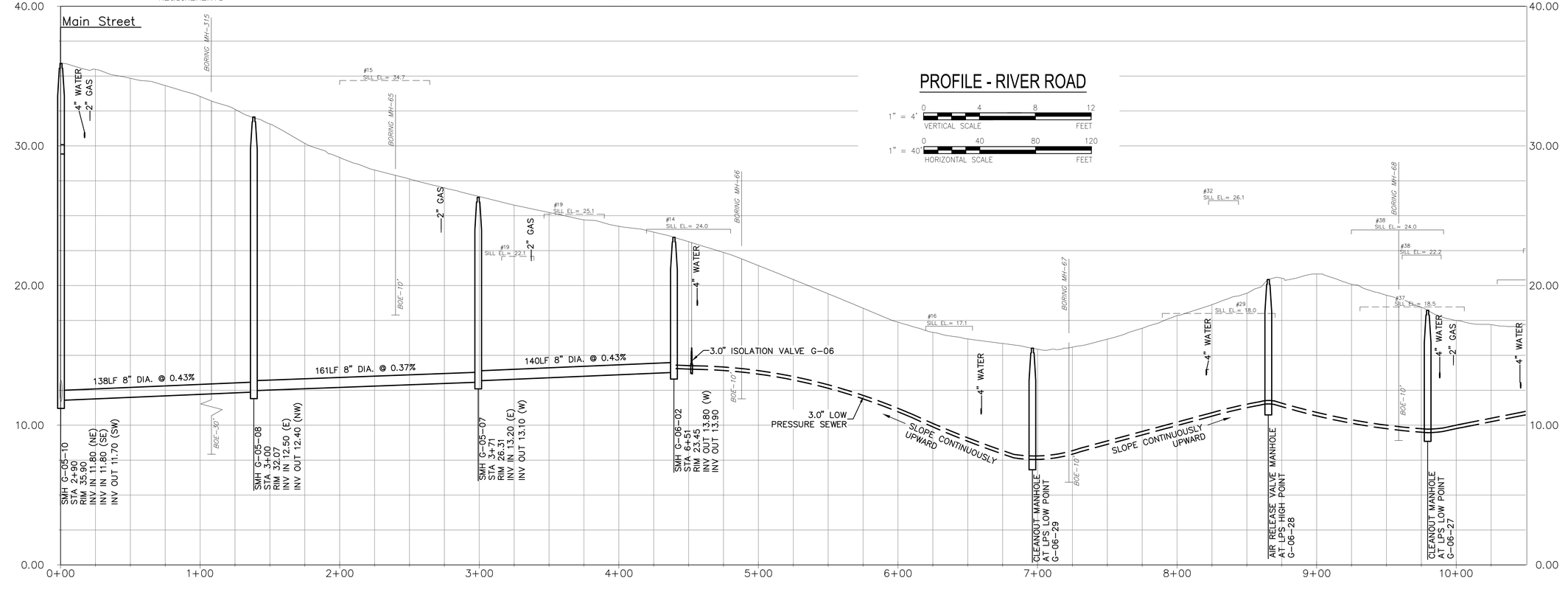


FOR CONTINUATION
SEE SHEET 04 C-111

FOR CONTINUATION
SEE SHEET 04 C-132

PLAN - RIVER ROAD

SCALE: 1"=40'



Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

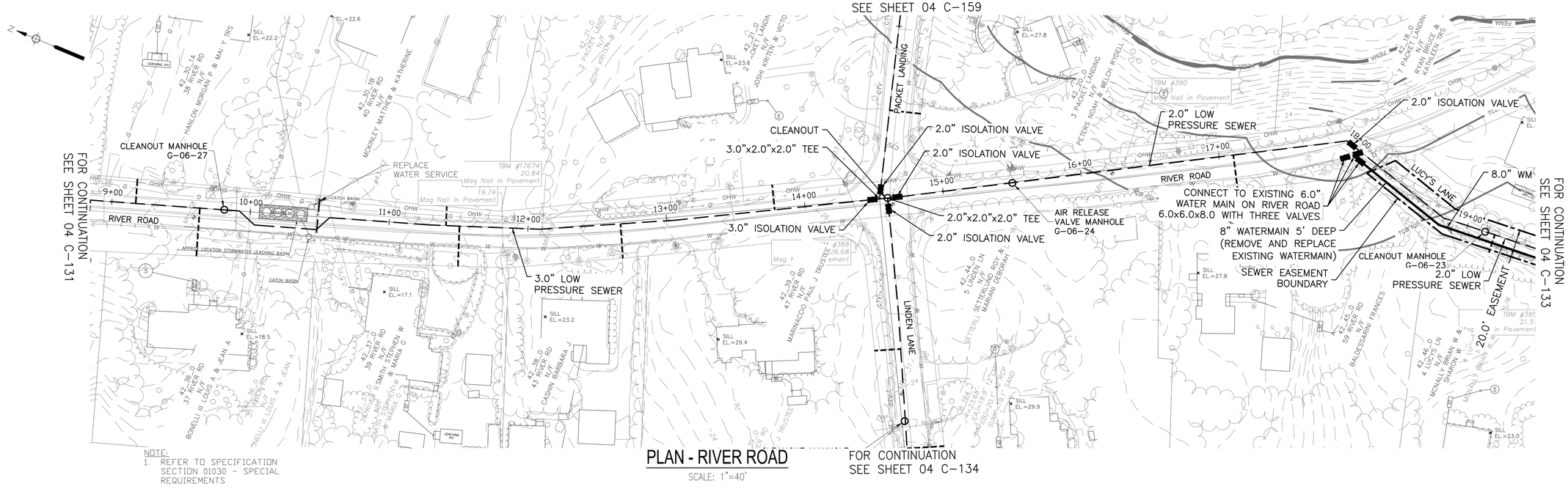
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER RIVER ROAD

SHEET NUMBER

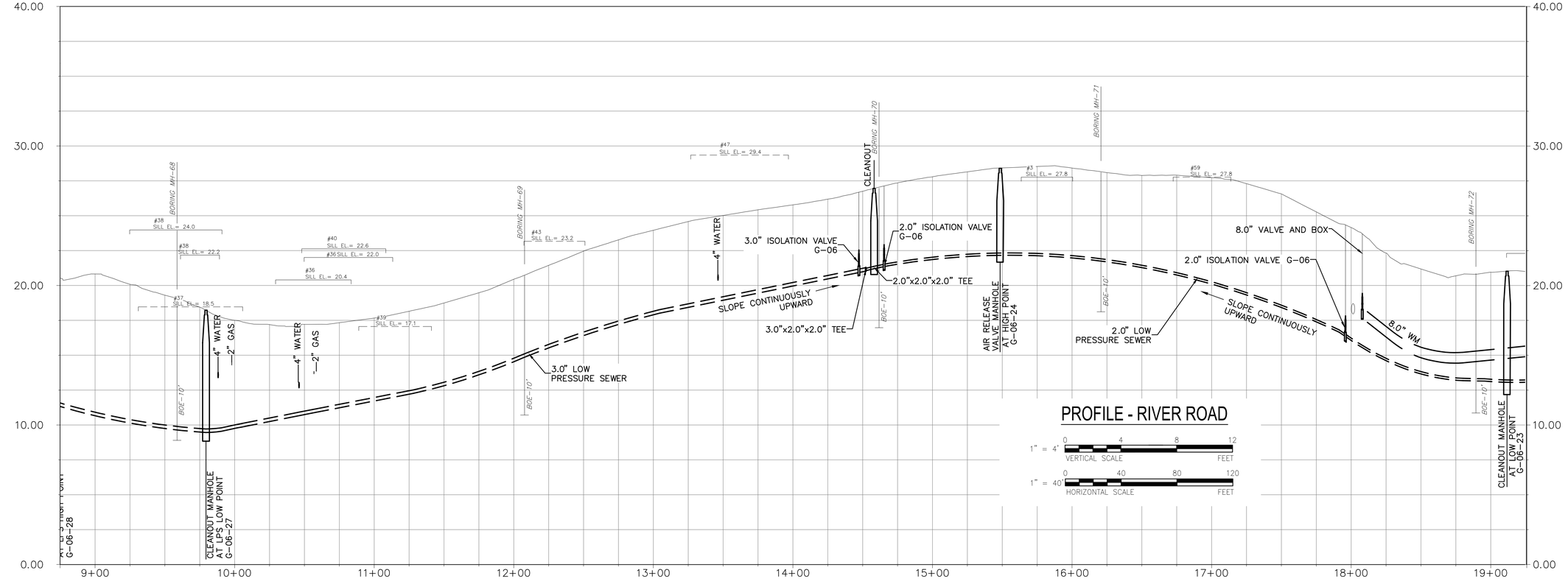
04 C-131



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - RIVER ROAD

SCALE: 1"=40'



PROFILE - RIVER ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS — THOMAS E. PARECE — CIVIL — No. 34463 — REGISTERED PROFESSIONAL ENGINEER — 03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

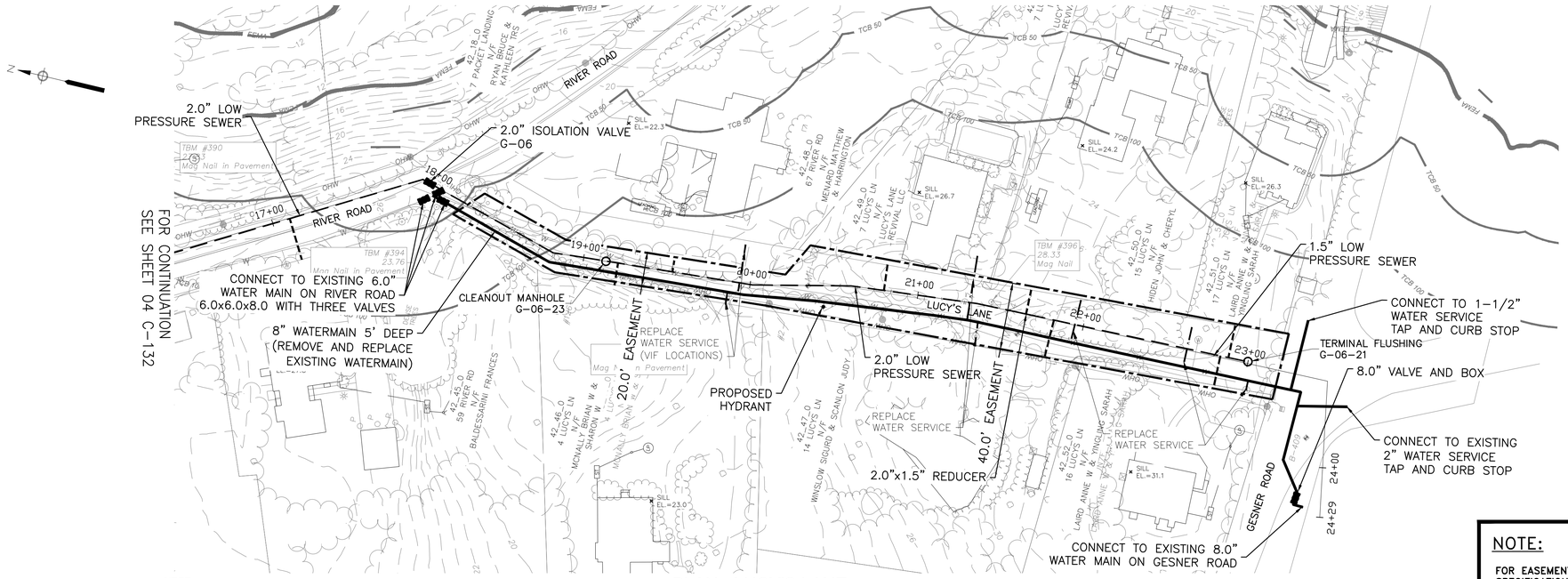
SHEET TITLE

PLAN AND PROFILE SEWER RIVER ROAD

SHEET NUMBER

04 C-132

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



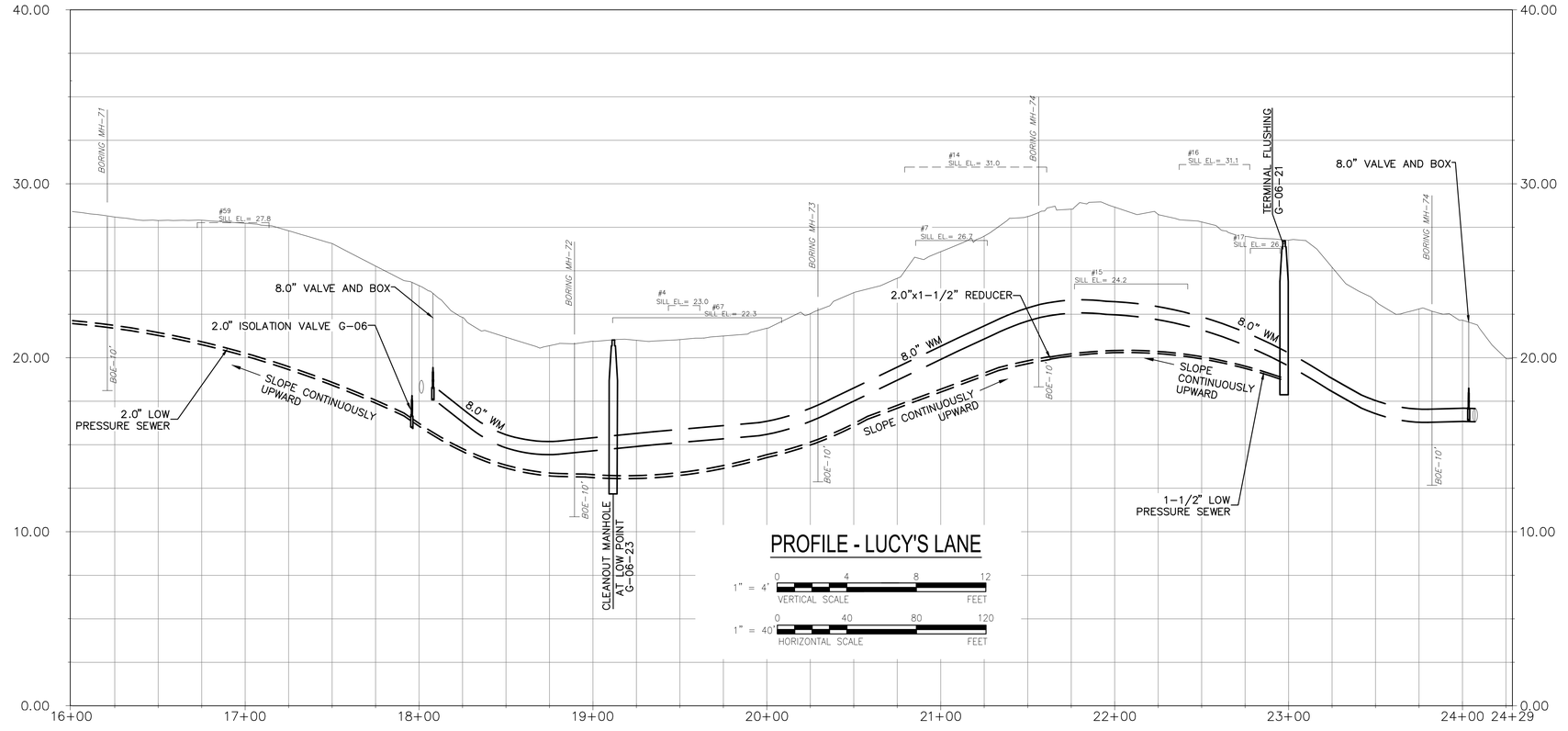
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - LUCY'S LANE

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - LUCY'S LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

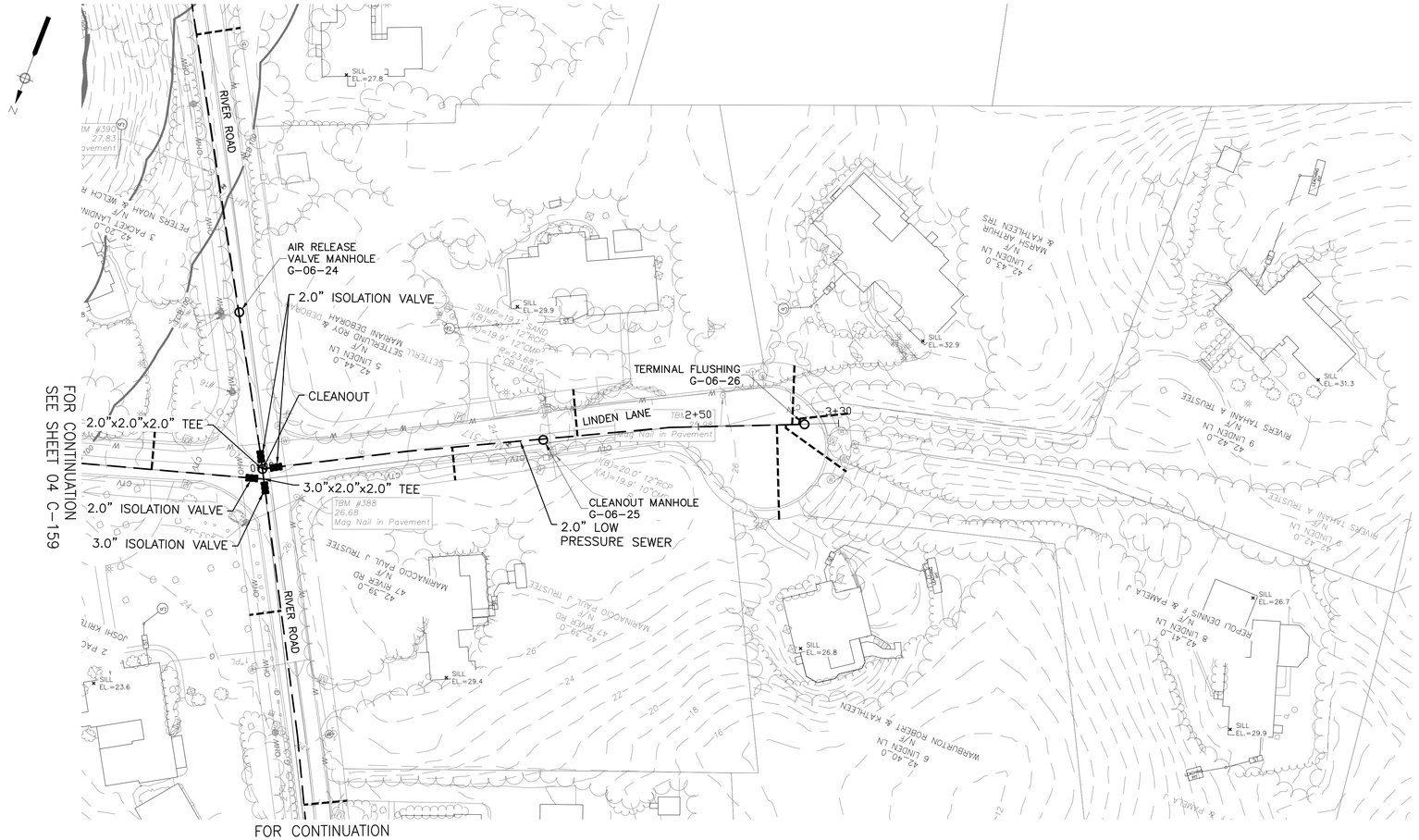
SHEET TITLE

PLAN AND PROFILE SEWER LUCY'S LANE

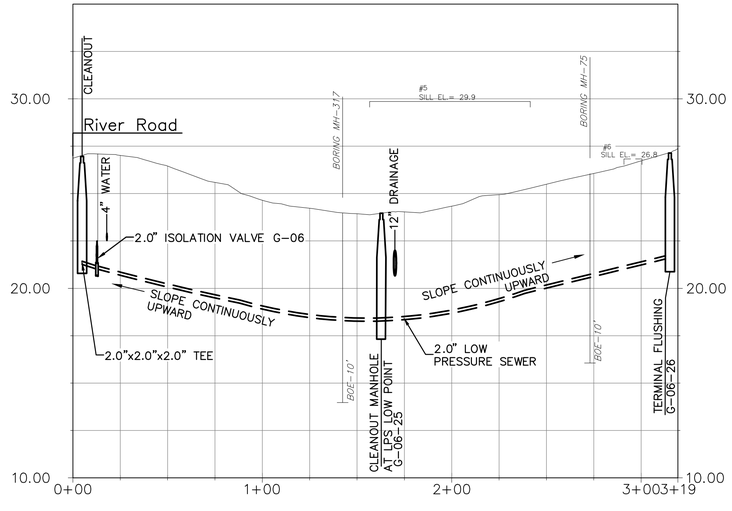
SHEET NUMBER

04 C-133

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

PROFILE - LINDEN LANE

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

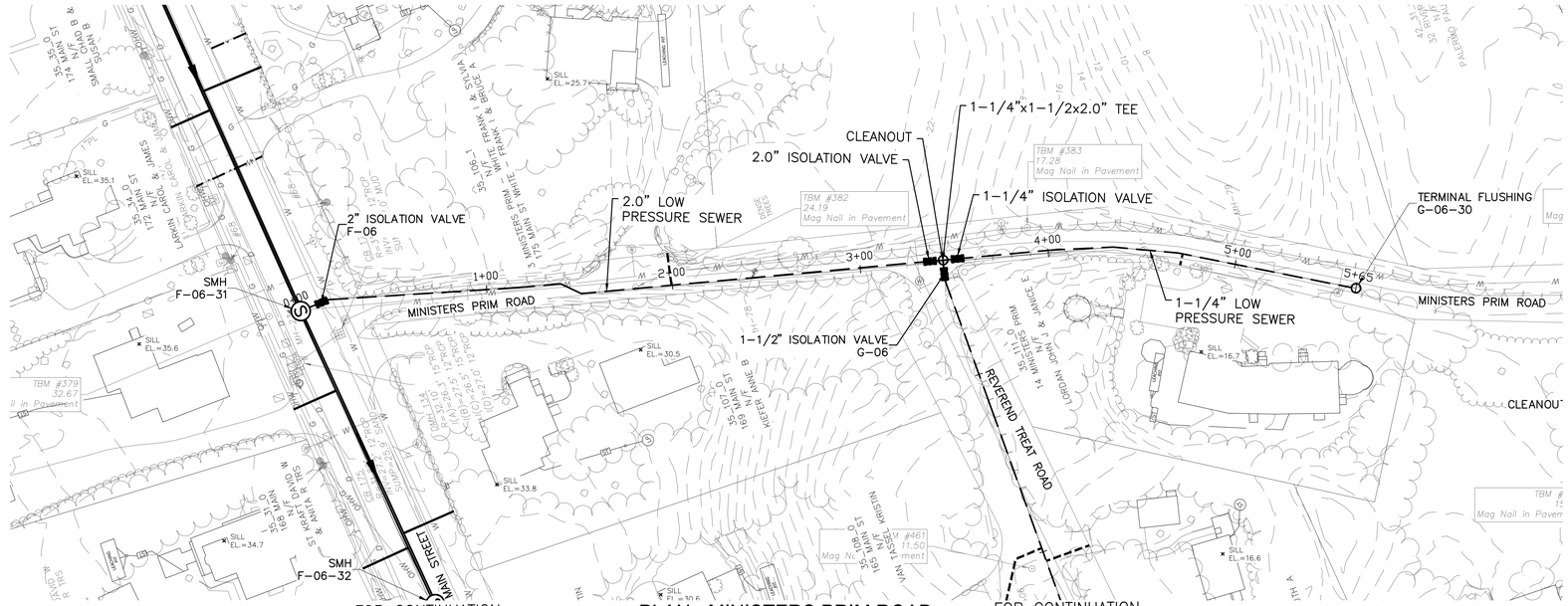
PLAN AND PROFILE SEWER LINDEN LANE

SHEET NUMBER

04 C-134

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-112



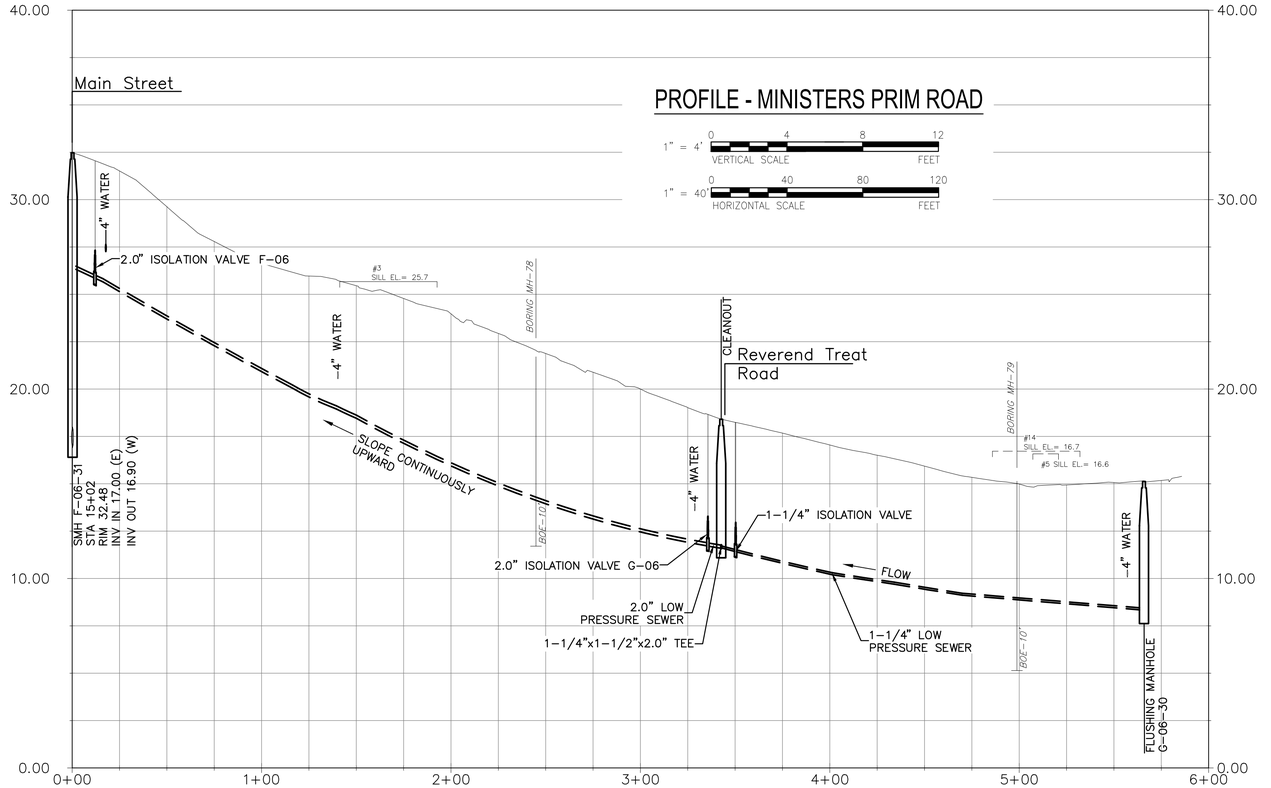
FOR CONTINUATION
SEE SHEET 04 C-112

FOR CONTINUATION
SEE SHEET 04 C-158

PLAN - MINISTERS PRIM ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

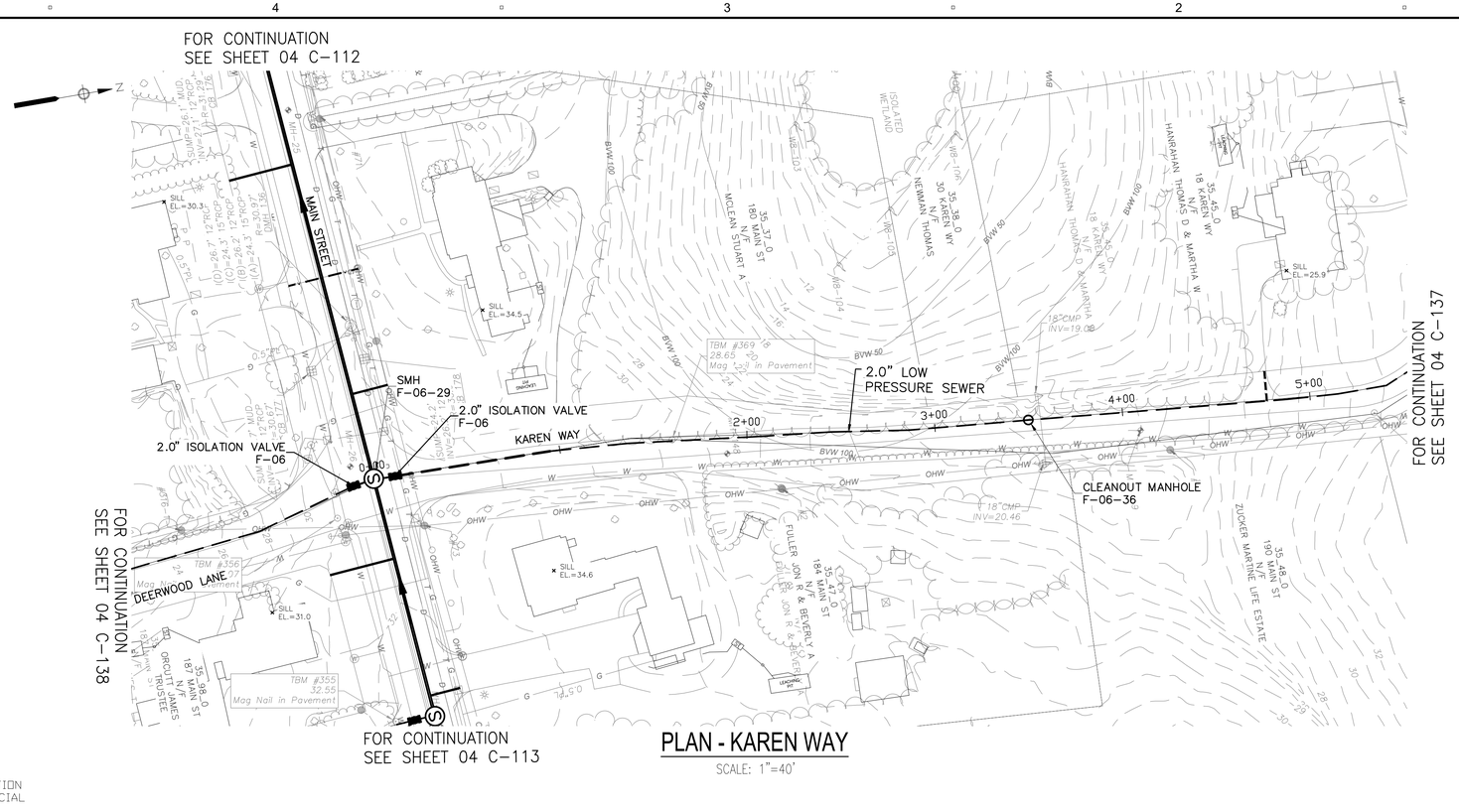
SHEET TITLE

PLAN AND PROFILE SEWER MINISTERS PRIM ROAD

SHEET NUMBER

04 C-135

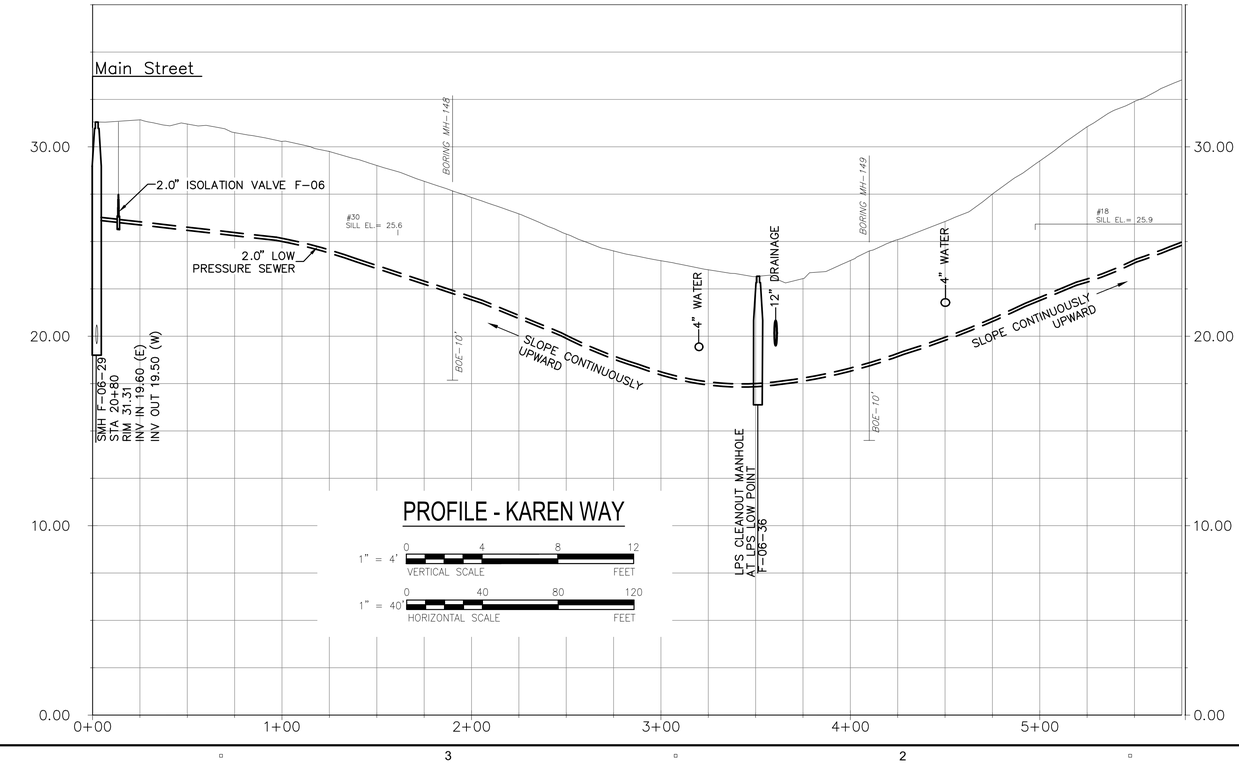
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - KAREN WAY

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - KAREN WAY

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

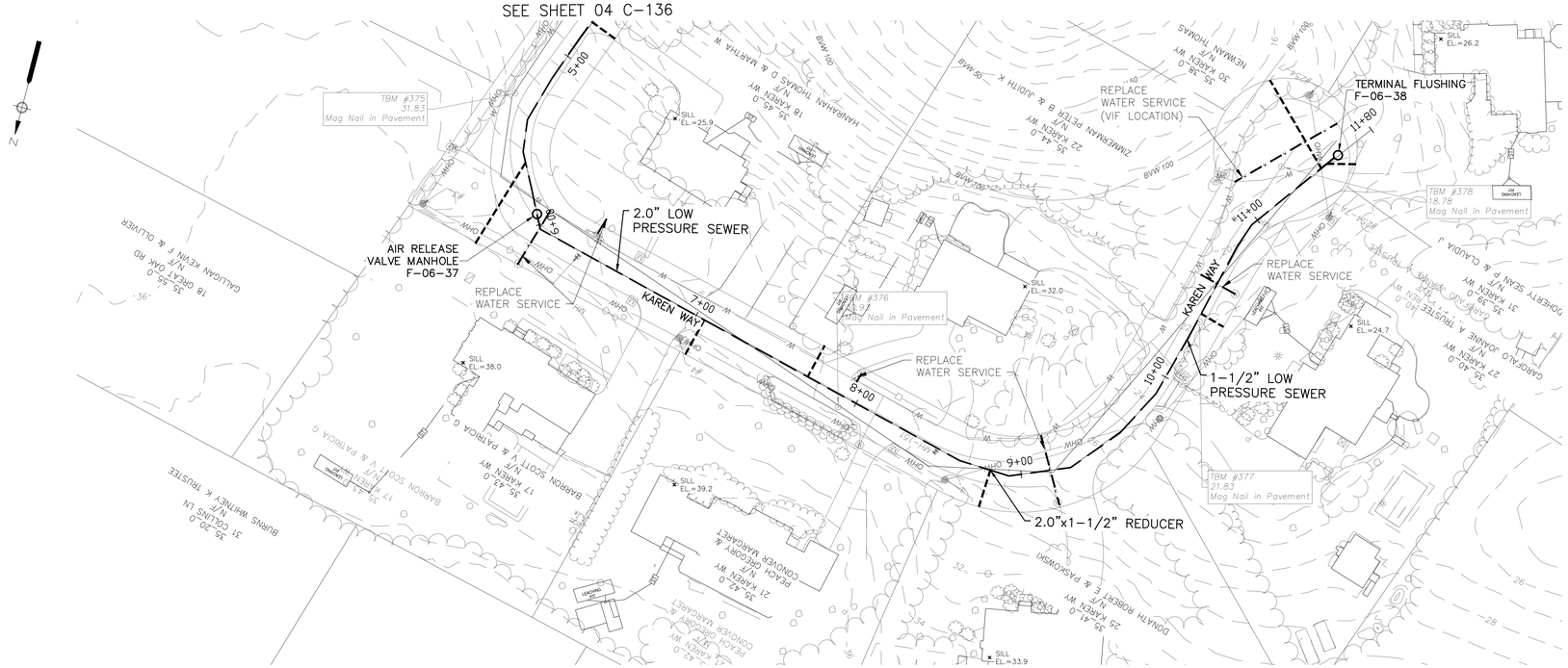
PLAN AND PROFILE SEWER KAREN WAY

SHEET NUMBER

04 C-136

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

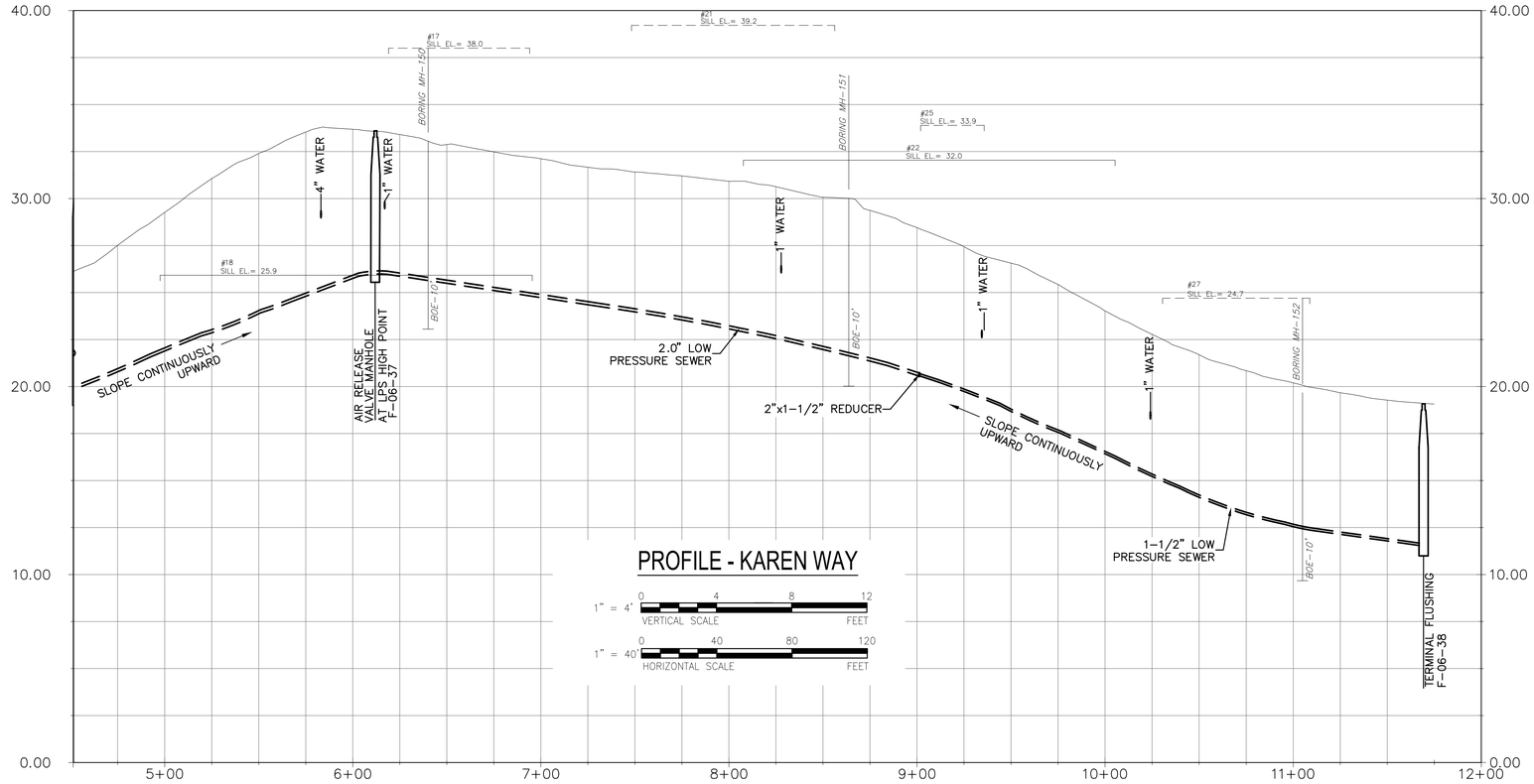
FOR CONTINUATION
SEE SHEET 04 C-136



PLAN - KAREN WAY

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - KAREN WAY

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER KAREN WAY

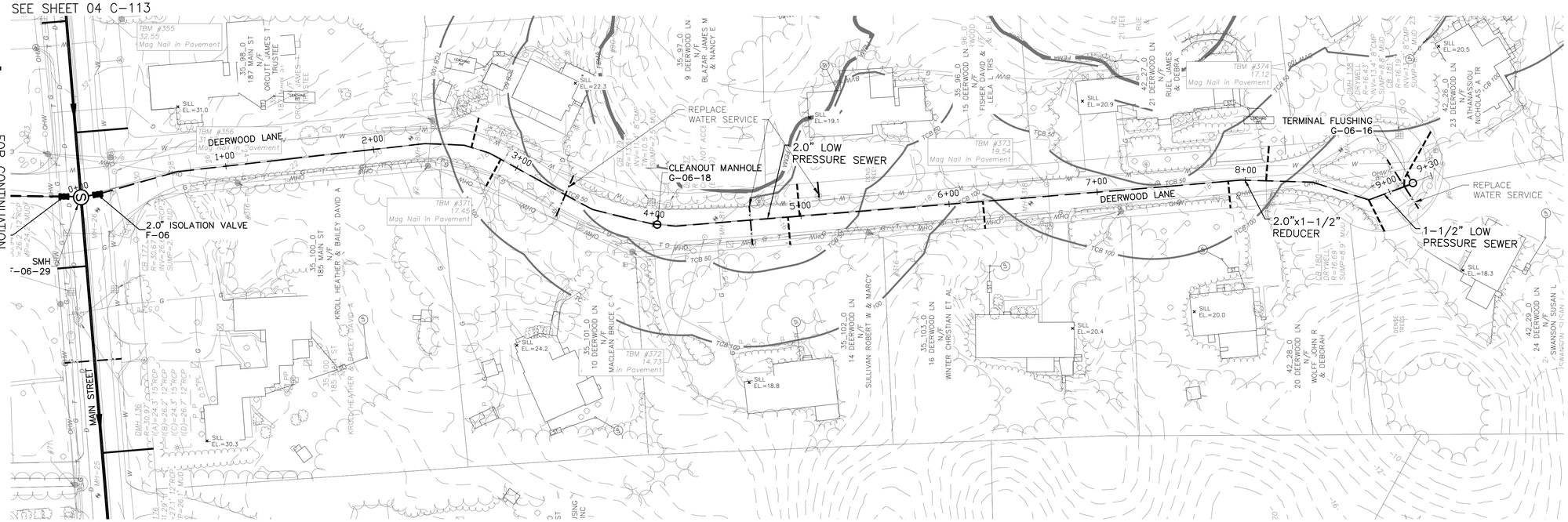
SHEET NUMBER

04 C-137

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-113

FOR CONTINUATION
SEE SHEET 04 C-136



FOR CONTINUATION
SEE SHEET 04 C-113

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

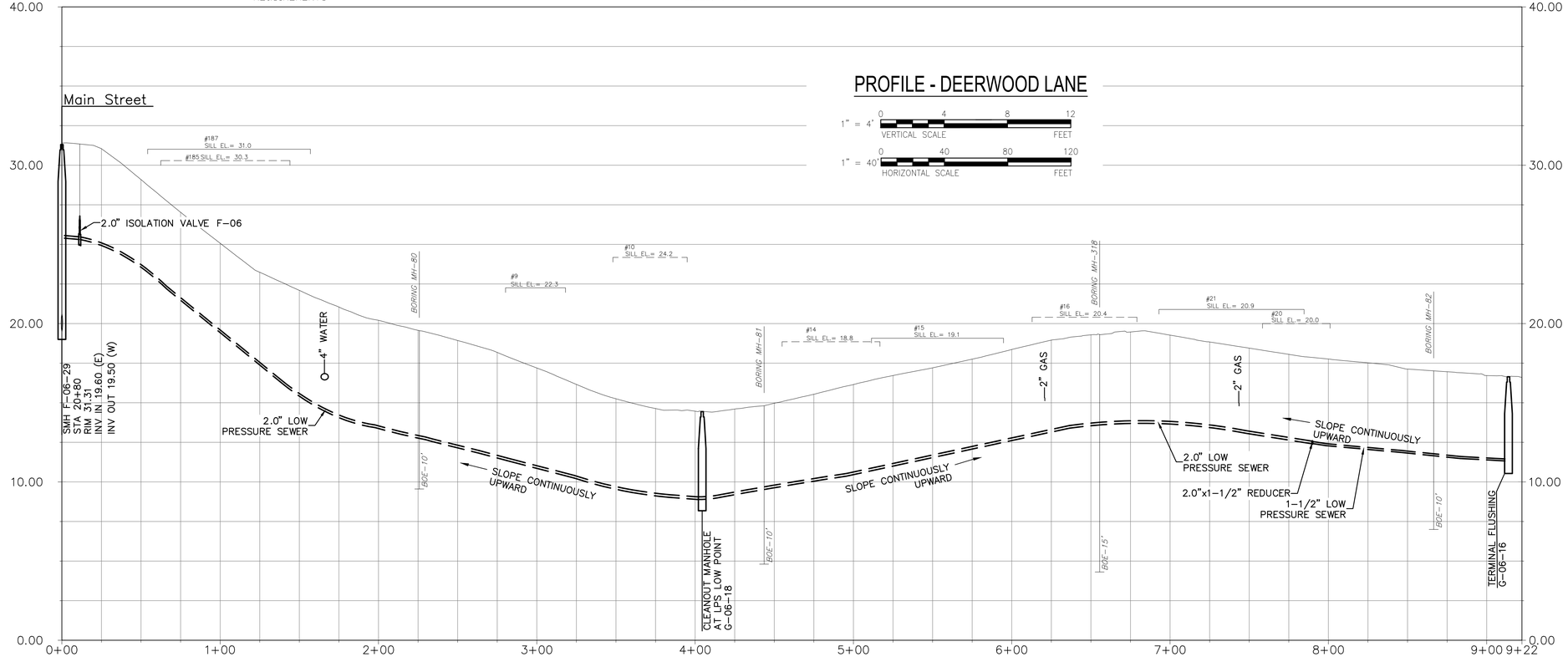
PLAN - DEERWOOD LANE

SCALE: 1"=40'

PROFILE - DEERWOOD LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

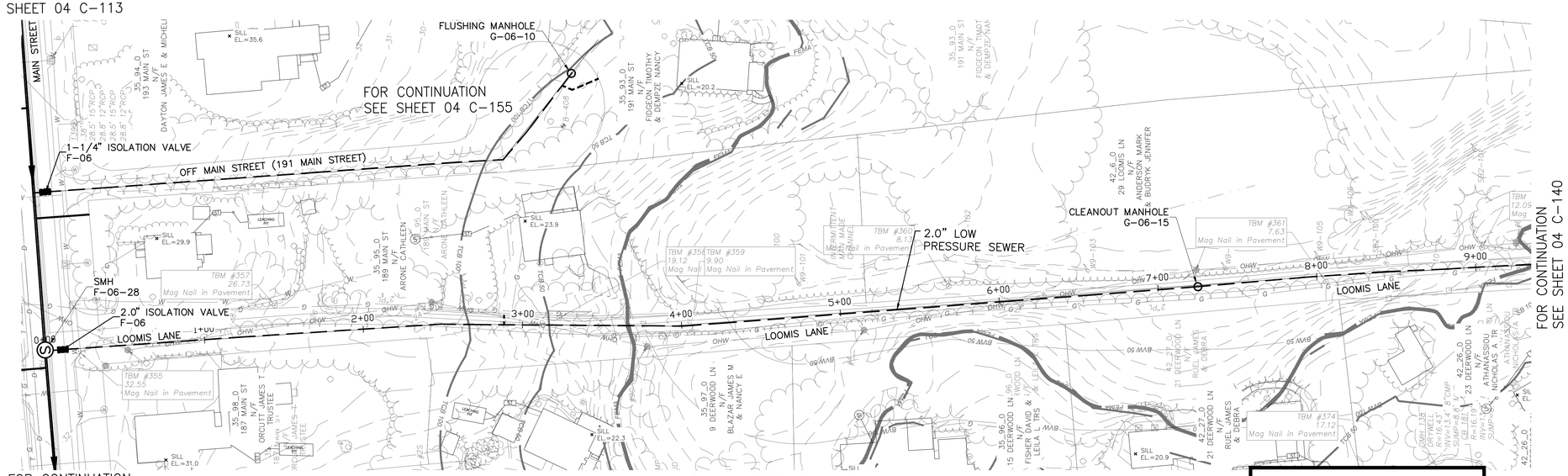
SHEET TITLE

PLAN AND PROFILE SEWER DEERWOOD LANE

SHEET NUMBER

04 C-138

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



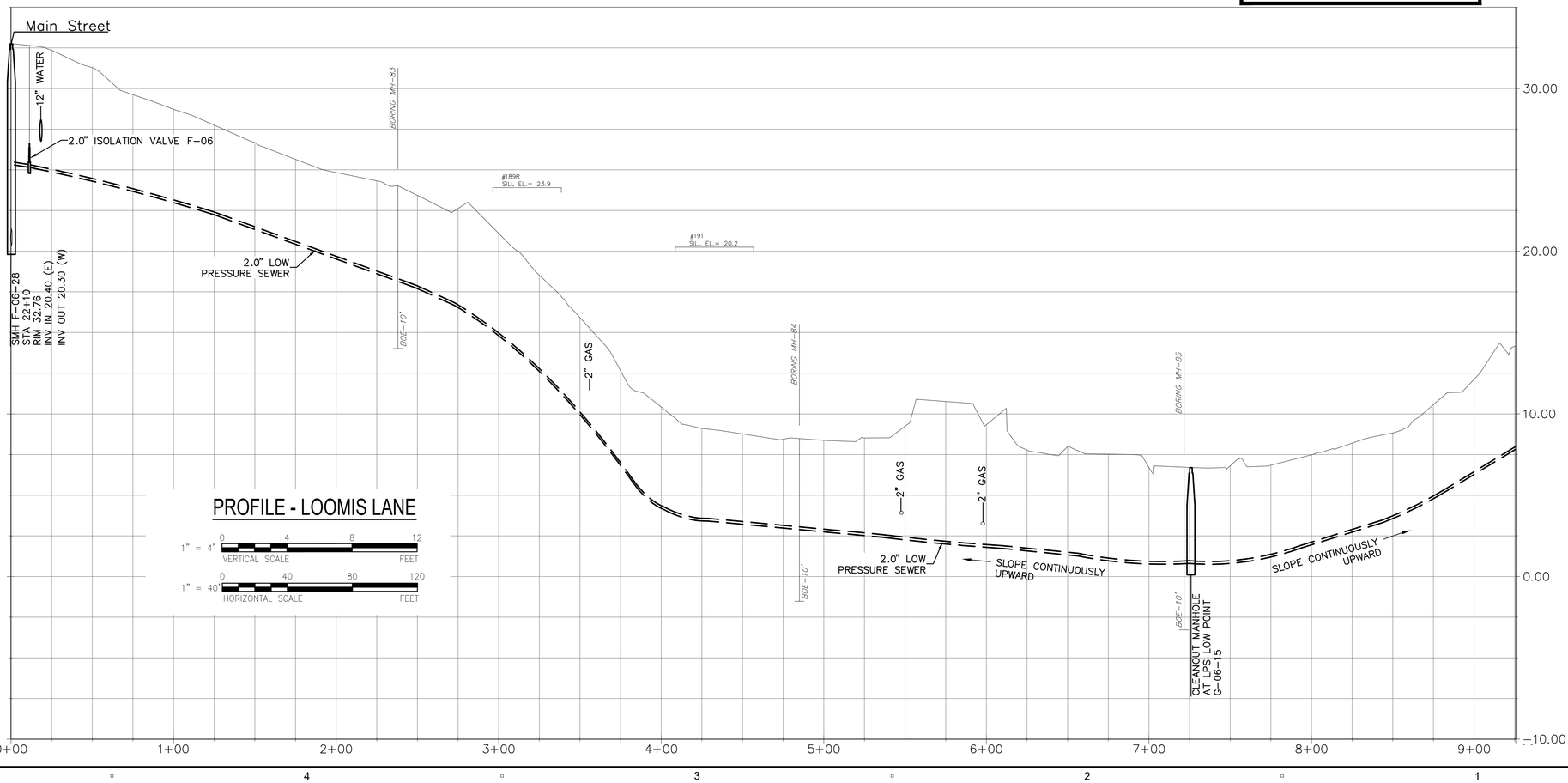
PLAN - LOOMIS LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - LOOMIS LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

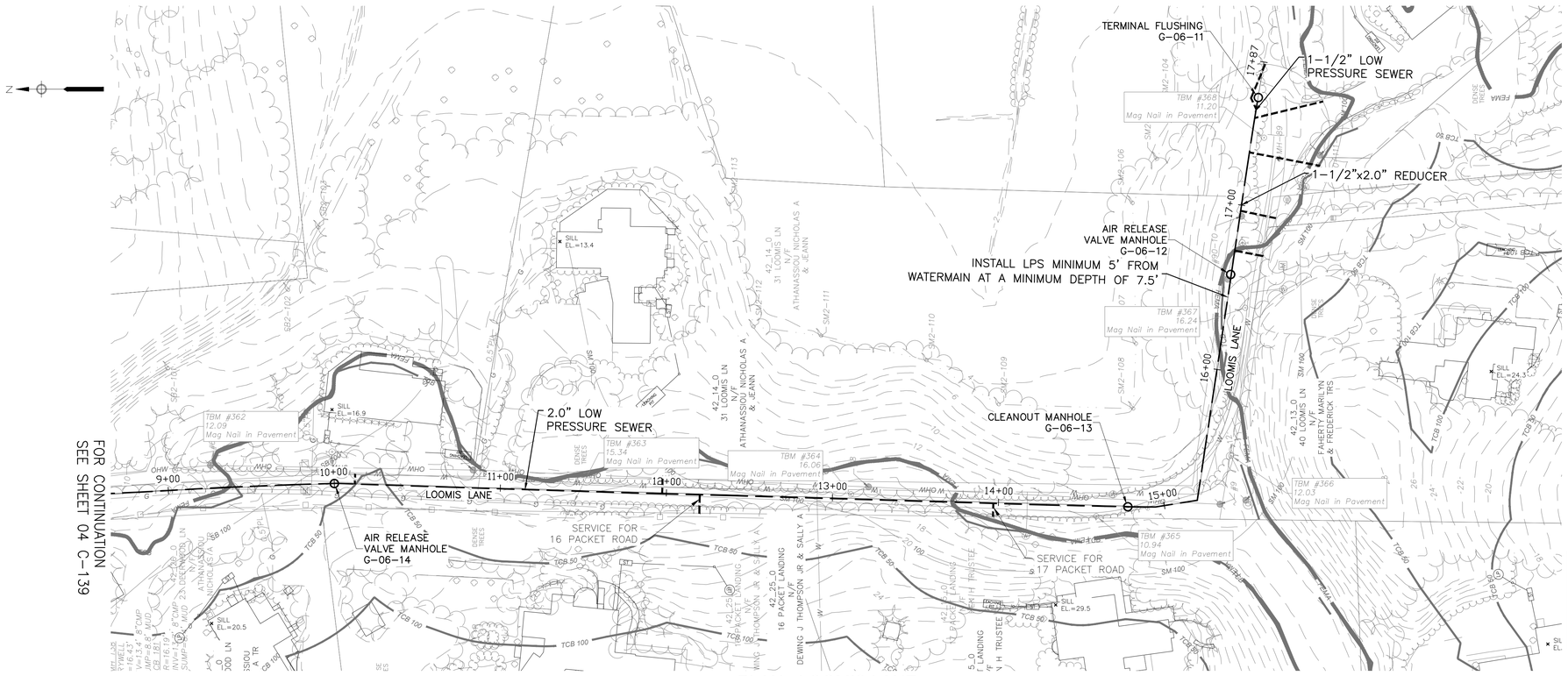
SHEET TITLE

PLAN AND PROFILE SEWER LOOMIS LANE

SHEET NUMBER

04 C-139

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



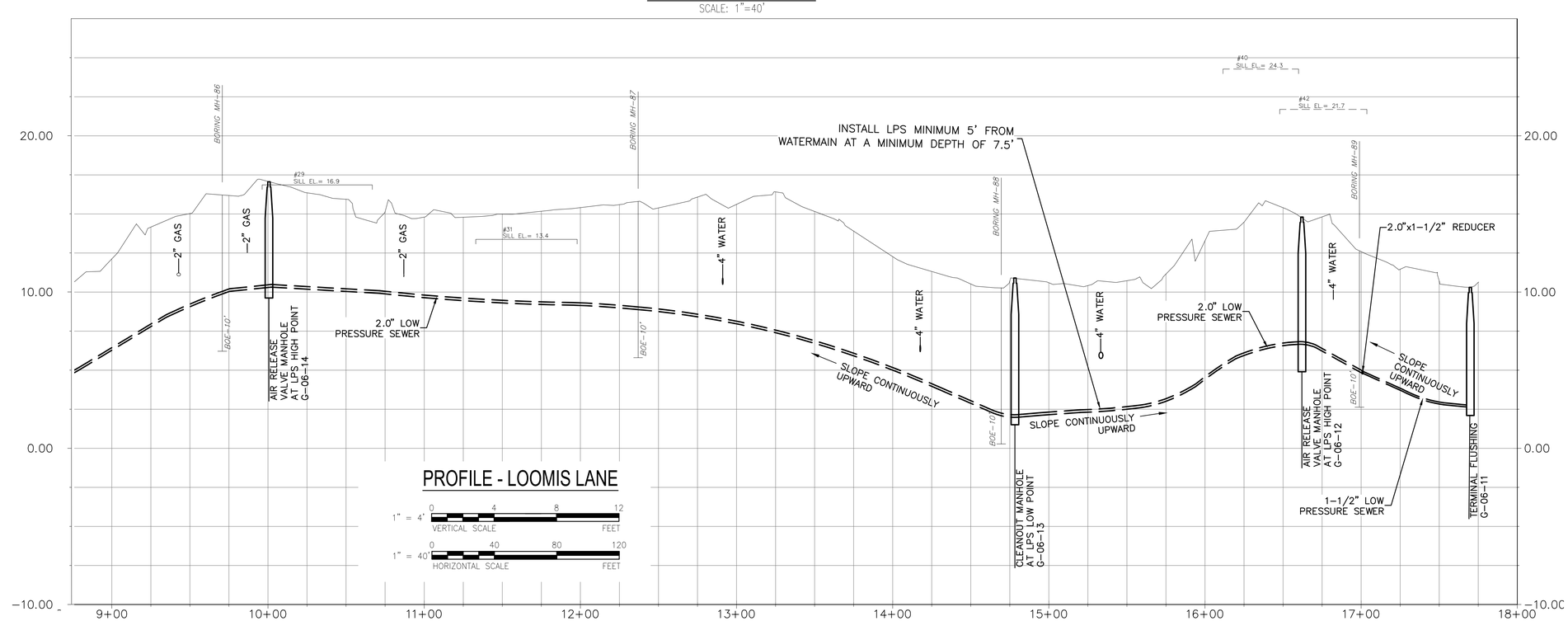
PLAN - LOOMIS LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - LOOMIS LANE

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/1/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

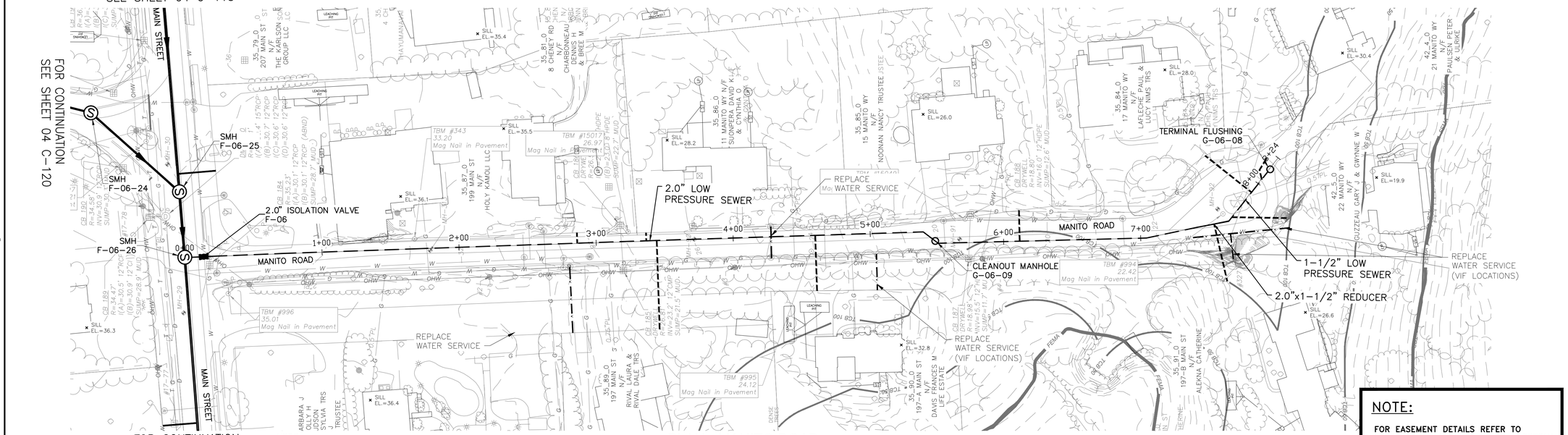
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER LOOMIS LANE

SHEET NUMBER

04 C-140

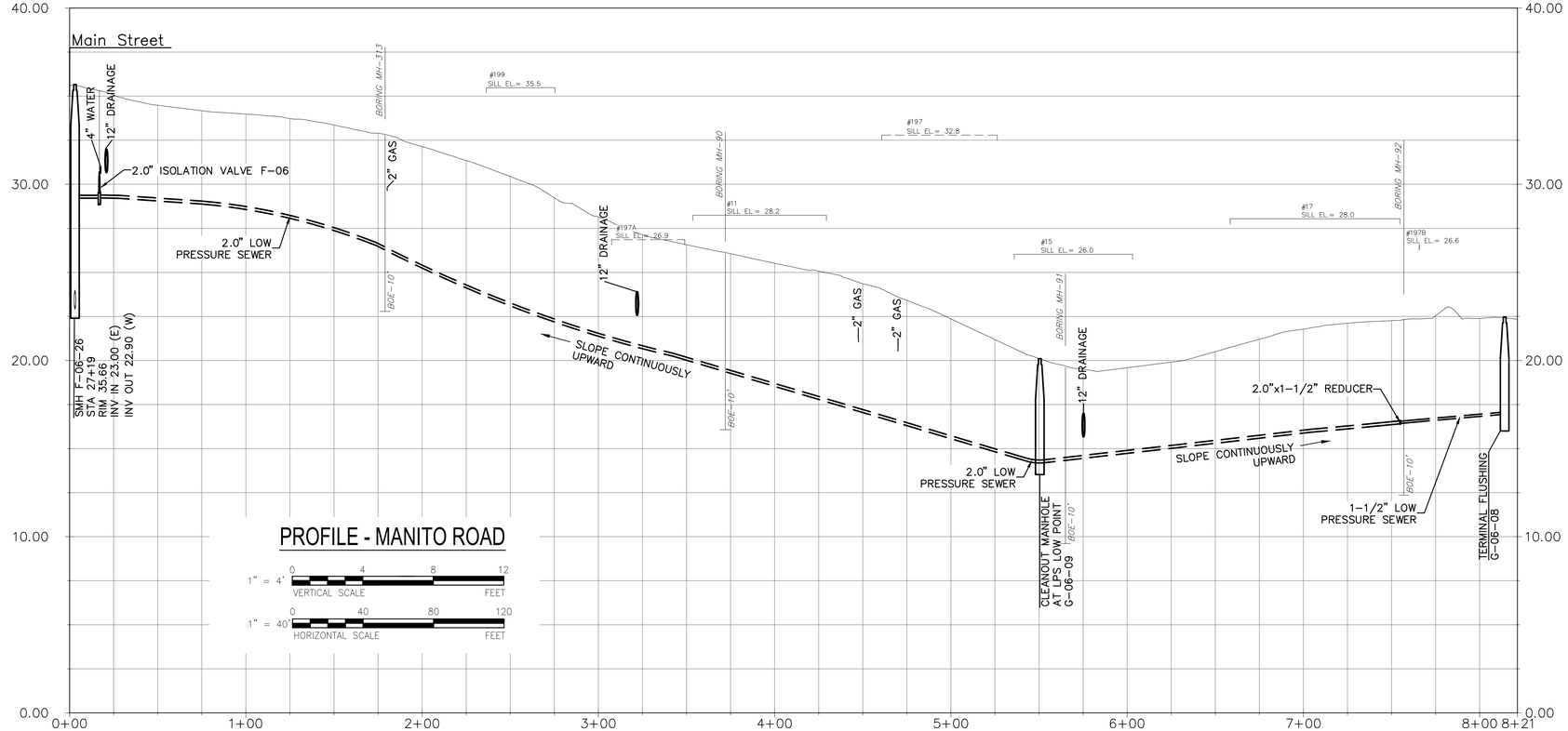


PLAN - MANITO ROAD

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - MANITO ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER MANITO ROAD

SHEET NUMBER

04 C-141

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-114

FOR CONTINUATION
SEE SHEET 04 C-114

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - CHENEY ROAD

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

PROFILE - CHENEY ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS\(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER CHENEY ROAD

SHEET NUMBER

04 C-142

FOR CONTINUATION
SEE SHEET 04 C-114

SMH F-06-08

SMH F-06-10

SMH F-06-09

2.0" ISOLATION VALVE F-06

2.0" LOW PRESSURE SEWER

FLUSHING MANHOLE G-06-04

REPLACE WATER SERVICE (VIF LOCATION)

REPLACE WATER SERVICE

MAIN STREET

LEWIS ROAD

0+00 1+00 2+00 3+00 4+00 5+00 6+00 6+46

TBM #329 37.89 Mag Nail in Pavement

TBM #336 40.84 Mag Nail in Pavement

TBM #800 34.12 Mag Nail in Pavement

TBM #337 28.12 Mag Nail in Pavement

TBM #801 15.95 Mag Nail in Pavement

36_18_1 N/F 220 MAIN ST - 220 MAIN STREET, LLC - 218 MAIN ST - GOULD MARY S

36_17_0 216 MAIN ST N/F KAVANAGH KRISTINE M

35_70_0 212 MAIN ST N/F KAVANAGH KRISTINE

36_153_0 219 MAIN ST N/F BOYD WHITFORD G & MARGARET

36_154_0 217 MAIN ST N/F ABEL DAVID & PORCARI MARY ANNE

36_155_0 7 LEWIS RD N/F BESSON RICHARD

36_152_0 221 MAIN ST N/F MEGISON FRANCIS & MARY

36_156_0 9 LEWIS RD N/F KUBSCH WILLIAM TRUSTEE

36_157_0 14 LEWIS RD N/F NW PETER D & JOAN P TRUSTEES

35_72_0 6 LEWIS RD N/F RITA RICHARD P & DEBORAH R

35_71_0 10 LEWIS RD N/F CANTOR SHARI G & MICHAEL A TRS

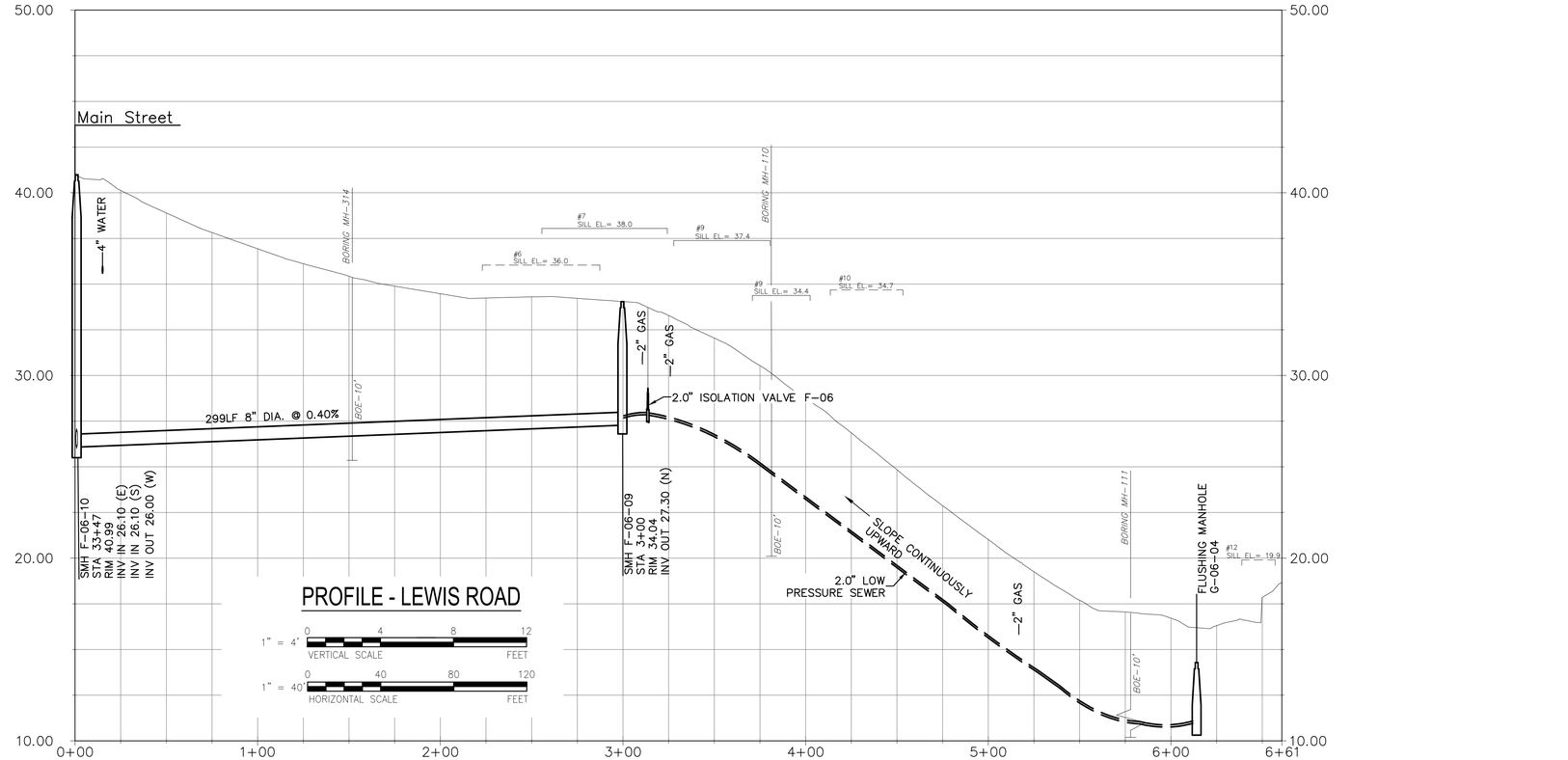
35_74_0 12 LEWIS RD N/F CANTOR SHARI G & MICHAEL A TRS

35_71_1 N/F RITA KEVIN G & BURNEP JULIE A - TRAINOR LANCE F & SUSAN G

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - LEWIS ROAD

SCALE: 1"=40'



PROFILE - LEWIS ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/1/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER LEWIS ROAD

SHEET NUMBER

04 C-143

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-127

FOR CONTINUATION
SEE SHEET 04 C-116

FOR CONTINUATION
SEE SHEET 04 C-145

FOR CONTINUATION
SEE SHEET 04 C-115

SMH F-07-08
SMH F-07-09
SMH F-07-15
SMH F-07-14
SMH F-07-13
SMH F-07-12
SMH G-07-08

BARLEY NECK ROAD
GRIST ROAD
HIGH TIDE LANE

REPLACE WATER SERVICES
REPLACE WATER SERVICE
REPLACE WATER SERVICE (VIF LOCATION)

2.0"x1-1/2" REDUCER
2.0" LOW PRESSURE SEWER
2.0" ISOLATION VALVE
1-1/2" LOW PRESSURE SEWER
TERMINAL FLUSHING G-06-02

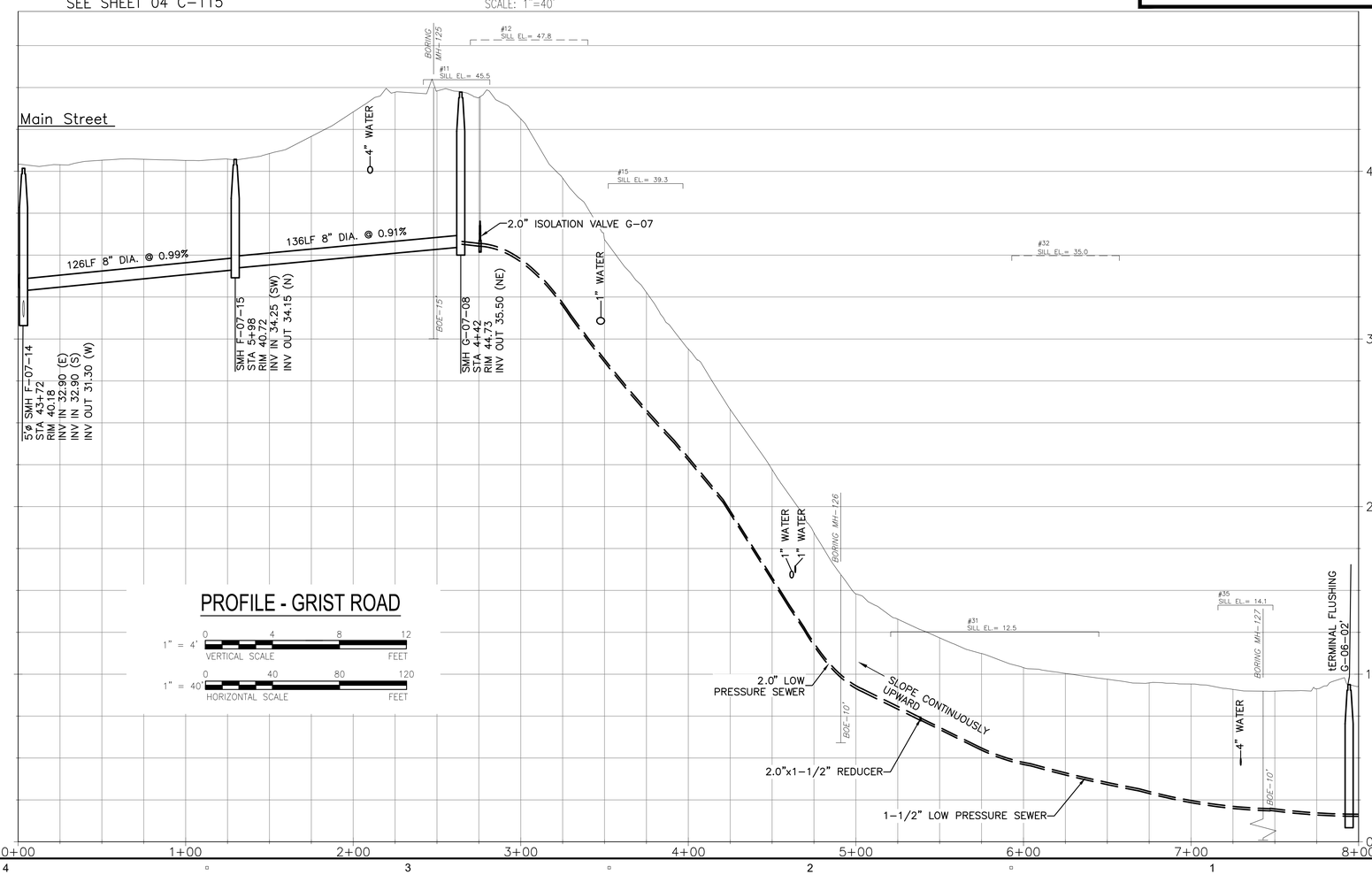
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 8+18

PLAN - GRIST ROAD

SCALE: 1"=40'

NOTE:
FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - GRIST ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

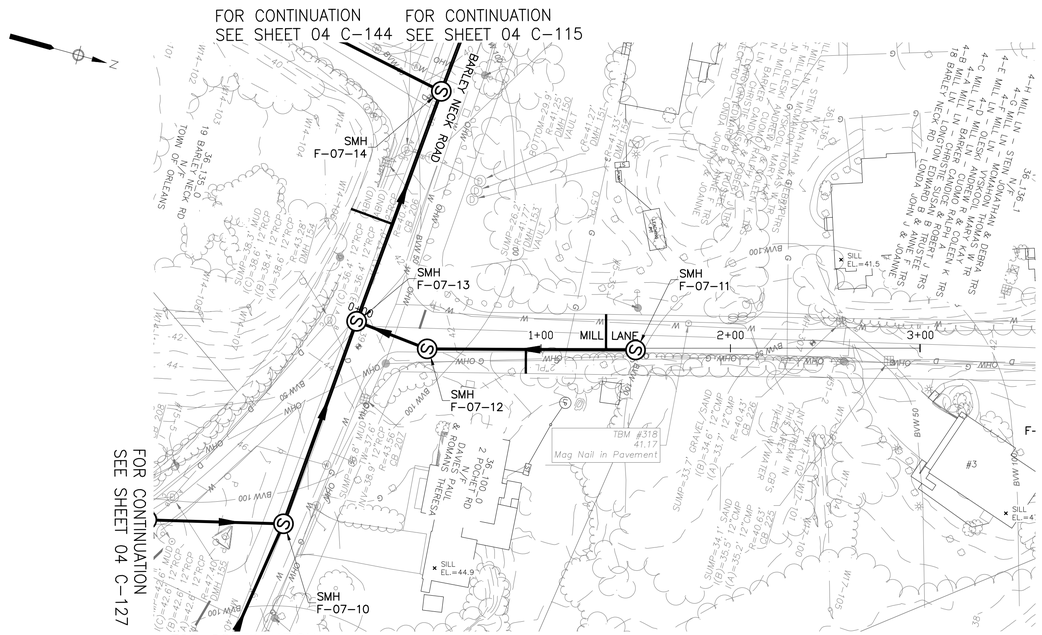
SHEET TITLE

PLAN AND PROFILE SEWER GRIST ROAD

SHEET NUMBER

04 C-144

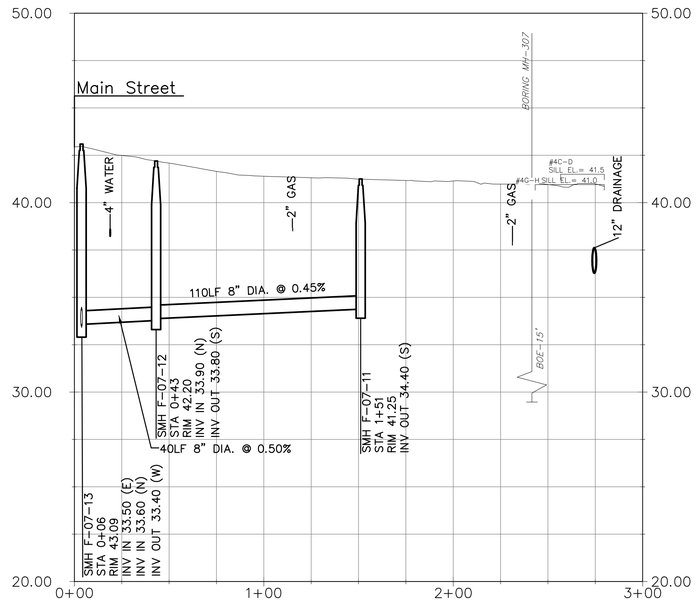
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - MILL LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - MILL LANE

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

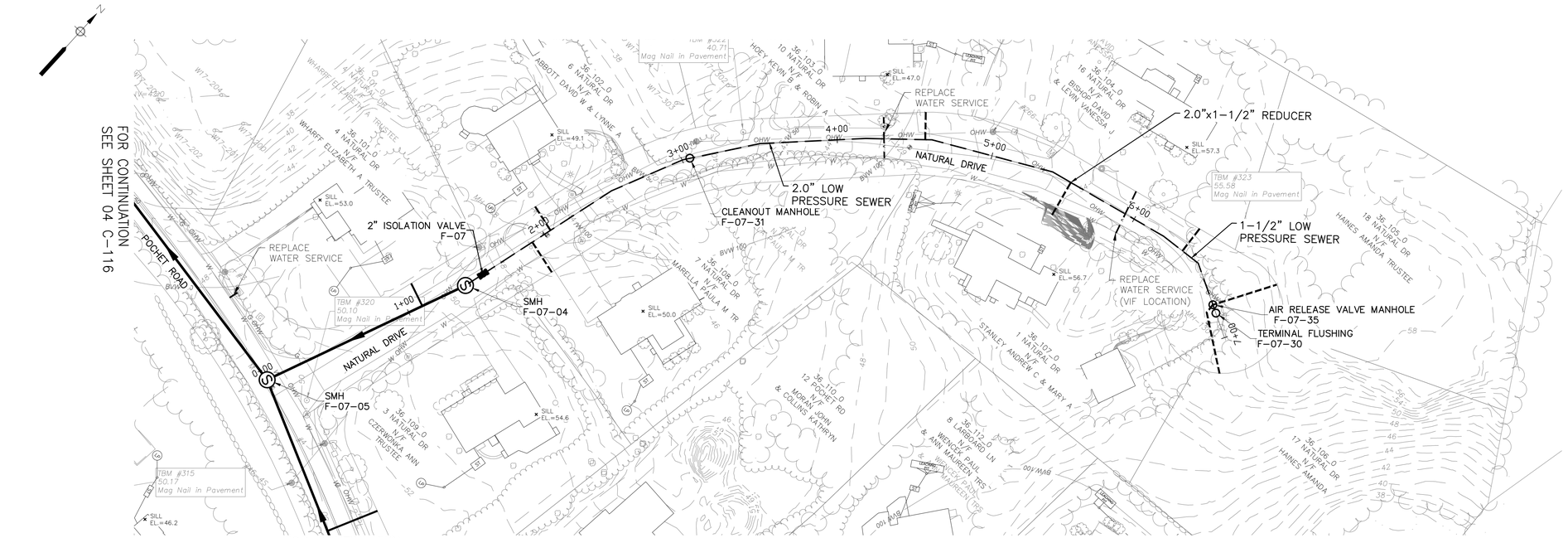
SHEET TITLE

PLAN AND PROFILE SEWER MILL LANE

SHEET NUMBER

04 C-145

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



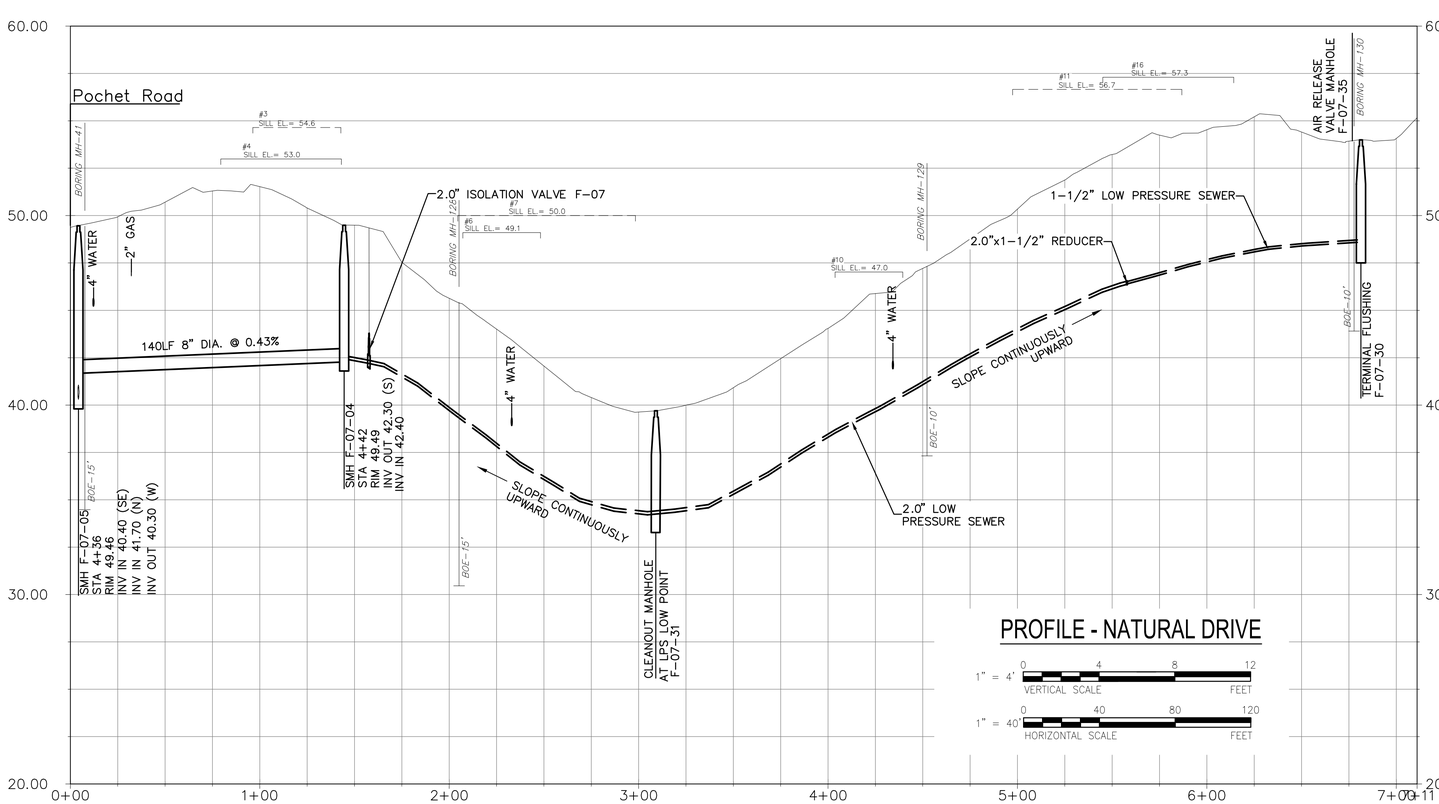
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - NATURAL DRIVE

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - NATURAL DRIVE

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA

19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

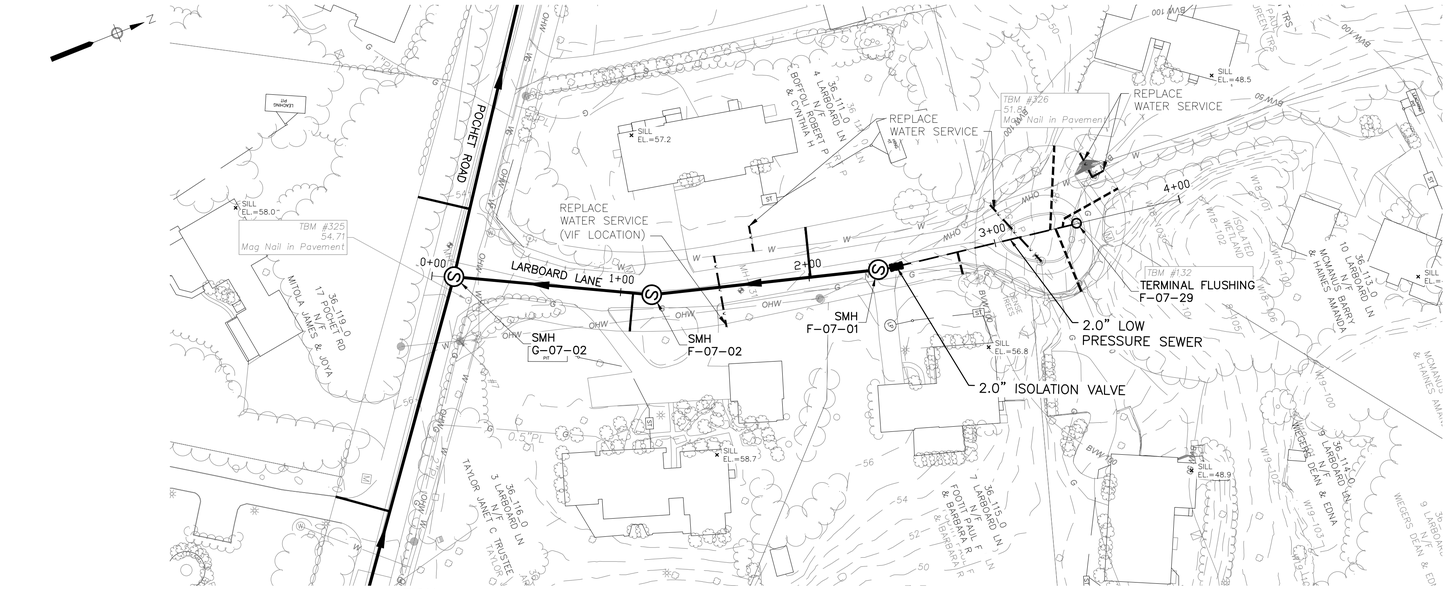
SHEET TITLE

PLAN AND PROFILE SEWER NATURAL DRIVE

SHEET NUMBER

04 C-146

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



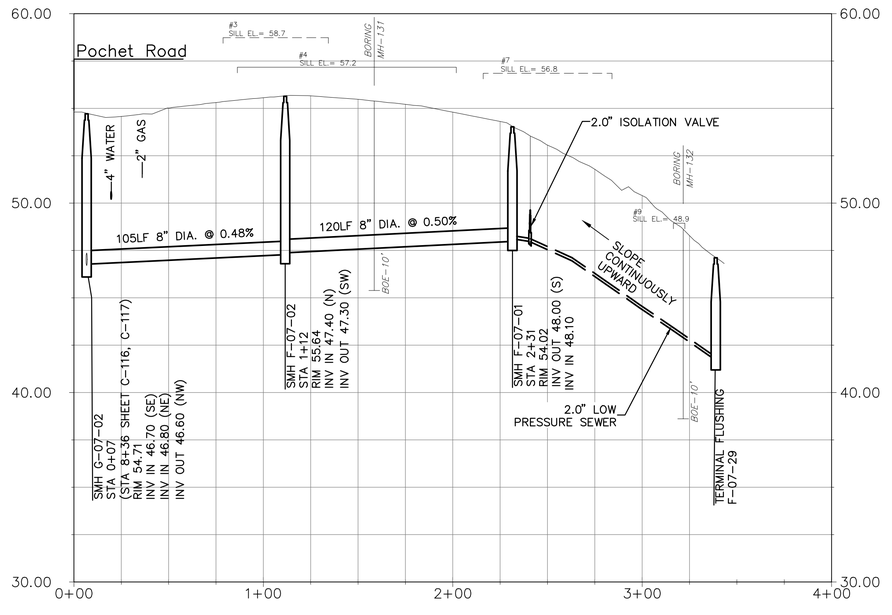
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - LARBOARD LANE

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - LARBOARD LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

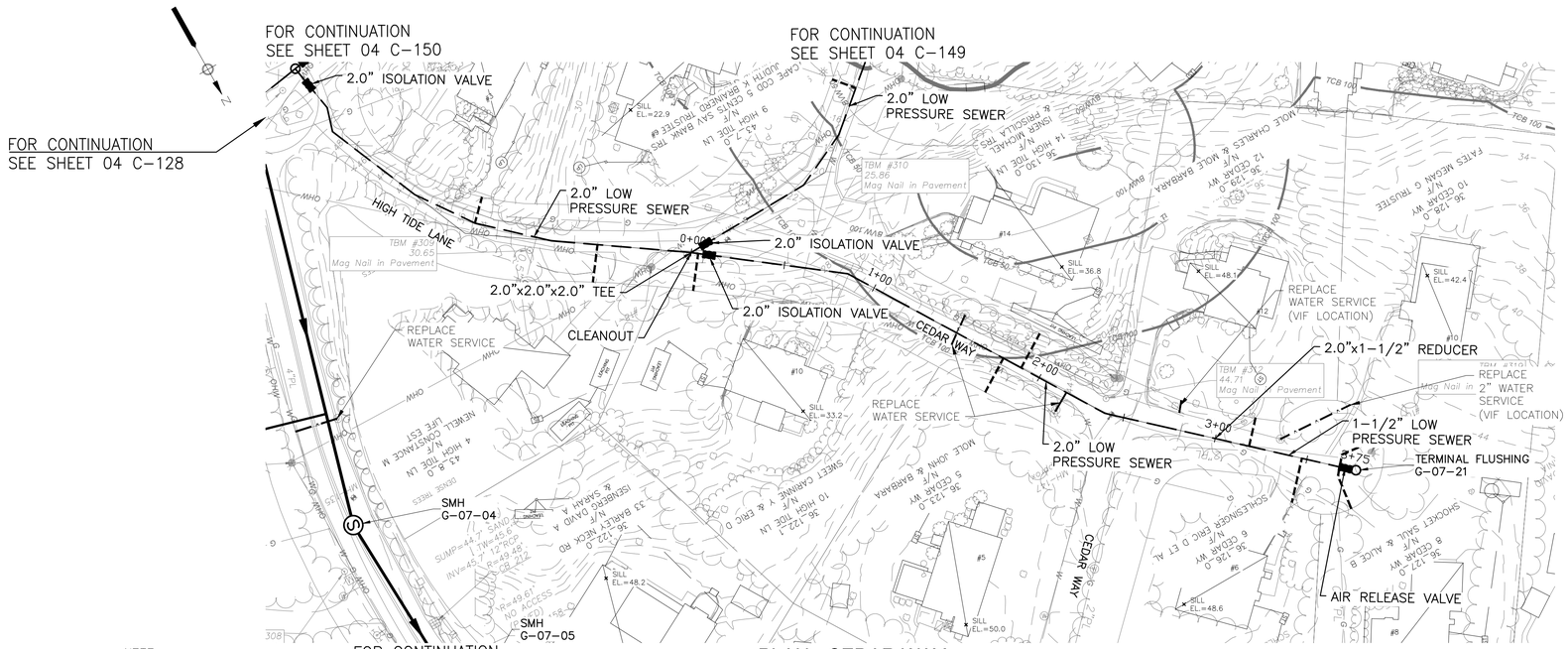
SHEET TITLE

PLAN AND PROFILE SEWER LARBOARD LANE

SHEET NUMBER

04 C-147

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



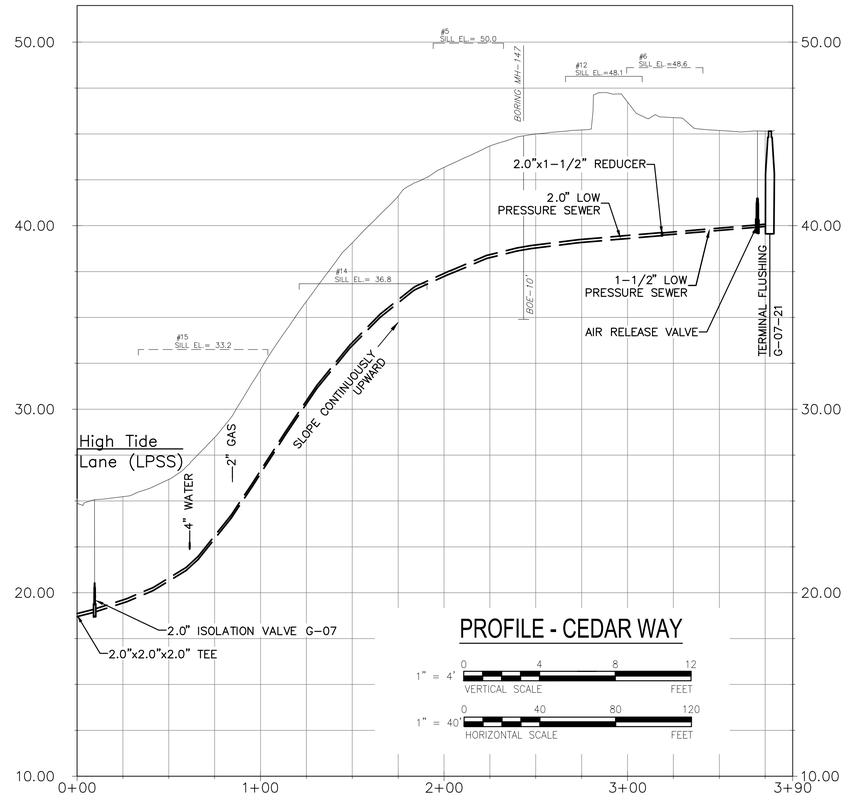
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - CEDAR WAY

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - CEDAR WAY

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

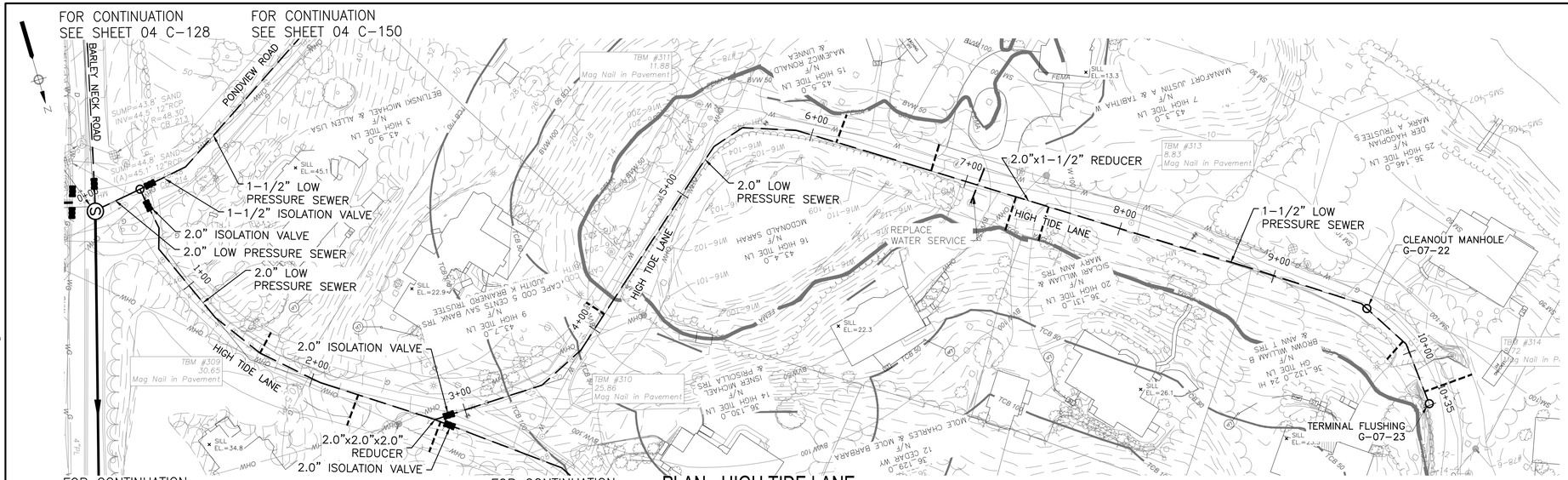
SHEET TITLE

PLAN AND PROFILE SEWER CEDAR WAY

SHEET NUMBER

04 C-148

Last saved by: GREBENNIKOVS\(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



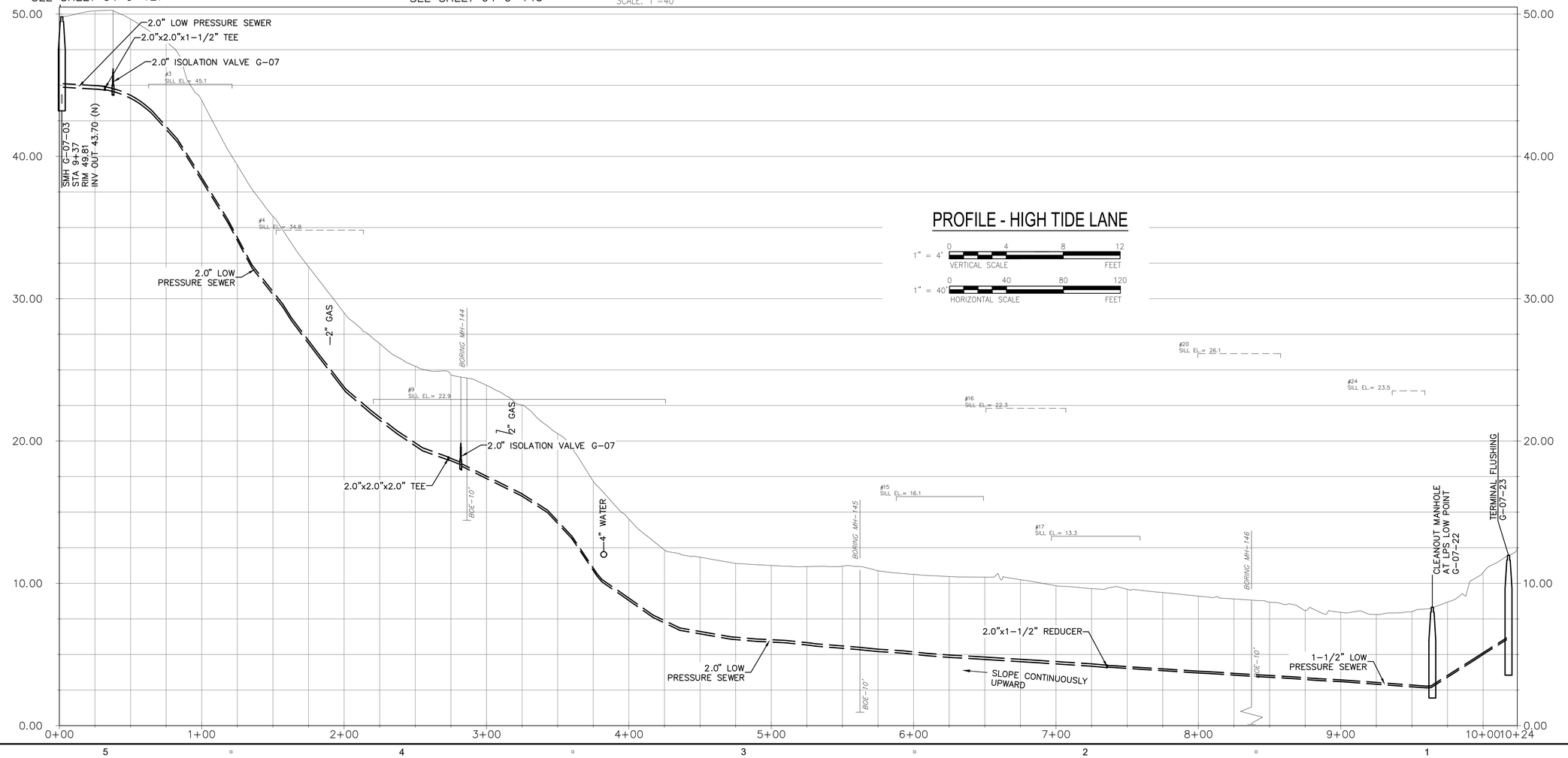
PLAN - HIGH TIDE LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - HIGH TIDE LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

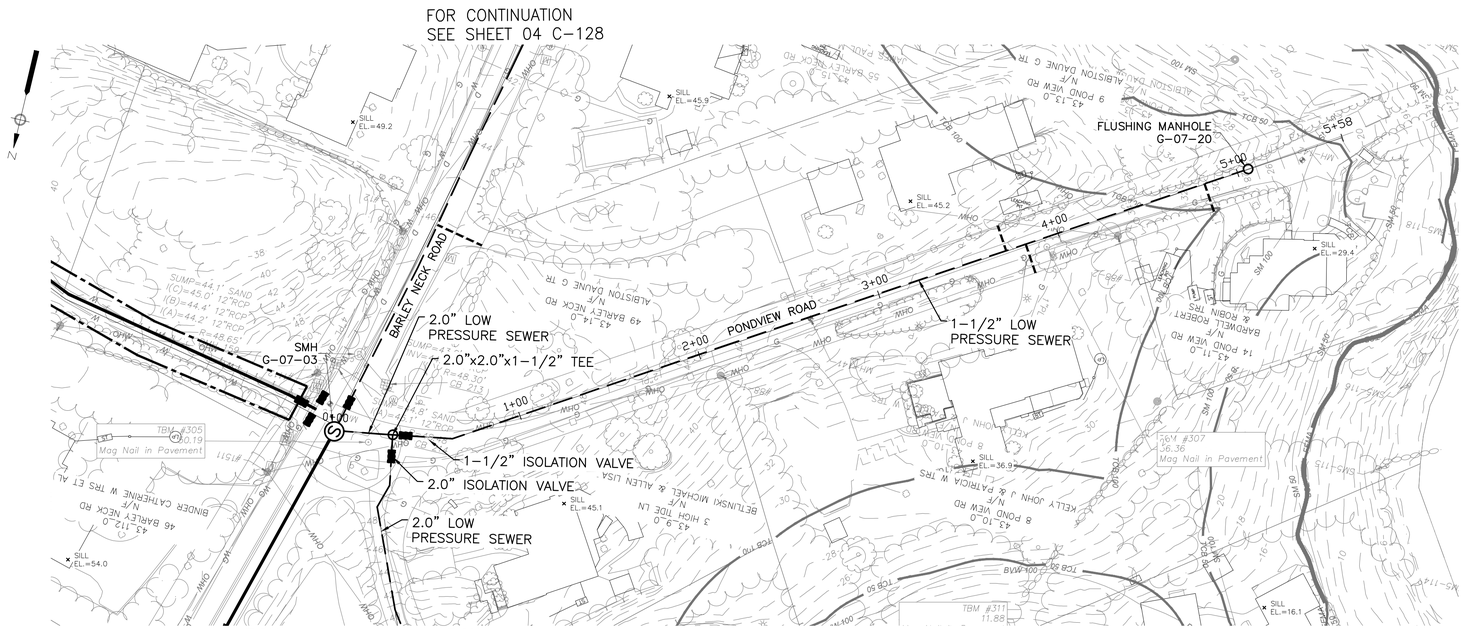
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER HIGH TIDE LANE

SHEET NUMBER

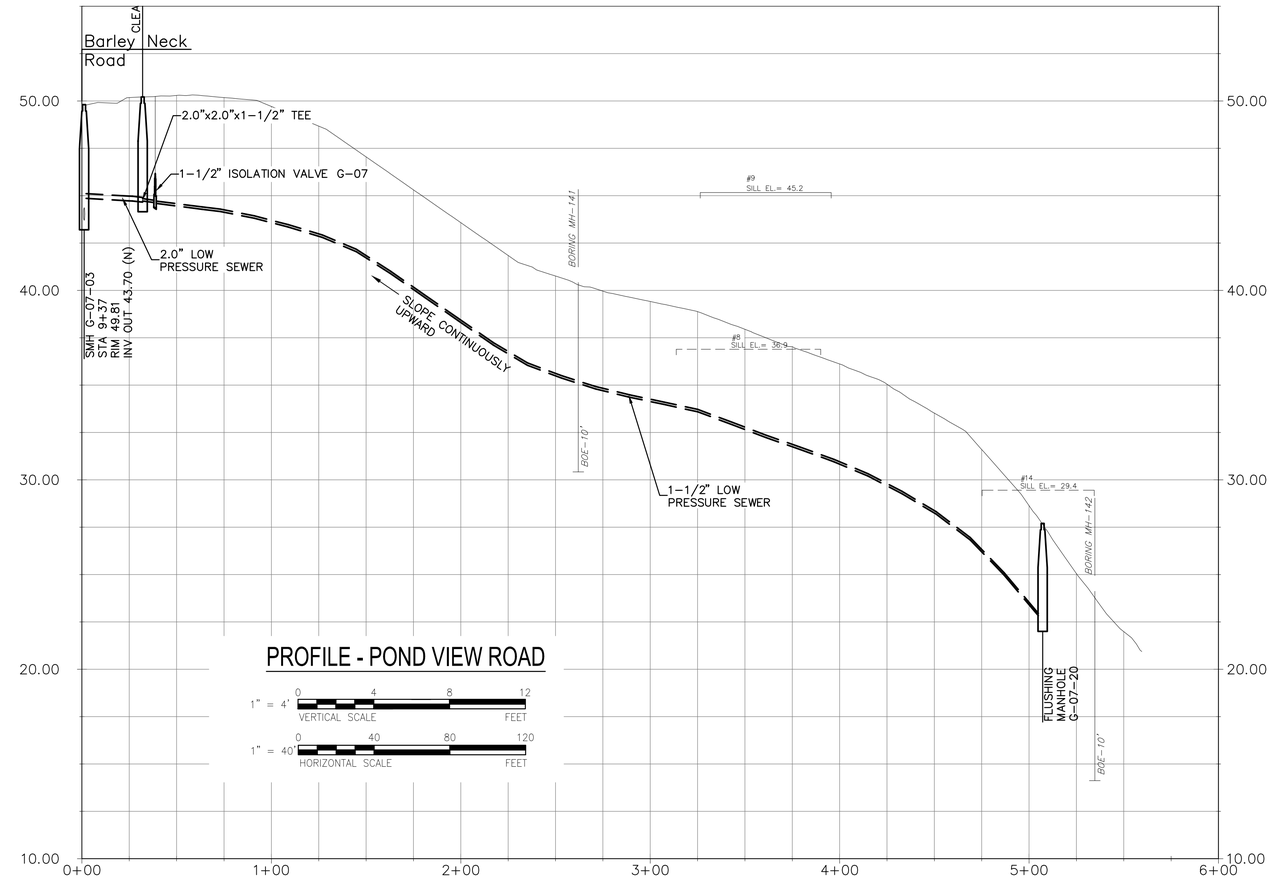
04 C-149



PLAN - POND VIEW ROAD

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - POND VIEW ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

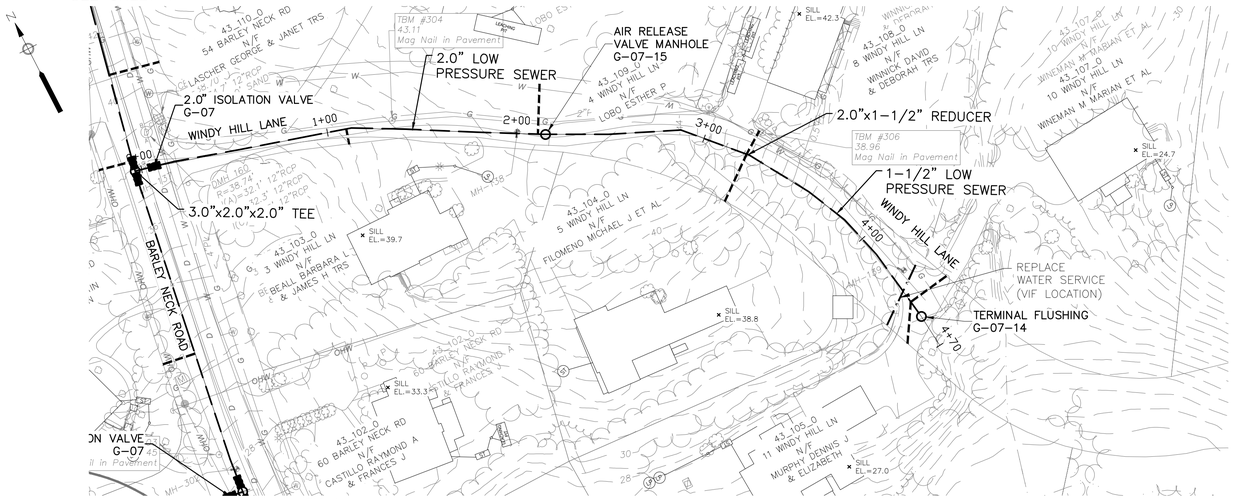
SHEET TITLE

PLAN AND PROFILE SEWER POND VIEW ROAD

SHEET NUMBER

04 C-150

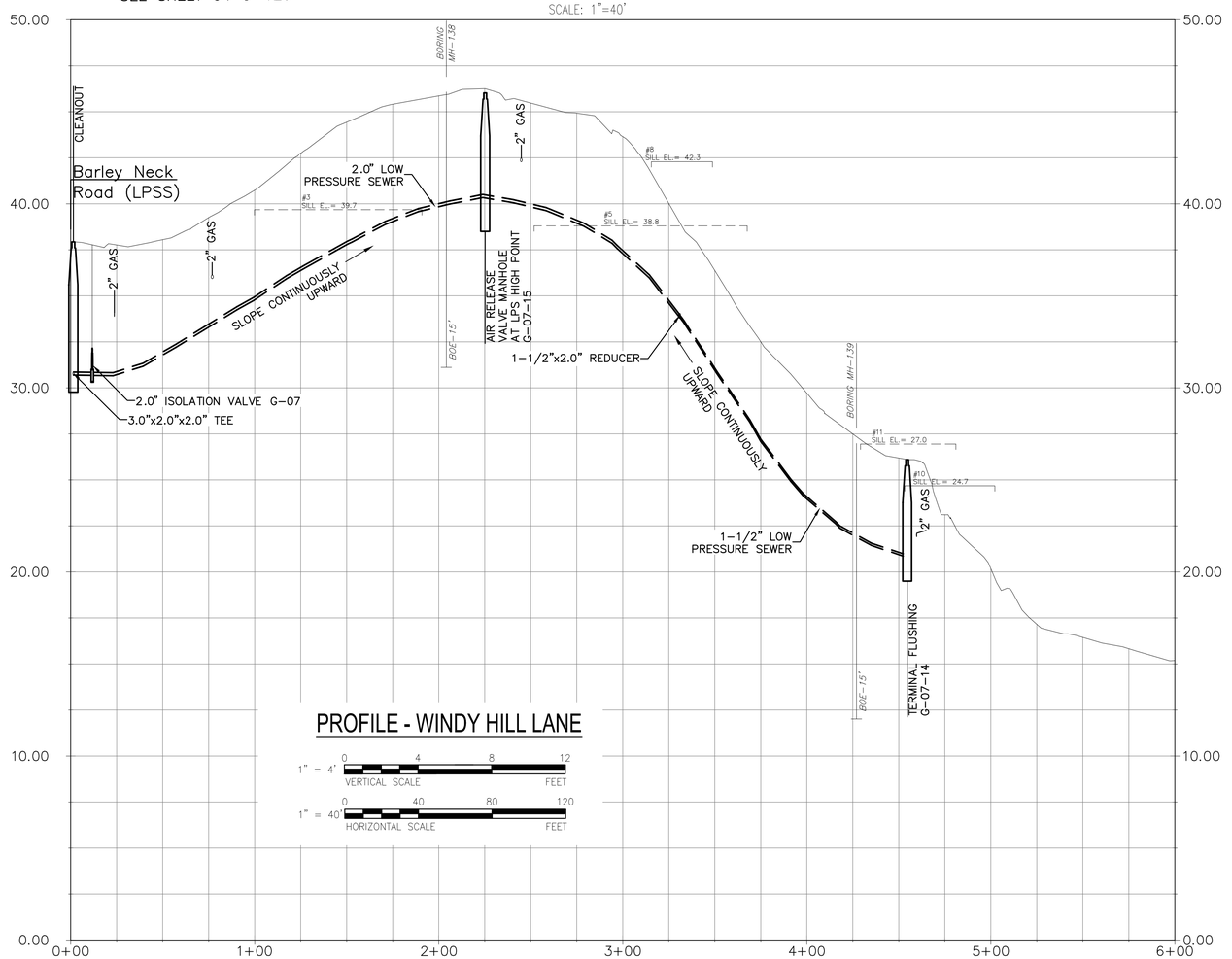
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - WINDY HILL LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - WINDY HILL LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

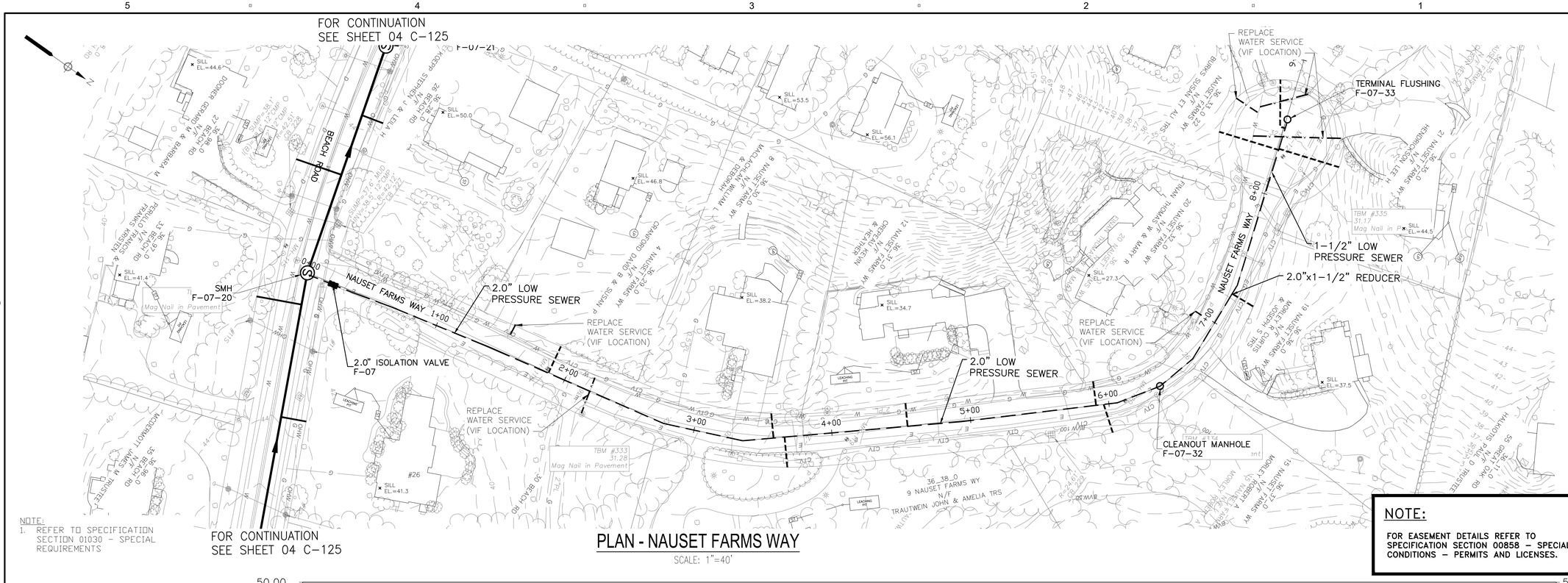
SHEET TITLE

PLAN AND PROFILE SEWER WINDY HILL LANE

SHEET NUMBER

04 C-151

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



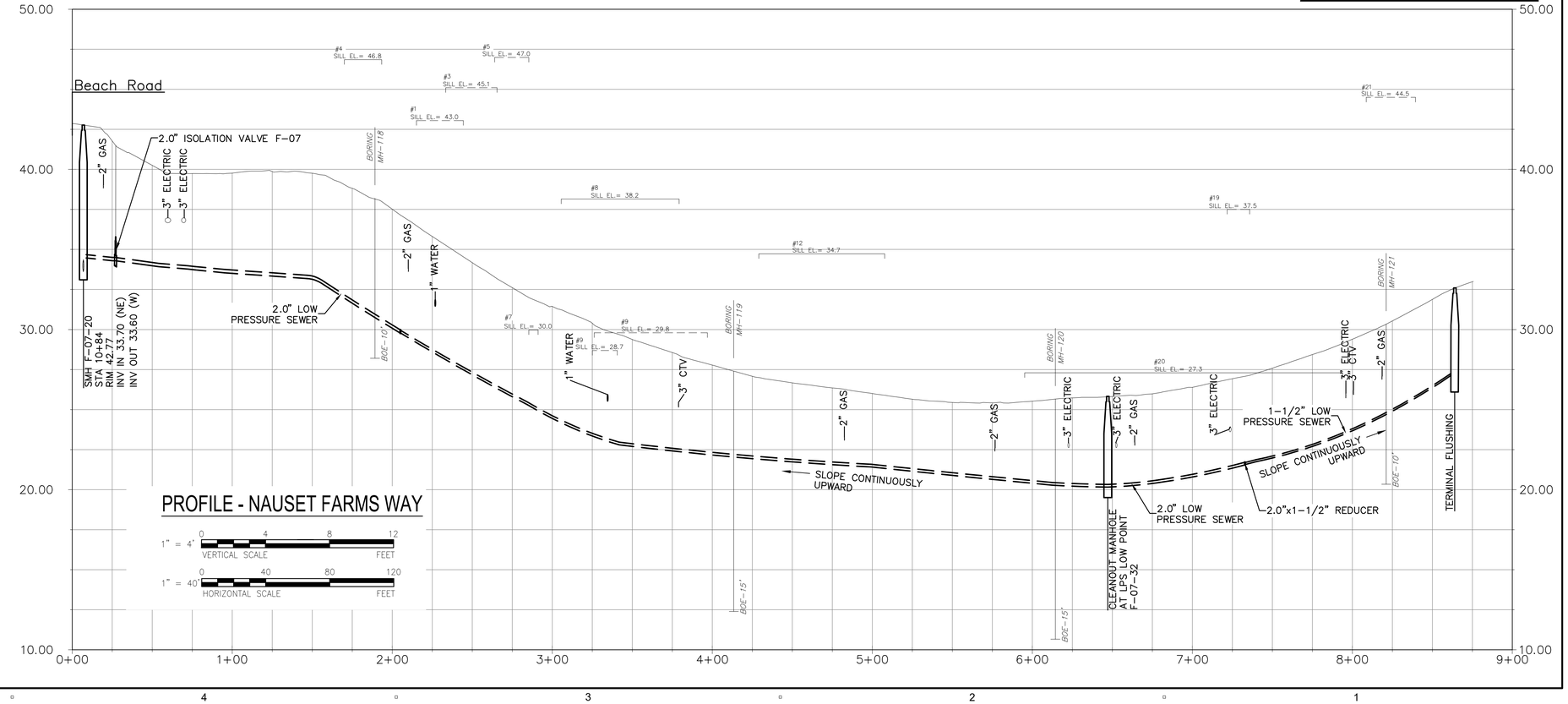
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - NAUSET FARMS WAY

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - NAUSET FARMS WAY

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

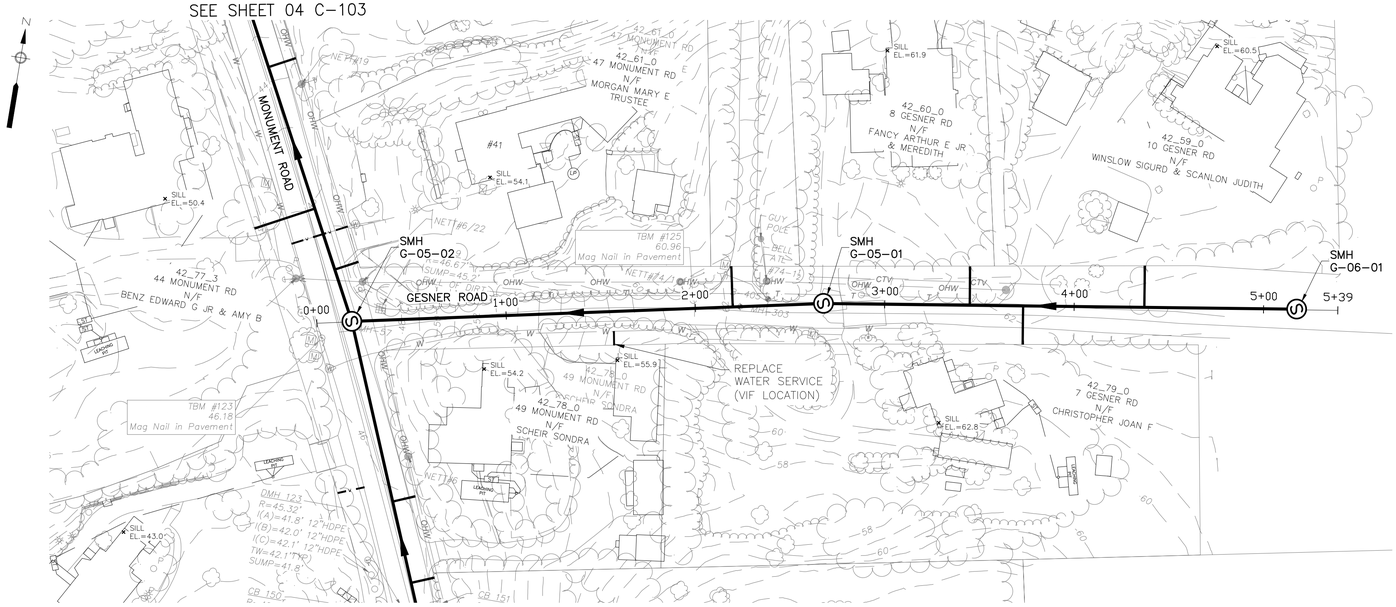
SHEET TITLE

PLAN AND PROFILE SEWER NAUSET FARMS WAY

SHEET NUMBER

04 C-152

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



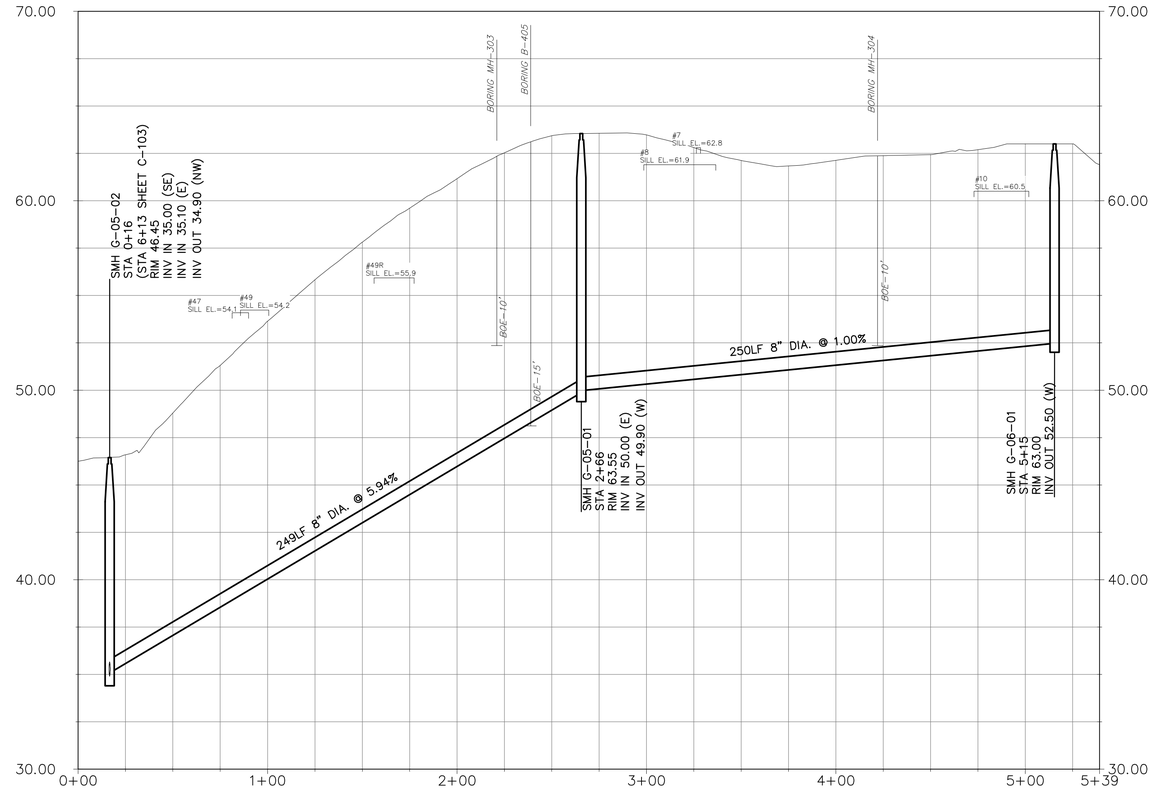
NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - GESNER ROAD

SCALE: 1"=40'

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.



PROFILE - GESNER ROAD

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/31/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

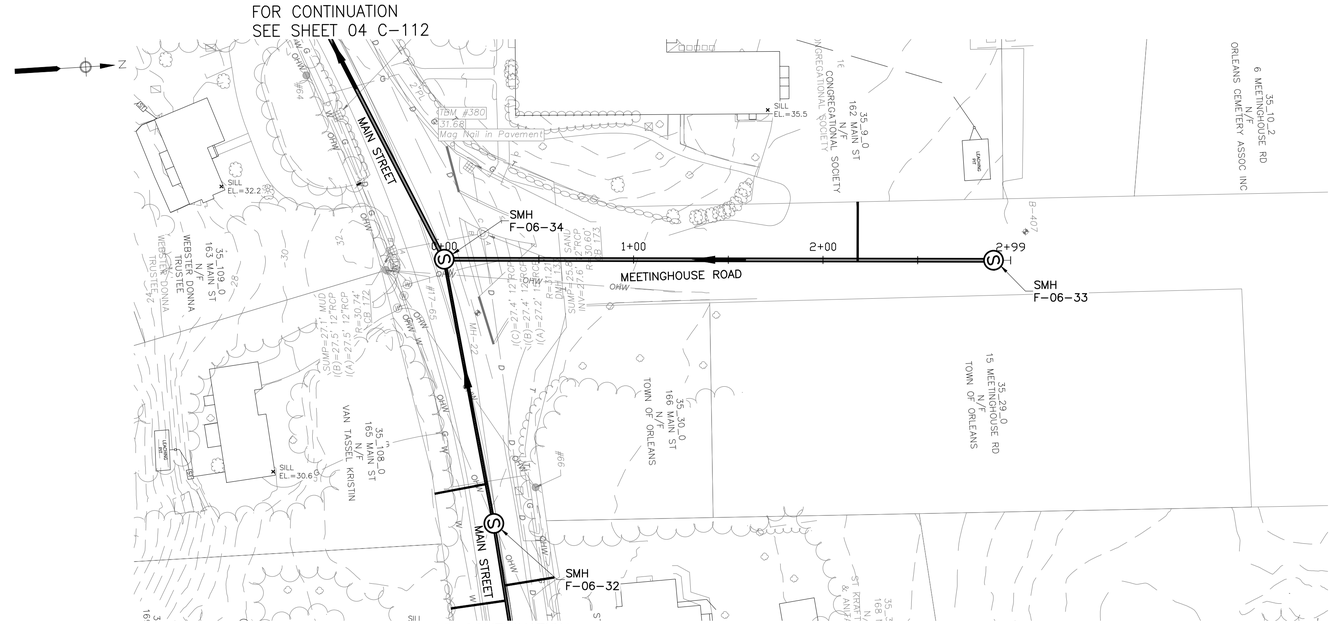
SHEET TITLE

PLAN AND PROFILE SEWER GESNER ROAD

SHEET NUMBER

04 C-153

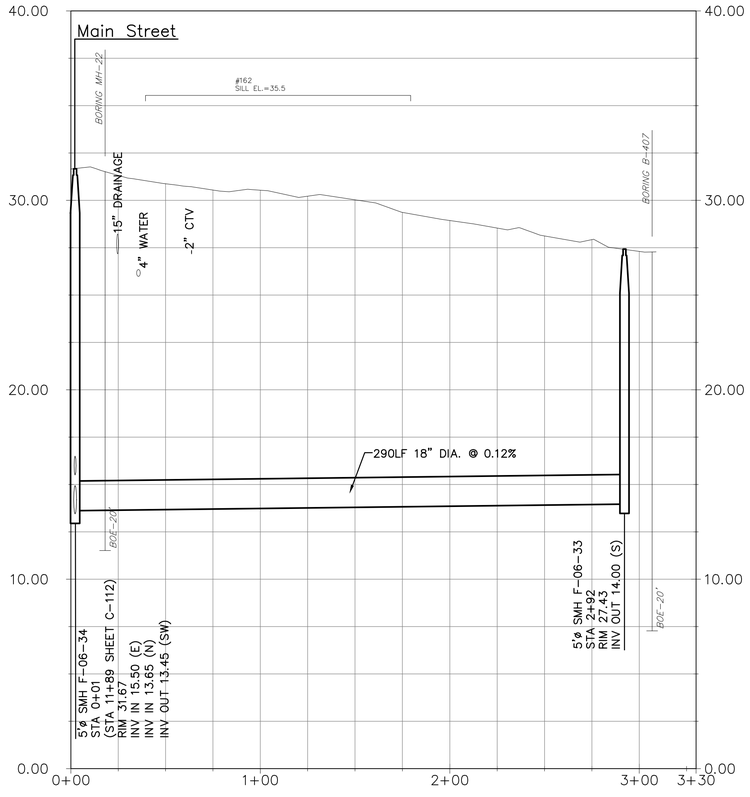
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PLAN - MEETINGHOUSE ROAD

SCALE: 1"=40'



PROFILE - MEETINGHOUSE ROAD

1" = 4' VERTICAL SCALE 0 4 8 12 FEET

1" = 40' HORIZONTAL SCALE 0 40 80 120 FEET

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/1/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

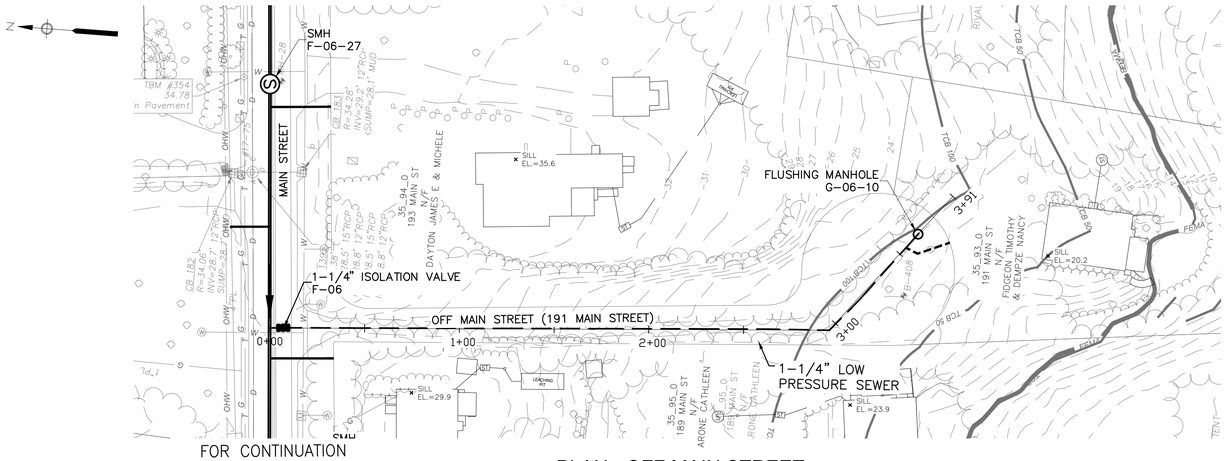
CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER MEETINGHOUSE ROAD

SHEET NUMBER

04 C-154



PLAN - OFF MAIN STREET
(191 MAIN STREET)

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

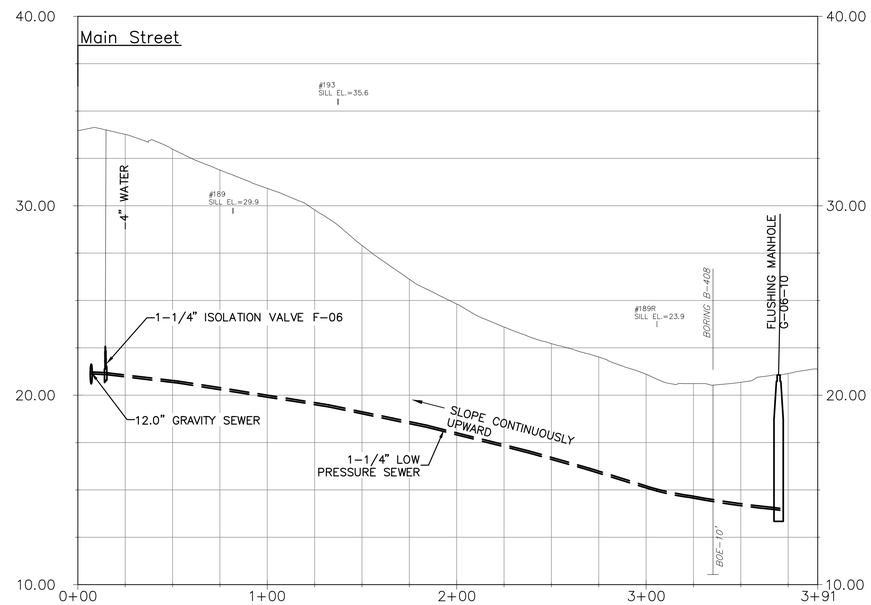
NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

PROFILE - OFF MAIN STREET
(191 MAIN STREET)

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PLAN AND PROFILE SEWER OFF MAIN STREET (191 MAIN STREET)

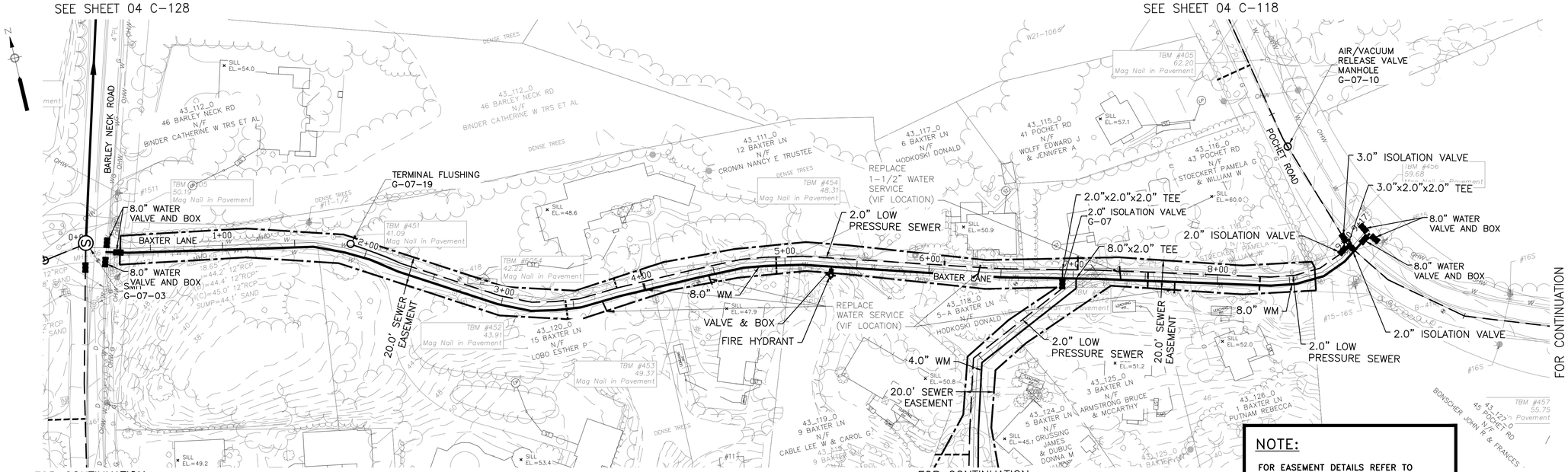
SHEET NUMBER

04 C-155

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG

FOR CONTINUATION
SEE SHEET 04 C-128

FOR CONTINUATION
SEE SHEET 04 C-118



PLAN - BAXTER LANE

SCALE: 1"=40'

FOR CONTINUATION
SEE SHEET 04 C-157

NOTE:

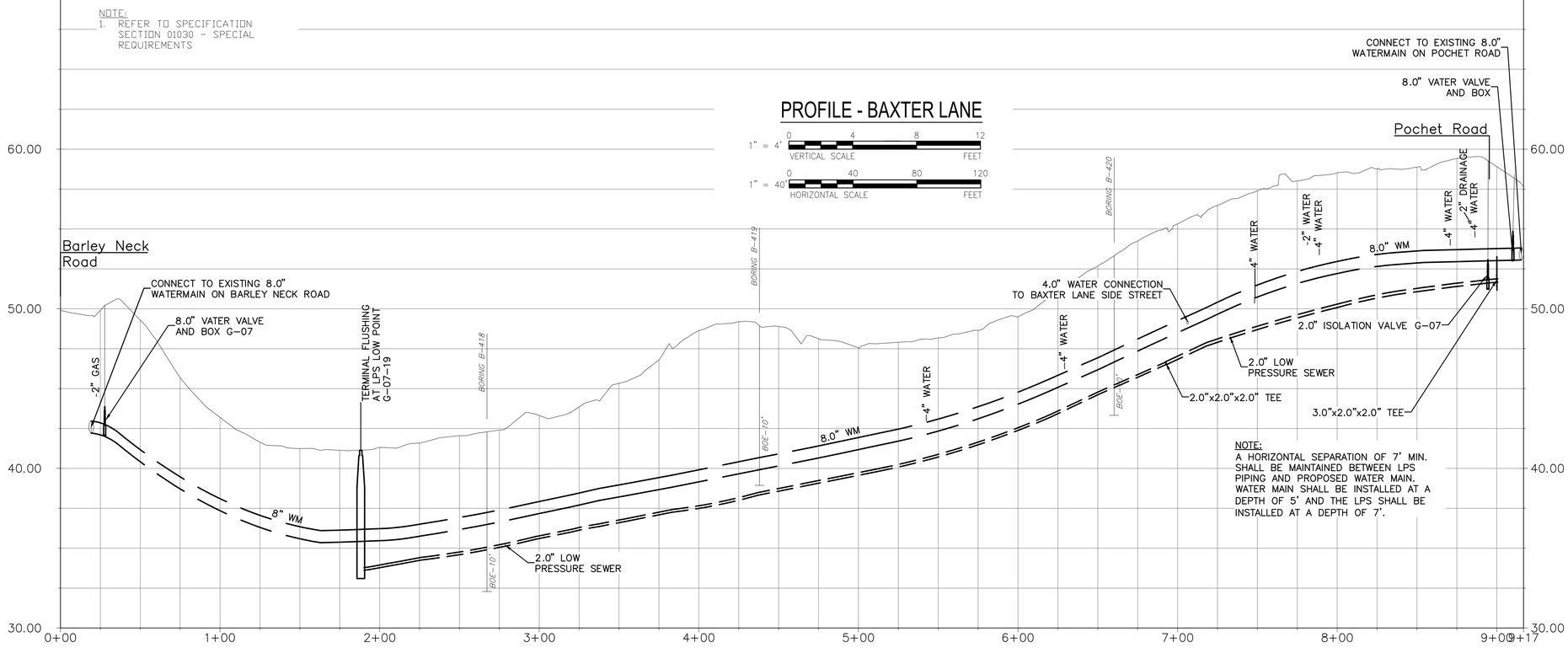
FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS

PROFILE - BAXTER LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)



NOTE:
A HORIZONTAL SEPARATION OF 7' MIN. SHALL BE MAINTAINED BETWEEN LPS PIPING AND PROPOSED WATER MAIN. WATER MAIN SHALL BE INSTALLED AT A DEPTH OF 5' AND THE LPS SHALL BE INSTALLED AT A DEPTH OF 7'.

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

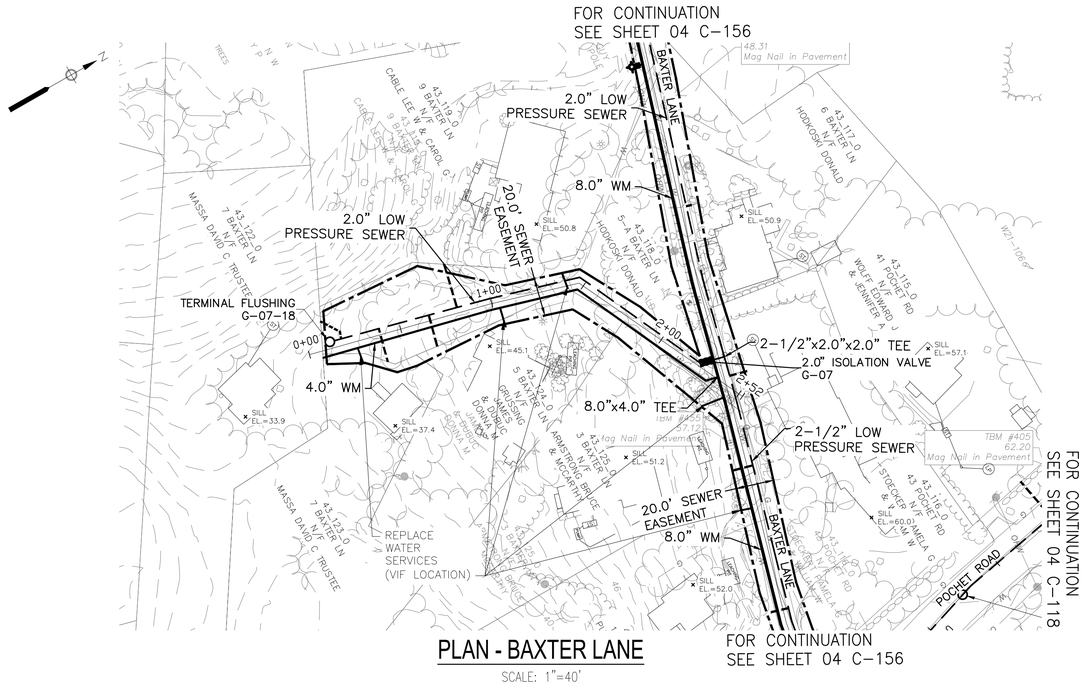
SHEET TITLE

PLAN AND PROFILE SEWER BAXTER LANE
1 OF 2

SHEET NUMBER

04 C-156

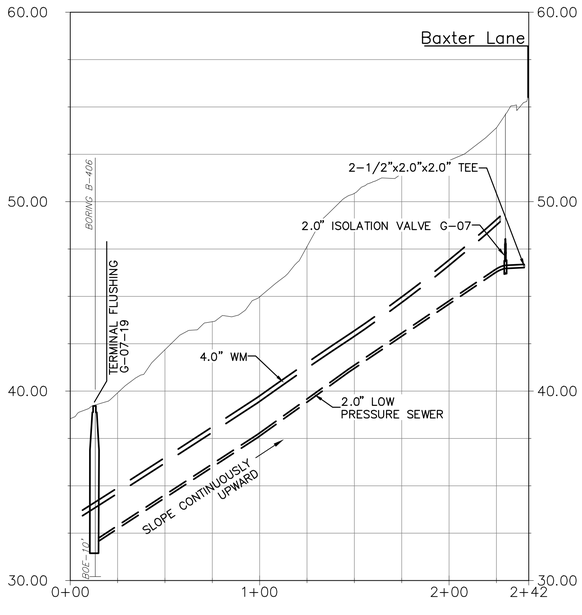
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - BAXTER LANE

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - BAXTER LANE

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

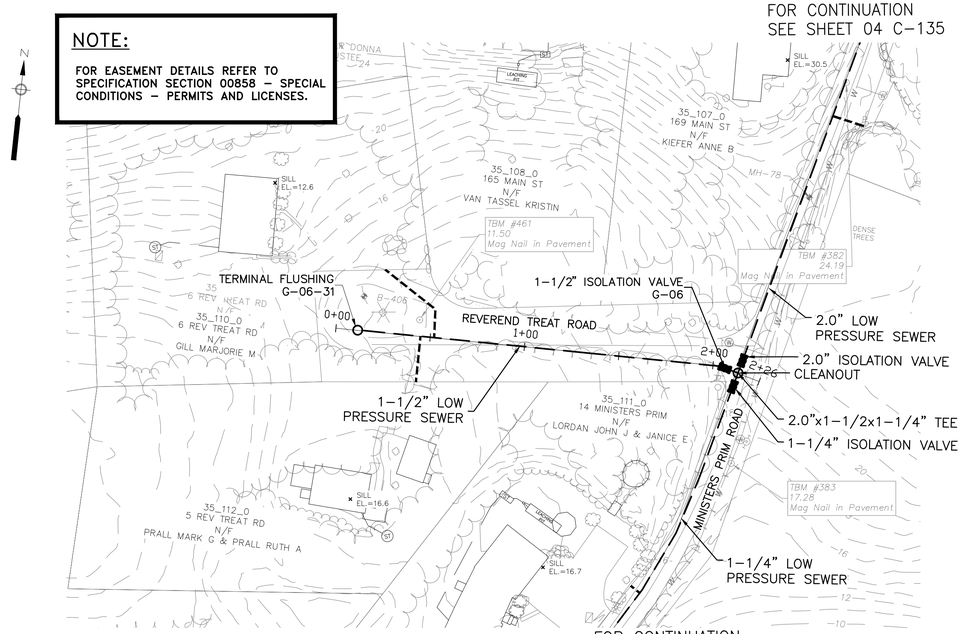
SHEET TITLE

PLAN AND PROFILE SEWER BAXTER LANE
2 OF 2

SHEET NUMBER

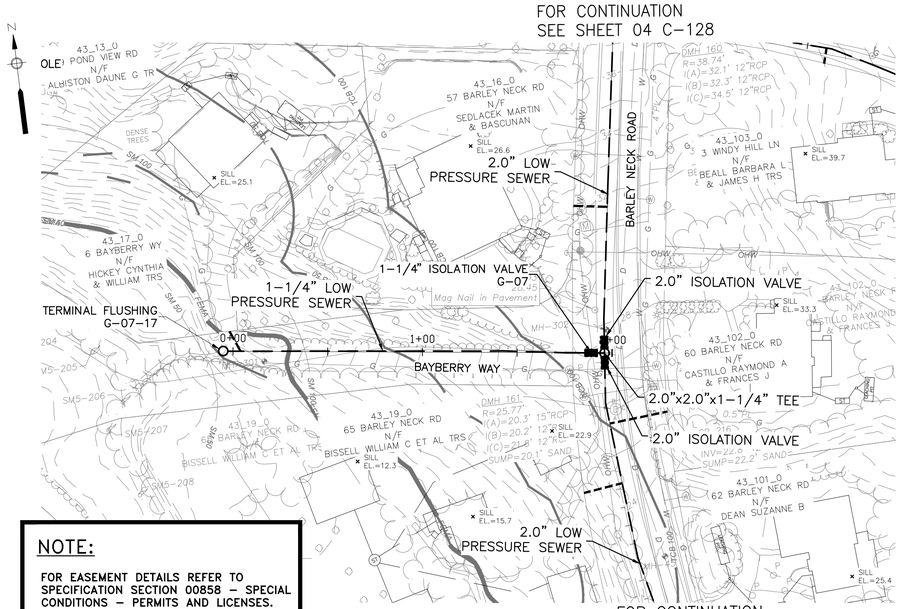
04 C-157

Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - REVEREND TREAT ROAD

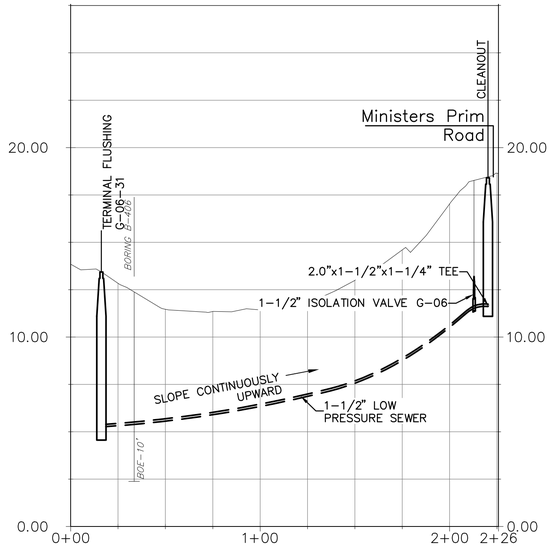
SCALE: 1"=40'

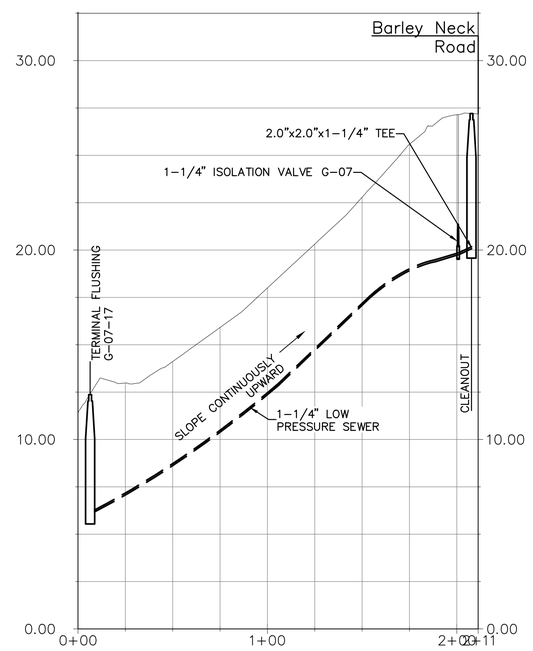


PLAN - BAYBERRY WAY

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS





PROFILE - REVEREND TREAT ROAD AND BAYBERRY WAY

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

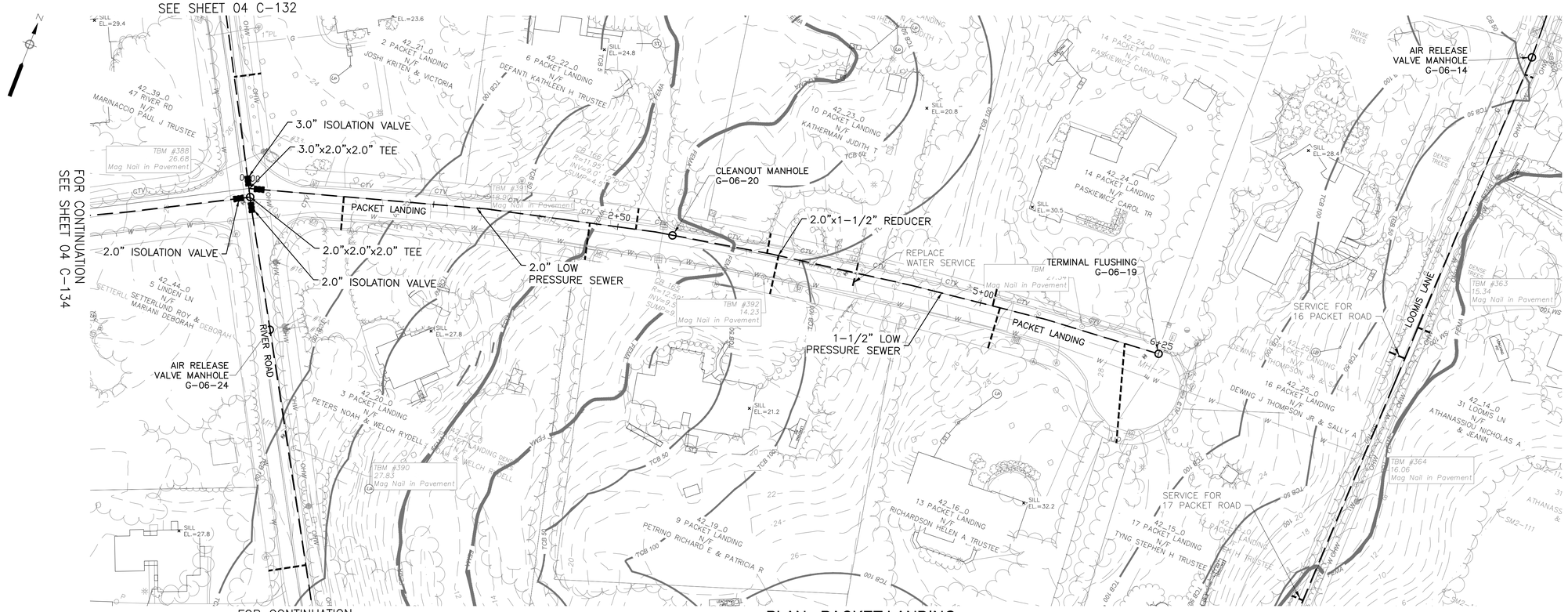
SHEET TITLE

PLAN AND PROFILE SEWER REVEREND TREAT ROAD AND BAYBERRY WAY

SHEET NUMBER

04 C-158

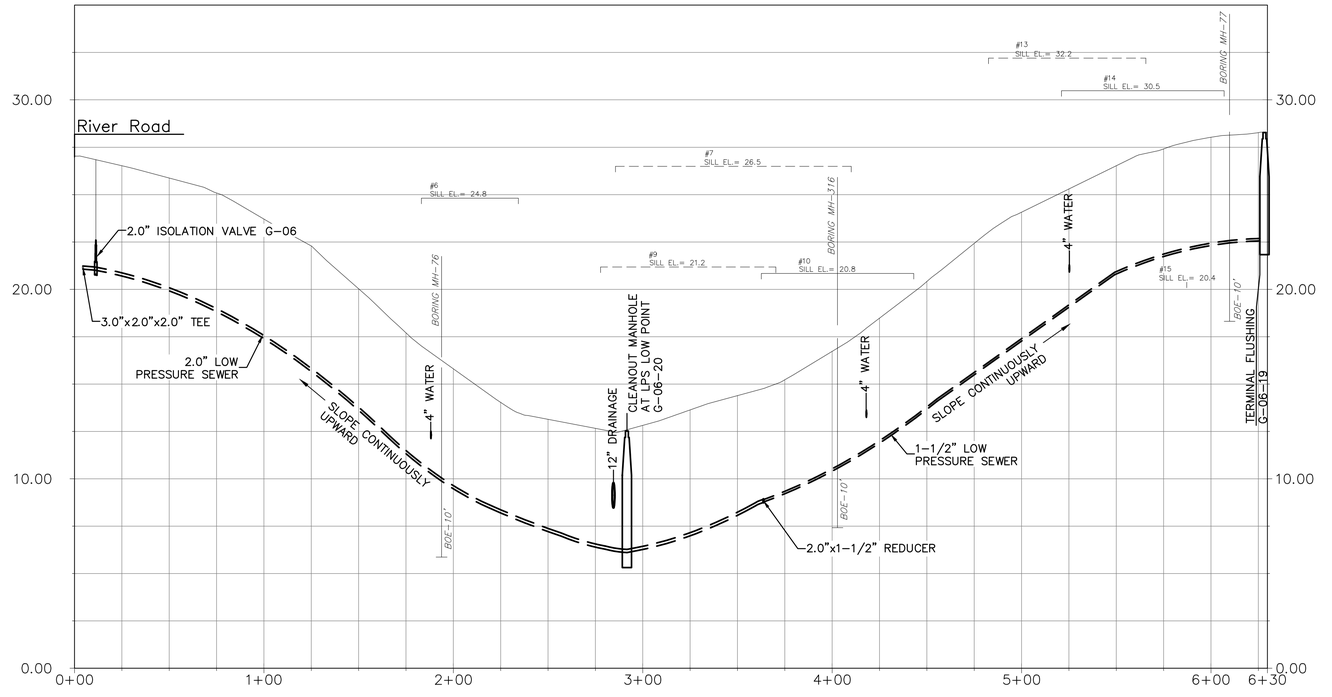
Last saved by: GREBENNIKOVS(2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN - PACKET LANDING

SCALE: 1"=40'

NOTE:
1. REFER TO SPECIFICATION SECTION 01030 - SPECIAL REQUIREMENTS



PROFILE - PACKET LANDING

1" = 4' VERTICAL SCALE (0, 4, 8, 12 FEET)

1" = 40' HORIZONTAL SCALE (0, 40, 80, 120 FEET)

NOTE:

FOR EASEMENT DETAILS REFER TO SPECIFICATION SECTION 00858 – SPECIAL CONDITIONS – PERMITS AND LICENSES.

AECOM

PROJECT

MEETINGHOUSE AREA COLLECTION SYSTEM AND PUMP STATIONS

CONTRACT No. 2022-02
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	03/01/23	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. GREBENNIKOV
Dept Check:	T. PARECE
Proj Check:	T. HARRISON
Date:	OCTOBER 2022
Scale:	AS NOTED

DISCIPLINE

CIVIL

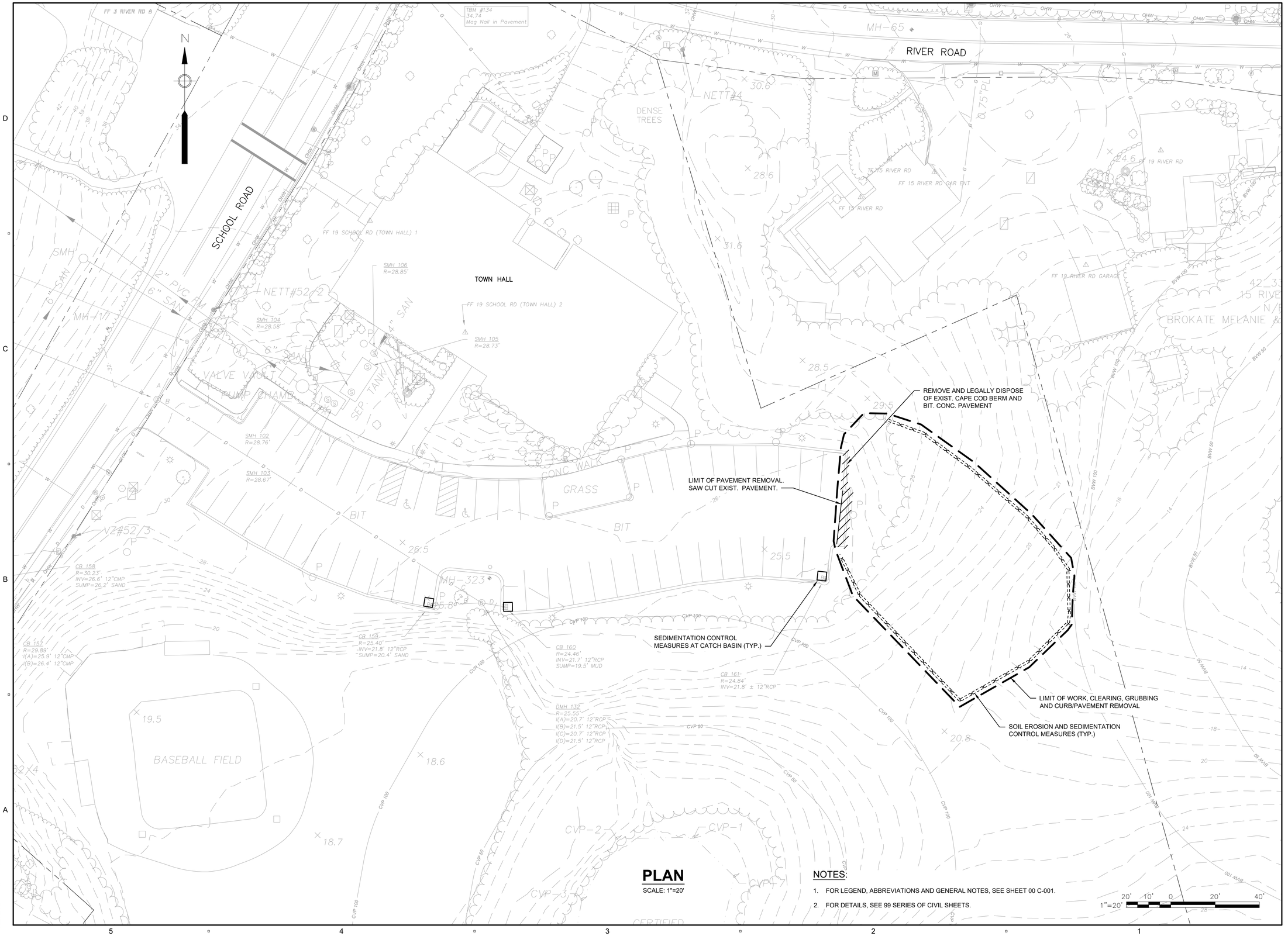
SHEET TITLE

PLAN AND PROFILE SEWER PACKET LANDING

SHEET NUMBER

04 C-159

Last saved by: GREBENNIKOVS (2023-03-08) Last Plotted: 2023-03-08
Filename: C:\USERS\GREBENNIKOVS\ONEDRIVE - AECOM\02 PROJECTS\ORLEANS\02. CAD\00 C-000-000.DWG



PLAN

SCALE: 1"=20'

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.

PATH/FILENAME: Z:\CHELMSFORD-ISILON-1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C04 C-401.DWG
LAST UPDATE: Thursday, September 29, 2022 1:53:52 PM
PLOT DATE: Friday, March 3, 2023 2:28:00 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/3/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

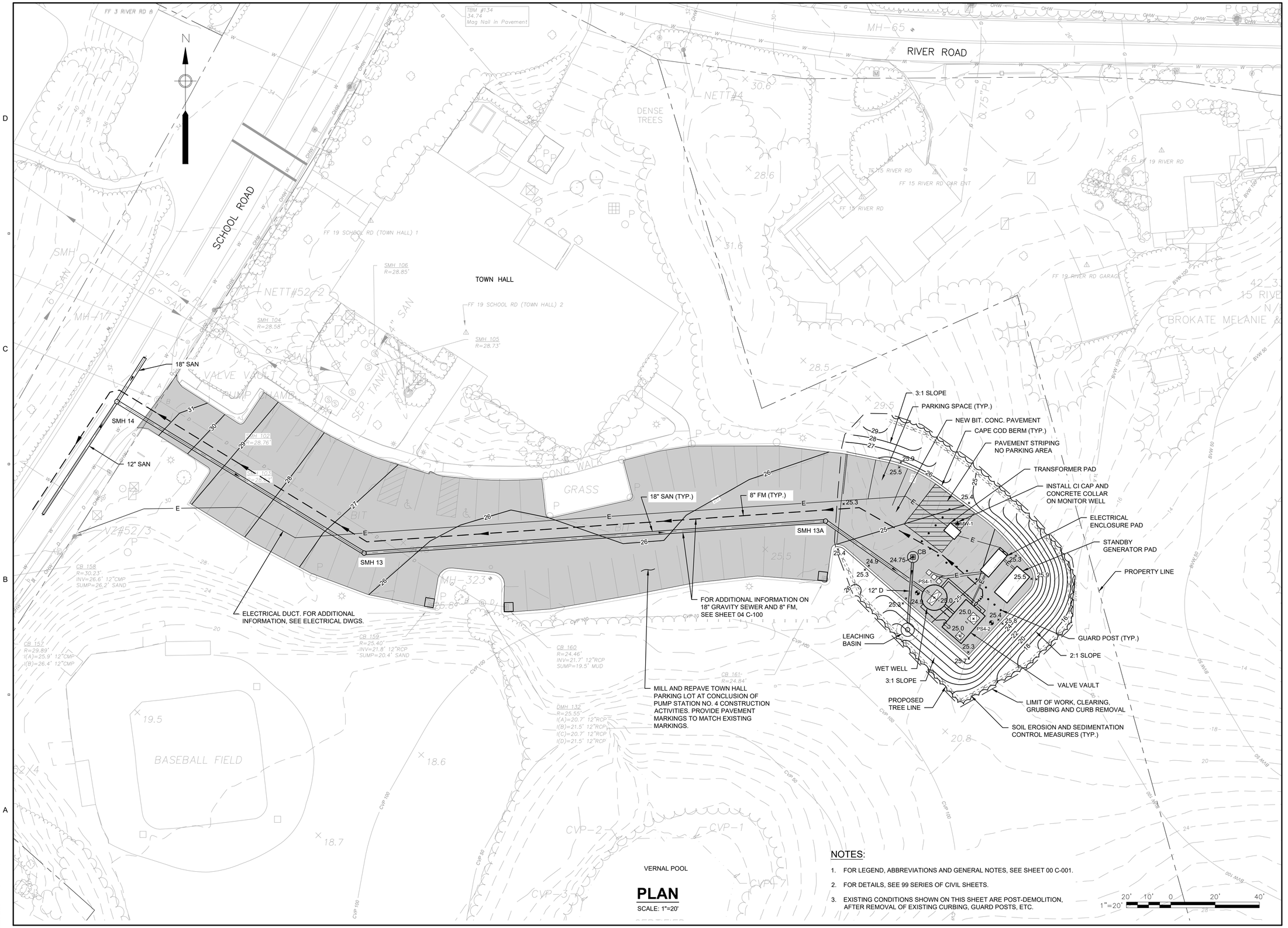
CIVIL

SHEET TITLE

EXISTING COND, DEMO. AND EROS. CONTROL - PUMPING STATION NO. 4

SHEET NUMBER

04 C-401



PLAN

SCALE: 1"=20'

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.
3. EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF EXISTING CURBING, GUARD POSTS, ETC.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

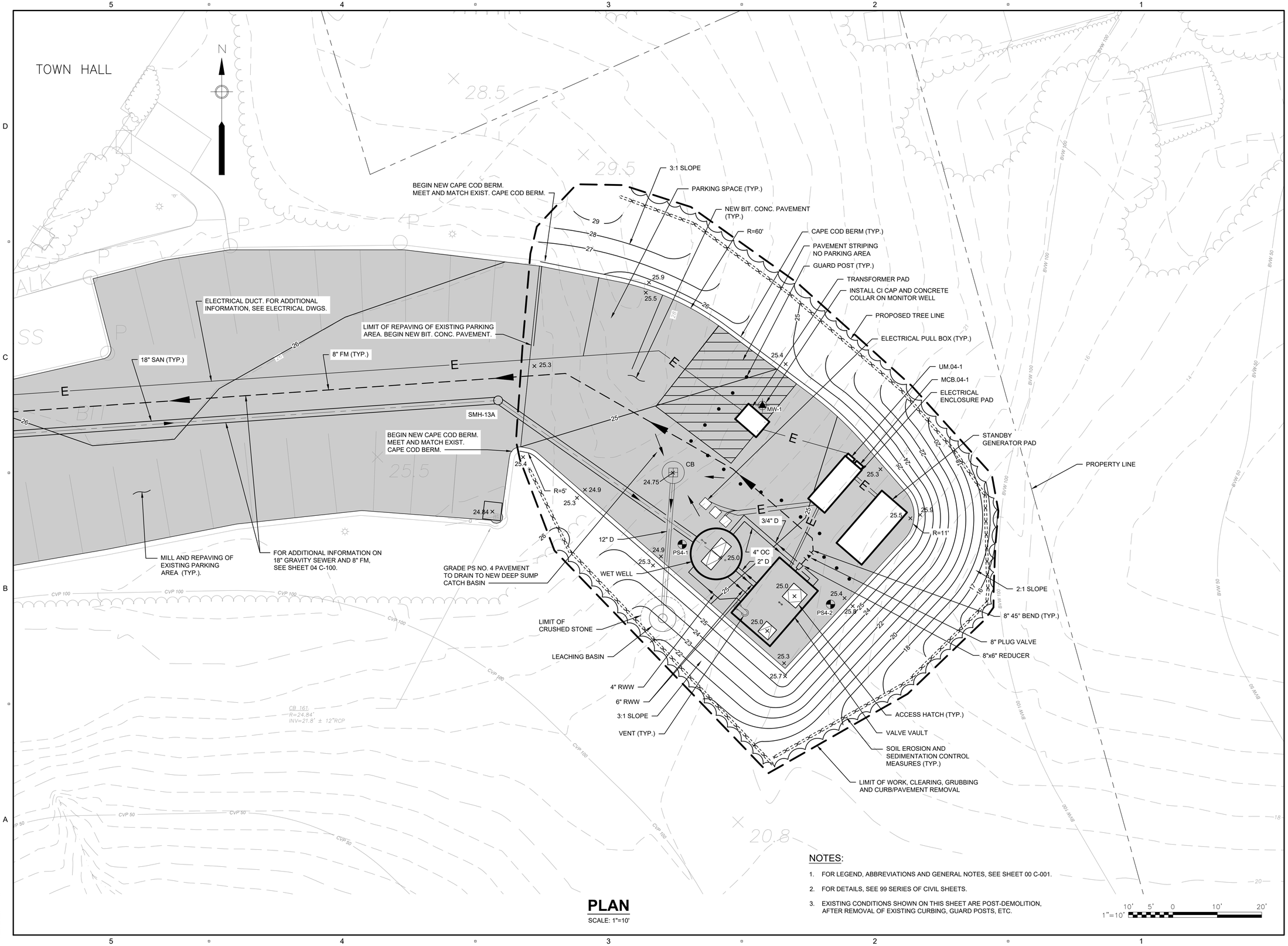
SHEET TITLE

SITE PLAN - PUMPING STATION NO. 4

SHEET NUMBER

04 C-402

PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\10_CAD\20\SHEETS\C04 C-402.DWG
LAST UPDATE: Thursday, September 29, 2022 2:15:46 PM
PLOT DATE: Friday, March 3, 2023 2:36:15 PM



PLAN

SCALE: 1"=10'

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 00 C-001.
2. FOR DETAILS, SEE 99 SERIES OF CIVIL SHEETS.
3. EXISTING CONDITIONS SHOWN ON THIS SHEET ARE POST-DEMOLITION, AFTER REMOVAL OF EXISTING CURBING, GUARD POSTS, ETC.

1"=10' (10' 5' 0 10' 20')

PATH\FILENAME: Z:\CHELMSFORD-USCHL11DC5\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS#900_CAD_GIS\810_CAD\20-SHEETS\C04 C-403.DWG
LAST UPDATE: Thursday, September 29, 2022 2:26:43 PM
PLOT DATE: Friday, March 3, 2023 3:04:54 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

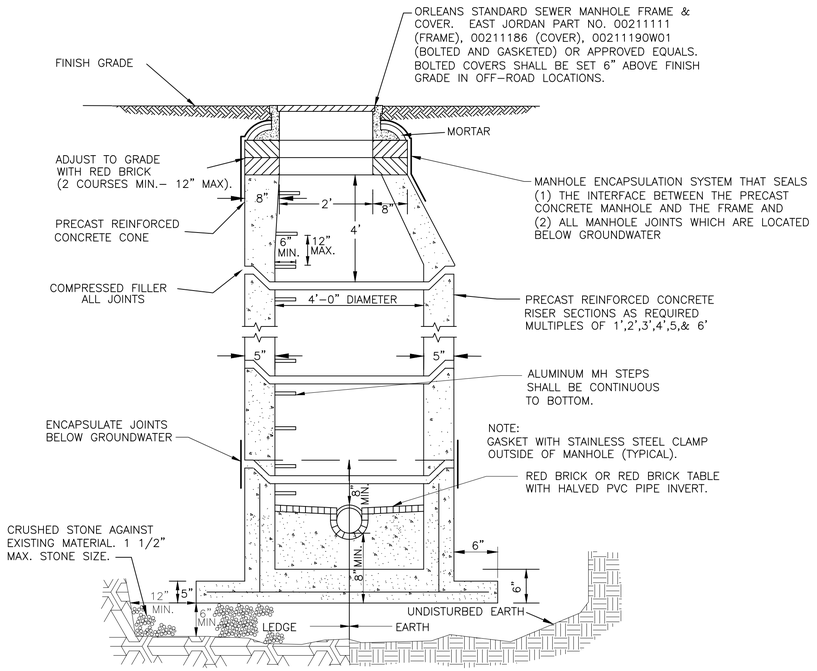
CIVIL

SHEET TITLE

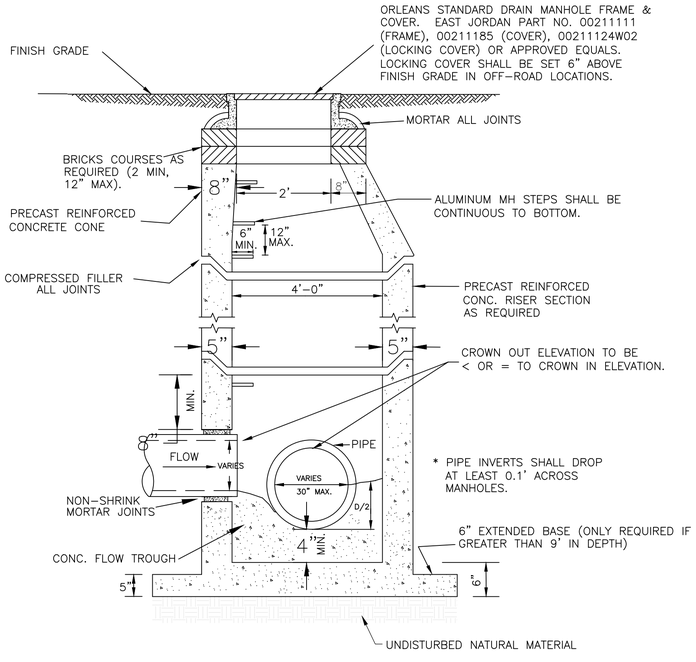
ENLARGED PLAN - PUMPING STATION NO. 4

SHEET NUMBER

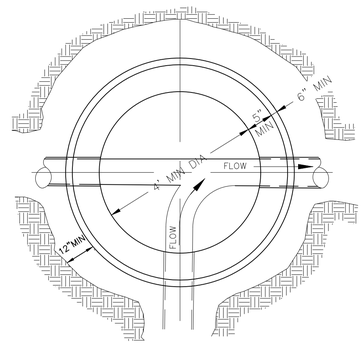
04 C-403



TYPICAL PRECAST CONCRETE SEWER MANHOLE
(NOT TO SCALE)

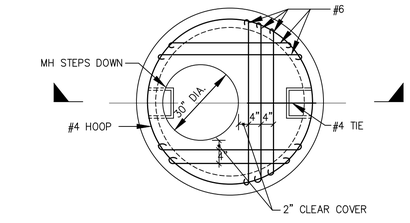


TYPICAL PRECAST CONCRETE DRAIN MANHOLE
ENTIRE STRUCTURE TO BE H20 LOADING
(NOT TO SCALE)

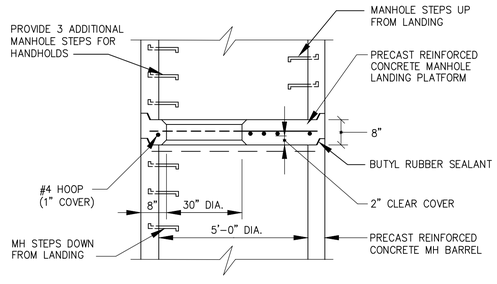


TOP VIEW

INVERT TABLE PLAN
(NOT TO SCALE)



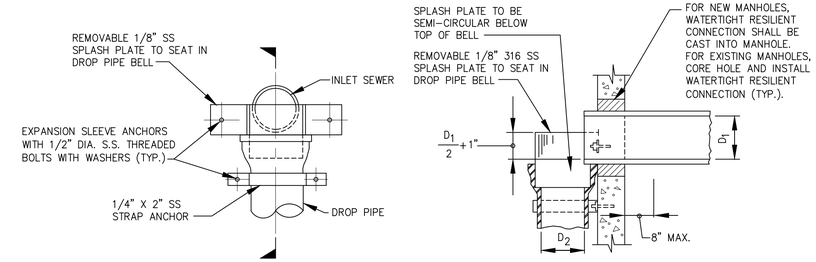
PLAN OF PRECAST SLAB



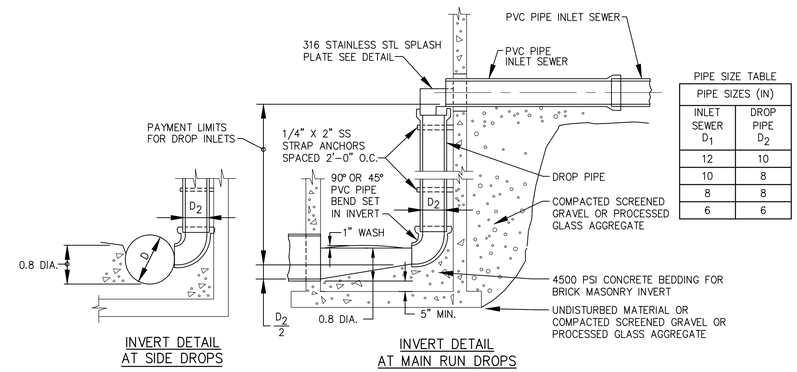
SECTION

NOTE:
LANDING PLATFORMS ARE TO BE INSTALLED AT THE MIDPOINT OF MANHOLES EXCEEDING 20' IN DEPTH.

PRECAST MANHOLE LANDING PLATFORM
NOT TO SCALE

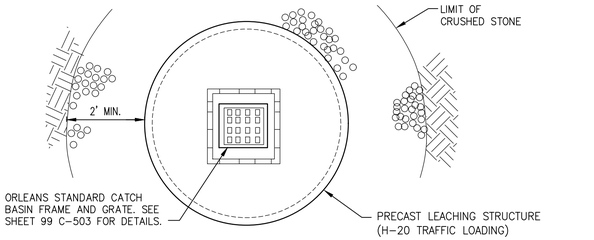


316 SS SPLASH PLATE DETAIL

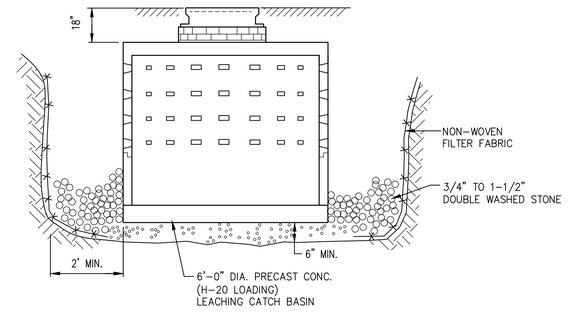


PIPE SIZE TABLE	
PIPE SIZES (IN)	
INLET SEWER D_1	DROP PIPE D_2
12	10
10	8
8	8
6	6

INSIDE DROP INLETS FOR PVC PIPE SEWERS 12 INCH DIAMETER AND SMALLER
NOT TO SCALE



PLAN



ELEVATION

LEACHING CATCH BASIN
NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34483
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

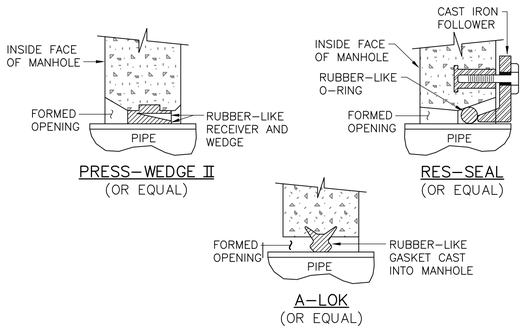
SHEET TITLE

DETAILS I

SHEET NUMBER

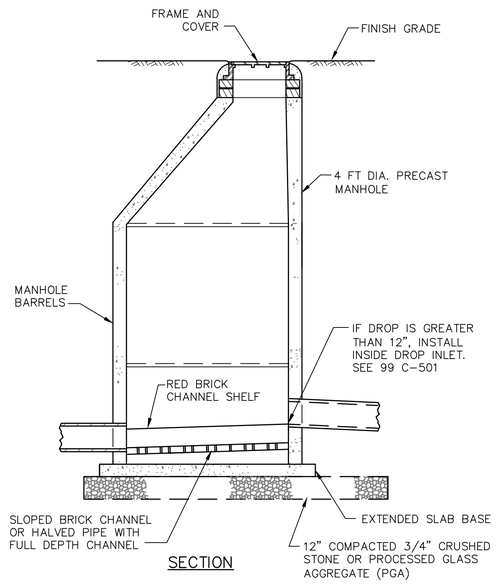
99 C-501

PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C-501.DWG
LAST UPDATE: Thursday, September 29, 2022 2:30:26 PM
PLOT DATE: Friday, March 3, 2023 3:12:04 PM

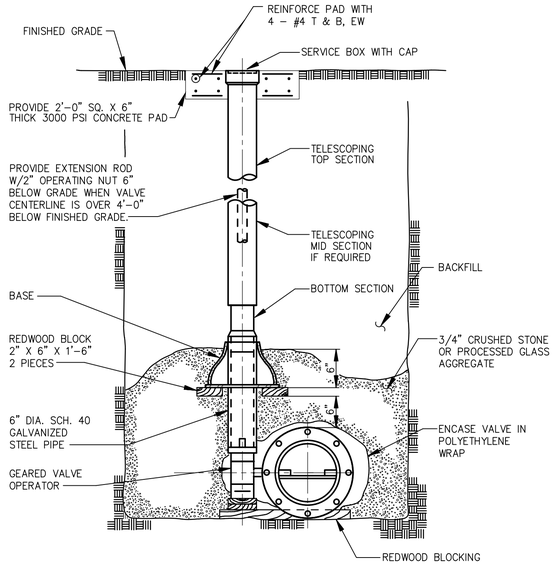


NOTE:
ALL GASKETS, SEALANTS, MORTAR ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

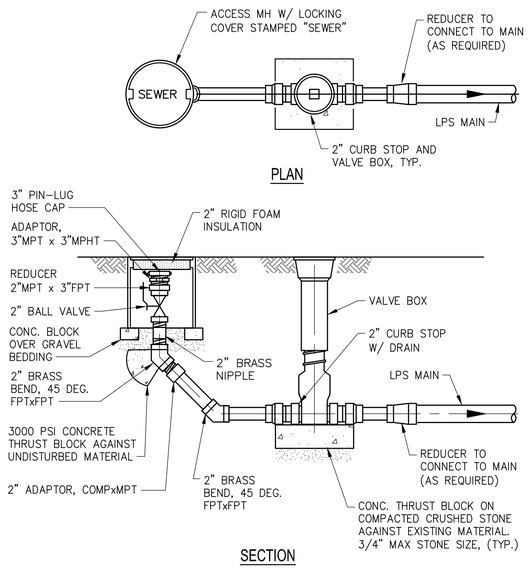
TYPICAL SLEEVE DETAILS
NOT TO SCALE



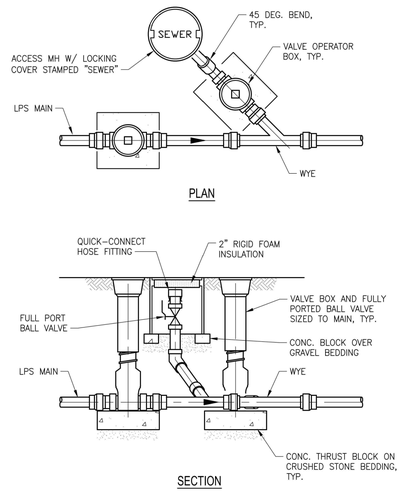
FORCE MAIN DISCHARGE INTO MANHOLE
NOT TO SCALE



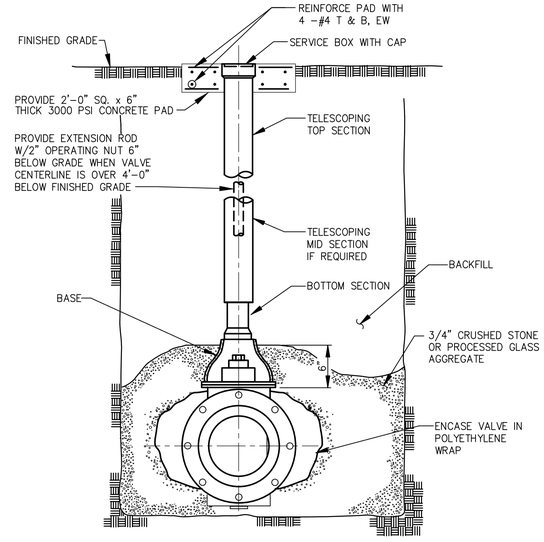
BURIED PLUG VALVE
NOT TO SCALE



LOW PRESSURE SEWER TERMINAL FLUSHING DETAIL
NOT TO SCALE



IN-LINE FLUSHING CONNECTION ON LOW PRESSURE SEWER MAIN
NOT TO SCALE



BURIED GATE VALVE
NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

1	3-01-2023	ISSUE FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

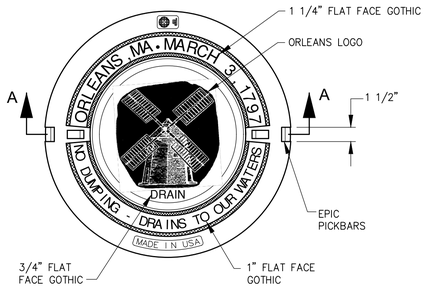
SHEET TITLE

DETAILS II

SHEET NUMBER

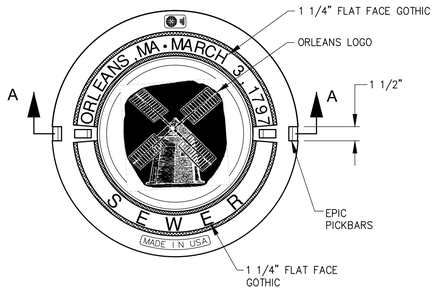
99 C-502

PATHFILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20\SHEETS\C99 C-502.DWG
LAST UPDATE: Thursday, September 29, 2022 5:18:48 PM
PLOT DATE: Friday, March 3, 2023 3:01:36 PM



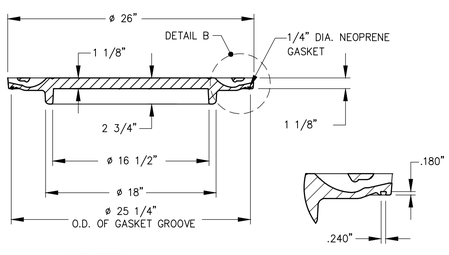
PLAN–DRAIN COVER

MFR: EJUSA
PART NO. 00211185
OR APPROVED EQUAL



PLAN–SEWER COVER

MFR: EJUSA
PART NO. 00211186
OR APPROVED EQUAL

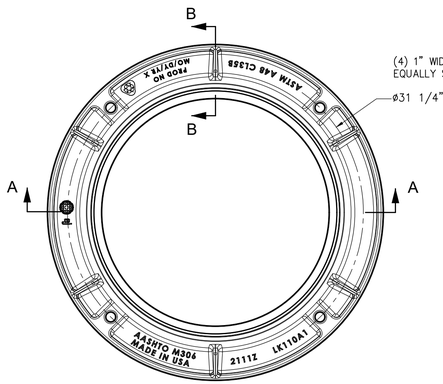


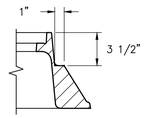
SECTION A–A

DETAIL B

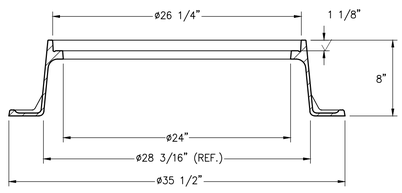
ORLEANS STANDARD DRAIN AND SEWER MANHOLE COVER

(NOT TO SCALE)





SECTION B–B

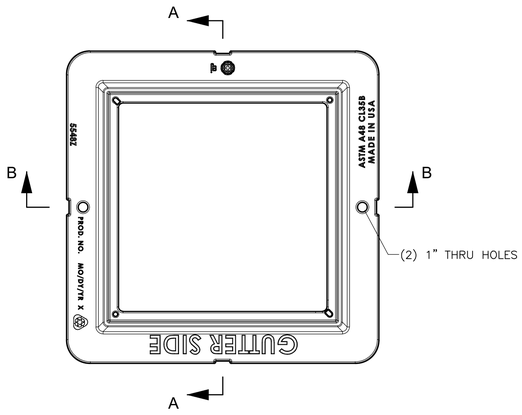


SECTION A–A

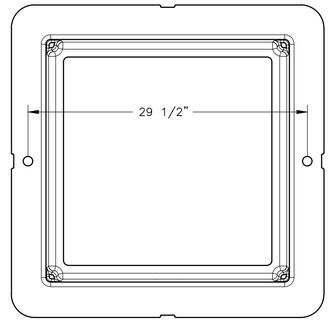
MFR: EJUSA
PART NO. 00211111
OR APPROVED EQUAL

ORLEANS STANDARD MANHOLE FRAME

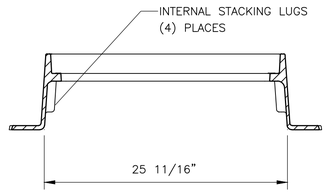
(NOT TO SCALE)



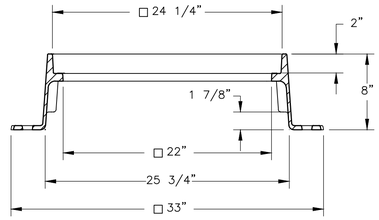
PLAN



BOTTOM



SECTION A–A



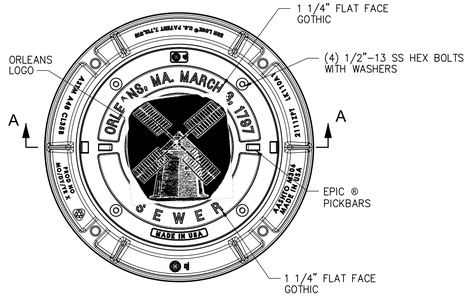
SECTION B–B

ORLEANS STANDARD 4–FLANGE CATCH BASIN FRAME

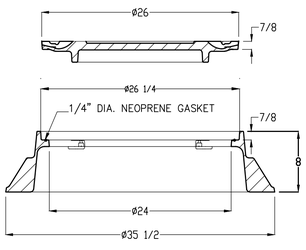
(NOT TO SCALE)

MFR: EJUSA
PART NO. 00554811
OR APPROVED EQUAL.

*3–FLANGE FRAME AVAILABLE AS PART NO. 00554813



PLAN

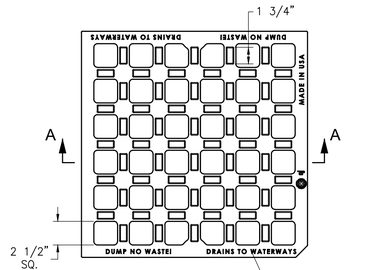


SECTION A–A

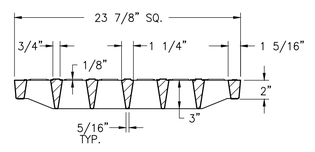
MFR: EJUSA
PART NO. 00211190W01
OR APPROVED EQUAL

ORLEANS STANDARD BOLTED AND GASKETED MANHOLE FRAME AND COVER

(NOT TO SCALE)



PLAN



SECTION A–A

MFR: EJUSA
PART NO. 00552060
OR APPROVED EQUAL

ORLEANS STANDARD HEAVY CATCH BASIN GRATE

(NOT TO SCALE)

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

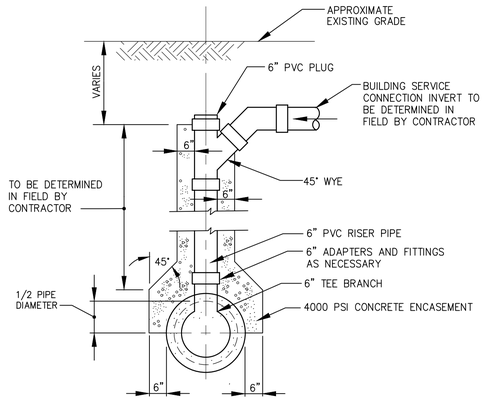
SHEET TITLE

DETAILS III

SHEET NUMBER

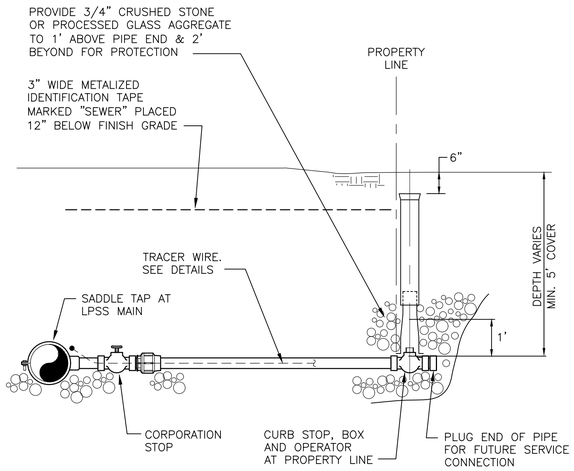
99 C-503

PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECT\SWTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C\99 C-503.DWG
LAST UPDATE: Thursday, September 29, 2022 2:37:14 PM
PLOT DATE: Friday, March 3, 2023 3:14:50 PM



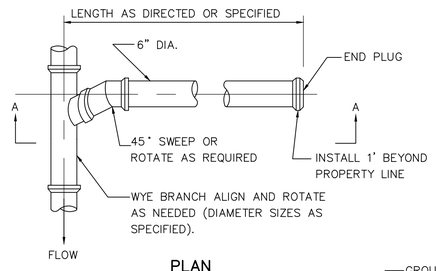
TYPICAL CHIMNEY DETAIL FOR SEWER CONNECTION

NOT TO SCALE

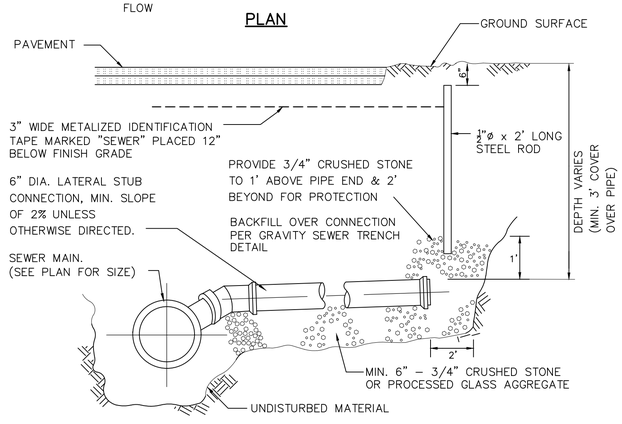


TYPICAL LATERAL STUB CONNECTION ON LOW PRESSURE SEWER MAIN

(NOT TO SCALE)



PLAN



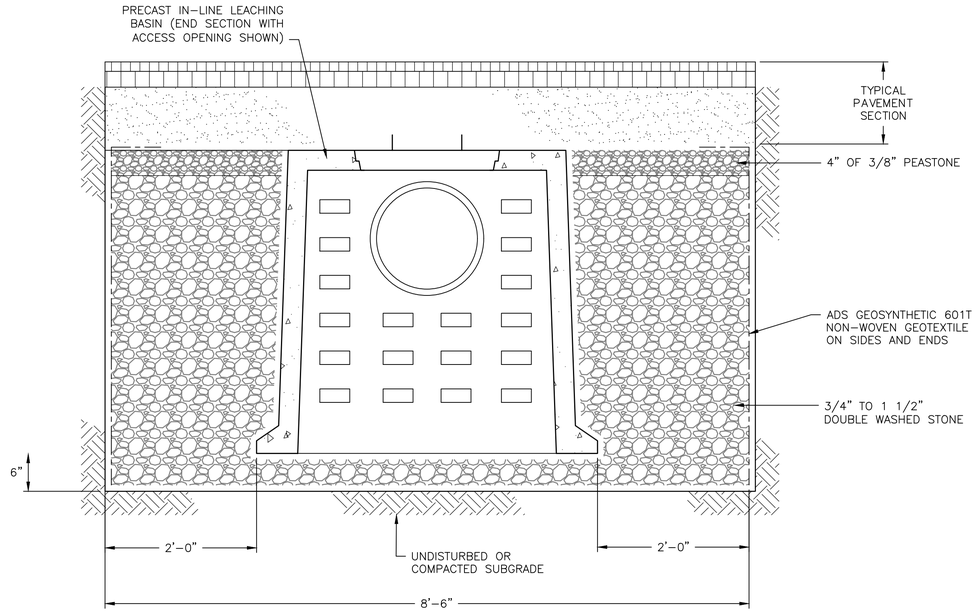
SECTION A–A

LATERAL CONNECTION MANHOLE

WHERE REQUIRED, A MANHOLE TO BE CONSTRUCTED ON A LATERAL CONNECTION. THIS MANHOLE SHALL CONFORM TO THE SAME STANDARDS AS THE MAIN SEWER MANHOLES. (SEE SEWER MANHOLE DETAILS.)

TYPICAL LATERAL STUB CONNECTION

(NOT TO SCALE)



SECTION

PRECAST IN–LINE LEACHING BASIN

NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER
3/3/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

DETAILS IV

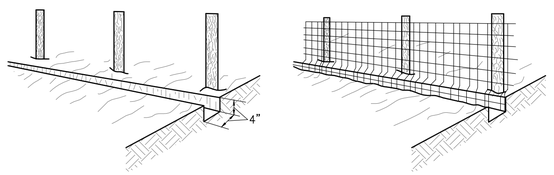
SHEET NUMBER

99 C-504

PATH/FILENAME: Z:\CHELMSFORD-JSCH1.1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C99 C-504.DWG
LAST UPDATE: Thursday, September 29, 2022 2:36:31 PM
PLOT DATE: Friday, March 3, 2023 3:11:33 PM

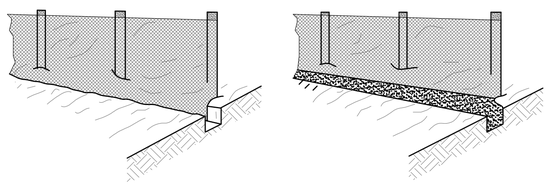
1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.

2. STAPLE 4" MAX. X 4" MAX. WIRE FENCE TO 4' POSTS (1' BURY).



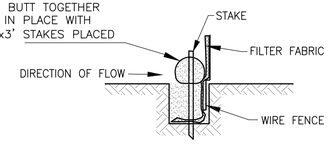
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL



EXTENSION OF FABRIC AND WIRE FENCE INTO THE TRENCH

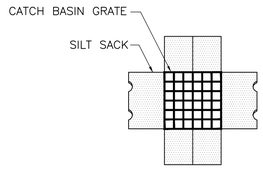
SILT SOCK. BUTT TOGETHER AND HOLD IN PLACE WITH TWO 2"x2"x3' STAKES PLACED 10' O.C.



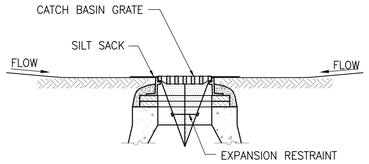
SECTION

SILT FENCE WITH SILT SOCK

NOT TO SCALE



PLAN VIEW



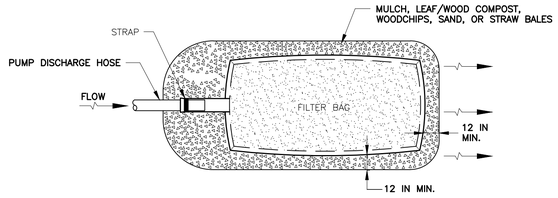
SECTION VIEW

NOTES:

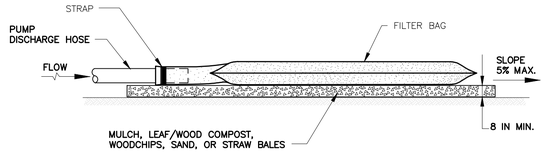
1. INSTALL SILT SACK IN ALL CATCH BASINS BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND STRAW BALES HAVE BEEN REMOVED. GRATE TO BE PLACED OVER SILT SACK.
2. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORMS.
3. EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

SILT SACK SEDIMENT TRAP

NOT TO SCALE



PLAN VIEW



ELEVATION

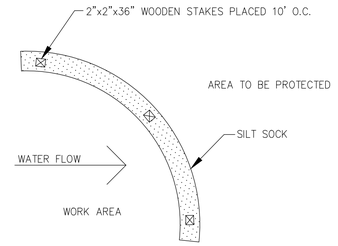
CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

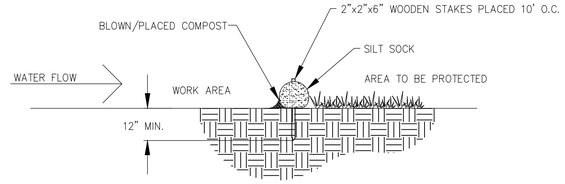
GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

SEDIMENTATION FILTER BAG



PLAN



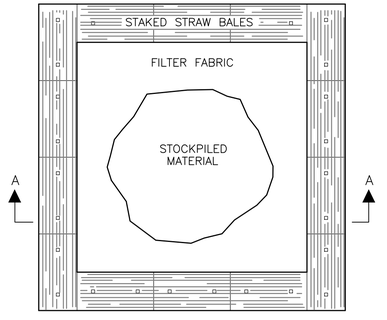
SECTION

NOTES:

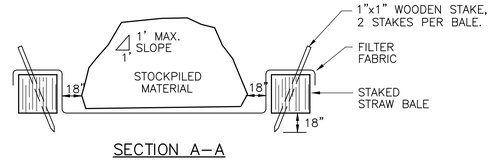
1. SEE SPECIFICATIONS FOR SILT SOCK AND COMPOST FILL MATERIAL REQUIREMENTS.

COMPOST SILT SOCK

NOT TO SCALE



PLAN



SECTION A-A

NOTE:
DIMENSIONS OF STOCKPILE AREA MAY VARY DEPENDING ON QUANTITY OF EXCAVATION. AVOID OVERTOPPING OR SLOPES IN EXCESS OF 1:1

PLAN OF TEMPORARY STOCKPILE AREA

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34483
REGISTERED PROFESSIONAL ENGINEER
03/01/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

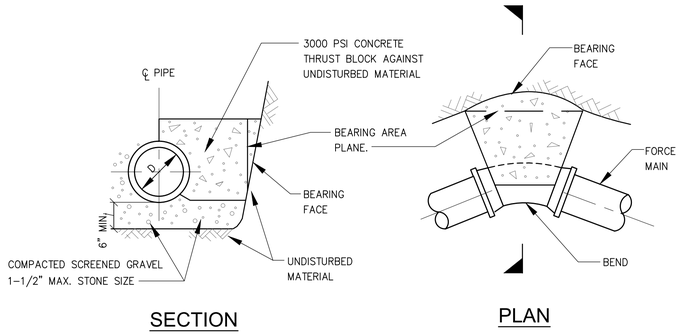
SHEET TITLE

DETAILS V

SHEET NUMBER

99 C-505

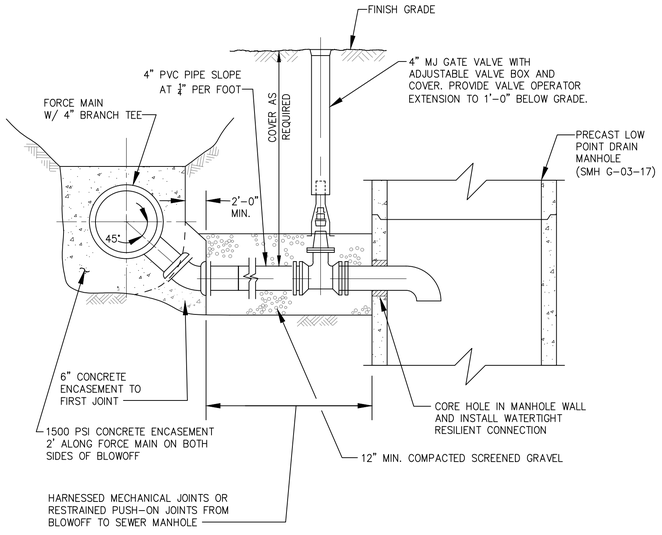
PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C99 C-505.DWG
LAST UPDATE: Thursday, September 29, 2022 2:39:41 PM
PLOT DATE: Friday, March 3, 2023 3:19:44 PM



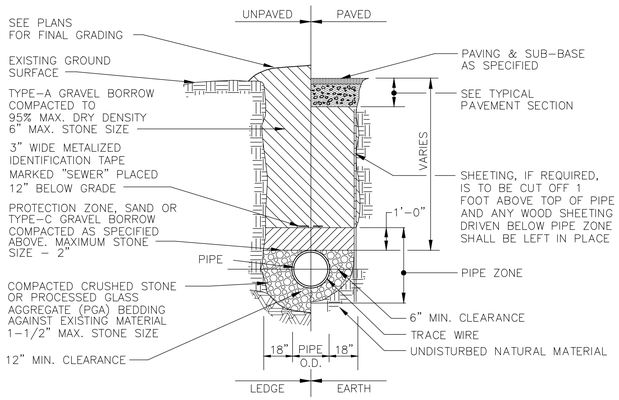
NOTES:

1. WHERE SO INDICATED ON PLANS, THE FORCE MAIN BENDS SHALL BE BACKED UP WITH A CONCRETE THRUST BLOCK BETWEEN THE PIPE AND UNDISTURBED MATERIAL.
2. REQUIRED BEARING AREA TO BE CALCULATED ON VERTICAL PLANE 90 DEG. TO RADIAL PLANE PASSING THROUGH MIDPOINT OF BEND.
3. MINIMUM BEARING AREA: 2.0 SQ.FT.
4. SEE PLANS FOR REQUIRED BEARING AREAS GREATER THAN MINIMUM.

FORCE MAIN THRUST BLOCK
NOT TO SCALE



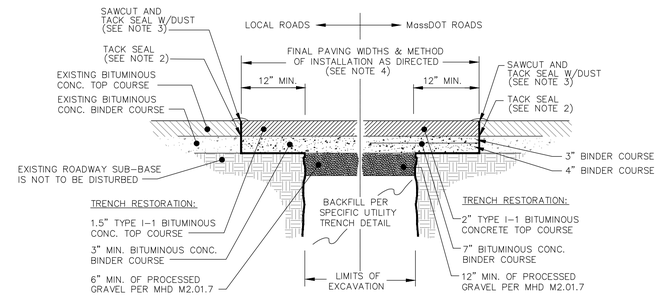
TYPICAL FORCE MAIN BLOW–OFF CONNECTION BELOW INVERT OF FORCE MAIN
NOT TO SCALE



NOTES:

1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

GRAVITY SEWER/FORCE MAIN TRENCH DETAIL
NOT TO SCALE



1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASS. HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988 AS AMENDED.
2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH TACK AND STONE DUST.
4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE PLACED BY MACHINE/BOX SPREADER WHEN & AS DIRECTED BY THE TOWN OF ORLEANS.

TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL
NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34483
REGISTERED PROFESSIONAL ENGINEER
03/31/23

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

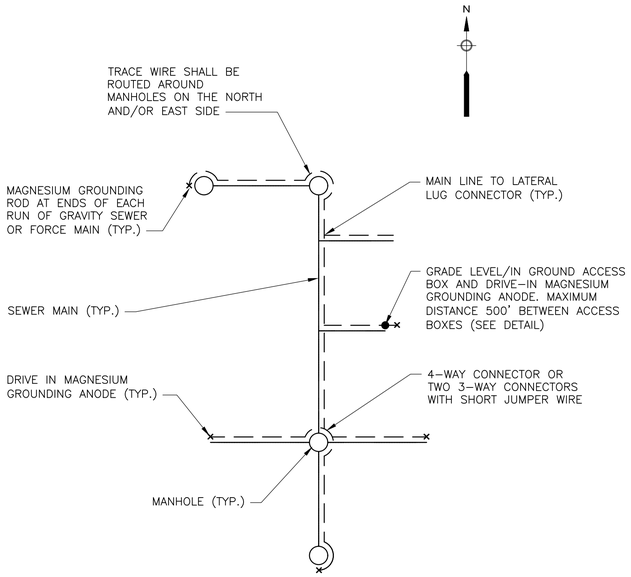
SHEET TITLE

DETAILS VI

SHEET NUMBER

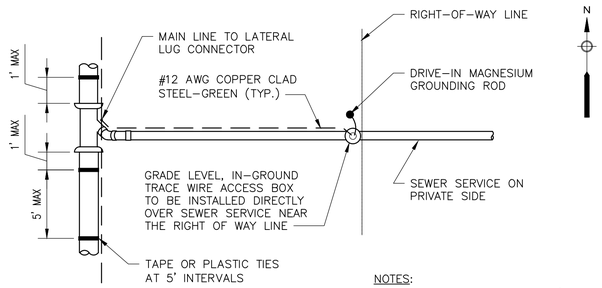
99 C-506

PATH/FILENAME: Z:\CHELMSFORD-JSC\HL1\DCS\PROJECTS\WTR\60652634_ORLEANS\MEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C99 C-506.DWG
LAST UPDATE: Thursday, September 29, 2022 2:50:58 PM
PLOT DATE: Friday, March 3, 2023 3:28:22 PM



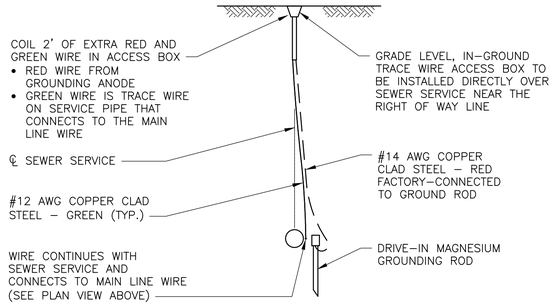
NOTES:
1. WIRE SHOWN AWAY FROM PIPE FOR CLARITY. WIRE SHALL BE INSTALLED ON THE SIDE OF THE PIPE. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5' INTERVALS.

TRACER WIRE PLAN
NOT TO SCALE



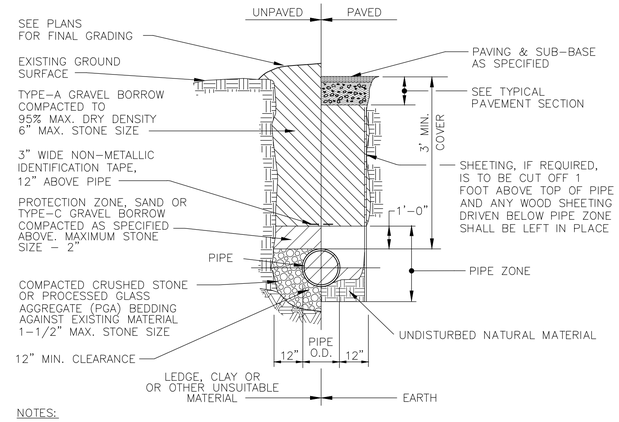
NOTES:
1. MAXIMUM DISTANCE OF 500' BETWEEN ACCESS BOXES.

PLAN



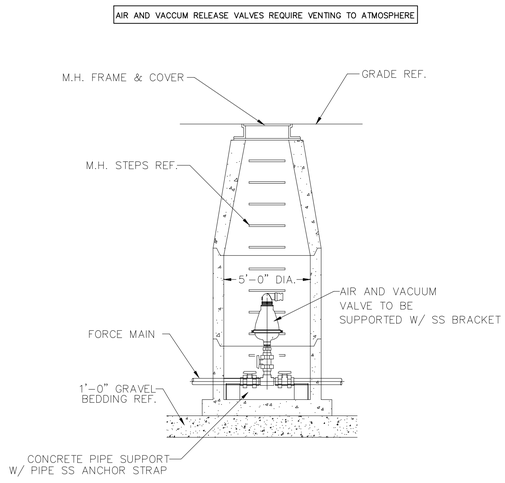
SECTION

TRACER WIRE ACCESS BOX
NOT TO SCALE



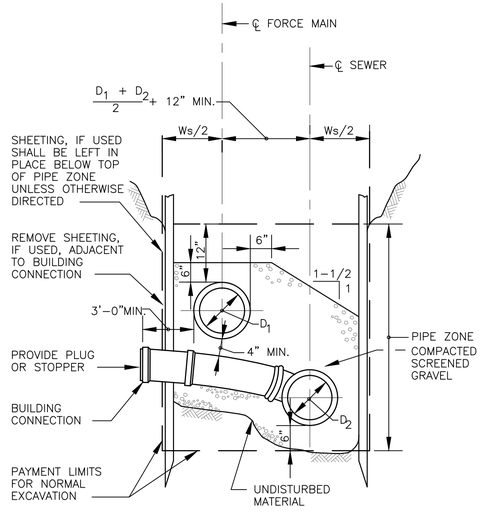
NOTES:
1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

TYPICAL H.D.P.E. DRAIN TRENCH DETAIL
NOT TO SCALE

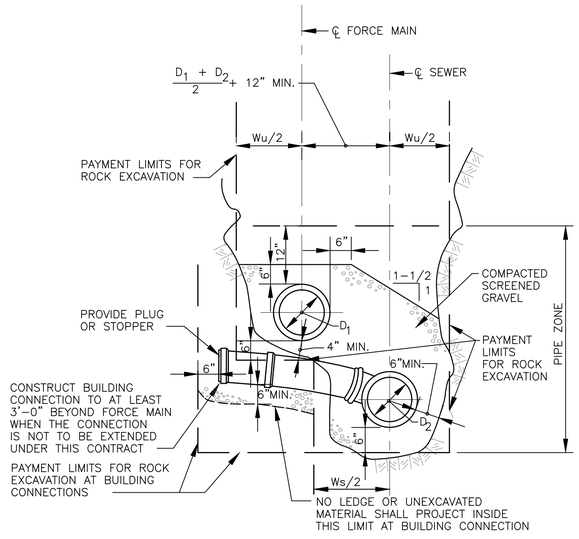


TYPICAL ELEV. VIEW
AIR & VACUUM VALVE MTG. DETAIL

AIR RELEASE & VACUUM VALVE MANHOLE
NOT TO SCALE



IN EARTH



IN ROCK

TRENCH SECTIONS FOR SEWER AND FORCE MAIN IN SAME TRENCH
NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34483
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

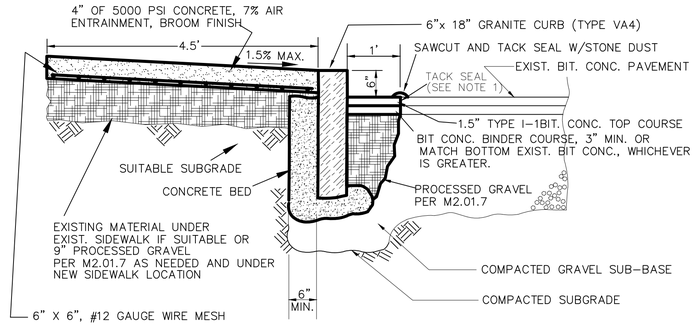
SHEET TITLE

DETAILS VII

SHEET NUMBER

99 C-507

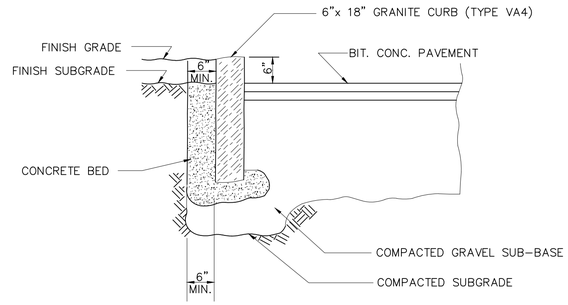
PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\C99 C-507.DWG
LAST UPDATE: Thursday, September 29, 2022 2:39:01 PM
PLOT DATE: Tuesday, March 7, 2023 9:57:43 AM



1. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.

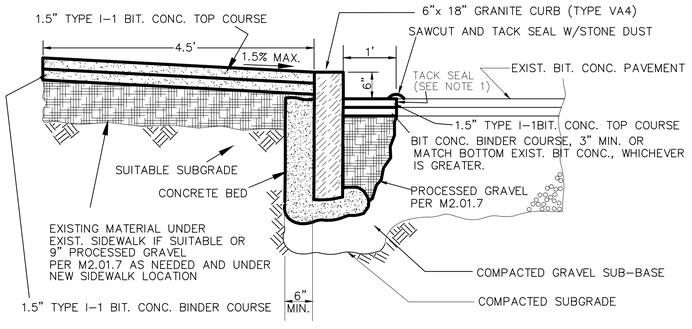
CONCRETE SIDEWALK & GRANITE CURB DETAIL

NOT TO SCALE



GRANITE CURB DETAIL

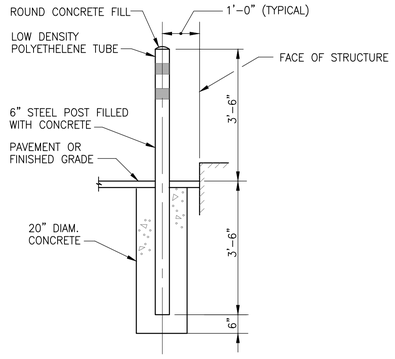
NOT TO SCALE



1. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.

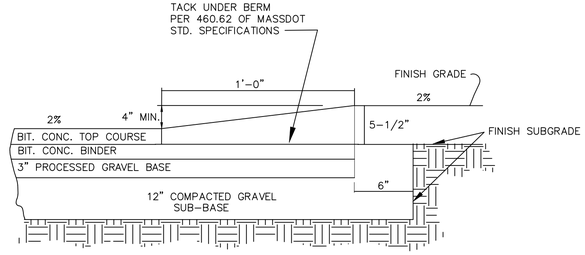
BITUMINOUS CONCRETE SIDEWALK & GRANITE CURB DETAIL

NOT TO SCALE



GUARD POST

NOT TO SCALE



CAPE COD BERM

NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34483
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

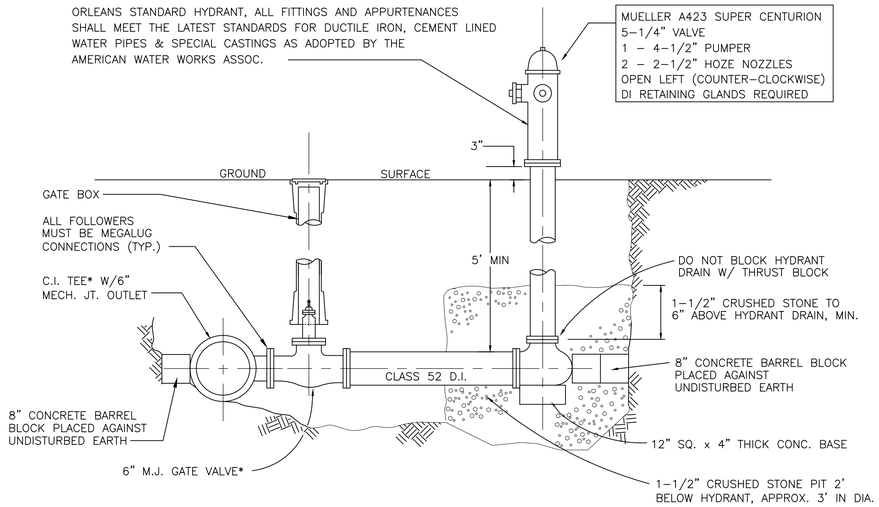
SHEET TITLE

DETAILS VIII

SHEET NUMBER

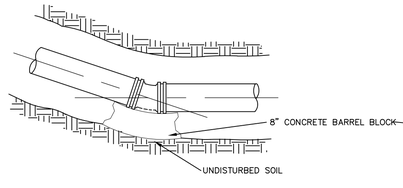
99 C-508

PATH/FILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\C99 C-508.DWG
LAST UPDATE: Thursday, September 29, 2022 2:39:10 PM
PLOT DATE: Friday, March 3, 2023 3:40:11 PM

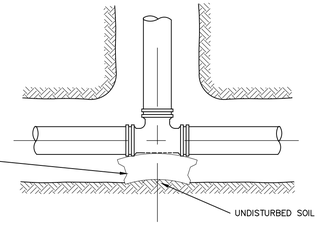


STANDARD HYDRANT DETAIL

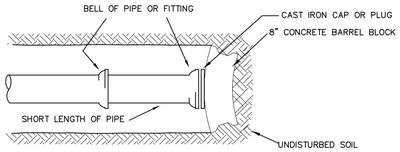
(NOT TO SCALE)



PLAN HORIZONTAL BEND

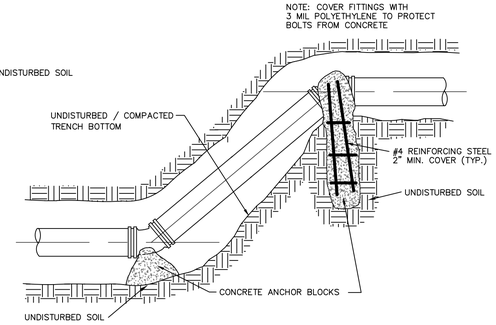


PLAN TEE



PLAN PLUG END OF LINE

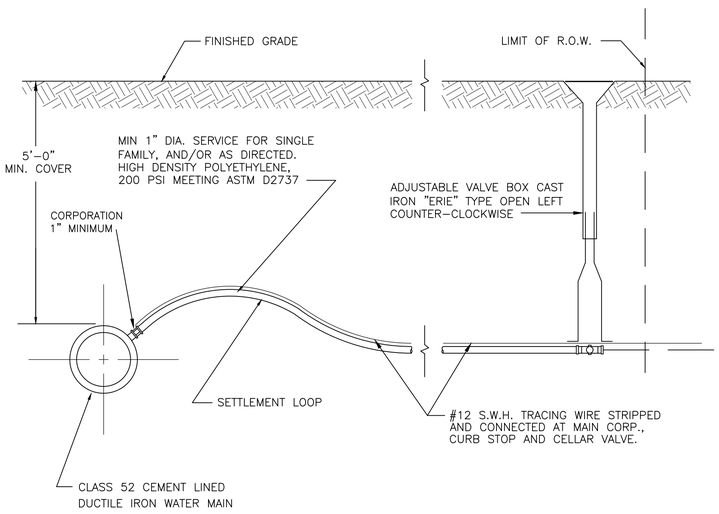
THRUST BLOCK REQUIREMENTS	
FITTING	MIN BEARING AREA (SF)
8"X 1/8 BEND	12
12"X 8" TEE	12
10"X 8" TEE	10
8"X 8" TEE	9
8"X 6" TEE	5
8" CAP / PLUG	12
12"X 8" REDUCER	8
10"X 8" REDUCER	6
8" X 6" REDUCER	4
8" 22 1/2"* & 45* BENDS	8
ALL TEES AND VALVES	10
HYDRANTS	9



ELEVATION - VERTICAL BENDS

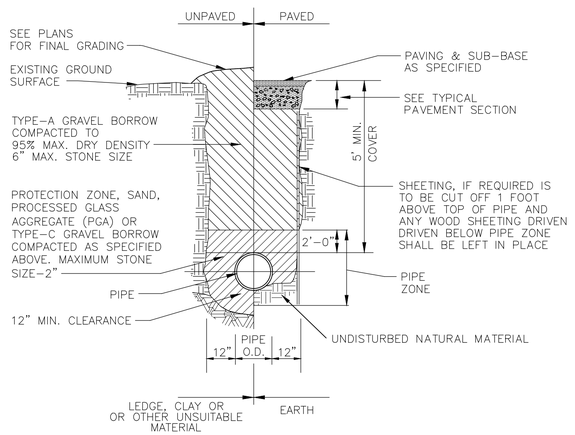
WATER MAIN ANCHORAGE DETAILS

NOT TO SCALE



TYPICAL PERMANENT SERVICE CONNECTION

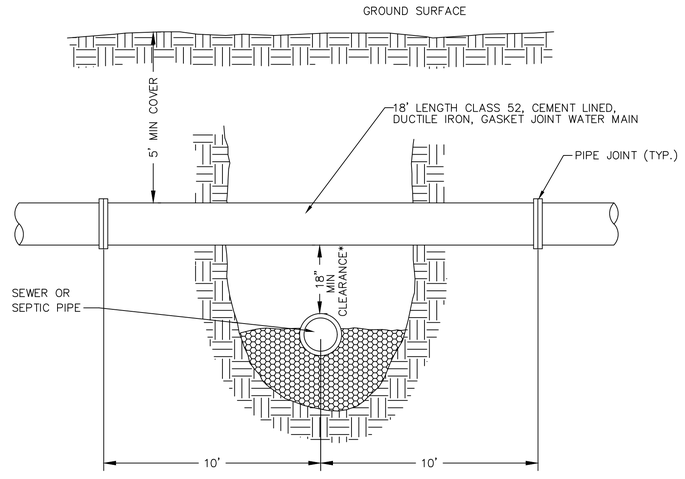
NOT TO SCALE



1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

TYPICAL WATER TRENCH DETAIL

NOT TO SCALE



* WHEN THE CROSSING AS SHOWN IS LESS THAN 18" VERTICAL CLEARANCE THE UTILITY BEING INSTALLED MUST BE SLEEVED 10' ON BOTH SIDES OF THE CROSSING WITH SDR35 PVC PIPE. IF THE SEWER MAIN OR SERVICE CROSSES ABOVE THE WATERMAIN OR SERVICE, AGAIN THE UTILITY BEING INSTALLED MUST BE SLEEVED 10' ON BOTH SIDES OF THE CROSSING WITH SDR35 PVC PIPE. SEAL ENDS OF SER35 PVC WITH CONCRETE

TYPICAL WATER CROSSING

NOT TO SCALE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. DONOGHUE
Drawn By:	S. NAPOLITANO
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

CIVIL

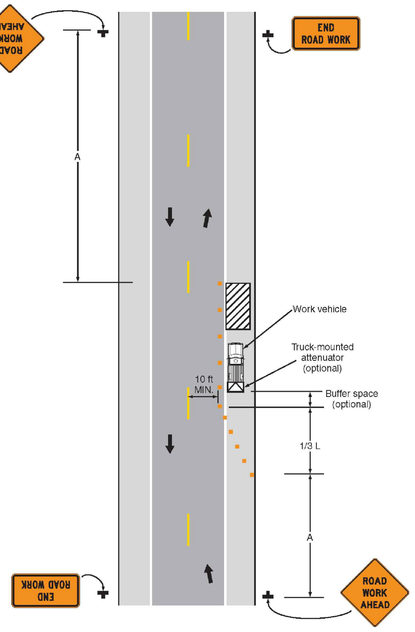
SHEET TITLE

DETAILS IX

SHEET NUMBER

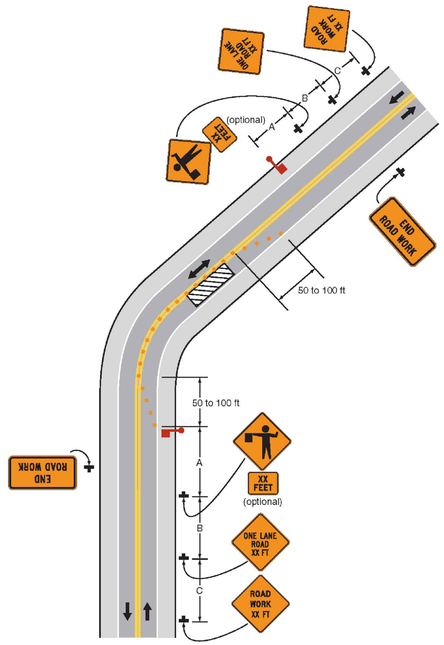
99 C-509

PATHFILENAME: Z:\CHELMSFORD-USCHI.1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C-509.DWG
LAST UPDATE: Thursday, September 29, 2022 2:58:20 PM
PLOT DATE: Friday, March 3, 2023 3:37:01 PM



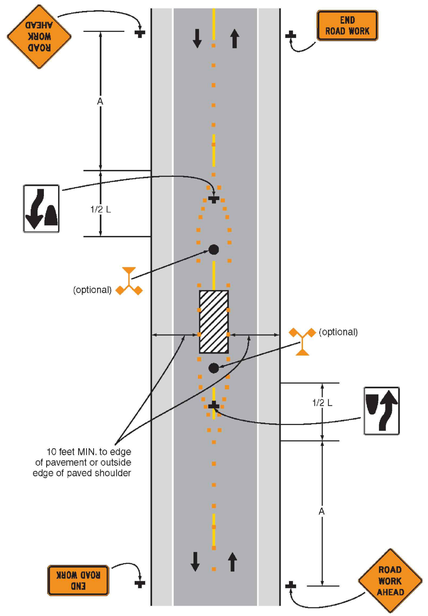
TYPICAL APPLICATION 6

SHOULDER WORK WITH MINOR ENCROACHMENT



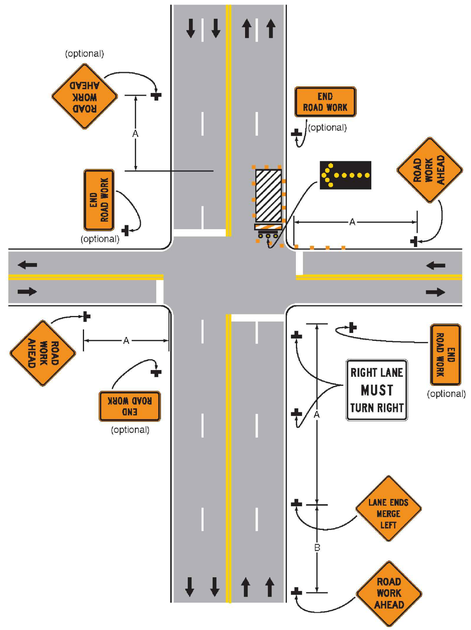
TYPICAL APPLICATION 10

LANE CLOSURE ON A TWO-LANE ROAD USING FLAGGERS



TYPICAL APPLICATION 15

WORK IN THE CENTER OF A ROAD WITH LOW TRAFFIC VOLUMES



TYPICAL APPLICATION 22

RIGHT-HAND LANE CLOSURE ON THE FAR SIDE OF AN INTERSECTION

NOTES:

1. SEE SHEET 99 C-603 FOR TEMPORARY SIGN SUMMARY AND MEANING OF SYMBOLS AND/OR LETTER CODES.

PATH/FILENAME: Z:\CHELMSFORD-JSC\HL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\C\99 C-601.DWG
LAST UPDATE: Thursday, September 29, 2022 2:57:40 PM
PLOT DATE: Friday, March 3, 2023 3:48:40 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**M. DONOGHUE**
Drawn By:	**S. NAPOLITANO**
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	**AS NOTED**

DISCIPLINE

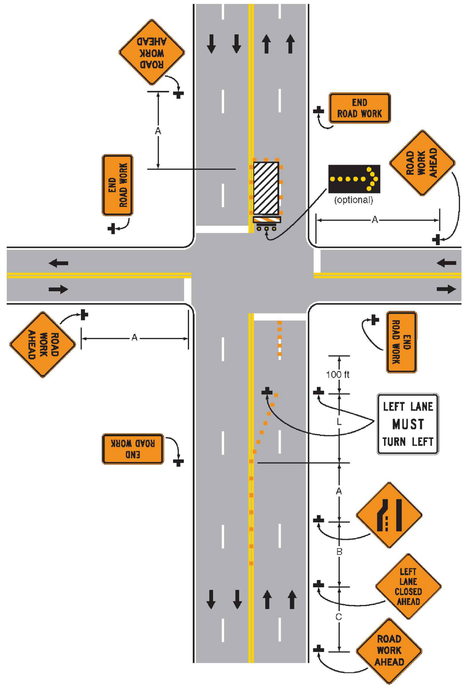
CIVIL

SHEET TITLE

TRAFFIC MANAGEMENT TYPICAL APPLICATIONS I

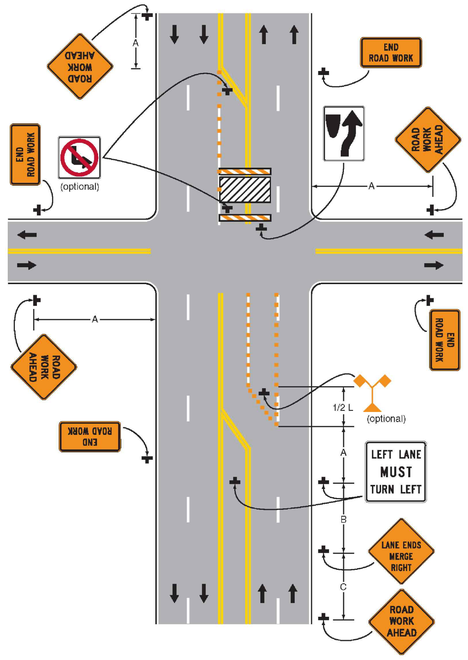
SHEET NUMBER

99 C-601



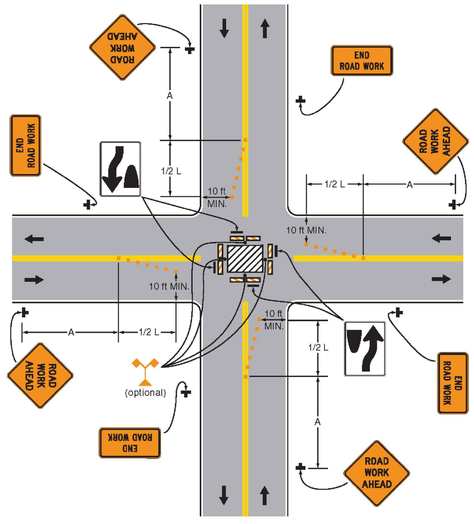
TYPICAL APPLICATION 23

LEFT–HAND LANE CLOSURE ON THE FAR SIDE OF AN INTERSECTION



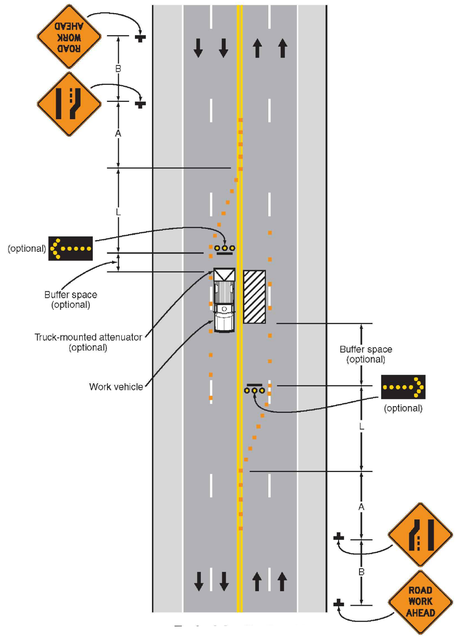
TYPICAL APPLICATION 25

MULTIPLE LANE CLOSURES AT AN INTERSECTION



TYPICAL APPLICATION 26

CLOSURE IN THE CENTER OF AN INTERSECTION



TYPICAL APPLICATION 30

INTERIOR LANE CLOSURE ON A MULTI–LANE STREET

NOTES:

1. SEE SHEET 99 C–603 FOR TEMPORARY SIGN SUMMARY AND MEANING OF SYMBOLS AND/OR LETTER CODES.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**M. DONOGHUE**
Drawn By:	**S. NAPOLITANO**
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	**AS NOTED**

DISCIPLINE

CIVIL

SHEET TITLE

TRAFFIC MANAGEMENT TYPICAL APPLICATIONS II

SHEET NUMBER

99 C-602

PATHFILENAME: Z:\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20\SHEETS\C99 C-602.DWG
LAST UPDATE: Thursday, September 29, 2022 3:01:29 PM
PLOT DATE: Friday, March 3, 2023 3:52:10 PM

MEANING OF LETTER CODES ON TYPICAL APPLICATION DIAGRAMS

ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
URBAN (LOW SPEED)*	100 ft	100 ft	100 ft
URBAN (HIGH SPEED)*	350 ft	350 ft	350 ft
RURAL	500 ft	500 ft	500 ft
EXPRESSWAY/FREEWAY	1,000 ft	1,500 ft	2,640 ft

NOTES:

* SPEED CATEGORY TO BE DETERMINED BY HIGHWAY AGENCY.

** DISTANCES ARE SHOWN IN FEET. THE COLUMN HEADINGS A, B AND C ARE THE DIMENSIONS SHOWN ON SHEET 99 C-601 AND 99 C-602.

- THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN.
- THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS.
- THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE THIRD SIGN IS THE FIRST ONE IN A THREE-SIGN SERIES ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL ZONE.)

FORMULAS FOR L ARE AS FOLLOWS:

FOR SPEED LIMITS OF 40 mph OR LESS:

$$L = \frac{WS^2}{60}$$

FOR SPEED LIMITS OF 45 mph OR GREATER:

WHERE: L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85th-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN mph

TEMPORARY SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN W	SIZE OF SIGN H	TEXT	TEXT DIMENSIONS	COLOR/ LEGEND	NUMBER OF SIGNS REQUIRED*
G20-2	36"	18"	END ROAD WORK	SEE MUTCD STANDARDS	ORANGE	2
R4-7	24"	30"		SEE MUTCD STANDARDS	WHITE	2
W4-2	36"	36"		SEE MUTCD STANDARDS	ORANGE	1
W9-2	36"	36"	LANE ENDS MERGE LEFT	SEE MUTCD STANDARDS	ORANGE	1
W20-5	36"	36"	RIGHT LANE CLOSED 1/2 MILE	SEE MUTCD STANDARDS	ORANGE	1
W20-3	36"	36"	ROAD WORK AHEAD	SEE MUTCD STANDARDS	ORANGE	2
W20-4	36"	36"	ONE LANE ROAD XXFT	SEE MUTCD STANDARDS	ORANGE	2
W20-7a	36"	36"	XX FEET	SEE MUTCD STANDARDS	ORANGE	2

* NUMBER OF SIGNS REQUIRED BASED ON ONE CREW WORKING. ADDITIONAL SIGNS MAY BE NECESSARY FOR MULTIPLE CREWS

MEANINGS OF SYMBOLS ON TYPICAL APPLICATION DIAGRAMS

- WORK SPACE
- HIGH-LEVEL WARNING DEVICE (FLAG TREE)
- DIRECTION OF TRAFFIC
- POLICE OFFICER
- TYPE III BARRICADE
- CHANNELIZING DEVICE
- SIGN (SHOWN FACING LEFT)
- ARROW BOARD

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

3/01/23
COMMONWEALTH OF MASSACHUSETTS
THOMAS E. PARECE
CIVIL
No. 34463
REGISTERED PROFESSIONAL ENGINEER

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**M. DONOGHUE**
Drawn By:	**S. NAPOLITANO**
Dept Check:	C. BENZIGER
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	**AS NOTED**

DISCIPLINE

CIVIL

SHEET TITLE

TRAFFIC MANAGEMENT DETAILS & TEMPORARY SIGN SUMMARY

SHEET NUMBER

99 C-603

PATH/FILENAME: Z:\CHELMSFORD-JSCH\.1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\C099 C-603.DWG
LAST UPDATE: Thursday, September 29, 2022 3:03:36 PM
PLOT DATE: Friday, March 3, 2023 3:50:03 PM

GENERAL

1. ALL WORK SHALL CONFORM TO 780 CMR, NINTH EDITION MASSACHUSETTS AMENDMENTS TO THE 2015 INTERNATIONAL BUILDING CODE AND TO OTHER CODES AND REFERENCES INDICATED OR SPECIFIED. IN CASE OF CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

2. DESIGN LOADS:

   A. SNOW LOAD:

   GROUND SNOW LOAD (PG): 25 PSF

   B. WIND LOAD:

   ULTIMATE DESIGN WIND SPEED (V_{ULT}): 152 MPH
   NOMINAL DESIGN WIND SPEED (V_{ASD}): 118 MPH
   RISK CATEGORY: III

   C. SEISMIC LOAD:

   SEISMIC IMPORTANCE FACTOR (IE): 1.25
   RISK CATEGORY: III
   MAPPED SPECTRAL RESPONSE COEFFICIENTS
   S(S): 0.144 S(1): 0.053
   SPECTRAL RESPONSE COEFFICIENTS
   S(DS): 0.154 S(D1): 0.085
   SITE CLASS: CLASS D

3. PROTECT ALL STRUCTURES AGAINST HYDRAULIC UPLIFT UNTIL STRUCTURES ARE COMPLETED AND BACKFILLED. GROUNDWATER SHALL BE ASSUMED TO BE AT GRADE.

4. FROST DEPTH AT THE SITE IS 4'-0" BELOW FINISHED GRADE.

5. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONAL INFORMATION. MISSING OR CONFLICTING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

6. DIMENSIONS AND ELEVATIONS INDICATED ON EXISTING STRUCTURES HAVE BEEN OBTAINED FROM DRAWINGS OR FIELD SURVEYS. VERIFY ALL DIMENSIONS AND ELEVATIONS THAT ARE REQUIRED FOR FABRICATION AND INSTALLATION OF ADDITIONS TO EXISTING STRUCTURES WITH FIELD MEASUREMENTS.

7. REFER TO CIVIL, PROCESS, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND DIMENSIONS OF CURBS, OPENINGS, SLEEVES, ANCHOR BOLTS, FLOOR PITCHES, ANGLE FRAMES, GATE FRAMES, AND OTHER PROJECT REQUIREMENTS NOT INDICATED ON STRUCTURAL DRAWINGS.

8. COORDINATE DIMENSIONS AND VERIFY LOCATION OF STRUCTURAL ELEMENTS WITH PURCHASED EQUIPMENT. ANCHOR BOLTS SHALL BE SIZED AND FURNISHED BY THE EQUIPMENT SUPPLIER UNLESS OTHERWISE INDICATED.

9. PROVIDE OPENINGS REQUIRED FOR PURCHASED EQUIPMENT. PROVIDE ANCHOR BOLTS, NUTS, NON-SHRINK NON-METALLIC GROUT, CONCRETE PADS AND REINFORCING STEEL REQUIRED FOR THE INSTALLATION OF EQUIPMENT.

10. STANDARD DETAILS AS SHOWN ON THE STRUCTURAL STANDARD DETAIL SHEETS ARE APPLICABLE TO ALL STRUCTURAL WORK EXCEPT WHERE A SPECIFIC SECTION OR DETAIL IS SHOWN OTHERWISE.

CONTROLLED LOW STRENGTH MATERIAL

1. PROVIDE CONTROLLED LOW STRENGTH MATERIAL (CLSM) HAVING A MAXIMUM 56-DAY COMPRESSIVE STRENGTH OF 200 PSI.

2. UNIT WEIGHT OF CLSM SHALL NOT EXCEED 120 POUNDS PER CUBIC FOOT.

3. PROVIDE STABLE AIR ADMIXTURE DESIGNED FOR USE WITH CLSM TO LOWER UNIT WEIGHT; REDUCE SEGREGATION AND BUOYANCY AND CONTROL COMPRESSIVE STRENGTH.

4. SECURE PIPES, CONDUIT AND EQUIPMENT TO BE ENCASED IN CLSM TO PREVENT DISLODGING DURING PLACEMENT.

5. PROVIDE BRACING OF CONTAINMENT ELEMENTS DURING PLACEMENT OF CLSM SO AS NOT TO INDUCE RESIDUAL STRESSES IN THE STRUCTURE.

CONCRETE

1. CONCRETE WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) AND THE CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350).

2. USE NORMAL WEIGHT CAST-IN-PLACE CONCRETE WITH ASTM C 150, TYPE II CEMENT FOR ALL CAST-IN-PLACE CONCRETE WORK.

3. PROVIDE CONCRETE HAVING A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND A MAXIMUM WATER-CEMENT RATIO OF 0.45 UNLESS OTHERWISE INDICATED OR SPECIFIED.

4. CONCRETE FOR LIQUID CONTAINING STRUCTURES SHALL HAVE
   A. A 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI;
   B. A MAXIMUM WATER-CEMENT RATIO OF 0.42;

5. PROVIDE FIBER REINFORCED CONCRETE HAVING A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI FOR ALL CONCRETE FILLS AND TOPPINGS.

6. PROVIDE CONCRETE UNDER FOUNDATIONS HAVING A 28-DAY COMPRESSIVE STRENGTH OF 1,500 PSI WHEN INDICATED OR REQUIRED.

7. AIR-ENTRAIN ALL CONCRETE EXCEPT INTERIOR SLABS AND SLABS ON GRADE.

8. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE-60.

9. WELDING REINFORCING BARS IS PROHIBITED EXCEPT WHERE SPECIFICALLY INDICATED ON THE DRAWINGS. REINFORCING BARS INDICATED TO BE WELDED SHALL CONFORM TO ASTM A 706, GRADE-60.

10. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 1064. PROVIDE WELDED WIRE FABRIC IN FLAT SHEETS. STAGGER SPLICES AND LAP AT LEAST TWO FULL MESHES.

11. REINFORCE CONCRETE FILL AND TOPPING SLABS THAT ARE TWO INCHES OR MORE IN THICKNESS WITH WELDED WIRE FABRIC SIZED IN CONFORMANCE WITH THE STANDARD DETAIL UNLESS OTHERWISE INDICATED OR SPECIFIED. PROVIDE ADEQUATE SUPPORT TO MAINTAIN FABRIC IN POSITION DURING CONCRETE PLACEMENT AND FINISHING OPERATIONS.

12. LAP CONTINUOUS BOTTOM REINFORCEMENT AT THE CENTER OF A SPAN AND CONTINUOUS TOP REINFORCEMENT AT SUPPORTS IN FOUNDATION MATS AND BASE SLABS, UNLESS OTHERWISE INDICATED.

13. PROVIDE REINFORCING BAR SUPPORTS, SPACERS, AND ACCESSORIES AS RECOMMENDED IN ACI 315. PROVIDE PLASTIC BOOTED ACCESSORIES IN CONTACT WITH EXPOSED SURFACES. PROVIDE MINIMUM #5 SUPPORT BARS.

14. CAST FOUNDATION MATS, BASE SLABS, SLABS ON GRADE, WALLS AND ELEVATED SLABS IN ALTERNATE CONCRETE PLACEMENTS. WAIT A MINIMUM OF 72 HOURS BEFORE PLACING ADJACENT CONCRETE SECTIONS.

15. PROVIDE CONTINUOUS #5 HORIZONTAL BARS AT 12 INCH MAXIMUM SPACING ON EACH SIDE OF CONCRETE BEAMS AND GIRDERS.

16. SET AND MAINTAIN REINFORCEMENT AT THE CLEAR DISTANCES FROM THE SURFACE OF CONCRETE AS SHOWN IN THE STANDARD DETAIL UNLESS OTHERWISE INDICATED.

17. PROVIDE EMBEDMENT AND SPLICES OF REINFORCEMENT AS SHOWN IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.

18. PROVIDE ADDITIONAL REINFORCEMENT ALONG EACH SIDE OF OPENINGS AS INDICATED IN THE STANDARD DETAILS UNLESS OTHERWISE INDICATED.

19. PROVIDE CONSTRUCTION AND EXPANSION JOINTS WHERE INDICATED. DO NOT OMIT OR ADD JOINTS.

20. INTENTIONALLY ROUGHEN SURFACE OF HORIZONTAL CONSTRUCTION JOINTS IN WALLS AND AT BASE OF WALL TO 1/4" AMPLITUDE.

21. PROVIDE CONSTRUCTION AND EXPANSION JOINTS IN CONCRETE FILL AND TOPPING SLABS AT THE SAME LOCATION AS THE CONSTRUCTION AND EXPANSION JOINTS IN THE SUPPORTING CONCRETE.

22. PROVIDE 3/4-INCH CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE ELEMENTS.

23. STEEL TROWEL FINISH THE TOP OF ALL TANK WALLS, FLOORS, ROOFS, CONCRETE FILL AND TOPPING SLABS UNLESS OTHERWISE INDICATED OR SPECIFIED. BROOM FINISH EXTERIOR CONCRETE PLATFORMS, STAIRS AND LOADING DOCKS UNLESS OTHERWISE INDICATED OR SPECIFIED.

FOUNDATION

1. FOUNDATION DESIGNS ARE BASED UPON THE ALLOWABLE SOIL BEARING CAPACITIES INDICATED ON THE FOUNDATION PLANS.

2. PERCENT COMPACTION IS DEFINED AS THE RATIO OF THE FIELD DRY DENSITY, DETERMINED BY ASTM D-1556, TO THE MAXIMUM DRY DENSITY, DETERMINED BY ASTM-D 1557 (MODIFIED PROCTOR).

3. COMPACT BACKFILL UNDER FOUNDATION MATS, BASE SLABS, FOOTINGS, AND SLABS ON GRADE TO A MINIMUM OF 95 PERCENT. COMPACT EMBANKMENTS AND BACKFILL NOT SUPPORTING STRUCTURES TO A MINIMUM OF 90 PERCENT. PLACE AND COMPACT ALL BACKFILL IN 8-INCH MAXIMUM LAYERS.

4. COMPACT THE BOTTOM SURFACE OF EXPOSED EXCAVATIONS WITH A VIBRATORY STEEL DRUM ROLLER OR VIBRATORY PLATE TO ACHIEVE A NEAR SURFACE DENSITY OF AT LEAST 95 PERCENT.

5. PROVIDE FOUNDATION PREPARATION AS INDICATED ON THE STANDARD DETAIL UNDER ALL FOUNDATION SLABS, MATS AND FOOTINGS.

6. DO NOT PLACE FOUNDATION CONCRETE IN WATER OR ON FROZEN OR DISTURBED GROUND.

7. A UNIT WEIGHT OF SOIL OF 120 PCF WAS USED IN THE DESIGN.

8. FOUNDATION WALLS HAVE BEEN DESIGNED FOR AN EQUIVALENT FLUID LATERAL EARTH PRESSURE OF 65 PCF ABOVE THE MAXIMUM GROUNDWATER ELEVATION AND AN EQUIVALENT FLUID LATERAL EARTH PRESSURE OF 95 PCF BELOW THE MAXIMUM GROUNDWATER ELEVATION PLUS A UNIFORM LATERAL PRESSURE OF 150 PSF TO ACCOUNT FOR A 300 PSF SURFACE SURCHARGE ADJACENT TO THE STRUCTURES.

9. DO NOT BACKFILL AGAINST CONCRETE WALLS UNTIL WALLS AND ALL SLABS AT AND BELOW THE FIRST FLOOR LEVEL HAVE REACHED THE SPECIFIED DESIGN STRENGTH. THE FIRST FLOOR LEVEL IS DEFINED AS THE LEVEL AT FINISHED GRADE OR THE FIRST LEVEL ABOVE FINISHED GRADE.

10. DO NOT LEAK TEST TANKS OR CHANNELS UNTIL WALLS AND ALL TOP SLABS HAVE REACHED THE SPECIFIED DESIGN STRENGTH.

11. PLACE EXTERIOR SLABS, PLATFORMS AND WALKS ON 8-INCH LAYERS OF NON-FROST SUSCEPTIBLE MATERIAL (SELECT BORROW, SCREENED GRAVEL OR CRUSHED STONE BACKFILL HAVING NOT MORE THAN 5 PERCENT BY WEIGHT PASSING A NO. 200 SIEVE). THE LIMITS OF BACKFILL ARE DEFINED BY AN OUTWARD SLOPE OF 1:1 FROM THE PERIMETER OF THE SLAB TO A DEPTH OF FOUR FEET BELOW FINISH GRADE UNLESS OTHERWISE INDICATED OR SPECIFIED. PLACE MATERIAL IN 8-INCH LIFTS. COMPACT SELECT BORROW TO 95 PERCENT. COMPACT SCREENED GRAVEL AND CRUSHED STONE USING A SELF-PROPELLED VIBRATORY STEEL DRUM ROLLER OR RUBBER TIRE ROLLERS WITH A MINIMUM OF FOUR PASSES IN DIRECTIONS PERPENDICULAR TO ONE ANOTHER IN OPEN AREAS. IN SMALL AREAS, USE MANUALLY OPERATED VIBRATORY PLATE COMPACTORS WITH A MINIMUM OF FOUR PASSES.

CONCRETE ANCHORS

1. ADHESIVE TYPE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM E 488, 'STANDARD TEST METHODS FOR STRENGTH OF ANCHORS IN CONCRETE AND MASONRY ELEMENTS', ASTM 1512, 'STANDARD TEST METHODS FOR TESTING BOND PERFORMANCE OF ADHESIVE-BONDED ANCHORS', ICBO ES AC-308, 'ACCEPTANCE CRITERIA FOR POST-INSTALLED ADHESIVE ANCHORS' AND ACI 355.4 'QUALIFICATION OF POST-INSTALLED ANCHORS IN CONCRETE'.

2. PROVIDE SIZE, TYPE AND EMBEDMENT OF ANCHOR INDICATED INSTALLED TO DEVELOP THE MAXIMUM CAPACITY FOR THE EMBEDMENT, TYPE AND ANCHOR SIZE WITH A MINIMUM SAFETY FACTOR OF FOUR.

3. ANCHORS SHALL HAVE STANDARD UNC THREADS, UNLESS OTHERWISE INDICATED.

4. ANCHOR INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S CURRENT PRINTED INSTRUCTIONS.

5. REMOVE DUST AND DEBRIS FROM DRILLED HOLES USING COMPRESSED AIR OR VACUUM AT BOTTOM OF HOLE. IMMEDIATELY REMOVE STANDING WATER AND THOROUGHLY DRY HOLES TO RECEIVE ADHESIVE ANCHORS.

6. DO NOT HAMMER IN ANCHORS. INSTALL ANCHORS USING A ROTARY HAMMER DRILL AS RECOMMENDED BY ANCHOR MANUFACTURER. THE USE OF HAMMER IN TYPE ADHESIVE CAPSULES IS PROHIBITED.

10. PROVIDE ADHESIVE TYPE ANCHORS CONSISTING INJECTABLE ADHESIVE CARTRIDGES AND THREADED ANCHOR BOLTS SUPPLIED AS A SYSTEM BY ONE MANUFACTURER. PROVIDE EACH ANCHOR WITH NUT AND WASHER. AFTER INSTALLATION, DO NOT DISTURB OR LOAD ANCHORS BEFORE THE SPECIFIED CURING TIME ELAPSES (MAY VARY WITH TEMPERATURE). ADHESIVE ANCHORING SYSTEM SHALL BE:

   A. HILTI: HIT-HY 200R;
   B. ITW REDHEAD/RAMSET: EPCON G5;
   C. DEWALT: PE1000+;
   D. SIMPSON: STRONG-TIE SET-XP;
   E. OR APPROVED EQUAL.

ABBREVIATIONS:

AB	ANCHOR BOLT
ADDL	ADDITIONAL
ALT	ALTERNATE
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	ASTM INTERNATIONAL
BM	BEAM
BOT, B	BOTTOM
CJ	CONSTRUCTION JOINT
CL, CLR	CLEAR
CL, ℄	CENTERLINE
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
DEG	DEGREE
DET	DETAIL
DIA,Ø	DIAMETER
DIR	DIRECTION
DN	DOWN
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
EW	EACH WAY
EXIST	EXISTING
FD	FLOOR DRAIN
FF	FAR FACE
FIN	FINISH
FL	FLOOR
FTG	FOOTING
GALV	GALVANIZE (HOT-DIP)
HORIZ, H	HORIZONTAL
HP	HIGH POINT
IF	INSIDE FACE
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
NTS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OPNG	OPENING
PC	PIECE
PCF	POUNDS PER CUBIC FEET
PJF	PREMOLDED JOINT FILLER
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
SECT	SECTION
SPECS	SPECIFICATIONS
SQ	SQUARE
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
T	TOP
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TR	TREADS
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT, V	VERTICAL
WS	WATERSTOP, WATER SURFACE
WWF	WELDED WIRE FABRIC
⟵	DIRECTION IN WHICH BARS EXTEND

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA

19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL E. MALENFANT
STRUCTURAL
NO.45440
REGISTERED
PROFESSIONAL ENGINEER

03 March 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	JW
Drawn By:	JW
Dept Check:	MEM
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

STRUCTURAL

SHEET TITLE

STRUCTURAL NOTES AND ABBREVIATIONS

SHEET NUMBER

00 S-001

PATH/FILENAME: L:\DC\SI\PROJECT\SWTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\810_CAD\20-SHEETS\S\00 S-001.DWG
LAST UPDATE: Thursday, September 15, 2022 11:16:59 AM
PLOT DATE: Friday, March 03, 2023 11:25:41 AM

CLEAR CONCRETE COVER OVER REINFORCEMENT FOR CAST-IN-PLACE CONCRETE (INCHES)					
MEMBER	EXPOSURE CONDITIONS				
	AIR	WEATHER	AIR OVER LIQUID	EARTH OR STONE	LIQUIDS
FOOTINGS AND FOUNDATION MATS	2"*	2"*	-	2" * 3" ●	2"*
WALLS	2"	2"	2"	2"	2"
JOISTS, BEAM STIRRUPS AND COLUMN TIES	1 1/2"	2"	2"	2" * 3" ●	2"
FRAMED SLABS-EACH FACE	1"	2"	2"	2"▲	2"
SLABS ON GROUND	1"	2"	-	2"▲	2"

* TOP FACE AND SIDES

● BOTTOM FACE

▲ WHEN PLACED ON SAND-GRAVEL, WELL DRAINED COMPACTED FILL

CLEAR CONCRETE COVER OVER REINFORCEMENT FOR CAST-IN-PLACE CONCRETE

NTS

REINFORCING BAR DEVELOPMENT PER ACI 318				
f'c = 4,000 psi f'c = 4,500 psi			fy = 60,000 psi	
BAR SIZE	BASIC TENSION DEVELOPMENT	TOP CAST BAR TENSION DEVELOPMENT	COMPRESSION DEVELOPMENT	STANDARD HOOK DEVELOPMENT
# 3 (10)	1'-3"	1'-7"	1'-0"	8"
# 4 (13)	1'-7"	2'-1"	1'-3"	10"
# 5 (16)	2'-0"	2'-7"	1'-7"	1'-0"
# 6 (19)	2'-5"	3'-1"	1'-11"	1'-3"
# 7 (22)	3'-6"	4'-6"	2'-2"	1'-5"
# 8 (25)	4'-0"	5'-2"	2'-6"	1'-7"
# 9 (29)	4'-6"	5'-10"	2'-10"	1'-10"
# 10 (32)	5'-0"	6'-7"	3'-2"	2'-0"
# 11 (36)	5'-7"	7'-3"	3'-6"	2'-3"

TABULATED VALUES ARE FOR UNCOATED BARS AND NORMAL WEIGHT CONCRETE.

TOP CAST BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BAR.

TABULATED VALUES ARE FOR BARS WHICH HAVE AT LEAST 1½" OF CLEAR CONCRETE COVER AND ARE SPACED AT LEAST 3" ON CENTER. SPLICE LENGTHS FOR BARS NOT CONFORMING TO EITHER OF THESE CONDITIONS SHALL BE INCREASED 50%.

REINFORCING BAR DEVELOPMENT

NTS

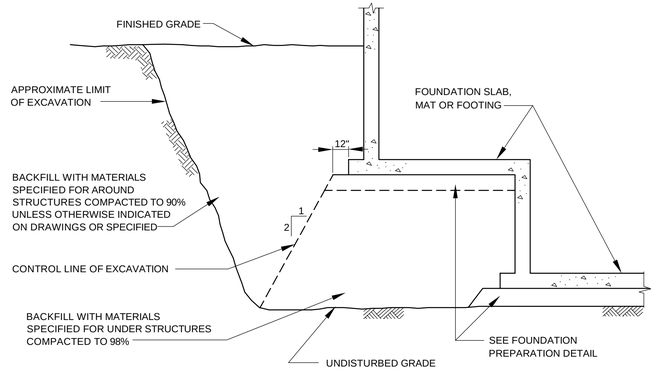
REINFORCING BAR SPLICES PER ACI 318				
f'c = 4,000 psi f'c = 4,500 psi			fy = 60,000 psi	
BAR SIZE (METRIC)	CLASS "B" SPLICE		COMPRESSION SPLICE	
	TOP CAST BARS	OTHER BARS		
# 3 (10)	2'-0"	1'-7"	1'-0"	
# 4 (13)	2'-8"	2'-1"	1'-3"	
# 5 (16)	3'-4"	2'-7"	1'-7"	
# 6 (19)	4'-0"	3'-1"	1'-11"	
# 7 (22)	5'-10"	4'-6"	2'-2"	
# 8 (25)	6'-8"	5'-2"	2'-6"	
# 9 (29)	7'-7"	5'-10"	2'-10"	
# 10 (32)	8'-6"	6'-7"	3'-2"	
# 11 (36)	9'-5"	7'-3"	3'-6"	

TABULATED VALUES ARE FOR NORMAL WEIGHT CONCRETE AND UNCOATED BARS THAT HAVE AT LEAST 1 1/2" OF CLEAR CONCRETE COVER AND ARE SPACED AT LEAST 3" ON CENTER.

TOP CAST BARS ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF CONCRETE IS PLACED BELOW THE BAR.

REINFORCING BAR SPLICES

NTS

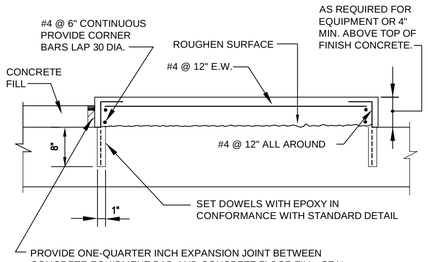


NOTES:

1. PERCENT COMPACTION IS THE RATIO OF FIELD DRY DENSITY DETERMINED BY ASTM D-1556 TO MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 MULTIPLIED BY 100.

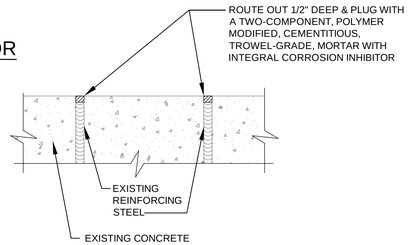
BACKFILL AROUND AND BENEATH STRUCTURES

NOT TO SCALE



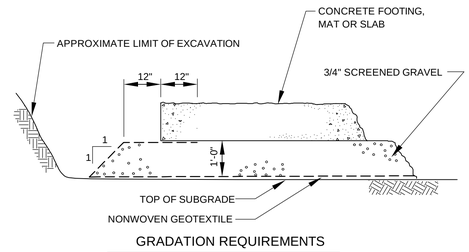
CONCRETE EQUIPMENT PAD FOR EXISTING CONSTRUCTION

NTS



REPAIR TO EXPOSED REINFORCING STEEL DUE TO DEMOLITION OPERATIONS

NTS



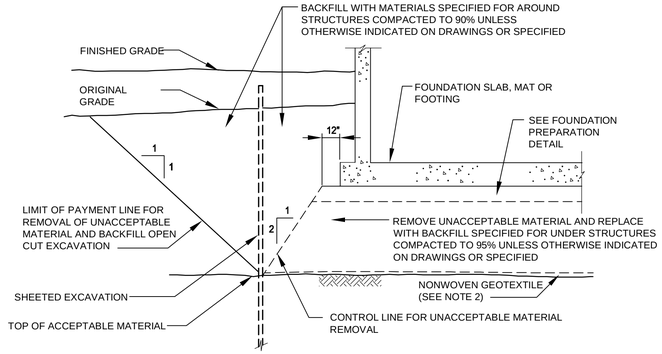
GRADATION REQUIREMENTS

SIEVE SIZE	PERCENTAGE BY WEIGHT PASSING
	3/4" SCREENED GRAVEL
1"	100
3/4"	90 - 100
3/8"	20 - 55
#4	0 - 10
#8	0 - 5

NOTE: CONFORM TO GEOTEXTILE SPECIFICATIONS.

FOUNDATION PREPARATION WITH GEOTEXTILE

NOT TO SCALE

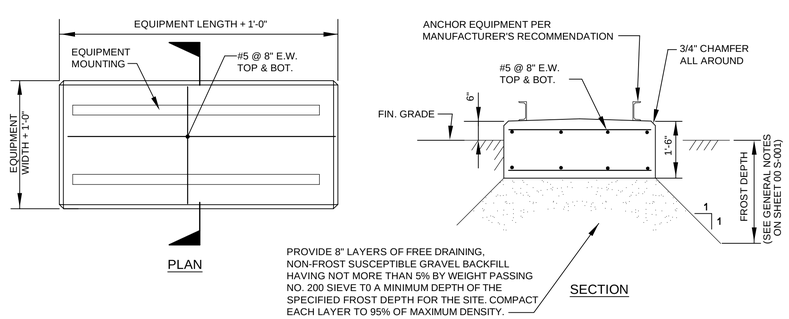


NOTES:

1. PERCENT COMPACTION IS THE RATIO OF FIELD DRY DENSITY DETERMINED BY ASTM D-1556 TO MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 MULTIPLIED BY 100.
2. NONWOVEN GEOTEXTILE SHALL BE PLACED AT UNDISTURBED SUBGRADE WHEN SCREENED GRAVEL OR CRUSHED STONE IS USED AS BACKFILL BENEATH STRUCTURES.

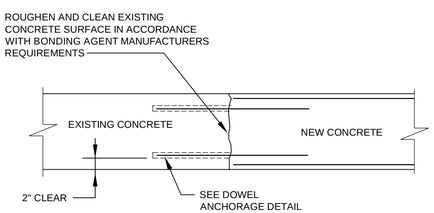
REMOVAL OF UNACCEPTABLE MATERIAL FROM BENEATH STRUCTURES

NOT TO SCALE



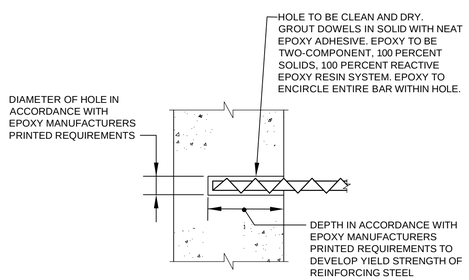
EXTERIOR EQUIPMENT PAD

NTS



BONDING NEW CONCRETE TO EXISTING CONCRETE

NTS



DOWEL ANCHORAGE INTO EXISTING CONCRETE

NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
MICHAEL E. MALENFANT
STRUCTURAL
NO. 45440
REGISTERED PROFESSIONAL ENGINEER
03 March 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	JW
Drawn By:	JW
Dept Check:	MEM
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

STRUCTURAL

SHEET TITLE

STRUCTURAL STANDARD DETAILS

SHEET NUMBER

99 S-501

PATHFILENAME: L:\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\S\99 S-501.DWG
LAST UPDATE: Tuesday, September 27, 2022 3:27:14 PM
PLOT DATE: Friday, March 03, 2023 11:27:07 AM

DWG. ABBREV.	ITEM	SYMBOL
	GATE VALVE	
	KNIFE VALVE	K
	PLUG VALVE	
	CONE VALVE	
	3-WAY PLUG VALVE	
	BUTTERFLY VALVE	
	BALL VALVE	
	3-WAY BALL VALVE	
	CHECK VALVE	
	COMBINED FUNCTION VALVE	
	WAFER CHECK VALVE	W
	SPLIT DISC CHECK VALVE	
	BALL CHECK VALVE	
	DIAPHRAGM VALVE	
HG	HOSE GATE	HG
	GLOBE VALVE	
	PINCH VALVE	
	NEEDLE VALVE	
	ANGLE VALVE	
	RELIEF VALVE	
	PRESSURE REGULATING VALVE	
	PRESSURE REDUCING VALVE	
	BACK PRESSURE VALVE	
	IRIS VALVE	
	MULTI ORIFICE VALVE	
	DUCK BILL CHECK VALVE	
	SPECTACLE FLANGE	
	UNION	
	FLAP VALVE *	
	MUD VALVE *	
	TELESCOPING VALVE *	T
	INSECT SCREEN	
	QUICK DISCONNECT COUPLING	
	FLEXIBLE HOSE	
	PULSATION DAMPENER	
	CALIBRATION STANDPIPE (COLUMN)	

*FLOW DIAGRAM ONLY

DWG. ABBREV.	ITEM	SYMBOL
	STATIC MIXER	
SG	SLIDE GATE	
SL	STOP LOG	
W	WEIR	W
VD	VOLUME DAMPER	VD
	EXISTING PIPE & FACILITIES	
	PROPOSED PIPE & FACILITIES	
	PIPE: 6" & SMALLER	
	PIPE: 8" & LARGER	
	FLANGE	
BF	BLIND FLANGE	BF
	WELDED	
PO	MECHANICAL JOINT	
PO	RESTRAINED PUSH ON JOINT	
	GROOVED COUPLING (PIPE 6" & SMALLER)	
	GROOVED COUPLING (PIPE 8" & LARGER)	
	SLEEVE COUPLING	
	RESTRAINED SLEEVE COUPLING	
	FLANGE ADAPTER	
	RESTRAINED FLANGE ADAPTER	
	BOLTED SPLIT SLEEVE COUPLING (PIPE 6" & SMALLER)	
	BOLTED SPLIT SLEEVE COUPLING (PIPE 8" & LARGER)	
	EXPANSION JOINT W/CONTROL RODS	
	CONCENTRIC REDUCER	
	ECCENTRIC REDUCER FLAT ON TOP	F.O.T.
	ECCENTRIC REDUCER FLAT ON BOTTOM	F.O.B.
	WYE STRAINER	
	INSULATION (PIPE 6" & SMALLER)	
	INSULATION (PIPE 8" & LARGER)	
	EXISTING PIPE TO BE REMOVED	

DWG. ABBREV.	ITEM	SYMBOL
FE	FLOW RATE CONTROLLER	
FE	VENTURI FLOW METER	
FE	MAGNETIC FLOW METER	
	ORIFICE PLATE	
	ROTAMETER	
G	GAUGE	
	RUPTURE DISC	
WS	WATER SURFACE	
	DIRECTION OF FLOW	
	END CAP	
	PITCH PIPE DOWN IN DIRECTION OF ARROW	
	LIMITS OF WORK (TRADE, CONTRACT, ETC.)	
	POINT OF CONNECTION NEW WORK TO EXISTING WORK	
	LIMITS (MATERIAL, FURNISHED BY, ETC.)	
	SAMPLE TO LAB	LAB 2
	CHEMICAL DIFFUSER AT PIPE	
	CHANNEL *	
ACTUATORS		
	MOTOR OPERATED	M
	SOLENOID OPERATED	S
	DIAPHRAGM	D
	CYLINDER – HYDRAULIC	H
	CYLINDER – PNEUMATIC	P
	ELECTRO – HYDRAULIC	EH
	EQUIPMENT MOTOR	M
WALL / FLOOR CASTINGS		
FLG x PO	FLANGE AND PUSH ON JOINT	WATERSTOP
PO x PO	PUSH ON JOINT AND PUSH ON JOINT	
PO x PE	PUSH ON JOINT AND PLAIN END	
FLG x FLG	FLANGE AND FLANGE	
FLG x PE	FLANGE AND PLAIN END	

*FLOW DIAGRAM ONLY

DWG. ABBREV.	ITEM	SYMBOL
EQUIPMENT		
	POSITIVE DISPLACEMENT BLOWER*	
	CENTRIFUGAL BLOWER*	
	AXIAL FLOW PUMP*	
	VERTICAL WET PIT PUMP*	
	VERTICAL TURBINE CAN PUMP*	
	CENTRIFUGAL PUMP*	
	SUBMERSIBLE CENTRIFUGAL PUMP*	
	DIAPHRAGM PUMP*	
	HOSE OR TUBING PUMP*	
	METERING PUMP*	
	PLUNGER PUMP*	
	ROTARY LOBE PUMP*	
	PROGRESSIVE CAVITY PUMP*	
	GRINDER*	G
	SCREW CONVEYOR*	
	HYDROCYCLONE*	
	MECHANICALLY CLEANED SCREEN*	

*FLOW DIAGRAM ONLY

DWG. ABBREV.	ITEM	SYMBOL
EQUIPMENT		
	STATIC INTAKE SCREEN*	
	INLINE STRAINER*	M M
	DUPLEX BASKET STRAINER*	
	SUBMERSIBLE MIXER*	M
	MIXER*	M

*FLOW DIAGRAM ONLY

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. PARECE
REGISTERED COURT
CIVIL
No. 57341
REGISTERED PROFESSIONAL ENGINEER
7/28/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NONE

DISCIPLINE

MECHANICAL PROCESS

SHEET TITLE

PROCESS LEGEND

SHEET NUMBER

00 D-001

PATH/FILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CADD\0-SHEETS\D\00 D-001.DWG
LAST UPDATE: Thursday, July 28, 2022 9:58:07 AM
PLOT DATE: Tuesday, March 7, 2023 10:15:59 AM

GENERAL NOTES:

1. EQUIPMENT AND SYSTEMS DIMENSIONS, LOCATIONS AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER. IF CONTRACTOR PROPOSES TO PROVIDE EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACING DIFFERING FROM THAT INDICATED OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR REVIEW DETAILED ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, INSTRUMENTATION HVAC AND ELECTRICAL DRAWINGS AND EQUIPMENT LISTS SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE EQUIPMENT AND/OR PROCESS SYSTEMS PROPOSED. THIS INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO PLANS, SECTIONS DETAILS AND SCHEMATICS OF ALL PIPING SYSTEMS AND APPURTENANCES REQUIRED, ELECTRICAL CONTROLS, CHEMICAL FEED SYSTEMS ETC.. SUCH CHANGES IF APPROVED BY THE ENGINEER SHALL BE AT NO ADDITIONAL COST TO THE OWNER AND NO TIME EXTENSION TO THE CONTRACT TIME TO COMPLETION. THE CONTRACTOR SHALL ASSUME THE COST OF AND THE RESPONSIBILITY FOR ACCOMPLISHING ALL THE NECESSARY CHANGES CORRESPONDING TO THE DIMENSIONS AND CHARACTERISTICS OF THE EQUIPMENT SUBMITTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
2. THE CONTRACTOR SHALL MAKE ALL REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSIONS, LOCATIONS, AND OTHER CONDITIONS.
3. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR COVER PLATES, HATCHES, GRATING, AND RAILING DETAILS.
4. ALL PIPING UNDER CONCRETE SLABS OR STRUCTURES SHALL BE ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED, REFER TO STRUCTURAL DRAWINGS.
5. ALL PIPING ENCASED IN CONCRETE SHALL HAVE PUSH-ON JOINTS AT ALL STRUCTURAL EXPANSION JOINTS.
6. PROVIDE EXPANSION JOINTS WITH CONTROL RODS FOR ALL EXPOSED PIPING CROSSING STRUCTURAL EXPANSION JOINTS.
7. ALL DIMENSIONS LOCATING EQUIPMENT ARE FROM FINISHED WALL SURFACES OR COLUMN CENTERLINES.
8. REFER TO INSTRUMENTATION DRAWINGS FOR INSTRUMENTATION AND CONTROL SYSTEMS. INSTRUMENT LOCATIONS ARE INDICATED ON MECHANICAL-PROCESS DRAWINGS IN APPROXIMATE LOCATION ONLY.
9. IN-LINE INSTRUMENTATION SHALL BE PROVIDED WITH ISOLATED PRESSURE TAPS, SEE INSTRUMENTATION DRAWINGS.
10. FOR CONTINUATION OF PIPING OUTSIDE STRUCTURES, SEE CIVIL DRAWINGS.
11. WALL AND FLOOR SLEEVES SHALL BE LARGE ENOUGH TO ACCOMMODATE FLANGES IF REQUIRED. FLOOR SLEEVES SHALL PROJECT AT LEAST 4-IN. ABOVE FINISHED FLOOR UNLESS OTHERWISE SHOWN, REFER TO DETAILS. IF SLEEVES ARE TO BE SEALED, PROVIDE GROOVED COUPLING PIPING CONNECTION TO FACILITATE INSTALLATION AND REMOVAL OF PIPING.
12. PROVIDE WALL CASTINGS WITH WATERSTOP FOR ALL BURIED AND SUBMERGED PIPELINES AND FOR PIPING LOCATED WITHIN 2 FT. OF MAXIMUM WATER SURFACE. WALL CASTINGS 4-IN AND LARGER – DUCTILE IRON, 3-IN AND SMALLER – SCH. 40 316L STAINLESS STEEL.
13. ALL PIPE PENETRATIONS THROUGH INTERIOR AND EXTERIOR WALLS AND FLOORS SHALL BE SEALED WATERTIGHT. ROOF PENETRATIONS SHALL BE SEALED IN ACCORDANCE WITH ARCHITECTURAL DETAILS.
14. SLEEVE OR GROOVED COUPLINGS MAY BE USED WHERE NECESSARY, AND AS APPROVED, TO FACILITATE PIPING INSTALLATION.
15. FOR FLANGED SYSTEMS PROVIDE FLEXIBLE CONNECTORS WHERE NECESSARY, AND AS APPROVED TO FACILITATE PIPING INSTALLATION AND VALVE AND EQUIPMENT REMOVAL.
16. ALL FLEXIBLE CONNECTORS, INCLUDING EXPANSION JOINTS AND SLEEVE COUPLINGS SHALL BE RESTRAINED AS INDICATED OR AS REQUIRED FOR EXPANSION AND FOR FLEXIBILITY.
17. PROVIDE ALL LIQUID PIPING 24" AND SMALLER WITH 3/4" LOW POINT DRAINS AND 3/4" HIGH POINT VENTS. PROVIDE ALL LIQUID PIPING 30" AND LARGER WITH 1 1/2" LOW POINT DRAINS AND 1 1/2" HIGH POINT VENTS. DRAINS AND VENTS TO INCLUDE BALL VALVE AND CAP, UNLESS OTHERWISE SPECIFIED OR INDICATED.
18. PROVIDE 1-1/4" HG AT INVERT OF ALL BLIND FLANGES AND AS INDICATED ON SCUM AND SLUDGE LINES.
19. SMALL PIPING (SAMPLE, SERVICE WATER, ETC.) IS SHOWN DIAGRAMMATICALLY: FIELD-ROUTING SUBJECT TO APPROVAL OF THE ENGINEER. SMALL PIPE ROUTING MUST NOT INTERFERE WITH ACCESS TO OR OPERATION OF ANY OTHER PIPE, VALVE, OR EQUIPMENT.
20. PORTIONS OF NON-PROCESS PIPING (PLUMBING, HVAC, CIVIL) ARE SHOWN FOR CLARITY OF DESIGN ONLY: REFER TO APPROPRIATE DRAWINGS AND SPECIFICATIONS FOR REQUIREMENTS.
21. ALL PROCESS EQUIPMENT, INCLUDING BLOWERS, PUMPS AND COMPRESSORS, SHALL BE ISOLATED FROM PIPING LOADS AND DYNAMICS BY FLEXIBLE CONNECTORS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND AS SPECIFIED.
22. CONTRACTOR SHALL PROTECT ALL EQUIPMENT, PIPING, AND VALVES FROM DAMAGE DURING DEMOLITION. ALL REPAIRS TO DAMAGED EQUIPMENT, PIPE, AND VALVES SHALL BE PERFORMED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
23. BASE ELBOWS AND PIPE BRACES ARE SHOWN FOR PURPOSES OF ILLUSTRATION ONLY.
24. PROVIDE WALL MOUNTED SIGNS, IN ACCORDANCE WITH SPECIFIED ARCHITECTURAL REQUIREMENTS FOR ALL EXTERIOR WALL PENETRATIONS, INDICATING PIPE ORIGIN OR DESTINATION AND PIPE LABEL.
25. FOR PUMP SEAL WATER, VENT, DRAIN, PRESSURE GAUGE, VALVING AND PIPING SEE DETAILS.
26. PROVIDE CONCRETE PADS FOR ALL FLOOR MOUNTED PROCESS EQUIPMENT, REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
27. VENTS AND DRAINS:
    - A. INSTALL VENT AND DRAIN PIPING AND VALVES SO THERE IS NO INTERFERENCE WITH ACCESS TO OR OPERATION OF ANY EQUIPMENT, VALVES, PIPING OR PANELS.
    - B. PROVIDE ISOLATION VALVES FOR ALL VENTS AND DRAINS AS SPECIFIED AND INDICATED.
    - C. LOCATE VALVES SO THAT THEY ARE ACCESSIBLE AND OPERABLE.
    - D. PIPE ALL VENTS AND DRAINS SLOPED TO DRAIN TO THE NEAREST GUTTER, SUMP, TRENCH OR DRAIN OR AS INDICATED.
    - E. WHERE PIPING RUNS ACROSS A FLOOR, INSTALL 2 INCHES MAXIMUM ABOVE FLOOR.
30. ALL PIPE PENETRATIONS INTO THE FOLLOWING AREAS SHALL BE SEALED GASTIGHT:
    - A. PS4 WET WELL AN VALVE VAULT
31. ALL PIPE SUPPORT QUANTITIES, TYPES, ANCHORAGE AND THE LIKE SHALL BE IN ACCORDANCE WITH SECTION 15056.

MECHANICAL PROCESS EQUIPMENT ABBREVIATIONS

AC	AIR COMPRESSOR
ACC	ACCUMULATOR
ACL	AFTERCOOLER
ASEP	AIR SEPERATION UNIT
AU	COMPOSITE SAMPLER
BLW	BLOWER
BU	BLENDING UNIT
CAD	CARBON ADSORBER
CNT	CONTAINER
DIF	DIFFUSER
DP	DIFFERENTIAL PRESSURE
F	FAN
FIL	FILTER
FLR	FLARE
HST	HOIST
IBC	INTERMEDIATE BULK CONTAINER ("TOTE")
JCR	JIB CRANE
LE	LEVEL ELEMENT
MIX	MIXER
MP	METERING PUMP
OCF	ODOR CONTROL FAN
P	PUMP
PD	PULSATION DAMPENER
POLBU	PLOYMER BLEND UNIT
PRS	WASH PRESS
SCR	SCREEN
SG	SLIDE GATE
SIL	SILENCER
SL	STOP LOG
ST	STORAGE TANK
STRN	STRAINER
TK	TANK
UV	ULTRAVIOLET
W	WELL

MECHANICAL PROCESS GENERAL ABBREVIATIONS

ACFM	ACTUAL CUBIC FEET PER MINUTE
AFF	ABOVE FINISHED FLOOR
ANCH.	ANCHOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ARV	AIR RELEASE VALVE
AVV	AIR VACUUM VALVE
B.O.D.	BOTTOM OF DUCT
CFM	CUBIC FEET PER MINUTE
CHEM.	CHEMICAL
CI	CAST IRON
℄	CENTERLINE
CL	CLASS
CMU	CONCRETE MASONARY UNIT
C.O.	CLEANOUT
CONC.	CONCRETE
CONN.	CONNECTION
CONT.	CONTINUATION
CPVC	CHLORINATED POLYVINYLCHLORIDE
CS	CARBON STEEL
CV	CONTROL VALVE
DEG. C.	DEGREES CELSIUS
DEG. F.	DEGREES FAHRENHEIT
DET.	DETAIL
D.I.	DUCTILE IRON
DIA.	DIAMETER
DISCH.	DISCHARGE
DN	DOWN
DWG'S.	DRAWINGS
ExE	FLEXIBLE COUPLING (EXPANSION x EXPANSION)
ECC. RED.	ECCENTRIC REDUCER
EFF.	EFFLUENT
EFF. %	% EFFICIENCY
ELEC.	ELECTRICAL
EL.	ELEVATION
ELL.	ELBOW
ENCL.	ENCLOSURE
EQUIP.	EQUIPMENT
EXIST.	EXISTING
FxE	EXPANSION COUPLING (FIXED x EXPANSION)
FxF	RESTRAINED COUPLING (FIXED x FIXED)
FE	FLOW ELEMENT
F.F.	FLAT FACE
FHMB	FLAT HEAD MACHINE BOLT
FIN. FL.	FINISHED FLOOR
FIN. GR.	FINISHED GRADE
FIT	FLOW INDICATING TRANSMITTER
FLEX.	FLEXIBLE
FLG.	FLANGE
F.O.B.	FLAT ON BOTTOM
F.O.S.	FLAT ON SIDE
F.O.T.	FLAT ON TOP
FT. / MIN	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSI	FORMED SUCTION INTAKE
FT.	FEET
GAL.	GALLONS
GALV.	GALVANIZED
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLEYNE
HG	HOSE GATE
HHMB	HEXAGONAL HEAD MACHINE BOLT
Hg	MERCURY
H.P.	HIGH POINT
HP	HORSE POWER
HPT	HOSE PIPE THREAD
HVAC	HEATING VENTILATION
H.W.L.	HIGH WATER LEVEL
I.D.	INSIDE DIAMETER
IN.	INCHES
INSUL.	INSULATION
INV.	INVERT
IPT	IRON PIPE THREAD
KG	KILOGRAM
KW	KILOWATT
LB.	POUND
LG.	LONG
L.P.	LOW POINT
L.R.	LONG RADIUS
L/S	LITERS PER SECOND
LSH	PRESSURE SWITCH LOW
LSP	LIQUID SAMPLE PORT
LXW	LENGTH X WIDTH
L.W.L.	LOW WATER LEVEL
M	METER
MAX.	MAXIMUM
MATL.	MATERIAL
MCC	MOTOR CONTROL CENTER
MECH.	MECHANICAL
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN.	MINIMUM
MM	MILLIMETERS
NAVD	NORTH AMERICAN VERTICAL DATUM
N.C.	NORMALLY CLOSED
NGVD	NATIONAL GEODETIC VERTICAL DATUM
N.O.	NORMALLY OPEN
NO.	NUMBER
NOM.	NOMINAL
NPSH	NET POSITIVE SUCTION HEAD
NPSHR	NET POSITIVE HEAD REQUIRED
NPT	NATIONAL PIPE THREAD
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OPER.	OPERATING
P	PRESSURE GAUGE
PE	PLAIN END
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATOR TRANSMITTER
PLMB.	PLUMBING
PRI.	PRIMARY
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PSV	PRESSURE SAFETY SWITCH
PVC	POLYVINYLCHLORIDE
PVDF	POLYVINYLIDENE FLOURIDE
R	RADIUS
RED.	REDUCER / REDUCING
RED. FLG.	REDUCING FLANGE
REF.	REFERENCE
REINF.	REINFORCING
REQ'D.	REQUIRED
RPM	REVOLUTIONS PER MINUTE
SCH.	SCHEDULE
SH.	SHEET
SPD	SUMP PUMP DISCHARGE
SPECS.	SPECIFICATIONS
SQ.	SQUARE
S.R.	SHORT RADIUS
S.S	STAINLESS STEEL
STD.	STANDARD
STR.	STRUCTURAL
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP.	TEMPERATURE
TENV	TOTALLY ENCLOSED NON VENTILATED
THK.	THICK
T.O.C.	TOP OF CONCRETE
T.O.D.	TOP OF DUCT
T.O.S.	TOP OF STEEL
TSH	TEMPERATURE SWITCH HIGH
TYP.	TYPICAL
VD	VOLUME DAMPER
W/	WITH
WxH	WIDTH x HEIGHT
WC	WATER COLUMN
WORK.	WORKING
WP	WEATHER PROTECTED
WPI	WEATHER PROTECTED TYPE I
WPII	WEATHER PROTECTED TYPE II
W.S.	WATER SURFACE
XPROOF	EXPLOSION PROOF

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. PARECE
REGISTERED PROFESSIONAL ENGINEER
No. 57341
CIVIL
3/23/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NONE

DISCIPLINE

MECHANICAL PROCESS

SHEET TITLE

GENERAL NOTES AND ABBREVIATIONS

SHEET NUMBER

00 D-002

PATH/FILENAME: C:\USERS\RUBINI\ONEDRIVE - AECOM\PRO\60652634_ORLEANSMEETINGHOUSEPS\00_CAD\00-SHEETS\D000 D-002.DWG
LAST UPDATE: Thursday, August 11, 2022 8:38:30 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:01 AM

PROCESS PIPING SCHEDULE

LEGEND	SERVICE	TEMP. (DEG. F) OPER.	TEMP. (DEG. F) MAX.	PRESSURE (PSI) WORK.	PRESSURE (PSI) MAX.	MATERIAL	DIAMETER RANGE	SCH./ CLASS	LINING/COATING	JOINT TYPE	INSULATION TYPE	INSULATION THICKNESS (IN.)	VALVING BLOCK	VALVING CHECK	VALVING THROTTLING	TEST REQUIREMENTS PRESSURE (PSI)	TEST REQUIREMENTS MEDIUM	TEST REQUIREMENTS TEST DURATION (MIN.)	TEST REQUIREMENTS LEAKAGE ALLOWANCE (SEE NOTES)	SPECS. SECTION NUMBER	REMARKS
ALP	AIR LOW PRESSURE	100	250	10	20	TYPE 316L STAINLESS STEEL	ALL	SEE SPECS.	---	WELDED/FLANGED	FIBERGLASS	1	BUTTERFLY	SPLIT DISK	BUTTERFLY	20	AIR	60	ZERO	15066	SEE NOTE 7
D	DRAIN	SAME AS SYSTEM				DUCTILE IRON PVC	4" AND LARGER 3" AND SMALLER	SEE SPECS. SCH. 80	CEMENT ---	FLANGED/PUSH-ON FLANGED/SOCKET WELDED/PRESS-FIT	---	---	PLUG BALL	---	---	---	WATER	60	ZERO	02615 15370	
OC	ODOR CONTROL	0	100	---	14" WC	PVC	ALL	SCH. 80	---	SOLVENT WELDED/FLANGED	---	---	BUTTERFLY DAMPER	---	---	---	AIR	60	ZERO	15370	
RWW	RAW WASTEWATER	40	80	55	90	DUCTILE IRON TYPE 316L STAINLESS STEEL	4" AND LARGER 3" AND SMALLER	SEE SPECS.	CEMENT ---	FLANGED/RESTRAINED MECHANICAL JOINT FLANGED/SOCKET WELDED/PRESS-FIT	---	---	PLUG	RUBBER FLAPPER	---	120	WATER	60	ZERO	02615 15066	
SBI	SBR INFLUENT	40	80	25	35	DUCTILE IRON	4" AND LARGER	SEE SPECS.	CEMENT	FLANGED RESTRAINED MECHANICAL JOINT	FIBERGLASS	2	PLUG	RUBBER FLAPPER	---	60	WATER	60	ZERO	02615	
V	VENT	SAME AS SYSTEM				DUCTILE IRON	4" AND LARGER	SEE SPECS.	CEMENT	FLANGED/PUSH-ON	---	---	---	---	---	---	WATER	60	ZERO	02615	

PROCESS PIPING NOTES:

1. PIPING SCHEDULE ABOVE REFERS TO MECHANICAL PROCESS PIPING ONLY. REFER TO OTHER DISCIPLINES FOR ANY NON-PROCESS PIPING SHOWN AS BACKGROUND INFORMATION ON THE MECHANICAL DRAWINGS AND FOR CONTINUATION OF PIPING BEYOND MECHANICAL DISCIPLINE LIMITS OF WORK.
2. TEST VENTS AND DRAINS TO SAME PRESSURE AS SYSTEM.
3. FOR OPEN VENTS, FILL VENT WITH WATER AND TEST FOR LEAKS.
4. FOR DRAINS 3" AND SMALLER, USE TYPE 316L S.S. PIPE FOR DRAINS FROM DUCTILE IRON SERVICE.
5. PROVIDE FLANGES AT EQUIPMENT, VALVES AND AS INDICATED ON THE DRAWINGS.
6. ALL PIPING THAT IS NOT BURIED SHALL BE CONSIDERED EXPOSED.
7. PROVIDE INSULATION AND PROTECTIVE INSULATION JACKET AS SPECIFIED FOR ALL EXTERIOR INSULATED PIPING AND FOR ALL INTERIOR INSULATED PIPING 6'-6" OR LOWER TO THE FLOOR.

PROCESS PUMP SCHEDULE

TAG NO.	NO. OF UNITS	NAME	LOCATION	PUMP TYPE AND CONFIGURATION	RATING POINT CAPACITY (GPM)	RATING POINT HEAD (FEET)	RATING POINT MIN. EFF. %	RATING POINT MINIMUM SHUTOFF HEAD (FT.)	MIN. SUCTION/ DISCHARGE SIZE (IN.)	NOMINAL MAX. PUMP SPEED (RPM)	SEAL TYPE	MOTOR HP	MOTOR RPM	MOTOR ENCL.	MOTOR DRIVE TYPE	SPEC. SECTION	SUCTION GAUGE TYPE	DISCHARGE GAUGE TYPE	BASIS OF DESIGN AND MODEL	REMARKS
SBR.TP-4	1	SBR TRANSFER PUMPS	BASEMENT PUMP ROOM	DRY PIT RECESSED VORTEX	255	53	35	59	4/3	1750	SPLIT MECH	25	1800	TEFC	DIRECT	11308	III	III	PENTAIR FAIRBANK NJHUIS MODEL 4623 CE	SEE NOTES
PS4.P-1 THRU 3	3	RAW WASTEWATER PUMP	PUMPING STATION NO. 4	SUBMERSIBLE RECESSED IMPELLER	400	120	47	140	4/4	1750	TANDEM MECH	40	1800	SUBMERSIBLE XP	DIRECT	11306	---	I	KSB KRT F 100-316/ 224XEG1-S	SEE NOTES

NOTES:

SBR TRANSFER PUMPS:
1. VARIABLE FREQUENCY MOTOR CONTROLLER
2. FULL SPEED SECONDARY RATING POINT: 500 GPM AT 54 FEET WITH NO MORE THAN 14 FEET OF NPSH3.
3. MINIMUM SPEED RATING POINT: 50 GPM AT 15 FEET
4. PROVIDE PUMPS CAPABLE OF PASSING A MINIMUM 3-INCH DIAMETER SPHERE.

PS4.P-1 THRU 3:
1. VARIABLE FREQUENCY MOTOR CONTROLLER
2. FULL SPEED SECONDARY RATING POINT: 600 GPM AT 110 FEET.
3. MINIMUM SPEED RATING POINT: 200 GPM AT 100 FEET.
4. PROVIDE PUMPS CAPABLE OF PASSING A MINIMUM 3-INCH DIAMETER SPHERE.
5. PUMP PS4.P-3 SHALL BE PROVIDED AS A SHELF SPARE.

BLOWER AND COMPRESSOR SCHEDULE

TAG NO.	NUMBER OF UNITS	NAME	LOCATION	TYPE	CAPACITY (SCFM)	PRESSURE (PSIG)	INLET LOSSES IN H_2O	INLET TEMP. (DEG. F)	BAROMETRIC PRESSURE (PSIA)	BLOWER SPEED (RPM)	MOTOR DATA HP	MOTOR DATA RPM (MAX.)	MOTOR DATA ENCL. TYPE	DRIVE TYPE	SPEC. SECTION	BASIS OF DESIGN	REMARKS
SBR.BLW-4	1	SBR BLOWERS	BASEMENT PUMP ROOM	ROTARY LOBE	530	10.5	---	100	14.5	3762	50	1800	TEFC	BELT	11377	AERZEN	

HOIST SCHEDULE

TAG NO.	NUMBER OF UNITS	NAME	LOCATION	TYPE/CLASS	HOIST DATA CAPACITY (TONS)	HOIST DATA LIFT (FT.)	HOIST DATA SPEED (FPM)	TROLLEY SPEED (FPM)	BOTTOM OF BEAM TO FIN. FL. (FT.)	MOTOR DATA HOIST HP	MOTOR DATA TROLLEY HP	MOTOR DATA RPM MAX.	MOTOR DATA ENCL. TYPE	CONTROLS	BASIS OF DESIGN	REMARKS
DAV.HST-1	1	PORTABLE DAVIT HOIST	PUMPING STATION NO. 4	---	-	--	---	---	---	---	---	---	---	EXIST. MANUAL WINCH	EXIST. THERN COMMANDER 2000	PROVIDE (1) ONE FLUSH MOUNT BASE 5BF20S316

FAN SCHEDULE

TAG NO.	NUMBER OF UNITS	NAME	LOCATION	TYPE	RATING CFM	RATING S.P. IN H20	MOTOR DATA HP	MOTOR DATA RPM (MAX.)	MOTOR DATA ENCL. TYPE	DRIVE TYPE	SPEC SECTION	BASIS OF DESIGN	REMARKS
PS4.OC-1	1	ODOR CONTROL FAN	PUMPING STATION NO. 4	FRP CENTRIFUGAL	100	---	1.0	1800	TEFC	DIRECT	15857	PURAFIL INC ACTIVE DS100	
PS4.EF-1	1	EXHAUST FAN	PUMPING STATION NO. 4	SQUARE IN LINE CENTRIFUGAL	630	0.5	1/4	1800	XPROOF	BELT	---	GREENHECK SQ-120	SEE NOTES

EXHAUST FAN (PS4.EF-1) NOTES:

1. PROVIDE AMCA TYPE B SPARK RESISTANT FAN, ALUMINUM HOUSING AND WHEEL, HANGING VIBRATION ISOLATORS, INLET SCREEN AND HI-PRO POLYESTER COATING.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. PARECE
No. 57340
REGISTERED PROFESSIONAL ENGINEER
3/24/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NONE

DISCIPLINE

MECHANICAL PROCESS

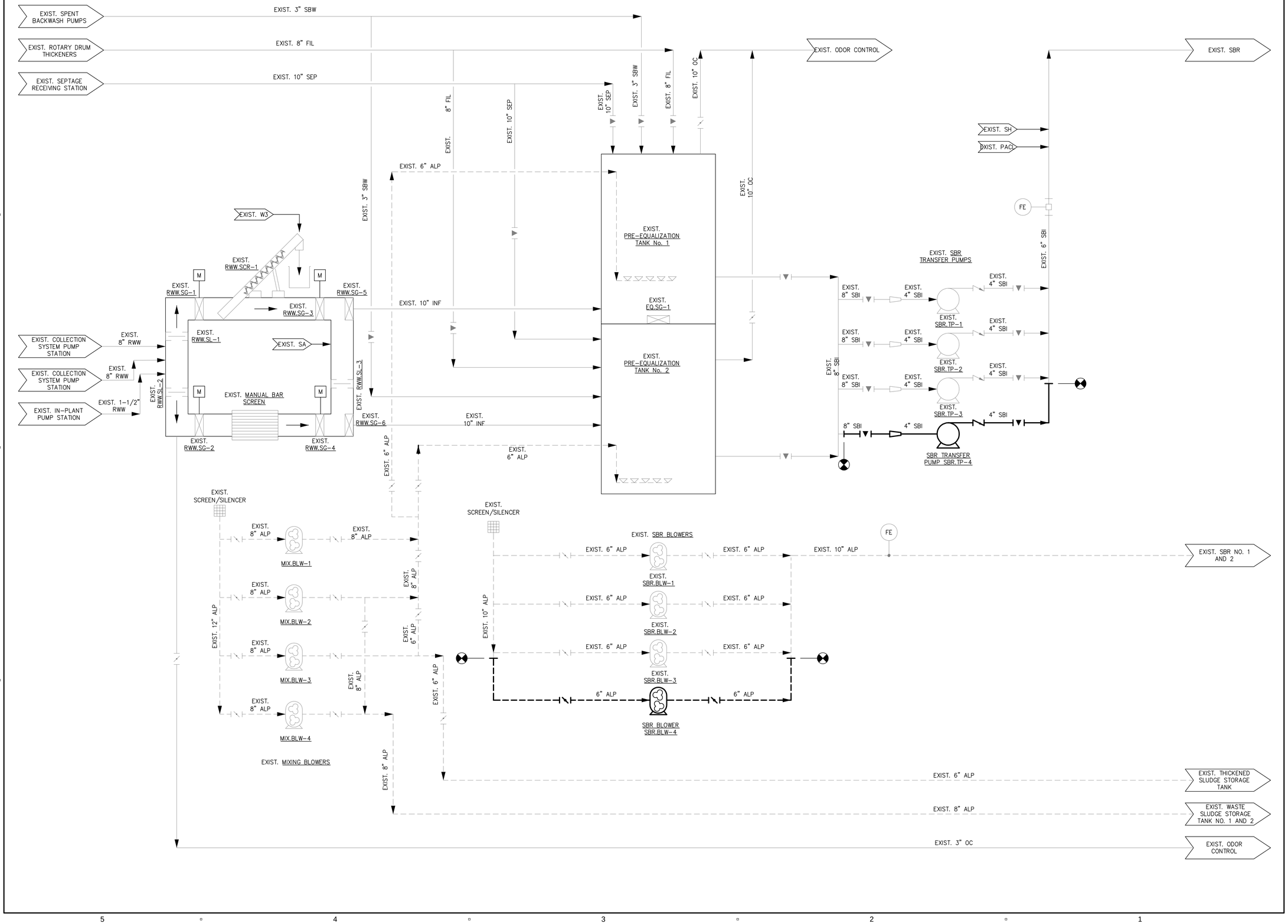
SHEET TITLE

SCHEDULES

SHEET NUMBER

00 D-003

PATHFILENAME: C:\USERS\RUBINI\ONEDRIVE - AECOM\PROJ\60652634_ORLEANS\MEETINGHOUSE\PS\010_CAD\20-SHEETS\D\00 D-003.DWG
LAST UPDATE: Friday, September 30, 2022 7:24:33 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:06 AM



PATH/FILENAME: C:\USERS\RUBINI\ONEDRIVE - AECOM\PROJ\60652834_ORLEANSMEETINGHOUSEPS\910_CAD\00-SHEETS\00\00 D-004.DWG
LAST UPDATE: Wednesday, June 15, 2022 4:24:53 PM
PLOT DATE: Tuesday, March 7, 2023 10:16:11 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
KRISTEN M. BETTENCOURT
No. 57161
REGISTERED PROFESSIONAL ENGINEER
CIVIL
7/13/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NONE

DISCIPLINE

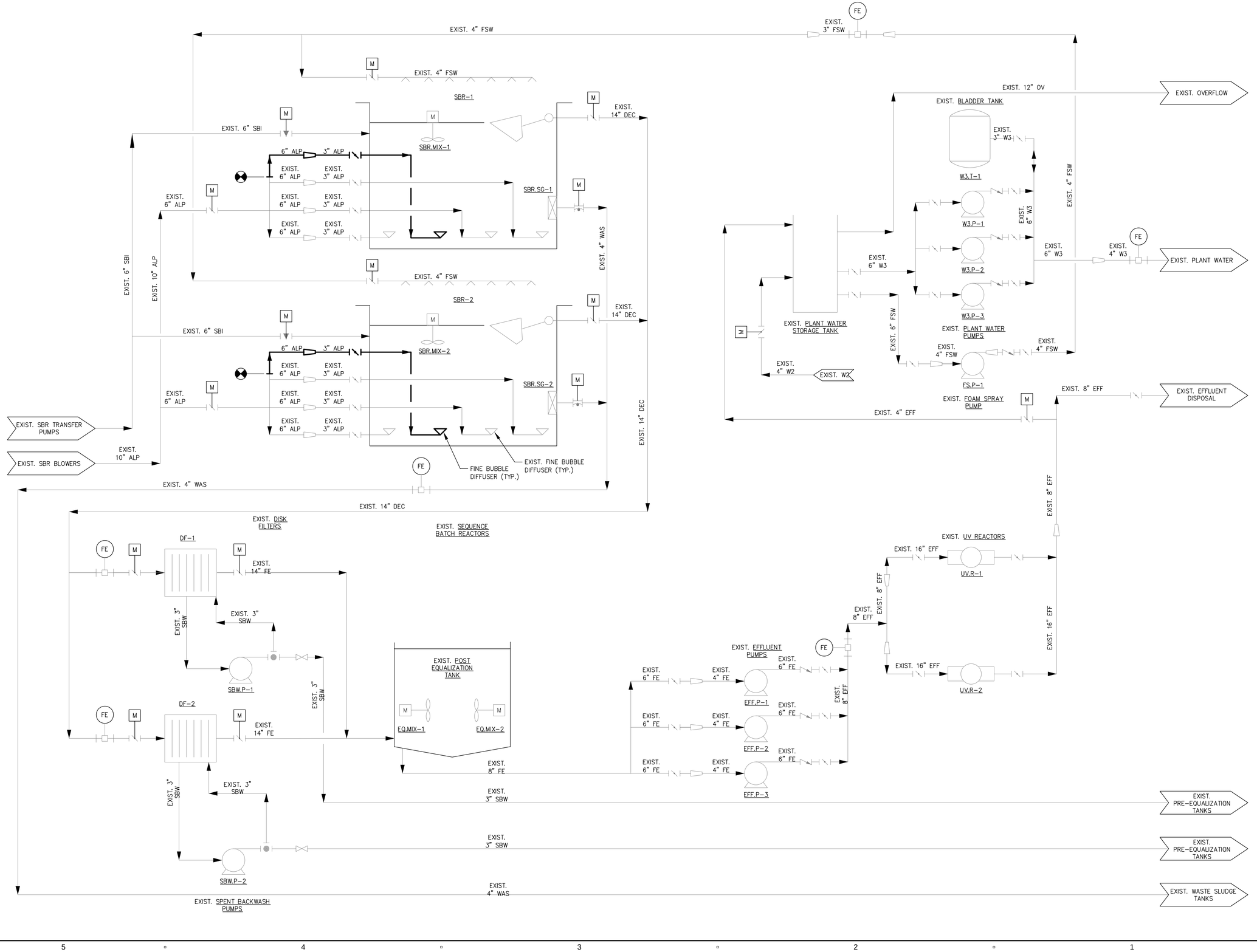
MECHANICAL PROCESS

SHEET TITLE

PROCESS FLOW DIAGRAM I

SHEET NUMBER

00 D-004



PATHFILENAME: C:\USERS\RUBINN\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\010_CAD\20-SHEETS\D00 D-005.DWG
LAST UPDATE: Thursday, August 11, 2022 8:37:07 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:16 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY K. BETTENCOURT
CIVIL
No. 57345
REGISTERED PROFESSIONAL ENGINEER
3/7/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	NONE

DISCIPLINE

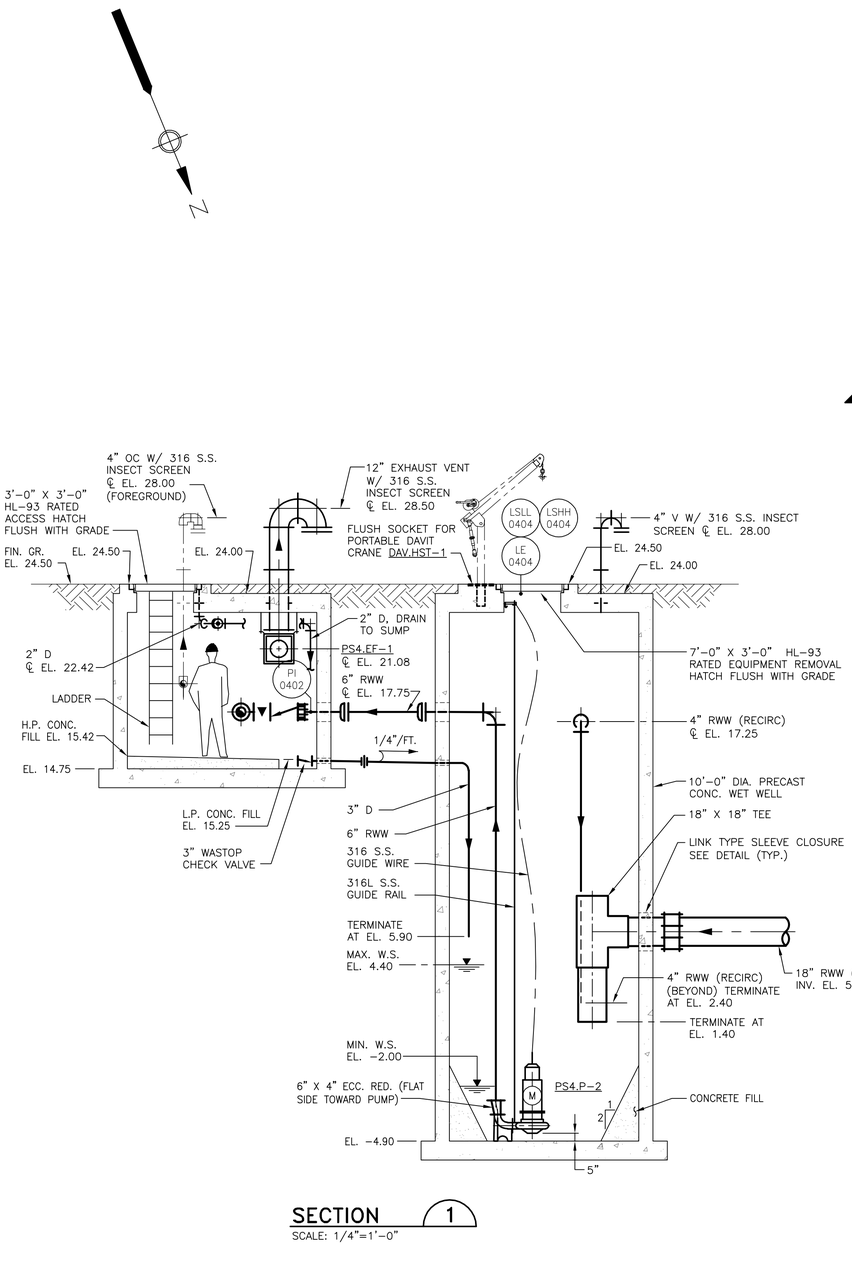
MECHANICAL PROCESS

SHEET TITLE

PROCESS FLOW DIAGRAM II

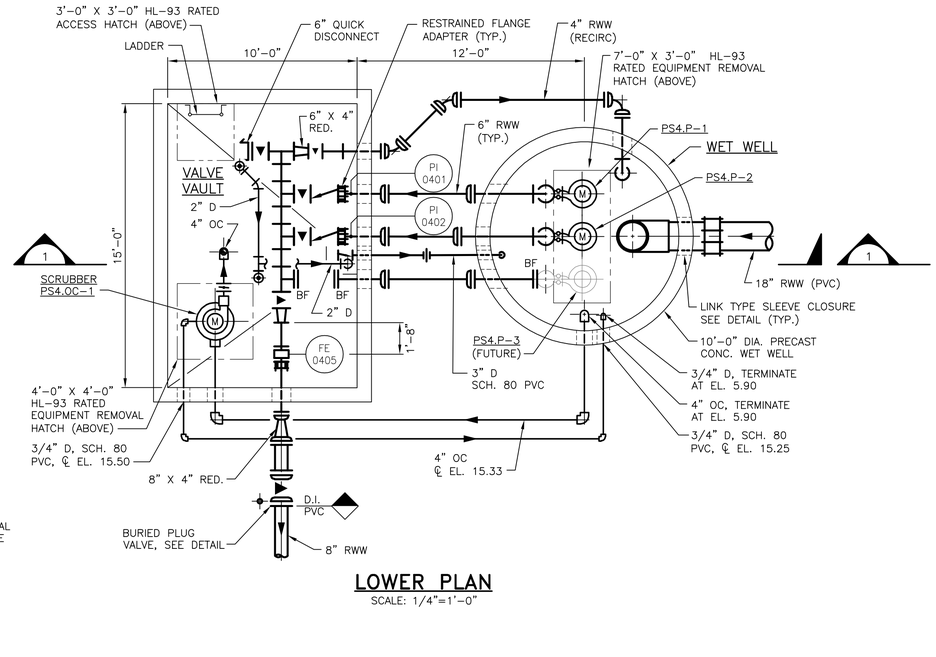
SHEET NUMBER

00 D-005



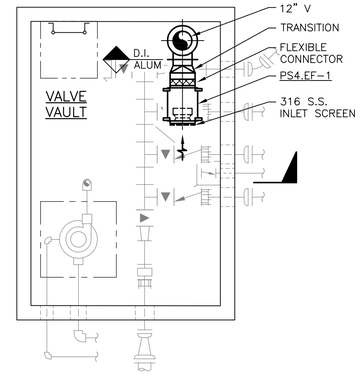
SECTION 1

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



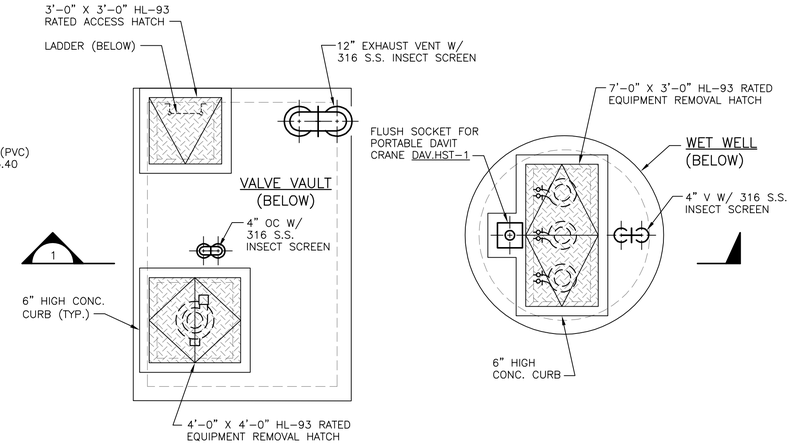
LOWER PLAN

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



VENTILATION PLAN

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



UPPER PLAN

1/4"=1'-0"

NOTES:

1. ALL SUPPORTS, ANCHORS, AND FASTENERS TO BE 316L STAINLESS STEEL.
2. ALL PIPE PENETRATIONS TO HAVE GALVANIZED STEEL CAST SLEEVES WITH LINK TYPE SEALS AS SPECIFIED. MANHOLE BOOTS ARE NOT ACCEPTABLE.
3. COORDINATE PUMP HATCH CLEAR OPENING WITH APPROVED PUMP SHOP DRAWINGS.
4. FOR CONTINUATION OF OUTSIDE PIPING SEE CIVIL DRAWINGS.
5. SEE SECTION 02606 FOR REQUIREMENTS ON BUOYANCY CALCULATIONS FOR REQUIREMENTS ON STRUCTURES.

RAW WASTEWATER PUMP (PS4.P-1 & 2) OPERATING SET POINTS:
EL. 4.40 START LEAD PUMP AND ALARM
EL. 3.90 HWL ALARM
EL. 3.40 START LAG PUMP AND ALARM
EL. 2.90 START LEAD PUMP
EL. -2.00 STOP BOTH PUMPS AND SWITCH LEAD/LAG
EL. -2.50 LWL ALARM
EL. -3.00 STOP BOTH PUMPS AND SWITCH LEAD/LAG, AND ALARM

0 4 8 12
SCALE IN FEET
SCALE: 1/4"=1'-0"

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
NICOLE RUBINI BETTENCOURT
CIVIL
No. 57340
REGISTERED PROFESSIONAL ENGINEER
3/21/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

MECHANICAL PROCESS

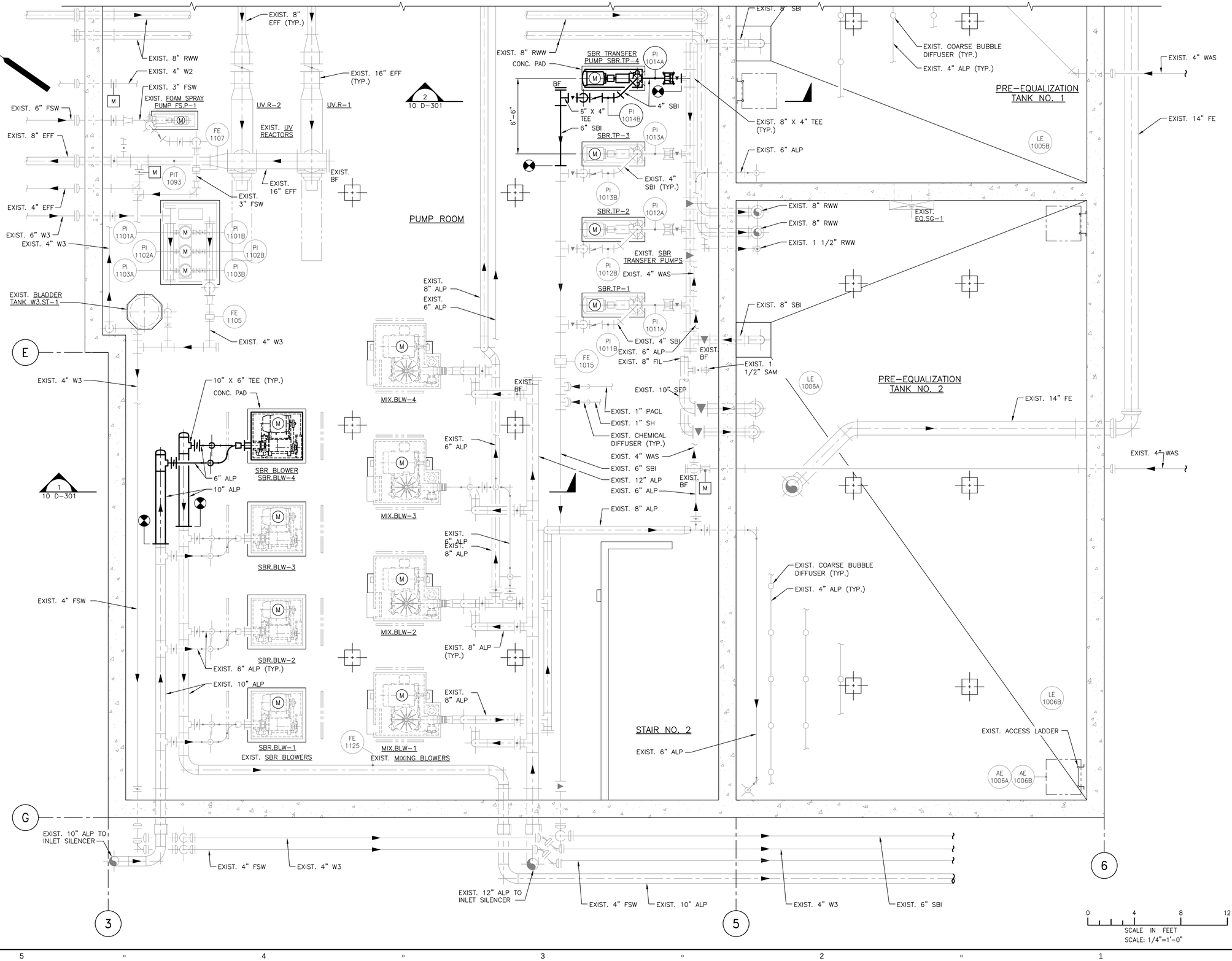
SHEET TITLE

PUMPING STATION NO. 4 PLAN AND SECTION

SHEET NUMBER

04 D-101

PATHFILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\010_CAD\20-SHEETS\D\04 D-101.DWG
LAST UPDATE: Friday, September 30, 2022 9:47:47 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:21 AM



PATHFILENAME: C:\USERS\RUBINN\ONEDRIVE - AECOM\PROJ\60052634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D\10 D-101.DWG
LAST UPDATE: Thursday, August 11, 2022 9:57:49 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:27 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
REGISTERED
KEVIN BETTENCOURT
CIVIL
No. 57345
PROFESSIONAL ENGINEER
3/7/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

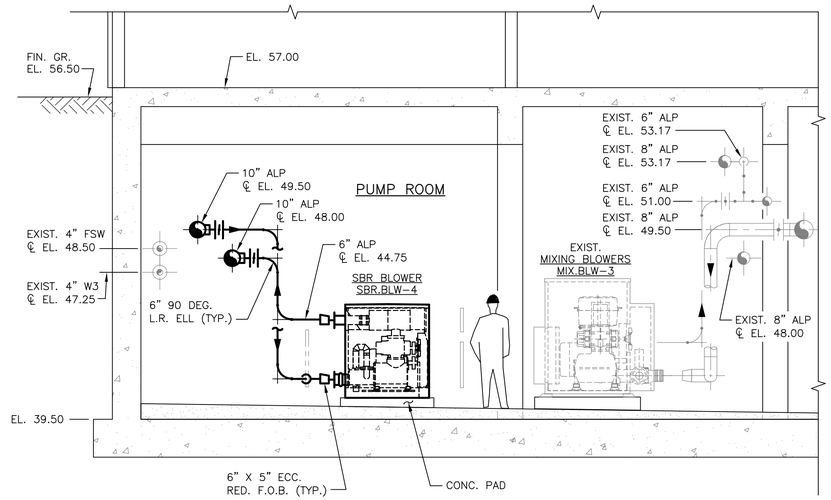
MECHANICAL PROCESS

SHEET TITLE

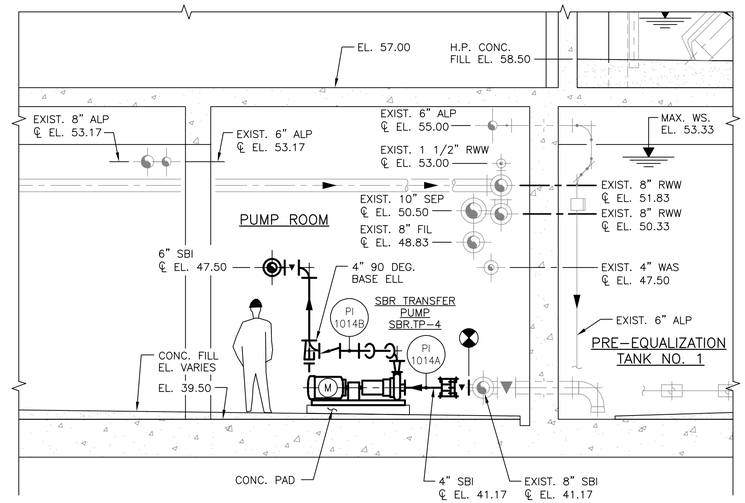
WWTF LOWER PART PLAN

SHEET NUMBER

10 D-101



SECTION 1
SCALE: 1/4"=1'-0" 10 D-101



SECTION 2
SCALE: 1/4"=1'-0" 10 D-101

0 4 8 12
SCALE IN FEET
SCALE: 1/4"=1'-0"

PATHFILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSE\PS\910_CAD\20-SHEETS\D\10 D-301.DWG
LAST UPDATE: Thursday, August 11, 2022 10:00:04 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:32 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
KEVIN BETTENCOURT
CIVIL
No. 57341
REGISTERED PROFESSIONAL ENGINEER
3/7/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

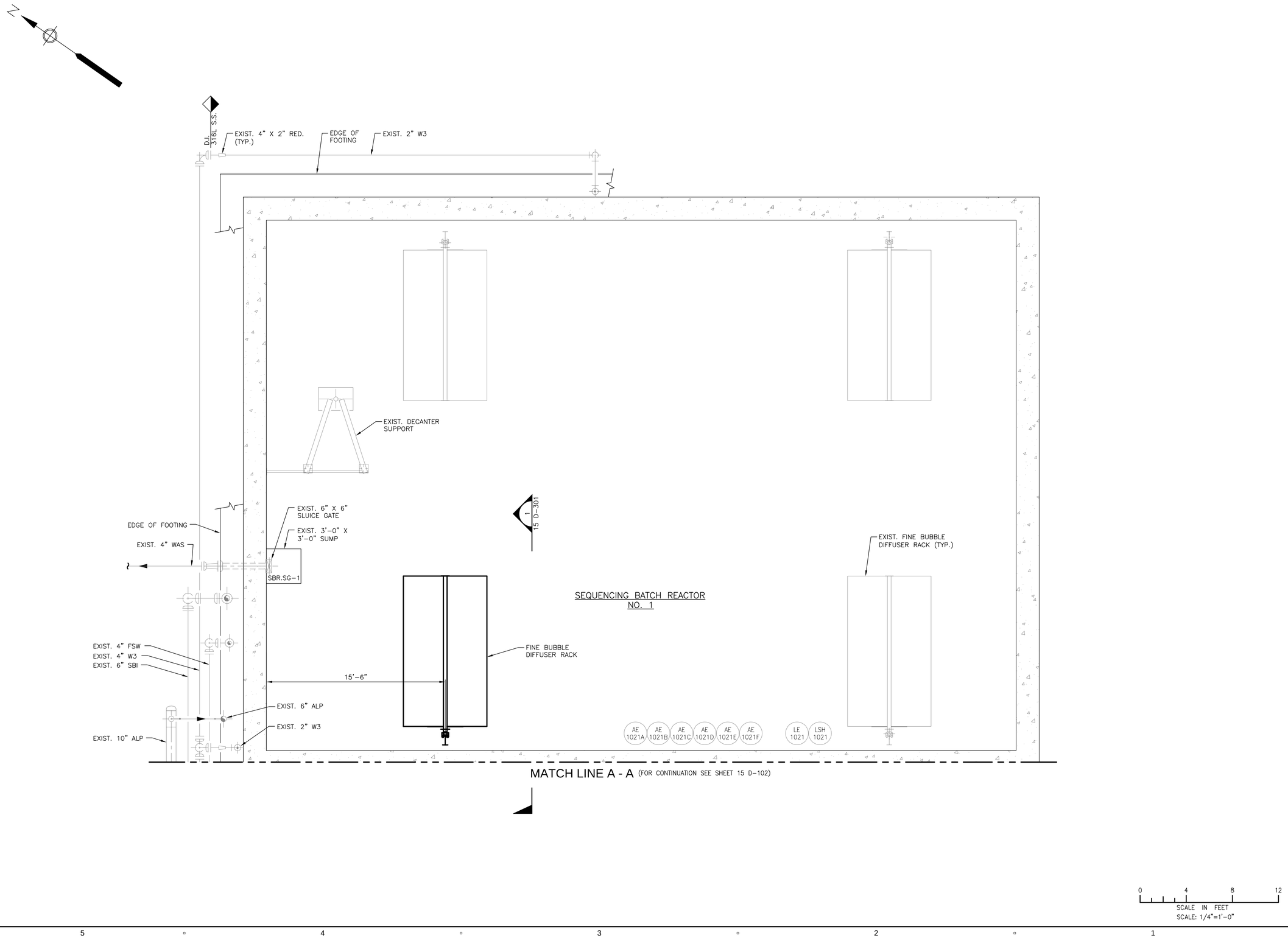
MECHANICAL PROCESS

SHEET TITLE

WWTF SECTIONS

SHEET NUMBER

10 D-301



PATH/FILENAME: C:\USERS\RUBINN\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D\15 D-101.DWG
LAST UPDATE: Thursday, August 11, 2022 9:59:30 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:36 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY R. PARECE
No. 57346
REGISTERED PROFESSIONAL ENGINEER
3/7/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

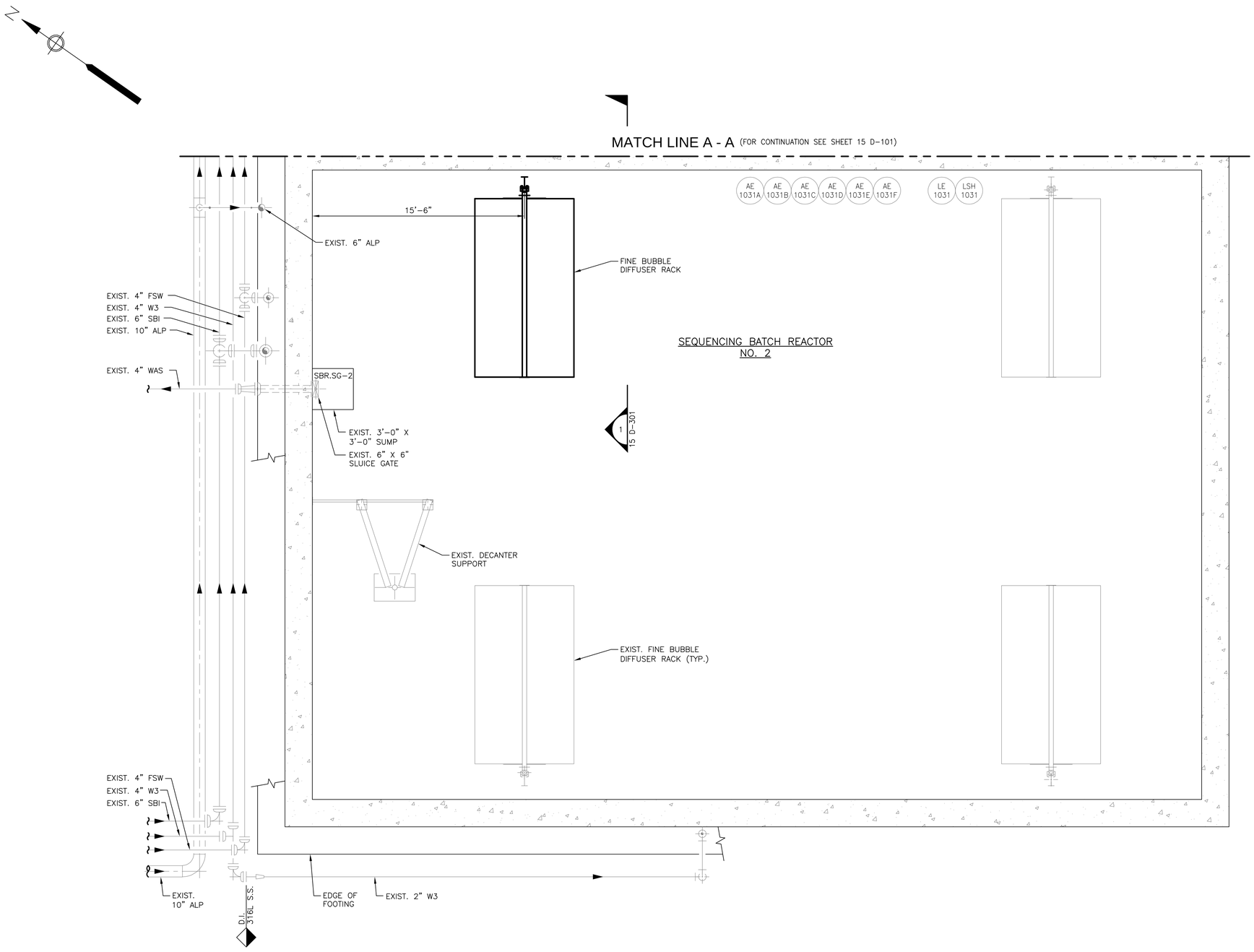
MECHANICAL PROCESS

SHEET TITLE

SBR LOWER PLAN I

SHEET NUMBER

15 D-101



PATH/FILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D\15 D-102.DWG
LAST UPDATE: Thursday, August 11, 2022 10:00:49 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:41 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
KRISTEN T. BETTENCOURT
No. 57161
REGISTERED PROFESSIONAL ENGINEER
3-7-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

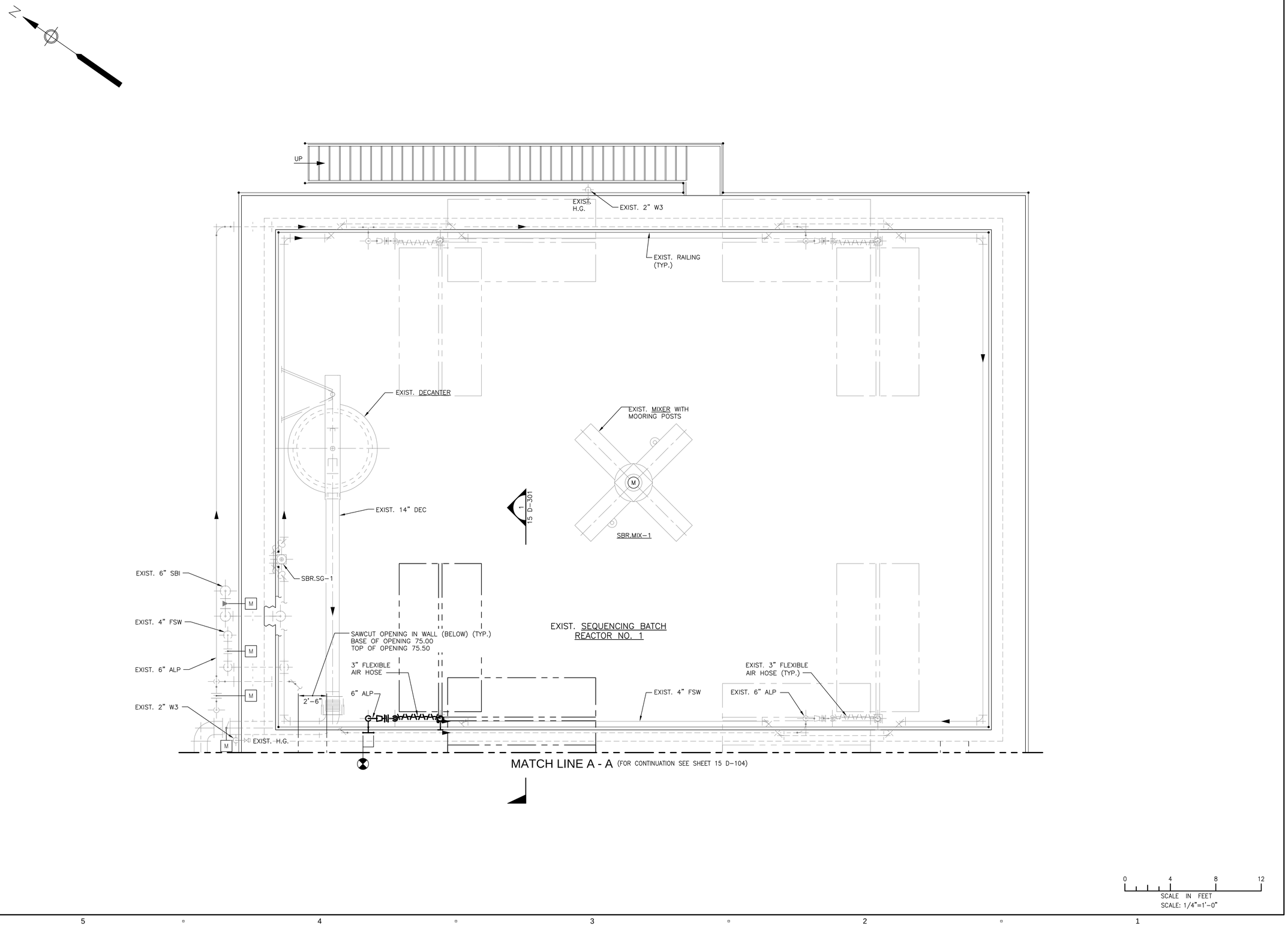
MECHANICAL PROCESS

SHEET TITLE

SBR LOWER PLAN II

SHEET NUMBER

15 D-102



AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
REGISTERED
KRISTEN
BETTENCOURT
CIVIL
No. 57346
SEAL
PROFESSIONAL ENGINEER
3/2/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

MECHANICAL PROCESS

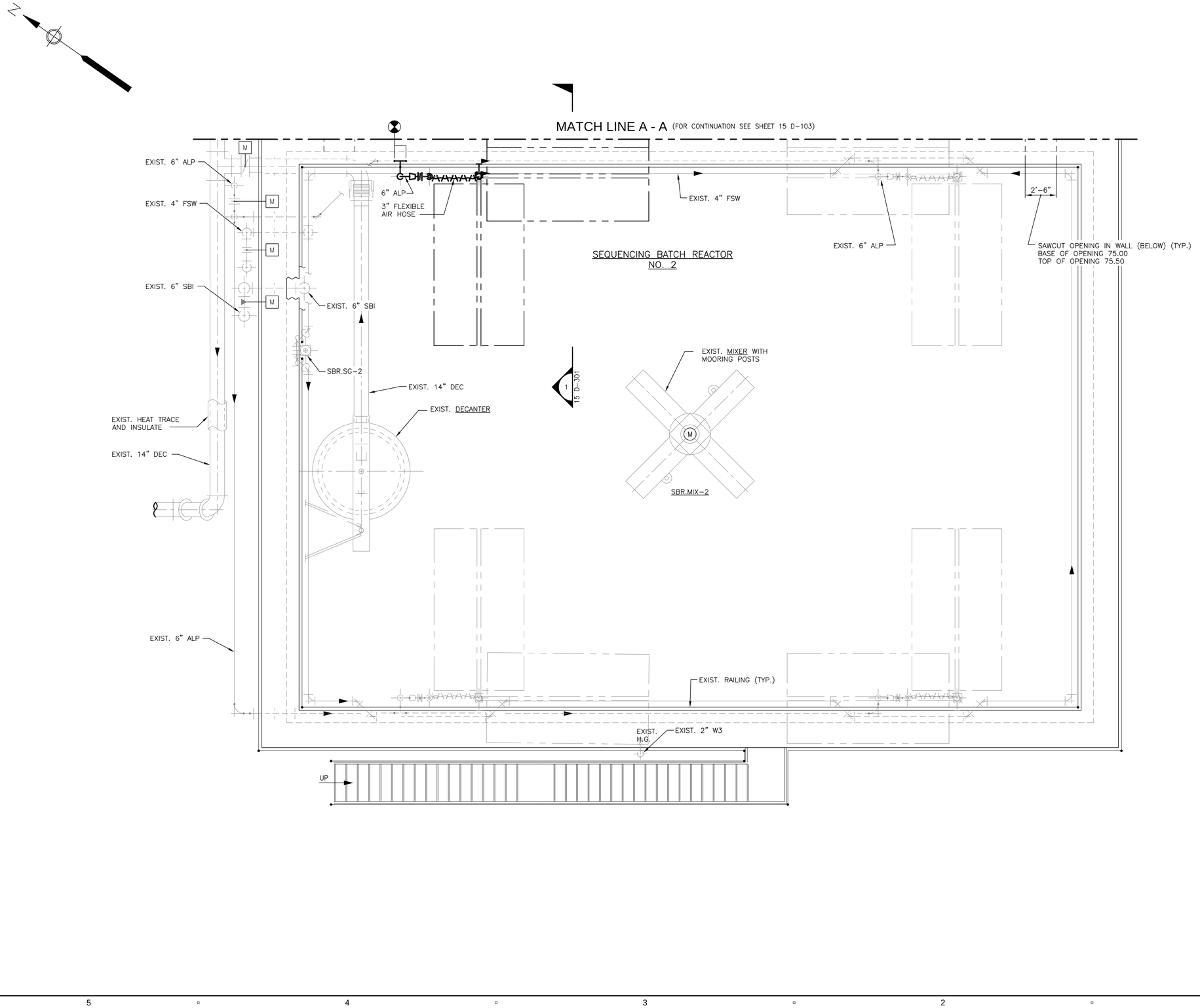
SHEET TITLE

SBR UPPER PLAN I

SHEET NUMBER

15 D-103

PATH/FILENAME: C:\USERS\RUBINI\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D\15 D-103.DWG
LAST UPDATE: Friday, September 30, 2022 8:56:17 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:47 AM



PATHFILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D\15 D-104.DWG
LAST UPDATE: Friday, September 30, 2022 8:56:28 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:52 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
KEVIN BETTENCOURT
CIVIL
No. 57345
REGISTERED PROFESSIONAL ENGINEER
3/3/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

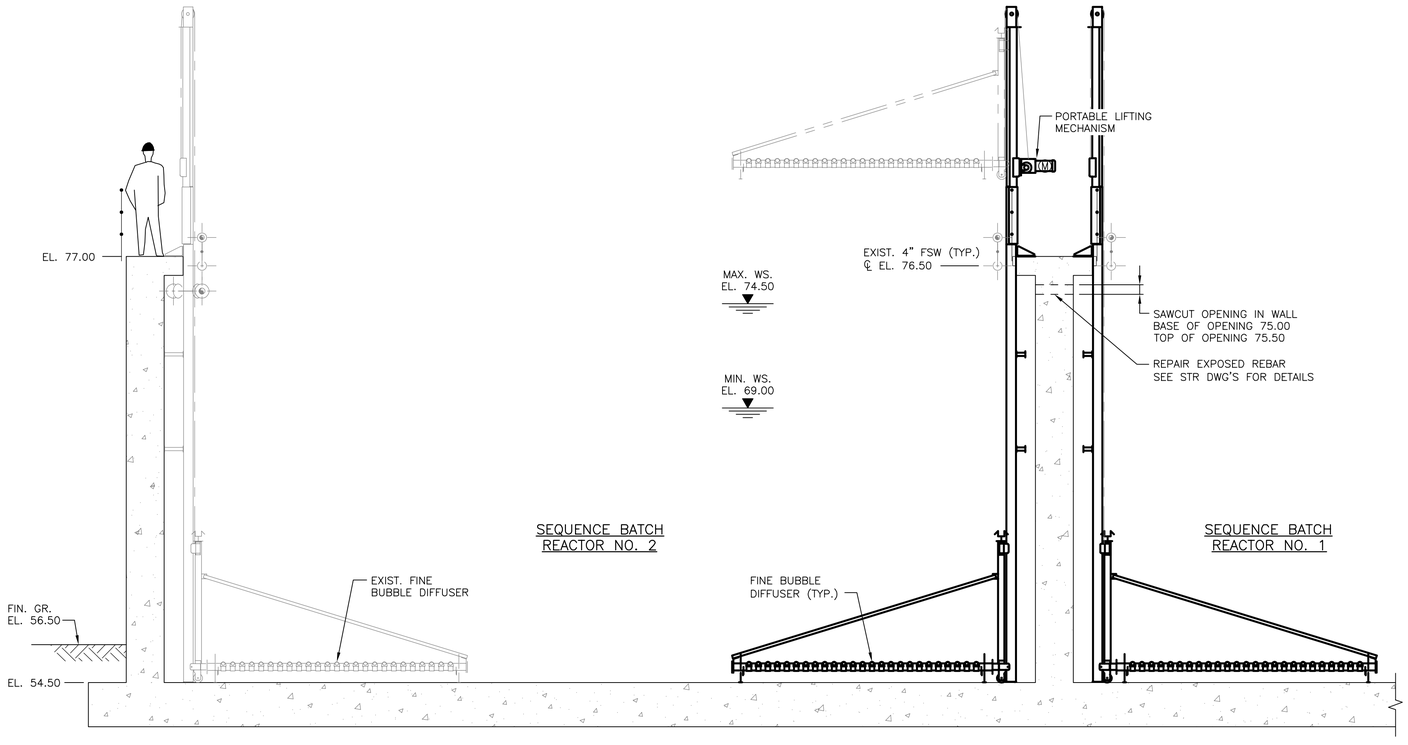
MECHANICAL PROCESS

SHEET TITLE

SBR UPPER PLAN II

SHEET NUMBER

15 D-104



SECTION 1
SCALE: 1/4"=1'-0"
15 D-102
15 D-104

0 4 8 12
SCALE IN FEET
SCALE: 1/4"=1'-0"

PATH/FILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\DI\15 D-301.DWG
LAST UPDATE: Friday, September 30, 2022 8:57:07 AM
PLOT DATE: Tuesday, March 7, 2023 10:16:57 AM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
KEVIN BETTENCOURT
CIVIL
No. 57161
REGISTERED PROFESSIONAL ENGINEER
3/7/2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

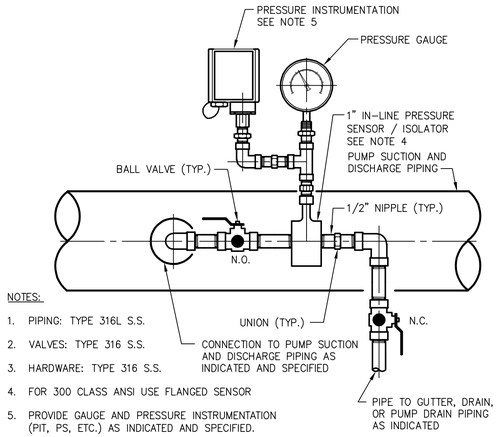
MECHANICAL PROCESS

SHEET TITLE

SBR SECTIONS

SHEET NUMBER

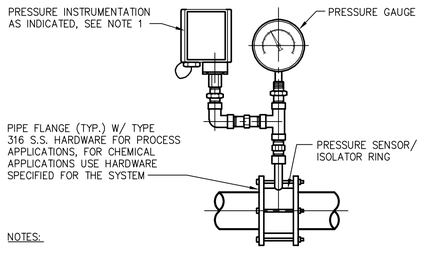
15 D-301



NOTES:

1. PIPING: TYPE 316L S.S.
2. VALVES: TYPE 316 S.S.
3. HARDWARE: TYPE 316 S.S.
4. FOR 300 CLASS ANSI USE FLANGED SENSOR
5. PROVIDE GAUGE AND PRESSURE INSTRUMENTATION (PIT, PS, ETC.) AS INDICATED AND SPECIFIED.

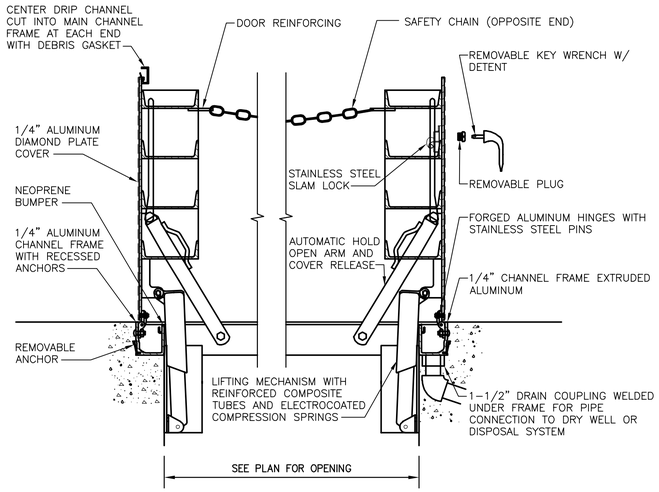
TYPE I
PRESSURE GAUGE/ INSTRUMENT ASSEMBLY
NTS



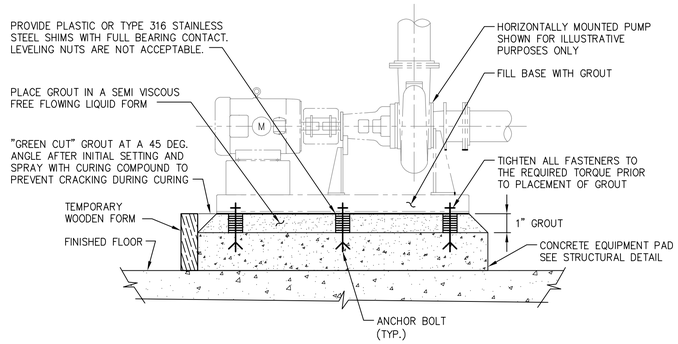
NOTES:

1. PROVIDE GUAGE AND PRESSURE INSTRUMENTATION (PIT, PS, ETC.) AS INDICATED AND SPECIFIED.
2. FOR CHEMICAL SYSTEM USE FULL FLANGE ONLY.

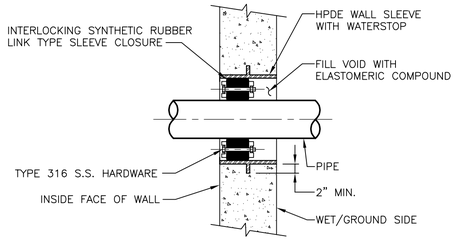
TYPE III
PRESSURE GAUGE/ INSTRUMENT ASSEMBLY
NTS



DOUBLE ALUMINUM ACCESS HATCH WITH CHANNEL FRAME – HL-93
NTS



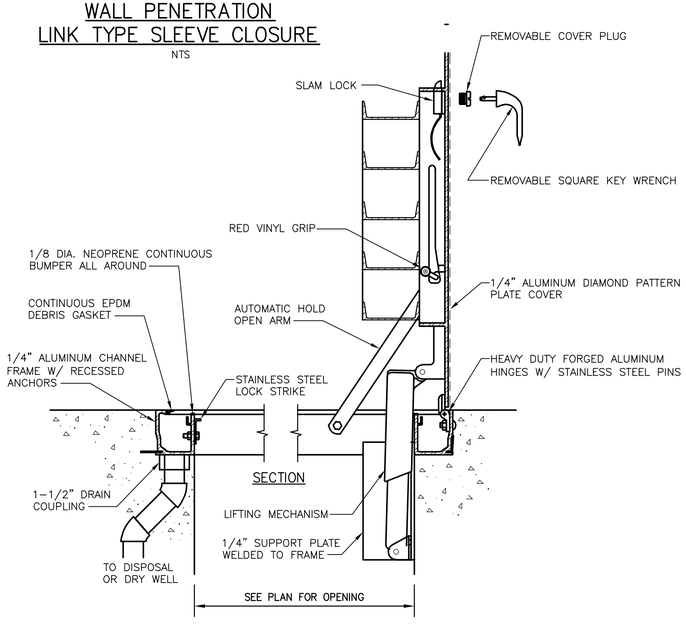
EQUIPMENT BASEPLATE ANCHORING
NTS



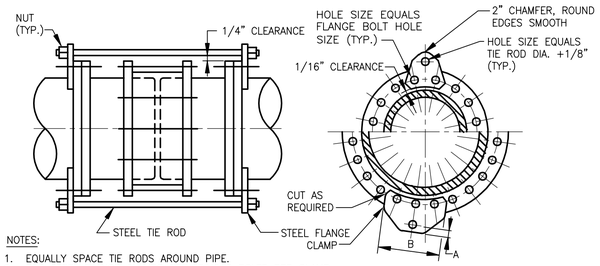
WALL SEAL

WET ◄ ► WET	SCH. 40, TYPE 316 S.S. OR HDPE
DRY ◄ ► DRY	HDPE OR SCH. 40 STEEL WITH FUSION BONDED POLYMER COATING
DRY ◄ ► GROUND	HDPE OR SCH. 40 STEEL WITH FUSION BONDED POLYMER COATING

WALL PENETRATION LINK TYPE SLEEVE CLOSURE
NTS



SINGLE ALUMINUM ACCESS HATCH WITH CHANNEL FRAME – HL-93
NTS NTS

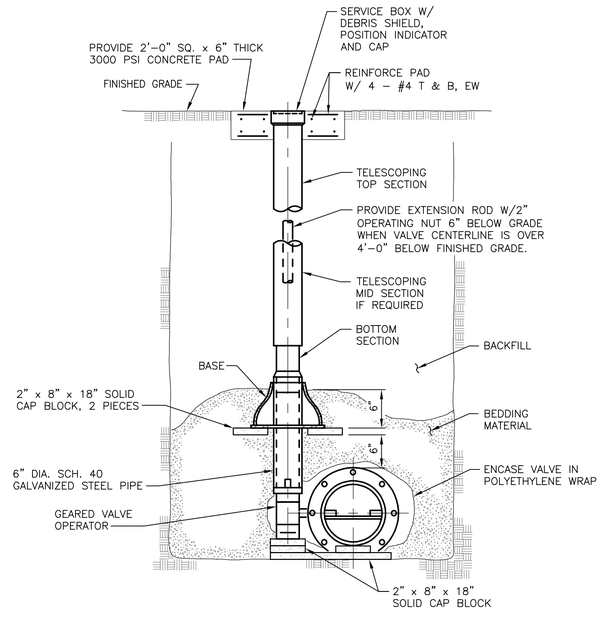


NOTES:

1. EQUALLY SPACE TIE RODS AROUND PIPE.
2. FOR STEEL FLANGE CLAMPS REQUIRING 3 BOLTS PER CLAMP, THE ORIENTATION OF THE STEEL FLANGE CLAMP AND PIPE FLANGE DRILLING IS PICTORIAL ONLY. EXACT ORIENTATION OF THE FLANGE CLAMP IS DETERMINED BY STANDARD FLANGE DRILLING.

PIPE SIZE	TIERODS		FLANGE CLAMP			
	NO.	DIA.	THICKNESS	NO. OF FLANGE BOLTS PER CLAMP	"A"	"B"
6"	2	1/2"	1/2"	2	2"	7 3/4"

150 PSI SLEEVE COUPLING RESTRAINT FOR DUCTILE IRON PIPE
NTS



BURIED PLUG VALVE
NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS — KENNETH R. BETTENCOURT — CIVIL — No. 57... — REGISTERED PROFESSIONAL ENGINEER — 3-17-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	M. SALSBURY
Drawn By:	N. RUBINI
Dept Check:	K. BETTENCOURT
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

MECHANICAL PROCESS

SHEET TITLE

DETAILS

SHEET NUMBER

99 D-501

PATH/FILENAME: C:\USERS\RUBININ\ONEDRIVE - AECOM\PROJ\60652634_ ORLEANSMEETINGHOUSEPS\910_CAD\20-SHEETS\D99 D-501.DWG
LAST UPDATE: Friday, September 30, 2022 9:19:29 AM
PLOT DATE: Tuesday, March 7, 2023 10:17:01 AM

DIAGRAMS

1200/800 — CIRCUIT BREAKER, 3–POLE UNLESS OTHERWISE NOTED. UPPER NUMBER IS FRAME SIZE. LOWER NUMBER IS TRIP SETTING. WHERE ONLY ONE NUMBER IS SHOWN, NUMBER IS TRIP SETTING.

MCP — MOTOR CIRCUIT PROTECTOR

MAGNETIC STARTER

FVNR 2 —
FVNR = FULL VOLTAGE, NON–REVERSING
FVR = FULL VOLTAGE, REVERSING
FVTS = FULL VOLTAGE, TWO SPEED
RVNR = REDUCED VOLTAGE, NON–REVERSING,
AUTO–TRANSFORMER TYPE
PW = PART WINDING
C = MAGNETIC CONTACTOR (WITHOUT OL.)
RVSS = REDUCED VOLTAGE, SOLID STATE
NUMBER INDICATES NEMA STARTER SIZE

30A — UNFUSED DISCONNECT SWITCH. NUMBER DENOTES AMPERE RATING.

100/70 — FUSED DISCONNECT SWITCH, 3–POLE UNLESS OTHERWISE NOTES. UPPER NUMBER INDICATES FUSE CLIP AMPERE SIZE. LOWER NUMBER INDICATES FUSE RATING.

J — FUSE – LETTER DENOTES CLASS

TRANSFORMER, SIZE AS NOTED, DELTA CONNECTION–PRIMARY. WYE CONNECTION GROUNDED–SECONDARY (LOW VOLTAGE).

VFD — VARIABLE FREQUENCY DRIVE

INPUT LINE REACTOR

dV/dT — dV/dT OUTPUT FILTER

PASSIVE HARMONIC FILTER

5 — SQUIRREL CAGE INDUCTION MOTOR. NUMBER DENOTES HORSEPOWER OR KW

5 — PACKAGED MOTOR WITH MOTOR, STARTER AND CONTROLS. NUMBER INDICATES KILOWATT RATING OR HORSEPOWER.

F 10KW — ELECTRIC UNIT HEATER 10KW INDICATES KILOWATT SIZE

600:5 (3) — CURRENT TRANSFORMER. UPPER NUMBERS ARE RATIO. NUMBER IN ( ) IS QUANTITY.

GFP — GROUND FAULT PROTECTION

ST — SHUNT TRIP RELAY

R — INDICATING LIGHTS: R=RED, B=BLUE, G=GREEN, A=AMBER, W=WHITE

K — KEY INTERLOCK

K — MECHANICALLY INTERLOCKED (KEY)

E — ELECTRICALLY INTERLOCKED

NORMALLY OPEN CONTACT

NORMALLY CLOSED CONTACT

VS — VOLTMETER SELECTOR SWITCH

AS — AMMETER SELECTOR SWITCH

CS — CIRCUIT BREAKER CONTROL SWITCH

CTB — CURRENT TEST BLOCK

PTB — POTENTIAL TEST BLOCK

SYS — SYNCHRONIZING SWITCH

TB — TEST BLOCK

26 — PROTECTIVE RELAY
2–TIME DELAY RELAY
25 – SYNCHROCHECK RELAY
26 – THERMAL DEVICE
27 – UNDER VOLTAGE RELAY
43 – TRANSFER DEVICE
50 – INSTANTANEOUS OVER CURRENT RELAY
64 – GROUND PROTECTIVE RELAY
67 – DIRECTIONAL OVER CURRENT
74 – ALARM RELAY
83 – TRANSFER RELAY
86 – LOCKOUT RELAY, HAND RESET

A — A = AMMETER
D = DEMAND METER
F = FREQUENCY METER
KW = KILOWATT–HOUR METER
PF = POWER FACTOR METER
V = VOLTMETER
VAR = VARMETER
W = WATT METER
WH = WATT–HOUR METER

DIAGRAMS

480:120 / (1) CPT — DRAWOUT DEVICE
CPT = CONTROL POWER TRANSFORMER
PT = POTENTIAL TRANSFORMER.
UPPER NUMBERS ARE RATIO.
NUMBER IN ( ) IS QUANTITY

PLANS

SD — SMOKE DUCT DETECTOR

MANUAL MOTOR STARTER

MAGNETIC MOTOR STARTER

COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH

UNFUSED DISCONNECT SWITCH

F — FUSED DISCONNECT SWITCH

PANELBOARD

M — MOTOR FURNISHED AND INSTALLED UNDER OTHER DIVISION, CONNECTED UNDER DIVISION 16.

M — PACKAGED MOTOR WITH MOTOR STARTER AND CONTROL FURNISHED AND INSTALLED UNDER OTHER DIVISIONS, CONNECTED UNDER DIVISION 16.

EQUIPMENT FURNISHED AND INSTALLED UNDER OTHER DIVISIONS, CONNECTED UNDER DIVISION 16.

J — JUNCTION BOX

TYPICAL DUCT BANK SECTION

[XX] 5" — INDICATES WIRE WIRE TYPE AND QUANTITY WITHIN DUCT.

PROVIDE GRS (TYP.)

SPARE 5" — INDICATES SIZE OF DUCT.

SECTION #

G — GROUND ROD: TYPE AND SIZE AS INDICATED ON PLAN OR IN SPECIFICATIONS.

G—G — EXOTHERMIC CONNECTION

GROUND ROD AND TEST WELL

G — GROUND PLATE: TYPE AND SIZE AS INDICATED ON PLAN OR IN SPECIFICATIONS.

G—G — EXOTHERMIC CONNECTION

G—G — BOLTED CONNECTION

G — GROUNDING CABLE

CONDUIT RUNS UNDERGROUND OR EMBEDDED IN CONCRETE

CONDUIT RUNS OVERHEAD

CONDUIT RUNS
PIPE LINE HEAT TRACING. FOR RATING SEE SPECIFICATIONS AND PLANS

XXX — SEE ABBREVIATION FOR ITEM TYPE

ELECTRICAL UTILITY POLE

DT3 1 a — SURFACE, RECESSED OR PENDANT MOUNTED LUMINARIE

SURFACE, RECESSED OR PENDANT MOUNTED LUMINARIE

SURFACE, RECESSED OR PENDANT MOUNTED NON–SWITCHED LUMINARIE (NIGHT LIGHT)

WALL MOUNTED INCANDESCENT, FLUORESCENT OR HIGH INTENSITY DISCHARGE LUMINARIE

POLE OR POST–TOP MOUNTED LUMINARIE

ROADWAY LUMINARIE

WALL MOUNTED EXIT LIGHT. ARROW (IF SHOWN) INDICATES DIRECTION OF EGRESS

CEILING OR PENDANT MOUNTED EXIT LIGHT. ARROW (IF SHOWN) INDICATES DIRECTION OF EGRESS

BATTERY OPERATED AUXILIARY LIGHTING UNIT, MOUNT 7'–6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED

REMOTE MOUNTED AUXILIARY LIGHTING HEAD MOUNTED 7'–6" ABOVE FLOOR UNLESS OTHERWISE NOTED.

"1" DENOTES PANELBOARD BRANCH CIRCUIT #1.
"a" DENOTES CONTROLLED BY LOCAL SWITCH "a".
"DT3" DENOTES FIXTURE TYPE.
"E" DENOTES EXISTING FIXTURE

PLANS

S_a — SINGLE POLE SWITCH CONTROLS FIXTURES MARKED "a"

$S2_b$ — DOUBLE POLE SWITCH CONTROLS FIXTURES MARKED "b"

$S3_c$ — THREE–WAY SWITCH CONTROLS FIXTURES MARKED "c"

$S4_d$ — FOUR–WAY SWITCH CONTROLS FIXTURES MARKED "d"

HOA_e — HAND–OFF–AUTO SELECTOR SWITCH CONTROLS FIXTURES MARKED "e"

S_{MD} — MOTION DETECTOR INTERGRAL TO WALL SWITCH

OS — OCCUPANCY SENSOR (CEILING MOUNTED)

FLOOR/CEILING MOUNTED QUAD RECEPTACLE/DATA RECEPTACLE REFER TO FLOOR PLANS AND LEGEND FOR ADDITIONAL INFORMATION (GROUND TYPE)

FLOOR/CEILING MOUNTED QUAD RECEPTACLE REFER TO FLOOR PLANS AND LEGEND FOR ADDITIONAL INFORMATION (GROUND TYPE)

FLOOR/CEILING MOUNTED DUPLEX RECEPTACLE REFER TO FLOOR PLANS AND LEGEND FOR ADDITIONAL INFORMATION (GROUND TYPE)

FLOOR/CEILING MOUNTED DATA RECEPTACLE REFER TO FLOOR PLANS AND LEGEND FOR ADDITIONAL INFORMATION

GFCI — DUPLEX RECEPTACLE (GROUND TYPE) GFCI DENOTES GROUND FAULT CIRCUIT INTERRUPTER

WPG — DUPLEX RECEPTACLE (GROUND TYPE) GFCI WITHIN WEATHERPROOF ENCLOSURE

GFCI — QUAD RECEPTACLE (GROUND TYPE) GFCI DENOTES GROUND FAULT CIRCUIT INTERRUPTER

SPECIAL PURPOSE RECEPTACLE, TYPE AND AMPERE RATING AS INDICATED ON PLAN

WP — DUPLEX RECEPTACLE (GROUND TYPE), "WP" DENOTES WEATHERPROOF, "XP" DENOTES EXPLOSION PROOF

RECESSED TELEPHONE/DATA OUTLET, MOUNTED 48" AFF

SURFACE MOUNTED TELEPHONE/DATA OUTLET MOUNTED 48" AFF

RECESSED DATA OUTLET MOUNTED 48" AFF

SURFACE MOUNTED DATA OUTLET, MOUNTED 48" AFF

RI — REMOTE INDICATOR

I — SURFACE MOUNTED INTERCOM WALL OUTLET AND HAND STATION, MOUNTED 48" A.F.F.

I — CEILING FLUSH MOUNTED INTERCOM SPEAKER

I — TRUMPET TYPE INTERCOM LOUDSPEAKER

SECURITY

CR — CARD ACCESS READER (MOUNTED 3'–6" A.F.F.)

KP — KEYPAD ENTRY (MOUNTED 3'–6" A.F.F.)

EDL — ELECTRONIC DOOR LOCK (COORD. MOUNTING HEIGHT WITH ARCHITECTURAL PLANS AND DOOR HARDWARE REQUIREMENTS)

MD REX — REQUEST TO EXIT DETECTOR (COORD. MOUNTING HEIGHT WITH ARCHITECTURAL PLANS AND DOOR HARDWARE REQUIREMENTS)

CCTV CAMERA WITH INFRARED ILLUMINATOR (CEILING MOUNTED)

CRCP — CARD READER CONTROL PANEL (MOUNTED 3'–6" A.F.F.

SSCP — SECURITY CONTROL PANEL (MOUNTED 3'–6" A.F.F.)

MD — MOTION DETECTOR (CEILING MOUNTED)

MD REX — REQUEST TO EXIT MOTION DETECTOR (CEILING MOUNTED)

IS–D — INTRUSION SWITCH – DOOR

IS–W — INTRUSION SWITCH – WINDOW GLASS/BREAK

LEGEND:

DEMOLITION WORK – COORDINATE DISCONNECTING AND REMOVING ELECTRICAL WORK WITH DEMOLITION WORK PROVIDED UNDER OTHER DIVISIONS AND EXISTING CONDITIONS.

NEW WORK

EXISTING WORK

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALARM
AN	ANNUNCIATOR
ARMS	ARC REDUCTION MAINTENANCE SWITCH
ATO	AUTOMATIC THROW–OVER SYSTEM
ATS	AUTOMATIC TRANSFER SWITCH
CAH	CHEMICAL ALARM HORN
CHS	CHEMICAL ALARM INITIATING HAND SWITCH
CACP	CARD ACCESS CONTROL PANEL
CAP	CHEMICAL ALARM PANEL
CLF	CURRENT LIMITING FUSE
CMS	COMBINATION MOTOR STARTER
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH
DB	DUCT BANK
DP	DISTRIBUTION PANEL
DS	DISCONNECT SWITCH
EE	ELECTRICAL ENCLOSURE
EF	EXHAUST FAN
EHH	ELECTRICAL HAND HOLE
EL	ELEVATION
EMH	ELECTRICAL MANHOLE
EOV	ELECTRICALLY OPERATED VALVE
ES	EMERGENCY STOP SWITCH (MAINTAINED CONTACT) (PROVIDE DEVICE THAT CAN BE LOCKED IN THE OFF POSITION)
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FANM	FIRE ALARM NETWORK MODULE
FS	SPRINKLER SYSTEM FLOW SWITCH
FSL	FIRE ALARM STATUS LIGHT
FIS	IONIZATION SMOKE DETECTOR STATUS STATION
FSR	FORWARD–STOP–REVERSE
FTC	FIRE FIGHTER'S TELEPHONE STORAGE CABINET
GANP	GENERATOR ANNUCIATOR PANEL
GEN	GENERATOR
GFP	GROUND FAULT PROTECTION
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GSC	GROUNDED SERVICE CONDUCTOR
GSCT	GROUND SENSING CURRENT TRANSFORMER
G	GROUND
HA	HAND–AUTOMATIC
HH	HAND HOLE
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
HS	HAND SWITCH
HTR	MOTOR HEATER
IL	INDICATING LIGHT
IR	IN REMOTE
ISB	INTRINSICALLY SAFE BARRIER
JB	JUNCTION BOX
KP	KEY PAD
KS	KEY SWITCH
KW	KILOWATT
LCS	LOCAL CONTROL STATION
LOR	LOCAL–OFF–REMOTE
LP	LIGHTING PANEL
LR	LOCAL–REMOTE
LS	LIMIT SWITCH

ABBREVIATIONS

MH	MANHOLE
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MM	MAINTENANCE MODE
MS	MOTOR STARTER
MOV	MOTOR OPERATED VALVE
MVT	PAD–MOUNTED TRANSFORMER
NATS	NON–AUTOMATIC TRANSFER SWITCH
NIR	NOT IN REMOTE
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
OC	OPEN–CLOSE
O/C/T	OPEN/CLOSE/TRIP
OL'S	MOTOR OVERLOADS
OSC	OPEN–STOP–CLOSE
PB	PULL BOX
PLC	PROCESS LOGIC CONTROLLER
PM	POWER MONITOR
ROA	RUN–OFF–AUTOMATIC
ROR	RUN–OFF–REMOTE
SAAP	SECURITY ALARM ANNUNCIATOR PANEL
SSCP	SECURITY SYSTEM CONTROL PANEL
SEL	SELECTOR SWITCH
SF	SLOW–FAST
SFS	SLOW–FAST–STOP
SOFA	SLOW–OFF–FAST–AUTOMATIC
SPD	SURGE PROTECTION DEVICE
SS	START–STOP
SV	SOLENOID VALVE
SW	SWITCH
T	TRANSFORMER
TC	TIMED CLOSE
TD	TIME DELAY RELAY
TO	TIMED OPEN
TI	TIMER
TMH	TELEPHONE MAN HOLE
TQ	TORQUE ALARM SWITCH
TR	TRANSFORMER
TS	TEMPERATURE SENSOR
TX	TRANSFORMER, DRY–TYPE
TTC	TELEPHONE TERMINAL CABINET
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
W	DENOTES WATERTIGHT EQUIPMENT
WP	DENOTES WEATHERPROOF EQUIPMENT
XFMR	TRANSFORMER
XP	DENOTES EXPLOSION PROOF EQUIPMENT
XST	EXISTING
ZSS	ZERO SPEED SWITCH
AE	ANALYZER SENSOR
AIT	ANALYZER INDICATING TRANSMITTER
CFS	CHEMICAL FILL STATION PANEL
FE	FLOW ELEMENT
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INSTRUMENT TRANSMITTER
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH–HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW–LOW
MSH	MOISTURE SWITCH HIGH
O2	OXYGEN MONITOR
PS	PRESSURE SWITCH
TIT	TEMP INDICATING TRANSMITTER
TSH	TEMP SWITCH HIGH

GENERAL NOTES

1. SWITCHBOARD AND MCC COMPARTMENT DESIGNATIONS AS FOLLOWS:
   - BLANK: NOT INTENDED FOR USE, PLATE ONLY.
   - SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN
   - SPARE: CONTAINS A COMPLETE BREAKER, VFD OR STARTER INSTALLED, SIZE AS INDICATED AVAILABLE FOR FUTURE USE.
2. CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
3. CONDUIT AND WIRE (NOT SHOWN) FOR LIGHTING FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED AND SHALL BE:
   - A. 3/4" (MIN.) RIGID METAL CONDUIT
     - A1. EXPOSED IN UNFINISHED AREAS.
     - A2. CONCEALED ABOVE SUSPENDED CEILINGS AND IN WALLS IN FINISHED AREAS.
   - B. NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED, INCLUDING GROUND. PROVIDE TRAY RATED CABLE WHEN RUN IN CABLE TRAY.
4. PROVIDE COMPONENTS AND DEVICE ENCLOSURES RATED IN ACCORDANCE WITH THE NEMA RATINGS ON THE AREA CLASSIFICATION SCHEDULE.
5. DUCT BANK CONDUIT SIZES ARE GIVEN IN THE DUCT BANK CALLOUTS. WHERE THE SAME CONDUIT NUMBER IS USED BOTH IN THE DUCT BANK AND IN A BUILDING, THE CONDUIT SIZE GIVEN IN THE CONDUIT SCHEDULE APPLIES TO THE CONDUIT IN THE BUILDING ONLY.
6. FURNISH METAL PIPE SLEEVES FOR CONDUITS ROUTED THROUGH WALLS TO THE CONTRACTOR FOR PLACING IN WALLS PRIOR TO POURING OF CONCRETE.
7. FLOOR MOUNTED ELECTRICAL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, MCCS AND VFDS SHALL BE PROVIDED WITH CONCRETE EQUIPMENT PADS IN ACCORDANCE WITH STRUCTURAL STANDARD DETAIL ON DRAWING 00 S–001.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS — ANDREA ABRAHAM ELECTRICAL — No.54766 — REGISTERED PROFESSIONAL ENGINEER

03-07-2023

ISSUE/REVISION

1	3-01-2023	ISSUE FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

ELECTRICAL LEGEND, SYMBOLS AND ABBRIEVATIONS

SHEET NUMBER

00 E-001

PATH/FILENAME: \\NA.AECOMNET.COM\FLES\AMERICHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\10_CAD\20-SHEETS\E\00 E-001.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:41:27 PM
PLOT DATE: Tuesday, March 07, 2023 12:47:17 PM

ENVIRONMENTAL CLASSIFICATIONS*

LOCATION	NEMA TYPE					HAZARDOUS CLASS 1 GROUP D**		REMARKS
	1	3R	4	4X	12	DIV. 1	DIV. 2	SEE BELOW
(04) - PUMP STATION NO.4								
WET WELL						x		R3
VALVE VAULT							x	R2
(10) - WWTF								
VEST-1	x							
101 - TRUCK BAY/SEPTAGE RECEIVING						x		
102 - GARAGE				x				
103 - BREAK ROOM	x							
104 - CHEM STORAGE ROOM - SH & PACL				x				
105 - CONFERENCE ROOM	x							
106 - SUPER. OFFICE	x							
107 - COPY ROOM	x							
108 - ELECTRICAL ROOM	x							
109 - MECHANICAL ROOM					x			
110 - STORAGE ROOM					x			
111 - MENS ROOM	x							
112 - MENS SHOWER					x			
113 - WOMENS ROOM	x							
114 - WOMENS SHOWER					x			
115 - LABORATORY	x							
116 - CONTROL ROOM	x							
117 - CHEM STORAGE ROOM - POLYMER				x				
118 - HEADWORKS ROOM						x		R3
119 - DISK FILTER ROOM				x				
120 - CORRIDOR	x							
121 - WASTE SLUDGE STORAGE TANK NO.2						x		R3
122 - THICKENED SLUDGE STORAGE TANK				x				
123 - POST EQUALIZATION TANK				x				
124 - PRE-EQUALIZATION TANK NO.1						x		R3
125 - PRE-EQUALIZATION TANK NO.2						x		R3
126 - BASEMENT PUMP ROOM			x					
STR-1, STR-2					x			
130 - CLOSET					x			
132 - MOP AREA					x			
133 - LAUNDRY	x							
134 - WASTE SLUDGE STORAGE TANK NO.1						x		R3
135 - CHEM STORAGE ROOM - SODA ASH				x				
ODOR CONTROL							x	R5
OUTDOORS (UNLESS OTHERWISE COVERED ABOVE)				x				R1

REMARKS:

* PROVIDE EQUIPMENT AND INSTALLATION TO COMPLY WITH AREA CLASSIFICATION REQUIREMENTS.

** RADIUS SHALL EXTEND TO ALL DIRECTIONS UNLESS SPECIFICALLY IDENTIFIED AS A HORIZONTAL OR VERTICAL RADIUS.

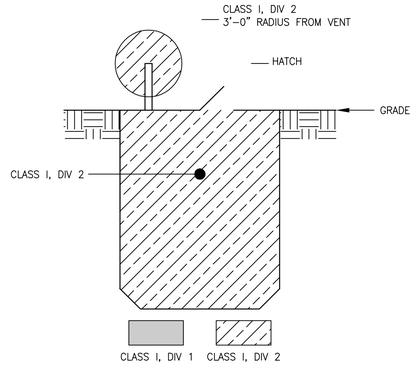
R1 = OUTDOORS ARE AREAS NOT ENCLOSED BY WALLS AND CEILING.

R2 = DRY WELL OR VAULT
CLASS 1 DIVISION 2 INSIDE VAULT
CLASS 1 DIVISION 2 WITHIN 0.9 M (3 FT) RADIUS FROM VENT
NEMA 4X AREA BEYOND CLASSIFIED RADIUS
SEE FIGURE R2 THIS SHEET.

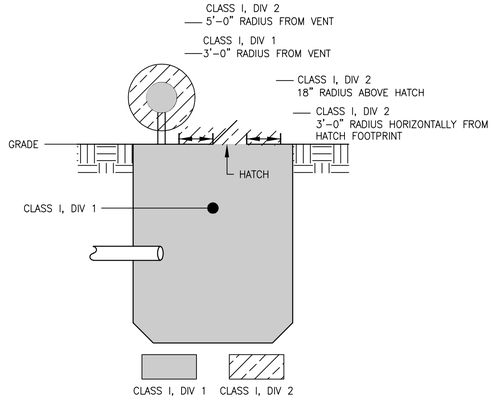
R3 = WET WELL OR BASIN
CLASS 1 DIVISION 1 INSIDE WET WELL
CLASS 1 DIVISION 1 WITHIN 0.9 M (3 FT) RADIUS FROM VENT
CLASS 1 DIVISION 2 WITHIN 1.5 M (5 FT) RADIUS FROM VENT
CLASS 1 DIVISION 2 WITHIN 0.9 M (3 FT) HORIZONTAL RADIUS FROM HATCH
CLASS 1 DIVISION 2 WITHIN 1.5 M (5 FT) VERTICAL RADIUS FROM HATCH
NEMA 4X AREA BEYOND CLASSIFIED RADIUS
SEE FIGURE R3 THIS SHEET.

R4 = TANKS NOT ENCLOSED, OPEN TO ATMOSPHERE
CLASS I DIVISION 2 INSIDE TANK FROM MINIUMUM OPERATING WATER SURFACE TO THE TOP OF THE TANK WALL
CLASS I DIVISION 2 RADIUS EXTENDS 0.46 M (18 IN.) ABOVE THE TOP OF THE TANK AND EXTENDING 0.46 M (18 IN.) BEYOND THE XTERIOR WALL.
CLASS I DIVISION 2 RADIUS 0.46 M (18 IN.) ABOVE GRADE EXTENDING 3 M (10 FT) HORIZONTALLY FROM THE EXTERIOR TANK WALLS.
SEE FIGURE R4 THIS SHEET.

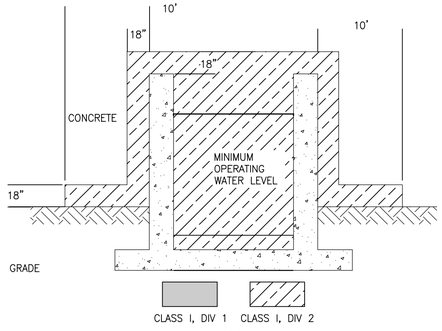
R5 = PRIMARY ODOR ODOR CONTROL
CLASS I DIVISION 2 EXTENDS 0.9 M (3 FT) RADIUS FROM VENT. NEMA 4X BEYOND.



R2
DRY WELL OR VAULT
CLASSIFICATION DETAIL



R3
WET WELL OR BASIN
CLASSIFICATION DETAIL



R4
TANKS NOT ENCLOSED, OPEN TO ATMOSPHERE
CLASSIFICATION DETAIL

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
ELECTRICAL
No.54964
REGISTERED PROFESSIONAL ENGINEER

03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

ELECTRICAL SCHEDULES I

SHEET NUMBER

00 E-601

PATH/FILENAME: \\NA.AECOMNET.COM\LFSVAMERCHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\E001E-601.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:46:31 PM
PLOT DATE: Tuesday, March 07, 2023 12:47:26 PM

CONDUIT AND WIRE SCHEDULE

MEDIUM VOLTAGE POWER WIRING

[MV-1] 5"C, CABLE PROVIDED AND INSTALLED BY ELECTRICAL UTILITY.

LOW VOLTAGE POWER WIRING

[PA] 1"C, 2-12 AWG, 1-12 AWG (G)
[PA-4] 1"C, 4-12 AWG, 1-12 AWG (G)
[PA-6] 1"C, 6-12 AWG, 1-12 AWG (G)
[PB] 1"C, 3-12 AWG, 1-12 AWG (G)
[PC] 1C, 3-10 AWG, 1-10 AWG (G)
[PC-2] 1"C, 2-10 AWG, 1-10 AWG (G)
[PD] 1"C, 3-8 AWG, 1-10 AWG (G)
[PD-1] 1"C, 3-8 AWG, 1-10 AWG (G)
[PD-2] 1"C, 2-8 AWG, 1-10 AWG (G)
[PD-4] 1"C, 4-8 AWG, 1-10 AWG (G)
[PE] 1"C, 3-6 AWG, 1-10 AWG (G)
[PE-2] 1"C, 2-6 AWG, 1-10 AWG (G)
[PE-4] 1"C, 4-6 AWG, 1-10 AWG (G)
[PF] 1"C, 3-4 AWG, 1-10 AWG (G)
[PF-4] 1 1/2"C, 4-4 AWG, 1-10 AWG (G)
[PG] 1"C, 3-4 AWG, 1-8 AWG (G)
[PG-4] 1"C, 4-4 AWG, 1-8 AWG (G)
[PH] 1 1/4"C, 3-2 AWG, 1-8 AWG (G)
[PH-4] 1 1/2"C, 4-2 AWG, 1-8 AWG (G)
[PJ] 1 1/2"C, 3-1 AWG, 1-8 AWG (G)
[PJ-4] 1 1/2"C, 4-1 AWG, 1-8 AWG (G)
[PK] 1 1/2"C, 3-1 AWG, 1-6 AWG (G)
[PK-4] 1 1/2"C, 4-1 AWG, 1-6 AWG (G)
[PL] 1 1/2"C, 3-1/0 AWG, 1-6 AWG (G)
[PL-4] 1 1/2"C. 4-1/0 AWG, 1-6 AWG (G)
[PM] 1 1/2"C, 3-2/0 AWG, 1-6 AWG (G)
[PM-4] 2"C, 4-2/0 AWG, 1-6 AWG (G)
[PN] 2"C, 3-3/0 AWG, 1-6 AWG (G)
[PN-4] 2"C, 4-3/0 AWG, 1-6 AWG (G)
[PP] 2"C, 3-4/0 AWG, 1-4 AWG (G)
[PQ] 2 1/2"C, 3-250 KCM, 1-4 AWG (G)
[PR] 3"C, 3-350 KCM, 1-4 AWG(G)
[PS] 3"C, 3-350 KCM, 1-2 AWG(G)
[PT] 3"C, 3-500 KCM, 1-2 AWG(G)

SIGNAL WIRING

[D2] 3/4"C, 2-14 AWG, 1-14 AWG (G)
[D3] 3/4"C, 3-14 AWG, 1-14 AWG (G)
[D4] 3/4"C, 4-14 AWG, 1-14 AWG (G)
[D5] 3/4"C, 5-14 AWG, 1-14 AWG (G)
[D6] 3/4"C, 6-14 AWG, 1-14 AWG (G)
[D7] 3/4"C, 7-14 AWG, 1-14 AWG (G)
[D8] 3/4"C, 8-14 AWG, 1-14 AWG (G)
[D9] 3/4"C, 9-14 AWG, 1-14 AWG (G)
[D10] 3/4"C, 10-14 AWG, 1-14 AWG (G)
[D11] 1"C, 11-14 AWG, 1-14 AWG (G)
[D12] 1"C, 12-14 AWG, 1-14 AWG (G)
[D13] 1"C, 13-14 AWG, 1-14 AWG (G)
[D14] 1"C, 14-14 AWG, 1-14 AWG (G)
[D15] 1"C, 15-14 AWG, 1-14 AWG (G)
[D16] 1"C, 16-14 AWG, 1-14 AWG (G)
[D17] 1"C, 17-14 AWG, 1-14 AWG (G)
[D18] 1"C, 18-14 AWG, 1-14 AWG (G)
[D19] 1"C, 19-14 AWG, 1-14 AWG (G)
[D20] 1"C, 20-14 AWG, 1-14 AWG (G)
[D28] 1"C, 28-14 AWG, 1-14 AWG (G)
[D30] 1"C, 30-14 AWG, 1-14 AWG (G)
[D34] 1 1/2"C, 34-14 AWG, 1-14 AWG (G)
[D40] 1 1/2"C, 40-14 AWG, 1-14 AWG (G)

CONTROL WIRING

[VSC] 1"C, VENDOR SUPPLIED CABLE
[CX] 1" C, COAXIAL CABLE
[E1] 1"C, 1-CAT 6 CABLE
[E2] 1"C, 2-CAT 6 CABLES
[FO1] 1"C, 1-FIBER OPTIC MEDIA CABLE
[FO2] 1"C, 2-FIBER OPTIC MEDIA CABLES
[C1] 1"C, 1-TSP 16 AWG
[C2] 1"C, 2-TSP 16 AWG
[C3] 1"C, 3-TSP 16 AWG
[C4] 1 1/2"C, 4-TSP 16 AWG
[C5] 1 1/2"C, 5-TSP 16 AWG

GROUND WIRING:

NOTE: ALL G SERIES WIRING SHALL BE CONNECTED TO GROUNDING BUS BAR LOCATED IN THE ELECTRICAL ROOM UNLESS OTHERWISE INDICATED. INSTALL IN PVC CONDUIT.

[G1] 1"C, 1-12 AWG (G)
[G2] 1"C, 1-10 AWG (G)
[G3] 1"C, 1-8 AWG (G)
[G4] 1C, 1-6 AWG (G)
[G5] 1"C, 1-4 AWG (G)
[G6] 1"C, 1-2 AWG (G)
[G7] 1"C, 1-1/0 AWG (G)
[G8] 1"C, 1-2/0 AWG (G)
[G9] 1 1/2"C, 1-3/0 AWG (G)
[G10] 1 1/2"C, 1-4/0 AWG (G)
[G11] 1 1/2"C, 1-250 KCM (G)
[G12] 2"C, 1-350 KCM (G)
[G13] 2"C, 1-500 KCM (G)

CONDUIT AND WIRE SCHEDULE NOTES:

1. FOR CIRCUITS RUN IN DUCT BANKS, THE DUCT SIZE INDICATED ON THE DUCT BANK SCHEDULE GOVERNS THE CONDUIT SIZE IN THE DUCT BANK. CONDUIT SIZES SHOWN HERE GOVERNS CONDUIT SIZE WHEN NOT RUN IN DUCT BANK.

TABLE OF RESPONSIBILITY – ELECTRICAL, GENERAL, AND SYSTEM INTEGRATOR

	ELEMENT	GENERAL CONTRACTOR	SYSTEM INTEGRATOR	ELECTRICAL CONTRACTOR
1	FURNISH, TEST AND CALIBRATE INSTRUMENTS		X	
2	INSTALL INSTRUMENTS	X		
3	INSTALL FIELD LOCATED DEVICES ASSOCIATED WITH INSTRUMENTS INCLUDING TRANSMITTERS, INDICATORS, CONTROL PANELS, AND ANCIALLARY COMPONENTS THAT ARE NOT LOCATED WITHIN PROCESS PIPING AND TANKS. LOCATIONS SHALL BE AS INDICATED ON THE ELECTRICAL DRAWINGS.	X		
4	FURNISH AND INSTALL FIELD LOCATED DEVICES SUPPLIED UNDER DIVISION 16 INCLUDING MOTOR LOCAL CONTROL STATIONS, DISCONNECTS, EMERGENCY STOP PUSHBUTTONS (ESTOPS)			X
5	FURNISH RADIO SYSTEM HARDWARE		X	
6	INSTALL RADIO SYSTEM HARDWARE			X
7	FURNISH AND INSTALL INTERCONNECTING WIRE, CABLE, CONDUIT, AND CONNECTIONS FOR INSTRUMENTS			X
8	FURNISH, INSTALL and TEST ETHERNET NETWORK CABLE.			X

EQUIPMENT GROUNDING SCHEDULE

PROVIDE GROUNDING CONDUITS AND WIRES INDICATED FROM EQUIPMENT LISTED TO THE GROUNDING LOOP OR TO THE GROUNDING BUS BARS AS INDICATED AND IN ACCORDANCE WITH THE CONDUIT AND WIRE SCHEDULE. FOR GROUNDING OF PIPING AND OTHER MISCELLANEOUS ITEMS PROVIDE COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL REGULATIONS

EQUIPMENT	GROUNDING CONDUIT AND WIRE	QTY.	NOTES
PAD MOUNTED TRANSFORMER	[G8]	TWO	TO GROUNDING LOOP
DIESEL GENERATOR GEN.04-1 ENCLOSURE	[G8]	TWO	TO GROUNDING LOOP
LESS THAN 100 HP TO 50 VFD UNIT	[G4]	ONE	TO GROUNDING LOOP
200 AMPS DISTRIBUTION PANEL	[G3]	ONE	TO GROUNDING LOOP
30 KVA DRY-TYPE TRANSFORMER	[G4]	ONE	TO GROUNDING LOOP
ELECTRICAL ENCLOSURE EE-04	[G8]	TWO	TO GROUNDING LOOP
PLC CONTROL PANELS	[G3]	ONE	TO GROUNDING LOOP
ANTENNA	[G2]	ONE	TO GROUNDING LOOP
DIESEL ENGINE GENERATOR ENCLOSURE	[G8]	TWO	TO GROUNDING LOOP
OUTDOOR TANKS, PUMP, MOTORS, PANELS OR EQUIPMENT	[G4]	ONE	TO GROUNDING LOOP
OUTDOOR LIGHT, CCTV AND UTILITY POLES	[G4]	ONE	TO GROUNDING LOOP
OUTDOOR METAL WALKWAYS, HANDRAILS	[G4]	ONE	TO GROUNDING LOOP

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM ELECTRICAL
No.54962
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

ELECTRICAL SCHEDULES II

SHEET NUMBER

00 E-602

PATH/FILENAME: \\WA.AECOMNET.COM\LFS\AMERICHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\E\00 E-602.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:40:42 PM
PLOT DATE: Tuesday, March 07, 2023 12:47:33 PM

LEGEND:

[1] PUMP STATION NO.4 PLC – WW.PS–4–PLC

PASSIVE HARMONIC FILTER

NOTES

1. PROVIDE ELECTRICAL UTILITY SERVICE AND METERING EQUIPMENT IN ACCORDANCE WITH EVERSOURCE REQUIREMENTS.

PANELBOARD "LP.04–1"

PRIMARY: 480VAC, 3PH, 60HZ
TRANSFORMER: 15KVA
SECONDARY: 208/120V, 3PH, 4W, 60HZ

MAIN CIRCUIT BREAKER: 50A TRIP
SHORT CIRCUIT BRACING: 10,000 AMPS
CABINET: NEMA 1

GROUND BUS

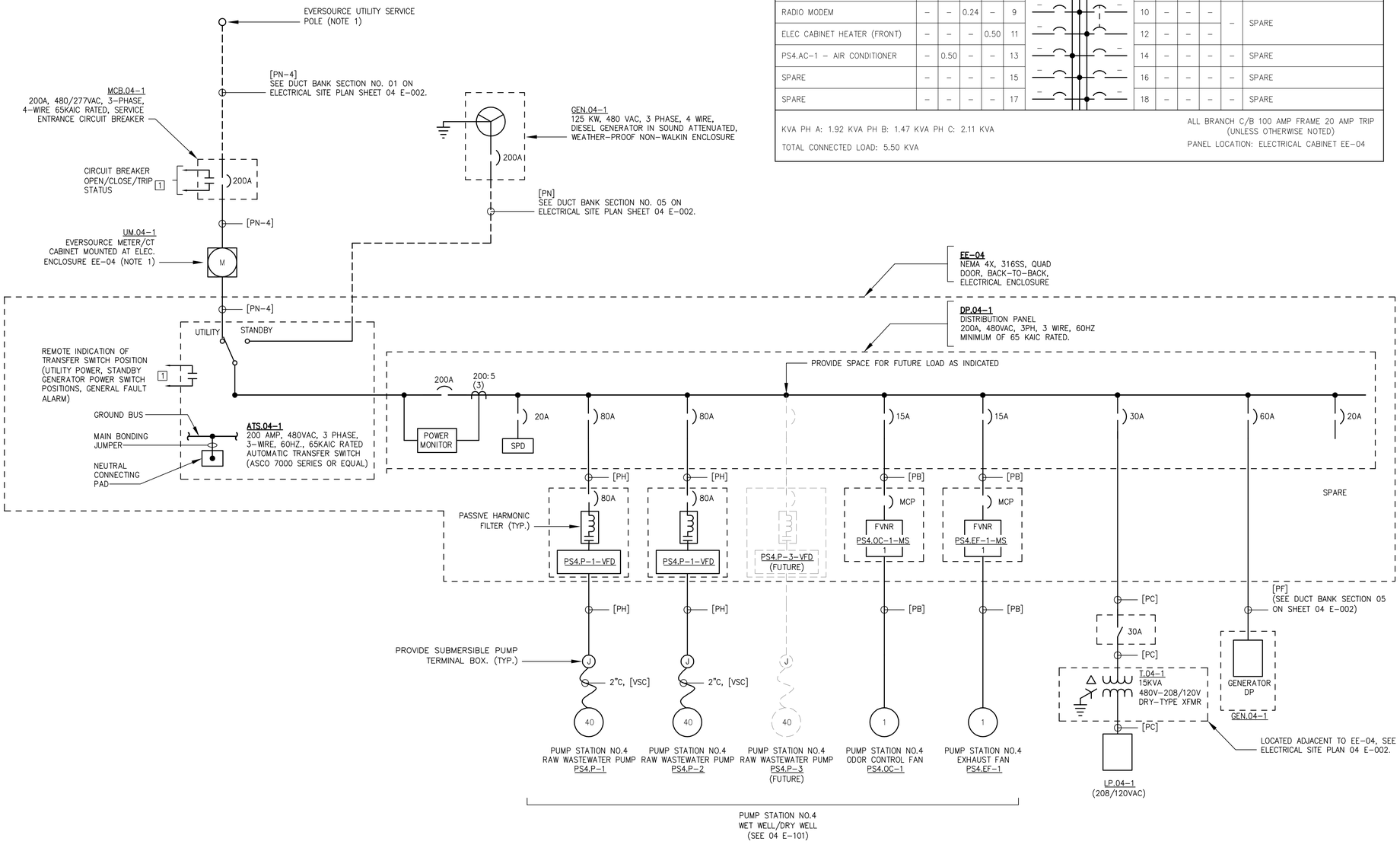
LOCATION	HP	KVA A	KVA B	KVA C	CIR. NO.	NEUTRAL A B C	CIR. NO.	KVA A	KVA B	KVA C	HP	LOCATION
WW.PS–4–PLC	–	0.60	–	–	1		2	–	–	–	–	ELEC CABINET LIGHTING (BACK)
FLOW METER FIT–0204	–	–	0.12	–	3		4	–	0.36	–	–	GEN.04–1 BATTERY CHARGER
ELECTRICAL CABINET RECEPT.	–	–	–	0.36	5		6	–	–	0.50	–	ELEC CABINET HEATER (BACK)
ELEC CABINET LIGHTING (FRONT)	–	0.20	–	–	7		8	–	–	–	–	SPARE
RADIO MODEM	–	–	0.24	–	9		10	–	–	–	–	SPARE
ELEC CABINET HEATER (FRONT)	–	–	–	0.50	11		12	–	–	–		
PS4.AC–1 – AIR CONDITIONER	–	0.50	–	–	13		14	–	–	–	–	SPARE
SPARE	–	–	–	–	15		16	–	–	–	–	SPARE
SPARE	–	–	–	–	17		18	–	–	–	–	SPARE

KVA PH A: 1.92 KVA PH B: 1.47 KVA PH C: 2.11 KVA

TOTAL CONNECTED LOAD: 5.50 KVA

ALL BRANCH C/B 100 AMP FRAME 20 AMP TRIP (UNLESS OTHERWISE NOTED)

PANEL LOCATION: ELECTRICAL CABINET EE–04



PUMP STATION NO.4 – SINGLE LINE DIAGRAM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
E.I.T. REGISTERED
No. 54464
PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

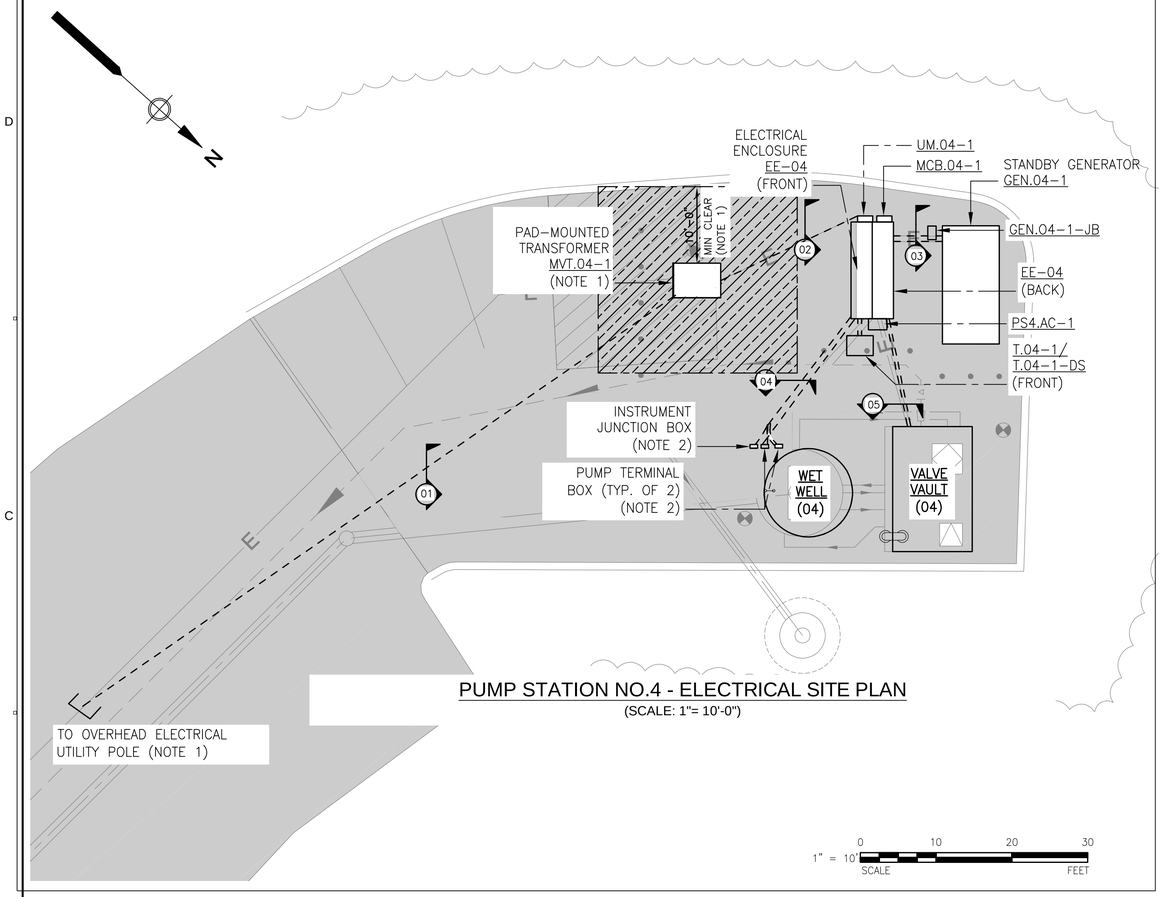
SHEET TITLE

PUMP STATION NO.4 - ELECTRICAL SINGLE LINE DIAGRAM

SHEET NUMBER

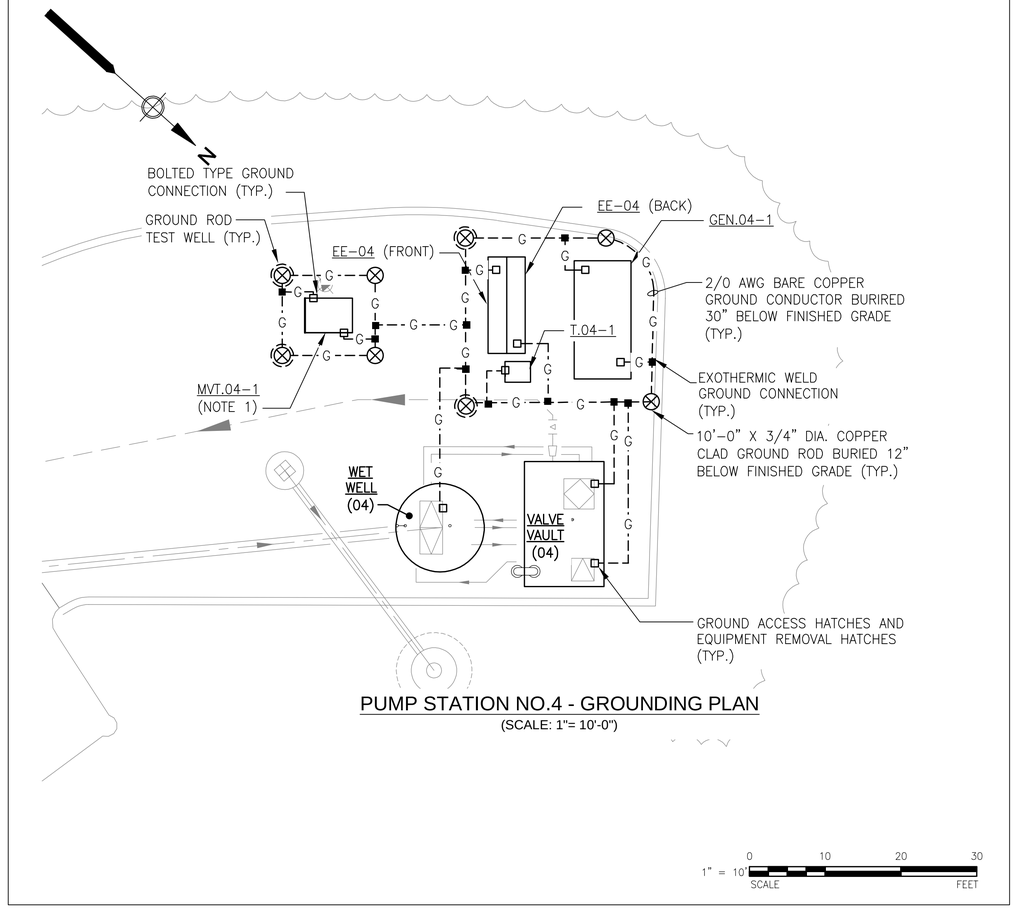
04 E-001

PATH/FILENAME: \\NA.AECOMNET.COM\LFSUAMERCHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\E04 E-001.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:40:24 PM
PLOT DATE: Tuesday, March 07, 2023 12:47:55 PM



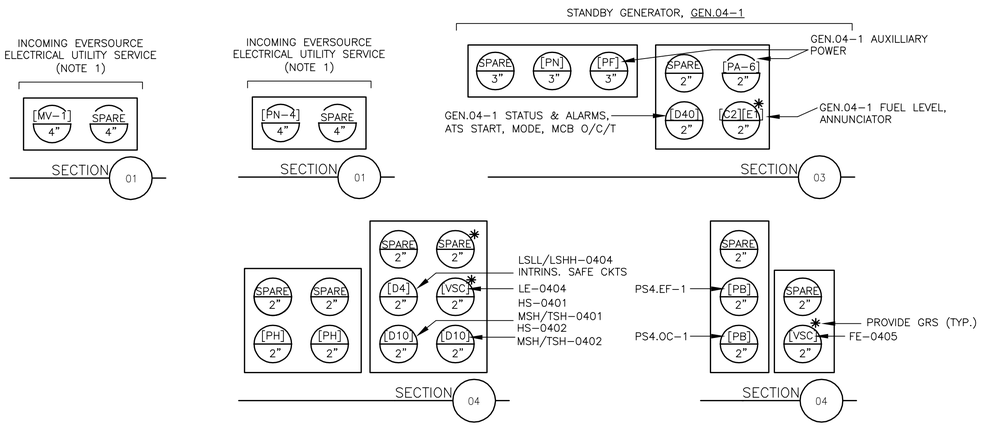
PUMP STATION NO.4 - ELECTRICAL SITE PLAN

(SCALE: 1"= 10'-0")



PUMP STATION NO.4 - GROUNDING PLAN

(SCALE: 1"= 10'-0")



PUMP STATION NO.4 - DUCT BANK SECTIONS

(SCALE:NTS)

NOTES:

1. PROVIDE UTILITY ELECTRICAL SERVICE IN ACCORDANCE WITH EVERSOURCE REQUIREMENTS. COORDINATE LOCATION OF UTILITY POLE FOR NEW SERVICE WITH EVERSOURCE.
2. LOCATE EQUIPMENT OUTSIDE OF XP CLASSIFIED BOUNDARY IN ACCORDNACE WITH NFPA 820 AND AREA CLASSIFICATION SCHEDULE SHEET 00 E-601.
3. SEE EQUIPMENT GROUNDING SCHECULE SHEET 00 E-602.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
No.54966
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

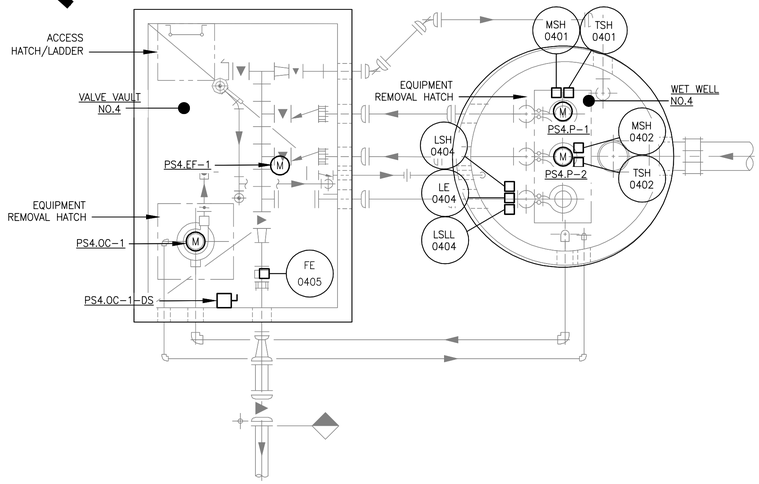
SHEET TITLE

PUMP STATION NO.4 - ELECTRICAL SITE PLAN

SHEET NUMBER

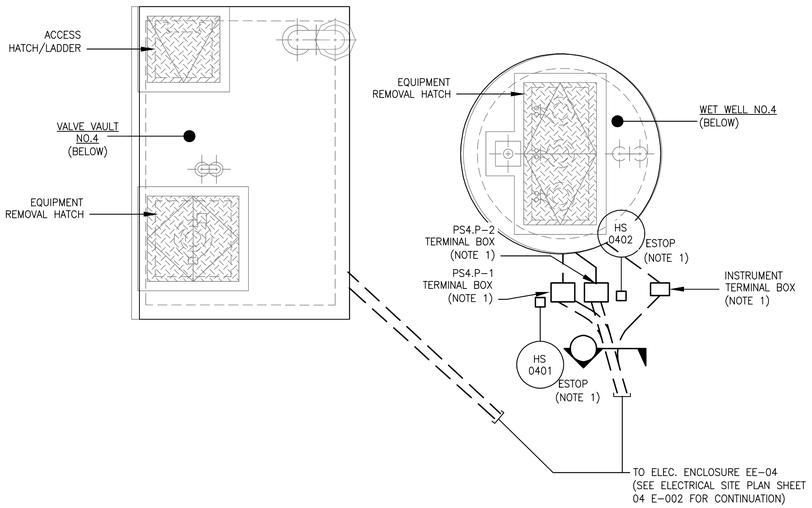
04 E-002

PATH/FILENAME: \\NA.AECOMNET.COM\LFS\AMER\CHELMSFORD-USCH.L10\CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEET\SE\04 E-002.DWG
LAST UPDATE: Monday, October 03, 2022 12:06:25 AM
PLOT DATE: Tuesday, March 07, 2023 12:48:10 PM



PUMP STATION NO.4 - PLAN VIEW - LOWER

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



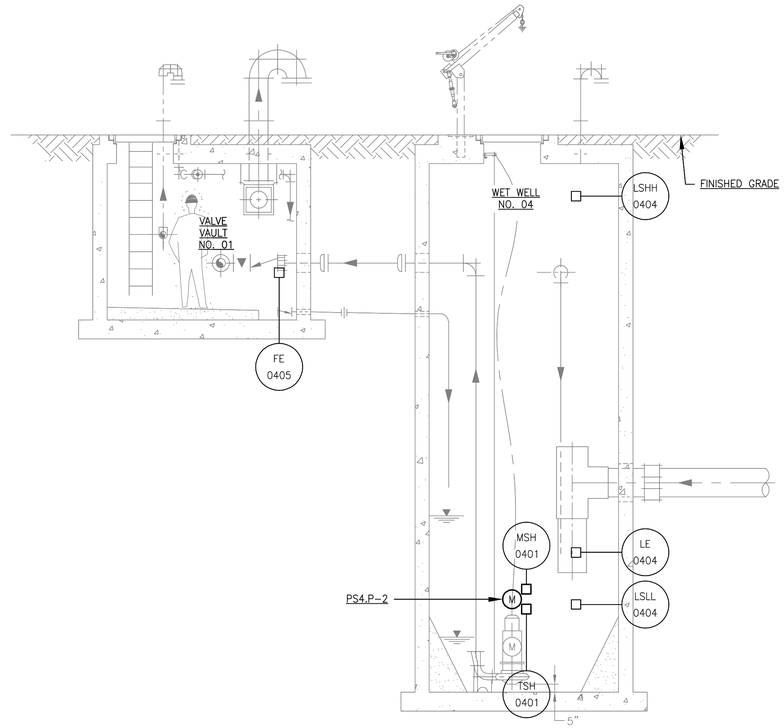
PUMP STATION NO.4 - PLAN VIEW - UPPER

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

1/4"=1'-0" SCALE 0 4 8 12 FEET

NOTES:

1. LOCATE EQUIPMENT OUTSIDE OF XP CLASSIFIED BOUNDARY IN ACCORDANCE WITH NFPA 820 AND AREA CLASSIFICATION SCHEDULE PER SHEET 00 E-601.



PUMP STATION NO.4 - SECTION VIEW

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

1/4"=1'-0" SCALE 0 4 8 12 FEET

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
No.54966
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

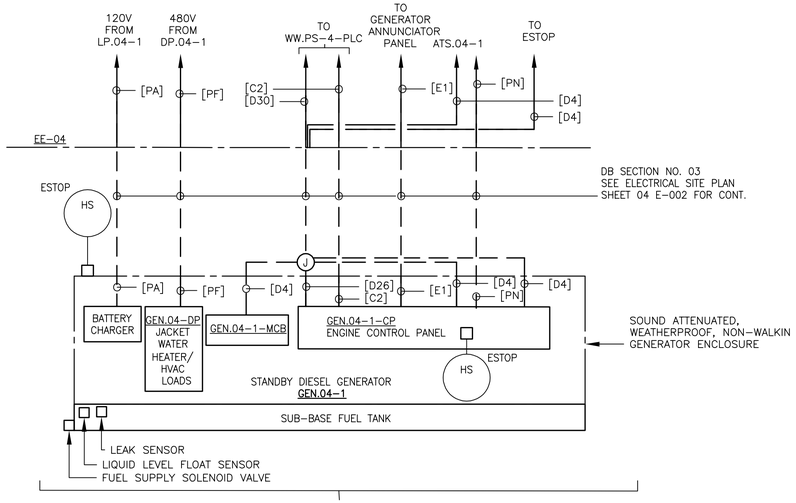
SHEET TITLE

PUMP STATION NO.4 - ELECTRICAL POWER PLAN

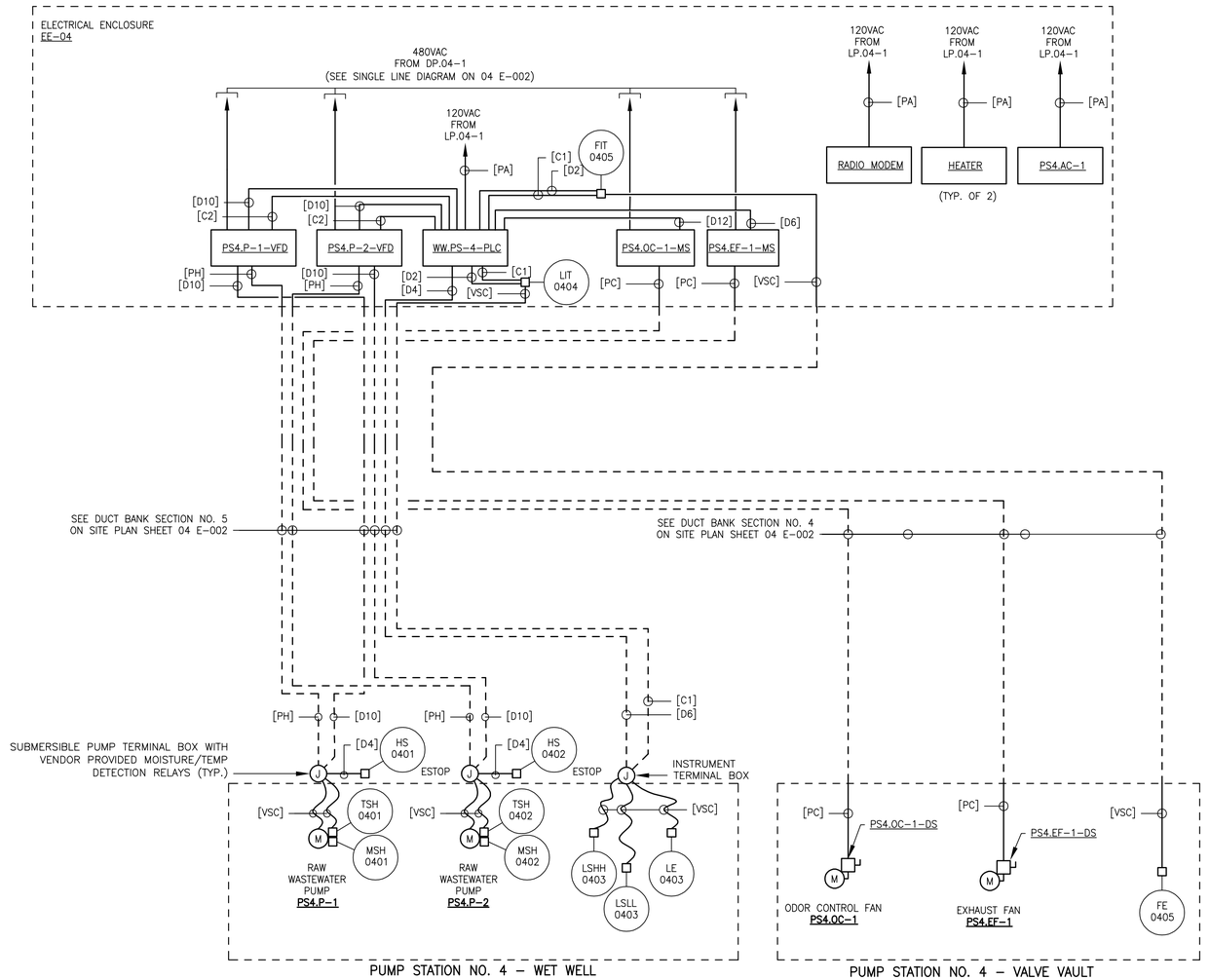
SHEET NUMBER

04 E-101

PATH/FILENAME: \\NA.AECOMNET.COM\LFS\AMER\CHELMSFORD-USCH.L10\CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEET\SE\04 E-101.DWG
LAST UPDATE: Monday, October 03, 2022 12:07:40 AM
PLOT DATE: Tuesday, March 07, 2023 12:48:22 PM



STANDBY GENERATOR GEN.04-1
RISER DIAGRAM



PUMP STATION NO.4 – WET WELL AND VALVE VAULT – RISER DIAGRAMS
SCALE: NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
ELECTRICAL
No.54966
REGISTERED PROFESSIONAL ENGINEER

03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

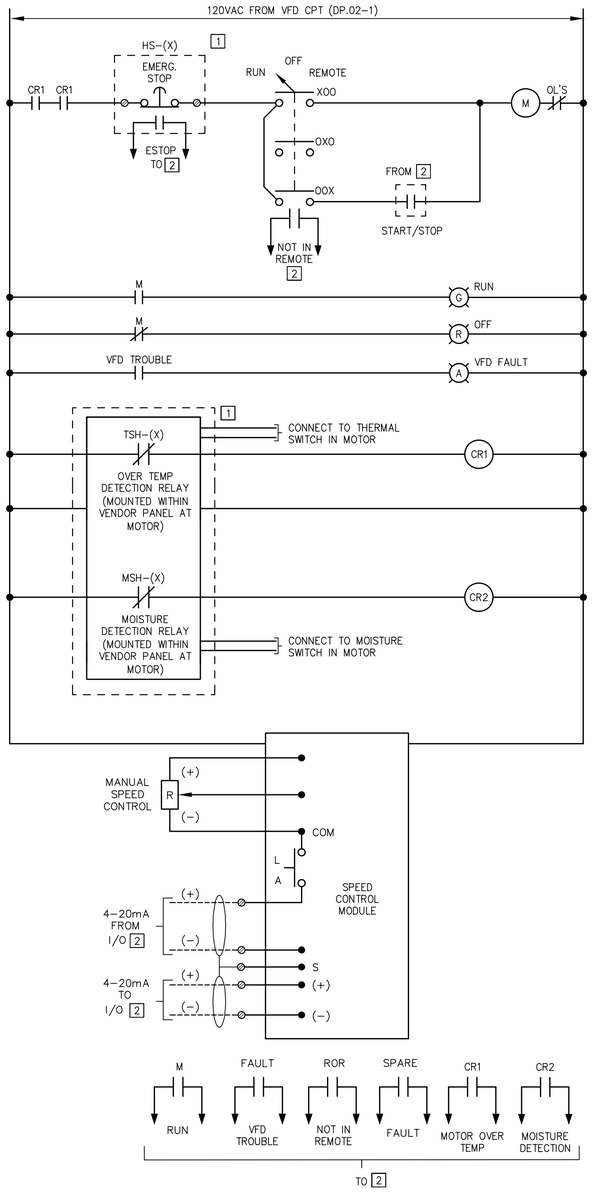
SHEET TITLE

PUMP STATION NO.4 - RISER DIAGRAMS

SHEET NUMBER

04 E-601

PATH/FILENAME: \\NA.AECOMNET.COM\LFS\AMERCHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\E604 E-601.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:39:48 PM
PLOT DATE: Tuesday, March 07, 2023 12:48:31 PM



PUMP STATION NO.4
RAW WASTEWATER PUMP
WIRING DIAGRAM
PS4.P-1

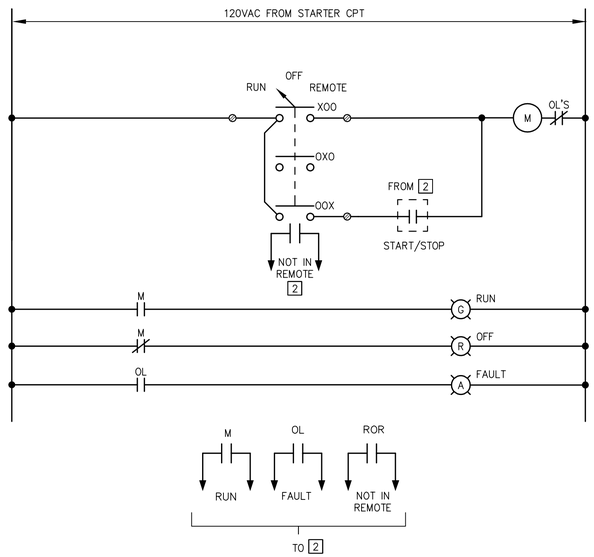
(ALL COMPONENTS LOCATED AT VFD UNLESS OTHERWISE NOTED)
(TYPICAL OF PS4.P-2)

EQUIP. TAG (X)	HS-(X)	TSH-(X)	MSH-(X)
PS4.P-1-VFD	0201	0201	0201
PS4.P-2-VFD	0202	0202	0202

LEGEND

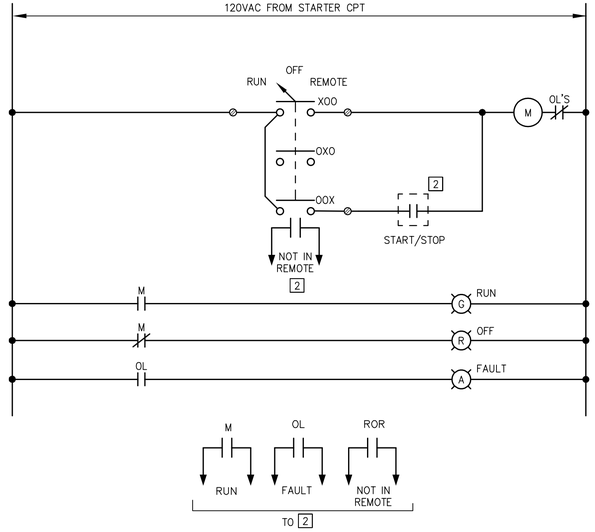
1 DEVICE LOCATED AT EQUIPMENT

2 FROM/TO WW.PS-4-PLC



ODOR CONTROL FAN PS4.OC-1
MOTOR STARTER WIRING DIAGRAM

(ALL COMPONENTS LOCATED AT THE STARTER UNLESS OTHERWISE NOTED)



EXHAUST FAN PS4.EF-1
MOTOR STARTER WIRING DIAGRAM

(ALL COMPONENTS LOCATED AT STARTER UNLESS OTHERWISE NOTED)

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

03-07-2023

ISSUE/REVISION

1	3-01-2023	ISSUE FOR BID
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

PUMP STATION NO.4 - ELECTRICAL WIRING SCHEMATICS

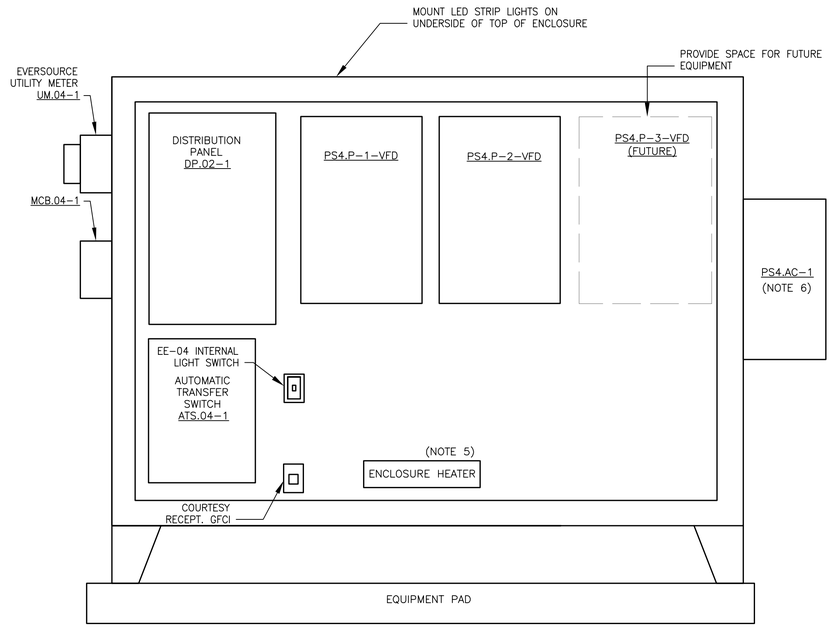
SHEET NUMBER

04 E-602

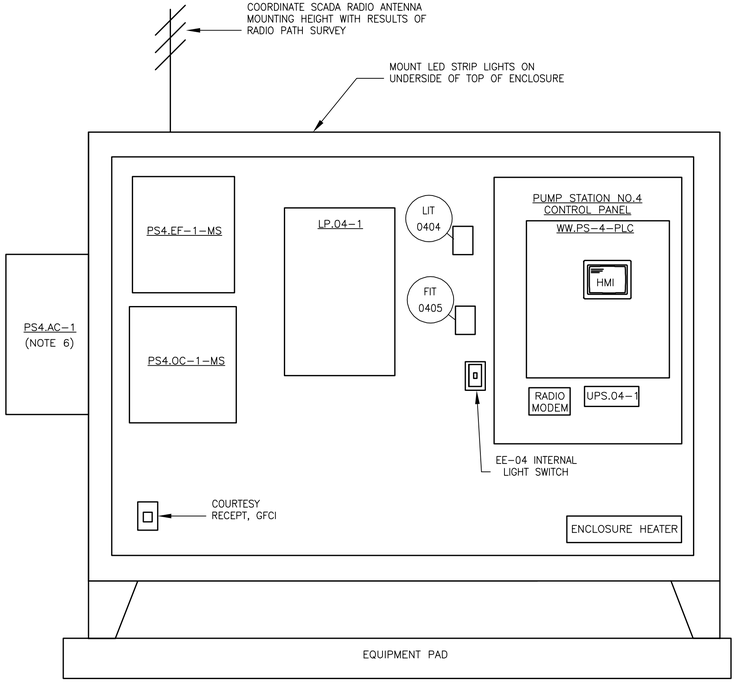
PATHFILENAME: \\NA.AECOMNET.COM\LFS\AMERCHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\ED04 E-602.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:46:18 PM
PLOT DATE: Tuesday, March 07, 2023 12:48:37 PM

NOTES:

1. PROVIDE ENCLOSURE CONSTRUCTED OF 316 STAINLESS STEEL.
2. COMPONENT LAYOUT IS FOR FUNCTIONAL PURPOSES ONLY. LAYOUT AND ENCLOSURE SIZE SHALL BE FINALIZED BY ELECTRICAL CONTRACTOR BASED ON SPECIFIC EQUIPMENT MANUFACTURERS AND MODELS SELECTED.
3. SYSTEM INTEGRATOR TO PURCHASE RADIO EQUIPMENT, PLC AND INSTRUMENTS. ELECTRICAL CONTRACTOR SHALL INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS.
4. PANEL LAYOUT SHOWN WITH DOORS REMOVED.
5. PROVIDE HEATER SIZED TO MAINTAIN MINIMUM TEMPERATURE AS REQUIRED BY ALL COMPONENTS INSIDE ELECTRICAL ENCLOSURE. PROVIDE HEATER CONTROLLED BY AN ADJUSTABLE THERMOSTAT.
6. PROVIDE CLOSED LOOP AIR CONDITIONING AS NEEDED TO MAINTAIN TEMPERATURE WITHIN EQUIPMENT RATINGS. AIR CONDITIONER SHALL BE NEMA 4X STAINLESS STEEL WITH CORROSION PACKAGE.



EE-04 – ENCLOSURE LAYOUT – FRONT
SCALE: NTS



EE-04 – ENCLOSURE LAYOUT – BACK
SCALE: NTS

EE-04 – ENCLOSURE LAYOUTS
SCALE: NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
No.54466
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

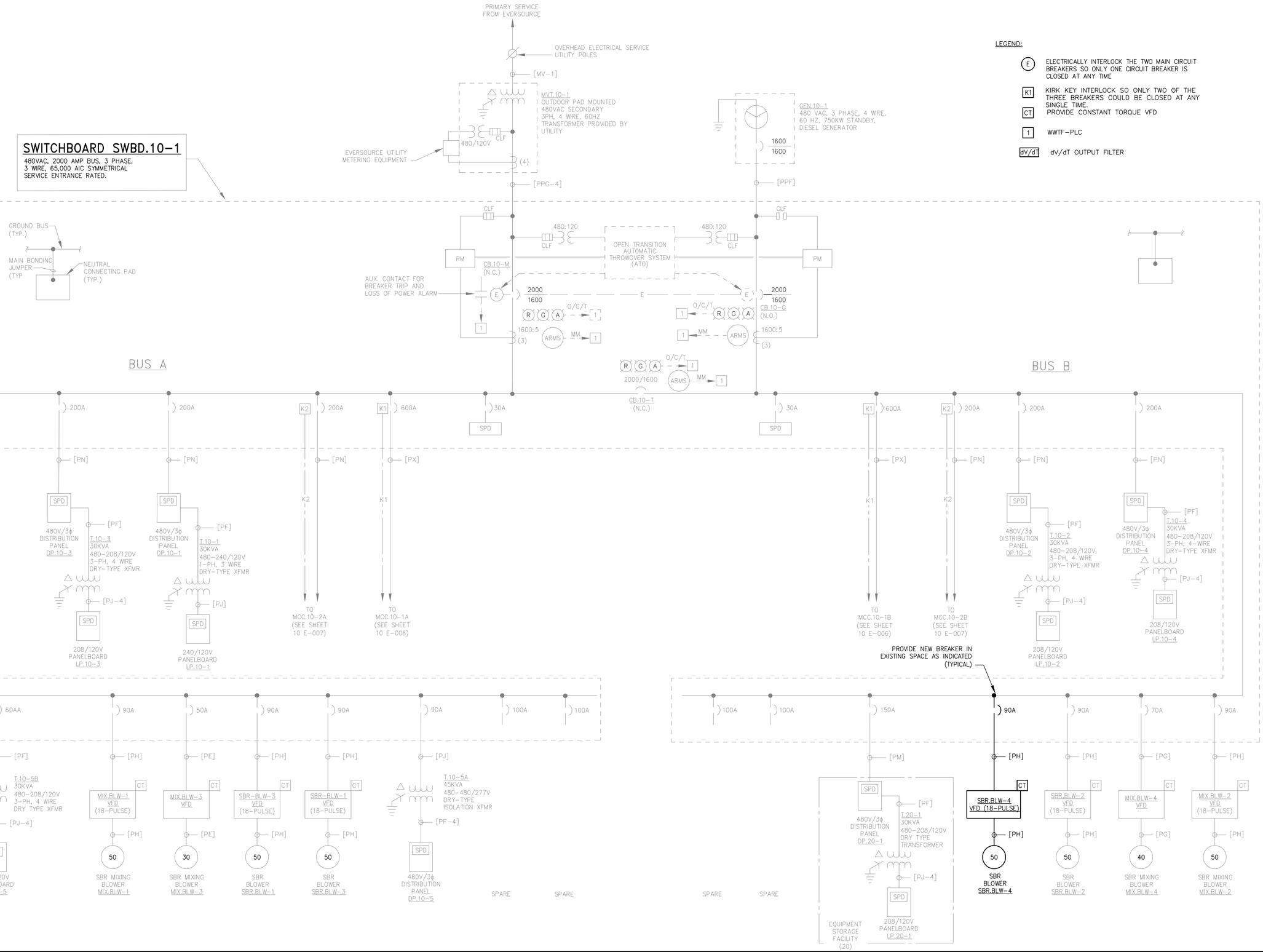
SHEET TITLE

PUMP STATION NO.4 - EE-04 ELEVATION

SHEET NUMBER

04 E-603

PATH/FILENAME: \\MA.AECOMNET.COM\LFS\AMER\CHELMSFORD-USCH\L110CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\E04 E-603.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:26 PM
PLOT DATE: Tuesday, March 07, 2023 12:48:45 PM



PATH/FILENAME: \\WA.AECOMNET.COM\LES\WAMER\CHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20\SHEETS\E\10 E-001.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:39:25 PM
PLOT DATE: Tuesday, March 07, 2023 12:48:51 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM ELDERKIN
No.54746
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

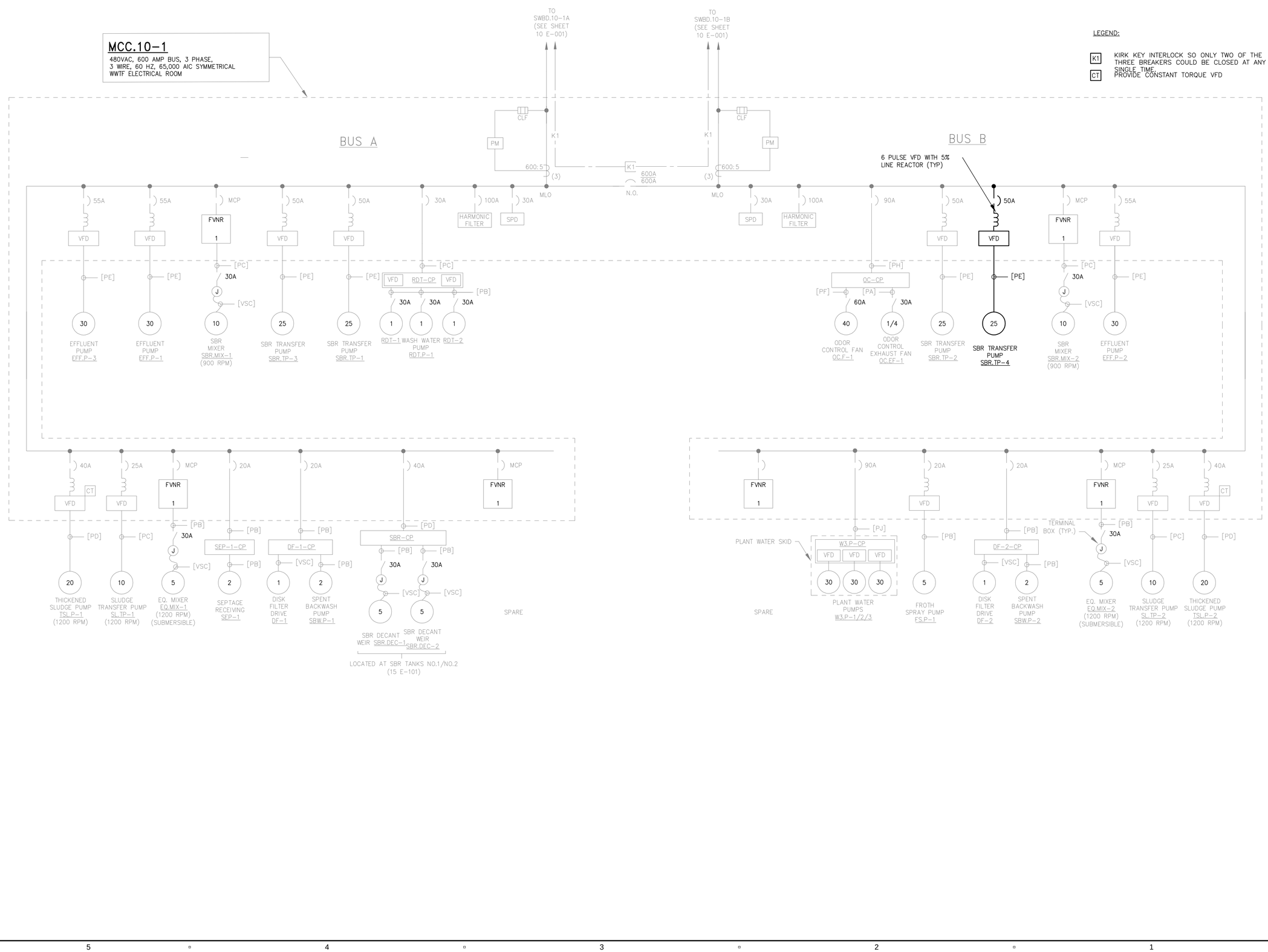
ELECTRICAL

SHEET TITLE

WWTF - ELECTRICAL SINGLE LINE DIAGRAM - MODIFICATIONS

SHEET NUMBER

10 E-001



PATH/FILENAME: \\NA.AECOMNET.COM\LFSJ\AMER\CHELMSFORD-USCHL10\CSPROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\E10 E-002.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:39:05 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:00 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM ELDERKIN
No.54966
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	-
Drawn By:	-
Dept Check:	-
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

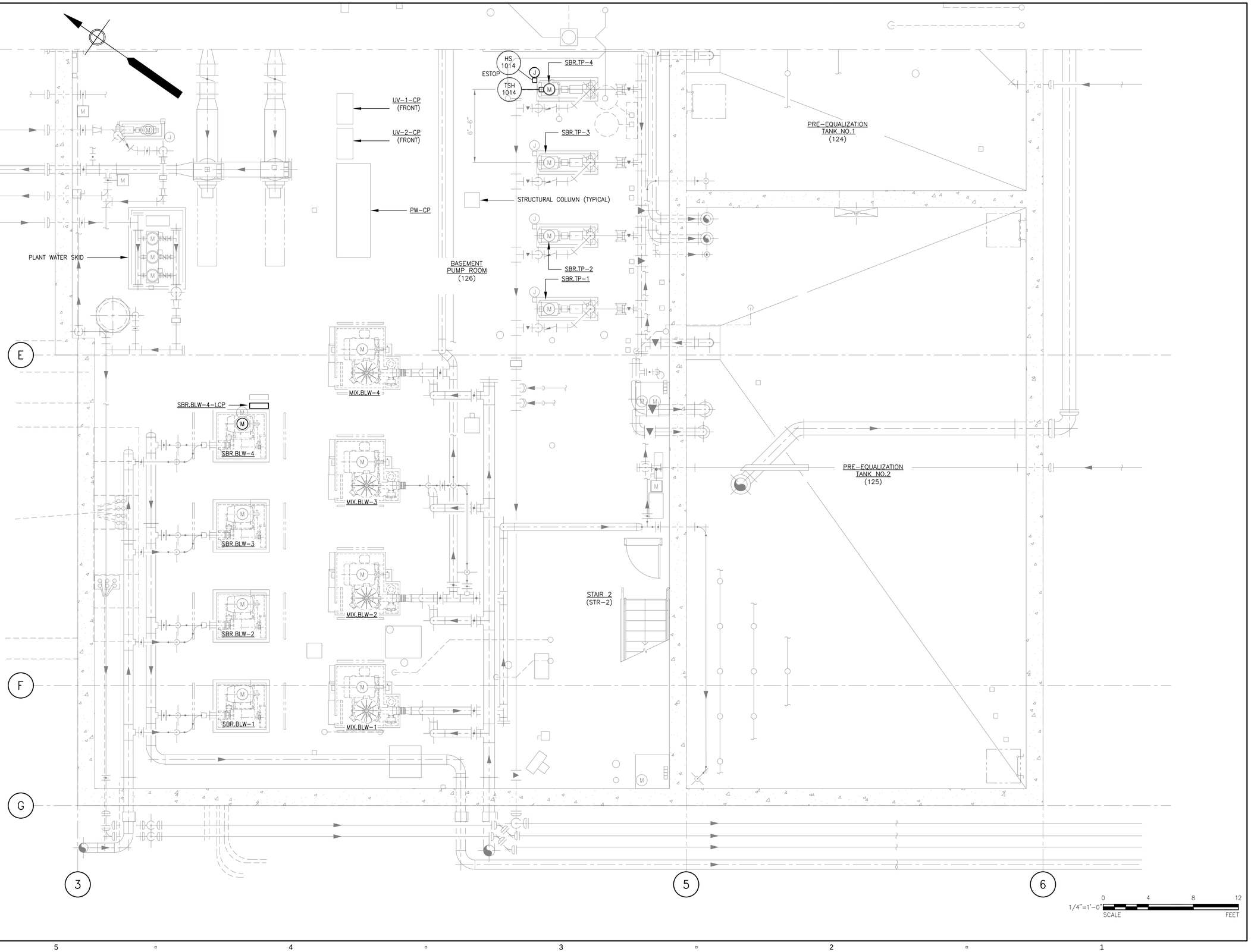
ELECTRICAL

SHEET TITLE

WWTF - ELECTRICAL SINGLE LINE DIAGRAM II - MODIFICATIONS

SHEET NUMBER

10 E-002



PATH\FILENAME: \\NA.AECOMNET.COM\LFS\AMERCHELMSFORD-USCHL110CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\E\10 E-101.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:29:05 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:13 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
No.54966
REGISTERED PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

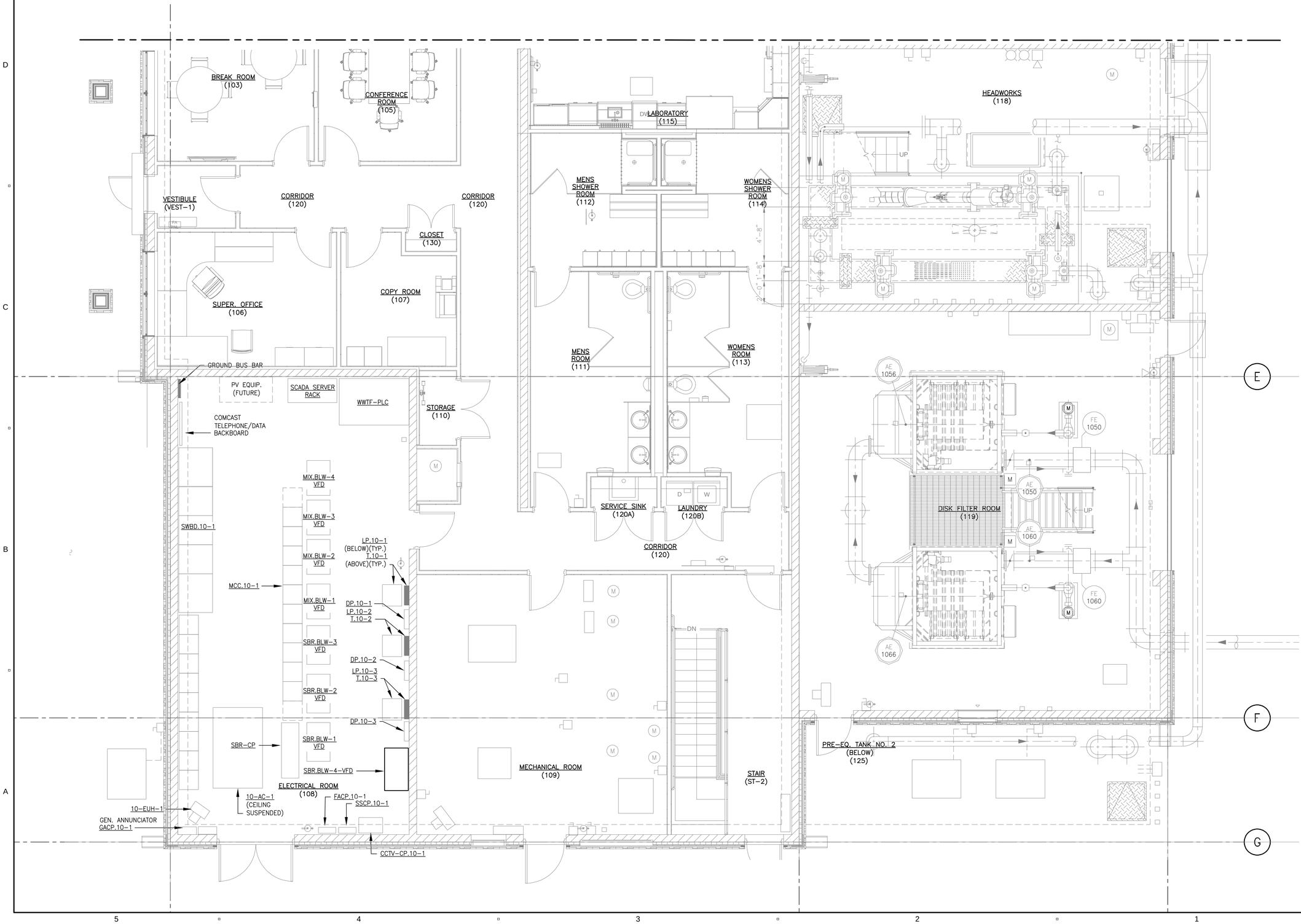
ELECTRICAL

SHEET TITLE

WWTF - LOWER LEVEL - ELECTRICAL POWER PLAN I

SHEET NUMBER

10 E-101



PATHFILENAME: \\NA.AECOMNET.COM\ES\WAMERICH\ELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\10_CAD\20-SHEETS\E10 E-201.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:58 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:27 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
ELECTRICAL
No.54766
REGISTERED
PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

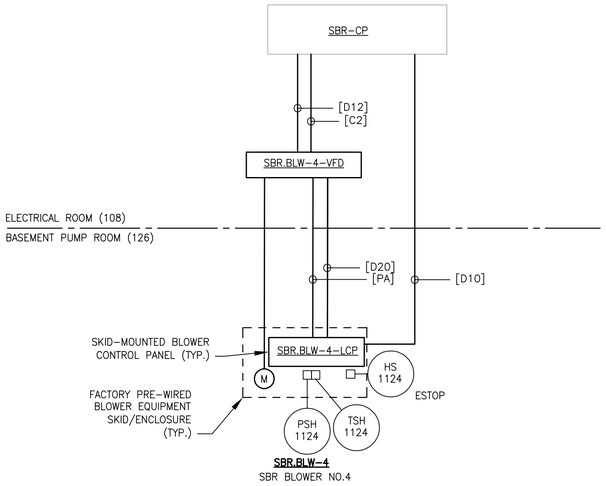
ELECTRICAL

SHEET TITLE

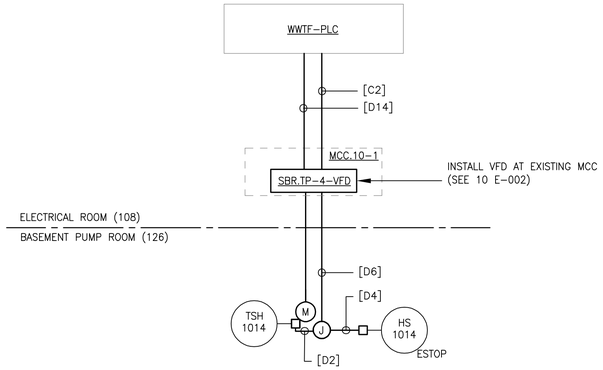
WWTF - GRADE LEVEL - ELECTRICAL POWER PLAN I

SHEET NUMBER

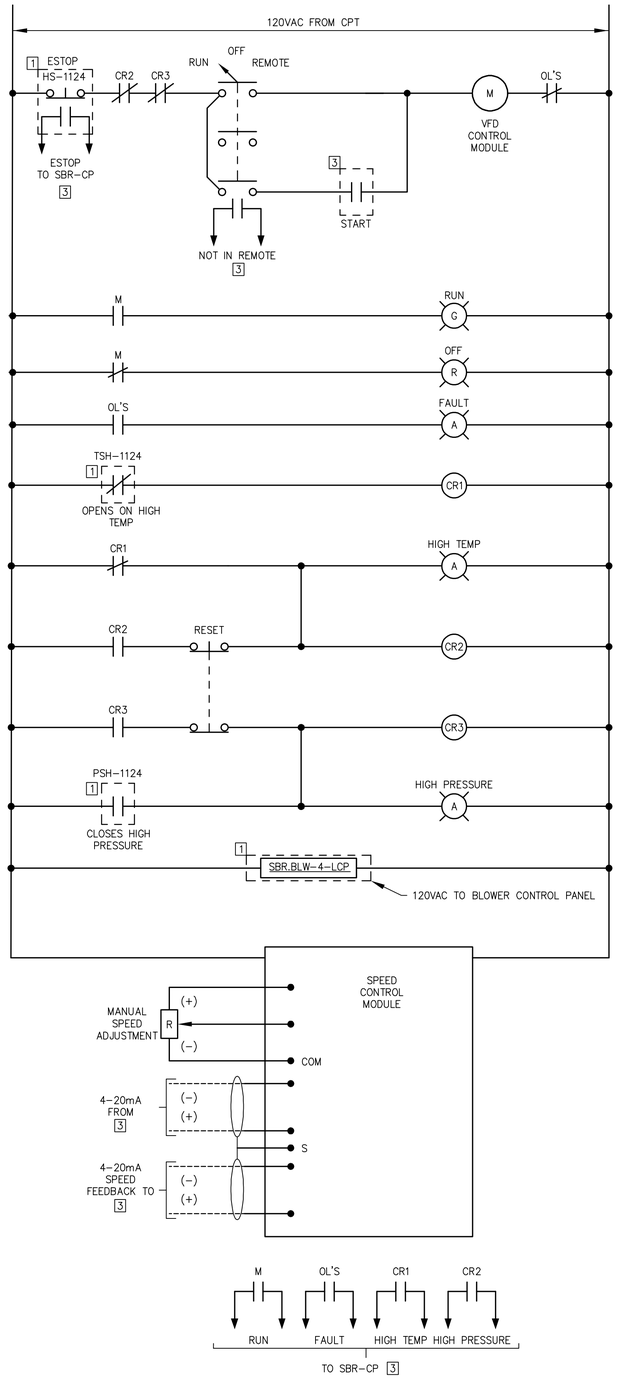
10 E-201



SBR BLOWER - RISER DIAGRAM

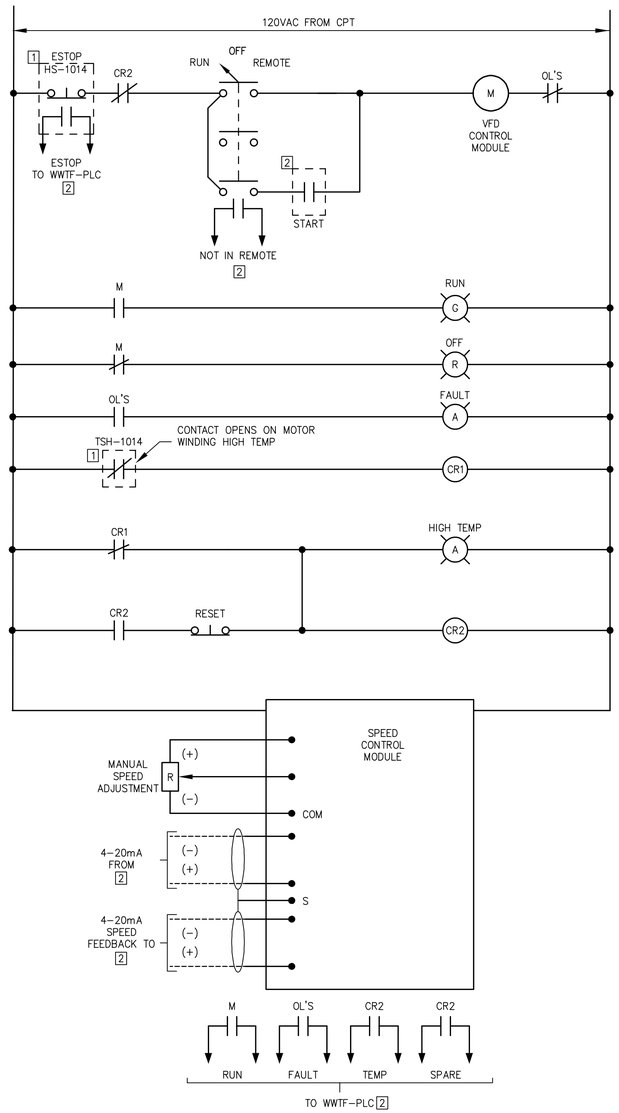


SBR TRANSFER PUMP - RISER DIAGRAM



SBR BLOWER VFD WIRING DIAGRAM SBR.BLW-4-VFD

(ALL COMPONENTS LOCATED AT VFD UNLESS OTHERWISE NOTED)



SBR TRANSFER PUMP VFD WIRING DIAGRAM SBR.TP-4-VFD

(ALL COMPONENTS LOCATED AT VFD UNLESS OTHERWISE NOTED)

LEGEND

1 DEVICE LOCATED AT EQUIPMENT

2 FROM/TO WWTF-PLC

3 FROM/TO SBR-CP

WWTF – RISER DIAGRAMS & WIRING SCHEMATICS

SCALE: NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS ANDREW ABRAHAM ELECTRICAL No.54766 REGISTERED PROFESSIONAL ENGINEER

03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

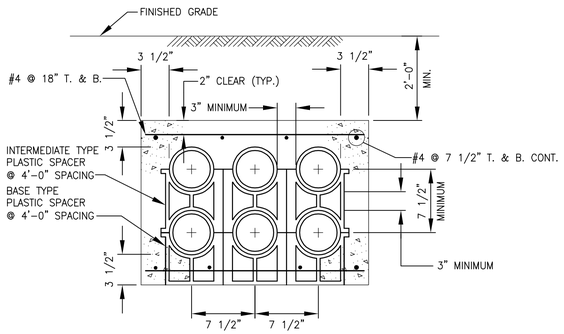
SHEET TITLE

WWTF - ELECTRICAL RISER DIAGRAMS

SHEET NUMBER

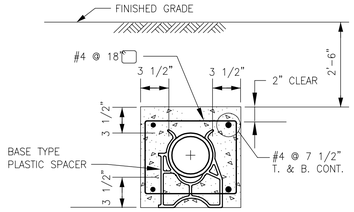
10 E-601

PATH/FILENAME: \\NA.AECOM.NET.COM\LFS\AMER\CHELMSFORD-USCHL1\DCS\PROJECTS\WTF\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\EU\D E-601.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:52 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:37 PM



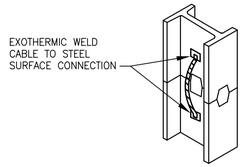
DUCTBANK SECTION

NTS

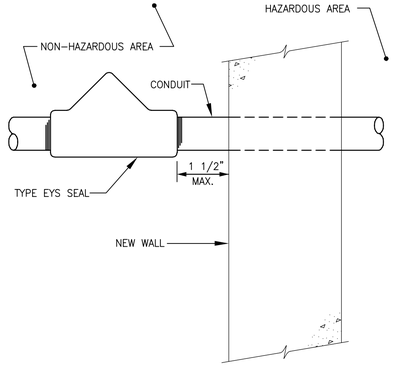


SINGLE CONDUIT DUCTBANK SECTION

NTS

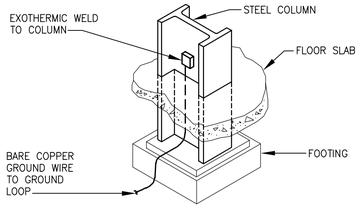


TYPICAL BONDING AT COLUMN SPLICE PLATES



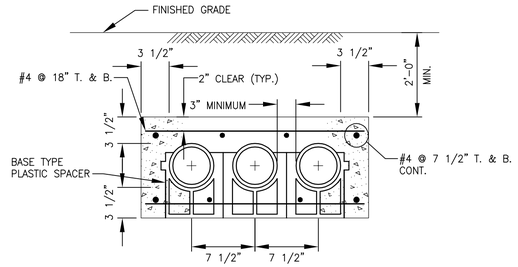
HAZARDOUS AREA ENTRANCE SEAL

NTS



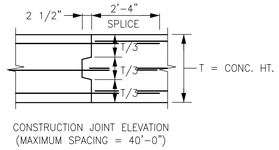
GROUNDING FOR STEEL COLUMN

NTS



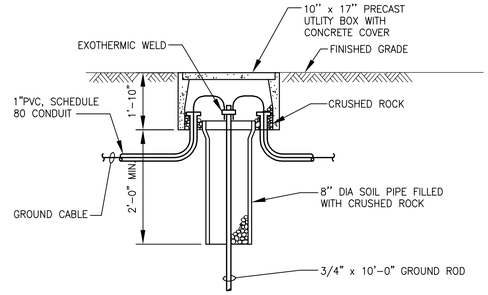
SINGLE LAYER DUCT BANK SECTION

NTS



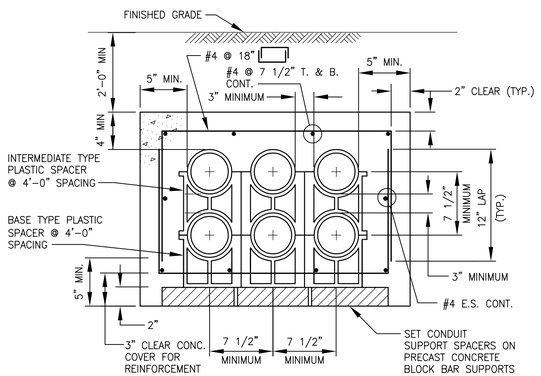
DUCTBANK CONSTRUCTION JOINT

NTS



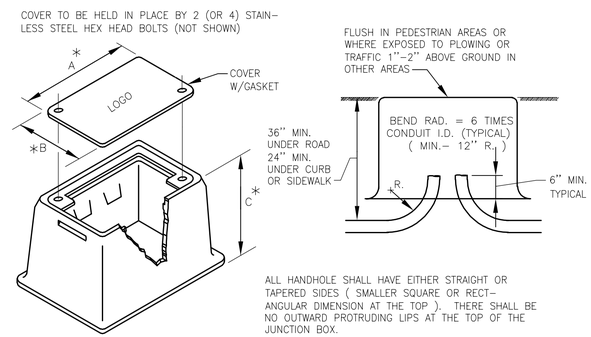
GROUND ROD AND TEST WELL

N.T.S.



DUCT BANK SECTION UNDER ROADWAY AND PAVED AREA

NTS



UTILITY BOX

NTS

(SHAPE MAY VARY SLIGHTLY WITH MANUFACTURER)

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
ELECTRICAL
No.54966
REGISTERED
PROFESSIONAL ENGINEER
03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

ELECTRICAL DETAILS I

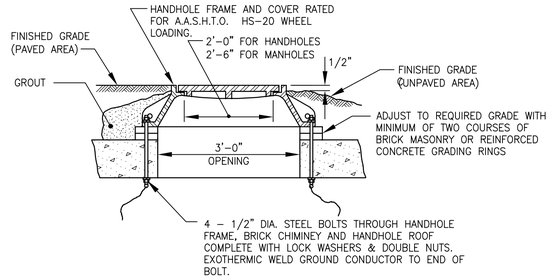
SHEET NUMBER

99 E-501

PATH/FILENAME: \\NA.AECOMNET.COM\LFS\AMERICHELMSFORD-USCHL1\10CS\PROJECT\SWTR\60652634__ORLEANS\MEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\E99 E-501.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:47 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:43 PM

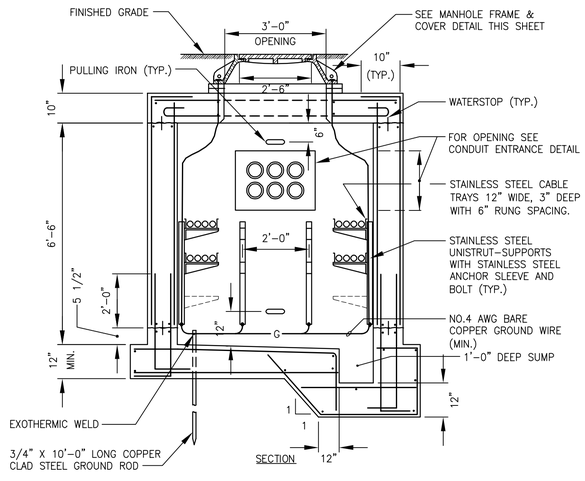
HANDHOLE AND DUCT BANK NOTES

1. ALL CONCRETE INSERTS, FITTINGS AND ACCESSORIES ARE TO BE FABRICATED FROM HEAVY–DUTY STAINLESS STEEL.
2. ALL CONCRETE FOR HANDHOLES AND DUCT RUNS TO BE CLASS "A" (4000 PSI) AS PER THE STRUCTURAL SPECIFICATIONS.
3. ALL CONDUIT AND OTHER EQUIPMENT IN HANDHOLES SHALL BE BONDED WITH A NO. 4, STRANDED COPPER CABLE (MINIMUM).
4. ALL 4" OR LARGER STEEL CONDUIT BENDS SHALL HAVE A 36" RADIUS (MINIMUM).
5. ALL CABLES SHALL BE TAGGED WITH A PROTECTED PLASTIC TAG OF DISTINCTIVE COLOR AND MARKING FOR EACH VOLTAGE. THE TAGS WILL GIVE VOLTAGE AND CIRCUIT NUMBER ASSIGNED BY THE CONTRACT DRAWING CONDUIT AND WIRE SCHEDULE.
6. CONTRACTOR TO SIZE THE CIRCULAR OPENINGS IN THE HANDHOLE ROOF FROM FRAMES ACTUALLY FURNISHED.
7. PLASTIC DUCT SPACERS SHALL BE INSTALLED ON 4 FT. CENTERS. JOINTS ARE TO BE STAGGARED BETWEEN TIERS TO PROVIDE NOT LESS THAN 12 INCH LONGITUDINAL SEPARATION BETWEEN JOINTS SEPARATION BETWEEN JOINTS IN ANY TWO ADJOINING CONDUITS.
8. THE SIZE OF A HANDHOLE WINDOW DEPENDS ON THE NUMBER OF CONDUITS IN THE INCOMING DUCTLINE. TO DETERMINE THE ACTUAL WINDOW SIZE AND LOCATION, SEE THE DUCT SECTION. THE WINDOW OPENING MUST ALSO BE A MINIMUM OF ONE FOOT ABOVE HANDHOLE FLOOR AND / OR ONE FOOT BELOW HANDHOLE ROOF. EACH HANDHOLE WINDOW SHOULD BE OFFSET FROM THE CENTER OF THE WALL SO THAT ONE VERTICAL EDGE IS CLOSE TO THE INTERSECTION OF TWO WALLS.
9. ALL STEEL CONDUIT SHALL BE TERMINATED IN HANDHOLES WITH CONDUIT GROUNDING BUSHINGS.
10. HANDHOLE COVER SHALL HAVE THE WORD "ELECTRIC" CAST ON THE COVER.
11. INSTALL TWO PULLING–IN IRONS OPPOSITE CENTER OF EACH ENTERING DUCT RUN. ONE 6" BELOW ROOF AND ONE 6" ABOVE FLOOR.
12. ALL DUCTS SHALL DRAIN FROM HIGH POINT TO HANDHOLE WITH A SLOPE OF NOT LESS THAN 4" PER 100 FEET.



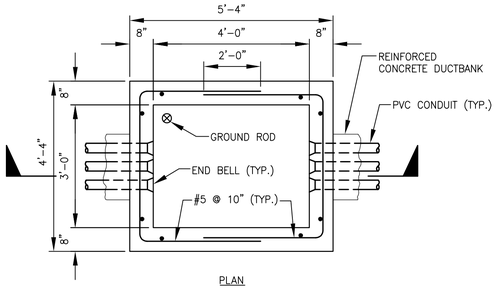
HANDHOLE FRAME AND COVER

NTS

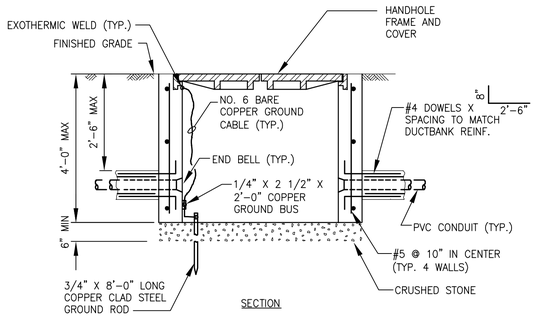


MANHOLE SECTION WITH LOW VOLTAGE CABLE TRAY SUPPORT

NTS



PLAN



SECTION

3'–0" X 4'–0" HANDHOLE (PVC CONDUIT)

NTS

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
ANDREA ABRAHAM
ELECTRICAL
No.54966
REGISTERED
PROFESSIONAL ENGINEER

03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

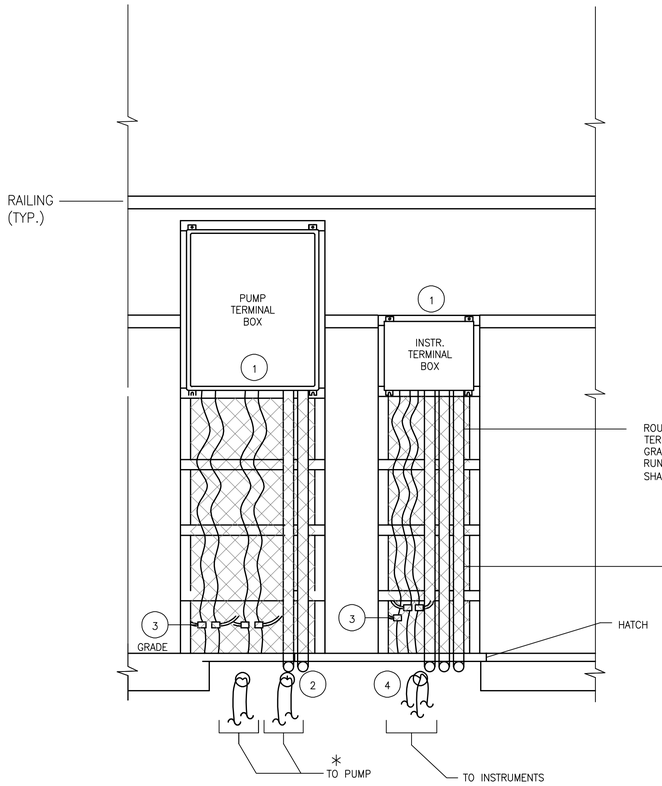
SHEET TITLE

ELECTRICAL DETAILS II

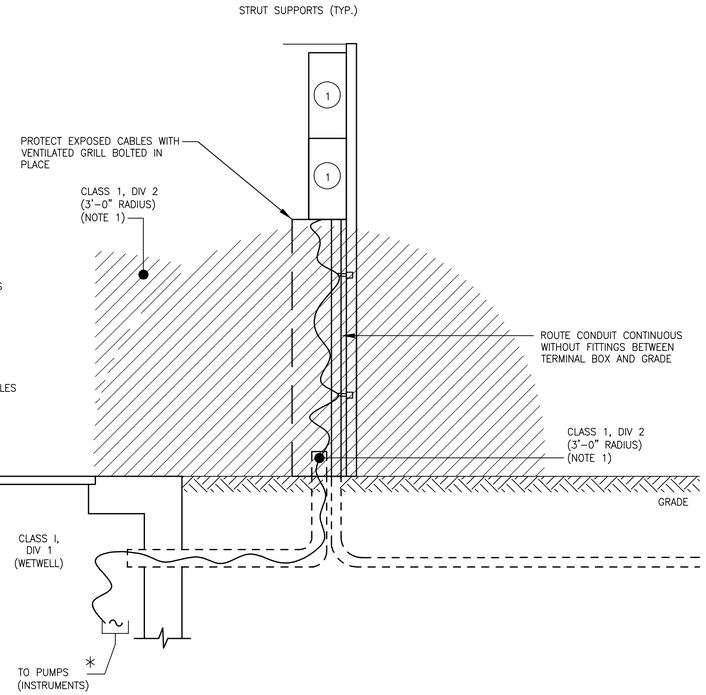
SHEET NUMBER

99 E-502

PATH/FILENAME: \\MA.AECOMNET.COM\LFS\AMERICHELMSFORD-USCHL110CS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSE\PS\900_CAD_GIS\910_CAD\20-SHEETS\E99 E-502.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:41 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:52 PM



FRONT



RIGHT SIDE

LEGEND

1. NEMA 4X, STAINLESS STEEL TERMINAL BOX (600 VAC OR EQUAL).
2. CABLE BY PUMP SUPPLIER.
3. KELLEM CABLE SAFETY SUPPORT (CONNECTED TO CABLE AND JUNCTION BOX SUPPORT)
4. CABLE BY INSTRUMENT SUPPLIER.

* PUMP CABLES CONFIGURATION SHOWN IS BASED ON TWO CABLES SIMILAR CONFIGURATION SHOULD BE PROVIDED IF PUMP IS PROVIDED WITH SINGLE CABLE

WETWELL DETAIL FOR RWW PUMP/INSTRUMENT CABLE CONNECTIONS

ALL JUNCTION BOXES HAVE APPROPRIATELY SIZED 600V TERMINAL BLOCKS

NOTES

1. CLASS I, DIVISION 2 WITHIN 3'-0" OF WETWELL HATCH AND CONDUIT STUB UP FROM WELL.

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

03-07-2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. ABRAHAM
Drawn By:	A. ABRAHAM
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	-

DISCIPLINE

ELECTRICAL

SHEET TITLE

ELECTRICAL DETAILS III

SHEET NUMBER

99 E-503

PATH/FILENAME: \\NA.AECOMNET.COM\LFS\AMERCHELMSFORD-USCHL1\DCS\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS900_CAD_GIS\910_CAD\20-SHEETS\E99 E-503.DWG
LAST UPDATE: Tuesday, March 07, 2023 12:38:36 PM
PLOT DATE: Tuesday, March 07, 2023 12:49:58 PM

INSTRUMENT TYPE IDENTIFICATION LETTERS

THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ANALOG	ALARM		
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL OR DIGITAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE OR INPUT		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY				MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY	RELIEF	RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	USER'S CHOICE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

MISCELLANEOUS ABBREVIATIONS

I/P CURRENT TO PNEUMATIC CONVERTER
VFD VARIABLE FREQUANCY DRIVE
ORP OXIDATION REDUCTION POTENTIAL
SBI SBR BASIN INFLUENT
MS MOTOR STARTER
WWTF WASTE WATER TREATMENT FACILITY
ISB INTRINSICALLY SAFE BARRIER
PS POWER SUPPLY
SBR SEQUENCING BATCH REACTOR
S.P. SET POINT
PLC PROGRAMMABLE LOGIC CONTROLLER

GBT GRAVITY BELT THICKENER
DO DISSOLVED OXYGEN
H2S HYDROGEN SULFIDE
O2 OXYGEN
pH HYDROGEN ION CONCENTRATION
LP LOCAL PANEL
VFD VARIABLE FREQUENCY DRIVE
I/O INPUT/OUTPUT
LEL LOWER EXPLOSIVE LIMIT
DW DEWATERING
OC ODOR CONTROL
WW WASTE WATER
SSL ZERO SPEED SWITCH

SEE MECHANICAL LEGEND FOR ADDITIONAL ABBREVIATIONS AND PROCESS STREAM NAMES

SYMBOLS

FIBER MEDIA
HYDRAULIC CONTROL LINES
ELECTRIC INSTRUMENT LINES/ ETHERNET
PNEUMATIC SIGNAL
PROCESS FLOW
CAPILLARY TUBING
CONE CHECK VALVE
BALL VALVE
BALL CHECK VALVE
SWING CHECK VALVE
BUTTERFLY VALVE, DAMPER, OR LOUVER
PLUG VALVE
GATE VALVE
DIAPHRAGM VALVE
GLOBE VALVE
RESTRAINED FLEXIBLE COUPLING
FLOAT VALVE
3-WAY MIX VALVE
3-WAY DIVERTER VALVE
3-WAY SOLENOID VALVE
4-WAY MIX VALVE
4-WAY SOLENOID VALVE
ANGLE VALVE
SOLENOID VALVE
SELF-OPERATING BACK PRESSURE REGULATOR VALVE
SELF-OPERATING PRESSURE REGULATOR VALVE
PRESSURE REDUCING REGULATOR VALVE W/EXTERNAL PRESSURE TAP
PRESSURE RELIEF VALVE
VACUUM RELIEF VALVE
KNIFE GATE VALVE
PINCH VALVE
STOP LOG
SLUICE GATE
PREFABRICATED SLIDE GATE
MULTI-BLADE DAMPER

ACCUMULATOR
AERATOR
BAR SCREEN
CALIBRATION STANDPIPE
CHEMICAL SEAL
IN LINE SEAL (NOTE 2)
CONCENTRIC REDUCER
DRAIN
DUPLEX FILTER
ECCENTRIC REDUCER
FLEXIBLE HOSE
GRINDER
LOAD CELL
MIXER
VERTICAL SHAFT MIXER
PULSATION DAMPENER
QUICK DISCONNECT
RADIO, ULTRASONIC, OR ACOUSTIC SIGNAL
RUPTURE DISC (PRESSURE RELIEF)
RUPTURE DISC (VACUUM RELIEF)
STRAINER
CONE CHECK VALVE
DOUBLE DISC CHECK VALVE
FLAME ARRESTOR
INTRINSICALLY SAFE BARRIER
SUBMERSIBLE LEVEL TRANSDUCER

DIFFUSER
STATIC MIXER
TANK VENT
UNION
WEIR
CYLINDER ACTUATOR
DIAPHRAGM ACTUATOR WITH POSITIONER
HAND OPERATOR
HYDRAULIC OPERATOR
MOTOR OPERATOR
PNEUMATIC OPERATOR
SOLENOID OPERATOR
TERMINAL STRIP IN LOCAL PANEL FOR INTERFACE WITH COMPUTER/MUX
FLOW RATE CONTROLLER
FLOW ELEMENT (VENTURI)
INSERT FLOW ELEMENT (VENTURI)
MAGNETIC FLOWMETER
ORIFICE PLATE
RADIO ANTENNA
ROTAMETER
"V" NOTCH WEIR
VERTICAL TURBINE SOLIDS HANDLING PUMP
INLINE MIXER

WEIR GATE
WEIR
BLOWER
SUBMERSIBLE PUMP
CENTRIFUGAL PUMP
DIAPHRAGM PUMP
HOSE PUMP
METERING PUMP
POSITIVE DISPLACEMENT PUMP
PROGRESSIVE CAVITY PUMP
ROTARY LOBE PUMP
INSERTION MASS FLOW METER
LIMITS OF WORK (TRADE, CONTRACT, ETC.)
POINT OF CONNECTION NEW WORK TO EXISTING WORK
THIN CLIENT WORKSTATION
MANAGED ETHERNET SWITCH
FIBEROPTIC PATCH PANEL
FIBER MEDIA CONVERTER
UNINTERRUPTIBLE POWER SUPPLY
FIREWALL

GENERAL NOTES

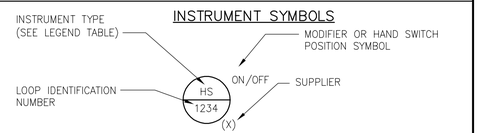
1. INSTRUMENT SUFFIX:

   NUMERIC SUFFIXES IDENTIFY INSTRUMENTS WITH DIFFERENT FUNCTIONS (E.G., A RUN AND AN OUT OF SERVICE LIGHT) ARE PRECEDED BY A DECIMAL POINT (E.G., AA:MIL-343.1 AND AA:MIL-343.2

   ALPHABETIC SUFFIXES IDENTIFY MULTIPLE OCCURRENCES OF INSTRUMENTS WITH THE SAME FUNCTION (E.G.,TWO VALVE INDICATORS IN DIFFERENT PANELS, (E.G. AA:ZIL-161.1A, AND AA:ZIL-161.1B).

2. SEE MECHANICAL FOR ISOLATION RING DETAIL

INSTRUMENT SYMBOLS



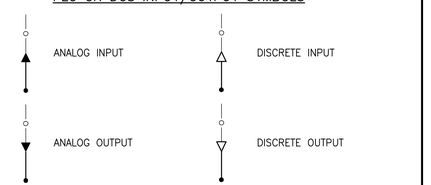
SUPPLIERS

ALL INSTRUMENTS ARE SPECIFIED BY INSTRUMENTATION (I) UNLESS INDICATED BY;

(E) SPECIFIED BY ELECTRICAL
(X) EXISTING
(M) SPECIFIED BY MECHANICAL
(H) SPECIFIED BY HVAC
(F) FURNISHED WITH EQUIPMENT
(P) SPECIFIED BY PLUMBING

CONTRACTOR SHALL PROVIDE ALL INSTRUMENTS AS SPECIFIED ON DATA SHEETS ATTACHED TO SPECIFICATION SECTION 13300

PLC OR DCS INPUT/OUTPUT SYMBOLS



HAND SWITCH POSITION SYMBOLS

(UNLABELLED SWITCHES ARE TO BE ON-OFF)

A AUTOMATIC
C CLOSE
F FAST OR FORWARD
H HAND
J JOG
L LOCAL
M MANUAL
NIA NOT IN AUTO
O OPEN OR OFF
R RUN OR REMOTE
S/S START/STOP
E/S EMERGENCY STOP

SBY STANDBY
F/R FORWARD/REVERSE
L/R LOCAL/REMOTE
LOR LOCAL/OFF/REMOTE
HOR HAND-OFF-REMOTE
HOA HAND-OFF-AUTO
OSC OPEN/STOP/CLOSE
FSR FORWARD/STOP/REVERSE
TSM THRU/STOP/MIX
OSF OFF/SLOW/FAST
OTC OPEN/TRAVEL/CLOSE
O/S/C/A OPEN/STOP/CLOSE/AUTO
O/S/C OPEN/STOP/CLOSE

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No. 47086
REGISTERED
PROFESSIONAL ENGINEER
Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. GATES
Drawn By:	A. GATES
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

INSTRUMENTATION

SHEET TITLE

INSTRUMENTATION LEGEND, ABBREVIATIONS, AND GENERAL NOTES

SHEET NUMBER

00 DI-001

PATH/FILENAME: L:\DC\SP\PROJECTS\WTR\60652634__ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\00 DI-001.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:45:18 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:18 PM

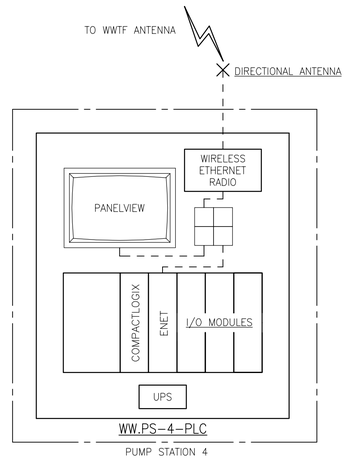


TABLE OF RESPONSIBILITY – ELECTRICAL, GENERAL, AND SYSTEM INTEGRATOR				
	ELEMENT	GENERAL CONTRACTOR	SYSTEM INTEGRATOR	ELECTRICAL CONTRACTOR
1	FURNISH, TEST AND CALIBRATE INSTRUMENTS		X	
2	INSTALL INSTRUMENTS	X		
3	INSTALL FIELD LOCATED DEVICES ASSOCIATED WITH INSTRUMENTS INCLUDING TRANSMITTERS, INDICATORS, CONTROL PANELS, AND ANCIALLARY COMPONENTS THAT ARE NOT LOCATED WITHIN PROCESS PIPING AND TANKS. LOCATIONS SHALL BE AS INDICATED ON THE ELECTRICAL DRAWINGS.	X		
4	FURNISH AND INSTALL FIELD LOCATED DEVICES SUPPLIED UNDER DIVISION 16 INCLUDING MOTOR LOCAL CONTROL STATIONS, DISCONNECTS, EMERGENCY STOP PUSHBUTTONS (ESTOPS)			X
5	FURNISH RADIO SYSTEM HARDWARE		X	
6	INSTALL RADIO SYSTEM HARDWARE			X
7	FURNISH AND INSTALL INTERCONNECTING WIRE, CABLE, CONDUIT, AND CONNECTIONS FOR INSTRUMENTS			X
8	FURNISH, INSTALL and TEST ETHERNET NETWORK CABLE.			X

LEGEND

- ETHERNET
- FIBER MEDIA
- MANAGED ETHERNET SWITCH
- UPS — UNINTERRUPTIBLE POWER SUPPLY

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No. 47046
REGISTERED
PROFESSIONAL ENGINEER

Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. GATES
Drawn By:	A. GATES
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

INSTRUMENTATION

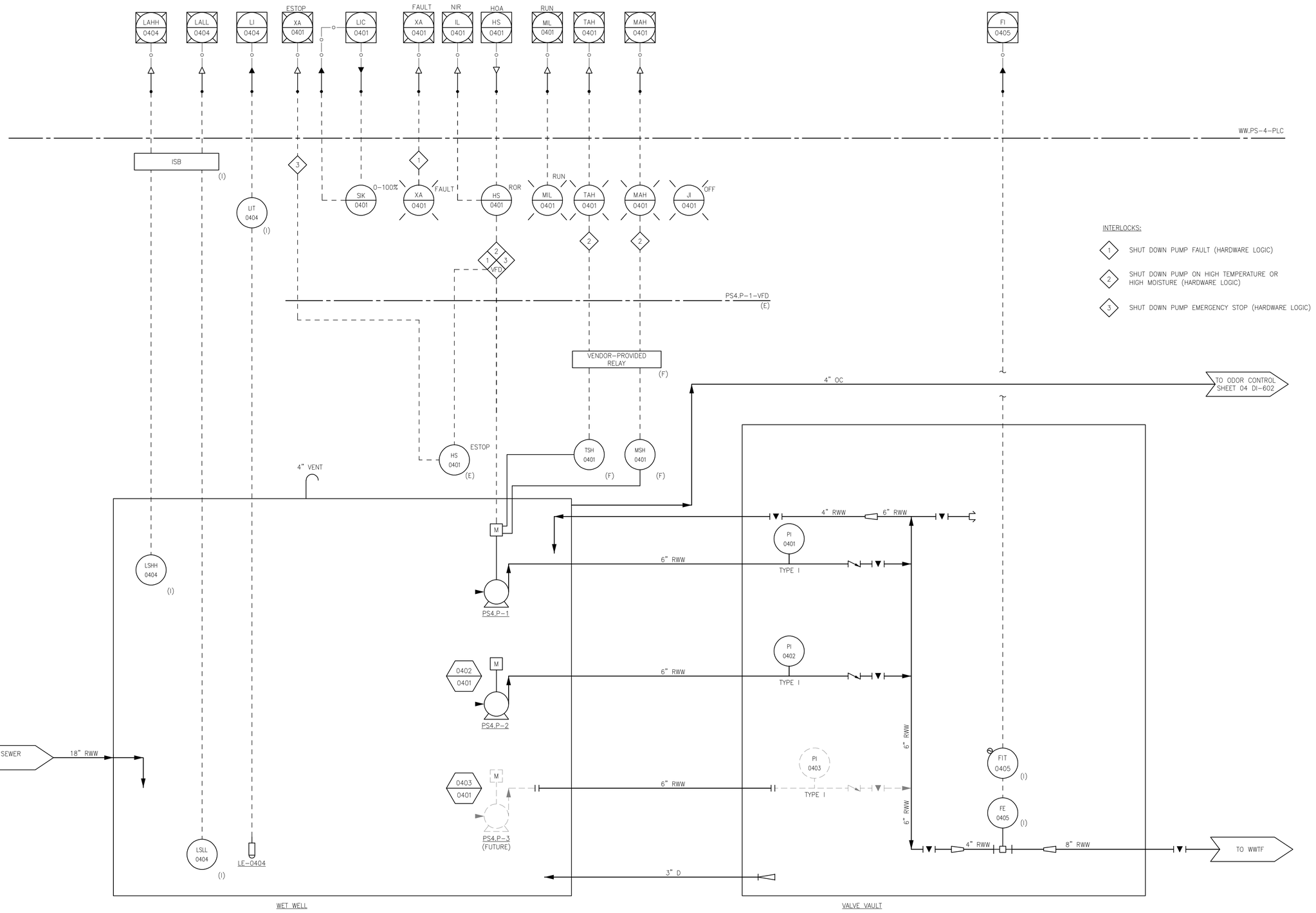
SHEET TITLE

SYSTEM ARCHITECTURE

SHEET NUMBER

00 DI-601

PATH/FILENAME: L:\DCS\PROJECTS\WTP\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\00 DI-601.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:45:27 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:19 PM



PATHFILENAME: L:\2C-SI\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\04DI-601.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:45:59 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:20 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No.47046
REGISTERED PROFESSIONAL ENGINEER
Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**A. GATES**
Drawn By:	**A. GATES**
Dept Check:	**Y. RIZK**
Proj Check:	**T. PARECE**
Date:	**MARCH 2023**
Scale:	**AS NOTED**

DISCIPLINE

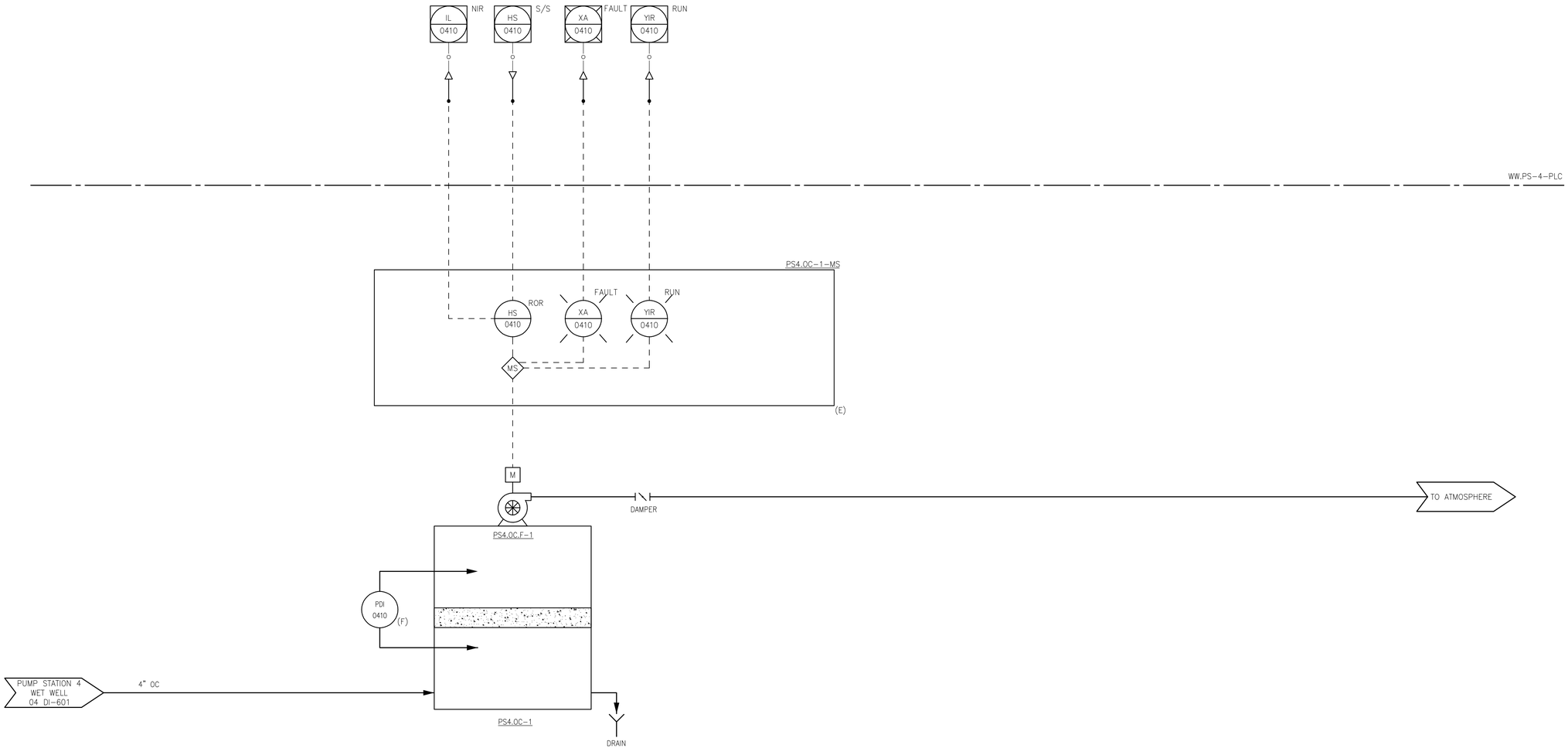
INSTRUMENTATION

SHEET TITLE

PUMP STATION 4 P&ID

SHEET NUMBER

04 DI-601



PATH/FILENAME: I:\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\04 DI-602.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:46:40 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:20 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No.47048
REGISTERED PROFESSIONAL ENGINEER

Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**A. GATES**
Drawn By:	**A. GATES**
Dept Check:	**Y. RIZK**
Proj Check:	**T. PARECE**
Date:	**MARCH 2023**
Scale:	**AS NOTED**

DISCIPLINE

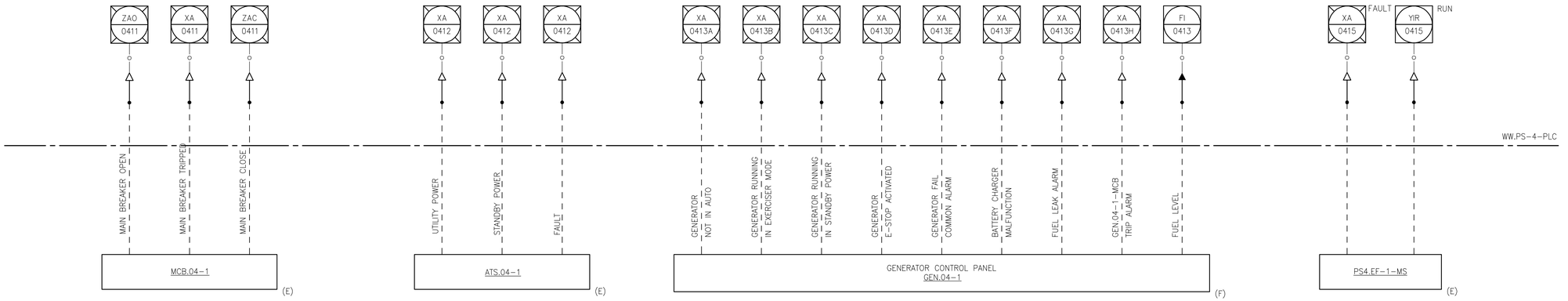
INSTRUMENTATION

SHEET TITLE

PUMP STATION 4 ODOR CONTROL P&ID

SHEET NUMBER

04 DI-602



PATHFILENAME: L:\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\09 DI-601.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:51:00 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:21 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No.47048
REGISTERED PROFESSIONAL ENGINEER

Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	**A. GATES**
Drawn By:	**A. GATES**
Dept Check:	**Y. RIZK**
Proj Check:	**T. PARECE**
Date:	**MARCH 2023**
Scale:	**AS NOTED**

DISCIPLINE

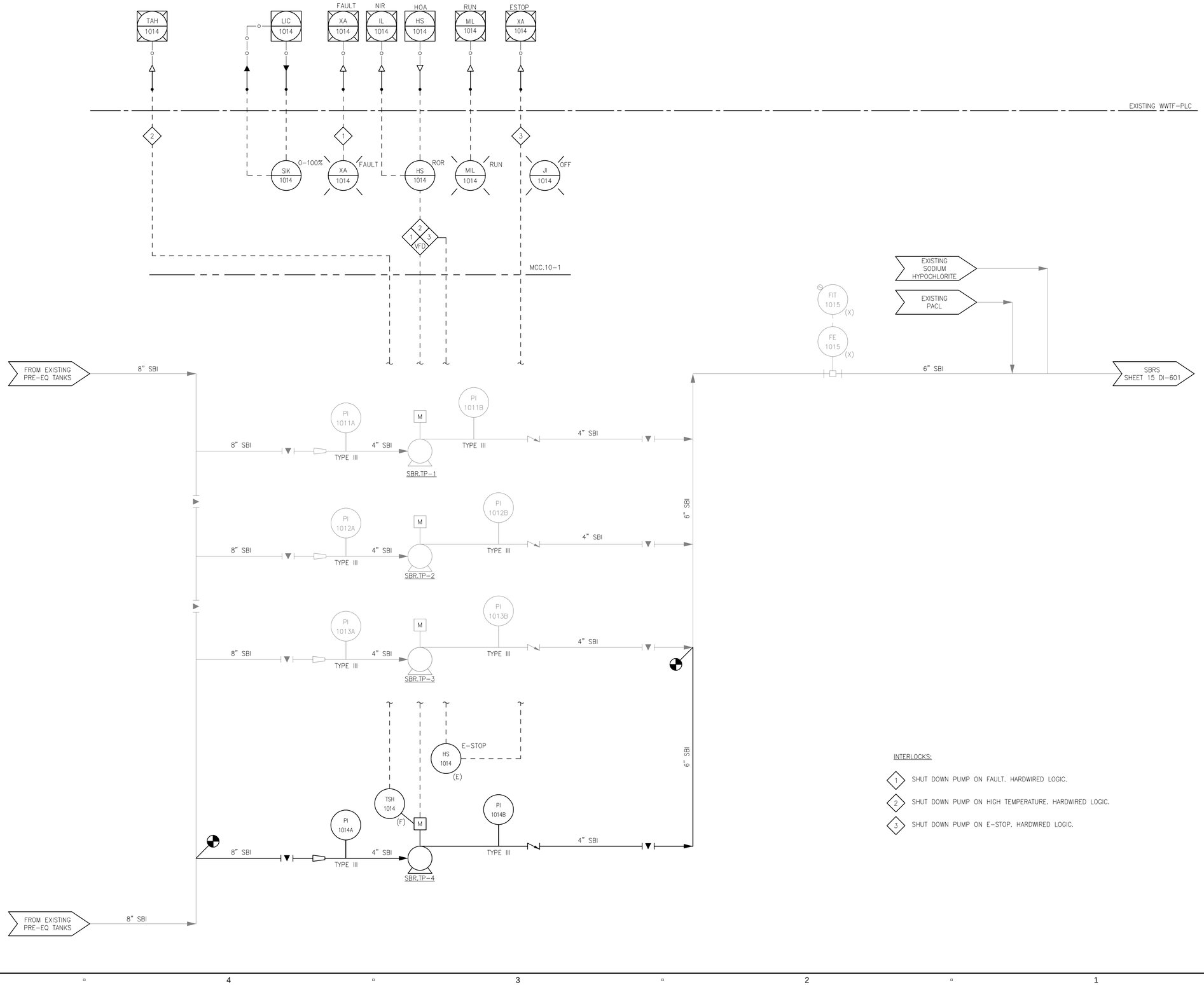
INSTRUMENTATION

SHEET TITLE

PUMP STATION 4 MISCELLANEOUS SIGNALS

SHEET NUMBER

04 DI-603



PATH\FILENAME: L:\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\10 DI-603.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:46:58 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:22 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No. 47048
REGISTERED
PROFESSIONAL ENGINEER
Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. GATES
Drawn By:	A. GATES
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

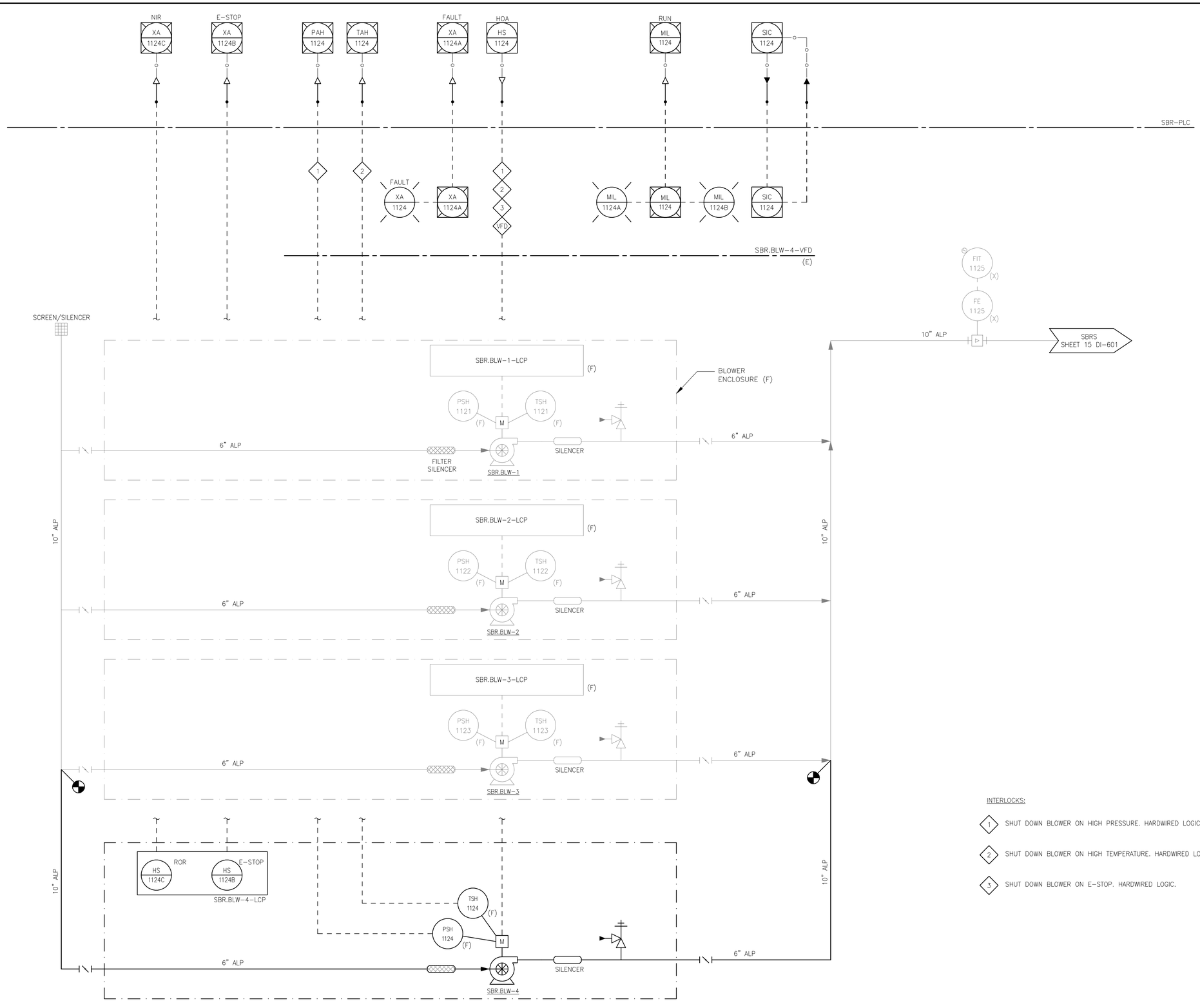
INSTRUMENTATION

SHEET TITLE

SBR TRANSFER PUMPS P&ID

SHEET NUMBER

10 DI-603



INTERLOCKS:

1. SHUT DOWN BLOWER ON HIGH PRESSURE. HARDWIRED LOGIC.
2. SHUT DOWN BLOWER ON HIGH TEMPERATURE. HARDWIRED LOGIC.
3. SHUT DOWN BLOWER ON E-STOP. HARDWIRED LOGIC.

PATH/FILENAME: L:\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\DI\10 DI-610.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:50:34 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:22 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No. 47046
REGISTERED
PROFESSIONAL ENGINEER
Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. GATES
Drawn By:	A. GATES
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

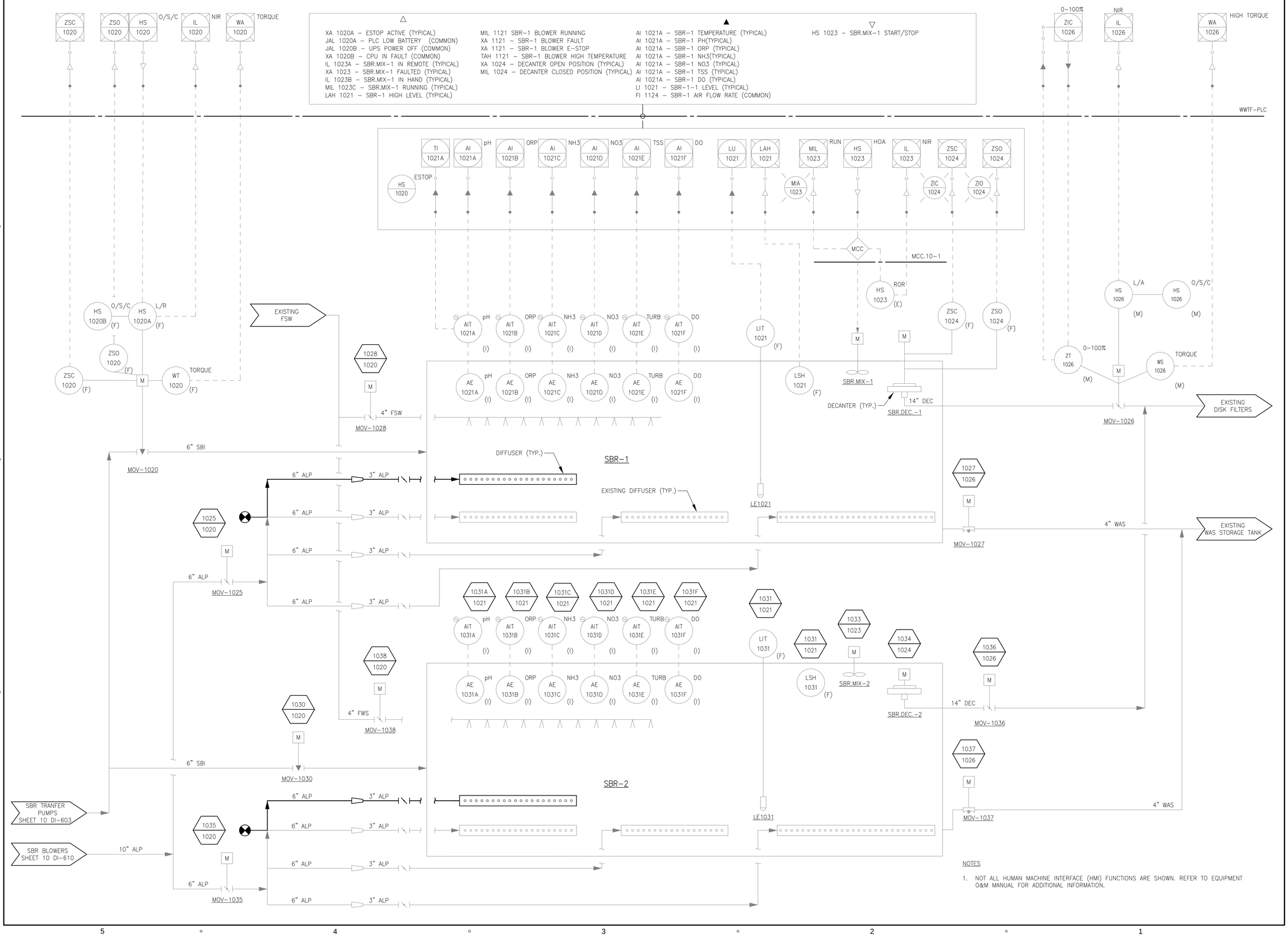
INSTRUMENTATION

SHEET TITLE

SBR BLOWERS P&ID

SHEET NUMBER

10 DI-610



NOTES

1. NOT ALL HUMAN MACHINE INTERFACE (HMI) FUNCTIONS ARE SHOWN. REFER TO EQUIPMENT O&M MANUAL FOR ADDITIONAL INFORMATION.

PATH/FILENAME: I:\DCS\PROJECTS\WTR\60652634_ORLEANSMEETINGHOUSEPS\900_CAD_GIS\910_CAD\20-SHEETS\20115 DI-601.DWG
LAST UPDATE: Tuesday, March 7, 2023 5:50:48 PM
PLOT DATE: Tuesday, March 7, 2023 5:52:23 PM

AECOM

PROJECT

MEETINGHOUSE POND AREA COLLECTION SYSTEM AND PUMPING STATION
CONTRACT No. 2022-01
SRF No. 7150

OWNER

TOWN OF ORLEANS, MA
19 SCHOOL ROAD
ORLEANS, MA 02653
(508) 240-3700

ENGINEER

AECOM TECHNICAL SERVICES, INC.
9 JONATHAN BOURNE DRIVE
POCASSET, MA 02559
PHONE: (978) 905-2100
www.aecom.com

REGISTRATION

COMMONWEALTH OF MASSACHUSETTS
YASSER A. RIZK
ELECTRICAL
No.47048
REGISTERED PROFESSIONAL ENGINEER
Mar 7, 2023

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	3-01-2023	ISSUE FOR BID

PROJECT NUMBER

60652634

Designed By:	A. GATES
Drawn By:	A. GATES
Dept Check:	Y. RIZK
Proj Check:	T. PARECE
Date:	MARCH 2023
Scale:	AS NOTED

DISCIPLINE

INSTRUMENTATION

SHEET TITLE

SBRS P&ID

SHEET NUMBER

15 DI-601