

**Wilcox**



**Professional  
Services**

AN ISO 9001:2000 CERTIFIED COMPANY

3500 LUDINGTON STREET, SUITE 310  
ESCANABA, MICHIGAN 49829

CITY OF ALPENA, MICHIGAN

WATER AND WASTEWATER IMPROVEMENTS  
DIVISION B – WATER RECYCLING PLANT

CONTRACT NO.: 11315.00026

MDEQ SRF PROJECT NO.: 5266-01

MDEQ DWRP PROJECT NO.: 7200-01

ISSUED: JUNE 2007

DAVID R. HOLMGREN  
NAME OF THE LICENSEE  
6201030977  
REGISTRATION NUMBER



MICHIGAN

DRAWING NUMBER

SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REDUCED BY PART NUMBER 0502

DRAWING NUMBER

1 / 25

SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REDUCED BY PART NUMBER 0502

DRAWING NUMBER

2007

WATER AND WASTEWATER  
IMPROVEMENTS - DIVISION B

SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REDUCED BY PART NUMBER 0502

DRAWING NUMBER

SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REDUCED BY PART NUMBER 0502

6/18/07 JRD3

CADD PART: PROJECT\11315\00026\30.DWG\TITLE

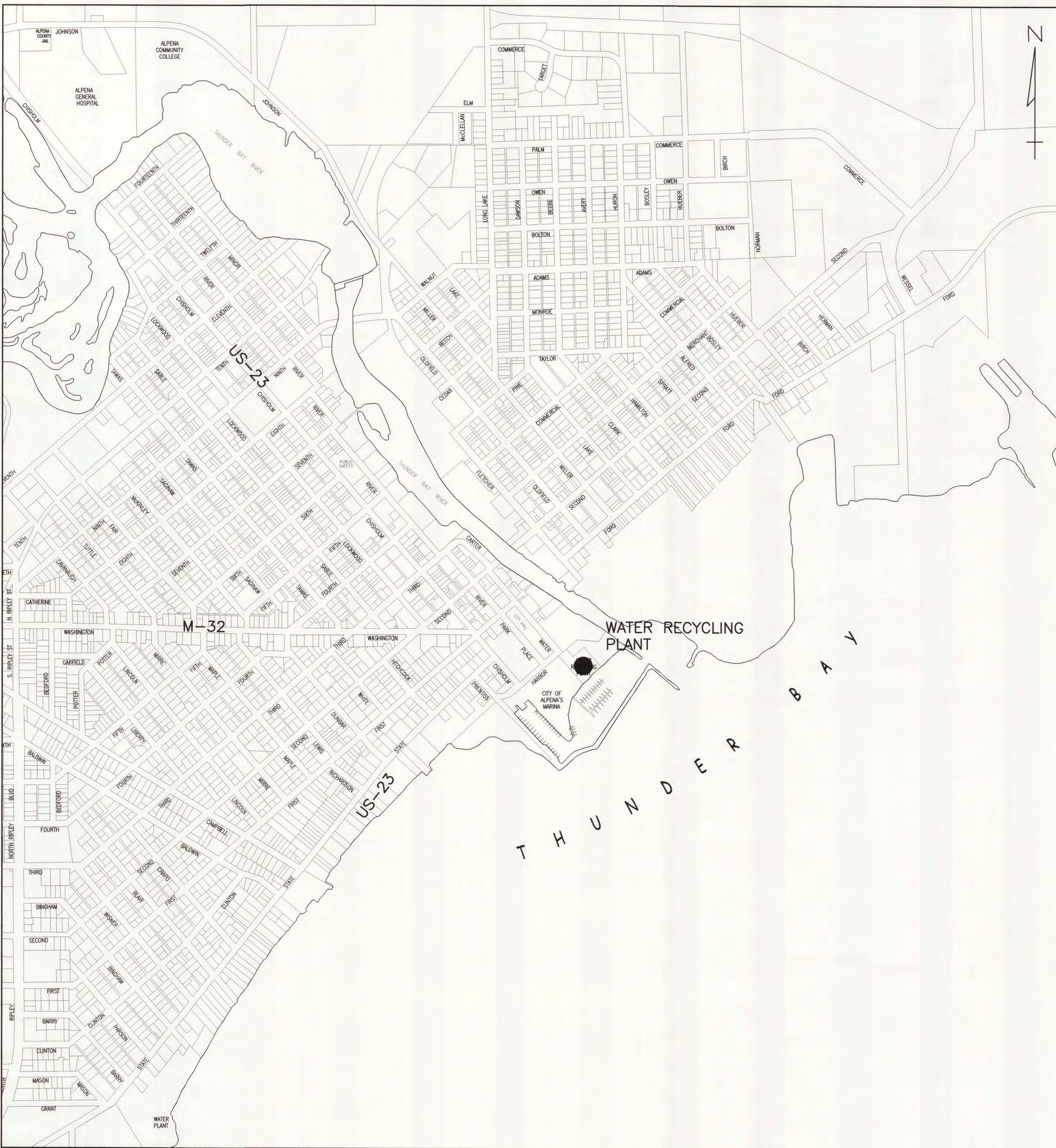


DRAWING NUMBER  
SAUCO PRODUCTS • NEW HOPE, MINNESOTA  
REVISION BY PART NUMBER 0505

DRAWING NUMBER  
2/25  
SAUCO PRODUCTS • NEW HOPE, MINNESOTA  
REVISION BY PART NUMBER 0505

DRAWING NUMBER  
WATER AND WASTEWATER  
IMPROVEMENTS - DIVISION B  
2007  
SAUCO PRODUCTS • NEW HOPE, MINNESOTA  
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DRAWING NUMBER  
SAUCO PRODUCTS • NEW HOPE, MINNESOTA  
REVISION BY PART NUMBER 0505



LOCATION MAP

LEGEND - SITE IMPROVEMENTS

- MISCELLANEOUS SYMBOLS**
- ▣ RIPRAP
  - SIGN
  - ⊕ STUMP
  - ⊖ SWAMP
  - ⊙ DECIDUOUS TREE
  - ⊙ EVERGREEN TREE
  - MAIL BOX
  - FOUND IRON
  - FOUND MONUMENT
  - ⊕ QUARTER CORNER
  - ⊕ SECTION CORNER
  - ⊕ TEST HOLE OR SOIL BORING
  - ⊕ SPOT ELEVATION
  - ⊕ SURVEY CONTROL POINT
  - GUARD POSTS
  - 123456 PARCEL NUMBER BOX
  - 0+00 SURVEY STATIONING
  - ⊖ HEDGE LINE
  - ⊖ TREE LINE
  - ⊖ EXISTING FENCE
  - ⊖ PROPOSED FENCE
  - ⊖ GUARDRAIL
  - ⊖ DRAINAGE CRS/EDGE OF WATER
  - ⊖ WETLANDS AREA
  - ⊖ CITY LIMITS
  - ⊖ RAILROAD
  - ⊖ PROPERTY LINE
  - ⊖ PROPOSED ELEVATION CONTOUR LINE
  - ⊖ EXISTING ELEVATION CONTOUR LINE
  - ⊖ PAVED ROAD
  - ⊖ GRAVEL ROAD
  - ⊖ CURB
  - ⊖ PROPERTY OWNERSHIP ARROW
  - ⊖ CONTIGUOUS PROPERTY SYMBOL

- UTILITIES SYMBOLS**
- UTILITY POLE
  - ⊕ LIGHT POLE
  - ⊕ POWER TOWER
  - ⊕ GAS VALVE
  - ⊕ DEADMAN FOR GUYWIRE
  - ⊕ RAILROAD SIGNAL
  - ⊕ ELECTRICAL HANDHOLE
  - ⊕ TELEPHONE PEDESTAL/RISER
  - ⊕ POST

- STRUCTURES**
- ▣ PROPOSED BUILDING
  - ▣ EXISTING BUILDING
  - ▣ PROPOSED TANK/STRUCTURE
  - ▣ EXISTING BURIED STRUCTURE
  - ▣ FUTURE STRUCTURE

- WATER & DRAINAGE SYMBOLS**
- ⊕ EXISTING CATCH BASIN
  - ⊕ PROPOSED CATCH BASIN
  - ⊕ EXISTING MANHOLE
  - ⊕ PROPOSED MANHOLE
  - ⊕ CULVERT OPENING, HEADWALL
  - ⊕ WATER SHUTOFF (SERVICE VALVE)
  - ⊕ SEPTIC TANK
  - ⊕ WELL
  - ⊕ WATER METER
  - ⊕ VALVE & BOX
  - ⊕ FIRE HYDRANT ASSEMBLY

- UTILITY PATTERNS**
- E --- ELECTRICAL LINE
  - G --- GAS LINE
  - OT --- OVERHEAD LINE
  - T --- TELEPHONE LINE
  - W --- WATER LINE
  - TV --- TV
  - FO --- FIBER OPTICS
  - PROPOSED UTILITY 35" AND UNDER
  - EXISTING UTILITY 35" AND UNDER
  - SAN --- PROPOSED UTILITY 36" AND LARGER
  - SAN --- EXISTING UTILITY 36" AND LARGER

SHEET INDEX

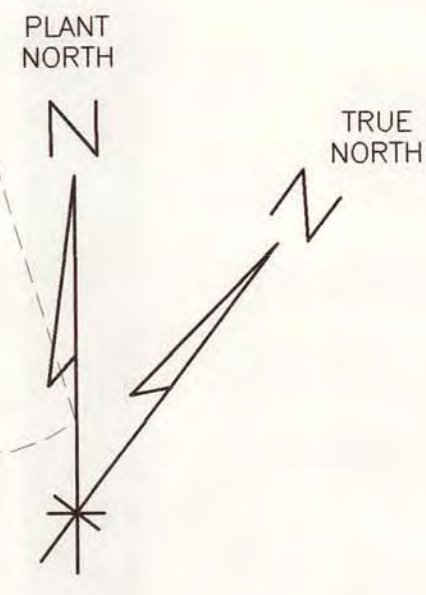
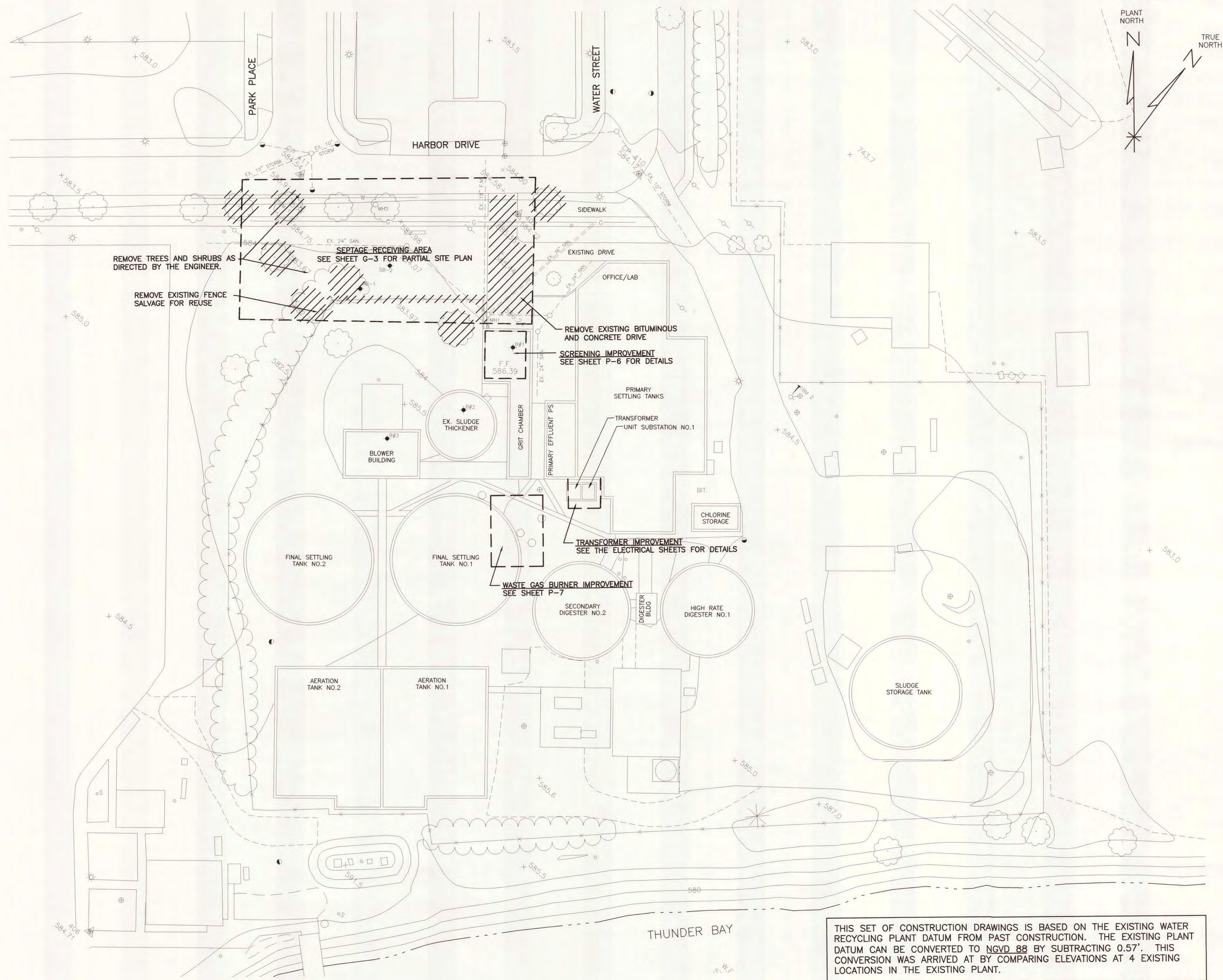
SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
<b>GENERAL</b>			
G-1	INDEX, LEGEND AND LOCATION PLAN	P-1	PIPING LEGEND
G-2	EXISTING SITE PLAN-KEY PLAN FOR IMPROVEMENTS & DEMOLITION	P-2	SEPTAGE FLOW SCHEMATIC AND HYDRAULIC PROFILE
G-3	PARTIAL SITE PLAN - SEPTAGE AND TRANSFORMER AREA	P-3	SEPTAGE BUILDING PIPING PLANS, SECTIONS AND SCHEDULES
G-4	SITE DETAILS	P-4	THICKENER PLANS AND SECTIONS
<b>ARCHITECTURAL</b>			
A-1	SEPTAGE BUILDING FOUNDATION AND FLOOR PLAN	P-5	SCREEN AREA DEMOLITION AND PARTIAL YARD PIPING PLAN
A-2	SEPTAGE BUILDING ELEVATIONS	P-6	SCREEN AREA UPPER AND LOWER LEVEL PLANS
A-3	SEPTAGE BUILDING SECTIONS AND DETAILS	P-7	WASTE GAS BURNER
<b>STRUCTURAL</b>			
S-1	SEPTAGE BUILDING STRUCTURAL PLAN AND DETAILS	P-8	STANDARD DETAILS
S-2	SCREEN AREA PLANS AND SECTIONS	<b>MECHANICAL</b>	
S-3	STANDARD DETAILS	M-1	SEPTAGE BUILDING PARTIAL SITE PLAN
<b>ELECTRICAL</b>			
E-1	SITE ELECTRICAL AND DETAILS	M-2	SEPTAGE BUILDING PLUMBING AND HVAC
E-2	SEPTAGE BUILDING ELECTRICAL PLAN	<b>ELECTRICAL</b>	
E-3	EQUIPMENT PLAN ELECTRICAL	E-1	SITE ELECTRICAL AND DETAILS
E-4	ONE-LINE DIAGRAM ELECTRICAL	E-2	SEPTAGE BUILDING ELECTRICAL PLAN



DESIGNED D. HOLMGREN	CITY OF ALPENA, MICHIGAN
CHECKED C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
CADD DATE 4/22/07 JRD2	SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01
SCALE NONE	WATER RECYCLING PLANT
PART P:\11315\00026\30\DWG\INDEX.DWG	<b>INDEX, LEGEND AND LOCATION PLAN</b>
REV	DIVISION B
REV	CONTRACT 11315.00026
REV	SHEET G-1
REV	OF



BENCH MARK AND CONTROL POINT INFORMATION			
IDENTIFICATION	ELEVATION	LOCATION	REMARKS/DESCRIPTION
TBM 1	586.73		LARGE STEAMER HUB IN HYDRANT
TBM 2	587.07		LARGE STEAMER HUB IN HYDRANT
CP 410	584.12	Y=637240.60 X=19927393.01	PK NAIL - CORNER OF WATER AND HARBOR
CP 411	584.54	Y=637105.25 X=19927235.44	PK NAIL - INTERSECTION OF HARBOR AND PARK PLACE

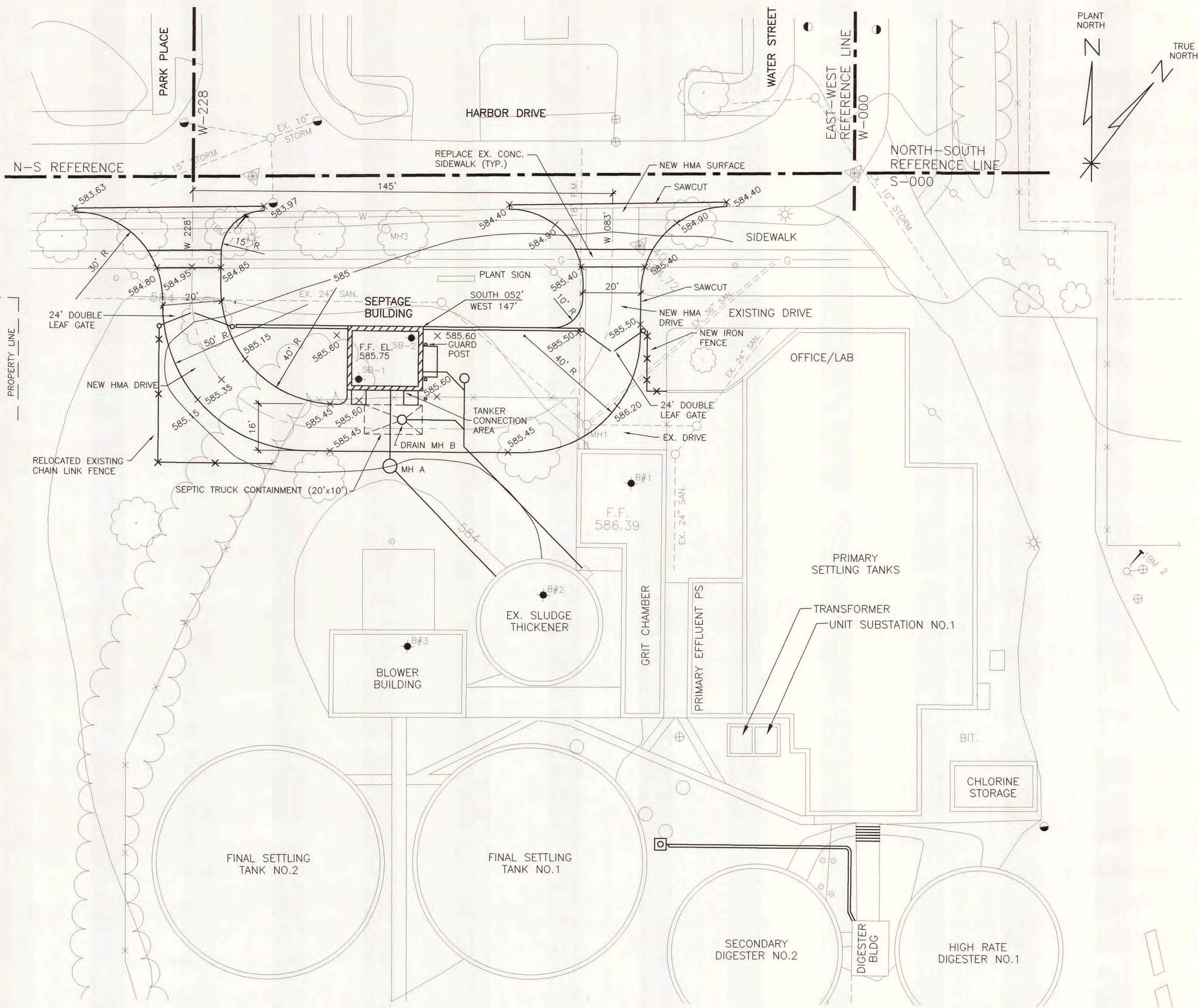


THIS SET OF CONSTRUCTION DRAWINGS IS BASED ON THE EXISTING WATER RECYCLING PLANT DATUM FROM PAST CONSTRUCTION. THE EXISTING PLANT DATUM CAN BE CONVERTED TO NGVD 88 BY SUBTRACTING 0.57'. THIS CONVERSION WAS ARRIVED AT BY COMPARING ELEVATIONS AT 4 EXISTING LOCATIONS IN THE EXISTING PLANT.



DESIGNED	D. HOLMGREN	CITY OF ALPENA, MICHIGAN
CHECKED	C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
CADD DATE	4/22/07 JKD2	SRF PROJECT NO.: 5256.01 CWRP PROJECT NO.: 7200.01
SCALE	1" = 30'	WATER RECYCLING PLANT
PART	PROJECT\11315\00026\30\DWG\G-2	EXISTING SITE PLAN - KEY PLAN FOR IMPROVEMENTS AND DEMOLITION
REV		DIVISION
REV		CONTRACT
REV		11315.00026
REV		SHEET
		G-2
		OF





NOTES:

1. PROTECT EX. 24" SANITARY IN VICINITY OF SEPTAGE BUILDING.
2. SAWCUT EXISTING BIT. ALONG WATER STREET, ALONG EXISTING OFFICE WINDOW DRIVE AND ALONG EXISTING GRIT DRIVE. MATCH EXISTING DRIVE ELEVATIONS WITH PROPOSED HMA.
3. FINE GRADE AREA SOUTH OF SEPTAGE BUILDING TO CONTAIN TRUCK SPILLAGE WITH 20'x10' AREA. GRADE ADJACENT AREAS TO DRAIN AWAY FROM CONTAINMENT. SET MH B CASTING 2" BELOW AREA ADJACENT TO CONTAINMENT.
4. SEE SHEET P-5 FOR DETAIL OF PIPING AND DRAINS AT SEPTAGE BUILDING.
5. REMOVE UNSUITABLE SOIL BELOW SEPTAGE BUILDING FOUNDATION - SEE SHEET A-1 FOR DETAILS.

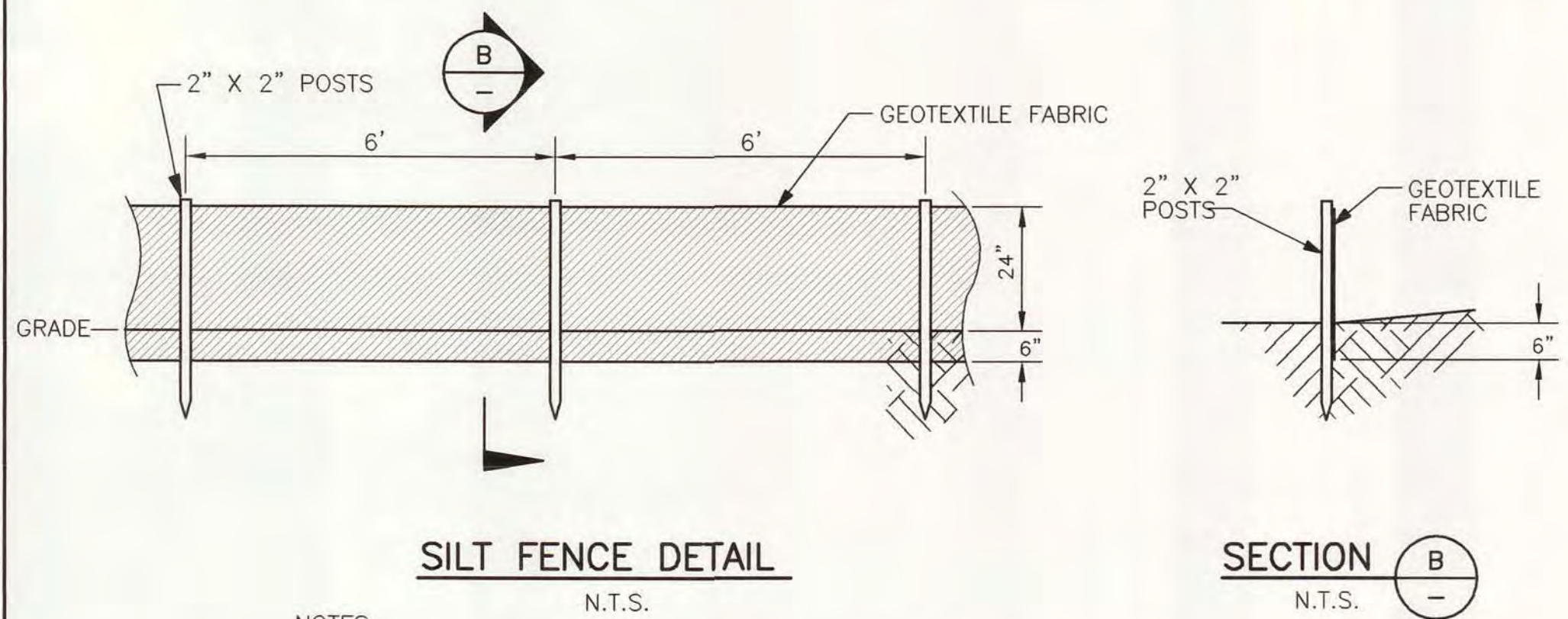
BENCH MARK AND CONTROL POINT INFORMATION			
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DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
ISSUED DATE	6/18/07 JKD2
SCALE	1" = 20'
PART PROJECT	11315.00026/30/DWR/G-3
REV	
REV	
REV	

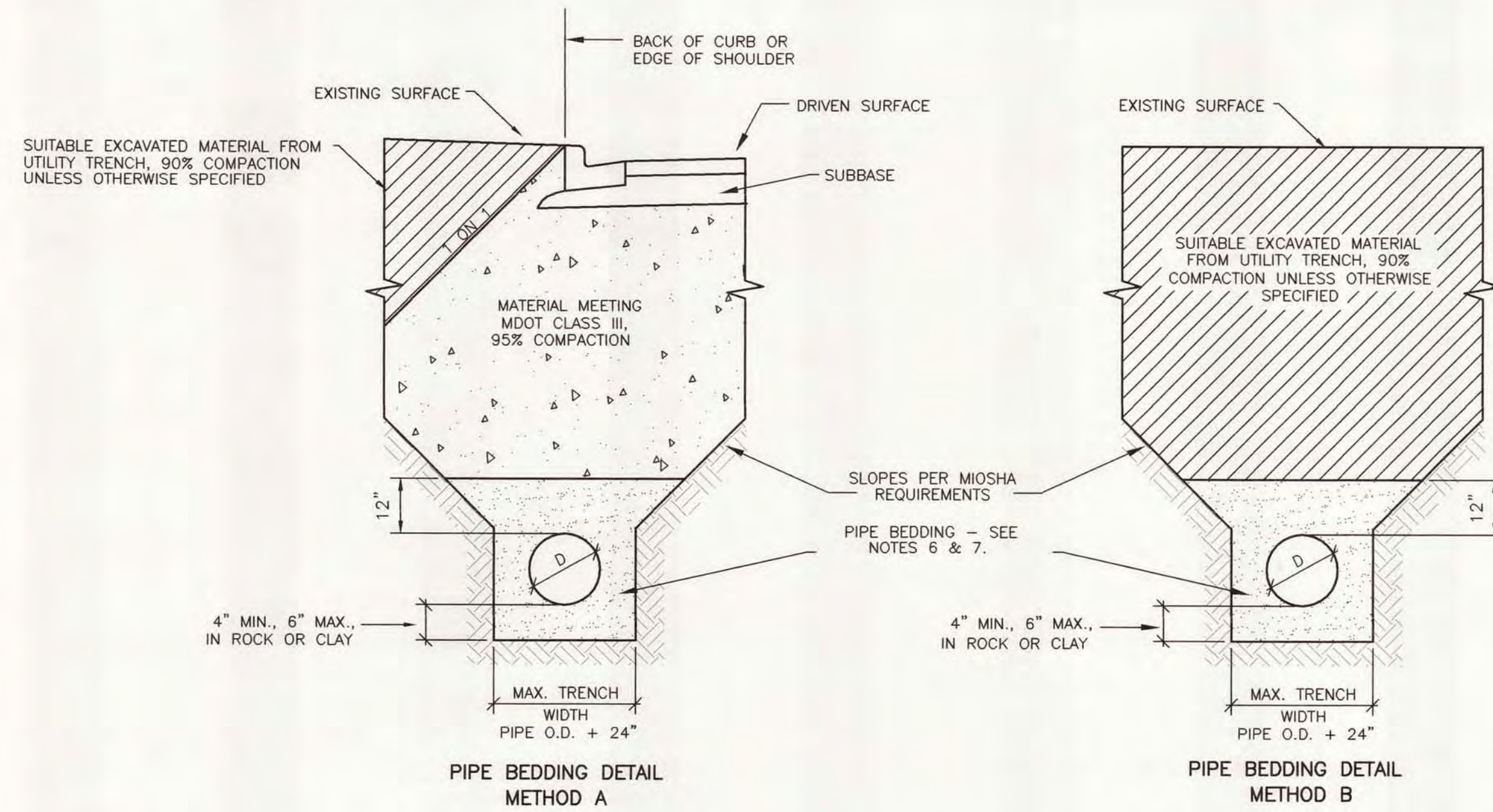
CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWR PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
<b>PARTIAL SITE PLAN SEPTAGE RECEIVING AREA</b>		
DIVISION	CONTRACT	SHEET
B	11315.00026	G-3
		OF





NOTES:

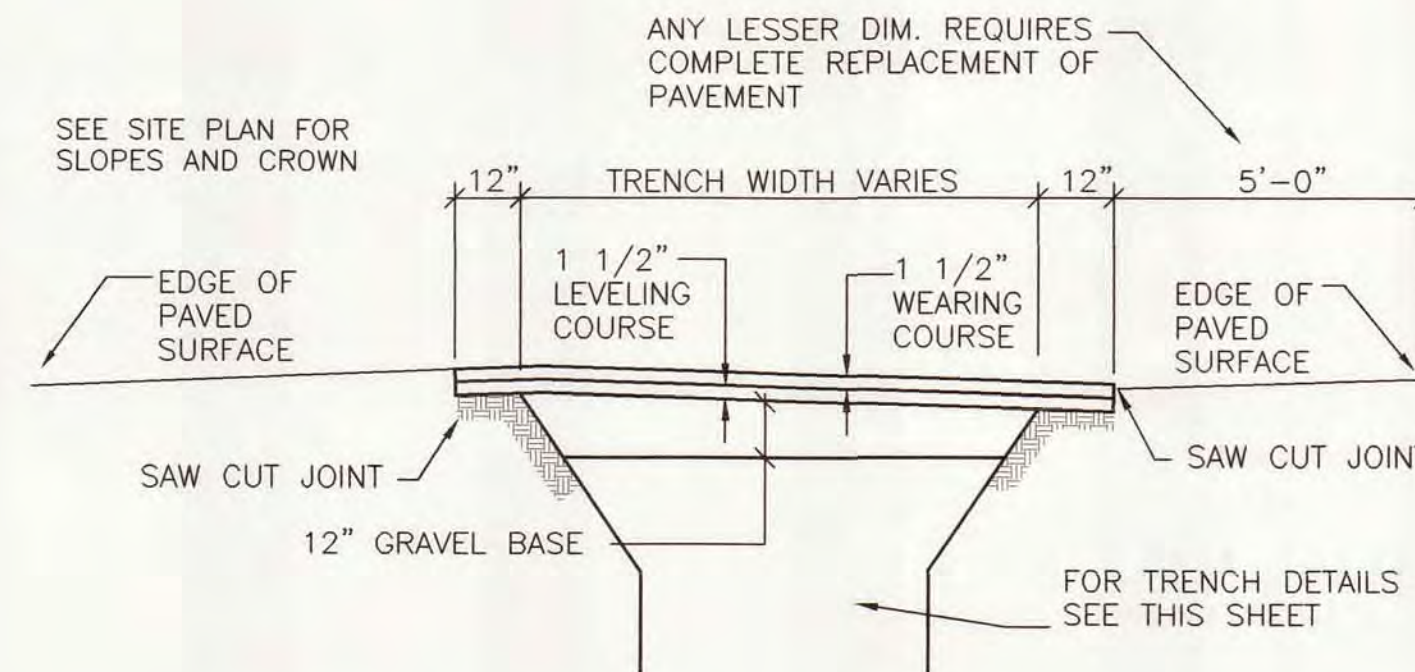
1. USE TERRATEX SILT BARRIER FENCE OR EQUAL.
2. PRIOR TO START OF CONSTRUCTION SLOPE PROTECTION AND EROSION CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH THE "MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL GUIDEBOOK" AND "PUBLIC ACT NO. 347". THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY MEASURES REQUIRED TO PROPERLY CONTROL EROSION AND SEDIMENTATION AS MAY ARISE FROM CONDITIONS WHICH MAY DEVELOP DURING CONSTRUCTION. ALL COSTS RELATED TO EROSION OR SEDIMENTATION CONTROL MEASURES WHETHER SHOWN ON THE PLANS OR NOT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.



NOTES:

1. METHOD "A" IS FOR PIPE UNDER OR WITHIN THE INFLUENCE OF A DRIVEN SURFACE.
2. METHOD "B" IS FOR PIPE NOT UNDER OR WITHIN THE INFLUENCE OF A DRIVEN SURFACE.
3. BACKFILL MATERIALS AND METHODS SHALL CONFORM WITH THE SPECIFICATIONS.
4. COMPACTION PRESENTED AS STANDARD PROCTOR VALUES.
5. DRIVEN SURFACE IS A ROAD, DRIVEWAY, PARKING AREA OR SHOULDER.
6. BEDDING, 8" AND LARGER PIPE: MDOT 6A COARSE AGGREGATE OR MDOT CLASS I OR II GRANULAR MATERIAL EXCEPT WITH 100% PASSING 1-1/2" SIEVE.
7. BEDDING, 8" AND SMALLER PIPE: MDOT 3A4 OPEN GRADED AGGREGATE OR OTHER GRANULAR MATERIAL WITH 100% PASSING 1/2" SIEVE AND LESS THAN 5% PASSING A NO. 200 SIEVE.

TRENCH DETAILS



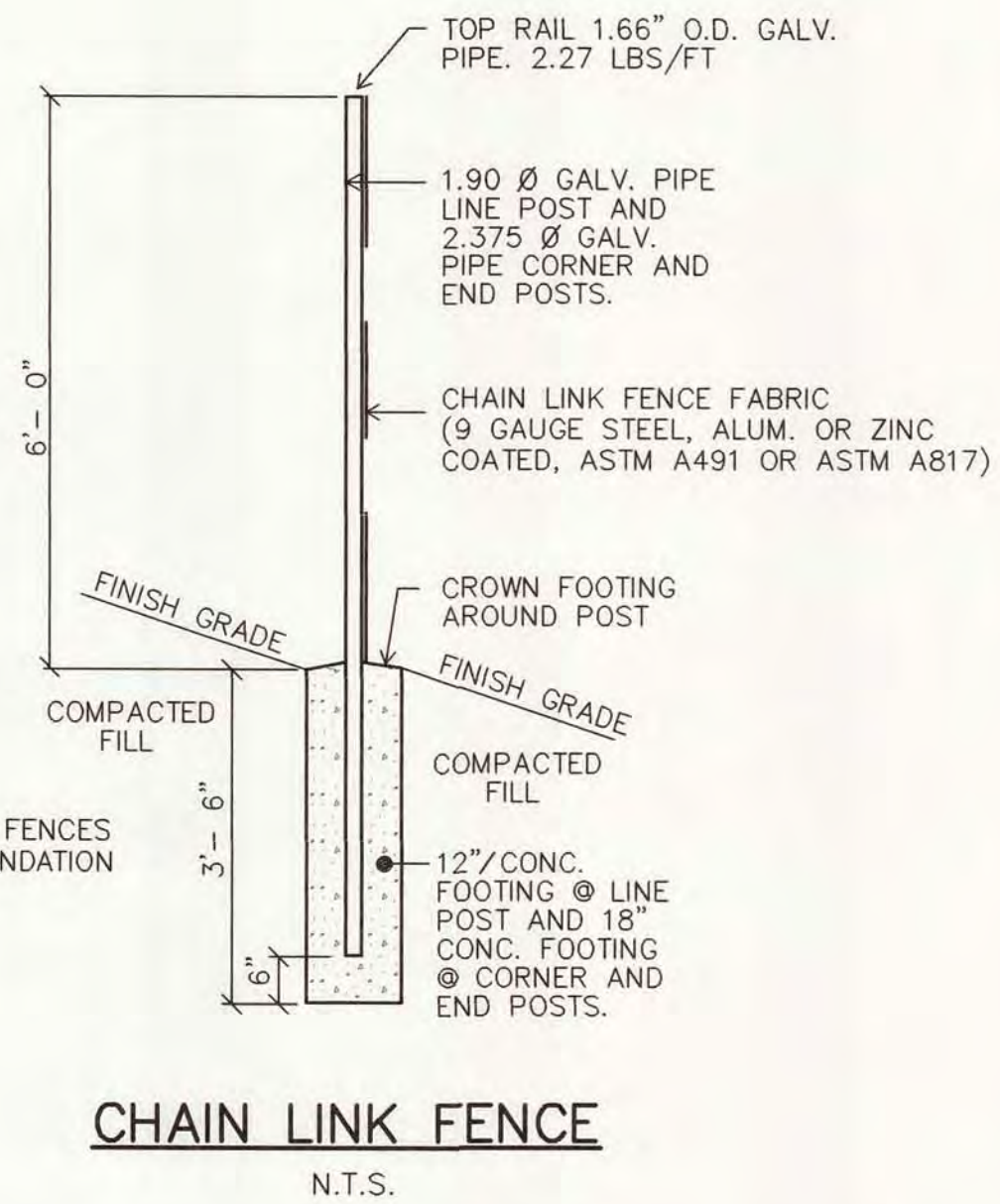
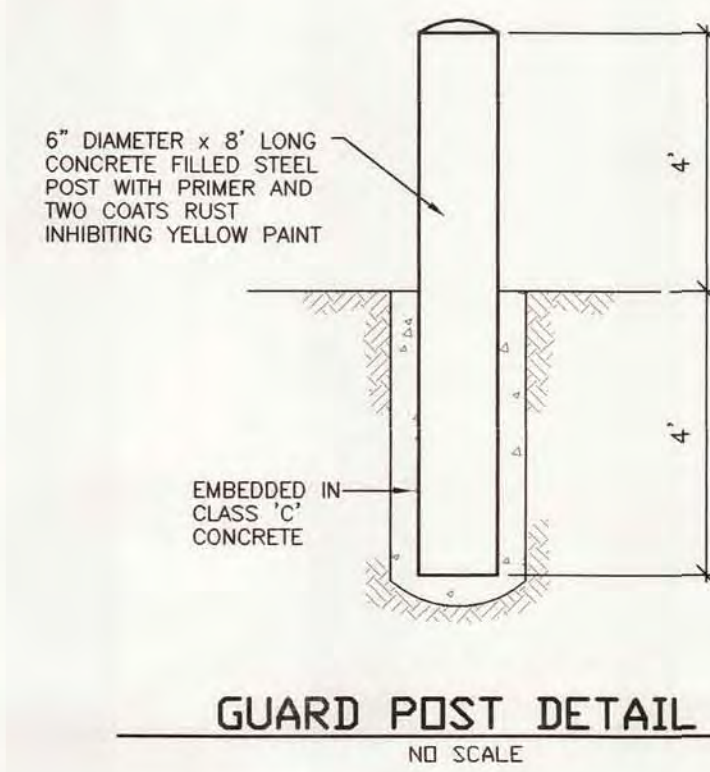
HOT MIX ASPHALT SURFACE AND TRENCH RESTORATION

TYPICAL SURFACE RESTORATION CRITERIA \*

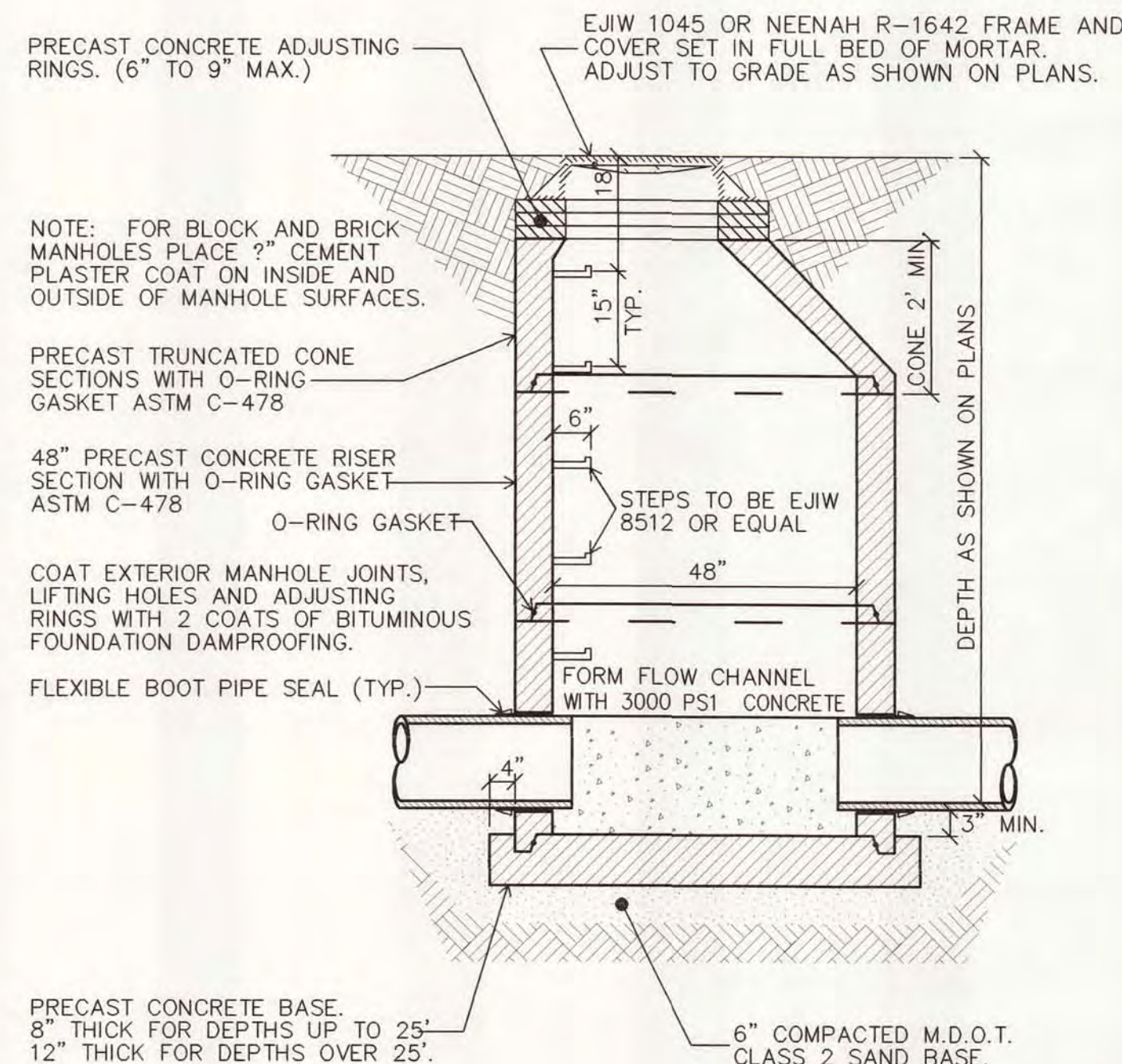
TYPE "A" PAVEMENT **	FEW CROSS TRENCHES AND ONE LANE OR LESS MAIN TRENCH
6" SIDEWALK & RAMP	DRIVEWAY CROSSINGS, RAMPS AND ALL MDOT R.O.W.
4" SIDEWALK	CITY R.O.W.
6" CONCRETE DRIVEWAY	ALL EXISTING CONCRETE DRIVEWAYS (INCLUDES REINFORCING WIRE MESH)
TOPSOIL, SEED, FERTILIZER & MULCH	STREET R.O.W. (INCIDENTAL TO THE COST OF OTHER WORK ITEMS)

\* PAVEMENT REPLACEMENT SHALL BE OF THE TYPES NOTED ON THE PLAN SHEETS UNLESS ALTERED BY CHANGE ORDER.

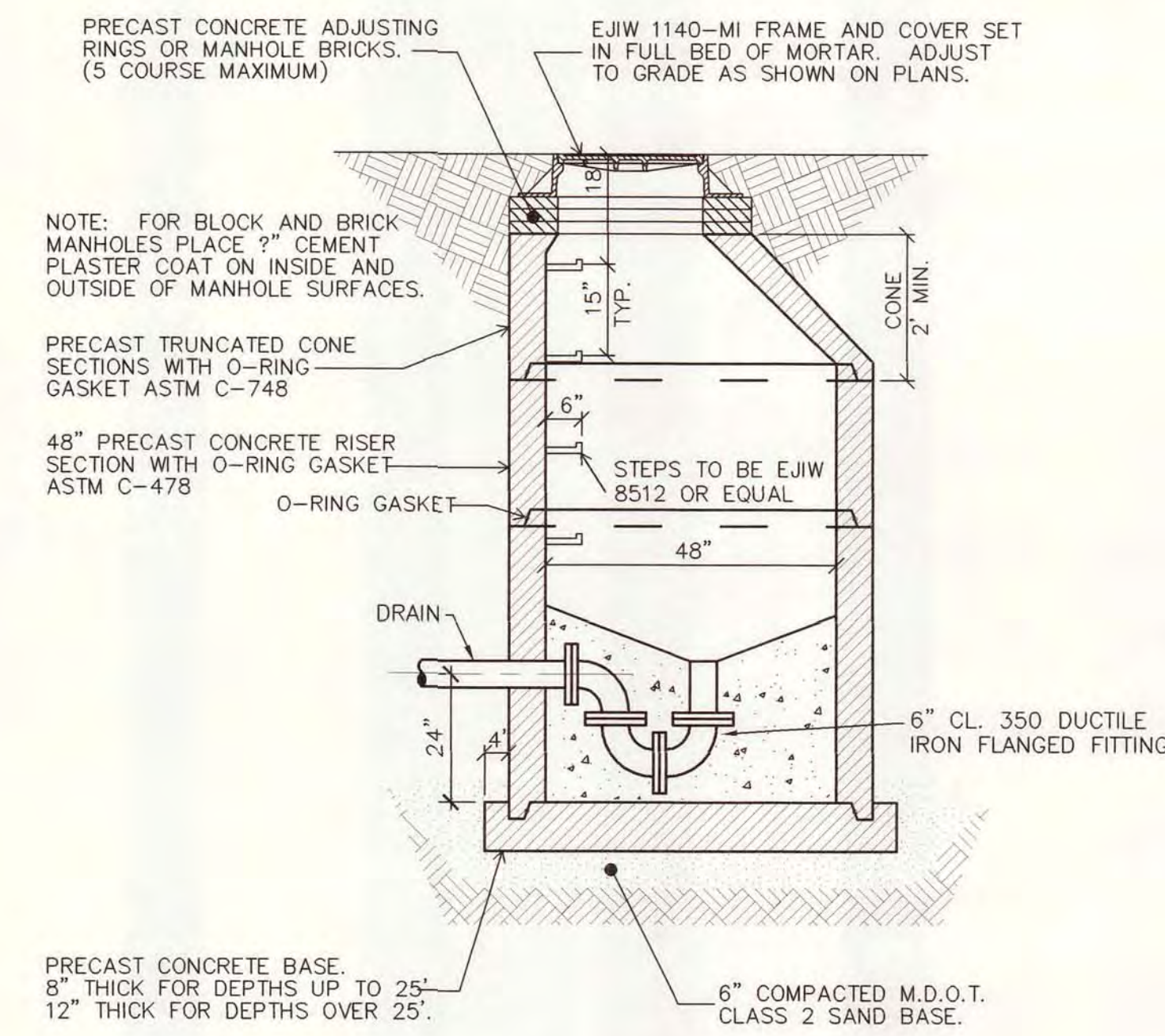
\*\* TYPE "A" PAVEMENT SHALL INCLUDE FULL WIDTH ASPHALT REMOVAL AND REPLACEMENT WHERE NOTED ON THE DRAWINGS.



NOTE: FOR RELOCATED FENCES APPLY DETAIL FOR FOUNDATION AND NEW MATERIALS.



KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
<b>EROSION CONTROLS</b>			
E6	MULCH		For use in areas subject to erosive surface flows or severe wind or on newly seeded areas.
E7	TEMPORARY SEEDING		Stabilization method utilized on construction sites where earth change has been initiated but not completed within a 2 week period.
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
E9	MULCH BLANKETS		On exposed slopes, newly seeded areas, new ditch bottoms, or areas subject to erosion.
E10	SODDING		On areas and slopes where immediate stabilization is required.
E12	RIPRAP		Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.
E19	TEMPORARY DRAINAGEWAY/STREAM CROSSING		Use on construction sites where stream/drainageway crossings are required.
<b>EROSION / SEDIMENT CONTROLS</b>			
ES31	CHECK DAM		Used to reduce surface flow velocities within constructed and existing flow corridors.
ES33	FILTER ROLLS		In areas requiring immediate protection of slopes against surface erosion and gully formation and for perimeter sediment control.
<b>SEDIMENT CONTROLS</b>			
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S56	SEDIMENT TRAP		In small drainage areas, along construction site perimeters, and above check dams or drain inlets.
S57	VEGETATED BUFFER/FILTER STRIP		Use along shorelines, waterways, or other sensitive areas. Slows velocity, reduces sediment load, and reduces erosion in areas of sheet flow.



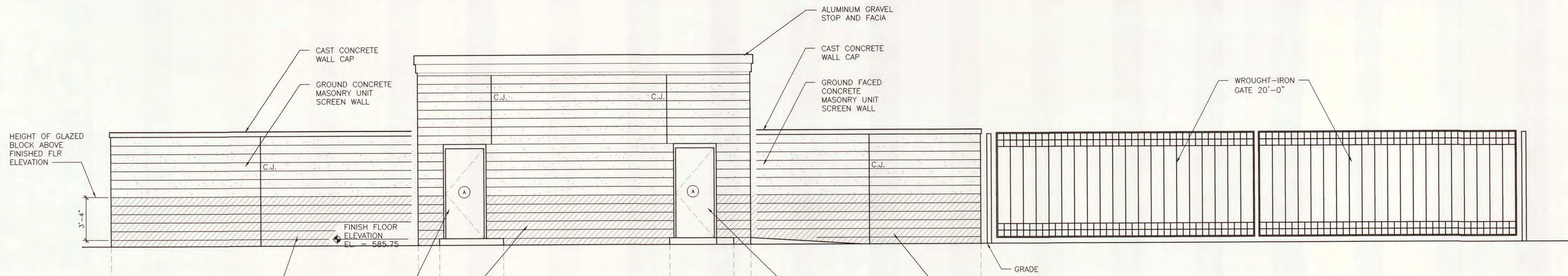
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AN ISO 9001:2000 CERTIFIED COMPANY

DESIGNED D. HOLMGREN	CITY OF ALPENA, MICHIGAN
CHECKED C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
CADD DATE 4/23/07 JKD2	SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01
SCALE AS NOTED	WATER RECYCLING PLANT
PART PROJECT: 11315.0002E/301/0001/C-det	<b>STANDARD DETAILS</b>
DESIGN REVISIONS	DIVISION B
CONTRACT 11315.00026	SHEET G-4

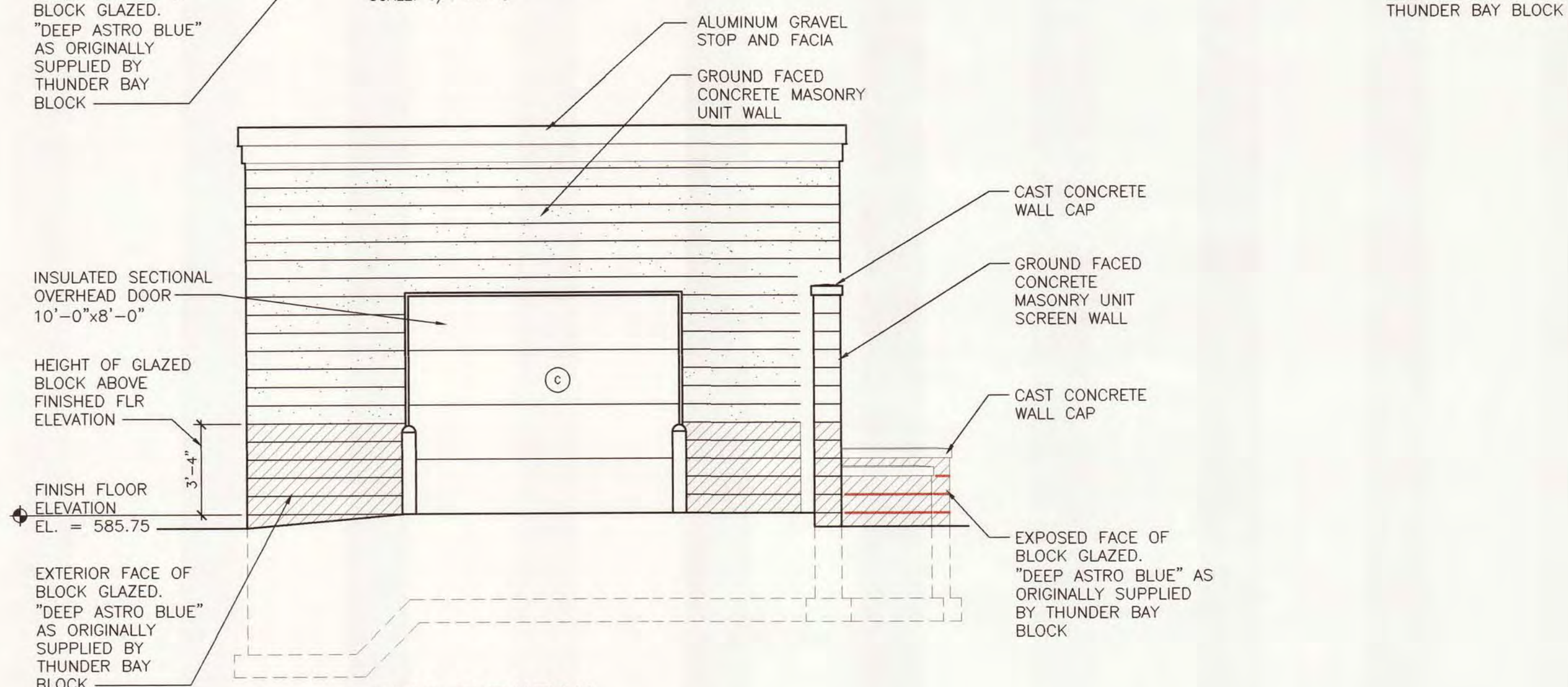




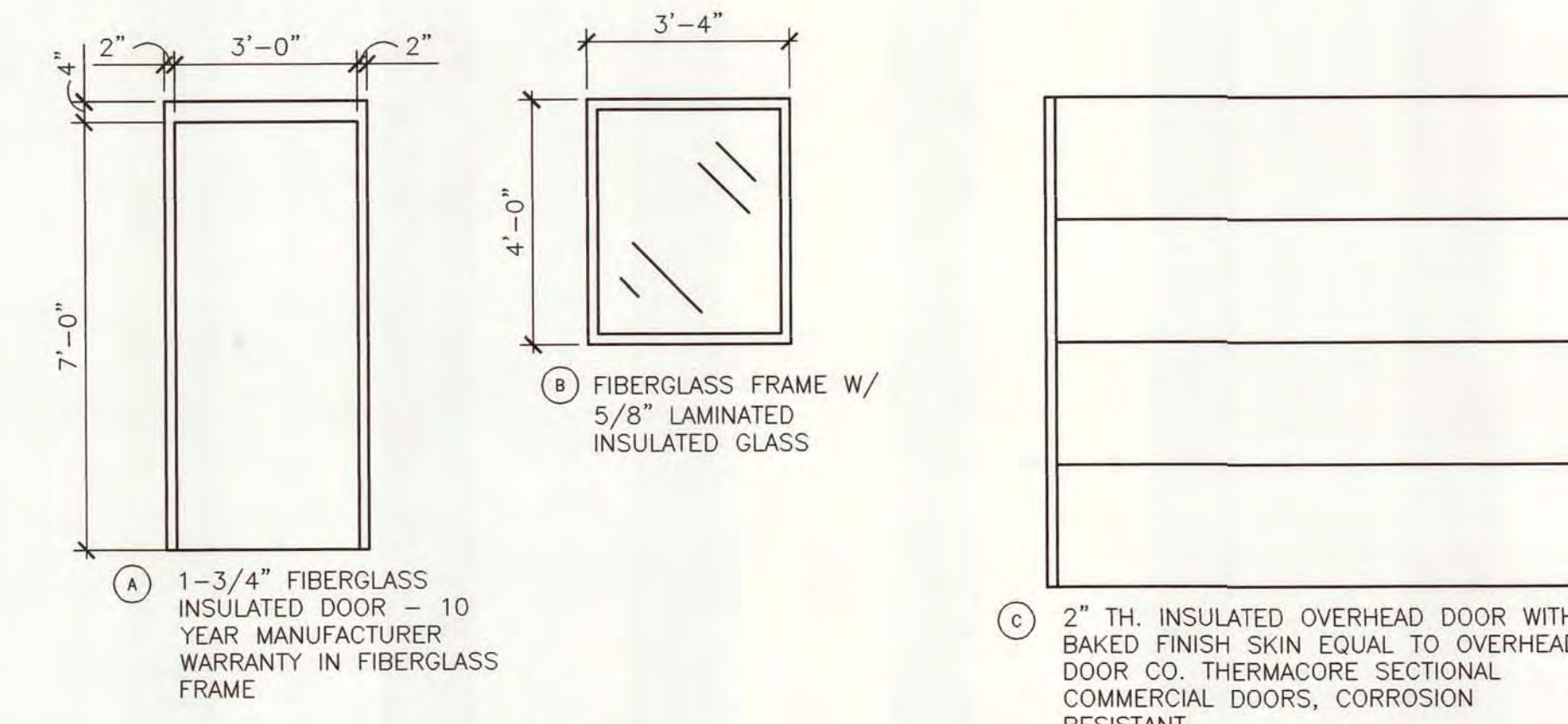




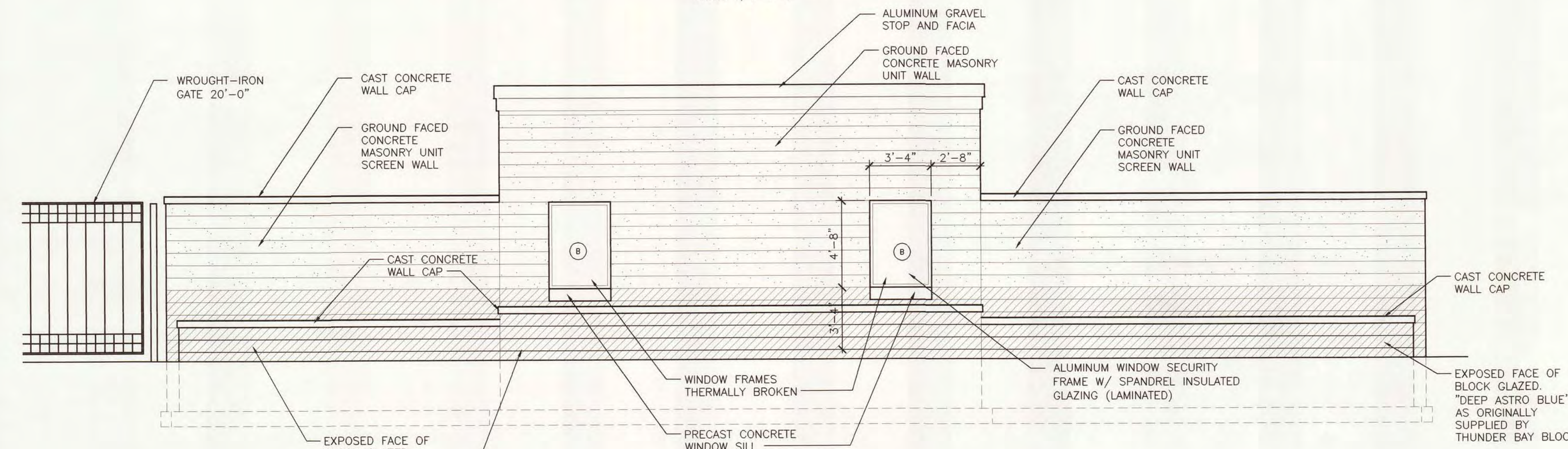
**SOUTH ELEVATION**  
SCALE: 1/4"=1'-0"



**EAST ELEVATION**  
SCALE: 1/4"=1'-0"



**DOOR/FRAME TYPES**



**NORTH ELEVATION**  
SCALE: 1/4"=1'-0"

HARDWARE SET				
DOOR	HARDWARE	MANUFACTURER	MANUFACTURER NUMBER	FINISH
MAN DOOR	1 CONT. HINGE	McKINNEY	MCK12HD X REQ.	CLEAR
	1 LOCKSET	YALE CYLINDER	CRE-SL8847FL L/C	26D
	1 CYLINDER	BEST	IE74 CGMK	26D
	1 DOOR CLOSER		UNI-7500 689	
	1 KICKPLATE		KP50 10" x REQ.	32D
	1 SET WEATHERSTRIP	PENKO	2891APK x REQ.	
	1 DOOR SWEEP	PENKO	SB29326CNB x REQ.	
	1 THRESHOLD	PENKO	1715AK x REQ.	
O.H. DOOR				
	1 THRESHOLD	PENKO	1715AK x REQ.	

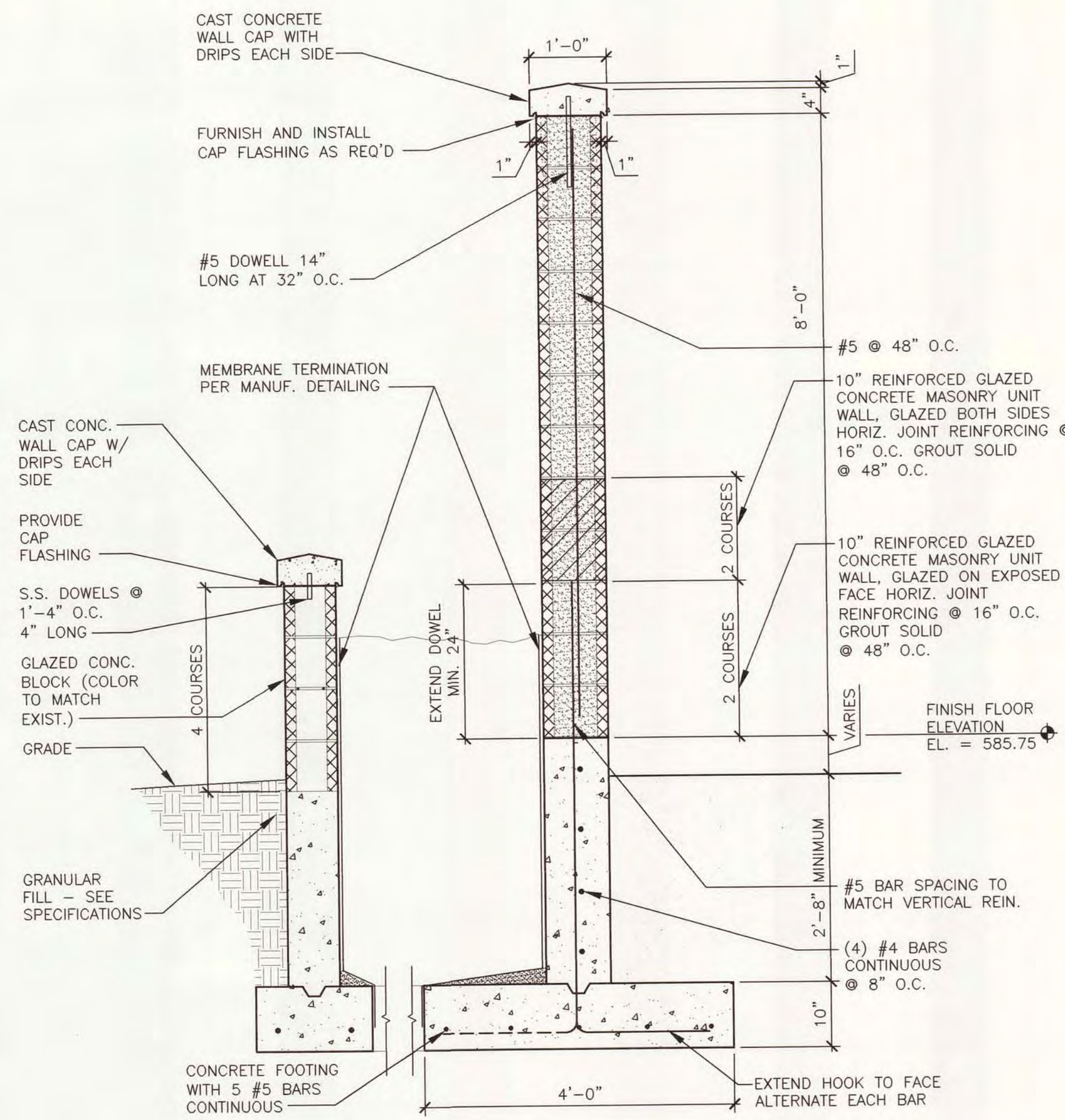
COORDINATE KEYING WITH OWNER  
ALL MATERIAL CORROSION RESISTANT

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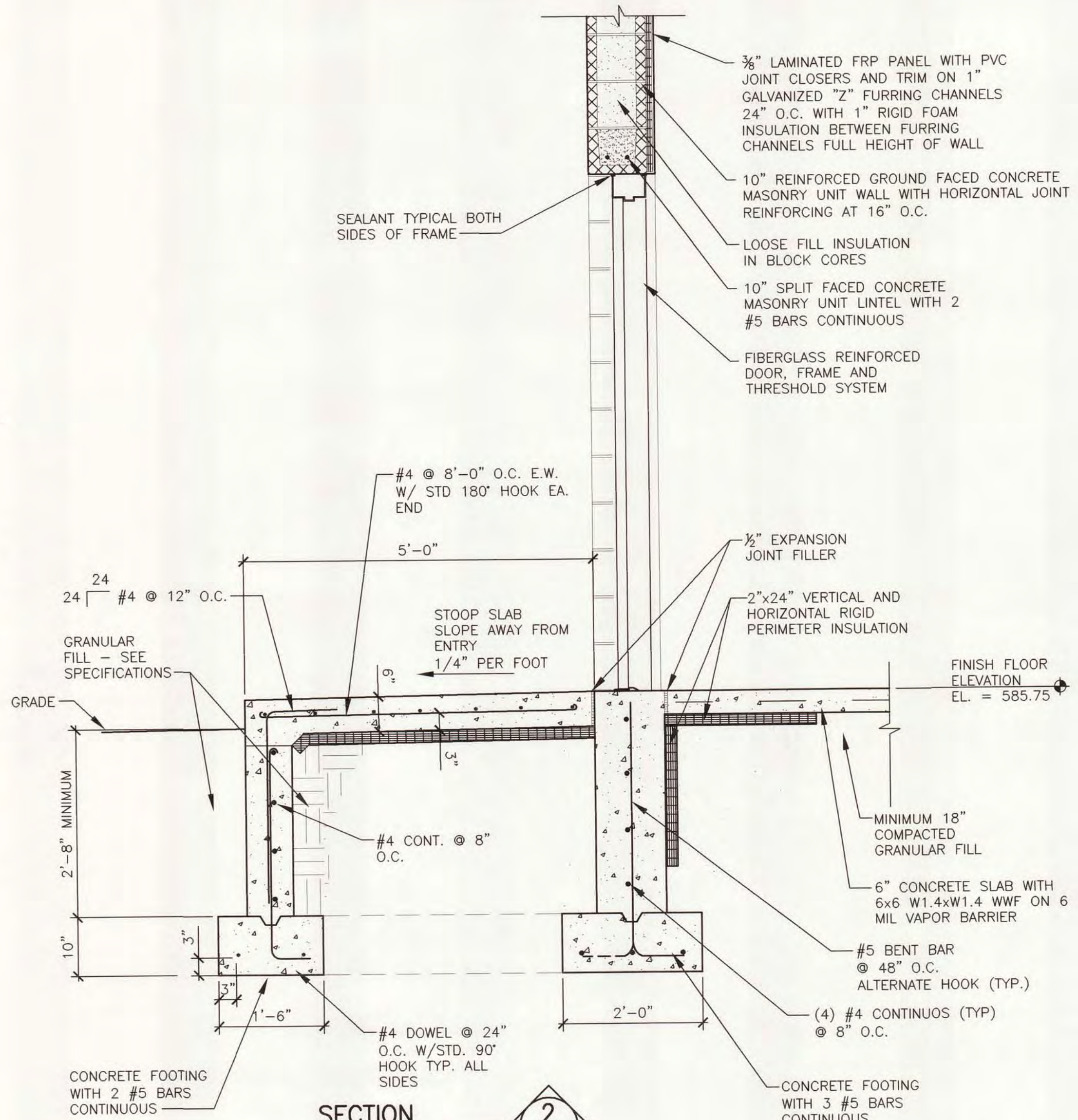
DESIGNED	F. DICE
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKD3
SCALE	AS NOTED
PART	PROJECT\11315\00026\30\DWG\A2
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CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
SEPTAGE BUILDING ELEVATIONS AND SECTIONS		
DIVISION	CONTRACT	SHEET
B	11315.00026	A-2
		OF

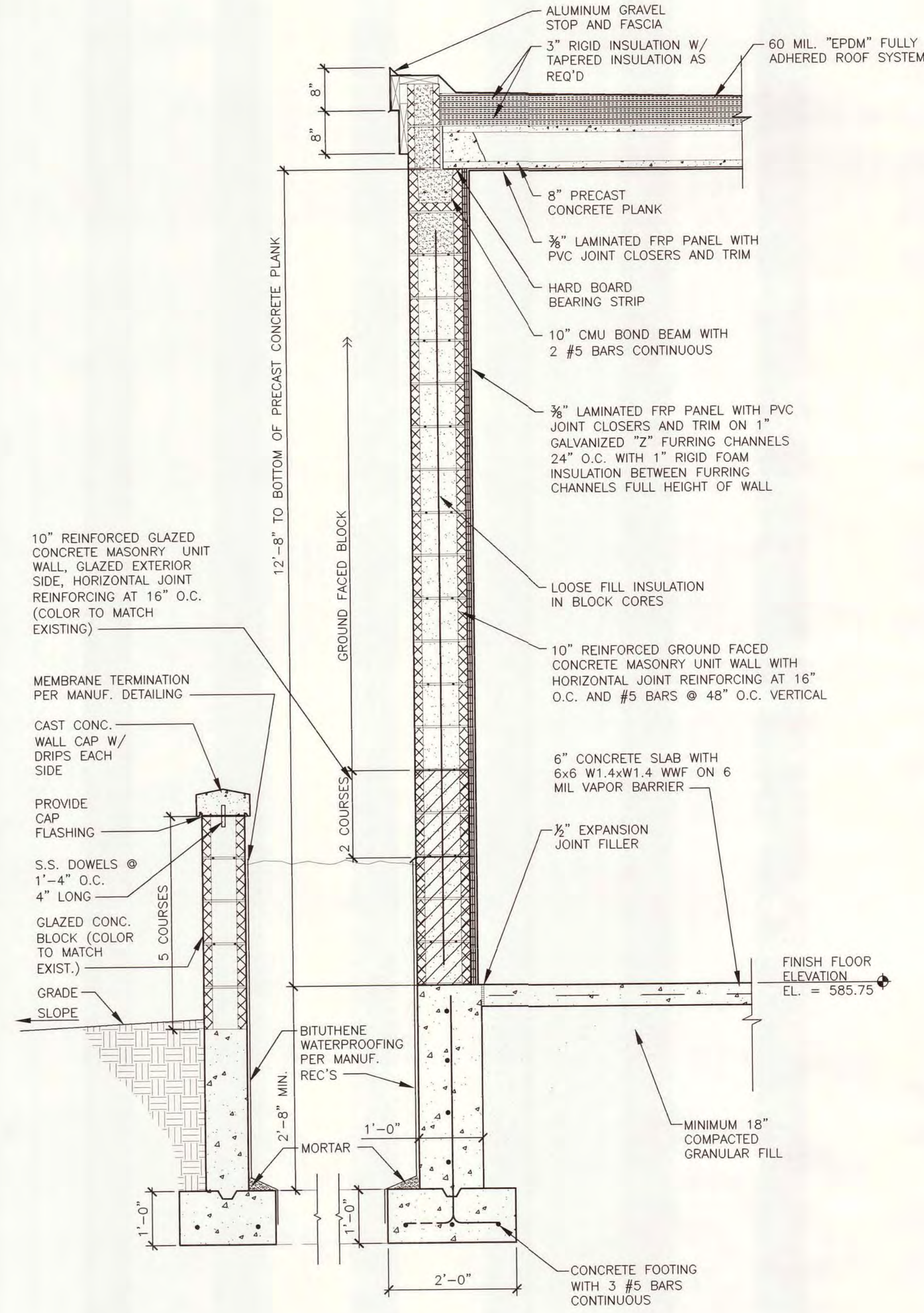




SECTION 3  
SCALE: 3/4"=1'-0"  
A-3



SECTION 2  
SCALE: 3/4"=1'-0"  
A-3



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

\* PROVIDE GALVANIZED FLASHINGS ABOVE EXTERNAL PENETRATIONS

<p>AN ISO 9001:2000 CERTIFIED COMPANY</p>	DESIGNED F. DICE	CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01 WATER RECYCLING PLANT <b>SEPTAGE BUILDING          SECTIONS AND DETAILS</b>																				
	CHECKED C. LAWSON																					
	CADD DATE 6/18/07 JKD2																					
	SCALE AS NOTED																					
	PART PROJECT 11315/00026/30/DWB/V3																					
<table border="1"> <tr> <td>REVISION</td> <td>DATE</td> <td>BY</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISION	DATE	BY										<table border="1"> <tr> <td>DIVISION</td> <td>CONTRACT</td> <td>SHEET</td> </tr> <tr> <td>B</td> <td>11315.00026</td> <td>A-3</td> </tr> <tr> <td colspan="2"></td> <td>OF</td> </tr> </table>	DIVISION	CONTRACT	SHEET	B	11315.00026	A-3			OF
REVISION	DATE	BY																				
DIVISION	CONTRACT	SHEET																				
B	11315.00026	A-3																				
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GENERAL CONSTRUCTION NOTES:

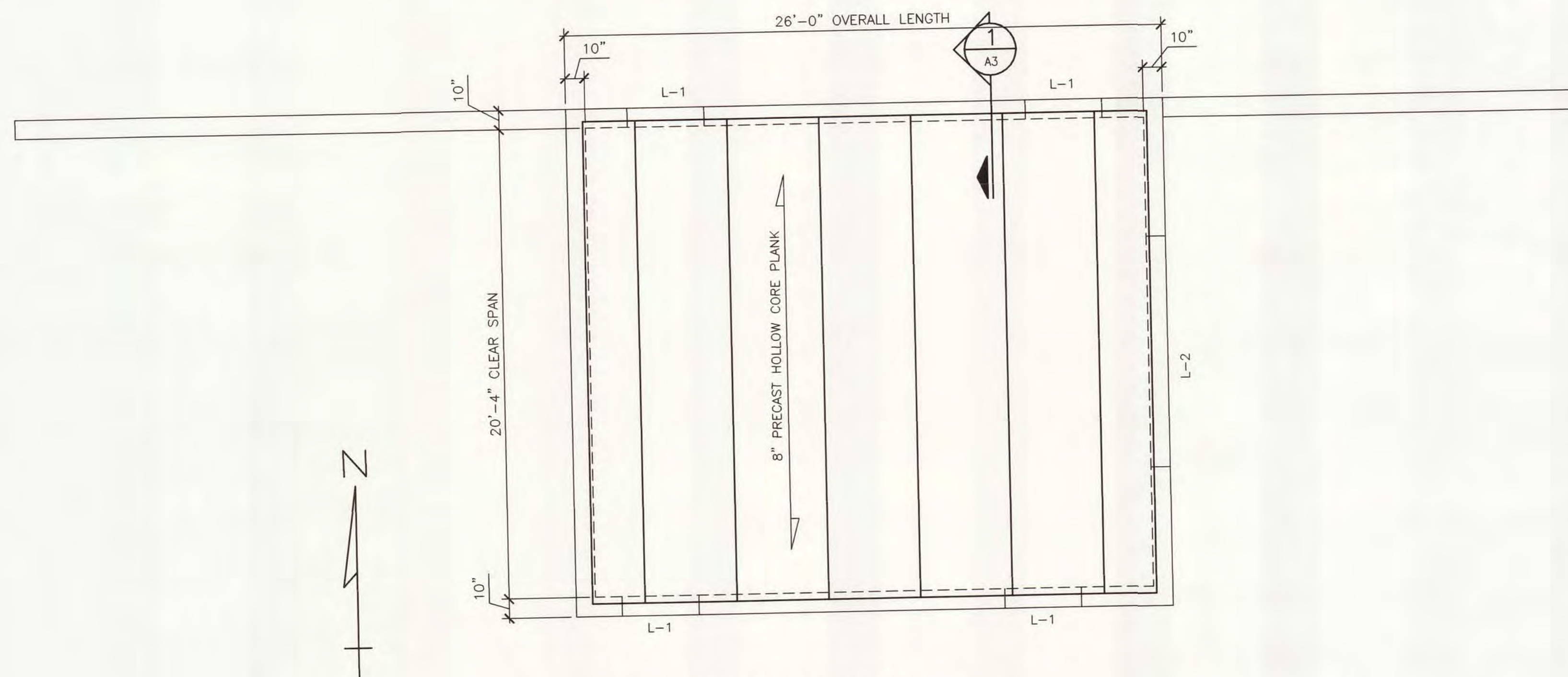
1. FIELD MEASURE ALL DIMENSIONS, WHERE REQUIRED, ON THE PLANS PRIOR TO FABRICATION AND INSTALLATION.
2. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, ORDINANCES AND STANDARDS INCLUDING ADA.
3. ALL WORK WILL BE DONE IN STRICT COMPLIANCE W/MIOSHA, OSHA AND OTHER APPLICABLE SAFETY CODES.
4. CALL MISS DIG A MINIMUM OF 3 WORKING DAYS PRIOR TO THE START OF CONSTRUCTION (800)482-7171.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PURCHASING THE BUILDING PERMIT.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PENETRATIONS IN BUILDING ENVELOPE AND FOUNDATION AS REQUIRED FOR MECHANICAL AND ELECTRICAL SERVICE DISTRIBUTION.
7. THE CONTRACTORS SHALL SUBMIT DRAWINGS AND PRODUCT DATA/CALCULATIONS WHERE APPLICABLE.

CONCRETE NOTES:

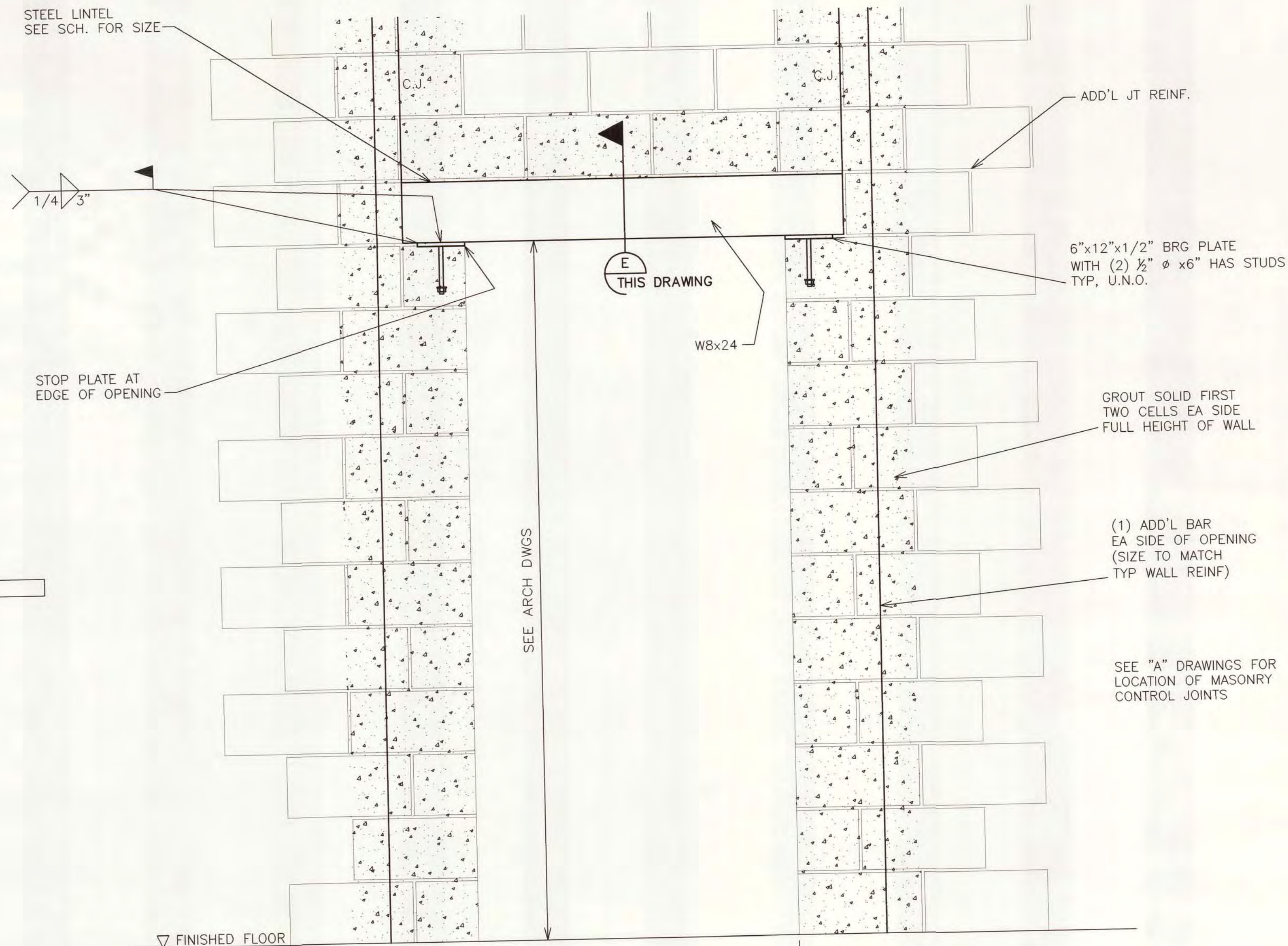
1. THE FOUNDATION SHALL BEAR ON UNDISTURBED NATURAL SOIL OR ON CONTROLLED BACKFILL CONSISTING OF GRANULAR MATERIAL.
2. ALL FLATWORK TO RECEIVE 6x6 W1.4xW1.4 W.W.F. REINFORCING UNLESS NOTED OTHERWISE.
3. SLOPE FLOOR CONTINUOUSLY TO DRAIN. DRAINS TO BE 0.10 FT. BELOW FIN. FLOOR.
4. FOUNDATION SHALL NOT BE SUBJECTED TO LOADING UNTIL 50% OF THE DESIGN STRENGTH IS ATTAINED.

MASONRY NOTES:

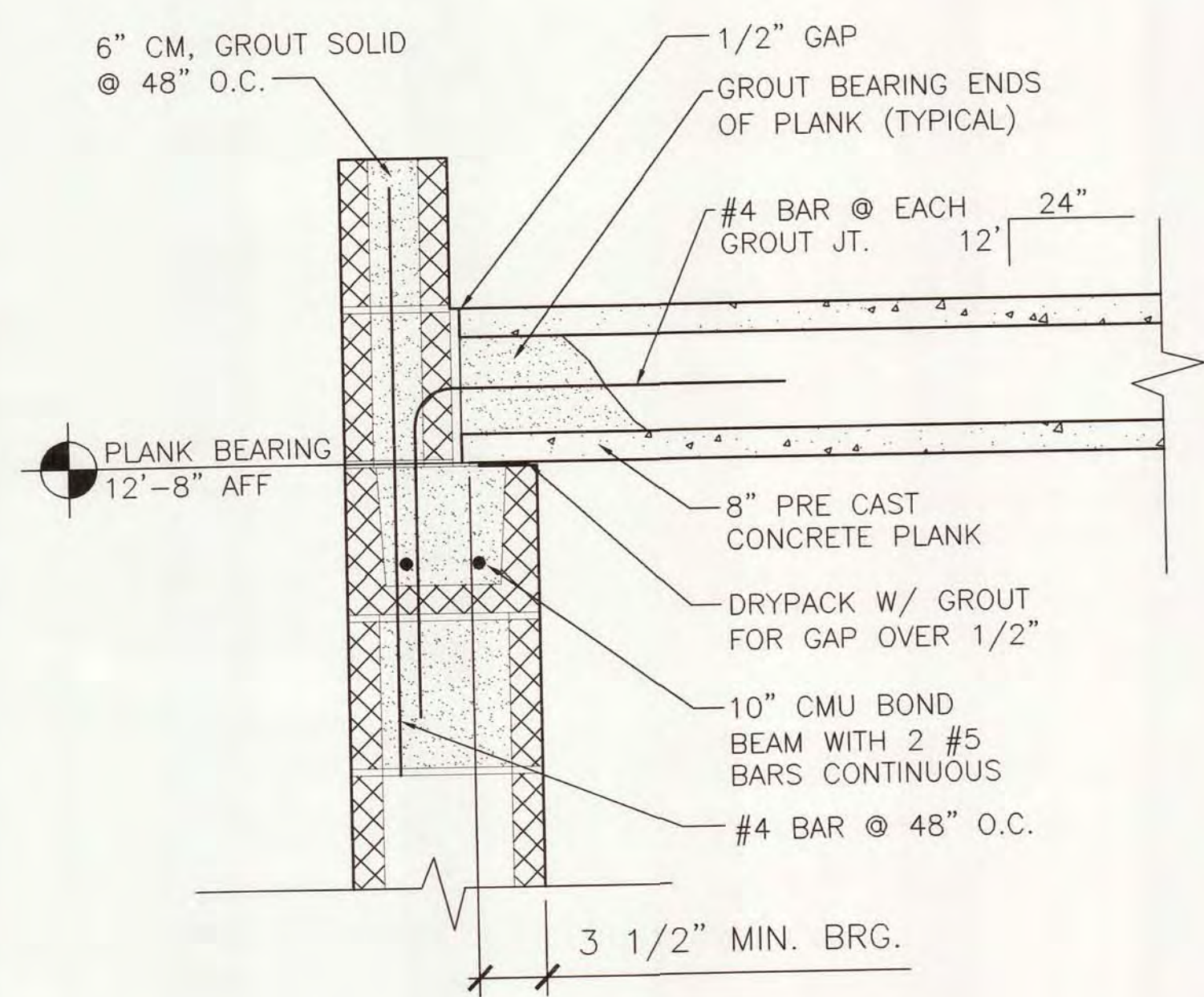
1. 10 G. DURO-WALL LADDER TYPE HORIZONTAL REINFORCING AT 16" ON CENTER.
2. WALL REINFORCING TO BE #5 BARS VERTICALLY AT 48" O.C. TIE INTO MASONRY LINTELS AT JAMBS, TOP COURSE BOND BEAM AND FOOTING GROUT REINFORCING CORES SOLID. LAP ALL NON-CONTINUOUS REINFORCING 30".
3. FILL ALL MASONRY CORES WITH LOOSE FILL INSULATION (PERLITE)
4. 10x8x16 SPLIT FACE CONCRETE MASONRY UNITS AT BUILDING WALLS AND 10"x8"x16" SPLIT FACE CONCRETE MASONRY UNITS AT VISION BARRIER WALL, SPLIT FACE SURFACE ON BOTH SIDES OF MASONRY. APPLY SILICON BASED WATER REPELLANT ON EXTERIOR EXPOSURE. SUBMIT MANUFACTURERS STANDARD COLOR RANGE FOR SELECTION BY DESIGN TEAM.



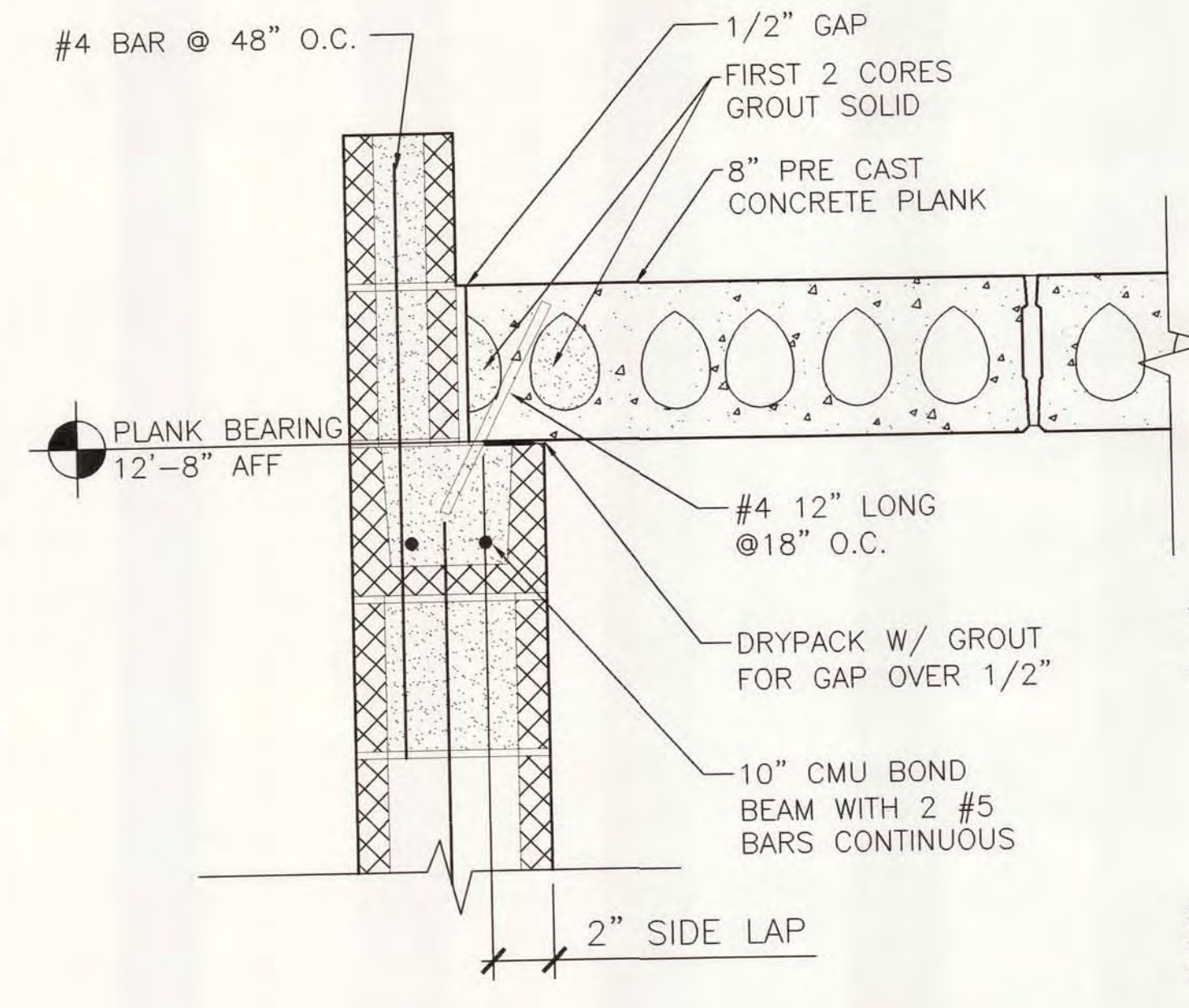
STRUCTURAL PLAN  
SCALE: 1/4"=1'-0"



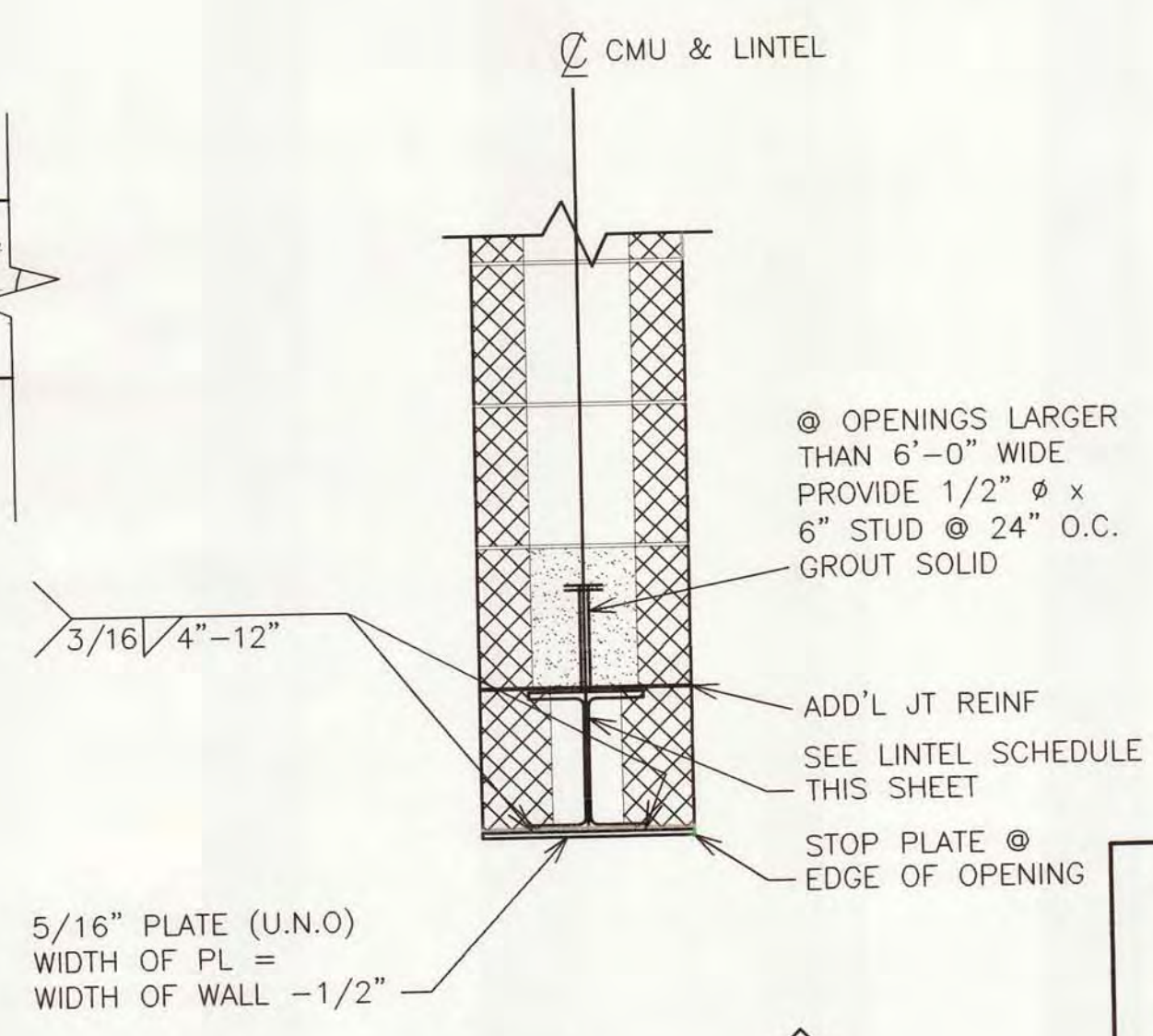
MASONRY LINTEL DETAIL (D)  
(• DOORS / SIM • MECH OPENINGS)  
NOT TO SCALE



PLANK AT BEARING WALL  
SCALE: 1 1/2"=1'-0"



PLANK AT SIDE WALL  
SCALE: 1 1/2"=1'-0"



SECTIONS (E)  
NOT TO SCALE

LINTEL SCHEDULE			
*L (FT) OR MARK	SIZE OF LINTEL	BEARING EACH END (IN)	REMARKS
L1	L 3 1/2 X 3 1/2 X 1/4	6	SEE DETAIL D & E, THIS DWG.
L2	W8X24	8	SEE DETAIL D & E, THIS DWG.

**Wilcox Professional Services**  
AN ISO 9001:2000 CERTIFIED COMPANY

DESIGNED F. DICE  
CHECKED C. LAWSON  
CADD DATE 6/18/07 JKD2  
SCALE AS NOTED  
PART PROJECT 11315.00026\30\DWG\51

CITY OF ALPENA, MICHIGAN  
WATER AND WASTEWATER IMPROVEMENTS  
SRF PROJECT NO. 5266.01 DWRP PROJECT NO.: 7200.01  
WATER RECYCLING PLANT

SEPTAGE BUILDING  
STRUCTURAL PLAN AND DETAILS

DIVISION B	CONTRACT 11315.00026	SHEET S-1 OF
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DRAWING NUMBER

SARCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 0502

DRAWING NUMBER

10/25

SARCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 0502

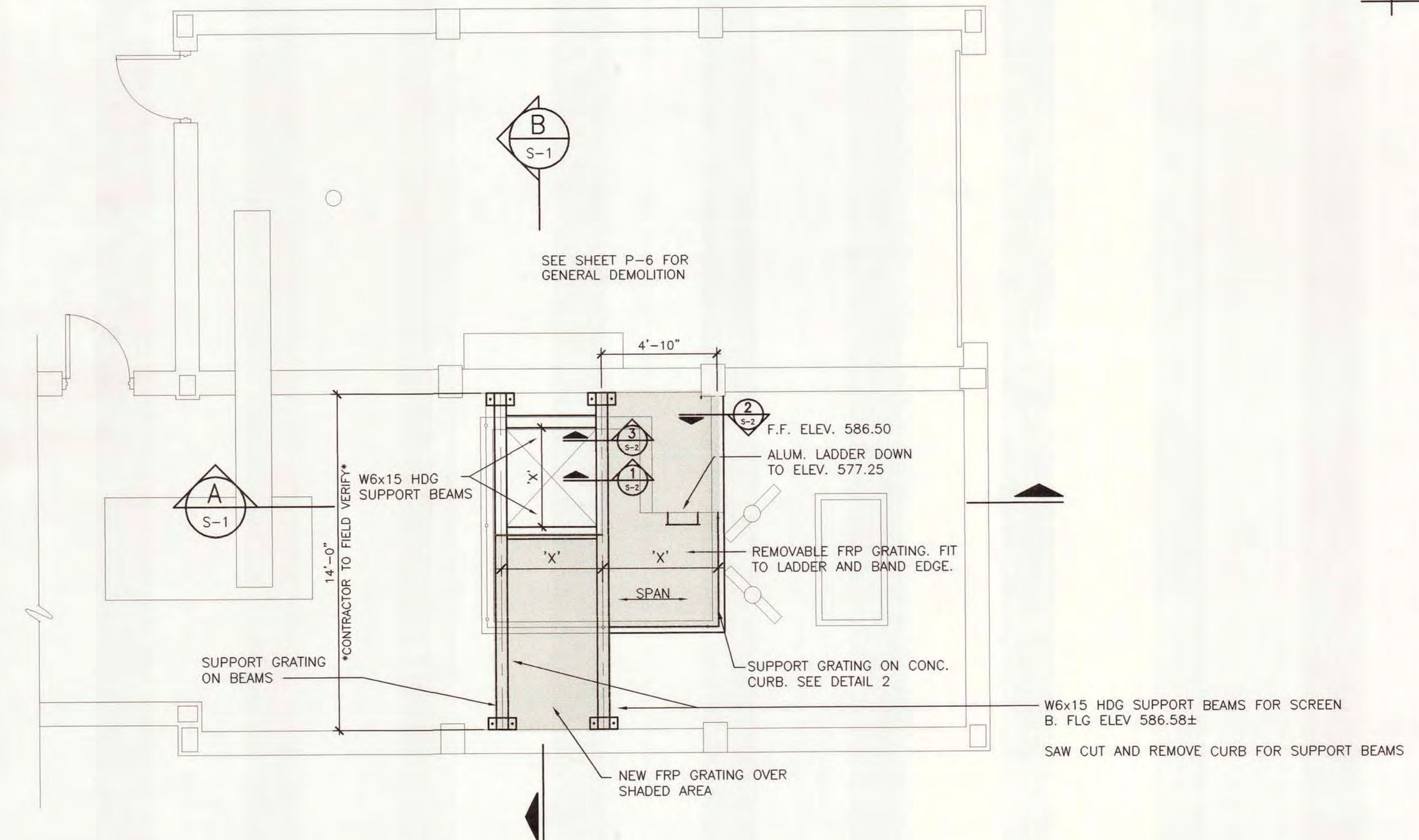
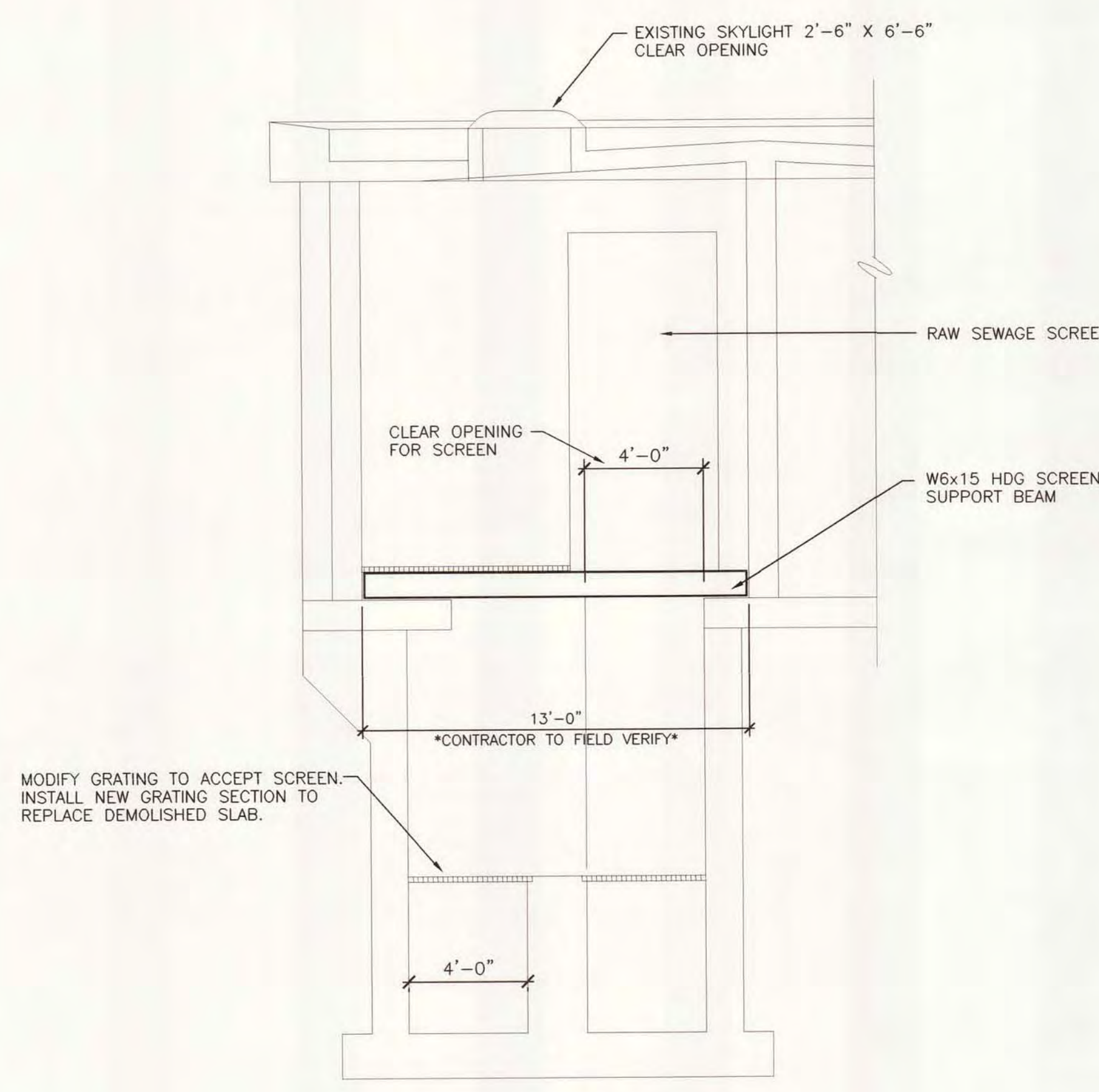
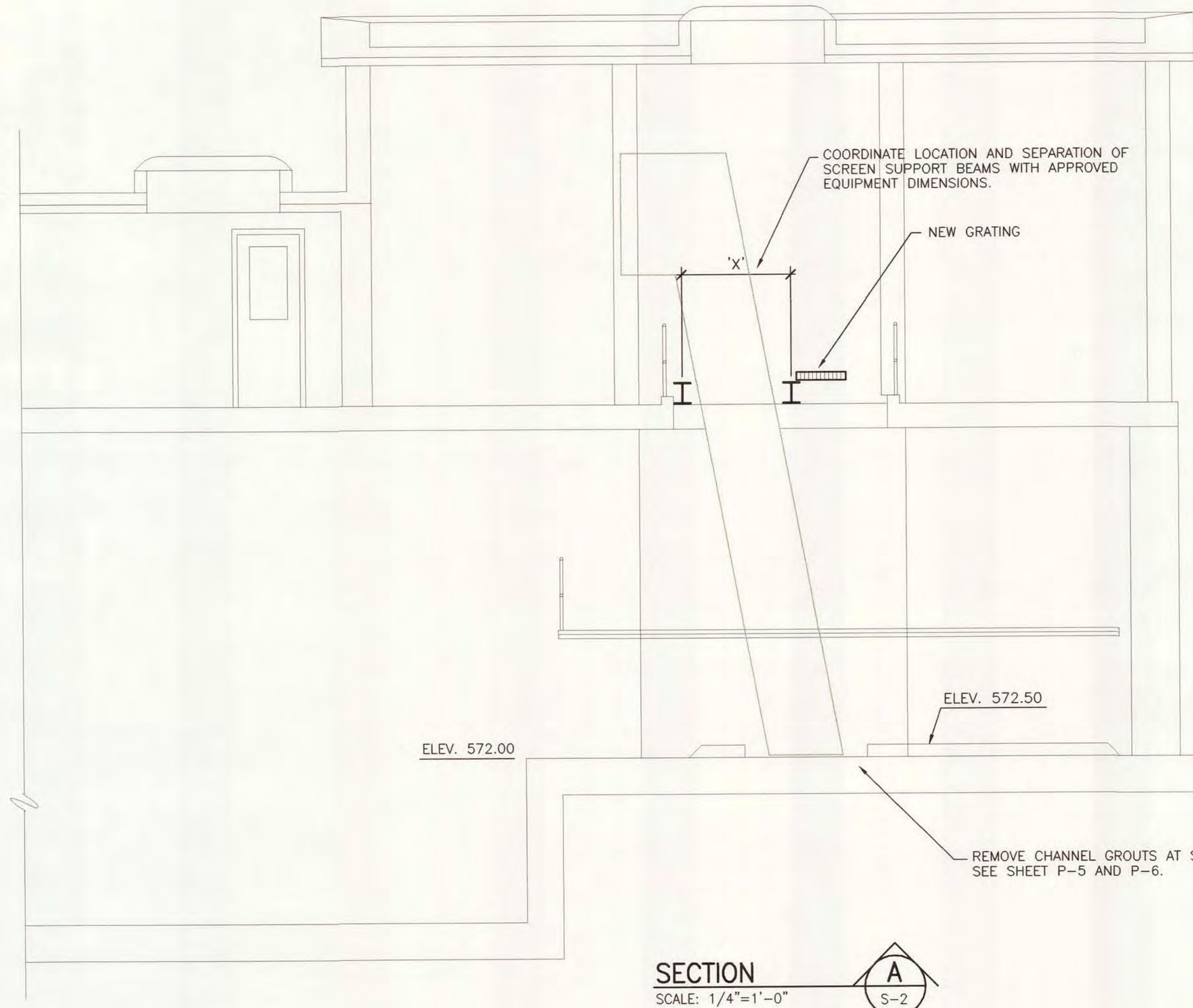
DRAWING NUMBER

WATER AND WASTEWATER  
IMPROVEMENTS - DIVISION 5  
2007

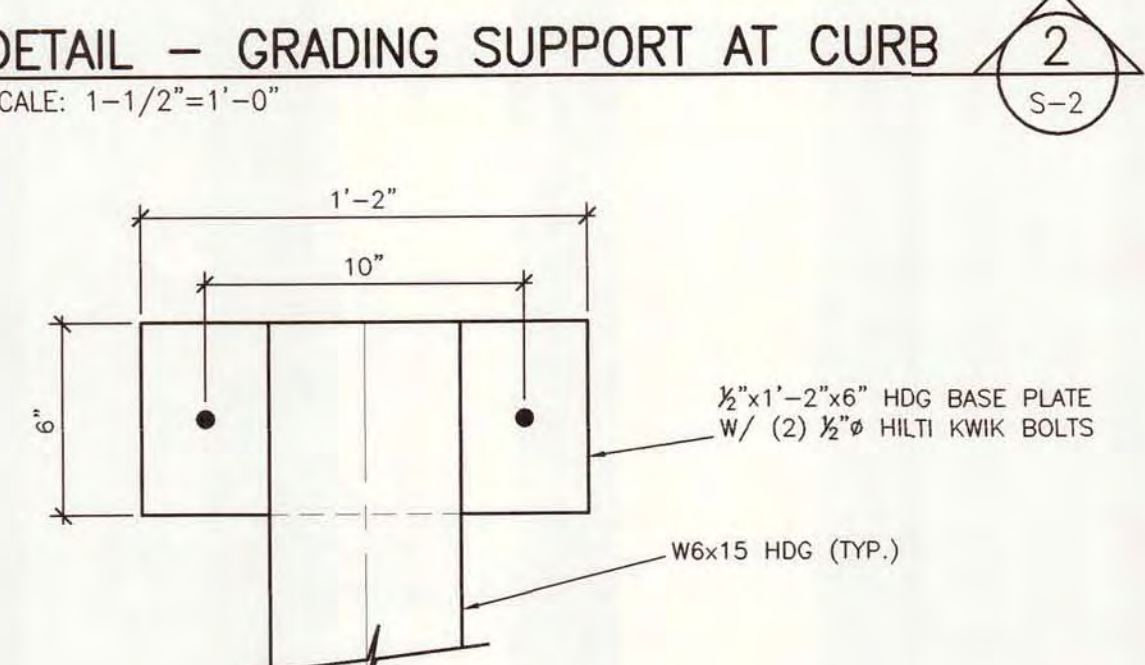
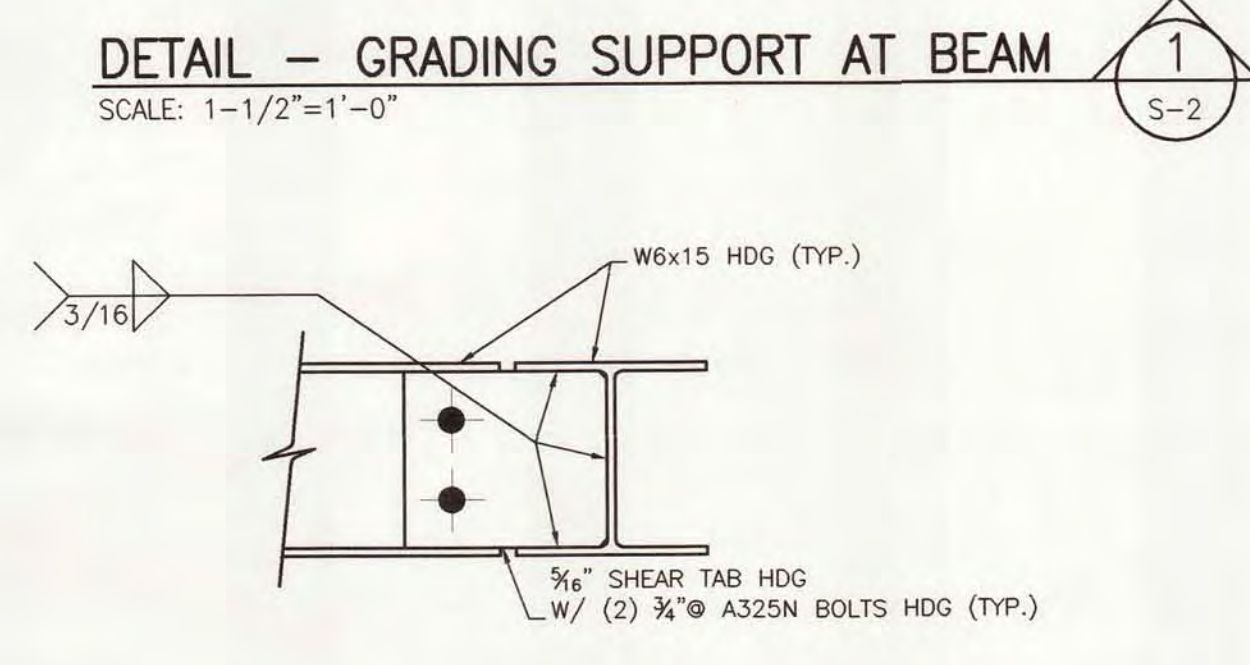
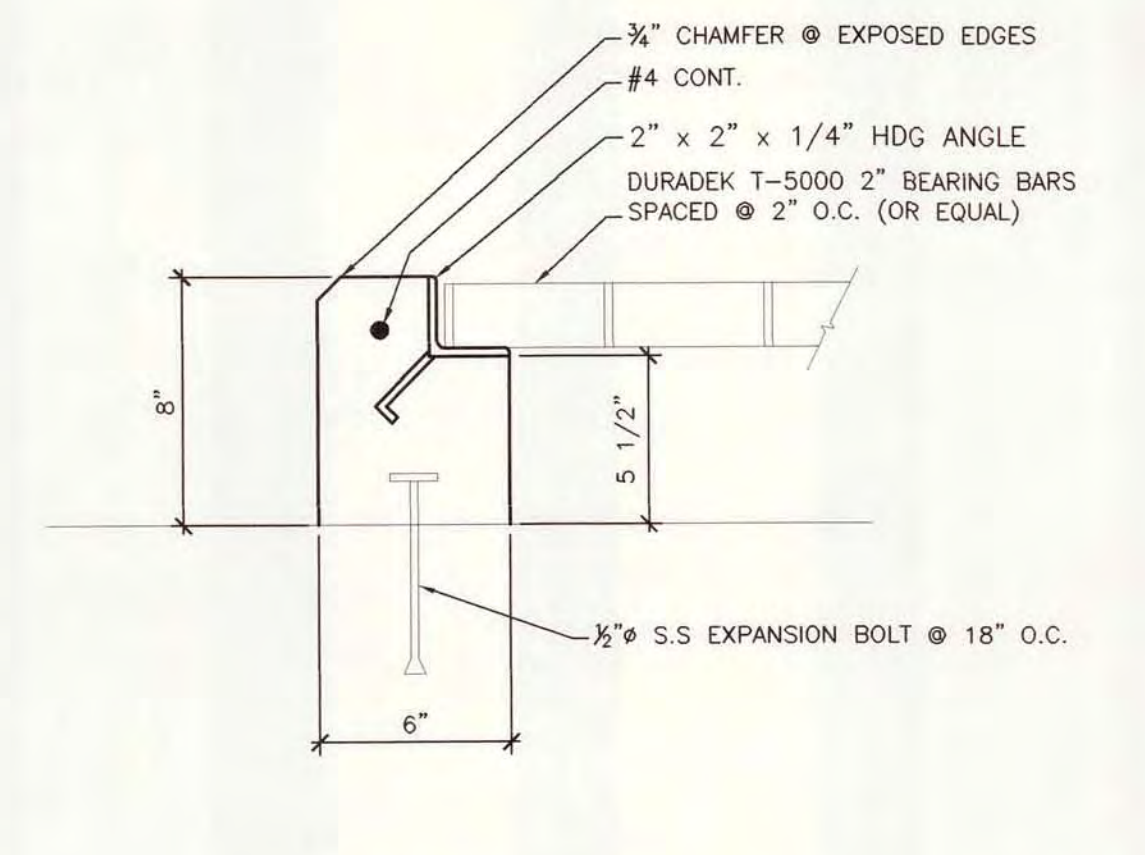
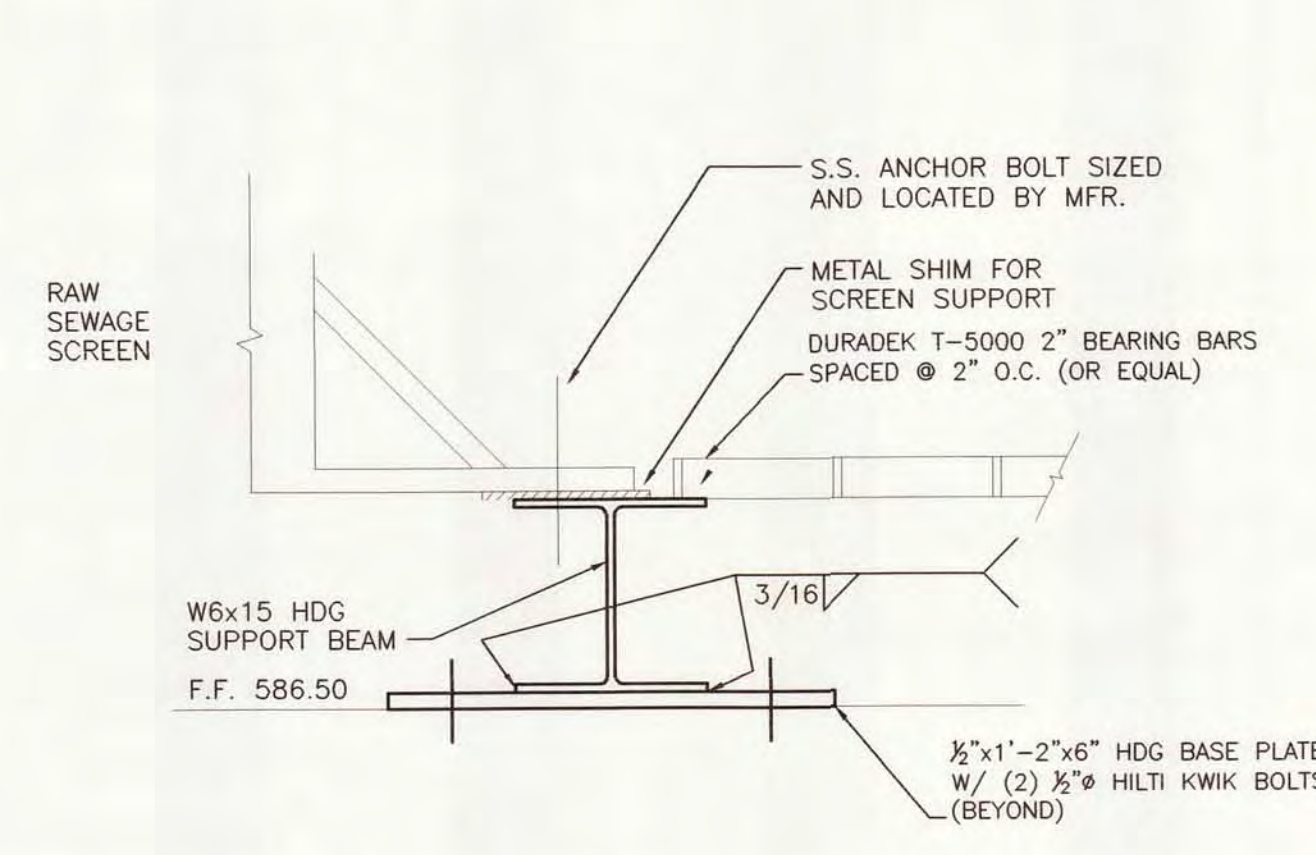
SARCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 0502

DRAWING NUMBER

SARCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 0502



- NOTES:
1. SEE SHEET P-6 FOR DEMOLITION IN SCREEN AREA.
  2. SEE SHEET P-5 AND P-6 FOR CORRECTIVE WORK.
  3. ALL STEEL TO BE HOT DIPPED GALVANIZED

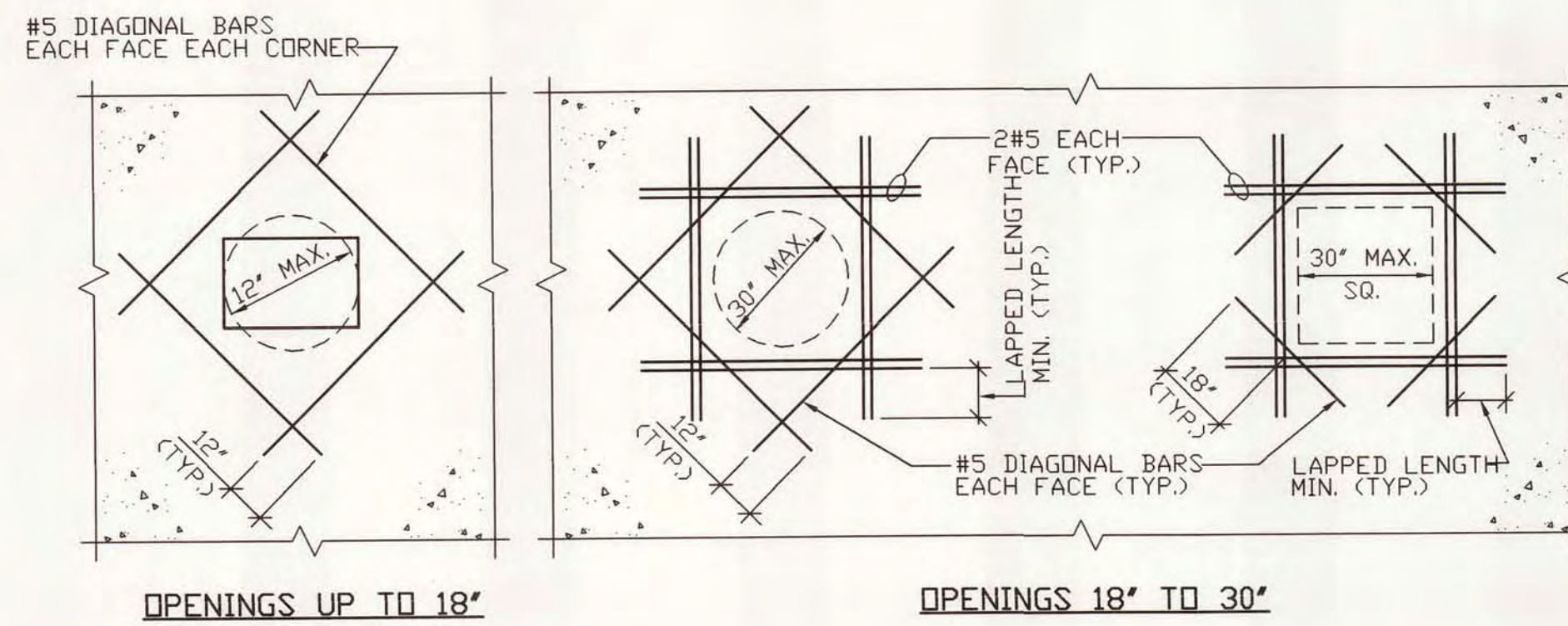


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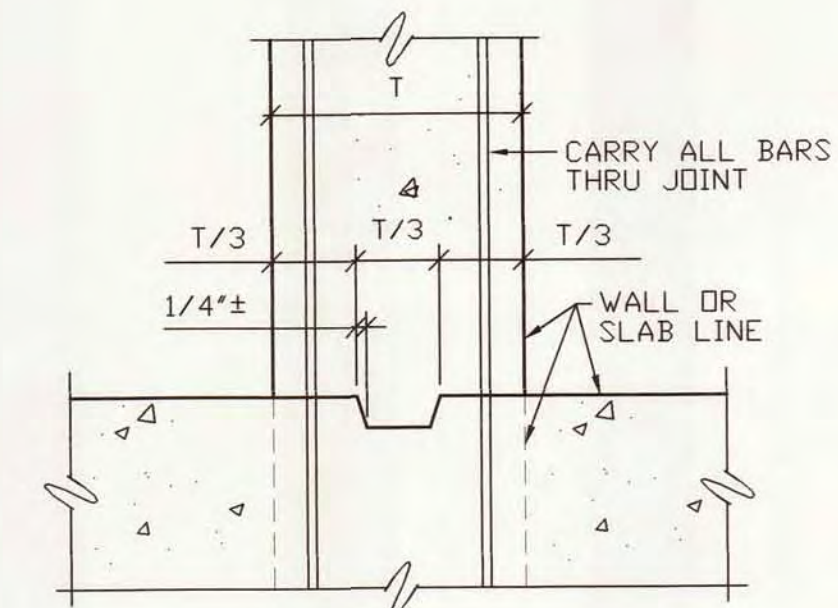
DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKD3
SCALE	AS NOTED
PART	PROJECT\11315\00026\30\DWG\5-SCREEN
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENT SRF PROJECT NO.: 5256.01 DWRF PROJECT WATER RECYCLING PLANT	
SCREEN AREA PLANS AND SECTIONS	
DIVISION	CONTRACT
B	11315.00026





EXTRA REINFORCEMENT AT PENETRATIONS DETAIL



STANDARD CONSTRUCTION JOINT

SPLICE LENGTHS FOR TENSION REINFORCING

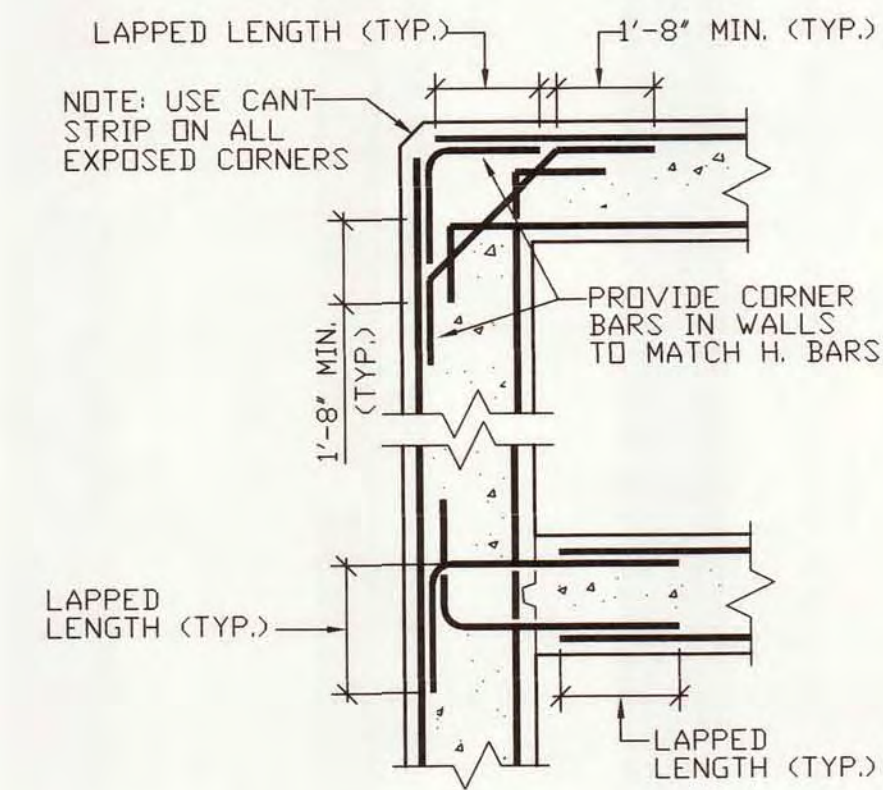
BAR SIZE	TENSION LAP LENGTH	TOP BARS
#3	16"	18"
#4	20"	24"
#5	24"	30"
#6	28"	36"
#7	34"	42"
#8	38"	48"
#9	42"	56"
#10	50"	66"
#11	62"	80"

NOTES:

1. ALL SPLICES SHALL ASSUME TENSION SPLICES USING LAP LENGTHS UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST UNDER THEM.

STRUCTURAL ABBREVIATIONS

ALT.	ALTERNATE	H.	HORIZONTAL
B.	BOTTOM	H.P.	HIGH POINT
BLDG.	BUILDING	HK.	HOOK
BM.	BEAM	HT.	HEIGHT
BSMT.	BASEMENT	I.D.	INSIDE DIAMETER
CLR.	CLEAR	I.F.	INSIDE FACE
COL.	COLUMN	IN.	INCHES
CONC.	CONCRETE	INT.	INTERIOR
CONST.	CONSTRUCTION	JT.	JOINT
CONT.	CONTINUOUS	KIP	THOUSAND POUNDS
CJ	CONSTRUCTION JOINT	K.B.	KNEE BRACE
CY.	CUBIC YARD	L.P.	LOW POINT
DET.	DETAIL	LGTH.	LENGTH
DIA.	DIAMETER	MAX.	MAXIMUM
DIAG.	DIAGONAL	MIN.	MINIMUM
DISC.	DISCONTINUOUS	N.F.	NEAR FACE
DIST.	DISTANCE	N.S.	NEAR SIDE
DWLS.	DOWELS	N.T.S.	NOT TO SCALE
E.E.	EACH END	O.C.	ON CENTER
E.F.	EACH FACE	O.D.	OUTSIDE DIAMETER
E.S.	EACH SIDE	O.F.	OUTSIDE FACE
E.W.	EACH WAY	OPNG.	OPENING
EA.	EACH	REINF.	REINFORCEMENT
EL.	ELEVATION	SIM.	SIMILAR
EX.	EXISTING	STJR.	STIRRUPS
EXT.	EXTERIOR	T.	TOP
F.F.	FAR FACE	T.O.S.	ELEVATION TOP OF STRUCTURAL STEEL
F.S.	FAR SIDE	TYP.	TYPICAL
FL.	FLOOR	U.N.D.	UNLESS NOTED OTHERWISE
FND.	FOUNDATION	V.	VERTICAL
FT.	FEET	W.P.	WORK POINT
GALV.	GALVANIZED		
GR.	GRADE		



SECTION PLAN OF WALLS



DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	4/23/07 JKD2
SCALE	AS NOTED
PART	PROJECT\11315\00020\30\DWG\5-dwg
REV	
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
STANDARD DETAILS		
DIVISION	CONTRACT	SHEET
B	11315.00026	S-3
		OF



**VALVE DESIGNATIONS**

SYMBOLS		MARK	TYPE
PIPEWORK DRAWINGS	FLOW DIAGRAMS		
		G	GATE VALVE
		NG	KNIFE GATE VALVE
		B	BUTTERFLY VALVE
		IB	INDUSTRIAL BUTTERFLY VALVE
		P	PLUG VALVE
		GB	GLOBE VALVE
		BV	BALL VALVE
		CC	CUSHION CHECK VALVE
		SC	SILENT CHECK VALVE
		RC	RADIAL CHECK VALVE
		SEC WEC	ELECTRIC CHECK VALVE (SEWAGE) (ANGLE OR GLOBE VALVE) (WATER)
		ALT SURG PV	ALTITUDE SURGE OR PRESSURE CONTROL & REGULATING VALVE
		RP	RUBBER PINCH VALVE
		PD	PLUG DRAIN VALVE
		BW	BACKWATER (FLAP) VALVE
		TSV	TELESCOPIC VALVE
SEE STRUCTURAL		PRW	PRESSURE RELIEF VALVE (WALL TYPE)
SEE STRUCTURAL		PRS	PRESSURE RELIEF VALVE (SLAB TYPE)
		M	METER

**JOINT DESIGNATIONS**

SYMBOL	MARK	TYPE
	FJ	FLANGED JOINT
	MJ	MECHANICAL JOINT
	SJ	SCREWED JOINT
	BSL POJ	BELL AND SPIGOT LEAD JOINT PUSH ON JOINT
	BFC	BOLTED FLEXIBLE COUPLING
	GC	GROOVED COUPLING
	STJ	SOCKET TYPE JOINT (FRP OR PVC PIPE)
	EJ	EXPANSION JOINT
	BF	BLIND FLANGE
	AFC	ADAPTER FLANGE COUPLING

**LEGEND  
YARD PIPING SITE PLAN**

	PROPOSED ABOVE GRADE STRUCTURE
	PROPOSED STRUCTURE (TANKS, ETC.)
	EXISTING ABOVE GRADE STRUCTURE
	EXISTING STRUCTURE (TANKS, ETC.)
	FUTURE STRUCTURE
	PROPOSED PIPING 30" AND SMALLER
	PROPOSED PIPING 36" AND LARGER
	EXISTING PIPING 30" AND SMALLER
	EXISTING PIPING 36" AND LARGER
	PROPOSED MANHOLE
	EXISTING MANHOLE
	PROPOSED VALVE BOX AND NUMBER
	EXISTING VALVE BOX
	PROPOSED VALVE MANHOLE AND NUMBER
	EXISTING VALVE MANHOLE
	PROPOSED FIRE HYDRANT ASSEMBLY
	EXISTING FIRE HYDRANT ASSEMBLY

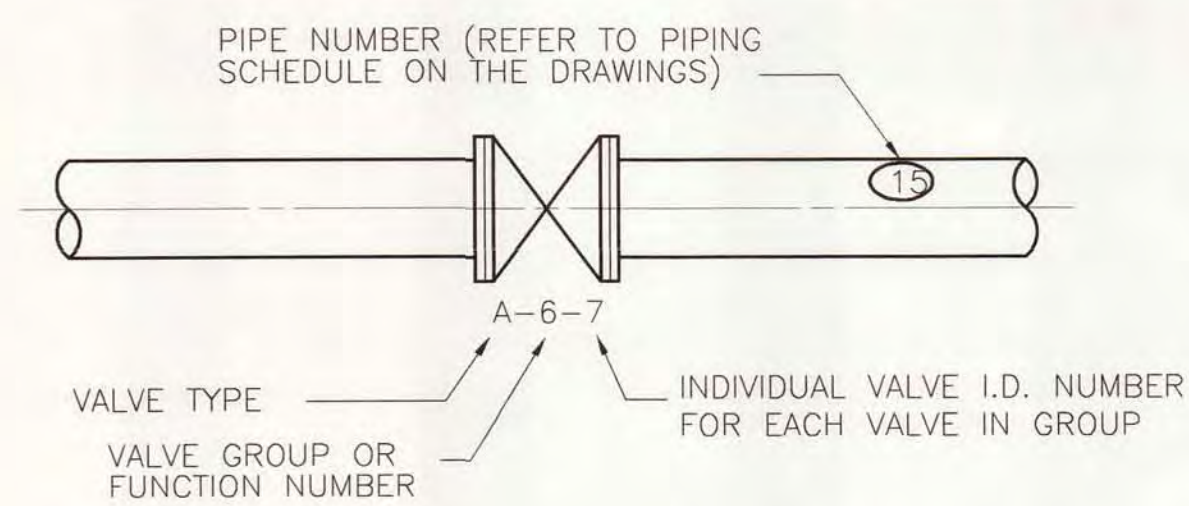
**GATE DESIGNATIONS**

SYMBOL	MARK	TYPE
	S	SLUICE GATE (WITH STANDARD WALL THIMBLE)
	S	SLUICE GATE (WITH FLANGE & MECHANICAL JOINT WALL THIMBLE)
	F	FABRICATED SLIDE GATE
	FSL	FIBERGLASS STOP LOG
	SH	SHEAR GATE

**SLEEVE DESIGNATIONS**

SYMBOL	TYPE
	STEEL WALL SLEEVE
	FLANGE WALL PIPE
	MECHANICAL JOINT WALL PIPE

**VALVE & PIPE LEGEND**



**PIPING ABBREVIATION - LEGEND**

DW	DIGESTED WASTE
RS	RAW SEWAGE
S	SCUM
SPTG	SEPTAGE
SW	SEPTAGE WASTE
TSP	TRANSFER SEPTAGE
WAS	WASTE ACTIVATED SLUDGE
D.G.	DIGESTOR GAS

**OPERATORS  
(SCHEMATICS ONLY)**

**SYMBOL TYPE**

**THROTTLING SERVICE**

	PNEUMATIC
	ELECTRIC
	HYDRAULIC

**OPEN - SHUT SERVICE**

	PNEUMATIC
	ELECTRIC
	HYDRAULIC

**PIPING AND VALVES GENERAL NOTES**

- PIPING AND PIPING SUPPORTS TO BE INSTALLED IN COMPLIANCE WITH ANSI B31.1 AND ASME B31.1.
- ALL GROUND BURIED PIPING SHALL BE INSTALLED WITH A MINIMUM 6'-0" OF COVER OVER THE TOP OF THE PIPE.
- PLUG VALVES, BUTTERFLY VALVES, AND BALL VALVES TO BE INSTALLED WITH THE OPERATING STEM HORIZONTAL UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THE SCHEDULE.
- TAPS IN PROCESS PIPING SHALL BE DIRECTLY THREADED IN DUCTILE IRON PIPE FOR TAPS 1-INCH IN DIAMETER OR LESS. LARGER TAPS SHALL USE A SADDLE. TAPS SHALL BE INSTALLED AS FOLLOWS:
  - ON THE SIDE OF THE PIPE FOR SAMPLE TAPS.
  - ON THE TOP OF THE PIPE FOR PRESSURE TAPS.
  - ON THE SIDE OF THE PIPE UNLESS SHOWN OTHERWISE FOR CHEMICAL FEED TAPS.
- ALL FERROUS PIPING SUPPORTS AND ANCHORAGE HARDWARE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION OR STAINLESS STEEL.

**PIPE JOINT - LEGEND**

AFC	ADAPTER FLANGE COUPLING
BFC	BOLTED FLEXIBLE COUPLING
BSL	BELL AND SPIGOT CONCRETE
BSS	BELL AND SPIGOT LEAD
BSS	BELL AND SPIGOT STEEL
FJ	FLANGED JOINT
GC	GROOVED COUPLING
MJ	MECHANICAL JOINT
POJ	PUSH-ON JOINT
SJ	SCREWED JOINT
STJ	SOCKET TYPE JOINT
WJ	WELDED JOINT
FWJ	FIELD WELDED JOINT
CC	COMPATIBLE COUPLING

**VALVE OPERATOR SCHEDULE**

**VALVE JOINT**

BSL	BELL AND SPIGOT LEAD
FJ	FLANGED JOINT
GC	GROOVED COUPLING
MJ	MECHANICAL JOINT
PJ	PUSH-ON JOINT
SJ	SCREWED JOINT
W	WAFER
WJ	WELDED JOINT



DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKDZ
SCALE	AS NOTED
PART	PROJECT\11315\00026\30\DWG\VP-LEG
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
<b>PIPING LEGEND</b>		
DIVISION B	CONTRACT 11315.00026	SHEET P-1 OF

DRAWING NUMBER  
SAFCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER  
12  
SAFCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER  
WATER AND WASTEWATER  
IMPROVEMENTS - DIVISION B  
2007  
SAFCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER  
SAFCO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

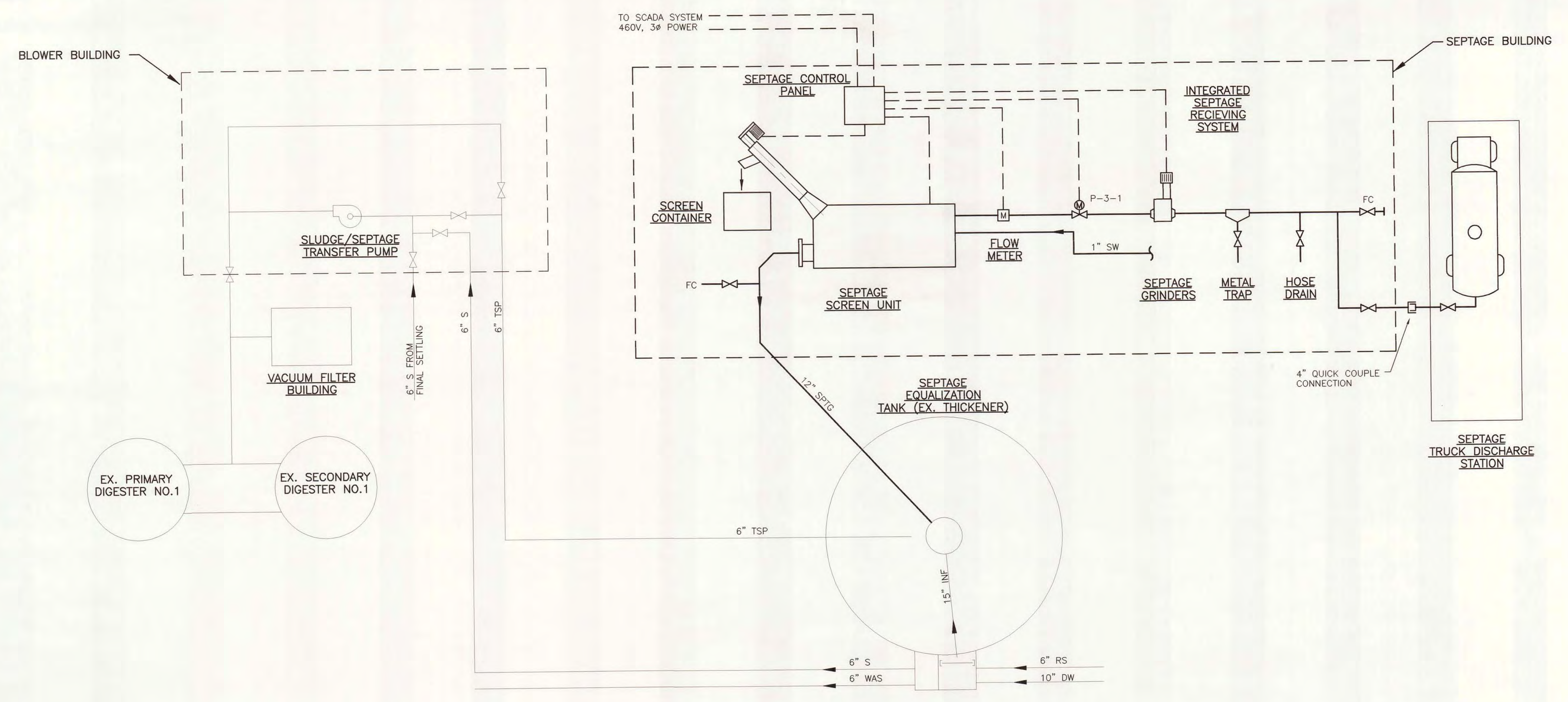


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REORDER BY PART NUMBER 6556

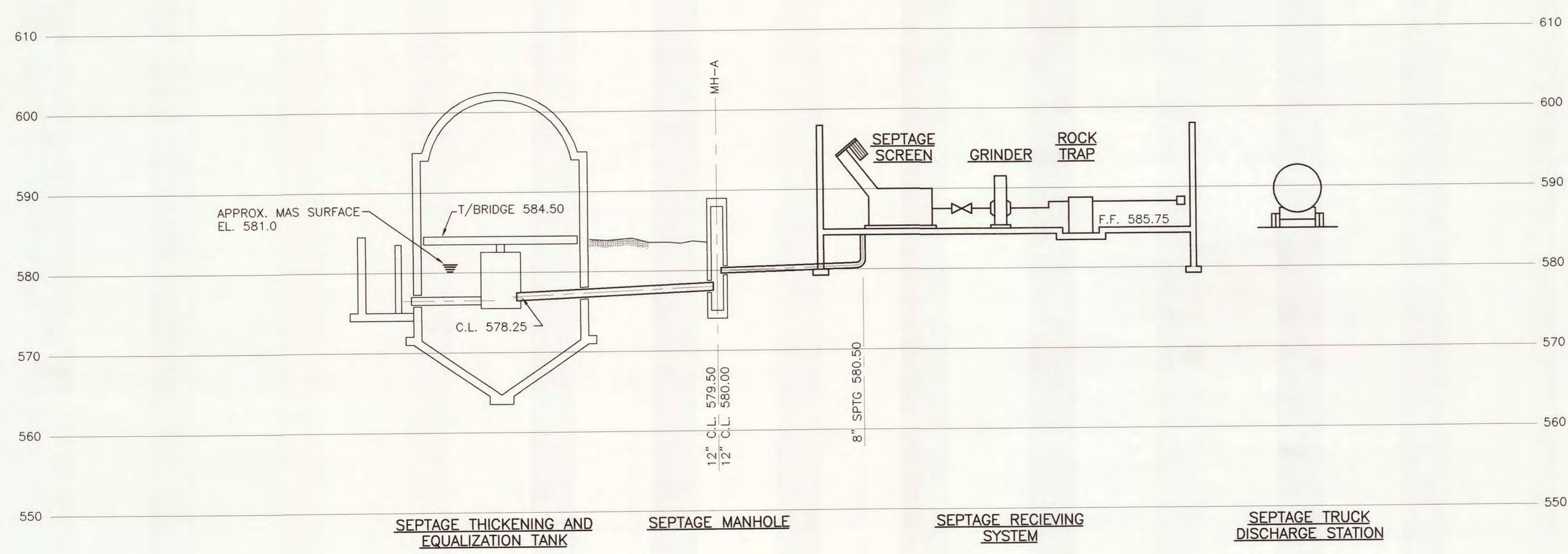
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SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 6556

DRAWING NUMBER  
WATER AND WASTEWATER  
CONSTRUCTION &  
2007  
SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 6556

DRAWING NUMBER  
SAFCD PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 6556



**SEPTAGE FLOW SCHEMATIC**  
NO SCALE



**HYDRAULIC PROFILE**  
SCALE: 1" = 10' VERT.



DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	4/23/07 JKD3
SCALE	AS NOTED
PART	PROJECT\11315\00026\30\DWG\Hyd-prof
REV	
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
<b>SEPTAGE FLOW SCHEMATIC AND HYDRAULIC PROFILE</b>		
DIVISION B	CONTRACT 11315.00026	SHEET P-2 OF



PIPE SCHEDULE								
MARK	LOCATION	SERVICE	SIZE (INCHES)	MATERIAL	JOINT	EXPOSED OR BURIED	TEST PRESSURE	REMARKS
1	SEPTAGE BUILDING	SPTG	4	DIP	FJ	EXPOSED	150	-
2	YARD	SPTG	12	DIP	FJ/MJ	EXPOSED/BURIED	25	-
3	YARD	DRAIN	6	DIP	MJ	BURIED	25	-
4	SCREEN AREA	DRAIN	6	DIP	FJ	EXPOSED	25	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-

VALVE SCHEDULE								
MARK	LOCATION	SERVICE	SIZE (IN.)	QUANTITY	JOINT	OPERATOR	ACCESSORIES	REMARKS
P-1-1	SEPTAGE BUILDING	SPTG	4	1	FJ	W	WN,W	-
P-2-1	SEPTAGE BUILDING	TRAP DRAIN	4	1	FJ	W	WN,W	BY MANUFACTURER
P-3-1	SEPTAGE BUILDING	SPTG	4	1	FJ	W	WN,W	BY MANUFACTURER
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-
P-	-	-	-	-	-	-	-	-

GENERAL PIPEWORK SCHEDULE KEY

THE FOLLOWING PIPE SCHEDULE GIVES THE DESIGNATION FOR EACH PIPE LINE, PIPE SIZE, JOINT MATERIAL, SERVICE AND OTHER PERTINENT DATA. THE KEY OF SYMBOLS FOR THE SCHEDULE IS AS FOLLOWS:  
 PIPE MATERIAL

PROCESS PIPING

- BSP BLACK STEEL PIPE
- CSIP CHROME SILICON IRON PIPE
- DIP DUCTILE IRON PIPE
- FRP FIBERGLASS REINFORCED PIPE
- GSP GALVANIZED STEEL PIPE
- HDP HIGH DENSITY POLYETHYLENE
- PVC PLASTIC PIPE
- PCCP PRESTRESSED CONCRETE CYLINDER PIPE
- RCPP REINFORCED CONCRETE PRESSURE PIPE
- SSP STAINLESS STEEL PIPE
- SPP STEEL PLATE PIPE

PIPE JOINTS

- AFC ADAPTER FLANGE COUPLING
- BFC BOLTED FLEXIBLE COUPLING
- BSC BELL AND SPIGOT CONCRETE
- BSL BELL AND SPIGOT LEAD
- BSS BELL AND SPIGOT STEEL
- FJ FLANGED JOINT
- GC GROOVED COUPLING
- MJ MECHANICAL JOINT
- POJ PUSH-ON JOINT
- SJ SCREWED JOINT
- STJ SOCKET TYPE JOINT
- WJ WELDED JOINT
- FWJ FIELD WELDED JOINT
- CC COMPATIBLE COUPLING

VALVE JOINT

- BSL BELL AND SPIGOT LEAD
- FJ FLANGED JOINT
- GC GROOVED COUPLING
- MJ MECHANICAL JOINT
- PJ PUSH-ON JOINT
- SJ SCREWED JOINT
- WJ WELDED JOINT

OPERATOR

- BG BEVEL GEAR
- C CRANK/HANDLES
- CL CHAIN LEVER (LENGTH)
- CW CHAIN WHEEL (LENGTH)
- H HANDWHEEL
- HD HYDRAULIC OIL
- HW HYDRAULIC WATER
- IL INFINITE LEVER
- L LEVER
- M MOTOR
- P POSITIONER
- PL POSITION LEVEL
- PDC PNEUMATIC CYLINDER
- POD PNEUMATIC DIAPHRAGM
- W WRENCH HEAD
- WN WRENCH NUT

SLUICE GATE

- C CONVENTIONAL
- SC SELF CONTAINED

BOTTOM

- FB FLUSH BOTTOM
- SB STANDARD BOTTOM

FRAME

- FF FLAT FRAME
- FLF FLANGE FRAME

ACCESSORIES

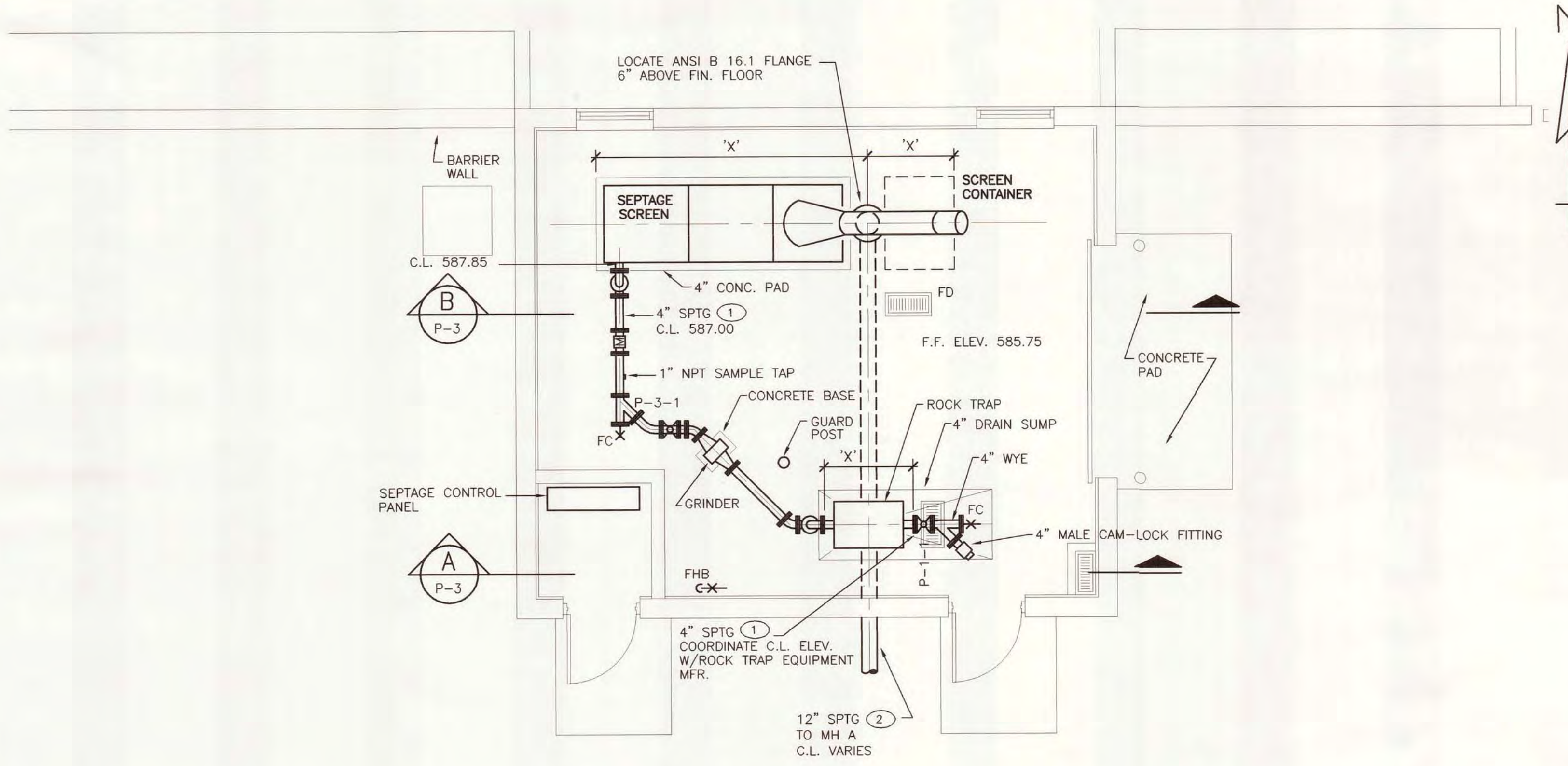
- BS BENCH STANDS
- CP CONTROL PACKAGE
- EB EXTENSION BONNET (LENGTH)
- ES EXTENSION STEM SHAFT (LENGTH)
- FB FLOOR BOX (LENGTH)
- FS FLOOR STAND
- LS LIMIT SWITCH
- MS MANUAL SCREW
- DAS DIL ACCUMULATOR SYSTEM
- PA PILOT ASSEMBLY
- PI POSITION INDICATOR
- PO PORTABLE OPERATOR
- RPI REMOTE POSITION INDICATOR
- SC STEM COVER
- SG STEM GUIDE
- THW \*T\* HANDLE WRENCH
- VB VALVE BOX (LENGTH)
- VB WALL BRACKET
- WG WORM GEAR

REMARKS

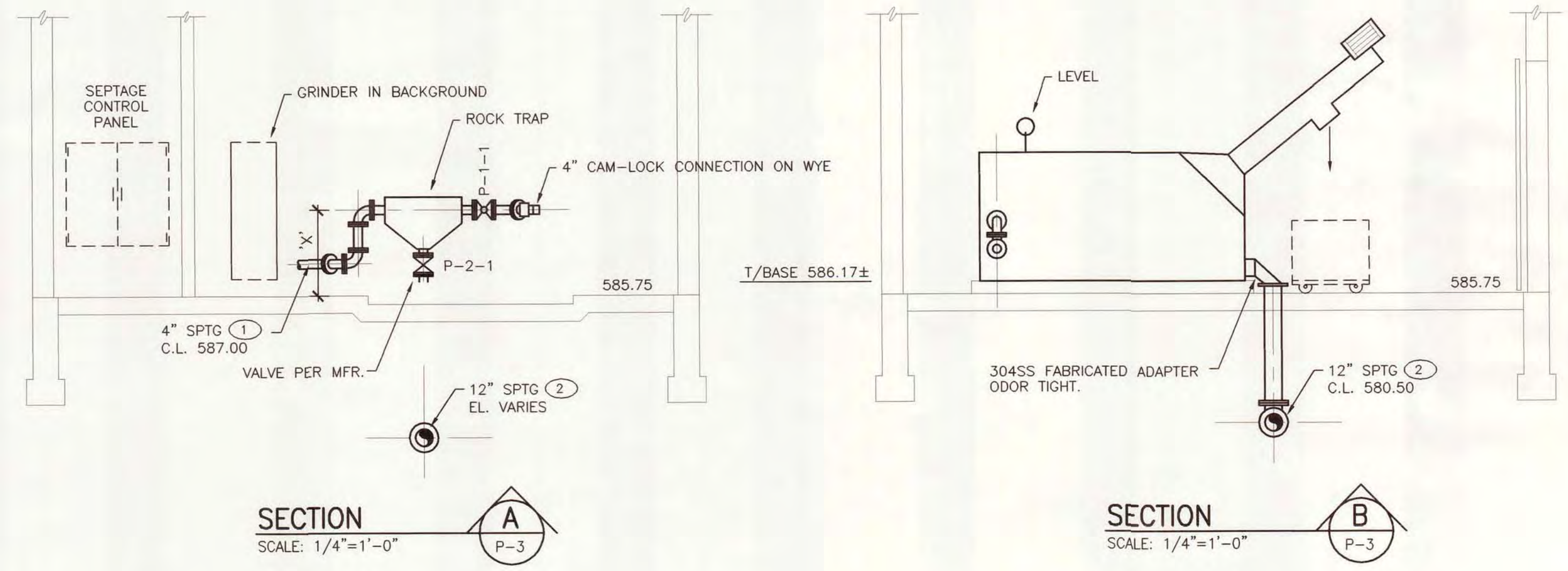
- CL CLASS
- FC FAIL CLOSE
- FO FAIL OPEN
- GB GROUND BURIED
- NRS NONRISING STEM
- DS OPEN SHUT
- RS RISING STEM
- TH THROTTLING

SLIDE GATE TYPE

- A ALUMINUM
- FG FIBERGLASS
- SS STAINLESS STEEL



SEPTAGE BUILDING EQUIPMENT AND PIPING PLAN  
 SCALE: 1/4"=1'-0"



- NOTES:
- PROVIDE 4 WHEEL POLYETHYLENE SCREEN CONTAINER. CAPACITY SHALL BE 27 CUBIC FEET, 800 LBS. WHEELS SHALL BE POLYETHYLENE, 4" MIN. DIAMETER, WHEEL DOLLY SHALL BE 304SS.

<p>AN ISO 9001:2000 CERTIFIED COMPANY</p>	DESIGNED D. HOLMGREN	CITY OF ALPENA, MICHIGAN
	CHECKED C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
	ISSUED DATE 4/23/07 JKD2	SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01
	SCALE AS NOTED	WATER RECYCLING PLANT
PART PROJECT: 11315.00026.30.DWIP/piping-pl1		<p>SEPTAGE BUILDING PIPING PLANS, SECTIONS AND SCHEDULES</p>
DIVISION B	CONTRACT 11315.00026	
		SHEET P-3 OF



DRAWING NUMBER

SACD PRODUCTS • NEW HOPE, MINNESOTA  
REGISTERED BY PART NUMBER 0552

DRAWING NUMBER  
15 / 25

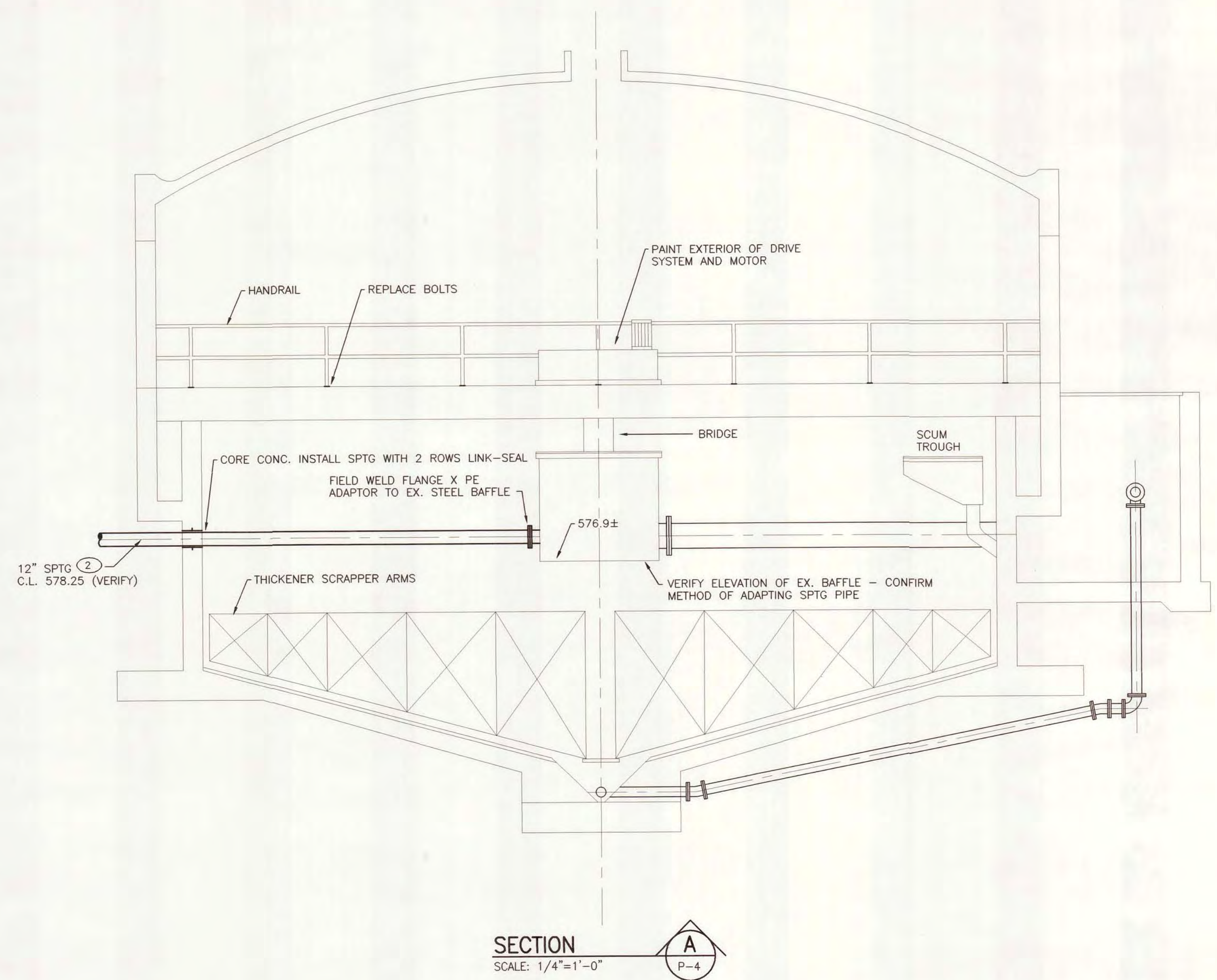
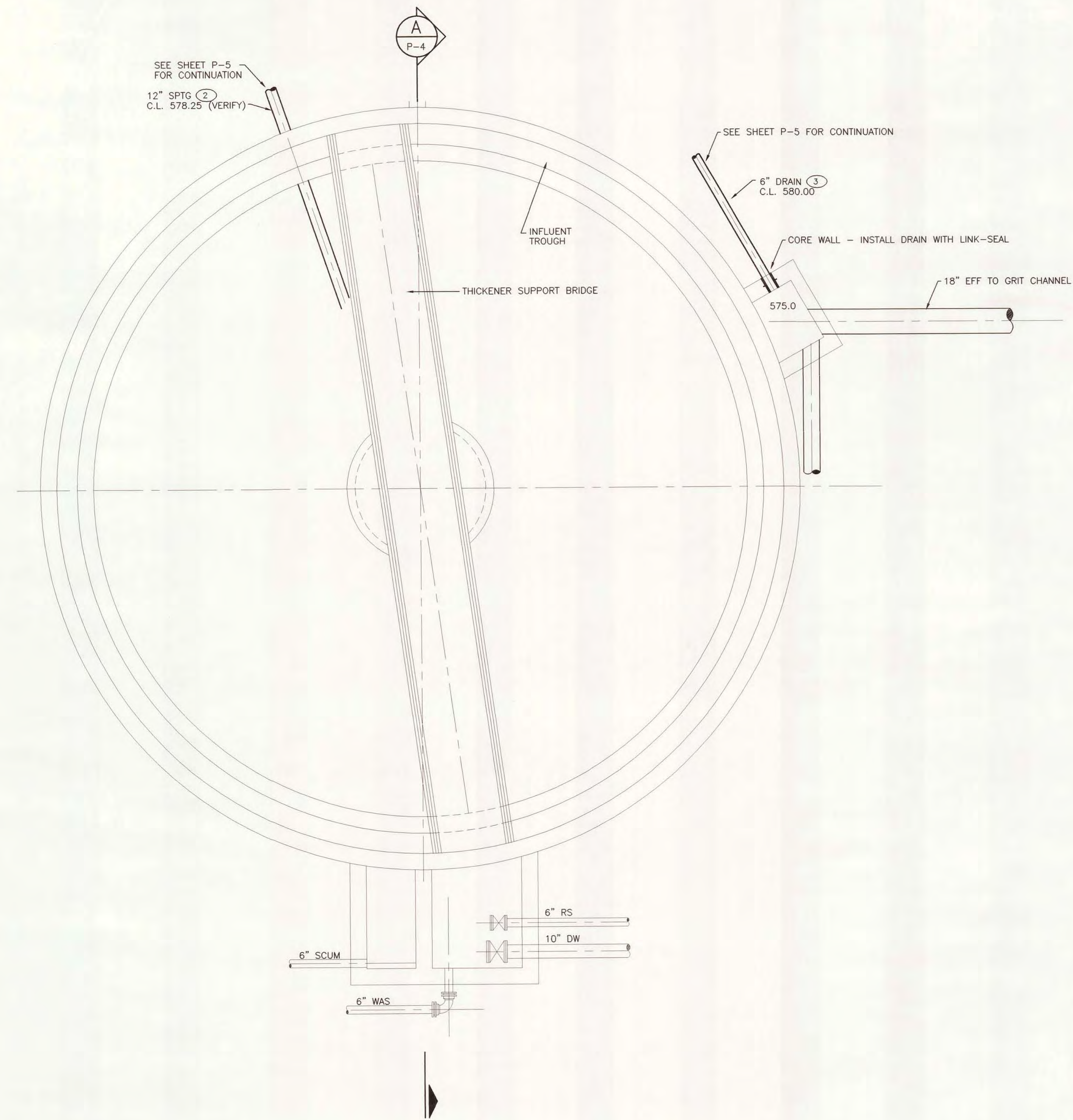
SACD PRODUCTS • NEW HOPE, MINNESOTA  
REGISTERED BY PART NUMBER 0552

DRAWING NUMBER  
WASTE AND WASTEWATER  
IMPROVEMENTS - DIVISION B  
2007

SACD PRODUCTS • NEW HOPE, MINNESOTA  
REGISTERED BY PART NUMBER 0552

DRAWING NUMBER

SACD PRODUCTS • NEW HOPE, MINNESOTA  
REGISTERED BY PART NUMBER 0552



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

A  
P-4

NOTE:

1. PAINT ALL EXISTING FERROUS METAL SURFACES WITHIN THICKENER. INCLUDE BRIDGE, HANDRAIL, INFLUENT BAFFLE, SCRAPER ARMS, SCUM EQUIPMENT, MISC. IRON AND ELECTRICAL CONDUIT. COMPLETE ABRASIVE BLAST AND PAINT PER SPECIFICATION 09910.
2. VERIFY BAFFLE ELEVATION AND CONFIGURATION VS. CHANNEL BOTTOM ELEVATION AT POINT OF SPTG PENETRATION.
3. INSTALL NEW S.S. BASE PLATE BOLTS FOR HANDRAIL.
4. REPLACE CONDUIT ANCHORAGE HARDWARE INSIDE THICKENER STRUCTURE.

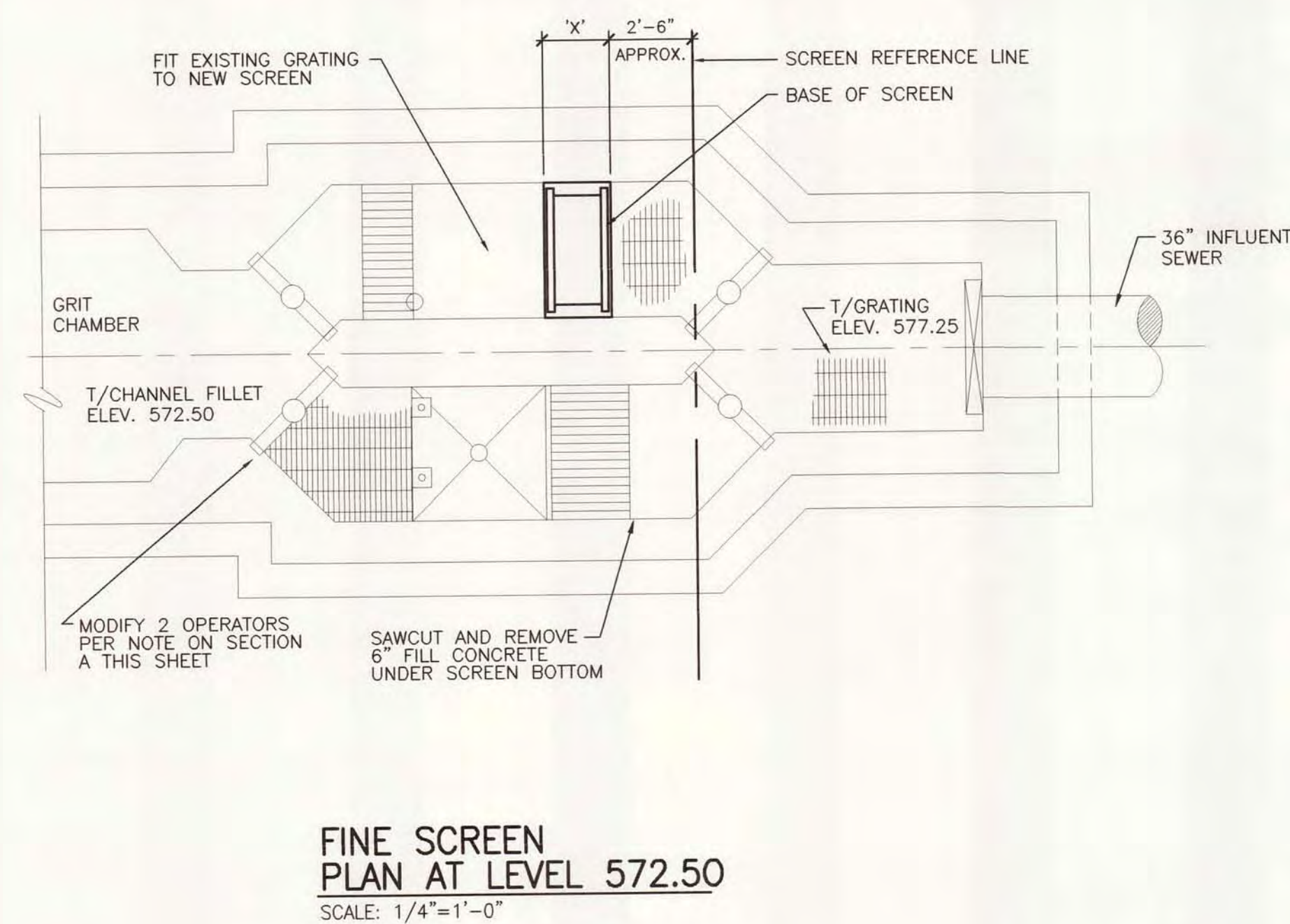
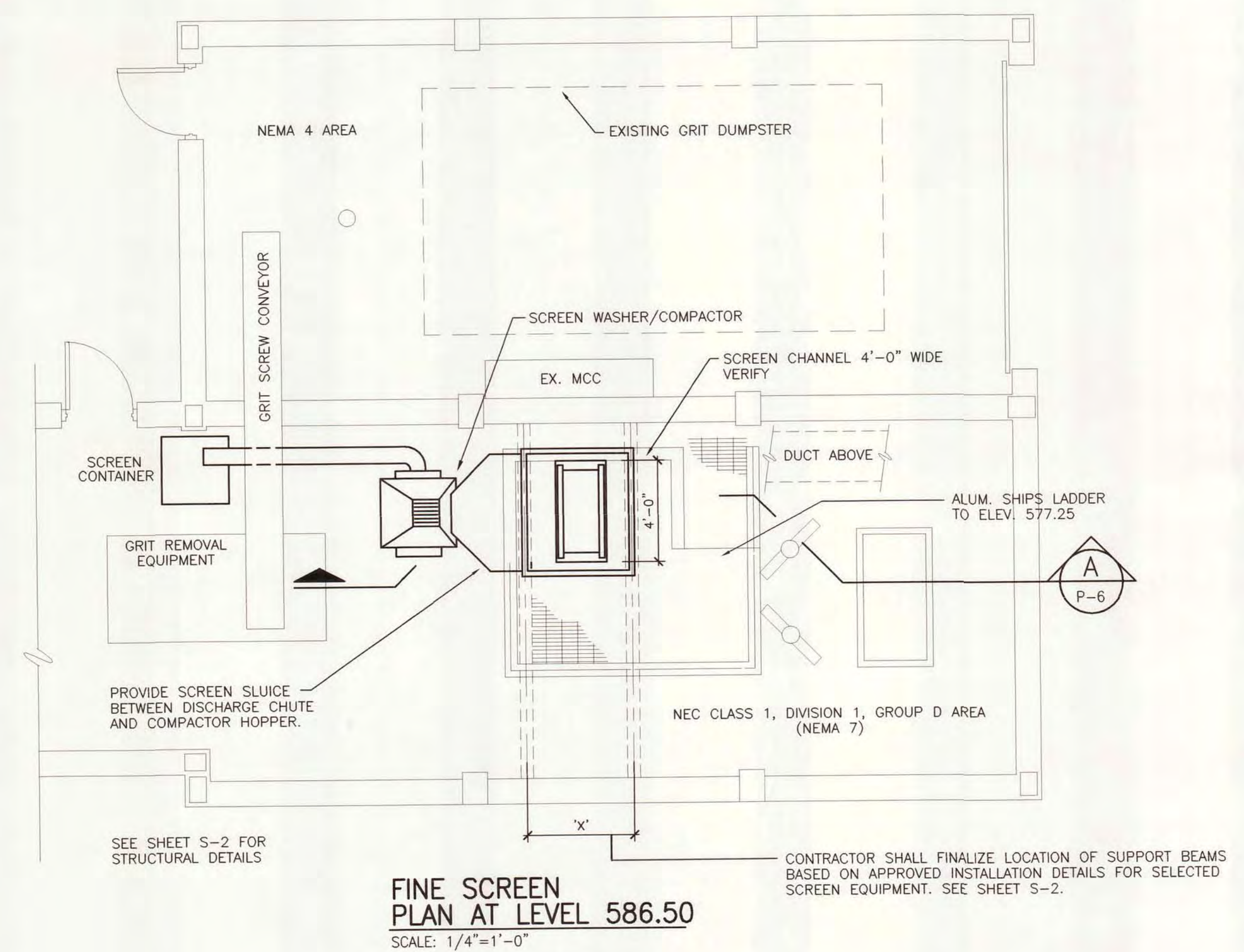
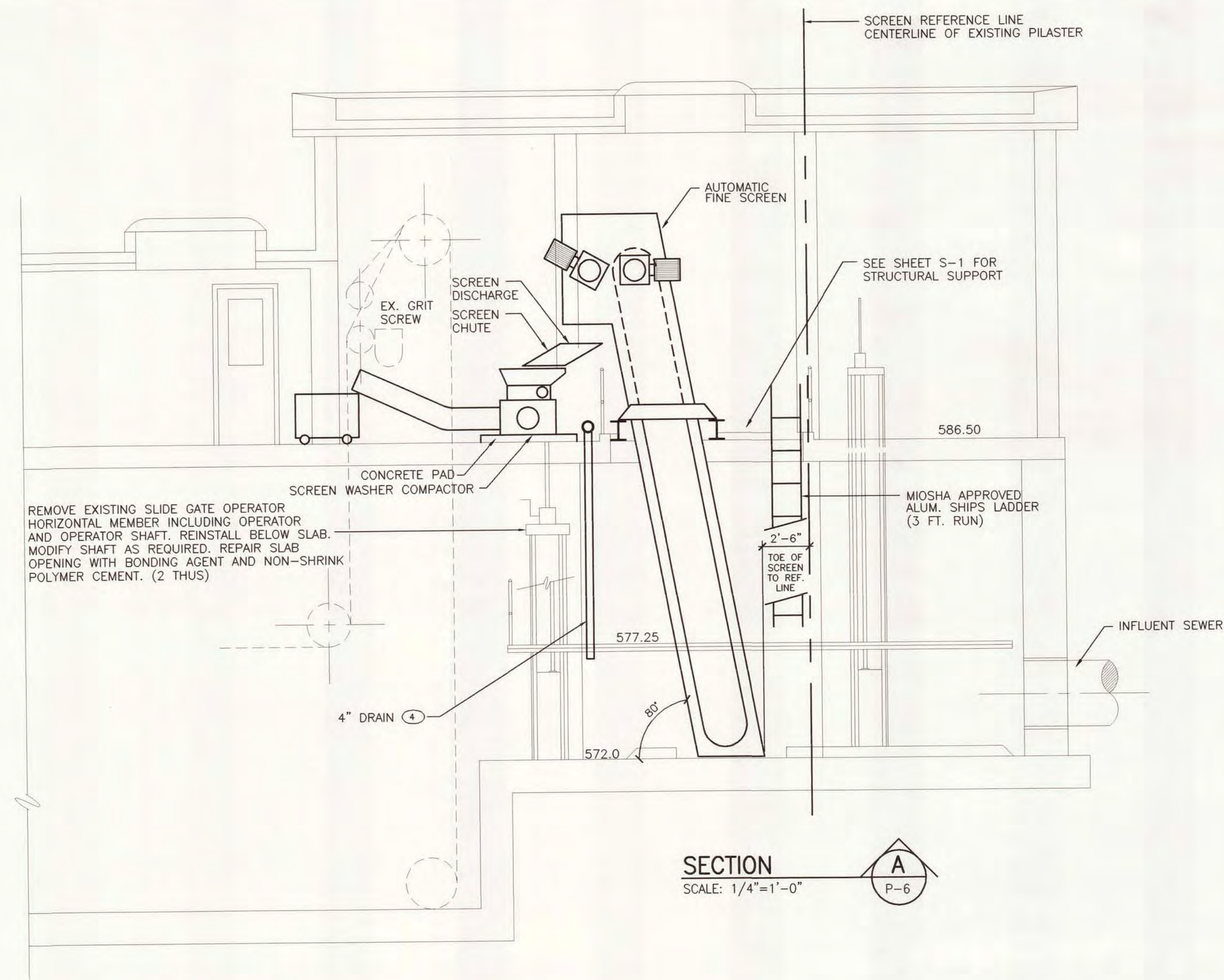


DESIGNED	D. HOLMGREN	CITY OF ALPENA, MICHIGAN
CHECKED	C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
DATE	4/23/07 JKD3	SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01
SCALE	AS NOTED	WATER RECYCLING PLANT
PART	PROJECT\11315\00026\30\DWRF\Wicks-pl	THICKENER PLANS AND SECTIONS
REV		DIVISION
REV		CONTRACT
REV		11315.00026
REV		SHEET
		P-4
		OF









NOTES:

1. FINAL LAYOUT OF SCREEN, SLUICE, WASHER COMPACTOR AND SCREENING DISCHARGE TO BE CONFIRMED BASED ON FINAL SELECTED EQUIPMENT REQUIREMENTS.
2. MODIFY EXISTING GRATING TO FIT NEW SCREEN AND ASSOCIATED DEMOLITION. SAW CUT AND EDGE BAND EXISTING GRATE. PROVIDE NEW SIMILAR GRATE TO FILL AREAS OF DEMOLISHED EQUIPMENT.
3. EXISTING PAINTED STEEL SURFACES TO BE RECOATED. CLEAN AND PREPARE EXISTING SURFACE. REMOVE LOSE PAINT AND RUST. PRIME BARE METAL SURFACES.
4. WHERE CONCRETE SLABS ARE DEMOLISHED THE SLAB SHALL BE SAWCUT. REINFORCING SHALL BE BURNED BACK 3/4 INCH. ALL VOIDS SHALL BE FILLED WITH POLYMER MODIFIED CONCRETE REPAIR. SURFACES EXPOSED IN THE FINISH WORK SHALL BE COATED WITH POLYMER MODIFIED SURFACE COATING.
5. PROVIDE 95 GALLON 2 WHEEL SCREEN RECEPTACLE SIMILAR TO "BEARER BIN CLASSIC". MINIMUM WEIGHT SHALL BE 50 LBS, WHEELS SHALL BE 12" AND BASE WALL THICKNESS SHALL BE 0.175".



DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKD3
SCALE	AS NOTED
PART	PROJECT: 11315.00026.30/DWVP-SCREEN
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
SCREEN AREA UPPER AND LOWER LEVEL PLANS		
DIVISION	CONTRACT	SHEET
B	11315.00026	P-6
		OF

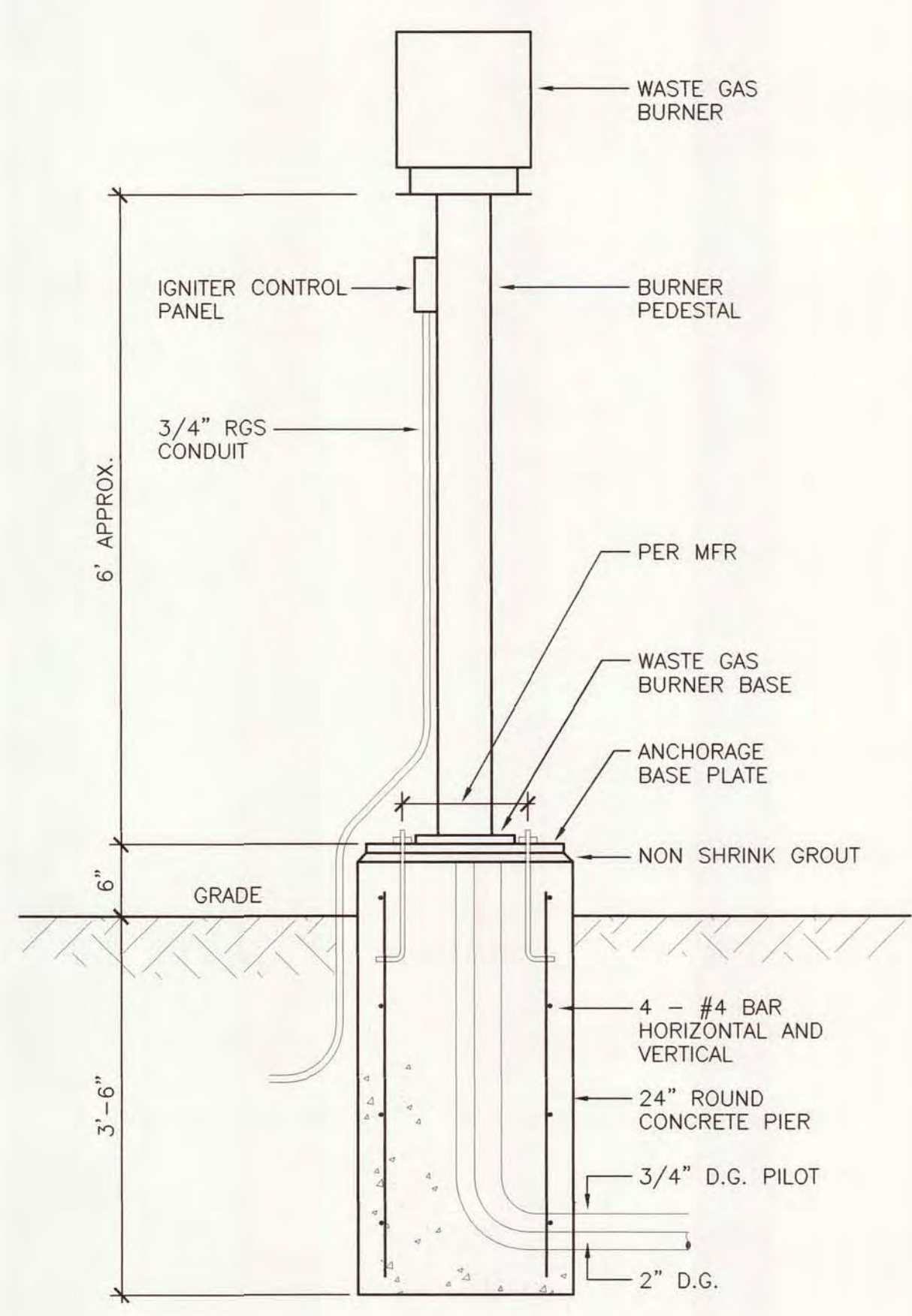


DRAWING NUMBER  
18/25

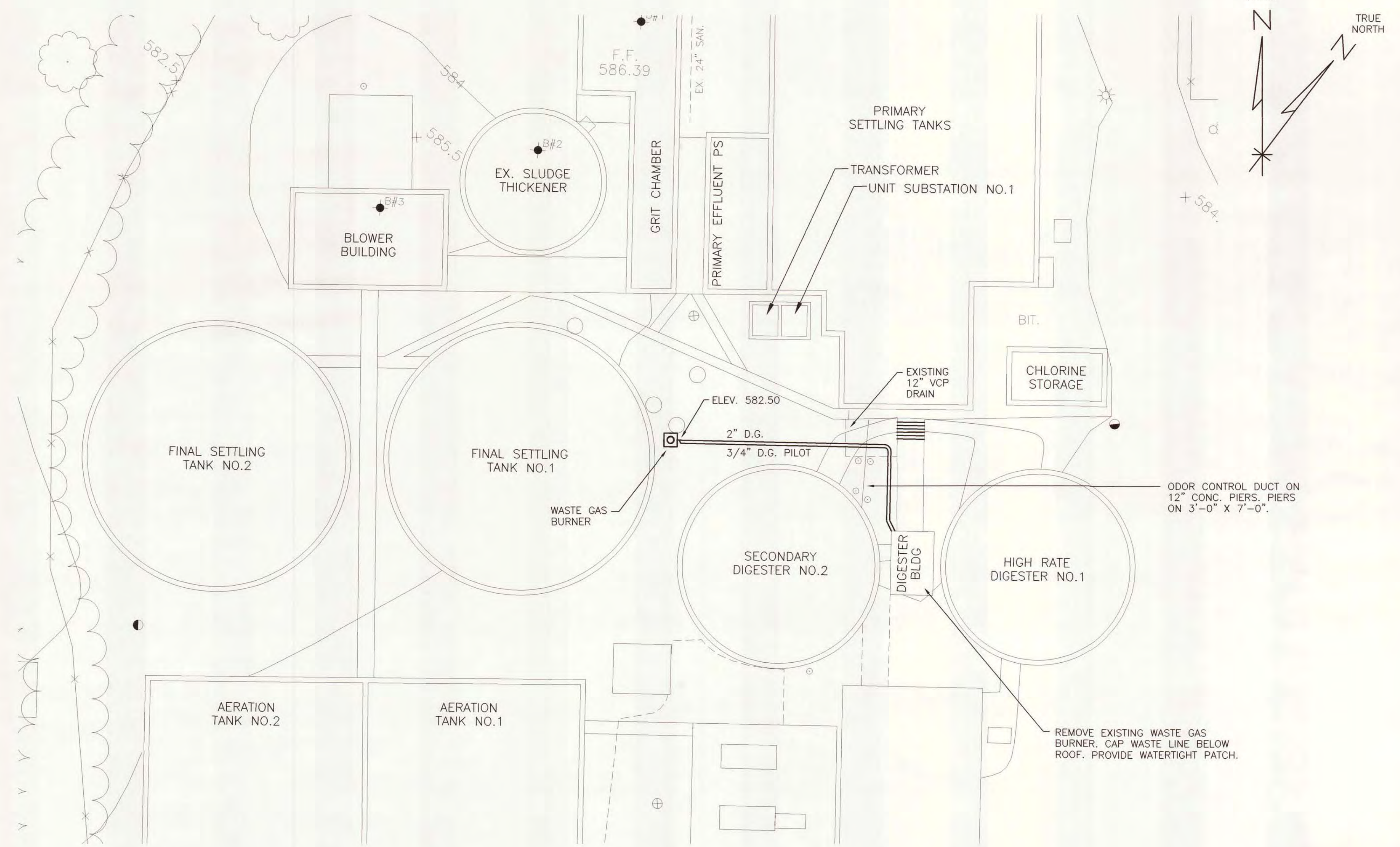
DRAWING NUMBER  
18/25

DRAWING NUMBER  
WATER AND WASTEWATER  
IMPROVEMENTS - DIVISION 6  
2007

DRAWING NUMBER

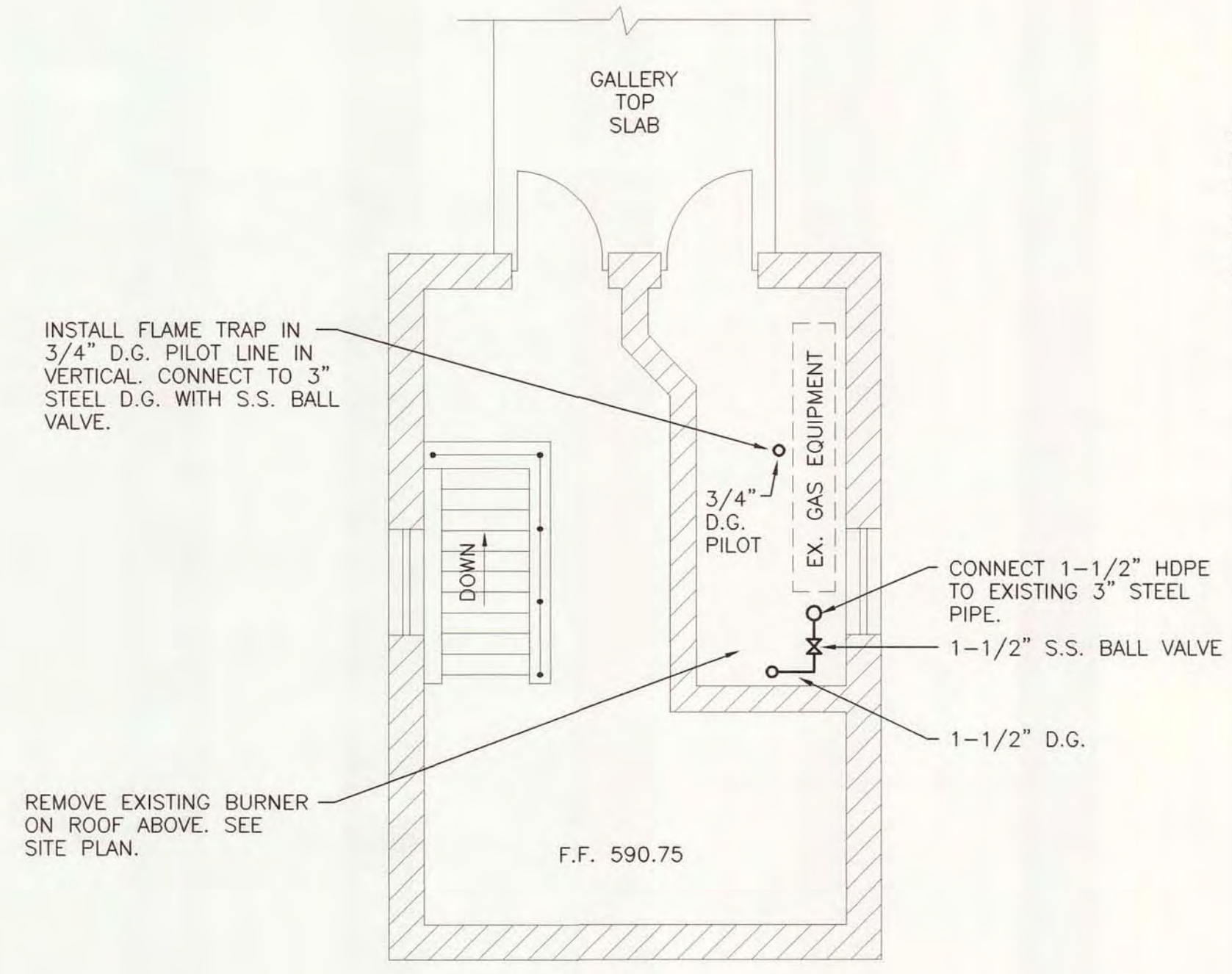


WASTE GAS BURNER DETAIL  
SCALE: 3/4"=1'-0"

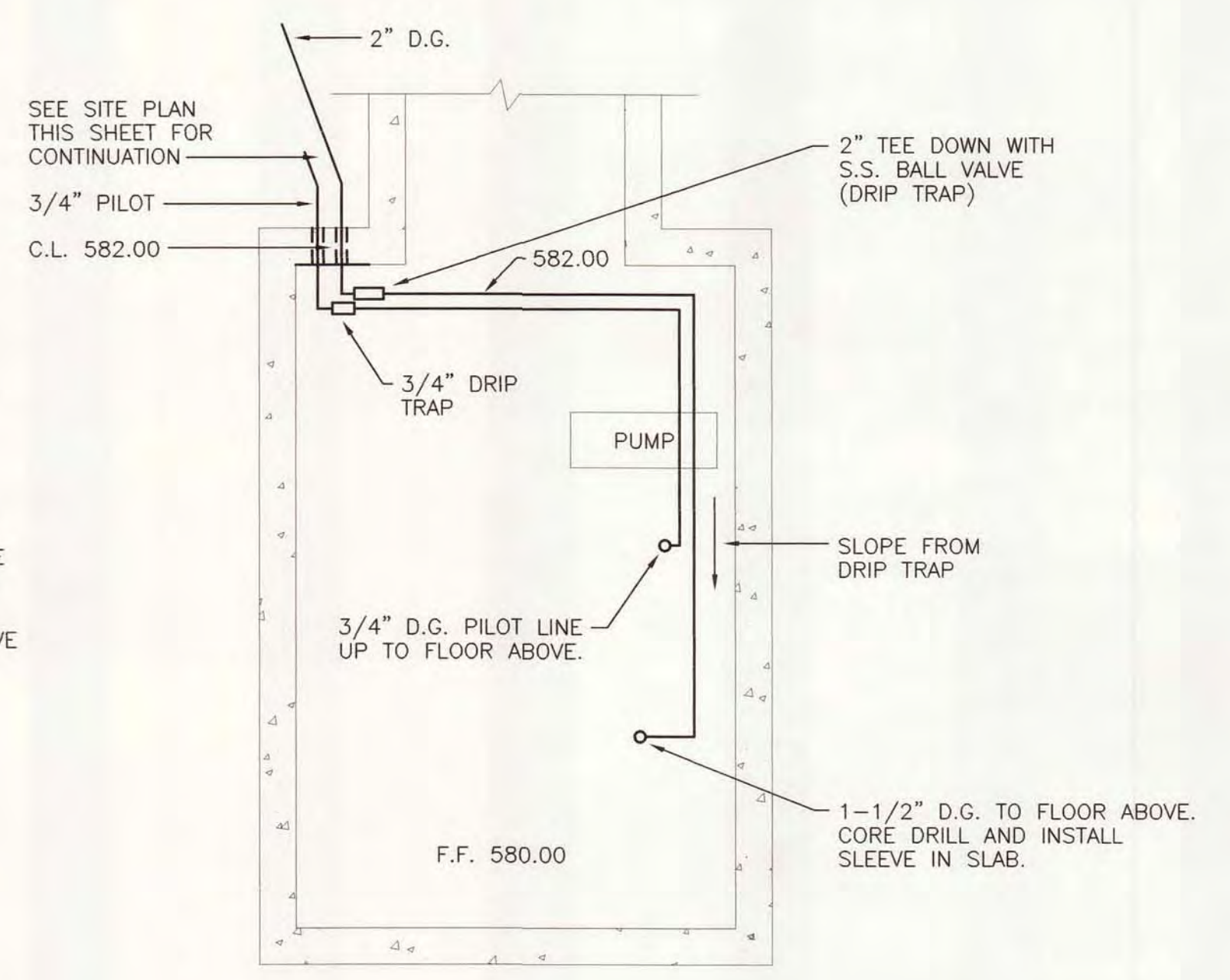


SITE PLAN  
1"=20'

- NOTES:
1. DIGESTOR GAS PIPING AND PILOT PIPING TO BE SDR 17 HDPE IN GROUND BURIED LOCATIONS AND SCH. 40 STEEL PIPE EXPOSED.
  2. THIS AREA OF PLANT SITE HAS NUMEROUS BURIED UTILITIES. RECORDS ARE NOT ACCURATE TO SHOW ALL. HAND DIG WITH CAUTIONS MACHINE EXCAVATION.
  3. INSTALL 2" D.G. GAS PIPE AND PILOT PIPING WITH CONTINUOUS SLOPE UP FROM DRIP TRAP.



DIGESTOR BUILDING FIRST FLOOR PLAN  
SCALE: 1/4"=1'-0"



DIGESTOR BUILDING BASEMENT PLAN  
SCALE: 1/4"=1'-0"

<p>AN ISO 9001:2000 CERTIFIED COMPANY</p>	DESIGNED D. HOLMGREN CHECKED C. LAWSON CAD DATE 6/18/07 JKD2 SCALE 1" = 20' PART PROJECT\11315\00026\301\DWG\WASTE GAS	CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT	
	<b>WASTE GAS BURNER</b>		DIVISION B CONTRACT 11315.00026 SHEET P-7 OF



**PIPE RESTRAINT SCHEDULE**  
GROUND BURIED PRESSURE PIPE - DUCTILE IRON AND PVC PIPE

PIPE DIAMETER	TEES, 90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4° BENDS	DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*	REDUCERS (TWO SIZE REDUCTION)*
4	11	5	2	1	28	--	--
6	16	7	3	2	41	21	--
8	21	9	4	2	52	21	49
12	30	12	6	3	75	40	81
16	38	16	8	4	97	41	96
20	46	19	9	5	118	42	94
24	54	22	11	5	139	42	92
30	65	27	13	6	169	59	117
36	75	31	15	7	197	59	132

LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.

IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.

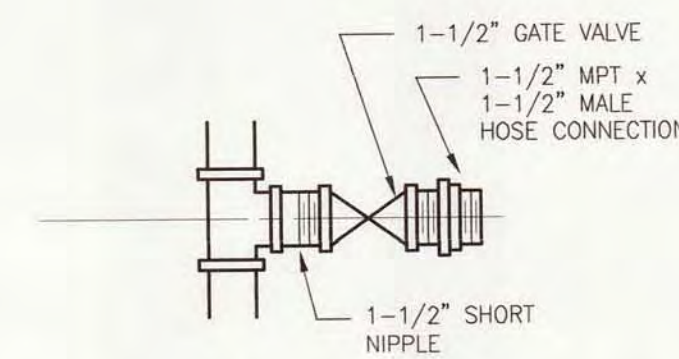
THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER. FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.

THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.

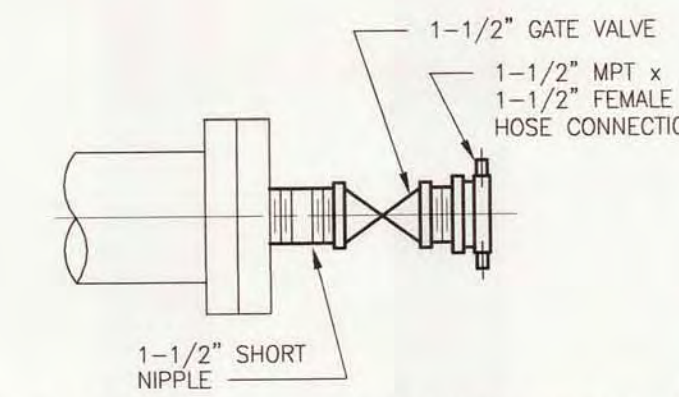
IF TIE RODS ARE USED, USE FOUR RODS MINIMUM AND ADD 1/8-INCH TO BAR DIAMETER AS CORROSION ALLOWANCE.

\* SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.

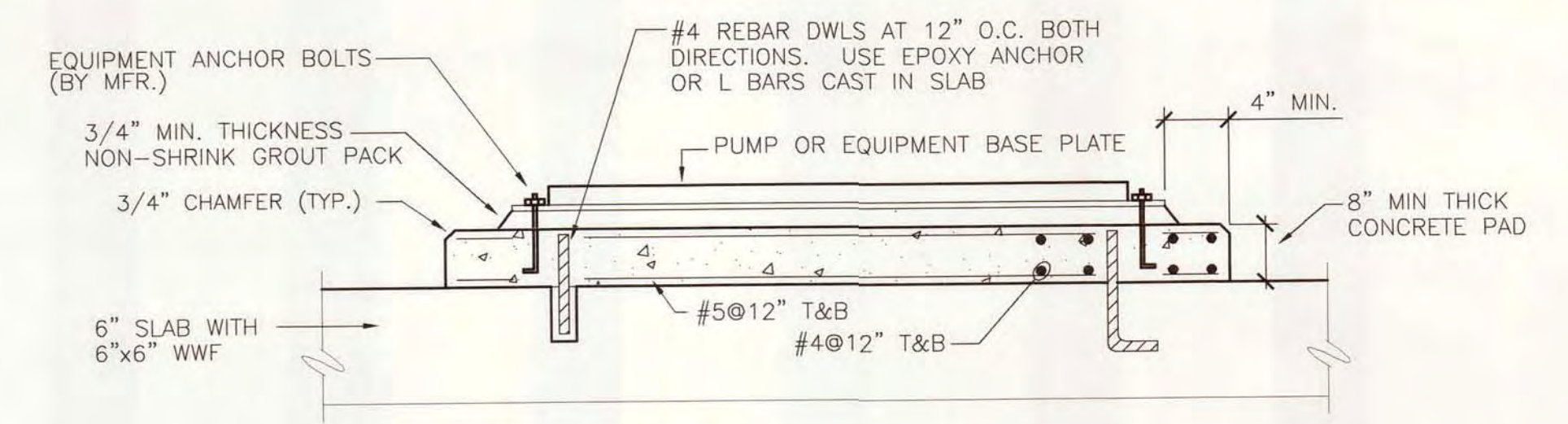
BASED UPON:  
INTERNAL PRESSURE: 180  
PIPE DEPTH: 5  
BEDDING CLASS: TYPE 4  
SOIL TYPE: GOOD SAND  
SAFETY FACTOR: 2



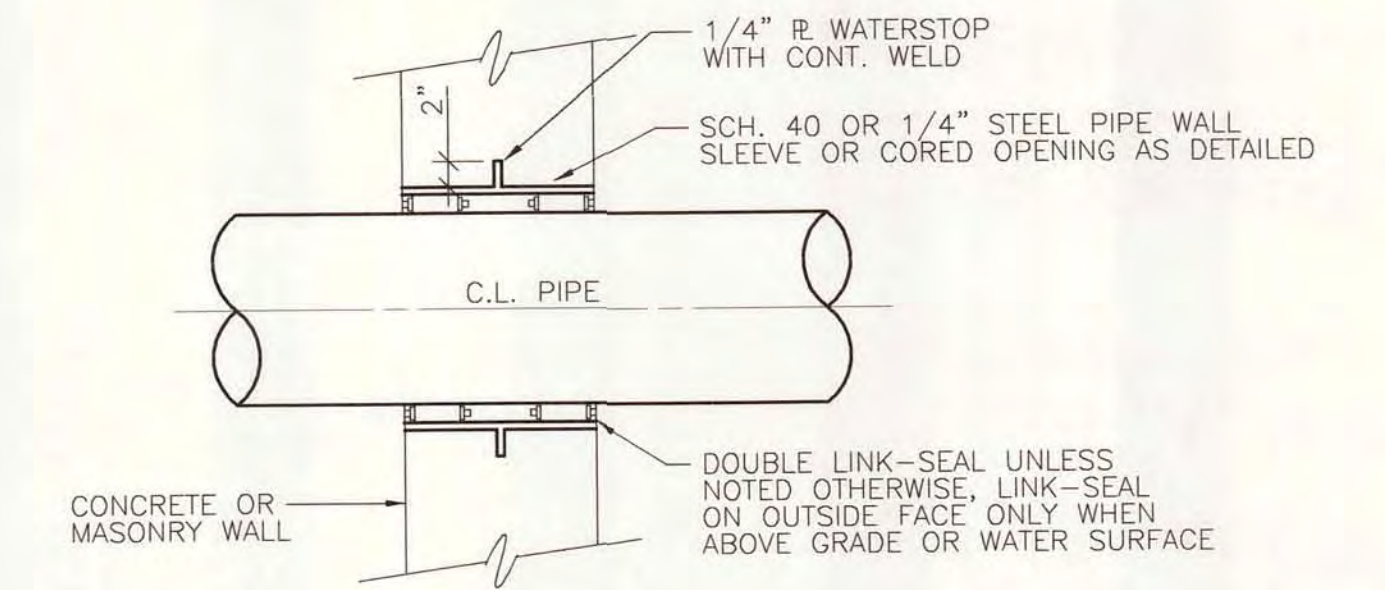
**SERVICE WATER DRAIN CONNECTION**  
NO SCALE



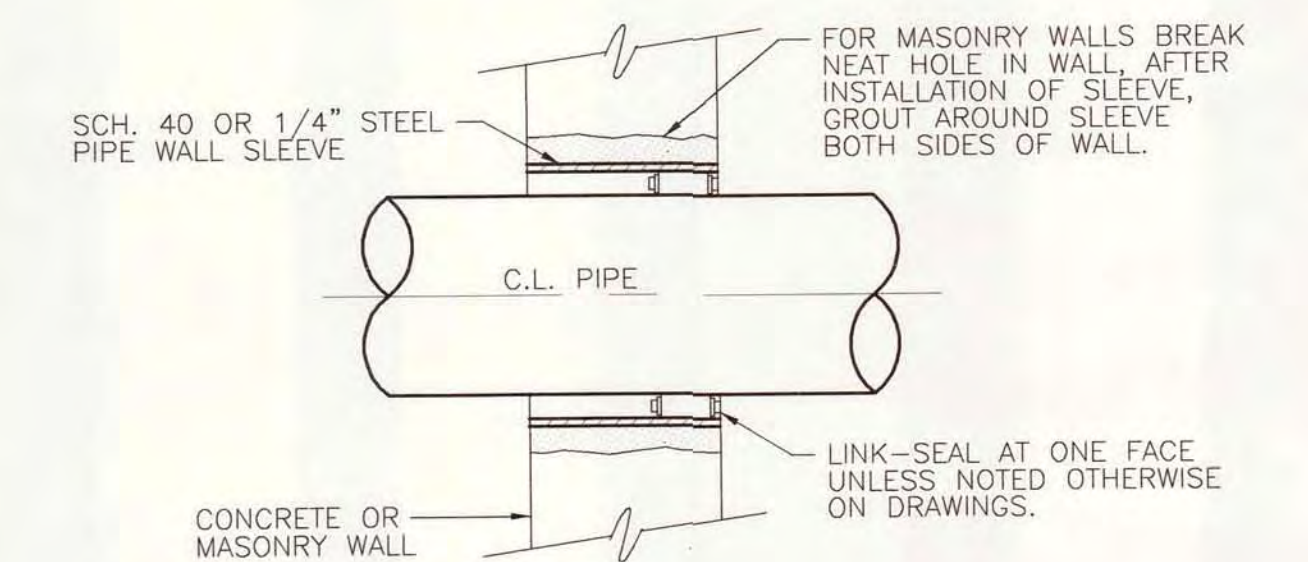
**TYPICAL FLUSHING CONNECTION (F.C.)**  
NO SCALE



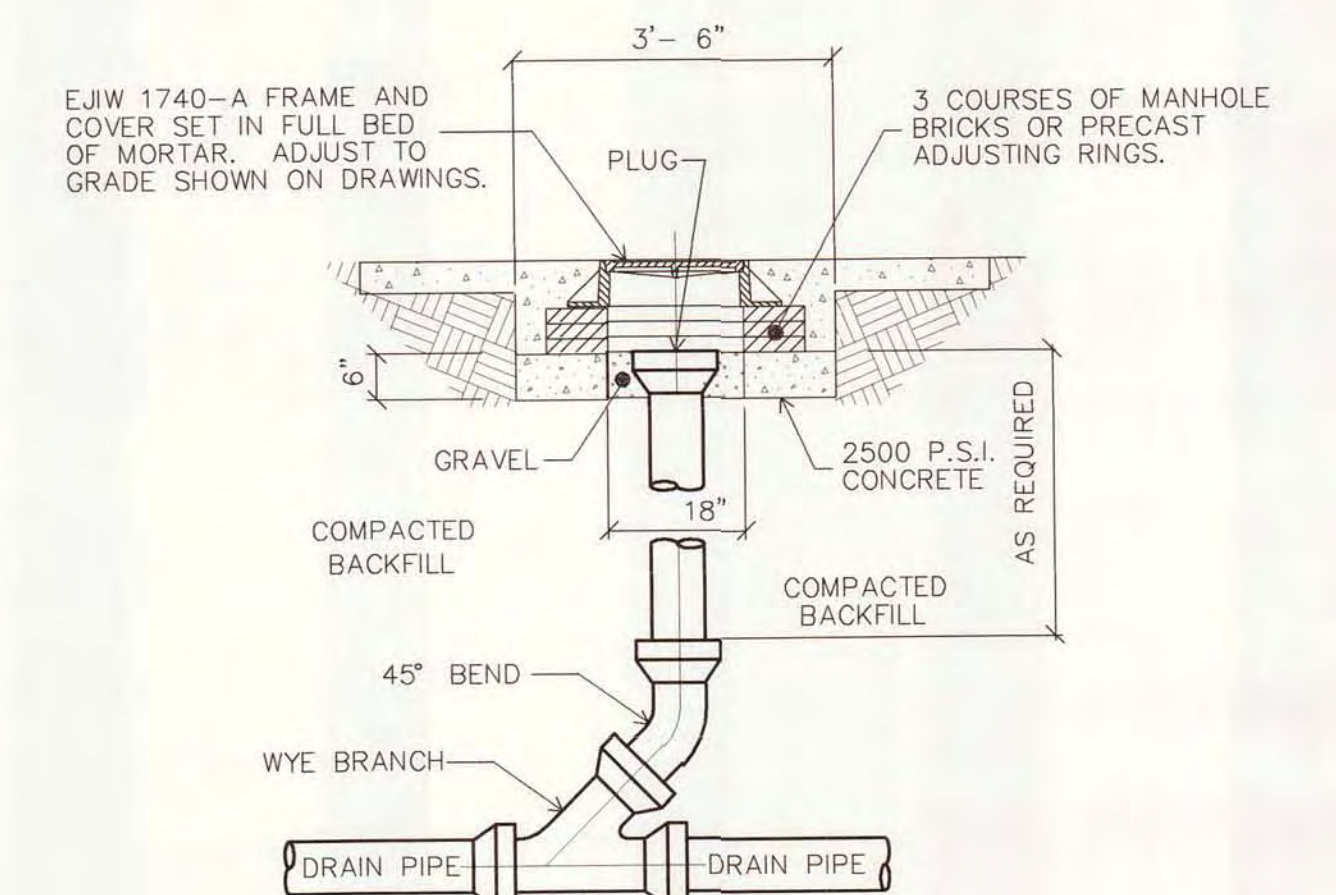
**STANDARD PUMP AND EQUIPMENT BASE DETAIL**



**TYPICAL PIPE PENETRATION  
IN EXTERIOR WALL OR TANK WALL**  
NO SCALE



**TYPICAL PENETRATION  
THROUGH INTERIOR WALL  
ABOVE GRADE AND/OR WATER**  
NO SCALE



**CLEANOUT IN PAVED AREAS**



DESIGNED	D. HOLMGREN
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKD1
SCALE	AS NOTED
PART	PROJECT\11315\00026\30\DWG\P-dwt
REV	
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
<b>STANDARD DETAILS</b>		
DIVISION	CONTRACT	SHEET
B	11315.00026	P-8
		OF

DRAWING NUMBER

SARGO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER

19/25

SARGO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER

WATER AND WASTEWATER  
IMPROVEMENTS - PAVED AREAS

SARGO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552

DRAWING NUMBER

SARGO PRODUCTS • NEW HOPE, MINNESOTA  
REORDER BY PART NUMBER 8552



DRAWING NUMBER

DRAWING NUMBER  
20/25

DRAWING NUMBER  
WATER AND WASTEWATER  
IMPROVEMENTS - DISINFECTION  
2007

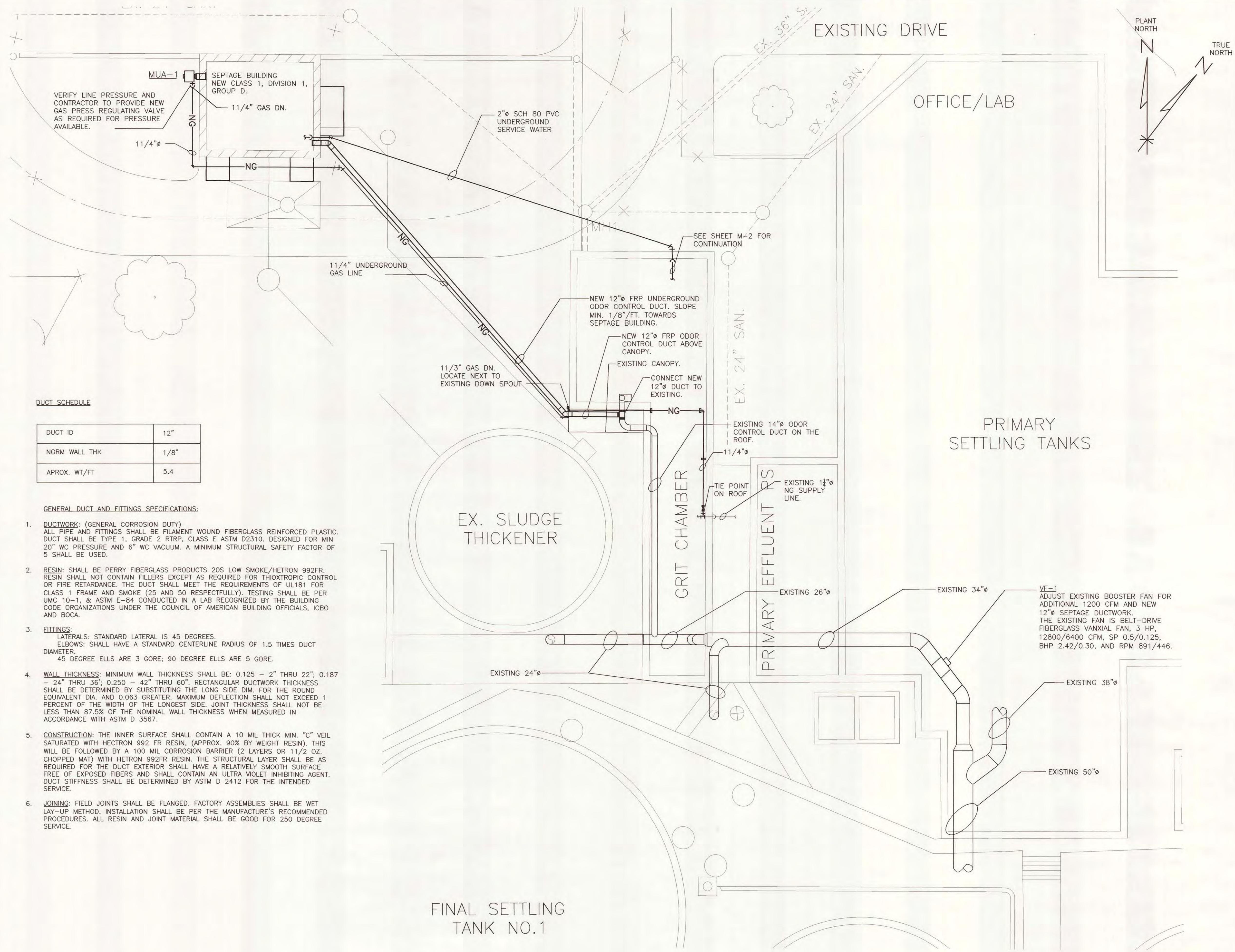
DRAWING NUMBER

SACD PRODUCTS • NEW HOPE, MINNESOTA  
INDICATED BY PART NUMBER 055

SACD PRODUCTS • NEW HOPE, MINNESOTA  
INDICATED BY PART NUMBER 055

SACD PRODUCTS • NEW HOPE, MINNESOTA  
INDICATED BY PART NUMBER 055

SACD PRODUCTS • NEW HOPE, MINNESOTA  
INDICATED BY PART NUMBER 055



GENERAL PLUMBING NOTES

- CONTRACTOR SHALL COORDINATE INSTALLATION OF PLUMBING WORK WITH ALL OTHER TRADES PRIOR TO START OF CONSTRUCTION SO AS TO AVOID UNNECESSARY DELAY OR INTERFERENCES.
- ALL PLUMBING WORK AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE ORDINANCES, GOVERNING CODES, SAFETY ORDERS AND REGULATIONS HAVING JURISDICTION. THE CONTRACTOR SHALL OBTAIN ALL APPROVALS REQUIRED FROM REGULATING AGENCIES BEFORE STARTING WORK.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS, FEES, AND INSPECTIONS REQUIRED BY GOVERNING AUTHORITIES.
- PVC SCHEDULE 80 PIPE, TYPE I, GRADE I COMPOUND, CELL CLASSIFICATION 12454-B PER ASTM D-1784.
- GAS PIPING: INSIDE BUILDING ABOVE GROUND, SCHEDULE 40 BLACK STEEL PIPE BELOW GROUND OUTSIDE BUILDING, CLASS 315 SDR OR 13.5 GAS PIPE.
- INSULATE DOMESTIC HOT/COLD WATER AND HOT WATER RETURN PIPING WITH 1/2" THICK MICRO-LOK FIBER GLASS PIPE INSULATION BY JOHN-MANVILLE PIPE INSULATION OR APPROVED EQUIVALENT.
- ALL PIPING SHALL BE KEPT TIGHT TO UNDERSIDE OF STRUCTURE AND SECURED IN ACCORDANCE WITH ALL APPLICABLE CODES.
- SOME VENTS AND CLEANOUTS MAY BE OMITTED FOR DRAWING CLARITY, PROVIDE AND INSTALL ALL VENTS AND CLEANOUTS REQUIRED IN ACCORDANCE WITH ALL APPLICABLE CODES.
- SANITARY PIPING SHALL HAVE A MINIMUM OF 1/8" PER FOOT SLOPE.
- PLUMBING CONTRACTOR SHALL SUPPLY DEEP SEAL TRAPS IN LOCATIONS WERE TRAP SEAL MAY BE LOST DUE TO EVAPORATION.
- SANITARY VENTS THROUGH ROOF SHALL TERMINATE A MINIMUM OF 1 FOOT ABOVE THE ROOF. SYSTEM SHALL HAVE A MINIMUM OF ONE VENT 4" IN DIAMETER.
- MECHANICAL AND PIPING 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 CONSTRUCTION CONDITIONS, CODES REQUIREMENTS AND THE WORK OF OTHER TRADES.

DUCT SCHEDULE

DUCT ID	12"
NORM WALL THK	1/8"
APPROX. WT/FT	5.4

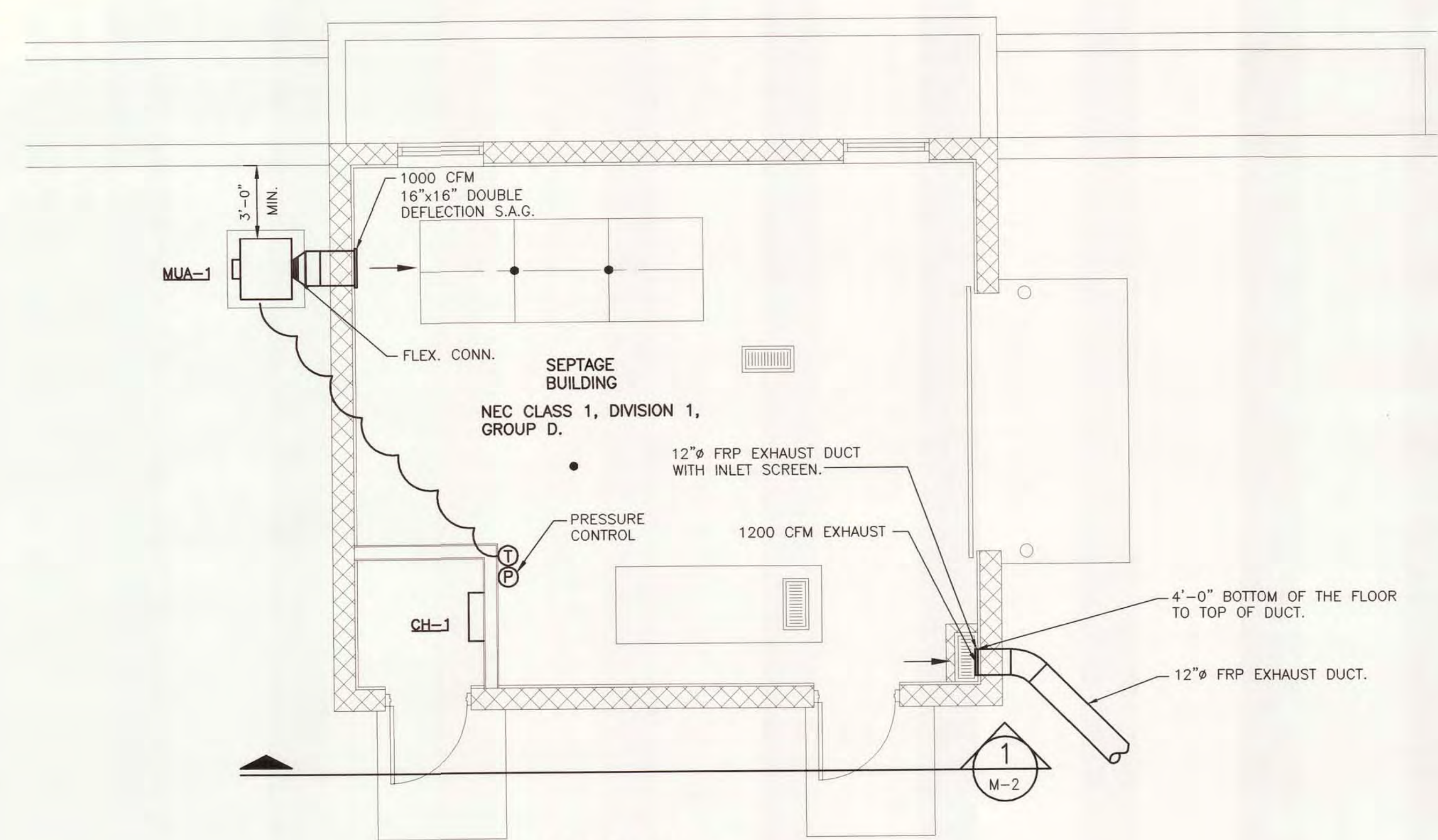
GENERAL DUCT AND FITTINGS SPECIFICATIONS:

- DUCTWORK:** (GENERAL CORROSION DUTY) ALL PIPE AND FITTINGS SHALL BE FILAMENT WOUND FIBERGLASS REINFORCED PLASTIC. DUCT SHALL BE TYPE 1, GRADE 2 RTRP, CLASS E ASTM D2310. DESIGNED FOR MIN 20" WC PRESSURE AND 6" WC VACUUM. A MINIMUM STRUCTURAL SAFETY FACTOR OF 5 SHALL BE USED.
- RESIN:** SHALL BE PERRY FIBERGLASS PRODUCTS 20S LOW SMOKE/HETRON 992FR. RESIN SHALL NOT CONTAIN FILLERS EXCEPT AS REQUIRED FOR THIXOTROPIC CONTROL OR FIRE RETARDANCE. THE DUCT SHALL MEET THE REQUIREMENTS OF UL181 FOR CLASS 1 FRAME AND SMOKE (25 AND 50 RESPECTFULLY). TESTING SHALL BE PER UMC 10-1, & ASTM E-84 CONDUCTED IN A LAB RECOGNIZED BY THE BUILDING CODE ORGANIZATIONS UNDER THE COUNCIL OF AMERICAN BUILDING OFFICIALS, ICBO AND BOCA.
- FITTINGS:** LATERALS: STANDARD LATERAL IS 45 DEGREES. ELBOWS: SHALL HAVE A STANDARD CENTERLINE RADIUS OF 1.5 TIMES DUCT DIAMETER. 45 DEGREE ELLS ARE 3 GORE; 90 DEGREE ELLS ARE 5 GORE.
- WALL THICKNESS:** MINIMUM WALL THICKNESS SHALL BE: 0.125 - 2" THRU 22"; 0.187 - 24" THRU 36"; 0.250 - 42" THRU 60". RECTANGULAR DUCTWORK THICKNESS SHALL BE DETERMINED BY SUBSTITUTING THE LONG SIDE DIM. FOR THE ROUND EQUIVALENT DIA. AND 0.063 GREATER. MAXIMUM DEFLECTION SHALL NOT EXCEED 1 PERCENT OF THE WIDTH OF THE LONGEST SIDE. JOINT THICKNESS SHALL NOT BE LESS THAN 87.5% OF THE NOMINAL WALL THICKNESS WHEN MEASURED IN ACCORDANCE WITH ASTM D 3567.
- CONSTRUCTION:** THE INNER SURFACE SHALL CONTAIN A 10 MIL THICK MIN. "C" VEIL SATURATED WITH HECTRON 992 FR RESIN, (APPROX. 90% BY WEIGHT RESIN). THIS WILL BE FOLLOWED BY A 100 MIL CORROSION BARRIER (2 LAYERS OR 11/2 OZ. CHOPPED MAT) WITH HETRON 992FR RESIN. THE STRUCTURAL LAYER SHALL BE AS REQUIRED FOR THE DUCT EXTERIOR SHALL HAVE A RELATIVELY SMOOTH SURFACE FREE OF EXPOSED FIBERS AND SHALL CONTAIN AN ULTRA VIOLET INHIBITING AGENT. DUCT STIFFNESS SHALL BE DETERMINED BY ASTM D 2412 FOR THE INTENDED SERVICE.
- JOINING:** FIELD JOINTS SHALL BE FLANGED. FACTORY ASSEMBLIES SHALL BE WET LAY-UP METHOD. INSTALLATION SHALL BE PER THE MANUFACTURE'S RECOMMENDED PROCEDURES. ALL RESIN AND JOINT MATERIAL SHALL BE GOOD FOR 250 DEGREE SERVICE.

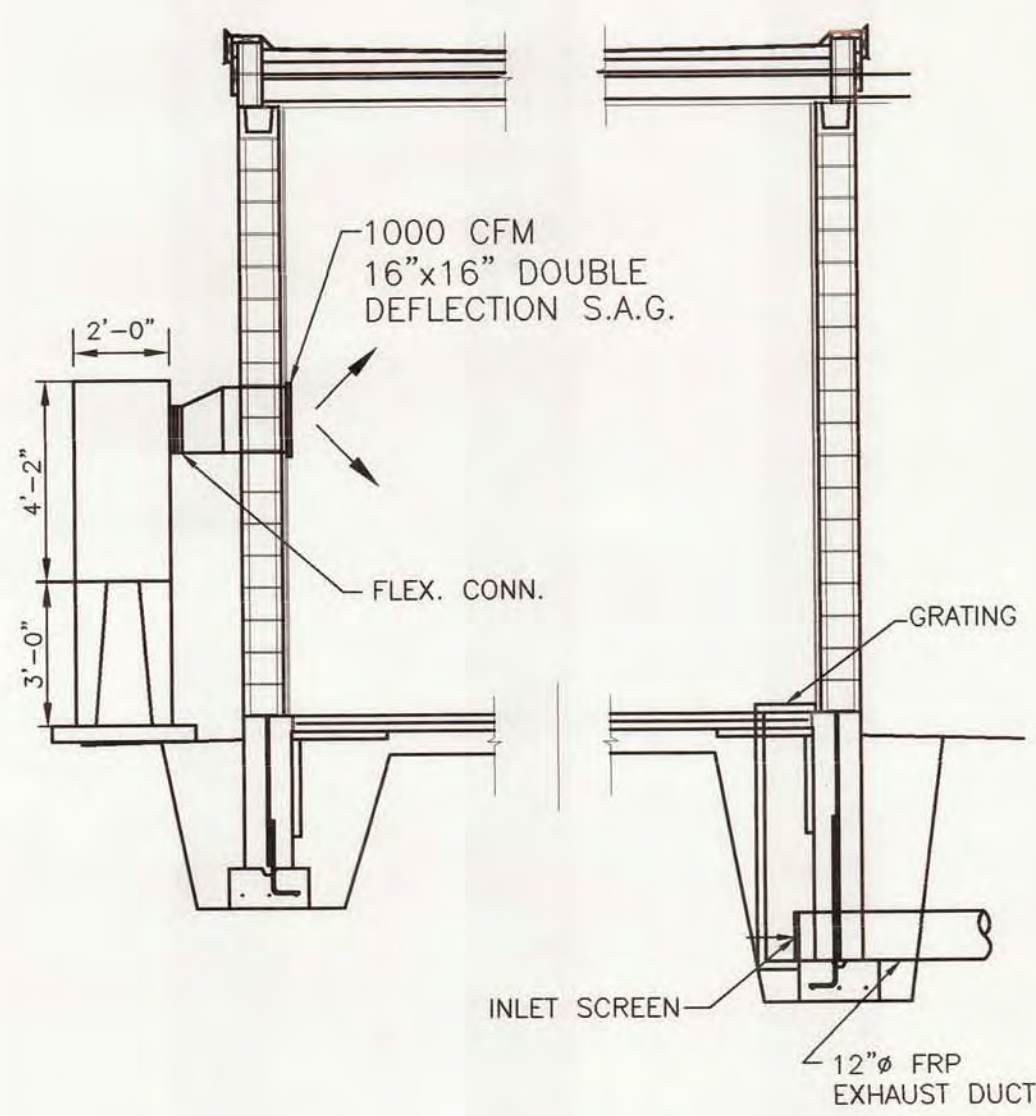
FINAL SETTLING TANK NO.1

<p>AN ISO 9001:2000 CERTIFIED COMPANY</p>	DESIGNED: C. VELDKAMP CHECKED: C. LAWSON CADD DATE: 6/18/07 JKD2 SCALE: 1" = 10' PART: PROJECT 11315.0002B_30/DRWG/M-1	CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT	
	<b>PARTIAL SITE PLAN SEPTAGE BUILDING</b>		DIVISION: B CONTRACT: 11315.0002B SHEET: M-1 OF

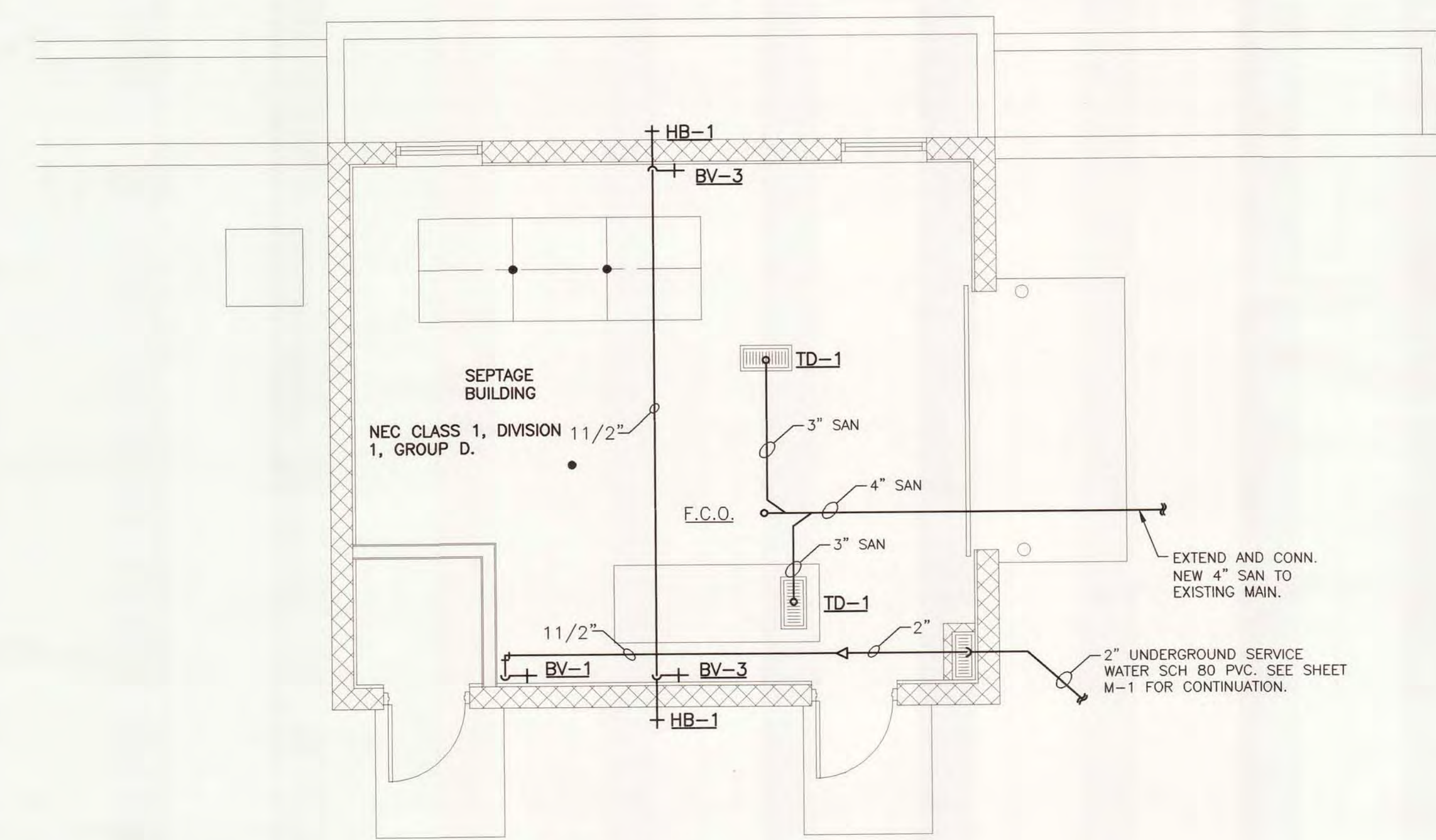




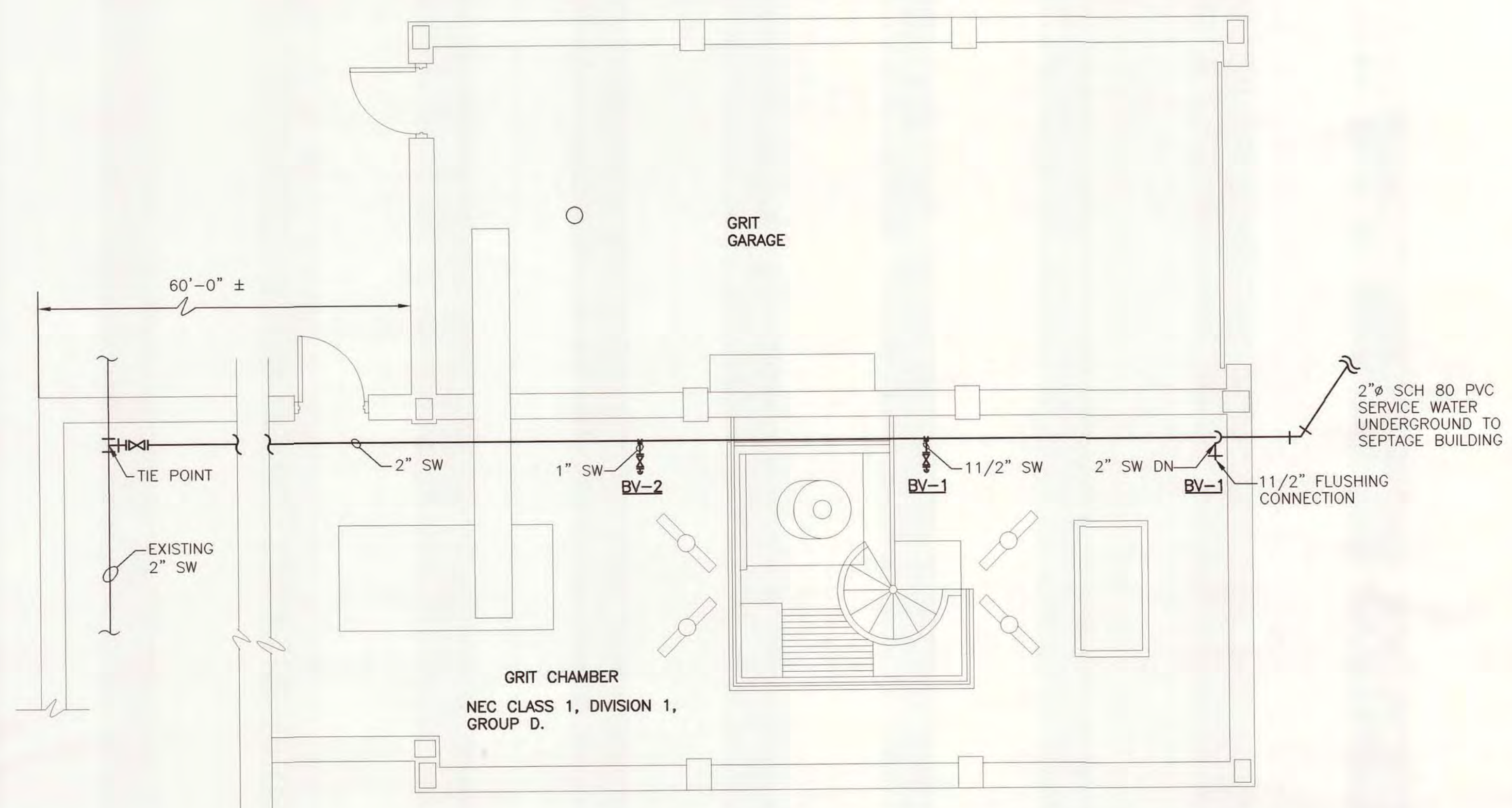
FLOOR PLAN - HEATING AND VENTILATION  
SCALE: 1/4"=1'-0"



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



FLOOR PLAN PLUMBING  
SCALE: 1/4"=1'-0"



PLUMBING PLAN AT LEVEL 586.5  
SCALE: 1/4"=1'-0"

MAKE-UP AIR UNIT SCHEDULE

MUA-1

ABSOLUTAIRE, INC. MODEL AA1700 UPRIGHT DIRECT-FIRED HEATING AND VENTILATING UNIT WITH 3'-0" HIGH LEGS. 1000 CFM AR 1.25 T.S.P. 10-5 FAN. 3/4 HP. 125 MBH GAS INPUT.

FURNISH AND INSTALL A DIRECT GAS FIRED MAKE-UP AIR UNIT INCLUDING ALL ASSEMBLED BY ABSOLUTAIRE AND WIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NEC) AND NFPA 70.

SHALL BE RATED FOR OPERATION IN A CL.1, DIV.1, GROUP D ENVIRONMENT

MAKE-UP AIR UNIT SPECIFICATIONS:

BLOWER MOUNTED DOWNSTREAM OF THE BURNER TO INSURE A CONSTANT VOLUME OF DISCHARGE AIR, REGARDLESS OF INLET AIR TEMPERATURE. BLOWER SHALL BE DOUBLE-WIDTH DOUBLE-INLET (DWDI) FORWARD CURVED CENTRIFUGAL TYPE, DYNAMICALLY BALANCED WITH BALL BEARINGS AND SOLID STEEL SHAFT.

CABINERY FABRICATED OF 18 GAUGE ALUMINIZED STEEL HOUSING SHALL BE CONSTRUCTED WITH A RIGID WELDED FRAME WITH WATER-RESISTANT, EASY-ACCESS, LIFT-OUT OR HINGED SIDE PANELS FOR COMPLETE ACCESSIBILITY. INTAKE FILTER RACKS SHALL BE OF THE EASY-ACCESS TYPE, REQUIRING NO TOOLS FOR REMOVAL OF THE CLEANABLE MESH INTAKE FILTERS.

MOTORIZED INLET-AIR SHUT-OFF DAMPER AND ALL OPERATING CONTROLS SHALL BE PROVIDED.

THE SUPPLY AIR BLOWER AND THE DIRECT GAS FIRED HEATING COMPARTMENT, FABRICATED AS A SINGLE SECTION.

THE UNIT INTERIOR SHALL BE PROVIDED WITH ONE-INCH-THICK 1-1/2 # DENSITY FIBERGLASS.

ALL EXTERIOR SURFACE TREATED WITH A TWO-COAT PAINT FINISHING PROCESS.

A FACTORY-WIRED MASTER CONTROL PANEL MOUNTED IN A WEATHER-RESISTANT ENCLOSURE.

THE PANEL SHALL INCLUDE A MAGNETIC MOTOR STARTER OR CONTACTOR AND OVERLOAD RELAY, FUSED CONTROL TRANSFORMER, TERMINAL STRIP, HEAT RELAY, AND HIGH AND LOW TEMPERATURE LIMIT SWITCHES. ALL CONTROLS SHALL BE PRE-WIRED TO A FACTORY-INSTALLED DISCONNECT SWITCH.

ALL GAS CONTROLS INCLUDING CONTROL SWITCH, CIRCUIT FUSE, FLAME SAFEGUARD RELAY, IGNITION TRANSFORMER, ELECTRIC SOLENOID GAS VALVE, MODULATING GAS VALVE WITH A 30:1 TURNDOWN RATIO CAPABILITY, GAS PRESSURE REGULATORS, AND AIR-PRESSURE DIFFERENTIAL SWITCH. ALL GAS CONTROLS SHALL BE MOUNTED INSIDE THE CONTROL ENCLOSURE BEHIND AN EASY-ACCESS SERVICE PANEL.

A BURNER, FABRICATED OF STAINLESS-STEEL MAKING PLATES AND HEAVY-DUTY CAST-IRON MANIFOLD. IGNITION OF THE PILOT SHALL TAKE PLACE THROUGH THE USE OF A SPARK IGNITER AND VERIFIED THROUGH THE FLAME-SAFEGUARD.

A RIGID MOUNT, BALL BEARING TYPE, OPEN DRIP PROOF, EPACT-COMPLIANT FAN MOTOR, SUITABLE FOR THE SPECIFIED VOLTAGE. ALL MOTORS TO BE MOUNTED ON AN ADJUSTABLE BASE FOR BELT TENSIONING.

PROVIDE VARIABLE VOLUME 100% MAKE-UP AIR WITH VARIABLE VOLUME BUILDING

PVC SINGLE ENTRY BALL VALVE SCHEDULE

NAME MANUFACTURER MODEL NUMBER	BV-1 SPEARS MFG. CO. GRADE VALVE	BV-2 SPEARS MFG. CO. GRADE VALVE	BV-3 SPEARS MFG. CO. GRADE VALVE
GENERAL VALVE SIZE CONNECTION	1 1/2"	1"	3/4"

HB-1 EXTERIOR HOSE BIBB - FREEZELESS

WOODFORD #B65, EXTERIOR RECESSED, FREEZELESS, ANTI-SIPHON, VACUUM BREAKER, AUTOMATIC DRAINING, WALL HYDRANT IN A FLUSH MOUNTING WALL BOX, 3/4" MALE HOSE THREAD.

TD-1 TRENCH DRAIN SCHEDULE

ZURN Z-886 OR EQUAL PRE-SLOPED TRENCH DRAINAGE SYSTEM. HIGH DENSITY POLYETHYLENE STRUCTURAL COMPOSITE WITH .75% BOTTOM SLOPE. PROVIDE WITH OPTIONAL HD EXTRA HEAVY DUTY FRAME ASSEMBLY WITH STUDS AND GRATE LOCKDOWN HARDWARE AND -CG CAST IRON SLOTTED GRATE.

CH-1 CONVECTION HEATER

MARKEL, E6650, 500 WATTS, 120V.

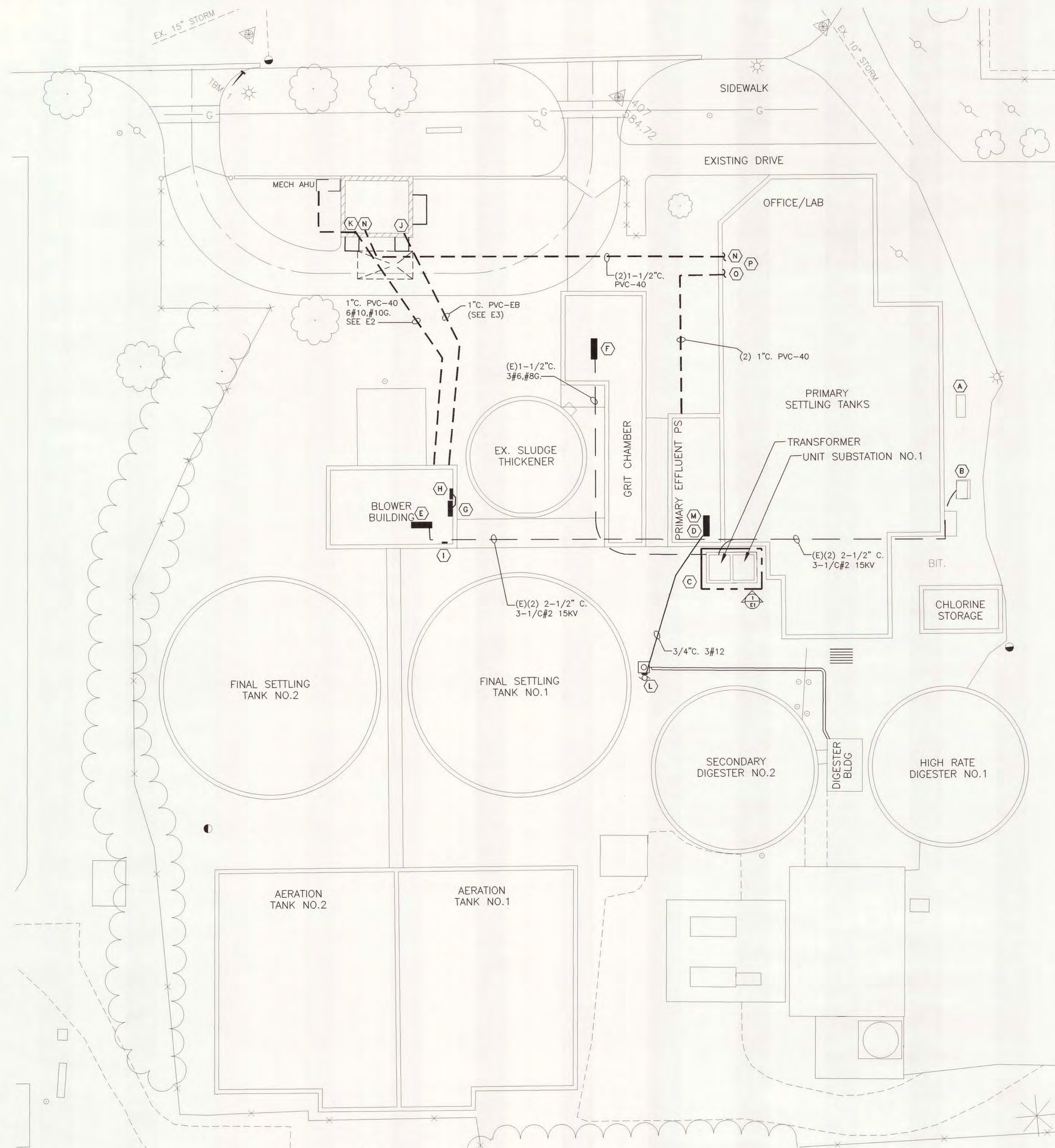


**Wilcox Professional Services**  
AN ISO 9001:2000 CERTIFIED COMPANY

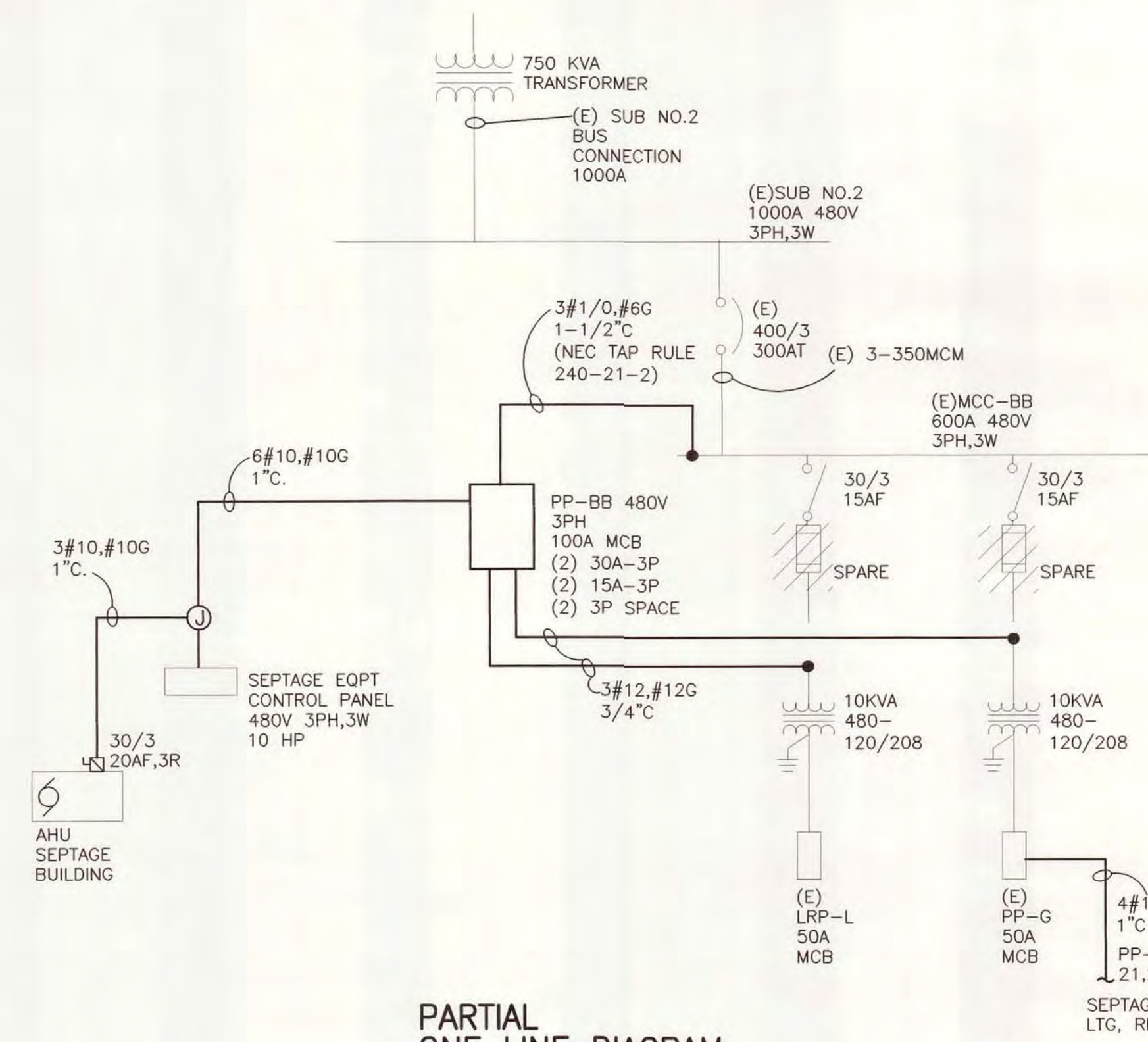
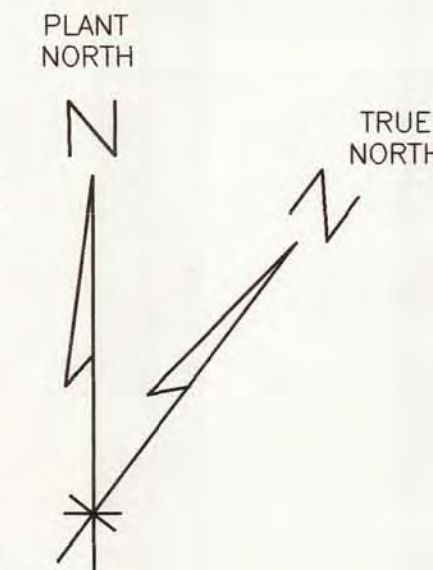
DESIGNED	C. VELDAMP
CHECKED	C. LAWSON
CADD DATE	6/18/07 JKDZ
SCALE	AS NOTED
PART PROJECT	11315.00026.300.DMP.M2
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 7200.01 WATER RECYCLING PLANT		
SEPTAGE BUILDING PLUMBING AND HVAC		
DIVISION	CONTRACT	SHEET
B	11315.00026	M-2
		OF





SITE ELECTRICAL PLAN  
SCALE: 1"=20'



PARTIAL ONE LINE DIAGRAM  
NOT TO SCALE

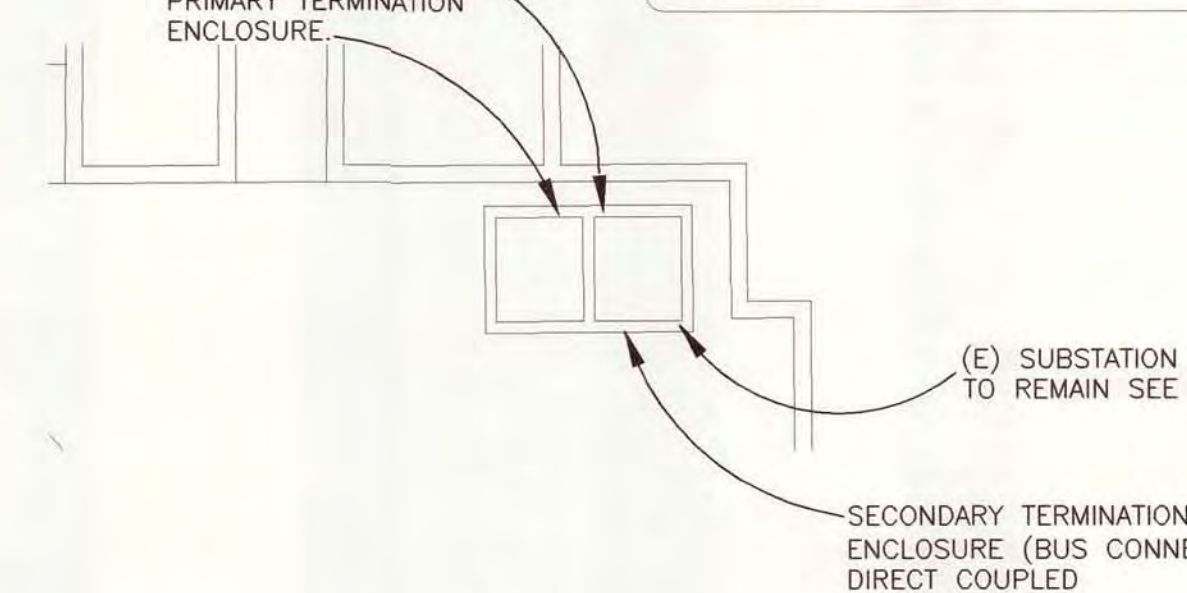
ELECTRICAL NOTES:

- (A) UTILITY CO. METERING (EXISTING).
- (B) PRIMARY SWITCH LOCATION (EXISTING).
- (C) UNIT SUB STATION NO.1. SEE DETAILS THIS SHEET.
- (D) MOTOR CONTROL CENTER "D" (EXISTING).
- (E) UNIT SUB STATION NO.2 (EXISTING)
- (F) MOTOR STARTER PANEL (E) AT GRIT BUILDING GARAGE (EXISTING).
- (G) MCC (BLOWER BLDG) SEE PARTIAL RISER DIAG THIS SHIT.
- (H) NEW PP-BB, 100A MCB 480V 3PH,3W. TAP BUS AT MCC-B. SEE PARTIAL RISER DIAGRAM THIS SHEET.
- (I) (E) PP-G (GE THQL BKRS) 8-1P SPACES. ADD (3) 20A-1P BREAKERS
- (J) 1" C. PP-G TO SEPTAGE BLDG. 3#12, #12N, #12G SEPTAGE BLDG. (LTG, RECEPT.). SEE SHEET E2.
- (K) 1" C. (POWER) SEPTAGE BUILDING EQUIPMENT CONTROL PANEL FROM NEW PP-BB (3#10, #10G)
- (L) WASTE GAS BURNER (120V). FIELD VERIFY LOCATION WITH PARTIAL SITE PLAN G3. FURNISH AND INSTALL 120 VOLT SERVICE FROM ADJACENT LP-D AT SETTLED SEWAGE PUMPING STATION. (SPARE BREAKER AT LP-D) COORDINATE WITH MANUFACTURES SHOP DRAWINGS. UNIT IS PROVIDED WITH DISCONNECT SWITCH AND OVERLOAD PROTECTION.
- (M) FIELD VERIFY LOCATION OF EXISTING LP-D ADJACENT TO MCC-D AT SETTLED SEWAGE PUMPING STATION. UTILIZE SPARE BREAKER AT LP-D TO SERVICE NEW WASTE GAS BURNER. PROVIDE SEAL TIGHT FITTING AT WALL PENETRATION. EXTEND 3/4"C. 2#12, #12G TO WASTE GAS BURNER CONTROLS.
- (N) PROVIDE (2)1-1/2"C. PVC-EB FOR DATA COLLECTION AT SEPTAGE CONTROL PANEL TO MAIN OFFICE/LAB SCADA SYSTEM MONITORING. COORDINATE LOCATION WITH PLANT OPERATORS. (1) 1-1/2"C SPARE, (1) 1-1/2"C: (2) 2/C #16 SHIELDED, 33#12 THHN. COORDINATE WITH SEPTAGE CONTROLLER MANUFACTURER AND SHOP DRAWINGS.
- (O) PROVIDE (2)1" C. PVC-EB FOR DATA COLLECTION AT CONTROL PANELS TO MAIN OFFICE/LAB. SCADA SYSTEM MONITORING. COORDINATE LOCATION WITH PLANT OPERATORS. (1) 1" C SPARE, (1) 1" C 2/C #16 SHIELDED, 12#12 THHN.
- (P) AT MAIN OFFICE/LAB. SCADA SYSTEM MONITORING. CONTRACTOR SHALL CONNECT ALARM/CONTROL WIRING TO SCADA SYSTEM, AND PROVIDE ALL REQUIRED PROGRAMMING UPDATES TO THE SOFTWARE. PROVIDE ALL REQUIRED EQUIPMENT, MATERIALS AND LABOR TO INTEGRATE NEW ALARMS AND CONTROL SIGNALS TO EXISTING SCADA SYSTEM.

SUBSTATION NO.1 TRANSFORMER TO BE REMOVED AND REPLACED. FIELD VERIFY EXISTING HV/LV TERMINATIONS. TRANSFORMER IS TO BE REMOVED AND REPLACED. SEE DETAILS THIS SHEET AND E-3

750KVA TRANSFORMER 13.2KV HV, 480/277V LV THREE PHASE FOUR WIRE 55' RISE (0A).

FIELD VERIFY EXISTING DIMENSIONS AND CONNECTIONS. SUB NO.1 TO BE BACK FED FROM SUB NO.2 DURING CONSTRUCTION PROCESS.



UNIT SUBSTATION NO.1  
SCALE: 1" = 20'

LIGHTER LINEWEIGHTS INDICATE EXISTING TO REMAIN  
DARKER LINEWEIGHTS INDICATES NEW WORK.  
COORDINATE WITH FIELD CONDITIONS

**Wilcox Professional Services**  
AN ISO 9001 CERTIFIED COMPANY

DESIGNED	M. HAWKINS	CITY OF ALPENA, MICHIGAN
CHECKED	C. LAWSON	WATER AND WASTEWATER IMPROVEMENTS
CADD DATE	6/18/07 JAH	SRF PROJECT NO.: 5266.01 DWRF PROJECT NO.: 11315.00026
SCALE	1" = 20'	WASTE RECYCLING PLANT
PART	PROJECT: 11315.00026/30/DWRF-E-1	SITE ELECTRICAL AND DETAILS
REVISIONS		DIVISION B
		CONTRACT 11315.00026



DRAWING NUMBER  
 SAFECO PRODUCTS • NEW HOPE, MINNESOTA  
 REORDER BY PART NUMBER 6056

DRAWING NUMBER  
 23 / 25  
 SAFECO PRODUCTS • NEW HOPE, MINNESOTA  
 REORDER BY PART NUMBER 6056

DRAWING NUMBER  
 WATER AND WASTEWATER  
 IMPROVEMENTS - DIVISION 8  
 2007  
 SAFECO PRODUCTS • NEW HOPE, MINNESOTA  
 REORDER BY PART NUMBER 6056

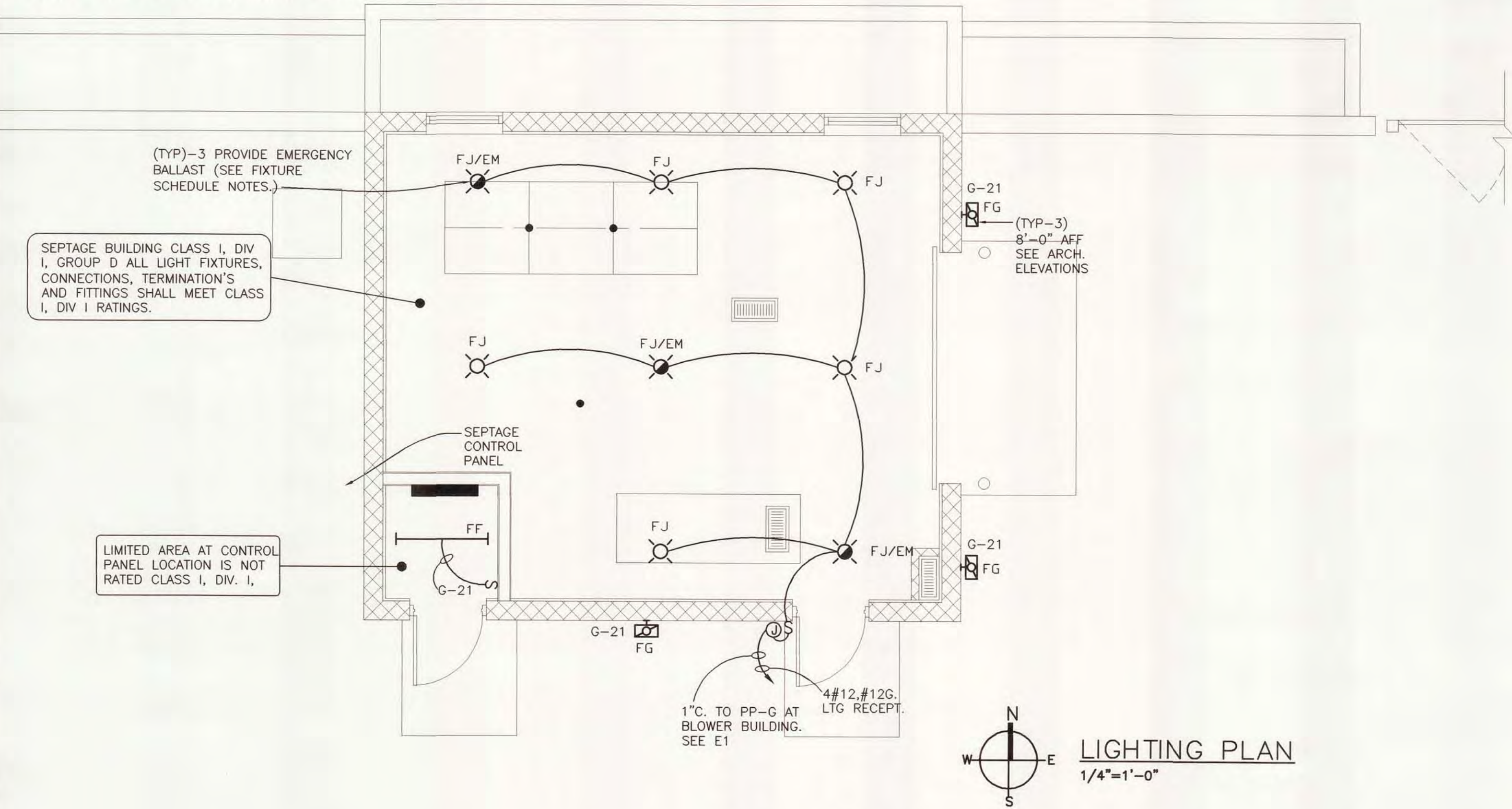
DRAWING NUMBER  
 SAFECO PRODUCTS • NEW HOPE, MINNESOTA  
 REORDER BY PART NUMBER 6056

LIGHTING FIXTURE SCHEDULE

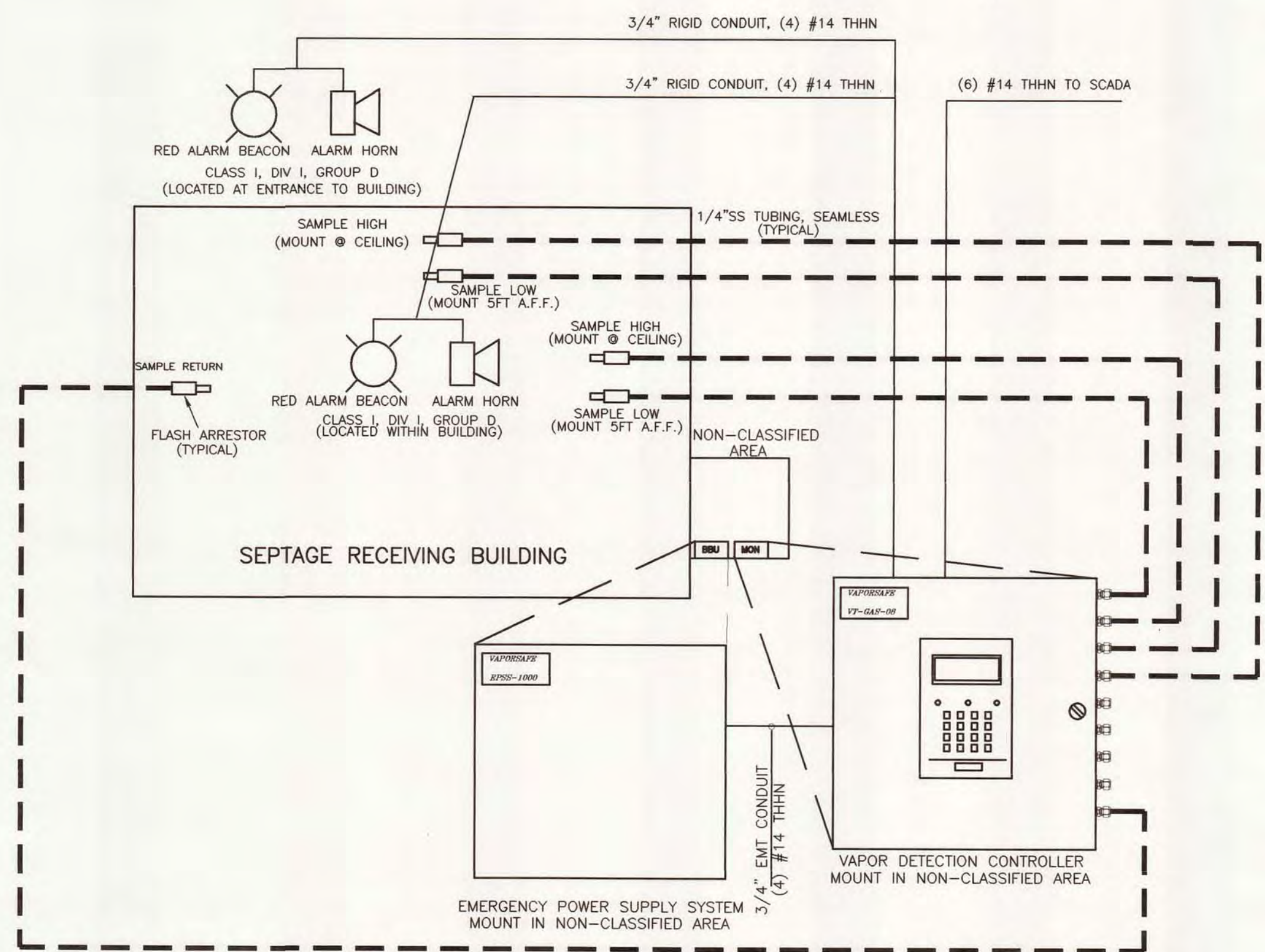
TYPE	DESCRIPTION	MANUFACTURER(S)	LAMP TYPE	LAMP QUANTITY	VOLTAGE	REMARKS
FF	HEAVY-DUTY INDUSTRIAL FIXTURE, ONE PIECE HOUSING CLEAR PRISMATIC POLYCARBONATE LENS, GASKETED, MULTIVOLT ELECTRONIC BALLAST (2) T8F32 LAMPS	1. LIGHTOLIER KW SERIES 2. LITHONIA VSL232 SERIES 3. METALUX DI SERIES	32W-T8	1	120V	SPECIFICATION GRADE INDUSTRIAL FIXTURE ENCLOSED. ALTERNATE MANUFACTURERS TO BE REVIEWED PRIOR TO BIDDING. PHOTOCELL CONTROL AT FIXTURE.
FG	ALL PURPOSE WALL PACK, STEEL HOUSING WITH POLYCARBONATE LENS, MULTIVOLT ELECTRONIC BALLAST, TRIPLE TUBE COMPACT FLUORESCENT LAMP, PROVIDE PHOTOCELL CONTROL.	1. LIGHTOLIER GS SERIES 2. LITHONIA TWA 32TRT	32W-T5	3	120V	SPECIFICATION GRADE WALL PACK, COMPACT FLUORESCENT LAMP. ALTERNATE MANUFACTURERS TO BE REVIEWED PRIOR TO BIDDING.
FJ	CLASS I, DIV I, GROUP D RATED COMPACT FLUORESCENT AREA LIGHT SEALED, XP FIXTURE WITH 2-F32 COMPACT FLUORESCENT LAMPS, PENDANT MOUNTED 120/277VOLT.	1. APPETON CODE MASTER PLT SERIES 2. LDPI LIGHTING	32W-T5	8	120V	CLASS I, DIV I GROUP D PENDANT MOUNTED AT 10'-0" AFF. ALTERNATE MANUFACTURERS TO BE REVIEWED PRIOR TO BIDDING.

FIXTURE SCHEDULE NOTES:

1. ALL FLUORESCENT FIXTURES SHALL INCLUDE PROGRAMMABLE RAPID START BALLAST.
2. ALL FLUORESCENT LAMPS SHALL BE A MINIMUM 80% CRI.
3. PROVIDE MINIMUM 1800 LUMEN OUTPUT EMERGENCY BALLAST DESIGNATE FIXTURE.



LIGHTING PLAN  
 1/4"=1'-0"



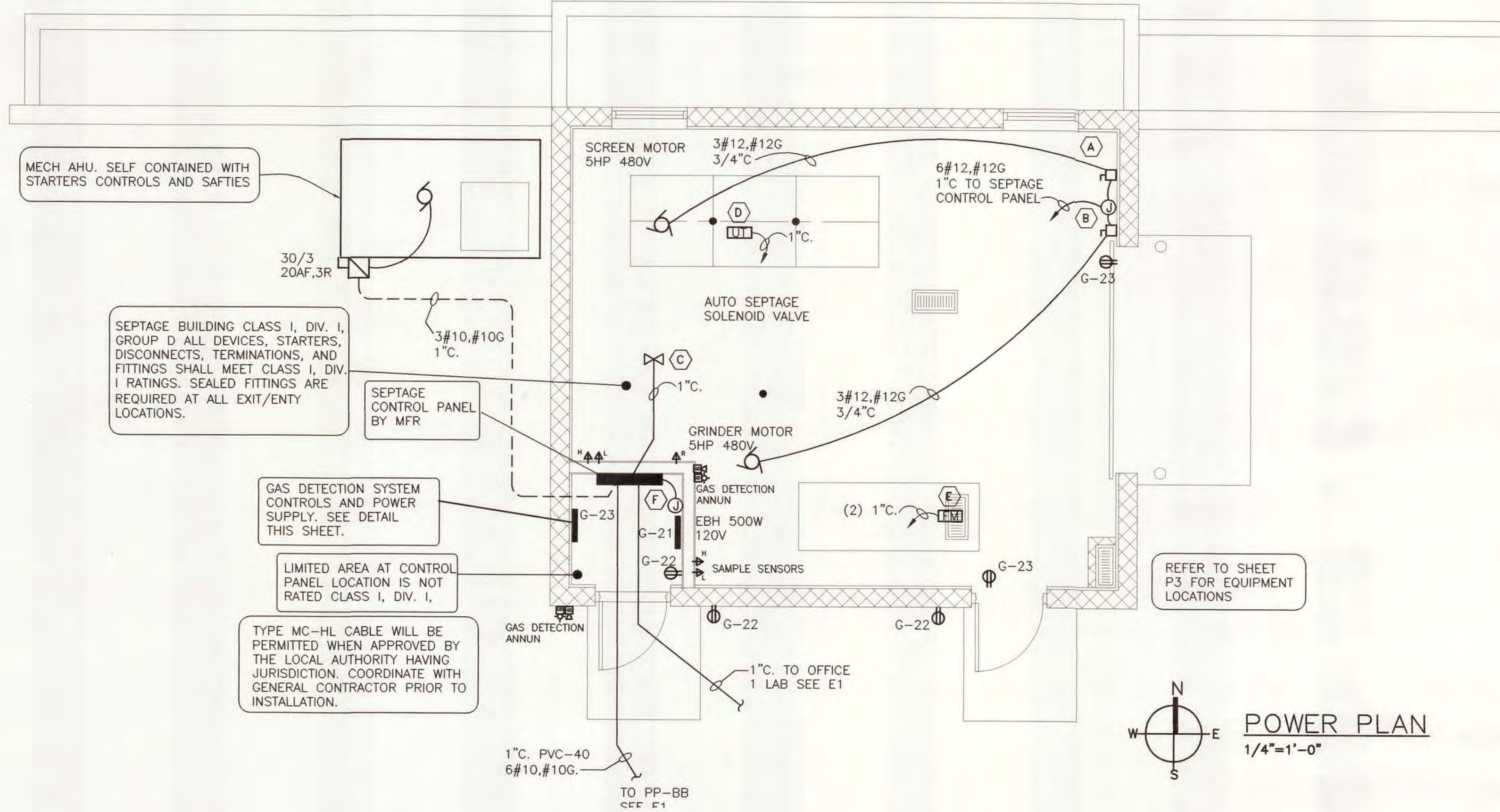
GAS DETECTION SYSTEM SEPTAGE RECEIVING  
 1/4"=1'-0"

1. LEAK CHECK ALL TUBING AFTER COMPLETION OF INSTALLATION.
  2. ANNUALLY VERIFY THAT ALL COMPRESSION FITTINGS ARE TIGHT AND SEALED, AND PROVIDE A LEAK CHECK TO ENSURE INTEGRITY.
  3. ALL TUBING SHALL BE 1/4" OD SEAMLESS STAINLESS STEEL TUBING (COORDINATE SPECIFICATION WITH OWNER) UNLESS OTHERWISE SPECIFIED.
  4. TUBING, HANGARS, AND FITTINGS REQUIRED FOR TUBING INSTALLATION SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.
  5. ALL INTERCONNECTION FITTINGS TO BE OF APPROPRIATE CONSTRUCTION.
  6. ELECTRICAL SUBMITTAL DOCUMENTATION AND START-UP SERVICES TO BE PROVIDED BY FACTORY APPROVED REPRESENTATIVE (ROD KARCH © 810.343.2702)
- BILL OF MATERIALS

- (1) VAPORSAFE VT-GAS-08-H2S-02-MLEL MULTIPLE GAS DETECTION MONITOR FOR % O2, PPM H2S, AND % LEL PHONE #810.343.2702
  - (2) EDWARDS 878X ALARM HORN, CLASS I DIV I
  - (5) AIR GAS Y33-1FARH 9/16" FLASH ARRESTOR FOR OXYGEN DUTY
- (1) VAPORSAFE BATTERY BACK-UP EPSS-1000

KEYED NOTES

- CLASS I, DIV I DISCONNECT 30/3 SCREEN MOTOR.
- CLASS I, DIV. I DISCONNECT 30/3 GRINDER MOTOR.
- 1" C. RGS (10#12,#12G.) AUTO SEPTAGE SOLENOID VALVE INSTALLED BY MANUFACTURER. RACEWAY AND WIRING TO CONTROL PANEL BY ELECTRICAL CONTRACTOR.
- ULTRASONIC TRANSDUCER AT SCREEN TANK. 1" C. RGS TO CONTROL PANEL. (2/C.#16 SHIELDED). VERIFY WITH EQUIPMENT MANUFACTURER. RACEWAY AND CONDUCTORS BY ELECTRICAL CONTRACTOR.
- FLOW METER BY EQUIPMENT MANUFACTURER. (2) 1" C. RGS TO CONTROL PANEL. (2/C.#16 SHIELDED) CONTROL. VERIFY WITH EQUIPMENT MANUFACTURER. RACEWAY AND CONDUCTORS BY ELECTRICAL CONTRACTOR. (2#12,#12G.) POWER TO FLOW METER. CONTROL POWER IS OBTAINED AT MANUFACTURERS CONTROL PANEL.
- 3/4" TO JUNCTION BOX FOR MANUFACTURERS CARD SWIPE PROVIDE RACEWAY FOR MANUFACTURERS WIRING.



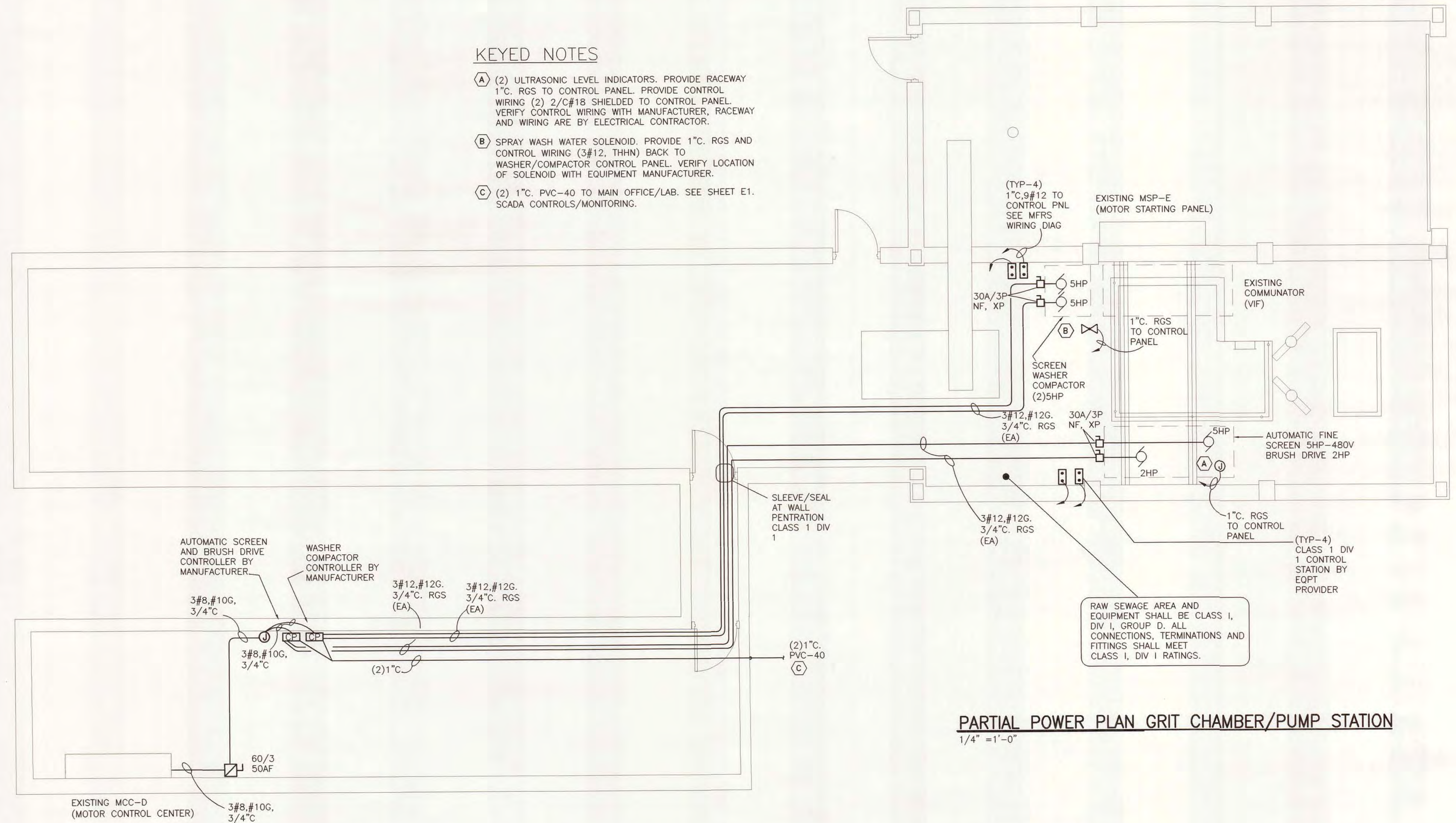
POWER PLAN  
 1/4"=1'-0"

<p>AN ISO 9001:2000 CERTIFIED COMPANY</p>	DESIGNED M. HAWKINS CHECKED C. LAWSON CADD DATE 6/18/07 JAH SCALE AS NOTED PART PROJECT\11315\00026\30\DWG\E-2	CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.01 WASTE RECYCLING PLANT <b>SEPTAGE BUILDING ELECTRICAL PLAN</b>
	DIVISION B CONTRACT 11315.00026	SHEET E-2 OF

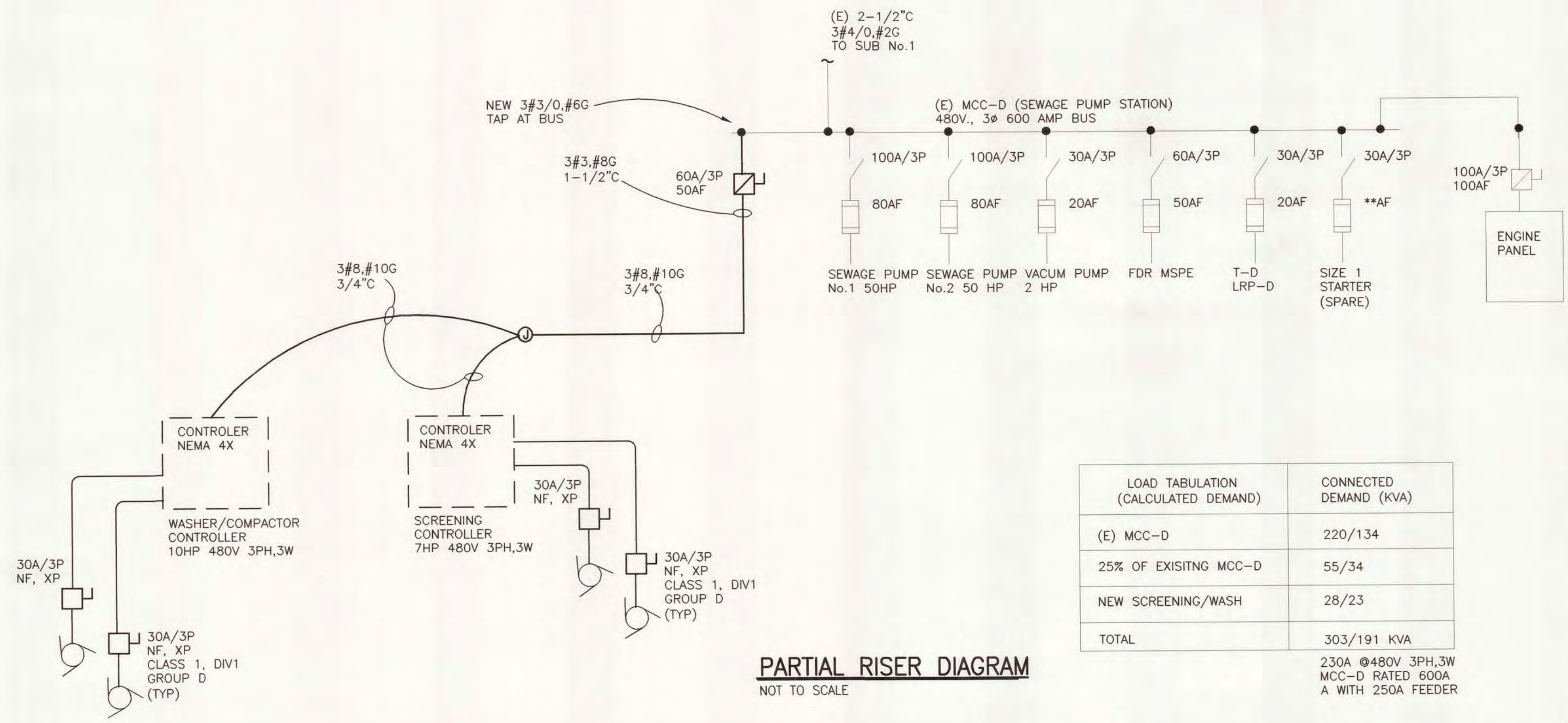


KEYED NOTES

- (A) (2) ULTRASONIC LEVEL INDICATORS. PROVIDE RACEWAY 1" C. RGS TO CONTROL PANEL. PROVIDE CONTROL WIRING (2) 2/C #18 SHIELDED TO CONTROL PANEL. VERIFY CONTROL WIRING WITH MANUFACTURER. RACEWAY AND WIRING ARE BY ELECTRICAL CONTRACTOR.
- (B) SPRAY WASH WATER SOLENOID. PROVIDE 1" C. RGS AND CONTROL WIRING (3#12, THHN) BACK TO WASHER/COMPACTOR CONTROL PANEL. VERIFY LOCATION OF SOLENOID WITH EQUIPMENT MANUFACTURER.
- (C) (2) 1" C. PVC-40 TO MAIN OFFICE/LAB. SEE SHEET E1. SCADA CONTROLS/MONITORING.



PARTIAL POWER PLAN GRIT CHAMBER/PUMP STATION  
1/4" = 1'-0"



PARTIAL RISER DIAGRAM  
NOT TO SCALE

LOAD TABULATION (CALCULATED DEMAND)	CONNECTED DEMAND (KVA)
(E) MCC-D	220/134
25% OF EXISTING MCC-D	55/34
NEW SCREENING/WASH	28/23
<b>TOTAL</b>	<b>303/191 KVA</b>

230A @480V 3PH,3W  
MCC-D RATED 600A  
A WITH 250A FEEDER

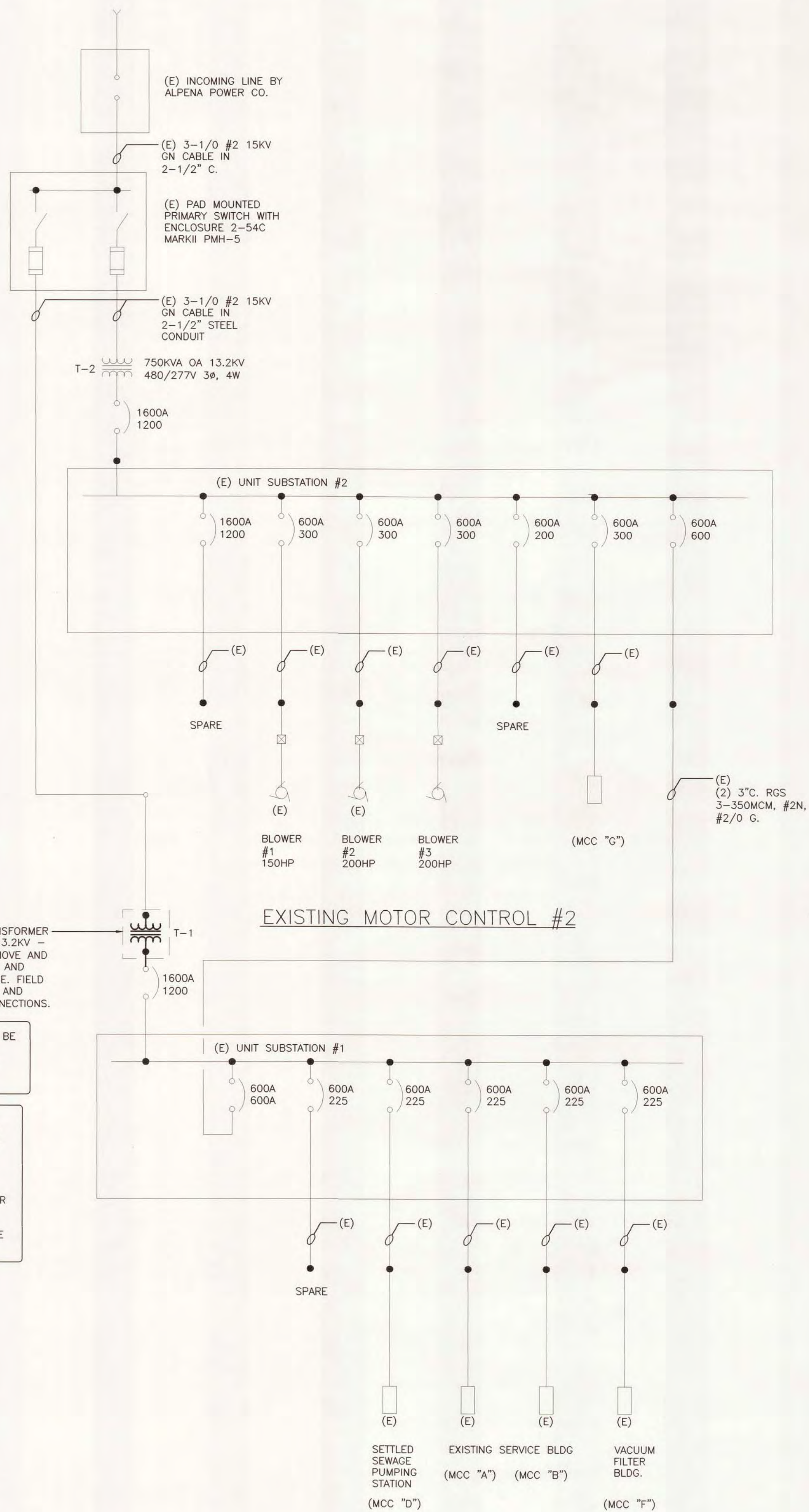
LIGHTER LINEWEIGHTS INDICATE EXISTING TO REMAIN.  
DARKER LINEWEIGHTS INDICATES NEW WORK.  
COORDINATE WITH FIELD CONDITIONS

**Wilcox Professional Services**  
AN ISO 9001 CERTIFIED COMPANY

DESIGNED	M. HAWKINS
CHECKED	C. LAWSON
ISSUED DATE	6/18/07 JAH
SCALE	NONE
PART	PROJECT:11315(00026)_3P(0)MPP(E)-3
REV	
REV	
REV	

CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266-01 DWRP PROJECT NO.: 7200 WASTE RECYCLING PLANT	
EQUIPMENT PLAN ELECTRICAL	
DIVISION	CONTRACT
B	11315.00026
SHEET	E-3
OF	





EXISTING TRANSFORMER SHALL BE RETAINED AND STORED AT A LOCATION DESIGNATED BY THE OWNER.

TRANSFORMER SHALL BE REMOVED FROM THE SITE AND PROCESSED IN ACCORDANCE WITH STATE AND FEDERAL GUIDELINES. DISPOSAL CONTRACTOR SHALL BE TRANSFORMER INSPECTION RETROFILL (248-549-4026) OR ENGINEER APPROVED EQUAL. DISPOSAL SHALL BE PART OF ELECTRICAL CONTRACTORS BASE BID.

LOAD TABULATION (CALCULATED DEMAND)	CONNECTED DEMAND (KVA)
(E) UNIT SUBSTATION NO.1	627/473
(E) UNIT SUBSTATION NO.2	644/356
TOTAL	1271/829 KVA

T-1, T-2 RATE 750KVA 55' C RISE  
840KVA 65' C RISE

EXISTING MOTOR CONTROL #1  
NOT TO SCALE

SYMBOL	DESCRIPTION
⊙	SINGLE PHASE MOTOR
⊙	THREE PHASE MOTOR
⊙	JUNCTION BOX
⊙	SOLENOID VALVE
⊕	GROUND
⊙	UTILITY METER
⊙	AUTOMATIC TRANSFER SWITCH
⊙	REMOTE PUSH BUTTON - STOP/START STATION
⊙	PRESSURE SWITCH
⊙	DISCONNECT SWITCH
⊙	MANUAL MOTOR STARTER
⊙	MOTOR STARTER
⊙	COMBINATION MAGNETIC MOTOR STARTER
⊙	DISCONNECT SWITCH
⊙	CONTROL PANEL
⊙	DISTRIBUTION PANEL
⊙	LIGHTING PANEL (SURFACE MOUNTED)
⊙	LIGHTING PANEL (FLUSH MOUNTED)
⊙	TELEPHONE TERMINAL CABINET
⊙	TERMINAL BOX
⊙	FUSE
⊙	CIRCUIT BREAKER
⊙	DISCONNECT SWITCH
⊙	TRANSFORMER
⊙	ELECTRICAL PANEL

LIGHTER LINEWEIGHTS INDICATE EXISTING TO REMAIN.  
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DESIGNED	M. HAWKINS
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CADD DATE	6/18/07 JAH
SCALE	NONE
PART	PROJECT\11315\00026\30\DMBYE-4
REV	
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CITY OF ALPENA, MICHIGAN WATER AND WASTEWATER IMPROVEMENTS SRF PROJECT NO.: 5266.01 DWRP PROJECT NO.: 7200.0 WASTE RECYCLING PLANT		
ONE-LINE DIAGRAM ELECTRICAL		
DIVISION	CONTRACT	SHEET
B	11315.00026	E-4
		OF