SEWER TRANSFER PROJECT

TOWN OF PALISADE

July 2025

BID SET

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COLORADO LICENSED
MATTHEW W. VILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

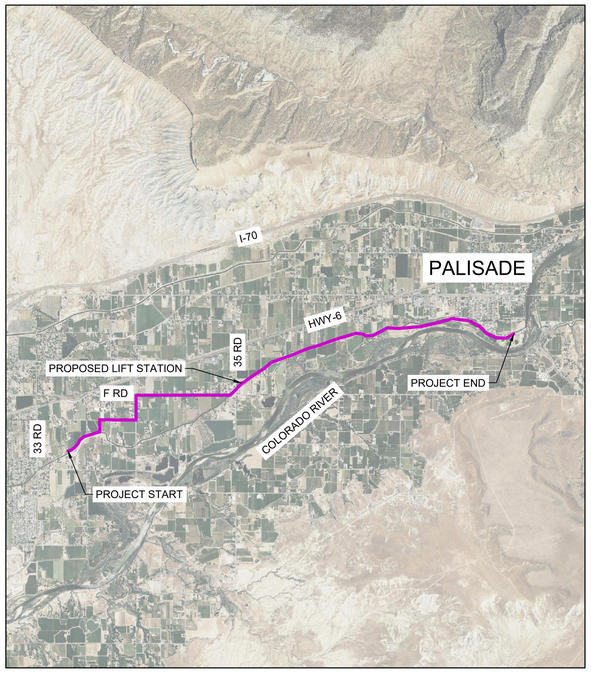
PROJECT NO. 81-23-029

J-U-B ENGINEERS, INC.

305 S. Main Street, Unit 6, Palisade, CO 81526
p 970 208 8508 *w* www.jub.com

THE LANGDON GROUP
GATEWAY MAPPING INC.

J-U-B FAMILY OF COMPANIES



PROJECT MAP

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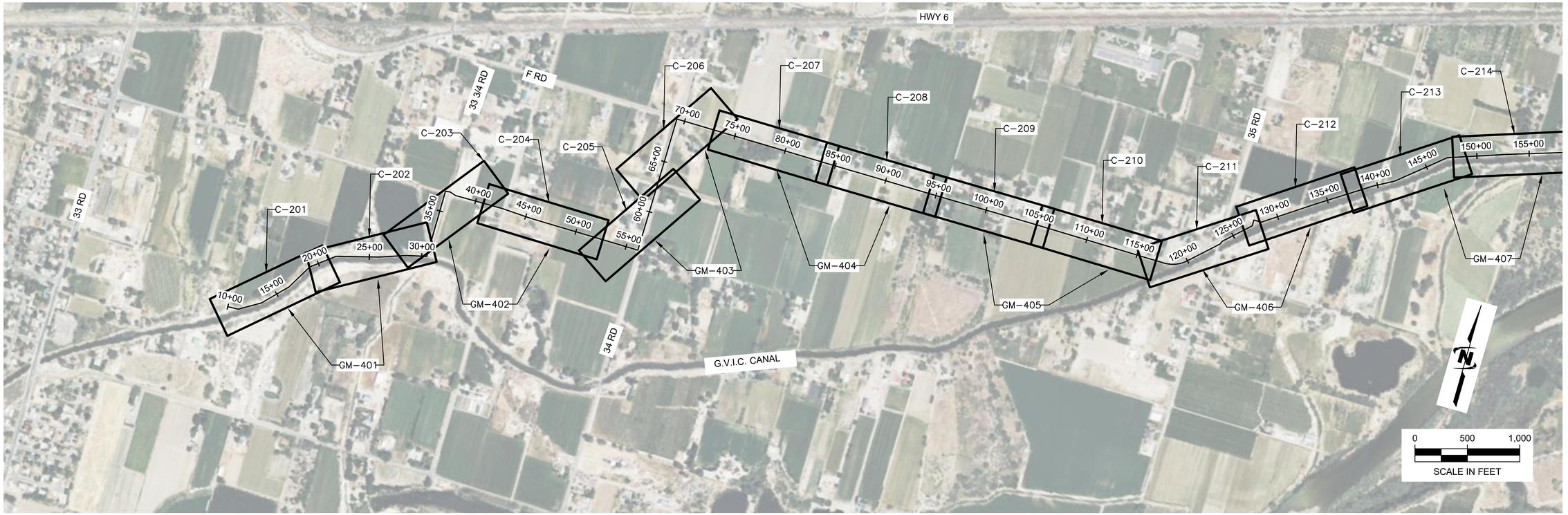
If the Documents are provided in electronic format, the electronic documents are subject to the provisions of J-U-B's "electronic document/data limited license" found at edocs.jub.com

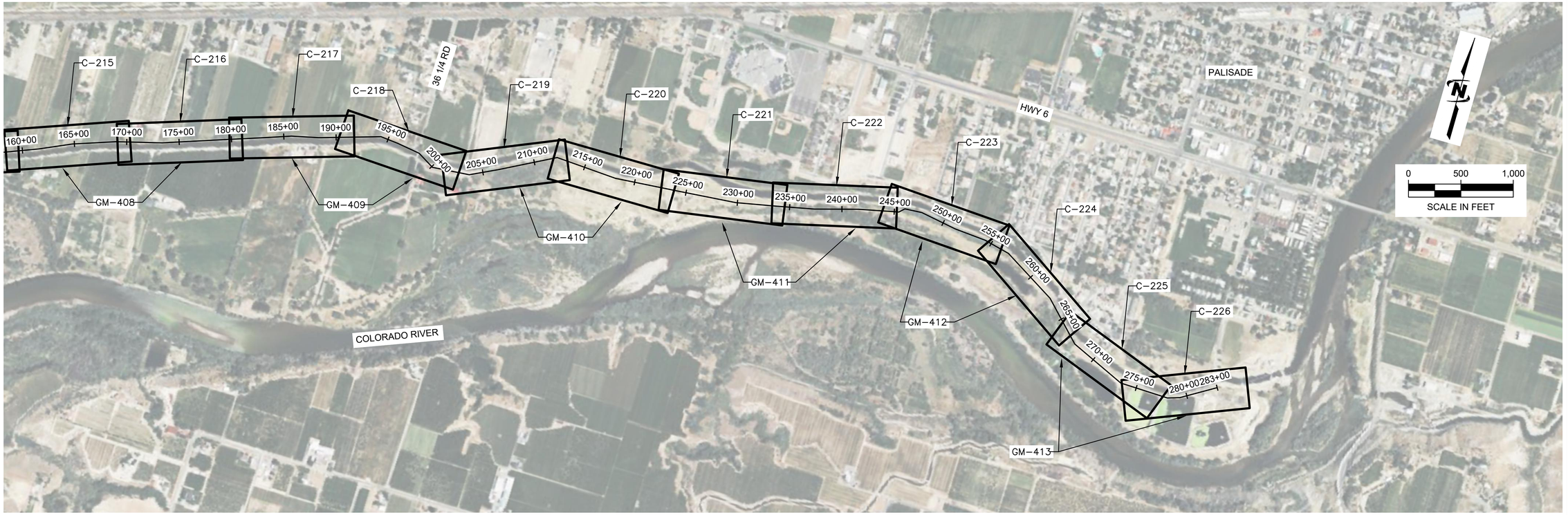
LAST UPDATED: 7/21/2025

SHEET NUMBER:

G-001

Plot Date:7/21/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\GENERAL\81-23-029_G-001.DWG





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BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENTS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

SHEET INDEX

FILE : 81-23-029_I-10X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
G-002

Plot Date:7/21/2025 8:47 PM Plotted By: Matt Filla
Date Created:6/28/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_I-10X.DWG

GENERAL NOTES

1. TOWN OF PALISADE, CLIFTON SANITATION DISTRICT, AND THE ENGINEER HAVE JURISDICTION OVER THIS PROJECT, CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND BUSINESS LICENSES PRIOR TO CONSTRUCTION.

2. CONTRACTOR IS RESPONSIBLE FOR DUST ABATEMENT AND ANY LIABILITY ISSUES RELATED TO DUST AT ANY LOCATION WHICH MAY BE CAUSED BY THIS PROJECT.

3. ANY WORK DONE WITHIN A PUBLIC RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE TRANSPORTATION AGENCY AND SHALL MEET THE REQUIREMENTS OF THAT AGENCY AND, IN PARTICULAR, REQUIREMENTS OF ANY RIGHT-OF-WAY SPECIAL USE PERMIT, OR OTHER PERMIT. ALL WORK SHALL MEET CURRENT OSHA REQUIREMENTS.

4. WHERE WORK IS PERFORMED ON EASEMENTS, THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO ELIMINATE ANY ADVERSE EFFECTS ON THE ADJACENT PROPERTY AND/OR TO RESTORE IT TO ITS ORIGINAL CONDITION.

5. ALL DISTANCES AND DATA SHALL BE CHECKED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. IN CASE OF CONFLICT THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT CLARIFICATION MAY BE MADE PRIOR TO THE START OF THE WORK.

6. THE CONTRACTOR SHALL ARRANGE FOR, SECURE AND PAY FOR DIRECTLY, ANY AND ALL TEMPORARY UTILITY SUPPLIES (E.G. WATER POWER, AND TELEPHONE) IT MAY REQUIRE FOR PROSECUTION OF ITS WORK. THE COST OF SUCH UTILITIES SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM WITH WHICH IT IS ASSOCIATED.

7. SHOULD CONSTRUCTION BE HALTED BECAUSE OF INCLEMENT WEATHER CONDITIONS, THE CONTRACTOR WILL COMPLETELY CLEAN UP ALL AREAS AND MAINTAIN THE SURFACE IN GOOD CONDITION DURING THE SHUT-DOWN PERIOD.

8. THE CONTRACTOR'S PERSONNEL, EQUIPMENT, AND OPERATIONS SHALL COMPLY FULLY WITH ALL APPLICABLE STANDARDS, REGULATIONS, AND REQUIREMENTS OF EXISTING FEDERAL, COLORADO, AND LOCAL GOVERNMENTAL AGENCIES.

9. ALL WORK SHALL BE CONTAINED IN OR LIMITED TO THE PROPERTY, EASEMENTS, OR APPROVED STAGING AREAS OF THE TOWN OF PALISADE AND CLIFTON SANITATION DISTRICT.

10. THE GEOTECHNICAL EVALUATION FOR THIS PROJECT WAS PREPARED BY HUDDLESTON-BERRY ENGINEERING AND TESTING, AUGUST 9, 2024. RECOMMENDATIONS FROM THE REPORT SHALL BE FOLLOWED. IN THE EVENT OF A CONFLICT WITH THE PROJECT SPECIFICATIONS, THE ENGINEER AND THE GEOTECHNICAL ENGINEER WILL APPROVE THE PROPER COURSE OF ACTION. REFER TO GEOTECHNICAL REPORT FOR SUBSURFACE SOILS INFORMATION.

11. CONTRACTOR TO PROVIDE, CONSTRUCT, MAINTAIN AND REMOVE A TEMPORARY FENCE AROUND THE CONSTRUCTION SITE USED TO PROTECT NEIGHBORING PROPERTIES FROM DAMAGE. CONTRACTOR IS ALSO RESPONSIBLE FOR SAFEGUARDING WORK SITE. PAY ITEM TO BE INCLUDED IN MOBILIZATION.

12. THE ENGINEER WILL PROVIDE VERTICAL AND HORIZONTAL CONTROLS ONE TIME ON THE PROJECT SITE. ANY ADDITIONAL CONSTRUCTION STAKING REQUIRED TO COMPLETE THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

13. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, STAKES AND OTHER SURVEY REFERENCE MONUMENTS OR MARKERS. IN CASE OF WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATIONS. RESETTING OF MARKERS SHALL BE PERFORMED UNDER THE DIRECTION OF A COLORADO LICENSED PROFESSIONAL LAND SURVEYOR.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL LOCAL, STATE, AND FEDERAL PERMITS REQUIRED FOR STORMWATER POLLUTION PREVENTION AS A RESULT OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION PREVENTION PLAN FOR SUBMITTAL TO AND APPROVAL BY THE ENGINEER.

15. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR “STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.”

16. WHEN DISCHARGING GROUNDWATER, ALL DEWATERING METHODS SHALL BE IN CONFORMANCE WITH ALL LAWS AND REGULATIONS OF THE STATE – INCLUDING OBTAINING A COLORADO DISCHARGE PERMIT SYSTEM PERMIT FOR CONSTRUCTION DEWATERING WASTEWATER DISCHARGE, IF APPLICABLE. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORMWATER RUNOFF AND /OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK.

17. WATER DISCHARGED TO THE G.V.I.C. CANAL MUST FIRST BE FILTERED THROUGH A SILT BAG. WATER MAY NOT BE DISCHARGED TO CANAL WHEN CANAL IS IN OPERATION.

18. MATERIAL AND EQUIPMENT MAY NOT BE STORED ON PRIVATE PROPERTY MORE THAN 500' FROM ONGOING WORK WITHOUT LANDOWNER CONSENT.

SANITARY SEWER

PIPELINE NOTES

1. CONTRACTOR SHALL HAVE ONE SIGNED COPY OF PLANS AND A COPY OF THE CSD STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES.

2. ALL SEWER GRAVITY MAINS SHALL BE PVC SDR 35 (ASTM D3034) AND ALL SEWER FORCE MAINS SHALL BE C900 PVC, UNLESS OTHERWISE NOTED.

3. ALL SEWER MAINS SHALL BE LAID TO GRADE UTILIZING A PIPE LASER.

4. ALL SERVICE LINE CONNECTIONS TO NEW MAINS SHALL BE ACCOMPLISHED WITH FULL BODY WYES OR TEES UNLESS SPECIFIED BY ENGINEER.

5. NO FOUR-INCH SERVICES SHALL BE CONNECTED DIRECTLY INTO MANHOLES WITHOUT PRIOR APPROVAL. ALL SIX-INCH SERVICES SHALL BE ACCOMPLISHED INSIDE A MANHOLE.

6. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SEWER LINE TESTING TO BE COMPLETED IN THE PRESENCE OF THE TOWN OF PALISADE OR CSD REPRESENTATIVE. PRESSURE TESTING WILL BE PERFORMED AFTER INSTALLATION OF DRY UTILITIES, AFTER ALL COMPACTION OF STREET SUBGRADE AND PRIOR TO STREET PAVING. FINAL LAMPING WILL ALSO BE ACCOMPLISHED AFTER PAVING IS COMPLETED. THESE TESTS SHALL BE THE MINIMUM BASIS OF ACCEPTANCE OF THE SEWER LINE EXTENSION.

7. SEWER SERVICE STUB OUTS SHALL BE CAPPED AND PLUGGED. STUB OUTS SHALL BE MARKED WITH A 2X4 INCH POST OR STEEL POST PAINTED GREEN AND EXTENDING 3 FEET ABOVE GRADE. AS-BUILT SURVEYING FOR VERTICAL AND HORIZONTAL GRADE OF STUB OUT REQUIRED PRIOR TO BACKFILL.

8. RED LINE AS-BUILTS SHALL BE SUBMITTED TO THE TOWN OF PALISADE AND CSD AT LEAST 72 HOURS PRIOR TO PAVING FOR REVIEW.

9. THE CONTRACTOR SHALL NOTIFY THE TOWN OF PALISADE AND CSD INSPECTOR 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION OF SEWER LINE.

10. ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

11. DURING CONSTRUCTION, ALL OPEN ENDS OF ALL PIPE LINES AND TANK ACCESSES SHALL BE COVERED AND SEALED AT THE END OF THE WORK DAY.

12. THE MINIMUM COVER FOR ALL SEWER FORCE MAIN LINES SHALL BE 4' UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS. FORCE MAIN PIPING SHALL BE LAID AT A CONSTANT UPHILL SLOPE, HIGH POINTS IN THE LINE WILL NOT BE ACCEPTED.

MANHOLE NOTES

1. CONCRETE SHALL BE COLORADO DEPARTMENT OF TRANSPORTATION CLASS “B” (SECTION 601.02).

2. ALL CEMENT USED IN MORTAR, CONCRETE BASES, GRADE RINGS, RISER SECTIONS, CONES AND FLAT TOPS, FOR SANITARY SEWER, SHALL BE TYPE V OR MODIFIED TYPE II PORTLAND CEMENT WITH LESS THAN 5% TRICALCIUM ALUMINATE.

3. MANHOLE RISER SECTIONS, CONES, FLAT TOPS AND GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE CONFORMING TO ASTM C478 OR AASHTO M 199.

4. BACKFILL AROUND MANHOLES AND OTHER STRUCTURES SHALL BE PLACED IN 12-INCH MAXIMUM LIFTS AND COMPACTED TO 95% AASHTO T 99, OR T 180 AS IDENTIFIED IN THE CONTRACT OR BY THE ENGINEER.

5. ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND CSD SPECIFICATIONS.

6. MANHOLE CONE AND FLAT TOP SECTIONS SHALL BE POSITIONED SUCH THAT THE MANHOLE RING AND COVER IS CENTERED ON THE UPSTREAM FLOW LINE. IF THE CONE IS FURNISHED WITH STEPS, THE MANHOLE RING AND COVER WILL BE SHIFTED SO THAT THE STEPS ARE INSTALLED AT A 12” OFFSET FROM THE INLET PIPE.

7. IF THE MANHOLE SECTIONS ARE FURNISHED WITH STEPS THEY SHALL BE INSTALLED AT A 12” OFFSET FROM THE INLET PIPE TO FACILITATE CLEANING AND TV EQUIPMENT.

8. UNLESS OTHERWISE NOTED, MANHOLE RING AND COVER SHALL BE SET TO FINISH GRADE USING RAPID ROAD REPAIR (OR APPROVED EQUAL) GROUT TO ADJUST RIM ELEVATION. GROUT SHALL NOT EXCEED 0.10 FEET THICKNESS. GROUT SHALL BE PLACED BETWEEN TOP OF CONCRETE GRADE RING AND RING AND COVER. STEEL PAVING RINGS ARE NOT ALLOWED FOR GRADE ADJUSTMENT UNLESS OTHERWISE APPROVED BY THE CSD.

9. ALL MANHOLES SHALL HAVE EXTERIOR WATERPROOF COATING.

10. ALL SEWER MANHOLES (EXCLUDING POLYMER CONCRETE MANHOLES) SHALL HAVE INTERIOR COATING IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

11. MANHOLES SHALL HAVE MARKERS IN ACCORDANCE WITH DETAIL 4 SHEET C-513.

ROADWAY AND TRAFFIC CONTROL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION:
   a. ALL SIGNS, STRIPING AND TRAFFIC CONTROL DEVICE SHALL CONFORM TO, AND PLACEMENT SHALL BE PERFORMED IN ACCORDANCE WITH, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION AND CDOT M&S STANDARDS, LATEST EDITION.
   b. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND CLEANING OF TRAFFIC CONTROL DEVICES.
   c. THE CONTRACTOR SHALL MAINTAIN EXISTING PAVEMENT MARKINGS DURING CONSTRUCTION OPERATIONS, IN CONFORMANCE WITH CONSTRUCTION DOCUMENTS.
   d. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT OR EXISTING SURFACING. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY ARE NOT VISIBLE UNDER DAY OR NIGHT CONDITIONS.

2. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS AND MUD TRACKED ONTO EXISTING ROADWAYS. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY THE CONSTRUCTION.

3. FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

   TACK COAT EMULSIFIED ASPHALT_____@ 0.1 GALS./SQ. YD. (DILUTED AND UNDILUTED)
   HOT MIX ASPHALT (HMA) _____@ 110 LBS./SQ. YD./INCH
   AGGREGATE BASE COURSE CLASS 6 _____@ 133 LBS./CU. FT.

4. WHERE IT IS REQUIRED TO CUT EXISTING PAVEMENT, THE CUTTING SHALL BE PERFORMED TO A NEAT WORK LINE TO THE FULL DEPTH OF PAVEMENT WITH A PAVEMENT CUTTING SAW OR OTHER METHOD AS APPROVED BY THE PROJECT ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

5. WHERE NEW PAVEMENT IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED FULL DEPTH TO A NEAT VERTICAL LINE USING A PAVEMENT CUTTING SAW.

CONTACT PHONE NUMBERS

TOWN OF PALISADE -		
BRIAN FLENNIKEN	970-862-5213 m	PUBLIC WORKS DIRECTOR
JANET HAWKINSON	970-464-5602 o	TOWN MANAGER
CLIFTON SANITATION DISTRICT-		
ELI JENNINGS	970-434-7422 o	DISTRICT MANAGER
ENGINEER (J-U-B ENGINEERS) -		
MATT FILLA	970-208-8508 o	PROJECT ENGINEER - LEAD
ERIK SNYDER	970-208-8508 o	PROJECT ENGINEER
XCEL ENERGY -		
RYAN MENAPACE	970-812-2126 m	MANAGER
CLIFTON WATER DISTRICT -		
ERIK SCHOENY	970-255-4949 o	DISTRICT ENGINEER
GRAND VALLEY DRAINAGE DISTRICT -		
TIM RYAN	970-242-4343 o	GENERAL MANAGER
GRAND VALLEY IRRIGATION COMPANY -		
JAMES CONRAD	970-242-2762 o	OPERATIONS
PALISADE IRRIGATION DISTRICT -		
DAN CRABTREE	970-640-9481 m	MANAGER
COMCAST -	720-490-3891 o	CABLE TV
UNITE PRIVATE NETWORKS -	816-814-9768 o	FIBER
UTE WATER CONSERVANCY DISTRICT -		
DAVE PRISKE	970-256-2876 o	DISTRICT ENGINEER
CENTURY LINK/LUMEN -	303-260-4929 o	FIBER & TELEPHONE
CLEARNETWORX FIBER		
SHAUNA LOCKWOOD	970-249-8848 o	PROJECT COORDINATOR

EXISTING UTILITIES

1. APPROXIMATE LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE BASED ON BEST AVAILABLE INFORMATION, AND ARE TO BE USED FOR GENERAL INFORMATION ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE APPROPRIATE UTILITY COMPANIES WHEN CONSTRUCTION MIGHT INTERFERE WITH NORMAL OPERATION OF ANY UTILITIES. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE THE APPROPRIATE UTILITY COMPANY FIELD-LOCATE ANY UTILITY INSTALLATIONS WHICH MIGHT BE AFFECTED BY CONSTRUCTION PRIOR TO BEGINNING WORK IN THAT AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SERVICE OF EXISTING UTILITIES AND FOR RESTORING ANY UTILITIES DAMAGED DUE TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.

   DEPTHS AND ELEVATIONS OF UTILITIES ARE UNKNOWN UNLESS OTHERWISE SHOWN. ADDITIONAL INFORMATION ON UTILITY LOCATION AND DEPTH CAN BE FOUND ON SUE SHEETS. CONTRACTOR SHALL FIELD VERIFY UTILITY DEPTHS, ELEVATIONS, ANY DISCREPANCIES AND/OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE UTILITY NOTIFICATION CENTER OF COLORADO (CALL BEFORE YOU DIG), 811. CALL TWO BUSINESS DAYS PRIOR (NOT INCLUDING THE DAY OF THE CALL) TO DIGGING, GRADING, OR EXCAVATING FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

3. WHEN CROSSING OR WORKING NEAR XCEL HIGH PRESSURE GAS LINES, CONTRACTOR SHALL COORDINATE WITH XCEL FOR ON-SITE "WATCH AND PROTECT" SERVICES AND ADHERE TO ALL XCEL REQUIREMENTS.

4. FOR GAS SERVICE LINES THAT HAVE LESS THAN 1' VERTICAL CLEARANCE FROM THE GRAVITY SEWER PIPE AND FORCE MAIN PIPE, CONTRACTOR SHALL ADJUST GAS SERVICE TO ATTAIN 1' MIN. CLEARANCE.

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

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

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MATTHEW W. FILLA
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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

GENERAL NOTES

FILE : 81-23-029_G-002X
JUB PROJ. # :81-23-029
DRAWN BY: ###
DESIGN BY: MWF
CHECKED BY: ###
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
G-003

Plot Date:7/21/2025 8:47 PM Plotted By: Matt Filla
Date Created:7/14/2025 \\UBGCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_G-002X.DWG

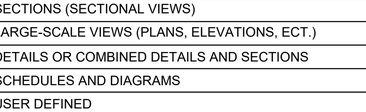
LINE LEGEND

LINE DESCRIPTION	PROPOSED LINE	EXISTING LINE
POWER / COMMUNICATIONS		
OVERHEAD POWER	OHP	OHP
UNDERGROUND POWER	UP	UP
OVERHEAD TELEPHONE	OHT	OHT
UNDERGROUND TELEPHONE	UT	UT
FIBER OPTIC	F/O	F/O
CABLE TELEVISION	CTV	CTV
UNDERGROUND POWER, TEL, CABLE TV		P,T,CTV
UNDERGROUND POWER, TEL, CABLE TV, GAS		P,T,CTV,G
STORM DRAIN		
STORM DRAIN (GENERAL)	SD	SD
STORM DRAIN	X"SD	X"SD
ROOF DRAIN	RD	RD
LAND DRAIN	LD	LD
SANITARY SEWER		
SANITARY SEWER (GENERAL)	SS	SS
SANITARY SEWER	X"SS	X"SS
SANITARY SEWER SERVICE	SS SS	SS SS
SEWER FORCE MAIN	FM	FM
WATER		
WATER (GENERAL)	W	W
WATER (SPECIFIED SIZE)	X"W	X"W
WATER SERVICE	WS WS	WS WS
IRRIGATION		
IRRIGATION	IRR	IRR
GRAVITY IRRIGATION	GIRR	GIRR
PRESSURE IRRIGATION	PIRR	PIRR
POTABLE WATER	PW	PW
NON-POTABLE WATER	NPW	NPW
GAS		
NATURAL GAS	G	G
NATURAL GAS SERVICE	G G	G G
HIGH PRESSURE GAS	HPG	HPG
LIQUID GAS	LG	LG
UTILITY		
CHLORINE LINE	CHL	CHL
INDUSTRIAL WASTE WATER	IWW	IWW
DRAIN LINE	DL	DL

LINE DESCRIPTION	PROPOSED LINE	EXISTING LINE
BOUNDARY		
PROPERTY LINE	P/L	P/L
PROPERTY LINE		
RIGHT OF WAY	R/W	R/W
TEMPORARY EASEMENT	T/E	T/E
PERMANENT EASEMENT	P/E	P/E
TOWNSHIP AND RANGE		
SECTION LINE		
QUARTER SECTION LINE		
1/16 SECTION LINE		
STATE LINE		
COUNTY LINE		
SITE		
FENCE	X	X
MAJOR CONTOUR	2521	
MINOR CONTOUR		
GRADE BREAK		GB
TOP OF BANK		TOB
TOE OF SLOPE		TOE
CUT LIMITS		
CUT LIMITS	CUT	
FILL LIMITS		
FILL LIMITS	FILL	
DITCH		
STORM SWALE		
EDGE OF WATER		
HIGH WATER		
WETLAND		WET
WETLAND BOG		BOG
WETLAND MARSH		MRSH
WETLAND SWAMP		SWMP
ROADWAY		
ROAD SHOULDER		
ROAD CENTERLINE		
ROAD ASPHALT		EP
ROAD GRAVEL	EG	EG
TOP BACK OF CURB		
LIP OF GUTTER		
LANDSCAPING LIMITS	LS	LS
EDGE OF ASPHALT		

SHEET NUMBERING

SAMPLE: C-101



DISCIPLINE DESIGNATORS

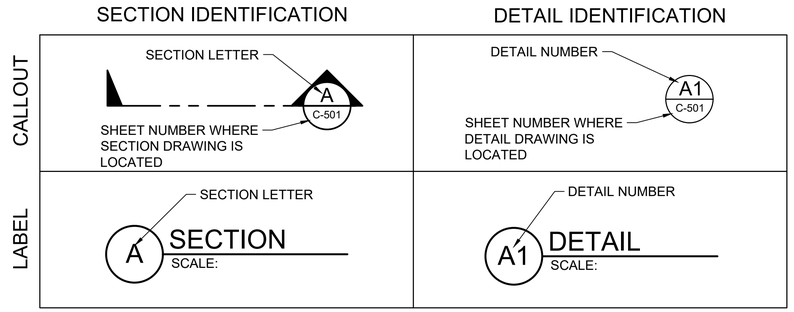
DISCIPLINE	DESIGNATOR	DESCRIPTION
GENERAL	G	ALL GENERAL
	GI	GENERAL INFORMATION
	GC	GENERAL CONTRACTUAL
	GR	GENERAL RESOURCE
SURVEY/MAPPING	V	ALL SURVEY
GEOMETRIC	GM	ALL GEOMETRIC
GEOTECHNICAL	B	ALL GEOTECHNICAL
CIVIL	C	ALL CIVIL
LANDSCAPE	L	ALL LANDSCAPE
STRUCTURAL	S	ALL STRUCTURAL
ARCHITECTURAL	A	ALL ARCHITECTURE
EQUIPMENT	Q	ALL EQUIPMENT
MECHANICAL	M	ALL MECHANICAL
ELECTRICAL	E	ALL ELECTRICAL
PLUMBING	P	ALL PLUMBING
PROCESS	D	ALL PROCESS
RESOURCE	R	ALL RESOURCE

SHEET TYPE DESIGNATORS

DESIGNATOR	SHEET TYPE
0	GENERAL (SYMBOLS, LEGENDS, NOTES, ETC.)
1	PLANS (HORIZONTAL VIEWS)
2	ELEVATIONS, PROFILES, COMBINED PLAN & PROFILES
3	SECTIONS (SECTIONAL VIEWS)
4	LARGE-SCALE VIEWS (PLANS, ELEVATIONS, ECT.)
5	DETAILS OR COMBINED DETAILS AND SECTIONS
6	SCHEDULES AND DIAGRAMS
7	USER DEFINED
8	USER DEFINED
9	3D REPRESENTATIONS (ISOMETRICS, PERSPECTIVES, PHOTOS)

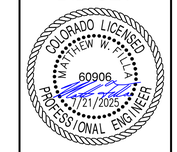
SECTION AND DETAIL IDENTIFIERS

NOTE:
A DASH MAY BE PLACED IN THE LOWER PORTION OF THE IDENTIFIER IF THE DETAIL DRAWING OR SECTION VIEW IS LOCATED ON THE SAME SHEET.



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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

LINE LEGEND AND DETAIL KEY

FILE : 81-23-029_G-002X
JUB PROJ. # :81-23-029
DRAWN BY: ###
DESIGN BY: MWF
CHECKED BY: ###
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
G-004

Plot Date:7/21/2025 8:47 PM, Plotted By: Matt Filla
Date Created:7/14/2025 \\UB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_G-002X.DWG

SYMBOL DESCRIPTION	EXISTING SYMBOL	PROPOSED SYMBOL
SURVEY		
CAP (ALUMINUM)		
CAP (BRASS)		
CHISELED X		
CTRL PT GENERIC		
CTRL PT ½" REBAR	1/2" PIN CONTROL PT	
CTRL PT ⅝" REBAR	5/8" PIN CONTROL PT	
CTRL PT 60D NAIL	60D	
CTRL PT HUB & TACK	HT	
CTRL PT PK NAIL	PK	
CTRL PT TEMP BENCH MARK	TBM	
NAIL		
NAIL AND TAG	N/T	
NAIL (PK)	PK	
BOLT		
DRILL STEEL		
REBAR (½")		
REBAR (⅝")		
STAINLESS STEEL ROD		
IRON PIPE		
RAILROAD SPIKE		
R/W MONUMENT		
STONE		
SECTION CORNER. MON.	22 15 21 16	
SECTION QUARTER MON.	15 22	
SITE		
BOLLARD		
BOULDER		
DRINKING FOUNTAIN	DF	DF
FLAGPOLE	F	F
GATE		
MAIL BOX	M	M
PARKING METER	PM	PM
POST		
SIGN		
SPOT ELEVATION		
TREE (SHRUB)		
TREE (STUMP)		
TREE (CONIFEROUS)		
TREE (DECIDUOUS)		
TEST HOLE	TH	
WELL	W	W
WELL (MONITORING)	M	M

SYMBOL DESCRIPTION	EXISTING SYMBOL	PROPOSED SYMBOL
UTILITIES		
MANHOLE (GENERIC)		
PRESSURE CLEAN OUT AT GRADE	PCO	PCO
THRUST BLOCK		
VAULT	V	V
COMMUNICATION		
TELE. MANHOLE	T	
TELE. PEDESTAL	T	T
TELE. POLE		
TV PEDESTAL	TV	TV
GUY WIRE		
DOMESTIC WATER		
FIRE HYDRANT		
SPIGOT		
YARD HYDRANT		
WATER MANHOLE	W	
WATER METER		
WATER VALVE	W	W
ELECTRIC		
ELEC. MANHOLE	E	
ELEC. METER	E	E
ELEC. TRANS.	E	E
JUNCTION BOX	J	J
POWER POLE		
POWER STUB	E	E
STREET LIGHT		
TRAFFIC SIGNAL POLE		
IRRIGATION		
IRRIGATION VALVE	IRR	IRR
IRRIGATION VALVE BOX	I	I
SPRINKLER		
NATURAL GAS		
GAS METER	G	G
GAS VALVE	G	G
SANITARY SEWER		
CLEANOUT		
SEWER STUB	S	S
SS MANHOLE	S	
STORM DRAIN		
CATCH BASIN		
DRY WELL	DW	DW
FLARE END		
GREASE TRAP		
SD MANHOLE	D	

SYMBOL DESCRIPTION	EXISTING SYMBOL	PROPOSED SYMBOL
FITTINGS		
BEND (11.25°)		
BEND (22.5°)		
BEND (45°)		
BEND (90°)		
CAP		
COUPLING		
CROSS		
REDUCER (CONCENTRIC)		
REDUCER (ECCENTRIC)		
TEE		
TRUE UNION		
WYE		
VALVES		
AIR VALVE	A	A
BLOW OFF	B	B
COMBO VALVE	C	C
BALL VALVE (N.C.)		
BALL VALVE (N.O.)		
BUTTERFLY VALVE		
CHECK VALVE		
CHECK VALVE (FLANGE)		
CHECK VALVE (MJ)		
GATE VALVE		
PLUG VALVE (N.C.)		
PLUG VALVE (N.O.)		
ROAD MARKINGS		
TURN ARROW		
ARROW STRAIGHT		
ARROW STRAIGHT/TURN		
BICYCLE ROUTE		
CAR		
HANDICAP SYMBOL		
ROADWAY		
INTERSTATE ROUTE	25	
MAST ARM		
PEDESTRIAN SIGNAL		
STATE ROUTE	14	
TRAFFIC LIGHT		

SYMBOL DESCRIPTION	EXISTING SYMBOL	PROPOSED SYMBOL
ROADWAY (CONT.)		
TYPE 2 BARRICADE		
US ROUTE	287	
TRAFFIC ATTENUATOR		
JERSEY BARRIER		

HATCHING

WETLAND	

ABBREVIATIONS

ASSY	ASSEMBLY
>	ANGLE
@	AT (MEASUREMENTS)
BLDG	BUILDING
BM	BENCH MARK
BSC	BITUMINOUS SURFACE COURSE
BSW	BACK OF SIDEWALK
BW	BOTH WAYS
C	CHANNEL (STRUCTURAL)
C/L	CENTER LINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTINUOUS
CPLG	COUPLING
CU FT	CUBIC FEET
CU YD	CUBIC YARD
DEG OR °	DEGREE
DET	DETAIL
DIA OR Ø	DIAMETER
DIP	DUCTILE IRON PIPE
DIST	DISTRIBUTION
DWG	DRAWING
EA	EACH
ELB	ELBOW
ELEV	ELEVATION
EW	EACH WAY
EXIST	EXISTING
FG	FINISH GRADE
FH	FIRE HYDRANT
FLG	FLANGE
FT OR '	FEET
GV	GATE VALVE
HORIZ	HORIZONTAL
ID	INSIDE DIAMETER
IN OR "	INCH
LB OR #	POUND
LF	LINEAL FEET
LN	LINEAL
MAX	MAXIMUM
MIN	MINIMUM
NO OR #	NUMBER
PE	POLYETHYLENE
PL	PLATE
PL	PROPERTY LINE
PVC	POLYVINYL-CHLORIDE
R	RADIUS
RP	RADIUS POINT
R&R	REMOVE & REPLACE
REM	REMOVE
REQ'D	REQUIRED
REV	REVISION
R/W	RIGHT-OF-WAY

ABBREVIATIONS

ASSY	ASSEMBLY
S	SLOPE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
STL	STEEL
ST STL	STAINLESS STEEL
TBC	TOP BACK OF CURB
TYP	TYPICAL
TFC	TOP FACE OF CONCRETE
W/	WITH
W/O	WITHOUT
W/REQ'D	WHERE REQUIIRED

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60906
7/21/2025
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	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

SYMBOL LEGEND AND ABBREVIATIONS

FILE : 81-23-029_G-002X
JUB PROJ. # : 81-23-029
DRAWN BY: ###
DESIGN BY: MWF
CHECKED BY: ###
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
G-005

Plot Date:7/21/2025 8:47 PM Plotted By: Matt Filla
Date Created:7/14/2025 \\JUB.CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_G-002X.DWG

LINEAL UNITS OF MEASUREMENT ARE U.S. SURVEY FOOT
MESA COUNTY LOCAL COORDINATE SYSTEM
MCLCS ZONE "GVA"
TRANSVERSE MERCATOR PROJECTION
POINT OF ORIGIN (SNO1) AND CENTRAL MERIDIAN
LATITUDE: 39°06'22.72746N
LONGITUDE: 108°32'01.43552W
NORTHING: 50,000FT
EASTING: 100,000FT
SCALE FACTOR: 1.000218181798
PROJECT/SCALE FACTOR HEIGHT: 4644FT(NAVD88)

HWY 6
F RD
33 3/4 RD
33 RD
34 RD
35 RD
G.V.I.C. CANAL
10+00
15+00
20+00
25+00
30+00
35+00
40+00
45+00
50+00
55+00
60+00
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70+00
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CPN
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E:133218.83
EL:4694.335

CP-3242 HUB
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E:133906.92
EL:4690.590

CP-3072 HUB
N:44692.72
E:134466.17
EL:4688.733

CP-3071 PK NAIL
N:44720.87
E:134666.15
EL:4687.963

CP-3066 HUB
N:44694.35
E:134884.41
EL:4687.003

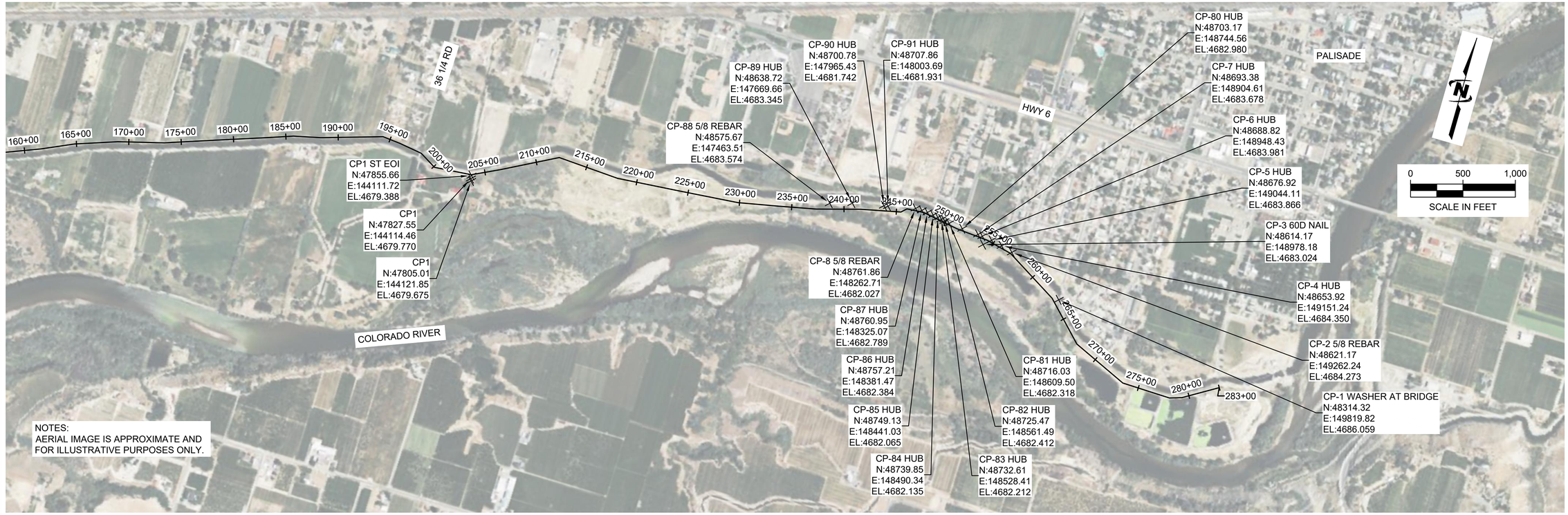
CP2
N:44688.10
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CP2 ST EOM
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E:136329.63
EL:4679.242

CP
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E:136598.99
EL:4679.618

CP
N:44744.58
E:136570.59
EL:4679.457

0 500 1,000
SCALE IN FEET



NOTES:
AERIAL IMAGE IS APPROXIMATE AND FOR ILLUSTRATIVE PURPOSES ONLY.

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7/21/2025
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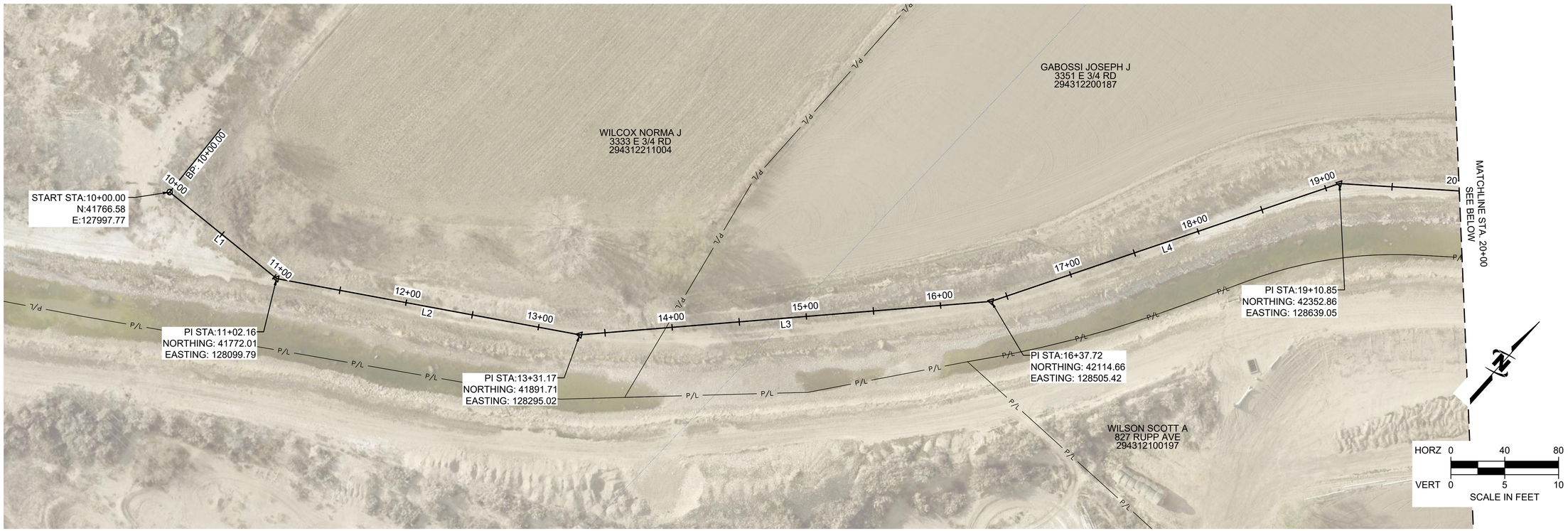
SEWER TRANSFER PROJECT
TOWN OF PALISADE

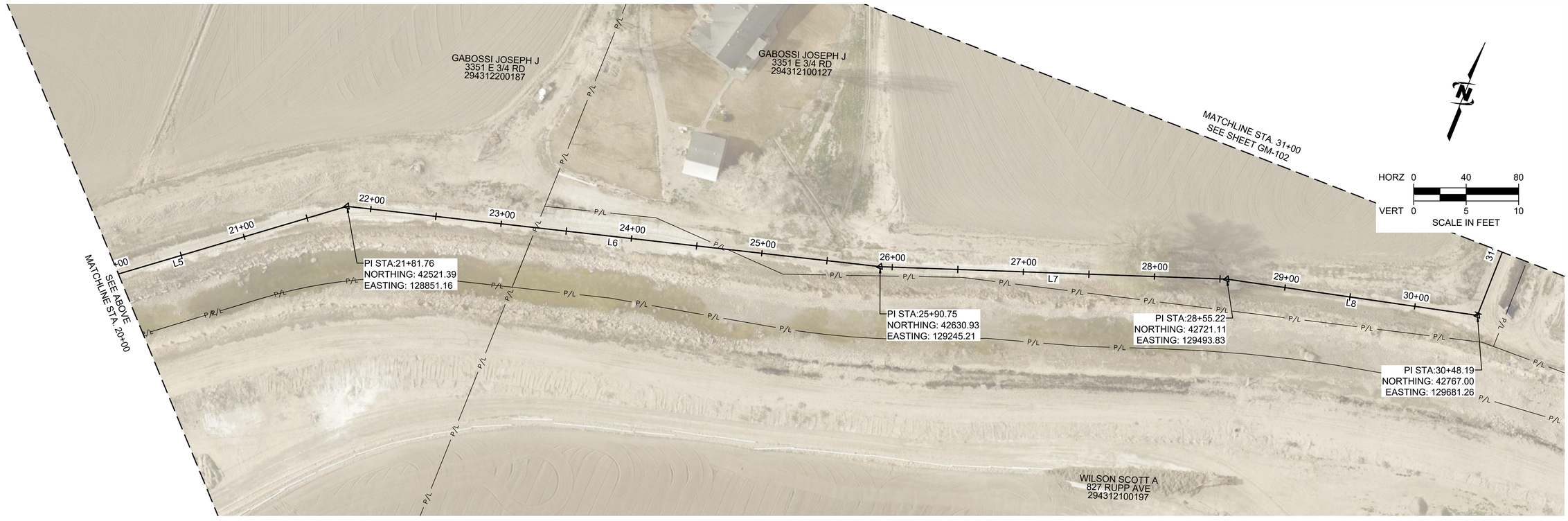
SURVEY CONTROL

FILE : 81-23-029_V-10X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
V-101

Plot Date:7/21/2025 8:47 PM Plotted By: Matt Filla
Date Created:6/12/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_V-10X.DWG





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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

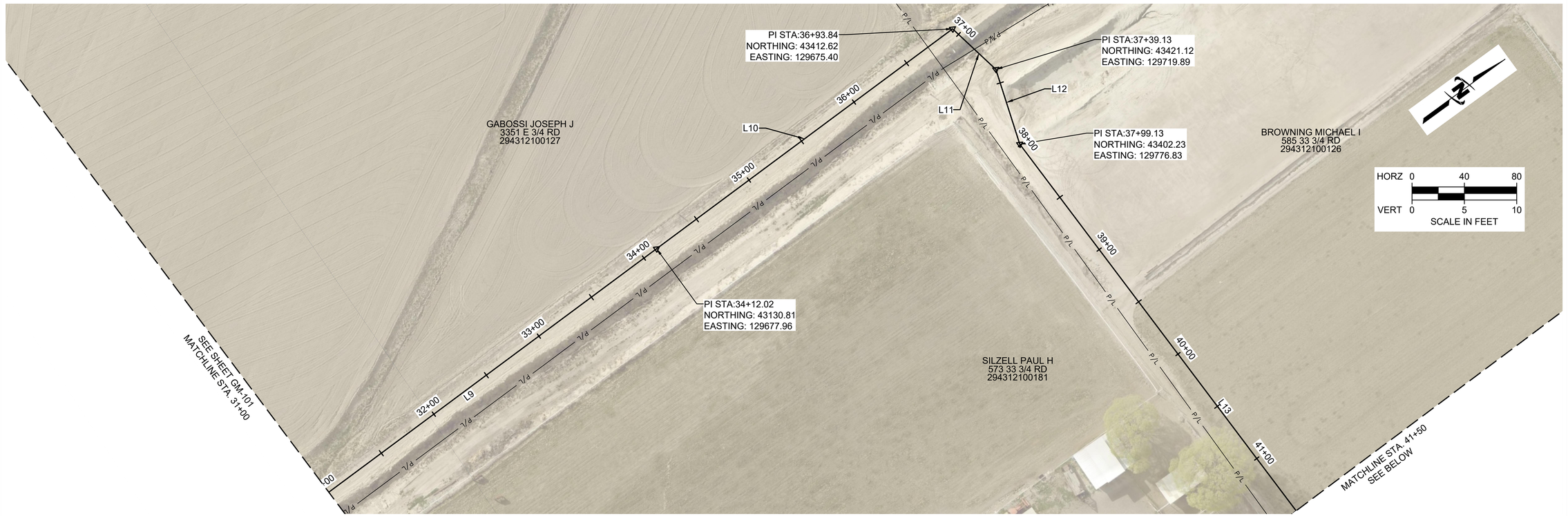
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JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
DESIGN BY:	MWF
CHECKED BY:	EWS

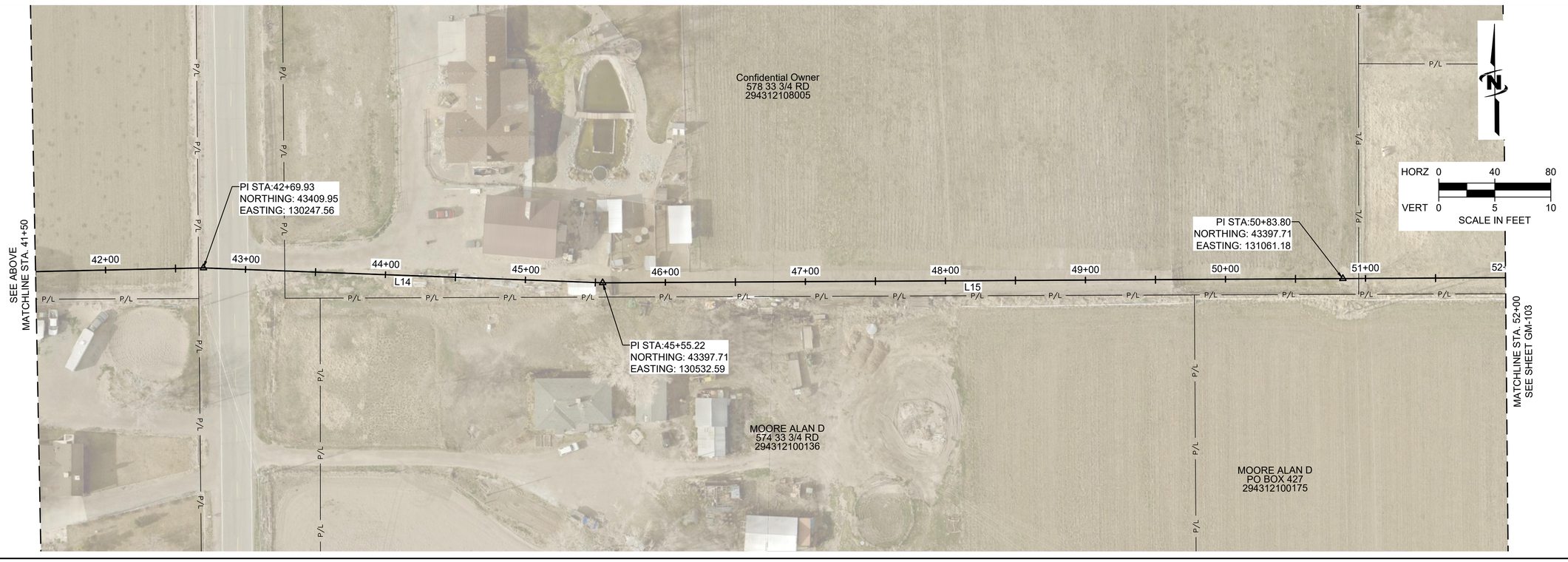
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/19/2025

SHEET NUMBER:
GM-101

Plot Date:7/21/2025 8:48 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

FILE :	81-23-029_GM-10X
JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
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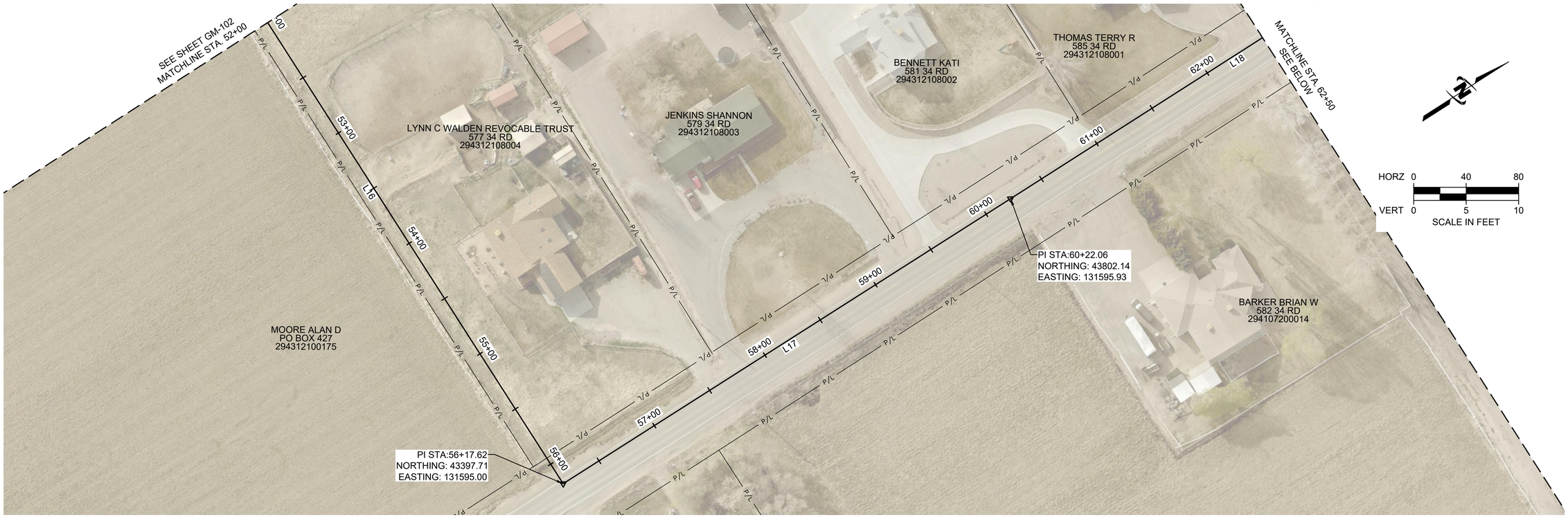
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

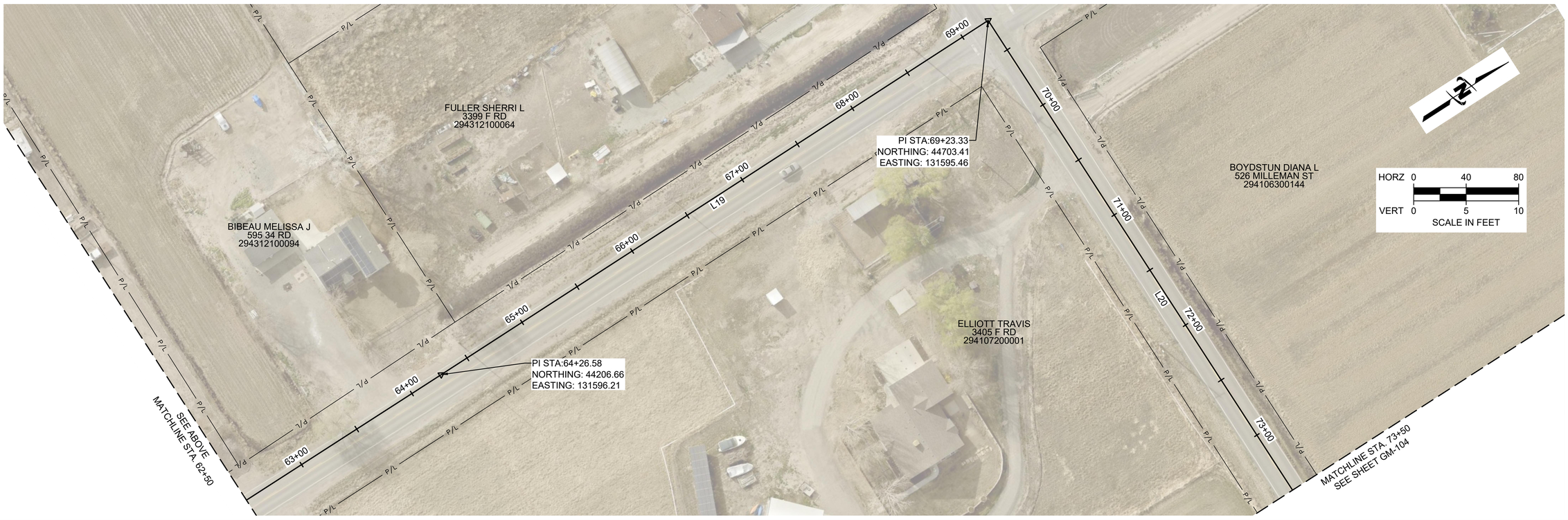
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-102

Plot Date:7/21/2025 8:48 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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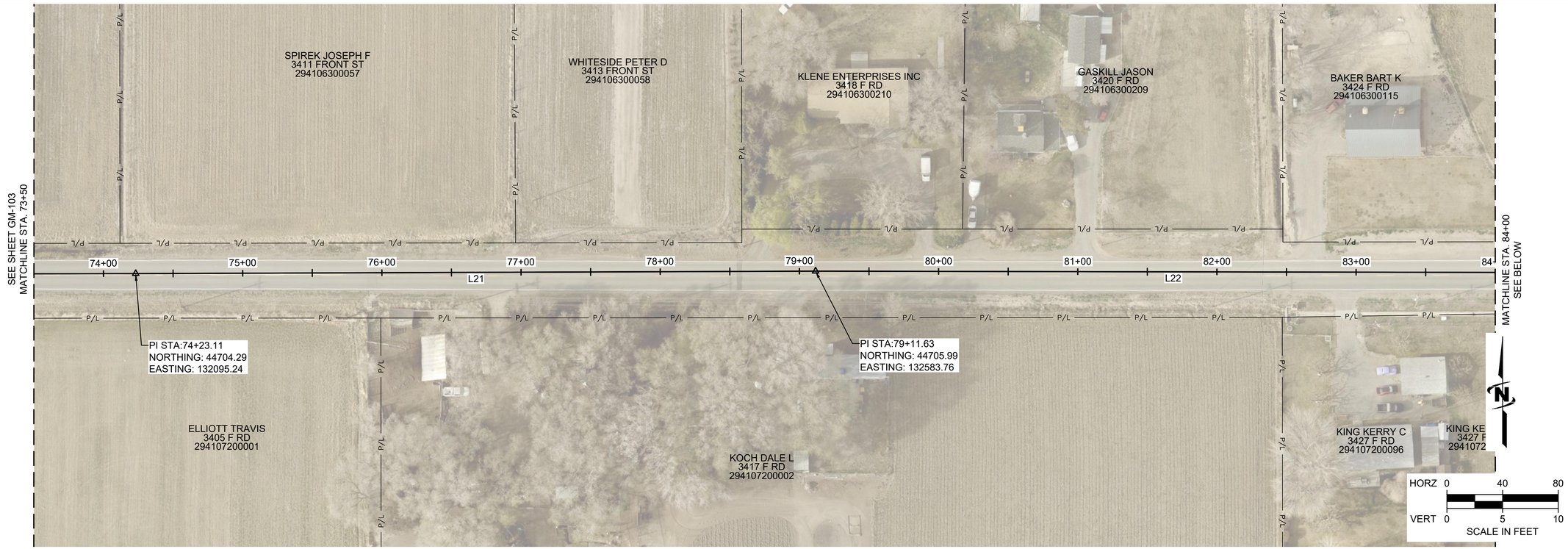
SEWER TRANSFER PROJECT
TOWN OF PALISADE

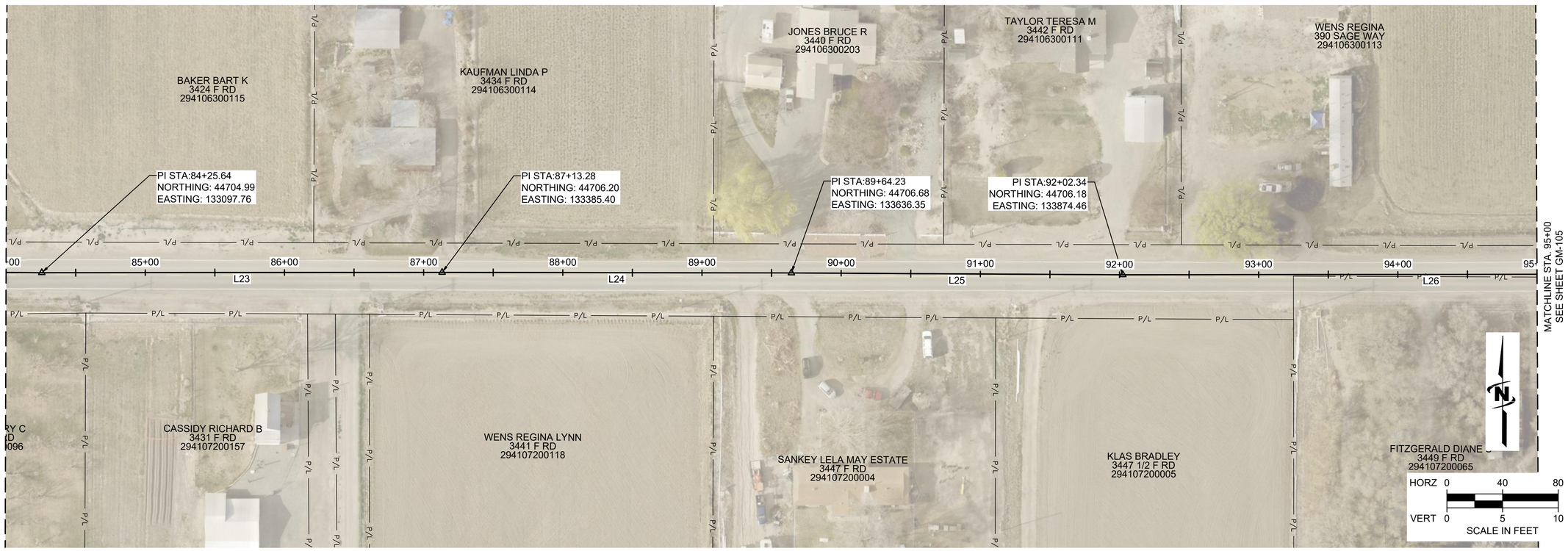
GEOMETRIC & HORIZONTAL CONTROL

FILE : 81-23-029_GM-10X
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/19/2025

SHEET NUMBER:
GM-103

Plot Date:7/21/2025 8:49 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

FILE :	81-23-029_GM-10X
JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
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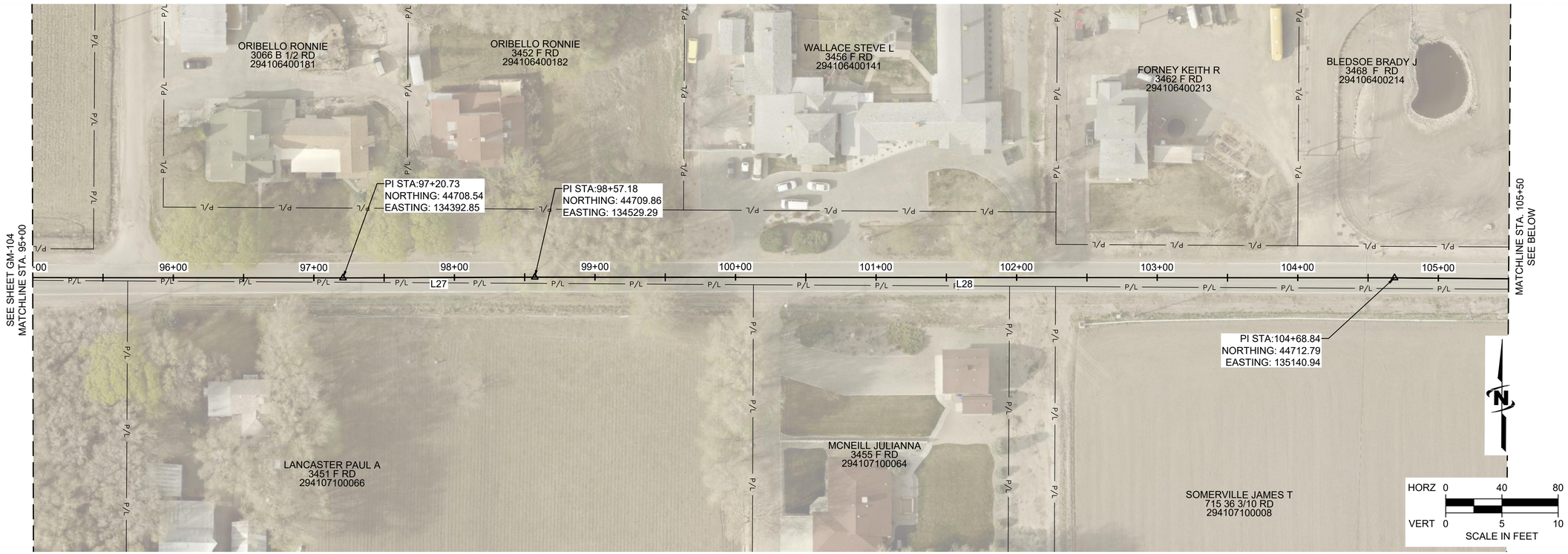
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

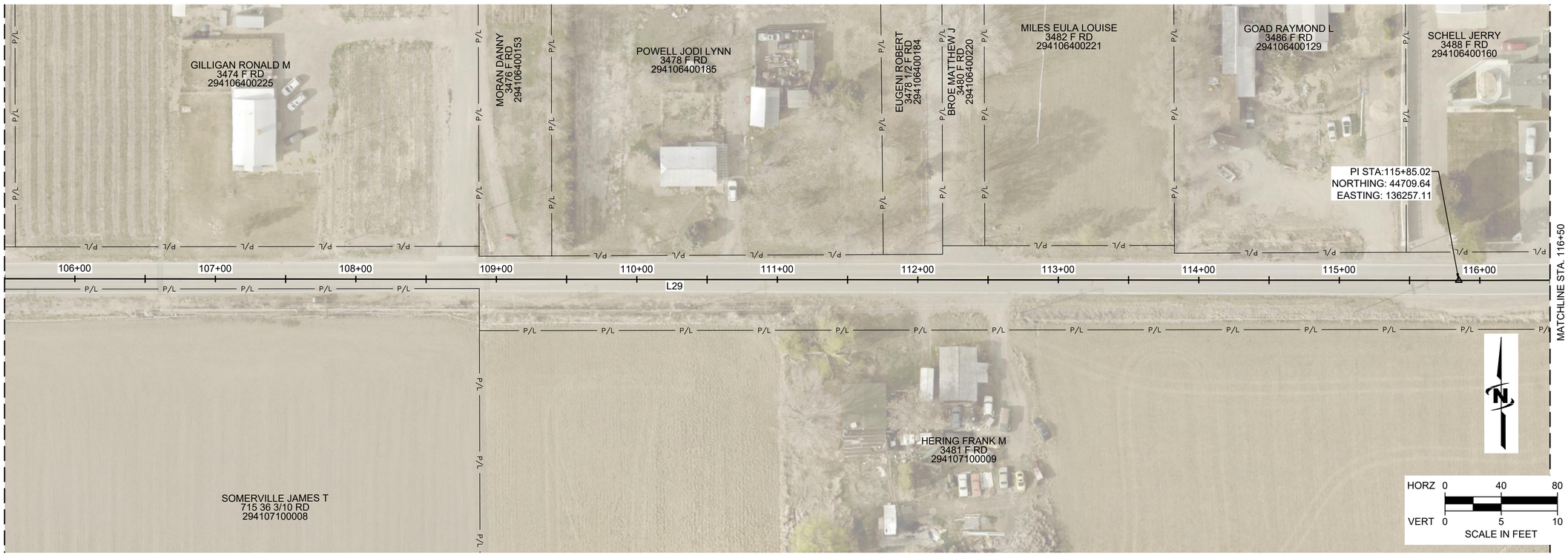
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-104

Plot Date:7/21/2025 8:49 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

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MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

FILE :	81-23-029_GM-10X
JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
DESIGN BY:	MWF
CHECKED BY:	EWS

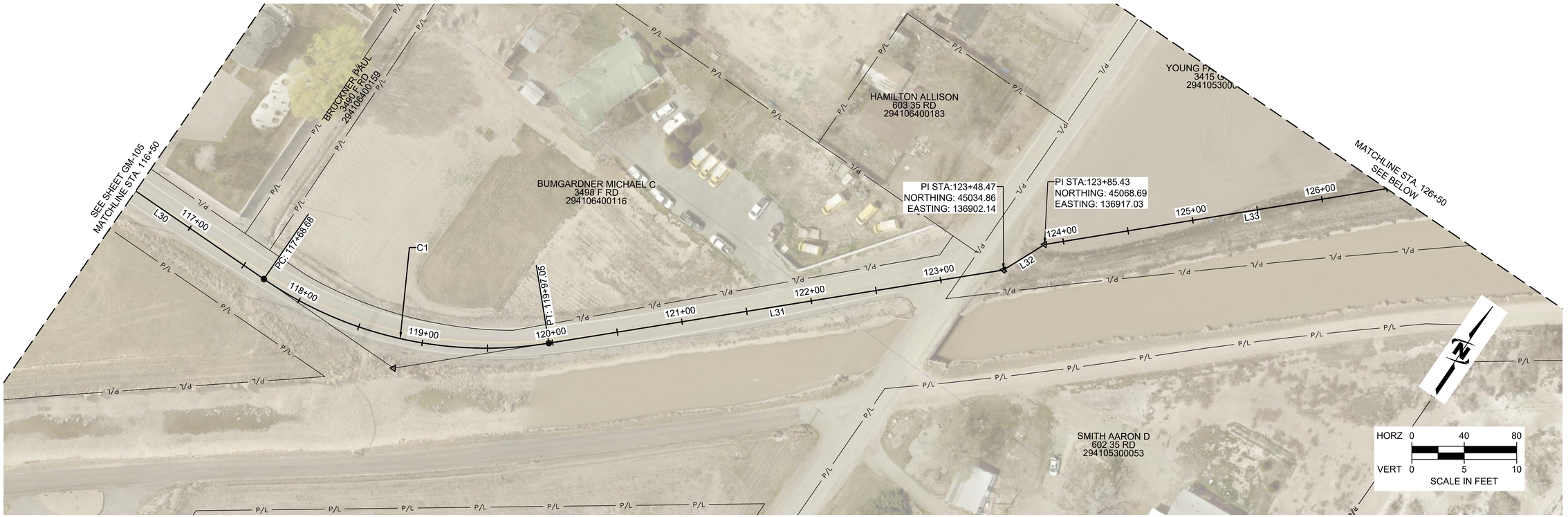
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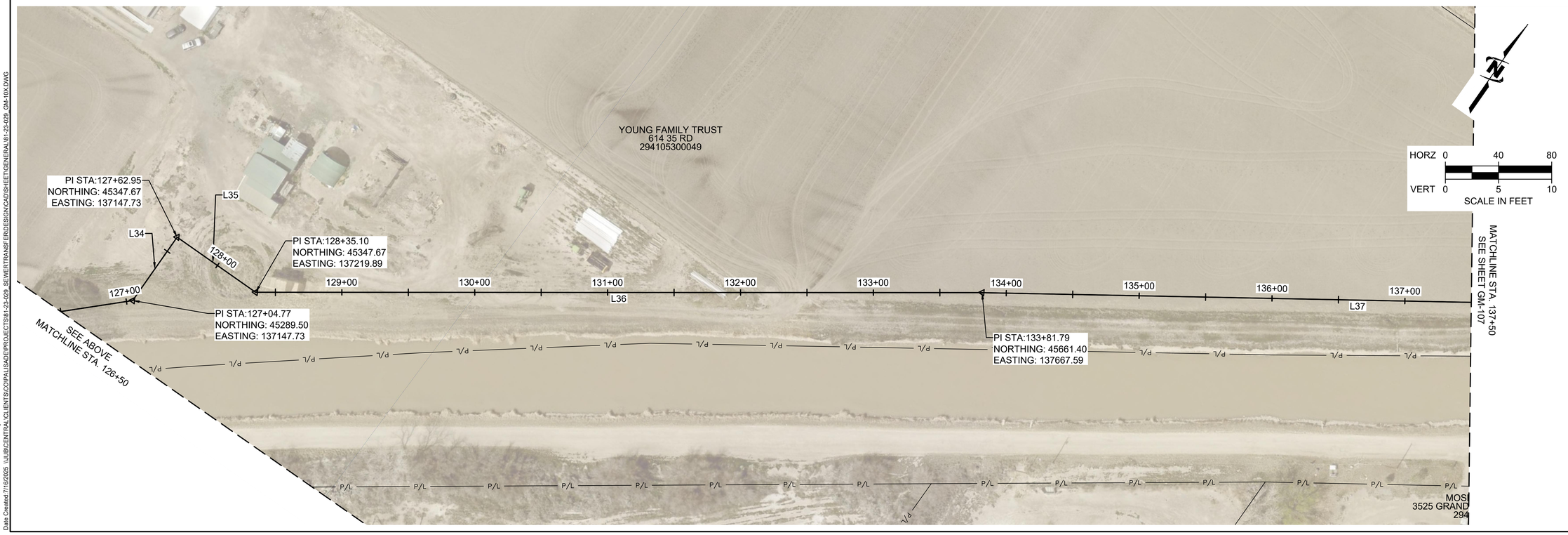
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-105

Plot Date:7/21/2025 8:49 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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GEOMETRIC & HORIZONTAL CONTROL

FILE :	81-23-029_GM-10X
JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
DESIGN BY:	MWF
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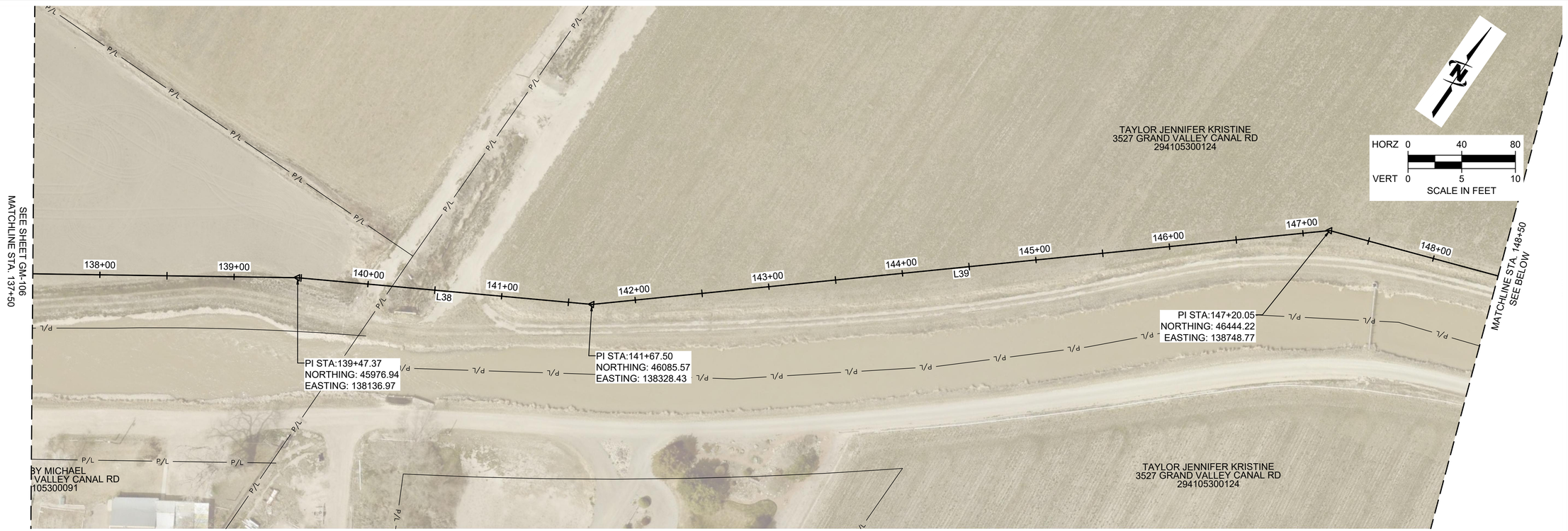
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-106

Plot Date:7/21/2025 8:50 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG



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FILE :	81-23-029_GM-10X
JUB PROJ. # :	81-23-029
DRAWN BY:	SRJ
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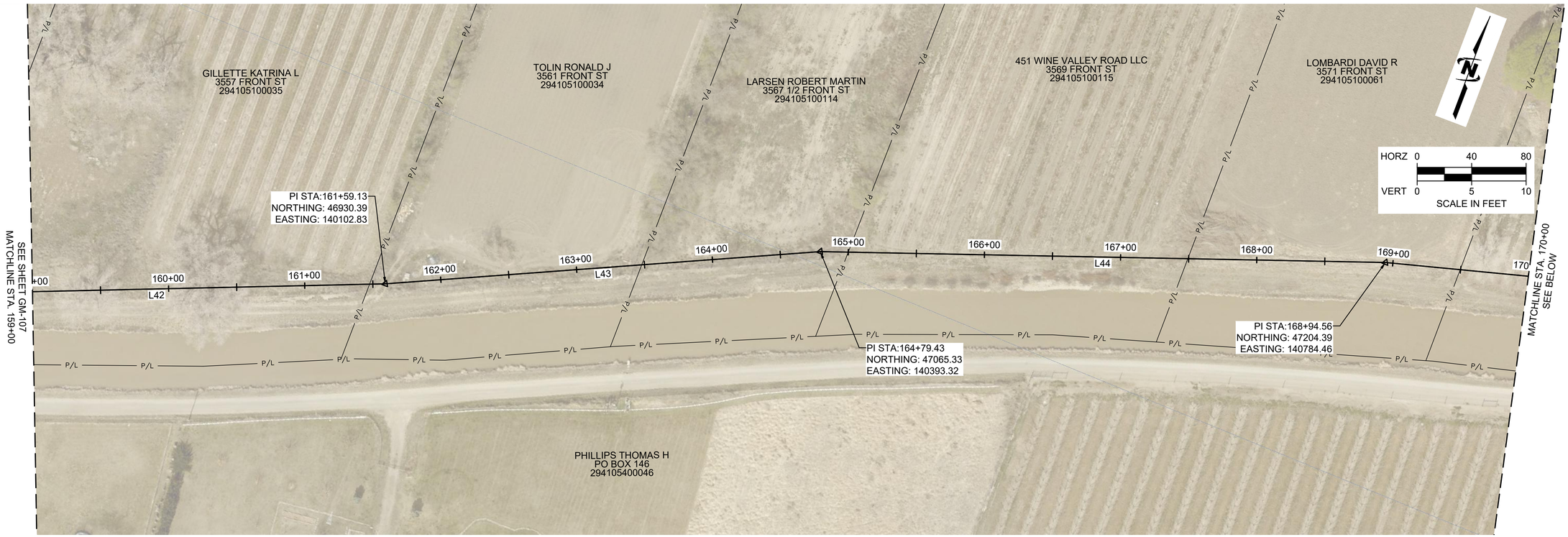
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

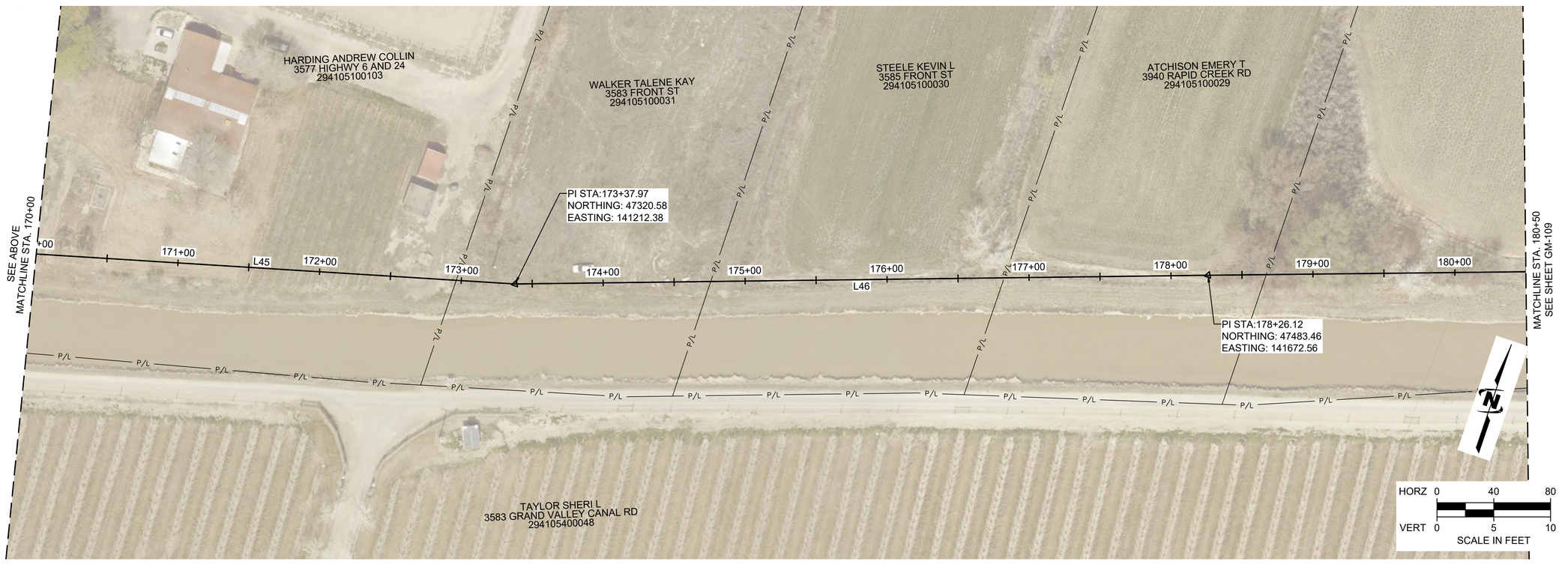
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-107

Plot Date:7/21/2025 8:50 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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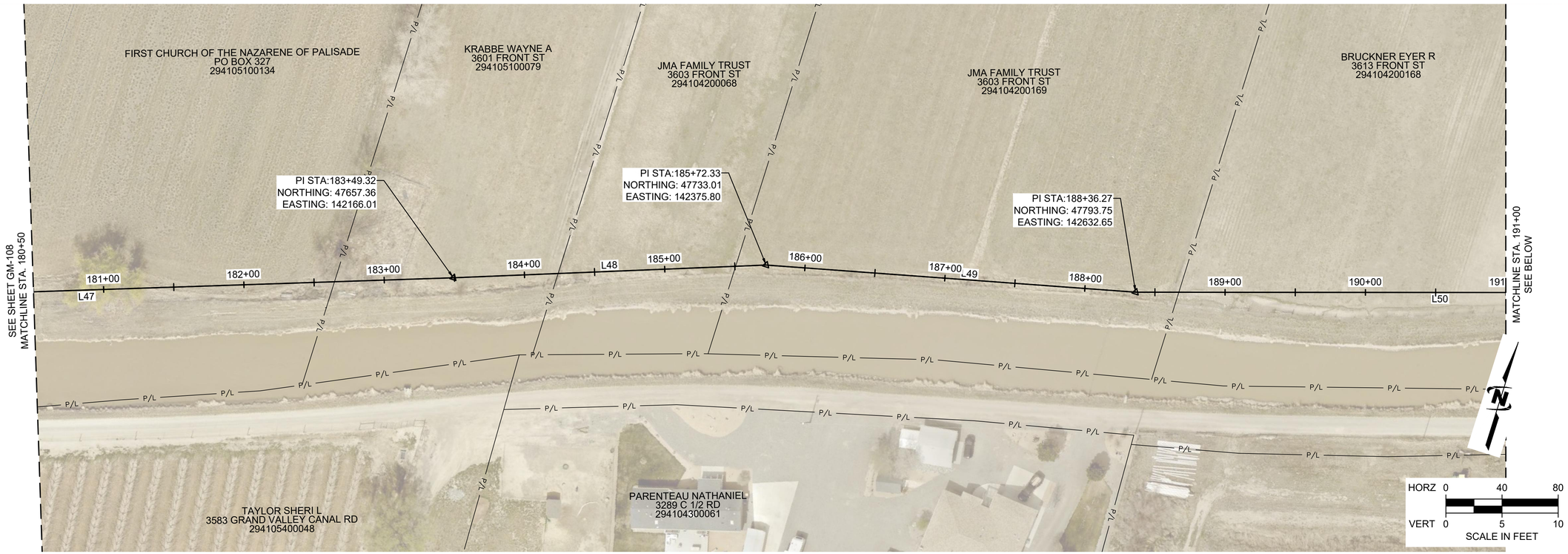
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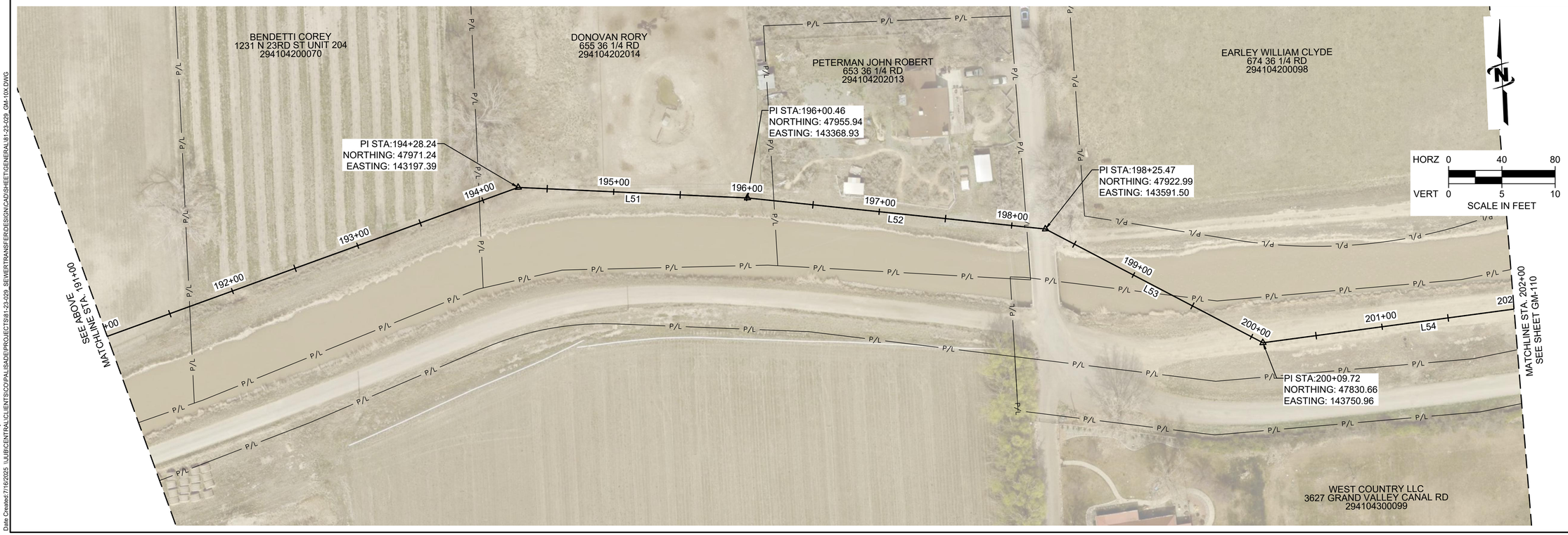
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-108

Plot Date:7/21/2025 8:50 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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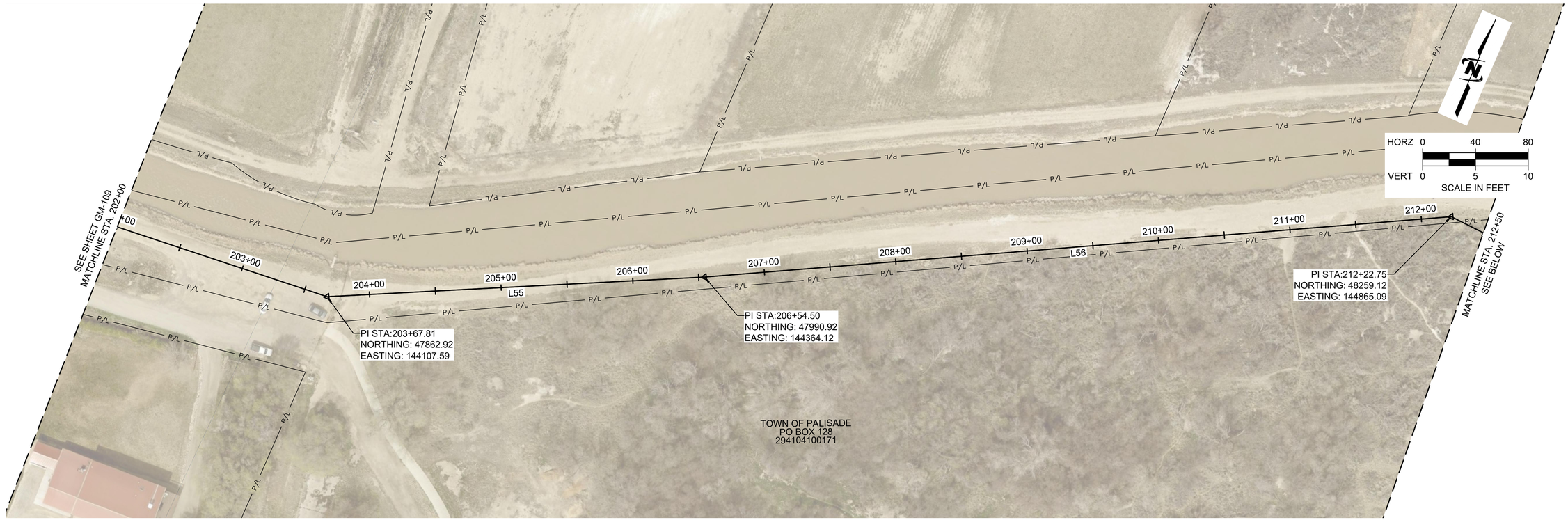
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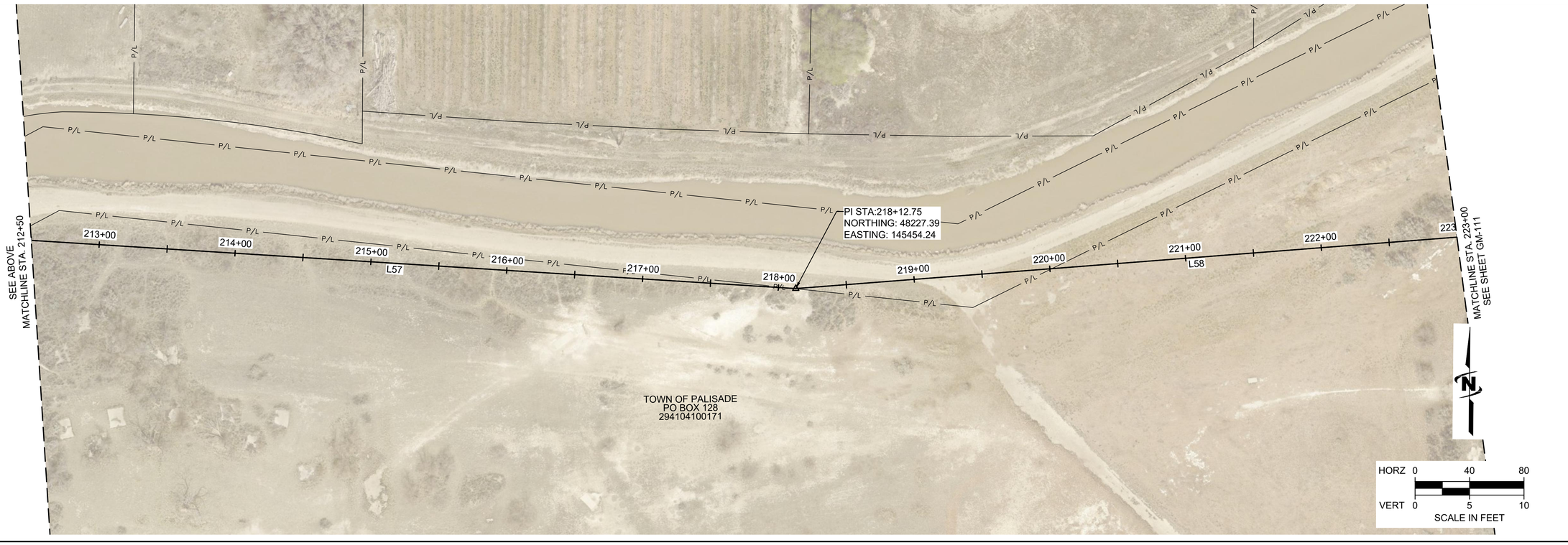
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-109

Plot Date:7/21/2025 8:51 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRA\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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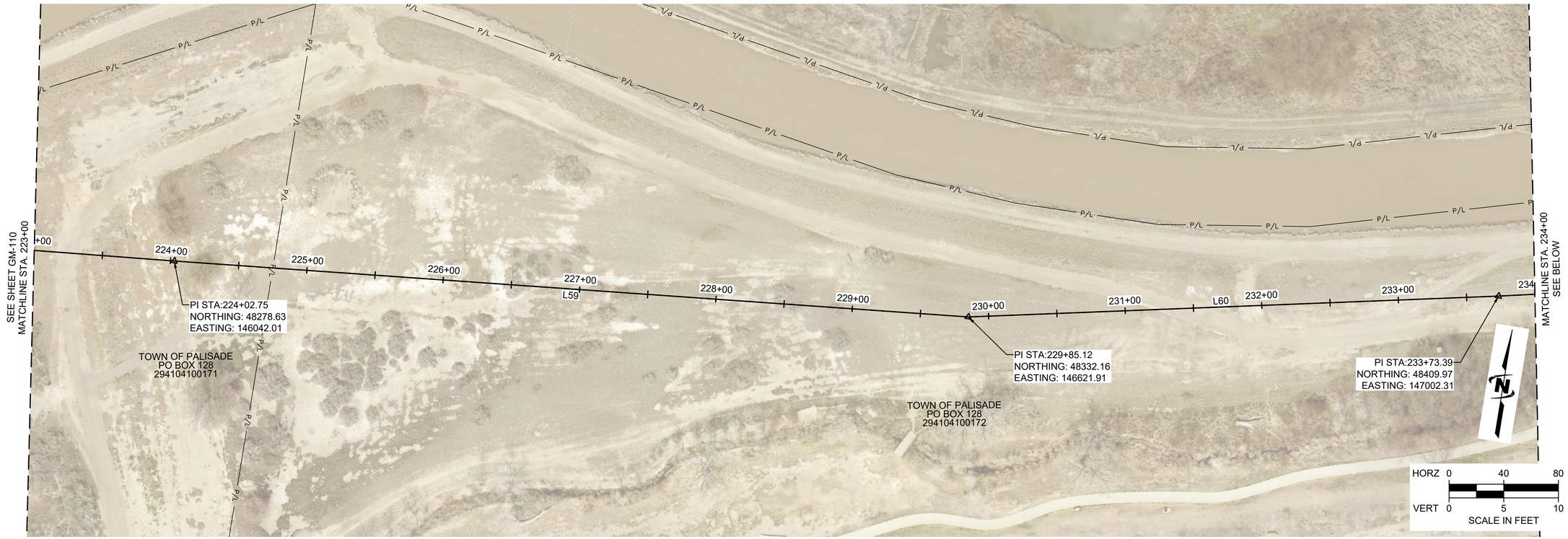
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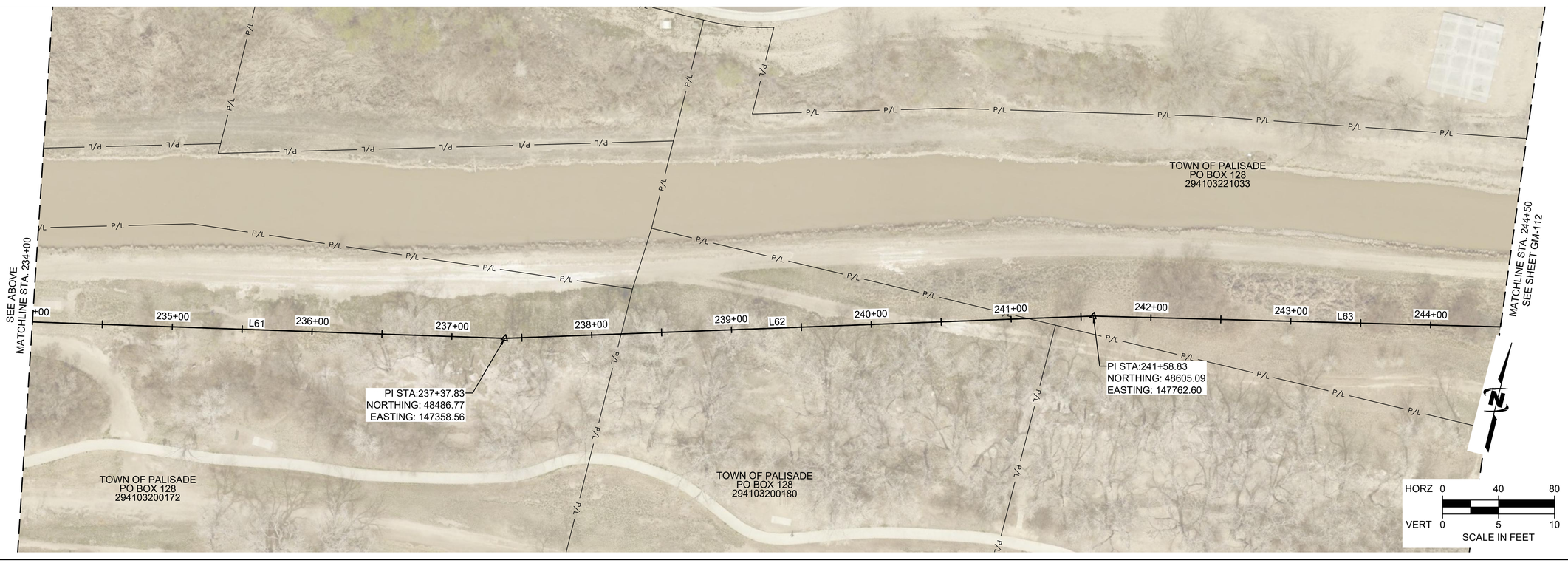
GEOMETRIC & HORIZONTAL CONTROL

FILE : 81-23-029_GM-10X
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
GM-110

Plot Date:7/21/2025 8:51 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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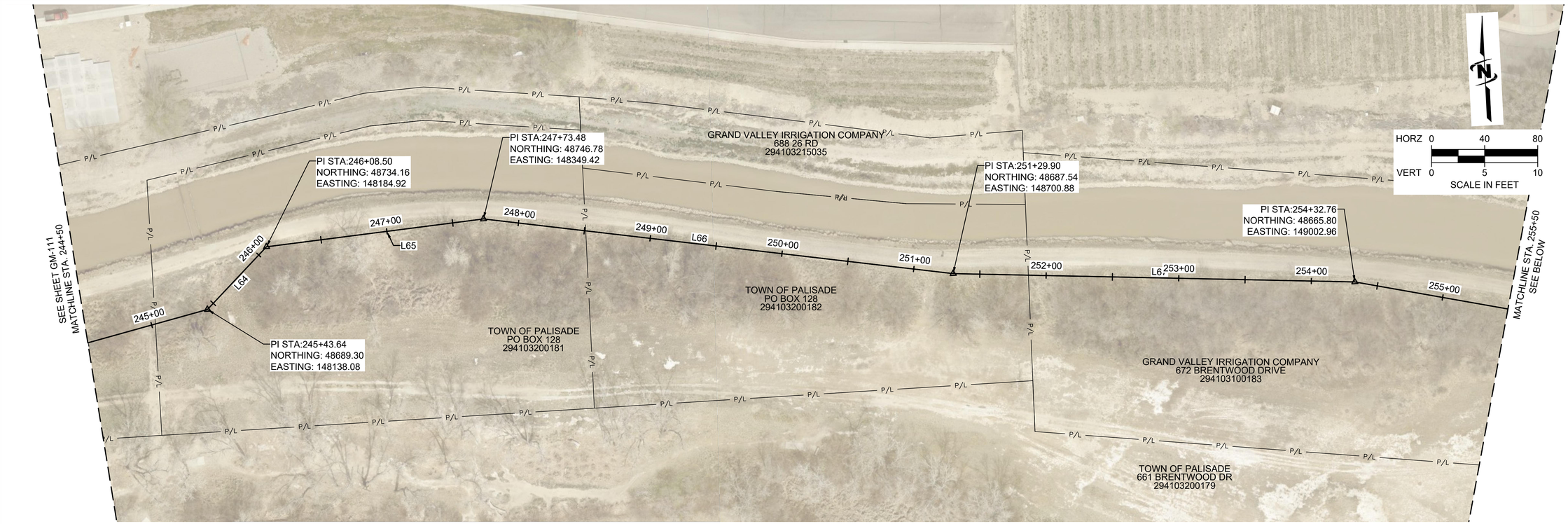
SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

FILE : 81-23-029_GM-10X
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
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ONE INCH
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
GM-111

Plot Date:7/21/2025 8:51 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBYCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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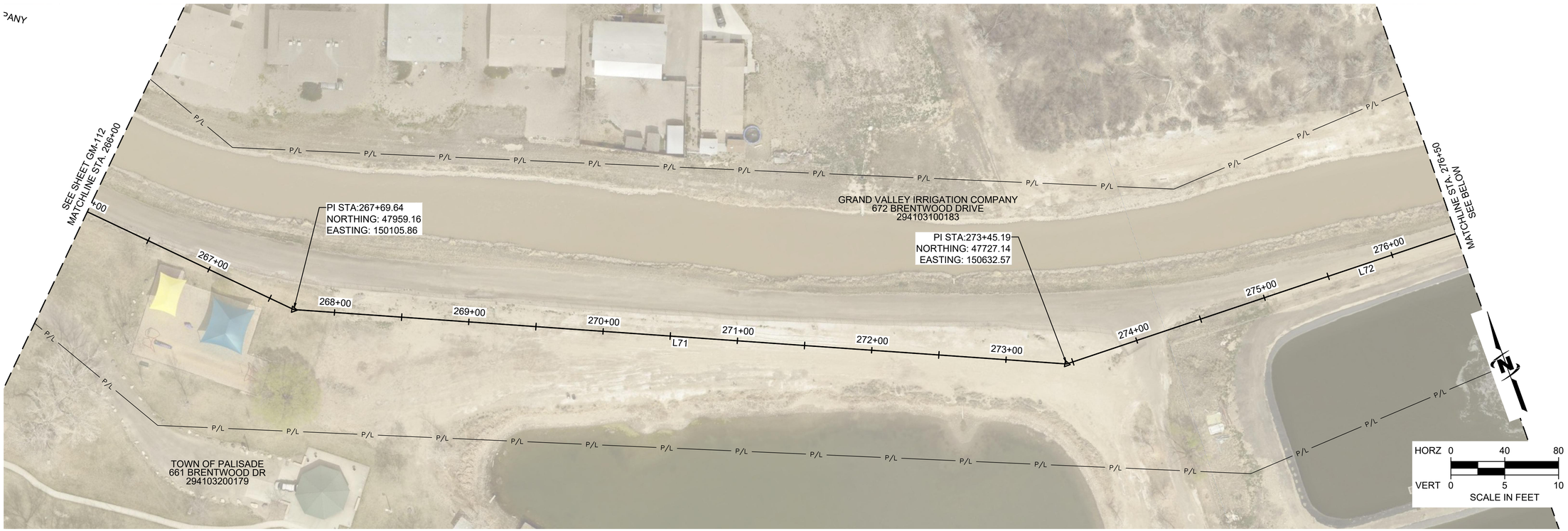
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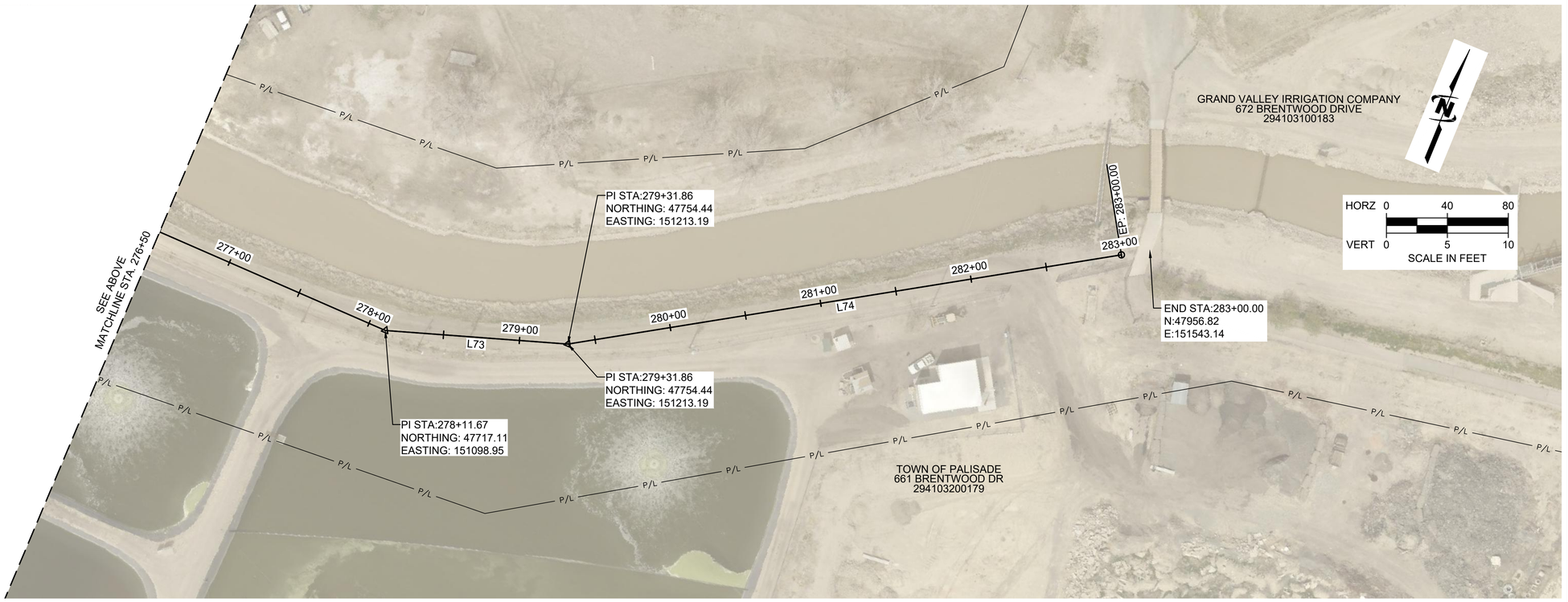
LAST UPDATED: 7/19/2025

SHEET NUMBER:

GM-112

Plot Date:7/21/2025 8:52 PM Plotted By: Matt Filla
Date Created:7/18/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG





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GM-113

Plot Date:7/21/2025 8:52 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAA\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG

PROJECT ALIGNMENT SEGMENT TABLE

SEGMENT #	RADIUS	LENGTH	LINE/CHORD DIRECTION	START STA.	END STA.
L1		102.16'	N86°57'13"E	10+00.00	11+02.16
L2		229.01'	N58°29'12"E	11+02.16	13+31.17
L3		306.55'	N43°20'27"E	13+31.17	16+37.72
L4		273.12'	N29°17'29"E	16+37.72	19+10.85
L5		270.91'	N51°32'01"E	19+10.85	21+81.76
L6		408.99'	N74°27'52"E	21+81.76	25+90.75
L7		264.47'	N70°03'47"E	25+90.75	28+55.22
L8		192.97'	N76°14'36"E	28+55.22	30+48.19
L9		363.83'	N00°31'15"W	30+48.19	34+12.02
L10		281.82'	N00°31'15"W	34+12.02	36+93.84
L11		45.30'	N79°10'48"E	36+93.84	37+39.13
L12		60.00'	S71°38'37"E	37+39.13	37+99.13
L13		470.80'	N89°03'38"E	37+99.13	42+69.93
L14		285.29'	S87°32'27"E	42+69.93	45+55.22
L15		528.58'	N90°00'00"E	45+55.22	50+83.80
L16		533.82'	N90°00'00"E	50+83.80	56+17.62
L17		404.44'	N00°07'54"E	56+17.62	60+22.06
L18		404.52'	N00°02'22"E	60+22.06	64+26.58
L19		496.75'	N00°05'09"W	64+26.58	69+23.33
L20		499.78'	N89°54'01"E	69+23.33	74+23.11
L21		488.52'	N89°47'59"E	74+23.11	79+11.63
L22		514.01'	S89°53'18"E	79+11.63	84+25.64
L23		287.64'	N89°45'36"E	84+25.64	87+13.28
L24		250.95'	N89°53'23"E	87+13.28	89+64.23
L25		238.11'	S89°52'50"E	89+64.23	92+02.34
L26		518.39'	N89°44'21"E	92+02.34	97+20.73
L27		136.45'	N89°26'49"E	97+20.73	98+57.18
L28		611.66'	N89°43'33"E	98+57.18	104+68.84
L29		1116.17'	S89°50'18"E	104+68.84	115+85.02
L30		183.67'	N90°00'00"E	115+85.02	117+68.68
C1	300.00	228.37'	N68°11'32"E		
L31		351.42'	N46°23'05"E	119+97.05	123+48.47
L32		36.96'	N23°45'14"E	123+48.47	123+85.43
L33		319.34'	N46°15'14"E	123+85.43	127+04.77
L34		58.17'	N00°00'00"E	127+04.77	127+62.95
L35		72.16'	N90°00'00"E	127+62.95	128+35.10
L36		546.68'	N54°58'47"E	128+35.10	133+81.79
L37		565.58'	N56°05'20"E	133+81.79	139+47.37
L38		220.13'	N60°25'41"E	139+47.37	141+67.50
L39		552.55'	N49°31'44"E	141+67.50	147+20.05

PROJECT ALIGNMENT SEGMENT TABLE

SEGMENT #	RADIUS	LENGTH	LINE/CHORD DIRECTION	START STA.	END STA.
L40		586.62'	N70°20'36"E	147+20.05	153+06.68
L41		516.42'	N71°34'25"E	153+06.68	158+23.10
L42		336.03'	N68°02'56"E	158+23.10	161+59.13
L43		320.30'	N65°05'08"E	161+59.13	164+79.43
L44		415.12'	N70°25'40"E	164+79.43	168+94.56
L45		443.41'	N74°48'32"E	168+94.56	173+37.97
L46		488.16'	N70°30'31"E	173+37.97	178+26.12
L47		523.20'	N70°35'11"E	178+26.12	183+49.32
L50		591.97'	N72°33'09"E	188+36.27	194+28.24
L51		172.22'	S84°54'10"E	194+28.24	196+00.46
L52		225.00'	S81°34'46"E	196+00.46	198+25.47
L53		184.26'	S59°55'38"E	198+25.47	200+09.72
L54		358.09'	N84°49'55"E	200+09.72	203+67.81
L55		286.69'	N63°28'57"E	203+67.81	206+54.50
L56		568.25'	N61°50'14"E	206+54.50	212+22.75
L57		590.00'	S86°55'02"E	212+22.75	218+12.75
L58		590.00'	N85°01'04"E	218+12.75	224+02.75
L59		582.37'	N84°43'34"E	224+02.75	229+85.12
L60		388.28'	N78°26'23"E	229+85.12	233+73.39
L61		364.43'	N77°50'05"E	233+73.39	237+37.83
L62		421.00'	N73°40'40"E	237+37.83	241+58.83
L63		384.81'	N77°21'33"E	241+58.83	245+43.64
L64		64.86'	N46°14'01"E	245+43.64	246+08.50
L65		164.97'	N85°36'49"E	246+08.50	247+73.48
L66		356.42'	S80°25'58"E	247+73.48	251+29.90
L67		302.86'	S85°53'00"E	251+29.90	254+32.76
L68		256.28'	S77°03'34"E	254+32.76	256+89.04
L69		584.09'	S59°21'50"E	256+89.04	262+73.13
L70		496.50'	S44°54'54"E	262+73.13	267+69.64
L71		575.56'	S66°13'34"E	267+69.64	273+45.19
L72		466.48'	S88°46'03"E	273+45.19	278+11.67
L73		120.19'	N71°54'16"E	278+11.67	279+31.86
L74		368.14'	N58°28'38"E	279+31.86	283+00.00

J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENT'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

GEOMETRIC & HORIZONTAL CONTROL

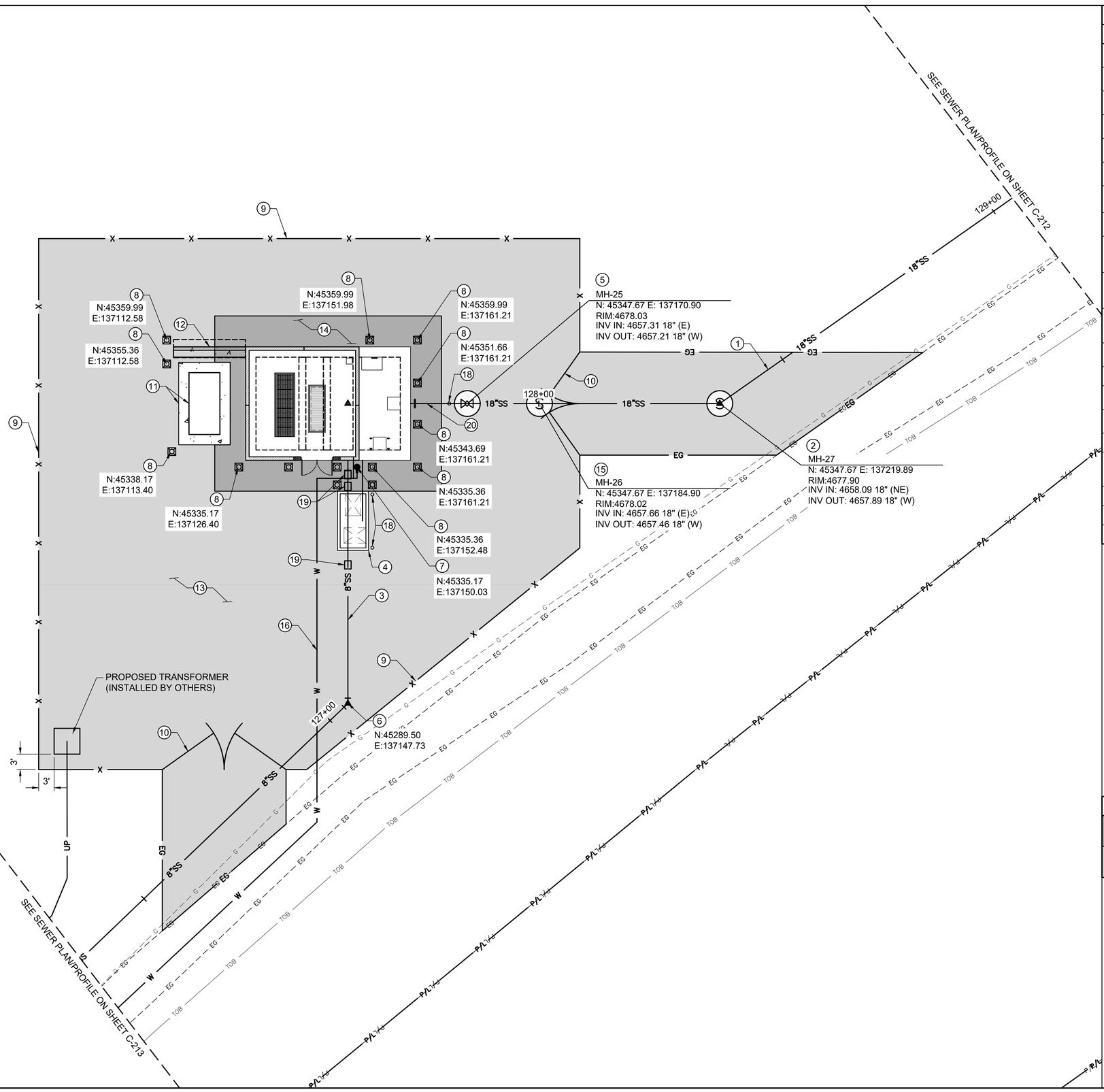
FILE : 81-23-029_GM-10X
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/19/2025

SHEET NUMBER:
GM-114

Plot Date:7/21/2025 8:52 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBVCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_GM-10X.DWG



KEYNOTE TABLE

NUMBER	DESCRIPTION
1	18" PVC GRAVITY INFLUENT, SEE CIVIL PLAN/PROFILE SHEETS.
2	GRAVITY SEWER INFLUENT MANHOLE, SEE CIVIL PLAN/PROFILE SHEETS.
3	8" PVC C900 FORCEMAIN, SEE CIVIL PLAN/PROFILE SHEETS.
4	INSTALL TRAFFIC RATED PIG LAUNCHING STATION PER DETAIL 1/C-501.
5	INSTALL MANHOLE WITH 18" PLUG VALVE PER DETAIL 1/C-502.
6	INSTALL 8" PVC 45° BEND W/ MEGALUG RESTRAINTS, SEE SHEET C-212.
7	INSTALL 1 ½" TYPE PH-1 - LEVER OPERATED, SURFACE MOUNTED NON-FREEZE YARD HYDRANT, SEE DETAIL D-15200/D-507.
8	INSTALL BOLLARD, SEE DETAIL C-02160/C-503.
9	INSTALL 6' GALVANIZED STEEL CHAIN LINK FENCE W/ BEIGE SLAT SOURCE PRIVACY LINK PRIVACY SLATS (OR ENGINEER APPROVED EQUAL), SEE DETAIL C-02200/C-503.
10	INSTALL 6' GALVANIZED STEEL CHAIN LINK GATEW/ BEIGE SLAT SOURCE PRIVACY LINK PRIVACY SLATS (OR ENGINEER APPROVED EQUAL) AND 180 DEGREE SWING RADIUS, SEE DETAIL C-0200/C-503.
11	INSTALL GENERATOR ON CONCRETE GENERATOR PAD, SEE TYPICAL CONCRETE GENERATOR PAD 9/S-901.
12	INSTALL BUILDING HEIGHT CMU WALL PER STRUCTURAL DRAWINGS.
13	GRAVEL SURFACE W/FABRIC, SEE DETAIL C-02190/C-503.
14	6-WIDE CONCRETE SIDEWALK, SEE DETAIL C-02150/C-503.
15	BYPASS GRAVITY MANHOLE, SEE CIVIL PLAN/PROFILE SHEETS.
16	INSTALL 1 1/2" WATER SERVICE
17	SHALLOW SWALE FLOWLINE EXTENTS. FIELD FIT SMOOTH TRANSITION BETWEEN FLOWLINE AND FG SURFACE TO PREVENT STANDING WATER AND TO DISPERSE FLOWS ACROSS SURFACE.
18	SINGLE ANODE TEST STATION, SEE DETAIL 2/C-502
19	PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02122/C-503
20	FLEXIBLE CONNECTION AT BUILDING, SEE DECTAIL C-02123/C-503

GENERAL NOTES:

1. SEE D-SHEETS FOR LIFT STATION PLANS, SECTIONS, AND DETAILS.
2. ALL WORK SHALL BE IN CONFORMANCE WITH THE LATEST CLIFTON SANITATION DISTRICT SPECIFICATIONS AND J-U-B ENGINEERING SPECIFICATIONS. IN THE CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES AND IMPROVEMENTS AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION ACTIVITIES.
4. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE OWNERS REPRESENTATIVE PRIOR TO BACKFILLING OVER UTILITIES.
5. STRUCTURAL, ARCHITECTURAL, MECHANICAL, HVAC, AND ELECTRICAL/INSTRUMENTATION COMPONENTS ARE NOT ALL SHOWN. COORDINATE WORK WITH RELATED TRADES TO AVOID CONFLICTS.
6. INSTALL DRAIN LINE AND CLEANOUTS IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE COLORADO PLUMBING CODE OR THE LOCAL GOVERNING ORDINANCE.
7. CONTRACTOR SHALL MEET EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING REQUIREMENTS OF THE GEOTECHNICAL REPORT BY HUDDLESTON-BERRY (BHET) DATED AUGUST 9, 2024

HATCH LEGEND

	6' WIDE SIDEWALK, SEE DETAIL C-02150/C-503
	GRAVEL SURFACE W/ FABRIC, SEE DETAIL C-02190/C-503

0 10 20
SCALE IN FEET

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Phone: 970.208.8508
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BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

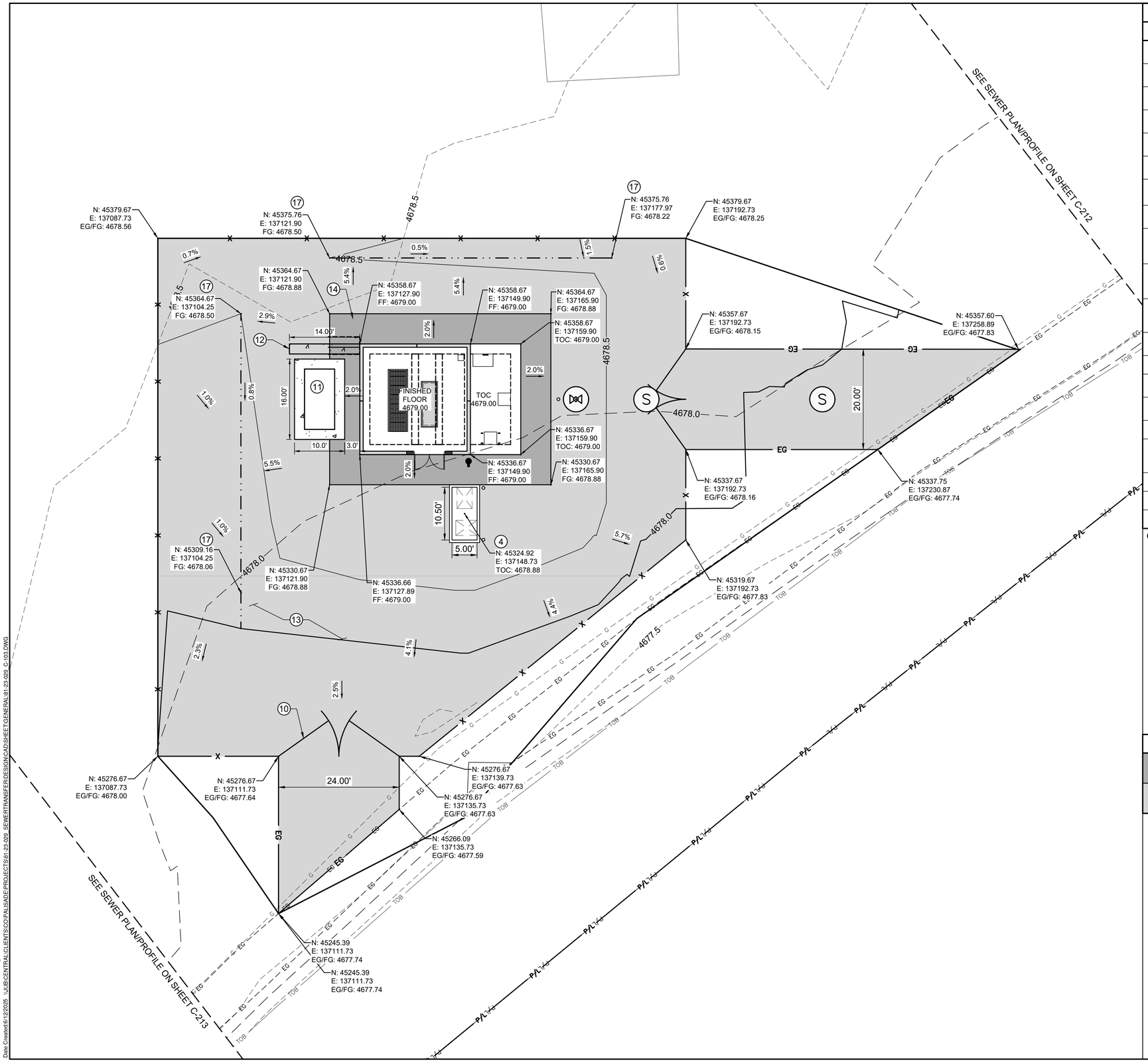
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL SITE PLAN

FILE : 81-23-029_C-101X
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-101

Plot Date:7/21/2025 5:56 PM Plotted By: Matt Filla
Date Created:6/12/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_C-101X.DWG



KEYNOTE TABLE

NUMBER	DESCRIPTION
1	18" PVC GRAVITY INFLUENT, SEE CIVIL PLAN/PROFILE SHEETS.
2	GRAVITY SEWER INFLUENT MANHOLE, SEE CIVIL PLAN/PROFILE SHEETS.
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7	INSTALL 1 ½" TYPE PH-1 - LEVER OPERATED, SURFACE MOUNTED NON-FREEZE YARD HYDRANT, SEE DETAIL D-15200/D-507.
8	INSTALL BOLLARD, SEE DETAIL C-02160/C-503.
9	INSTALL 6' GALVANIZED STEEL CHAIN LINK FENCE W/ BEIGE SLAT SOURCE PRIVACY LINK PRIVACY SLATS (OR ENGINEER APPROVED EQUAL), SEE DETAIL C-02200/C-503.
10	INSTALL 6' GALVANIZED STEEL CHAIN LINK GATE W/ BEIGE SLAT SOURCE PRIVACY LINK PRIVACY SLATS (OR ENGINEER APPROVED EQUAL) AND 180 DEGREE SWING RADIUS, SEE DETAIL C-0200/C-503.
11	INSTALL GENERATOR ON CONCRETE GENERATOR PAD, SEE TYPICAL CONCRETE GENERATOR PAD 9/S-901.
12	INSTALL BUILDING HEIGHT CMU WALL PER STRUCTURAL DRAWINGS.
13	GRAVEL SURFACE W/FABRIC, SEE DETAIL C-02190/C-503.
14	6-WIDE CONCRETE SIDEWALK, SEE DETAIL C-02150/C-503.
15	BYPASS GRAVITY MANHOLE, SEE CIVIL PLAN/PROFILE SHEETS.
16	INSTALL 1" WATER SERVICE
17	SHALLOW SWALE FLOWLINE EXTENTS. FIELD FIT SMOOTH TRANSITION BETWEEN FLOWLINE AND FG SURFACE TO PREVENT STANDING WATER AND TO DISPERSE FLOWS ACROSS SURFACE.
18	SINGLE ANODE TEST STATION, SEE DETAIL 2/C-502
19	PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02122/C-503
20	FLEXIBLE CONNECTION AT BUILDING, SEE DECTAIL C-02123/C-503

GENERAL NOTES:

1. SEE D-SHEETS FOR LIFT STATION PLANS, SECTIONS, AND DETAILS.
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3. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS, CONCRETE SIDEWALKS, AND CONCRETE PADS. PROVIDE SMOOTH TIE-IN WITH EXISTING SURFACE ELEVATIONS. FINAL GRADING SHALL ALLOW FOR NATURAL SHEET FLOW DRAINAGE AND NOT CREATE LOW DEPRESSIONS FOR PONDING.
4. STRUCTURAL, ARCHITECTURAL, MECHANICAL HVAC, AND ELECTRICAL/INSTRUMENTATION COMPONENTS ARE NOT ALL SHOWN. COORDINATE ALL WORK WITH RELATED TRADES TO AVOID CONFLICTS.
5. CONTRACTOR SHALL MEET EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING REQUIREMENTS OF THE GEOTECHNICAL REPORT BY HUDDLESTON-BERRY (BHET) DATED AUGUST 9, 2024.

HATCH LEGEND

	6' WIDE SIDEWALK, SEE DETAIL C-02150/C-503
	GRAVEL SURFACE W/ FABRIC, SEE DETAIL C-02190/C-503

0 10 20
SCALE IN FEET

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305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

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COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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	REVISION			

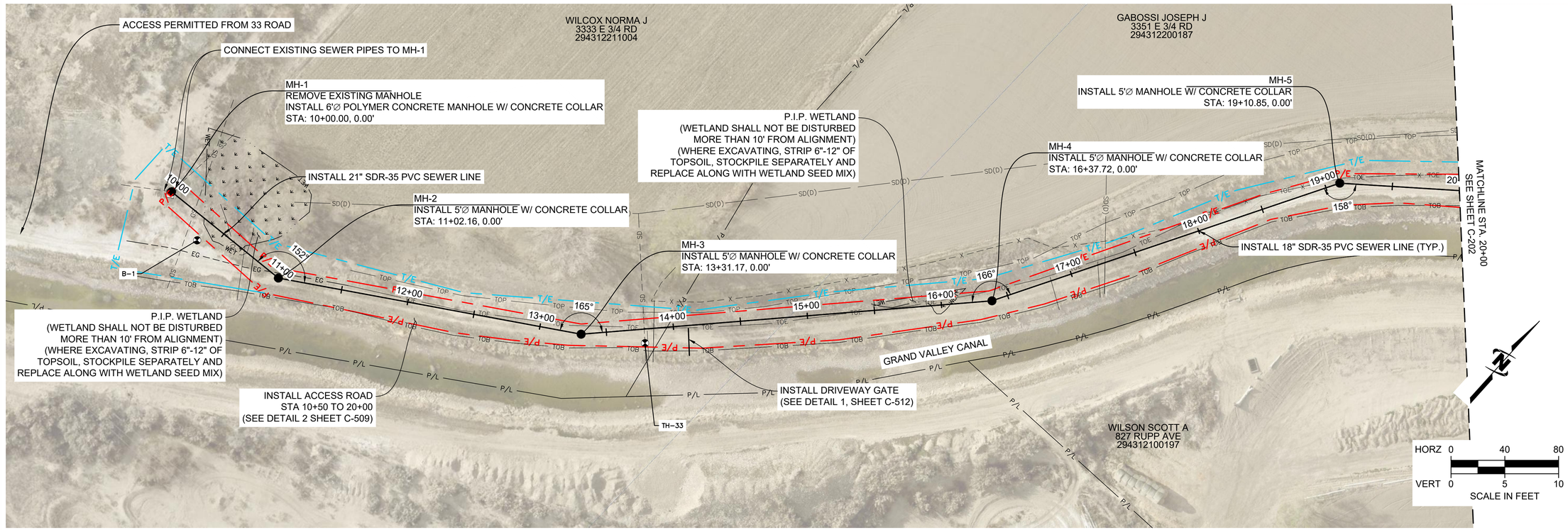
SEWER TRANSFER PROJECT
TOWN OF PALISADE

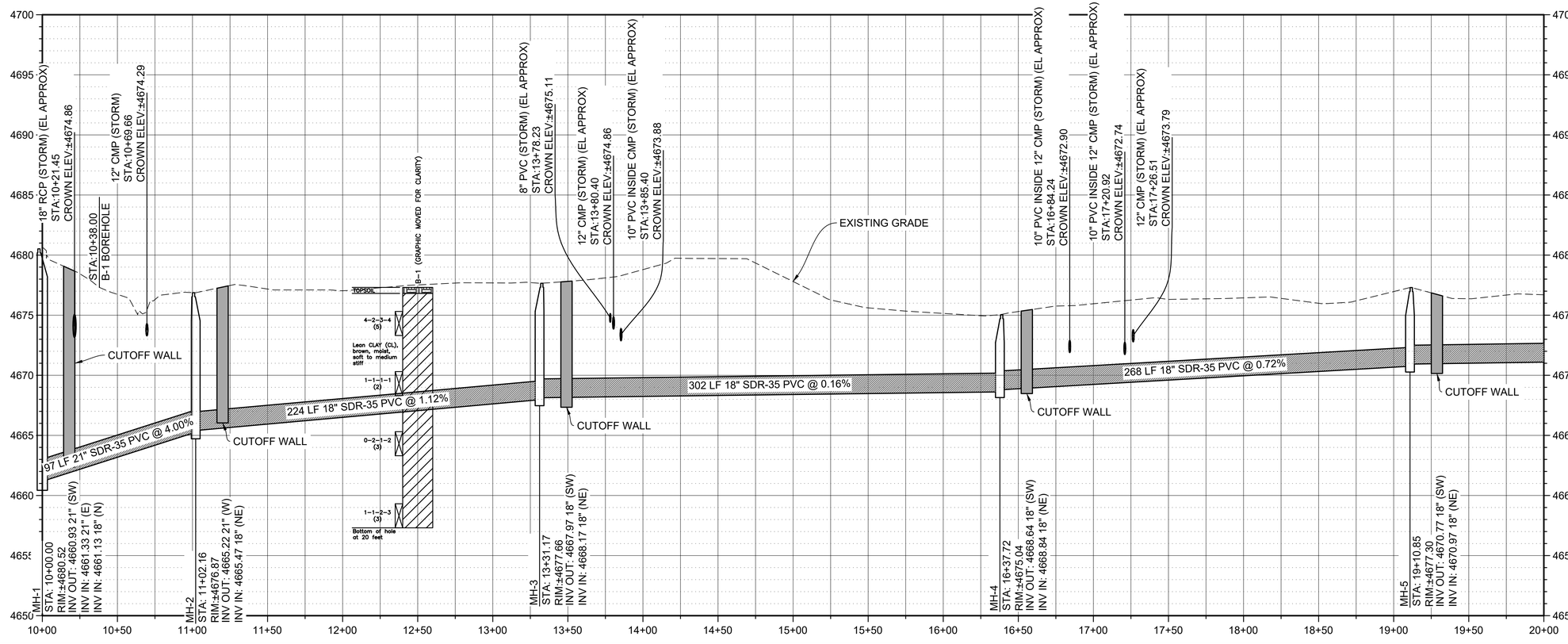
CIVIL GRADING PLAN

FILE : 81-23-029_C-103
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
C-102

Plot Date:7/21/2025 8:57 PM Plotted By: Matt Filla
Date Created:6/12/2025 \\JUB\CENTRAL\CLIENTS\COO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\GENERAL\81-23-029_C-103.DWG





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	REVISION			

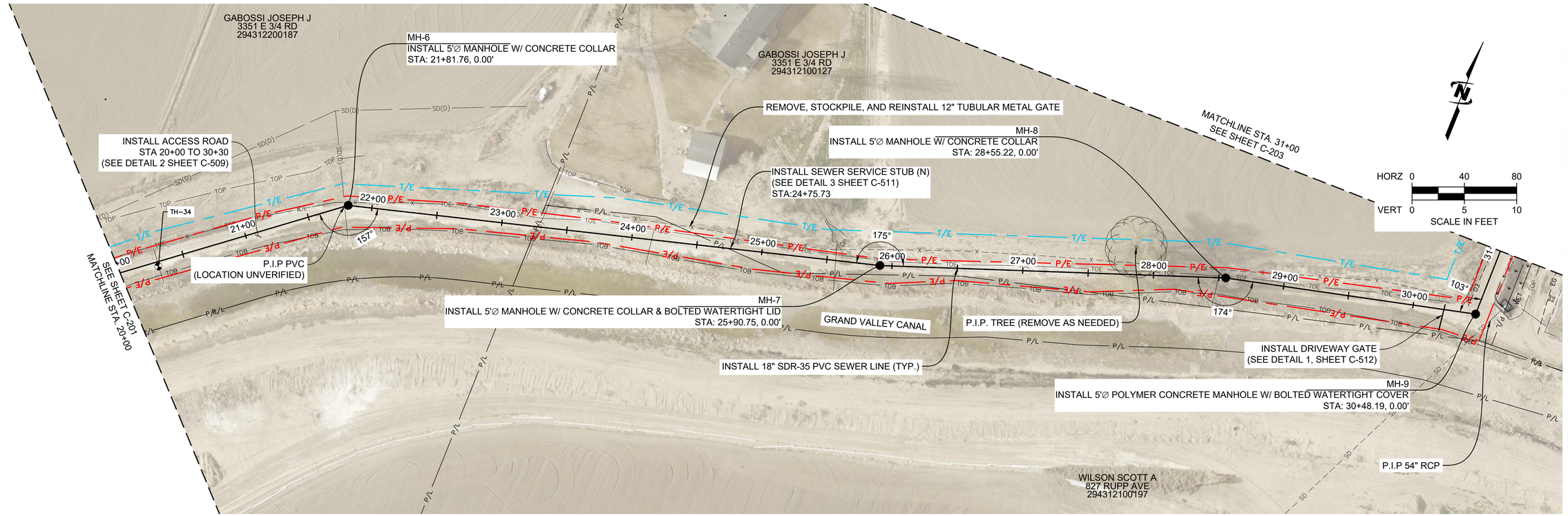
SEWER TRANSFER PROJECT
TOWN OF PALISADE

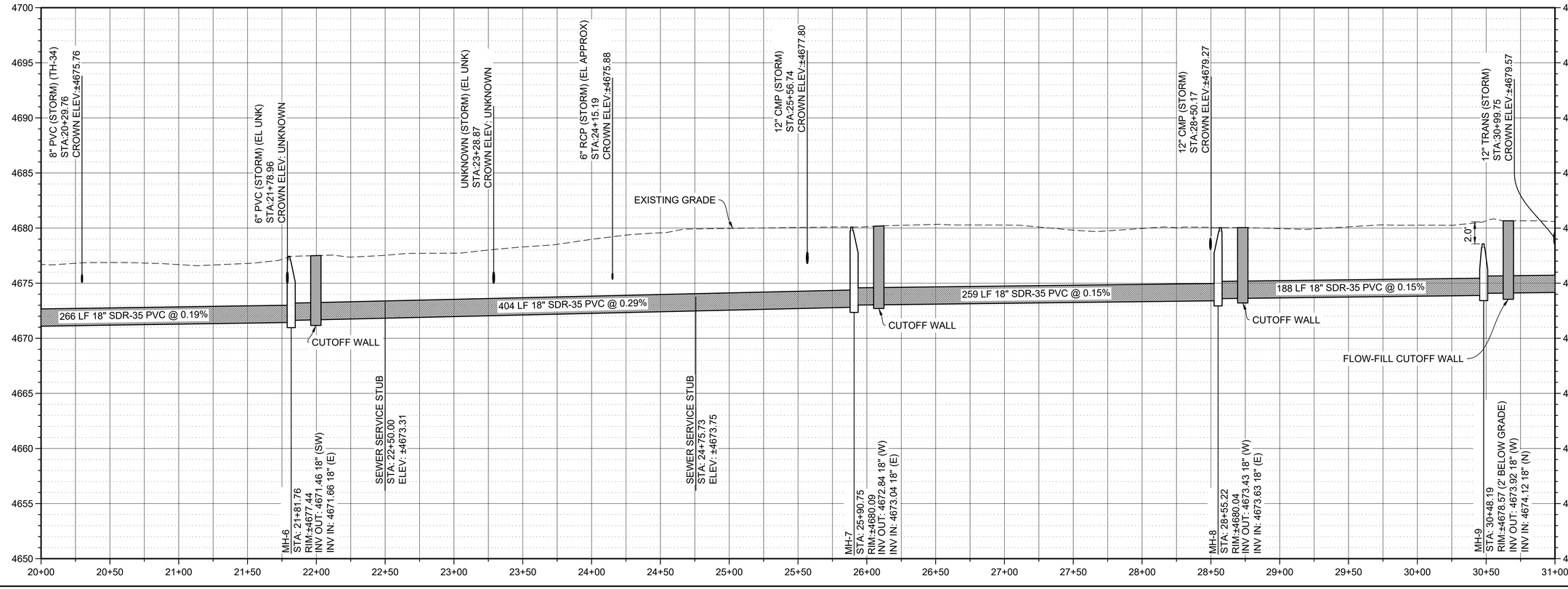
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-201

Plot Date: 7/21/2025 8:58 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEETS\VILIC-20X.DWG





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7/21/2025
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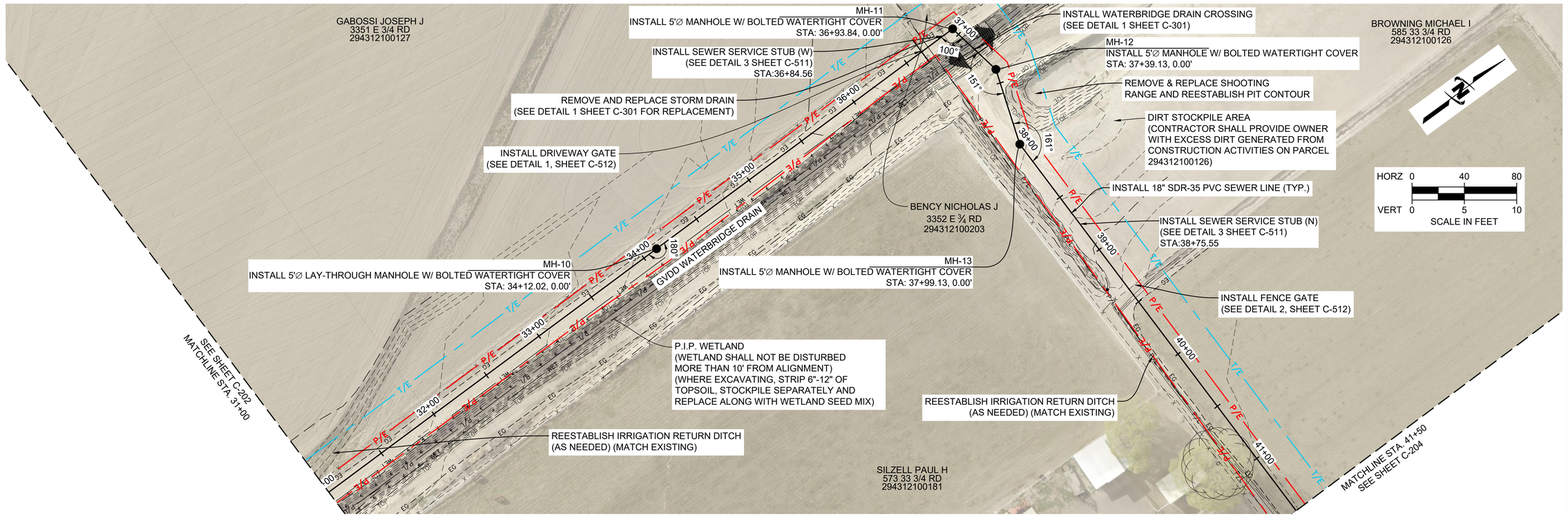
SEWER TRANSFER PROJECT
TOWN OF PALISADE

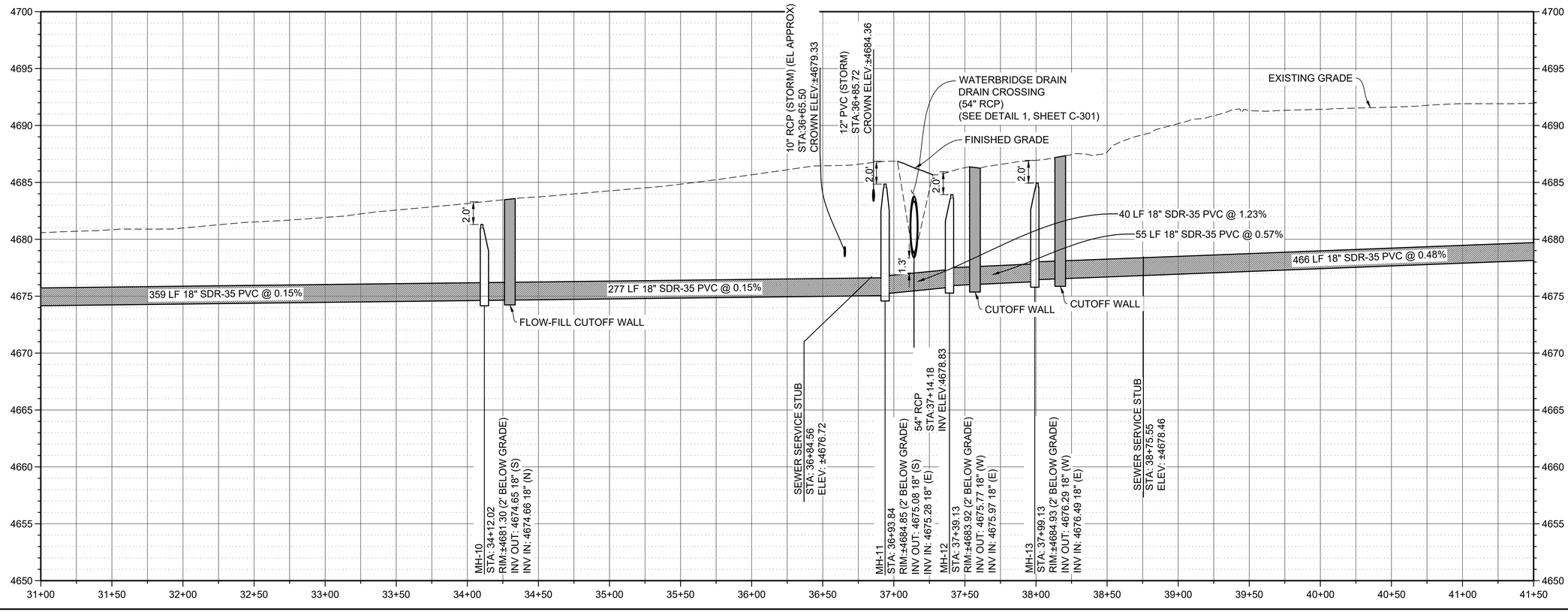
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-202

Plot Date: 7/21/2025 8:59 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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MATTHEW W. FITLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-203

Plot Date: 7/21/2025 9:00 PM Plotted By: Matt Fitla
Date Created: 7/21/2025 \\JUBICENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEETS\CIVIL\C-20X.DWG

MH-14
INSTALL 5'∅ MANHOLE
STA: 42+69.93, 0.00'

REMOVE AND REPLACE ASPHALT AND PAVEMENT MARKINGS
(SEE DETAIL 1 SHEET C-506)
(6' TRENCH WIDTH FOR GRAVITY LINE)

INSTALL SEWER SERVICE STUB (N)
(SEE DETAIL 3 SHEET C-511)
STA:44+20.00

MAINTAIN ACCESS TO A.D.U. SOUTH ENTRANCE
AT ALL TIMES (PLACE CHAINLINK FENCE 3.5'
FROM BUILDING AS NEEDED)

P.I.P IMPROVEMENTS IN PIG PEN VICINITY

TEMPORARY HAY STORAGE AREA
(45'x25')

INSTALL FENCE GATE
(SEE DETAIL 2, SHEET C-512)

MH-16
INSTALL 5'∅ LAY-THROUGH MANHOLE W/ BOLTED WATERTIGHT COVER
STA: 50+83.80, 0.00'

INSTALL 18" SDR-35 PVC SEWER LINE (TYP.)

Confidential Owner
578 33 3/4 RD
294312108005

SEE SHEET C-203
MATCHLINE STA. 41+50

P.I.P. GAS

33 ¾ RD

TH-1
B-2
TH-2
TH-3

MH-15
INSTALL 5'∅ MANHOLE W/ CONCRETE COLLAR & BOLTED WATERTIGHT COVER
STA: 45+55.22, 0.00'

APPROX. LOCATIONS OF IRRIGATION AND WATERLINE SHOWN
(COORDINATE REMOVAL AND REPLACEMENT W/ LANDOWNER)

P.I.P.
IRRIGATION STRUCTURE

PROTECT WATER LINE
(AS NEEDED)
(SEE DETAIL 2 SHEET C-506)

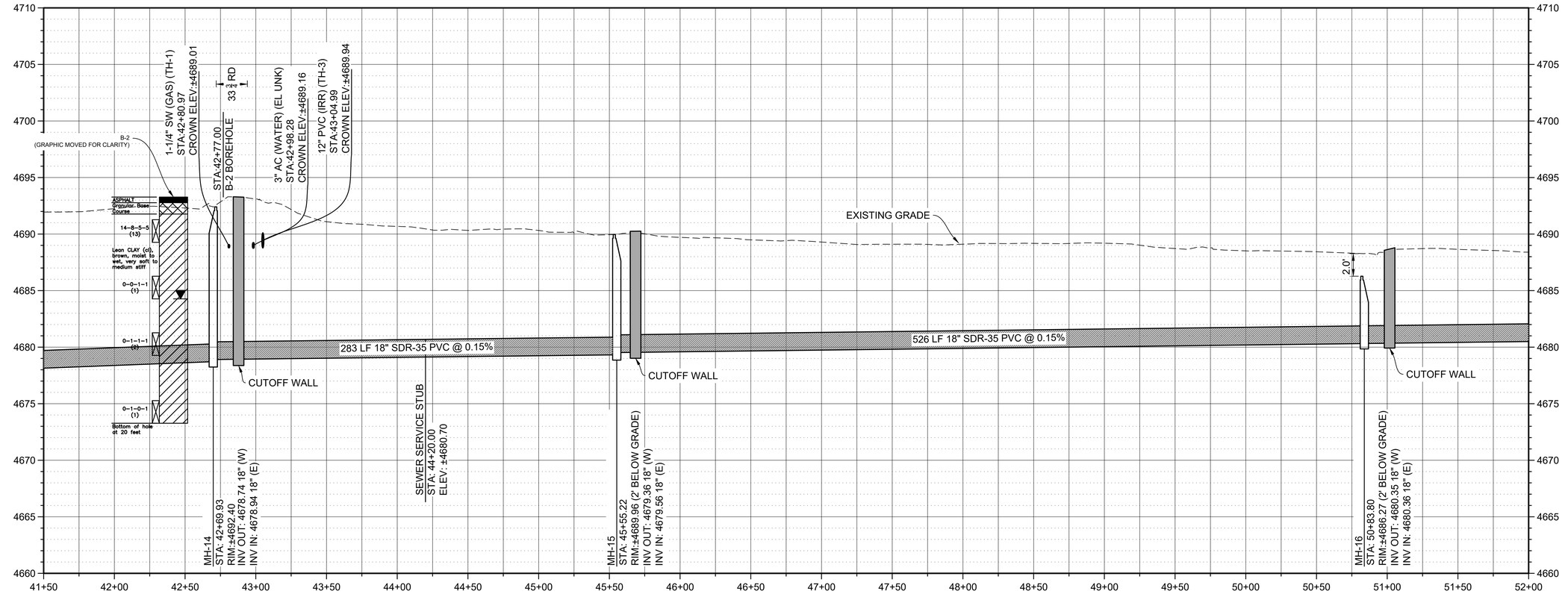
REMOVE TREES (AS NEEDED)

MOORE ALAN D
574 33 3/4 RD
294312100136

MOORE ALAN D
PO BOX 427
294312100175

MATCHLINE STA. 52+00
SEE SHEET C-205

HORZ 0 40 80
VERT 0 5 10
SCALE IN FEET



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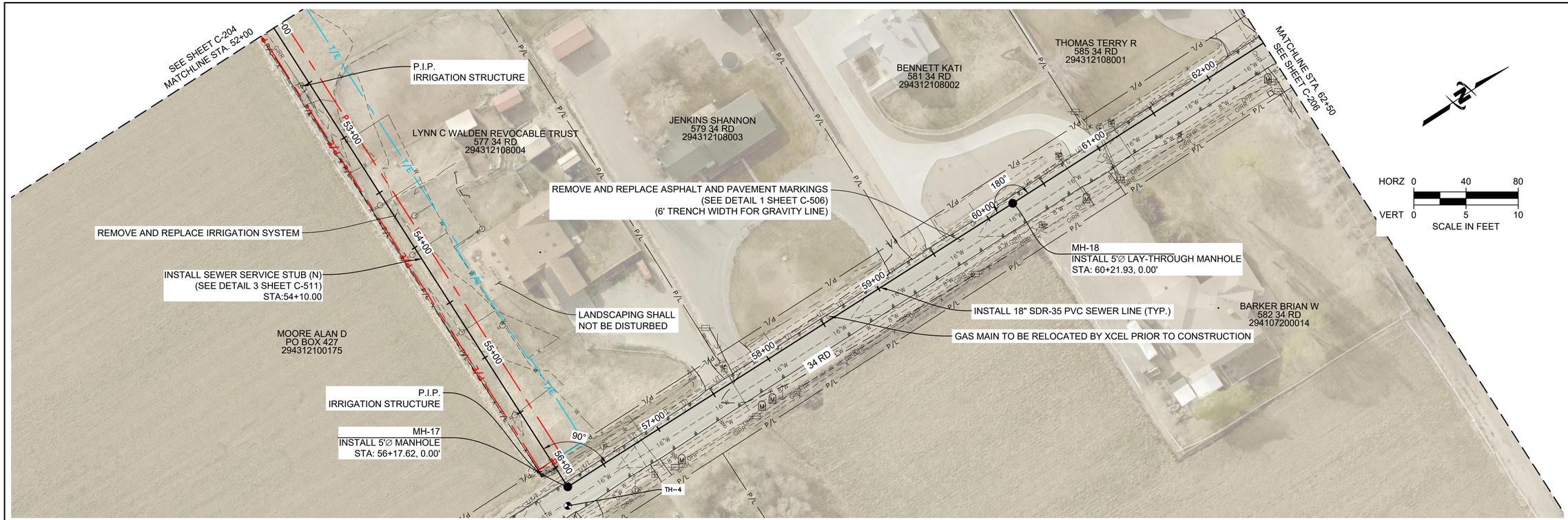
SEWER TRANSFER PROJECT
TOWN OF PALISADE

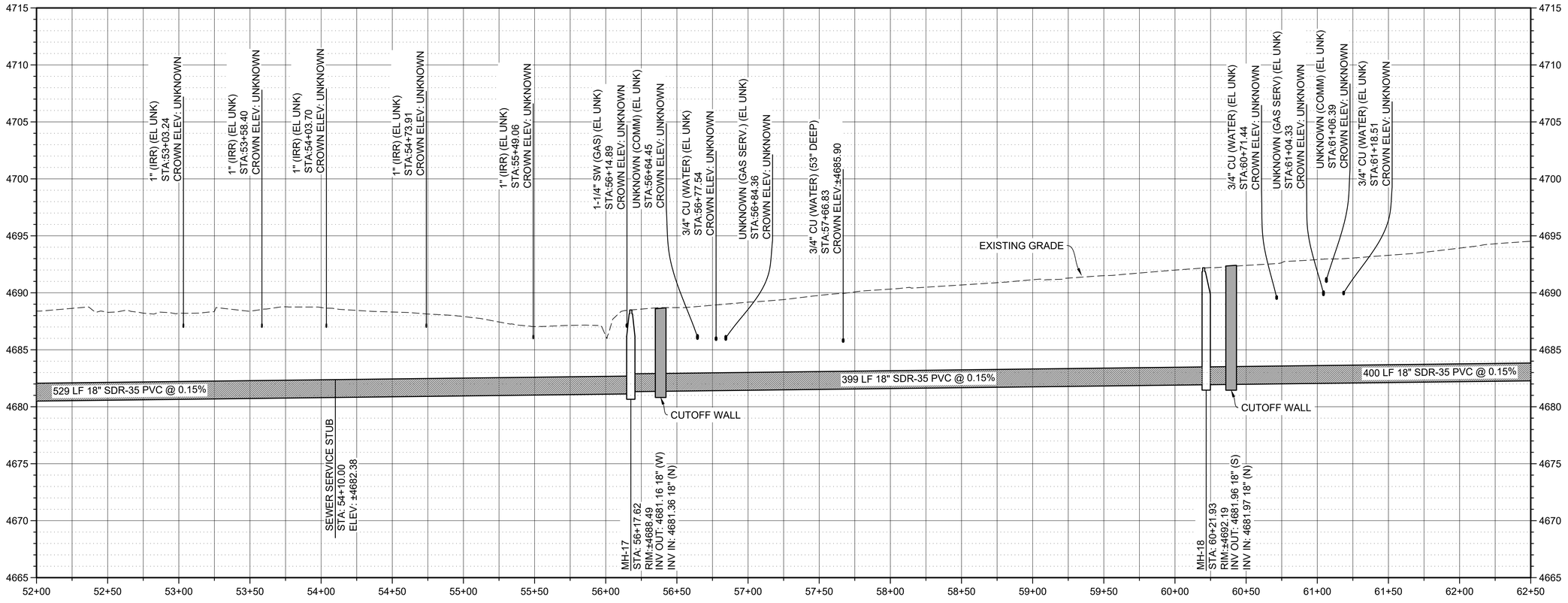
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-204

Plot Date: 7/21/2025 9:01 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBCENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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	REVISION			

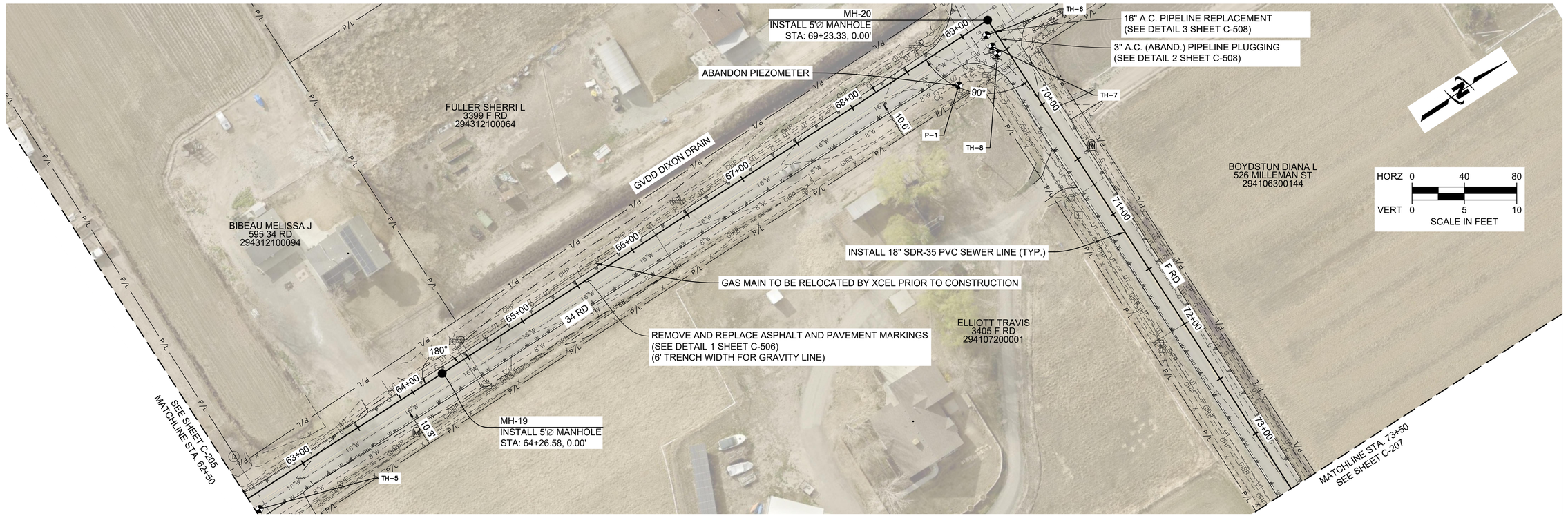
SEWER TRANSFER PROJECT
TOWN OF PALISADE

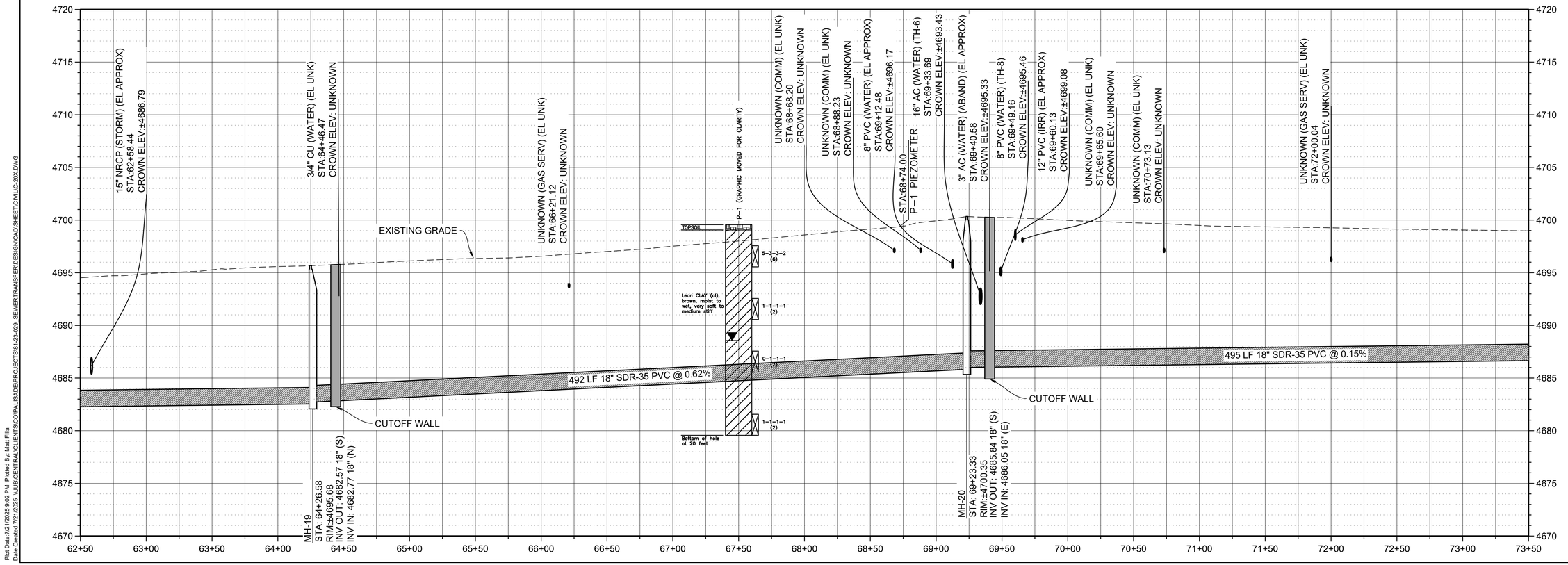
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-205

Plot Date: 7/21/2025 9:02 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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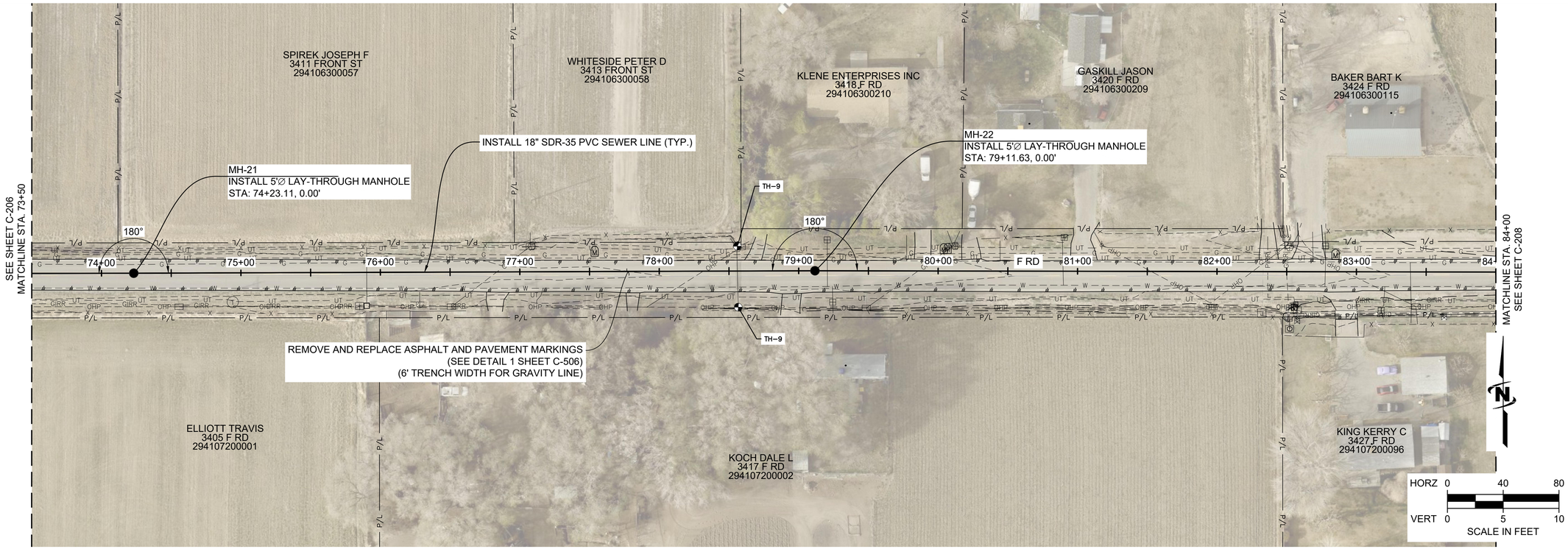
SEWER TRANSFER PROJECT
TOWN OF PALISADE

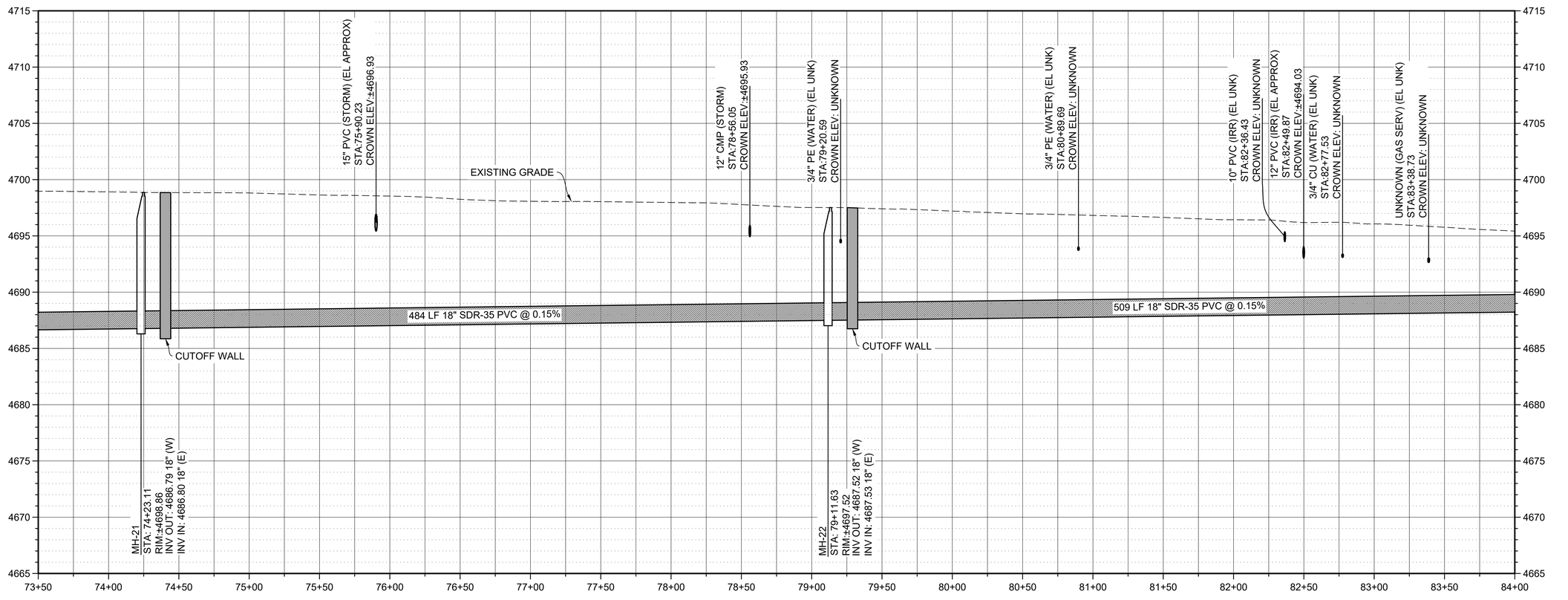
SEWER LINE PLAN & PROFILE

FILE :	C-20X
JUB PROJ. # :	81-23-029
DRAWN BY:	MWF
DESIGN BY:	MWF
CHECKED BY:	EWS
ONE INCH	AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:	7/21/2025

SHEET NUMBER:
C-206

Plot Date: 7/21/2025 9:02 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\VILLC-20X.DWG





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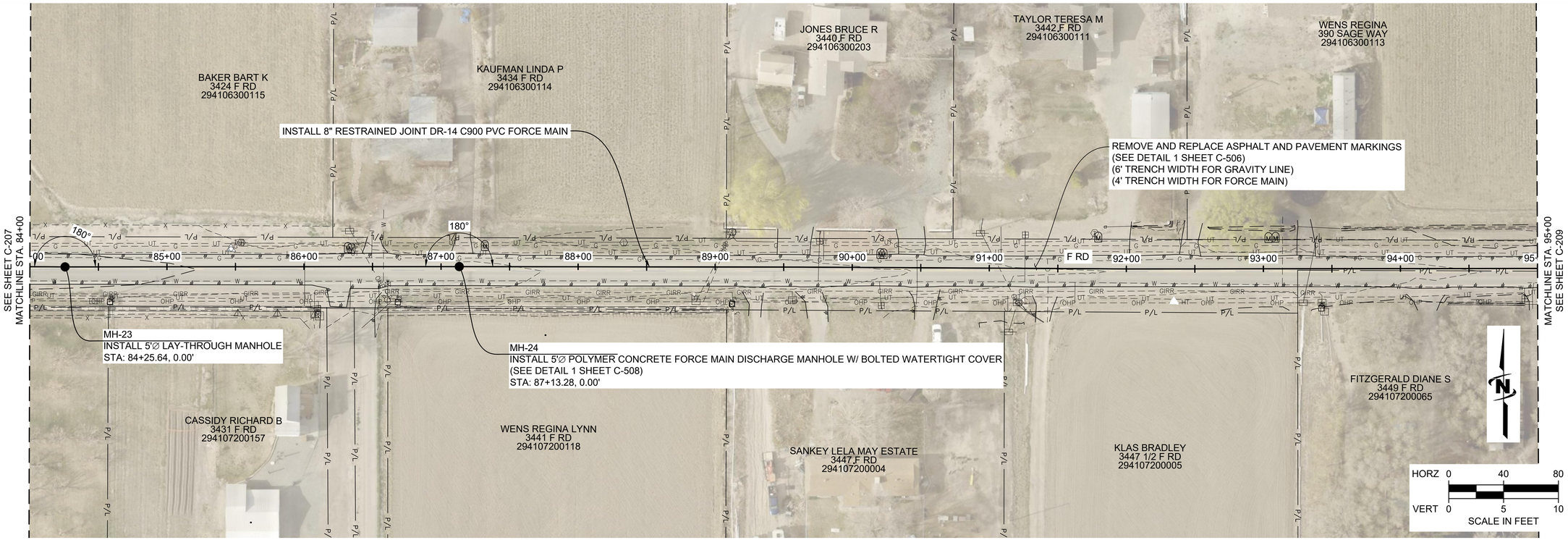
SEWER TRANSFER PROJECT
TOWN OF PALISADE

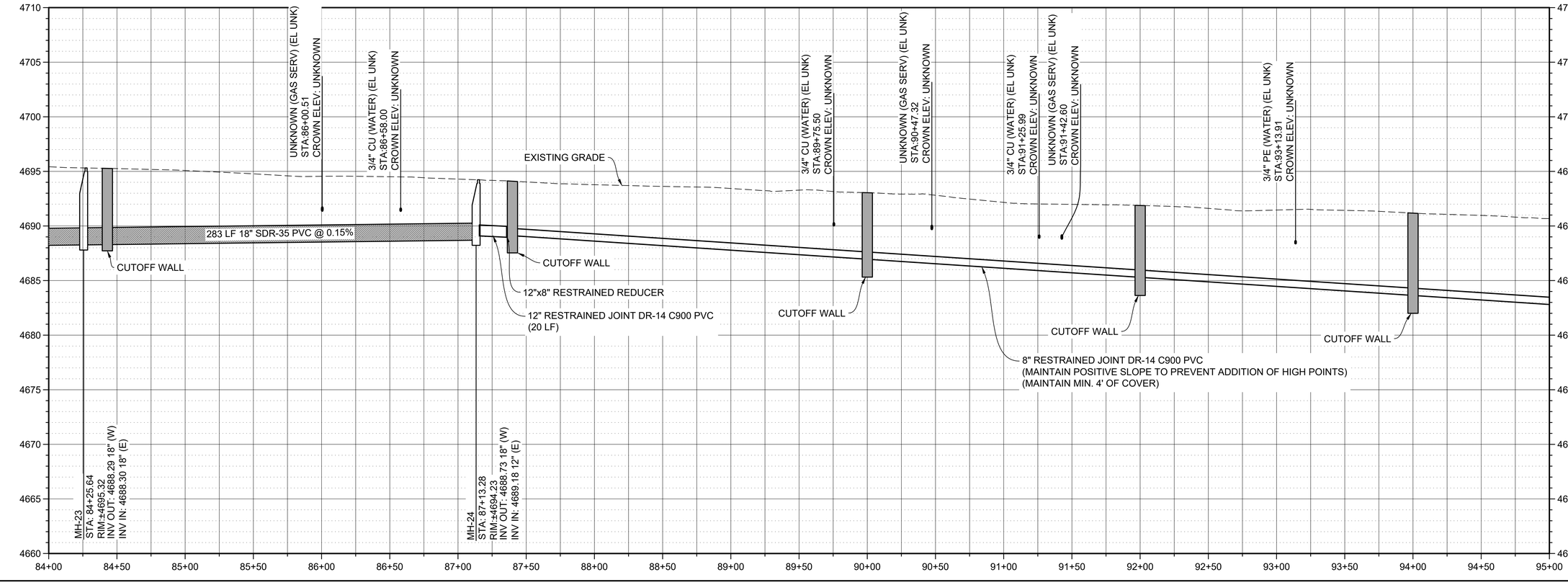
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # :81-23-029
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-207

Plot Date: 7/21/2025 9:03 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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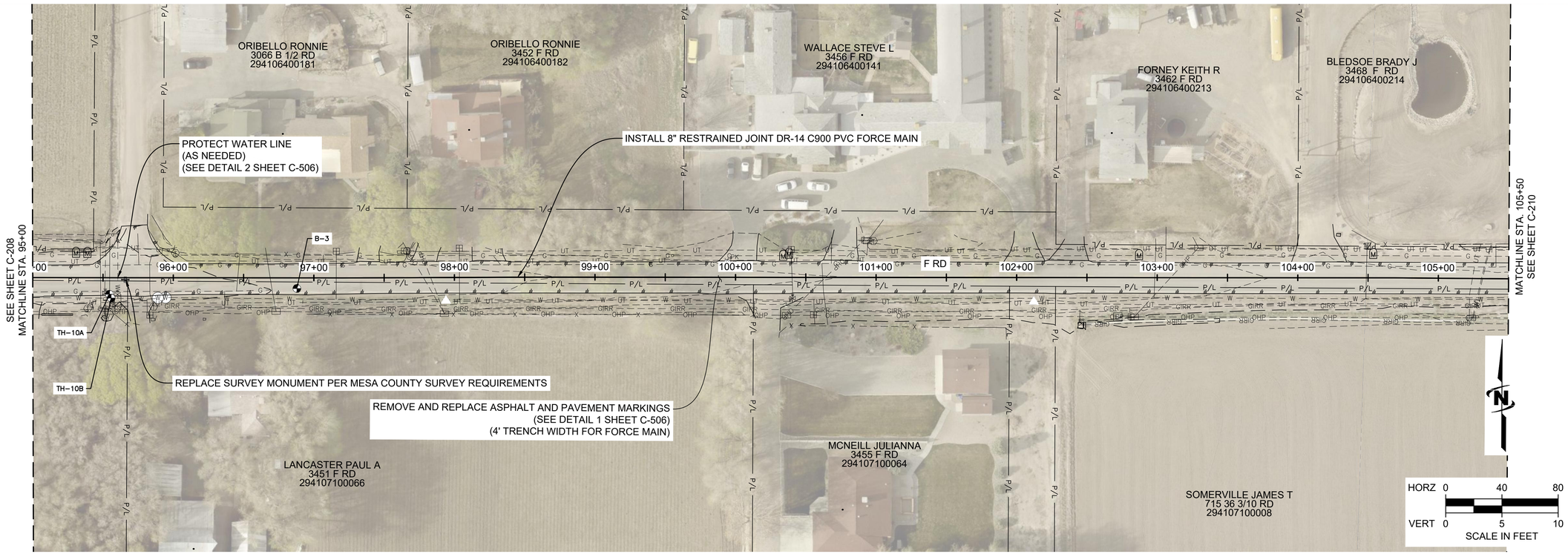
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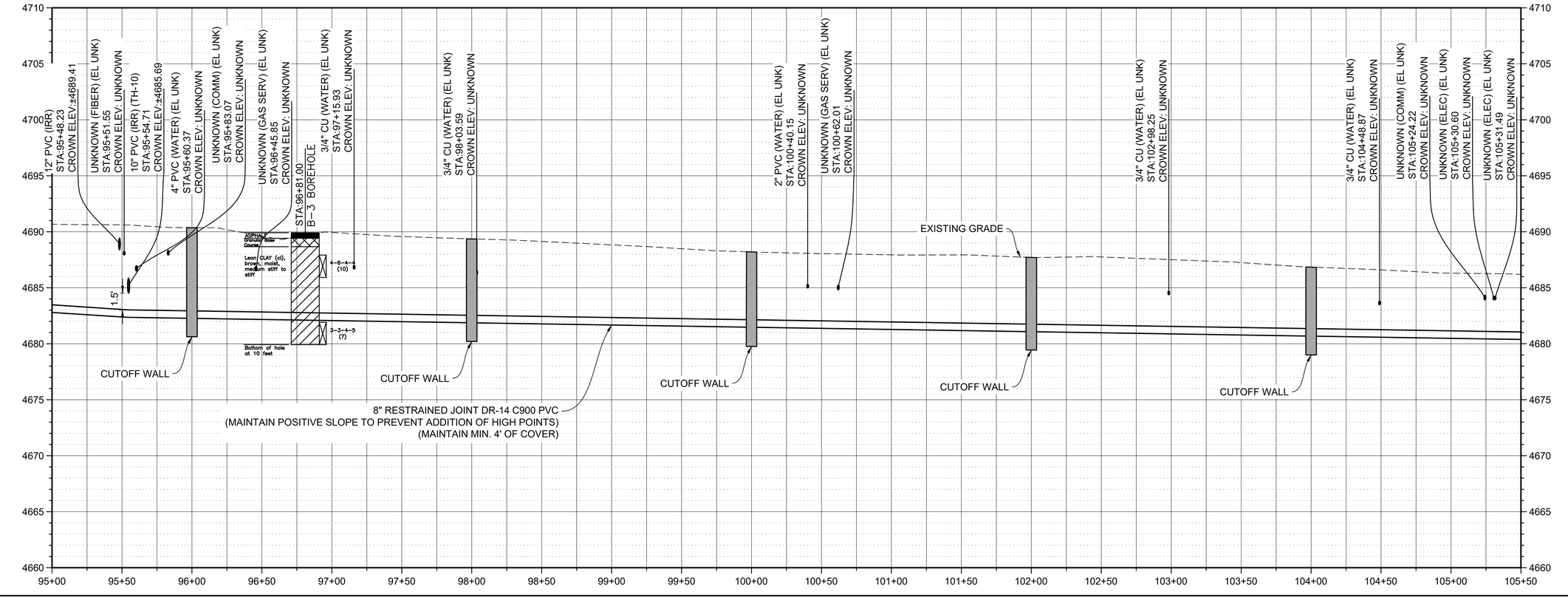
SEWER LINE PLAN & PROFILE

FILE :	C-20X
JUB PROJ. # :	81-23-029
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LAST UPDATED:	7/21/2025

SHEET NUMBER:
C-208

Plot Date: 7/21/2025 9:04 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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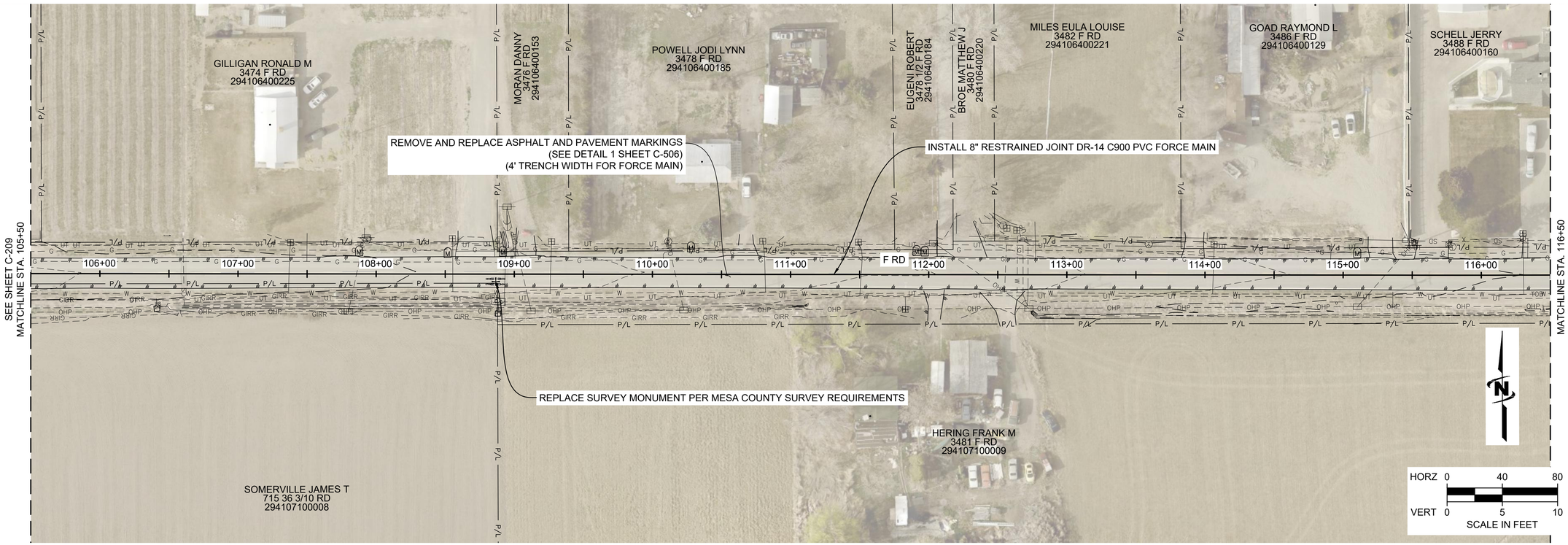
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TOWN OF PALISADE

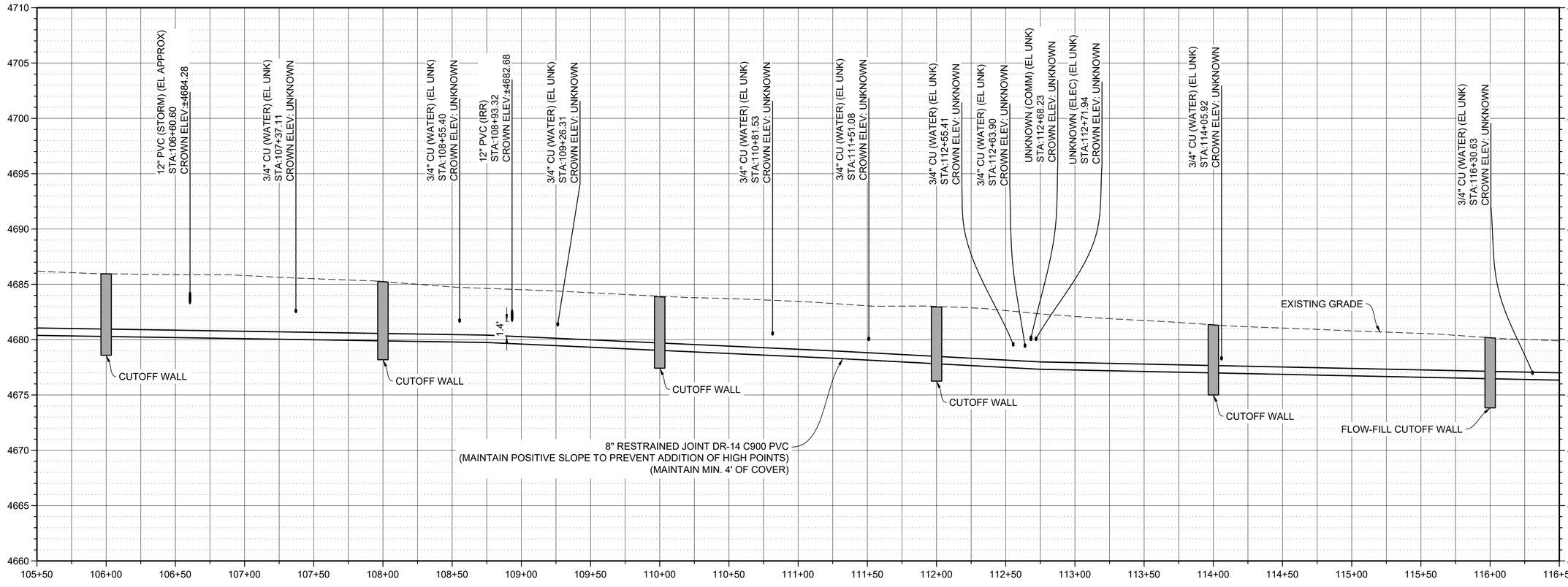
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JUB PROJ. # : 81-23-029
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DESIGN BY: MWF
CHECKED BY: EWS
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-209

Plot Date: 7/21/2025 9:04 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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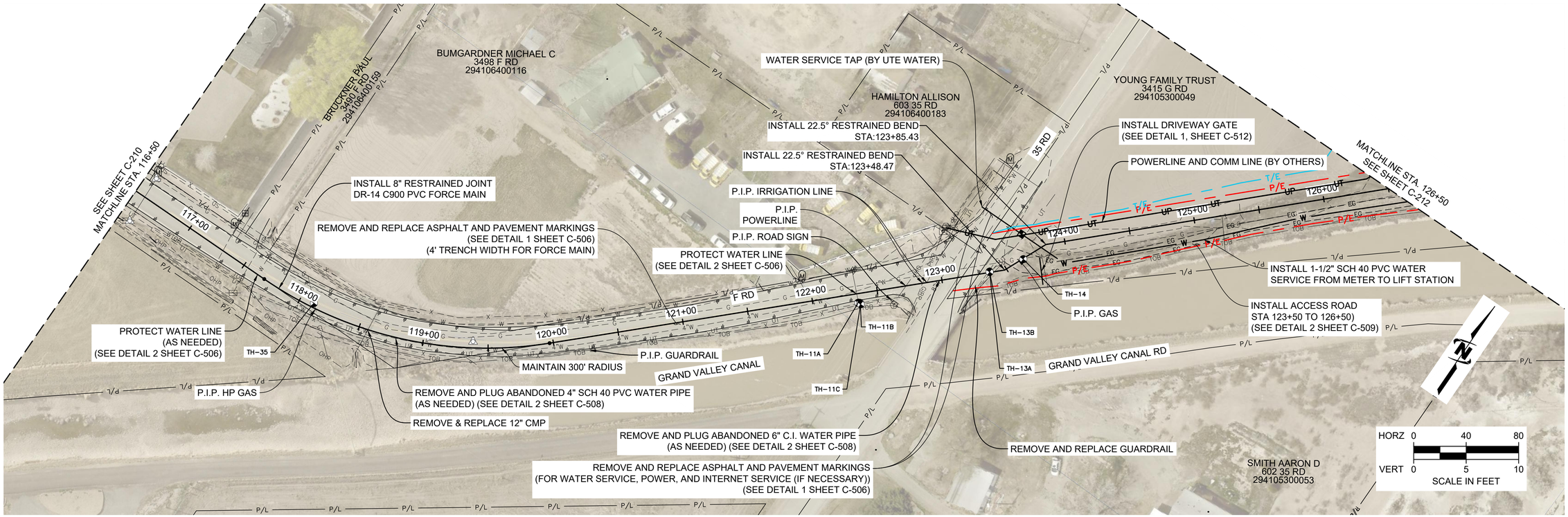
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TOWN OF PALISADE

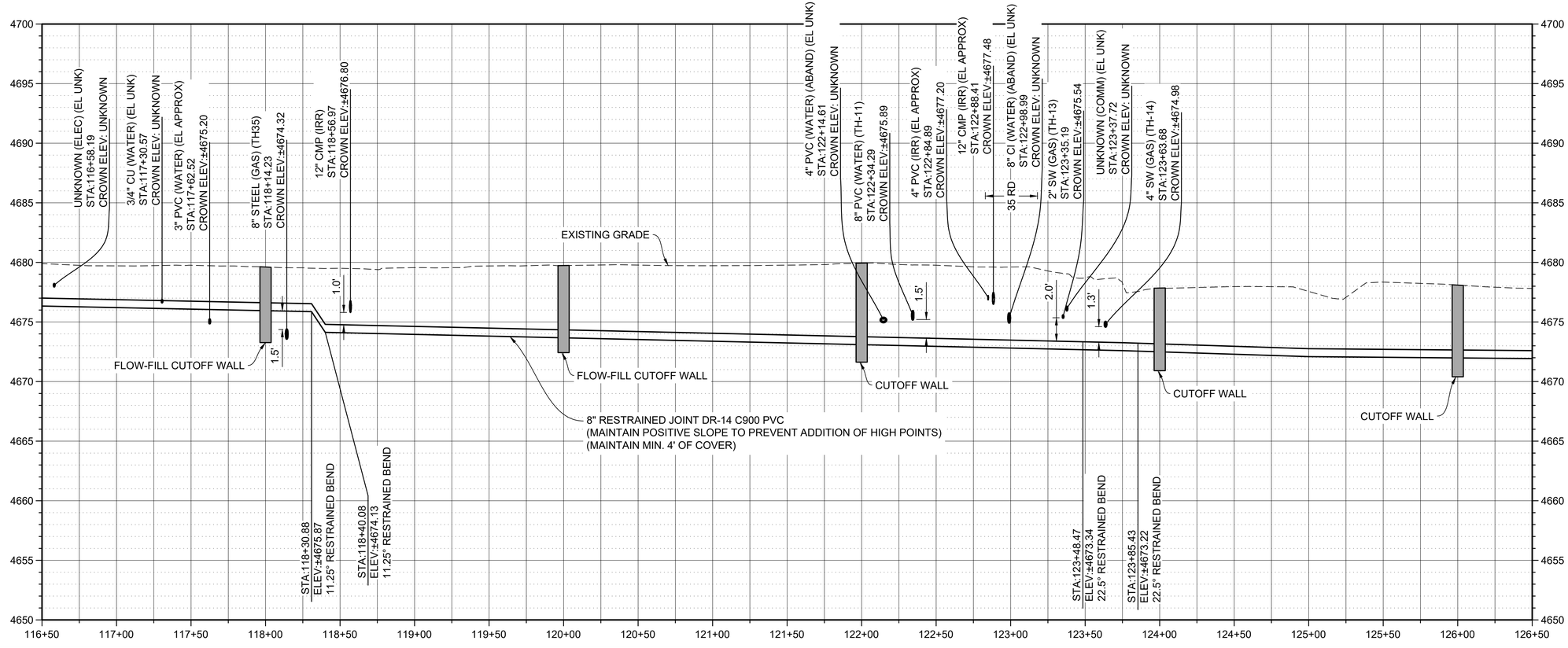
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JUB PROJ. # : 81-23-029
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-210

Plot Date: 7/21/2025 9:05 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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SEWER TRANSFER PROJECT
TOWN OF PALISADE

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SHEET NUMBER:
C-211

Plot Date: 7/21/2025 9:05 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG

ABANDON PIEZOMETER

INSTALL PIGGING STATION
(SEE SHEET C-501)

INSTALL LIFT STATION
(SEE SHEET C-101)

INSTALL 45°
RESTRAINED BEND
STA:127+04.77

MH-25
INSTALL 5'∅ MANHOLE W/ PLUG VALVE & CONCRETE COLLAR
(SEE DETAIL 1 SHEET C-502)
STA: 127+86.11, 0.00'

MH-26
INSTALL 5'∅ POLYMER CONCRETE MANHOLE W/ CONCRETE COLLAR
STA: 128+00.11, 0.00'

MH-27
INSTALL 5'∅ MANHOLE W/ CONCRETE COLLAR
STA: 128+35.10, 0.00'

INSTALL 18" SDR-35 PVC SEWER LINE (TYP.)

MH-28
INSTALL 5'∅ MANHOLE W/ BOLTED WATERTIGHT COVER
STA: 133+81.79, 0.00'

YOUNG FAMILY TRUST
614 35 RD
294105300049

INSTALL SEWER SERVICE STUB (N)
(SEE DETAIL 3 SHEET C-511)
STA:128+79.33

INSTALL 8" RESTRAINED JOINT DR-14 C900 PVC FORCE MAIN

TRANSFORMER (TO BE INSTALLED BY XCEL)

GRAND VALLEY CANAL

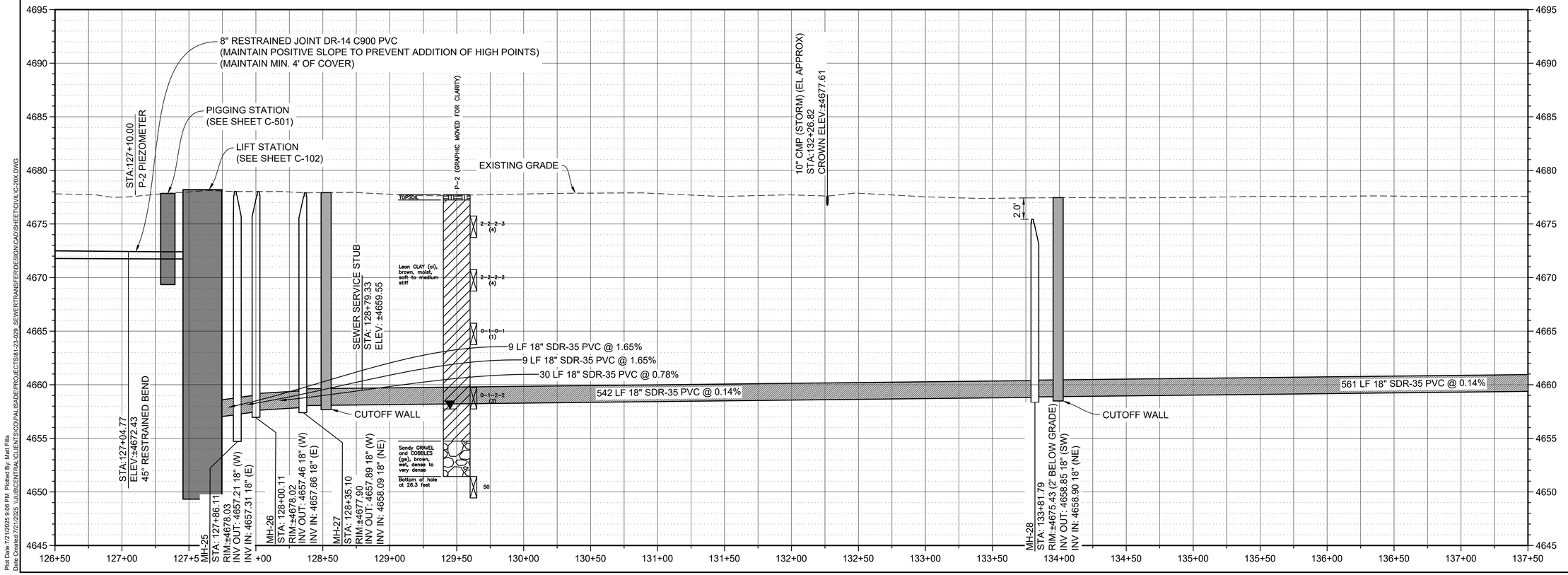
INSTALL ACCESS ROAD
STA 126+50 TO 137+50
(SEE DETAIL 2 SHEET C-509)

GRAND VALLEY CANAL RD

SEE SHEET C-211
MATCHLINE STA. 126+50

MATCHLINE STA. 137+50
SEE SHEET C-213

HORZ 0 40 80
VERT 0 5 10
SCALE IN FEET



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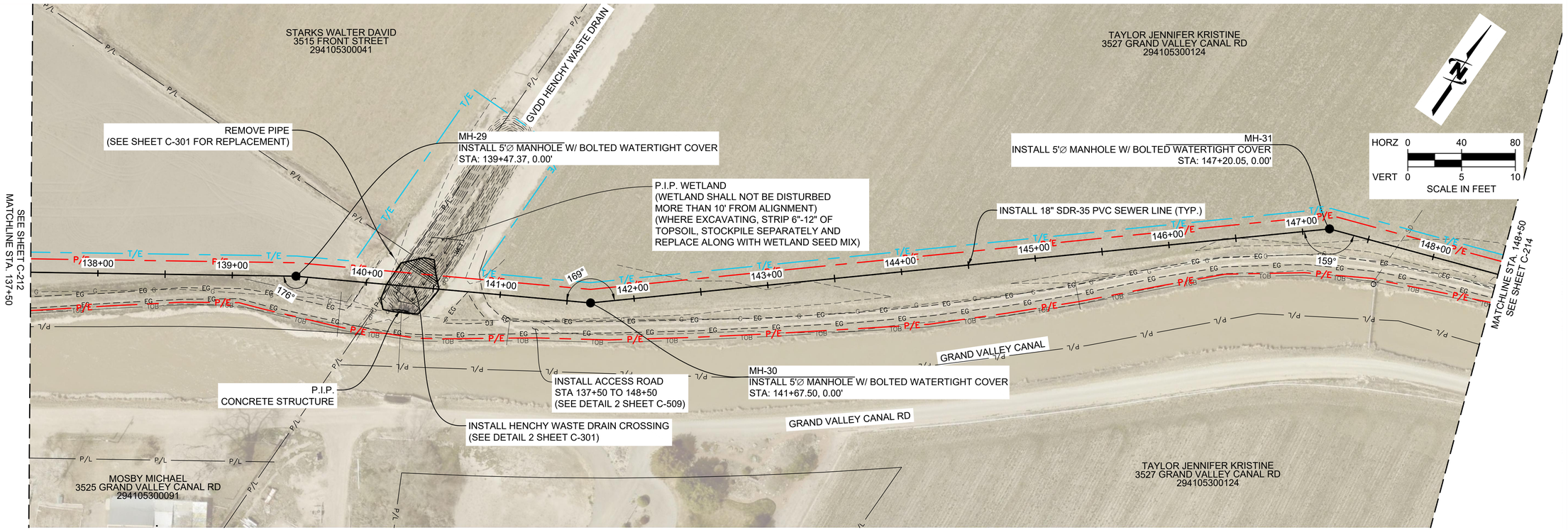
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TOWN OF PALISADE

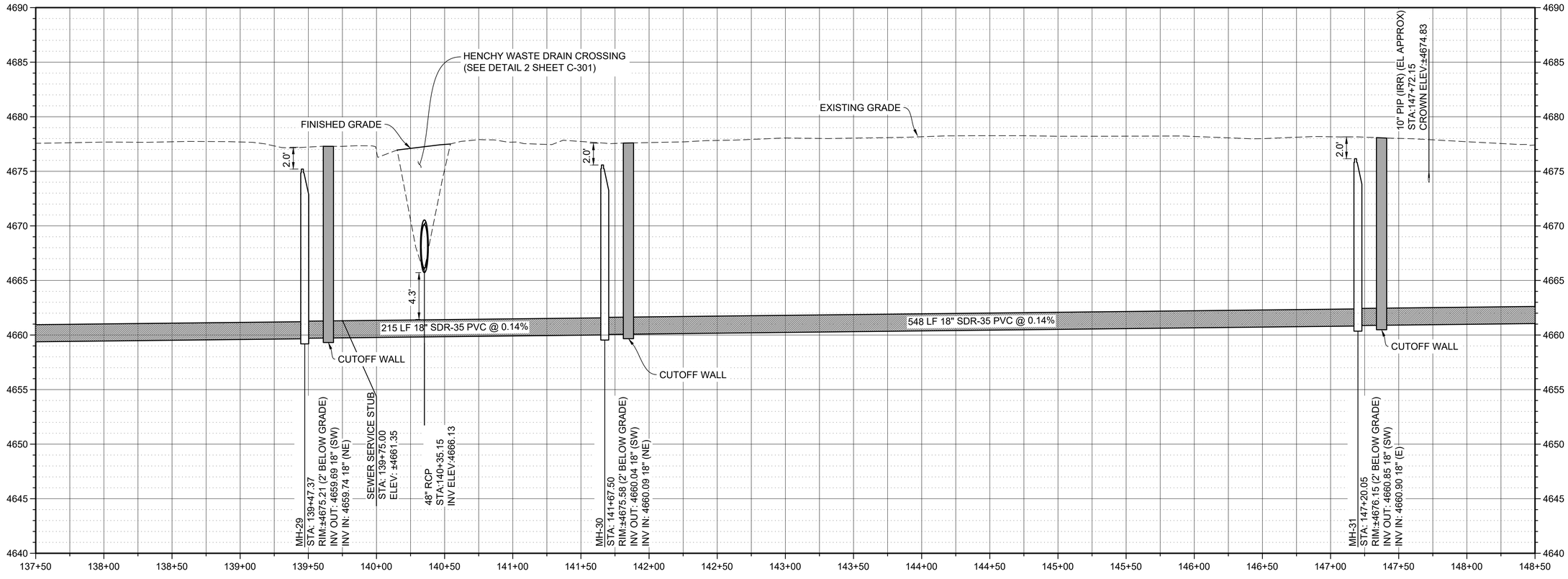
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # :81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-212

Plot Date: 7/21/2025 9:09 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\VILC-20X.DWG





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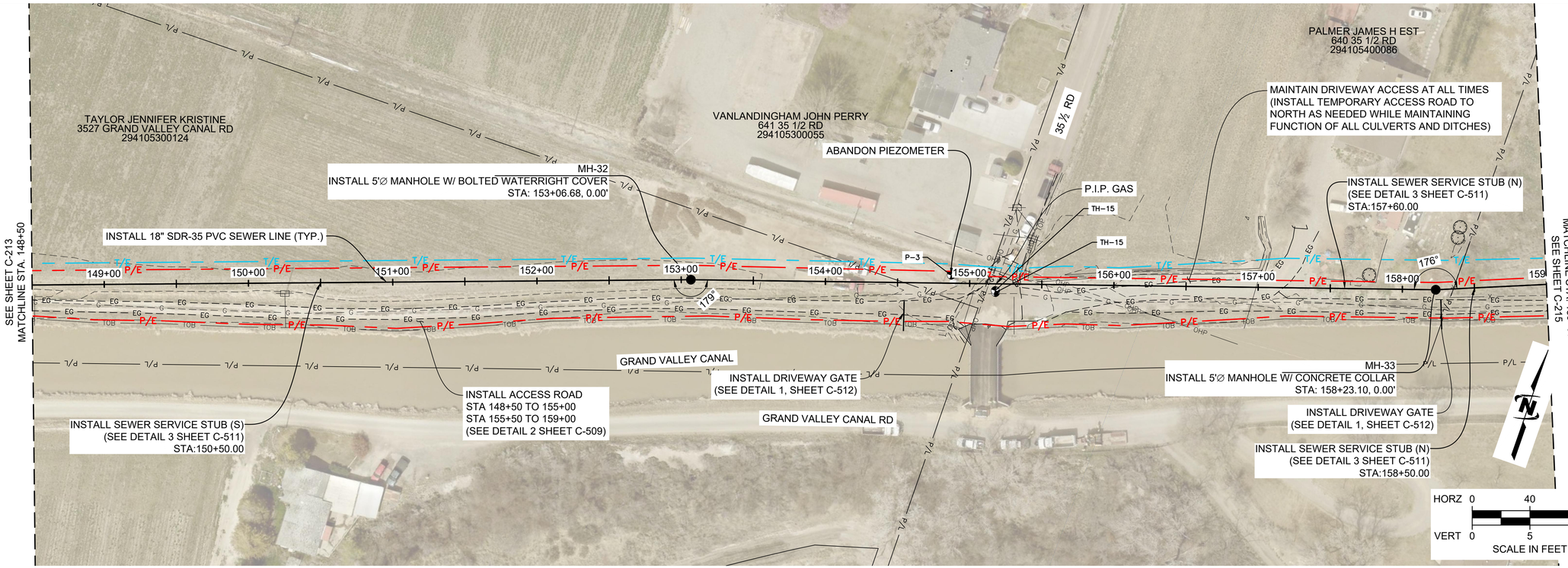
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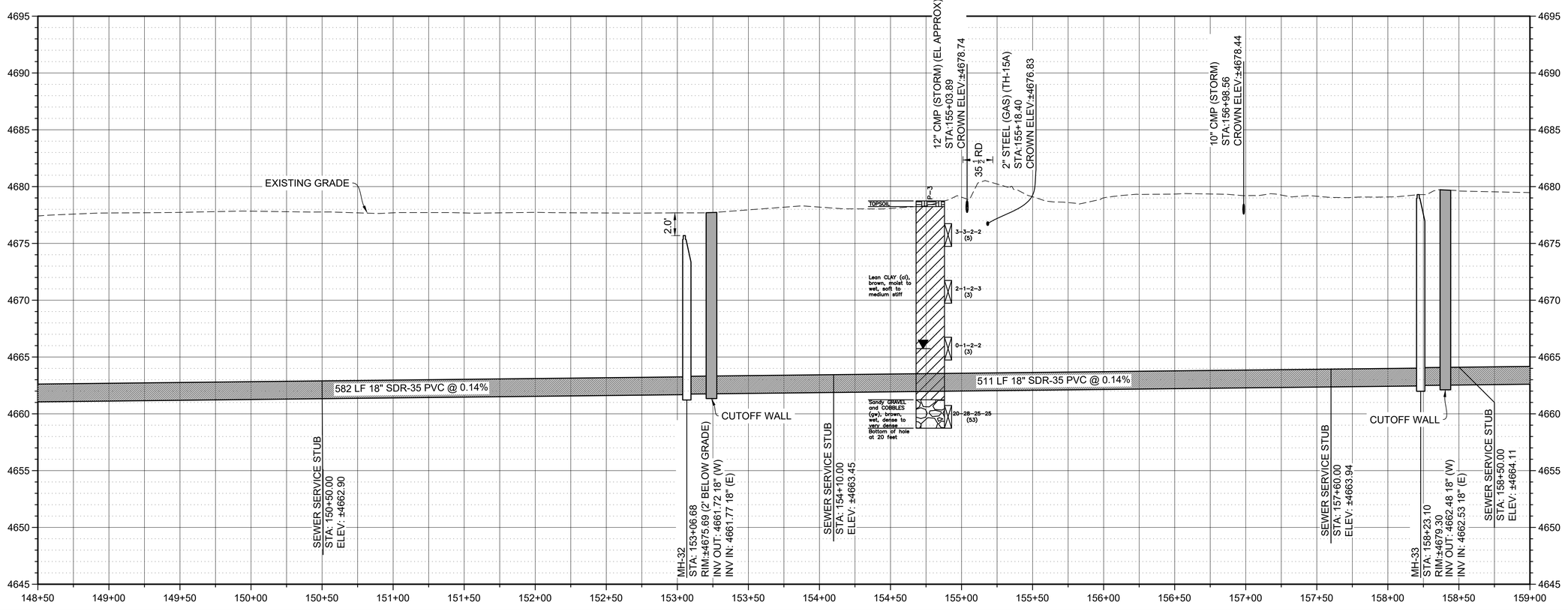
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
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ONE INCH
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-213

Plot Date: 7/21/2025 9:07 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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SEWER TRANSFER PROJECT
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SEWER LINE PLAN & PROFILE

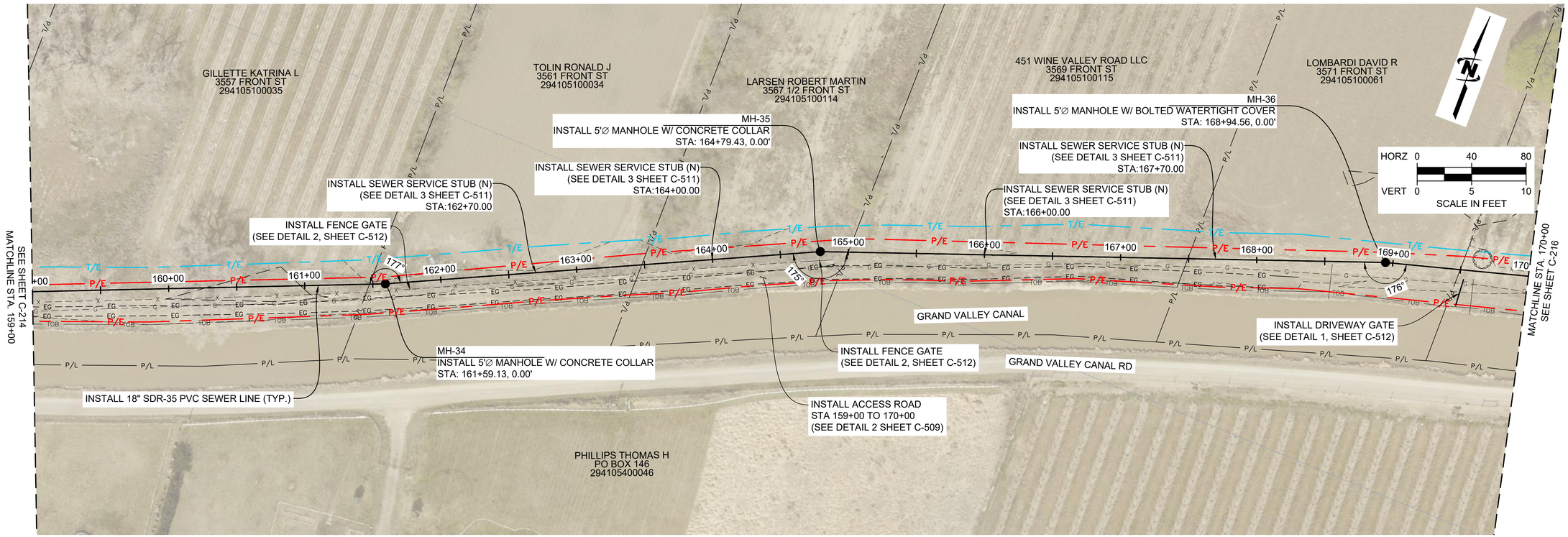
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JUB PROJ. # :	81-23-029
DRAWN BY:	MWF
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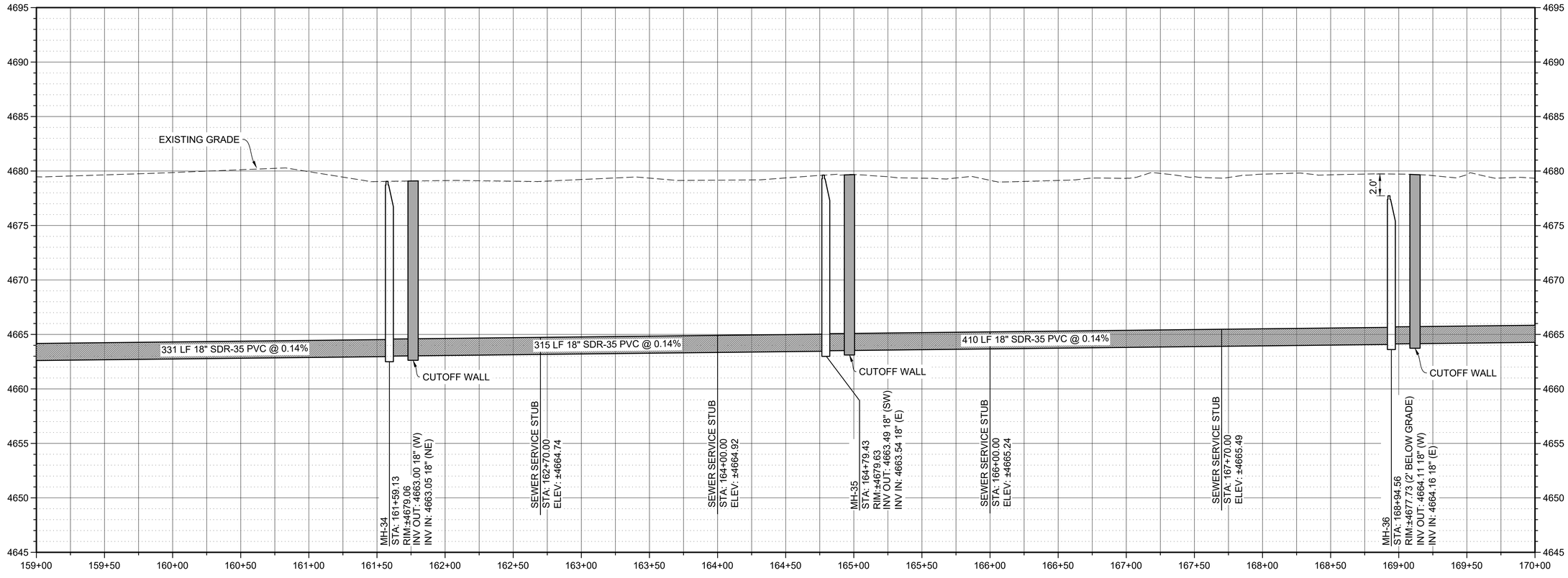
ONE INCH
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LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-214

Plot Date:7/21/2025 9:07 PM Plotted By: Matt Filla
Date Created:7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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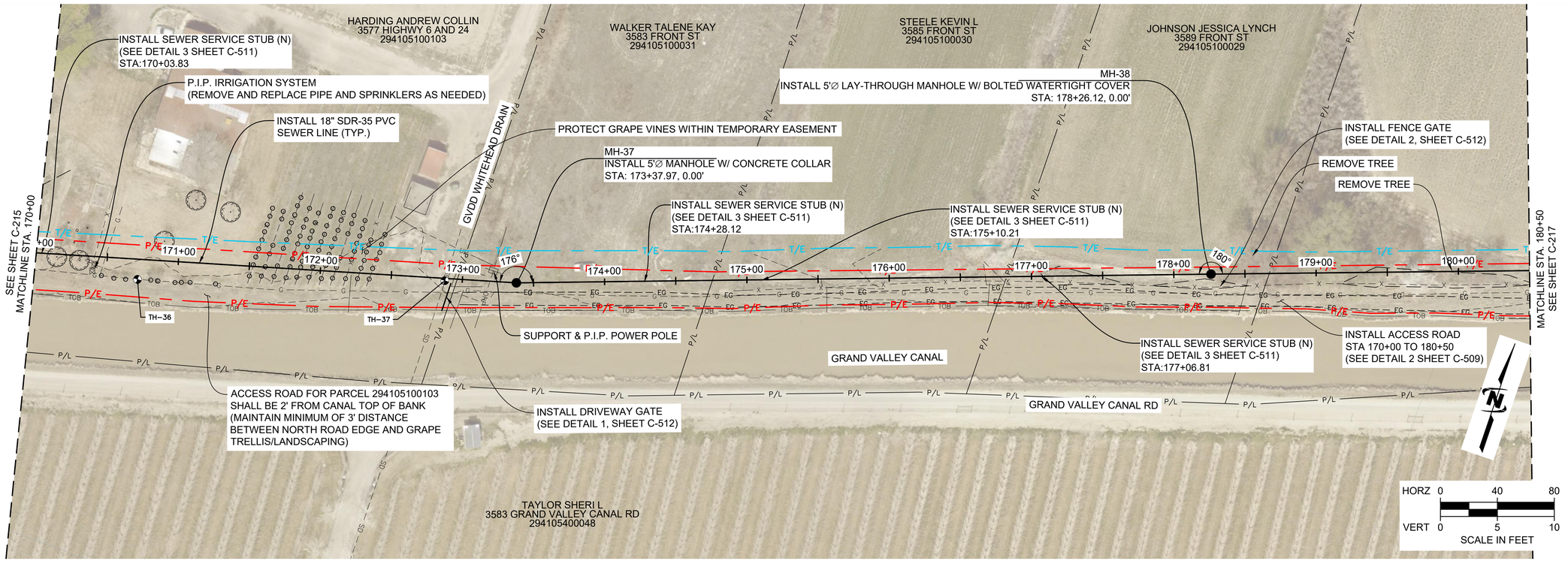
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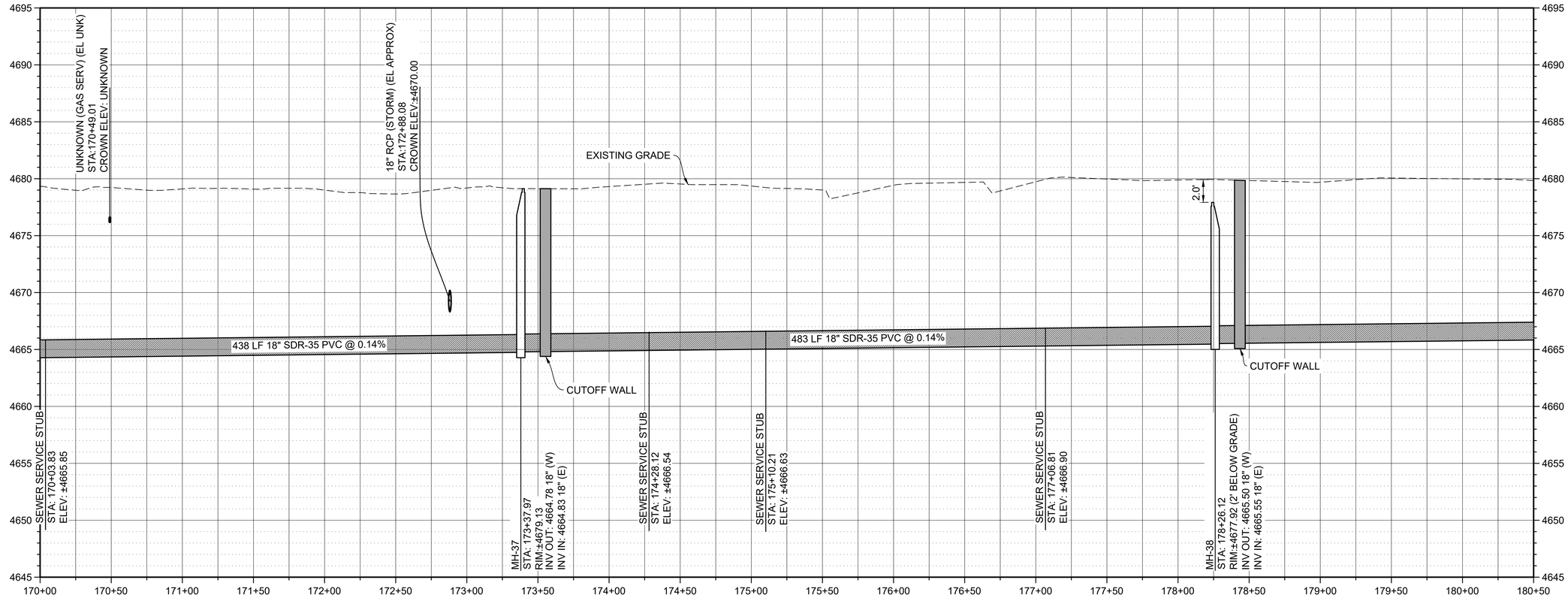
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AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-215

Plot Date: 7/21/2025 9:08 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENTS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

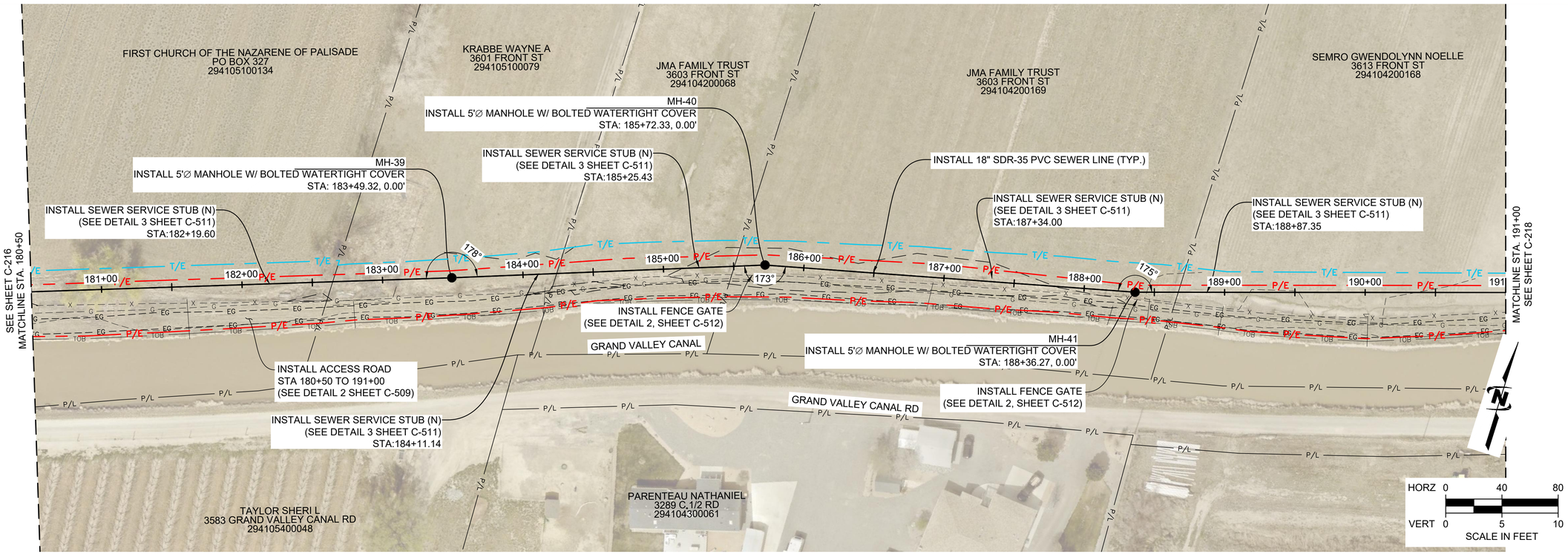
FILE :	C-20X
JUB PROJ. # :	81-23-029
DRAWN BY:	MWF
DESIGN BY:	MWF
CHECKED BY:	EWS

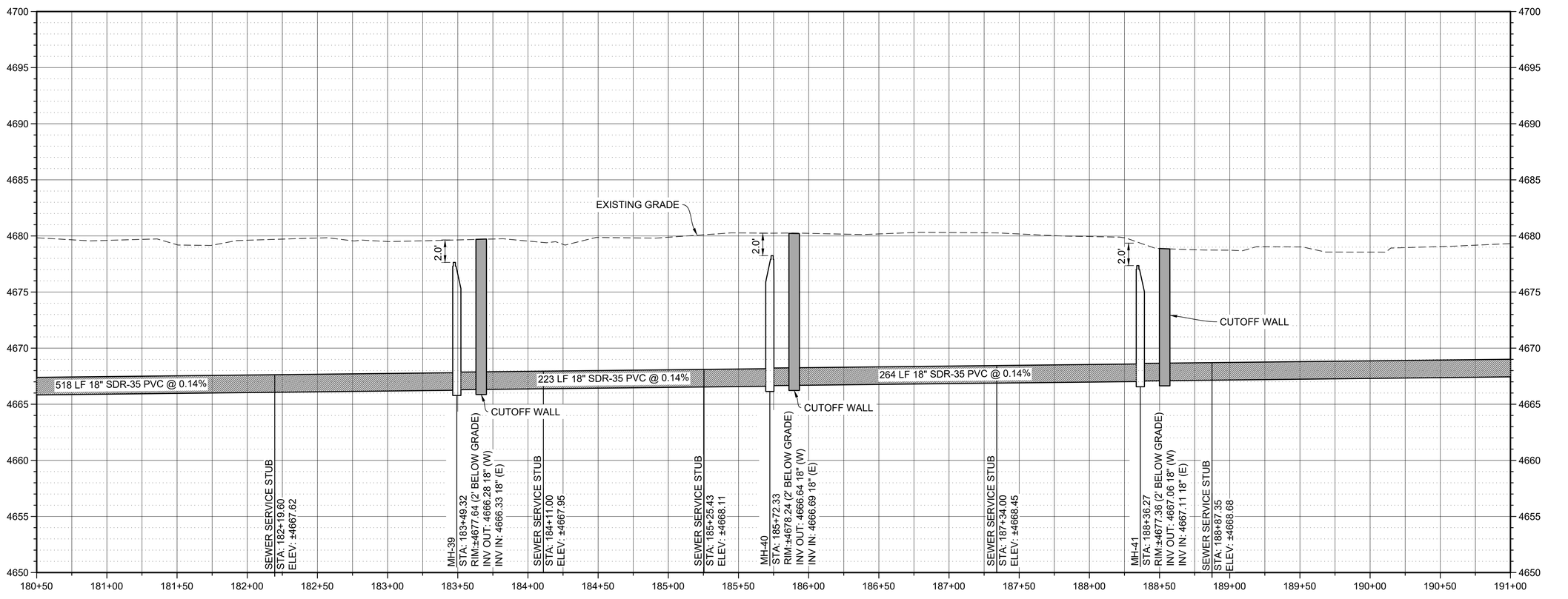
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-216

Plot Date: 7/21/2025 9:09 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # :81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-217

Plot Date:7/21/2025 9:10 PM Plotted By: Matt Filla
Date Created:7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEETS\CIVIL\C-20X.DWG

BENDETTI COREY
1231 N 23RD ST UNIT 204
294104200070

DONOVAN RORY
655 36 1/4 RD
294104202014

PETERMAN JOHN ROBERT
653 36 1/4 RD
294104202013

EARLEY WILLIAM CLYDE
674 36 1/4 RD
294104200098

TOWN OF PALISADE
PO BOX 128
294104100171

WEST COUNTRY LLC
3627 GRAND VALLEY CANAL RD
294104300099

36 ¼ RD

GRAND VALLEY CANAL

GRAND VALLEY CANAL RD

MH-43
INSTALL 5'∅ MANHOLE W/ CONCRETE COLLAR
STA: 196+00.46, 0.00'

MH-42
INSTALL 5'∅ MANHOLE W/ CONCRETE COLLAR
STA: 194+28.24, 0.00'

MH-44
INSTALL 5'∅ MANHOLE
STA: 198+25.47, 0.00'

MH-45
INSTALL 5'∅ MANHOLE
STA: 200+09.72, 0.00'

INSTALL 18" SDR-35 PVC SEWER LINE (TYP.)

INSTALL SEWER SERVICE STUB (N)
(SEE DETAIL 3 SHEET C-511)
STA:195+81.41

INSTALL SEWER SERVICE STUB (N)
(SEE DETAIL 3 SHEET C-511)
STA:193+80.54

INSTALL SEWER SERVICE STUB (N)
(SEE DETAIL 3 SHEET C-511)
STA:196+61.66

INSTALL ACCESS ROAD
STA 191+00 TO 198+00
(SEE DETAIL 2 SHEET C-509)

INSTALL FENCE GATE
(SEE DETAIL 2, SHEET C-512)

INSTALL DRIVEWAY GATE
(SEE DETAIL 1, SHEET C-512)

P.I.P. GAS

P.I.P. SHED

P.I.P. IRRIGATION STRUCTURE

ABANDON PIEZOMETER

TH-17
TH-18
TH-19
P-4

CANAL WALL SOIL REPLACEMENT
(STA 195+50 TO 197+00)
(SEE DETAIL 3, SHEET C-513)

CANAL WALL SOIL REPLACEMENT
(20' WIDTH EACH CANAL BANK)
(SEE DETAIL 3 SHEET C-513)

REMOVE & REPLACE FENCE (AS NEEDED)

REMOVE & REPLACE
WINGWALL (IN-KIND)

PROTECT WATER LINE
(AS NEEDED)
(SEE DETAIL 2 SHEET C-506)

REMOVE AND REPLACE ASPHALT
(SEE DETAIL 1 SHEET C-506)
(6' TRENCH WIDTH FOR GRAVITY LINE)

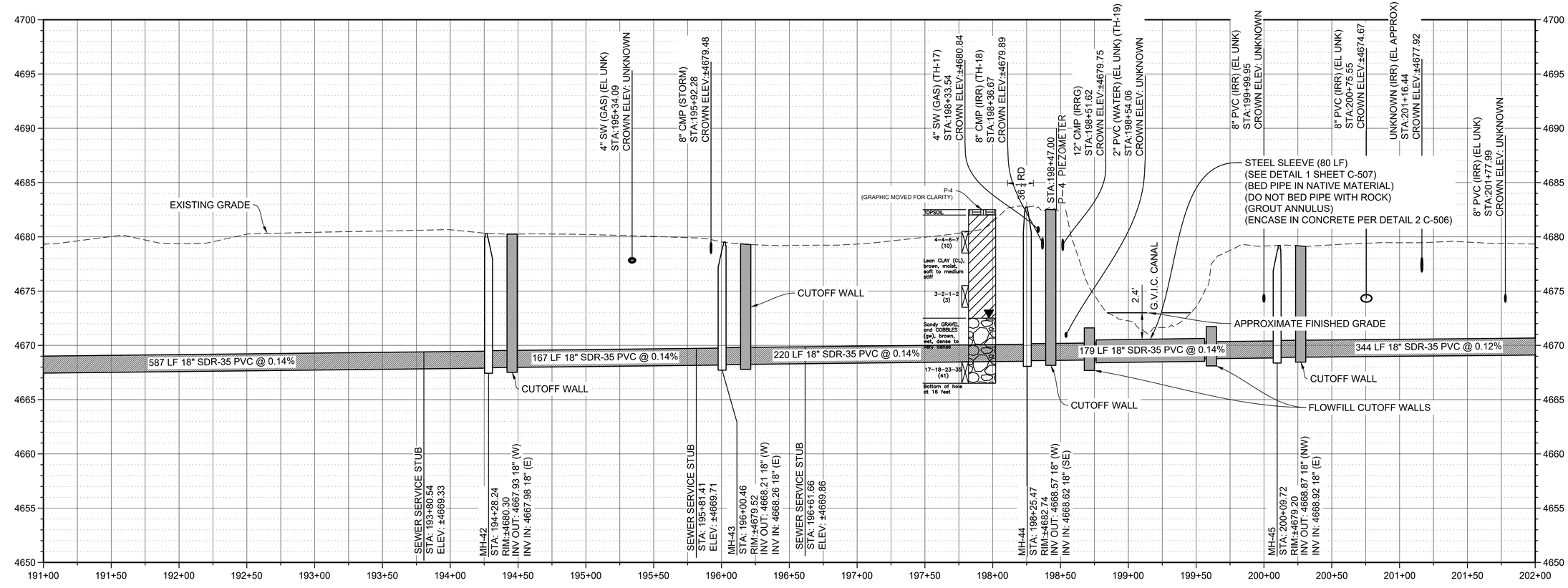
RESTORE GRAVEL
ROAD SURFACE

FILL CANAL BELLY
(~STA 193+00 TO ~200+00)
(CANAL BOTTOM SHALL BE FILLED TO THE APPROXIMATE HORIZONTAL EXTENTS INDICATED TO ESTABLISH A UNIFORM GRADE ALONG THE CANAL FLOWLINE SUCH THAT THE PONDING OUTSIDE OF THE IRRIGATION SEASON WILL NOT OCCUR. PRIOR TO PLACEMENT OF FILL, CANAL BOTTOM SHALL BE DEWATERED, AND THE TOP 3" SHALL BE LIGHTLY SCARIFIED. A WELL-GRADED 6" MINUS PITRUN MATERIAL COMPOSED OF A MIX OF STONES, SAND, AND FINES SHALL BE USED TO FILL THE CANAL BOTTOM. MATERIAL SHALL BE PLACED IN LOOSE LIFTS NO GREATER THAN 12" AND COMPACTED TO APPROXIMATELY 85% PRIOR TO PLACEMENT OF SUBSEQUENT LIFTS.)

SEE SHEET C-217
MATCHLINE STA: 191+00

MATCHLINE STA: 202+00
SEE SHEET C-219

HORZ 0 40 80
VERT 0 5 10
SCALE IN FEET



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	REVISION			

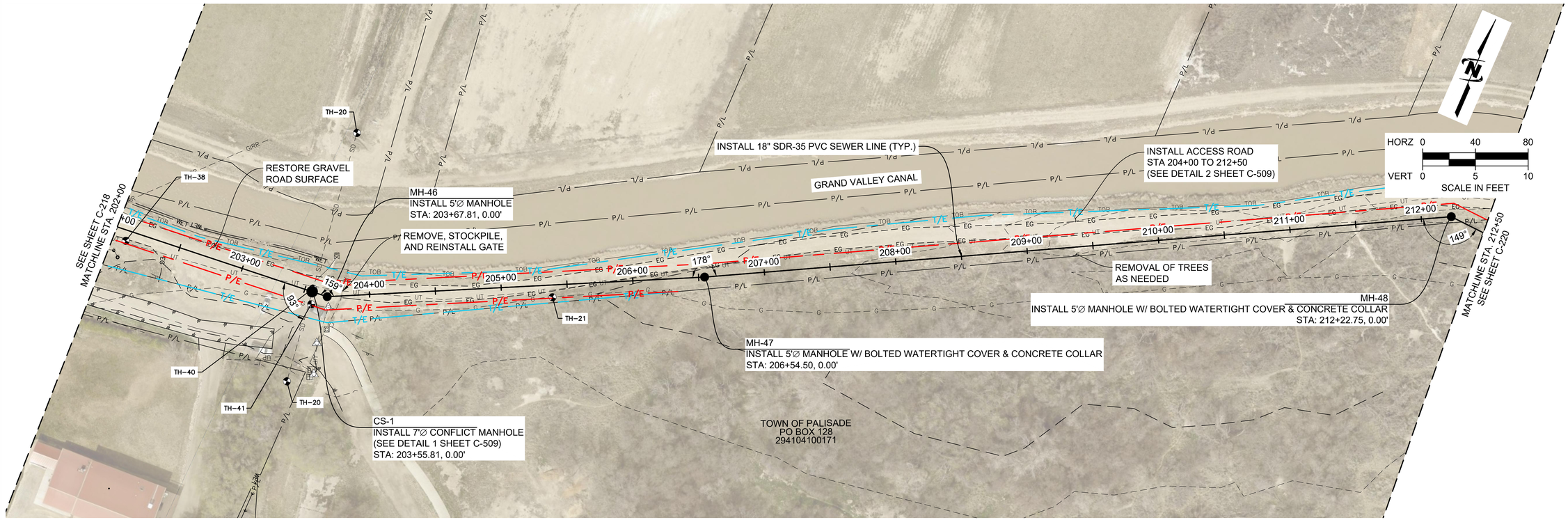
SEWER TRANSFER PROJECT
TOWN OF PALISADE

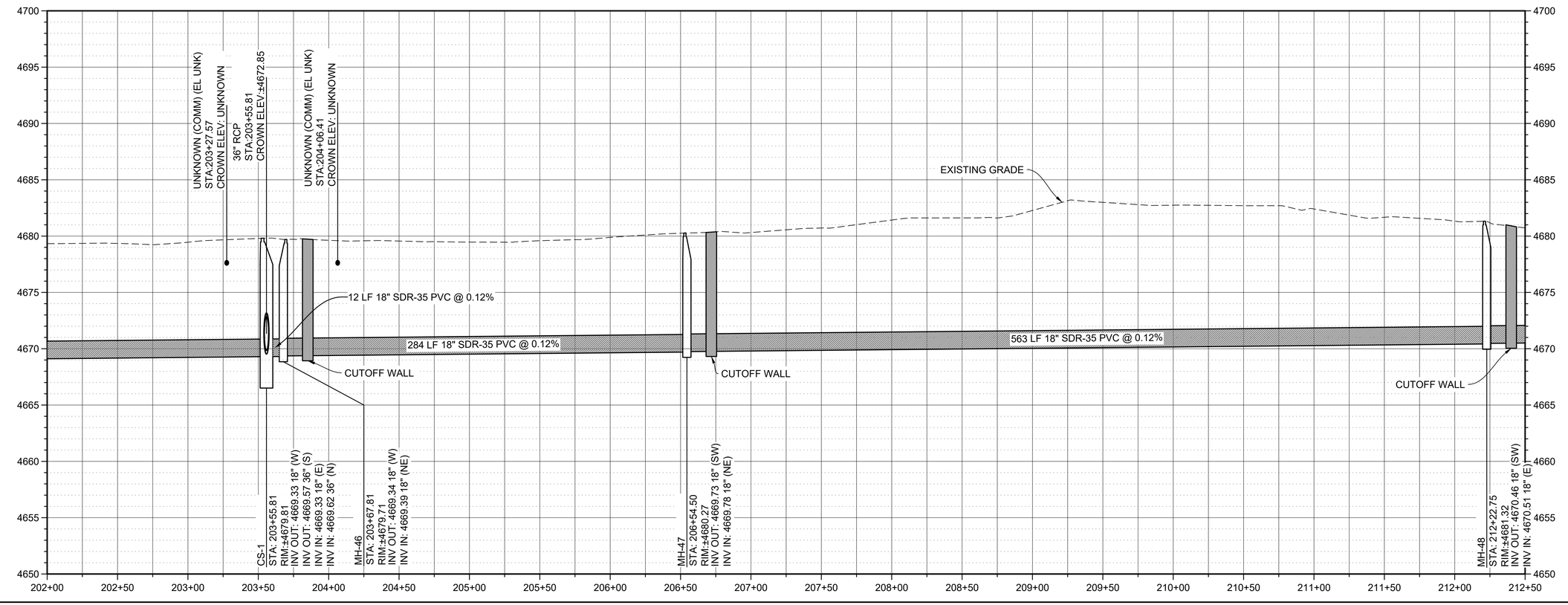
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # :81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-218

Plot Date: 7/21/2025 9:11 PM, Plotted By: Matt Filla
Date Created: 7/21/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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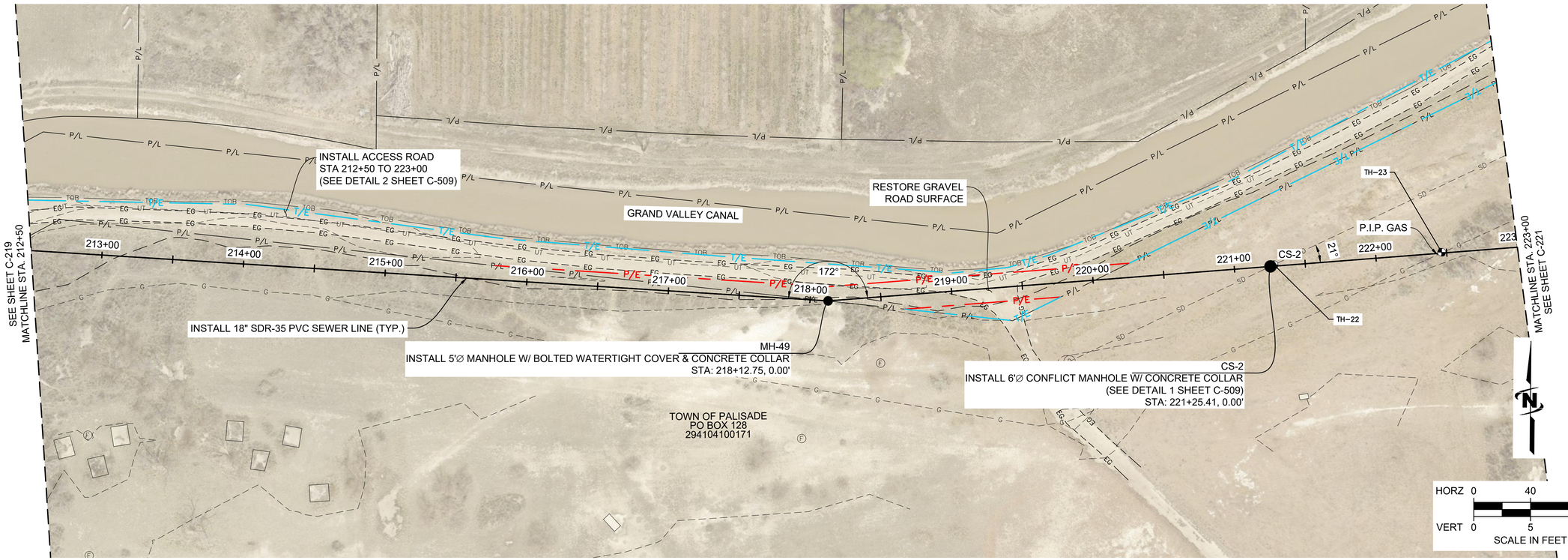
SEWER TRANSFER PROJECT
TOWN OF PALISADE

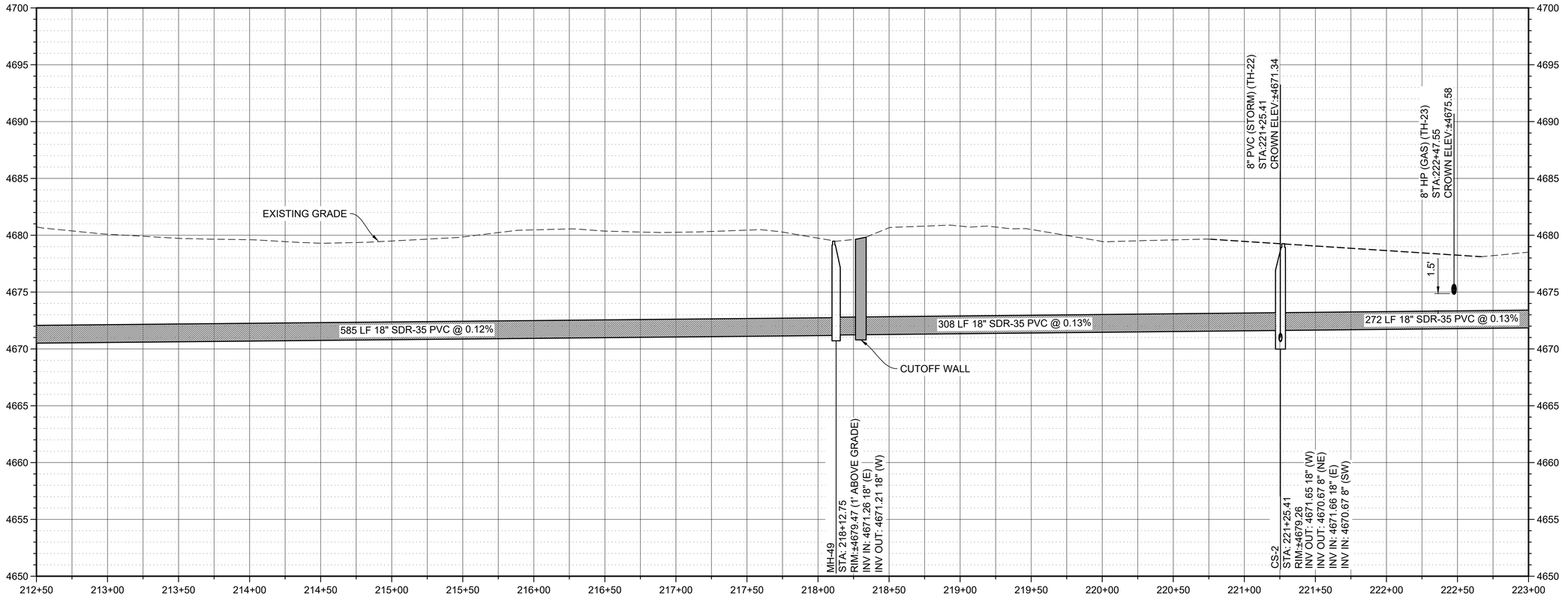
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-219

Plot Date: 7/21/2025 9:12 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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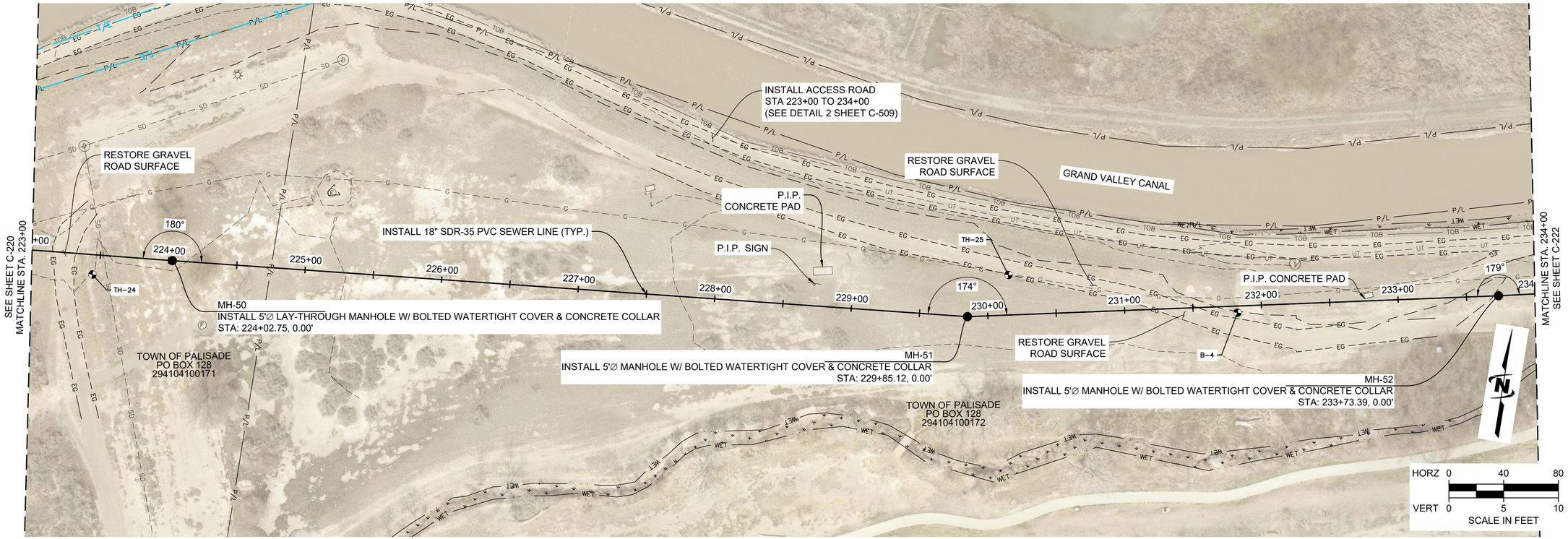
SEWER TRANSFER PROJECT
TOWN OF PALISADE

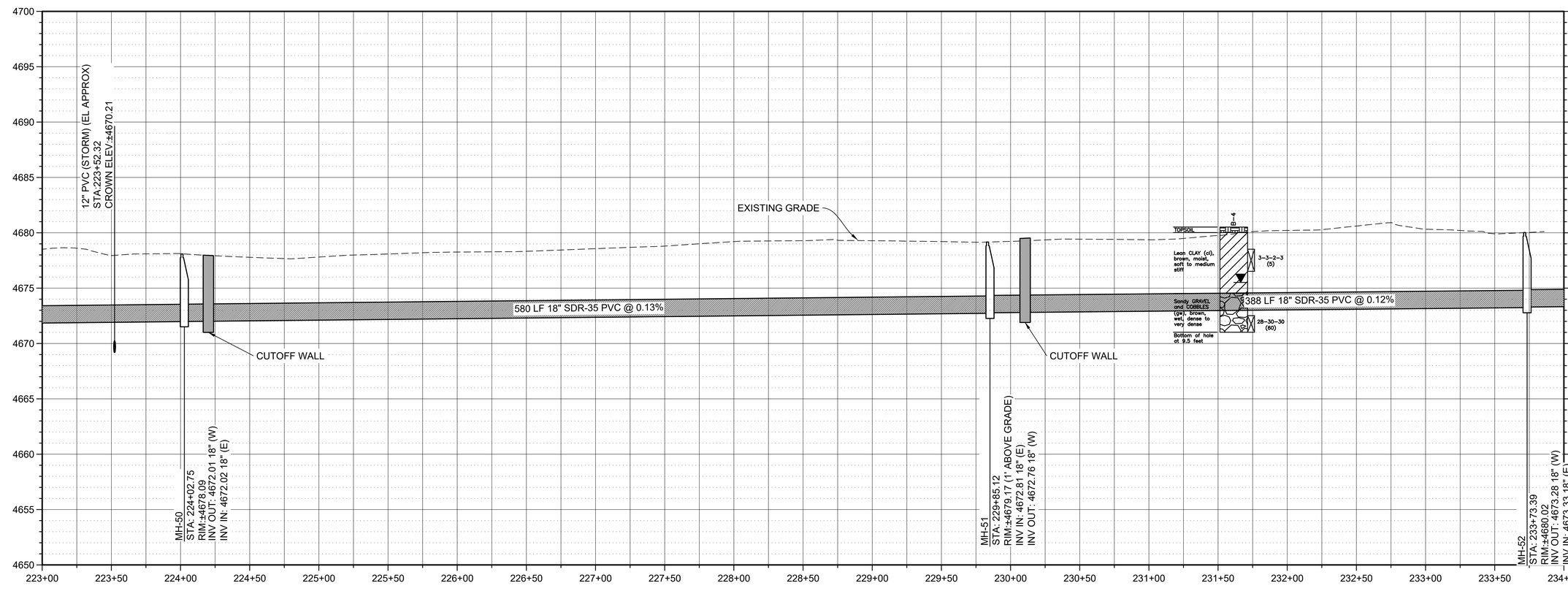
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-220

Plot Date: 7/21/2025 9:12 PM, Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBCENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

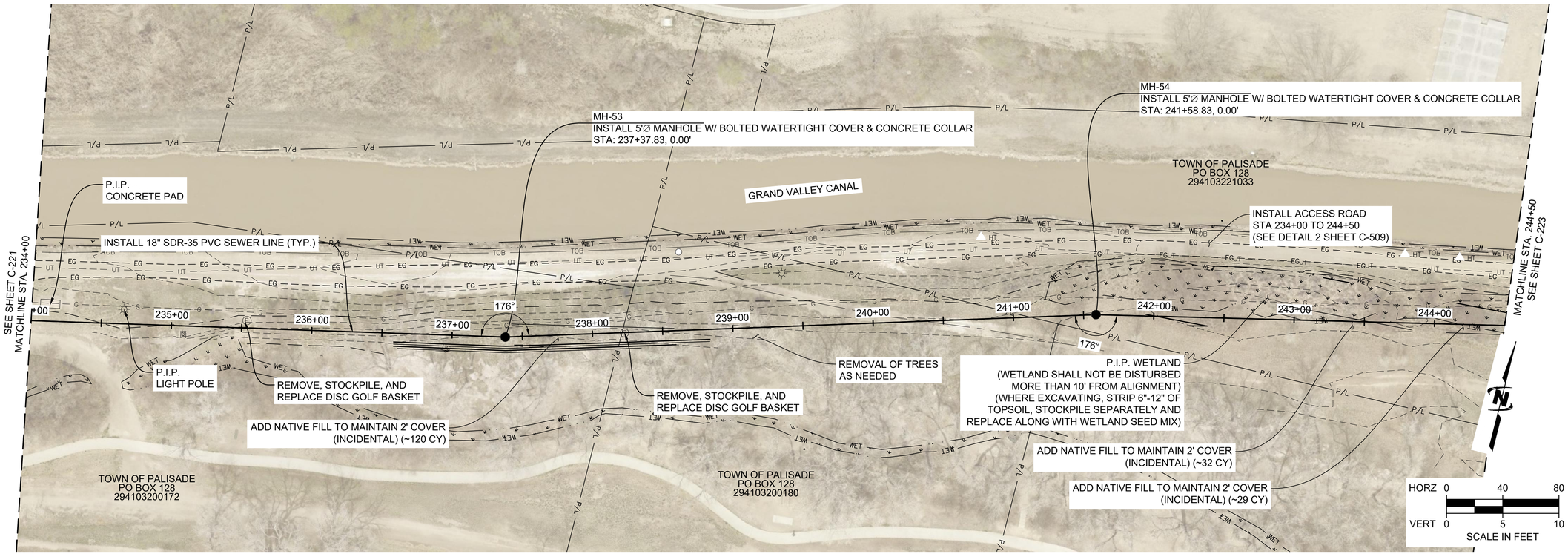
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JUB PROJ. # :	81-23-029
DRAWN BY:	MWF
DESIGN BY:	MWF
CHECKED BY:	EWS

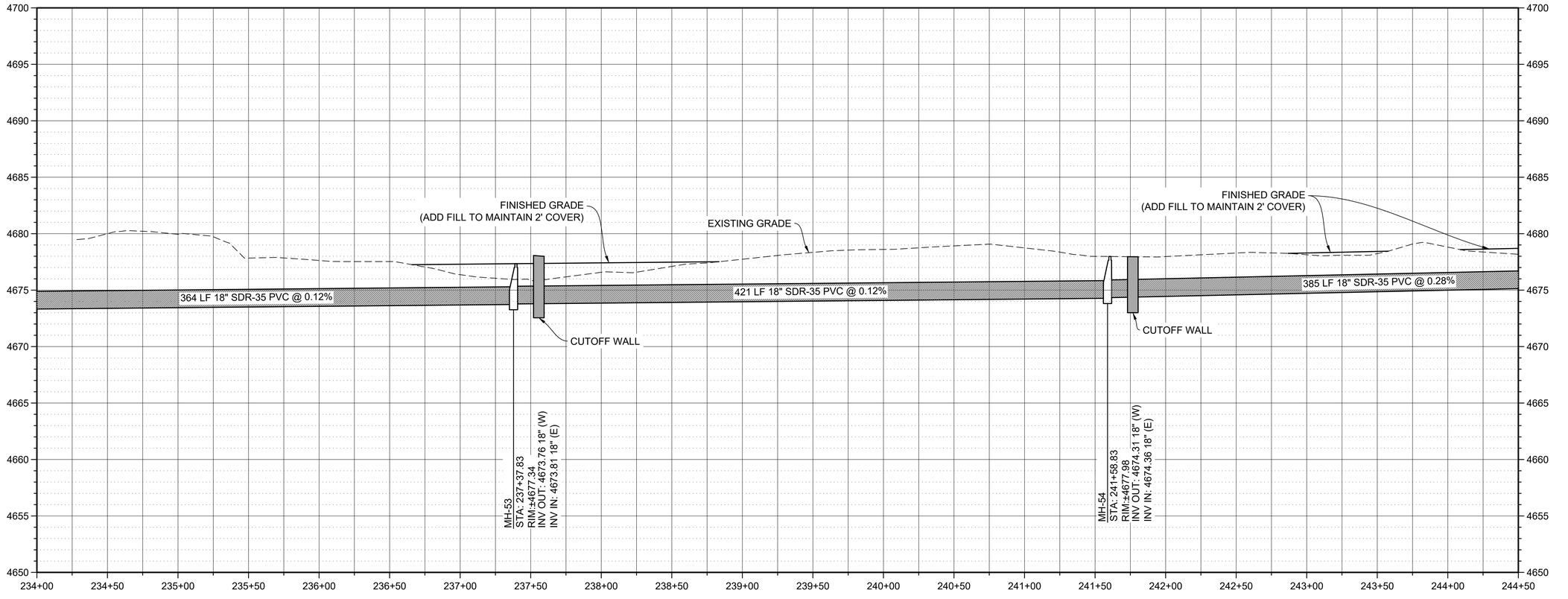
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-221

Plot Date: 7/21/2025 9:13 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG





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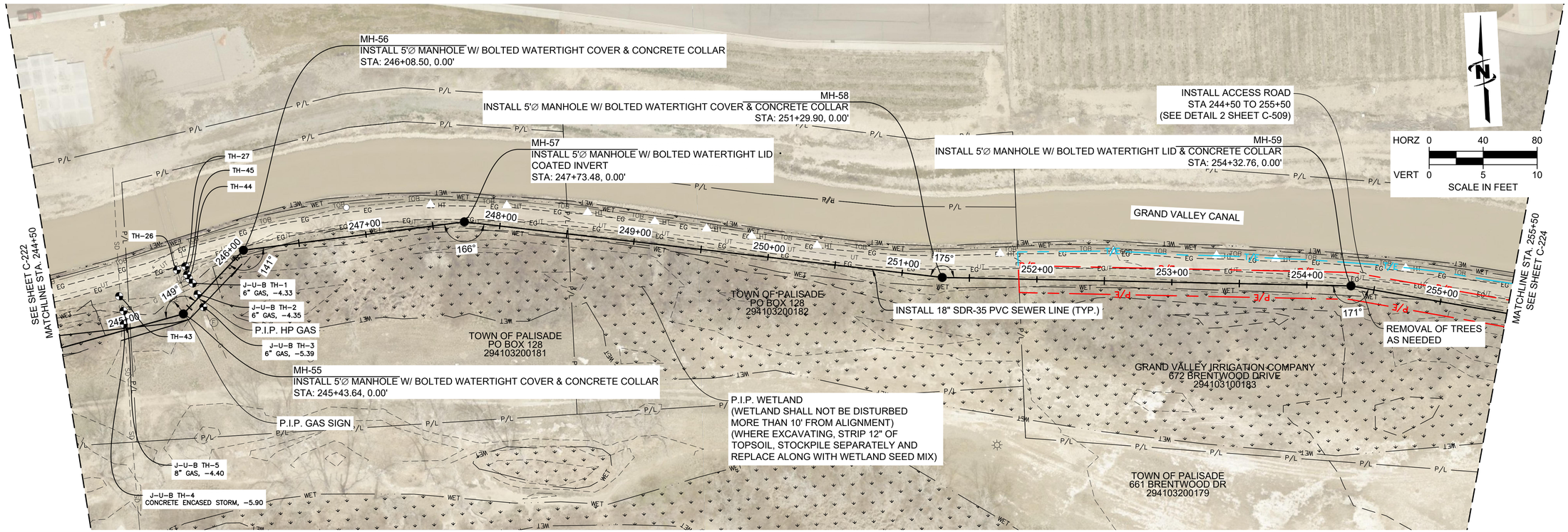
SEWER TRANSFER PROJECT
TOWN OF PALISADE

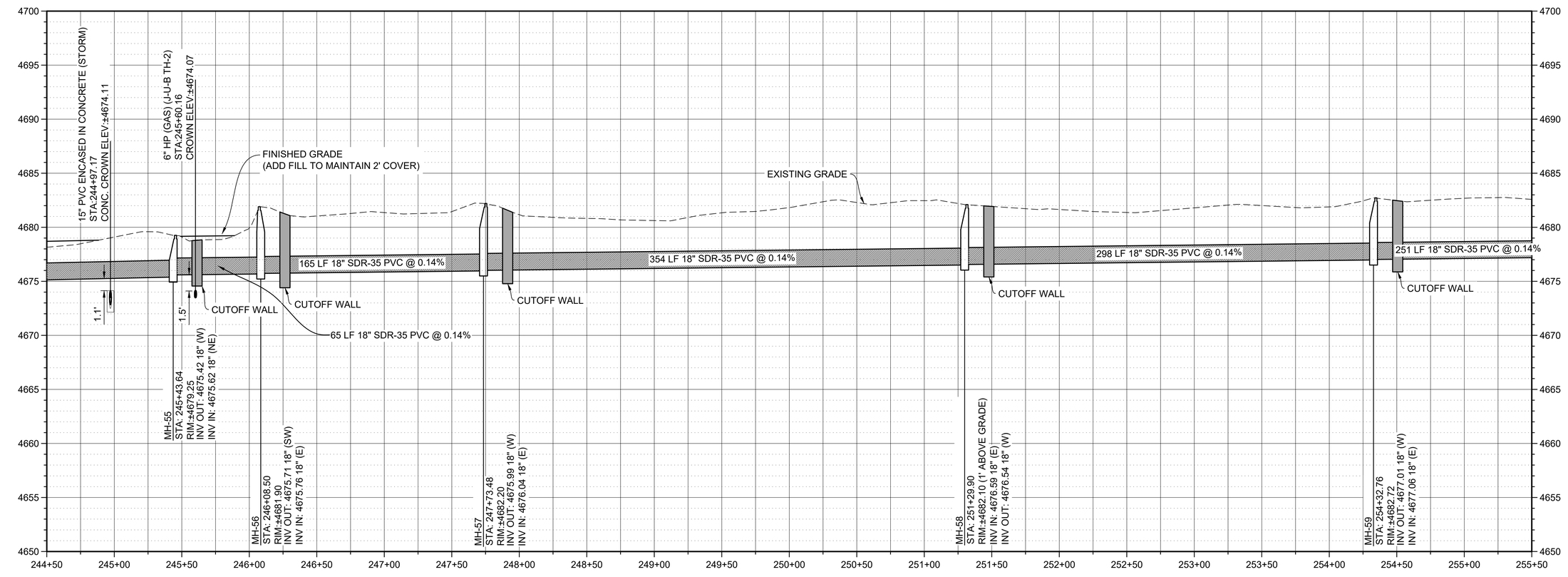
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-222

Plot Date: 7/21/2025 9:13 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG





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Palisade, CO 81526
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60906
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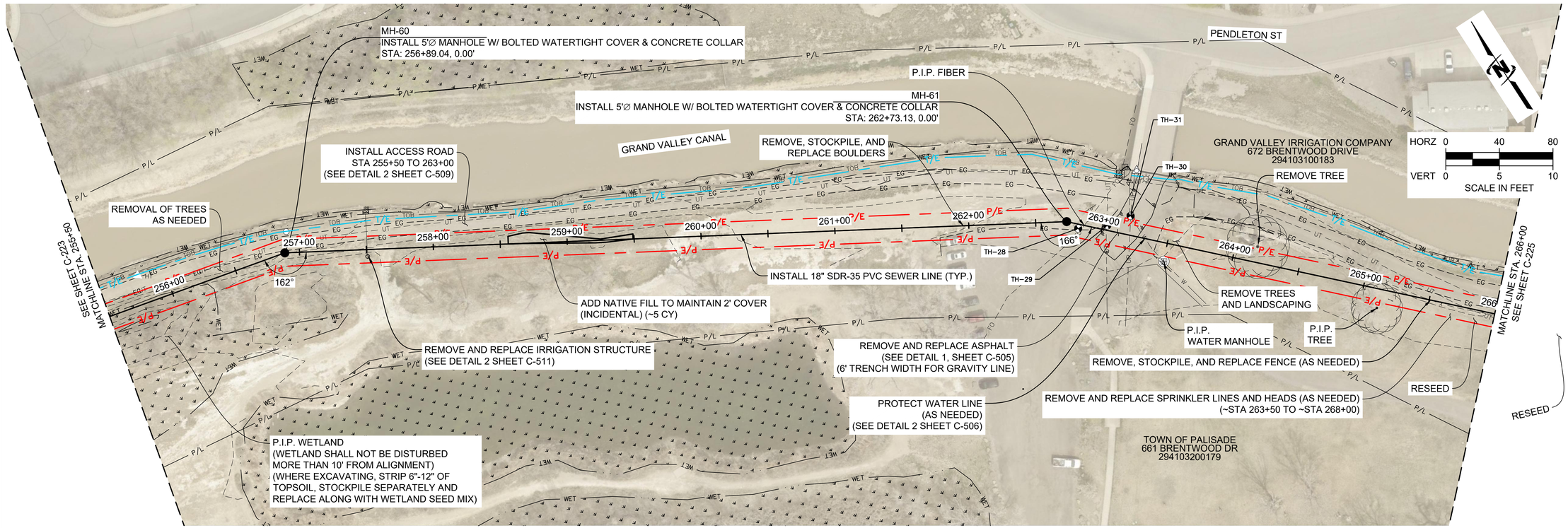
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TOWN OF PALISADE

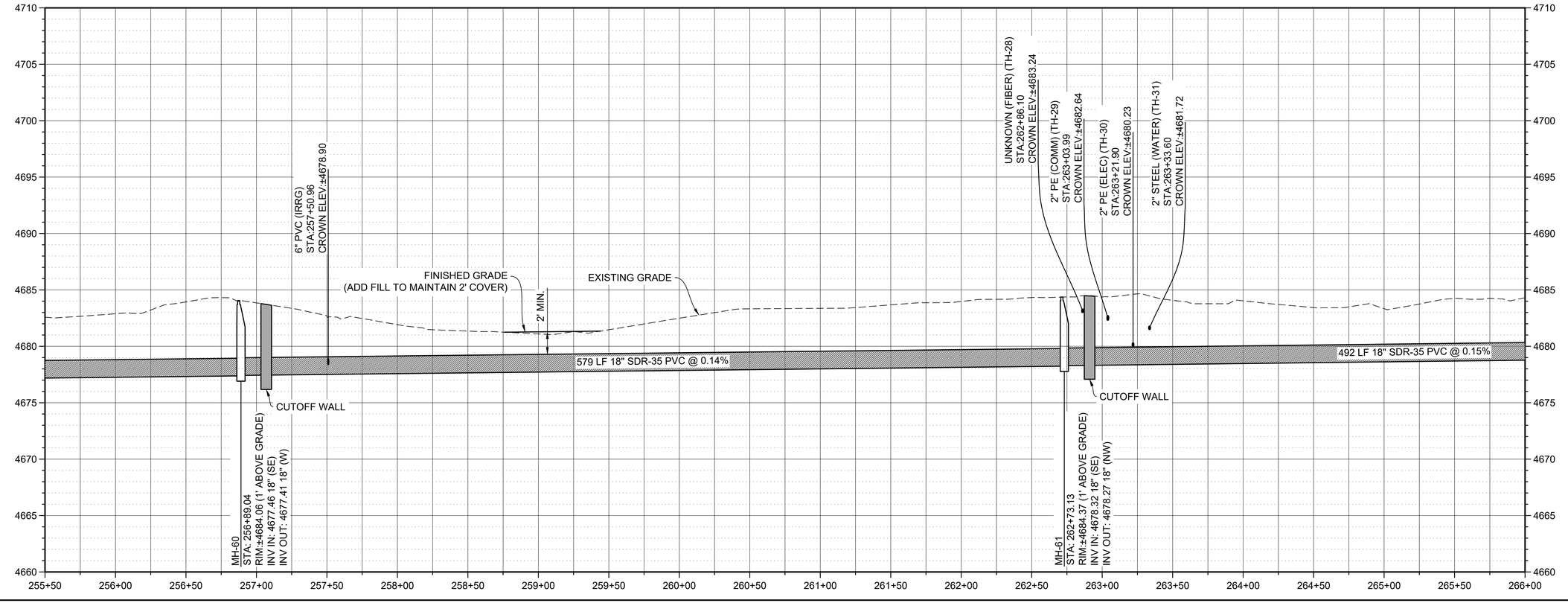
SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # :81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-223

Plot Date:7/21/2025 9:14 PM Plotted By: Matt Fitta
Date Created:7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\VILLC-20X.DWG





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SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-224

Plot Date: 7/21/2025 9:15 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\UBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-20X.DWG

SEE SHEET C-224
MATCHLINE STA 266+00

INSTALL 18" SDR-35 PVC SEWER LINE (TYP.)

REMOVE AND PLUG SEWER PIPE
(SEE DETAIL 2 SHEET C-508)

GRAND VALLEY IRRIGATION COMPANY
672 BRENTWOOD DRIVE
294103100183

RESTORE GRAVEL ROAD SURFACE

GRAND VALLEY CANAL

MATCHLINE STA 276+50
SEE SHEET C-226

TH-32
E0BC
-1.54

TH-46

RESEED

P.I.P.
PLAYGROUND

PROTECT WATER LINE
(AS NEEDED)
(SEE DETAIL 2 SHEET C-506)

REMOVE AND PLUG SEWER PIPE
(SEE DETAIL 2 SHEET C-508)

MH-63
INSTALL 5'∅ MANHOLE W/ BOLTED WATERTIGHT COVER & CONCRETE COLLAR
STA: 273+45.19, 0.00'

REMOVE, STOCKPILE, AND REPLACE FENCE (AS NEEDED)

TOWN OF PALISADE
661 BRENTWOOD DR
294103200179

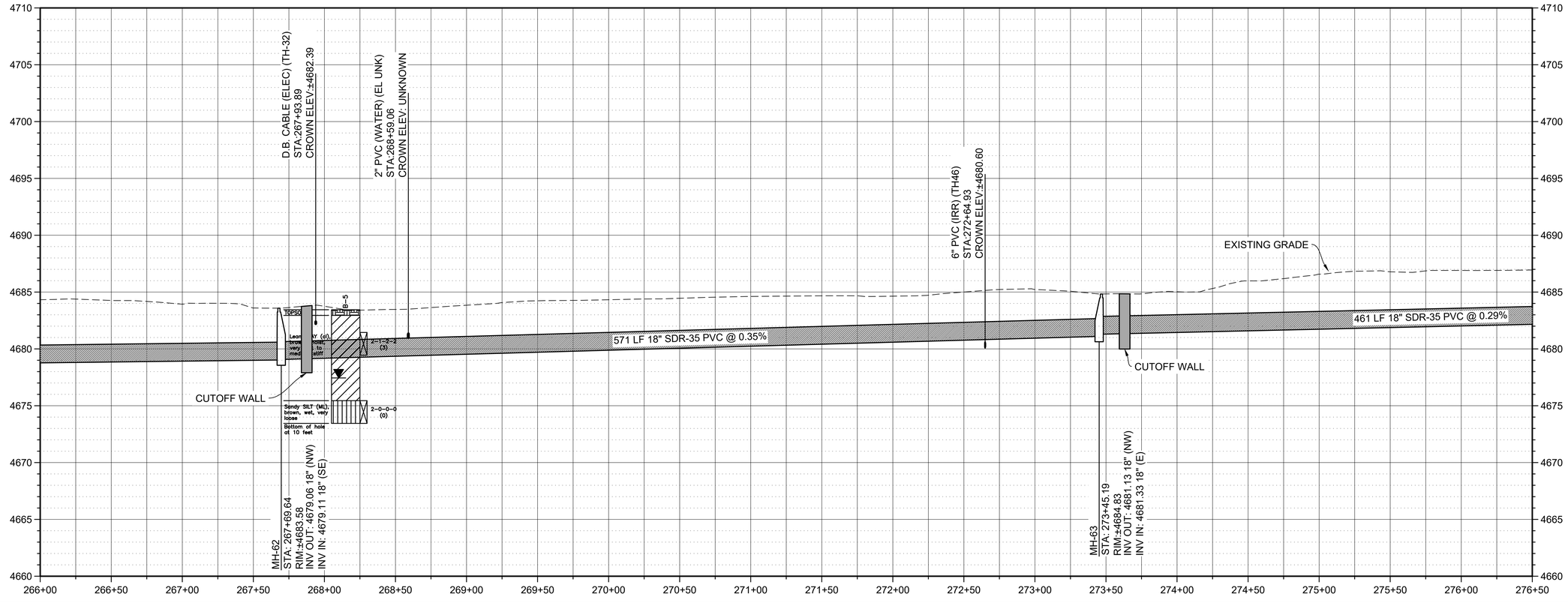
MH-62
INSTALL 5'∅ MANHOLE W/ BOLTED WATERTIGHT COVER & CONCRETE COLLAR
STA: 267+69.64, 0.00'

B-5

159°

157°

HORZ 0 40 80
VERT 0 5 10
SCALE IN FEET



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NO.	DESCRIPTION	DATE
	REVISION	BY APP.

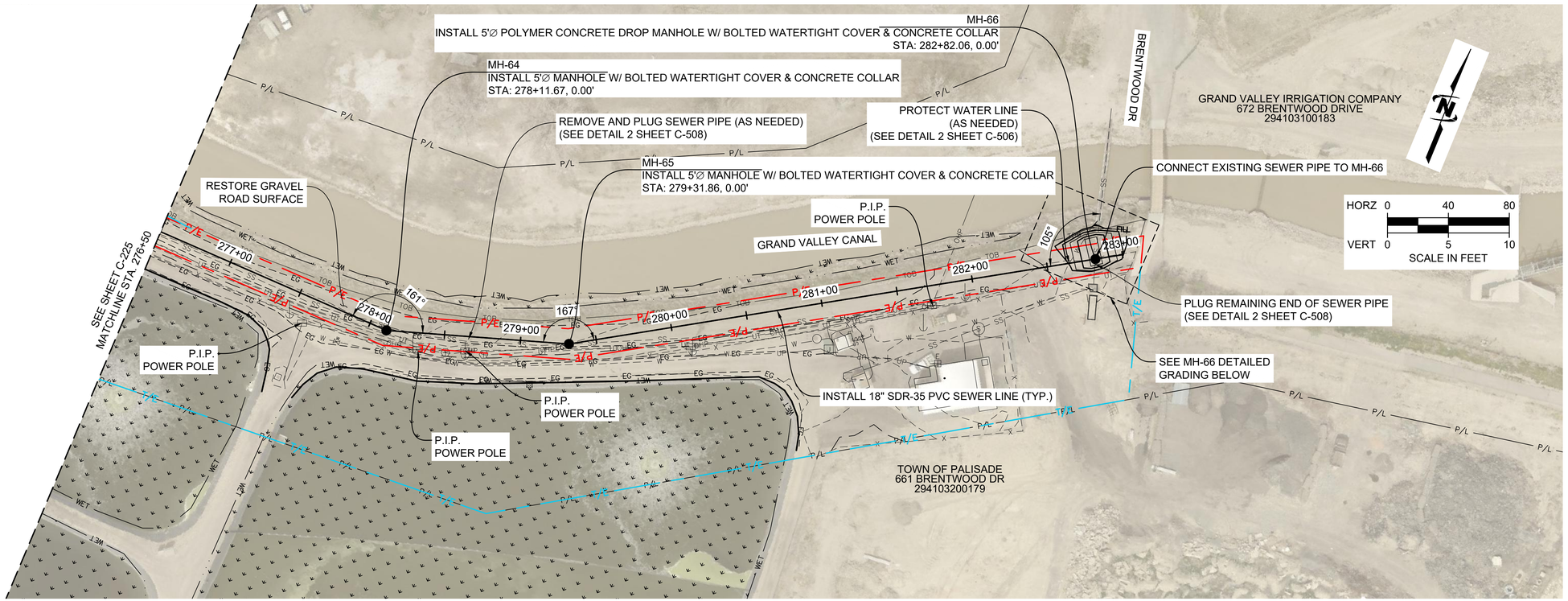
SEWER TRANSFER PROJECT
TOWN OF PALISADE

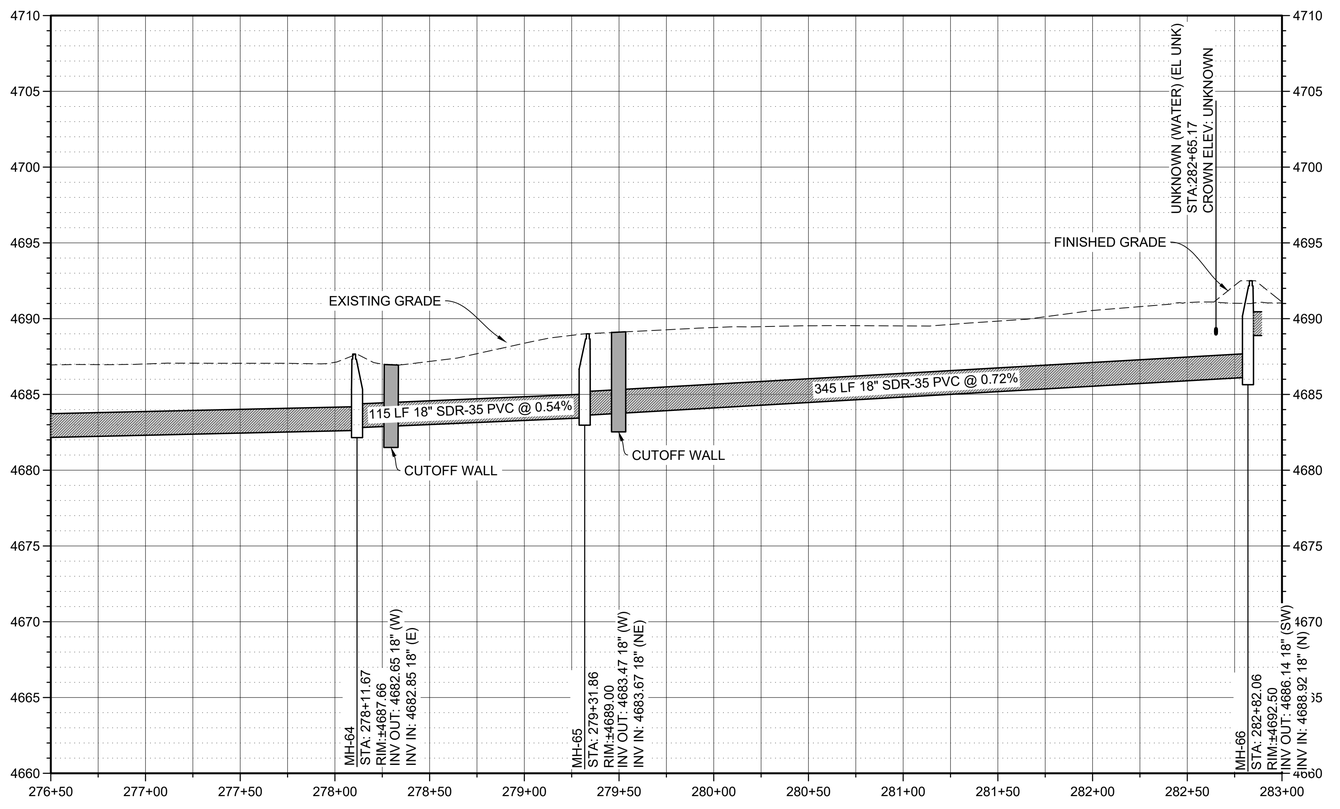
SEWER LINE PLAN & PROFILE

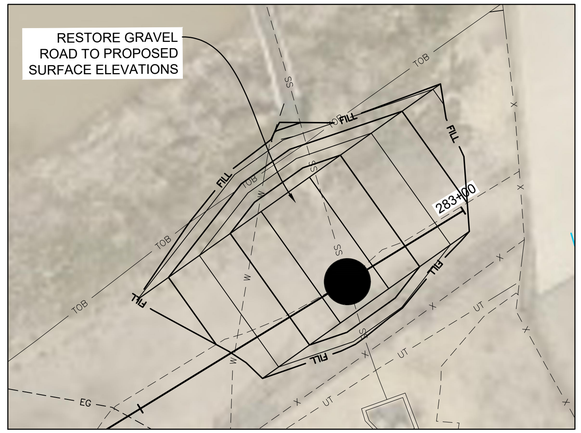
FILE : C-20X
JUB PROJ. # :81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-225

Plot Date: 7/21/2025 9:15 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBICENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG







MH-66 DETAILED GRADING

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MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

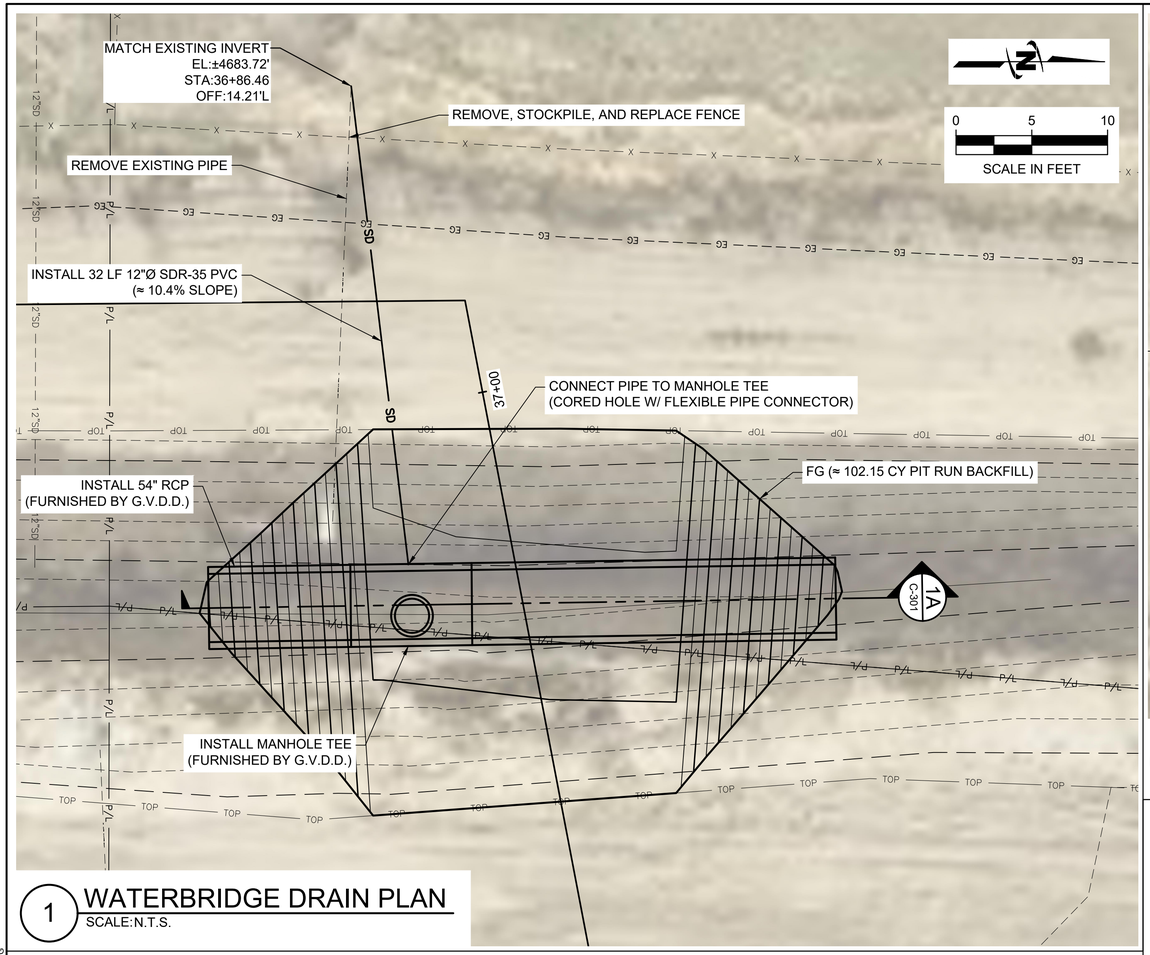
SEWER TRANSFER PROJECT
TOWN OF PALISADE

SEWER LINE PLAN & PROFILE

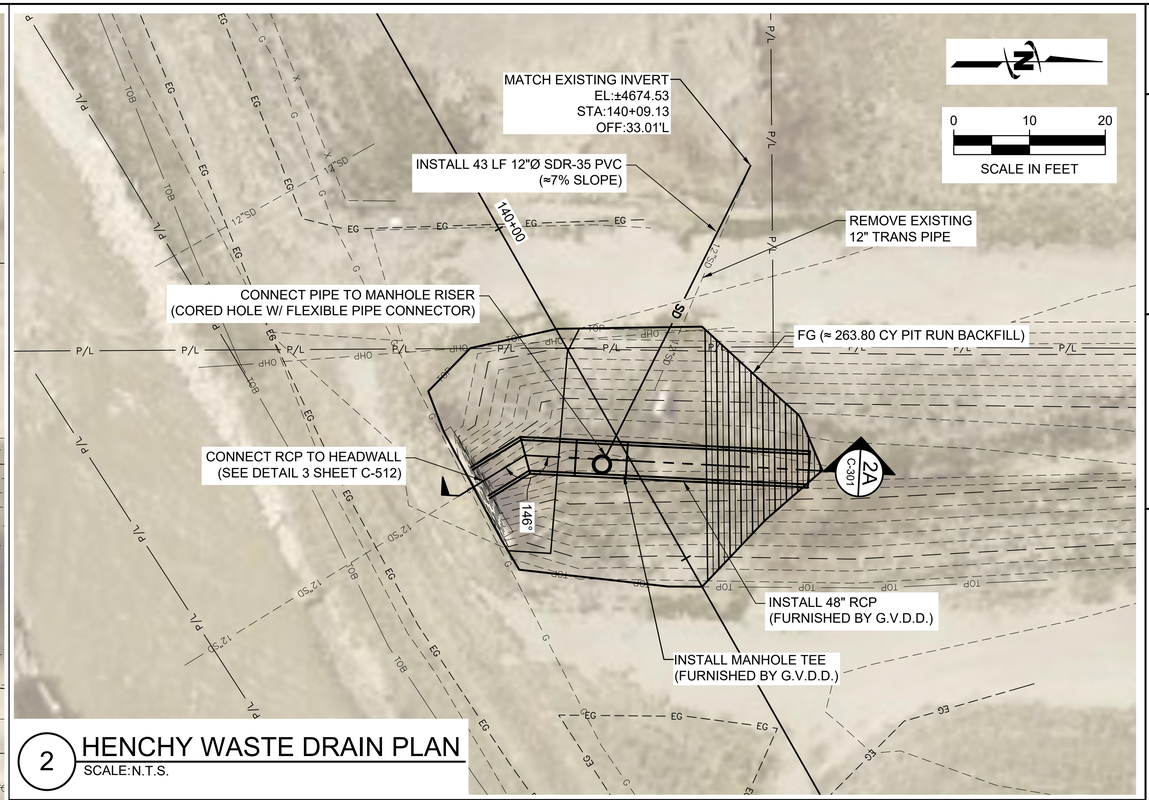
FILE : C-20X
JUB PROJ. # : 81-23-029
DRAWN BY: MWF
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE
INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/21/2025

SHEET NUMBER:
C-226

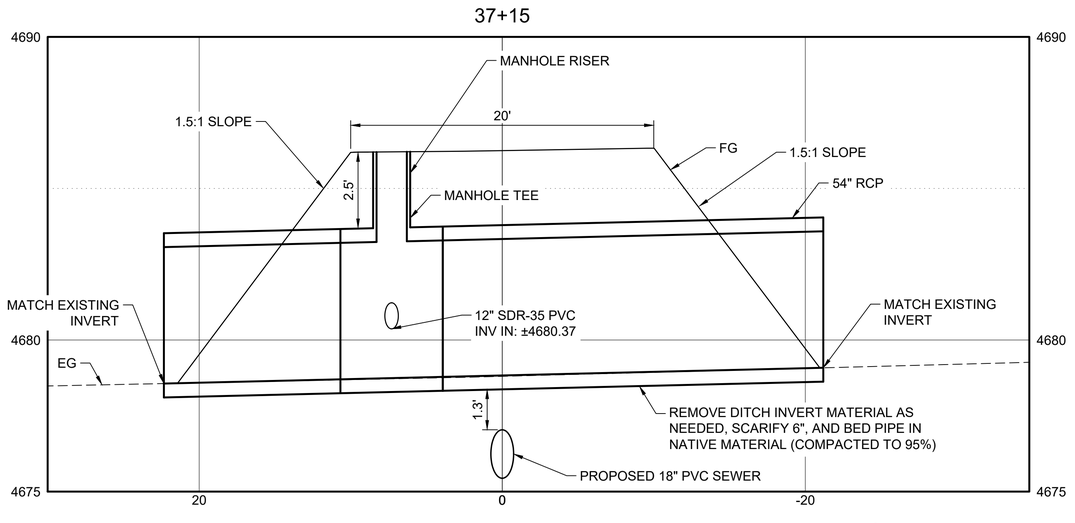
Plot Date: 7/21/2025 9:17 PM Plotted By: Matt Filla
Date Created: 7/21/2025 \\JUBCENTRALCLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\CIVIL\C-20X.DWG



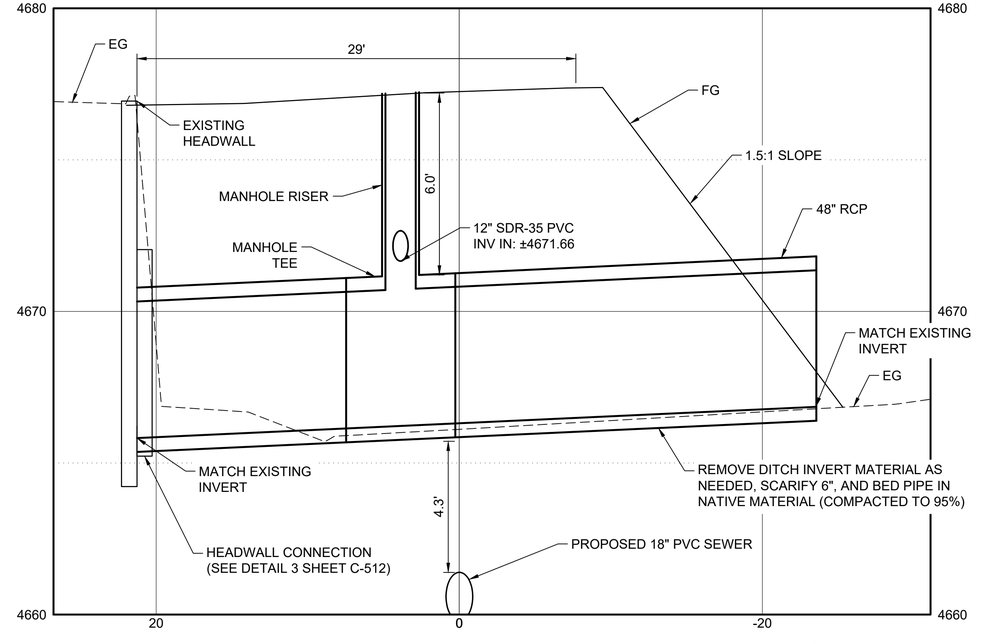
1 WATERBRIDGE DRAIN PLAN
SCALE:N.T.S.



2 HENCHY WASTE DRAIN PLAN
SCALE:N.T.S.



1A SECTION VIEW
SCALE:N.T.S.



2A SECTION VIEW
SCALE:N.T.S.

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

DRAIN CROSSING DETAILS

FILE : C-30X_PLANDETAILS
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/15/2025

SHEET NUMBER:
C-301

Plot Date:7/21/2025 9:19 PM Plotted By: Matt Filla
Date Created:6/19/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\CIVIL\C-30X_PLANDETAILS.DWG

PARCEL 294312211004
3333 E ¾ Road STA: 12+00

QUANTITY	ITEM	REMARKS
PERMANENT EASEMENT		
7,984 sq.ft.	Native Bushes and Vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (12 MONTHS FROM START OF WORK ON PROPERTY)		
9,528 sq.ft	Native Bushes and Vegetation	To be removed & replaced by project
ADDITIONAL ITEMS		

1. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCELS 294312200187 AND 294312100127
3345 E ¾ Road and 3351 E ¾ Road STA: 19+00 & 31+00

QUANTITY	ITEM	REMARKS
PE 294312100127		
26,675 sq.ft.	Native vegetation	To be removed & replaced by project
730 LF	Five strand barbed wire fencing	To be removed & replaced by project
1	12-foot metal gate	To be removed & replaced by project
TE 294312100127 (12 MONTHS FROM START OF WORK ON PROPERTY)		
9,455 sq.ft.	Native Vegetation	To be removed & replaced by project
12,300 sq.ft.	Alfalfa hay	To be removed & replaced by project
3,200 sq.ft.	Gravel drive	To be removed & replaced by project
642 LF	Five strand barbed wire fencing	To be removed & replaced by project
1	Large Deciduous Tree	To be removed by project
PE 294312200187		
21,221 sq.ft.	Native vegetation	To be removed & replaced by project
951 LF	Five strand barbed wire fencing	To be removed & replaced by project
TE 294312200187 (12 MONTHS FROM START OF WORK ON PROPERTY)		
7,977 sq.ft.	Native Vegetation	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities. The French drain located in the west field at the top of the slope shall be protected in place.
4. Contractor shall salvage and stockpile t-posts that are removed but not re-used near the Landowner's garage and shall coordinate this with the Landowner.

PARCEL 294312100203
3352 E ¾ Road STA: 37+00

QUANTITY	ITEM	REMARKS
PERMANENT EASEMENT		
1,099 sq.ft.	Native Vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (12 MONTHS FROM START OF WORK ON PROPERTY)		
2,138 sq.ft.	Native Vegetation	To be removed & replaced by project
25 LF	Panel fencing	To be removed & replaced if necessary
ADDITIONAL ITEMS		

1. Prior to removing existing fencing, Contractor shall construct a temporary fence along temporary easement boundary. Temporary fence shall remain in place until construction is complete and revegetation has occurred.
2. Existing fencing shall be removed and replaced, in-kind, and to its original location.
3. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294312100126
585 33 ¾ Road STA: 40+00

QUANTITY	ITEM	REMARKS
PERMANENT EASEMENT		
6,200 sq. ft.	Hay Field	To be removed & replaced by project
8 LF	Barbed Wire Fencing	To be removed & replaced by project
3,100 sq. ft.	Native Grass w/ Return Ditch	To be removed & replaced by project
1	Irrigation pipe	To be removed & replaced by project
5,900 sq. ft.	Dirt	To be removed and replaced by project
TEMPORARY EASEMENT (12 MONTHS FROM START OF WORK ON PROPERTY)		
4,808 sq. ft.	Dirt	To be removed & replaced by project
6,200 sq. ft.	Hay Field	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
4. Contractor shall provide Landowner with excess dirt generated from construction activities on the property. Contractor shall deliver and stockpile dirt at location indicated on plans.

PARCEL 294312108005
578 33 ¼ Road STA: 45+00

QUANTITY	ITEM	REMARKS
PERMANENT EASEMENT		
2,903 sq. ft.	Gravel driveway & gravel along south of barn	To be removed and replaced by project
4	Apple trees	To be removed by project
2	Pear trees	To be removed by project
2	Peach trees	To be removed by project
1	Apricot tree	To be removed by project
1	Plum tree	To be removed by project
2	Cherry trees	To be removed by project
1	Beehive (inactive)	To be addressed under relocation
175 LF	Drip Irrigation (currently around fruit trees)	To be removed and replaced by project
1	Trailer	To be addressed under relocation
2,100 sq. ft.	Native grass (south of driveway)	To be removed and replaced by project
1	12'x24' Hay Canopy	To be addressed under relocation
	Multiple bails of hay	To be addressed under relocation
1	Misc. wood/metal scrap pile, wood pallets, etc.	To be addressed under relocation
7,300 sq. ft.	Dirt entrance to pastures	To be removed and replaced by project
2,700 sq. ft.	Pasture (SE corner)	To be removed and replaced by project
350 LF	Wire fencing (north line PE)	To be addressed under relocation
6	Farm gates as part of fencing	To be addressed under relocation
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
2,636 sq. ft.	Gravel	To be removed and replaced by project
1,080 sq. ft.	Front horse pasture/riding arena	To be removed and replaced by project
90 LF	Wooden split rail fencing	To be removed and replaced by project
1	Sprinkler system next to riding arena	To be removed and replaced by project
3,460 sq. ft.	First field	To be removed and replaced by project
3,100 sq. ft.	Second field	To be removed and replaced by project
2,700 sq. ft.	Third field	To be removed and replaced by project
20 sq. ft.	Brick Pavers (by water spigot)	To be removed by project
1	Misc. wood, barrels, chicken wire, cistern, horse trough, fence pile, etc.	To be addressed under relocation
1,350 sq. ft.	Dirt (pig pends and corral)	To be removed and replaced by project
1	Misc. barrels, red panel fencing, pig canopy, hay feeder, 2nd canopy	To be addressed under relocation
1	Livestock Waterline	To be protected in place or removed and replaced as needed
ADDITIONAL ITEMS		

1. Contractor shall notify Landowner 90 days in advance of construction on property. Additionally, Contractor and Town Representative shall meet with Landowner prior to construction to coordinate.
2. Landowner shall be responsible for installing temporary fencing at TE boundary and shall remove and replace existing fencing. Contractor shall remove and replace split-rail fencing as needed.
3. Remove and stockpile topsoil (max. 2' depth) within agricultural fields separate from subsoils. Replace topsoil prior to reseeding easement areas. Contractor shall reseed hay field and install irrigation furrows as indicated below:
   - Reseed entire width of PE & TE within the easternmost 133 feet of hay field.
   - Reseed the area temporarily used for hay storage and the PE & TE, except for southernmost 10 feet, for the remaining 345 feet of hay field.
   - Contractor shall provide 30 days notice prior to reestablishment of hay field to allow Landowner time to relocate hay storage area.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities. Contractor shall relocate return irrigation ditch as indicated below:
   - Reconstruct return irrigation ditch to its original location adjacent to south property line across the easternmost 133 feet of the hay field.
   - Reconstruct the return irrigation ditch to new location, 12 feet north of the south property line, for remaining 345 feet of the hay field.
5. The existing water line to livestock water hydrant is located within PE and appears to conflict with proposed construction. This line shall be relocated. Contractor shall coordinate relocation of water line with Landowner two weeks prior to the water line being turned off and can not be off for more than 48 hours.
6. Access must be maintained to south entrance of garage at all times. Access must be maintained to Landowner's temporary hay storage shed during construction, except for when construction occurs adjacent to Landowner's improvements that are to be protected. Contractor shall notify Landowner 24 hours in advance of this portion of construction.
7. Contractor shall restore all gravel surfaces to a condition equal to or better than prior to construction.
8. Contractor shall remove and replace sprinkler lines running along south side of PE (including one main sprinkler line and one drip sprinkler line).

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7/21/2025
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NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SEWER TRANSFER PROJECT
TOWN OF PALISADE

PRIVATE PROPERTY REMOVALS & RESTORATION

FILE : C-40X_SURFACEREST
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/16/2025

SHEET NUMBER:
C-401

Plot Date:7/21/2025 8:19 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB.COM\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-40X_SURFACEREST.DWG

PARCEL 294312108004 577 34 Road STA: 55+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
7,994 sq.ft.	Hay pasture/field	To be removed & replaced by project
2,000 sq. ft.	Sand (Horse arena)	To be removed & replaced by project
6	Green Corral Panel	To be replaced by project (Landowner shall relocate prior to work)
8 LF	Wood 2-panel fence	To be removed by project
9	Sprinkler Head (2 in back pasture, 1 in horse pen, and 6 in front pasture)	To be removed and replaced by project
499 LF	Irrigation return pipe (12")	To be removed and replaced by project
20 LF	Split Rail Fence	To be removed and replaced by project
1	4 T-posts with 3 2x6 wood panels (around cleanout)	To be removed and replaced by project
1	Cement cleanout (inside fenced T-post with 2x6 wood panel area)	To be removed and replaced by project
TEMPORARY EASEMENT (12 MONTHS FROM START OF WORK ON PROPERTY)		
7,363 sq.ft.	Hay pasture/field	To be removed & replaced by project
2,400 sq.ft.	Sand (Horse arena)	To be removed & replaced by project
50 LF	1-inch PVC sprinkler line	To be protected in place
ADDITIONAL ITEMS		

1. Contractor shall install temporary fencing along the temporary easement boundary prior to removing existing fencing. Temporary fence shall remain in place until construction is complete and revegetation has occurred. Contractor shall use existing green corral panels for temporary fencing on property and coordinate with Landowner to ensure proper access for horses.
2. Existing fencing shall be removed and replaced, in-kind, and to its original location.
3. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
5. Existing underground sprinkler system shall be removed and replaced, in-kind, in its original location.
6. Contractor shall provide Landowner 2 weeks notice (via phone at 970-314-0747) prior to starting construction on property.

PARCEL 294105300055 641 35 ½ Road STA: 155+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
816 sq.ft.	Native Vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
632 sq.ft.	Native Vegetation	To be removed & replaced by project
20 LF	Portions of Irrigation Ditch	To be removed & replaced by project
ADDITIONAL ITEMS		

1. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105300049 614 35 Road STA: 131+00		
QUANTITY	**ITEM**	**REMARKS**
LIFT STATION PROPERTY		
11,712 sq. ft.	Native Vegetation	To be removed by project.
PERMANENT EASEMENT		
40,407 sq. ft	Native Vegetation	To be removed and replaced by project.
17,512 sq. ft.	Alfalfa Hay Field	To be removed and replaced by project.
5	Tee post	To be removed by project.
3	Wooden post	To be removed by project.
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
13,392 sq. ft.	Alfalfa Hay Field	To be removed and replaced by project.
6,156 sq. ft.	Native Vegetation	To be removed and replaced by project.
ADDITIONAL ITEMS		

1. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
2. Contractor shall roughly grade easement areas to match existing elevation and ensure proper drainage of fields.
3. Landowner shall be responsible for final grading and reseeding the easement areas.
4. Contractor shall seed all areas outside the agricultural fields with a native seed mix.
5. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105400086 640 35 ½ Road STA: 157+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
3,196 sq.ft.	Gravel Driveway	To be removed & replaced by project
5,812 sq.ft.	Native Vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
1,400 sq.ft.	Hay field (irrigated)	To be removed & replaced by project
180 sq.ft.	Gravel driveway	To be removed & replaced by project
320 sq.ft.	Landscape rock	To be removed by project
3	Large Pampas Grass	To be removed by project
5	Railroad Ties	To be removed by project
1	Jerusalem Artichoke	To be removed by project
1	Cherry Tree	To be removed by project
1	Plum Tree	To be removed by project
24 LF	Metal edging	To be removed by project
1	Medium bush (west of pampas grass)	To be removed by project
200 sq.ft.	Flower/Plant Garden	To be removed by project
225 sq.ft.	Gravel Driveway	To be protected in place
1,064 sq.ft.	Native Grass	To be removed by project
2	Metal posts	To be addressed under relocation
1	Trailor	To be addressed under relocation
2	Tires	To be addressed under relocation
1	Lawnmower	To be addressed under relocation
1	Metal gate	To be addressed under relocation
340 sq.ft.	Wood pile	To be addressed under relocation
20 LF	Red metal shed siding/roof	To be addressed under relocation
ADDITIONAL ITEMS		

1. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
3. Contractor shall ensure that Landowner has access to driveway at all times during construction activities.
4. Construction activities shall end by 8:00 PM every day, including truck and equipment access.

PARCEL 294105300041 3515 Front Street STA: 140+00		
QUANTITY	**ITEM**	**REMARKS**
TEMPORARY EASEMENT (12 MONTHS FROM START OF WORK ON PROPERTY)		
2,039 sq.ft.	Native Vegetation	To be removed & replaced by project
2,039 sq.ft.	Hay Field	To be removed & replanted by project

PARCEL 294105100035 3557 Front Street STA: 160+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
8,119 sq.ft.	Native Vegetation	To be removed & replaced by project
1	Large Cottonwood tree	To be removed by project
2	Deciduous Trees	To be removed by project
57 LF	8 ft tall wire fencing w/ wood posts (north south)	To be removed & replaced by project
312 LF	8 ft tall wire fencing w/ wood posts (east west)	To be removed & replaced by project
1	Field drain pipe (one found at site inspection)	To be removed & replaced by project
312 LF	Drainage ditch	To be restored by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
4,402 sq.ft.	Native Vegetation	To be removed & replaced by project
1	Large Cottonwood Tree	To be removed by project
1	Deciduous tree	To be removed by project
31 LF	8 ft tall wire fencing w/ wood posts (north south)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
3. Contractor shall install a temporary 4 foot tall field wire fence along the north temporary easement boundary prior to removing the existing fencing. Temporary fence shall remain in place until construction is complete and revegetation has occurred.

PARCEL 294105300124 3527 Grand Valley Canal Road STA: 148+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
14,200 sq.ft.	2-Tract Road/Native Vegetation	To be removed & replaced by project w/ gravel roadway
38,075 sq.ft.	Hay Field	To be removed and replanted by project (addressed under crop damage)
	Field Drainpipe (found one at site inspection but multiple along canal)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
17,280 sq.ft.	Hay Field	To be removed and replanted by project (addressed under crop damage)
ADDITIONAL ITEMS		

1. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities. Any disturbed pipes shall be replaced in-kind with new pipes of similar quality.
3. Contractor shall compact trench area to 90% Standard Proctor density test. Contractor shall warrant trench compaction for a period of one year.
4. Contractor shall provide Landowner with the excess dirt generated from construction activities. Contractor shall coordinate with Landowner and deliver the dirt to the Landowner's preferred stockpile area located ~1,000 feet southwest of the 35 ½ Road bridge. Contractor shall have the right to utilize the Grand Valley Canal Road and access the Landowner's property.
5. Contractor shall ensure that easement areas are graded to existing elevation and ensure proper drainage of fields.
6. Contractor shall reseed the field with alfalfa seed mix and all other disturbed areas of property shall be reseeded with a native seed mix.

PARCEL 294105100034 3561 Front Street STA: 162+50		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
200 LF	Barbwire w/ T-posts (east west)	To be removed & replaced by project
33 LF	Wood fencing w/ chicken wire (north south)	To be removed & replaced by project
1	Water pump	Addressed under relocation
1	Tiller	Addressed under relocation
2	Misc. Farming Equipment	Addressed under relocation
6	Wood Pallets	Addressed under relocation
5,630 sq.ft.	Native vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
200 LF	Barbwire w/ T-posts (east west)	To be removed & replaced by project
11 LF	Wood fencing w/ chicken wire (north south)	To be removed & replaced by project
2,325 sq.ft.	Native vegetation	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

JUB ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
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NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SEWER TRANSFER PROJECT
TOWN OF PALISADE

PRIVATE PROPERTY REMOVALS & RESTORATION

FILE : C-40X_SURFACEREST
JUB PROJ. # : 81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/16/2025

SHEET NUMBER:
C-402

Plot Date:7/21/2025 9:20 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB.COM\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\CIVIL\C-40X_SURFACEREST.DWG

PARCEL 294105100114 3567 ½ Front Street STA: 164+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
15 LF	Chain link gate (north south)	To be removed & replaced by project
57 LF	6ft tall chain link w/ wood post fencing (east west)	To be removed & replaced by project
51 LF	Chain link fencing (north south on each side of property)	To be removed & replaced by project
1	Deciduous Tree	To be removed by project
4,541 sq.ft.	Native vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
1	Deciduous Tree	To be removed by project
1,562 sq.ft.	Native vegetation	To be removed & replaced by project
PERMANENT EASEMENT		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105100115 3569 Front Street STA: 166+50		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
6,918 sq.ft.	Native Vegetation	To be removed & replaced by project
30	Peach trees	To be removed by project
1	Field drain pipe (one found at site inspection)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
3,081 sq.ft.	Native Vegetation	To be removed & replaced by project
20	Peach Trees	To be removed by project
ADDITIONAL ITEMS		

1. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105100061 3571 Front Street STA: 168+50		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
6,073 sq.ft.	Native Vegetation	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
1,818 sq.ft.	Native Vegetation	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Contractor shall notify Landowner by phone (970-988-0966) one week prior to the start of construction on the property.
2. Contractor shall install a 4 foot tall fence along the north temporary easement boundary. This temporary fence shall remain in place until construction is complete and revegetation has occurred.
3. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
5. In the event of a spill or release of hazardous materials during construction, all necessary steps will be taken to ensure compliance with applicable federal, state, and local laws. Contractor shall follow all relevant guidelines and procedures to mitigate any potential contamination and restore the site to its pre-construction condition.

PARCEL 294105100103 3577 Highway 6 and 24 STA: 171+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
12,319 sq. ft.	Native vegetation	To be removed & replaced by project
32 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
1	Large Cottonwood Tree	To be removed by project
2	Large Pine Trees	To be removed by project
	Green mesh fencing w/ 9 t-posts	To be removed by project
10	Deciduous Bushes/Trees	To be removed by project
33	Grape bushes	To be removed by project
2	Wood benches	To be removed by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
2,418 sq. ft	Native Vegetation	To be removed & replaced by project
11 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Contractor shall not remove the 22 grape vines location within the northern portion of the temporary easement.
2. Contractor shall subcontract with a local trellis company to modify the existing trellis within the temporary easement to support the remaining trellis outside the construction area. Additionally, the same subcontractor will be required to reestablish the trellis to its original location after construction is complete.
3. Landowner shall be responsible for adjusting the sprinkler system for the grapes to ensure that it functions properly both during and after construction.
4. Contractor shall modify the yard sprinkler system during construction to maintain functionality and will restore sprinkler system to original configuration after construction.
5. The surface of the property shall be restored to a condition equal to or better than what existed prior to construction.
6. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
7. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
8. Where practical, gravel road shall be installed adjacent to southern edge of the permanent easement. Under no circumstances shall the road be situated within 3 feet of any landscaping or grape trellises.

PARCEL 294105100031 3583 Front Street STA: 174+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
4,966 sq.ft.	Native vegetation	To be removed & replaced by project
27 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
232 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
2,225 sq.ft	Native Vegetation	To be removed & replaced by project
15 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
11 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105100030 3585 Front Street STA: 176+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
5,050 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
207 LF	Five Strand Barbwire Fence (southside)	To be removed & replaced by project
25 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
27 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
3,139 sq. ft	Alfalfa Hay Field	To be removed & replaced by project
18 LF	Five Strand Barbwire Fence (eastside)	To be removed & replaced by project
15 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105100029 3589 Front Street STA: 178+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
4,953 sq.ft.	Grass Hay Field	To be removed & replaced by project
183 LF	Five Strand Barbwire Fence (south side)	To be removed & replaced by project
1	Large Deciduous Tree	To be removed by project
1	Small Locust	To be removed by project
31 LF	Five Strand Barbwire Fence (east side)	To be removed & replaced by project
25 LF	Five Strand Barbwire Fence (west side)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
2,448 sq.ft	Grass Hay Field	To be removed & replaced by project
11 LF	Five Strand Barbwire Fence (east side)	To be removed & replaced by project
18 LF	Five Strand Barbwire Fence (west side)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location. Contractor shall install gates in fencing as indicated by Plans.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294105100134 3595 Front Street STA: 181+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
13,708 sq.ft.	Native vegetation	To be removed & replaced by project
397 LF	Chain link fencing (with 2 gates)	To be removed & replaced by project
1	Large Willow tree	To be removed by project
37 LF	Field Wire Fence with two strand wire on top (eastside)	To be removed & replaced by project
37 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
Multiple	Russian Olive Trees	To be removed by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
4,057 sq.ft	Alfalfa Hay Field	To be removed & replaced by project
11 LF	Field Wire Fence with two strand wire on top (eastside)	To be removed & replaced by project
11 LF	Five Strand Barbwire Fence (westside)	To be removed & replaced by project
Multiple	Russian Olive Trees	To be removed by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

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NO.	DESCRIPTION	BY	APR.	DATE
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SEWER TRANSFER PROJECT
TOWN OF PALISADE

PRIVATE PROPERTY REMOVALS & RESTORATION

FILE : C-40X_SURFACEREST
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/16/2025

SHEET NUMBER:
C-403

Plot Date:7/21/2025 9:20 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\J-U-B.COM\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\CIVIL\C-40X_SURFACEREST.DWG

PARCEL 294105100079 3601 Front Street STA: 183+50		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
5,215 sq. ft.	Grass Hay Field	To be removed & replaced by project
34 LF	Field Wire Fence with two strand wire on top (eastside)	To be removed & replaced by project
1	Wooden corner post	To be removed & replaced by project
1	12-foot Metal Gate	To be removed & replaced by project
37 LF	Field Wire Fence with two strand wire on top (westside)	To be removed & replaced by project
2	Small Deciduous Trees	To be removed by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
1,358 sq. ft.	Grass Hay Field	To be removed & replaced by project
11 LF	Field Wire Fence with two strand wire on top (eastside)	To be removed & replaced by project
8 LF	Field Wire Fence with two strand wire on top (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Prior to removing existing fencing, Contractor shall construct a temporary fence along north temporary easement boundary. Temporary fence shall remain in place until construction is complete and revegetation has occurred.
2. Existing field wire fencing shall be removed and replaced, in-kind, and to its original location. Additionally, the old metal gate along the east property line used to shore up neighbor's fence shall be removed and replaced with field wire fencing.
3. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.
5. Reseed with an alfalfa/grass seed mix.

PARCELS 294104200068 AND 294104200169 3603 Front Street STA: 185+00 & STA: 187+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT (294104200169)		
8,878 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
317 LF	Four strand barbwire Fence (south fence)	To be removed & replaced by project
28 LF	Four strand barbwire Fence (eastside)	To be removed & replaced by project
1	Steel corner post and field wire gate (middle)	To be removed & replaced by project
31 LF	Four strand barbwire Fence (middle)	To be removed & replaced by project
TEMPORARY EASEMENT (294104200169) (24 MONTH DURATION)		
3,771 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
14 LF	Four strand barbwire Fence (eastside)	To be removed & replaced by project
14 LF	Four strand barbwire Fence (middle)	To be removed & replaced by project
PERMANENT EASEMENT (294104200068)		
1,346 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
128 LF	Four strand barbwire Fence (south fence)	To be removed & replaced by project
31 LF	Field Wire Fence, with 2 strands of wire on top (westside)	To be removed & replaced by project
TEMPORARY EASEMENT (294104200068) (24 MONTH DURATION)		
3,771 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
11 LF	Field Wire Fence, with 2 strands of wire on top (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294104200168 3613 Front Street STA: 190+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
10,075 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
298 LF	Woven Wire Fencing with 2 strands of wire on top and 2 hot wires	To be removed & replaced by project
33 LF	Five strand barbwire Fence, w/ 2 hot wires (eastside)	To be removed & replaced by project
28 LF	Five strand barbwire Fence, w/hot wire (westside)	To be removed & replaced by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
1,957 sq. ft.	Alfalfa Hay Field	To be removed & replaced by project
10 LF	Five strand barbwire Fence, w/ 2 hot wires (eastside)	To be removed & replaced by project
14 LF	Five strand barbwire Fence, w/hot wire (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Prior to removing existing fencing, Contractor shall construct a temporary fence along temporary easement boundary.
2. Existing fencing shall be removed and replaced, in-kind, and to its original location.
3. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
4. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294104200070 3615 Front Street STA: 193+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
6,155 sq. ft.	Native Vegetation	To be removed & replaced by project
150 LF	Woven Wire Fencing with 2 strands of wire on top	To be removed & replaced by project
1	Large Farm Gate	To be removed & replaced by project
22 LF	Woven Wire Fencing with 2 strands of wire on top (eastside)	To be removed & replaced by project
33 LF	Five strand barbwire Fence, w/ 2 hot wires (westside)	To be removed & replaced by project
1	Medium Deciduous Tree	To be removed by project
1	Large Russian Olive	To be removed by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
3,445 sq. ft.	Native Vegetation	To be removed & replaced by project
12	Mature Peach Trees	To be protected in place
20 LF	Woven Wire Fencing with 2 strands of wire on top (eastside)	To be removed & replaced by project
10 LF	Five strand barbwire Fence, w/ 2 hot wires (westside)	To be removed & replaced by project
ADDITIONAL ITEMS		

1. Existing fencing shall be removed and replaced, in-kind, and to its original location.
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

PARCEL 294104202014 655 36 ¼ Road STA: 195+00		
QUANTITY	**ITEM**	**REMARKS**
PERMANENT EASEMENT		
4,418 sq. ft.	Native Pasture Grass	To be removed & replaced by project
222 LF	Oil Pipe Fencing with cable wire	To be removed & replaced by project
18 LF	Farm Panel Fencing (eastside)	To be removed & replaced by project
18 LF	Oil Pipe Fencing with cable wire (between corral and pasture)	To be removed & replaced by project
1	Small Farm Gate	To be removed & replaced by project
22 LF	Woven Wire Fencing with 2 strands of wire on top (westside)	To be removed & replaced by project
1	Large Deciduous Tree	To be removed by project
TEMPORARY EASEMENT (24 MONTHS FROM START OF WORK ON PROPERTY)		
4,347 sq. ft.	Native Vegetation	To be removed & replaced by project
23 LF	Farm Panel Fencing (eastside)	To be removed & replaced by project
23 LF	Oil Pipe Fencing with cable wire (between corral and pasture)	To be removed & replaced by project
20 LF	Woven Wire Fencing with 2 strands of wire on top (westside)	To be removed & replaced by project
1	Large Deciduous Tree	To be removed by project
ADDITIONAL ITEMS		

1. Contractor shall coordinate temporary and permanent fencing with Landowner at least 30 days in advance of work. Contractor shall install temporary fencing along the north temporary construction easement boundary. Temporary fencing shall remain in place until construction is complete. Landowner shall be responsible for removing and replacing the existing oil pipe fencing. Landowner shall install gate where necessary (gate shall be furnished by Contractor).
2. Within limits of excavation, remove and stockpile agricultural topsoil (up to a maximum depth of 2') separate from subsoils. Replace agricultural topsoil prior to reseeding easement areas.
3. All irrigation drainage ditches, field drains, and piping affected by construction shall be restored to original condition or better as reasonably practical prior to the irrigation season or upon completion of construction activities.

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	REVISION			

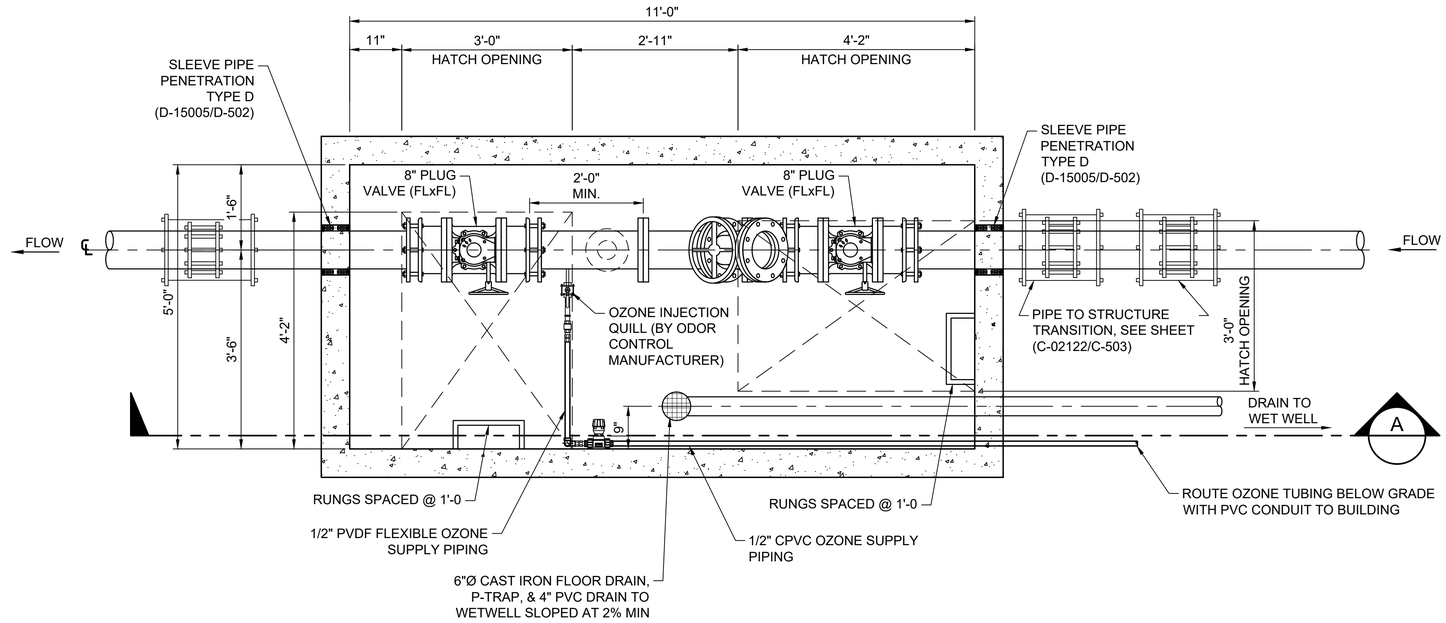
SEWER TRANSFER PROJECT
TOWN OF PALISADE

PRIVATE PROPERTY REMOVALS & RESTORATION

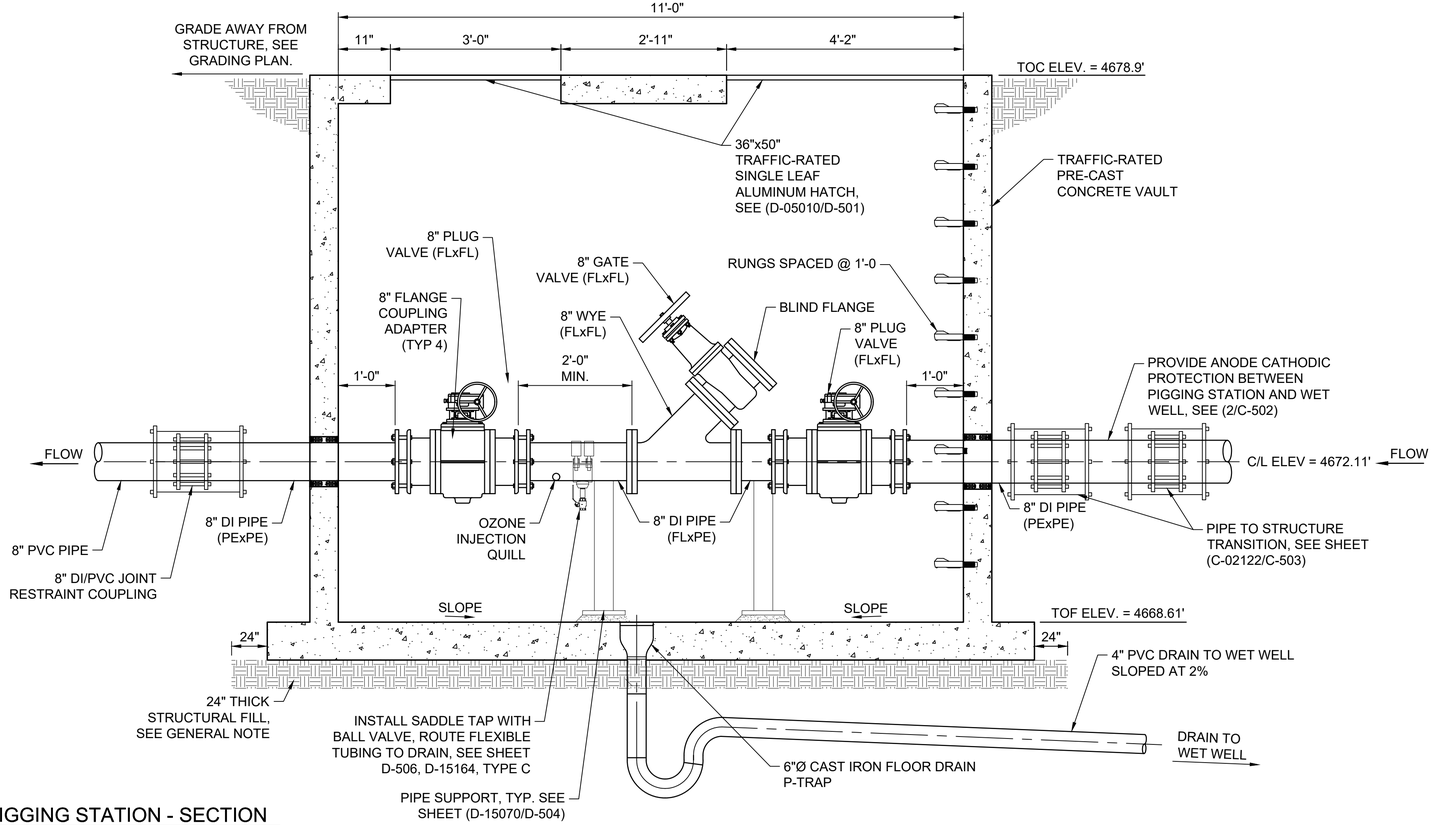
FILE : C-40X_SURFACEREST
JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/16/2025

SHEET NUMBER:
C-404

Plot Date:7/21/2025 9:20 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB.COM\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\C-40X_SURFACEREST.DWG



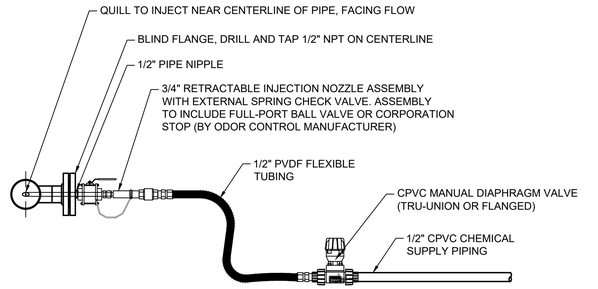
1 PIGGING STATION - PLAN
SCALE:3/4" = 1'-0"



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

GENERAL NOTES:

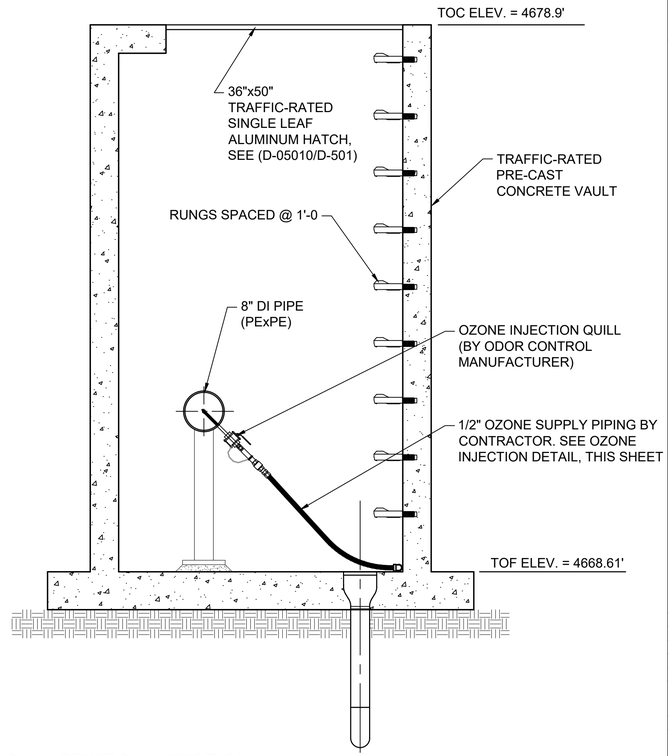
1. PIGGING STATION SHALL BE PLACED ON PROPERLY PREPARED SUBGRADE AND 24-IN THICK STRUCTURAL FILL.
2. IT MAY BE NECESSARY TO UTILIZE A GEOTEXTILE AND/OR GEOGRID TO STABILIZE SUBGRADE. GEOTECHNICAL ENGINEER SHOULD BE CONTACTED TO PROVIDE RECOMMENDATIONS FOR STABILIZATION BASED UPON ACTUAL CONDITIONS ENCOUNTERED.
3. STRUCTURAL BACKFILL SHALL MEET GRADATION, MOISTURE CONTENT, COMPACTION AND ALL OTHER REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
4. GEOTECHNICAL REPORT BY HUDDLESTON-BERRY (BHET) DATED AUGUST 9, 2024 IS LOCATED IN THE TECHNICAL SPECIFICATIONS.
5. INSTALL ALL DRAIN LINES IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE COLORADO PLUMBING CODE OR THE LOCAL GOVERNING ORDINANCE.



NOTES:

1. PIPE SIZES AND MATERIALS MAY VARY, SEE PLANS.
2. SADDLE TAP INJECTION IN PLACE OF BLIND FLANGE WHERE SHOWN ON PLANS.

OZONE INJECTION QUILL DETAIL
N.T.S.



B PIGGING STATION - SECTION
SCALE:3/4" = 1'-0"

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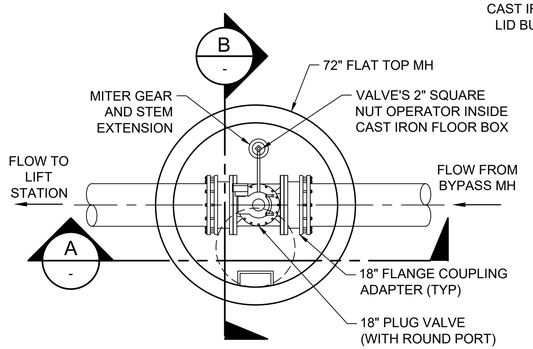
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

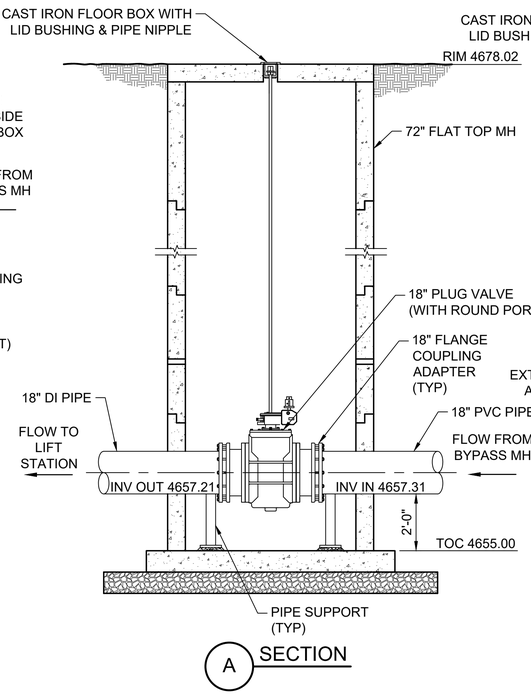
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JUB PROJ. # :81-23-029
DRAWN BY: ###
DESIGN BY: KAR /AMN
CHECKED BY: ###
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-501

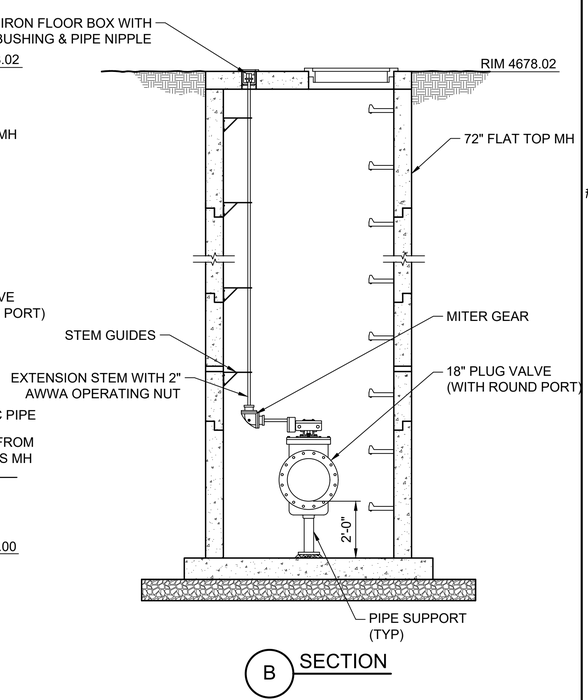
Plot Date:7/21/2025 9:21 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG



PLAN



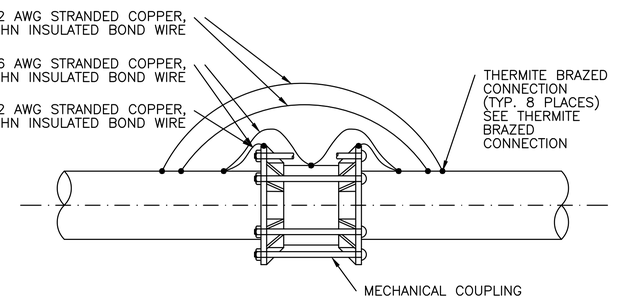
A SECTION



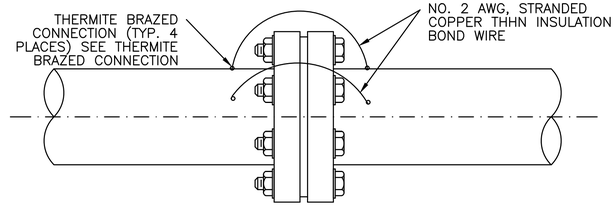
B SECTION

GENERAL NOTES:
1. CONTRACTOR TO VERIFY FINAL SURFACE RESTORATION AND MANHOLE ELEVATIONS WITH CIVIL SHEETS.

1 PLUG VALVE DETAIL
SCALE:3/8" = 1'

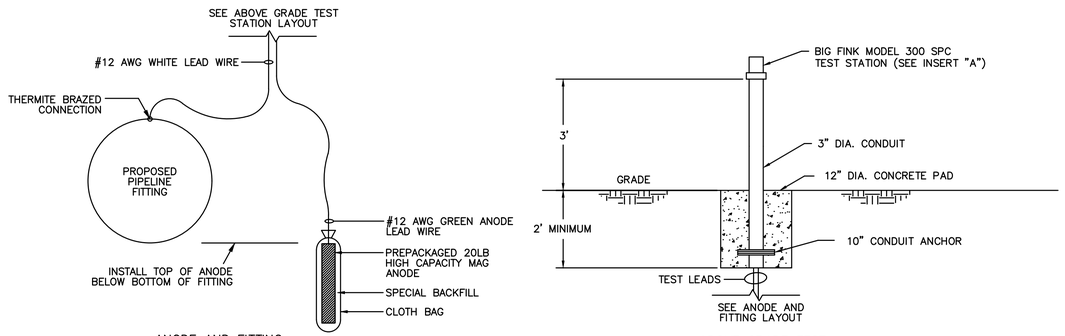


MECHANICAL COUPLING BOND DETAIL



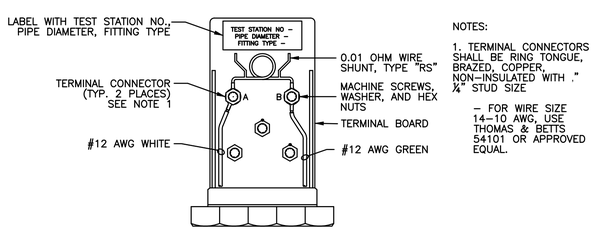
ELECTRICAL BONDING ACROSS FLANGE

NOTE: BOND WIRES SHALL BE PLACED A MINIMUM OF 6" APART.



ANODE AND FITTING LAYOUT

ABOVE GRADE TEST STATION LAYOUT

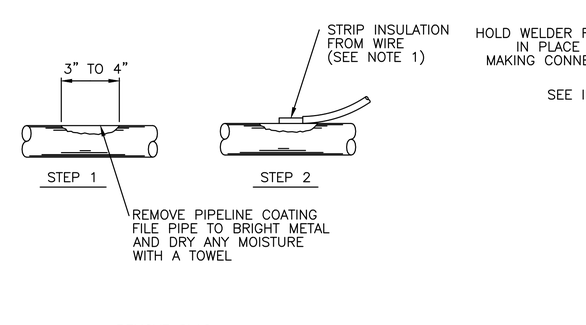


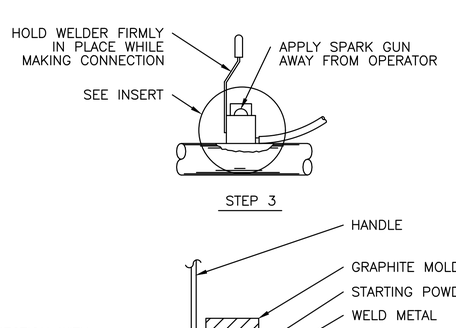
INSERT "A"

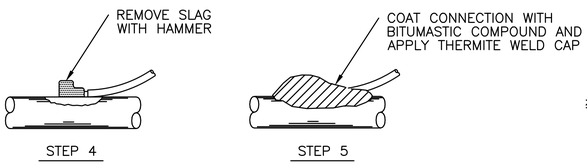
NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON–INSULATED WITH ." ¼" STUD SIZE
– FOR WIRE SIZE 14–10 AWG, USE THOMAS & BETTS 54101 OR APPROVED EQUAL.

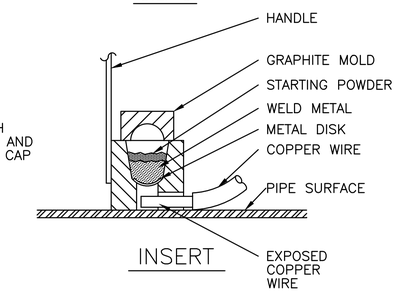
WIRE CODING:
* WIRE A IS WHITE #12 AWG LEAD WIRE TO FITTING
* WIRE B IS GREEN #12 AWG LEAD WIRE TO ANODE

2 SINGLE ANODE TEST STATION
SCALE:N.T.S.









INSERT

THERMITE BRAZED CONNECTION DETAIL

NOTES:
1. WHEN #14 SOLID TO #10 SOLID WIRE IS USED, IT WILL BE NECESSARY TO INSTALL A COPPER SLEEVE OF ADEQUATE SIZE OVER BARE SECTION OF WIRE BEFORE CONNECTION IS ATTEMPTED.
2. THERMITE WELD PROCEDURES SIMILAR FOR "L" BRACKETS.
3. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG. RECOMMENDATIONS.

3 BONDING WIRES
SCALE:N.T.S.

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENT'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

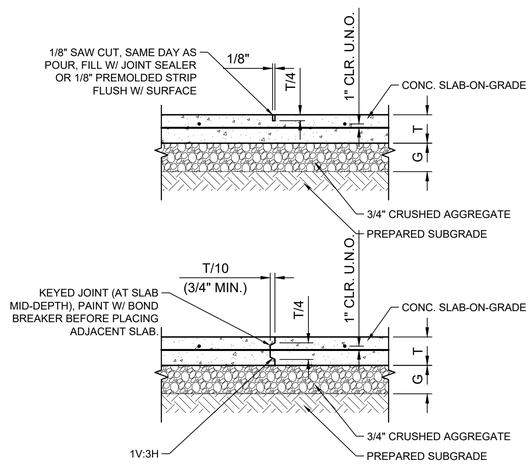
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JUB PROJ. # :	81-23-029
DRAWN BY:	WVD
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CHECKED BY:	GMV / MWF
ONE INCH	AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED:	7/19/2025

SHEET NUMBER:
C-502

Plot Date:7/21/2025 9:21 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUBCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG

NOTES:

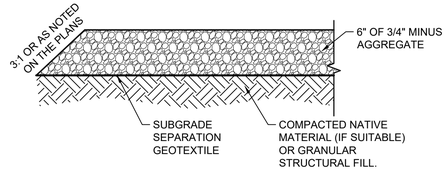
1. UNLESS NOTED OTHERWISE, MINIMUM SLAB THICKNESS (T) SHALL BE 4" FOR FOOT-TRAFFIC AREAS AND MINIMUM OF 6" FOR VEHICULAR TRAFFIC AREAS; GRANULAR BASE MATERIAL (G) SHALL BE 6" THICK. MINIMUM REINFORCING WITH #4 AT 15" O.C.E.W. UNLESS NOTED OTHERWISE.
2. CONTROL JOINTS SHALL BE 15'-0" O.C.
3. JOINT TYPE USED IS OPTIONAL, UNLESS NOTED OTHERWISE.
4. CUT EVERY OTHER BAR CROSSING CONTROL JOINTS.
5. USE ONLY FOR EXTERIOR SLABS AS SPECIFICALLY NOTED ON CIVIL SHEETS. SEE STRUCTURAL SHEETS FOR FOUNDATION AND REINFORCED INTERIOR SLABS.
6. ALL AGGREGATE AND SUBGRADE SHALL BE COMPACTED TO 95% OF MAX DRY DENSITY PER ASTM D-1557
7. PROVIDE 1/2" JOINT WITH EXPANSION FILLER AND JOINT SEALANT WHEN ADJACENT TO STRUCTURES.



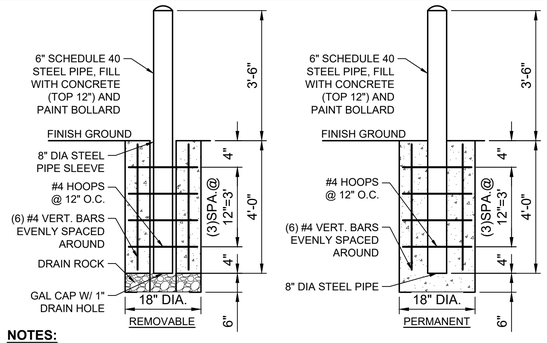
C-02150 TYPICAL CONCRETE SLAB-ON-GRADE DETAIL
NOT TO SCALE

NOTES:

1. COMPACTION SHALL BE TO 95% MAX. DRY DENSITY PER ASTM D-1557.



C-02190 GRAVEL TYPICAL SECTION
NOT TO SCALE



NOTES:

1. PROVIDE BOLLARD AROUND ALL ROLL-UP DOORS AND WHERE NOTED ON THE PLANS.
2. BOLLARD SPACING SHALL EQUAL DOOR WIDTH WHEN PLACED AT DOOR OPENINGS UNLESS NOTED OTHERWISE.
3. PAINT COLOR PER OWNER.
4. BOLLARDS NEAR ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO GENERATOR AND TRANSFORMERS, SHALL MEET THE REQUIREMENTS OF THE UTILITY PROVIDER.

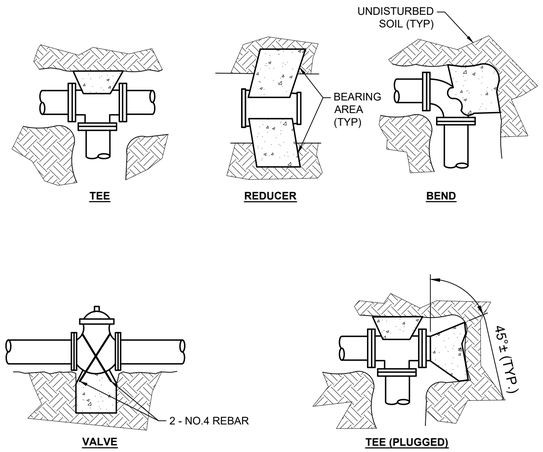
C-02160 BOLLARD DETAILS
NOT TO SCALE

NOTES:

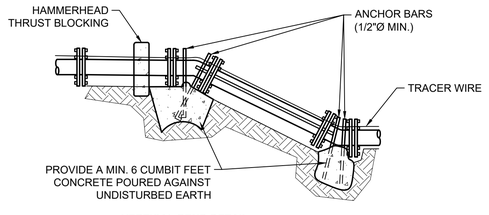
1. THRUST BLOCKS TO BE PROVIDED UNDER ALL BURIED VALVES AND WHERE SPECIFICALLY IDENTIFIED ON THE PLANS.
2. CONCRETE SHALL BE 2,500 PSI MINIMUM.
3. CONTRACTOR TO SUBMIT BEARING REQUIREMENTS FOR HIGHER WORKING PRESSURES, AND ALLOWABLE SOIL BEARING PRESSURE FOR REVIEW BY ENGINEER.
4. WRAP ALL FITTINGS WITH 6 MIL PLASTIC SHEETING BEFORE POURING THRUST BLOCK.

MINIMUM SQUARE FEET OF THRUST AREA*					
PIPE SIZE (INCHES)	TEE OR PLUG	90° BEND	45° BEND	22.5°, 11.25° BENDS OR REDUCER	VALVES
3	0.80	1.10	0.60	0.30	0.80
4	1.40	2.00	1.10	0.60	1.40
6	3.20	4.50	2.40	1.20	3.20
8	5.70	8.00	4.30	2.20	5.70
10	8.80	12.50	6.80	3.40	8.80
12	12.70	18.00	9.70	5.00	12.70
14	17.30	24.50	13.30	6.80	17.30
16	22.59	32	17.30	8.80	22.60
18	28.59	40.50	21.90	11.20	28.60
20	35.41	50.00	27.00	13.80	34.90
24	50.90	71.97	39.00	19.86	50.30

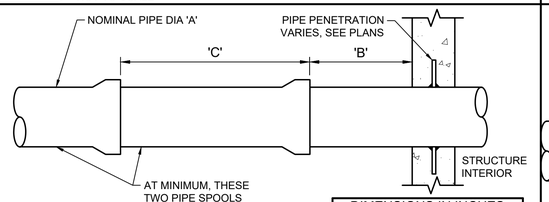
* SOIL BEARING PRESSURE= 2000 PSF
WORKING PRESSURE RATING= 150 P.S.I.
SAFETY FACTOR= 1.5



C-02005 THRUST BLOCK DETAIL
NOT TO SCALE



VERTICAL BEND DETAIL

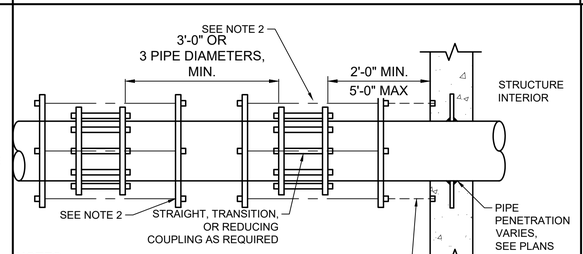


DIMENSIONS IN INCHES		
'A'	'B' (UNO)	'C' (MIN)
14	24	39
16	24	39
18	24	39
24	24	39
30	24	62
36	24	77
42	24	77
48	24	77

NOTES:

1. PROVIDE US PIPE HDSS, HIGH DEFLECTION RESTRAINED JOINT DUCTILE IRON PIPE SPOOL PER DIMENSION 'C' (OR APPROVED EQUAL).
2. FOR DUCTILE IRON PIPE GREATER THAN 12-INCHES.
3. FOR AREAS WITH EXPECTED SETTLEMENT LESS THAN OR EQUAL TO 2 VERTICAL INCHES ONLY.

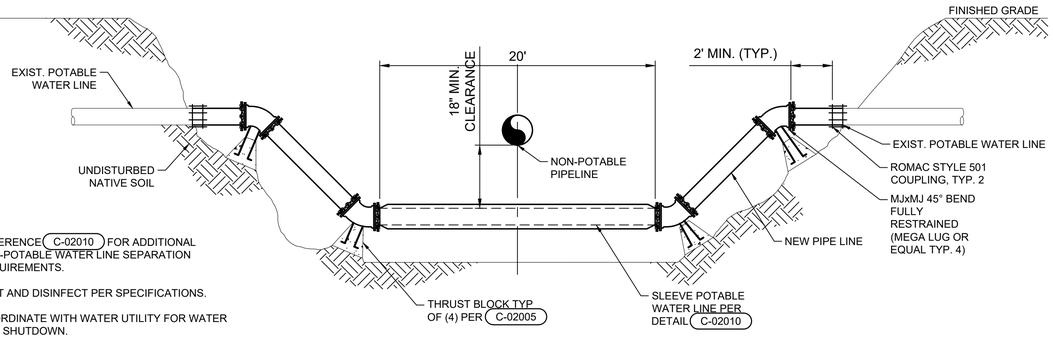
C-02123 FLEXIBLE CONNECTION AT BUILDING (FOR PIPES GREATER THAN 12")
NOT TO SCALE



NOTES:

1. REQUIRED FOR 4" AND LARGER PIPES. AT TRANSITION BETWEEN YARD PIPING AND STRUCTURES.
2. PROVIDE RESTRAINED JOINT(LONGITUDINAL RESTRAINT HARNESS, ROMAC 600 SERIES, OR EQUAL).
3. FOR PIPE 12-INCHES AND SMALLER.

C-02122 PIPE TO STRUCTURE TRANSITION DETAIL
NOT TO SCALE



NOTES:

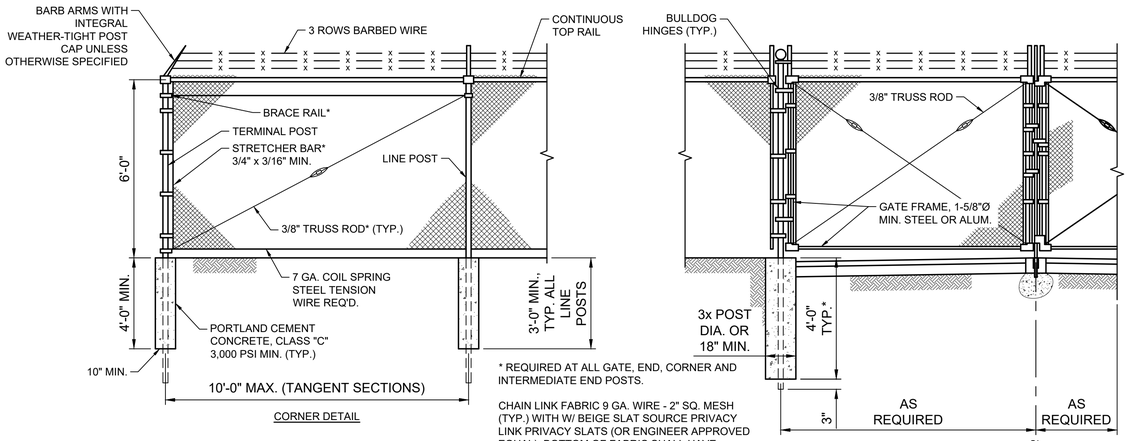
1. REFERENCE C-02010 FOR ADDITIONAL NON-POTABLE WATER LINE SEPARATION REQUIREMENTS.
2. TEST AND DISINFECT PER SPECIFICATIONS.
3. COORDINATE WITH WATER UTILITY FOR WATER LINE SHUTDOWN.

C-02192 WATERLINE CROSSING
NOT TO SCALE

MINIMUM MEMBER SIZE AND WEIGHT FOR CHAIN LINK FENCE

MATERIAL	BRACE & TOP RAILS				LINE POSTS						END, CORNER, INTER. END				GATE POSTS				
	TUBULAR		ROLL FORMED		TUBULAR		H-SECTION		ROLL FORMED		TUBULAR		ROLL FORMED		FOR GATE LEAF WIDTH	TUBULAR		ROLL FORMED	
GALVANIZED OR ALUMINUM COATED (SCH 40 STEEL)	O.D.	#/FT.	SIZE	#/FT.	O.D.	#/FT.	SIZE	#/FT.	SIZE	#/FT.	O.D.	#/FT.	SIZE	#/FT.		O.D.	#/FT.	SIZE	#/FT.
	1-5/8"	2.27	1-5/8"x1-1/4"	1.35	2-7/8"	2.72	1-7/8"x1-5/8"	2.70	1-7/8"x1-7/8"	2.28	2-7/8"	5.79	3-1/2"x3-1/2"	5.14	0'- 6'	2-7/8"	5.79	3-1/2"x3-1/2"	5.14
															6' - 13'	4"	9.10	-----	------
															13' - 18'	6-5/8"	18.97	-----	-----

NOTE: SEE TECHNICAL SPECIFICATIONS FOR REQUIREMENTS FOR FENCES GRATER THAN 6'-0" IN HEIGHT.
NOTE: PROVIDE AND INSTALL BEIGE SLATSOURCE PRIVACY LINK PRIVACY SLATES (OR ENGINEER APPROVED EQUAL) IN FENCE AND GATE.



* REQUIRED AT ALL GATE, END, CORNER AND INTERMEDIATE END POSTS.

CHAIN LINK FABRIC 9 GA. WIRE - 2" SQ. MESH (TYP.) WITH W/ BEIGE SLAT SOURCE PRIVACY LINK PRIVACY SLATS (OR ENGINEER APPROVED EQUAL). BOTTOM OF FABRIC SHALL HAVE TWISTED AND BARBED SELVAGES. TOP OF FABRIC SHALL HAVE KNUCKLE FINISH.

C-02200 CHAIN LINK FENCE AND SWING DETAIL
NOT TO SCALE

JUB ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. TILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

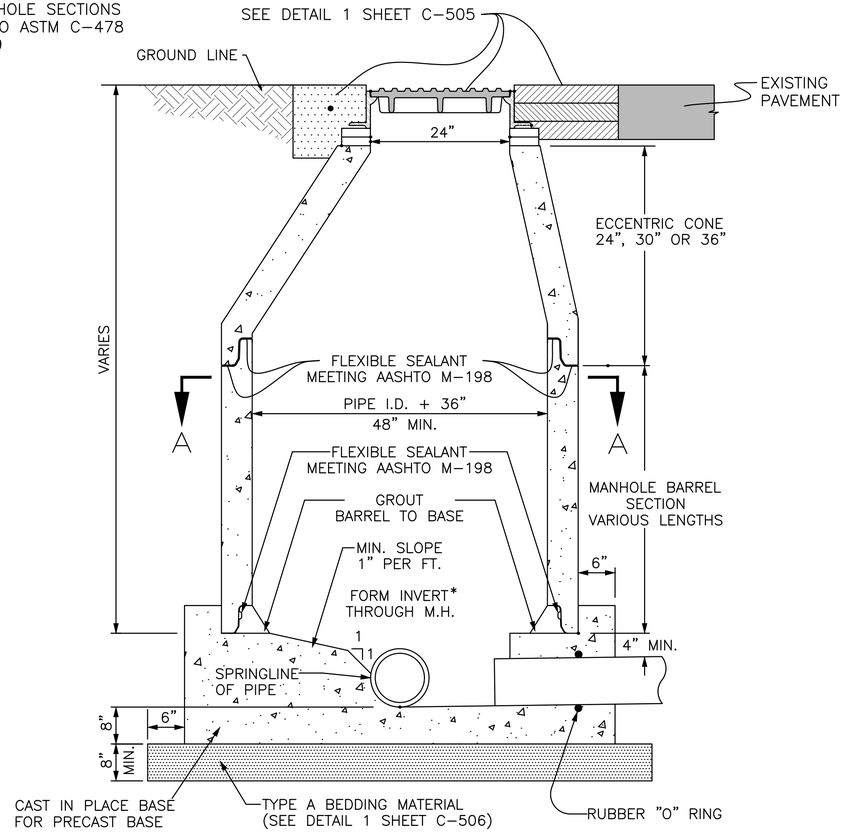
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DESIGN BY: KAR / AMN
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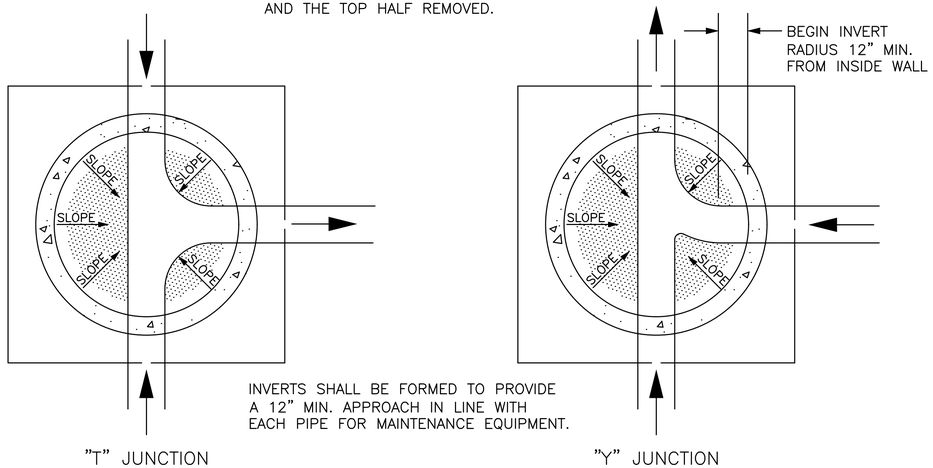
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Date Created:7/16/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG

ALL PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478 OR AASHTO M-199



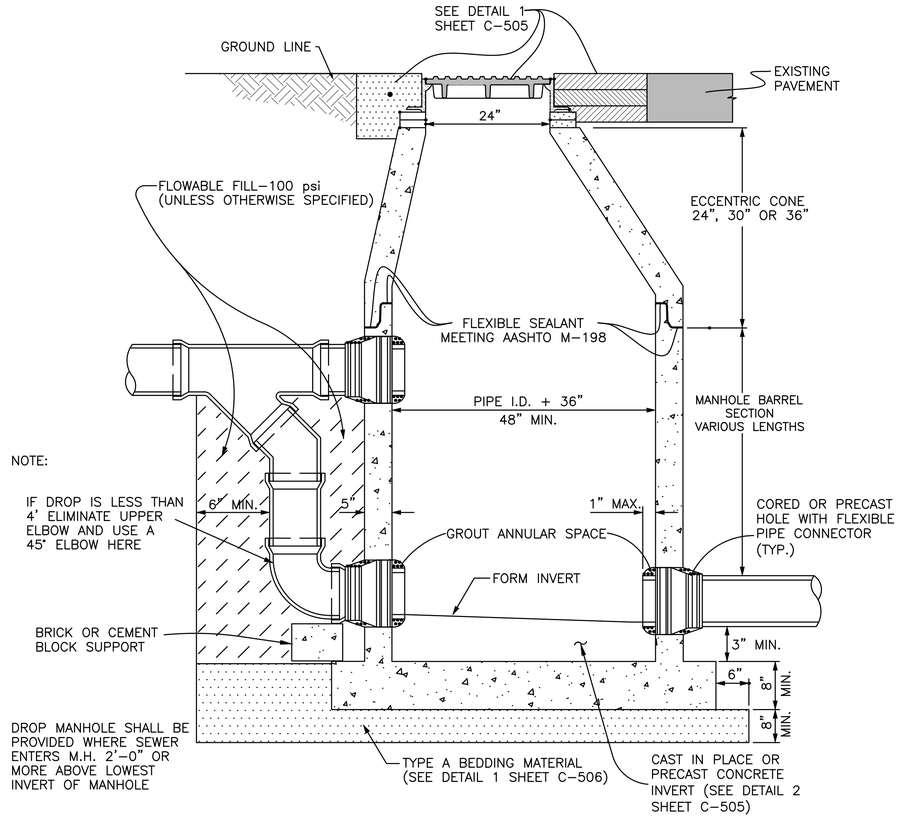
* FOR IN LINE MANHOLES THE PIPE MAY BE INSTALLED THROUGH THE MANHOLE BASE AND THE TOP HALF REMOVED.



SECTION A-A

1 STANDARD MANHOLE (CAST-IN-PLACE BASE)
SCALE:N.T.S.

ALL PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478 OR AASHTO M-199



2 DROP MANHOLE
SCALE:N.T.S.

J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
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BID SET

COLORADO LICENSED MATTHEW W. FILLA 60906 7/21/2025 PROFESSIONAL ENGINEER

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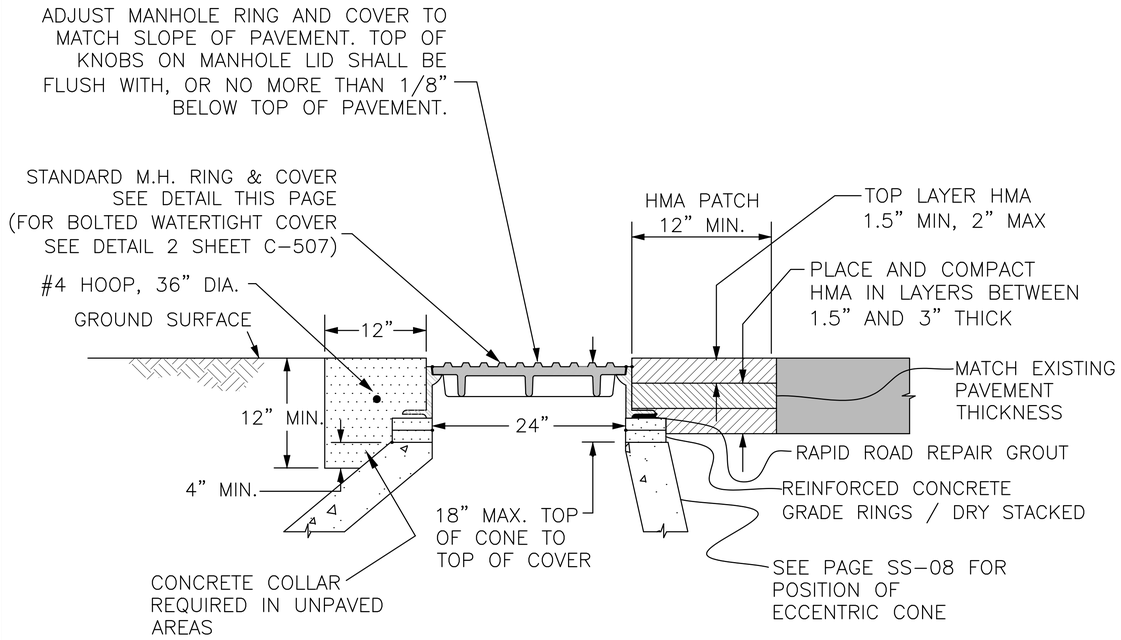
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

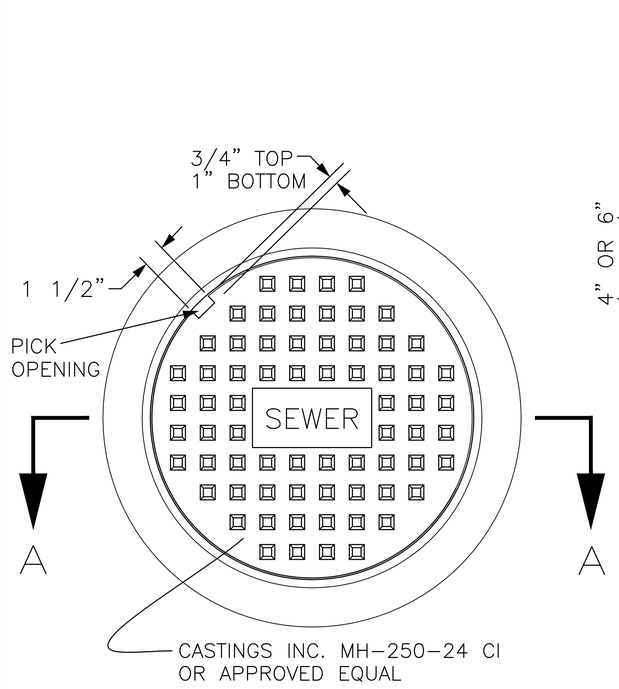
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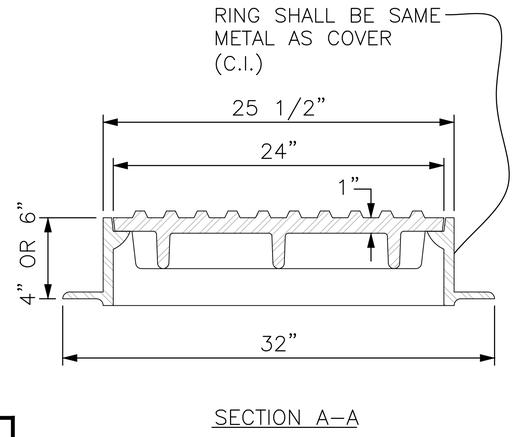
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Plot Date:7/21/2025 9:21 PM Plotted By: Matt Filla
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DETAIL A



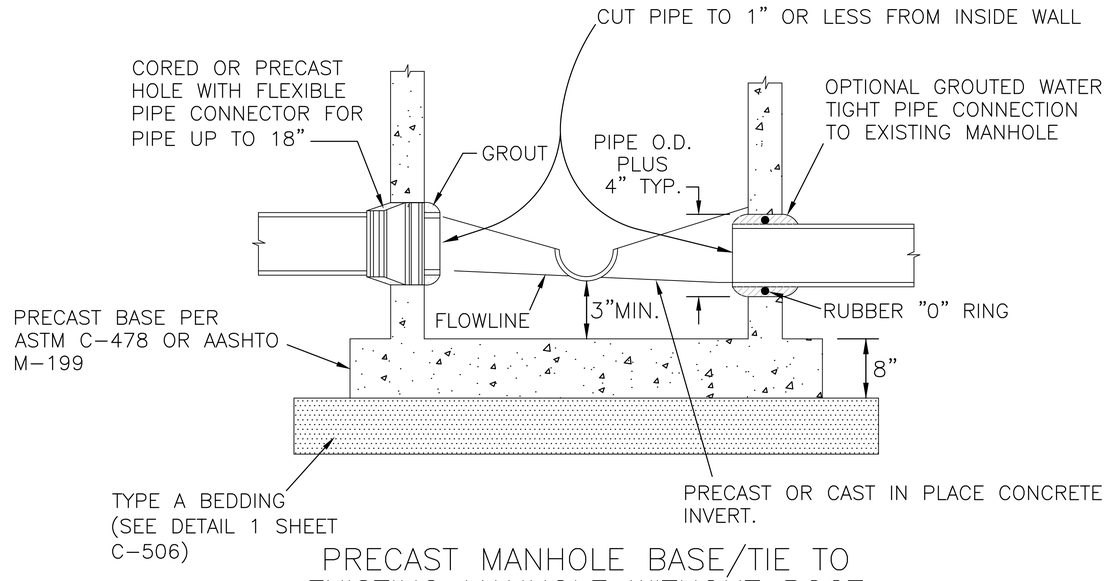


SECTION A-A

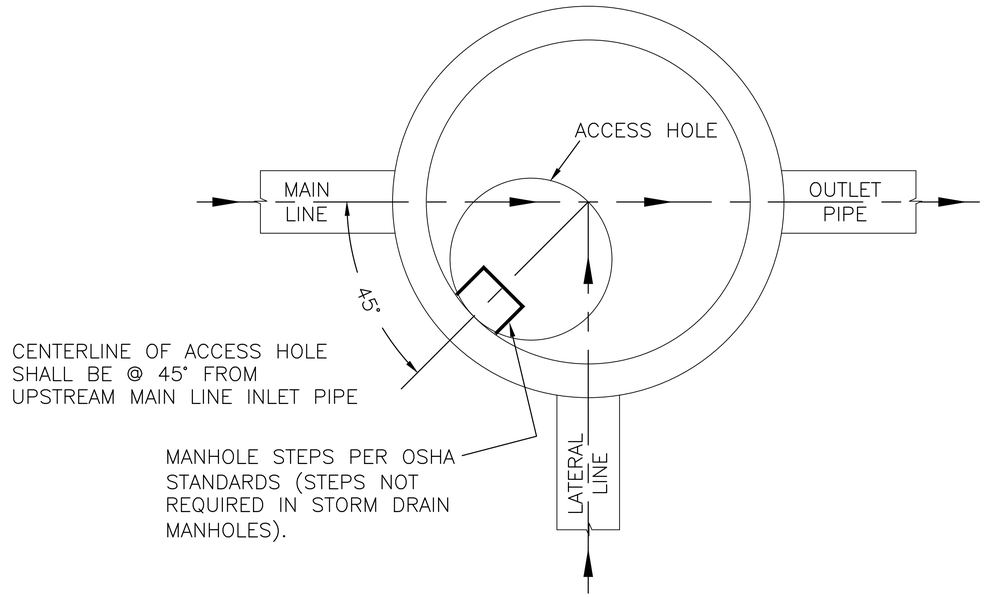
NOTE:
FOR SEWER MANHOLES LOCATED IN SIDEWALK OR OTHER PEDESTRIAN WAY USE CASTINGS INC. MH-250-24D CI (CHECKER PATTERN LID)

1 STANDARD MANHOLE RING AND COVER
SCALE:N.T.S.

GROUT FOR PIPE CONNECTIONS SHALL BE ALL-CRETE (5 OR 20 MINUTE SET) MANUFACTURED BY FOSROC INC. OR AN APPROVED SUBSTITUTE.



PRECAST MANHOLE BASE/TIE TO EXISTING MANHOLE WITHOUT BOOT



MANHOLE ACCESS LOCATION

2 PRECAST MANHOLE BASE, PIPE CONNECTIONS AND ACCESS HOLE LOCATION
SCALE:N.T.S.

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENT'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

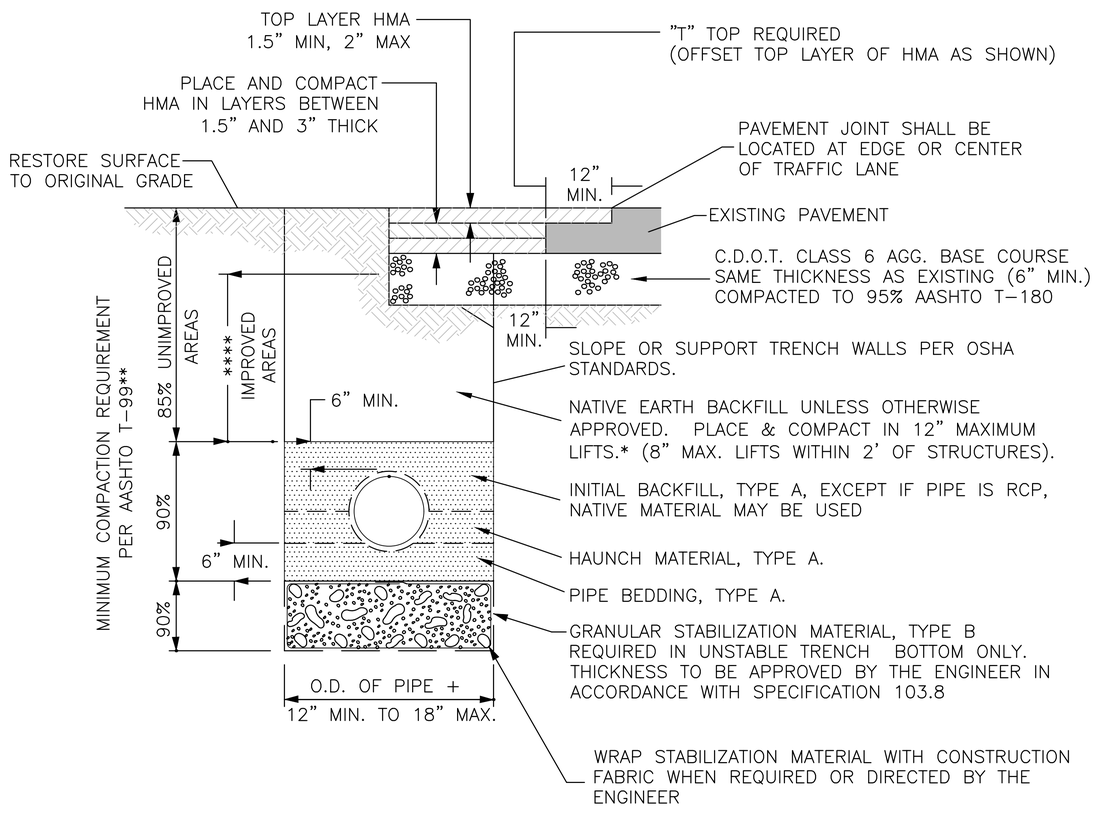
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

FILE : 81-23-029_C-501X
JUB PROJ. # :81-23-029
DRAWN BY: ###
DESIGN BY: ###
CHECKED BY: ###
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-505

Plot Date:7/21/2025 9:21 PM Plotted By: Matt Filla
Date Created:7/16/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG



SIEVE SIZE	MAXIMUM PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES		
	PIPE BEDDING, HAUNCH & INITIAL BACKFILL MATERIAL (CRUSHED ROCK, TYPE A)	GRANULAR STABILIZATION MATERIAL (SCREENED OR CRUSHED ROCK, TYPE B)	IMPORTED BACKFILL MATERIAL (USE ONLY WHERE SPECIFIED OR DIRECTED BY THE ENGINEER
12 INCH	---	---	100
2 INCH	---	100	---
1 INCH	100	---	---
NO 4	---	15 MAX	---
NO 200	20 MAX ***	---	3% – 20% ***

* 24" COMPACTED BACKFILL REQUIRED OVER ALL PLASTIC PIPE PRIOR TO VEHICLE OR HEAVY EQUIPMENT LOADING.

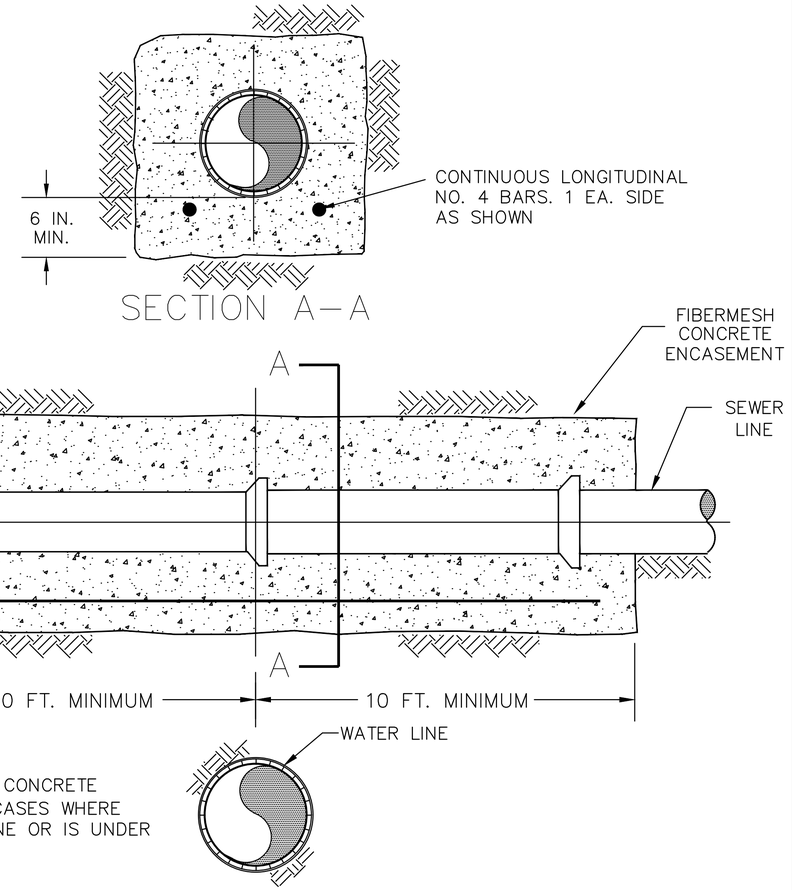
** COMPACT PER AASHTO T-180 WHEN SPECIFIED, DIRECTED OR APPROVED BY THE ENGINEER.

*** PLASTIC INDEX (PI) SHALL NOT BE MORE THAN 7.

**** TRENCH BACKFILL UNDER ASPHALT OR CONCRETE PAVEMENT SHALL BE COMPACTED PER SECTION 103.14 AND TABLE 101 IN THE SSFUU (STANDARD SPECIFICATIONS FOR UNDERGROUND UTILITIES).

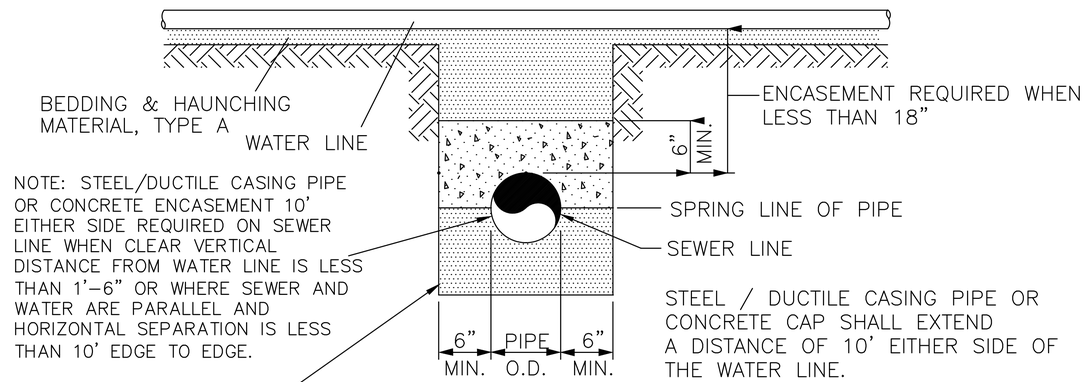
ALL BACKFILL MATERIAL SHALL BE UNIFORMLY ADJUSTED TO WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT PRIOR TO PLACEMENT AND COMPACTION.

1 TYPICAL TRENCH DETAIL
SCALE:N.T.S.



STEEL/DUCTILE CASING PIPE OR CONCRETE ENCASEMENT REQUIRED IN ALL CASES WHERE SEWER LINE IS ABOVE WATER LINE OR IS UNDER WATERWAY CROSSING.

WATER LINE BELOW SEWER LINE



WATER LINE ABOVE SEWER LINE

2 TYPICAL WATER AND SEWER LINE CROSSINGS
SCALE:N.T.S.

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NO	DESCRIPTION	DATE	BY
	REVISION	APR.	

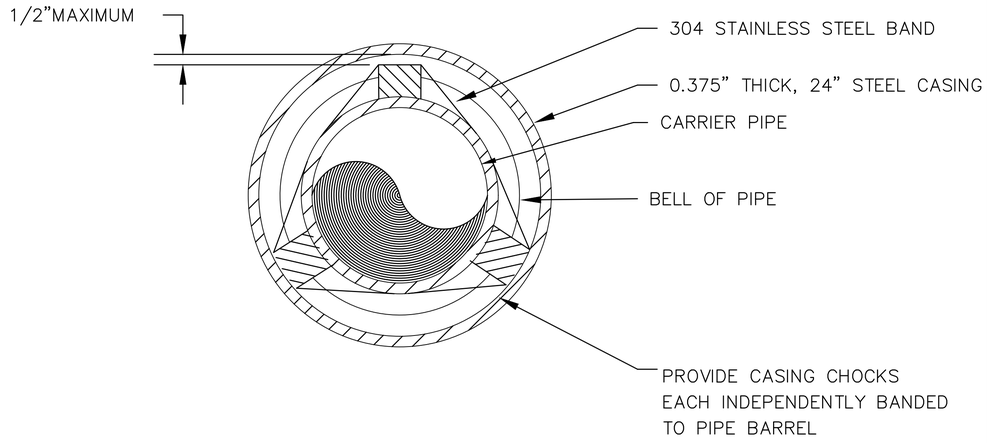
SEWER TRANSFER PROJECT
TOWN OF PALISADE

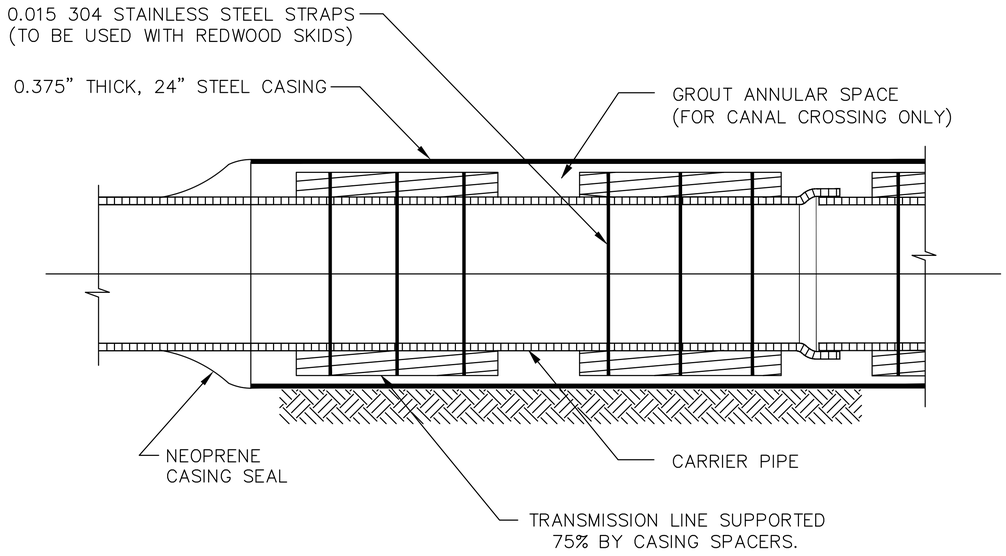
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-506

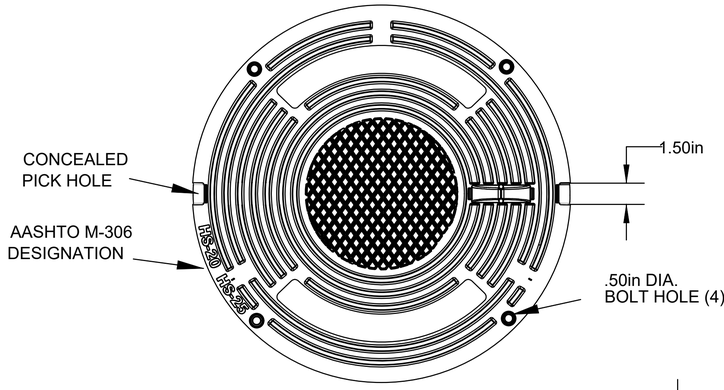
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Date Created:7/18/2025 \\JUB.CENTRAL.CLIENTS\CO-PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG



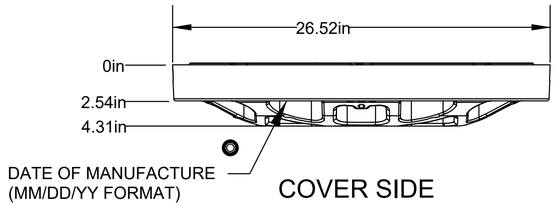


NOTES:
1. CASING SPACERS MAY BE EITHER REDWOOD OR STAINLESS STEEL PIPE INSULATORS WITH POLYMER RUNNERS.
2. SUBMIT CASING, SPACERS, AND ANNULAR GROUT MIX/INSTALLATION PROCESS FOR ENGINEER APPROVAL.

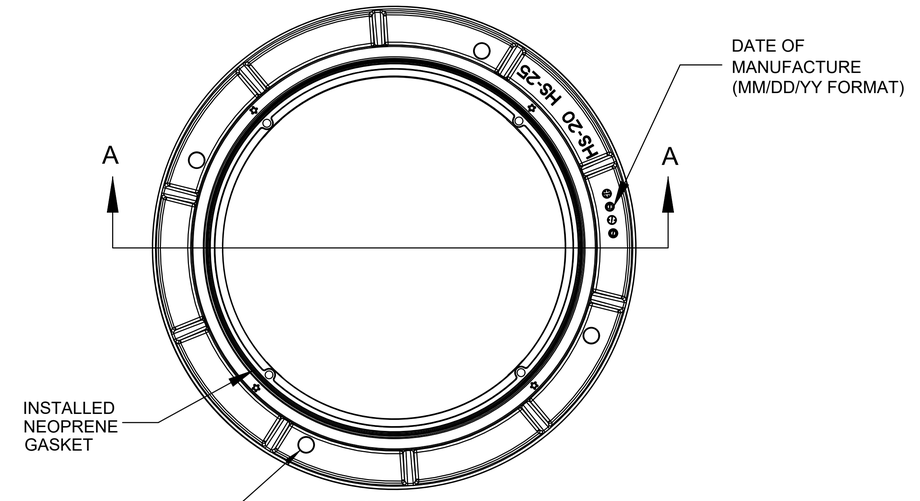
1 STANDARD PIPE CASING / NON-RESTRAINED JOINTS
SCALE:N.T.S.



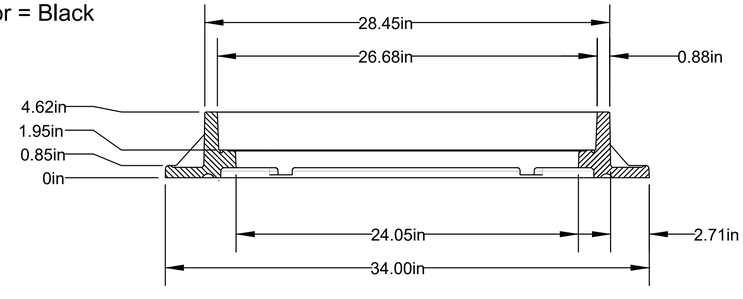
COVER
Color = Black



COVER SIDE



FRAME
Color = Black



FRAME SECTION

2 BOLTED WATERTIGHT MANHOLE RING & COVER
SCALE:N.T.S.

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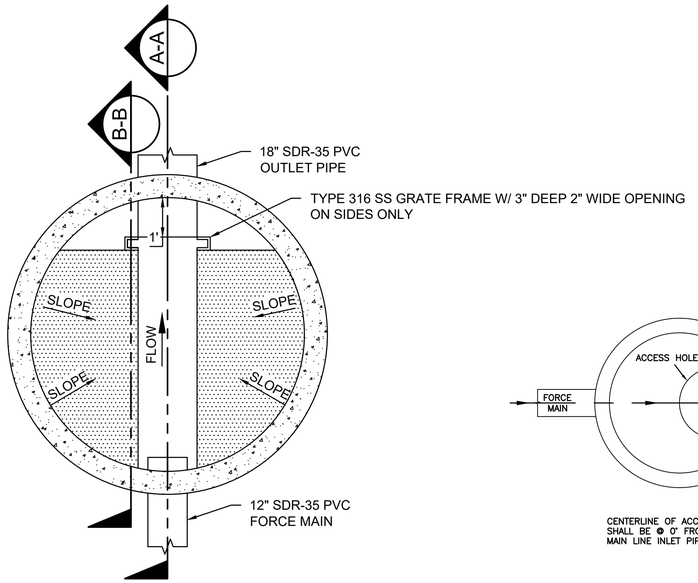
SEWER TRANSFER PROJECT
TOWN OF PALISADE

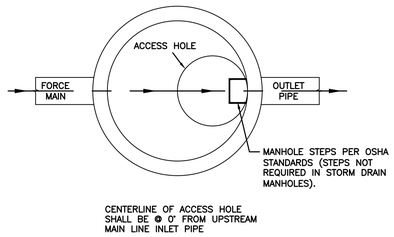
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JUB PROJ. # :81-23-029
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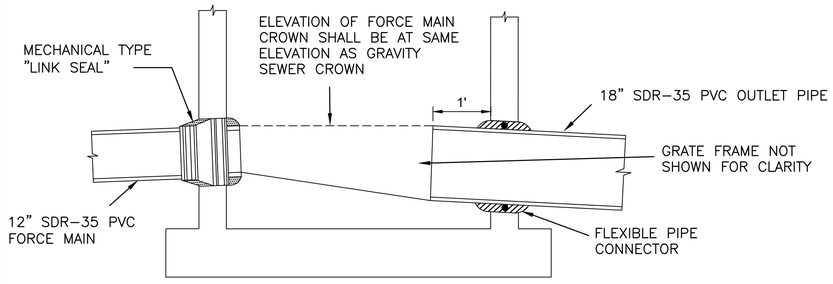
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Plot Date:7/21/2025 9:22 PM Plotted By: Matt Filia
Date Created:7/16/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG

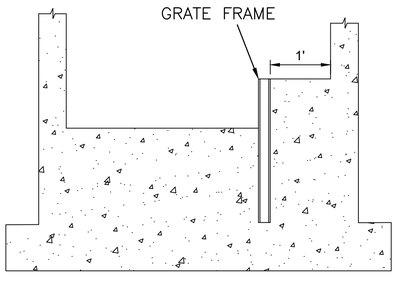


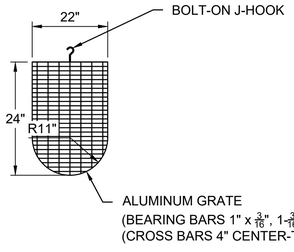


FORCE MAIN DISCHARGE MANHOLE ACCESS LOCATION



SECTION A-A



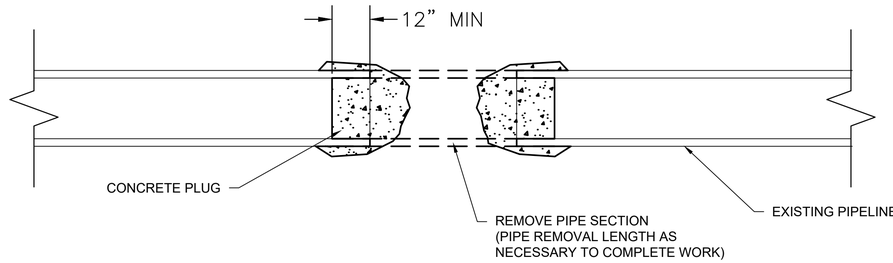


OUTLET GRATE FRAME
(TO BE DELIVERED TO C.S.D.)

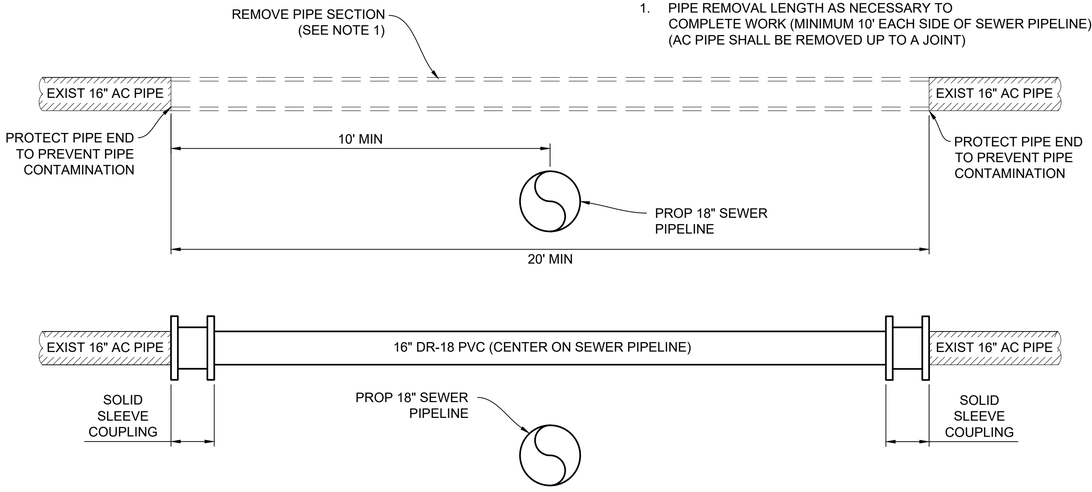
SECTION B-B

NOTE: FORCE MAIN DISCHARGE MANHOLE SHALL BE POLYMER CONCRETE

1 FORCE MAIN DISCHARGE MANHOLE
SCALE:N.T.S.



2 PIPELINE PLUGGING
SCALE:N.T.S.



3 16" AC PIPELINE REPLACEMENT DETAIL
SCALE:N.T.S.

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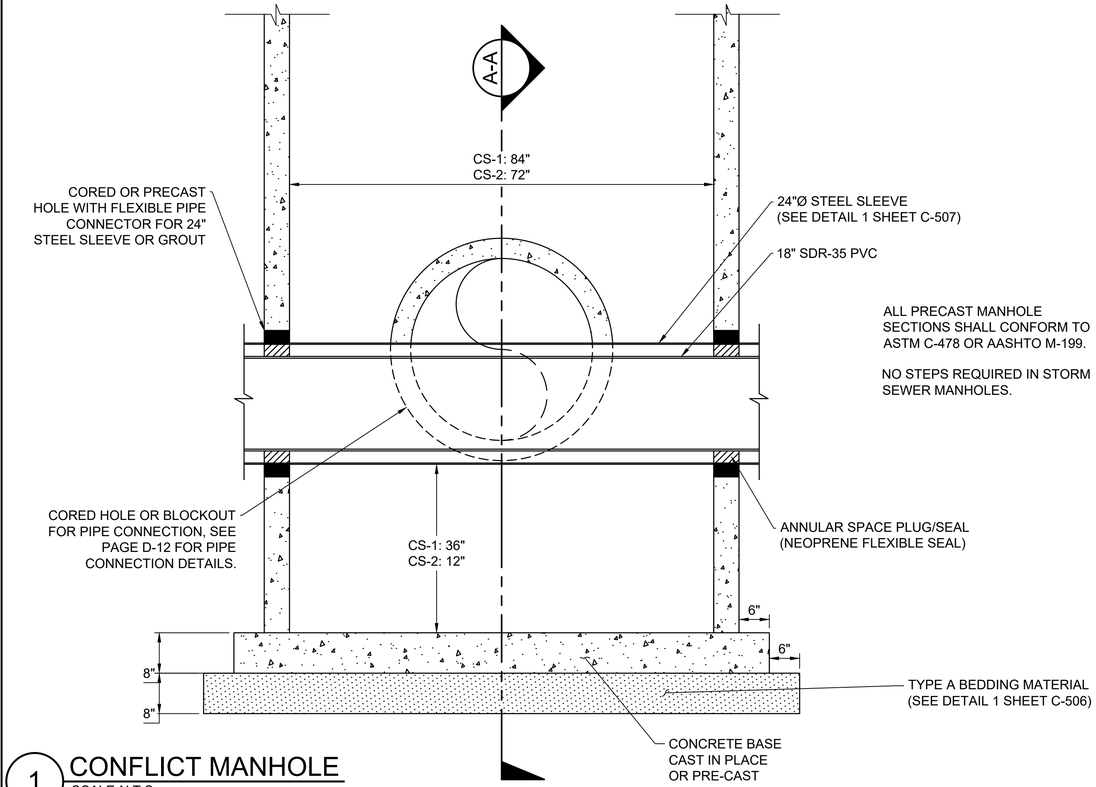
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

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JUB PROJ. # :81-23-029
DRAWN BY: ###
DESIGN BY: ###
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-508

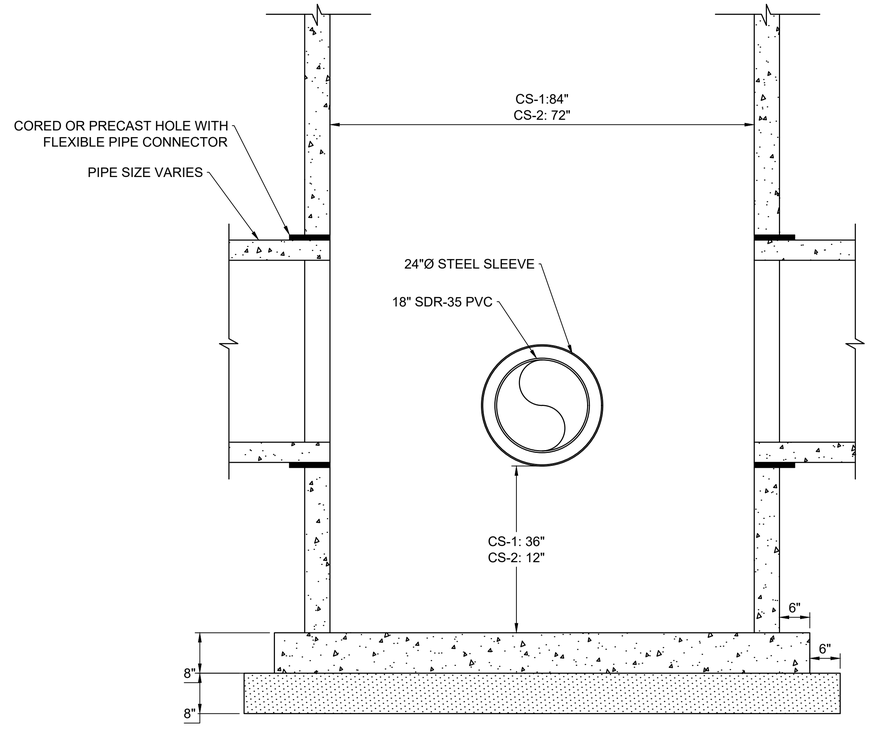
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ALL PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478 OR AASHTO M-199.

NO STEPS REQUIRED IN STORM SEWER MANHOLES.

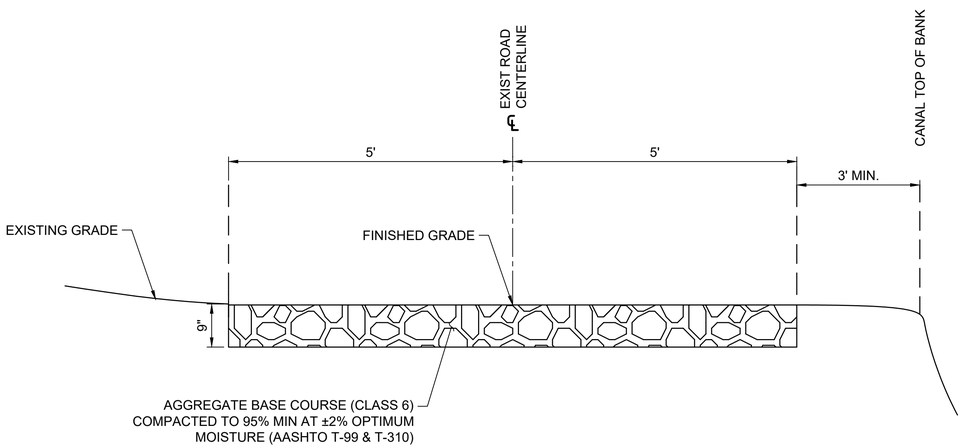
1 CONFLICT MANHOLE
SCALE:N.T.S.



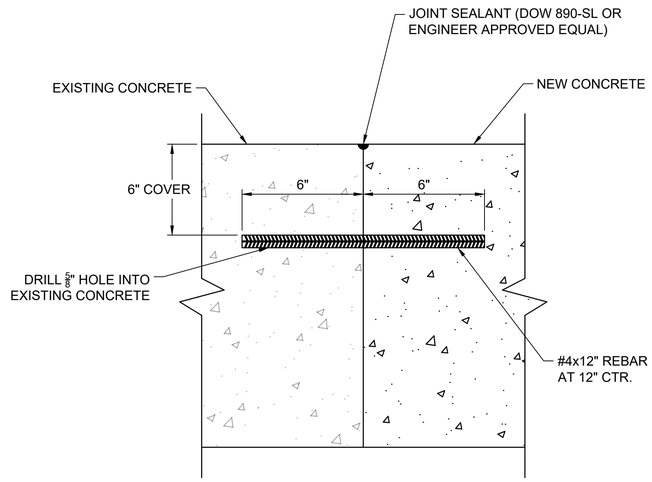
ALL PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478 OR AASHTO M-199.

NO STEPS REQUIRED IN STORM SEWER MANHOLES.

A-A MANHOLE SECTION
SCALE:N.T.S.



2 ACCESS ROAD
SCALE:N.T.S.



3 CONCRETE DOWELS
SCALE:N.T.S.

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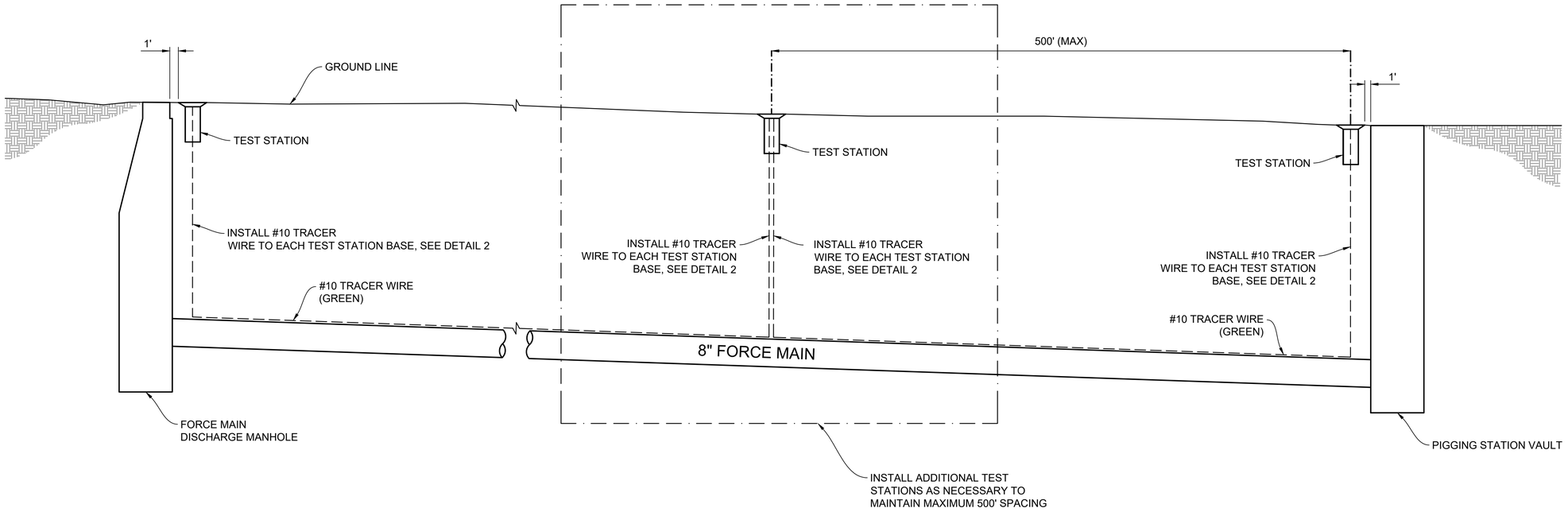
SEWER TRANSFER PROJECT
TOWN OF PALISADE

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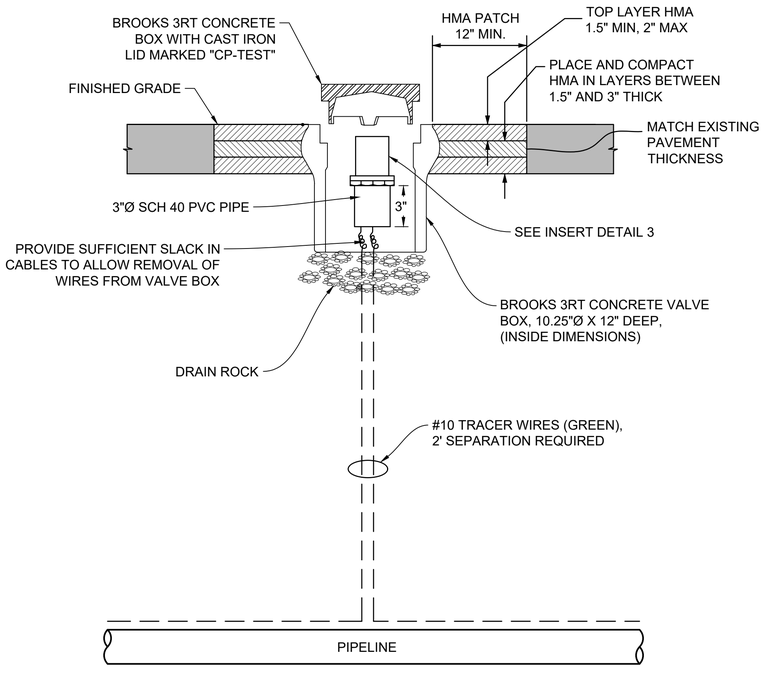
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C-509

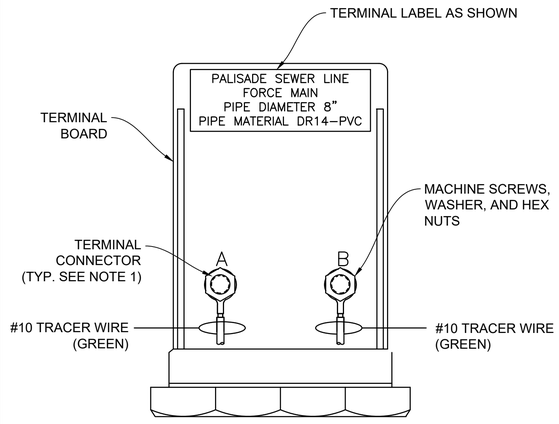
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1 FORCE MAIN TRACER WIRE DETAIL
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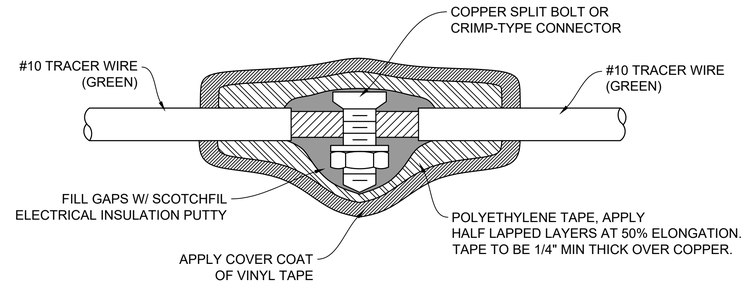


2 FLUSH MOUNTED TRACER WIRE TEST STATION
SCALE:N.T.S.



NOTES:
1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH 1/4" STUD SIZE
   - FOR WIRE SIZE 14-10 AWG, USE THOMAS & BETTS 54101 OR APPROVED EQUAL

3 INSERT DETAIL
SCALE:N.T.S.



NOTES:
1. MAKE SPLICE WATERPROOF
   a. SMOOTH ALL IRREGULAR SURFACES WITH ELECTRICAL INSULATION PUTTY.
   b. APPLY 2 LAYERS OF HALF LAPPED RUBBER SPLICING TAPE.
   c. APPLY 2 LAYERS OF HALF LAPPED VINYL ELECTRICAL TAPE.

4 TRACER WIRE SPLICE DETAIL
SCALE:N.T.S.

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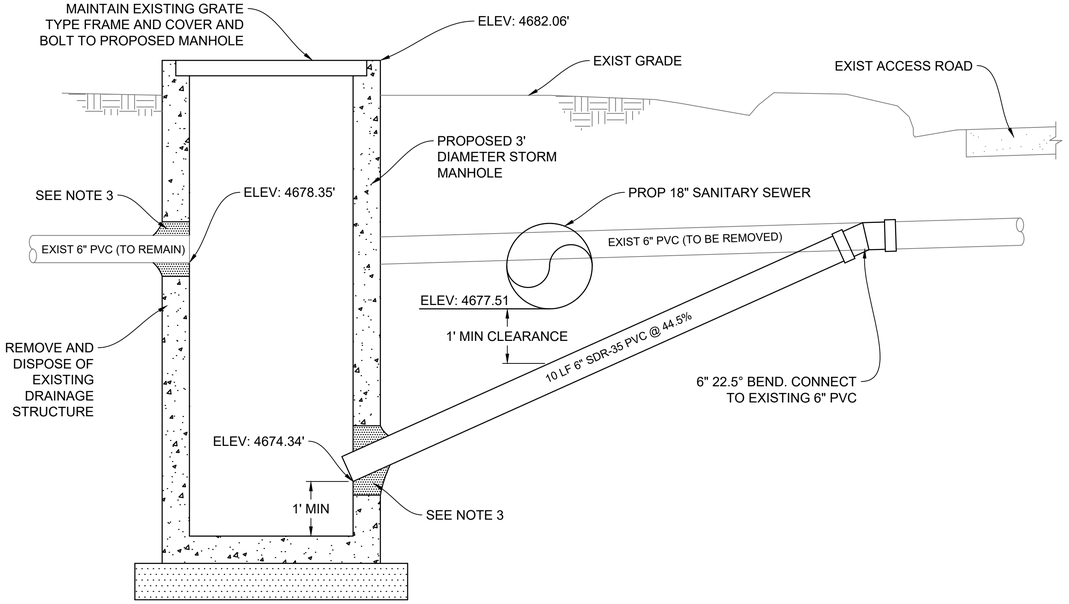
CIVIL DETAILS

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SHEET NUMBER:
C-510

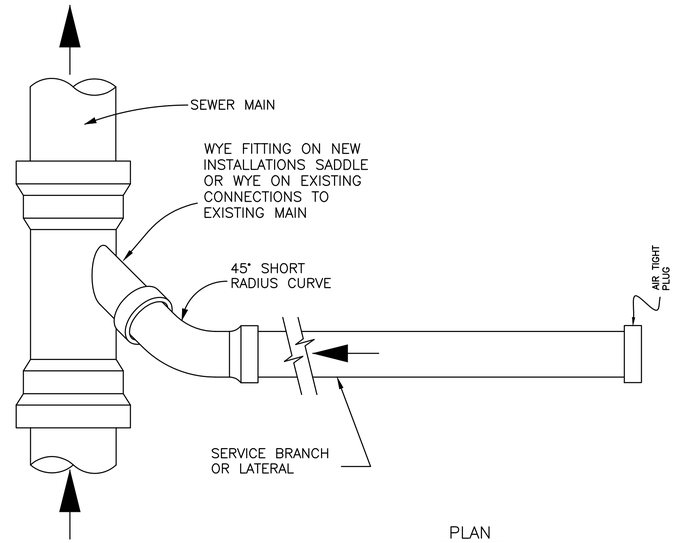
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1 (NOT USED)
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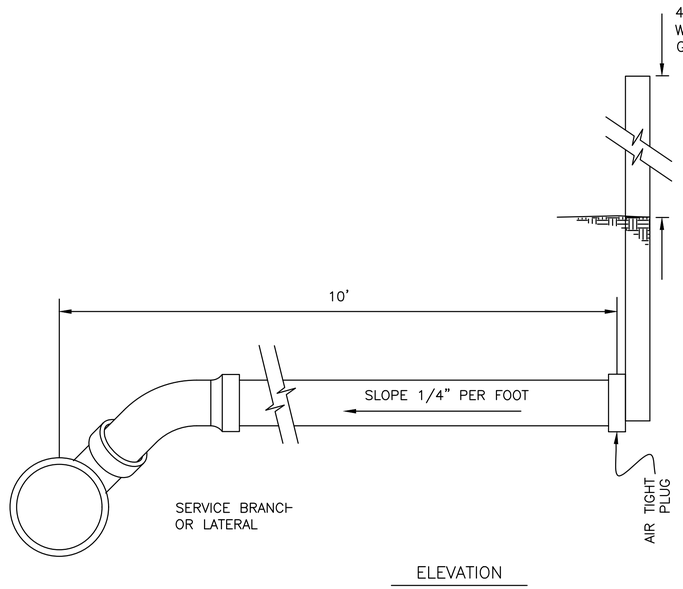


NOTES:
1. CONTRACTOR MAY SALVAGE AND REUSE EXISTING MANHOLE AT THEIR DISCRETION. FINAL MANHOLE MODIFICATIONS MUST MEET PROPOSED MANHOLE SPECIFICATIONS.
2. PIPE ELEVATIONS SHOWN ARE APPROXIMATE AND LOCATED AT THE FLOWLINE.
3. PIPE CONNECTIONS TO MATCH DETAIL 2/SHEET C-505.

2 RIVERBEND IRRIGATION STRUCTURE
SCALE:N.T.S.



PLAN



ELEVATION

SEWER SERVICE STUB OUTS SHALL BE CAPPED AND PLUGGED. STUB OUT SHALL BE MARKED WITH A 4X4 INCH POST PAINTED GREEN BURIED WITH 3 FEET ABOVE GRADE. AS-BUILT SURVEYING FOR VERTICAL GRADE OF STUB OUT REQUIRED PRIOR TO BACKFILL.

3 SEWER SERVICE STUB-OUT
SCALE:N.T.S.

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

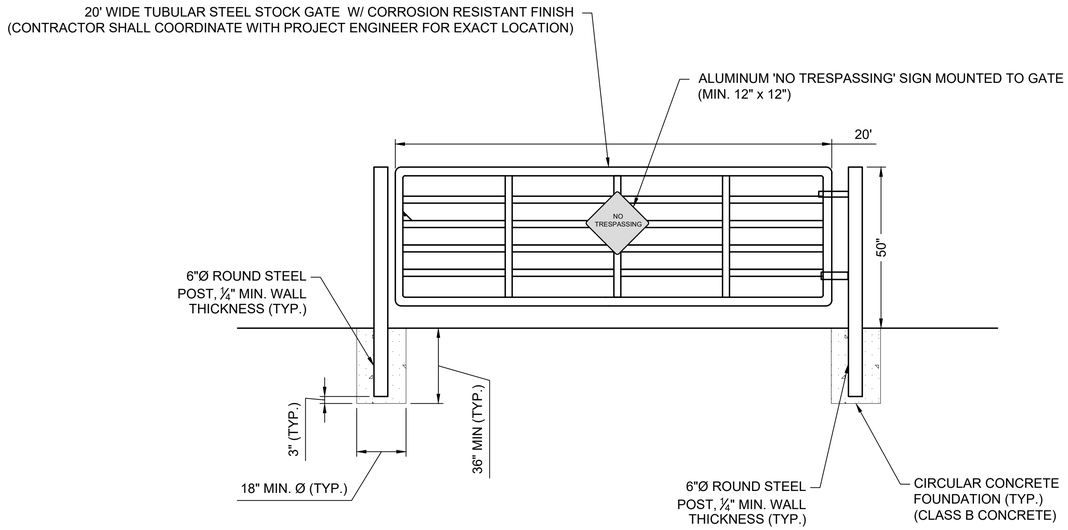
SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

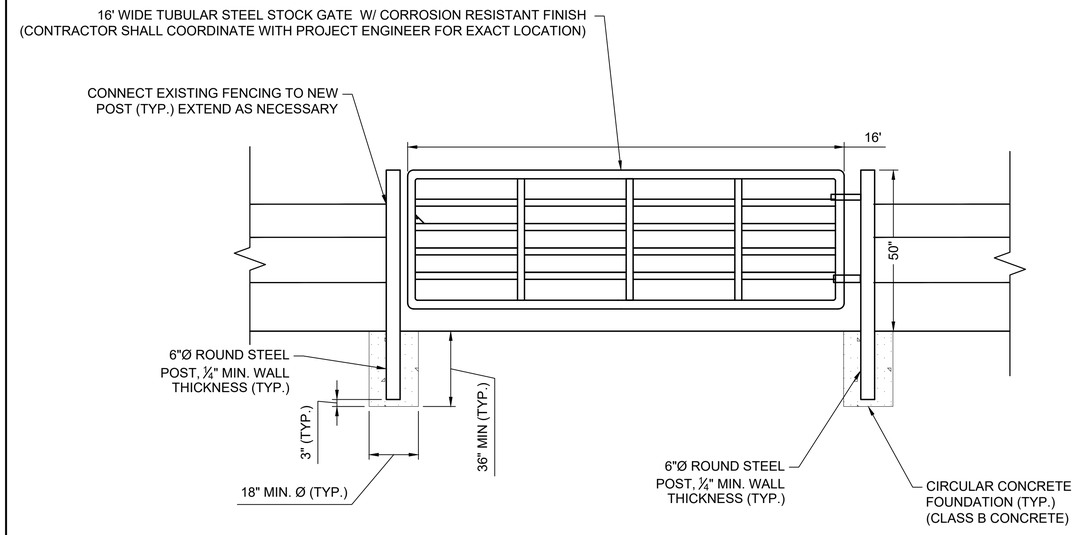
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-511

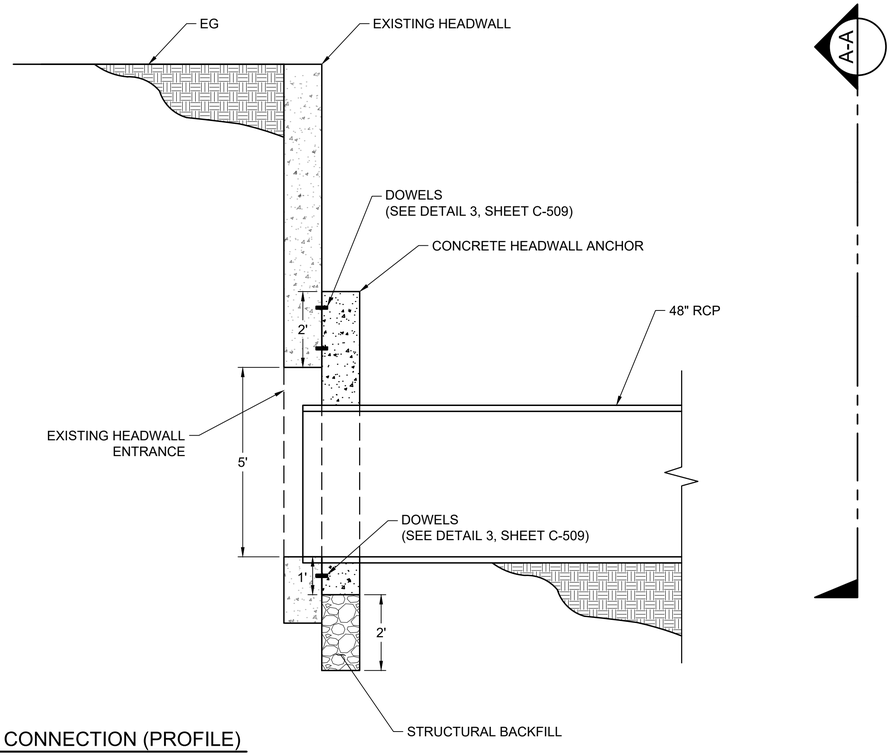
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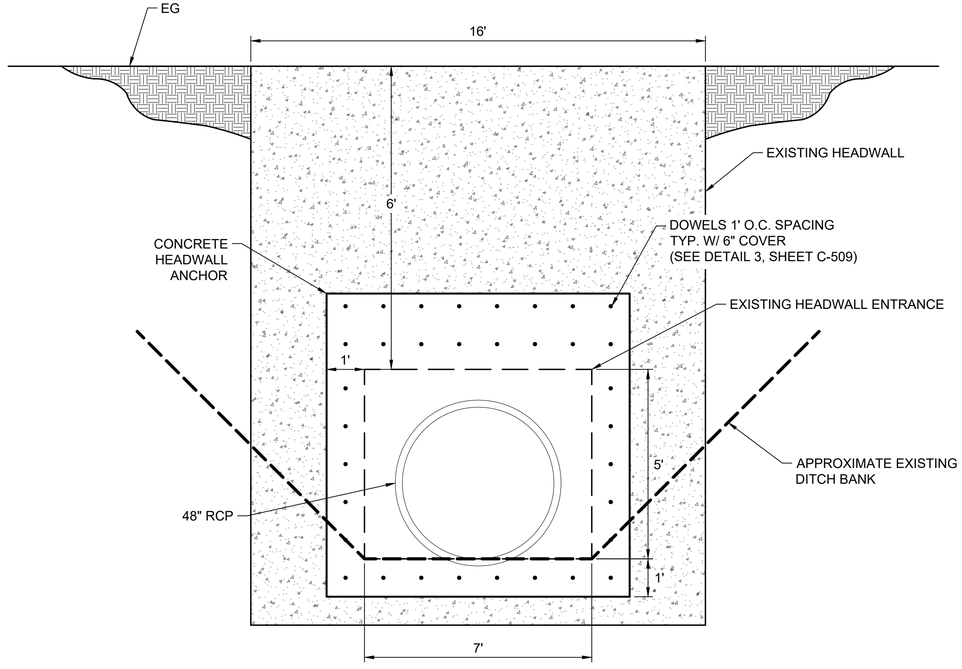
1 DRIVEWAY GATE
SCALE: NTS



2 FENCE GATE
SCALE: NTS



3 HEADWALL CONNECTION (PROFILE)
SCALE: NTS



A-A HEADWALL CONNECTION (SECTION)
SCALE: NTS

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

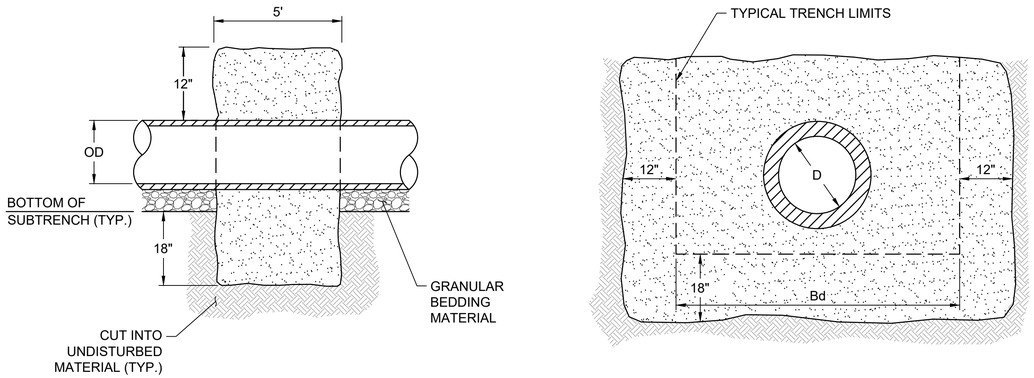
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CHECKED BY:	EWS

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/19/2025

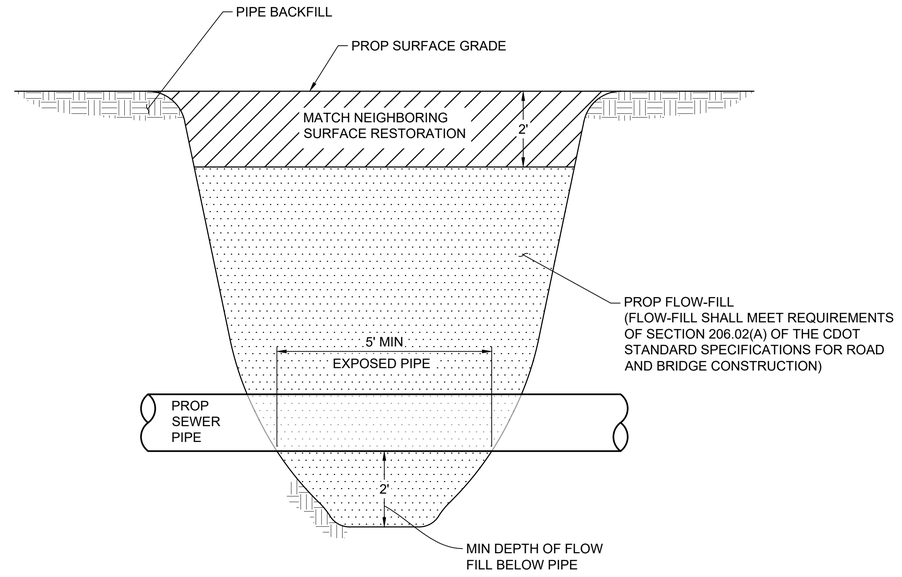
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C-512

Plot Date:7/21/2025 9:22 PM Plotted By: Matt Filla
Date Created:7/18/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\CIVIL\81-23-029_C-501X.DWG

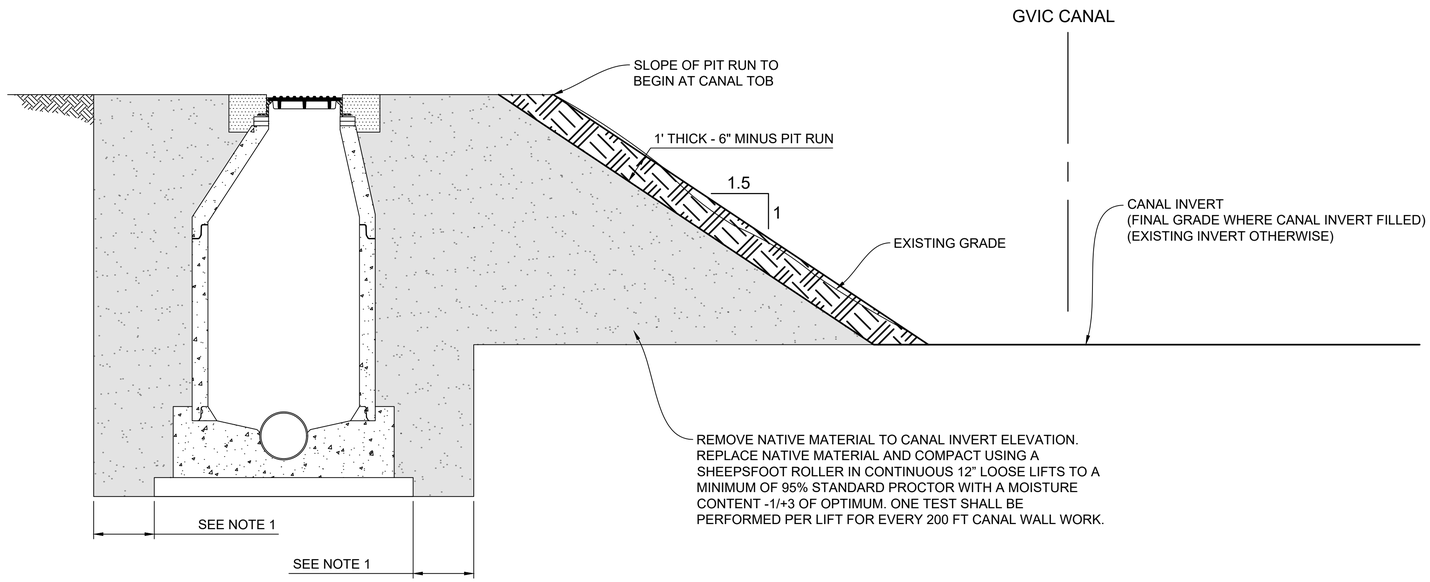


NOTES:
1. CUTOFF WALLS SHALL BE INSTALLED ALONG EVERY UTILITY LINE TO INHIBIT THE MOVEMENT OF GROUND WATER THROUGH THE SCREENED ROCK BEDDING. CUTOFF WALLS SHALL BE 5 FEET LONG AND CONSIST OF NATIVE CL, SC, OR GC UNIFIED SOIL CLASSIFICATION SYSTEM SOILS. THE SOIL SHOULD BE COMPACTED TO A MINIMUM 95% (D 698) WITH MOISTURE CONTENT BETWEEN 2% WET AND 2% DRY OF OPTIMUM MOISTURE CONTENT. ON GRAVITY FLOW LINES, CUTOFF WALLS SHALL BE INSTALLED ON EVERY LINE, 10 TO 20 FEET UPSTREAM OF EVERY MANHOLE.

1 CUTOFF WALL
SCALE: NTS

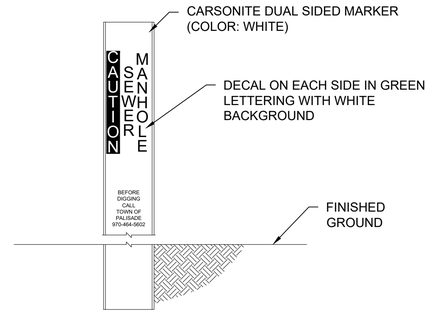


2 FLOW-FILL CUTOFF WALL DEPTH
SCALE: NTS



NOTES:
1. MINIMUM DISTANCE AS NECESSARY TO COMPLETE WORK. INCREASE AS NECESSARY TO BE ABLE TO ACHIEVE PROPER SOIL COMPACTION. DISTANCE APPLIES TO PIPE EDGE IN AREAS WITHOUT MANHOLE.

3 CANAL WALL SOIL REPLACEMENT
SCALE: NTS



NOTE:
LOCATE PIPE MARKERS ADJACENT TO MANHOLES 1-8 AND ALL BURIED MANHOLES (CONTRACTOR SHALL COORDINATE WITH PROJECT ENGINEER FOR EXACT LOCATION)

4 MANHOLE MARKERS
SCALE:N.T.S.

J-U-B ENGINEERS, INC.
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7/21/2025
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SEWER TRANSFER PROJECT
TOWN OF PALISADE

CIVIL DETAILS

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JUB PROJ. # :81-23-029
DRAWN BY: SRJ
DESIGN BY: MWF
CHECKED BY: EWS
ONE INCH
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
C-513

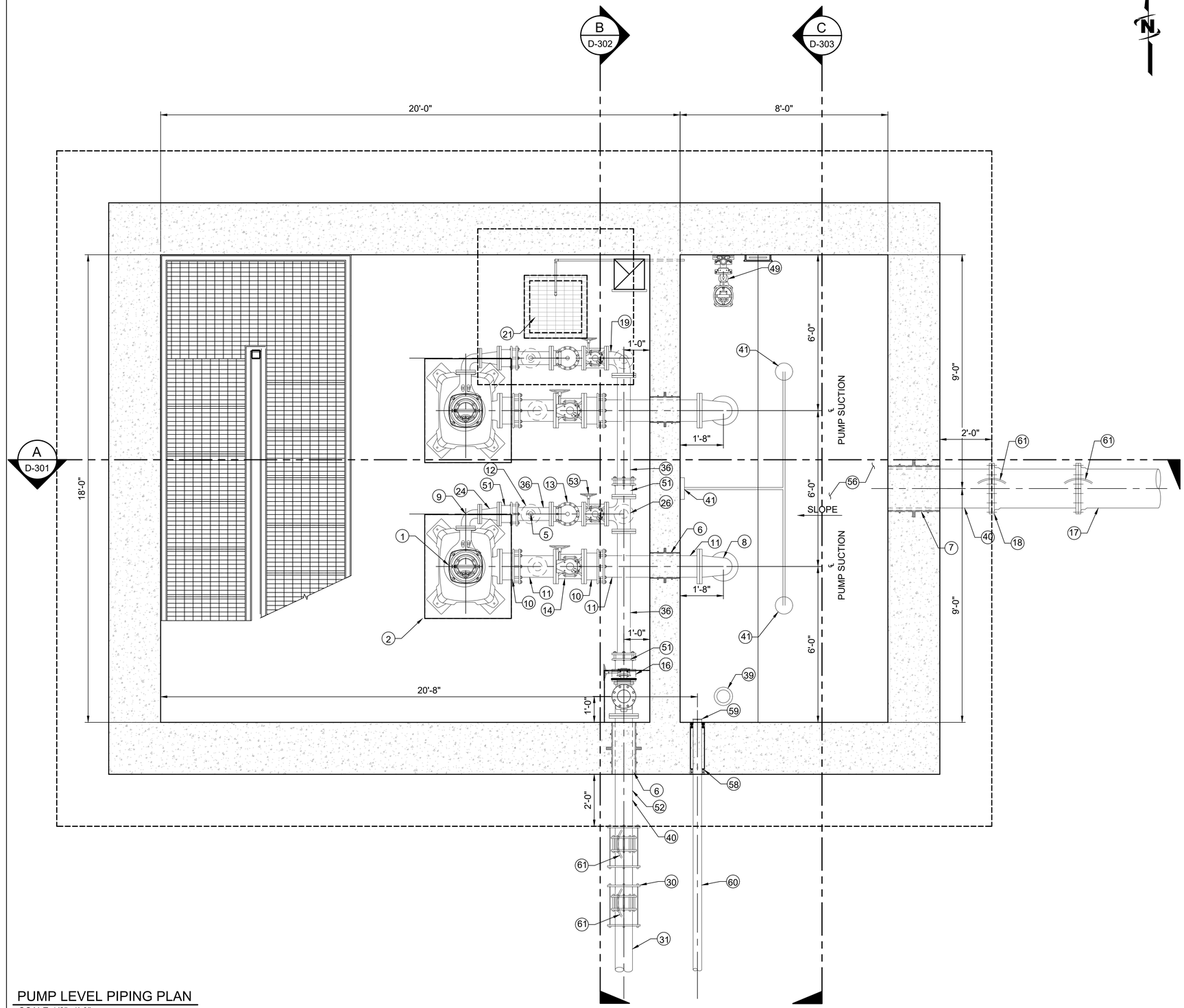
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PUMP AND PIPING NOTES:

1. VERTICAL DRY PIT SUBMERSIBLE PUMP W/ 45 HP MOTOR, PER SECTION 43 25 04.
2. CONCRETE PUMP PEDESTAL, SEE DETAIL D-05000/D-501.
3. 30"x30" MIN. CLEAR OPENING ALUMINUM SINGLE LEAF ACCESS DOOR W/ STAINLESS STEEL HARDWARE, LADDER UP ASSEMBLY, AND ORANGE SAFETY GRATE (HALLIDAY PRODUCTS OR EQUAL). HATCH SHALL BE 300 PSF RATED WITH CHANNEL FRAME FOR DRAINAGE, SEE DETAIL D-05010/D-501.
4. INSTALL PROTECTIVE COATING ON INTERIOR WET WELL SURFACES, SEWER SHIELD 150 SPRAYABLE, OR APPROVED EQUAL, SEE TECHNICAL SECTION 2 CORROSION PROTECTION.
5. MANUAL AIR RELEASE PIPE TAP TYPE B, CONNECT TO FLEX TUBING AND ROUTE TO SUMP, SEE DETAIL D-15164/D-506.
6. SLEEVED PIPE WALL PENETRATION TYPE A, SEE DETAIL D-15005/D-502.
7. PIPE SPOOL WALL PENETRATION TYPE D, SEE DETAIL D-15000/D-502.
8. 10" D.I. 90° BEND (FLxFLARE).
9. 4" D.I. 90° BEND.
10. 10" D.I. FLANGE COUPLING ADAPTER, RESTRAIN WITH 6 SS TIE RODS.
11. 10" D.I. PIPE (FLxPE).
12. ADJUSTABLE PIPE SUPPORT. SEE DETAIL D-15070/D-504.
13. 6" CHECK VALVE (CV-2, PER SECTION 43 30 00) WITH LEVER POSITION INDICATOR (FL).
14. 10" PLUG VALVE (PV-1, PER SECTION 43 30 00) WITH GEAR OPERATOR.
15. 6"x6"x8" D.I. TEE (FL).
16. FLANGED PRESSURE SENSOR WITH PRESSURE GAUGE SEE DETAIL D-15161/D-506.
17. 18" D.I. PIPE (MJ).
18. LARGE PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02123/C-503.
19. 6" D.I. 90° BEND (FL).
20. 8" STAINLESS STEEL 90° BEND, WELDED.
21. SUMP PUMP, SEE DETAIL 1/D-508.
22. ABOVE GRADE WALL PIPE PENETRATION TYPE B, SEE DETAIL D-15010/D-503.
23. 48"x30" MIN. ALUMINUM DOUBLE LEAF ACCESS DOOR WITH STAINLESS HARDWARE, LADDER UP ASSEMBLY, AND ORANGE SAFETY GRATE (HALLIDAY PRODUCTS OR EQUAL). SEE DETAIL D-05015/D-501.
24. 6"X4" ECCENTRIC REDUCER, INSTALL FLAT SIDE UP.
25. 8" STAINLESS STEEL PIPE, WELDED JOINTS.
26. 6"x6"x6" D.I. TEE (FL).
27. 6" PLUG VALVE (PV-1, PER SECTION 43 30 00) WITH CHAIN OPERATOR (FL).
28. PIPE WALL ANCHOR, SEE DETAIL D-15100/D-504.
29. 6" MAGNETIC FLOW METER (FL), PER SECTION 40 90 00.
30. PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02122/C-503.
31. 8" D.I. PIPE (MJ).
32. 6" 90° BEND W/ BASE (FL). SEE DETAIL D-15075/D-504.
33. 8" ALUMINUM MALE CAMLOCK FITTING WITH CAMLOCK PLUG.
34. FLOOR PENETRATION TYPE A, SEE DETAIL D-15020/D-503.
35. 8"x6" D.I. REDUCING 90° BEND (FL).
36. 6" D.I. PIPE (FLxPE).
37. SCREENED VENT, SEE DETAIL D-05100/D-501.
38. pH/TEMP SENSOR, PER SECTION 40 90 00.
39. 8" STAINLESS STEEL PIPE, WELDED (FLAExPE).
40. SINGLE ANODE TEST STATION, SEE DETAIL 2/C-502.
41. ODOR CONTROL SYSTEM DISPERSION CONE WITH WALL MOUNTING BRACKET, PER ANUE PHANTOM ODOR CONTROL SYSTEM.
42. BACKUP FLOAT SWITCHES FOR PUMP CONTROL, PER SECTION 40 90 00.
43. RADAR LEVEL TRANSMITTER, PER SECTION 40 90 00.
44. CABLE SUPPORT BRACKET.
45. REFRIGERATED COMPOSITE SAMPLER. EMERALD COAST WAVE WASTEWATER SAMPLER OR APPROVED EQUAL.
46. OXYGEN CONCENTRATOR, PER ANUE PHANTOM ODOR CONTROL SYSTEM.
47. UTILITY SINK AND EYEWASH STATION W/ DRAIN BACK TO WETWELL SEE DETAILS 3&4/D-508.
48. ANUE PHANTOM ODOR SYSTEM CONTROL, OR EQUAL.
49. ANUE PHANTOM ODOR CONTROL SYSTEM SUBMERSIBLE GRINDER PUMP WITH BREAK AWAY FITTING, CHECK VALVE AND C-CHANNEL RAIL SYSTEM., DISCHARGE PIPING ROUTED TO ODOR CONTROL SYSTEM DISPERSION CONE, OR EQUAL.
50. MANHOLE STEP. RUNGS @ 1'-0".
51. 6" D.I. FLANGE COUPLING ADAPTER, RESTRAIN WITH 6 SS TIE RODS.
52. 8" D.I. PIPE (FLxPE).
53. 6" PLUG VALVE (PV-1, PER SECTION 43 30 00) WITH GEAR OPERATOR.
54. 8"x6" D.I. 90° BEND (FL).
55. INSTALL PERMANENT DECK MOUNT SLEEVE DAVIT MOUNT BASE WITH HEAVY-DUTY SLEEVE CAP TO FIT 3M DBI-SALA CONFINED SPACE PERMANENT FLUSH FLOOR MOUNT SLEEVE DAVIT MAST BASE 8512828, STAINLESS STEEL ONE-PIECE OFFSET DAVIT MAST, OR EQUAL, SEE SHEET D-301.
56. CONCRETE FILLET TO CREATE SLOPE, SEE SHEET S-301.
57. DISPERSION CONE ASSEMBLY SUPPORT. SEE STRUCTURAL SHEET S-504.
58. SLEEVED PIPE PENETRATION TYPE D, SEE D-15005/D-502.
59. 4" BACK WATER FLOOD VALVE (CV-8, PER SECTION 43 30 00).
60. 6"Ø CAST IRON FLOOR DRAIN (INSIDE PIGGING STATION VAULT), P-TRAP, & 4" PVC DRAIN TO WETWELL SLOPED AT 2% MIN.
61. CATHODIC PROTECTION BOND WIRES, SEE DETAIL 2/C-502.
62. SEE MECHANICAL SHEET, M1-1.
63. CONTROL PANEL, SEE ELECTRICAL SHEETS.
64. AIR COMPRESSOR FOR ODOR CONTROL SYSTEM.
65. H2S GAS MONITOR, ACRULOG PPM OR APPROVED EQUAL, PER SECTION 40 90 00. CONTRACTOR TO PROVIDE STAINLESS HANGER ACCESSORIES WET WELL AND MANHOLE INSTALLATION.

GENERAL SHEET NOTES:

1. COORDINATE PROCESS MECHANICAL DRAWINGS WITH STRUCTURAL, CIVIL, HVAC, AND ELECTRICAL DRAWINGS. NOTIFY ENGINEER OF ANY DISCREPANCIES.



PUMP LEVEL PIPING PLAN
SCALE: 1/2"=1'-0"

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. TILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

PUMP LEVEL PIPING PLAN

FILE : 81-23-029_D-101X
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
D-101

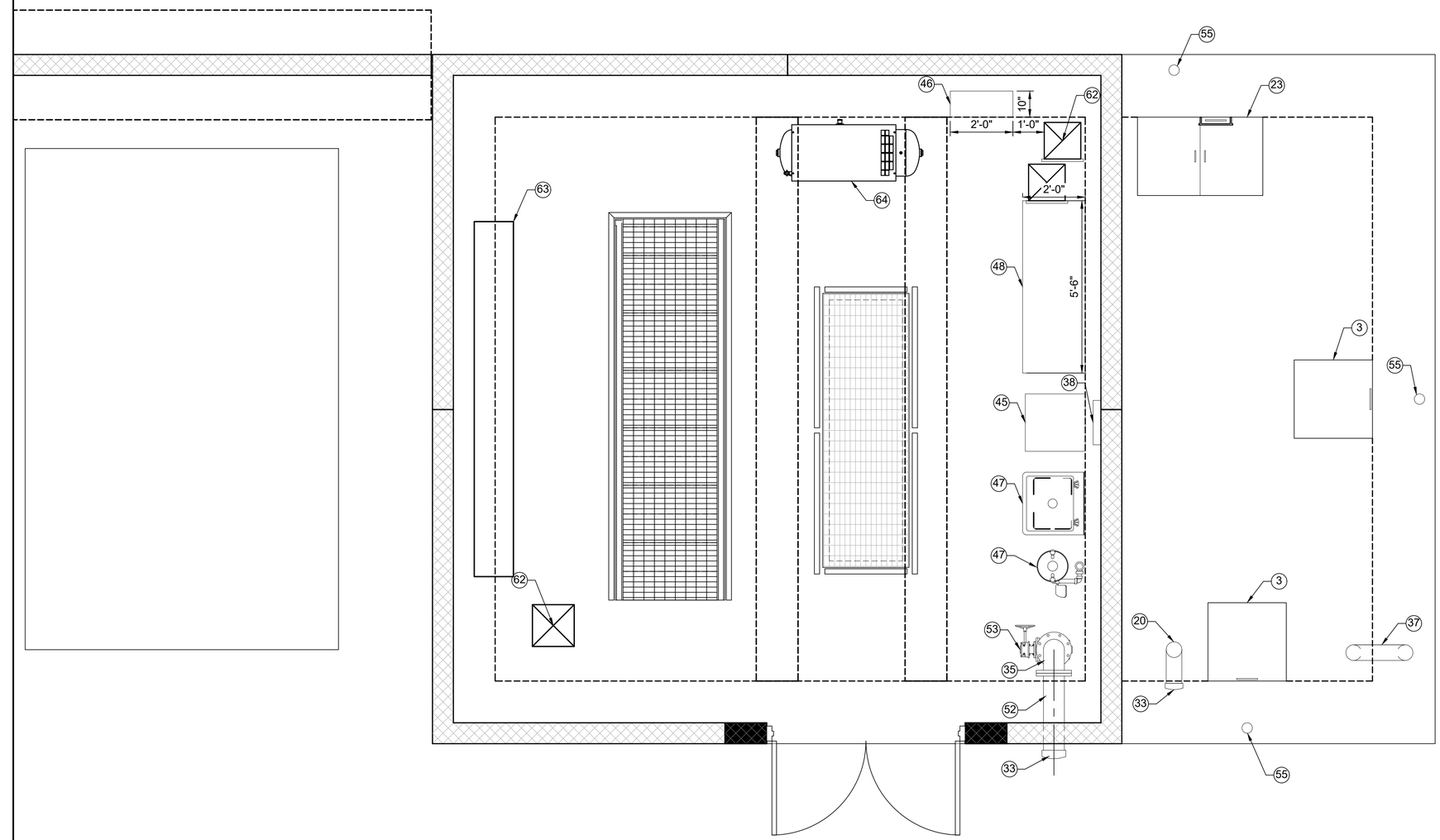
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34. FLOOR PENETRATION TYPE A, SEE DETAIL D-15020/D-503.
35. 8"x6" D.I. REDUCING 90° BEND (FL).
36. 6" D.I. PIPE (FLxPE).
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56. CONCRETE FILLET TO CREATE SLOPE, SEE SHEET S-301.
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MAIN LEVEL PIPING PLAN
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LAST UPDATED: 7/19/2025

SHEET NUMBER:
D-102

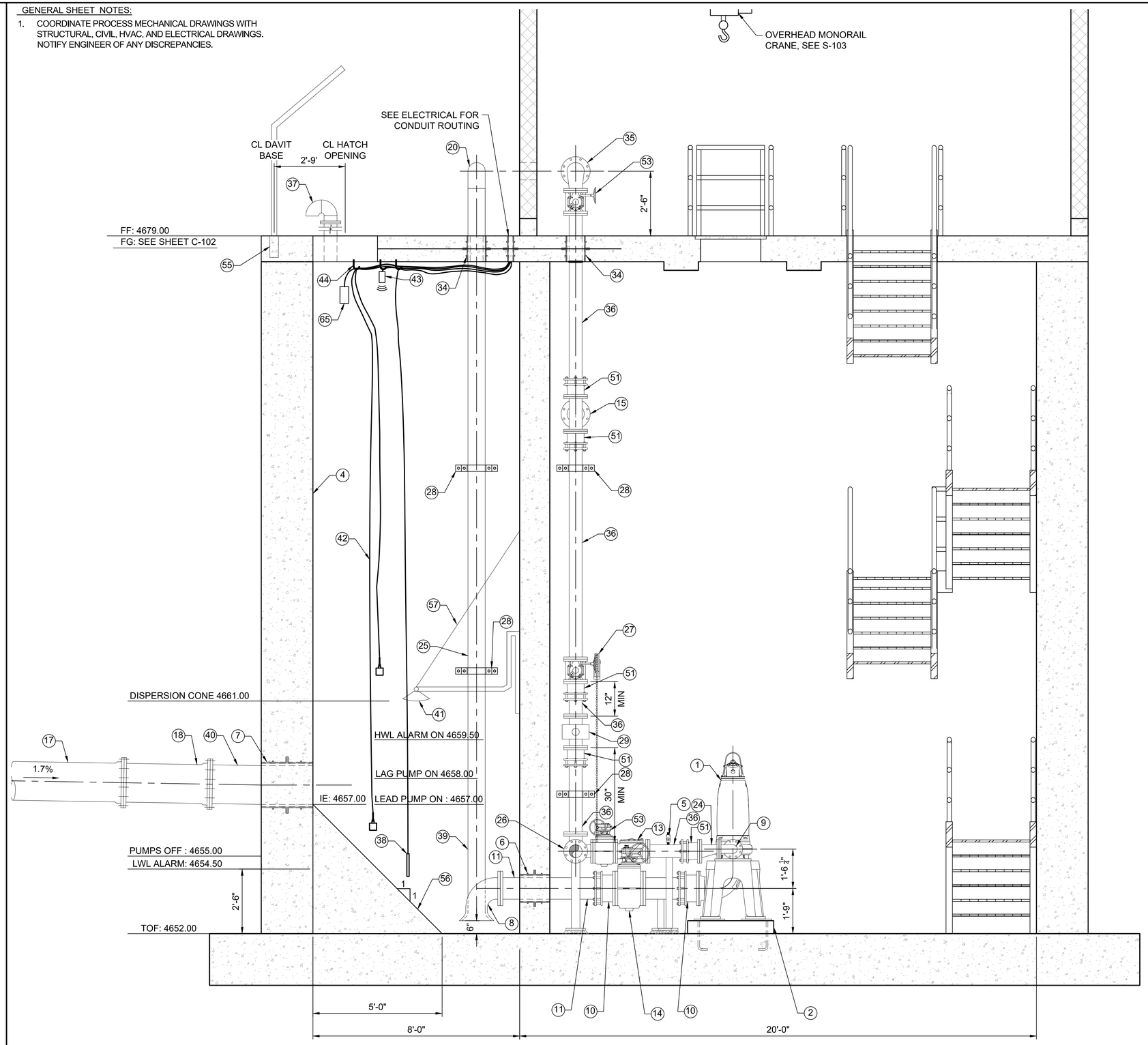
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PUMP AND PIPING NOTES:

1. VERTICAL DRY PIT SUBMERSIBLE PUMP W/ 45 HP MOTOR, PER SECTION 43 25 04.
2. CONCRETE PUMP PEDESTAL, SEE DETAIL D-05000/D-501.
3. 30"x30" MIN. CLEAR OPENING ALUMINUM SINGLE LEAF ACCESS DOOR W/ STAINLESS STEEL HARDWARE, LADDER UP ASSEMBLY, AND ORANGE SAFETY GRATE (HALLIDAY PRODUCTS OR EQUAL). HATCH SHALL BE 300 PSF RATED WITH CHANNEL FRAME FOR DRAINAGE, SEE DETAIL D-05010/D-501.
4. INSTALL PROTECTIVE COATING ON INTERIOR WET WELL SURFACES, SEWER SHIELD 150 SPRAYABLE, OR APPROVED EQUAL, SEE TECHNICAL SECTION 2 CORROSION PROTECTION.
5. MANUAL AIR RELEASE PIPE TAP TYPE B, CONNECT TO FLEX TUBING AND ROUTE TO SUMP, SEE DETAIL D-15164/D-506.
6. SLEEVED PIPE WALL PENETRATION TYPE A, SEE DETAIL D-15005/D-502.
7. PIPE SPOOL WALL PENETRATION TYPE D, SEE DETAIL D-15000/D-502.
8. 10" D.I. 90° BEND (FLxFLARE).
9. 4" D.I. 90° BEND.
10. 10" D.I. FLANGE COUPLING ADAPTER, RESTRAIN WITH 6 SS TIE RODS.
11. 10" D.I. PIPE (FLxPE).
12. ADJUSTABLE PIPE SUPPORT. SEE DETAIL D-15070/D-504.
13. 6" CHECK VALVE (CV-2, PER SECTION 43 30 00) WITH LEVER POSITION INDICATOR (FL).
14. 10" PLUG VALVE (PV-1, PER SECTION 43 30 00) WITH GEAR OPERATOR.
15. 6"x6"x8" D.I. TEE (FL).
16. FLANGED PRESSURE SENSOR WITH PRESSURE GAUGE SEE DETAIL D-15161/D-506.
17. 18" D.I. PIPE (MJ).
18. LARGE PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02123/C-503.
19. 6" D.I. 90° BEND (FL).
20. 8" STAINLESS STEEL 90° BEND, WELDED.
21. SUMP PUMP, SEE DETAIL 1/D-508.
22. ABOVE GRADE WALL PIPE PENETRATION TYPE B, SEE DETAIL D-15010/D-503.
23. 48"x30" MIN. ALUMINUM DOUBLE LEAF ACCESS DOOR WITH STAINLESS HARDWARE, LADDER UP ASSEMBLY, AND ORANGE SAFETY GRATE (HALLIDAY PRODUCTS OR EQUAL). SEE DETAIL D-05015/D-501.
24. 6"X4" ECCENTRIC REDUCER, INSTALL FLAT SIDE UP.
25. 8" STAINLESS STEEL PIPE, WELDED JOINTS.
26. 6"x6"x6" D.I. TEE (FL).
27. 6" PLUG VALVE (PV-1, PER SECTION 43 30 00) WITH CHAIN OPERATOR (FL).
28. PIPE WALL ANCHOR, SEE DETAIL D-15100/D-504.
29. 6" MAGNETIC FLOW METER (FL), PER SECTION 40 90 00.
30. PIPE TO STRUCTURE TRANSITION, SEE DETAIL C-02122/C-503.
31. 8" D.I. PIPE (MJ).
32. 6" 90° BEND W/ BASE (FL). SEE DETAIL D-15075/D-504.
33. 8" ALUMINUM MALE CAMLOCK FITTING WITH CAMLOCK PLUG.
34. FLOOR PENETRATION TYPE A, SEE DETAIL D-15020/D-503.
35. 8"x6" D.I. REDUCING 90° BEND (FL).
36. 6" D.I. PIPE (FLxPE).
37. SCREENED VENT, SEE DETAIL D-05100/D-501.
38. pH/TEMP SENSOR, PER SECTION 40 90 00.
39. 8" STAINLESS STEEL PIPE, WELDED (FLAExPE).
40. SINGLE ANODE TEST STATION, SEE DETAIL 2/C-502.
41. ODOR CONTROL SYSTEM DISPERSION CONE WITH WALL MOUNTING BRACKET, PER ANUE PHANTOM ODOR CONTROL SYSTEM.
42. BACKUP FLOAT SWITCHES FOR PUMP CONTROL, PER SECTION 40 90 00.
43. RADAR LEVEL TRANSMITTER, PER SECTION 40 90 00.
44. CABLE SUPPORT BRACKET.
45. REFRIGERATED COMPOSITE SAMPLER. EMERALD COAST WAVE WASTEWATER SAMPLER OR APPROVED EQUAL.
46. OXYGEN CONCENTRATOR. PER ANUE PHANTOM ODOR CONTROL SYSTEM.
47. UTILITY SINK AND EYEWASH STATION W/ DRAIN BACK TO WETWELL SEE DETAILS 3&4/D-508.
48. ANUE PHANTOM ODOR SYSTEM CONTROL, OR EQUAL.
49. ANUE PHANTOM ODOR CONTROL SYSTEM SUBMERSIBLE GRINDER PUMP WITH BREAK AWAY FITTING, CHECK VALVE AND C-CHANNEL RAIL SYSTEM., DISCHARGE PIPING ROUTED TO ODOR CONTROL SYSTEM DISPERSION CONE, OR EQUAL.
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54. 8"x6" D.I. 90° BEND (FL).
55. INSTALL PERMANENT DECK MOUNT SLEEVE DAVIT MOUNT BASE WITH HEAVY-DUTY SLEEVE CAP TO FIT 3M DBI-SALA CONFINED SPACE PERMANENT FLUSH FLOOR MOUNT SLEEVE DAVIT MAST BASE 8512828, STAINLESS STEEL ONE-PIECE OFFSET DAVIT MAST, OR EQUAL, SEE SHEET D-301.
56. CONCRETE FILLET TO CREATE SLOPE, SEE SHEET S-301.
57. DISPERSION CONE ASSEMBLY SUPPORT. SEE STRUCTURAL SHEET S-504.
58. SLEEVED PIPE PENETRATION TYPE D, SEE D-15005/D-502.
59. 4" BACK WATER FLOOD VALVE (CV-8, PER SECTION 43 30 00).
60. 6"Ø CAST IRON FLOOR DRAIN (INSIDE PIGGING STATION VAULT), P-TRAP, & 4" PVC DRAIN TO WETWELL SLOPED AT 2% MIN.
61. CATHODIC PROTECTION BOND WIRES, SEE DETAIL 2/C-502.
62. SEE MECHANICAL SHEET, M1-1.
63. CONTROL PANEL, SEE ELECTRICAL SHEETS.
64. AIR COMPRESSOR FOR ODOR CONTROL SYSTEM.
65. H2S GAS MONITOR, ACRULOG PPM OR APPROVED EQUAL, PER SECTION 40 90 00. CONTRACTOR TO PROVIDE STAINLESS HANGER ACCESSORIES WET WELL AND MANHOLE INSTALLATION.

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NO.	DESCRIPTION	BY	APR.	DATE
REVISION				

SEWER TRANSFER PROJECT
TOWN OF PALISADE

MAIN AND PUMP LEVEL PIPING SECTION

FILE : 81-23-029_D-301X
JUB PROJ. # : 81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/19/2025

SHEET NUMBER:
D-301

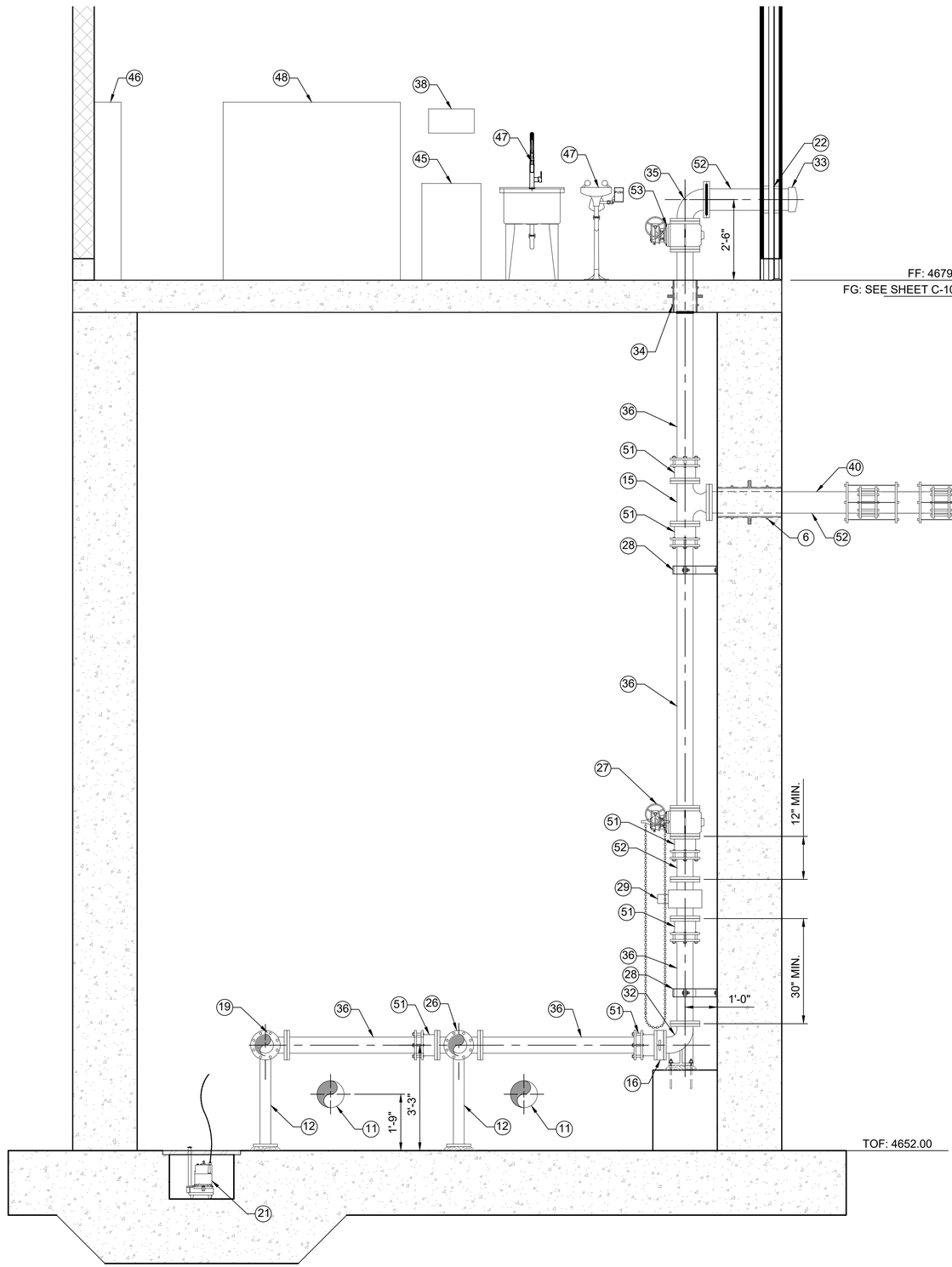
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Date Created:6/9/2025 \\UBCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEETS\MECH\ANCAL\81-23-029_D-301X.DWG

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

PUMP LEVEL PIPING SECTION

FILE : 81-23-029_D-301X
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
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AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/19/2025

SHEET NUMBER:
D-302

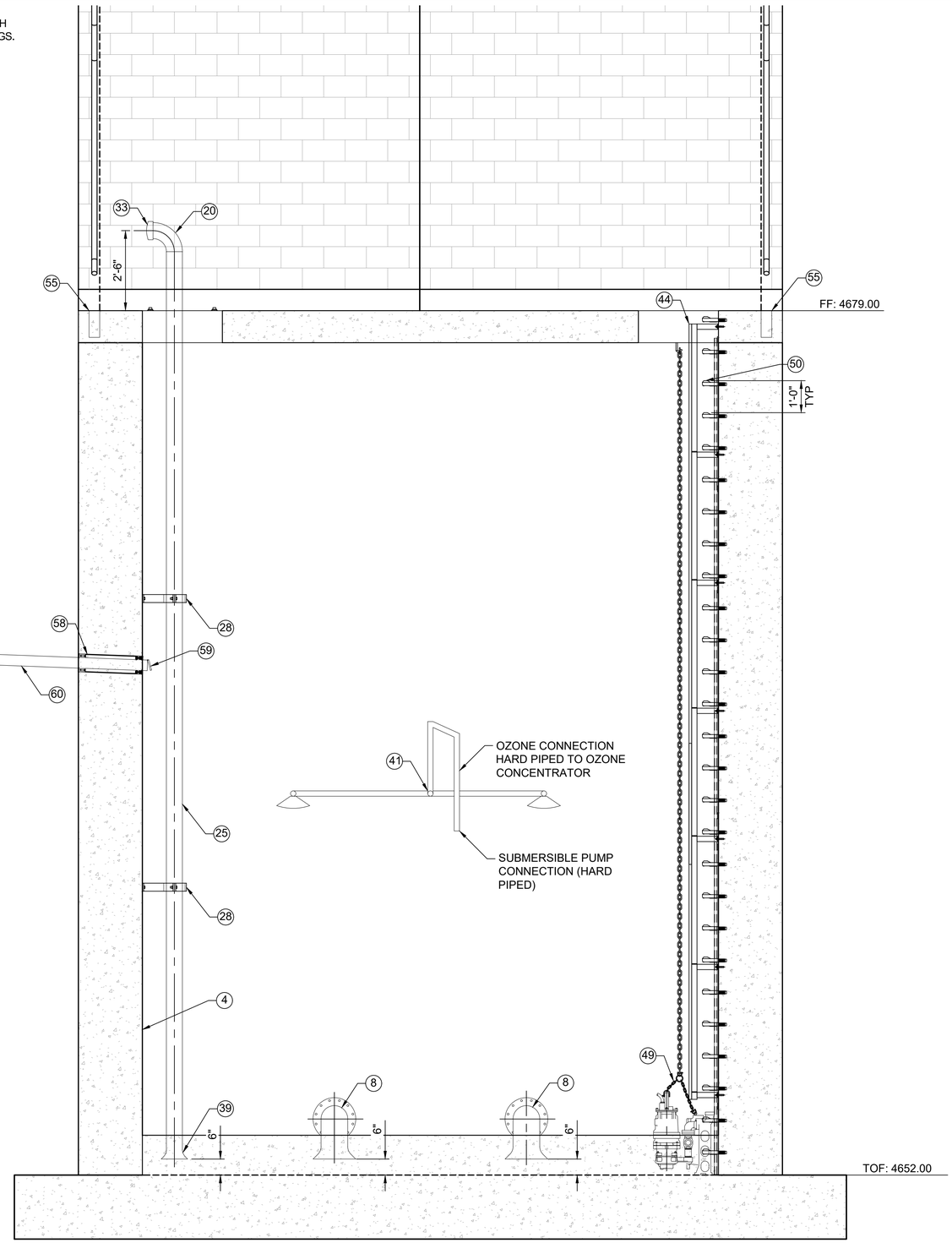
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Date Created:6/9/2025 \\UB\CENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFERDESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-301X.DWG

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

WET WELL PIPING SECTION

FILE :	81-23-029_D-301X
JUB PROJ. # :	81-23-029
DRAWN BY:	WVD
DESIGN BY:	KAR / AMN
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ONE INCH
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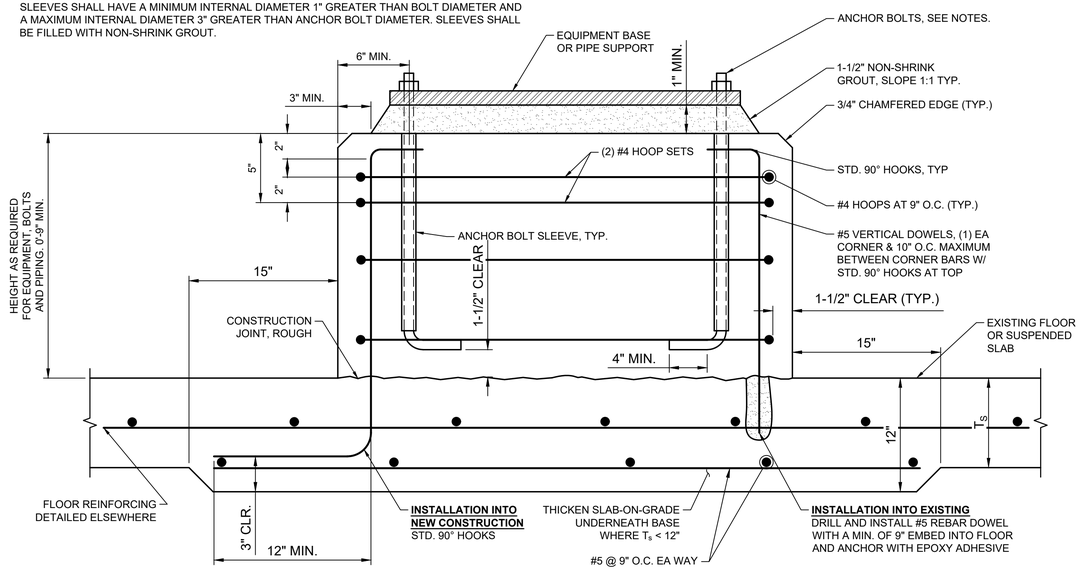
LAST UPDATED: 7/19/2025

SHEET NUMBER:
D-303

Plot Date:7/21/2025 9:34 PM Plotted By: Matt Filla
Date Created:6/9/2025 \\UBCENTRAL\CLIENTS\CO\PALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-301X.DWG

NOTES:

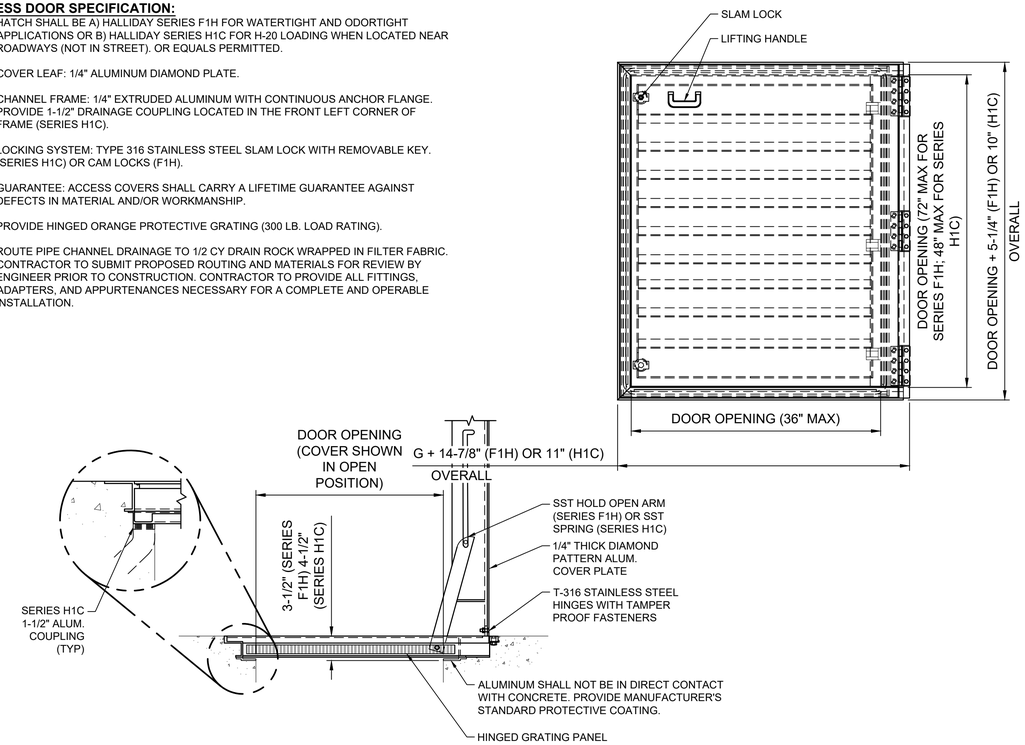
1. THIS DETAIL DEPICTS THE MINIMUM REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT OR PIPE SUPPORT MANUFACTURER AND ENSURE THE PAD MEETS ALL MANUFACTURER REQUIREMENTS.
2. THE SIZE, NUMBER, TYPE, LOCATION, THREAD PROJECTION, CLEARANCE TO EDGE OF CONCRETE AND EMBEDMENT OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE PAD IS BEING POURED.
3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE THE ANCHOR BOLT A MINIMUM MOVEMENT OF ½" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT. SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
4. EQUIPMENT OR PIPE SUPPORTS SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
5. STAINLESS STEEL WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE EQUIPMENT BASE OR PIPE SUPPORT WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN, THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.
6. T_S = SLAB-ON-GRADE PLAN THICKNESS.



D-05000 MECHANICAL PAD DETAIL
NOT TO SCALE

ACCESS DOOR SPECIFICATION:

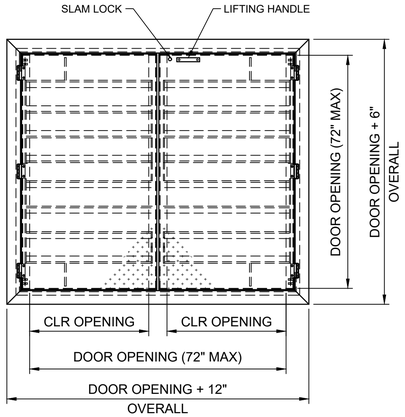
1. HATCH SHALL BE A) HALLIDAY SERIES F1H FOR WATERTIGHT AND ODORTIGHT APPLICATIONS OR B) HALLIDAY SERIES H1C FOR H-20 LOADING WHEN LOCATED NEAR ROADWAYS (NOT IN STREET). OR EQUALS PERMITTED.
2. COVER LEAF: 1/4" ALUMINUM DIAMOND PLATE.
3. CHANNEL FRAME: 1/4" EXTRUDED ALUMINUM WITH CONTINUOUS ANCHOR FLANGE. PROVIDE 1-1/2" DRAINAGE COUPLING LOCATED IN THE FRONT LEFT CORNER OF FRAME (SERIES H1C).
4. LOCKING SYSTEM: TYPE 316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY. (SERIES H1C) OR CAM LOCKS (F1H).
5. GUARANTEE: ACCESS COVERS SHALL CARRY A LIFETIME GUARANTEE AGAINST DEFECTS IN MATERIAL AND/OR WORKMANSHIP.
6. PROVIDE HINGED ORANGE PROTECTIVE GRATING (300 LB. LOAD RATING).
7. ROUTE PIPE CHANNEL DRAINAGE TO 1/2 CY DRAIN ROCK WRAPPED IN FILTER FABRIC. CONTRACTOR TO SUBMIT PROPOSED ROUTING AND MATERIALS FOR REVIEW BY ENGINEER PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES NECESSARY FOR A COMPLETE AND OPERABLE INSTALLATION.

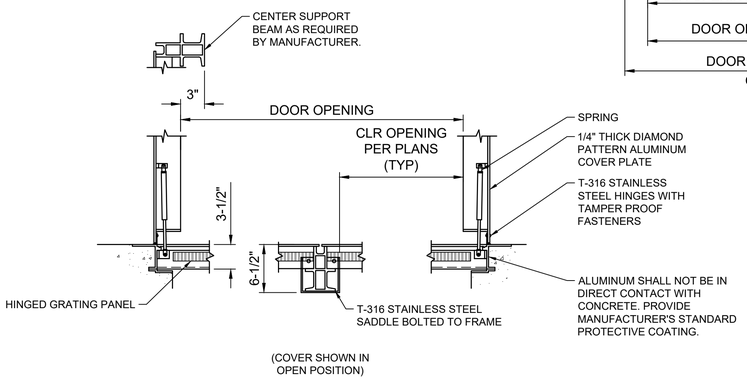


D-05010 ALUMINUM SINGLE LEAF ACCESS HATCH
NOT TO SCALE

ACCESS DOOR SPECIFICATION:

1. HATCH SHALL BE HALLIDAY H2R OR EQUAL.
2. COVER LEAF: 1/4" ALUMINUM DIAMOND PLATE.
3. CHANNEL FRAME: 1/4" EXTRUDED ALUMINUM WITH CONTINUOUS ANCHOR FLANGE.
4. LOAD RATING: H-20 TRAFFIC RATED. HOWEVER ACCESS HATCH SHALL ONLY BE USED IN OFF STREET LOCATIONS NOT SUBJECTED TO TRAFFIC.
5. LOCKING SYSTEM: TYPE 316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY.
6. GUARANTEE: ACCESS COVERS SHALL CARRY A LIFETIME GUARANTEE AGAINST DEFECTS IN MATERIAL AND/OR WORKMANSHIP.
7. PROVIDE SAFETY ORANGE COLORED SAFETY CABLES EXTENDING FROM COVER TO COVER WHEN OPEN.
8. PROVIDE HINGED ORANGE PROTECTIVE GRATING (300 LB. LOAD RATING).

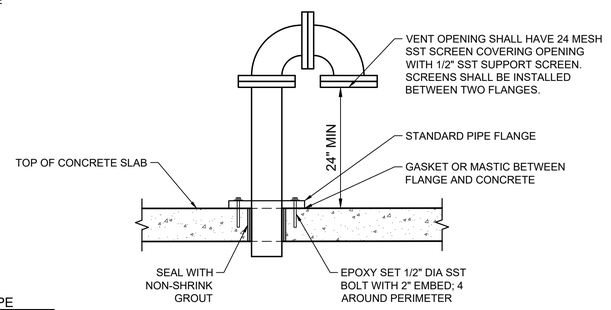




D-05015 ALUMINUM DOUBLE LEAF ACCESS HATCH
NOT TO SCALE

NOTES:

1. MATERIAL SHALL BE 316 SST.
2. PIPE JOINTS/ FITTINGS SHALL BE FLANGED OR WELDED, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
3. PIPE SIZE SHALL BE AS INDICATED ON THE PLANS, 4" MIN.



D-05100 SCREENED VENT PIPE
NOT TO SCALE

JUB ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENT'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL DETAILS

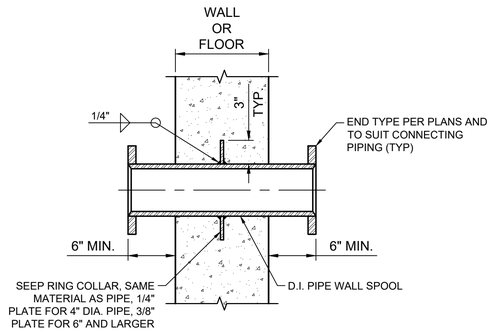
FILE : 81-23-029_D-501X
JUB PROJ. # : 81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
D-501

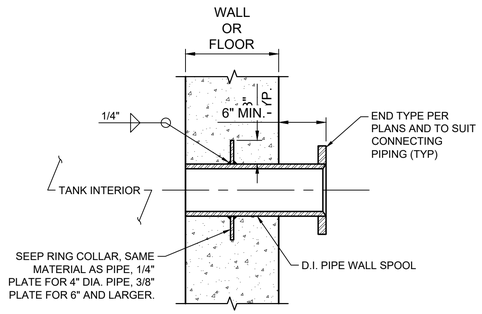
Plot Date:7/21/2025 9:35 PM, Plotted By: Matt Filla
Date Created:6/9/2025 \\JUB.CENTRAL.CLIENTS\CO-PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG

GENERAL NOTES:

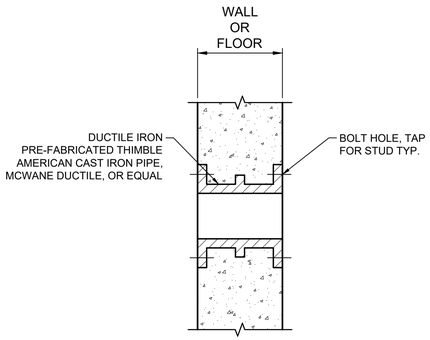
1. PIPE PENETRATIONS SHALL BE DUCTILE IRON PIPE AND HARDWARE SHALL BE 316 SST, UNLESS SPECIFICALLY STATED OTHERWISE ON THE PLANS.
2. ALL PENETRATIONS SHALL BE INSTALLED WITH THE ASSOCIATED FORMWORK PRIOR TO THE CONCRETE POUR. BLOCKOUTS AND POUR-BACKS SHALL NOT BE ACCEPTABLE UNLESS PRIOR CONSENT IS RECEIVED FROM THE ENGINEER, AND MAY REQUIRE ADDITIONAL WORK WHICH SHALL BE AT THE CONTRACTOR'S EXPENSE.
3. PROVIDE INSULATING GASKET PER STANDARD DETAIL (D-15030) WHERE DI PIPE PENETRATION IS USED WITH DISSIMILAR METAL PIPING SYSTEM.



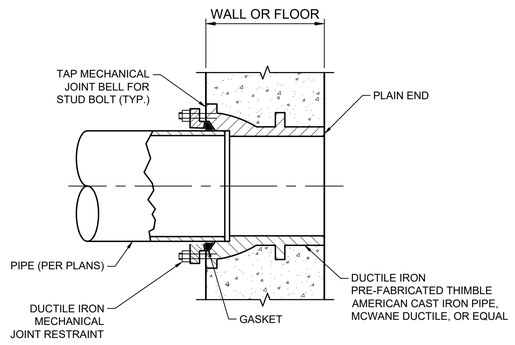
TYPE A



TYPE B

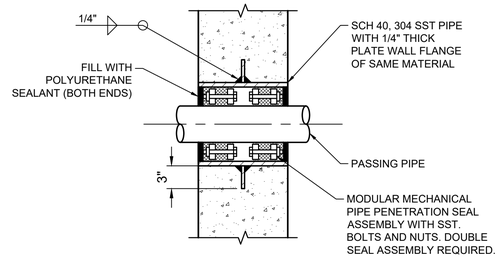


TYPE C

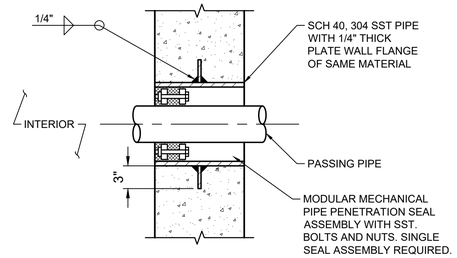


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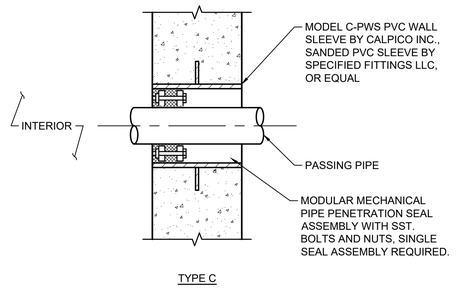
D-15000 DUCTILE IRON PIPE SPOOL PENETRATIONS
NOT TO SCALE



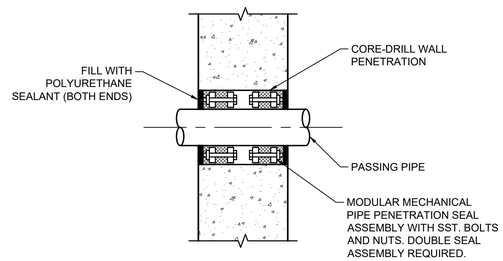
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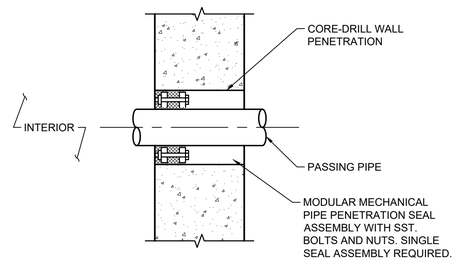
TYPE B



TYPE C



TYPE D



TYPE E

D-15005 SLEEVED PIPE PENETRATIONS
NOT TO SCALE

J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
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	REVISION			

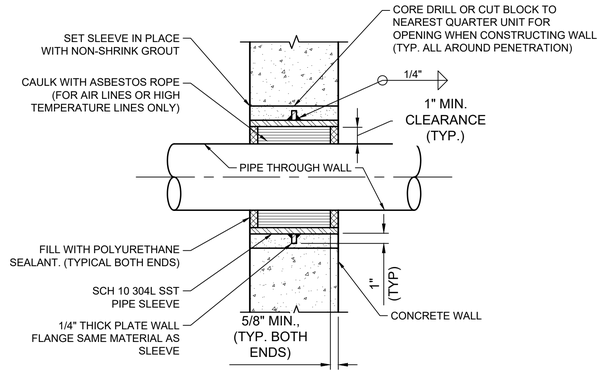
SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL DETAILS

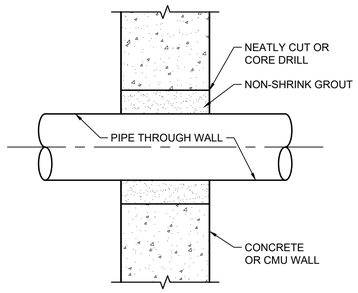
FILE : 81-23-029_D-501X
JUB PROJ. # : 81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
D-502

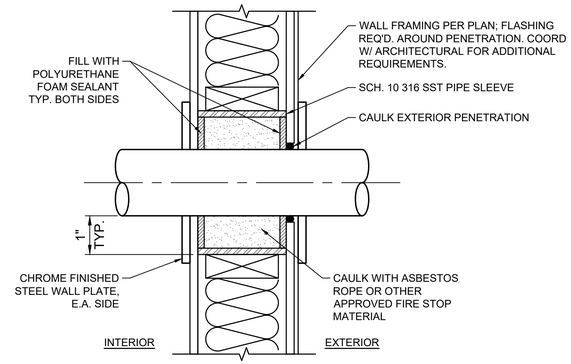
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Date Created:6/9/2025 \\JUB.CENTRAL.CLIENTS\CO-PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG



TYPE A

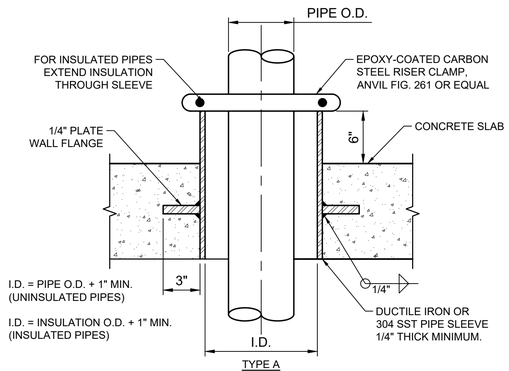


TYPE B

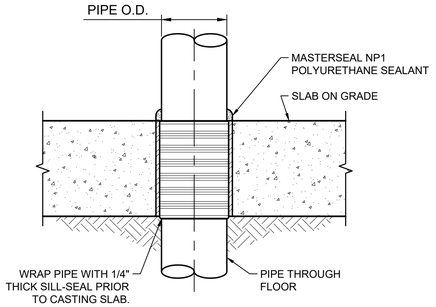


TYPE C

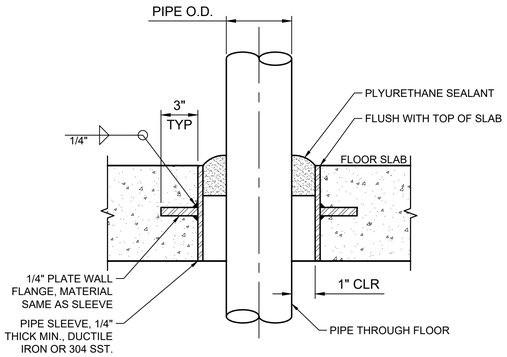
D-15010 ABOVE GRADE WALL PIPE PENETRATIONS
NOT TO SCALE



TYPE A



TYPE C



TYPE B

NOTES:

1. TYPE B AND C TO BE USED BETWEEN DRY SPACES ONLY.
2. FOR CORE-DRILLED HOLES IN EXISTING FLOORS, PIPE SLEEVE NOT REQUIRED.
3. FOR USE WITH 8" NOMINAL DIAMETER PIPE AND SMALLER.

D-15020 FLOOR PENETRATIONS
NOT TO SCALE

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET



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NO.	DESCRIPTION	BY	APR.	DATE
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SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL DETAILS

FILE : 81-23-029_D-501X
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

SHEET NUMBER:
D-503

Plot Date:7/21/2025 9:35 PM Plotted By: Matt Filla
Date Created:6/9/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG

NOTES:

1. THESE GENERAL NOTES ARE APPLICABLE TO ALL PIPE SUPPORT STANDARD DETAILS.
2. PIPE SUPPORTS SHALL BE HOT-DIPPED GALVANIZED (UNLESS NOTED OTHERWISE ON THE PLANS). ALL HARDWARE, FASTENERS, AND APPURTENANCES SHALL BE 316 SST.
3. PIPE SUPPORTS HEREIN ARE GENERAL IN NATURE. CONTRACTOR SHALL SUBMIT ALL PIPE SUPPORTS (INCLUDING ANCHOR BOLT SIZING CALCULATIONS) AS A DEFERRED SUBMITTAL WHICH SHALL INCLUDE THE PIPE SUPPORT DESIGN AND CALCULATIONS SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED.
4. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCIES BETWEEN THESE DETAILS AND ANY OTHER CONTRACT REQUIREMENTS.
5. PIPE SUPPORTS SHALL ACCOMMODATE APPURTENANCES INCLUDING BUT NOT LIMITED TO VALVES, INSTRUMENTS, HEAT TRACE, INSULATION, ETC. AS NECESSARY.
6. PIPE SUPPORTS SHALL NOT CONFLICT WITH ANY OTHER COMPONENT OF THE WORK. CONTRACTOR IS RESPONSIBLE FOR COORDINATING.
7. IT IS RECOMMENDED THAT CONTINUOUS SUPPORT BE USED WHEN INDIVIDUAL SUPPORT SPACING BECOMES ECONOMICALLY PROHIBITIVE OR SUPPORTS CREATE CONFLICTS WITH THE OTHER WORK.
8. PIPE SUPPORT DATA FOR PIPES NOT LISTED SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO PURCHASE.
9. PROVIDE ADDITIONAL SUPPORTS AT ALL PIPE BENDS, TEES, PLUGS AND ON EACH SIDE OF ALL FLEXIBLE PIPE JOINTS (2/JOINT).
10. THE CHART DOES NOT INCLUDE CONCENTRATED LOAD SUPPORTS. PROVIDE ADDITIONAL SUPPORTS AT ALL VALVES, CHECKS, CONTROL VALVES AND OTHER CONCENTRATED LOAD AREAS.

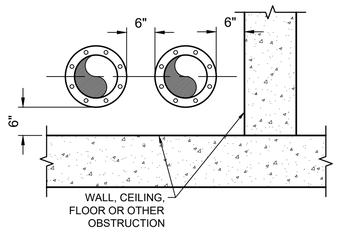
MAXIMUM PIPE SUPPORT SPACING TABLE

MAXIMUM SPAN (FEET)	PIPE SIZE (INCHES)																			
	TYPE OF PIPE	1/2	3/4	1	1-1/2	2	2-1/2	3	3-1/2	4	6	8	10	12	14	16	18	20	24	30
	STEEL OR DUCTILE IRON	5	6	7	9	10	11	12	13	14	17	19	22	23	25	27	28	30	30	30
	PVC SCHEDULE 40	4-1/2	4-1/2	5	5-1/2	5-1/2	6-1/2	7	7	7	8	8-1/2	9	10-1/2						
	PVC SCHEDULE 80	4-1/2	5	5-1/2	6	6-1/2	7-1/2	7-1/2	8	8-1/2	9-1/8	10-1/2								
	COPPER & BRASS TUBING	5	6	6	8	9	10	10	11	12										
	HANGER DIAMETER FOR GIVEN PIPE SIZE (INCHES)																			
	HANGER ROD	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	5/8	3/4	7/8	1	1-1/4	1-1/4	1-1/4	1-1/4	1-1/2	1-3/4	2

D-15050 PIPE SUPPORTS - GENERAL
NOT TO SCALE

NOTES:

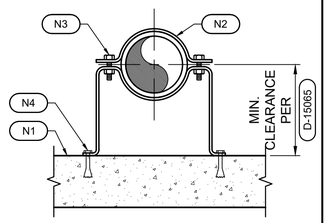
1. MINIMUM OBSTRUCTION CLEARANCE AS SHOWN HEREIN, UNLESS SHOWN OTHERWISE ON PLANS.



D-15065 TYPICAL PIPE CLEARANCES
NOT TO SCALE

KEYED NOTES:

- N1 CONCRETE FLOOR OR WALL
- N2 STAINLESS STEEL FLAT BAR
- N3 STAINLESS STEEL BOLTS
- N4 STAINLESS STEEL ANCHOR BOLTS WITH 4" MINIMUM EMBEDMENT.

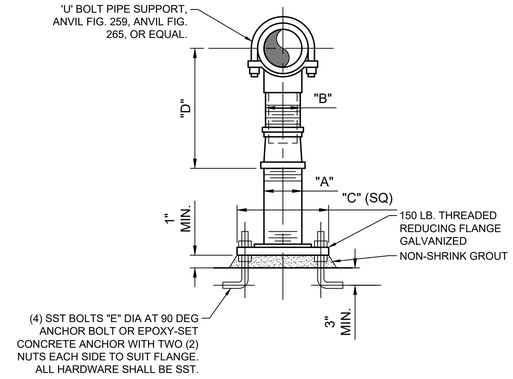


D-15100 TYPICAL PIPE SUPPORT
NOT TO SCALE

ADJUSTABLE PIPE SUPPORT
APPROXIMATE DIMENSIONS IN INCHES

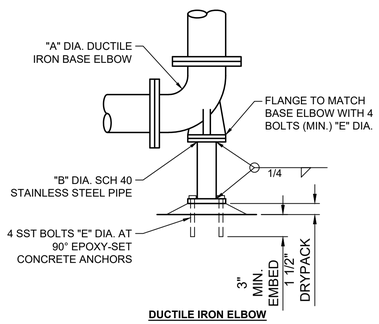
PIPE SIZE	"A"	"B"	"C" (SQ)	"D" MINIMUM	"D" MAXIMUM	"E" DIA.
4	4	3	7-1/4	12-1/4	16-3/4	5/8
6	4	3	7-1/4	13-3/4	18-1/4	5/8
8	4	3	7-1/4	14-5/8	19-7/8	5/8
10	4	3	7-1/4	15-13/16	20-5/16	5/8
12	4	3	7-1/4	16-13/16	21-5/16	3/4
14	4	3	12	19-1/8	23-5/8	3/4
16	4	3	12	20-1/8	24-5/8	3/4
18	6	4	12	21-5/16	25-13/16	3/4
20	6	4	12	23-5/16	27-13/16	3/4
24	6	4	12	24-5/16	28-13/16	3/4
30	6	4	12	26-7/16	30-15/16	7/8
36	6	4	12	29-7/16	33-15/16	7/8

* SEE MFR.



D-15070 PIPE SUPPORT ADJUSTABLE
NOT TO SCALE

ELBOW "A" DIA.	DIMENSIONS IN INCHES			
	"B" DIA.	"C" THICK	"D" SQ.	"E" DIA.
4	2	3/8	6	5/8
6	2-1/2	3/8	8	5/8
8	4	3/8	8	5/8
10	4	3/8	8	5/8
12	6	3/8	10	3/4
14	6	3/8	10	3/4
16	6	3/8	10	3/4
18	8	3/8	14	3/4
20	8	3/8	14	3/4
24	8	3/8	14	3/4
30	12	1/2	18	7/8
36	12	1/2	18	7/8
42	16	1/2	22	1



DUCTILE IRON ELBOW

D-15075 PIPE BASE ELBOW SUPPORT
NOT TO SCALE

J-U-B ENGINEERS, INC.
J-U-B ENGINEERS, INC.
305 S. Main Street
Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

COLORADO LICENSED
MATTHEW W. FILLA
60906
7/21/2025
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS, AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT CLIENTS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B.

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL DETAILS

FILE : 81-23-029_D-501X
JUB PROJ. # : 81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/12/2025

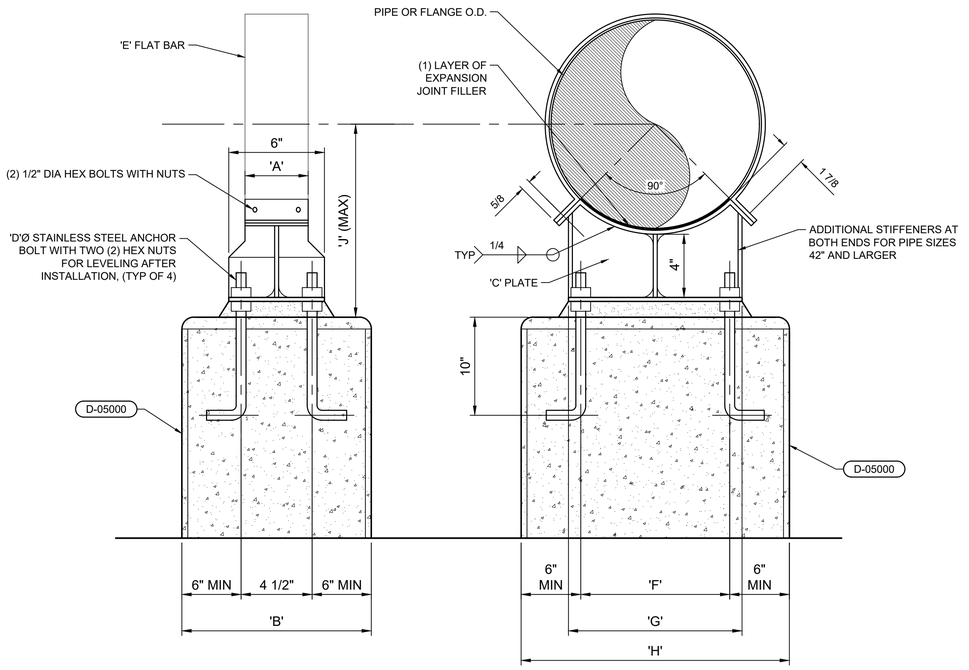
SHEET NUMBER:
D-504

Plot Date:7/21/2025 9:38 PM Plotted By: Matt Filla
Date Created:6/9/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG

NOTES:

1. WHEN SUPPORTING PIPE AND FLANGE ALTERNATELY ON THE SAME LINE CONCRETE PIERS FOR PIPE SUPPORTS SHALL ALL HAVE THE SAME DIMENSION 'H' FOR FLANGE SUPPORT.
2. HARDWARE AND FASTENERS, INCLUDING ANCHOR BOLTS, SHALL BE STAINLESS STEEL. ALL OTHER STEEL COMPONENTS SHALL BE CARBON STEEL COATED PER THE TECHNICAL SPECIFICATIONS.
3. COORDINATE SUPPORT HEIGHT TO ACHIEVE REQUIRED PIPE ELEVATION AS STATED ON THE PLANS.

DIMENSIONS IN INCHES													
NOMINAL PIPE SIZE						SUPPORTING							
						PIPE				FLANGE			
	A	B	C	D	E	F	G	H	J(MAX)	F	G	H	J(MAX)
4 & 6	4	12	3/8	5/8	1/4	4 1/2	6	12	10	6 1/2	9	16	13
8	4	12	3/8	5/8	1/4	5	8	13	11	7 1/2	9	16	14
10	4	12	3/8	5/8	1/4	6	9	15	12	9	13	18	15
12	4	12	3/8	5/8	1/4	7	11	17	13	10	15	20	16
14	4	12	3/8	5/8	1/4	8	12	17	14	11	16	21	17
16	4	12	3/8	5/8	1/4	9	13	19	15	12	18	24	18
18	4	12	3/8	5/8	1/4	10	14	20	16	13	19	24	19
20	5	12	3/8	5/8	3/8	10	15	21	17	15	21	26	21
22	5	12	3/8	5/8	3/8	12	18	24	18	16	23	28	22
24	5	12	3/8	5/8	3/8	13	19	24	19	16	24	30	23
26	5	12	3/8	3/4	3/8	14	21	27	20	18	26	32	24
30	5	12	3/8	3/4	3/8	15	23	28	22	20	29	34	26
34	5	15	3/8	3/4	3/8	18	26	32	24	22	33	39	29
36	6	15	3/8	3/4	3/8	19	27	32	25	24	34	40	30
42	6	18	1/2	1	3/8	21	31	36	28	27	39	45	33



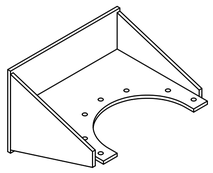
D-15136 PIPE SUPPORT - CONCRETE PEDESTAL WITH OR WITHOUT STRAP
NOT TO SCALE

NOTES:

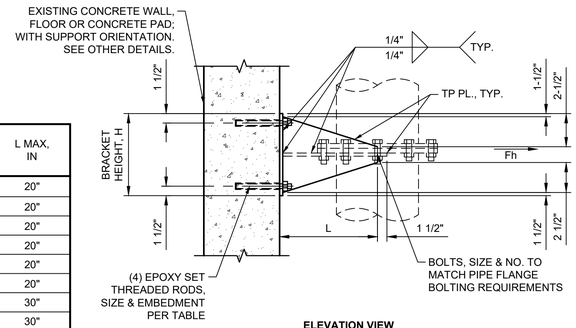
1. REFER TO TABLE FOR ADDITIONAL ANCHOR REQUIREMENTS.
2. RODS TO BE SET UTILIZING THE HILTI HIT HY 200 SYSTEM.
3. Do , Db , AND RELATED ITEMS SHALL MATCH PIPE FLANGE AND BOLTING REQUIREMENTS.
4. Fv AND Fh DENOTE VERTICAL AND HORIZONTAL FORCES, RESPECTIVELY.
5. L = MINIMUM OF 3".

NOMINAL PIPE DIA Dp, in.	BRACKET WIDTH W, in.	BRACKET HEIGHT H, in.	BRACKET THICKNESS Tp, in.	FILLET WELD SIZE Tw, in.	ANCHOR RODS		L MAX, IN
					DIAMETER Ad, in.	EMBEDMENT E, in.	
4	10.50	10.50	0.375	0.250	0.625	5.00	20"
6	12.50	10.50	0.375	0.250	0.625	5.00	20"
8	14.75	13.00	0.500	0.250	0.750	6.625	20"
10	17.25	13.00	0.500	0.250	0.750	6.625	20"
12	20.00	14.50	0.500	0.250	0.875	7.50	20"
14	21.75	14.50	0.625	0.3125	0.875	7.50	20"
16	24.25	15.50	0.625	0.3125	1.000	8.25	30"
18	25.75	15.50	0.625	0.3125	1.000	8.25	30"
20	28.00	18.00	0.625	0.3125	1.000	8.25	30"
24	32.00	21.00	0.625	0.3125	1.000	8.25	30"

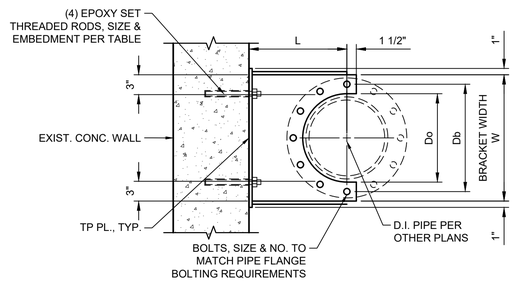
ANCHOR SYSTEM: HILTI HIT HY 200 V3 ADHESIVE SYSTEM, OR APPROVED EQUIVALENT



ISOMETRIC VIEW



ELEVATION VIEW



PLAN VIEW

D-15135 TYPICAL DUCTILE IRON PIPE WALL CRADLE SUPPORT
NOT TO SCALE

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

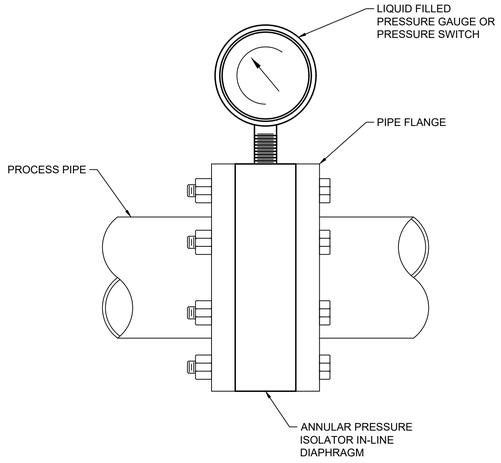
MECHANICAL DETAILS

FILE : 81-23-029_D-501X
JUB PROJ. # :81-23-029
DRAWN BY: WVD
DESIGN BY: KAR / AMN
CHECKED BY: GMV / MWF
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LAST UPDATED: 7/12/2025

SHEET NUMBER:
D-505

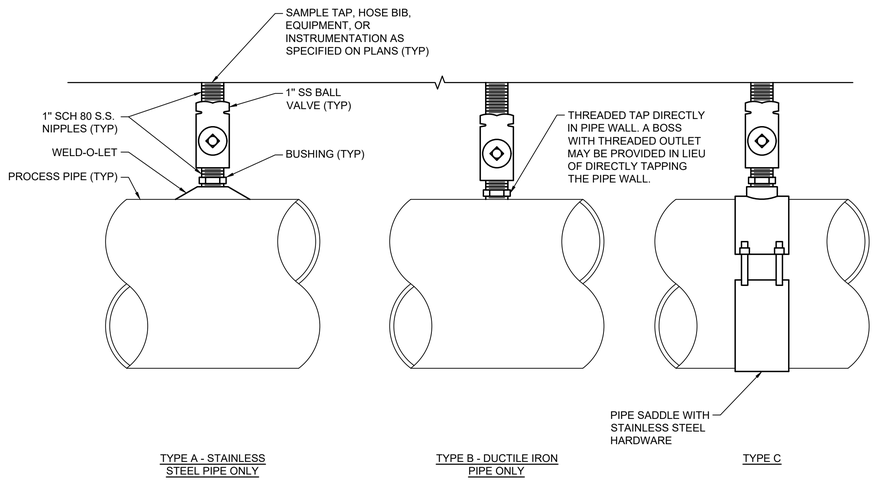
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Date Created:6/9/2025 \\UB\CENTRAL\CLIENTS\COPALISADE\PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG

NOTES:
1. PROVIDE ADDITIONAL APPURTENANCES AS REQUIRED.



D-15161 PRESSURE GAUGE OR PRESSURE SWITCH WITH PIPE SLEEVE PRESSURE SENSOR
NOT TO SCALE

NOTES:
1. BALL VALVES, LADISH CO. LAD-2000, JAMESBURY TYPE A-36 OR EQUAL.



D-15164 TYPICAL PIPE TAP
NOT TO SCALE

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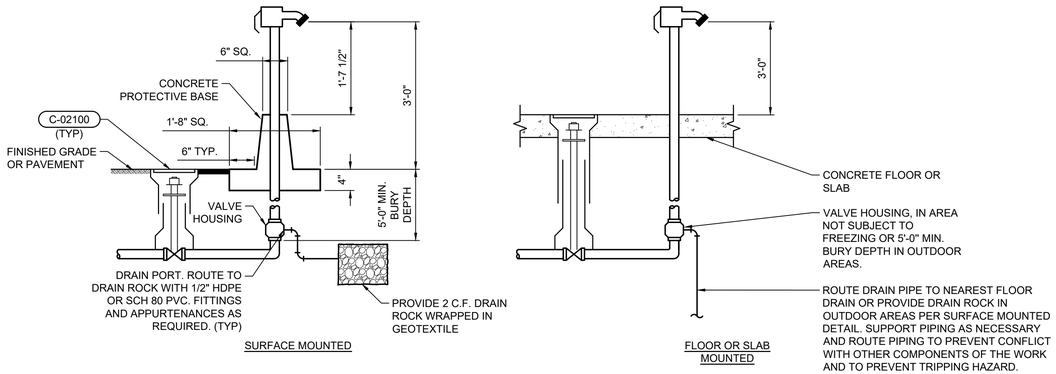
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JUB PROJ. # :81-23-029
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LAST UPDATED: 7/12/2025

SHEET NUMBER:
D-506

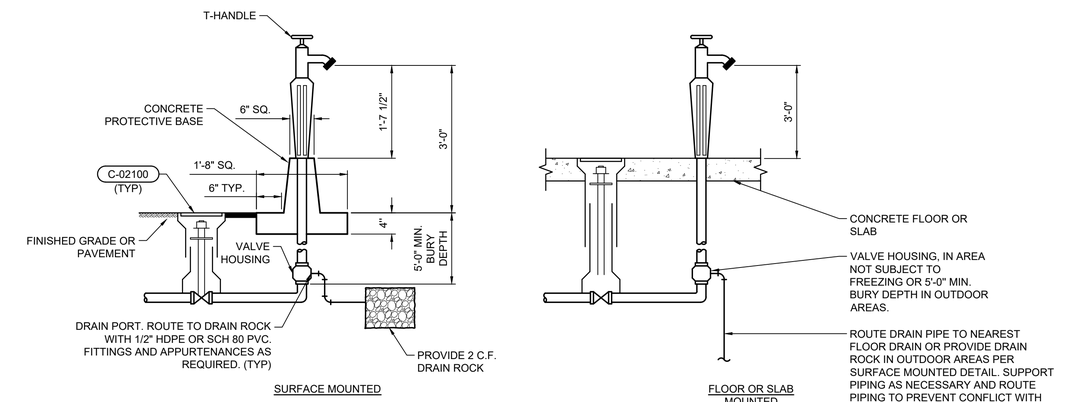
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Date Created:6/9/2025 \\JUB\CENTRAL\CLIENTS\CO\PALISADE-PROJECTS\81-23-029_SEWERTRANSFER\DESIGN\CAD\SHEET\MECHANICAL\81-23-029_D-501X.DWG

NOTES:

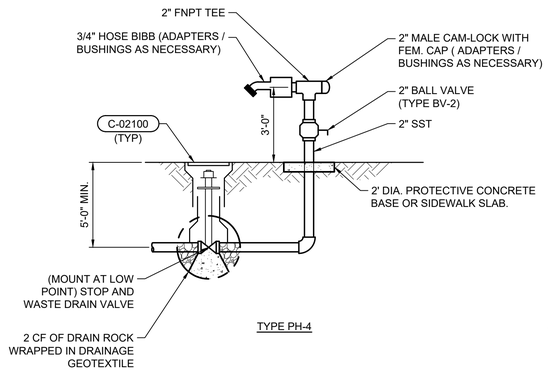
1. PROVIDE WARNING SIGN PER STANDARD DETAIL D-15215 WHEN USED FOR NON-POTABLE WATER.
2. ALL POST HYDRANTS TO BE CONTROLLED BY INDIVIDUAL SHUT OFF VALVE. PROVIDE CURB STOP FOR 3/4" - 2" PIPES. GATE VALVE FOR LARGER PIPES.
3. SUPPLY PIPING MATERIAL AND SIZE PER THE PLANS; PROVIDE ADAPTERS AND FITTINGS ARE REQUIRED FOR CONNECTION TO HYDRANT STEM.
4. HOSE BIBBS SHALL BE INSTALLED SO THAT ALL COMPONENTS ARE EASILY ACCESSIBLE AND HOSE CAN BE EASILY ATTACHED WITHOUT OBSTRUCTION.
5. PROVIDE FITTINGS AND ADAPTERS AS NECESSARY.
6. PROVIDE A HOSE RACK AND HOSE PER STANDARD DETAIL D-15205.
7. HOSE BIBBS PER TECHNICAL SPECIFICATIONS.



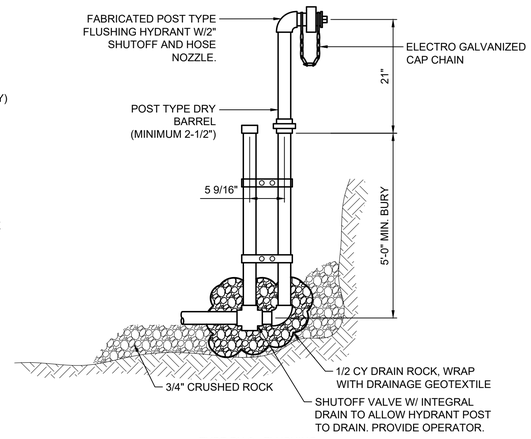
TYPE PH-1 - LEVER OPERATED



TYPE PH-2 - T OPERATED



TYPE PH-4

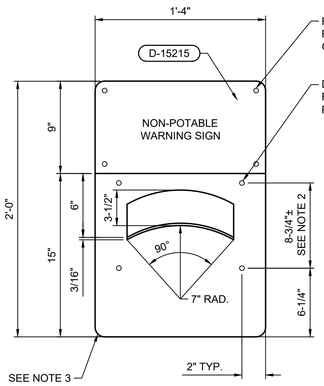


TYPE PH-3 - FLUSHING

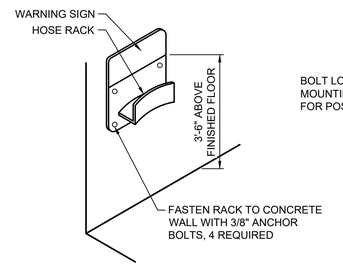
D-15200 NON-FREEZE HYDRANTS
NOT TO SCALE

NOTES:

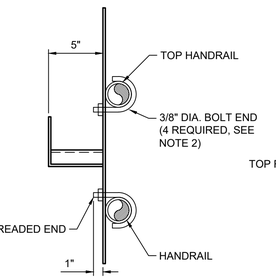
1. ALL HOSE RACKS AND MOUNTINGS SHALL BE WELDED CONSTRUCTION. MATERIAL SHALL BE 3/16" STAINLESS STEEL. ALL BOLTS AND NUTS SHALL BE STAINLESS STEEL.
2. CONTRACTOR TO COORDINATE BOLTS AND BOLT HOLE LOCATION WITH HANDRAIL DIMENSIONS.
3. ROUND ALL CORNERS 3/4" RADIUS.
4. PROVIDE 50-FT OF HOSE AND ONE HOSE NOZZLE FOR EACH HYDRANT.



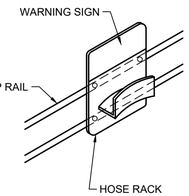
WALL AND RAIL MOUNTED



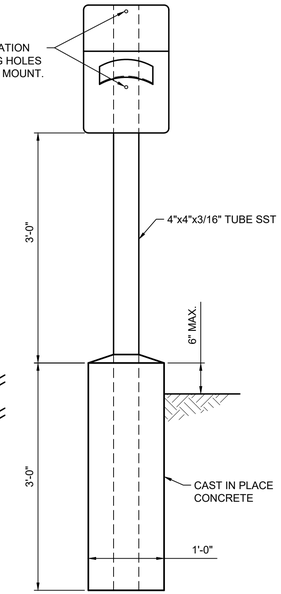
TYPE A WALL MOUNTED



SIDE VIEW (RAIL MOUNTED)

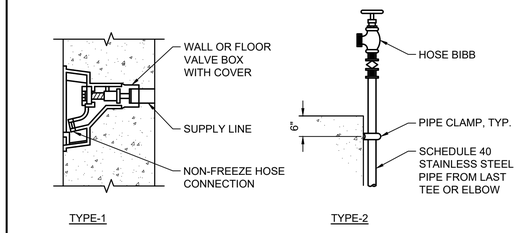


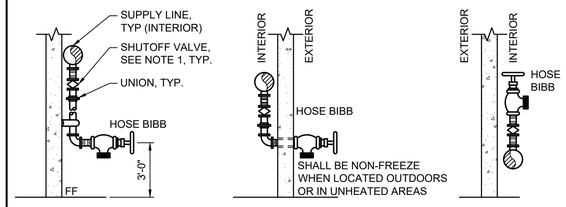
TYPE B RAIL MOUNTED

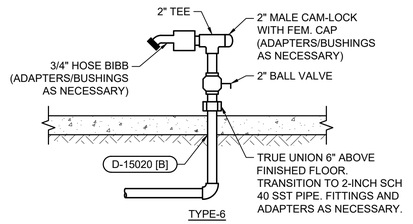


TYPE C POST MOUNTED

D-15205 HOSE RACK
NOT TO SCALE



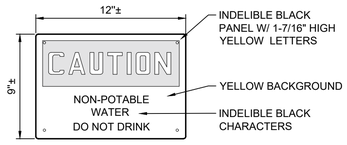




D-15210 INTERIOR HOSE BIBB MOUNTING ARRANGEMENTS
NOT TO SCALE

NOTES:

1. REFERENCE TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE SIGN AT ALL HOSE BIBB OR POST HYDRANT LOCATIONS WHERE WATER IS NON-POTABLE.



D-15215 WARNING SIGN FOR NON-POTABLE WATER
NOT TO SCALE

NOTES:

1. ALL HOSE BIBBS TO BE CONTROLLED BY INDIVIDUAL SHUTOFF VALVES (BALL OR PLUG VALVES).
2. PROVIDE FITTINGS AND ADAPTERS AS NECESSARY.
3. PROVIDE WARNING SIGN PER STANDARD DETAIL D-15215, WHEN USED FOR NON-POTABLE WATER. REFER TO STANDARD DETAIL.
4. PROVIDE A HOSE RACK AND HOSE PER STANDARD DETAIL D-15205.
5. SUBSTITUTE 1½" GLOBE VALVE WITH HOSE ADAPTER FOR 1½" HOSE BIBBS.
6. PROVIDE STAINLESS STEEL SUPPORTS AND FASTENERS AS NECESSARY.
7. HOSE BIBBS SHALL BE INSTALLED SO THAT ALL COMPONENTS ARE EASILY ACCESSIBLE AND HOSE CAN BE EASILY ATTACHED WITHOUT OBSTRUCTION.
8. THE CENTERLINE OF ALL HOSE BIBBS SHALL BE LOCATED 3'-0" ABOVE FINISHED FLOOR OR FINISHED GRADE, UNLESS NOTED OTHERWISE.

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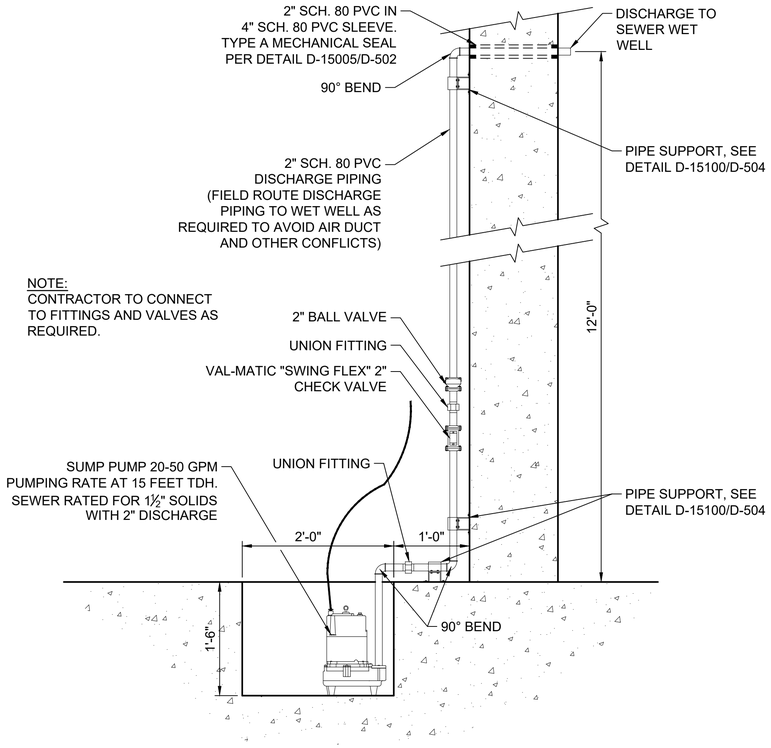
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TOWN OF PALISADE

MECHANICAL DETAILS

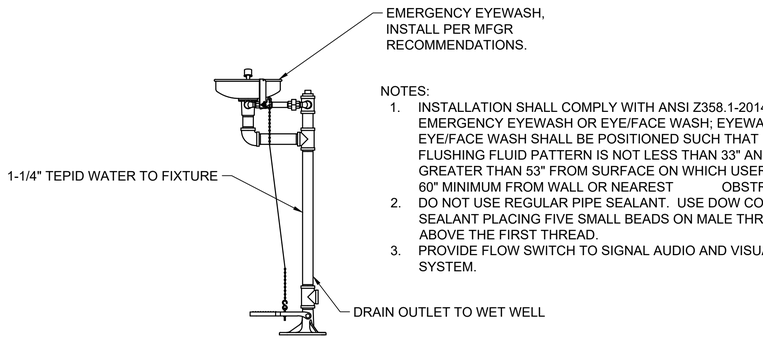
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D-507

Plot Date:7/21/2025 9:35 PM Plotted By: Matt Filla
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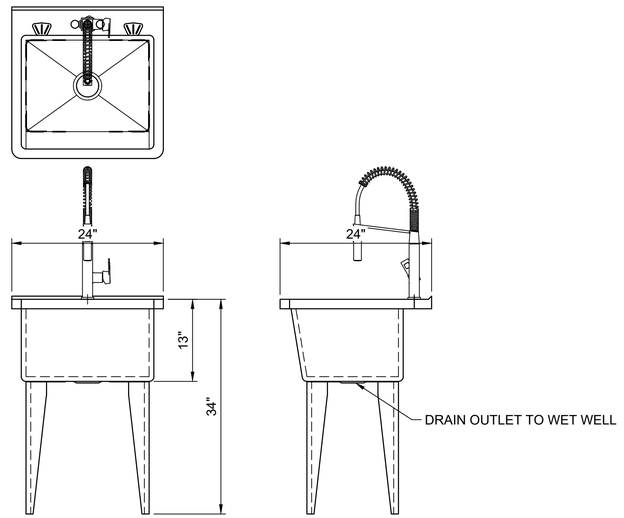


1 SUMP DETAIL
SCALE:NOT TO SCALE



NOTES:
1. INSTALLATION SHALL COMPLY WITH ANSI Z358.1-2014 FOR EMERGENCY EYEWASH OR EYE/FACE WASH; EYEWASH OR EYE/FACE WASH SHALL BE POSITIONED SUCH THAT FLUSHING FLUID PATTERN IS NOT LESS THAN 33" AND NO GREATER THAN 53" FROM SURFACE ON WHICH USER STANDS; AND 60" MINIMUM FROM WALL OR NEAREST OBSTRUCTION.
2. DO NOT USE REGULAR PIPE SEALANT. USE DOW CORNING 832 SEALANT PLACING FIVE SMALL BEADS ON MALE THREADS, JUST ABOVE THE FIRST THREAD.
3. PROVIDE FLOW SWITCH TO SIGNAL AUDIO AND VISUAL ALARM SYSTEM.

2 EYEWASH DETAIL
SCALE:NOT TO SCALE



3 UTILITY SINK DETAIL
SCALE:NOT TO SCALE

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GENERAL REQUIREMENTS

1. THESE GENERAL STRUCTURAL NOTES AND SPECIFICATIONS SUPPLEMENT THE PROJECT WRITTEN TECHNICAL SPECIFICATIONS AND THE PROJECT STRUCTURAL DRAWINGS.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION BRACING, TEMPORARY SHORING, AND OTHER SITE SAFETY CONTROLS REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS, TO INSURE THE STABILITY AND SAFETY OF ALL CONSTRUCTION UNTIL IT IS COMPLETED AND SELF-SUPPORTING.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL WATER, BOTH ABOVE AND BELOW GROUND, RUNOFF AND OTHER ENVIRONMENTAL CONTROLS REQUIRED DURING CONSTRUCTION TO INSURE THE SITE IS MAINTAINED IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
4. DETAILS ON THESE PLANS ARE INTENDED TO DEPICT THE GENERAL CONSTRUCTION DETAILS AND METHODS FOR THIS STRUCTURE. CONNECTION DETAILS AND CONDITIONS NOT SPECIFICALLY SHOWN THAT ARE SIMILAR IN NATURE TO THOSE THAT ARE SPECIFIED SHALL BE ASSUMED ONE AND THE SAME. IF QUESTIONS REGARDING THE APPLICATION OF DETAILS ARE ENCOUNTERED, NOTIFY THE ENGINEER FOR CLARIFICATION OR INSTRUCTION.
5. PRIOR TO IMPLEMENTING ANY CHANGES TO THESE PLANS, THE ENGINEER SHALL BE NOTIFIED IN WRITING FOR THEIR WRITTEN APPROVAL. CHANGES IMPLEMENTED WITHOUT THE ENGINEERS WRITTEN APPROVAL SHALL RELIEVE THE ENGINEER OF ANY CLAIM OR LIABILITY RESULTING FROM THAT PORTION OF THE STRUCTURE CHANGED OR AFFECTED BY THE CHANGE.

CONTRACTOR RESPONSIBILITY FOR COORDINATION

1. IT IS THE CONTRACTORS PRIME RESPONSIBILITY TO COORDINATE THE WORK SHOWN ON ALL OF THE PROJECT DRAWINGS, GENERAL, SPECIAL AND TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING CONSTRUCTION MATERIAL TYPES DIMENSIONS, ELEVATIONS AND CONDITIONS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS AND IN THE FIELD PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION, ANY DISCREPANCY SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CAREFULLY STUDY AND COORDINATE THE CONSTRUCTION REQUIREMENTS SHOWN ON BOTH THE ARCHITECTURAL AND THE STRUCTURAL DRAWINGS. WHEN CONFLICTS OR DISCREPANCIES ARE FOUND BETWEEN THESE PLAN SETS AND/OR WITHIN THESE DRAWINGS, THE CONTRACTOR SHALL REPORT THEM IMMEDIATELY TO THE PROJECT ENGINEER FOR DIRECTION AND/OR CLARIFICATION.
5. ANY CONSTRUCTION WORK DONE BY THE CONTRACTOR BEFORE OBTAINING SUCH CLARIFICATION FROM THE PROJECT ENGINEER SHALL BE AT THE CONTRACTORS OWN RISK AND COST. FURTHERMORE; ANY WORK REQUIRED TO CORRECT, REPLACE AND/OR RESTORE THE WORK AS DIRECTED BY THE ENGINEER SHALL BE AT THE CONTRACTORS OWN RISK AND COST.

CODES

1. INTERNATIONAL BUILDING CODE, IBC 2021 EDITION.
2. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-16.
3. AMERICAN CONCRETE INSTITUTE , ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE; REFERENCED SECTION.
4. AMERICAN CONCRETE INSTITUTE, ACI 350, CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES; CURRENT EDITION.
5. AMERICAN CONCRETE INSTITUTE, ACI 530, BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES; CURRENT EDITION.
6. AMERICAN CONCRETE INSTITUTE, ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE.
7. AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 14TH EDITION, STEEL CONSTRUCTION MANUAL.
8. AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 360, SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS; CURRENT EDITION.
9. AMERICAN WELDING SOCIETY, AWS D1.1 CURRENT EDITION, STRUCTURAL WELDING CODE.
10. NATIONAL DESIGN SPECIFICATIONS, NDS FOR WOOD CONSTRUCTION; CURRENT EDITION.

SUBMITTALS

SUBMIT PRODUCT OR MATERIAL INFORMATION TO THE ENGINEER FOR REVIEW FOR THE FOLLOWING ITEMS:

1. CONCRETE MIX DESIGNS AND ADMIXTURES.
2. NON-SHRINK GROUT.
3. EXPANSION BOLTS.
4. ADHESIVE ANCHORS.
5. STRUCTURAL MASONRY GROUT AND MORTAR MIX DESIGNS.
6. STRUCTURAL CONCRETE BLOCK.
7. STRUCTURAL FILL AND BACKFILL

DEFERRED SUBMITTALS

THE FOLLOWING ITEMS TO BE DESIGNED BY OTHERS ARE CONSIDERED "DEFERRED SUBMITTALS". DEFERRED SUBMITTALS SHALL BE ACCOMPANIED BY DESIGN DRAWINGS, SHOP DRAWINGS AND STRUCTURAL CALCULATIONS, STAMPED AND SIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF COLORADO.

1. PRE-ENGINEERED AND SHOP FABRICATED WOOD TRUSSES.
2. PRE-ENGINEERED AND SHOP FABRICATED STEEL STAIRS.

SHOP DRAWINGS

SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THE FOLLOWING ITEMS:

1. REINFORCING STEEL FOR ALL CONCRETE.
2. REINFORCING STEEL FOR MASONRY WALLS.
3. STRUCTURAL STEEL
4. MISCELLANEOUS STEEL FABRICATIONS INCLUDING STAIRS, LADDERS, BAR-GRATING, FLOOR PLATE AND ACCESS DOORS AND HATCHES.

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS PER IBC CHAPTER 17 ARE REQUIRED FOR THE FOLLOWING ITEMS:
C INDICATES CONTINUOUS, P INDICATES PERIODIC.

1.	SOILS. BY GEOTECHNICAL ENGINEER.		FREQUENCY
	A.	SITE PREPARATION:	P
	B.	FILL MATERIAL VERIFICATION:	C
	C.	FILL PLACEMENT AND COMPACTION:	C
	D.	LIFT THICKNESS:	C
2.	CONCRETE.		
	A.	REINFORCEMENT PLACEMENT:	P
	B.	REINFORCING WELDING: REFER TO STEEL WELDING REQUIREMENTS	
	C.	PLACEMENT OF CAST-IN-PLACE ANCHORS:	P
	D.	VERIFICATION OF USE OF REQUIRED MIX:	P
	E.	CONCRETE PLACEMENT:	C
	F.	VERIFICATION OF IN-SITU CONCRETE PRIOR TO REMOVAL OF FORMS AND SHORES FROM ELEVATED BEAMS AND SLABS	P
1.	POST INSTALLED CONCRETE ANCHORS.		
	A.	INSTALLATION:	C
2.	STRUCTURAL MASONRY.		
	A.	VERIFICATION OF SITE PROPORTIONED MORTAR & GROUT:	P
	B.	OBSERVATION OF PRISM PREPARATION:	C
	C.	PLACEMENT OF MASONRY UNITS & MORTAR JOINTS:	P
	D.	VERIFICATION OF SIZE AND LOCATION OF STRUCTURAL ELEMENTS:	P
3.	ANCHORAGE OF MASONRY TO FRAMES, STRUCTURAL MEMBERS AND DIAPHRAGMS INCLUDING TYPE, SIZE AND LOCATION OF ANCHORS		P
	A.	TYPE, GRADE AND SIZE OF REINFORCING STEEL:	P
	B.	REINFORCING STEEL AND CONNECTOR PLACEMENT:	P
	C.	COLD/HOT WEATHER MASONRY PROTECTION:	P
	D.	VERIFY USE OF GROUT MIX DESIGN:	P
	E.	VERIFY GROUT SPACE IS CLEAN PRIOR TO GROUTING:	C
	F.	GROUT PLACEMENT:	C
4.	ALL SPECIAL INSPECTION SHALL BE PERFORMED BY ICC CERTIFIED INSPECTORS.		
5.	FOR ADHESIVE ANCHOR INSPECTION REQUIREMENTS REFER TO SECTION 12.		

DESIGN CRITERIA

1. OCCUPANCY OR USE; IBC TABLE 1607.1: WASTEWATER LIFT STATION
   A. RISK CATEGORY; ASCE TABLE 1.5-2: III
2. LIVE LOADS:
   A. ROOF LIVE LOAD:
      a. FLAT ROOF SNOW LOAD, P_f: 34 PSF
      b. GROUND SNOW LOAD, P_g: 40 PSF
      c. SNOW IMPORTANCE FACTOR, I_s: 1.1
      d. SNOW EXPOSURE FACTOR, C_e: 0.90
      e. THERMAL FACTOR, C_t: 1.1
      f. UNBALANCED SNOW PER ASCE-7, CHAPTER 7
   B. FLOOR LIVE LOAD:
      a. MAT SLAB & ELEVATED SLAB: 150 PSF (INTERIOR), 250 PSF (EXTERIOR)
      b. STAIRS: 100 PSF OR 300# PT LOAD AT MID-SPAN, WHICHEVER IS GREATER
3. DEAD LOADS:
   A. ROOF DEAD LOAD: 20 PSF
      a. TRUSS TOP CHORD: 10 PSF
      b. TRUSS BOTTOM CHORD: 10 PSF
   B. FLOOR DEAD LOAD: 150 PSF
4. WIND:
   A. ULTIMATE DESIGN WIND SPEED, V_{ult}: 109 MPH
   B. SITE WIND EXPOSURE: C
   C. ENCLOSURE CLASSIFICATION: ENCLOSED BUILDING
   D. INTERNAL PRESSURE COEFFICIENTS: +0.18 TO -0.18
   E. COMPONENT & CLADDING (FOR DEFERRED SUBMITTALS)
      a. DESIGN WIND PRESSURES: +35PSF – 25 PSF
5. EARTHQUAKE:
   A. SEISMIC IMPORTANCE FACTOR, I_e: 1.25
   B. MAPPED SPECTRAL RESPONSE ACCELERATION:
      a. SHORT PERIOD, S_s: 0.252
      b. 1-SECOND, S_1: 0.067
   C. SOIL SITE CLASS: D
   D. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
      a. SHORT PERIOD, S_{DS}: 0.269
      b. 1-SECOND, S_{D1}: 0.107
   E. SEISMIC DESIGN CATEGORY: B
   F. BASIC SEISMIC FORCE RESISTING SYSTEM(S):
      a. INTERMMEDIATE REINFORCED MASONRY SHEAR WALLS
         1. RESPONSE MODIFICATION COEFFICIENT, R: 3.5
         2. SEISMIC RESPONSE COEFFICIENT, C_s: 0.0959
         3. SEISMIC DESIGN BASE SHEAR, V: 3.23 K
      b. ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE
6. MECHANICAL LOADS: REFER TO FRAMING PLANS AND MECHANICAL PLANS FOR SPECIAL MECHANICAL EQUIPMENT LOADS.
7. SOIL DESIGN PARAMETERS:
   A. NET ALLOWABLE SOIL BEARING PRESSURES; Q_n: 3000 PSF (LIFT STATON)
      1500 PSF (AT-GRADE STRUCTURES)
   A. NATIVE SOIL UNIT WEIGHT, W_s: 105 PCF
   B. GROUND WATER (GW) ELEVATION
      a. SEASONAL HIGH: 4667.80-FT
   C. EQUIVALENT DRAINED / SUBMERGED FLUID PRESSURES
      a. AT REST; K_r: 45 PCF / 80 PSF
      b. PASSIVE; K_p: 150 PCF / 150 PCF
   D. COEFFICIENT OF FRICTION, SOIL TO CONCRETE; F: 0.32
   E. VERTICAL SURCHARGE; D_s: 2.0-FT
   F. MODULUS OF SUBGRADE REACTION; K_m: 100 PCI
   G. FROST DEPTH; D_f: 2-FT

FOUNDATIONS

1. LIFT STATION FOUNDATION TO BE PLACED ON FIRM UNDISTURBED, INORGANIC NATIVE GRAVEL AND COBBLE MATERIAL AS WELL AS 6-IN THICK STRUCTURAL FILL. PROOF ROLL SUB-GRADE PER GEOTECHNICAL ENGINEER'S SATISFACTION PRIOR TO PLACING 6-IN THICK STRUCTURAL FILL. STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY.
2. AT-GRADE STRUCTURE FOUNDATIONS TO BE PLACED ON PROPERLY PREPARED SUBGRADE AND 24-IN THICK STRUCTURAL FILL. PRIOR TO PLACEMENT OF STRUCTURAL FILL, IT IS RECOMMENDED THAT THE BOTTOMS OF THE FOUNDATION EXCAVATIONS BE SCARIFIED TO A DEPTH OF 6 TO 8-INCHES, MOISTURE CONDITIONED, AND RE-COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. SOFT SOILS WERE ENCOUNTERED IN THE SUBSURFACE AND THIS MAY MAKE COMPACTION OF THE SUBGRADE DIFFICULT. IT MAY BE NECESSARY TO UTILIZE GEOTEXTILE AND/OR GEOGRID IN CONJUNCTION WITH ADDITIONAL GRANULAR FILL TO STABILIZE THE SUBGRADE. GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER SHOULD BE CONTACTED TO PROVIDE RECOMMENDATIONS FOR STABILIZATION BASED UPON THE ACTUAL CONDITIONS ENCOUNTERED DURING CONSTRUCTION. STRUCTURAL FILL SHOULD BE MOISTURE CONDITIONED, PLACED IN MAXIMUM 8-INCH LOOSE LIFTS, AND COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY FOR FINE GRAINED SOILS OR MODIFIED PROCTOR MAXIMUM DRY DENSITY FOR COARSE GRAINED SOILS, WITHIN ± 2% OF THE OPTIMUM MOISTURE CONTENT. STRUCTURAL FILL SHOULD EXTEND LATERALLY BEYOND FOUNDATION EDGE A DISTANCE EQUAL TO 24-IN.
3. ALL PIERS AND FOOTINGS OUTSIDE OR AT THE PERIMETER OF THE STRUCTURE, OR IN OTHER UNHEATED AREAS SHALL BE SET TO A DEPTH OF AT LEAST 24-IN. BELOW FINISH GRADE, UNLESS OTHER WISE NOTED ON THE PLANS.
4. ALL FOUNDATIONS AND RETAINING WALLS BELOW FINISH GRADE SHALL RECEIVE AN APPROVED DAMP-PROOF COATING. FOUNDATION WALLS BELOW MAXIMUM ANTICIPATED GROUND WATER LEVELS SHALL RECEIVE AN APPROVED WATER-PROOF COATING; EXTEND WATER-PROOFING TO A MINIMUM OF 1'-0" ABOVE THE MAXIMUM ANTICIPATED GROUND WATER LEVEL.
5. ALLOWABLE BEARING PRESSURE 3000 PSF (LIFT STATON) AND 1500 PSF (AT-GRADE STRUCTURES).
6. LOCAL AREAS OF SOFT AND/OR UNACCEPTABLE MATERIAL ENCOUNTERED AT BOTTOM OF FOOTING ELEVATIONS INDICATED ON THE PLANS MUST BE OVER-EXCAVATED AND BROUGHT UP TO DESIGN GRADE WITH COMPACTED STRUCTURAL FILL OR LEAN CONCRETE FILL.
7. ALL STRUCTURAL FILL AND/OR BACKFILL SHALL BE APPROVED BY GEOTECHINICAL ENGINEER AND STRUCTURAL ENGINEER. ALL STRUCTURAL FILL AND/OR BACKFILL SHALL BE GRANULAR, FREE DRAINING, MATERIAL; UNIFIED SOILS CLASSIFICATION GW, GP, GM OR SW; MAXIMUM AGGREGATE SIZE OF 3-IN. AND NO MORE THAN 7% PASSING A NUMBER 200 SIEVE. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THAN 8-IN. IN DEPTH AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED PER ASTM D1557.
8. DESIGN FOR THE MITIGATION OF SUBSURFACE WATER FLOW AND/OR PERCHED WATER TABLES SHALL BE THE RESPONSIBILITY OF OTHERS.
9. AS INDICATED ON THE PLANS AND ALL EXCAVATED AREAS UNDERNEATH CONCRETE STRUCTURES SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL (CDF) OTHERWISE CALLED CONTROLLED LOW STRENGTH MATERIAL (CLSM). CDF SHALL BE A MIXTURE OF CEMENT, FINE AND COURSE AGGREGATE, FLY ASH AND ADMIXTURES FORMULATED TO BE FLOWABLE AND SELF-CONSOLIDATING WITH A NET 28 DAY COMPRESSIVE STRENGTH OF 200 TO 300 PSI.
10. THE ENGINEER SHALL BE NOTIFIED IN WRITING IF ANY GROUND WATER, CLAY TYPE SOILS, DEBRIS OR UNCONSOLIDATED MATERIALS ARE ENCOUNTERED DURING EXCAVATIONS FOR FOUNDATIONS.
11. REFER TO THE FINAL PROJECT GEOTECHNICAL REPORT BY HUDDLESTON-BERRY (HBET) DATED AUGUST 9, 2024.

CAST-IN-PLACE CONCRETE

1. PROJECT CONCRETE MIX TYPES: CONCRETE SHALL BE PROPORTIONED AND FURNISHED FOR THE VARIOUS PROJECT USES AS INDICATED ON THE PLANS AND AS FOLLOWS:
   A. M2500-SEC: SECONDARY CONCRETE MIX FOR FILL AND BACKFILL AROUND BURIED PIPES UNDERNEATH STRUCTURAL FOOTINGS AND FOUNDATION SLABS: F_c: 2,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.55, AIR CONTENT: 6% (+/- 1.5%), MAXIMUM AGGREGATE SIZE 3/8-INCH; SLUMP 8-INCH.
   B. M4500-SPS: SUPER-PLASTICIZED CONCRETE MIX FOR LIQUID-RETAINING CONCRETE STRUCTURAL WALLS AND FOUNDATION SLABS: F_c: 4,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.45, AIR CONTENT: 6% (+/- 1.5%).
   C. M4500-STD: STANDARD EXTERIOR STRUCTURAL CONCRETE MIX FOR ALL OTHER CONCRETE INCLUDING ABOVE GRADE STRUCTURAL WALLS, COLUMNS, SLABS AND BEAMS: F_c: 4,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.45, AIR CONTENT: 6% (+/- 1.5%)
   D. M2500-GFM: MIX FOR GROUT FILL FOR CREATING SLOPE IN LIQUID RETAINING STRUCTURES: F_c: 2,500 PSI, ABSOLUTE WATER-CEMENT RATIO BY WEIGHT: 0.55, AIR CONTENT: 6% (+/- 1.5%), MAXIMUM AGGREGATE SIZE 3/8-INCH; SLUMP 8-INCH.
   E. M-SLURRY: SLURRY CONCRETE FOR HORIZONTAL CONSTRUCTION JOINTS IN WALLS. A FLOWABLE MIX CONSISTING OF SAND, 3/8-INCH MAXIMUM AGGREGATE, WATER AND A MINIMUM 1,150 POUNDS OF CEMENT PER CUBIC YARD.
   F. M-CDF: MIX FOR CONTROLLED DENSITY FILL (CDF) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM). CDF SHALL BE A MIXTURE OF CEMENT, FINE AND COURSE AGGREGATE, FLY ASH AND ADMIXTURES FORMULATED TO BE FLOWABLE AND SELF-CONSOLIDATING WITH A NET 28 DAY COMPRESSIVE STRENGTH OF 200 TO 300 PSI.
2. CONCRETE MIX COMPONENTS
   A. A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494, USED IN STRICT CONFORMANCE WITH THE MANUFACTURERS INSTRUCTIONS, SHALL BE INCORPORATED IN ALL CONCRETE MIX DESIGNS.
   B. FOR ALL WATER-RETAINING CONCRETE STRUCTURAL WALLS AND SLABS, A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494, TYPE F OR G, SHALL BE USED. THE TOTAL SLUMP SHALL BE LESS THAN 10-IN.
   C. HIGHER WATER-CEMENT RATIOS THAN SHOWN ABOVE MAY BE USED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318.
   D. FLY-ASH CONFORMING TO ASTM C618 TYPE F OR C, MAY REPLACE UP TO 20% OF THE CEMENT CONTENT, PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.
   E. CEMENT
      a. ASTM C150 TYPE I OR II.
      b. ASTM C845 TYPE K FOR SHRINKAGE COMPENSATING MIXES.
      c. IF SULFATES ARE FOUND IN THE SOIL PER THE GEOTECHNICAL REPORT, PROVIDE MAXIMUM W/CM RATIO, MINIMUM F'_c, AND CEMENTIOUS MATERIALS PER THE EXPOSURE CATEGORY S# IN ACI 301 TABLE 4.2.2.7.a.
   F. WATER: CLEAN & POTABLE.
   G. AIR ENTRAINING AGENT: ASTM C260. EXCEPT WHERE NOTED NON-AIR ENTRAINED.
   H. AGGREGATE: 0.75-INCH MAXIMUM AGGREGATE PER ASTM C33. UNLESS NOTED OTHERWISE.
   I. MIX PROPORTIONING: ACI 211.1 AND 350R.
3. CONCRETE ACCESSORIES:
   A. REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60; #3 BARS MAY BE GRADE 40.
   B. REINFORCING STEEL TO BE WELDED: ALL REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A706 GRADE 60, LOW-ALLOY, DEFORMED REINFORCING STEEL.
   C. WELDED WIRE FABRIC: ASTM A185 OR A497.
   D. EPOXY COATED REINFORCING BARS: ALL EPOXY COATED REINFORCING STEEL SHALL CONFORM TO ASTM A775 OR A 934. REPAIR COATING DAMAGE DUE TO SHIPPING, HANDLING, AND PLACING.
   E. STAINLESS STEEL BARS: STAINLESS STEEL BARS SHALL CONFORM TO ASTM A955.
   F. WIRE: PLAIN WIRE SHALL CONFORM TO ASTM A 82. DEFORMED WIRE SHALL CONFORM TO ASTM A 496, AND EPOXY COATED WIRE SHALL CONFORM TO ASTM A 884.
   G. JOINTING MATERIALS: IN ACCORDANCE WITH ACI 350 SECTION 4.5.2. ALL JOINTING MATERIALS INCLUDING WATER-STOPS, EXPANSION JOINTS AND SEALANTS, SHALL BE RESISTANT TO CHEMICAL ATTACK FOR THE DESIGN LIFE OF THE FACILITY. SEALANTS SHALL CONFORM TO ASTM C 920 AND FEDERAL SPECIFICATION TT-S-00277E AND PVC WATER-STOP SHALL CONFORM TO ASTM D 570, ASTM D 746, STM D 1149 AND CRD-C572.
   H. SYNTHETIC FIBER REINFORCEMENT. WHERE CALLED FOR IN THE MIX DESIGN, THE CONCRETE SHALL CONTAIN SECONDARY SYNTHETIC FIBER REINFORCEMENT AS FOLLOWS:
      a. MANUFACTURERS: PROPES CONCRETE SYSTEMS CORP.
      b. TYPE: FIBERMESH 300
      c. APPLICATION RATE: 1.5 POUNDS PER CUBIC YARD
      d. EXECUTION: ADD SYNTHETIC REINFORCEMENT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
4. CONCRETE QUALITY AND DETAILS
   A. GENERAL. CONCRETE SHALL BE PROPORTIONED TO PROVIDE AN AVERAGE COMPRESSIVE STRENGTH, FC, AS PRESCRIBED IN ACI 318/350 SECTION 5.3.2 AND SHALL SATISFY THE DURABILITY CRITERIA OF ACI 318/350 CHAPTER 4.
   B. CONCRETE PROPORTIONS.
      a. CONCRETE MIX PROPORTIONING SHALL BE IN ACCORDANCE WITH ACI 211.1; STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL, HEAVYWEIGHT, AND MASS CONCRETE.
      b. CONCRETE MIX PROPORTIONING FOR LIGHTWEIGHT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 211.2; STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR LIGHTWEIGHT CONCRETE
   C. CONCRETE MIX VERIFICATION: CONCRETE MIX DESIGNS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS PER ASTM C39.
   D. EVALUATION AND ACCEPTANCE OF CONCRETE. CONCRETE SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318/350 SECTION 5.6.
   E. MIXING & PLACING CONCRETE. CONCRETE SHALL BE PREPARED, MIXED, PLACED AND CONSOLIDATED IN ACCORDANCE WITH ACI 318/350 SECTIONS 5.7 THROUGH 5.10 AND AS FOLLOWS:
      a. ACI 304; GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
      b. ACI 309; GUIDE FOR CONSOLIDATION OF CONCRETE.
   F. MINIMUM TIME BETWEEN ADJACENT PLACEMENTS:
      a. NON-LIQUID RETAINING STRUCTURES:
         1. CONSTRUCTION JOINTS: FIVE (5) DAYS WET CURE, OR SEVEN (7) DAYS DRY CURE.
         2. CONTROL JOINTS: TWO (2) DAYS.
         3. EXPANSION JOINTS: ONE (1) DAY.
      b. FLOOR SLABS:
         1. CONSTRUCTION JOINTS: SEVEN (7) DAYS WET CURE, OR TEN (10) DAYS DRY CURE.
         2. CONTROL JOINTS: FOUR (4) DAYS.
         3. EXPANSION JOINTS: ONE (1) DAY.
      c. LIQUID RETAINING STRUCTURES:
         1. CONSTRUCTION JOINTS: TEN (10) DAYS WET CURE, OR FOURTEEN (14) DAYS DRY CURE.
         2. CONTROL JOINTS: SIX (6) DAYS.
   G. HORIZONTAL JOINTS IN REINFORCED CONCRETE WALLS:
      a. PROVIDE A LAYER OF SLURRY CONCRETE IN THE BOTTOM OF ALL HORIZONTAL WALL JOINTS, 1-INCH MINIMUM TO 2-INCH MAXIMUM THICKNESS. THOROUGHLY VIBRATE TO MIX CONCRETE & SLURRY TOGETHER.
   H. HORIZONTAL CONSTRUCTION JOINTS CONTAINING WATER-STOP.
      a. UNLESS OTHERWISE SPECIFICALLY DIRECTED, IN ALL HORIZONTAL CONSTRUCTION JOINTS IN NEW CONCRETE CONSTRUCTION CONTAINING WATER-STOPS, PROVIDE AN INITIAL LAYER OF SLURRY MIX TO AID IN CONSOLIDATION OF FRESHLY PLACED CONCRETE AT THE JOINT INTERFACE.
      b. SLURRY MIX SHALL BE A MIXTURE OF 3/8-INCH MAXIMUM AGGREGATE, SAND, CEMENT AND WATER.
      c. PLACE SLURRY MIX 2-INCH MINIMUM TO 4-INCH MAXIMUM IN THICKNESS.
      d. PLACE WITH BUCKETS OR OTHER MEANS PERMITTING VISUAL VERIFICATION THAT ONLY ENOUGH SLURRY MIX IS DEPOSITED IN THE VICINITY OF THE CONCRETE POUR TO MEET THE THICKNESS REQUIREMENTS.
      e. PLACE CONCRETE OVER SLURRY MIX WHILE SLURRY MIX IS STILL FLOWABLE.
      f. LIMIT INITIAL CONCRETE PLACEMENT ON TOP OF SLURRY MIX TO 12-INCHES IN THICKNESS. THOROUGHLY VIBRATE AND CONSOLIDATE CONCRETE AND SLURRY MIX TOGETHER.
      g. CONCRETE CURING. CONCRETE SHALL BE MAINTAINED ABOVE 50-DEGREES F AND IN A MOIST CONDITION FOR AT LEAST 7 DAYS AFTER PLACEMENT, EXCEPT WHEN CURED IN ACCORDANCE WITH ACI 308 GUIDE TO CURING CONCRETE.
   I. COLD WEATHER REQUIREMENTS. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING FREEZING OR NEAR-FREEZING WEATHER. THE RECOMMENDED PROCEDURES LISTED IN ACI 306; COLD WEATHER CONCRETING SHALL BE FOLLOWED.
      a. COLD WEATHER IS DEFINED AS A PERIOD WHEN, FOR MORE THAN 3 CONSECUTIVE DAYS, THE FOLLOWING CONDITIONS EXIST:
         1. THE AVERAGE DAILY AIR TEMPERATURE IS LESS THAN 40-DEGREES F AND
         2. THE AIR TEMPERATURE IS NOT GREATER THAN 50-DEGREES F FOR MORE THAN ONE-HALF OF ANY 24-HOUR PERIOD.
   J. HOT WEATHER REQUIREMENTS. DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION, AND CURING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES OR WATER EVAPORATION THAT COULD IMPAIR REQUIRED STRENGTH OR SERVICEABILITY OF THE MEMBER OR STRUCTURE. THE RECOMMENDED PROCEDURES LISTED IN ACI 305; HOT WEATHER CONCRETING SHALL BE FOLLOWED.

CAST-IN-PLACE CONCRETE CONTINUED

      a. HOT WEATHER IS ANY COMBINATION OF THE FOLLOWING CONDITIONS THAT TENDS TO IMPAIR THE QUALITY OF FRESHLY MIXED OR HARDENED CONCRETE BY ACCELERATING THE RATE OF MOISTURE LOSS AND RATE OF CEMENT HYDRATION, OR OTHERWISE CAUSING DETRIMENTAL RESULTS:
         1. HIGH AMBIENT TEMPERATURE.
         2. HIGH CONCRETE TEMPERATURE.
         3. LOW RELATIVE HUMIDITY.
         4. WIND SPEED.
         5. SOLAR RADIATION.
5. FORMWORK
   A. FORMS SHALL RESULT IN A FINAL STRUCTURE THAT CONFORMS TO SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE DESIGN DRAWINGS AND SPECIFICATIONS.
      a. DESIGN OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 318/350 SECTION 6.1.
      b. FORMWORK SHALL BE IN ACCORDANCE WITH ACI 347; GUIDE TO FORMWORK FOR CONCRETE.
   B. SPECIAL FORMWORK DESIGN. FORMWORK AS LISTED IN THIS SECTION SHALL BE DESIGNED PER CHAPTER 2 OF ACI 347 BY A PROFESSIONAL STRUCTURAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF *COLORADO*. DESIGN CALCULATIONS AND FORMWORK PLANS AND DETAILS, SEALED AND SIGNED BY THE FORMWORK ENGINEER OF RECORD SHALL BE SUBMITTED UNDER THE DEFERRED SUBMITTAL SECTION OF THE PROJECT SPECIFICATIONS. SUBMIT SPECIAL FORMWORK DESIGNS FOR THE FOLLOWING ITEMS:
   C. TOLERANCES FOR FINISHED CONCRETE SURFACES SHALL MEET THE FOLLOWING REQUIREMENTS, CLASS OF SURFACE IS PER ACI 347R-14 TABLE 5.3.1:
      a. FOOTINGS: CLASS C
      b. FOUNDATION WALLS: CLASS B
      c. ABOVE GRADE CONCRETE NOT VISIBLE TO SIGHT: CLASS B
      d. ABOVE-GRADE CONCRETE VISIBLE TO SIGHT: CLASS A
   D. REMOVAL OF FORMS.
      a. CONCRETE FORMS SHALL NOT BE REMOVED UNTIL THE RETAINED CONCRETE HAS REACHED THE FOLLOWING MINIMUM PERCENTAGE OF THE REQUIRED 28 DAY COMPRESSIVE STRENGTH:
         1. FOOTINGS AND BASE SLABS ON GRADE: 50% OF F'_c.
         2. FOUNDATION WALLS AND COLUMNS: 67% OF F'_c.
         3. ELEVATED STRUCTURAL SLABS, BEAMS AND JOISTS: 95% F'_c.
      b. WHERE CONCRETE CYLINDER TESTS ARE NOT AVAILABLE FOR STRENGTH VERIFICATION THE FOLLOWING GUIDE MAY BE USED WHEN PERMITTED BY THE PROJECT ENGINEER:
         1. FOOTINGS AND BASE SLABS ON GRADE: 12 HOURS.
         2. FOUNDATION WALLS AND COLUMNS: 24 HOURS.
         3. ELEVATED STRUCTURAL SLABS, BEAMS AND JOISTS:
            - SPANS UNDER 10-FEET: 4 DAYS
            - SPANS BETWEEN 10-FEET AND 15-FEET: 7 DAYS.
            - SPANS BETWEEN 15-FEET AND 20-FEET: 10 DAYS
            - SPANS GREATER THAN 20-FEET: BY CYLINDER STRENGTH VERIFICATION ONLY.
   E. EMBEDMENTS IN CONCRETE.
      a. CONDUITS, PIPES, AND SLEEVES OF ANY MATERIAL NOT HARMFUL TO CONCRETE AND WITHIN LIMITATIONS OF ACI 318/350 SECTION 6.3 SHALL BE PERMITTED TO BE EMBEDDED IN CONCRETE WITH APPROVAL OF THE PROJECT ENGINEER, PROVIDED THEY ARE NOT CONSIDERED TO REPLACE STRUCTURALLY THE DISPLACED CONCRETE, EXCEPT AS PROVIDED IN SECTION 6.3.6.
      b. CONDUITS AND PIPES OF ALUMINUM SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.
   F. CONSTRUCTION JOIN

CAST-IN-PLACE CONCRETE CONTINUED

6. DETAILS OF REINFORCEMENT
   - A. PLACEMENT OF ALL REINFORCING STEEL WITHIN CONCRETE STRUCTURES SHALL BE IN CONFORMANCE WITH ACI 318/350 CHAPTER 7.
   - B. REINFORCING STEEL HOOKS, BENDS, TIES, SPLICES AND OTHER REINFORCEMENT DETAILS SHALL BE IN ACCORDANCE WITH ACI 315; DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
   - C. SPACING LIMITS FOR REINFORCEMENT SHALL BE IN CONFORMANCE WITH ACI 318/350 SECTION 7.6.
   - D. CONCRETE PROTECTION FOR REINFORCEMENT. UNLESS NOTED ELSEWHERE ON THE DRAWINGS, ALL REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER:
     - a. FOR NON-LIQUID CONTAINING CONCRETE STRUCTURES; PER ACI 318 SECTION 7.7:
       1. CONCRETE CAST AGAINST EARTH: 3.00 INCH
       2. CONCRETE EXPOSED TO EARTH OR WEATHER;
          - A. NO. 5 OR SMALLER BARS: 1.50-INCH
          - B. NO. 6 OR LARGER BARS: 2.00-INCH
       3. CONCRETE NOT EXPOSED TO EARTH OR WEATHER;
          - A. NO. 11 OR SMALLER BARS: 0.75-INCH
          - B. NO. 14 OR LARGER BARS: 1.50-INCH
       4. BEAMS AND COLUMNS;
          - A. PRIMARY REINFORCEMENT, TIES, STIRRUPS OR SPIRALS: 1.50-INCH
     - b. FOR LIQUID CONTAINING CONCRETE STRUCTURES; PER ACI 350 SECTION 7.7:
       1. CONCRETE CAST AGAINST EARTH: 3.00 INCH
       2. CONCRETE EXPOSED TO EARTH, LIQUID OR WEATHER;
          - A. SLABS AND JOINTS: 2.00-INCH
          - B. WALLS: 2.00-INCH
       3. BEAMS AND COLUMNS;
          - A. TIES, STIRRUPS OR SPIRALS: 2.00-INCH
          - B. PRIMARY REINFORCEMENT: 2.50-INCH
       4. FOOTINGS AND BASE SLABS;
          - A. FORMED SURFACES: 2.00-INCH
          - B. TOP OF FOOTINGS AND BASE SLABS: 2.00-INCH
   - E. CONCRETE BLOCKS OR PLASTIC-COATED BAR CHAIRS SHALL BE PROVIDED FOR SUPPORT OF ALL SLAB REINFORCING STEEL SUFFICIENT IN NUMBER TO PREVENT SETTLEMENT OR SAGGING, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS. METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUB-GRADE.
   - F. DOWELS AND ANCHOR BOLTS SHALL BE WIRED OR OTHERWISE HELD IN CORRECT POSITION PRIOR TO PLACING CONCRETE. CARE SHALL BE TAKEN TO INSURE THAT DOWELS AND ANCHOR BOLTS REMAIN PLUM AFTER CONCRETE IS POURED AND VIBRATED. IN NO CASE SHALL DOWELS OR ANCHOR BOLTS BE STABBED INTO FRESHLY POURED CONCRETE!
   - G. PROVIDE DOWELS IN FOOTINGS AND AT CONSTRUCTION JOINTS TO MATCH VERTICAL REINFORCING BAR SIZE AND SPACING, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
   - H. COORDINATE PLACEMENT OF DOWELS INTO MASONRY OR BRICK WALLS WITH THE MASONRY SHOP DRAWINGS.
   - I. WHERE DRILLED IN ANCHORS ARE TO BE POST-INSTALLED INTO CONCRETE SURFACES TAKE CARE TO LOCATE REINFORCING STEEL SO THAT IT WILL NOT INTERFERE WITH THE DRILLING OPERATIONS. MOVE BARS PLUS OR MINUS 1 TO 2 INCHES IN ORDER TO AVOID DRILLING CONFLICTS.
   - J. ALL BAR BENDS, HOOKS, SPLICES AND OTHER REINFORCING STEEL DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ACI 315.
   - K. UNLESS OTHERWISE NOTED ON THE PLANS ALL BARS SHALL BE SPLICED WITH A MINIMUM CLASS B LAP SPLICE; LAP SPLICES OF DEFORMED BARS AND DEFORMED WIRE IN COMPRESSION ZONES MAY BE CLASS A SPLICES.
   - L. AT ALL CORNERS AND WALL INTERSECTIONS PROVIDE BENT BARS TO MATCH THE HORIZONTAL REINFORCING STEEL AND IN ACCORDANCE WITH THE TYPICAL CORNER REINFORCING DETAILS.
   - M. CHAMFER ALL EXPOSED CORNERS AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED ON THE DRAWINGS.
   - N. WATERSTOP. ALL CONTROL AND CONSTRUCTION JOINTS IN LIQUID-RETAINING STRUCTURES SHALL BE DOWELED, KEYED AND PROVIDED WITH CONTINUOUS WATER-STOP, PER THE TYPICAL DETAILS, TECHNICAL SPECIFICATIONS OR AS DIRECTED BY THE PROJECT ENGINEER.
   - O. AT SLAB AND WALL OPENINGS PROVIDE A MINIMUM OF (4) #5 BARS; OVER, UNDER AND AT EITHER SIDE OF THE OPENINGS. EXTEND THESE BARS A MINIMUM OF 24" PAST THE OPENING EDGE. PROVIDE (1) MATT OF (4) #5 BARS FOR WALLS OR SLABS WITH SINGLE-LAYER REINFORCING AND (2) MATTS OF (4) #5 BARS FOR DOUBLE-LAYER REINFORCING WALLS OR SLABS. PROVIDE #4, 4'-0" LONG DIAGONAL BARS AT EACH RE-ENTRANT CORNER IN SLABS; (1) BAR FOR SLABS WITH SINGLE LAYER REINFORCING AND (2) BARS FOR SLABS WITH DOUBLE LAYER REINFORCING.
7. CONCRETE FINISHING. ALL CONCRETE SURFACES SHALL BE FINISHED IN ACCORDANCE WITH ACI 301.
   - A. FORMED CONCRETE SURFACES. AFTER REMOVAL OF FORMS, GIVE EACH FORMED SURFACE ONE OR MORE OF THE FOLLOWING FINISHES IN CONFORMANCE WITH ACI 301 SECTION 5.3.3 FINISHING FORMED SURFACES.
     - a. NON-LIQUID RETAINING CONCRETE STRUCTURES:
       1. CONCRETE FOOTINGS AND FOUNDATIONS NOT EXPOSED TO VIEW. PROVIDE AN AS-CAST FINISH.
       2. FOUNDATION WALL AND OTHER SURFACES BELOW GRADE AND NOT EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-1.0.
       3. INTERIOR, EXTERIOR AND TOP SURFACES EXPOSED TO VIEW TO 6-INCHES BELOW GRADE. PROVIDE A SURFACE FINISH TYPE SF-2.0.
       4. COLUMN, BEAM AND JOIST SURFACES THAT ARE EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-2.0.
       5. INTERIOR CONCRETE SURFACES TO BE PAINTED OR RECEIVE OTHER COATING SYSTEMS SHALL RECEIVE A SURFACE FINISH TYPE SF-3.0.
     - b. LIQUID RETAINING CONCRETE STRUCTURES:
       1. INTERIOR SURFACES FROM TOP OF WALL TO FLOOR SLAB, EXTERIOR AND TOP SURFACES EXPOSED TO VIEW TO 6-INCHES BELOW GRADE. PROVIDE A GROUT-CLEANED FINISH. PRESSURE-WASH ALL CONCRETE SURFACES TO RECEIVE A GROUT-CLEANED FINISH WITH HIGH-PRESSURE WATER PRIOR TO GROUTING. (ALTERNATE, PROVIDE A SURFACE FINISH TYPE SF-3.0.)
       2. SURFACES BELOW GRADE AND NOT EXPOSED TO VIEW. PROVIDE A SURFACE FINISH TYPE SF-2.0.
     - c. SPECIAL OR ARCHITECTURAL FINISHES: REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR SPECIAL OR ARCHITECTURAL FINISH REQUIREMENTS.
   - B. UNFORMED CONCRETE SURFACES. UNFORMED CONCRETE SURFACES INCLUDING THE TOP SURFACE OF ALL CONCRETE ROOF AND FLOOR SLABS SHALL BE FINISHED IN ACCORDANCE WITH ACI 301 SECTION 5.3.4 AND ACI 302 CHAPTER 8.
     - a. FOR THE TOP SURFACES OF WALLS, PROVIDE A SCRATCHED FINISH.
     - b. INTERIOR OFFICES, LABORATORY SPACES AND OTHER AREAS RECEIVING ONLY LIGHT FOOT TRAFFIC SHALL RECEIVE A TROWELED FINISH.
     - c. INTERIOR GARAGE, INDUSTRIAL OR WORK AREAS SUBJECT TO EQUIPMENT OR TRAFFIC LOADS SHALL RECEIVE A BROOM FINISH.
     - d. PROVIDE A NONSLIP FINISH FOR EXTERIOR SURFACES AND WHERE INDICATED ON THE PLANS.
     - e. REFER TO THE ARCHITECTURAL PLANS FOR FINISH REQUIREMENTS FOR FLOORS TO RECEIVE ARCHITECTURAL COVERINGS.
   - C. SAWED CONTRACTION JOINTS. CONFORM TO ACI 301 SECTION 5.3.5.

STRUCTURAL STEEL

1. STRUCTURAL MATERIALS
   - A. W & WT SHAPES: ASTM A992 GRADE 50, F_y: 50 KSI.
   - B. M, S, C, MC & L SHAPES: ASTM A36, F_y: 36 KSI.
   - C. PLATES, BARS, CHANNELS & ANGLES: ASTM A36, F_y: 36 KSI.
   - D. STEEL PIPE: ASTM A53 GRADE B, F_y: 35 KSI.
   - E. SQUARE, RECTANGULAR HSS, STEEL TUBING: ASTM A500 GRADE C, F_y: 50 KSI.
   - F. RAISED PATTERN FLOOR PLATE: ASTM A786. F_y: 36 KSI.
2. WELDING OF STRUCTURAL STEEL
   - A. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AWS STRUCTURAL WELDING CODE D1.1-02
   - B. WELD METAL: FEXX: 70 KSI, TYPICAL UNLESS OTHERWISE NOTED OR REQUIRED BY AWS.
   - C. ALL WELDERS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING AGENCY.
   - D. ALL WELDERS SHALL BE CURRENTLY LISTED WITH WABO. (FOR WASHINGTON STATE PROJECTS)
   - E. QUALIFICATION OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.
   - F. CONTRACTOR SHALL SUBMIT A WPS FOR EACH TYPE 1 MOMENT CONNECTION WELD TO BE PERFORMED ON THE JOB. THE WPS SHALL FOLLOW THE REQUIREMENTS OF AWS D1.1 AND SPECIFY AT A MINIMUM THE FOLLOWING: PROCEDURE IDENTIFICATION , BASE METAL IDENTIFICATION, WELDING PROCESS, TYPE OF WELDING, POSITION OF WELDING, FILLER METAL SPECIFICATIONS, FILLER METAL CLASSIFICATION, NUMBER OF PASSES, WELDING CURRENT, WELDING POLARITY, PRE-HEAT AND INTER-PASS TEMPERATURES, CONTROLLED COOLING REQUIREMENTS, WELDING PARAMETERS SUCH AS ELECTRODE DIAMETER, AMPERAGE RANGE, VOLTAGE RANGE, TRAVEL SPEED RANGE, WIRE FEED SPEED RANGE, AND ELECTRICAL STICK-OUT.

COATING OF METALS

1. ALUMINUM AND DISSIMILAR METAL INSULATION COATING
   - A. ALL ALUMINUM SURFACES IN CONTACT WITH CEMENTITIOUS MATERIALS AND DISSIMILAR METAL SURFACES IN CONTACT WITH EACH OTHER SHALL BE INSULATION AGAINST CORROSION.
   - B. PREPARE SURFACES BY SOLVENT CLEANING (SP 1).
   - C. APPLY (1) COAT OF SINGLE-COMPONENT, COAL-TAR PITCH BASED BITUMINOUS PANT.
   - D. MINIMUM COVER SHALL BE 10 MDFT.
2. PAINTING OF EXTERIOR STRUCTURAL STEEL
   - A. ALL EXTERIOR STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE PAINTED IN CONFORMANCE WITH THIS SECTION.
   - B. PAINTING SHALL BE IN CONFORMANCE WITH THE COLORADO TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2004 EDITION.
   - C. PAINTING SHALL BE IN CONFORMANCE WITH SECTION 627 - PAINTING.
   - D. PAINT MATERIALS SHALL CONFORM WITH SECTION 707 – PAINT.
   - E. COLORS SHALL BE AS APPROVED BY THE PROJECT ENGINEER OR OWNER.
   - F. SUBMIT COLOR CHIPS TO THE PROJECT ENGINEER OR OWNER FOR THEIR APPROVAL PRIOR TO ORDERING MATERIALS.
3. ALL STRUCTURAL AND MISCELLANEOUS METALS SHALL BE PROTECTED FROM CORROSION WITH ONE OF THE FOLLOWING SYSTEMS:
   - A. STAINLESS STEEL:
     - a. UN-COATED.
   - B. STEEL:
     - a. HOT-DIP GALVANIZED STEEL.
     - b. PAINTED.
   - C. ALUMINUM:
     - a. ANODIZED.
     - b. PAINTED.
   - D. REFER TO SPECIFICATION 09900 OF THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
   - E. STRUCTURAL STEEL INCLUDES HOT-ROLLED STEEL FRAMING, BRACING, STEEL BAR JOISTS AND GIRDERS.
   - F. MISCELLANEOUS STEEL INCLUDES METAL STAIRS, WALKWAYS, GRATED FLOORS AND SUPPORTS, AND METAL RAILINGS AND GUARD RAILS.
   - G. REFER TO OTHER SECTIONS FOR COATING REQUIREMENTS FOR ALL EQUIPMENT, PIPING, MECHANICAL, ELECTRICAL, ARCHITECTURAL AND SUBMERGED METAL ITEMS.
4. ALUMINUM TO BE ANODIZED SHALL BE COATED AS FOLLOWS:
   - A. ALL EXPOSED SURFACES SHALL RECEIVE AN ANODIZED FINISH IN CONFORMANCE WITH ALUMINUM ASSOCIATIONS STANDARD SSA-46 OR AAMA 611 STANDARD.
   - B. PROCESS SHALL BE SULFURIC OR EQUIVALENT ANODIZING WITH ELECTROLYTIC OR IMMERSION DEPOSITED INORGANIC PIGMENTATION IN THE COATING.
   - C. THE RESULTING ANODIZED FINISH SHOULD BE CONTINUOUS, FULLY SEALED AND FREE OF POWDERY SURFACES, SMUT AND BLEMISHES.
   - D. ANODIC FILM THICKNESS SHALL BE .0002 INCH MINIMUM.
5. ALUMINUM TO BE PAINTED SHALL BE COATED AS FOLLOWS:
   - A. SURFACES PREPARED IN ACCORDANCE WITH SSPC-SP-1.
   - B. SURFACES PRIMED WITH KEM BOND HS PRIMER.
   - C. FINISH COAT TO BE PRO INDUSTRIAL URETHANE ALKYD ENAMEL.
   - D. REFERENCE SHERMAN WILLIAMS OR APPROVED EQUAL.
6. HOT DIP GALVANIZING SHALL BE IN CONFORMANCE WITH:
   - A. ASTM A123 *STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS* COVERS THE REQUIREMENTS FOR GALVANIZING BY THE HOT-DIP PROCESS ON IRON AND STEEL PRODUCTS MADE FROM ROLLED, PRESSED, AND FORGED SHAPES, CASTINGS, PLATES, BARS, AND STRIPS.
   - B. ASTM A153 *STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE* COVERS ZINC COATINGS APPLIED BY THE HOT-DIP PROCESS ON IRON AND STEEL HARDWARE. IT IS INTENDED TO BE APPLICABLE TO HARDWARE ITEMS THAT ARE CENTRIFUGED OR OTHERWISE HANDLED TO REMOVE EXCESS ZINC. ASTM A153 ALSO CONTAINS INFORMATION ON MINIMUM COATING THICKNESS AS WELL AS FINISH AND ADHERENCE REQUIREMENTS.
7. PAINTING OF STEEL SHALL BE IN CONFORMANCE WITH THE SOCIETY FOR PROTECTIVE COATINGS, SSPC, LATEST RECOMMENDATIONS.
8. FOR METAL IN A NON-CORROSIVE ENVIRONMENT:
   - A. SURFACES PREPARATION:
     - a. SSPC-SP1 SOLVENT CLEANING.
     - b. SSPC-SP6 COMMERCIAL BLAST CLEANING.
   - B. COATINGS.
     - a. PRIMER: POLYAMIDE EPOXY. 3.0 TO 4.0 MDFT
     - b. FINISH COAT: ACRYLIC POLYURETHANE. 2.0 TO 3.0 MDFT.
9. FOR METAL IN A CORROSIVE ENVIRONMENT:
   - A. SURFACES PREPARATION:
     - a. SSPC-SP1 SOLVENT CLEANING.
     - b. SSPC-SP10 NEAR WHITE BLAST CLEANING WITH A SURFACE PROFILE OF 1.5 TO 3.0 MILS.
   - B. COATINGS.
     - a. PRIMER: POLYAMIDE EPOXY. 3.0 TO 4.0 MDFT
     - b. STRIPE COAT: POLYAMIDOAMINE EPOXY; 3.0 TO 4.0 MDFT.
     - c. INTERMEDIATE COAT: POLYAMIDOAMINE EPOXY; 3.0 OT 4.0 MDFT.
     - d. FINISH COAT: ACRYLIC POLYURETHANE. 2.0 TO 3.0 MDFT.
10. THE PROJECT ENGINEER SHALL HAVE FINAL SAY AS TO THE DETERMINATION OF WHAT IS A "NON-CORROSIVE" VERSUS A "CORROSIVE" ENVIRONMENT.
11. PAINTING OF ALUMINUM SHALL BEIN
12. COLORS SHALL BE AS APPROVED BY THE PROJECT ENGINEER OR OWNER.
13. SUBMIT COLOR CHIPS TO THE PROJECT ENGINEER OR OWNER FOR THEIR APPROVAL PRIOR TO ORDERING MATERIALS.

CONCRETE FLOORS AND SLABS

1. CONCRETE FLOORS AND SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302; CONCRETE FLOOR AND SLAB CONSTRUCTION. PROVIDE THE FOLLOWING CLASS CONCRETE FLOOR SLABS IN ACCORDANCE WITH TABLE 2.1 UNLESS OTHERWISE NOTED ON THE DRAWINGS:
   - A. INTERIOR OFFICES, LABORATORY SPACES AND OTHER AREAS RECEIVING ONLY LIGHT FOOT TRAFFIC: CLASS 1 OR 2 FLOOR DEPENDING ON FINAL FLOOR COVERING.
   - B. INTERIOR GARAGE, INDUSTRIAL OR WORK AREAS SUBJECT TO EQUIPMENT OR TRAFFIC LOADS: CLASS 6 FLOOR WITH A SPECIAL METALLIC OF MINERAL AGGREGATE SURFACE HARDENER.
   - C. EXTERIOR STRUCTURAL FLOOR SLABS SUBJECT TO FOOT AND MAINTENANCE TRAFFIC LOADS: CLASS 4 OR 5 FLOOR. PROVIDE A NONSLIP FINISH TO ALL WALKING SURFACES.
2. PLACING, CONSOLIDATING, AND FINISHING. FOLLOW THE RECOMMENDATIONS GIVEN IN CHAPTER 8.

WATER-RETAINING CONCRETE STRUCTURES

1. CONCRETE TANKS, VAULTS, WELLS AND OTHER STRUCTURES INTENDED TO RETAIN AND HOLD WATER OR OTHER LIQUIDS SHALL BE WATER-TIGHT STRUCTURES. THE WATER-RESISTING WALLS AND FLOOR SLABS SHALL BE OF MONOLITHIC CONCRETE CONSTRUCTION WITH WATER-TIGHT JOINTS, CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE PROJECT ENGINEER. WATER-RESISTING WALLS AND FLOORS SHALL BE UNIFORM IN FINISHED CONSTRUCTION FREE OF SPALLS, POCKETS, BLEMISHES AND OR CRACKS THAT MAY WEEP OR LEAK.
2. CRACKS FOUND IN WATER-RESISTING WALLS, FLOORS AND/OR FOUNDATION SLABS THAT MAY WEEP OR LEAK SHALL BE REPAIRED AND/OR SEALED PER THE PROJECT SPECIFICATIONS, NOTES OR AS APPROVED BY THE PROJECT ENGINEER.

ALUMINUM

1. RAISED PATTERN FLOOR PLATE: ASTM B632 TYPE 6061-T6; F_y: 35 KSI
2. STRUCTURAL PLATES & SHAPES: ASTM B221 TYPE 6061-T6; F_y: 35 KSI

STAINLESS STEEL

1. ALL STEEL NOTED AS STAINLESS INCLUDING SHAPES, PLATES, BARS, PIPE, TUBING, FASTENERS, ANCHOR RODS AND ASSOCIATED MISCELLANEOUS STEEL ITEMS SHALL BE STAINLESS STEEL, GRADE 304 OR 316; UNLESS SPECIFICALLY NOTED OTHERWISE.
2. STRUCTURAL SHAPES, PLATES & BARS: ASTM A276 WITH F_y: 30 KSI.
3. STRUCTURAL STEEL TUBING: ROUND, SQUARE OR RECTANGULAR STRUCTURAL STEEL TUBING SHALL BE ASTM A847 WITH F_y: 35 KSI.
4. STRUCTURAL BOLTS: ASTM A593 GRADE G OR H, MINIMUM F_y: 65 KSI.
5. NUTS: ASTM A594 GRADE C OR D, HEAVY HEX NUTS.
6. WASHERS: STAINLESS STEEL GRADE 304 OR 316, MINIMUM F_y: 30 KSI.
7. ANCHOR RODS (SET IN CONCRETE): ASTM A593 GRADE 304, MIN. F_y: 30 KSI.
8. THREADED BRACING RODS: ASTM A193 GRADE B8, MINIMUM F_y: 65 KSI
9. PIPE: ASTM A790, MINIMUM F_y: 30 KSI.
10. ROUND OR SQUARE TUBING: TUBING SHALL CONFORM TO ASTM A269, MINIMUM F_y: 35 KSI.

MASONRY

1. MASONRY 28 DAY COMPRESSIVE STRENGTHS FOR GROUT, MORTAR, AND BLOCK
   - A. THE MASONRY ASSEMBLAGE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI. ASSEMBLY SHALL BE VERIFIED PER IBC STANDARDS USING THE UNIT STRENGTH METHOD.
     - a. GROUT: 2,000 PSI
     - b. MORTAR: 1,800 PSI TYPE S
     - c. BLOCK: 2,000 PSI AT 28 DAYS ON THE NET AREA
2. STRUCTURAL MASONRY REQUIREMENTS
   - A. GENERAL. ALL STRUCTURAL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 530.1, SPECIFICATIONS FOR MASONRY STRUCTURES; CURRENT EDITION.
   - B. STRUCTURAL MASONRY UNITS:
     - a. CONCRETE MASONRY UNITS: ALL CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C-90, WITH A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2,000 PSI.
     - b. ALL BLOCK/BRICK SHALL BE LAID UP WITH A STANDARD RUNNING BOND UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
     - c. PLACE MASONRY UNITS IN ACCORDANCE WITH ACI 530.1 SECTION 3.3, MASONRY ERECTION.
   - C. MORTAR:
     - a. ALL MORTAR FOR USE WITH STRUCTURAL MASONRY UNITS SHALL CONFORM TO ASTM C270, CLASS S AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 1,900 PSI.
     - b. MORTAR SHALL BE IN ACCORDANCE WITH ACI 530.1, SECTION 2.1, MORTAR MATERIALS.
   - D. GROUT:
     - a. ALL GROUT FOR USE WITH STRUCTURAL MASONRY UNITS SHALL CONFORM TO ASTM C476 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 PSI.
     - b. GROUT SHALL BE IN ACCORDANCE WITH ACI 530.1, SECTION 2.2, GROUT MATERIALS.
     - c. PLACE GROUT IN ACCORDANCE WITH ACI 530.1, SECTION 3.5, GROUT PLACEMENT.
     - d. GROUT POUR HEIGHT. DO NOT EXCEED THE MAXIMUM GROUT POUR HEIGHT LISTED IN ACI 530.1, TABLE 7.
     - e. GROUT LIFT HEIGHT. DO NOT EXCEED THE MAXIMUM GROUT LIFT HEIGHTS AS DEFINED BY ACI 530.1, SECTION 3.5 D.
   - E. CELLS: FILL ALL CELLS CONTAINING REINFORCING STEEL AND AS DIRECTED ON THE DRAWINGS SOLID FULL HEIGHT WITH GROUT.
   - F. BOND BEAMS: ALL BOND BEAMS SHALL BE GROUTED SOLID TO A MINIMUM HEIGHT OF 8-INCHES.
   - G. LINTELS: ALL MASONRY LINTELS (UNITS OVER WALL OPENINGS GREATER THAN 8-INCHES IN LENGTH) SHALL BE GROUTED SOLID FROM THE BOTTOM OF THE LINTEL TO A TOTAL STRUCTURAL DEPTH AS INDICATED ON THE PLANS, OR 16-IN. MINIMUM. EXTEND THE LENGTH OF SOLID GROUTING PAST THE EDGE OF EACH OPENING AS INDICATED ON THE PLANS OR 8" MINIMUM.
   - H. REINFORCING:
     - a. FABRICATE BARS USED IN MASONRY REINFORCEMENT IN ACCORDANCE WITH THE FABRICATING TOLERANCES OF ACI 315, AND IN ACCORDANCE WITH ACI 530.1, SECTION 2.7.
     - b. PLACE REINFORCEMENT IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 B.
     - c. ALL REINFORCING STEEL SHALL BE IN PLACE AND SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING WITH WIRE TIES, SPACERS OR OTHER SUITABLE DEVICES AT TOPS AND BOTTOMS AND INTERVALS NOT EXCEEDING 192 BAR DIAMETERS NOR 10-FEET.
     - d. BAR PLACEMENT: WHERE ONE VERTICAL BAR IS CALLED FOR IN EACH VERTICAL CORE THE BAR IS TO BE PLACED IN THE CENTER OF THE MASONRY CORE. WHERE TWO VERTICAL BARS ARE CALLED FOR THEY SHALL BE PLACED NEAR EACH WALL FACE WITH 1/5-INCH OF CLEARANCE FOR FINE GROUT AND ½-IN. OF CLEARANCE FOR COURSE GROUT.
     - e. LAPS: WHERE BARS ARE NOT CONTINUOUS LAP ALL BARS AS INDICATED ON THE DRAWINGS. WHERE NOT OTHERWISE INDICATED PROVIDE A MINIMUM VERTICAL LAP SPLICE OF 48 BAR DIAMETERS AND A MINIMUM HORIZONTAL LAP SPLICE OF 32 BAR DIAMETERS.
   - I. ANCHOR BOLTS: ANCHOR BOLTS SHALL BE ACCURATELY SET WITH TEMPLATES OR BY APPROVED EQUIVALENT MEANS AND HELD IN PLACE TO PREVENT MOVEMENT. CONFORM TO ACI 530.1, SECTION 3.4 D.
   - J. WALL TIES: INSTALL WALL TIES IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 C.
   - K. VENEER ANCHORS: INSTALL VENEER ANCHORS IN ACCORDANCE WITH ACI 530.1, SECTION 3.4 E.
   - L. FOUNDATION DOWELS: IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE PLACEMENT OF DOWELS PROJECTING FROM CONCRETE FOUNDATIONS INTO REINFORCED MASONRY OR BRICK WALLS.
   - M. MINIMUM REINFORCING: WHERE REINFORCING IS NOT NOTED ON THE DRAWINGS PROVIDE THE FOLLOWING MINIMUM REINFORCING STEEL:
     - a. 4" WALL: #4 VERTICAL BARS @ 48-INCHES O.C. CENTERED, ONE (1) #4 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C..
     - b. 6" WALL: #4 VERTICAL BARS @ 48-INCHES O.C. CENTERED, ONE (1) #5 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C..
     - c. 8" WALL: #5 VERTICAL BARS @ 48-INCHES O.C. CENTERED, TWO (2) #4 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C..
     - d. 10" WALL: #6 VERTICAL BARS @ 48-INCHES O.C. CENTERED, TWO (2) #5 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C..
     - e. 12" WALL: #5 VERTICAL BARS @ 48-INCHES O.C. EACH FACE, TWO (2) #5 BARS IN HORIZONTAL BOND BEAMS @ 48-INCHES O.C..
   - N. BOND BEAMS WITH TWO (2) #5 BARS HORIZONTALLY SHALL BE PROVIDED AT ALL FLOOR AND ROOF LINES AND AT THE TOP OF WALLS. PROVIDE A BOND BEAM WITH TWO (2) #5 BARS HORIZONTALLY ABOVE AND BELOW ALL OPENINGS, AND EXTEND THESE BARS 2'-0" PAST THE OPENING EDGE. PROVIDE FULL HEIGHT VERTICAL REINFORCEMENT, MATCHING TYPICAL VERTICAL REINFORCING, EACH SIDE OF OPENINGS, AT WALL ENDS AND INTERSECTIONS.
   - O. COLD-WEATHER CONSTRUCTION. WHEN AMBIENT AIR TEMPERATURE IS BELOW 40-DEGREES F, IMPLEMENT COLD WEATHER PROCEDURES IN ACCORDANCE WITH ACI 530.1, SECTION 1.8 C.
   - P. FIELD QUALITY CONTROL: PROVIDE SPECIAL INSPECTION AND VERIFICATION IN ACCORDANCE WITH ACI 530.1, SECTION 3.7.
   - Q. CLEANING: CLEAN ALL EXPOSED MASONRY SURFACES IN ACCORDANCE WITH ACI 530.1, SECTION 3.8.

BOLTS AND ANCHOR RODS

1. STRUCTURAL BOLTS: HIGH STRENGTH BOLTS SHALL BE ASTM A325, TYPE 1. NUTS FOR HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A563, GRADE DH, HEAVY HEX.
2. ANCHOR RODS: ANCHOR RODS (BOLTS SET INTO CONCRETE) SHALL BE ASTM F1554, F_y: 55 KSI. NUTS FOR ANCHOR RODS SHALL CONFORM TO ASTM A563, GRADE A, HEAVY HEX.
3. THREADED STEEL RODS: THREADED STEEL RODS SHALL CONFORM TO ASTM A36, F_y: 36 KSI. NUTS FOR THREADED RODS SHALL CONFORM TO ASTM A563, GRADE A, HEAVY HEX.
4. WASHERS: ALL WASHERS SHALL CONFORM TO ASTM F436.
5. BOLT PLACEMENT: ALL BOLTS SHALL BE ON MEMBER STANDARD GAGE LINES EXCEPT AS NOTED OTHERWISE.
6. BLIND SIDE FASTENERS: WHERE BOLTED CONNECTIONS ARE INDICATED TO BE MADE TO HSS SHAPES OR WHERE ACCESS IS UNAVAILABLE TO THE BACK SIDE OF THE FASTENER PROVIDE TYPE HB - HOLLO-BOLT BY LINDAPTER OR APPROVED EQUAL. BOLT SIZE SHALL BE AS INDICATED ON THE PLANS FOR THE THICKNESS OF MATERIALS INDICATED TO BE JOINED. INSTALL BOLTS PER THE MANUFACTURER'S SPECIFICATIONS. PROVIDE STAINLESS STEEL FASTENERS FOR ALL EXTERIOR APPLICATIONS

OTHER ANCHORAGE

1. EXPANSION BOLTS
   - A. BOLTS NOTED ON THE PLANS AS EXPANSION BOLTS SHALL BE HILTI KWIK BOLT TZ2, STUD ANCHORS; SIZE AND EMBEDMENT AS NOTED ON THE DRAWINGS. INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS; OR AN APPROVED EQUAL.
2. SHOT PINS
   - A. ANCHORS CALLED OUT AS SHOT-PINS SHALL BE HILTI, LOW-VELOCITY POWDER ACTUATED FASTENERS, SIZE PER THE DRAWINGS, INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS; OR AN APPROVED EQUAL.
3. SHEAR CONNECTOR/STUDS
   - A. SHEAR CONNECTOR/STUDS SHALL BE NELSON HEADED ANCHORS WITH FLUXED ENDS OR APPROVED CONFORMING TO AWS D1.1, TYPE B HEADED STUDS MADE FORM ASTM A108, 1010-1020, LOW-CARBON STEEL. SHEAR CONNECTOR/STUDS SHALL BE AUTOMATICALLY END-WELDED WITH THE MANUFACTURERS STANDARD EQUIPMENT IN ACCORDANCE WITH THEIR RECOMMENDATIONS.
4. HEADED ANCHORS/STUDS
   - A. HEADED ANCHOR/STUDS SHALL BE NELSON HEADED ANCHORS WITH FLUXED ENDS OR APPROVED CONFORMING TO AWS D1.1, TYPE A HEADED STUDS MADE FORM ASTM A108, 1010-1020, LOW-CARBON STEEL. SHEAR CONNECTOR/STUDS SHALL BE AUTOMATICALLY END-WELDED WITH THE MANUFACTURERS STANDARD EQUIPMENT IN ACCORDANCE WITH THEIR RECOMMENDATIONS.
5. DEFORMED BAR ANCHORS (DBA)
   - A. DEFORMED BAR ANCHORS SHALL MEET THE REQUIREMENTS OF AWS D1.1, DEFORMED BAR ANCHORS, MADE FORM ASTM A496 MATERIAL WITH A MINIMUM YIELD STRENGTH OF FY=70 KSI. DEFORMED BAR ANCHORS SHALL BE AUTOMATICALLY END-WELDED WITH THE MANUFACTURER'S STANDARD EQUIPMENT IN ACCORDANCE WITH THEIR RECOMMENDATIONS.

NON-SHRINK GROUT

ALL NON-SHRINK GROUT NOTED ON THE PLANS SHALL BE NON-SHRINK, NON-METALLIC GROUT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 7,000 PSI.

ADHESIVE ANCHORS

1. MATERIALS
   - A. THE ADHESIVE ANCHOR SYSTEM USED FOR POST-INSTALLED ANCHORAGE TO CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY PUBLISHED ACI 355.4, ACCEPTANCE CRITERIA FOR QUALIFICATION OF POST INSTALLED ADHESIVE ANCHORS IN CONCRETE AND COMMENTARY. THE ANCHOR SYSTEM SHALL BE ONE OF THE FOLLOWING:
     - a. SIMPSON SET-XP
     - b. HILTI HY 200
     - c. APPROVED EQUAL MEETING ACI 355.4 AND THE FOLLOWING MINIMUM STRESS VALUES.
       1. CRACKED CONCRETE BOND STRESS, T_{cr}: 760 PSI FOR 0.75-INCH DIAMETER THREADED ROD ANCHOR.
       2. UNCRACKED CONCRETE BOND STRESS, $T_{

WOOD FRAMING

1. LUMBER: GRADING SHALL BE TO THE STANDARD GRADING RULES OF THE WWPA. TYPICAL STRUCTURAL LUMBER SHALL BE NUMBER 2 DOUGLAS-FIR/LARCH OR BETTER. MEMBERS NOTED AS WOOD BEAMS, POSTS OR COLUMNS SHALL BE NUMBER 1 DOUGLAS-FIR/LARCH OR BETTER. STUDS FOR INTERIOR NON-BEARING WALLS MAY BE STUD GRADE LUMBER. LUMBER TO BE LEFT EXPOSED, WITHOUT OTHER FINISH AND LUMBER IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.
2. TREATED LUMBER: LUMBER, INCLUDING WOOD SHEATHING, TO BE LEFT EXPOSED WITHOUT OTHER FINISH, LOCATED WITHIN 8" OF FINISH GRADE, OR IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED MATERIAL. CONTRACTOR SHALL COORDINATE AND VERIFY THAT ALL STEEL ITEMS IN CONTACT WITH THE TREATED MATERIAL, INCLUDING STEEL HANGARS, CONNECTORS AND FASTENERS HAVE A GALVANIZED FINISH OF SUFFICIENT THICKNESS, OR OTHER TYPE OF PROTECTION, THAT IS COMPATIBLE WITH THE SPECIFIC TREATMENT TYPE SELECTED.
3. BOLTS & LAG SCREWS FOR WOOD CONSTRUCTION: CONFORM TO ANSI/ASME STANDARDS B18.2.1-1981 AND THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) 1991 EDITION PART VIII FOR BOLTS AND PART IX FOR SCREWS.
4. WOOD SCREWS: CONFORM TO ANSI/ASME STANDARDS B18.6.1-1981 AND THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) 1991 EDITION PART XI.
5. NAILS & SPIKES: CONFORM TO FEDERAL SPECIFICATION FF-N-105B AND THE NATIONAL DESIGN SPECIFICATION (NDS) 1991 EDITION PART XII.
6. NAILING: WHERE NOT OTHERWISE SPECIFIED ON THE PLANS, NAILING SHALL CONFORM TO IBC TABLE 2304.9.1, FASTENING SCHEDULE. ALL NAILS SHALL BE COMMON WIRE NAILS OR PNEUMATICALLY DRIVEN NAILS WITH AN EQUIVALENT CROSS-SECTION AND PENETRATION, UNLESS NOTED OTHERWISE.
7. LUMBER HARDWARE: WOOD CONSTRUCTION CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY; CURRENT CATALOG, OR AN APPROVED EQUAL. HARDWARE EXPOSED TO WEATHER OR VIEW, IN UNHEATED PORTIONS OF THE STRUCTURE, OR AS INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS SHALL BE HOT-DIPPED GALVANIZED WITH GALVANIZED FASTENERS.
8. ROOF SHEATHING: ALL ROOF SHEATHING SHALL BE 5/8" NOMINAL, EXTERIOR APA RATED SHEATHING {32/16} INSTALLED WITH PLY-CLIPS.
9. FLOOR SHEATHING: ALL FLOOR SHEATHING SHALL BE 3/4" NOMINAL TONGUE & GROOVE APA RATED [24-IN] STURD-I-FLOOR SHEATHING, GLUED AND NAILED IN PLACE.
10. HEAVY TIMBER ROOF DECKING: ALL WOOD DECKING NOTED AS HEAVY TIMBER OR TONGUE-AND-GROOVE TIMBER DECKING SHALL CONFORM TO AITC 112, CURRENT EDITION. DECKING SHALL BE TONGUE-AND-GROOVE TIMBER DECKING OF THE NOMINAL THICKNESS NOTED ON THE PLANS AND INSTALLED IN A CONTROLLED RANDOM LAYOUT, UNLESS OTHERWISE NOTED.
    A. TWO INCH DECKING: EACH PIECE SHALL BE TOE-NAILED THROUGH THE TONGUE AND FACE NAILED WITH ONE NAIL TO EACH SUPPORTING MEMBER, USING 16D COMMON NAILS.
    B. THREE AND FOUR INCH DECKING: EACH PIECE SHOULD BE TOE-NAILED AT EACH SUPPORT WITH ONE 40D NAIL AND FACE NAILED WITH ONE 60D NAIL. COURSES SHALL BE SPIKED TO EACH OTHER WITH 8-INCH SPIKES AT INTERVALS NOT TO EXCEED 30 INCHES THROUGH PREDRILLED EDGE HOLES AND WITH ONE SPIKE AT A DISTANCE NOT EXCEEDING 10 INCHES FROM EACH PIECE.
11. EXTERIOR WALL SHEATHING: ALL EXTERIOR WALL SHEATHING SHALL BE 1/2" NOMINAL APA RATED EXTERIOR SHEATHING.
12. MANUFACTURED WOOD BEAMS: WOOD BEAMS NOTED ON THE PLANS AS ML OR PSL BEAMS SHALL BE AS MANUFACTURED BY TRUS JOIST MACMILLAN COMPANY AND SHALL PROVIDE THE FOLLOWING MINIMUM ALLOWABLE STRESS VALUES:
    A. MICRO-LAM (ML): GRADE 1.8E DF, BENDING F_b: 2,600 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 285 PSI, MODULUS OF ELASTICITY E: 1,800 KSI.
    B. PARALLAM, PSL): GRADE 2.0E DF, BENDING F_b: 2,900 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 290 PSI, MODULUS OF ELASTICITY E: 2,000 KSI.
    C. LAMINATED VENEER LUMBER (LVL): GRADE 2.0E, BENDING F_b: 2,900 PSI, COMPRESSION F_c: 750 PSI, SHEAR F_v: 285 PSI, MODULUS OF ELASTICITY E: 2,000 KSI.
13. GLUED-LAMINATED WOOD: ALL MEMBERS NOTED ON THE PLANS AS GLUED-LAMINATED TIMBER, SHALL BE DESIGNED AND MANUFACTURED PER THE REQUIREMENTS OF ANSI/AITC A190.1. PROVIDE MEMBERS WITH THE FOLLOWING MINIMUM VALUES:
    A. BEAMS:
        a. F_b: 2,400 PSI
        b. F_v: 265 PSI
        c. F_c PARALLEL: 1,650 PSI
        d. F_c PERPEN.: 650 PSI
        e. E: 1,800,000 PSI
    B. COLUMNS
        a. F_c: 1,950 PSI
        b. F_{by}: 1,840 PSI
        c. F_{bx}: 1,700 PSI
        d. E: 1,600,000 PSI
    C. DRY CONDITION OF SERVICE.
    D. STANDARD COMMERCIAL GRADE FINISH. SEE ARCHITECTURAL FOR SPECIAL FINISHES.
14. TIMBER FRAMING
    A. ALL WOOD FRAMING, BLOCKING AND NAILING SHALL CONFORM TO THE CURRENT LOCAL BUILDING CODE.
    B. ALL RAFTERS, TRUSSES AND JOISTS SHALL HAVE FULL DEPTH BLOCKING, UNLESS NOTED OTHERWISE ON THE PLANS AND DETAILS, AT BEARING SUPPORTS, SHEAR TRANSFER SUPPORTS, INTERMEDIATE AND CANTILEVER SUPPORTS AND AT MID-SPAN, AND AS REQUIRED BY THE BUILDING CODE OR PRODUCT SUPPLIER.
    C. ALL STUD WALLS ARE TO HAVE DOUBLE TOP PLATES OF THE SAME DIMENSIONS AND GRADE AS THE STUD. PLATES ARE TO BE LAPPED A MINIMUM OF 4'-0" AND NAILED TOGETHER WITH AT LEAST (8) 16D NAILS THROUGH BOTH PLATES ON EACH SIDE OF ALL SPLICE POINTS OR AS NOTED ON THE PLANS AND DETAILS.
    D. ALL BUILT-UP, LAMINATED DOUBLE OR MULTIPLE JOISTS AND BEAMS SHALL BE NAILED TOGETHER WITH 16D NAILS AT 6" O. C., STAGGERED 5" FROM TOP AND BOTTOM, WITH (3) 16D NAILS A THE ENDS AND AT SPLICES UNLESS NOTED OTHERWISE.
    E. PROVIDE DOUBLE JOISTS BELOW ALL PARALLEL NON-BEARING WALLS.
    F. ALL TRIMMERS SHALL HAVE SOLID BEARING TO THE FOUNDATION.
    G. IN NO CASE, SHALL WOOD-FRAMED WALLS BE UTILIZED TO RESIST LATERAL PRESSURE DUE TO EARTH BACKFILL, WATER OR SNOW BUILD-UP.
    H. ALL POSTS AND COLUMNS SHALL BE INSTALLED WITH APPROVED POST OR COLUMN CAPS AND BASES, UNLESS OTHERWISE NOTED ON THE PLANS.
    I. ALL FRAMING HARDWARE INCLUDING COLUMN CAPS AND BASES, JOIST HANGERS, TRUSS ANCHORS, STRAPS, ETC. SHALL BE APPROVED (I.E. SIMPSON CO. OR EQUIVALENT) OR CUSTOM FABRICATED SPECIFICALLY AS DETAILED ON THE PLANS. THEY SHALL BE INSTALLED WITH NAILS, SCREWS OR BOLTS EXACTLY AS CALLED FOR BY THE MANUFACTURER OR AS NOTED ON THE PLANS.
15. WOOD SHEATHED DIAPHRAGM CONSTRUCTION REQUIREMENTS
    A. WOOD SHEATHED ROOF DIAPHRAGMS:
        a. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ORIENT ROOF SHEATHING WITH FACE-GRAIN PERPENDICULAR TO SUPPORTING MEMBERS, WITH JOINTS IN ADJACENT ROWS STAGGERED 1/2 PANEL LENGTH.
        b. PROVIDE 2X4 FLAT BLOCKING AT UNSUPPORTED PANEL EDGES IN AREAS NOTED AS "BLOCKED ROOF DIAPHRAGM".
        c. NAIL ROOF SHEATHING TO ALL SUPPORTING MEMBERS AND BLOCKING AS FOLLOWS:
            1. 8D NAILS @ 4-IN. O.C. AT ALL DIAPHRAGM BOUNDARIES.
            2. 8D NAILS @ 4-IN. O.C. AT ALL PANEL EDGES.
            3. 8D NAILS @ 12-IN. O.C. TO INTERMEDIATE FRAMING MEMBERS.
    B. WOOD SHEATHED FLOOR DIAPHRAGMS:
        a. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ORIENT FLOOR SHEATHING WITH FACE-GRAIN PERPENDICULAR TO SUPPORTING MEMBERS, WITH JOINTS IN ADJACENT ROWS STAGGERED 1/2 PANEL LENGTH.
        b. PROVIDE 2X4 FLAT BLOCKING AT UNSUPPORTED PANEL EDGES IN AREAS NOTED AS "BLOCKED FLOOR DIAPHRAGM".
        c. NAIL FLOOR SHEATHING TO ALL SUPPORTING MEMBERS AND BLOCKING AS FOLLOWS:
            1. 8D NAILS @ 6-IN. O.C. AT ALL DIAPHRAGM BOUNDARIES.
            2. 8D NAILS @ 6-IN. O.C. AT ALL PANEL EDGES.
            3. 8D NAILS @ 12-IN. O.C. TO INTERMEDIATE FRAMING MEMBERS.
    C. WOOD SHEATHED SHEAR WALLS:
        a. SHEAR WALL SHEATHING TO BE ORIENTED VERTICALLY.
        b. ALL UNSUPPORTED EDGES TO BE BACKED WITH 2X SOLID BLOCKING.
        c. NAIL SHEATHING PER SHEAR WALL SCHEDULES SHOWN ON DRAWINGS.
        d. MINIMUM NAILING WHERE NOT NOTED OTHERWISE SHALL BE 8D NAILS @ 6-IN. O.C. TO ALL PANEL EDGES AND 12-IN. O.C. AT INTERMEDIATE SUPPORTING MEMBERS.

PRE-ENGINEERED/FABRICATED WOOD TRUSSES

1. ALL PRE-ENGINEERED/FABRICATED WOOD (P.F.T.) TRUSSES INDICATED ON THE DRAWINGS SHALL BE METAL PRESS-PLATE CONNECTED WOOD TRUSSES DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO PER THESE NOTES AND THE SPECIFICATIONS.
    A. DESIGN P.E.W. TRUSSES TO THE FOLLOWING DEFLECTION LIMITS:
    B. ROOF DEAD + LIVE LOAD: SPAN/240 OR 1 IN MAXIMUM
    C. ROOF LIVE LOAD ONLY: SPAN/360 OR 1/2-IN MAXIMUM
2. SHOP DRAWINGS AND DESIGN CALCULATIONS SIGNED AND STAMPED BY THE DESIGN ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
3. ALL NECESSARY BRIDGING, BLOCKING, PRE-NOTCHED OR BEVELED PLATES, HANGERS, ETC. SHALL BE DETAILED OR SPECIFIED ON THE SHOP DRAWINGS AND FURNISHED BY THE TRUSS MANUFACTURER.
4. TRUSS MANUFACTURER SHALL VERIFY ALL SETBACKS, DIMENSIONS, OVERHANGS, VERTICAL CONTROLS AND DIMENSIONS PRIOR TO FABRICATION.
5. ALTERATION OF THE TRUSS LAYOUT SHOWN ON THE PLANS MAY REQUIRE SUPPORTING STRUCTURAL AND FOUNDATION CHANGES, THEREFORE, PRIOR APPROVAL BY THE ENGINEER IS REQUIRED FOR ANY PROPOSED LAYOUT CHANGE.
6. TRUSSES SHALL NOT BE FIELD MODIFIED WITHOUT WRITTEN AUTHORIZATION FROM THE TRUSS MANUFACTURER'S ENGINEER OF RECORD.
7. TRUSSES SHALL BE HANDLED, ERECTED AND BRACED AS DIRECTED BY THE TRUSS MANUFACTURER AND PER THE REQUIREMENTS OF THE TRUSS PLATE INSTITUTE MANUAL HIB-91 OR CURRENT EDITION.

MECHANICAL OPENINGS

1. MECHANICAL OPENINGS ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS; REFER TO MECHANICAL PLANS FOR SIZE AND LOCATIONS.
2. OPENINGS THROUGH METAL ROOF OR FLOOR DECK SHALL BE REINFORCED WITH SECONDARY STEEL FRAMING PER THE TYPICAL DETAILS AND/OR SPECIFICATIONS.
3. OPENINGS THROUGH CONCRETE OR MASONRY WALLS GREATER THAN 6-INCH SQUARE OR 8-INCH ROUND SHALL BE REINFORCED WITH A MINIMUM OF 1-#5 BAR, EACH OF FOUR SIDES, EXTENDING 24" PAST THE OPENING EDGE. IN MASONRY WALLS THE BARS SHALL BE PLACED IN SOLID GROUTED CORES.
4. OPENINGS THROUGH FRAMED WALLS SHALL BE SOLIDLY BLOCKED ON ALL FOUR SIDES WITH FULL HEIGHT STUDS AND TOP AND BOTTOM BLOCKING. PROVIDE A HEADER MEMBER ACROSS THE OPENING PER THE TYPICAL DETAILS WHERE BEARING STUDS ARE INTERRUPTED BY THE OPENING.

PLANT PRECAST STRUCTURAL CONCRETE MEMBERS

1. REFERENCES
    A. PRECAST-PRESTRESSED CONCRETE INSTITUTE
        a. PCI MNL-116: MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF STRUCTURAL PRECAST CONCRETE PRODUCTS.
        b. PCI MNL-120: PCI DESIGN HANDBOOK, PRECAST AND PRESTRESSED CONCRETE
        c. PCI MNL-123: DESIGN AND TYPICAL DETAILS OF CONNECTIONS FOR PRECAST AND PRESTRESSED CONCRETE.
2. DESIGN REQUIREMENTS
    A. SIZE COMPONENTS TO WITHSTAND DESIGN LOADS AS NOTED IN DESIGN CRITERIA AND GOVERNING CODES AND REGULATIONS.
    B. MAXIMUM MEMBER ALLOWABLE DEFLECTION SHALL BE PER AASHTO CRITERIA.
    C. DESIGN PRECAST, PRESTRESSED MEMBERS UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN THE STATE OF COLORADO.
3. QUALITY ASSURANCE
    A. PERFORM WORK IN ACCORDANCE WITH THE REQUIREMENTS OF PCI MNL-116, PLI MNL-123 AND PCI MNL-120.
4. ACCESSORIES
    A. BEARING PADS: NEOPRENE TO SHORE A DUROMETER 55 TO 65.
5. FABRICATION
    A. CONFORM TO PCI MNL-116
6. FINISHES
    A. FINISH EXPOSED-TO-VIEW SURFACES OF PRECAST CONCRETE MEMBERS UNIFORM IN COLOR AND APPEARANCE.
    B. CURE MEMBERS UNDER IDENTICAL CONDITIONS TO DEVELOP REQUIRED CONCRETE QUALITY, AND MINIMIZE APPEARANCE BLEMISHES INCLUDING NON-UNIFORMITY, STAINING, OR SURFACE CRACKING.
    C. FINISH MEMBERS TO PCI MNL-116 STANDARD GRADE.
7. FABRICATION TOLERANCES
    A. CONFORM TO PCI MNL-116.
8. ERECTION
    A. ERECT MEMBERS WITHOUT DAMAGE TO STRUCTURAL CAPACITY, SHAPE, OR FINISH. REPLACE OR REPAIR DAMAGED MEMBERS.
    B. ALIGN AND MAINTAIN UNIFORM HORIZONTAL AND VERTICAL JOINTS, AS ERECTION PROGRESSES.
    C. MAINTAIN TEMPORARY BRACING IN PLACE UNTIL FINAL SUPPORT IS PROVIDED.
    D. ADJUST DIFFERENTIAL CAMBER BETWEEN PRECAST MEMBERS TO TOLERANCE BEFORE FINAL ATTACHMENT.
    E. INSTALL BEARING PADS AS NOTED AND WHERE REQUIRED TO PROVIDE UNIFORM AND EVEN BEARING OF PRECAST MEMBERS. PREVENT MOVEMENT OF BEARING PADS PRIOR TO FINAL ASSEMBLY.
    F. LEVEL DIFFERENTIAL ELEVATION OF ADJOINING HORIZONTAL MEMBERS WITH NON-SHRINK GROUT.
9. ERECTION TOLERANCES
    A. CONFORM TO PCI MNL-116.

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Palisade, CO 81526
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BID SET

COLORADO LICENSED
JENS C. HURST
63334
PROFESSIONAL ENGINEER

REUSE OF DRAWINGS
J-U-B SHALL RETAIN ALL COMMON LAW, STATUTORY, COPYRIGHT AND OTHER RESERVED RIGHTS OF THESE DRAWINGS AND THE SAME SHALL NOT BE REUSED WITHOUT J-U-B'S PRIOR WRITTEN CONSENT. ANY REUSE WITHOUT WRITTEN CONSENT BY J-U-B WILL BE AT THE CLIENT'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO J-U-B

NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER
TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
GENERAL STRUCTURAL NOTES

FILE:
JUB PROJ. #:81-23-029
DRAWN BY: EM
DESIGN BY: JLS
CHECKED BY:JCH

ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY

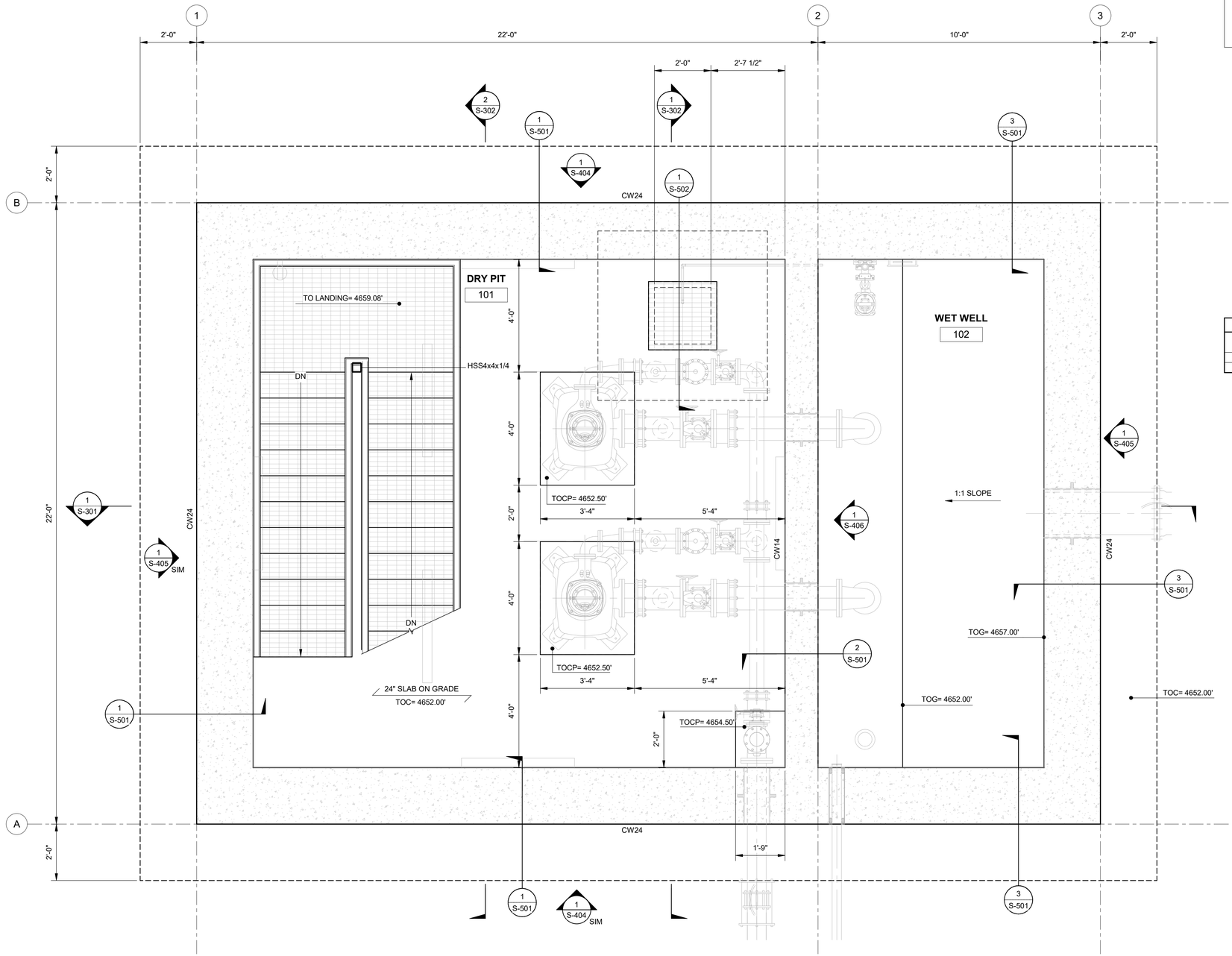
LAST UPDATED:06/11/2024

DRAWING:
S-003

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FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001 & S-002 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.
3. SEE SHEET S-510 FOR DOOR SCHEDULE.



1 PUMP LEVEL PLAN
SCALE: 1/2" = 1'-0"

CONCRETE WALL SCHEDULE			
		REINFORCING	
MARK	THICKNESS	VERTICAL	HORIZONTAL
CW14	14"	SEE 1/S-404 & 1/S-405	SEE 1/S-404 & 1/S-405
CW24	24"	SEE 1/S-404 & 1/S-405	SEE 1/S-404 & 1/S-405

J·U·B ENGINEERS, INC.

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BID SET

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PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER
TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
PUMP LEVEL FLOOR PLAN

FILE:
JUB PROJ. #:81-23-029
DRAWN BY: EM
DESIGN BY: JLS
CHECKED BY: JCH
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 06/11/2024

DRAWING:
S-101

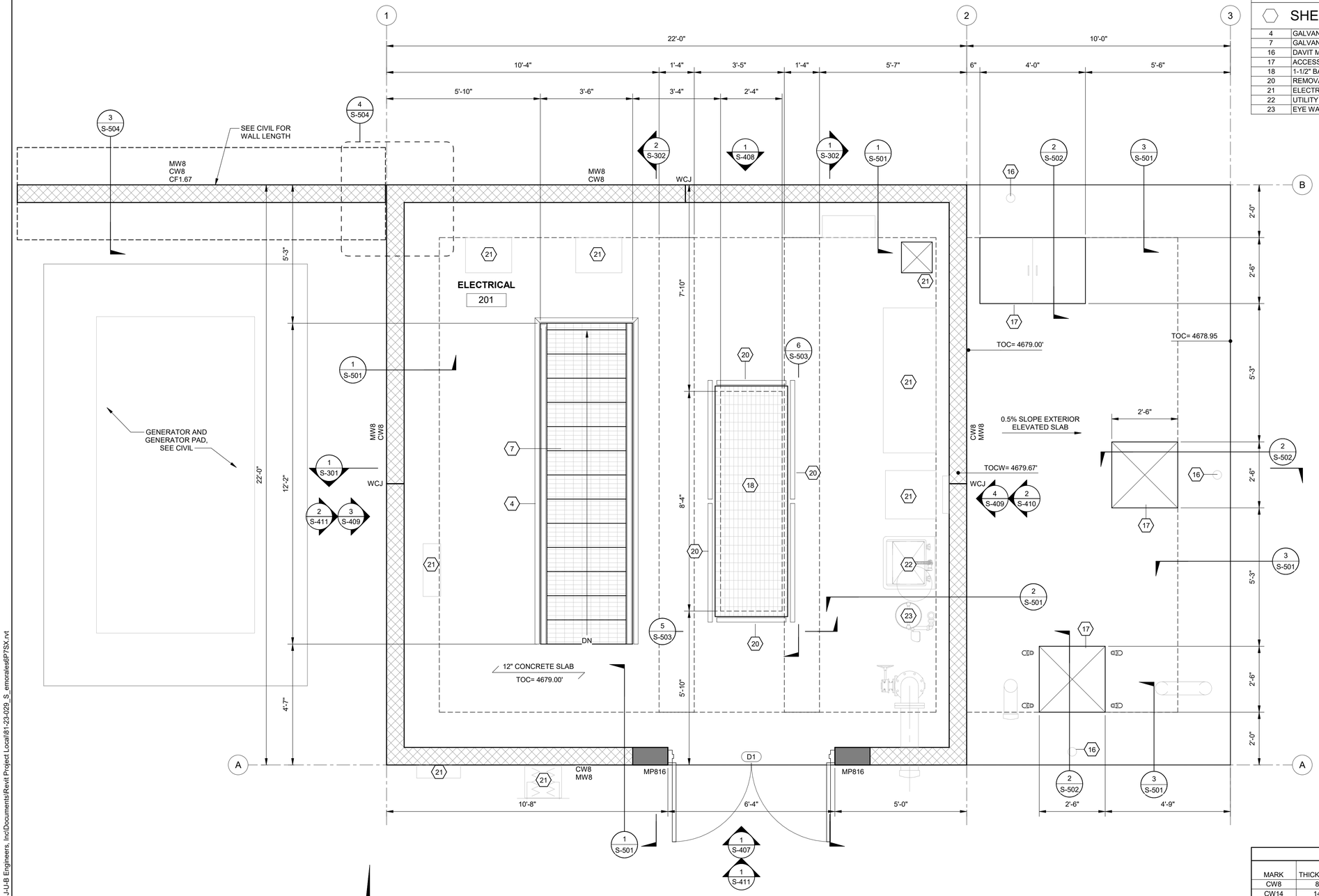
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FOUNDATION PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001 & S-002 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.
3. SEE SHEET S-510 FOR DOOR SCHEDULE.

SHEET KEYED NOTES

4	GALVANIZED STEEL RAILING
7	GALVANIZED STEEL STAIRS
16	DAVIT MOUNT, RE: PROCESS MECH, SEE DETAIL 2/S-504
17	ACCESS HATCH, RE: PROCESS MECH
18	1-1/2" BAR GRATING, RE: TYPICAL DETAILS
20	REMOVABLE STEEL RAILING, SEE DETAILS 5/S-503 & 6/S-503
21	ELECTRICAL EQUIPMENT, RE: ELECTRICAL
22	UTILITY SINK, RE: PROCESS MECHANICAL
23	EYE WASH, RE: PROCESS MECHANICAL



1 MAIN LEVEL FLOOR PLAN
SCALE: 1/2" = 1'-0"

CONCRETE WALL SCHEDULE

MARK	THICKNESS	REINFORCING VERTICAL	REINFORCING HORIZONTAL
CW8	8"	SEE 1/S-501 & 2/S-501	SEE 1/S-501 & 2/S-501
CW14	14"	SEE 1/S-404 & 1/S-405	SEE 1/S-404 & 1/S-405
CW24	24"	SEE 1/S-404 & 1/S-405	SEE 1/S-404 & 1/S-405

MASONRY WALL SCHEDULE

MARK	WALL THICKNESS	REINFORCING VERTICAL	REINFORCING HORIZONTAL
MW8	8"	#5 @ 32" O.C.	(2) #5 @ 48" O.C.

MASONRY PILASTER SCHEDULE

MARK	WIDTH "W"	LENGTH "L"	REINFORCING VERTICAL	REINFORCING TIE SETS	COMMENTS
MP816	8"	16"	(3) #5	-	SEE 9/S-503

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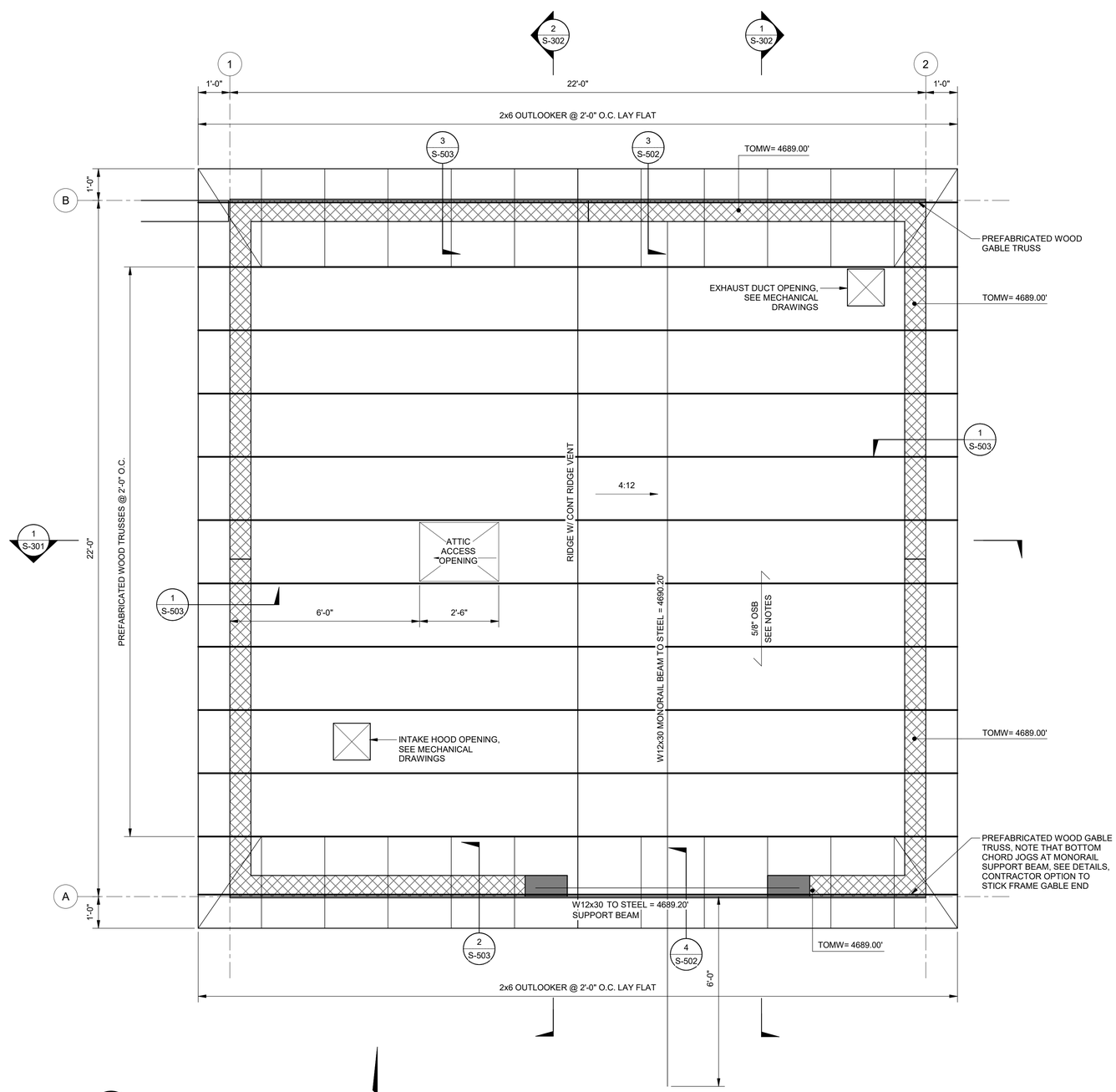
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SEWER TRANSFER
TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
MAIN LEVEL FLOOR PLAN

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1 ROOF FRAMING PLAN
SCALE: 1/2" = 1'-0"

ROOF FRAMING NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001, S-002, AND S-003 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.
3. MONORAIL CRANE NOTES:
   - A. MONORAIL CRANE SHALL BE A HARRINGTON (N)ERM015SD-L/S OR EQUAL
     - a. LIFTING MOTOR
     - b. 9.1 AMPS
   - B. TRAVERSING MOTOR
     - a. 208V TO 230V
     - b. 3.4 AMPS
   - C. 1 1/2 TON CAPACITY
   - D. ELECTRIC HOIST & TROLLEY
   - E. LIFT = 36'-0"
4. TYPICAL ROOF FRAMING CONSISTS OF 5/8" APAP RATED SHEATHING (INDEX 32/16), LAID FACE GRAIN PERPENDICULAR OVER PRE-FAB TRUSSES @ 24" O.C., BY OTHERS. STAGGER JOINTS.
5. NAIL ROOF SHEATHING TO FRAMING WITH 10d NAILS @ 6" O.C. AT ALL PANEL EDGES AND 10d NAILS @ 12" O.C. AT INTERMMEDIATE FRAMING MEMBERS (UNBLOCKED UNO), SEE TYPICAL DETAILS.
6. PROVIDE 2x BLOCK BETWEEN EACH TRUSS AT SUPPORTS.

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STRUCUTRAL (S)
PUMP BUILDING
ROOF FRAMING PLAN

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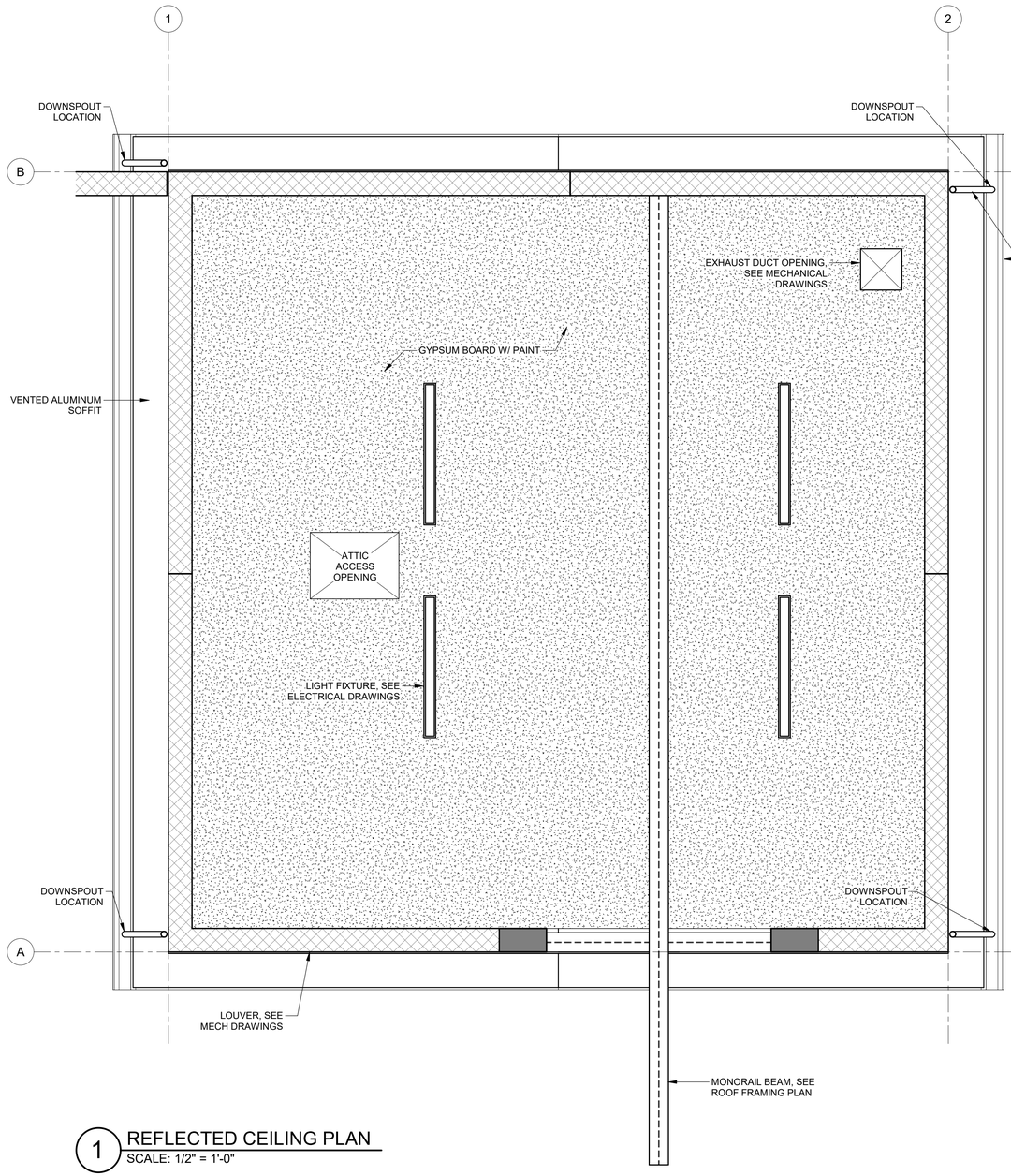
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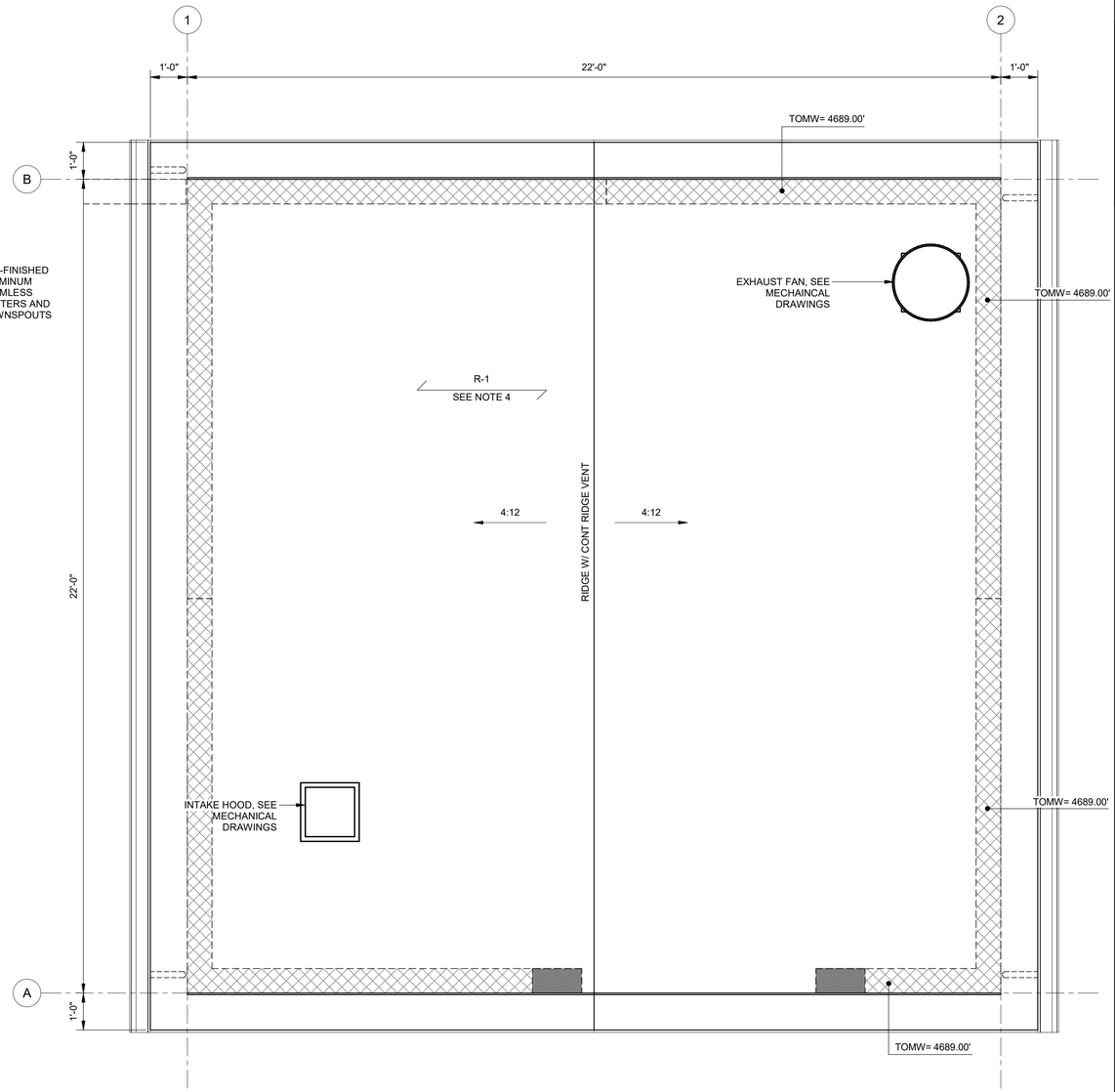
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ROOF PLAN NOTES

1. CONTRACTOR TO COORDINATE & VERIFY ALL DIMENSIONS & ELEVATIONS WITH CIVIL, MECHANICAL, & ARCHITECTURAL SHEETS.
2. SEE SHEETS S-001, S-002, AND S-003 FOR THE GENERAL STRUCTURAL NOTES REQUIREMENTS.
3. INSTALL ICE AND WATER SHIELD MINIMUM 30" PAST EXTERIOR WALL.
4. R-1 = STANDING SEAM METAL ROOF, CONTRACTOR TO COORDINATE COLOR WITH OWNER.
5. GUTTER AND DOWNSPOUT COLOR TO MATCH TRIM COLOR.



1 REFLECTED CEILING PLAN
SCALE: 1/2" = 1'-0"



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

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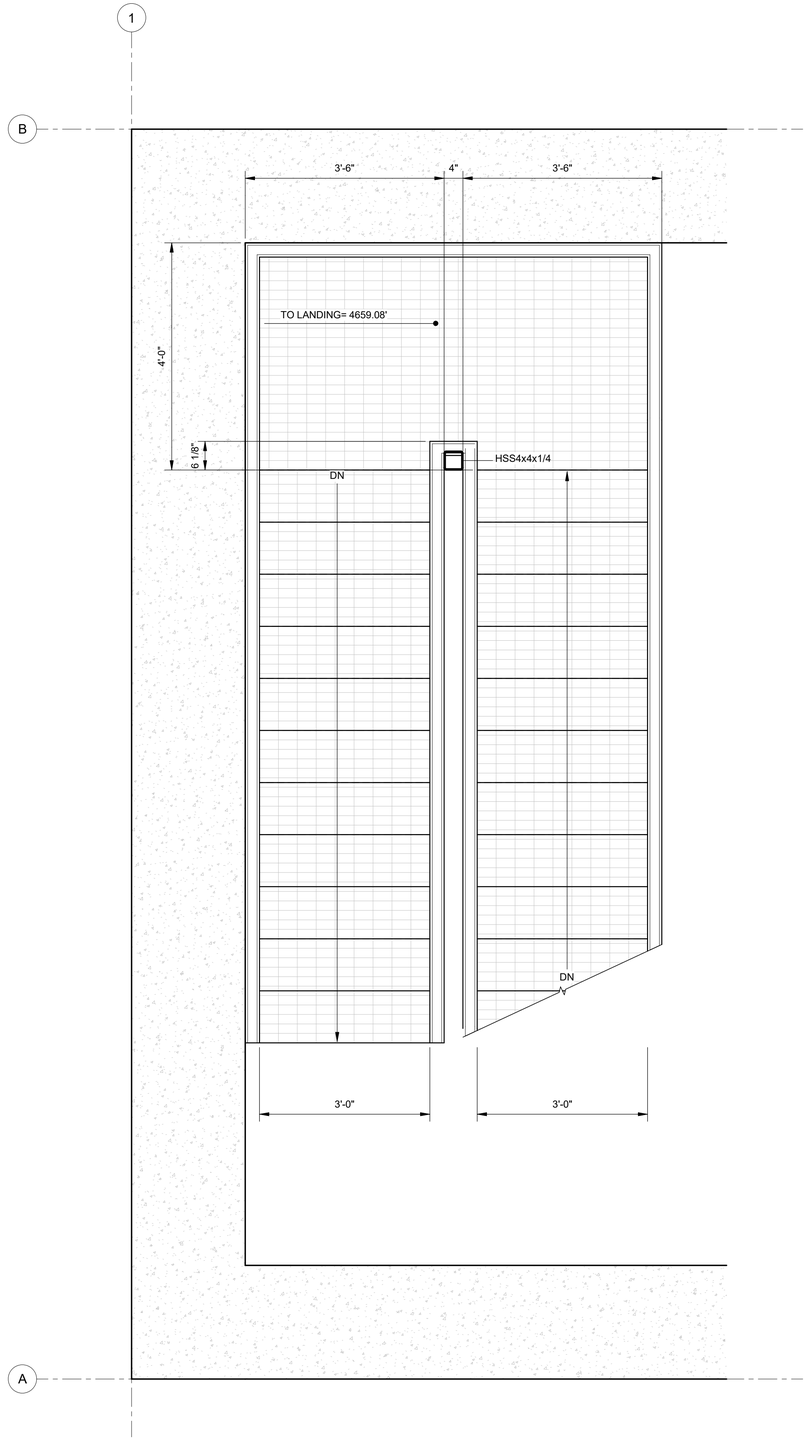
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STRUCUTRAL (S)
PUMP BUILDING
REFLECTED CEILING PLAN & ROOF PLAN

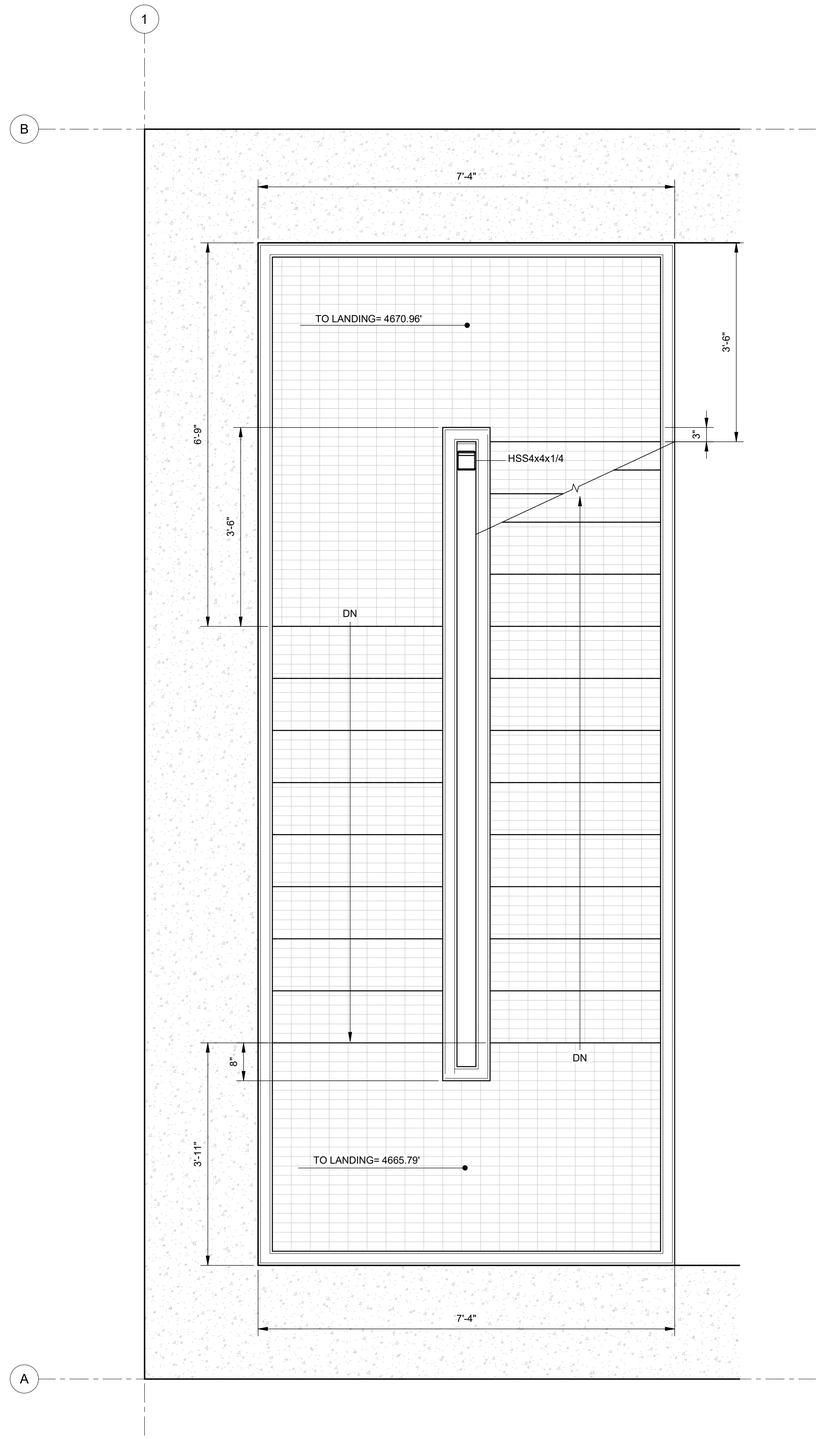
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DRAWING:
S-104

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1 ENLARGED STAIRWAY - PUMP LEVEL
SCALE: 3/4" = 1'-0"



2 ENLARGED STAIRWAY - MID LANDING
SCALE: 3/4" = 1'-0"

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TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
ENLARGED PLANS

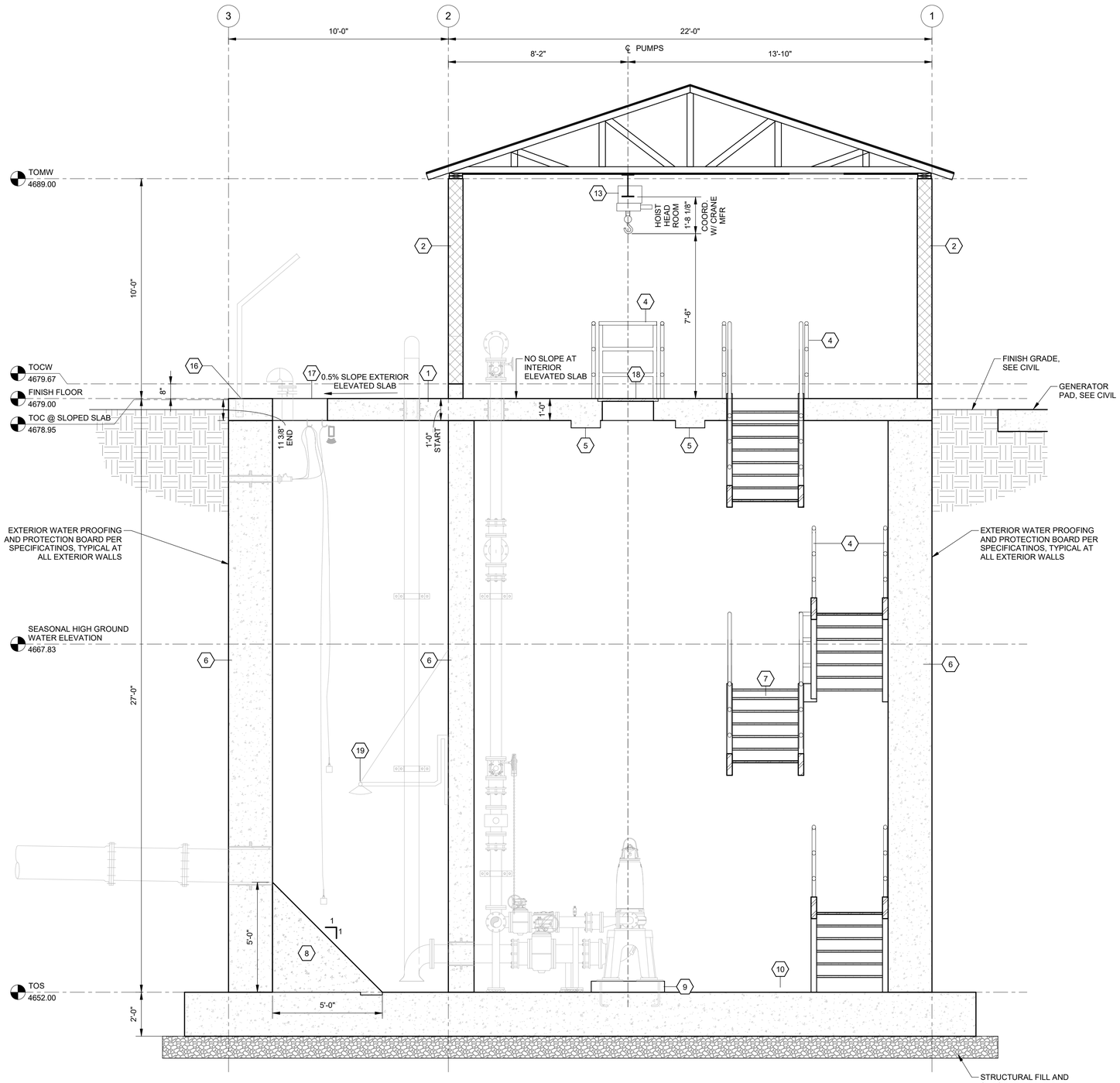
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DRAWING:
S-201

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SHEET KEYED NOTES

1	ELEVATED REINFORCED CONCRETE SLAB PER PLAN
2	MEDIUM WEIGHT REINFORCED CMU WALL PER PLAN
4	GALVANIZED STEEL RAILING
5	REINFORCED CONCRETE BEAM PER PLAN
6	REINFORCED CONCRETE WALL PER PLAN
7	GALVANIZED STEEL STAIRS
8	SLOPED GROUT PER PLAN
9	REINFORCED CONCRETE PEDESTAL PER PLAN
10	REINFORCED CONCRETE SLAB PER PLAN
13	1.5 TON MONORAIL ELECTRIC CHAIN HOIST & MOTORIZED TROLLEY
16	DAVIT MOUNT, RE: PROCESS MECH, SEE DETAIL 2/S-504
17	ACCESS HATCH, RE: PROCESS MECH
18	1-1/2" BAR GRATING, RE: TYPICAL DETAILS
19	PIPE SUPPORT, RE: PROCESS MECH, SEE DETAIL 1/S-504



1 S-101 BUILDING SECTION 1
SCALE: 3/8" = 1'-0"

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STRUCUTRAL (S)
PUMP BUILDING
SECTIONS

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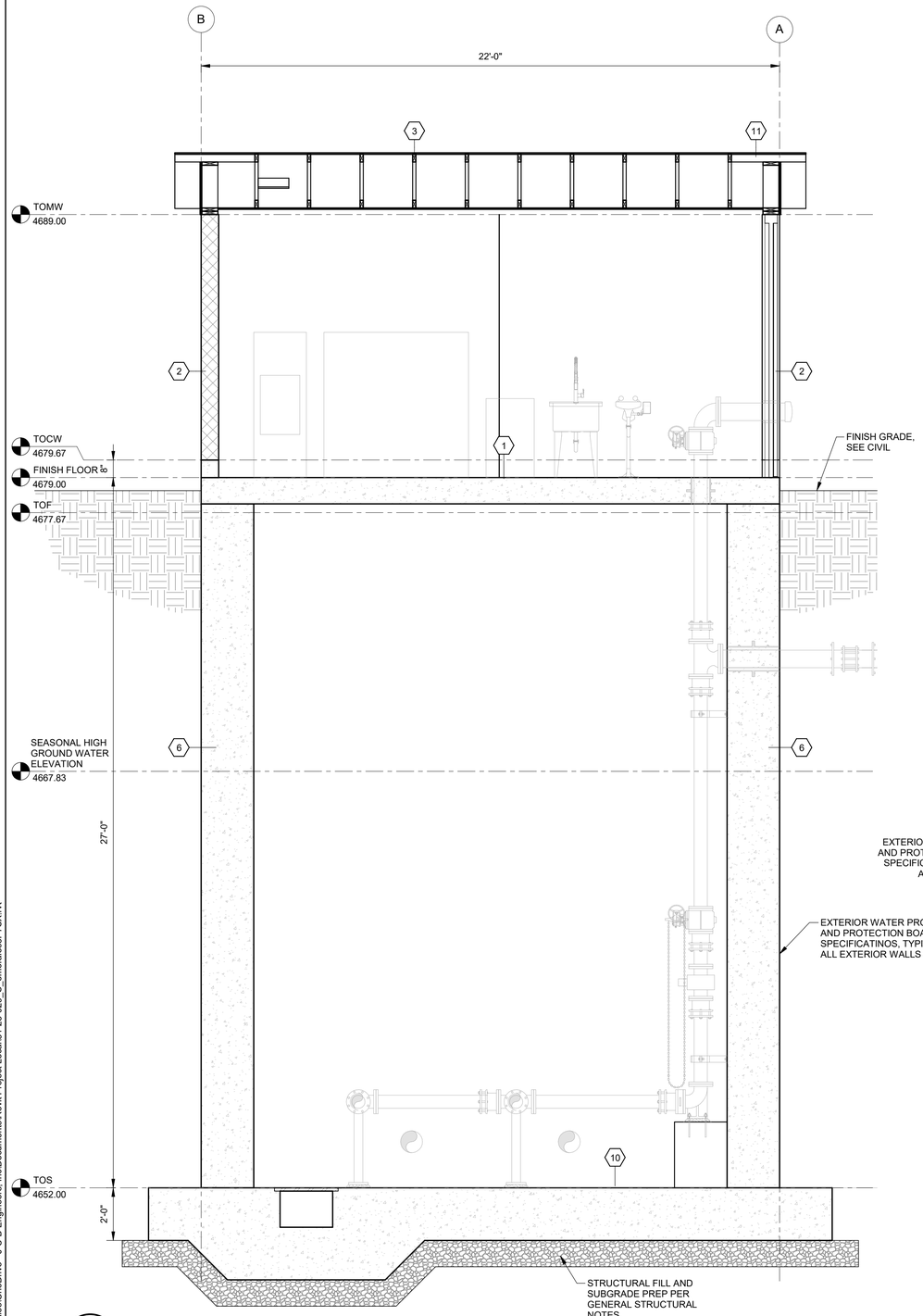
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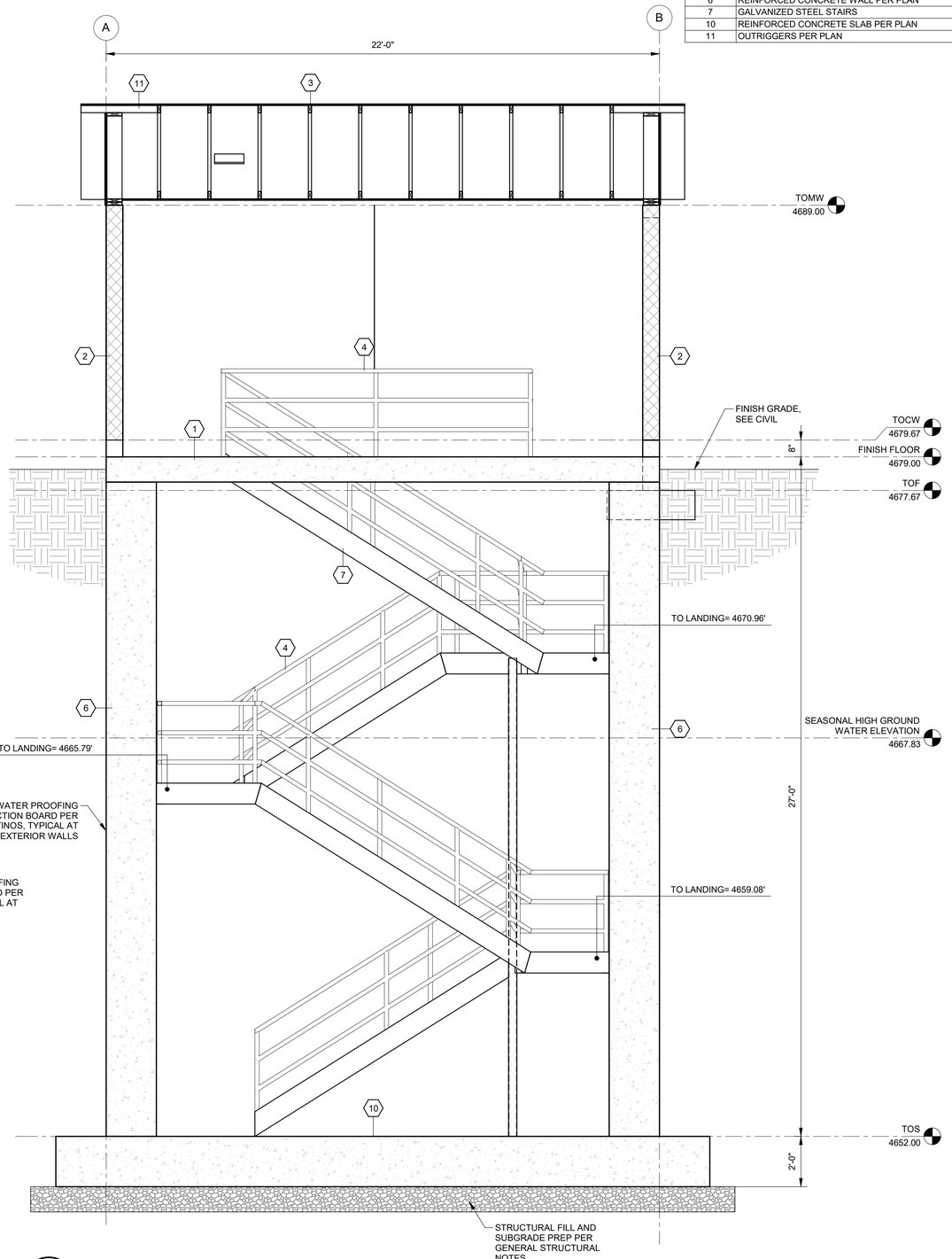
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SHEET KEYED NOTES

1	ELEVATED REINFORCED CONCRETE SLAB PER PLAN
2	MEDIUM WEIGHT REINFORCED CMU WALL PER PLAN
3	PRE-FABRICATED WOOD TRUSSES PER PLAN
4	GALVANIZED STEEL RAILING
6	REINFORCED CONCRETE WALL PER PLAN
7	GALVANIZED STEEL STAIRS
10	REINFORCED CONCRETE SLAB PER PLAN
11	OUTRIGGERS PER PLAN



1 S-101 **BUILDING SECTION**
SCALE: 3/8" = 1'-0"



2 S-101 **BUILDING SECTION**
SCALE: 3/8" = 1'-0"

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STRUCUTRAL (S)
PUMP BUILDING
SECTIONS

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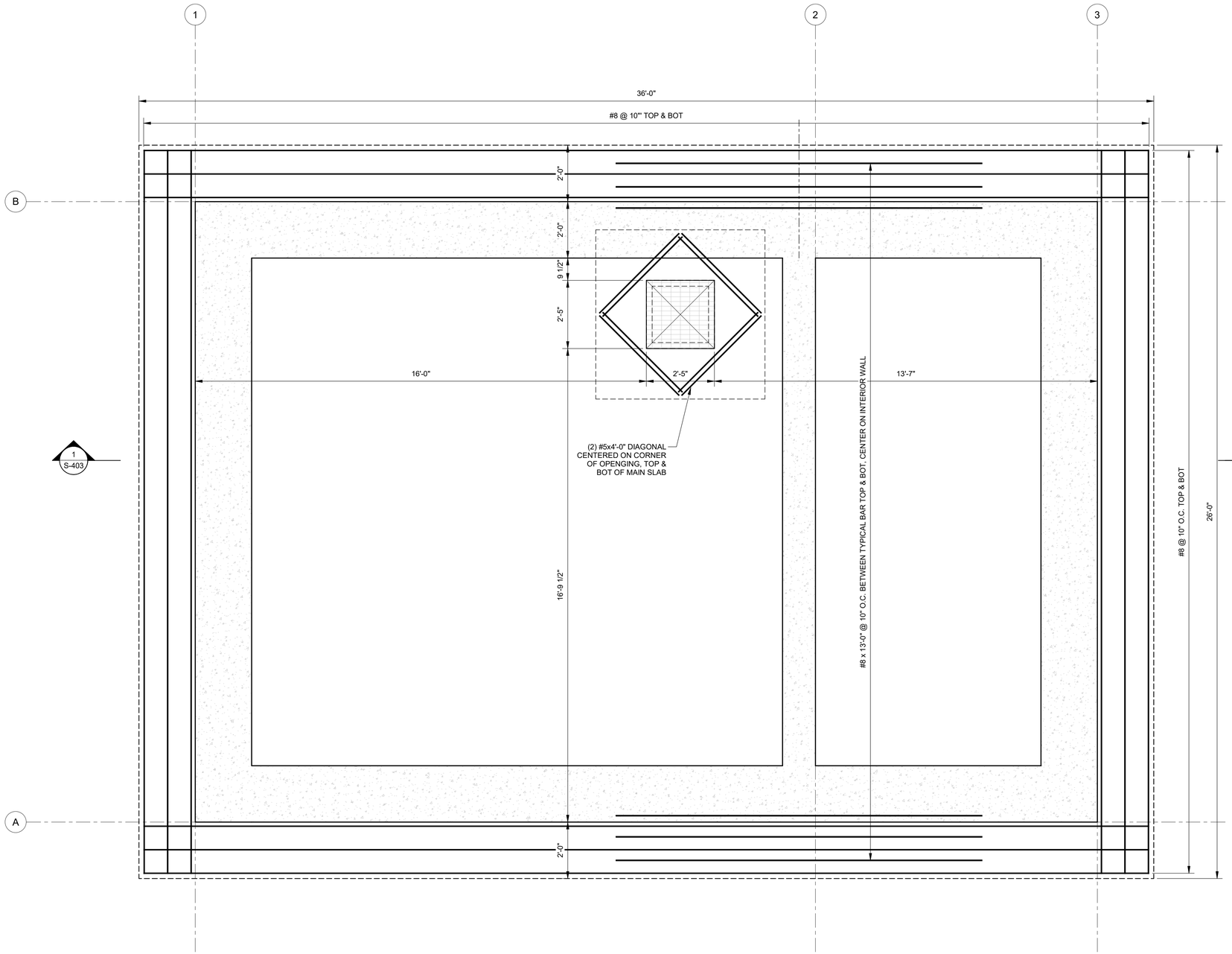
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DRAWING:

S-302

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1 BASEMENT STRUCTURAL SLAB REBAR LAYOUT PLAN
SCALE: 1/2" = 1'-0"

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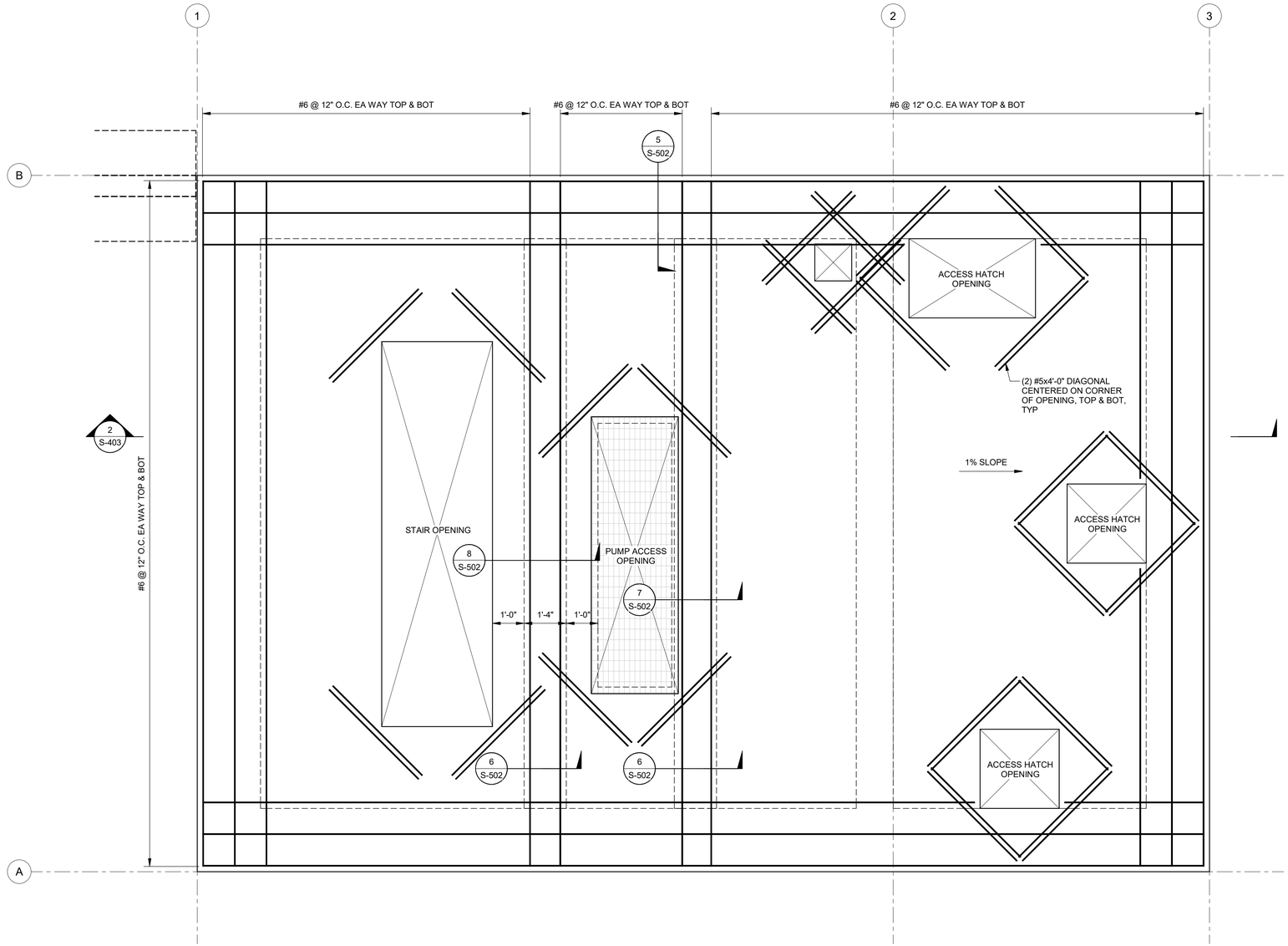
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STRUCUTRAL (S)
PUMP BUILDING
BASEMENT STRUCTURAL SLAB REBAR LAYOUT PLAN

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1 GROUND LEVEL STRUCTURAL SLAB REBAR LAYOUT PLAN
SCALE: 1/2" = 1'-0"

N

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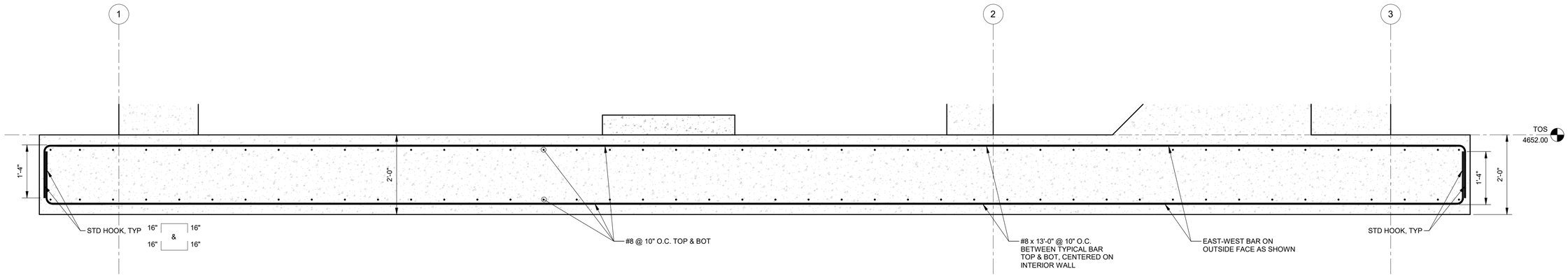
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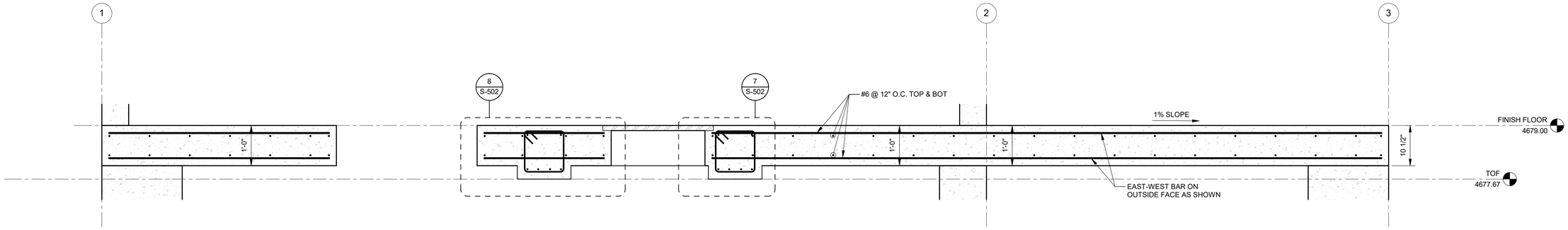
STRUCUTRAL (S)
PUMP BUILDING
GROUND LEVEL STRUCTURAL SLAB REBAR LAYOUT PLAN

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DRAWING:
S-402



1 S-401 BASEMENT STRUCTURAL SLAB REBAR LAYOUT SECTION
SCALE: 3/4" = 1'-0"



2 S-402 GROUND LEVEL STRUCTURAL SLAB REBAR LAYOUT SECTION
SCALE: 3/4" = 1'-0"

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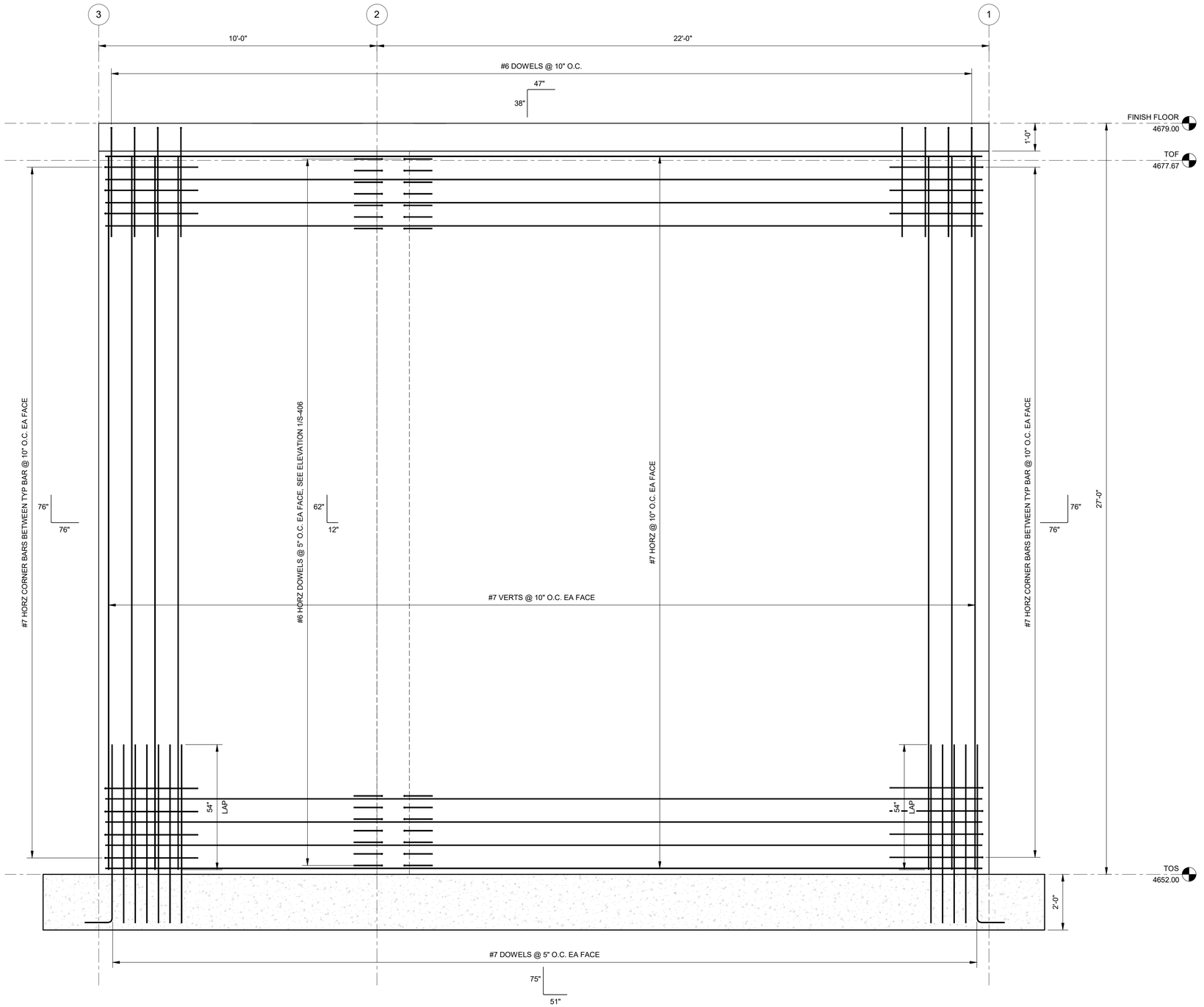
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PUMP BUILDING
STRUCTURAL SLAB REBAR LAYOUT SECTIONS

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S-403

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1 S-101 NORTH & SOUTH CONCRETE WALL REBAR ELEVATION

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

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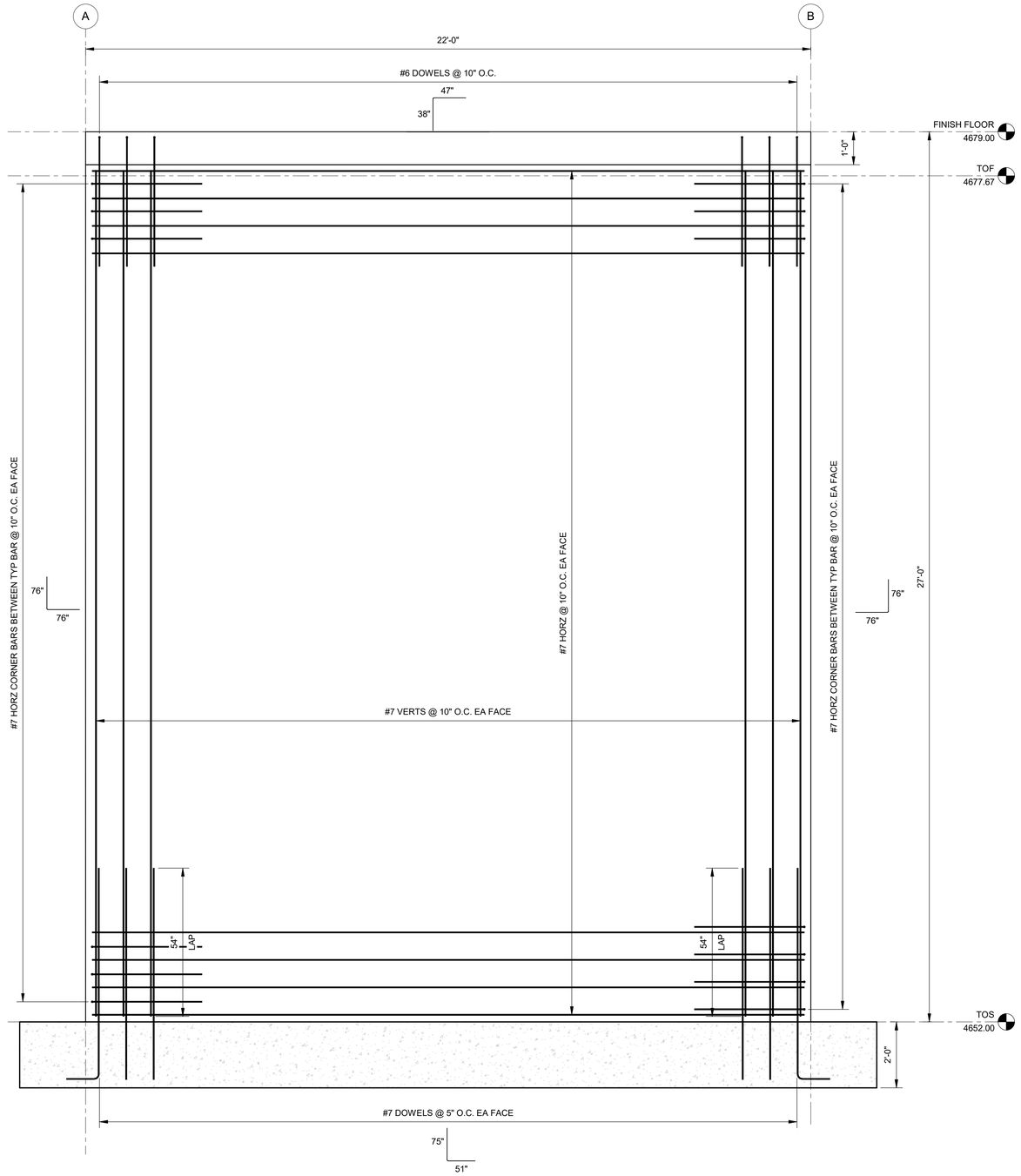
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ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY.

LAST UPDATED:06/11/2024

DRAWING:
S-404



1 S-101 EAST & WEST CONCRETE WALL REBAR ELEVATION

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

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J-U-B ENGINEERS, INC.

J-U-B ENGINEERS, INC.
305 S. Main St. Unit 6
Palisade, CO 81526
Phone: 970.208.8508
www.jub.com

BID SET

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JENS C. HURST
63334
PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APR.	DATE

REVISION

SEWER TRANSFER
TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
CONCRETE WALL REINFORCEMENT

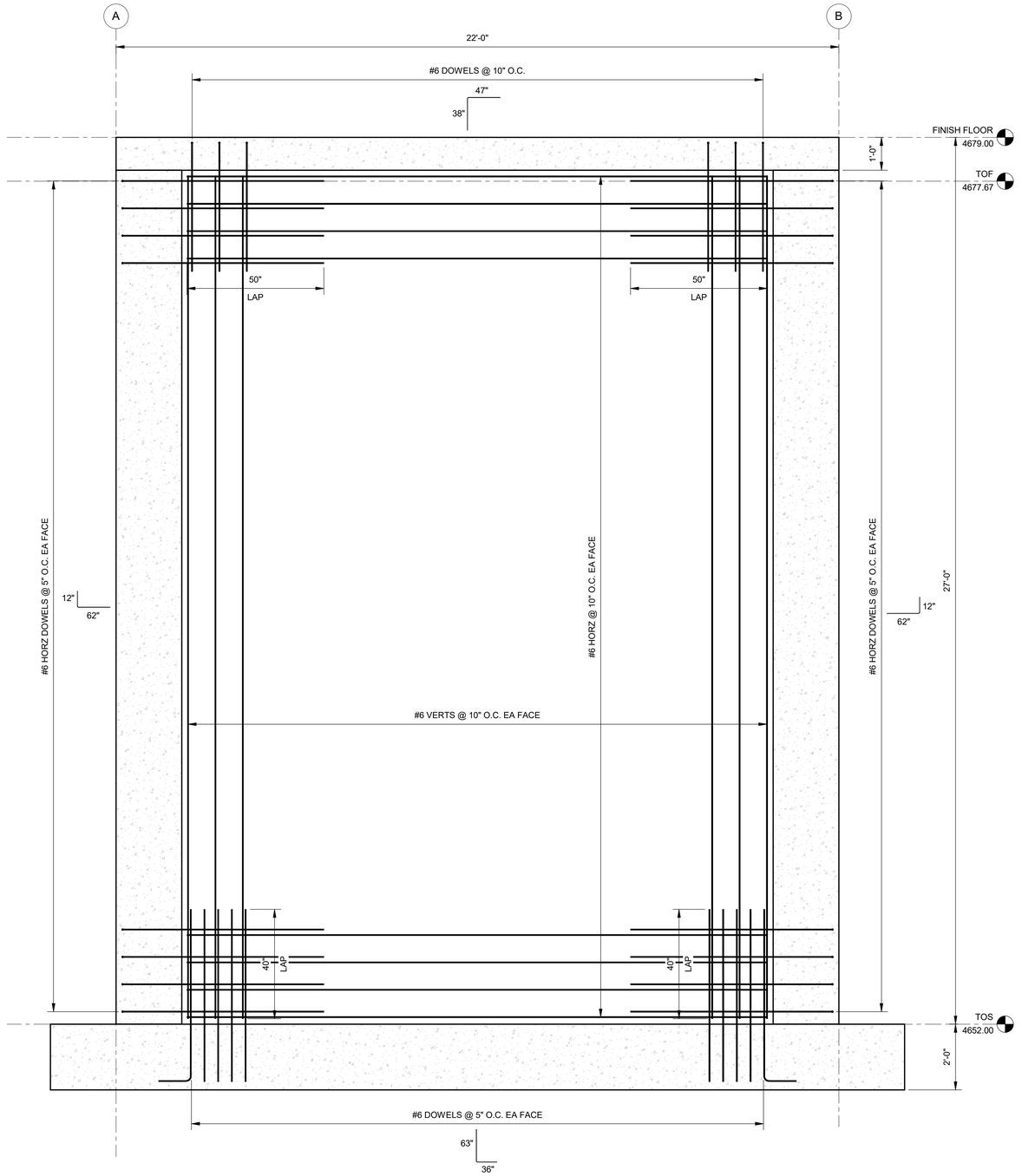
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DESIGN BY:	JLS
CHECKED BY:	JCH

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 06/11/2024

DRAWING:

S-405



1 / S-101 INTERIOR CONCRETE WALL REBAR ELEVATION

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

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REVISION

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TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
CONCRETE WALL REINFORCEMENT

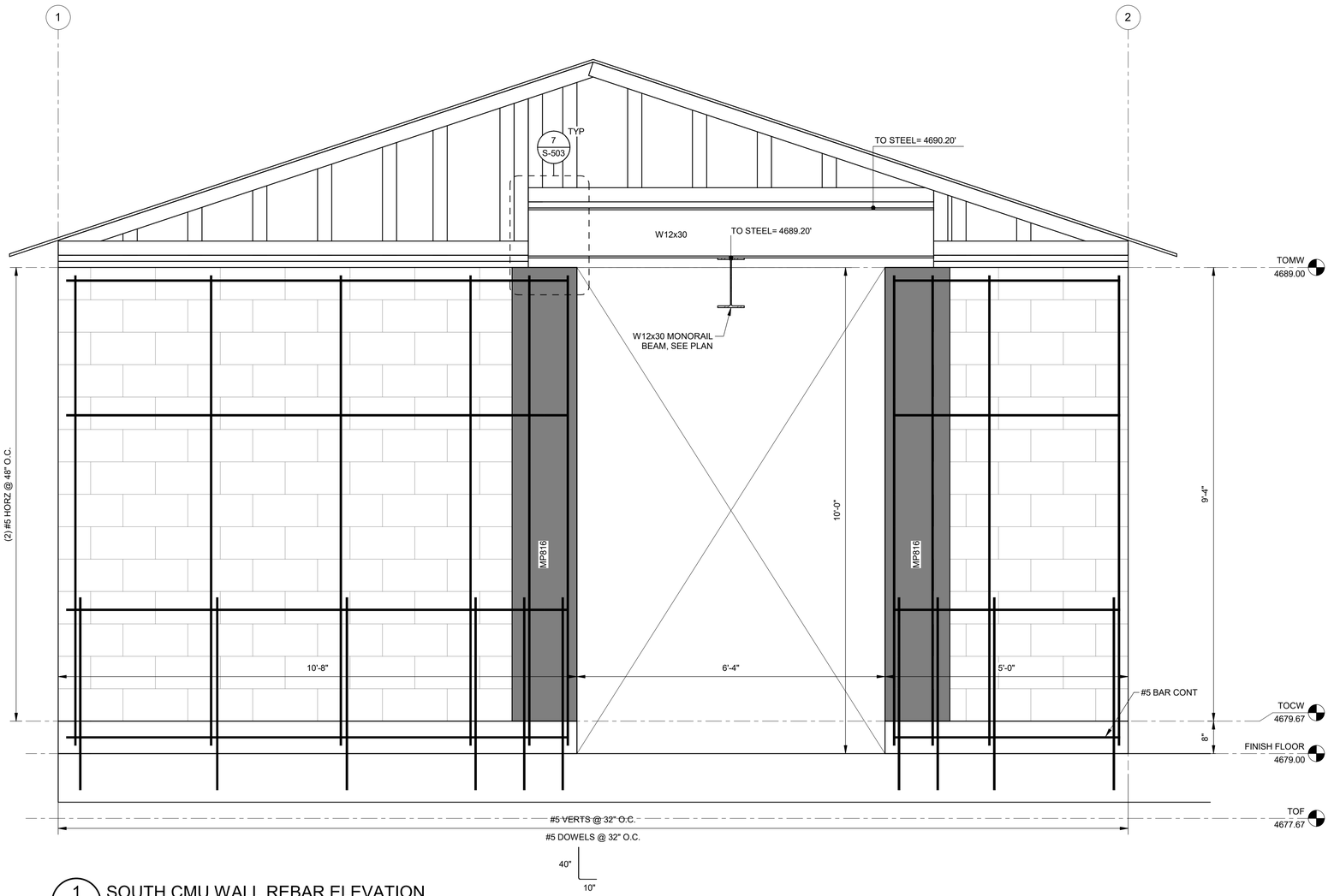
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ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 06/11/2024

DRAWING:

S-406



1 S-102 SOUTH CMU WALL REBAR ELEVATION

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

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REVISION				

SEWER TRANSFER
TOWN OF PALISADE

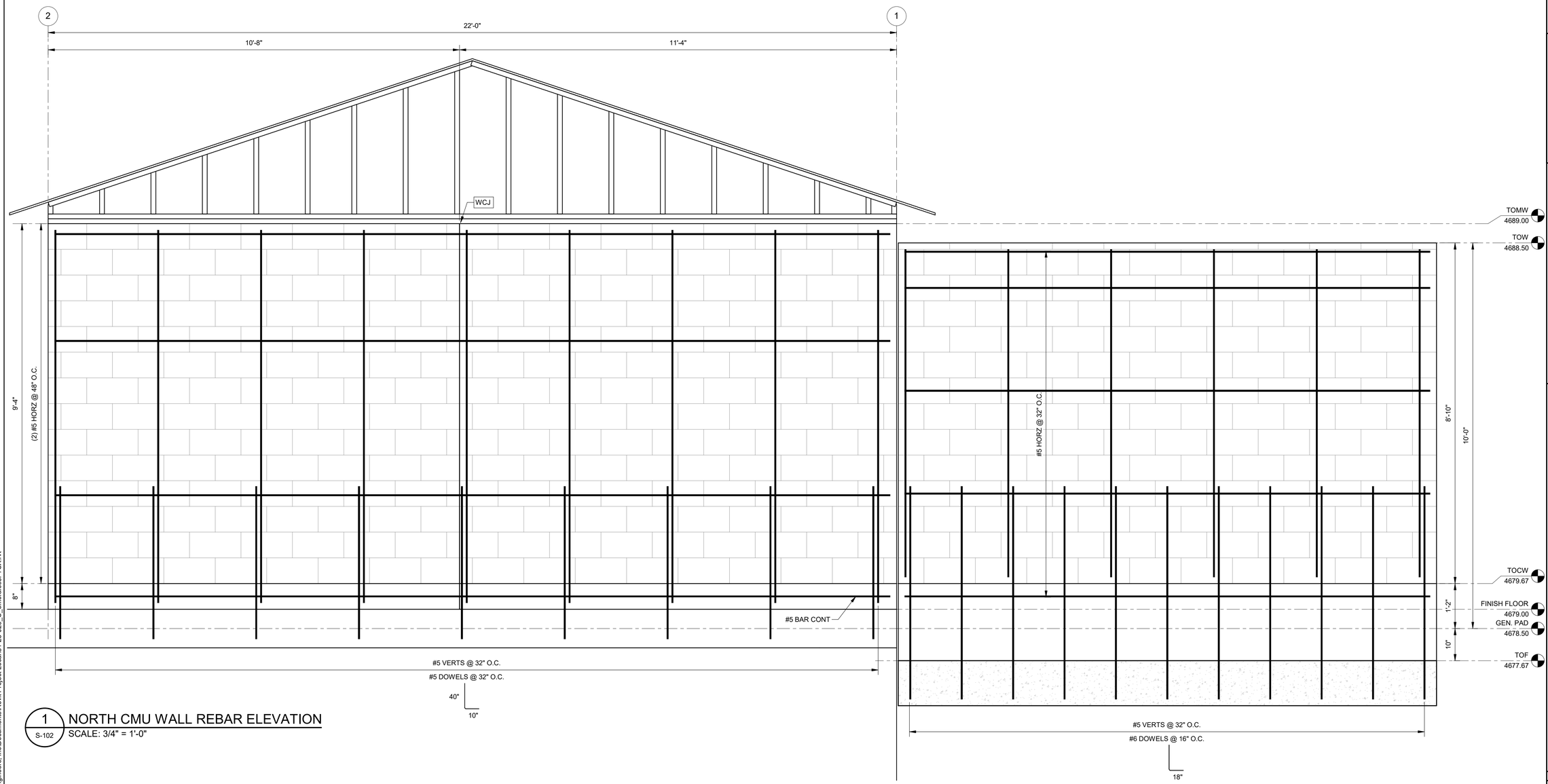
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PUMP BUILDING
CMU WALL REINFORCEMENT

FILE:
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DESIGN BY: JLS
CHECKED BY: JCH

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 06/11/2024

DRAWING:
S-407



1 S-102 NORTH CMU WALL REBAR ELEVATION
SCALE: 3/4" = 1'-0"

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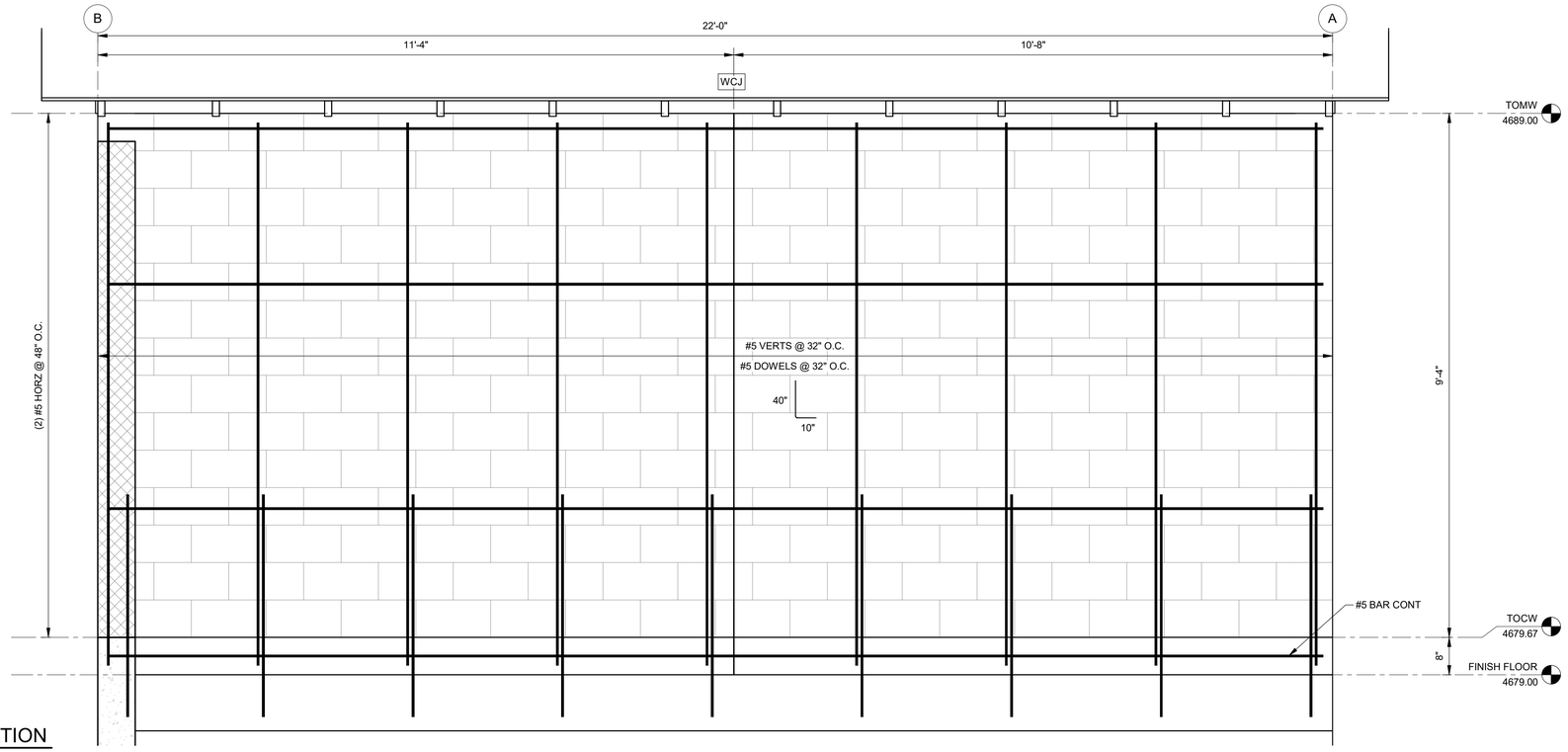
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REVISION				

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TOWN OF PALISADE

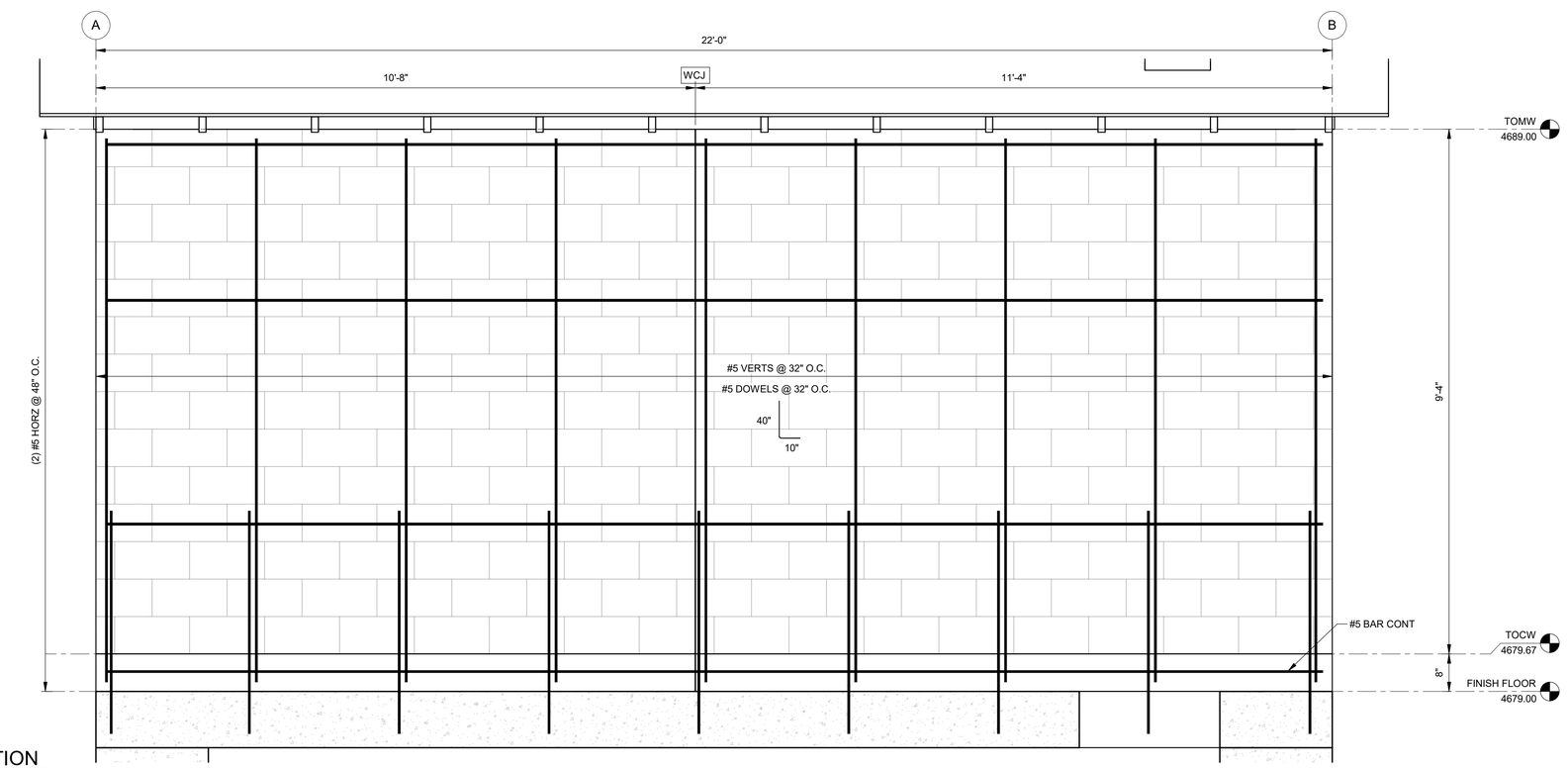
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PUMP BUILDING
CMU WALL REINFORCEMENT

FILE:
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DRAWN BY: EM
DESIGN BY: JLS
CHECKED BY:JCH
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY.
LAST UPDATED:06/11/2024

DRAWING:
S-408



3 S-102 WEST CMU WALL REBAR ELEVATION
SCALE: 3/4" = 1'-0"



4 S-102 EAST CMU WALL REBAR ELEVATION
SCALE: 3/4" = 1'-0"

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	REVISION			

SEWER TRANSFER
TOWN OF PALISADE

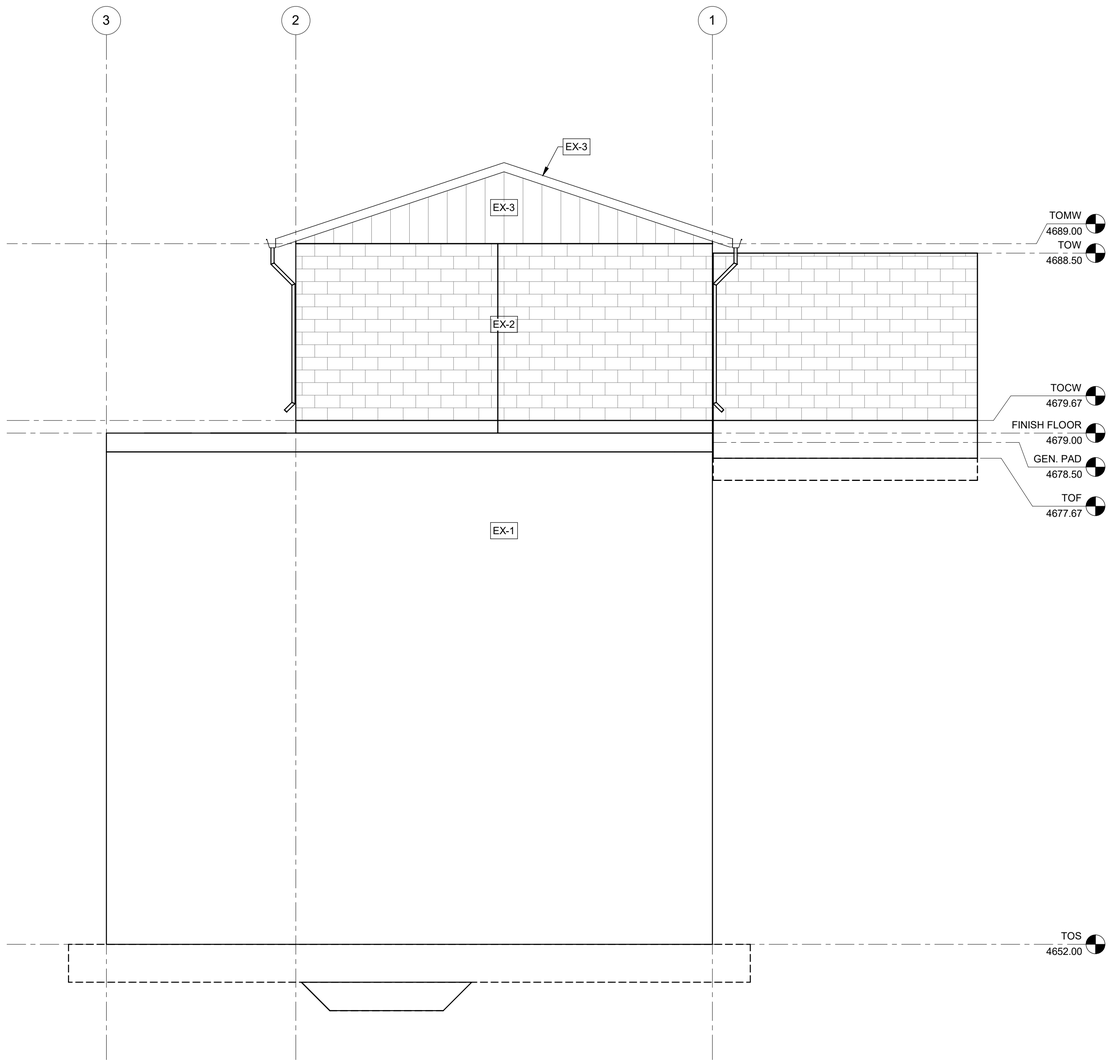
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PUMP BUILDING
CMU WALL REINFORCEMENT

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LAST UPDATED:06/11/2024

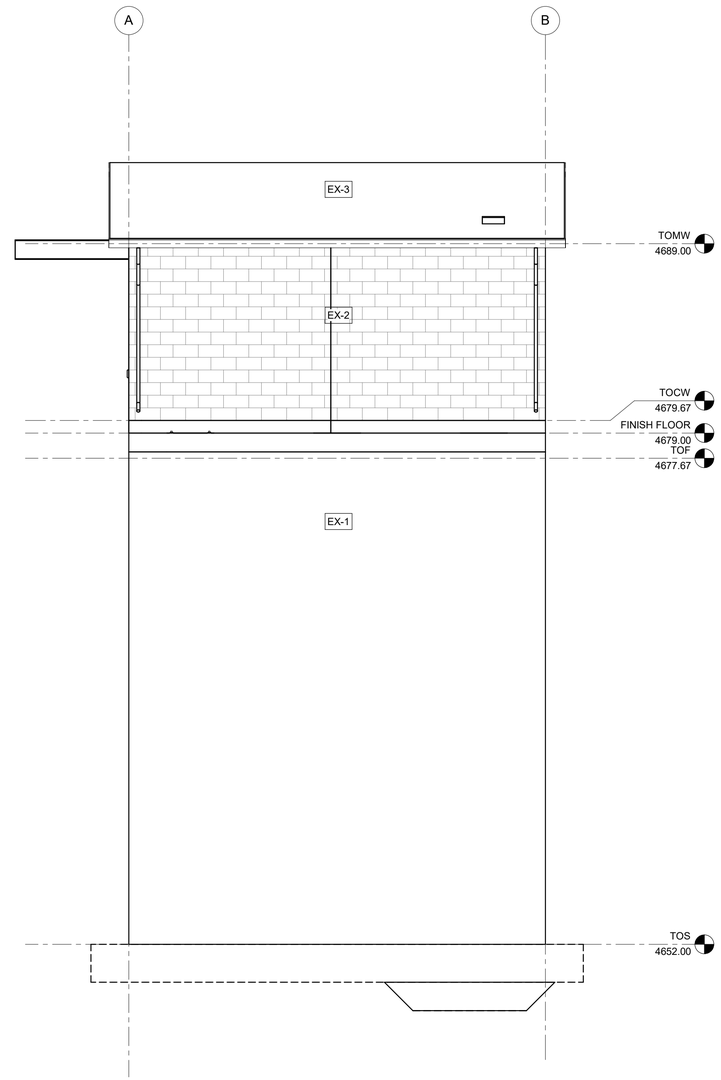
DRAWING:
S-409

ELEVATION NOTES

1. CONTRACTOR SHALL FURNISH AND INSTALL TRIMS, FLASHING, AND FINISH PIECES TO PRESENT A FINISHED APPEARANCE.
2. SEE SHEET S-510 FOR EXTERIOR COLOR SCHEDULE



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



2 EAST ELEVATION
S-102
SCALE: 1/4" = 1'-0"

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TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
EXTERIOR ELEVATIONS

FILE:
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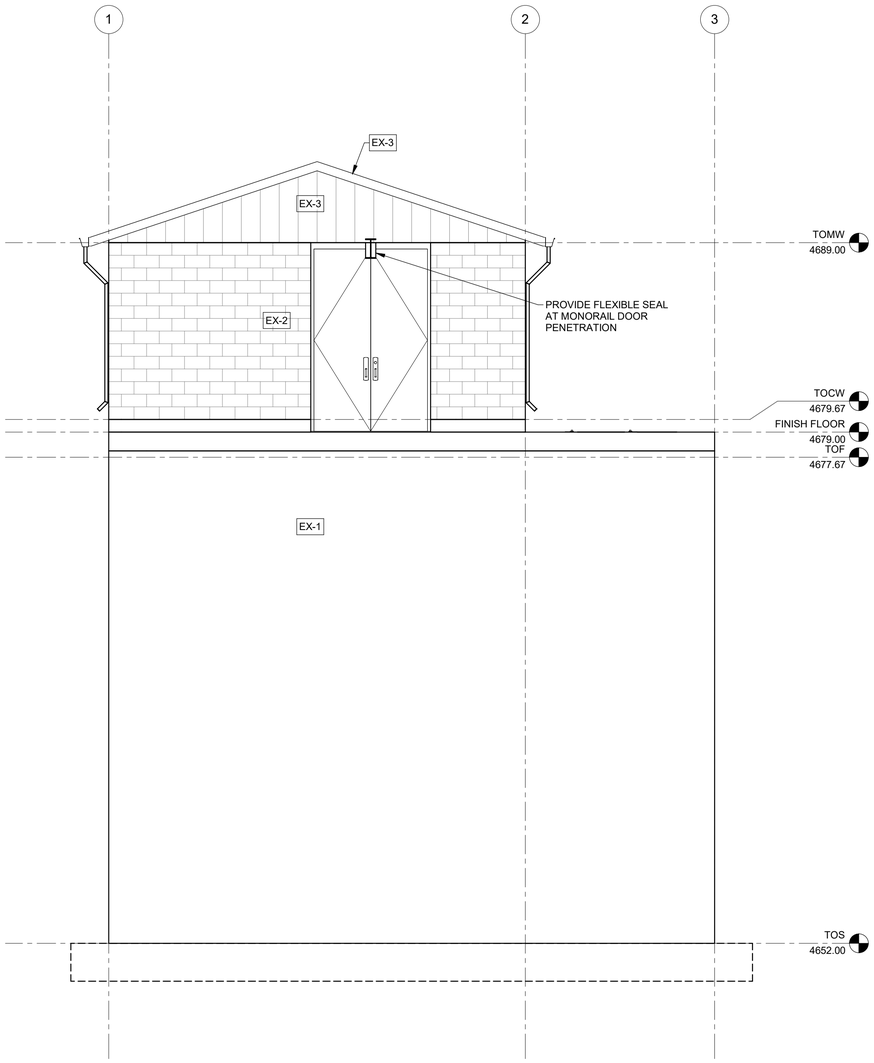
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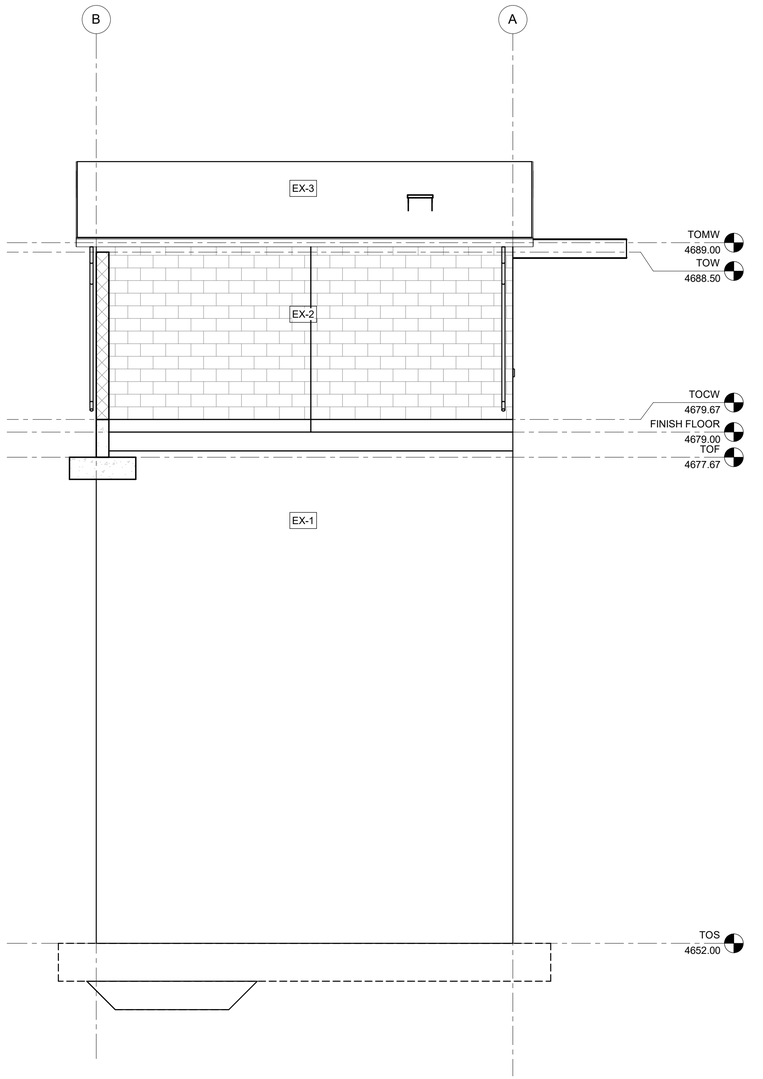
DRAWING:
S-410

ELEVATION NOTES

1. CONTRACTOR SHALL FURNISH AND INSTALL TRIMS, FLASHING, AND FINISH PIECES TO PRESENT A FINISHED APPEARANCE.
2. SEE SHEET S-510 FOR EXTERIOR COLOR SCHEDULE



1 S-102 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



2 S-102 WEST ELEVATION
SCALE: 1/4" = 1'-0"

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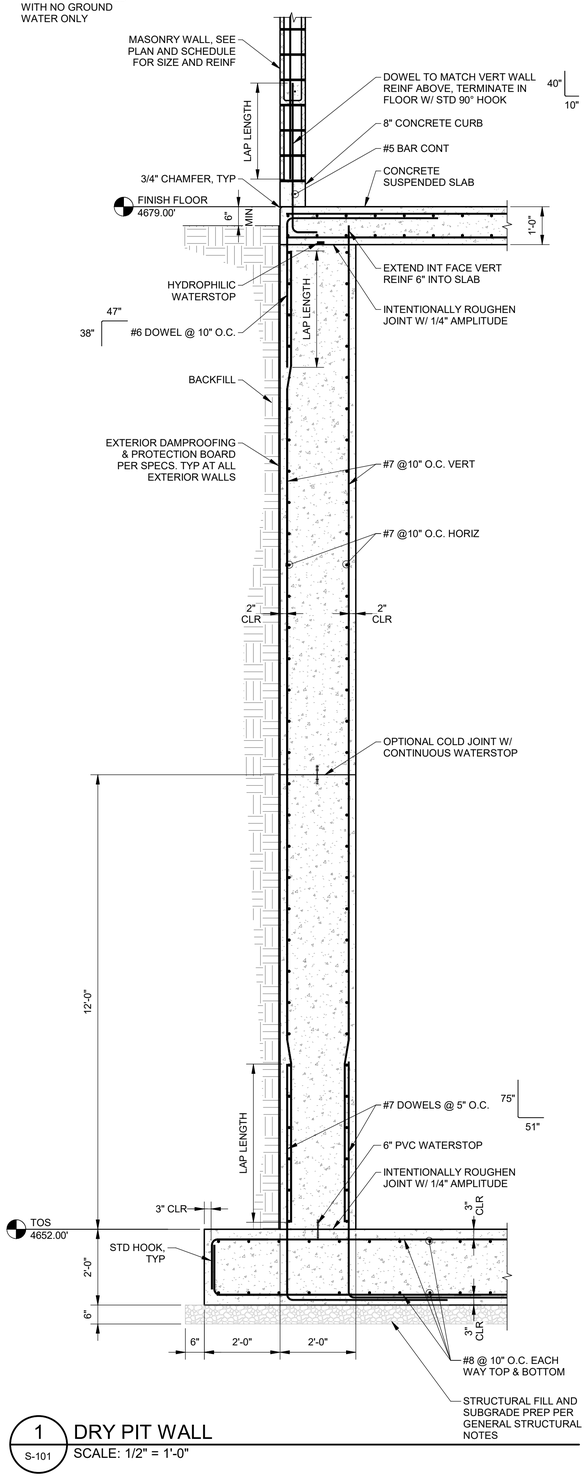
STRUCUTRAL (S)
PUMP BUILDING
EXTERIOR ELEVATIONS

FILE:
JUB PROJ. #:81-23-029
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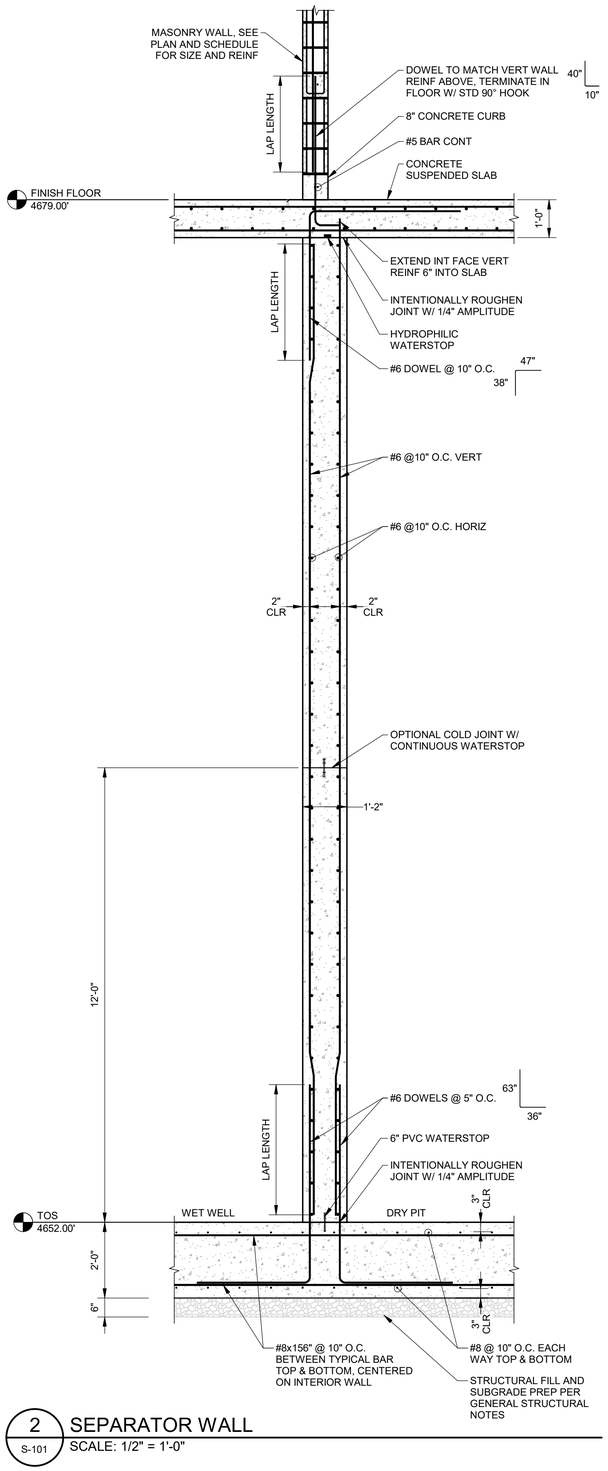
DRAWING:
S-411

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NOTE:
BACKFILLING WALLS PRIOR TO FLOOR IN PLACE IS PERMITTED WITH NO GROUND WATER ONLY

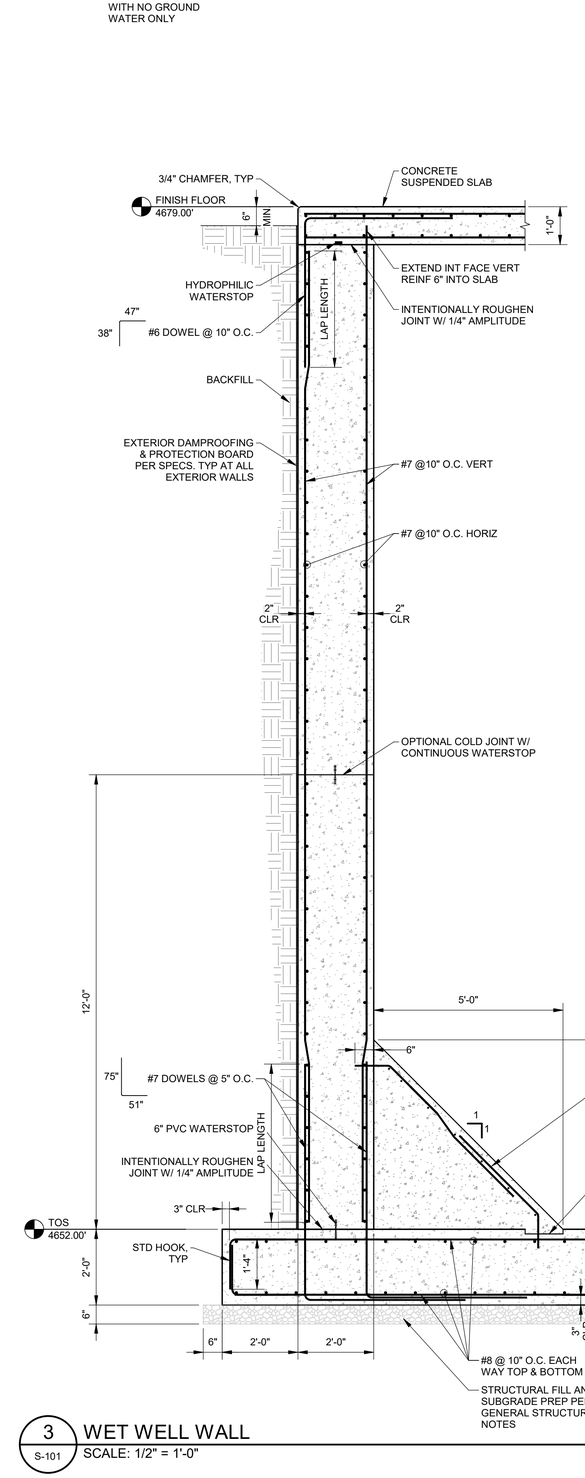


1 S-101 **DRY PIT WALL**
SCALE: 1/2" = 1'-0"



2 S-101 **SEPARATOR WALL**
SCALE: 1/2" = 1'-0"

NOTE:
BACKFILLING WALLS PRIOR TO FLOOR IN PLACE IS PERMITTED WITH NO GROUND WATER ONLY



3 S-101 **WET WELL WALL**
SCALE: 1/2" = 1'-0"

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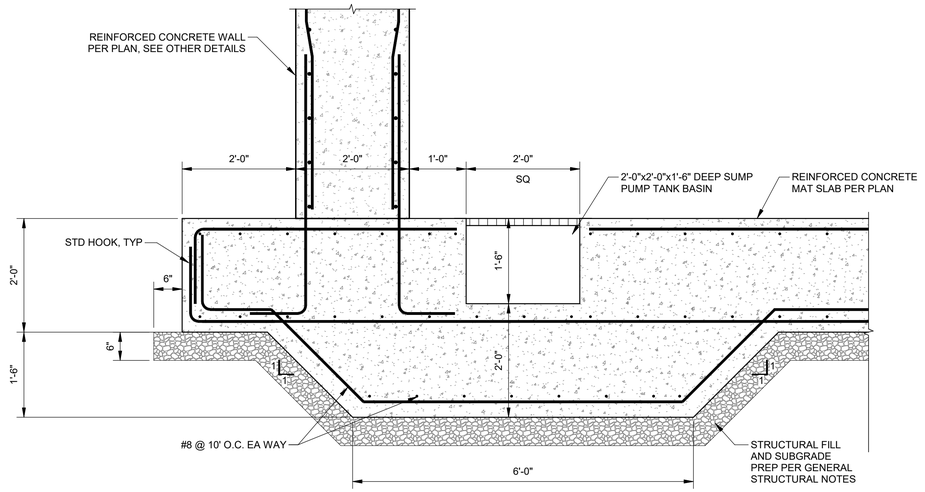
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TOWN OF PALISADE

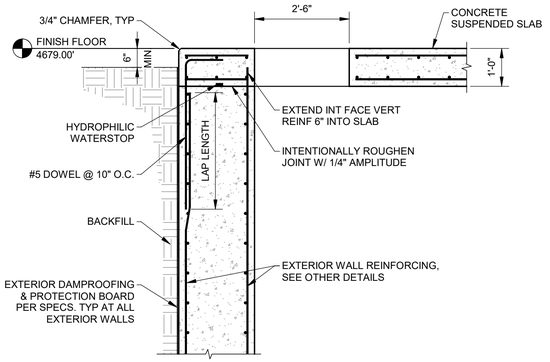
STRUCUTRAL (S)
PUMP BUILDING
STRUCTURAL DETAILS

FILE:
JUB PROJ. #:81-23-029
DRAWN BY: EM
DESIGN BY: JLS
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LAST UPDATED: 06/11/2024
DRAWING:
S-501

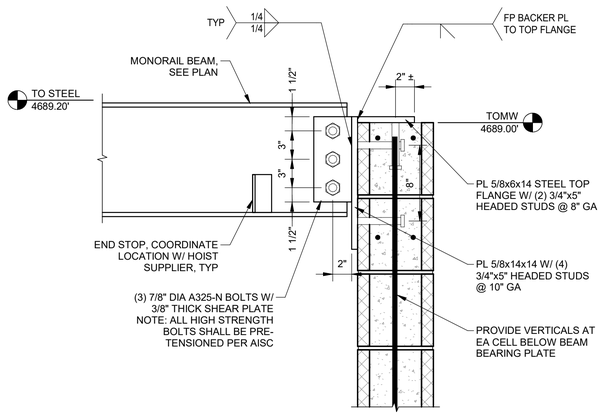
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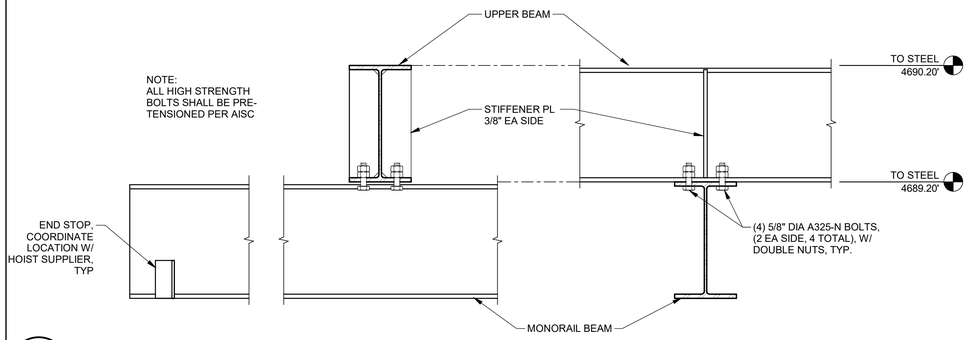
1 SUMP PUMP
S-101
SCALE: 3/4" = 1'-0"



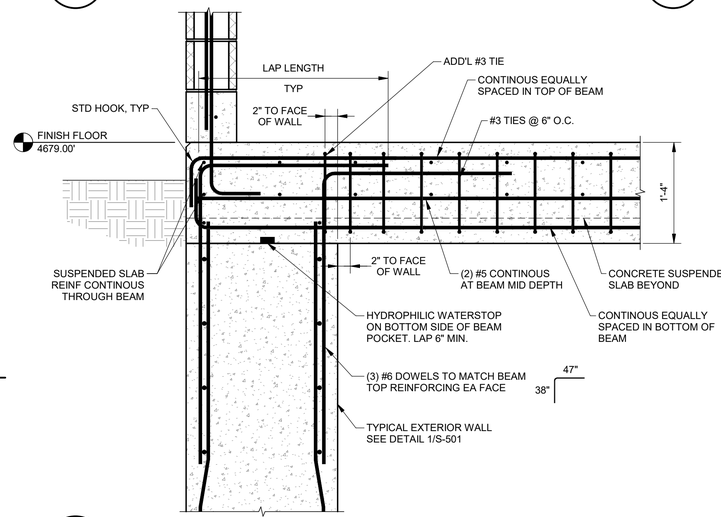
2 WET WELL SLAB OPENING
S-102
SCALE: 1/2" = 1'-0"



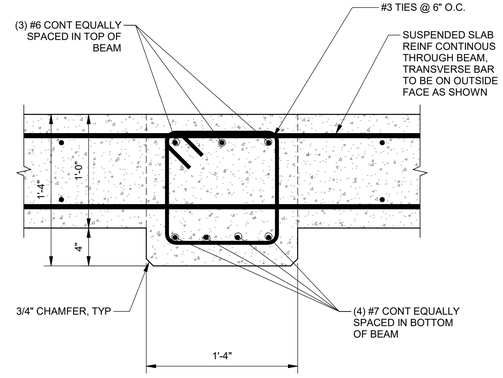
3 BEAM EMBED AT WALL
S-103
SCALE: 1 1/2" = 1'-0"



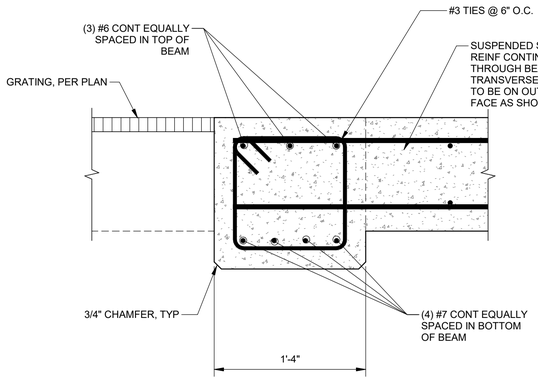
4 MONORAIL BEAM CONNECTION
S-103
SCALE: 1 1/2" = 1'-0"



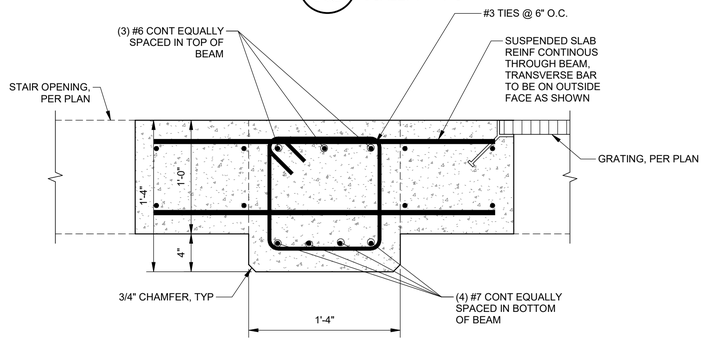
5 CONCRETE BEAM AT EXTERIOR WALL
S-402
SCALE: 1" = 1'-0"



6 CONCRETE BEAM
S-402
SCALE: 1 1/2" = 1'-0"



7 CONCRETE BEAM AT GRATING
S-402
SCALE: 1 1/2" = 1'-0"



8 CONCRETE BEAM @ OPENINGS
S-402
SCALE: 1 1/2" = 1'-0"

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SEWER TRANSFER
TOWN OF PALISADE

STRUCUTRAL (S)
PUMP BUILDING
STRUCTURAL DETAILS

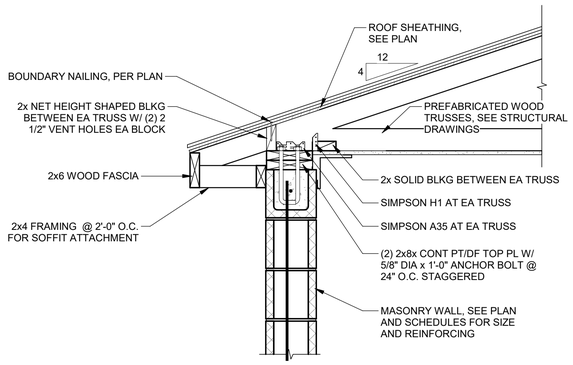
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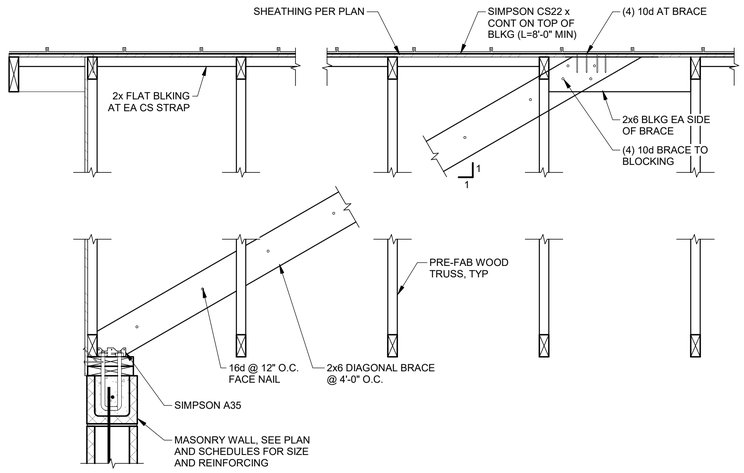
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DRAWING:
S-502

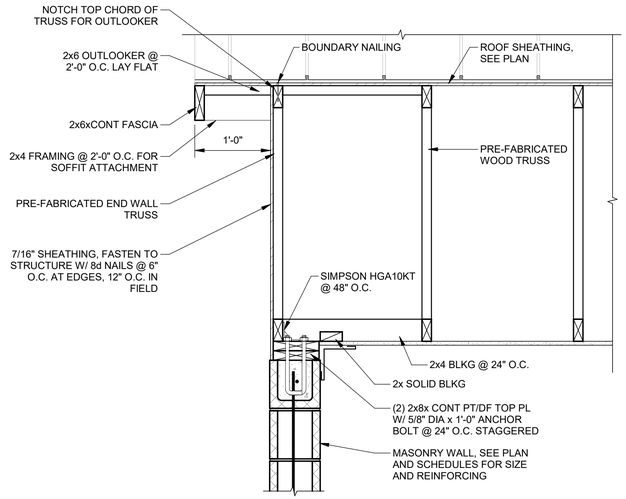
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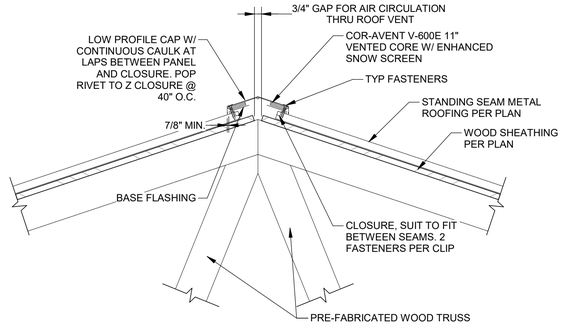
1 PFT AT MASONRY WALL
S-103 — SCALE: 1" = 1'-0"



2 WALL BRACE AT END WALL
S-103 — SCALE: 1" = 1'-0"



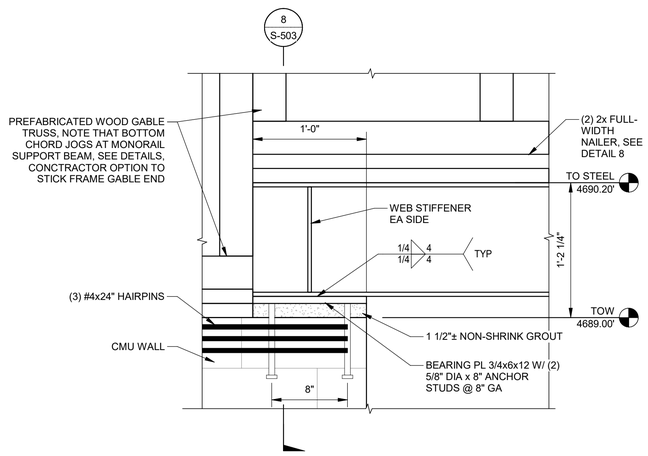
3 END WALL PFT AT MAONSRY WALL
S-103 — SCALE: 1" = 1'-0"



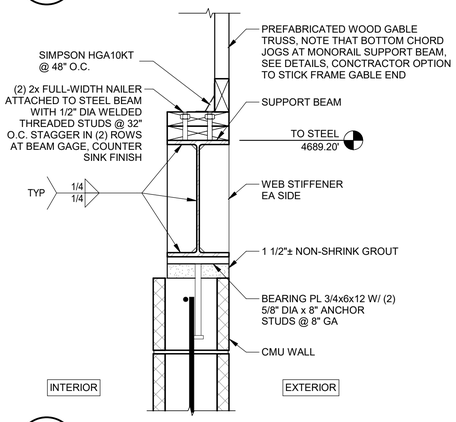
4 RIDGE BLOCKING
SCALE: 1 1/2" = 1'-0"

5 REMOVABLE GATE
S-102 — SCALE: 1" = 1'-0"

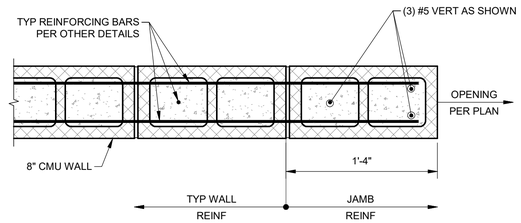
6 REMOVABLE RAILING
S-102 — SCALE: 1" = 1'-0"



7 SUPPORT BEAM CONNECTION
S-407 — SCALE: 1 1/2" = 1'-0"



8 SUPPORT BEAM
S-503 — SCALE: 1 1/2" = 1'-0"



NOTES:
1. REINFORCING SHOWN IS MINIMUM REQUIRED. PROVIDE ADDITIONAL REINFORCING AS REQUIRED BY OTHER DETAILS.

9 CMU WALL SPECIAL JAMB REINF - 8" CMU
SCALE: 1 1/2" = 1'-0"

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STRUCTURAL DETAILS

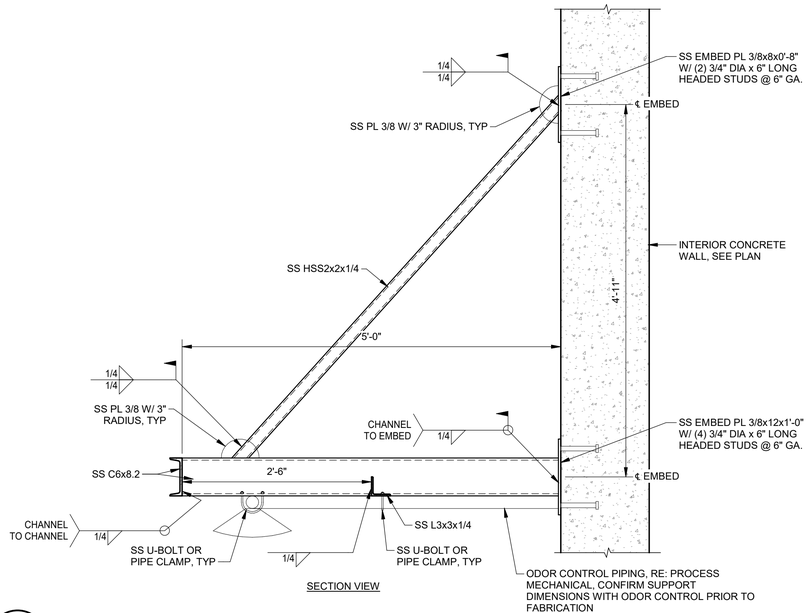
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JUB PROJ. #:81-23-029
DRAWN BY: EM
DESIGN BY: JLS
CHECKED BY: JCH

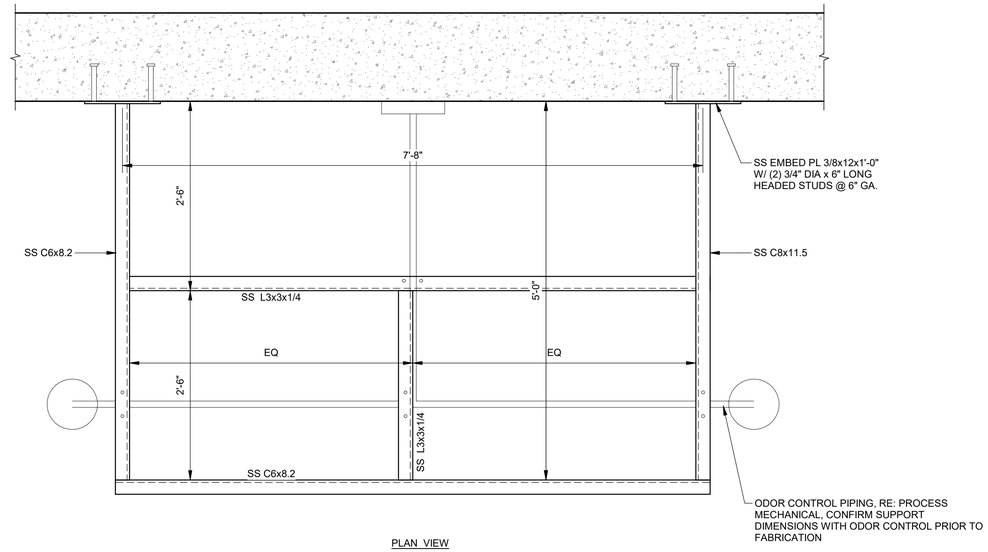
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 06/11/2024

DRAWING:
S-503

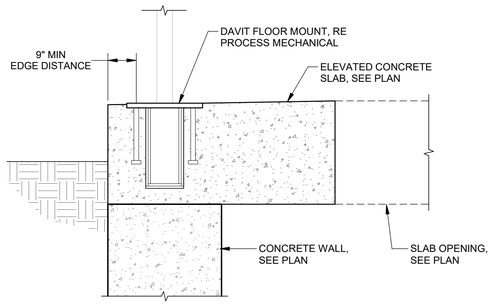
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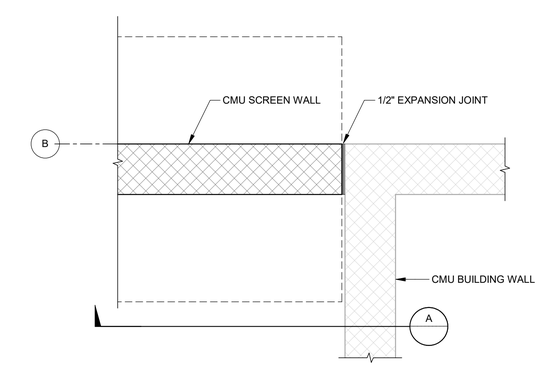
PLAN VIEW

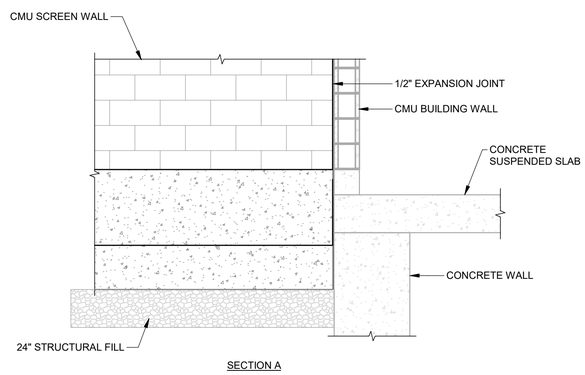
1 PIPE SUPPORT
SCALE: 1" = 1'-0"



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

3 CMU SCREEN WALL DETAIL
S-102
SCALE: 1" = 1'-0"





SECTION A

4 CMU SCREEN WALL TO BUILDING
SCALE: 1" = 1'-0"

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DRAWING:
S-504

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DOOR SCHEDULE

	DOOR							FRAME					
					SIZE								
DOOR TAG	TYPE	MATERIAL	FINISH	GLAZING	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	FIRE RATING	HARDWARE GROUP	COMMENTS
D1	F	METAL	PAINT		6'-0"	9'-8"	1 3/4"	M2	HOLLOW METAL	PAINT		1	PAIR OF DOORS W/ MONORAIL BLOCKOUT AND FLEXIBLE SEAL

DOOR HARDWARE GROUP SCHEDULE

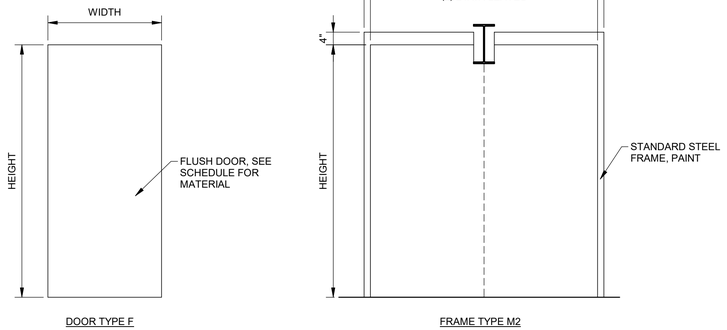
	HINGES							LOCKSETS											STOPS		DOOR SEAL						MISCELLANEOUS				
															ELECTRONIC																
GROUP NUMBER	NUMBER	BALL BEARING	CONTINUOUS	PIVOTS	BRONZE/BRASS	STAINLESS STEEL	NON-REMOVABLE PINS	KEY ENTRY	INTERCONNECT	PRIVACY	INDICATOR PRIVACY	PASSAGE	INACTIVE/DUMMY	CLASSROOM	CLASSROOM SECURITY	STORE ROOM	KEYPAD	CARD READ	REMOTE	FLUSH BOLTS	SURFACE BOLTS	WALL STOP	FLOOR STOP	SMOKE STRIP	WEATHER STRIP	ASTRAGAL	SWEEP	THRESHOLD	CLOSER	COORDINATOR	ARMOR PLATE	KICK PLATE	ARMOR PLATE
1	3	X				X										X				X			X		X		X	X		X		X

INTERIOR FINISH SCHEDULE

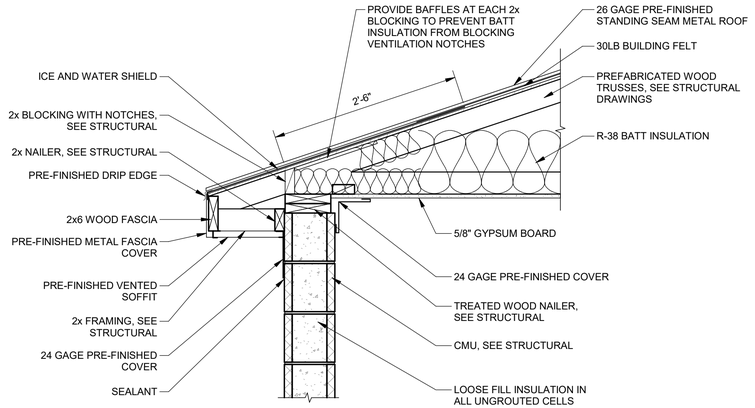
ROOM NO.	NAME	FLOOR FINISH	WALL FINISH	CEILING FINISH	CEILING HEIGHT	REMARKS
101	DRY PIT	EPOXY COAT FLOOR AND 1'-0" BASE OF WALL	SEALED CONCRETE	NATURAL	26'-0"	EPOXY COATING TO BE LIGHT GRAY, ALL OTHER COLORS TO BE NATURAL
102	WET WELL	SEALED CONCRETE	SEALED CONCRETE	NATURAL	26'-0"	ALL COLORS TO BE NATURAL
201	ELECTRICAL	EPOXY COAT FLOOR	SEALED SMOOTH FACE CMU	GYPSUM BOARD PAINTED	10'-3"	CEILING PAINT AND PRE-FINISHED METAL COVER TO BE WHITE

EXTERIOR COLOR SCHEDULE

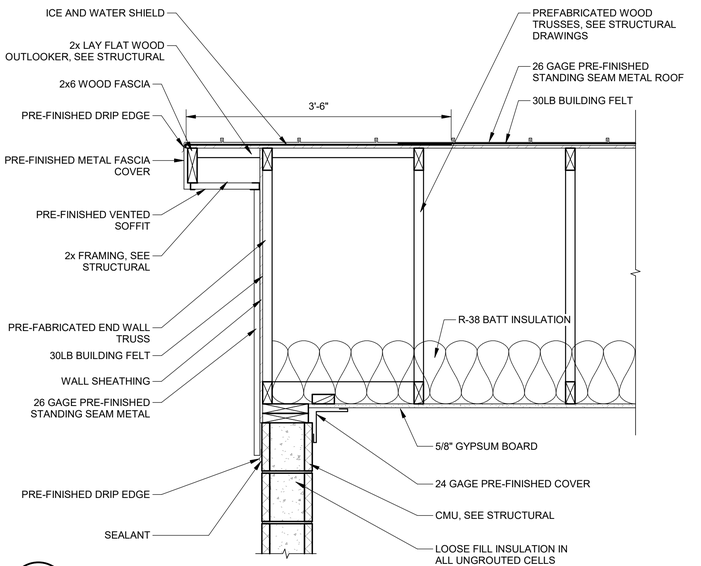
TAG	MATERIAL	MANUFACTURER	FINISH	COLOR	REMARKS
EX-1	CONCRETE	-	SMOOTH FORM	NATURAL	CONC WALLS TYP
EX-2	CMU	BUEHNER BLOCK	SMOOTH FACE W/ ANTI-GRAFFITI COATING	TAN	FIELD COLOR
EX-3	STANDING SEAM	MBCI	PRE-FINISHED	DARK BROWN	METAL ROOF/ SIDING/ FASCIA/ SOFFIT
EX-4	DOOR & FRAME	-	PAINTED	MATCH ROOF COLOR	DOOR & FRAME
EX-5	LOUVER/VENTS	-	PRE-FINISHED	MATCH ROOF COLOR	LOUVER/ TURTLE VENTS GABLE VENTS



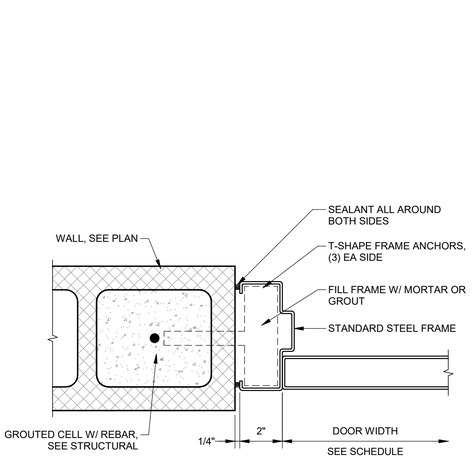
1 DOOR AND FRAME TYPE
SCALE: NTS



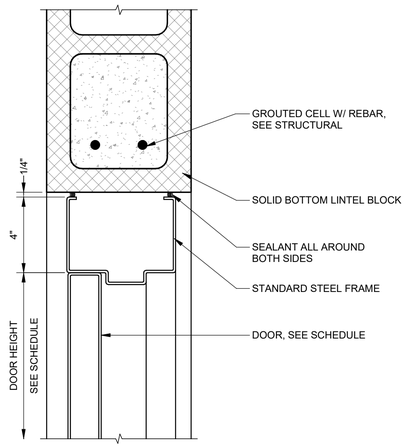
2 SOFFIT
SCALE: NTS



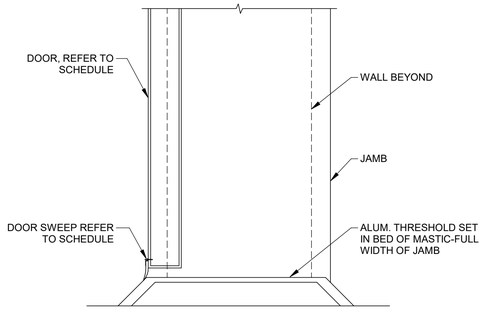
3 OUTLOOKER
SCALE: NTS



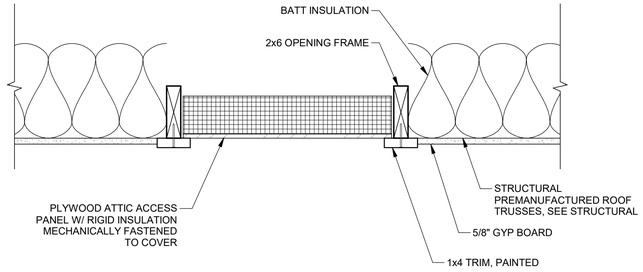
4 DOOR JAMB
SCALE: NTS



5 DOOR HEADER
SCALE: NTS



6 DOOR THRESHOLD
SCALE: NTS



7 ATTIC ACCESS PANEL
SCALE: NTS

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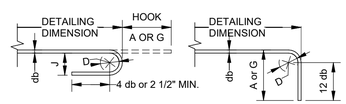
DRAWING:
S-510

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TYPICAL LAP SPLICE LENGTHS IN INCHES, PER ACI 318									
BAR SIZE	LAP CLASS	f'c=3,000 psi		f'c=4,000 psi		f'c=4,500 psi		f'c=5,000 psi	
		CAT.1	CAT.2	CAT.1	CAT.2	CAT.1	CAT.2	CAT.1	CAT.2
#3	A	16	25	14	21	14	20	13	19
	B	21	32	19	28	18	27	17	25
#4	A	22	33	19	28	18	27	17	25
	B	28	43	25	37	24	35	22	33
#5	A	27	41	24	36	23	34	21	32
	B	36	53	31	46	30	44	28	41
#6	A	33	49	28	43	27	41	25	38
	B	43	64	37	55	36	53	33	50
#7	A	48	72	42	62	40	59	37	56
	B	62	93	54	81	51	77	48	72
#8	A	55	82	47	71	45	68	42	64
	B	71	106	61	92	58	88	55	83
#9	A	52	92	53	80	51	76	48	72
	B	80	120	69	104	66	99	62	93

NOTES:
1. FOR GRADE 60 REINFORCING STEEL BARS.
2. ALL LAP SPLICES SHALL BE CLASS B, UNLESS NOTED OTHERWISE.
3. CATEGOR 1: CLEAR COVER >= db & CLR. SPACING >= db, AND STIRRUPS OR TIES THORUGHOUT Ld ARE PROVIDED. CATEGORY 1: CLEAR COVER ≥ db & CLR. SPACING < 2db. CATEGORY 2: CLEAR COVER < db OR CLR. SPACING < 2db.
4. FOR TOP BARS MULITPLY LAP LENGTH LISTED BY 1.30 TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.

1 TYP CONCRETE REBAR LAP SPLICE SCHEDULE
SCALE: NTS

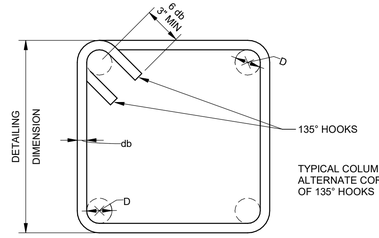


180° HOOKS 90° HOOKS

BAR SIZE	D	180° HOOKS		90° HOOKS
		A or G	J	A or G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	1'-0"
#7	5 1/4"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"

NOTES: db = NOMINAL BAR DIAMETER
D = FINISHED INSIDE BEND DIAMETER
MINIMUM D = 6 db FOR #3 TO #8 BARS
MINIMUM D = 8 db FOR #9 TO #11 BARS
MINIMUM D = 10 db FOR #14 TO #18 BARS
TYPICAL MINIMUM END HOOKS, ALL GRADES OF STEEL

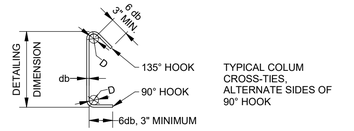
2 TYP REBAR HOOKS DETAIL
SCALE: NTS



BAR SIZE	D	135° HOOKS
		H **
#3	1-1/2"	3'3"
#4	2"	3'3"

NOTES:
db = NOMINAL BAR DIAMETER
D = FINISHED INSIDE BEND DIAMETER
TYPICAL MINIMUM END HOOK, ALL GRADES OF STEEL

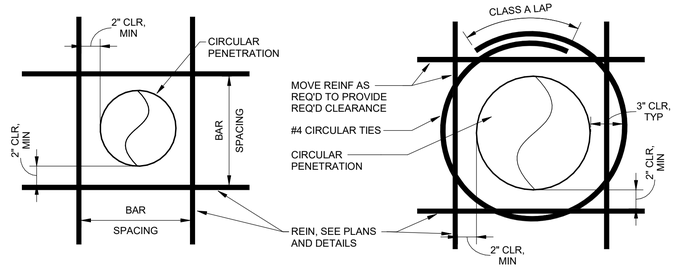
3 TYP CONCRETE COLUMN REBAR TIE BEND DETAIL
SCALE: NTS



BAR SIZE	D	135° HOOKS		90° HOOKS
		A or G	H **	A or G
#3	1-1/2"	4-1/4"	3"	4"
#4	2"	4-1/2"	3"	4 1/2"

NOTES:
db = NOMINAL BAR DIAMETER.
D = FINISHED INSIDE BEND DIAMETER.
MINIMUM D = 6 db FOR #3 & #4 BARS
TYPICAL MINIMUM END HOOK, ALL GRADES OF STEEL.
H ** DIMENSION IS APPROXIMATE

4 TYP REBAR CROSS TIES DETAIL
SCALE: NTS



DIA HOLE ≤ BAR SPA. - 4"

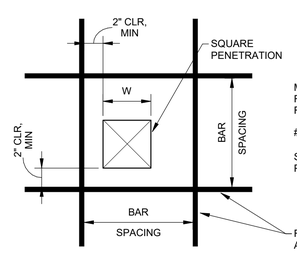
NOTE: NO SPECIAL REIN IS REQ'D AROUND THE PENETRATION.

1.5 X BAR SP. > DIA HOLE > BAR SPA. - 4" &

NOTE: PROVIDE (1) CIRCULAR TIE FOR WALLS OR SLABS WITH ONE MAT OR REINF AND (2) TIES FOR WALLS WITH TWO MATS OR REINF.

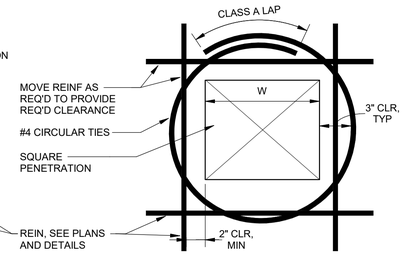
NOTE:
1. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS.
2. REFER TO OTHER DETAILS FOR WALLS/SLAB REINF SIZE AND SPACING.
3. BAR SPACING REFERS TO THE LESSER OF THE VERT OR HORIZ BAR SPACING.
4. DETAILS IS SIMILAR FOR EITHER VERTICAL WALL OR HORIZONTAL SLAB LOCATIONS.

5 TYP CIRCULAR HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



DIA HOLE ≤ BAR SPA. - 4"

NOTE: NO SPECIAL REIN IS REQ'D AROUND THE PENETRATION.

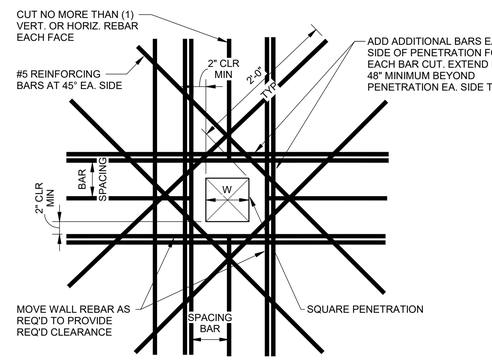


1.5 X BAR SP. > DIA HOLE > BAR SPA. - 4" &

NOTE: PROVIDE (1) CIRCULAR TIE FOR WALLS OR SLABS WITH ONE MAT OR REINF AND (2) TIES FOR WALLS WITH TWO MATS OR REINF.

NOTE:
1. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS.
2. REFER TO OTHER DETAILS FOR WALLS/SLAB REINF SIZE AND SPACING.
3. BAR SPACING REFERS TO THE LESSER OF THE VERT OR HORIZ BAR SPACING.
4. DETAILS IS SIMILAR FOR EITHER VERTICAL WALL OR HORIZONTAL SLAB LOCATIONS.

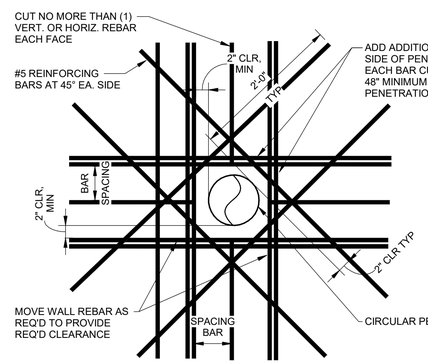
6 TYP SQUARE HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



DIA HOLE > 1.5 x BAR SPA.

NOTE: PROVIDE (4) REINFORCING BARS FOR WALLS w/ ONE MAT OF REBAR & (4) REINFORCING BARS EA. FACE FOR WALLS w/ TWO MATS OF REBAR. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS. REFER TO OTHER DETAILS FOR REBAR SIZE AND SPACING REQUIREMENTS. BAR SPACING REFERS TO THE LESSER OF THE VER. OR HORIZ. BAR SPACING. DETAIL IS SIMILAR FOR VERTICAL WALL AND HORIZONTAL SLAB LOCATIONS.

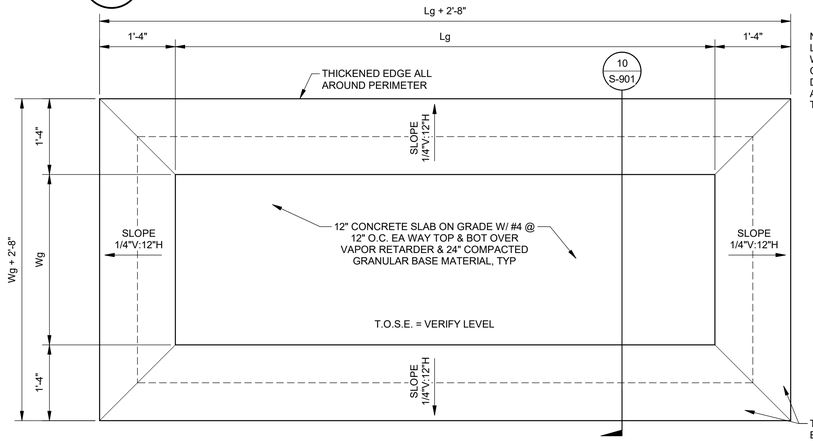
7 TYP SQUARE HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



DIA HOLE > 1.5 x BAR SPA.

NOTE: PROVIDE (4) REINFORCING BARS FOR WALLS w/ ONE MAT OF REBAR & (4) REINFORCING BARS EA. FACE FOR WALLS w/ TWO MATS OF REBAR. REFER TO GENERAL NOTES FOR REBAR CLEARANCE REQUIREMENTS. REFER TO OTHER DETAILS FOR REBAR SIZE AND SPACING REQUIREMENTS. BAR SPACING REFERS TO THE LESSER OF THE VER. OR HORIZ. BAR SPACING. DETAIL IS SIMILAR FOR VERTICAL WALL AND HORIZONTAL SLAB LOCATIONS.

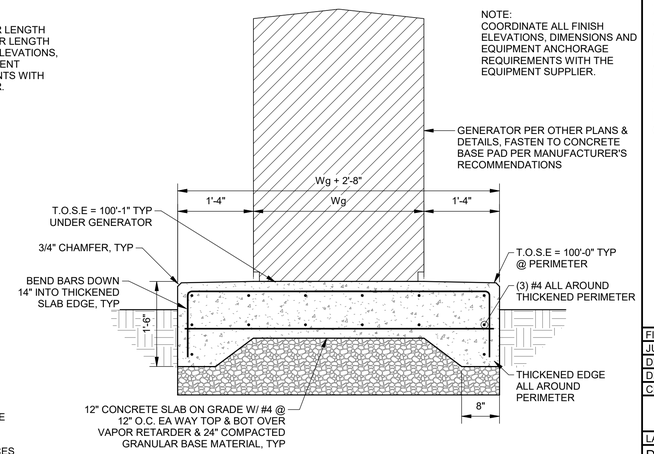
8 TYP CIRCULAR HOLE IN CONCRETE SLAB ON GRADE OR WALL
SCALE: NTS



NOTES:
Lg = NOMINAL GENERATOR LENGTH
Wg = NOMINAL GENERATOR LENGTH
COORDINATE ALL FINISH ELEVATIONS, DIMENSIONS, AND EQUIPMENT ANCHORAGE REQUIREMENTS WITH THE EQUIPMENT SUPPLIER.

TOP OF SLAB PERIMETER ELEVATION TO BE 6" ABOVE ADJACENT NON-PAVED SURFACES OR 3" ABOVE ADJACENT PAVED SURFACES UNLESS NOTED OTHERWISE

9 TYPICAL CONCRETE GENERATOR PAD
SCALE: NTS



10 S-901 TYPICAL CONCRETE GENERATOR PAD
SCALE: NTS

J-U-B ENGINEERS, INC.
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SEWER TRANSFER
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STRUCUTRAL (S)
PUMP BUILDING
TYPICAL CONCRETE DETAILS

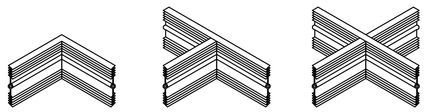
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DRAWN BY: EM
DESIGN BY: JLS
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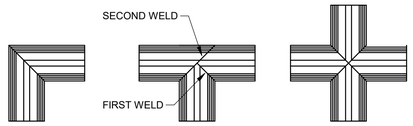
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VERTICAL ELL | VERTICAL TEE | VERTICAL CROSS

VERTICAL INTERSECTIONS

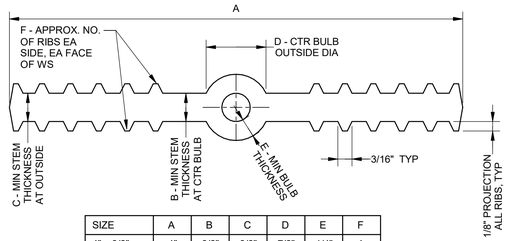
NOTES:
1. PROVIDE FACTORY MADE WATERSTOP FABRICATIONS FOR ALL VERTICAL INTERSECTIONS AND CORNERS.
2. INSTALL AND SEAL FABRICATIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. FABRICATIONS SHALL BE MADE FROM THE SAME MATERIAL AS THE WATERSTOP CONNECTED.



FLAT ELL | FLAT TEE | FLAT CROSS

HORIZONTAL (FLAT) INTERSECTIONS

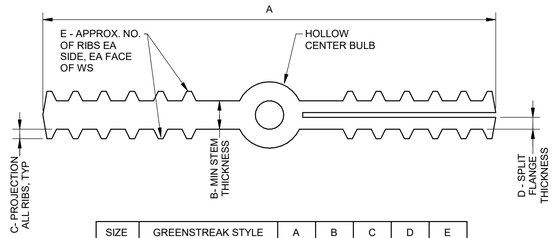
NOTES:
1. PROVIDE TEFLON COATED THERMOSTATICALLY CONTROLLED WATERSTOP SPLICING IRONS FOR ALL FIELD BUTT SPLICED.
2. FIELD BUTT SPLICES SHALL BE FULLY HEATED FUSED FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS.
3. LAPPING OF WATERSTOP, USE OF ADHESIVES, OR SOLVENTS SHALL NOT BE ALLOWED.



SIZE	A	B	C	D	E	F
4" x 3/8"	4"	3/8"	3/8"	7/8"	1/4"	4
6" x 3/8"	6"	3/8"	3/8"	7/8"	1/4"	6

NOTES:
1. WATERSTOP SHALL BE PVC AND SHALL CONFORM TO ASTM D570, ASTM D746, ASTM D1149, AND CRD-C572.
2. WHEN AVAILABLE, PROVIDE PRE-FABRICATED INTERSECTION SECTIONS AT ALL WATER STOP INTERSECTIONS.

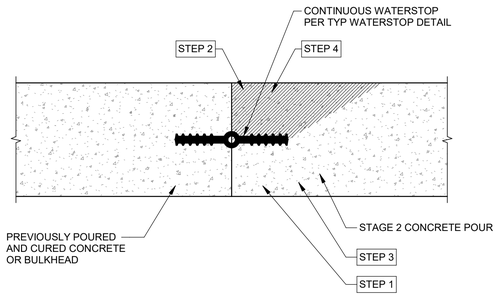
1 TYP WATERSTOP TYPE
SCALE: NTS



SIZE	GREENSTREAK STYLE	A	B	C	D	E
4"	CAT. ITEM 721	4"	3/16"	1/16"	3/32"	5
6"	CAT. ITEM 721	6"	3/8"	3/32"	3/16"	8

NOTES:
1. WATERSTOP SHALL BE PVC AND SHALL CONFORM TO ASTM D570, ASTM D746, ASTM D1149, AND CRD-C572.
2. WHEN AVAILABLE, PROVIDE PRE-FABRICATED INTERSECTION SECTIONS AT ALL WATER STOP INTERSECTIONS.

2 TYP SPLIT WATERSTOP TYPE
SCALE: NTS

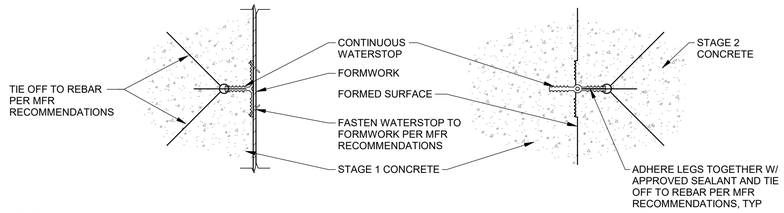


STEP 1 PLACE CONCRETE BELOW WATERSTOP FIRST. REMOVE ALL AIR VOIDS BY VIBRATING THOROUGHLY.

STEP 2 TO CONFIRM THERE ARE NO AIR VOIDS, LIFT WATERSTOP. A CONTINUOUS IMPRESSION OF THE WATERSTOP, INCLUDING THE EDGE OF THE BULB, SHOULD BE VISIBLE IN THE FRESH CONCRETE. CONTINUE THIS PROCEDURE ALONG THE ENTIRE POURED JOINT, END TO END. IF CONTINUOUS IMPRESSION IS CONFIRMED, PROCEED WITH STEP 4. IF VOID LARGER THAN 1/4" IN DIAMETER IS PRESENT ANYWHERE IN THE WATERSTOP IMPRESSION, PROCEED WITH STEP 3.

STEP 3 IF A VOID LARGER THAN 1/4" IN DIAMETER IS PRESENT IN THE WATERSTOP IMPRESSION, ADDITIONAL CONCRETE SHALL BE PLACED UNDER THE WATERSTOP, VIBRATED, AND STEP 2 REPEATED.

STEP 4 FINISH PLACING CONCRETE ABOVE THE WATERSTOP TO TOP OF SLAB.

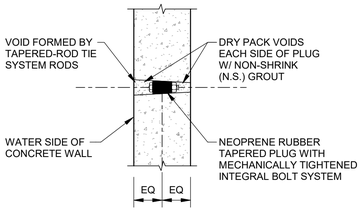


NOTES:
1. SECURE WATERSTOP FIRMLY IN PLACE BEFORE PLACING CONCRETE.
2. THOROUGHLY CONSOLIDATE CONCRETE AROUND ALL WATERSTOP.
3. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR WATERSTOP INSTALLATION.
4. SPLICE WATERSTOP ONLY AS PROVIDED IN THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

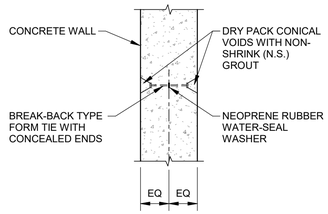
3 TYP WELED WATERSTOP INTERSECTIONS
SCALE: NTS

4 TYP SPLIT WATERSTOP INSTALLATION
SCALE: NTS

5 TYP SLAB WATERSTOP INSTALLATION
SCALE: NTS



NOTES:
1. CLEAN VOIDS WITH WIRE BRUSH PRIOR TO PLACING PLUG AND N.S. GROUT.
2. STRIK OFF N.S. GROUT WITH STEEL TOOLS FOR SMOOTH UNIFORM FINISH.
3. FORM TIES SHALL BE UNIFORMLY SPACED IN BOTH DIRECTIONS.
4. INSTALL PLUG AND TIGHTEN BOLT PER MFG'S WRITTEN INSTRUCTIONS.
5. PROVIDE X-PLUG MECHANICAL PLUG BY GREENSTREAK OR APPROVED EQUAL.



NOTES:
1. CLEAN CONCICAL VOIDS PRIOR TO PLACING N.S. GROUT.
2. STRIK OFF N.S. GROUT WITH STEEL TOOLS FOR SMOOTH UNIFORM FINISH.
3. FORM TIES SHALL BE UNIFORMLY SPACED IN BOTH DIRECTIONS.
4. INSTALL TIES PER MFG'S WRITTEN INSTRUCTIONS.

6 TYP WATER-TIGHT FORM TIE DETAIL
SCALE: NTS

7 TYP WATER-TIGHT FORM TIE DETAIL
SCALE: NTS

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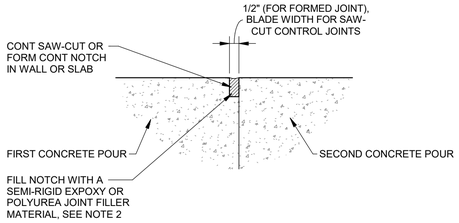
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LAST UPDATED: 06/11/2024

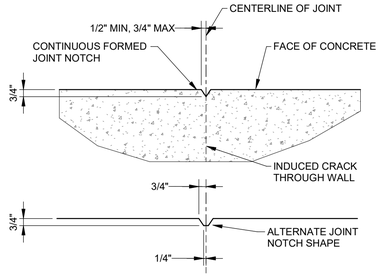
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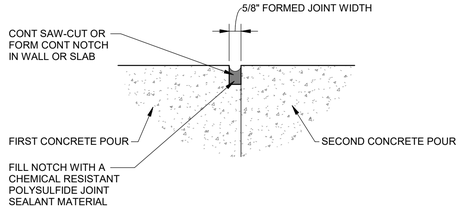
NOTES:
1. SEE OTHER DETAILS FOR SLAB REINFORCING REQUIREMENTS.
2. PROVIDE METZGER / McQUIRE MM-80 SEMI-RIGID EPOXY JOINT FILLY OR REZI-WELD FLEX, SEMI-RIGID EPOXY JOINT FILLER.

1 TYP SEALED FLOOR NOTCH
SCALE: NTS



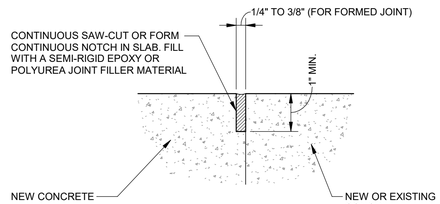
NOTE:
1. CENTER CONTROL JOINT NOTCHES ON EXACT CENTERLINE OF JOINTS, & WATERSTOPS, TYPICAL.
2. THIS NOTCH STYLE IS TO BE USED ON NON-LIQUID SIDES OF WALLS & TOP OF WALLS WHERE TOP OF WALL IS EXPOSED TO VIEW.

2 TYP CONTROL JOINT NOTCH
SCALE: NTS



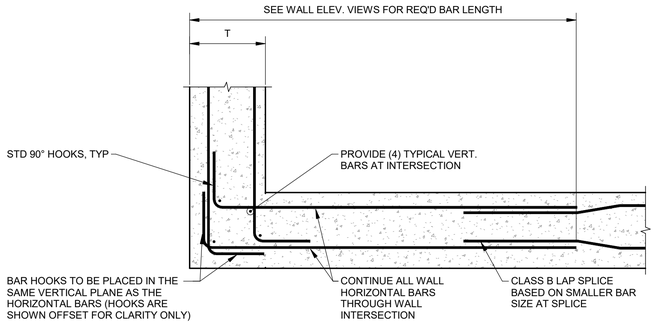
NOTES:
1. SEE OTHER DETAILS FOR WALL REINFORCING REQUIREMENTS.
2. PROVIDE SIKA DUOFLEX NS TWO COMPONENT NON-SAG SEALANT OR EQUIVALENT.

3 TYP SEALED WALL NOTCH
SCALE: NTS



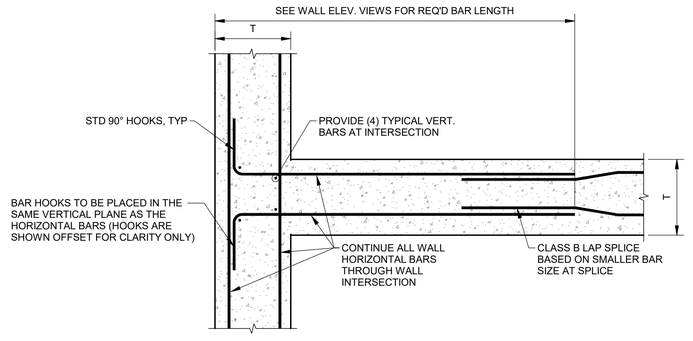
NOTE: REFER TO OTHER TYPICAL DETAILS FOR SLAB REINFORCING REQUIREMENTS. PROVIDE METZGER/McQUIRE MM-80 SEMI-RIGID EPOXY JOINT FILLER OR REZI-WELD FLEX, SEMI-RIGID JOINT FILLER.

4 TYP SLAB ON GRADE CONTROL JOINT DETAIL
SCALE: NTS



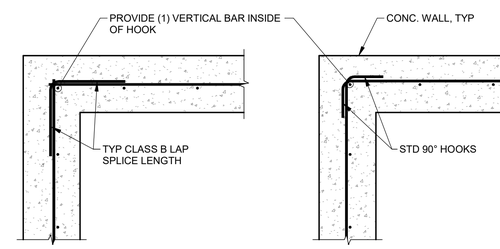
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. REFER TO OTHER SECTIONS & DETAILS FOR REQ'D BAR SIZE AND SPACING.
3. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
4. TYPICAL DETAIL FOR WATER OR NON-WATER RETAINING CONCRETE WALLS.
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

5 TYP CORNER WALL INTERSECTION DETAIL
SCALE: NTS



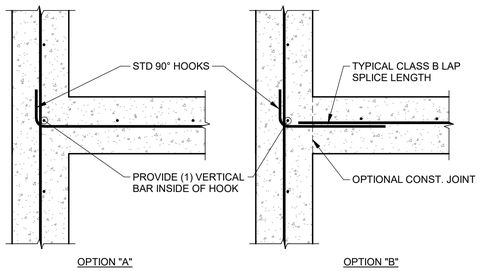
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. REFER TO OTHER SECTIONS & DETAILS FOR REQ'D BAR SIZE AND SPACING.
3. NOT ALL VERTICAL BARS ARE SHOWN FOR CLARITY, REFER TO OTHER DETAILS.
4. TYPICAL DETAIL FOR WATER OR NON-WATER RETAINING CONCRETE WALLS.
5. LOCATIONS OF HORIZONTAL BAR LAP SPLICES IN WATER-RETAINING WALLS SHALL BE STAGGERED PER OTHER TYPICAL DETAILS.

6 TYP WALL 3-WAY INTERSECTION DETAIL
SCALE: NTS



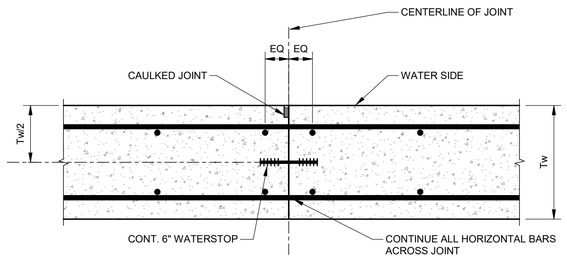
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. CENTER VERTICAL BARS IN WALL U.N.O.
3. REFER TO OTHER DETAILS FOR REQUIRED BAR SIZE AND SPACING.
4. THIS IS A TYPICAL DETAIL FOR WALLS IWTH (1) MATT OF REINFORCING.
5. THIS IS A TYPICAL DETAIL FOR NON-WATER RETAINING WALLS.

7 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS



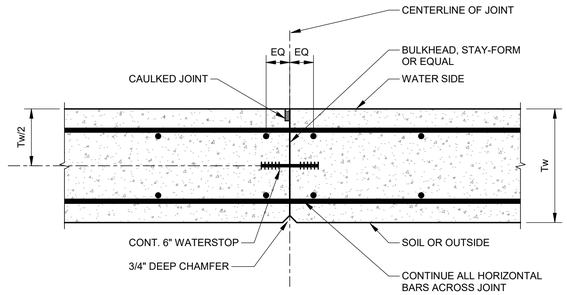
NOTES:
1. CORNER AND INTERSECTION BARS TO MATCH SIZE & SPACING OF HORIZ. BARS.
2. CENTER VERTICAL BARS IN WALL U.N.O.
3. REFER TO OTHER DETAILS FOR REQUIRED BAR SIZE AND SPACING.
4. THIS IS A TYPICAL DETAIL FOR WALLS IWTH (1) MATT OF REINFORCING.
5. THIS IS A TYPICAL DETAIL FOR NON-WATER RETAINING WALLS.

8 TYP WALL INTERSECTION REBAR DETAILS
SCALE: NTS



NOTE: TYPICAL FOR SLABS WITH TWO MATS OF REINFORCING BARS

9 TYP HORIZONTAL SLAB CONTROL JOINT DETAIL
SCALE: NTS



NOTE: TYPICAL FOR WALLS WITH LIQUID ONE SIDE OF WALL ONLY. TYPICAL FOR WALLS WITH TWO-MATS OF REINFORCING STEEL

10 TYP VERTICAL WALL CONTROL JOINT DETAIL
SCALE: NTS

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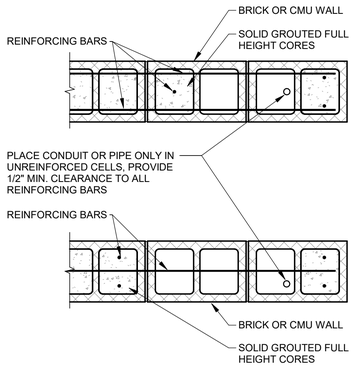
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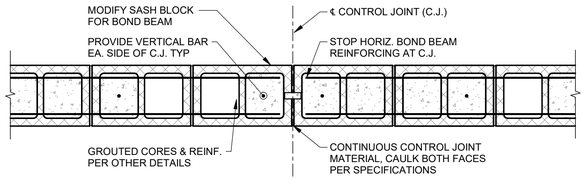
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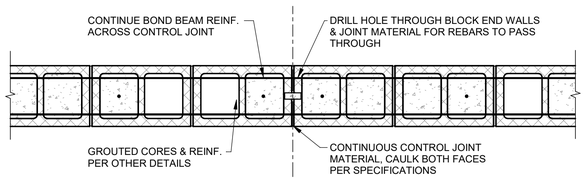


NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING. DO NOT TIE CONDUIT OR PIPE TO REINFORCING STEEL

1 TYP MASONRY WALL CONSTRUCTION
SCALE: NTS



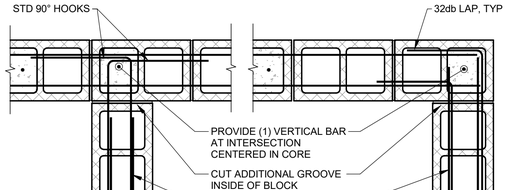
SECTION @ INTERMEDIATE BOND BEAMS



SECTION @ BOND BEAM @ ROOF & FLOOR DIAGHRAMS

NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING.

2 TYP MASONRY WALL CONTROL JOINT DETAILS
SCALE: NTS

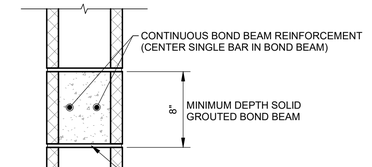


BOND BEAM @ INTERSECTION

BOND BEAM @ CORNER

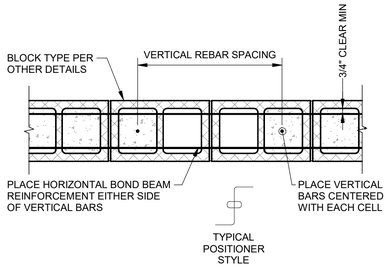
NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING SIZE & SPACING BOND BEAM TO BE SOLID GROUTED FULL HEIGHT & LENGTH. TYPICAL DETAIL WHERE VERTICAL CORES CONTAIN (1) BAR.

4 TYP MASONRY WALL INTERSECTION DETAILS
SCALE: NTS



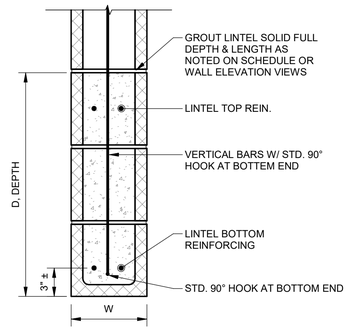
NOTES
1. BUILDING PAPER NOT ALLOWED AS GROUT STOP.
2. REFER TO OTHER DETAILS & NOTES FOR ALL MASONRY REINFORCING.
3. GROUT ALL THE OTHER CORES SOLID FULL HEIGHT WHERE DIRECTED ON THE GENERAL STRUCTURAL NOTES & SPECIFICATIONS & TYPICAL DETAILS.

5 TYP MASONRY WALL BOND BEAM DETAIL
SCALE: NTS



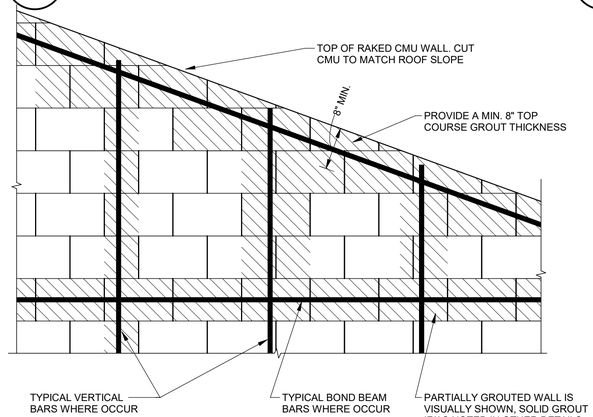
NOTES: PROVIDE FINE GROUT PER ASTM C 476 FOR ALL STRUCTURAL REINFORCED MASONRY. PROVIDE MECHANICAL REBAR POSITIONERS TO CORRECTLY HOLD BARS IN POSITION. TYPICAL DETAIL WHERE (1) VERTICAL BAR IS PLACED WITHIN BLOCK CELL.

6 TYP MASONRY WALL REBAR PLACEMENT DETAIL
SCALE: NTS



NOTE: REFER TO WALL ELEVATION VIEW FOR ADDITIONAL REQUIREMENTS. REFER TO OTHER DETAILS FOR CMU WALL REINFORCING REQUIREMENTS. WHERE NOT OTHERWISE NOTED, EXTEND LINTEL GROUTING 16" EITHER SIDE OF WALL OPENING EDGE.

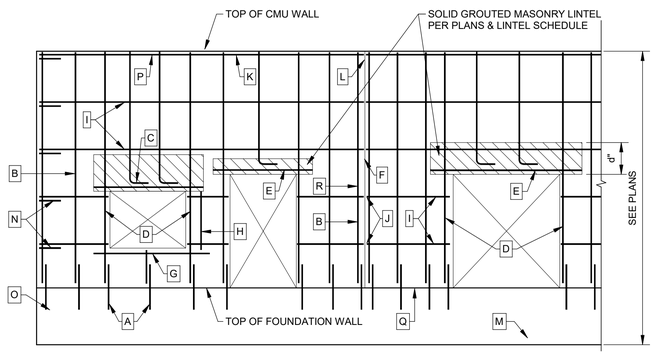
8 TYP MASONRY LINTEL SECTION VIEW
SCALE: NTS



NOTE: REFER TO PLAN & ELEVATION VIEWS FOR ELEVATIONS AND SLOPES. REFER TO OTHER DETAILS FOR WALL REINFORCING REQUIREMENTS. THE ROOF STRUCTURE IS NOT SHOWN IN THIS VIEW. REFER TO OTHER DETAILS FOR BLOCK TYPE.

10 TYP RAKED TOP OF WALL DETAIL
SCALE: NTS

NOTE: SEE PLANS FOR LINTEL SCHEDULE/CALLOUTS



A	FOUND. DOWELS TO MATCH VERT. BAR LOCATIONS.	J	STOP BOND BEAM BARS @ WALL CONTROL JOINT.
B	VERTICAL WALLS BAR, 8" CMU: #5 VERT. @ 32" O.C. U.N.O.	K	DIAPHRAM CHORD B.B. W/ 2-#5 CONT.
C	STANDAR 90° HOOK.	L	CONTINUE BARS ACROSS WALL CONTROL JOINT.
D	8" CMU: 2-#5 VERTICAL BARS, EA. SIDE OF OPENINGS TYP., U.N.O.	M	CONC. STEM WALL, SEE OTHER DETAILS.
E	REFER TO LINTEL REINFORCING SCHEDULE.	N	CORNER BARS AT EACH BOND BEAM.
F	VERTICAL WALL CONTROL (C.J.) JOINTS. SEE PLANS.	O	FOUNDATION WALL, SEE OTHER DETAILS.
G	(2) #4 BAR UNDER EACH OPENING.	P	LAP DIAPHRAM B.B. BARS 72db MINIMUM.
H	48 BAR DIAMETERS MINIMUM.	Q	LAP 48db MINIMUM.
I	HORIZ. B.B. REIN., 8" CMU: 2-#4 CONTINUOUS. USE (2) #5 BARS @ 12" O.C.	R	VERT. BAR/BARS EA. SIDE OF C.J.

NOTES: WALL SHOWN IS A REPRESENTATIVE SECTION OF TYPICAL MASONRY OR BRICK WALL. FOR ACTUAL WALL AND OPENING DIMENSIONS REFER TO THE PLANS AND ELEVATION VIEWS. REFER TO OTHER DETAILS AND STRUCTURAL NOTES FOR REINFORCING REQUIREMENTS.

3 TYP REINFORCED MASONRY WALL ELEVATION DETAIL
SCALE: NTS

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TYPICAL MASONRY DETAILS

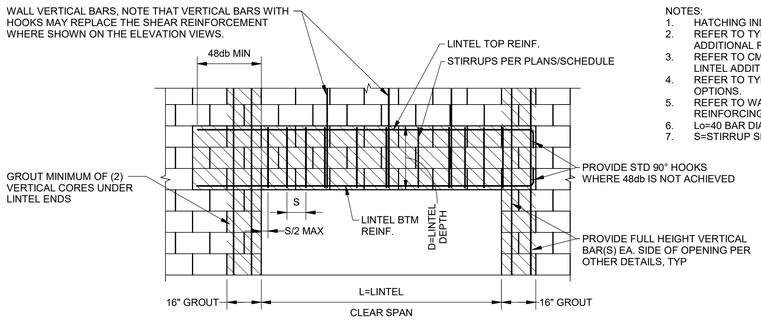
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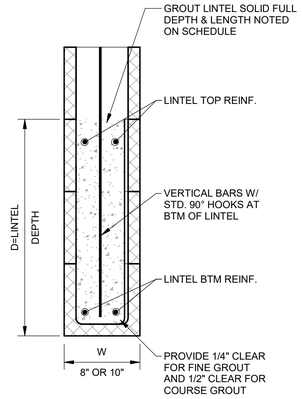
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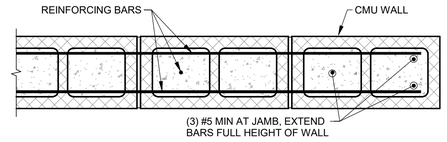


NOTES:
1. HATCHING INDICATES SOLID GROUTED CMU CORES, TYPICAL.
2. REFER TO TYPICAL CMU OPENING ELEVATION VIEW FOR ADDITIONAL REQUIREMENTS.
3. REFER TO CMU LINTEL SECTION VIEW & SCHEDULE FOR LINTEL ADDITIONAL REQUIREMENTS.
4. REFER TO TYPICAL LINTEL STIRRUP DETAIL FOR STIRRUP OPTIONS.
5. REFER TO WALL ELEVATION VIEWS FOR TYPICAL CMU WALL REINFORCING REQUIREMENTS.
6. Lo=40 BAR DIAMETERS (BOTTOM BARS), 24" MINIMUM.
7. S=STIRRUP SPACING, REFER TO SCHEDULE.

6 TYP MASONRY WALL OPENING LINTEL ELEVATION
SCALE: NTS

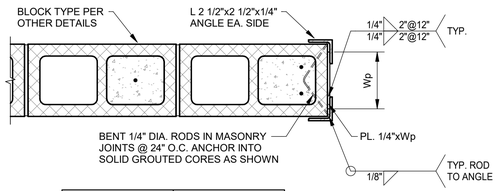


3 TYP MASONRY LINTEL DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS & NOTES FOR REINFORCING.

4 TYP MASONRY JAMB DETAIL
SCALE: NTS



NOMINAL CMU SIZE	NOMINAL CMU SIZE
	Wp
8"	6"
10"	8"
12"	10"

5 CMU DOOR JAMB PROTECTION DETAIL
SCALE: NTS

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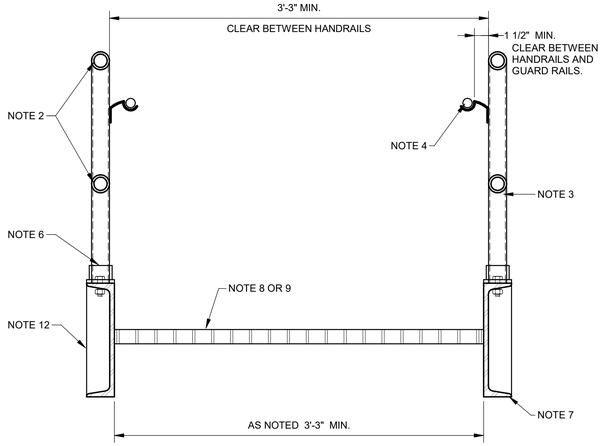
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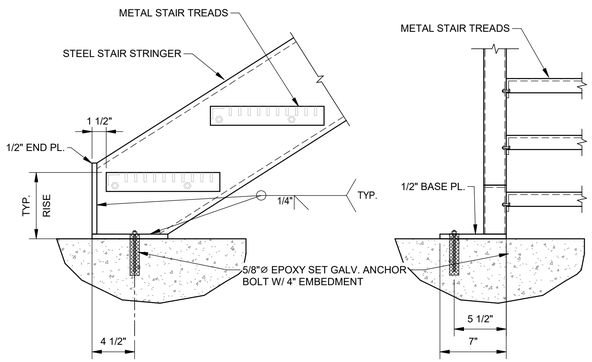
KEYED NOTES:

1. REFER TO METAL FABRICATIONS OR METAL STAIR SYSTEMS TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. (2) EVENLY SPACED 2" NOMINAL DIATMETER ALUMINUM GUARDS.
3. 2" NOMINAL DIAMETER ALUMINUM POSTS @ 6' O.C., MAX SPACING.
4. 1 1/2" NOMINAL DIAMETER ALUMINUM HAND RAIL, EACH SIDE.
5. EXTEND GUARD RAIL OUT PER BUILDING CODE REQUIREMENTS.
6. ATTACH METAL POSTS TO STAIR STRINGERS WITH MFG. STANDARD BRACKETS (SPEED-RAIL SYSTEM BY HOLLAENDER MFR CO OR EQUAL).
7. C12x20.7 STEEL STRINGER EACH SIDE, MITER CUT INTERSECTIONS & SEAL WELD ENDS TOGETHER, TYPICAL.
8. ALUMINUM STAIR TREADS W/ SERRATED SURFACE & SAFETY NOSING, ATTACH TO STRINGERS W/ (2) 5/8" DIA. SST BOLT, TYPICAL.
9. 1 1/2" DEEP ALUMINUM BAR GRATE LANDING.
10. ATTACH TO CONCRETE FLOOR/SLAB PER TYPICAL DETAILS.
11. ATTACH TO CONCRETE WALL PER TYPICAL DETAILS.
12. 3/8" THICK VERTICAL STIFFENER PL.S CENTERED UNDER EACH GUARD POST W/ 3/16 FILLET WELDS (3) EDGES TO STRINGER, TYPICAL.
13. 3" DIA. STEEL PIPE POST W/ 3/8" PLATE EA. END W/ (2) 5/8" DIA. BOLTS TOP & (2) 5/8" DIA.x4" EXPANSION BOLTS BOTTOM.
14. FINISH, ALL FABRICATED STEEL SHALL BE HOT DIPPED GALVANIZED PER SPECIFICATIONS SECTION 05 04 10.

1 TYP METAL (STEEL) STAIR KEYED NOTES
SCALE: NTS

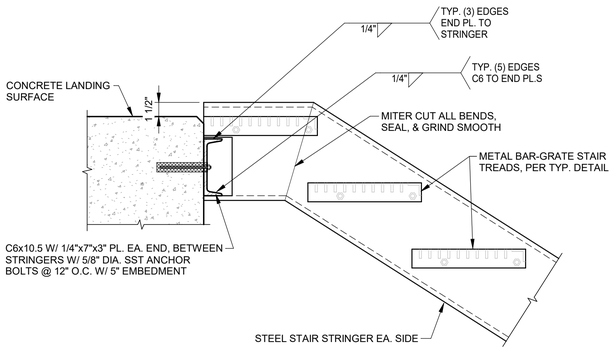


2 TYP METAL STAIR SECTION VIEW
SCALE: NTS



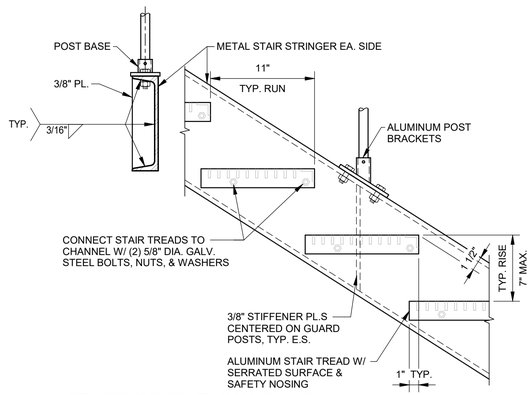
NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POST, & HAND RAIL ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

3 TYP STAIR STRINGER BASE PL. DETAIL
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAIL ARE NOT SHOWN ON THIS VIEW FOR CLARITY.

4 TYP METAL STAIR LANDING CONNECTION
SCALE: NTS



NOTE: REFER TO OTHER DETAILS FOR STAIR RISE AND RUN. REFER TO TYPICAL METAL STAIR CONSTRUCTION SPECIFICATIONS. GUARD RAIL, POSTS, & HAND RAIL ARE NOT SHOWN ON THE VIEW FOR CLARITY.

5 TYP METAL STAIR TREAD DETAIL
SCALE: NTS

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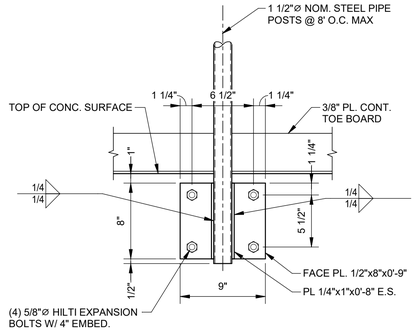
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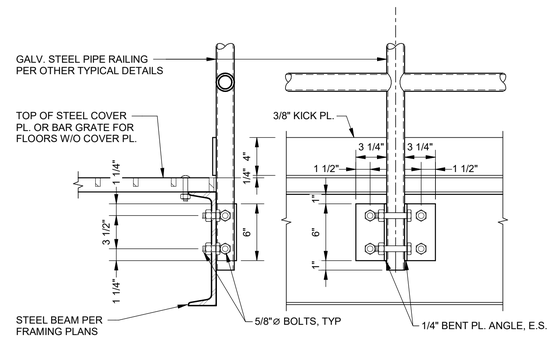
1. STEEL PIPE TO BE ASTM A53 GRADE B; WITH Fy = 35 KSI.
2. STEEL PLATES, CHANNELS, & ANGLES TO BE ASTM A36; WITH Fy = 36 KSI.
3. ALL WELDING TO CONFORM TO CURRENT AWS D1.1 REQUIREMENTS.
4. COMPLETE ASSEMBLY OR SUB-ASSEMBLIES, BRACKETS, RAILING AND MISCELLANEOUS STEEL PIECES SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
5. STRUCTURAL BOLTS, NUTS, & WASHERS SHALL BE HOT-DIP GALVANIZED.
6. EXPANSION ANCHORS TO BE HILTI KWIK-BOLT II OR APPROVED EQUAL. INSTALL EXPANSION ANCHORS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
7. EXPANSION BOLTS, NUTS, & WASHERS SHALL BE STAINLESS STEEL.
8. REFER TO OTHER DETAILS FOR CONCRETE REINFORCING REQUIRMENTS.
9. COORINDATE REBAR PLACEMENT IN CONCRETE TO MISS ANCHOR BOLTS & INSERTS.
10. GALVANIZED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH AN APPROVED COLD-GALVANIZING COMPOUND.
11. EPOXY SET ANCHORS SHALL UTILIZE HILTI HIT HY 150 CONSTRUCTION ADHESIVE AND HAS GALVANIZED OR STAINLESS STEEL THREADED RODS.
12. FIELD SPLICES SHALL BE MADE UTILIZING GALVANIZED STEEL PIPE SLEEVE INSERTS AND HOT-DIP GALVANIZED STEEL BOLTS, NUTS, AND WASHERS.

1 TYP STEEL GUARD RAIL NOTES
SCALE: NTS



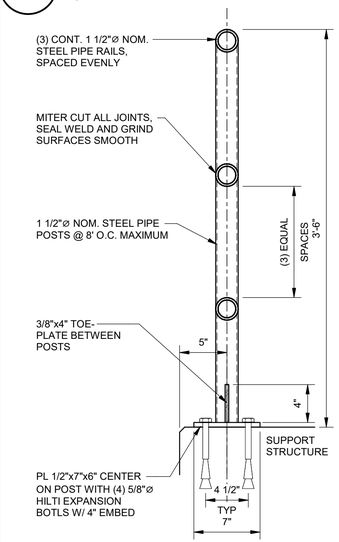
NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

2 TYP STEEL GUARD RAIL DETAIL 3
SCALE: NTS

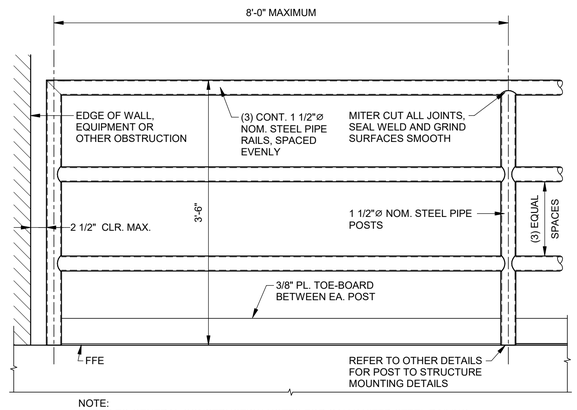


NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

4 TYP STEEL PIPE RAILING ATTACHMENT TO STEEL CHANNELS
SCALE: NTS

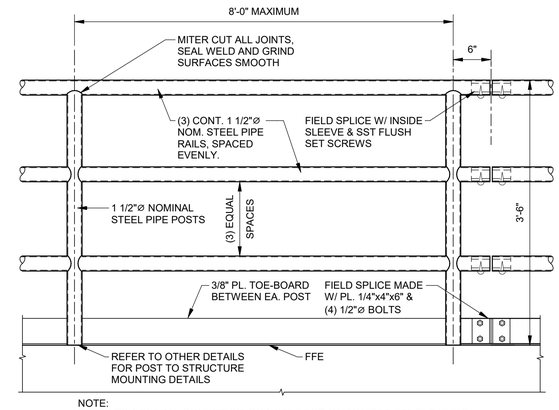


5 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

9 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS



NOTE:
REFER TO GENERAL CONSTRUCTION NOTES FOR GALVANIZED STEEL RAILING.

10 TYP STEEL GUARD RAIL DETAIL
SCALE: NTS

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MECHANICAL ELEMENTS / VALVING

- EXISTING EQUIPMENT OR PIPE TO BE REMOVED.
- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- BALL VALVE
- SWING CHECK VALVE
- LIFT CHECK VALVE
- GATE VALVE, ANGLE
- GLOBE VALVE, ANGLE
- DIAPHRAGM VALVE
- BALANCING VALVE
- CBV — CIRCUIT SETTING BALANCING VALVE
- THREE WAY CONTROL VALVE
- TWO WAY CONTROL VALVE
- S — SOLENOID VALVE
- PRV — PRESSURE REDUCING VALVE (PRV)
- TPV — TEMPERATURE/PRESSURE RELIEF VALVE
- AIR VENT — HYDRAULIC SEPARATOR
- RELIEF/SAFETY VALVE
- GAS COCK
- AUTOMATIC FILL VALVE
- MV — MANUAL AIR VENT
- AV — AUTOMATIC AIR VENT (EXTEND DISCHARGE TO DRAIN)
- FLOW METER-VENTURI
- FLOW METER-ORIFICE
- DIRECTION OF FLOW
- R D — DIRECTION OF PITCH-RISE OR DROP
- STRAINER
- STRAINER WITH BLOW OFF VALVE
- PIPE RISING UP
- PIPE DROPPING DOWN
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- UNION - SCREWED OR FLANGED
- STEAM LEAK DETECTOR
- FSD — FIRE SMOKE DAMPER
- CO — CARBON MONOXIDE
- CD — CARBON DIOXIDE
- AIR SEPARATOR
- A — ANCHOR
- G — GUIDE
- EJ — EXPANSION JOINT
- FS — FLOW SWITCH
- TT — TEMPERATURE TRANSMITTER
- PT/PS — PRESSURE TRANSMITTER OR PRESSURE SWITCH
- TH — THERMOMETER
- GAUGE WITH GAUGE COCK & SYPHON (STEAM)
- AQUASTAT
- GAS PRESSURE REGULATOR
- FLOAT OPERATED CONTROL VALVE
- STEAM TRAP
- EXPANSION LOOP
- VB — VACUUM BREAKER
- T — THERMOSTAT
- S — DIGITAL SENSOR
- OR — PUMP
- HEAT EXCHANGER

HVAC & DUCTWORK SYMBOLS

- SECTION THROUGH RETURN DUCT
- SECTION THROUGH EXHAUST AIR DUCT
- SECTION THROUGH SUPPLY OR OUTSIDE AIR DUCT
- FSD — FIRE / SMOKE DAMPER
- SD — SMOKE DAMPER
- SUPPLY OR OUTSIDE AIR DUCT
- ACCESS DOOR (BOTTOM OR SIDE)
- ACOUSTICALLY LINED DUCT
- FD - SD - FSD — FIRE DAMPER, SMOKE DAMPER, FIRE/SMOKE DAMPER
- VD — MANUAL VOLUME DAMPER
- D — INCLINED DROP IN DIRECTION OF ARROW
- R — INCLINED RISE IN DIRECTION OF ARROW
- TRANSITION, RECTANGULAR TO ROUND
- FLEXIBLE DUCT
- IN-LINE FAN
- TRANSITION, RECTANGULAR
- SPIN-IN COLLAR INTO ADAPTER ON TOP OF DUCT
- CEILING SUPPLY AIR REGISTER/GRILLE
- SIDEWALL SUPPLY AIR REGISTER (SR)
- ELBOW TURNED DOWN
- ELBOW TURNED UP
- ELBOW, RADIUS TYPE
- ELBOW, SQUARE OR RECTANGULAR TYPE WITH AIRFOIL TURNING VANES
- CEILING RETURN AIR REGISTER (RR)
- SIDEWALL RETURN AIR REGISTER (RR)
- OPEN END DUCT
- FXC — FLEXIBLE CONNECTION

LINE DESIGNATION SYMBOLS

CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CA	COMPRESSED AIR
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
D	DRAIN
HPR	HEAT PUMP RETURN
HPS	HEAT PUMP SUPPLY
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
G	NATURAL GAS
RH	REFRIGERANT HIGH PRESSURE VAPOR
R	REFRIGERANT LIQUID AND VAPOR LINE
RS	REFRIGERANT SUCTION / VAPOR
SMR	SNOWMELT RETURN
SMS	SNOWMELT SUPPLY
V	VENT PIPING
	POINT OF CONNECTION OF NEW TO EXISTING

RESPONSIBLE DIVISION:

UNLESS OTHERWISE INDICATED ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, AND OTHER MECHANICAL EQUIPMENT, MOTORS, AND CONTROLS SHALL BE FURNISHED, SET IN PLACE AND WIRED AS FOLLOWS:

ITEM	FURNISHED	SET	POWER WIRED	CONTROL WIRED
EQUIPMENT	23	23	26	--
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFD'S AND CONTACTORS	23(1)	26	26(2)	23
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26	26	--
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	23	26	26	26
CONTROLS, RELAYS, TRANSFORMERS	23	23	26	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23	26	23
THERMOSTATS (LINE VOLTAGE)	23	23	26	26
TEMPERATURE CONTROL PANELS	23	23	26	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)	--	23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)	--	23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23	26	23
EXHAUST FAN SWITCHES	23	26	26	23(2)

SUBSCRIPT FOOTNOTES:
1. MOTOR STARTER TO INCLUDE CONTROL TRANSFORMER, HOA SWITCH, (1) NO AND (1)NC AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS.
2. IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26. WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 23, CONNECT UNDER DIVISION 26.

SUBSTITUTIONS:

A. SUBSTITUTIONS: SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION I GENERAL REQUIREMENTS.

EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

A. EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.

C. DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.

D. THE LATEST ADOPTED VERSIONS OF THE INTERNATIONAL BUILDING CODES SHALL BE USED AS REQUIRED. THIS WILL ALSO INCLUDE THE LATEST ADOPTED VERSIONS OF THE MECHANICAL, PLUMBING, AND ENERGY CONSERVATION CODES. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS.

E. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

ABBREVIATIONS:

44" FINISHED FLOOR	MOUNTING HEIGHT ABOVE TO CENTER OF DEVICE
A	AMPS
A.D.	ACCESS DOOR
AAV	AIR ADMITTANCE VALVE
ABV	ABOVE
AC	AIR CONDITIONING UNIT
AC	ABOVE COUNTER
AD	AREA DRAIN (SEE SYMBOLS)
A.F.C.	ABOVE FINISHED CEILING
A.F.G.	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AFCI	ARC FAULT CIRCUIT INTERRUPTERS
A.F.F.	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL OR DOOR
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO / VIDEO
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION SYSTEM
BB	BASEBOARD
BD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
BL	BOILER
BLDG	BUILDING
BLW	BELOW
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
C	CHILLER
CAFCI	COMBINATION ARC FAULT CIRCUIT INTERRUPTERS
CAP	CAPACITY
CB	CIRCUIT BREAKER
CBV	CIRCUIT BALANCING VALVE
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPRESSOR
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
CRI	COLOR RENDERING INDEX
CT	COOLING TOWER
CT	CURRENT TRANSFORMER
CU	CONDENSING UNIT
CU	COPPER
CUH	CABINET UNIT HEATER
CVB	CONSTANT VOLUME BOX
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGRAM
DIFF	DIFFERENTIAL
DISCH	DISCHARGE
DIV	DIVISION
DN	DOWN
DS	DUCT SILENCER
DWG	DRAWING
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR GRILLE/REGISTER
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
EF	EXHAUST FAN
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EM	EMERGENCY FUNCTION
ENT	ENTERING
EMT	ELECTRIC METALLIC TUBE
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	END SWITCH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXHAUST
EXPAN	EXPANSION
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FA	FREE AREA
FC	FAN COIL UNIT
FC	FOOTCANDLE
FCV	FLOW CONTROL VALVE
FD	FIRE DAMPER
FD	FLOOR DRAIN
FIN	FINISHED
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FP	FIRE PROTECTION
FP	FIRE PUMP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FT	FEET
FXC	FLEXIBLE CONNECTION
GND	GROUND
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEC	GROUND ELECTRODE CONDUCTOR
GFCI / GFI	GROUND FAULT CIRCUIT INTERRUPTER
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS/LB	GRAINS PER POUND
H 2O	WATER
HB	HOSE BIBB
HD	HEAD (SEE SCHEDULES)
HP	HEAT PUMP
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTR	HEATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IN	INCHES
INV	INVERT
JBOX	JUNCTION BOX
K	KELVIN
KW	KILOWATT
KVA	KILO VOLT - AMPS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LV	LAVATORY
LB	POUND
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LIN	LINEAR
LIQ	LIQUID
LM	LUMEN
LRA	LOCKED ROTOR AMPS
LV	LOUVER
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
N	NEUTRAL
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NL	NIGHT / SECURITY LIGHT - DO NOT SWITCH
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OCC	OCCUPIED
OCP	OVER CURRENT PROTECTION
OD	OUTSIDE DIAMETER
OL	OVERLOAD
ORD	OVERFLOW ROOF DRAIN
OZ	OUNCE
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PH	PHASE
POS	POSITIVE PRESSURE
POS	POINT OF SALES
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TRANSMITTER
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR GRILLE / REGISTER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REL	RELIEF
REQD	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR GRILLE / REGISTER
SC	SHORT CIRCUIT
SCA	SHORT CIRCUIT AVAILABLE
SCCR	SHORT CIRCUIT CURRENT RATING
SCH	SCHEDULE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SH	SENSIBLE HEAT
SH	SHOWER
SP	STATIC PRESSURE
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SS	SAFETY SHOWER
STD	STANDARD
STL	STEEL
SYS	SYSTEM
TEMP	TEMPERATURE
TR	TRANSFER GRILLE / REGISTER
TR	TAMPER RESISTANT
TT	TEMPERATURE TRANSMITTER
TTB	TELECOMMUNICATIONS TERMINAL BACKBOARD
TYP	TYPICAL
TX	TRANSFORMER
UC	UNDERCUT DOOR
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UNOCC	UNOCCUPIED
UR	URINAL
V	VOLTS
VA	VOLT AMPERE
VA	VALVE
VAV	VARIABLE AIR VOLUME UNIT
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WIDTH
W	WATTS
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WC	WATER CLOSET
WG	WATER GAUGE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
WSR	WITHSTAND RATING
XFMR	TRANSFORMER

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	CONSTRUCTION DOCUMENTS	01/31/2025
1	CODE COMMENT REVISION	07/17/2025
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BY: APR.

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CARSON HARRIS
39887
PROFESSIONAL ENGINEER
07-18-2025

SEWER TRANSFER PROJECT
TOWN OF PALISADE

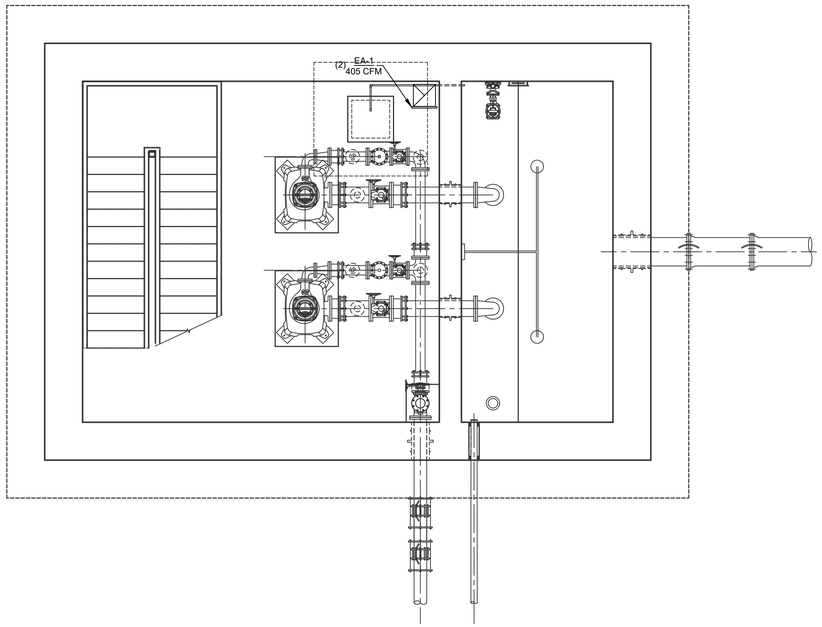
MECHANICAL - COVER SHEET

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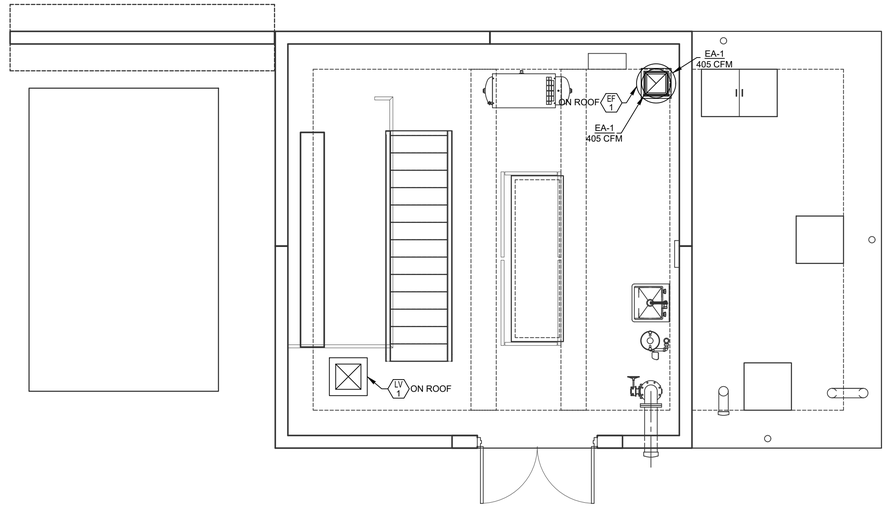
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NORTH

MECHANICAL - DRY WELL PLAN

SCALE: ##########



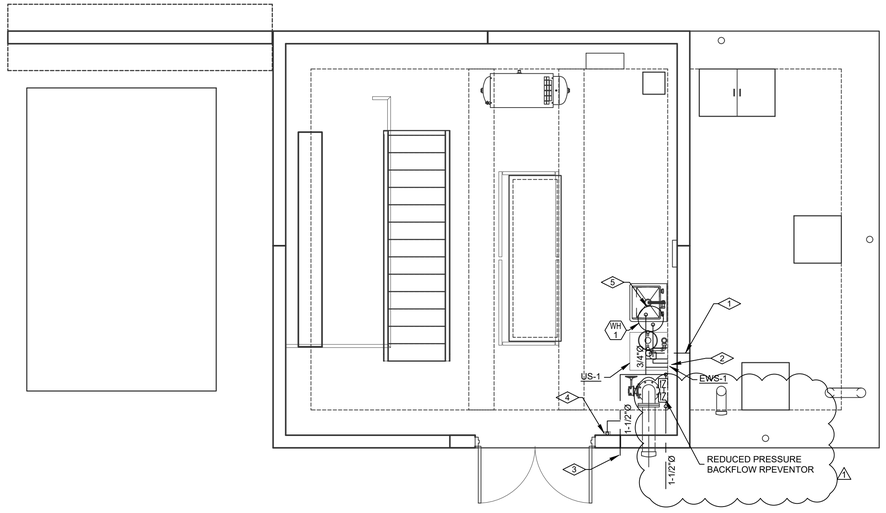
NORTH

MECHANICAL - MAIN LEVEL PLAN

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

PLUMBING KEYNOTES:

1. 3"Ø DRAIN FROM UTILITY SINK BASIN TO BE PROVIDED WITH A P-TRAP AND ROUTED TO THE WET WELL. REFERENCE UTILITY SINK DETAIL 4/D-508
2. PROVIDE EYE WASH STATION WITH LOCAL MIXING VALVE TO ENSURE OSHA REQUIRED TEPID WATER. REFERENCE EYEWASH DETAIL 3/D-508
3. PROVIDE 1-1/2" HOSE CONNECTION ON EXTERIOR OF BUILDING. HOSE BIB SHALL BE FREEZE PROOF. COORDINATE EXACT LOCATION WITH OWNER.
4. PROVIDE INTERIOR HOSE BIB SURFACED MOUNTED ON INTERIOR. SIMILAR TO WOODFORD V26
5. WATER HEATER WALL MOUNTED ABOVE SINK .



NORTH

PLUMBING - MAIN LEVEL PLAN

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

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL/PLUMBING FLOOR PLANS

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M1-1

PLUMBING FIXTURE SCHEDULE

FIXTURE NO.	DESCRIPTION	MANUFACTURER	MODEL	TRIM	PIPING CONNECTIONS				OPTIONS-ACCESSORIES
					S/W	VENT	C.W.	HW	
US-1	UTILLITY SINK	FIAT	FL1	FIAT A1 FAUCET WITH 360° SWING SPOUT.	1 1/2"	1 1/2"	1/2"	1/2"	PROVIDE WITH P-TRAP, DRAIN, DRAIN PLUG, AERATOR, AND HOSE ADAPTOR.

ELECTRIC WATER HEATER SCHEDULE

EQUIPMENT NO.	CAPACITY	RECOVERY @ 90 DEG. F. RISE	BTU/H	WATER CONN.	HEATING ELEMENT KW	V/PH/HZ	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
WH-1	28	21	15354	3/4"	4.5	240/1/60	RHEEM PROE28 S2 RH93 SB	NOTE-1

NOTES:
1. PROVIDE WITH T&P RELIEF VALVE, EXPANSION TANK, SIDE CONNECTIONS, AUTOMATIC THERMOSTAT.

EXHAUST FAN SCHEDULE

EQUIPMENT NO.	SERVICE	LOCATION	CFM	EXTERNAL STATIC PRESS (IN. W.G.)				MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
					HP	RPM	VOLT/PH/HZ		
EF-1	SPACE EXHAUST	ROOF	1215	0.75	1/4 HP	1305	120/1/60	GREENHECK CUE-120-VG	NOTE-1

NOTES:
1. PROVIDE VARIGREEN MOTOR, ROOF CURB, ALUMINUM WHEEL. WALL SWITCH IN SPACE. FAN TO BE RATED FOR CONTINUOUS OPERATION.

ELECTRIC UNIT HEATER SCHEDULE

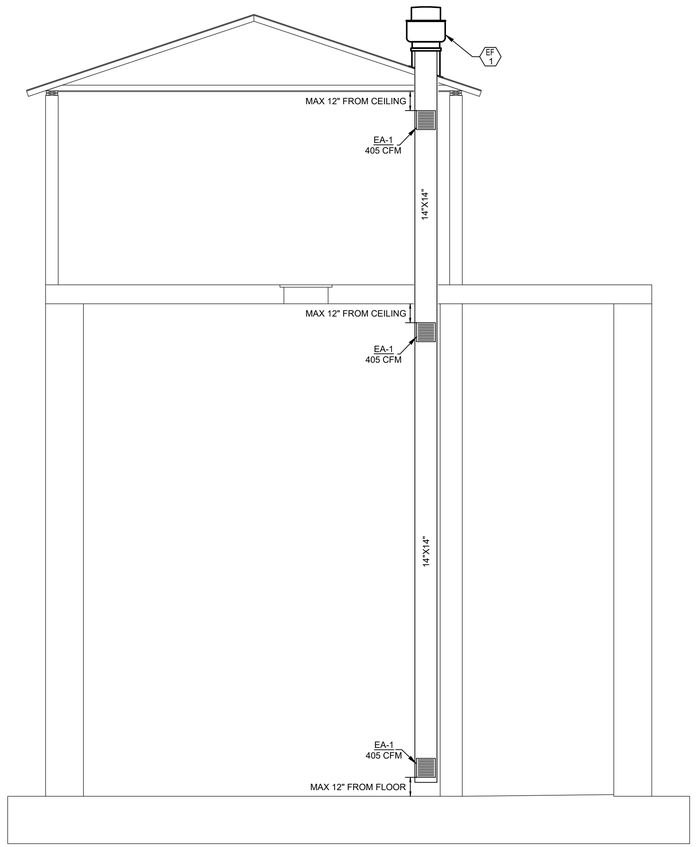
EQUIPMENT NO.	SERVICE	CFM	HP	BTU/HR	AIR TEMP. RISE (F)	KW	FLA(A)	MCA (A)	MOCP(A)	V/PH/HZ	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
EUH-1	SPACE HEAT	1750	1/2	68,240	70°	20	42.5	53.1	60	480/3/60	MODINE - HEX-480160-200	NOTE-1

NOTES:
1. EPOXY COATED 14 GAUGE STEEL CABINET, ADJUSTABLE EXTRUDED ALUMINUM LOUVERS, LIQUID TO AIR FIN TUBE HEAT EXCHANGER CORE, THEADED EXPLOSION PROOF COVERS ON JUNCTION BOXES, EXPLOSION PROOF THERMOSTAT.

INTAKE AND RELIEF HOOD SCHEDULE

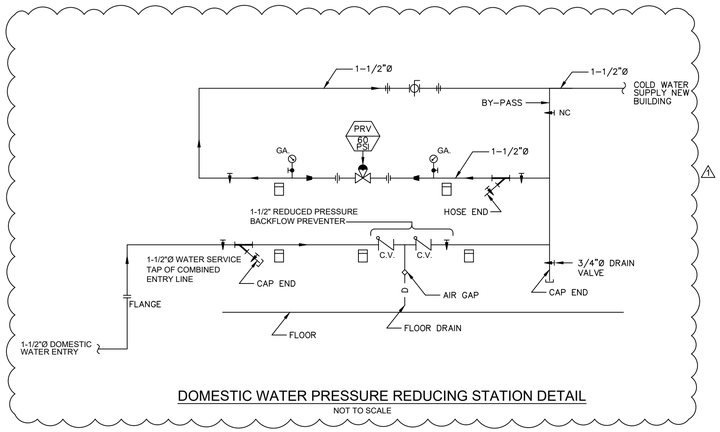
EQUIPMENT NO.	THROAT SIZE (Lin X Win)	HOOD SIZE (Lin X Win)	TYPE	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
LV-1	16"X16"	24"X24"	PENT HOUSE	GREENHECK WIH	NOTE-1

NOTES:
1. PROVIDE ROOF CURB, BIRD SCREEN, MOTORIZED DAMPER.



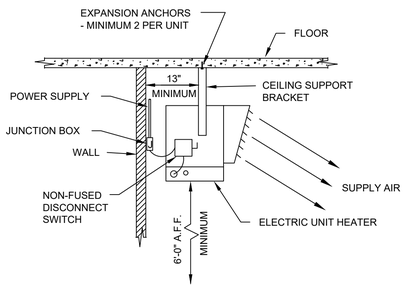
EXHAUST DUCT RISER

SCALE: NOT TO SCALE



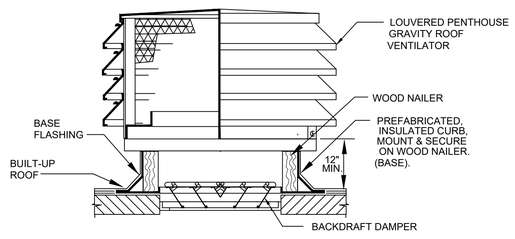
DOMESTIC WATER PRESSURE REDUCING STATION DETAIL

NOT TO SCALE



ELECTRIC UNIT HEATER MOUNTING DETAIL

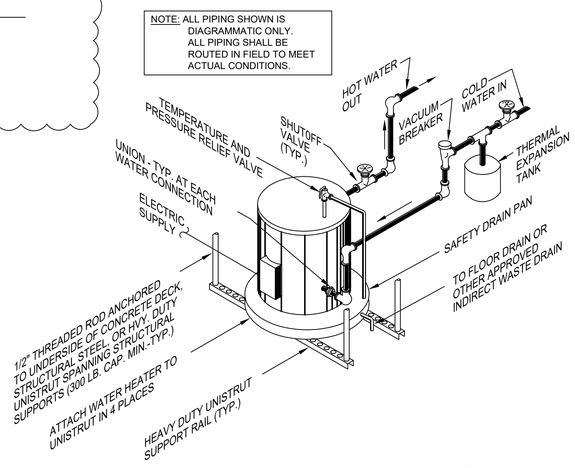
N.T.S.



PENTHOUSE ROOF VENTILATOR WITH CURB DETAIL

NOT TO SCALE

NOTE: ALL PIPING SHOWN IS DIAGRAMMATIC ONLY. ALL PIPING SHALL BE ROUTED IN FIELD TO MEET ACTUAL CONDITIONS.



ELECTRIC WATER HEATER DETAIL
- SUSPENDED FROM CEILING/ROOF STRUCTURE ON UNISTRUT SUPPORTS

NOT TO SCALE

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SEWER TRANSFER PROJECT
TOWN OF PALISADE

MECHANICAL/PLUMBING DETAILS & SCHEDULES

FILE :	
JUB PROJ. # :	81-23-029
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M3-1

FIRE ALARM EQUIPMENT LEGEND

FACP	FIRE ALARM CONTROL PANEL
F	FIRE ALARM PULL STATION
	FIRE ALARM HORN
	FIRE ALARM STROBE
	FIRE ALARM HORN/STROBE
	CEILING MOUNTED SPEAKER
D	DUCT DETECTOR
R	REMOTE LAMP
S P	SMOKE DETECTOR - PHOTOELECTRIC
H 135°	135° STANDARD HEAT DETECTOR
PIR	PIR DETECTOR
DH	DOOR HOLD - MAGNETIC HOLD
FS	FLOW SWITCH
TS	TAMPER SWITCH

COMMUNICATION LEGEND

	CLOCK ONLY
SPK	CLOCK / PA SPEAKER WALL MOUNTED
S	ROUND CEILING MOUNTED SPEAKER
S	SQUARE SPEAKER
IC	INTERCOM PUSH TO CALL SWITCH
WAP	WIRELESS ACCESS POINT ABOVE THE CEILING
PROJECTOR	ABOVE THE CEILING PROJECTOR CONNECTION
HDMI	WALL MOUNTED HDMI
	PLAIN DATA OUTLET
80"	PLAIN DATA OUTLET WITH MOUNTING HEIGHT
	COMBINATION DATA/TELEPHONE
	FLOOR MOUNTED COMBINATION DATA/TELEPHONE
	CEILING MOUNTED COMBINATION DATA/TELEPHONE
	TELEVISION OUTLET

SECURITY SYSTEM LEGEND

	SECURITY CAMERA
HC	ADA DOOR OPERATOR PUSH BUTTON
DS	ELECTRIC DOOR STRIKE
CR	CARD READER FOR DOOR OPERATOR

LIGHTING LEGEND

NOTES:

SYMBOLS SHOWN ARE STANDARD. VARIATION AND/OR COMBINATIONS MAY BE USED ON THE PLANS. THIS LIST SHOWS STANDARD SYMBOLS AND ALL MAY NOT APPEAR ON THE PROJECT DRAWINGS; HOWEVER, WHEREVER THE SYMBOL ON THE PROJECT DRAWINGS OCCUR, THE ITEM SHALL BE PROVIDED AND INSTALLED.

VARIATION AND/OR COMBINATION MAY BE USED ON THE PLANS.

A NUMBER NEXT TO A RECEPTACLE OR DEVICE INDICATES A CIRCUIT NUMBER.

AN UPPER CASE LETTER NEXT TO A SWITCH INDICATES THE FUNCTION OF THE SWITCH. A LOWER CASE LETTER INDICATES THE SWITCH CIRCUIT.

AN UPPER CASE LETTER NEXT TO A LIGHT FIXTURE INDICATES THE TYPE OF FIXTURE. REFER TO THE LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS. A LOWER CASE LETTER NEXT TO A LIGHT CORRESPONDS TO THE SWITCH DESIGNATION.

SWITCHES

$	SINGLE POLE SWITCH
$2	TWO POLE SWITCH
$3	THREE-WAY SWITCH
$4	FOUR-WAY SWITCH
$D	DIMMER SWITCH
$3D	3 WAY DIMMER SWITCH - (4D INDICATES A 4WAY DIMMER)
$DR	DOOR ACTIVATED SWITCH
$MA	WALL MOUNTED DUAL TECHNOLOGY MANUAL ON / AUTO OFF VACANCY SENSOR SWITCH
$LV	LOW VOLTAGE LIGHT SWITCH
$TO	MANUAL MOTOR STARTER
$P	PILOT LIGHT SWITCH
$OS	AUTO ON / AUTO OFF LIGHT SWITCH
$MO	DUAL TECHNOLOGY MOTION / OCCUPANCY SENSOR LIGHT SWITCH
$DMA	MANUAL ON / AUTO OFF DIMMING LIGHT SWITCH
$K	KEY OPERATED LIGHT SWITCH
$T	MANUAL ON - TIMED OFF LIGHT SWITCH
MO MO	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH
MA MA	CEILING MOUNTED DUAL TECHNOLOGY MANUAL ON / AUTO OFF VACANCY SENSOR
DS DS	CEILING MOUNTED DAYLIGHT HARVESTING SENSOR
$SC	SCENE CONTROL STATION
$MS	UNIT LIGHTING MANAGEMENT CONTROL STATION,

LIGHT FIXTURES

A	1'x4' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
A	2'x4' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
A	2'x2' LED TROFFER OR DIRECT/INDIRECT TYPE FIXTURE GRID, FLANGE OR SURFACE MOUNTED
	OPEN STRIP FIXTURE
	WALL BRACKET LINEAR FIXTURE
A	WALL MOUNTED SCONCE LIGHT FIXTURE
A	RECESSED DOWNLIGHT CAN FIXTURE
A	SURFACE CEILING OR PENDANT MOUNTED FIXTURE
EX2	DOUBLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
EX1	SINGLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
EM	WALL MOUNTED EMERGENCY LIGHT
EMR	EMERGENCY EXTERIOR EGRESS FIXTURE

ELECTRICAL EQUIPMENT LEGEND

	BRANCH CIRCUIT PANELBOARD
	TELEPHONE TERMINAL BOARD
	ELECTRIC MOTOR
F	FUSED SAFETY SWITCH / DISCONNECT COMBINATION
	MOTOR STARTER
	CONTACTOR
LA-7	CIRCUITRY HOMERUN: PANEL LA - CIR. #7
	CONDUIT OR WIRE CONCEALED IN WALL/CLG. (SOLID LINE TYPE)
	CONDUIT OR WIRE UNDERFLOOR/UNDERGND. (CENTER LINE TYPE)

MAIN DISTRIBUTION GEAR

	CIRCUIT BREAKER IN A PANEL BOARD
	PAD MOUNTED UTILITY TRANSFORMER
100 A 2 POLE FUSED DISCONNECT	FUSED DISCONNECT 100A = AMP RATING 2P = NUMBER OF POLES
M	ELECTRICAL METER SHOWN ON ONE-LINE DIAGRAMS
PP1 225A MCB 120/208V 3PH, 4W	ELECTRICAL POWER PANEL WITH MAIN LUG OR MAIN BREAKER PP1= PANEL NAME 225A MLO = MAIN LUG OR BREAKER SIZE 120/208V = PANEL VOLTAGE 3PH, 4 WIRE = PANEL PHASE, DISTRIBUTION TYPE
PP1 225A MLO 120/208V 3PH, 4W	

ELECTRICAL DEVICE LEGEND

	CEILING JUNCTION BOX - SURFACE/FLUSH
J	WALL JUNCTION BOX - SURFACE/FLUSH
	DUPLEX RECEPTACLE
	FLOOR MOUNTED RECEPTACLE
	SPLIT WIRED DUPLEX RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	FLOOR MOUNTED FOURPLEX RECEPTACLE
	APPLIANCE RECEPTACLE - 3 WIRE
	DUPLEX RECEPTACLE
	FOURPLEX RECEPTACLE

ABBREVIATIONS PERTAIN TO ALL DUPLEX AND FOURPLEX RECEPTACLES:

AC	ABOVE COUNTER
AC GF	ABOVE COUNTER - GROUND FAULT CIRCUIT INTERRUPTER
AC USB	ABOVE COUNTER WITH USB PORT
AF	ARC FAULT PROTECTED
AF USB	ARC FAULT PROTECTED WITH USB PORT
AF GF	ARC FAULT WITH GROUND FAULT CIRCUIT INTERRUPTER
D	DEDICATED RECEPTACLE
D USB	DEDICATED RECEPTACLE WITH USB PORT
EM	RECEPTACLE CIRCUITED TO THE EMERGENCY PANEL WITH RED COVER PLATE
GF	GROUND FAULT CIRCUIT INTERRUPTER
GF WP	WEATHER PROOF GROUND FAULT CIRCUIT INTERRUPTER
PL	PLUG LOAD
72"	GENERAL PURPOSE WITH MOUNTING HEIGHT.

D	ELECTRIC HAND DRYER
T	THERMOSTAT
	OPEN/CLOSE/STOP PUSH BUTTON
1	DRAWING KEY NOTES
ROOM 100	ROOM DESIGNATION

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK TO COMPLY WITH LATEST EDITION OF NEC, IECC AND ALL APPLICABLE GOVERNING CODES.
2. FIELD COORDINATION DURING CONSTRUCTION IS IMPERATIVE. CONTRACTORS BIDDING THIS WORK MUST MAKE REASONABLE ALLOWANCES FOR UNFORESEEN CONTINGENCIES.
3. ELECTRIC UTILITY TO ADVISE OWNER AND/OR THE ELECTRICAL ENGINEER PRIOR TO SERVICE MODIFICATION REQUIRING COST TO THE OWNER.

WIRING:

1. ALL WIRING IS SHOWN DIAGRAMMATICALLY ON DRAWING, FIELD VERIFY ALL CONDITIONS PRIOR TO ROUGH-IN.
2. ALL CONDUITS AND CONVEYANCES SHALL BE CONCEALED. IN THE EVENT THAT A NEW DEVICE IS BEING INSTALLED IN AN EXISTING DRYWALL PARTITION, PROVIDE A CUT IN TYPE BOX AND FISH FLEXIBLE CONDUIT DOWN INSIDE THE WALL FROM ABOVE THE CEILING AND REPAIR THE DRYWALL AROUND THE CONDUIT. TRANSITION TO EMT ONCE ABOVE THE CEILING.
3. SIZES OF WIRE AND CABLES ARE BASED UPON COPPER CONDUCTORS, UNLESS OTHERWISE INDICATED. ALL CIRCUITS SHALL CONTAIN (2) #12 AWG WITH (1) #12 GND IN 1/2" CONDUIT UNLESS NOTED OTHERWISE.
4. ALL BRANCH CIRCUITS WITH HOME RUNS OVER 50 FEET, WILL BE SIZED ONE SIZE LARGER.
5. ALL PENETRATIONS IN OR THROUGH FIRE RATED PARTITIONS SHALL BE FIRE STOPPED IN SUCH A WAY THAT THE PENETRATION MATCHES THE FIRE RATING OF THE WALL.
6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION BETWEEN THE APPROPRIATE DISCIPLINES AND CONTRACTORS.
7. COORDINATE ALL DEVICE, FIXTURE AND HARDWARE COLOR SELECTIONS WITH THE ARCHITECT PRIOR TO MAKING SHOP DRAWING SUBMITTALS.
8. COORDINATE THE MOUNTING HEIGHTS OF ALL RECEPTACLES MOUNTED ABOVE COUNTERS, CASEWORK AND APPLIANCE RECEPTACLES WITH ARCHITECTURAL ELEVATIONS.
9. BRANCH CIRCUIT AND SPECIAL SYSTEMS WIRING FOR DEVICES ON WALLS IN FINISHED AREAS WHICH CANNOT BE CONCEALED SHALL BE INSTALLED IN SURFACE MOUNTED RACEWAY.
10. ALL EXPOSED CONDUITS, BOXES, ETC. IN ROOMS TO BE PAINTED SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE. EXPOSED CONDUITS, BOXES, ETC. IN ROOMS WHICH ARE NOT PAINTED MAY BE LEFT UN-PAINTED. EXPOSED CONDUIT, BOXES, ETC. ON THE EXTERIOR OF BUILDINGS SHALL BE PAINTED TO MATCH THE SURROUNDING SURFACE AS CLOSELY AS POSSIBLE.
11. THE CONTRACTOR IS RESPONSIBLE FOR PATCHING, PAINTING, REPAIRING OR REPLACEMENT OF ALL WALLS, CEILING OR OTHER BUILDING ELEMENTS WHICH ARE DISTURBED AS PART OF THE DEMOLITION AND/OR INSTALLATION OF ELECTRICAL WORK.
12. PROVIDE ELECTRICAL CONNECTION TO ALL FIRE, SMOKE, AND FIRE / SMOKE DAMPERS INCLUDING POWER AND FIRE ALARM. VERIFY EXACT SIZE AND FINAL LOCATION OF ALL DAMPERS WITH THE MECHANICAL CONTRACTOR. ALL ROOFTOP UNITS RATED AT MORE THAN 2000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN THE RETURN DUCT. ALL ROOFTOP UNITS RATED AT MORE THAN 15000 CFM WILL BE OUTFITTED WITH A DUCT DETECTOR IN BOTH THE SUPPLY AND RETURN DUCT AT ROOFTOP LEVEL AND IN THE RETURN DUCT AT EVERY LEVEL THAT IS SERVED. ELECTRICAL CONTRACTOR WILL PROVIDE A REMOTE TEST STATION AND ALL WIRING NECESSARY TO COMPLETE INSTALLATION.
13. REFER TO THE MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL REQUIREMENTS ASSOCIATED WITH PLUMBING AND HVAC EQUIPMENT AND OWNER/GENERAL CONTRACTOR FURNISHED EQUIPMENT.

LUMINAIRES:

1. COORDINATE THE LOCATION OF ALL LIGHTING EQUIPMENT INCLUDING BUT NOT LIMITED TO THE LUMINAIRES, SWITCHES WITH THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND ALL OTHER TRADES AS REQUIRED. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONAL LOCATION OF LIGHT FIXTURES.
2. LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE AND SHALL NOT BE SUPPORTED FROM THE T-BAR CEILING GRID.
3. THE ELECTRICAL CONTRACTOR IS TO CONFIRM THE LIGHT FIXTURES ORDERED WILL BE COMPATIBLE WITH THE CEILING TYPES AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING THE FIXTURES.
4. VERIFY LUMINAIRE MOUNTING REQUIREMENTS AND OVERALL HEIGHT OF ALL PENDANT MOUNTED FIXTURES PRIOR TO ORDERING.
5. ALL LIGHT FIXTURES NEED TO BE COMPATIBLE WITH THE SWITCHES AND CONTROLS BEING PROVIDED.
6. THE LIGHTING PACKAGE SHALL BE APPROVED BY BOTH THE ARCHITECT AND ENGINEER AS APPROVED EQUAL BEFORE BID. NO LIGHT FIXTURE SHALL BE ORDERED UNTIL THE LIGHT FIXTURE SUBMITTAL PACKAGE HAS BEEN APPROVED IN WRITING BY THE ARCHITECT, GENERAL CONTRACTOR AND ELECTRICAL ENGINEER.
7. COORDINATE LUMINAIRE MOUNTING REQUIREMENTS PRIOR TO PLACING ORDER.

RESPONSIBLE DIVISION:

UNLESS OTHERWISE INDICATED ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, AND OTHER MECHANICAL EQUIPMENT, MOTORS, AND CONTROLS SHALL BE FURNISHED, SET IN PLACE AND WIRED AS FOLLOWS:

ITEM	FURNISHED	SET	POWER WIRED	CONTROL WIRED
EQUIPMENT	23	23	26	--
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS, VFD'S AND CONTACTORS	23(1)	26	26(2)	23
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	26	26	26	--
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	23	26	26	26
CONTROLS, RELAYS, TRANSFORMERS	23	23	26	23
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	23	23	26	23
THERMOSTATS (LINE VOLTAGE)	23	23	26	26
TEMPERATURE CONTROL PANELS	23	23	26	23
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	23	23(2)	--	23(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	23	23(2)	--	23(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	23	23	26	23
EXHAUST FAN SWITCHES	23	26	26	23(2)

SUBSCRIPT FOOTNOTES:

1. MOTOR STARTER TO INCLUDE CONTROL TRANSFORMER, HOA SWITCH, (1) NO AND (1)NC AUXILIARY CONTACT, AND "ON" AND "OFF" PILOT LIGHTS.
2. IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 26. WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 23, CONNECT UNDER DIVISION 26.

SUBSTITUTIONS:

A. SUBSTITUTIONS: SUBSTITUTION OF SPECIFIED EQUIPMENT WILL BE ALLOWED THROUGH A PRIOR APPROVAL PROCESS INITIATED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT INTENDED SUBSTITUTION AT LEAST FIVE DAYS PRIOR TO BID FOR APPROVAL FROM ENGINEER. SUBMITTAL SHALL INCLUDE CAPACITIES, DIMENSIONS AND OPERATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT. SUBSTITUTION SHALL OCCUR AT NO COST TO THE OWNER. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF APPROVED SUBSTITUTION AND SHALL INCUR ALL COSTS ASSOCIATED WITH THE SUBSTITUTION INCLUDING STRUCTURAL MODIFICATIONS, SPACE LAYOUT AND REDESIGN COSTS. SEE ALSO DIVISION I GENERAL REQUIREMENTS.

EXAMINATION OF SITE, DRAWINGS, SPECIFICATIONS:

A. EXAMINE CAREFULLY THE SITE AND CONDITIONS OF THE SITE. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR TO INSTALL A COMPLETE WORKING SYSTEM WITHIN THE SITE CONDITIONS.

B. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND 5 DAYS PRIOR TO BIDDING REPORT ANY ERRORS, OMISSIONS, INCONSISTENCIES, AND CONFLICTS TO THE ENGINEER TO BE REMEDIED IN AN ADDENDUM TO THE PROJECT PRIOR TO BID TIME.

C. DRAWINGS ARE DIAGRAMMATIC AND CATALOG NUMBERS GIVEN ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE CAPACITY OF THE EQUIPMENT MEETS THE DRAWING REQUIREMENTS AND SHALL NOT DIMENSION FROM THE MECHANICAL, PLUMBING, OR PIPING DRAWINGS.

D. THE LATEST ADOPTED VERSIONS OF THE INTERNATIONAL BUILDING CODES SHALL BE USED AS REQUIRED. THIS WILL ALSO INCLUDE THE LATEST ADOPTED VERSIONS OF THE MECHANICAL, PLUMBING, AND ENERGY CONSERVATION CODES. ALL METHODS AND MATERIALS REQUIRED BY THESE CODES SHALL BE REQUIRED BY THESE SPECIFICATIONS UNLESS INDICATED OTHERWISE. OTHER APPLICABLE LOCAL CODES AND ORDINANCES SHALL BE AS REQUIRED AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE KNOWLEDGEABLE OF THESE REQUIREMENTS.

E. WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL.

ABBREVIATIONS:

44"	MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER OF DEVICE
A	AMPS
A.D.	ACCESS DOOR
AAV	AIR ADMITTANCE VALVE
ABV	ABOVE
AC	AIR CONDITIONING UNIT
AC	ABOVE COUNTER
AD	AREA DRAIN (SEE SYMBOLS)
A.F.C.	ABOVE FINISHED CEILING
A.F.G.	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AFCI	ARC FAULT CIRCUIT INTERRUPTERS
A.F.F.	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL OR DOOR
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO / VIDEO
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
BAS	BUILDING AUTOMATION SYSTEM
BB	BASEBOARD
BD	BACK DRAFT DAMPER
BFP	BACK FLOW PREVENTOR
BL	BOILER
BLDG	BUILDING
BLW	BELOW
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
C	CHILLER
CAFCI	COMBINATION ARC FAULT CIRCUIT INTERRUPTERS
CAP	CAPACITY
CB	CIRCUIT BREAKER
CBV	CIRCUIT BALANCING VALVE
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CL	CENTER LINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPRESSOR
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONT	CONTINUATION
CONTR	CONTRACTOR
CRI	COLOR RENDERING INDEX
CT	COOLING TOWER
CT	CURRENT TRANSFORMER
CU	CONDENSING UNIT
CU	COPPER
CUH	CABINET UNIT HEATER
CVB	CONSTANT VOLUME BOX
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGRAM
DIFF	DIFFERENTIAL
DISCH	DISCHARGE
DIV	DIVISION
DN	DOWN
DS	DUCT SILENCER
DWG	DRAWING
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR GRILLE/REGISTER
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
EF	EXHAUST FAN
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EM	EMERGENCY FUNCTION
ENT	ENTERING
EMT	ELECTRIC METALLIC TUBE
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	END SWITCH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXHAUST
EXPAN	EXPANSION
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FA	FREE AREA
FC	FAN COIL UNIT
FC	FOOTCANDLE
FCV	FLOW CONTROL VALVE
FD	FIRE DAMPER
FD	FLOOR DRAIN
FIN	FINISHED
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FP	FIRE PROTECTION
FP	FIRE PUMP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FT	FEET
FXC	FLEXIBLE CONNECTION
GND	GROUND
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEC	GROUND ELECTRODE CONDUCTOR
GFCI / GFI	GROUND FAULT CIRCUIT INTERRUPTER
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRS/LB	GRAINS PER POUND
H 2O	WATER
HB	HOSE BIBB
HD	HEAD (SEE SCHEDULES)
HP	HEAT PUMP
HP	HORSEPOWER
HR	HOUR
HT	HEIGHT
HTR	HEATER
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IN	INCHES
INV	INVERT
JBOX	JUNCTION BOX
K	KELVIN
KW	KILOWATT
KVA	KILO VOLT - AMPS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LV	LAVATORY
LB	POUND
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LIN	LINEAR
LIQ	LIQUID
LM	LUMEN
LRA	LOCKED ROTOR AMPS
LV	LOUVER
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUG ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MUA	MAKE-UP AIR UNIT
N	NEUTRAL
NC	NORMALLY CLOSED
NEG	NEGATIVE
NIC	NOT IN CONTRACT
NL	NIGHT / SECURITY LIGHT - DO NOT SWITCH
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OCC	OCCUPIED
OCP	OVER CURRENT PROTECTION
OD	OUTSIDE DIAMETER
OL	OVERLOAD
ORD	OVERFLOW ROOF DRAIN
OZ	OUNCE
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PH	PHASE
POS	POSITIVE PRESSURE
POS	POINT OF SALES
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TRANSMITTER
PTAC	PACKAGED TERMINAL AIR CONDITIONER
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR GRILLE / REGISTER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REL	RELIEF
REQD	REQUIRED
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR GRILLE / REGISTER
SC	SHORT CIRCUIT
SCA	SHORT CIRCUIT AVAILABLE
SCCR	SHORT CIRCUIT CURRENT RATING
SCH	SCHEDULE
SD	SMOKE DAMPER
SEF	SMOKE EXHAUST FAN
SF	SUPPLY FAN
SH	SENSIBLE HEAT
SH	SHOWER
SP	STATIC PRESSURE
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SS	SAFETY SHOWER
STD	STANDARD
STL	STEEL
SYS	SYSTEM
TEMP	TEMPERATURE
TR	TRANSFER GRILLE / REGISTER
TR	TAMPER RESISTANT
TT	TEMPERATURE TRANSMITTER
TTB	TELECOMMUNICATIONS TERMINAL BACKBOARD
TYP	TYPICAL
TX	TRANSFORMER
UC	UNDERCUT DOOR
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UNOCC	UNOCCUPIED
UR	URINAL
V	VOLTS
VA	VOLT AMPERE
VA	VALVE
VAV	VARIABLE AIR VOLUME UNIT
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WIDTH
W	WATTS
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WC	WATER CLOSET
WG	WATER GAUGE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
WSR	WITHSTAND RATING
XFMR	TRANSFORMER

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BID SET

COLORADO LICENSED ANDREW FORREST BISHOP 42655 PROFESSIONAL ENGINEER 07/18/2025

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	REVISION		
	CONSTRUCTION DOCUMENTS	01/31/2025	
1	CODE COMMENT REVISION	07/17/2025	
2	BID SET		

SEWER TRANSFER PROJECT
TOWN OF PALISADE

ELECTRICAL - COVER SHEET

FILE :

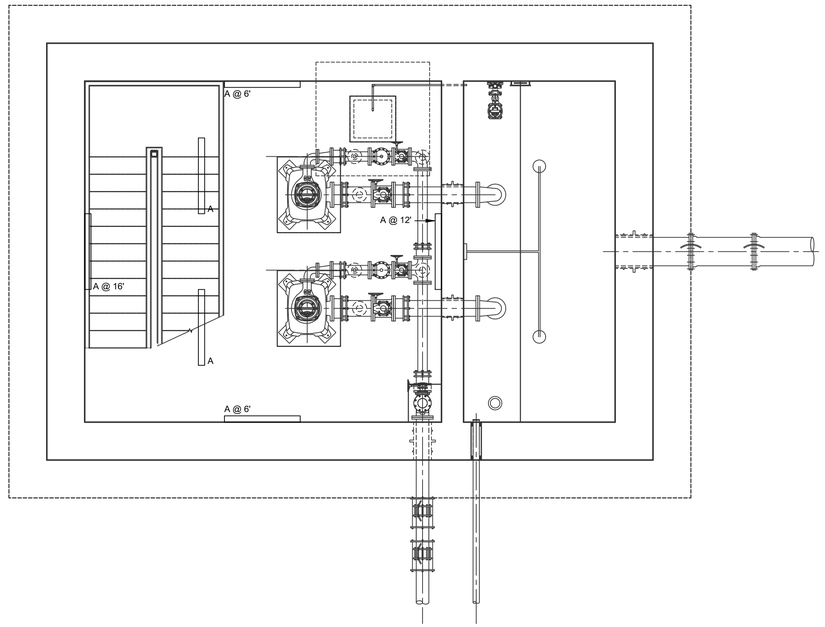
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DRAWN BY:	GC
DESIGN BY:	DB
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ONE INCH
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SHEET NUMBER:

E0-1



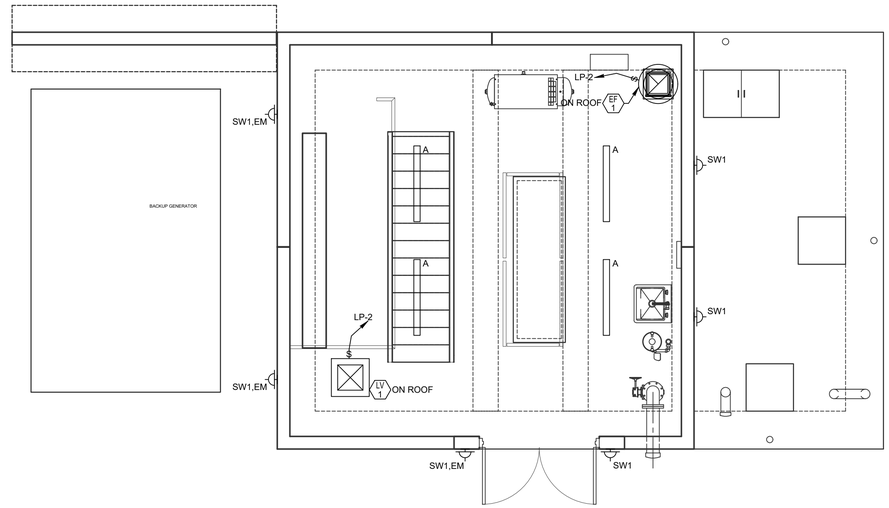
LIGHTING - LOWER LEVEL PLAN

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

NORTH

PUMP LEVEL PLAN NOTES

1. LIGHT FIXTURES WITHOUT HEIGHTS ARE SURFACE MOUNTED TO CONCRETE DECK. OTHER LIGHTS ARE MOUNTED ON WALL AT HEIGHTS SHOWN ON PLAN.
2. CIRCUIT LIGHTS TO LP-6.



LIGHTING - MAIN LEVEL PLAN

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

NORTH

MAIN LEVEL PLAN NOTES

1. INTERIOR LIGHTS SHOWN ARE MOUNTED ON CEILING. EXTERIOR LIGHTS ARE MOUNTED AT 8' AFG.
2. CIRCUIT LIGHTS TO LP-6.

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	CONSTRUCTION DOCUMENTS			01/31/2025
1	CODE COMMENT REVISION			07/17/2025
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COLORADO LICENSED ANDREW G. CARREST 42655 PROFESSIONAL ENGINEER 07/18/2025

SEWER TRANSFER PROJECT
TOWN OF PALISADE

LIGHTING PLANS

FILE :	
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DESIGN BY:	DB
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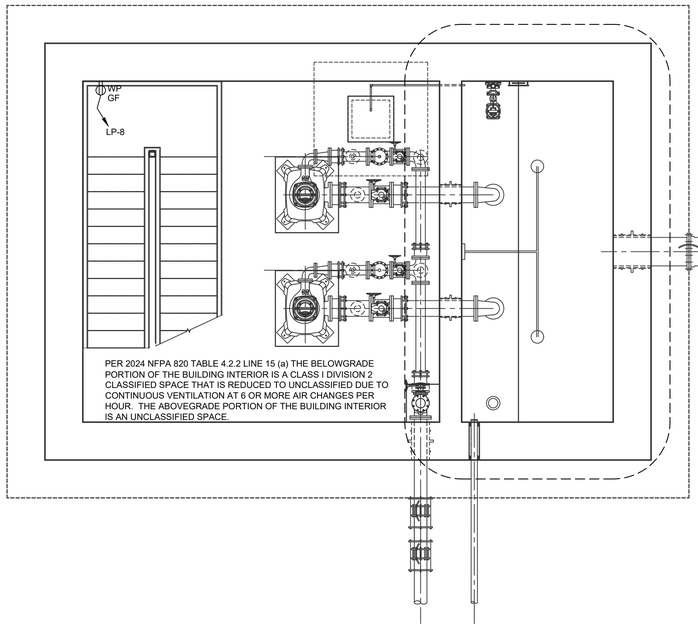
LAST UPDATED: 7/18/2025

SHEET NUMBER:

E1-1

ELECTRICAL KEYED NOTES <6>

1. PROVIDE SEALED CONNECTION PLUG AT A COORDINATED LOCATION TO PROVIDE SEPARATION FROM CLASSIFIED SPACE FOR POWER FEEDS TO PUMPS. PROVIDE ADDITIONAL CONNECTION FOR FUTURE PUMP.
2. DISCONNECT FOR VFD FOR EFFLUENT PUMP.
3. WET WELL GRINDER PUMP DISCONNECT.
4. DISCONNECT FOR ODOR TREATMENT SYSTEM.
5. POWER FOR SC4500 WET WELL SENSOR DIGITAL CONTROLLER.
6. POWER FOR AIR COMPRESSOR FOR ODOR CONTROL SYSTEM.

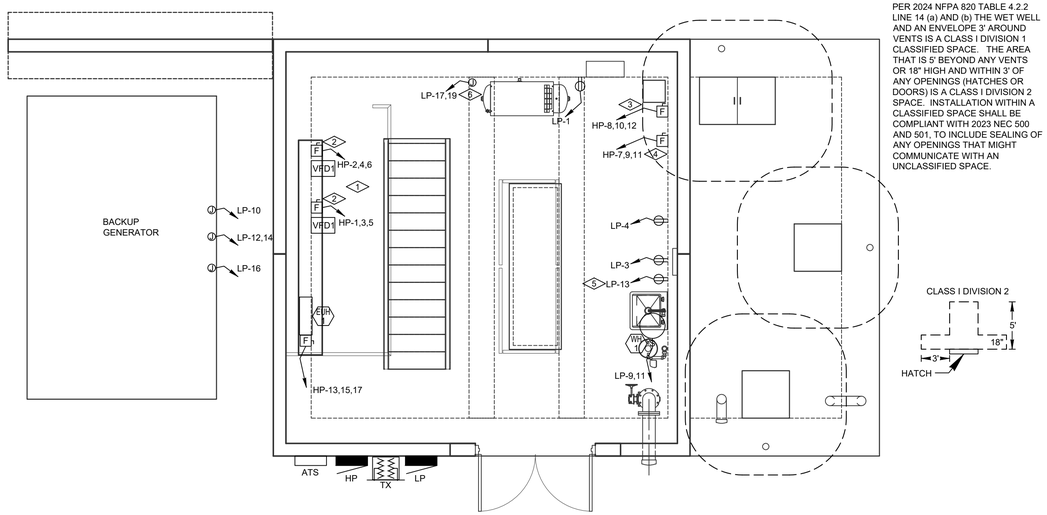


PER 2024 NFPA 820 TABLE 4.2.2 LINE 14 (a), THE WET WELL AND AN ENVELOPE 3' AROUND VENTS IS A CLASS I DIVISION 1 CLASSIFIED SPACE. THE AREA THAT IS 5' BEYOND ANY VENTS OR 18" HIGH AND WITHIN 3' OF ANY OPENINGS (HATCHES OR DOORS) IS A CLASS I DIVISION 2 SPACE. INSTALLATION WITHIN A CLASSIFIED SPACE SHALL BE COMPLIANT WITH 2023 NEC 500 AND 501, TO INCLUDE SEALING OF ANY OPENINGS THAT MIGHT COMMUNICATE WITH AN UNCLASSIFIED SPACE.

ELECTRICAL - LOWER LEVEL

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

NORTH



PER 2024 NFPA 820 TABLE 4.2.2 LINE 14 (a) AND (b) THE WET WELL AND AN ENVELOPE 3' AROUND VENTS IS A CLASS I DIVISION 1 CLASSIFIED SPACE. THE AREA THAT IS 5' BEYOND ANY VENTS OR 18" HIGH AND WITHIN 3' OF ANY OPENINGS (HATCHES OR DOORS) IS A CLASS I DIVISION 2 SPACE. INSTALLATION WITHIN A CLASSIFIED SPACE SHALL BE COMPLIANT WITH 2023 NEC 500 AND 501, TO INCLUDE SEALING OF ANY OPENINGS THAT MIGHT COMMUNICATE WITH AN UNCLASSIFIED SPACE.

ELECTRICAL - MAIN LEVEL ELECTRICAL PLAN

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

NORTH

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COLORADO LICENSED
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42655
07/18/2025
PROFESSIONAL ENGINEER

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1	CODE COMMENT REVISION			07/17/2025
2	BID SET			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

ELECTRICAL PLANS

FILE :
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ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/18/2025

SHEET NUMBER:
E2-1

FAULT CURRENT CALCULATIONS:

$F = \frac{L \times I \times 3^{1/2}}{N \times C \times E}$

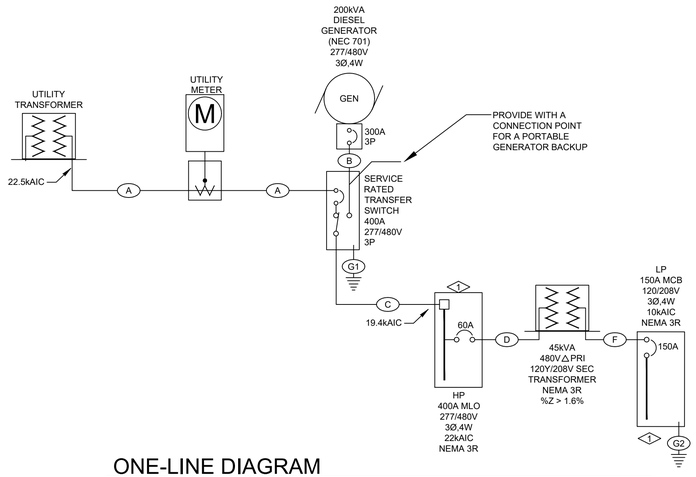
L - LENGTH OF CABLE IN FEET
I - AVAILABLE FAULT CURRENT
N - NUMBER OF CONDUCTORS PER PHASE
C - CONDUCTANCE CONSTANT
- 250kCMIL ALUMINUM: 12,862
E - VOLTAGE LINE TO LINE
F - INTERMEDIARY VALUE FOR COMPUTATION
M = 1/(1+F)
M - MULTIPLIER TO ACHIEVE AVAILABLE FAULT
I(SC) = I(SC)*M

RUN #1: TRANSFORMER TO SERVICE

$F = \frac{L \times I \times 3^{1/2}}{N \times C \times E} = \frac{50FT \times 22,500\ A \times 3^{1/2}}{2 \times 12,862 \times 480\ V} = 0.158$

$M = \frac{1}{1+F} = \frac{1}{1+0.158} = 0.864$

I(SC) = IxM = 22,500A x 0.864 = 19,433 A



ONE-LINE DIAGRAM

NOT TO SCALE

NOTES:
1. PROVIDE GROUNDING AND BONDING TO MEET THE 2023 NEC ARTICLE 250 REQUIREMENTS.
2. FAULT CURRENT CALCULATIONS BASED UPON AN ANTICIPATED 300kVA TRANSFORMER WITH AVAILABLE FAULT CURRENT OF 22,500A AT AN ESTIMATED DISTANCE OF 50FT FROM THE TRANSFORMER TO THE SERVICE DISTRIBUTION PANEL.
3. PROVIDE LABELING TO MEET THE REQUIREMENTS OF NEC 110.21.
4. EQUIPMENT AND BREAKER SELECTIONS ARE TO BE PROVIDED BY THE MANUFACTURER/SUPPLIER WITH DOCUMENTATION TO SHOW SELECTIVE COORDINATION FOR THE SYSTEM.
5. TRANSFER SWITCH SHALL BE ELECTRICALLY OPERATED AND MECHANICALLY HELD.
6. PROVIDE A DOCKING STATION FOR A TEMPORARY GENERATOR AND A MANUAL TO BE USED DURING GENERATOR MAINTENANCE OR TESTING.

ELECTRICAL FLAG NOTES:

<1> PROVIDE A SURGE PROTECTIVE DEVICE IN THIS PANEL.

WIRE SCHEDULE:

(A) (2) 2 1/2"C - (4#250kCMIL(AL,XHHW))
(B) (2) 2"C - (4#3/0AWG(AL,XHHW) + #2AWG(AL,GND))
(C) (2) 2 1/2"C - (4#250kCMIL(AL,XHHW) + 1#1AWG(AL,GND))
(D) 1"C - (3#6AWG(CU,THWN) + 1#10AWG(CU,GND))
(F) 2 1/2"C - (4#3/0AWG(AL,XHHW) + 1#6AWG(CU,GND))
(G1) #2AWG CU TO METAL WATER PIPES AND STRUCTURAL STEEL
(G2) #6AWG CU TO METAL WATER PIPES AND STRUCTURAL STEEL

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER CATALOG NO.	ALTERNATE CATALOG NO.	VOLTAGE MOUNTING	DRIVER LAMP SPECIFICATION	
A	COOPER METALUX 4VT2-LD5-8-DR100-W-UNV-L840 -CD1-TEH	APPROVED EQUIVALENT	120-277V SURFACE, SUSPENDED	4000K, 8000LM, 80CRI 58W	4' LED VAPORTITE STRIP LIGHT, WET LOCATION, HIGH-IMPACT DIFFUSE LENS
SW1	COOPER LUMARK XTOR3B-Y-BZ-PC1	APPROVED EQUIVALENT	120-277V SURFACE	3000K, 2575LM, 70CRI 26W	FULL CUTOFF LED WALL PACK, WET LOCATION, IP66, DARK SKY APPROVED. PROVIDE BATTERY BACKUP OF "EM" DESIGNATED FIXTURES.

NOTES:

1. PROVIDE ALL APPURTENANCES REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.
2. COORDINATE FIXTURES WITH STAIRWELL.
3. COORDINATE ALL LOCATIONS OF FIXTURES IN FIELD, PRIOR TO FINAL INSTALLATION WITH CLIENT AND EQUIPMENT.
4. COORDINATE LOCATION OF SWITCHES WITH CLIENT IN FIELD.
5. INTERIOR LIGHTING CONTROLS SHALL INCORPORATE MANUAL ON AND AUTOMATIC OFF FUNCTIONALITY IN ACCORDANCE WITH 2018 IECC.
6. EXTERIOR LIGHTING CONTROLS SHALL BE PHOTOCELL AND MOTION SENSOR CONTROLLED. PROVIDE MANUAL SWITCH FOR MANUAL OFF.

PANEL SCHEDULE - HP

TYPE: PANELBOARD | VOLTAGE: 277/480 | ENCLOSURE: NEMA3R | BUS SIZE: 400 | MAIN BRKR: NONE | MOUNTING: SURFACE | PHASES: 3 | WIRES: 4 | SC RATING: 22000 | NEUTRAL BUS: YES | GROUND BUS: YES

LOAD TYPE	LOAD DESCRIPTION	AMPS POLES	CKT# LOAD	Ø	CKT# LOAD	AMPS POLES	LOAD TYPE	LOAD DESCRIPTION
MOTOR	--- ---	--- ---	1 16628	A	2 16628	--- ---	MOTOR	--- ---
MOTOR	PUMP 1 ---	75A 3P	3 16628	B	4 16628	75A 3P	MOTOR	PUMP 2 ---
MOTOR	--- ---	--- ---	5 16628	C	6 16628	--- ---	MOTOR	--- ---
MOTOR	--- ---	--- ---	7 12471	A	8 3880	--- ---	MOTOR	--- ---
MOTOR	ODOR CONTROL TREATMENT SYSTEM ---	60A 3P	9 12471	B	10 3880	20A 3P	MOTOR	WET WELL GRINDER PUMP ---
MOTOR	--- ---	--- ---	11 12471	C	12 3880	--- ---	MOTOR	--- ---
MECH HEATING	--- ---	--- ---	13 6667	A	14 4490	--- ---	SUBFEED	--- ---
MECH HEATING	EUH-1 ---	35A 3P	15 6667	B	16 4650	60A 3P	SUBFEED	PANEL LP ---
MECH HEATING	--- ---	--- ---	17 6667	C	18 4445	--- ---	SUBFEED	--- ---
SPACE	--- ---	--- ---	19 0	A	20 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	21 0	B	22 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	23 0	C	24 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	25 0	A	26 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	27 0	B	28 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	29 0	C	30 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	31 0	A	32 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	33 0	B	34 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	35 0	C	36 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	37 0	A	38 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	39 0	B	40 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	41 0	C	42 0	--- ---	SPACE	--- ---

LOADS BY TYPE:

LOAD TYPE	CONNECTED LOAD (VA)	DEMAND FACTOR	DEMAND LOAD (VA)
LIGHTING	765.00	1.25	956.25
KITCHEN	0.00	1.00	0.00
PROCESS	3020.00	1.00	3020.00
RECEPTACLES	3400.00	1.00	3400.00
MECH HEATING	24500.00	1.00	24500.00
MECH COOLING	0.00	1.00	0.00
MECH YEAR ROUND	900.00	1.00	900.00
APPLIANCE	0.00	1.00	0.00
MISCELLANEOUS	0.00	1.00	0.00
MOTOR	148819.00	1.00	223228.50
SPARE	1000.00	1.00	1000.00
LARGEST MOTOR [1]	ABOVE	0.25	12470.75
TOTAL	182404.00		195066.00

LOADS BY PHASE:

PHASE	CONNECTED LOAD (VA)	CONNECTED LOAD (AMPS)	BALANCE (PERCENT)
A	60763.10	219.36	A-B: 99.7
B	60923.10	219.94	B-C: 99.7
C	60718.10	219.20	C-A: 99.9
TOTAL/AVERAGE	182404.00	219.50	99.8

NOTES:

1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.

PANEL SCHEDULE - LP

TYPE: PANELBOARD | VOLTAGE: 120/208 | ENCLOSURE: NEMA3R | BUS SIZE: 225 | MAIN BRKR: 150 | MOUNTING: SURFACE | PHASES: 3 | WIRES: 4 | SC RATING: 10000 | NEUTRAL BUS: YES | GROUND BUS: YES

LOAD TYPE	LOAD DESCRIPTION	AMPS POLES	CKT# LOAD	Ø	CKT# LOAD	AMPS POLES	LOAD TYPE	LOAD DESCRIPTION
RECEPTACLE	OXYGEN CONCENTRATOR ---	20A 1P	1 720	A	2 900	20A 1P	MECH YEAR ROUND	EF-1 & LV-1 ---
RECEPTACLE	VACUUM SAMPLER ---	20A 1P	3 500	B	4 500	20A 1P	RECEPTACLE	CONTROLS ---
RECEPTACLE	SERVICE ---	20A 1P	5 180	C	6 765	20A 1P	LIGHTING	LIGHTS ---
SPARE	1KW SPARE ---	20A 1P	7 1000	A	8 500	20A 1P	RECEPTACLE	LOWER LEVEL RECEPTACLE ---
MECH HEATING	WH-1 ---	30A 2P	9 2250	B	10 1000	20A 1P	RECEPTACLE	GENERATOR BATTERY CHARGER ---
MECH HEATING	--- ---	--- ---	11 2250	C	12 1250	20A 2P	PROCESS	GENERATOR BLOCK HEATER ---
PROCESS	SC4500 DIGITAL CONTROLLER ---	20A 1P	13 120	A	14 1250	--- ---	PROCESS	--- ---
SPACE	--- ---	--- ---	15 0	B	16 400	20A 1P	PROCESS	GENERATOR OIL HEATER ---
MOTOR	COMPRESSOR ---	40A 2P	17 1812	C	18 0	--- ---	SPACE	--- ---
MOTOR	--- ---	--- ---	19 1812	A	20 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	21 0	B	22 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	23 0	C	24 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	25 0	A	26 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	27 0	B	28 0	--- ---	SPACE	--- ---
SPACE	--- ---	--- ---	29 0	C	30 0	--- ---	SPACE	--- ---

LOADS BY TYPE:

LOAD TYPE	CONNECTED LOAD (VA)	DEMAND FACTOR	DEMAND LOAD (VA)
LIGHTING	765.00	1.25	956.25
KITCHEN	0.00	0.00	0.00
PROCESS	3020.00	1.00	3020.00
RECEPTACLES	3400.00	1.00	3400.00
MECH HEATING	4500.00	1.00	4500.00
MECH COOLING	0.00	1.00	0.00
MECH YEAR ROUND	900.00	1.00	900.00
APPLIANCE	0.00	1.00	0.00
MISCELLANEOUS	0.00	1.00	0.00
MOTOR	3623.00	1.00	5434.50
SPARE	1000.00	1.00	1000.00
LARGEST MOTOR [1]	ABOVE	0.25	905.75
TOTAL	17208.00		18305.00

LOADS BY PHASE:

PHASE	CONNECTED LOAD (VA)	CONNECTED LOAD (AMPS)	BALANCE (PERCENT)
A	6301.60	52.51	A-B: 73.8
B	4650.00	38.75	B-C: 74.3
C	6256.60	52.14	C-A: 99.3
TOTAL/AVERAGE	17208.00	47.80	82.5

NOTES:

1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.

J-U-B ENGINEERS, INC.

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Jeff Hutton
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Phone: (970) 241-9709

BID SET

COLORADO LICENSED ANDREW FORREST BIGHORN ENGINEER 42655 07/18/2025 PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	DATE	BY APR.
	REVISION		
	CONSTRUCTION DOCUMENTS	01/31/2025	
1	CODE COMMENT REVISION	07/17/2025	
2	BID SET		

SEWER TRANSFER PROJECT
TOWN OF PALISADE

ELECTRICAL - DETAILS

FILE :
JUB PROJ. # : 81-23-029
DRAWN BY: GC
DESIGN BY: DB
CHECKED BY:

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/16/2025

SHEET NUMBER:
E3-1

SCHEMATIC SYMBOLS

- WIRE CONNECTION POINT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- STARTER, CONTACTOR OR RELAY COIL
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- MAINTAINED PUSH BUTTON
- NORMALLY CLOSED GEARED LIMIT SWITCH
- NORMALLY OPEN GEARED LIMIT SWITCH
- INDICATING LIGHT
- FUSE
- CONTROL POWER TRANSFORMER
- SWITCH
- MS MANUAL STARTER
- OL OVERLOAD
- FLOAT SWITCH (CLOSING ON RISING LEVEL)
- FLOAT SWITCH (OPENING ON RISING LEVEL)
- PRESSURE SWITCH (CLOSING ON RISING PRESSURE)
- PRESSURE SWITCH (OPENING ON RISING PRESSURE)
- VACUUM SWITCH (CLOSING ON INCREASING VACUUM)
- VACUUM SWITCH (OPENING ON INCREASING VACUUM)
- TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE)
- TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE)
- FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW)
- FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW)
- ON TIME DELAY SWITCH (NORMALLY OPEN WITH TIME DELAY CLOSING AFTER COIL IS ENERGIZED)
- ON TIME DELAY SWITCH (NORMALLY CLOSED WITH TIME DELAY OPENING AFTER COIL IS ENERGIZED)
- OFF TIME DELAY SWITCH (NORMALLY OPEN WITH TIME DELAY OPENING AFTER COIL IS DE-ENERGIZED)
- OFF TIME DELAY SWITCH (NORMALLY CLOSED WITH TIME DELAY CLOSING AFTER COIL IS DE-ENERGIZED)
- TORQUE SWITCH (NORMALLY OPEN)
- TORQUE SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY OPEN)
- LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.)
- SUPX 24 VDC SURGE PROTECTION

NETWORKING LEGEND

- OPERATOR INTERFACE TERMINAL, (OIT)
- PROGRAMMABLE LOGIC CONTROLLER, (PLC)
- VARIABLE FREQUENCY DRIVE, (VFD)
- RACK SERVER
- PC
- CAMERA
- MODEM
- ROUTER
- NETWORK SWITCJ
- MEDIA CONVERTER
- WIRELESS ACCESS POINT
- RADIO
- RADIO TOWER
- PP PATCH PANEL
- —CAT5— CAT5 CABLE
- —CAT6— CAT6 CABLE
- - - - - - CELLULAR
- XXXXX FIBER
- —SERIAL— SERIAL
- WIRELESS

ABBREVIATIONS

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AM	AMMETER
ATO	AUTOMATIC THROWOVER
AWG	AMERICAN WIRE GAUGE
C	CLOSE, COUNTER, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CD	CONTROL DAMPER
CKT	CIRCUIT
CL2	CHLORINE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL STATION
CT	CYCLE TIMER, CURRENT TRANSFORMER
CTM	CYCLE TIMER MOTOR
2/C	2 CONDUCTOR
4"C	4" CONDUIT
DC	DIRECT CURRENT
DM	DAMPER MOTOR, DEMAND METER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPS	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH
E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE
EMH	ELECTRICAL MANHOLE
ETM	ELAPSED TIME METER
EX	EXISTING
F	FORWARD
FS	FLOW SWITCH
G	GREEN, GROUND
GFI	GROUND FAULT INTERRUPTER
GLS	GEARED LIMIT SWITCH
#8G	#8 GROUND WIRE
H	HIGH, HUMIDISTAT
HH	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HWCO	HIGH WATER CUTOFF
HZ	HERTZ (CYCLE)
I/O	INPUT/OUTPUT
J	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR
L	LOW, LEVEL
LA	LIGHTNING ARRESTOR
LAN	LOCAL AREA NETWORK
LP	LIGHTING PANEL
LS	LIMIT SWITCH, LEVEL SWITCH
LWCO	LOW WATER CUTOFF
M	MAGNETIC MOTOR STARTER
M	MAGNETIC MOTOR
MA	STARTER
MCB	MILLIAMPERE
MCC	MAIN CIRCUIT BREAKER
MCM	MOTOR CONTROL CENTER
MD	THOUSAND CIRCULAR MIL
MH	MOISTURE DETECTOR MANHOLE, MOUNTING HEIGHT
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MSH	MOTOR SPACE HEATER
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
O	OPEN
OL	OVERLOAD
PB	PUSH BUTTON, PULL BOX
PF	POWER FACTOR METER
PH	PHASE (CHEMICAL TERM)
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PS	POWER PANEL
PT	PRESSURE SWITCH POTENTIAL TRANSFORMER, PROGRAM
2P	TIMER
R	2 POLE RED, RAISE, RELAY, REVERSE
RECP	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RTD	RESISTANCE TYPE TEMP DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
S2	SIZE 2 STARTER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SP	SINGLE POLE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SS	SELECTOR SWITCH
SV	SOLENOID VALVE
SWB	SWITCHBOARD
SWGR	SWITCHGEAR
T	THERMOSTAT, TIMER, TOTALIZER
TACH	TACHOMETER
TB	TERMINAL BLOCK
TD	TIME DELAY RELAY
TEMP	TEMPERATURE
TQ	TORQUE
TS	TEMPERATURE SWITCH
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VLS	VALVE LIMIT SWITCH
VM	VOLTMETER
W	WHITE, WATTS
WH	WATTHOUR METER
WM	WATT METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
Y	YELLOW
Z	AUXILIARY RELAY
ZS	POSITION SWITCH

GENERAL NOTES

1. SOLID LINES —— INDICATE NEW WORK OR EQUIPMENT.
2. GRAYSCALED INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES —— INDICATE FUTURE WORK OR EQUIPMENT.
4. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
5. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.
6. CLOUDED MARKINGS INDICATE WORK IN EXISTING AREAS THAT IS NEW OR NEW WORK ON AN EXISTING PIECE OF EQUIPMENT.

J-U-B ENGINEERS, INC.

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8130 SHAFFER PARKWAY SUITE #A
LITTLETON, COLORADO 80127
720.344.7771 720.344.7460 FAX

BID SET

COLORADO REGISTERED THEODORE WILLIAM FOWLER 30647 7-11-25 PROFESSIONAL ENGINEER

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NO.	DESCRIPTION	BY	APPD.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

ELECTRICAL CONTROLS

LEGEND

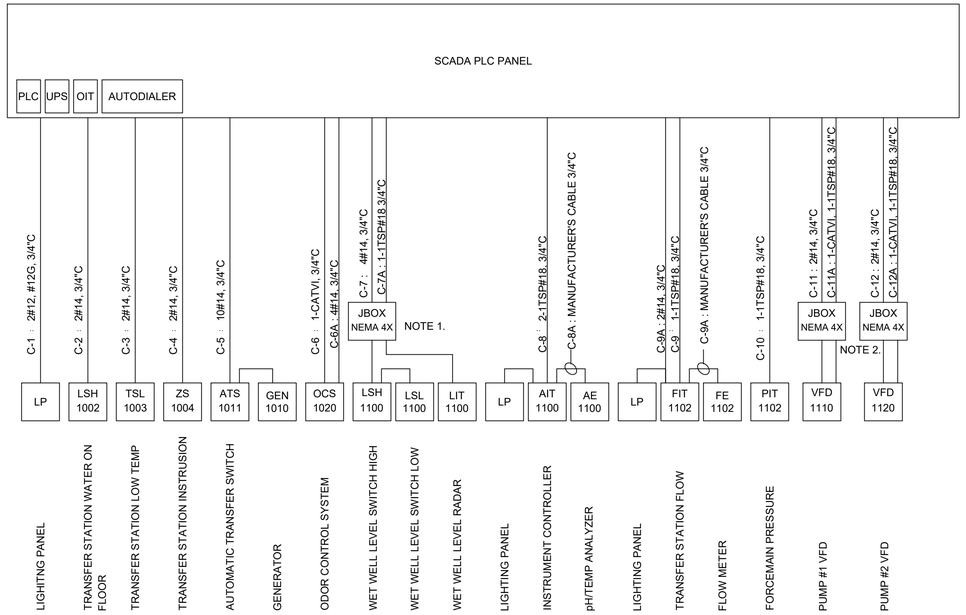
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JUB PROJ. # : 81-23-029
DRAWN BY: BAC
DESIGN BY: BAC
CHECKED BY: TFW

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/16/2025

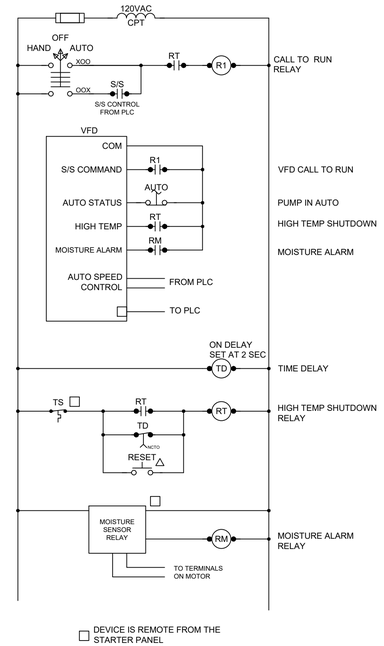
SHEET NUMBER:
EC-1

Plot Date:7/17/2025 10:23 AM Plotted By: Brittanny B. Christianson
Date Created:7/16/2025 X:\BH OFFICE CLIENTS\PALISADE\ENGINEERING\2025 SEWER TRANSFER STATION\DRAWINGS\E02 ONELINES.DWG



SCADA PLC PANEL
ONE-LINE DIAGRAM

NOTES:
1. J-BOX TO BE LOCATED NEAR WET WELL
2. J-BOX TO BE LOCATED NEAR PUMP MOUNTING BASE.



PUMP #1 & #2

ALL CONTROL SHALL BE HARDWIRED. SIGNALS BACK TO THE PLC SHALL BE OVER ETHERNET.
*FLYGT TO PROVIDE VFD CONTROL PANEL

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

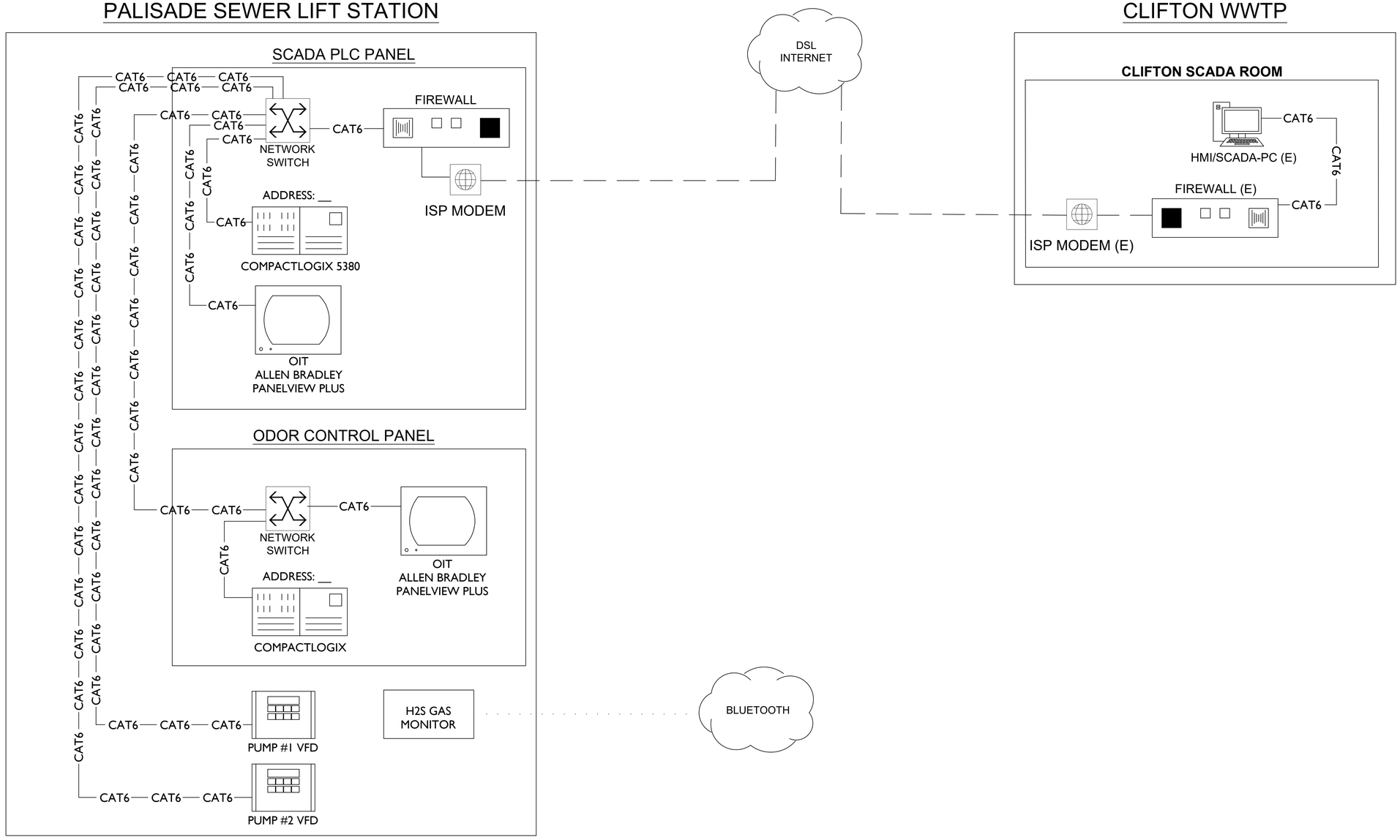
ELECTRICAL CONTROLS

ONE-LINES & SCHEMATICS

FILE : E02 ONELINES
JUB PROJ. # : 81-23-029
DRAWN BY: BAC
DESIGN BY: BAC
CHECKED BY: TFW
ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 7/17/2025

SHEET NUMBER:
EC-2

Plot Date:7/17/2025 12:49 PM Plotted By: Brittanny B. Christianson
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PALISADE SEWER LIFT STATION
NETWORK DIAGRAM

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REUSE OF DRAWINGS
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NO.	DESCRIPTION	BY	APPR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

ELECTRICAL CONTROLS

NETWORKING DIAGRAM

FILE : E02 ONELINES
JUB PROJ. # : 81-23-029
DRAWN BY: BAC
DESIGN BY: BAC
CHECKED BY: TFW

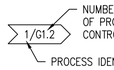
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LAST UPDATED: 7/16/2025

SHEET NUMBER:
EC-3

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PROCESS LEGEND



- MAIN PROCESS LINE
- EXIST MAIN PROCESS LINE
- FUTURE MAIN PROCESS LINE
- CHANNEL
- EXIST CHANNEL
- SECONDARY PROCESS LINE
- EXIST SECONDARY PROCESS LINE
- FUTURE SECONDARY PROCESS LINE
- BUILDING
- HARDWIRED SIGNAL
- DATA LINK OR SOFTWARE SIGNAL

VALVE SYMBOLS

CLOSED OPEN

- GATE VALVE
- PLUG VALVE
- GLOBE VALVE
- BALL VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- SWING CHECK VALVE
- BALL CHECK VALVE
- GLOBE CHECK VALVE
- WAFER CHECK VALVE
- DUCKBILL CHECK VALVE
- HAND OPERATED VALVE
- PILOT OPERATED PRESSURE REDUCING VALVE W/ DOWNSTREAM PRESSURE SETTING
- PILOT OPERATED PRESSURE REDUCING VALVE W/ UPSTREAM PRESSURE SETTING
- SPRING PRESSURE RELIEF W/ PRESSURE RELIEF
- AIR RELEASE VALVE (ARV)
- SOLENOID OPERATED VALVE (S)
- MOTOR OPERATED VALVE (M)
- BACKFLOW PREVENTER
- STOP LOGS
- SLIDE GATE

P&ID EQUIPMENT SYMBOLS

DRY PIT WET PIT

- CENTRIFUGAL PUMPS
- SUBMERSIBLE PUMP
- PROGRESSIVE CAVITY PUMP
- METERING PUMP
- PERISTALTIC PUMP
- VERTICAL TURBINE PUMP
- SUBMERSIBLE WELL PUMP
- DOUBLE DISC DIAPHRAGM PUMP (POSITIVE DISPLACEMENT)
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- ROTARY LOBE PUMP
- HANDLE OR THROTTLE
- MOTOR DRIVER (M)
- PRESSURE GAUGE
- DIAPHRAGM SEAL
- MANUAL DRAIN
- CAM-LOCK FITTING/QUICK CONNECT
- BLIND FLANGE
- FLUSHING PORT
- SAMPLE VALVE/PORT
- FLOW METER (M)
- THERMAL MASS FLOW METER (T)
- LASER FLOW METER
- STATIC INLINE MIXER
- ULTRASONIC LEVEL INDICATOR
- ULTRASONIC FLOW SENSOR
- HYDROSTATIC LEVEL SENSOR
- DISOLVED OXYGEN SENSOR
- PH SENSOR
- RADAR LEVEL INDICATOR

- FLOAT SWITCH
- EMERGENCY EYEWASH
- CALIBRATION COLUMN
- CHEMICAL FEED SYSTEM
- POLYMER INJECTION RING
- FAN
- MIXER
- WEIR
- FLOW RESTRICTOR
- PH/TEMP ANALYZER
- TURBIDIMETER (TURB)
- ORP METER (ORP)
- PARSHALL FLUME
- INLINE GRINDER
- RADIO TRANSMITTER
- RADIO RECEIVER
- DRAIN
- DIFFUSERS
- PRESSURE INDICATING TRANSMITTER

PROCESS SERIES TAGGING

HEADWORKS	100S
AERATION	200S
CLARIFICATION	300S
WAS,RAS,SCUM	400S
UV	500S
DIGESTION/TWAS	600S
POLYMER	700S
WWTP DRAIN	800S

INSTRUMENT IDENTIFICATION LETTERS
(INSTRUMENT SOCIETY OF AMERICA)

	FIRST – LETTER		SUCCEEDING – LETTERS		
	MEASURED OR INITIATING VARIABLE		READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONTROL			CONTROL SWITCH	CLOSED
D	USER'S CHOICE	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE MOTOR	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	FAILURE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	COMMAND
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

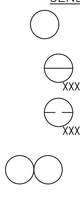
P&ID INSTRUMENT SYMBOLS

PROCESS CONTROL SYSTEM INTERFACE SYMBOLS



INPUT/OUTPUT TO/FROM PLC, INSIDE PLC PANEL
YYY – INDICATES FUNCTION TYPE
XXX – INDICATES PANEL WHERE DEVICE IS LOCATED

GENERAL INSTRUMENT SYMBOLS



- FIELD MOUNTED INSTRUMENT
- INSTRUMENT MOUNTED ON FACE OF PANEL NORMALLY ACCESSIBLE TO THE OPERATOR. XXX – INDICATES PANEL WHERE DEVICE IS LOCATED
- INSTRUMENT MOUNTED BEHIND OR INSIDE PANEL. XXX – INDICATES PANEL WHERE DEVICE IS LOCATED
- SINGLE INSTRUMENT HOUSING CONTAINING TWO OR (MORE) INSTRUMENTATION FUNCTIONS
- PLC I/O

PANEL NOMENCLATURE

CP-XXX:	CONTROL PANEL (AREA CONTROL)
LCP-XXXA:	LOCAL CONTROL PANEL (SPECIFICATION PROCESS CONTROL) LETTERS A, B, C DENOTES VENDER SUPPLIED EQUIPMENT
LP-X	LIGHTING PANEL

GENERAL NOTES:

1. THIS IS A STANDARD LEGEND, THEREFORE NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.
2. P & ID INSTRUMENTATION DETAILS DO NOT REPRESENT INSTRUMENTS AND CONTROLS INTEGRAL TO VENDOR SUPPLIED CONTROL PANELS OR EQUIPMENT. SEE EQUIPMENT SPECIFICATIONS FOR THIS INFORMATION.
3. P & ID DOES NOT REPRESENT CONTROL STRATEGIES OR INTERACTIONS. REFERENCE SECTION 16950, CONTROL NARRATIVES, FOR THIS INFORMATION.
4. P & ID DOES NOT REPRESENT EQUIPMENT HARDWIRED INTERLOCK AND ENABLE CIRCUITRY, REFER TO SECTION 16950 FOR COMPLETE DESCRIPTION.

COMMON INSTRUMENT DESIGNATIONS

TAG	DESIGNATION
YL	EQUIPMENT RUNNING STATUS
YS	EQUIPMENT IN AUTO OR REMOTE STATUS
YY	EQUIPMENT RUN COMMAND
UA	EQUIPMENT FAULT STATUS
HC	HAND CONTROL
HS	HAND SWITCH
SI	SPEED INDICATION
SC	SPEED COMMAND
PSL	PRESSURE SWITCH LOW
PSH	PRESSURE SWITCH HIGH
FE	FLOW ELEMENT
FIT	FLOW INDICATOR/TRANSMITTER
ZSO	VALVE POSITION FULL OPEN
ZSC	VALVE POSITION FULL CLOSE
ZSI	VALVE POSITION INDICATOR
SP	SET POINT
PID	PROPORTIONAL-INTEGRAL-DERIVATIVE
HOA	HAND-OFF-AUTO
OCA	OPEN-CLOSE-AUTO
LCP	LOCAL CONTROL PANEL

ABBREVIATIONS

P-XXX	PUMP
MX-XXX	MIXER
MBS-XXX	MECHANICAL BAR SCREEN
MS-XXX	MANUAL BAR SCREEN
BL-XXX	BLOWERS
GC-XXX	GRIT CLASSIFIER
WC-XXX	WASHER COMPACTOR
RDT-XXX	ROTARY DRUM THICKENER
UV-XXX	ULTRA VIOLET
CV-XXX	CHECK VALVE
BV-XXX	BALL VALVE
PV-XXX	PLUG VALVE
BFV-XXX	BUTTERFLY VALVE
MV-XXX	MOTOR OPERATED VALVE
SV-XXX	SOLENOID OPERATED VALVE
M-XXX	MOTOR
OC-XXX	ODOR CONTROL SYSTEM
G-XXX	INLINE GRINDER
SP-XXX	DEWATERING SCREW PRESS
ST-XXX	STRAINER

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NO.	DESCRIPTION	BY	APR.	DATE
	REVISION			

SEWER TRANSFER PROJECT
TOWN OF PALISADE

PIPING AND INSTRUMENTATION DIAGRAM
LEGEND

FILE :	I-1 & I-2
JUB PROJ. # :	81-23-029
DRAWN BY:	TRW
DESIGN BY:	TRW
CHECKED BY:	TFW

ONE INCH
AT FULL SIZE, IF NOT ONE INCH, SCALE ACCORDINGLY

LAST UPDATED: 7/17/2025

SHEET NUMBER:

I-1

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REFER TO CONTROL DESCRIPTIONS FOR CONTROL INTERLOCKS

HMI

SCADA PLC PANEL

FIELD

| | | |