WEST BRANCH - ROSE CITY AREA SCHOOLS
2022 BOND ISSUE PROGRAM - BID PACKAGE NO. 6
OGEMAW HEIGHTS HIGH SCHOOL WATER WELL UPGRADES

960 M-33 , WEST BRANCH, MI 48661

SHEET INDEX

CODE DATA

CONSTRUCTION CODES:

2015 MICHIGAN BUILDING CODE
2021 MICHIGAN PLUMBING CODE
2021 MICHIGAN MECHANICAL CODE
2023 MICHIGAN ELECTRICAL CODE
2015 MICHIGAN ENERGY CODE

USE GROUP: U

CONSTRUCTION TYPE: VB

FIRE SUPPRESSION SYSTEM: NONE

STATE OF MICHIGAN REGISTRATION

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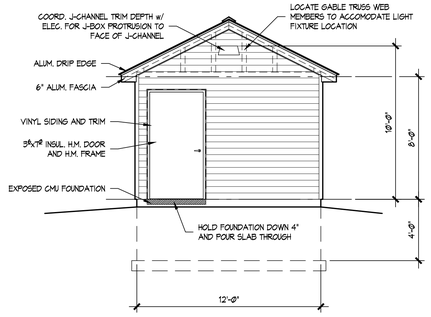
DRAWING TITLE: TITLE SHEET

PROJECT TITLE: WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

PROJECT NO.: 294-22

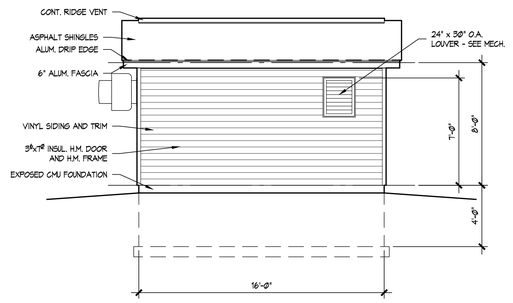
DATE: SEPT. 26, 2024

SHEET: T



WEST GABLE ELEVATION

SCALE: $\frac{1}{4}$" = 1'-0"



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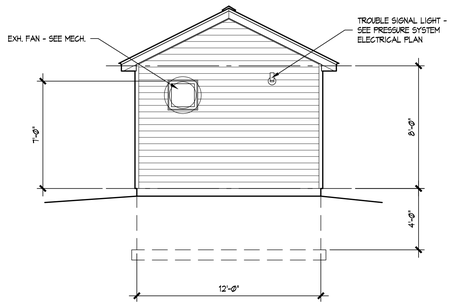

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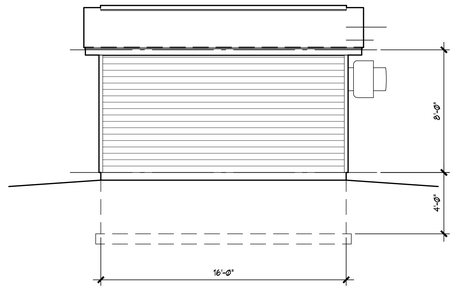

SOUTH EAVE ELEVATION

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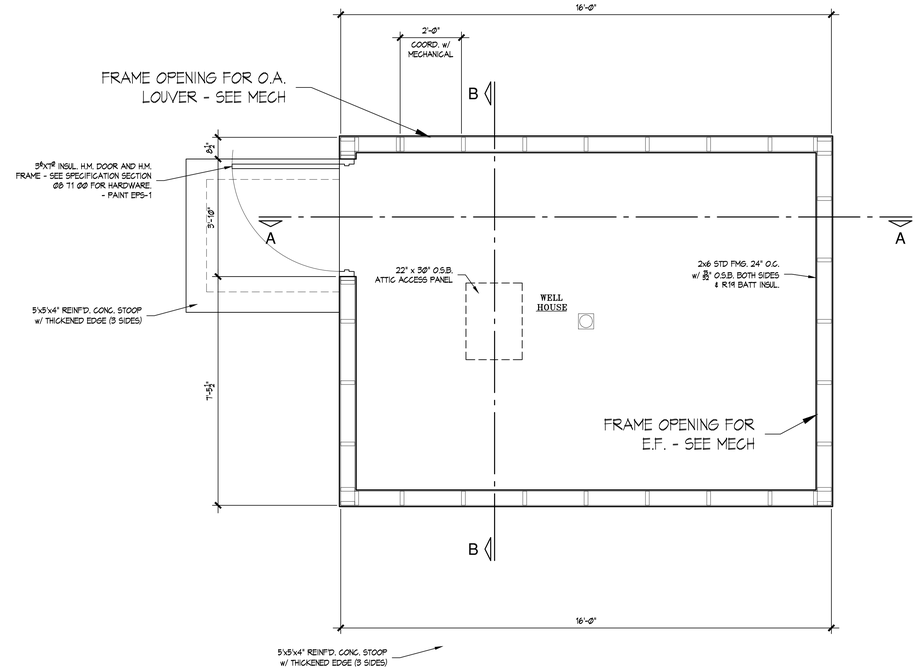
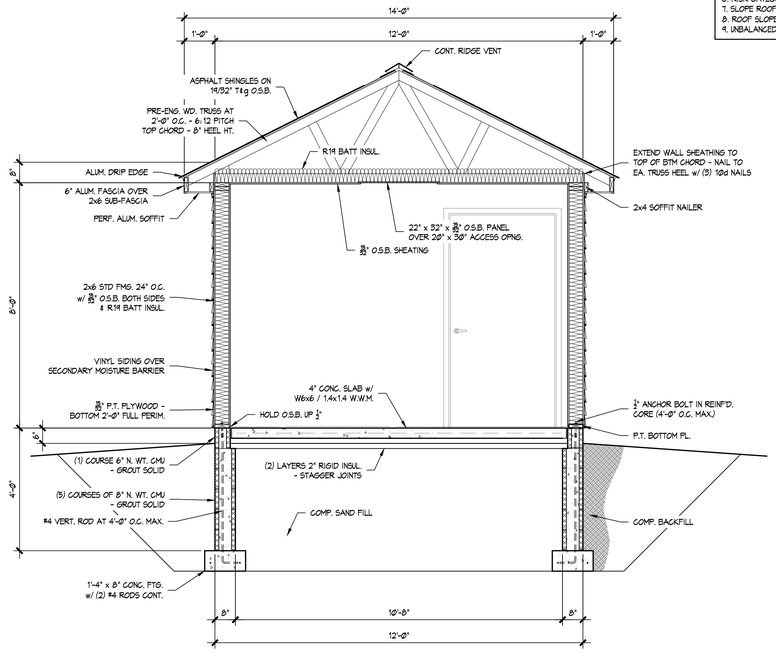


FLOOR PLAN

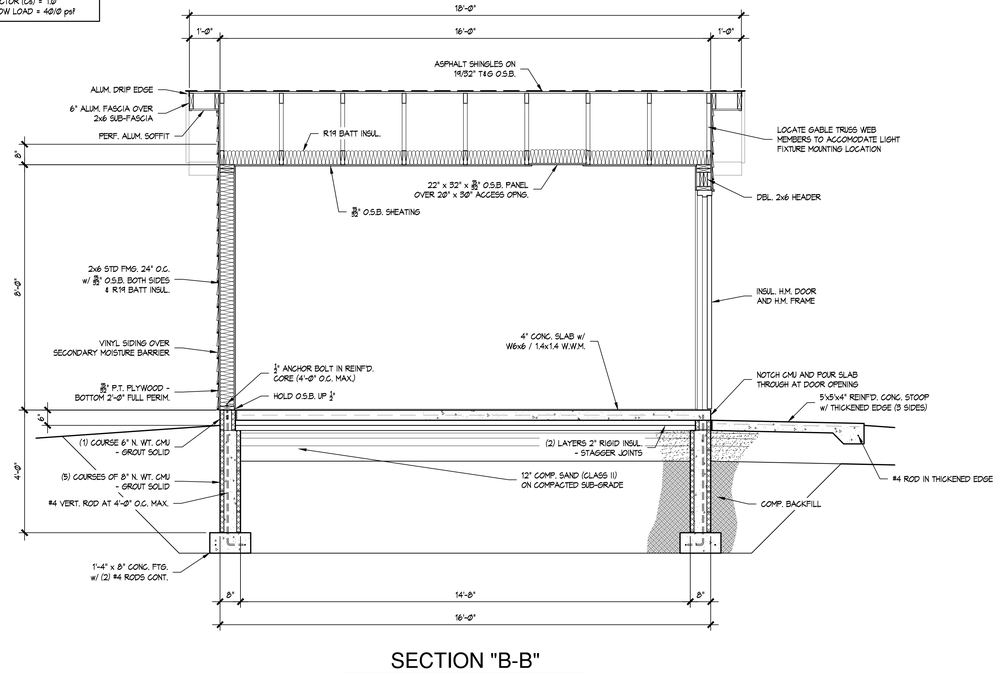
SCALE: $\frac{1}{4}$" = 1'-0"

ROOF SNOW LOAD:
1. GROUND SNOW LOAD (Pg) = 40 psf
2. FLAT ROOF SNOW LOAD (Pf) = 30.8 psf
3. SNOW EXPOSURE FACTOR (Ce) = 1.0
4. SNOW THERMAL FACTOR (Ct) = 1.1
5. SNOW IMPORTANCE FACTOR (Is) = 1.0
6. RISK CATEGORY = II
7. SLOPE ROOF SNOW LOAD (Ps) = 30.8 PSF
8. ROOF SLOPE FACTOR (C_s) = 1.0
9. UNBALANCED SNOW LOAD = 40/0 psf



SECTION "A-A"

SCALE: $\frac{1}{4}$" = 1'-0"



SECTION "B-B"

SCALE: $\frac{1}{4}$" = 1'-0"

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DRAWING TITLE: WELLHOUSE PLAN, ELEVATIONS & SECTIONS

PROJECT TITLE: OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
WEST BRANCH, MICHIGAN

PROJECT NO.: 294-22

DATE: SEPT. 26, 2024; OCT. 28, 2024

SHEET: A1

GENERAL NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.
2. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
3. THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND MISS DIG AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDER. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.
5. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.
6. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK.
7. ALL WORK IS TO BE PERFORMED WITHIN THE PUBLIC RIGHT-OF WAY AND/OR ESTABLISHED EASEMENTS. ANY WORK OUTSIDE OF THESE LIMITS SHALL BE APPROVED AND COORDINATED WITH THE PROPERTY OWNER.
8. EXISTING PROPERTY CORNERS ARE IDENTIFIED ON THE PLANS. IF A PROPERTY CORNER IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A PROFESSIONAL LAND SURVEYOR.
9. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT TO ANY MAILBOXES DISTURBED DURING CONSTRUCTION AND SHALL NOT INTERFERE WITH MAIL SERVICE. ALL DISTURBED MAILBOXES SHALL BE PLACED IN ORIGINAL LOCATION AND AT AN ELEVATION DETERMINED BY THE POSTAL SERVICE.
10. LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
11. CONTRACTOR SHALL RESTORE ALL LAWNS, LANDSCAPE PLANTINGS, SIDEWALKS, COMMERCIAL SIGNS, ETC., AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY. CONTRACTOR SHALL CONSULT WITH THE UTILITY COMPANY PRIOR TO ANY DISTURBANCE OF UTILITY POLE OR ANCHORING SYSTEM.
13. CONTRACTOR TO BE RESPONSIBLE FOR ALL PERMITS INCLUDING BUILDING, MECHANICAL, PLUMBING, AND ELECTRICAL.

SOIL EROSION AND STORM WATER CONTROL NOTES

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER P.A. 451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT.
2. INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT PLACED IN 24 HOURS OR LESS ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
4. ALL DISTURBED NON-HARD SURFACE AREAS TO BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOPSOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES. SLOPES BETWEEN 1 ON 3 AND 1 ON 2 SHALL BE SODDED AND STAKED OR RECEIVE SEED WITH MULCH BLANKET.
5. IF REQUESTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, A WATER TRUCK SHALL BE KEPT ON STAND-BY ON SITE DURING THE CONSTRUCTION PHASE OF THE PROJECT. THE WATER TRUCK SHALL BE USED AS DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER TO CONTROL WIND EROSION.
6. ALL NEW STORM DRAINAGE PIPE SHALL BE CORRUGATED GALVANIZED STEEL PIPE, HDPE OR APPROVED EQUAL.
7. A MINIMUM OF TWO (2) FEET OF COVER FROM FINISHED ELEVATIONS SHALL BE MAINTAINED OVER ALL STORM DRAIN PIPES.
8. ALL DRAINAGE PIPES THAT OUTLET AT GROUND SURFACE SHALL INCLUDE END SECTIONS.
9. ALL EXISTING STORM DRAINS WITHIN THE CONSTRUCTION ZONE TO BE INSTALLED/MONITORED WITH SILT SACKS. SACKS TO BE PULLED AS NEEDED TO KEEP SEDIMENT OUT.
10. EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
11. IF CULVERTS ARE ENCOUNTERED DURING EXCAVATION THEY SHALL BE REUSED IF NOT DAMAGED. IF DAMAGED, THE CULVERT SHALL BE REPLACED WITH NEW. ALL CULVERTS IDENTIFIED HAVE BEEN PLACED ON THE DRAWINGS. SOME CULVERTS MIGHT BE ENCOUNTERED THAT ARE NOT DISCLOSED ON THE PLANS. ALL COSTS ASSOCIATED WITH LOCATING AND REPAIRING/REPLACING ARE INCLUDED IN THE COST OF THE PROJECT.
12. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT OR SOILS THAT HAVE BEEN DROPPED, WASHED ONTO OR TRACKED OUT ONTO PUBLIC RIGHT-OF-WAY OR PRIVATE ROADS AT THE END OF EACH WORKING DAY OR AFTER EACH RAIN EVENT ON NON-WORK DAYS.
13. ALL REMOVED TOPSOIL WILL BE STOCKPILED WITHIN THE PROJECT AREA. IF ADDITIONAL TOPSOIL IS AVAILABLE AFTER TOPSOILING THE CONSTRUCTION AREA, IT WILL BE STOCKPILED WITHIN 1000 FEET OF THE CONSTRUCTION AREA AS DIRECTED BY THE OWNER OR ENGINEER.
14. THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE OWNER.
15. ALL RESTORATION SHALL OCCUR WITHIN FIVE (5) DAYS OF FINAL GRADE.

PLAN LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN		
SANITARY SEWER		
STORM SEWER		
SANITARY FORCE MAIN		
PROPERTY LINE		
RIGHT OF WAY		
SECTION LINE		
EASEMENT		
CONTOURS	100	100
GAS MAIN	GAS	
UNDERGROUND ELECTRIC	UGE	
OVERHEAD ELECTRIC	OHE	
FIBER OPTIC	FOPT	
CABLE TELEVISION	CATV	
OVERHEAD TELEPHONE	OHT	
UNDERGROUND TELEPHONE	UGT	
FENCE		
WETLANDS		
TREE LINE		
EDGE OF WATER		
SILT FENCE		
SANITARY MANHOLE (MH)		
STORM MANHOLE (MH)		
CATCH BASIN, ROUND (CB)		
CATCH BASIN, SQUARE (CB)		
RISER		
GATE VALVE		
FIRE HYDRANT ASSEMBLY		
POLE, POWER OR ELECTRIC		
SIGN		
BENCH MARK (BM)	BM	
U/G UTILITY SIGN		
PROPERTY CORNER		
CURB STOP & BOX		
WATER SERVICE LEAD		
SANITARY SERVICE LEAD		
FIRE HYDRANT NUMBER	800	900
VALVE NUMBER	1060	1260
WELL		
MONITORING WELL		
DECIDUOUS TREE		
CONIFEROUS TREE		

WATERMAIN NOTES

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN. CONTRACTOR SHALL ISSUE A WORK SCHEDULE TO THE ENGINEER PRIOR TO THE START OF WATER MAIN CONSTRUCTION.
2. ALL BURIED WATER MAIN SHALL BE C900 DR18 PVC AND ALL INTERIOR MECHANICAL PIPING SHALL BE PVC SCH80, MEETING CURRENT AWWA STANDARDS, UNLESS OTHERWISE NOTED.
3. WATER MAIN SHALL HAVE A MINIMUM OF SIX (6) FEET OF COVER BELOW EXISTING OR PROPOSED GRADE, UNLESS NOTED OTHERWISE ON THE PLANS.
4. THE ALIGNMENT OF THE PROPOSED WATER MAIN IS PROVIDED FOR REFERENCE ONLY. CONTRACTOR MAY UTILIZE TRENCH BOX OR DEVIATE/DEFLECT AS NECESSARY TO AVOID CONFLICTS FOR EASIER CONSTRUCTION. COST FOR ADDITIONAL PIPE, FITTINGS, ETC. ARE INCLUDED IN THE COST OF THE PROJECT.
5. LENGTH OF WATER MAIN SHALL BE DETERMINED ON A CASE BY CASE BASIS IN ORDER TO CONSTRUCT ACCORDING TO THE PLANS AND SPECIFICATIONS. COSTS FOR THE MAIN ARE INCLUDED IN THE COSTS OF THE PROJECT.
6. RETAINER GLANDS SHALL BE USED ON ALL MECHANICAL JOINT FITTINGS.
7. BURLAP, PLASTIC POLY (20 MILLS) OR APPROVED EQUAL SHALL BE PLACED BETWEEN THE CONCRETE THRUST BLOCK AND DEAD-END MAINS OR DEAD-END PLUGS, TEES, HYDRANTS AND CROSSES TO FACILITATE THE REMOVAL OF THE THRUST BLOCK FOR FUTURE EXTENSION AND MAINTENANCE.
8. A PHYSICAL GAP SHALL BE MAINTAINED BETWEEN THE PROPOSED WATER MAIN AND THE EXISTING WATER MAIN UNTIL ALL WATER MAIN TESTING HAS BEEN COMPLETED AND APPROVED BY THE ENGINEER AND THE DPW.
9. THE CONTRACTOR SHALL COORDINATE THE CONNECTION TO THE EXISTING WATER MAIN WITH THE DPW AND THE ENGINEER. THE DPW SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY CONNECTIONS.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN WATER FOR FLUSHING AND TESTING PURPOSES. CONTRACTOR SHALL COORDINATE WITH THE DPW, IF WATER IS OBTAINED FROM THE CITY WATER SYSTEM, THE DPW SHALL BE GIVEN 24 HOURS NOTICE PRIOR TO USING ANY WATER FROM THE CITY WATER SYSTEM.
11. TO FACILITATE WATER SAMPLING, THE CONTRACTOR MAY INSTALL TWO (2) INCH CORPORATION STOPS AND TYPE K COPPER TUBE FROM THE TWO (2) INCH CORPORATION TO APPROXIMATELY FOUR (4) FEET ABOVE THE FINISH GRADE IN LOCATIONS APPROVED BY THE FIELD ENGINEER. AFTER THE WATER MAIN HAS BEEN FLUSHED AND SATISFACTORY BACTERIOLOGICAL ANALYSIS TESTS HAVE PASSED, THE TYPE 'K' COPPER TUBE SHALL BE REMOVED AND THE TWO (2) INCH CORPORATION WILL BE CLOSED. CONTRACTOR WILL INFORM THE FIELD REPRESENTATIVE/CONSTRUCTION REPRESENTATIVE TO ALLOW HIM TO WITNESS THE REMOVING OF THE COPPER TUBING AND THE CLOSING OF THE CORPORATION.
12. PRIOR TO PIGGING AND FLUSHING ALL LINES SHALL BE CHARGED WITH WATER.
13. ALL PERMANENT BLOW-OFF ASSEMBLIES SHALL BE CUT OFF BELOW GRADE AFTER TESTING IS COMPLETE. THE STANDING WATER WITHIN THE BLOW-OFFSHALL BE PUMPED OUT OF THE RISER CAPPED, BOLTED AND BURIED.
14. CONTRACTOR SHALL PROPERLY DISPOSE OF CHLORINATED WATER USED IN TESTING OPERATIONS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE VALVE BOXES TO THE FINISHED GRADE.
16. THE CONTRACTOR MUST OBTAIN APPROVAL BEFORE DIRECTING ANY FLUSHING AND TESTING WATERS TO ANY COUNTY STORM WATER DRAINAGE DITCH SYSTEM. CONTRACTOR SHALL PROTECT THE DITCH FROM EROSION WHICH MAY REQUIRE THE USE AN ENERGY DISSIPATER ON THE DISCHARGE OF THE FLUSHING VALVE. ALL FLUSHING WATERS SHALL BE CONTAINED WITHIN THE DITCH AND SHALL NOT IMPACT THE ROADWAY OR ADJACENT LANDOWNERS. IF NOT APPROVED, AN ALTERNATE METHOD MUST BE DETERMINED AND APPROVED. ALL COSTS ASSOCIATED WITH FLUSHING, TESTING, AND DISCHARGING ARE INCLUDED IN THE COST OF THE PROJECT.
17. CONTRACTOR MUST MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET FROM ALL SANITARY SEWER AND STORM SEWER WHEN INSTALLING THE WATER MAIN, AS MEASURED FROM OUTSIDE TO OUTSIDE.
18. CONTRACTOR MUST MAINTAIN A MINIMUM VERTICAL SEPARATION OF EIGHTEEN (18) INCHES AT ALL SANITARY SEWER AND STORM SEWER CROSSINGS WHEN INSTALLING THE WATER MAIN, AS MEASURED FROM OUTSIDE TO OUTSIDE.
19. IT WILL BE REQUIRED THAT THE CONTRACTOR INSTALL ALL NEW WATER MAIN BELOW EXISTING WATER MAIN WHEN A CROSSING IS ENCOUNTERED. MAINTAIN A MINIMUM SIX (6) INCH SEPARATION FROM EXISTING WATER MAIN WITH PROPER BACKFILL/COMPACTION.
20. CONTRACTOR TO PROTECT EXISTING WATER MAIN AND SERVICES DURING THE INSTALLATION OF THE PROPOSED WATER MAIN. IF EXISTING WATER MAIN IS DAMAGED, CONTRACTOR IS TO REPAIR TO MAINTAIN SERVICE TO RESIDENCE. ALL COST FOR THIS ARE INCLUDED IN THE COST OF THE PROJECT.
21. ALL OPERATIONS OF EXISTING EQUIPMENT, VALVES, ETC. TO BE PERFORMED BY THE SCHOOL STAFF ONLY.
22. CONTRACTOR TO SUBMIT A CONSTRUCTION SCHEDULE AND SEQUENCE FOR APPROVAL PRIOR TO PERFORMING ANY WORK.
23. PRIOR TO CONNECTION OF PROPOSED WATER MAIN TO EXISTING WATER MAIN, CONTRACTOR TO BE RESPONSIBLE TO FIELD VERIFY SIZE, DEPTH AND LOCATION.
24. ALL GATE VALVES SHALL BE CAST IRON CONFORMING TO AWWA C515 W/NON RISING STEM, RESILIENT SEATED, MINIMUM WORKING PRESSURE 200 PSI. (EAST JORDAN IRON WORKS OR APPROVED EQUAL)
25. GATE VALVES SHALL BE SUPPLIED W/ CAST IRON VALVE BOX CONFORMING TO AWWA M44. BOX SHALL HAVE PLUG W/"WATER" LETTERING FOR RECOGNITION.
26. ALL WATER MAIN AND APPURTENANCES SHALL BE INSTALLED ACCORDING TO APPLICABLE AWWA STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
27. TRACER WIRE SHALL BE INSTALLED WHERE PVC OR OTHER NON-DETECTABLE WATER PIPES ARE USED FOR LOCATION. CONTRACTOR SHALL ALSO INSTALL CONTINUOUS BLUE TAPE UNDERGROUND FOR WATER SERVICE WARNING TAPE DURING BACKFILLING.
28. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN. CONTRACTOR SHALL ISSUE A WORK SCHEDULE TO THE ENGINEER PRIOR TO THE START OF WATER MAIN CONSTRUCTION.
29. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN WATER FOR FLUSHING AND TESTING PURPOSES. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER.
30. THE CONTRACTOR SHALL DIRECT ALL FLUSHING AND TESTING WATERS TO THE COUNTY STORM WATER DRAINAGE DITCH SYSTEM. CONTRACTOR SHALL PROTECT THE DITCH FROM EROSION WHICH MAY REQUIRE THE USE AN ENERGY DISSIPATER ON THE DISCHARGE OF THE FLUSHING VALVE. ALL FLUSHING WATERS SHALL BE CONTAINED WITHIN THE DITCH AND SHALL NOT IMPACT THE ROADWAY OR ADJACENT LANDOWNERS.

FLUSHING OF MAINS

THE WATER MAIN SHALL BE FLUSHED CLEAN OF SAND AND DEBRIS. FLUSHING SHALL BE DONE USING THE "POLY-PIG" METHOD OF FLUSHING. THE CONTRACTOR SHALL FURNISH THE BRAND NEW, UNUSED, FOAM "POLY-PIG" SWABS TO BE USED. PRIOR TO PIGGING AND FLUSHING THE WATER MAIN MUST BE CHARGED WITH WATER.

CONTRACTOR SHALL INSERT "POLY-PIG" SWAB IN THE END OF THE NEW MAIN NEAREST THE EXISTING WATER MAIN (OR WHERE SHOWN ON THE PLANS). THE SWAB SHALL BE PASSED THROUGH THE NEW MAIN USING WATER PRESSURE. THE SWAB SHALL BE RECOVERED AT THE END OF THE MAIN THROUGH THE BLOW-OFF ASSEMBLY.

HYDROSTATIC TESTING

THE WATER MAIN OR SECTIONS THEREOF SHALL BE TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER AND ALL LEAKS SHALL BE MADE TIGHT TO MEET THE REQUIREMENTS BELOW. THE CONTRACTOR SHALL FURNISH ALL PIPING, BULKHEADS, PUMPS, GAUGES AND OTHER EQUIPMENT REQUIRED TO CARRY OUT THE TEST AND SHALL OBTAIN ENGINEER'S APPROVAL OF SAME PRIOR TO TESTING.

THE SECTION OF MAIN TO BE TESTED SHALL BE SLOWLY FILLED WITH WATER AT LEAST 24 HOURS PRIOR TO STARTING THE TEST. EXPEL AIR THROUGH CORPORATION STOPS INSTALLED AT HIGH POINTS IN LINE. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OPERATION/MAINTENANCE PERSONNEL FOR OBTAINING WATER FOR TESTING.

ALL WATER USED SHALL BE METERED AND QUANTITIES REPORTED TO THE OPERATION/MAINTENANCE PERSONNEL.

AT THE START OF TESTING, THE MAIN SHALL BE PUMPED UP TO A PRESSURE OF 150 PSI AND THE TEST PERIOD SHALL START IMMEDIATELY THEREAFTER. TEST PRESSURE SHALL NOT BE LESS THAN 1.25 TIMES THE WORKING PRESSURE AT THE HIGHEST POINT ALONG THE TEST SECTION. THE LINE SHALL THEN BE MAINTAINED UNDER THIS TEST PRESSURE FOR A CONTINUOUS PERIOD OF TWO HOURS BY PUMPING WATER INTO THE LINE AT FREQUENT INTERVALS. THE TEST PRESSURE SHALL NOT VARY BY MORE THAN +5 PSI FOR THE DURATION OF THE TEST. THE VOLUME OF WATER SO ADDED SHALL BE MEASURED AND CONSIDERED TO REPRESENT THE LEAKAGE FROM THE LINE UNDER TEST DURING THE INTERVALS. ALL WATER SERVICE LEADS SHALL BE TESTED WITH THE MAINLINE PIPE. CONFORM TO AWWA STANDARD C600 OR C605.

TESTING ALLOWANCE. NO PIPE INSTALLATION WILL BE ACCEPTED IF THE AMOUNT OF MAKEUP WATER IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA:
IN INCH-POUND UNITS,

L=SD P
148,000

WHERE:
L=TESTING ALLOWANCE (MAKEUP WATER), IN GALLONS PER HOUR
S=LENGTH OF PIPE TESTED, IN FEET
D=NOMINAL DIAMETER OF THE PIPE, IN INCHES
P=AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST, IN POUNDS PER SQUARE INCH (GAUGE)

THE LEAKAGE PER 1,000 FEET UNDER THE CONDITIONS OF THE TEST SHALL NOT EXCEED THE VALUES SHOWN IN THE FOLLOWING TABLE, IN ACCORDANCE WITH AWWA STANDARD C 600 FOR DUCTILE IRON AND C605 FOR PLASTIC PIPE.

IN THE EVENT THAT THE LEAKAGE EXCEEDS THE SPECIFIED AMOUNT, THE JOINTS IN THE LINE SHALL BE CAREFULLY INSPECTED FOR LEAKS AND REPAIRED WHERE NECESSARY. ANY PIPES OR SPECIAL CASTING FOUND TO BE CRACKED SHALL BE REMOVED AND REPLACED WITH NEW PIECES BY THE CONTRACTOR. NO REPAIR CLAMPS OR BELL CLAMPS CAN BE UTILIZED FOR REPAIRS ON NEW CONSTRUCTION. AFTER THIS WORK HAS BEEN DONE, THE TESTS SHALL BE REPEATED. FINAL ACCEPTANCE OF THE LINES WILL NOT BE MADE UNTIL SATISFACTORY TESTS HAVE BEEN PASSED.

DISINFECTING WATER MAINS

AFTER COMPLETION OF PRESSURE TESTING AND FLUSHING OF THE WATER MAIN, THE DISINFECTION OF THE WATER MAIN SHALL BE CARRIED OUT IN ACCORDANCE WITH AWWA STANDARD C651.

AFTER DISINFECTING, FLUSH THE SYSTEM UNTIL THE CHLORINE RESIDUAL EQUALS THE SOURCE WATER AND THEN ALLOW THE WATER TO REMAIN STATIC FOR 24 HOURS BEFORE DRAWING THE FIRST SAMPLE. SUBMIT THE FIRST SAMPLE WHICH WILL THEN BE TESTED USING THE COLILERT PROCEDURE.

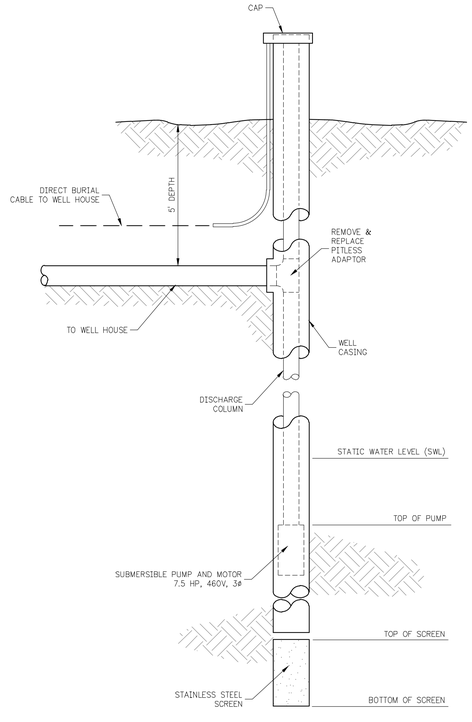
DECHLORINATION: CONTRACTOR SHALL COMPLY WITH AWWA C655 ON PROPER DECHLORINATION AND DISPOSAL OF HEAVILY CHLORINATED WATER.

CONSTRUCTION SCHEDULE

1. THE PROJECT REQUIRES CONSTRUCTION OF NEW WELL HOUSE THAT SERVICES THE SCHOOL. IT IS IMPERATIVE ALL WORK SHALL BE STAGED TO MAINTAIN THIS SERVICE/WATER QUALITY WITH NO DISRUPTION. CONTRACTOR TO BE RESPONSIBLE TO PROVIDE:
   a. PROVISIONS FOR TEMPORARY PIPING, POWER, ETC TO ENSURE EXISTING EQUIPMENT REMAINS IN OPERATION WHILE INSTALLING NEW EQUIPMENT.
   b. DURING DEMOLITION/CONNECTION OF NEW PIPING LIMITED DISRUPTION OF SERVICE IS EXPECTED AND CONTRACTOR SHALL COORDINATE WITH THE SCHOOL DURING THIS TIME.
   c. CONTRACTOR SHALL SWAB ALL PIPES PRIOR TO INSTALLATION WITH 12.5% & CHLORINE PRIOR TO INSTALL AND VISUALLY INSPECT FOR LEAKS DURING TESTING AND FLUSHING. THIS APPLIES ONLY TO INTERIOR PIPING IN THE WELL HOUSE.
   d. NEW INFRASTRUCTURE TO BE CONSTRUCTED, TESTED, AND APPROVED PRIOR TO TAKING EXISTING INFRASTRUCTURE OFFLINE AND ABANDONING/DECOMMISSIONING.
2. ALL WORK TO BE PERFORMED INCLUDING FACILITY ACCESS AND EQUIPMENT STORAGE SHALL BE COORDINATED WITH THE SCHOOL.
3. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SCHEDULE TO SCHOOL FOR APPROVAL PRIOR TO BEGINNING WORK.
4. CONTRACTOR TO BE RESPONSIBLE FOR SECURING THE SITE DAILY TO ENSURE PUBLIC SAFETY & ILLEGAL ACCESS.

WELL CONSTRUCTION NOTES

1. CONSTRUCTION OF PROPOSED WELL SHALL CONFORM TO MICHIGAN WELL CONSTRUCTION CODE AND PUMP INSTALLATION CODE (PART 127, ACT 368, PA 1978 AND ADMINISTRATIVE RULE)
2. ALL WORK TO BE PERFORMED BY A CERTIFIED/LICENSED WELL DRILLER IN THE STATE OF MICHIGAN. COORDINATION OF ALL WORK SHALL BE DONE WITH THE SCHOOL.
3. WELL INFORMATION IS FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY PRIOR TO IMPLEMENTING WORK.
4. CONTRACTOR IS RESPONSIBLE TO REMOVE AND INSTALL NEW PITLESS ADAPTOR FOR THE 4" AND 5" WELLS. PITLESS ADAPTORS TO BE NEW, FROST FREE WITH STEEL CASE, CAST IRON CAP AND PREVENT ENTRANCE OF CONTAMINANTS YET PROVIDE ACCESS TO WELL COMPONENTS, AS MANUFACTURED BY BAKER OR APPROVED EQUAL.
5. CONTRACTOR SHALL BE RESPONSIBLE TO HOOK-UP ELECTRICITY/CONTROL PANEL TO OPERATE WELL IN ACCORDANCE WITH NEC STANDARDS. CONTRACTOR SHALL UTILIZE NEW ELECTRICAL CONDUIT/SERVICE RUN TO THE SITE. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY CONNECTION CAN NOT BE MADE UNTIL EQUIPMENT IS VERIFIED TO BE IN PROPER WORKING CONDITION.
6. WELL SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA 654.



PROPOSED WELL DETAIL
NO SCALE

EXISTING WELL #1, #2, & 3

	WELL #1	WELL #2	WELL #3
LOCATION	ESTIMATED DEPTH	ESTIMATED DEPTH	ESTIMATED DEPTH
STATIC WATER LEVEL	19.5'	25'	30'
TOP OF SCREEN	86.25'	78'	80'
WELL DEPTH	100'	96'	105'
CASING SIZE	4"	6"	5"

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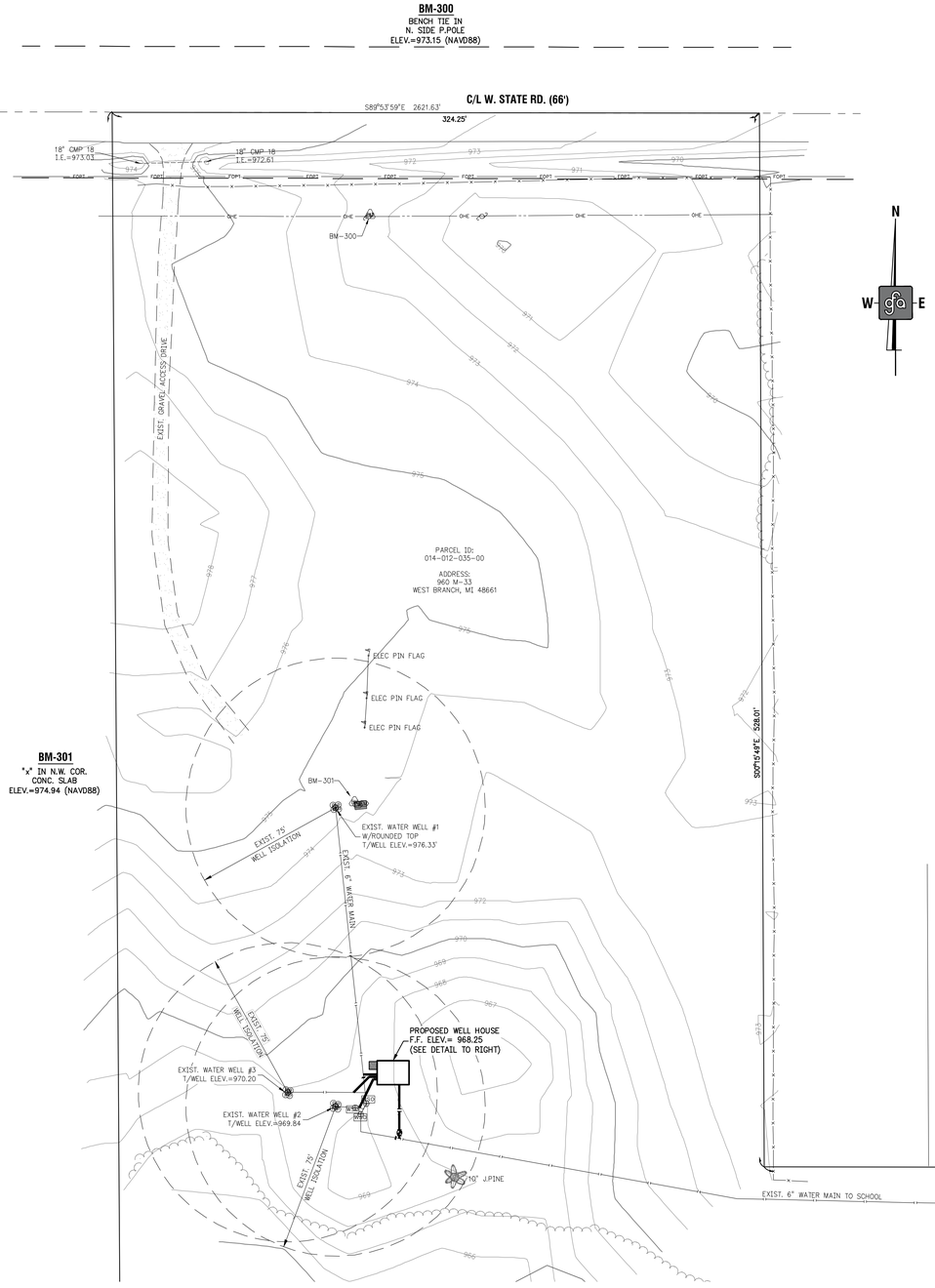
DRAWING TITLE: GENERAL NOTES/WELL DETAILS

PROJECT TITLE: WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

PROJECT NO.: 294-22

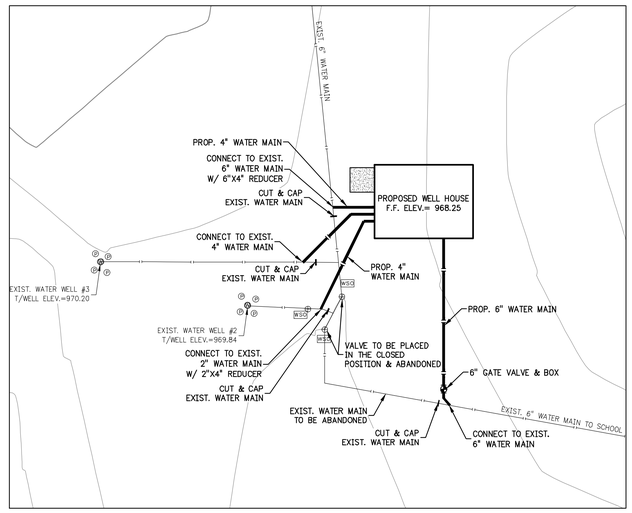
DATE: REV: 9/26/24

SHEET: C1



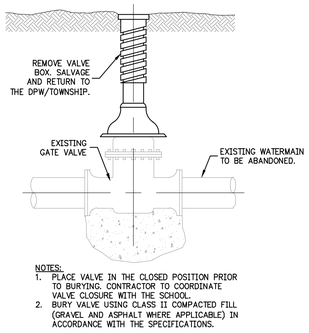
OVERALL SITE PLAN

SCALE: 1"=30'



DETAILED SITE PLAN

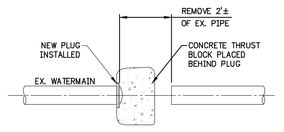
SCALE: 1"=10'



NOTES:
1. PLACE VALVE IN THE CLOSED POSITION PRIOR TO BURYING. CONTRACTOR TO COORDINATE VALVE CLOSURE WITH THE SCHOOL.
2. BURY VALVE USING CLASS II COMPACTED FILL (GRAVEL AND ASPHALT WHERE APPLICABLE) IN ACCORDANCE WITH THE SPECIFICATIONS.

VALVE BOX REMOVAL DETAIL

NO SCALE

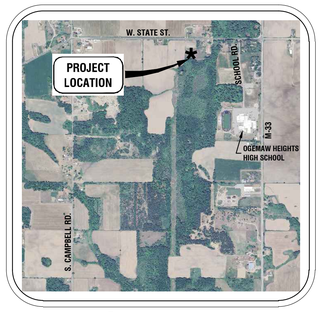


PLUG INSTALLATION DETAIL

NO SCALE

ABANDONMENT NOTES

1. EXISTING INFORMATION IS PROVIDED BASED UPON FIELD COLLECTED TOPOGRAPHY AND RECORD DRAWINGS AND IS FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS.
2. UPON COMPLETION OF WORK, THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE CLEANUP AND RESTORATION.
3. CONTRACTOR TO REMOVE RODS/BOXES AND BURY EXISTING VALVES TO BE ABANDONED AFTER PLACING IN THE CLOSED POSITION. (SEE DETAIL)
4. CONNECTION TO WELLS SHALL BE STAGED TO ENSURE NO SYSTEM DISRUPTION. CONTRACTOR TO BE RESPONSIBLE FOR TESTING, DISINFECTING, AND PASSING RESULTS PRIOR TO PLACING INTO SERVICE.
5. CONTRACTOR TO INSTALL ALL PROPOSED PIPING AND APPURTENANCES.
6. CONTRACTOR TO COMPLETE ALL TESTING PER STANDARD SPECIFICATIONS.
7. CONTRACTOR TO CONNECT PROPOSED WATER MAIN TO EXISTING WATER MAIN.
8. ABANDON EXISTING WATER MAIN AS FOLLOWS:
   A. CUT WATER MAIN AT LOCATIONS INDICATED ON THE DRAWINGS.
   B. INSTALL PLUG AT EXPOSED PIPE END. ALL PLUGS SHALL INCLUDE CONCRETE THRUST BLOCK USING WET MIX CONCRETE.
5. ABANDON ALL EXISTING MAINLINE VALVES ON ABANDONED WATER MAIN AS FOLLOWS:
   A. PLACE VALVE IN THE CLOSED POSITION. COORDINATE VALVE CLOSURE WITH THE DPW.
   B. REMOVE VALVE BOX, SALVAGE, AND RETURN TO THE DPW.
   C. BURY VALVE WITH CLASS II COMPACTED FILL (GRAVEL AND BITUMINOUS TO ALSO BE PLACED WHERE APPLICABLE) IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



LOCATION MAP
NO SCALE

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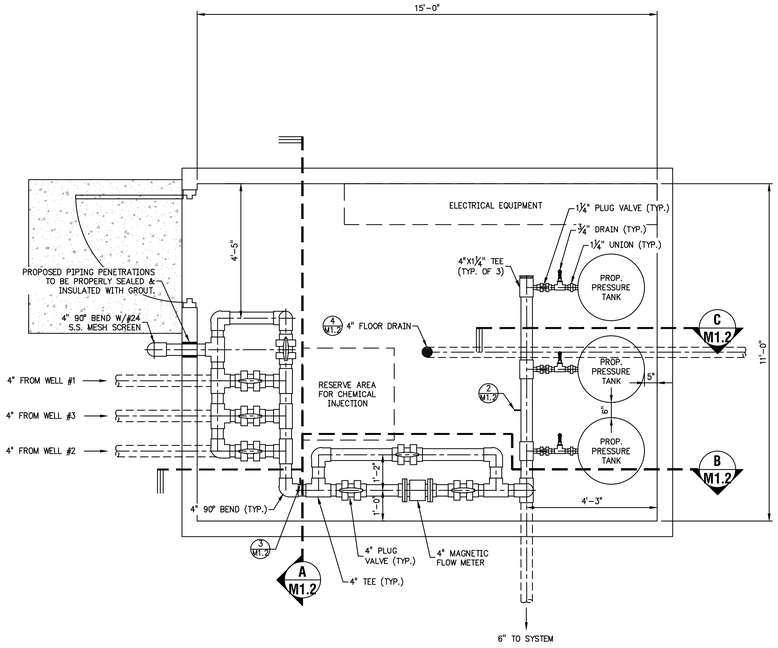
DRAWING TITLE
PROPOSED SITE PLAN

PROJECT TITLE
WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

PROJECT NO.
294-22

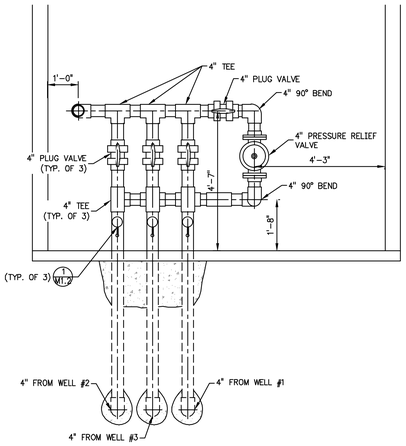
DATE
REV: 9/26/24

SHEET
C2



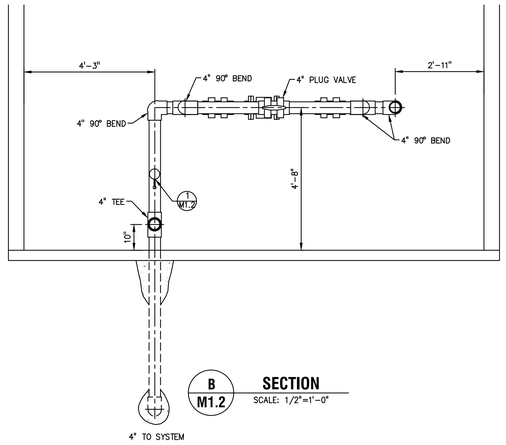
PROPOSED WELL HOUSE MECHANICAL PLAN

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



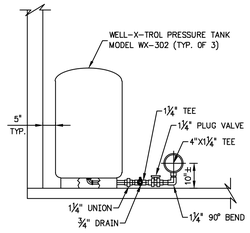
A M1.2 SECTION

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



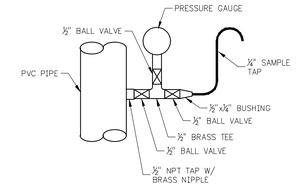
B M1.2 SECTION

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

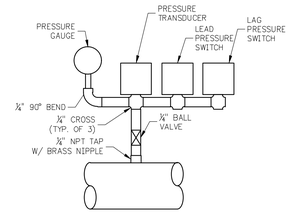


C M1.2 SECTION

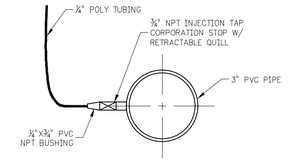
SCALE: 1/2"=1'-0"



1 M1.2 PRESSURE GAUGE & SAMPLE TAP

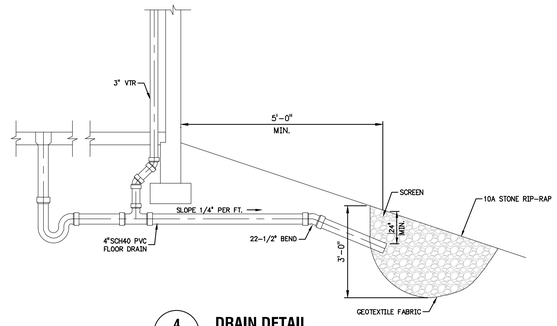


2 M1.2 PRESSURE SWITCH GAUGE ASSEMBLY



3 M1.2 CHEMICAL INJECTION TAP

SCALE: NOT TO SCALE



4 M1.2 DRAIN DETAIL

SCALE: NOT TO SCALE

NOTES

1. ALL PROCESS PIPING 2" & LARGER TO BE PVC SCH80 COMPLIANT AND STAMPED NSF-PW COMPLIANT WITH ASTM D 1785. ALL PROCESS PIPING SMALLER THAN 2" TO BE BRASS.
2. ALL VALVES SHALL BE MANUALLY OPERATED AND INCLUDE HAND WHEELS AND OPEN COUNTER CLOCKWISE UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING TEMPORARY PIPING SUPPORTS AS NEEDED AND ADEQUATE PERMANENT SUPPORTS AND RESTRAINTS FOR PROPOSED PIPING AND EQUIPMENT AS APPROVED BY ENGINEER.
4. CONTRACTOR TO INSTALL FLOW METER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. METER TO BE NEMA 4X, E& H PROMAG 10W AND OR ENGINEER APPROVED EQUAL. TRANSDUCER TO BE CEREBAR PMC-71 OR ENGINEER APPROVED EQUAL.
6. ALL WELL HOUSE PIPING AND APPURTENANCES SHALL BE NSF APPROVED.
7. PRESSURE TANKS PROVIDED SHALL BE CONSTRUCTED IN ACCORDANCE TO ASME SECTION VIII AND ASF 61 SHALL BE PRE CHARGED TO 38 PSI WITH REPLACEABLE INTERIOR HEAVY DUTY DIAPHRAGM, POLYPROPYLENE LINER AND INCLUDE PRESSURE GAUGE WITH BALL VALVE TO OBSERVE INDIVIDUAL PRESSURES AT BLADDER, ACCESS MANWAY, AND AIR VALVE TO ALLOW MEANS TO ADD AIR TO BLADDER.
   A. WELL-X-TROL MODEL WX-302, 86 GALLONS OR APPROVED EQUAL.
9. PRESSURE RELIEF VALVE SHALL BE HYDRAULICALLY OPERATED, PILOT CONTROLLED, MODULATING VALVE IN AN ANGLE PATTERN, THREADED
   A. CLA-VAL 50-01 OR EQUAL
10. PRESSURE GAUGES SHALL BE GLYCERINE FILLED, 4" CLEAR DIAL FACE CONSTRUCTED OF 304 S.S. PINION GEAR AND SEGMENT. GAUGES ARE TO HAVE ¼" NPT FEMALE THREAD W/ RANGE 0-100 PSI @ 10 PSI INTERVALS AND 2 PSI GRADUATING MARKS.
   A. BOSHART INDUSTRIES OR EQUAL
11. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING TEMPORARY PIPING SUPPORTS AS NEEDED AND ADEQUATE PERMANENT SUPPORTS AND RESTRAINTS FOR PROPOSED PIPING AND EQUIPMENT AS APPROVED BY ENGINEER.
12. ALL VALVES SHALL BE MANUALLY OPERATED AND INCLUDE HAND WHEELS AND OPEN COUNTER CLOCKWISE UNLESS OTHERWISE NOTED.
13. ALL NEW WORK OR REHABILITATION WORK CONDUCTED AT THE WELL HOUSE SITE WILL REQUIRE TESTING AND DISINFECTION, IN ACCORDANCE WITH APPLICABLE MDEQ AND AWWA REGULATIONS AND THE OWNERS APPROVAL PRIOR TO PLACING IN TO SERVICE.
14. PROPOSED PIPING SCHEMATIC IS SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE FINAL LOCATIONS WITH OWNER. ADDITIONAL PIPING AND FITTINGS MAY BE NECESSARY AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE PROJECT.
15. INSTALLATION OF ALL EQUIPMENT SHALL BE IN COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS.
16. ALL EQUIPMENT SHALL BE PROPERLY SECURED AND MOUNTED TO WALLS, CEILING, AND FLOOR AS NECESSARY TO PROVIDE A RIGID STRUCTURE USING BRACKETS CORROSIVELY RESISTANT TO NaOCl (12.5%).
17. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ELECTRICAL ACCORDINGLY. REFER TO APPROPRIATE SHEETS.
18. RETAINER GLANDS SHALL BE USED ON ALL MECHANICAL JOINT FITTINGS.
19. A PHYSICAL GAP SHALL BE MAINTAINED BETWEEN THE PROPOSED WATER MAIN AND THE EXISTING WATER MAIN UNTIL ALL WATER MAIN TESTING HAS BEEN COMPLETED AND APPROVED BY THE ENGINEER.
20. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN WATER FOR FLUSHING AND TESTING PURPOSES. CONTRACTOR SHALL COORDINATE WITH THE OWNER IF WATER IS OBTAINED FROM THE WATER SYSTEM. THE OWNER SHALL BE GIVEN 24 HOURS NOTICE PRIOR TO USING ANY WATER FROM THE WATER SYSTEM.
21. CONTRACTOR SHALL PROPERLY DISPOSE OF CHLORINATED WATER USED IN TESTING OPERATIONS.
22. ALL INTERIOR MECHANICAL PIPING SHALL BE SWABBED WITH 12.5% CHLORINE SOLUTION PRIOR TO INSTALLATION.

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DRAWING TITLE: PRESSURE SYSTEM MECHANICAL PLAN

PROJECT TITLE: OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
WEST BRANCH, MICHIGAN

PROJECT NO.: 294-22

DATE: REV: 9/26/24

SHEET: C3

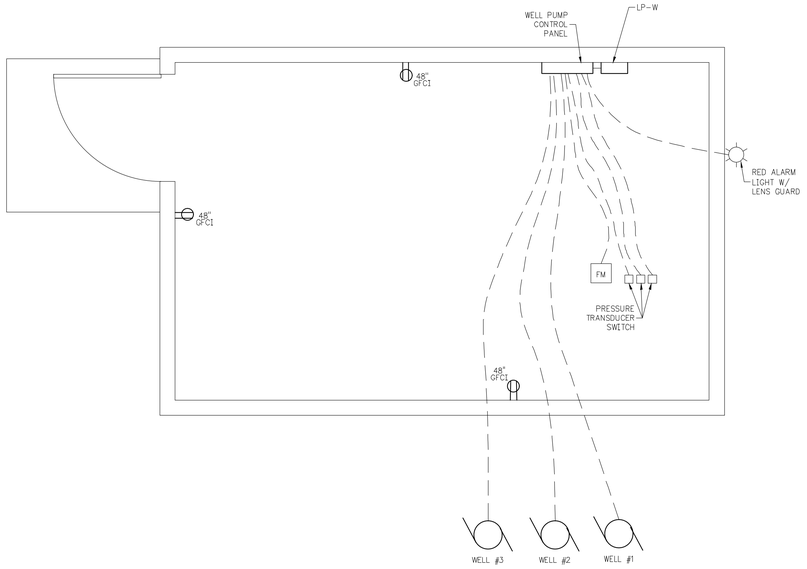
WELL SYSTEM

1. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING WELL PUMP/MOTOR RATINGS AND SIZE ELECTRICAL SERVICE ACCORDINGLY. INFORMATION PROVIDED IS ASSUMED MOTORS ARE 7.5 HP, 460V, 3P.
2. CONTRACTOR IS RESPONSIBLE FOR INSPECTING J.L.K. ELECTRICAL PLANS.
3. MATERIALS, EQUIPMENT, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE LATEST EDITION.
4. GROUNDING, INSTALLATION, AND REQUIRED PROTECTION OF THE SUBMERSIBLE MOTOR SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
5. SUBMERSIBLE MOTOR CURRENT UNBALANCE SHALL NOT EXCEED 5% BETWEEN ANY TWO LEGS.
6. FUSES SHALL BE DUAL ELEMENT (TIME DELAY) TYPE.
7. ONE(1) 120V, 20A RECEPTACLE SHALL BE SUPPLIED FOR A FUTURE CHLORINE FEED PUMP. THIS OUTLET SHALL ONLY BE ENERGIZED WHEN FLOW IS SENSED BY THE FLOW SWITCH.
8. PUMP CONTROL PANEL WILL BE UL508 AND SHALL HAVE HOUR METERS AS WELL AS H-O-A SWITCH. THE CONTROL PANEL SHALL OPERATE THE EXTERIOR MOUNTED RED LIGHT WHEN IT SENSES A FAULT ON THE PUMP AND ACCOMMODATE PUMPS TO ALTERNATE (LEAD/LAG).
9. MAIN SWITCH SHALL BE EQUIPPED W/ HOOK-UP RECEPTACLE TO ALLOW FOR USE OF PORTABLE GENERATOR IN POWER FAILURE SITUATIONS.
10. 24V RED LED BEACON INDICATOR LIGHT FOR TROUBLE STATUS ONLY. BY TELEMECANIQUE #XVEL2B4 W/ #XVBC12 BRACKET AND #XVEZ083 SEAL KIT OR EQUAL. MOUNT BEACON INDICATOR LIGHT AT 7'-0" ABOVE FINISHED GRADE. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.

MECHANICAL EQUIPMENTS SCHEDULE:

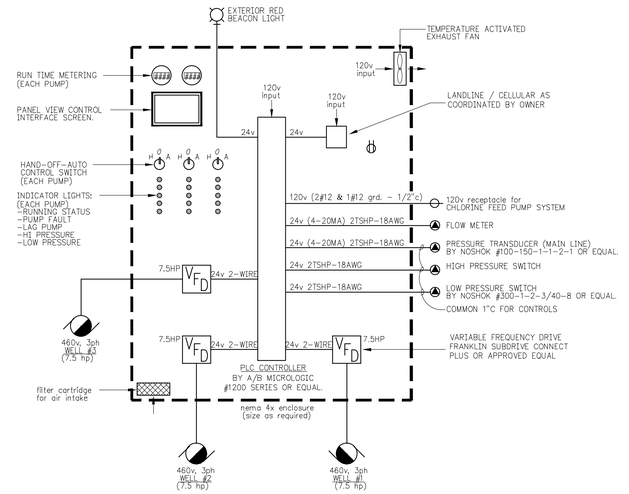
FLOW SWITCH - VANE OPERATED FLOW SWITCH EQUAL TO A W.E. ANDERSON, FLOTECT V4-2-U.

PRESURE SWITCH - EQUAL TO A SQUARE D FYG6, WITH MIN. OF THE FOLLOWING: CUT-OUT RANGE: 70 PSI; CUT IN RANGE: 60 PSI.



NOTES:
1. REFER TO J.L.K ELECTRICAL PLAN E.P. FOR MORE INFORMATION

WELL SYSTEM ELECTRICAL PLAN
SCALE: NOT TO SCALE



NOTES:
1. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TURNKEY PANEL CONSTRUCTION AND PROGRAMMING INCLUDING 12 HOUR BATTERY BACK-UP.
2. COORDINATE SYSTEM PROGRAMMING WITH OWNER AND GFA PRIOR TO COMPLETION OF WORK.
3. PUMP CONTROL PANEL SHALL BE DESIGNED FOR THREE (3) PUMP MOTORS AND HAVE AN ALTERNATOR WITH ON/OFF SWITCH SO THAT PUMPS MAY OPERATE AUTOMATICALLY AND MANUALLY WHILE THE OTHER PUMP IS DISCONNECTED (LEAD-LAG). THE CONTROL PANEL SHALL OPERATE THE EXTERIOR MOUNT RED LIGHT WHEN IT SENSES A FAULT ON EITHER OF THE TWO PUMPS AND WHEN PREDETERMINED LOW TEMPERATURE IN WELLHOUSE IS EXPERIENCED.

TRIPLEX PUMP CONTROLLER DETAIL
SCALE: NOT TO SCALE

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DRAWING TITLE
PRESSURE SYSTEM ELECTRICAL PLAN

PROJECT TITLE
WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

PROJECT NO.
294-22

DATE
REV. 9/26/24

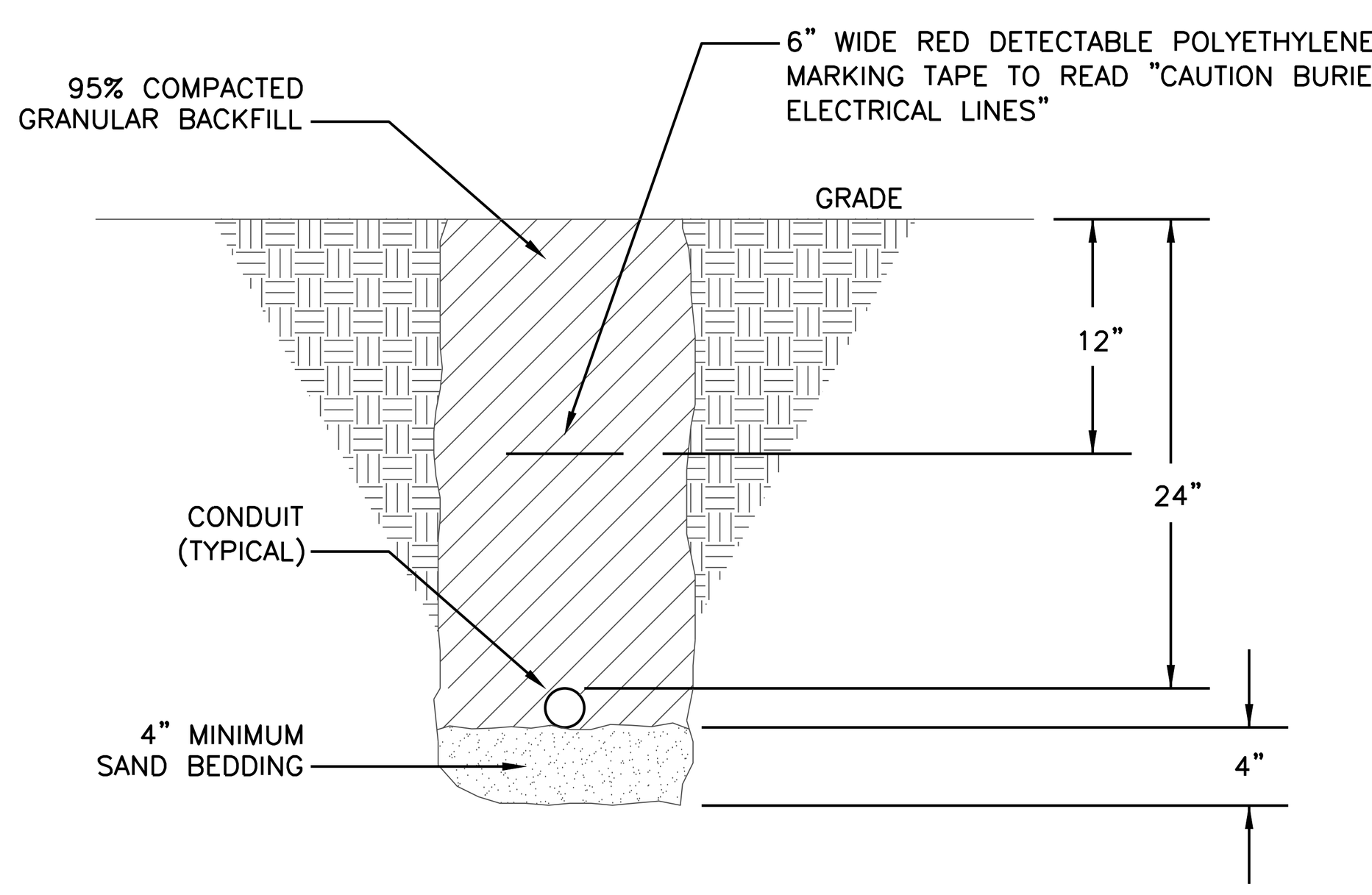
SHEET
C4

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE EXTENT OF DEMOLITION WORK SHALL BE AS REQUIRED BY THE NEW WORK.
2. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE EXISTING SYSTEMS/EQUIPMENT PRIOR TO ISSUING HIS BID. ALL EXISTING PANEL/WIRE/LIGHT SIZES AND ROUTINGS SHOWN ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.
3. ALL ELECTRICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING, BUT NOT LIMITED TO, WIRES, CONDUITS, SUPPORTS, FIXTURES, LAMPS, ETC. REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF OFF SITE.
4. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED, BY THE OWNER OR OWNER'S REPRESENTATIVE, AT LEAST (7) DAYS IN ADVANCE SO AS NOT TO INTERFERE WITH THE PRESENT BUILDING OPERATION.
5. WHERE DEMOLITION OF EXISTING SERVICES ARE REQUIRED TO ACCOMMODATE THE PROJECT PHASING/SCHEDULING, AND SERVICES ARE TO BE INTERRUPTED IN AREAS THAT ARE REMAINING OCCUPIED, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES/CONNECTIONS TO THE OCCUPIED AREAS TO MAINTAIN ITS PRESENT OPERATION. IF SYSTEM SHUT DOWNS ARE REQUIRED, THE CONTRACTOR SHALL SCHEDULE WORK TO BE PERFORMED AT UNOCCUPIED HOURS.
6. ALL ITEMS TO BE REMOVED AND/OR RELOCATED SHALL BE REMOVED AND/OR RELOCATED TOGETHER WITH ALL RELATED ITEMS AS REQUIRED BY THE NEW WORK TO BE PERFORMED.
7. CONTRACTOR SHALL COORDINATE ALL REMOVAL AND/OR RELOCATION WITH THE EXTENT OF THE NEW WORK AND WITH ALL OTHER TRADES INVOLVED.

GENERAL ELECTRICAL POWER, AUXILLARY, & LIGHTING NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MATERIALS (I.E. CONDUIT, WIRE, PULL BOXES, FIXTURES, ETC.) REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. ALL ELECTRICAL SYSTEMS SHALL BE PROVIDED/INSTALLED TO MEET APPLICABLE BUILDING CODES: MICHIGAN BUILDING CODE, MICHIGAN ELECTRICAL CODE, N.E.C., LIFE SAFETY CODE NFPA 101, MICHIGAN ENERGY CODE, ETC.
3. VERIFY REQUIREMENTS OF ALL MECHANICAL/PLUMBING/ARCHITECTURAL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION. NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN SHOP DRAWINGS AND PLANS.
4. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL OUTLETS WITH LOCATIONS/HEIGHTS OF COUNTERTOPS, SINKS, FURNITURE, CABINETS, ETC. WITH ARCHITECTURAL ELEVATIONS AND OTHER TRADES.
5. INSTALL ALL MISCELLANEOUS STEEL, STRUT, ETC. REQUIRED TO SUPPORT/HANG EQUIPMENT, CONDUIT, ETC. COORDINATE ATTACHMENTS WITH STRUCTURAL TRADES.
6. COORDINATE THE INSTALLATION OF ALL ELECTRICAL WORK WITH ALL OTHER TRADES. CONTRACTOR SHALL VERIFY ALL MECHANICAL AND ELECTRICAL CLEARANCES PRIOR TO FABRICATION OF ANY NEW WORK. ELECTRICAL EQUIPMENT, WIRING, ETC. SHALL NOT INTERFERE WITH MECHANICAL EQUIPMENT CLEARANCE SPACES.
7. ALL CIRCUITS FOR POWER, LIGHTING, ETC. SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. ALL CIRCUITS SHALL BE CONCEALED IN WALLS, INCLUDING (E) WALLS. SURFACE MOUNTED RACEWAY SHALL NOT BE USED, UNLESS NOTED OTHERWISE, OR UNLESS ABSOLUTELY NECESSARY. APPROVAL FROM ARCHITECT/ENGINEER MUST BE OBTAINED PRIOR TO USING SURFACE MOUNTED CONDUIT.
8. UNLESS OTHERWISE NOTED, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ALL NEW PENETRATIONS THROUGH ALL WALLS WITH FIRE CAULK IN ACCORDANCE WITH CURRENT BUILDING CODE REQUIREMENTS.
9. COORDINATE EXACT FIXTURE LOCATIONS WITH ARCHITECTURAL PLANS (REFLECTED CEILING PLANS, BUILDING ELEVATIONS ETC.).
10. ALL EMERGENCY LIGHTS AND EXIT LIGHTS SHALL BE CIRCUITED TO UNSWITCHED/HOT LEG OF THE GENERAL LIGHTING CIRCUIT OF THE AREA SERVED BY THE EMERGENCY/EXIT LIGHTS.
11. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ROUGH-INS (IE BOXES, CONDUIT, ETC.) FOR AUXILIARY ELECTRICAL SYSTEMS (IE. TELECOM, SECURITY, ETC.). COORDINATE REQUIREMENTS WITH AUXILIARY ELECTRICAL SUB-CONTRACTORS PRIOR TO ISSUE OF BID AND VERIFY ALL WORK REQUIRED.



ELECTRICAL CONDUIT TRENCHING DETAIL
NO SCALE

BRANCH CIRCUIT WIRE SIZE/LENGTH SCHEDULE

MAX BRANCH CIRCUIT (AMPS)	MAX CIRCUIT LENGTH (FEET) TO LAST CONNECTION IN THE CIRCUIT						
	50	75	100	125	150	300	
15	#12	#10	#10	#8	#6	#4	
20	#10	#10	#8	#6	#6	#3	
30	#8	#8	#6	#4	#4	#1	

NOTES:
1. REFER TO SPECIFICATIONS FOR WIRE TYPE.
2. SCHEDULE IS BASED UPON A MAX 3% VOLTAGE DROP ON 115-120V/1ø CIRCUITS.
3. FOR LENGTHS BETWEEN TABLED VALUES – USE LONGER LENGTH.

ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CAPACITY
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
COORD	COORDINATE
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DWG	DRAWING
(E)	EXISTING
EBH	ELECTRIC BASEBOARD HEATER
EBU	EMERGENCY BATTERY UNIT
E.C.	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EML	EMERGENCY LIGHT
EMT	ELECTRICAL METALLIC TUBING
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
EXP	EXPLOSION PROOF
(F)	FUTURE
F.A.	FIRE ALARM SUBCONTRACTOR
FC	FAN COIL
FLA	FULL LOAD AMPS
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GRD	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILO VOLT-AMPERES
KW	KILOWATT
KWH	KILOWATT-HOURS
LC	LIGHTING CONTROLLER
LP	LIGHTING PANEL
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MFS	MAX FUSE SIZE
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
NC	NORMALLY CLOSED
N.E.C.	NATIONAL ELECTRIC CODE
NF	NON-FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
P-A	PANEL "A"
P.C.	PLUMBING CONTRACTOR
PRI	PRIOR TO ROUGH-IN
(R)	RELOCATED
RECEPT	RECEPTACLE
SPEC	SPECIFICATION
SS.	STAINLESS STEEL
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
T.D.	TEMPERATURE CONTROLS SUBCONTRACTOR
TELECOM	TELECOMMUNICATIONS
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
U/G	UNDERGROUND (BELOW GRADE)
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
W	WATTS
WG	WIRE GUARD
WP	WEATHERPROOF
WR	WEATHER-RESISTANT
XFMR	TRANSFORMER

ELECTRICAL SYMBOL LIST

SYMBOL	DESCRIPTION
FA	FIXTURE TYPE
	RECESSED LIGHT FIXTURE (2x4)
	RECESSED EMERGENCY LIGHT FIXTURE (2X4)
	SURFACE MOUNTED LIGHT FIXTURE (2x4)
	SURFACE MOUNTED EMERGENCY LIGHT FIXTURE (2x4)
	RECESSED LIGHT FIXTURE (2x2)
	RECESSED EMERGENCY LIGHT FIXTURE (2X2)
	SURFACE MOUNTED LIGHT FIXTURE (2x2)
	SURFACE MOUNTED EMERGENCY LIGHT FIXTURE (2x2)
	PENDANT OR SURFACE MOUNTED LIGHT FIXTURE
	PENDANT OR SURFACE MOUNTED EMERGENCY LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	CEILING MOUNTED LIGHTING FIXTURE
	OUTDOOR WALL MOUNTED LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH EMERGENCY EGRESS LIGHTING AND BATTERY
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS – SHADED AREA INDICATES FACE
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS – SHADED AREA INDICATES FACE
	EXIT LIGHTING FIXTURE – WALL MOUNTED
	REMOTE EMERGENCY EXIT DISCHARGE LIGHT
S	SINGLE POLE TOGGLE SWITCH
S_3	3-WAY TOGGLE SWITCH
S_O	OCCUPANCY SENSOR WALL SWITCH
S_V	VACANCY SENSOR WALL SWITCH
T	T-STAT (BY OTHERS) ROUGHED IN BY E.C. @ 52" AFF WITH CONDUIT PATHWAY TO EQUIPMENT CONTROLS CONNECTION – COORD. WITH MECHANICAL TRADES
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	COMBINATION MOTOR STARTER WITH DISCONNECT SWITCH
VSD	VARIABLE SPEED DRIVE COMBINATION MOTOR STARTER WITH DISCONNECT SWITCH
	NON-FUSABLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
SM	HORSE POWER RATED SWITCH
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	CONDUIT UP
	CONDUIT DOWN
	COMBINATION TELE/DATA OUTLET – ROUGH-IN ONLY, NO CABLE DROP
	COMBINATION TELE/DATA OUTLET MOUNTED 6" ABOVE COUNTERTOP – ROUGH-IN ONLY NO CABLE DROPS
	TELECOMMUNICATIONS BACKBOARD
	DUPLEX RECEPTACLE
48"	DUPLEX RECEPTACLE MOUNTED AT 48" ABOVE FLOOR (UNLESS NOTED OTHERWISE) – SIMILAR FOR ISOLATED GROUND, EMERGENCY AND GFI RECEPTACLES
	QUAD RECEPTACLE
	DUPLEX RECEPTACLE MOUNTED 6" ABOVE COUNTERTOP OR AS REQUIRED TO ACCOMMODATE COUNTERS – REFER TO ARCHITECTURAL ELEVATIONS
	DUPLEX RECEPTACLE – GROUND FAULT INTERRUPTER
	DUPLEX RECEPTACLE – GROUND FAULT INTERRUPTER – MOUNTED 6" ABOVE COUNTERTOP OR AS REQUIRED TO ACCOMMODATE COUNTERS – REFER TO ARCHITECTURAL ELEVATIONS
WP	DUPLEX RECEPTACLE – GROUND FAULT INTERRUPTER – WEATHER-RESISTANT (WR) RECEPTACLE IN WEATHERPROOF ENCLOSURE
	SPECIAL RECEPTACLE – NEMA CONFIGURATION AS NOTED
	CIRCUIT BREAKER
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	NODE
	GROUND
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
A-3	CIRCUIT HOMERUN TO PANEL "A" CIRCUIT #3
	PANEL (< 240V)
	PANEL (> 480V)
	DISTRIBUTION PANEL
T	TRANSFORMER
M	UTILITY METER

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURERS	LAMPS	VOLTS/WATTS	REMARKS
S4	3"Wx48"Lx4"H SURFACE MOUNTED LED STRIP FIXTURE WITH FROSTED LENS; 0-10V DIMMING	1. METALUX "SNLED" SERIES MODEL #4SNLED-LD5-56SL-LW-UNV-L840-CD1 2. ENGINEER APPROVED EQUAL	LED 5,678 LUMENS 4,000 K TEMP	120-277V / 52W	
WF	7.6"Hx6.1"D OUTDOOR LED SECURITY FLOODLIGHT FIXTURE WITH 2 ROUND DIE-CAST ALUMINUM HEADS AND POLYCARBONATE LENS; INTEGRATED PHOTOCELL; WET LISTED; DUSK-DAWN & MOTION ACTIVATED CONTROL MODES	1. HALO "TGS" SERIES MODEL #TGS2S402MRRB 2. ENGINEER APPROVED EQUAL	LED 2,526 LUMENS 4,000 K TEMP	120V / 21W	VERIFY MOUNTING HEIGHT, AND LOCATION WITH ARCHITECTURAL ELEVATIONS AND OWNERS REP PRIOR TO ORDER/ROUGH-IN.

WBRCAS 2022 BOND ISSUE – BID PACKAGE #6
OGEMAW HEIGHTS HIGH SCHOOL (OHHS) WELLHOUSE ALTERNATE BID ITEMS:

ALTERNATE #1 (DEDUCT) –
REMOVE THE MANUAL TRANSFER SWITCH (MTS) FROM THE SCOPE OF WORK AND INSTALL ELECTRICAL SERVICE METER & SERVICE FEEDER TO SERVICE PANEL "W" VIA A J-BOX AS NEEDED TO INCLUDE PROVISIONS FOR A FUTURE EXTERIOR MOUNTED MANUAL TRANSFER SWITCH/RECEPTACLE IMPROVEMENT PROJECT.

STANDARD MOUNTING HEIGHTS

CONVENIENCE AND SPECIAL PURPOSE RECEPTACLE OUTLETS, TELE/DATA AND COMMUNICATIONS OUTLETS, NOT OTHERWISE SPECIFIED:
- 18" AFF TO THE MIDDLE OF BOX
- 16" AFF TO BOTTOM OF BOX IN CMU WALLS

LIGHT SWITCHES, & MOTOR CONTROL DEVICES, NOT OTHERWISE SPECIFIED:
- 48" AFF TO THE MIDDLE OF BOX
- 48" AFF TO THE TOP OF BOX IN CMU WALLS

T-STATS & TEMP. SENSORS, NOT OTHERWISE SPECIFIED:
- 48" AFF TO THE MIDDLE OF BOX
- 48" AFF TO THE TOP OF BOX IN CMU WALLS

GFI RECEPTACLES IN TOILET ROOMS, JANITOR CLOSETS, STORAGE ROOMS, MECHANICAL ROOMS, WELL HOUSE, NOT OTHERWISE SPECIFIED:
- 48" AFF TO TOP OF BOX.

LIGHTING AND RECEPTACLE BRANCH CIRCUIT PANELBOARDS AND LIGHTING CONTROLLERS:
- 6'-6" AFF TO TOP OF ENCLOSURE.

METHODS OF NOTATION

SYMBOL	DESCRIPTION
FA	LIGHT FIXTURE DESIGNATION (I.E. FIXTURE TYPE "FA" – SEE FIXTURE SCHEDULE)
EF 1	EQUIPMENT DESIGNATION (I.E. EXHAUST FAN NUMBER 1)
1	CONSTRUCTION KEYED NOTE NUMBER
1	DEMOLITION KEYED NOTE NUMBER
	EXISTING SYSTEM COMPONENT TO BE REMOVED
	NEW SYSTEM COMPONENT
	EXISTING SYSTEM COMPONENT TO REMAIN
	POINT OF NEW CONNECTION
A-3	CIRCUIT HOMERUN (BACK TO PANEL "A" – REFER TO PANEL SCHEDULE)

ELECTRICAL & MECHANICAL DRAWING INDEX

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DRAWING TITLE: ELECTRICAL TITLE SHEET

PROJECT TITLE: WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM - BID PACKAGE #6
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

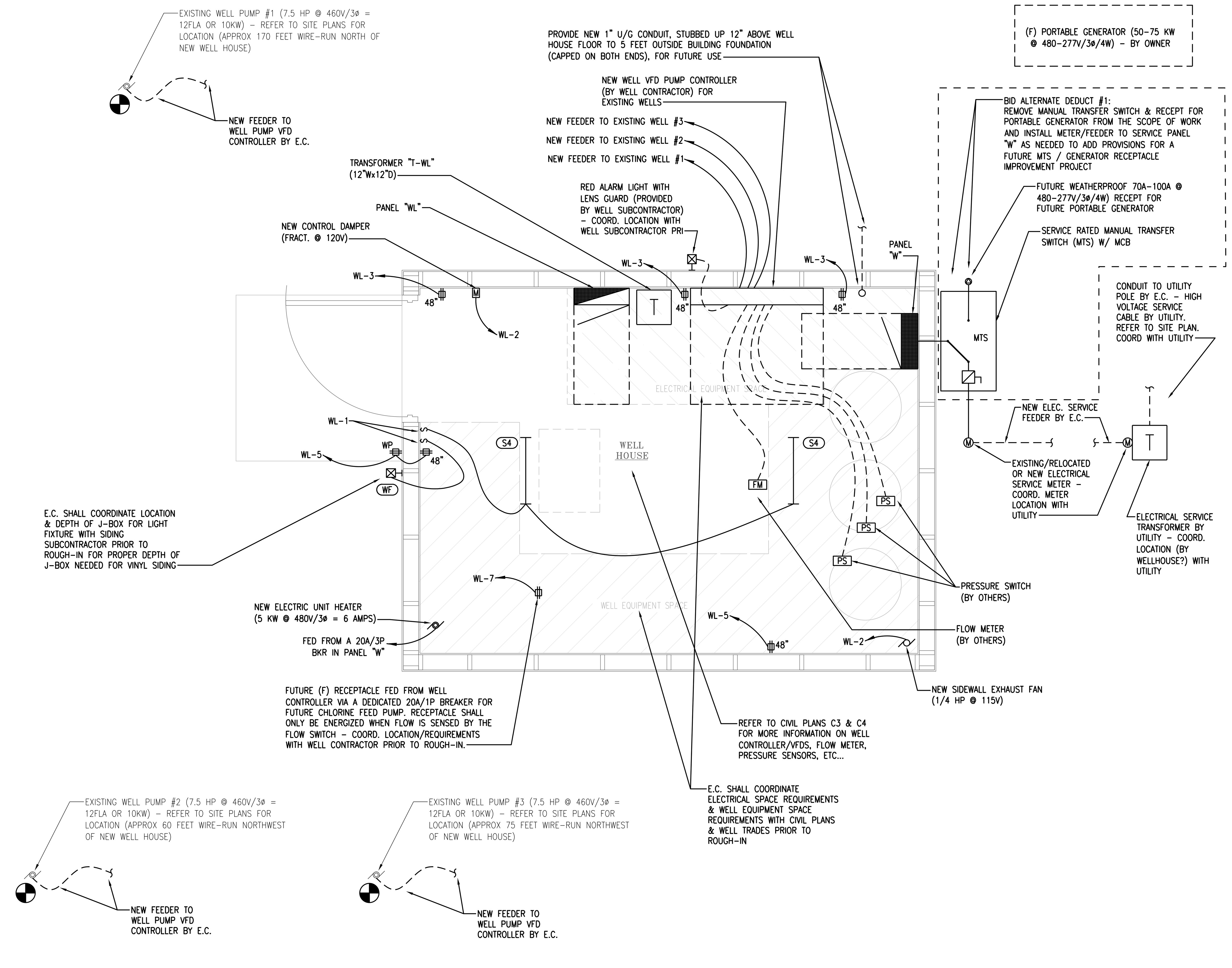
PROJECT NO.: 294-22

DATE: 9/26/2024

SHEET: ET

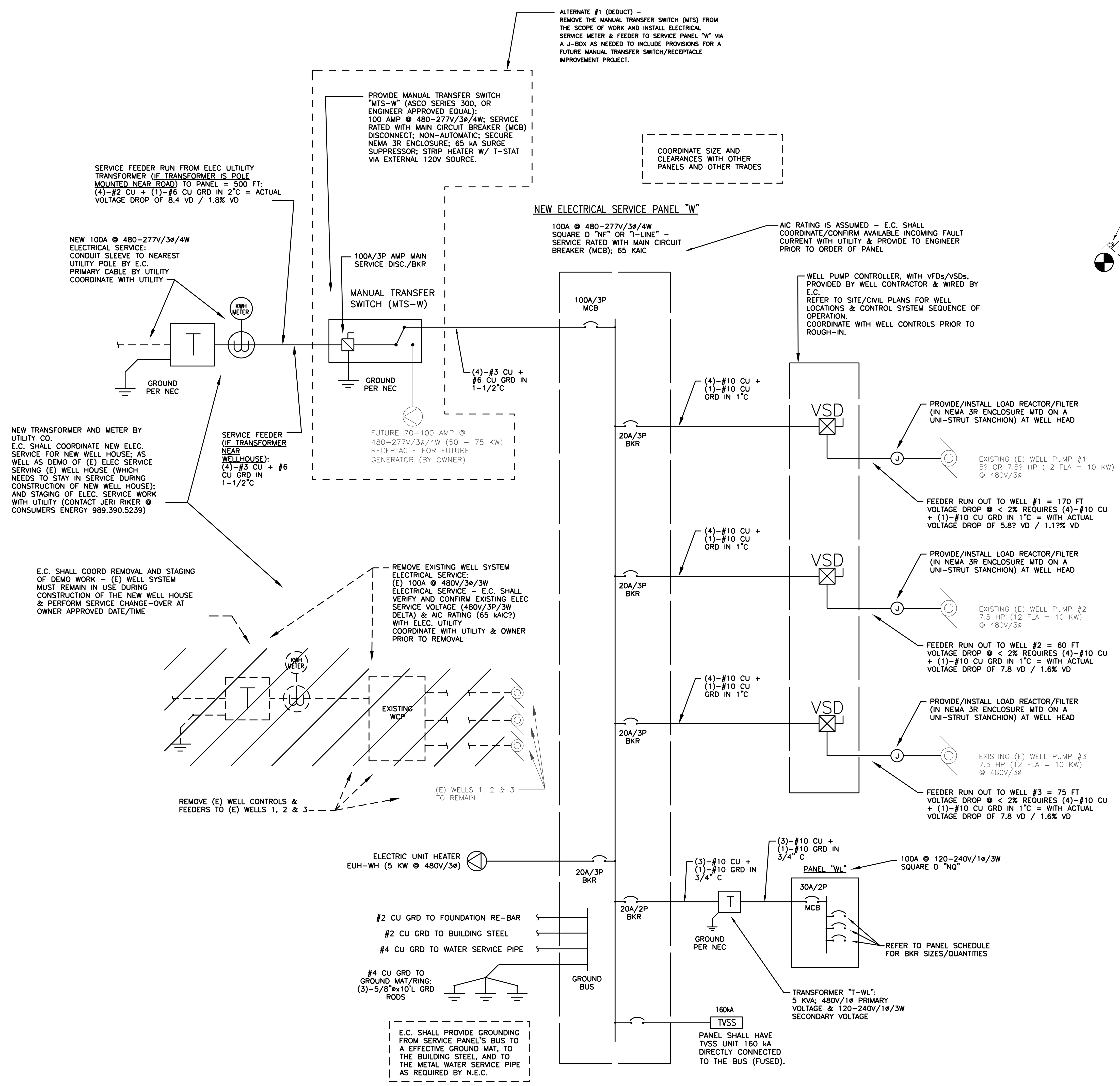
PANEL:	WL	100A MCB		BUSSING SIZE:	100A	FED FROM :	PANEL "W"
# OF POLES:	18	VOLTS:	120-208/3P/4W	NEUTRAL BUS:	100A	MOUNTING:	SURFACE
PHASE:	3	GROUND BUS:	YES	TVSS:	NO	AIC RMS AMPS:	14,000
HERTZ:	60	ISOLATED GROUND:	NO		THIS PANEL SERVICE 120-208V LOADS		
LOCATION:	NEW WELLHOUSE			REMARKS:	FOR THE WELLHOUSE		

CIRCUIT	BREAKER	DESCRIPTION	A	B	C
1	20	LIGHTING	138.2		
3	20	RECEPTS - NORTH		540	
5	20	RECEPTS - SOUTH			540
7	20	RECEPT - FUTURE CHLORINE PUMP	180		
9				0	
11					0
13			0		
15				0	
17					0
2	20	EXHAUST FAN (1/4 HP @ 120V) & CONTROL DAMPER	1250		
4	20	120V POWER TO WELL CONTROL PANEL		250	
6	20	TRANSFER SWITCH STRIP HEATER			500
8	20	SPARE	0		
10				0	
12					0
14			0		
16				0	
18					0
KVA:	03	CONNECTED AMPS: 09.4	PHASE WATTS: 1,568	0,790	1,040
DEMAND KVA:	03	DEMAND AMPS: 09.4			



ELECTRICAL POWER/LIGHTING PLAN – WELLHOUSE

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



ELECTRICAL SERVICE ONE LINE DIAGRAM

NO SCALE

ELECTRICAL SERVICE LOAD CALCULATIONS:

EXISTING (E) WELL #1: 10 KW (12 FLA) FOR EXISTING 7.5 HP @ 480V/3ø (COORDINATE/CONFIRM WITH WELL CONTRACTOR PRIOR TO ROUGH-IN).

EXISTING (E) WELL #2: 10 KW (12 FLA) FOR EXISTING 7.5 HP @ 480V/3ø (COORDINATE/CONFIRM WITH WELL CONTRACTOR PRIOR TO ROUGH-IN).

EXISTING (E) WELL #3: 10 KW (12 FLA) FOR EXISTING 7.5 HP @ 480V/3ø (COORDINATE/CONFIRM WITH WELL CONTRACTOR PRIOR TO ROUGH-IN).

NEW ELEC UNIT HEATER (EUH-W) = 5 KW @ 480V/3ø

NEW SUB-PANEL "WL" LOADS = 3.5 KW (VENTILATION, LIGHTS, RECEPTS, ETC.)

NEW LOADS SUB-TOTAL = 39 KW = 39,000 W/480V-3ø = 47A X 1.25 = 60A ---> 100 AMP SERVICE

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DRAWING TITLE: ELECTRICAL PLAN

PROJECT TITLE: WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM - BID PACKAGE #6

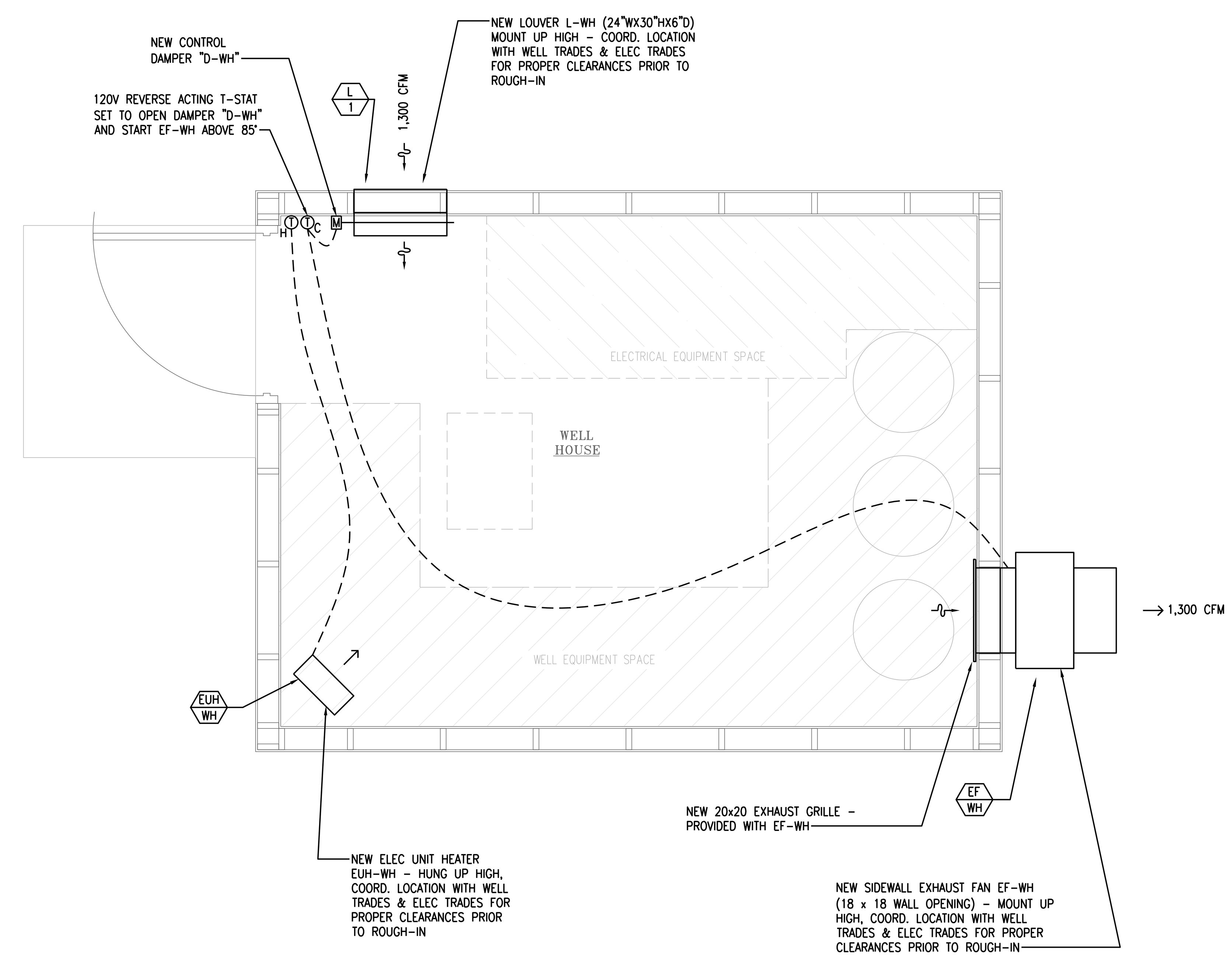
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE

WEST BRANCH, MICHIGAN

PROJECT NO.: 294-22

DATE: 9/26/2024

SHEET: EP



MECHANICAL HEAT & VENTILATION PLAN – WELLHOUSE

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

EXHAUST FAN SCHEDULE

UNIT I.D.	TYPE	AIRFLOW CFM	E.S.P. IN. W.G.	RPM	MOTOR				ELECTRICAL		CURB HEIGHT (IN)	WEIGHT LBS	MODEL NO.	REMARKS
					BHP	HP	RPM	DRIVE	VOLTS	PHASE				
EF-WH	SIDEWALL CENTRIFUGAL	1,300	0.15	815	0.10	1/4	1,140	DIRECT	115	1	N/A	90	CUE-140-B	SEE NOTES

NOTES:
1. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
2. PROVIDE FAN WITH FOLLOWING OPTIONS/ACCESSORIES: PCS MOTOR; STANDARD CURB CAP SIZE – 22" SQAURE; SIDEWALL MOUNTING – FAN CONFIGURED FOR WALL-MOUNTED APPLICATIONS; WALL BRACKET WILL BE MOUNTED TO THE WALL; UL 705 LISTED; NEMA-1 SWITCH TOGGLE (SHIPPED WITH UNIT FOR FIELD INSTALL); WALL BRACKET – GALVANIZED; STAINLESS STEEL FASTENERS; WIRING PIGTAIL, INTERNAL 9 FT FROM UNIT FLEX METAL CONDUIT; SOLID STATE SPEED CONTROL-6 AMP (SHIPPED WITH UNIT); WALL GRILLE, SHIPPED LOOSE; CONDUIT CHASE; DAMPER SHIPPED LOOSE, BD-330-PB-16x16, GRAVITY OPERATED.
3. PROVIDE/WIRE 120V REVERSE ACTING T-STAT (W/ FAN/AUTO/OFF) TO START/STOP FAN.

ELECTRIC UNIT HEATER SCHEDULE

UNIT I.D.	CAPACITY MBH	CAPACITY KW	FAN		ELECTRICAL			WEIGHT LBS	MODEL NO.	REMARKS
			TYPE	AIRFLOW CFM	VOLTS	PHASE	MAX AMPS			
EUH-WH	17	5.0	PROPELLER	400	480	3	6	27	5100 SERIES P3P5105CAIN	SEE NOTES

NOTES:
1. MODEL NUMBERS ARE MARKEL UNLESS OTHERWISE NOTED. TRANE AND Q-MARK MAY BE BID AS EQUALS.
2. PROVIDE THE FOLLOWING OPTIONS: WALL/CEILING MOUNT BRACKET; DUST SHIELD; FAN GUARD.
3. PROVIDE OPTIONAL POWER DISCONNECT SWITCH.
4. PROVIDE REMOTE WALL MOUNTED T-STAT, WITH EITHER LINE OR LOW VOLTAGE WIRING.

WALL LOUVER SCHEDULE

UNIT I.D.	SYSTEM SERVED	AIRFLOW RATE (CFM)	TYPE	FREE AREA SQ.FT.	FACE VELOCITY (FPM)	PRESSURE DROP (IN.WC.)	OVERALL			CONSTRUCTION	COLOR	MODEL NO.	REMARKS
							WIDTH (INCHES)	HEIGHT (INCHES)	DEPTH (INCHES)				
L-WH	OUTDOOR AIR INTAKE	1,300	INTAKE	2.23	580	0.06	24	30	6	EXTRUDED ALUMINUM	NOTE 2	ESD-603	SEE NOTES

NOTES:
1. MODEL NUMBERS ARE GREENHECK UNLESS NOTED OTHERWISE.
2. LOUVERS SHALL HAVE A ACROFLUR COATING WITH 50% KYNAR OR HYLAR IN ITS RESIN SYSTEM WITH A 5 YEAR ADHESION WARRANTY AND 5 YEAR CHALKING/FADING WARRANTY. COORDINATE COLOR WITH ENGINEER PRIOR TO ORDERING. PROVIDE COLOR CHART WITH SHOP DRAWING SUBMITTAL
3. PROVIDE WITH THE FOLLOWING OPTIONS: EXTENDED SILL, ALUMINUM BIRDSCREEN.
4. PROVIDE LOUVER WITH AUTOMATIC DAMPER D-WH WITH ELECTRIC ACTUATOR: DAMPER SHALL BE CONNECTED TO THE 24"Wx30"H PLENUM AND SHALL BE A GREENHECK VCD-23 LOW LEAK DAMPER (OR EQUAL) WITH GALVANIZED STEEL FRAME, GALVANIZED STEEL AIRFOIL BLADES, VINYL BLADE SEALS, STEEL AXLES, SYNTHETIC BEARINGS. DAMPER ACTUATOR SHALL BE A 120V, SPRING FAIL CLOSED/POWER OPEN, TWO POSITION ACTUATOR LOCATED EXTERNALLY (BY BELIMO, SIEMENS, OR INVENSYS).
5. OPEN DAMPER UPON START OF EF-WH AND CLOSE THE DAMPER UPON STOP OF EF-WH.

GENERAL MECHANICAL HEAT & VENTILATION NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL SCOPE OF WORK. CONTRACTOR SHALL PROVIDE ALL MECHANICAL SYSTEMS AND ASSOCIATED EQUIPMENT COMPLETE AND INCLUDE ALL NECESSARY OFFSETS, FITTINGS, AND OTHER COMPONENTS REQUIRED DUE TO INTERFERENCES, SPACE CONSTRAINTS, CODES, ETC.
2. MECHANICAL SYSTEMS SHALL BE INSTALLED PER MICHIGAN MECHANICAL CODE, MICHIGAN PLUMBING CODE, INTERNATIONAL FUEL GAS CODE, APPLICABLE NFPA BUILDING CODES (IE. 101, 90A, ETC.), AND APPLICABLE BUILDING CODES (I.E. MICHIGAN BUILDING CODE, ETC.).
3. VERIFY REQUIREMENTS OF ALL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION. NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN SHOP DRAWINGS AND PLANS.
4. COORDINATE THE INSTALLATION OF MECHANICAL WORK WITH ALL OTHER TRADES. VERIFY ALL MECHANICAL, PLUMBING AND ELECTRICAL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK. DUCTWORK, PIPING, ETC. SHALL NOT BE LOCATED DIRECTLY OVER ELECTRICAL PANELS/EQUIPMENT, OR INTERFERE WITH MECHANICAL/ ELECTRICAL EQUIPMENT CLEARANCES.
5. PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, HANGERS, ETC., FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS. DUCTWORK OR PIPING SHALL NOT BE SUPPORTED FROM/BY EQUIPMENT OR EQUIPMENT CONNECTIONS.
6. COORDINATE ALL FLOOR, WALL, AND ROOF PENETRATIONS, EQUIPMENT PADS, LOUVERS, ETC. WITH ARCHITECTURAL/STRUCTURAL TRADES PRIOR TO ROUGH-IN. UNLESS NOTED OTHERWISE, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, CORING, PATCHING ASSOCIATED WITH THEIR WORK. CUTTING, CORING, PATCHING WORK SHALL BE PERFORMED BY A QUALIFIED SUB-CONTRACTOR AND MATCH EXISTING OR NEW FINISHES.

MECHANICAL SYMBOL LIST

SYMBOL	DESCRIPTION
	DUCT UP (SINGLE LINE)
	DUCT DOWN (SINGLE LINE)
	CONCENTRIC TRANSITION (SINGLE LINE)
	ECCENTRIC TRANSITION (SINGLE LINE)
	CROSS SECTION OF SUPPLY AIR DUCT
	CROSS SECTION OF EXHAUST/RETURN AIR DUCT
	RETURN OR EXHAUST CEILING GRILLE
	SUPPLY AIR GRILLE – SIDEWALL MOUNTED
	RETURN AIR GRILLE – SIDEWALL MOUNTED
M	MOTORIZED DAMPER
T	THERMOSTAT

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
APD	AIR PRESSURE DROP
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
COORD	COORDINATE
CW	DOMESTIC COLD WATER
DB	DRY BULB TEMPERATURE
DEG	DEGREES
DN	DOWN
DW&V	DRAINAGE WASTE & VENT
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
E.C.	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
(F)	FUTURE
FA	FRESH AIR
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLR	FLOOR
FPM	FEET PER MINUTE
FT	FEET
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
I.E.	INVERT ELEVATION
IN	INCHES
ISP	INTERNAL STATIC PRESSURE
KVA	KILO-VOLT-AMPERE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LRA	LOCKED ROTOR AMPS
MA	MIXED AIR
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
NOM	NOMINAL
OA	OUTSIDE AIR
PD	PRESSURE DROP
PRI	PRIOR TO ROUGH-IN
PSIA	POUNDS PER SQUARE INCH (ABSOLUTE)
PSIG	POUNDS PER SQUARE INCH (GAUGE)
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
U/G	UNDERGROUND (BELOW GRADE)
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
V	VENT
VTR	VENT THRU ROOF
W	WASTE
WG	WATER GAUGE

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DRAWING TITLE
MECHANICAL HEAT & VENTILATION PLAN

PROJECT TITLE
WEST BRANCH ROSE CITY AREA SCHOOLS 2022 BOND ISSUE PROGRAM - BID PACKAGE #6
OGEMAW HEIGHTS HIGH SCHOOL WATER SUPPLY UPGRADE
WEST BRANCH, MICHIGAN

PROJECT NO. 294-22

DATE 9/26/2024

SHEET MP