DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

4155 MONITOR RD.

BAY CITY, MICHIGAN 48706

Architect:

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW , MICHIGAN

Civil:

MLR Engineering
CIVIL ENGINEERING & CONSULTING SERVICES
134 S. Main Street, Suite 1, Freeland, Michigan 48623
Phone: (989)239-2384
www.mlrengineering.com

Structural:

SNYDER & STALEY ENGINEERING, P.L.C.
CONSULTING ENGINEERS
3085 BAY ROAD, SUITE 6
SAGINAW, MI 48603
PH: (989) 797-1710 FX: (989) 797-1715

Mechanical / Electrical:

KTS ENGINEERING GROUP
491 E. WRIGHT AVE.
SHEPHERD, MI 48883
Ph. (989)567-1100
Info@KTSEngineeringGroup.com

DRAWING INDEX:

DATE: March 18, 2026

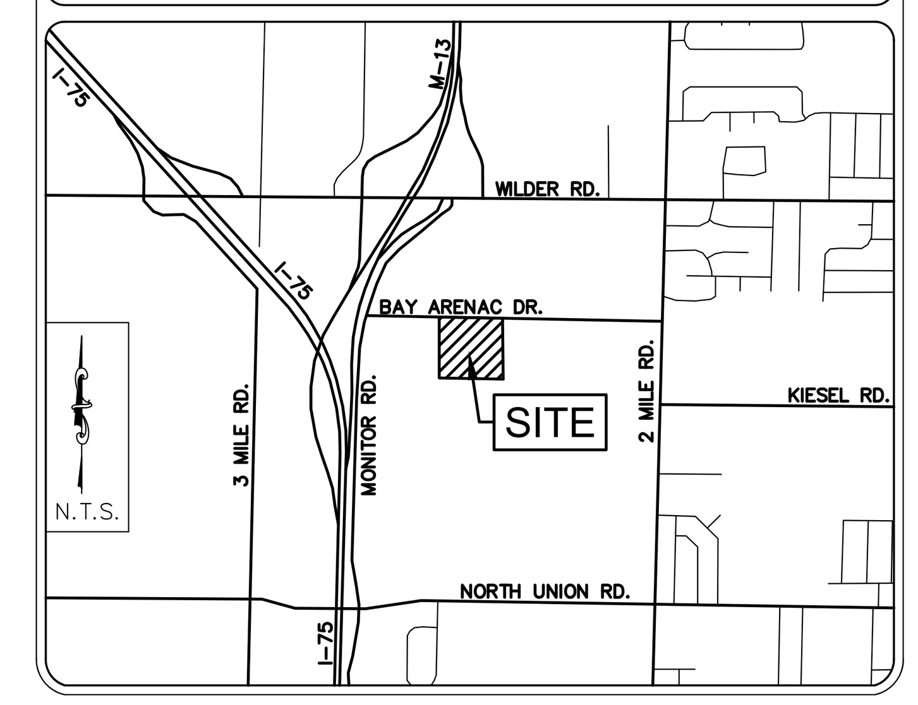
PROJECT NO. 2604

GRAPHIC SCALE

0 15 30 60

(IN FEET)
1 inch = 30 ft.

LOCATION MAP



LEGEND

- MONUMENT / SECTION CORNER
- FOUND PROPERTY IRON
- SET PROPERTY IRON
- EXISTING CATCHBASIN
- **PROPOSED CATCHBASIN**
- EXISTING MANHOLE/CATCHBASIN
- **PROPOSED MANHOLE/CATCHBASIN**
- EXISTING MANHOLE
- **PROPOSED MANHOLE**
- EXISTING HYDRANT
- **PROPOSED HYDRANT**
- EXISTING VALVE
- **PROPOSED VALVE**
- EXISTING SANITARY SEWER
- **PROPOSED SANITARY SEWER**
- EXISTING STORM SEWER
- **PROPOSED STORM SEWER**
- EXISTING WATERMAIN
- **PROPOSED WATERMAIN**
- EXISTING FENCE LINE
- UNDERGROUND GAS LINE
- OVERHEAD ELECTRICAL WIRES
- EXISTING SIGN
- EXISTING TREELINE
- EXISTING UTILITY POWER POLE
- EXISTING ELECTRICAL VAULT
- EXISTING GAS MARKER
- EXISTING LIGHT POLE
- UNDERGROND ELECTRICAL
- UNDERGROND CABLE T.V. LINE

LEGAL DESCRIPTION

LEGAL DESCRIPTION – PARCEL #100–013–200–110–03

SE ¼ OF NW ¼ LYG E OF ELY LI OF MONITOR RD, EX S 5.75 FT THRF; ALSO SW ¼ OF NE ¼, EX E 132 FT THRF; ALSO SE ¼ OF NE ¼, EX THE N N 235.15 FT OF E 272 FT; ALSO EX THE S 240 FT FT OF THE E 292 FT; ALSO EX THE N 364 OF THE S 670 OF THE E 275 FT; ALSO EX THE N 240 FT OF THE S 910 FT OF THE E 272 FT; ALSO EX SKILL CENTER DR. SEC 13 T14N R4E +/– 95.75 AC

**LEGAL DESCRIPTION OBTAINED FROM BAY COUNTY GIS

ZONING INFORMATION

ZONING: R–2 MEDIUM DENSITY SINGLE FAMILY RESIDENTIAL

SETBACKS:

FRONT: 30' SIDE: 10' REAR: 30'

MAXIMUM BUILDING HEIGHT: 35' (2.5 STORIES)

3 WORKING DAYS
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1-800-482-7171
(TOLL FREE)

PROJECT LOG

TOPOGRAPHIC SURVEY	02/24/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:

STATE OF MICHIGAN — BENJAMIN ... — License No. 6201313783 — PROFESSIONAL ENGINEER

FILE: 266–79.DWG
PROJECT MGR: MJR
DESIGNED BY: BAR
DRAWN BY: BAR
CHECKED BY:
SCALE: 1"=30'
SHEET: 1 OF 6

TSSF ARCHITECTS, INC.
122 N. WASHINGTON AVE.
SAGINAW, MICHIGAN 48607
TEL: 989-752-7311
FAX: 989-752-7313

BAY ARENAC ISD ADDITION

SECTION 13, T14N, R04E
MONITOR CHARTER TOWNSHIP
BAY COUNTY, MICHIGAN

TOPOGRAPHIC SURVEY PLAN WITH AERIAL

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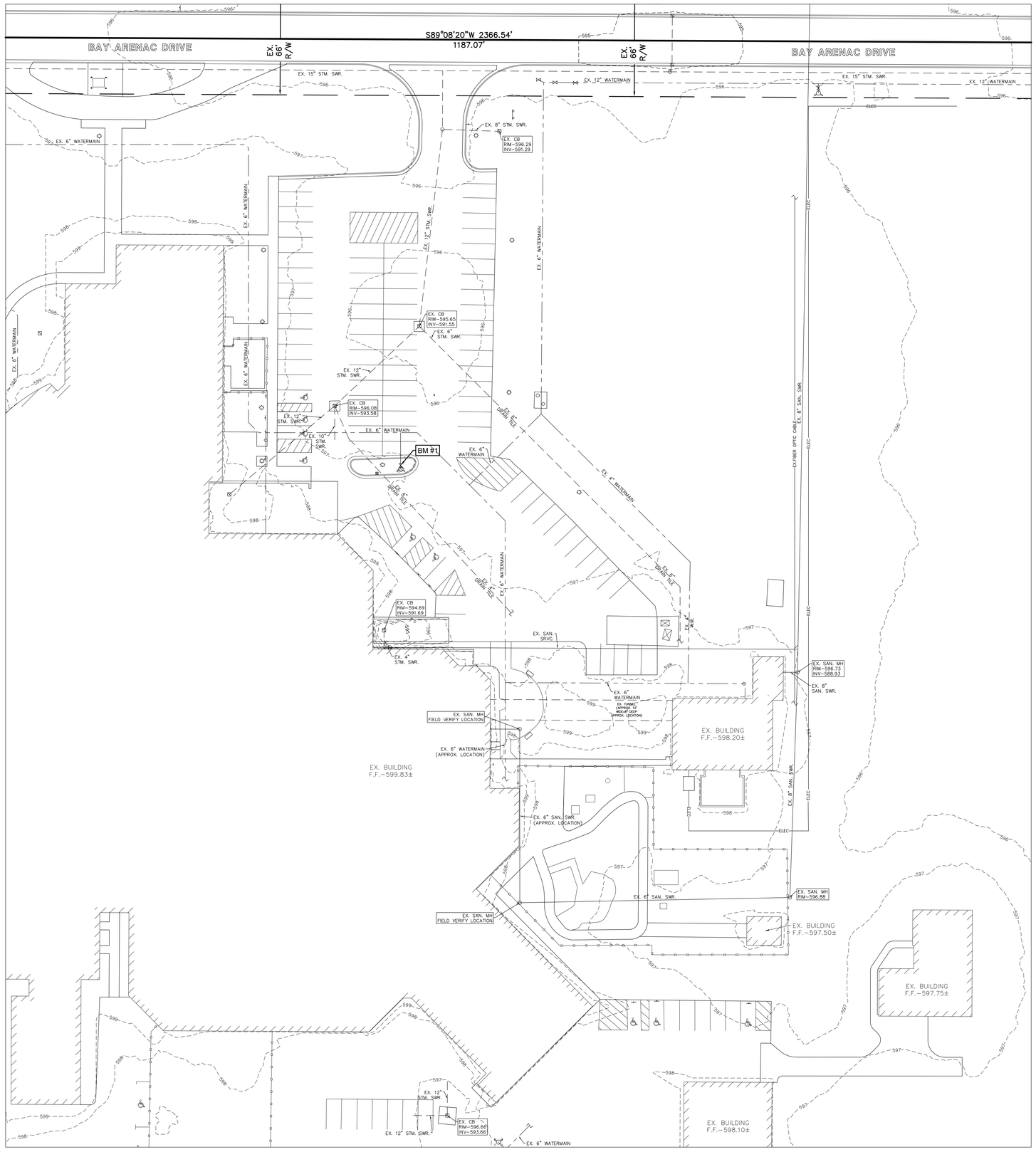
MLR 266-79



LOCATION MAP

LEGEND

⊕	MONUMENT / SECTION CORNER
●	FOUND PROPERTY IRON
○	SET PROPERTY IRON
⧄	EXISTING CATCHBASIN
◪	**PROPOSED CATCHBASIN**
⊘	EXISTING MANHOLE/CATCHBASIN
◑	**PROPOSED MANHOLE/CATCHBASIN**
○	EXISTING MANHOLE
●	**PROPOSED MANHOLE**
	EXISTING HYDRANT
	PROPOSED HYDRANT
⋈	EXISTING VALVE
⧓	**PROPOSED VALVE**
———	EXISTING SANITARY SEWER
———	**PROPOSED SANITARY SEWER**
– – – –	EXISTING STORM SEWER
– – – –	**PROPOSED STORM SEWER**
—— – – ——	EXISTING WATERMAIN
—— – – ——	**PROPOSED WATERMAIN**
–□–□–□–	EXISTING FENCE LINE
—— G —— G ——	UNDERGROUND GAS LINE
—— \ —— \ ——	OVERHEAD ELECTRICAL WIRES
–o–	EXISTING SIGN
︶︶︶	EXISTING TREELINE
∅	EXISTING UTILITY POWER POLE
E	EXISTING ELECTRICAL VAULT
GM	EXISTING GAS MARKER
☼	EXISTING LIGHT POLE
—— E —— E ——	UNDERGROND ELECTRICAL
—— TV —— TV ——	UNDERGROND CABLE T.V. LINE

LEGAL DESCRIPTION

LEGAL DESCRIPTION – PARCEL #100–013–200–110–03

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**LEGAL DESCRIPTION OBTAINED FROM BAY COUNTY GIS

ZONING INFORMATION

ZONING: R–2 MEDIUM DENSITY SINGLE FAMILY RESIDENTIAL

SETBACKS:

FRONT: 30' SIDE: 10' REAR: 30'

MAXIMUM BUILDING HEIGHT: 35' (2.5 STORIES)

BENCHMARKS

B.M. #1 - EXISTING RIM ELEVATION OF A WATER VALVE, LOCATED IN AN EXISTING PARKING LOT ISLAND, APPROXIMATELY 150' NORTHWEST OF THE PROPOSED BUILDING ADDITION.

ELEV.–597.70 (NADV83)

NOTES:

1. CONTRACTOR TO CONTACT MISS DIG TO FIELD LOCATE ALL EXISTING UTILITIES, PRIOR TO START OF ANY CONSTRUCTION.
2. SHALL ANY EXISTING UTILITY LOCATIONS CONFLICT WITH THE PROPOSED ADDITION, RE–ROUTING OF SAID UTILITIES WILL BE ISSUED IN AN ADDENDUM.

PROJECT LOG	
TOPOGRAPHIC SURVEY	02/24/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:

BENJAMIN RYBICKI
License No. 6201313783

FILE: 266–79.DWG	
PROJECT MGR: MJR	
DESIGNED BY: BAR	
DRAWN BY: BAR	
CHECKED BY:	
SCALE: 1"=30'	
SHEET: **2** OF **6**	

TSSF ARCHITECTS, INC.
122 N. WASHINGTON AVE.
SAGINAW, MICHIGAN 48607
TEL: 989-752-7311
FAX: 989-752-7313

BAY ARENAC ISD ADDITION

SECTION 13, T14N, R04E
MONITOR CHARTER TOWNSHIP
BAY COUNTY, MICHIGAN

TOPOGRAPHIC SURVEY PLAN

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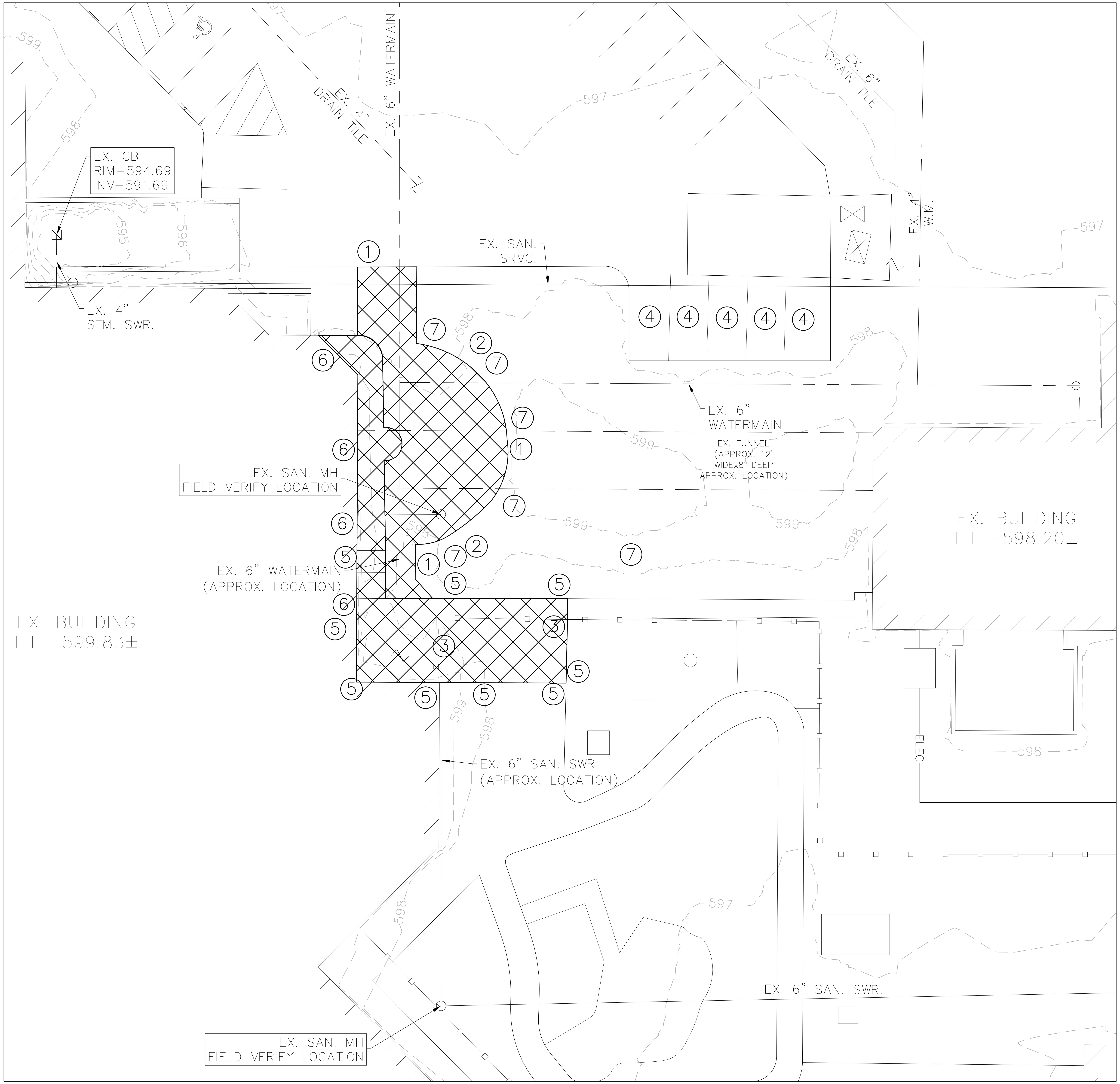
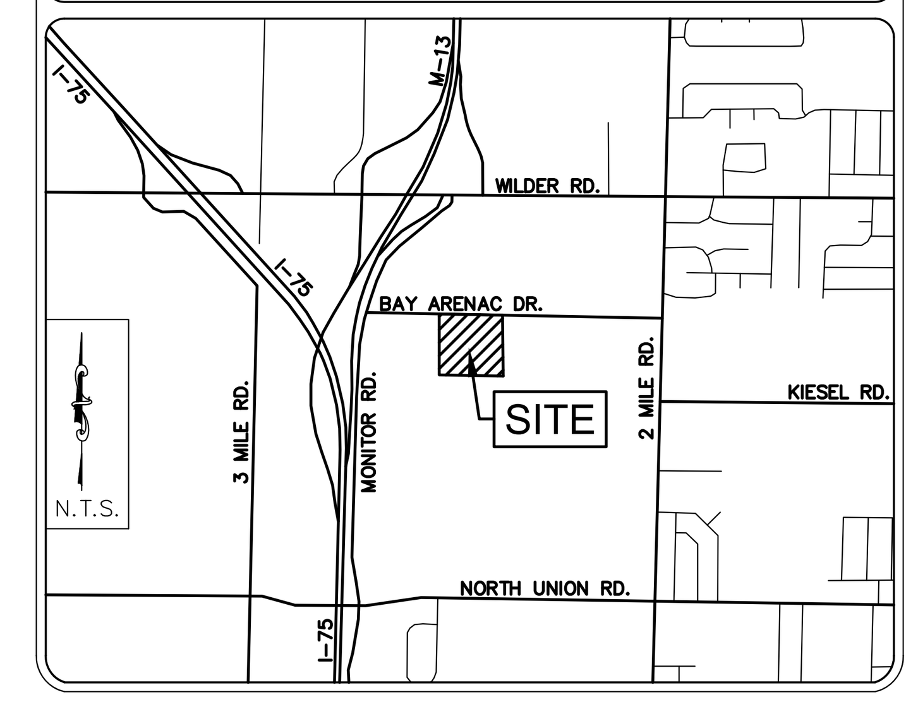
MLR 266-79



GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 inch = 10 ft.

LOCATION MAP



LEGEND

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
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E	EXISTING ELECTRICAL VAULT
GM	EXISTING GAS MARKER
	EXISTING LIGHT POLE
— E — E —	UNDERGROND ELECTRICAL
— TV — TV —	UNDERGROND CABLE T.V. LINE

DEMOLITION NOTES

1. REMOVE EXISTING BRICK/PAVERS
2. REMOVE EXISTING BENCHES
3. REMOVE EXISTING FENCING
4. REMOVE EXISTING STRIPING
5. REMOVE EXISTING CONCRETE
6. REMOVE EXISTING LANDSCAPING
7. REMOVE EXISTING TREES (AS NEEDED)

BENCHMARKS

B.M. #1 - EXISTING RIM ELEVATION OF A WATER VALVE, LOCATED IN AN EXISTING PARKING LOT ISLAND, APPROXIMATELY 150' NORTHWEST OF THE PROPOSED BUILDING ADDITION.

ELEV.–597.70 (NADV83)

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3 WORKING DAYS
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(TOLL FREE)

PROJECT LOG

DEMOLITION PLAN	02/25/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:

FILE: 266-79.DWG	
PROJECT MGR: MJR	
DESIGNED BY: BAR	
DRAWN BY: BAR	
CHECKED BY:	
SCALE: 1"=10'	
SHEET: 3 OF 6	

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BAY ARENAC ISD ADDITION

SECTION 13, T14N, R04E
MONITOR CHARTER TOWNSHIP
BAY COUNTY, MICHIGAN

DEMOLITION PLAN

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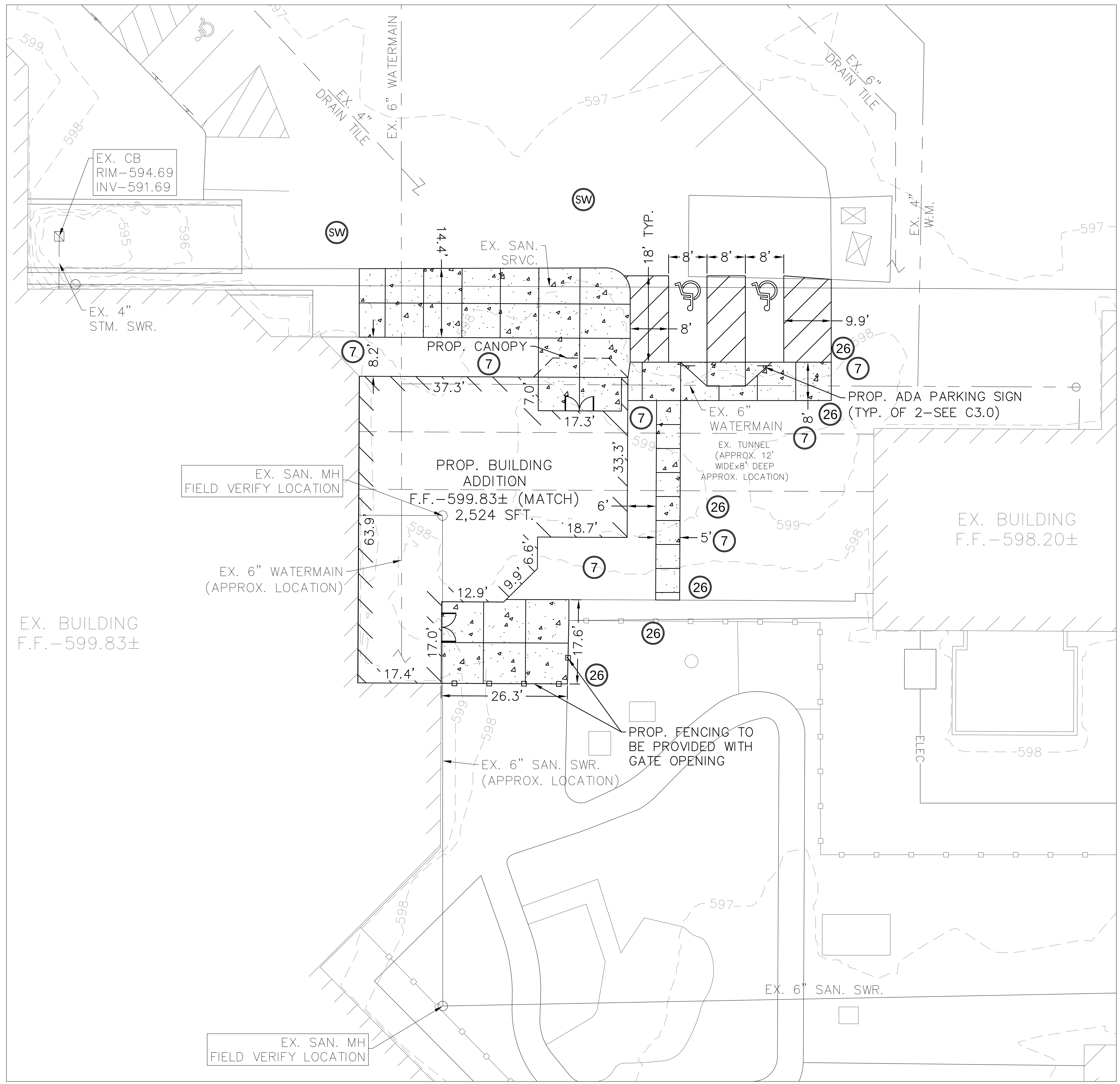
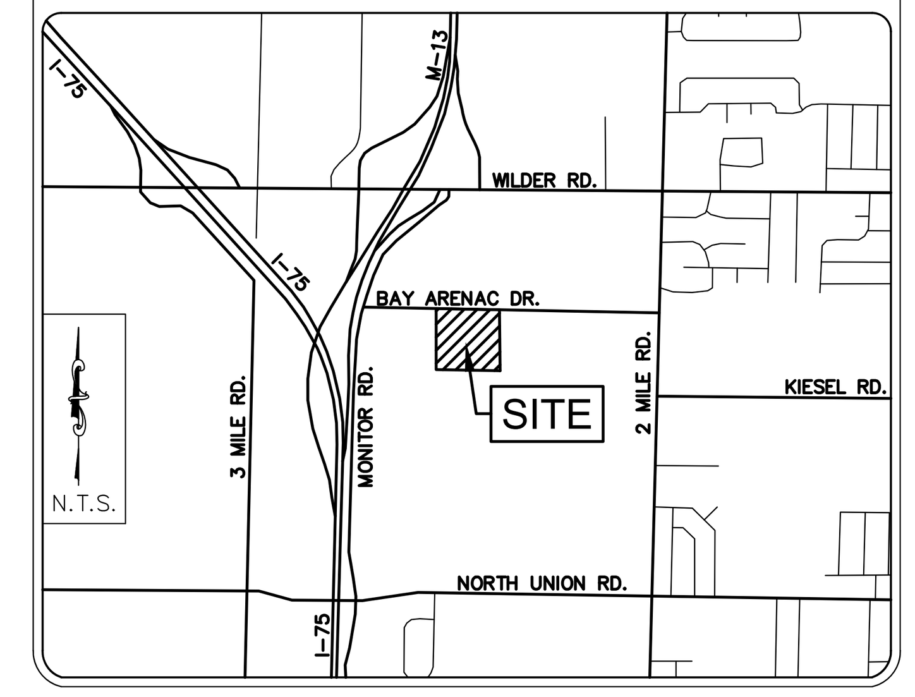
MLR 266-79



GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.

LOCATION MAP



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E E	UNDERGROND ELECTRICAL
TV TV	UNDERGROND CABLE T.V. LINE

DEVELOPMENT NOTES

BAY ARENAC ISD CAREER CENTER – BUILDING ADDITION
TOTAL SITE ACREAGE: 95.75± TOTAL ACRES
ZONING: R–2 MEDIUM DENSITY SINGLE FAMILY RESIDENTIAL
SETBACKS:
FRONT: 30' SIDE: 10' REAR: 30'
PROP. LAND USE: PROPOSED BUILDING ADDITION, NO CHANGE IS USE
TRANSPORTATION: EXISTING ASPHALT PARKING LOT WITH ACCESS TO BAY ARENAC DRIVE
SANITARY SEWER AND WATER SERVICE: UTILIZE EXISTING SERVICES
DRAINAGE: PROP. ROOF DRAINS TO CONNECT INTO EXISTING SYSTEM. MATCH EXISTING DRAINAGE FLOW PATTERNS. NO STORMWATER DETENTION REQUIRED.
FIRE: UTILIZE EXISTING HYDRANTS ON SITE
SIDEWALKS: PROP. SIDEWALK PROVIDED TO CONNECT INTO EX. SITE
GAS AND ELECTRIC: UTILIZE EXISTING SERVICES AND COORDINATE WITH CONSUMERS ENERGY.
LIGHTING: NO ADDITIONAL LIGHT POLES, SEE ARCHITECTUAL PLANS FOR BUILDING MOUNTED LIGHTING DETAILS.
WETLAND AND FLOODPLAIN: N/A
REFUSE: UTILIZE EXISTING ENCLOSED CONCRETE DUMPSTER AREA
SIGNAGE: PROP. ADA PARKING SIGNS PROVIDED (2), SEE ARCHITECTURAL PLANS FOR ADDITIONAL SIGNAGE DETAILS.
PARKING REQUIREMENTS: UTILIZE EXISTING PARKING LOT

BENCHMARKS

B.M. #1 - EXISTING RIM ELEVATION OF A WATER VALVE, LOCATED IN AN EXISTING PARKING LOT ISLAND, APPROXIMATELY 150' NORTHWEST OF THE PROPOSED BUILDING ADDITION.

ELEV.–597.70 (NADV83)

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3. SOIL EROSION & SEDIMENTATION CONTROL MEASURES LEGEND PROVIDED ON DETAIL SHEET C3.0.

3 WORKING DAYS
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(TOLL FREE)

PROJECT LOG	
PRELIMINARY SITE PLAN	03/10/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:

FILE: 266–79.DWG	
PROJECT MGR: MJR	
DESIGNED BY: BAR	
DRAWN BY: BAR	
CHECKED BY:	
SCALE: 1"=10'	
SHEET: 4 OF 6	

TSSF ARCHITECTS, INC.
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SAGINAW, MICHIGAN 48607
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BAY ARENAC ISD ADDITION

SECTION 13, T14N, R04E
MONITOR CHARTER TOWNSHIP
BAY COUNTY, MICHIGAN

SITE PLAN

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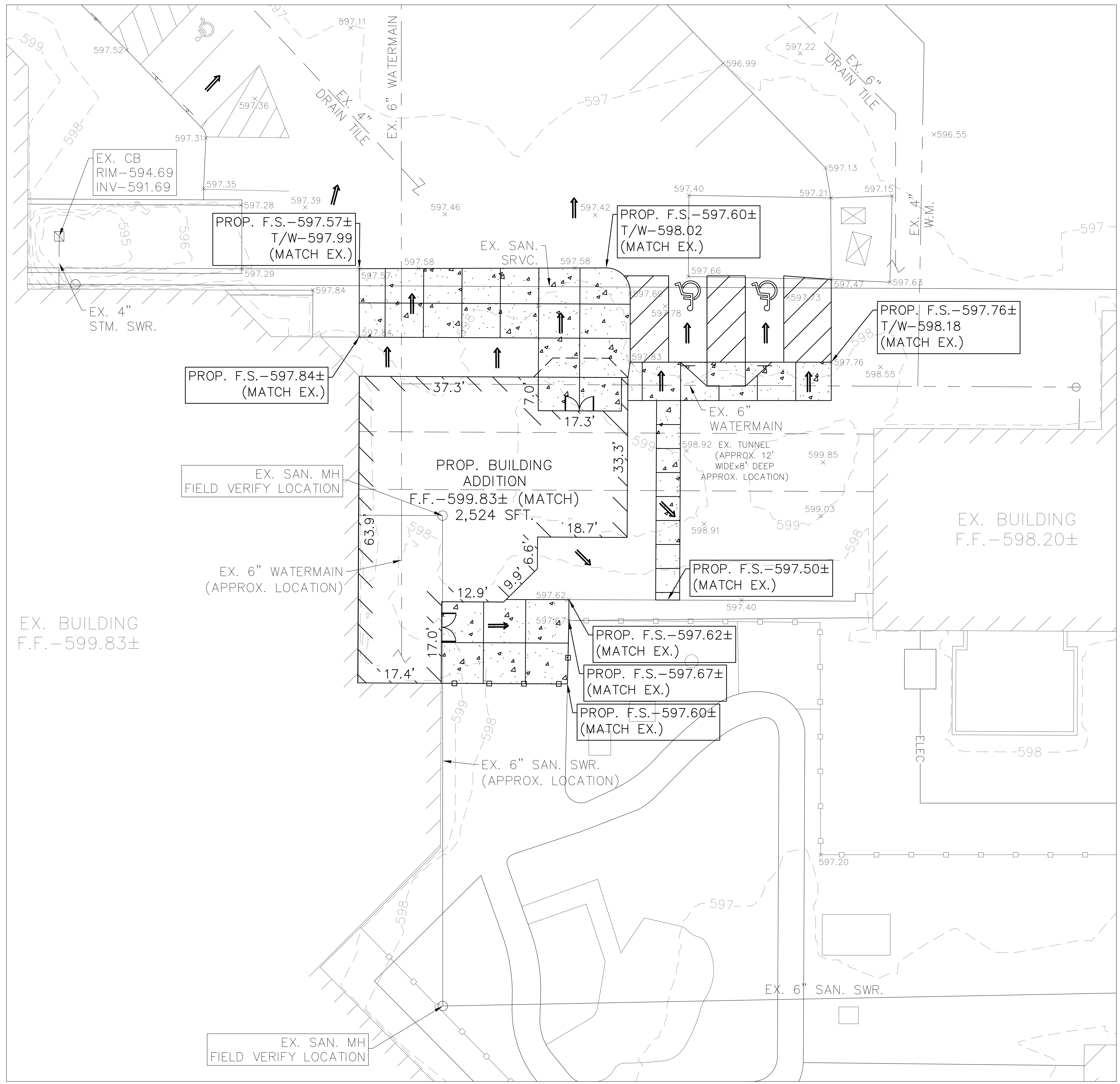
C2.0

MLR 266-79

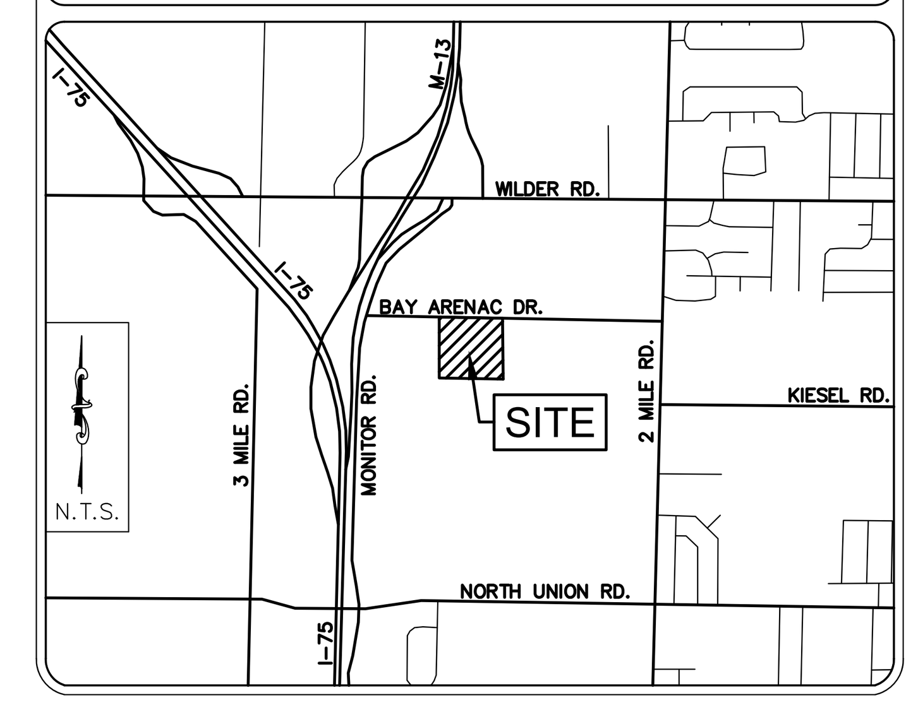


GRAPHIC SCALE

0 5 10 20

(IN FEET)
1 inch = 10 ft.

LOCATION MAP



LEGEND

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GRADING NOTES:

1. ALL ROOF CONDUCTORS SHALL BE PVC SDR–35 MATERIAL AND CONNECTED INTO EXISTING ROOF DRAIN SYSTEM.
2. CONTRACTOR TO MATCH EXISTING FLOW PATTERNS WITH PROPOSED GRADING OF THE SITE.
3. CONTRACTOR TO CONTACT MLR ENGINEERING FOR CONSTRUCTION LAYOUT OF BUILDING & SITE.

3 WORKING DAYS
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(TOLL FREE)

PROJECT LOG

GRADING PLAN	02/26/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:

FILE: 266–79.DWG
PROJECT MGR: MJR
DESIGNED BY: BAR
DRAWN BY: BAR
CHECKED BY:
SCALE: 1"=10'
SHEET: 5 OF 6

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GRADING PLAN

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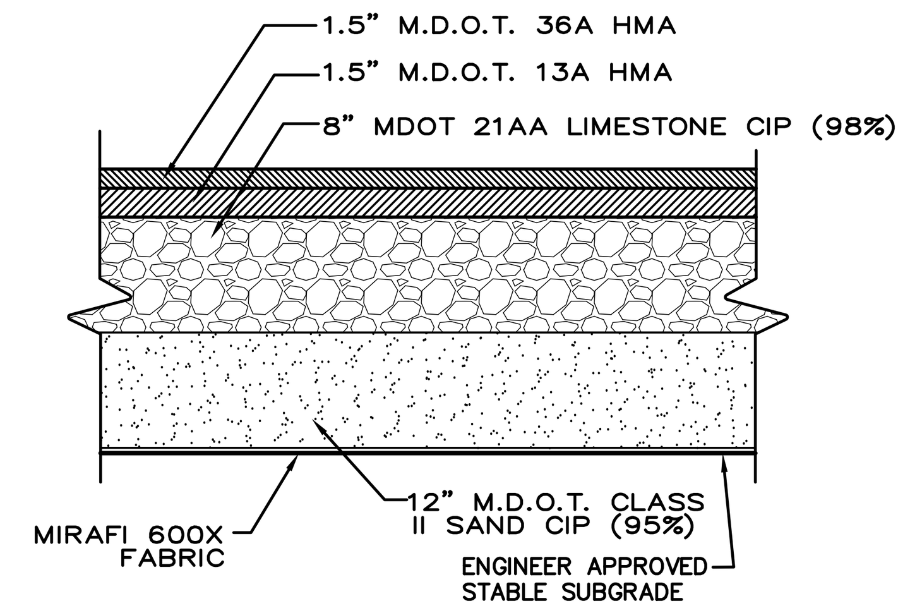
MLR 266-79

PIPE SIZE	TRENCH WIDTH MINIMUM	MAXIMUM
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
LARGER THAN 36" I.D.	I.D. + 20"	I.D. + 24"

WIDTHS OF TRENCH EXCAVATION

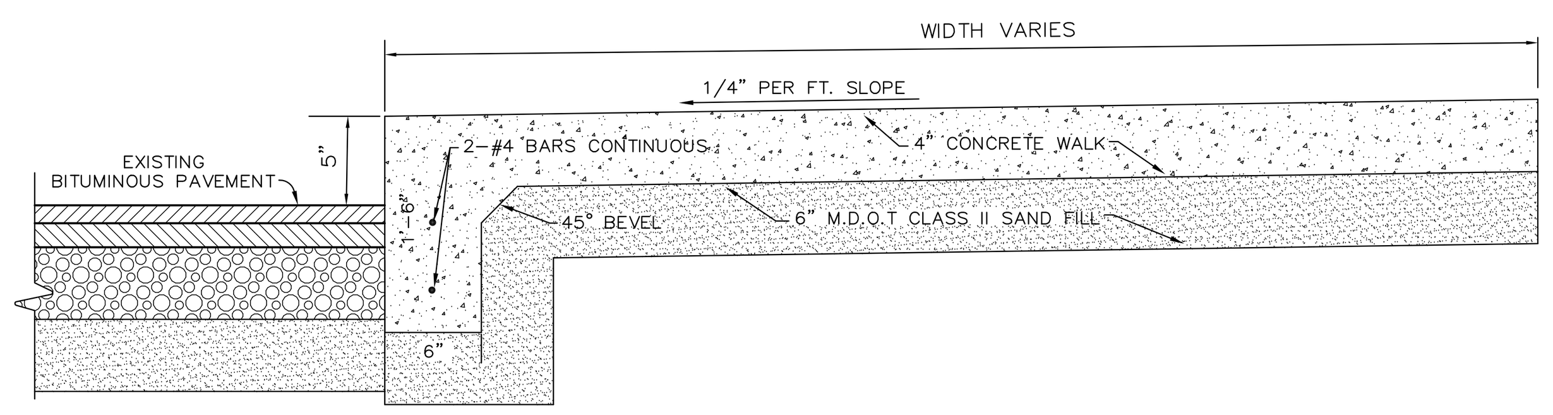
STANDARD DETAIL #1



PARKING LOT PAVEMENT REPAIR SECTION (IF NEEDED)
FULL DEPTH CONSTRUCTION AREAS
SCALE: NONE

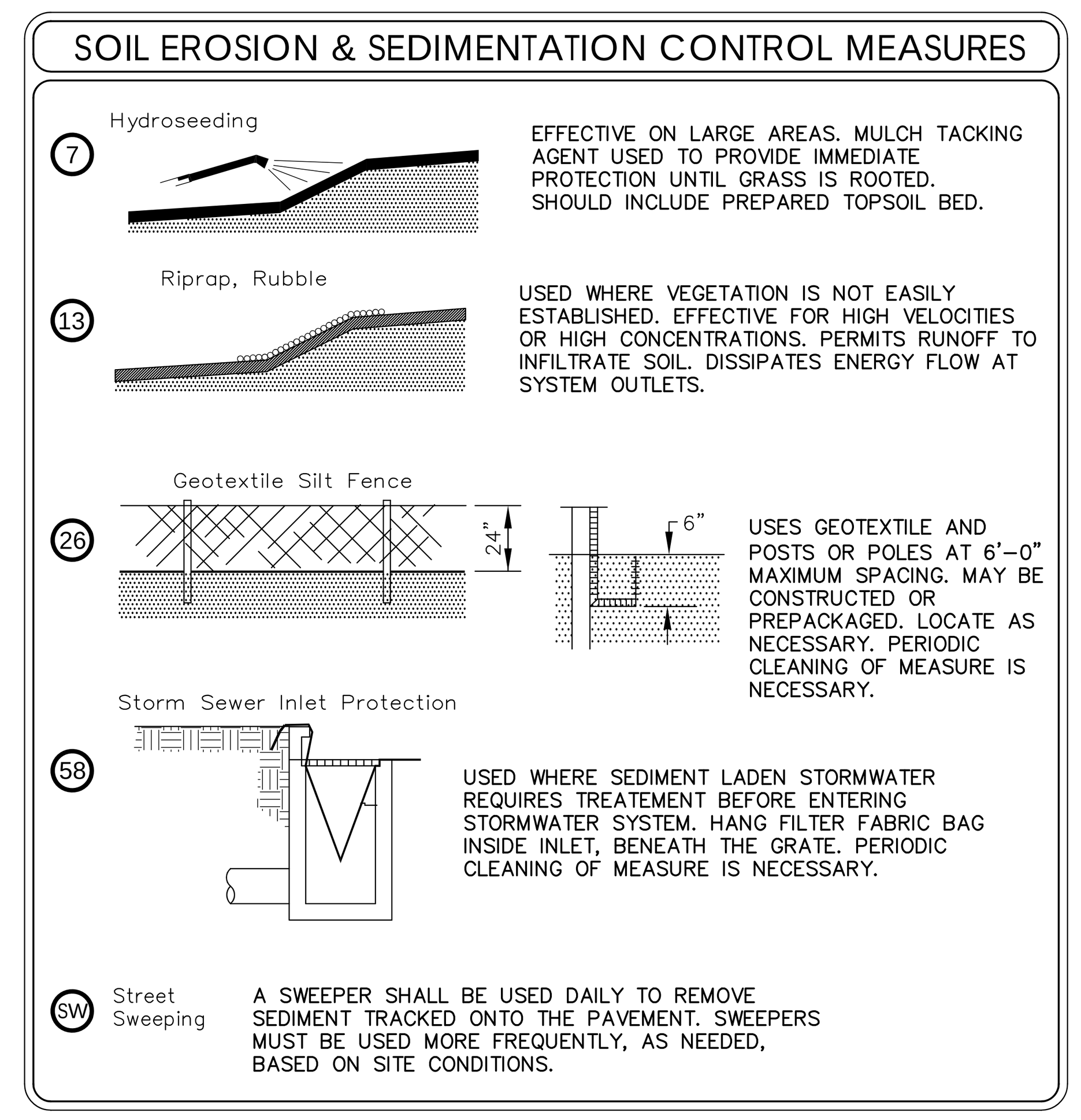
STANDARD DETAIL #6

*NOTE: THICKEN CONCRETE TO 6" THROUGH DRIVES AND AT ADA RAMPS AT STREET INTERSECTIONS.



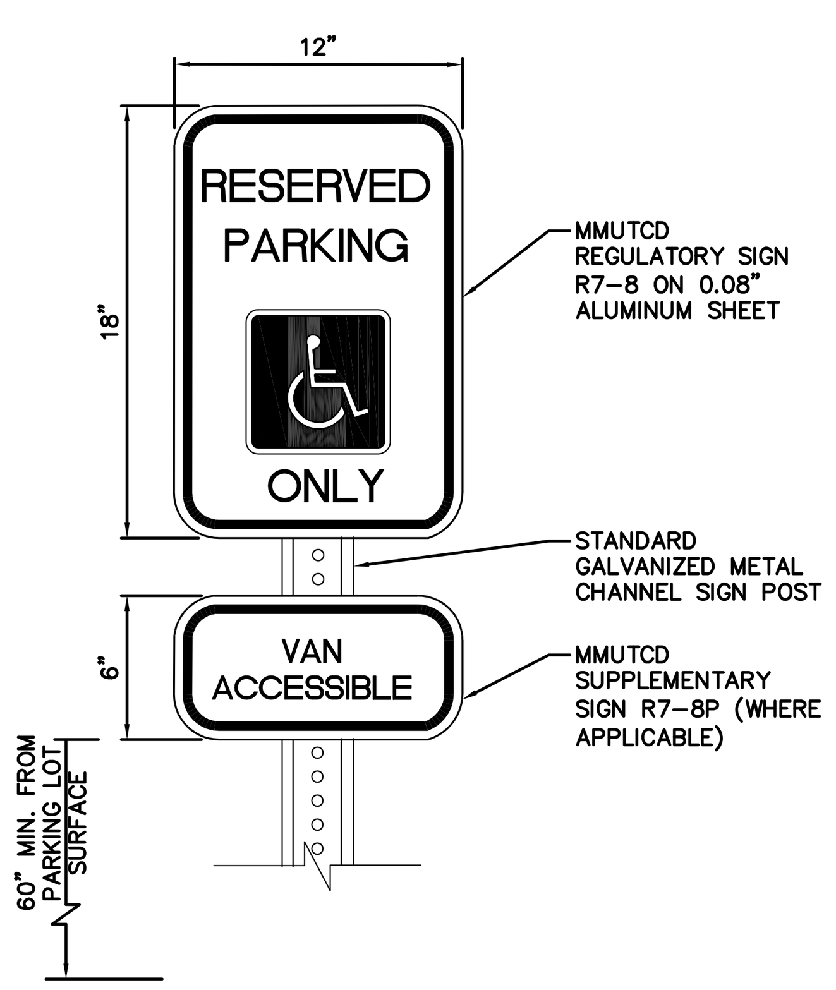
SIDEWALK DETAIL AT PARKING LOT AREA
NOT TO SCALE

STANDARD DETAIL #2



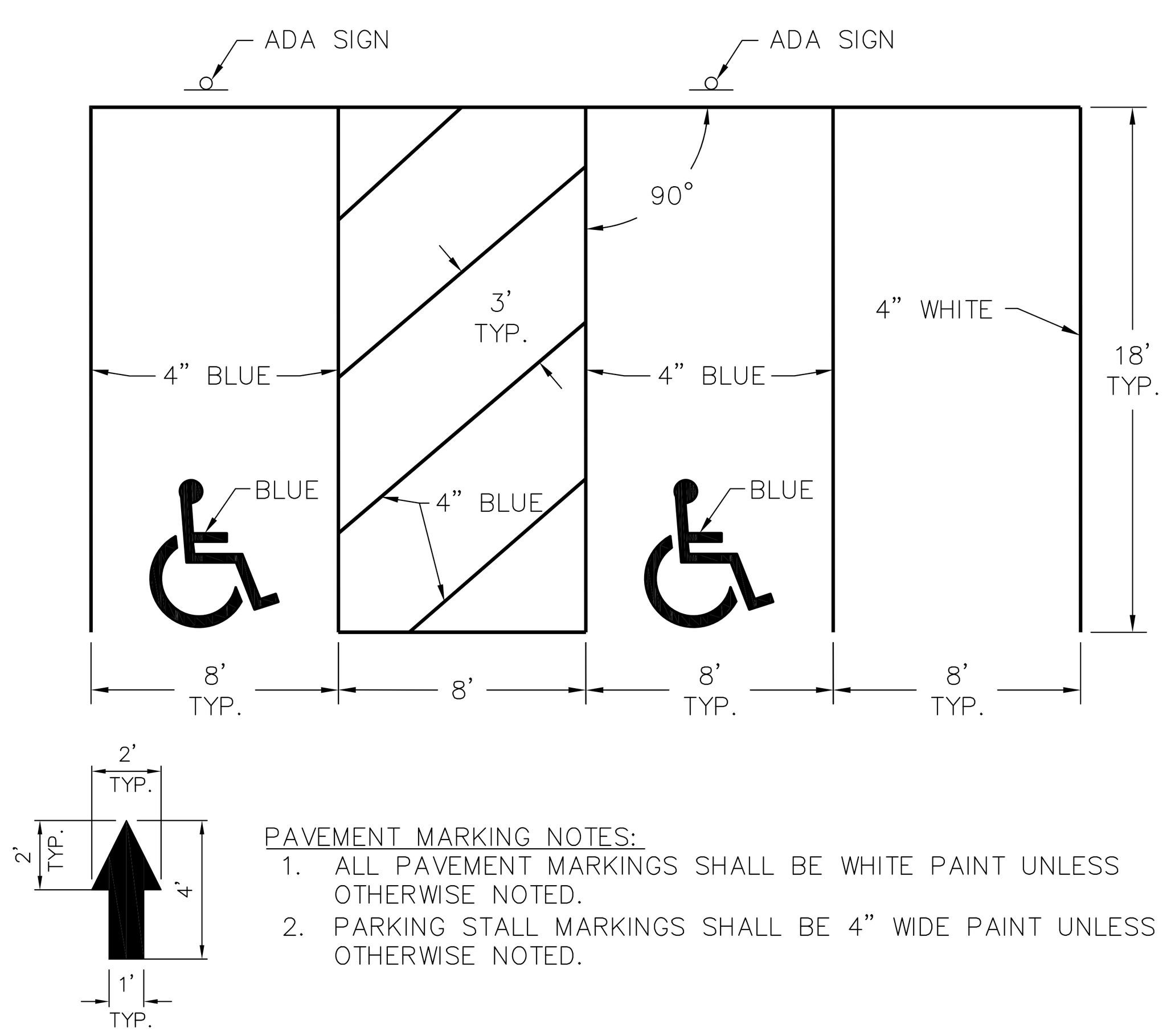
SOIL EROSION & SEDIMENTATION CONTROL SCHEDULE AND INFORMATION:
SOILS DISTURBED: DARK BROWN TOPSOIL, LIGHT BROWN SANDY LOAM, CLAY
PROPOSED SCHEDULE (APPROX.):
SESC CONTROLS: SPRING 2026
PVMT.&BLDG. CONSTRUCTION: SUMMER 2026
HYDROSEED: FALL 2026
TOTAL EARTH DISTURBANCE AREA: 0.19 AC.
(ALL DISTURBED AREAS TO BE SEEDED OR HYDROSEEDED, FOLLOWING CONSTRUCTION)

STANDARD DETAIL #7



ADA PARKING SIGN DETAIL
NTS

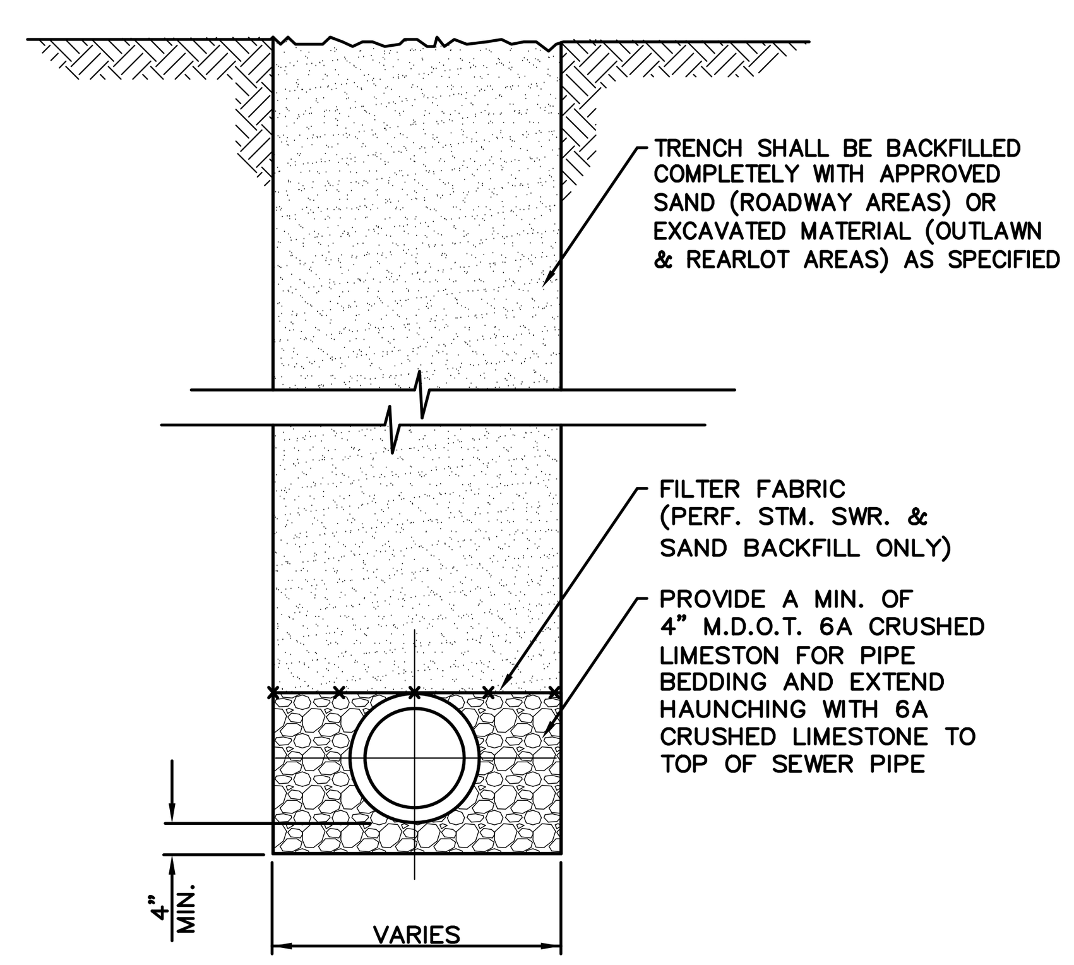
STANDARD DETAIL #3



PAVEMENT MARKING NOTES:
1. ALL PAVEMENT MARKINGS SHALL BE WHITE PAINT UNLESS OTHERWISE NOTED.
2. PARKING STALL MARKINGS SHALL BE 4" WIDE PAINT UNLESS OTHERWISE NOTED.

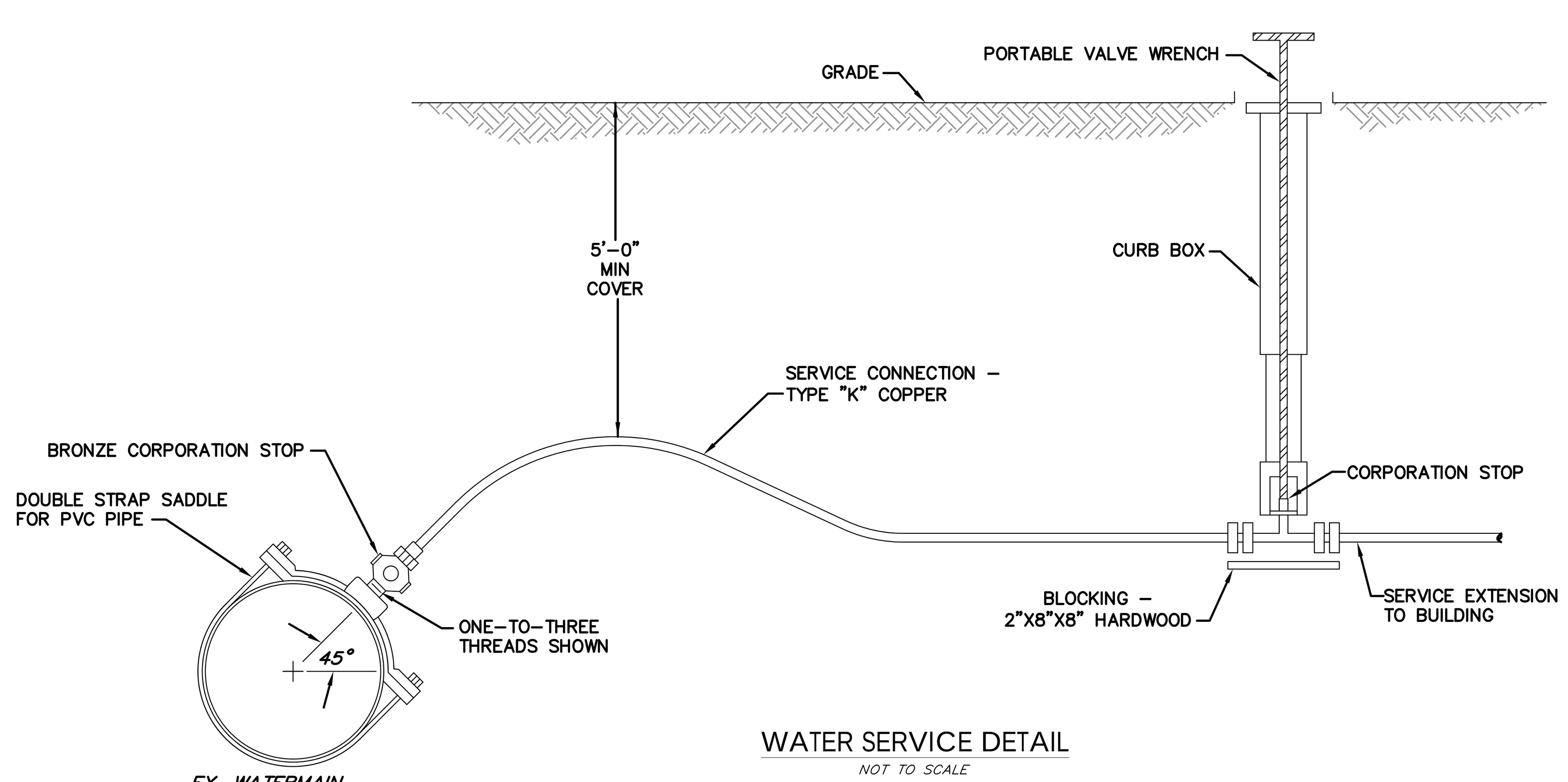
PAVEMENT MARKING DETAIL

STANDARD DETAIL #4



D.W.P.E., P.E., PVC AND A/D 2000
SEWER TRENCH DETAIL
SCALE: NONE

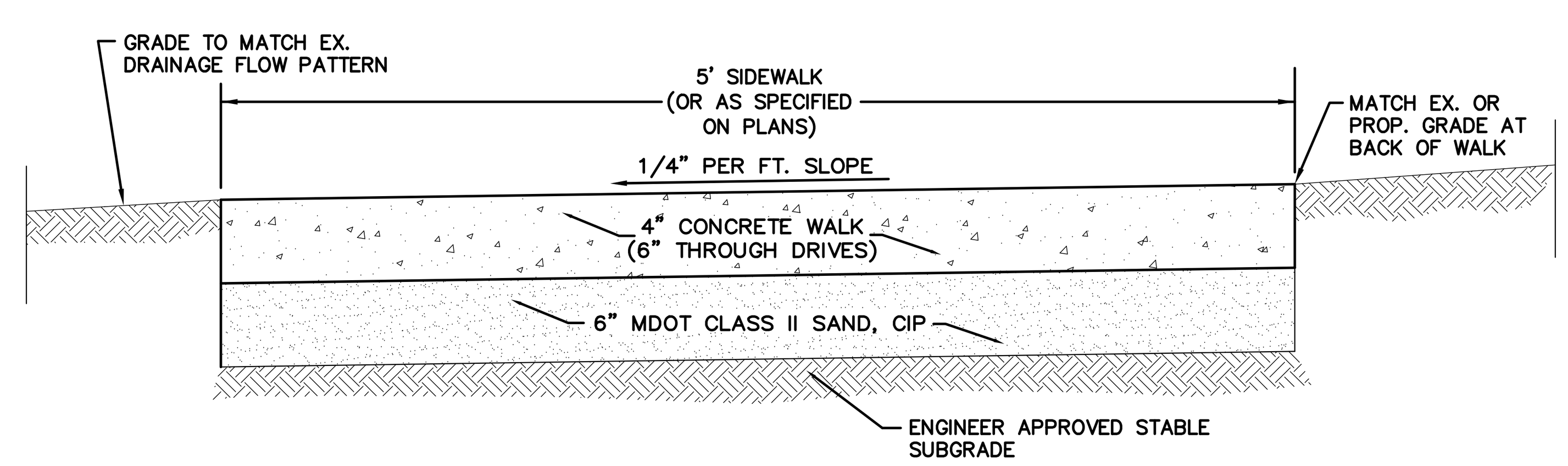
STANDARD DETAIL #8



WATER SERVICE DETAIL
NOT TO SCALE

STANDARD DETAIL #5

SIDEWALK NOTES:
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS.
2. THE GENERAL INTENT OF THE SIDEWALK CONSTRUCTION PROJECT IS TO FOLLOW THE EXISTING AND PROPOSED GRADE AND MINIMIZE EARTHWORK.
3. SIDEWALK SHALL BE CONSTRUCTED THROUGH ALL EX. DRIVEWAYS. EXISTING CONCRETE AND HMA DRIVES SHALL BE SAWCUT AND REMOVED TO ALLOW FOR SIDEWALK CONSTRUCTION.

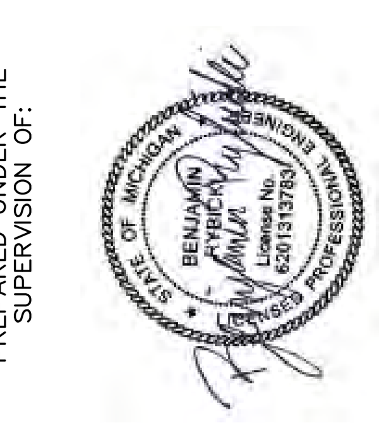


STANDARD CONCRETE SIDEWALK DETAIL
NTS

STANDARD DETAIL #9

PROJECT LOG	
DETAIL SHEET	02/26/26
CIVIL DRAWING SET	03/17/26

PREPARED UNDER THE SUPERVISION OF:



FILE: 266-79.DWG
PROJECT MGR: MJR
DESIGNED BY: BAR
DRAWN BY: BAR
CHECKED BY:
SCALE: N/A
SHEET: 6 OF 6

TSSF ARCHITECTS, INC.
122 N. WASHINGTON AVE.
SAGINAW, MICHIGAN 48607
TEL: 989-752-7311
FAX: 989-752-7313

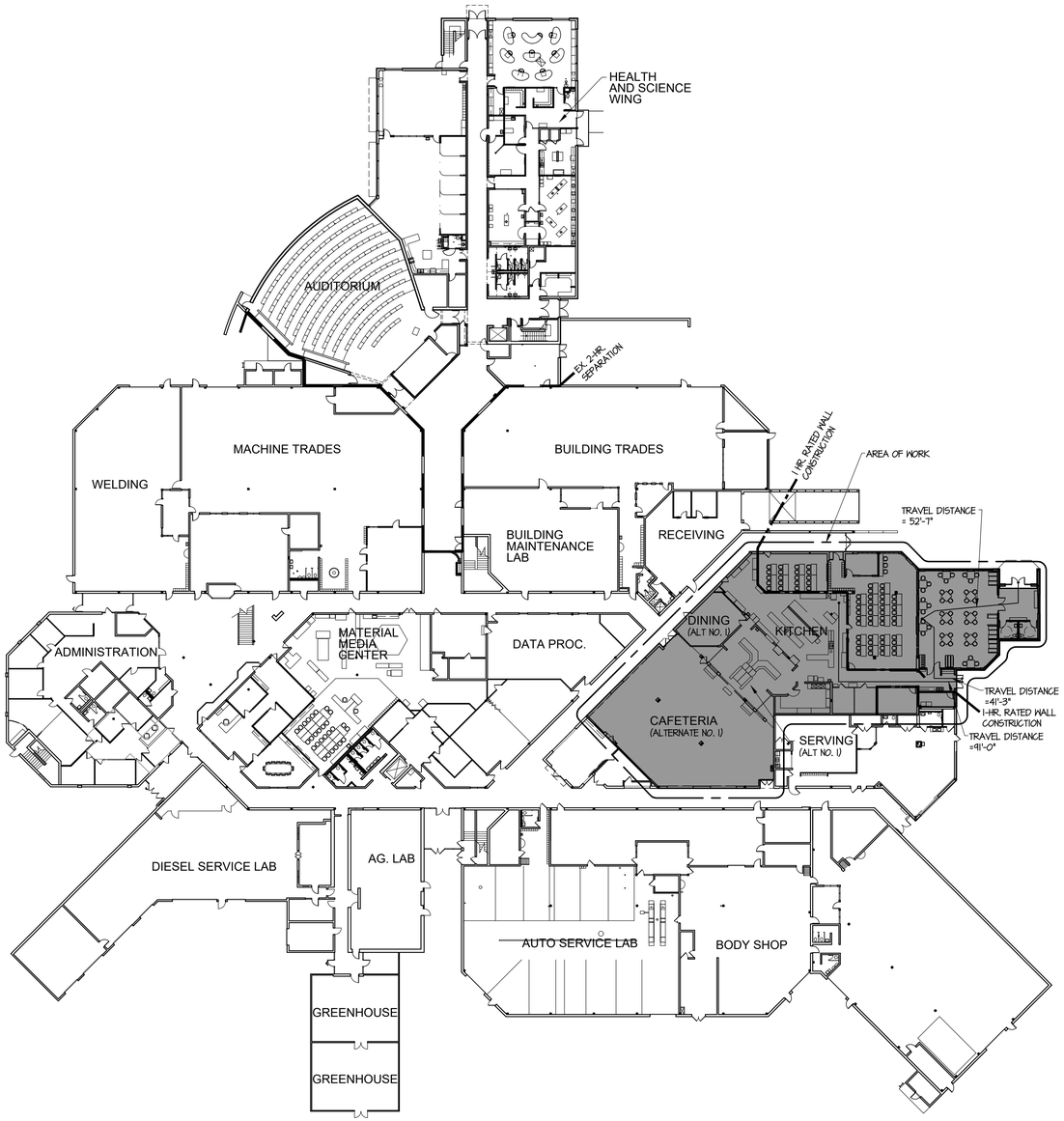
BAY ARENAC ISD ADDITION
SECTION 13, T14N, R04E
MONITOR CHARTER TOWNSHIP
BAY COUNTY, MICHIGAN

DETAIL SHEET

MLR Engineering
CIVIL ENGINEERING & CONSULTING SERVICES
134 S. Main Street, Suite 1, Freeland, Michigan 48623
Phone: (989) 692-5034
www.mlrengineering.com

C3.0

MLR 266-79



MASTER FIRST FLOOR PLAN
SCALE: 1/32" = 1'-0"

APPLICABLE CODES 2021 MICHIGAN BUILDING CODE 2023 MICHIGAN ELECTRICAL CODE 2021 MICHIGAN MECHANICAL CODE 2021 MICHIGAN PLUMBING CODE 2021 LIFE SAFETY CODE	2021 MICHIGAN BUILDING CODE
BUILDING USE GROUP	E (Educational)
TYPE OF CONSTRUCTION	2B
FIRE SUPPRESSION PROVIDED	FULLY SPRINKLERED
ACTUAL BUILDING HEIGHT	2 Story, 28'-0"
Existing First Floor	128,550 Sq. Ft.
Addition	2,481 Sq. Ft.
Area of Renovations	8,227 Sq. Ft.
Existing Second Floor	47,518 Sq. Ft.
Total Area	178,549 Sq. Ft.
OCCUPANT LOAD (PER TABLE 1004.2)	91
MAXIMUM LENGTH OF EXIT TRAVEL (PER TABLE 1017.2)	250'-0" MAX.
MAXIMUM LENGTH OF DEAD END CORRIDOR (PER SECT. 1020.4)	50'-0"
MINIMUM WIDTH OF EGRESS COMPONENTS:	
EXIT ACCESS CORRIDORS (PER SECT. 1020.2)	MIN 44"
COMMON PATH OF TRAVEL WITH ONE EXIT ACCESS	.OL > 30 = 75
DOORS (PER SECT. 1010.1.1)	32" MIN. CLR.
FIRE RESISTANCE RATINGS OF EGRESS COMPONENTS:	
EXIT ACCESS CORRIDORS (PER TABLE 1020.1)	1 HR
STAIR SHAFTS	NOT APPLICABLE
HORIZONTAL EXITS (PER 1024.3)	1 HR
AREAS OF REFUGE	NOT APPLICABLE
FIRE RESISTANCE RATINGS OF FIRE SEPARATIONS:	
SHAFTS -OTHER THAN STAIRS	NOT APPLICABLE
STORAGE ROOMS GREATER THAN 100 SQ. FT. (PER TABLE 509)	1 HR.
FIRE RESISTANCE RATINGS OF FIRE SEPARATIONS:	
STRUCTURAL ELEMENT (PER TABLE 601)	
PRIMARY STRUCTURAL FRAME	0 HR.
NON-BEARING WALLS - EXTERIOR	0 HR.
NON-BEARING WALLS - INTERIOR	0 HR.
ROOF CONSTRUCTION	0 HR.
BEARING WALLS - EXTERIOR	0 HR.
BEARING WALLS - INTERIOR	0 HR.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **C.M.B.**
DATE **03/18/26**
APPROVED

SHEET NO.
A0.1

PROJECT NO.
2538

ACCESSORIES LEGEND

1	CUP DISPENSER
2	FACIAL TISSUE DISPENSER
3	GRAB BAR
4	GRAB BAR (3' x 3' SHOWER)
5	GRAB BAR (ROLL-IN SHOWER)
9	HOOK
10	MEDICINE CABINET
11	MIRROR , 24" W X 36" H (U.N.O.)
12	MIRROR , 24" W X 60" H
14	MOP STRIP, WITH SHELF
17	SANITARY NAPKIN DISPOSAL
20	SHELF, 5" x 24"
21	SHOWER BENCH
22	SHOWER CURTAIN ROD
23	SHOWER CURTAIN
24	SOAP DISH
25	SOAP DISPENSER (OWNER SUPPLIED/CONTR. INSTALLED)
26	TOILET TISSUE DISPENSER
28	TOWEL BAR
30	TOWEL DISPENSER
31	TOWEL DISPENSER AND WASTE RECEPTACLE
32	WASTE RECEPTACLE
33	DIAPER CHANGING STATION (W/ LINER DISPEN)
40	SHARPS DISPOSAL

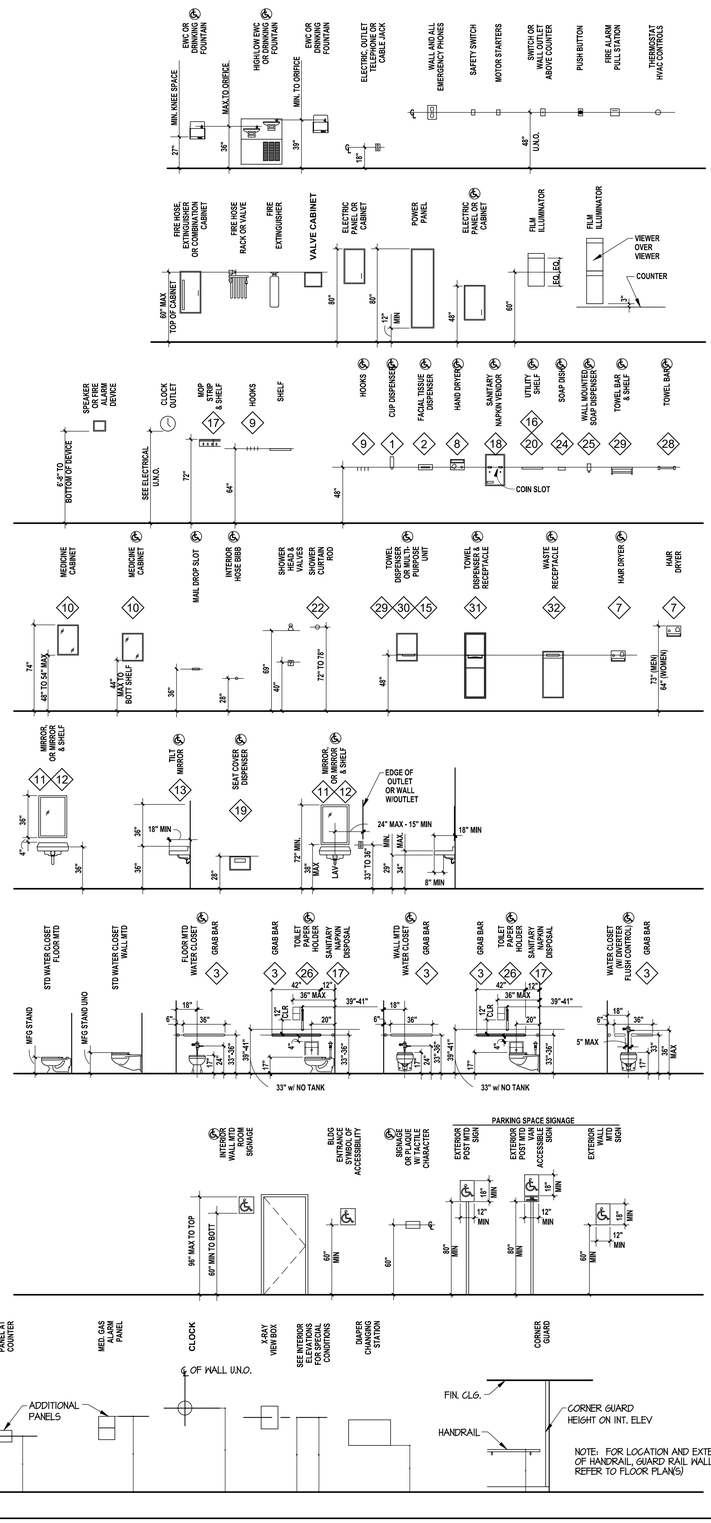
ABBREVIATIONS:

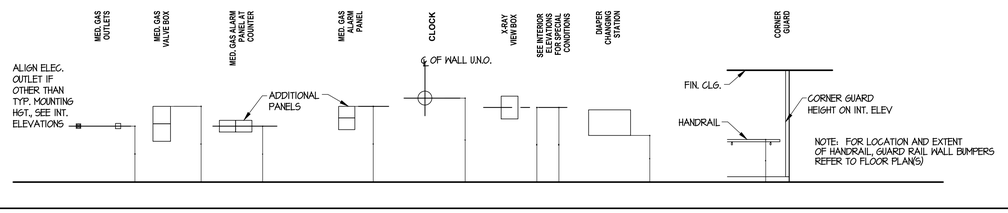
A.F.F.	ABOVE FINISH FLOOR
ALUM.	ALUMINUM
A/V	AUDIO– VISUAL
B.F.	BARRIER FREE
BIT.	BITUMINOUS
B.O.	BY OWNER // BOTTOM OF
C.J.	CONTROL JOINT
C.L.	CENTER LINE
CONC.	CONCRETE
C.T.	CERAMIC TILE
EA.	EACH
E.C.	ELECTRICAL CONTRACTOR
E.I.F.S.	EXTERIOR INSULATION FINISH SYSTEM
E.J.	EXPANSION JOINT
EQ.	EQUAL
F.D.	FLOOR DRAIN
FL.	FLOOR
FT.	FOOT
G.C.	GENERAL CONTRACTOR
GYP. BD.	GYPSUM BOARD
H.C.W.	HOLLOW CORE WOOD
H.M.	HOLLOW METAL
I.D.	INSIDE DIAMETER
K.D.	KNOCK DOWN
LT.	LIGHT
MANUF.	MANUFACTURER
MET.	METAL
M.O.	MASONRY OPENING
N.I.C.	NOT IN CONTRACT
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
PART.	PARTITION
PL.	PLATE
P.O.N.C.	POINT OF NEW CONNECTION
PORC.	PORCELAIN CONNECTION
R.O.	ROUGH OPENING
S.A.F.B.	SOUND ABSORBING FIBERGLASS BATT
S.C.W.	SOLID CORE WOOD
S.S.	STAINLESS STEEL
STD.	STANDARD
SUSP.	SUSPENDED
T.O.	TOP OF
U.N.O.	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE OF DECK
V.	VENT
V.B.	VINYL BASE
V.C.T.	VINYL COMPOSITION TILE
V.I.F.	VERIFY IN FIELD
V.T.R.	VENT THROUGH ROOF
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD

Mounting Dimensions

NOTE:
MOUNTING DIMENSIONS SHOWN ACCESSIBLE AND NON-ACCESSIBLE CONDITIONS. WHEN ONLY ONE OPTION IS SHOWN - ALL ITEMS IN PROJECT SHALL BE ACCESSIBLE. WHEN ITEMS CAN BE ACCESSIBLE OR NON ACCESSIBLE DRAWINGS SHALL INDICATE LOCATION OF ACCESSIBLE ITEMS BY THIS SYMBOL ♿

COORDINATE ITEMS SHOWN ON THIS DRAWING WITH PLANS AND SPECIFICATIONS FOR ACTUAL ITEMS USED ON THIS PROJECT.
EVERY ITEM SHOWN ON THIS DRAWING MAY NOT BE USED ON THIS PROJECT.
CONFIRM HEIGHTS OF ALL PAPER TOWEL DISPENSERS, SOAP DISPENSERS AND SHARPS DISPOSAL WITH OWNER PRIOR TO INSTALLATION.





Reference Symbols

DETAIL AND SECTION IDENTIFICATION

X — SECTION IDENTIFICATION LETTER OR DETAIL IDENTIFICATION NUMBER
AX.X — SHEET WHERE DETAIL OR SECTION IS REFERENCED FROM

BUILDING SECTION LOCATOR

X — SECTION IDENTIFICATION LETTER
AX.X — SHEET WHERE SECTION IS DRAWN

DETAIL/SECTION LOCATOR

X — DETAIL IDENTIFICATION NUMBER
AX.X — SHEET WHERE DETAIL/SECTION IS DRAWN

INTERIOR ELEVATION LOCATOR

Ax.x — ELEVATION IDENTIFICATION NUMBER
SHEET WHERE ELEVATION IS DRAWN

KEY NOTE

###

WINDOW SYMBOL

###

DOOR SYMBOL

###

WALL TYPE SYMBOL

###

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

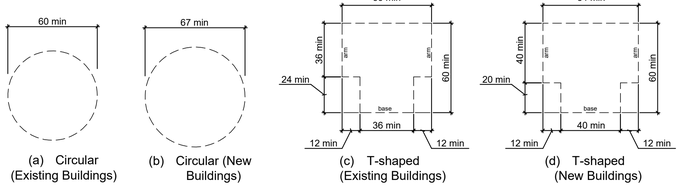
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **J.A.M.**
DATE **03/18/26**
APPROVED

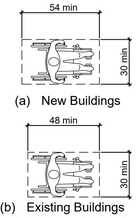
SHEET NO.
A0.2

PROJECT NO.
2538



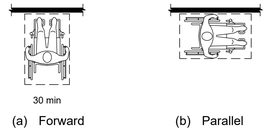
(a) Circular (Existing Buildings) (b) Circular (New Buildings) (c) T-shaped (Existing Buildings) (d) T-shaped (New Buildings)

SECTION 304.3: SIZE OF TURNING SPACE



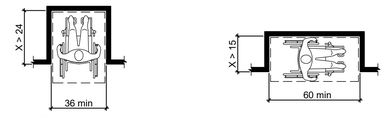
(a) New Buildings (b) Existing Buildings

SECTION 305.3: CLEAR FLOOR SPACE



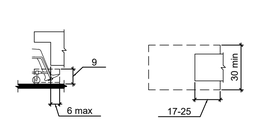
(a) Forward (b) Parallel

SECTION 305.5: POSITION OF CLEAR FLOOR SPACE



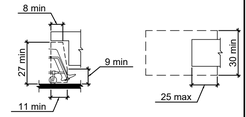
(a) Forward Approach (b) Parallel Approach

SECTION 305.7: MANEUVERING CLEARANCE IN AN ALCOVE



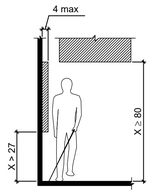
(a) Elevation (b) Plan

SECTION 306.2: TOE CLEARANCE

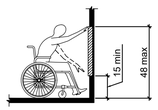


(a) Elevation (b) Plan

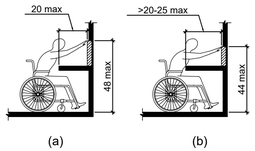
SECTION 306.3: KNEE CLEARANCE



SECTION 307.2 LIMITS OF PROTRUDING OBJECTS

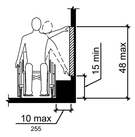


SECTION 308.2.1 UNOBSTRUCTED FORWARD REACH

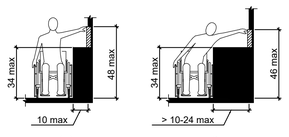


(a) (b)

SECTION 308.2.2 OBSTRUCTED FORWARD REACH

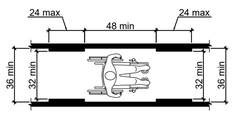


SECTION 308.3.1 UNOBSTRUCTED SIDE REACH

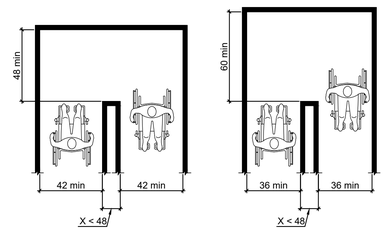


(a) (b)

SECTION 308.3.2 OBSTRUCTED SIDE REACH

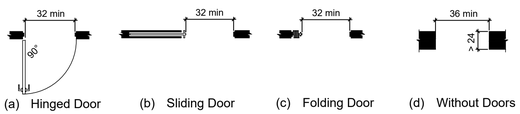


SECTION 403.5 CLEAR WIDTH OF AN ACCESSIBLE ROUTE



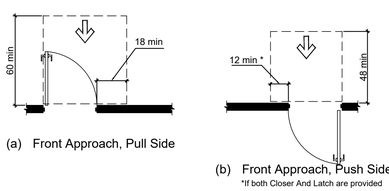
(a) 180 degree turn (b) 180 Degree Turn (Exception)

SECTION 403.5.1 CLEAR WIDTH AT 180° TURN



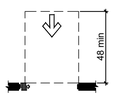
(a) Hinged Door (b) Sliding Door (c) Folding Door (d) Without Doors

SECTION 404.2.2 CLEAR WIDTH OF DOORWAYS

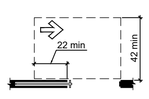


(a) Front Approach, Pull Side (b) Front Approach, Push Side *If both Closer And Latch are provided (c) Hinge Approach, Pull Side (d) Hinge Approach, Pull Side (e) Hinge Approach, Push Side *If both Closer And Latch are provided ** 48 min If both Closer And Latch are provided (f) Latch Approach, Pull Side *54 min If both Closer And Latch are provided (g) Latch Approach, Push Side, *48 min If both Closer And Latch are provided

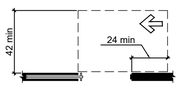
SECTION 404.2.3.2 MANEUVERING CLEARANCE AT MANUAL SWING DOORS



(a) Front Approach

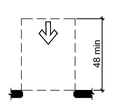


(b) Pocket or Hinge Approach

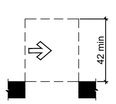


(c) Stop or Latch Approach

SECTION 404.2.3.3 MANEUVERING CLEARANCE AT SLIDING AND FOLDING DOORS

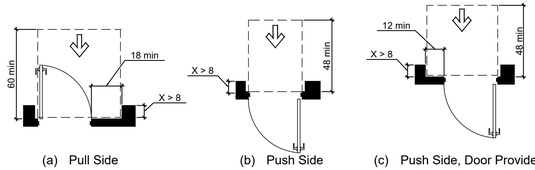


(a) Front Approach



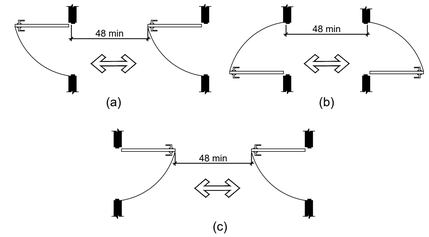
(b) Side Approach

SECTION 404.2.3.4 MANEUVERING CLEARANCE AT DOORWAYS W./O DOORS



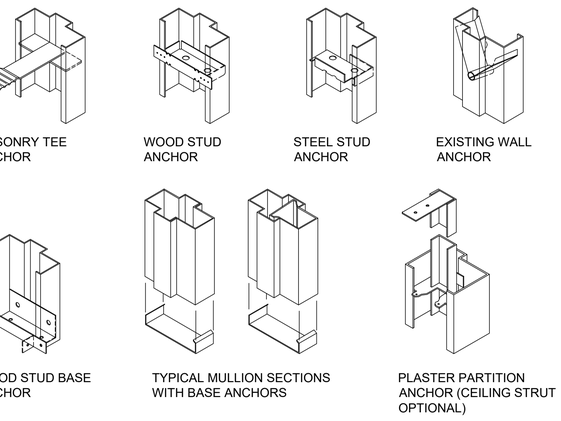
(a) Pull Side (b) Push Side (c) Push Side, Door Provided w./ Both Closer and Latch

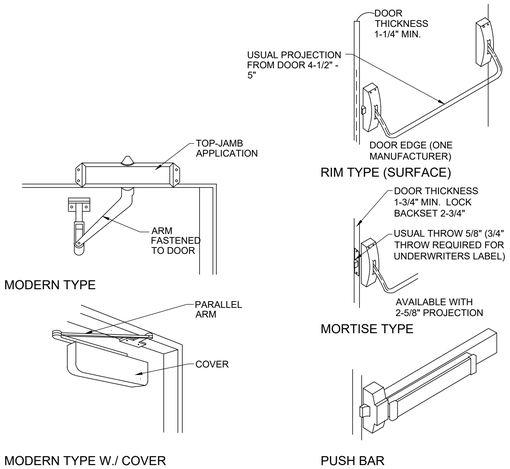
SECTION 404.2.3.5 MANEUVERING CLEARANCE AT RECESSED DOORS



(a) (b) (c)

SECTION 404.2.5 TWO DOORS IN A SERIES





NOTE: THESE DETAILS SUPERCEDE ANY AND ALL DESIGN LAYOUTS AS SHOWN ON THE ARCHITECTURAL PLAN VIEWS. SHOULD ANY DISCREPANCY BE DISCOVERED, NOTIFY ARCHITECT IMMEDIATELY.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **J.A.M.**

DATE **03/18/26**

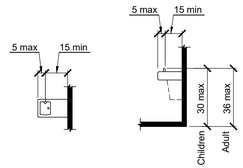
APPROVED

SHEET NO.

A0.3

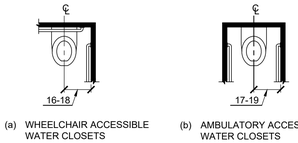
PROJECT NO.

2538



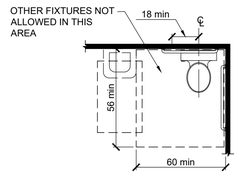
(a) Plan (b) Elevation

SECTION 602.5
DRINKING FOUNTAIN SPOUT

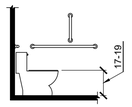


(a) WHEELCHAIR ACCESSIBLE WATER CLOSETS (b) AMBULATORY ACCESSIBLE WATER CLOSETS

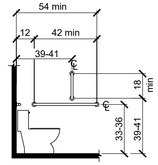
SECTION 604.2
WATER CLOSER LOCATION



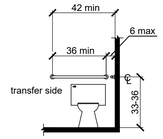
SECTION 604.3
SIZE OF CLEARANCE
FOR WATER CLOSET



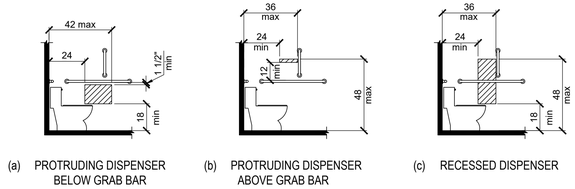
SECTION 604.4
WATER CLOSET SEAT HEIGHT



SECTION 604.5.1
SIDE-WALL GRAB BAR
FOR WATER CLOSET

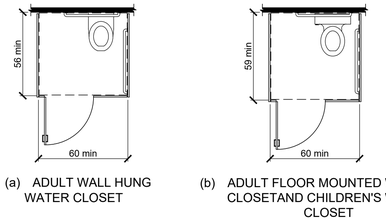


SECTION 604.5.2
REAR-WALL GRAB BAR
FOR WATER CLOSET



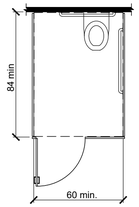
(a) PROTRUDING DISPENSER BELOW GRAB BAR (b) PROTRUDING DISPENSER ABOVE GRAB BAR (c) RECESSED DISPENSER

SECTION 604.7
DISPENSER OUTLET LOCATION

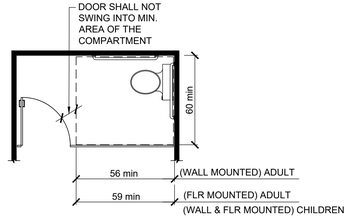


(a) ADULT WALL HUNG WATER CLOSET (b) ADULT FLOOR MOUNTED WATER CLOSETAND CHILDREN'S WATER CLOSET

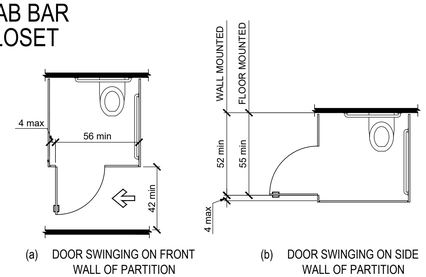
SECTION 604.9.2
WHEELCHAIR ACCESSIBLE
TOILET COMPARTMENT



SECTION 604.9.2.3
ALTERNATE WHEELCHAIR
TOILET COMPARTMENT

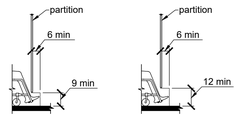


SECTION 604.9.2.3
WHEELCHAIR COMPARTMENT
DOORS SWINGING INTO TOILET
COMPARTMENT



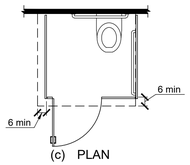
(a) DOOR SWINGING ON FRONT WALL OF PARTITION (b) DOOR SWINGING ON SIDE WALL OF PARTITION

SECTION 604.9.3.1
DOOR OPENING LOCATION



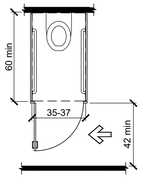
(a) ELEVATION ADULT

(b) ELEVATION CHILDREN

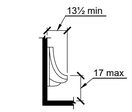


(c) PLAN

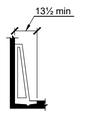
SECTION 604.9.5
TOE CLEARANCE



SECTION 604.10.1
AMBULATORY COMPARTMENT

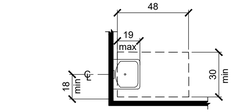


(a) WALL HUNG



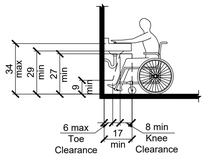
(b) STALL TYPE

SECTION 604.10.1
AMBULATORY COMPARTMENT



NOTE: HOT WATER AND DRAIN PIPES UNDER ACCESSIBLE LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED.

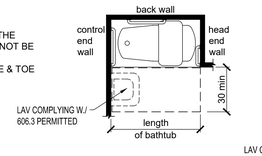
(a) PLAN



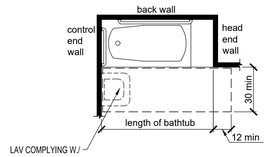
(b) SIDE

SECTION 606.3
LAVATORIES AND SINKS

NOTE: THE DIP OF THE OVERFLOW SHALL NOT BE CONSIDERED IN DETERMINING KNEE & TOE CLEARANCES

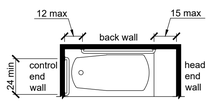


(a) Removable Seat

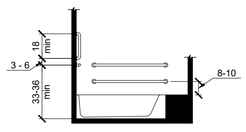


(b) Permanent Seat

SECTION 607.2
BATHTUBS W./ SEAT AT HEAD WALL

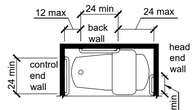


(a) PLAN

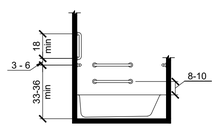


(b) ELEVATION

SECTION 607.4.1
GRAB BARS FOR BATHTUBS
W./ PERMANENT SEAT

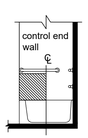


(a) PLAN

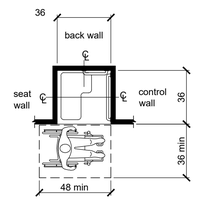


(b) ELEVATION

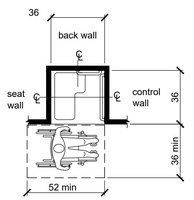
SECTION 607.4.2
GRAB BARS FOR BATHTUBS
W./ REMOVABLE SEATS



SECTION 607.5
LOCATION OF BATHTUB CONTROLS

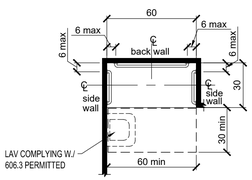


(a) Existing Buildings

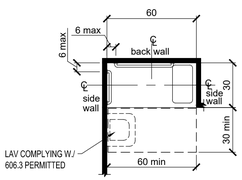


(b) New Buildings

SECTION 608.2.1.2
TRANSFER-TYPE SHOWER
COMPARTMENT SIZE



(a) Without a Seat



(b) With a Seat

SECTION 608.2.2.1
ROLL IN-TYPE SHOWER
COMPARTMENT SIZE

NOTE: THESE DETAILS SUPERCEDE ANY AND ALL DESIGN LAYOUTS AS SHOWN ON THE ARCHITECTURAL PLAN VIEWS. SHOULD ANY DISCREPANCY BE DISCOVERED, NOTIFY ARCHITECT IMMEDIATELY.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

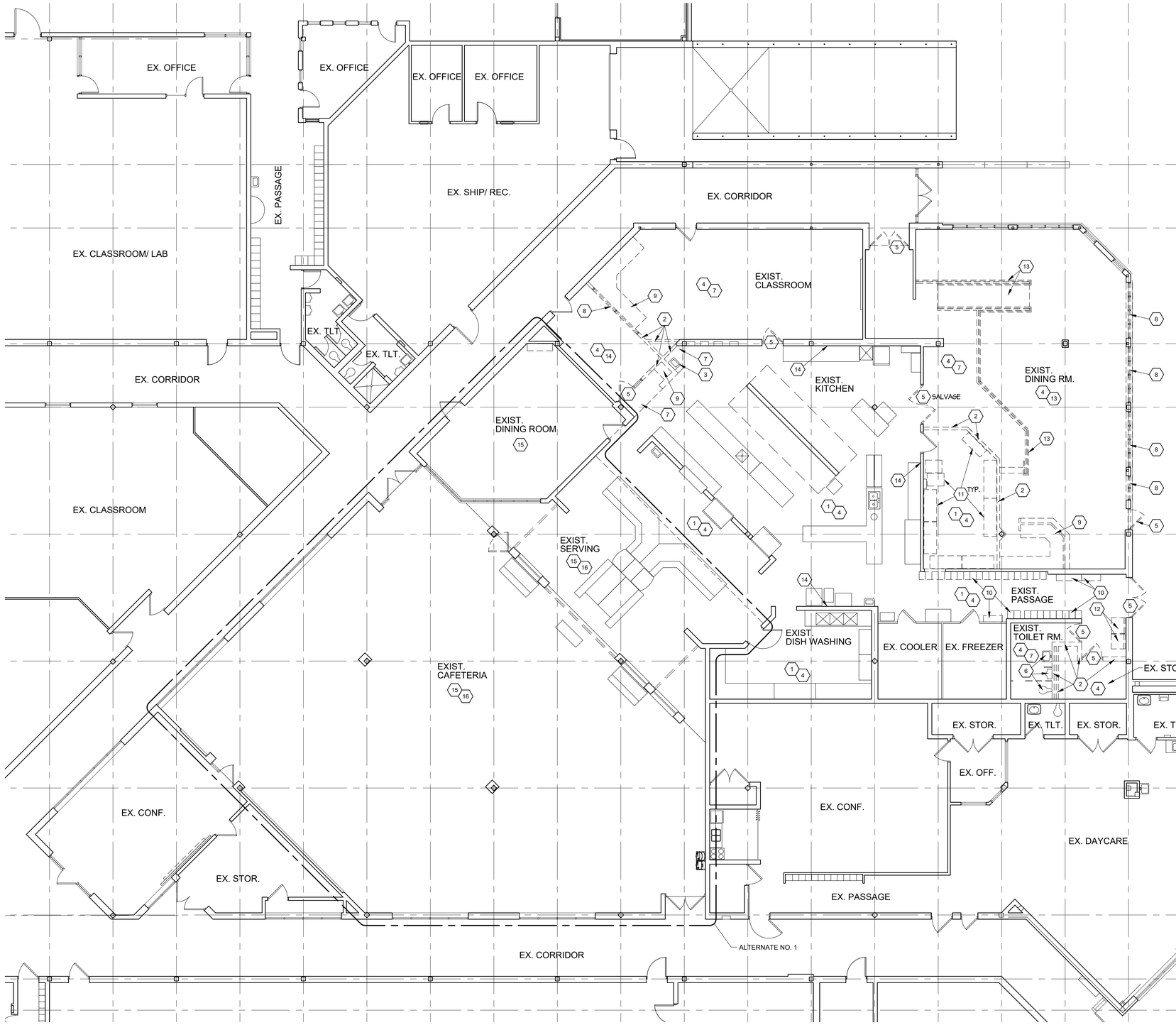
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY J.A.M.
DATE 03/18/26
APPROVED

SHEET NO.
A0.4

PROJECT NO.
2538



PARTIAL FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL DEMO NOTES:

1. NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES IN EXISTING CONDITIONS THAT MAY ALTER THE CONSTRUCTION PRIOR TO COMMENCING DEMOLITION / CONSTRUCTION.
2. CONTRACTOR TO REVIEW ALL DRAWINGS AND NOTES. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR ADDITIONAL INFORMATION REQUIRED FOR THE PROPER COMPLETION OF PROJECT BEFORE SUBMITTING A BID AND UNDERTAKING CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE AND INSTALL ALL FLASHING, CAULKING AND OTHER MATERIALS AS REQUIRED TO ENSURE A WATERTIGHT, LEAK-PROOF PERIMETER DURING AND AFTER THE DEMOLITION PHASE.
4. EXISTING STRUCTURE (COLUMNS, BEAMS, GIRTS, ETC., DOOR HEADERS, JAMBS, ETC.) TO BE PROTECTED DURING THE DEMOLITION PROCESS (U.N.O.)
5. REMOVE AND DISPOSE OF TEMPORARY PROTECTION AS REQUIRED FOR NEW CONSTRUCTION.
6. ALL MATERIALS ARE EXISTING UNLESS NOTED OTHERWISE.
7. MECHANICAL, ELECTRICAL ITEMS TO BE DEMOLISHED SHALL BE BY THE RESPECTIVE TRADE CONTRACTOR.
8. FOR ADDITIONAL ITEMS TO BE DEMOLISHED SEE COMPLETE MECHANICAL AND ELECTRICAL DRAWINGS.

DEMOLITION KEY NOTES:

1. REMOVE EXISTING QUARRY TILE FLOORING AND MUDSET TO CONC. SUBFLOOR.
2. REMOVE PORTION OF EXISTING WALL AS SHOWN.
3. REMOVE EXISTING PLUMBING FIXTURE, SALVAGE FOR RELOCATION.
4. REMOVE EXISTING CEILING AND/OR SOFFIT.
5. REMOVE EXISTING DOOR, FRAME, GLAZING, AND HARDWARE.
6. REMOVE EXISTING PLUMBING FIXTURES.
7. REMOVE EXISTING CARPET/VINYL FLOORING TO SUBFLOOR.
8. REMOVE EXISTING WINDOW FRAME AND GLAZING.
9. REMOVE EXISTING CASEWORK/ SHELVES.
10. REMOVE EXISTING LOCKERS/ CLOTHING RACKS, SALVAGE FOR RELOCATION.
11. OWNER TO REMOVE EXISTING SHELVING AND KITCHEN SUPPLIES.
12. OWNER TO REMOVE EXISTING WASHER AND DRYER FOR RELOCATION.
13. REMOVE EXISTING RAMP, RAILINGS, AND RAISED FLOOR STRUCTURE.
14. REMOVE EXISTING FRP WALL COVERING.
15. ALTERNATE NO. 1: REMOVE EXISTING CARPET/ VINYL FLOORING TO SUBFLOOR.
16. ALTERNATE NO. 1: REMOVE EXISTING CEILING TILES.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

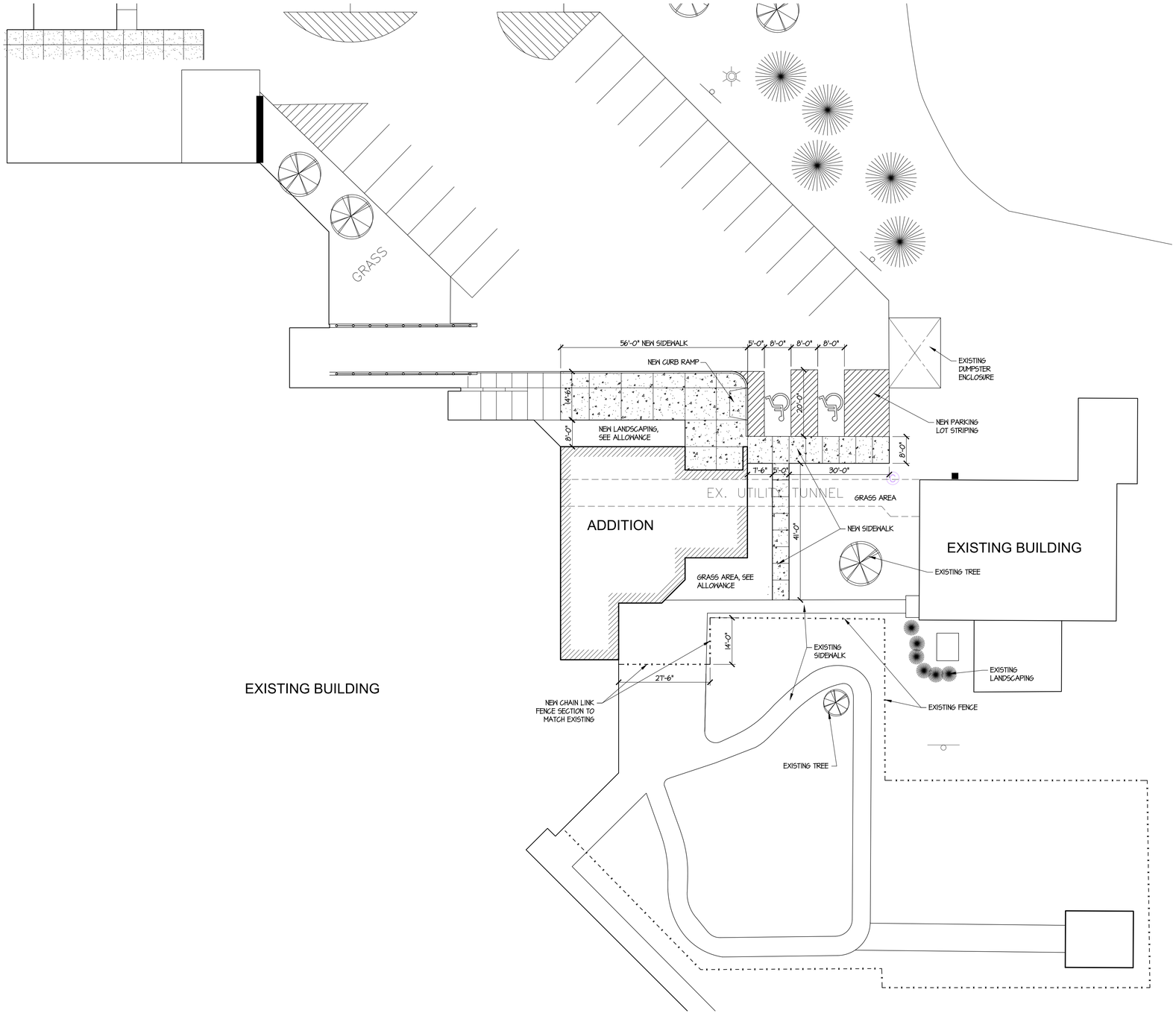
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **C.M.B.**
DATE **03/20/26**
APPROVED

SHEET NO.
D2.0

PROJECT NO.
2538



PARTIAL SITE PLAN
SCALE: 1/16" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

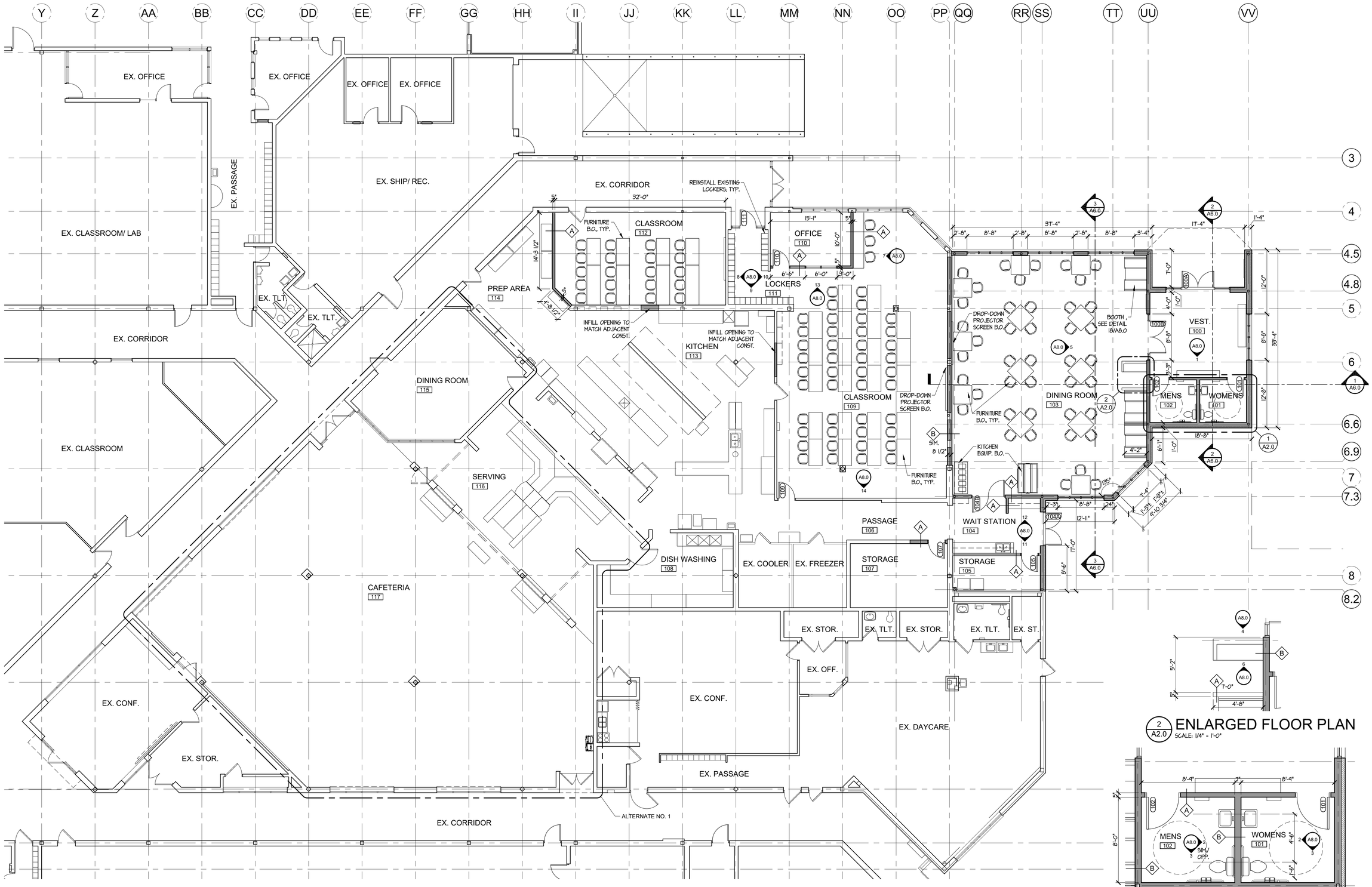
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **C.M.B.**
DATE **03/18/26**
APPROVED

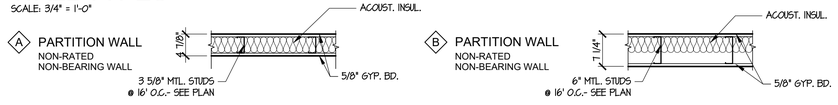
SHEET NO.
A1.0

PROJECT NO.
2538



WALL TYPES

SCALE: 3/4" = 1'-0"

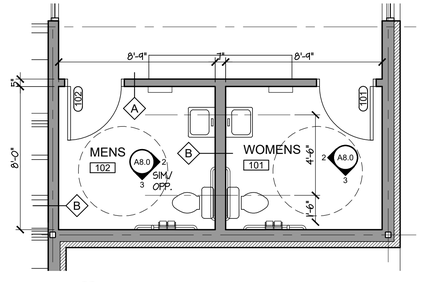


PARTIAL FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

2/A2.0 ENLARGED FLOOR PLAN

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



1/A2.0 ENLARGED FLOOR PLAN

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

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY C.M.B.
DATE 03/18/26
APPROVED

SHEET NO.
A2.0

PROJECT NO.
2538

FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOORS		BASE	WALLS								CEILING		REMARKS
					NORTH		EAST		SOUTH		WEST				
		MATERIAL	FINISH		MAT.	FIN.	MAT.	FIN.	MAT.	FIN.	MAT.	FIN.	TYPE	HEIGHT	
100	VESTIBULE	CONC.	LVP/WOCPT	V	GYP	P	GYP	P	GYP	P	GYP	P	ACT-1	10'-0"	1 2
101	WOMENS TOILET	CONC.	CT-4	CT	-	-	-	-	-	-	-	-	ACT-1	9'-0"	1 2
102	MENS TOILET	CONC.	CT-4	CT	-	-	-	-	-	-	-	-	ACT-1	9'-0"	1 2
103	DINING ROOM	CONC.	CPT-1	V	GYP	P	GYP	P	GYP	P	GYP	P	ACT-1	10'-0"	1 2
104	WAIT STATION	CONC.	QT-1	QT-1 (COVE)	GYP	P	GYP	P	GYP	P	GYP	P	ACT-2	10'-0"	1 2 4
105	STORAGE	EX	S. CONC.	V	GYP	P	GYP	P	GYP	P	GYP	P	ACT-2	9'-0"	1
106	PASSAGE	EX	QT-1	V	EX	FRP	EX	FRP	EX / GYP	FRP	-	-	ACT-2	MATCH EXIST.	1 4
107	STORAGE	EX	S. CONC.	V	EX / GYP	P	EX	P	EX	P	EX	P	ACT-2	MATCH EXIST.	1
108	DISHWASHING	EX	QT-1	V	EX	FRP	EX	FRP	EX	FRP	EX	FRP	ACT-2	MATCH EXIST.	1 4
109	CLASSROOM	EX	CPT-2	V	EX / GYP	P	EX / GYP	P	EX	P	EX / GYP	P	ACT-1	10'-0"	1 2
110	OFFICE	EX	CPT-2	V	EX	P	GYP	P	GYP	P	EX	P	ACT-1	9'-0"	1
111	LOCKERS	EX	CPT-2	V	EX	P	EX	P	EX	P	EX	P	ACT-1	10'-0"	1
112	CLASSROOM	EX	CPT-2	V	EX	P	EX	P	EX / GYP	P	GYP	P	ACT-1	MATCH EXIST.	1
113	KITCHEN	EX	QT-1	V	EX	FRP	EX	FRP	EX	FRP	EX	FRP	ACT-2	MATCH EXIST.	1 4
114	PREP AREA	EX	QT-1	V	EX	FRP	GYP	FRP	EX	FRP	EX	FRP	ACT-2	MATCH EXIST.	1 4
115	DINING ROOM	EX	CPT-1	V	EX	P	EX	P	EX	P	EX	P	EX	EX	1
116	SERVING	EX	LVP	V	EX	EX	EX	EX	EX	EX	EX	EX	ACT-2	MATCH EXIST.	1
117	CAFETERIA	EX	LVP	V	EX	EX	EX	EX	EX	EX	EX	EX	ACT-1	MATCH EXIST.	3

FINISH SCHEDULE NOTES:

1. SEE SHEET FF2.0 FOR MORE FINISH INFORMATION
2. SEE INTERIOR ELEVATION SHEET A8.0 FOR MORE INFORMATION
3. PAINT EXISTING CEILING GRID BRIGHT WHITE
4. BASE BID QT-1 RECESS FLOOR 2" IN WAIT STATION 104 FOR MUD BED, ALTERNATE NO. 2 ECO-GRIP FLOORING, COLOR TO BE SELECTED, CONC. INFILL AT EXIST. RECESSED FLOOR)

FINISHES KEY:

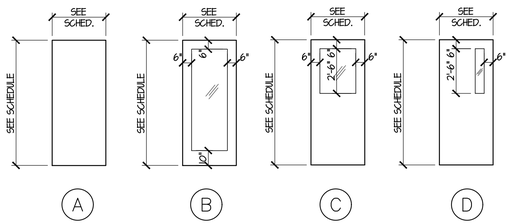
ACT - ACOUSTICAL CEILING TILE
BOS - BOTTOM OF STRUCTURE
CB - CEMENT BOARD
CT - CERAMIC/PORCELAIN TILE
CPT - CARPET
EX/ EXIST. - EXISTING
SEALED - SEALED CONC.
P - PAINT
V - RESILIENT WALL BASE

DOOR SCHEDULE

DOOR NO.	TYPE	MAT.	SIZE			FRAME		DETAILS			CLASS RATING	HARDWARE/ REMARKS
			WIDTH	HT.	THICK	TYPE	MAT.	HEAD	JAMB	SILL		
100A	B	AL	3'-0"	7'-0"	1 3/4"	IV	AL	5/A3.0	6/A3.0	-	-	D1, E3, ET, F, H3, M1, O, P, W, X, Y, EE (1)
100B	B	AL	3'-0"	7'-0"	1 3/4"	V	AL	3/A3.0	4/A3.0	-	-	D1, H3, I, M1, O, P
101	A	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	-	B4, H3, J2, M1
102	A	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	-	B4, H3, J2, M1
104A	C	HM	3'-0"	7'-0"	1 3/4"	II	HM	7/A3.0	8/A3.0	-	-	B1, D2, E1, F, H3, M2, O, P, R1,V, W, X, Y (3)
104B	EX	EX	-	-	-	I	HM	-	-	-	-	REUSE SALVAGED HARDWARE (5)
105	A	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	45 MIN.	B2, H3, J2, M1
107	A	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	45 MIN.	B2, H3, J2, M1
109	D	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	45 MIN.	B4, H3, J2, M1, V
110	A	HM	3'-0"	7'-0"	1 3/4"	I	HM	1/A3.0	2/A3.0	-	-	B1, H3, J2, M1
111	D	HM	3'-0"	7'-0"	1 3/4"	III	HM	1/A3.0	2/A3.0	-	-	B4, H3, M2, V

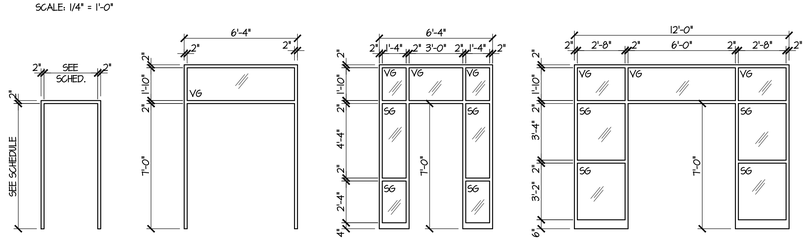
DOOR SCHEDULE NOTES:

1. MATCH DOOR HARDWARE COLOR AND MANUF. TO EXISTING, VERIFY IN FIELD
2. UTILIZE OWNER'S EXISTING KEYING SCHEDULE FOR NEW DOORS
3. DOUBLE DOORS
4. PAINT NEW DOOR AND FRAME TO MATCH THE EXISTING ADJACENT DOORS.
5. REUSE SALVAGED ELIASON DOOR SYSTEM.



DOOR TYPES

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



FRAME TYPES

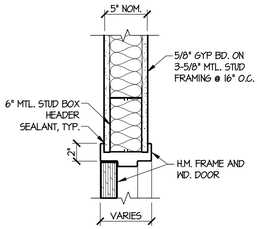
SCALE: 1/4" = 1'-0"

SCHEDULE OF FINISHES

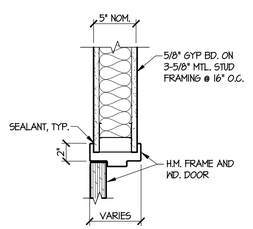
ABBREV.	ITEM	MANUFACTURER	PATTERN/STYLE	COLOR	PRODUCT NO.	SIZE	REMARKS
ACT-1	ACOUSTICAL CLG. TILE	CERTAINTEED	SYMPHONY M	WHITE	-	2' X 2' X 3/4"	PRELUDE XL - 15/16" GRID
ACT-2	ACOUSTICAL CLG. TILE	CERTAINTEED	SYMPHONY F RX	WHITE	-	2' X 2' X 3/4"	PRELUDE XL - 15/16" GRID
CPT-1	CARPET	FORBO	FLOTEX PRAIRIES	WARM 2	004345	9.84"x39.37"	DINING ROOM 103 AND DINING ROOM 115 (ALTERNATE NO. 1)
CPT-2	CARPET	FORBO	FLOTEX MODULAR-REFRACT	MALACHITE	137006	9.84"x39.37"	CLASSROOM 109, OFFICE 110, AND CLASSROOM 112
WOCPT	WALK-OFF CARPET	TARKETT	ABRASIVE ACTION II - 02618	CORK	19107	24"x24"	LOBBY 100
CT-1	PORCELAIN TILE	AMERICAN OLEAN	VISUAL IMPRESSIONS	WHITE	V110	8"X24"	FIELD TILE, INSTALL VERTICALLY, WOMENS 101 AND MENS 102
CT-2	PORCELAIN TILE	AMERICAN OLEAN	CLARASEA	METROPOLITAN	CL90	8"x8"	ACCENT TILE, WOMENS 101 AND MENS 102
CT-3	PORCELAIN TILE	MARAZZI	ZELLIGE NEO	CARBONE	ZLI2	3"x12"	ACCENT TILE, INSTALL VERTICALLY, WOMENS 101 AND MENS 102
CT-4	PORCELAIN TILE	ANATOLIA	STATION	ASH	ANASNAS1224R	12"x24"	FLOOR TILE, WOMENS 101 AND MENS 102
QT-1	QUARRY TILE	AMERICAN OLEAN	QUARRY NATURALS	SHADOW FLASH	-	8"x8"	WAIT STATION 104, PASSAGE 105, DISH WASHING 108, KITCHEN 113, PREP AREA 114 (BASE BID)
LVT-1	LUXURY VINYL TILE	KARNDEAN	VAN GOGH	HONEY OAK	VGW44T	48"x7"	ALTERNATE NO. 1: CAFETERIA 117
LVT-2	LUXURY VINYL TILE	KARNDEAN	VAN GOGH	TAWNY OAK	VGW41T	48"x7"	ALTERNATE NO. 1: CAFETERIA 117
LVT-3	LUXURY VINYL TILE	KARNDEAN	VAN GOGH	COUNTRY OAK	VGW81T	48"x7"	ALTERNATE NO. 1: CAFETERIA 117
PL-1	PLASTIC LAMINATE	WILSONART	-	SKYLINE WALNUT	7964K-12	-	LOBBY 100 - DISPLAY CASE, DINING ROOM 103 - HOSTESS STATION WALLS
PL-2	PLASTIC LAMINATE	FORMICA	-	LIMED SILLSTONE	9036-58	-	DINING ROOM 103 - HOST STATION LOWER COUNTER
PL-3	PLASTIC LAMINATE	NEVAMAR	-	VETA SHADOWS	VE6001T	-	CLASSROOM 109 - COUNTER
SS-1	SOLID SURFACE	CAMBRIA	GALLOWAY	-	-	-	DINING ROOM 103 - HOST STATION UPPER COUNTER
SS-2	SOLID SURFACE	CAMBRIA	FOGGY CITY	-	-	-	WINDOW SILLS
P-1	PAINT	SHERWIN WILLIAMS	EGG SHELL	SEAL SKIN	SW7675	-	ACCENT/FIELD PAINT - DINING ROOM 103, ALTERNATE NO. 1 - DINING ROOM 115
P-2	PAINT	SHERWIN WILLIAMS	EGG SHELL	WORLDLY GRAY	SW45-C7	-	FIELD PAINT - DINING ROOM 103, WAIT STATION 104, STORAGE 105, STORAGE 107, ALT. NO. 1 - DINING 115
P-3	PAINT	SHERWIN WILLIAMS	EGG SHELL	FOXTAIL GREEN	SW9184	-	ACCENT PAINT - CLASSROOM 109, CLASSROOM 112
P-4	PAINT	SHERWIN WILLIAMS	EGG SHELL	ALOOF GRAY	SW6197	-	FIELD PAINT - CLASSROOM 109, CLASSROOM 112
P-5	PAINT	SHERWIN WILLIAMS	EGG SHELL	FIRST STAR	SW7645	-	FIELD PAINT - WOMENS 101, MENS 102, OFFICE 110
V-1	VINYL BASE	TARKETT	TRADITIONAL WALL BASE	PEPPERCORN	TB1	-	VEST. 100, DINING ROOM 103, STORAGE 105, STORAGE 107, ALTERNATE NO. 1 - DINING ROOM 115
V-2	VINYL BASE	TARKETT	TRADITIONAL WALL BASE	THUNDER	168	-	CLASSROOM 109, OFFICE 110, CLASSROOM 112

DOOR HARDWARE LEGEND

KEY	DESCRIPTION	MANUF./ FINISH	KEY	DESCRIPTION	MANUF./ FINISH
A	PASSAGE LOCKSET	SARGENT 7900 SERIES, BRUSHED NICKEL	J1	FLOOR STOP	ROCKWOOD/ BRUSHED NICKEL
B1	OFFICE/ ENTRY LOCKSET	SARGENT 7900 SERIES, BRUSHED NICKEL	J2	WALL STOP	ROCKWOOD/ BRUSHED NICKEL
B2	STOREROOM LOCKSET	SARGENT 7900 SERIES, BRUSHED NICKEL	K	KICK PLATE	-
B3	CLASSROOM LOCKSET	SARGENT 7900 SERIES, BRUSHED NICKEL	L	LATCH GUARD PLATE	-
B4	PRIVACY LOCKSET	SARGENT 7900 SERIES, BRUSHED NICKEL	M1	CLOSER	LCN/ BRUSHED NICKEL
C1	PANIC DEVICE	-	M2	CLOSER WITH INTEGRAL STOP	LCN/ BRUSHED NICKEL
C2	PANIC ON LOCAL ALARM	-	N	LOUVERS	-
C3	DELAYED EGRESS PANIC DEVICE	-	O	COORDINATOR	IVES/ BRUSHED NICKEL
D1	PUSH/ PULL	BY ALUM. ENTRY PROVIDER	P	ASTRAGAL	NATIONAL GUARD
D2	EXTERIOR PULL	-	R1	REMOVABLE CENTER MULLION	MATCH EXISTING
D3	SOFT CLOSE BARN DOOR HDWE	-	R2	MANUAL FLUSH BOLTS	-
D4	BARN DOOR STYLE PULL	-	R3	MANUAL SURFACE BOLTS	-
E1	ELECTRIC STRIKE	-	R4	DEAD BOLT	-
E2	ELECTRIC LATCH	-	S	SIGNAGE	-
E3	MAGNETIC LOCK	-	T	SECURITY FILM ON GLAZING	-
E4	MAGNETIC HOLD-OPEN	-	U	THUMB-TURN LOCK W/ KEY	-
E5	KEY CARD HARDWARE	-	V	VISION PANEL	-
E6	ELECTRONIC KEYPAD	-	W	WEATHER STRIPPING	NATIONAL GUARD
ET	MANUAL ADA PUSH BUTTON	MATCH EXISTING	X	ADJUSTABLE SWEEP	NATIONAL GUARD
F	CARD READER	BY OWNER	Y	THRESHOLD	NATIONAL GUARD, ADA
G	PADDLE LATCH OPERATION	-	Z	WOOD THRESHOLD	-
H1	1 1/2 PAIR BUTT HINGES	IVES/ BRUSHED NICKEL	AA	TRACK AND ROLLER BY MANUF.	-
H2	2 PAIR BUTT HINGES	IVES/ BRUSHED NICKEL	BB	BARN DOOR LOCK	-
H3	CONTINUOUS HINGE	IVES/ BRUSHED NICKEL	CC	STEP PLATE AND HANDLE	-
H4	WIDE THROW CONTINUOUS HINGE	BY ALUM. DOOR MANUF.	DD	PEEP HOLE	-
H5	DBL. ACTING HINGES	-	EE	ADA OPERATOR	-
I	SPRING LOADED HOLD OPEN	-	FF	COAT HOOK	-



1 A3.0 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



2 A3.0 JAMB DETAIL
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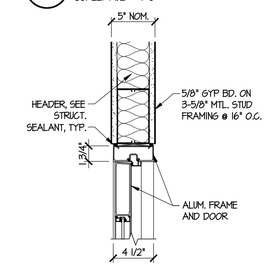

3 A3.0 HEAD DETAIL
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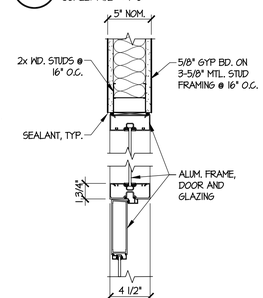
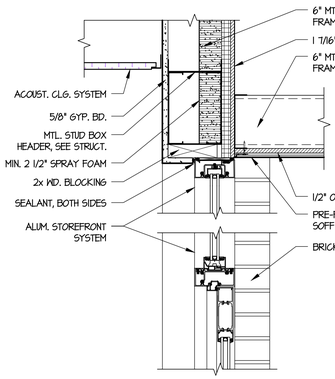
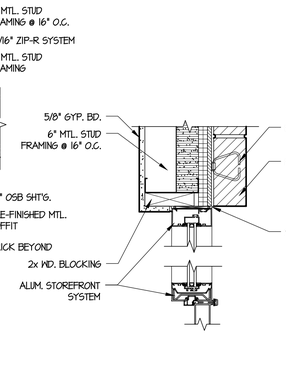


4 A3.0 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



5 A3.0 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



6 A3.0 JAMB DETAIL
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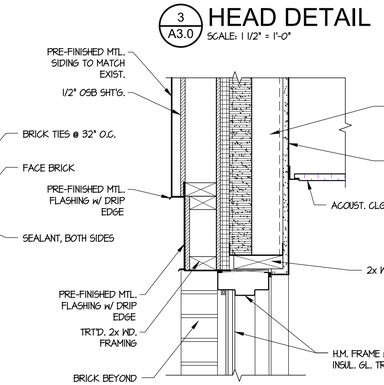


7 A3.0 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

8 A3.0 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

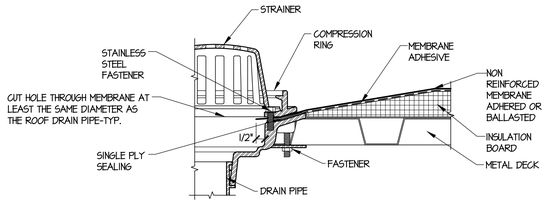
BAY CITY, MICHIGAN

NO.	DATE

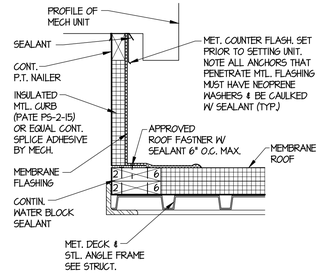
DRAWN BY C.M.B.
DATE 03/18/26
APPROVED

SHEET NO.
A3.0

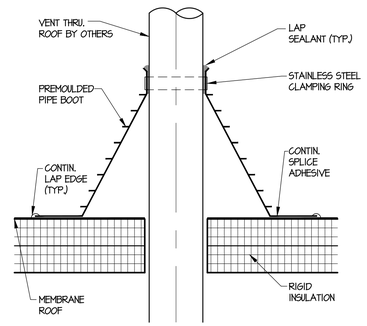
PROJECT NO.
2538



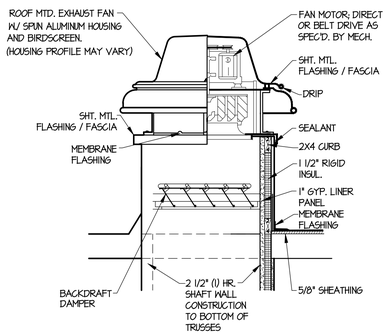
1 A4.0 ROOF SUMP DETAIL
SCALE: 1 1/2" = 1'-0"



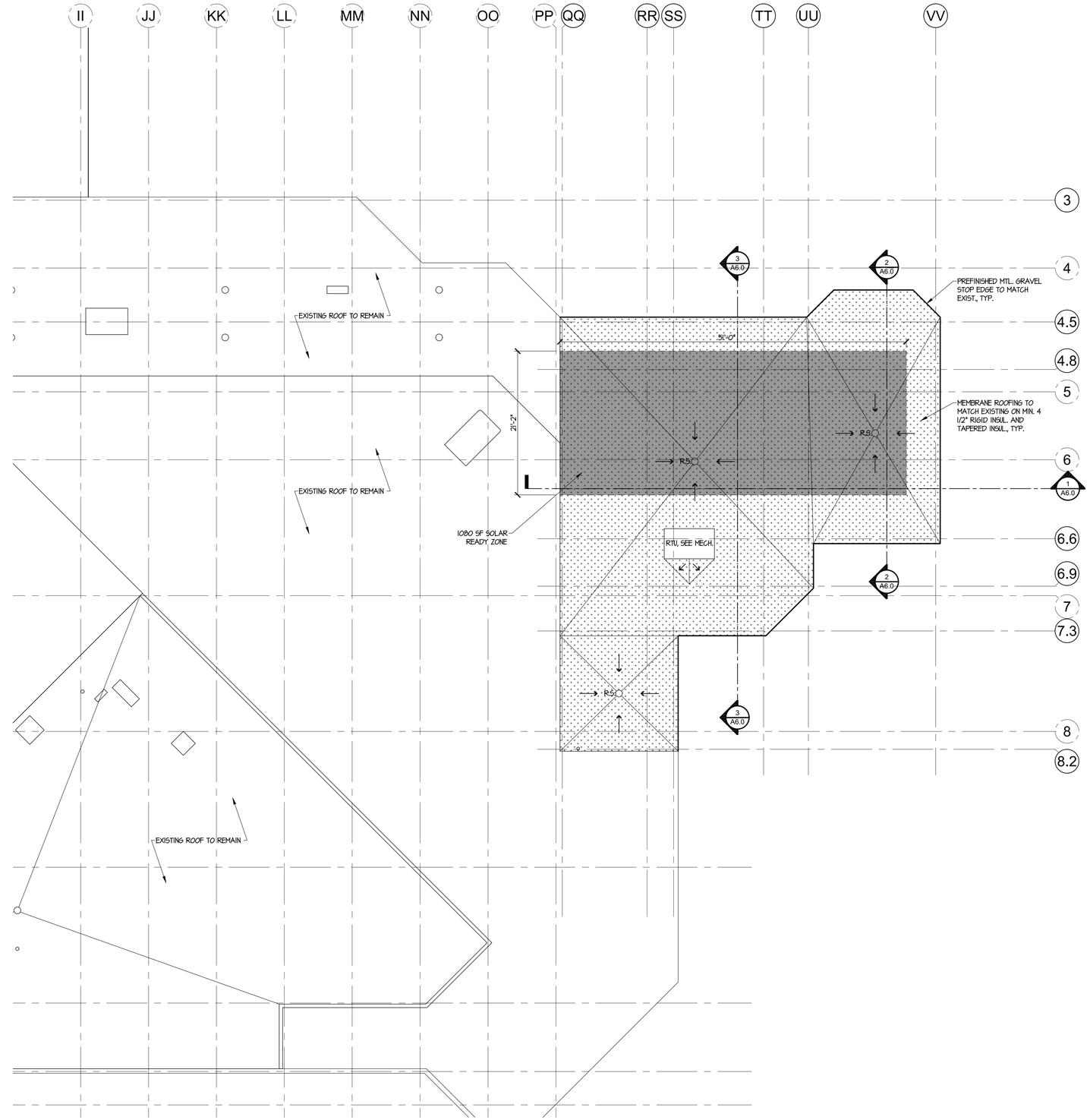
2 A4.0 ROOF CURB DETAIL
SCALE: 1 1/2" = 1'-0"



3 A4.0 ROOF PENETRATION
SCALE: 3" = 1'-0"



4 A4.0 EXHAUST FAN
SCALE: 3/4" = 1'-0"



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

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

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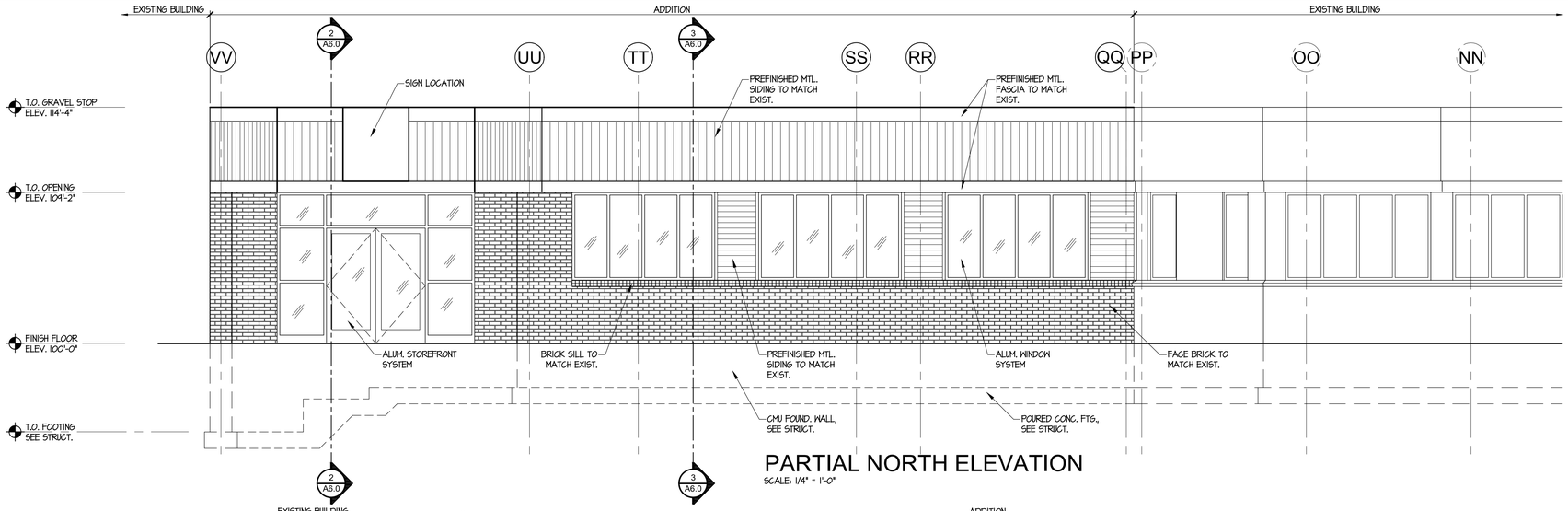
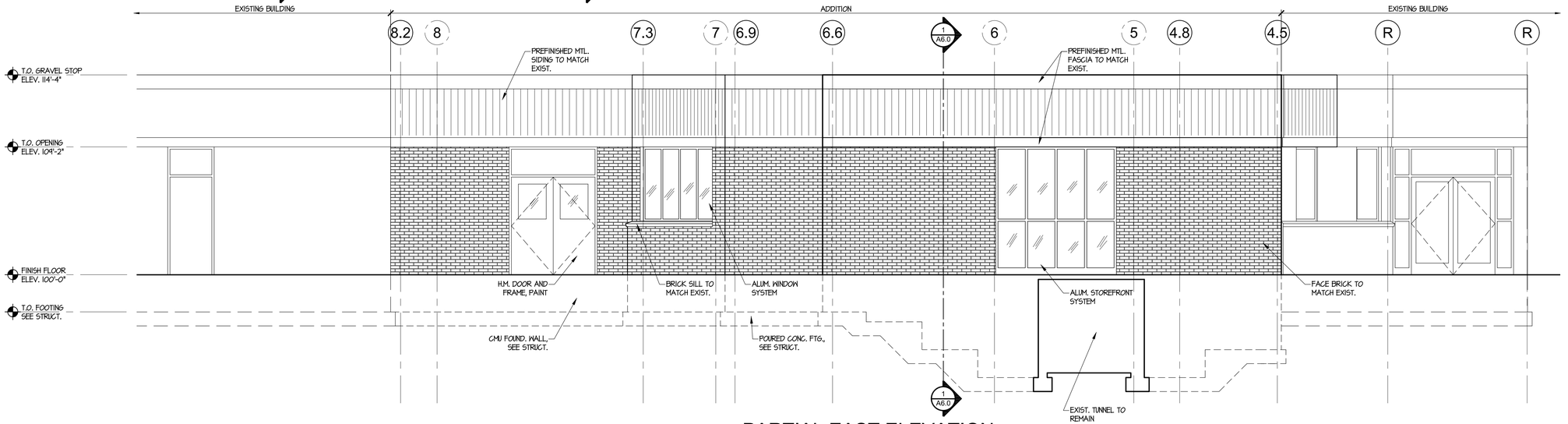
A4.0

PROJECT NO.
2538



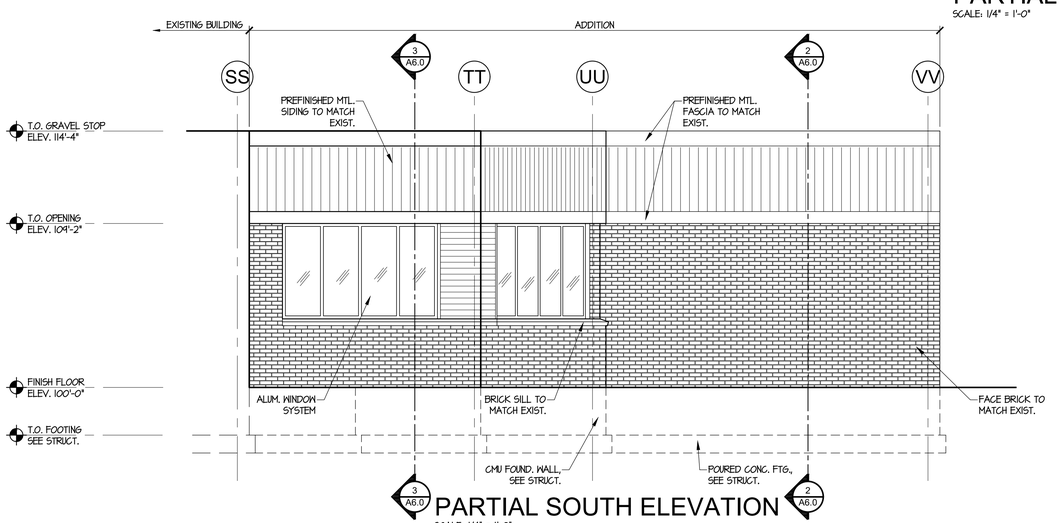
PARTIAL NORTH ELEVATION

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



PARTIAL EAST ELEVATION

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



PARTIAL SOUTH ELEVATION

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

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

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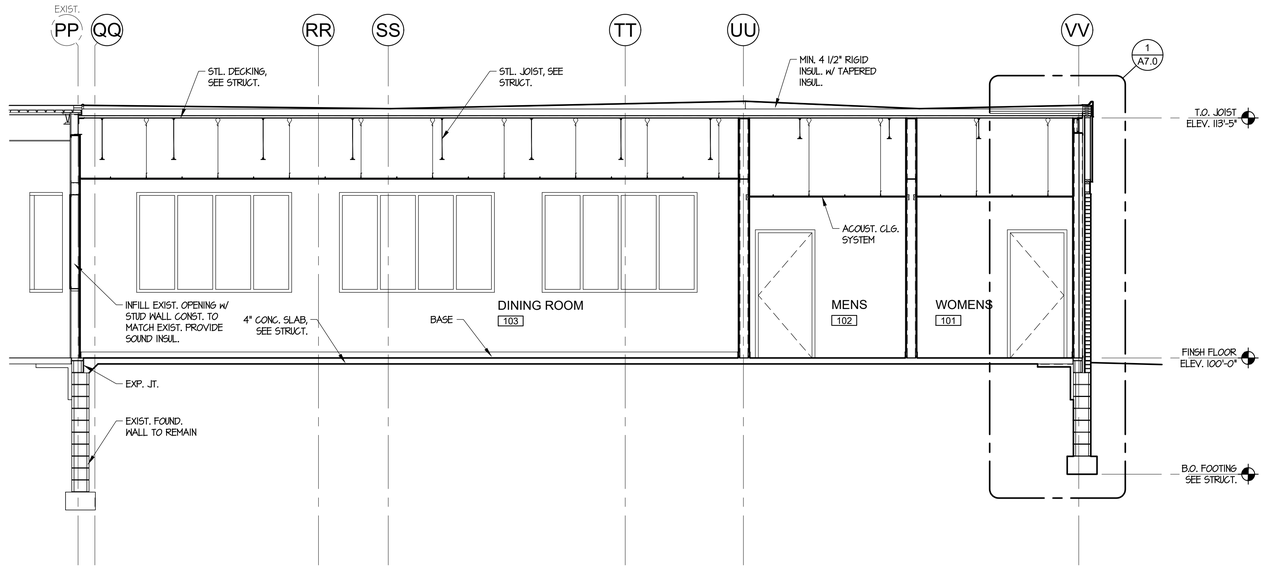
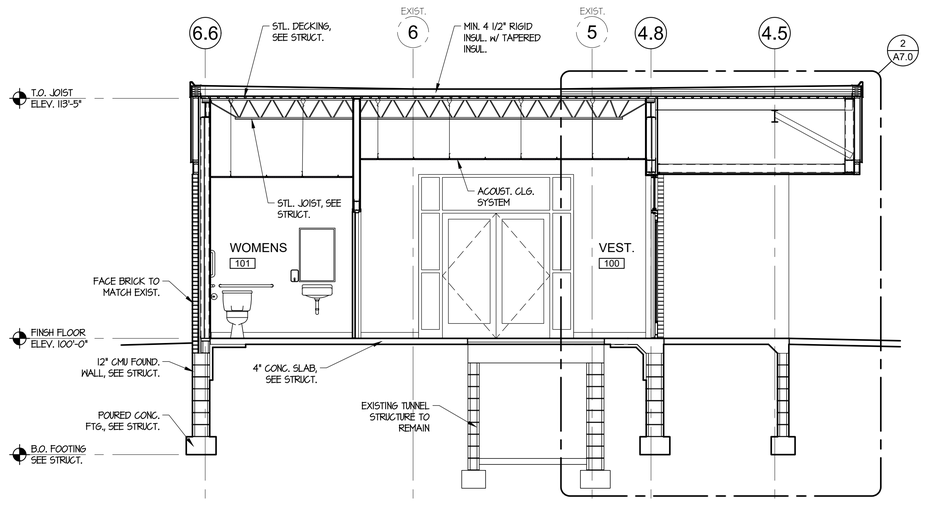
SHEET NO.
A5.0

PROJECT NO.
2538



1 A6.0 BUILDING SECTION
SCALE: 1/4" = 1'-0"



2 A6.0 BUILDING SECTION
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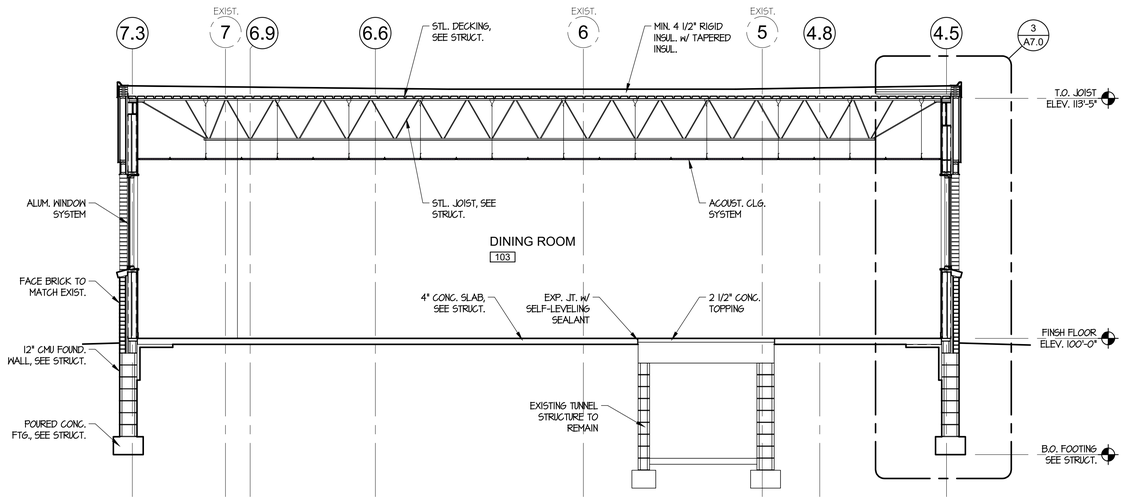


3 A6.0 BUILDING SECTION
SCALE: 1/4" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

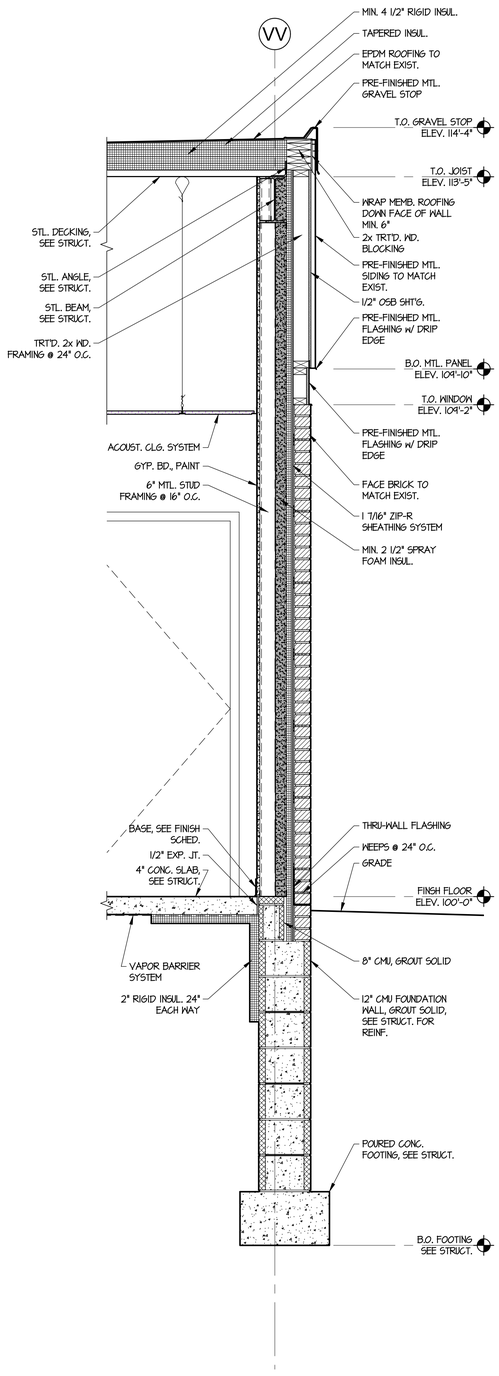
DRAWINGS FOR:
DINING ROOM ADDITION AND RENOVATIONS FOR:
BAY ARENAC ISD
BAY CITY, MICHIGAN

NO.	DATE

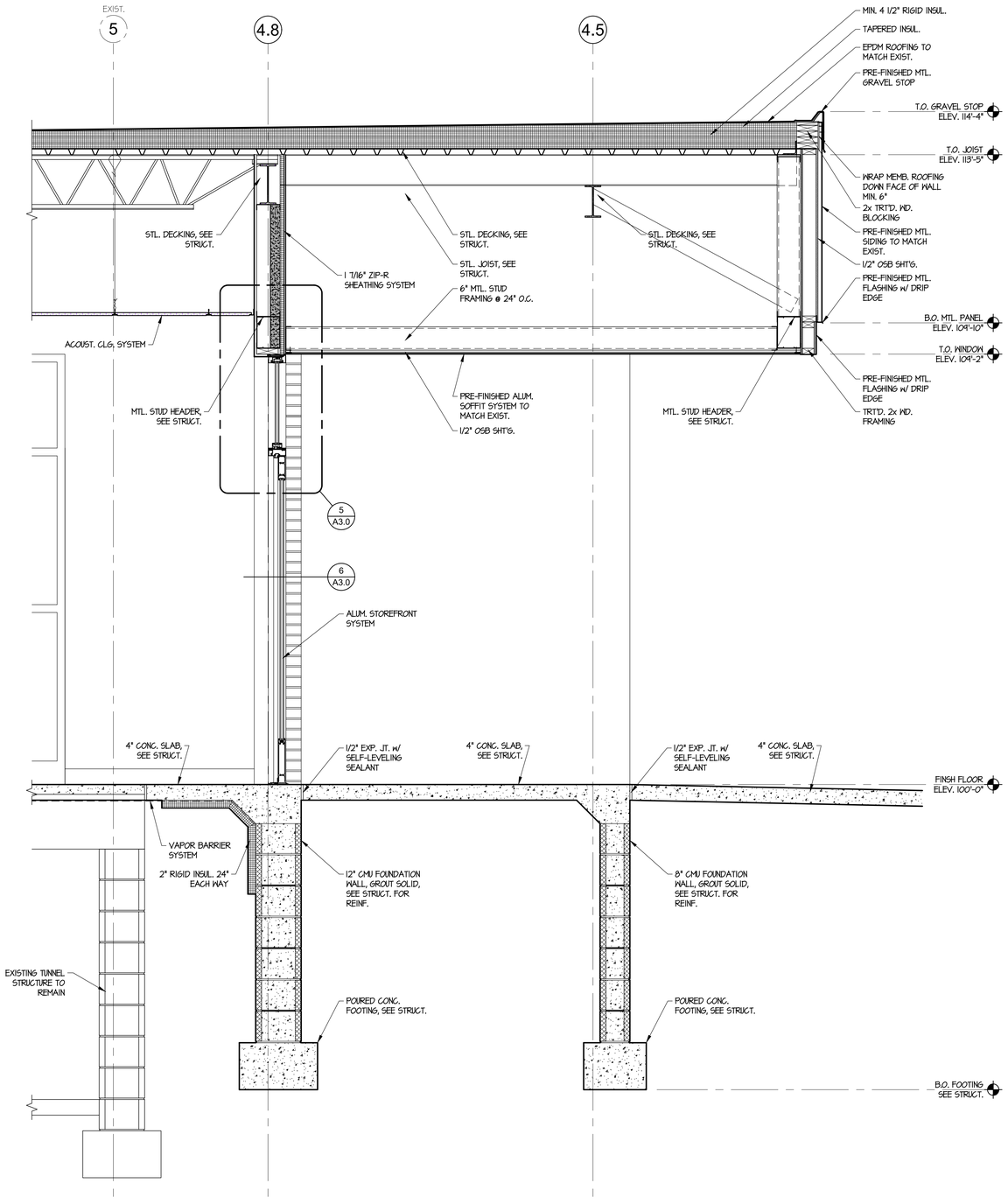
DRAWN BY **C.M.B.**
DATE **03/20/26**
APPROVED

SHEET NO.
A6.0

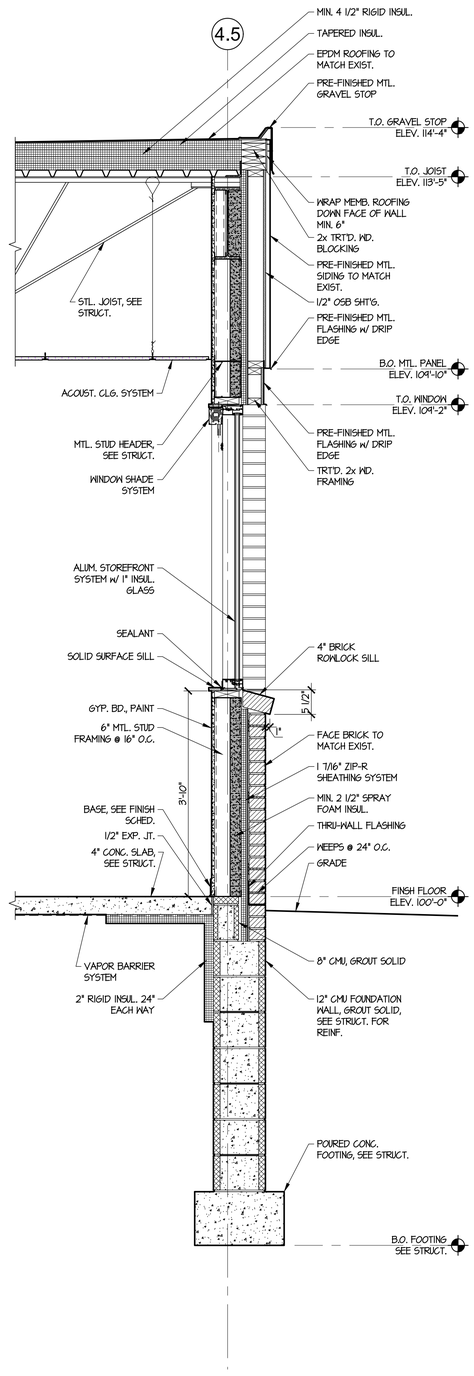
PROJECT NO.
2538



1 A7.0 WALL SECTION
SCALE: 3/4" = 1'-0"



2 A7.0 WALL SECTION
SCALE: 3/4" = 1'-0"



3 A7.0 WALL SECTION
SCALE: 3/4" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

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BAY CITY, MICHIGAN

NO.	DATE

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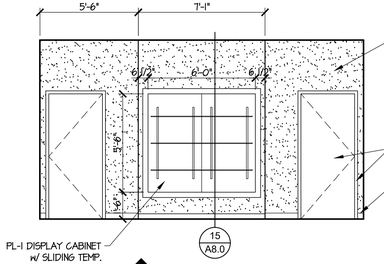
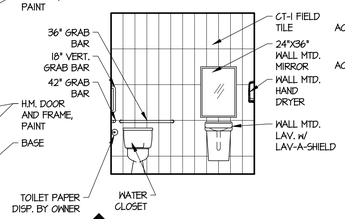
SHEET NO.
A7.0

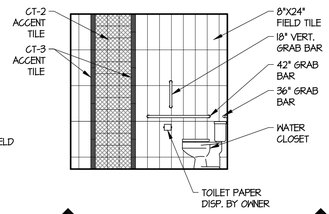
PROJECT NO.
2538



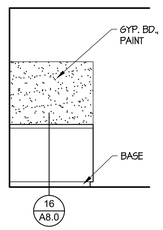
1 LOBBY 101
SCALE: 1/4" = 1'-0"



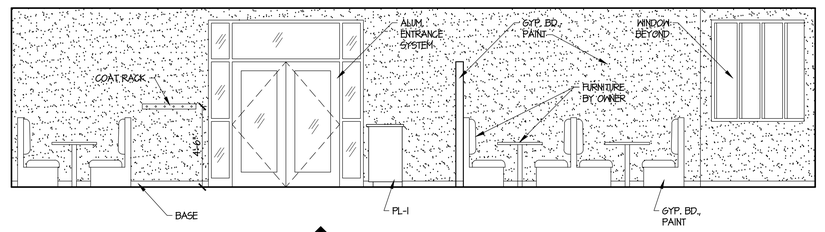
2 WOMENS 102
SCALE: 1/4" = 1'-0"



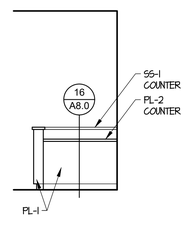
3 WOMENS 102
SCALE: 1/4" = 1'-0"



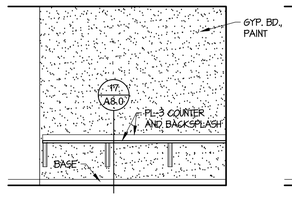
4 DINING ROOM 103
SCALE: 1/4" = 1'-0"



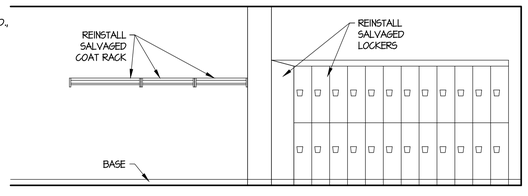
5 DINING ROOM 103
SCALE: 1/4" = 1'-0"



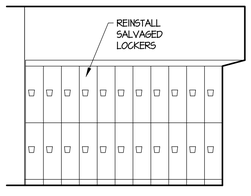
6 DINING ROOM 103
SCALE: 1/4" = 1'-0"



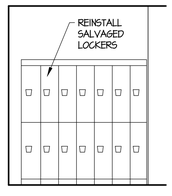
7 CLASSROOM 109
SCALE: 1/4" = 1'-0"



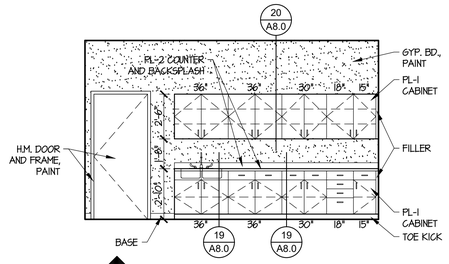
8 CLASSROOM 109 AND LOCKERS 111
SCALE: 1/4" = 1'-0"



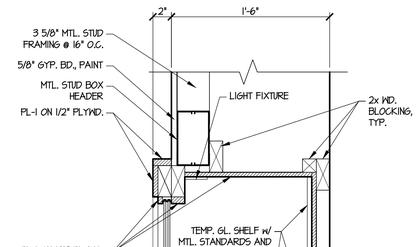
9 LOCKERS 111
SCALE: 1/4" = 1'-0"

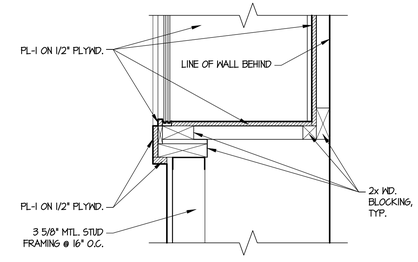


10 LOCKERS 111
SCALE: 1/4" = 1'-0"

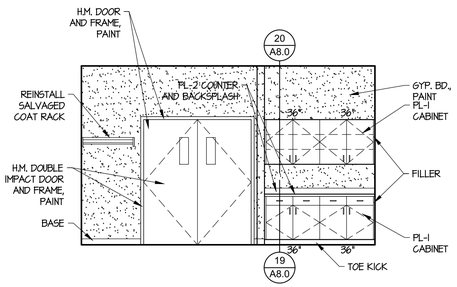


11 WAIT STATION 104
SCALE: 1/4" = 1'-0"

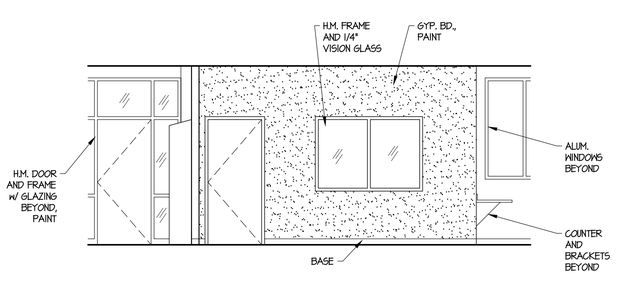




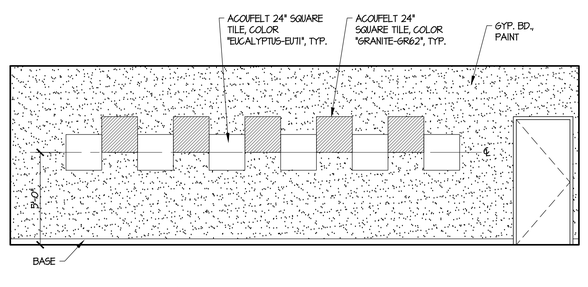
15 DISPLAY CASE
A8.0 SCALE: 1 1/2" = 1'-0"



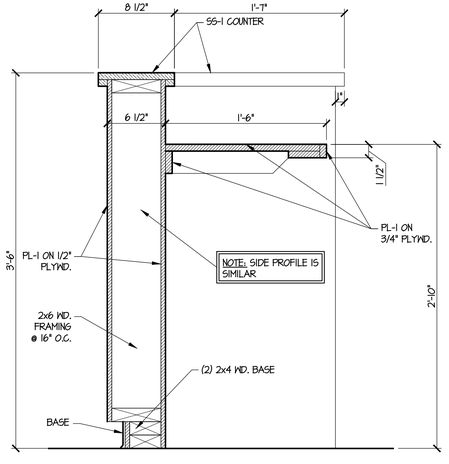
12 WAIT STATION 104
SCALE: 1/4" = 1'-0"



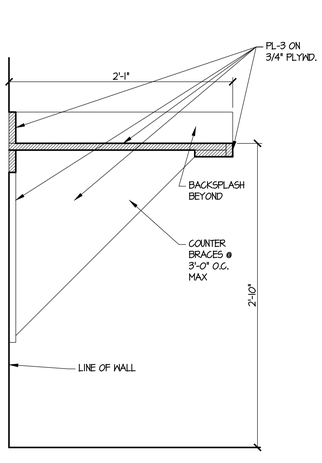
13 CLASSROOM 109 AND LOCKERS 111
SCALE: 1/4" = 1'-0"



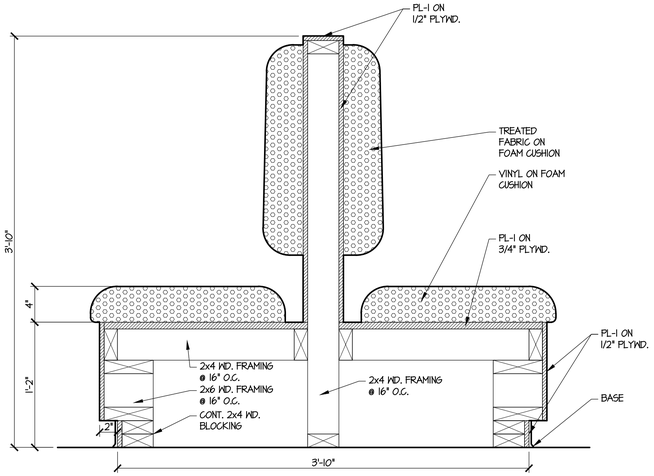
14 CLASSROOM 109
SCALE: 1/4" = 1'-0"



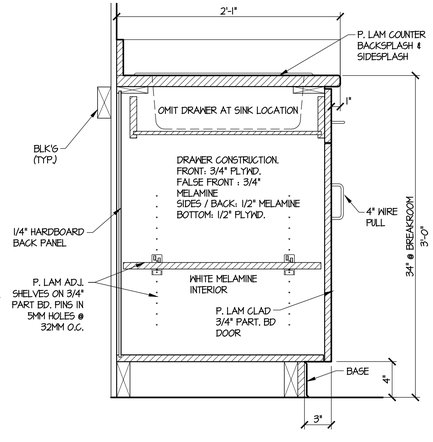
16 HOST STATION
A8.0 SCALE: 1 1/2" = 1'-0"



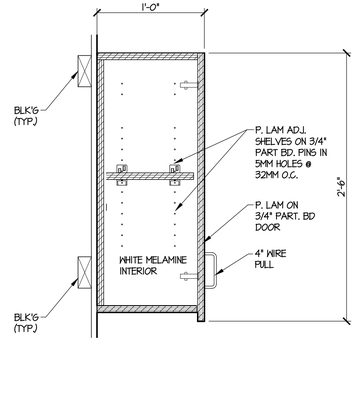
17 COUNTER DETAIL
A8.0 SCALE: 1 1/2" = 1'-0"



18 BOOTH DETAIL
A8.0 SCALE: 1 1/2" = 1'-0"



19 BASE CABINET DETAIL
A8.0 SCALE: 1 1/2" = 1'-0"



20 UPPER CABINET DETAIL
A8.0 SCALE: 1 1/2" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

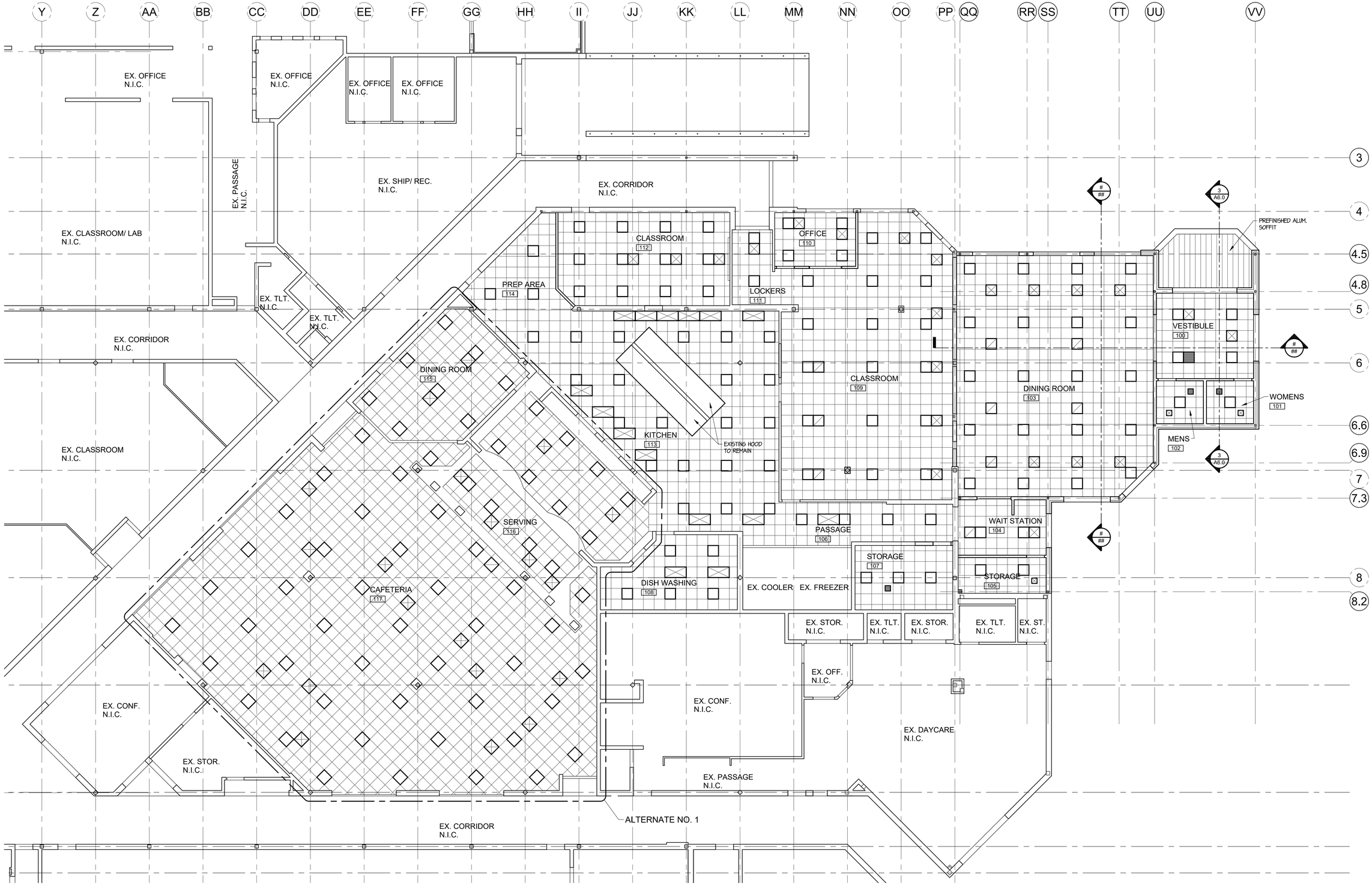
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY **C.M.B.**
DATE **03/18/26**
APPROVED

SHEET NO.
A8.0

PROJECT NO.
2538



PARTIAL FIRST FLOOR REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

NOTE: REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR FURTHER INFORMATION

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122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

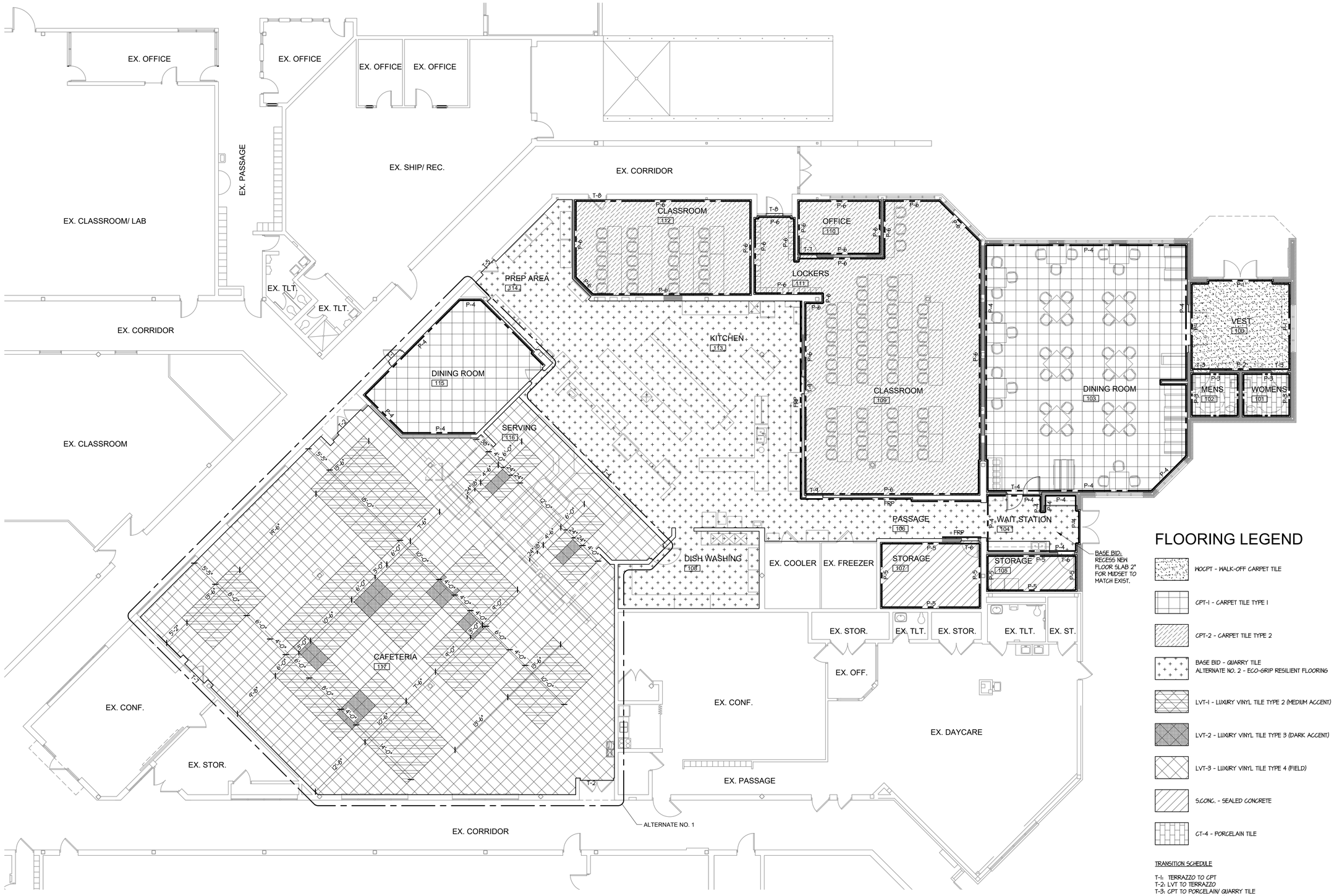
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY C.M.B.
DATE 03/18/26
APPROVED

SHEET NO.
A9.0

PROJECT NO.
2538



FLOORING LEGEND

- WOCPT - WALK-OFF CARPET TILE
- CPT-1 - CARPET TILE TYPE 1
- CPT-2 - CARPET TILE TYPE 2
- BASE BID - QUARRY TILE
  ALTERNATE NO. 2 - ECO-GRIP RESILIENT FLOORING
- LVT-1 - LUXURY VINYL TILE TYPE 2 (MEDIUM ACCENT)
- LVT-2 - LUXURY VINYL TILE TYPE 3 (DARK ACCENT)
- LVT-3 - LUXURY VINYL TILE TYPE 4 (FIELD)
- S.CONC. - SEALED CONCRETE
- CT-4 - PORCELAIN TILE

TRANSITION SCHEDULE

T-1: TERRAZZO TO CPT
T-2: LVT TO TERRAZZO
T-3: CPT TO PORCELAIN/ QUARRY TILE
T-4: QUARRY TILE TO LVT/ LVP
T-5: QUARRY TILE TO TERRAZZO
T-6: QUARRY TILE TO SEALED CONCRETE
T-7: CPT TO LVT/ LVP
T-8: CPT TO CPT
T-9: QUARRY TILE TO CPT

PARTIAL FIRST FLOOR FINISH PLAN

SCALE: 1/8" = 1'-0"

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY C.M.B.
DATE 03/18/26
APPROVED

SHEET NO.
FF2.0

PROJECT NO.
2538

GENERAL

1. THIS BUILDING HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE, 2021 EDITION

1.A. DESIGN LOADS

1.A.A. FLOOR LIVE LOADS:
- 1.A.A.A. CLASSROOMS = 40 PSF
- 1.A.A.B. CORRIDORS = 100 PSF

1.A.B. ROOF: LIVE LOAD = 20 PSF, SOLAR READY DEAD LOAD = 5 PSF

1.A.C. SNOW LOADS

- 1.A.C.A. GROUND SNOW LOAD, Pg = 35 PSF
- 1.A.C.B. SNOW EXPOSURE FACTOR, Ce = 1.0
- 1.A.C.C. THERMAL FACTOR, Ct = 1.0
- 1.A.C.D. BUILDING CATEGORY II
- 1.A.C.E. IMPORTANCE FACTOR, Is = 1.0
- 1.A.C.F. FLAT ROOF SNOW LOAD, Pf = 24.5 PSF + DRIFTING
- 1.A.C.G. DRIFTING CALCULATED PER ASCE 7-16

1.A.D. WIND LOADS

- 1.A.D.A. BASIC WIND SPEED V = 107 MPH (3-SECOND GUST)
- 1.A.D.B. BUILDING CATEGORY II
- 1.A.D.C. IMPORTANCE FACTOR, Iw = 1.0
- 1.A.D.D. EXPOSURE CATEGORY C
- 1.A.D.E. INTERNAL PRESSURE COEFFICIENT ±0.18
- 1.A.D.F. COMPONENTS AND CLADDING LOAD PRESSURE:
  - 1.A.D.F.A. ROOF (50ft²) -25.7 PSF (ZONE 1)
  - 1.A.D.F.B. ROOF (50ft²) -42.2 PSF (ZONE 2)
  - 1.A.D.F.C. ROOF (50ft²) -48.8 PSF (ZONE 3)
  - 1.A.D.F.D. WALLS (50ft²) -22.4 PSF (ZONE 4)
  - 1.A.D.F.E. WALLS (50ft²) -25.8 PSF (ZONE 5)

1.A.E. EARTHQUAKE LOADS

- 1.A.E.A. SEISMIC RISK CATEGORY II
- 1.A.E.B. SEISMIC IMPORTANCE FACTOR, Ie = 1.0
- 1.A.E.C. Ss = 0.066 (ASCE7-16 FIG. 22-1); S1 = 0.039
- 1.A.E.D. SITE CLASS = D
- 1.A.E.E. Fa = 1.6 (MBC TABLE 1613.3.3(1)); Fv = 2.4
- 1.A.E.F. Sms = Fa*Ss = 0.106; Sm1 = Fv$1 = 0.093
- 1.A.E.G. Sds = (2/3)*Sms = 0.071 (MBC 1613.3.4); Sd1 = (2/3)*Sm1 = 0.062
- 1.A.E.H. SEISMIC DESIGN CATEGORY = A
- 1.A.E.I. SEISMIC RESISTING SYSTEM: STEEL ORDINARY CONCENTRICALLY BRACED FRAMES
- 1.A.E.J. DESIGN BASE SHEAR = 0.01W
- 1.A.E.K. SEISMIC RESPONSE COEFFICIENT, Cs = 0.01
- 1.A.E.L. RESPONSE MODIFICATION FACTOR, R = 6 -1/2
- 1.A.E.M. EARTHQUAKE LOADS CALCULATED PER ASCE 7-16 SECTION 1.4.3 "MINIMUM LATERAL FORCE PROCEDURE'
- 1.A.E.N. DEFLECTION AMPLIFICATION FACTOR, Cd = 4.5

1.A.F. GUARD/HANDRAIL LOADS= 50 PLF LOAD APPLIED IN ANY DIRECTION AT THE TOP AND 200 POUND CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP. LOADS NOT ASSUMED TO ACT CONCURRENTLY.

2. THE ARCHITECTURAL DRAWINGS SHALL BE WORKED WITH THE STRUCTURAL DRAWINGS. SOME STRUCTURAL INFORMATION HAS BEEN INCORPORATED IN THE ARCHITECTURAL DRAWINGS.

3. THE STRUCTURE SHALL BE CONSIDERED TO BE IN AN UNSTABLE CONDITION UNTIL ALL WALL AND ROOF STRUCTURES ARE COMPLETED. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR STABILITY AND TO RESIST LATERAL LOADS DURING ERECTION.

4. ALL NON LOAD BEARING WALLS SHALL BE CONSTRUCTED TO ALLOW FOR THE VERTICAL DEFLECTION OF THE STRUCTURE ABOVE.

FOUNDATION

1. FOUNDATIONS ARE DESIGNED FOR A MAXIMUM ALLOWABLE BEARING CAPACITY OF 2,500 PSF. FOUNDATIONS SHALL BEAR ON NATURAL CLAY UNDISTURBED SOIL OR ENGINEERED FILL PROPERLY PLACED UPON THESE CLAY SOILS.

2. THE CONTRACTOR WILL RETAIN THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEER TO MONITOR THE FOUNDATION WORK & DETERMINE THE QUALITY OF THE SOIL AT ALL FOOTING LOCATIONS. IF UNSUITABLE MATERIALS ARE ENCOUNTERED AT THE FOOTING LOCATIONS, THE UNSUITABLE MATERIALS SHALL BE REMOVED & REPLACED WITH COMPACTED ENGINEERED FILL OR THE FOOTING LOWERED AT THE DIRECTION OF THE ARCHITECT OR ENGINEER.

3. CONTRACTORS SHALL BE AWARE OF AND VERIFY LOCATION OF ALL UNDERGROUND UTILITIES, TANKS, ETC. DUE CARE SHALL BE EXERCISED DURING EXCAVATION SO THAT EXISTING UTILITIES ARE NOT DAMAGED

4. THE AREA OF PROPOSED CONSTRUCTION SHALL BE STRIPPED OF THE EXISTING TOP SOIL & PAVEMENT MATERIALS. ALL REMNANTS OF PREVIOUS STRUCTURES OCCUPYING THE SITE SHALL BE REMOVED AND BACKFILLED WITH ENGINEERED FILL, PROPERLY PLACED AND COMPACTED. FOLLOWING THE REMOVAL OF THE ABOVE ITEMS, IF COHESIVE MATERIALS ARE EXPOSED AT THE SUBGRADE ALL AREAS OF PROPOSED DEVELOPMENT SHALL BE THOROUGHLY PROOFROLLED UNDER THE OBSERVATION OF A QUALIFIED SOILS ENGINEER. THE PROOF ROLLING SHOULD BE PERFORMED WITH A FULLY LOADED DUMP TRUCK OR OTHER HEAVILY LOADED PNEUMATIC TIRED VEHICLE MAKING CONTINUOUS SIDE-BY-SIDE PASSES ACROSS THE ENTIRE AREA. SUBGRADE AREAS THAT DEFLECT EXCESSIVELY OR PUMP DURING PROOF ROLLING SHOULD BE EXCAVATED AND BACK FILLED WITH ACCEPTABLE ENGINEERED FILL. IF EXISTING GRANULAR FILL MATERIALS ARE EXPOSED UPON STRIPPING OPERATIONS AT THE SUBGRADE, THE AREA SHOULD BE THOROUGHLY DENSIFIED WITH A LARGE DRUM ROLLER SUCH THAT THE TOP 12 INCHES IS COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY VALUE DETERMINED BY ASTM STANDARD D-1557 (MODIFIED PROCTOR)

5. UPON COMPLETION OF THE SUB GRADE PREPARATION, THE SITE CAN BE RAISED TO THE PROPER ELEVATION WITH PROPERLY PLACED AND COMPACTED ENGINEERED FILL. ALL COMPACTED BACKFILL SHALL BE A CLEAN, UNIFORM GRADED, GRANULAR MATERIAL AND FREE OF FROZEN CHUNKS, ORGANICS, DEBRIS OR OTHER DELETERIOUS MATERIALS. ALL COMPACTED BACKFILL SHALL BE PLACED IN NO MORE THAN 10" LOOSE LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). THIS MAY BE DECREASED TO 90% IN THOSE AREAS TO BE LANDSCAPED & NOT SUPPORTING STRUCTURE OR PAVEMENT.

CONCRETE

1. THE FOLLOWING CODES GOVERN THE DESIGN, DETAILING, FABRICATION AND CONSTRUCTION OF ALL REINFORCED CONCRETE:
   - 1.A. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-21)

2. ALL CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS:
   - 2.A. FOOTINGS & PIERS 3000 PSI
   - 2.B. SLAB ON GRADE 4000 PSI
   - 2.C. ALL EXTERIOR EXPOSED CONCRETE SHALL BE ENTRAINED.

3. BEFORE PLACING CONCRETE REFER TO ARCHITECTURAL, MECHANICAL & ELECTRICAL DRAWINGS FOR LOCATIONS OF PIPE SLEEVES, EMBEDDED ITEMS, OPENINGS, EQUIPMENT PADS, ELECTRICAL CONDUITS, RECESSES, DRAINS, ETC. ALL OPENINGS FOR PIPE, CONDUITS, ETC. SHALL BE SLEEVED. MINIMUM SLEEVE SPACING SHALL BE 3 SLEEVE DIAMETERS.

4. ALL DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60.

5. ALL DEFORMED BAR REINFORCING SHALL BE SPLICED A MINIMUM OF 32 BAR DIAMETERS.

6. ALL WELDED WIRE FABRIC SHALL BE ASTM A185-01 SHEETS SHALL BE LAPPED A MINIMUM OF WIRE SPACING + 2".

7. PROVIDE RIGHT CORNER BARS W/ STD LAP @ CORNER OF ALL CONC. WALLS. LAP W/ TYPICAL WALL REINFORCING. SIZE OF BAR TO MATCH TYPICAL HORIZONTAL REINFORCING.

8. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION PER 2021 MBC CODE TABLE 1705.3

STRUCTURAL STEEL

1. THE FOLLOWING CODE SHALL GOVERN THE DETAILING, FABRICATION & ERECTION OF ALL STEEL:
   - 1.A. MANUAL OF STEEL CONSTRUCTION, 15TH EDITION (AMERICAN INSTITUTE OF STEEL CONSTRUCTION)

WIDE FLANGE SHAPES	--- ASTM A-992, Fy = 50 KSI
STEEL PLATE, CHANNELS & ANGLES	--- ASTM A-36
HSS SQ / RECT.	--- ASTM A-500 GRADE B, Fy = 46KSI
PIPES	--- ASTM A53 TYPE E OR S GRADE B
HSS ROUND	--- ASTM A-500 GRADE B, Fy = 42KSI

2. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1 / D1.1 M:2017 STRUCTURAL WELDING CODE. E70XX ELECTRODES SHALL BE USED FOR WELDED SHOP & FIELD CONNECTIONS.

3. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4"Ø ASTM F3125 GR. A325 BOLTS. ALL BOLTED CONNECTIONS SHALL BE CONSIDERED AS BEARING UNLESS NOTED OTHERWISE.

4. ALL BEAM CONNECTIONS ARE TO CONFORM TO AISC STANDARD TWO ANGLE WEB CONNECTIONS OR 3/8" THICK SHEAR TAB CONNECTIONS WITH BOLTS BASED ON TABLES BELOW. NO CONNECTION SHALL CONSIST OF LESS THAN TWO 3/4"Ø BOLTS OR A WELD DEVELOPING LESS THAN 10 KIPS.

MINIMUM BOLT CONNECTION	
W8 /W10 /W12	(2) 3/4" Ø BOLTS
W14 /W16	(3) 3/4" Ø BOLTS
W18 /W21	(4) 3/4" Ø BOLTS
W24	(5) 3/4" Ø BOLTS
W27	(6) 3/4" Ø BOLTS

THIS TABLE IS TO BE USED FOR STANDARD CONNECTIONS UNLESS NOTED OTHERWISE

5. ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS NOTED OTHERWISE. FIELD WELDING IS NOT ALLOWED EXCEPT WHERE SPECIFICALLY INDICATED OR APPROVED.

6. ALL GROUT PADS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 7 DAYS.

7. ALL ANCHOR BOLTS SHALL BE ASTM F1554 GR. 36.

8. PROVIDE AND HAVE IN PLACE ADEQUATE LATERAL BRACING & VERTICAL SUPPORTS FOR THE SAFE ERECTION AND TRUE ALIGNMENT OF THE STRUCTURAL STEEL. THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR THE SAFE ERECTION & TEMPORARY BRACING OF STRUCTURAL STEEL.

9. VERIFY NUMBER AND SIZE OF OPENINGS IN ROOF, WALLS, AND FLOOR WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. SEE STRUCTURAL DRAWINGS AND SPECIFICATIONS, FOR STRUCTURAL REQUIREMENTS. VERIFY ALL DETAILS & INFORMATION WITH THE APPROPRIATE CONTRACTOR.

10. ALL DIMENSIONS RELATED TO STRUCTURAL STEEL USED TO SUPPORT EQUIPMENT OR FRAME OPENINGS SHALL BE VERIFIED WITH CERTIFIED AND APPROVED SHOP DRAWINGS OF PURCHASED EQUIPMENT PRIOR TO DETAILING AND FABRICATION.

11. ALL EDGES OF METAL DECK SHALL BE SUPPORTED AT A CHANGE IN DECK SPAN WHETHER SHOWN ON DRAWINGS OR NOT. PROVIDE TUBE STEEL OR A DOUBLE ANGLE BETWEEN JOIST AND METAL DECK.

12. WELD ALL STEEL BEAMS TO BEARING PLATES W/ 5/16x 4" LONG FILLET WELD, EACH SIDE OF BEAM U.N.O.

13. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION PER 2021 MBC CODE.

CONCRETE MASONRY

1. THE FOLLOWING CODES GOVERN THE DESIGN, DETAILING & CONSTRUCTION OF ALL MASONRY:
   - 1.A. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-13)
   - 1.B. SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-13)

2. ALL MASONRY SHALL HAVE A COMPRESSIVE STRENGTH, f'm = 2,000 PSI.

3. ALL MORTAR FOR LOAD BEARING AND EXTERIOR CONCRETE MASONRY SHALL BE TYPE S, ABOVE GRADE AND TYPE M BELOW GRADE PROPORTIONED BY VOLUME ACCORDING TO ASTM C-270.

4. ALL GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, AND SHALL BE PROPORTIONED BY VOLUME ACCORDING TO ASTM C-476.

5. ALL CONCRETE MASONRY UNITS SHALL BE ASTM C-90 GRADE N, TYPE I UNITS MEDIUM WEIGHT UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FURTHER DETAILS WITH REGARD TO FACE FINISH.

6. ALL MASONRY WALLS SHALL HAVE HORIZONTAL JOINT REINFORCEMENT (LADDER TYPE) AT 16" O.C. PROVIDE PREFABRICATED CORNER PIECES AT ALL CORNERS & INTERSECTIONS OF WALLS.

7. ALL DEFORMED BAR REINFORCING SHALL BE ASTM A-615 GRADE 60. LAP SPLICES IN WALLS SHALL BE A MINIMUM OF 48 BAR DIAMETERS, UNLESS NOTED OTHERWISE.

8. REINFORCE ALL MASONRY WALLS AS SHOWN ON SCHEDULE AND DETAILS. PLACE BAR ON CENTERLINE OF WALL IN FULLY GROUTED CELL FULL HEIGHT OF THE WALL. LAP REINFORCEMENT WITH TYPICAL FOOTING DOWEL, SEE WALL SECTION FOR DOWELS REQUIREMENTS.

9. SEE ARCHITECTURAL DRAWINGS FOR MASONRY JOINT LOCATIONS.

10. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION PER 2015 MBC CODE SECTION 1705.4.

STEEL JOISTS

1. STEEL JOIST DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS AND STANDARD SPECIFICATIONS FOR THE STEEL JOIST INSTITUTE AND THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. ONLY STEEL JOISTS FROM A STEEL JOIST INSTITUTE APPROVED FABRICATORS WILL BE ACCEPTABLE.

2. PROVIDE WELDED HORIZONTAL BRIDGING AND BOLTED DIAGONAL BRIDGING AS REQUIRED PER STEEL JOIST INSTITUTE REQUIREMENTS.

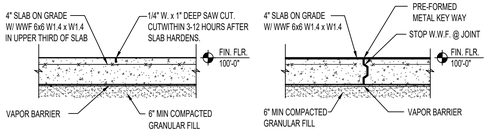
3. ALL CONCENTRATED LOADS DUE TO HANGERS, MECHANICAL EQUIPMENT, ETC. SHALL BE SUPPORTED ONLY AT JOIST PANEL POINTS. PROVIDE ADDITIONAL MEMBERS AS NECESSARY TO MEET THIS REQUIREMENT.

4. DESIGN ROOF JOISTS FOR A NET UPLIFT OF 10 PSF. UPLIFT BRIDGING SHALL BE PROVIDED AS REQUIRED.

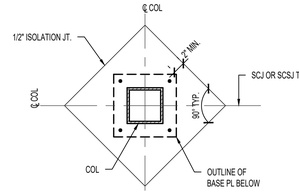
5. WELD STEEL JOISTS TO ALL SUPPORTS W/ 3/16" x 3" LONG FILLET WELD EACH SIDE OF JOIST.

6. CONTRACTOR TO PROVIDE VERIFICATION AND INSPECTION OF OPEN-WEB STEEL JOIST AND JOIST GIRDERS PER 2021 MBC CODE TABLE 1705.2.3 .

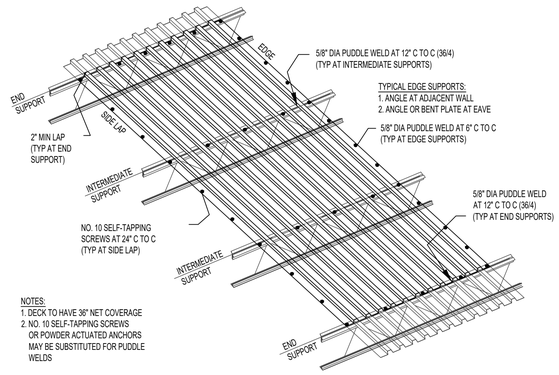
NOTE:
CONTRACTOR TO DETERMINE LOCATION OF CONSTRUCTION JOINTS (CSJ). CONSTRUCTION JOINTS TO BE PLACED IN LIEU OF CONTROL JOINTS AT CJ. LOCATIONS INDICATED ON PLANS ONLY.



1 S0.1 — SLAB ON GRADE DETAILS
SCALE: NOT TO SCALE

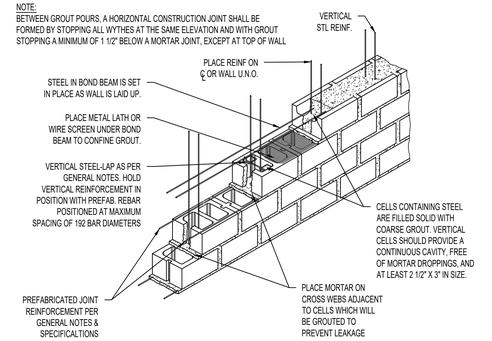


2 S0.1 — TYP. ISOLATION JOINT DETAIL
SCALE: NOT TO SCALE

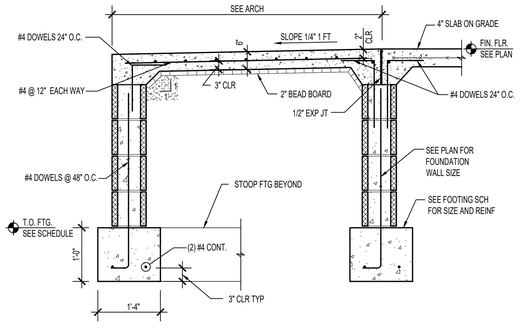


3 S0.1 — TYP ROOF DECK ATTACHMENT
SCALE: NOT TO SCALE

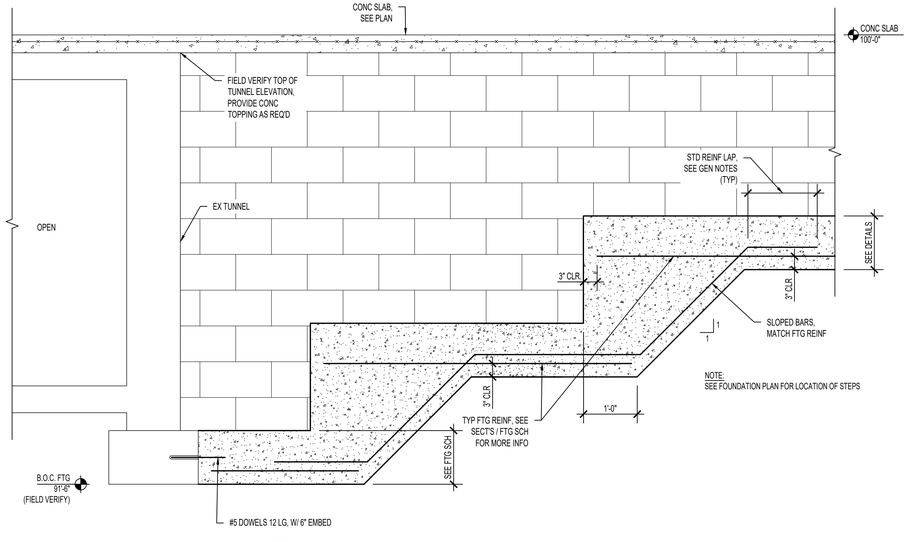
NOTE:
BETWEEN GROUT POURS, A HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BY STOPPING ALL WYTHES AT THE SAME ELEVATION AND WITH GROUT STOPPING A MINIMUM OF 1 1/2" BELOW A MORTAR JOINT, EXCEPT AT TOP OF WALL



4 S0.1 — LOW LIFT-GROUTING TECHNIQUE GROUT IS PLACED IN LIFT UP TO 5'-0"
SCALE: NOT TO SCALE



5 S0.1 — TYP STOOP
SCALE: 3/4" = 1'-0"



6 S0.1 — TYP. STEP FTG DETAIL
NOT TO SCALE

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:
BAY AREANAC ISD
BAY CITY, MICHIGAN

GENERAL NOTES & DETAILS

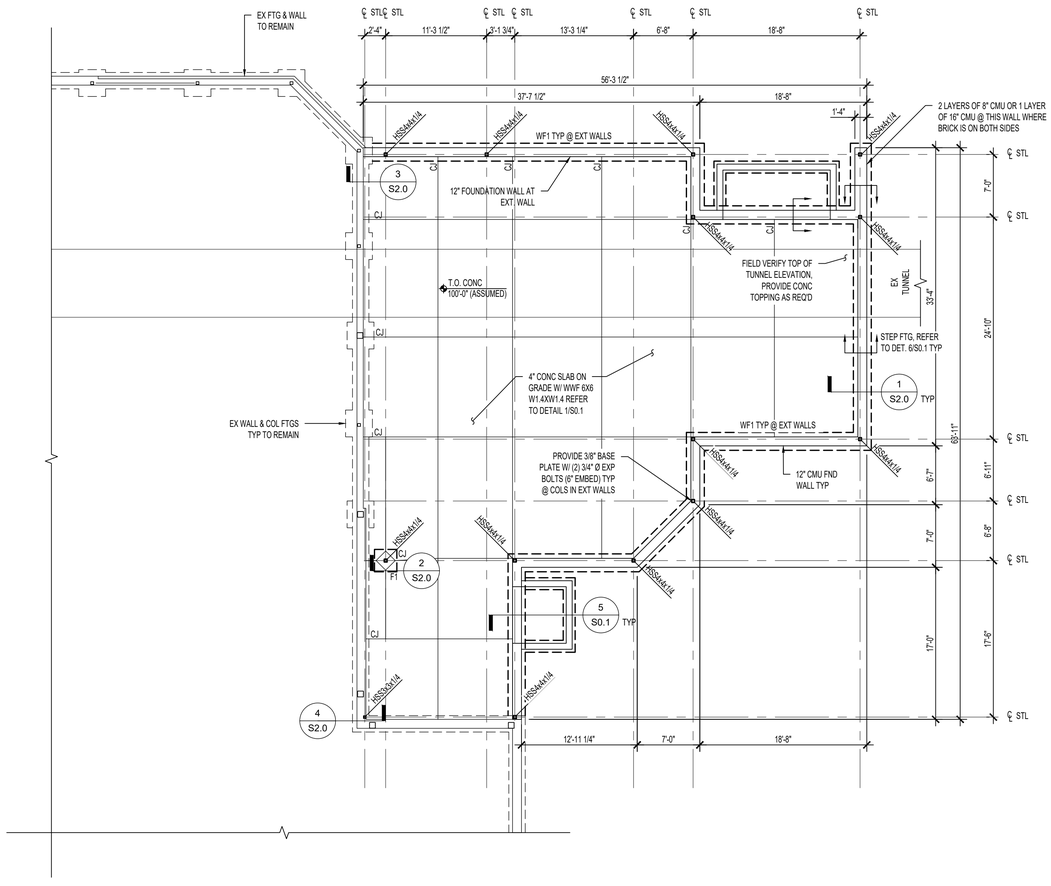
NO.	DATE

DRAWN BY SBRYANT
DATE 3–17–26
APPROVED MWEISS

SHEET NO.
S0.1

PROJECT NO.
2538

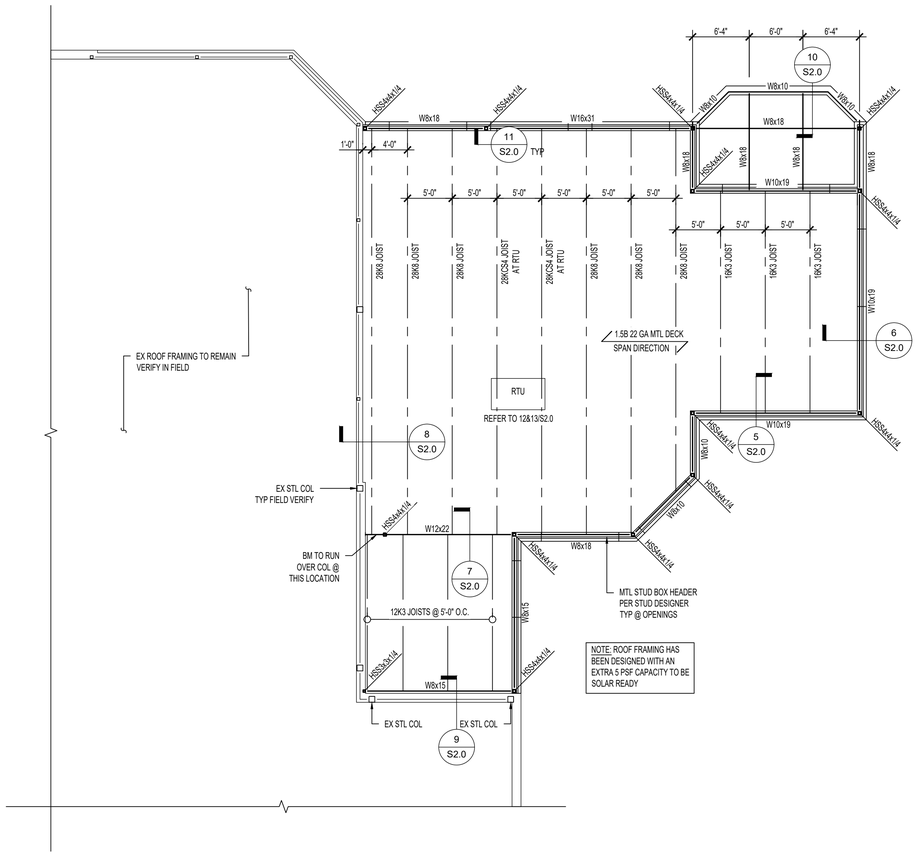
FOOTING SCHEDULE				
FOOTING MARK	FOOTING SIZE WIDTH x THICKNESS	REINFORCEMENT	TOP OF FTG. ELEV	REMARKS
WF1	2'-0" x CONT. x 1'-0"	(2) #5 BARS CONT	97'-4"	DET 1/S2.0
F1	2'-6" x 2'-6" x 1'-0"	(3) #5 BARS EACH WAY	99'-4"	DET 2/S2.0



FOUNDATION PLAN

SCALE 1/8" = 1'-0"

NORTH



ROOF FRAMING PLAN

SCALE 1/8" = 1'-0"

NORTH

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY AREANAC ISD

BAY CITY, MICHIGAN

FOUNDATION & ROOF FRAMING PLANS

NO.	DATE

DRAWN BY **SBRYANT**

DATE **3-17-26**

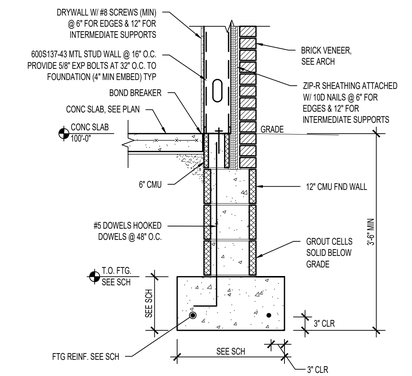
APPROVED **MWEISS**

SHEET NO.

S1.0

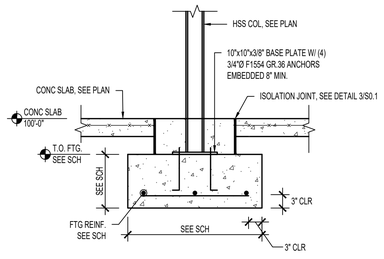
PROJECT NO.

2538



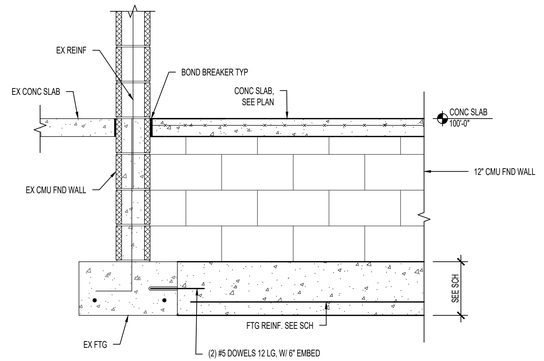
1 S2.0 SECTION

SCALE: 3/4" = 1'-0"



2 S2.0 SECTION

SCALE: 3/4" = 1'-0"



3 S2.0 SECTION

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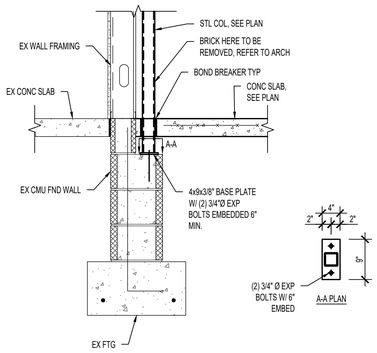

4 S2.0 SECTION

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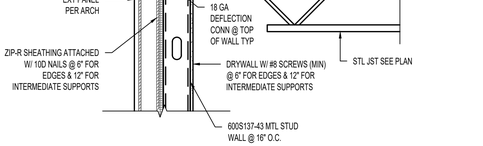

5 S2.0 SECTION

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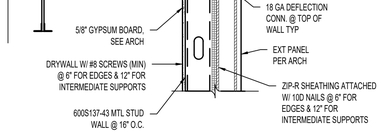
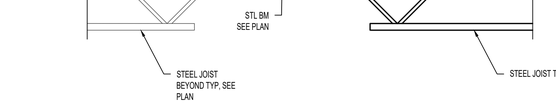


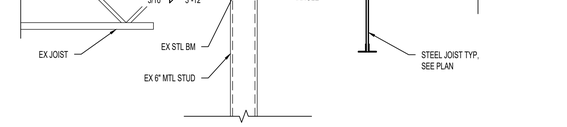
6 S2.0 SECTION

SCALE: 3/4" = 1'-0"



7 S2.0 SECTION

SCALE: 3/4" = 1'-0"



8 2.0 SECTION

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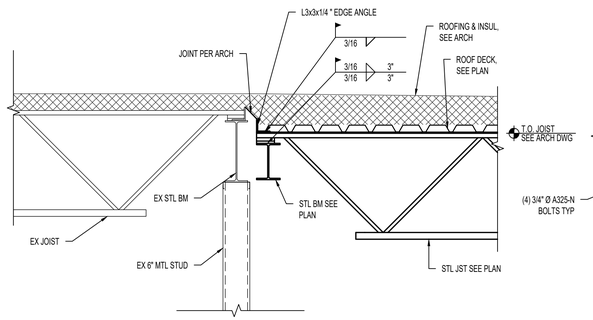

9 S2.0 SECTION

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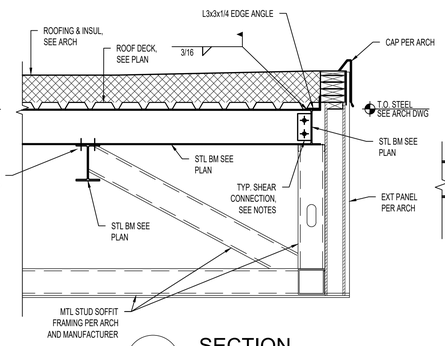
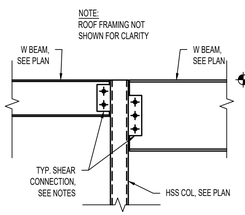


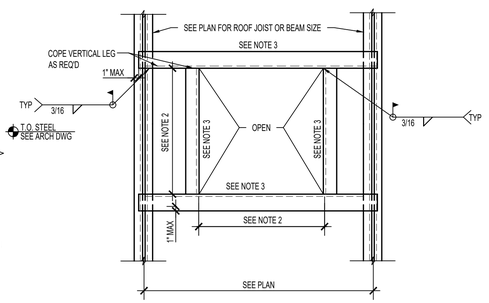
10 S2.0 SECTION

SCALE: 3/4" = 1'-0"



11 S2.0 SECTION

SCALE: 3/4" = 1'-0"

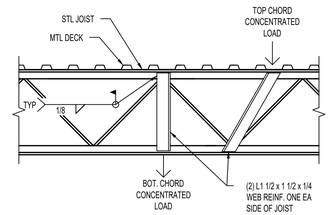


12 S2.0 TYP ROOF OPENING DETAIL

SCALE: NTS

NOTES:

1. PROVIDE FRAMES @ ALL ROOF OPENINGS LARGER THAN 5" WIDE.
2. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION OF REQUIRED OPENINGS. COORDINATE SIZE + LOCATION WITH APPROPRIATE CONTRACTOR
3. AT JOIST/BEAM SPACING LARGER THAN 8' OR AT RTU CURB SUPPORT, PROVIDE L5x4x3/8 LLV FRAMING. AT JOIST/BEAM SPACING LESS THAN 8', PROVIDE L4x4x1/4 FRAMING
4. INCLUDE SUMP PAN AT DRAIN OPENINGS



13 S2.0 TYP SECTION AT POINT LOAD

SCALE: NOT TO SCALE

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DETAILS

NO.	DATE

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DATE **3–17–26**

APPROVED **MWEISS**

SHEET NO.

S2.0

PROJECT NO.

2538

KTS ENGINEERING GROUP
CONSULTING ENGINEER
491 E. WRIGHT AVE. SHEPHERD, MI 48883
989-567-1100 | info@KTSEngineeringGroup.com
KTS PROJECT NO.: 26-0299

MECHANICAL SPECIFICATIONS

1. MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE, INTENDED TO INDICATE DESIGN INTENT ONLY. THE MECHANICAL CONTRACTOR IS EXCLUSIVELY RESPONSIBLE TO COORDINATE SPECIFIC LOCATIONS OF ITEMS AND ADJUST AS REQUIRED TO ACCOMMODATE CODE REQUIREMENTS, EXISTING CONDITIONS (IF RENOVATION PROJECT), BUILDING STRUCTURE, SPRINKLER PIPING (IF ANY), LIGHTS, PLUMBING, ELECTRICAL WORK, AND THE WORK OF ALL OTHER TRADES. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. FIELD MODIFICATIONS (SUCH AS OFFSETS IN PIPING OR DUCTWORK (INCLUDING DIVIDED DUCTWORK) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST.

2. ALL OF THE MECHANICAL INFORMATION IS PRESENTED ON AN X-REFERENCED BACKGROUND FLOOR PLAN. IN CASE OF CONFLICT BETWEEN BACKGROUND PLAN AND ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL FLOOR PLAN SHALL GOVERN.

3. THE HVAC CONTRACTOR SHALL PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS OR METHODS MENTIONED, LISTED OR SCHEDULED ON THE DRAWINGS AND IN THESE SPECIFICATIONS, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND ALL INCIDENTALS NECESSARY REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS.

4. THE ENGINEER WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES AND IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THOSE DOCUMENTS PREPARED BY THE ENGINEER.

5. IF BIDDING CONTRACTOR WOULD LIKE TO SUBSTITUTE ANY SPECIFIED MECHANICAL DEVICES, HVAC EQUIPMENT, THERMOSTATS, COILS, FANS, INSULATION, HANGERS, PIPING, VFD's, ETC., THEY MUST PROVIDE SUBMITTAL TYPE DRAWINGS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO BIDDING THE PROJECT. IF THESE APPROVAL DRAWINGS ARE NOT SUBMITTED AND ACCEPTED, THE SPECIFIED EQUIPMENT MUST BE USED - NO EXCEPTIONS.

6. THE HVAC CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF DRAWINGS REFLECTING "AS-BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND AND/OR CONCEALED WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER THE AS-BUILT DRAWINGS TO THE CM OR GC.

7. THE INSTALLATION SHALL BE MADE SO THAT ALL COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM; IT SHALL BE COMPLETE WITH ALL ACCESSORIES NECESSARY FOR PROPER OPERATION. WHEN THE INSTALLATION IS COMPLETE, ALL EQUIPMENT SHALL BE EXECUTED IN CONFORMITY WITH THE BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS.

8. TO ACCOMPLISH THESE RESULTS, THE HVAC CONTRACTOR SHALL CONSULT THE ARCHITECT'S FIELD LAYOUTS OF THE CONTRACTORS FOR THESE TRADES AND THEIR SHOP DRAWINGS. HE/SHE SHALL COORDINATE THEIR WORK ACCORDINGLY.

9. DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGHING-IN MEASUREMENTS OR TO SERVE AS SHOP DRAWINGS. THE ARCHITECTURAL DRAWINGS AND DETAILS SHALL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT. WHERE THEY ARE NOT DEFINITELY LOCATED, THIS INFORMATION SHALL BE OBTAINED FROM THE ENGINEER.

10. REFER TO THE ARCHITECTURAL PLANS FOR ALL BUILDING SECTIONS, INTERIOR, AND EXTERIOR ELEVATIONS. EQUIPMENT AND INSTALLATION METHODS SHOWN ON ARCHITECTURAL SECTIONS/DETAILS ARE CONSIDERED PART OF THE HVAC DOCUMENTS .

11. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERABLE AS NECESSARY TO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR OR SUB-CONTRACTOR FOR SUCH SYSTEM WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR DRAWINGS.

12. WHERE WORK OF THE CONTRACTOR CONNECTS TO THAT OF ANOTHER TRADE, OR TO PIPING OR EQUIPMENT IN PLACE, THE CONTRACTOR SHALL TAKE SUCH MEASUREMENTS IN THE FIELD AS MAY BE NECESSARY TO MAKE HIS WORK COME TRUE OR LINE UP WITH THAT WORK.

13. HVAC CONTRACTOR SHALL FURNISH TO THE ARCHITECTURAL TRADES CONTRACTOR INFORMATION SUCH AS SIZE AND LOCATION CONCERNING ALL FRAMED OPENINGS AND EQUIPMENT BASES REQUIRED.

14. UNLESS OTHERWISE INDICATED, ALL MOTORS SHALL BE FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR. UNLESS OTHERWISE INDICATED, THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND WIRE ALL STARTERS, SAFETY LINE SWITCHES AND CONTROLLERS.

15. ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH CURRENT CODES, INCLUDING BUT NOT LIMITED TO:
    A. MICHIGAN BUILDING CODES
    B. MICHIGAN PLUMBING CODE
    C. MICHIGAN MECHANICAL & ENERGY CODES
    D. NATIONAL ELEC. CODE
    E. APPLICABLE NFPA CODES
    F. STATE OF MICHIGAN PUBLIC HEALTH CODES
    G. MICHIGAN REHABILITATION
    H. MICHIGAN BARRIER FREE CODES
    I. OSHA REQUIREMENTS
    ALL CODES SHALL BE THE STATE OF MI LATEST ADOPTED EDITIONS AT THE TIME OF PLAN REVIEW.

16. HVAC WORK SHALL BE DONE IN ACCORDANCE WITH THE MECHANICAL CODE AS LOCALLY ADOPTED. LOCAL REGULATIONS AND OTHER CODES OR REGULATIONS HAVING LEGAL JURISDICTION IN THE AREA. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTIONS AS MAY BE REQUIRED. PROVIDE FINAL CERTIFICATES OF INSPECTION TO THE GC UPON COMPLETION.

17. ANY CHANGES IN THE WORK TO SECURE CERTIFICATES SHALL BE MADE BY THIS CONTRACTOR AT HIS OWN EXPENSE. IN THE EVENT PLANS AND SPECIFICATIONS CONFLICT WITH ANY RULES, REGULATIONS OR CODES APPLYING, SAID RULES, REGULATIONS AND CODES SHALL GOVERN THE CONTRACTOR.

18. ALL HEATING AND COOLING WORK SHALL BE DONE IN FULL ACCORD WITH ASME, SMACNA AND ALL STATE, FEDERAL AND LOCAL CODES OR ORDINANCES WHICH MAY APPLY IN THE AREA.

19. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONTRACTOR MUST SELECT ONE OF THE SPECIFIED MANUFACTURERS FOR EACH PIECE OF EQUIPMENT AND, WHERE ONLY ONE MANUFACTURER IS SPECIFIED, THAT MAKE MUST BE USED. THESE ITEMS MAY NOT BE CHANGED EXCEPT BY PERMISSION OF THE ENGINEER.

20. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION. CONTRACTOR MAY CHANGE SHAPE OF DUCTS AS LONG AS THE FREE AREA NOTED ON PLANS IS RETAINED.

21. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES FOR PROPER EXECUTION OF THE WORK.

22. FURNISH TO THE GC, FOR THE OWNER, TWO BOUND OPERATION MANUALS CONSISTING OF THE FOLLOWING:
    A. ONE COPY OF SHOP DRAWINGS OF EACH PIECE OF EQUIPMENT.
    B. INSTALLATION, OPERATING AND TROUBLESHOOTING MANUALS.
    C. PARTS LIST.
    D. THUMB DRIVE WITH ALL OF THE ABOVE IN PDF FORMAT.

23. THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER IN SERVICING, OPERATING, SEASONAL CHANGE OVER, TEMPERATURE CONTROLS, ETC., OF MAIN PIECES OF EQUIPMENT.

24. CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED BY HIM OR SUB-CONTRACTORS TO BE FREE FROM DEFECT IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK, AND HE SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS AND SHALL ALSO MAKE GOOD ANY DAMAGE CAUSED BY SUCH DEFECTS OR THE CORRECTION OF DEFECTS. THIS REQUIREMENT SHALL BE BINDING EVEN THOUGH IT WILL EXCEED PRODUCTS GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.

25. CONTRACTOR SHALL SUBMIT HIS OWN AND EACH EQUIPMENT MANUFACTURER'S WRITTEN CERTIFICATES, WARRANTING THAT EACH ITEM OR EQUIPMENT FURNISHED COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. NOTE THAT GUARANTEE SHALL RUN FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK, NOT FROM THE DATE OF INSTALLATION OF A DEVICE OR PIECE OF EQUIPMENT.

26. ALL WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST STANDARDS PRESCRIBED BY LOCAL AND/OR STATE CODES AND/OR ORDINANCES INCLUDING THE LATEST RULES OF THE NFPA.

27. ALL EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED, SUCH DIRECTIONS SHALL BE FOLLOWED. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EXACT EQUIPMENT FURNISHED.

28. UNTIL FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL PROTECT ALL MATERIALS.

29. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE EQUAL IN QUALITY AND CAPACITY TO THAT SPECIFIED AND HARMONIOUS IN DESIGN AS DETERMINED BY THE ENGINEER.

30. HVAC WORK SHALL BE CAREFULLY EXECUTED BY SKILLED MECHANICS WELL VERSED IN THEIR PARTICULAR TRADES. IT SHALL ALSO HAVE A CLEAN, NEAT, WELL ARRANGED AND FINISHED APPEARANCE TO THE COMPLETE SATISFACTION OF THE OWNER AND THE ARCHITECT/ENGINEER.

31. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS WHICH WILL AFFECT THE WORK HE IS TO PERFORM. THE SUBMISSION OF A PROPOSAL BY THIS CONTRACTOR SHALL BE CONCLUSIVE EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS GIVEN PROPER CONSIDERATION AND EVALUATION OF THESE CONDITIONS IN THE PREPARATION OF HIS PROPOSAL. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE IN HIS BEHALF FOR EXTRA EXPENSE INCURRED DUE TO FAILURE OF NEGLECT ON HIS PART TO MAKE THIS VISIT AND EXAMINATION.

32. PROVIDE SHOP DRAWINGS FOR APPROVAL FOR HVAC EQUIPMENT, DUCT INSULATION, DAMPERS, LOUVERS, GRILLES AND REGISTERS, TEMPERATURE CONTROL SYSTEMS, VALVES, ETC. SHOP DRAWINGS ARE THE BE THOROUGHLY CHECKED (AND NOTED SO ON FRONT COVER) BY THE CONTRACTOR PRIOR TO SUBMITTING THEM TO THE ENGINEER. REVIEW BY THE ENGINEER SHALL NOT BE CONSTRUED AS A COMPLETE CHECK, BUT ONLY THAT THE GENERAL METHOD OF CONSTRUCTION AND DETAILING IS SATISFACTORY. REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS WHICH MAY EXIST. IF THE CONTRACTOR IS APPROVED TO USE A MANUFACTURER OTHER THAN THE ONE SPECIFIED BY THE ENGINEER, IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE SUBSTITUTED EQUIPMENT WILL PHYSICALLY FIT IN THE SPACE PROVIDED FOR THE EQUIPMENT AND MAINTAIN THE SERVICE CLEARANCE REQUIREMENTS SET FORTH BY THE MANUFACTURER. SHOP DRAWING CHECKING BY THE ENGINEER IS A "COURTESY" CHECK ONLY. SHOP DRAWINGS ARE TO BE ELECTRONICALLY SUBMITTED IN PDF FORMAT ONLY.

33. ALL CONDENSING GAS FIRED EQUIPMENT SHALL BE PROVIDED WITH CONDENSATE TRAPS AND NEUTRALIZATION KITS PER THE MICHIGAN PLUMBING CODE.

34. LOCATE THERMOSTATS AT HEIGHTS AS NOTED ON THE ARCHITECTURAL DRAWINGS. IF NOT NOTED ON THE ARCHITECTURAL DRAWINGS, THEY SHALL BE LOCATED AT A HEIGHT PER ADA AND MICHIGAN BARRIER FREE CODES (UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS). COORDINATE LOCATIONS WITH OTHER EQUIPMENT, FURNITURE, AND DOOR SWINGS.

35. ALL LOW VOLTAGE TEMPERATURE CONTROL WIRING SHALL BE PROVIDED BY THE HVAC CONTRACTOR UNLESS OTHERWISE NOTED. ELECTRICAL CONTRACTOR SHALL PROVIDE ANY 120/240/208/480 VOLT POWER WIRING FOR TEMPERATURE CONTROLS IF/AS REQUIRED - CONSULT W/ MC PRIOR TO BIDDING PROJECT.

36. PROVIDE AND INSTALL TEMPERATURE CONTROLS AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

37. ALL OUTSIDE AIR INTAKES MUST BE INSTALLED A MINIMUM OF TEN FEET (10'-0") FROM ANY EXHAUST AIR DISCHARGE, GAS METER, OR PLUMBING VENT.

38. ALL EXHAUST AIR LOUVERS AND GRILLES MUST BE INSTALLED A MINIMUM OF TEN FEET (10'-0") FROM ANY OUTDOOR AIR INTAKE AND/OR OPERABLE WINDOW OR DOOR.

39. ALL ROOFTOP MECHANICAL EQUIPMENT SHALL MAINTAIN A MINIMUM DISTANCE OF 10'-0" FROM ROOF EDGE. WHERE REQUIRED, A 42" GUARDRAIL OR STRUCTURALLY DESIGN TIE-OFF POINT FOR FALL PROTECTION CAN BE PROVIDED IN ACCORDANCE WITH MICHIGAN MECHANICAL/ BUILDING CODES.

40. ADJUST ALL MOTORS AS REQUIRED TO PROVIDE THE MOST EFFICIENT OPERATION WHILE MEETING DESIGN REQUIREMENTS.

41. ALL EQUIPMENT, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.

42. RTU'S SHALL BE EQUAL TO TRANE, BRYANT, CARRIER, DAIKIN, LENNOX, AMERICAN STANDARD.

43. EXHAUST FANS SHALL BE EQUAL TO GREENHECK, COOK OR ACME.

44. MINI-SPLITS SHALL BE EQUAL TO MITSUBISHI, BRYANT, DAIKIN, CARRIER.

45. IF AN ARCHITECTURAL REFLECTIVE CEILING PLAN IS PROVIDED WITH THIS PROJECT, ROUGH IN THE DIFFUSERS, GRILLES, AND REGISTERS PER THAT PLAN.

46. CHECK THE FINAL LOCATION OF GRILLES, REGISTERS AND DIFFUSERS AGAINST THE ARCHITECTURAL DRAWINGS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO FABRICATION AND INSTALLATION OF THE DUCTWORK AND AIR OUTLETS.

47. ALL DUCTWORK DIMENSION NOTED ON DRAWINGS ARE INSIDE, CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. FOR INTERIOR LINED DUCTWORK, OVERSIZE DUCTWORK DURING FABRICATION AS REQUIRED TO MAINTAIN INSIDE CLEAR DIMENSIONS.

48. PROVIDE FLEXIBLE DUCTWORK CONNECTIONS ON ALL DUCTWORK CONNECTING TO FANS, AIR HANDLING UNITS, ENERGY RECOVERY UNITS, AND FAN COIL UNITS.

49. ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOW. ALL SPLIT DUCTWORK FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES, UPSTREAM OF SPLIT.

50. DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCTWORK CONSTRUCTION STANDARD. IF THESE DRAWINGS OR SPECIFICATIONS LIST REQUIREMENTS THAT EXCEED SMACNA CONSTRUCTION STANDARDS, EXCEEDED DIRECTION SHALL BE FOLLOWED.

51. PROVIDE AND INSTALL ONE (1) COMPLETE SET OF NEW AIR FILTERS UPON TURNOVER OF BUILDING TO OWNER. PROVIDE (1) SET OF SPARE FILTERS TO THE OWNER AT THE SAME TIME.

52. PIPING SHALL BE AS FOLLOWS:
    A. GAS LINES:
        a. ABOVE GROUND: SCHEDULE 40 BLACK STEEL, THREADED.

53. ALL CONTRACTORS ARE TO COORDINATE THE LOCATIONS OF PLUMBING LINES, DUCTWORK, EQUIPMENT, GAS LINES, FIRE SUPPRESSION LINES, ETC. AS REQUIRED SO THAT CLEARANCES ABOVE ELECTRICAL PANELS ARE MAINTAINED PER 2023 NEC. REFERENCE ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.

54. RUN ALL PIPING, CONDUIT, ETC. CONCEALED IN WALLS WHENEVER POSSIBLE. AVOID EXPOSED INSTALLATION UNLESS SPECIFICALLY REQUIRED AND/OR NOTED ON DRAWINGS. (TYPICAL UNLESS NOTED OTHERWISE). ANY EXPOSED INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

55. DO NOT SUPPORT CEILINGS, OTHER BUILDING STRUCTURES, OR CONDUITS FROM DUCTWORK, PIPES OR CONDUIT. DO NOT ALLOW DUCTS, PIPES OR CONDUITS TO DIRECTLY TOUCH BUILDING WALLS, FLOORS, OR STRUCTURE AT ANY LOCATION.

56. GAS PIPING SHALL HAVE DROPS AT BOTTOM OF GAS RISERS. BRANCHES SHALL BE TAKEN FROM TOP OR SIDE OF HORIZONTAL PIPE. PROVIDE SHUTOFF VALVES FOR EACH PIECE OF GAS BURNING EQUIPMENT. CAP ALL GAS PIPE OUTLETS AT ALL CONNECTIONS UNTIL CONNECTED TO GAS APPLIANCES.

57. ALL OPENINGS IN CONSTRUCTION, THROUGH WHICH PIPING AND/OR DUCTWORK PASS SHALL BE SEALED UP AIR TIGHT AFTER INSTALLATION OF PIPING/DUCTWORK.

58. FAILURE TO DETECT INFERIOR WORK, OR WORK NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE CODES SHALL NOT BE CONSTRUED AS ACCEPTANCE OF SUCH WORK.

59. INTERRUPTIONS TO EXISTING SERVICES SHALL BE SCHEDULED FOR TIMES OTHER THAN NORMAL OPERATING HOURS. SUCH INTERRUPTIONS TO SERVICES SHALL NOT BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER'S REPRESENTATIVE AND PROPER COORDINATION WITH OTHER TRADES. PRE-WORK SHALL BE PERFORMED TO MAKE THE SHUTDOWN PERIOD AS BRIEF AS POSSIBLE.

60. THE HVAC CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE HVAC INSTALLATION. REMOVE WEEKLY. UPON COMPLETION OF THE WORK, HE/SHE SHALL LEAVE ALL AREAS CLEAN INCLUDING BUT NOT LIMITED TO THE MECHANICAL ROOMS AND THE HVAC EQUIPMENT IN SAID ROOM.

61. ALL CUTTING AND PATCHING IS THE RESPONSIBILITY OF THE TRADE REQUIRING THE WORK UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS/SPECIFICATIONS.

62. ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

END OF MECHANICAL SPECIFICATIONS

MECHANICAL SYMBOL SCHEDULE

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BV	BALL VALVE
CHVA	CHECK VALVE
CO	CLEANOUT
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DMPR	DAMPER
EA	EXHAUST AIR
EF	EXHAUST FAN
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WATER HEATER
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
GR	GRADE
MMC	MICHIGAN MECHANICAL CODE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
PONC	POINT OF NEW CONNECTION
RA	RETURN AIR
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VENT
VIF	VERIFY IN FIELD
XE	EXISTING EXHAUST AIR
XR	EXISTING RETURN AIR
XS	EXISTING SUPPLY AIR

SA 400 CFM	MARK AIR FLOW
CU-1	EQUIPMENT TAG
	MANUAL BALANCING DAMPER
T	THERMOSTAT
	POINT OF NEW CONNECTION
XHR	EXISTING HEATING WATER RETURN PIPING
XHS	EXISTING HEATING WATER SUPPLY PIPING
G	NATURAL GAS PIPING (7-11" WC)
XG	EXISTING NATURAL GAS PIPING (7-11" WC)
G (2-PSI)	NATURAL GAS PIPING (2 PSI)
XG (2-PSI)	EXISTING NATURAL GAS PIPING (2 PSI)
	ELBOW UP
	ELBOW DOWN
	CAP
	TEE UP
	TEE DOWN
	2-PSI TO 7-11" WC PRESSURE REDUCING VALVE

MECHANICAL DEMOLITION NOTES:

1. REMOVE EXISTING HVAC EQUIPMENT THAT IS NOT BEING UTILIZED FOR RENOVATIONS. THIS INCLUDES ANY/ALL HVAC EQUIPMENT ON SITE INCLUDING ABANDONED EQUIPMENT. REMOVE EQUIPMENT, BOILERS, STORAGE TANKS, DUCTWORK, HVAC PIPING, INSULATION, LOUVERS, DIFFUSERS, GRILLES, REGISTERS, DUCT HANGERS, CONTROLS, THERMOSTATS, ETC. REMOVE ALL BACK TO THE POINT OF CONCEALMENT. REMOVE FROM SITE AND DISPOSE OF IN A LEGAL MANNER. (PROOF OF LEGAL DISPOSAL IS REQUIRED AND SHALL BE PROVIDED TO CM OR GC FOR ALL HAZARDOUS MATERIALS)

2. CAP ALL EXTERIOR WALL LOUVERS/GRILLES THAT ARE TO REMAIN AND NOT BE REMOVED/ PATCHED/REUSED. CAP WITH SHEET METAL ON THE INSIDE OF THE BUILDING WALL. FILL OPENINGS (WALL CAVITY OPENINGS) WITH STYROFOAM SHEETS. PAINT STYROFOAM SHEETS BEHIND FACE OF LOUVERS/GRILLES SO THAT PINK STYROFOAM COLOR CANNOT BE SEEN FROM THE OUTSIDE OF THE FACILITY. PAINT BLACK.

3. UTILIZE SPRAY FOAM TO SEAL ANY OPENINGS LEFT AT SITE TO PREVENT RODENTS/INSECTS FROM ENTERING FACILITY THROUGH DEMOED PENETRATIONS.

4. USE CARE DURING DEMOLITION PHASE TO AVOID DAMAGE TO ANY GLAZED BLOCK, TILE, VINYL SIDING, BRICK VENEERED WALLS, CEILING TILES, ETC. DAMAGE TO BE REPAIRED BY THE CONTRACTOR THAT CREATES THE DAMAGE. REPAIR MUST BE BY QUALIFIED WORKMAN FOR DAMAGE DONE. (TILE DAMAGE REPAIRED BY TILE CONTRACTOR, ETC.)

5. DEMOLITION WORK IS ONLY GENERALLY SHOWN ON THE DRAWINGS IF AT ALL. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO DETERMINE THE EXTENT OF THE DEMOLITION WORK REQUIRED AND INCLUDE IT IN HIS/HER BID. IT IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO VERIFY EXISTING SYSTEMS/EQUIPMENT THAT WILL NOT BE UTILIZED FOR NEW WORK AND REMOVE ACCORDINGLY - DO NOT ABANDON - REMOVE UNUSED ITEMS. CONFIRM ALL DEMOLITION QUANTITIES PRIOR TO BIDDING.

6. OWNER RESERVES FIRST RIGHT TO ALL ITEMS THEY WISH TO SALVAGE. DISCUSS WITH OWNER/GC PRIOR TO STARTING DEMOLITION AND TAKE EXTRA CARE REMOVING THOSE ITEMS THAT OWNER WISHES TO SALVAGE.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY JEE

DATE 03/17/2026

APPROVED

SHEET NO.

M0.0

PROJECT NO.
2538

KTS ENGINEERING GROUP
CONSULTING ENGINEER
491 E. WRIGHT AVE. SHEPHERD, MI 48883
989-567-1100 | info@KTSEngineeringGroup.com
KTS PROJECT NO.: 26-0299

DUCTWORK & EXHAUST FAN SPECIFICATIONS

A. SCOPE OF WORK
1. DUCTWORK
2. REGISTERS, DIFFUSERS AND GRILLES
3. EXHAUST FANS

B. REFERENCE STANDARDS
1. FABRICATE IN ACCORDANCE WITH SMACNA DUCT MANUALS AND ASHRAE STANDARDS. IN THE EVENT THAT THESE SPECIFICATIONS OR DRAWINGS EXCEED SMACNA STANDARDS, THESE SPECIFICATIONS OR DRAWINGS TAKE PRECEDENCE.

C. DEFINITIONS
1. DUCT SIZES: INSIDE CLEAR DIMENSIONS. FOR INTERNALLY INSULATED DUCTS, MAINTAIN SIZES INSIDE LINING OR INSULATION.

D. SUBMITTALS
1. SUBMIT IN ACCORDANCE WITH HVAC SPECIFICATIONS ON DRAWINGS, OR BY ARCHITECTS REQUIREMENTS, WHICHEVER IS MORE STRINGENT.
2. CONFIRM DUCTWORK HAS BEEN FABRICATED AND INSTALLED IN ACCORDANCE WITH RECOMMENDATIONS AND SMACNA STANDARDS.

E. STANDARDS
1. DUCTS, FITTINGS, ACCESSORIES AND SUPPORTS SHALL CONFORM TO THE STANDARD CONSTRUCTION DETAILS SET FORTH IN THE FOLLOWING PUBLICATIONS, EXCEPT AS MODIFIED HEREIN AFTER:
   a. SMACNA - "LOW PRESSURE DUCT CONSTRUCTION STANDARD" (LPDCS), LATEST EDITION (FOR CLASS 2" (2"W.G.) DUCT SYSTEMS).
   b. SMACNA - "DUCT LINER APPLICATIONS STANDARDS (DLAS), LATEST EDITION (FOR ALL DUCT SYSTEMS).
   c. SMACNA - "TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS", LATEST EDITION (FOR ALL DUCT SYSTEMS).
   d. SMACNA - "FLEXIBLE DUCT PERFORMANCE STANDARD & FLEXIBLE DUCT INSTALLATION STANDARD", LATEST EDITION.
   e. NFPA - "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS: NFPA 90A, LATEST EDITION (FOR ALL DUCT SYSTEMS).

F. SHEET METAL DUCTWORK AND DUCT HANGERS
1. LOW PRESSURE SUPPLY AIR, RETURN AIR, AND OUTSIDE AIR TAKE-OFF FITTINGS (TAKE-OFFS FROM MAIN DUCT) SHALL BE EQUAL TO "HEATING AND COOLING PRODUCTS MANUFACTURING CO.", SIMILAR TO MODEL 425 WYE OR 422 WYE, OR 641 WYE, 291 PIVOT LOCK TAKE OFF, 265 OR 136 PLENUM TAKEOFF, STANDARD MODEL, 45 DEG. ANGLE TAKEOFF, HOT DIPPED GALVANIZED STEEL PER ASTM A 653 CSB. 1/8" ZINC COATED RIVETS. STRAIGHT "T" FITTINGS SUCH AS MODEL 424 OR 825 ARE NOT ALLOWED. SEE DETAILS ON DRAWINGS.
2. DUCTWORK: SUPPLY, RETURN AND EXHAUST DUCTS, PLENUM CHAMBERS, APPARATUS HOUSING AND PANELS SHALL BE FABRICATED FROM PRESS GUARD, PRIME QUALITY, HOT DIP GALVANIZED STEEL SHEET OF U.S. STANDARD GAUGE AND NOT LESS THAN AS RECOMMENDED IN THE LATEST ISSUES OF ASHRAE GUIDE AND SMACNA DUCT MANUALS AS LISTED ABOVE. LOCK-FORMING QUALITY, CONFORMING TO ASTM A527, WITH GALVANIZED COATING DESIGNATION G-90, UNLESS OTHERWISE SPECIFIED. RECTANGULAR DUCTS SHALL BE CONSTRUCTED OF A MINIMUM OF 26 GAUGE SHEET METAL.
3. SUPPLY AIR DUCTS: DUCT CONSTRUCTION AND INSTALLATION SHALL MEET SMACNA STANDARDS FOR 2" W.C.
4. RETURN AIR DUCTS AND OUTSIDE AIR INTAKES AND RELIEF AIR DUCTS: DUCT CONSTRUCTION AND INSTALLATION SHALL MEET SMACNA STANDARDS FOR 2" W.C.
5. RECTANGULAR DUCTS SHALL HAVE TEES, ELBOWS AND BENDS WITH A MINIMUM THROAT RADIUS OF 1/2 TIMES THE DUCT WIDTH AND BE OF THE SAME GAUGE AND MATERIAL AS THE STRAIGHT DUCT (SEE DETAILS ON DRAWINGS)
6. FURNISH AND INSTALL ALL NECESSARY DUCT HANGERS REQUIRED FOR ALL SYSTEMS. HANGER ROD SHALL BE ALL-THREAD CARBON STEEL TYPE. ROD SHALL CONFORM TO ASA B1/1960 CLASS 2A FIT, DIAMETER AS NOTED BELOW. SEE DETAILS ON DRAWINGS.
7. SUPPORTS AND HANGERS FOR DUCTWORK AND APPURTENANCES SHALL CONFORM TO MANUAL OF SHEET METAL AND AIR CONDITIONING CONTRACTORS ASSOCIATION, INC., AND LATEST EDITION OF AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS HANDBOOK. DUCTS 36" X 12", OR EQUIVALENT, AND LARGER, SHALL BE SUPPORTED BY TRAPEZE TYPE HANGERS. HANGERS SHALL BE PROVIDED AT BOTH SIDES OF FLAT SIDED DUCTWORK FOR THE FULL HEIGHT OF THE DUCT. ROUND DUCTWORK SHALL BE PROVIDED WITH A BAND OF THE SAME SIZE AS THE HANGER TO COMPLETELY ENCIRCLE THE DUCT. BAND SHALL BE SECURED TO THE HANGER BY MEANS OF A MINIMUM 3/16" BOLT. MINIMUM DUCT HANGER SIZES SHALL BE AS LISTED BELOW:

MAX.SIDE OR DIAM.	MINIMUM UPPER ATTACH. RATING:	STEEL ROD:	MAX. SPACING:	# OF HANGERS:	MINIMUM TRAPEZE SHELF ANGLE:
UP TO 16"	750 LBS.	3/8"	10'	2	1-1/2" X 1-1/2" X 3/16"
17" TO 36"	1000 LBS.	3/8"	10'	2	1-1/2" X 1-1/2" X 3/16"
37" TO 60"	2000 LBS.	3/8"	8'	2	2" X 2" X 1/4"
61" TO 120"	3000 LBS.	3/8"	8'	2	2" X 2" X 1/4"

G. FLEXIBLE DUCTWORK:
1. USED TO CONNECT DIFFUSERS, ETC., SHALL BE SIMILAR TO "FLEXMASTER USA,INC.", TYPE 3, CONSISTING OF A FACTORY FABRICATED ASSEMBLY OF A TRI-LAMINATE OF ALUMINUM FOIL, FIBERGLASS AND POLYESTER. IT SHALL BE MECHANICALLY LOCKED WITHOUT ADHESIVE INTO A FORMED ALUMINUM HELIX ON THE DUCTS OUTSIDE SURFACE. THE DUCT MATERIAL SHALL BE FACTORY WRAPPED IN A THICK BLANKET OF FIBERGLASS INSULATION WITH A "C" FACTOR OF .23 OR LESS. THE INSULATION SHALL BE ENCASED IN A FIRE RETARDANT POLYETHYLENE PROTECTIVE VAPOR BARRIER WITH A PERM RATING OF NOT OVER 0.1 GRAINS PER SQUARE FOOT PER HOUR ER INCH OF MERCURY. THE FLEXIBLE DUCT SHALL BE UL 181 CLASS 1 AIR DUCT AND COMPLY WITH NFPA 90A AND 90B AND HAVE A FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED OF NOT OVER 50. THE FLEXIBLE DUCT SHALL HAVE A MINIMUM PRESSURE RATING OF 12" W.C. THROUGH A TEMPERATURE RANGE OF -20 DEGREE F. TO 250 DEG. F.
2. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE 6'-0" TO EACH DIFFUSER OR GRILLE. FLEXIBLE DUCT SHALL HAVE A MINIMUM OF BENDS USING LONG RADIUS BENDS ONLY, INSTALLED AS RECOMMENDED BY MFGR.
3. FLEXIBLE DUCTWORK HANGERS: FLEXIBLE SUPPORT "WEBBING" SUCH AS MANUFACTURED BY "CAMBRIDGE" IS ALLOWED AS LONG AS IT IS A MINIMUM OF 3 INCHES WIDE, POLYPROPYLENE, MEETING SMOKE/FLAME DEVELOPMENT REQUIREMENTS. DUCTWORK SAG SHALL BE RESTRICTED TO ½" PER FOOT OF LENGTH, AND FLEX SHALL BE SUPPORTED NO GREATER THAN EVERY 4 FOOT UNLESS CLOSER INTERVALS ARE RECOMMENDED BY MFGR. WEBBING LESS WIDE AND WEBBING SPACED GREATER THAN 4' WILL BE REQUIRED TO BE REMOVED BECAUSE IT CAUSES PINCH IN FLEX - IF NOT INITIALLY, THEN AFTER SETTLING. AVAILABLE FROM WW.CAMBRIDGERESOURCES.COM.
4. AN ADDITIONAL APPROVED HANGER SYSTEM IS THE FLEXIBLE DUCT SUPPORT SYSTEM, MODEL NUMBERS 4800070010 AND 4800080010 DUCT SUPPORT HANGERS WITH ADHESIVE VELCRO STRIP ATTACHED, AND VELCRO LOOP TAPE. AVAILABLE FROM GLOBALCLAMPS.COM, OR SIMILAR AS AVAILABLE IN THE USA.
5. FLEXIBLE DUCT ELBOW SUPPORTS: EVERY DIFFUSER/GRILLE/REGISTER THAT HAS FLEXIBLE DUCT CONNECTED TO IT SHALL BE PROVIDED WITH AN ADJUSTABLE ELBOW SHEET METAL CONNECTED TO DIFFUSER PRIOR TO CONNECTING FLEXIBLE DUCTWORK TO DIMINISH THE POSSIBILITY OF PINCHED FLEXIBLE DUCT. IF THESE ELBOWS ARE NOT PROVIDED/INSTALLED, FLEX WILL BE REQUIRED TO BE REMOVED AND FITTING INSTALLED, THEN FLEX RECONNECTED TO FITTING. NO EXCEPTIONS.
6. POOR FLEXIBLE DUCT HANGING CAN REDUCE EFFICIENCY BY UP TO 40 % IN FLEXIBLE DUCTWORK. IF DUCTWORK IS NOT HUNG UTILIZING THE ABOVE METHODS, AND INSTALLED PER SMACNA/ASHRAE/DRAWINGS/SPECIFICATIONS, ENGINEER WILL REQUIRE CONTRACTOR TO REMOVE ALL OFFENDING INSTALLATIONS AND REPLACE WITH ACCEPTABLE INSTALLATIONS - NO EXCEPTIONS.

H. MATERIALS - REGISTERS, DIFFUSERS AND GRILLES
1. AS SCHEDULED ON DRAWINGS BY TITUS, SHOEMAKER, KRUEGER, PRICE, NAILOR, T & B, CARNES.

I. DUCTWORK FABRICATION
1. THE CONTRACTOR MAY CHANGE THE SHAPE OF DUCTS PRESERVING THE FULL EFFECTIVE AREAS CALLED FOR ON PLANS TO SUIT CONSTRUCTION OF BUILDING OR EQUIPMENT INSTALLED, BUT SHALL NOT EXCEED A WIDTH TO HEIGHT RATIO OF 7 TO 1. DUCTWORK SHALL NOT BE FABRICATED UNTIL VERIFICATION OF JOB FIELD CONDITIONS CAN BE MADE, SO THAT CHANGES IN SHAPE OF DUCTS CAN BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.

J. TURNING VANES
1. TURNING VANES ARE REQUIRED FOR ALL RECTANGULAR DUCTWORK MAINS THAT CANNOT BE RADIUSED (DUE TO CONSTRUCTION OBSTRUCTIONS), AND ANY SUPPLY MAINS THAT CANNOT BE RADIUSED (DUE TO CONSTRUCTION OBSTRUCTIONS) AS NOTED ON THE DUCT TAKEOFF DETAIL ON THE DRAWINGS.

K. INSTALLATION
1. BEFORE PROCEEDING WITH FABRICATION AND INSTALLATION OF DUCTWORK, INSPECT THE CONTRACT DOCUMENTS, SITE CONDITIONS, AND TRUSS SHOP DRAWINGS AND DETERMINE THAT THE LOCATION OF WORK DOES NOT INTERFERE WITH OTHER WORK. IN CASE OF INTERFERENCE, NOTIFY THE ENGINEER IMMEDIATELY.
2. PROVIDE OPENING IN DUCTWORK WHERE REQUIRED TO ACCOMMODATE THERMOMETERS AND CONTROLLERS. PROVIDE PILOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS, COMPLETE WITH METAL CAP WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE. WHERE OPENINGS ARE PROVIDED IN INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING.
3. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
4. CONNECT DIFFUSERS OR TROFFER BOOTS TO LOW PRESSURE DUCTS WITH 6 FEET MAXIMUM LENGTH OF FLEXIBLE DUCT ONLY IN ACCESSIBLE AREAS WHERE A CEILING IS INSTALLED. HOLD IN PLACE WITH STRAPS OR CLAMPS. ALL OTHER DUCTWORK MUST BE SHEET METAL. INSTALL FLEXIBLE DUCTWORK PER SPECS., SECTIONS ABOVE.
5. DURING CONSTRUCTION, PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
6. WHERE DUCTWORK, STRUCTURE, ETC., CAN BE SEEN BEHIND GRILLES, REGISTERS, DIFFUSERS, ETC., APPLY FLAT BLACK PAINT TO ALL VISUAL SURFACES.
7. ANY DUCT COVERING, INSULATION WORK, AND DUCT INSTALLED, EXCEPT FOR CONCEALED OR METAL AND ALUMINUM FOIL JACKETED WORK, SHALL BE PAINTED TO MATCH ROOM/STRUCTURE FINISH UNLESS BARE GALVANIZED STEEL IS THE FINISH REQUIRED ON DRAWINGS. PAINTING BY OTHERS.
8. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE IF POSSIBLE; MAXIMUM 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
9. CHECK THE FINAL LOCATION OF GRILLES, REGISTERS AND DIFFUSERS AGAINST THE ARCHITECTURAL DRAWINGS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ ENGINEER PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK AND AIR OUTLETS. CONTRACTOR EXCLUSIVELY RESPONSIBLE TO CHECK CEILING TYPES ON LATEST ARCHITECTURAL DRAWINGS AND ORDER FRAMES/HOUSING FOR GRILLES, REGISTERS, DIFFUSERS. IT IS COMMON THAT CEILING TYPES CHANGE AT THE LAST MINUTE PRIOR TO A PROJECT BEING RELEASED FOR BIDS.
10. PROVIDE FOR EXPANSION AND CONTRACTION OF DUCTING AT BENDS AND RISERS. INSTALL NEW DUCTWORK STRAIGHT AND TRUE WITH NO UNNECESSARY OFFSETS AND PARALLEL WITH WALLS, BEAMS, FLOORS, OR CEILINGS. PITCH DUCTWORK IF/AS NOTED ON DRAWINGS.

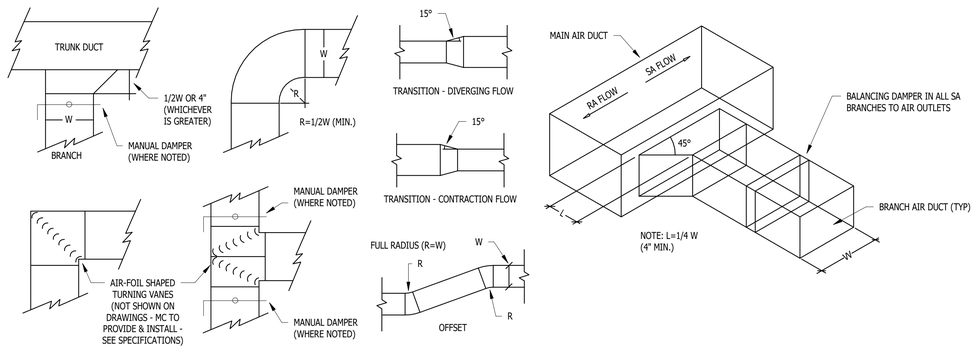
L. MATERIALS - FANS
1. EXHAUST AND/OR SUPPLY AND/OR RELIEF AIR FANS SHALL BE AS SCHEDULED IN THE MECHANICAL EQUIPMENT SCHEDULE. SHALL BE EQUAL TO "ACME", "GREENHECK", "TRANE", "BROAN" OR "NUTONE".
2. EXHAUST FANS SHALL BE RATED FOR CONTINUOUS OPERATION.
3. ALL EXHAUST FANS SHALL BE FURNISHED WITH A FACTORY MOUNTED DISCONNECT SWITCH. SEE EQUIPMENT SCHEDULE FOR OTHER DISCONNECTS TO BE PROVIDED BY EF MFGR's.

M. BALANCING AND TESTS
1. BALANCE ALL DUCT SYSTEMS TO DISTRIBUTE AIR QUANTITIES AS SHOWN ON THE PLANS AND ADJUST FANS TO PROVIDE AN EFFICIENT OPERATION. PROVIDE REPORT TO ENGINEER FOR APPROVAL. REFERENCE "TEST AND BALANCE" SECTION OF SPECIFICATIONS IF PROVIDED WITH THIS PROJECT.

N. LUBRICATION
1. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO LUBRICATE ALL EQUIPMENT INCLUDED IN THE MECHANICAL DIVISION OF THE WORK UNTIL INSTALLATION IS COMPLETED AND ACCEPTED AND TURNED OVER TO THE OWNER.

O. DUCTWORK JOINT SEALANT
1. ALL DUCTWORK TRANSVERSE AND LONGITUDINAL SEAMS SHALL BE SEALED AIR TIGHT WITH HARDCAST SUREGRIP 404 OR EQUAL. ALL EXPOSED DUCTWORK SHALL BE SEALED ON THE INSIDE OF THE DUCT. SURE-GRIP 404 IS A FIBER FREE, SOLVENT BASED, SYNTHETIC RUBBER DUCT SEALANT THAT HAS PASSED CDPH IN ACCORDANCE TO LEED V4 STANDARDS. LOW VISCOSITY, NO DRIP, NO STRING FORMULATION.

END OF DUCTWORK AND ACCESSORIES SPECIFICATIONS



Duct Installation
NOT TO SCALE

TEST AND BALANCE SPECIFICATIONS

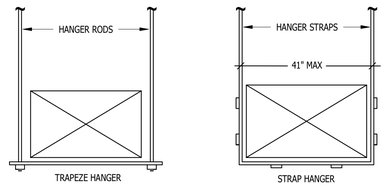
A. SCOPE OF WORK
1. THIS SECTION COVERS THE TESTING, ADJUSTING AND BALANCING (TAB) OF ENVIRONMENTAL SYSTEMS INCLUDING BUT NOT LIMITED TO: AIR DISTRIBUTION SYSTEMS AND THE EQUIPMENT AND APPARATUS CONNECTED THERETO.
2. THE TAB WORK REQUIRED HEREIN SHALL CONSIST OF SETTING VOLUME (FLOW) AND SPEED ADJUSTING FACILITIES PROVIDED OR SPECIFIED FOR THE SYSTEMS, RECORDING DATA, MAKING TESTS AND PREPARING REPORTS, ALL AS HEREINAFTER SPECIFIED.

B. GENERAL REQUIREMENTS
1. THE WORK DESCRIBED IN THIS SECTION SHALL BE PERFORMED BY A FIRM CERTIFIED FOR TAB WORK BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), AND/OR THE NATIONAL BALANCING INSTITUTE (NBI). THE NAME OF THE SELECTED NEBB/ NBI CERTIFIED FIRM SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL WITHIN 2 WEEKS AFTER CONTRACT AWARD.

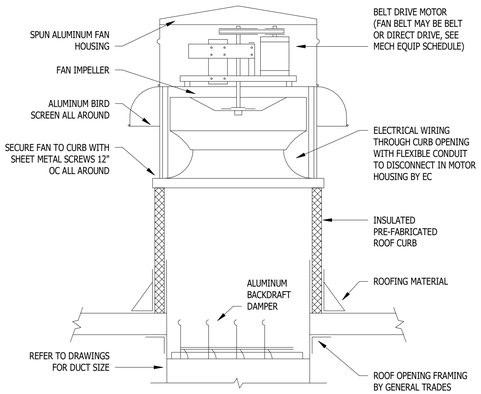
C. PROCEDURES
1. THE ENVIRONMENTAL SYSTEMS INCLUDING ALL EQUIPMENT, APPARATUS, AND DISTRIBUTION SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED IN ACCORDANCE WITH THE 1998 EDITION OF THE NEBB PROCEDURAL STANDARDS FOR TESTING, ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS.
2. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE UNDER THE DIRECTION OF THE SUPERVISOR WHO IS DESIGNATED AND CURRENTLY QUALIFIED UNDER THE CERTIFICATION REQUIREMENTS OF NEBB AND/OR NBI.
3. ALL INSTRUMENTS USED FOR MEASUREMENTS SHALL BE RELIABLE, ACCURATE, AND IN GOOD WORKING ORDER, AND CALIBRATION HISTORIES FOR EACH INSTRUMENTS SHALL BE AVAILABLE FOR EXAMINATION. CALIBRATION AND MAINTENANCE OF ALL INSTRUMENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NEBB/NBI.
4. ACCURACY OF MEASUREMENTS SHALL BE IN ACCORDANCE WITH THE NEBB/NBI PROCEDURAL STANDARDS FOR TESTING, ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS.

D. REPORTS
1. CERTIFIED COPY OF THE FINAL REPORT BEARING THE SEAL OF THE SUPERVISOR OF THE NEBB/NBI CERTIFIED FIRM SHALL BE SUBMITTED ELECTRONICALLY USING APPLICABLE NEBB/NBI REPORT FORMS FOR REVIEW (IN PDF FORMAT).
2. FINAL REPORT FORM SUBMITTED SHALL BEAR THE NAME OF THE PERSON WHO RECORDED THE DATA.
3. IF MORE THAN ONE NEBB/NBI CERTIFIED FIRM PERFORMS THE WORK, THE FINAL REPORT SHALL BE SUBMITTED BY THAT NEBB/NBI CERTIFIED FIRM HAVING CONTRACTUAL RESPONSIBILITY.

END OF TESTING AND BALANCING SPECIFICATIONS



DUCT HANGER DETAIL
NOT TO SCALE



DOWNBLAST EXHAUST DETAIL
NOT TO SCALE

DUCTWORK INSULATION SPECIFICATIONS

A. SCOPE OF WORK
1. DUCT THERMAL INSULATION
2. ADHESIVES, TIE WIRES, TAPES
3. DUCT INTERIOR ACOUSTIC INSULATION - AS APPLICABLE.

B. JOB CONDITIONS
1. DELIVER MATERIAL TO THE JOB SITE IN ORIGINAL NON-BROKEN FACTORY PACKAGING, LABELED WITH MANUFACTURER'S DENSITY AND THICKNESS.
2. PERFORM WORK AT AMBIENT AND EQUIVALENT TEMPERATURES AS RECOMMENDED BY THE ADHESIVE MANUFACTURER.

C. MATERIALS AND COMPONENTS
1. INTERIOR DUCTWORK EXTERNAL WRAP INSULATION: EXTERNAL WRAP WITH "OWENS CORNING", OR EQUAL BY "MANSVILLE". FIBERGLASS ALL-SERVICE DUCT WRAP, LIGHT DENSITY GLASS FIBER INSULATION FACED WITH A REINFORCED FOIL/KRAFT LAMINATE MEETING THE REQUIREMENTS OF ASTM C553 TYPE II, OWENS CORNING, INSTALLED R VALUES PER TABLES BELOW.
2. ACOUSTIC INTERIOR LINING: RIGID, BLACK, 1 INCH THICK, 3 POUND DENSITY, EQUAL TO J-M "LINA-COUSTIC"

D. MINIMUM "R" VALUES (PER ASHRAE 90.1, 2019 EDITION, TABLES 6.8.2:
1. SEE "MINIMUM DUCT INSULATION VALUE" TABLE ON DRAWINGS.

E. JOINT TAPE:
1. JOINT TAPE: 2.0 MIL (50MM) ALUMINUM FOIL COATED WITH A HEAVY APPLICATION OF MASTIC ADHESIVE. MALLEABLE FOIL TO APPLY EASILY TO BOTH FIBROUS AND SHEET METAL DUCTS AND CONFORMS TO IRREGULAR SURFACES. HAND TEARABLE. 3"WIDE, PRESSURE SENSITIVE, VAPOR BARRIER MASTIC TAPE EQUAL TO "VENTURE TAPE" 1580 MASTIC TAPE. NO INEXPENSIVE, NON-PRESSURE SENSITIVE INFERIOR TAPE ALLOWED.

F. INSTALLATION:
1. ALL DUCTWORK SHALL BE INSULATED AS NOTED IN "D" ABOVE. ALL DUCTWORK SHALL BE INSULATED PER TABLE ON DRAWINGS. ALL OUTSIDE AIR DUCTWORK, AND COMBINATION RETURN AIR/OUTSIDE AIR DUCTS SHALL ALSO BE INSULATED WHETHER OR NOT NOTED ON INSULATION TABLE.
2. WHERE DUCTS ARE 24" WIDE OR WIDER, MECHANICAL FASTENERS SPACED AT 18" (APPROX.) CENTERS ARE REQUIRED ON THE BOTTOM OF THE DUCT TO PREVENT THE INSULATION FROM SAGGING.
3. ALL SEAMS, TEARS, PUNCTURES, AND OTHER PENETRATIONS SHALL BE CLOSED WITH 3" PRESSURE SENSITIVE, VAPOR BARRIER MASTIC REINFORCED TAPE AS SPECIFIED ABOVE.
4. DUCTWORK AREAS SHOWN ON PLANS ARE TO BE FREE AREA AFTER INSTALLATION OF THE INSULATION.
5. ACOUSTIC LINING OF DUCTS FOR SOUND PURPOSES MAY BE NOTED ON THE DRAWINGS IN VARIOUS LOCATIONS. THE DUCT SHALL BE OVERSIZED TO TAKE THE LINES AND MAINTAIN THE FREE AREAS NOTED ON PLANS. THE INSULATION SHALL BE BOTH GLUED AND PINNED TO THE DUCTWORK.

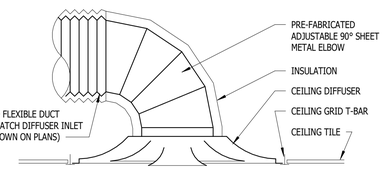
END OF DUCTWORK INSULATION SPECIFICATIONS

MINIMUM DUCT INSULATION VALUES

TABLE 6.8.2, MINIMUM DUCT INSULATION R-VALUE [a] (FROM ASHRAE 90.1, 2019 EDITION)
THIS PROJECT IS IN CLIMATE ZONE 5A

CLIMATE ZONE	EXTERIOR [b]	DUCT LOCATION UNCONDITIONED SPACE AND BURIED DUCTS	DUCT LOCATION INDIRECTLY CONDITIONED SPACE [c,d]
SUPPLY AND RETURN DUCTS FOR HEATING AND COOLING:			
0 TO 4	R-8	R-6	R-1.9
5 TO 8	R-12	R-6	R-1.9
SUPPLY AND RETURN DUCTS FOR HEATING ONLY:			
0 TO 1	NONE	NONE	NONE
2 TO 4	R-6	R-6	R-1.9
5 TO 8	R-12	R-6	R-1.9
SUPPLY AND RETURN DUCTS FOR COOLING ONLY:			
0 TO 6	R-8	R-6	R-1.9
7 TO 8	R-1.9	R-1.9	R-1.9

a. INSULATION R-VALUES, MEASURED IN H x FT² x °F/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. WHERE PORTIONS OF THE BUILDING ENVELOPE ARE USED AS A PLENUM ENCLOSURE, BUILDING ENVELOPE INSULATION SHALL BE AS REQUIRED BY THE MOST RESTRICTIVE CONDITION OF SECTION 6.4.4.1 OR SECTION 5, DEPENDING ON WHETHER THE PLENUM IS LOCATED IN THE ROOF, WALL, OR FLOOR. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLANE IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.
b. INCLUDES ATTICS ABOVE INSULATED CEILING, PARKING GARAGES AND CRAWL SPACES.
c. INCLUDES RETURN AIR PLENUMS WITH OR WITHOUT EXPOSED ROOFS ABOVE.
d. RETURN DUCTS IN THIS DUCT LOCATION DO NOT REQUIRE INSULATION.



DIFFUSER CONNECTION DETAIL
NOT TO SCALE

TSSF ARCHITECTS, INC.
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122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:
BAY ARENAC ISD
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY JEE
DATE 03/17/2026
APPROVED

SHEET NO.
M0.1

PROJECT NO.
2538

KTS ENGINEERING GROUP
CONSULTING ENGINEER
491 E. WRIGHT AVE. SHEPHERD, MI 48883
989-567-1100 | info@KTSEngineeringGroup.com
KTS PROJECT NO.: 26-0299

HVAC DEMOLITION PLAN
1/8" = 1'-0"

HVAC KEYNOTES - DEMO

1 REMOVE & RELOCATE DIFFUSER PER NEW PLAN
2 REMOVE & REPLACE DIFFUSER PER NEW PLAN
3 REMOVE DIFFUSER & DUCTWORK - CAP AT MAIN
4 REMOVE & RELOCATE THERMOSTAT PER NEW PLAN
5 REMOVE & RELOCATE ANSUL PANEL PER NEW PLAN

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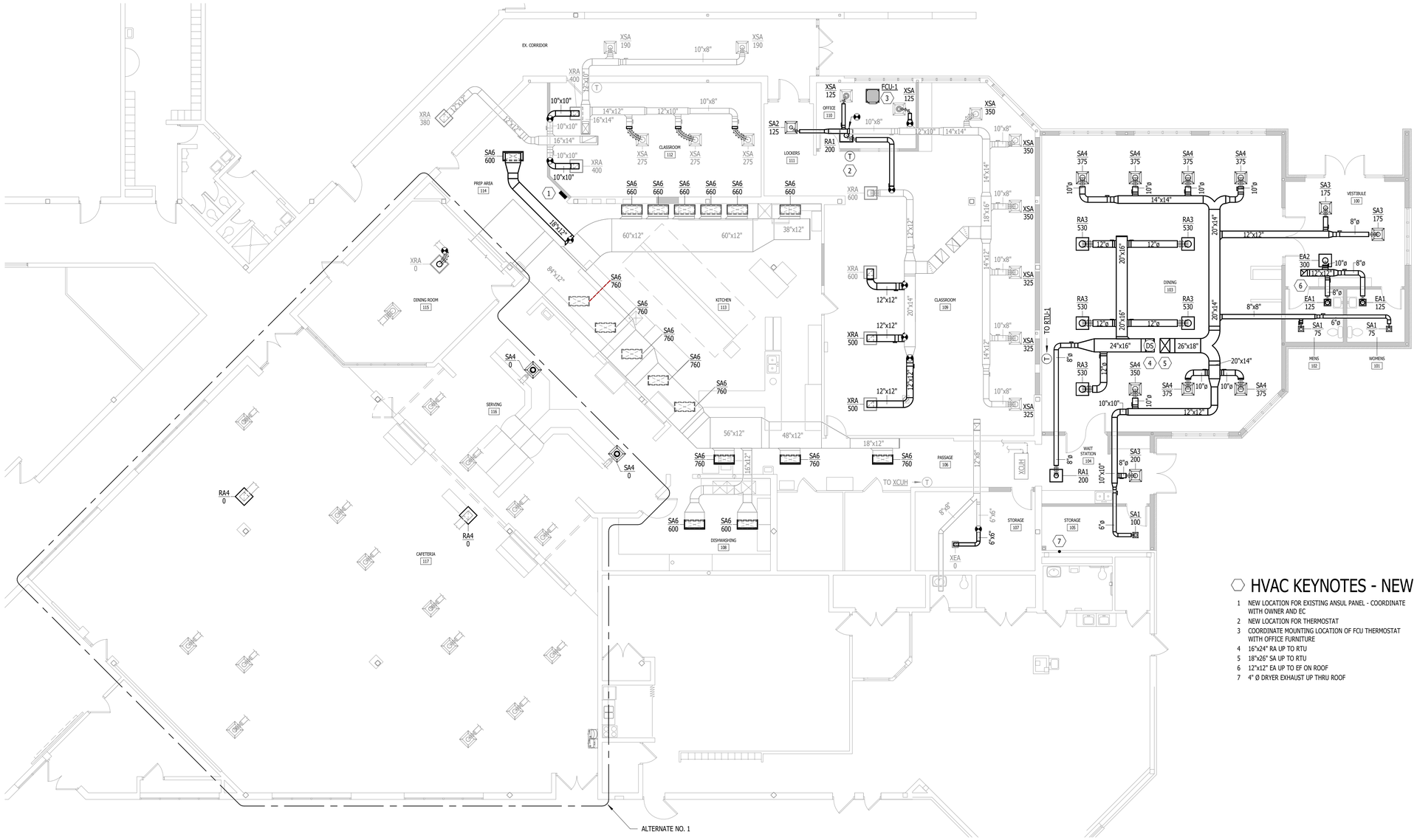

HVAC KEYNOTES - NEW

1 NEW LOCATION FOR EXISTING ANSUL PANEL - COORDINATE WITH OWNER AND EC
2 NEW LOCATION FOR THERMOSTAT
3 COORDINATE MOUNTING LOCATION OF FCU THERMOSTAT WITH OFFICE FURNITURE
4 16"x24" RA UP TO RTU
5 18"x26" SA UP TO RTU
6 12"x12" EA UP TO EF ON ROOF
7 4" Ø DRYER EXHAUST UP THRU ROOF

MECHANICAL FLOOR PLAN
1/8" = 1'-0"

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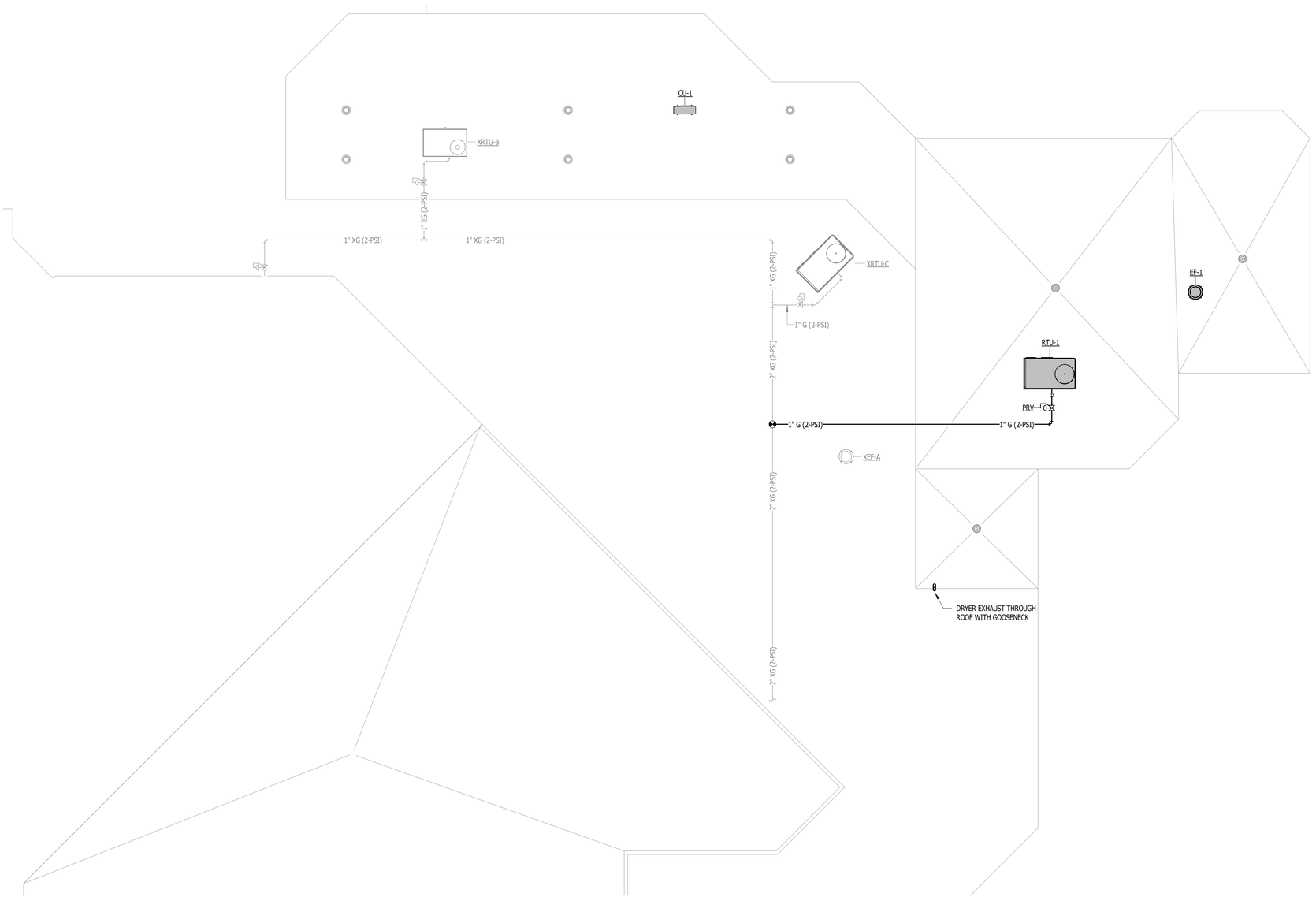

MECHANICAL ROOF PLAN
1/8" = 1'-0"

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SEQUENCE OF OPERATION

RTU-1:
- OWNER SHALL PROGRAM AN OCCUPIED/UNOCCUPIED SCHEDULE VIA THERMOSTAT. THERMOSTAT SHALL BE WIFI & PROGRAMMABLE, EQUAL TO "WHITE ROGERS" 1FU87U-42WF.

- OCCUPIED HEATING:
  RTU FAN RUNS CONTINUOUSLY AND BURNERS SHALL CYCLE/STAGE TO MAINTAIN THERMOSTAT SETPOINT. OUTSIDE AIR DAMPER SHALL OPEN TO ALLOW 22% OUTSIDE AIR INTO THE SYSTEM.

- UNOCCUPIED HEATING: RTU FAN AND BURNERS SHALL CYCLE AS NECESSARY TO MAINTAIN THERMOSTAT SETPOINT. OUTSIDE AIR DAMPER SHALL BE CLOSED.

- OCCUPIED COOLING: RTU FAN SHALL RUN CONTINUOUSLY AND OUTSIDE AIR DAMPER SHALL OPEN TO ALLOW 22% OUTSIDE AIR INTO THE SYSTEM. COMPRESSOR SHALL CYCLE/STAGE AS REQUIRED TO MAINTAIN THERMOSTAT SETPOINT. ECONOMIZER WITH ENTHALPY CONTROLLER SHALL BE ENABLED AND UTILIZED WHEN AMBIENT AIR CONDITIONS WARRANT.

- UNOCCUPIED COOLING: FAN AND COMPRESSOR SHALL CYCLE TO MAINTAIN THERMOSTAT SETPOINT. OUTSIDE AIR DAMPER SHALL REMAIN CLOSED EXCEPT UPON CALL FROM ECONOMIZER, WHICH REMAINS ENABLED.

- SAFETY FEATURES: UNIT SHALL HAVE A DUCT SMOKE DETECTOR INSTALLED IN THE RETURN AIR DUCT, DE-ENERGIZING THE UNIT WHEN SMOKE IS SENSED AND SENDS AN ALARM SIGNAL TO A REMOTE AUDIO/VISUAL ALARM.

EF-1:
- MC TO PROVIDE TIMER SWITCH TO CONTROL FAN. FAN SHALL RUN DURING OCCUPIED HOURS.

VENTILATION SCHEDULE (REHAB)

NO.	NAME	AREA	NO. OF PEOPLE	MICHIGAN REHAB, 2021	MIN. OA CFM REQ.	OA CFM PROVIDED	% OA PROVIDED	Actual Supply Airflow
XRTU-A								
106	PASSAGE	242 ft²	0	SECTION 807	0	152	25	760 CFM
108	DISHWASHING	308 ft²	6	SECTION 807	30	240	25	1200 CFM
113	KITCHEN	1440 ft²	29	SECTION 807	145	1856	25	9280 CFM
114	PREP AREA	296 ft²	6	SECTION 807	30	120	25	600 CFM
XRTU-B								
112	CLASSROOM	549 ft²	19	SECTION 807	95	205	25	825 CFM
XRTU-C								
109	CLASSROOM	1506 ft²	53	SECTION 807	265	505	25	3825 CFM
110	OFFICE	151 ft²	1	SECTION 807	4	63	25	250 CFM
111	LOCKERS	139 ft²	0	SECTION 807	0	31	25	125 CFM

VENTILATION SCHEDULE

NUMBER	NAME	SPACE TYPE	AREA	OCCUPANT #/1000 SF	OA PER PERSON	OA PER AREA	NUMBER OF PEOPLE	OUTDOOR AIRFLOW	Ez (cool)	Ez (heat)	Ez (worst case)	Voz (cool)	Voz (heat)	Voz (worst case)
RTU-1														
100	VESTIBULE	CORRIDOR	295 ft²	0	0 CFM	0.06 CFM/SF	0.0	18 CFM	1.0	0.8	0.8	18 CFM	22 CFM	22 CFM
103	DINING	Dining Area	1623 ft²	30	7.5 CFM	0.06 CFM/SF	48.7	463 CFM	1.0	0.8	0.8	463 CFM	578 CFM	578 CFM
104	WAIT STATION	CORRIDOR	168 ft²	0	0 CFM	0.06 CFM/SF	0.0	10 CFM	1.0	0.8	0.8	10 CFM	13 CFM	13 CFM
														613 CFM

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

GENERAL SCHEDULE NOTES:
A. ACCEPTABLE MANUFACTURERS WITH DIMENSIONS AND PERFORMANCE EQUAL TO SCHEDULED ITEM: PRICE, KRUEGER, SHOEMAKER, CARNES, T & B.

SPECIFIC TAG NOTES:
1. VOLUME DAMPER IN BRANCH DUCT, AS FAR AWAY FROM DIFFUSER AS POSSIBLE, AND IN AN ACCESSIBLE LOCATION
2. PROVIDE OPPOSED BLADE DAMPER FOR BALANCING

TAG	MANUFACTURER	MODEL	NECK SIZE	FACE SIZE	DESCRIPTION	BORDER TYPE	MATERIAL	COLOR	NOTES
SA1	PRICE	SCD	6"ø	12"x12"	FOUR WAY, HORIZONTAL TO VERTICAL ADJUSTMENT	LAY-IN	STEEL	WHITE	1
SA2	PRICE	SCD	6"ø	24"x24"	FOUR WAY, HORIZONTAL TO VERTICAL ADJUSTMENT	LAY-IN	STEEL	WHITE	1
SA3	PRICE	SCD	8"ø	24"x24"	FOUR WAY, HORIZONTAL TO VERTICAL ADJUSTMENT	LAY-IN	STEEL	WHITE	1
SA4	PRICE	SCD	10"ø	24"x24"	FOUR WAY, HORIZONTAL TO VERTICAL ADJUSTMENT	LAY-IN	STEEL	WHITE	1
SA6	PRICE	510	36"x16"	36"x16"	SINGLE DEFLECTION, 3/4" BLADE SPACING	SURFACE	STEEL	WHITE	2
RA1	PRICE	PDR	8"ø	24"x24"	PERFORATED RETURN DIFFUSER	LAY-IN	STEEL	WHITE	1
RA3	PRICE	PDR	12"ø	24"x24"	PERFORATED RETURN DIFFUSER	LAY-IN	STEEL	WHITE	1
RA4	PRICE	PDR	12"x12"	24"x24"	PERFORATED RETURN DIFFUSER	LAY-IN	STEEL	WHITE	-
EA1	PRICE	PDR	8"ø	12"x12"	PERFORATED RETURN DIFFUSER	LAY-IN	STEEL	WHITE	1
EA2	PRICE	PDR	10"ø	24"x24"	PERFORATED RETURN DIFFUSER	LAY-IN	STEEL	WHITE	1

EXHAUST FAN SCHEDULE

COMMENTS:
1. PROVIDE WITH FACTORY MOUNTED DISCONNECT
2. PROVIDE ROOF CURB FOR FLAT ROOF
3. CONTINUOUS OPERATION RATED & THERMALLY PROTECTED MOTOR
4. VIBRATION ISOLATION
5. GALVANIZED STEEL HOUSING
6. BACKDRAFT DAMPER

TAG	BASIS OF DESIGN		CFM	E.S.P. (in-wg)	FAN SPEED (RPM)		DRIVE TYPE	SONES	ELECTRICAL DATA			DISCONNECT BY		CONTROL	COMMENTS
	MANUFACTURER	MODEL			DESIGN	MAX			HP	WATTS	VOLTAGE	MC	EC		
EF-1	GREENHECK	GB-100	550	.25	919	1800	BELT	3.7	1/4		460/3	X		SEE SEQUENCE OF OPERATION	1 - 6

DUCTLESS MINI-SPLIT SCHEDULE

COMMENTS:
1. INDOOR UNIT IS ELECTRICALL POWERED FROM OUTDOOR UNIT
2. PROVIDE SINGLE POINT ELECTRICAL CONNECTION
3. PROVIDE DISCONNECT SWITCH
4. PROVIDE FACTORY LINESET
5. PROVIDE 12" OUTDOOR UNIT STAND
6. OUTDOOR UNIT SHALL BE HYPER HEAT
7. PROVIDE WALL MOUNTED WIRED REMOTE CONTROLLER FOR
8. PROVIDE ANTI-ALLERGY ENZYME FILTER

INDOOR UNIT(S)							OUTDOOR UNIT									COMMENTS
TAG	BASIS OF DESIGN		TYPE	TOTAL COOLING CAP. 95°DB/75°WB	TOTAL HEATING CAP. 47°F	TOTAL HEATING CAP. 5°F	TAG	BASIS OF DESIGN		SEER2	EER2	NOMINAL TONS	UNIT ELECTRICAL				
	MANUFACTURER	MODEL						MANUFACTURER	MODEL				FAN FLA	MCA	MOCP	VOLTAGE	
FCU-1	MITSUBISHI	SLZ-KF09NA1	CASSETTE	9,000 Btu/h	13,200 Btu/h	11,000 Btu/h	CU-1	MISTUBISHI	SUZ-KA09NAHZ	20.5	15.0	3/4	0.7	14	25	208-230/1	1 - 8

ROOF TOP UNIT SCHEDULE

COMMENTS:
1. DOWNFLOW CONFIGURATION.
2. PROVIDE FIELD INSTALLED 14" ROOF CURB.
3. PROVIDE FACTORY INSTALLED UNPOWERED CONVENIENCE OUTLET.
4. PROVIDE FACTORY INSTALLED NON-FUSED DISCONNECT.
5. PROVIDE FACTORY INSTALLED DIGITAL CONTROLS W/ BACNET COMMUNICATIONS.
6. PROVIDE FACTORY INSTALLED HINGED ACCESS PANELS.
7. PROVIDE FACTORY INSTALLED LOW-LEAK ECONOMIZER W/ DIFF ENTHALPY SENSOR.
8. PROVIDE FACTORY INSTALLED RETURN AIR SMOKE DETECTOR.
9. PROVIDE FIELD INSTALLED FILTRATION - MERV8.

TAG	BASIS OF DESIGN		CFM SUPPLY	E.S.P.	CFM OA (MINIMUM)	COOLING DATA					HEATING DATA		ELECTRICAL DATA			DISCONNECT BY		UNIT WEIGHT	COMMENTS
	MANUFACTURER	MODEL				NOMINAL TONS	E.A.T. DB	E.A.T. WB	L.A.T. DB	TOTAL BTUH	INPUT MBH	OUTPUT MBH	MCA	MOP	VOLTAGE	MC	EC		
RTU-1	TRANE	YSK102A4S0H	3400 CFM	1.40 in-wg	750 CFM	8.5	80.0 °F	67.0 °F	95.0 °F	112,700	200	162	26	35	460/3	X		1250 lb	1 - 9

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CONSULTING ENGINEER
491 E. WRIGHT AVE. SHEPHERD, MI 48863
989-567-1100 | info@KTSEngineeringGroup.com
KTS PROJECT NO.: 26-0299

PLUMBING SPECIFICATIONS

1. PLUMBING PLANS ARE DIAGRAMMATIC IN NATURE, INTENDED TO INDICATE DESIGN INTENT ONLY. THE PLUMBING CONTRACTOR IS EXCLUSIVELY RESPONSIBLE TO COORDINATE SPECIFIC LOCATIONS OF ITEMS AND ADJUST AS REQUIRED TO ACCOMMODATE CODE REQUIREMENTS, EXISTING CONDITIONS (IF RENOVATION PROJECT), BUILDING STRUCTURE, SPRINKLER PIPING (IF ANY), LIGHTS, HVAC, ELECTRICAL WORK, AND THE WORK OF ALL OTHER TRADES. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. FIELD MODIFICATIONS (SUCH AS OFFSETS IN PIPING) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST.
2. ALL OF THE PLUMBING INFORMATION IS PRESENTED ON AN X-REFERENCED BACKGROUND FLOOR PLAN. IN CASE OF CONFLICT BETWEEN BACKGROUND PLAN AND ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL FLOOR PLAN SHALL GOVERN.
3. THE PLUMBING CONTRACTOR SHALL PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS OR METHODS MENTIONED, LISTED OR SCHEDULED ON THE DRAWINGS AND IN THESE SPECIFICATIONS, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND ALL INCIDENTALS NECESSARY REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS.
4. THE ENGINEER WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES AND IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THOSE DOCUMENTS PREPARED BY THE ENGINEER.
5. IF BIDDING CONTRACTOR WOULD LIKE TO SUBSTITUTE ANY SPECIFIED PLUMBING DEVICES, VALVES, FIXTURES, WATER HEATERS, PIPING, INSULATION, HANGERS, ETC., THEY MUST PROVIDE SUBMITTAL TYPE DRAWINGS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO BIDDING THE PROJECT. IF THESE APPROVAL DRAWINGS ARE NOT SUBMITTED AND ACCEPTED, THE SPECIFIED EQUIPMENT MUST BE USED - NO EXCEPTIONS.
6. THE PLUMBING CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF DRAWINGS REFLECTING "AS-BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND AND/OR CONCEALED WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER THE AS-BUILT DRAWINGS TO THE CM OR GC.
7. THE INSTALLATION SHALL BE MADE SO THAT ALL COMPONENT PARTS FUNCTION TOGETHER AS A WORKABLE SYSTEM; IT SHALL BE COMPLETE WITH ALL ACCESSORIES NECESSARY FOR PROPER OPERATION. WHEN THE INSTALLATION IS COMPLETE, ALL EQUIPMENT SHALL BE OPERATIVE AND IN PROPER ADJUSTMENT. ALL WORK SHALL BE EXECUTED IN CONFORMITY WITH THE BEST PRACTICE SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS.
8. TO ACCOMPLISH THESE RESULTS, THE PLUMBING CONTRACTOR SHALL CONSULT THE ARCHITECT'S FIELD LAYOUTS OF THE CONTRACTORS FOR THESE TRADES AND THEIR SHOP DRAWINGS. HE/SHE SHALL COORDINATE THEIR WORK ACCORDINGLY.
9. DRAWINGS ARE INTENDED TO SHOW THE GENERAL ARRANGEMENT, DESIGN AND EXTENT OF THE WORK AND ARE PARTLY DIAGRAMMATIC. THEY ARE NOT INTENDED TO BE SCALED FOR ROUGHING-IN MEASUREMENTS OR TO SERVE AS SHOP DRAWINGS.THE ARCHITECTURAL DRAWINGS AND DETAILS SHALL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT. WHERE THEY ARE NOT DEFINITELY LOCATED, THIS INFORMATION SHALL BE OBTAINED FROM THE ENGINEER.
10. REFER THE TO THE ARCHITECTURAL PLANS FOR ALL BUILDING SECTIONS, INTERIOR, AND EXTERIOR ELEVATIONS. PLUMBING EQUIPMENT AND INSTALLATION METHODS SHOWN ON ARCHITECTURAL SECTIONS/DETAILS ARE CONSIDERED PART OF THE PLUMBING DOCUMENTS.
11. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERABLE AS NECESSARY TO THE COMPLETE AND PROPER OPERATION OF ANY SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR OR SUB-CONTRACTOR FOR SUCH SYSTEM WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR DRAWINGS.
12. WHERE WORK OF THE CONTRACTOR CONNECTS TO THAT OF ANOTHER TRADE, OR TO PIPING OR EQUIPMENT IN PLACE, THE CONTRACTOR SHALL TAKE SUCH MEASUREMENTS IN THE FIELD AS MAY BE NECESSARY TO MAKE HIS WORK COME TRUE OR LINE UP WITH THAT WORK.
13. THE PLUMBING CONTRACTOR SHALL FURNISH TO THE ARCHITECTURAL TRADES CONTRACTOR INFORMATION SUCH AS SIZE AND LOCATION CONCERNING ALL FRAMED OPENINGS AND EQUIPMENT BASES REQUIRED.
14. ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH CURRENT CODES, INCLUDING BUT NOT LIMITED TO:
    A. MICHIGAN BUILDING CODES
    B. MICHIGAN PLUMBING CODE
    C. MICHIGAN MECHANICAL & ENERGY CODES
    D. NATIONAL ELEC. CODE
    E. APPLICABLE NFPA CODES
    F. STATE OF MICHIGAN PUBLIC HEALTH CODES
    G. MICHIGAN REHABILITATION
    H. MICHIGAN BARRIER FREE CODES
    I. OSHA REQUIREMENTS
    ALL CODES SHALL BE THE STATE OF MI LATEST ADOPTED EDITIONS AT THE TIME OF PLAN REVIEW
15. PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE PLUMBING CODE AS LOCALLY ADOPTED, LOCAL REGULATIONS AND OTHER CODES OR REGULATIONS HAVING LEGAL JURISDICTION IN THE AREA. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND CERTIFICATES OF INSPECTIONS AS MAY BE REQUIRED. PROVIDE FINAL CERTIFICATES OF INSPECTION TO THE GC UPON COMPLETION.
16. ANY CHANGES IN THE WORK TO SECURE CERTIFICATES SHALL BE MADE BY THIS CONTRACTOR AT HIS OWN EXPENSE. IN THE EVENT PLANS AND SPECIFICATIONS CONFLICT WITH ANY RULES, REGULATIONS OR CODES APPLYING, SAID RULES, REGULATIONS AND CODES SHALL GOVERN THE CONTRACTOR.
17. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONTRACTOR MUST SELECT ONE OF THE SPECIFIED MANUFACTURERS FOR EACH PIECE OF EQUIPMENT AND, WHERE ONLY ONE MANUFACTURER IS SPECIFIED, THAT MAKE MUST BE USED. THESE ITEMS MAY NOT BE CHANGED EXCEPT BY PERMISSION OF THE ENGINEER.
18. CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION.
19. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES FOR PROPER EXECUTION OF THE WORK.
20. FURNISH TO THE GC, FOR THE OWNER, TWO BOUND OPERATION MANUALS CONSISTING OF THE FOLLOWING:
    A. ONE COPY OF SHOP DRAWINGS OF EACH PIECE OF EQUIPMENT.
    B. INSTALLATION, OPERATING AND TROUBLESHOOTING MANUALS.
    C. PARTS LIST.
    D. THUMB DRIVE WITH ALL OF THE ABOVE IN PDF FORMAT.
21. THE CONTRACTOR SHALL FURNISH A COMPETENT INSTRUCTOR TO ADVISE THE OWNER IN SERVICING, OPERATING, ETC., OF MAIN PIECES OF EQUIPMENT.
22. CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED BY HIM OR SUB-CONTRACTORS TO BE FREE FROM DEFECT IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK, AND HE SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER ANY MATERIAL OR EQUIPMENT DEVELOPING DEFECTS AND SHALL ALSO MAKE GOOD ANY DAMAGE CAUSED BY SUCH DEFECTS OR THE CORRECTION OF DEFECTS. THIS REQUIREMENT SHALL BE BINDING EVEN THOUGH IT WILL EXCEED PRODUCTS GUARANTEES NORMALLY FURNISHED BY SOME MANUFACTURERS.
23. CONTRACTOR SHALL SUBMIT HIS OWN AND EACH EQUIPMENT MANUFACTURER'S WRITTEN CERTIFICATES, WARRANTING THAT EACH ITEM OR EQUIPMENT FURNISHED COMPLIES WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. NOTE THAT GUARANTEE SHALL RUN FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK, NOT FROM THE DATE OF INSTALLATION OF A DEVICE OR PIECE OF EQUIPMENT.
24. ALL WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST STANDARDS PRESCRIBED BY LOCAL AND/OR STATE CODES AND/OR ORDINANCES INCLUDING THE LATEST RULES OF THE NFPA, AND AMERICAN STANDARDS ASSOCIATION, AND WITH ANY PREVAILING RULES AND REGULATIONS PERTAINING TO ADEQUATE PROTECTION AND/OR GUARDING OF ANY HAZARDOUS LOCATIONS.
25. ALL EQUIPMENT SHALL BE INSTALLED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS. IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED IN THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED, SUCH DIRECTIONS SHALL BE FOLLOWED.
26. UNTIL FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL PROTECT ALL MATERIALS.
27. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE EQUAL IN QUALITY AND CAPACITY TO THAT SPECIFIED AND HARMONIOUS IN DESIGN AS DETERMINED BY THE ENGINEER.
28. PLUMBING WORK SHALL BE CAREFULLY EXECUTED BY SKILLED MECHANICS WELL VERSED IN THEIR PARTICULAR TRADES. IT SHALL ALSO HAVE A CLEAN, NEAT, WELL ARRANGED AND FINISHED APPEARANCE TO THE COMPLETE SATISFACTION OF THE OWNER AND THE ARCHITECT/ENGINEER.
29. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS WHICH WILL AFFECT THE WORK HE IS TO PERFORM. THE SUBMISSION OF A PROPOSAL BY THIS CONTRACTOR SHALL BE CONCLUSIVE EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS GIVEN PROPER CONSIDERATION AND EVALUATION OF THESE CONDITIONS IN THE PREPARATION OF HIS PROPOSAL. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE IN HIS BEHALF FOR EXTRA EXPENSE INCURRED DUE TO FAILURE OF NEGLECT ON HIS PART TO MAKE THIS VISIT AND EXAMINATION.
30. PROVIDE SHOP DRAWINGS FOR APPROVAL FOR PLUMBING FIXTURES, PIPING, VALVES, INSULATION, ETC. SHOP DRAWINGS ARE TO BE THOROUGHLY CHECKED (AND NOTED SO ON FRONT COVER) BY THE CONTRACTOR PRIOR TO SUBMITTING THEM TO THE ENGINEER. REVIEW BY THE ENGINEER SHALL NOT BE CONSTRUED AS A COMPLETE CHECK, BUT ONLY THAT THE GENERAL METHOD OF CONSTRUCTION AND DETAILING IS SATISFACTORY. REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS WHICH MAY EXIST. IF THE CONTRACTOR IS APPROVED TO USE A MANUFACTURER OTHER THAN THE ONE SPECIFIED BY THE ENGINEER, IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE SUBSTITUTED EQUIPMENT WILL PHYSICALLY FIT IN THE SPACE PROVIDED FOR THE EQUIPMENT AND MAINTAIN THE SERVICE CLEARANCE REQUIREMENTS SET FORTH BY THE MANUFACTURER. SHOP DRAWING CHECKING BY THE ENGINEER IS A "COURTESY" CHECK ONLY. SHOP DRAWINGS ARE TO BE ELECTRONICALLY SUBMITTED IN PDF FORMAT ONLY.
31. ALL PLUMBING EQUIPMENT PROVIDED SHALL MEET THE REQUIREMENTS OF ASHRAE 2019 EDITION, SECTION 90.1 (ENERGY REQUIREMENTS).
32. PLUMBING FIXTURES SHALL BE EQUAL TO ZURN, KOHLER, AMERICAN STANDARD, MANSFIELD, GERBER. FLOOR DRAINS SHALL BE EQUAL TO ZURN OR WADE. SINKS EQUAL TO JUST, ELKAY, DAYTON, KRAUS. WATER HEATERS EQUAL TO AO SMITH ,LOCHINVAR OR BRADFORD WHITE.
33. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE INDIVIDUAL STOPS. STOPS SHALL BE CHROMED BRASS WITH CHROMED BRASS TUBING AND COMPRESSION FITTINGS. PVC SUPPLIES AND/OR FLEXIBLE PLASTIC ARE NOT ACCEPTABLE.
34. PLUMBING FIXTURES SHALL BE CAULKED AT WALL AND FLOOR JOINTS WITH COMMERCIAL GRADE SILICONE CAULK, COLOR PER ARCHITECT.
35. ALL SHUTOFF VALVES 1/2" TO 2" SHALL BE 1/4 TURN BALL VALVES.
36. COORDINATE EXACT FLOOR DRAIN LOCATIONS WITH ARCHITECTURAL DRAWINGS. SET FLOOR DRAINS BELOW FINISHED FLOOR AS REQUIRED FOR ARCHITECTURALLY SPECIFIED SLOPE. FLOOR DRAIN TYPE SHALL BE ADJUSTABLE HEIGHT TYPE.
37. SURFACES OF ALL FLOOR DRAINS, CLEANOUTS, AND OTHER EQUIPMENT SHALL BE CLEANED AND LEFT IN FIRST CLASS CONDITION. FLOOR DRAINS SHALL BE SEALED DURING CONSTRUCTION TO PREVENT DEBRIS FROM ENTERING THE SANITARY SYSTEM.
38. CLEANOUT COVERS SHALL BE FLUSH WITH GRADE OR SLAB. COVERS SHALL BE BRONZE TOP WITH SCORED SURFACES AND LABELED "CO".
39. CHARACTER OF PIPING WORK SHALL BE AS FOLLOWS:
    A. ALL PIPING SHALL BE INSTALLED SO AS TO PERMIT COMPLETE DRAINAGE.
    B. ALL PIPING SHALL BE INSTALLED SO AS TO BE FREE FROM POCKETS CAUSED BY SAGGING. SPECIAL CARE SHALL BE TAKEN TO ENSURE UNHINDERED EXPANSION AND CONTRACTION OF PIPING. EXPANSION AND CONTRACTION OF PIPING SHALL BE PROVIDED FOR IN A SATISFACTORY, APPROVED AND SAFE MANNER BY MEANS OF LOOPS OR OFFSETS OR SWING CONNECTIONS, WHERE MECHANICAL EXPANSION JOINTS ARE NOT SPECIFICALLY CALLED FOR. CORRUGATED COPPER PIPE SLEEVES SHALL BE USED AT ALL CONSTRUCTION EXPANSION JOINTS.
    C. RISER AND VERTICAL PIPES ARE TO BE RUN PLUMB, STRAIGHT AND TRUE AND HAVE NO UNNECESSARY OFFSETS. NO PIPING SHALL BE INSTALLED IN SUCH A MANNER AS TO INTERFERE WITH NECESSARY HEADROOM OR WITH DOORS OR WINDOWS.
    D. PIPING SUSPENDED FROM CEILING OR BENEATH FLOOR SLABS SHALL BE KEPT AS CLOSE TO CONSTRUCTION AS POSSIBLE, CONSISTENT WITH THE INSTALLATION AND PITCH REQUIREMENTS.
    E. ALL THREADED PIPE JOINTS SHALL BE MADE TIGHT, STEEL TO STEEL, USING AN APPROVED THREAD PASTE, TO BE APPLIED ON MALE THREADS ONLY. REAM OUT ALL THREADED PIPE ENDS, TURN ON END AND RATTLE BEFORE INSTALLING. CLEAN AND SWAB OUT ALL PIPING BEFORE INSTALLING.
40. PIPING MATERIALS:
    A. SANITARY LINES: SCHEDULE 40 PVC
    B. SOIL, WASTE AND VENT: SCHEDULE 40 PVC
    C. WATER PIPING, DOMESTIC, ABOVE GROUND: TYPE L COPPER TUBING, WROUGHT COPPER FITTINGS
41. ALL CONTRACTORS ARE TO COORDINATE THE LOCATIONS OF PLUMBING LINES, DUCTWORK, EQUIPMENT, GAS LINES, FIRE SUPPRESSION LINES, ETC. AS REQUIRED SO THAT CLEARANCES ABOVE ELECTRICAL PANELS ARE MAINTAINED PER 2023 NEC. REFERENCE ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.
42. IF DISSIMILAR METALS ARE TO BE JOINED, APPROVED INSULATION UNIONS SHALL BE UTILIZED.
43. RUN ALL PIPING AND RELATED PLUMBING CONCEALED IN WALLS WHENEVER POSSIBLE. AVOID EXPOSED INSTALLATION UNLESS SPECIFICALLY REQUIRED. (TYPICAL UNLESS NOTED OTHERWISE)
44. DO NOT SUPPORT CEILINGS, OTHER BUILDING STRUCTURES, OR CONDUITS FROM DUCTWORK, PIPES OR CONDUIT. DO NOT ALLOW DUCTS, PIPES OR CONDUITS TO DIRECTLY TOUCH BUILDING WALLS, FLOORS, OR STRUCTURE AT ANY LOCATION.
45. SANITARY AND WASTE LINES SHALL PITCH DOWN NOT LESS THAN 1/8" PER FOOT IN THE DIRECTION OF FLOW AND SHALL BE PROVIDED WITH ACCESSIBLE CLEANOUTS AT ALL TURNS AND EVERY 100' ON STRAIGHT RUNS. PROVIDE VENTS AS SHOWN ON THE DRAWING OR REQUIRED BY THE PLUMBING CODE. VENTS EXTENDING THROUGH THE ROOF SHALL BE PVC, MINIMUM 3".
46. SOIL, VENT AND DRAIN PIPING SHALL BE RUN AS DIRECT AS POSSIBLE. MAKE ALL CONNECTIONS TO FLOOR DRAINS, FIXTURES, ETC. WITH PVC TRAPS, PROVIDING CLEANOUT WITH FITTED PVC THREADED PLUGS.
47. ALL PIPING SHALL BE THOROUGHLY CLEANED AND SWABBED OUT BEFORE INSTALLATION IN SUCH A MANNER THAT ALL DEBRIS, CONSTRUCTION DIRT AND FOREIGN PARTICLES SHALL BE ENTIRELY REMOVED FROM THE PIPING.
48. ALL DOMESTIC WATER PIPING SHALL BE PROPERLY STERILIZED PER MICHIGAN DEPARTMENT OF PUBLIC HEALTH AND LOCAL MUNICIPALITIES PRIOR TO BEING PUT INTO OPERATION.
49. WATER AND PRESSURIZED PLUMBING LINES SHALL BE TESTED PER MICHIGAN PLUMBING CODE, LATEST ADOPTED EDITION.
50. ALL SYSTEMS SHALL BE THOROUGHLY CLEANED, TESTED, AND BALANCED AS REQUIRED.
51. ALL OPENINGS IN CONSTRUCTION, THROUGH WHICH ANY AND ALL PLUMBING PIPING PASS SHALL BE SEALED UP AIR TIGHT AFTER INSTALLATION OF ALL PIPING.
52. ANY SLAB CUTS AND REPAIRS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR TO DETERMINE IF THEY SHOULD BE INCLUDED IN THE PLUMBING CONTRACTOR'S BID.
53. FAILURE TO DETECT INFERIOR WORK, OR WORK NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE CODES SHALL NOT BE CONSTRUED AS ACCEPTANCE OF SUCH WORK.
54. THE PLUMBING CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE PLUMBING INSTALLATION. REMOVE WEEKLY. UPON COMPLETION OF THE WORK HE/SHE SHALL LEAVE ALL AREAS CLEAN, INCLUDING BUT NOT LIMITED TO THE PLUMBING ROOM AND THE PLUMBING EQUIPMENT IN THAT SAID ROOM.
55. ALL CUTTING AND PATCHING IS THE RESPONSIBILITY OF THE TRADE REQUIRING THE WORK, WITH THE EXCEPTION OF ANY REQUIRED ROOF WORK, WHICH WILL BE THE RESPONSIBILITY OF THE ROOFING CONTRACTOR.
56. ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

END OF PLUMBING SPECIFICATIONS

PIPING INSULATION NOTE:

DOMESTIC COLD AND HOT WATER PIPING (INCLUDING VALVES, ELBOWS, FITTINGS) SHALL HAVE THE FOLLOWING INSULATION: "THERMA-CEL", SOLD BY "GRAINGER". MUST MEET ASTM E84, 25/50 SMOKE/FLAME RATING, SEMI-SLIT, GRAY COLOR, TEMPERATURE RANGE: -40°F TO +200°F. THICKNESS PER ASHRAE 90.1, 2019. INSULATION MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR CONTRACTOR WILL BE REQUIRED TO REMOVE AND RE-INSTALL. UTILIZE MANUFACTURER'S ELBOW FITTINGS, DO NOT SIMPLY BEND INSULATION AROUND ELBOWS AND COVER WITH BLACK ELECTRICAL TAPE (OR SIMILAR). UTILIZE THE TAPE THAT IS SOLD AND RECOMMENDED BY THE MANUFACTURER.

PLUMBING SYMBOL SCHEDULE

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BV	BALL VALVE
CHVA	CHECK VALVE
CO	CLEANOUT
ETR	EXISTING TO REMAIN
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GT	GREASE TRAP
IE	INVERT ELEVATION
MPC	MICHIGAN PLUMBING CODE
PONC	POINT OF NEW CONNECTION
RS	ROOF SUMP
S	SINK
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VENT
VIF	VERIFY IN FIELD
VTR	VENT THRU ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WF	WASHER FITTING

WC-1	FIXTURE TAG
—CW—	COLD WATER PIPING
—XCW—	EXISTING COLD WATER PIPING
—HW—	HOT WATER PIPING
—XHW—	EXISTING HOT WATER PIPING
—SAN—	SANITARY PIPING
—XSAN—	EXISTING SANITARY PIPING
—V—	VENT PIPING
—XV—	EXISTING VENT PIPING
—GW—	GREASE WASTE PIPING
—XGW—	EXISTING GREASE WASTE PIPING
	POINT OF NEW CONNECTION
	ELBOW UP
	ELBOW DOWN
	CAP
	TEE UP
	TEE DOWN
	DIRECTION OF FLOW
	BALL VALVE
	CHECK VALVE
	UNION

PLUMBING DEMOLITION NOTES:

1. REMOVE EXISTING EQUIPMENT THAT IS NOT BEING UTILIZED FOR RENOVATIONS. THIS INCLUDES ANY/ALL PLUMBING EQUIPMENT ON SITE INCLUDING ABANDONED EQUIPMENT. REMOVE EQUIPMENT, WATER HEATERS, STORAGE TANKS, PLUMBING FIXTURES, PIPING, INSULATION, HANGERS, METERS, VALVES, CONTROLS, PUMPS, WALL SLEEVES, FLOOR DRAINS, ETC. REMOVE ALL BACK TO THE POINT OF CONCEALMENT. REMOVE FROM SITE AND DISPOSE OF IN A LEGAL MANNER. (PROOF OF LEGAL DISPOSAL IS REQUIRED AND SHALL BE PROVIDED TO CM OR GC FOR ALL HAZARDOUS MATERIALS)
2. CAP ALL DEMOED PIPING AT POINTS OF CONCEALMENT TO PREVENT LIQUIDS REMAINING IN CONCEALED SPACES TO DRIP DOWN ONTO NEW SURFACES.
3. UTILIZE SPRAY FOAM TO SEAL ANY OPENINGS LEFT AT SITE TO PREVENT RODENTS/INSECTS FROM ENTERING FACILITY THROUGH DEMOED PENETRATIONS.
4. USE CARE DURING DEMOLITION PHASE TO AVOID DAMAGE TO ANY GLAZED BLOCK, TILE, VINYL SIDING, BRICK VENEERED WALLS, CEILING TILES, ETC. DAMAGE TO BE REPAIRED BY THE CONTRACTOR THAT CREATES THE DAMAGE. REPAIR MUST BE BY QUALIFIED WORKMAN FOR DAMAGE DONE. (TILE DAMAGE REPAIRED BY TILE CONTRACTOR, ETC.)
5. DEMOLITION WORK IS ONLY GENERALLY SHOWN ON THE DRAWINGS IF AT ALL. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO DETERMINE THE EXTENT OF THE DEMOLITION WORK REQUIRED AND INCLUDE IT IN HIS/HER BID. IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO VERIFY EXISTING SYSTEMS/EQUIPMENT THAT WILL NOT BE UTILIZED FOR NEW WORK AND REMOVE ACCORDINGLY - DO NOT ABANDON - REMOVE UNUSED ITEMS. CONFIRM ALL DEMOLITION QUANTITIES PRIOR TO BIDDING.
6. OWNER RESERVES FIRST RIGHT TO ALL ITEMS THEY WISH TO SALVAGE. DISCUSS WITH OWNER/GC PRIOR TO STARTING DEMOLITION AND TAKE EXTRA CARE REMOVING THOSE ITEMS THAT OWNER WISHES TO SALVAGE.

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

MINIMUM PIPING INSULATION THICKNESS

TABLE 6.8.3-1 MINIMUM PIPING INSULATION THICKNESS HEATING AND HOT WATER SYSTEMS [a, b, c, d, e]
(STEAM, STEAM CONDENSATE, HEATING HOT WATER AND DOMESTIC HOT WATER SYSTEMS)

FLUID OPERATING TEMPERATURE RANGE (°F) AND USAGE	INSULATION CONDUCTIVITY		≥NOMINAL PIPE OR TUBE SIZE, IN.				
	CONDUCTIVITY, BTU·IN/H·FT²·°F	MEAN RATING TEMPERATURE, °F	<1	1 TO <1-1/2	1-1/2 TO <4	4 TO <8	≥8
			INSULATION THICKNESS, IN.				
>350	0.32 TO 0.34	250	4.5	5.0	5.0	5.0	5.0
251-350	0.29 TO 0.32	200	3.0	4.0	4.5	4.5	4.5
201-350	0.27 TO 0.30	150	2.5	2.5	2.5	3.0	3.0
141-200	0.25 TO 0.29	125	1.5	1.5	2.0	2.0	2.0
105-140	0.22 TO 0.28	100	1.0	1.0	1.5	1.5	1.5

a. FOR INSULATION OUTSIDE THE STATED CONDUCTIVITY RANGE, THE MINIMUM THICKNESS (T) SHALL BE DETERMINED AS FOLLOWS: $T = r\{(1+t/r)^{(K/k)} - 1\}$, WHERE T = MINIMUM INSULATION THICKNESS (IN.), r = ACTUAL OUTSIDE RADIUS OF PIPE (IN.), t = INSULATION THICKNESS LISTED IN THIS TABLE FOR APPLICABLE FLUID TEMPERATURE AND PIPE SIZE, K = CONDUCTIVITY OF ALTERNATE MATERIAL AT MEAN RATING TEMPERATURE INDICATED FOR THE APPLICABLE FLUID TEMPERATURE [BTU·IN/H·FT²·°F]; AND k = THE UPPER VALUE OF THE CONDUCTIVITY RANGE LISTED IN THIS TABLE FOR THE APPLICABLE FLUID TEMPERATURE.
b. THESE THICKNESSES ARE BASED ON *ENERGY EFFICIENCY* CONSIDERATIONS ONLY. ADDITIONAL INSULATION IS SOMETIMES REQUIRED RELATIVE TO SAFETY ISSUES/SURFACE TEMPERATURE.
c. FOR *PIPING* SMALLER THAN 1-1/2" AND LOCATED IN PARTITIONS WITHIN *CONDITIONED SPACES*, REDUCTION OF THESE THICKNESSES BY 1" SHALL BE PERMITTED (BEFORE THICKNESS ADJUSTMENT REQUIRED IN FOOTNOTE [a]) BUT NOT TO THICKNESSES BELOW 1".
d. FOR DIRECT-BURIED HEATING AND HOT-WATER *SYSTEM PIPING*, REDUCTION OF THESE THICKNESSES BY 1-1/2" SHALL BE PERMITTED (BEFORE THICKNESS ADJUSTMENT REQUIRED IN FOOTNOTE [a]) BUT NOT TO THICKNESSES BELOW 1".
e. THE TABLE IS BASED ON STEEL PIPE. NONMETALLIC PIPES SCHEDULE 80 THICKNESS OR LESS SHALL USE THE TABLE VALUES. FOR OTHER NONMETALLIC PIPES HAVING *THERMAL RESISTANCE* GREATER THAN THAT OF STEEL PIPE, REDUCED INSULATION THICKNESSES ARE PERMITTED IF DOCUMENTATION IS PROVIDED SHOWING THAT THE PIPE WITH THE PROPOSED INSULATION HAS NO MORE HEAT TRANSFER PER FOOT THAN A STEEL PIPE OF THE SAME SIZE WITH THE INSULATION THICKNESS SHOWN IN THE TABLE.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:
BAY ARENAC ISD
BAY CITY, MICHIGAN

NO.
DATE

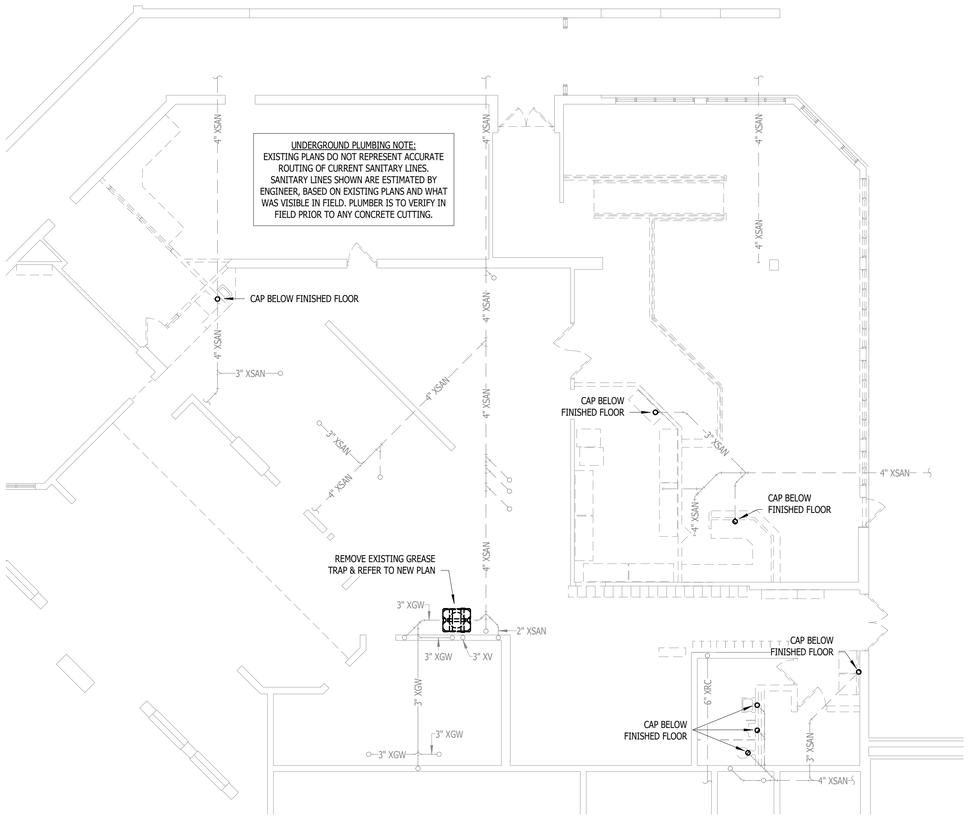
DRAWN BY JEE
DATE 03/17/2026
APPROVED

SHEET NO.
P0.0

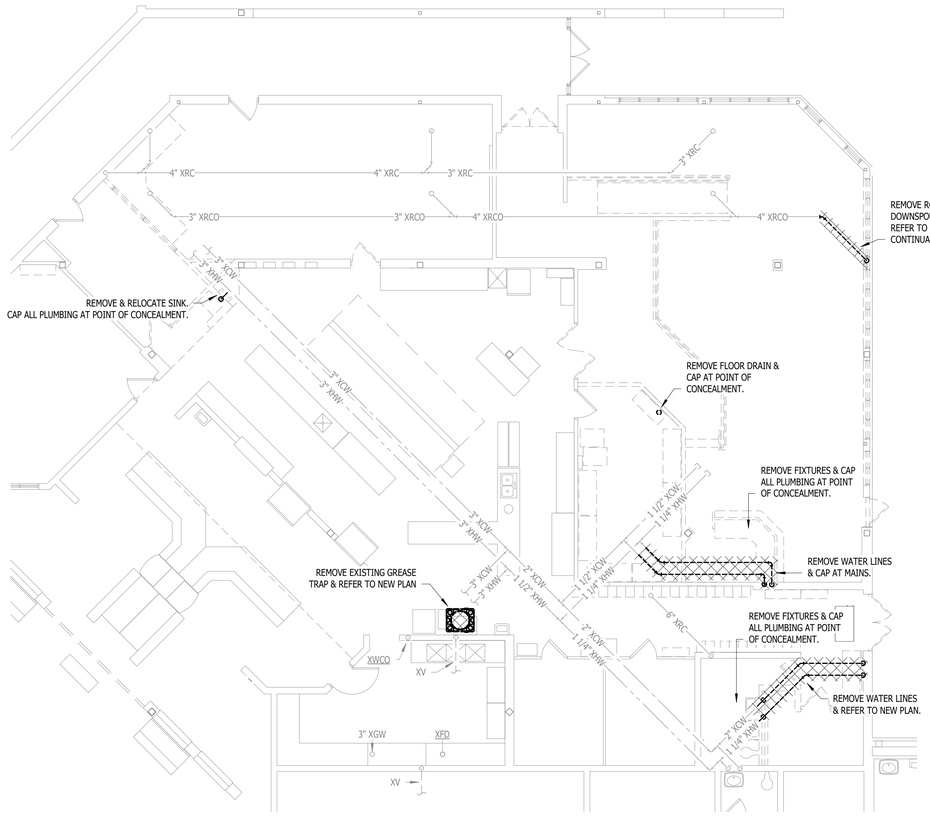
PROJECT NO.
2538

KTS ENGINEERING GROUP
CONSULTING ENGINEER
491 E. WRIGHT AVE. SHEPHERD, MI 48883
989-567-1100 | info@KTSEngineeringGroup.com
KTS PROJECT NO.: 26-0299

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW , MICHIGAN



UNDERGROUND PLUMBING DEMO
1/8" = 1'-0"



ABOVE GROUND PLUMBING DEMO
1/8" = 1'-0"

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989-567-1100 | info@KTSEngineeringGroup.com
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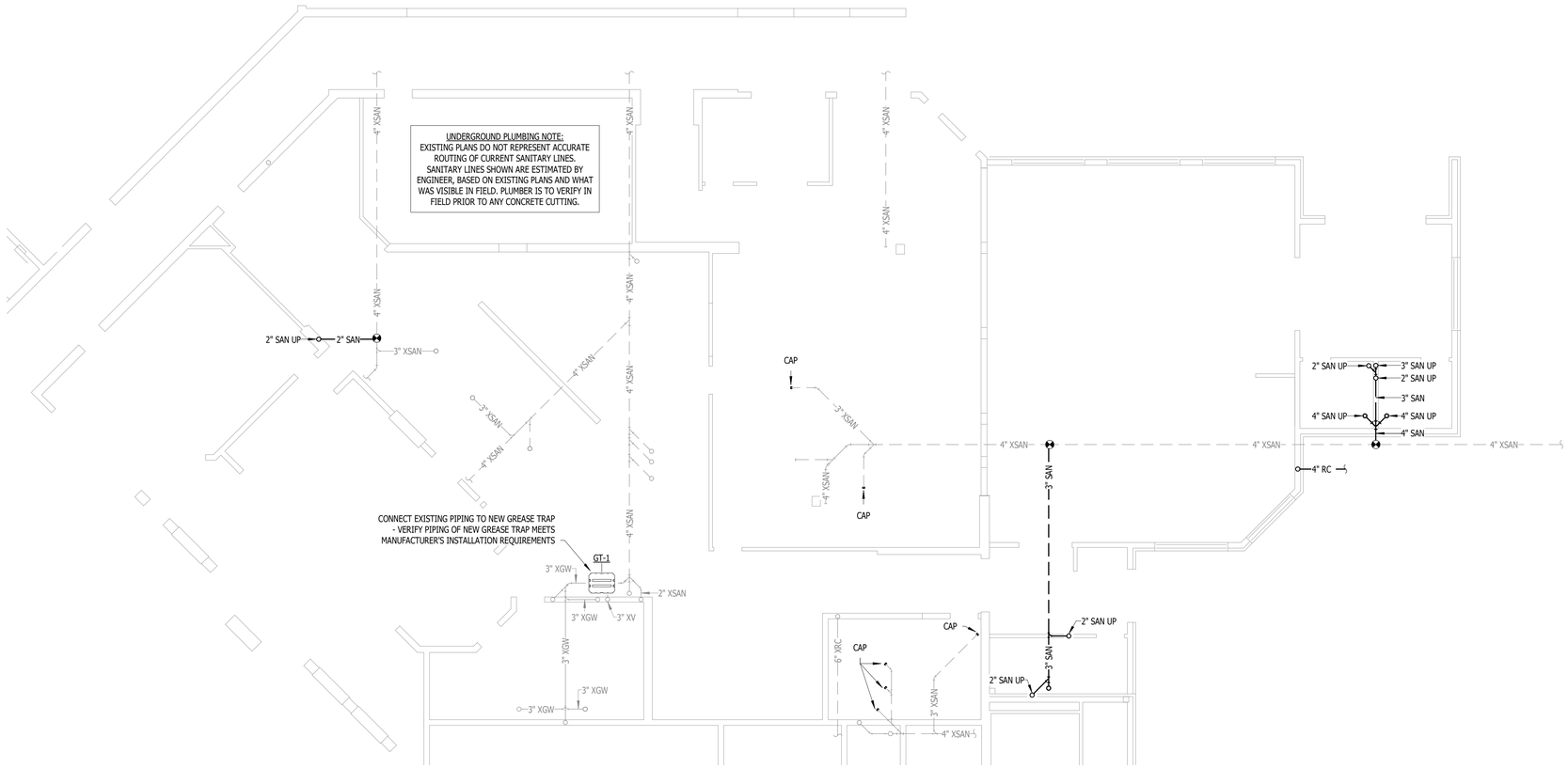

UNDERGROUND PLUMBING PLAN
1/8" = 1'-0"

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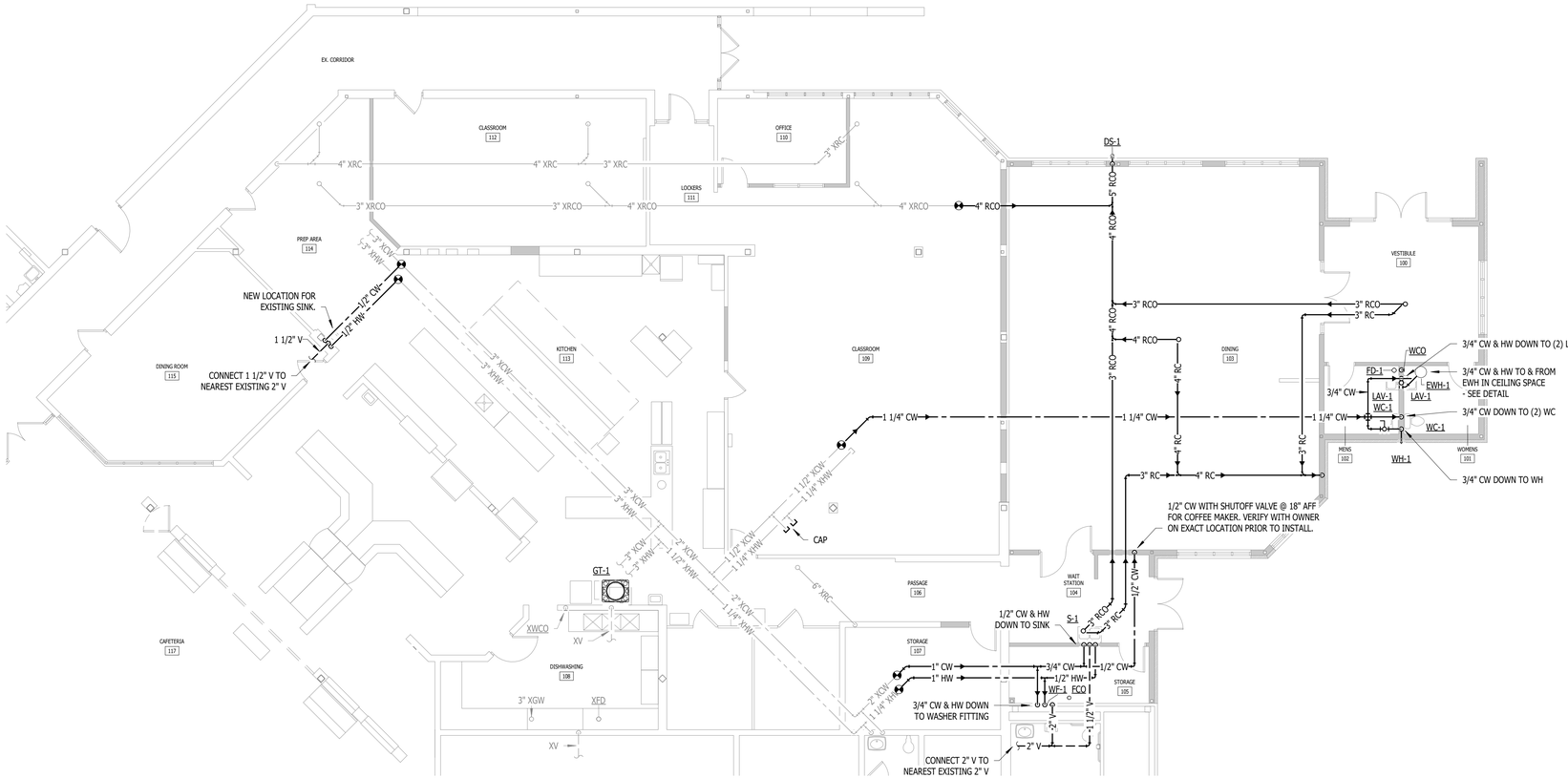

OVERHEAD PLUMBING PLAN
1/8" = 1'-0"

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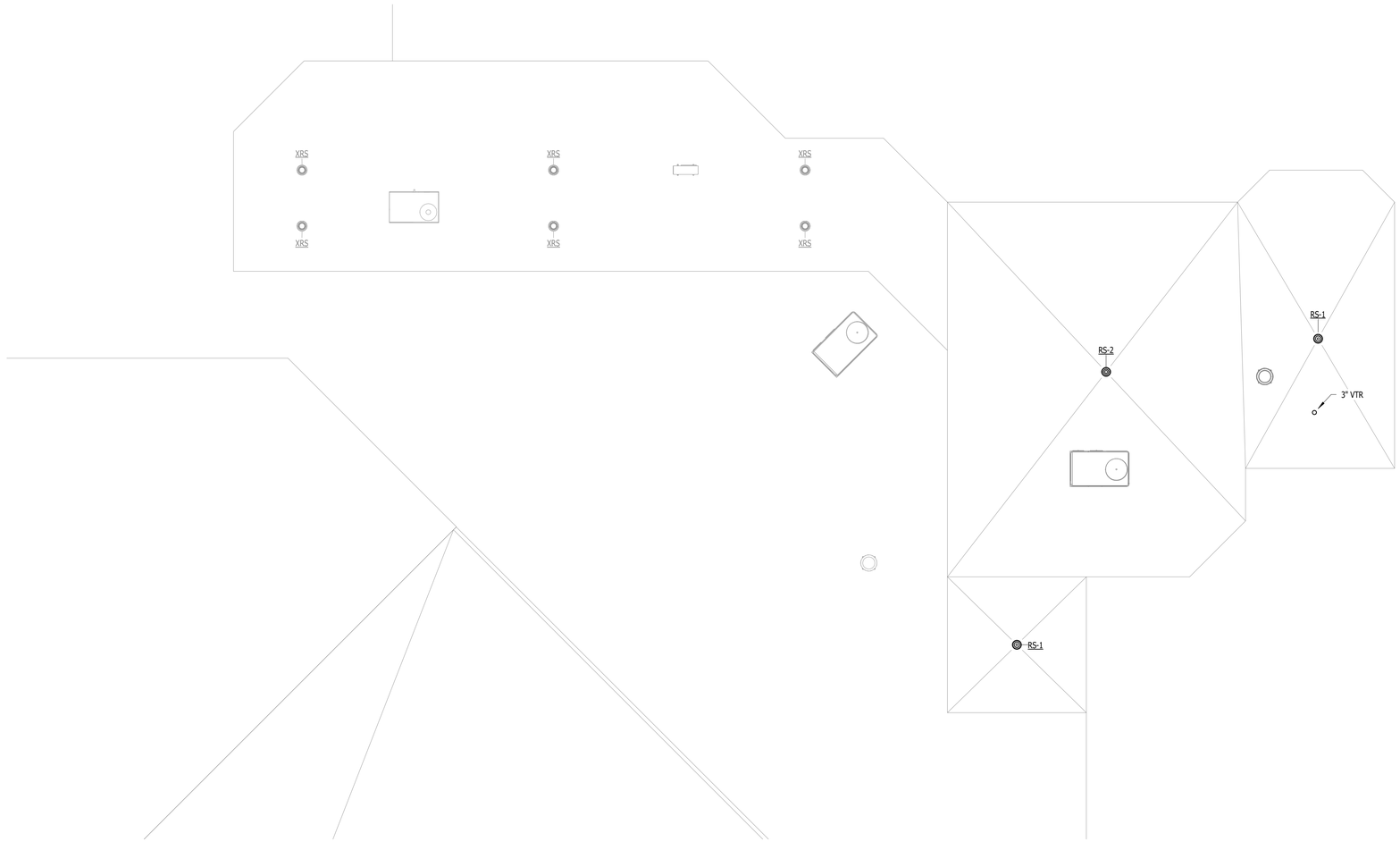

ROOF PLUMBING PLAN
1/8" = 1'-0"

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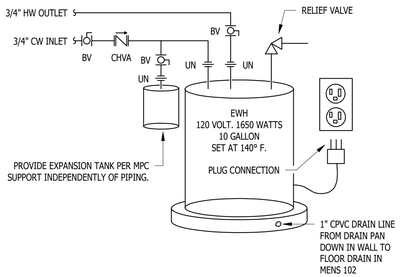
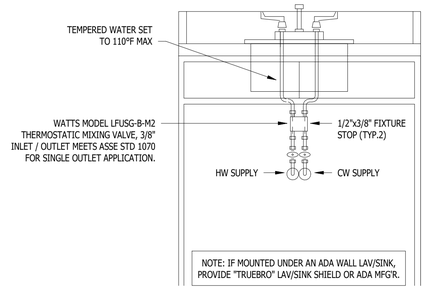
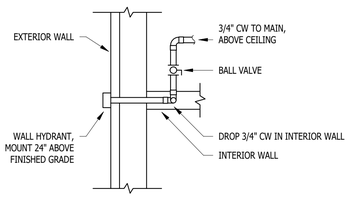


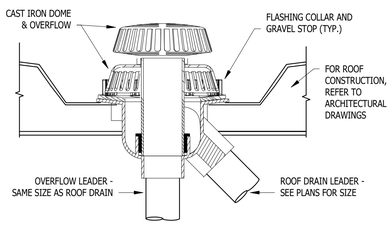
EWH PIPING DETAIL
NOT TO SCALE



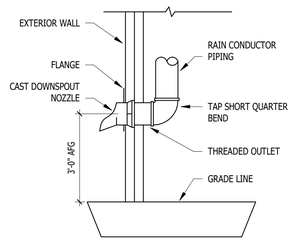
ADA UNDER LAV MIXING DETAIL
NOT TO SCALE



WALL HYDRANT DETAIL
NOT TO SCALE



COMBO ROOF DRAIN
NOT TO SCALE



DOWNSPOUT DETAIL
NOT TO SCALE

PLUMBING FIXTURE SPECIFICATIONS

FOR ALL SINKS, LAVATORIES, FAUCETS, VALVES, ETC. THAT COULD POSSIBLY SCALD EMPLOYEES, CUSTOMERS, OR VISITORS, PROVIDE AND INSTALL A THERMOSTATIC MIXING VALVE EQUAL TO "WATTS", MODEL LFUSG-B-M2. MOUNT UNDER SINK OR LAVATORY SHROUD. SET MIXED WATER TEMPERATURE AT 110° F MAXIMUM PER MICHIGAN PLUMBING CODE AND ADA CODES. 0.5 GPM MINIMUM FLOW RATE, 3.1 GPM MAXIMUM FLOW RATE, 45 PSI PRESSURE LOSS. LAVATORY SHROUD SHALL NOT BE CAULKED TO WALL SO VALVES/TRAP CAN BE ACCESSED.

TAG	FIXTURE			FAUCETS, FITTINGS, AND ACCESSORIES	
FIXTURE TYPE	BASIS OF DESIGN	DESCRIPTION		BASIS OF DESIGN	DESCRIPTION
DS-1 DOWNSPOUT NOZZLE	ZURN Z199	ALL NICKEL BRONZE BODY, 5" INLET, DECORATIVE FACE OF WALL FLANGE & OUTLET NOZZLE.		N/A	
FD-1 FLOOR DRAIN	ZURN EZ-PV2-ST	PVC SOLVENT WELD BODY WITH BOTTOM OUTLET. UP TO 1" OF VERTICAL POST POUR ADJUSTMENT, PRE-PACKAGED SHIMS AND INTEGRATED SELF-CONTAINED SQUARE LIGHT DUTY STRAINER IN NICKEL BRONZE FINISH. ROUGH-IN COVER INCLUDED. 2" PIPE SIZE.		SURESEAL SS2009V	WATERLESS INLINE 2" DRAIN TRAP SEAL. HDPE HOUSING WITH HEAVY DUTY PROPRIETARY SILICONE DIAPHRAGM AND SOFT EPDM RUBBER SEALING GASKET.
GT-1 GREASE TRAP	SCHIER GB-50	4" INLET/OUTLET, 3" VENT. 75 GPM FLOW RATE, 65 GALLON LIQUID CAPACITY, 43 GALLON GREASE CAPACITY, 13 GALLON SOLIDS CAPACITY. STANDARD WATER/GAS-TIGHT SEALED COVER, 16,000 LBS LOAD CAPACITY.		N/A	
LAV-1 LAVATORY	ZURN Z5360	VITREOUS CHINA, WHITE FINISH. FRONT OVERFLOW, D-SHAPED BOWL, SELF-DRAINING DECK AREA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS, ADA COMPLIANT. 3-HOLE 4" CENTERSET FAUCET CONFIGURATION. PROVIDE CONCEALED ARM CARRIER AND "TRUEBRO" LAV SHROUD TO CONCEAL PIPING AND MIXING VALVE.		ZURN Z81000-XL	POLISHED CHROME PLATED CAST BRASS 4" CENTERSET SINGLE CONTROL LAVATORY FAUCET, A CERAMIC DISC CARTRIDGE AND A TEMPERATURE LIMIT STOP. VANDAL RESISTANT 1.5 GPM AERATOR, ADA COMPLIANT LEVER HANDLE, MOUNTING HARDWARE. PROVIDE GRID STRAINER DRAIN.
RS-1 ROOF SUMP	ZURN Z100C	FROET BI-FUNCTIONAL ROOF DRAIN WITH 45° PRIMARY OUTLET CONNECTION. POWDER COATED CAST IRON DEEP SUMP BODY WITH COMBINATION MEMBRANE FLASHING CLAMP GUARD, CAST IRON DOME. 3" PIPE SIZE.		N/A	
RS-2 ROOF SUMP	ZURN Z100C	SAME AS RS-1, EXCEPT 4" PIPE SIZE.		N/A	
S-1 SINK	ELKAY DLR332210	18 GAUGE STAINLESS STEEL, 33" x 22" x 10 1/8" DOUBLE BOWL DROP-IN, LUSTROUS SATIN FINISH, CENTER 3 1/2" DRAINS, SIDES AND BOTTOM PADS. SINGLE HOLE DRILLING CONFIGURATION. PROVIDE LK99 STRAINER BASKET & TAILPIECE.		DELTA 9113-AR-DST	PULL DOWN SPOUT, LEVER STYLE HANDLE, STREAM OR SPRAY MODES, 1.8 GPM @ 60 PSI, 360° SPOUT ROTATION, ARCTIC STAINLESS FINISH, ADA APPROVED.
WC-1 TANK TYPE WATER CLOSET	ZURN Z5555-K	VITREOUS CHINA, HIGH EFFICIENCY, HIGH PERFORMANCE SIPHON-JET, ELONGATED WATER CLOSET IN WHITE FINISH. 1.28 GPF LOW CONSUMPTION, 1000g MaP, 2-1/8" FULLY GLAZED TRAPWAY, CHROME PLATED METAL HANDLE, 16 23/32" RIM HEIGHT. ADA COMPLIANT. CONTRACTOR RESPONSIBLE FOR ORDERING UNIT WITH TRIP LEVER ON THE WIDE SIDE.		ZURN Z5958SS-EL	ELONGATED, WHITE, CLOSED FRONT TOILET SEAT WITH COVER AND STAINLESS STEEL CHECK HINGES.
WF-1 WASHER FITTING	OATEY CENTRO II	WASHING MACHINE OUTLET BOX. 1/4 TURN BRASS BALL VALVES. FITS IN 2"x4" STUD WALL. 2" DRAIN.		N/A	
WH-1 WALL HYDRANT	ZURN Z1320-CXL	ENCASED, LEAD-FREE, NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING, INTEGRAL BACKFLOW PREVENTER, COPPER CASING, BRONZE & STAINLESS STEEL INTERIOR PARTS, 3/4" SOLDER INLET, 3/4" HOSE CONNECTION, CHROME-PLATED ROUGH CAST BRONZE HOUSING WITH LOCKING HINGED COVER STAMPED "WATER". ORDER ACCORDINGLY FOR WALL THICKNESS.		N/A	

ELECTRIC WATER HEATER SCHEDULE

COMMENTS:
1. PROVIDE WITH TEMPERATURE & PRESSURE RELIEF VALVE 2. PROVIDE WITH DRAIN PAN 3. PROVIDE WITH SIX WAY MOUNTING SHELF

TAG	BASIS OF DESIGN		DESCRIPTION	RECOVERY GPH	RISE OF RECOVERY	EWT	LWT	WATTAGE	VOLTAGE	COMMENTS
	MANUFACTURER	MODEL								
EWH-1	LOCHINVAR	JER-10 SCD	JUNIOR ELECTRIC WATER HEATER	8	90 °F	48 °F	140 °F	1650 W	120 V	1 - 3

DINING ROOM ADDITION AND RENOVATIONS FOR:
BAY ARENAC ISD
BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY JEE
DATE 03/17/2026
APPROVED

SHEET NO.
P2.0

PROJECT NO.
2538

GENERAL ELECTRICAL NOTES & SPECIFICATIONS:

1. EXECUTE THE WORK REQUIRED IN A MANNER EVIDENCED AS THE "BEST TRADE PRACTICES" CONTRIBUTING TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND AESTHETICS OF THE INSTALLATION.

2. MECHANICAL AND ELECTRICAL PLANS ARE DIAGRAMMATIC IN NATURE, INTENDED TO INDICATE DESIGN INTENT ONLY. CONTRACTOR IS RESPONSIBLE TO COORDINATE SPECIFIC LOCATIONS OF ITEMS AND ADJUST AS REQUIRED TO ACCOMMODATE CODE REQUIREMENTS, MANUFACTURER'S INSTALLATION REQUIREMENTS, AND THE WORK OF OTHER TRADES.

3. MECHANICAL AND ELECTRICAL INFORMATION IS PRESENTED ON AN X-REFERENCED BACKGROUND PLAN. IN CASE OF CONFLICT BETWEEN BACKGROUND PLAN AND ARCHITECTURAL FLOOR PLAN, ARCHITECTURAL FLOOR PLAN SHALL GOVERN.

4. RUN ALL PIPING, CONDUIT, ETC. CONCEALED IN WALLS WHENEVER POSSIBLE AND AVOID EXPOSED INSTALLATION UNLESS SPECIFICALLY REQUIRED (TYPICAL UNLESS NOTED OTHERWISE ON DRAWINGS). IN ANY LOCATIONS WHERE CONCEALMENT IS NOT POSSIBLE, CONTACT ENGINEER PRIOR TO INSTALLATION FOR PERMISSION FROM ENGINEER.

5. THE ENGINEER WILL NOT HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES. ENGINEER IS NOT RESPONSIBLE FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK; AND WILL NOT BE RESPONSIBLE FOR CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THOSE DOCUMENTS PREPARED BY THE ENGINEER.

6. ALL CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH CURRENT CODES, INCLUDING: MICHIGAN BUILDING CODE, MICHIGAN PLUMBING CODE, MICHIGAN MECHANICAL CODE, NATIONAL ELECTRICAL CODE (NEC), MICHIGAN BUILDING REHABILITATION CODE (WHEN APPLICABLE), NFPA CODES, LIFE SAFETY CODE (WHEN APPLICABLE), AMERICANS WITH DISABILITIES ACT (ADA), MICHIGAN BARRIER FREE CODES, MICHIGAN ENERGY CODE, MICHIGAN DEPARTMENT OF PUBLIC HEALTH CODES (WHEN APPLICABLE), AND ALL OTHER LOCAL, STATE, AND FEDERAL APPLICABLE CODES. THE CONTRACTOR SHALL UTILIZE THE LATEST ADOPTED EDITIONS OF ALL CODES.

7. IF BIDDING CONTRACTOR WOULD LIKE TO SUBSTITUTE ANY SPECIFIED ELECTRICAL DEVICES, LIGHT FIXTURES, CONTROLLERS, PANELS, DISCONNECTS, VFD'S, ELEC. GEAR, ETC., THEY MUST PROVIDE SUBMITTAL TYPE DRAWINGS TO THE ENGINEER A MINIMUM OF 7 DAYS PRIOR TO BIDDING THE PROJECT. IF THESE APPROVAL DRAWINGS ARE NOT SUBMITTED AND APPROVED, THE SPECIFIED EQUIPMENT MUST BE USED - NO EXCEPTIONS.

8. EQUIPMENT AND MATERIALS SHALL BE UL APPROVED AND SPECIFICATION GRADE.

9. ELECTRICAL CONTRACTORS SHALL SECURE PERMITS AND INSPECTIONS REQUIRED BY STATE AND LOCAL LAWS AND ORDINANCES AND PAY ALL FEES AND EXPENSES IN CONNECTION THEREWITH AS A PART OF THEIR WORK UNDER THIS CONTRACT.

10. UPON COMPLETION OF WORK, FURNISH OWNER CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

11. ALL CONDUCTORS SHALL BEAR IDENTIFICATION AS TO SIZE AND TYPE OF INSULATION AND SHALL BE EQUIPPED WITH WIRE MARKERS INDICATING THE CIRCUIT NUMBER, WIRE NUMBER AND/OR PHASE LETTER.

12. IDENTIFY ELECTRICAL EQUIPMENT WITH THE NAME OF THE EQUIPMENT, THE EQUIPMENT CONTROLLED, OR THE SYSTEM INVOLVED. DISCONNECT SWITCHES AND MOTOR STARTERS SHALL HAVE NAMEPLATES TO INDICATE THE EQUIPMENT THEY CONTROL. ALL ELECTRICAL EQUIPMENT POWER PANELS SHALL HAVE NAMEPLATES DESIGNATING THEIR NAMES AND VOLTAGE RATING, SUCH AS LP-A, 120/208 VOLT, 3 PHASE, 4 WIRE. NAMEPLATES SHALL BE ENGRAVED THREE-LAYER PLASTIC, BLACK LETTERS ON WHITE BACKGROUND FOR NORMAL POWER AND WHITE LETTERS ON RED BACKGROUND FOR EMERGENCY/STANDBY POWER PANELS AND ASSOCIATED EQUIPMENT. NO HANDWRITTEN OR PRINTED LABELING WILL BE ACCEPTED AS FINAL RECORD UPON PROJECT COMPLETION. NAMEPLATES SHALL BE A MINIMUM OF 1" X 3", OR AS NOTED ON NAMEPLATE SCHEDULE IF THERE IS ONE ON DRAWINGS. AS A TEXT SIZE MINIMUM:

    A. SWITCHBOARD OR PANELBOARD MAINS: 1" HIGH

    B. SWITCHBOARD OR PANELBOARD BRANCHES: ½" HIGH

    C. STARTERS/DISCONNECTS: ½" HIGH

    D. MANUAL MOTOR STARTERS: ¼" HIGH

13. PANEL SCHEDULES SHALL BE TYPEWRITTEN AND INSTALLED FOR EVERY PANEL, BE IT NEW OR EXISTING. FOR EXISTING PANELS, CIRCUITRY SHALL BE VERIFIED PRIOR TO UPDATING PANEL SCHEDULE. HANDWRITTEN SCHEDULES, AND/OR CROSSED OFF EXISTING SCHEDULES ARE NOT ACCEPTABLE.

14. ALL WORK AND MATERIALS SHALL BE GUARANTEED IN WRITING FOR (1) YEAR FROM PROJECT COMPLETION UNLESS A FURTHER GUARANTEE IS NOTED ELSEWHERE.

15. ALL SWITCHES, RECEPTACLES, SMALL MANUAL MOTOR STARTERS, OR TOGGLE SWITCHES SHALL HAVE THE CIRCUIT NUMBER IDENTIFIED ON THE DEVICE COVER PLATE USING CLEAR ADHESIVE TAPE LABELS WITH ¼" HIGH PRINTED BLOCK CHARACTERS IN BLACK. NO HANDWRITTEN LABELS WILL BE ACCEPTED AS FINAL RECORD.

16. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH CONDITIONS OF WHICH WILL AFFECT THE WORK HE IS TO PERFORM. THE SUBMISSION OF A PROPOSAL BY THIS CONTRACTOR SHALL BE CONCLUSIVE EVIDENCE THAT THIS CONTRACTOR HAS VISITED THE SITE AND HAS GIVEN PROPER CONSIDERATION AND EVALUATION OF THESE CONDITIONS IN THE PREPARATION OF HIS PROPOSAL. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE ON HIS BEHALF FOR EXTRA EXPENSE INCURRED DUE TO FAILURE OR NEGLECT ON HIS PART TO MAKE THIS VISIT AND EXAMINATION.

17. WHERE ACTIVE SEWERS, GAS, ELECTRIC, OR OTHER SERVICES ARE ENCOUNTERED DURING THE PERFORMANCE OF THIS CONTRACT, THE CONTRACTOR SHALL PROTECT, BRACE AND SUPPORT THEM AS REQUIRED. DO NOT PREVENT, INTERRUPT OR DISTURB OPERATION OF EXISTING SERVICES THAT ARE TO REMAIN. RELOCATE EXISTING SERVICES IF/AS REQUIRED.

18. THE CONTRACTOR SHALL CHECK THE UTILITY COMPANIES AND MUNICIPAL AGENCIES FOR EXACT LOCATIONS OF SERVICES WHICH THEY MAY EXPECT TO ENCOUNTER.

19. IN GENERAL, MOUNTING HEIGHTS ABOVE FINISHED FLOOR TO THE CENTERLINE OF BOXES AND EQUIPMENT SHALL BE AS PER AMERICANS WITH DISABILITIES ACT, AND MICHIGAN BARRIER FREE CODES.

20. WORK SHALL BE PERFORMED BY SKILLED MECHANICS WELL VERSED IN THEIR PARTICULAR TRADES.

21. RESPONSIBILITY FOR CARE AND PROTECTION OF ELECTRICAL WORK RESTS WITH THE CONTRACTOR UNTIL IS HAS BEEN TESTED AND ACCEPTED.

22. CONTRACTOR IS TO CHECK DOOR SWINGS WITH ARCHITECTURAL PLANS AND MOUNT LIGHT SWITCHES, CONTROLS, ETC., ACCORDINGLY. VERIFY WITH LATEST ARCHITECTURAL DRAWINGS.

23. ELECTRICAL EQUIPMENT SHALL BE SQUARE D, SIEMENS, EATON, G.E. OR MATCH EXISTING.

24. DISCONNECT SWITCHES SHALL BE NEMA HEAVY DUTY, FUSIBLE OR NON-FUSIBLE AS NOTED ON PLANS, WITH A NEMA 3R ENCLOSURE WHEN MOUNTED OUTDOORS.

25. THE NEUTRAL CONDUCTOR OF THE WIRING SYSTEM TOGETHER WITH THE CONDUIT SYSTEM AND SERVICE EQUIPMENT SHALL BE GROUNDED AND SIZED PER NEC ARTICLE 250 – SEE DETAIL ON DRAWINGS ALSO.

26. HOLES THROUGH WALLS OR PARTITIONS REQUIRED FOR ELECTRICAL WORK SHALL BE NEATLY CUT TO SIZE. CONDUITS PENETRATING OUTSIDE WALLS SHALL BE SEALED ACCORDINGLY, UNDERGROUND CONDUITS SHALL HAVE LINK SEALS. PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE FIRE-STOPPED BY APPROVED METHODS AND MATERIALS. NO BEAMS OR OTHER STRUCTURAL MEMBERS SHALL BE DRILLED, BURNED, OR CUT.

27. LOCATIONS OF WIRING DEVICES SUCH AS LIGHT SWITCHES, DUPLEX RECEPTACLES, THERMOSTATS, ETC., SHALL BE COORDINATED WITH OTHER TRADES.

28. IN GENERAL, ALL MOTORS ARE FURNISHED AND INSTALLED UNDER THE MECHANICAL SECTION OF THE SPECIFICATIONS. ALL STARTERS, FUSED SWITCHES, SAFETY SWITCHES, INCLUDING ALL POWER WIRING SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.

29. OUTLET BOXES IN THE SAME WALL BUT SERVING DIFFERENT ROOMS SHALL BE AT LEAST 4" APART TO MINIMIZE NOISE TRANSMISSION. WHEN LOCATED ON FIRE WALLS, THEY SHALL BE 24" APART.

30. LIGHTING AND CONTROL WIRING SHALL BE TESTED FOR SHORTS AND OPENS AND SHALL BE GIVEN A COMPLETE OPERATIONAL TEST.

31. THE CONTRACTOR SHALL TEST ALL CIRCUITS AS SOON AS CONDUCTORS ARE INSTALLED AND MAKE FINAL TESTS WHEN ALL WORK IS COMPLETE. IF CIRCUITS ARE NOT PROPERLY CONTROLLED AND INSULATED AT TIME OF EACH FINAL TEST, THE NECESSARY REPAIRS AND TESTS SHALL BE MADE AT THE CONTRACTORS EXPENSE.

32. ELECTRICAL EQUIPMENT SHALL MEET INSTALLATION STANDARDS PROVIDED IN NEC ARTICLE 110. COORDINATE LOCATIONS OF M.E.P. ITEMS WITH CONTRACTORS PRIOR TO CONSTRUCTION TO ASSURE THAT CLEARANCES ARE MET. LACK OF COORDINATION BETWEEN CONTRACTORS WILL NOT RESULT IN EXTRA MONIES AWARDED FOR RELOCATION OF M.E.P. ITEMS.

33. CHECK FINAL LOCATIONS OF LIGHT FIXTURES AND CEILING ELECTRICAL ITEMS WITH GRILLES AND REGISTERS, CAMERAS, FANS, SPRINKLER HEADS, ETC. COORDINATE WITH RESPECTIVE CONTRACTORS PRIOR TO INSTALLATION. NO MONIES WILL BE AWARDED TO CONTRACTORS HAVING TO RELOCATE ITEMS DUE TO LACK OF COORDINATION BETWEEN CONTRACTORS. MECHANICAL AND ELECTRICAL PLANS SHOW SCHEMATIC LOCATIONS ONLY – REFERENCE ARCHITECTURAL REFLECTIVE CEILING PLANS.

34. ANY DISCREPANCIES BETWEEN ARCHITECTURAL DRAWINGS AND ELECTRICAL DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO INSTALLATION.

35. CONTRACTOR SHALL MAINTAIN AND KEEP AN UP-TO-DATE SET OF DRAWINGS REFLECTING "AS BUILT" CONDITIONS OF THEIR WORK. CONTRACTOR SHALL INDICATE EXACT DIMENSIONS AND ELEVATIONS FOR ALL UNDERGROUND AND/OR CONCEALED WORK. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER TO THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR THE AS-BUILT DRAWINGS. AS BUILT DRAWINGS MUST BE IN THE POSSESSION OF THE C.M. OR G.C. PRIOR TO FINAL PAYMENT TO THE E.C.

36. THE WIRING METHOD(S) USED SHALL BE SUITABLE FOR THE INSTALLATION AND USE IN CONFORMITY WITH THE PROVISIONS PROVIDED BY THE NEC, LISTED OR LABELED EQUIPMENT SHALL BE USED OR INSTALLED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING. REFER TO NEC, SECTION 110.3(A) AND (B).

37. THE MAIN SERVICE DISCONNECTS SHALL BE IDENTIFIED AS THE MAIN SERVICE DISCONNECTION MEANS PER NEC 2023, ARTICLE 230.70(B).

38. CONTRACTOR SHALL CHECK ELECTRICAL FLOOR PLANS FOR "ISLAND" TYPE ELECTRICAL OUTLETS AND INSTALL UNDER-FLOOR CONDUITS AND WIRING ACCORDINGLY. SEE PLANS.

39. ARC-FLASH HAZARD WARNING SHALL BE PROVIDED AT ALL ELECTRICAL PANELS PER NEC 2023, SECTION 110.16

40. FIRST CLASS WORKABLE SYSTEMS SHALL BE PROVIDED BY THE CONTRACTOR. IF, IN THE OPINION OF THE CONTRACTOR, CHANGES IN THE DRAWINGS OR SPECIFICATIONS ARE REQUIRED TO PRODUCE FIRST-CLASS WORKABLE SYSTEMS, CONTRACTOR SHALL REQUEST AN INTERPRETATION FROM THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK. IT THE CONTRACTOR FAILS TO MAKE SUCH A REQUEST, NO EXCUSE WILL THEREAFTER BE ENTERTAINED FOR FAILURE TO PROVIDE FIRST-CLASS WORKABLE SYSTEMS. ENGINEER HAS THE FINAL SAY AS TO WHAT IS CONSIDERED "FIRST CLASS WORKABLE SYSTEMS".

41. SHOP DRAWINGS ARE TO BE THOROUGHLY CHECKED (AND NOTED SO ON FRONT COVER) BY THE CONTRACTOR PRIOR TO SUBMITTING THEM TO THE ARCHITECT/ENGINEER. REVIEW BY THE ENGINEER, SHALL NOT BE CONSTRUED AS A COMPLETE CHECK, BUT ONLY THAT THE GENERAL METHOD OF CONSTRUCTION AND DETAILING IS SATISFACTORY. REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS WHICH MAY EXIST. SHOP DRAWINGS ARE TO BE SUBMITTED VIA INTERNET IN PDF FORM. NO HARD COPIES WILL BE ACCEPTED. IF E.C. DOES NOT REVIEW DRAWINGS AND NOTES SAME ON FRONT COVER PRIOR TO SUBMITTAL TO ARCHITECT/ENGINEER, THEY WILL BE REJECTED.

42. ELECTRICAL CONTRACTOR IS TO REFER TO THE TEMPERATURE CONTROL SECTION OF THE SPECIFICATIONS AND THE MECHANICAL EQUIPMENT SCHEDULE FOR DEFINITION OF WHICH TRADES ARE RESPONSIBLE FOR HVAC INTERLOCKS AND OPERATIONAL SWITCHES.

43. ALL ROOF EQUIPMENT THAT HAS POWER TO IT MUST BE PROVIDED WITH A DUPLEX RECEPTACLE (WP AND GFI) WITHIN 25 FEET OF THE UNIT. MOUNT RECEPTACLES ON HOUSING, CIRCUIT WITH NEARBY RECEPTACLES BELOW, AND NOT WITH ROOF UNIT PER NEC NOTE: ROOF RECEPTACLES MAY OR MAY NOT BE SHOWN ON PLANS

44. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO CHECK THE RELATED MECHANICAL/KITCHEN/ REFRIGERATION/ELEVATOR/ETC. DRAWINGS TO SEE WHAT DISCONNECT SWITCHES/STARTERS/RELAYS/ETC. ARE PACKAGED IN BY THE SPECIFIC EQUIPMENT SUPPLIERS. IF NONE ARE SPECIFICALLY NOTED THE E.C. IS RESPONSIBLE TO PROVIDE AND INSTALL AS REQUIRED FOR SEQUENCES OF OPERATION. E.C. IS TO REVIEW MECHANICAL/KITCHEN/REFRIGERATION/ELEVATOR/ETC. SEQUENCES OF OPERATION, FOUND IN SECTIONS OF THE DRAWINGS AND SPECIFICATIONS OTHER THAN THE ELECTRICAL SECTIONS FOR SAID SEQUENCES. DISCONNECT SWITCHES/STARTERS/RELAYS/ETC. MAY OR MAY NOT BE SHOWN ON THE ELECTRICAL DRAWINGS.

45. MANUALS: PER MICHIGAN ENERGY CODES (SPECIFICALLY ASHRAE 90.1 STANDARDS), CONSTRUCTION DOCUMENTS SHALL REQUIRE THAT AN OPERATING MANUAL AND MAINTENANCE MANUAL BE PROVIDED TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:

    A. SUBMITTAL DATA FOR ALL ELECTRICAL EQUIPMENT CLEARLY STATING EQUIPMENT RATING, EXACTLY WHAT MODELS, ACCESSORIES, OPTIONS ARE INSTALLED.

    B. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

    C. NAMES AND ADDRESSES AND PHONE NUMBERS/EMAIL ADDRESSES FOR AT LEAST ONE QUALIFIED SERVICE AGENCY FOR EACH PIECE OF EQUIPMENT. A COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

46. WIRING TO BE MINIMUM #12 (FOR RUNS OVER 100 FEET, MINIMUM #10).

47. ALL EQUIPMENT INSTALLED AS PART OF THIS PROJECT SHALL BE NEW, REFURBISHED EQUIPMENT MAY BE USED WHERE NEC ALLOWS.

48. CONTRACTOR IS RESPONSIBLE TO PERFORM THE SHORT CIRCUIT STUDY FOR THE PROJECT AND THAT ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED TO MEET THOSE REQUIREMENTS.

49. ALL ABOVE GROUND WIRING TO BE INSTALLED IN EMT (THINWALL CONDUIT) UNLESS ROMEX IS EXPLICITLY ALLOWED.

50. OCCUPANCY AND TOGGLE SWITCHES AS WELL AS RECEPTACLES SHALL BE SPECIFICATION GRADE, COLOR TO BE CHOSEN BY ARCHITECT DURING SHOP DRAWING STAGE.

51. DEVICE PLATES FOR SWITCHES, RECEPTACLES, TELEPHONE, COMPUTER, ETC., SHALL BE AS MANUFACTURED PASS AND SEYMOUR, HUBBELL, OR BRYANT. THEY SHALL BE 0.040" THICK BRUSHED STAINLESS STEEL UNLESS NOTED OTHERWISE. FOR EXISTING PROJECTS, COVER PLATES SHALL MATCH OTHERS IN THE AREA UNLESS NOTED OTHERWISE.

52. ALL BUSSING AND WIRING TO BE COPPER. NO ALUMINUM IS ALLOWED ON THIS PROJECT.

53. ALL NEW ELECTRICAL DEVICES AND ASSOCIATED OUTLET BOXES SHALL BE FLUSH MOUNTED UNLESS NOTED OTHERWISE. ALL CONDUIT AND WIRING SHALL BE CONCEALED. SURFACE RACEWAY AND ASSOCIATED BOXES SHALL ONLY BE PERMITTED WHERE NOTED AND SHALL BE DISCUSSED WITH C.M. OR G.C. PRIOR TO INSTALLATION.

54. CONNECT ALL EMERGENCY AND EXIT BATTERY PACKS TO NEARBY LIGHTING CIRCUITS AHEAD OF SWITCHES PER NEC SO EMERGENCY/EXIT LIGHTS OPERATE ON LOSS OF POWER.

55. ELECTRICAL CONTRACTOR SHALL "RING OUT" ALL CIRCUITS IN EXISTING PANELBOARDS AFFECTED BY THE WORK OF THIS PROJECT AND PROVIDE UPDATED TYPED PANELBOARD DIRECTORIES. PROVIDE BLANK COVERS WHERE BREAKERS HAVE BEEN REMOVED.

END OF ELECTRICAL NOTES/SPECIFICATIONS

ABBREVIATIONS

"	INCHES
#	NUMBER
'	FEET
1P	1 POLE (2P, 3P, 4P, ETC.)
@	AT
A	AMPERE
A.F.F.	ABOVE FINISHED FLOOR
ACLG	ABOVE CEILING
ACT	ABOVE COUNTER
ADO	AUTOMATIC DOOR OPENER
AF	AMP FRAME
AFCI	ARC FAULT COMBINATION CIRCUIT INTERRUPTER
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
AMPL	AMPLIFIER
ANNUN	ANNUNCIATOR
APPROX	APPROXIMATELY
AQ-STAT	AQUA-STAT
ARCH	ARCHITECT, ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
B.F.	BOTTLE FILLER
B.M.S.	BUILDING MANAGEMENT SYSTEM
BATT	BATTERY
BLDG	BUILDING
C.	CONDUIT
CAB	CABINET
CAT	CATALOG
CAT6	CATEGORY 6 CABLING
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CL	CONNECTED LOAD
COF	COFFEE MAKER
COMB	COMBINATION
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION, CONTINUOUS
CONTR	CONTRACTOR
CP	CIRCULATING PUMP
CT	CURRENT TRANSOFORMER
CTR	CENTER
CU	COPPER
DCP	DOMESTIC WATER CIRCULATING PUMP
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DL	DEMAND LOAD
DN	DOWN
DPR	DAMPER
DS	DISCONNECT SWITCH
DWG	DRAWING
E.C.	ELECTRICAL CONTRACTOR
E.T.R.	EXISTING TO REMAIN
ELEC	ELECTRICAL
ELEV	ELEVATOR
ELU	EMERGENCY LIGHTING UNIT
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EP	ELECTRIC PNEUMATIC
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FABP	FIRE ALARM BOOSTER SUPPLY PANEL
FACP	FIRE ALARM CONTROL PANEL
FASP	FIRE ALARM SLAVE PANEL
FCU	FAN COIL UNIT
FIXT	FIXTURE
FLR	FLOOR
FU	FUSE
FUDS	FUSED DISCONNECT SWITCH
G.C.	GENERAL CONTRACTOR
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRS	GALVANIZED RIGID STEEL (CONDUIT)
GYP	GYPSUM BOARD
H.V.A.C.	HEATING, VENTILATING & AIR CONDITIONING
HOA	HAND-OFF-AUTO SWITCH
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HT	HEIGHT
HTR	HEATER
HV	HIGH VOLTAGE
I/W	INTERLOCK WITH
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IR	INFRARED
J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT- AMPERE RECTIVE
KW	KILOWATT
KWC	KILOWATT CONNECTED
KWD	KILOWATT DEMAND
KWH	KILOWATT HOUR
LOC	LOCATE OR LOCATION
LP	LIGHTNING PEOTECTION
LT	LIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LV	LOW VOLTAGE
M.C.	MECHANICAL CONTRACTOR
M.E.P.	MECHANICAL ELECTRICAL PLUMBING
M/C	MOMENTARY CONTACT
MAGS	MAGNETIC STARTER
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MAIN CIRCUIT BREAKER
MDC	MAIN DISRIBUTION CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MFS	MAIN FUSED DISCONNECT SWITCH
MH	MANHOLE
MIC	MICROPHONE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MMS	MANUAL MOTOR STARTER
MOA	MULTIOUTLET ASSEMBLY
MSBD	MAIN SWITCHBOARD
MSP	MOTOR STARTER PANELBOARD
MT	MOUNT
MT.C	EMPTY CONDUIT
MTR	MOTOR, MOTORIZED
MTS	MANUAL TRANSFER SWITCH
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELEC MFGR'S ASSOCIATION
NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NPF	NORMAL POWER FACTOR
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOADS
P	PLATE
PA	PUBLIC ADDRESS
PB	PULL BOX OR PUSHBUTTON
PE	PNEUMATIC ELECTRIC
PED	PEDESTAL
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATING VALVE
PNL	PANEL
PP	POWER POLE
PR	PAIR
PRI	PRIMARY
PROJ	PROJECTION
PRV	POWER ROOF VENTILATOR
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (CONDUIT)
PWR	POWER
QUAN	QUANTITY
RCPT	RECEPTACLE
REQD	REQUIRED
REX	REMOVE EXISTING
RM	ROOM
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
S/N	SOLID NEUTRAL
S/S	STOP/START PUSHBUTTONS
SC	SURFACE CONDUIT
SEC	SECONDARY
SHT	SHEET
SIM	SIMILAR
SP	SPARE
SPEC	SPECIFICATION
SPKR	SPEAKER
SR	SURFACE RACEWAY
SS	STAINLESS STEEL
SSW	SELECTOR SWITCH
STA	STATION
STD	STANDARD
SURF	SURFACE MOUNTED
SW	SWITCH
SWBD	SWITCHBOARD
SWL	SWITCH WITH LIGHTS
SYM	SYMMETRICAL
SYS	SYSTEM
T-STAT	THERMOSTAT
TEL	TELEPHONE
TEL/DATA	TELEPHONE/DATA
TERM	TERMINAL
TL	TWIST LOCK
TR	TAMPER RESISTANT
TTC	TELEPHONE TERMINAL CABINET
TV	TELEVISION
TVTC	TELEVISION TERMINAL CABINET
TYP	TYPICAL
UC	UNDER COUNTER
UCR	UNDER COUNTER REFRIGERATOR
UE	UNDERGROUND ELECTRICAL
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UT	UNDERGROUND TELEPHONE
UTIL	UTILITY
UV	UNIT VENTILATOR
V	VOLT
VA	VOLT-AMPERES
VDT	VIDEO DISPLAY TERMINAL
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
VOL	VOLUME
W	WATT
W.G.	WIRE GUARD
W/	WITH
W/O	WITHOUT
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
℄	CENTER LINE
∠	ANGLE
▲	DELTA

PHASE LINE TYPES

NEW

EXISTING

DEMOLISHED

ELECTRICAL FIXTURE LEGEND

DUPLEX RECEPTACLE AT 46" AFF

DUPLEX RECEPTACLE AT 18" AFF

QUAD RECEPTACLE AT 18" AFF

JUNCTION BOX

DISCONNECT SWITCH, NON-FUSED, HEAVY DUTY, HP-RATED - ASSUME 30 AMP SWITCH UNO ON ONE LINE DIAGRAM OR FLOOR PLANS.

^{M} MANUAL MOTOR STARTER

DATA LEGEND

DATA ROUGH-IN

LIGHTING DEVICE SCHEDULE

^{d} DIMMER SWITCH

^{LV} LOW VOLTAGE SWITCH

^{OC} WALL OCCUPANCY SENSOR SWITCH

$ SWITCH

CEILING MOUNTED OCCUPANCY SENSOR

ROOM CONTROLLER

LIGHTING FIXTURE LEGEND

EXIT SIGN

PENDANT FIXTURE

RECESSED DOWN ROUND FIXTURE

2' X 2' FIXTURE

2' X 2' FIXTURE WITH BATTERY-BACKUP

2' X 4' FIXTURE

WALL SCONCE

EMERGENCY LIGHT

DISTRIBUTION LEGEND

RECEPTACLE PANELBOARD (208Y/120V, 3Ø, 4W), REFER TO PANEL SCHEDULES FOR MORE INFORMATION.

LOW VOLTAGE:

DATA CABLING TO BE HANDLED BY OWNERS VENDER, E.C. SHALL PROVIDE ALL CONDUITS, BACK BOXES AND PULL WIRE PER DRAWINGS.

KTS ENGINEERING GROUP

CONSULTING ENGINEER

491 E. WRIGHT AVE. SHEPHERD, MI 48883

989-567-1100 | info@KTSEngineeringGroup.com

KTS PROJECT NO.: 26-0299

ELECTRICAL SHEET INDEX

TSSF ARCHITECTS, INC.

ARCHITECTS INTERIORS PLANNERS

122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY JWA

DATE 03/17/2026

APPROVED KTS

SHEET NO.

E0.0

PROJECT NO.

2538

ELECTRICAL DEMOLITION NOTES:

1. ELECTRICAL CONTRACTOR SHALL EXAMINE THE PROJECT DOCUMENTS AND VISIT THE SITE PRIOR TO SUBMITTING A BID. DO NOT RELY SOLELY ON THE ELECTRICAL PLANS FOR ALL DEMOLITION REQUIREMENTS. REVIEW ALL PROJECT DOCUMENTS PRIOR TO SUBMITTING A BID.

2. THE DEMOLITION INFORMATION IS PROVIDED TO ASSIST WITH LABOR COSTS ASSOCIATED WITH THE ELECTRICAL SYSTEMS REMOVAL. THE DEMOLITION CONTRACTOR WILL REMOVE ALL ELECTRICAL COMPONENTS AS NECESSARY.

3. CONFIRM WITH THE ARCHITECTS OFFICE AND/OR CONSTRUCTION MANAGER, PROJECT SCHEDULES AND REVIEW THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS PRIOR TO COMMENCING DEMOLITION.

4. REMOVE THE ELECTRICAL LIGHTING, RECEPTACLES, SWITCHING, ASSOCIATED CONDUIT, SURFACE RACEWAY, INTERIOR BUILDING CABLE TV DISTRIBUTION, VOICE AND DATA. REMOVE ANY SPECIAL SYSTEMS SUCH AS CATV, TELEPHONE, SOUND, NURSE CALL ETC. AND RELATED CONDUIT/WIRING. REMOVE SURFACE MOUNTED CONDUIT, BOXES, AND NON-METALLIC RACEWAY FROM EXISTING WALLS THAT ARE TO REMAIN AS NECESSARY.

5. USE CARE DURING THE DEMOLITION PHASE TO AVOID DAMAGE TO ANY GLAZED BLOCK, TILE OR BRICK VENEERED WALLS THAT ARE TO REMAIN.

6. DEMOLITION CONTRACTORS ARE RESPONSIBLE TO CONFIRM ALL QUANTITIES AND DEMOLITION REQUIRED, COMPLETE DEMOLITION IS NOT SHOWN ON THE DRAWINGS.

7. DISCONNECT, REMOVE AND/OR RELOCATE ALL ITEMS AS SHOWN. IF THERE ARE ANY ITEMS THAT ARE TO REMAIN, THEY ARE SPECIFICALLY NOTED SO ON THE DRAWINGS. (E.T.R.)

8. WHERE CONDUITS OR NON-METALLIC SHEATHED CABLE ARE ROUTED CONCEALED IN WALL CAVITIES OF WALLS THAT ARE TO REMAIN, ABANDON THE CONDUIT AND/OR CABLE. CUT BACK TO THE POINT OF CONCEALMENT INSIDE THE WALL OR CEILING CAVITY. CUT AND REMOVE THE CONDUIT EXITING THE WALL CAVITY INTO THE CEILING SPACE. DISCONNECT AND REMOVE FEEDS FROM ELECTRICAL PANEL. REMOVE ALL SURFACE MOUNTED OUTLET BOXES ASSOCIATED WITH THE CONDUIT SYSTEMS.

9. DISCONNECT AND REMOVE ALL ELECTRICAL EQUIPMENT INCLUDING HANGERS, PULL BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, LIGHT FIXTURES, CONDUIT AND WIRING FROM THE POINT OF CONCEALMENT TO THE EQUIPMENT. DISPOSE OF ALL ITEMS (SPECIAL ATTENTION TO LAMPS) AS REQUIRED BY LAW.

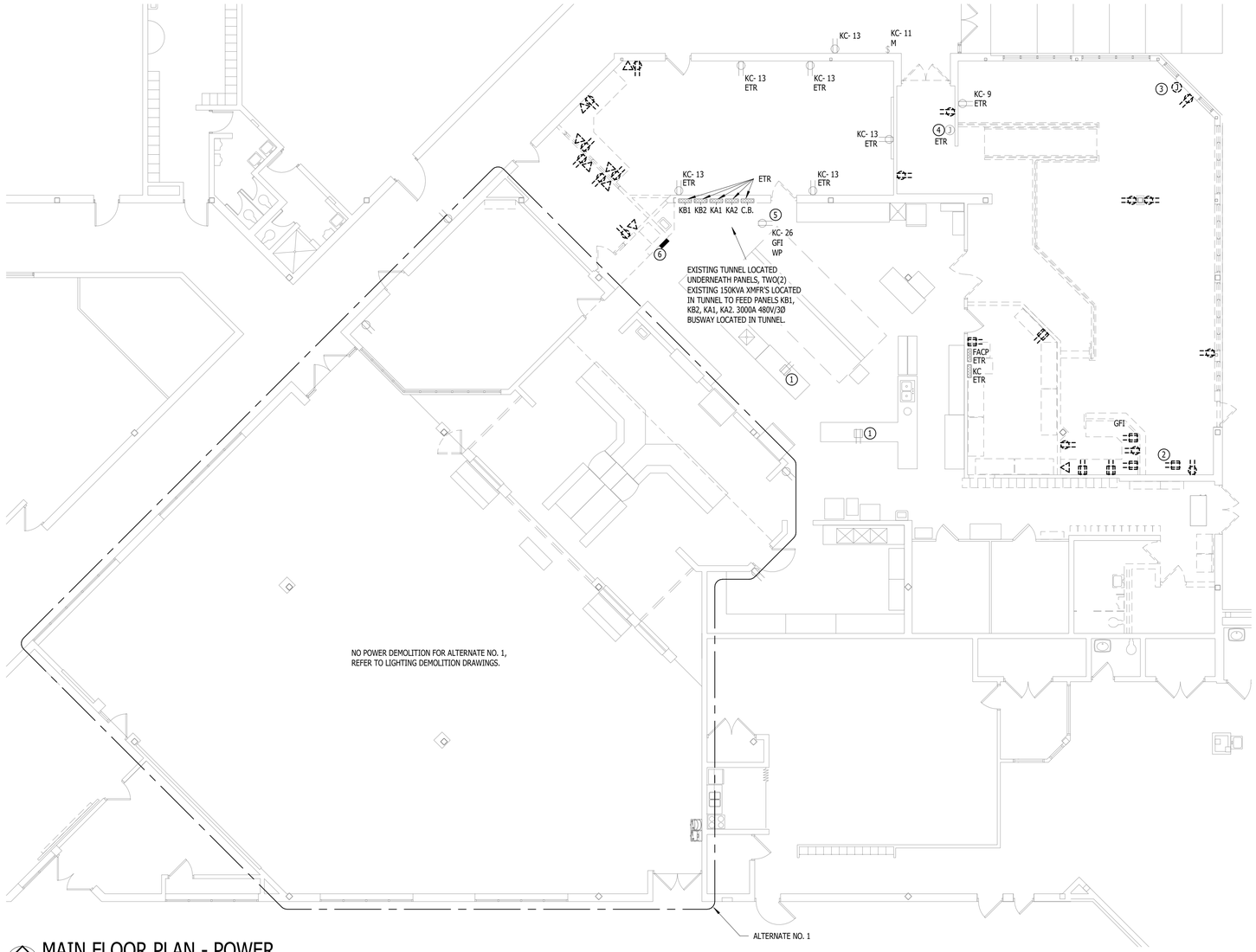
10. REMOVE ALL TV, VOICE, AND DATA CABLES FROM THE STATIONS NOTED TO BE REMOVED BACK TO THE DISTRIBUTION FRAMES. REMOVE CABLES, PATCH CORDS AT THE DISTRIBUTION FRAMES. REMOVE ALL TV CABLES AND OUTLETS FROM EACH TV/MONITOR LOCATION BACK TO THE DISTRIBUTION FRAMES.

11. ELECTRICAL CONTRACTOR SHALL TAKE CARE WHEN REMOVING ELECTRICAL SYSTEMS. ALL WIRING THAT IS REQUIRED FOR POWER AND SPECIAL SYSTEMS SHOWN TO REMAIN SHALL BE MAINTAINED.

12. EXISTING LIGHT FIXTURES MAY BE UTILIZED FOR TEMPORARY LIGHTING, ALL TEMPORARY SHALL REMAIN AFTER PROJECT IS DONE FOR OWNERS USE. ALL LIGHT FIXTURES THAT ARE REMOVED SHALL BE DISPOSED OF IN A LAWFUL WAY. VERIFY WITH CONSTRUCTION MANAGER WHAT LIGHTS AND SWITCHES ARE TO REMAIN.

13. OWNER HAS FIRST RIGHTS TO ALL ITEMS REMOVED.

14. CONSULT MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.



MAIN FLOOR PLAN - POWER
1/8" = 1'-0"

DEMO POWER KEYNOTES:

1. RECEPTACLE HUNG BY SO CORD FROM CEILING, E.C. TO REMOVE AND SAVE FOR LATER.
2. CEILING MOUNTED RECEPTACLE FOR WALL MOUNTED TV.
3. BUFFET WARMER, E.C. TO FIELD VERIFY LOCATION OF CIRCUIT IN DINING AREA. DEMOLISH AND REUSE FOR NEW DINING AREA. E.C. TO COORDINATE NEW LOCATION WITH OWNER.
4. FLUSH MOUNTED BACKBOX FOR MASTER CLOCK
5. EAST TUNNEL SUMP PUMP, LOCATED IN TUNNEL
6. E.C. TO COORDINATE WITH M.C. AND OWNER FOR REMOCAL RELOCATION OF EQUIPMENT.

KTS ENGINEERING GROUP
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TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

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APPROVED KTS

SHEET NO.
ED1

PROJECT NO.
2538

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MAIN FLOOR PLAN - LIGHTING DEMOLITION
1/8" = 1'-0"

DEMO LIGHTING KEYNOTES:

1. ALL LIGHTING FIXTURES AND SWITCHES SHALL BE DEMOLISHED IN ROOM, CIRCUIT SHALL BE SAVED FOR REUSE IN ADDITION/RENOVATED AREAS.
2. E.C. SHALL FIELD VERIFY SWITCH CONTROLS AND DEMOLISH SWITCHES CONNECTED TO FIXTURES IN KITCHEN AREA, SWITCHES EFFECTING EXISTING SERVING AND CAFETERIA ARE ALTERNATE NO. 1.
3. FRONT SIGNAGE, E.C. TO DISCCONECT POWER AND SAVE CIRCUIT FOR FUTURE USE. VERIFY WITH OWNER FOR NEW FRONT SIGN.

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SHEET NO.
ED2

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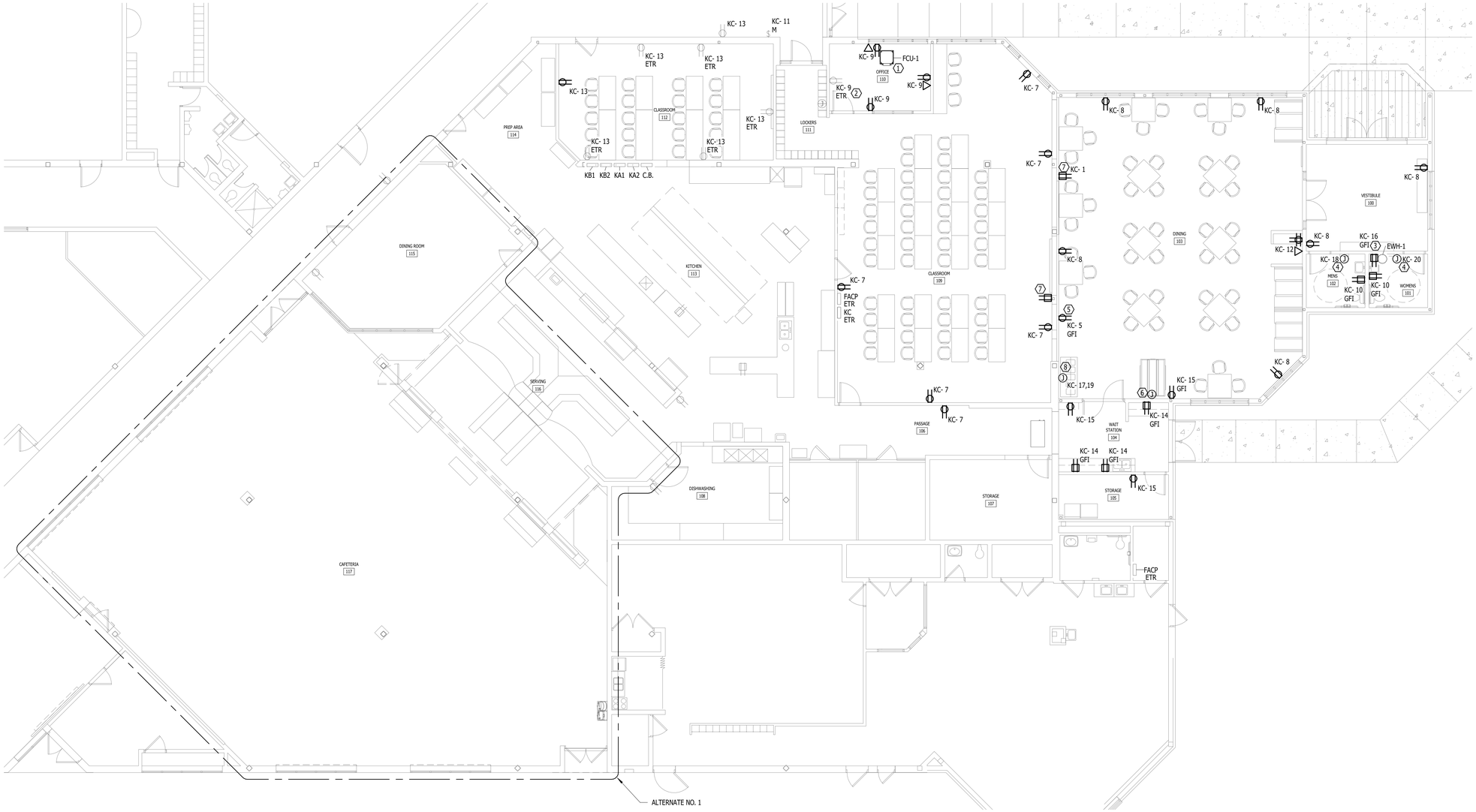

MAIN FLOOR PLAN - POWER
1/8" = 1'-0"

POWER KEYNOTES:

1. POWERED THROUGH OUTSIDE UNIT "CU-1".
2. E.C. TO USE EXISTING CIRCUIT FOR NEW RECEPTACLES.
3. RECEPTACLE FOR ELECTRIC WATER HEATER "EWH-1" LOCATED ABOVE CEILING. E.C. TO COORDINATE RECEPTACLE LOCATION WITH "EWH.1" INSTALLER.
4. POWER FOR ELECTRIC HAND DRYER, E.C. TO VERIFY LOCATION WITH G.C.
5. POWER FOR COFFEE STATION, VERIFY LOCATION WITH OWNER.
6. PORTABLE SALAD BAR, VERIFY LOCATION WITH OWNER.
7. E.C. VERIFY POWER FOR DROP DOWN SCREEN. E.C. TO VERIFY LOCATION WITH OWNER.
8. HOT SERVING LINE, E.C. TO VERIFY LOCATION WITH OWNER.

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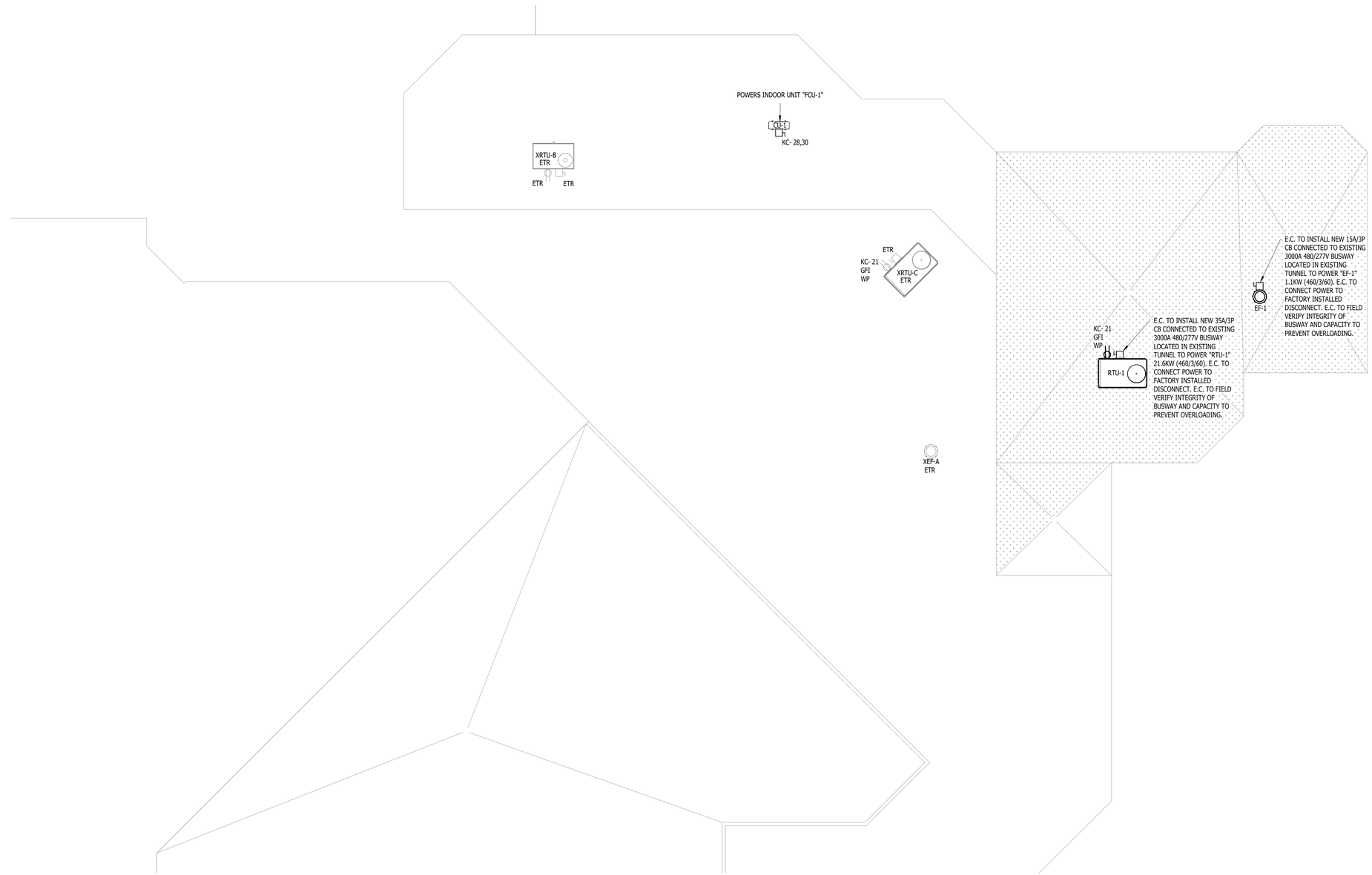

SECOND FLOOR PLAN - POWER
1/8" = 1'-0"

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MAIN FLOOR PLAN - LIGHTING
1/8" = 1'-0"

LIGHTING CONTROL NOTES:

APPROVED MANUFACTURES:

1. CRESTRON
2. WATTSTOPPER
3. HUBBEL
4. N-LIGHT
5. LEVITON

RC PROGRAMMABLE ROOM CONTROLLER

OS PROGRAMMABLE OCCUPANCY SENSOR

^{LV} LOW VOLTAGE SWITCH

^{OS} OCCUPANCY SENSOR SWITCH

NOTES:

1. ALL SENSOR LOCATIONS ARE APPROXIMATE, REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
2. ULTRASONIC CEILING MOLUNT SENSORS SHOULD BE LOCATED A MINIMUM OF SIX FEET (6') FROM HVAC SUPPLY/RETURN VENTS.
3. CONTRACTOR IS RESPONSIBLE FOR: PROPER SENSITIVITY & TIME DELAY SETTINGS (FOR NON-ADAPTIVE PRODUCTS) RECOMMENDED PLACEMENT, AND FIELD VERIFICATION OF CIRCUITS WITH IN RESPECT TO POWER PLACEMENT.
4. CONTRACTOR IS RESONSIBLE FOR ENSURING THAT THE SENSOR BILL OF MATERIALS COMPLIES WITH THE SENSOR DESGN AND LAYOUT SPECIFICATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR INSTALLING EQUIPMENT IN COMPLIANCE WITH LOCAL CODE.
6. CONTRACTOR IS RESPONSIBLE TO REVIEW LIGHTING CONTROLS BOM FOR QUANTITY OF O.S./VACANCY SENSOR.
7. ROOM CONTROLLERS CHALL CONFORM TO REQUIRMENTS FOR EACH ROOMS LIGHTING SEQUENCE.

LIGHTING FIXTURE SCHEDULE

TYPE	MFR/MODEL	COLOR TEMP	DIMENSIONS	DIMMING	VOLTAGE	WATTAGE/(FOOT)	DISCRIPTION	COMMENTS
A1	LITHONIA LIGHTING MODEL #CPX-2X2-2000L-80CRI-40K-SWL-MIN10-ZT-MVOLT	4000K	2' X 2' X 2"	0-10V 10%	120-277V	15.6	2' X 2' RECESSED FLAT LENS PANEL	
A1E	LITHONIA LIGHTING MODEL #CPX-2X2-2000L-80CRI-40K-SWL-MIN10-ZT-MVOLT-E10W	4000K	2' X 2' X 2"	0-10V 10%	120-277V	15.6	2' X 2' RECESSED FLAT LENS PANEL W/ BATTERY BACK-UP	HAS BATTERY BACK-UP
A2	LITHONIA LIGHTING MODEL #CPX-2X2-3200L-80CRI-40K-SWL-MIN10-ZT-MVOLT	4000K	2' X 2' X 2"	0-10V 10%	120-277V	30.1	2' X 2' RECESSED FLAT LENS PANEL	
A2E	LITHONIA LIGHTING MODEL #CPX-2X2-3200L-80CRI-40K-SWL-MIN10-ZT-MVOLT-E10W	4000K	2' X 2' X 2"	0-10V 10%	120-277V	30.1	2' X 2' RECESSED FLAT LENS PANEL W/ BATTERY BACK-UP	HAS BATTERY BACK-UP
CA	FIXTURE TO BE SELECTED BY OWNER	4000K	TBD	N/A	120V	20	CABINET LIGHT	
D1	LITHONIA LIGHTING MODEL #WF6-ALO20-SWW5-90CRI-MVOLT-MW	2700K, 3000K, 3500K, 4000K, 5000K	6.25" X 1.25"	0-10V 10%	120-277V	15.5	WAFER DOWNLIGHT	SET TO MED LUMENS, 4000K COLOR TEMP
EM	LITHONIA LIGHTING MODEL #ELM6L-UVOLT-LPT-SDRT	N/A	13" X 6" X 4"	N/A	120-277V	11	EMERGENCY LIGHT	WIRED AHEAD OF LOCAL SWITCHING
P1	FIXTURE TO BE SELECTED BY OWNER	4000K	TBD	0-10V 10%	120-277V	18	ROUND PENDANT LIGHT	
WS	FIXTURE TO BE SELECTED BY OWNER	4000K	TBD	0-10V 10%	120-277V	20	WALL SCONCE LIGHT	
XE	LITHONIA LIGHTING MODEL #EDGR-R-EL	N/A	13" X 8" X 2"	N/A	120-277V	4	LED EXIT LIGHT	WIRED AHEAD OF LOCAL SWITCHING

LIGHTING CONTROL MATRIX

KEYNOTE	KEYNOTE		AUTOMATIC ON/OFF CONTROLS			PARTIAL OFF		FULL OFF TIME	TIME-CLOCK SCHEDULE	DAYLIGHT			NOTES
	SWITCH TYPE	SWITCH CONTROLS	TYPE	SENSOR	TURN ON LIGHTING TO %	TIME	%			SIDE LIGHT	TOP LIGHT	MAINTAIN FC LEVEL	
A	LOW VOLTAGE	ON-OFF-DIM	OCCUPANCY SENSOR	MANUAL ON/ AUTO OFF	N/A	15 MINS	50%	20 MINS	N/A	N/A	N/A	N/A	
B	LOW VOLTAGE	ON-OFF	OCCUPANCY SENSOR	AUTO ON/OFF	50%	15 MINS	50%	20 MINS	N/A	N/A	N/A	N/A	MANUAL SWITCH TO TURN LIGHTING TO 100%
C	LOW VOLTAGE	ON-OFF	N/A	MANUAL ON/OFF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
D	LOW VOLTAGE	ON-OFF-DIM	N/A	MANUAL ON/OFF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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BAY CITY, MICHIGAN

NO.

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SHEET NO.
E2.0

PROJECT NO.
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989-567-1100 | info@KTSEngineeringGroup.com
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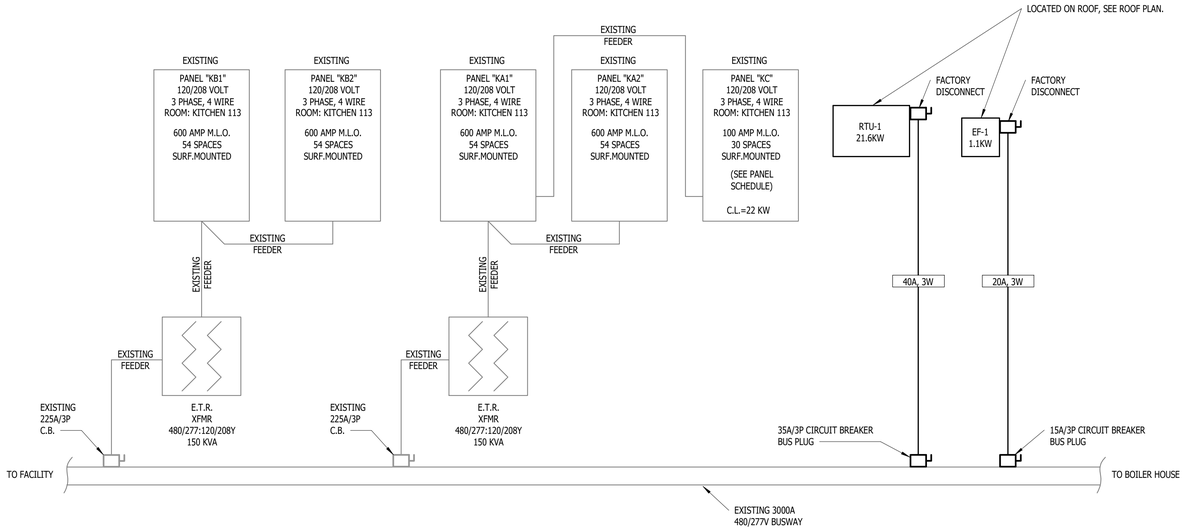

GROUND ENTIRE SYSTEM PER NEC, ARTICLE 250. SEE DETAIL ON DWGS.

ELECTRICAL RISER DIAGRAM

NO SCALE

FEEDER SCHEDULE (COPPER)

TAG	CONDUCTORS	EQUIPMENT GROUND	CONDUIT
20A, 3W	3#12	#12	½"
40A, 3W	3#8	#10	¾"

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EXISTING PANEL

Branch Panel: KC

Location: CLASSROOM 109
Supply From:
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 208Y/120 Wye
Phases: 3
Wires: 4

A.I.C. Rating:
Mains Type: MLO
Mains Rating: 100 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	DROP DOWN SCREEN DINING 103	20 A	1	180 VA	2200...		2	30 A	BUFFET WARMER	2
3	SPARE	20 A	1		0 VA	2200...				4
5	COFFEE STATION DINING 103	20 A	1			600 VA	993 VA	1	20 A	LIGHTING	6
7	RCPT CLASSROOM 109	20 A	1	1080...	1080...			1	20 A	RCPT DINING 103	8
9	RCPT OFFICE 110	20 A	1		900 VA	360 VA		1	20 A	WOMENS, MENS 101,102	10
11	CH-1	20 A	1			700 VA	360 VA	1	20 A	RCPT DINING 103	12
13	PCPT CLASSROOM 112	20 A	1	1260...	540 VA			1	20 A	RCPT WAIT STATION 104	14
15	RCPT WAIT STATION 104, STORAGE 105	20 A	1		540 VA	1650...		1	20 A	EWH-1	16
17	Receptacle DINING 103	20 A	2			2200...	950 VA	1	20 A	HAND DRYER MENS 102	18
19				2200...	950 VA			1	20 A	HAND DRYER WOMENS 101	20
21	RCPT RTU	20 A	1		360 VA	0 VA		1	20 A	SPARE	22
23	SPARE	20 A	1			0 VA	500 VA	1	20 A	FRONT SIGNAGE	24
25	SPARE	20 A	1	0 VA	180 VA			1	20 A	EAST TUNNEL SUMP PUMP	26
27	SPARE	20 A	1		0 VA	1475...					28
29	LIGHTING	20 A	1			1007...	1475...	2	20 A	CU-1/FCU-1	30
		Total Load:		9670 VA	7485 VA	8786 VA					
		Total Amps:		82 A	62 A	75 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Equipment	3650 VA	100.00%	3650 VA		
Other	40 VA	100.00%	40 VA	**Total Conn. Load:**	25941 VA
Receptacle	19790 VA	75.27%	14895 VA	**Total Est. Demand:**	21046 VA
Lighting	2461 VA	100.00%	2461 VA	**Total Conn.:**	72 A
				Total Est. Demand:	58 A

Notes:
ORIGINAL PANEL LOAD = 19.7KW

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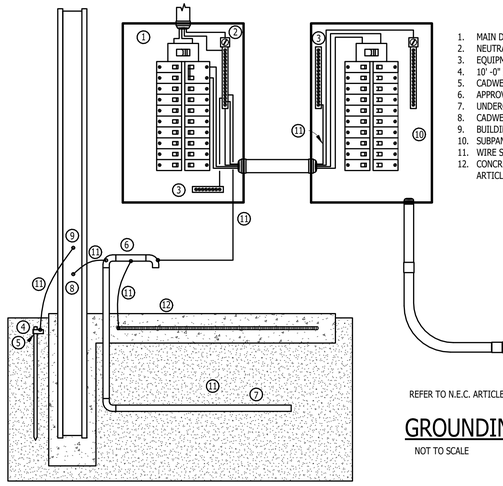

1. MAIN DISTRIBUTION PANEL.
2. NEUTRAL BUS.
3. EQUIPMENT GROUND BAR KIT.
4. 10' -0" X 3/4" COPPERWELD GROUND ROD.
5. CADWELD OR APPROVED CLAMP.
6. APPROVED PIPE CLAMP.
7. UNDERGOUND METAL PIPE.**
8. CADWELD OR APPROVED CONNECTION
9. BUILDING STEEL**
10. SUBPANEL
11. WIRE SIZED PER N.E.C., ARTICLE 250
12. CONCRETE-ENCASED ELECTRODE PER N.E.C., ARTICLE 250.52(A)(3)**

**WHERE JOB REQUIRES OR WHERE AVALIABLE.

REFER TO N.E.C. ARTICLE 250

GROUNDING DETAIL

NOT TO SCALE

FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						ALUMINUM CONDUCTORS				
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE				WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE		
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH,1IN,1G)	SINGLE PHASE 3 WIRE+G (2PH,1IN,1G)	THREE PHASE 3 WIRE+G (3PH,1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH,1IN,1G)	PHASE & NEUTRAL	GROUND	SINGLE PHASE 3 WIRE+G (2PH,1IN,1G)	THREE PHASE 3 WIRE+G (3PH,1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH,1IN,1G)
15-20	12	12	3/4"	3/4"	3/4"	3/4"	NOT ACCEPTABLE				
25-30	10	10	3/4"	3/4"	3/4"	3/4"					
35-40	8	10	3/4"	3/4"	3/4"	3/4"					
45-50	8 (6)	10	3/4"	3/4"	3/4"	3/4"					
60	6 (4)	10	3/4"(1)	3/4"(1)	3/4"(1)	3/4"(1)					
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"					
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"					
90-100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1	6	1 1/2"	1 1/4"	1 1/2"
110	2 (1)	6	-	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1/O	4	-	1 1/2"	2"
125	1 (1/0)	6	-	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	2/O	4	-	1 1/2"	2"
150	1/O	6	-	1 1/2"	1 1/2"	1 1/2"	3/O	4	-	2"	2 1/2"
175	2/O	6	-	2"	2"	2"	4/O	4	-	2"	2 1/2"
200	3/O	6	-	2"	2"	2 1/2"	250	4	-	2"	3"
225	4/O	4	-	2"	2"	2 1/2"	300	2	-	2 1/2"	3"
250	250	4	-	2 1/2"	2 1/2"	2 1/2"	350	2	-	2 1/2"	3"
300	350	4	-	2 1/2"	2 1/2"	3"	500	2	-	3"	3 1/2"
350	500	3	-	3"	3"	3"	2-4/O	2-1/O	-	2-2"	2-2"
400	500	3	-	3"	3"	3"	2-250	2-1/O	-	2-2"	2- 2 1/2"
450	2-4/O	2-2	-	2-2"	2-2"	2- 2 1/2"	2-300	2-1/O	-	2- 2 1/2"	2-3"
500	2-250	2-2	-	2- 2 1/2"	2- 2 1/2"	2- 2 1/2"	2-350	2-1/O	-	2- 2 1/2"	2-3"
600	2-350	2-1	-	2- 2 1/2"	2- 2 1/2"	2-3"	2-500	2-2/O	-	2-3"	2-3 1/2"
700	2-500	2-1/O	-	2-3"	2-3"	2-3"	2-600	2-3/O	-	2-3"	2-3 1/2"
800	3-500	2-1/O	-	2-3"	2-3"	2-3 1/2"	3-400	3-3/O	-	3-3"	3-3 1/2"
1000	3-400	3-2/O	-	3-3"	3-3"	3-3"	3-600	3-4/O	-	3-3 1/2"	3-3 1/2"
1200	3-600	3-3/O	-	3-3 1/2"	3-3 1/2"	3-3 1/2"	4-500	4-250	-	4-3"	4-3 1/2"
1600	4-600	4-4/O	-	4-3 1/2"	4-3 1/2"	4-3 1/2"	5-600	5-350	-	5-3 1/2"	5-4"
2000	5-600	5-250	-	5-3 1/2"	5-3 1/2"	5-3 1/2"	6-600	6-400	-	6-3 1/2"	6-4"

NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/O. LARGER THAN #4/O ARE BASED ON TYPE XHHW.
3. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED COPPER WIRE APPLIED AT 75° FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED 60°C, USE CONDUCTORS AND CONDUIT SIZED INDICATED IN PARENTHESES.
4. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHERS TYPES OF CONDUIT.
5. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL EQUIPMENT LUG SIZES.
6. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
7. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.
8. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CIRCUIT RATING(A)	WIRE SIZE	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)				
		120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
	10	128	222	256	295	511
	8	201	348	402	464	804
	6	313	542	625	721	1250
30A	10	85	148	170	197	341
	8	134	232	268	309	536
	6	208	361	417	481	833
	4	313	542	625	721	1250

NOTES:
1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD FACTOR OF .85 PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3% VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

TSSF ARCHITECTS, INC.
ARCHITECTS INTERIORS PLANNERS
122 N. WASHINGTON AVENUE SAGINAW, MICHIGAN

DINING ROOM ADDITION AND RENOVATIONS FOR:

BAY ARENAC ISD

BAY CITY, MICHIGAN

NO.	DATE

DRAWN BY JWA
DATE 03/17/2026
APPROVED KTS

SHEET NO.
E5.0

PROJECT NO.
2538