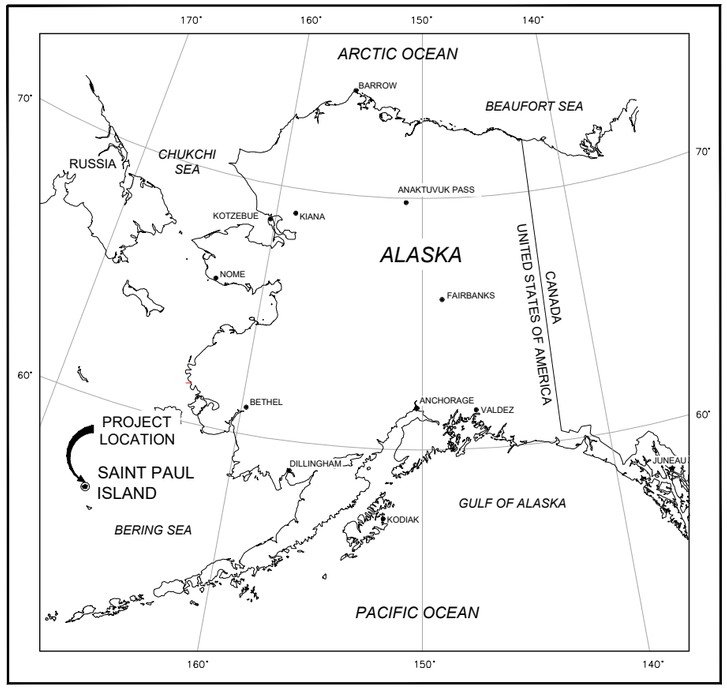

SMALL BOAT HARBOR UTILITY EXPANSION PROJECT

CITY OF SAINT PAUL
950 GORBATCH STREET
SAINT PAUL ISLAND, ALASKA 99660
(907)-341-3994

APRIL 03, 2024

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SURVEY		M-201	LIFT STATION HVAC PLAN
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		E-602	ONE-LINE DIAGRAMS AREA LIGHTS

ECONOMIC DEVELOPMENT ADMINISTRATION
ECONOMIC ADJUSTMENT ASSISTANCE
GRANT #07-79-07871

1

VICINITY MAP

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STATE OF ALASKA 49TH
Daniel E Nichols
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REVISIONS & ADDENDUMS

#	DATE	REMARKS
	06/2/2025	REVISED COVER SHEET WITH EDA TEXT

MANAGEMENT		
DESIGNED	BJK	
DRAWN	BJK	
CHECKED	BJD	
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LAST EDIT	6/2/25	
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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
COVER SHEET

PROJECT NUMBER 165.030630
DRAWING FILE NAME 030630_G-100-COVER SHEET.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
G-100

CONSTRUCTION NOTES

1. GENERAL:
   - 1.1. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. ALL BURIED UTILITIES, MAY NOT BE SHOWN OR MAY NOT BE SHOWN ACCURATELY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ANY UNDERGROUND OR CONCEALED UTILITY LINES THAT MAY BE REQUIRED TO BE AVOIDED DURING CONSTRUCTION.
   - 1.2. ALL CONSTRUCTION ACTIVITIES FOR WATER & SEWER SHALL BE IN ACCORDANCE WITH THE STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC) REGULATIONS 18 AAC 70 (WATER QUALITY STANDARDS), AND 18 AAC 72 (WASTEWATER DISPOSAL).

2. BURIED PIPES:
   - 2.1. REMOVE ROCK OR OTHER UNYIELDING MATERIAL, WHEN ENCOUNTERED, TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED AND REPLACE WITH APPROVED LOCAL MATERIAL.
   - 2.2. OVER-EXCAVATE AND REMOVE THAWED UNSTABLE MATERIALS (SILT, PEAT, OR ORGANICS) FOUND IN BOTTOM OF EXCAVATION. COORDINATE WITH LOCAL LANDFILL MANAGER FOR DISPOSAL LOCATION OF ANY UNUSABLE MATERIALS.
   - 2.3. PLACE STRUCTURAL FILL AND PIPE BEDDING IN UNIFORM LAYERS NO MORE THAN SIX (6) INCHES DEEP AND COMPACT UNTIL FIRM AND UNYIELDING. ADJUST THE MOISTURE CONTENT TO 2-PERCENT OF THE OPTIMUM MOISTURE CONTENT. COMPACTION SHOULD BE AT LEAST 95-PERCENT OF THE MAXIMUM DENSITY.
   - 2.4. PLACE NON-STRUCTURAL FILL IN UNIFORM LAYERS NO MORE THAN TWELVE (12) INCHES DEEP AND COMPACT BY EXCAVATOR OR OTHER EQUIPMENT TO MINIMIZE SETTLING.
   - 2.5. BEGIN THE PIPE LAYING AT THE DOWNSTREAM END OF THE PIPE. KEEP THE LOWER SEGMENT OF THE PIPE IN CONTACT WITH THE SHAPED BEDDING THROUGHOUT ITS FULL LENGTH. ALL PIPE WILL BE LAID IN PREPARED BEDDING. PIPE WILL BE STRAIGHT AND AT A CONSTANT SLOPE WITHOUT DIPS, SAGS, BENDS, CRESTS, ETC. CORRECT ANY PIPE THAT IS OUT OF ALIGNMENT, UNDULY SETTLED, OR DAMAGED AND RE-LAY OR REPLACE.

3. HDPE PIPE:
   - 3.1. ALL PERSONS PERFORMING HDPE FUSION SHALL BE TRAINED IN THE CORRECT METHOD OF BUTT FUSION IN ACCORDANCE WITH ASTM F2620-6, PPI TN-42 / TR-33, AND QUALIFIED ANNUALLY. THE FUSION OPERATOR SHALL BE THOROUGHLY FAMILIAR WITH AND TRAINED ON THE SPECIFIC EQUIPMENT BEING USED. ALL FUSION EQUIPMENT USED ON THIS PROJECT SHALL BE IN GOOD WORKING ORDER.
   - 3.2. THE CONTRACTOR SHALL ENSURE THAT EACH JOINT IS FUSED AT THE TEMPERATURE AND PRESSURE RECOMMENDED BY THE PIPE MANUFACTURER, AND IN ACCORDANCE WITH ALL THEIR RECOMMENDATIONS, IN ORDER TO ACHIEVE THE MAXIMUM PRESSURE RATING FOR THAT JOINT.
   - 3.3. THE CONTRACTOR WILL KEEP RECORDS OF EACH WELD FOR REVIEW BY THE ENGINEER (I.E. TEMPERATURES, TIME, ETC.)

4. REPORTING, RESULTS AND RED LINES:
   - 4.1. CONTRACTOR TO PROVIDE DAILY REPORTING DURING CONSTRUCTION TO OWNER / REPRESENTATIVE.
   - 4.2. AT A MINIMUM, DAILY REPORTS MUST INCLUDE THE FOLLOWING: DATE, WEATHER, SUMMARY OF WORK PERFORMED, DISTANCE OF PIPES LAID, EXCAVATION AND BACKFILL LOGS, LOCATION OF OPEN TRENCHES, PHOTOS, TEST RESULTS, OUT OF SCOPE WORK, AND REWORK.
   - 4.3. KEEP DETAILED TEST RECORDS AND RESULTS FOR HYDROSTATIC TESTING, FLUSHING AND DISINFECTION. SUBMIT COMPLETE SET AT SUBSTANTIAL COMPLETION. FINAL PAYMENT REQUEST WILL NOT BE APPROVED UNTIL A COMPLETE SET OF TEST RESULTS HAVE BEEN SUBMITTED FOR ALL PIPES, MANHOLES AND THE WET WELL TESTING.
   - 4.4. CONTRACTOR RED LINES WILL BE KEPT THROUGHOUT CONSTRUCTION. RED LINES WILL INCLUDE AT A MINIMUM CHANGES IN ALIGNMENT, LOCATION, ELEVATIONS, OR MATERIALS. RED LINE LOCATIONS WILL BE LABELED BY NORTHEASTINGS.
   - 4.5. UPDATE DRAWINGS WITH RED LINES DAILY. PROVIDE A SET OF CURRENT RED LINES AT EACH PAY REQUEST. PAY REQUESTS WILL ONLY BE PROCESSED FOR WORK THAT HAS RED LINES.
   - 4.6. A COMPLETE SET OF RED LINES WILL BE SUBMITTED AT SUBSTANTIAL COMPLETION. CONTRACTOR WILL PROVIDE A STATEMENT THAT RED LINES ARE ACCURATE.
   - 4.7. ALL SUBMITTALS GO TO THE CITY OF SAINT PAUL'S DESIGNATED REPRESENTATIVE.

MATERIAL SPECIFICATIONS

1. NON-STRUCTURAL MATERIAL: NON-STRUCTURAL MATERIAL NOT MEETING STRUCTURAL FILL OR PIPE BEDDING SPECIFICATIONS MAY BE USED AS BACKFILL ABOVE PIPE BEDDING OUTSIDE OF EXISTING ROADS.
2. STRUCTURAL FILL: AGGREGATE THAT CONTAINS NO MUCK, FROZEN MATERIAL, ROOTS, SOD, OR OTHER DELETERIOUS MATTER. HAS A PLASTICITY INDEX NOT GREATER THAN 6. MEETS THE FOLLOWING GRADING REQUIREMENTS, OR AS APPROVED BY THE ENGINEER:

SIEVE	PERCENT PASSING BY WEIGHT
2 INCH	100
NO. 4	20 - 60
NO. 200	0 - 6

3. PIPE BEDDING: SAND THAT CONTAINS NO MUCK, FROZEN MATERIAL, ROOTS, SOD, OR OTHER DELETERIOUS MATTER. HAS A PLASTICITY INDEX NOT GREATER THAN 6. MEETS THE FOLLOWING GRADING REQUIREMENTS, OR AS APPROVED BY THE ENGINEER:

SIEVE	PERCENT PASSING BY WEIGHT
3/8 INCH	100
NO. 4	95 - 100
NO. 200	0 - 6

4. PLASTIC COVER: 8 MIL POLYETHYLENE OR EQUAL.
5. ALL PIPE AND FITTINGS TO NOT CONTAIN MORE THAN 0.2 PERCENT LEAD WHEN USED WITH RESPECT TO SOLDER AND FLUX AND NOT HAVE MORE THAN A WEIGHTED AVERAGE OF 0.25 PERCENT LEAD WHEN USED WITH RESPECT TO WETTED SURFACES OF PIPES AND FITTINGS.
6. ALL COMPONENTS PROPOSED FOR DIRECT CONTACT WITH WATER MUST BE CERTIFIED BY AN ANSI ACCREDITED ORGANIZATION TO ANSI/NSF STANDARD 61.
7. PERFORM FLUSHING AND HYDROSTATIC TESTING ON ALL PIPING PER ASTM F1417 AND ASTM E1003. DISINFECT ALL WATER PIPING ACCORDING TO AWWA C651 FOR DISINFECTION.
8. WATER PIPE SHALL BE HDPE 4710 SDR 11 FOR WATER MAINS AND SERVICES.
9. SEWER PIPE SHALL BE HDPE 3408 SDR 11 FOR FORCE MAINS AND GRAVITY SERVICES.

LINEWORK LEGEND

EXISTING	PROPOSED	DESCRIPTION
———	———	BUILDING
— - - — - - — - - —		EDGE OF CONCRETE
— · — · — · — · —		EDGE OF TRAVELED WAY
——— U/G-E ———	——— U/G-E ———	BURIED ELECTRIC
——— F ———		FUEL PIPE
— — — 10 — — —		MAJOR CONTOURS
— — — 10 — — —		MINOR CONTOURS
———		PROPERTY LINES
——— W ———	——— W ———	WATER SERVICE PIPE
——— S ———	——— S ———	SEWER SERVICE PIPE
——— FM ———	——— FM ———	SEWER FORCE MAIN
— — — — — —		ROAD/UTILITY EASEMENT

SYMBOL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		FIRE HYDRANT
○	○	POST / BOLLARD
◯ MH	◯ MH-XX	MANHOLE
E	E	ELECTRICAL JUNCTION
		SURVEY MONUMENT
		DEMOLITION AREAS
►		FLOW DIRECTION
⬡		WELL HEAD
⋈		VALVE
		SATELLITE DISH
		SIGN
◯ CO		CLEANOUT
⊠		CONCRETE STRUCTURE

DETAIL AND SECTION CALLOUT LEGEND

# / XX	DETAIL
# / XX	SECTION

ABBREVIATIONS

ACSPI	ALEUT COMMUNITY OF SAINT PAUL ISLAND
ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ASTM	AMERICAN SOCIETY OF TESTING & MATERIALS
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
BOP	BEGINNING OF PROJECT
C	CIVIL
CBSFA	CENTRAL BERING SEA FISHERMEN'S ASSOCIATION
CI	CAST IRON
CIR	CIRCLE
COMP	COMPARTMENT
DEMO	DEMOLITION
DIA, Ø	DIAMETER
DR	DRIVE
DRW	DRAWING
E	EAST, ELECTRICAL
EA	EACH
ELEV	ELEVATION
EO	ELECTRIC OVERHEAD
EOP	END OF PROJECT
FM	FORCE MAIN
FL	FLANGE
FT	FEET
FPS	FEET PER SECOND
G	GENERAL
GPCD	GALLONS PER CAPITA DAY
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
HMWPE	HIGH MOLECULAR WEIGHT POLYETHYLENE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
ID	INSIDE DIAMETER
IN	INCH
LF	LINEAL FEET
LN	LANE
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	NORTH
NIC	NOT IN CONTRACT
OC	OFF CENTER
OD	OUTSIDE DIAMETER
OFF	OFFSET
PER	PRELIMINARY ENGINEERING REPORT
PC	POINT OF CURVATURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
RD	ROAD
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SEC	SECOND
SS	SANITARY SEWER
TAC	THE ALEUT CORPORATION
TDX	TANADGUSIX CORPORATION
TYP	TYPICAL
UG/E	UNDERGROUND ELECTRIC
VB	VALVE BOX
VSW	VILLAGE SAFE WATER PROGRAM
W	WATER
YRS	YEARS

ROW HATCHING LEGEND

	TDX OWNED
	ABANDON
	ACSPI LEASED
	CBSFA LEASED

ISSUED FOR CONSTRUCTION

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STATE OF ALASKA 49 TH
Daniel E Nichols
No. CE 11012
4/3/24
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REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	3/26/24
PLOT DATE	3/26/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
NOTES, LEGENDS & ABBREVIATIONS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630_G-101-NOTES, LEGENDS & ABBREVIATIONS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
G-101

COMMUNITY DATA:

THE CITY OF SAINT PAUL IS A SECOND CLASS CITY LOCATED ON SAINT PAUL ISLAND IN THE BERING SEA OFF THE WEST COAST OF ALASKA. IT IS APPROXIMATELY 750 MILES WEST OF ANCHORAGE AND IS ONLY ACCESSIBLE BY AIR OR SEA. THE COMMUNITY IS LOCATED ABOUT 3 MILES FROM THE 6500-FOOT LONG STATE-OWNED AIRPORT. THE CITY IS HOME TO APPROXIMATELY 360 RESIDENTS AND HOSTS 145 NON-SEASONAL HOMES. THERE ARE APPROXIMATELY 190 SERVICE CONNECTIONS THAT ARE SERVED BY THE TWO LIFT STATIONS. ACCORDING TO THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, THE SAINT PAUL WASTEWATER COLLECTION SYSTEM IS CLASSIFIED AS CLASS 1.

THE HARBOR SEWER CURRENTLY HAS A LIFT STATION FOR THE HARBOR MASTER OFFICE, BUT DUE TO WEATHER RELATED EVENTS THE BUILDING ITSELF IS NO LONGER DEEMED SAFE FOR USE. THE CITY OF SAINT PAUL SEEKS TO CONSTRUCT A NEW HARBOR MASTER OFFICE AT ANOTHER LOCATION. THE NEW HARBOR MASTER OFFICE IS OUT OF THIS PROJECT SCOPE.

SEWER INFRASTRUCTURE CURRENTLY AT THE HARBOR INCLUDE A LIFT STATION SERVICE THE TRIDENT PROCESSING PLANT AND SERVICE LINE CONNECTIONS FOR UNISEA AND UNIPAK PROCESSORS. BLACK WATER LIFT STATIONS FEED INTO AN EXISTING 4" HDPE FORCE MAIN TO THE HARBOR SEPTIC TANKS AT EAST LANDING. EXISTING INFRASTRUCTURE DOES NOT MEET FUTURE DEVELOPMENT NEEDS. FISH WASTE IS SEPARATED FROM THE BLACK WATER SYSTEM. THERE ARE THREE FISH WASTE SEWER FORCE MAINS.

CURRENTLY, THE SMALL BOAT HARBOR & ELLERMAN WATER MAIN ARE NOT DIRECTLY CONNECTED. CONNECTING THEM WILL CREATE A LOOPED SYSTEM.

IMPROVEMENTS:

ALL PROPOSED WORK WILL REQUIRE ADDITIONAL EASEMENTS FROM TDX, CBSFA, AND ACSPI, OUTSIDE OF THE EXISTING HAUL ROAD ROW. THE IMPROVED SYSTEM WILL INCREASE RELIABILITY, RESILIENCE, AND CUSTOMER CONFIDENCE AND WILL SIGNIFICANTLY REDUCE POTENTIAL FOR SYSTEM INTERRUPTIONS DURING MAINTENANCE. THE OPERATION OF THIS NEW LIFT STATION WILL PROVIDE LESS-HAZARDOUS WORKING CONDITIONS DURING MAINTENANCE.

SCOPE OF WORK:

1. THIS PROJECT IS INITIATED BY THE CITY OF SAINT PAUL TO IMPROVE THE SAINT PAUL WATER DISTRIBUTION AND WASTEWATER COLLECTION SYSTEM, PARTICULARLY IN THE SMALL BOAT HARBOR VICINITY.
2. THE DESIGN IS BASED ON THE 2022 PRELIMINARY ENGINEERING REPORT (PER). KUNA ENGINEERING WAS CONTRACTED BY THE CITY TO DEVELOP THE CONSTRUCTION DOCUMENTS, OBTAIN REQUIRED PERMITS, AND ASSIST WITH CONSTRUCTION ADMINISTRATION.
3. THE PROPOSED LIFT STATION WILL CONTAIN A CONCRETE WET WELL, ADJACENT TO A LIFT STATION FACILITY TO HOUSE PUMPS, PIPING, AND RELATIVE INSTRUMENTATION.
4. A NEW WATER MAIN WILL CONNECT ELLERMAN AND SMALL BOAT HARBOR WATER MAINS.

REFERENCES:

1. 2020 PRELIMINARY ENGINEERING REPORT FOR CITY OF SAINT PAUL WASTEWATER LIFT STATION, POLARCONSULT ALASKA, FEBRUARY 2020.
2. 2022 PRELIMINARY ENGINEERING REPORT FOR CITY OF SAINT PAUL, APPLICATION SUPPLEMENT C, SMALL BOAT HARBOR AREA, POLARCONSULT ALASKA, OCTOBER 2022.

DESIGN CRITERIA:

1. SYSTEM NAME: SAINT PAUL WASTEWATER COLLECTION SYSTEM.
2. DESIGN AND CONSTRUCTION MUST MEET THE STATE OF ALASKA DOMESTIC WASTEWATER TREATMENT AND DISPOSAL STANDARDS (18 AAC 72). CONTRACTOR WILL COMPLY WITH REQUIREMENTS OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S APPROVAL TO CONSTRUCT. CONTRACTOR WILL CONTACT ENGINEER OF RECORD WITH ANY VARIATIONS FROM THE STANDARDS OR APPROVAL.

LIFT STATION DESIGN CRITERIA	HARBOR LIFT STATION	
	2019 FLOWS	DESIGN
AVERAGE FLOW (GPM)	10.9	150
PEAK FLOW (GPM)	33.9	300
PEAKING FACTOR	3.1	3.1
PUMP RUN TIMES (MIN)	N/A	5.23
AVERAGE PUMP RATE (GPM)	N/A	150
PEAK PUMP RATE (GPM)	N/A	300

TABLE NOTES:

1. WASTEWATER FLOW FOR FULL DEVELOPMENT SCALED FROM EXISTING DEVELOPMENT, WITH CONSTANT PER CAPITA WASTEWATER GENERATION, TO FULL DEVELOPMENT UNDER CURRENT ZONING.
2. PEAKING FACTOR OF 3.1 TIMES AVERAGE FLOW WAS OBSERVED IN ELLERMAN LIFT STATION AND USED FOR ESTIMATING FLOWS IN ALL SERVICE AREAS DUE TO SIGNIFICANTLY LONGER PERIOD OF RECORD.
3. TABLE FROM 2020 PER, TABLE 4-1. THESE ARE THE RECOMMENDED DESIGN CRITERIA.

DESCRIPTION	HARBOR AREA	UNITS
RESIDENTIAL POPULATION DISTRIBUTION	0	PERSON
COMMERCIAL POPULATION DISTRIBUTION	15	PERSON
APPROXIMATE POPULATION AT PLANTS	300	PERSON
EXISTING ESTIMATED DAILY FLOW	15762	GPD
EXISTING AVERAGE DAILY FLOW	11	GPM
EXISTING PEAK FLOW	33.9	GPM
FUTURE DAILY FLOWS	16550	GPD
FUTURE AVERAGE LIFT STATION FLOW	11.5	GPM
FUTURE PEAK LIFT STATION FLOW	35.6	GPM

TABLE NOTES:

1. TABLE FROM 2020 PER, TABLE 4-2. THESE ARE THE EXISTING WASTEWATER LOADINGS.

LIFT STATION	HARBOR LIFT STATION	
	VALUE	UNIT
RECOMMENDED WET WELL DIAMETER:	9	FEET
CYCLE TIME (AVG/PEAK) REASONABLE GROWTH	3.10	-
STATIC HEAD	22.4	FEET
RECOMMENDED PUMP SIZE	150	GPM
FORCE MAIN DIAMETER	4	INCHES
FORCE MAIN LENGTH	2793	FEET
VOLUME PUMPED	432	GALLONS
FORCE MAIN LIQUID VELOCITY	4.64	FT/SEC

ISSUED FOR CONSTRUCTION

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REVISIONS & ADDENDUMS

#	DATE	REMARKS

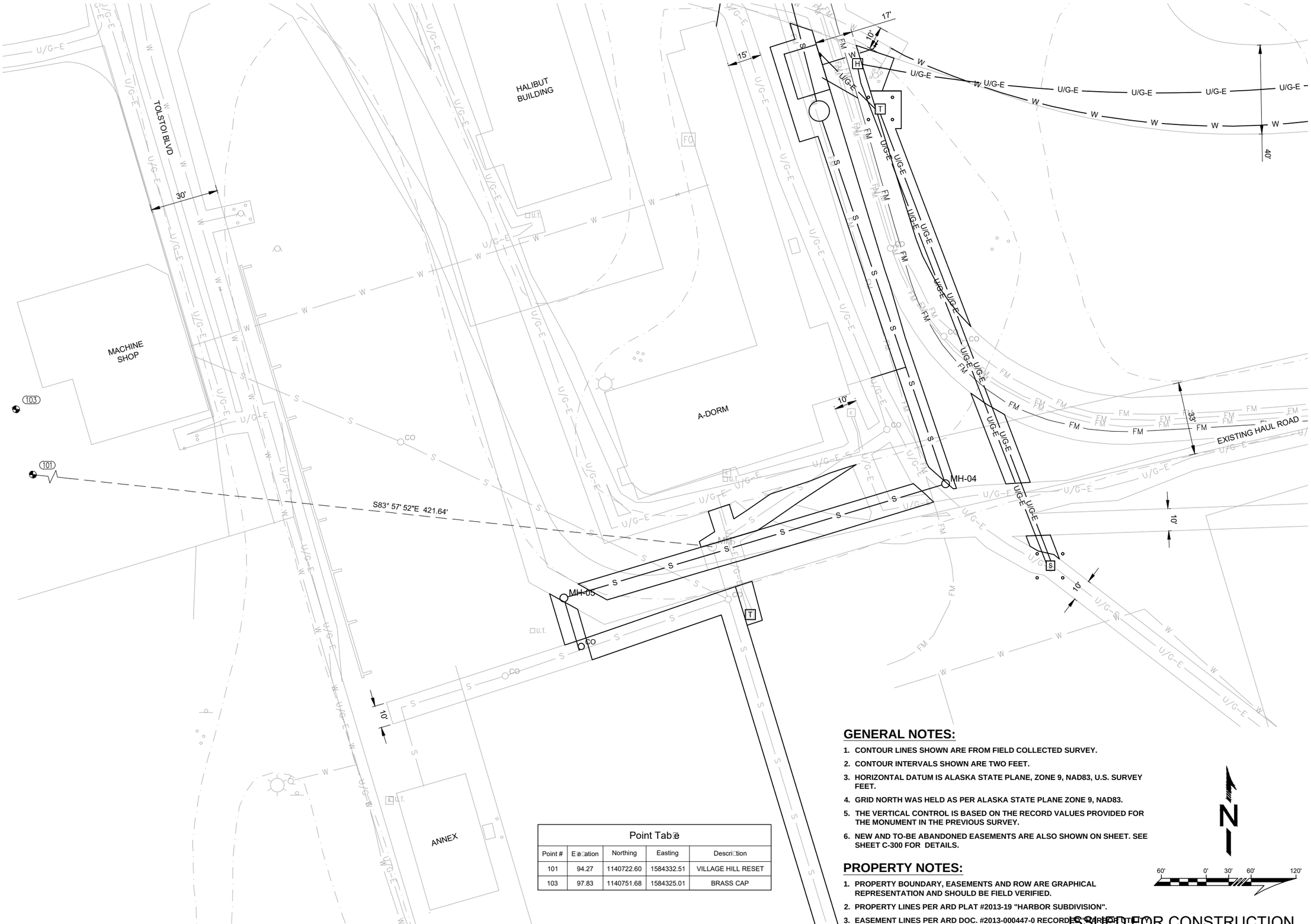
MANAGEMENT

DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	3/26/24
PLOT DATE	3/26/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SCOPE OF WORK & DESIGN CRITERIA

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-G-102-SOW & DESIGN CRITERIA.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
G-102



Point Table				
Point #	Elevation	Northing	Easting	Description
101	94.27	1140722.60	1584332.51	VILLAGE HILL RESET
103	97.83	1140751.68	1584325.01	BRASS CAP

GENERAL NOTES:

1. CONTOUR LINES SHOWN ARE FROM FIELD COLLECTED SURVEY.
2. CONTOUR INTERVALS SHOWN ARE TWO FEET.
3. HORIZONTAL DATUM IS ALASKA STATE PLANE, ZONE 9, NAD83, U.S. SURVEY FEET.
4. GRID NORTH WAS HELD AS PER ALASKA STATE PLANE ZONE 9, NAD83.
5. THE VERTICAL CONTROL IS BASED ON THE RECORD VALUES PROVIDED FOR THE MONUMENT IN THE PREVIOUS SURVEY.
6. NEW AND TO-BE ABANDONED EASEMENTS ARE ALSO SHOWN ON SHEET. SEE SHEET C-300 FOR DETAILS.

PROPERTY NOTES:

1. PROPERTY BOUNDARY, EASEMENTS AND ROW ARE GRAPHICAL REPRESENTATION AND SHOULD BE FIELD VERIFIED.
2. PROPERTY LINES PER ARD PLAT #2013-19 "HARBOR SUBDIVISION".
3. EASEMENT LINES PER ARD DOC. #2013-000447-0 RECORDED "HARBOR UTILITY EASEMENTS".

60' 0' 30' 60' 120'

ISSUED FOR CONSTRUCTION

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Taylor Maxwell Moore
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03/27/24
PROFESSIONAL LAND SURVEYOR

REVISIONS & ADDENDUMS		
#	DATE	REMARKS

MANAGEMENT	
DESIGNED	BJK
DRAWN	BJK
CHECKED	TM
APPROVED	DEN
LAST EDIT	3/27/24
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SUBMITTAL	03/27/24

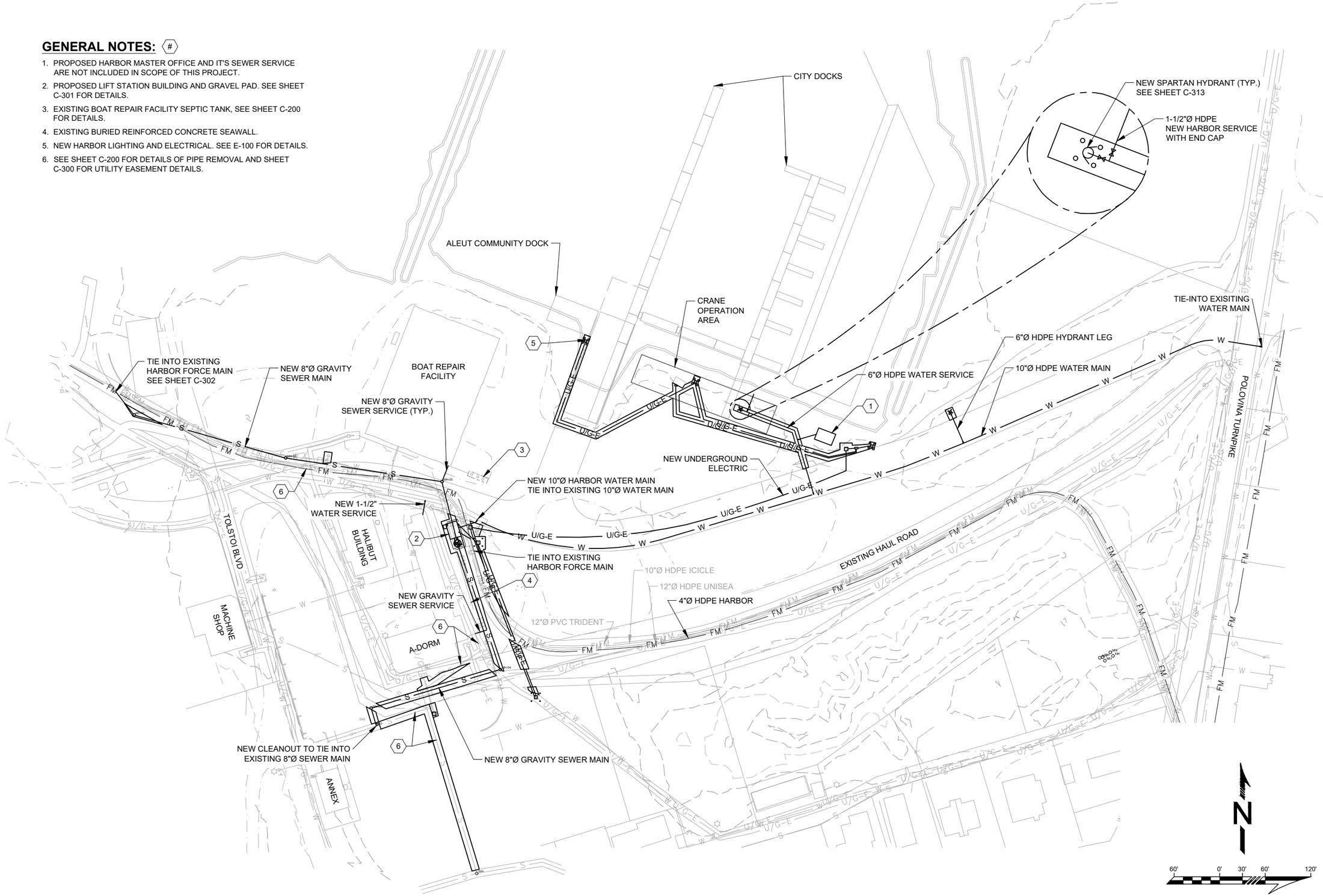
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SURVEY CONTROL

PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630_V-100-SURVEY-CONTROL.DWG
DRAWING SCALE: AS SHOWN

SHEET NUMBER
V-100

GENERAL NOTES: (#)

1. PROPOSED HARBOR MASTER OFFICE AND IT'S SEWER SERVICE ARE NOT INCLUDED IN SCOPE OF THIS PROJECT.
2. PROPOSED LIFT STATION BUILDING AND GRAVEL PAD. SEE SHEET C-301 FOR DETAILS.
3. EXISTING BOAT REPAIR FACILITY SEPTIC TANK, SEE SHEET C-200 FOR DETAILS.
4. EXISTING BURIED REINFORCED CONCRETE SEAWALL.
5. NEW HARBOR LIGHTING AND ELECTRICAL. SEE E-100 FOR DETAILS.
6. SEE SHEET C-200 FOR DETAILS OF PIPE REMOVAL AND SHEET C-300 FOR UTILITY EASEMENT DETAILS.



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MANAGEMENT	
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APPROVED	DEN
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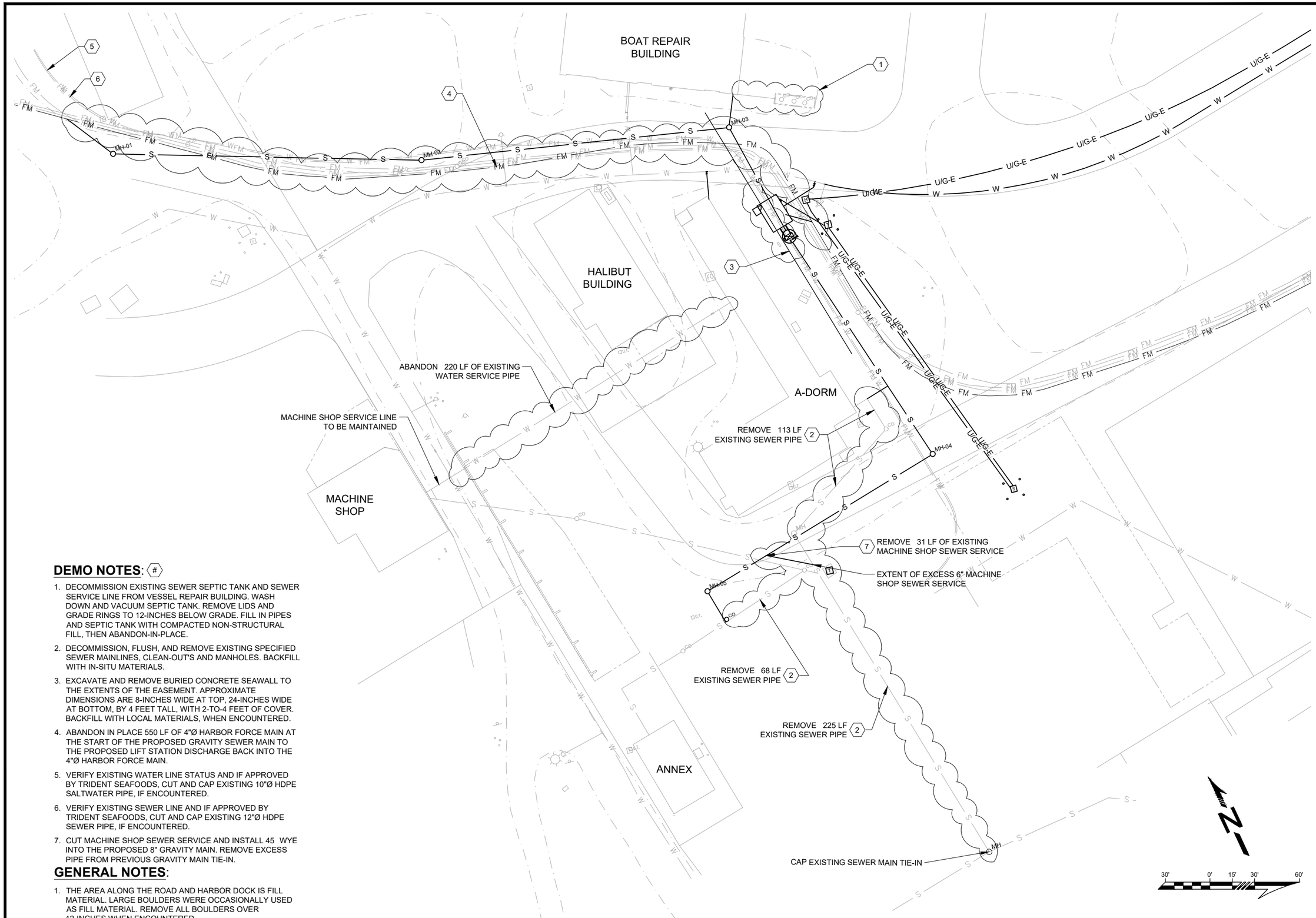
PLOT DATE	3/26/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
CIVIL SITE PLAN

PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630 C-100-CIVIL SITE PLAN.DWG
DRAWING SCALE: AS SHOWN

SHEET NUMBER
C-100



DEMO NOTES: (#)

1. DECOMMISSION EXISTING SEWER SEPTIC TANK AND SEWER SERVICE LINE FROM VESSEL REPAIR BUILDING. WASH DOWN AND VACUUM SEPTIC TANK. REMOVE LIDS AND GRADE RINGS TO 12-INCHES BELOW GRADE. FILL IN PIPES AND SEPTIC TANK WITH COMPACTED NON-STRUCTURAL FILL, THEN ABANDON-IN-PLACE.
2. DECOMMISSION, FLUSH, AND REMOVE EXISTING SPECIFIED SEWER MAINLINES, CLEAN-OUT'S AND MANHOLES. BACKFILL WITH IN-SITU MATERIALS.
3. EXCAVATE AND REMOVE BURIED CONCRETE SEAWALL TO THE EXTENTS OF THE EASEMENT. APPROXIMATE DIMENSIONS ARE 8-INCHES WIDE AT TOP, 24-INCHES WIDE AT BOTTOM, BY 4 FEET TALL, WITH 2-TO-4 FEET OF COVER. BACKFILL WITH LOCAL MATERIALS, WHEN ENCOUNTERED.
4. ABANDON IN PLACE 550 LF OF 4"Ø HARBOR FORCE MAIN AT THE START OF THE PROPOSED GRAVITY SEWER MAIN TO THE PROPOSED LIFT STATION DISCHARGE BACK INTO THE 4"Ø HARBOR FORCE MAIN.
5. VERIFY EXISTING WATER LINE STATUS AND IF APPROVED BY TRIDENT SEAFOODS, CUT AND CAP EXISTING 10"Ø HDPE SALTWATER PIPE, IF ENCOUNTERED.
6. VERIFY EXISTING SEWER LINE AND IF APPROVED BY TRIDENT SEAFOODS, CUT AND CAP EXISTING 12"Ø HDPE SEWER PIPE, IF ENCOUNTERED.
7. CUT MACHINE SHOP SEWER SERVICE AND INSTALL 45 WYE INTO THE PROPOSED 8" GRAVITY MAIN. REMOVE EXCESS PIPE FROM PREVIOUS GRAVITY MAIN TIE-IN.

GENERAL NOTES:

1. THE AREA ALONG THE ROAD AND HARBOR DOCK IS FILL MATERIAL. LARGE BOULDERS WERE OCCASIONALLY USED AS FILL MATERIAL. REMOVE ALL BOULDERS OVER 12-INCHES WHEN ENCOUNTERED.

ISSUED FOR CONSTRUCTION

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STATE OF ALASKA 49 TH
Daniel E Nichols
No. 129381
REGISTERED PROFESSIONAL ENGINEER
4/3/24

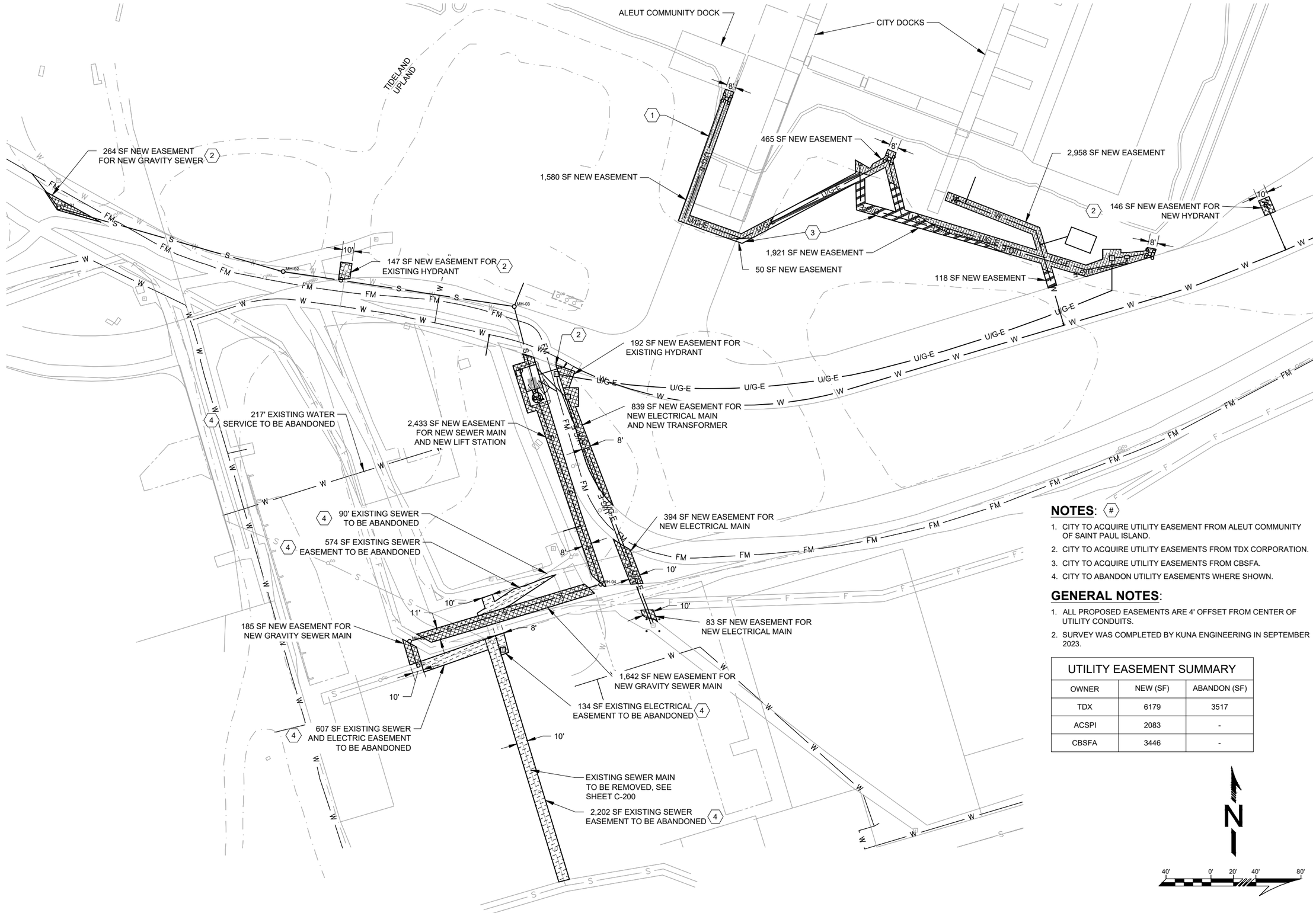
REVISIONS & ADDENDUMS			
#	DATE	REMARKS	

MANAGEMENT	
DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	3/28/24
PLOT DATE	3/28/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
DEMOLITION PLAN

PROJECT NUMBER	DRAWING FILE NAME	DRAWING SCALE
165.030630	030630 C-200-DEMOLITION PLAN.DWG	AS SHOWN

SHEET NUMBER
C-200



NOTES: (#)

1. CITY TO ACQUIRE UTILITY EASEMENT FROM ALEUT COMMUNITY OF SAINT PAUL ISLAND.
2. CITY TO ACQUIRE UTILITY EASEMENTS FROM TDX CORPORATION.
3. CITY TO ACQUIRE UTILITY EASEMENTS FROM CBSFA.
4. CITY TO ABANDON UTILITY EASEMENTS WHERE SHOWN.

GENERAL NOTES:

1. ALL PROPOSED EASEMENTS ARE 4' OFFSET FROM CENTER OF UTILITY CONDUITS.
2. SURVEY WAS COMPLETED BY KUNA ENGINEERING IN SEPTEMBER 2023.

UTILITY EASEMENT SUMMARY		
OWNER	NEW (SF)	ABANDON (SF)
TDX	6179	3517
ACSPI	2083	-
CBSFA	3446	-

N

40' 0' 20' 40' 80'

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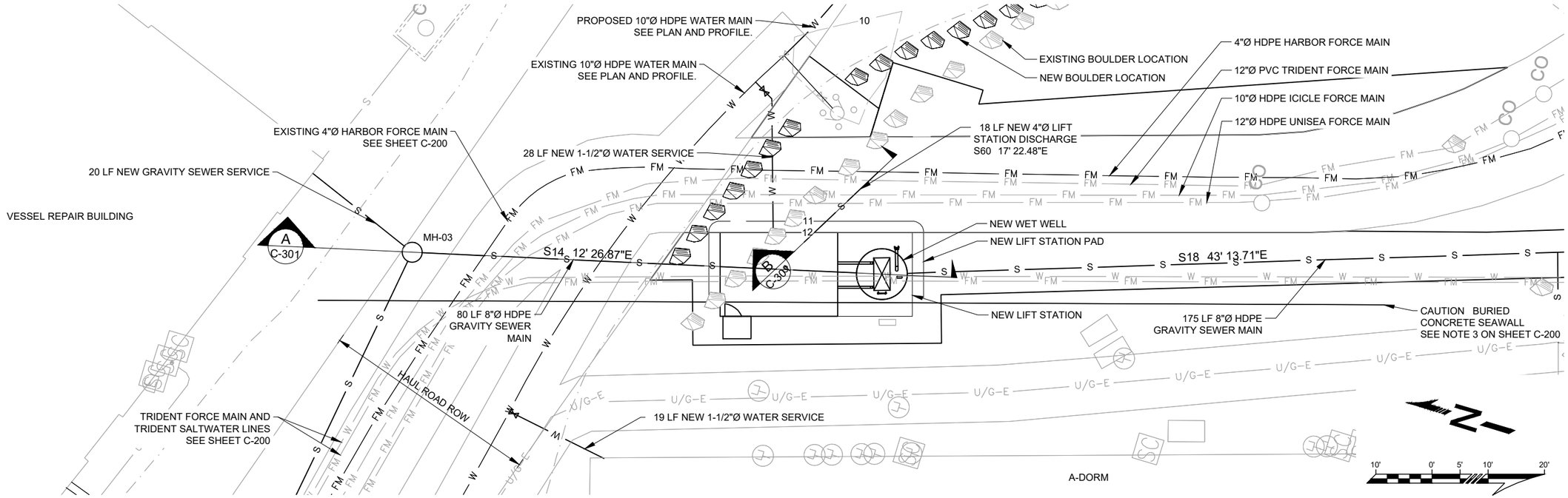
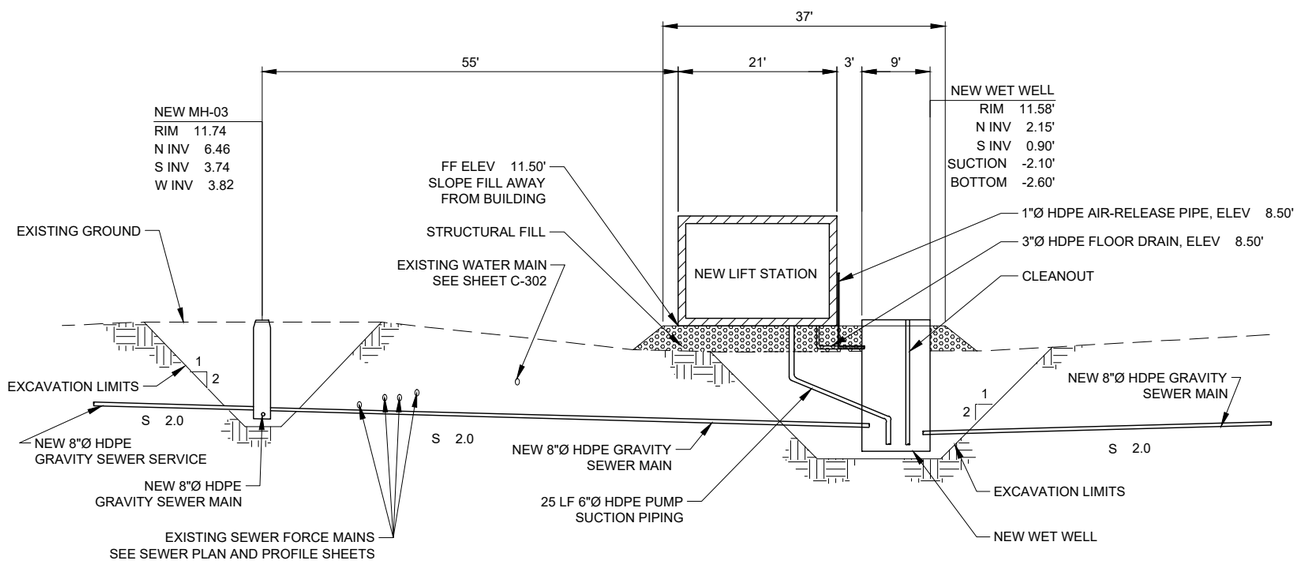
PLOT DATE	3/26/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
UTILITY EASTEMENT PLAN

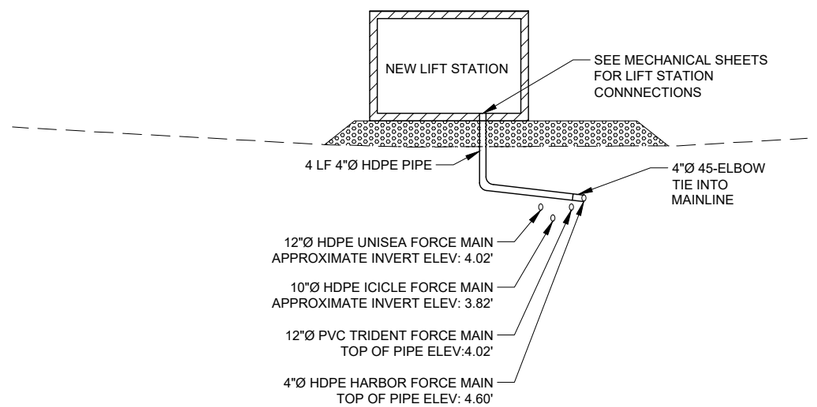
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630_C-300-UTILITY EASEMENT PLAN.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-300





A SECTION A
SCALE: 1" 10'



B SECTION B
SCALE: 1" 10'

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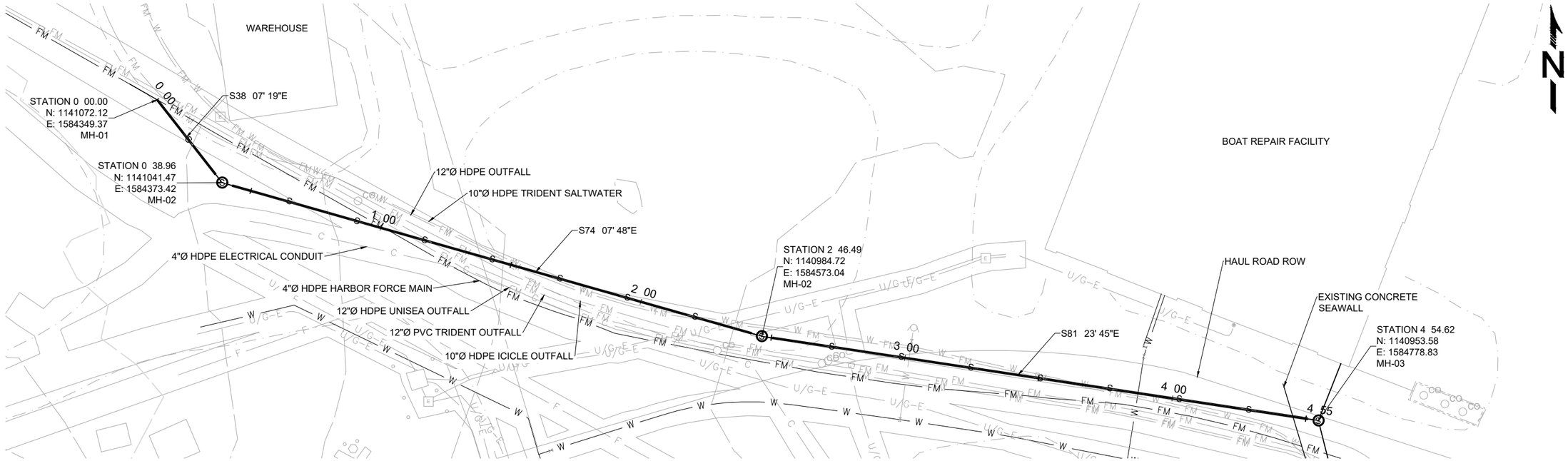
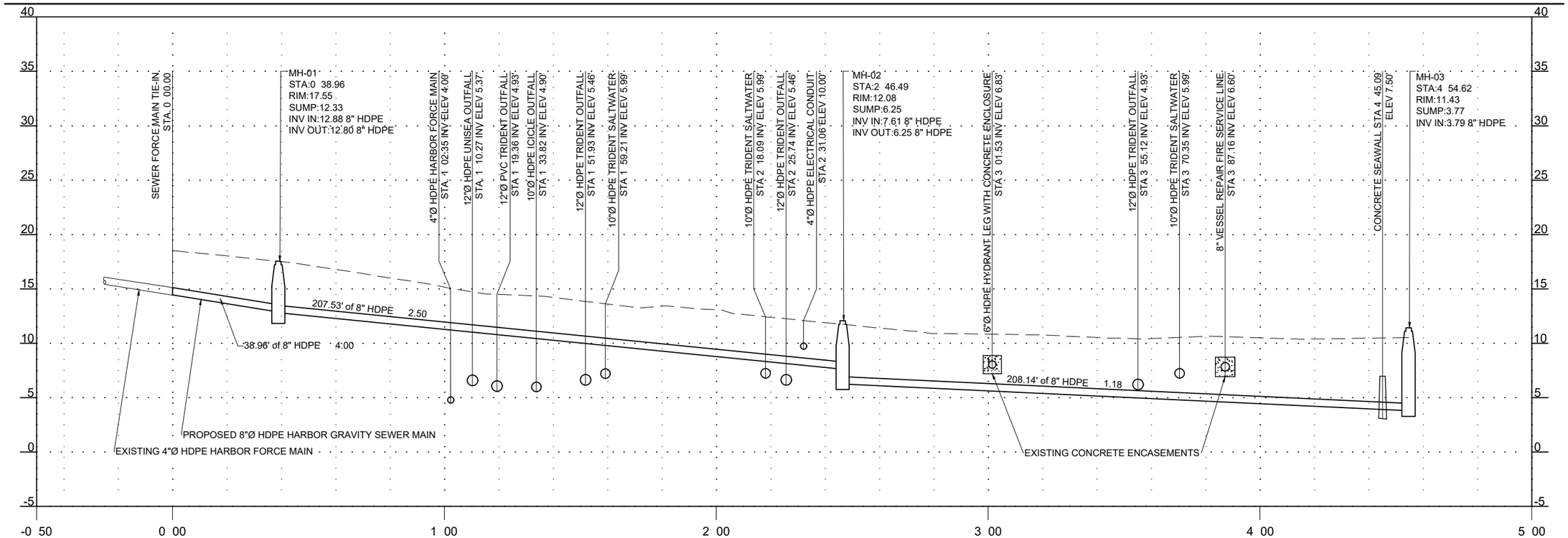
SUBMITTAL	03/27/24	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION PLAN AND PROFILE

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-C-301-LIFT STATION P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-301





SCALE
HOR : 1" 20'
VERT: 1" 10'

20 0 10 20 | 10 0

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3/27/24

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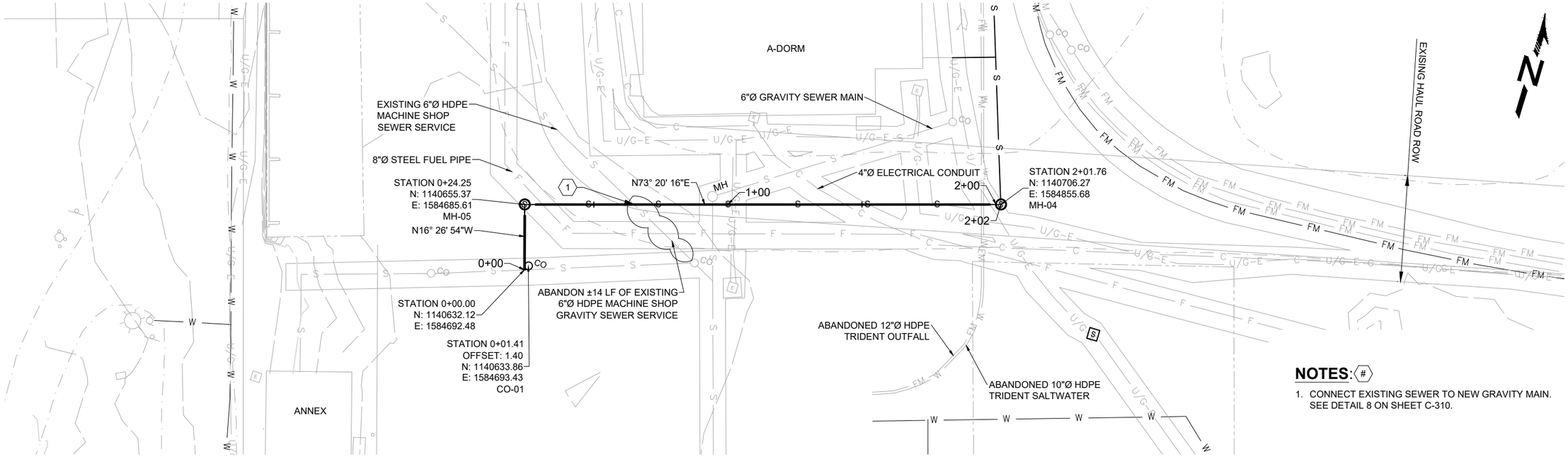
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SEWER MAIN PLAN & PROFILE

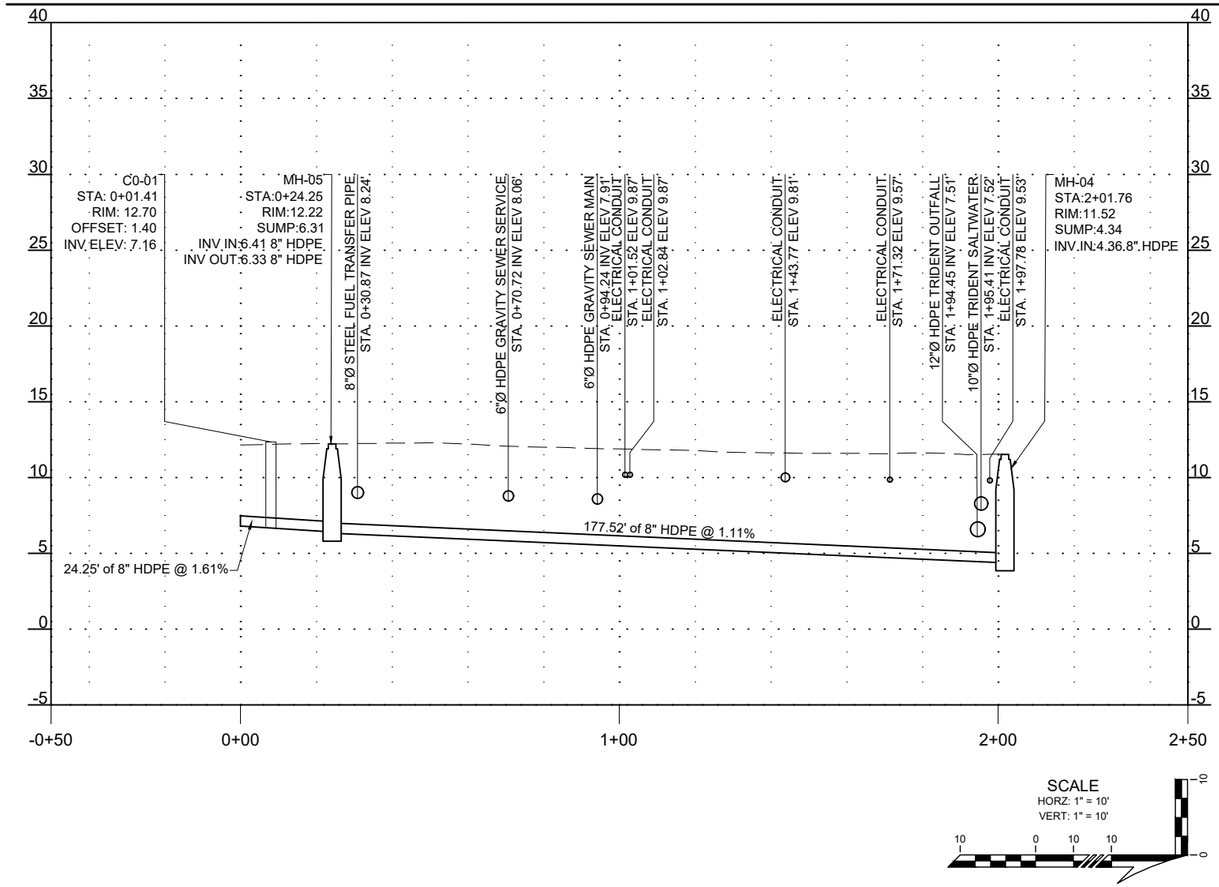
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630 C-302X-SEWER MAIN P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-302

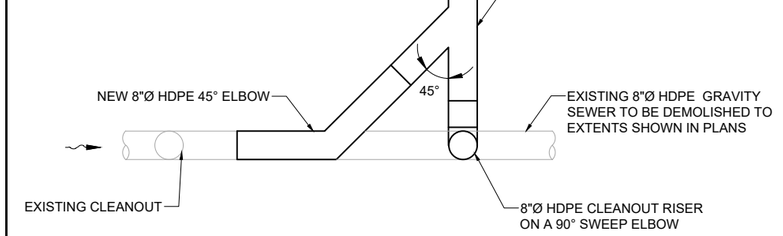


NOTES: (#)

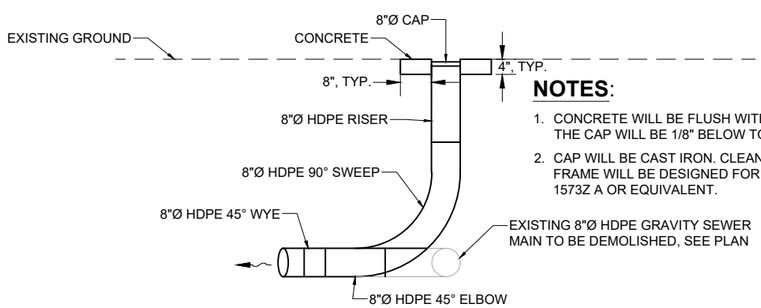
1. CONNECT EXISTING SEWER TO NEW GRAVITY MAIN. SEE DETAIL 8 ON SHEET C-310.



SCALE
HORZ: 1" = 10'
VERT: 1" = 10'



1 CLEAN OUT PLAN
SCALE: N.T.S.



NOTES:

1. CONCRETE WILL BE FLUSH WITH THE EXISTING GRADE. THE CAP WILL BE 1/8" BELOW TOP OF CONCRETE.
2. CAP WILL BE CAST IRON. CLEAN OUT COVER AND FRAME WILL BE DESIGNED FOR HEAVY LOADS. EJIW 1573Z A OR EQUIVALENT.

2 CLEAN OUT PROFILE
SCALE: N.T.S.

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MANAGEMENT		
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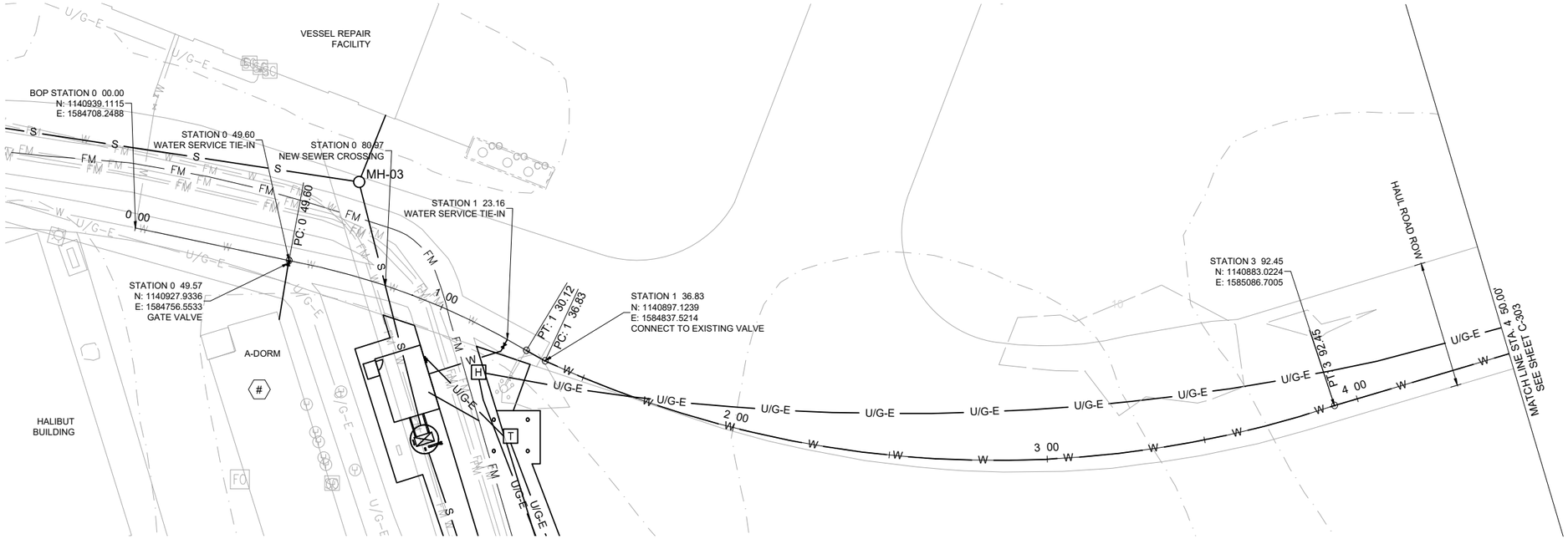
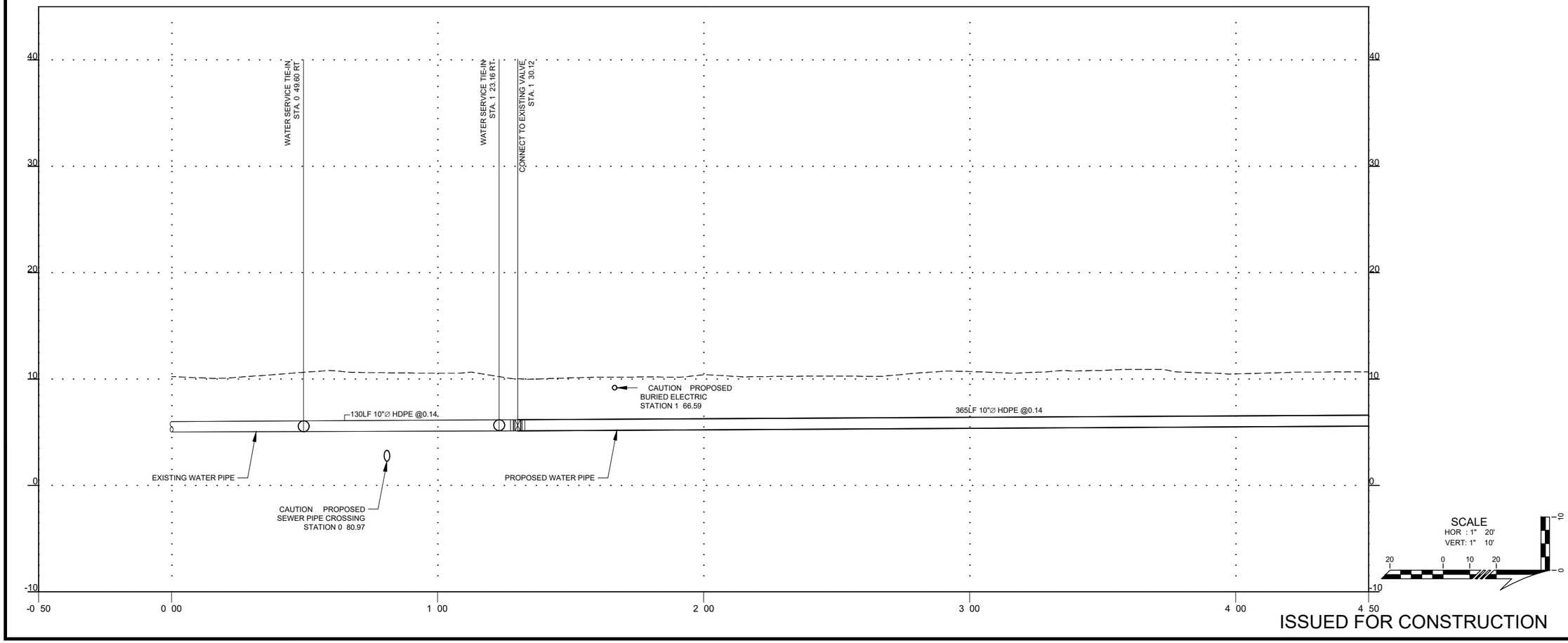
LAST EDIT	4/3/24	
PLOT DATE	4/3/24	
SUBMITTAL	03/27/24	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SEWER MAIN PLAN & PROFILE

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630_C-302X-SEWER MAIN P&P.DWG

SHEET NUMBER
C-303





SCALE
HOR : 1" 20'
VERT: 1" 10'

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APPROVED	DEN
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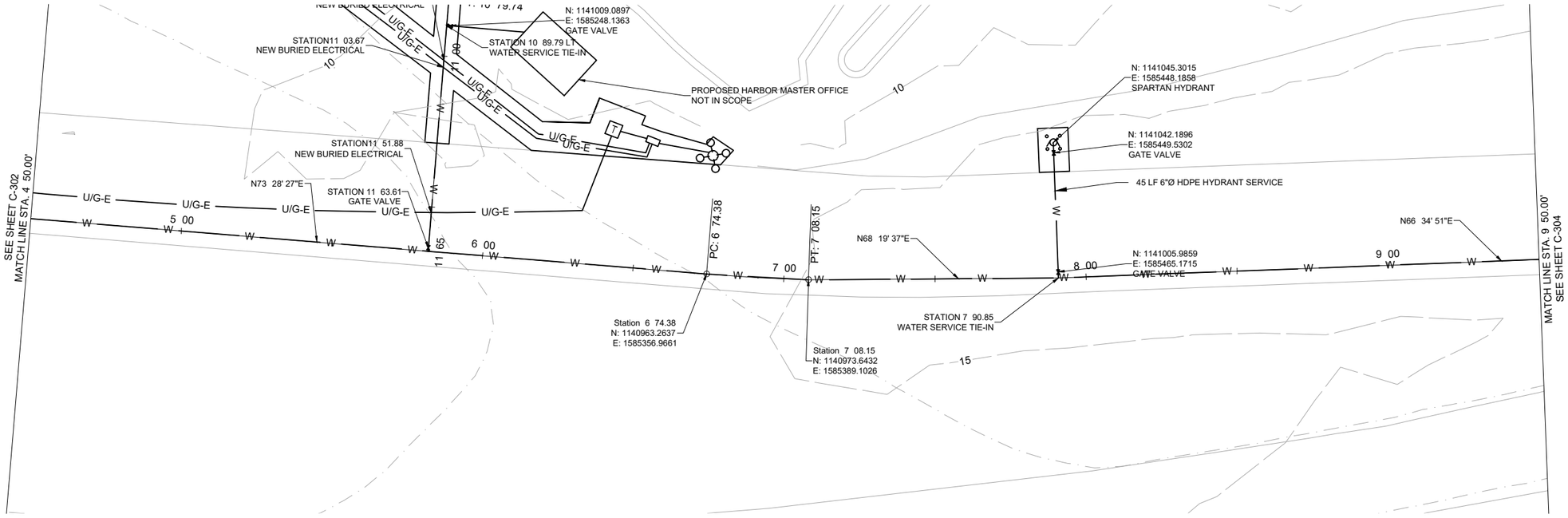
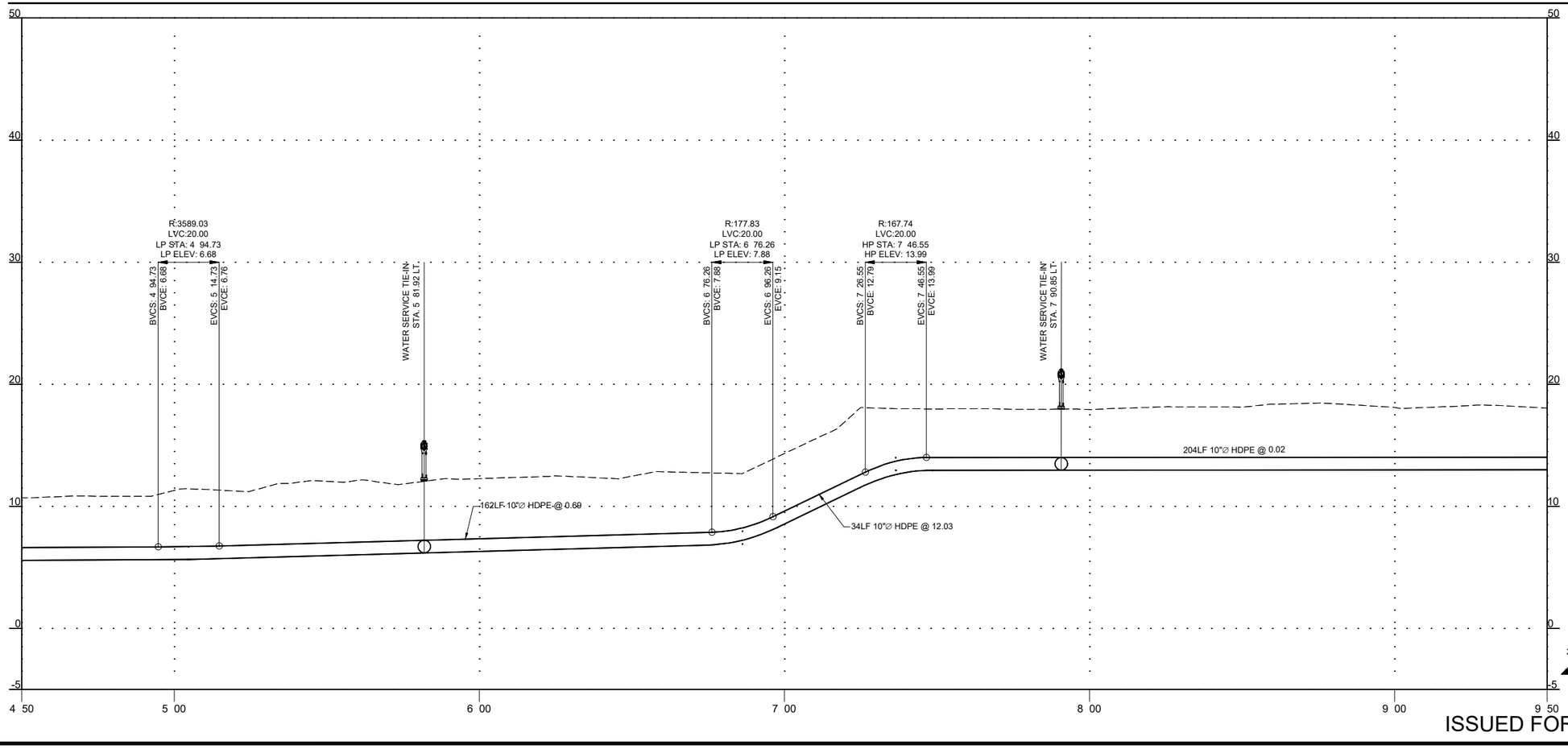
PLOT DATE	3/27/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN PLAN & PROFILE

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630 C-304X-WATER MAIN P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-304





SCALE
HOR : 1" 20'
VERT: 1" 10'
20 0 10 20
10 0

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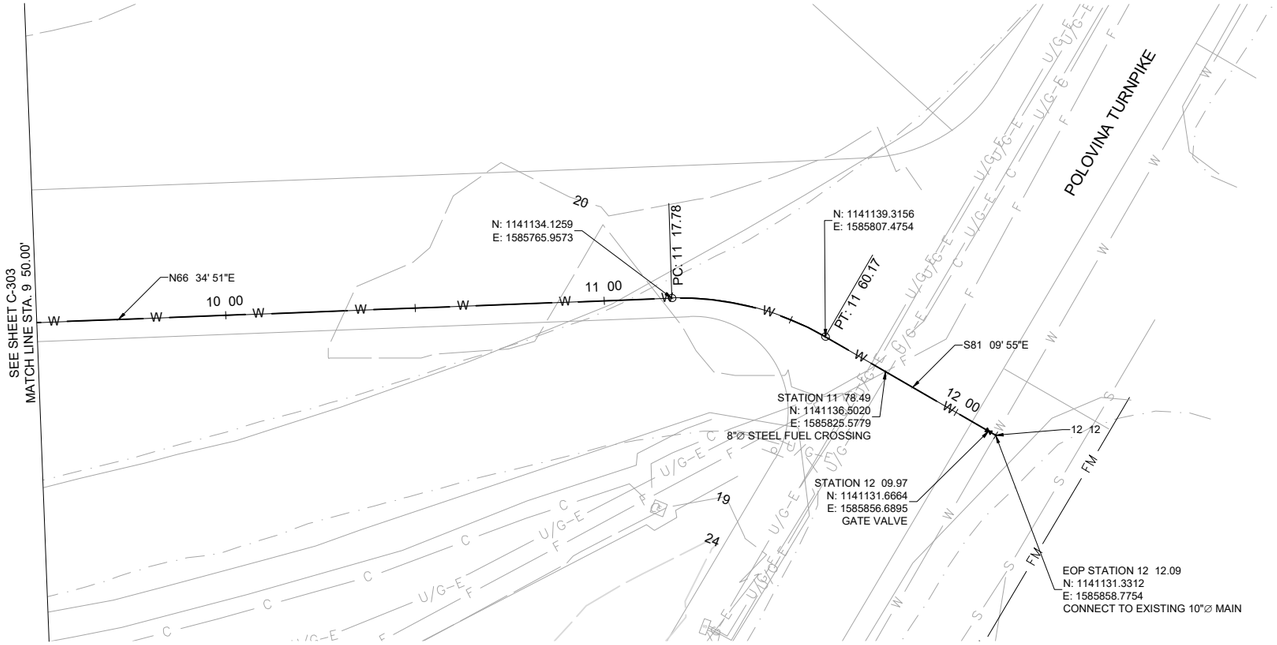
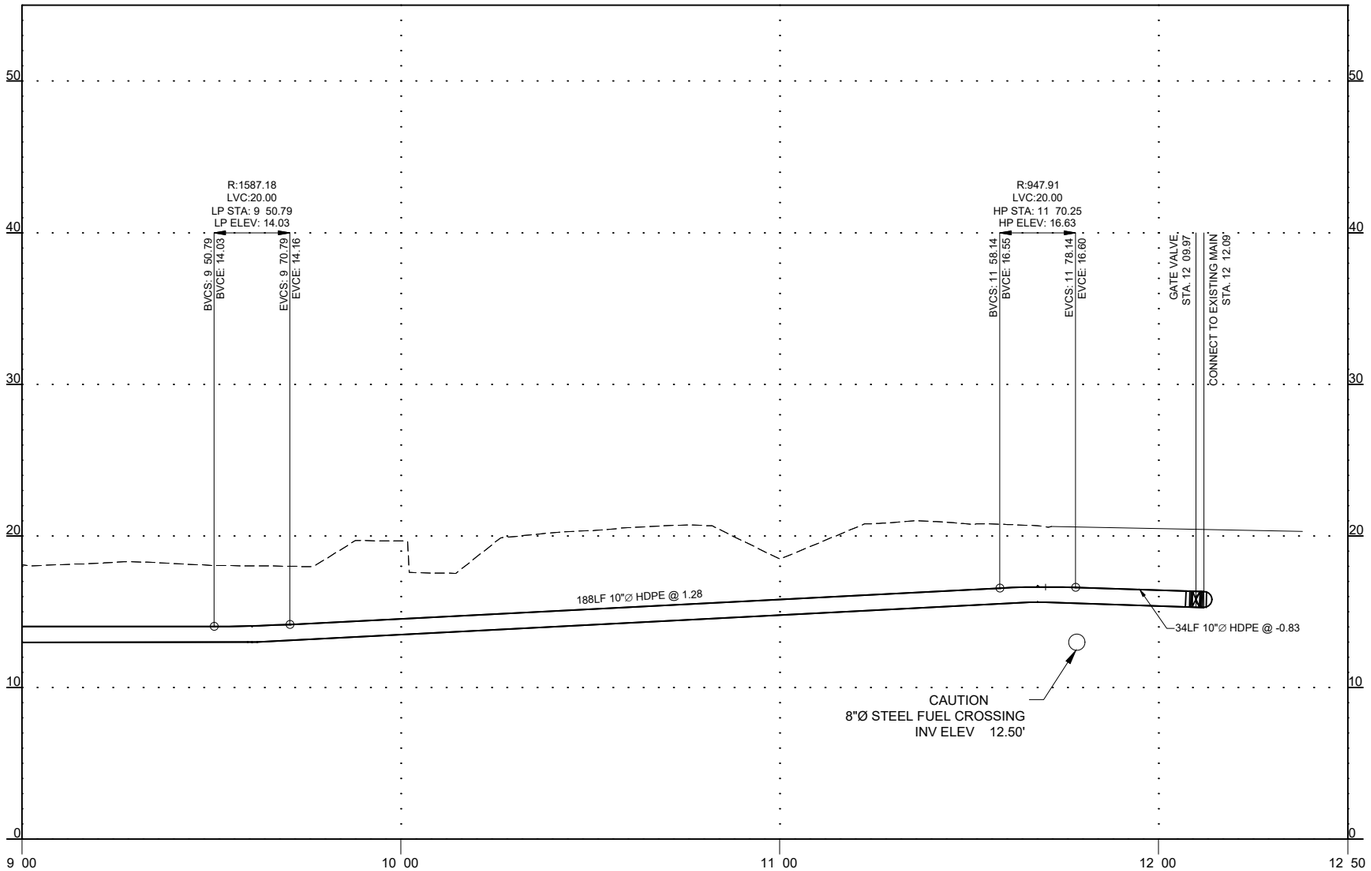
APPROVED	DEN	3/27/24
LAST EDIT	3/27/24	
PLOT DATE	3/27/24	
SUBMITTAL	03/27/24	

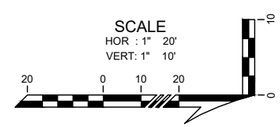
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN PLAN & PROFILE

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630 C-304X-WATER MAIN P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-305







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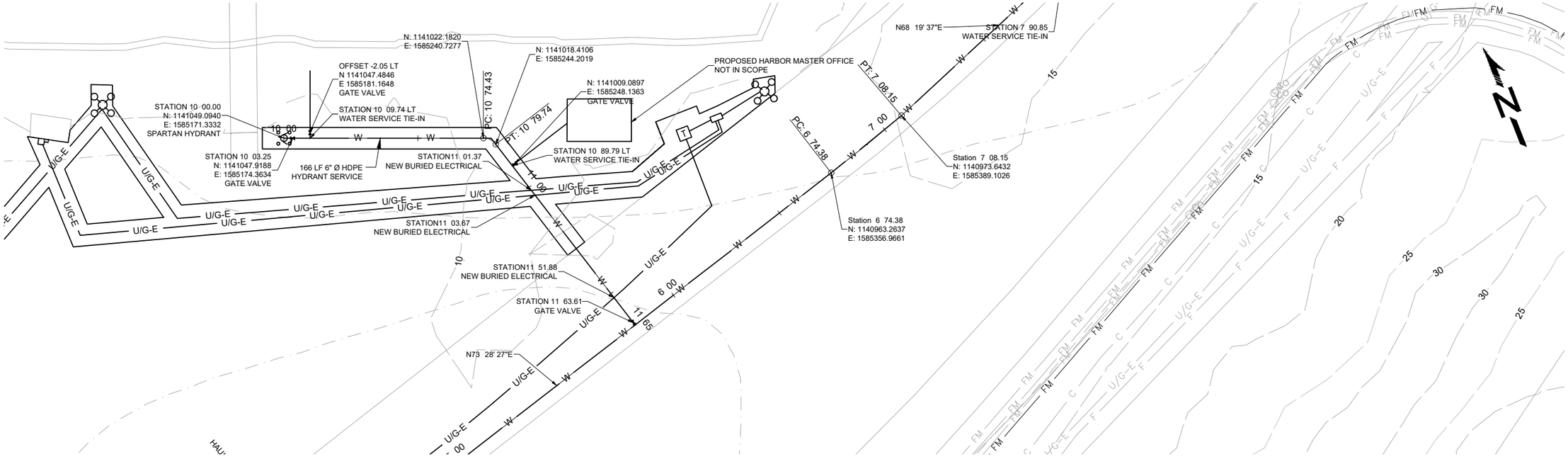
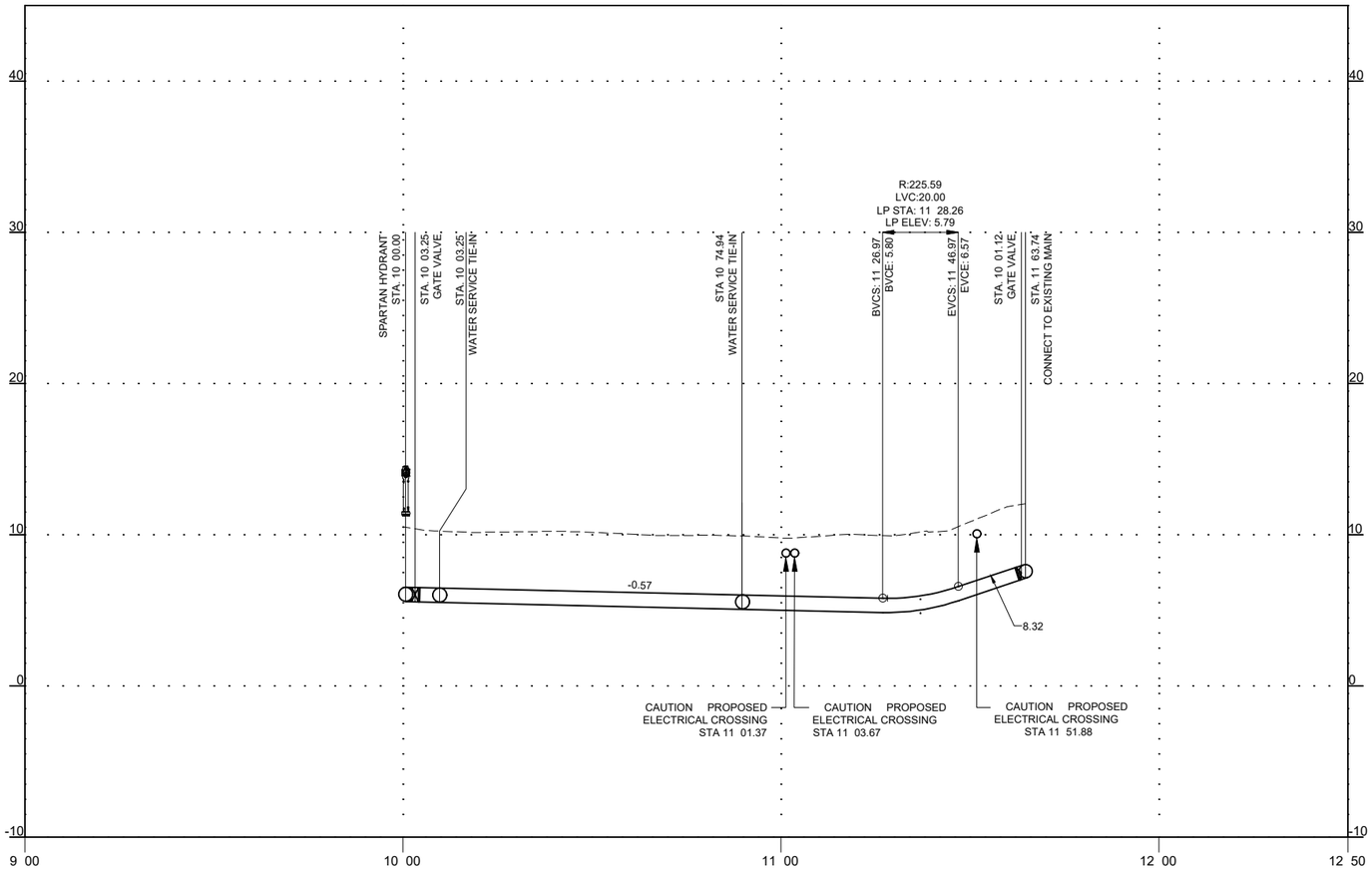
APPROVED	DEN
LAST EDIT	3/27/24
PLOT DATE	3/27/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN PLAN & PROFILE

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630 C-304X-WATER MAIN P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-306





SCALE
HOR : 1" 20'
VERT: 1" 10'

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SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN PLAN & PROFILE

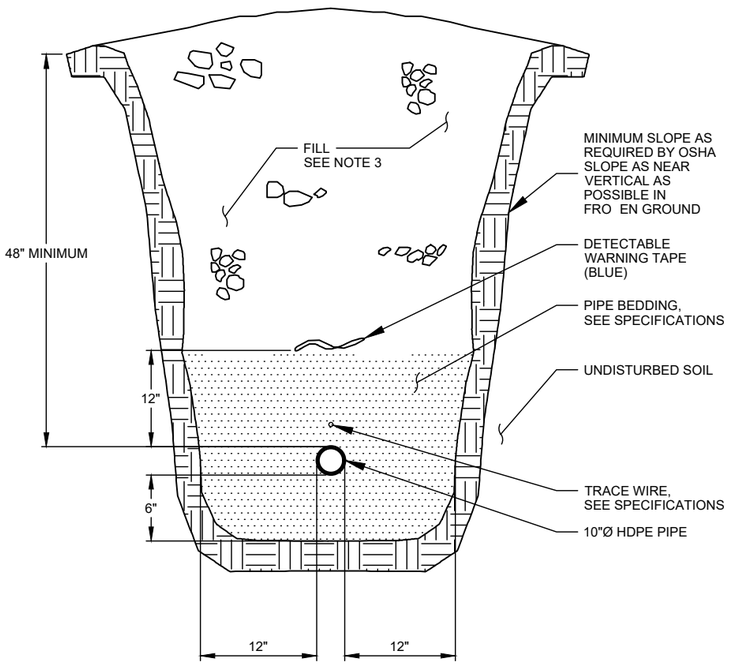
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630 C-304X-WATER MAIN P&P.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-307

10" HDPE WATER PIPE (1 / C-308)
SCALE:N.T.S.

10"Ø HDPE WATER MAIN PIPE

NOMINAL CORE PIPE DIAMETER (TYP)	LOCATION
10"	MAINLINES



10" WATER PIPE TRENCH DETAIL (2 / C-308)
SCALE:N.T.S.

NOTES:

1. NO PIPES SHALL BE INSTALLED WITH LESS THAN 48 INCHES OF COVER.
2. COMPACT WILL BE NATIVE BACKFILL EXCAVATED FROM TRENCH.
3. IF NATIVE BACKFILL MATERIAL IS DEEMED NOT FIT FOR REINSTALLATION, USE STRUCTURAL FILL IN PLACE.

ISSUED FOR CONSTRUCTION

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SUBMITTAL	03/27/24

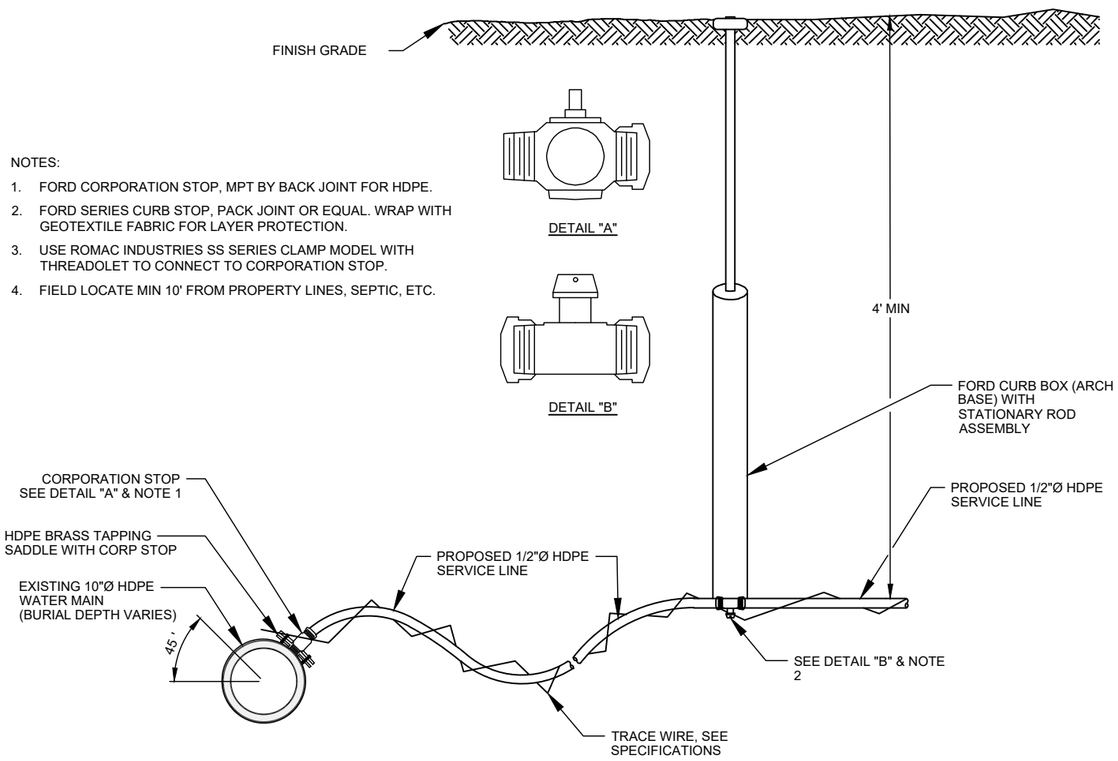
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN FITTINGS & TRENCHING DETAILS

PROJECT NUMBER 165.030630
DRAWING FILE NAME 030630-C-308 & C-310-PIPE & TRENCH DETAILS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-308

NOTES:

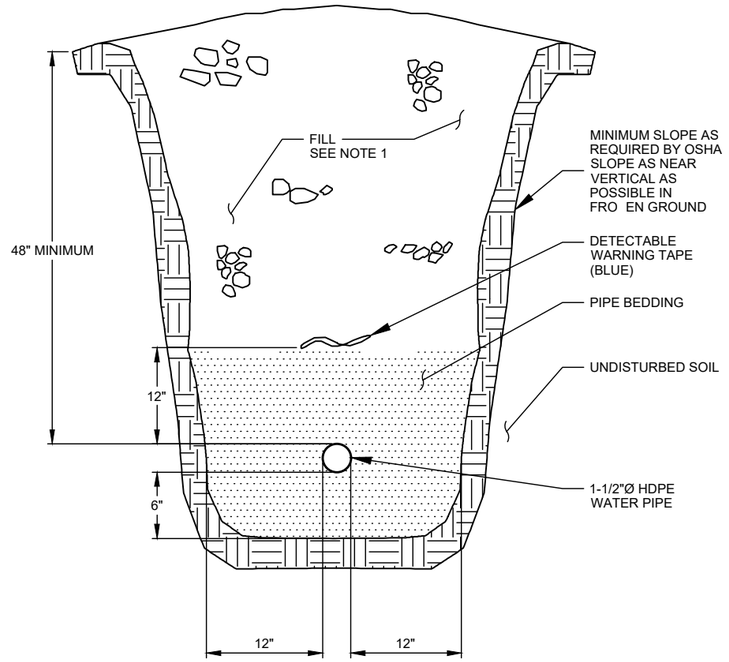
1. FORD CORPORATION STOP, MPT BY BACK JOINT FOR HDPE.
2. FORD SERIES CURB STOP, PACK JOINT OR EQUAL. WRAP WITH GEOTEXTILE FABRIC FOR LAYER PROTECTION.
3. USE ROMAC INDUSTRIES SS SERIES CLAMP MODEL WITH THREADOLET TO CONNECT TO CORPORATION STOP.
4. FIELD LOCATE MIN 10' FROM PROPERTY LINES, SEPTIC, ETC.



1/2" WATER SERVICE CONNECT — 1 / C-309
SCALE:N.T.S.

NOTES:

1. NO PIPES SHALL BE INSTALLED WITH LESS THAN 48 INCHES OF COVER.
2. COMPACT WILL BE NATIVE BACKFILL EXCAVATED FROM TRENCH.
3. IF NATIVE BACKFILL MATERIAL IS DEEMED NOT FIT FOR REINSTALLATION, USE STRUCTURAL FILL IN PLACE.



WATER SERVICE TRENCH DETAIL — 2 / C-309
SCALE:N.T.S.

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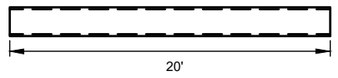
LAST EDIT		
PLOT DATE		
SUBMITTAL		

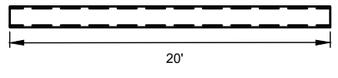
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER SERVICE & TRENCH DETAILS

PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630-C-309-WATER SERVICE & TRENCH DETAILS.DWG
DRAWING SCALE: AS SHOWN

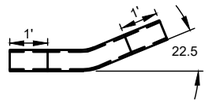
SHEET NUMBER
C-309



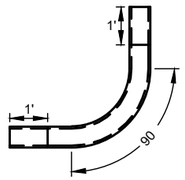
8" HDPE GRAVITY SEWER PIPE (1 / C-310)
SCALE:N.T.S.



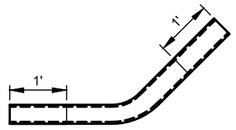
6" HDPE PIPE (2 / C-310)
SCALE:N.T.S.



6" 22.5-ANGLE FITTING (3 / C-310)
SCALE:N.T.S.



6" 90-ANGLE FITTING (4 / C-310)
SCALE:N.T.S.



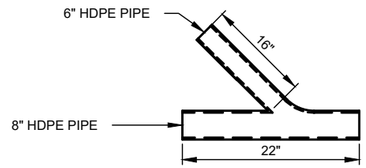
4" 45-ANGLE FITTING (5 / C-310)
SCALE:N.T.S.

8" HDPE GRAVITY PIPE

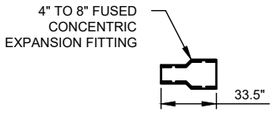
NOMINAL CORE PIPE DIAMETER (TYP)	LOCATION
8"	MAINLINES & SERVICES

6"Ø HDPE FORCE MAIN PIPE

NOMINAL CORE PIPE DIAMETER (TYP)	LOCATION
6"	FORCE MAINS



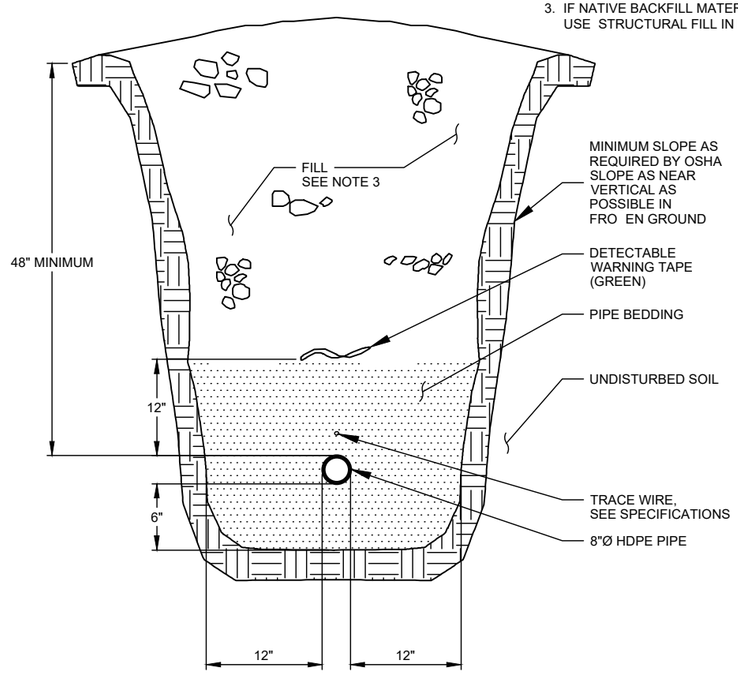
6" TO 8" WYE FITTING (8 / C-310)
SCALE:N.T.S.



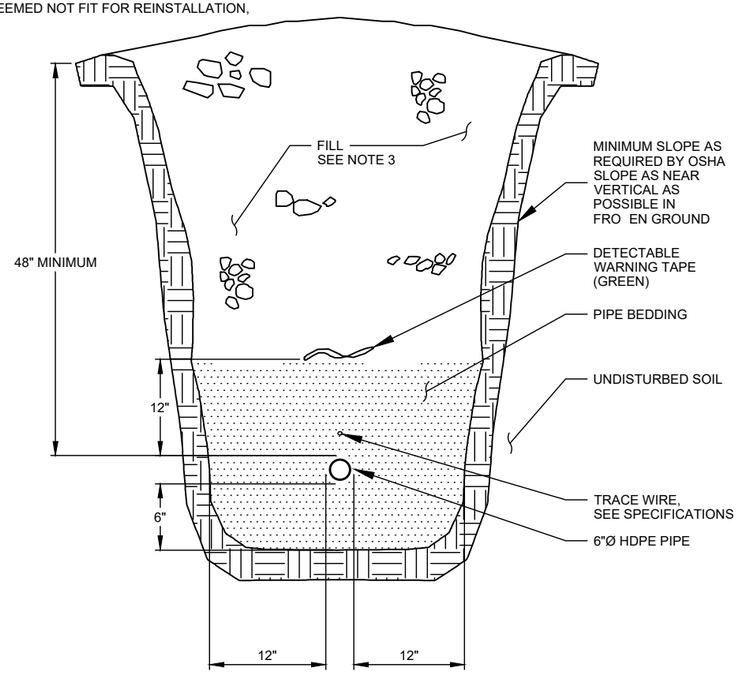
4" TO 8" EXPANSION JOINT (9 / C-310)
SCALE:N.T.S.

NOTES:

1. NO PIPES SHALL BE INSTALLED WITH LESS THAN 48 INCHES OF COVER.
2. COMPACT WILL BE NATIVE BACKFILL EXCAVATED FROM TRENCH.
3. IF NATIVE BACKFILL MATERIAL IS DEEMED NOT FIT FOR REINSTALLATION, USE STRUCTURAL FILL IN PLACE.



8" SEWER PIPE TRENCH DETAIL (6 / C-310)
SCALE:N.T.S.



6" SEWER PIPE TRENCH DETAIL (7 / C-310)
SCALE:N.T.S.

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STATE OF ALASKA 49TH
Daniel E Nichols
No. CE 11012
4/3/24
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

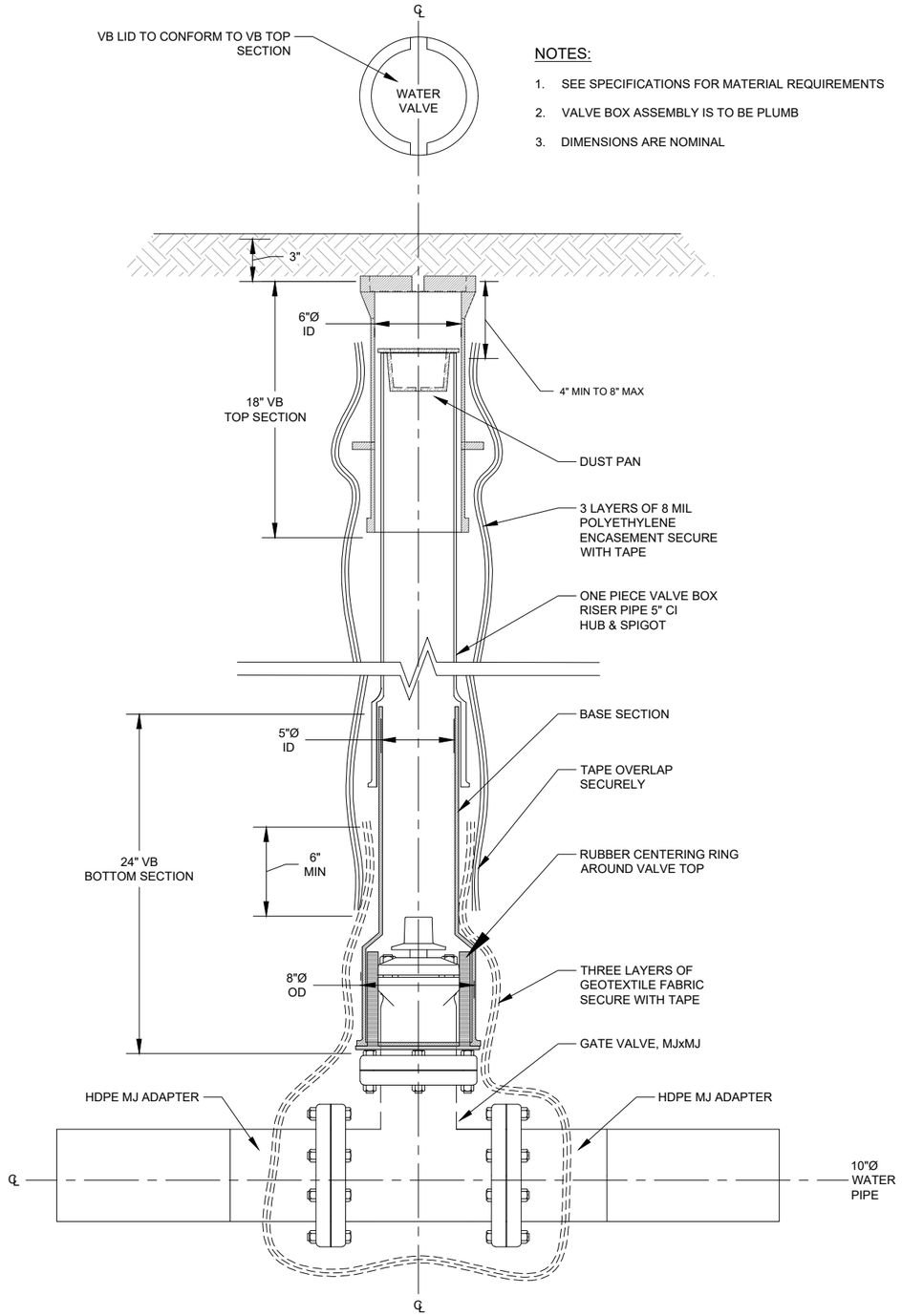
#	DATE	REMARKS

MANAGEMENT		
DESIGNED	BJK	3/27/24
DRAWN	BJK	3/27/24
CHECKED	BJD	3/27/24
APPROVED	DEN	3/27/24
LAST EDIT		
PLOT DATE		
SUBMITTAL		

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SEWER PIPE FITTINGS & TRENCHING DETAILS

PROJECT NUMBER 165.030630
DRAWING FILE NAME 030630-C-308 & C-310-PIPE & TRENCH DETAILS.DWG
DRAWING SCALE AS SHOWN

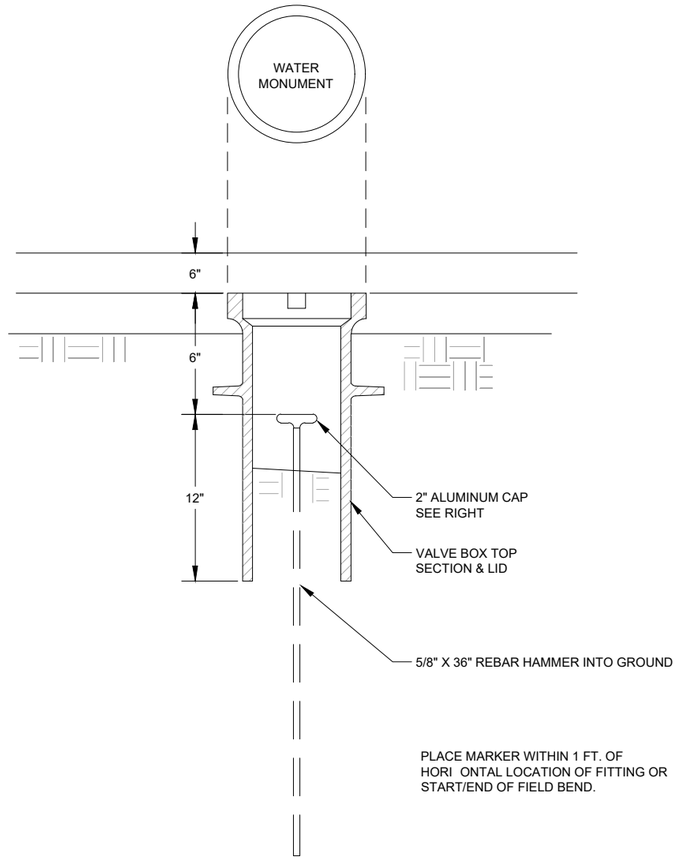
SHEET NUMBER
C-310



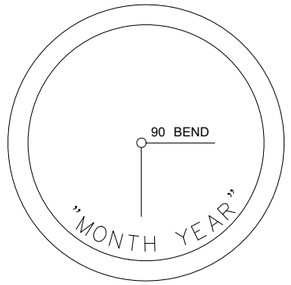
TYPICAL VALVE BOX ASSEMBLY (1 / C-311)
SCALE:N.T.S.

NOTES:

1. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS
2. VALVE BOX ASSEMBLY IS TO BE PLUMB
3. DIMENSIONS ARE NOMINAL



TYPICAL PIPE ANGLE MARKER (2 / C-311)
SCALE:N.T.S.



2" ALUMINUM CAP, TYPE A

NOTE: DIRECTION OF BEND SHOWN ON ALUMINUM CAP SHALL MATCH DIRECTION OF ACTUAL INSTALLED WATER MAIN BEND.

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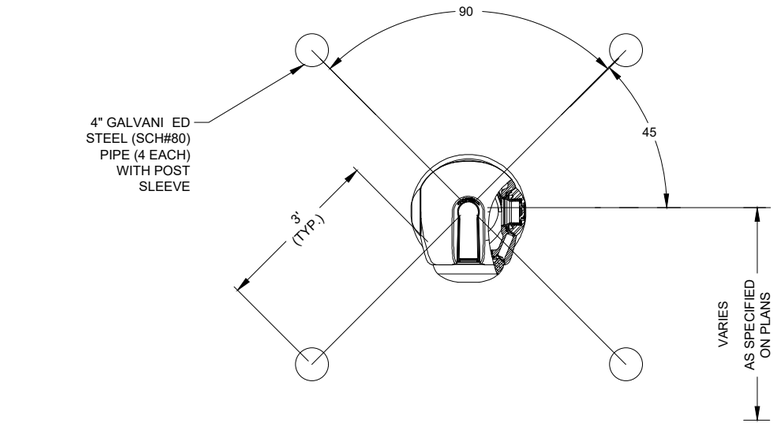
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WATER MAIN VALVE DETAILS

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630_C-311-WATER MAIN VALVE DETAILS.DWG

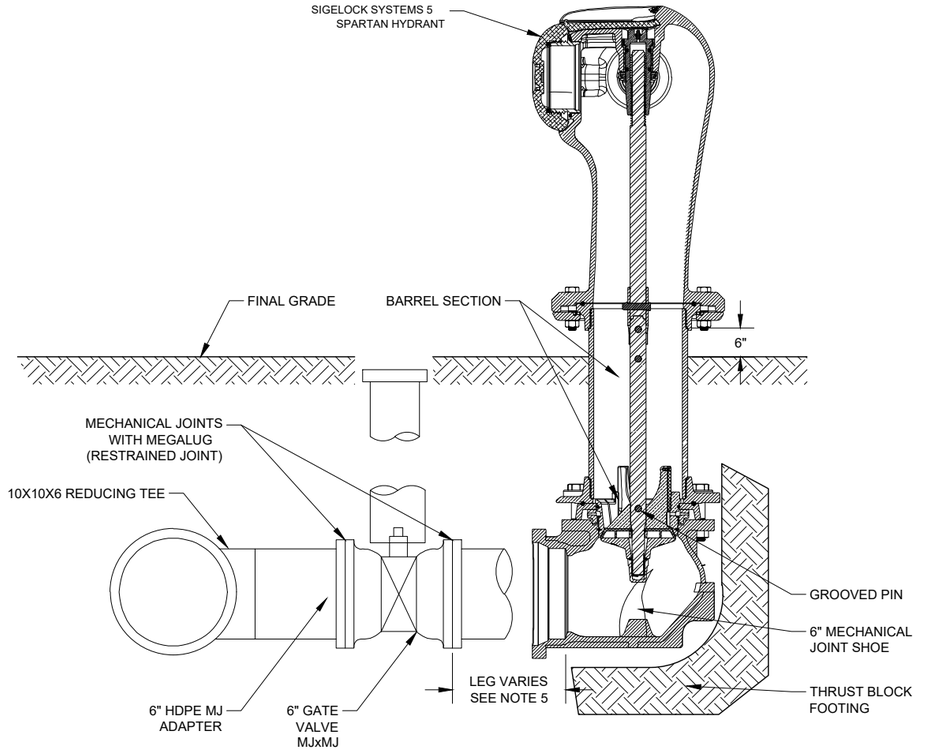
SHEET NUMBER
C-311



NOTES:

1. GUARD POSTS WILL BE FURNISHED & INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
2. GUARD POSTS SHALL BE INSTALLED PLUMB AND LOCATED TO ALLOW UNRESTRICTED ACCESS TO PUMPER AND HOSE CONNECTIONS.

HYDRANT BOLLARD DETAIL 1 / C-312
SCALE:N.T.S.



HYDRANT INSTALLATION NOTES:

1. HYDRANT BARREL MUST BE INSTALLED PLUMB AND THE LEG SHALL BE LEVEL.
2. DRAIN PLUGS TO BE PROVIDED BY CONTRACTOR.
3. HYDRANT GATE VALVE BOX TO BE INSTALLED ACCORDING TO DETAIL FOR TYPICAL VALVE BOX.
4. ALL PIPE AND FITTINGS FROM THE MAIN TO THE HYDRANT SHOE SHALL BE RESTRAINED BY USE OF MEGALUG AND OR LOK GASKETS OR EQUAL.
5. WHERE NO OFFSET IS CALLED OUT ON THE PLANS, LEG LENGTH 0 FT.

SPARTAN HYDRANT DETAIL 2 / C-312
SCALE:N.T.S.

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SUBMITTAL	03/27/24

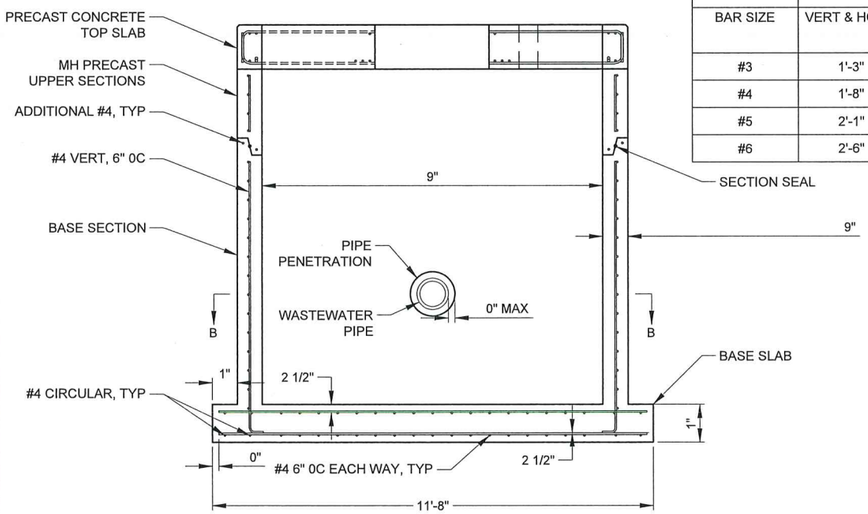
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
HYDRANT & BOLLARD DETAILS

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 030630_C_312-HYDRANT & BOLLARD DETAILS.DWG

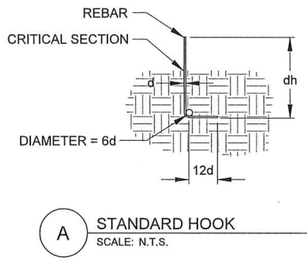
SHEET NUMBER
C-312

REINFORCING BAR HOOK & LAP SCHEDULE

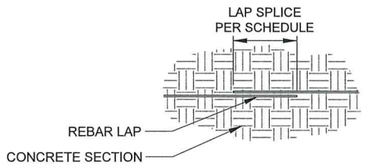
	LAP SPLICE		STANDARD HOOK	
BAR SIZE	VERT & HORIZ	TOP BAR	HOOK LENGTH 'A'	DEVELOPMENT LENGTH (dh)
#3	1'-3"	1'-7"	0'-6"	0'-6"
#4	1'-8"	2'-1"	0'-8"	0'-8"
#5	2'-1"	2'-7"	0'-10"	0'-10"
#6	2'-6"	3'-1"	1'-0"	1'-0"



WET WELL SECTION (1 / C-400)
SCALE: 1/2" = 1'



A STANDARD HOOK
SCALE: N.T.S.



B STANDARD REBAR LAP
SCALE: N.T.S.

DESIGN CRITERIA (DC):

1. MAX DEPTH OF BURY = 35 FEET.
2. SNOW LOAD = 40 PSF.
3. DEAD LOAD = 100 PSF.
4. CONCRETE DESIGNED IN ACCORDANCE WITH ACI 318-14.
5. BACKFILL MATERIAL MINIMUM REQUIREMENT IS NON FROST SUSCEPTIBLE GRANULAR FILL WITH COMPACTED DENSITY 110 PCF MIN AND MINIMUM ANGLE OF FRICTION = 30 DEGREES.

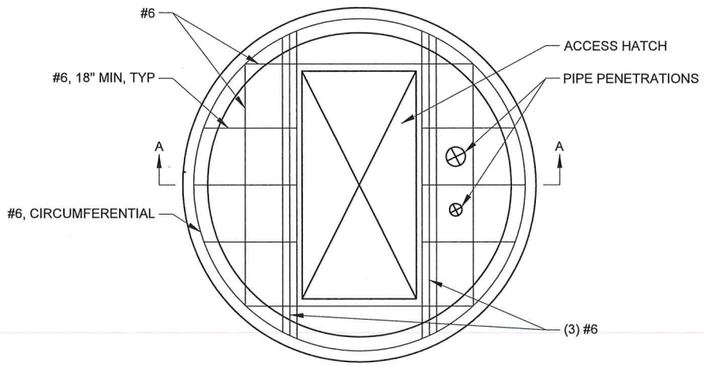
REBAR NOTES:

1. LAP LENGTHS ARE BASES ON MINIMUM COVER REQUIREMENTS INDICATED.
2. TOP BAR LAPS ARE HORIZONTAL LAPS WHERE MORE THAN 12" OF FRESH CONCRETE IS PLACED BELOW THE BARS.

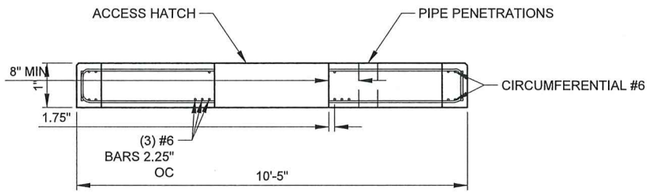
GENERAL NOTES:

1. ALL DRAINAGE STRUCTURES SHALL MEET THE REQUIREMENTS OF ASTM C-478 AND ACI 318-14.
2. RUBBER GASKET JOINTS, GROUTED JOINTS, OR PREFORMED PLASTIC TYPE GASKET JOINTS ARE TO BE USED ON WET WELL JOINTS AND PENETRATIONS TO PROVIDE WATER TIGHT SEALING.
3. REDUCING SLAB CONCRETE EXPOSURE CLASS F3/S3/W1/C2, MINIMUM COMPRESSIVE STRENGTH (f'c) = 5000 PSI, MAXIMUM WATER CONTENT (W/CM) = 0.40, TYPE V CEMENT WITH POZZOLAN OR SLAG CEMENT OR ASTM C595 IP, IS, OR IT WITH (HS) DESIGNATION PLUS POZZOLAN OR SLAG CEMENT, IN ACCORDANCE WITH ASTM C1012, 3/4" MAXIMUM AGGREGATE SIZE, 6% MINIMUM AIR CONTENT, AND LESS THAN 0.15 CHLORIDE ION MIX WATER BY WEIGHT OF CEMENT. MAXIMUM PERCENTAGE OF POZZOLANS SHALL CONFORM WITH ACI 318 TABLE 26.4.2.2(b).
4. ALL OTHER CONCRETE EXPOSURE CLASS F2/S1/W1/C1 MINIMUM COMPRESSIVE STRENGTH (F'c) = 4500 PSI, TYPE V CEMENT, MAXIMUM WATER CONTENT (W/CM) = 0.45, 3/4" MAXIMUM AGGREGATE SIZE, 6% MINIMUM AIR CONTENT, AND LESS THAN 0.30 CHLORIDE ION MIX WATER BY WEIGHT OF CEMENT.
5. ALL BARS SHALL BE CONTINUOUS. CIRCULAR BARS LAPPED A MINIMUM OF 48 BAR DIAMETERS.
6. MAINTAIN A MINIMUM OF 1 1/2" OF CONCRETE COVER OVER ALL REBAR.
7. EXTEND PIPE A MINIMUM OF 2" INTO MANHOLE.
8. PLACE WET WELL BASE ON 12" MINIMUM COMPACTED AGGREGATE BASE COURSE, GRADING D-1.
9. WALL PENETRATION DIAMETER "D" SHALL NOT EXCEED PIPE O.D.+4 INCHES.
10. LIFTING INSERTS SHALL BE DESIGNED FOR A LOAD EQUIVALENT TO FOUR TIMES THE MAXIMUM LOAD TRANSMITTED TO THE INSERT.
11. REINFORCEMENT SHALL BE GRADE 60 CONFORMING TO ASTM A615/A 615M.
12. CONTRACTOR TO SUBMIT FOR APPROVAL DESIGNS FOR BASE SEAL, SECTION SEAL, ACCESS HATCH, PIPE SEAL, SENSOR HANGERS, AND PIPE SUPPORTS.

PIPE DIA INCH	MIN ANGLE DEG	PIPE DIA INCH	MIN ANGLE DEG
60	120	30	70
56	115	28	65
52	105	26	65
48	100	24	60
46	95	22	60
44	90	20	55
42	90	18	50
40	85	16	50
38	80	14	45
36	80	12	45
34	75	10	40
32	70	8	40

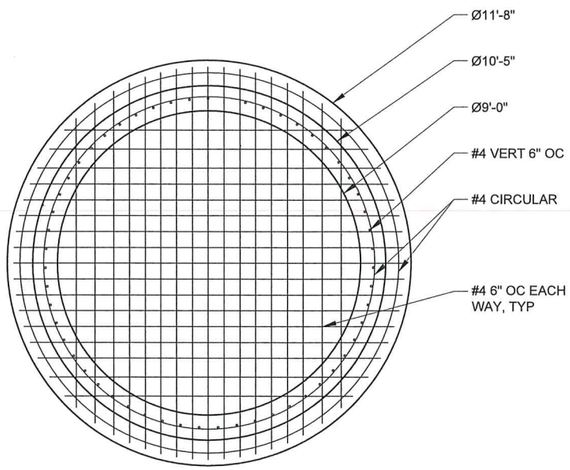


TOP SLAB REINFORCING - PLAN (2 / C-400)
SCALE: 1/2" = 1'

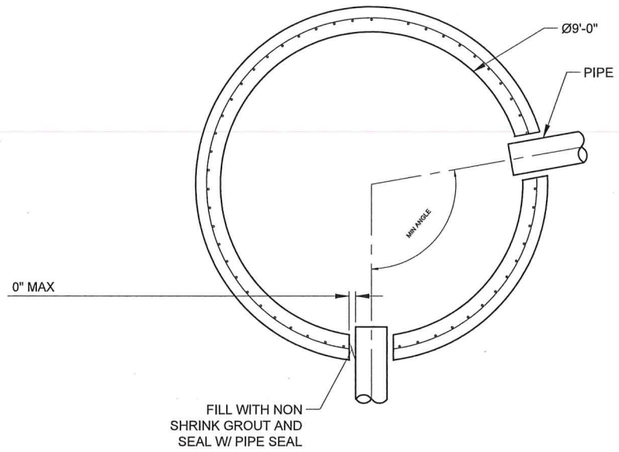


A SECTION A-A
TOP SLAB REINFORCING
SCALE: 1/2" = 1'

TYPICAL REINFORCING HOOK & LAP BAR SCHEDULE (3 / C-400)
SCALE: 1/2" = 1'



BASE SLAB PLAN
TOP AND BOTTOM REINFORCEMENT LAYERS (4 / C-400)
SCALE: 1/2" = 1'



B SECTION B-B
PIPE PENETRATIONS
SCALE: 1/2" = 1'

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STATE OF ALASKA 49TH
DANIEL RERTRICH
29 MAR 2024
SE# 126439
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

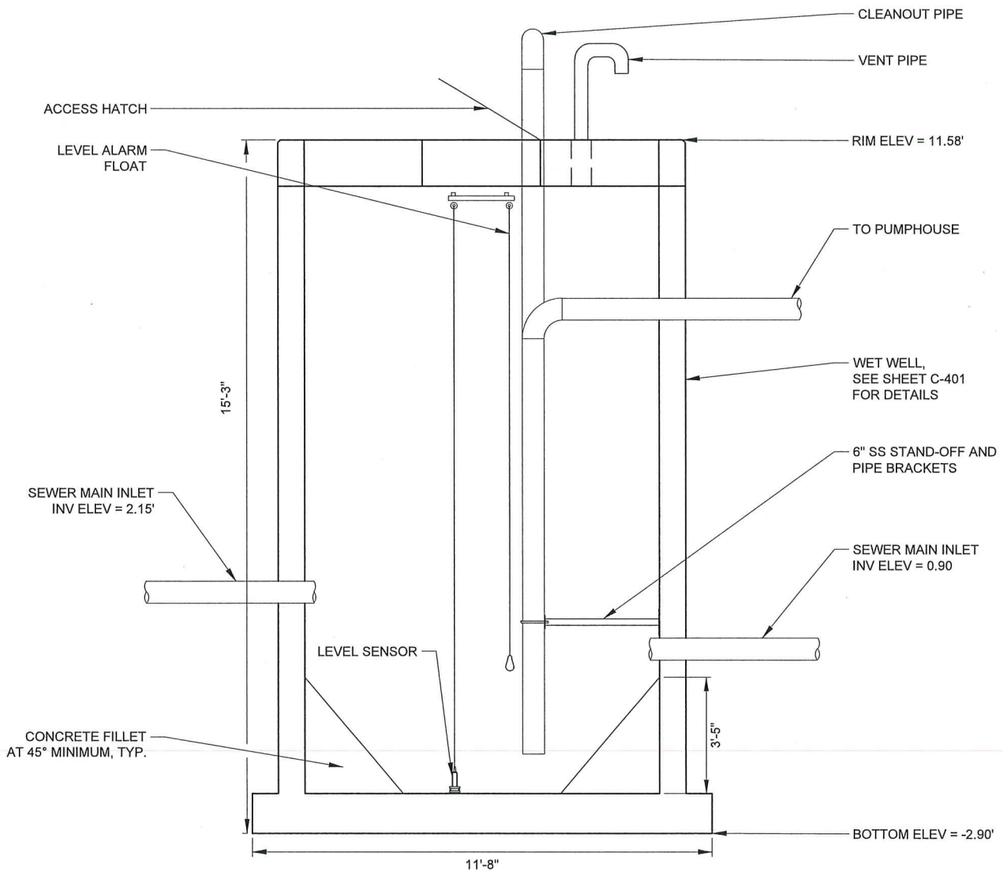
#	DATE	REMARKS

MANAGEMENT	
DESIGNED	RW
DRAWN	RW
CHECKED	BJD
APPROVED	DEN
LAST EDIT	3/27/24
PLOT DATE	3/27/24
SUBMITTAL	03/27/24

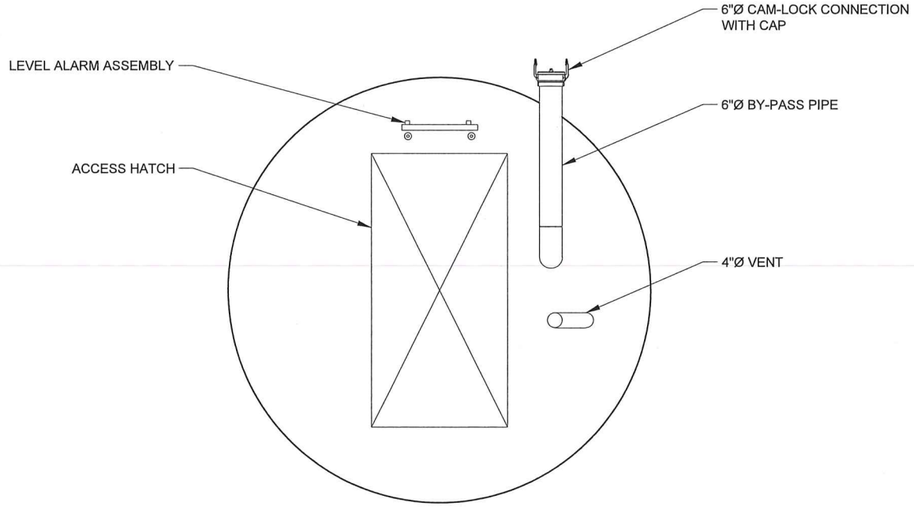
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WET WELL DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-C-400X-MH & WET WELL DETAILS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-400



WET WELL ELEVATION - GENERAL ARRANGEMENT (1/401)
SCALE:1/2" = 1'



WET WELL PLAN - GENERAL ARRANGEMENT (2/401)
SCALE:1/2" = 1'

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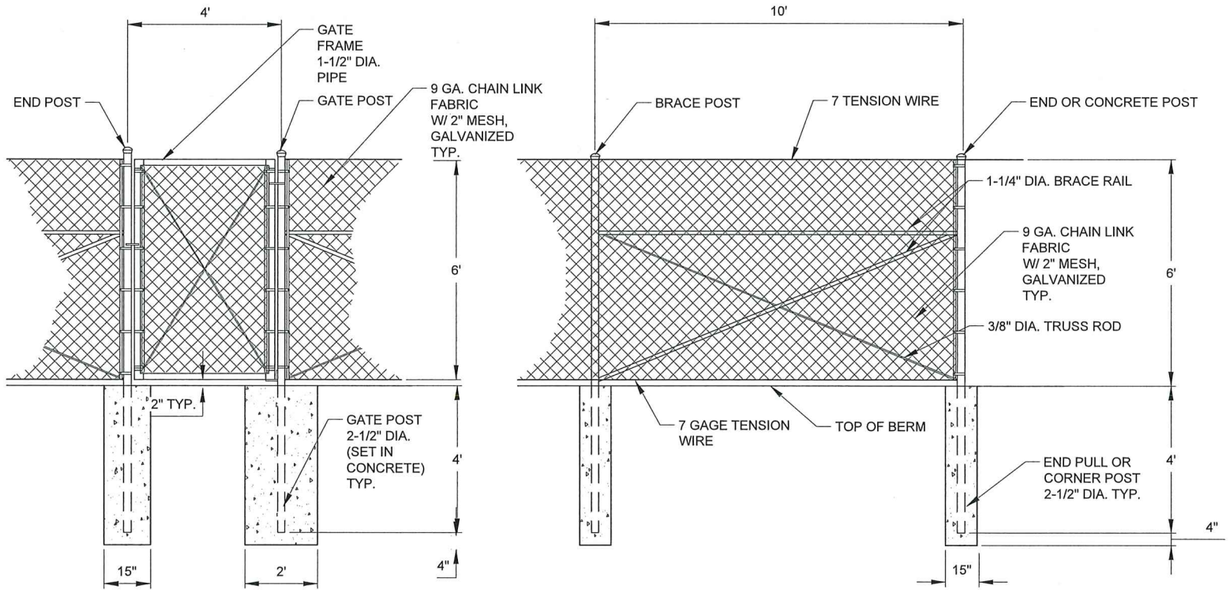
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
WET WELL PLAN - GENERAL ARRANGEMENT

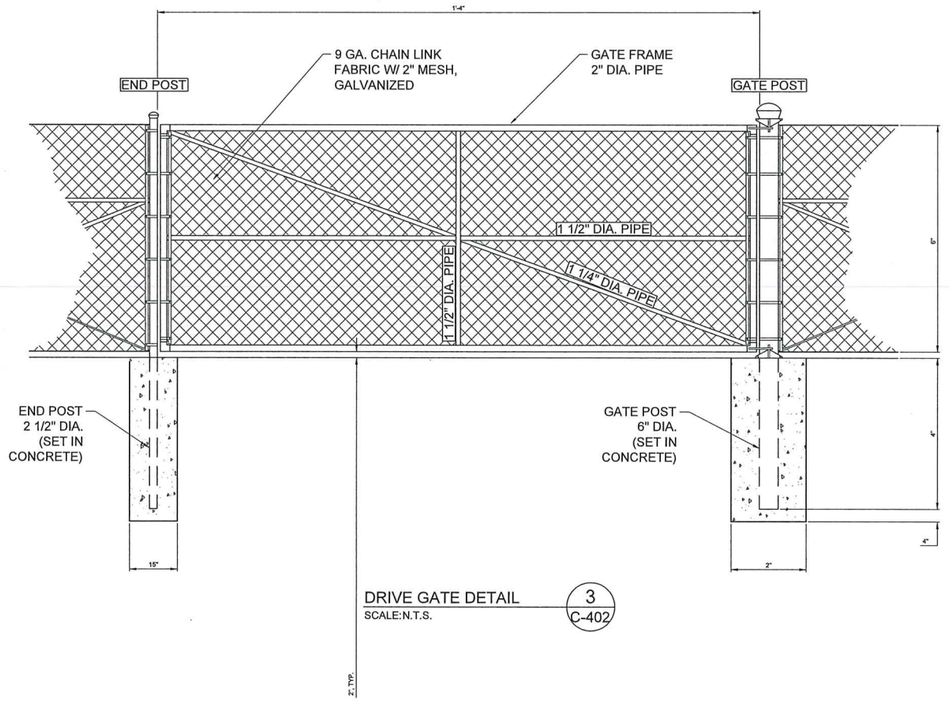
PROJECT NUMBER 165.030630
DRAWING FILE NAME 030630-C-400X-MH & WET WELL DETAILS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-401



WALK GATE DETAIL — 1 / C-402
SCALE:N.T.S.

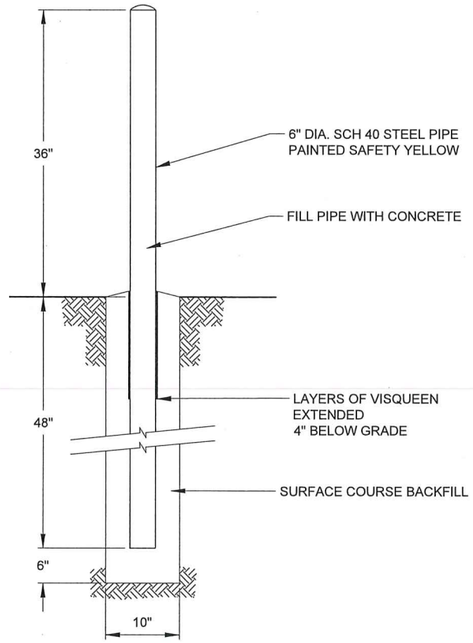
CHAIN LINK FENCE DETAIL — 2 / C-402
SCALE:N.T.S.



DRIVE GATE DETAIL — 3 / C-402
SCALE:N.T.S.

FENCE AND GATE NOTES:

1. DETAILS SHOWN ARE TO INDICATE GENERAL DESIGN, ONLY. DIMENSIONS MAY VARY SLIGHTLY AMONG MANUFACTURERS.
2. POSTS SHALL BE SPACED EQUAL DISTANCES APART. MAXIMUM SPACING SHALL BE 10 FEET, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. POST TOPS SHALL BE SECURELY FASTENED TO POSTS.
4. BRACE RAILS AND TRUSS RODS SHALL BE SECURELY FASTENED TO POSTS WITH BRACE BANDS WITH THREADED TAKE-UP ADAPTER FOR TRUSS RODS.
5. FABRIC SHALL BE STRETCHED TO A SMOOTH UNIFORM APPEARANCE.
6. BRACE, PULL, END, CORNER, AND GATE POSTS SHALL BE SET IN CONCRETE.
7. GATE FABRIC SHALL BE OF SAME DESIGN AND HEIGHT AS THE LINE FENCE FABRIC.
8. LINE FENCE FABRIC SHALL BE FURNISHED WITH BARBED SELVAGE, TOP AND BOTTOM.
9. GATE FABRIC SHALL BE FURNISHED WITH KNUCKLE SELVAGE, TOP AND BOTTOM.
10. CONCRETE FOR FOOTINGS SHALL BE CLASS W CONCRETE (2,500 PSI).
11. GATE FRAMES MAY BE FABRICATED BY WELDING OR RIVETING AND SHALL BE BRACED TO ELIMINATE SAGGING. HINGES, LATCHES, AND OTHER GATE APPURTENANCES SHALL BE OF SUFFICIENT STRENGTH AND DESIGN TO ASSURE EASY TROUBLE-FREE OPERATION.



BOLLARD DETAIL — 4 / C-402
SCALE:N.T.S.

BOLLARD DETAIL NOTE:

1. MOUND CONCRETE ON TOP TO SHED WATER

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STATE OF ALASKA · 49TH · DANIEL HERTRICH · 29MAR2024 · SE# 126439 · REGISTERED STRUCTURAL ENGINEER

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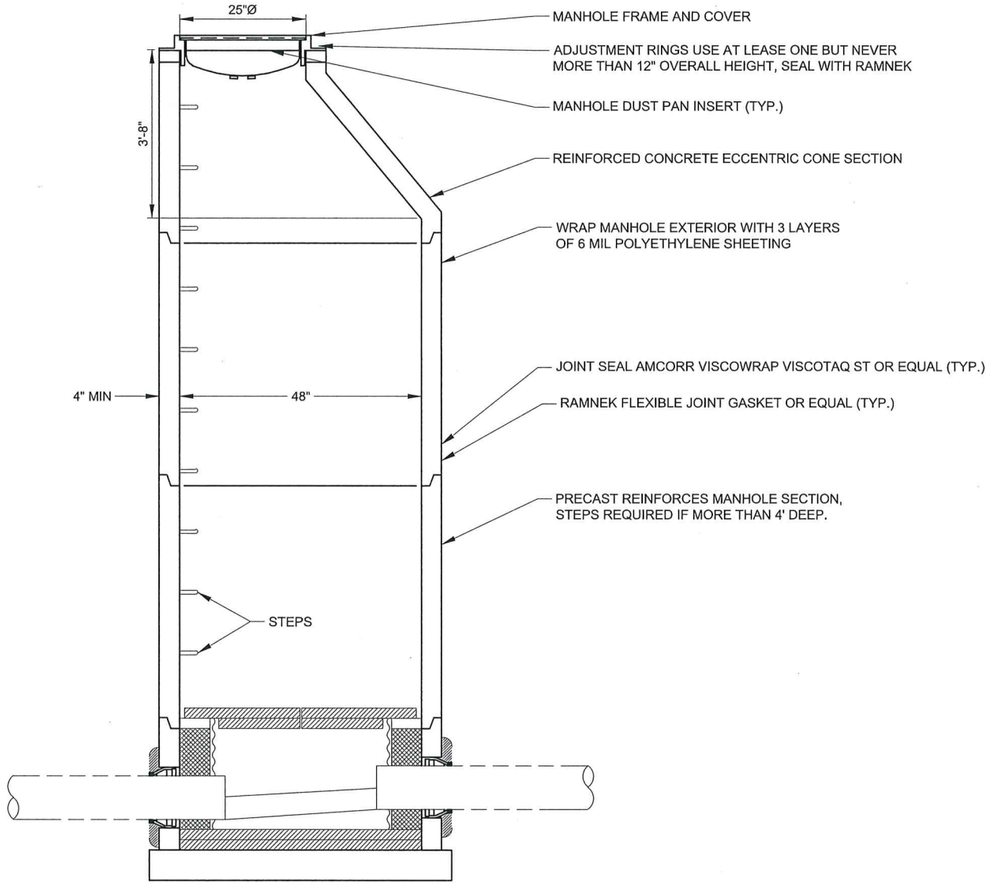
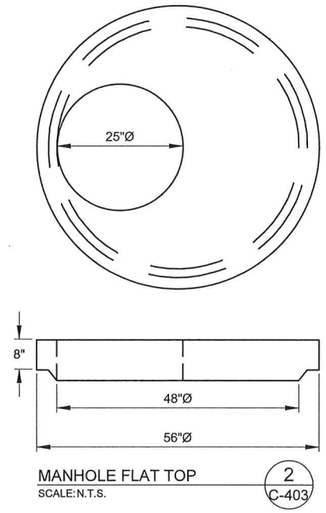
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
CHAIN LINK FENCE & BOLLARD DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-C-400X-MH & WET WELL DETAILS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-402



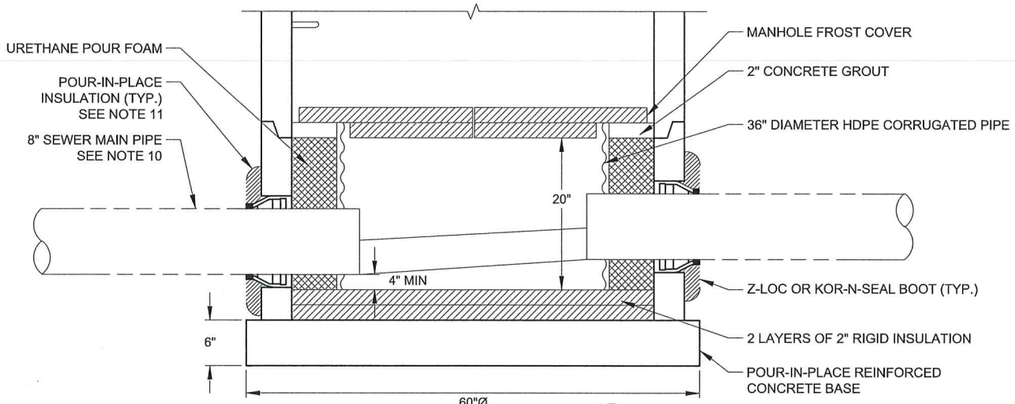
MANHOLE DETAIL (1, C-403)
SCALE:N.T.S.



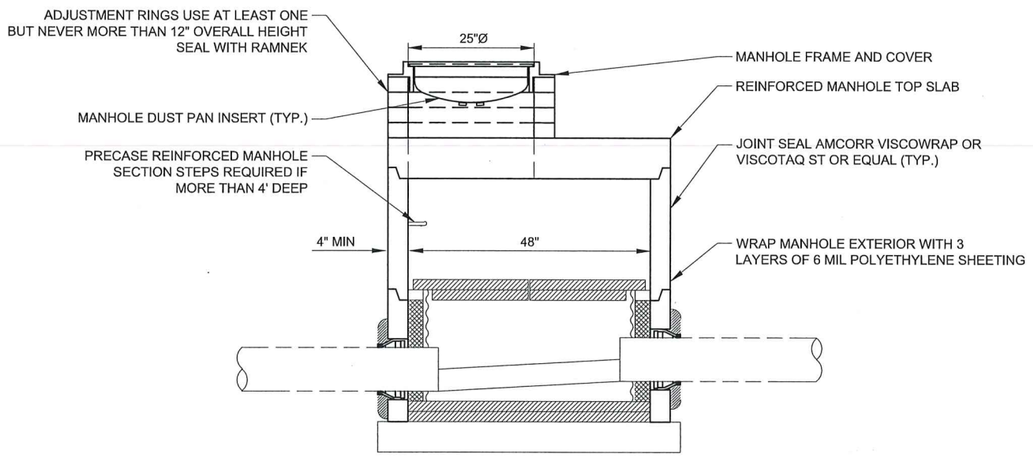
MANHOLE FLAT TOP (2, C-403)
SCALE:N.T.S.

NOTES:

1. DUST PANS (MANHOLE INSERTS) SHOULD BE INSTALLED IN ALL MANHOLES.
2. MANHOLE AND CLEAN-OUT FRAMES AND COVERS SHOULD BE INSTALLED AS NOTED UNDER MANHOLE HEIGHTS.
3. ALL SEWER MAIN LINE STUB-OUTS SHOULD BE PLUGGED AND MARKED WITH A 2X4 PRESSURE TREATED WOOD POST PAINTED GREEN. THE POST SHALL EXTEND APPROXIMATELY 24" ABOVE GRADE.
4. MANHOLE RISER SECTIONS SHOULD BE FASTENED TO RESIST PULLING APART DUE TO FROST HEAVE BY INSTALLING 3 EACH HOT DIPPED GALVANIZED STEEL BARS (2" X 10" X 1/4") PER JOINT AND FASTENED TO THE CONCRETE USING 5/8"Ø ANCHOR BOLTS (REDHEAD OR EQUAL) - 2 PER BAR.
5. PIPE INVERT FOR INSULATED MANHOLES SHALL BE PLACED 6" ABOVE THE INTERIOR BASE SLAB.
6. CHECK BUOYANCY OF MANHOLE HIGH GROUNDWATER CONDITIONS.
7. ALL MANHOLE BASES SHOULD BE 24" HIGH UNLESS OTHERWISE SPECIFIED.
8. SEE PLAN AND PROFILE SHEETS FOR ORIENTATION OF PIPE PENETRATIONS AND INVERT ELEVATIONS.
9. USE A BEAVER SLIDE FRO DROP WHEN DISTANCE BETWEEN INVERTS IS LESS THAN 33".
10. SEE PIPE SPECIFICATIONS AND DETAILS.
11. SEAL GAP WITH POUR-IN-PLACE INSULATION (TYP.), INSTALL 2" THICK CONCRETE GROUT LEVELING COURSE ON TOP OF INSULATION.



INSULATED MANHOLE BASE DETAIL (3, C-403)
SCALE:N.T.S.



SHALLOW GRADE MANHOLE DETAIL (4, C-403)
SCALE:N.T.S.

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SEW 126439
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	BJK
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LAST EDIT	3/27/24
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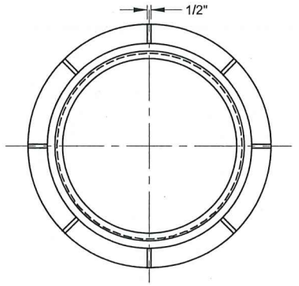
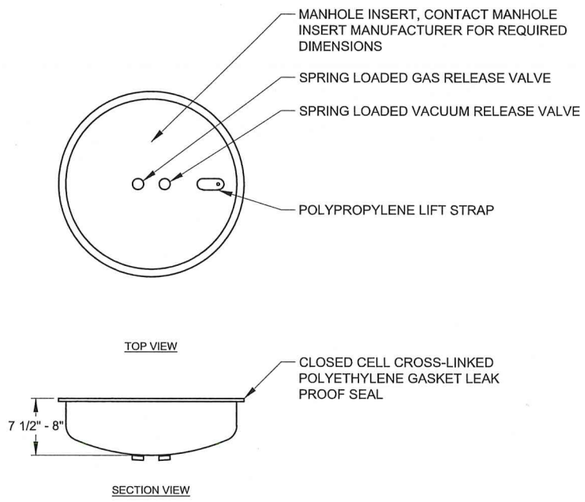
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
MANHOLE DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-C-400X-MH & WET WELL DETAILS.DWG
PROJECT NUMBER: 165.030630

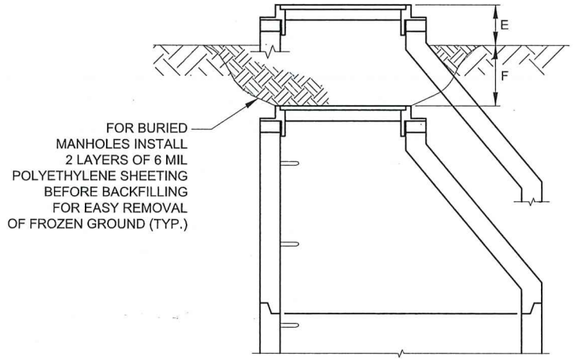
SHEET NUMBER
C-403



MANHOLE FRAME DETAIL 1 C-404
SCALE:N.T.S.

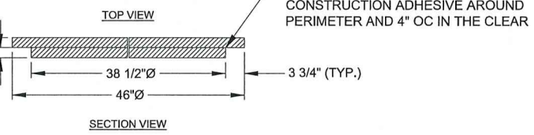


HIGH DENSITY POLYETHYLENE MANHOLE INSERT 2 C-404
SCALE:N.T.S.

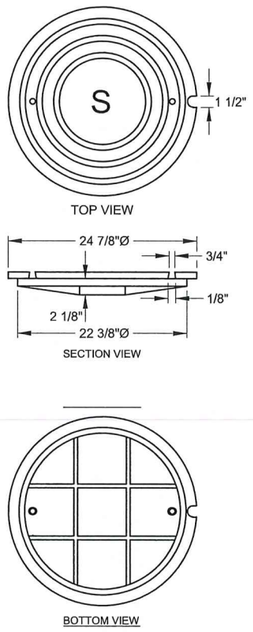


MANHOLE RIM ELEVATIONS		
LOCATIONS	E	F
BACKYARDS, GRAVEL STREETS AND ALLY AREAS WHERE TRAVELED		6" - 12"
UNDEVELOPED AND SWAMPY AREAS	24" MIN	
HIGHWAY R.O.W'S AND SWAMPY AREAS	6"	
PAVED STREETS		1/2"

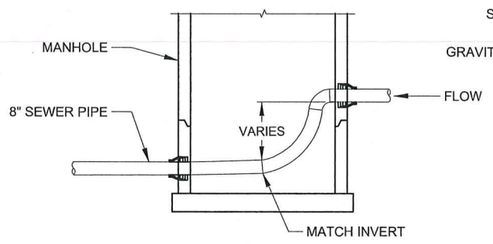
MANHOLE RIM ELEVATIONS 3 C-404
SCALE:N.T.S.



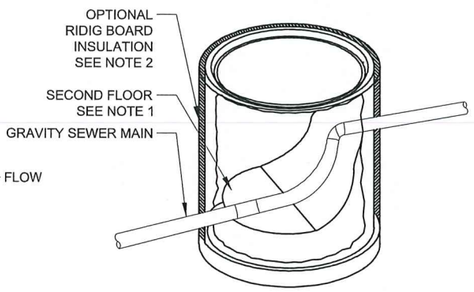
MANHOLE FROST COVER 4 C-404
SCALE:N.T.S.



CAST IRON MANHOLE LID 5 C-404
SCALE:N.T.S.



BEAVER SLIDE PROFILE 6 C-404
SCALE:N.T.S.



BEAVER SLIDE DETAIL 7 C-404
SCALE:N.T.S.

NOTES:

1. SLOPE FLOOR TO CHANNEL AT GRADE OF 1" FALL PER 12" OF RUN.
2. INSTALL RIGID BOARD INSULATION ON EXTERIOR OF MANHOLE FROM BASE TO FLAT TOP OR CONE WHEN BEAVER SLIDE IS USED. FOR COLD CLIMATE APPLICATIONS, WRAP INSULATION WITH 3 LAYERS OF 6 MIL POLYETHELYNE SHEETING. USE MANHOLE INSERT WITH 2" RIGID BOARD INSULATION DISK FOR FROST COVER.
3. USE BEAVER SLIDE AND EXTERIOR INSULATION WHEN DISTANCE BETWEEN INLET AND OUTLET INVERTS EXCEEDS 6" AND IS LESS THAN 33".

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29 MAR 2024

REVISIONS & ADDENDUMS

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MANAGEMENT	
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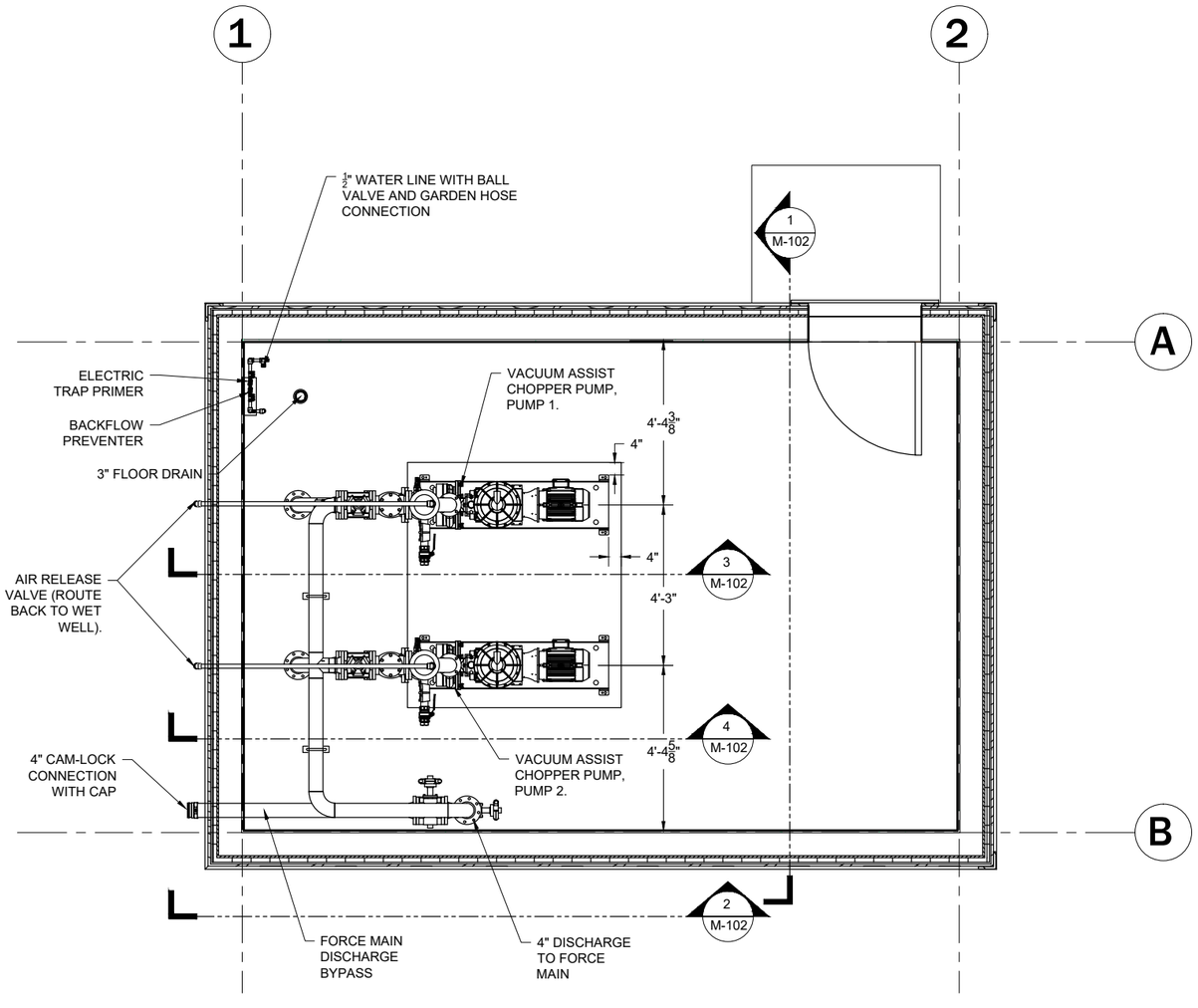
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
MANHOLE COVER DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030630-C-400X-MH & WET WELL DETAILS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
C-404

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. ADDITIONAL FLANGE CONNECTIONS CAN BE UTILI ED IF REQUIRED FOR FABRICATION REQUIREMENTS.
3. SEE CIVIL DRAWINGS FOR WET WELL PLACEMENT AND PIPE ROUTING IN RELATION TO BUILDING.
4. CONNECT TRAP PRIMER LINE TO DRAIN LINE UNDERGROUND.



1 M-101 LIFT STATION PLUMBING PLAN
SCALE: 1/2" 1'-0"

2' 0' 1' 2' 4'

ISSUED FOR CONSTRUCTION

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REVISIONS & ADDENDUMS

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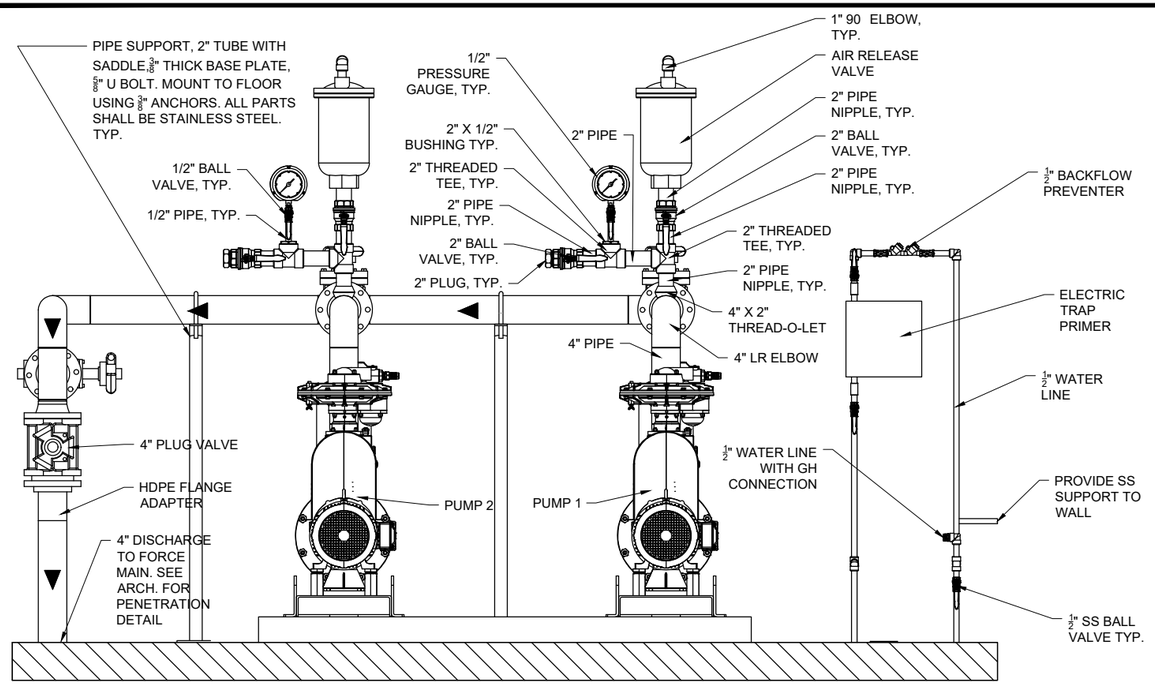
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION PIPING & EQUIPMENT PLAN

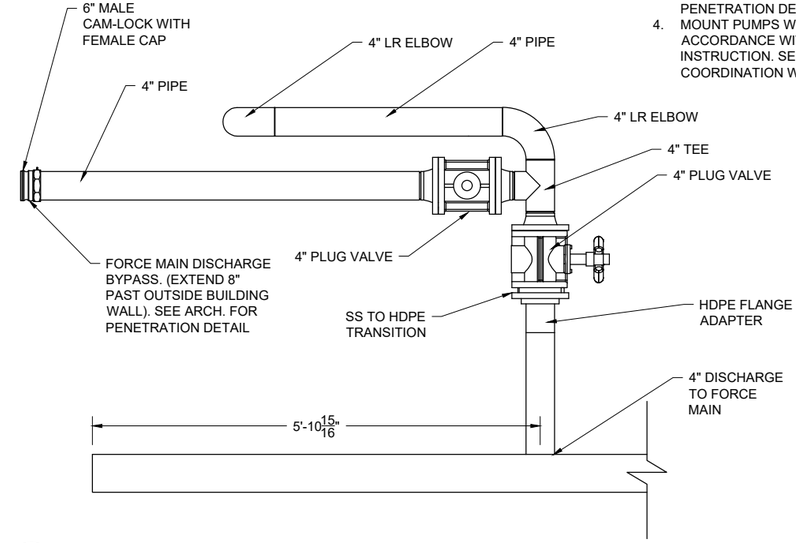
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: M-101
PROJECT NUMBER: 165.030630

SHEET NUMBER
M-101



1 M-102 ELEVATION SECTION

SCALE: 1" 1'-0"

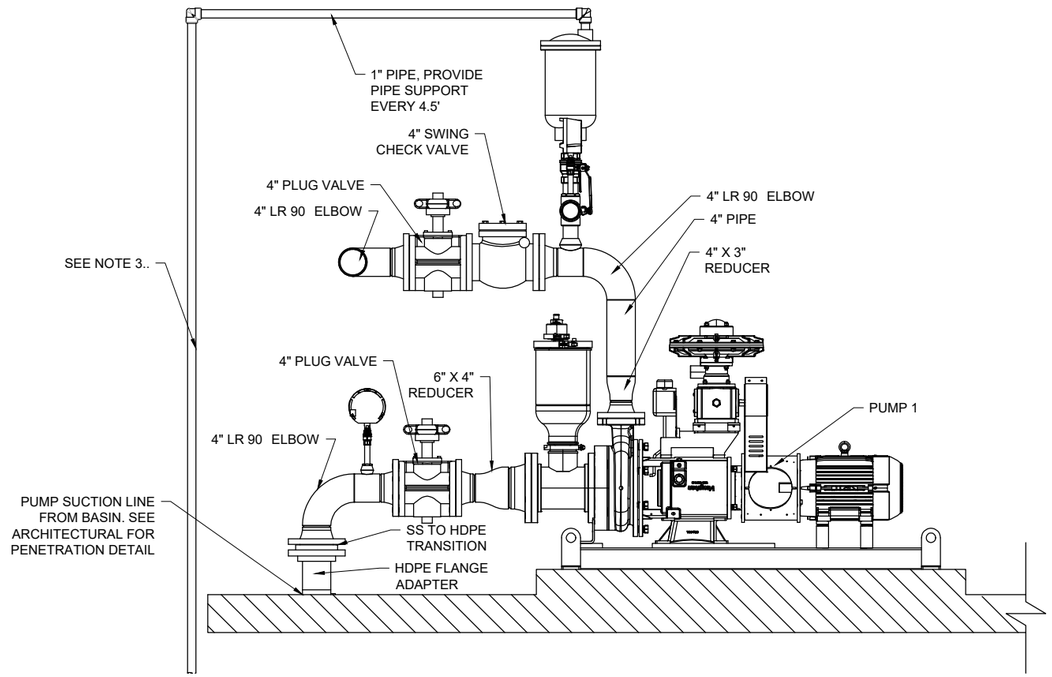


2 M-102 DISCHARGE PARTIAL SECTION

SCALE: 1" 1'-0"

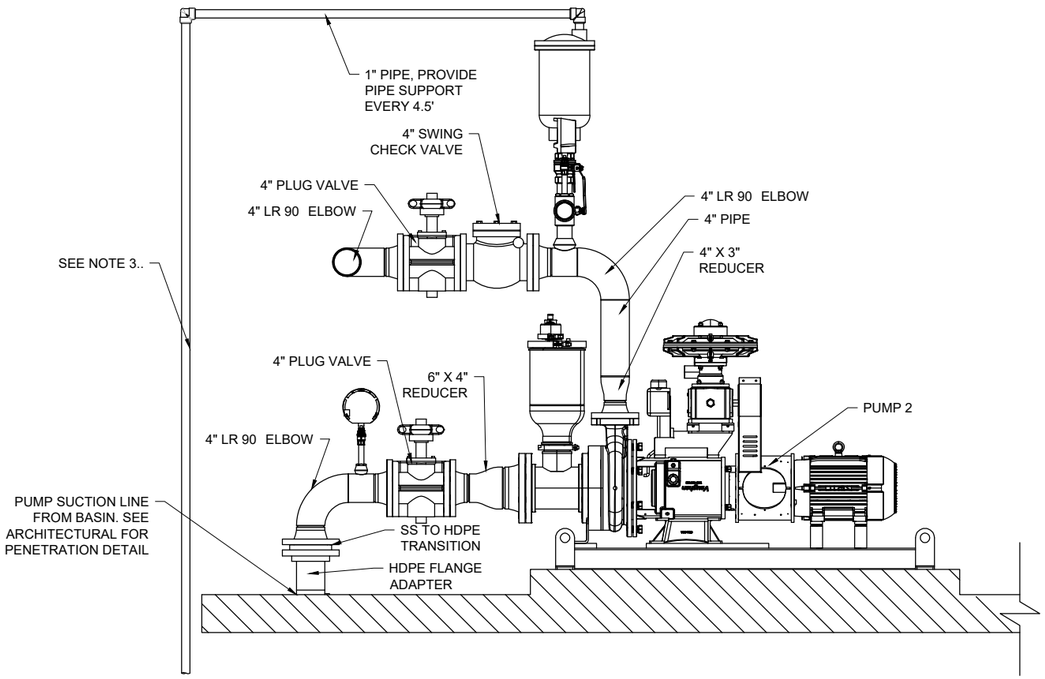
GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. ADDITIONAL FLANGE CONNECTIONS CAN BE UTILI ED IF REQUIRED FOR FABRICATION .
3. ROUTE 1" AIR RELEASE LINE DOWN ALONG BUILDING, PROVIDE SUPPORTS. ROUTE LINE TO WET WELL AT A 2 SLOPE WITH MINIMUM 3' COVER. SEE ARCH. DRAWINGS FOR BUILDING PENETRATION DETAIL.
4. MOUNT PUMPS WITH ANCHOR BOLTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTION. SEE STRUCTURAL FOR COORDINATION WITH HOUSE KEEPING PAD.



3 M-102 PUMP 1 ELEVATION SECTION

SCALE: 1" 1'-0"



4 M-102 PUMP 2 ELEVATION SECTION

SCALE: 1" 1'-0"

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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
PIPING AND EQUIPMENT SECTIONS

DRAWING SCALE: AS SHOWN

PROJECT NUMBER: 165.030630

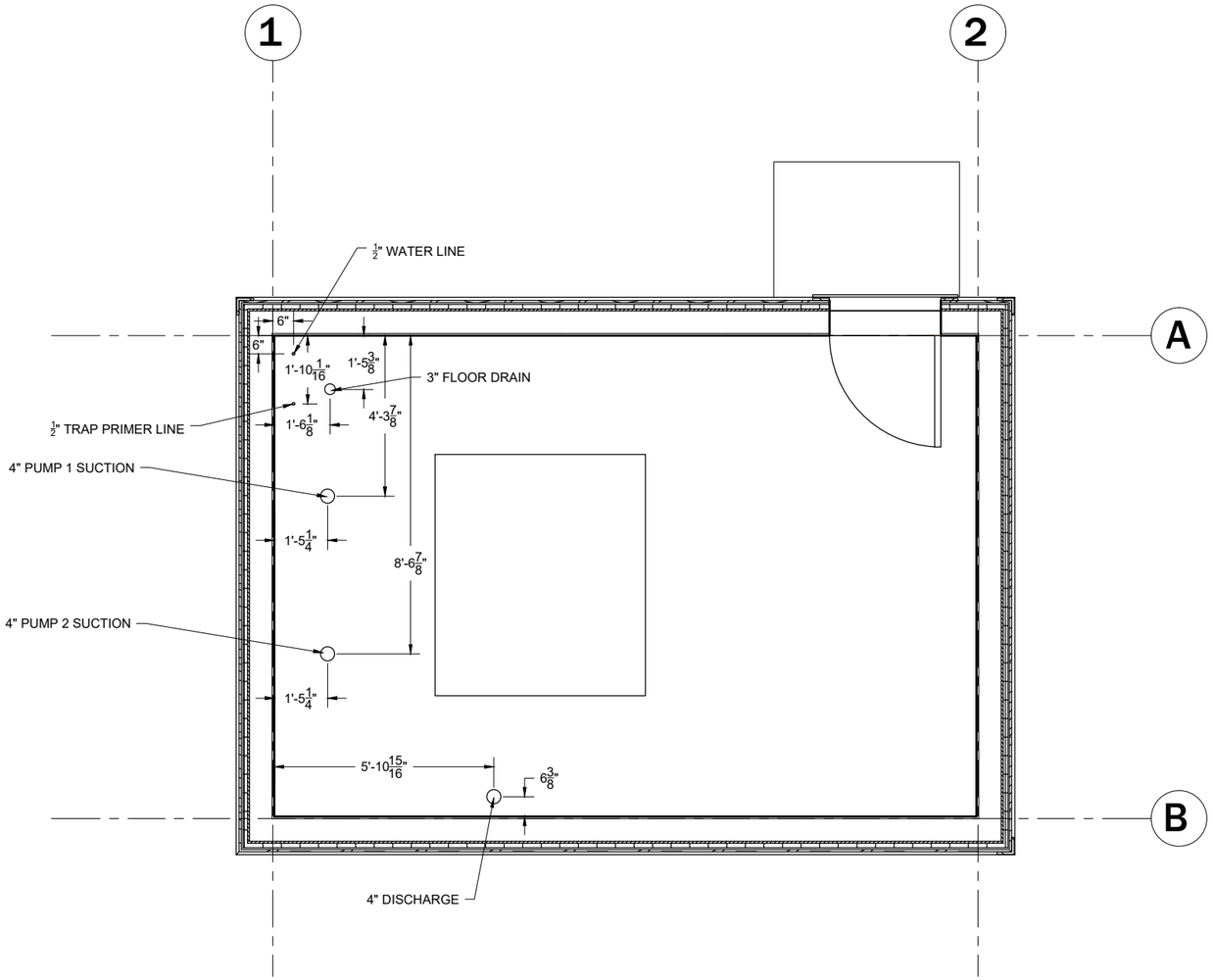
DRAWING FILE NAME: M-102

SHEET NUMBER

M-102

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. SEE ARCHITECTURAL DRAWINGS FOR PENETRATION DETAILS.
3. SEE CIVIL DRAWINGS FOR WET WELL PLACEMENT AND PIPE ROUTING IN RELATION TO BUILDING.



1 M-103 LIFT STATION PLUMBING PENETRATION PLAN
SCALE: 1/2" 1'-0"

2' 0' 1' 2' 4'

ISSUED FOR CONSTRUCTION

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REVISIONS & ADDENDUMS	#	DATE	REMARKS

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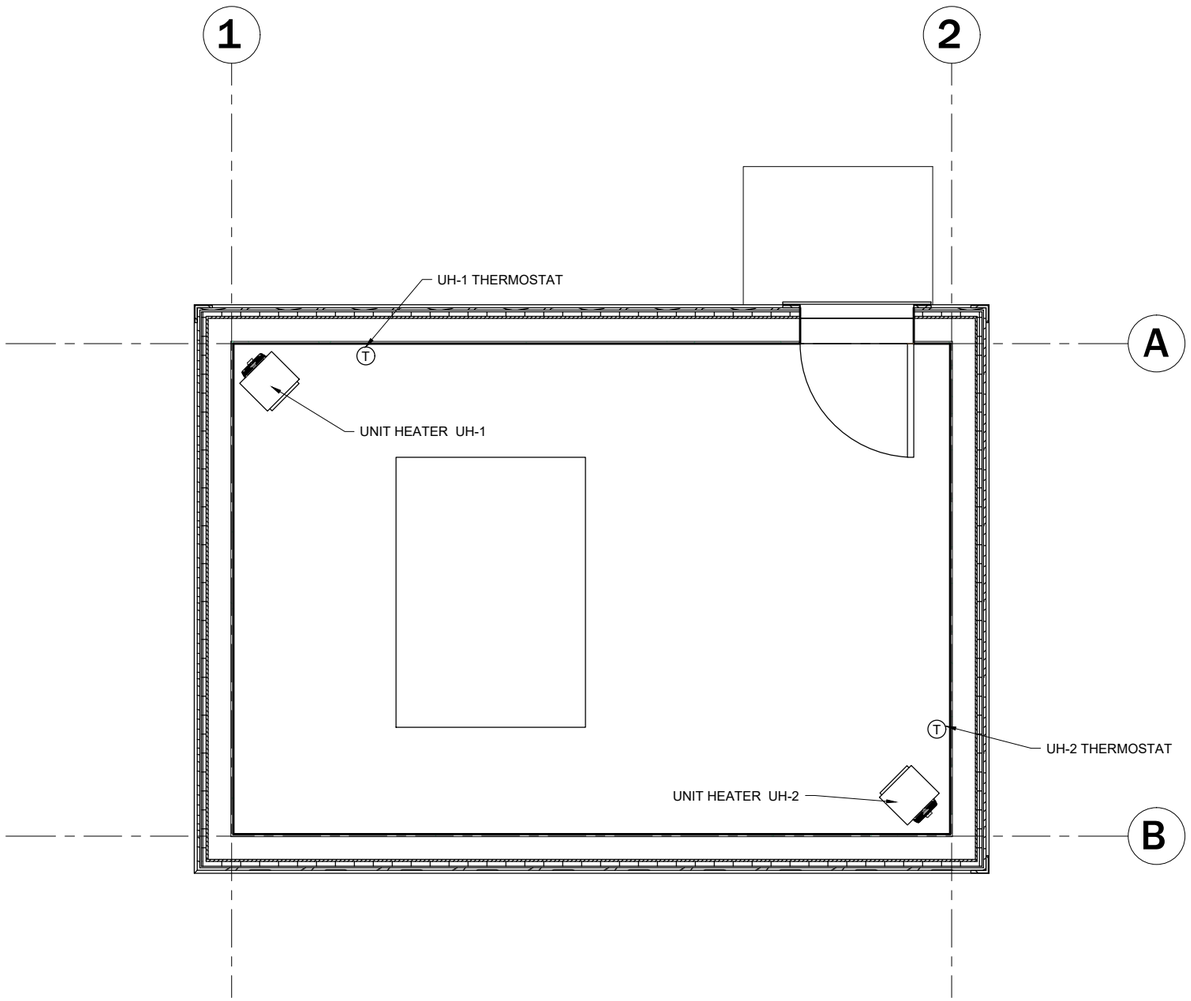
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION PIPING PENETRATION PLAN

PROJECT NUMBER 165.030630
DRAWING FILE NAME M-103
DRAWING SCALE AS SHOWN

SHEET NUMBER
M-103

UNIT HEATER SCHEDULE											
ITEM	TYPE	RATED CAPACITY (BTU/HR)	DESIGN CAPACITY (BTU/HR)	CFM	ELECTRICAL DATA				BASIS OF DESIGN		NOTE
					HP	V	PH	H	MAKE	MODEL	
UH-1	HORI ONTAL ELECTRIC	10,200	4,028	380	$\frac{1}{40}$	208	3	60	MODINE	HER 30B 3101	1,2
UH-2	HORI ONTAL ELECTRIC	10,200	4,028	380	$\frac{1}{40}$	208	3	60	MODINE	HER 30B 3101	1,2
NOTES: 1. HEATER LISTED IS BASIS OF DESIGN, ANY SUBSTITUTION SHALL BE REQUIRED TO BE APPROVED BY ENGINEER. 2. THERMOSTAT SHALL BE PROVIDED WITH UNIT AND FIELD MOUNTED											



1 / M-201 LIFT STATION HVAC PLAN
SCALE: 1/2" 1'-0"

2' 0' 1' 2' 4'

GENERAL NOTES:

1. HEATERS SHALL BE WALL MOUNTED

ISSUED FOR CONSTRUCTION

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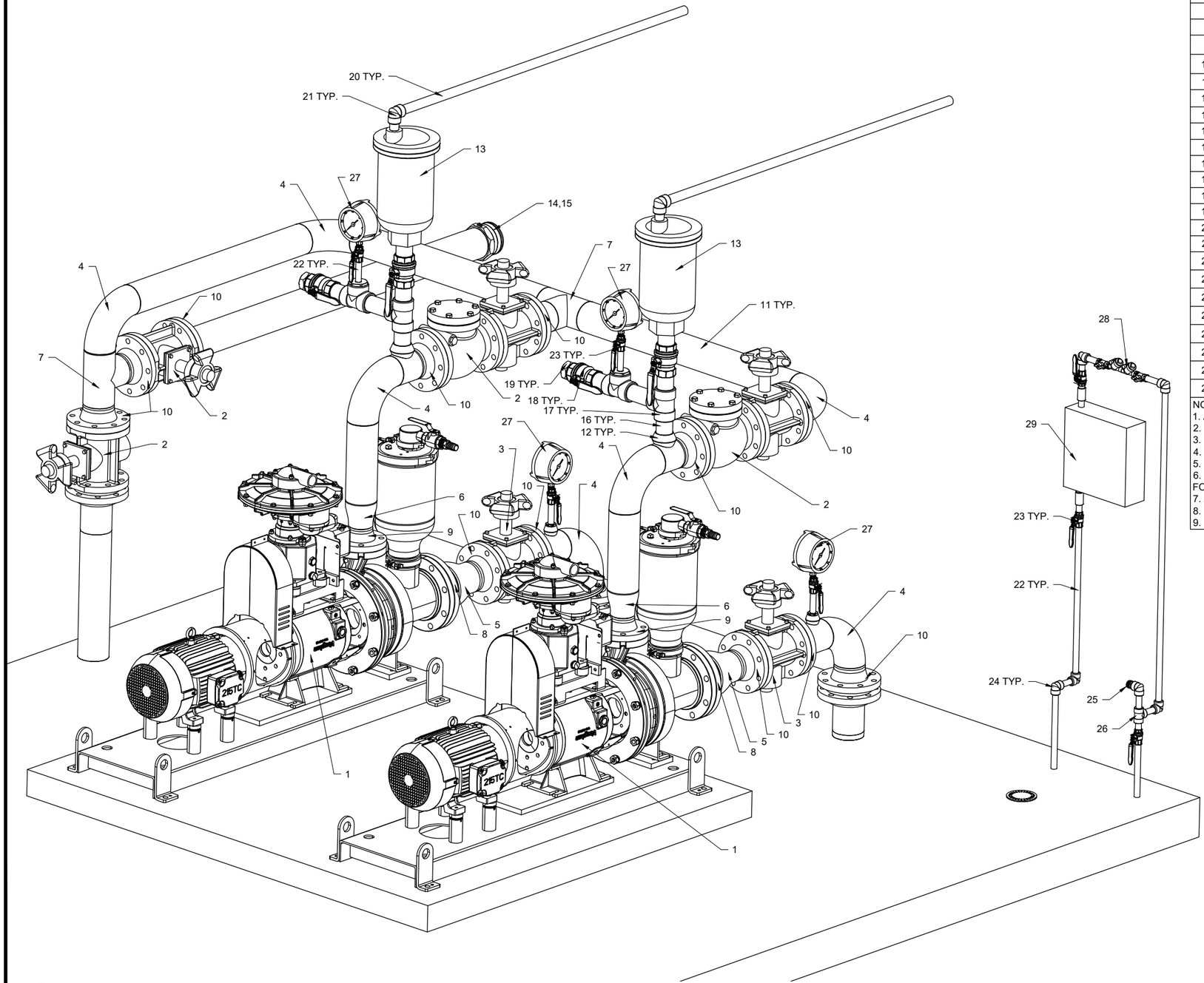
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION HVAC PLAN

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: M-201

SHEET NUMBER
M-201



BOM

TAG	DESCRIPTION	SI E	CLASS/SCH.	MATERIAL	QTY.	NOTES
1	CHOPPER PUMP	-	-	-	2	2
2	SWING CHECK VALVE	4"	CLASS 150	STAINLESS STEEL	2	5
3	PLUG VALVE	4"	CLASS 150	STAINLESS STEEL	6	
4	LR 90 ELBOW	4"	SCH. 40	ASTM A403	7	
5	REDUCER	6" X 4"	SCH. 40	ASTM A403	2	
6	REDUCER	4" X 3"	SCH. 40	ASTM A403	2	
7	TEE	4"	SCH. 40	ASTM A403	2	
8	WN FF FLANGE	6"	CLASS 150	ASTM A182	2	
9	WN FF FLANGE	4"	CLASS 150	ASTM A182	2	
10	WN RF FLANGE	4"	CLASS 150	ASTM A182	13	
11	PIPE	4"	SCH. 40	ASTM A312	20 Ft	1
12	THREAD-O-LET	4" X 2"	CLASS 3000	ASTM A182	2	
13	AIR RELEASE VALVE	2" X 1"	75 si	ASTM A351 GR. CF8M	2	
14	MALE CAM-LOCK	4"	75 si	STAINLESS STEEL	1	3
15	CAM-LOCK CAP	4"	75 si	STAINLESS STEEL	1	4
16	PIPE	2"	SCH. 40	ASTM A312	4 FT	1
17	THREADED TEE	2"	CLASS 3000	ASTM A182	2	
18	FP BALL VALVE	2"	CLASS 3000	STAINLESS STEEL	4	
19	THREADED PLUG	2"	CLASS 3000	CLASS 3000	2	
20	PIPE	1"	SCH. 40	ASTM A312	20 FT	1
21	THREADED 90 ELBOW	1"	CLASS 3000	ASTM A182	2	
22	PIPE	1/2"	SCH.40	ASTM A312	10 Ft	1
23	BALL VALVE	1/2"	CLASS 3000	STAINLESS STEEL	3	
24	THREADED 90 ELBOW	1/2"	CLASS 3000	ASTM A182	6	
25	MNPT TO GH FITTING	1/2"	-	STAINLESS STEEL	1 Ft	
26	THREADED TEE	1/2"	CLASS 3000	ASTM A182	1 Ft	
27	PRESSURE GAUGE	1/2"	-	-	4	8
28	BACKFLOW PREVENTER	3/4"	-	CAST BRON E		
29	ELECTRIC TRAP PRIMER	3/4"	-	-		9

NOTES:
1. APPROXIMATE LENGTH
2. SEE DRAWING M-401 FOR PUMP SCHEDULE
3. FEMALE NPT PIPE CONNECTION
4. WITH LOCKING TABS
5. PROVIDED SEWAGE RATED CHECK VALVE
6. CONTRACTOR SHALL PROVIDE ASTM A193 B8 STUDS OR BOLTS AND ASTM A194 GR.8 NUTS FOR ALL FLANGE CONNECTIONS.
7. ADDITONAL FITTINGS MAY BE REQUIRED, CONTRACTOR TO VERIFY.
8. 1/2" BOTTOM CONNECTION, 4.5" FACE. SEE SPECS FOR ADDITIONAL INFORMATION.
9. SEE SPECS FOR ADDITIONAL INFORMATION

1 M-301 PIPING & EQUPMENT ISOMETRIC
SCALE:NTS

ISSUED FOR CONSTRUCTION

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REVISIONS & ADDENDUMS

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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
PIPING AND EQUIPMENT ISOMETRIC

PROJECT NUMBER 165.030630
DRAWING FILE NAME M-301
DRAWING SCALE AS SHOWN

SHEET NUMBER
M-301

SEQUENCE OF OPERATION

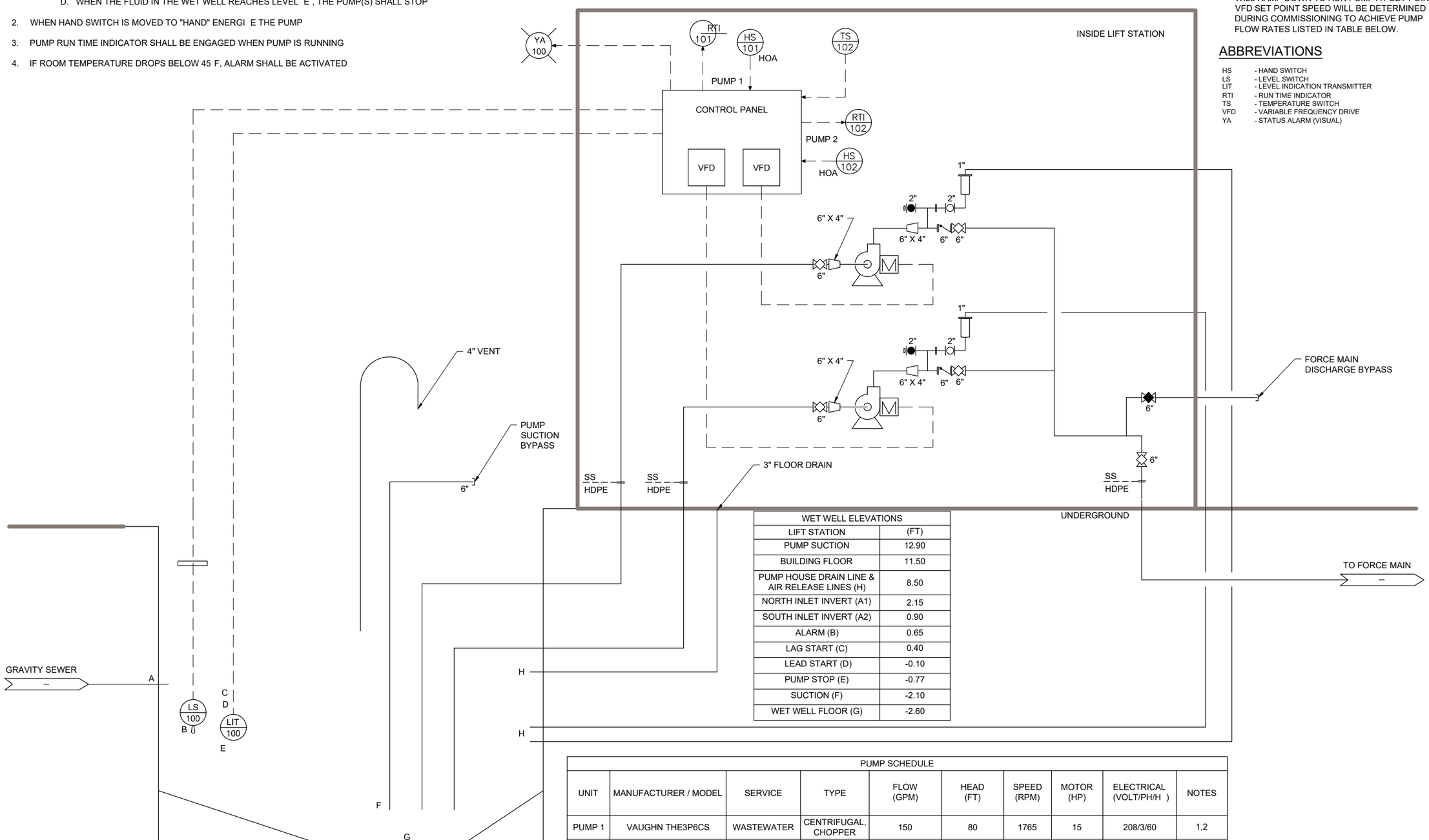
1. WHEN HAND SWITCH IS IN "AUTO" THE PUMP(S) WILL OPERATE AS FOLLOWS
   - A. WHEN THE FLUID IN THE WET WELL REACHES LEVEL D , THE LEAD PUMP SHALL START
   - B. WHEN THE FLUID IN THE WET WELL REACHES LEVEL C , THE LAG PUMP SHALL START
   - C. WHEN THE FLUID IN THE WET WELL REACHES LEVEL B , THE HIGH LEVEL ALARM SHALL BE INITIATED
   - D. WHEN THE FLUID IN THE WET WELL REACHES LEVEL E , THE PUMP(S) SHALL STOP
2. WHEN HAND SWITCH IS MOVED TO "HAND" ENERGI E THE PUMP
3. PUMP RUN TIME INDICATOR SHALL BE ENGAGED WHEN PUMP IS RUNNING
4. IF ROOM TEMPERATURE DROPS BELOW 45 F, ALARM SHALL BE ACTIVATED

GENERAL NOTES:

1. SEE ELECTRICAL FOR DETAILS OF CONTROL PANEL.
2. VFD USED TO RAMP PUMPS TO FULL SPEED TO ACHIEVE PRIME. ONCE PRIME IS ACHIEVED VFD WILL RAMP DOWN TO RUN PUMP AT SET POINT. VFD SET POINT SPEED WILL BE DETERMINED DURING COMMISSIONING TO ACHIEVE PUMP FLOW RATES LISTED IN TABLE BELOW.

ABBREVIATIONS

HS	- HAND SWITCH
LS	- LEVEL SWITCH
LIT	- LEVEL INDICATION TRANSMITTER
RTI	- RUN TIME INDICATOR
TS	- TEMPERATURE SWITCH
VFD	- VARIABLE FREQUENCY DRIVE
YA	- STATUS ALARM (VISUAL)



WET WELL ELEVATIONS	
LIFT STATION	(FT)
PUMP SUCTION	12.90
BUILDING FLOOR	11.50
PUMP HOUSE DRAIN LINE & AIR RELEASE LINES (H)	8.50
NORTH INLET INVERT (A1)	2.15
SOUTH INLET INVERT (A2)	0.90
ALARM (B)	0.65
LAG START (C)	0.40
LEAD START (D)	-0.10
PUMP STOP (E)	-0.77
SUCTION (F)	-2.10
WET WELL FLOOR (G)	-2.60

PUMP SCHEDULE

UNIT	MANUFACTURER / MODEL	SERVICE	TYPE	FLOW (GPM)	HEAD (FT)	SPEED (RPM)	MOTOR (HP)	ELECTRICAL (VOLT/PH/H)	NOTES
PUMP 1	VAUGHN THE3P6CS	WASTEWATER	CENTRIFUGAL, CHOPPER	150	80	1765	15	208/3/60	1,2
PUMP 2	VAUGHN THE3P6CS	WASTEWATER	CENTRIFUGAL, CHOPPER	150	80	1765	15	208/3/60	1,2

NOTES:
1. VFD CONTROLLED 19' OF SUCTION LIFT
2. PUMP LISTED IS BASIS OF DESIGN, ANY PUMP SUBSTITUTION SHALL BE REQUIRED TO BE APPROVED BY ENGINEER.

ISSUED FOR CONSTRUCTION

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STATE OF ALASKA 49 TH
SAMUEL LEE STRICKLAND
ME - 14721
03-27-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	JDD
DRAWN	JDD
CHECKED	-
APPROVED	-
LAST EDIT	3/26/24
PLOT DATE	3/26/24
SUBMITTAL	03/27/24

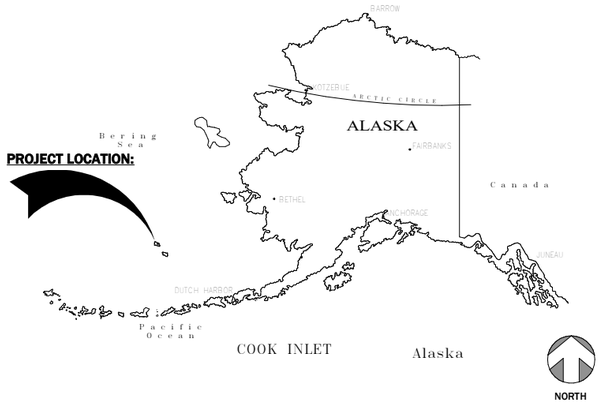
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
PIPING AND INSTRUMENTATION DIAGRAM

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: M-401
PROJECT NUMBER: 165.030630
SHEET NUMBER: M-401

SMALL BOAT HARBOR UTILITIES

CITY OF SAINT PAUL, ALASKA

LOCATION MAP



ARCH. ABBREVIATIONS

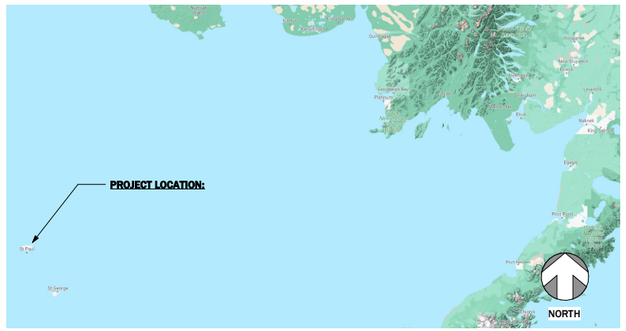
1. SEE OTHER DISCIPLINES FOR ADDITIONAL ABBREVIATIONS.
2. SOME ABBREVIATIONS LISTED BELOW MAY NOT BE USED IN THIS PROJECT.

(E)	EXISTING
ADA	AMERICAN DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
DS	DOWNSPOUT
ELEC	ELECTRICAL
FV	FIELD VERIFY
GYP	GYPSUM BOARD
IBC	INTERNATIONAL BUILDING CODE
INSUL	INSULATION
ITSP	INSULATED TRANSLUCENT SANDWICH PANEL
MAX	MAXIMUM
MECH	MECHANICAL
MFRG	MANFACTURER
MFSD	MANUFACTURER'S STANDARD
MIN	MINIMUM
MRGWB	MOISTURE RESISTANT GWB
NIC	NOT IN CONTRACT
OC	ON CENTER
OFD	OVERFLOW DRAIN
OFOI	OWNER FURNISHED OWNER INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
PLY	PLYWOOD
RD	ROOF DRAIN
SIP	STRUCTURAL INSULATED PANEL
SPEC	SPECIFICATION
STC	SOUND TRANSMISSION CLASS
STRUC	STRUCTURAL
TBD	TO BE DETERMINED
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
VIF	VERIFY IN FIELD
VP	VAPOR BARRIER
VTR	VENT THROUGH ROOF

GENERAL NOTES

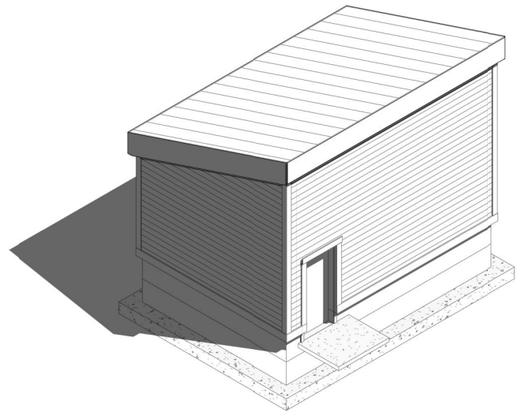
1. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE CODES AS ADOPTED AND AMENDED BY AK DEPT. OF PUBLIC SAFETY.
2. THESE DRAWINGS ARE SUPPLIED TO THE CONTRACTOR AND OTHERS FOR THEIR USE FOR THIS SPECIFIC PROJECT. COPYRIGHT KUNA ENGINEERING.
3. THE ORGANIZATION OF THE DOCUMENTS ARE NOT INTENDED TO CONTROL THE DIVISION OF WORK. DIVISION OF WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. DIMENSIONS ARE TO FACE OF FRAMING, OR GRID LINE, UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL VERIFY DIMENSIONS, REQUIRED CLEARANCES, AND POWER, HVAC AND PLUMBING REQUIREMENTS FOR ALL OWNER AND N.I.C. ITEMS. NOTIFY ARCHITECT OF ANY DISCREPANCY PRIOR TO COMMENCEMENT OF WORK.
6. ALL VAPOR RETARDER IS TO BE SEALED VAPOR TIGHT AT ALL LOCATIONS.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE JOB SITE TO FAMILIARIZE HER/HIMSELF WITH ALL THE EXISTING CONDITIONS THAT COULD AFFECT THE INSTALLATION OF ANY WORK SET FORTH IN THESE PLANS.
8. THE JOB SITE AT THE COMPLETION OF CONSTRUCTION SHALL BE CLEANED OF ANY DEBRIS OR SPOIL RESULTING FROM THE CONSTRUCTION. AT NO TIME SHALL THIS MATERIAL OBSTRUCT THE NORMAL OPERATION OF THE OWNER.
9. ALL EQUIPMENT OR MATERIALS NOT SHOWN OR SPECIFIED ON THE PLANS OR IN THE SPECIFICATIONS, BUT REQUIRED TO COMPLETE THIS INSTALLATION SHALL BE SUPPLIED BY THE CONTRACTOR AS PART OF THE CONTRACT WORK.
10. ALL MATERIALS SHALL BE NEW AND OF A GRADE AND QUALITY CONSISTENT WITH THE INTENDED USE AS SPECIFIED AND APPROVED BY THE ARCHITECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ANY UNDERGROUND OR CONCEALED UTILITY LINES THAT MAY BE REQUIRED, OR AVOIDED DURING CONSTRUCTION.
12. REFER TO CODE ANALYSIS, PLANS, AND WALL TYPES FOR COMPLETE DESCRIPTIONS OF WALL ASSEMBLIES.
13. INSTALL A CONTINUOUS BEAD OF SEAL AT ALL GAP/SEAMS BETWEEN FIXED EQUIPMENT AND WALLS, OR OTHER ASSEMBLIES.
14. ALL COLOR SELECTIONS SHALL BE PER COLOR SCHEDULE, ISSUED BY ARCHITECT, AFTER CONTRACTOR SUBMITS SAMPLES.
15. REFERENCE ALL DISCIPLINE DRAWINGS FOR COORDINATION WORK.
16. INSTALL 2X BLOCKING OR BACKING MATERIAL FOR ALL WALL MOUNTED ITEMS.
17. REFER TO STRUCTURAL SHEETS FOR FRAMING DETAILS.

VICINITY MAP



11"X17" SHEETS ARE HALF INDICATED SCALE

PROJECT RENDERING



ISSUED FOR CONSTRUCTION

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STATE OF ALASKA
49 TH
William T. Guevremont
A140256
3-27-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WTG
DRAWN	VM
CHECKED	WTG
APPROVED	
LAST EDIT	
PLOT DATE	
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
COVER SHEET

PROJECT NUMBER 165.030630
DRAWING FILE NAME 165.030630- A-000
DRAWING SCALE As Indicated

SHEET NUMBER
A-000

PROJECT INFORMATION

Project name: City of St. Paul - Small Boat Harbor Utilities

APPLICABLE CODES (WITH STATE OF ALASKA AMENDMENTS)

International Building Code 2021 (IBC 2021), International Fire Code 2021 (IFC 2021), International Mechanical Code 2021 (IMC 2021), Electrical Code 2020, Fire Wall Code 2021, Plumbing Code 2018, Structural Concrete Code 2019, and the Concrete Construction Tolerance Code 2010

BUILDING DATA

Story	Space Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Area Per Story
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	315	315
				Total Gross Area:	315

Sprinkler type	Type of Construction	Fire Separation	High-Rise
Not Sprinklered	VB	-	No

HEIGHTS AND AREAS

Building Area 503

Single Occupancy

Occupancy Group	Designed Area (sq. ft.)	Allowed Area (Aa) (sq. ft.)
S-2	315	28,755

Factor Increase was determined by interpolation
Per Section 508.3.1, use area requirements for most restrictive occupancy group per story. Occupancy group with most restrictive area: S-2 = 28,755 sq. ft.

Building Height in Stories 504.4

Single Occupancy

Occupancy Group	Highest Story Above Grade Plane Occupancy Appears On	Highest Allowable Story Above Grade Plane
S-2	1	2

Building Height in Feet 504.3

Single Occupancy

Occupancy Group	Highest Elevation Above Grade Plane Occupancy Appears On	Highest Allowable Elevation Above Grade Plane
S-2	12.0 ft.	40 ft.

Average Roof Surface Height	Highest Allowable Elevation Above
Above Grade Plane	Grade Plane
12.0 ft.	40 ft.

EGRESS INFORMATION

Occupant Loads

Story	Space Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Designed Area (net sq. ft.)	OLF	Occupant Load
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	315	-	300	2

Min. Exits per Space 1006.2.1 1006.3.3

More than one exit must be provided if the space occupant load or maximum common path of egress travel distance are exceeded. More exits may be required under high occupant load or other special conditions (see notes below).

Story	Space Name	Occupancy Group	Function of Space	Cum. Occupant Load of Space	Max Single Exit Cumulative Load of Space	Min. Number of Exits per Space	Max. Common Path of Egress Allowed for Single Exit
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	2	29	1	100

Min. Exits per Story 1006.3.3

Story	Total Occupancy Load by Story	Minimum Number of Exits or Exit Accesses	Max Exit Access Travel Distance for 1 Exit
1	2	1	75

In addition to single exit eligibility shown above, one exit may be permitted where all spaces are permitted to have one exit or access to a single exit and the exit discharges directly to the exterior at the level of exit discharge

Max. Exit Access Travel Distance 1017.2

Maximum exit access travel distance serving each space should be at a maximum the values below for each occupancy group.

Occupancy Group	Max Exit Access Travel Distance
S-2	300 ft.

FIRE-RESISTANCE RATINGS

Interior Building Element Fire-Resistance R 704.1

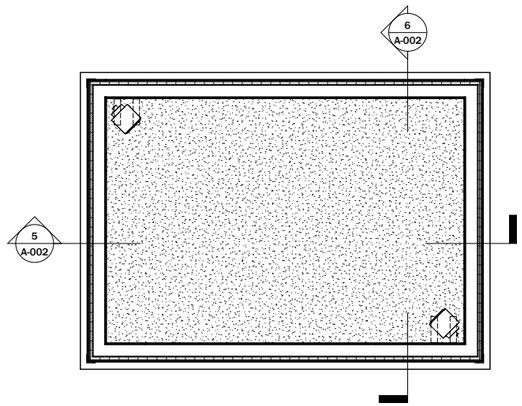
Story	Interior Building Element Type	Min. Fire Resistance Ratings (hrs.)
All	Primary structural frame	0
	Interior Bearing Walls	0
	Interior Nonbearing walls and partitions	0
	Floor construction and associated secondary structural members	0
	Roof construction and associated secondary structural members	0

Required Occupancy Separations 508.4

PLUMBING

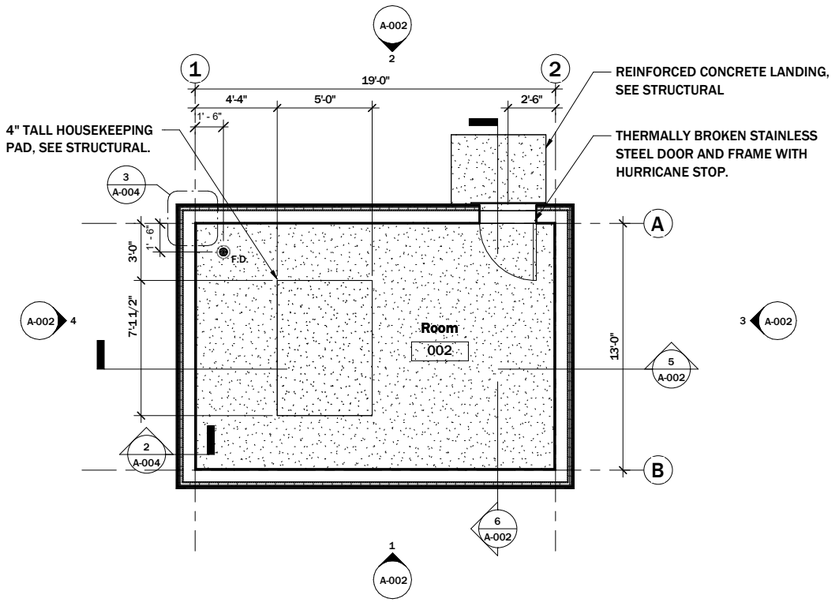
N/A - Not Occupied 1210

11"X17" SHEETS ARE HALF INDICATED SCALE



2 REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"



1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

****SEE CIVIL FOR SITE LAYOUT
ISSUED FOR CONSTRUCTION**

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STATE OF ALASKA
49 TH
William T. Guevremont
A140256
REGISTERED PROFESSIONAL ENGINEER
3-27-2024

REVISIONS & ADDENDUMS		
#	DATE	REMARKS

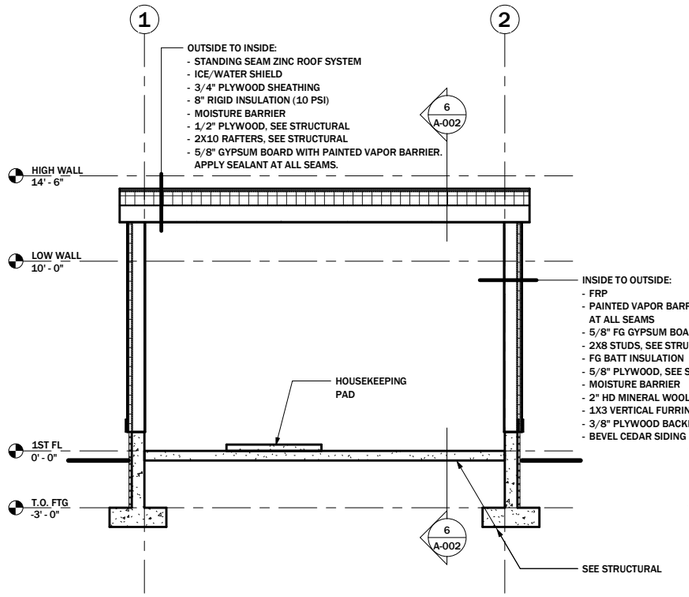
MANAGEMENT	
DESIGNED	WTG
DRAWN	VM
CHECKED	WTG
APPROVED	
LAST EDIT	
PLOT DATE	03/27/24
SUBMITTAL	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
CODE ANALYSIS AND PLANS

DRAWING SCALE: 1/4" = 1'-0"

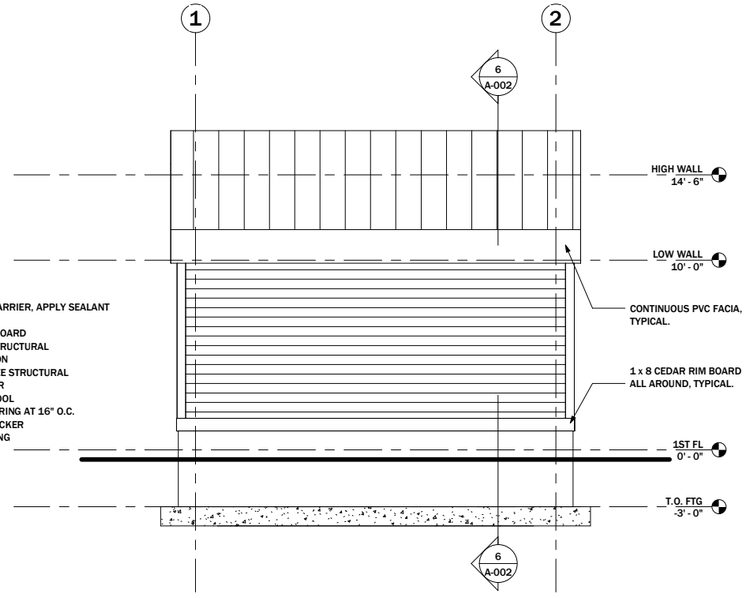
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 165.030630- A-001

SHEET NUMBER
A-001



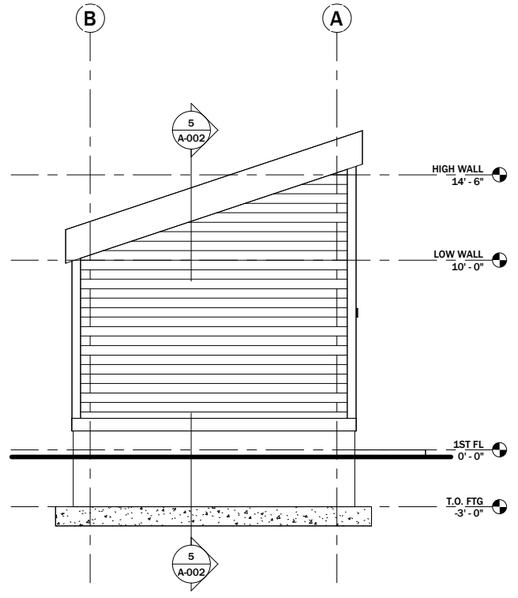
5 BUILDING SECTION - LONG

SCALE: 1/4" = 1'-0"



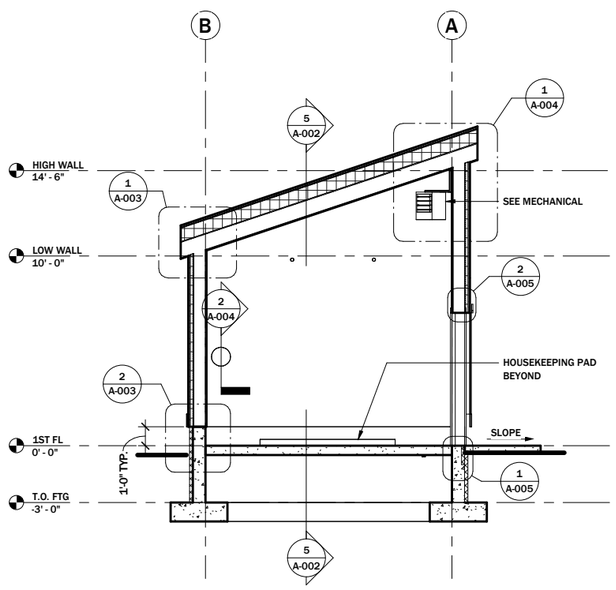
1 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



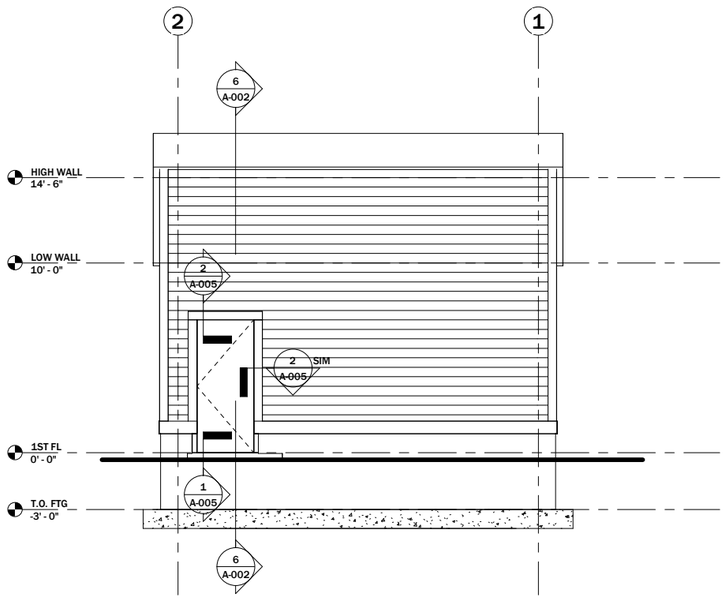
3 EAST ELEVATION

SCALE: 1/4" = 1'-0"



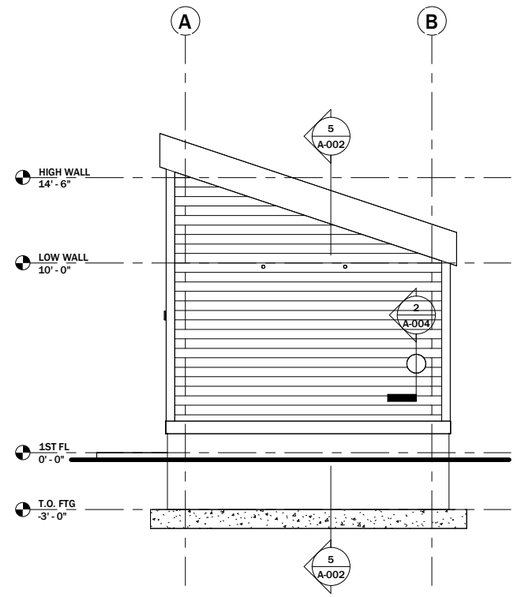
6 BUILDING SECTION - SHORT

SCALE: 1/4" = 1'-0"



2 NORTH ELEVATION

SCALE: 1/4" = 1'-0"



4 WEST ELEVATION

SCALE: 1/4" = 1'-0"

ISSUED FOR CONSTRUCTION

11"X17" SHEETS ARE HALF INDICATED SCALE

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STATE OF ALASKA 49 TH
William T. Guevremont
A140256
3-27-2024
REGISTERED PROFESSIONAL ARCHITECT

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WTG
DRAWN	VM
CHECKED	WTG
APPROVED	
LAST EDIT	
PLOT DATE	
SUBMITTAL	03/27/24

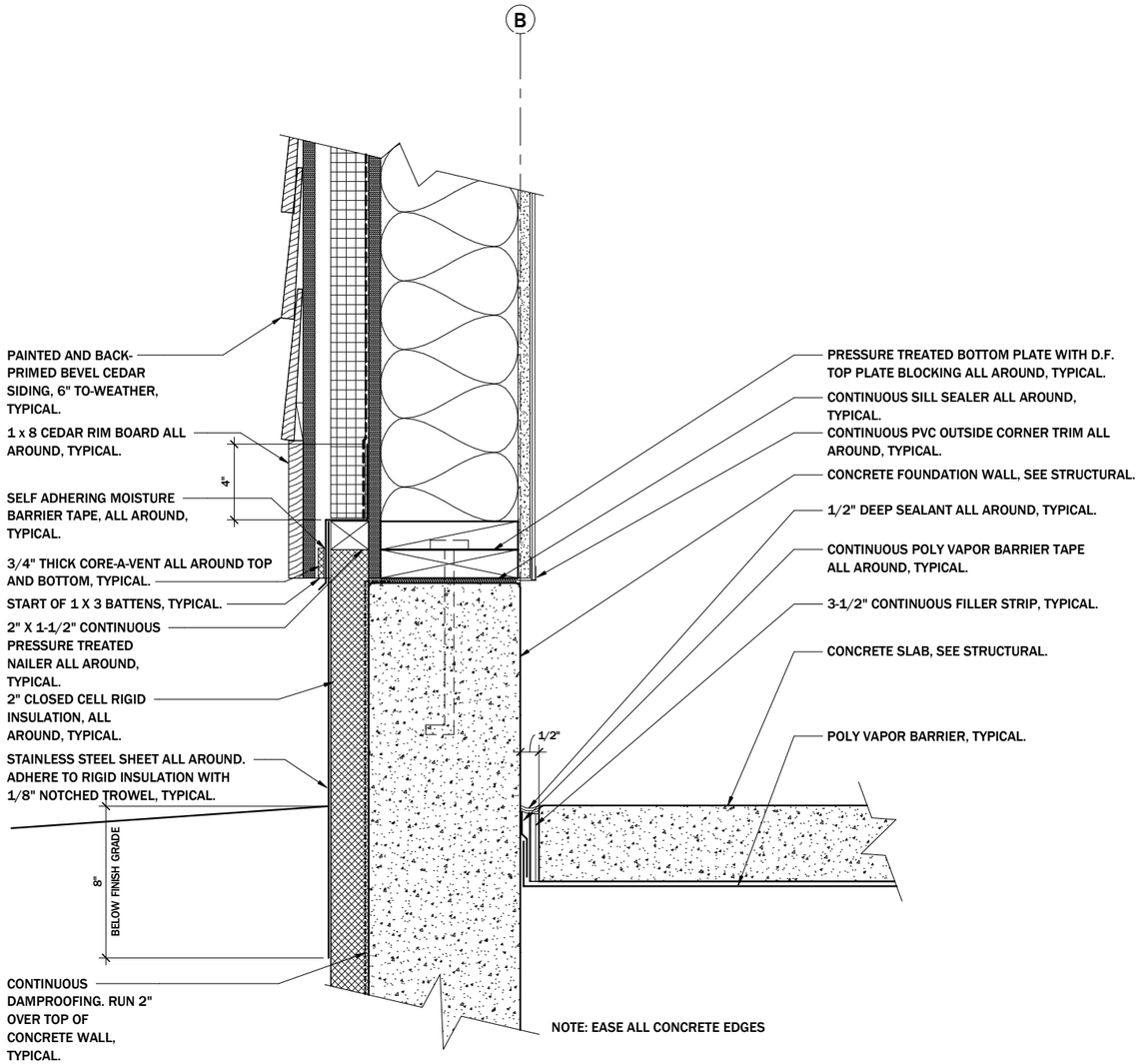
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SECTIONS AND ELEVATIONS

DRAWING SCALE 1/4" = 1'-0"

PROJECT NUMBER 165.030630

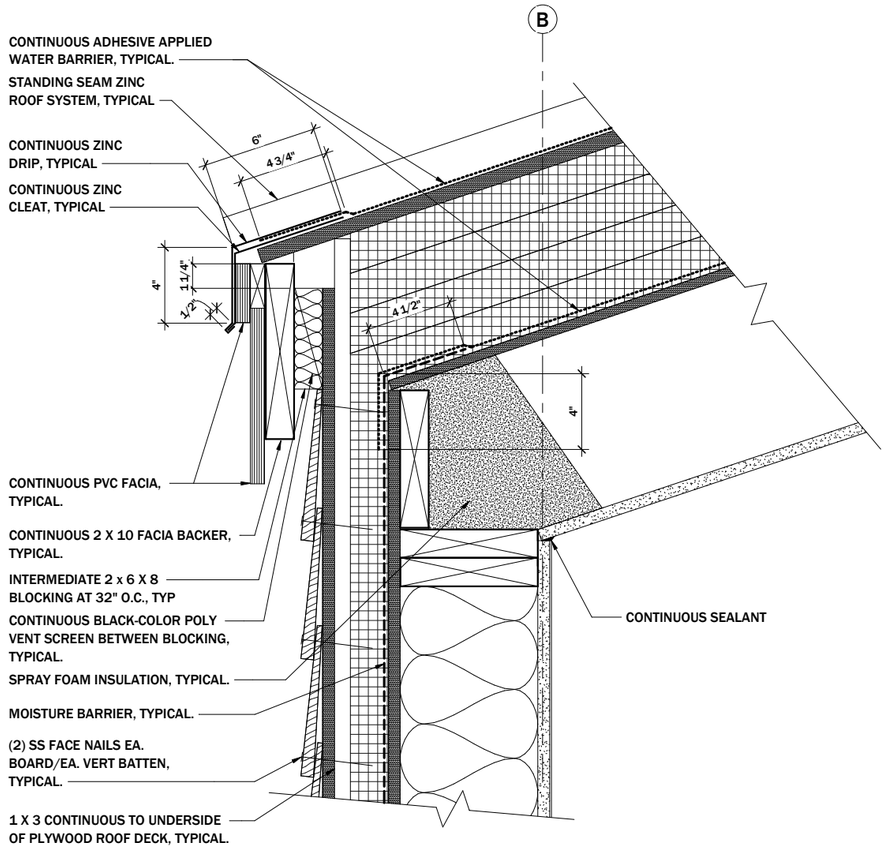
DRAWING FILE NAME 165.030630- A-002

SHEET NUMBER **A-002**



2 DETAIL AT WALL BASE

SCALE: 3" = 1'-0"



1 DETAIL AT EAVE

SCALE: 3" = 1'-0"

11"X17" SHEETS ARE HALF INDICATED SCALE

ISSUED FOR CONSTRUCTION

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STATE OF ALASKA 49 TH
William T. Guevremont
A140256
3-27-2024
REGISTERED PROFESSIONAL ARCHITECT

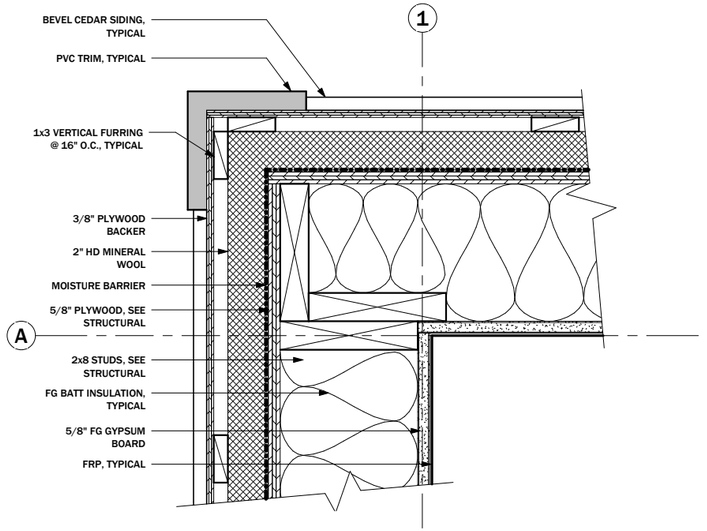
REVISIONS & ADDENDUMS			
#	DATE	REMARKS	

MANAGEMENT	
DESIGNED	WTG
DRAWN	VM
CHECKED	WTG
APPROVED	
LAST EDIT	
PLOT DATE	03/27/24
SUBMITTAL	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
DETAILS

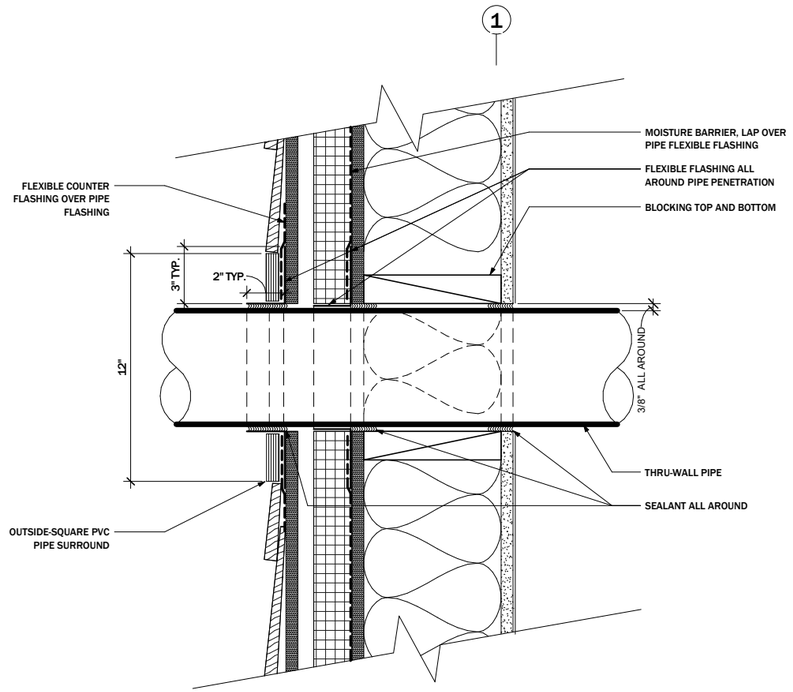
PROJECT NUMBER 165.030630
DRAWING FILE NAME 165.030630- A-003
DRAWING SCALE 3" = 1'-0"

SHEET NUMBER
A-003



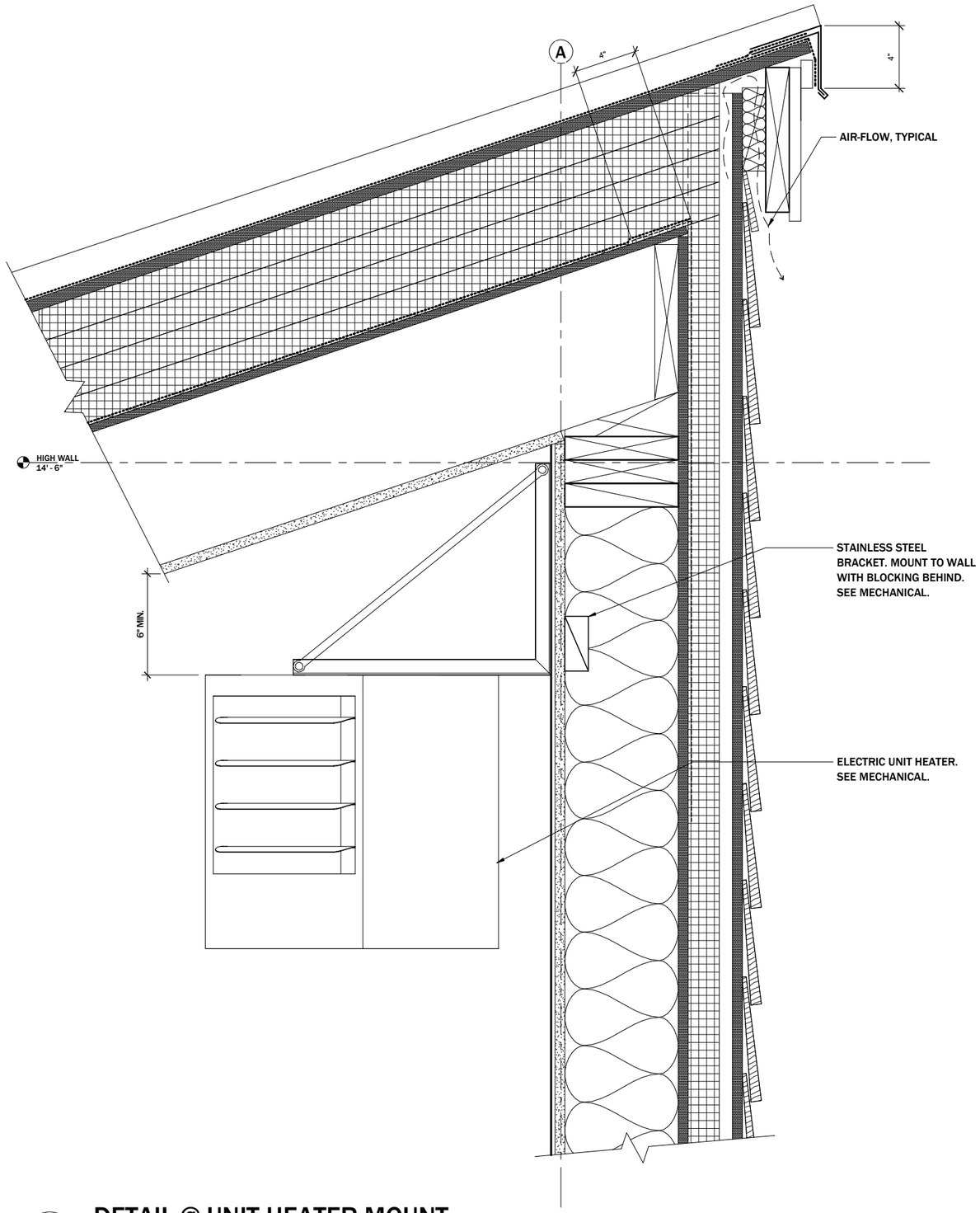
3 EXTERIOR CORNER TRIM AND FLASHING DETAIL

SCALE: 3" = 1'-0"



2 WALL PENETRATION DETAIL, TYPICAL

SCALE: 3" = 1'-0"



1 DETAIL @ UNIT HEATER MOUNT

SCALE: 3" = 1'-0"

ISSUED FOR CONSTRUCTION

11"X17" SHEETS ARE HALF INDICATED SCALE

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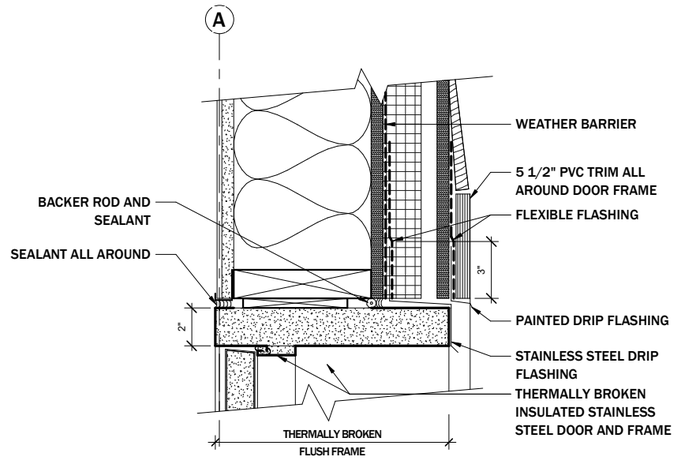
APPROVED	
LAST EDIT	
PLOT DATE	03/27/24
SUBMITTAL	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
DETAILS

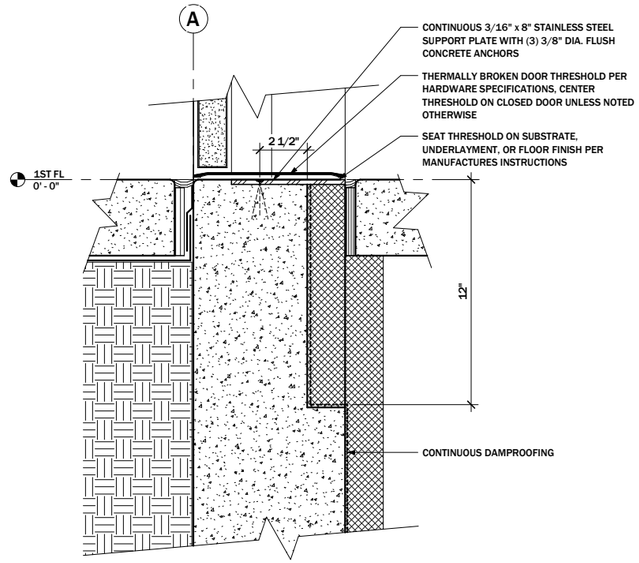
PROJECT NUMBER 165.030630
DRAWING FILE NAME 165.030630- A-004
DRAWING SCALE 3" = 1'-0"

SHEET NUMBER
A-004



2 DETAIL@ DOOR HEAD / JAMB SIM.

SCALE: 3" = 1'-0"



1 DETAIL @ DOOR THRESHOLD

SCALE: 3" = 1'-0"

ISSUED FOR CONSTRUCTION

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APPROVED	
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PLOT DATE	03/27/24
SUBMITTAL	

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
DETAILS

PROJECT NUMBER 165.030630
DRAWING FILE NAME 165.030630- A-005
DRAWING SCALE 3" = 1'-0"

SHEET NUMBER
A-005

STRUCTURAL DESIGN DATA:

1. CODES

ICC 2021 AS AMENDED BY STATE OF ALASKA.

ASCE 7-16.

1.1. SITE AND BUILDING PARAMETERS:
OCCUPANCY CATEGORY.....III
SITE TERRAIN/EXPOSURE CATEGORY.....C
SITE SOIL CLASS.....D

1.2. LIVE LOADS:
ROOF.....20 PSF
FLOOR.....NA

1.3. SNOW LOADS:
GROUND SNOW LOAD, P_g.....40 PSF
EXPOSURE FACTOR, C_e.....1.00
THERMAL FACTOR, C_t.....1.10
SNOW IMPORTANCE FACTOR, I_s.....1.10
FLAT ROOF SNOW LOAD, P_f.....34 PSF
ROOF SLOPE FACTOR, C_s.....1.00
SLOPED ROOF SNOW LOAD, P_s.....34 PSF
DRIFT SURCHARGE LOAD, P_d.....NA
DRIFT SURCHARGE WIDTH, W.....NA

1.4. WIND LOADS:
BASIC WIND SPEED, V.....170 MPH
BASIC WIND SPEED ASD, V_{ASD}.....132 MPH
RISK CATEGORY.....III
EXPOSURE CLASSIFICATION.....C
INTERNAL PRESSURE COEFFICIENT.....0.18
DESIGN WIND VELOCITY PRESSURE (26-10.2).....53 PSF

1.5. SEISMIC LOADS:
RISK CATEGORY.....III
SEISMIC IMPORTANCE FACTOR, I_E.....1.25
MAPPED SHORT-PERIOD ACCELERATION, S_s.....0.24
MAPPED 1-SECOND PERIOD ACCELERATION, S_1.....0.13
SITE CLASS
SHORT-PERIOD DESIGN ACCELERATION, S_{DS}.....0.26
1-SECOND PERIOD DESIGN ACCELERATION, S_{D1}.....0.20
SEISMIC DESIGN CATEGORY.....D
BASIC SEISMIC FORCE-RESISTING SYSTEM
DESIGN BASE SHEAR.....0.72 K
SEISMIC RESPONSE COEFFICIENT, CS.....0.05
RESPONSE MODIFICATION COEFFICIENT, R.....6.5

1.6. GEOTECHNICAL DATA
DESIGN LOAD BEARING VALUE.....2000 PSF

1.6.1. FOUNDATIONS ARE DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 2000 PSF UNDER SUSTAINED LOADING.

1.6.2. FOUNDATION SOILS SHALL BE PREPARED IN ACCORDANCE WITH IBC 2021.

1.7. RAIN INTENSITY.....0.57 IN/HR

2. GENERAL

2.1. ALL WORK IS TO BE IN ACCORDANCE WITH THE 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE STATE OF ALASKA, LOCAL CODE AMENDMENTS, AND GOOD STANDARD PRACTICE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THESE DRAWINGS WITH THE ARCHITECTURAL SHEETS FOR OPENING SIZES, PROPER LOCATION OF BEARING WALLS AND BEAMS, AND LOCATION OF MECHANICAL AND ELECTRICAL ITEMS NOT SHOWN ON THE STRUCTURAL DRAWINGS. PROVIDE ADDITIONAL STUDS, JOISTS, OR OTHER FRAMING AS REQUIRED TO PERMIT PROPER INSTALLATION OF MECHANICAL. ELECTRICAL, AND PLUMBING PENETRATIONS.

2.2. PRIOR TO STARTING ANY WORK OR FABRICATION, THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AMONG THE DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, SITE CONDITIONS, AND THESE NOTES SHALL BE REPORTED TO THE ARCHITECT/ENGINEER.

2.3. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL OSHA AND DOSH SAFETY STANDARDS. THE CONTRACTOR IS IN CHARGE OF ALL SAFETY MATTERS ON AND AROUND THE JOB SITE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF THE CONSTRUCTION.

3. QUALITY ASSURANCE:

3.1. SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704. THE OWNER SHALL ENGAGE THE SERVICES OF AN INDEPENDENT, QUALIFIED SPECIAL INSPECTOR. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION: PERIODIC INSPECTION OF THE LATERAL FORCE RESISTING SYSTEM - WOOD DIAPHRAGM NAILING AND ATTACHMENTS TO PERIMETER SHEAR WALLS. CONTINUOUS INSPECTION OF POST INSTALLED ANCHORS.

3.2. SPECIAL INSPECTION IS IN ADDITION TO THE CONTRACTOR'S REQUIRED QUALITY CONTROL INSPECTIONS AND TESTING. THE CONTRACTOR'S QUALITY CONTROL INSPECTIONS AND TESTING SHALL OCCUR PRIOR TO SPECIAL INSPECTION AND REPORTS SHALL BE AVAILABLE TO THE SPECIAL INSPECTOR.

4. DEFERRED SUBMITTALS:

4.1. THE FOLLOWING ITEMS ARE NOT INCLUDED IN THESE DRAWINGS AND REQUIRE STRUCTURAL DESIGN TO BE FURNISHED BY THE CONTRACTOR:

4.1.1. ROOFING ATTACHMENT

4.1.2. SEISMIC ANCHORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENT DRAWINGS AND CALCULATIONS FOR BUILDER-DESIGNED COMPONENTS, SEALED BY AN ENGINEER REGISTERED IN THE STATE OF ALASKA, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO SUBMITTING TO BUILDING SAFETY FOR REVIEW. SUBMITTALS OF BUILDER-DESIGNED ITEMS SHALL INCLUDE LOCATIONS, MAGNITUDES, AND DIRECTIONS OF ALL FORCES TRANSFERRED TO THE STRUCTURE. DEFERRED SUBMITTALS MUST BE REVIEWED AND APPROVED PRIOR TO INSTALLATION/CONSTRUCTION.

5. SUBMITTALS:

5.1. THE CONTRACTOR SHALL REVIEW, STAMP WITH HIS APPROVAL, DATE AND SIGN ALL SHOP DRAWINGS AND SUBMITTALS REQUIRED BY THE CONTRACT DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER. AT THE TIME OF SUBMISSION, THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION IN THE SHOP DRAWINGS FROM THE REQUIREMENTS OF THE CONTRACT DRAWINGS. DIMENSIONS AND QUANTITIES ARE THE CONTRACTOR'S RESPONSIBILITY AND WILL NOT BE REVIEWED.

6. CONCRETE WORK:

6.1. STRUCTURAL CONCRETE SHALL HAVE A 28 DAY STRENGTH, F'cOF 4,000 PSI. MIX SHALL NOT CONTAIN LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD. MAXIMUM WATER TO CEMENT RATIO EQUALS 0.50. MAXIMUM UN-PLASTICIZED SLUMP SHALL BE 5 INCHES. TOTAL ENTRAINED AIR CONTENT OF 6%.

6.2. REINFORCING STEEL: SHALL BE ASTM A615, GRADE 60 DETAILED OR IN ACCORDANCE WITH ACI 318.BAR LAP SHALL BE IN ACCORDANCE WITH ACI 318 (44 BAR DIAMETER MINIMUM), OR AS DETAILED, IF MORE RESTRICTIVE.

6.3. SUPPORT ALL REBAR ON CHAIRS, DOBIES, OR OTHER APPROVED MEANS. CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT DISTURBANCE DURING CONCRETE PLACEMENT TO ENSURE THAT REINFORCEMENT REMAINS AT ITS PROPER ELEVATION AND POSITION.

6.4. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE.

7. WOOD:

7.1. ALL DIMENSIONAL LUMBER SHALL BE DOUG FIR #2 OR BETTER FOR ALL 2X JOISTS, STUDS, AND PLATES, AND DOUG FIR #1 FOR ALL 4X OR 6X WOOD POSTS AND BEAMS UNLESS NOTED OTHERWISE. WOOD SHALL BE GRADED IN ACCORDANCE WITH THE WESTERN WOODS PRODUCTS ASSOCIATION (WWPA) OR WEST COAST LUMBER INSPECTION BUREAU (WCLIB) LUMBER GRADING CRITERIA. MAXIMUM MOISTURE CONTENT SHALL BE 15%. MINIMUM HEADER SIZE UNLESS NOTED OTHERWISE SHALL BE (2)2X8 HEM-FIR #2.

7.2. ROOFING: 5/8" PLYWOOD ROOF SHEATHING SHALL BE CDX WITH EXTERIOR GLUE, OR BETTER AND SHALL HAVE A PANEL SPAN RATING OF 32/16 - BLOCKED EDGES, MINIMUM NAILING FOR ROOF PANELS SHALL BE (0.148")10d NAILS AT 6"0.C. ALONG PANEL EDGES AND 12"0.C. IN THE FIELD.

7.3. WALLS: PLYWOOD WALL SHEATHING SHALL BE 7/16" MIN CDX OR OSB WITH EXTERIOR GLUE, OR BETTER, AND SHALL HAVE A SPAN RATING OF 24/16 - MINIMUM NAILING FOR WALL PANELS SHALL BE 8d (0.131) NAILS AT 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD. BLOCK ALL PANEL EDGES FOR VERTICAL PLYWOOD DIAPHRAGMS. REFER TO SHEARWALL SCHEDULE FOR ADDITIONAL NAILING REQUIREMENTS.

7.4. ALL METAL TO WOOD OR WOOD TO WOOD CONNECTIONS SHALL BE STANDARD OR AS DETAILED ON THE DRAWINGS USING A307 BOLTS. ALL BOLTS AND LAG SCREW HEADS IN CONTACT WITH WOOD SHALL HAVE PLATES OR WASHERS AS DETAILED AND OR SPECIFIED.

7.5. ALL FRAMING ANCHORS AND HANGERS INDICATED ON THE DRAWINGS ARE "SIMPSON STRONG-TIE" OR EQUAL. UNLESS OTHERWISE DETAILED, ALL BEAMS AND JOISTS SHALL RECEIVE HANGERS WITH A NORMAL LOAD CAPACITY EQUAL TO THE SHEAR CAPACITY OF THE SUPPORTED MEMBER. HANGERS LOCATED IN CONTACT WITH TREATED WOOD OR WET CONDITIONS SHALL BE Z-MAX, STAINLESS STEEL OR HOT DIPPED GALVANIZED.

7.6. LAG SCREWS SHALL BE PRE-DRILLED WITH LEAD HOLES AS FOLLOWS:

7.6.1. THE LEAD HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH AS THE LENGTH OF THE UNTHREADED SHANK.

7.6.2. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60% TO 70% OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION.

7.7. MINIMUM NAILING SHALL EQUAL THAT INDICATED IN IBC TABLE 2304.9.1 UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

7.7.1. RAFTER TO TOP PLATE w/ (3) 16d COMMON (3-1/2" x 0.162") TOENAIL
7.7.2. BLOCKING BETWEEN RAFTERS w/ (3) 16d COMMON (3-1/2" X 0.162") EACH END, TOENAIL
7.7.3. TOP PLATE TO TOP PLATE w/ (3) 16d COMMON (3-1/2" X 0.162") 16" O.C. FACE NAIL
7.7.4. STUD TO TOP OR BOTTOM PLATE w/ (4) 16d COMMON (3-1/2" X 0.162") EACH NAIL

7.8. LAMINATED VENEER LUMBER (LVL) MEMBERS ARE TO BE "VERSA-LAM 2.0E" AS MANUFACTURED BY BOISE CASCADE OR OR APPROVED EQUAL. MINIMUM ALLOWABLE DESIGN STRESSES: Fb=2,800 PSI, E=2,000,000 PSI, Fv=285 PSI.

7.9. GLUED-LAMINATED BEAMS (GLB) ARE TO BE 24F-1.8E, BALANCED LAY-UP WITH MINIMUM ALLOWABLE DESIGN STRESSES OF Fb2,400 PSI, E=1,800,000 PSI, Fv=265 PSI. ALL GLUED-LAMINATED LUMBER TO BE FABRICATED IN ACCORDANCE WITH AITC 117 AND PRODUCT STANDARD PS-56.

ISSUED FOR CONSTRUCTION

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STATE OF ALASKA
49 TH
DANIEL HERTRICH
6/3/25
SEE 12643
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

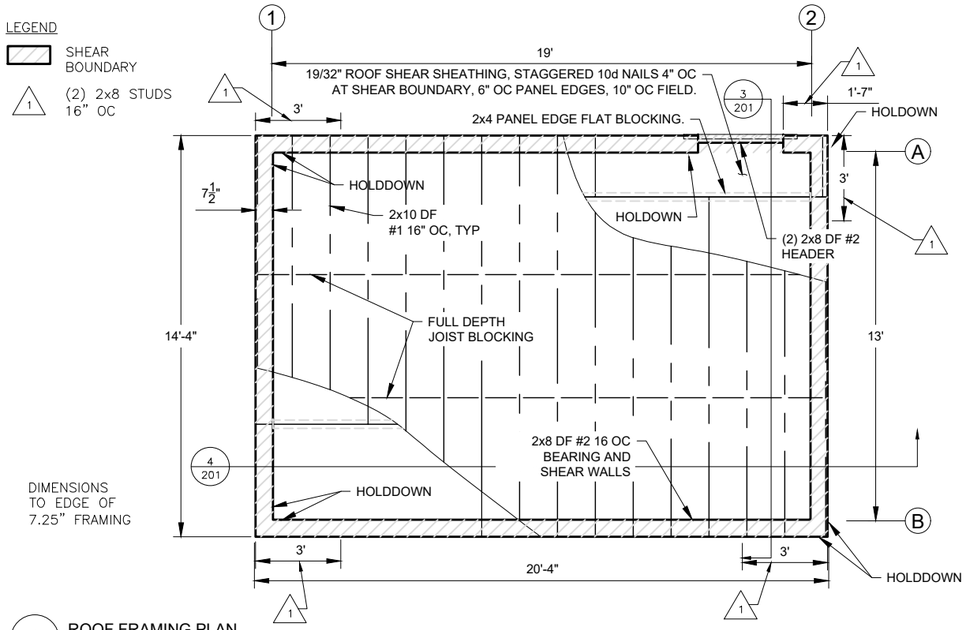
#	DATE	REMARKS

MANAGEMENT	
DESIGNED	DJH
DRAWN	RW
CHECKED	JM
APPROVED	JM
LAST EDIT	6/3/25
PLOT DATE	6/3/25
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
SPECIFICATIONS & DESIGN DATA

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: S100.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
S-100



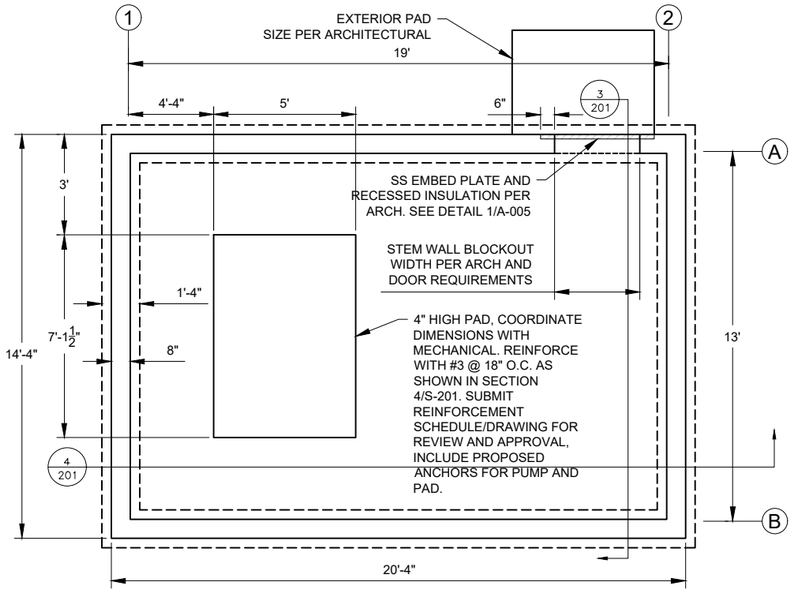
1 ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"

NOTES

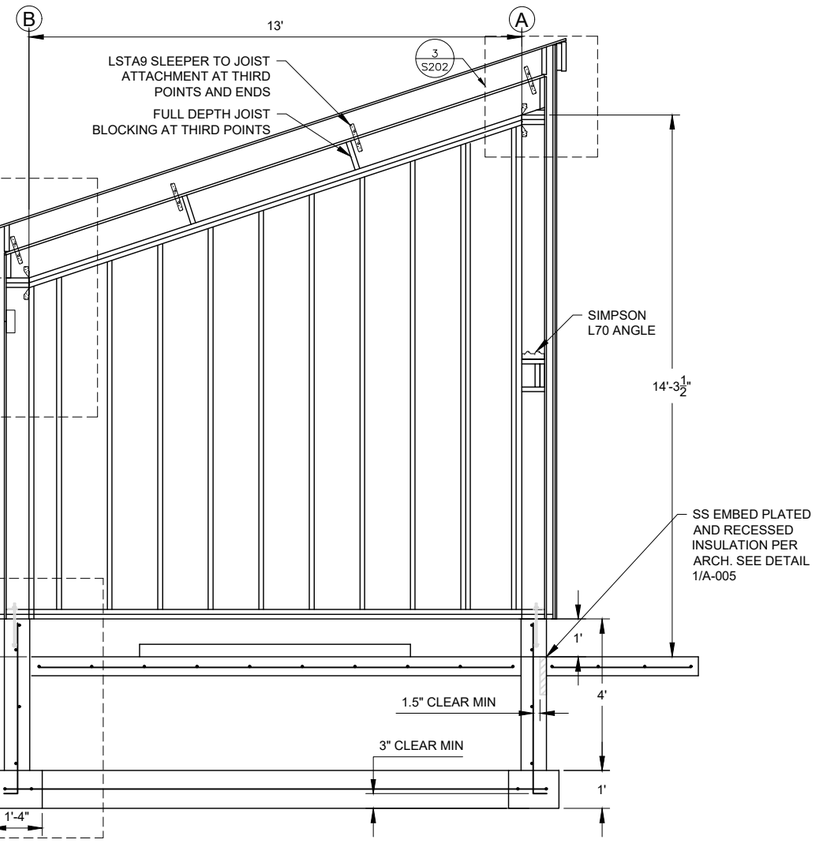
SHEAR WALLS NAILED WITH 8d @ 6" OC PANEL EDGES, 12" FIELD. PANEL EDGES REQUIRE BLOCKING. PANEL ORIENTATION EITHER DIRECTION. END PANELS (AT BUILDING CORNERS) NAILED WITH 10d AT 4" OC. BASE PLATE NAILING (2) ROWS OF 8d NAILS SPACED 4" OC, STAGGERED. HDU5 HOLDDOWN IN DOUBLE STUD AT EA WALL END w/ SB5/8x24 ANCHOR BOLT w/ 18" MIN EMBED. CORNER WALLS CAN SHARE HOLDDOWN IF PANEL EDGES OF THE INTERSECTING WALLS ARE NAILED TO THE SAME HOLDDOWN COLUMN.

SHEAR WALL BASE PLATES BOLTED TO CONCRETE WITH 5/8" ANCHOR BOLTS SPACED 36" OC AND EMBEDDED IN CONCRETE A MINIMUM OF 8". 3"x3"x0.25" PLATE WASHERS INSTALLED SUCH THAT ONE EDGE IS WITHIN 1/2" OF SHEAR WALL SHEATHING.

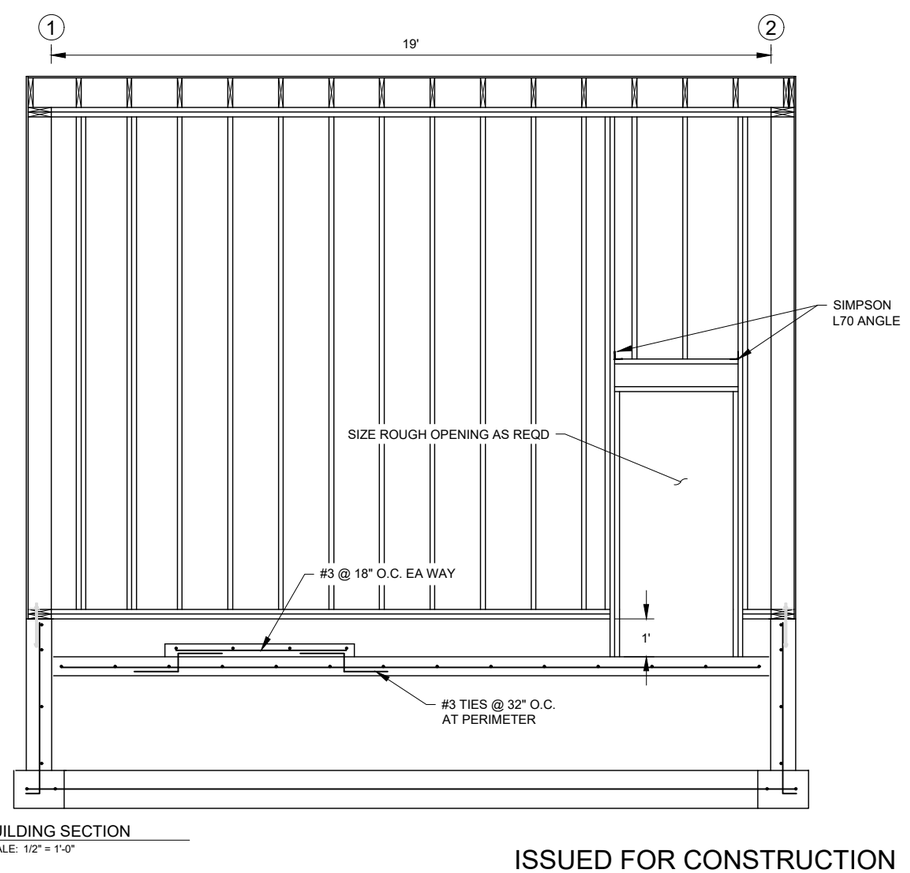
SLEEPERS, BATTENS, AND OUTER SHEATHING NOT SHOWN



2 FOUNDATION PLAN
SCALE: 3/8" = 1'-0"



3 BUILDING SECTION
SCALE: 1/2" = 1'-0"



4 BUILDING SECTION
SCALE: 1/2" = 1'-0"

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REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
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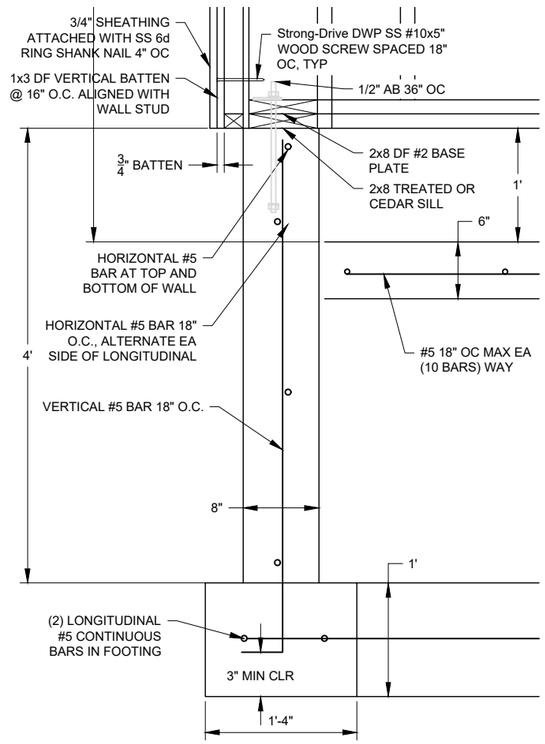
SUBMITTAL	03/27/24

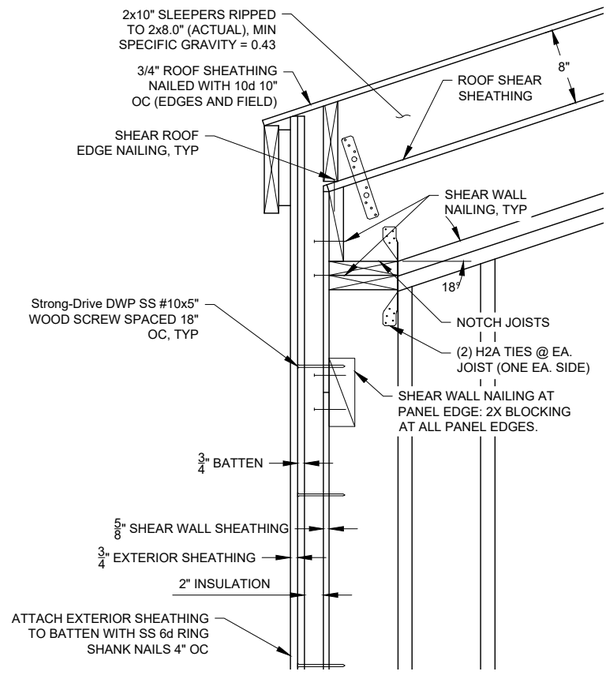
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
FRAMING AND FOUNDATION PLAN

PROJECT NUMBER 165.030630
DRAWING FILE NAME S200.DWG
DRAWING SCALE AS SHOWN

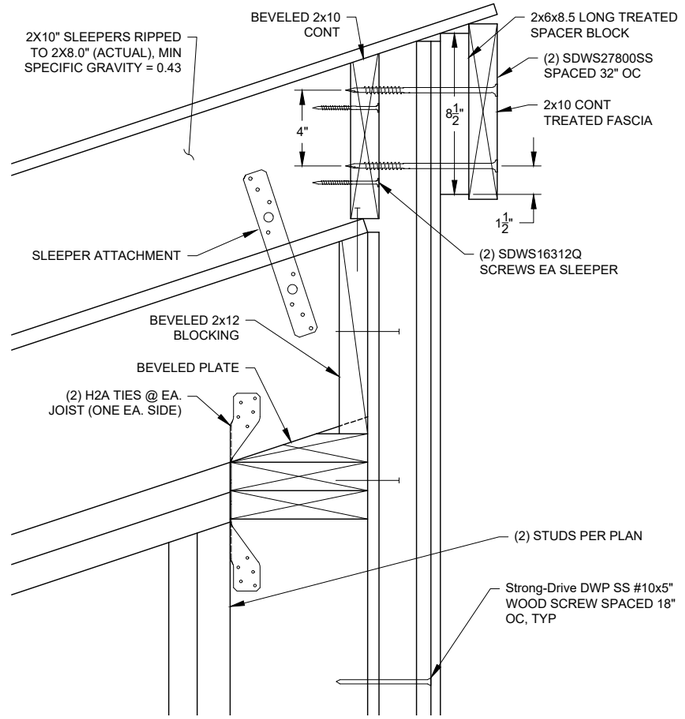
SHEET NUMBER
S-201



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



2 FRAMING DETAIL - LOW WALL
SCALE: 1'-1/2" = 1'-0"



3 ROOF FRAMING DETAIL - HIGH WALL
SCALE: 1'-1/2" = 1'-0"

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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
FRAMING SECTIONS AND DETAILS

PROJECT NUMBER 165.030630
DRAWING FILE NAME S200.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
S-202

LIGHTING LEGEND

- LIGHTING FIXTURE - SURFACE (CEILING)
- COMB. EXHAUST FAN, LIGHT FIXTURE - SURFACE (CEILING)
- LIGHTING FIXTURE - RECESSED
- WALL MOUNTED FIXTURE
- 2x2 RECESSED FIXTURE
- 2x4 RECESSED FIXTURE
- 1x4 RECESSED FIXTURE
- 2x2 SURFACE MOUNTED FIXTURE
- 2x4 SURFACE MOUNTED FIXTURE
- 1X4 SURFACE MOUNTED FIXTURE
- PENDANT MOUNTED FIXTURE
- WALL MOUNTED FIXTURE
- STRIP FIXTURE
- TRACK LIGHTING SYSTEM
- POLE MOUNTED AREA LIGHT
- WALL MOUNTED BUILDING LIGHT
- FLOOD LIGHT
- EXIT SIGN - CEILING MOUNTED (SOLID INDICATES EXIT SIGN FACING)
- EXIT SIGN - WALL MOUNTED (SOLID INDICATES EXIT SIGN FACING)
- EMERGENCY LIGHT
- LIGHT FIXTURE W/ EMERGENCY BATTERY
- PHOTOCELL
- $ SINGLE POLE SWITCH 48" U.O.N.
- $D SWITCH WITH DESIGNATION (D - DIMMABLE) 48" U.O.N.
- $K3 THREE WAY KEY OPERATED SWITCH 48" U.O.N.
- $3$4 3-WAY & 4-WAY SWITCH 48" U.O.N.
- $PL SINGLE POLE SWITCH W/ PILOT LIGHT (PL "ON" WHEN LIGHT IS "OFF" - U.O.N.) 48" U.O.N.
- $OS OCCUPANCY SENSOR - WALL MOUNTED
- OS OCCUPANCY SENSOR - CEILING MOUNTED
- MS MOTION SENSOR - WALL MOUNTED

POWER LEGEND

- M ELECTRIC METER
- NEW PANELBOARD - SURFACE MOUNTED
- EXISTING PANELBOARD - SURFACE MOUNTED
- NEW PANELBOARD - FLUSH MOUNTED
- EXISTING PANELBOARD - FLUSH MOUNTED
- MOTOR CONNECTION
- G GENERATOR
- $MS MOTOR RATED DISCONNECT SWITCH (FRACTIONAL HP) W/ ITP
- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER DISCONNECT
- S SOLENOID
- T TRANSFORMER

WIRING CIRCUITS LEGEND

- CONDUIT - CONCEALED
- CONDUIT - EXPOSED
- CONDUIT - UNDERGROUND
- CONDUIT - FLEX
- CONDUIT - LIQUID TIGHT FLEX
- SEAL OFF FOR CLASSIFIED LOCATIONS
- A-2 HOMERUN (GROUND, NUETRAL,# OF HOT)
- CONDUIT STUB-UP
- CONDUIT STUB-DN
- T THERMOSTAT (LINE VOLTAGE)
- HEAT TRACE
- P HEAT TRACE POWER POINT

WIRING DEVICES LEGEND

- RECEPTACLE - SINGLE 18" U.O.N.
- RECEPTACLE - DUPLEX 18" U.O.N.
- RECEPTACLE - QUAD 18" U.O.N.
- RECEPTACLE - SPLIT WIRED 18" U.O.N.
- RECEPTACLE - GFCI RECEPTACLE
- WP RECEPTACLE - GFCI WEATHER PROOF RECEP
- RECEPTACLE - SPECIAL 18" U.O.N.
- RECEPTACLE - FLOOR MOUNTED
- RECEPTACLE - CEILING MOUNTED
- JUNCTION BOX
- PUSH BUTTON (DOORBELL, GARAGE)
- W PLUG MOLD
- RECEPTACLE - GFCI QUAD 18" U.O.N.

COMMUNICATIONS LEGEND

- TELECOM OUTLET, 2 JACKS UON
- TELECOM OUTLET - FLOOR MOUNTED, 2 JACKS UON
- TELECOM OUTLET - CEILING MOUNTED, 2 JACKS UON
- EXISTING TELECOM AND/OR DATA OUTLET
- TV TELEVISION OUTLET
- S SPEAKER - WALL MOUNTED
- S SPEAKER - CEILING MOUNTED
- BELL
- DOOR-BELL WITH ADA COMPLIANT VISUAL NOTIFICATION DEVICE
- S SPEAKER / CLOCK
- CLOCK - WALL MOUNTED
- CLOCK - CEILING MOUNTED
- TTB TELEPHONE TERMINAL BOARD

ELECTRICAL ABBREVIATIONS LIST

AC	ABOVE COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
BB	BASEBOARD (HEATER)
BCU	BARE COPPER
BFC	BELOW FINISH CEILING (BOTTOM OF DEVICE)
BLDG	BUILDING
CB	CIRCUIT BREAKER
CFF	CLEARANCE FINISH FLOOR (SURFACE TO SURFACE)
CFC	CLEARANCE FINISH CEILING (SURFACE TO SURFACE)
CLG	CEILING
CKT	CIRCUIT
CO	CONDUIT ONLY
C	CONDUIT
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DCS	DIGITAL CONTROL SYSTEM
DIST	DISTANCE
(E)	EXISTING
EGC	EQUIPMENT GROUNDING CONDUCTOR
EM	EMERGENCY
EMCS	ENERGY MANAGMENT CONTROL SYSTEM
EO	ELECTRICALLY OPERATED
EP	EXPLOSION PROOF
EKSU	ELECTRONIC KEY SWITCH UNIT
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FA	FIRE ALARM
FBO	FURNISHED BY OTHERS
FWP	FACTORY WIRED PANEL
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HIT	HIGH INTENSITY TUNGSTEN
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HWH	HOT WATER HEATER
IBO	INSTALLED BY OTHERS
INC	INCANDESCENT
ITB	INTERCOM TERMINAL BOX
KEA	KODIAK ELECTRIC ASSOCIATION
KSU	KEY SWITCH UNIT
LC	LIGHTING CONTACTOR
LPS	LOW PRESSURE SODIUM
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MDS	MAIN DISTRIBUTION SWITCHBOARD
MH	MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OL	OVERLOAD
PA	PUBLIC ADDRESS
PC	PHOTOCELL
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PT	PAN, TILT, OOM
QT	QUART
RIB	RELAY IN BOX
ROW	RIGHT OF WAY
SEC	SECTION
SSBJ	SUPPLY SIDE BONDING JUMPER
SSP	SECURITY SYSTEM PANEL
TC	TIME CLOCK
TTB	TELEPHONE TERMINAL BOARD
TTC	TELEPHONE TERMINAL CABINET
UON	UNLESS OTHERWISE NOTED
VEL	VERIFY EXACT LOCATION
VOS	VERIFY ON SITE
W/	WITH
W/O	WITHOUT
WP	WEATHER PROOF
XFRM	TRANSFORMER

THIS IS A STANDARD (TYPICAL) ABBREVIATIONS LIST. NOT ALL ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT. ALSO, ADDITIONAL ABBREVIATIONS MAY BE INTRODUCED ON DRAWINGS AND DEFINED THEREIN.

FIRE ALARM SYSTEM LEGEND

- FA MANUAL PULL STATION
- FA HORN STROBE
- FA / ADA STROBE
- MAGNETIC DOOR HOLD OPEN
- 135 F FA HEAT DETECTOR (FIXED TEMP. NOTED)
- SMOKE DETECTOR - IONI ATION TYPE
- P/CO/A SMOKE /CO DETECTOR - PHOTO ELECTRIC TYPE W/AUDIO AND CONNECTED TO A STROBE.
- P SMOKE DETECTOR - PHOTO ELECTRIC TYPE
- D SMOKE DETECTOR - DUCT MOUNTED
- S FA SPEAKER
- FACP FIRE ALARM CONTROL PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL

SECURITY LEGEND

- WALL MOUNT CCTV
- RECESSED CEILING MOUNT CCTV WITH DOME
- CEILING MOUNT DOME
- RACK
- G GLASS BREAK SENSOR
- D MAGNETIC DOOR SENSOR
- M MOTION SENSOR
- KP KEYPAD
- RIM REMOTE ALARM INPUT MODULE
- CR CARD READER
- ACU NETWORKED INTELLIGENT CONTROLLER

LINE TYPES

EXISTING EQUIPTMENT

NEW EQUIPTMENT

NOTES

SHEET NOTES (#)

CONSTRUCTION NOTES (#)

SYMBOL NOTES:

1. SYMBOLS DO NOT NECESSARLIY APPEAR ON PLANS IN THE SAME SI E OR PROPORTION AS SHOWN ON THIS LEGEND.
2. PLANS DO NOT NECESSARILY USE ALL OF THE SYMBOLS DISPLAYED ON THIS LEGEND.

MOUNTING HEIGHTS

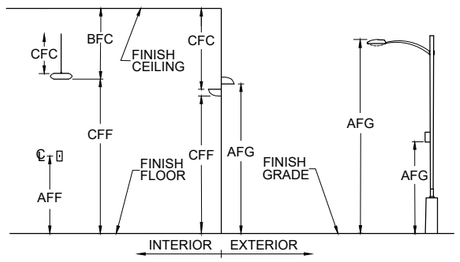
MOUNTING HEIGHTS APPLY TO ALL ELECTRICAL DRAWINGS

THE FOLLOWING HEIGHTS ARE ABOVE FINISHED FLOOR OR GRADE, AND SHALL BE USED UNLESS OTHERWISE NOTED

LIGHT SWITCHES & LIGHT DIMMERS	℄ 45"	VOLUME CONTROLS (WALL-MTD.)	℄ 45"
DUPLEX RECEPTACLE	℄ 18" U.O.N.	TELEPHONE OUTLETS (FOR DESK PHONES)	℄ 18"
DULPEX RECEPTACLE GFI	℄ 18" U.O.N.	MICROPHONE OUTLETS	℄ 45"
DUPLEX RECEPTACLE SPLIT-WIRED	℄ 18" U.O.N.	TV OUTLETS	℄ 18" UON
SPECIAL PURPOSE RECEPTACLES	AS REQ. BY EQUIP. SERVED	FIRE ALARM MANUAL STATIONS	℄ 45"
COMPUTER (DATA) OUTLETS	℄ 18"	FIRE ALARM SIGNALS	℄ 80" (A)
WALL-PHONE OUTLETS (LOCATIONS W/ WHEELCHAIR SIDE ACCESS)	℄ 50"	PANELBOARDS	TOP OF BOX 72"
DUPLEX RECEPTACLES (RESTROOMS)	℄ 36"	DISCONNECTS, STARTERS, CONTACTORS	TOP OF BOX 66"

VERIFY ALL M.H. WITH OWNER'S REPRESENTATIVE WHEN IN CONFLICT. MODIFY M.H. AS REQUIRED BY LOCAL CONDITIONS AND TYPE OF OCCUPANCY - TYPICAL OF ALL DRAWINGS.

MOUNTING LEGEND



DRAWING SYMBOLS

SEE SECTION #, ON SHEET XX — # / XX

SECTION #/DETAIL # — # SCALE:

NORTH ARROW

SCALE BAR — 20' 0' 10' 20' 40'

ISSUED FOR CONSTRUCTION

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License Number: AELS 129381

STATE OF ALASKA 49 TH
CARL I. OLSON
No. EE 14398
3-27-2024
REGISTERED PROFESSIONAL ENGINEER

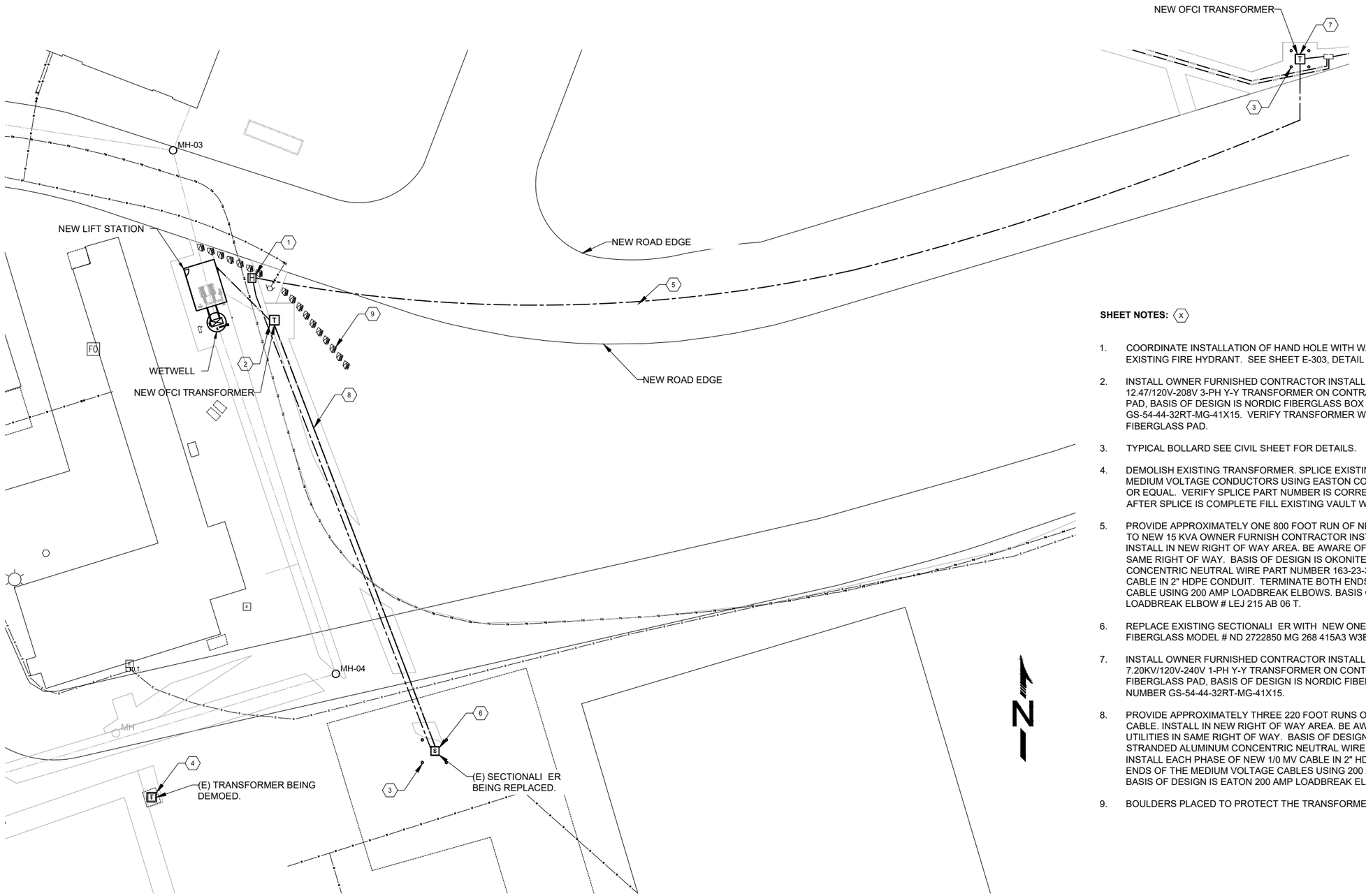
REVISIONS & ADDENDUMS	#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WDF
DRAWN	WDF
CHECKED	CIO
APPROVED	
LAST EDIT	3/25/24
PLOT DATE	3/25/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
ELECTRICAL LEGEND AND ABBREVIATIONS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-001 LEGEND.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-001



1 E-101 BOAT HARBOR MEDIUM VOLTAGE SITE PLAN WORK

SCALE: 1" 25'

SHEET NOTES: (X)

1. COORDINATE INSTALLATION OF HAND HOLE WITH WATER AND SEWER LINES AND EXISTING FIRE HYDRANT. SEE SHEET E-303, DETAIL 2.
2. INSTALL OWNER FURNISHED CONTRACTOR INSTALLED ERMCO 75 KVA 12.47/120V-208V 3-PH Y-Y TRANSFORMER ON CONTRACTOR FURNISHED FIBERGLASS PAD, BASIS OF DESIGN IS NORDIC FIBERGLASS BOX PAD PART NUMBER GS-54-44-32RT-MG-41X15. VERIFY TRANSFORMER WILL FIT ON SPECIFIED FIBERGLASS PAD.
3. TYPICAL BOLLARD SEE CIVIL SHEET FOR DETAILS.
4. DEMOLISH EXISTING TRANSFORMER. SPLICE EXISTING 1/0 CONCENTRIC NEUTRAL MEDIUM VOLTAGE CONDUCTORS USING EASTON COOPER SPLICE PART #SP15A004S OR EQUAL. VERIFY SPLICE PART NUMBER IS CORRECT FOR EXISTING MV CABLE. AFTER SPLICE IS COMPLETE FILL EXISTING VAULT WITH FILL MATERIAL.
5. PROVIDE APPROXIMATELY ONE 800 FOOT RUN OF NEW 1/0 MEDIUM VOLTAGE CABLE TO NEW 15 KVA OWNER FURNISH CONTRACTOR INSTALLED TRANSFORMER. INSTALL IN NEW RIGHT OF WAY AREA. BE AWARE OF EXISTING BURIED UTILITIES IN SAME RIGHT OF WAY. BASIS OF DESIGN IS OKONITE 15kV 1/0 STRANDED ALUMINUM CONCENTRIC NEUTRAL WIRE PART NUMBER 163-23-3072. INSTALL NEW 1/0 MV CABLE IN 2" HDPE CONDUIT. TERMINATE BOTH ENDS OF THE MEDIUM VOLTAGE CABLE USING 200 AMP LOADBREAK ELBOWS. BASIS OF DESIGN IS EATON 200 AMP LOADBREAK ELBOW # LEJ 215 AB 06 T.
6. REPLACE EXISTING SECTIONALI ER WITH NEW ONE. BASIS OF DESIGN NORDIC FIBERGLASS MODEL # ND 2722850 MG 268 415A3 W3B.
7. INSTALL OWNER FURNISHED CONTRACTOR INSTALLED ERMCO 15 KVA 7.20KV/120V-240V 1-PH Y-Y TRANSFORMER ON CONTRACTOR FURNISHED FIBERGLASS PAD, BASIS OF DESIGN IS NORDIC FIBERGLASS BOX PAD PART NUMBER GS-54-44-32RT-MG-41X15.
8. PROVIDE APPROXIMATELY THREE 220 FOOT RUNS OF NEW 1/0 MEDIUM VOLTAGE CABLE. INSTALL IN NEW RIGHT OF WAY AREA. BE AWARE OF EXISTING BURIED UTILITIES IN SAME RIGHT OF WAY. BASIS OF DESIGN IS OKONITE 15kV 1/0 STRANDED ALUMINUM CONCENTRIC NEUTRAL WIRE PART NUMBER 163-23-3072. INSTALL EACH PHASE OF NEW 1/0 MV CABLE IN 2" HDPE CONDUIT. TERMINATE BOTH ENDS OF THE MEDIUM VOLTAGE CABLES USING 200 AMP LOADBREAK ELBOWS. BASIS OF DESIGN IS EATON 200 AMP LOADBREAK ELBOW # LEJ 215 AB 06 T.
9. BOULDERS PLACED TO PROTECT THE TRANSFORMER AND LIFT STATION.

ISSUED FOR CONSTRUCTION

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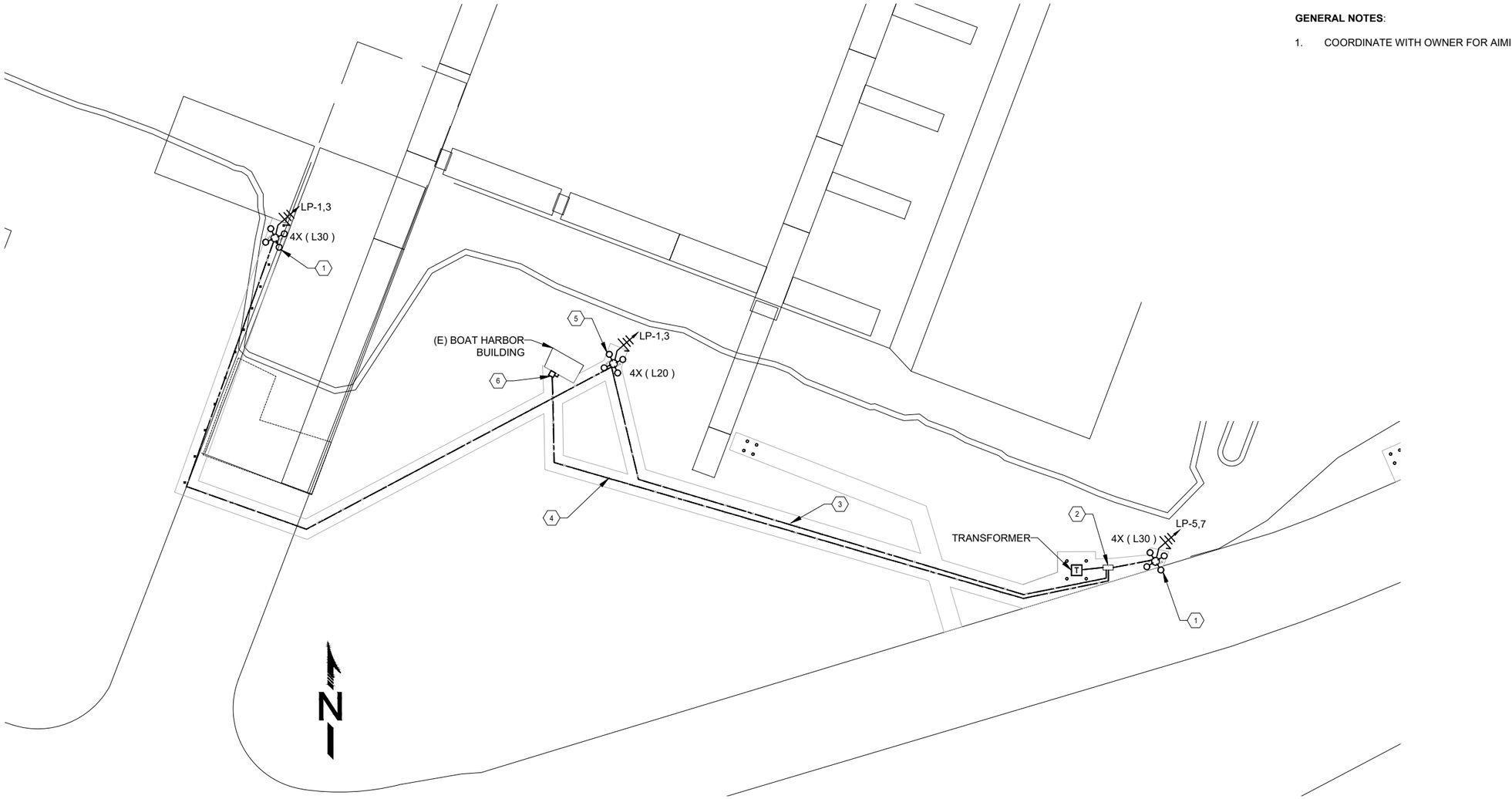
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
MEDIUM VOLTAGE SITE PLAN WORK

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 30630-E-100 MV SITE PLANS.DWG

SHEET NUMBER
E-101

LUMINAIRE SCHEDULE FOR BOAT HARBOR AREA									
QTY	TYPE	ELECTRICAL		DESCRIPTION	LAMPS	MOUNTING	MANU-FACTURER	MODEL	NOTES
		WATTS	VOLTAGE						
4	L20	236	MVOLT	3000K POLE MOUNTED FLOOD LIGHT FIXTURE	38,000LM LED	20' AGL	CREE	OSQL-C-40L-30K7-55-UL-NM-SV-20KV MOUNT: OSQ-ML-C-AA-SV	1
8	L30	447	MVOLT	3000K POLE MOUNTED FLOOD LIGHT FIXTURE	72,000LM LED	30' AGL	CREE	OSQX-C-75L-30K7-55-UL-NM-SV-20KV MOUNT: OSQ-X-C-AA-SV	1
GENERAL NOTES:									
A.	VERIFY CEILING TYPES THROUGHOUT. PROVIDE ALL MOUNTING HARDWARE AS RECOMMENDED BY THE LIGHTING MANUFACTURER FOR SPECIFIC CEILING TYPES.								
B.	COORDINATE ALL FIXTURE MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION TO ENSURE THAT CONFLICTS DO NOT EXIST. WHERE CONFLICTS EXIST, NOTIFY ENGINEER.								
C.	LIGHT FIXTURE PACKAGE TO GENERALLY MATCH OWNER'S SUPPLIED SAMPLE DRAWINGS. SUBMIT FULL LIGHTING PACKAGE FOR OWNER REVIEW.								
NUMBERED NOTES:									
1	ATTACH LIGHT FIXTURES TO A 4 ARM LIGHT BRACKET MOUNTED TO THE TOP OF THE WOOD UTILITY POLE. BASIS OF DESIGN IS UTILITY METALS PART# W4-P-10-13								



1 E-102 BOAT HARBOR LIGHT & POWER SITE PLAN

SCALE:1" 25'

1" 0 25' 50'

ISSUED FOR CONSTRUCTION

SHEET NOTES: (X)

1. PROVIDE 40' TALL CLASS 3 WOOD POLE WITH 30" AFG. ATTACH A (4) ARM MOUNTING BRACKET TO THE TOP OF THE POLE WITH (4) FLOOD LIGHTS MOUNTED PER POLE.
2. POWER RAIL FOR MOUNTING METER/ MAIN, DISCONNECT, AND PANELBOARD. SEE SHEET E-303, DETAILS 3.
3. PATH FOR 240V CIRCUIT TO AREA LIGHTING.
4. FEEDER TO EXISTING BOAT HARBOR BUILDING.
5. PROVIDE 30' TALL CLASS 3 WOOD POLE WITH 20" AFG. ATTACH A (4) ARM MOUNTING BRACKET TO THE TOP OF THE POLE WITH (4) FLOOD LIGHTS MOUNTED PER POLE.
6. INSTALL A NEW DISCONNECT ON THE EXISTING HARBOR BUILDING AND THEN TIE THE NEW CIRCUIT INTO THE EXISTING BUILDING ELECTRICAL.

GENERAL NOTES:

1. COORDINATE WITH OWNER FOR AIMING FLOOD LIGHTS.

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REGISTERED PROFESSIONAL ENGINEER

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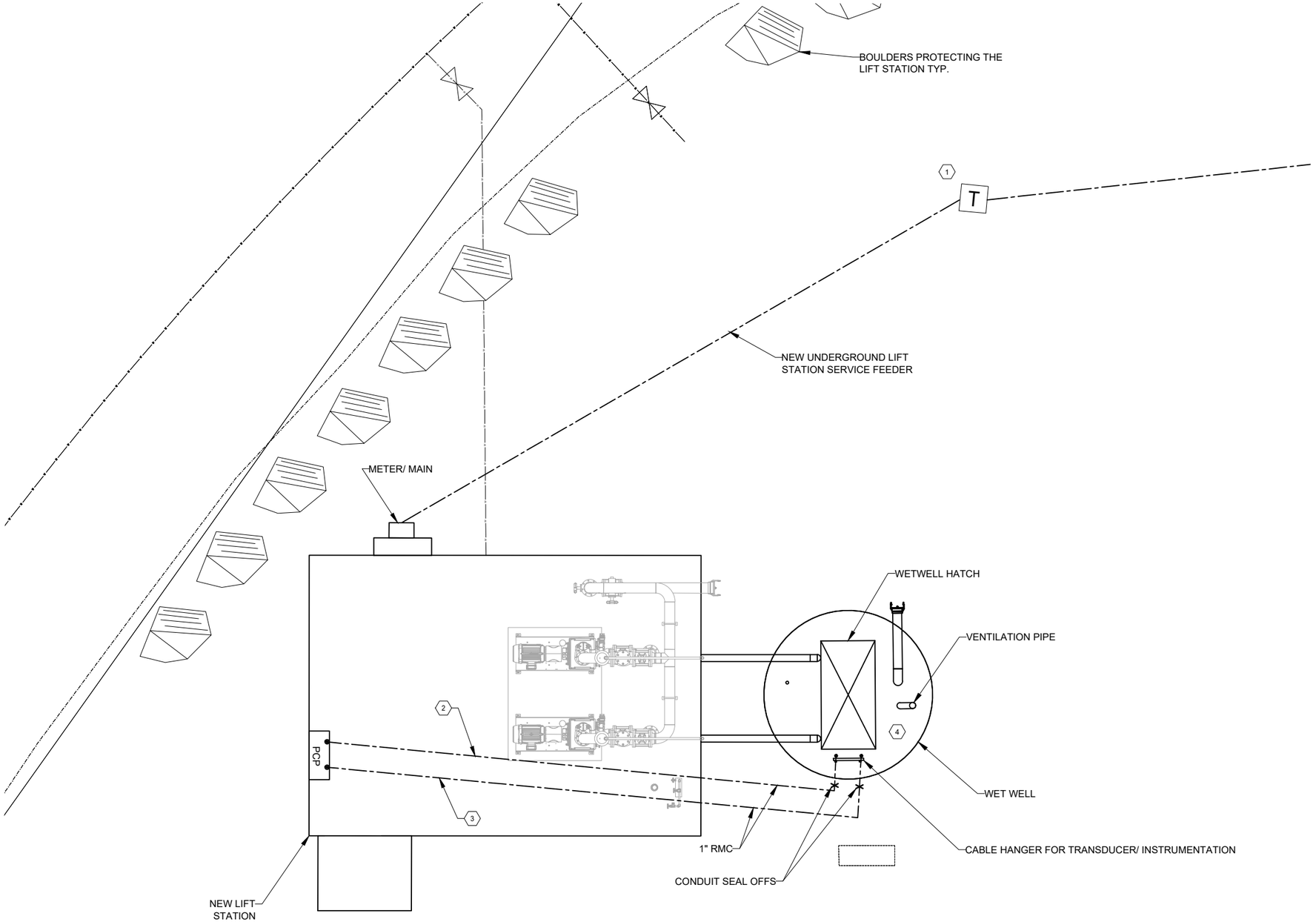
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
BOAT HARBOR LIGHTING AND POWER SITE PLAN

PROJECT NUMBER 165.030630
DRAWING FILE NAME 30630-E-100 M/V SITE PLANS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
E-102



SHEET NOTES: (X)

1. COORDINATE WITH LOCAL UTILITY TO ENERGI E TRANSFORMER AS NEEDED DURING CONSTRUCTION.
2. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
3. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL HIGH LEVEL ALARM FLOAT.
4. SEE SHEET E-302 DETAILS 1 & 2 FOR HA ARDOUS LOCATION AREAS.

1 E-103 BOAT HARBOR LIFT STATION SITE PLAN

SCALE: 1" 3'

3' 0' 1.5' 3' 6'

ISSUED FOR CONSTRUCTION

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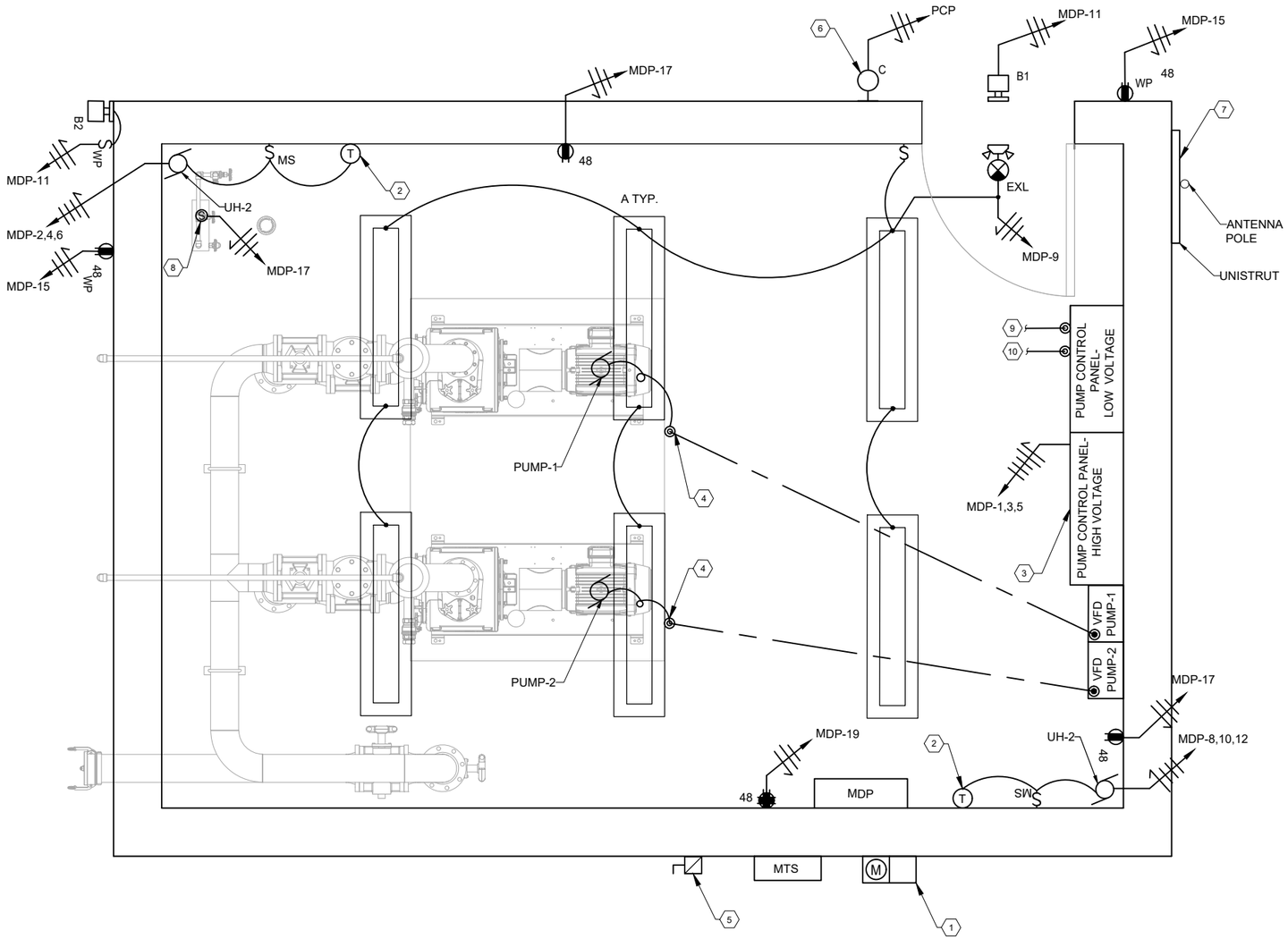
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION SITE PLAN

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-103 LIFT STATION SITE PLAN.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-103



1 E-201 BOAT HARBOR LIFT STATION POWER PLAN

SCALE: 3/4" 1'

SHEET NOTES: (X)

1. METER/ MAIN.
2. LINE VOLTAGE THERMOSTAT.
3. PROVIDE STAINLESS STEEL PUMP CONTROL PANEL WITH BUILT IN DISCONNECTS AND EXTERNALLY MOUNTED HEAVY DUTY VFDS. BASIS OF DESIGN IS DUTYMASTER MULTI-PUMP CONTROLLER WITH BUILT IN SCADA. PROVIDE WET WELL FLOAT SWITCH AND 4-20MA SUBMERSIBLE LEVEL TRANSDUCER WITH PUMP CONTROLLER.
4. STUB-UP WHERE CONDUIT COME OUT OF SLAB AND CONNECTS TO PUMP.
5. PROVIDE PLACARD ON SIDE OF BUILDING "BACKUP GENERATOR CONNECTION HERE".
6. CONNECT TO PCP 120 VOLT WARNING LIGHT OUTPUT CIRCUIT.
7. 10', 2" IPS SCHEDULE 80 ALUMINUM SCADA ANTENNA POLE MOUNTED WITH UNISTRUT TO THE OUTSIDE OF THE BUILDING WITH 4' CLEARING THE HIGHEST POINT OF THE ROOF.
8. TRAP PRIMER SOLENOID.
9. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO STUB-DOWN INTO SLAB TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
10. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER THROUGH STUB-DOWN INTO SLAB TO WET WELL HIGH LEVEL ALARM FLOAT.

LUMINAIRE SCHEDULE FOR BOAT HARBOR LIFT STATION

QTY	TYPE	ELECTRICAL WATTS	ELECTRICAL VOLTAGE	DESCRIPTION	LAMPS	MOUNTING	MANU-FACTURER	MODEL	NOTES
	A	27	MVOLT	SURFACE MOUNTED .5'X2' GASKETED LIGHT FIXTURE	4,000LM LED	SURFACE CEILING	LITHONIA	DMW2 L24 2000LM PFL WD MVOLT 010V 40K 80CRI JSB	
	B1	51	MVOLT	OUTDOOR FLOODLIGHT WITH MOTION SENSOR	7,000LM LED	WALL +11 AFF	LITHONIA	RSXF1LED P1 40K AWFD MVOLT AAWB NLTAIR2 PIRHN CCE DDBXD	
	B2	72	MVOLT	OUTDOOR FLOODLIGHT	10,000LM LED	WALL +9' AFF	LITHONIA	RSXF1LED P2 40K AWFD MVOLT AAWB CCE DDBXD	
	C	17	MVOLT	METALALLIC VAPORPROOF LED WITH RED LENSE	1,300LM LED	WALL +7'6" AFF	PHOENIX	VA W 17LED CW FGC / GHR	
	EXL	4.3	MVOLT	LED EXIT SIGN WITH EMERGENCY EGRESS LIGHTS		WALL +7'6" AFF	LITHONIA	LHQM LED R HO SD	

GENERAL NOTES:

A. VERIFY CEILING TYPES THROUGHOUT. PROVIDE ALL MOUNTING HARDWARE AS RECOMMENDED BY THE LIGHTING MANUFACTURER FOR SPECIFIC C

B. COORDINATE ALL FIXTURE MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION TO ENSURE THAT CONFLICTS DO NOT EXIST. WHERE CONFLICTS EXIST, NOTIFY ENGINEER.

C. LIGHT FIXTURE PACKAGE TO GENERALLY MATCH OWNER'S SUPPLIED SAMPLE DRAWINGS. SUBMIT FULL LIGHTING PACKAGE FOR OWNER REVIEW.

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3-27-2024
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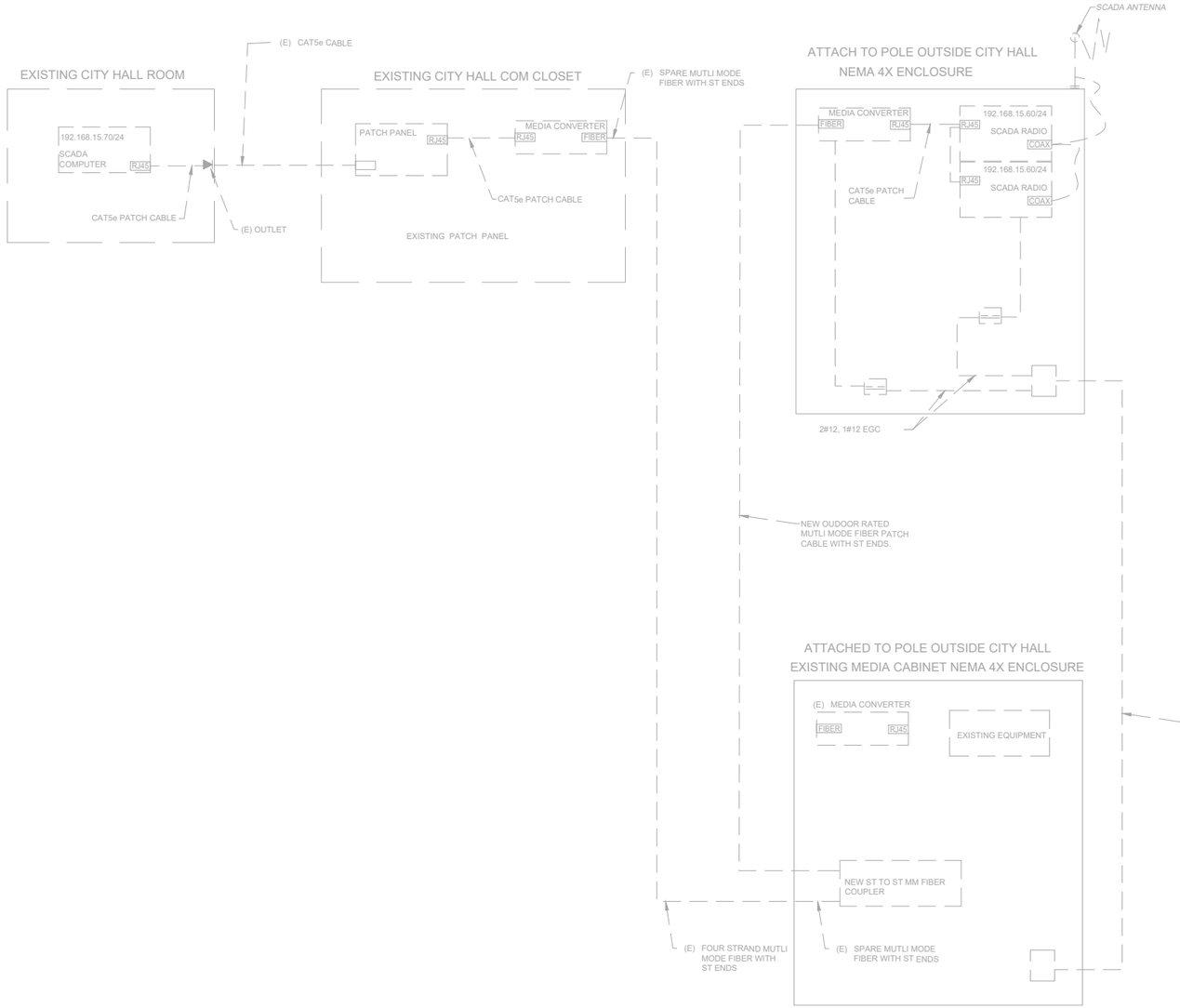
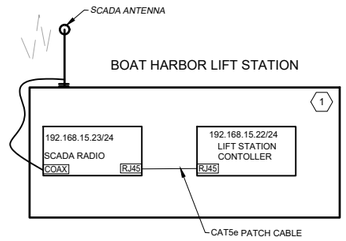
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
BOAT HARBOR LIFT STATION POWER PLAN

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-201 POWER PLAN.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-201





SHEET NOTES: (X)

1. INTEGRATE NEW LIFT STATION INTO EXISTING SCADA SYSTEM.

GENERAL NOTES:

1. ALL ETHERNET SCADA RADIOS ARE GENERAL ELECTRIC'S MDS 900 SERIES RADIOS.
2. ALL EQUIPMENT AT CITY HALL IS EXISTING.
3. COORDINATE WITH OWNER FOR UPGRADE OF SCADA COMPUTER.

1 / E-301 ELECTRICAL SCADA PLAN
SCALE: NTS

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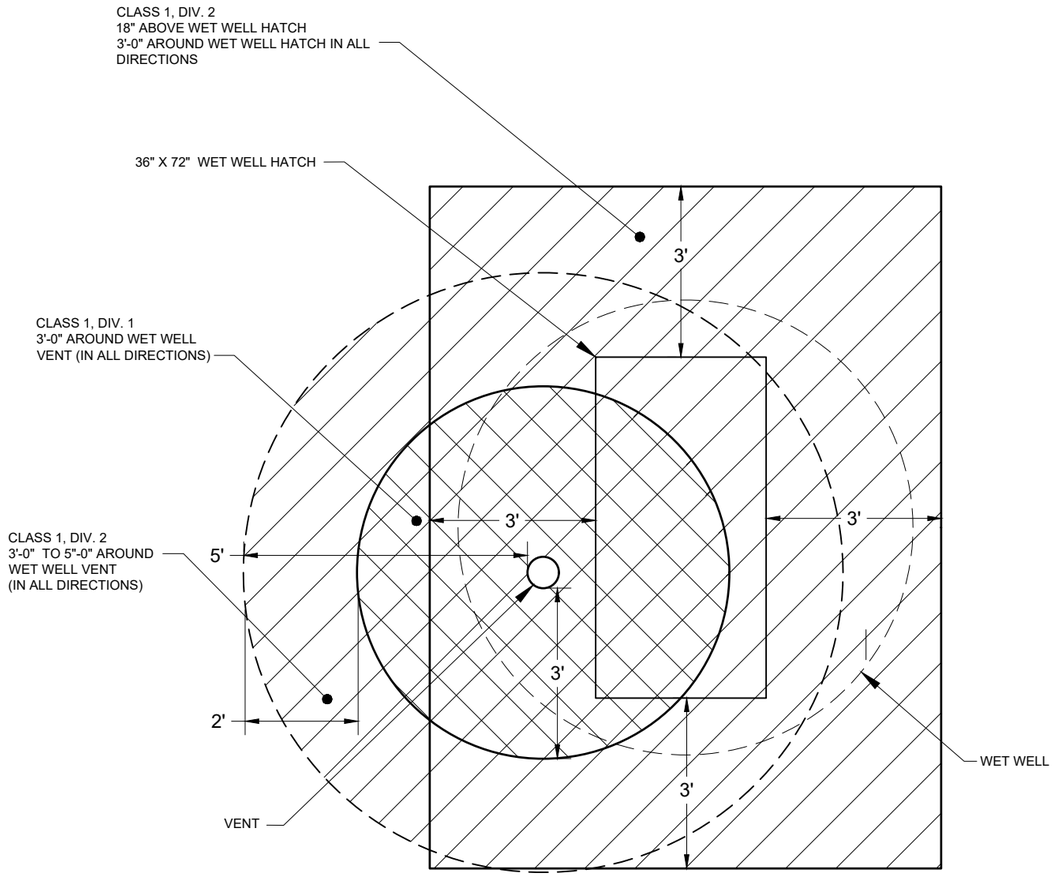
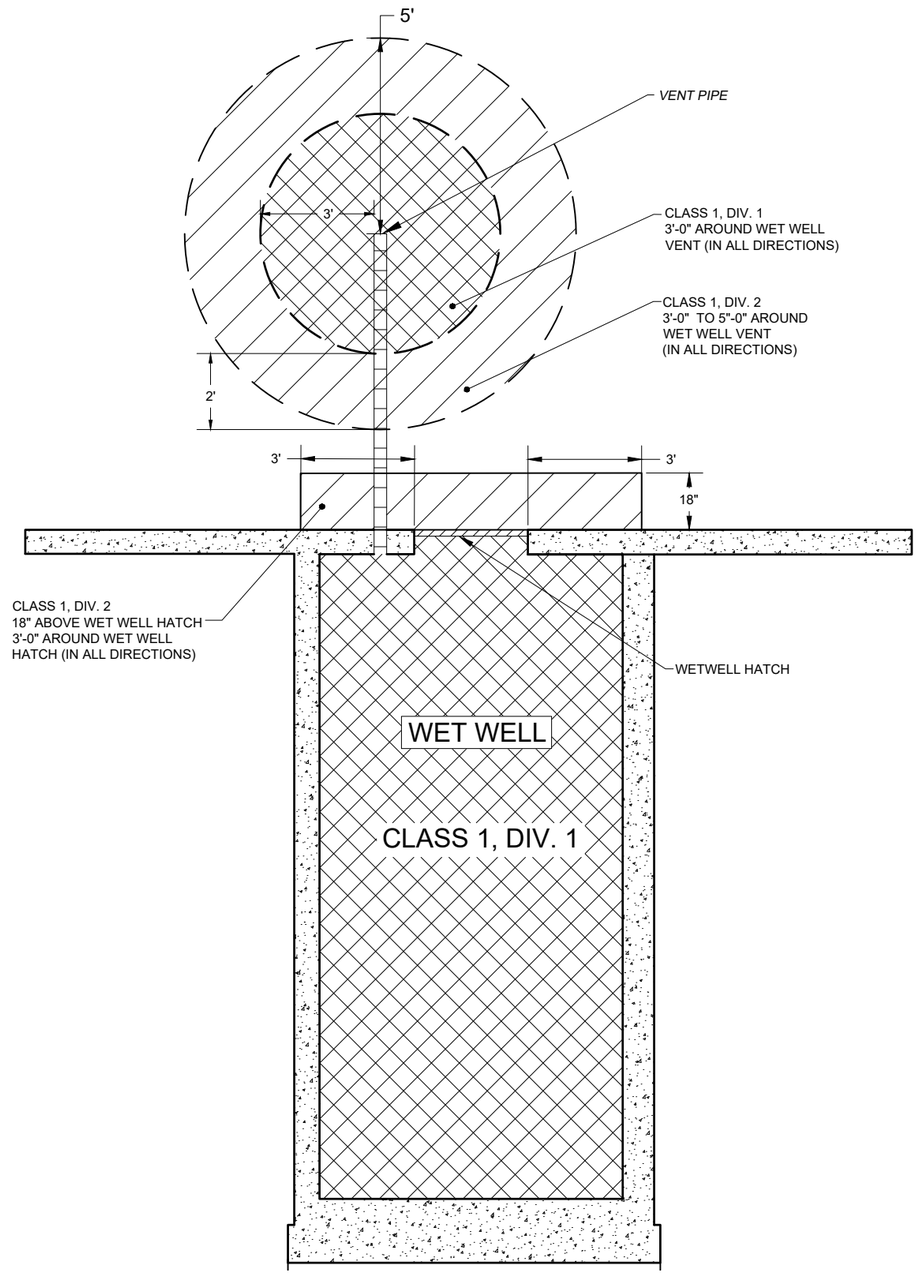
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
ELECTRICAL SCADA PLAN

PROJECT NUMBER 165.030630
DRAWING FILE NAME 30630-E-300 ELECTRICAL DETAILS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
E-301



1 E-302 NFPA 820 HA ARDOUS LOCATIONS - PLAN VIEW
SCALE: 3/4" 1'



2 E-302 NFPA 820 HA ARDOUS LOCATIONS - ELEVATION VIEW
SCALE: 1/2" 1'

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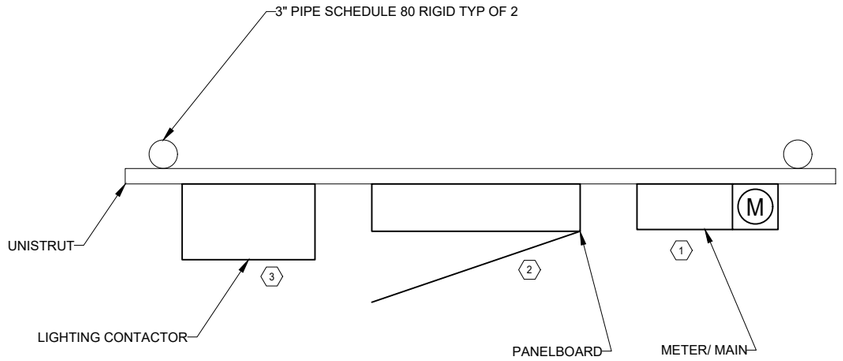
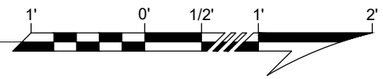
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
HA ARDOUS LOCATION DETAILS

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030630
DRAWING FILE NAME: 30630-E-300 ELECTRICAL DETAILS.DWG

SHEET NUMBER
E-302

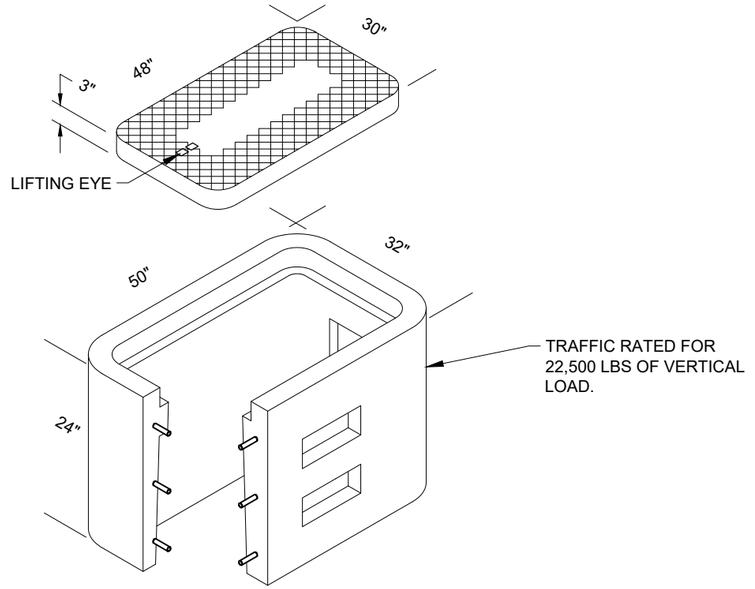


3 E-303 POWER RAIL LAYOUT DETAILS
SCALE: 1-1/2" 1'

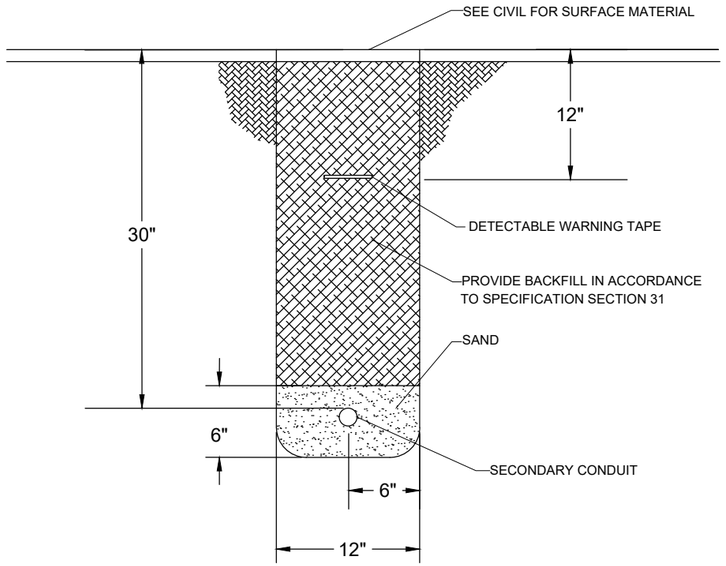


SHEET NOTES: (X)

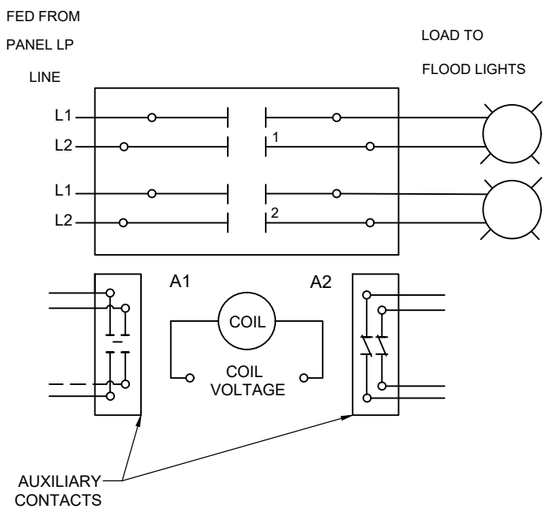
1. BOAT HARBOR AREA LIGHT SERVICE WITH UNDERGROUND CONDUCTORS ORIGINATING FROM PAD MOUNTED TRANSFORMER.
2. BOAT HARBOR AREA LIGHT PANELBOARD "LP".
3. LIGHTING CONTACTOR, SEE SHEET E-303, DETAIL 2.



4 E-303 HAND HOLE TYPE 1A JUNCTION BOX DETAIL
SCALE: NTS

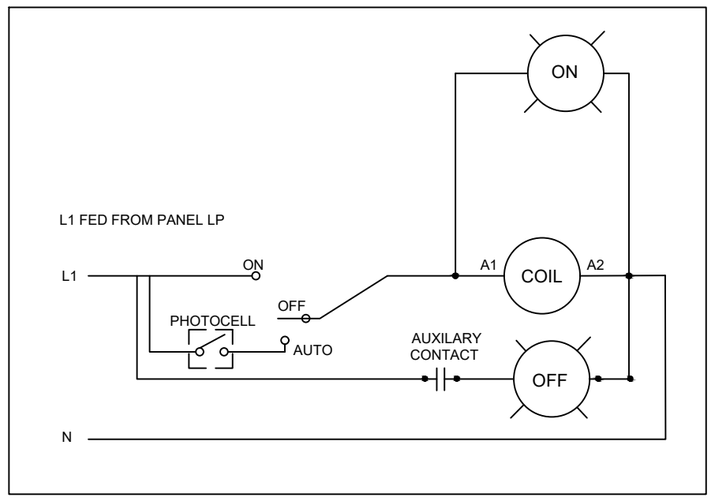


1 E-303 TYPICAL TRENCH FOR ELECTRICAL SERVICE
SCALE: NTS



2 E-303 LIGHTING CONTACTOR
SCALE: NTS

HAND - OFF - AUTO (HOA) CONTACTOR WITH PILOT LIGHT



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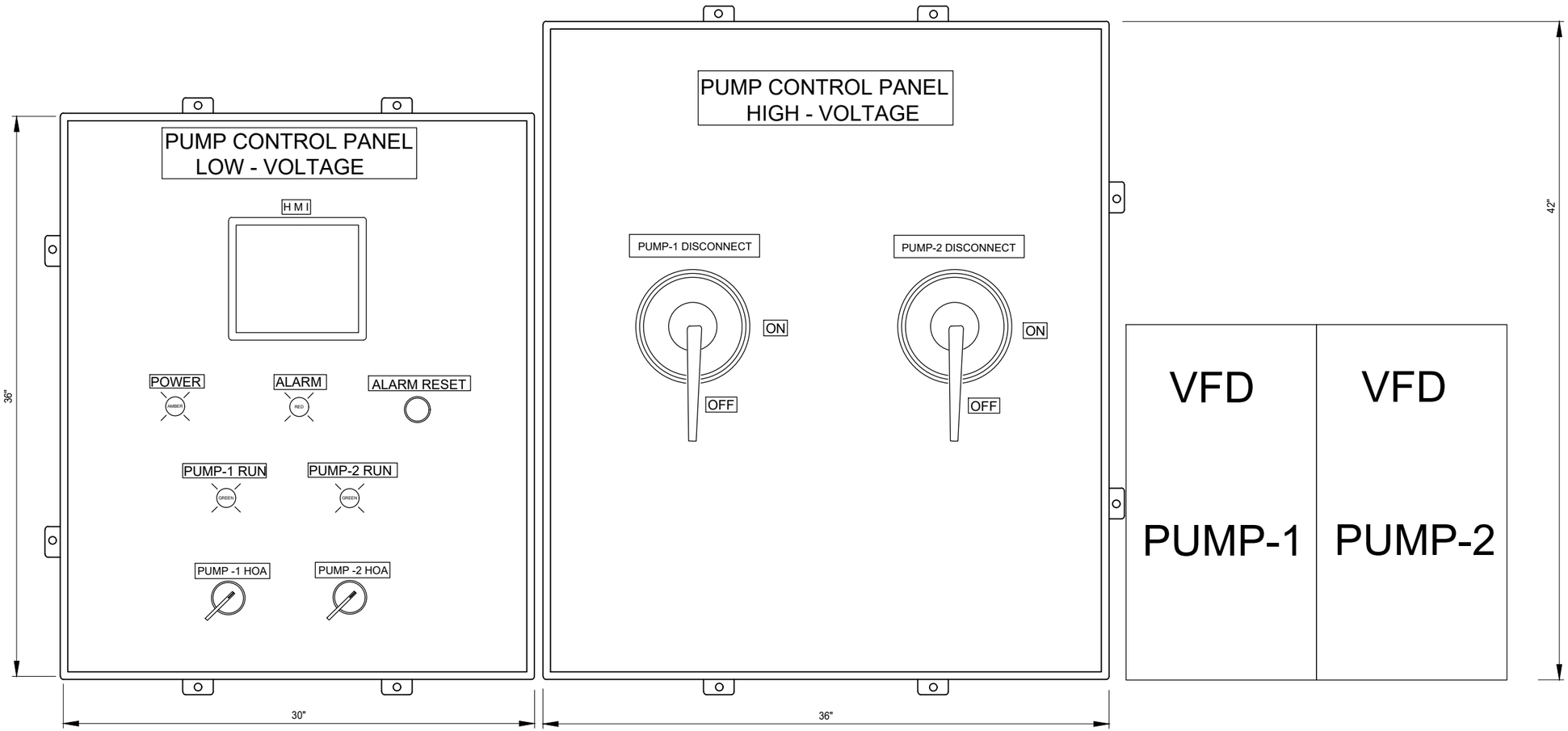
SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
ELECTRICAL DEETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-300 ELECTRICAL DETAILS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-303



1 E-304 PUMP CONTROL PANEL FACE

SCALE: 3" 1'

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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
CONTROL PANELS

DRAWING SCALE: AS SHOWN

PROJECT NUMBER: 165.030630

DRAWING FILE NAME: 30630-E-304 CONTROL PANELS.DWG

SHEET NUMBER
E-304

LIFT STATION EQUIPMENT SCCR SCHEDULE

ALL EQUIPMENT TO HAVE SCCR EXCEEDING THE AVAILABLE SCA AT THE CALCULATED X/R RATIO. WHERE X/R RATIO IS GREATER THAN THE INDUSTRY STANDARD TEST X/R RATIOS, THE APPROPRIATE MULTIPLICATION FACTOR SHALLBE APPLIED TO PROPERLY RATE THE EQUIPMENT. DOWNSTREAM EQUIPMENT AND ASSOCIATED CIRCUIT BREAKER RATINGS MAY BE SATISFIED BY USING FULLY RATED EQUIPMENT OR MANUFACTURER TESTED COMBINATIONS FOR BRANCH CIRCUITS RATED 100AMPS OR LESS PER NEC 240.86(B) TO SERIES RATE FOR THE AVAILABLE SCA AT EQUIPMENT. ALL SERIES RATED EQUIPMENT TO BE CLEARLY LABELED & IDENTIFIED PER NEC 110.22(C). SERIES RATED EQUIPMENT MOTOR LOADS CANNOT EXCEED 1% OF AIC RATING PER NEC 240.86(C).

CONTRACTOR TO VERIFY ACTUAL EQUIPMENT TO BE PROVIDED WITH SERVING UTILITY PRIOR TO EQUIPMENT PROCUREMENT. ANY DECREASE OF TRANSFORMER %Z, CONDUCTOR LENGTH, OR INCREASE IN TRANSFORMER KVA OR CABLE SIZES TO BE REPORTED TO ENGINEER FOR RECALCULATION OF AVAILABLE FAULT CURRENT PRIOR TO PROCUREMENT OF EQUIPMENT. PROVIDE WARNING PLACARD INSTALLED ON SERVICE DISCONNECT PER NEC 110.24 DENOTING ALL PROJECT PARAMETERS REQUIRED BY NEC.

ASSUMED UTILITY SYSTEM CONFIGURATION FOR CALCUALTION PURPOSES

SERVICE TRANSFORMER

KVA	% Z	PF	DATE	SCA (SEC.)
75	1.6	1	12/27/2023	13,012

SERVICE AMPS	FOR FAULT CURRENT CALCUATIONS ONLY SERVICE LATERAL	FT
200	4#3/0, 1#6EGC, 2-1/2"C	40

EQUIPMENT ID	SC AMPS
SERVICE DISCONNECT	9,729
PANEL 'MDP'	9,151

SCHEDULE DISTRIBUTION PANEL 'MDP'

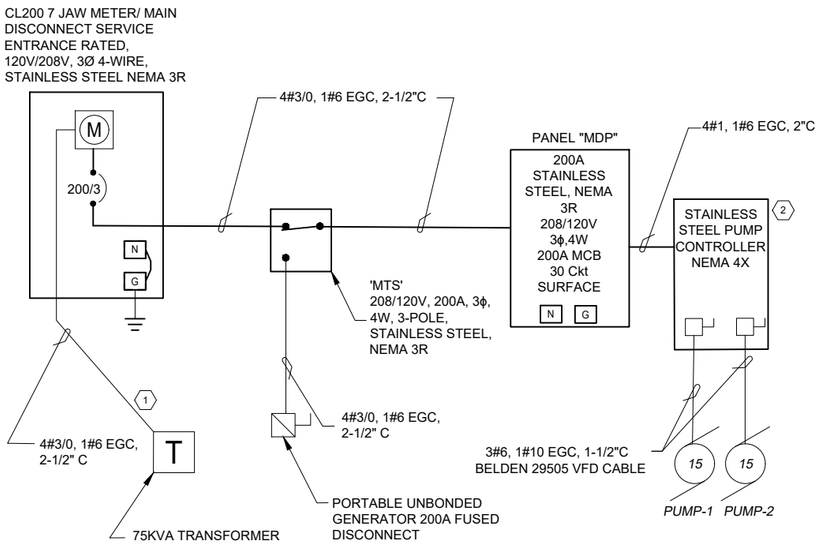
TYPE	SPACE #	NO. OF POLES	TRIP RATING	LOAD DESCRIPTION	BRANCH LOAD VA	CONNECTED LOAD (kVA) A	B	C	BRANCH LOAD VA	LOAD DESCRIPTION	TRIP RATING	NO. OF POLES	SPACE #	TYPE
A	1	3	125		12,442	13.44			1,000		20	3	2	A
A	3	"	"	PUMP CONTROLLER	12,442		13.44		1,000	UNIT HEATER 3KW		"	4	A
A	5	"	"		12,442			13.44	1,000			"	6	A
G	7	1	20	SPARE		1.00			1,000		20	3	8	A
L	9	1	20	INTERIOR LIGHTS	112		1.11		1,000	UNIT HEATER 3KW		"	10	A
L	11	1	20	EXTERIOR LIGHTS	140			1.14	1,000			"	12	A
G	13	1	20	SPARE		0.00				SPACE	-		14	G
R	15	1	20	EXTERIOR RECEPTACLE	360		0.36			SPACE	-		16	G
R	17	1	20	INTERIOR RECEPTACLES/ TRAP PRIMER	370			0.37		SPACE	-		18	G
R	19	1	20	INTERIOR RECEPTACLES	360	0.36				SPACE	-		20	G
G	21	1	20	SPARE			0.00			SPACE	-		22	G
G	23	1	20	SPARE				0.00		SPACE	-		24	G
G	25	1	20	SPARE		0.00				SPACE	-		26	G
G	27	1	20	SPARE			0.00			SPACE	-		28	G
G	29	1	20	SPARE				0.00		SPACE	-		30	G
				CONNECTED LOAD	44.7 KVA 124 AMPS	14.80 123.3	14.91 124.2	14.95 124.5						
				NEC DEMAND	44.7 KVA 124 AMPS									

PANEL NOTES
1. "**" INDICATES GFI CIRCUIT BREAKER W/ 30 mA TRIP SETTING
2. PROVIDE 160kA SURGE PROTECTIVE DEVICE IN THIS PANEL
3. ALL CIRCUITS ARE REQUIRED TO HAVE EQUIPMENT GROUNDING CONDUCTOR
4.

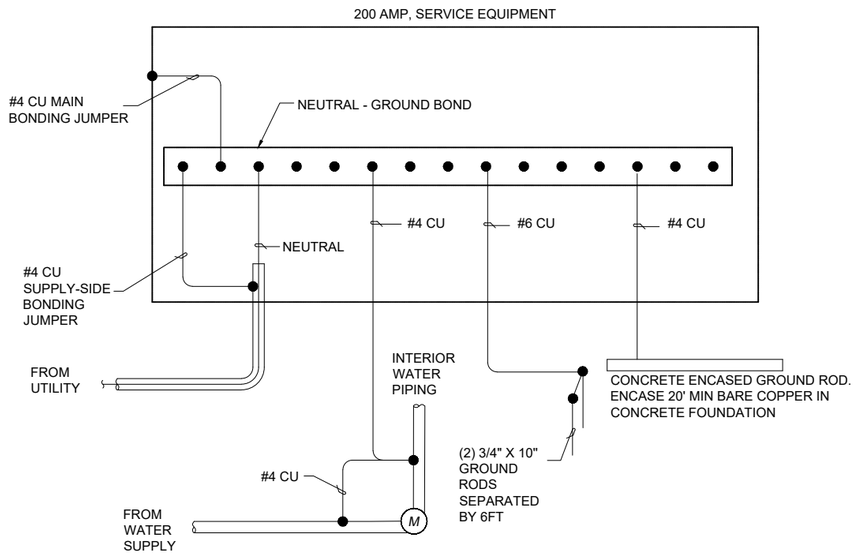
PANEL SPECIFICATIONS

MAINS RATING AMPS	-	200
MAIN CIRCUIT BREAKER	-	MCB
SYSTEM VOLTAGE	-	208Y 120 V
PHASE, NO. OF WIRES	-	3 PH 4. WIRE
AIC RATING	-	10,000
MOUNTING	-	SURFACE
CAPACITY ONE-POLE CIRCUITS	-	30
LOCATION NEMA TYPE	-	STAINLESS STEEL 3R

LOAD TYPES: G=GENERAL, L=LIGHTING, M=MOTOR, A=APPLIANCE, F=FEEDER, S=SPARE OR SPACE, R=RECEPTACLE



1 E-601 LIFT STATION RISER DIAGRAM
SCALE:NTS



2 E-601 LIFT STATION GROUNDING SYSTEM
SCALE:NTS

SHEET NOTES: (X)

1. UNDERGROUND 120/208 VAC SERVICE TO PAD MOUNTED TRANSFORMER.
2. PUMP CONTROL PANEL 'PCP' WITH LOCAL DISCONNECTS AND CO-LOCATED VFDs FOR PUMPS 1 AND 2.

ISSUED FOR CONSTRUCTION

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Fax: 907-339-5327
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License Number: AELS 129381

STATE OF ALASKA 49TH
CARL I. OLSON
No. EE 14398
3-27-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WDF
DRAWN	WDF
CHECKED	CIO
APPROVED	CIO
LAST EDIT	3/25/24
PLOT DATE	3/25/24
SUBMITTAL	03/27/24

SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
LIFT STATION - RISER DIAGRAM

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-600 RISER DIAGRAMS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-601

BOAT HARBOR EQUIPMENT SCCR SCHEDULE

ALL EQUIPMENT TO HAVE SCCR EXCEEDING THE AVAILABLE SCA AT THE CALCULATED X/R RATIO. WHERE X/R RATIO IS GREATER THAN THE INDUSTRY STANDARD TEST X/R RATIOS, THE APPROPRIATE MULTIPLICATION FACTOR SHALLBE APPLIED TO PROPERLY RATE THE EQUIPMENT. DOWNSTREAM EQUIPMENT AND ASSOCIATED CIRCUIT BREAKER RATINGS MAY BE SATISFIED BY USING FULLY RATED EQUIPMENT OR MANUFACTURER TESTED COMBINATIONS FOR BRANCH CIRCUITS RATED 100AMPS OR LESS PER NEC 240.86(B) TO SERIES RATE FOR THE AVAILABLE SCA AT EQUIPMENT. ALL SERIES RATED EQUIPMENT TO BE CLEARLY LABELED & IDENTIFIED PER NEC 110.22(C). SERIES RATED EQUIPMENT MOTOR LOADS CANNOT EXCEED 1% OF AIC RATING PER NEC 240.86(C).

CONTRACTOR TO VERIFY ACTUAL EQUIPMENT TO BE PROVIDED WITH SERVING UTILITY PRIOR TO EQUIPMENT PROCUREMENT. ANY DECREASE OF TRANSFORMER %Z, CONDUCTOR LENGTH, OR INCREASE IN TRANSFORMER KVA OR CABLE SIZES TO BE REPORTED TO ENGINEER FOR RECALCULATION OF AVAILABLE FAULT CURRENT PRIOR TO PROCUREMENT OF EQUIPMENT. PROVIDE WARNING PLACARD INSTALLED ON SERVICE DISCONNECT PER NEC 110.24 DENOTING ALL PROJECT PARAMETERS REQUIRED BY NEC.

ASSUMED UTILITY SYSTEM CONFIGURATION FOR CALCUALTION PURPOSES

SERVICE TRANSFORMER

KVA	%Z	PF	DATE	SCA (SEC.)
50	1.2	1	1/8/2024	10,024

SERVICE AMPS	FOR FAULT CURRENT CALCUATIONS ONLY SERVICE LATERAL	FT
100	3#3, 1#8 EGC, 1-1/2"C	20

EQUIPMENT ID	SC AMPS
SERVICE DISCONNECT	7,687
PANEL "LP"	7,264
DISCONNECT "BHB"	1,259

NEW PANEL 'LP' SCHEDULE

TYPE	SPACE #	NO. OF POLES	TRIP RATING	LOAD DESCRIPTION	BRANCH LOAD VA	LOAD (kVA) A	LOAD (kVA) B	BRANCH LOAD VA	LOAD DESCRIPTION	TRIP RATING	NO. OF POLES	SPACE #	TYPE
L	1	2	20	EXTERIOR FLOOD LIGHTS WEST, CENTER	2,732	4.65		1,920	HARBOR BUILDING	20	1	2	F
L	3	"	"				0.00		SPARE	20	1	4	G
L	5	2	20	EXTERIOR FLOOD LIGHTS EAST	1,788	1.79			SPARE	20	1	6	G
L	7	"	"				0.00		SPARE	20	1	8	G
L	9	1	20	LIGHTING CONTACTOR COIL	30	0.03			SPARE	20	1	10	G
G	11	1	20	SPARE			0.00		SPACE		1	12	G
G	13	1	20	SPARE		0.00			SPACE		1	14	G
G	15	1		SPACE			0.00		SPACE		1	16	G
G	17	1		SPACE		0.00			SPACE		1	18	G
CONNECTED LOAD:					6.5 KVA	6.47	0.00						
					27.0 AMPS	53.92	0.00						
NEC LOAD:					7.6 KVA								
					31.7 AMPS								

PANEL NOTES
1. ** DENOTED GFI CIRCUIT BREAKER W/ 30 mA TRIP SETTING.
2. PROVIDE 160kA SURGE PROTECTIVE DEVICE IN THIS PANEL
3. ALL CIRCUITS ARE REQUIRED TO HAVE EQUIPMENT GROUNDING CONDUCTOR
4.

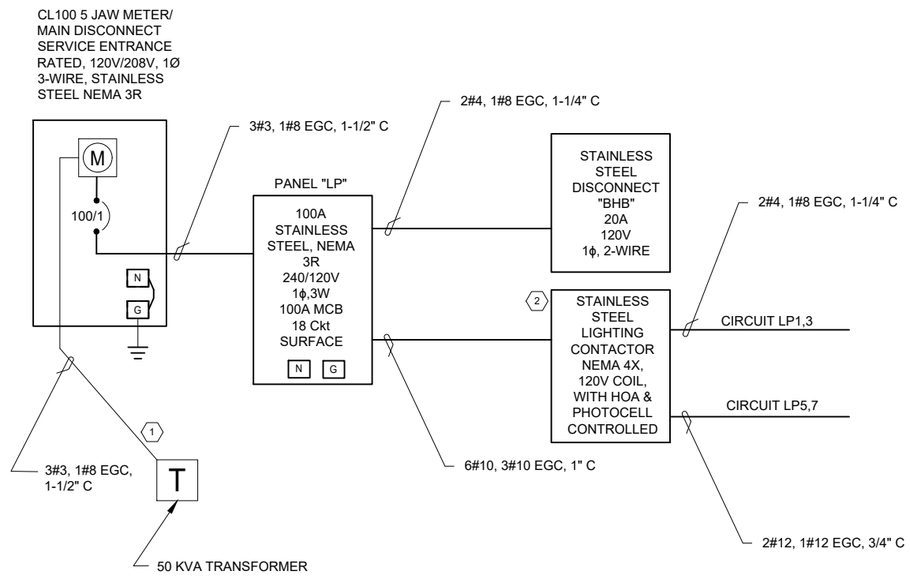
PANEL SPECIFICATIONS

MAINS RATING AMPS	-	100
MAIN CIRCUIT BREAKER	-	MCB 100A
SYSTEM VOLTAGE	-	240 V 120 V
PHASE, NO. OF WIRES	-	1PH 3. WIRE
AIC RATING	-	10,000
MOUNTING	-	SURFACE
CAPACITY ONE-POLE CIRCUITS	-	18
LOCATION	-	STAINLESS STEEL 3R

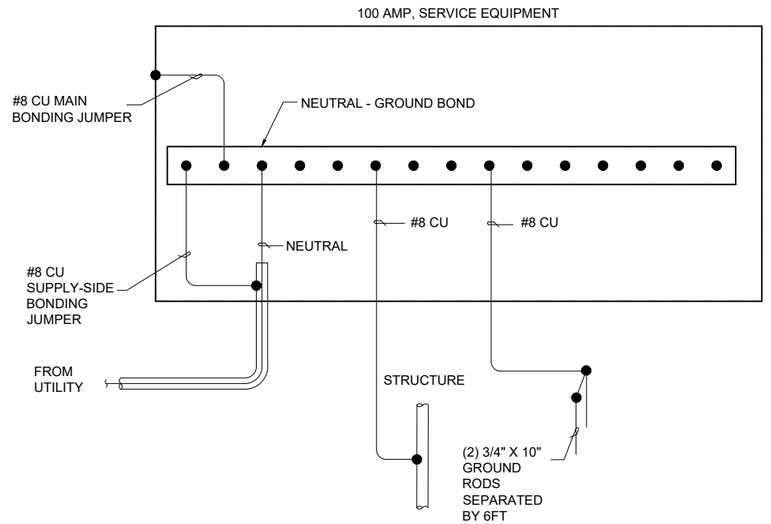
LOAD TYPES: G=GENERAL, L=LIGHTING, M=MOTOR, A=APPLIANCE, F=FEEDER, S=SPARE OR SPACE, R=RECEPTACLE

SHEET NOTES: (X)

1. UNDERGROUND 120/240 VAC SERVICE TO PAD MOUNTED TRANSFORMER.
2. ADD PHOTOCELL CONTROL TO LIGHTING CONTACTOR SIEMENS LH CONTACTOR PART# LCE02C004120A OR EQUAL.



1 E-602 AREA LIGHTING RISER DIAGRAM
SCALE: NTS



1 E-602 AREA LIGHTING GROUNDING SYSTEM
SCALE: NTS

ISSUED FOR CONSTRUCTION

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SMALL BOAT HARBOR UTILITIES
CITY OF SAINT PAUL
ONE-LINE DAIGRAMS AREA LIGHTS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 30630-E-600 RISER DIAGRAMS.DWG
PROJECT NUMBER: 165.030630

SHEET NUMBER
E-602