100% CD's

OF

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

ENGLEWOOD, COLORADO

FOR

SHEA PROPERTIES

2024.08.15

MOA ARCHITECTURE
COLORADO | WYOMING

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8/15/2024 4:46:04 AM

TERMS AND ABBREVIATIONS

A	
AAR(#)	ADD ALTERNATE #(#)
ACI	AMERICAN CONCRETE INSTITUTE
ACR	ACRYLIC
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADD	ADD or ADDENDUM
ADJ	ADJACENT, ADJUSTABLE or ADJOINING
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AFS	ACCESS FLOOR SYSTEM
AGC	ASSOCIATED GENERAL CONTRACTORS
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIA	AMERICAN INSTITUTE of ARCHITECTS
AISC	AMERICAN INSTITUTE of STEEL CONSTRUCTION
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
ANN	ANNUNCIATOR
ANOD	ANODIZED
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACOUSTICAL PANEL
APA	AMERICAN PLYWOOD ASSOCIATION
APPROX	APPROXIMATE(LY)
APT	APARTMENT
ARCH	ARCHITECT or ARCHITECTURAL
ASCE	AMERICAN SOCIETY of CIVIL ENGINEERS
ASHRAE	AMERICAN SOCIETY of HEATING, REFRIGERATION and AIR CONDITIONING ENGINEERS
ASI	ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS
ASID	AMERICAN SOCIETY of INTERIOR DESIGNERS
ASME	AMERICAN SOCIETY of MECHANICAL ENGINEERS
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY for TESTING and MATERIALS
ATM	AUTOMATIC TELLER MACHINE
ATTN	ATTENTION
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AUDIO / VISUAL
AWI	ARCHITECTURAL WOODWORKING INSTITUTE
AWPA	AMERICAN WOOD PRESERVERS ASSOCATION
B	
BD	BOARD
BIA	BRICK INSTITUTE of AMERICA
BITUM	BITUMINOUS
BKT	BRACKET
BLDG	BUILDING
BLKG	BLOCKING
BLVD	BOULEVARD
BO	BOTTOM OF
BOD	BASIS OF DESIGN
BPG	BACK PAINTED GLASS
BR	BEDROOM
BSMT	BASEMENT
BUR	BUILT-UP ROOFING
C	
C	CHANNEL
CA	ARCHITECTURAL CONCRETE
CAB	CABINET
CATV	COMMUNITY ANTENNA (cable) TELEVISION
CB	CORNER BEAD
CBB	CEMENTITIOUS BACKER BOARD
CCD	CONTRACT CHANGE DIRECTIVE
CCTV	CLOSED CIRCUIT TELEVISION
CCW	COUNTER-CLOCKWISE
CD	CONSTRUCTION DOCUMENTS or CONTRACT DOCUMENTS
CEM	CEMENT or CEMENTITIOUS
CER	CERAMIC
CERT	CERTIFY or CERTIFICATE
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CIP	CAST-IN-PLACE (CONCRETE)
CJ	CONTROL JOINT - CONCRETE (CMU)
CL	CENTERLINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTERTOP
CO	CLEANOUT
COAX	COAXIAL CABLE
COB	CHANGE ORDER BULLETIN
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECT(ION)
CONST	CONSTRUCTION
CONST	CONTINUE, CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPPS	CONCRETE PEDESTAL PAVER SYSTEM
CPT	CARPET
CR	CARD READER
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CS	STRUCTURAL CONCRETE
CSI	CONSTRUCTION SPECIFICATIONS INSTITUTE
CSK	COUNTERSINK or COUNTERSUNK
CSMT	CASEMENT
CSS	CLINICAL SERVICE SINK
CSWK	CASEWORK
CT	COUNT
CTR	CENTER
CTRL	CONTROL
CU	CUBIC
CW	CLOCKWISE
D	
D	DEPTH
dB	DECIBEL
DBL	DOUBLE
DEG	DEGREE(S)
DEMO	DEMOLISH or DEMOLITION
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DH	DOUBLE-HUNG
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFERENCE
DIM	DIMENSION or DIMENSIONAL
DISP	DISPENSER
DIST	DISTANCE
DIV	DIVIDE or DIVISION
DN	DOWN
DOC	DOCUMENT
DPS	DOOR POSITION SWITCH
DR	DRIVE
DS	DOWNSPOUT
DT	DRAIN TILE
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
DWR	DRAWER
E	
(E)	EXISTING
E	EAST
EA	EACH
EC	EPOXY COUNTERTOP
ED	EDUCATION(AL)
EF	EXHAUST FAN or EPOXY FLOORING
EIFS	EXTERIOR INSULATION and FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
EO	EDGE OF
EOS	EDGE OF SLAB
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPDM	ETHYLENE PROPYLENE DIENE MONOMER (roofing)
EPS	EXPANDED POLYSTYRENE (insulation board)
EQ	EQUAL
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETC	ET CETERA (and so forth)
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXP	EXPAND, EXPANDED or EXPANSION
EXPS	EXPOSED STRUCTURE
EXT	EXTERIOR
F	
(F)	FUTURE
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAF	FLUID APPLIED FLOORING
FAR	FLOOR AREA RATIO
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FFE	FURNITURE, FIXTURES AND EQUIPMENT
FFL	FINISHED FLOOR LINE
FHC	FIRE HOSE CABINET
FHS	FIRE HOSE STATION
FL	FLOOR LINE
FLR	FLOOR
FO	FACE OF
FOF	FACE OF FINISH
FOS	FACE OF STUD
FR	FIRE RATING, FIRE RESISTIVE, FIRE RESISTANT or FRAME
FRP	FIBERGLASS-REINFORCED PANEL
FRT	FIRE RETARDENT TREATED
FS	FLOOR SINK
FT	FEET or FOOT
FURR	FURRING
G	
GA	GAUGE or GYPSUM ASSOCIATION
GALV	GLAVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT(S)
GL	GLASS or GLAZING
GLU-LAM	GLUED-LAMINATED WOOD
GMP	GUARANTEED MAXIMUM PRICE
GYM	GYMNASIUM
GYP	GYPSUM
H	
HB	HOSE BIBB
HC	HANDICAP
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HR	HOUR
HSS	HOLLOW STRUCTURAL SECTION(S)
HT	HEIGHT
HVAC	HEATING, VENTILATION and AIR CONDITIONING
HW	HOT WATER
I	
IBC	INTERNATIONAL BUILDING CODE
ID	IDENTIFICATION
IGU	INSULATING GLASS UNIT
IN	INCH
INFO	INFORMATION
INSUL	INSULATED or INSULATION
INT	INTERIOR
INV	INVERT
J	
JAN	JANITOR
JT	JOINT
K	
KD	KNOCKED DOWN
KITCH	KITCHEN
KPL	KICK PLATE
L	
L	ANGLE
LAB	LABORATORY
LAV	LAVATORY
LF	LINEAR FEET / LINOLEUM FLOORING
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LIB	LIBRARY
LT	LIGHT
LVT	LUXURY VINYL TILE
M	
M	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MCM	METAL COMPOSITE MATERIAL PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MEP	MECHANICAL, ELECTRICAL and PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MP	METAL PANEL
MTD	MOUNTED
MTL	METAL
N	
(N)	NEW
N	NORTH
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NR	NON-RATED
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
O	
O2	OXYGEN
OC	ON-CENTER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OH	OVERHEAD DOOR
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY and HEALTH ADMINISTRATION
P	
PA	PUBLIC ADDRESS
PC	POLISHED CONCRETE
PED	PEDESTRIAN
PERF	PERFORATED
PERIM	PERIMETER
PF	PREFINISHED
PL	PLATE or PROPERTY LINE or PLASTIC LAMINATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PR	PAIR or PROPOSAL REQUEST
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT(ED)
PV	PHOTOVOLTAIC
PVT	PAVER TILE
PWR	POWER
Q	
QA	QUALITY ASSURANCE
QTY	QUANTITY
R	
R	RADIUS
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN or ROAD
RE	REFER TO or REFERENCE
REBAR	STEEL REINFORCING BARS
REF	REFRIGERATOR or REFRIGERATED
REINF	REINFORCED
REQD	REQUIRED
REV	REVISE, REVISED or REVISION
RF	RUBBER FLOORING
RFI	REQUEST FOR INFORMATION
RFP	REQUEST FOR PROPOSAL
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RSF	RESILIENT SPORTS FLOORING
RTU	ROOFTOP UNIT
S	
S	SOUTH
SAN	SANITARY
SC	SEALED CONCRETE
SCF	STATIC CONTROL FLOORING
SCHED	SCHEDULE
SDT	STATIC DISSIPATIVE TILE
SF	SQUARE FOOT (FEET) or SPORTS FLOORING
SIM	SIMILAR
SMACNA	SHEET METAL and AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
SPEC	SPECIFICATION(S)
SQ	SQUARE
SS	SOLID SURFACING
SST	STAINLESS STEEL
SSTB	STAINLESS STEEL BASE
ST	STONE (REAL / ENGINEERED)
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUC	STRUCTURE or STRUCTURAL
SYS	SYSTEM
T	
T	TILE
T&G	TONGUE and GROOVE
TB	TILE BASE
TEL	TELEPHONE
TEMP	TEMPORARY
THK	THICKNESS
TO	TOP OF
TOW	TOP OF WALL
TP	TOILET PARTITION
TS	TACK SURFACE
TV	TELEVISION
TYP	TYPICAL
U	
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
UOS	UNLESS OTHERWISE SPECIFIED
UP	UPHOLSTERY
UTIL	UTILITY
V	
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FLOORING
VIF	VERIFY IN FIELD
VOC	VOLATILE ORGANIC COMPOUND
VOL	VOLUME
W	
W	WEST or WIDE FLANGE or WIDTH
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WALL COVERING
WD	WOOD
WDW	WINDOW
WOM	WALK OFF MAT
WP	WALL PROTECTION
WSCT	WAINSCOT
WT	WEIGHT or WINDOW TREATMENT
WV	WOOD VENEER
X	
X	EXTRUDED POLYSTYRENE

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REFERENCE SYMBOLS

BUILDING SECTION: Section Number / Sheet Number

WALL SECTION: Section Number / Sheet Number

DETAIL INDICATOR: Section Number / Sheet Number

SECTION DETAIL: Section Number / Sheet Number

ELEVATION INDICATOR: Elevation Numbers / Sheet Number (Exterior); Sheet Number / Elevation Number (Interior)

DRAWING BLOCK: # DRAWING BLOCK TITLE / DRAWING SCALE; Drawing Number

ELEVATION MARK: ELEVATION HEIGHT / LEVEL DESCRIPTOR

NORTH INDICATOR: PLAN NORTH

MATCHLINE: AREA 'X' RE: VIEW # / SHEET #

DOOR OPENING: 216A

WINDOW / LOUVER TYPE: # L#

CONCRETE TILE PANEL TYPE: P*

SYSTEM NOTE: F=FLOOR; P=PARTITION; W=WALL; C=CEILING; R=ROOF — #

ALIGN: AL

CENTERLINE: CL

REVISION: #

ACCESSORY / EQUIPMENT INDICATOR: 2

MATERIAL/FINISH INDICATOR: A-#

CASEWORK TAG (AWI): W D H

SHEET KEYNOTE INDICATOR: #

WALL AND OPENING LEGEND

STUD WALL FRAMING

OPENING - NEW DOOR AND HARDWARE

REFERENCE KEYNOTE:

05 5000.31 METAL FABRICATION - BENT PLATE

- ITEM NAME OR SIZE
- SPECIFICATION TITLE
- SUFFIX NUMBER - DOES NOT CORRELATE TO SPECIFICATION
- SPECIFICATION NUMBER

GENERAL PROJECT NOTES

1. ABBREVIATIONS REFERENCED FROM THE CONSTRUCTION SPECIFICATIONS INSTITUTE'S UNIFORM DRAWING SYSTEM TERMS AND ABBREVIATIONS MODULE.
2. DIMENSIONS TO FACE OF OBJECTS ARE MARKED BY DIAGONAL TICK MARKS.
3. FEATURES THAT APPEAR TO BE CENTERED ON BUILDING COLUMNS OR OTHER STRUCTURE ARE, AND HENCE ARE NOT SPECIFICALLY DIMENSIONED ON ARCHITECTURAL PLANS.
4. FACES OF WALLS THAT APPEAR TO BE ALIGNED ARE IN FACT ALIGNED, UNO
5. IF SPECIFICATIONS AND DRAWINGS CONTRADICT THEMSELVES, ASSUME MORE EXPENSIVE SOLUTION IS REQUIRED.
6. SHEET SPECIFIC IDENTIFICATION OF ITEMS (E.G. 08 1113.01) DIRECTLY REFERENCE CORRESPONDING ARCHITECTURAL SECTIONS IN THE PROJECT MANUAL. THE DECIMAL POINT AND SUFFIX NUMBERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

VICINITY MAP

PLAN NORTH

SHEET INDEX

GENERAL

CIVIL

LANDSCAPE

STRUCTURAL

ARCHITECTURAL

PLUMBING

MECHANICAL

ELECTRICAL

MOA ARCHITECTURE
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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONCZAK
08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
SHEET INDEX

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LIFE SAFETY LEGEND

CLASSIFICATION	SYMBOL	FIRE-RESISTANCE-RATING (HRS)	SMOKE RESISTANT	OPENING PROTECTION	APPLICATION	CONCEPTUAL DIAGRAM
FIRE BARRIERS	◆FB ◆FB ◆FB	1	NO	FIRE DAMPERS FIRE DOORS FIRE SHUTTERS FIRE GLAZING FIRESTOPPING	FIRE AREA SEPARATION PROTECTION OF MEANS OF EGRESS HAZARDOUS AREA ENCLOSURE **SHAFT ENCLOSURE**	

PATH A — MEANS OF EGRESS - TRAVEL DISTANCE

PATH B — MEANS OF EGRESS - COMMON PATH

EXIT DISCHARGE

150' DIAMETER AROUND PORTABLE FIRE EXTINGUISHERS

EXIT ACCESS TRAVEL DISTANCE

Path A 110'

CODE REVIEW 2021 ICC

PROJECT DESCRIPTION THIS PROJECT CONSISTS OF A NEW FULLY SPRINKLERED 60,000 SF CORE SHELL BUILDING AT DOUBLE HELIX WEST. THE CONSTRUCTION WILL BE CONCRETE TILT-UP PANELS AND IS SLATED TO BE A MIXTURE OF B OCCUPANCY AND S-1 OCCUPANCY. CODE CALCULATIONS HAVE BEEN COMPLETED WITH MOST STRINGENT REQUIREMENTS.

JURISDICTION Douglas County, CO

CODES
2021 International Building Code
2021 International Mechanical Code
2021 International Plumbing Code
2021 International Fuel Gas Code
2023 National Electrical Code
2018 International Energy Conservation Code
2018 International Fire Code
2017 ICC A117.1, Accessible and Usable Buildings and Facilities (IBC - Chapter 35)
Americans with Disabilities Act (ADA)
Exhibit B Wildfire Mitigation Standards
Exhibit C Standard for Water Supplies for Rural Fire Fighting
Exhibit E 2021 IBC Appendix Chapter P Section P 1205 Solar Photovoltaic Power Systems
Douglas County Code Amendments
Meridian Design Control Committee Design Guidelines

BUILDING AREA

AREA, BUILDING
PER IBC SECTION 202. USED TO DETERMINE ALLOWABLE AREAS. THE AREA INCLUDED WITHIN SURROUNDING EXTERIOR WALLS EXCLUSIVE OF VENT SHAFTS AND COURTS AND INCLUSIVE OF EXTERIOR AREAS UNDER THE HORIZONTAL PROJECTION OF THE ROOF OR FLOOR ABOVE. (MEASURED FROM INSIDE FACE OF EXTERIOR WALLS).

60,000 SF 1ST FLOOR
60,000 SF TOTAL

NO. OF STORIES 1

ITEM		CODE CITATION
OCCUPANCY CLASSIFICATION	B/S-1 (Speculative Tenant Finish)	SECTIONS 304.1 & 311.2
OCCUPANCY SEPARATION	NOT REQUIRED (B/S-1 = "N" SEPARATION)	SECTION 508.4
CONSTRUCTION	**II-B**	SECTION 602, TABLE 601, TABLES 504.3, 504.4, 506.2
ALLOWABLE AREA		
UNLIMITED AREA:	SINGLE-STORY, FULLY SPRINKLERED, FRONTAGE > 60' WIDTH	SECTION 507.4
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE:	75 FEET	TABLE 504.3
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE:	4 STORIES	SECTION 504.2
FIRE PROTECTION		CHAPTER 9
FIRE SPRINKLERING	THROUGHOUT	SECTION 903
STANDPIPES	NOT REQUIRED (HIGHEST FLOOR ≤ 30')	SECTIONS 905.3.1 THROUGH 905.3.8
FIRE EXINGUISHERS	CLASS ABC EXTINGUISHERS PROVIDED THROUGHOUT; MAX DISTANCE OF 150' BETWEEN EXTINGUISHERS	TABLE 906.3(1) & 906.3(2)
FIRE ALARM	PROVIDED THROUGHOUT	SECTION 907

FIRE RESISTIVE REQUIREMENTS TABLES 601 & 705.5 UNO

STRUCTURAL FRAME	NO REQUIREMENT	
BEARING EXTERIOR WALLS	NO REQUIREMENT ≥ 30 FEET	TABLES 601 & 705.5
BEARING INTERIOR WALLS	NO REQUIREMENT	
NON-BEARING EXTERIOR WALLS	NO REQUIREMENT ≥ 30 FEET	TABLE 705.5
NON-BEARING INTERIOR WALLS	NO REQUIREMENT	
FLOORS	NO REQUIREMENT	
ROOF	NO REQUIREMENT	
ROOFING	CLASS C	TABLE 1505.1
OPENINGS IN EXTERIOR WALLS	≥ 20' SEP = UNLIMITED (UP, S)	TABLE 705.8
SHAFTS	1-HOUR CONNECTING < 4 STORIES	SECTIONS 713.4
PENETRATIONS, JOINTS, AND OPENINGS	ALL PENETRATIONS AND JOINTS IN FIRE BARRIER TO BE PROTECTED	SECTIONS 714-716
FIRE DEPARTMENT ACCESS DOORS	EVERY 125' CENTER TO CENTER	IFC 2018 3206.7

FOAM PLASTICS SECTION 2603.5.5
EXCEPTIONS NOT MET; NFPA 285 COMPLIANCE REQUIRED

OCCUPANT LOAD B = 1/150 GROSS FLOOR AREA DEFINED — TABLE 1004.8 SETION 202

OCCUPANT LOAD CALCULATED WITH BUSINESS FUNCTION OF SPACE FOR WORST CASE SCENARIO; FINAL OCCUPANT LOAD CALCS TO BE REVIEWED AND VERIFED DURING TI SCOPE

OCCUPANCY TABULATION

GROSS FLOOR AREA	FUNCTION	LOAD FACTOR IBC TABLE 1004.12	OCCUPANCY LOAD
LEVEL 01			
59282 SF	Business	150 SF	397
59282 SF			397

EXITS

NUMBER OF EXITS FROM SPACES: EXITING TO BE VERIFIED AND UPDATED DURING TI SCOPE OF WORK — TABLE 1006.2.1

NUMBER OF EXITS BASED ON USE: ELECTRICAL ROOM = 2 EXITS — SECTION 1006.2.2

NUMBER OF EXITS FROM STORIES:
GROUND FLOOR

NUMBER OF EXITS	2 REQUIRED	**11 PROVIDED**	TABLE 1006.3.3 & TABLE 1006.3.4 (2)
CLEAR EGRESS WIDTH	0.15 x 400 OCC. = 59.55" MIN. REQUIRED	**594" PROVIDED**	SECTION 1005.3.2, EXCEPTION 1
SEPARATION OF EXITS	1/3 DIAGONAL DISTANCE OF AREA SERVED (FULLY SPRINKLERED)		SECTION 1007.1.1, EXCEPTION 2
EXIT ACCESS TRAVEL DISTANCE	300 FT MAX. (FULLY SPRINKLERED, B OCCUPANCY)		TABLE 1017.2
COMMON PATH OF EGRESS TRAVEL	100 FT MAX. (FULLY SPRINKLERED, B OCCUPANCY)		TABLE 1006.2.1

***EXIT ACCESS TRAVEL DISTANCE AND COMMON PATH OF TRAVEL DISTANCE TO BE REVIEWED AND VERIFIED DURING TI SCOPE**

STAIRWAYS AND HANDRAILS

WIDTH	MINIMUM WIDTH = 48" AS PART OF AN ACCESSIBLE MEANS OF EGRESS	SECTION 1009.3.2, EXCEPTION 2
	MINIMUM WIDTH AS DETERMINED FOR EGRESS	SECTION 1011.2, SECTION 1005.3.1
HEADROOM	MINIMUM CLEARANCE = 80"	SECTION 1011.3
TREADS	11" DEEP MINIMUM	SECTION 1011.5.2
RISERS	HEIGHT OF 4" MINIMUM TO 7" MAXIMUM	SECTION 1011.5.2
HANDRAILS	• HEIGHT = 34" TO 38"	SECTIONS 1011.11 & 1014.2
	• TYPE 1 DIAMETER = 1.25" TO 2" PERIMETER NOT GREATER THAN 6 1/4"	SECTION 1014.3.1
	• MUST EXTEND 12" BEYOND TOP RISER AND CONTINUE TO SLOPE FOR THE DEPTH OF ONE TREAD BEYOND THE BOTTOM RISER	SECTION 1014.6
LANDINGS	LENGTH MUST EQUAL WIDTH OF STAIRWAY	SECTION 1011.6

RAMPS (AS MEANS OF EGRESS)

WIDTH	44" MINIMUM	SECTION 1012.5, SECTION 1020.2
CLEAR WIDTH	36" MINIMUM BETWEEN HANDRAILS	SECTION 1012.5.1
HEADROOM	80" MINIMUM CLEARANCE	SECTION 1012.5.2
SLOPE	1:12 (8.3%) MAXIMUM	SECTION 1012.2
CROSS SLOPE	1:48 (2%) MAXIMUM	SECTION 1012.3
VERTICAL RISE	30" MAXIMUM BETWEEN LANDINGS	SECTION 1012.4
LANDINGS	60" MINIMUM LENGTH, WIDTH = WIDTH OF RAMP AT STRAIGHT RUNS	SECTION 1012.6
HANDRAILS	• HEIGHT = 34" TO 38"	SECTIONS 1012.8 & 1014.2
	• TYPE 1 DIAMETER = 1.25" TO 2" PERIMETER NOT GREATER THAN 6 1/4"	SECTION 1014.3.1
	• MUST EXTEND 12" BEYOND TOP AND BOTTOM OF RAMP RUNS	SECTION 1014.6
EDGE PROTECTION	REQUIRED (WITH EXCEPTIONS)	SECTION 1012.10

GUARDS SECTION 1015
MINIMUM HEIGHT FOR RAMPS AND STAIRS: 42" — SECTION 1015.3

PLUMBING FIXTURES
PLUMBING FIXTURE CALCULATIONS TO BE COMPLETED AS PART OF TI SCOPE OF WORK

OTHER REQUIREMENTS AND PROVISIONS

ACCESSIBILITY CHAPTER 11, ANSI/ICC A117.1, ADA
ACCESSIBLE ROUTES INTO SITE AND WITHIN ACCESSIBLE BUILDINGS — SECTIONS 1104 & 1105
ACCESSIBLE MEANS OF EGRESS — SECTION 1009 & ICC A117.1
2 REQUIRED (≥ 2 EXITS REQUIRED) — SECTION 1009.1
STAIRWAY: MINIMUM CLEAR WIDTH = 48" (NOT REQUIRED IF FULLY SPRINKLERED) — SECTION 1009.3.2, EXCEPTION 1
AREA OF REFUGE (NOT REQ'D IF FULLY SPRINKLERED) — SECTION 1009.3.3, EXCEPTION 2
SECTION 1009.2.1
ACCESSIBLE TOILET ROOMS — SECTION 1110.2
MINIMUM OF 1 ACCESSIBLE STALL PER TOILET ROOM — SECTION 1110.2.4
IF 6 OR MORE STALLS IN A TOILET ROOM, ADD AN "AMBULATORY ACCESSIBLE" STALL — SECTION 1110.2.2
MINIMUM OF 5% OF LAVS MUST BE ACCESSIBLE BUT NO LESS THAN ONE IN EACH TOILET ROOM — SECTION 1110.2.5
MINIMUM OF 1 ACCESSIBLE URINAL PER TOILET ROOM — 1110.2, EXCEPTION 4
IF ONLY 1 URINAL, NOT REQUIRED TO BE ACCESSIBLE — 1110.2, EXCEPTION 4
SINKS, 5% IF MORE THAN 1, MINIMUM OF 1 ACCESSIBLE — SECTION 1110.3
DRINKING FOUNTAINS, 50%/50%, MINIMUM OF 1 ACCESSIBLE AND 1 STANDING — SECTION 1110.5

DOORS, GATES & TURNSTILES **SECTION 1010**
MINIMUM CLEAR WIDTH = 32" — SECTION 1010.1.1
PROJECTION INTO CLEAR WIDTH — SECTION 1010.1.1.1
LANDINGS AT DOORS — SECTION 1010.1.5
THRESHOLDS — SECTION 1010.1.6

SIGNAGE SECTIONS 1009.9, 1009.10, 1013, 1112
POSTING OF OCCUPANT LOAD — SECTION 1004.9

INTERIOR WALL AND CEILING FINISH REQUIREMENTS TABLE 803.13
REFER TO TABLE FOR REQUIREMENTS BY OCCUPANCY

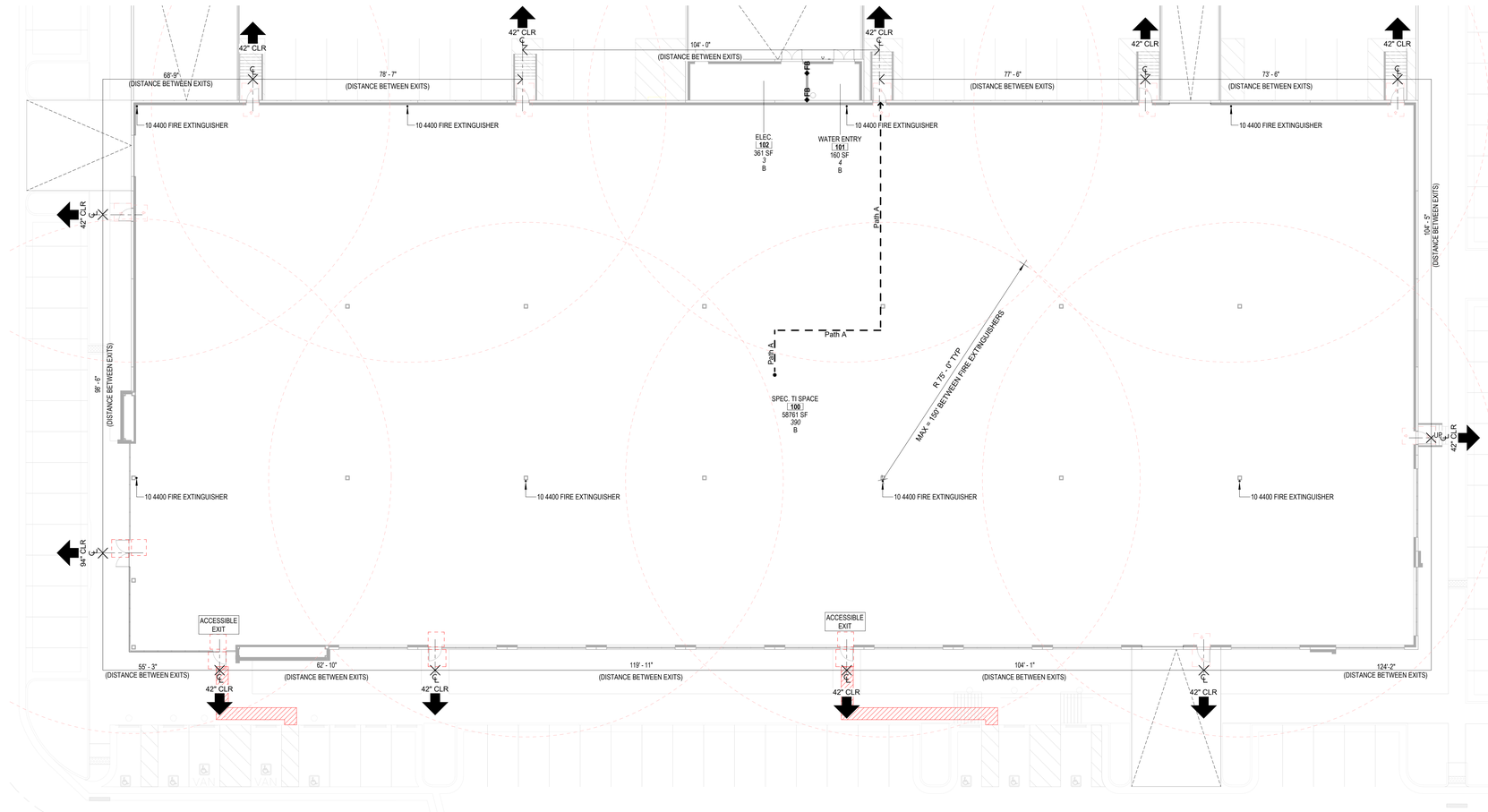
	CLASS
INTERIOR EXIT STAIRWAYS, RAMPS & EXIT PASSAGEWAYS:	B
CORRIDORS AND ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND RAMPS:	C
ROOMS AND ENCLOSED SPACES:	C

EMERGENCY RESPONDER COMMUNICATION COVERAGE SYSTEMS SECTION 918 & IFC 510
TESTING & DELEGATED DESIGN: PROVIDE EARLY TESTING, DESIGN, AND INSTALLATION OF THE EMERGENCY RESPONDER RADIO COVERAGE SYSTEM AS REQUIRED BY AHJ.

CARBON MONOXIDE DETECTION SECTION 915
SHALL COMPLY WITH NFPA 70, NFPA 72, AND IFC 11.

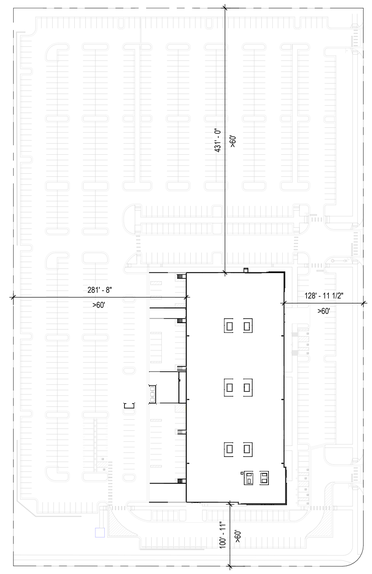
DELEGATED DESIGN SECTION 918 & IFC 510
EMERGENCY RESPONDER COMMUNICATION COVERAGE SYSTEMS - PROVIDE EARLY TESTING, DESIGN, AND INSTALLATION OF THE EMERGENCY RESPONDER RADIO COVERAGE SYSTEM AS REQUIRED BY AHJ.

RAMMED AGGREGATE PIERS - RE: SPEC SECTION 31 6613.13
COLD-FORMED METAL FRAMING - RE: SPEC SECTION 05 4000
WET-PIPE SPRINKLER SYSTEMS - RE: SECTION 21 1313
ARC-FLASH HAZARD STUDY FOR SWITCHBOARDS - RE: SPEC SECTION 26 2413
ADDRESSABLE FIRE ALARM SYSTEMS - RE: SPEC SECTION 28 4621.11



1 LEVEL 1 - CODE COMPLIANCE PLAN
1/16" = 1'-0"

PLAN NORTH



2 UNLIMITED AREA DIAGRAM
1" = 100'-0"

PLAN NORTH

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

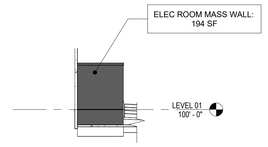
COLORADO LICENSED
BRIAN M. KONCZYK
08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

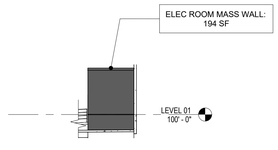
Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK
Copyright:	

Sheet Name
CODE COMPLIANCE

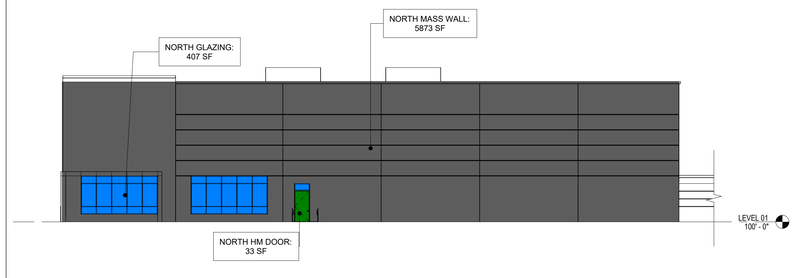
G-002



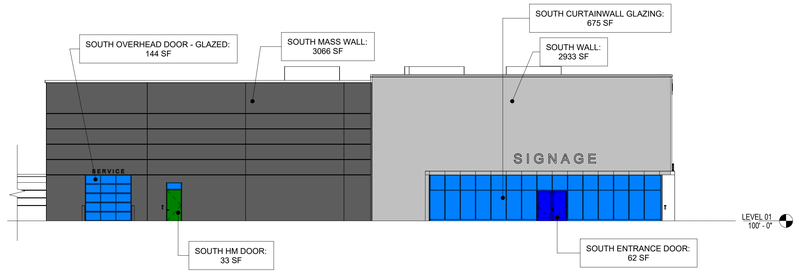
8 NORTH ELEVATION - ELEC ROOM COMCHECK
1/16" = 1'-0"



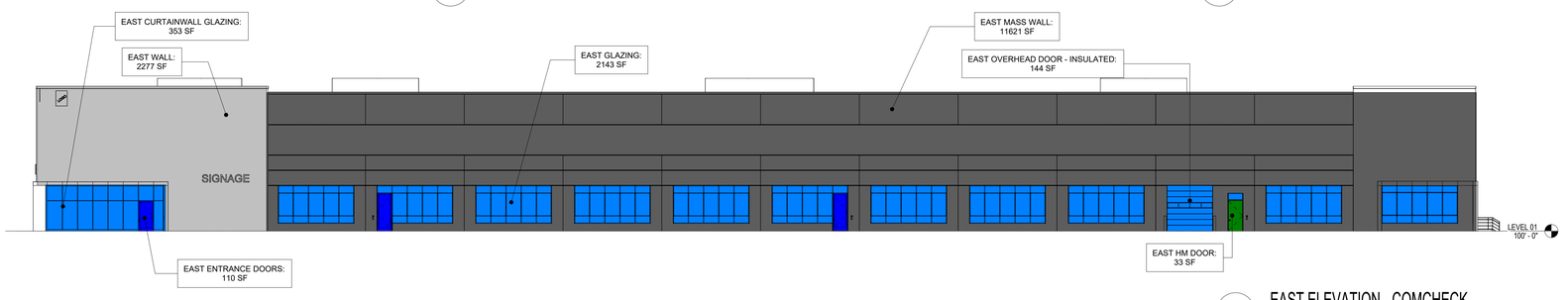
7 SOUTH ELEVATION - ELEC ROOM COMCHECK
1/16" = 1'-0"



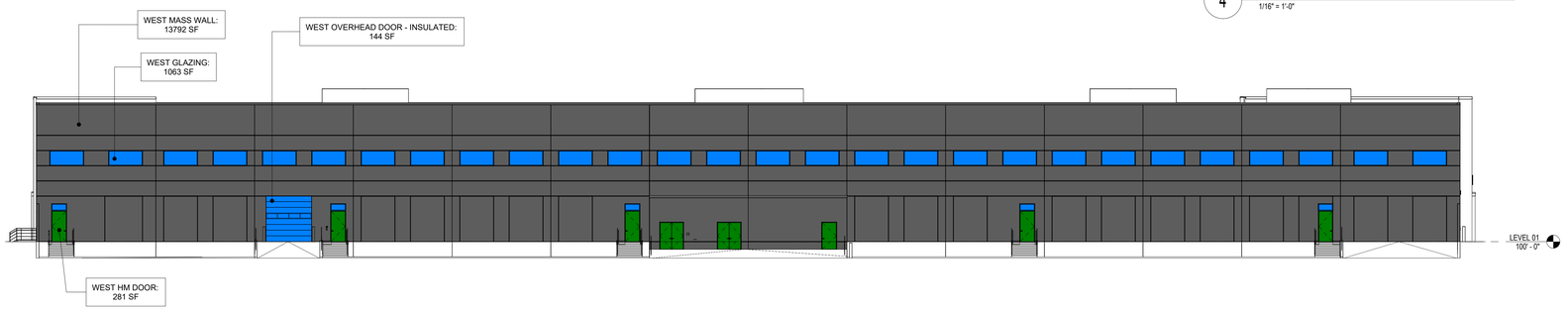
6 NORTH ELEVATION - COMCHECK
1/16" = 1'-0"



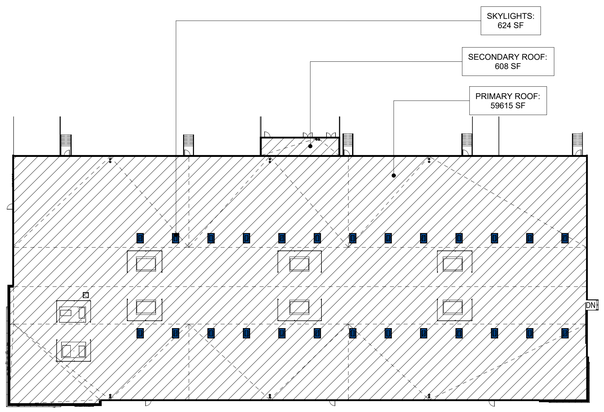
5 SOUTH ELEVATION - COMCHECK
1/16" = 1'-0"



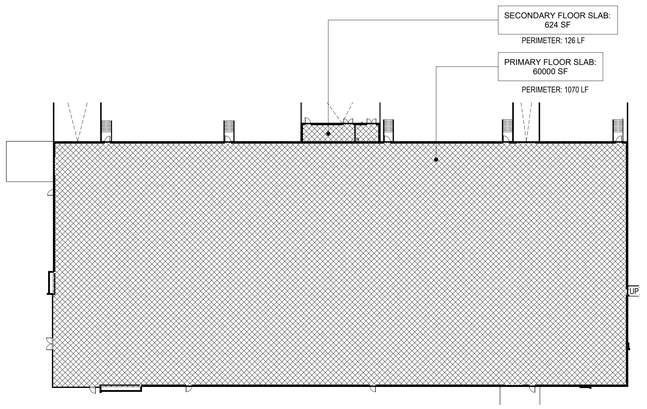
4 EAST ELEVATION - COMCHECK
1/16" = 1'-0"



3 WEST ELEVATION - COMCHECK
1/16" = 1'-0"



2 LEVEL 1 - COMCHECK ROOF PLAN
1" = 40'-0"



1 LEVEL 1 - COMCHECK PLAN
1" = 40'-0"

COMMERCIAL ENERGY EFFICIENCY — 2018 IECC

CLIMATE ZONE	ZONE 5B	IECC FIGURE C301.1
COMPLIANCE PATH	PRESCRIPTIVE COMPLIANCE	IECC SECTION C401.2.1

OPAQUE THERMAL ENVELOPE INSULATION COMPONENT MINIMUM REQUIREMENTS

	R-VALUE	U-VALUE	
ROOFS			
INSULATION ENTIRELY ABOVE ROOF DECK:	R-30 CI	U-0.032	IECC TABLES C402.1.3 & C402.1.4
WALLS, ABOVE GRADE			
MASS:	R-11.4 CI	U-0.090	IECC TABLES C402.1.3 & C402.1.4
METAL FRAME:	R-13 + R-7.5 CI	U-0.064	IECC TABLES C402.1.3 & C402.1.4
WALLS, BELOW GRADE			
BELOW-GRADE WALL:	R-7.5 CI	U-0.119	IECC TABLES C402.1.3 & C402.1.4
FLOORS			
MASS:	R-10 CI	U-0.074	IECC TABLES C402.1.3 & C402.1.4
SLAB-ON-GRADE			
UNHEATED SLABS:	R-10 FOR 24" BELOW	F-0.54	IECC TABLES C402.1.3 & C402.1.4
OPAQUE DOORS			
NON-SWINGING	R-4.75	R-4.75	IECC TABLES C402.1.3 & C402.1.4
		U-VALUE	
SWINGING		U-0.37	IECC TABLES C402.1.3 & C402.1.4
GARAGE DOOR < 14% GLAZING		U-0.31	IECC TABLES C402.1.3 & C402.1.4

BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS — IECC TABLE C402.4

	U-VALUE MAX
FIXED FENESTRATION	0.38
OPERABLE FENESTRATION	0.45
ENTRANCE DOORS	0.77
SKYLIGHTS	0.50

	SHGC MAX	
ORIENTATION	SEW	N
PROJECTION FACTOR < 0.2	0.38	0.51
0.2 ≤ PROJECTION FACTOR < 0.5	0.46	0.56
PROJECTION FACTOR ≥ 0.5	0.61	0.61
SKYLIGHTS	0.40	

FENESTRATION MAXIMUM AREA — IECC SECTION C402.4.1

VERTICAL FENESTRATION: MAXIMUM ALLOWABLE AREA = 30%
12.58% OF EXTERIOR WALL AREA IS VERTICAL FENESTRATION; SEE COMCHECK FOR MORE INFORMATION
SKYLIGHTS MAXIMUM ALLOWABLE AREA = <3% OF GROSS ROOF AREA

MINIMUM SKYLIGHT FENESTRATION AREA — IECC SECTION C402.4.2

REQUIRED BECAUSE BELOW CONDITIONS ARE MET:
- ENCLOSED SPACE GREATER THAN 2500 SF
- MINIMUM CEILING HEIGHT OF GREATER THAN 15FT
- 75% OR MORE IS LOCATED DIRECTLY UNDER ROOF
- POTENTIAL TO BE USED AS AUTOMOTIVE SERVICE AREA OR A SPACE WHERE MANUFACTURING OCCURS

MINIMUM SKYLIGHT CALCULATION (ONLY CALCULATED FOR ZONES MEETING ABOVE CONDITIONS)

TOTAL FLOOR AREA: 53,852 SF
TOTAL TOPLIT DAYLIGHT ZONE : 53,852/2 = 26,926 SF

MINIMUM SKYLIGHT EFFECTIVE APERATURE OF NOT LESS THAN 1%:

.01 = .85 x SKYLIGHT AREA x SKYLIGHT VT x WF / TOPLIT ZONE
01 = .85 x 587 sf x .6 x .9 / 26,926 sf

SKYLIGHT AREA = 587 sf
SKYLIGHT VT = .6
WF = .9
TOPLIT ZONE = 26,926 sf

MINIMUM SKYLIGHT AREA REQUIRED= 587 SF
SKYLIGHT AREA PROVIDED = 624 SF

AIR LEAKAGE REQUIREMENTS — IECC SECTION C402.5

THE BUILDING SHALL BE TESTED IN ACCORDANCE WITH ASTM E779, ANSI/RESNET/ICC 380, OR ASTM E1827. THE MEASURED AIR LEAKAGE SHALL NOT EXCEED 0.40 CFM/FT2 OF THE BUILDING THERMAL ENVELOPE AT A PRESSURE DIFFERENTIAL OF 0.3 INCH WATER GAUGE (75 PA).

ADDITIONAL ENERGY EFFICIENCY CREDITS — IECC SECTION C406

REFER TO TI DRAWINGS FOR ENERGY EFFICIENCY CREDITS

COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	Helix West Building C
Location:	Englewood, Colorado
Climate Zone:	5b
Project Type:	New Construction
Vertical Glazing / Wall Area:	12%
Skylight / Roof Area	1%

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)
Credits 1.0 Required 1.0 Proposed
Enhanced Envelope Performance, 1.0 credit

Building Area	Floor Area
1-Automotive Facility - Nonresidential	60000

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor
"ROOFS" FLOOR: Insulation Entirely Above Deck; [Bldg. Use 1 - Automotive Facility]					
Skylight: Metal Frame with Thermal Break; Plastic, with Curb, Perf. Specs.; Product ID pending, SHGC 0.40, [Bldg. Use 1 - Automotive Facility] (c)	587	---	---	0.500	0.500
SECONDARY ROOF: Insulation Entirely Above Deck; [Bldg. Use 1 - Automotive Facility] (a)	608	---	30.0	0.032	0.032
PRIMARY FLOOR: Unheated Slab-On-Grade, Vertical 2 ft., [Bldg. Use 1 - Automotive Facility] (d)	1070	---	10.0	0.540	0.540
SECONDARY FLOOR: Unheated Slab-On-Grade, Vertical 2 ft., [Bldg. Use 1 - Automotive Facility] (d)	126	---	10.0	0.540	0.540
NORTH					
N. Mass Wall: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	5873	---	---	0.042	0.064
N. Curtain Wall Glazing: Metal Frame with Thermal Break; Fixed, Perf. Specs.; Product ID PENDING, SHGC 0.27, [Bldg. Use 1 - Automotive Facility] (c)	407	---	---	0.340	0.380
N. HM Door: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility] (b)	33	---	---	0.115	0.370
N. Mass Wall - Elec: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	194	---	---	0.042	0.064
EAST					
E. Mass Wall: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	11621	---	---	0.042	0.064
E. Curtainwall Glazing: Metal Frame with Thermal Break; Fixed, Perf. Specs.; Product ID PENDING, SHGC 0.27, [Bldg. Use 1 - Automotive Facility] (c)	2143	---	---	0.340	0.380
E. HM Door: Insulated Metal, Swinging, [Bldg. Use 1 -	33	---	---	0.115	0.370

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor
Automotive Facility]					
E. Overhead Door - Insulated: Insulated Metal, Garage door 14% glazing, [Bldg. Use 1 - Automotive Facility] (b)	144	---	---	0.310	0.310
E. Wall: Other Steel Framed Wall, [Bldg. Use 1 - Automotive Facility] (b)	3277	---	---	0.040	0.064
E. Curtainwall Glazing: Metal Frame with Thermal Break; Fixed, Perf. Specs.; Product ID PENDING, SHGC 0.27, PF 0.28, [Bldg. Use 1 - Automotive Facility] (c)	353	---	---	0.340	0.380
E. Entrance Door: Glass (over 50% glazing); Metal Frame, Entrance Door, Perf. Specs.: Product ID PENDING, SHGC 0.19, [Bldg. Use 1 - Automotive Facility] (c)	110	---	---	0.510	0.770
SOUTH					
S. Mass Wall: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	3066	---	---	0.042	0.064
S. HM Door: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility]	33	---	---	0.115	0.370
S. Overhead Door - Glazed: Glass (over 50% glazing); Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID pending, SHGC 0.19, [Bldg. Use 1 - Automotive Facility] (c)	144	---	---	0.450	0.450
S. Wall: Other Steel Framed Wall, [Bldg. Use 1 - Automotive Facility] (b)	2933	---	---	0.040	0.064
S. Curtainwall Glazing: Metal Frame with Thermal Break; Fixed, Perf. Specs.; Product ID PENDING, SHGC 0.27, PF 0.28, [Bldg. Use 1 - Automotive Facility] (c)	675	---	---	0.340	0.380
S. Entrance Door: Glass (over 50% glazing); Metal Frame, Entrance Door, Perf. Specs.: Product ID PENDING, SHGC 0.19, [Bldg. Use 1 - Automotive Facility] (c)	62	---	---	0.510	0.770
S. Mass Wall - Elec: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	194	---	---	0.042	0.064
WEST					
W. Mass Wall: Other Mass Wall, Heat capacity 0.0, [Bldg. Use 1 - Automotive Facility] (b)	13792	---	---	0.042	0.064
W. Glazing: Metal Frame with Thermal Break; Fixed, Perf. Specs.; Product ID PENDING, SHGC 0.27, [Bldg. Use 1 - Automotive Facility] (c)	1063	---	---	0.340	0.380
W. HM Door: Insulated Metal, Swinging, [Bldg. Use 1 - Automotive Facility] (b)	281	---	---	0.115	0.370
W. Overhead Door - Insulated: Insulated Metal, Garage door 14% glazing, [Bldg. Use 1 - Automotive Facility]	144	---	---	0.310	0.310

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) 'Other' components require supporting documentation for proposed U-factors.
(c) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(d) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 0.1% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

ASSEMBLY TYPES LEGEND

- FLOOR
- ROOF
- GLAZING
- GLAZED DOOR
- MASS WALL
- WALL
- INSULATED HM DOOR

FENESTRATION CALCULATIONS

MAXIMUM REQUIREMENTS:

VERTICAL FENESTRATION AREA:	12,096 SF	TOTAL VERTICAL FENESTRATION AREA:	5,073 SF
SOLID WALL AREA:	28,225 SF	TOTAL SOLID WALL AREA:	35,275 SF
TOTAL SURFACE AREA:	40,321 SF	TOTAL SURFACE AREA:	40,321 SF
MAXIMUM FENESTRATION PERCENTAGE:	**30%**	**TOTAL FENESTRATION PERCENTAGE:**	**12.58 %**

CALCULATIONS:

COMCHECK WALL KEY SCHEDULE:

KEY NAME:	LOCATION:	ci R-VALUE	U-Factor	SHGC	VT
MASS WALL: CMU + BATT INSULATION	TYPICAL	-	.042	-	-
WALL : METAL STUD W/ MINERAL WOOL INSULATION	SE CORNER	-	.04	-	-
GLAZING : STOREFRONT AND IGU	WEST WALL	-	.34	.28	67%
DOOR : INSULATED HM DOOR	TYPICAL	-	.35	-	-
GLAZED DOOR	STOREFRONT	-	.51	-	-
FLOOR: SLAB ON GRADE	TYPICAL	10	-	-	-
ROOF: INSULATION ENTIRELY ABOVE ROOF DECK	TYPICAL	30	.032	-	-

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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

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BRIAN M KONCHAK
09/12/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.06.15
Drawn By	MM
Checked By:	BK

Sheet Name
ENERGY CODE COMPLIANCE

G-003

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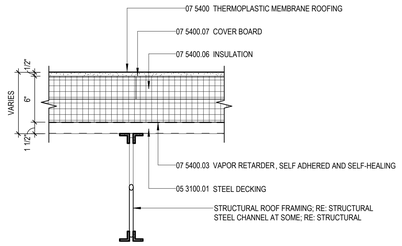
ROOF TYPES

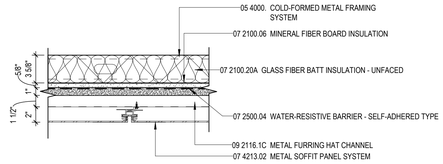


R1 ROOF ASSEMBLY - PRIMARY ROOF

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

FIRE RATING ASSEMBLY:	NON-RATED
THERMAL VALUES PROVIDED:	R-30

SOFFIT TYPES



S1 EXTERIOR SOFFIT SYSTEM

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

EXTERIOR WALL TYPES

CT-8 TILT-UP CONCRETE (12'-0" AFF AND ABOVE)

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

FIRE RATING ASSEMBLY:	NON-RATED
THERMAL VALUES PROVIDED:	U-TOTAL = .040

CT-8 TILT-UP CONCRETE (0' TO 12'-0" AFF)

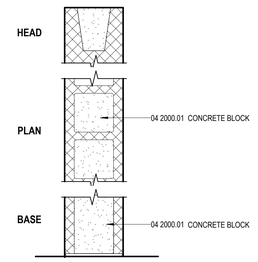
SCALE: 1 1/2" = 1'-0"

FIRE RATING ASSEMBLY:	NON-RATED
THERMAL VALUES PROVIDED:	U-TOTAL = .042

W6-mp STUD WALL W/ METAL PANEL

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

FIRE RATING ASSEMBLY:	NON-RATED
THERMAL VALUES PROVIDED:	U-TOTAL = .040

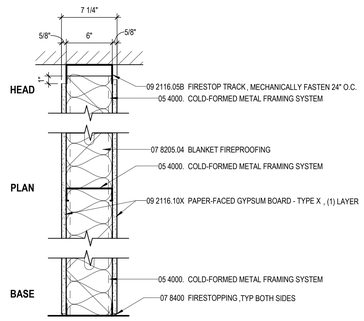


M8 CMU BLOCK (NR)

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

FIRE RATING ASSEMBLY:	NON-RATED

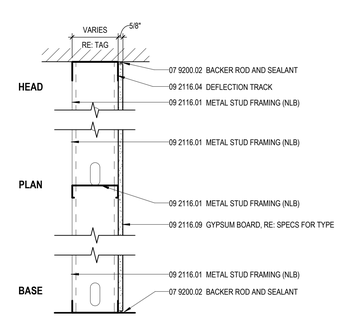
INTERIOR PARTITIONS



P6.1 INTERIOR - FIRE BARRIER (1HR)

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

FIRE RATING ASSEMBLY:	DESIGN NO. UA19

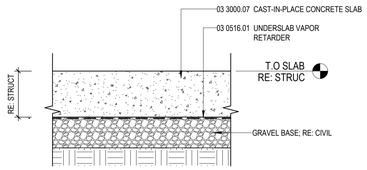


FR6 INTERIOR - METAL STUD FURRED WALL (NR)

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

FIRE RATING ASSEMBLY:	NON-RATED

FLOOR TYPES



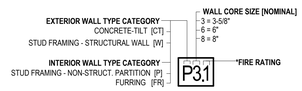
F1 SLAB ON GRADE

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

FINISH SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR/FINISH	SIZE	INSTALLATION	COMMENTS	SPEC SECTION	CONTACT
CONCRETE FLOORS									
SC-1	SEALED CONCRETE							03 3511	
METAL COMPOSITE MATERIAL									
MCM-1		ALUCOBOND	PLUS	BUNNY GREY II	4'x8'	STACK BOND PATTERN		07 4213	LES TRAEGER; 401.834.2018; LES TRAEGER@3ACOMPOSITES.COM
MCM-2		ALUCOBOND	PLUS	NEON RED	4'X8'			07 4213	LES TRAEGER; 401.834.2018; LES TRAEGER@3ACOMPOSITES.COM
PAINT									
PT-1	PAINT	BENJAMIN MOORE		BM 2124-20 TROUT GRAY				09 9000	

WALL TAG SYSTEM ASSEMBLIES IDENTIFIERS: WALLS / PARTITIONS



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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
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09/13/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.06.15
Drawn By:	MM
Checked By:	BK

Sheet Name
SYSTEM ASSEMBLIES FLOORS, WALLS, CEILINGS, ROOFS

G-004

9/6/2024 2:24:26 PM

SHEA HELIX WAREHOUSE
CONSTRUCTION DOCUMENTS

LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER FILING NO. 6, 7TH AMENDMENT
PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 6 SOUTH,
RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF DOUGLAS, STATE OF COLORADO

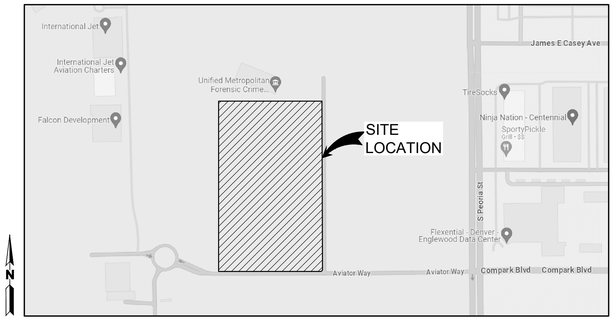
ABBREVIATIONS:

APPROX	APPROXIMATE
ARCH	ARCHITECT
BLDG	BUILDING
BM	BENCHMARK
BOC	BACK OF CURB
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTOUR
COR	CORNER
CU	COPPER
DEMO	DEMOLITION
DIA OR ⌀	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DTL.	DETAIL
EL	ELEVATION
ELEC	ELECTRICAL
ESMT	EASEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FGW	FINISHED GRADE AT WALL
FHY	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GB	GRADE BREAK
GR	GRATE (AREA OR VALLEY INLETS)
GV	GATE VALVE
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
INV	INVERT
LF	LINEAL FEET
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MH	MANHOLE
MIN	MINIMUM
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PIV	PRESSURE INDICATOR VALVE
PL	PROPERTY LINE
PLBG	PLUMBING
PRKG	PARKING
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
R.O.W.	RIGHT OF WAY
RT	RIGHT
SSWR	SANITARY SEWER
SF	SQUARE FOOT
STA	STATION
STRM	STORM SEWER
STRC	STRUCTURAL
SWLK	SIDEWALK
SY	SQUARE YARD
TELE	TELEPHONE
TB	THRUST BLOCK
TEMP	TEMPORARY
TOC	TOP OF CURB
TOW	TOP OF WALL (RE: NOTE BELOW)
TYP.	TYPICAL
UD	UNDER DRAIN
UG	UNDERGROUND
VERT	VERTICAL
VC	VERTICAL CURVE

NOTE: TOW SHALL BE TOP OF WATER ON UTILITY SHEETS ONLY AND TOP OF WALL ON ALL OTHER SHEETS.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A–1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A–1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A–1A.



VICINITY MAP:
SCALE: 1"=150'

SHEET INDEX

FIRE FLOW DATA

TOTAL FIRE FLOW REQUIRED FOR THIS SITE IS 2,625 GPM MINIMUM @ 20 PSI RESIDUAL PRESSURE.

THIS FLOW MUST BE PROVIDED FROM A MINIMUM OF 3 FIRE HYDRANT
EACH FIRE HYDRANT SHALL SUPPLY A MINIMUM OF 1,500 GPM @ 20 PSI RESIDUAL PRESSURE AT THE HYDRANT OUTLET TO BE ACCEPTABLE.

CODE USED FOR ANALYSIS: 2018 IFC
OCCUPANCY GROUPS: B, F–1
CONSTRUCTION TYPE: IIB
FIRE FLOW CALCULATION AREA: 60,826 SF
THIS BUILDING IS FULLY SPRINKLERED

FIRE DEPARTMENT SIGNATURE:

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDINGLY TO THE HIGHLANDS RANCH METROPOLITAN DISTRICT ENGINEERING STANDARDS. THE NUMBER AND LOCATION(S) OF FIRE HYDRANT(S) AS SHOWN ON THIS WATER MAIN INSTALLATION IS CORRECT AS SPECIFIED BY THE HIGHLANDS RANCH METROPOLITAN DISTRICT FIRE PROTECTION DISTRICT.

FIRE PROTECTION DISTRICT DATE:

FIRE FLOW REQUIREMENTS FOR PROPOSED ADDITION:
CONSTRUCTION TYPE: IIB
GROSS BUILDING AREA: 60,826 SF
BUILDING IS FULLY SPRINKLERED
FLOW REDUCTION: 50%
SITE FIRE FLOW: 2,625 GPM
NUMBER OF FIRE HYDRANTS: 3
AVERAGE DISTANCE BETWEEN FIRE HYDRANTS: 450FT
MAXIMUM DISTANCE FROM ROAD TO A FIRE HYDRANT: 225FT

ENGINEER'S CERTIFICATION:

THESE CONSTRUCTION PLANS FOR SHEA HELIX WAREHOUSE AT LOT 2A–1A, MERIDIAN INTERNATIONAL BUSINESS CENTER FILING NO. 6, 7TH AMENDMENT WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA OF DOUGLAS COUNTY.

DANIEL E. BEARSE DATE
COLORADO PROFESSIONAL ENGINEER
NO. 48232 MARTIN/MARTIN INC.

AGENCY LISTING:

DOUGLAS COUNTY PUBLIC WORKS
DEPARTMENT ENGINEERING DIVISION
100 THIRD STREET
CASTLE ROCK, CO 80104
PHONE: (303) 660–7490

SOUTH METRO FIRE RESCUE AUTHORITY
AARON MILLER
9195 E. MINERAL AVE
CENTENNIAL, CO 80112
PHONE: (720) 989–2246

MERIDIAN METROPOLITAN DISTRICT
RANDY GABRIEL, P.E.
12111 EAST BELFORD AVE.
ENGLEWOOD, CO 80112
PHONE: (303) 790–0345

CIVIL ENGINEER:
DAN BEARSE, P.E.
MARTIN/MARTIN INC.
12499 W. COLFAX AVE.
LAKEWOOD, COLORADO 80215
PHONE: 303–431–6100

COLORADO 811 — KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2–BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	HEAVY DUTY DRIVE LANES	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	5750
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
FO	FIBER OPTIC	FO
M.W.	MONITOR WELL	
	SIGN	
	DIRECTION OF FLOW	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
ELEV.	SPOT ELEVATIONS	ELEV.
DRIVE	DESCRIPTIONS	DRIVE

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BEARSE
48232
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
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MARTIN/MARTIN, INC. GENERAL NOTES:

IN ADDITION TO THE DOUGLAS COUNTY STANDARD NOTES, THE FOLLOWING SHALL APPLY:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DOUGLAS COUNTY STANDARDS AND SPECIFICATIONS [LATEST REVISION]. ALL STREETS, WATER MAIN, STORM SEWER AND SANITARY SEWER CONSTRUCTION SHALL BE SUBJECT TO DOUGLAS COUNTY INSPECTION.

2. THE CONTRACTOR SHALL HAVE ONE [1] SIGNED COPY OF PLANS APPROVED BY THE DOUGLAS COUNTY AND ONE COPY OF THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.

3. CONTRACTOR SHALL NOTIFY THE ENGINEER, OWNER AND THE DOUGLAS COUNTY [48]-HOURS PRIOR TO THE START OF CONSTRUCTION. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE DOUGLAS COUNTY ENGINEERING INSPECTOR [24]-HOURS PRIOR TO START OF WORK.

4. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING, BUT NOT LIMITED TO, SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL AND SECURITY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

5. THE DOUGLAS COUNTY/OWNER/ENGINEER CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.

6. ALL TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SAFETY OF WORKERS PROVIDED FOR AS REQUIRED BY THE MOST RECENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION [OSHA] "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION." THESE REGULATIONS ARE DESCRIBED IN SUBPART P, PART 1926 OF THE CODE OF FEDERAL REGULATIONS. SHEETING AND SHORING SHALL BE UTILIZED WHERE NECESSARY TO PREVENT ANY EXCESSIVE WIDENING OR SLOUGHING OF THE TRENCH WHICH MAY BE DETRIMENTAL TO HUMAN SAFETY, TO THE PIPE BEING PLACED, OR TO ANY EXISTING SITE IMPROVEMENTS OR STRUCTURES. THE CONTRACTOR MAY BE REQUIRED TO USE AN APPROVED PILING INSTEAD OF SHEETING AND SHORING.

7. CONTRACTOR SHALL OBTAIN ALL PERMITS FOR STREET CUTS, UTILITY INTERRUPTIONS AND TRAFFIC CONTROL.

8. AT LEAST FIVE [5] WORKING DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO DOUGLAS COUNTY. THE TRAFFIC CONTROL PLAN SHALL BE PREPARED BY A CERTIFIED TRAFFIC CONTROL SUPERVISOR AND SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. NO WORK SHALL BEGIN UNTIL ALL TRAFFIC CONTROL DEVICES HAVE BEEN PLACED IN ACCORDANCE WITH THE PLAN. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN THE TRAFFIC CONTROL DEVICES FOR THE ENTIRE DURATION OF THE PROJECT OR UNTIL THE ROADWAY HAS BEEN OPENED AND THE PERMANENT TRAFFIC CONTROL DEVICES HAVE BEEN INSTALLED.

9. ALL TRENCH BACKFILL AND SUBGRADE PREPARATION SHALL BE TESTED TO ENSURE COMPLIANCE WITH DOUGLAS COUNTY STANDARDS AND SHALL BE TESTED AT DOUGLAS COUNTY REQUIRED FREQUENCIES BY A DOUGLAS COUNTY APPROVED PRIVATE SOILS TESTING FIRM. TEST RESULTS SHALL BE SUBMITTED TO, REVIEWED, AND APPROVED BY, THE DOUGLAS COUNTY ENGINEERING DIVISION PRIOR TO INSTALLING BASE COURSE. ASPHALT OR CONCRETE ON PREPARED SUBGRADE. ALL BASE COURSE DENSITY SHALL ALSO BE TESTED BY THE PRIVATE SOILS FIRM AT DOUGLAS COUNTY REQUIRED FREQUENCIES TO ENSURE COMPLIANCE WITH DOUGLAS COUNTY REQUIREMENTS. BASE COURSE TEST RESULTS SHALL ALSO BE APPROVED BY THE DOUGLAS COUNTY ENGINEERING DIVISION PRIOR TO INSTALLING PAVEMENT. ALL CONCRETE AND ASPHALT PLACED SHALL BE TESTED IN ACCORDANCE WITH DOUGLAS COUNTY MINIMUM MATERIALS TESTING STANDARDS. TEST RESULTS SHALL BE REVIEWED AND APPROVED BY THE DOUGLAS COUNTY ENGINEERING DIVISION PRIOR TO INITIATION OF THE REQUIRED [2] YEAR WARRANTY PERIOD.

10. CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULES AND REGULATIONS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATING WITH THE APPROPRIATE UTILITY COMPANY FOR ANY UTILITY CROSSINGS REQUIRED. REPAIR OF DAMAGED UTILITIES SHALL BE AT THE CONTRACTORS EXPENSE, INCLUDING BUT NOT LIMITED TO UNKNOWN UNDERGROUND UTILITIES.

12. EXISTING FENCES, TREES, SIDEWALKS, CURBS AND GUTTERS, LANDSCAPING, STRUCTURES, AND IMPROVEMENTS DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED OR RESTORED IN LIKE KIND AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE INDICATED ON THESE PLANS.

13. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING REASONABLE ACCESS TO AND FROM ALL OF THE ADJACENT PROPERTIES THROUGHOUT THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO MEET (INDIVIDUALLY OR COLLECTIVELY) WITH ALL ADJACENT PROPERTY OWNERS WHO'S DRIVEWAY ACCESS WILL BE AFFECTED BY THE WORK. AS CONSTRUCTION CONDITIONS CHANGE AND THE WORK PROGRESSES, THE CONTRACTOR SHALL BE REQUIRED TO PERIODICALLY UPDATE THOSE PROPERTY OWNERS SO THAT THEY ARE KEPT INFORMED ABOUT THEIR ACCESS.

14. OWNER/DEVELOPER SHALL OBTAIN A STORMWATER CONSTRUCTION PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION, PRIOR TO CLEARING, GRADING, OR EXCAVATING A SITE OF ONE-HALF ACRE OR MORE, OR LESS THAN ONE-HALF ACRE AND PART OF A LARGER DEVELOPMENT. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO THE DOUGLAS COUNTY ENGINEERING DIVISION PRIOR TO THE START OF CLEARING, GRADING OR EXCAVATING OF THE SITE. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

15. CONTRACTOR SHALL OBTAIN A COLORADO STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT FOR ALL AREAS WHERE DEWATERING IS REQUIRED FROM AN EXCAVATION AND WATER IS DISCHARGED INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH OR ANY WATERS OF THE UNITED STATES. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO THE DOUGLAS COUNTY ENGINEERING DIVISION PRIOR TO THE START OF ANY DEWATERING. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING STORM RUNOFF AND ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE DOUGLAS COUNTY, AND THE GEOTECHNICAL ENGINEER AT THE TIME OF OCCURRENCE.

17. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND VERIFYING ELEVATIONS OF ALL EXISTING SEWER MAINS, WATER MAINS, CURBS, GUTTERS AND OTHER UTILITIES AT THE POINT OF CONNECTION SHOWN ON THE PLANS, AND AT ANY UTILITY CROSSINGS PRIOR TO INSTALLING ANY OF THE NEW IMPROVEMENTS. IF A CONFLICT EXISTS AND/OR A DESIGN MODIFICATION IS REQUIRED, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN.

18. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE SCHEDULES.

19. CONTRACTOR SHALL NOTIFY ALL BUSINESSES/RESIDENTS IN WRITING 48 HOURS PRIOR TO ANY SHUT-OFF IN SERVICE. THE NOTICES MUST HAVE CONTRACTOR'S PHONE NUMBER AND NAME OF CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOURS CALLS. ALL SHUT OFFS MUST BE APPROVED BY THE DOUGLAS COUNTY UTILITY DIVISION, AND DOUGLAS COUNTY VALVES AND APPURTENANCES SHALL BE OPERATED BY DOUGLAS COUNTY PERSONNEL, UNLESS WRITTEN PERMISSION IS GIVEN OTHERWISE.

20. ALL PUBLIC IMPROVEMENT WORK, INCLUDING CORRECTION WORK, SHALL BE INSPECTED BY A DOUGLAS COUNTY REPRESENTATIVE WHO SHALL HAVE THE AUTHORITY TO HALT CONSTRUCTION WHEN STANDARD CONSTRUCTION PRACTICES ARE NOT BEING ADHERED TO. THE DOUGLAS COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS. CONTRACTOR IS RESPONSIBLE FOR BEING AWARE OF, NOTIFYING, COORDINATING AND SCHEDULING ALL INSPECTIONS REQUIRED FOR FINAL APPROVALS AND PROJECT ACCEPTANCE.

21. THE CONTRACTOR SHALL NOT OPERATE ANY CONSTRUCTION VEHICLES NOR PERFORM ANY CONSTRUCTION OPERATIONS BEFORE 7 AM OR AFTER 6 PM, MONDAY THROUGH FRIDAY OR BEFORE 8 AM AND AFTER 5 PM ON SATURDAYS. NO WORK WILL BE ALLOWED ON SUNDAYS OR HOLIDAYS. THE DOUGLAS COUNTY RESERVES THE RIGHT TO FURTHER RESTRICT OR MODIFY THESE HOURS OF OPERATION IF CONDITIONS WARRANT.

22. REFER TO LANDSCAPE PLANS PREPARED BY BRITINA FOR FINAL LANDSCAPE, SPECIALTY LANDSCAPE FEATURES AND TRAIL LAYOUT/DETAILS/MATERIALS. TRAILS SHOWN ON LANDSCAPE CONSTRUCTION PLANS SHALL BE FIELD FIT TO ATTAIN 4.8% MAX SLOPE AND 2% CROSS SLOPE PER ADA REQUIREMENTS, UNLESS OTHERWISE NOTED.

23. COMPACTION OF ALL TRENCHES MUST BE ATTAINED AND COMPACTION TEST RESULTS SUBMITTED TO THE ENGINEER AND THE DOUGLAS COUNTY PRIOR TO FINAL ACCEPTANCE.

24. RECORD DRAWINGS SHOWING ALL CHANGES FROM THE APPROVED CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND OWNER PRIOR TO INITIATION OF THE REQUIRED 2-YEAR WARRANTY PERIOD. THE RECORD DRAWINGS WILL CONSIST OF A MARKED-UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
    - ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
    - HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, ETC.
    - INVERT ELEVATIONS OF STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, TOP OF PIPE ELEVATIONS OF EACH UTILITY CROSSING, ETC.
    - CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
    - TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES.
    - ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS. ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
    - ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
    - AS-BUILT FIELD NOTES, FROM WHICH THE RECORD DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED/SIGNED AND DATED BY A COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR.

25. THE CONTRACTOR SHALL WARRANT ALL WORK TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF 2-YEARS FROM THE DATE OF ACCEPTANCE INTO THE WARRANTY PERIOD OF ALL CONSTRUCTION CALLED FOR BY THE PUBLIC IMPROVEMENTS AGREEMENT WITH THE DOUGLAS COUNTY.

26. DURING CONSTRUCTION AND UPON COMPLETION OF CONSTRUCTION, THE SITE SHALL BE CLEANED AND RESTORED TO A CONDITION EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED BEFORE CONSTRUCTION.

27. EARTHWORK QUANTITIES ARE RAW NUMBERS AND HAVE NOT BEEN ADJUSTED TO ACCOUNT FOR SHRINK, SWELL, COMPACTION, PAVING, UTILITY SPOILS, BUILDING FOUNDATION/BASEMENT ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EARTHWORK VALUES.

28. CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT TITLED HELIX INDUSTRIAL BUILDINGS C AND D, DATED FEBRUARY 23, 2024, AND PREPARED BY CTL THOMPSON, INC. FOR PAVEMENT DESIGN AND RECOMMENDATIONS REGARDING EXCAVATION, COMPACTION, MATERIALS, EMBANKMENT, PAVEMENT SUBEXCAVATION, MOISTURE CONTROL, AND TOPSOIL REMOVAL AND REPLACEMENT. FINAL PAVEMENT DESIGN TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER SUBGRADE IS COMPLETE. CONTRACTOR TO COORDINATE THIS WORK. THE CONSTRUCTION METHODS FOR EXCAVATION/EMBANKMENTS, COMPACTION, AND SUBGRADE PREPARATION SHALL BE IN STRICT CONFORMANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF DISCREPANCIES BETWEEN THE GEOTECHNICAL REPORT RECOMMENDATIONS AND REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.

29. SEE SHEET C720 FOR PAVEMENT DETAILS.

30. THE OWNER/DEVELOPER AND/OR THEIR ASSIGNS IS HEREBY NOTIFIED THAT IT IS TYPICAL AND LIKELY THAT SOME MOVEMENT OF THE SURFACE GRADES WILL OCCUR OVER TIME DUE TO VARIOUS FACTORS THAT ARE NOT IN CONTROL OF THE DESIGNERS. THUS, A ROUTINE AND DILIGENT MAINTENANCE PROGRAM IS REQUIRED TO MAINTAIN THE PROPER GRADING AND DRAINAGE THROUGHOUT THE PROJECT.

31. THE PLANS HAVE BEEN PREPARED BY MARTIN/MARTIN IN ACCORDANCE WITH AND IN RELIANCE UPON THE GEOTECHNICAL STUDIES AND RECOMMENDATIONS PER CTL THOMPSON, INC. MARTIN/MARTIN HAS NO RESPONSIBILITY FOR THE FOUNDATION SYSTEMS USED WITHIN THIS DEVELOPMENT. MARTIN/MARTIN SUGGESTS THAT ALL OWNERS, PRESENT AND FUTURE, BECOME AWARE OF THE RISK ASSOCIATED WITH IMPROPER MAINTENANCE OF SLOPES AND DRAINAGE AWAY FROM THE STRUCTURES. MARTIN/MARTIN RECOMMENDS THE FOLLOWING REFERENCE AS A WAY TO BECOME MORE AWARE OF THE UNIQUE SOILS CONDITIONS FOUND WITHIN THIS PROJECT AND WITHIN MUCH OF THE FRONT RANGE AREA.

    "A GUIDE TO SWELLING SOIL FOR HOMEBUYERS AND HOMEOWNERS: PUBLISHED BY THE COLORADO GEOLOGICAL SURVEY, SPECIAL PUBLICATION NO. 43.

32. THE FOLLOWING LIMITED SCOPE OF RESPONSIBILITY NOTE MUST BE LOCATED, OR REFERENCED TO A GENERAL NOTE, ADJACENT TO THE P.E. SEAL PER 5.1.5 OF THE COLORADO BYLAWS AND RULES.

THE DESIGN PLANS SHOWN HEREIN WERE DEVELOPED BASED UPON THE GEOTECHNICAL INVESTIGATIONS/ANALYSIS/ENGINEERING CRITERIA DEVELOPED BY CTL THOMPSON, INC., AS PRESENTED IN THE GEOTECHNICAL REPORT ENTITLED HELIX INDUSTRIAL BUILDINGS C AND D, DATED FEBRUARY 23, 2024, SIGNED AND SEALED BY ALEXANDRA BERNEY P.E. MARTIN/MARTIN, INC. RELIED UPON THE ENGINEERING ANALYSIS AND CONCLUSIONS OF THIS REPORT IN THE PREPARATION OF THESE CIVIL ENGINEERING PLANS AND DOCUMENTS. NO INDEPENDENT INVESTIGATIONS AND/OR ANALYSIS WAS CONDUCTED BY MARTIN/MARTIN, INC. THESE PLANS WERE PROVIDED TO CTL THOMPSON, INC. FOR REVIEW AND VERIFICATION THAT THESE PLANS DEVELOPED BY MARTIN/MARTIN PROPERLY INTERPRETED AND APPLIED THE CRITERIA AND RECOMMENDATIONS ESTABLISHED BY THEIR GEOTECHNICAL REPORT FOR THIS PROJECT.

ACCESSIBLE ROUTES:

1. ALL CONSTRUCTION AND VERIFICATION/TESTING SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL, STATE AND FEDERAL JURISDICTIONS, AND THE MOST CURRENT REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT ("ADA"); ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARD – ABAAS AS PROVIDED FOR IN THE REGULATIONS OF THE UNITED STATES ACCESS BOARD, UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) – ANSI A117.1 . ADDITIONALLY, MEET REQUIREMENTS BY THE UNITED STATES DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION WHICH REQUIREMENTS ARE PRINCIPALLY LISTED IN 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, PROPOSED GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES ("PROWAG") AND LOCAL STANDARDS, FOR ANY ACCESSIBLE ROUTE.

2. NOTES AND REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS ARE A SUPPLEMENT TO, AND NOT A REPLACEMENT FOR THE REFERENCED REGULATIONS.

3. CONTRACTORS ARE TO BE AWARE WHEN REFERRING TO THE ABOVE STANDARDS, RULES AND REGULATIONS THAT PUBLISHED VALUES FOR DIMENSION AND SLOPE ARE FOR FINISHED CONSTRUCTION, NO TOLERANCE IS PERMITTED BELOW MINIMUM AS SHOWN ON DRAWINGS OR ABOVE MAXIMUM VALUES AS INDICATED IN THE APPLICABLE LOCAL, STATE, AND FEDERAL STANDARDS.

4. THE REGULATIONS EXPECT THE CONTRACTORS TO BE KNOWLEDGEABLE OF CONSTRUCTION PRACTICES, AND TO USE APPROPRIATE MEANS AND METHODS TO MEET TOLERANCES AND ENSURE CONSTRUCTION COMPLIES WITH REGULATIONS. ALL CONSTRUCTION OR ALTERATIONS OF ACCESSIBILITY ROUTES (WALKS, RAMPS, ENTRANCES, ETC.) SHALL COMPLY WITH STANDARDS, RULES AND REGULATIONS SET FORTH ABOVE, INCLUDING BUT NOT LIMITED TO 5% MAXIMUM LONGITUDINAL GRADE ON WALKS WITHOUT HANDRAILS, 8.33% MAXIMUM LONGITUDINAL GRADE ON WALKS WITH HANDRAILS, AND LANDINGS 2% MAXIMUM COMPOSITE SLOPE. 2% MAXIMUM CROSS SLOPE ON WALKS, AND 2% MAXIMUM COMPOSITE SLOPE IN ACCESSIBLE PARKING/LOADING AREAS. NO TOLERANCE REGARDING MAXIMUM SLOPE WILL BE ALLOWED.

5. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH OWNER/DEVELOPER, ENGINEER, ARCHITECT OR DESIGNATED OFFICIAL IF RULES AND REGULATIONS OF ACCESSIBILITY ROUTES CANNOT BE MET OR A DISCREPANCY OF REQUIREMENTS ARE INDICATED ON DRAWINGS. IN ADDITION, OWNER/DEVELOPER IS ADVISED THAT REGULAR MAINTENANCE PROGRAMS SHOULD BE IMPLEMENTED AFTER CONSTRUCTION TO KEEP EXISTING ROUTES SAFE, USABLE, AND ACCESSIBLE COMPLIANT.

DOUGLAS COUNTY GENERAL NOTES:

1. THE DOUGLAS COUNTY ENGINEERING DIRECTOR SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE ENGINEERING DIVISION HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL CONFORMANCE WITH THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE DOUGLAS COUNTY SUBDIVISION RESOLUTION OR ACCEPTED VARIANCES TO THOSE REGULATIONS. THE DOUGLAS COUNTY ENGINEERING DIRECTOR, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY, OTHER THAN STATED ABOVE, FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS. THE OWNER AND ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO WHOSE STAMP AND SIGNATURE IS AFFIXED TO THIS DOCUMENT.

2. ALL CONSTRUCTION SHALL CONFORM TO DOUGLAS COUNTY STANDARDS. ANY CONSTRUCTION NOT SPECIFICALLY ADDRESSED BY THESE PLANS AND SPECIFICATIONS WILL BE BUILT IN COMPLIANCE WITH THE LATEST EDITION OF THE MOST STRINGENT OF THE FOLLOWING:
    a. THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
    b. THE COLORADO DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
    c. THE COLORADO DEPARTMENT OF TRANSPORTATION M STANDARDS

3. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY ENGINEERING DIVISION AS APPLICABLE. THE COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.

4. THE CONTRACTOR SHALL NOTIFY THE DOUGLAS COUNTY ENGINEERING INSPECTION DIVISION, 303-660-7487, A MINIMUM OF 24-HOURS AND A MAXIMUM OF 72-HOURS PRIOR TO STARTING CONSTRUCTION. CONTRACTOR SHALL NOTIFY DOUGLAS COUNTY ENGINEERING INSPECTION WHEN WORKING OUTSIDE OF THE PUBLIC RIGHT-OF-WAY ON ANY FACILITY THAT WILL BE CONVEYED TO THE COUNTY, URBAN DRAINAGE & FLOOD CONTROL DISTRICT, OR OTHER SPECIAL DISTRICT FOR MAINTENANCE (STORM SEWER, ENERGY DISSIPATERS, DETENTION OUTLET STRUCTURES, OR OTHER DRAINAGE INFRASTRUCTURES). FAILURE TO NOTIFY THE ENGINEERING INSPECTION DIVISION TO ALLOW THEM TO INSPECT THE CONSTRUCTION MAY RESULT IN NON-ACCEPTANCE OF THE FACILITY/INFRASTRUCTURE BY THE COUNTY AND/OR URBAN DRAINAGE.

5. CONSTRUCTION WILL NOT BEGIN UNTIL ALL APPLICABLE PERMITS HAVE BEEN ISSUED. IF A DOUGLAS COUNTY ENGINEERING INSPECTOR IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE PERMITTEE MAY COMMENCE WORK IN THE INSPECTOR'S ABSENCE. HOWEVER, DOUGLAS COUNTY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.

6. THE LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION. FOR INFORMATION CONTACT: COLORADO 811, AT 1-800-922-1987 (WWW.COLORADO811.ORG).

7. THE CONTRACTOR SHALL HAVE ONE (1) COPY OF THE PLANS SIGNED BY THE DOUGLAS COUNTY ENGINEERING DIRECTOR, ONE (1) COPY OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS, AS AMENDED, AND ALL APPLICABLE PERMITS AT THE JOB SITE AT ALL TIMES.

8. ALL PROPOSED STREET CUTS TO EXISTING PAVEMENTS FOR UTILITIES, STORM SEWER OR FOR OTHER PURPOSES ARE LISTED AND REFERENCED BELOW:

9. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO DOUGLAS COUNTY FOR ACCEPTANCE WITH THE RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT APPLICATION. A RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN ACCEPTED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION.

10. THE CONSTRUCTION PLANS SHALL BE CONSIDERED VALID FOR THREE (3) YEARS FROM THE DATE OF COUNTY ACCEPTANCE, AFTER WHICH TIME THESE PLANS SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY DOUGLAS COUNTY.

11. DOUGLAS COUNTY STANDARD DETAILS SHALL NOT BE MODIFIED. ANY NON-STANDARD DETAILS WILL BE CLEARLY IDENTIFIED AS SUCH.

12. PAVING, INCLUDING CONSTRUCTION OF CURB AND GUTTER (WHEN USED), SHALL NOT START UNTIL A PAVEMENT DESIGN REPORT AND SUBGRADE COMPACTION TESTS ARE ACCEPTED BY THE ENGINEERING INSPECTION DIVISION FOR ALL PUBLIC AND PRIVATE ROADS.

13. STANDARD DOUGLAS COUNTY HANDICAP RAMPS ARE TO BE CONSTRUCTED AT ALL CURB RETURNS AND AT MID-BLOCK LOCATIONS OPPOSITE OF ONE OF THE CURB RETURNS OF ALL "T" INTERSECTIONS AS IDENTIFIED ON THESE PLANS.

14. ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.

15. ALL ELEVATIONS ARE ON UNITED STATES COAST AND GEODETIC SURVEY (USC&GS) (NAVD-88) DATUM WITH DATE. THE RANGE POINT OR MONUMENTS SHALL BE SHOWN ON CONSTRUCTION DRAWINGS.

16. ALL STORM SEWER IMPROVEMENTS (PUBLIC AND PRIVATE) INCLUDING, BUT NOT LIMITED TO, INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, RIPRAP, DETENTION BASINS, FOREBAYS, MICROPOOLS, AND WATER QUALITY FACILITIES REQUIRE PERMITTING AND INSPECTIONS. PLEASE CONTACT THE DOUGLAS COUNTY ENGINEERING INSPECTIONS DIVISION AT 303- 660-7487 FOR PERMITTING REQUIREMENTS AND INSPECTIONS SCHEDULING.

17. TWO (2) MANHOLE ACCESS POINTS ARE REQUIRED ON ALL TYPE "R" CURB INLETS GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH.

18. EPOXY COATED REBAR IS REQUIRED ON ALL DRAINAGE STRUCTURES.

19. DOUGLAS COUNTY REQUIRES CLASS D CONCRETE FOR ALL DRAINAGE STRUCTURES.

20. ALL RCP STORM SEWERS MUST USE ASTM C443 WATERTIGHT GASKETS PER THE CURRENT DOUGLAS COUNTY AND URBAN DRAINAGE DESIGN CRITERIA.

21. ALL RCP SHALL BE CLASS III STORM SEWER PIPE UNLESS OTHERWISE SPECIFIED.

22. JOINT RESTRAINTS ARE REQUIRED FOR A MINIMUM OF THE LAST TWO PIPE JOINTS AND FLARED END SECTION OF AN RCP OUTFALL.

23. PRECAST INLETS AND MANHOLE BASES ARE NOT ALLOWED.
24. TOE WALLS ARE REQUIRED ON FLARED END SECTIONS AT THE OUTLET END OF CULVERTS AND STORM SEWER OUTFALLS.
25. FILTER FABRIC IS REQUIRED UNDER ALL RIPRAP PADS.

26. THE PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF COLORADO, SIGNING THESE PLANS IS RESPONSIBLE FOR ENSURING THAT THE DETAILS INCLUDED ARE COMPATIBLE WITH THE STANDARD DOUGLAS COUNTY DETAILS CONTAINED IN THE LATEST VERSIONS OF THE CRITERIA MANUALS. THIS INCLUDES, BUT IS NOT LIMITED TO:
    a. DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
    b. DOUGLAS COUNTY STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA
    c. DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL CRITERIA
    d. CDOT M & S STANDARDS
    e. MUTCD
    f. URBAN STORM DRAINAGE CRITERIA MANUAL VOLUMES 1,2 & 3

27. A TEMPORARY CONSTRUCTION ACCESS PERMIT FROM DOUGLAS COUNTY MAY BE REQUIRED FOR ANY PROJECT.

IF ROADWAYS ARE TO BE DEDICATED ON THE FINAL PLAT TO AN ENTITY OTHER THAN DOUGLAS COUNTY THEN THE FOLLOWING NOTE SHOULD BE INCLUDED WITH THE STANDARD NOTES:

28. DOUGLAS COUNTY SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF ROADWAY AND APPURTENANT IMPROVEMENTS, INCLUDING STORM DRAINAGE INFRASTRUCTURE, FOR THE FOLLOWING PRIVATE STREETS." (LIST STREET NAMES)

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

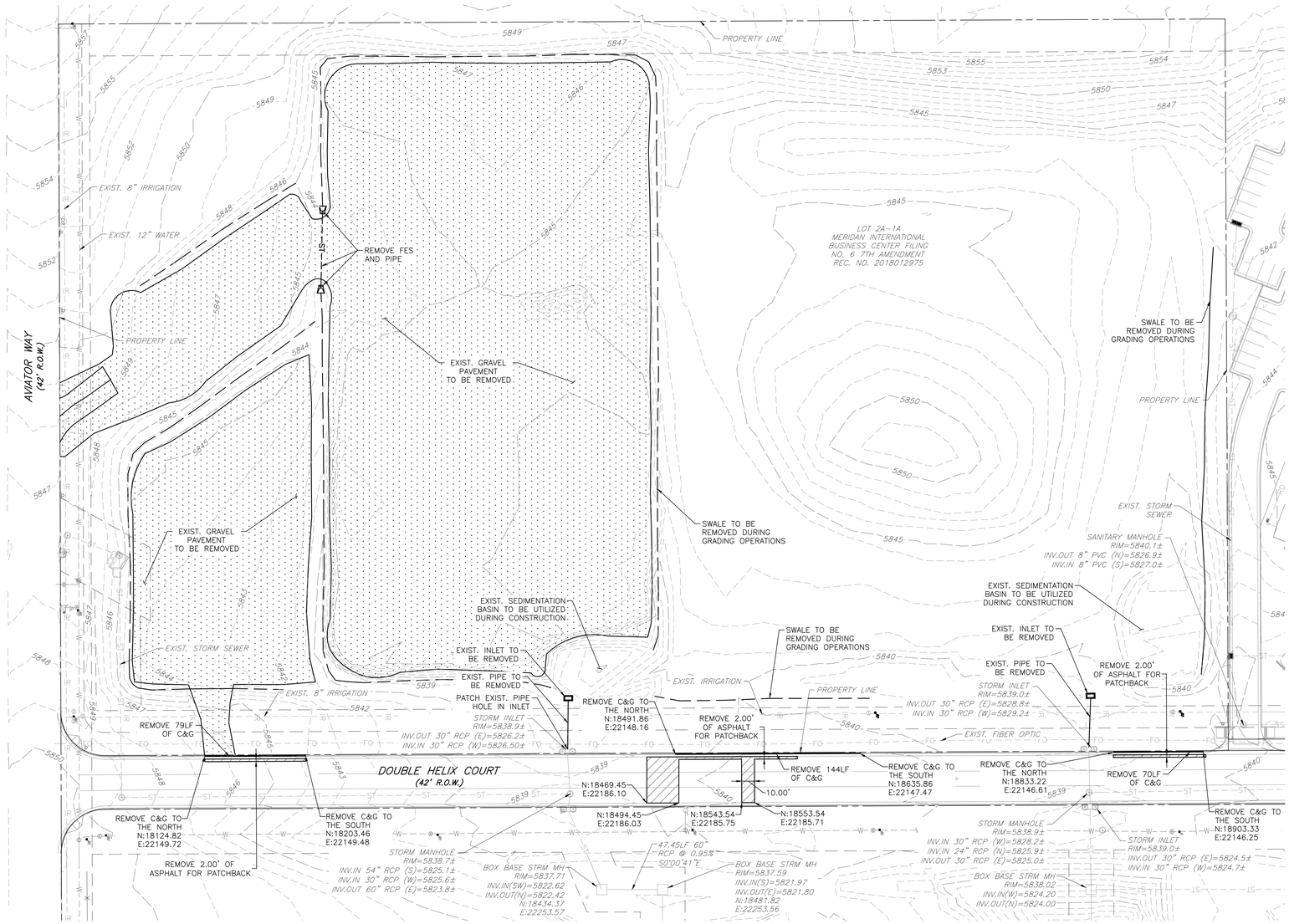
ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO



LEGEND

EXISTING		DEMOLITION
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	ASPHALT	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	
ST	STORM SEWER	ST
ST	STORM MANHOLE	
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	
W	WATER LINE	W
W	MAPPED WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
OHE	OVERHEAD ELECTRIC	OHE
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	ELEC
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
	SIGN	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
G	GAS LINE	G
DRIVE	DESCRIPTIONS	DRIVE

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

DEMOLITION NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING CONDITIONS AT LEAST THREE (3) WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. LIMITS OF CONSTRUCTION ARE TO BE COORDINATED WITH PROPOSED IMPROVEMENTS. REFER TO APPROVED LAYOUT, GRADING, WATER, STORM, AND SANITARY PLANS.
3. THE CONTRACTOR SHALL COORDINATE ADDITIONAL DEMOLITION REQUIREMENTS AS NECESSARY FOR CONSTRUCTION ACCESS AND STAGING.
4. THE CONTRACTOR SHALL COORDINATE ADDITIONAL DEMOLITION REQUIREMENTS AS SHOWN IN THE ARCHITECTURAL, STRUCTURAL, MEP, IT, AND LANDSCAPE PLANS AND SPECIFICATIONS AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCY PRIOR TO CONSTRUCTION.
5. BARRIERS/FENCING SHALL BE PROVIDED PRIOR TO SITE DEMOLITION TO PROVIDE FOR THE SAFETY OF WORKERS AND PASSERSBY. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN EGRESS/ACCESS TO ADJACENT BUILDINGS DURING CONSTRUCTION AND SHALL PROVIDE A BARRIER/FENCING PLAN AND SITE LOGISTICS PLAN TO THE OWNER FOR REVIEW PRIOR TO CONSTRUCTION.
6. PUBLIC ELECTRIC, GAS LINES, AND COMMUNICATION LINES TO BE RELOCATED BY UTILITY PROVIDER. COORDINATE RELOCATION OF PRIVATE UTILITY LINES WITH OWNER.
7. EXISTING UTILITIES NOT SHOWN TO BE REMOVED/RELOCATED ARE TO REMAIN PROTECTED THROUGH OUT CONSTRUCTION. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES. ANY REQUIRED UTILITY OUTAGES SHALL BE COORDINATED WITH THE UTILITY PROVIDER AND OWNER(S) OF AFFECTED PROPERTIES.
8. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, RIMS, VALVE BOXES, ELECTRIC VAULT/BOXES, TELECOM VAULT/BOXES, ETC. TO MATCH FINAL GRADE. ALL MANHOLES COVERS, ELECTRICAL BOX COVERS, TELECOM BOX COVERS, ETC. SHALL BE REPLACED WITH NEW COVERS IF DAMAGED.
9. REFER TO SITE ELECTRICAL PLANS FOR LIGHTPOLES TO BE PROTECTED IN PLACE OR RELOCATED.
10. THE CONTRACTOR SHALL PROVIDE FOR DUST CONTROL DURING DEMOLITION TO INCLUDE COVERING OF ALL TRUCKS HAULING DEBRIS OFFSITE, SWEEPING ADJACENT STREETS, AND APPLYING AN APPROVED DUST PALLIATIVE AS NECESSARY.
11. THE CONTRACTOR SHALL SWEEP ALL SEDIMENT, DIRT, MUD & DEBRIS TRACKED OR DEPOSITED ON PUBLIC OR PRIVATE STREETS IMMEDIATELY AND REMEDY THE SOURCE OF TRACKING.
12. CONTRACTOR SHALL STRAIGHT SAWCUT EXISTING ASPHALT PAVEMENT AT DEMOLITION LIMITS. APPLY TACKCOAT AT EDGE PRIOR TO PLACING NEW ASPHALT. ALL NEW CURB AND GUTTER OR CONCRETE PAVEMENT ABUTTING EXISTING
13. EXISTING CONCRETE PAVEMENT, SIDEWALKS AND CURB AND GUTTER AT DEMOLITION LIMITS SHALL BE CUT AT EXISTING JOINTS WHERE POSSIBLE. ALL CONCRETE PANELS DAMAGED OR PARTIALLY REMOVED FOR CONSTRUCTION SHALL INCLUDE FULL PANEL REPLACEMENT.
14. THE CONTRACTOR SHALL COORDINATE LANDSCAPE DEMOLITION WITH THE OWNER AND LANDSCAPE ARCHITECT AND SALVAGE ITEMS AS DIRECTED BY OWNER. SEE LANDSCAPES PLANS FOR TREE, PLANT, AND IRRIGATION SYSTEM DEMOLITION/RELOCATIONS. CONTRACTOR SHALL COORDINATE REMOVAL OR RELOCATION OF EXISTING IRRIGATION SYSTEM WITH OWNER.
15. TREES, LANDSCAPING AND STRUCTURES NOT DESIGNATED FOR DEMOLITION ARE TO REMAIN PROTECTED THROUGH OUT CONSTRUCTION. CONTRACTOR SHALL FOLLOW TREE PROTECTION SPECIFICATION. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION OUTSIDE OF THE PROJECT LIMITS.
16. THE CONTRACTOR SHALL COORDINATE SALVAGE OR RELOCATION OF DEMOLITION ITEMS (LIGHTPOLES, SIGNS, FENCES, GATES, ETC.,) WITH THE OWNER AND OTHER DESIGN CONSULTANTS.
17. SEE NOTES SHEET FOR ADDITIONAL NOTES.
18. EXISTING CONDITIONS BASED ON SURVEY DATED *MONTH *DAY, *YEAR, BY *SURVEYOR'S COMPANY NAME*.
19. APPROXIMATE AREA OF DEMOLITION SHOWN ON THIS PLAN = 12.00+/- ACRES.

N

40 20 0 40 80

SCALE: 1"=40'

ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

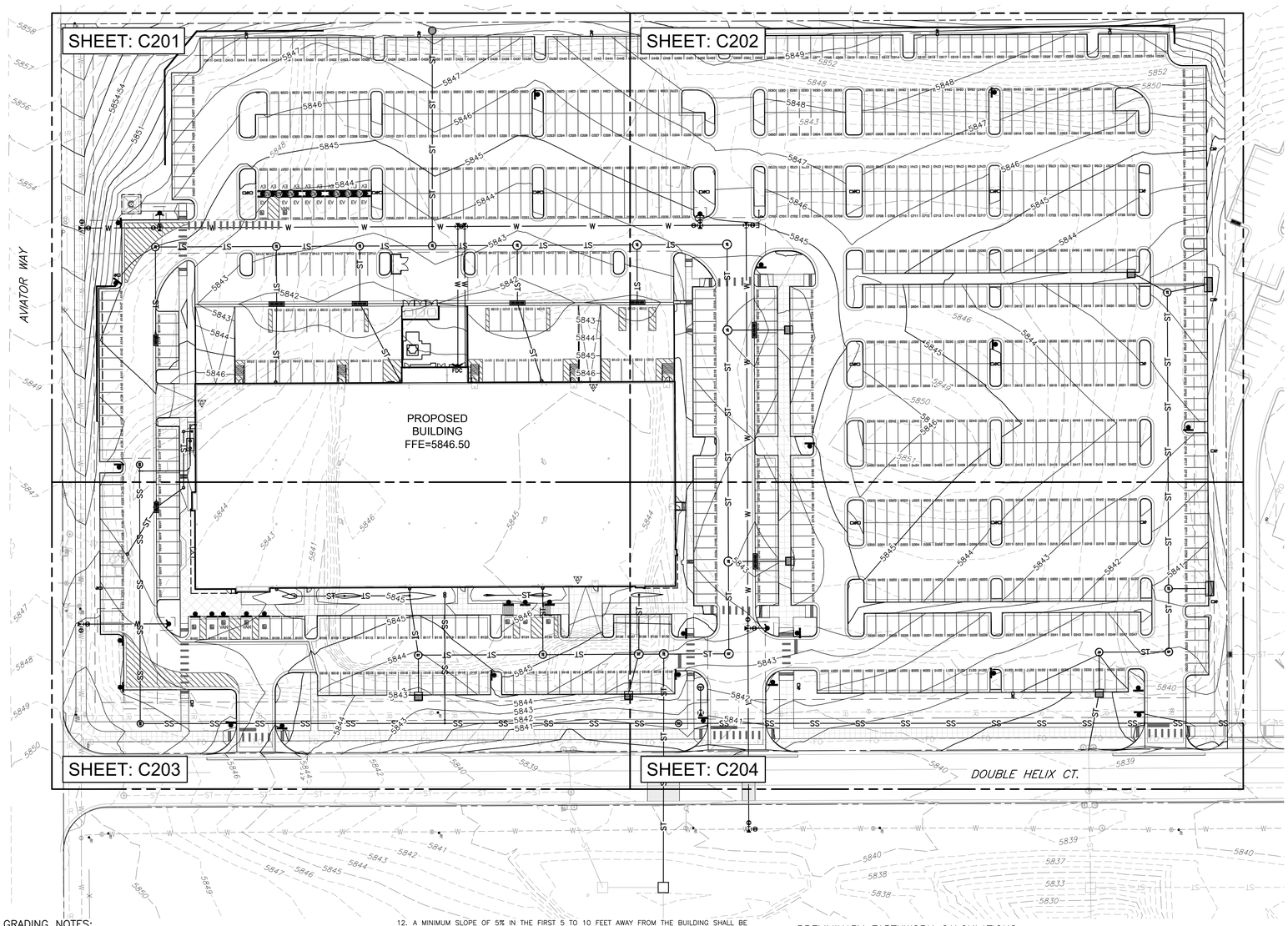
COLORADO REGISTERED SAMUEL EDWARD BEARCE PROFESSIONAL ENGINEER 48232 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
EXISTING CONDITIONS & DEMOLITION PLAN

C102



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
+ ELEV.	SPOT ELEVATIONS	ELEV.

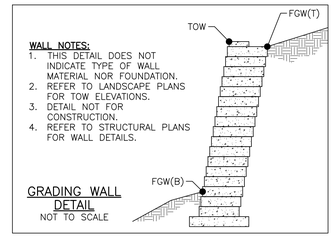
N

40 20 0 40 80
SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.



WALL NOTES:
1. THIS DETAIL DOES NOT INDICATE TYPE OF WALL MATERIAL NOR FOUNDATION.
2. REFER TO LANDSCAPE PLANS FOR TOW ELEVATIONS.
3. DETAIL NOT FOR CONSTRUCTION.
4. REFER TO STRUCTURAL PLANS FOR WALL DETAILS.

GRADING WALL DETAIL
NOT TO SCALE

GRADING NOTES:

1. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS AND NOTIFY OWNER, ARCHITECT, AND ENGINEER OF ANY DISCREPANCIES AT LEAST THREE (3) WEEKS PRIOR TO CONSTRUCTION.
2. SPOT ELEVATIONS ON CURB AND GUTTER ARE TO FLOW LINE UNLESS OTHERWISE NOTED.
3. ALL GRADES SHOWN ARE TO FINAL FINISHED SURFACE GRADE AFTER TOPSOIL, SOD, PAVING ETC.
4. MATCH EXISTING GRADE AT LIMITS OF CONSTRUCTION AND AS NOTED. REPORT ANY DISCREPANCIES TO OWNER, ENGINEER, AND ARCHITECT AT LEAST THREE (3) WEEKS PRIOR TO CONSTRUCTION.
5. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.0% SLOPE IN ANY DIRECTION. CROSS SLOPE ON ALL WALKS SHALL NOT TO EXCEED 2.0%. ALL WALKS SHALL NOT EXCEED 5.0% LONGITUDINAL SLOPE, UNLESS OTHERWISE NOTED AS A RAMP WITH HANDRAILS AND LANDINGS.
6. WALKS DIRECTLY ADJACENT TO THE BUILDING SHALL BE SLOPED AT 2% AWAY FROM THE BUILDING. ALL OTHER WALKS SHALL BE SLOPED AT 1.5% AWAY FROM THE BUILDING.
7. SPOT ELEVATIONS FOR LIGHT POLES ARE MEASURED AT FINISH GRADE AT CENTER OF POLE. TOP OF FOUNDATION SHALL BE SET SUFFICIENTLY ABOVE FINISH GRADE.
8. SPOT ELEVATIONS FOR TRANSFORMER BOXES/PAD ARE MEASURED AT FINISH LANDSCAPE GRADE AT CENTER OF BOX/PAD. CONTRACTOR SHALL SET BOX/PAD SUFFICIENTLY ABOVE ELEVATION SHOWN ON THESE PLANS IN ORDER TO MAINTAIN THE DRAINAGE AROUND AND AWAY FROM THE BOX/PAD AS SHOWN ON THE DRAWING.
9. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY CTL THOMPSON, DATED FEBRUARY 23, 2024.
10. EXISTING GRADES AND SPOT ELEVATIONS SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM BEST AVAILABLE INFORMATION AND ARE SHOWN TO THE EXTENT KNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING GRADE CONDITIONS AT THE LIMITS OF CONSTRUCTION AND NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES THAT CONTRADICT THE CIVIL ENGINEER'S INTENT FOR DRAINAGE PATTERNS AND MAXIMUM AND MINIMUM SLOPES AS SHOWN ON THE PLAN.
11. LANDSCAPE GRADE ADJACENT TO EACH BUILDING SHALL BE TYPICALLY 6" BELOW FINISH FLOOR ELEVATION UNLESS OTHERWISE NOTED.
12. A MINIMUM SLOPE OF 5% IN THE FIRST 5 TO 10 FEET AWAY FROM THE BUILDING SHALL BE PROVIDED IN LANDSCAPE AREAS ADJACENT TO THE BUILDING PER THE GEOTECHNICAL RECOMMENDATIONS. SEE GRADING DETAIL ON THIS SHEET.
13. SPOT ELEVATIONS AT BUILDINGS INCLUDING STOOPS, PATIOS AND APRONS ARE TO FINISH LANDSCAPE OR SITE PAVING GRADES. REFER TO ARCHITECTURAL OR STRUCTURAL PLANS FOR BUILDING SLAB ELEVATIONS.
14. SEE SITE DETAILS SHEETS FOR SITE DETAILS.
15. SEE STORM PLAN SHEETS FOR STORM INFORMATION.
16. SEE COVER SHEET FOR ADDITIONAL NOTES.
17. CONTRACTOR SHALL VERIFY INLET AND MANHOLE ELEVATIONS SHOWN HEREON WITH THE APPROVED STORM PLANS. NOTIFY ENGINEER OF ANY DISCREPANCIES AT LEAST THREE (3) WEEKS PRIOR TO CONSTRUCTION.
18. AREA DRAINS SHALL BE NYLOPLAST 12" AREA INLETS OR APPROVED EQUAL.
19. RETAINING WALLS SHALL BE DESIGN/BUILD MECHANICALLY STABILIZED EARTH RETAINING (MSE) WALLS UNLESS OTHERWISE NOTED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY BUILDING PERMITS FROM THE COUNTY FOR CONSTRUCTION OF THE WALLS.

BASIS OF BEARINGS:

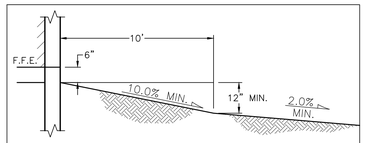
BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

PRELIMINARY EARTHWORK CALCULATIONS

ASSUMPTIONS:
- 6" DEPTH BELOW BUILDING AREAS
- 12" DEPTH BELOW PAVED AREAS
- 4" DEPTH BELOW SIDEWALK AREAS

TOTAL CUT: 31,008 CY
TOTAL FILL: 19,753 CY
NET EARTHWORK: 11,265 CY (CUT)

EARTHWORK DISCLAIMER:
EARTHWORK QUANTITIES ARE RAW NUMBERS AND HAVE NOT BEEN ADJUSTED TO ACCOUNT FOR SHRINK, SWELL, COMPACTION, UTILITY SPOILS, ETC. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL EARTHWORK



NOTE: REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.

TYPICAL GRADING SECTION IN LANDSCAPE AREAS AT PERIMETER OF BUILDING
N.T.S.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

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HELIX WEST - BUILDING C - CORE & SHELL

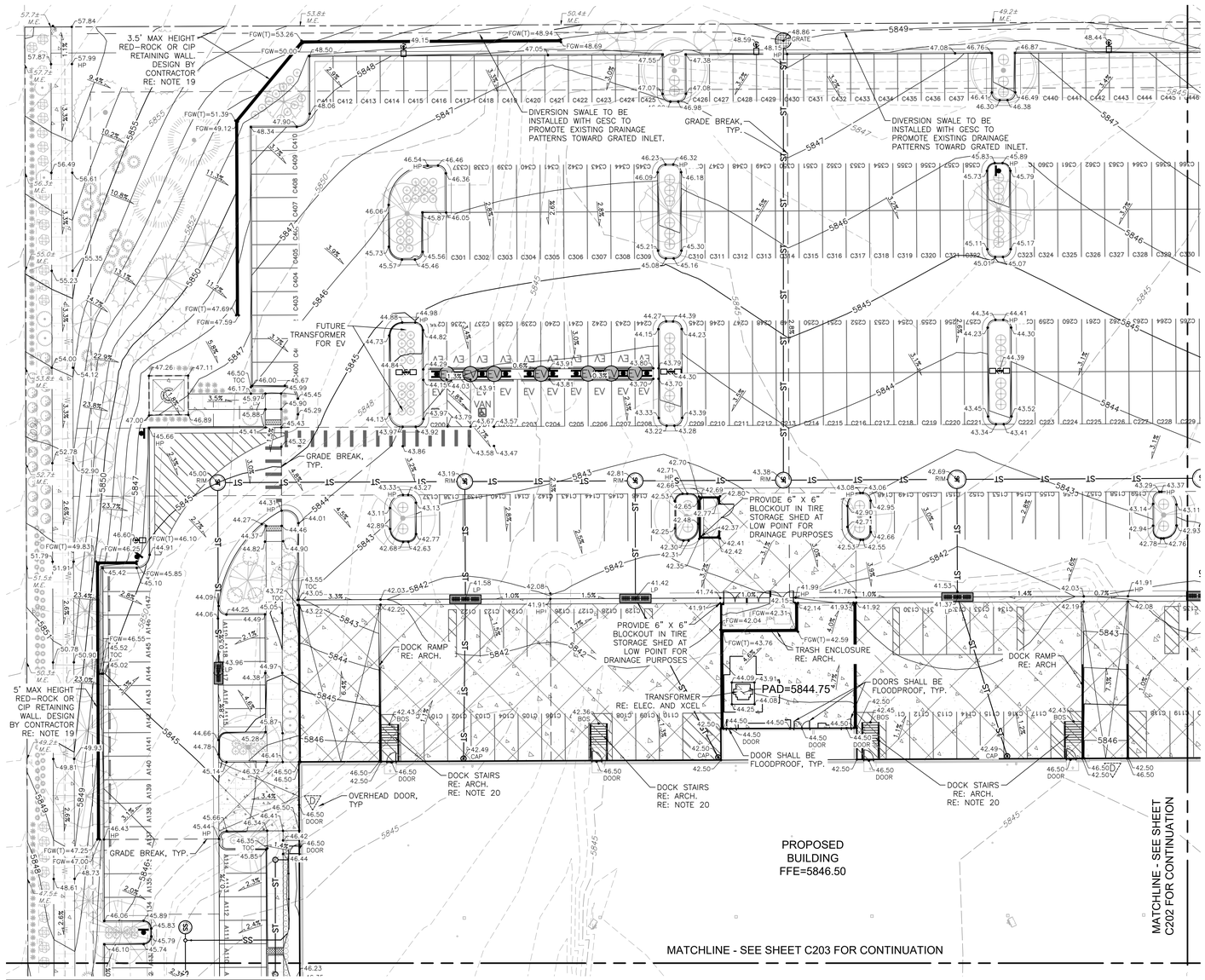
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

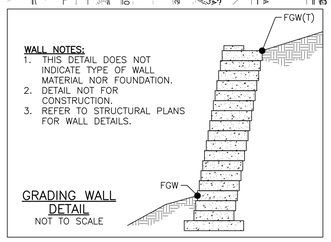
COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BERGER
48232
09/06/2024

REVISION	DATE
100% CD's	
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

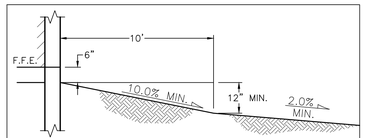
Sheet Name
OVERALL GRADING PLAN

C200





GRADING WALL DETAIL
NOT TO SCALE



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N.T.S.

GRADING NOTES:

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3. ALL GRADES SHOWN ARE TO FINAL FINISHED SURFACE GRADE AFTER TOPSOIL, SOD, PAVING ETC.
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6. WALKS DIRECTLY ADJACENT TO THE BUILDING SHALL BE SLOPED AT 2% AWAY FROM THE BUILDING. ALL OTHER WALKS SHALL BE SLOPED AT 1.5% AWAY FROM THE BUILDING.
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SCALE: 1"=20'
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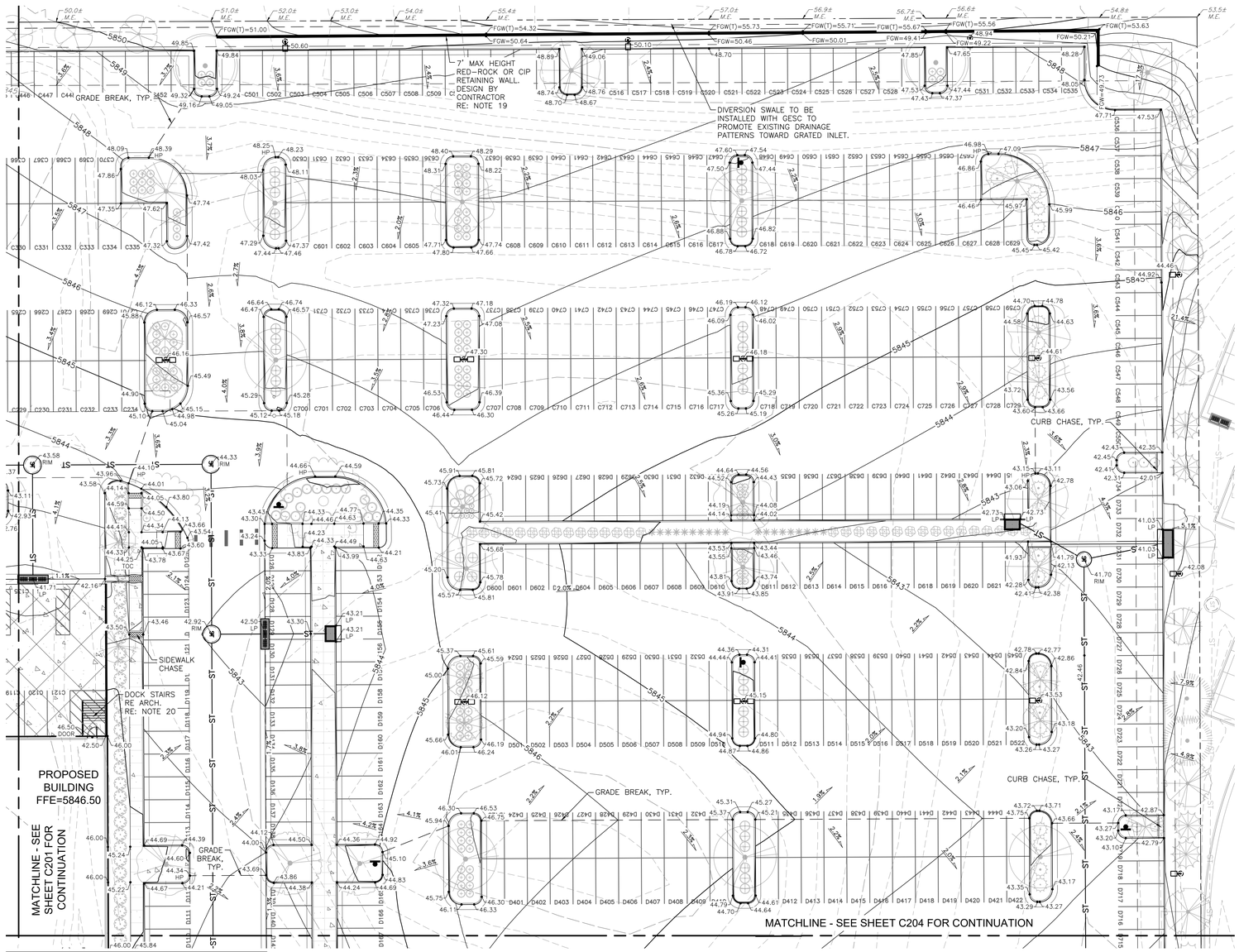
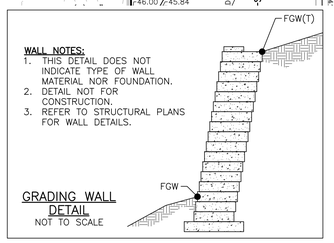
C201





GRADING WALL DETAIL
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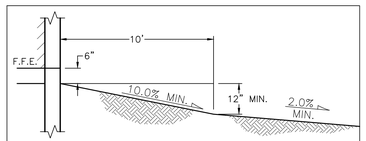

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HELIX WEST - BUILDING C - CORE & SHELL

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COLORADO REGISTERED PROFESSIONAL DANIEL EDWARD BERGER 48232 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
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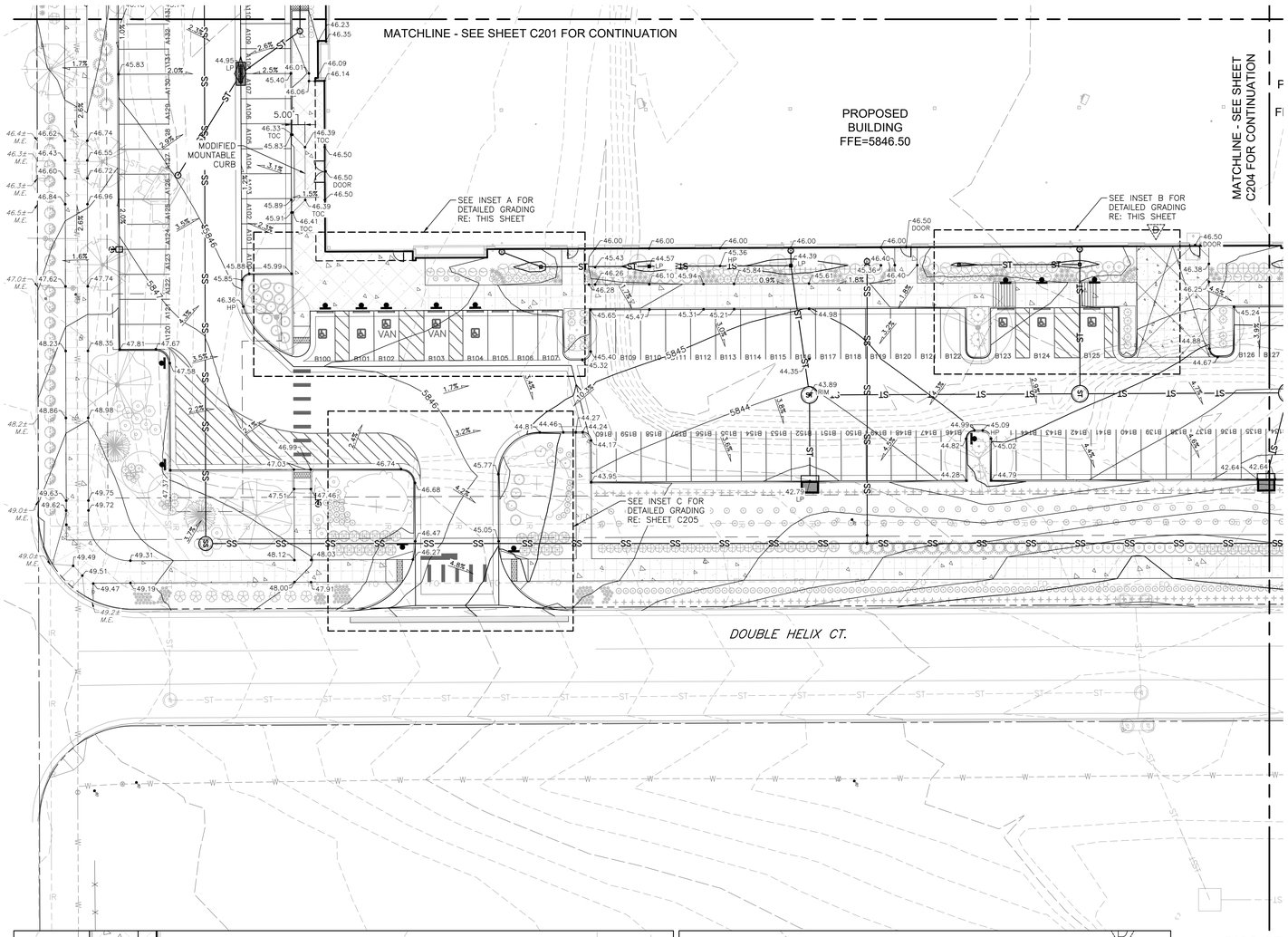
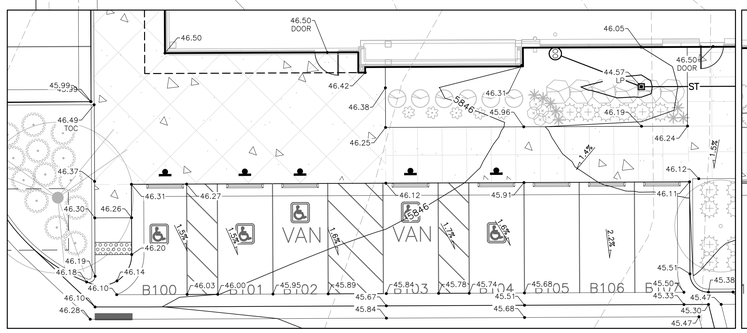
Checked By:	DB

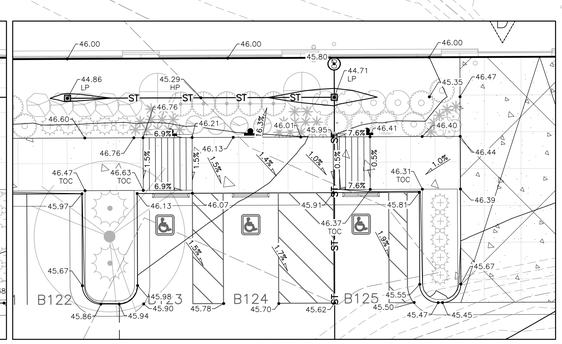
Sheet Name
DETAILED GRADING PLAN

C202





INSET A
SCALE: 1"=10'



INSET B
SCALE: 1"=10'

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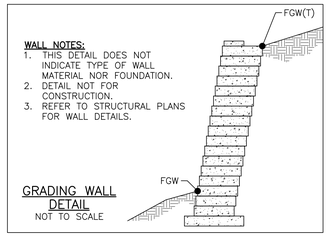

WALL NOTES:
1. THIS DETAIL DOES NOT INDICATE TYPE OF WALL MATERIAL NOR FOUNDATION.
2. DETAIL NOT FOR CONSTRUCTION.
3. REFER TO STRUCTURAL PLANS FOR WALL DETAILS.

GRADING WALL DETAIL
NOT TO SCALE

N

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SCALE: 1"=20'
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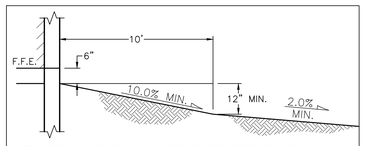

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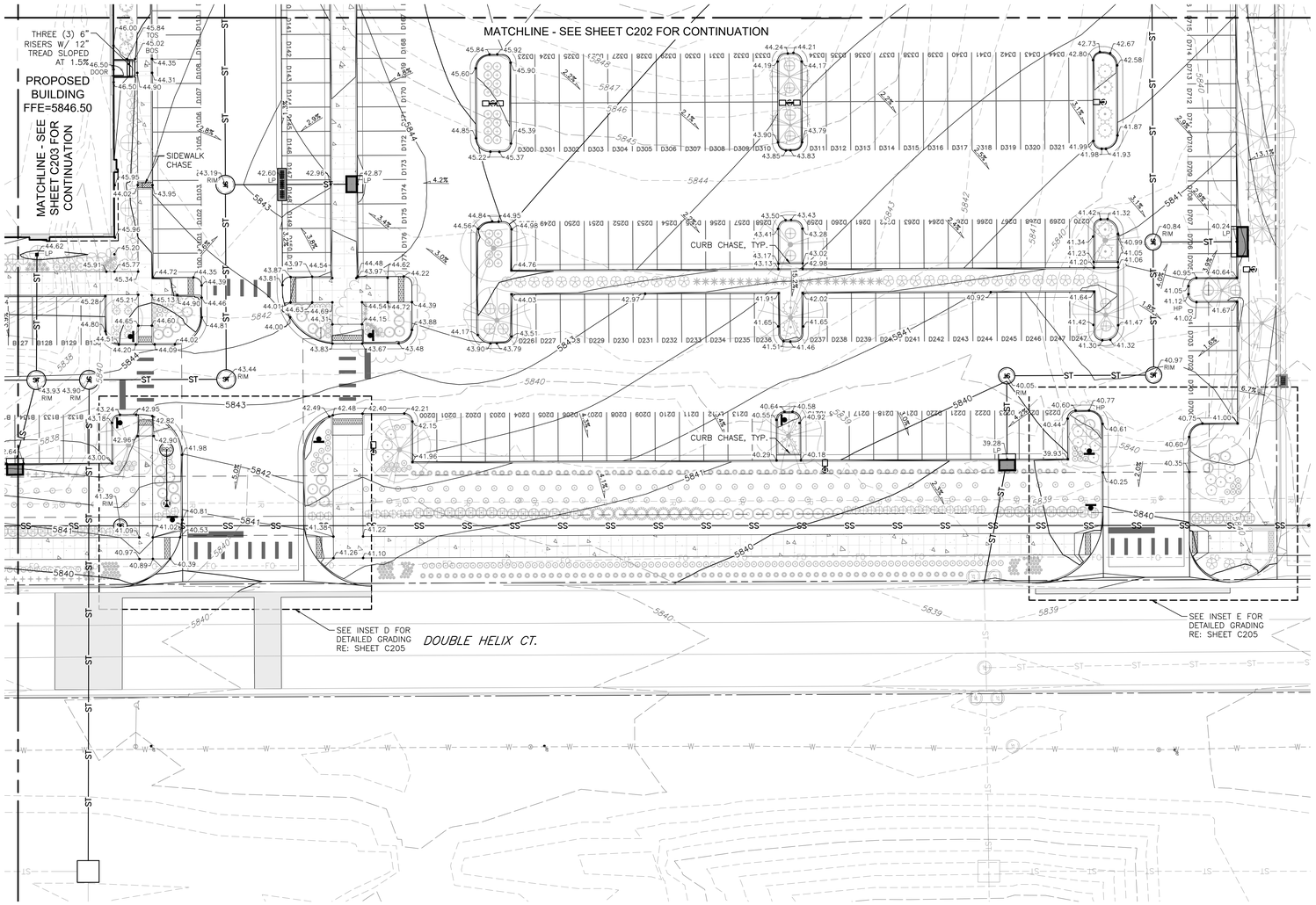
C203



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6. WALKS DIRECTLY ADJACENT TO THE BUILDING SHALL BE SLOPED AT 2% AWAY FROM THE BUILDING. ALL OTHER WALKS SHALL BE SLOPED AT 1.5% AWAY FROM THE BUILDING.
7. SPOT ELEVATIONS FOR LIGHT POLES ARE MEASURED AT FINISH GRADE AT CENTER OF POLE. TOP OF FOUNDATION SHALL BE SET SUFFICIENTLY ABOVE FINISH GRADE.
8. SPOT ELEVATIONS FOR TRANSFORMER BOXES/PAD ARE MEASURED AT FINISH LANDSCAPE GRADE AT CENTER OF BOX/PAD. CONTRACTOR SHALL SET BOX/PAD SUFFICIENTLY ABOVE ELEVATION SHOWN ON THESE PLANS IN ORDER TO MAINTAIN THE DRAINAGE AROUND AND AWAY FROM THE BOX/PAD AS SHOWN ON THE DRAWING.
9. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY CTL THOMPSON, DATED JUNE 14, 2017.
10. EXISTING GRADES AND SPOT ELEVATIONS SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM BEST AVAILABLE INFORMATION AND ARE SHOWN TO THE EXTENT KNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING GRADE CONDITIONS AT THE LIMITS OF CONSTRUCTION AND NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES THAT CONTRADICT THE CIVIL ENGINEER'S INTENT FOR DRAINAGE PATTERNS AND MAXIMUM AND MINIMUM SLOPES AS SHOWN ON THE PLAN.
11. LANDSCAPE GRADE ADJACENT TO EACH BUILDING SHALL BE TYPICALLY 6" BELOW FINISH FLOOR ELEVATION UNLESS OTHERWISE NOTED.
12. A MINIMUM SLOPE OF 5% IN THE FIRST 5 TO 10 FEET AWAY FROM THE BUILDING SHALL BE PROVIDED IN LANDSCAPE AREAS ADJACENT TO THE BUILDING PER THE GEOTECHNICAL RECOMMENDATIONS. SEE GRADING DETAIL ON THIS SHEET.
13. SPOT ELEVATIONS AT BUILDINGS INCLUDING STOOPS, PATIOS AND APRONS ARE TO FINISH LANDSCAPE OR SITE PAVING GRADES. REFER TO ARCHITECTURAL OR STRUCTURAL PLANS FOR BUILDING SLAB ELEVATIONS.
14. SEE SITE DETAILS SHEETS FOR SITE DETAILS.
15. SEE STORM PLAN SHEETS FOR STORM INFORMATION.
16. SEE COVER SHEET FOR ADDITIONAL NOTES.
17. CONTRACTOR SHALL VERIFY INLET AND MANHOLE ELEVATIONS SHOWN HEREON WITH THE APPROVED STORM PLANS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
18. AREA DRAINS SHALL BE NYLOPLAST 12" AREA INLETS OR APPROVED EQUAL.
19. RETAINING WALLS SHALL BE DESIGN/BUILD MECHANICALLY STABILIZED EARTH RETAINING (MSE) WALLS UNLESS OTHERWISE NOTED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY BUILDING PERMITS FROM THE COUNTY FOR CONSTRUCTION OF THE WALLS.

BASIS OF BEARINGS:

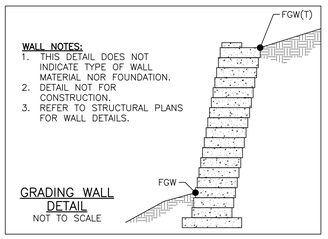
BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A–1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A–1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A–1A.

N

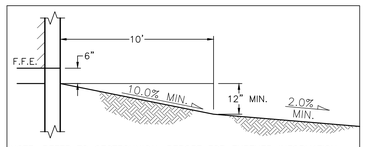
20 10 0 20 40

SCALE: 1"=20'

ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET



GRADING WALL DETAIL
NOT TO SCALE



NOTE: REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.

TYPICAL GRADING SECTION IN LANDSCAPE AREAS AT PERIMETER OF BUILDING
N.T.S.

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2–BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

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ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

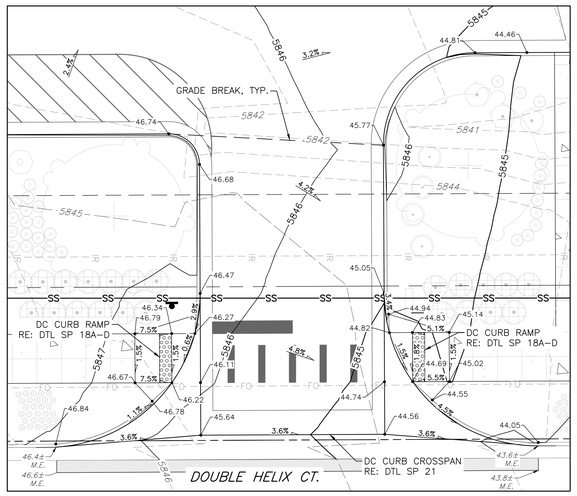
COLORADO REGISTERED SAMUEL EDWARD BEZAZIAN PROFESSIONAL ENGINEER
48232
09/06/2024

REVISION	DATE
100% CD's	

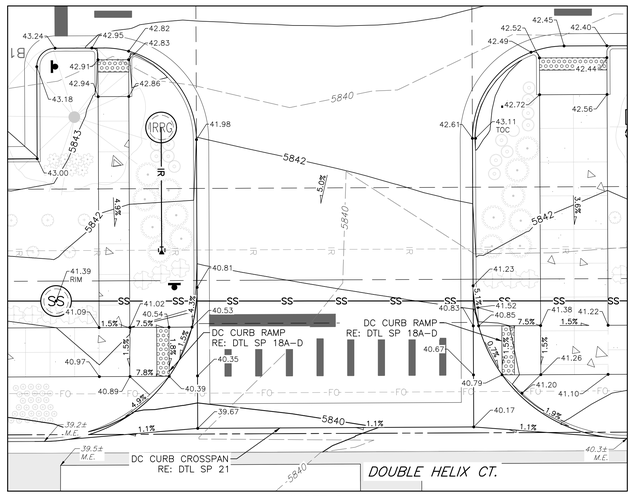
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DETAILED GRADING PLAN

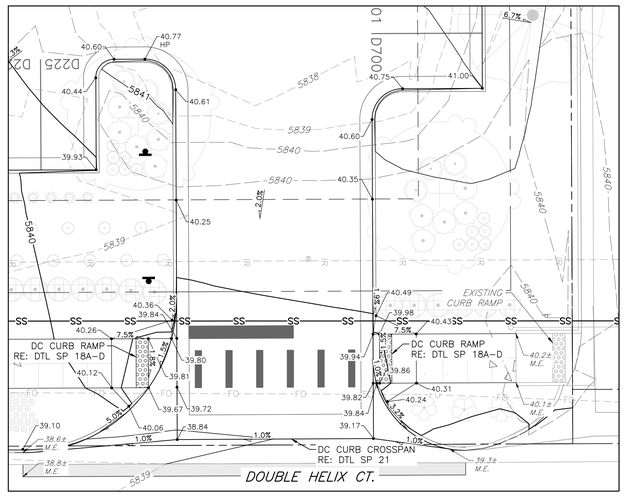
C204



INSET C
SCALE: 1"=10'



INSET D
SCALE: 1"=10'



INSET E
SCALE: 1"=10'

GRADING NOTES:

1. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS AND NOTIFY OWNER, ARCHITECT, AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
2. SPOT ELEVATIONS ON CURB AND GUTTER ARE TO FLOW LINE UNLESS OTHERWISE NOTED.
3. ALL GRADES SHOWN ARE TO FINAL FINISHED SURFACE GRADE AFTER TOPSOIL, SOD, PAVING ETC.
4. MATCH EXISTING GRADE AT LIMITS OF CONSTRUCTION AND AS NOTED. REPORT ANY DISCREPANCIES TO OWNER, ENGINEER, AND ARCHITECT PRIOR TO CONSTRUCTION.
5. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.0% SLOPE IN ANY DIRECTION. CROSS SLOPE ON ALL WALKS SHALL NOT TO EXCEED 2.0%. ALL WALKS SHALL NOT EXCEED 5.0% LONGITUDINAL SLOPE, UNLESS OTHERWISE NOTED AS A RAMP WITH HANDRAILS AND LANDINGS. CURB .
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3" BRASS CAP FOUND ON TOP OF HEAD WALL LOCATED APPROXIMATELY 41' NORTH OF THE NORTH CONCRETE FLOWLINE OF AVIATOR WAY AND APPROXIMATELY 973 FEET WEST OF THE WEST CONCRETE FLOWLINE OF SOUTH PEORIA STREET.

NAVD88 ELEV=5846.49'

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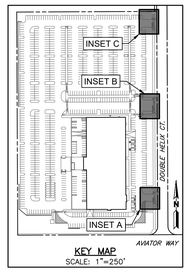

KEY MAP
SCALE: 1"=250'

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BERGER
48232
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB
Copyright:	

Sheet Name
DETAILED GRADING
DRIVEWAY
ENLARGEMENTS

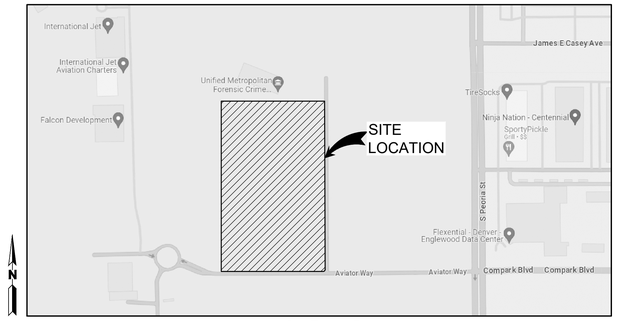
C205

SHEA HELIX WAREHOUSE

UTILITY CONSTRUCTION PLANS

LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER FILING NO. 6, 7TH AMENDMENT
PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 6 SOUTH,
RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF DOUGLAS, STATE OF COLORADO

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



VICINITY MAP:
SCALE: 1"=150'

ABBREVIATION LEGEND:

EL.=	ELEVATION
INV.=	INVERT ELEVATION
MIN.=	MINIMUM
MAX.=	MAXIMUM
TOP=	TOP OF PIPE
STA.=	STATION
TOW=	TOP OF WALL ELEVATION
FGW=	FINISH GRADE AT WALL ELEVATION
WSEL=	WATER SURFACE ELEVATION
TOC=	TOP OF CURB

SHEET INDEX

AGENCY LISTING:

DOUGLAS COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
100 THIRD STREET
CASTLE ROCK, CO 80104
PHONE: (303) 660-7490

SOUTH METRO FIRE RESCUE AUTHORITY
AARON MILLER
9195 E. MINERAL AVE
CENTENNIAL, CO 80112
PHONE: (720) 989-2246

MERIDIAN METROPOLITAN DISTRICT
RANDY GABRIEL, P.E.
12111 EAST BELFORD AVE.
ENGLEWOOD, CO 80112
PHONE: (303) 790-0345

CIVIL ENGINEER:
DAN BEARSE, P.E.
MARTIN/MARTIN INC.
12499 W. COLFAX AVE.
LAKEWOOD, COLORADO 80215
PHONE: 303-431-6100

SURVEYOR:
SCOTT A. AREHART, PLS #38314
MARTIN/MARTIN INC.
12499 W. COLFAX AVE.
LAKEWOOD, COLORADO 80215
PHONE: 303-431-6100

GEOTECHNICAL ENGINEER:
ERIN BOUCHET, P.E.
CTL THOMPSON
1971 WEST 12TH AVENUE
DENVER, COLORADO 80204
PHONE: (303) 825-0777

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	UTILITY CROSSING	#
-ST-	STORM SEWER	ST
ST	STORM MANHOLE	
-RD-	ROOF DRAIN	RD
	STORM INLET	
<	FLARED END SECTION	
-SS-	SANITARY SEWER	SS
SS	SANITARY MANHOLE	
	CLEAN OUT	
-W-	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
WM	WATER METER	
-IR-	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
-OHE-	OVERHEAD ELECTRIC	
-E-	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
-T-	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
-CT-	CABLE TV	CT
-G-	GAS LINE	G
	SIGN	
D.W.	MONITOR WELL	
DRIVE	DESCRIPTIONS	DRIVE

FIRE FLOW DATA

TOTAL FIRE FLOW REQUIRED FOR THIS SITE IS 2,625 GPM MINIMUM @ 20 PSI RESIDUAL PRESSURE.

THIS FLOW MUST BE PROVIDED FROM A MINIMUM OF 3 FIRE HYDRANT FULL STOP
EACH FIRE HYDRANT SHALL SUPPLY A MINIMUM OF 1,500 GPM @ 20 PSI RESIDUAL PRESSURE AT THE HYDRANT OUTLET TO BE ACCEPTABLE.

CODE USED FOR ANALYSIS: 2018 IFC
OCCUPANCY GROUPS: B, F-1
CONSTRUCTION TYPE: IIB
FIRE FLOW CALCULATION AREA: 60,826 SF
THIS BUILDING IS FULLY SPRINKLERED

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO THE MERIDIAN METRO DISTRICT STANDARDS. THE NUMBER OF FIRE HYDRANTS AND LOCATIONS SHOWN ON THIS WATER MAIN INSTALLATION PLAN ARE CORRECT AND ADEQUATE TO SATISFY THE FIRE PROTECTION REQUIREMENTS AS SPECIFIED BY THE SOUTH METRO FIRE RESCUE.

SIGNATURE OF FIRE CODE OFFICIAL DATE

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE SIGNED COPY OF THE PLANS AND THE STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.
2. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARDS, SPECIFICATIONS, PERMITS, BONDS, ETC. WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AGENCIES 48 HOURS PRIOR TO RESTART.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE FIRE DEPARTMENT OF ALL STREET CLOSING AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL PROTECT, AT HIS OWN EXPENSE, ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR THEIR REPAIR IF THEY ARE DAMAGED DURING CONSTRUCTION. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS THEY SHALL CONTACT THE ENGINEER IMMEDIATELY.
7. ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
8. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY IF NEEDED AND SUCH ACCESS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
9. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
10. ALL EXCAVATIONS SHALL MEET CURRENT OSHA GUIDELINES AND BE IN CONFORMANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS. ALL EXCAVATION IS UNCLASSIFIED
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS DISTURBED WITHIN DEDICATED RIGHT-OF-WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY
12. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF ONE OR TWO YEARS FROM THE DATE OF ACCEPTANCE OF THE IMPROVEMENTS BY THE APPROPRIATE GOVERNING AGENCY. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE CONTRACTOR TO THE SATISFACTION OF THE APPROPRIATE GOVERNING AGENCY AT NO EXPENSE TO THE AGENCY.
13. THE CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE CONSTRUCTION STAKES. THE CONTRACTOR SHALL PRESERVE THE STAKES FOR HIS USE. ANY CONSTRUCTION STAKING WHICH IS QUESTIONABLE AS TO CORRECTNESS SHALL BE LEFT IN PLACE UNTIL SUCH TIME AS THE OWNER CAN VERIFY THE CORRECTNESS OF SAID STAKING. SHOULD THE STAKES BE FOUND CORRECT, THE COSTS FOR CHECKING SHALL BE AT THE CONTRACTOR'S EXPENSE. IF CONSTRUCTION STAKING IS OBLITERATED, DESTROYED, OR OTHERWISE RENDERED USELESS DUE TO NEGLIGENCE OR CARELESSNESS BY THE CONTRACTOR OR HIS EMPLOYEES, SAID STAKING SHALL BE REPLACED OR CORRECTED AT THE CONTRACTOR'S EXPENSE.
14. COMPACTION TESTING SHALL BE PROVIDED BY THE CONTRACTOR. IF RETESTING IS REQUIRED DUE TO FAILURES, THE COST OF RETESTING SHALL BE AT THE CONTRACTOR'S EXPENSE.
15. THE CONTRACTOR SHALL KEEP ACCESS OPEN TO ALL PROPERTIES ADJACENT TO THE SITE.
16. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. COST ASSOCIATED WITH DUST CONTROL IS CONSIDERED INCIDENTAL TO THE WORK.
17. ALL PIPE DEFLECTIONS REQUIRE HIGH DEFLECTION COUPLINGS OR APPROVED FITTINGS. BENDS IN THE BARREL OF THE PIPE SHALL NOT BE ALLOWED.
18. BEFORE STARTING ANY CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ANY AND ALL UNDERGROUND FACILITIES/UTILITIES WHICH MAY BE AFFECTED BY THIS PROJECT.
19. REFER TO RECORDED PLAT FOR GEOMETRY

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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
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48232
10/06/2024

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UTILITY COVER SHEET

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WATER SYSTEMS NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE MERIDIAN METROPOLITAN DISTRICT (MMD) STANDARDS, MATERIALS, SPECIFICATIONS AND STANDARD DRAWINGS. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE DISTRICT ENGINEER. THE CONTRACTOR SHALL NOTIFY THE DISTRICT ENGINEER AND MERIDIAN METROPOLITAN DISTRICT AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL WATER MAINS INSTALLED SHALL CONFORM TO MERIDIAN METROPOLITAN DISTRICT MATERIALS SPECIFICATIONS:

DUCTILE IRON – MS – 1	4" & 20" CLASS 51 THROUGH 16" CLASS 50/ WITH POLY WRAP
POLYVINYL CHLORIDE (PVC)	4" CLASS 200 (DR 14)
BLUE BRUT MS – 2	6" THROUGH 12" CLASS 150 (DR 18)

3. ALL PIPES SHALL HAVE A TRACER WIRE ATTACHED DURING CONSTRUCTION TO THE TOP OF EVERY LENGTH OF INSTALLED PIPE. THE TRACER WIRE SHALL BE MULTI-STRAND 12 GAUGE COPPER WIRE, AND SHALL BE PERMANENTLY AFFIXED TO THE TOP OF THE PIPE USING NYLON PIPE STRAPS AT 50 FOOT INTERVALS. THE TRACER WIRE SHALL ALSO BE PERMANENTLY CONNECTED TO ALL FIRE HYDRANT TEES, METALLIC PIPE BENDS, MAIN VALVES OR OTHER METALLIC FITTINGS, WITH SUCH CONNECTION NOT INTERFERING WITH CONDUCTIVITY OF THE TRACER WIRE. ALL POINTS OF CONNECTION SHALL BE PROTECTED FROM CORROSION BY AN EPOXY OR SILICONE COATING. TRACER WIRE SHALL TERMINATE AT A TEST PORT (TEST STATION) LOCATED AT EACH PROPOSED FIRE HYDRANT. SPLICES TO WIRE WILL REQUIRE THE USE OF 3M SPLICE KITS. ALSO INSTALL 6 INCH WIDE DETECTABLE ALUMINUM FOIL PLASTIC BACKED TAPE INDICATING BURIED WATER LINE BELLOW. INSTALL 12 TO 18 INCHES BELOW SURFACE GRADE. TAPE MUST BE BLUE IN COLOR AND BE MANUFACTURED BY THORTEC OR EQUAL.
4. ALL FITTINGS SHALL BE MADE FROM GRAY-IRON OR DUCTILE IRON AND FURNISHED WITH MECHANICAL JOINT ENDS. ALL FITTINGS SHALL HAVE A PRESSURE RATING OF 250 PSI AND SHALL BE WRAPPED WITH AN 8-MIL MINIMUM THICKNESS POLYETHYLENE MATERIAL PER AWWA STANDARD C105 (MS-3).
5. THERE SHALL BE A MINIMUM COVER OF 5 FEET OVER ALL WATER MAINS UNLESS INDICATED OTHERWISE ON THESE PLANS.
6. FIRE HYDRANTS SHALL BE WATEROUS PACER 150 OR MUELLER CENTURION, OPEN LEFT, AND THE THREADED HOSE CONNECTIONS SHALL BE 2 ½" NOMINAL DIAMETER WITH 4½ THREADS PER INCH ON THE STEAMER NOZZLE, IN COMPLIANCE WITH SOUTH METRO FIRE PROTECTION DISTRICT REQUIREMENTS. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS, OPEN RIGHT VALVES, AND MATERIALS NECESSARY TO INSTALL THE HYDRANT COMPLETE AND IN PLACE.
7. ALL FIRE HYDRANTS ARE TO BE PAINTED WATEROUS HYDRANT COLOR MERIDIAN TAN #4168.
8. ALL BENDS, TEES, FIRE HYDRANTS, BLOW-OFFS AND PLUGS AT DEAD END MAINS SHALL BE PROTECTED FROM THRUST BY USING CONCRETE THRUST BLOCKS PER MERIDIAN METROPOLITAN DISTRICT STANDARDS.
9. NOT MORE THAN ONE CONNECTION SHALL BE MADE TO EXISTING MAINS UNTIL ALL TESTING IS COMPLETE AND PASSING.
10. CHLORINATION AND FLUSHING: ALL WATER MAINS SHALL BE INSTALLED AND CHLORINATED PER MERIDIAN METROPOLITAN DISTRICT STANDARDS. THE LINES SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C-651. "DISINFECTING WATER MAINS." THE PREFERRED METHOD IS TO USE SUFFICIENT CHLORINE TABLETS TO PRODUCE A 25 MG/L SOLUTION. THESE TABLETS SHOULD BE ADHERED TO THE TOP OF THE PIPE SECTION WITH PERMATEX #1 HARD SET GASKET MAKER CHLORINATION OF 16-INCH AND LARGER PIPE REQUIRES A CHLORINE SLURRY. THE CHLORINATION OF ANY FINISHED PIPELINE SHALL BE DONE PRIOR TO HYDROSTATIC TESTING
11. HYDROSTATIC TESTING: ALL WATER MAINS SHALL BE TESTED PER THE REQUIREMENTS OF MERIDIAN METROPOLITAN DISTRICT STANDARDS. ALL WATER MAIN PIPE SHALL BE FIELD PRESSURE TESTED TO A MINIMUM OF 150 PSI. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE MERIDIAN METROPOLITAN DISTRICT ENGINEER. ALLOWABLE LEAKAGE FOR EACH SECTION OF PIPE BETWEEN LINE VALVES SHALL NOT EXCEED THE LEAKAGE RATE SET FORTH BELOW,

PIPE SIZE (INSIDE DIAMETER)	ALLOWABLE LEAKAGE PER 1,000 FEET (GAL/HR) DUCTILE IRON PIPE (D.I.P.)	POLYVINYL CHLORIDE (P.V.C.)
4 INCHES	0.37	0.33
6 INCHES	0.55	0.50
8 INCHES	0.74	0.66
12 INCHES	1.10	1.00
16 INCHES	1.47	
20 INCHES	1.84	

12. ALL VALVES SHALL BE OPEN RIGHT AND ARE TO BE LOCATED ON PROPERTY LINE EXTENSIONS EXCEPT FOR TAPPING TEES WHERE AN ADDITIONAL VALVE SHALL BE PLACED ON THE TAPPING TEE. OTHER VALVE LOCATIONS MAY BE REQUIRED AS SHOWN ON THE PLANS.
13. WHEN IT IS NECESSARY TO LOWER OR RAISE WATER LINES AT STORM DRAINS AND OTHER UTILITY CROSSINGS, A MINIMUM CLEARANCE OF 1.5 FEET (18 INCHES) SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF PIPES.
14. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE APPROVED PLANS.
15. COMPACTION OF ALL TRENCHES MUST BE ATTAINED BY THE CONTRACTOR AND THE COMPACTION TEST RESULTS SUBMITTED TO THE DISTRICT ENGINEER.
16. ALL BENDS SHALL BE RESTRAINED PER THE RESTRAINING TABLE.
17. METER LOCATIONS SHALL BE DETERMINED AND APPROVED BY THE DISTRICT ENGINEER. IT IS THE DEVELOPERS RESPONSIBILITY TO CONTACT THE MERIDIAN METROPOLITAN DISTRICT AT 303-790-0345.
18. THE CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULE AND REGULATIONS. ALL TRENCHES SHALL BE OPEN CUT FROM THE GROUND SURFACE AND SHALL CONFORM TO THE MERIDIAN METROPOLITAN DISTRICT STANDARDS, TYPICAL TRENCH SECTION. ALL TRENCHES SHALL BE OPEN CUT FROM GROUND SURFACE AND SHALL NOT EXCEED A WIDTH OF 48-INCHES AT A POINT 12-INCHES ABOVE THE CROWN OF THE PIPE. ALL TRENCHES SHALL BE PROPERLY BRACED AND/OR SHORED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL OCCUPATIONAL SAFETY AND HEALTH (OSHA) REQUIREMENTS. SHORING SHALL BE REMOVED AS THE WORK AND BACKFILLING OPERATIONS PROGRESS.
19. THE DISCHARGE FROM ANY TRENCH DEWATERING OPERATIONS SHALL BE DISCHARGED INTO NATURAL DRAINAGE CHANNELS OR OTHER STRUCTURES AS APPROVED BY THE ENGINEER. BY NO MEANS SHALL GROUND WATER BE ALLOWED TO BE DISCHARGED INTO THE SANITARY SEWER SYSTEMS. PIPE TRENCHES SHALL BE KEPT FREE FROM WATER DURING EXCAVATION, FINE GRADING, PIPE LAYING AND JOINTING. DEWATERING SUFFICIENT TO PROVIDE A COMPLETELY DRY TRENCH SHALL BE MAINTAINED DURING ALL PIPE LAYING AND JOINTING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF ANY NATURE RESULTING FROM THE DEWATERING OPERATIONS.
20. BEDDING CONFORMING TO THE MERIDIAN METROPOLITAN DISTRICT REQUIREMENTS SHALL BE USED THROUGHOUT THE PROJECT (BEDDING SHALL BE PLACED 6" MINIMUM AROUND AND BELOW THE PIPE AND 12" MINIMUM ABOVE THE PIPE).
21. EXCAVATED MATERIALS SHALL NORMALLY BE CONSIDERED SUITABLE FOR BACKFILL UNLESS ANOMALOUS CONDITIONS ARE DISCOVERED DURING EXCAVATION. NO RUBBISH, DEBRIS, ORGANIC MATERIALS, RUBBLE AND STONES LARGER THAN 3 INCHES IN DIAMETER SHALL BE USED IN THE BACKFILL. CLAYS WITH A PLASTICITY INDEX IN EXCESS OF 20 SHALL NOT BE USED FOR BACKFILL IN TRENCHES LOCATED IN APPROVED STREETS. BACKFILL (ABOVE BEDDING MATERIAL) WITHIN STREET RIGHT-OF-WAY OR UNDER PAVEMENT SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR AS DETERMINED BY AASHTO METHOD T-99. BACKFILL NOT IN STREET RIGHT-OF-WAY OR UNDER PAVEMENT SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY TO THAT OF THE UNDISTURBED NATURAL GROUND BEFORE CONSTRUCTION.
22. ONLY THE FOLLOWING FIRE HYDRANTS, VALVE BOXES AND JOINT RESTRAINTS LISTED BELOW SHALL BE ACCEPTED FOR CONSTRUCTION:

FIRE HYDRANTS:
WATEROUS PACER 150 OR MUELLER CENTURION (SEE NOTES 6 & 7)

VALVE BOXES:
TYLER SCREW – TYPE "C" CAST IRON VALVE BOX ASSEMBLY – SERIES 6860 WITH NO. 160 OVAL BASE

MECHANICAL JOINT RESTRAINT DEVICES SHALL BE:
FOR DUCTILE IRON PIPE (DIP): MEGALUG 1100 SERIES, UNI-FLANGE 1400 SERIES
POLYVINYL CHLORIDE (PVC) PIPE: MEGALUG 2000 PV SERIES, UNI-FLANGE 1500 SERIES

PIPE JOINT RESTRAINT DEVICES SHALL BE:
FOR DUCTILE IRON PIPE (DIP): MEGALUG 1700 SERIES, UNI-FLANGE 1300 SERIES
POLYVINYL CHLORIDE (PVC) PIPE: MEGALUG 1500 SERIES, UNI-FLANGE 1300 SERIES

23. ALL WATER MAIN VALVES SHALL BE OPEN RIGHT (RED TOP), AND THE PLANS SHOULD INDICATE THIS AT EACH VALVE LOCATION.
24. EXISTING VALVES IN THE DISTRICT MAY ONLY BE OPERATED BY THE MERIDIAN METROPOLITAN DISTRICT PERSONNEL, (303-790-0345).
25. PRIOR TO INSTALLATION OF WATER MAINS, ROAD CONSTRUCTION MUST HAVE PROGRESSED TO AT LEAST THE "SUB-GRADE" STATE. SUB-GRADE IS DEFINED AND AN ELEVATION OF NO MORE THEN SEVEN (7) INCHES BELOW THE FINISHED STREET GRADE.
26. ALL VALVE BOXES AND HYDRANTS WILL BE SET TO THE FINAL FINISHED GRADE BY THE CONTRACTOR. ANY VALVE BOXES IN NON-PAVED LOCATIONS SHALL BE MARKED WITH A MARKER POST PER THE DISTRICT'S SPECIFICATIONS.
27. BEFORE ANY TAPS ARE MADE, APPLICATION FOR SAID TAPS MUST BE RECEIVED AND APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT.
28. ALL POLYVINYL CHLORIDE (PVC) PIPE IS TO BE DEPRESSURIZED PRIOR TO TAPPING.
29. MERIDIAN METROPOLITAN DISTRICT SYSTEM IS A PRESSURE SUSTAINED SYSTEM AND IS NOT SUPPLIED BY GRAVITY FEED FROM DISTRIBUTION TANKS. WATER TRUCKS OR TOWERS ARE REQUIRED FOR CONSTRUCTION BACKFILL. PRESSURE IS SUSTAINED BY PUMPS AND SPECIAL CARE NEEDS TO BE TAKEN WHEN USING WATER. MAXIMUM WATER DRAW THROUGH A HYDRANT IS 150 GPM.
30. ALL WATER MAIN AND APPURTENANCES ARE TO BE CLEARLY STAKED WITH OFFSET STAKES PRIOR TO INSPECTION. TO ASSURE PROPER PLACEMENT OF PIPE, ANY AND ALL WATER EASEMENTS SHALL BE CLEARLY IDENTIFIED AS WELL.
31. "AS-BUILT" MYLAR DRAWINGS ARE TO BE REPRODUCIBLE COPIES 24"X 36" SIZE OF THE APPROVED CONSTRUCTION DRAWINGS. ANY FIELD CHANGES ARE TO BE NOTED. THE DRAWING(S) WILL STATE "AS-BUILT" IN LARGE BLOCK LETTERS. A PRINT OF THE MYLAR IS TO BE SIGNED, DATED AND STAMPED BY THE REGISTERED ENGINEER OR THE "AS-BUILT" PRINT MAY BE STAMPED AND SIGNED BY A COLORADO-REGISTERED PROFESSIONAL LAND SURVEYOR INSTEAD OF, OR IN ADDITION TO, A REGISTERED ENGINEER. THE SURVEYOR'S CERTIFICATION IS FOR SURVEY DATA ONLY AND A NOTE TO THIS EFFECT SHOULD BE INCLUDED BY THE LS SEAL.

"AS-BUILT" FIELD NOTES, FROM WHICH THE "AS-BUILT" DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED / SIGNED AND DATED BY THE REGISTERED LAND SURVEYOR.

32. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING THE FOLLOWING:
    A. PROVIDE THE DISTRICT ENGINEERS A DEVELOPER'S WARRANTY, INCLUDING LIEN WAVERS AND ALL OTHER ASSURANCES THAT PAYMENT OF ALL SUPPLIES OF LABOR AND/OR MATERIAL HAS OCCURRED.
    B. PROVIDE THE DISTRICT ENGINEERS A BILL OF SALE, INCLUDING A DESCRIPTION OF THE FACILITIES.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR THE FOLLOWING:
    A. SUPPLYING THE DISTRICT ENGINEER WITH AN "ENGINEERS ESTIMATE" OF ALL COSTS ASSOCIATED WITH THE WATER INSTALLATION, PRIOR TO CONSTRUCTION.
    B. STREET CUTTING PERMITS FROM THE APPROPRIATE AUTHORITIES.
    C. RESTORATION OF DISTURBED STREET PAVEMENT AS REQUIRED BY GOVERNING AUTHORITIES.
    D. ALL COSTS ASSOCIATED WITH INSPECTION BY THE APPOINTED REPRESENTATIVES OF GOVERNING AUTHORITIES.
    E. TESTING OF COMPLETED WATER LINES AS REQUIRED BY APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT.
    F. COORDINATING WITH THE DISTRICT ENGINEER ANY AND ALL WATER OUTAGES NECESSARY FOR CONSTRUCTION WELL IN ADVANCE IN ORDER TO ALLEVIATE ANY UNEXPECTED OUTAGES, AND ALLOW THE DISTRICT MAINTENANCE CREWS TIME TO LOCATE AND OPERATE SAID VALVES.
    G. A PERFORMANCE AND PAYMENT BOND GUARANTEEING PAYMENT BY THE CONTRACTOR OF ALL BILLS BEFORE FINAL PAYMENT UNDER THIS CONTRACT.
    H. VERIFICATION OF ALL OTHER UNDERGROUND FACILITIES WHICH MAY BE AFFECTED BY THIS PROJECT AND REPAIR THEREOF IN CASE OF DAMAGE.
    I. SCHEDULE A PRE-CONSTRUCTION MEETING TO INCLUDE AT LEAST THE CONTRACTOR, ENGINEER, OWNER OR OWNER'S REPRESENTATIVE, AND A REPRESENTATIVE FROM THE MERIDIAN METROPOLITAN DISTRICT. THE CONTRACTOR SHALL GIVE AT LEAST 48-HOURS NOTICE TO THE ATTENDEES PRIOR TO THE PRE-CONSTRUCTION MEETING AND PRIOR TO COMMENCING CONSTRUCTION.
    J. "AS-CONSTRUCTED" MYLARS, ELECTRONIC FILES, FIELD NOTES AND CUTSHEETS SHALL BE SUPPLIED TO THE DISTRICT ENGINEER PRIOR TO CONDITIONAL ACCEPTANCE OF THE WATER LINES.
34. A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT IS REQUIRED ON ALL COMMERCIAL, SINGLE FAMILY AND MULTI-FAMILY DOMESTIC TAPS.
35. ALL COMBINATION FIRE-LINE AND DOMESTIC TAPS MUST BE INSPECTED AND APPROVED BY THE DISTRICT ENGINEER PRIOR TO THE RELEASE OF THE WATER MAINS
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL(S) ASSOCIATED WITH THIS PROJECT AND THE GENERAL PUBLIC.
37. SAFETY/CONSTRUCTION FENCING MUST BE PLACED ENTIRELY AROUND ANY OPEN EXCAVATION AT THE END OF EACH DAY.
38. OBSERVATION OF CONSTRUCTION/WORK IN PROGRESS AND ON-SITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE DISTRICT OR DISTRICT ENGINEER, OF CONTRACTORS PERFORMANCE, OR OBLIGATIONS TO THE COMPLIANCE OF THE CONTRACT.
39. MERIDIAN METROPOLITAN DISTRICT PERSONNEL ARE NOT RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR THE COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATION RELATING THERETO. ALL SAFETY COMPLIANCE/ENFORCEMENT AT THE WORK SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

IN CASE OF AN EMERGENCY AFTER WORKING HOURS, CALL THE MERIDIAN METROPOLITAN DISTRICT AT 303-790-1498

STORM SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DOUGLAS COUNTY ENGINEERING STANDARDS, MATERIAL SPECIFICATIONS, AND DRAWINGS LATEST REVISION. ALL STORM SEWER CONSTRUCTION SHALL BE APPROVED AND INSPECTED BY MERIDIAN METRO DISTRICT.
2. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING STORM SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED STORM SEWER.
3. ALL STORM SEWER LINES SHALL BE RCP, CLASS III UNLESS DISTANCE BETWEEN PIPE CROWN AND BOTTOM OF PAVEMENT IS LESS THAN 18", IN WHICH CASE CLASS IV WILL BE REQUIRED.
4. ALL STORM SEWER PIPE JOINTS SHALL BE INSTALLED WITH AN APPROVED RUBBER GASKET O-RING OR PROFILE TYPE GASKET. THE JOINT SHALL BE SIMILAR AND EQUAL TO THE BUREAU OF RECLAMATION "R-4" JOINT DESIGNATION, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. DISTANCES FOR STORM SEWER PIPE ARE THE HORIZONTAL DISTANCES FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND MANHOLE WIDTHS.
6. MANHOLE BARRELS AND CONES SHALL BE CONSTRUCTED OF PRECAST CONCRETE. MANHOLE BASES SHALL BE CAST-IN-PLACE. STORM INLETS SHALL BE CAST-IN-PLACE. PRECAST MANHOLE BASES SHALL NOT BE ALLOWED.
7. PRECAST MANHOLES AND RISERS SHALL BE MANUFACTURED IN CONFORMITY WITH ASTM DESIGNATION C-478. ALL CONES SHALL BE ECCENTRIC AND SHALL BE ROTATED AWAY FROM ADJACENT CURB AND GUTTER.
8. THE FLEXIBLE PLASTIC JOINT SEALING COMPOUND SHALL BE "RAMNEX," RUBBERNECK OR APPROVED EQUAL.
9. THE CONNECTION OF A NEW STORM SEWER TO AN EXISTING MANHOLE/INLET MAY REQUIRE CHANGES IN ELEVATIONS OR MODIFICATION TO EXISTING STRUCTURES. USE OF A PRE-CAST CONCRETE STRUCTURE OR MANHOLE/INLET RECONSTRUCTION IS AT THE DISCRETION OF DISTRICT.
10. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.
11. NO TREES SHALL BE PLANTED WITHIN ANY SEWER EASEMENT OR WITHIN TEN 10 FEET OF ANY PUBLIC MANHOLES, PIPES OR INLETS.
12. RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME TO THE REQUIRED FINAL GRADE, SUCH THAT THERE IS NO MORE THAN EIGHTEEN 18 INCHES FROM FINISHED GRADE TO THE TOP OF THE CONE SECTION. THE RIM SHALL BE LEFT 1/8-INCH TO 1/4-INCH BELOW FINISHED ASPHALT.
13. MANHOLE COVERS SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE 3 FEET CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER.
14. STATIONING/COORDINATES SHOWN FOR CURB INLETS IS ON FLOWLINE AT CENTER OF INLET. STATIONING/COORDINATES FOR AREA INLETS ARE AT CENTER OF INLET. STATIONING/COORDINATES FOR FLARED END SECTIONS ARE AT CENTER OF FLARED END.
15. SLOPE OF INLET FLOW LINE OR GRATE TO MATCH STREET GRADE UNLESS INLET IS AT A SUMP LOCATION.
16. CONTRACTOR TO COORDINATE HORIZONTAL AND VERTICAL LOCATIONS OF ROOF DRAIN SERVICES AND DOWNSPOUTS WITH PLUMBING AND ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.

MERIDIAN METROPOLITAN DISTRICT SANITARY SEWER MANHOLE CONSTRUCTION NOTES:

1. ALL CONCRETE USED IN MANHOLE CONSTRUCTION SHALL DEVELOP 4000 PSI COMPRESSIVE STRENGTH AFTER 28 DAYS. TYPE II CEMENT SHALL BE USED AND AIR ENTRAINMENT IS REQUIRED. WHERE DIRECTED ON THE DETAILS, CONCRETE SHALL CONTAIN AN ANTIMICROBIAL ADDITIVE AND PROTECTIVE COATING ADDED FOR INTERIOR OF MANHOLE (TYPICALLY FORCE MAIN AND DROP MANHOLES).
2. ALL MANHOLES SHALL HAVE SEMI-CIRCULAR SHAPED INVERTS FOR SMOOTH FLOW. THE INVERT MAY BE FORMED DIRECTLY IN THE CONCRETE OF THE BASE.
3. PRE-CAST MANHOLE RISERS (BODIES), AND CONES SHALL CONFORM TO ASTM C-478. ALL MANHOLES SHALL HAVE ECCENTRIC CONES (NO FLAT TOPS).
4. ALL JOINTS IN PRE-CAST MANHOLES SHALL BE SEALED WITH A PREFORMED, FLEXIBLE SEALING COMPOUND CONFORMING TO FEDERAL SPECIFICATION SS- S-00210 (GSA-FSS), SUCH AS "RAM-NEK" OR EQUAL AND CEMENT GROUT SHALL BE USED ON ALL OUTSIDE JOINTS WHERE GROUNDWATER IS PRESENT
5. MANHOLE STEPS SHALL BE EXTRUDED ALUMINUM, CONFORMING TO FEDERAL SPECIFICATION QQ-A-200/8, OR POLYPROPYLENE REINFORCED PLASTIC, INSTALLED IN A STRAIGHT LINE VERTICALLY AND SPACED 16-INCHES MAXIMUM APART, STEPS SHALL BE PRE-CAST IN THE MANHOLE WALL.
6. MANHOLE RING AND COVER SHALL BE NOMINAL 24-INCH DIAMETER STANDARD PATTERN CAST IRON.
7. COVER SHALL BE THE DISTRICT STANDARD PATTERN. ALL CAST IRON CASTINGS SHALL BE OF GRAY CAST IRON, ASTM DESIGNATION A48 CLASS 35B. CASTINGS SHALL NOT BE PAINTED OR DIPPED. ALL ALUMINUM CASTINGS SHALL BE DIPPED IN POLYMERIC PAINT AND CONTRACTOR MUST HAVE WRITTEN DISTRICT APPROVAL PRIOR TO INSTALLATION.
8. AN APPROVED MANHOLE WATER STOP GASKET SHALL BE INSTALLED ON ALL PLASTIC PIPE ENTERING A MANHOLE.
9. ALL MANHOLE BASES SHALL BE CAST-IN-PLACE CONCRETE. USE OF PRE-CAST MANHOLE BASES IS NOT PERMITTED, UNLESS APPROVED BY THE DISTRICT ENGINEER

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

SANITARY SEWER SYSTEM NOTES:

1. THE MERIDIAN METROPOLITAN DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS AND DRAWINGS SHALL BE THE MINIMUM REQUIREMENTS FOR THIS PROJECT.
2. PIPE SHALL BE POLYVINYL CHLORIDE (PVC) CONFORMING TO ASTM-3034 SDR35 WITH ELASTOMERIC GASKETED JOINTS FOR SIZES 15-INCHES AND SMALLER, AND ASTM F-679 (WALL THICKNESS T-1) WITH ELASTOMERIC GASKETED JOINTS FOR SIZES 18-INCHES AND LARGER.
3. THE MAXIMUM DEFLECTION OF PVC PIPE, AFTER INSTALLATION AND BACKFILLING, SHALL NOT EXCEED 5% OF THE PIPE DIAMETER. THE MAXIMUM INDIVIDUAL PIPE LENGTH OF PVC PIPE SHALL BE 20-FEET, 10-FOOT LENGTHS WHERE PIPE IS LAID AT MINIMUM GRADE.
4. ALL DUCTILE IRON PIPE (DIP) SHALL CONFORM TO AWWA C-151 CLASS 51.
5. THE CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULES AND REGULATIONS. ALL TRENCHES SHALL BE OPEN CUT FROM GROUND SURFACE AND SHALL NOT EXCEED A WIDTH OF 48- INCHES AT A POINT 12-INCHES ABOVE THE CROWN OF THE PIPE. ALL TRENCHES SHALL BE PROPERLY BRACED AND/OR SHORED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL OCCUPATIONAL SAFETY AND HEALTH (OSHA) REQUIREMENTS. SHORING SHALL BE REMOVED AS THE WORK AND BACKFILLING OPERATIONS PROGRESS.
6. MERIDIAN METROPOLITAN DISTRICT "CLASS B" BEDDING SHALL BE USED THROUGHOUT THE PROJECT (BEDDING SHALL BE PLACED 6" MINIMUM AROUND AND BELOW THE PIPE AND 12" MINIMUM ABOVE THE PIPE). BEDDING MATERIAL SHALL CONFORM TO ASTM C-33 OR D-448 GRADATION No. 67 OR 6 RESPECTIVELY.
7. EXCAVATED MATERIAL SHALL NORMALLY BE CONSIDERED SUITABLE FOR BACKFILL UNLESS ANOMALOUS CONDITIONS ARE DISCOVERED DURING EXCAVATION. NO RUBBLE AND STONES LARGER THAN 3-INCHES IN DIAMETER, RUBBISH, DEBRIS, OR ORGANIC MATERIALS, SHALL BE USED IN BACKFILL. CLAYS WITH A PLASTICITY INDEX IN EXCESS OF 20 SHALL NOT BE USED FOR BACKFILL IN TRENCHES LOCATED IN APPROVED STREETS. BACKFILL (ABOVE CLASS B MATERIAL) WITHIN STREET AREAS SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR AS DETERMINED BY AASHTO METHOD T-99. BACKFILL NOT UNDER STREETS SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY EQUAL TO THAT OF THE UNDISTURBED NATURAL GROUND BEFORE CONSTRUCTION.
8. THE DISCHARGE FROM ANY TRENCH DEWATERING OPERATIONS SHALL BE DISCHARGED INTO NATURAL DRAINAGE CHANNELS OR OTHER STRUCTURES AS APPROVED BY THE ENGINEER. BY NO MEANS SHALL GROUND WATER BE ALLOWED TO BE DISCHARGED INTO THE SANITARY SEWER SYSTEMS.PIPE TRENCHES SHALL BE KEPT FREE FROM WATER DURING EXCAVATION, FINE GRADING, PIPE LAYING AND JOINTING. DEWATERING SUFFICIENT TO PROVIDE A COMPLETELY DRY TRENCH, SHALL BE MAINTAINED DURING ALL PIPE LAYING AND JOINTING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF ANY NATURE RESULTING FROM THE DEWATERING OPERATIONS.
9. INFILTRATION AND EX-FILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF SEWER PER DAY FOR VITRIFIED CLAY PIPE (VCP), AND 50 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF SEWER PER DAY FOR PVC PIPE.
10. EVERY SECTION OF PIPE SHALL BE TELEVISED AND TESTED USING A LOW PRESSURE AIR TEST.

TESTING OF PVC PIPE LINES SHALL CONFORM TO UNI-BELL PLASTIC PIPE ASSOCIATION'S "RECOMMENDED PRACTICE FOR LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE", UNI-B-6-79.

11. IF LASERS ARE USED TO GIVE LINE AND GRADE FOR THE SEWER LINES, THEY MUST BE CHECKED EVERY 25-FEET FOR THE FIRST 100-FEET AND EVERY 50- FEET THEREAFTER.
12. THE CONTRACTOR SHALL HAVE ONE (1) SET OF PLANS APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT ON SITE AT ALL TIMES.
13. THE CONTRACTOR SHALL NOTIFY THE DISTRICT ENGINEER AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.
14. COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE DISTRICT ENGINEER PRIOR TO FINAL ACCEPTANCE.
15. SANITARY SEWER SERVICES SHALL BE WYES OFF OF THE MAIN LINE ON NEW CONSTRUCTION AND WYE SADDLES WITH STAINLESS STEEL STRAPS ON EXISTING MAINS.
16. ALL SANITARY SEWER MAINS AND APPURTENANCES ARE TO BE CLEARLY STAKED WITH OFFSET STAKES PRIOR TO INSPECTION TO ASSURE PROPER PLACEMENT OF PIPE. ANY AND ALL SANITARY SEWER EASEMENTS SHALL BE CLEARLY IDENTIFIED AS WELL.
17. "AS-BUILT" MYLAR DRAWINGS ARE TO BE REPRODUCIBLE COPIES 24"X36"SIZE OF THE APPROVED CONSTRUCTION DRAWINGS. ANY FIELD CHANGES ARE TO BE NOTED. THE DRAWING(S) WILL STATE "AS-BUILT" IN LARGE BLOCK LETTERS. A PRINT OF THE MYLAR IS TO BE SIGNED, DATED AND STAMPED BY THE REGISTERED ENGINEER OR THE "AS-BUILT" PRINT MAY BE STAMPED AND SIGNED BY A COLORADO-REGISTERED PROFESSIONAL LAND SURVEYOR INSTEAD OF, OR IN ADDITION TO A REGISTERED ENGINEER. THE SURVEYOR'S CERTIFICATION IS FOR SURVEY DATA ONLY AND A NOTE TO THIS EFFECT SHOULD BE INCLUDED BY THE LS SEAL.

"AS-BUILT" FIELD NOTES, FROM WHICH THE "AS-BUILT" DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED / SIGNED AND DATED BY THE REGISTERED LAND SURVEYOR.

18. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING THE FOLLOWING:
    A. PROVIDE THE DISTRICT ENGINEERS A DEVELOPER'S WARRANTY, INCLUDING LIEN WAVERS AND ALL OTHER ASSURANCES THAT PAYMENT OF ALL SUPPLIES OF LABOR AND/OR MATERIAL HAS OCCURRED.
    B. PROVIDE THE DISTRICT ENGINEERS A BILL OF SALE, INCLUDING A DESCRIPTION OF THE FACILITIES.
    C. SUPPLYING THE DISTRICT ENGINEER WITH AN "ENGINEERS ESTIMATE" OF ALL COSTS ASSOCIATED WITH THE SANITARY SEWER INSTALLATION, PRIOR TO CONSTRUCTION.
    D. STREET CUTTING PERMITS FROM THE APPROPRIATE AUTHORITIES.
    E. RESTORATION OF DISTURBED STREET PAVEMENT AS REQUIRED BY GOVERNING AUTHORITIES.
    F. ALL COSTS ASSOCIATED WITH INSPECTION BY THE APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT AND GOVERNING AUTHORITIES.
    G. TESTING OF COMPLETED SANITARY SEWER LINES AS REQUIRED BY APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT.
    H. A PERFORMANCE AND PAYMENT BOND GUARANTEEING PAYMENT BY THE CONTRACTOR OF ALL B

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
	SIGN	
D.W.	MONITOR WELL	
DRIVE	DESCRIPTIONS	DRIVE

FIRE FLOW DATA

TOTAL FIRE FLOW REQUIRED FOR THIS SITE IS 2,625 GPM MINIMUM @ 20 PSI RESIDUAL PRESSURE.

THIS FLOW MUST BE PROVIDED FROM A MINIMUM OF 3 FIRE HYDRANT FULL STOP
EACH FIRE HYDRANT SHALL SUPPLY A MINIMUM OF 1,500 GPM @ 20 PSI RESIDUAL PRESSURE AT THE HYDRANT OUTLET TO BE ACCEPTABLE.

CODE USED FOR ANALYSIS: 2018 IFC
OCCUPANCY GROUPS: B, F-1
CONSTRUCTION TYPE: IIB
FIRE FLOW CALCULATION AREA: 60,826 SF
THIS BUILDING IS FULLY SPRINKLERED

N

SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

UTILITY NOTES:

1. THE CONTRACTOR SHALL VERIFY ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS.
2. ALL EXISTING AND PROPOSED MANHOLES, VAULTS, VALVE BOXES, HAND-HOLES, ETC., SHALL BE ADJUSTED TO PROPOSED GRADES.
3. THE CONTRACTOR TO COORDINATE UTILITIES AT BUILDING WITH PLUMBING PLANS. NOTIFY ENGINEER OF ANY DISCREPANCIES.
4. RIM ELEVATIONS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME AND COVER TO THE REQUIRED FINAL GRADE. THE PIPELINE CONTRACTOR MAY NEED TO REMOVE AND REPLACE THE PRECAST CONE SECTION SUCH THAT THERE IS NO MORE THAN EIGHTEEN (18) INCHES FROM FINISHED GRADE TO THE TOP OF THE MANHOLE CONE SECTION.
5. THE CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT BY CTL THOMPSON DATED FEBRUARY 23, 2024.
6. THE CONTRACTOR SHALL COORDINATE GAS, ELECTRIC AND COMMUNICATIONS SERVICES WITH UTILITY PROVIDERS. LOCATIONS OF GAS, ELECTRIC AND COMMUNICATIONS LINES SHALL BE COORDINATED WITH PROPOSED IMPROVEMENTS.
7. THE CONTRACTOR SHALL ADJUST ALL MANHOLE COVERS, VALVE BOXES, UTILITY BOXES, ETC., TO MATCH FINAL GRADE.
8. THE CONTRACTOR SHALL COORDINATE ALL UTILITY LINE CONNECTIONS AT BUILDING WITH THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE PROPERLY NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
9. SEE GRADING PLANS FOR GRADES AT LIGHTPOLES AND TRANSFORMERS. SEE HORIZONTAL CONTROL PLANS FOR COORDINATES OF LIGHTPOLES AND TRANSFORMERS.
10. ALL BEDDING MATERIAL TO BE CLASS B BEDDING.
11. WATER AND SANITARY SEWER SHALL BE PER MERIDIAN METRO DISTRICT STANDARDS & SPECIFICATIONS.
12. STORM SEWER SHALL BE PER DOUGLAS COUNTY STANDARDS & SPECIFICATIONS.
13. ALL PROPOSED UTILITIES ARE PRIVATE UNLESS NOTED OTHERWISE.
14. CONTRACTOR SHALL RESTORE ALL SURFACE AREAS DISTURBED TO ORIGINAL CONDITIONS OR BETTER.
15. SEE COVER SHEET FOR ADDITIONAL NOTES.

COORDINATION AND ROUTING OF DRY UTILITIES INCLUDING GAS, ELECTRIC, FIBER OPTIC, ETC. IS NOT SHOWN. CONTRACTOR TO CONNECT TO MAINS IN THE RIGHT-OF-WAY.

BENCHMARK:

3" BRASS CAP FOUND ON TOP OF HEAD WALL LOCATED APPROXIMATELY 41' NORTH OF THE NORTH CONCRETE FLOWLINE OF AVIATOR WAY AND APPROXIMATELY 973 FEET WEST OF THE WEST CONCRETE FLOWLINE OF SOUTH PEORIA STREET.

NAVD88 ELEV=5846.49'

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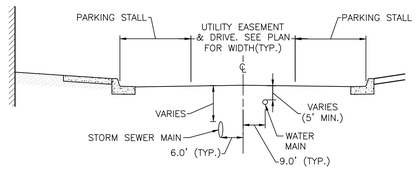
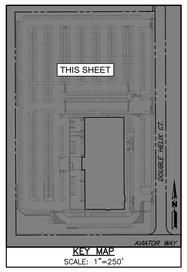


TYPICAL PRIVATE DRIVE
SECTION A-A
N.T.S.



KEY MAP
SCALE: 1"=250'

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED DANIEL EDWARD BARTEL 48232 PROFESSIONAL ENGINEER
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By	DB
Copyright	

Sheet Name
OVERALL UTILITY PLAN

C302

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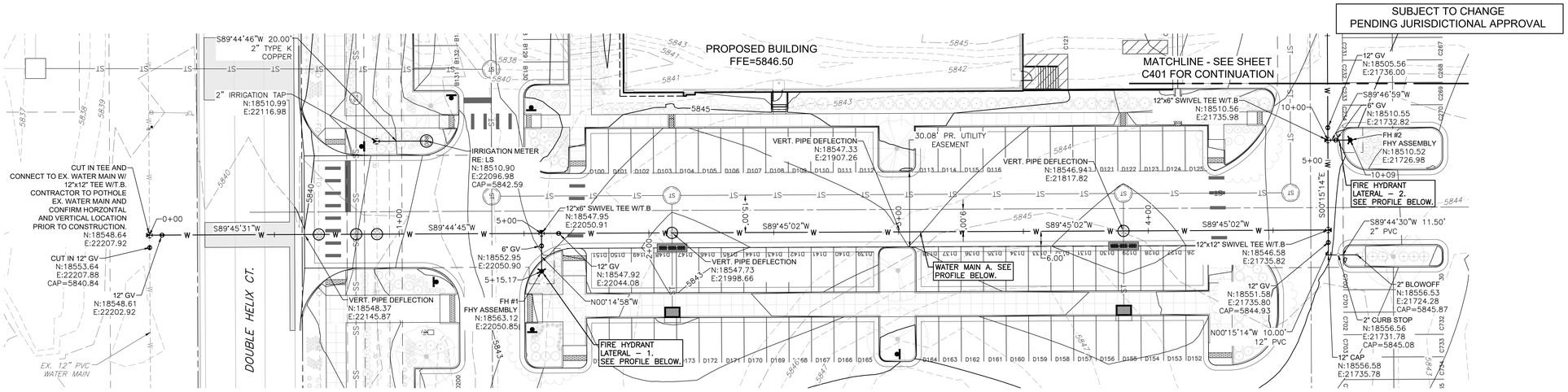
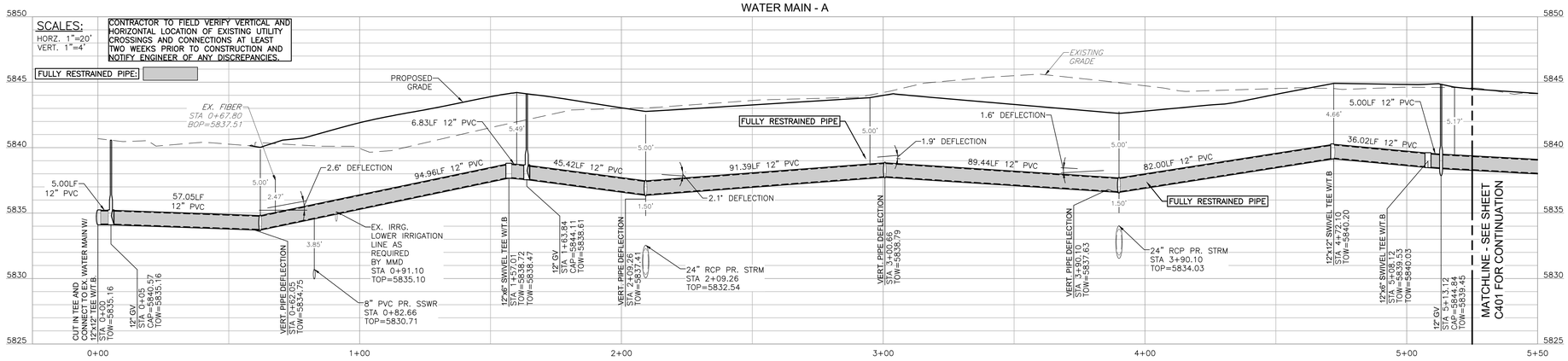
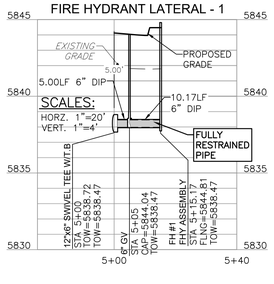


WATER MAIN - A



FIRE HYDRANT LATERAL - 1



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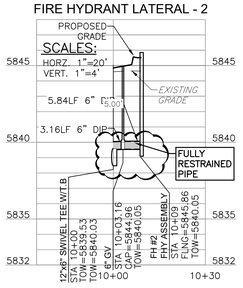

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COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

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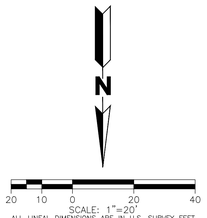

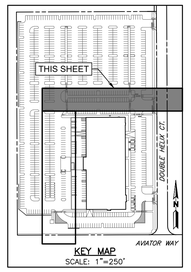

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DANIEL EDWARD BEAVERT
48232
PROFESSIONAL ENGINEER
09/06/2024

REVISION	DATE
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Project Number	23.0136
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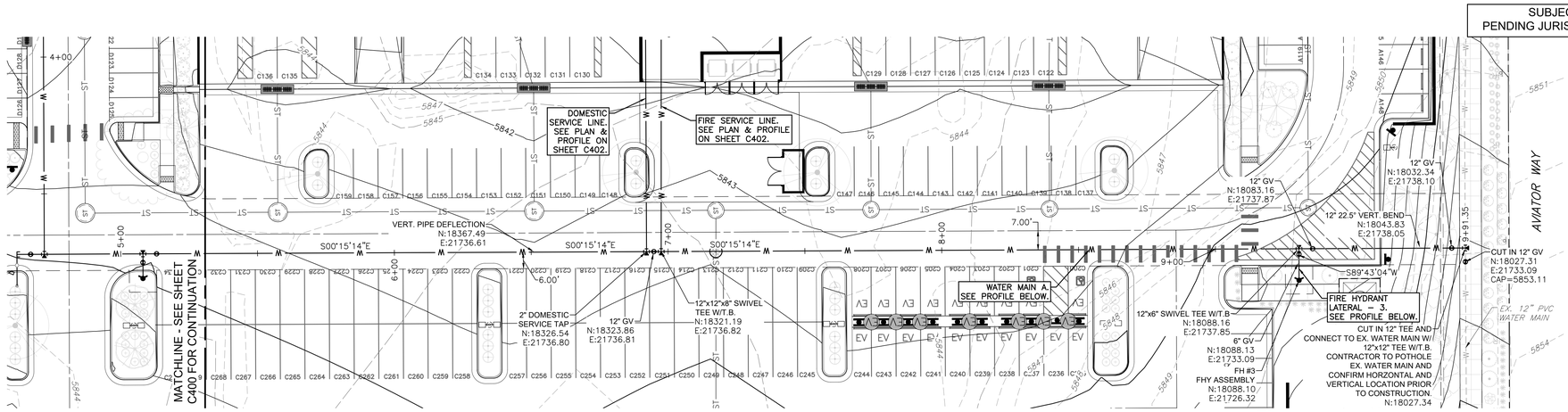
Checked By:	DB

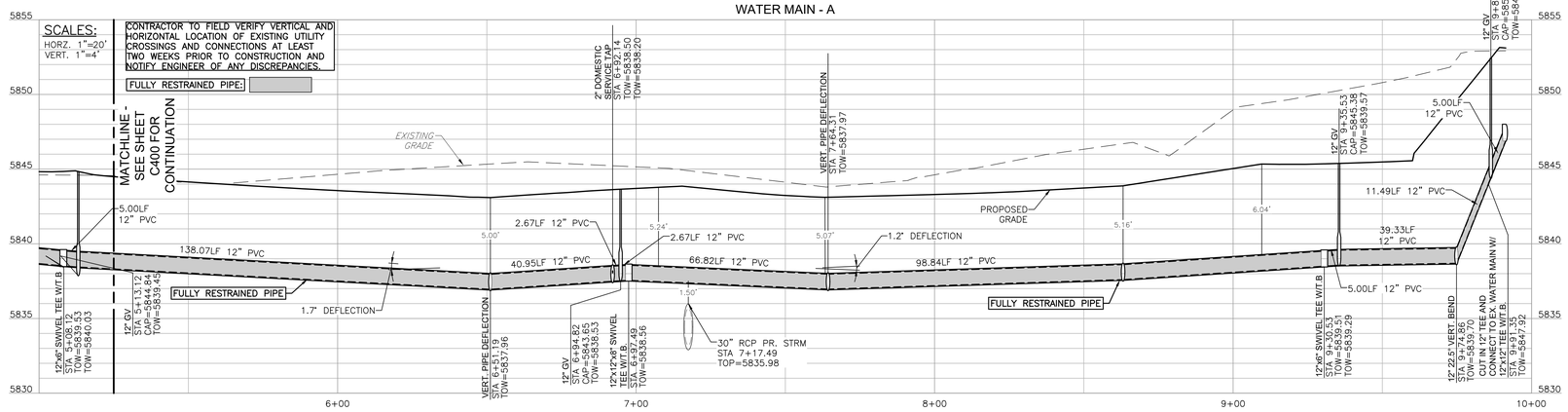
Sheet Name
WATER MAIN A PLAN & PROFILE SHEET

C400

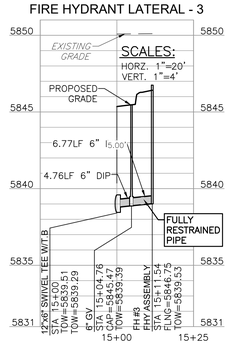
SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

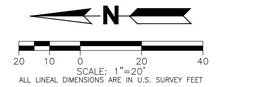


WATER MAIN - A



FIRE HYDRANT LATERAL - 3





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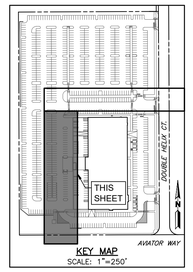

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Sheet Name
WATER MAIN A PLAN & PROFILE SHEET

C401

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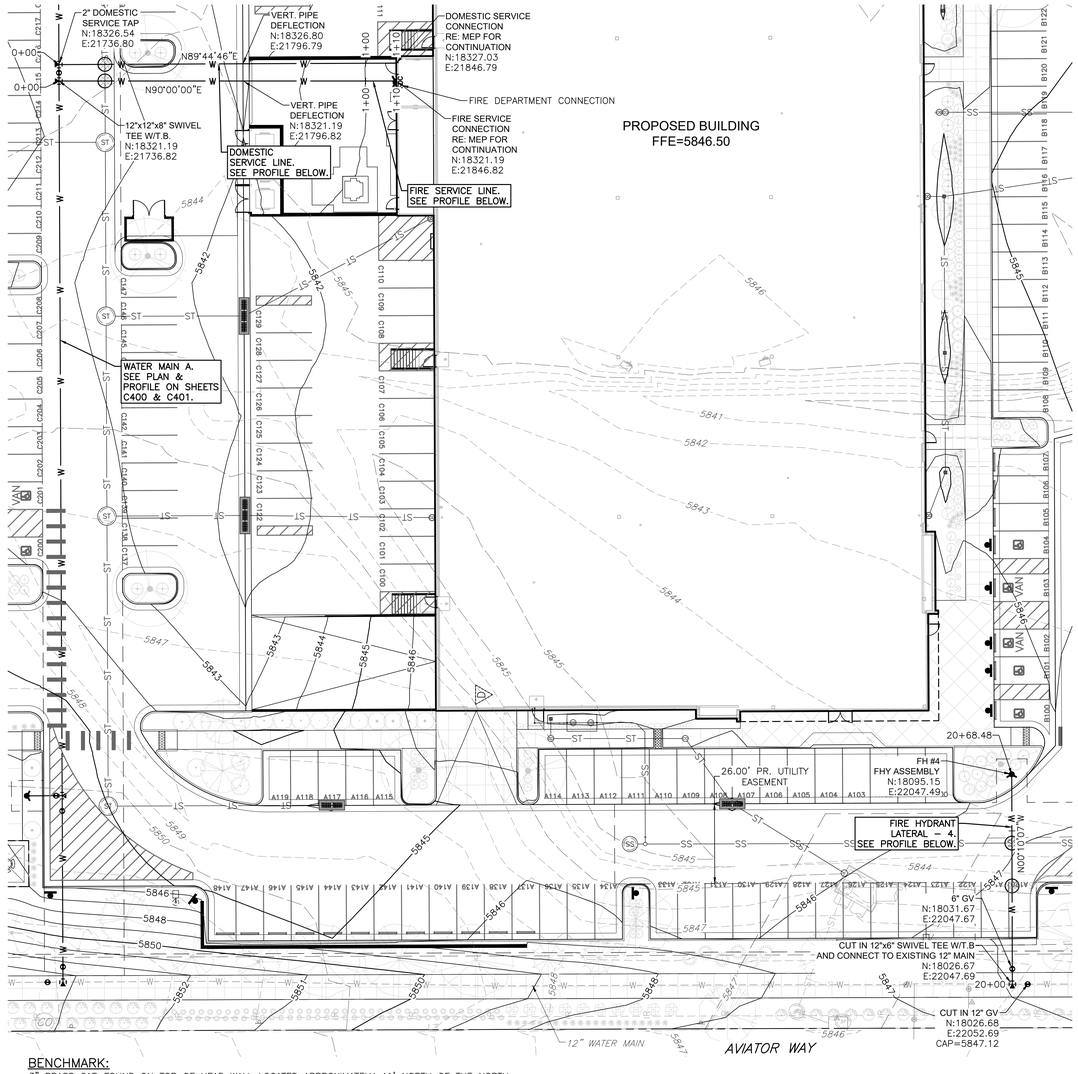

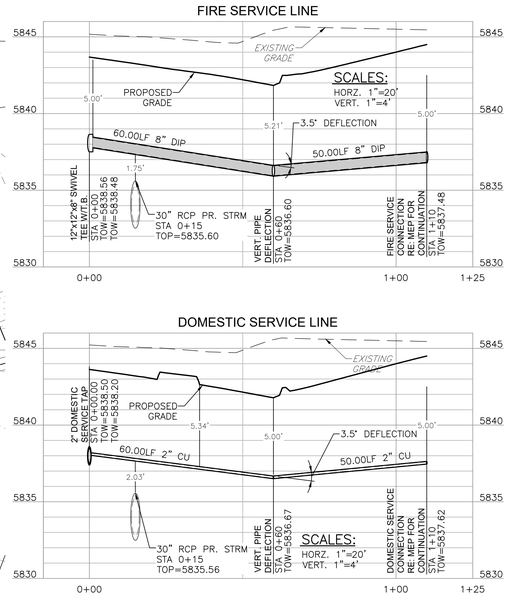

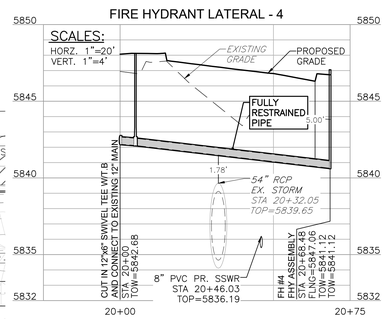

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

BUILDING – FIRE LINE PIPE	
TYPE	USP FIELD LOCK GASKET
MATERIAL	DUCTILE IRON
SIZE (INCHES)	8"
LENGTH (FEET)	110LF
BENDS	11.25° – 0
	22.5° – 0
	45° – 0
	90° – 1
TOTAL BENDS INCLUDES ONE 90° UNDER THE BUILDING	

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FIRE FLOW CALCULATION AREA: 60,826 SF
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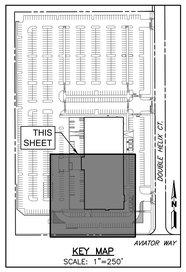

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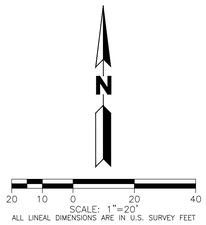

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED SAMUEL EDWARD BEAVER 48232 PROFESSIONAL ENGINEER 09/06/2024

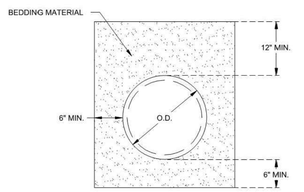
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
WATER PLAN & PROFILE SHEET

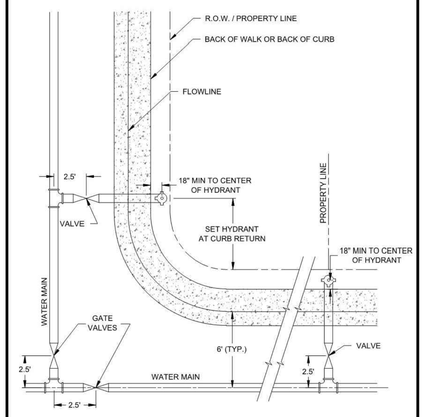
C402

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

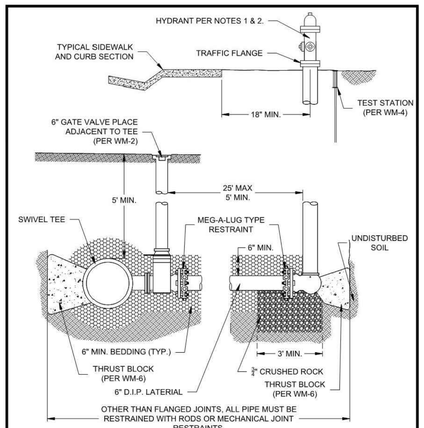


1. BACKFILL OVER PIPE SHALL BE COMPACTED TO 90% MAXIMUM DRY WEIGHT DENSITY ASHTO T-99
2. PIPE BEDDING SHALL BE SQUEEGEE OR $\frac{3}{4}$" CRUSHED ROCK.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-1
August, 2012	PIPE BEDDING DETAIL	

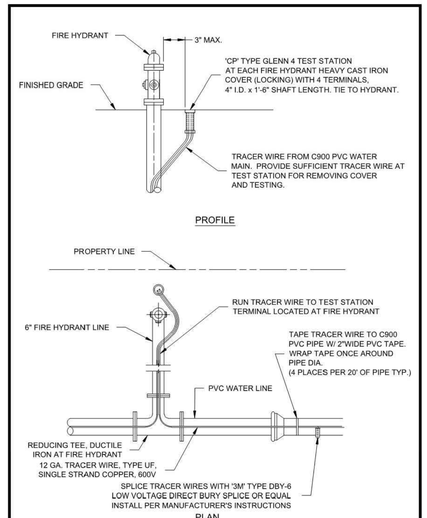


REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-2
August, 2012	VALVE AND FIRE HYDRANT LOCATION DETAIL	

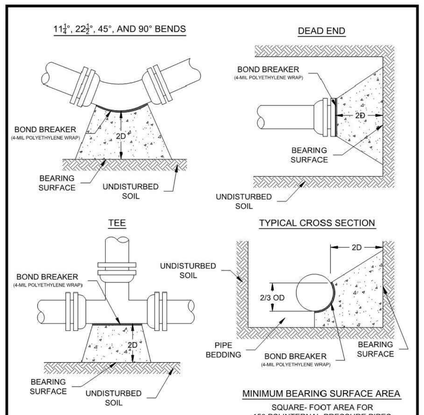


NOTES:
1. HYDRANT SHALL BE WATEROUS PACER 150 OR MUELLER CENTURION, OPEN LEFT, AND THE THREADED HOSE CONNECTIONS SHALL BE 2½" NOMINAL DIAMETER WITH 4] THREADS PER INCH ON THE STEAMER NOZZLE, IN COMPLIANCE WITH SOUTH METRO FIRE PROTECTION DISTRICT REQUIREMENTS. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS OPEN RIGHT VALVES, AND MATERIALS NECESSARY TO INSTALL THE HYDRANT COMPLETE AND IN PLACE.
2. ALL FIRE HYDRANTS ARE TO BE PAINTED WATEROUS HYDRANT COLOR MERIDIAN TAN #4168.
3. HYDRANT PIT SHALL CONTAIN A MINIMUM OF 1 C.Y. OF ¾" CRUSHED ROCK
4. DISTANCE FROM BACK OF WALK, SEE WM-2.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-3
JULY 2020	TYPICAL FIRE HYDRANT & ASSEMBLY	



REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-4
August, 2012	TRACER WIRE INSTALLATION DETAIL	



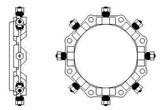
NOTES:
1. ALL CONCRETE THRUST BLOCKS FOR FIRELINE MAINS AND/OR CONNECTIONS MUST MEET NFPA 24 REQUIREMENTS, USING THE BEARING PRESSURES FROM THE APPROVED GEOTECHNICAL REPORT.
2. THIS INFORMATION AND ANY CALCULATIONS MUST BE PROVIDED ON THE APPROVED CONSTRUCTION DRAWINGS.

MINIMUM BEARING SURFACE AREA
SQUARE- FOOT AREA FOR 150 PSI INTERNAL PRESSURE PIPES

PIPE SIZE	BEND				TEE	DEAD END
	11¼°	22½°	45°	90°		
6"	0.6	1.3	2.5	4.6	2.3	3.1
8"	1.1	2.2	4.3	7.9	4.0	5.4
12"	2.4	4.6	9.1	16.8	8.6	11.4
16"	3.9	7.7	15.2	28.0	14.9	20.0
20"	8.5	17.0	33.5	61.7	32.7	43.6
24"	8.5	17.0	33.5	61.7	32.7	43.6
36"	18.9	37.5	73.5	135.0	72.0	96.0

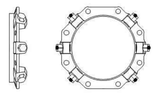
REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-6
JULY 2015	CONCRETE THRUST BLOCK DETAILS	

MECHANICAL JOINT RESTRAINT FOR PVC - C-900 PIPE (TYPICAL)



PVC RESTRAINT - SERIES 2000 MEGALUG, SERIES 1500 UNI-FLANGE OR MMD PRE-APPROVED EQUIVALENT; COLOR IS RED

MECHANICAL JOINT RESTRAINT FOR DUCTILE IRON PIPE (TYPICAL)



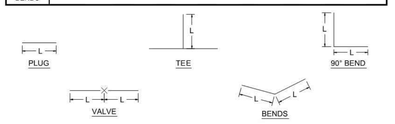
DUCTILE IRON RESTRAINT - SERIES 1100 MEGALUG, SERIES 1400 UNI-FLANGE OR MMD PRE-APPROVED EQUIVALENT; COLOR IS BLACK

NOTE: DO NOT MODIFY RESTRAINTS AND INSTALL PER MANUFACTURES' RECOMMENDATION.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-7
August 2012	MECHANICAL JOINT RESTRAINT	

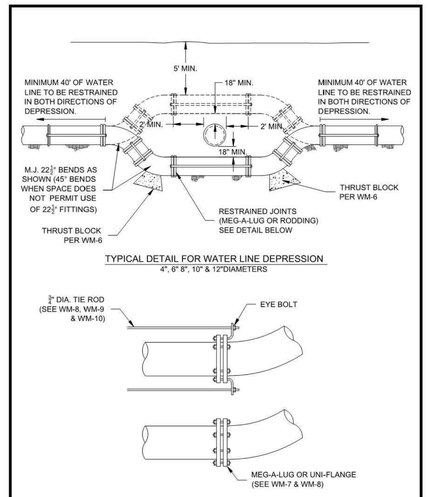
ROD DIAMETER, GRADE AND LENGTH OF RESTRAINED PIPE

PIPE SIZE	4"			6"			8"			12"			16"			20"			24"			30"		
FITTING	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G
90° BEND, TEE, VALVE > 12", PLUG	¾"	40'	MS	1"	45'	MS	1"	60'	MS	1"	86'	MS	1"	108'	HS	1"	132'	HS	1"	155'	HS	1"	218'	HS
45° BEND	¾"	9'	MS	1"	13'	MS	1"	18'	MS	1"	25'	MS	1"	32'	MS	1"	39'	HS	1"	45'	HS	1"	64'	HS
22½° BEND	¾"	2'	MS	1"	4'	MS	1"	5'	MS	1"	7'	MS	1"	8'	MS	1"	10'	MS	1"	12'	MS	1"	17'	MS
11¼° BEND	¾"	2'	MS	1"	2'	MS	1"	2'	MS	1"	2'	MS	1"	2'	MS	1"	3'	MS	1"	3'	MS	1"	5'	MS
VERTICAL BENDS	ALL TOTALLY RESTRAINED, L = 40'																							



NOTES
1. LENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
2. CLAMPS, RODS & MEGALUGS NOT ALLOWED FOR PIPES LARGER THAN 30". CLAMPS AND RODS SHALL BE EXTENDED TO THE NEXT PIPE.
3. D=DIAMETER, L=LENGTH, G=GRADE, MS=MILD STEEL, HS=HIGH STRENGTH.
4. MIN 4.5' GROUND COVER REQUIRED.
5. BASED ON 150 PSI INTERNAL PRESSURE, FOR L AND PRESSURES LISTED ON SHEET 22 FOR D AND G.
6. MS = MILD STEEL ROD ASTM A-36, HS = HIGH STRENGTH ROD ASTM A-193 GRADE B7.
7. NUTS SHALL BE ASTM A-307 GRADE A OR B HEXAGON HEAVY SERIES.
8. SEE TIE ROD DETAIL DRAWING. ALSO, TIE ROD COUPLING DETAILS, CLAMP DETAILS AND SET CLAMP DETAILS.
9. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE RESTRAINED TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS.
10. LENGTH OF RESTRAINED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT RESTRAINT FOR MEGALUGS.
11. CROSSES MUST BE RESTRAINED IN ALL APPLICABLE DIRECTIONS.
12. 12" AND SMALLER IN LINE VALVES AND TEES SHALL HAVE A MECHANICAL JOINT RESTRAINT DEVICE ON EACH SIDE OF THE FITTING OR VALVE. MECHANICAL JOINT RESTRAINT DEVICE SHALL BE PER WM-11.
13. A SECOND VALVE WILL BE REQUIRED TO BE CLOSED WHEN EXCAVATING NEXT TO A EXISTING VALVE.
14. ON PLUGS, TEES AND BENDS KICKBLOCKS SHALL BE USED IN ADDITION TO RESTRAINT.
15. WHEN REDUCERS ARE USED ON VALVE INSTALLATIONS THE LENGTH OF RESTRAINT SHALL BE BASED ON THE SIZE OF THE PIPE NOT THE SIZE OF THE VALVE.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-8
August 2012	LENGTH OF RESTRAINED PIPE	



REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-11
August 2012	RESTRAINED JOINTS AT VERTICAL BENDS	

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WATER DETAILS SHEET

C403

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SUBJECT TO CHANGE
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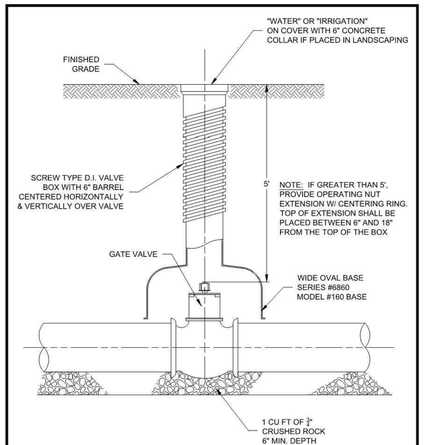
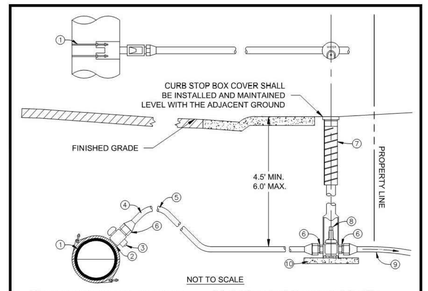


NOTE:
1. FITTINGS SHALL BE WRAPPED WITH 8 MIL THICKNESS POLYETHYLENE.
2. USE THIS DETAIL FOR WATER MAIN/SERVICES GREATER THAN 1" IN SIZE.
3. MANUFACTURER: TYLER UNION 6860 SERIES

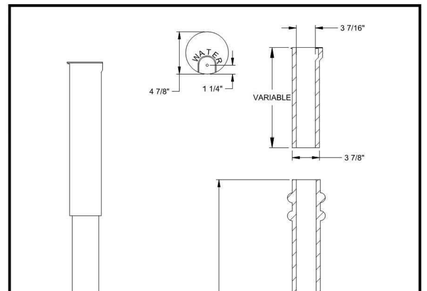
REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-16
07/15	VALVE BOX DETAIL	



① WATER MAIN WITH TAPPING SADDLE
② INLET SIDE - AWWA TAPER THREAD (CC STYLE)
③ CORPORATION STOP, FORD #FB1000, MUELLER #H15008 & #H15013, MCDONALD & 4701BQ & 4701BT OR APPROVED EQUAL
④ TYPE K COPPER PIPE
⑤ PROVIDE AMPLE BEND
⑥ OUTLET SIDE - GRIP TITE JOINT COMPRESSION
⑦ TYLER 6500 SERIES, 95E, 4 ¾" DROP LID VARIABLE EXTENSION SHAFT WITH 510" TO 710" RANGE FOR ¾" & 1" SERVICE. SEE WM-16 VALVE BOX FOR SERVICE GREATER THAN 1".
⑧ CURB STOP WITH GRIP TITE COMPRESSION OUTLETS (FORD B44G, MUELLER B25209 MCDONALD #6100-Q OR APPROVED EQUAL) 2" SQUARE NUT FOR 1.5" AND 2" BALL VALVES
⑨ TYPE K COPPER PIPE
⑩ 12" x 12" x 2" CONCRETE PAD PLACED UNDER CURB STOP VALVE & BOX

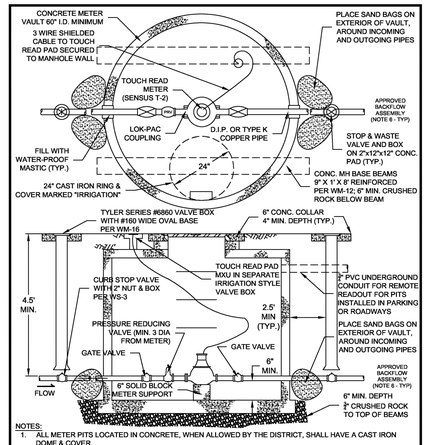
NOTES:
1. PLACE STOP BOX WITHIN 5 FT OF PROPERTY LINE. PLACEMENT INSIDE PROPERTY LINE IS PREFERRED.
2. PROPERTY OWNER IS RESPONSIBLE FOR THE ENTIRE SERVICE LINE (REPLACEMENT & REPAIRS) AND LEAKS FROM THE CURB STOP TO THE METER. MMD WILL REPAIR SERVICE LINE LEAKS BETWEEN THE WATER MAIN AND THE OUTLET SIDE OF THE CURB STOP ONLY (SEE WS-7).
3. NO BENDS, FITTINGS, CONNECTIONS, OR CHANGES IN THE PIPE SIZE ARE PERMITTED ON THE SERVICE LINE FROM THE CORPORATION STOP TO THE METER OUTLET VALVES EXCEPT AS SHOWN.
4. MMD IS NOT RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR DUE TO A LEAK ANYWHERE ON THE SERVICE LINE. ALL DAMAGE IS THE RESPONSIBILITY OF THE PROPERTY OWNER.
5. A 3 INCH "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-3
05/14	WATER MAIN SERVICE CONNECTION	



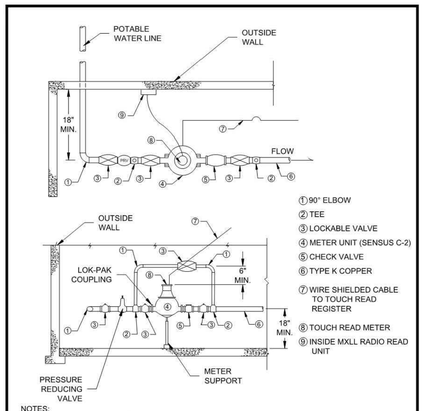
NOTES:
1. CURB STOP BOX SHALL BE TYLER UNION MODEL 6500 SERIES, SIZE 95E OR APPROVED EQUAL
2. ALL SECTIONS OF THE BOX SHALL BE WRAPPED IN 8 MIL POLYETHYLENE PLASTIC.
3. A 1/2" x 12" x 2" CONCRETE PAD SHALL BE PLACED UNDER THE CURB STOP VALVE AND BOX.
4. SEE WM-16 VALVE BOX DETAIL FOR WATER MAINS/SERVICES GREATER THAN 1".

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-4
JULY 2015	CURB STOP BOX FOR ¾" AND 1" LINES	



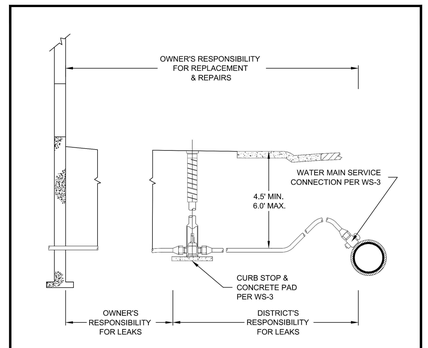
NOTES:
1. ALL METER PITS LOCATED IN CONCRETE, WHEN ALLOWED BY THE DISTRICT, SHALL HAVE A CAST IRON DOME & COVER.
2. METERS INSTALLED IN PITS THAT ARE IN PARKING OR ROADWAYS, WILL REQUIRE THE INSTALLATION OF A REMOTE WIRE AND CONDUIT. METER PITS INSTALLED IN LANDSCAPED AREAS WILL REQUIRE TO BE CONSTRUCTED AS SHOWN AT THE OWNERS EXPENSE FOR THE INSTALLATION OF A REMOTE SENSING UNIT.
3. JOINTS INSIDE METER VAULT AND CONNECTIONS TO VALVES SHALL BE THREADED OR FLANGED. METER SHALL BE FLANGED OR THREADED W/BRASS COMPANION FLANGES. DUCTILE IRON PIPE OR TYPE K COPPER PIPE SHALL BE USED 5' EITHER SIDE OF VAULT.
4. SHOULD ANY SITUATION ARISE OTHER THAN SHOWN, CONTACT DISTRICT REPRESENTATIVES.
5. PRESSURE REDUCING VALVE IS REQUIRED BEFORE METER IF STATIC PRESSURE IS GREATER THAN 95 PSI.
6. AN APPROVED REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY WILL BE REQUIRED DOWNSTREAM OF THE WATER METER.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-27
JULY 2015	OUTSIDE SETTING FOR 1 ½" AND 2" IRRIGATION METER IN MANHOLE	



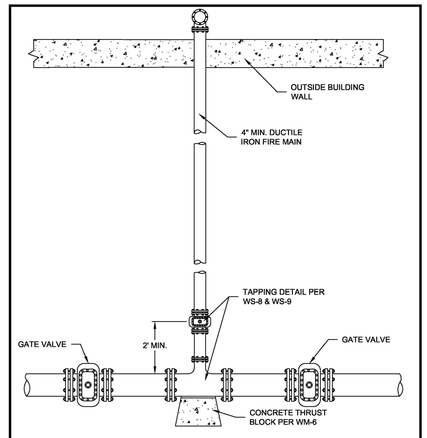
NOTES:
1. THE METER SHALL BE PROTECTED FROM FREEZING AND DAMAGE.
2. WATER SERVICE LINE SHALL BE TYPE K COPPER.
3. NO BENDS, FITTINGS, CONNECTIONS, OR CHANGES IN THE PIPE SIZE ARE PERMITTED ON THE SERVICE LINE FROM THE CORPORATION STOP TO THE METER OUTLET VALVE EXCEPT AS SHOWN.
4. PIPE JOINTS SHALL BE THREADED, FLANGED OR SOLDERED W/95-5 TIN-ANTIMONY SOLDER.
5. COMPANION FLANGES SHALL BE BRASS.
6. A FLOOR DRAIN SHALL BE PLACED NEAR THE METER INSTALLATION.
7. A PRESSURE REDUCING VALVE IS REQUIRED BEFORE THE METER IF STATIC PRESSURE IS GREATER THAN 95 PSI.
8. AN APPROVED REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY WILL BE REQUIRED DOWNSTREAM OF THE WATER METER.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-12
JULY 2015	INSIDE SETTING FOR 1½" AND LARGER WATER METER WITH BYPASS	



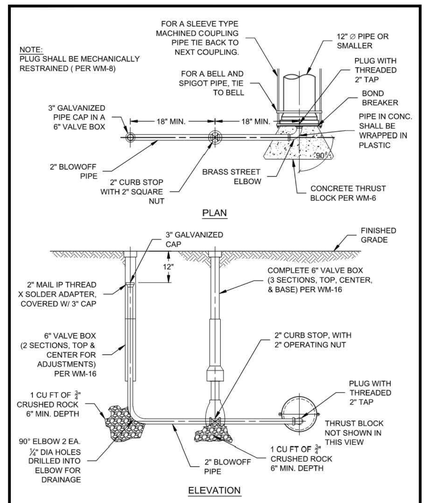
NOTES:
1. A "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY THE BUILDER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX. THE "V" SHALL BE A MINIMUM OF 3 INCHES IN HEIGHT AND ½" DEEP.
2. ALL WATER SERVICE LINES SHALL BE PLACED AT THE CENTER OF THE LOT.
3. DISTANCE BETWEEN BACK OF CURB AND WALK MAY INCREASE DEPENDING ON ROW WIDTH.
4. SEE WS-8, WS-9 AND WS-10 FOR CURB STOP LOCATION FOR COMMERCIAL TAP AND SERVICE LINE DETAIL. SEE WS-5 AND WS-6 FOR THE CURB STOP LOCATION FOR A RESIDENTIAL SERVICE.
5. SHOULD ANY SITUATION ARISE OTHER THAN SHOWN CONCERNING THE DEPTH OR OBSTRUCTION OF SERVICE LINE THE DISTRICT MUST BE CONTACTED.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-7
06/12	STANDARD WATER SERVICE LINE INSTALLATION	



NOTES:
1. ALL FIRE MAINS WILL HAVE A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY AND SHALL BE INSPECTED BY MMD.
2. INSPECTION OF THE REMAINDER OF THE LINE SHALL BE INSPECTED BY THE FIRE DEPARTMENT.
3. FIRELINE MUST MEET FIRE DISTRICT REQUIREMENTS.
4. RESTRAIN MAIN AND FIRE MAIN PER WM-8.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WS-10A
JULY 2015	FIRE MAIN INSTALLATION	



NOTE:
BLOWOFF PIPE TO BE TYPE K SOFT COPPER OR BRASS.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	WM-15
August 2012	BLOWOFF FOR 12" AND SMALLER PIPE	

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
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C404

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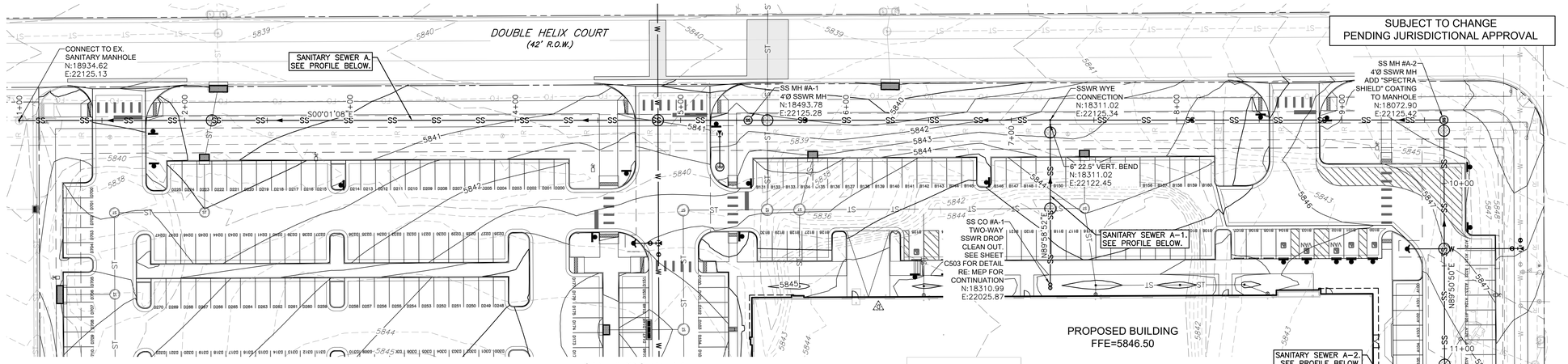
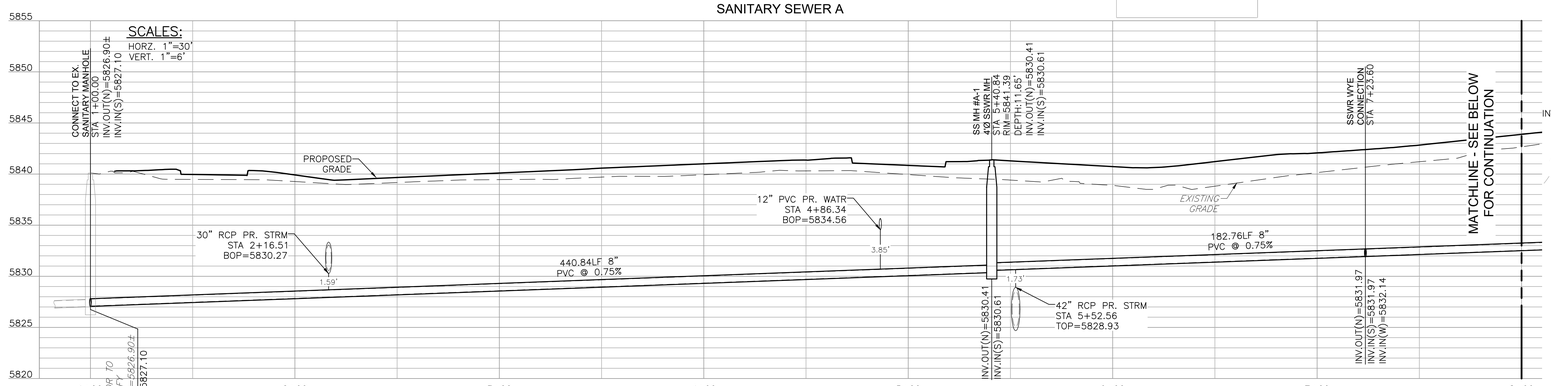
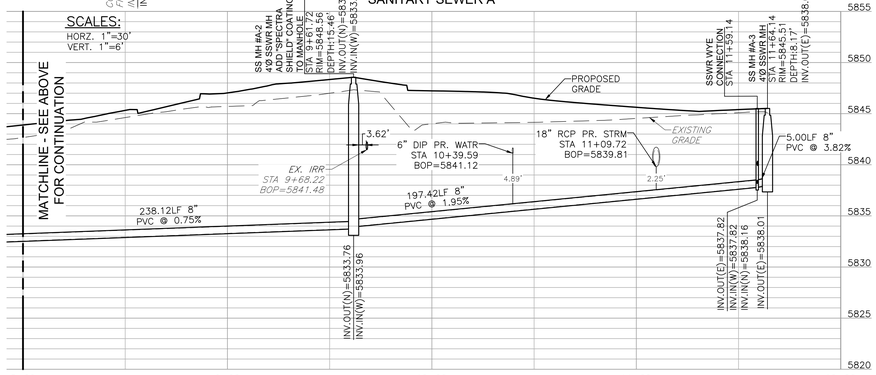


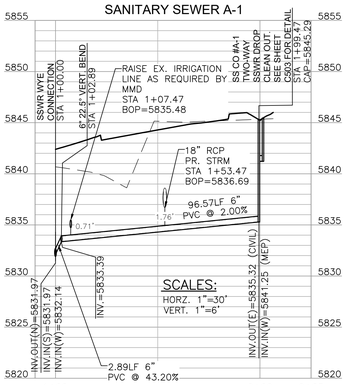
SANITARY SEWER A



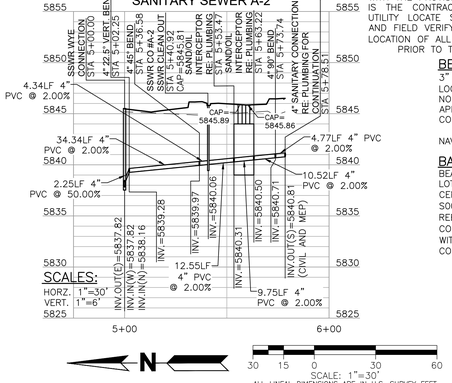
SANITARY SEWER A



SANITARY SEWER A-1



SANITARY SEWER A-2



SANITARY SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MERIDIAN METRO DISTRICT STANDARDS AND SPECIFICATIONS.
2. ALL SANITARY SEWER LINES SHALL BE PVC PIPE, ASTM D-3034 SDR 35.
3. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED SEWER.
4. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF TEN FEET (10') HORIZONTAL SEPARATION BETWEEN ALL SANITARY SEWER AND WATER MAINS AND SERVICES.
5. STATIONING AND COORDINATES ARE BASED ON CENTER OF MANHOLES AND CLEANOUTS. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND STRUCTURE WIDTHS.
6. RIM ELEVATIONS ON CLEANOUTS ARE APPROXIMATE ONLY. CLEANOUT RIMS SHALL BE SET TO FINAL GRADE AT TIME OF PAVING AND LANDSCAPING TO MATCH FINAL PAVING AND LANDSCAPE GRADES.
7. MANHOLE CONES SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE FEET 3" CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER. MANHOLE COVERS SHALL BE PLACED ABOVE MANHOLE STEPS.
8. THE PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME AND COVER TO REQUIRED FINAL GRADE. THE PIPELINE CONTRACTOR MAY NEED TO REMOVE AND REPLACE THE PRECAST MANHOLE CONE SECTION SUCH THAT THERE IS NO MORE THAN EIGHTEEN (18) INCHES FROM FINISHED GRADE TO THE TOP OF THE MANHOLE CONE SECTION.
9. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.
10. NO TREES SHALL BE PLANTED WITHIN TEN 10 FEET OF ANY NEW SANITARY SEWER PIPES.
11. NO CONNECTIONS TO EXISTING SYSTEM ARE ALLOWED UNTIL NEW LINE IS TESTED AND ACCEPTED.
12. ALL INSIDE WALLS OF SANITARY SEWER MANHOLES SHALL BE COATED WITH SPECTRA-SHIELD.

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

BENCHMARK:

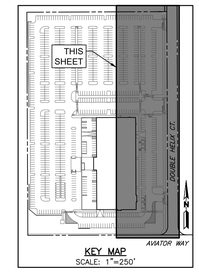
3" BRASS CAP FOUND ON TOP OF HEAD WALL LOCATED APPROXIMATELY 41' NORTH OF THE NORTH CONCRETE FLOWLINE OF AVIATOR WAY AND APPROXIMATELY 973 FEET WEST OF THE WEST CONCRETE FLOWLINE OF SOUTH PEORIA STREET.

NAVD88 ELEV=5846.49'

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

COLORADO REGISTERED DAVID EDWARD BERGER 48232 PROFESSIONAL ENGINEER 09/06/2024



KEY MAP
SCALE: 1"=250'

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

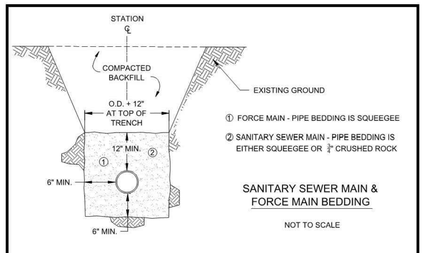
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
SANITARY SEWER PLAN & PROFILE SHEET

C500

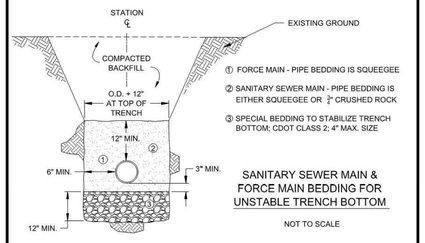
G:\BUCKLEY\23.0136-DHE4 HELIX WAREHOUSE\DP-JM\CDS\C500 - SANITARY SEWER PLAN & PROFILE SHEET.DWG

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



SANITARY SEWER MAIN &
FORCE MAIN BEDDING

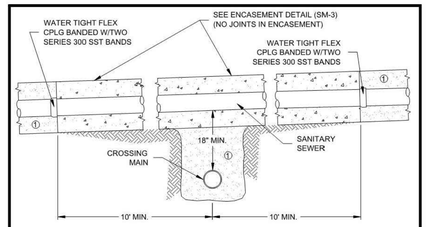
NOT TO SCALE



SANITARY SEWER MAIN &
FORCE MAIN BEDDING FOR
UNSTABLE TRENCH BOTTOM

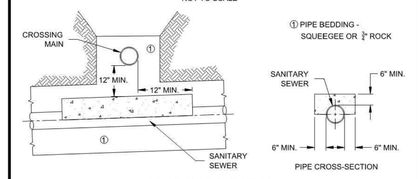
NOT TO SCALE

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-1
06/12	SANITARY SEWER MAIN BEDDING DETAIL	



SANITARY SEWER MAIN
CROSSING OVER ANOTHER MAIN

NOT TO SCALE

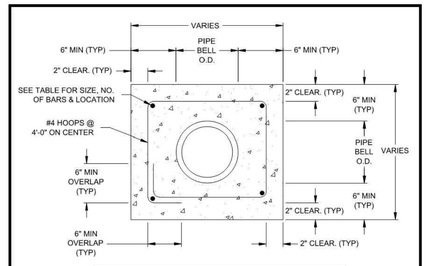


SANITARY SEWER MAIN
CROSSING UNDER ANOTHER MAIN

NOT TO SCALE

NOTES:
1. ENCASE PIPE PER DETAIL SM-3.
2. ANY EXISTING SEWER DAMAGED DURING INSTALLATION MUST BE REPLACE WITH PVC.
3. DISTRICT APPROVED FLEX COUPLING SHALL BE USED: FERNCO 5000 SERIES REPAIR COUPLING, MISSION FLEX-SEAL ADJUSTABLE REPAIR COUPLING, ONSET SHEAR GUARD.

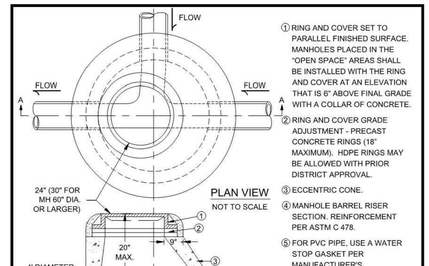
REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-2
06/12	SANITARY SEWER MAIN CROSSING DETAIL	



PIPE INSIDE DIAMETER	NUMBER OF LONGITUDINAL BARS & LOCATION
8"	4 - NO. 4 BARS; 2 EACH SIDE
10"	8 - NO. 4 BARS; 3 EACH SIDE
12"	8 - NO. 4 BARS; 3 EACH SIDE
15"	8 - NO. 4 BARS; 3 EACH SIDE
18"	8 - NO. 4 BARS; 3 EACH SIDE
21"	12 - NO. 4 BARS; 4 EACH SIDE
24"	12 - NO. 4 BARS; 4 EACH SIDE
27"	12 - NO. 4 BARS; 4 EACH SIDE
30"	12 - NO. 4 BARS; 4 EACH SIDE
33"	12 - NO. 4 BARS; 4 EACH SIDE
36"	12 - NO. 4 BARS; 4 EACH SIDE

NOTES:
1. ALL CONCRETE SHALL DEVELOP 4000 PSI COMPRESSIVE STRENGTH AFTER 28 DAYS.
2. ANY EXISTING SEWER DAMAGED DURING INSTALLATION MUST BE REPLACE WITH PVC.
3. DISTRICT APPROVED FLEX COUPLING SHALL BE USED: FERNCO 5000 SERIES REPAIR COUPLING, MISSION FLEX-SEAL ADJUSTABLE REPAIR COUPLING, ONSET SHEAR GUARD.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-3
06/12	CONCRETE ENCASEMENT DETAIL	



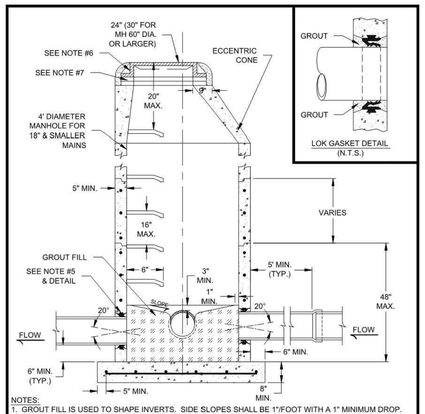
PLAN VIEW

NOT TO SCALE

SECTION A - A

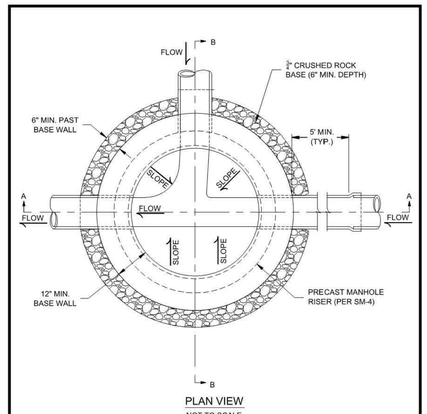
NOT TO SCALE

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-4
06/12	STANDARD MANHOLE DETAIL	



NOTES:
1. GROUT FILL IS USED TO SHAPE INVERTS. SIDE SLOPES SHALL BE 1"/FOOT WITH A 1" MINIMUM DROP.
2. MANHOLES BASES, RISERS, LIDS, ETC. TO BE REINFORCED PER SM-4. MANHOLE I.D. IS 4' FOR 18" & LESS PIPES; MANHOLE I.D. IS 5' FOR 20" - 30" PIPES; MANHOLE I.D. IS 6' FOR 33" AND UP PIPES.
3. MINIMUM DROP ACROSS THE MANHOLE IS 0.2' FOR THROUGH MAINS & 0.3' FOR 90° CONNECTIONS.
4. A LOK GASKET PER ASTM RUBBER GASKET SPECIFICATION C443, CAST INTEGRALLY IN MANHOLE WALL AND LOCATED AS REQUIRED. JOINT ALLOWS 10° DEFLECTION OR EQUIVALENT.
5. MUST HAVE PRIOR APPROVAL FROM THE DISTRICT BEFORE INSTALLATION. CAST-IN-PLACE BASE IS THE DISTRICT STANDARD. SEE SM-4 FOR ADDITIONAL DETAILS.
6. RING & COVER SET TO PARALLEL THE FINISHED SURFACE. MANHOLES PLACED IN THE "OPEN SPACE"AREAS SHALL BE INSTALLED WITH THE RING & COVER AT AN ELEVATION THAT IS 6" ABOVE FINAL GRADE WITH A CONCRETE COLLAR.
7. RING & COVER GRADE ADJUSTMENT - PRECAST CONCRETE RINGS (18" MAXIMUM). HDPE RINGS MAY BE ALLOWED WITH PRIOR DISTRICT APPROVAL.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-5
06/12	STANDARD MANHOLE DETAIL - PRECAST BASE	

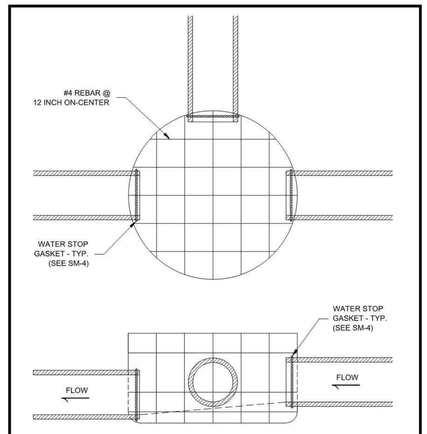


PLAN VIEW

NOT TO SCALE

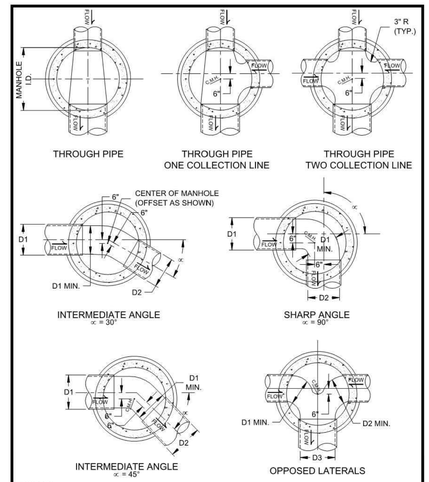
NOTES:
1. MANHOLE BASE TO HAVE SHAPED INVERTS. BASE TO BE A MONOLITHIC CONCRETE POUR.
2. MANHOLES BASES, RISERS, LIDS, ETC. TO BE REINFORCED PER SM-4.
3. SLOPES SHALL BE 1"/FOOT WITH A 1" MINIMUM DROP.
4. BASE IS CAST-IN-PLACE UNLESS PRIOR APPROVAL IS GRANTED BY THE DISTRICT. MINIMUM DROP ACROSS THE MANHOLE IS 0.2' FOR THROUGH MAINS AND 0.3' FOR 90° CONNECTIONS.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-6
06/12	STANDARD MANHOLE BASE DETAIL	



NOTES:
1. THE RE-BAR BASKET MAY BE EITHER ROUND OR SQUARE.
2. MANHOLE RISERS, LIDS, ETC. TO BE REINFORCED PER SM-4.
4. BASE IS CAST-IN-PLACE UNLESS PRIOR APPROVAL IS GRANTED BY THE DISTRICT. MINIMUM DROP ACROSS THE MANHOLE IS 0.2' FOR THROUGH MAINS AND 0.3' FOR 90° CONNECTIONS.

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-8
06/12	STANDARD MANHOLE BASE REBAR BASKET	



NOTES:
1. C.M.H. IS CENTER OF MANHOLE.
2. BASE IS CAST-IN-PLACE UNLESS PRIOR APPROVAL IS GRANTED BY THE DISTRICT. MINIMUM DROP ACROSS THE MANHOLE IS 0.2' FOR THROUGH MAINS AND INTERMEDIATE ANGLES; DROP ACROSS THE MANHOLE IS 0.3' FOR 90° (SHARP ANGLES AND OPPOSED LATERALS).

REV. DATE	MERIDIAN METROPOLITAN DISTRICT	SM-9
06/12	TYPICAL BASE AND DEFLECTOR DETAILS	

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
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CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

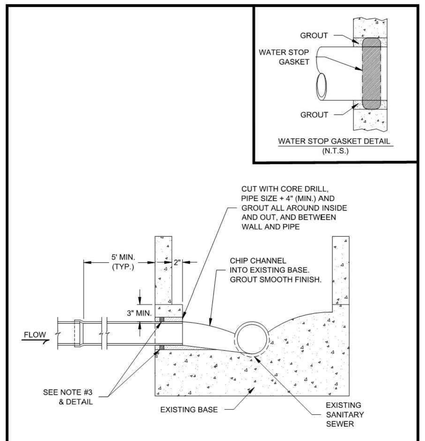
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
SANITARY SEWER DETAILS SHEET

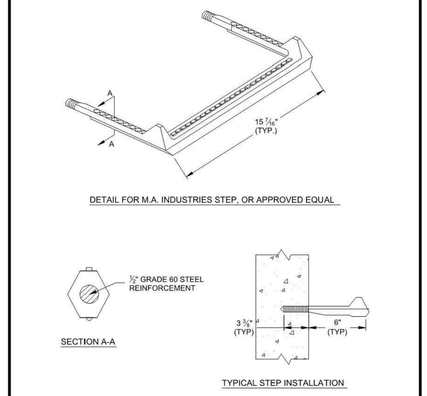
C501

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



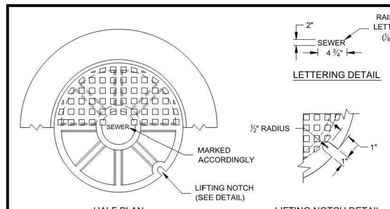
NOTES:
1. TIE-INS SHALL ONLY BE PERMITTED THROUGH BASE WALL.
2. STEPS INSTALLED OVER DOWNSTREAM INVERT OF MANHOLE.
3. A WATER STOP GASKET SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
4. MINIMUM DROP ACROSS THE MANHOLE IS 0.2' FOR THROUGH MAINS & 0.3' FOR 90° CONNECTIONS.

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SM-10
06/12		MANHOLE INVERT TIE IN DETAIL	



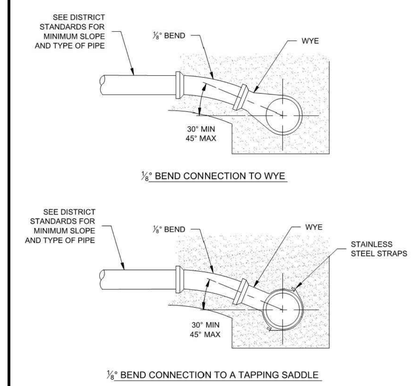
NOTES:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
2. CAST IRON STEPS WILL NOT BE PERMITTED.

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SM-13
06/12		STANDARD STEP FOR MANHOLES	



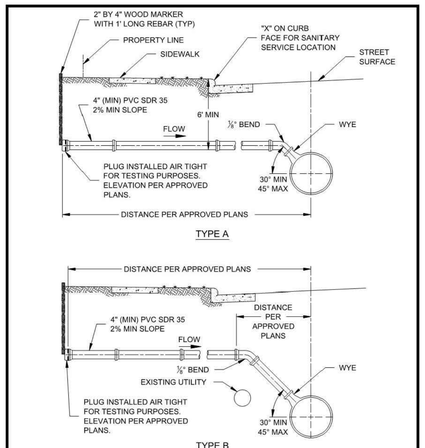
NOTES:
1. COVER SHALL BE THE DISTRICT STANDARD PATTERN. THE CASTING SHALL BE OF GRAY CAST IRON, ASTM DESIGNATION A48 CLASS 35B. CASTING SHALL NOT BE PAINTED OR DIPPED.
2. TOTAL WEIGHT SHALL BE A MINIMUM OF 400 LBS (LID WEIGHT OF 165 LBS MIN.), CAST IRON ONLY.
3. ALL BEARING SURFACES SHALL BE MACHINED.
4. CASTINGS SHALL BE CLEAN, FREE OF FUSED SAND & REASONABLY SMOOTH. THERE SHALL BE NO PROMINENT BLOW HOLES, NO CRACKS OR FISSURES, AND NO OBSERVED INCOMPLETE FILLING OF THE MOLD.

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SM-14
06/12		24" MANHOLE COVER DETAIL	



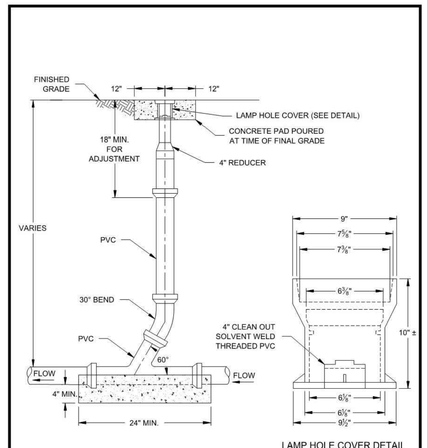
NOTES:
1. SANITARY SEWER MAIN - PIPE BEDDING IS EITHER SQUEEGEE OR ¾" CRUSHED ROCK.
2. SEE SM-1 FOR ADDITIONAL BEDDING DETAILS.

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SS-1
06/12		SANITARY SEWER SERVICE TAPPING DETAIL	



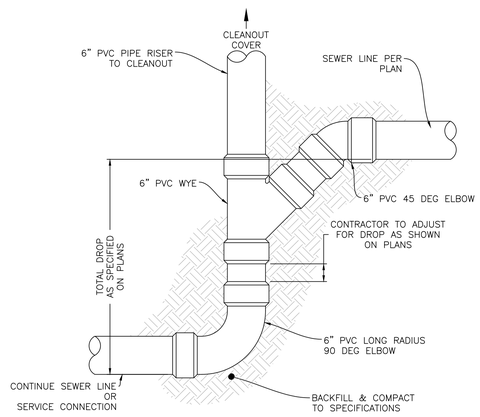
NOTES:
1. TYPE "A" ELEMENTS ARE TYPICAL FOR ALL TYPES UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL LATERALS SHALL BE LOCATED 10' MINIMUM DISTANCE FROM DOWNHILL PROPERTY LINE OF THE SERVICE SIDE OF THE LOT, UNLESS OTHERWISE APPROVED BY THE DISTRICT PRIOR TO INSTALLATION.
3. ALL SEWER LATERAL CONNECTIONS SHALL BE TYPE "A" AND SHALL BE CONSTRUCTED ON A STRAIGHT LINE AND GRADE BETWEEN CONTROL POINTS EXCEPT AS OTHERWISE INDICATED ON THE APPROVED PROJECT PLANS.

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SS-2
06/12		SANITARY SERVICE CONNECTION	



NOTES:
1. COVER SHALL HAVE A LOCKING LID MARKED "SEWER".
2. TYLER SERIES 6855 SLIP TYPE TOP SECTION, D&L SUPPLY SERIES M8056 OR EQUAL.
3. INSIDE DIAMETER = 6 ⅛".

REV. DATE		MERIDIAN METROPOLITAN DISTRICT	SS-4
06/12		IN-LINE SANITARY SEWER CLEANOUT (4" & 6")	



NOTES:
1. FLOW-FILL CAN BE UTILIZED IN LIEU OF COMPACTED BACKFILL

6" PVC SANITARY SEWER DROP CLEANOUT
NOT TO SCALE

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
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12499 West Colfax Ave
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HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED DANIEL EDWARD BARTEL 48232 PROFESSIONAL ENGINEER 09/06/2024

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Project Number	23.0136
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Checked By:	DB

Sheet Name
SANITARY SEWER DETAILS SHEET

C502

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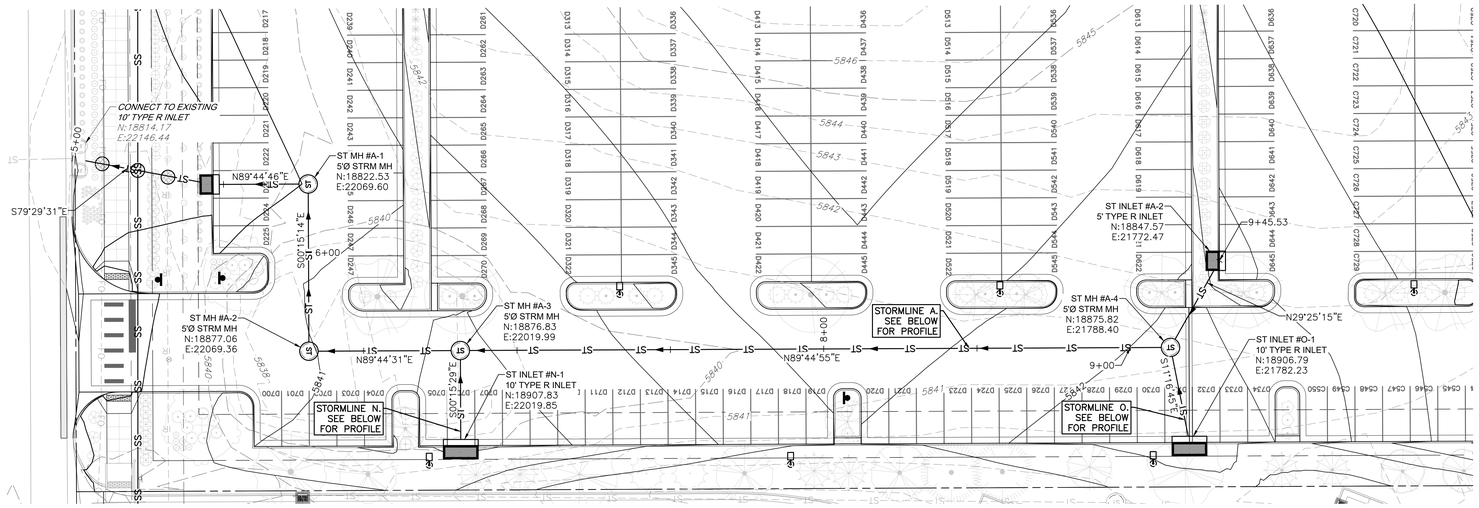
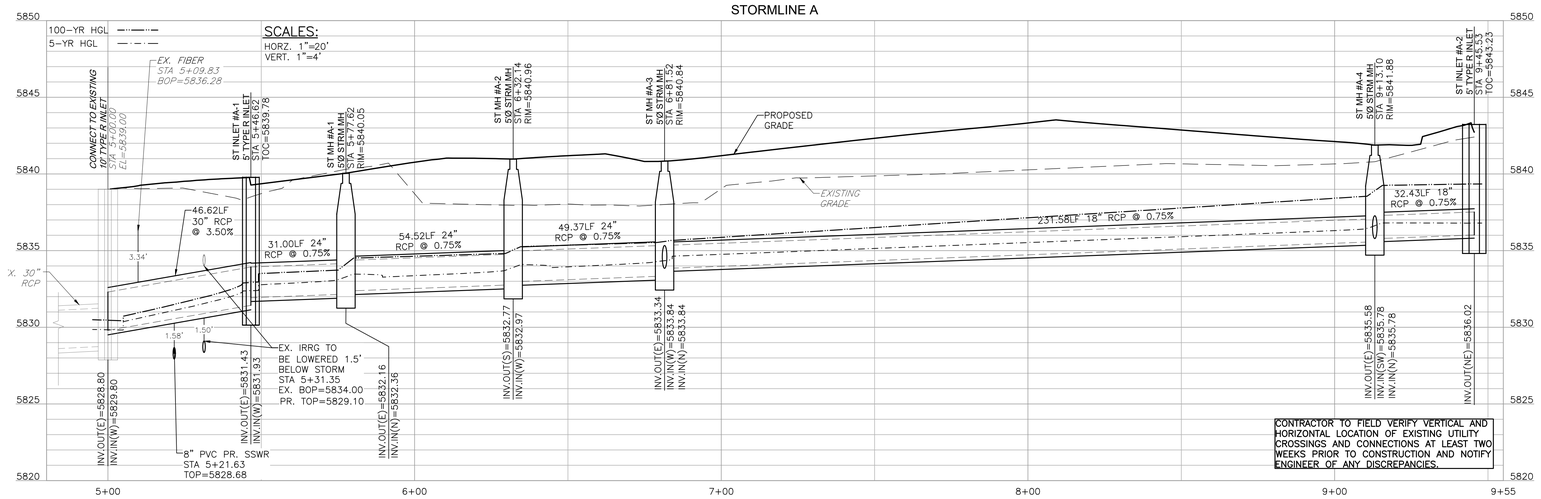


SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

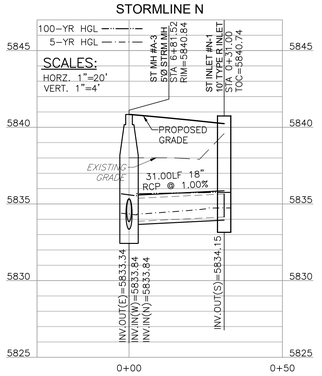
STORM SEWER NOTES:

1. STORM SEWER SHALL BE INSTALLED PER DOUGLAS COUNTY STANDARDS & SPECIFICATIONS.
2. STATIONING AND COORDINATES ARE BASED ON CENTER OF MANHOLES, CLEANOUTS AND AREA INLET. STATIONING AND COORDINATES FOR CURB INLETS ARE BASED ON CENTER OF CURB INLET AT FLOWLINE. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND STRUCTURE WIDTHS.
3. ALL CURB INLETS ARE TYPE R STYLE INLET, UNLESS OTHERWISE NOTED.
4. ALL RCP STORM SEWER PIPES TO BE CLASS III WITH WATERTIGHT GASKETED JOINTS.
5. STORM SEWER 12" OR SMALLER SHALL BE SDR-35 PVC WITH WATERTIGHT GASKETED JOINTS.
6. ALL NON-PIPED BUILDING DOWNSPOUT SHALL BE FITTED WITH SPLASH BLOCKS OR ROOF DRAIN EXTENSIONS IN ACCORDANCE WITH THE PROJECT GEOTECH REPORT.
7. ALL ON-GRADE CURB INLETS SHALL BE FITTED WITH VANE GRATES.
8. RIM ELEVATIONS ON MANHOLES ARE APPROXIMATE ONLY. MANHOLE RIMS SHALL BE SET TO FINAL GRADE AT TIME OF PAVING TO MATCH FINAL PAVING GRADES.
9. SEE GRADING PLANS FOR ROOF DRAIN AND LANDSCAPE STORM LINES.
10. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED SEWER.
11. RIM ELEVATIONS ON CLEANOUTS ARE APPROXIMATE ONLY. CLEANOUT RIMS SHALL BE SET TO FINAL GRADE AT TIME OF PAVING AND LANDSCAPING TO MATCH FINAL PAVING AND LANDSCAPE GRADES.
12. MANHOLE CONES SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE FEET 3' CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER. MANHOLE COVERS SHALL BE PLACED ABOVE MANHOLE STEPS.
13. THE PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME AND COVER TO REQUIRED FINAL GRADE. THE PIPELINE CONTRACTOR MAY NEED TO REMOVE AND REPLACE THE PRECAST MANHOLE CONE SECTION SUCH THAT THERE IS NO MORE THAN EIGHTEEN (18) INCHES FROM FINISHED GRADE TO THE TOP OF THE MANHOLE CONE SECTION.
14. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.
15. NO TREES SHALL BE PLANTED WITHIN TEN 10 FEET OF ANY NEW STORM SEWER PIPES.
16. THE CONTRACTOR SHALL COORDINATE ALL ROOF DRAIN CONNECTIONS AT BUILDING WITH THE PLUMBING PLANS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE PROPERLY NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

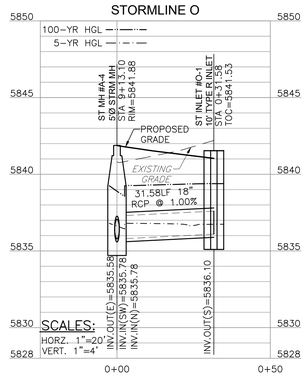
STORMLINE A



STORMLINE N



STORMLINE O



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BENCHMARK:

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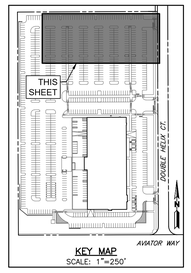
NAVD88 ELEV=5846.49'



KEY MAP
SCALE: 1"=250'

20 10 0 20 40
SCALE: 1"=20'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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COLORADO | WYOMING
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DENVER, COLORADO 80202
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moaarch.com

MARTIN/MARTIN
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12499 West Colfax Ave
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martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD DEBOER
48232
09/06/2024

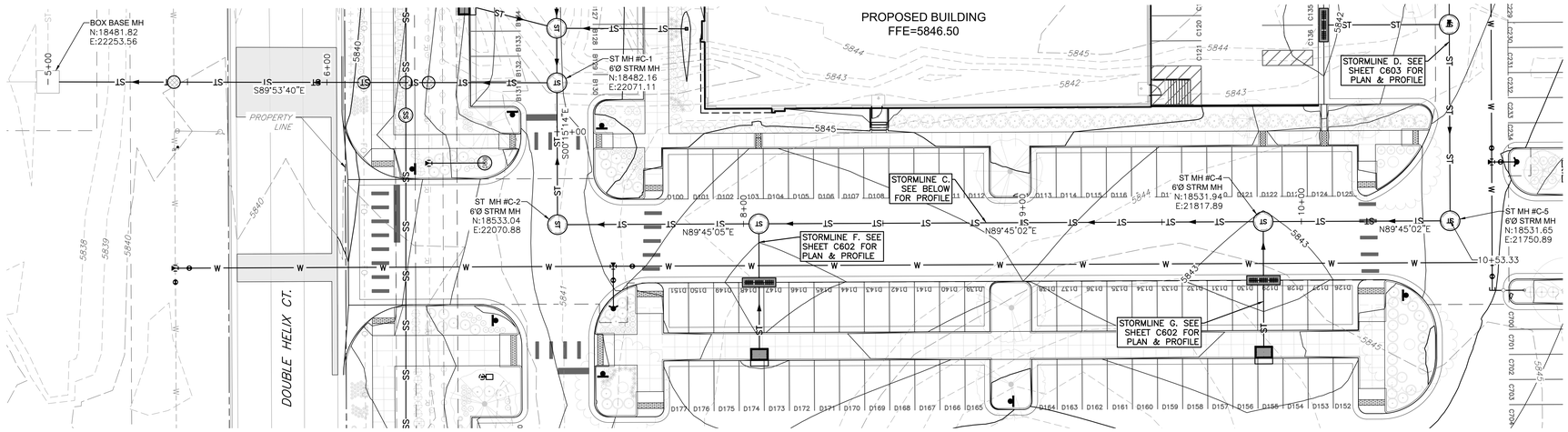
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB
Copyright:	

Sheet Name
STORM PLAN & PROFILE SHEET

C600

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



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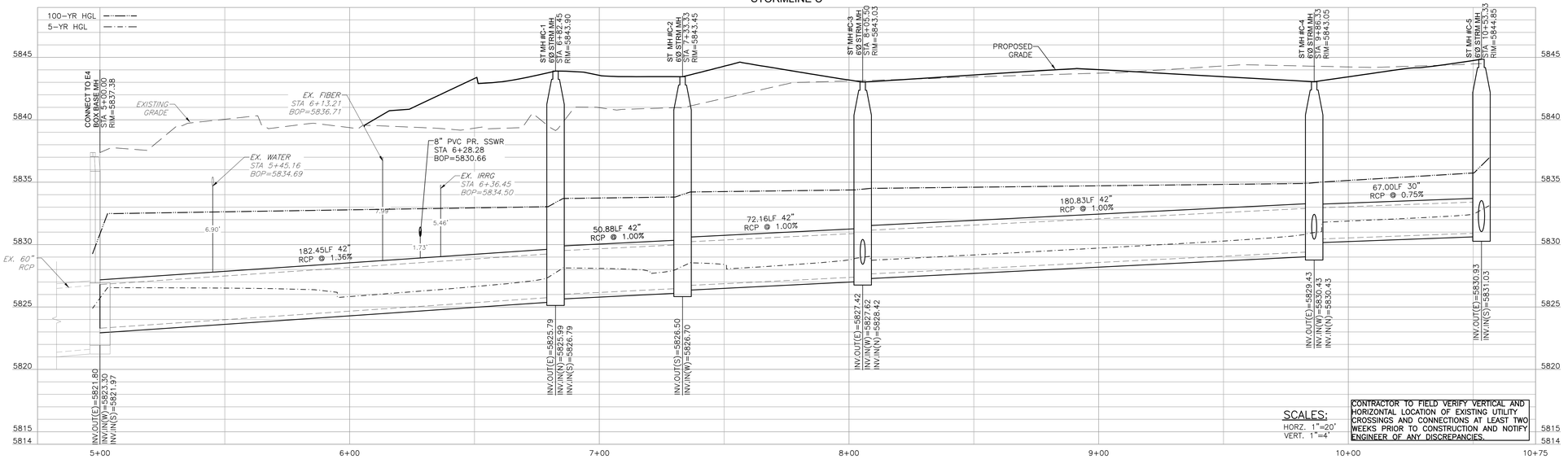

SCALES:
HORZ. 1"=20'
VERT. 1"=4'

CONTRACTOR TO FIELD VERIFY VERTICAL AND HORIZONTAL LOCATION OF EXISTING UTILITY CROSSINGS AND CONNECTIONS AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

STORM SEWER NOTES:

1. STORM SEWER SHALL BE INSTALLED PER DOUGLAS COUNTY STANDARDS & SPECIFICATIONS.
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3. ALL CURB INLETS ARE TYPE R STYLE INLET, UNLESS OTHERWISE NOTED.
4. ALL RCP STORM SEWER PIPES TO BE CLASS III WITH WATERTIGHT GASKETED JOINTS.
5. STORM SEWER 12" OR SMALLER SHALL BE SDR-35 PVC WITH WATERTIGHT GASKETED JOINTS.
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13. THE PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME AND COVER TO REQUIRED FINAL GRADE. THE PIPELINE CONTRACTOR MAY NEED TO REMOVE AND REPLACE THE PRECAST MANHOLE CONE SECTION SUCH THAT THERE IS NO MORE THAN EIGHTEEN (18) INCHES FROM FINISHED GRADE TO THE TOP OF THE MANHOLE CONE SECTION.
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15. NO TREES SHALL BE PLANTED WITHIN TEN 10 FEET OF ANY NEW STORM SEWER PIPES.
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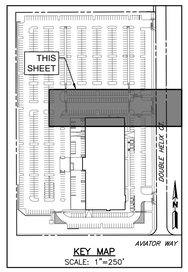

KEY MAP
SCALE: 1"=250'

N

20 10 0 20 40
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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED
MANUEL EDWARD RIVERA
48232
09/06/2024
PROFESSIONAL ENGINEER

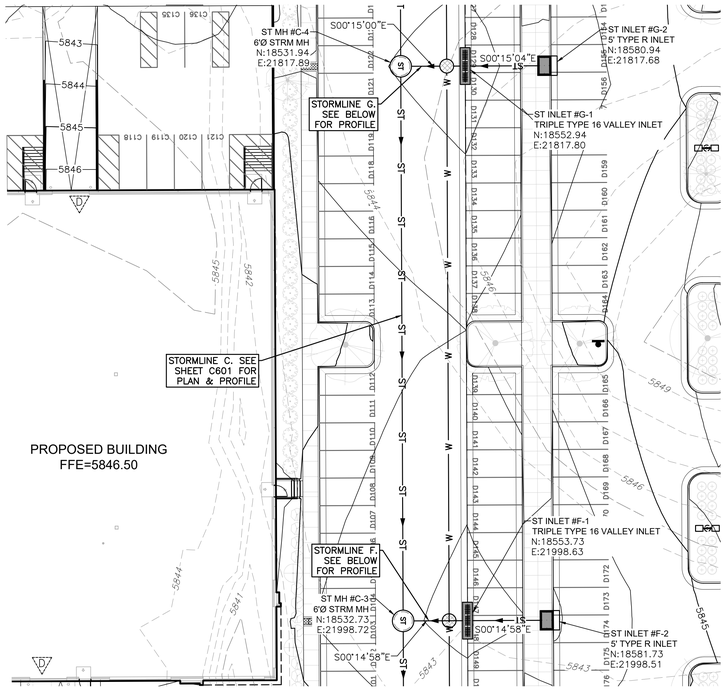
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM PLAN & PROFILE SHEET

C601

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



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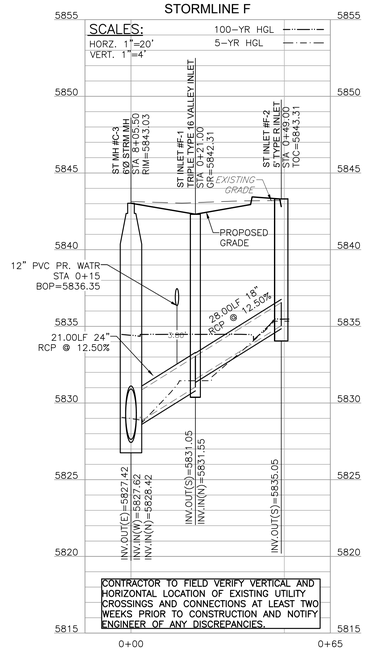

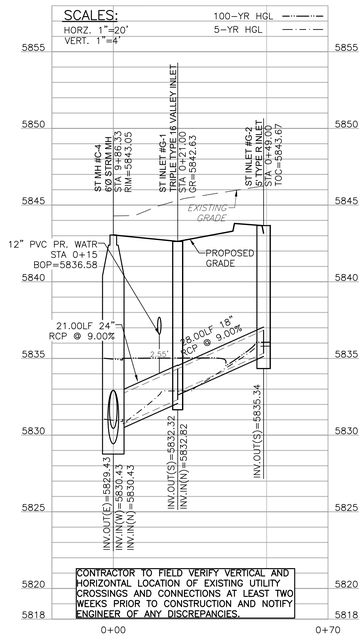

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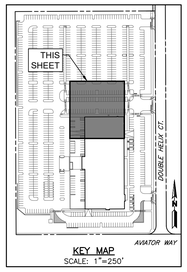

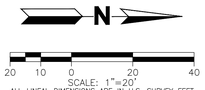

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

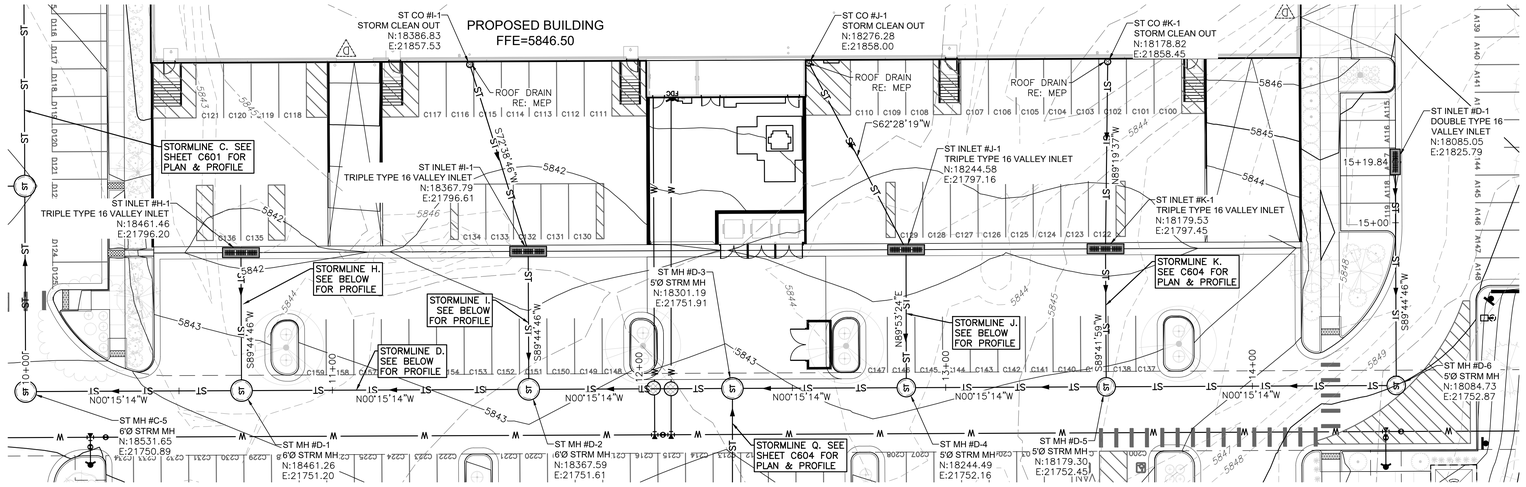
COLORADO REGISTERED PROFESSIONAL ENGINEER
QUINTIC EDWARD HEINERT
48232
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM PLAN & PROFILE SHEET

C602



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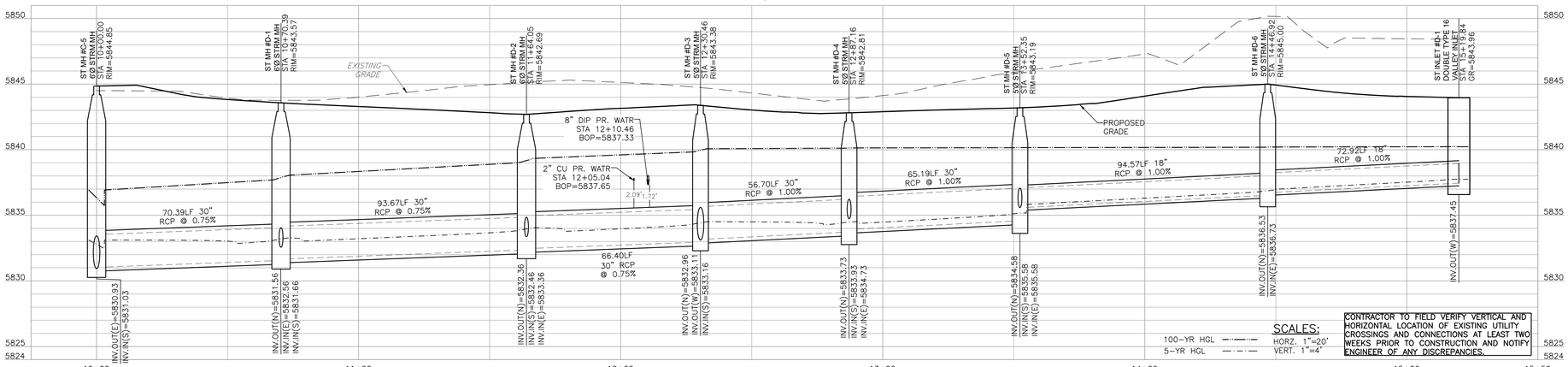
STORMLINE D



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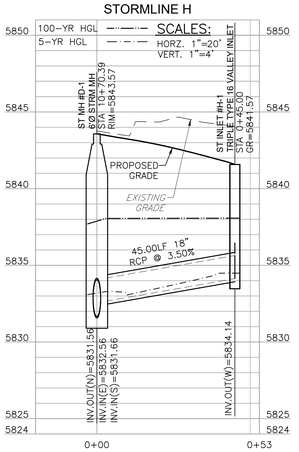

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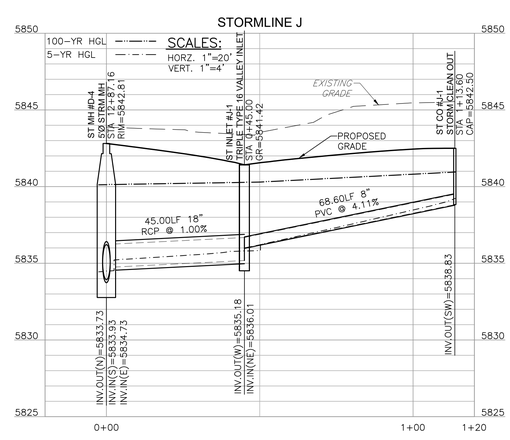

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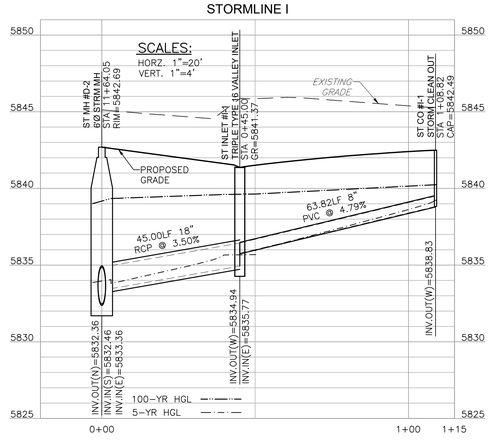

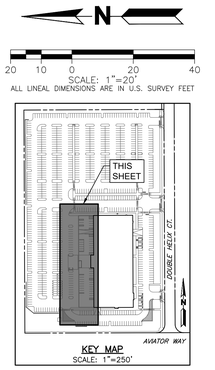

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	23.0136
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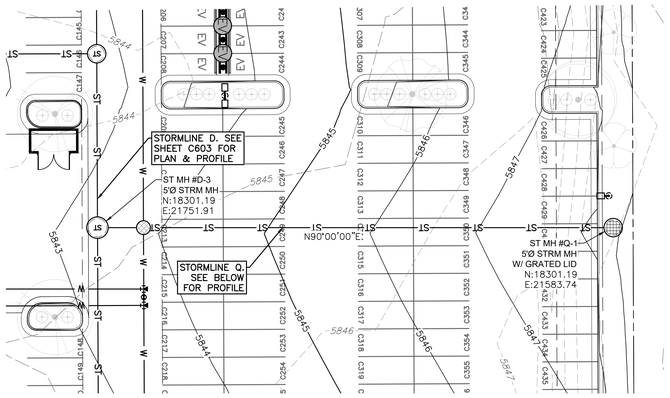
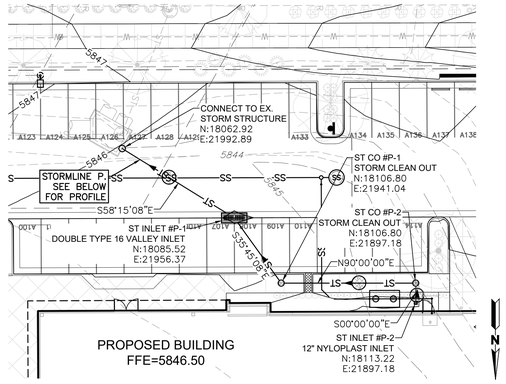
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM PLAN & PROFILE SHEET

C603





SUBJECT TO CHANGE
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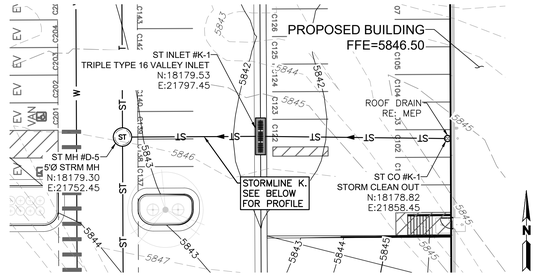

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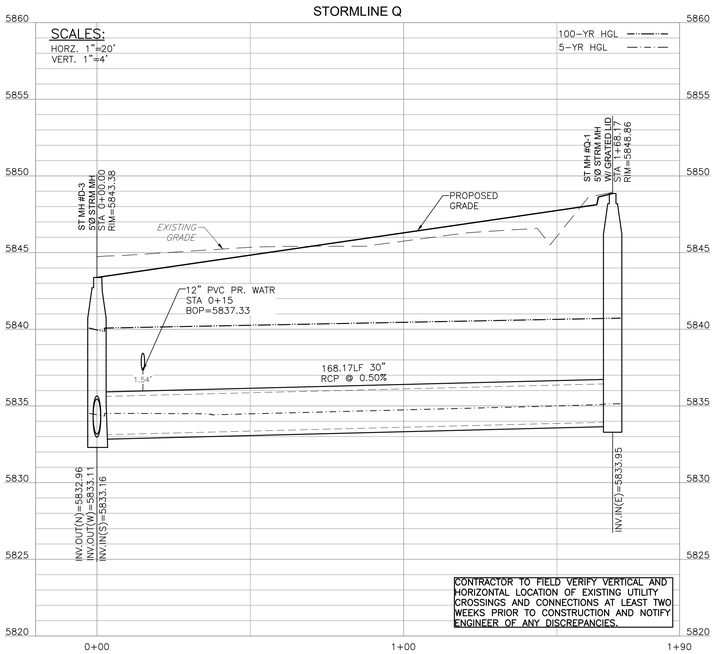

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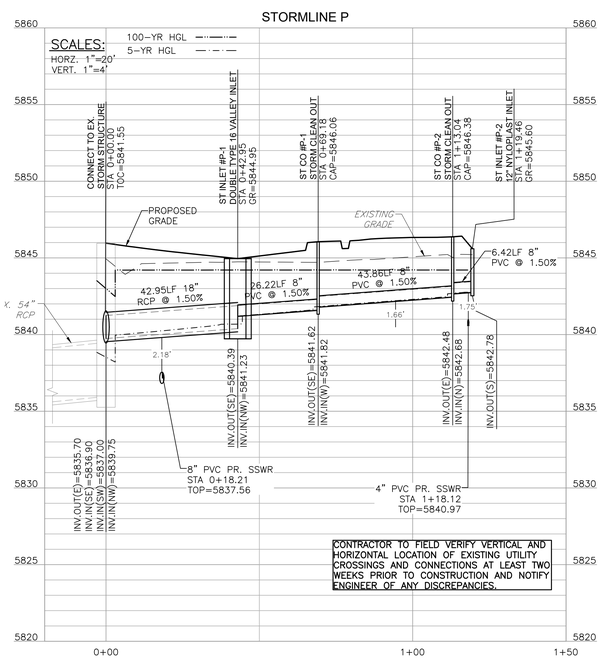
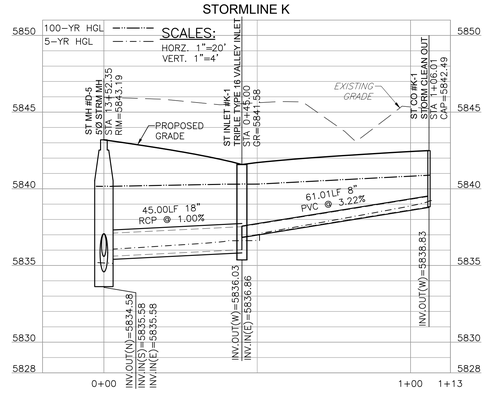
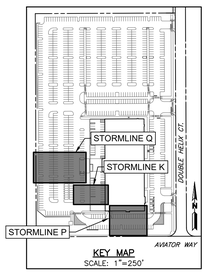


STORMLINE K





KEY MAP
SCALE: 1"=250'

STORM SEWER NOTES:

1. STORM SEWER SHALL BE INSTALLED PER DOUGLAS COUNTY STANDARDS & SPECIFICATIONS.
2. STATIONING AND COORDINATES ARE BASED ON CENTER OF MANHOLES, CLEANOUTS AND AREA INLET. STATIONING AND COORDINATES FOR CURB INLETS ARE BASED ON CENTER OF CURB INLET AT FLOWLINE. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND STRUCTURE WIDTHS.
3. ALL CURB INLETS ARE TYPE R STYLE INLET, UNLESS OTHERWISE NOTED.
4. ALL RCP STORM SEWER PIPES TO BE CLASS III WITH WATERTIGHT GASKETED JOINTS.
5. STORM SEWER 12" OR SMALLER SHALL BE SDR-35 PVC WITH WATERTIGHT GASKETED JOINTS.
6. ALL NON-PIPED BUILDING DOWNSPOUT SHALL BE FITTED WITH SPLASH BLOCKS OR ROOF DRAIN EXTENSIONS IN ACCORDANCE WITH THE PROJECT GEOTECH REPORT.
7. ALL ON-GRADE CURB INLETS SHALL BE FITTED WITH VANE GRATES.
8. RIM ELEVATIONS ON MANHOLES ARE APPROXIMATE ONLY. MANHOLE RIMS SHALL BE SET TO FINAL GRADE AT TIME OF PAVING TO MATCH FINAL PAVING GRADES.
9. SEE GRADING PLANS FOR ROOF DRAIN AND LANDSCAPE STORM LINES.
10. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED SEWER.
11. RIM ELEVATIONS ON CLEANOUTS ARE APPROXIMATE ONLY. CLEANOUT RIMS SHALL BE SET TO FINAL GRADE AT TIME OF PAVING AND LANDSCAPING TO MATCH FINAL PAVING AND LANDSCAPE GRADES.
12. MANHOLE CONES SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE FEET 3' CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER. MANHOLE COVERS SHALL BE PLACED ABOVE MANHOLE STEPS.
13. THE PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME AND COVER TO REQUIRED FINAL GRADE. THE PIPELINE CONTRACTOR MAY NEED TO REMOVE AND REPLACE THE PRECAST MANHOLE CONE SECTION SUCH THAT THERE IS NO MORE THAN EIGHTEEN (18) INCHES FROM FINISHED GRADE TO THE TOP OF THE MANHOLE CONE SECTION.
14. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.
15. NO TREES SHALL BE PLANTED WITHIN TEN 10 FEET OF ANY NEW STORM SEWER PIPES.
16. THE CONTRACTOR SHALL COORDINATE ALL ROOF DRAIN CONNECTIONS AT BUILDING WITH THE PLUMBING PLANS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL BE PROPERLY NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

20 10 0 20 40
SCALE: 1"=20'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
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12499 West Colfax Ave
Lakewood, Colorado 80215
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martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

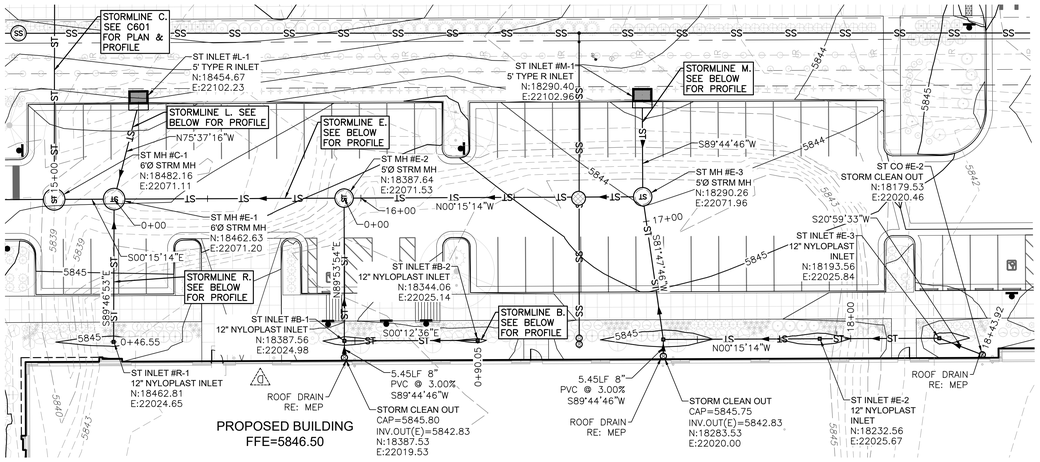
COLORADO REGISTERED
DANIEL EDWARD BEARS
48232
09/06/2024
PROFESSIONAL ENGINEER

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM PLAN & PROFILE SHEET

C604



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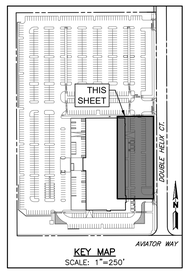
N

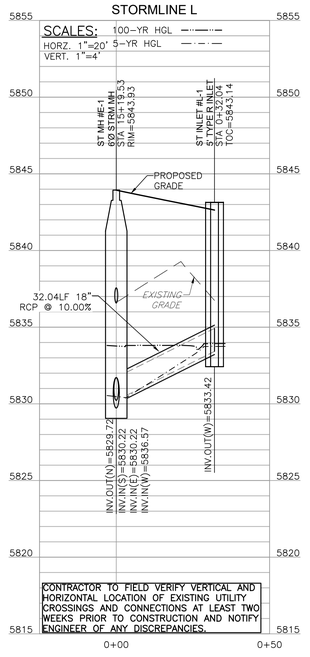
20 10 0 20 40
SCALE: 1"=20'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET



KEY MAP
SCALE: 1"=250'

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

STORMLINE L



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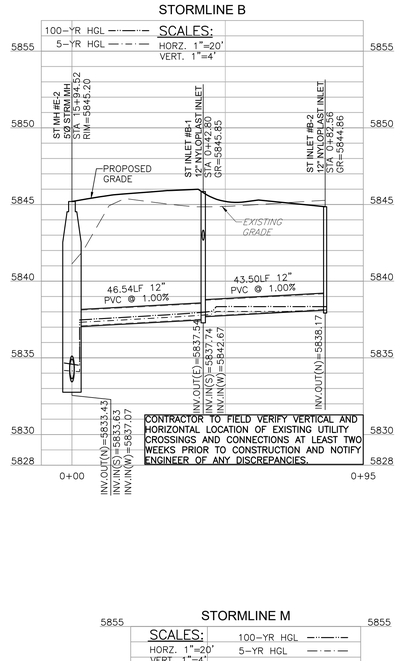

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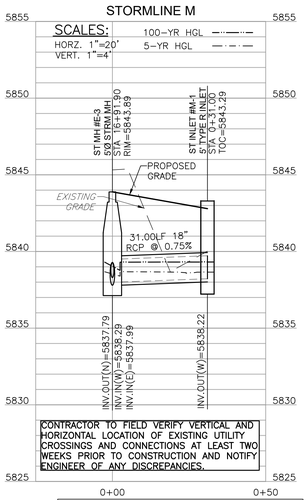

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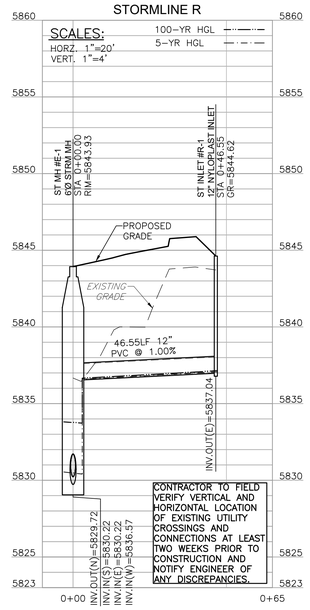
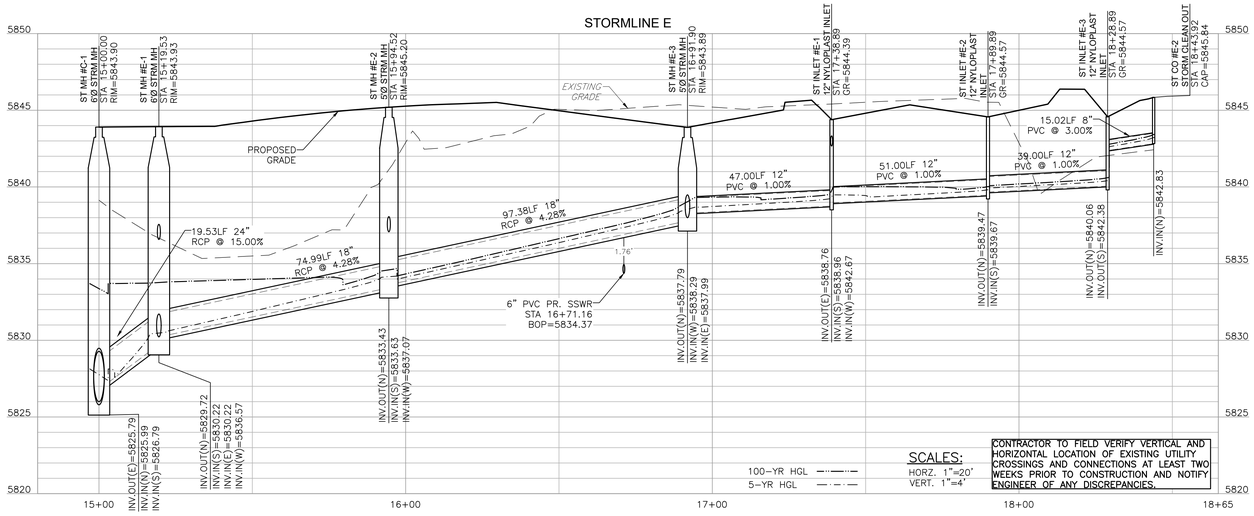


STORMLINE E



ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

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moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
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Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

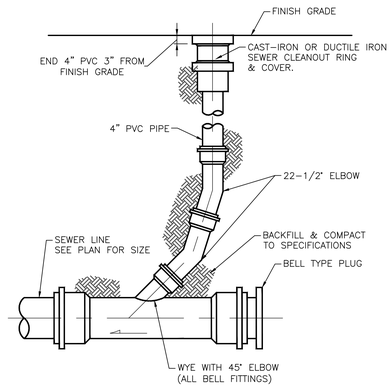
COLORADO REGISTERED PROFESSIONAL ENGINEER
48232
09/06/2024
SAMUEL EDWARD BEARST
PROFESSIONAL ENGINEER

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM PLAN & PROFILE SHEET

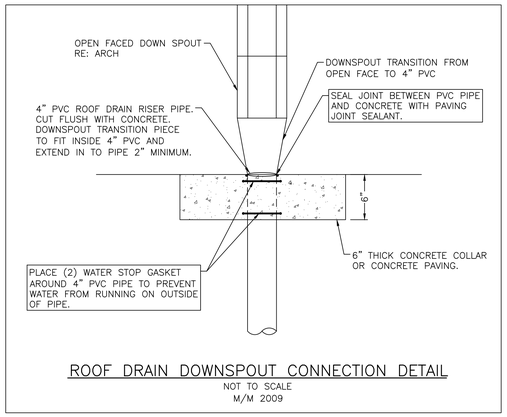
C605



SEWER CLEAN-OUT DETAIL

NOT TO SCALE

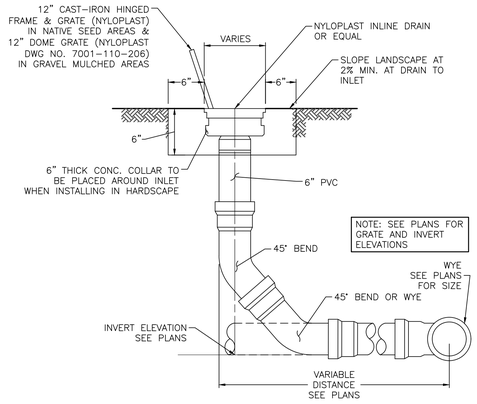
M/M 2009



ROOF DRAIN DOWNSPOUT CONNECTION DETAIL

NOT TO SCALE

M/M 2009

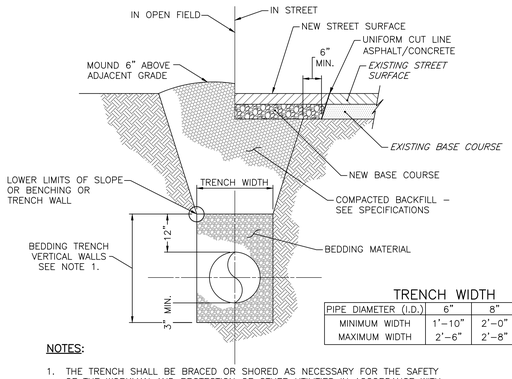


LANDSCAPE AREA INLET

NOT TO SCALE

M/M 2009

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



TRENCH WIDTH

PIPE DIAMETER (I.D.)	6"	8"	12"
MINIMUM WIDTH	1'-10"	2'-0"	2'-4"
MAXIMUM WIDTH	2'-6"	2'-8"	3'-0"

NOTES:

1. THE TRENCH SHALL BE BRACED OR SHORED AS NECESSARY FOR THE SAFETY OF THE WORKMAN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OSHA, AND FEDERAL REGULATIONS.
2. PIPE SHALL BE BEDDED FROM 3" MIN. BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
3. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 psi CONCRETE FROM TRENCH BOTTOM TO PIPE SPRING LINE.
4. COMPACTION SHALL BE AS FOLLOWS: 2.5' OF TRENCH SHALL BE 95% S.P.D., TRENCH ZONE 95% S.P.D. (THIS IS APPLICABLE IN STREET R.O.W. AND UNDER PAVEMENT) OUTSIDE STREET R.O.W. 85% S.P.D..
5. SEE CHART FOR PIPE I.D. AND TRENCH WIDTH.

TRENCH PATCH DETAIL

NOT TO SCALE

M/M 2009

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BERNER
48232
09/06/2024

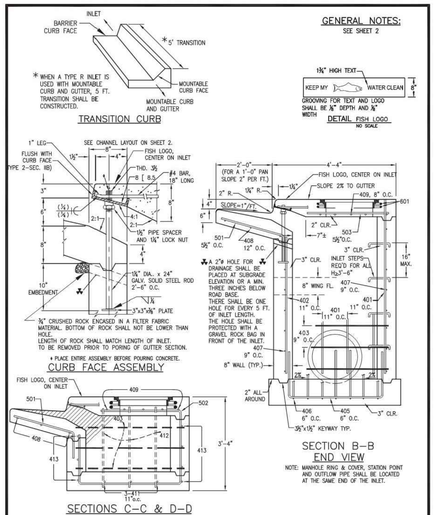
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
STORM DETAILS SHEET

C610

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

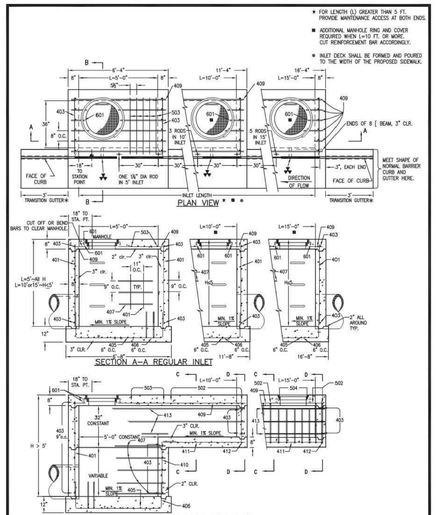


REFERENCE: CDOT M & S STANDARDS M-604-12

CURB INLET - TYPE R (5', 10' OR 15' IN LENGTH)

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.34a**



REFERENCE: CDOT M & S STANDARDS M-604-12

CURB INLET - TYPE R (5', 10' OR 15' IN LENGTH)

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.34b**

MARK	BAR # OR SIZE	O.C. SPACING	TYPE	ALL INLETS: L = 5 FT. NO. REQ'D.	ALL INLETS: L = 5 FT. LENGTH	INLETS: H ≤ 5 FT. L = 10 FT. NO. REQ'D.	INLETS: H ≤ 5 FT. L = 10 FT. LENGTH	INLETS: H ≤ 5 FT. L = 15 FT. NO. REQ'D.	INLETS: H ≤ 5 FT. L = 15 FT. LENGTH	INLETS: H > 5 FT. L = 10 FT. NO. REQ'D.	INLETS: H > 5 FT. L = 10 FT. LENGTH	INLETS: H > 5 FT. L = 15 FT. NO. REQ'D.	INLETS: H > 5 FT. L = 15 FT. LENGTH
401	4	11"	II	15	*	21	*	28	*	11	*	11	*
402	4	11"	II	7	*	13	*	18	*	7	*	7	*
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"
405	4	6"	VI	11	6'-10"	21	8'-10"	31	6'-10"	11	8'-10"	11	6'-10
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	9"	II	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408	4	12"	II	3	6'-10"	3	11'-10"	3	16'-0"	3	11'-10"	3	16'-0"
409	4	9"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410	4	11"	VII							3	*	3	*
411	4	11"	II							3	5'-2"	3	10'-2"
412	4	9"	II							3	2'-9"	3	2'-9"
413	4	9"	II							7	10'-10"	7	15'-10"
501	5	5 1/2"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	5	5 1/2"	III							11	11'-5"	17	11'-5"
503	5	5 1/2"	II	5	3'-6"	16	3'-6"	27	3'-6"	6	3'-6"	6	3'-6"
504	5	5 1/2"	II									5	8'-4"
601	6	21/2"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	4	8'-10"
■E8.5				1 5'-10"		1 10'-10"		1 15'-10"		1 10'-10"		1 15'-10"	
				(1 BARS, 1 ROD)		(1 BARS, 3 RODS)		(1 BARS, 5 RODS)		(1 BARS, 3 RODS)		(1 BARS, 5 RODS)	

* VARIABLE. REFER TO TABLE TWO.
■ INCLUDE #4, 18 IN. BARS (SEE CHANNEL LAYOUT).

TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

REGULAR INLETS | DROP BOX INLETS

'H'	LENGTH 401	402	410	NO. REQ'D. 'REGULAR' INLET 403	407	NO. REQ'D. 'DROP BOX' INLET 403	407	L=5' CONC. (C.Y.)	L=5' STEEL (LBS.)	L=10' CONC. (C.Y.)	L=10' STEEL (LBS.)	L=15' CONC. (C.Y.)	L=15' STEEL (LBS.)
3'-0"	2'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	706
3'-4"	3'-2"	2'-0"		10	7			3.4	305	5.7	538	7.9	747
4'-0"	3'-8"	2'-8"		12	9			3.7	326	6.0	558	8.4	786
4'-6"	4'-2"	3'-2"		12	9			3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	3'-8"		14	11			4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	4'-2"	3'-8"	16	13	15	6	4.4	375	6.0	607	7.4	850
6'-0"	5'-8"	4'-8"	3'-11"	16	13	16	8	4.6	382	6.2	616	7.6	860
6'-6"	6'-2"	5'-2"	4'-5"	18	15	18	8	4.8	402	6.4	637	7.8	880
7'-0"	6'-8"	5'-8"	4'-11"	20	17	19	10	5.0	423	6.6	654	8.0	897
7'-6"	7'-2"	6'-2"	5'-5"	20	17	20	10	5.3	439	6.9	664	8.3	907
8'-0"	7'-8"	6'-8"	5'-11"	22	19	22	12	5.5	451	7.1	684	8.5	927
8'-6"	8'-2"	7'-2"	6'-5"	24	21	23	14	5.7	471	7.3	702	8.7	944
9'-0"	8'-8"	7'-8"	6'-11"	24	21	24	14	6.0	478	7.6	711	9.0	954
9'-6"	9'-2"	8'-2"	7'-5"	26	23	26	16	6.2	499	7.8	732	9.2	974
10'-0"	9'-8"	8'-8"	7'-11"	28	25	27	18	6.4	505	8.0	749	9.4	992
10'-6"	10'-2"	9'-2"	8'-5"	28	25	28	18	6.7	527	8.3	759	9.7	1001
11'-0"	10'-8"	9'-8"	8'-11"	30	27	30	20	6.9	547	8.5	773	9.9	1022

NOTES: FOR L=5 FT., L=10 FT., AND L=15 FT.
REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
VARIES
STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

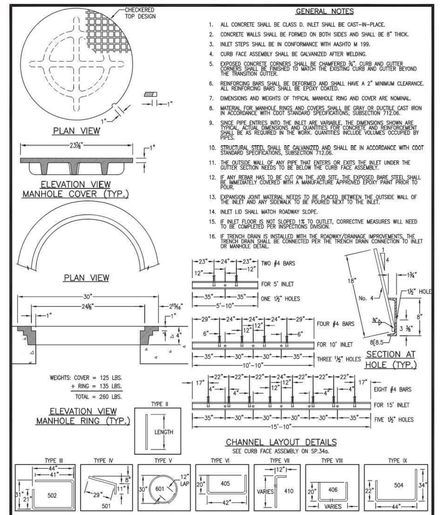
TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

REFERENCE: CDOT M & S STANDARDS M-604-12

CURB INLET - TYPE R (5', 10' OR 15' IN LENGTH)

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.34c**

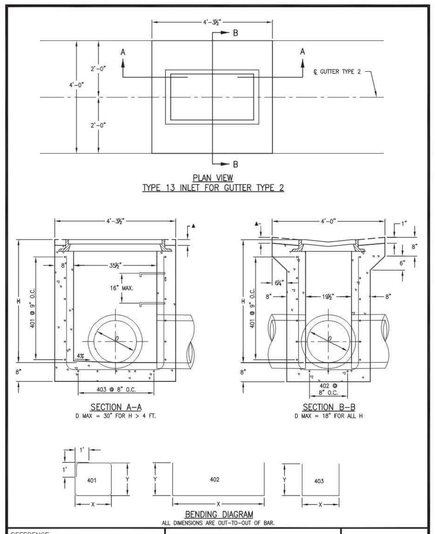


REFERENCE: CDOT M & S STANDARDS M-604-12

CURB INLET - TYPE R (5', 10' OR 15' IN LENGTH)

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.34d**

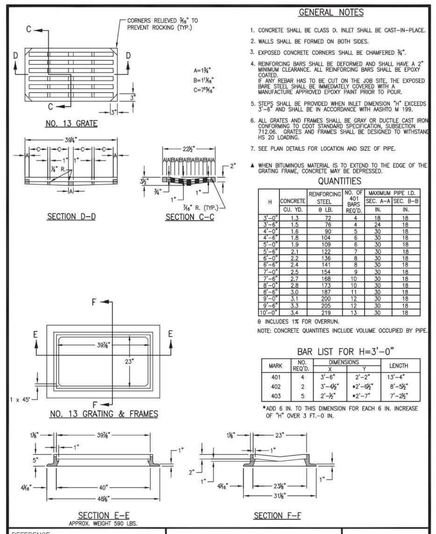


REFERENCE: CDOT M & S STANDARDS M-604-13

GRATED INLET TYPE 13

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.37a**



H	CONCRETE CU. YD.	REINFORCING STEEL @ LB.	NO. OF 401 BARS REQ'D.	MAXIMUM PIPE I.D. SEC. A-A IN.	SEC. B-B IN.
3'-0"	1.3	72	4	18	18
3'-6"	1.5	76	5	24	18
4'-0"	1.6	80	5	30	18
4'-6"	1.8	104	5	30	18
5'-0"	1.9	109	6	30	18
5'-6"	2.1	122	6	30	18
6'-0"	2.2	136	8	30	18
6'-6"	2.4	141	8	30	18
7'-0"	2.5	154	9	30	18
7'-6"	2.7	168	10	30	18
8'-0"	2.8	173	10	30	18
8'-6"	3.0	187	10	30	18
9'-0"	3.1	200	12	30	18
9'-6"	3.3	205	12	30	18
10'-0"	3.4	219	13	30	18

■ INCLUDES 1'6 FOR OVERRUN.

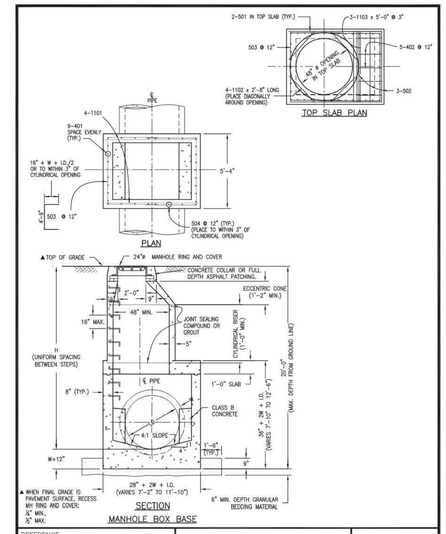
MARK	NO. REQ'D.	DIMENSIONS A	B	LENGTH
401	4	3'-6"	2'-2"	13'-4"
402	2	3'-6½"	▼2'-6½"	8'-5½"
403	5	2'-5½"	▼2'-7"	7'-2½"

REFERENCE: CDOT M & S STANDARDS M-604-13

GRATED INLET TYPE 13

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.37b**



REFERENCE: CDOT M & S STANDARDS M-604-20

MANHOLES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
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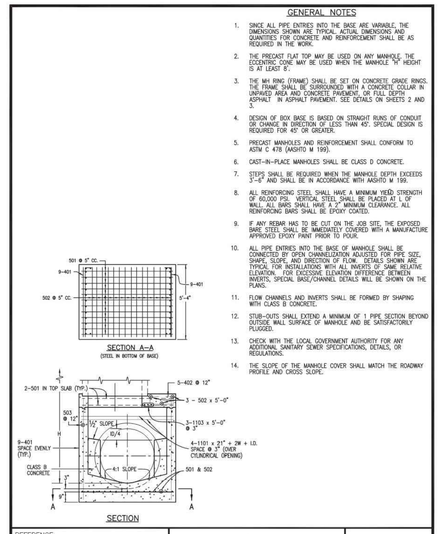
Drawing No. **SP.43a**



REFERENCE: CDOT M & S STANDARDS M-604-20

MANHOLES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
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Drawing No. **SP.43b**

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

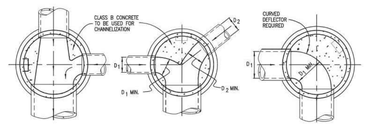
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DOUGLAS COUNTY STORM DETAILS SHEET

C611

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



TYPICAL CHANNELIZATION DETAILS

QUANTITIES FOR CONCRETE MANHOLE BOX BASE

MARK	SIZE	TYPE	WT. #/FT.	BARS	I.D. 60"	I.D. 66"	I.D. 72"	I.D. 84"	I.D. 96"	FORMULAS
401	4	I	0.668	NO. REQ'D. / LENGTH / WEIGHT #	18 / 8'-8" / 104.2	18 / 9'-3" / 111.2	18 / 9'-10" / 118.2	18 / 11'-0" / 132.2	18 / 12'-2" / 146.3	401 BAR LENGTH = 32"+2W+I.D.
402	4	III	0.668	NO. REQ'D. / LENGTH / WEIGHT #	5 / 5'-0" / 20.0	5 / 5'-7" / 22.0	5 / 7'-2" / 23.6	5 / 8'-4" / 27.8	5 / 9'-6" / 31.7	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	NO. REQ'D. / LENGTH / WEIGHT #	17 / 8'-0" / 141.8	17 / 8'-7" / 152.2	17 / 9'-2" / 162.5	17 / 10'-4" / 183.2	17 / 11'-6" / 203.9	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	NO. REQ'D. / LENGTH / WEIGHT #	23 / 5'-0" / 119.9	25 / 5'-0" / 130.4	28 / 5'-0" / 120.6	29 / 5'-0" / 151.2	32 / 5'-0" / 166.9	502 NUMBER BARS REQ'D. = $3+\left(\frac{24+I.D.+2W}{12}+1\right)$
503	5	II	1.043	NO. REQ'D. / LENGTH / WEIGHT #	16 / 13'-5" / 233.9	18 / 14'-0" / 262.2	18 / 14'-7" / 273.8	18 / 15'-0" / 328.5	20 / 16'-0" / 423.5	503 NUMBER BARS REQ'D. = $2\left(\frac{13+I.D.+2W}{12}+1\right)$ BAR LENGTH = 4'-9"+2(16+W+I.D./2)
504	5	I	1.043	NO. REQ'D. / LENGTH / WEIGHT #	14 / 8'-8" / 126.6	14 / 9'-3" / 135.1	16 / 9'-10" / 164.1	18 / 11'-0" / 206.5	20 / 12'-2" / 253.8	504 NUMBER BARS REQ'D. = $2\left(\frac{29\frac{1}{2}+I.D.+4}{12}+1\right)$ BAR LENGTH = 32"+2W+I.D.
1101	11	I	5.313	NO. REQ'D. / LENGTH / WEIGHT #	4 / 7'-9" / 164.7	4 / 8'-4" / 177.1	4 / 8'-11" / 189.5	4 / 10'-1" / 214.3	4 / 11'-3" / 239.1	1101 BAR LENGTH = 21" + I.D. + 2W
1102	11	I	5.313	NO. REQ'D. / LENGTH / WEIGHT #	4 / 2'-8" / 56.7	4 / 2'-8" / 56.7	4 / 2'-8" / 56.7	4 / 2'-8" / 56.7	4 / 2'-8" / 56.7	BENDING TYPE I: STRAIGHT
1103	11	I	5.313	NO. REQ'D. / LENGTH / WEIGHT #	3 / 5'-0" / 79.7	3 / 5'-0" / 79.7	3 / 5'-0" / 79.7	3 / 5'-0" / 79.7	3 / 5'-0" / 79.7	TYPE II: 4'-9" + 16"+W+I.D./2
REINFORCING STEEL TOTAL #					1,633.5	1,127.2	1,204.0	1,382.2	1,601.6	TYPE III: 12" + I.D.+2W-38"
CONCRETE — CUBIC YARDS — TOTAL					6.6	7.3	8.0	9.5	11.1	

NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM BASE AND A 4 FT. MANHOLE ENTRANCE INTO TOP SLAB OF BASE.

REFERENCE: CDOT M & S STANDARDS M-604-20

MANHOLES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
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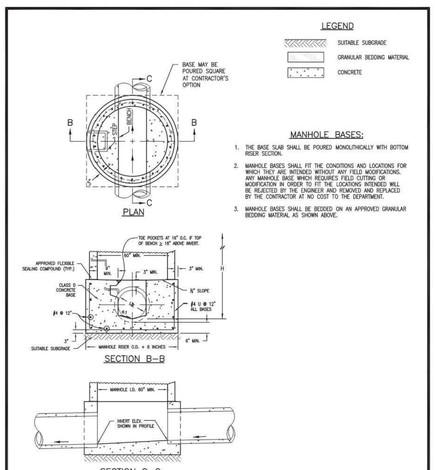
Drawing No. **SP.43c**



MANHOLE BASES:

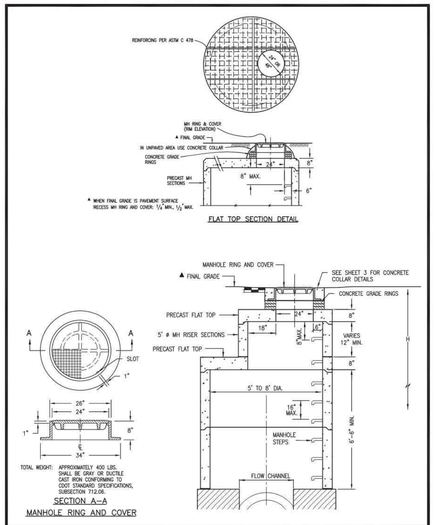
1. THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
2. MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
3. MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

REFERENCE: CDOT M & S STANDARDS M-604-20

MANHOLES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.43d**



REFERENCE: CDOT M & S STANDARDS M-604-20

MANHOLES

DOUGLAS COUNTY COLORADO

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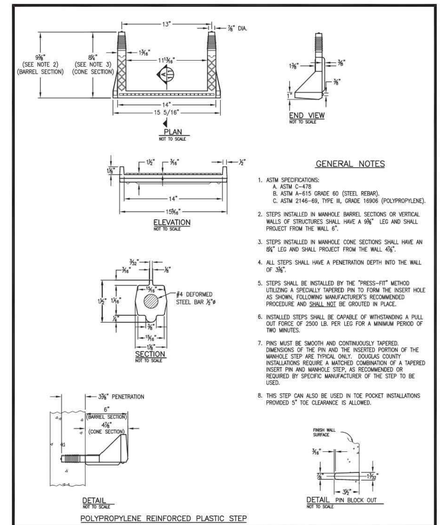
Drawing No. **SP.43e**



GENERAL NOTES

1. ASTM SPECIFICATIONS:
   A. ASTM C-478
   B. ASTM A-615 GRADE 60 (STEEL REBAR).
   C. ASTM 2146-88, TYPE III, GRADE 16906 (POLYPROPYLENE).
2. STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURES SHALL HAVE A 6⅜" LEG AND SHALL PROJECT FROM THE WALL 6".
3. STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8⅜" LEG AND SHALL PROJECT FROM THE WALL 4⅝".
4. ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3⅜".
5. STEPS SHALL BE INSTALLED BY THE "PRESS–FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN, FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GROUTED IN PLACE.
6. INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 LB. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
7. PMS MUST BE SMOOTH AND CONTINUOUSLY TAPERED. DIMENSIONS OF THE PIN AND THE INSERTED PORTION OF THE MANHOLE STEP ARE TYPICAL ONLY. DOUGLAS COUNTY INSTALLATIONS REQUIRE A MATCHED COMBINATION OF A TAPERED INSERT PIN AND MANHOLE STEP, AS RECOMMENDED OR REQUIRED BY SPECIFIC MANUFACTURER OF THE STEP TO BE USED.
8. THIS STEP CAN ALSO BE USED IN TOE POCKET INSTALLATIONS PROVIDED 5" TOE CLEARANCE IS ALLOWED.

POLYPROPYLENE REINFORCED PLASTIC STEP

REFERENCE: CITY AND COUNTY OF DENVER DRAWING NUMBER S-750

MANHOLE AND INLET STEPS

DOUGLAS COUNTY COLORADO

Issued: 05/2013
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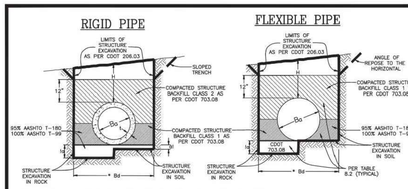
Drawing No. **SP.45**



MAXIMUM HEIGHT OF FILL OVER TOP OF PIPE IN FEET

REINFORCED CONCRETE

Bc In.	Mfgr's Bd In.	65 INCH CRACK (1–LOAD) 1350 PIPE CLASS	2000	3000	Y
**		S	S	S	
18	30	19	28	43	
24	42	18	28	43	
30	50	18	28	43	
36	58	18	27	41	
42	66	18	27	41	
48	74	18	27	41	
54	88	17	25	40	
60	100	17	25	40	
66	108	17	25	40	
72	117	17	25	40	
78	125	17	25	40	
84	135	17	25	40	
90	134	17	25	40	
96	163	17	25	40	
108	173	17	25	40	
120	191	17	25	40	
132	206	17	25	40	
144	226	17	25	40	

** Based on Bd=1.330Bc+.25. Wall thickness can vary between manufacturers.

STEEL – 2 2/3" x 1/2" CORRUGATIONS

Bc In.	Bd Ft.	H ABOVE TOP OF PIPE IN FEET 1–15	16–20	21–25	26–30	31–35	36–40
		THICKNESS IN INCHES					
18–48	4–7	.064	.064	.064	.064	.064	.064
54	7.50	.079	.079	.079	.079	.079	.079
60	8.00	.079	.079	.079	.079	.109	.109
66	8.50	.079	.079	.079	.109	.138	.138
72	9.00	.079	.109	.109	.138	.168	.168
78	9.50	.109	.138	.138	.168		
84	10.00	.109	.138	.168			

LEGEND

H = Height of fill over top of pipe
Bc = Inside diameter (I.D.) of pipe
* Bd = Trench Width
t = Wall Thickness of pipe
CLSM = Controlled Low Strength Material
* Trench Width (Bd) = Bc + 16 inches + 2(t) for Flexible Culverts in Soil, or+2" for RCP Culvert in Soil, or+12" for Culvert in Rock.
** TRENCH WIDTH (Bd) = Bc + 16 inches + 2(t) for Bc = 90in. or 1.330Bc+20, or (Bc+2(t)+12" (Per AASHTO Section 12)
CSP: Bd = Bc + 16" (Per AASHTO Section 12)
Bedding material for RCP, shall be Structural Backfill Class 1.
Bedding material for ROCK shall be Structural Backfill Class 1.

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT
2. ALL TRENCH INSTALLATIONS SHALL BE IN ACCORDANCE WITH OSHA AND COLORADO DEPARTMENT OF TRANSPORTATION REGULATIONS.
3. THE USE OF NON–REINFORCED CONCRETE PIPE WILL NOT BE ALLOWED IN DOUGLAS COUNTY.

RCP DESIGN CRITERIA

Safety Factor = Per ASTM C76
Soil Weight = 120 lb. per cu. ft.
Bedding = Type 2

CSP DESIGN CRITERIA

3"x1" CORRUGATIONS: 60 TO 84 Pipe shall be .064" thick (16 gauge) to H=40 ft.)

Soil Weight = 120 lb. per cu. ft.
Safety Factor for Seam Strength = 2.00
Buckling Stress Level = 1/2 Yield Strength
Load Factor (Backfill) = 95% Standard Density, AASHTO–T 99 (K=0.66)

ALL UTILITY REPAIRS MUST BE BACKFILLED WITH CLSM. SEE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS MANUAL FOR SPECIFIC DETAILS.

NOTE: All trenching shall comply with all State, Federal and O.S.H.A. safety requirements. It will be the responsibility of the Contractor to meet all safety requirements.

TO BE USED IN OPEN FIELDS OR PRIOR TO PAVING ROADS

APPROVED BY DOUGLAS COUNTY
Janet Herman
JANET HERMAN, P.E.
DIRECTOR OF PUBLIC WORKS ENGINEERING
DATE 06/18/2021

PIPE INSTALLATION IN TRENCH

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised: 05/2021
Drawing No. **SP.46a**

NOTES:

1. This trench backfill detail specifies requirements in addition to those specified in the latest edition of the Colorado Department of Transportation's Standard Specifications for Road and Bridge Construction.
2. A construction traffic control plan shall be submitted to and approved by Douglas County prior to issuance of construction permits in the County right–of–way.
3. Trench shall be braced or shored as necessary for the safety of the workers and protection of other utilities or structures in accordance with applicable local, state and federal safety regulations.
4. The trench width shall be confined to those minimum dimensions, which will permit proper installation and acceptable pipe loading, as established by current local, state and federal Safety regulations.
5. Backfill compaction requirements: Minimum density will be determined in accordance with AASHTO T 99 or T 180 as defined by CDOT Standard Specifications Section 203.07 and CDOT 703.03. Except for CLSM.
6. Pavement edges shall be saw–cut. Edges shall be tack coated prior to patching.
7. All storm sewers shall be constructed so that a minimum cover is maintained to withstand AASHTO HS–20 loading on the pipe. The minimum cover to withstand live loading depends upon the pipe size, type and class, and soil bedding condition, but shall be not less than 1'–foot at any point along the pipe. Other factors that affect the depth of the pipe are hydraulic grade line elevations, inlet depths, adjacent utilities or utility crossings, including water and sewer services lines along residential streets, and connections to existing storm sewer systems. The roadway subgrade, which supports the pavement section is typically plowed to a certain depth, moisture treated and compacted prior to the placement of the sub–base, base course, and surfacing. There are also instances where the subgrade material must be excavated and replaced or treated to a certain depth to mitigate swelling soils. These efforts can impact the storm sewer system if it has not been designed with adequate depth. The design engineer shall use the best information available, including pavement design or soils reports (if available) to ensure that storm sewer pipes have adequate depth.
8. Changes in design criteria will require compensating change in pipe design.
9. When pipe sewer is to be extended or replaced with pipe of different material, the connections shall conform to the detail shown on plans or be approved through Douglas County Engineering.
10. When two or more conduits are laid side–by–side, they shall be placed so that they are ½ outside diameter, or ½ outside span, or 3' apart, whichever is less. However, if end sections are used, the minimum spacing shall be 1' between the outside edge of end sections.
11. TRENCH INSTALLATION (per OSHA Standards):
    a. Trenches over 5 feet in depth shall be either shored or the trench walls shall be sloped no steeper than 3:1 to the angle of repose. If sloped, the bottom of the slope shall be a minimum of 1 foot above the top of the pipe.
    b. Shoring will be required when the bottom of the slope is more than 3 feet above the bottom of the trench.
    c. All sheeting or shoring to be removed.
12. CLSM may be used in place of Structural Backfill.
13. CLSM shall not exceed a strength over 100 p.s.i.

REFERENCE: Douglas County Drainage Manual and Colorado Department of Transportation "M" Standards.

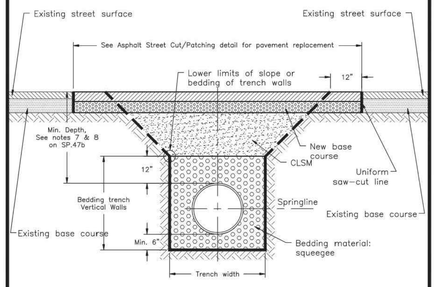
TO BE USED IN OPEN FIELDS OR PRIOR TO PAVING ROADS

APPROVED BY DOUGLAS COUNTY
Janet Herman
JANET HERMAN, P.E.
DIRECTOR OF PUBLIC WORKS ENGINEERING
DATE 06/18/2021

PIPE INSTALLATION IN TRENCH NOTES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised: 05/2021
Drawing No. **SP.46b**



NOTE: SEE NOTES ON SP.47b

TO BE USED FOR STREET CUT ONLY

APPROVED BY DOUGLAS COUNTY
Janet Herman
JANET HERMAN, P.E.
DIRECTOR OF PUBLIC WORKS ENGINEERING
DATE 06/18/2021

PIPE INSTALLATION IN TRENCH FOR STREET CUT

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised: 05/2021
Drawing No. **SP.47a**

NOTES:

1. This Pipe Installation detail specifies requirements in addition to those specified in the latest edition of the Colorado Department of Transportation's Standard Specifications for Road and Bridge Construction.
2. A Construction Traffic Control Plan shall be submitted to and approved by Douglas County prior to issuance of Construction Permits in the County Right–Of–Way.
3. Pipe shall be bedded from 6" below the bottom of the pipe to 12" above the top of pipe.
4. Trench width shall not be more than 16" and not less than 12" wider than the largest Outside Diameter of the pipe.
5. All storm sewers shall be constructed so that a minimum cover is maintained to withstand AASHTO HS–20 loading on the pipe. The minimum cover to withstand live loading depends upon the pipe size, type and class, and soil bedding condition, but shall be not less than 2–foot at any point along the pipe.
6. For water and sanitary sewer pipes, refer to the maintaining district standards for pipe bedding materials.
7. Pavement edges shall be saw–cut and kept to a neat vertical edge prior to paving.
8. Edges shall be tack coated prior to patching.
9. When storm sewer pipe is to be extended or replaced with pipe of different material, the connections shall conform to the detail shown on plans or be approved through Douglas County Engineering.
10. When two or more conduits are laid side–by–side, they shall be placed so that they are ½ outside diameter, or ½ outside span, or 3' apart, whichever is less. However, if end sections are used, the minimum spacing shall be 1' between the outside edge of end sections.
11. Trench installation per OSHA Standards.

TO BE USED FOR STREET CUT ONLY

APPROVED BY DOUGLAS COUNTY
Janet Herman
JANET HERMAN, P.E.
DIRECTOR OF PUBLIC WORKS ENGINEERING
DATE 06/18/2021

PIPE INSTALLATION IN TRENCH FOR STREET CUT NOTES

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised: 05/2021
Drawing No. **SP.47b**

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

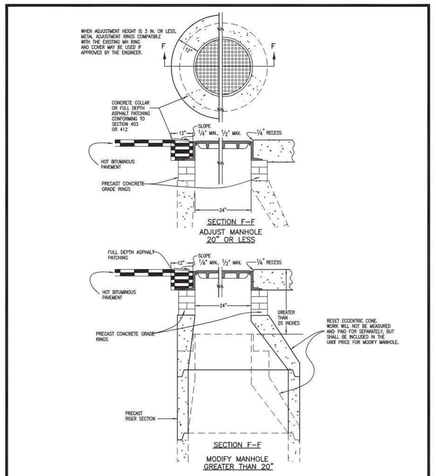
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DOUGLAS COUNTY STORM DETAILS SHEET

C612

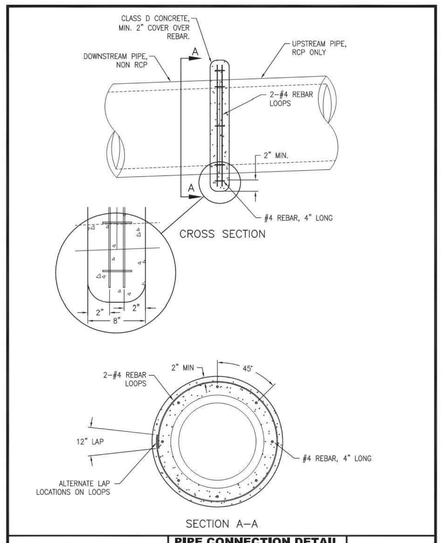
SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



MANHOLE RING AND COVER ADJUSTMENT

DOUGLAS COUNTY COLORADO

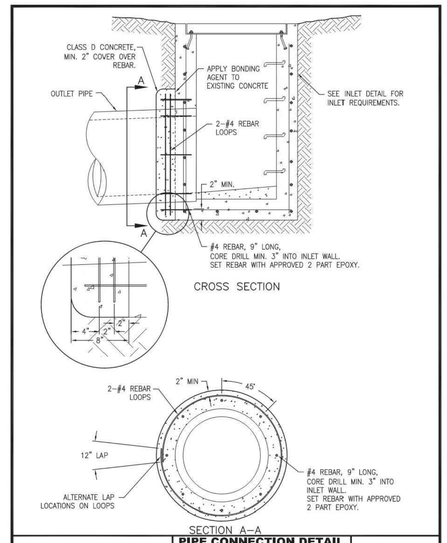
Issued: 05/2013
Revised:
Drawing No. **SP.57**



PIPE CONNECTION DETAIL TO EXISTING PIPE

DOUGLAS COUNTY COLORADO

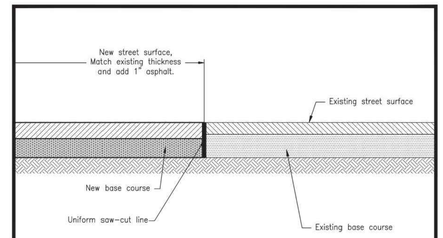
Issued: 05/2013
Revised:
Drawing No. **SP.60a**



PIPE CONNECTION DETAIL TO EXISTING INLET

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised:
Drawing No. **SP.60b**



NOTES:

1. This Street Cut/Patching detail specifies requirements in addition to those specified in the latest edition of the Colorado Department of Transportation's Standard Specifications for Road and Bridge Construction.
2. A Construction Traffic Control Plan shall be submitted to and approved by Douglas County prior to issuance of Construction Permits in the County Right-Of-Way.
3. Pavement edges shall be saw-cut and kept to a neat vertical edge prior to paving.
4. Edges shall be tack coated prior to patching.

APPROVED BY DOUGLAS COUNTY
Janet Herman
JANET HERMAN, P.E.
DIRECTOR OF PUBLIC WORKS ENGINEERING
DATE 06/18/2021

ASPHALT STREET CUT/PATCHING

DOUGLAS COUNTY COLORADO

Issued: 05/2013
Revised: 05/2021
Drawing No. **SP.62**

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

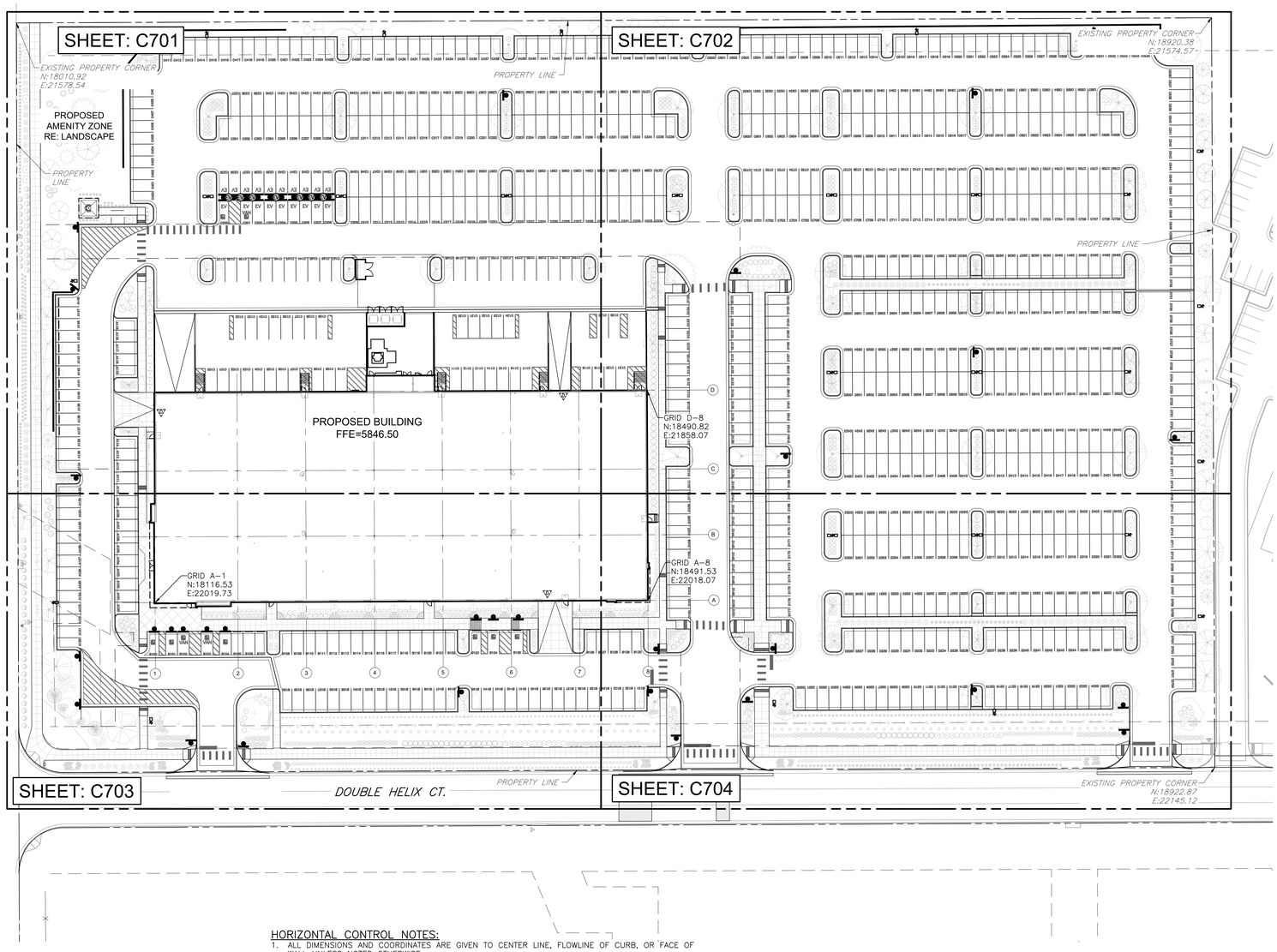
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DOUGLAS COUNTY
STORM DETAILS SHEET

C613



SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE

N

40 20 0 40 80

SCALE: 1"=40'

ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS AND COORDINATES ARE GIVEN TO CENTER LINE, FLOWLINE OF CURB, OR FACE OF WALL UNLESS NOTED OTHERWISE.
2. SEE DETAILS ON SITE DETAILS SHEET.
3. REGULAR PARKING STALLS WILL BE 9' WIDE X 18' LONG.
4. BUILDING GRID & LAYOUT PROVIDED BY MOA ARCHITECTURE ON 07/31/2024.
5. COORDINATES FOR TRANSFORMERS ARE GIVEN TO CENTER OF TRANSFORMER. CONTRACTOR TO COORDINATE FINAL LOCATION OF TRANSFORMER AND ROUTING OF ELECTRIC LINES WITH SERVICE PROVIDER.
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7. REFER TO LANDSCAPE PLANS FOR WALKS, RAILS, FENCE, LANDSCAPE STRUCTURES, LANDSCAPING, ETC.
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BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
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martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

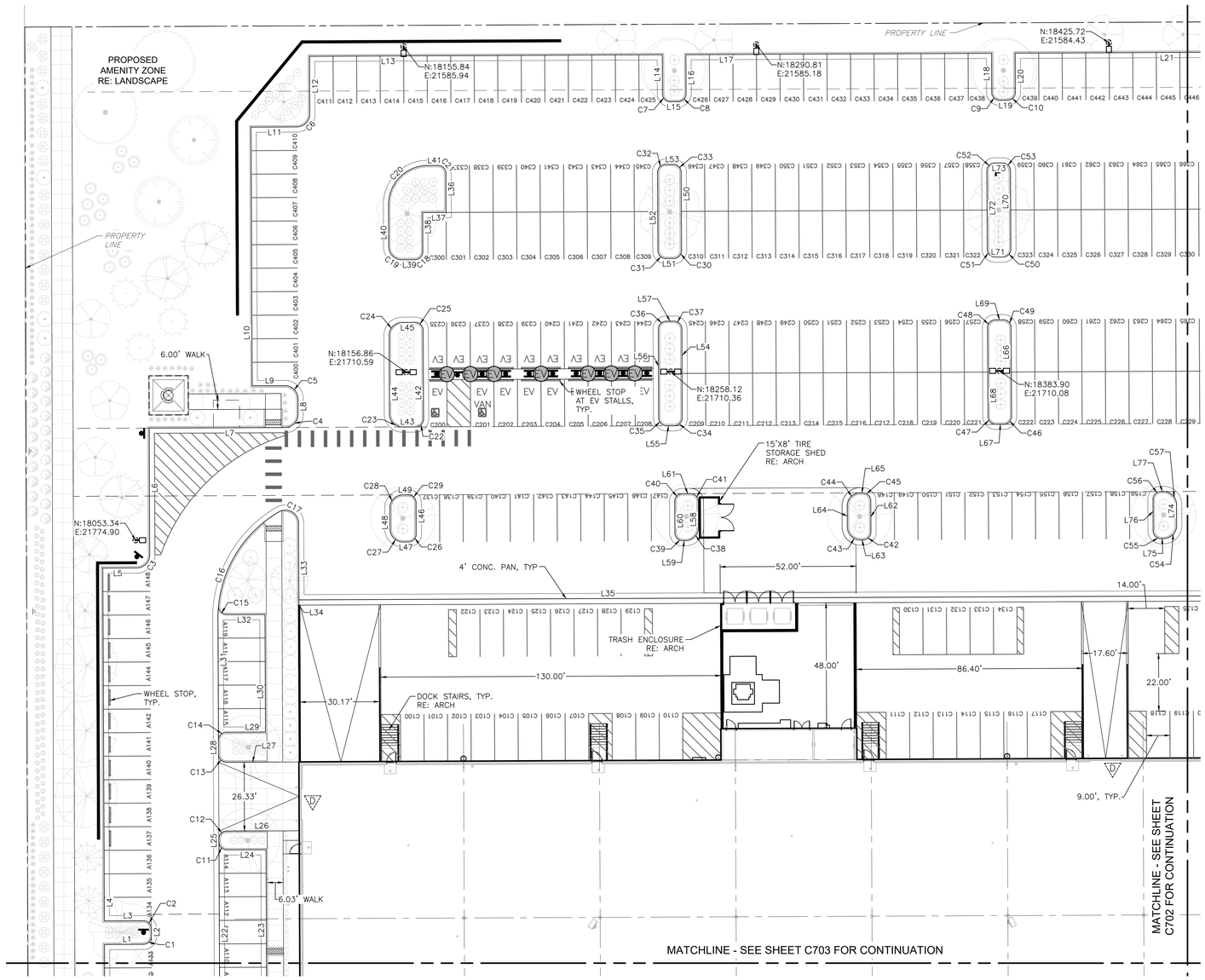
COLORADO REGISTERED
DANIEL EDWARD BEARTH
48232
09/06/2024
PROFESSIONAL ENGINEER

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
OVERALL HORIZONTAL CONTROL PLAN

C700



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PENDING JURISDICTIONAL APPROVAL

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N

SCALE: 1"=20'
20 10 0 20 40
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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
SAMUEL EDWARD BEARCE
48232
09/06/2024

REVISION	DATE
100% CD's	
Project Number	23.0136
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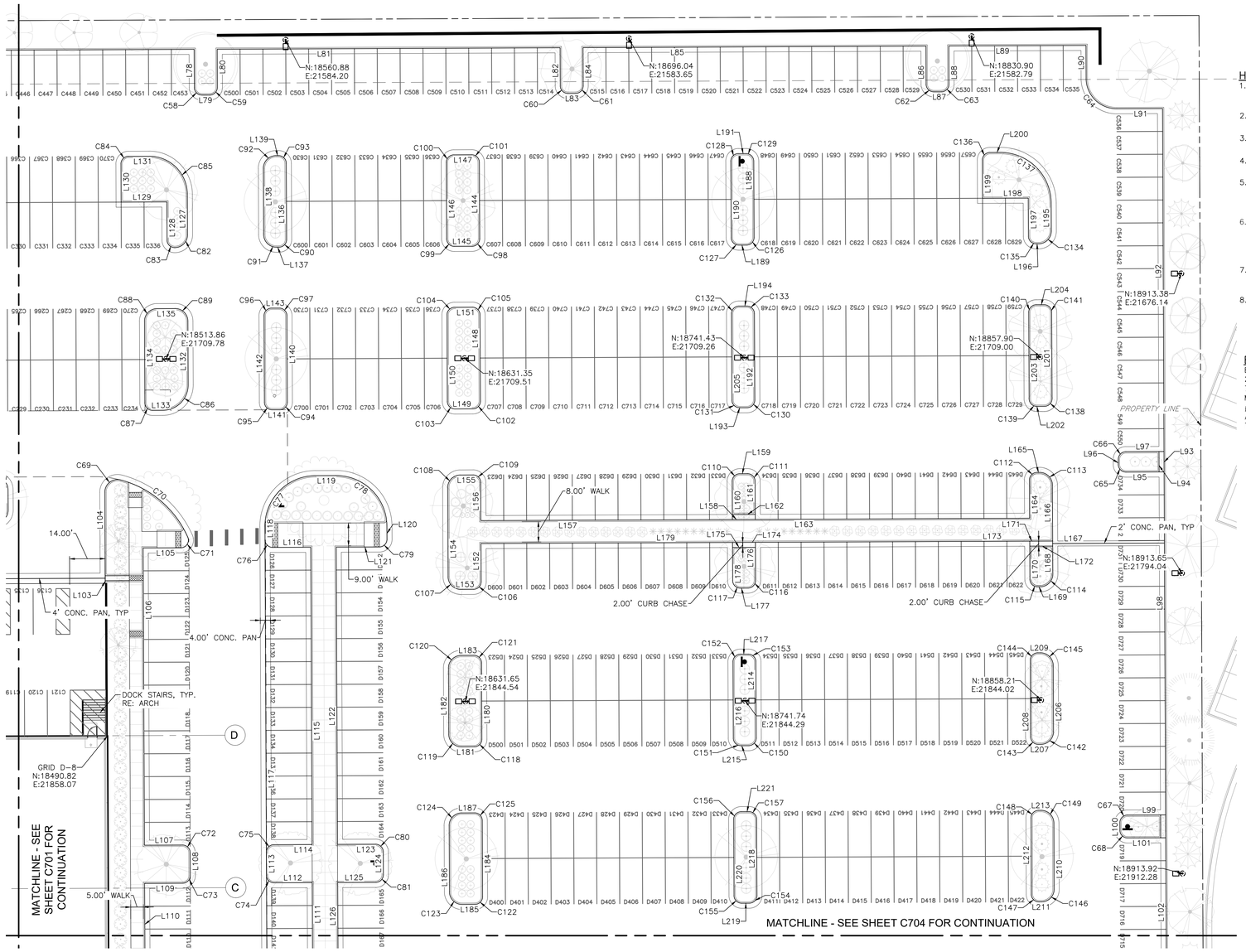
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DETAILED HORIZONTAL CONTROL PLAN

C701

G:\BUCKLEY\23.0136.SHEA HELIX WAREHOUSE\DP\LANDSCD\CTH - DETAILED HORIZONTAL CONTROL PLAN.DWG



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HELIX WEST - BUILDING C - CORE & SHELL

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ENGLEWOOD, COLORADO

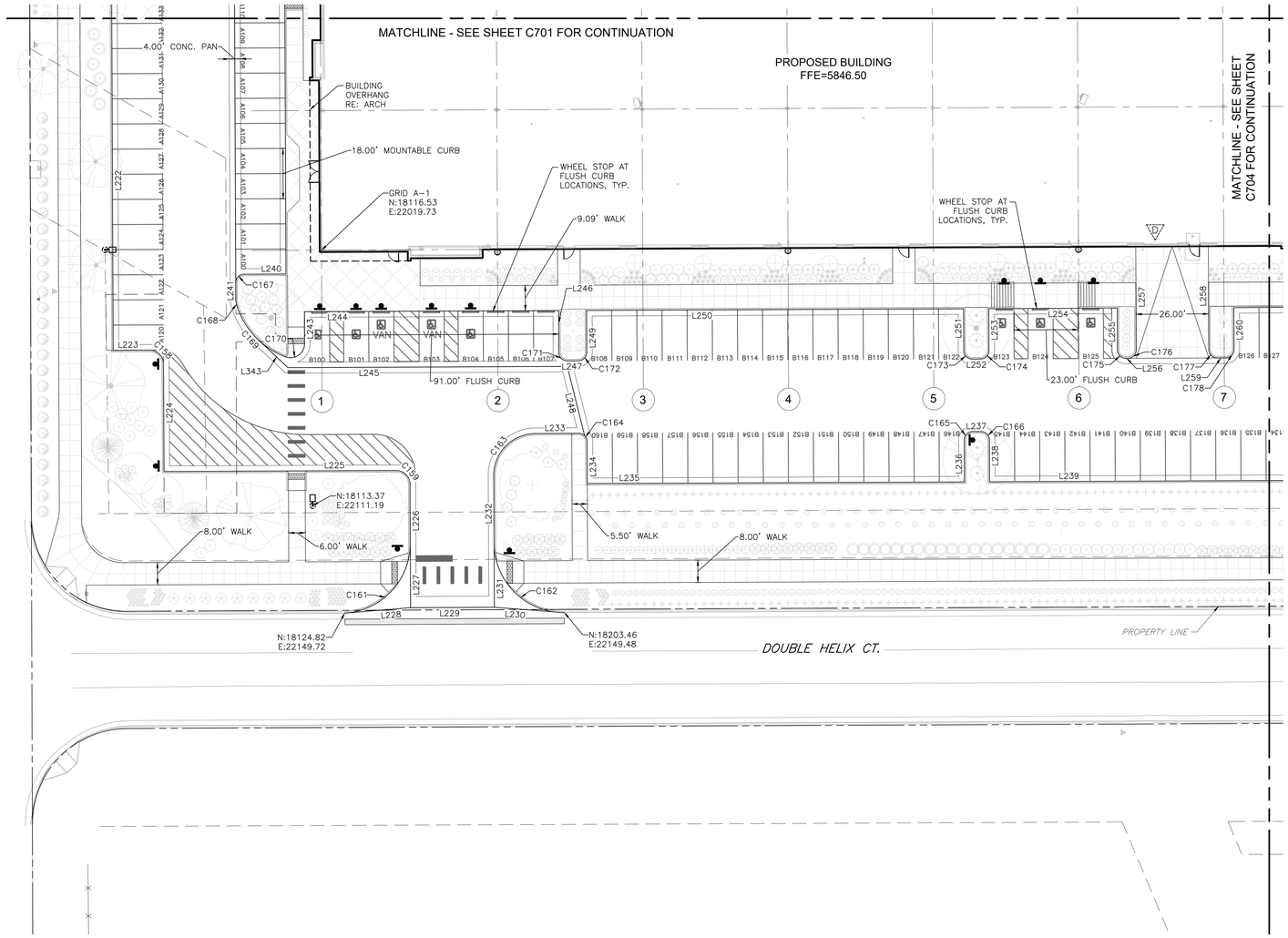
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Copyright:

Sheet Name
DETAILED HORIZONTAL CONTROL PLAN

C702



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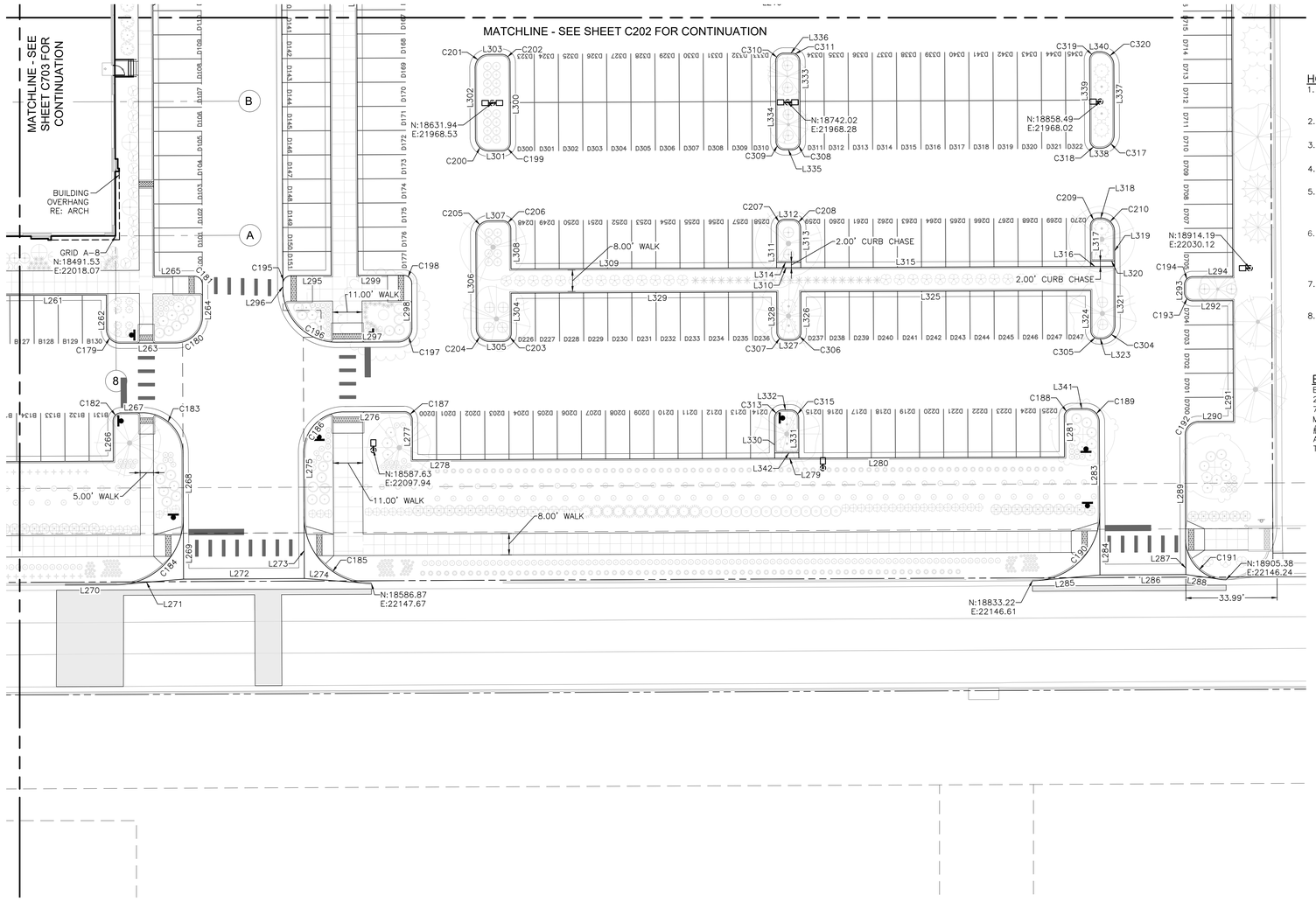
COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BEZAZIAN
48232
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DETAILED HORIZONTAL CONTROL PLAN

C703



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COLORADO REGISTERED DANIEL EDWARD BERGER 48232 PROFESSIONAL ENGINEER
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
DETAILED HORIZONTAL CONTROL PLAN

C704

G:\BUCKLEY\23.0136 SHEA HELIX WEST\DESIGN\USER PLANS\CDS\C701 - DETAILED HORIZONTAL CONTROL PLAN.DWG

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C2	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C3	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
C4	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
C5	90°00'00"	5.00'	7.85'	N44°44'46"E	7.07'
C6	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
C7	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C8	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C9	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C10	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C11	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C12	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C13	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C14	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C15	95°52'12"	3.00'	5.02'	S47°40'52"W	4.45'
C16	59°58'35"	47.00'	49.20'	N60°15'56"W	46.98'
C17	120°01'25"	5.00'	10.47'	N29°44'04"E	8.66'
C18	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C19	90°00'00"	5.00'	7.85'	S44°44'46"W	7.07'
C20	90°00'00"	15.00'	23.56'	N45°15'14"W	21.21'
C21	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C22	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C23	90°00'00"	5.00'	7.85'	N44°44'46"E	7.07'
C24	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
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C28	90°00'00"	5.00'	7.85'	N45°15'14"W	7.07'
C29	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C30	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C31	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C32	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C33	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C34	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C35	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C36	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C37	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C38	90°00'00"	5.00'	7.85'	N45°15'14"W	7.07'
C39	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C40	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C41	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C42	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C43	90°00'00"	5.00'	7.85'	N44°44'46"E	7.07'
C44	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
C45	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C46	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C47	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C48	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C49	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C50	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C51	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C52	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C53	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C54	90°00'00"	5.00'	7.85'	N45°15'14"W	7.07'
C55	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C56	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C57	90°00'00"	5.00'	7.85'	S44°44'46"W	7.07'
C58	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C59	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C60	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C61	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C62	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C63	89°59'24"	3.00'	4.71'	S45°15'16"E	4.24'
C64	90°00'06"	12.00'	18.85'	S44°44'59"W	16.97'
C65	90°00'00"	3.00'	4.71'	S44°44'56"W	4.24'
C66	90°00'00"	3.00'	4.71'	N45°15'04"W	4.24'
C67	90°00'00"	3.00'	4.71'	N45°15'04"W	4.24'
C68	90°00'00"	3.00'	4.71'	S44°44'56"W	4.24'
C69	105°02'58"	5.00'	9.17'	N37°43'45"W	7.94'
C70	51°18'16"	40.00'	35.82'	N40°26'52"E	34.63'
C71	113°39'02"	3.00'	5.95'	S57°04'29"E	5.02'
C72	90°00'00"	3.00'	4.71'	N44°45'02"E	4.24'
C73	90°00'00"	3.00'	4.71'	S45°14'58"E	4.24'
C74	90°00'00"	3.00'	4.71'	N44°45'02"E	4.24'
C75	90°00'00"	3.00'	4.71'	S45°14'58"E	4.24'
C76	90°00'00"	3.00'	4.71'	N44°45'02"E	4.24'
C77	89°59'44"	20.00'	31.41'	S45°15'06"E	28.28'
C78	90°00'16"	20.00'	31.42'	S44°44'54"W	28.29'
C79	90°00'00"	3.00'	4.71'	N45°14'58"W	4.24'
C80	90°00'00"	3.00'	4.71'	S44°45'02"W	4.24'
C81	90°00'00"	3.00'	4.71'	N45°14'58"W	4.24'
C82	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C83	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C84	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C85	90°00'16"	15.00'	23.56'	S44°44'54"W	21.21'
C86	89°59'44"	10.00'	15.71'	N45°15'06"W	14.14'
C87	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C88	90°00'00"	5.00'	7.85'	S45°15'14"E	7.07'
C89	90°00'14"	5.00'	7.85'	S44°44'53"W	7.07'
C90	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C91	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'
C92	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C93	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C94	89°59'44"	3.00'	4.71'	S45°15'22"E	4.24'
C95	90°00'16"	3.00'	4.71'	S44°44'38"W	4.24'
C96	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C97	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C98	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C99	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C100	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C101	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C102	89°59'44"	3.00'	4.71'	N45°15'22"W	4.24'
C103	90°00'16"	3.00'	4.71'	N44°44'38"E	4.24'
C104	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C105	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C106	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C107	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'
C108	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C109	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C110	89°59'29"	3.00'	4.71'	S45°15'14"E	4.24'
C111	90°00'31"	3.00'	4.71'	S44°44'46"W	4.24'
C112	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C113	90°00'10"	5.00'	7.85'	S44°44'51"W	7.07'
C114	89°59'50"	5.00'	7.85'	N45°15'09"W	7.07'
C115	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C116	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C117	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C118	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C119	90°00'16"	5.00'	7.85'	S44°44'54"W	7.07'
C120	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C121	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C122	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C123	90°00'16"	5.00'	7.85'	S44°44'54"W	7.07'
C124	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C125	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C126	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C127	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C128	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C129	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C130	89°59'44"	3.00'	4.71'	N45°15'22"W	4.24'
C131	90°00'16"	3.00'	4.71'	N44°44'38"E	4.24'
C132	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C133	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C134	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C135	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C136	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C137	90°00'10"	20.00'	31.42'	S44°44'51"W	28.28'
C138	89°59'44"	3.00'	4.71'	N45°15'22"W	4.24'
C139	90°00'16"	3.00'	4.71'	N44°44'38"E	4.24'
C140	90°00'00"	3.00'	4.71'	S45°15'14"E	4.24'
C141	90°00'00"	3.00'	4.71'	S44°44'46"W	4.24'
C142	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C143	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C144	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C145	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'
C146	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C147	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C148	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C149	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'
C150	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C151	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C152	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C153	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C154	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C155	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C156	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C157	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C158	90°00'00"	5.00'	7.85'	N44°44'46"E	7.07'
C159	90°00'00"	5.00'	7.85'	N44°44'46"E	7.07'
C161	86°49'22"	25.00'	37.88'	S46°50'33"E	34.36'
C162	90°03'13"	25.00'	39.29'	S44°43'09"W	35.37'
C163	90°00'42"	15.00'	23.57'	N45°15'35"W	21.22'
C164	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C165	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C166	90°00'00"	3.00'	4.71'	N44°44'46"E	4.24'
C167	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C168	18°40'18"	10.00'	3.26'	S80°24'37"W	3.24'
C169	50°38'45"	29.00'	25.63'	S45°45'05"W	24.81'
C170	110°40'55"	5.00'	9.66'	S34°54'44"E	8.23'
C171	90°00'02"	3.00'	4.71'	S44°44'47"W	4.24'
C172	89°59'58"	3.00'	4.71'	S45°15'13"E	4.24'
C173	90°00'02"	3.00'	4.71'	S44°44'47"W	4.24'
C174	89°59'58"	3.00'	4.71'	S45°15'13"E	4.24'
C175	90°00'01"	3.00'	4.71'	S44°44'48"W	4.24'
C176	90°00'01"	3.00'	4.71'	S45°15'13"E	4.24'
C177	89°59'59"	3.00'	4.71'	S44°44'47"W	4.24'
C178	90°00'00"	3.00'	4.71'	S45°15'13"E	4.24'
C179	90°00'01"	5.00'	7.85'	S44°44'47"W	7.07'
C180	89°59'44"	10.00'	15.71'	S45°15'06"E	14.14'
C181	90°00'00"	3.00'	4.71'	N44°45'02"E	4.24'

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C182	90°00'00"	3.00'	4.71'	N45°15'14"W	4.24'
C183	90°00'16"	15.00'	23.56'	N44°44'54"E	21.21'
C184	90°02'56"	25.00'	39.29'	S45°13'30"E	35.37'
C185	89°58'54"	25.00'	39.26'	N44°45'35"E	35.35'
C186	89°59'44"	15.00'	23.56'	S45°15'06"E	21.21'
C187	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C188	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C189	90°00'10"	5.00'	7.85'	S44°44'51"W	7.07'
C190	90°22'29"	25.00'	39.43'	N45°03'50"W	35.47'
C191	89°58'44"	15.00'	23.56'	S44°45'33"W	21.21'
C192	90°00'00"	5.00'	7.85'	N45°15'04"W	7.07'
C193	90°00'00"	3.00'	4.71'	S44°44'56"W	4.24'
C194	90°00'00"	3.00'	4.71'	N45°15'04"W	4.24'
C195	90°00'00"	3.00'	4.71'	S45°14'58"E	4.24'
C196	90°00'16"	20.00'	31.42'	N44°44'54"E	28.29'
C197	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C198	90°00'00"	3.00'	4.71'	S44°45'02"W	4.24'
C199	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C200	90°00'16"	5.00'	7.85'	S44°44'54"W	7.07'
C201	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C202	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C203	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C204	90°00'16"	5.00'	7.85'	S44°44'54"W	7.07'
C205	89°59'44"	5.00'	7.85'	N45°15'06"W	7.07'
C206	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C207	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C208	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C209	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C210	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'
C304	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C305	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C306	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C307	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C308	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C309	90°00'16"	3.00'	4.71'	N44°44'54"E	4.24'
C310	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C311	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C313	89°59'44"	3.00'	4.71'	S45°15'06"E	4.24'
C315	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C317	89°59'44"	5.00'	7.85'	S45°15'06"E	7.07'
C318	90°00'16"	3.00'	4.71'	S44°44'54"W	4.24'
C319	89°59'44"	3.00'	4.71'	N45°15'06"W	4.24'
C320	90°00'16"	5.00'	7.85'	N44°44'54"E	7.07'

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED DANIEL EDWARD BERNER 48232 PROFESSIONAL ENGINEER 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
LINE AND CURVE TABLE

C705

G:\BUCKLEY\23.0136.00\HELIX WAREHOUSES\SP-LAND\DOCS\01 - DETAILED HORIZONTAL CONTROL PLAN.DWG

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L1	S00°15'14"E	15.00'
L2	N89°44'46"E	3.00'
L3	N00°15'14"W	15.00'
L4	N89°44'46"E	135.00'
L5	S00°15'14"E	13.00'
L6	N89°44'46"E	48.50'
L7	S00°15'14"E	51.99'
L8	N89°44'46"E	6.00'
L9	N00°15'14"W	12.50'
L10	S89°44'46"W	99.00'
L11	S00°15'14"E	17.50'
L12	N89°44'46"E	22.00'
L13	S00°15'14"E	135.00'
L14	S89°44'46"W	15.00'
L15	S00°15'14"E	3.00'
L16	N89°44'46"E	15.00'
L17	S00°15'14"E	117.00'
L18	S89°44'46"W	15.00'
L19	S00°15'14"E	3.00'
L20	N89°44'46"E	15.00'
L21	S00°15'14"E	135.00'
L22	N89°44'46"E	141.00'
L23	S89°44'46"W	135.00'
L24	S00°15'14"E	15.00'
L25	S89°44'46"W	1.17'
L26	N00°15'14"W	15.00'
L27	S00°15'14"E	15.00'
L28	S89°44'46"W	5.49'
L29	N00°15'14"W	15.00'
L30	S89°44'46"W	45.00'
L31	N89°44'46"E	46.50'
L32	S00°15'14"E	14.77'
L33	N89°44'46"E	31.36'
L34	N89°44'46"E	31.36'
L35	N00°15'14"W	374.08'
L36	N89°44'46"E	15.00'
L37	S00°15'14"E	9.00'
L38	N89°44'46"E	15.00'
L39	S00°15'14"E	5.00'
L40	S89°44'46"W	16.00'
L41	N00°15'14"W	4.00'
L42	S89°44'46"W	34.00'
L43	N00°15'14"W	5.00'
L44	N89°44'46"E	30.00'
L45	S00°15'14"E	5.00'
L46	N89°44'46"E	12.00'
L47	S00°15'14"E	2.00'
L48	S89°44'46"W	8.00'
L49	N00°15'14"W	2.00'
L50	N89°44'46"E	30.00'
L51	S00°15'14"E	3.00'
L52	S89°44'46"W	30.00'
L53	N00°15'14"W	3.00'
L54	S89°44'46"W	34.00'
L55	N00°15'14"W	3.00'
L56	N89°44'46"E	34.00'
L57	S00°15'14"E	3.00'
L58	S89°44'46"W	10.00'
L59	N00°15'14"W	1.00'
L60	N89°44'46"E	12.00'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L61	S00°15'14"E	3.00'
L62	S89°44'46"W	12.00'
L63	N00°15'14"W	0.98'
L64	N89°44'46"E	8.00'
L65	S00°15'14"E	0.98'
L66	S89°44'46"W	34.00'
L67	N00°15'14"W	3.00'
L68	N89°44'46"E	34.00'
L69	S00°15'14"E	3.00'
L70	S89°44'46"W	30.00'
L71	N00°15'14"W	3.00'
L72	N89°44'46"E	30.00'
L73	S00°15'14"E	3.00'
L74	S89°44'46"W	8.00'
L75	N00°15'14"W	0.98'
L76	N89°44'46"E	12.00'
L77	S00°15'14"E	0.98'
L78	S89°44'46"W	15.00'
L79	S00°16'46"E	3.06'
L80	N89°45'02"E	15.00'
L81	S00°15'11"E	135.00'
L82	S89°45'02"W	15.00'
L83	S00°15'14"E	3.00'
L84	N89°45'02"E	15.00'
L85	S00°15'12"E	135.00'
L86	S89°45'02"W	15.00'
L87	S00°15'35"E	3.00'
L88	N89°45'02"E	15.00'
L89	S00°15'16"E	54.00'
L90	S89°45'02"W	12.98'
L91	S00°15'04"E	18.00'
L92	S89°44'56"W	135.00'
L93	S89°44'56"W	8.02'
L94	N89°44'56"E	8.02'
L95	S00°15'04"E	15.00'
L96	S89°44'56"W	2.02'
L97	N00°15'04"W	15.00'
L98	S89°44'56"W	135.00'
L99	N00°15'04"W	15.00'
L100	S89°44'56"W	3.00'
L101	S00°15'04"E	15.00'
L102	S89°44'56"W	135.00'
L103	S89°44'46"W	2.00'
L104	S89°44'46"W	33.80'
L105	S00°14'58"E	14.84'
L106	N89°45'02"E	117.00'
L107	N00°14'58"W	15.00'
L108	N89°45'02"E	9.00'
L109	S00°14'58"E	15.00'
L110	N89°45'02"E	117.00'
L111	N89°45'02"E	117.00'
L112	N00°14'58"W	15.00'
L113	N89°45'02"E	9.00'
L114	S00°14'58"E	15.00'
L115	N89°45'02"E	117.00'
L116	N00°14'58"W	15.00'
L117	N89°45'03"E	254.92'
L118	N89°45'02"E	5.16'
L119	S00°15'14"E	8.00'
L120	S89°45'02"W	5.16'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L121	N00°14'58"W	17.00'
L122	S89°45'02"W	117.00'
L123	S00°14'58"E	15.00'
L124	S89°45'02"W	9.00'
L125	N00°14'58"W	15.00'
L126	S89°45'02"W	117.00'
L127	S89°45'02"W	16.00'
L128	N89°44'46"E	15.00'
L129	N00°15'14"W	18.00'
L130	N89°44'46"E	15.00'
L131	S00°15'14"E	8.06'
L132	S89°45'00"W	25.00'
L133	N00°15'14"W	4.05'
L134	N89°44'46"E	32.00'
L135	S00°15'14"E	7.05'
L136	S89°45'02"W	30.00'
L137	N00°15'14"W	1.00'
L138	N89°45'02"E	26.00'
L139	S00°15'14"E	1.00'
L140	N89°44'46"E	34.00'
L141	S00°15'30"E	3.00'
L142	S89°44'46"W	34.00'
L143	N00°15'14"W	3.00'
L144	S89°45'02"W	30.00'
L145	N00°15'14"W	7.00'
L146	N89°45'02"E	30.00'
L147	S00°15'14"E	7.00'
L148	S89°44'46"W	34.00'
L149	N00°15'30"W	7.00'
L150	N89°44'46"E	34.00'
L151	S00°15'14"E	7.00'
L152	S89°45'02"W	15.00'
L153	N00°15'14"W	4.99'
L154	N89°45'02"E	35.00'
L155	S00°15'14"E	4.99'
L156	S89°45'02"W	15.00'
L157	S00°15'14"E	99.00'
L158	S00°15'14"E	9.00'
L159	S00°15'30"E	3.00'
L160	N89°45'02"E	15.01'
L161	S89°45'02"W	15.01'
L162	S00°15'14"E	9.00'
L163	S00°15'14"E	108.00'
L164	N89°45'02"E	15.00'
L165	S00°15'14"E	1.01'
L166	S89°44'56"W	35.00'
L167	N00°15'04"W	44.00'
L168	S89°44'56"W	35.00'
L169	N00°15'14"W	1.01'
L170	N89°45'02"E	15.00'
L171	N00°15'04"W	9.01'
L172	N00°15'04"W	9.01'
L173	N00°15'14"W	108.00'
L174	N00°15'14"W	9.00'
L175	N00°15'14"W	9.00'
L176	S89°45'02"W	15.00'
L177	N00°15'14"W	3.00'
L178	N89°45'02"E	15.00'
L179	N00°15'14"W	99.00'
L180	N89°45'02"E	30.00'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L181	S00°15'14"E	5.00'
L182	S89°45'02"W	26.00'
L183	N00°15'14"W	5.00'
L184	N89°45'02"E	30.00'
L185	S00°15'14"E	5.00'
L186	S89°45'02"W	26.00'
L187	N00°15'14"W	5.00'
L188	S89°45'02"W	30.00'
L189	N00°15'14"W	3.00'
L190	N89°45'02"E	30.00'
L191	S00°15'14"E	3.00'
L192	S89°44'46"W	33.99'
L193	N00°15'30"W	3.00'
L194	S00°15'14"E	3.00'
L195	S89°44'56"W	11.00'
L196	N00°15'14"W	1.00'
L197	N89°45'02"E	15.00'
L198	N00°15'14"W	18.00'
L199	N89°45'02"E	15.00'
L200	S00°15'14"E	4.00'
L201	S89°44'46"W	33.98'
L202	N00°15'30"W	3.00'
L203	N89°44'46"E	33.98'
L204	S00°15'14"E	3.00'
L205	N89°44'46"E	33.99'
L206	N89°45'02"E	26.00'
L207	S00°15'14"E	1.00'
L208	S89°45'02"W	30.00'
L209	N00°15'14"W	1.00'
L210	N89°45'02"E	26.00'
L211	S00°15'14"E	1.00'
L212	S89°45'02"W	30.00'
L213	N00°15'14"W	1.00'
L214	S89°45'02"W	30.00'
L215	N00°15'14"W	3.00'
L216	N89°45'02"E	30.00'
L217	S00°15'14"E	3.00'
L218	S89°45'02"W	30.00'
L219	N00°15'14"W	3.00'
L220	N89°45'02"E	30.00'
L221	S00°15'14"E	3.00'
L222	N89°44'46"E	126.00'
L223	N00°15'14"W	13.00'
L224	N89°44'46"E	38.50'
L225	N00°15'14"W	83.06'
L226	N89°44'46"E	21.02'
L227	N89°44'04"E	23.12'
L228	S04°42'57"E	23.69'
L229	S00°15'56"E	30.00'
L230	S04°18'18"W	25.10'
L231	N89°44'04"E	23.00'
L232	S89°44'04"W	24.13'
L233	N00°15'14"W	15.47'
L234	N89°44'46"E	15.00'
L235	N00°15'14"W	135.00'
L236	S89°44'46"W	15.00'
L237	N00°15'14"W	3.00'
L238	N89°44'46"E	15.00'
L239	N00°15'14"W	135.00'
L240	N00°15'14"W	15.00'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L241	S89°44'46"W	5.58'
L243	N89°44'48"E	11.45'
L244	S00°15'14"E	91.00'
L245	S00°14'09"E	100.02'
L246	S89°44'48"W	15.00'
L247	S00°15'20"E	4.00'
L248	S75°55'23"W	25.62'
L249	N89°44'48"E	15.00'
L250	S00°15'14"E	135.00'
L251	S89°44'48"W	15.00'
L252	S00°15'14"E	3.00'
L253	N89°44'48"E	15.00'
L254	S00°15'15"E	46.00'
L255	S89°44'49"W	15.00'
L256	S00°15'13"E	0.71'
L257	N89°44'46"E	24.09'
L258	S89°44'46"W	24.09'
L259	S00°15'13"E	3.00'
L260	N89°44'47"E	15.00'
L261	S00°15'13"E	45.00'
L262	S89°44'47"W	13.00'
L263	S00°15'14"E	20.78'
L264	N89°45'02"E	11.84'
L265	N00°14'58"W	15.00'
L266	S89°44'46"W	15.00'
L267	N00°15'14"W	7.98'
L268	N89°45'02"E	24.09'
L269	N89°44'46"E	22.98'
L270	S00°12'03"E	19.14'
L271	N04°52'03"W	25.10'
L272	N00°17'51"W	45.00'
L273	N89°44'46"E	23.02'
L274	N04°17'49"E	24.97'
L275	N89°45'02"E	24.02'
L276	S00°15'14"E	22.50'
L277	S89°45'02"W	15.00'
L278	S00°15'14"E	135.00'
L279	S00°15'14"E	9.00'
L280	S00°15'14"E	99.00'
L281	N89°45'02"E	15.00'
L283	S89°44'56"W	34.06'
L284	N89°44'56"E	22.98'
L285	S05°04'24"E	23.14'
L286	S00°17'37"E	32.00'
L287	N89°44'56"E	13.01'
L288	S07°50'46"W	13.51'
L289	S89°44'56"W	39.01'
L290	N00°15'04"W	13.00'
L291	S89°44'56"W	45.00'
L292	S00°15'04"E	15.00'
L293	S89°44'56"W	3.00'
L294	N00°15'04"W	15.00'
L295	S00°14'58"E	15.00'
L296	N89°45'02"E	1.84'
L297	N00°15'14"W	23.00'
L298	S89°45'02"W	16.83'
L299	S00°14'58"E	17.00'
L300	N89°45'02"E	30.00'
L301	S00°15'14"E	5.01'
L302	S89°45'02"W	26.00'

LINE TABLE		
NUMBER	DIRECTION	LENGTH
L303	N00°15'14"W	5.01'
L304	N89°45'02"E	15.00'
L305	S00°15'14"E	5.01'
L306	S89°45'02"W	35.00'
L307	N00°15'14"W	5.01'
L308	N89°45'02"E	15.00'
L309	N00°15'14"W	99.00'
L310	S00°15'14"E	9.00'
L311	S89°45'02"W	15.00'
L312	N00°15'14"W	3.00'
L313	N89°45'02"E	15.00'
L314	S00°15'14"E	9.00'
L315	N00°15'14"W	108.00'
L316	N00°14'58"W	9.00'
L317	S89°45'02"W	15.00'
L318	N00°15'14"W	1.00'
L319	N89°45'02"E	35.00'
L320	N00°14'58"W	9.00'
L321	N89°45'02"E	35.00'
L323	S00°15'14"E	1.00'
L324	S89°45'02"W	15.00'
L325	S00°15'14"E	108.00'
L326	N89°45'02"E	15.00'
L327	S00°15'14"E	3.00'
L328	S89°45'02"W	15.00'
L329	S00°15'14"E	99.00'
L330	N89°45'02"E	15.00'
L331	S89°45'02"W	15.00'
L332	S00°15'14"E	3.00'
L333	S89°45'02"W	30.00'
L334	N89°45'02"E	30.00'
L335	N00°15'14"W	3.00'
L336	S00°15'14"E	3.00'
L337	N89°45'02"E	26.00'
L338	S00°15'14"E	1.00'
L339	S89°45'02"W	30.00'
L340	N00°15'14"W	1.00'
L341	S00°15'14"E	5.01'
L342	S00°15'14"E	9.00'
L343	S43°15'01"W	14.43'

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
DENVER, COLORADO 80202
303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BERNEY
48232
09/06/2024

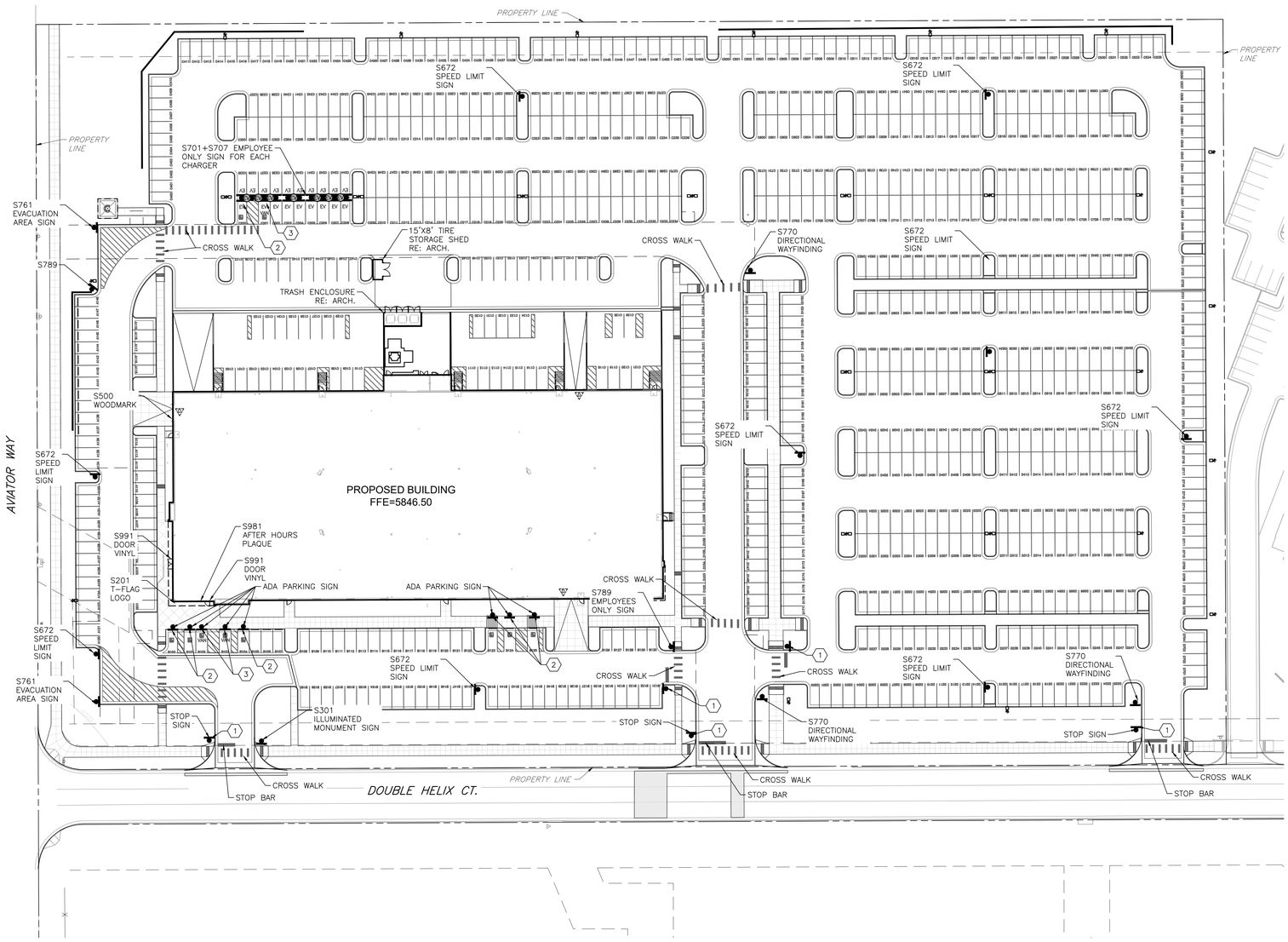
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
LINE AND CURVE TABLE

C706

G:\EVOLVE\P23\0136.SHE\X-WIP\DRG\SDP_ARCH\SDP01 - DETAILED HORIZONTAL CONTROL PLAN.DWG



SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE

SIGNAGE LEGEND

1. STOP — R1-1, 30 X 30
2. RESERVED PARKING — R7-8, 12 X 18
3. RESERVED PARKING — R7-8, 12 X 18; VAN ACCESSIBLE — R7-8B, 18 X 9

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

SIGNAGE & STRIPING NOTES:

1. ALL SIGNING AND STRIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST ADDITION.
2. ALL PRIVATE STRIPING SHOWN IS STANDARD TRAFFIC MARKING PAINT (*WHITE* COLOR), UNLESS OTHERWISE NOTED.
3. ALL SIGNS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 7' FROM GROUND TO BOTTOM OF SIGN.
4. TRAFFIC SIGN MATERIAL SHALL BE REFLECTIVE ALUMINUM.
5. SEE DETAIL SHEETS FOR SITE DETAILS.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

N

40 20 0 40 80
SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
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12499 West Colfax Ave
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303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

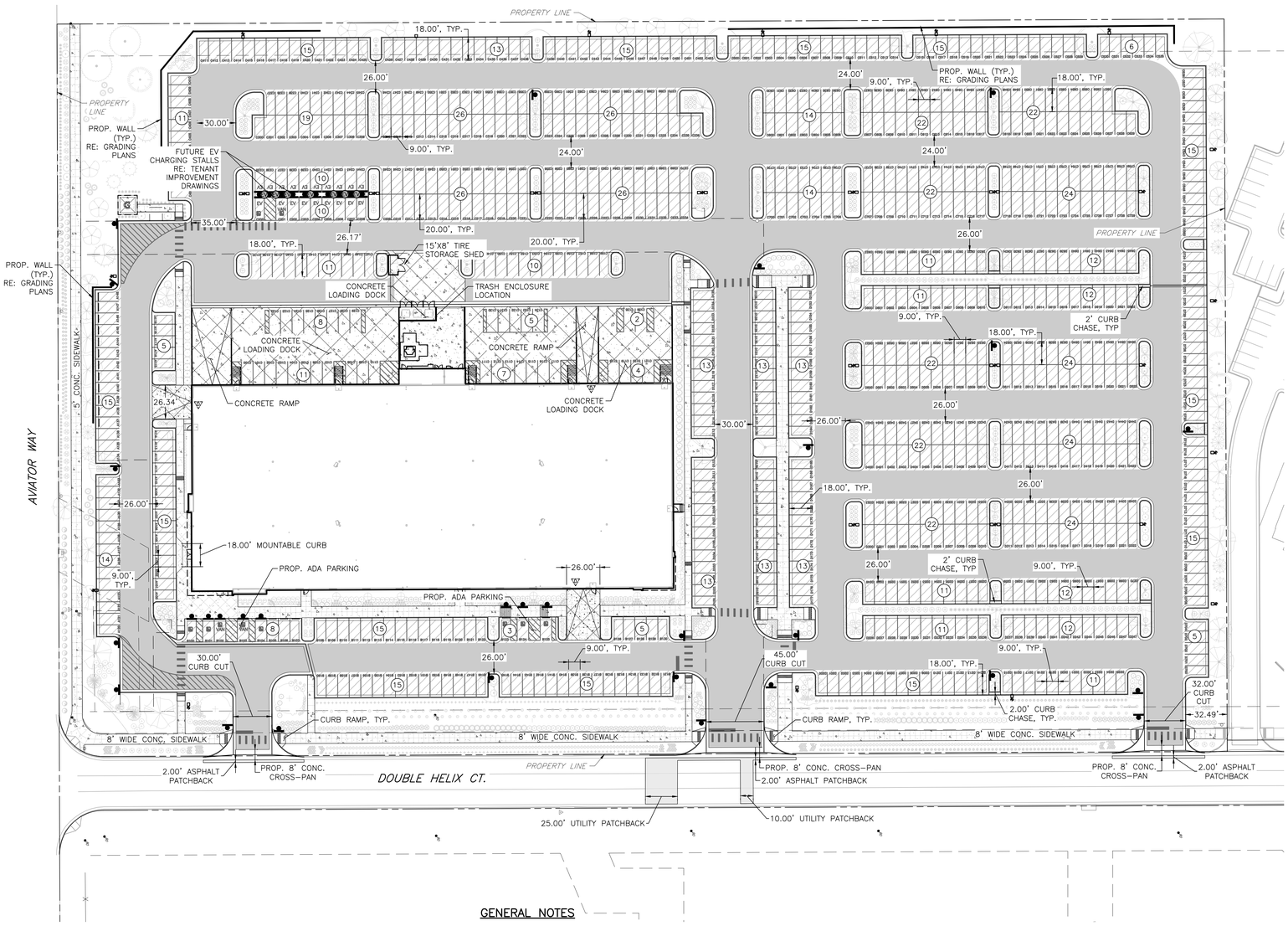
COLORADO REGISTERED PROFESSIONAL ENGINEER — DANIEL EDWARD BERGER — 48232 — 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB
Copyright:	

Sheet Name
SIGNAGE & STRIPING PLAN

C710



SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE

HEAVY DUTY PAVEMENT
5" HMA OVER 10" ABC OVER 3' OVEREXCVATED, SCARIFIED, MOISTURE CONDITIONED, AND RECOMPACTED SUBGRADE.

LIGHT DUTY PAVEMENT
4" HMA OVER 8" ABC OVER 3' OVEREXCVATED, SCARIFIED, MOISTURE CONDITIONED, AND RECOMPACTED SUBGRADE.

CONCRETE/SIDEWALK
4" PCC OVER 6" ABC OVER 3' OVEREXCVATED, SCARIFIED, MOISTURE CONDITIONED, AND RECOMPACTED SUBGRADE.

HEAVY DUTY CONCRETE
7" PCC W/ #5 12" E.W.O.C. OVER 6" ABC OVER 3' OVEREXCVATED, SCARIFIED, MOISTURE CONDITIONED, AND RECOMPACTED SUBGRADE.

N

40 20 0 40 80
SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

SUMMARY OF RECOMMENDED MINIMUM PAVEMENT ALTERNATIVES

Traffic Classification	Hot Mix Asphalt (HMA) + Aggregate Base (ABC)	Hot Mix Asphalt (HMA)	Portland Cement Concrete (PCC)
Automobile Parking Area	4" HMA* + 8" ABC	6" HMA	6" PCC
Access Drives and Truck/Fire Lanes	5" HMA + 10" ABC	8" HMA	6" PCC
Loading Docks	-	-	7" PCC

PAVING TABLE ON PAGE 26 OF THE GEOTECHNICAL INVESTIGATION ENTITLED "HELIX INDUSTRIAL BUILDINGS C AND D" DATED FEBRUARY 23, 2024.

GENERAL NOTES

1. ALL DIMENSIONS, CURVE DATA AND LINE DATA ARE AT FLOWLINE UNLESS OTHERWISE NOTED.
2. ALL CURB AND GUTTER WITHIN PARKING AREA IS SIX INCHES (6") VERTICAL CURB WITH 1' PAN, UNLESS OTHERWISE NOTED. ALL CURB AND GUTTER WITHIN RIGHT-OF-WAY IS SIX INCHES (6") VERTICAL WITH 2' PAN UNLESS OTHERWISE NOTED.
3. CONTRACTOR TO SUBMIT JOINT PATTERN FOR CONCRETE PAVEMENT, PRIOR TO CONSTRUCTION, FOR APPROVAL. SEE JOINT DETAILS IN PLANS.
4. REFER TO LANDSCAPE/ARCHITECT PLANS FOR FINAL SIDEWALK HANDICAP RAMP LAYOUT AND DETAILS AND FOR LANDSCAPING REQUIREMENTS.
5. THESE PLANS ARE BASED UPON THE ARCHITECTURAL BUILDING PLANS PREPARED BY MOA ARCHITECTURE, DATED 07/31/2024 AS PROVIDED DIGITALLY. ANY SUBSEQUENT REVISIONS TO BUILDING PLANS ARE NOT REFLECTED IN THIS PLAN SET. CONTRACTOR TO VERIFY AND COORDINATE DOOR LOCATIONS WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCY.
6. PAVING, SIGNAGE, AND STRIPING IN THE ROW SHALL BE IN CONFORMANCE WITH JURISDICTIONAL STANDARDS.
7. ALL HANDICAP RAMPS SHALL BE CONSTRUCTED WITH DETECTABLE WARNING PADS. REFERENCE DETAIL.
8. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FROM PLANS.
9. CONTRACTOR SHALL REMOVED AND REPLACE DAMAGED CURB, CUTTER, PAVING AND LANDSCAPED AREAS OUTSIDE THE LIMITS OF SITE AND RESTORE BACK TO ITS ORIGINAL CONDITION.
10. PAVEMENT THICKNESS PER GEOTECH REPORT.
11. ALL PUBLIC STOP SIGNS TO BE 36"X36".
12. REFER TO GEOTECHNICAL REPORT FOR BUILDING FOOTPRINT OVEREXCAVATION REQUIREMENTS.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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303.308.1190
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martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED DANIEL EDWARD BERGER 48232 PROFESSIONAL ENGINEER 09/06/2024

REVISION	DATE
100% CD's	

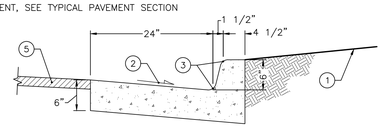
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB
Copyright:	

Sheet Name
PAVING PLAN

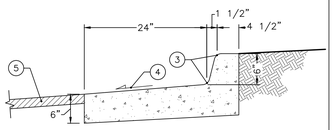
C720

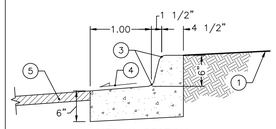
NOTES:

1. BACKFILL, SEE DETAIL OF CUT/FILL SLOPE
2. SLOPE AT 1" PER FOOT
3. 1 1/2" RADIUS TYPICAL
4. SLOPE AT 1/2" PER FOOT.
5. PAVEMENT, SEE TYPICAL PAVEMENT SECTION



STANDARD SECTION





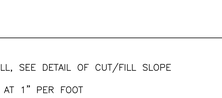
MEDIAN SECTION

6 INCH VERTICAL CURB AND GUTTER

NOTES:

1. UNLESS OTHERWISE APPROVED, CONSTRUCT COMBINATION CURB, GUTTER, AND SIDEWALK IN 10' MONOLITHIC SECTIONS WITH CONTRACTION JOINTS BETWEEN SECTIONS.
2. CONSTRUCT SIDEWALK IN 100' TO 120' MONOLITHIC SECTIONS. PROVIDE EXPANSION JOINTS EVERY 100' TO 120'. INSTALL EXPANSION JOINT MATERIAL BETWEEN NEW SIDEWALK AND EXISTING CONCRETE SLABS, POLES, FIRE HYDRANTS, BUILDINGS, ETC. SET EXPANSION JOINT MATERIAL VERTICAL AND WITH THE TOP EDGE BELOW FINISHED SURFACE OF CONCRETE.

DUMMY GROOVE JOINT,
CURB AND GUTTER @ 5' O.C.



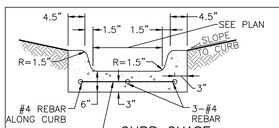
DUMMY GROOVE JOINT, SIDEWALK
@ 5' O.C.

CONTRACTION JOINTS

EXPANSION JOINTS

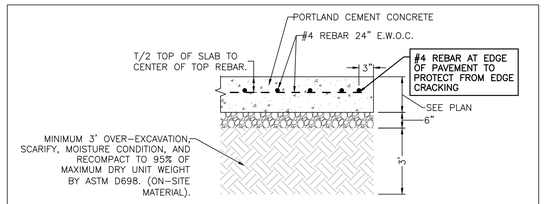
SIDEWALK AND CURB & GUTTER JOINTS

NOT TO SCALE
M/M 2009



CURB CHASE

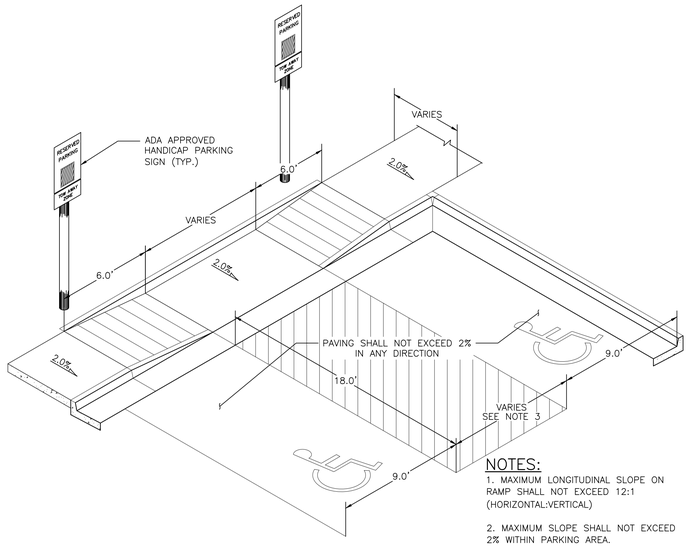
NOT TO SCALE
M/M 2009



NOTE:
1. REFER TO GEOTECHNICAL EVALUATION BY CTL THOMPSON, INC.. DATED FEBRUARY 23, 2024 FOR GEOTECHNICAL RECOMMENDATIONS.
2. INSTALL EXPANSION JOINT MATERIAL BETWEEN NEW PAVEMENT AND EXISTING CONCRETE SLABS, POLES, FIRE HYDRANTS, BUILDINGS, COLUMNS, ETC. SET EXPANSION JOINT MATERIAL VERTICAL AND WITH THE TOP EDGE BELOW FINISHED SURFACE OF CONCRETE.

TYPICAL CONCRETE PAVEMENT SECTION

NOT TO SCALE

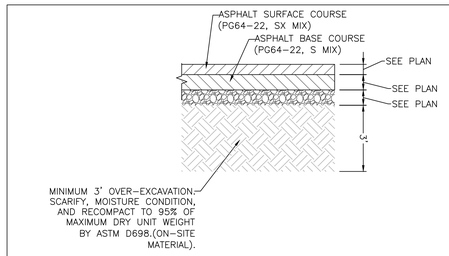


ADA ACCESSIBLE RAMP AND PARKING DETAIL

NOT TO SCALE

NOTES:

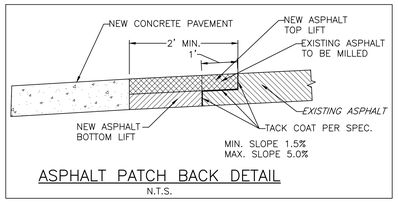
1. MAXIMUM LONGITUDINAL SLOPE ON RAMP SHALL NOT EXCEED 12:1 (HORIZONTAL:VERTICAL)
2. MAXIMUM SLOPE SHALL NOT EXCEED 2% WITHIN PARKING AREA.
3. MINIMUM 5' FOR STANDARD ACCESSIBLE SPACE.
   MINIMUM 8' FOR VAN ACCESSIBLE SPACE



NOTE:
1. REFER TO GEOTECHNICAL STUDY BY CTL THOMPSON, INC. DATED FEBRUARY 23, 2024 FOR GEOTECHNICAL RECOMMENDATIONS.

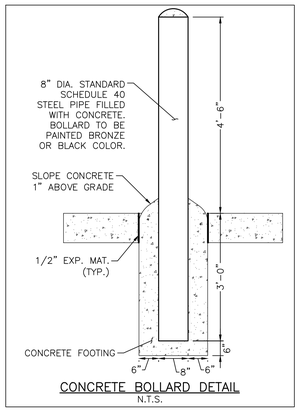
TYPICAL ASPHALT PAVEMENT SECTION

NOT TO SCALE



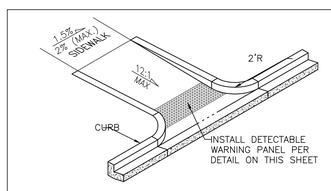
ASPHALT PATCH BACK DETAIL

N.T.S.



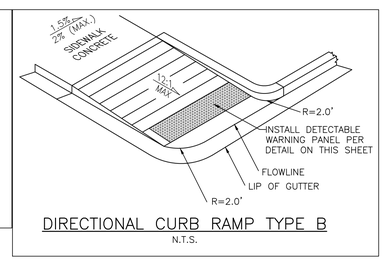
CONCRETE BOLLARD DETAIL

N.T.S.



DIRECTIONAL CURB RAMP TYPE A

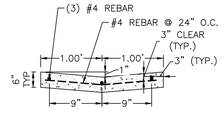
N.T.S.



DIRECTIONAL CURB RAMP TYPE B

N.T.S.

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



NOTE:
SAWCUT OR TOOLED JOINT AT 10' O.C.

2' CONCRETE PAN

NOT TO SCALE

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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09/06/2024

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Project Number	23.0136
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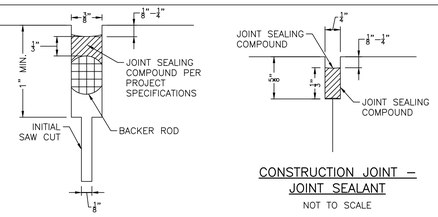
Drawn By	JD/SK
Checked By:	DB

Sheet Name
SITE DETAILS SHEET

C900

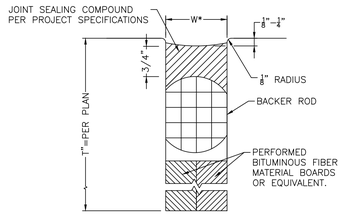


CONSTRUCTION JOINT – JOINT SEALANT

NOT TO SCALE

SAWED CONTRACTION JOINT

NOT TO SCALE



*NOTE: WIDTH (W) OF PREFORMED JOINT MATERIAL IS 1/2" FOR ISOLATION JOINTS AND 3/4" FOR EXPANSION JOINTS.

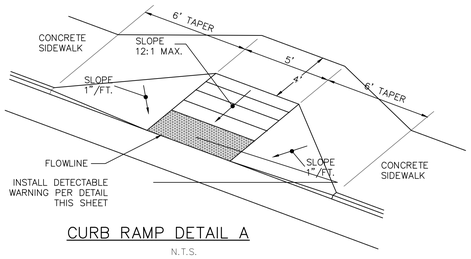
FORMED EXPANSION OR ISOLATION JOINT

NOT TO SCALE

JOINT SEALING DETAILS

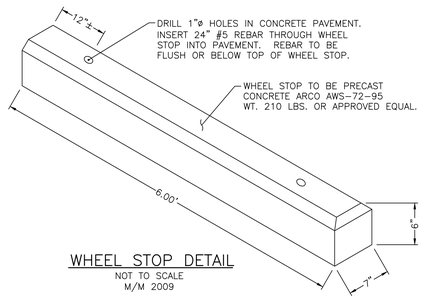
CONCRETE JOINT NOTES:

1. DOWEL BARS ARE 1" Ø, 18" LONG SPACED @ 15" O.C. AND ARE TO BE 12" (MIN.) TO 16" (MAX.) FROM A PANEL CORNER.
2. REBAR IS TO STOP 4"±1" FROM CONSTRUCTION JOINTS AND EXPANSION JOINTS.
3. STRUCTURE EXPANSION JOINTS SHALL BE CONSTRUCTED AROUND THE COMPLETE PERIMETER OF MISCELLANEOUS STRUCTURES OR AS DIRECTED BY THE ENGINEER.
4. MISCELLANEOUS STRUCTURES INCLUDE, BUT ARE NOT LIMITED TO, BUILDINGS, GARAGES, MANHOLES, VAULTS, CATCH BASINS, WALLS, BOLLARDS AND OTHER CONCRETE.
5. TIE BAR TO BE #4 DEFORMED BAR WITH 24" LONG LAP LENGTH PLACED 30" ON CENTER AND ARE TO BE 12" MIN. FROM PANEL CORNER.



CURB RAMP DETAIL A

N.T.S.

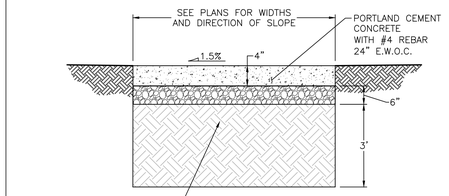


WHEEL STOP DETAIL

NOT TO SCALE
M/M 2009

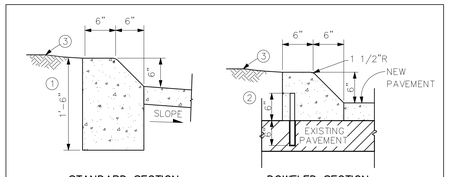
NOTES:

1. UNLESS OTHERWISE APPROVED, CONSTRUCT COMBINATION CURB, GUTTER AND SIDEWALK IN 10' MONOLITHIC SECTIONS WITH CONTRACTION JOINTS BETWEEN SECTIONS.
2. CONSTRUCT SIDEWALK IN 100' TO 120' MONOLITHIC SECTIONS. PROVIDE EXPANSION JOINTS EVERY 100' TO 120'. INSTALL EXPANSION JOINT MATERIAL BETWEEN NEW SIDEWALKS AND EXISTING CONCRETE SLABS, POLES, FIRE HYDRANTS, BUILDINGS, ETC. SET EXPANSION JOINT MATERIAL VERTICAL AND WITH THE TOP EDGE BELOW FINISHED SURFACE OF CONCRETE.
3. REFER TO GEOTECHNICAL EVALUATION BY CTL THOMPSON, INC. DATED FEBRUARY 23, 2024 FOR GEOTECHNICAL RECOMMENDATIONS.



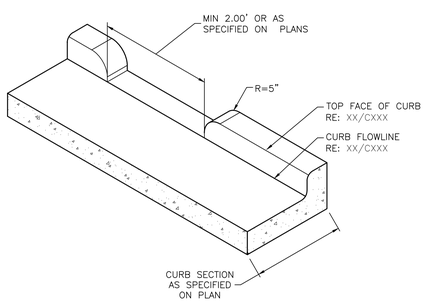
TYPICAL SIDEWALK DETAIL

NOT TO SCALE
M/M 2009



6" MOUNTABLE CURB

N.T.S.

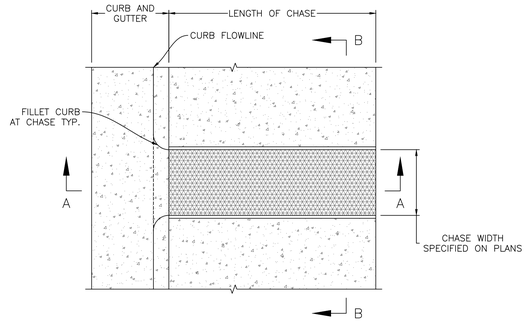


NOTES:

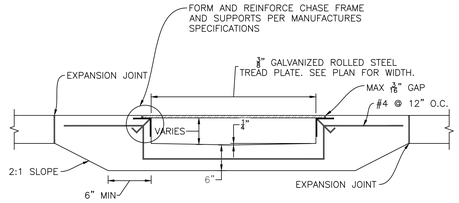
1. FORM CURB CUT INTO SECTION OF STANDARD CURB & GUTTER AT LOCATION DRAWN ON PLANS.
2. SLOPE FOR DRAINAGE.

XX CURB CUT

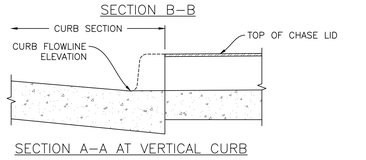
NOT TO SCALE



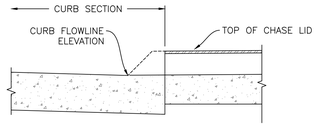
PLAN VIEW



SECTION B–B



SECTION A–A AT VERTICAL CURB



SECTION A–A AT MOUNTABLE CURB

NOTES:
1. CHASE FRAME BE NEENAH R-4999 WITH A SOLID LID OR APPROVED EQUAL MEETING OR EXCEEDING AASHTO DESIGN LIVE LOAD CASE HL-93

XX SIDEWALK CHASE

NOT TO SCALE

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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48232
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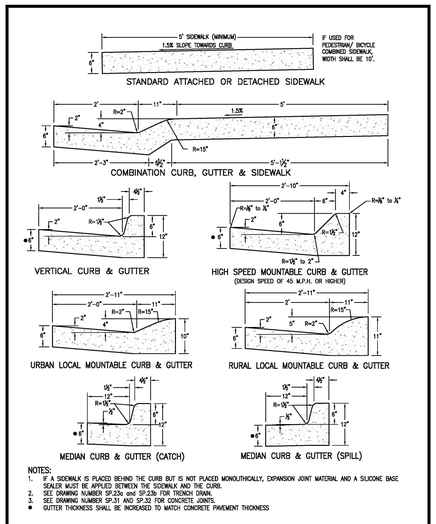
Sheet Name
SITE DETAILS SHEET

C901

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

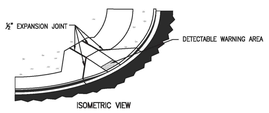


NOTES:
1. IF A SIDEWALK IS PLACED BEHIND THE CURB BUT IS NOT PLACED MONOLITHICALLY, EXPANSION JOINT MATERIAL AND A SILICONE BASE SEALER MUST BE APPLIED BETWEEN THE SIDEWALK AND THE CURB.
2. SEE DRAWING NUMBER SP.23c and SP.23b FOR TRENCH DRAIN.
3. SEE DRAWING NUMBER SP.31 AND SP.32 FOR CONCRETE JOINTS.
- GUTTER THICKNESS SHALL BE INCREASED TO MATCH CONCRETE PAVEMENT THICKNESS

APPROVED BY DOUGLAS COUNTY	CURB & GUTTERS AND SIDEWALKS	Issued: 05/2013
Janet Herman		Revised: 10/2021
JANET HERMAN, P.E. DIRECTOR OF PUBLIC WORKS ENGINEERING	DOUGLAS COUNTY COLORADO	Drawing No. SP.17
DATE 10/1/2021		

CURB RAMP GENERAL NOTES:

1. IN ACCORDANCE WITH CRS43-2-107(2), ADA COMPLIANT CURB RAMPS SHALL BE PROVIDED AT ALL PEDESTRIAN CROSSINGS AND AT PUBLIC TRANSPORTATION STOPS WHERE WALKWAYS INTERSECT A CURB. THESE LOCATIONS USUALLY INCLUDE, BUT ARE NOT LIMITED TO STREET CROSSINGS AT INTERSECTIONS AND AT DESIGNATED MID-BLOCK LOCATIONS.
2. THE FOLLOWING CURB RAMP TYPES ARE GENERAL REPRESENTATIONS. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT), M STANDARD PLANS, LATEST EDITION PROVIDE ADDITIONAL ACCEPTABLE DETAILS. SEE DETAILED RAMP LAYOUTS ON THE PLANS FOR CONSTRUCTION.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF DOUGLAS COUNTY.
4. SIDEWALKS SHALL BE RAMPED WHERE A DRIVEWAY IS EXTENDED ACROSS THE WALK.
5. DETAILS SHOWN IN THE PLAN SHALL APPLY TO ALL CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS OR SIDEWALKS PER CURB RAMP DETAILS.
6. IN NEW CONSTRUCTION, RAMP AND CURB MAY BE POURED MONOLITHICALLY.
7. RAMP AND WINGS SHALL BE POURED MONOLITHICALLY.
8. MINIMUM WIDTH OF RAMPS SHALL BE 4 FEET AND RAMP SLOPES SHALL NOT BE STEEPER THAN 7.5%.
9. MAINTAIN BACK OF WALK ELEVATION AT 1.5% SLOPE FROM TOP OF CURB.
10. CONCRETE FOR SIDEWALK RAMPS SHALL BE CLASS "D".
11. A ½" EXPANSION JOINT SHALL BE REQUIRED WHERE THE CONCRETE RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
12. DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH RAMPS. LOCATION OF THE RAMP SHALL TAKE PRECEDENCE OVER LOCATION OF THE DRAINAGE STRUCTURE.



DETECTABLE WARNING AREA NOTES

1. DETECTABLE WARNING AREAS SHALL BE INSTALLED WITHIN CURB RAMPS AT ALL SIDEWALK/STREET TRANSITIONS, AS DESCRIBED BY THE AMERICAN'S WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG), LATEST REVISION.
2. DETECTABLE WARNING DEVICES SHALL BE TRUNCATED DOME WARNING DEVICES. COLOR SHALL BE BRICK RED, TILE RED, OR OTHER EQUIVALENT COLOR TO PROVIDE COLOR CONTRAST WITH ADJACENT SURFACES, AS REQUIRED BY ADAAG SECTION 4.29.2. THE COUNTY ENGINEER MUST APPROVE THE TRUNCATED DOME WARNING AREA COLOR PRIOR TO CONSTRUCTION.
3. CONTRASTING COLOR REQUIREMENT SHALL BE MET BY TRUNCATED DOME SECTIONS AND NOT BY USE OF COLORED CONCRETE.
4. DETECTABLE WARNING SHALL BE ON CDOT'S APPROVED MATERIALS LIST. A SAMPLE OF THE DETECTABLE WARNING (TRUNCATED DOMES) TO BE USED ON THE PROJECT SHALL BE SUBMITTED TO AND ACCEPTED BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION.
5. ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 INCHES AND A MAXIMUM OF 8 FEET FROM THE FLOW LINE OF THE CURB UNLESS INSTALLED AT CUT-THROUGH REFUGE ISLANDS, IN WHICH CASE THE DWA WILL START AT THE EDGE OF THE ISLAND. ALL DETECTABLE WARNING AREAS SHALL BE 24 INCHES IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
6. SURFACE APPLIED TRUNCATED DOME PANELS ARE ONLY ALLOWED ON PRE-EXISTING CURB RAMPS AND ARE NOT ALLOWED IN NEW CONSTRUCTION.

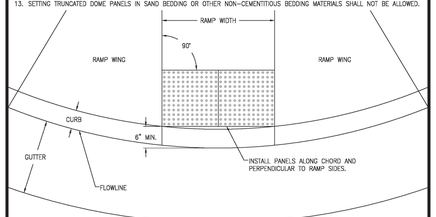
APPROVED BY DOUGLAS COUNTY	CURB RAMP & DETECTABLE WARNING AREA NOTES	Issued: 05/2013
Janet Herman		Revised: 05/2021
JANET HERMAN, P.E. DIRECTOR OF PUBLIC WORKS ENGINEERING	DOUGLAS COUNTY COLORADO	Drawing No. SP.18a
DATE 06/18/2021		

Panel Installation Notes:

1. DETECTABLE WARNING PANELS, 24" X 24" OR 24" X 30" IN SIZE, SHALL BE PREFABRICATED REDDISH WITH TRUNCATED DOMES AND COMPLY WITH ADA REQUIREMENTS. ONLY FULL PANELS SHALL BE USED TO OBTAIN SPECIFIC RAMP THROAT WIDTH, (I.E. TWO 24" PANELS FOR A 4' RAMP, TWO 30" PANELS FOR A 5' RAMP, ETC.)
2. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT, TO DOUGLAS COUNTY FOR APPROVAL, A SAMPLE PANEL AND DOCUMENTATION FROM THE MANUFACTURER. PANEL SURFACE SHALL HAVE A MINIMUM OF 70% LIGHT REFLECTIVITY CONTRAST WITH THE ADJOINING SURFACE. PANELS SHALL ONLY BE SELECTED FROM THE APPROVED PRODUCT LIST BELOW:

PRODUCT NAME	MANUFACTURER	PRODUCER SUPPLIER CODE
CAST-IN-PLACE	Pioneer Detectable, LLC	GIN130004
Cast-In-Place Tactile	ADA Solutions, Inc.	GEN100123
DURALAST	EJ USA, Inc.	GEN130020
Detectable Warning Paving Slab	StoneSR Concepts	GIN100341
TekWay Dome-Tiles	Strongtie, LLC	GIN100343
Tuffile Cast Iron Tile/Radius-Wedge (CIP)	Tuffile, Inc.	GEN150088

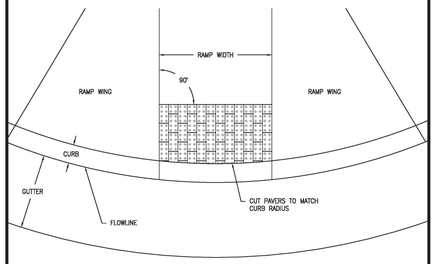
3. PANELS SHALL BE PLACED AS SHOWN, WITH DOME PATTERN IN A SQUARE GRID AND ALIGNED IN THE DIRECTION OF TRAVEL. A STEEL TEMPLATE SHALL BE USED TO ENSURE PROPER ALIGNMENT AND UNIFORM GRADE.
4. REMOVE THE PROPER AMOUNT OF CONCRETE WITHIN THE TEMPLATE FOR AN ACCURATE INSTALLATION. ONCE TO THE PROPER DEPTH, FLOAT THE AREA TO RECEIVE THE PANELS UNTIL A SMOOTH PASTE HAS DEVELOPED.
5. WET THE BACK SIDE OF EACH PANEL AND TROWEL SOME CONCRETE PASTE OR APPROVED BONDING AGENT OVER THE WET SURFACE FOR BETTER ADHERENCE.
6. SET THE FIRST PANEL ON THE FRESHLY PREPARED SURFACE. DO NOT PRESS DOWN HARD ON THE PANEL, BUT PREFERABLY TWIST FROM SIDE TO SIDE. SET PANEL WITH RUBBER MALLET TO PROPER DEPTH SO THAT THE BASE OF THE TRUNCATED DOME IS AT THE SAME ELEVATION AS THE ADJOINING RAMP SURFACE.
7. SET SUCCESSIVE PANELS WITH A TIGHT BUTT JOINT AGAINST THE PREVIOUSLY SET PANEL. PROVIDE A ¼" GAP BETWEEN PANELS.
8. FLOAT FRESH CONCRETE AROUND PANELS. FINISH AND BROOM SURROUNDING CONCRETE AS SPECIFIED. CLEAN ANY CONCRETE OFF PANELS WITH A SPONGE.
9. PROVIDE 1" DEEP TOOL JOINTS AT CORNERS OF DETECTABLE WARNING AREA, AND TOOL AROUND PANELS WITH ¼" RADIUS EDGER.
10. WHEN CUT PANELS ARE REQUIRED, CUT SECTIONS SHALL NOT SIGNIFICANTLY IMPACT OVERALL TRUNCATED DOMES PATTERN AND CUT DOMES SHALL BE BEVELED AT A 45-DEGREE ANGLE TO CREATE A SMOOTH TRANSITION.
11. ANY PANELS THAT ARE DAMAGED DURING TRANSPORT OR INSTALLATION WILL BE REJECTED AND SHALL NOT BE INSTALLED.
12. CLEAN OUT ¼" JOINT(S) BETWEEN PANELS AND SEAL WITH EPOXY.
13. SETTING TRUNCATED DOME PANELS IN SAND BEDDING OR OTHER NON-CEMENTITIOUS BEDDING MATERIALS SHALL NOT BE ALLOWED.



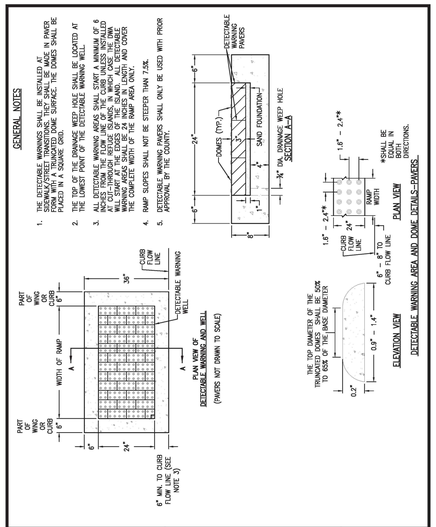
	CURB RAMP WITH PANEL DETECTABLE WARNING AREA INSTALLATION	Issued: 05/2013
		Revised: 09/2017
	DOUGLAS COUNTY COLORADO	Drawing No. SP.18b

Paver Installation Notes:

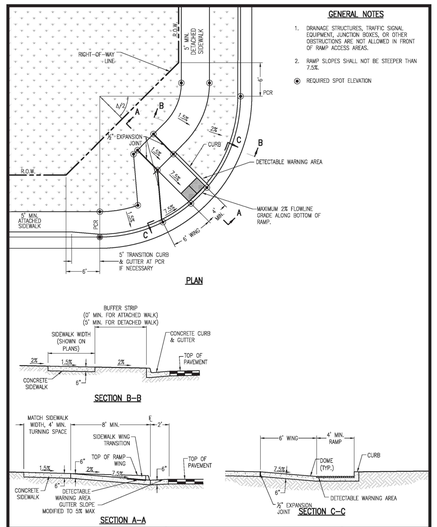
1. DETECTABLE WARNING PAVERS SHALL BE PREFABRICATED REDDISH INTEGRALLY COLORED TRUNCATED DOMES SURFACED CONCRETE OR MASONRY PAVERS. PAVERS SHALL MEET THE REQUIREMENTS OF ASTM C 902 OR ASTM C 936 AND COMPLY WITH ADA REQUIREMENTS.
2. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT, TO DOUGLAS COUNTY FOR APPROVAL, A SAMPLE PAVER AND DOCUMENTATION FROM THE MANUFACTURER. PAVERS SURFACE SHALL HAVE A MINIMUM OF 70% LIGHT REFLECTIVITY CONTRAST WITH THE ADJOINING SURFACE.
3. WELL FOR PAVERS SHALL BE ACCURATELY BLOCKED OUT TO ENSURE PROPER DEPTH, ALIGNMENT, AND UNIFORM GRADE. ONLY FULL WIDTH PAVERS SHALL BE USED TO OBTAIN SPECIFIED RAMP THROAT WIDTH.
4. PAVERS SHALL BE PLACED IN THE RUNNING PATTERN SHOWN, DOMES PLACED IN A SQUARE GRID AND ALIGNED IN THE DIRECTION OF TRAVEL. PAVERS SHALL BE INSTALLED SO THAT THE BASES OF THE TRUNCATED DOMES ARE AT THE SAME ELEVATION AS THE ADJOINING RAMP SURFACE.
5. SAND FOR BEDDING MATERIAL SHALL CONFORM TO ASTM C 33. SAND TO BE PLACED BETWEEN JOINTS SHALL CONFORM TO ASTM C 144.
6. BEDDING SAND SHALL BE SCREED TO THE APPROPRIATE DEPTH PRIOR TO THE PAVERS INSTALLATION. A PLATE VIBRATOR SHALL BE USED TO EMBED THE PAVERS INTO THE SAND. ANY PAVERS THAT ARE DAMAGED DURING TRANSPORTATION OR INSTALLATION WILL BE REJECTED AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. WHEN CUT PAVERS ARE REQUIRED, CUT SECTIONS SHALL NOT SIGNIFICANTLY IMPACT OVERALL TRUNCATED DOMES PATTERN AND CUT DOMES SHALL BE BEVELED AT A 45-DEGREE ANGLE TO CREATE A SMOOTH TRANSITION.
8. JOINT SPACING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, BUT SHALL NOT BE MORE THAN ⅜". JOINTS SHALL BE FILLED COMPLETELY WITH SAND. EXCESS SAND SHALL BE REMOVED BY SWEEPING.
9. DETECTABLE WARNING PAVERS SHALL ONLY BE USED WITH PRIOR APPROVAL BY THE COUNTY.



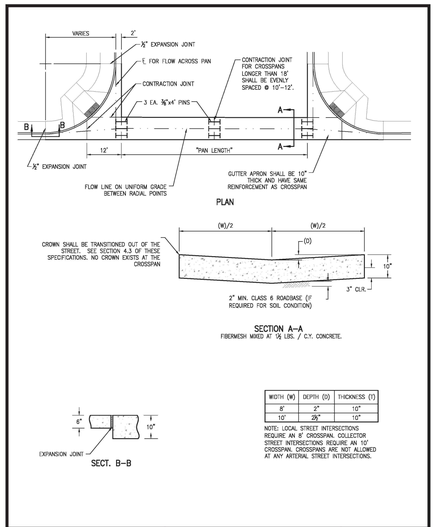
APPROVED BY DOUGLAS COUNTY	CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION	Issued: 05/2013
Janet Herman		Revised: 05/2021
JANET HERMAN, P.E. DIRECTOR OF PUBLIC WORKS ENGINEERING	DOUGLAS COUNTY COLORADO	Drawing No. SP.18c
DATE 06/18/2021		



APPROVED BY DOUGLAS COUNTY	CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION	Issued: 05/2013
Janet Herman		Revised: 05/2021
JANET HERMAN, P.E. DIRECTOR OF PUBLIC WORKS ENGINEERING	DOUGLAS COUNTY COLORADO	Drawing No. SP.18d
DATE 06/18/2021		



APPROVED BY DOUGLAS COUNTY	CURB RAMP FOR CURB RETURN RADIUS OF 20' TO 30'	Issued: 05/2013
Janet Herman		Revised: 07/2021
JANET HERMAN, P.E. DIRECTOR OF PUBLIC WORKS ENGINEERING	DOUGLAS COUNTY COLORADO	Drawing No. SP.19a
DATE 07/2021		



WIDTH (W)	DEPTH (D)	THICKNESS (T)
8'	2"	10"
10'	2½"	10"

NOTE: LOCAL STREET INTERSECTIONS REQUIRE AN 8' CROSSPAN. COLLECTOR STREET INTERSECTIONS REQUIRE AN 10' CROSSPAN. CROSSPANS ARE NOT ALLOWED AT ANY ARTERIAL STREET INTERSECTIONS.

	CROSSPAN	Issued: 05/2013
		Revised: 09/2017
	DOUGLAS COUNTY COLORADO	Drawing No. SP.21

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
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303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
SITE DETAILS SHEET

C902

SHEA HELIX WAREHOUSE

GRADING, EROSION, & SEDIMENT CONTROL PLANS

LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER FILING NO. 6, 7TH AMENDMENT
PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 1, TOWNSHIP 6 SOUTH,
RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
COUNTY OF DOUGLAS, STATE OF COLORADO

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

ABBREVIATIONS:

FFE	–	FINISHED FLOOR ELEVATION
ELEV	–	ELEVATION
STA	–	STATION
FGW	–	FINISHED GRADE AT BOTTOM OF WALL
TOW	–	TOP OF WALL ELEVATION
FL	–	FLOWLINE
TOC	–	TOP OF CURB
BOC	–	BACK OF CURB
EOA	–	EDGE OF ASPHALT
EOP	–	END OF PAN
CL	–	CENTERLINE
ST	–	STORM SEWER
SS	–	SANITARY SEWER
IRR	–	IRRIGATION
DIP	–	DUCTILE IRON PIPE
RCP	–	REINFORCED CONCRETE PIPE
PVC	–	POLYVINYL CHLORIDE PIPE
PERF.	–	PERFORATED PIPE
GV	–	GATE VALVE
MH	–	MANHOLE
FES	–	FLARED END SECTION
GR	–	GRATE
INV.	–	INVERT ELEVATION
*TOW	–	TOP OF WATER*
BOW	–	BOTTOM OF WATER
TOST	–	TOP OF STORM SEWER
BOST	–	BOTTOM OF STORM SEWER
TOSS	–	TOP OF SANITARY SEWER
BOSS	–	BOTTOM OF SANITARY SEWER
TOP	–	TOP OF PIPE
HGL	–	HYDRAULIC GRADE LINE
EXIST	–	EXISTING
ESMT	–	EASEMENT
ROW	–	RIGHT OF WAY
GB	–	GRADE BREAK
HP	–	HIGH POINT
LP	–	LOW POINT
MIN.	–	MINIMUM
MAX.	–	MAXIMUM
TYP.	–	TYPICAL
SW	–	SIDEWALK
DTL.	–	DETAIL
SHT.	–	SHEET

*NOTE: TOW SHALL BE TOP OF WATER ON UTILITY SHEETS ONLY AND TOP OF WALL ON ALL OTHER SHEETS.

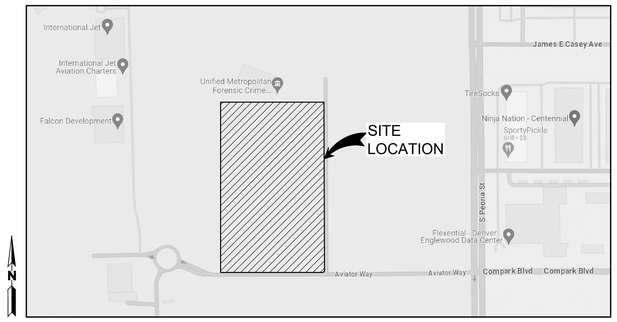
AGENCY LISTING:

DOUGLAS COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
100 THIRD STREET
CASTLE ROCK, CO 80104
PHONE: (303) 660-7490

SOUTH METRO FIRE RESCUE AUTHORITY
AARON MILLER
9195 E. MINERAL AVE
CENTENNIAL, CO 80112
PHONE: (720) 989-2246

MERIDIAN METROPOLITAN DISTRICT
RANDY GABRIEL, P.E.
12111 EAST BELFORD AVE.
ENGLEWOOD, CO 80112
PHONE: (303) 790-0345

CIVIL ENGINEER:
DAN BEARSE, P.E.
MARTIN/MARTIN INC.
12499 W. COLFAX AVE.
LAKEWOOD, COLORADO 80215
PHONE: 303-431-6100



VICINITY MAP:
SCALE: 1"=150'

SHEET INDEX

SHEET #	SHEET TITLE
GESC1	GESC COVER SHEET
GESC2	INITIAL GESC PLAN
GESC3	INITIAL GESC PLAN – EAST LOT
GESC4	INTERIM & FINAL GESC PLAN
GESC5	INTERIM GESC PLAN – EAST LOT
GESC6	GESC STANDARD NOTES & DETAILS
GESC7	GESC STANDARD NOTES & DETAILS
GESC8	GESC STANDARD NOTES & DETAILS

FLOODPLAIN NOTE:

ACCORDING TO FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBER [xxx] DATED [xxx] THE SUBJECT PROPERTY LIES WITHIN AN AREA DESIGNATED AS ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

BMP MAINTENANCE NOTE:

ALL EROSION AND SEDIMENT CONTROL PRACTICES AND OTHER PROTECTIVE MEASURE IDENTIFIED IN THE GESC MUST BE MAINTAINED IN EFFECTIVE OPERATION CONDITION. PROPER SELECTION AND INSTALLATION OF BMPS AND IMPLEMENTATION OF COMPREHENSIVE INSPECTION AND MAINTENANCE PROCEDURES, IN ACCORDANCE WITH THE GESC, SHOULD BE ADEQUATE TO MEET THIS CONDITION. BMPS THAT ARE NOT ADEQUATELY MAINTAINED IN ACCORDANCE WITH GOOD ENGINEERING, HYDROLOGIC AND POLLUTION CONTROL PRACTICES, INCLUDING REMOVAL OF COLLECTED SEDIMENT OUTSIDE THE ACCEPTABLE TOLERANCE OF THE BMPS, ARE CONSIDERED TO BE NO LONGER OPERATING EFFECTIVELY AND MUST BE ADDRESSED.

GESC NOTE:

THE GRADING, EROSION, AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PLACED IN THE DOUGLAS COUNTY FILE FOR THIS PROJECT AND APPEARS TO FULFILL APPLICABLE DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL CRITERIA, AS AMENDED. ADDITIONAL GRADING, EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED OF THE PERMITTEE(S) DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED GESC PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS GESC PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE PERMITTEE(S), UNTIL SUCH TIME AS THE GESC PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

ESTIMATED EARTHWORK QUANTITIES:

TOTAL CUT:	16,893	CY	<CUT>
TOTAL FILL:	19,831	CY	<FILL>
PAVEMENT:	12,520	CY	<CUT>
NET EARTHWORK:	10,988*±	CY	<CUT/EXPORT>

*NET EARTHWORK CALCULATIONS ARE FOR THE DEVELOPMENT OF THE WEST SITE (LOT 2A-1A). EXCESS MATERIALS WILL STOCKPILED ON THE EAST LOT (LOT 3A-1).

BMP LEGEND

	CD	CHECK DAM
	CB	COMPOST BLANKET
	CFB	COMPOST FILTER BERM
	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	CM	CONSTRUCTION MARKER
	DW	DEWATERING
	DD	DIVERSION DITCH
	ECB	EROSION CONTROL BLANKET
	IP	INLET PROTECTION
	RCD	REINFORCED CHECK DAM
	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SCL	SEDIMENT CONTROL LOG
	ST	SEDIMENT TRAP
	SM	SEEDING AND MULCHING
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	SR	SURFACE ROUGHENING
	TSD	TEMPORARY SLOPE DRAIN
	TSC	TEMPORARY STREAM CROSSING
	TER	TERRACING
	VTC	VEHICLE TRACKING CONTROL
	WW	VTC WITH WHEEL WASH
		ROCK AND RIPRAP GRADATIONS
	LOC	LIMITS OF CONSTRUCTION
	SS	STREET SWEEPING

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES WITH THE PROPOSED ELEVATIONS SHOWN IN THESE PLANS. ENGINEER WILL NOT BE LIABLE FOR ANY COST ASSOCIATED WITH CHANGES TO THE DESIGN WITHOUT PROPER NOTIFICATION.

COLORADO 811 – KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

ENGINEER'S STATEMENTS:

THE GRADING, EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE GRADING, EROSION, AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL OF DOUGLAS COUNTY, AS AMENDED.

GESC PLANS PREPARED BY:

DANIEL E. BEARSE — DATE
COLORADO PROFESSIONAL ENGINEER
NO. 48232 MARTIN/MARTIN INC.

THE CONSTRUCTION PLANS INCLUDED HEREIN WERE PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE STORM DRAINAGE AND TECHNICAL CRITERIA OF DOUGLAS COUNTY.

CONSTRUCTION PLANS PREPARED BY:

DANIEL E. BEARSE — DATE
COLORADO PROFESSIONAL ENGINEER
NO. 48232 MARTIN/MARTIN INC.

GRADIENT DIFFERENTIAL STATEMENT

PERIMETER CONTROL MEASURES WILL BE REQUIRED WHERE GRADIENT DIFFERENTIAL CANNOT BE MAINTAINED BELOW CURB.

SEQUENCE OF CONSTRUCTION:

1. LIMIT INITIAL EARTH DISTURBANCE TO INSTALLATION OF PERIMETER CONTROL MEASURES (SF/SCL), TRACKING CONTROL (VTC, SDA), AND MARKERS (CF, CM).
2. REQUEST GESC PRE-CONSTRUCTION MEETING (PRIOR TO EXCAVATION OF REMAINING CONTROLS).
3. INSTALL REMAINING APPLICABLE CONTROL MEASURES IN ORDER:
   A.TIP, CS, RRB, RRC
   B.CWA, SSA
   C.SB, ST
   D.DD, CD
4. REQUEST GESC RE-INSPECTION (VERIFYING PROPER INSTALL OF EXCAVATED CONTROLS (SB, DD, ETC.)).
5. PERFORM ALL NECESSARY SITE WORK ENSURING POSITIVE FLOW TO SEDIMENT BASINS AND MAINTENANCE OF GRADIENT DIFFERENTIALS EXIST AT THE END OF EVERY WORKING DAY.
6. STABILIZE EXPOSED SOIL WITHIN 14 DAYS OF FINISH GRADING PER DRAINAGE AREA OR AS DIRECTED BY INSPECTOR.
7. FILL AND/OR FINISH GRADE EXCAVATED CONTROLS (SB, DD, ETC.) AND STABILIZE IMMEDIATELY.
8. REMOVE ALL REMAINING TEMPORARY CONTROL MEASURES FOLLOWING COMPLETION OF STABILIZATION AND AS AUTHORIZED BY INSPECTOR. STABILIZE ANY ASSOCIATED EARTH DISTURBANCE.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING AND UTILITIES IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
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CONSULTING ENGINEERS
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Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

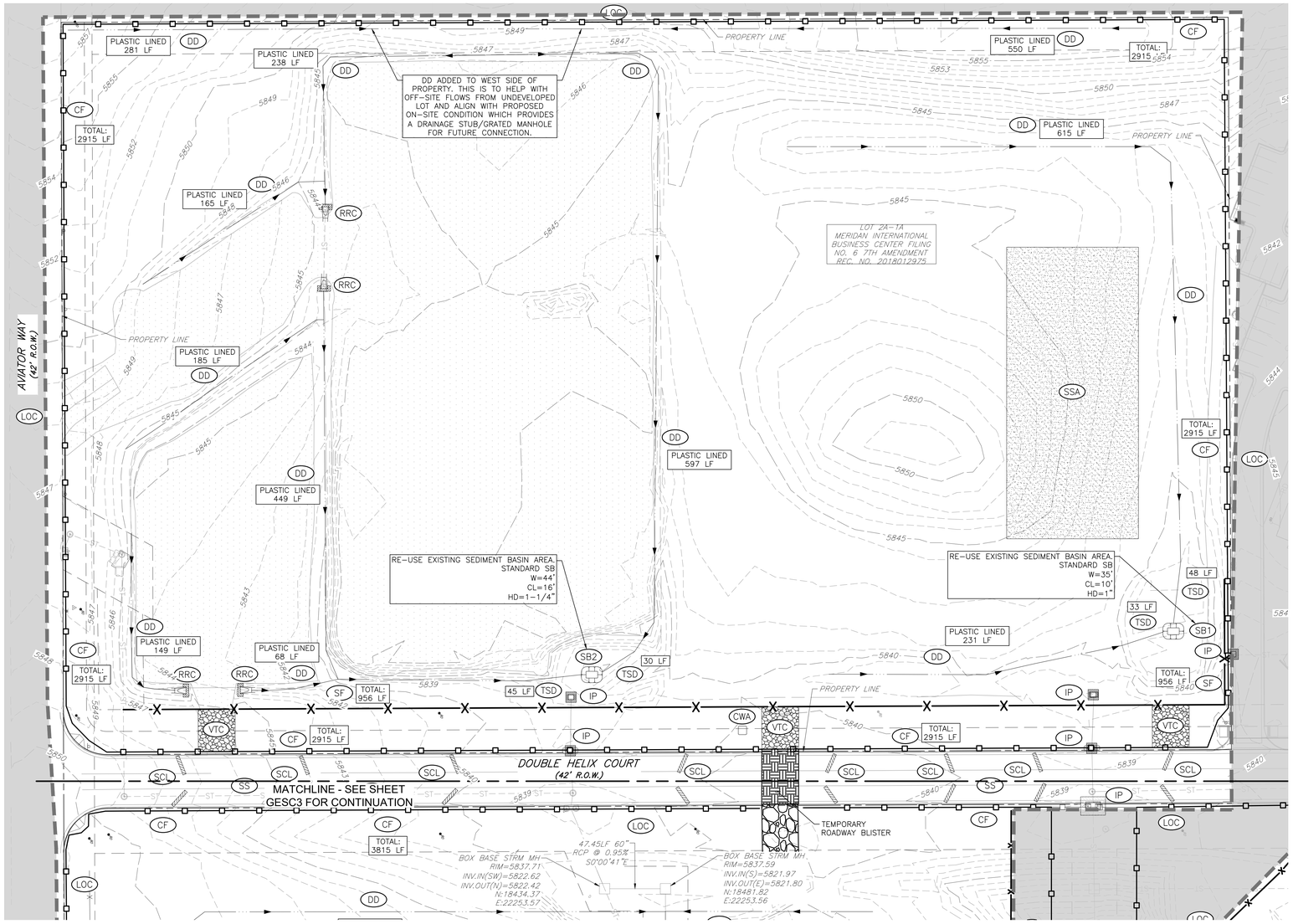
COLORADO REGISTERED PROFESSIONAL ENGINEER – DANIEL EDWARD BEARSE – 48232 – 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB
Copyright:	

Sheet Name
GESC COVER SHEET

GESC1



SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

BMP LEGEND

CD	CHECK DAM
CB	COMPOST BLANKET
CFB	COMPOST FILTER BERM
CWA	CONCRETE WASHOUT AREA
CF	CONSTRUCTION FENCE
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RRB	REINFORCED ROCK BERM
RRC	RRB FOR CULVERT PROTECTION
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SCL	SEDIMENT CONTROL LOG
ST	SEDIMENT TRAP
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WW	VTC WITH WHEEL WASH
	ROCK AND RIPRAP GRADATIONS
LOC	LIMITS OF CONSTRUCTION
SS	STREET SWEEPING

N

40 20 0 40 80

SCALE: 1"=40'

ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

NOTES:

1. SEE COVER SHEET OF DOUGLAS COUNTY STANDARD NOTES AND DETAILS (SHEET 1) FOR LEGEND OF BMP NAMES AND SYMBOLS.
2. SEE DOUGLAS COUNTY STANDARD NOTES AND DETAILS FOR INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, WATER QUALITY FEATURES, CULVERTS, STORM DRAINS, AND OUTLET PROTECTION.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

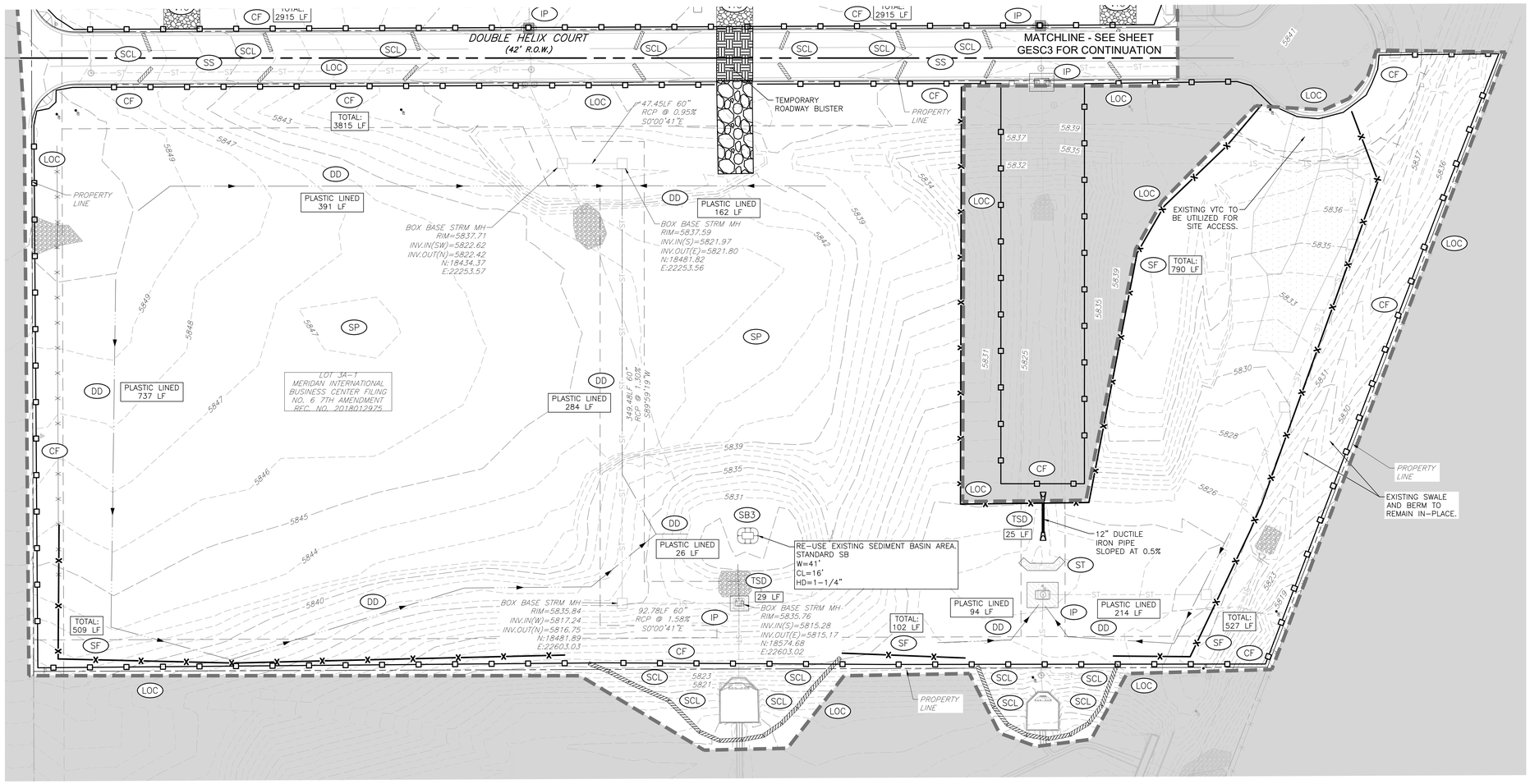
COLORADO REGISTERED DANIEL EDWARD BERGER 48232 PROFESSIONAL ENGINEER
09/06/2024

REVISION	DATE
100% CD's	
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
INITIAL GESC PLAN

GESC2

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



BMP LEGEND

	CD	CHECK DAM
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	CFB	COMPOST FILTER BERM
	CWA	CONCRETE WASHOUT AREA
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	CM	CONSTRUCTION MARKER
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	RRB	REINFORCED ROCK BERM
	RRC	RRB FOR CULVERT PROTECTION
	SB	SEDIMENT BASIN
	SCL	SEDIMENT CONTROL LOG

BMP LEGEND CONT.

	ST	SEDIMENT TRAP
	SM	SEEDING AND MULCHING
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	SR	SURFACE ROUGHENING
	TSD	TEMPORARY SLOPE DRAIN
	TSC	TEMPORARY STREAM CROSSING
	TER	TERRACING
	VTC	VEHICLE TRACKING CONTROL
	WW	VTC WITH WHEEL WASH
		ROCK AND RIPRAP GRADATIONS
	LOC	LIMITS OF CONSTRUCTION
	SS	STREET SWEEPING

N

40 20 0 40 80
SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

NOTES:

1. SEE COVER SHEET OF DOUGLAS COUNTY STANDARD NOTES AND DETAILS (SHEET 1) FOR LEGEND OF BMP NAMES AND SYMBOLS.
2. SEE DOUGLAS COUNTY STANDARD NOTES AND DETAILS FOR INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, WATER QUALITY FEATURES, CULVERTS, STORM DRAINS, AND OUTLET PROTECTION.

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE WESTERLY LINE OF LOT 2A-1A, MERIDIAN INTERNATIONAL BUSINESS CENTER #6, 7TH AMENDMENT ASSUMED TO BEAR S00°14'59"E BEING MONUMENTED BY A FOUND #4 REBAR WITH CAP PLS #23899 AT THE NORTHWEST CORNER OF LOT 2A-1A AND A FOUND #4 REBAR WITH CAP PLS #23899 AT THE SOUTHWEST CORNER OF LOT 2A-1A.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

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moaarch.com

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12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

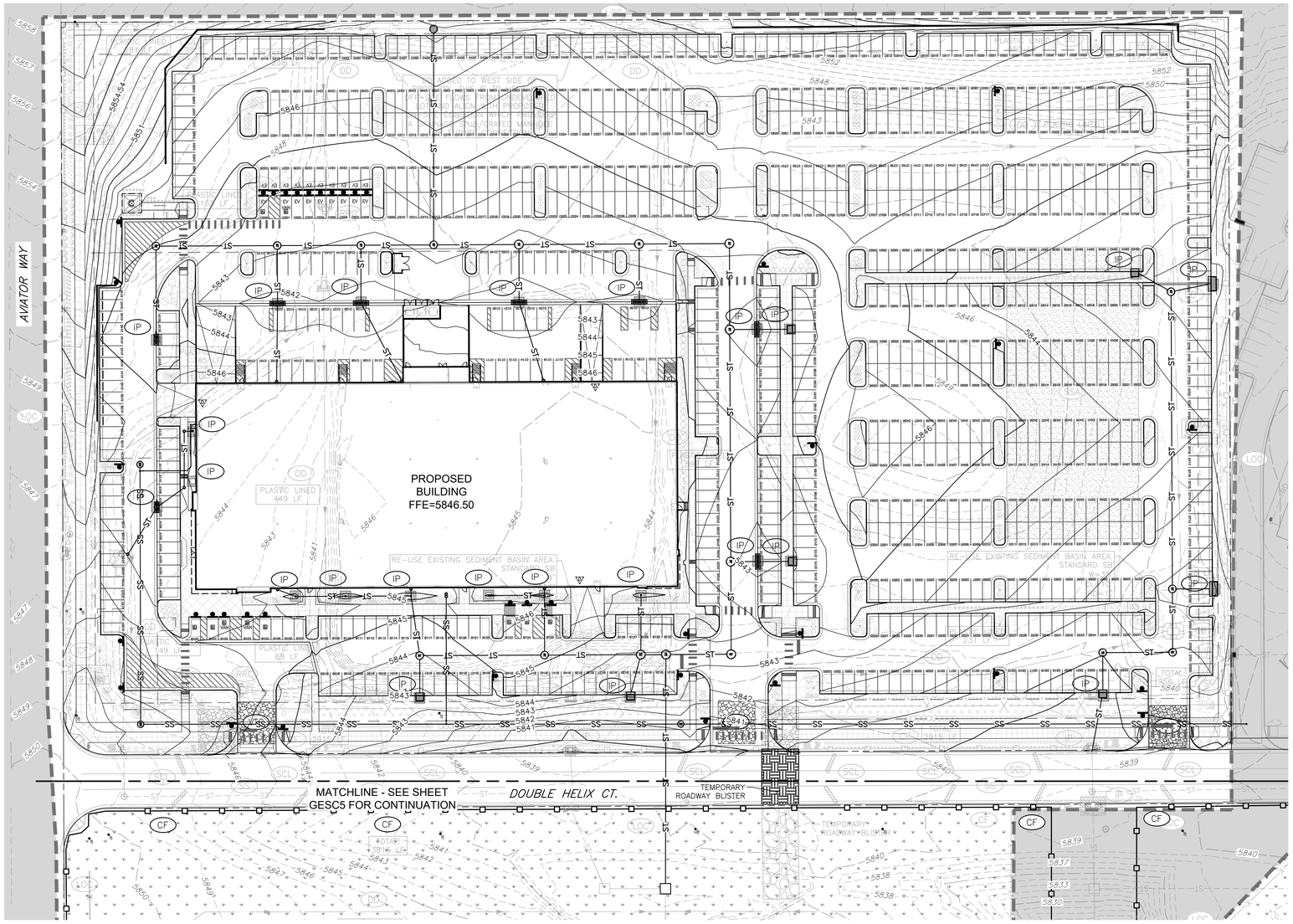
COLORADO REGISTERED PROFESSIONAL ENGINEER
DANIEL EDWARD BEARST
48232
09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By:	JD/SK
Checked By:	DB

Sheet Name
INITIAL GESC PLAN - EAST LOT

GESC3



SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

BMP LEGEND

CD	CHECK DAM	
CB	COMPOST BLANKET	
CFB	COMPOST FILTER BERM	
CWA	CONCRETE WASHOUT AREA	
CF	CONSTRUCTION FENCE	
CM	CONSTRUCTION MARKER	
DW	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET	
IP	INLET PROTECTION	
RCD	REINFORCED CHECK DAM	
RRB	REINFORCED ROCK BERM	
RRC	RRB FOR CULVERT PROTECTION	
SB	SEDIMENT BASIN	
SCL	SEDIMENT CONTROL LOG	
ST	SEDIMENT TRAP	
SM	SEEDING AND MULCHING	
SF	SILT FENCE	
SSA	STABILIZED STAGING AREA	
SR	SURFACE ROUGHENING	
TSD	TEMPORARY SLOPE DRAIN	
TSC	TEMPORARY STREAM CROSSING	
TER	TERRACING	
VTC	VEHICLE TRACKING CONTROL	
WW	VTC WITH WHEEL WASH	
	ROCK AND RIPRAP GRADATIONS	
LOC	LIMITS OF CONSTRUCTION	
SS	STREET SWEEPING	

N

SCALE: 1"=40'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

EARTHWORK:

TOTAL CUT:	16,893	CY	<CUT>
TOTAL FILL:	19,831	CY	<FILL>
PAVEMENT:	12,520	CY	<CUT>
NET EARTHWORK:	10,988*±	CY	<CUT/EXPORT>

*NET EARTHWORK CALCULATIONS ARE FOR THE DEVELOPMENT OF THE WEST SITE (LOT 2A–1A). EXCESS MATERIALS WILL STOCKPILED ON THE EAST LOT (LOT 3A–1).

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MARTIN/MARTIN, INC. MAKES NO WARRANTY OR GUARANTEE, EITHER EXPRESSED OR IMPLIED, AS TO THE ACCURACY OF THE EARTHWORK QUANTITIES. THE OWNER AND GENERAL CONTRACTOR SHOULD WORK WITH AN EARTHWORK CONTRACTOR TO PERFORM A CONTRACTUAL EARTHWORK ANALYSIS AND BUDGET AFTER ALL DESIGN AND CONSTRUCTION ISSUES HAVE BEEN IDENTIFIED.

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ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED DANIEL EDWARD BRUNS 48232 PROFESSIONAL ENGINEER
09/06/2024

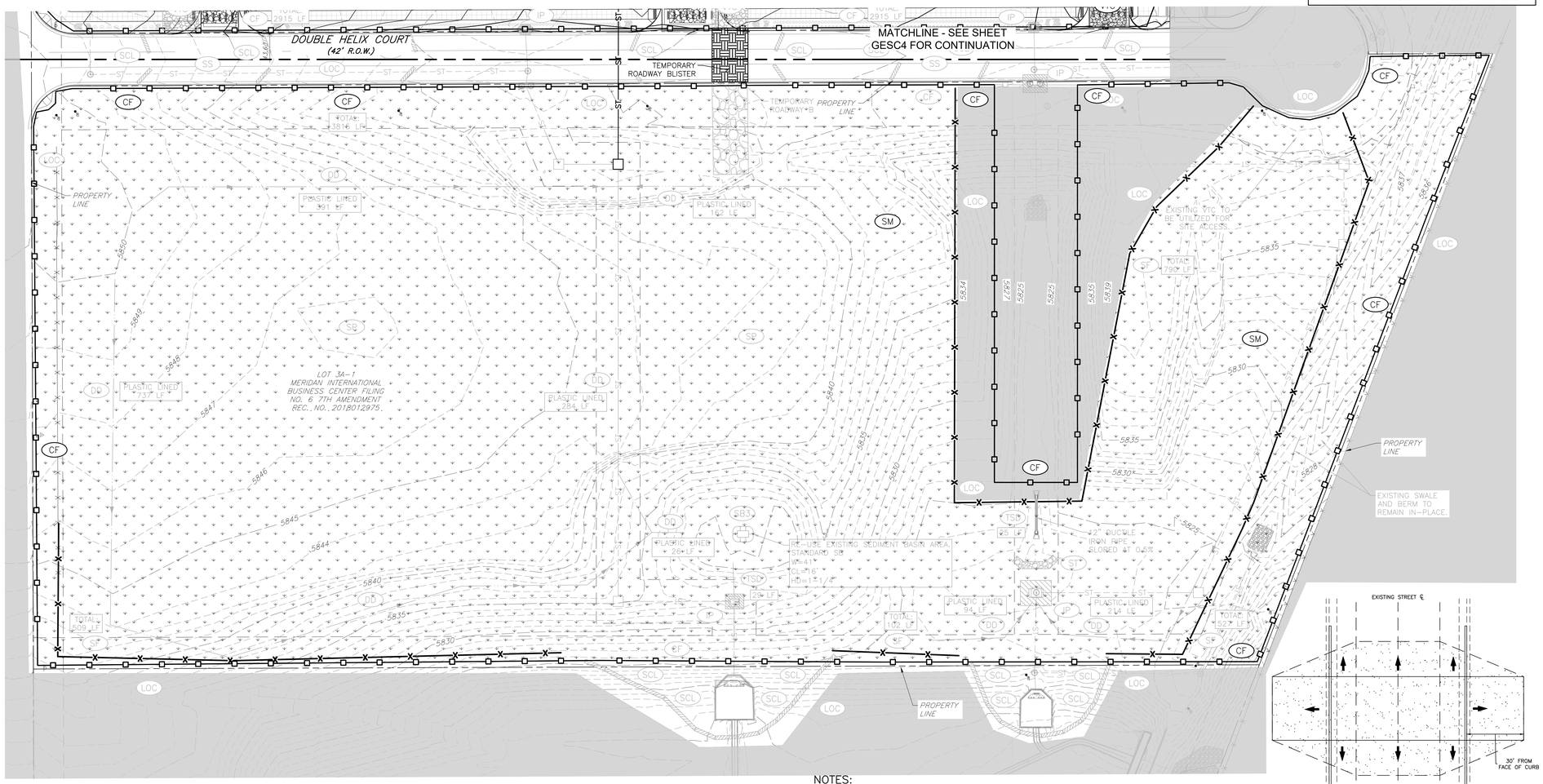
REVISION	DATE
100% CD's	

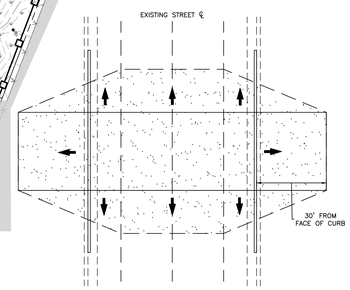
Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

Sheet Name
INTERIM & FINAL GESC PLAN

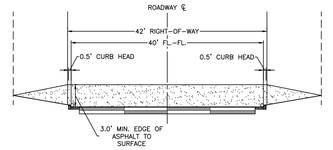
GESC4

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL





TEMPORARY ROAD CROSSING
ROAD BLISTER PLAN
N.T.S



TEMPORARY RURAL ROAD CROSSING
ROAD BLISTER SECTION
N.T.S

ROAD BLISTER NOTES:
1. ROAD BLISTER TO BE INSTALLED AT EACH ZONE PRIOR TO GRADING ACTIVITIES. ROAD BLISTER TO BE REMOVED PROMPTLY AFTER GRADING IS COMPLETED FOR THAT ZONE.
2. CLASS 6 ROAD BASE SHALL BE MAINTAINED AT A DEPTH OF 3" MINIMUM ABOVE THE EDGE OF ASPHALT.

BMP LEGEND

CD	CHECK DAM	
CB	COMPOST BLANKET	
CFB	COMPOST FILTER BERM	
CWA	CONCRETE WASHOUT AREA	
CF	CONSTRUCTION FENCE	
CM	CONSTRUCTION MARKER	
DW	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET	
IP	INLET PROTECTION	
RCD	REINFORCED CHECK DAM	
RRB	REINFORCED ROCK BERM	
RRC	RRB FOR CULVERT PROTECTION	
SB	SEDIMENT BASIN	
SCL	SEDIMENT CONTROL LOG	

BMP LEGEND CONT.

ST	SEDIMENT TRAP	
SM	SEEDING AND MULCHING	
SF	SILT FENCE	
SSA	STABILIZED STAGING AREA	
SR	SURFACE ROUGHENING	
TSD	TEMPORARY SLOPE DRAIN	
TSC	TEMPORARY STREAM CROSSING	
TER	TERRACING	
VTC	VEHICLE TRACKING CONTROL	
WW	VTC WITH WHEEL WASH	
	ROCK AND RIPRAP GRADATIONS	
LOC	LIMITS OF CONSTRUCTION	
SS	STREET SWEEPING	
SP	STOCKPILE MANAGEMENT	

N

40 20 0 40 80
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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED SAMUEL EDWARD BEAVER 48232 PROFESSIONAL ENGINEER 09/06/2024

REVISION	DATE
100% CD's	

Project Number	23.0136
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Drawn By	JD/SK
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Sheet Name
INTERIM GESC
PLAN - EAST LOT

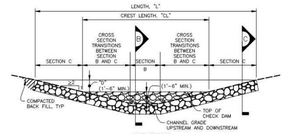
GESC5

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

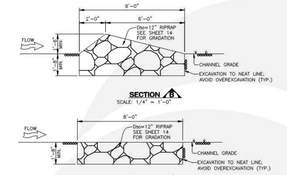
GRADING, EROSION, AND SEDIMENT CONTROL (GESC) GENERAL NOTES

1. THE DOUGLAS COUNTY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL. THE DOUGLAS COUNTY DIRECTOR OF ENGINEERING SERVICES, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.
2. THE ADEQUACY OF THIS GESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.
3. THE GESC PLAN SHALL BE CONSIDERED VALID FOR TWO (2) YEARS FROM THE DATE OF ACCEPTANCE BY DOUGLAS COUNTY. AFTER WHICH TIME THE PLAN SHALL BE VOID AND SHALL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY DOUGLAS COUNTY.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING. DOUGLAS COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE GESC MANUAL, GESC PLAN OR GESC PERMIT.
5. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE IN ACCORDANCE WITH THE DOUGLAS COUNTY ACCEPTED GESC PLAN AND THE DOUGLAS COUNTY GESC MANUAL, AS AMENDED.
6. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMPs FROM THE DOUGLAS COUNTY ACCEPTED GESC PLAN WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
7. AFTER THE GESC PLAN HAS BEEN ACCEPTED, THE GESC PERMIT APPLIED FOR, FEES AND FISCAL SECURITY SUBMITTED TO THE COUNTY, AND THE GESC FIELD MANUAL OBTAINED AND REVIEWED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs INDICATED ON THE ACCEPTED GESC PLAN.
8. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.
9. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs, THE PERMITTEE SHALL CALL THE DOUGLAS COUNTY ENGINEERING PERMITS STAFF AT 303-660-7487 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.
10. THE OWNER OR OWNER'S REPRESENTATIVE, THE GESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE GESC FIELD MANUAL IS NOT ON SITE OR IF THE INSTALLATION OF THE INITIAL BMPs ARE NOT APPROVED BY THE DOUGLAS COUNTY GESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE PRECONSTRUCTION MEETING, RESULTING IN A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. DOUGLAS COUNTY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.
11. CONSTRUCTION SHALL NOT BEGIN UNTIL THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMPs AND THE APPROVED GESC PERMIT IS PICKED UP FROM THE COUNTY AND IS IN-HAND ON THE SITE. THE COMPLETED PERMIT WILL BE AVAILABLE WITHIN 24-HOURS AFTER THE INSTALLATION OF THE INITIAL BMPs ARE APPROVED.
12. THE GESC MANAGER SHALL STRICTLY ADHERE TO THE DOUGLAS COUNTY-APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.
13. THE MAXIMUM AREA OF CONSTRUCTION SHALL BE LIMITED TO 40 ACRES (70 ACRES IF APPROVED FOR SOIL MITIGATION OPERATIONS) TO REDUCE THE AMOUNT OF LAND DISTURBED AT ANY ONE TIME. LARGER SITES SHALL BE DIVIDED INTO PHASES THAT ARE EACH 40 (OR 70) ACRES OR LESS IN SIZE. THESE PROJECTS SHALL CONDUCT GRADING ACTIVITIES IN ACCORDANCE WITH THE ACCEPTED GESC PLAN. BMP INSTALLATION AND APPROVAL BY DOUGLAS COUNTY AT THE START AND COMPLETION OF EACH PHASE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE GESC MANUAL AND/OR GESC FIELD MANUAL.
14. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES. FOR INFORMATION, CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987 OR FAX AT 303-534-6700.
15. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.
16. THE GESC PERMIT SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR.
17. A COPY OF THE GESC PERMIT, ACCEPTED GESC PLANS AND THE GESC FIELD MANUAL SHALL BE ON SITE AT ALL TIMES.
18. THE GESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE GESC PERMIT AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE COUNTY FOR ALL MATTERS PERTAINING TO THE GESC PERMIT. THE GESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER. IN THE EVENT THAT THE CONTRACTOR'S GESC MANAGER IS NOT ON SITE AND CANNOT BE REACHED DURING A VIOLATION, THE ALTERNATE GESC MANAGER SHALL BE CONTACTED. IF NEITHER THE GESC MANAGER NOR ALTERNATE GESC MANAGER CAN BE CONTACTED DURING ANY VIOLATION, A STOP WORK ORDER SHALL BE ISSUED.
19. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE DOUGLAS COUNTY-APPROVED ACCESS POINT. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
20. THE GESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS INCLUDING STREETS ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED WITH A STREET SWEEPER OR SIMILAR DEVICE, AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR. STREET WASHING IS NOT ALLOWED. DOUGLAS COUNTY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.
21. APPROVED EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE GESC MANAGER SHALL INSPECT ALL BMPs IN ACCORDANCE WITH THE ACCEPTED GESC PLAN AND GESC MANUAL. LEVEL III VIOLATIONS SHALL BE CORRECTED IMMEDIATELY AFTER THE PERMITTEE(S) NOTICE THE VIOLATION(S) OR ARE NOTIFIED OF THE VIOLATION(S). GENERALLY DOUGLAS COUNTY WILL REINSPECT FOR COMPLIANCE WITHIN 48 HOURS OF NOTIFICATION OF LEVEL III VIOLATIONS. LEVEL II VIOLATIONS SHALL BE CORRECTED IMMEDIATELY, OR AS DIRECTED BY A DOUGLAS COUNTY EROSION CONTROL INSPECTOR. ACCUMULATED SEDIMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED.
22. STRAW BALES ARE NOT A DOUGLAS COUNTY ACCEPTED SEDIMENT CONTROL BMP.
23. TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN THE LOCATION SHOWN ON THE ACCEPTED GESC PLAN. THE GESC MANAGER SHALL SCHEDULE AN INSPECTION WITH THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR AS SOON AS TOPSOIL STRIPPING IS COMPLETED. FAILURE TO SCHEDULE SUCH INSPECTION OR FAILURE TO STOCKPILE TOPSOIL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER. THE STOP WORK ORDER SHALL REMAIN IN PLACE UNTIL TOPSOIL IS STOCKPILED ON SITE OR APPROPRIATE SOIL AMENDMENTS ARE STOCKPILED ON SITE.
24. THE ACCEPTED GESC PLAN MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. THE GESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND DOUGLAS COUNTY PUBLIC WORKS ENGINEERING FOR ANY PROPOSED CHANGES.
25. LINING OF TEMPORARY SWALES AND DITCHES SHALL BE IN ACCORDANCE WITH THE GESC CRITERIA MANUAL.
26. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.
27. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE GESC MANAGER. THE GESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ANY NECESSARY RIGHTS TO ENTER ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
28. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
29. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
30. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATERS, SHALL BE IMMEDIATELY REPORTED TO THE COPHE FOR CDPS, AND THE DOUGLAS COUNTY: RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT IN AMOUNTS EQUAL TO OR GREATER THAN 311 BE REPORTED TO THE NATIONAL RESPONSE CENTER AS WELL AS THE COPHE. CONTACT INFORMATION FOR COPHE, DOUGLAS COUNTY AND THE NATIONAL RESPONSE CENTER SHALL BE POSTED IN A PROMINENT LOCATION ON THE SITE. IN ADDITION, ANY SPILL THAT POSES AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.
31. ALL WORK ON SITE SHALL STAY A MINIMUM OF ONE HUNDRED (100) FEET AWAY FROM ANY DRAINAGEWAY, WETLAND, ETC. UNLESS PERMITTED BY AN ACCEPTED DOUGLAS COUNTY GESC PLAN.
32. ALL PROJECTS SHALL BALANCE EARTHWORK QUANTITIES ON SITE. IN THE EVENT A VARIANCE IS GRANTED BY THE COUNTY ENGINEER OR SIGNIFICANT DEVIATIONS OCCUR DUE TO IMPORT OF MATERIAL, THE PERMITTEE SHALL HAVE A GESC PERMIT IN HAND FOR THE IMPORT OR EXPORT SITE PRIOR TO ANY TRANSPORTING OF EARTHEN MATERIAL. THE GESC MANAGER SHALL NOTIFY THE DOUGLAS COUNTY GESC INSPECTOR OF THE LOCATION AND PERMIT NUMBERS OF BOTH THE EXPORTING AND IMPORTING SITES PRIOR TO ANY IMPORT/ EXPORT OPERATIONS.
33. THE USE OF REBAR, STEEL STAKES OR STEEL FENCE POSTS FOR STAKING OR SUPPORT OF ANY EROSION OR SEDIMENT CONTROL BMP IS PROHIBITED (EXCEPT STEEL TEE-POSTS FOR USE IN SUPPORTING CONSTRUCTION FENCE).
34. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.
35. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH A DOUGLAS COUNTY GESC INSPECTOR AND BE FREE OF SEDIMENT IN ACCORDANCE WITH THE GESC MANUAL.
36. ALL PERMANENT INSTALLATIONS OF PIPES FOR STORM SEWERS, SLOPE DRAINS, AND CULVERTS, TOGETHER WITH RIPRAP APRONS OR OTHER INLET AND OUTLET PROTECTION, REQUIRE INSPECTION BY DOUGLAS COUNTY PUBLIC WORKS ENGINEERING (SEPARATE FROM GESC INSPECTION).
37. ALL DISTURBED AREAS SHALL BE DRILL SEEDED AND CRIMP MULCHED IN ACCORDANCE WITH THE GESC CRITERIA MANUAL WITHIN THIRTY DAYS OF INITIAL EXPOSURE OR WITHIN FOURTEEN (14) DAYS OF SUBSTANTIAL COMPLETION (AS DEFINED BY DOUGLAS COUNTY) OF AN AREA, WHICHEVER IS LESS. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
38. ALL SLOPES STEEPER THEN 4:1 REQUIRED EROSION CONTROL BLANKETING.
39. HYDRAULIC SEEDING AND HYDRAULIC MULCHING ARE NOT AN ACCEPTABLE METHOD OF SEEDING OR MULCHING IN DOUGLAS COUNTY.
40. NO CURB AND GUTTER PERMITS SHALL BE ISSUED UNTIL ALL DISTURBED AREAS ARE DRILL SEEDED AND CRIMP MULCHED.
41. NO PAVING PERMITS SHALL BE ISSUED UNTIL ALL INTERIM INLET PROTECTION IS INSTALLED AND APPROVED BY THE EROSION CONTROL INSPECTOR.
42. A FINAL GESC INSPECTION SHALL BE CONDUCTED FOR CERTIFICATE OR TEMPORARY CERTIFICATE OF OCCUPANCY OR INITIAL ACCEPTANCE.
43. ALL REMAINING AREAS THAT ARE NOT LANDSCAPED OR OTHERWISE STABILIZED SHALL BE COVERED WITH EROSION CONTROL BLANKETING. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTODEGRADABLE, SHALL BE ALLOWED. SEEDING IS NOT REQUIRED UNDER BLANKETS THAT ARE USED FOR TEMPORARY EROSION CONTROL IN AREAS THAT ARE NOT LANDSCAPED OR OTHERWISE STABILIZED.

DETAIL NO.	SHEET NO.	BMP LEGEND	
1	1	CD	CHECK DAM
2	1	CB	COMPOST BLANKET
3	1	CFB	COMPOST FILTER BERM
4	1	CWA	CONCRETE WASHOUT AREA
5	1	CF	CONSTRUCTION FENCE
6	1	CM	CONSTRUCTION MARKERS
7	1	DW	DEWATERING
8	1	DD	DIVERSION DITCH
9	2	ECB	EROSION CONTROL BLANKET
10	2	IP	INLET PROTECTION
11	2	ROD	REINFORCED CHECK DAM
12	2	RRB	REINFORCED ROCK BERM
13	2	RRC	RRB FOR CULVERT PROTECTION
14	2	SB	SEDIMENT BASIN
15	3	SCL	SEDIMENT CONTROL LOG
16	3	ST	SEDIMENT TRAP
17	3	SM	SEEDING AND MULCHING
18	3	SF	SILT FENCE
19	3	SSA	STABILIZED STAGING AREA
20	3	SR	SURFACE ROUGHENING
21	3	TSD	TEMPORARY SLOPE DRAIN
22	3	TSC	TEMPORARY STREAM CROSSING
23	3	TER	TERRACING
24	3	VTC	VEHICLE TRACKING CONTROL
25	3	WW	VTC WITH WHEEL WASH
26	1		ROCK AND RIPRAP GRADATIONS
		LOC	LIMITS OF CONSTRUCTION



ELEVATION
SCALE: 1" = 10'-0"



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

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

CHECK DAM INSTALLATION NOTES

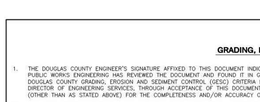
1. SEE PLAN VIEW FOR:
   – LOCATIONS OF CHECK DAMS.
   – CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
   – LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D_{50} MEDIAN STONE SIZE OF 12".
4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".
5. THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1'-6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS BETWEEN 1/2 OF THE HEIGHT OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL AND THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

CD CHECK DAM 1

PLAN
SCALE: 1" = 10'-0"



SECTION A
SCALE: 1" = 10'-0"

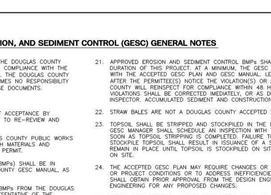
CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL (DETAIL 24) IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE ENTRANCE TO THE CONCRETE WASHOUT, AND ADJACENT TO IT TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.
6. DURABLE PORTABLE CONCRETE WASHOUT BASINS OR TUBS MAY BE USED WITH THE APPROVAL OF THE EROSION CONTROL INSPECTOR.

CONCRETE WASHOUT AREA MAINTENANCE NOTES

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

CWA CONCRETE WASHOUT AREA 4



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

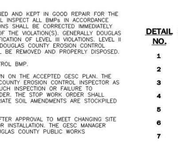
CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS).
   – LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
2. CONSTRUCTION FENCE OR MARKERS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO OTHER BMPS AND ANY LAND-DISTURBING ACTIVITIES.
3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE, MAXIMUM SPACING FOR TEE POSTS SHALL BE 15'.

CONSTRUCTION FENCE MAINTENANCE NOTES

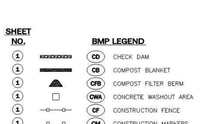
1. ANY DAMAGED FENCE OR MARKERS SHALL BE REPAIRED ON A DAILY BASIS.
2. FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION, IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

CF CONSTRUCTION FENCE 5

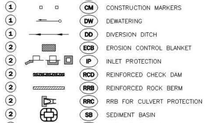


(ALTERNATIVE TO CONSTRUCTION FENCE)
SCALE: 1/4" = 1'-0"

CM CONSTRUCTION MARKERS 6

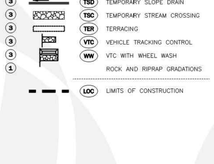


ALTERNATIVE FOR DRAINING POND ALREADY FILLED WITH WATER
SCALE: 1/4" = 1'-0"



DEWATERING SUMP FOR SUBMERSIBLE PUMP
SCALE: 1/4" = 1'-0"

BASIN OUTLET - SECTION
SCALE: 1" = 10'-0"



SUMP DISCHARGE SETTLING BASIN
SCALE: 1" = 10'-0"

DEWATERING INSTALLATION NOTES

1. THE PERMITTEE(S) SHALL SCHEDULE AN ONSITE INSPECTION WITH THE EROSION CONTROL INSPECTOR PRIOR TO ANY SITE DEWATERING OPERATIONS BEGIN.
2. THE GESC MANAGER SHALL OBTAIN A CONSTRUCTION DEWATERING PERMIT (DEWATERING PERMIT) FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) PRIOR TO ANY DEWATERING OPERATIONS THAT REQUIRE A DEWATERING PERMIT.
3. AT A MINIMUM, THE DEWATERING BMPs SHALL CONSIST OF THE FOLLOWING:
   FIXE-FILTER ON THE SUCTION END OF THE PUMP/HOSE.
   FILTER BMP PRIOR TO FINAL DISCHARGE, AND
   ENERGY DISSIPATING BMP AT THE DISCHARGE END OF THE HOSE/PUMP.
4. THE TYPE AND PLACEMENT OF DEWATERING CONTROLS SHALL BE COORDINATED WITH, AND APPROVED BY, THE EROSION CONTROL INSPECTOR PRIOR TO THE DISCHARGE OF ANY WATER.

DEWATERING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT DEWATERING SYSTEMS AND PERFORM ANY NECESSARY REPAIRS OR MAINTENANCE ON A HOURLY BASIS.
2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

DW DEWATERING 7

UNLINED
LONGITUDINAL SLOPE ≤ 0.5%
SCALE: 1/4" = 1'-0"

RIPRAP LINED
LONGITUDINAL SLOPE 3% TO 33%
SCALE: 1/4" = 1'-0"

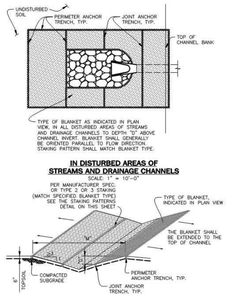
EROSION CONTROL BLANKET (ECB) LINED
LONGITUDINAL SLOPE 0.5% TO 3%
SCALE: 1/4" = 1'-0"

PLASTIC LINED
LONGITUDINAL SLOPE 3% TO 33%
SCALE: 1/4" = 1'-0"

DIVERSION DITCH INSTALLATION NOTES

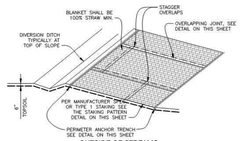
1. SEE PLAN VIEW FOR:
   – LOCATION OF DIVERSION DITCH.
   – TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
   – LENGTH OF EACH TYPE OF DITCH.
   – FLOW DIRECTION AND DITCH DIMENSIONS.
   – FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).
   – FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "Dso".
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES O

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

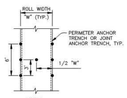


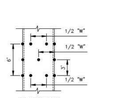
IN DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS
SCALE: 1" = 10'-0"

IN DIVERSION DITCH OR SMALL DITCH DRAINAGEWAY
SCALE: 1" = 10'-0"

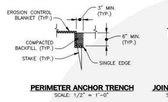


OUTSIDE OF STREAMS AND DRAINAGE CHANNELS
SCALE: 1" = 10'-0"

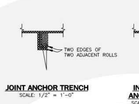




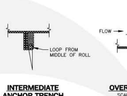
STAKING PATTERNS
SCALE: 1" = 10'-0"
SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE).



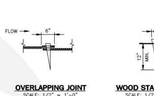
PERIMETER ANCHOR TRENCH
SCALE: 1/2" = 1'-0"



JOINT ANCHOR TRENCH
SCALE: 1/2" = 1'-0"



INTERMEDIATE ANCHOR TRENCH
SCALE: 1/2" = 1'-0"



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

WOOD STAKE DETAIL
SCALE: 1/2" = 1'-0"
MINIMUM THICKNESS 1/2"

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
   - TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
   - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 17, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKET INSTALLATIONS IN A DRAINAGEWAY EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
7. THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
8. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.

EROSION CONTROL BLANKET INSTALLATION NOTES — CONTINUED

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.
10. SEE DRAINAGE DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION MEASURES THAT MAY EXCEED THE DESIGN CONDITIONS ASSOCIATED WITH THE DETAILS ABOVE.
11. METAL STAKES OR STAPLES MAY BE USED FOR EROSION CONTROL BLANKET INSTALLATIONS OUTSIDE OF DRAINAGE CHANNELS.

TABLE 7.1 — EROSION CONTROL BLANKET TYPE				
TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW	–	100%	–	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	–	DOUBLE/NATURAL
COCONUT	100%	–	–	DOUBLE/NATURAL
EXCELSIOR	–	–	100%	DOUBLE/NATURAL

* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE COUNTY.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND THE EROSION CONTROL BLANKET REINSTALLED.

ECB **EROSION CONTROL BLANKET** / 9

REINFORCED - ELEVATION
SCALE: 1" = 10'-0"

BLOW UP OF TWISTED WIRE GABION
SCALE: NTS

REINFORCED - SECTION A
SCALE: 1" = 5'-0"

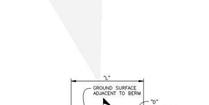
REINFORCED CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CHECK DAMS.
   - CHECK DAM TYPE (TYPICAL DAM OR REINFORCED CHECK DAM).
   - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE METTING WITH A MAXIMUM OPENING DIMENSION OF 3 INCHES AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT GABION.
4. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D_{50} MEDIAN STONE SIZE OF 12".
5. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".
6. EROSION BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1'-6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

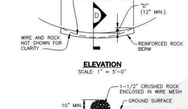
REINFORCED CHECK DAM MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL MATERIAL, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

RCD **REINFORCED CHECK DAM** / 11



ELEVATION
SCALE: 1" = 5'-0"



SECTION A
SCALE: 1" = 1'-0"

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

REINFORCED ROCK BERM INSTALLATION NOTES

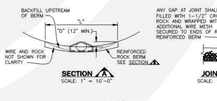
1. SEE PLAN VIEW FOR:
   - LOCATIONS OF REINFORCED ROCK BERMS.
   - LENGTH, "L", AND DEPTH, "D" DIMENSIONS.
2. REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 1 (1-1/2"), RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"), ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

REINFORCED ROCK BERM MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT REINFORCED ROCK BERM WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
3. REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
4. WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

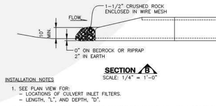
RRB **REINFORCED ROCK BERM** / 12

PLAN
SCALE: 1" = 10'-0"



SECTION A
SCALE: 1" = 10'-0"

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



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

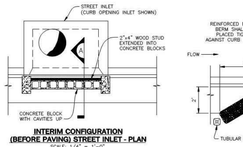
INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CULVERT INLET FILTERS.
   - LENGTH, "L", AND DEPTH, "D".
2. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 1 (1-1/2"), RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
3. WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"), ROLL WIDTH SHALL BE 48-INCHES.
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
5. THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

MAINTENANCE NOTES

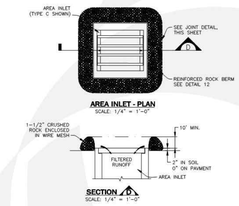
1. THE GESC MANAGER SHALL INSPECT CULVERT INLET FILTER WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
3. RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
4. WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

RRC **RRB FOR CULVERT PROTECTION** / 13



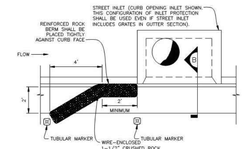
INTERIM CONFIGURATION (BEFORE PAVING) STREET INLET - PLAN
SCALE: 1/4" = 1'-0"

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

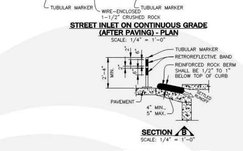


AREA INLET - PLAN
SCALE: 1/4" = 1'-0"

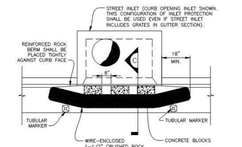
SECTION A
SCALE: 1/4" = 1'-0"



STREET INLET ON CONTINUOUS GRADE (AFTER PAVING) - PLAN
SCALE: 1/4" = 1'-0"



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



STREET INLET IN SUMP (AFTER PAVING) - PLAN
SCALE: 1/4" = 1'-0"

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

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

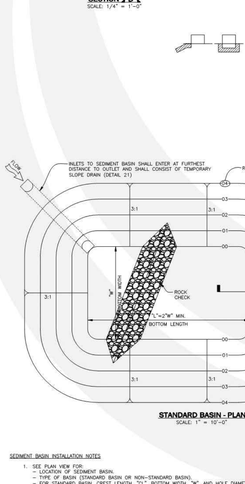
INLET PROTECTION INSTALLATION NOTES

1. INTERIM CONFIGURATION OF INLET PROTECTION IN STREETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET. INLET PROTECTION (AFTER PAVEMENT) SHALL BE INSTALLED WITHIN 48 HOURS AFTER PAVING IS PLACED.
2. INLET PROTECTION AT AREA INLETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 1 (1-1/2"), RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"), ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. REINFORCED ROCK BERM SHALL BE CONSTRUCTED IN ONE PIECE OR SHALL BE CONSTRUCTED USING JOINT DETAIL.
7. TUBULAR MARKERS SHALL MEET REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED.
8. THE TOP OF REINFORCED ROCK BERM SHALL BE 1/2"-1" BELOW TOP OF CURB.

INLET PROTECTION MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. MORE FREQUENT INSPECTIONS AND REPAIRS SHALL BE REQUIRED DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF ROCK BERM IS WITHIN 2-1/2 INCHES OF THE CREST.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS THE COUNTY APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

IP **INLET PROTECTION** / 10



STANDARD BASIN - PLAN
SCALE: 1" = 10'-0"

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

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

SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (LL), (ft)	Hole Diameter (HD), (in)
1	16	2.0	7/16
2	22	4.0	5/8
3	31	6.0	7/8
5	35	8.0	1
6	38	10.0	1 1/8
7	41	12.0	1 1/4
8	44	14.0	1 3/8
9	47	18.0	1 1/2
10	49	22.0	1 5/8
11	51	20.0	1 3/4
13	54	24.0	1 7/8
13	56	28.0	1 5/8
14	59	28.0	1 5/8
15	61	30.0	1 5/8

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF SEDIMENT BASIN.
   - TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).
   - FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".
   - FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT, "H", NUMBER OF COLUMNS, "N", HOLE DIAMETER, "HD", AND PIPE DIAMETER "D".
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE GESC PLAN VIEW DRAWINGS USED FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT SEDIMENT BASIN WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. SEDIMENT ACCUMULATED IN SEDIMENT BASIN SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1.0 FOOT.
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
4. IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

SB **SEDIMENT BASIN** / 14

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

NOTE: SCALES SHOWN ARE FOR 24"x36" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.

DOUGLAS COUNTY
DEPARTMENT OF PUBLIC WORKS ENGINEERING

GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 2 OF 3

MOA ARCHITECTURE
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303.308.1190
moaarch.com

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 West Colfax Ave
Lakewood, Colorado 80215
303.431.6100
martinmartin.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

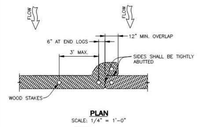
REVISION	DATE
100% CD's	

Project Number	23.0136
Date	2024.08.15
Drawn By	JD/SK
Checked By:	DB

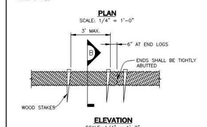
Sheet Name
GESC STANDARD NOTES & DETAILS

GESC7

SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL



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



ELEVATION
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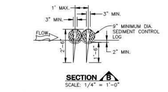


SECTION A 15
SCALE: 1/4" = 1'-0"

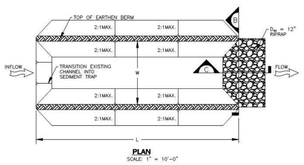
SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION AND LENGTH OF SEDIMENT CONTROL LOG.
2. SEDIMENT CONTROL LOGS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED FLOW AREAS.
5. THE SEDIMENT CONTROL LOG SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 2".

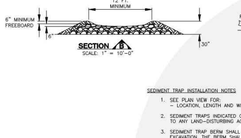
SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT SEDIMENT CONTROL LOGS DAILY DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOGS SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 3 THE HEIGHT OF THE CREST OF LOG.
3. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED. IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

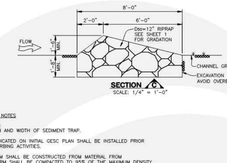
SCL SEDIMENT CONTROL LOG 15



PLAN
SCALE: 1" = 10'-0"



SECTION A
SCALE: 1" = 10'-0"



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

SEDIMENT TRAP INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
2. SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
4. RIPRAP OUTLET SHALL BE CONSTRUCTED WITH D_{50}=12" RIPRAP WITH A MINIMUM OVERFLOW OF 6".
5. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
6. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

SEDIMENT TRAP MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT SEDIMENT TRAPS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN ⅓ THE HEIGHT OF THE RIPRAP OUTLET STRUCTURE.
3. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY THE COUNTY.
4. WHEN SEDIMENT TRAPS ARE REMOVED THE DISTURBED AREA SHALL BE DRILLED SEEDED AND CRIMP MULCHED OR STABILIZED IN A MANNER APPROVED BY THE COUNTY.

ST SEDIMENT TRAP 16

SEEDING AND MULCHING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – AREA OF SEEDING AND MULCHING.
   – TYPE OF SEED MIX (PERMANENT, TEMPORARY, OR LOW-GROWTH).
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COMMON FESCUE, EUROPEAN BROMEGS, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY FOR PURITY AND GERMINATION WITHIN A PERIOD OF 6 MONTHS PRIOR TO TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO DOUGLAS COUNTY UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT.
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LOW PERCENTAGE OF PURITY OR GERMINATION BY INCREASING THE AMOUNT OF ORIGINAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO THE CONTRACTOR AND FORWARDED TO THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE COUNTY.
8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING IF THE SOIL HAS BECOME COMPACTED OR CRUSTED. IF THE AREA HAS BEEN WORKED LESS THAN 4 HOURS AND SOIL CLODS GREATER THAN 2 INCHES, SEEDING OVER AND COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH NOT LESS THAN 1/4 INCH AND NOT MORE THAN 1/2 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STRANDED STRAW AT LEAST 70 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE FREE OF NOXIOUS WEEDS AND SEEDS AND FREE OF MOLD, ROT OR OTHER DAMAGE. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
11. IF THE PERMITTEE DEMONSTRATES TO THE COUNTY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 14 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE COUNTY). THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24–HOURS OF SEEDING.
14. TACKIFIER SHALL BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCHING MAINTENANCE NOTES

1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
   1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES, FOR THE DOUGLAS COUNTY LOW-GROWTH MIX, THE MINIMUM HEIGHT SHALL BE VARIETY AND SPECIES FOUND IN THE DOUGLAS COUNTY-APPROVED MIX.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC MANUAL.
3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
   1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
   2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).
   3. FREE OF ERODED AREAS.
   4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC MANUAL.
4. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE COUNTY.

SM SEEDING AND MULCHING 17

DOUGLAS COUNTY PERMANENT DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BIG BLUESTEM	KAW	PNWS	10	1.1
YELLOW INDIANGRASS	CHEYENNE	PNWS	10	1
SWITCHGRASS	BLACKWELL	PNWS	10	0.4
SIDEOATS GRAMA	VAUGHN	PNWB	10	0.9
WESTERN WHEATGRASS	ARRIBA	PNCS	10	1.6
BLUE GRAMA	HACHITA	PNWB	10	0.3
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
PRAIRIE SANDREED	GOSHEN	PNWS	10	0.7
GREEN NEEDLEGRASS	LODORM	PNCB	10	1
SLENDER WHEATGRASS	PRYOR	PNCB	5	0.6
STREAMBANK WHEATGRASS	SODAR	PNCS	5	0.6
		TOTAL		9.2

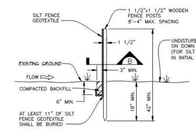
DOUGLAS COUNTY TEMPORARY DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PNCS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PNCS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PNCS	30	4.2
ANNUAL RYEGRASS	N/A	ANCB	10	0.8
		TOTAL		13.4

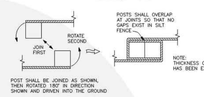
DOUGLAS COUNTY LOW-GROWTH DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BUFFALOGRASS	TEXOKA	PNWS	20	3.2
BLUE GRAMA	HACHITA	PNWB	20	0.6
WESTERN WHEATGRASS	ARRIBA	PNCS	20	3.2
SIDEOATS GRAMA	VAUGHN	PNWB	20	1.8
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
STREAMBANK WHEATGRASS	SODAR	PNCS	10	1.2
		TOTAL		11.0

NOTES:
P=PERENNIAL
A=ANNUAL
N=NATIVE
I=INTRODUCED
W=WARM SEASON
C=COOL SEASON
S=SOD FORMER
B=BUNCHGRASS



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



JOINTS - SECTION B
SCALE: N.T.S.

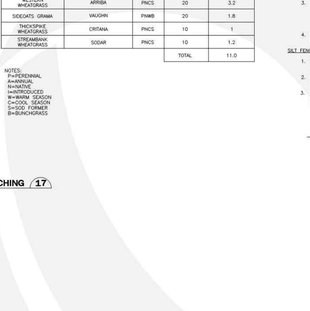
SILT FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE, NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND WITH BOTH WALLS OF TRENCH PACKED. BACKFILLING OPERATION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
   – 6–TO 12–GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY;
   – 90 LB. TENSILE STRENGTH PER ASTM D4632;
   – UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D4355.
4. SILT FENCE INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND–DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT SILT FENCE DAILY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6–INCHES.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY THE COUNTY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

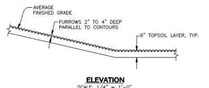
SF SILT FENCE 18



ELEVATION
SCALE: 1" = 10'-0"

SLOPE DRAIN - SECTION A
SCALE: 1" = 10'-0"

PLASTIC LINED DRAIN - OPTION
SCALE: 1" = 10'-0"



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

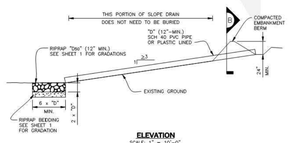
SURFACE ROUGHENING INSTALLATION NOTES

1. SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
2. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7–DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED.
3. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

SURFACE ROUGHENING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT, AND MAKE REPAIRS.
2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
3. IN NON–TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE–ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL EROSION.

SR SURFACE ROUGHENING 20

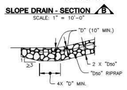


ELEVATION
SCALE: 1" = 10'-0"

SLOPE DRAIN - SECTION A
SCALE: 1" = 10'-0"

PLASTIC LINED DRAIN - OPTION
SCALE: 1" = 10'-0"

TERMINATION OF RIPRAP LINED SLOPE DRAIN



SCALE: 1" = 10'-0"

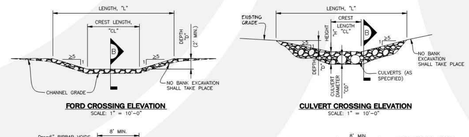
SLOPE DRAIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION AND LENGTH OF SLOPE DRAIN.
   – PIPE DIAMETER, "D", AND RIPRAP SIZE, "Dso".
2. SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS; CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO SLOPE OR SLOPE DRAIN DURING RUNOFF EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. SLOPE DRAINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY UPSTREAM LAND–DISTURBING ACTIVITIES.
4. FOR TEMPORARY SLOPE DRAINS, PIPE MAY BE INSTALLED ON TOP OF SLOPE; HOWEVER, 12" MIN. COVER AT TOP OF SLOPE SHALL BE PROVIDED.
5. A RIPRAP PAD SHALL BE PLACED AT THE OUTFALL OF THE SLOPE DRAIN.

SLOPE DRAIN MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT SLOPE DRAINS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. TEMPORARY SLOPE DRAINS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION. WHEN SLOPE DRAINS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

TSD TEMPORARY SLOPE DRAIN 21



FORD CROSSING ELEVATION
SCALE: 1" = 10'-0"

FORD CROSSING - SECTION A
SCALE: 1" = 10'-0"

TEMPORARY STREAM CROSSING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATIONS OF TEMPORARY STREAM CROSSING.
   – STREAM CROSSING TYPE (FORD OR CULVERT).
   – FOR FORD CROSSING: LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
   – FOR CULVERT CROSSING: LENGTH, "L", CREST LENGTH, "CL", CROSSING HEIGHT, "H", DEPTH, "D", CULVERT DIAMETER, "CD", AND NUMBER, TYPE AND CLASS OR GAUGE OF CULVERTS.
2. TEMPORARY STREAM CROSSING DIMENSIONS, DSO, AND NUMBER OF CULVERTS INDICATED (FOR CULVERT CROSSING) SHALL BE CONSIDERED MINIMUM DIMENSIONS; ENGINEER MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BACKFLOW OR FLOOD EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. SEE SHEET 1 FOR RIPRAP AND 1–1/2" CRUSHED ROCK GRADATIONS.
4. FOR A TEMPORARY STREAM CROSSING THAT WILL CARRY LOADS, THE TEMPORARY STREAM CROSSING MUST BE DESIGNED BY THE DESIGN ENGINEER.

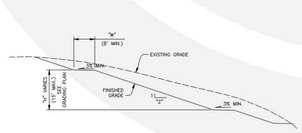
TEMPORARY STREAM CROSSING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT STREAM CROSSINGS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF STREAM CROSSINGS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CROSSING IS WITHIN 6–INCHES OF THE CREST (FORD CROSSING) OR GREATER THAN AN AVERAGE DEPTH OF 12–INCHES (CULVERT CROSSING).
3. STREAM CROSSINGS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.
4. WHEN STREAM CROSSINGS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

TSC TEMPORARY STREAM CROSSING 22

CULVERT CROSSING ELEVATION
SCALE: 1" = 10'-0"

CULVERT CROSSING - SECTION A
SCALE: 1" = 10'-0"



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

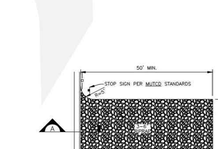
TERRACING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – WIDTH, "W", AND SLOPE, "S".
2. TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.
3. EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.

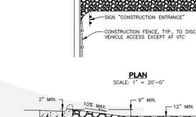
TERRACING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT THE TERRACING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. ANY RILL EROSION OCCURRING ON SLOPES SHALL BE REPAIRED AND RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.

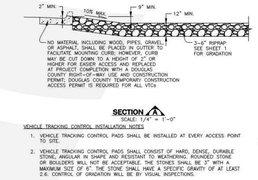
TER TERRACING 23



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



PLAN
SCALE: 1" = 20'-0"



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

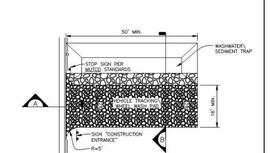
VEHICLE TRACKING CONTROL INSTALLATION NOTES

1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.
2. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 8". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
3. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.
4. A DOUGLAS COUNTY TEMPORARY CONSTRUCTION ACCESS PERMIT IS REQUIRED FOR EACH POINT ONTO DOUGLAS COUNTY R.O.W.
5. A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXISTING TRAFFIC AT THE VTC.

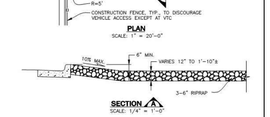
VEHICLE TRACKING CONTROL MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO PUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. TOPDRESSING WITH CLEAN GRAVEL SHALL BE PERFORMED AS NEEDED TO MAINTAIN EFFECTIVENESS OF THE PAD. IF DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN GRAVEL, PLACE ADDITIONAL NEW GRAVEL, OR REPLACE WITH NEW GRAVEL AS NECESSARY TO RESTORE EFFECTIVENESS.
2. VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRAVEL MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

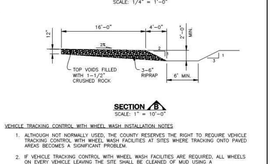
VTC VEHICLE TRACKING CONTROL 24



PLAN
SCALE: 1" = 20'-0"



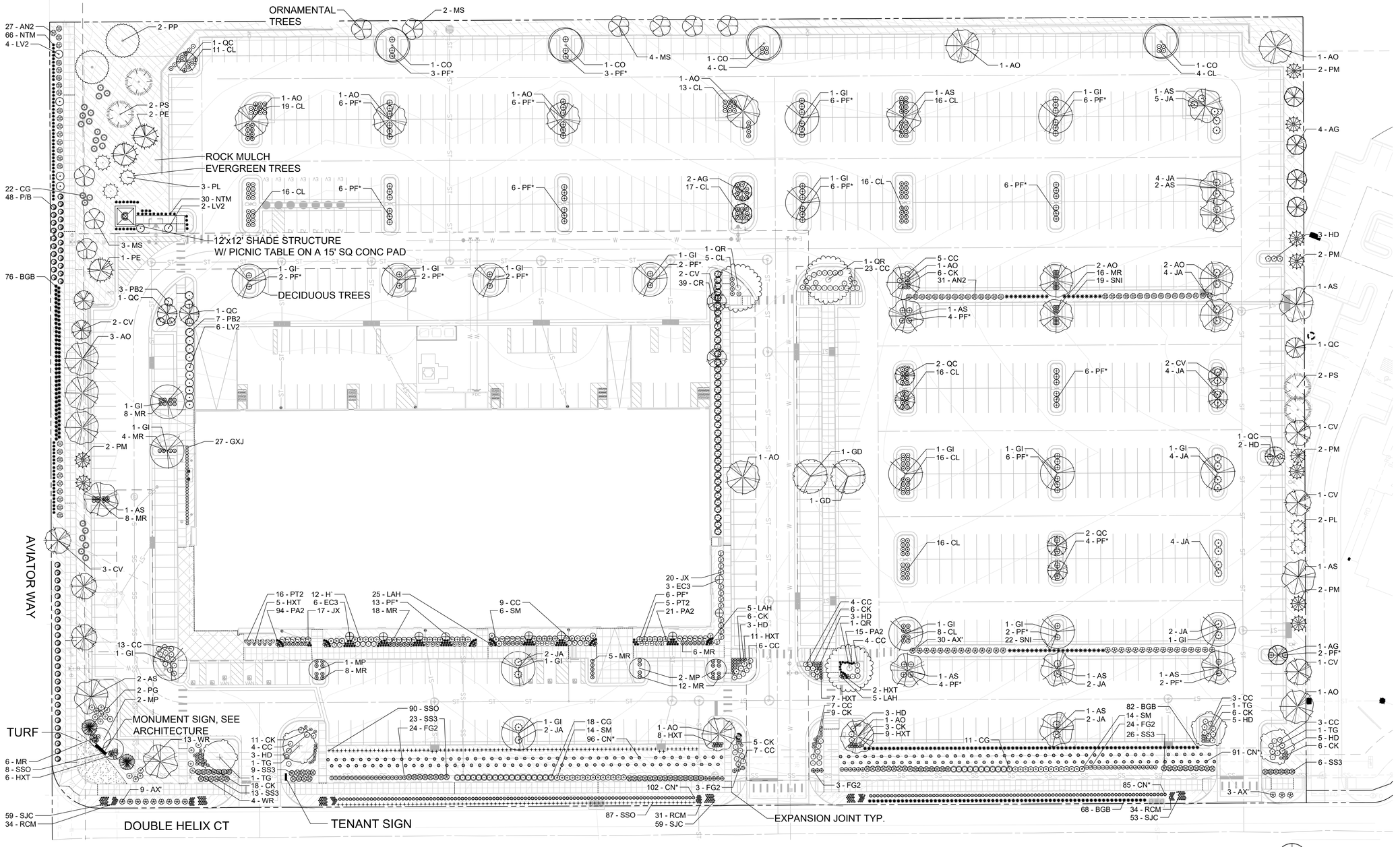
SECTION A
SCALE: 1/4" = 1'-0"



SECTION B
SCALE: 1" = 10'-0"

VEHICLE TRACKING CONTROL WITH WHEEL WASH INSTALLATION NOTES

1. ALTHOUGH NOT NORMALLY USED, THE COUNTY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.
2. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH F



KEY	CODE	QTY	VEGETATIVE TYPE
	VAR.		DECIDUOUS TREES
	VAR.		EVERGREEN TREES
	VAR.		ORNAMENTAL TREES
	VAR.		DECIDUOUS SHRUBS
	VAR.		EVERGREEN SHRUBS
	VAR.		ORNAMENTAL GRASSES
	VAR.		PERENNIALS
		95,431 sf	ROCK MULCH - 1 1/2" BRECKEN GOLD
		726 sf	GRASS - TURF (RTF)
		280 ft	METAL EDGING
			EXPANSION JOINT
			SAW CUT JOINT

0 30 60 90 feet

SCALE: 1" = 30'

NORTH

PLAN NORTH

britina
landscape architecture urban design planning
1760 N. Gaylord Street Suite 3M, Denver CO 80206
p: 303.456.2887 w: www.britina.com

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

ROBERT M. COLE 256 #0117300 Original Date of Licensure LICENSED LANDSCAPE ARCHITECT STATE OF COLORADO

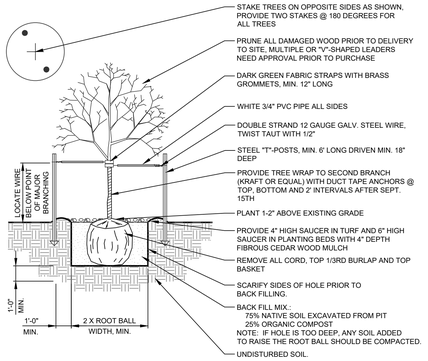
REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MO
Checked By:	RC

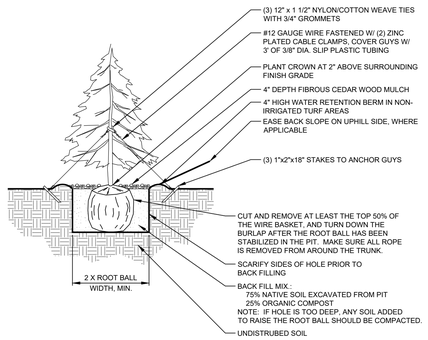
Sheet Name

LANDSCAPE PLAN

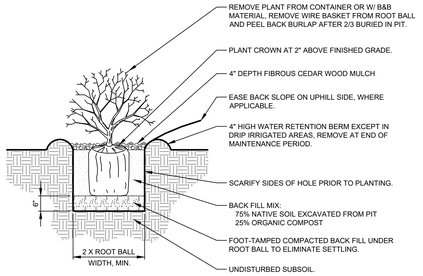
L-01



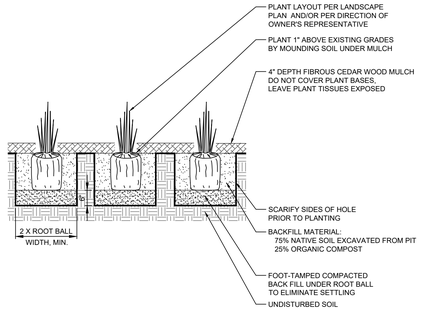
1 DECIDUOUS TREE PLANTING & STAKING
SCALE: 1/4"=1'-0"



2 EVERGREEN TREE PLANTING & STAKING
SCALE: 1/4"=1'-0"



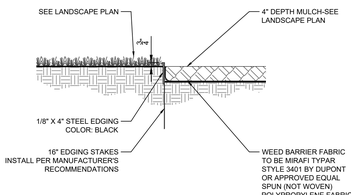
3 SHRUB PLANTING
SCALE: 1/2"=1'-0"



4 PERENNIAL & ORNAMENTAL GRASS PLANTING
SCALE: 1/2"=1'-0"

NOTES:

1. FINISHED GRADE FOR SOD TO BE 3/4" BELOW TOP OF EDGING.
2. TAMPER MULCH AT EDGING SO THAT IT DOES NOT SPILL INTO TURF.



5 STEEL EDGING
SCALE: 1"=1'-0"

LANDSCAPE NOTES

1. Landscape Contractor shall be responsible for becoming familiar with all underground utilities, pipes and structures. The Contractor shall be held responsible for contacting all utility companies for field location of all underground utility lines prior to any excavation. The Landscape Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.
2. Do not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist that may not have been known during design. Such conditions shall be immediately brought to the attention of the General Contractor and Owner's Representative. The Landscape Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification
3. If conflicts arise between size of areas and plans, Landscape Contractor to contact the Owner's Representative for resolution. Failure to make such conflicts known to the Landscape Architect will result in Contractor's liability to relocate materials.
4. The Landscape Contractor shall notify the Owner's Representative 72 hours prior to commencement of work to coordinate project inspection schedules.
5. Landscape Contractor shall provide per unit costs for every size of plant material, and by type as called out on Planting Plans. Unit cost to include the plant material itself and installation including all labor, amendments, fertilizers, etc., as detailed and specified for each size.
6. It is the Landscape Contractor's responsibility to furnish plant materials free of pests or plant diseases. Pre-selected or "tagged" material must be inspected by the Landscape Contractor and be certified pest and disease free. It is the Landscape Contractor's obligation to warranty all plant material for one year after final acceptance.
7. Landscape Contractor shall be responsible for any coordination with subcontractors as required to accomplish planting operations.
8. Provide matching sizes and forms for all plants used for hedges. Space equally as called for on plans.
9. All plant material shall be acclimated to nearest conditions for minimum of 8 months before planting.
10. Plant names are abbreviated on drawings. See plant list for key and classification.
11. Obtain an agricultural suitability analysis of the site soil from an accredited soils laboratory at the contractors cost. The analysis shall verify the suitability of the existing soils, analyze the existing soil texture and recommend additional soil amendments beyond those specified. A minimum of two (2) samples shall be taken from the site. Location to be determined by the Owner's Representative. The soil amendments currently specified will be the minimum incorporated. Test Agency: Colorado State University Soil Testing Lab, A319-NESB, Fort Collins, CO 80523-1120 or other reputable lab.
12. Prepare all seeding and sodding areas by ripping and tilling or otherwise scarified to a depth of not less than 12 inches. Apply to all planting and seeded areas at the following rates per 1,000 square feet, incorporating thoroughly with top 6 inches of soil layer:

    a. As recommended in the soils analysis, three cubic yards organic amendment minimum.
    b. Five pounds preplant fertilizer and granular Diammonium Phosphate (18-46-0) at 150#/acre is recommended.
    c. Any chemical additives per soils analysis recommendations.

13. Final location of all plant material shall be subject to the approval of the Owner's Representative.
14. All tree plantings in lawn areas will receive a minimum of 4" depth mulch as required by Section 2708.01.5 of the Douglas County Zoning Resolution. Mulch to be fibrous cedar wood mulch as required by Section 11.2 of the Inverness Design Criteria and Guidelines. Wood mulch should not be covering the base of any tree directly against the trunk. It shall be placed along the outside root zone/drip zone of the tree roots. The contractor is responsible for weed control on beds and seeded areas until final project acceptance.
15. All planting beds shall receive a minimum of 3" depth of rock mulch, 3/4" dia. Brecken Gold Decorative Rock or approved equal. Supplied by Pioneer Sand Company or approved equal.
16. Tree plantings and planting beds will be treated with Diehard transplant (Trees) and Diehard bed prep (Planting beds) as well as Micorrhizal Innoculants and at the rate recommended by the manufacturer.
17. See details for planting requirements, materials, and execution.
18. Stake/Guy all trees as per detail for a period of one year.
19. If annuals are specified on plans, the landscape contractor is to submit a list of seasonally available annuals to be used to the Owner's Representative for approval.
20. All utility easements and emergency accesses shall remain unobstructed and fully accessible along their entire length for maintenance and emergency equipment and vehicles.
21. All landscaping shown on this plan shall be planted and maintained in a neat and adequate manner. Required maintenance activities shall include, but not limited to, mowing of lawns, trimming of hedges, adequate irrigation, replacement of dead, diseased or unsightly removal of plant material, weeds from planted areas, and appropriate pruning of plant materials. Should any plant material die, it shall be replaced with similar plant material within a timely manner and within one planting season.
22. If any transformers, ground-mounted HVAC units, utility pedestals, and similar features are not shown on the SIP, additional landscaping and screening may be required based upon field conditions during the site inspection prior to issuance of the certificate of occupancy, or final inspection, as applicable.
23. The irrigation system will be an automatic irrigation system with controller, control valve and all other equipment necessary to irrigate the project. Sod areas will utilize pop-up sprays with either rotary nozzles or spray nozzles. All shrub beds will utilize drip irrigation. Native seed will be irrigated for establishment only.
24. In the event of a discrepancy between the plan graphic and the landscape legend, the plant material quantity as determined by the plan graphic shall take precedence.
25. Landscaping shall be planted and maintained by the owner, successor, and/or assigns. Should any plant material die, it shall be replaced with similar plant material within one planting season.

PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER		WATER USE	SUN EXPOSURE
TREES - DECIDUOUS								
	AS	14	Acer saccharum 'JFS-Caddo2' / Flashfire® Sugar Maple	2.5" Cal.	B&B		Medium	Shade, Part shade, Full sun
	AO	18	Aesculus glabra / Ohio Buckeye	2.5" Cal.	B&B		Medium	Part shade, Full sun
	CO	4	Celtis occidentalis / Common Hackberry	2.5" Cal.	B&B		Medium	Shade, Part shade, Full sun
	GI	18	Gleditsia triacanthos inermis 'Impcole' / Imperial® Honey Locust	2.5" Cal.	B&B		Low - Medium	Full sun
	GD	2	Gymnocladus dioica 'Espresso' / Kentucky Coffeetree	2.5" Cal.	B&B		Low - Medium	Full sun
	QC	9	Quercus robur x alba 'Crimschmidt' / Crimson Spire™ Oak	2.5" Cal.	B&B		Medium - High	Full sun
	QR	3	Quercus rubra / Red Oak	2.5" Cal.	B&B		Medium	Part shade, Full sun
	TG	4	Tilia cordata 'Greenspire' / Greenspire Littleleaf Linden	2.5" Cal.	B&B		Medium	Part shade, Full sun
		72	SUBTOTAL:					
TREES - EVERGREEN								
	PG	2	Picea glauca 'Densata' / Black Hills White Spruce	6'-10' Ht	B&B		Medium	Part shade, Full sun
	PE	3	Pinus cembroides edulis / Pinyon Pine	6'-8' Ht	B&B		Low	Full sun
	PL	5	Pinus flexilis / Limber Pine	6'-10' Ht	B&B		Medium	Part shade, Full sun
	PM	10	Pinus mugo 'Tannenbaum' / Tannenbaum Mugo Pine	6'-10' Ht	B&B		Low - Medium	Full sun
	PP	2	Pinus ponderosa / Ponderosa Pine	8'-10' Ht	B&B		Very low - Medium	
	PS	4	Pinus sylvestris / Scotch Pine	6'-10' Ht	B&B		Medium	Full sun
		26	SUBTOTAL:					
TREES - ORNAMENTAL								
	AG	7	Amelanchier x grandiflora 'Autumn Brilliance' / Autumn Brilliance Serviceberry	2" Cal.	B&B		Low - Medium	Part shade, Full sun
	CV	12	Crataegus viridis 'Winter King' / Winter King Hawthorn	2" Cal.	B&B		Low - Medium	Part shade, Full sun
	MP	5	Malus x 'Prairifire' / Prairifire Crabapple	2" Cal.	B&B		Medium	Full sun
	MS	9	Malus x 'Spring Snow' / Spring Snow Crabapple	2" Cal.	B&B		Medium	Part shade, Full sun
		33	SUBTOTAL:					
SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	WATER USE	SUN EXPOSURE
DECIDUOUS SHRUBS								
	AN2	58	Amorpha nana / Dwarf False Indigo	5 gal.	Cont.	48" o.c.	Medium	
	CK	76	Caryopteris x clandonensis 'Dark Knight' / Dark Knight Bluebeard Spirea	5 gal.	Cont.	24" o.c.	Very low - Low	Full sun
	CN*	374	Chrysothamnus nauseosus nauseosus / Dwarf Blue Rabbitbrush	5 gal.	Cont.	24" o.c.	Very low - Low	Part shade, Full sun
	CL	177	Cornus sericea 'Kelseyi' / Kelsey's Dwarf Red Twig Dogwood	5 gal.	Cont.	36" o.c.	Medium - High	Shade, Part shade
	CR	39	Cornus sericea ARCTIC FIRE / Arctic Fire Dwarf Red Twig Dogwood	5 gal.	Cont.	60" o.c.	Medium - High	Shade, Part shade
	CC	88	Cotoneaster apiculatus / Cranberry Cotoneaster	5 gal.	Cont.	48" o.c.	Low - Medium	Part shade, Full sun
	CG	51	Cytisus purgans 'Spanish Gold' / Spanish Gold Broom	5 gal.	Cont.	60" o.c.	Very low - Medium	Part shade, Full sun
	EC3	9	Euonymus alatus 'Compactus' / Compact Burning Bush	5 gal.	Cont.	72" o.c.	Medium	Part shade, Full sun
	FG2	54	Forsythia x 'Goldlocks' / Goldlocks Forsythia	5 gal.	Cont.	36" o.c.	Low - Medium	Part shade, Full sun
	HD	27	Holodiscus dumosus / Rock Spirea	5 gal.	Cont.	48" o.c.	Low - Medium	Part shade
	H'	12	Hypericum x 'Hidcote' / Hidcote St. John's Wort	5 gal.	Cont.	48" o.c.	Medium	Part shade, Full sun
	JX	37	Jamesia americana / Waxflower	5 gal.	Cont.	48" o.c.	Very low - Medium	Shade, Part shade
	LV2	12	Ligustrum vulgare 'Cheyenne' / Cheyenne Privet	5 gal.	Cont.	72" o.c.	Very low - Low	Part shade, Full sun
	PB2	10	Physocarpus opulifolius 'Monlo' / Diabolo® Ninebark	5 gal.	Cont.	72" o.c.	Low - Medium	Part shade, Full sun
	PF*	111	Potentilla fruticosa / Bush Cinquefoil	5 gal.	Cont.	48" o.c.	Medium	Part shade, Full sun
	PrB	48	Prunus besseyi 'P011S' / Pawnee Buttes® Sand Cherry	5 gal.	Cont.	48" o.c.	Low	Part shade, Full sun
	SS3	77	Spiraea japonica 'Anthony Waterer' / Anthony Waterer Japanese Spirea	5 gal.	Cont.	48" o.c.	Medium	Part shade, Full sun
	SM	34	Syringa patula 'Miss Kim' / Miss Kim Korean Lilac	5 gal.	Cont.	48" o.c.	Medium	Part shade, Full sun
	WR	17	Weigela florida 'Red Prince' / Red Prince Weigela	5 gal.	Cont.	48" o.c.	Medium	Full sun
		1,311	SUBTOTAL:					
EVERGREEN SHRUBS								
	AX'	42	Arctostaphylos x coloradensis 'Panchito' / Panchito Manzanita	5 gal.	Cont.	48" o.c.	Low - Medium	Part shade, Full sun
	JA	35	Juniperus sabina 'Arcadia' / Arcadia Juniper	5 gal.	Cont.	72" o.c.	Medium	Part shade, Full sun
	MR	91	Mahonia repens / Creeping Grape Holly Mahonia	5 gal.	Cont.	36" o.c.	Low	Shade, Part shade, Full sun
	PT2	21	Picea abies 'Tompa' / Tompa Norway Spruce	5 gal.	Cont.	36" o.c.	Medium	Full sun
		189	SUBTOTAL:					
PERENNIALS								
	GXJ	27	Geranium x 'Johnson's Blue' / Johnson's Blue Geranium	1 gal.	Cont.	24" o.c.	Medium	Part shade
	HXT	48	Heuchera x 'Timeless Night' / Timeless Night Coral Bells	1 gal.	Cont.	24" o.c.	Medium - High	Shade, Part shade
	LAH	35	Lavandula angustifolia 'Hidcote' / Hidcote English Lavender	1 gal.	Cont.	24" o.c.	Low	Part shade, Full sun
	RCM	99	Ratibida columnifera 'Mexican Hat' / Prairie Coneflower	1 gal.	Cont.	12" o.c.	Low - Medium	
	SJC	171	Sedum spurium 'John Creech' / John Creech Two Row Stonecrop	1 gal.	Cont.	12" o.c.	Low	
		380	SUBTOTAL:					
ORNAMENTAL GRASSES								
	BGB	226	Bouteloua gracilis 'Blonde Ambition' / Blonde Ambition Blue Grama	1 gal.	Cont.	24" o.c.	Low	Part shade, Full sun
	NTM	96	Nassella tenuissima / Mexican Feather Grass	1 gal.	Cont.	24" o.c.	Very low	Part shade, Full sun
	PA2	130	Pennisetum alopecuroides / Fountain Grass	1 gal.	Cont.	24" o.c.	Low - High	Part shade, Full sun
	SSO	185	Schizachyrium scoparium 'Standing Ovation' / Standing Ovation Little Bluestem	1 gal.	Cont.	24" o.c.	Low - Medium	Part shade, Full sun
	SNI	41	Sorghastrum nutans / Indian Grass	1 gal.	Cont.	36" o.c.	Low - Medium	Shade, Part shade, Full sun
		678	SUBTOTAL:					
SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER		WATER USE	SUN EXPOSURE
GROUND COVERS								
		95,431 sf	ROCK MULCH - 1 1/2" Brecken Gold					
		726 sf	GRASS - TURF (RTF)					

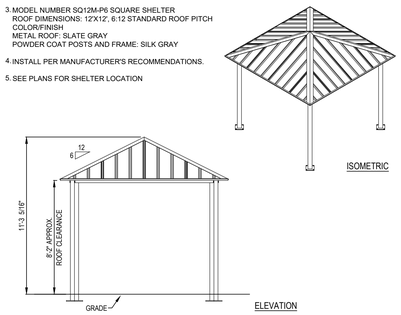
6 ADA PICNIC TABLE
SCALE: NTS

NOTES:

1. PICNIC TABLE TO BE MODEL #1144-04ADA, 4' SQUARE ADA PEDESTAL TABLE WITH 3 SEATS- 2" X 10" PLANKS IN LIGHT GRAY, SURFACE MOUNTED BY PW ATHLETICS OR APPROVED EQUAL.
2. PICNIC TABLE FRAME TO BE POWDERCOATED BLACK.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
4. SEE PLANS FOR ADA PICNIC TABLE LOCATIONS.

NOTES:

1. CONTRACTOR TO SUBMIT STAMPED SHOP DRAWINGS BY STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. ICON SHELTER SYSTEM SUPPLIED BY RECREATION PLUS LTD. 303-278-1455
3. MODEL NUMBER SQ12M-P6 SQUARE SHELTER
   ROOF DIMENSIONS: 12'X12', 6:12 STANDARD ROOF PITCH
   COLOR/FINISH
   METAL ROOF: SLATE GRAY
   POWDER COAT POSTS AND FRAME: SILK GRAY
4. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
5. SEE PLANS FOR SHELTER LOCATION



7 SHADE SHELTER
SCALE: NTS

britina
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HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

ROBERT M. COURT 25A KAUFFMAN Original Date of Licensure 01/31/08 STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

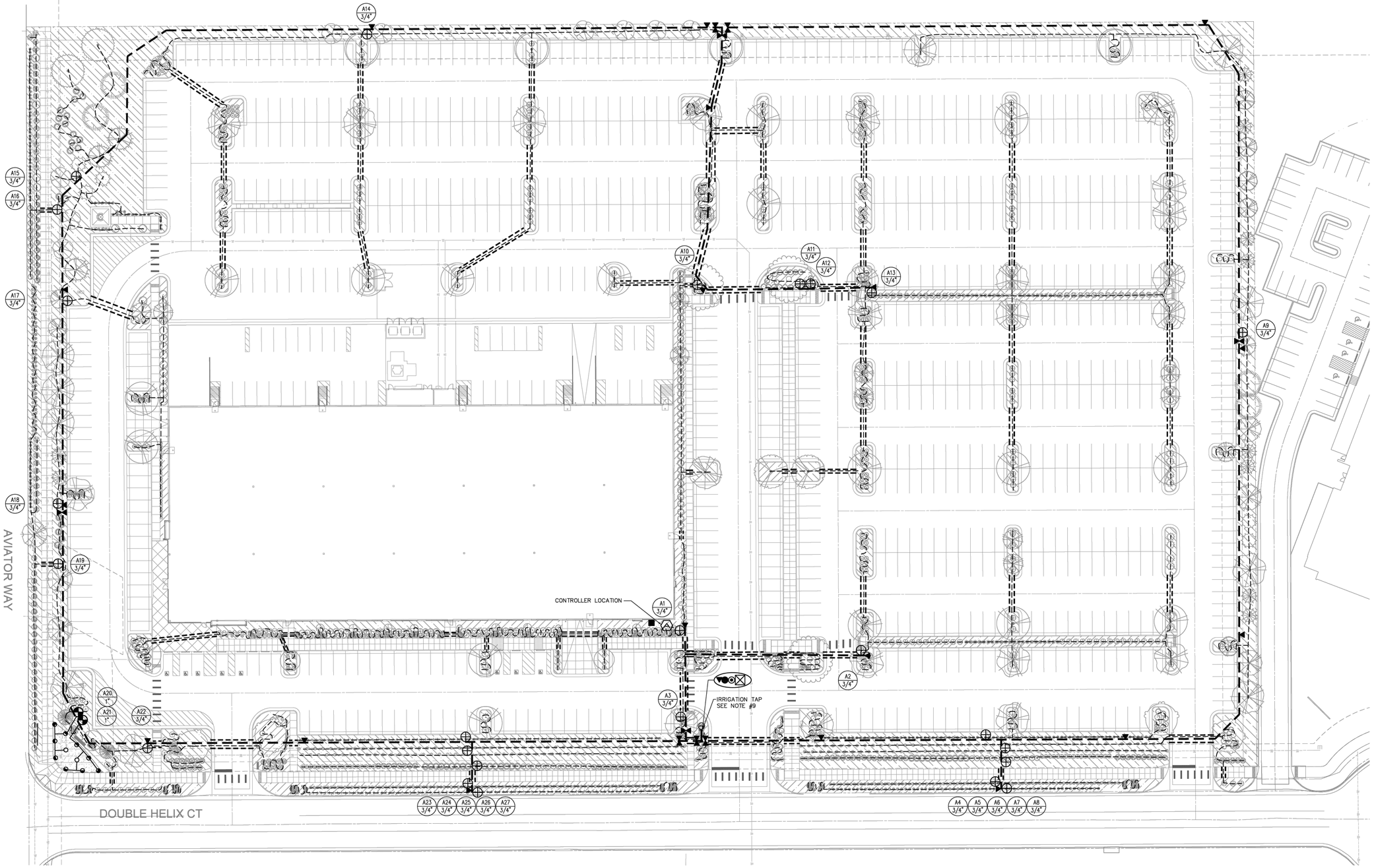
REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MO
Checked By:	RC

Sheet Name

LANDSCAPE DETAILS

PLAN NORTH



IRRIGATION SCHEDULE

SYMBOL	MODEL	DESCRIPTION	DETAIL
	1806 –SAM–PRS–NP W/ 15 SER. NOZZLE	RAINBIRD POP UP SPRAY HEAD	1
	700 SERIES RWBO–KIT	HARDIE CONTROL VALVE	2
	LINE SIZE	GATE VALVE	3
	¾"	DRIP VALVE	4
	44NP	RAINBIRD QUICK COUPLER	5
	825YA–(1")	FEBCO BACKFLOW PREVENTER	7
	ESP–LXME–36 STATIONS	RAINBIRD CONTROLLER–PEDESTAL MOUNT	
	CL. 200 B.E. (1½")	PVC MAINLINE	
	CL. 200 B.E.	PVC LATERALS – 1" UNLESS OTHERWISE NOTED	
	CL. 200	PVC SLEEVING	
	¾"	DRIP TUBING	

	CONTROLLER NUMBER / VALVE SIZE	
M	WATER METER – 1"	
	20930 SERIES – 1"	BUCKNER MASTER VALVE
	WR2–RFC	RAINBIRD RAIN/FREEZE SENSOR
	600 SERIES –1"	WILKINS PRV

NOTE:
1. ALL EQUIPMENT AND PIPING FOR THE IRRIGATION SYSTEM COMING FROM THE NON–POTABLE WATER SOURCE IS TO BE NON–POTABLE AND PURPLE IN COLOR.

NOTES

1. REFER TO SPECIFICATIONS AND DETAILS FOR INSTALLATION INSTRUCTIONS.
2. ALL BASE PLAN INFORMATION HAS BEEN TAKEN FROM DRAWINGS PREPARED BY BRITINA, INC.
3. IRRIGATION SYSTEM IS DESIGNED FOR A STATIC WATER PRESSURE OF 75 PSI. CONTRACTOR IS TO VERIFY PRESSURE PRIOR TO INSTALLATION OF IRRIGATION SYSTEM AND NOTIFY LANDSCAPE ARCHITECT WITH VERIFICATION FIGURES. FAILURE TO NOTIFY LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR TAKING RESPONSIBILITY FOR ANY ALTERATIONS AT HIS/HER OWN COST.
4. INSTALL DRIP EMITTERS IN BED AREAS AS DESCRIBED BELOW: THE FOLLOWING DRIP EMITTER SCHEDULE IS FOR MODERATE PLANTS. DECREASE WATER BY HALF FOR LOW WATER PLANT MATERIAL.

GROUND COVER	AGRIFIM IFT–5	1 EA. 12" RADIUS, 15" O.C.
1 GALLON MAT'L.	AGRIFIM IFT–5	1 EA.
5 GALLON MAT'L.	AGRIFIM IFT–5	2 EA.
DECIDUOUS TREES (1½" – 2" CAL.)	AGRIFIM IFT–10	3 EA.
DECIDUOUS TREES (3"–4" CAL.)	AGRIFIM IFT–10	4 EA.
PINE TREES (6'–10')	AGRIFIM IFT–10	2 EA.
PINE TREES (11'–14')	AGRIFIM IFT–10	3 EA.

5. CONTRACTOR TO COORDINATE INSTALLATION OF SLEEVING WITH INSTALLATION OF PAVING AND SIDEWALKS.
6. USE RAINBIRD 12 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 13'.
7. USE RAINBIRD 10 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 11'.
8. ELECTRICAL POWER TO THE NEW CONTROLLER IS SUPPLIED BY CONTRACTOR.
9. TAP LOCATION: CONNECT TO EXISTING 1" COPPER LINE AND INSTALL 1" STOP AND WASTE VALVE, 1" BACKFLOW PREVENTER, 1" PRV, 1" MASTER VALVE AND EXTEND 1½" MAINLINE AS SHOWN. INSTALL MASTER VALVE AND PRV IN SEPARATE CARSON #1419–13B VALVE BOXES. INSTALL STRONGBOX #SBBC–30 A.L. BACKFLOW PREVENTER CAGE. INSTALL TAP, METER AND ALL RELATED EQUIPMENT AS PER CITY SPECIFICATIONS AND DETAILS.
10. INSTALL SLEEVING BASED ON SLEEVING GUIDE BELOW:

PIPE SIZE OR WIRE QUANTITY	REQUIRED SLEEVE
3/4" TO 1" PIPING	2" SLEEVE
1–1/4" TO 2" PIPING	4" SLEEVE
CONTROL WIRES	2" SLEEVE

NOTE: EACH LENGTH OF SLEEVED PIPE SHOWN SHALL BE ROUTED THROUGH A SEPARATE SLEEVE.

12. INSTALL RAINBIRD WR2–RFC WIRELESS RAIN/FREEZE SENSOR AT EACH CONTROLLER. INSTALL REMOTE SENSOR AT LOCATIONS DIRECTED BY OWNERS REPRESENTATIVE.
13. CONTRACTOR TO USE ADJUSTABLE NOZZLES IN AREAS AS NEEDED FOR PROPER COVERAGE IN NARROW SOD AREAS. USE RAINBIRD HE NOZZLES FOR HEADS SPACED LESS THAT 8'.
14. IRRIGATION SYSTEM IS TO FOLLOW ALL REQUIREMENTS FOR INSTALLATION OF RECLAIMED WATER SYSTEMS AS DESCRIBED IN THE STATE OF COLORADO, WATER CONTROL DIVISION, "GUIDELINES FOR USE OF RECLAIMED WATER". LOCATOR TAPE FOR MAINLINE TO BE A MINIMUM OF 2" IN WIDTH, MAGNETIC BACKED, LAVENDER COLORED WITH BLACK LETTERING STATING: "RECLAIMED WATER – DO NOT DRINK".
15. ALL CONTROL VALVE AND GATE VALVE BOXES MUST HAVE ACCEPTABLE LAVENDERCOLORED LABELS PERMANENTLY AFFIXED TO OUTSIDE OF LID STATING: "RECLAIMED WATER – DO NOT DRINK", OR SIMILAR TAGS ATTACHED TO VALVES THEMSELVES. ALL CONTROLLERS TO HAVE SIMILAR SIGNAGE (4"×6") PERMANENTLY AFFIXED TO DOOR OF EACH CONTROLLER.

0 30 60 90 feet
SCALE: 1" = 30'

NORTH

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number 24140
Date 2024.08.15
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IRRIGATION PLAN

IDC
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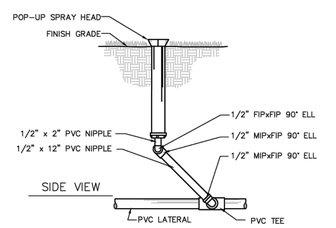
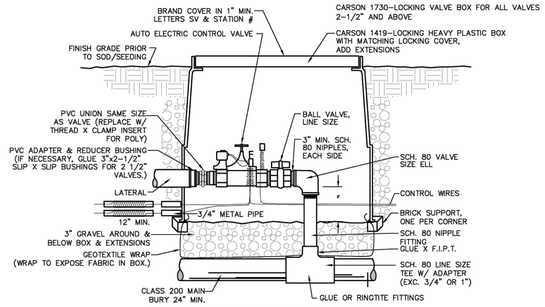
303–442–7027
303–665–8485– FAX

IRR-01



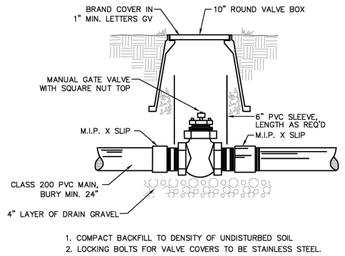
NOTE:
1. COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL.
2. ALL PVC NIPPLES TO BE SCHEDULE 80

(1) POP-UP SPRAY HEAD



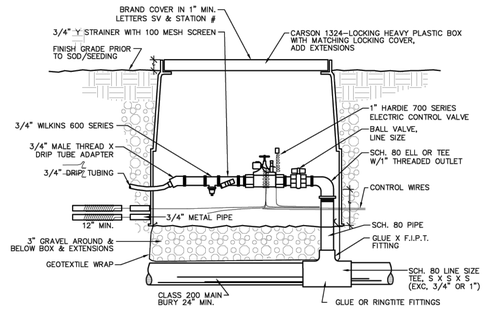
COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

(2) CONTROL VALVE



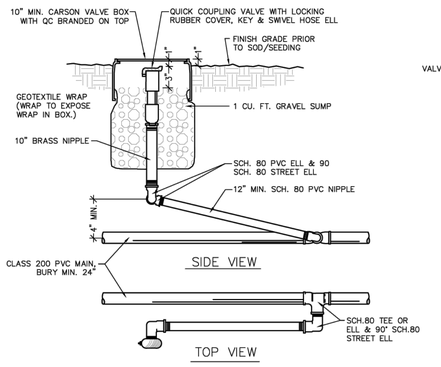
1. COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL
2. LOCKING BOLTS FOR VALVE COVERS TO BE STAINLESS STEEL.

(3) ISOLATION GATE VALVE



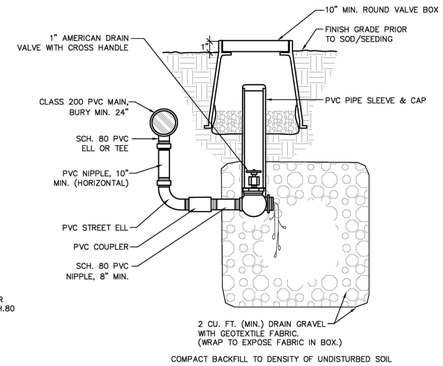
COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

(4) DRIP VALVE



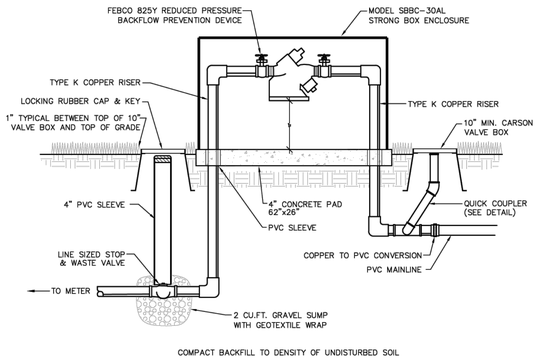
COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

(5) QUICK COUPLER



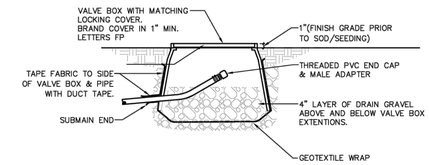
COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

(6) DRAIN VALVE

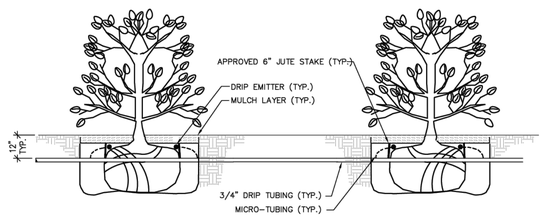


COMPACT BACKFILL TO DENSITY OF UNDISTURBED SOIL

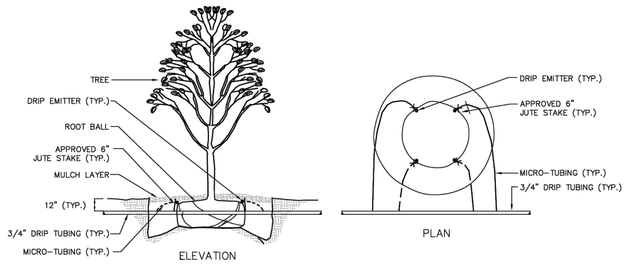
(7) REDUCED PRESSURE BACKFLOW PREVENTER



(8) DRIP-BLOWOUT



(9) DRIP-SHRUB



(10) DRIP-TREE

HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
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Checked By:	SN

Sheet Name

IRRIGATION DETAILS

IDC
IRRIGATION DESIGN & CONSULTING, INC.
303-442-7027
303-665-8485- FAX

IRR-02

GENERAL NOTES

1. BUILDING CODE: 2021 INTERNATIONAL BUILDING CODE, ASCE 7-16

2. LOADS USED IN DESIGN:

   A. DEAD LOADS:

      1) ROOF ..... 15 PSF
      2) ROOF (FOR WIND UPLIFT RESISTANCE) ..... 6 PSF

   B. SNOW LOAD CRITERIA:

      1) DESIGN SNOW LOAD ..... 30 PSF
      2) GROUND SNOW LOAD, Pg ..... 30 PSF
      3) SNOW EXPOSURE FACTOR, Ce 1.0
      4) IMPORTANCE FACTOR 1.0
      5) THERMAL FACTOR, Ct 0.7
      6) FLAT-ROOF SNOW LOAD, Pf ..... 21 PSF

   C. WIND LOAD CRITERIA:

      1) BASIC WIND SPEED (3 SECOND GUST-ULTIMATE) ..... 115 MPH
      2) EXPOSURE C
      3) RISK CATEGORY II
      4) INTERNAL PRESSURE COEFFICIENT 0.18
      5) COMPONENTS AND CLADDING DESIGN WIND PRESSURE (WALLS AT DISCONTINUITY, ZONE 5, 10 SF) ..... 34.9 PSF
      6) COMPONENTS AND CLADDING DESIGN WIND PRESSURE (WALLS NOT AT DISCONTINUITY, ZONE 4, 10 SF) ..... 28.3 PSF
      7) COMPONENTS AND CLADDING DESIGN WIND PRESSURE (ROOF AT DISCONTINUITY ZONES 2 AND 3, 10 SF) ..... 60.1 PSF
      8) COMPONENTS AND CLADDING DESIGN WIND PRESSURE (ROOF NOT AT DISCONTINUITY, ZONE 1, 10 SF) ..... 45.5 PSF

   D. SEISMIC DESIGN CRITERIA:

      1) RISK CATEGORY II
      2) IMPORTANCE FACTOR 1.0
      3) Ss 0.207
      4) S1 ..... 0.057
      5) Sds 0.179
      6) Sd1 ..... 0.057
      7) SITE CLASS C
      8) SEISMIC DESIGN CATEGORY ..... B
      9) BASIC SEISMIC FORCE RESISTING SYSTEM ..... INTERMEDIATE PRECAST SHEAR WALLS
      10) DESIGN BASE SHEAR ..... 219 KIPS
      11) SEISMIC RESPONSE COEFFICIENT, Cs 0.045
      12) RESPONSE MODIFICATION FACTOR, R 4
      13) ANALYSIS PROCEDURE ..... EQUIVALENT LATERAL FORCE

   E. GRAVITY LOADS SHOWN ON THE DRAWINGS ARE SERVICE UNLESS NOTED OTHERWISE. WIND AND SEISMIC LOADS SHOWN ON THE DRAWINGS ARE ULTIMATE UNLESS NOTED OTHERWISE.

3. NON-STRUCTURAL ELEMENTS:

   A. ELEMENTS SUCH AS NON-BEARING PARTITIONS, ETC. ATTACHED TO AND/OR SUPPORTED BY THE STRUCTURE SHALL TAKE INTO ACCOUNT DEFLECTIONS AND OTHER STRUCTURAL MOVEMENTS.

   B. FIRE PROTECTION FOR ALL STRUCTURAL COMPONENTS SHALL BE PROVIDED AND SHALL MEET MINIMUM CODE REQUIREMENTS FOR THE TYPE OF CONSTRUCTION SPECIFIED ON THE ARCHITECTURAL PLANS.

   C. SEE SOILS REPORT FOR SLIP SPACE ABOVE OR BELOW NON-STRUCTURAL PARTITIONS ON SLABS-ON-GRADE AND ARCHITECTURAL DRAWINGS FOR DETAILS.

   D. MOVEMENT OF THE SLAB ON GRADE MAY CAUSE DAMAGE TO NON-STRUCTURAL ELEMENTS THAT ARE CONNECTED TO BOTH THE SLAB ON GRADE AND OTHER STRUCTURAL MEMBERS. ISOLATION OF THESE NON-STRUCTURAL ELEMENTS SUCH AS PARTITION WALL, BASEBOARDS, PIPING, ETC. MAY BE REQUIRED. SEE THE ARCHITECTURAL, MECHANICAL OR ELECTRICAL DRAWINGS FOR DETAILS OR CONSULT WITH APPROPRIATE MEMBER OF THE DESIGN TEAM BEFORE CONNECTING NON-STRUCTURAL ELEMENTS TO BOTH THE SLAB ON GRADE AND OTHER STRUCTURAL MEMBERS.

4. FOUNDATIONS:

   A. FOUNDATION DESIGN IS BASED ON OWNER-ACCEPTED RECOMMENDATIONS IN SOILS REPORT NO. DN51, 863-125-R1 BY CTL THOMPSON DATED FEBRUARY 23, 2024.

   B. MAXIMUM SOIL DESIGN BEARING PRESSURE ..... 3,000 PSF.

   C. MINIMUM DEAD LOAD BEARING PRESSURE ..... 1,000 PSF.

   D. LATERAL EARTH PRESSURES:

      1) AT-REST ..... 70 PCF
      2) ACTIVE ..... 50 PCF
      3) PASSIVE ..... 250 PCF
      4) FRICTION COEFFICIENT 0.30

   E. ALL FOOTINGS ARE TO BE PLACED ON AT LEAST 12 FEET OF NEW, MOISTURE CONDITIONED AND COMPACTED FILL, APPROVED BY THE SOILS ENGINEER. REMOVE EXISTING FILL FOR A DEPTH OF 12 FEET AND BEYOND THE FOOTPRINT OF THE BUILDING BY 5 FEET AND REPLACE PER THE SOILS REPORT. BACKFILL SHALL BE COMPACTED TO 95% (MINIMUM) STANDARD PROCTOR DENSITY UNLESS OTHERWISE RECOMMENDED IN THE SOILS REPORT. IF SOFT SPOTS ARE ENCOUNTERED REMOVE SOIL AND RECOMPACT WITH APPROVED FILL. (RE: SOILS REPORT FOR DESCRIPTION OF BEARING SOIL.)

   F. ALL SLAB ON GROUND IS TO BE PLACED ON AT LEAST 12 FEET OF NEW, MOISTURE CONDITIONED AND COMPACTED FILL, APPROVED BY THE SOILS ENGINEER. REMOVE EXISTING FILL FOR A DEPTH OF 12 FEET AND BEYOND THE FOOTPRINT OF THE BUILDING BY 5 FEET AND REPLACE PER THE SOILS REPORT. BACKFILL SHALL BE COMPACTED TO 95% (MINIMUM) STANDARD PROCTOR DENSITY UNLESS OTHERWISE RECOMMENDED IN THE SOILS REPORT. IF SOFT SPOTS ARE ENCOUNTERED REMOVE SOIL AND RECOMPACT WITH APPROVED FILL. (RE: SOILS REPORT FOR DESCRIPTION OF BEARING SOIL.)

   G. MAINTAIN SOILS AT SPECIFIED MOISTURE CONTENT DURING CONSTRUCTION.

   H. CENTER ALL FOOTINGS UNDER WALLS, COLUMNS OR GRID LINES UNLESS OTHERWISE NOTED ON PLANS.

   I. CONTRACTOR TO PROVIDE FIELD DENSITY TESTS ON COMPACTED FILL UNDER FOOTINGS AND INTERIOR SLABS-ON-GRADE. A MINIMUM OF 1 REPRESENTATIVE TEST SHALL BE TAKEN FOR EACH PAD FOOTING, EACH 100 LF OF CONTINUOUS FOOTING AND EACH 2,000 SF OF SLAB-ON-GRADE.

   J. NOTIFY SOILS ENGINEER WHEN EXCAVATION IS COMPLETED SO THAT CONDITIONS MAY BE INSPECTED PRIOR TO PLACEMENT OF ANY FILL OR CONCRETE.

5. CAST-IN-PLACE AND SITE CAST CONCRETE:

   A. ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH PORTLAND CEMENT, STONE AGGREGATE AND SHALL HAVE THE CEMENT TYPE AND DEVELOP THE COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:

      FOOTINGS ..... 3,000 PSI, TYPE I, 3-5 IN. SLUMP, 3.5-6.5% AIR
      SLABS-ON-GRADE ..... 4,000 PSI, TYPE I, 2-4 IN. SLUMP, 0-3% AIR, 0.50 MAXIMUM W/C RATIO, 1-1/2" MAXIMUM AGGREGATE SIZE
      TILT-UP WALL PANELS ..... 4,000 PSI, TYPE I, 3-5 IN. SLUMP, 0-3% AIR,
      ALL OTHER ..... 3,000 PSI, TYPE I, 3-5 IN. SLUMP, 4.5-7.5% AIR

   B. ALL CONCRETE WORK AND REINFORCEMENT DETAILING SHALL BE IN ACCORDANCE WITH THE MOST RECENTLY ADOPTED VERSION OF ACI 318, AND WITH ACI 301 AND 304. HOT WEATHER PLACEMENT: ACI 305. COLD WEATHER PLACEMENT: ACI 306.

   C. CONCRETE TESTING SHALL BE DONE IN ACCORDANCE WITH ACI 301. TESTS SHALL INCLUDE CYLINDERS AND SLUMP.

   D. CONCRETE MATERIALS:

      1) CEMENT SHALL BE ASTM C150, PORTLAND. USE ONLY ONE BRAND OF CEMENT FOR EACH TYPE.
         NORMAL - TYPE I
         MODERATE - TYPE II
         HIGH EARLY STRENGTH - TYPE III
         SULFATE RESISTANT - TYPE V
      2) FINE AND COARSE AGGREGATES: ASTM C33.
      3) WATER SHALL BE CLEAN AND POTABLE.
      4) ADMIXTURES CONTAINING THIOCYANATES OR CONTAINING MORE THAN 0.05 PERCENT CHLORIDE IONS ARE PROHIBITED.
      5) AIR ENTRAINING ADMIXTURE: ASTM C260.
      6) FLY ASH: ASTM C618, CLASS F OR C. LIMIT USE TO 20% OF CEMENT CONTENT. FLY ASH NOT ALLOWED IN TILT-UP PANELS OR SLABS-ON-GRADE.

   E. MIX CONCRETE IN ACCORDANCE WITH ASTM C94.

   F. DELIVER AND DISCHARGE CONCRETE ENTIRE LOAD WITHIN 90 MINUTES, OR BEFORE DRUM HAS TURNED 300 REVOLUTIONS, WHICHEVER OCCURS FIRST, AFTER INTRODUCTION OF MIXING WATER.

   G. UNLESS OTHERWISE NOTED, ALL EXPOSED EDGES OF CONCRETE WORK SHALL HAVE 3/4 INCH CHAMFER.

   H. CONTRACTOR MAY POUR SLABS-ON-GRADE CONTINUOUS AND SAW CUT CONTRACTION JOINTS. JOINTS SHALL BE SPACED 15 FEET MAXIMUM AND SAW CUT 1/4 OF DEPTH X 1/8" WIDE WITHIN 12 HOURS AFTER POURING. CARRY ALL SLAB REINFORCEMENT THROUGH CONTRACTION JOINTS.

CAST-IN-PLACE AND SITE CAST CONCRETE (CONTINUED)

   I. SLABS, TOPPING, FOOTINGS, BEAMS AND WALLS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT THIRD POINT OF SPAN WITH VERTICAL BULKHEADS UNLESS OTHERWISE SHOWN. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR AS APPROVED BY THE ENGINEER.

   J. SITE CAST TILT-UP PANELS HAVE BEEN DESIGNED FOR IN-PLACE LOADS ONLY. THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT ENGINEER REGISTERED IN THE STATE OF COLORADO TO REVIEW PANELS FOR CONSTRUCTION AND LIFTING LOADS.

   K. SUBMIT A RECORD COPY OF LIFTING CALCULATIONS, REINFORCING AND LIFTING INSERTS TO THE ENGINEER OF RECORD. THESE ARE FOR INFORMATION ONLY AND WILL NOT BE REVIEWED.

   L. SPECIAL INSPECTION AND TESTING OF TILT-UP MEMBERS SHALL BE DONE IN ACCORDANCE WITH THE BUILDING CODE. TESTING AGENCY WILL TAKE THREE CONCRETE TEST CYLINDERS AND ONE SLUMP TEST FOR EACH 100 CU.YDS. OF CONCRETE PLACED IN ANY ONE DAY, IN ACCORDANCE WITH ASTM C31.

   G. REINFORCEMENT:

   A. PERFORM ALL REINFORCING WORK IN ACCORDANCE WITH CRSI MANUAL OF STANDARD PRACTICE, AND CONFORM TO ACI 315.

   B. ALL REINFORCING SHALL BE HIGH-STRENGTH DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60, EXCEPT WELDABLE REINFORCEMENT WHICH SHALL BE ASTM A706, GRADE 60.

   C. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 AND SHALL BE LAPPED ONE FULL MESH AT SIDE AND END SPLICES AND WIRED TOGETHER.

   D. ALL WELDED HEADED STUD ANCHORS SHALL CONFORM TO AWS D1.1-TYPE B, GRADE 60.

   E. ALL DEFORMED BAR ANCHORS SHALL CONFORM TO ASTM A496, GRADE 60. ASTM A706, GRADE 60 BARS OF THE SAME DIAMETER AND LENGTH MAY BE USED IN LIEU OF DEFORMED BAR ANCHORS.

   F. FABRICATION AND PLACEMENT TOLERANCES FOR REINFORCING SHALL BE IN ACCORDANCE WITH ACI 117.

   G. REINFORCEMENT PROTECTION UNLESS NOTED OTHERWISE:

      1) CONCRETE POURED AGAINST EARTH ..... 3"
      2) CONCRETE POURED IN FORMS (EXPOSED TO WEATHER OR EARTH) ..... 2"
      3) SLABS AND WALLS (NOT EXPOSED TO WEATHER) ..... 3/4"

   H. NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPLICES, WHERE PERMITTED, SHALL BE AS SHOWN IN SCHEDULE UNLESS NOTED OTHERWISE. MAKE ALL BARS CONTINUOUS AROUND CORNERS.

   I. USE STANDARD HOOKS ON DOWELS UNLESS OTHERWISE NOTED.

   J. SUBMIT SHOP DRAWINGS FOR ALL REINFORCING INDICATING SIZES, SPACING, LOCATIONS, AND QUANTITIES OF REINFORCING STEEL.

   K. PLACE TWO #5 (PER 8" THICKNESS) WITH 2'-0" PROJECTION AROUND ALL OPENINGS IN CONCRETE WALL, SLABS, AND BEAMS. ALSO PROVIDE TWO #5 X 4'-0" DIAGONALLY AT EACH CORNER.

   L. CONTINUOUS TOP AND BOTTOM BARS IN WALLS AND BEAMS SHALL BE SPLICED AS FOLLOWS:
      TOP BARS AT MIDSPAN; BOTTOM BARS OVER SUPPORTS.

   M. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON THE PLANS. ALL REINFORCEMENT TO BE HELD SECURELY IN PROPER POSITION IN ACCORDANCE WITH THE MOST RECENTLY ADOPTED VERSION OF ACI 318. SET ANCHOR RODS WITH POSITIONING TEMPLATES AND BRACE AGAINST DISPLACEMENT.

   N. NO WELDING OF REINFORCING IS PERMITTED UNLESS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER.

   O. PROVIDE AN ALLOWANCE FOR ADDITIONAL REINFORCING, FABRICATION AND PLACING OF 1000 LINEAR FEET #5 REINFORCING BARS. THE REINFORCING WILL BE ADDED TO THE SHOP DRAWINGS AND IN FIELD OBSERVATION REPORTS BY THE ENGINEER AS "ADDED PER GENERAL NOTES." AN UP-TO-DATE TOTAL OF LINEAR FEET ADDED WILL BE MAINTAINED AND SUBSTANTIATED BY SHOP DRAWINGS AND FIELD OBSERVATION REPORTS.

7. STRUCTURAL STEEL:

   A. STRUCTURAL STEEL GRADES SHALL BE AS FOLLOWS:

      1) WF SHAPES - ASTM A992
      2) TUBES - ASTM A500, GRADE C WITH Fy = 50 ksi
      3) PIPES - ASTM A53, GRADE B
      4) CHANNELS - ASTM A36/A572
      5) ANCHOR RODS - ASTM F1554, GRADE 36 OR 55
      6) MISC. EMBEDDED ITEMS - ASTM A36
      7) ALL OTHER - ASTM A36
      8) BOLTS - ASTM A325 UNLESS NOTED OTHERWISE.

   B. STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC "MANUAL OF STEEL CONSTRUCTION."

   C. SUBMIT SHOP DRAWING INDICATING PROFILES, SIZES, SPACING, LOCATION OF STRUCTURAL MEMBERS, CONNECTIONS, AND CAMBERS.

   D. CONNECTIONS SHALL BE DETAILED AND FABRICATED AS SHOWN ON THE STRUCTURAL DRAWINGS. SUBMIT DESIGN CALCULATIONS, BEARING THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER, EMPLOYED BY THE CONTRACTOR AND REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED FOR THE FOLLOWING:

      1) CONNECTIONS NOT AS INDICATED ON THE DRAWINGS.
      2) REQUEST FOR SUBSTITUTION OF MEMBER SIZES OR MATERIAL GRADES.
      3) MODIFICATION OF THE STRENGTH OR CONFIGURATION OF STRUCTURAL FRAMING REQUESTED FOR THE CONTRACTOR'S CONVENIENCE, ERECTION SEQUENCE, CONSTRUCTION EQUIPMENT, AND MATERIALS.

   E. STANDARD SHEAR CONNECTIONS NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE SELECTED BY THE FABRICATOR FROM THE STANDARD DESIGN TABLES IN ACCORDANCE WITH THE LATEST PROVISIONS OF THE AISC "MANUAL OF STEEL CONSTRUCTION." CONNECTION SHALL BE SELECTED BASED ON THE ASD METHOD FOR THE UNFACTORED SERVICE LOADS PROVIDED. WHEN LOADS ARE NOT PROVIDED THE FABRICATOR SHALL SELECT CONNECTIONS BASED ON THE FOLLOWING:

      1) FOR NON-COMPOSITE MEMBERS, CONNECTIONS SHALL SUPPORT 60% OF THE TOTAL UNIFORM LOAD CAPACITY FOR EACH GIVEN BEAM AND SPAN.

         THE FABRICATOR SHALL SUBMIT CONNECTION DETAILS WITH THE STRUCTURAL STEEL SHOP DRAWING FOR APPROVAL.

   F. FABRICATOR SHALL BE EXPERIENCED IN FABRICATION OF STRUCTURAL STEEL FOR PROJECTS OF SIMILAR SIZE AND COMPLEXITY. FABRICATORS SHOULD BE AISC CERTIFIED OR SPECIAL INSPECTION OF ALL SHOP CONNECTIONS AND WELDS SHALL BE PROVIDED.

   G. ALL BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION EXCEPT THOSE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO BE SLIP CRITICAL CONNECTIONS.

   H. MINIMUM WELDS TO BE AISC AND/OR A.W.S. BUT NOT LESS THAN 3/16" CONTINUOUS FILLET UNLESS OTHERWISE NOTED. ALL SHOP AND FIELD WELDS SHALL BE MADE WITH E70 ELECTRODES UNLESS NOTED OTHERWISE AND AS NOTED IN THE "STEEL DECK" SECTION BELOW.

   I. WELDERS CERTIFICATES: CERTIFY WELDERS EMPLOYED ON THE WORK, VERIFYING AMERICAN WELDING SOCIETY QUALIFICATION WITHIN THE PREVIOUS 12 MONTHS.

   J. STRUCTURAL STEEL SHALL BE SHOP PAINTED WITH RUST INHIBITING PRIMER.

   K. FIELD PAINT ALL WELDS, ABRASIONS, RUST SPOTS AND FIELD BOLTS ON STRUCTURAL STEEL, JOISTS AND DECKING AFTER ERECTION.

   L. ANCHOR RODS SHALL BE CLEAN OF ALL GREASE AND CUTTING OIL. ANCHOR RODS SHALL BE CLEANED WITH SOLVENT BEFORE INSTALLING.

   M. THE TERMINOLOGY "CONTINUOUS" INDICATES QUANTITY. PROVIDE THE NECESSARY JOINT DETAILS TO ALLOW FOR BUILDING MOVEMENTS. COORDINATE WITH ARCHITECTURAL CONTROL AND EXPANSION JOINTS.

   N. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SPECIAL DETAILS AND MISCELLANEOUS STEEL.

   O. PROVIDE TEMPORARY BRACING AND PRECAUTIONS NECESSARY TO WITHSTAND ALL CONSTRUCTION AND/OR WIND LOADS UNTIL ALL FIELD CONNECTIONS ARE COMPLETED AND SHEAR WALLS AND DECKS ARE IN PLACE.

   P. HEADED ANCHOR STUD CONNECTORS (H.A.S.) AND DEFORMED ANCHOR STUDS (D.A.S.) SHALL CONFORM TO A.W.S. D1.1 STRUCTURAL WELDING CODE LATEST EDITION. DEFORMED STUDS SHALL BE 60 KSI MINIMUM YIELD STRENGTH. ALL STUD CONNECTORS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH A.W.S. D1.1 STRUCTURAL WELDING CODE. WHERE POSSIBLE, CONNECTORS SHALL BE SHOP WELDED.

   Q. TESTING AND INSPECTION SHALL BE DONE IN ACCORDANCE WITH THE BUILDING CODE AND AISC. ALL FIELD CONNECTIONS SHALL BE VISUALLY INSPECTED.

   R. ALL STEEL EXPOSED TO EARTH SHALL BE COATED WITH SONNEBORNE HYDROCIDE SEMI-MASTIC DAMPPROOFING OR APPROVED EQUAL.

8. JOISTS AND JOIST GIRDERS:

   A. STEEL JOISTS AND/OR JOIST GIRDERS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH STEEL JOIST (SJI) SPECIFICATIONS AND SHALL BE THE TYPE AND SIZE SHOWN ON THE DRAWINGS.

   B. IN ADDITION TO THE ERECTION DRAWINGS, THE FOLLOWING SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR RECORD ONLY, PRIOR TO THE ERECTION OF THE JOISTS:

      1) ONE SET OF CALCULATIONS FOR THE DESIGN OF ALL JOISTS AND JOIST GIRDERS. CALCULATIONS SHALL DEMONSTRATE COMPLIANCE WITH THE STEEL JOIST INSTITUTE SPECIFICATIONS AND CODE OF STANDARD PRACTICE AND WITH ALL REQUIREMENTS IN THE CONTRACT DOCUMENTS. CALCULATIONS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

   C. UNLESS NOTED OTHERWISE, TOTAL LOAD DEFLECTION (FROM FLAT) OF ALL JOISTS SHALL BE LIMITED TO L/240 AND LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/240 IN INCHES, WHERE L IS THE SPAN LENGTH IN INCHES.

   D. ALL JOISTS SHALL BE DESIGNED FOR BENDING STRESSES RESULTING FROM A 100 POUND CONCENTRATED LOAD (BEND-CHECK LOAD) AT ANY LOCATION ALONG THE TOP OR BOTTOM CHORD. REFER TO TYPICAL DETAILS FOR POINT LOADS GREATER THAN 100 POUNDS FOR ADDITIONAL JOIST REINFORCEMENT REQUIREMENTS.

   E. PROVIDE ALL JOISTS, JOIST GIRDERS, BRIDGING AND ACCESSORIES FOR A COMPLETE INSTALLATION IN ACCORDANCE WITH THE S.J.I. SPECIFICATIONS AND CODE OF STANDARD PRACTICE. SHOW ALL BRIDGING AND ACCESSORIES FOR COMPLETE INSTALLATION ON JOIST ERECTION DRAWINGS.

   F. ALL JOIST BRIDGING WHETHER SHOWN OR NOT SHALL MEET THE LATEST REQUIREMENTS OF THE STEEL JOIST INSTITUTE, THE JOIST SUPPLIER AND/OR OSHA. CONTRACTOR SHALL COORDINATE WITH JOIST SUPPLIER TO DETERMINE QUANTITIES AND TYPES OF BRIDGING REQUIRED.

   G. BRIDGING SHALL BE COMPLETELY INSTALLED AND JOISTS ALIGNED BEFORE ANY CONSTRUCTION LOADS ARE PLACED ON THE JOISTS.

   H. ANCHOR ALL JOIST BRIDGING RUNS AT THEIR ENDS BY WELDING TO SPANDREL BEAMS OR BY CLIPPING TO MASONRY OR CONCRETE WALLS.

   I. JOISTS AND JOIST GIRDERS SHALL BE SHOP PAINTED WITH RUST INHIBITING PRIMER.

   J. INSPECTION AND TESTING SHALL BE DONE IN ACCORDANCE WITH THE BUILDING CODE, AISC, AND SJI. ALL FIELD CONNECTIONS SHALL BE VISUALLY INSPECTED.

9. STEEL DECK:

   A. COMPLY WITH SDI DESIGN MANUAL FOR STEEL DECK WORK.

   B. DECK SHALL BE OF THE TYPE CALLED FOR ON THE FRAMING PLANS AND SHALL BE CONTINUOUS WHERE POSSIBLE. DECK SHALL BE SHOP-PAINTED AND/OR GALVANIZED AS INDICATED ON THE PLANS.

   C. STEEL DECK GRADES SHALL BE AS FOLLOWS:

      1) ROOF DECK: 50 KSI OR 80 KSI

   D. SHOP DRAWINGS FOR METAL DECK SHALL BE SUBMITTED, INDICATING DECK GAGE, TYPE, LAYOUT, AND CONNECTING PATTERNS.

   E. DECKING SHALL BE INSTALLED AND ALL OPENINGS IN DECK CUT AND REINFORCED IN ACCORDANCE WITH MANUFACTURER'S STANDARD DETAILS AND SPECIFICATIONS EXCEPT AS OTHERWISE NOTED OR SPECIFIED.

   F. WELDS FOR 22 GAGE AND THICKER DECK SHALL BE MADE WITH E6022 ELECTRODES.

   G. WELDS FOR DECK THINNER THAN 22 GAGE SHALL BE MADE WITH E7014 ELECTRODES.

   H. WELDING REQUIREMENTS SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN ON DRAWINGS.

      1) ATTACH ROOF TO SUPPORT BEAMS, STEEL JOISTS, ANGLES OR PLATES WITH 5/8" DIAMETER PUDDLE WELDS AT 12".

      2) LONGITUDINAL JOINTS BETWEEN ADJACENT ROOF DECK UNITS SHALL BE FASTENED TOGETHER WITH 5/8" DIAMETER PUDDLE WELDS OR #10 TEK SCREWS AT 36". ATTACH ROOF DECK TO BEAMS OR PLATES PARALLEL TO DECK WITH 5/8" DIAMETER PUDDLE WELDS AT 12".

   I. POWDER-ACTUATED (PIN) FASTENERS MAY BE USED IN LIEU OF WELDS AT CONTRACTOR'S OPTION. CONTRACTOR SHALL SUBMIT ALTERNATE PIN DESIGN TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALL. FASTENERS SHALL BE SDI LISTED FOR DIAPHRAGM DESIGN AND WIND UPLIFT; AND UL/FM LISTED FOR FIRE RESISTANCE AND WIND UPLIFT. POWDER ACTUATED FASTENERS SHALL ALSO BE RECOGNIZED BY ICC-ES FOR DIAPHRAGM SHEAR STRENGTH IN ACCORDANCE WITH THE LATEST VERSION OF THE ICC-ES AC 43.

   J. DECK IS DESIGNED FOR A THREE SPAN SUPPORT CONDITION. IF THE DECK LAYOUT IS SUCH THAT THE THREE SPAN CONDITION IS NOT MET THEN DECK SHORING MAY BE REQUIRED.

   K. ALL DECK CONNECTIONS SHALL BE VISUALLY INSPECTED.

10. LIGHT-GAGE METAL FRAMING:

   A. SHOP DRAWINGS SUBMITTALS SHALL BE ACCOMPANIED BY MANUFACTURER'S PRODUCT INFORMATION AND OTHER DATA NEEDED TO VERIFY COMPLIANCE WITH THE SPECIFIED REQUIREMENTS.

   B. LIGHT-GAGE METAL FRAMING SHALL BE THE SIZE AND GAGE SHOWN ON THE DRAWINGS.

   C. FRAMING ROLLED FROM STEEL 18 GAGE AND LIGHTER SHALL CONFORM TO ASTM A1003, LATEST EDITION, COMMERCIAL GRADE, WITH A MINIMUM YIELD STRESS OF 33,000 PSI.

   D. FRAMING ROLLED FROM STEEL 16 GAGE AND HEAVIER SHALL CONFORM TO ASTM A1003, LATEST EDITION, WITH A MINIMUM YIELD STRESS OF 50,000 PSI.

   E. ACCESSORIES: PROVIDE ALL ACCESSORIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, TRACKS, CLIPS, WEB STIFFENERS, ANCHORS, FASTENING DEVICES, RESILIENT CLIPS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, AND AS RECOMMENDED BY THE MANUFACTURER FOR THE STEEL MEMBERS USED.

   F. PROVIDE TEMPORARY BRACING AND PRECAUTIONS NECESSARY TO WITHSTAND ALL CONSTRUCTION AND/OR WIND LOADS UNTIL ALL FIELD CONNECTIONS ARE COMPLETED AND SHEAR WALLS OR DECKS ARE IN PLACE.

   G. LIGHT-GAGE METAL FRAMING SHALL HAVE THE REQUIRED BRIDGING PER THE MANUFACTURER'S SPECIFICATIONS. LOAD BEARING STUDS SHALL HAVE BRIDGING AT 48 INCHES ON CENTER MAXIMUM.

11. MANUFACTURED METAL STAIRS:

   A. DESIGN AND FABRICATE STAIR ASSEMBLIES TO SUPPORT UNIFORM LIVE LOAD OF 100 PSF AND A CONCENTRATED LOAD OF 300 LBS AT ANY ONE POINT, WITH DEFLECTION NOT TO EXCEED L/360.

   B. DESIGN AND FABRICATE RAILING ASSEMBLIES AND ATTACHMENTS TO RESIST UNIFORM LATERAL FORCE OF 50 PLF OR A CONCENTRATED LOAD OF 200 LBS AT ANY POINT, WHICHEVER IS GREATER.

   C. DESIGN STAIR AND RAILING ASSEMBLIES UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

   D. SUBMIT SHOP DRAWINGS INDICATING PROFILES, SIZES, CONNECTIONS, ANCHORAGE, AND ACCESSORIES.

   E. SUBMIT CALCULATIONS FOR STAIR AND RAILING ASSEMBLIES, BEARING THE SEAL AND SIGNATURE OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

   F. CONFORM TO THE SECTION ABOVE "STRUCTURAL STEEL".

12. NON-SHRINK GROUT:

   A. NON-SHRINK GROUT SHALL BE PROVIDED AS FOLLOWS:

      1) BETWEEN COLUMN BASES AND FOUNDATIONS.
      2) BETWEEN TILT-UP WALL PANELS (PRECAST WALLS) AND FOUNDATIONS.

13. POST-INSTALLED ANCHORS:

   A. INSTALLATION OF ANY POST-INSTALLED ANCHOR NOT SHOWN ON THE DRAWINGS SHALL FIRST BE SUBMITTED TO ENGINEER FOR REVIEW & APPROVAL.

   B. ALL POST-INSTALLED ANCHORS SHALL COMPLY WITH ICC-ES FOR EACH TYPE OF APPLICATION.

   C. INSTALLERS OF POST-INSTALLED ANCHORS SHALL HAVE TAKEN THE ANCHOR MANUFACTURER'S TRAINING PROGRAM OR ACI CERTIFICATION PROGRAM PER THE IBC.

   D. CONCRETE SHALL BE A MINIMUM OF 21 DAYS OLD, DRY, AND THE ACCEPTABLE TEMPERATURE PER THE MANUFACTURER'S REQUIREMENTS PRIOR TO INSTALLATION OF ANCHORS UNLESS NOTED OTHERWISE.

   E. HAMMER DRILL ALL HOLES USING THE CORRECT DIAMETER DRILL BIT PER THE MANUFACTURER'S SPECIFICATIONS TO ACHIEVE THE EMBEDMENT DEPTH SHOWN ON THE DRAWINGS.

   F. CLEAN OUT HOLES WITH COMPRESSED AIR, BRUSH, OR USE A MANUFACTURER'S ICC-ES APPROVED HOLLOW BIT WITH A VACUUM PER MANUFACTURER'S PRINTED INSTRUCTIONS.

POST-INSTALLED ANCHORS (CONTINUED)

   G. SET THE ANCHOR PER THE MANUFACTUER'S INSTRUCTIONS AND TIGHTEN TO THE MANUFACTURER'S SPECIFIED TORQUE.

   H. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE INSTALLATION TRAINING. FOR ADHESIVE ANCHORS IN SUSTAINED TENSION, THEY SHALL BE CERTIFIED IN ACCORDANCE WITH ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM, OR EQUIVALENT. CERTIFICATES OF THE PERSONNEL INSTALLING THE ANCHORS SHALL BE SUBMITTED TO THE EOR.

   I. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS SHALL BE APPROVED IN WRITING BY THE ENGINEER OF RECORD PRIOR TO INSTALL. CONTRACTOR SHALL SUBMIT CALCULATIONS THAT DEMONSTRATES THE SUBSTITUTED PRODUCT MEETS OR EXCEEDS THE REQUIRED PERFORMANCE VALUES OF THE ORIGINAL SPECIFIED PRODUCT.

14. GENERAL:

   A. ENGINEER'S ACCEPTANCE MUST BE SECURED FOR ALL STRUCTURAL SUBSTITUTIONS. VERIFY ALL OPENINGS THROUGH FLOORS, ROOF AND WALLS WITH MECHANICAL AND ELECTRICAL CONTRACTORS. VERIFICATION OF LOCATIONS, SIZES, LINTELS, AND REQUIRED CONNECTIONS ARE CONTRACTOR'S COMPLETE RESPONSIBILITY.

   B. PRIOR TO INSTALLATION OF MECHANICAL AND ELECTRICAL EQUIPMENT OR OTHER ITEMS TO BE ATTACHED TO THE STRUCTURE, ENGINEER'S APPROVAL OF CONNECTIONS AND SUPPORTS SHALL BE OBTAINED. UNLESS SPECIFICALLY DETAILED ON ARCHITECTURAL AND STRUCTURAL DRAWINGS, RESPECTIVE SUBCONTRACTOR SHALL FURNISH ALL HANGERS, CONNECTIONS, ETC., REQUIRED FOR INSTALLATION OF HIS ITEMS.

   C. PROVIDE ALL EMBEDDED ITEMS IN STRUCTURE AS NOTED ON ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS. MISCELLANEOUS EMBEDDED ITEMS AND ANCHOR BOLTS SHALL BE FURNISHED BY STEEL SUPPLIER AND INSTALLED BY CONCRETE CONTRACTOR.

   D. SUBMIT SHOP AND ERECTION DRAWINGS TO ENGINEER FOR REVIEW OF ALL:

      1) REINFORCING
      2) SITE CAST CONCRETE PANELS (EMBEDS AND REINFORCING)
      3) STRUCTURAL STEEL
      4) STEEL JOISTS
      5) METAL DECK

      THE MANUFACTURE OR FABRICATION OF ANY ITEMS PRIOR TO WRITTEN REVIEW OF SHOP DRAWINGS AND RECEIPT OF BUILDING PERMIT WILL BE ENTIRELY AT THE RISK OF THE CONTRACTOR.

      THE CONSTRUCT

TABLE 1705.2.3
REQUIRED SPECIAL INSPECTION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS

TYPE	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]
1. INSTALLATION OF OPEN-WEB STEEL JOIST AND JOIST GIRDERS:			
a. END CONNECTIONS - WELDED OR BOLTED.	—	X	SJI SPECIFICATIONS LISTED IN SECTION 2207.1
b. BRIDGING - HORIZONTAL OR DIAGONAL.	—		
1) STANDARD BRIDGING	—	X	SJI SPECIFICATIONS LISTED IN SECTION 2207.1
2) BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1		X	

FOR SI: 1 INCH = 25.4 MM.
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

INDICATES NON-APPLICABLE AREA

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.	—	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	— X	X X	AWS D1.4 ACI 318: 26.6.4	—
3. INSPECT ANCHORS CAST IN CONCRETE.	X	—	ACI 318: 17.8.2	—
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS[b] a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X	 X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. VERIFYING USE OF REQUIRED DESIGN MIX.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	—	ASTM C 172 ASTM C 31 ACI 318: 26.5, 26.12	1908.10
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: a. APPLICATION OF PRESTRESSING FORCES; b. GROUTING OF BONDED PRESTRESSING TENDONS.	X X	—	ACI 318: 26.10	—
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	—	X	ACI 318: Ch 26.8	—
11. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	—	X	ACI 318: 26.11.2	
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 318: 26.11.1.2(b)	—

FOR SI: 1INCH = 25.4 mm.
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318 OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY OTHER REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

INDICATES NON-APPLICABLE AREA

TABLE 1705.6
REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	—	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	—	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	—	X
4. DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIAL AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	—
5. PRIOR TO PLACEMENT OF CONTROLLED FILL, INSPECT OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	—	X

INDICATES NON-APPLICABLE AREA

STANDARD ABBREVIATIONS / SYMBOLS

ABBREVIATIONS

A.B.	ANCHOR BOLT	IBC	INTERNATIONAL BUILDING CODE
ACI	AMERICAN CONCRETE INSTITUTION	ICC	INTERNATIONAL CODE COUNSEL
		INT.	INTERIOR
ADD'L	ADDITIONAL	J.B.	JOIST BEARING
ADJ.	ADJACENT	K	KIPS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	K.S.I.	KIPS PER SQUARE INCH
		L	ANGLE
ALT.	ALTERNATE	LBS.	POUNDS
ARCH	ARCHITECT	LL	LIVE LOAD
ASTM	ASTM INTERNATIONAL	LLH	LONG LEG HORIZONTAL
B OR BOTT.	BOTTOM	LLV	LONG LEG VERTICAL
B.E	BOUNDARY ELEMENT	LONG.	LONGITUDINAL
B.L.	BRICK LEDGE	LSL	LAMINATED STRAND LUMBER
BLDG	BUILDING	LTWT	LIGHTWEIGHT
BLKG	BLOCKING	LVL	LAMINATED VENEER LUMBER
B.N.	BOUNDARY NAIL	MAS.	MASONRY
B.O.	BOTTOM OF	MAX	MAXIMUM
B.O.D.	BOTTOM OF DECK	MECH	MECHANICAL
B.P.	BASE PLATE	MFR.	MANUFACTURER
BRG.	BEARING	MIN.	MINIMUM
BTWN	BETWEEN	MISC.	MISCELLANEOUS
C.I.P.	CAST-IN-PLACE	M.O.	MASONRY OPENING
C.J.	CONTROL JOINT	(N)	NEW
CLR.	CLEAR	N.T.S.	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT	O.C.	ON CENTER
CONC	CONCRETE	O.H.	OPPOSITE HAND
CONST.	CONSTRUCTION	OPNG	OPENING
CONT.	CONTINUOUS	OWSJ	OPEN WEB STEEL JOIST
CONTR.	CONTRACTOR	PC	PRECAST
CTRD	CENTERED	PLWD	PLYWOOD
D.B.	DROP BEAM	P.S.F.	POUNDS PER SQUARE FOOT
DBL	DOUBLE	P.S.I.	POUNDS PER SQUARE INCH
D.F.	DOUGLAS FIR	P.S.L.	PARALLEL STRAND LUMBER
Ø	DIAMETER	P-T	POST TENSIONED
DL	DEAD LOAD	P.W.	PUDDLE WELD
D.A.S.	DEFORMED ANCHOR STUD	R	RADIUS
(E).	EXISTING	R.D.	ROOF DRAIN
E.F.	EACH FACE	RE:	REFERENCE
EL.	ELEVATION	REINF.	REINFORCING
ELEV.	BUILDING ELEVATION	REQ'D	REQUIRED
E.O.D.	EDGE OF DECK	SCHED.	SCHEDULE
E.O.S.	EDGE OF SLAB	SHTG	SHEATHING
EQ.	EQUAL	SHT	SHEET
ESR	EVALUATION SERVICE REPORT	SIM.	SIMILAR TO
E.W.	EACH WAY	SL	SNOW LOAD
EXP.	EXPANSION	S.O.G.	SLAB-ON-GRADE
EXT.	EXTERIOR	SPECS	SPECIFICATIONS
F.D.	FLOOR DRAIN	SQ.	SQUARE
F.N.	FIELD NAIL	STD.	STANDARD
FDN	FOUNDATION	SYM.	SYMMETRICAL
FTG	FOOTING	T & B	TOP AND BOTTOM
(F.V.)	FIELD VERIFY	T & G	TONGE AND GROOVE
FDN	FOUNDATION	TJI	WOOD I-JOIST
GALV.	GALVANIZED	TJL	WOOD OPEN WEB JOIST
G.C.	GENERAL CONTRACTOR	T.O.	TOP OF
GLB	GLU-LAM BEAM	TRANS.	TRANSVERSE
H.A.S.	HEADED ANCHOR STUD	TYP.	TYPICAL
H.D.	HOLD DOWN	U.N.O.	UNLESS NOTED OTHERWISE
HDR	HEADER	VERT.	VERTICAL
H.F.	HEM FIR	W.P.	WORK POINT
HGR	HANGER	WT.	WEIGHT
HORIZ.	HORIZONTAL	W.W.F.	WELDED WIRE FABRIC
HT.	HEIGHT		
HSS	HOLLOW STRUCTURAL SECTION		

SYMBOLS

- ℄ ..... CENTERLINE
- P.L. ..... PLATE
- ± ..... PLUS OR MINUS
- ..... "TOP OF" ELEVATION MARK
- ..... DECK SPAN DIRECTION
- ..... REVISION MARK
- ..... COLUMN MARK
- ..... DRILLED PIER MARK / WOOD JOIST MARK
- ..... WOOD HEADER MARK
- X## ..... PANEL MARK
- ..... CHANGE IN ELEVATION (STEP)
- ..... MOMENT CONNECTION
- # / S#.# ..... DETAIL NUMBER; SHEET ON WHICH DETAIL IS DRAWN
- ——X——X—— ..... W.W.F. REINFORCING

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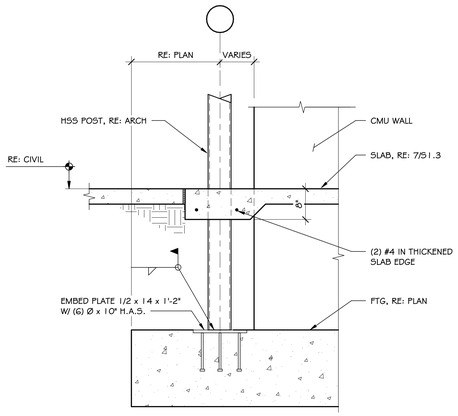
37691
PROFESSIONAL ENGINEER

REVISION	DATE
100% CD's	

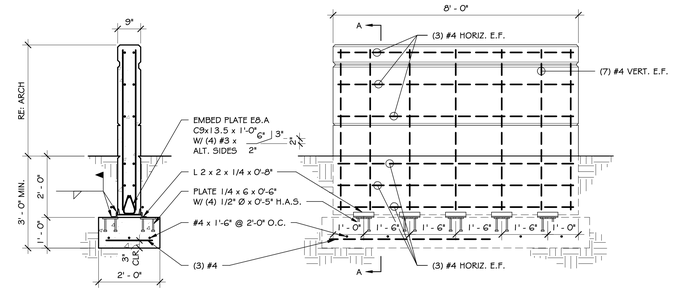
Project Number	24140
Date	2024.08.15
Drawn By	CT
Checked By:	NL

Sheet Name
ABBREVIATIONS AND TABLES

S1.2



8 / S1.3 SECTION
3/4" = 1'-0"



9 / S1.3 SECTION
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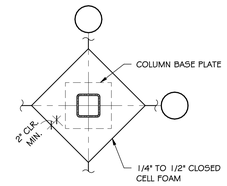
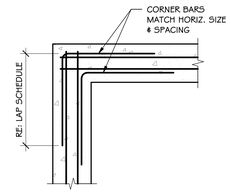


3 / S1.3 TYP. COLUMN ISOLATION JOINT DETAIL
N.T.S.



4 / S1.3 TYP. WALL/FTG CORNER DETAIL
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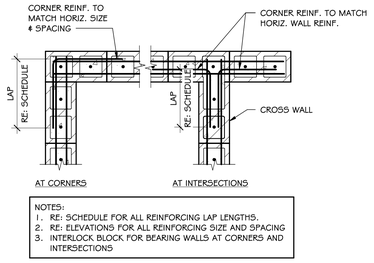
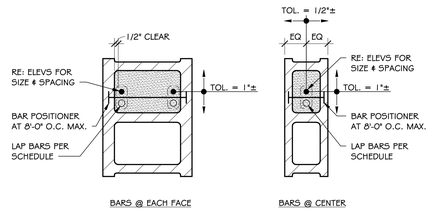
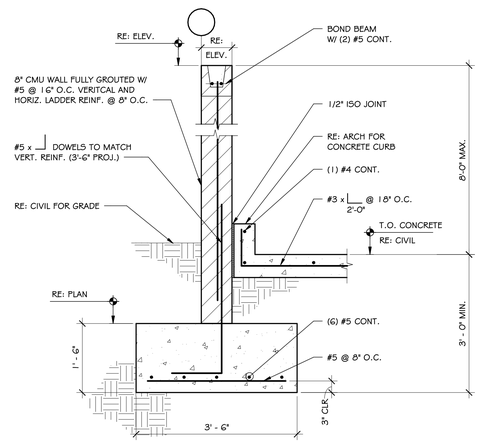


NOTES:
1. RE: SCHEDULE FOR ALL REINFORCING LAP LENGTHS.
2. RE: ELEVATIONS FOR ALL REINFORCING SIZE AND SPACING
3. INTERLOCK BLOCK FOR BEARING WALLS AT CORNERS AND INTERSECTIONS

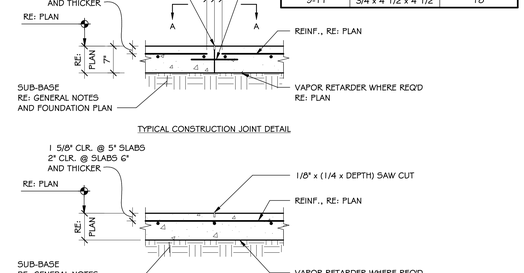
5 / S1.3 TYP. MASONRY REINFORCEMENT
3/4" = 1'-0"



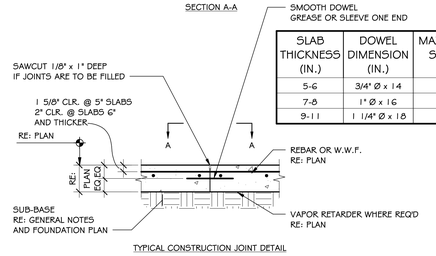
6 / S1.3 TYP. CMU WALL REINFORCEMENT
1 1/2" = 1'-0"



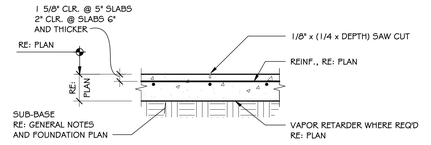
7 / S1.3 SECTION
3/4" = 1'-0"



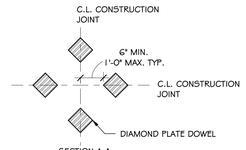
SLAB THICKNESS (IN.)	DOWEL DIMENSION (IN.)	MAX. DOWEL SPACING (IN.)
5-6	3/4" Ø x 14	18
7-8	1" Ø x 16	18
9-11	1 1/4" Ø x 18	18



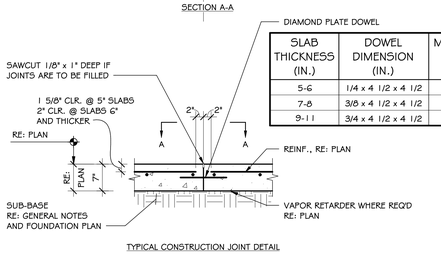
TYPICAL CONSTRUCTION JOINT DETAIL



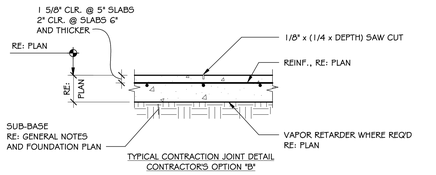
TYPICAL CONTRACTION JOINT DETAIL



SLAB THICKNESS (IN.)	DOWEL DIMENSION (IN.)	MAX. DOWEL SPACING (IN.)
5-6	1/4 x 4 1/2 x 4 1/2	18
7-8	3/8 x 4 1/2 x 4 1/2	18
9-11	3/4 x 4 1/2 x 4 1/2	18

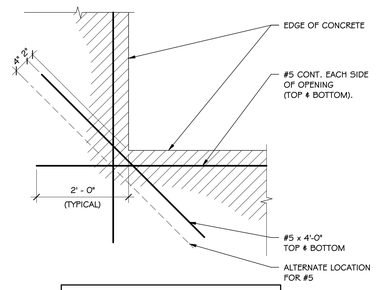


TYPICAL CONSTRUCTION JOINT DETAIL



TYPICAL CONTRACTION JOINT DETAIL CONTRACTOR'S OPTION "B"

1 / S1.3 SECTION
N.T.S.



NOTE:
THIS DETAIL IS TYPICAL FOR ALL RE-ENTRANT CORNERS CAST IN CONCRETE SLABS, BEAMS, DECK TOPPINGS AND WALLS. THIS DETAIL ALSO APPLIES AT ALL RE-ENTRANT CORNERS AT CONSTRUCTION JOINTS.

2 / S1.3 TYP. RE-ENTRANT CORNER DETAIL
N.T.S.

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TYPICAL SLAB & CONCRETE DETAILS

S1.3

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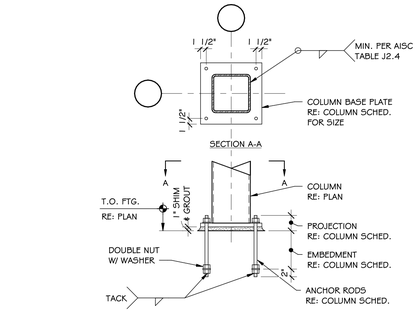
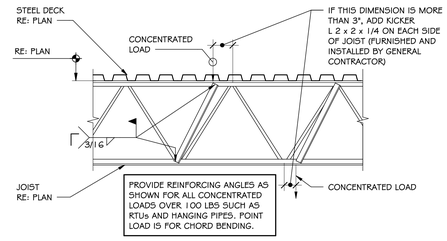
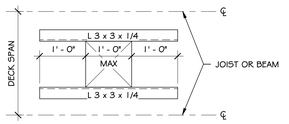
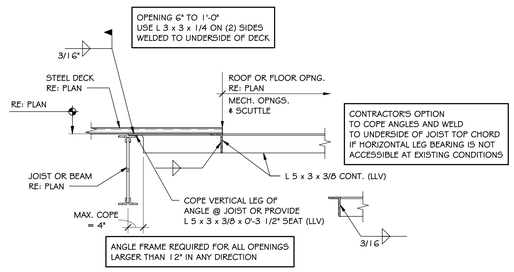


1 / S1.4 COLUMN BASE DETAIL
N.T.S.



2 / S1.4 TYP. JOIST REINFORCEMENT DETAIL
N.T.S.





3 / S1.4 TYP. DECK OPENING DETAIL
N.T.S.

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TYPICAL DETAILS

S1.4

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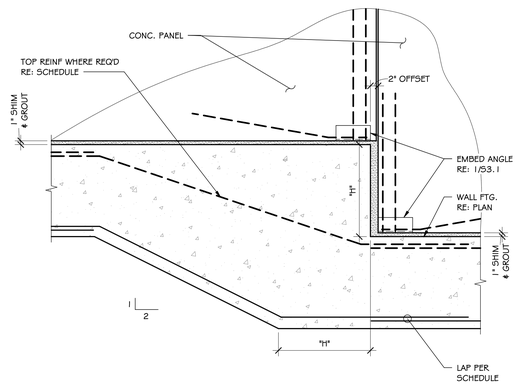
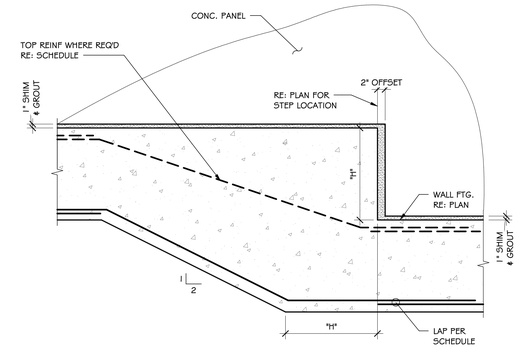
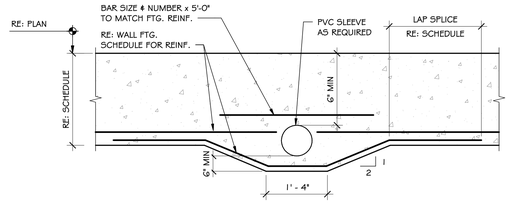


1 / S1.5 TYP. FOOTING STEP AT PANEL JOINT DETAIL
N.T.S.



2 / S1.5 TYP. FOOTING STEP DETAIL FOR TILT-UP
N.T.S.



3 / S1.5 TYP. FOOTING SLEEVE DETAIL
N.T.S.

FOR TILT-UP PANELS & STRUCTURAL SLABS

TYPICAL CONCRETE REINFORCING LAP AND EMBEDMENT LENGTHS
(UNLESS NOTED OTHERWISE)

	TENSION REINFORCING								COMPRESSION REINFORCING			
	f 'c = 3,000 PSI				f 'c = 4,000 PSI				f 'c = 3,000 PSI		f 'c = 4,000 PSI	
	TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		ALL BARS			
BAR	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP
#3	1'-10"	2'-4"	1'-5"	1'-10"	1'-7"	2'-1"	1'-3"	1'-7"	0'-9"	1'-0"	0'-8"	1'-0"
#4	2'-5"	3'-2"	1'-10"	2'-5"	2'-1"	2'-9"	1'-7"	2'-1"	0'-11"	1'-3"	0'-10"	1'-3"
#5	3'-0"	3'-11"	2'-4"	3'-0"	2'-7"	3'-5"	2'-0"	2'-7"	1'-2"	1'-7"	1'-0"	1'-7"
#6	3'-7"	4'-8"	2'-9"	3'-7"	3'-1"	4'-1"	2'-5"	3'-1"	1'-5"	1'-11"	1'-3"	1'-11"
#7	5'-3"	6'-9"	4'-0"	5'-3"	4'-6"	5'-11"	3'-6"	4'-6"	1'-8"	2'-3"	1'-5"	2'-3"
#8	6'-0"	7'-9"	4'-7"	6'-0"	5'-2"	6'-9"	4'-0"	5'-2"	1'-10"	2'-6"	1'-7"	2'-6"
#9	6'-9"	8'-9"	5'-2"	6'-9"	5'-10"	7'-7"	4'-6"	5'-10"	2'-1"	2'-10"	1'-10"	2'-10"
#10	7'-6"	9'-8"	5'-9"	7'-6"	6'-6"	8'-5"	5'-0"	6'-6"	2'-4"	3'-2"	2'-0"	3'-2"
#11	8'-2"	10'-8"	6'-4"	8'-2"	7'-1"	9'-3"	5'-6"	7'-1"	2'-7"	3'-6"	2'-3"	3'-6"

NOTES:
1. ALL LAPS SHOWN ARE CLASS "B" LAP SPLICES.
2. TOP BARS ARE HORIZONTAL BARS PLACED SUCH THAT 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
3. THIS TABLE APPLIES WHERE CLEAR COVER > OR = d_b AND CLEAR SPACING > OR = d_b IF BARS ARE CONFINED WITH STIRRUPS OR TIES THROUGHOUT THE SPLICE LENGTH OR CLEAR SPACING > OR = $2d_b$ WITHOUT STIRRUPS OR TIES.

FOR ALL OTHERS EXCEPT TILT-UP PANELS & STRUCTURAL SLABS
(FOOTINGS, GRADE BEAMS, SLABS-ON GRADE, ETC. WITH LARGER COVER/SPACING)

TYPICAL CONCRETE REINFORCING LAP AND EMBEDMENT LENGTHS
(UNLESS NOTED OTHERWISE)

	TENSION REINFORCING								COMPRESSION REINFORCING			
	f 'c = 3,000 PSI				f 'c = 4,000 PSI				f 'c = 3,000 PSI		f 'c = 4,000 PSI	
	TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		ALL BARS			
BAR	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP	EMB.	LAP
#3	1'-2"	1'-6"	0'-10"	1'-1"	0'-11"	1'-3"	0'-9"	1'-0"	0'-9"	1'-0"	0'-8"	1'-0"
#4	1'-6"	1'-11"	1'-2"	1'-6"	1'-3"	1'-8"	1'-0"	1'-3"	0'-11"	1'-3"	0'-10"	1'-3"
#5	1'-10"	2'-4"	1'-5"	1'-10"	1'-7"	2'-1"	1'-3"	1'-7"	1'-2"	1'-7"	1'-0"	1'-7"
#6	2'-2"	2'-10"	1'-8"	2'-2"	1'-11"	2'-5"	1'-6"	1'-11"	1'-5"	1'-11"	1'-3"	1'-11"
#7	3'-2"	4'-1"	2'-5"	3'-2"	2'-9"	3'-7"	2'-1"	2'-9"	1'-8"	2'-3"	1'-5"	2'-3"
#8	3'-7"	4'-8"	2'-9"	3'-7"	3'-1"	4'-1"	2'-5"	3'-1"	1'-10"	2'-6"	1'-7"	2'-6"
#9	4'-1"	5'-3"	3'-1"	4'-1"	3'-6"	4'-7"	2'-9"	3'-6"	2'-1"	2'-10"	1'-10"	2'-10"
#10	4'-6"	5'-10"	3'-6"	4'-6"	3'-11"	5'-1"	3'-0"	3'-11"	2'-4"	3'-2"	2'-0"	3'-2"
#11	4'-11"	6'-5"	3'-10"	4'-11"	4'-3"	5'-7"	3'-4"	4'-3"	2'-7"	3'-6"	2'-3"	3'-6"

NOTES:
1. ALL LAPS SHOWN ARE CLASS "B" LAP SPLICES.
2. TOP BARS ARE HORIZONTAL BARS PLACED SUCH THAT 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
3. THIS TABLE APPLIES WHERE CLEAR COVER > OR = $2d_b$, AND CLEAR SPACING > OR = $4d_b$.

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PEAK PROJECT NO. 23-018.30

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TYPICAL FOOTING DETAILS

S1.5

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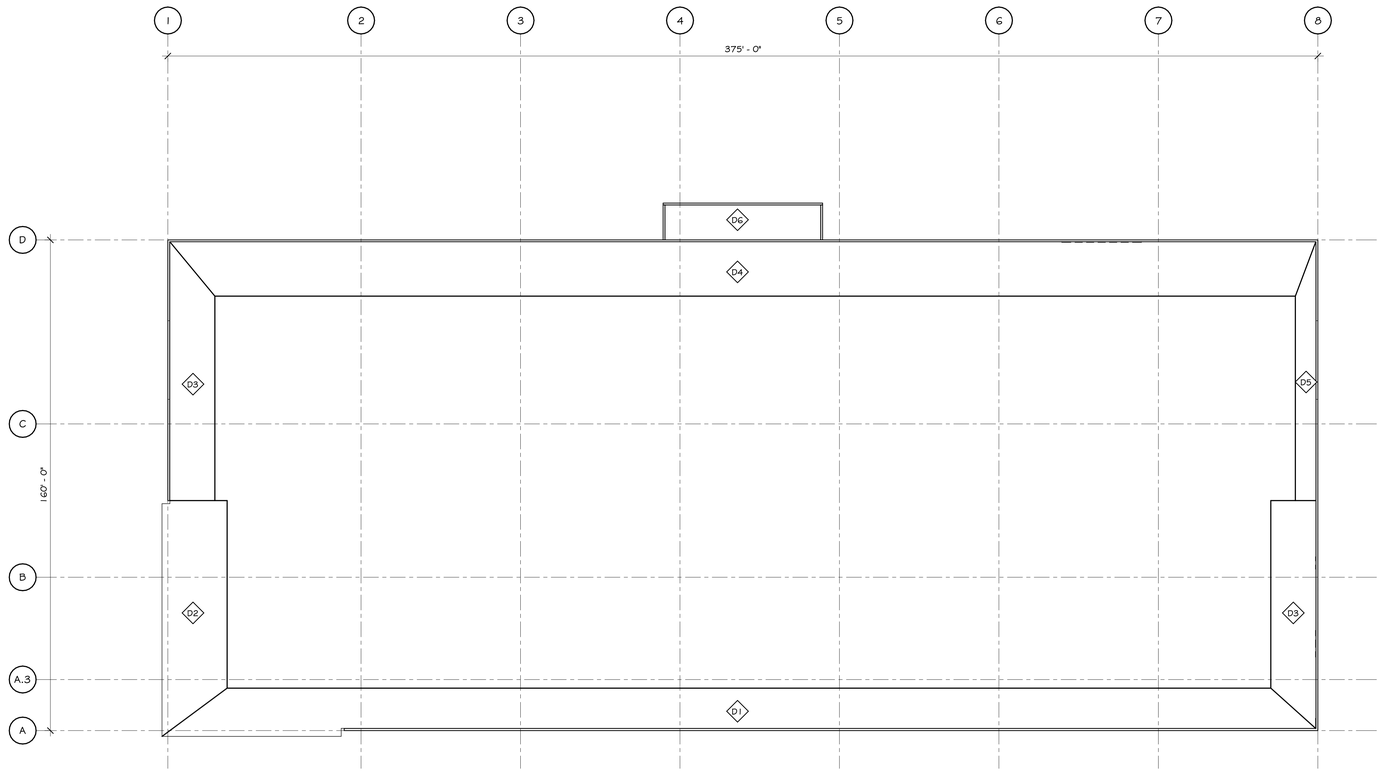
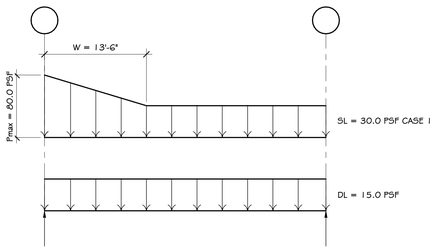


1 / S2.0 SNOW DRIFT LOAD DIAGRAM
N.T.S.



36LHSP1
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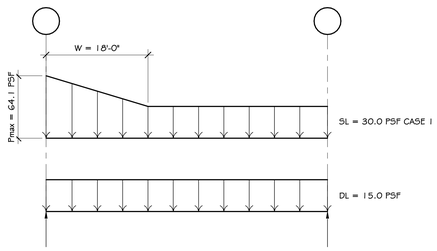

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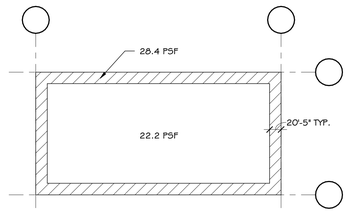


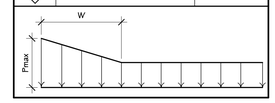
NOTE:
PRESSURES SHOWN ARE ASD LEVEL WITH DEAD LOAD RESISTANCE ACCOUNTED FOR AND BASED ON ONE OF THE FOLLOWING FORMULAS:

ASCE 7-10 & 7-16: 0.6 (6 PSF) - 0.6 WL = NET UPLIFT SHOWN
ASCE 7-05: 0.6 (6 PSF) - WL = NET UPLIFT SHOWN

NET WIND UPLIFT ON JOIST & JOIST GIRDERS
N.T.S.

SNOW DRIFT LOAD

MARK	MAX. INTENSITY OF SNOW LOAD Pmax AT WALL (PSF)	WIDTH OF DRIFT W (FT)
D1	80.0	13'-6"
D2	105.6	19'-0"
D3	53.7	15'-0"
D4	64.1	18'-0"
D5	35.8	7'-0"
D6	99.2	17'-6"



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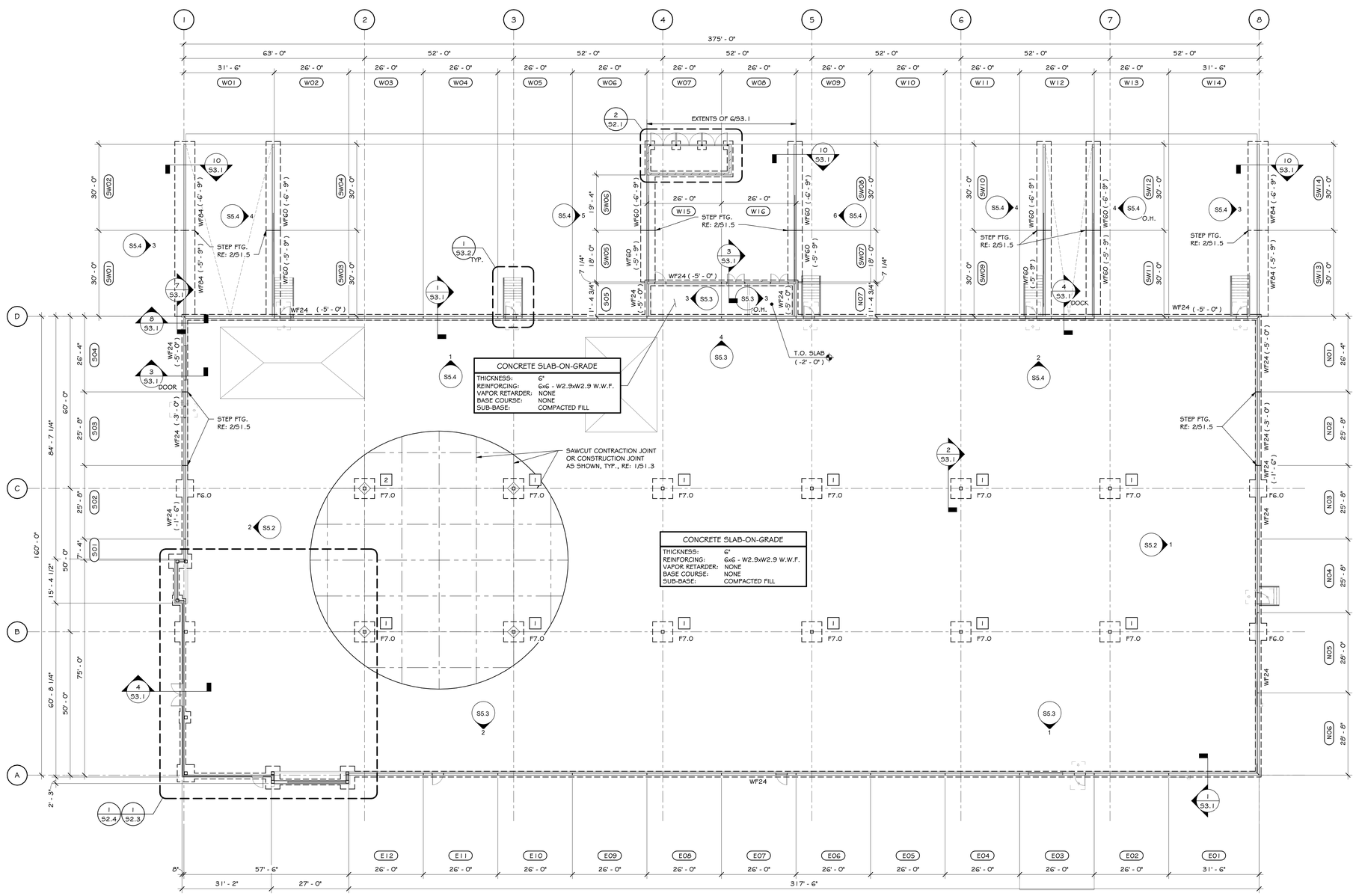
LOAD DIAGRAMS

S2.0



PAD FOOTING SCHEDULE

MARK	WIDTH	LENGTH	THICKNESS	REINFORCING	REMARKS
F3.0	3' - 0"	3' - 0"	1' - 6"	(5) #5 E.W.	
F3.5	3' - 6"	3' - 6"	2' - 3"	(7) #5 E.W.	
F4.0	4' - 0"	4' - 0"	2' - 3"	(8) #5 E.W.	
F6.0	6' - 0"	6' - 0"	2' - 3"	(12) #5 E.W.	
F7.0	7' - 0"	7' - 0"	1' - 4"	(8) #5 E.W.	
F7.0*	7' - 0"	7' - 0"	2' - 3"	(14) #5 E.W.	
F100	5' - 0"	5' - 0"	2' - 3"	(10) #5 T4B LONGITUDINAL (16) #5 T4B TRANSVERSE	

WALL FOOTING SCHEDULE

MARK	WIDTH	THICKNESS	LONGITUDINAL REINFORCING	TRANSVERSE REINFORCING
WF24	24"	<varies>	(4) #5	#4 @ 40" O.C.
WF60	60"	18"	(7) #5	#5 @ 9" O.C.
WF64	64"	18"	(9) #5	#5 @ 9" O.C.

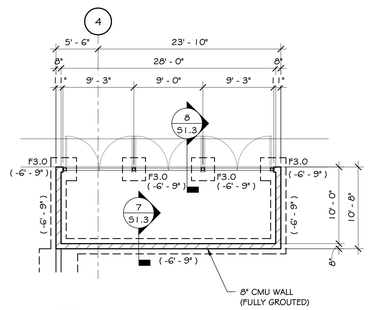
1 / S2.1 FOUNDATION PLAN

1/16" = 1'-0"

NOTES:
1. SEE SHEET S1.1 AND S1.2 FOR GENERAL NOTES AND ABBREVIATIONS / SYMBOLS.
2. SEE SHEET S1.3, S1.4, S1.5 FOR TYPICAL DETAILS.
3. TOP OF INTERIOR FOOTING = -1'-0", U.N.O.
4. TOP OF EXTERIOR FOOTING = -1'-6", U.N.O.
5. TOP OF FOOTING INDICATED BY (X'-X").
6. TOP OF SLAB = +0'-0"
7. SEE GENERAL NOTES FOR FILL REQUIREMENTS UNDER FOOTINGS AND SLAB-ON-GRADE.
8. F#.# INDICATES PAD FOOTING, RE: SCHEDULE THIS SHEET.
9. WF#.# INDICATES WALL FOOTING, RE: SCHEDULE THIS SHEET.
10. NO CRANES SHALL BE POSITIONED ON THE BUILDING SLAB FOR ERECTION OF THE SITE CAST CONCRETE PANELS.

COLUMN SCHEDULE

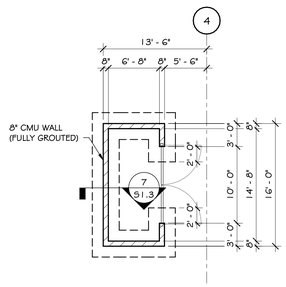
MARK	COLUMN	BASEPLATE	ROD QTY	ROD DIA.	ROD PROJ.	ROD EMBED.	DETAIL	REMARKS
	HSS 4 x 4 x 1/4							
1	HSS 12 x 12 x 1/4	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
2	HSS 12 x 12 x 5/16	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
3	HSS 12 x 12 x 3/16	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
4	HSS 12 x 12 x 1/2	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
5	HSS 4 x 4 x 1/4	1/2 x 6 x 1'-0"	(4)	3/4"	4"	9"	12/S1.4	SEE 3/S2.4



3 / S2.1 TRASH ENCLOSURE

1/8" = 1'-0"

NOTE:
1. TOP OF FOOTING INDICATED BY (X'-X")



2 / S2.1 TIRE STORAGE ENCLOSURE

1/8" = 1'-0"

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FOUNDATION PLAN

S2.1

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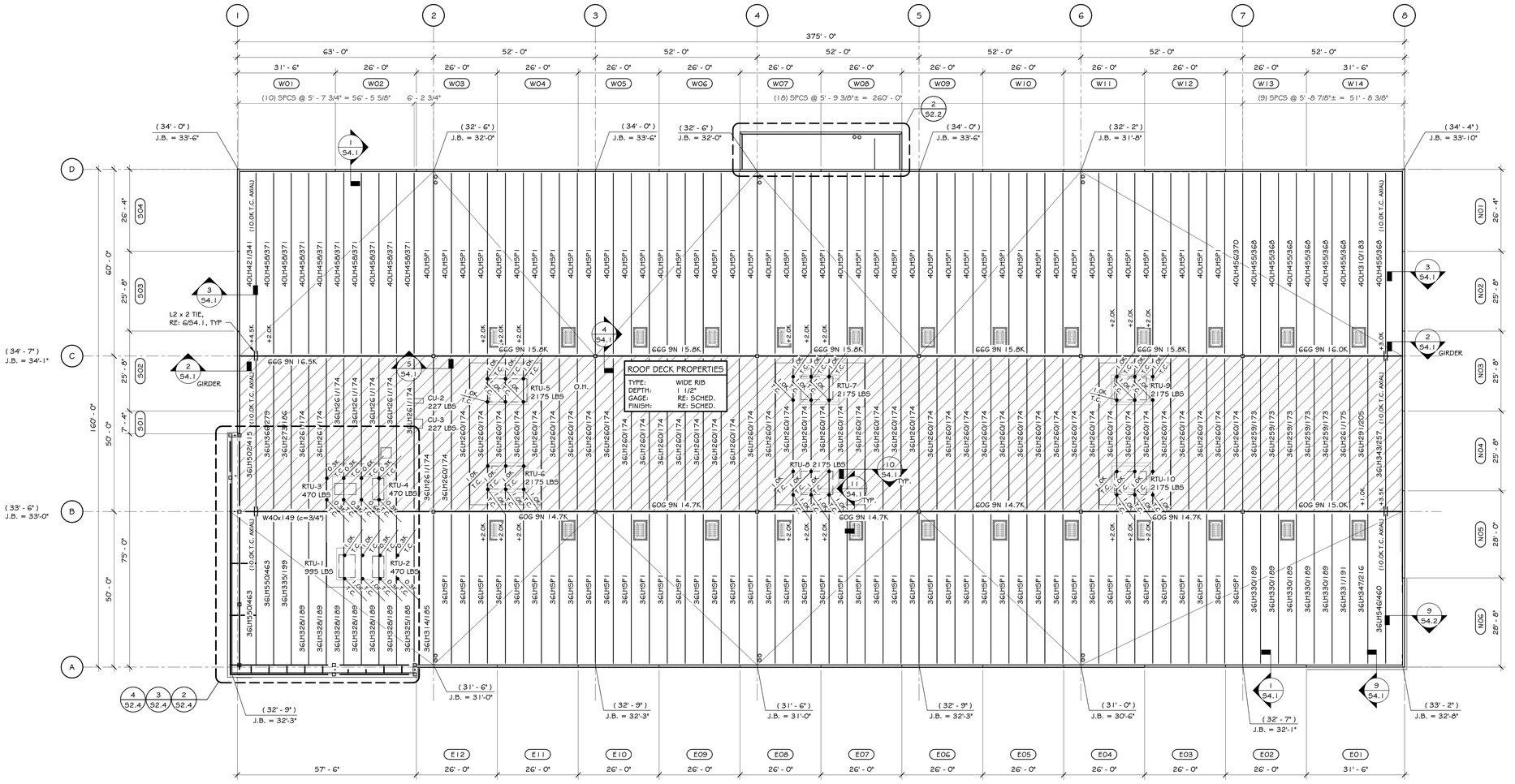
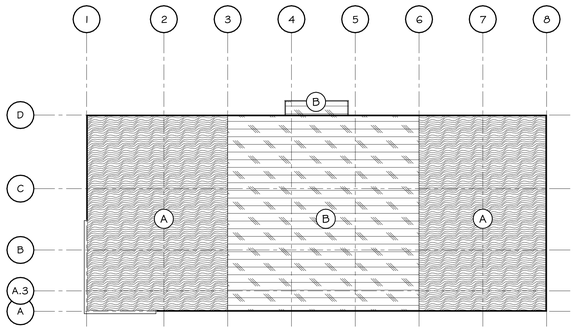
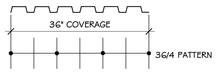




ROOF DECK DIAGRAM
N.T.S.

ROOF DECK FASTENING SCHEDULE					
MARK	GAGE	SUPPORTS PERPENDICULAR TO FLUTE	SUPPORTS PARALLEL TO FLUTE	SIDE LAP ATTACHMENT	ASD SHEAR CAPACITY REQUIRED
A	22	(4) 5/8" Ø PW PER SHEET	5/8" Ø PW AT 6" C/C	#10 TEK SCREWS (4) PER SPAN	419 PLF
B	22	(4) 5/8" Ø PW PER SHEET	5/8" Ø PW AT 6" C/C	#10 TEK SCREWS (1) PER SPAN	162 PLF

FINISH: GRAY TOP / WHITE BOTTOM GALVANIZED (G30)
FINISH: PAINTED TOP AND BOTTOM
FINISH: PAINTED TOP / UNPAINTED BOTTOM
(FIREPROOFING)



END WELD PATTERNS FOR WIDE RIB DECK
PROVIDE 5/8" Ø PUDDLE WELDS @ 6" O.C.
AT ALL PERIMETER SUPPORTS.

3 / 52.2 ROOF FRAMING PLAN
1/16" = 1'-0"

NOTES:
1. SEE SHEET S1.1 AND S1.2 FOR GENERAL NOTES AND ABBREVIATIONS / SYMBOLS.
2. SEE SHEET S1.3, S1.4, S1.5 FOR TYPICAL DETAILS
3. SEE SHEET S2.2 FOR COLUMN SCHEDULE.
4. ALL "LH" SERIES JOISTS SHALL HAVE 6" DEEP SEATS, U.N.O.
5. ALL JOIST GIRDERS SHALL HAVE 7 1/2" DEEP BEARING AT STEEL COLUMNS, U.N.O. ON THE DETAILS. ALL JOIST GIRDERS SHALL HAVE 10" DEEP BEARING AT CONCRETE WALLS, U.N.O. IN THE DETAILS.
6. PROVIDE UPLIFT BRIDGING AS REQUIRED. SEE UPLIFT DIAGRAM ON SHEET S2.1. SEE GENERAL NOTES FOR ADDITIONAL BRIDGING REQUIREMENTS.
7. (XX'-XX") INDICATES BOTTOM OF DECK ELEVATION.
8. BEAM REACTIONS SHOWN ARE AT SERVICE LOADS. WHERE BEAM REACTION IS NOT SHOWN, CONNECTION SHALL BE DESIGNED FOR 6 KIP MINIMUM REACTION.
9. SEE SHEET S2.1 FOR SPECIAL JOIST LOAD DIAGRAMS.
10. JOIST GIRDER LOADS SHOWN DO NOT INCLUDE THE SELF WEIGHT OF THE GIRDER IN THE GIRDER DESIGN.
11. MECHANICAL UNITS SHALL NOT EXCEED THE WEIGHTS SHOWN ON PLAN. NO PLAN DIMENSION OF ANY UNIT SHALL EXCEED 14'-11".
12. CLEAR HEIGHT DESIGNED FOR 28'-0" THROUGHOUT THIS BUILDING.

N

NOTE TO JOIST SUPPLIER

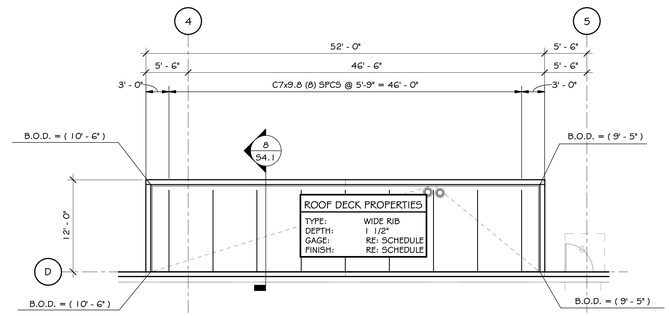
1. (XX.XK T.C. AXIAL) INDICATES JOIST TOP CHORD TO BE DESIGNED FOR AXIAL WIND / SEISMIC LOAD IN ADDITION TO GRAVITY LOADS.

ALLOWABLE STRESSES MAY NOT BE INCREASED WHEN CONSIDERING WIND/SEISMIC LOADS COMBINED WITH GRAVITY LOADS.

AXIAL FORCE AT THE WALLS IS O.K.

ROOF PLAN LEGEND

JOIST MANUFACTURER TO DESIGN JOISTS IN SHADED AREAS FOR 1,500 LB LOAD FROM FUTURE RTU UNITS ANYWHERE ALONG THE SPAN (ADD LOAD). NO JOIST IS TO CARRY LOAD FROM MORE THAN (1) FUTURE UNIT. PRIOR TO INSTALLATION OF FUTURE UNITS, ALL AFFECTED JOISTS SHALL BE REINFORCED PER 4/S1.4



2 / 52.2 ENLARGED LOWER ROOF FRAMING PLAN
1/8" = 1'-0"

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ROOF FRAMING PLAN

S2.2

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COLUMN SCHEDULE

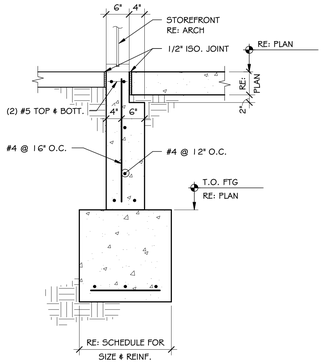
MARK	COLUMN	BASEPLATE	ROD QTY	ROD DIA.	ROD PROJ.	ROD EMBED.	DETAIL	REMARKS
	HSS 4 x 4 x 1/4							
1	HSS 12 x 12 x 1/4	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
2	HSS 12 x 12 x 5/16	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
3	HSS 12 x 12 x 3/16	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
4	HSS 12 x 12 x 1/2	3/4 x 18 x 1'-6"	(4)	3/4"	4"	9"	1/S1.4	
5	HSS 4 x 4 x 1/4	1/2 x 6 x 1'-0"	(4)	3/4"	4"	9"	12/S1.4	SEE 3/S2.4

WALL FOOTING SCHEDULE

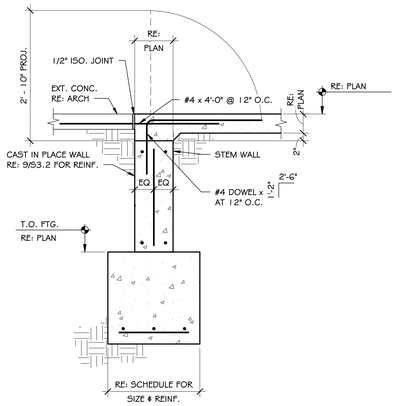
MARK	WIDTH	THICKNESS	LONGITUDINAL REINFORCING	TRANSVERSE REINFORCING
WF24	24"	<vanes>	(4) #5	#4 @ 48" O.C.
WF60	60"	18"	(7) #5	#5 @ 9" O.C.
WF84	84"	18"	(9) #5	#5 @ 9" O.C.

PAD FOOTING SCHEDULE

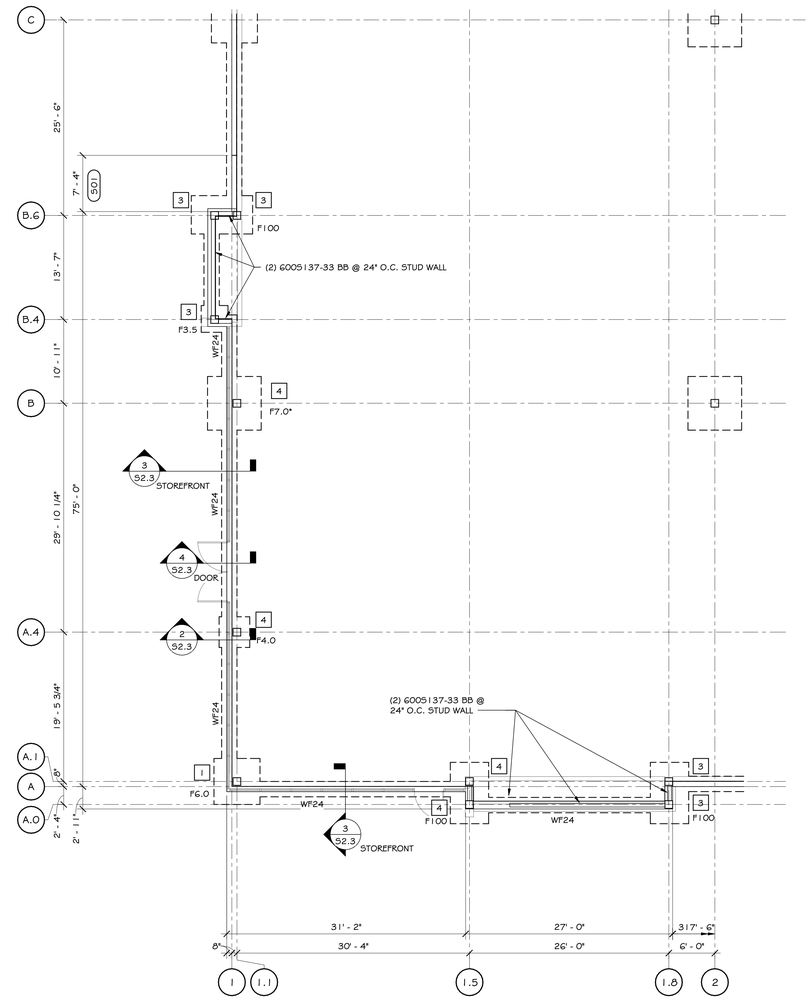
MARK	WIDTH	LENGTH	THICKNESS	REINFORCING	REMARKS
F3.0	3' - 0"	3' - 0"	1' - 6"	(5) #5 E.W.	
F3.5	3' - 6"	3' - 6"	2' - 3"	(7) #5 E.W.	
F4.0	4' - 0"	4' - 0"	2' - 3"	(8) #5 E.W.	
F6.0	6' - 0"	6' - 0"	2' - 3"	(12) #5 E.W.	
F7.0	7' - 0"	7' - 0"	1' - 4"	(8) #5 E.W.	
F7.0*	7' - 0"	7' - 0"	2' - 3"	(14) #5 E.W.	
F100	5' - 0"	8' - 0"	2' - 3"	(10) #5 T&B LONGITUDINAL (16) #5 T&B TRANSVERSE	



3 / 52.3 SECTION
3/4" = 1'-0"

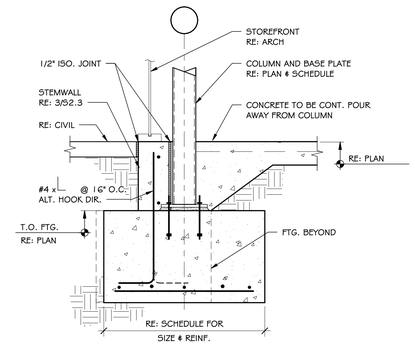


4 / 52.3 SECTION
3/4" = 1'-0"



1 / 52.3 ENLARGED ENTRY FOUNDATION PLAN 1
1/8" = 1'-0"

N



2 / 52.3 SECTION
3/4" = 1'-0"

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ENLARGED ENTRY PLANS

S2.3

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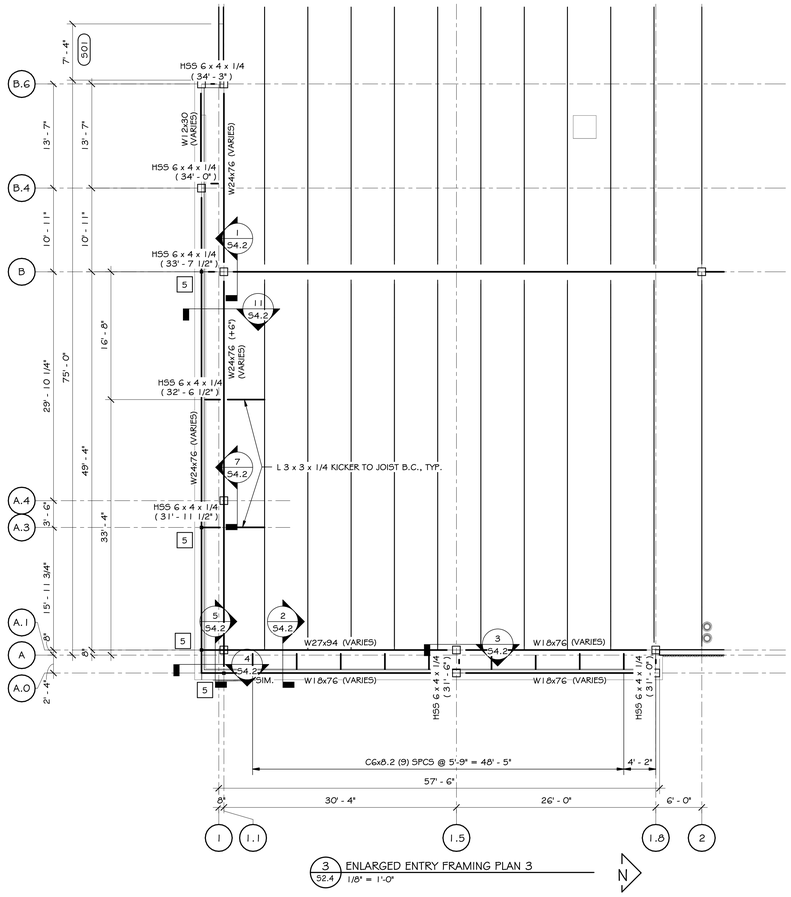
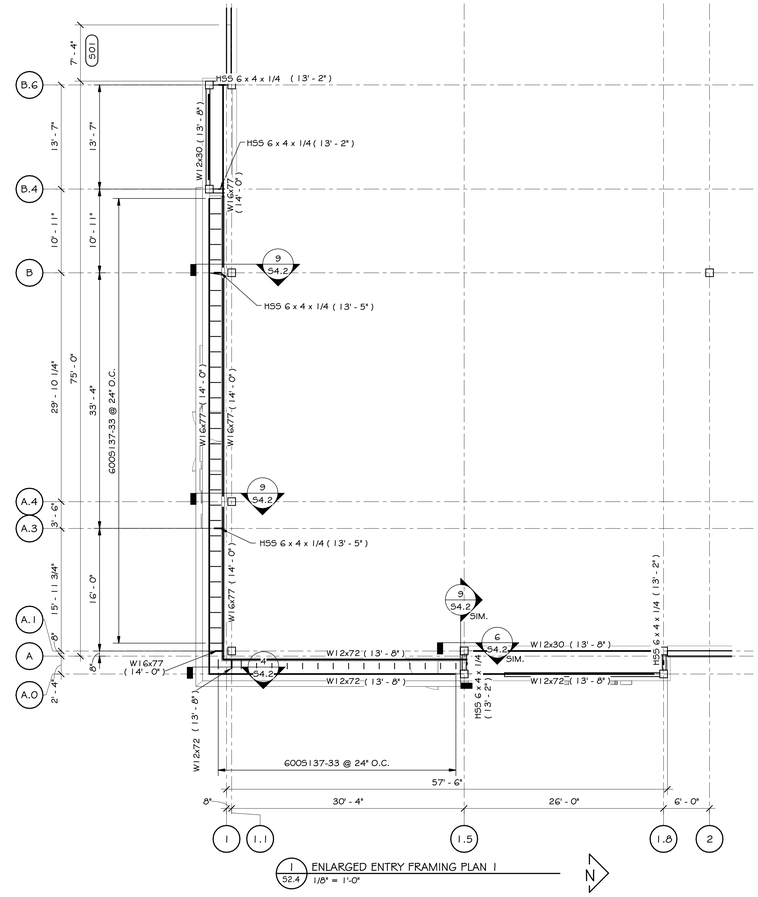
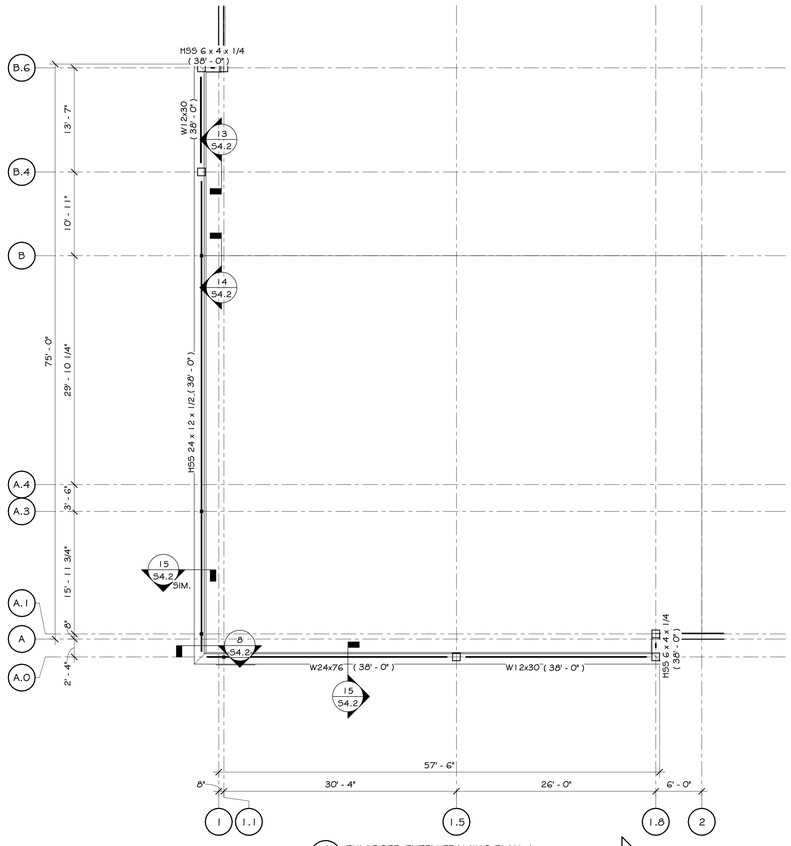


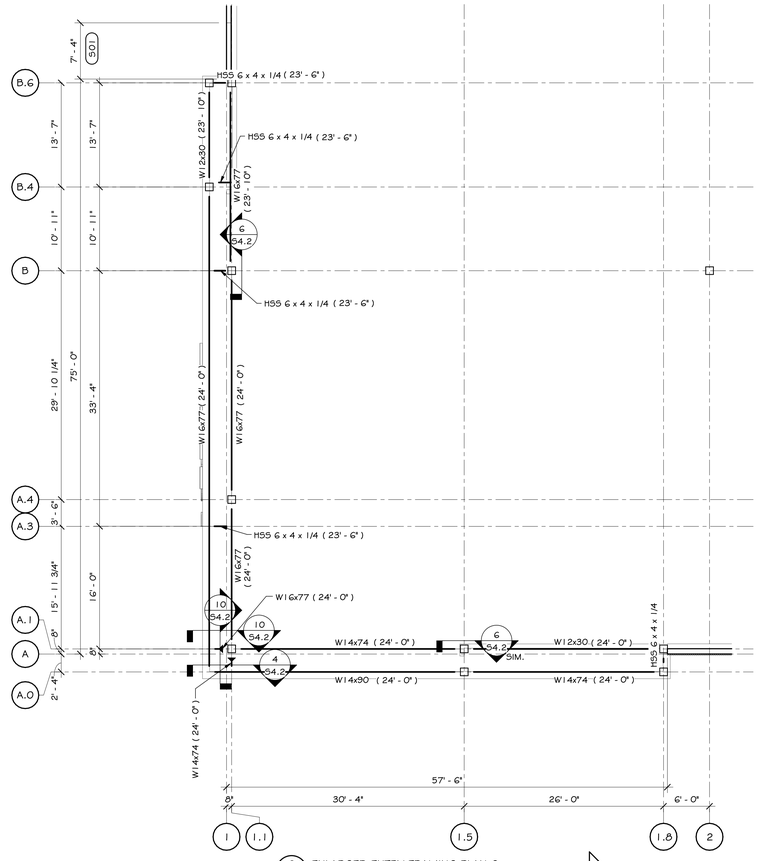
3 52.4 ENLARGED ENTRY FRAMING PLAN 3
1/8" = 1'-0"



1 52.4 ENLARGED ENTRY FRAMING PLAN 1
1/8" = 1'-0"



4 52.4 ENLARGED ENTRY FRAMING PLAN 4
1/8" = 1'-0"



2 52.4 ENLARGED ENTRY FRAMING PLAN 2
1/8" = 1'-0"

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PEAK PROJECT NO. 23-018.30

COLORADO REGISTERED
NICOLE SUZANNE HILL
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PROFESSIONAL ENGINEER

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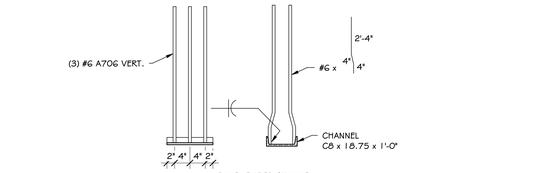
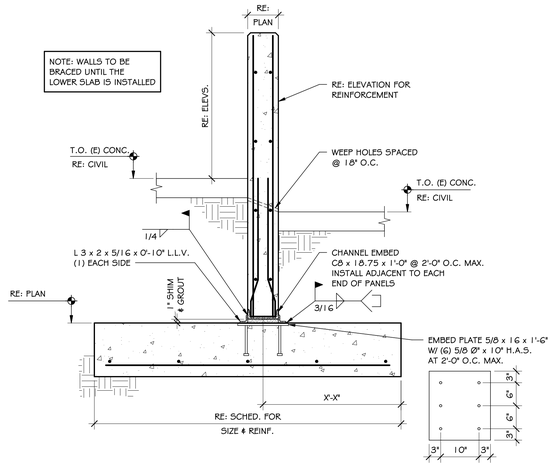
Sheet Name
ENLARGED ENTRY PLANS

S2.4

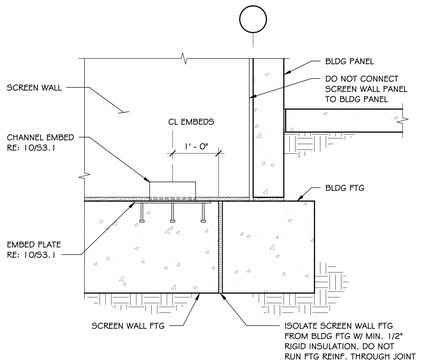
9/4/2024 10:56:14 AM



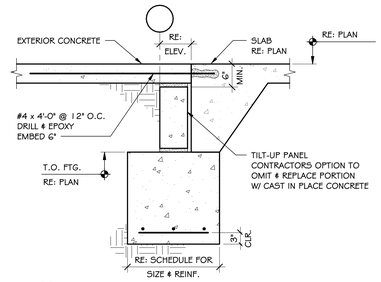
PANEL EMBED CHANNEL



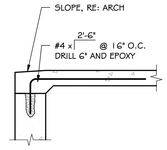
10 / 53.1 SECTION
3/4" = 1'-0"



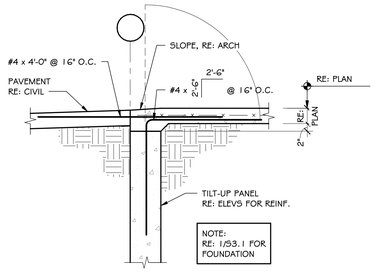
7 / 53.1 SECTION
3/4" = 1'-0"



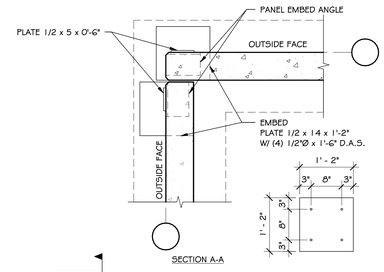
3 / 53.1 SECTION
3/4" = 1'-0"



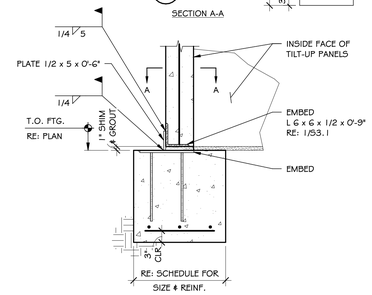
CONTRACTORS OPTION



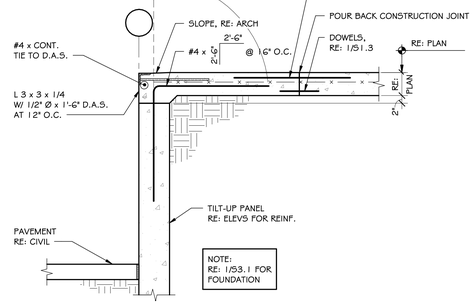
4 / 53.1 SECTION
3/4" = 1'-0"



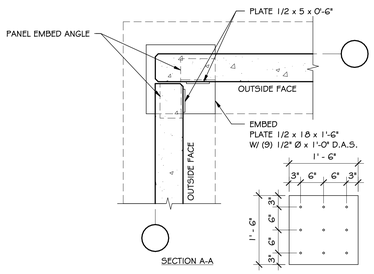
SECTION A-A



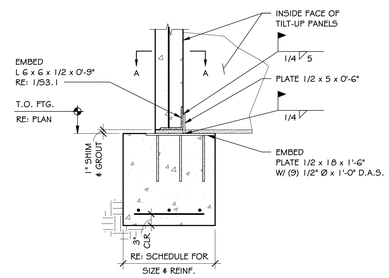
8 / 53.1 SECTION
3/4" = 1'-0"



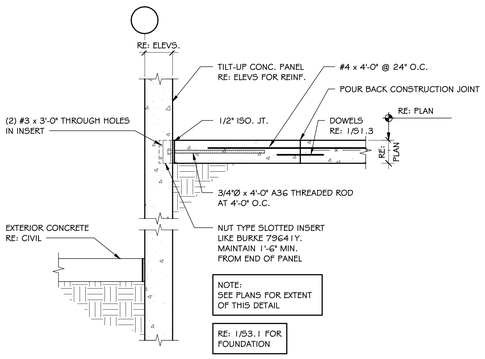
5 / 53.1 SECTION
3/4" = 1'-0"



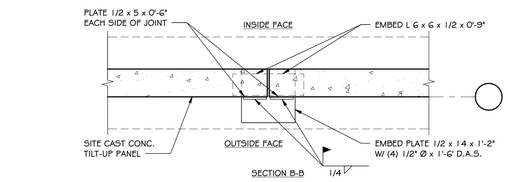
SECTION A-A



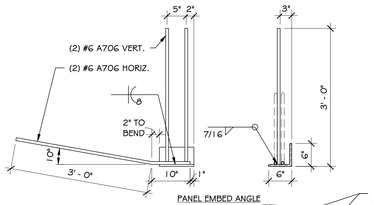
BUTT PANEL TO FTG - INSIDE CORNER - W/ OUTSIDE CONN.
9 / 53.1 3/4" = 1'-0"

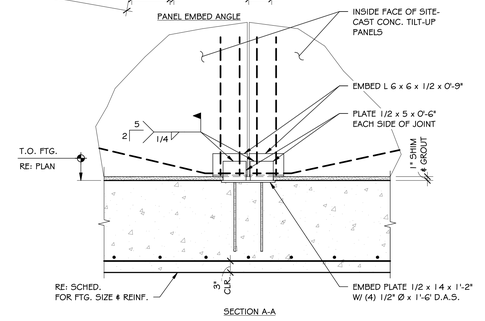


6 / 53.1 SECTION
3/4" = 1'-0"

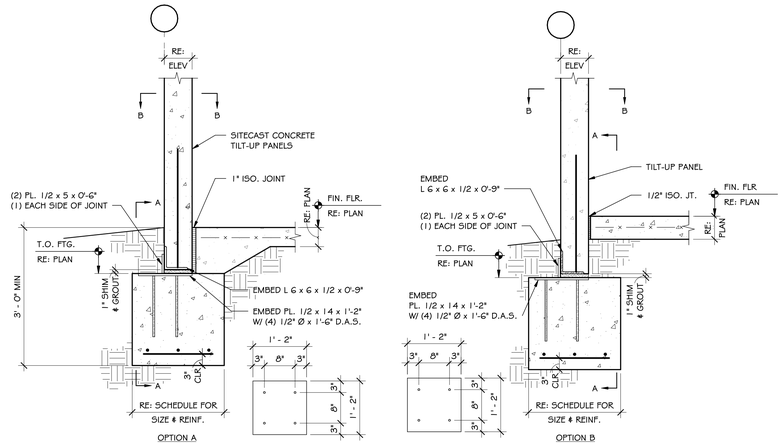


SECTION B-B

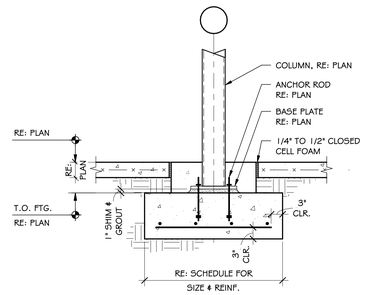




SECTION A-A



1 / 53.1 SECTION
3/4" = 1'-0"



2 / 53.1 SECTION
3/4" = 1'-0"

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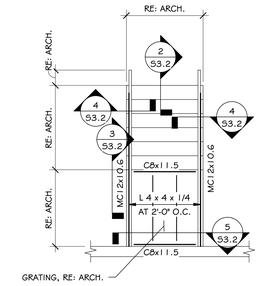
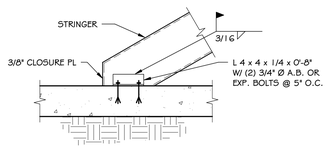
FOUNDATION DETAILS

S3.1

8/4/2024 10:54:15 AM



1 53.2 STAIR PLAN
1/4" = 1'-0"



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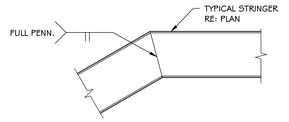
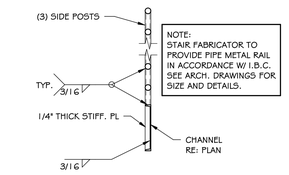
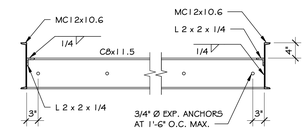
3/4" = 1'-0"



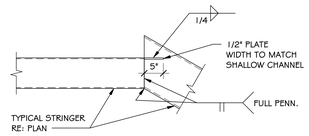
3 53.2 SECTION
3/4" = 1'-0"



4 53.2 SECTION
3/4" = 1'-0"



5 53.2 SECTION
3/4" = 1'-0"



6 53.2 SECTION
3/4" = 1'-0"

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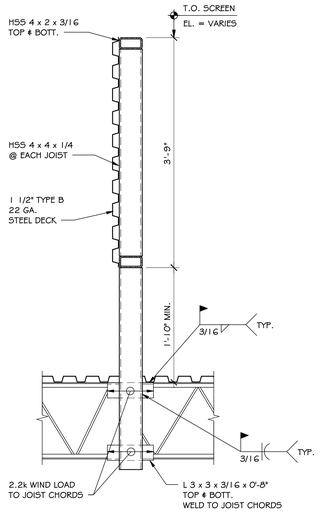
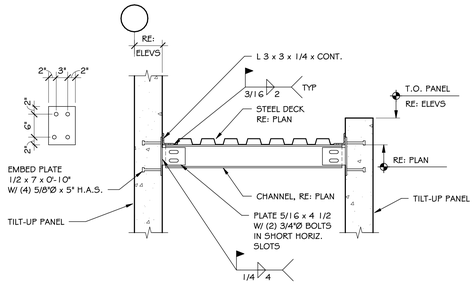
STAIR PLANS AND DETAILS

S3.2

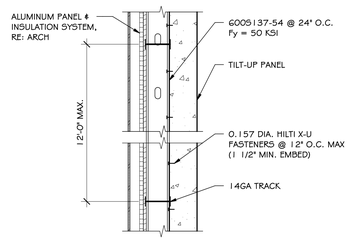
9/4/2024 10:56:15 AM



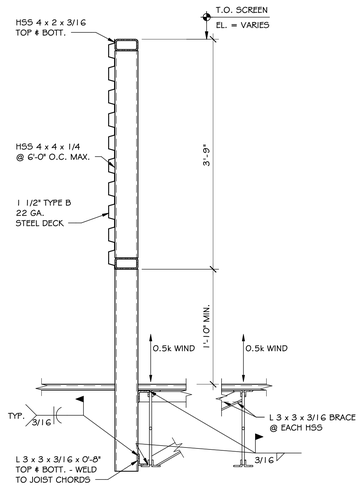
11 / 54.1 SECTION
3/4" = 1'-0"



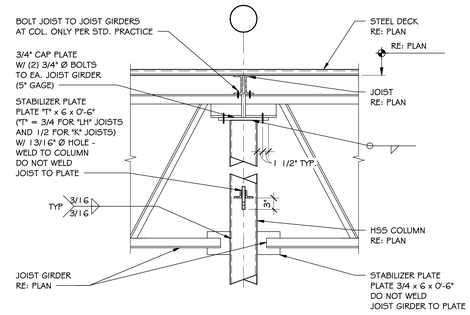
8 / 54.1 SECTION
3/4" = 1'-0"



9 / 54.1 SECTION
3/4" = 1'-0"



10 / 54.1 SECTION
3/4" = 1'-0"



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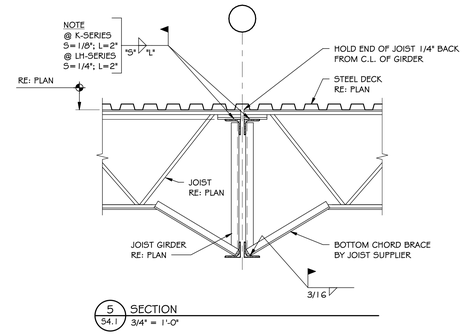
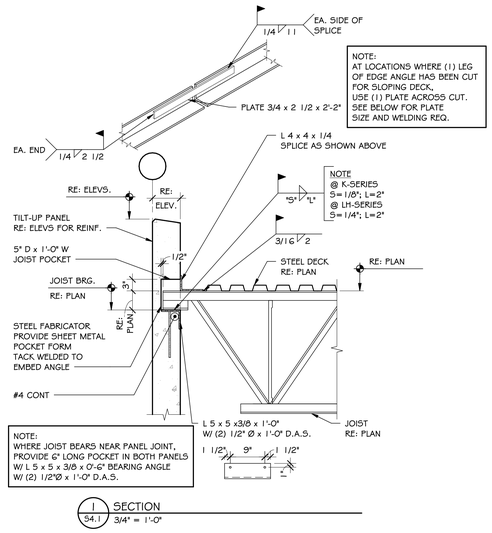
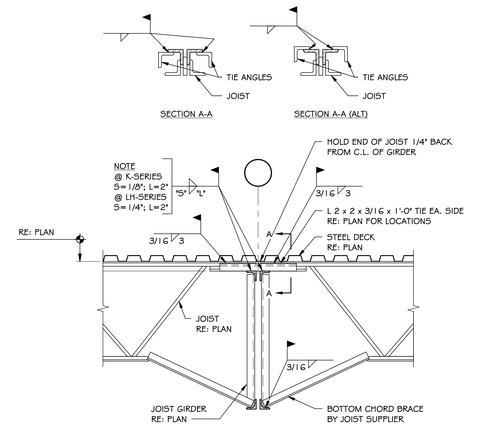


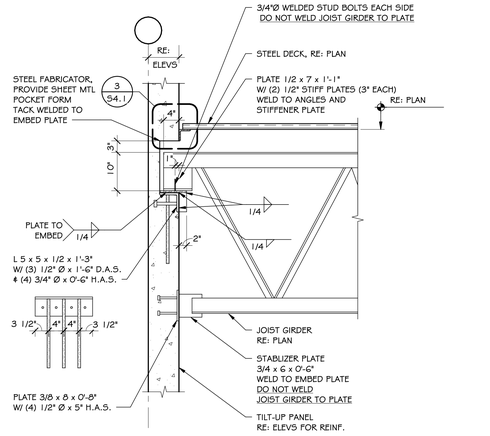
5 / 54.1 SECTION
3/4" = 1'-0"



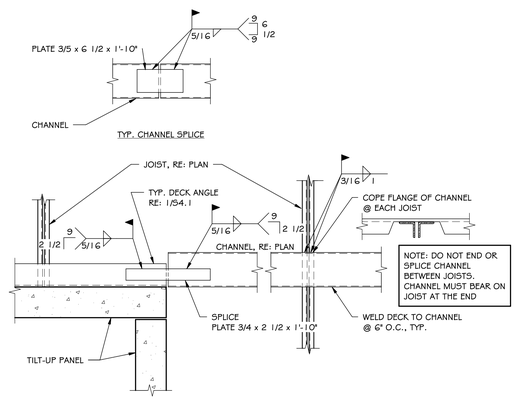
1 / 54.1 SECTION
3/4" = 1'-0"



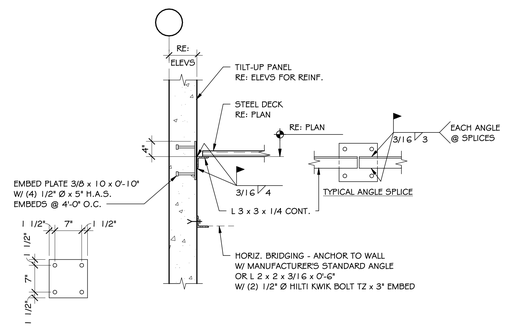
6 / 54.1 SECTION
3/4" = 1'-0"



2 / 54.1 SECTION
3/4" = 1'-0"



7 / 54.1 SECTION
3/4" = 1'-0"



3 / 54.1 SECTION
3/4" = 1'-0"

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FRAMING DETAILS

S4.1

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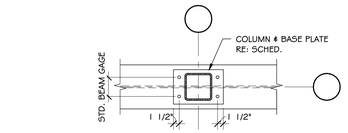
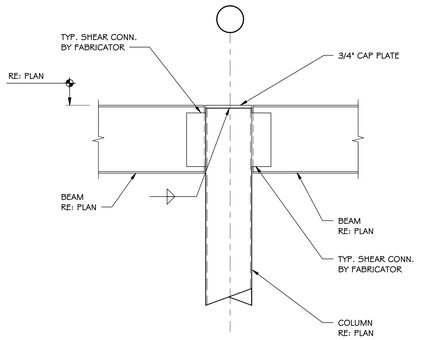


12 / 54.2 COLUMN BASE DETAIL
3/4" = 1'-0"



13 / 54.2 SECTION
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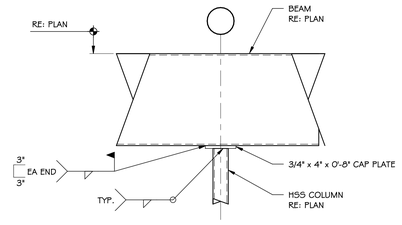

14 / 54.2 SECTION
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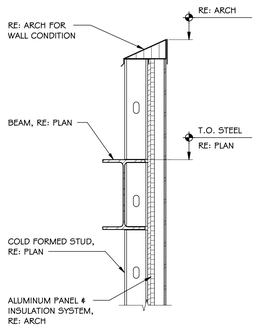

15 / 54.2 SECTION
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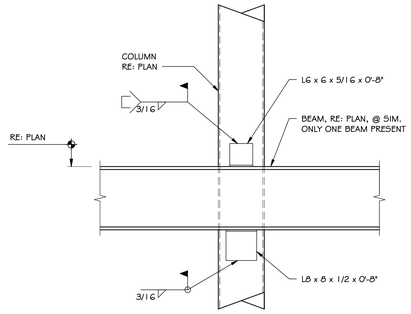
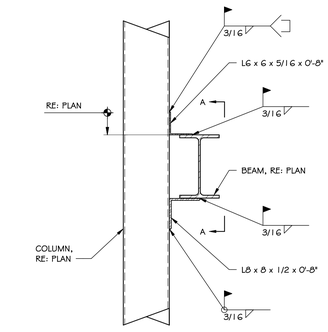
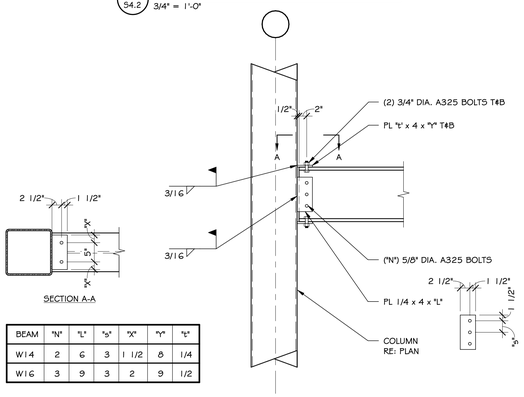


SECTION A-A



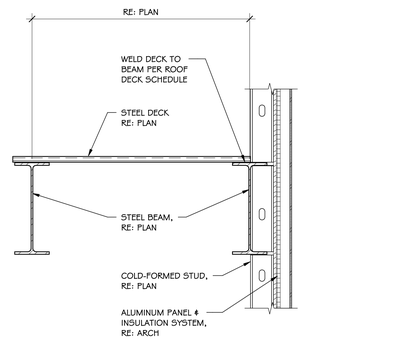
9 / 54.2 SECTION
3/4" = 1'-0"



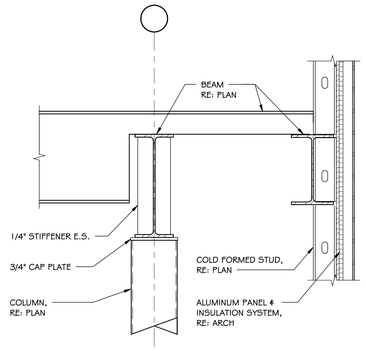
SECTION A-A

BEAM	"N"	"L"	"x"	"X"	"Y"	"t"
W14	2	6	3	1 1/2	8	1/4
W16	3	9	3	2	9	1/2

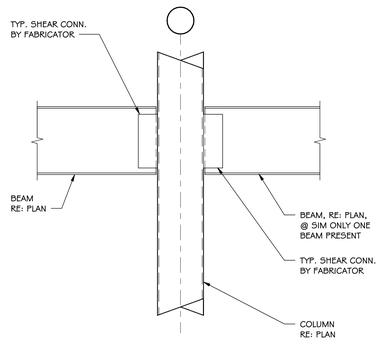
10 / 54.2 SECTION
3/4" = 1'-0"



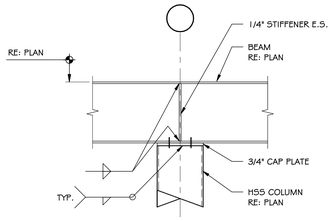
11 / 54.2 SECTION
3/4" = 1'-0"



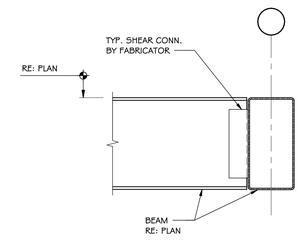
5 / 54.2 SECTION
3/4" = 1'-0"



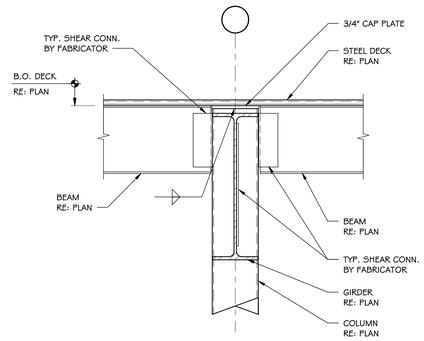
6 / 54.2 SECTION
3/4" = 1'-0"



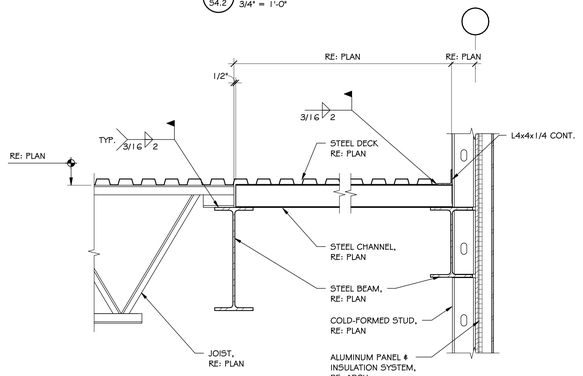
7 / 54.2 SECTION
3/4" = 1'-0"



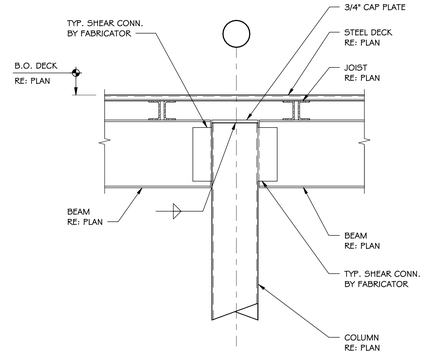
8 / 54.2 SECTION
3/4" = 1'-0"



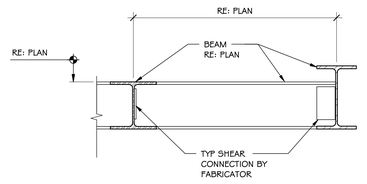
1 / 54.2 SECTION
3/4" = 1'-0"



2 / 54.2 SECTION
3/4" = 1'-0"



3 / 54.2 SECTION
3/4" = 1'-0"



4 / 54.2 SECTION
3/4" = 1'-0"

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PEAK PROJECT NO. 23-018.30

COLORADO REGISTERED
NICOLE SUZANNE LATTO
37691
PROFESSIONAL ENGINEER

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Project Number	24140
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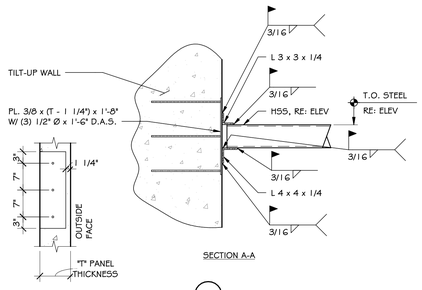
Checked By:	NL

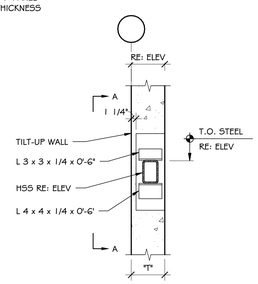
Sheet Name
FRAMING DETAILS

S4.2

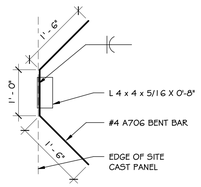
9/4/2024 10:56:19 AM



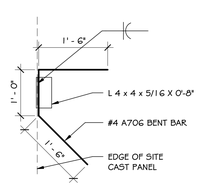
SECTION A-A



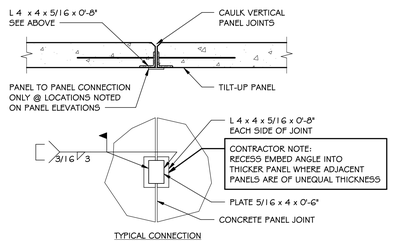
13 SECTION
55.1 N.T.S.



AT TALLER PANEL

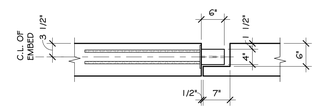


AT SHORTER PANEL OR SAME HEIGHT PANELS

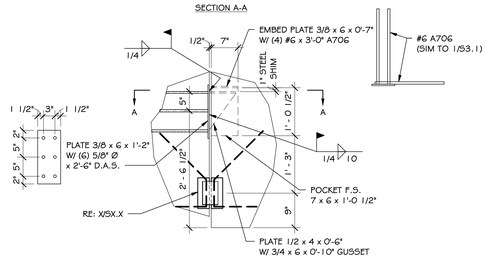


TYPICAL CONNECTION

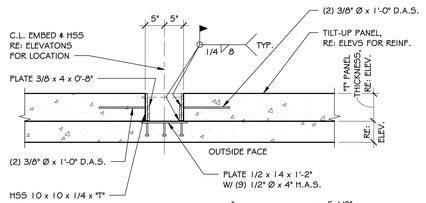
9 TYP. PANEL TO PANEL CONNECTION
55.1 N.T.S.



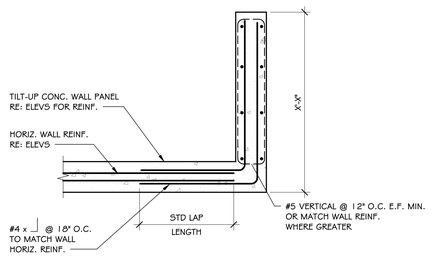
SECTION A-A



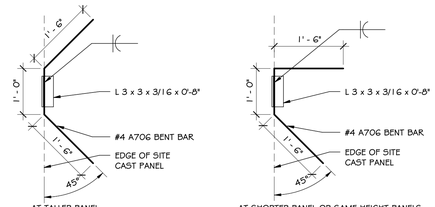
10 TYP. HAUNCH DETAIL
55.1 N.T.S.



11 TYP. PANEL TO LAYUP PANEL CONN.
55.1 N.T.S.

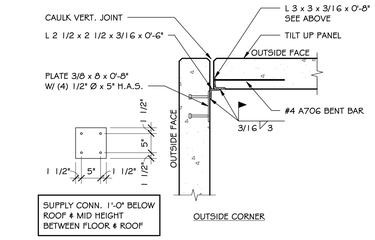


12 FLAG PANEL - PLAN
55.1 N.T.S.

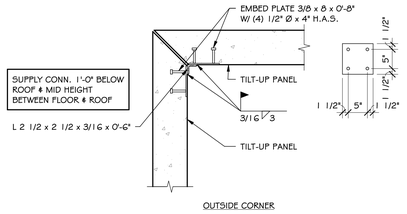


AT TALLER PANEL

AT SHORTER PANEL OR SAME HEIGHT PANELS

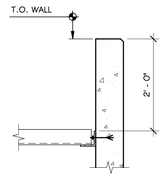


5 TYP. OUTSIDE CORNER CONNECTION
55.1 N.T.S.

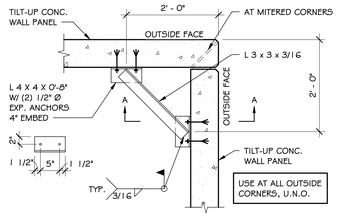


OUTSIDE CORNER

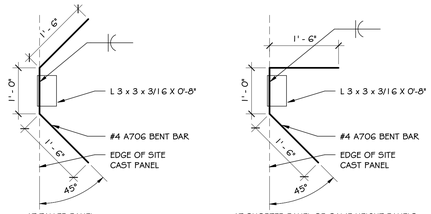
6 TYP. OUTSIDE CORNER
55.1 N.T.S.



SECTION A-A

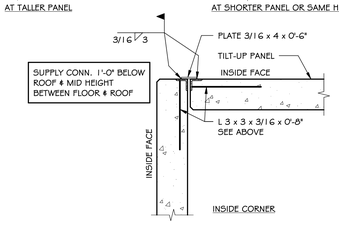


7 TYP. CORNER DETAIL FOR PARAPETS OVER 5'-0"
55.1 3/4" = 1'-0"

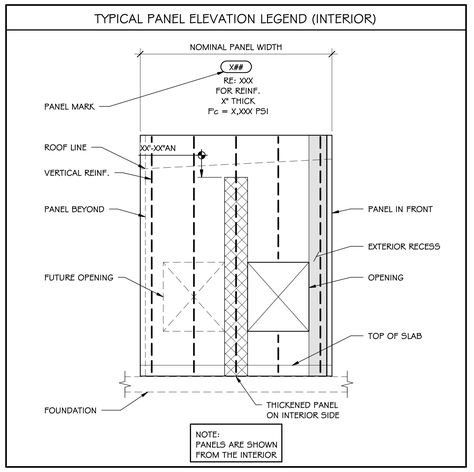


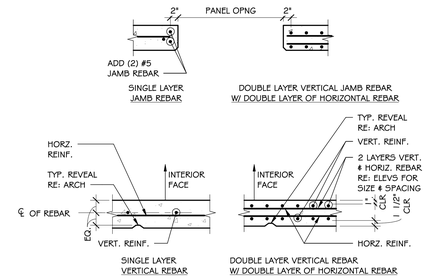
AT TALLER PANEL

AT SHORTER PANEL OR SAME HEIGHT PANELS

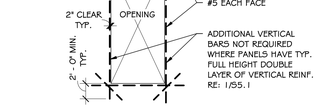


8 TYP. CORNER CONNECTION
55.1 N.T.S.

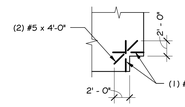




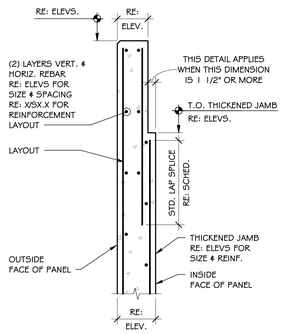
1 TYP. PANEL REINFORCEMENT LOCATION
55.1 N.T.S.



2 TYP. TILT-UP PANEL OPENING REINF.
55.1 N.T.S.



3 TYP. NOTCH REINF.
55.1 N.T.S.



TYP. REINFORCING @ THICKENED JAMB TRANSITION
4 55.1 N.T.S.

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COLORADO REGISTERED NICOLE SUZANNE LAU 37691 PROFESSIONAL ENGINEER

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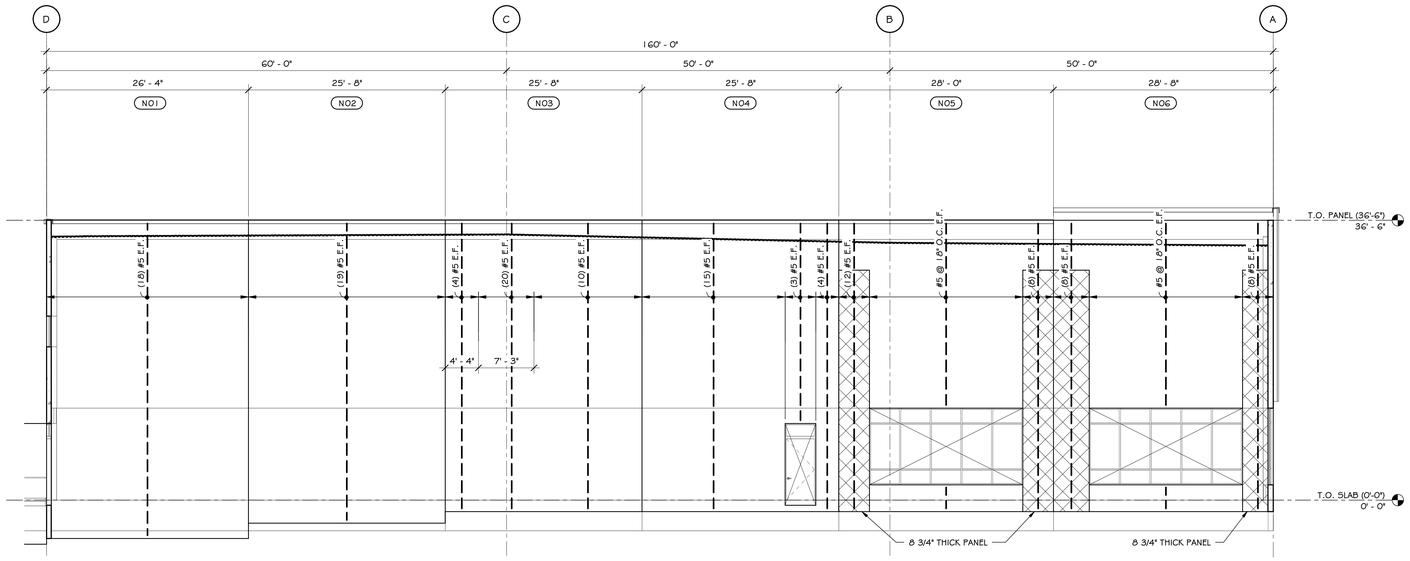
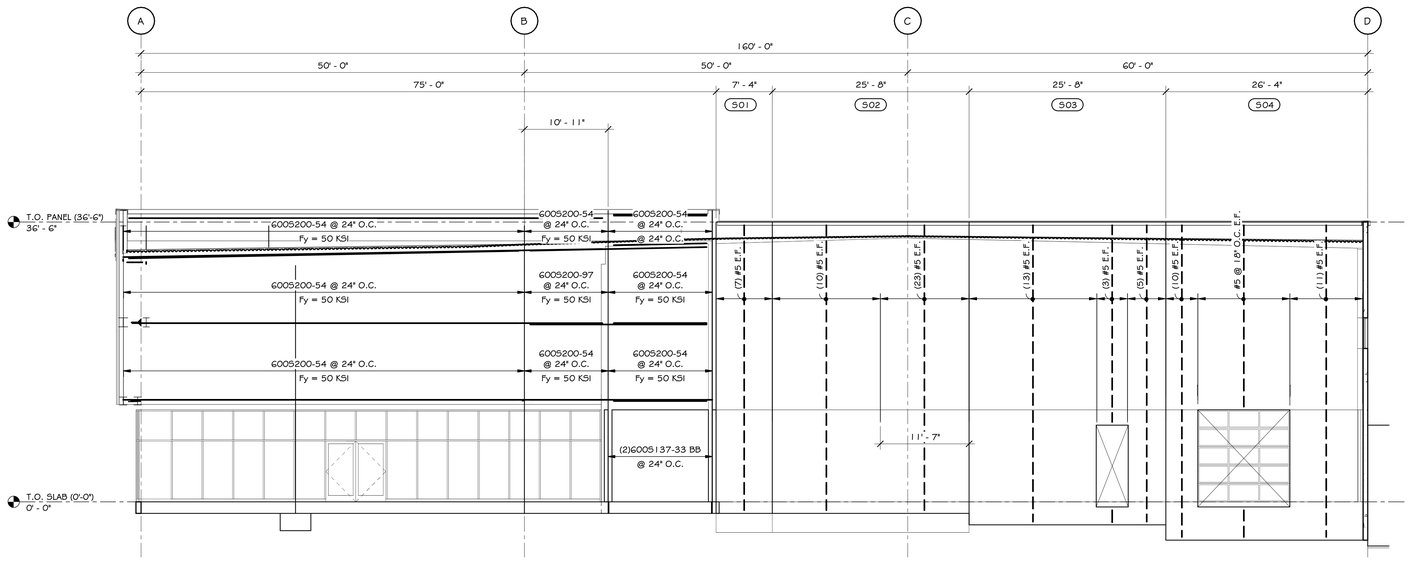
TYPICAL PANEL REINFORCING DETAILS

S5.1

9/4/2024 10:54:20 AM



1 / 55.2 NORTH PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



2 / 55.2 SOUTH PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"

TYPICAL PANEL REINFORCEMENT NOTES

1. PANEL THICKNESS IS 7 1/4" UNLESS NOTED OTHERWISE.
2. PROVIDE #4 @ 18" O.C. HORIZ. REINFORCING IN ALL PANELS U.N.O.WITHIN EA. PANEL, NUMBER OF LAYERS OF HORIZ. BARS TO MATCH NUMBER OF LAYERS OF VERT. BARS. RE: 1/S5.1 FOR PLACEMENT.
3. UNLESS NOTED OTHERWISE REINFORCEMENT SHALL BE EQUALLY SPACED ACROSS AREA NOTED.
4. RE: S5.1 FOR TYPICAL DETAILS.
5. ALL REINFORCEMENT SHOWN IS FOR FINAL, IN-PLACE CONDITIONS. ERECTION AND LIFTING LOADS SHALL BE CONSIDERED BY THE CONTRACTOR FOR LIFTING INSERT QUANTITIES AND LOCATIONS.
6. RE: ARCH DRAWINGS FOR EXACT PANEL DIMENSIONS AND LOCATIONS OF OPENINGS.
7. PROVIDE (2) #5 HORIZONTAL AT BOTTOM OF EACH PANEL UNLESS NOTED OTHERWISE.

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PANEL REINFORCING

S5.2

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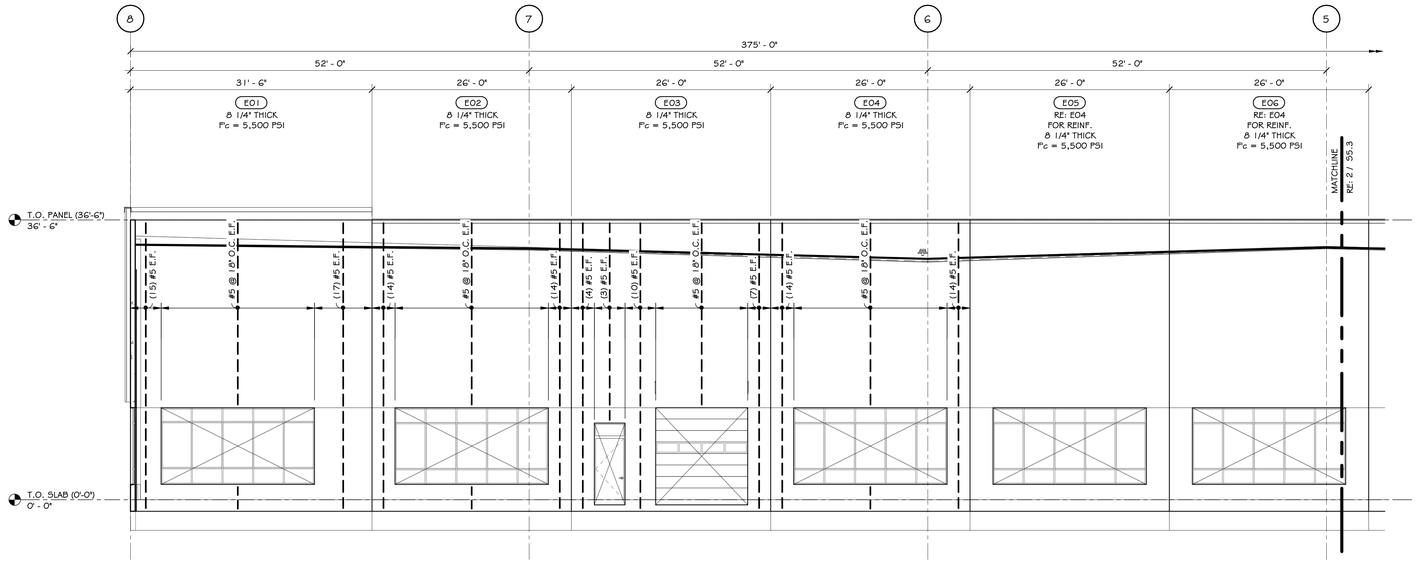
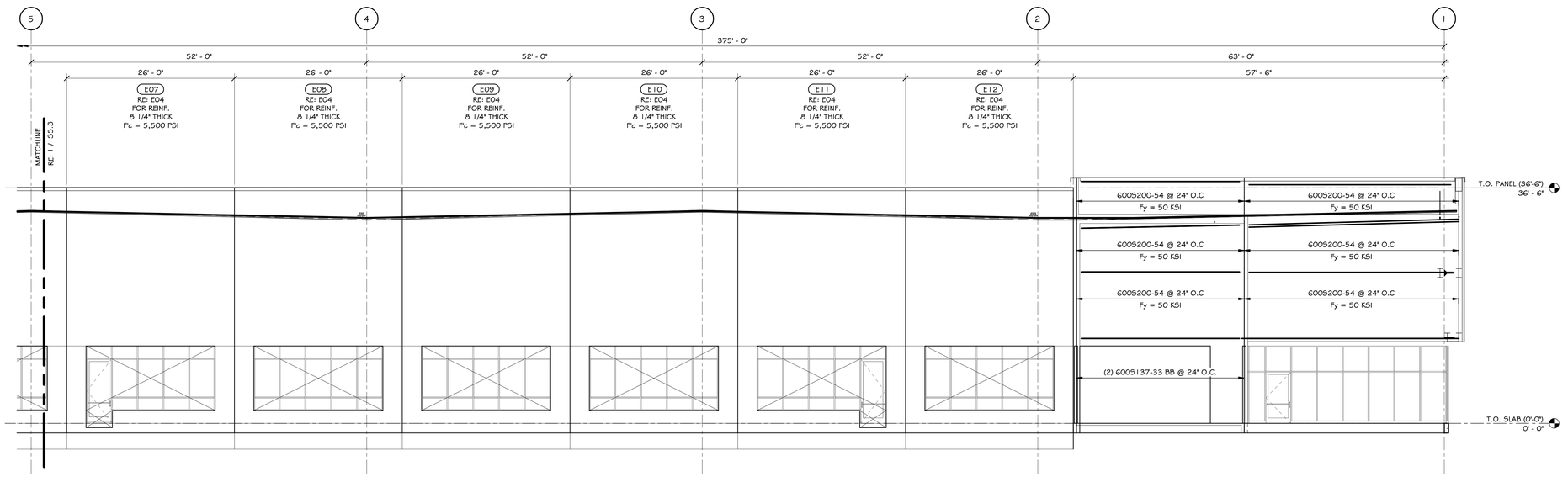
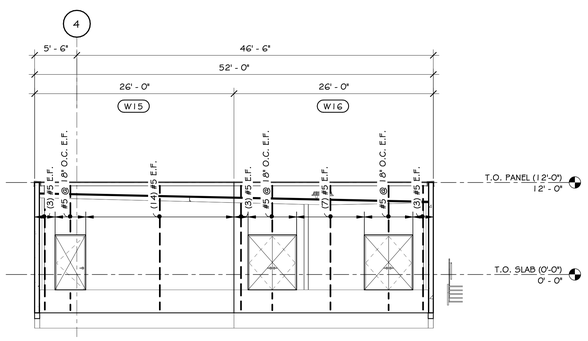


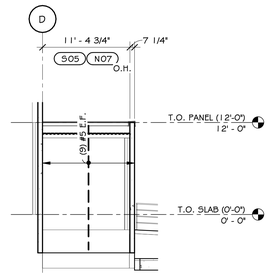
1 / 55.3 PARTIAL EAST PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



2 / 55.3 PARTIAL EAST PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



4 / 55.3 PARTIAL WEST PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



3 / 55.3 PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"

TYPICAL PANEL REINFORCEMENT NOTES

1. PANEL THICKNESS IS 7 1/4" UNLESS NOTED OTHERWISE.
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Sheet Name
PANEL REINFORCING

S5.3

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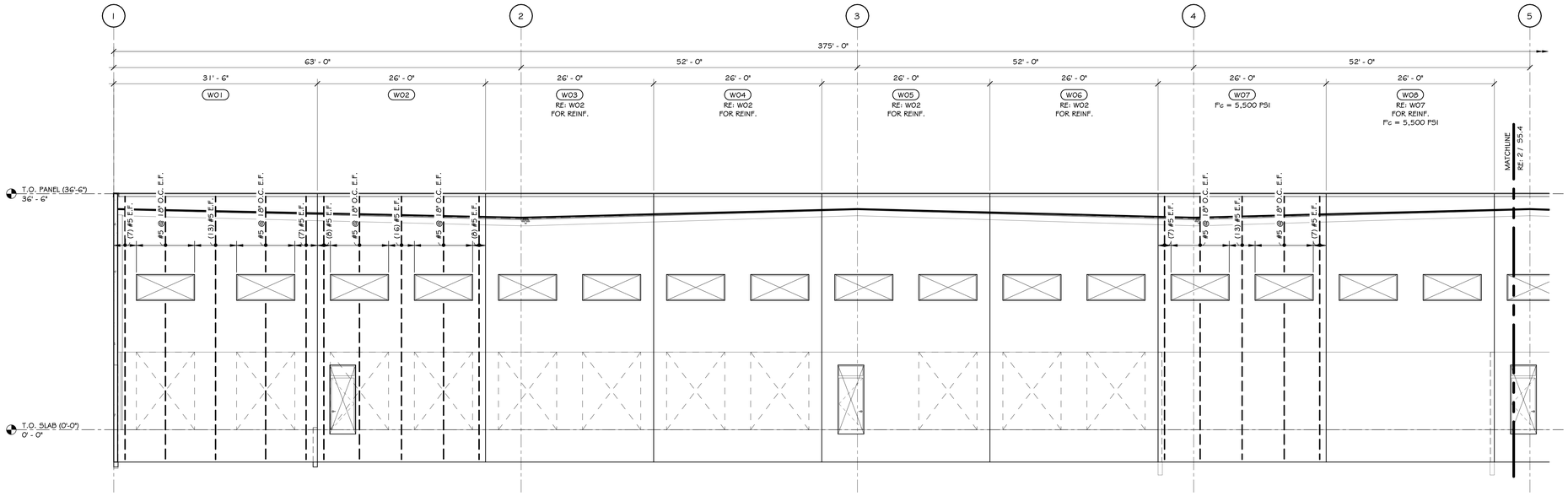
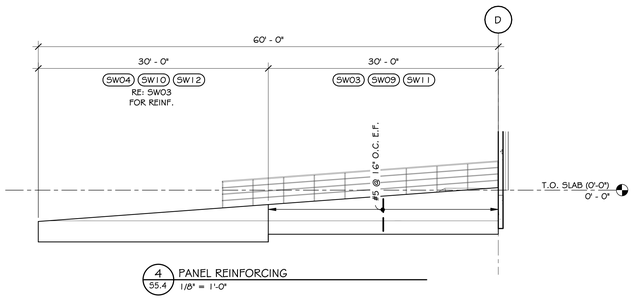
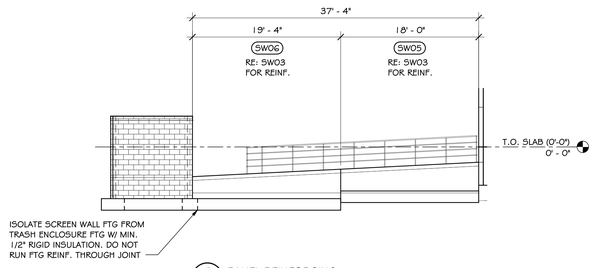


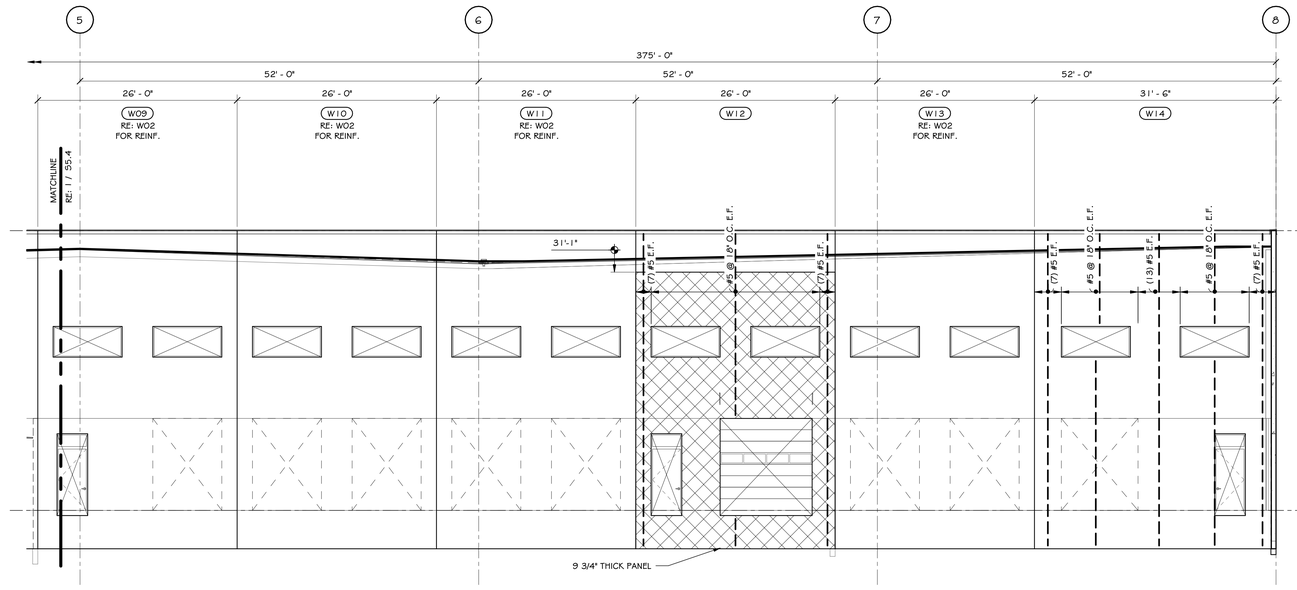
1 / 55.4 PARTIAL WEST PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



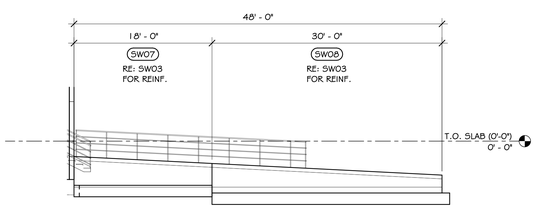
4 / 55.4 PANEL REINFORCING
1/8" = 1'-0"



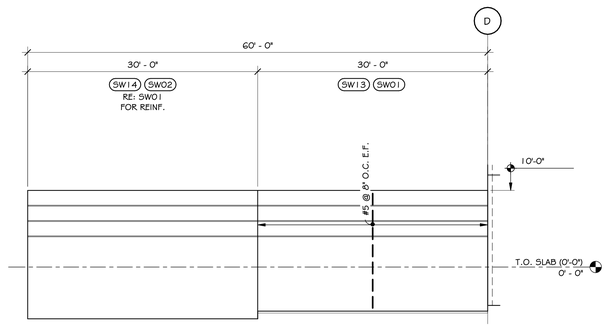
5 / 55.4 PANEL REINFORCING
1/8" = 1'-0"



2 / 55.4 PARTIAL WEST PANEL REINFORCING (INSIDE VIEW)
1/8" = 1'-0"



6 / 55.4 PANEL REINFORCING
1/8" = 1'-0"



3 / 55.4 PANEL REINFORCING
1/8" = 1'-0"

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Project Number	24140
Date	2024.08.15
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Sheet Name
PANEL REINFORCING

S5.4

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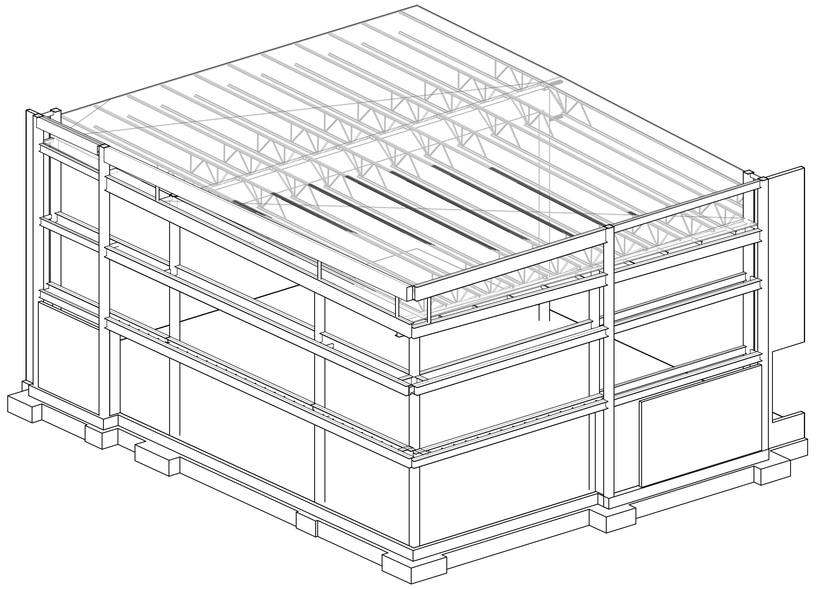
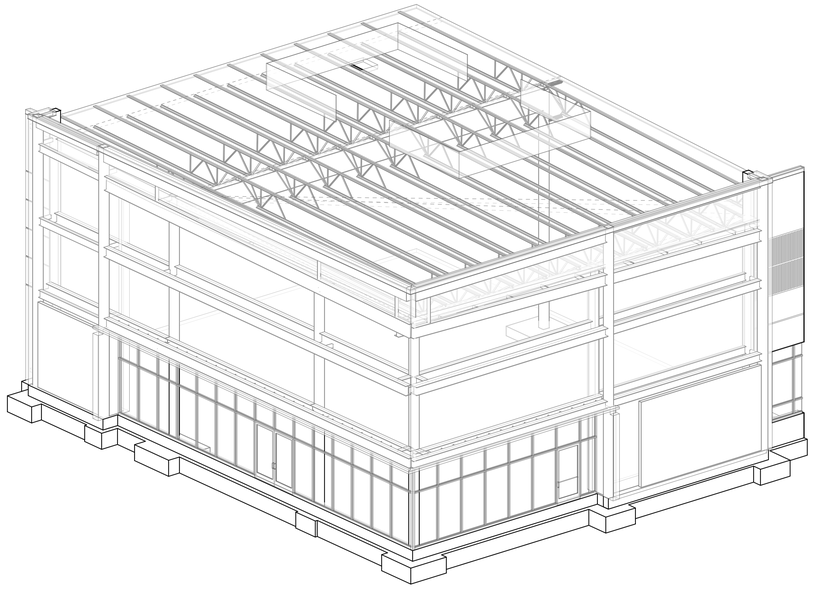


1 / 55.5 3D ISOMETRIC VIEW



2 / 55.5 3D ISOMETRIC VIEW W ARCH

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

PEAK ENGINEERING
390 Union Boulevard
Suite 500
Lakewood, CO 80228
phone 303/274-0707
fax 303/274-0808
Peak Project No. 23-018.30

COLORADO REGISTERED NICOLE SUZANNE LUTH 37691 PROFESSIONAL ENGINEER

REVISION	DATE
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Project Number	24140
Date	2024.08.15
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Checked By:	NL

Sheet Name
ISOMETRIC 3D VIEWS

S5.5

GENERAL NOTES

SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION.

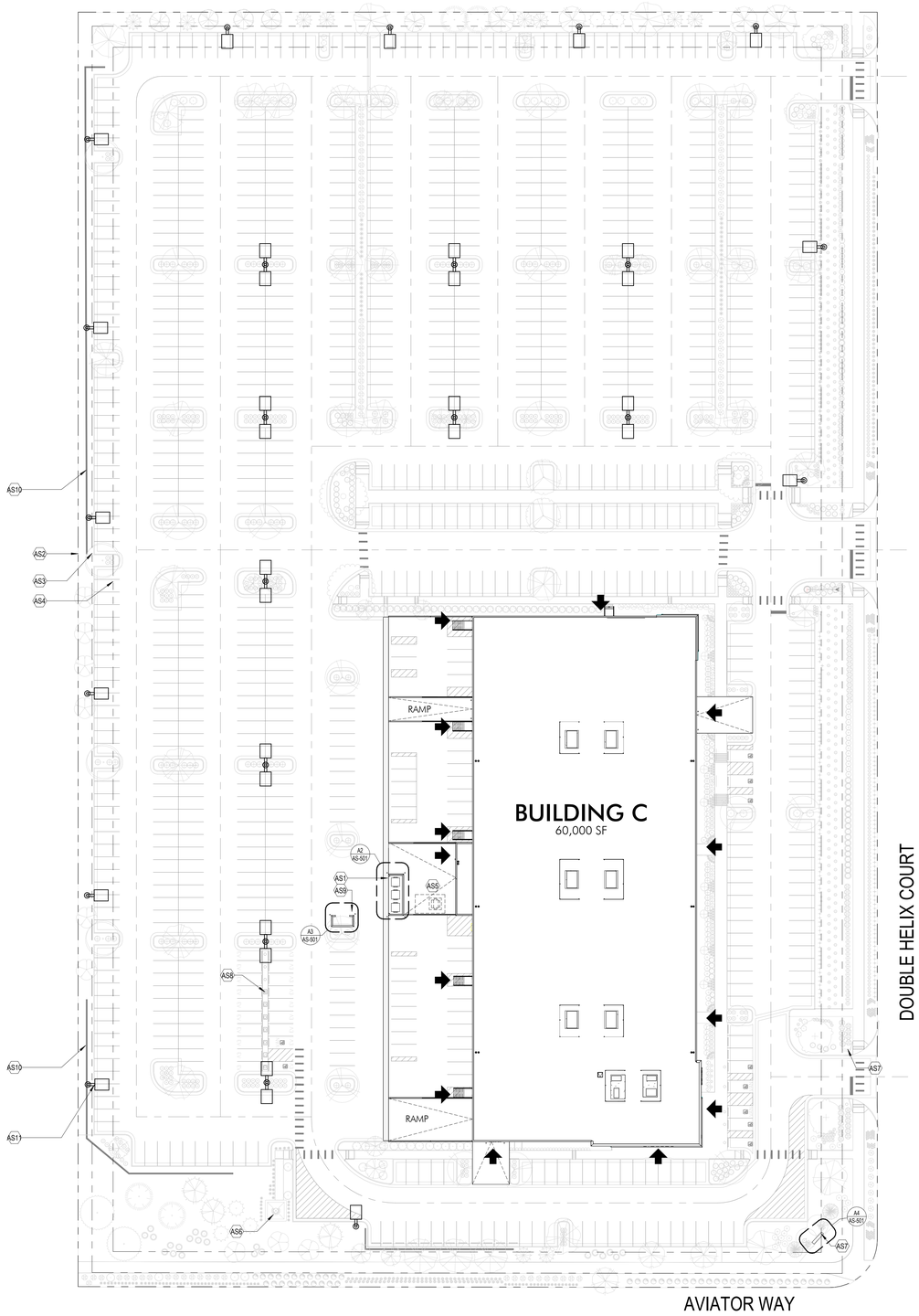
1. THIS ARCHITECTURAL SITE PLAN IS FOR REFERENCE ONLY. REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR GRADES, UTILITIES, DIMENSIONS AND DETAILS.

ARROW REPRESENTS EXIT DOORS

SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

AS1 TRASH ENCLOSURE
AS2 PROPERTY LINE
AS3 PARKING SETBACK LINE; RE: CIVIL
AS4 BUILDING SETBACK LINE; RE: CIVIL
AS5 BUILDING SERVICE/ELECTRICAL EQUIPMENT; RE: ELEC
AS6 AMENITY ZONE; RE: LANDSCAPE
AS7 MONUMENT SIGN
AS8 EV CHARGER, TYP; RE: TI DRAWINGS
AS9 TIRE STORAGE ENCLOSURE; SEE AS-501
AS10 NEW RETAINING WALL; RE: CIVIL
AS11 POLE MOUNTED LIGHT, TYP; RE: ELEC



1 ARCHITECTURAL SITE PLAN
1" = 40'-0"

PLAN NORTH

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08/15/2024
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ARCHITECT

REVISION	DATE
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Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
ARCHITECTURAL SITE PLAN

AS-101

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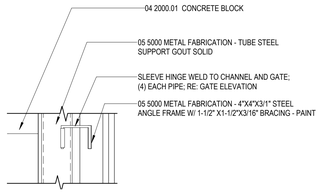
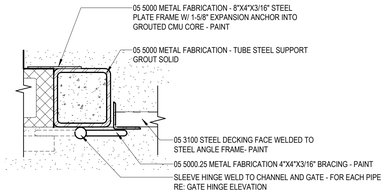


D2 TRASH ENCLOSURE - ELEVATION DETAIL
1 1/2" = 1'-0"



C2 TRASH ENCLOSURE - PLAN DETAIL
1 1/2" = 1'-0"

REFERENCE KEYNOTES

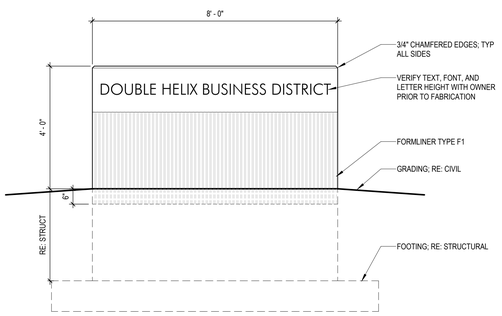
SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL.
THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

03 3000.42	SLAB ISOLATION JOINT FILLER
04 2000.01	CONCRETE BLOCK
05 5000.05	BOLLARD
05 5000.32	TRASH ENCLOSURE GATE(S)
07 6200.2C	PRE-FINISHED GALVANIZED STEEL SHEET METAL - COPING

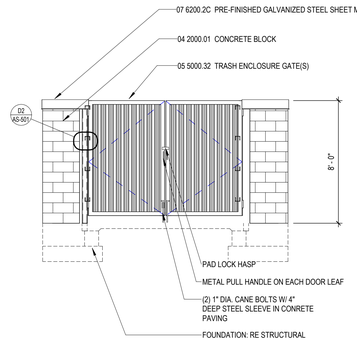
⎔ SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

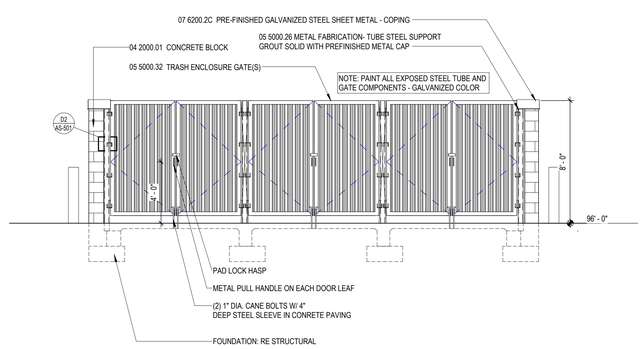
AS1	TRASH ENCLOSURE
AS2	PROPERTY LINE
AS3	PARKING SETBACK LINE; RE: CIVIL
AS4	BUILDING SETBACK LINE; RE: CIVIL
AS5	BUILDING SERVICE/ELECTRICAL EQUIPMENT; RE: ELEC
AS6	AMENITY ZONE; RE: LANDSCAPE
AS7	MONUMENT SIGN
AS8	EV CHARGER, TYP; RE: TI DRAWINGS
AS9	TIRE STORAGE ENCLOSURE; SEE AS-501
AS10	NEW RETAINING WALL; RE: CIVIL
AS11	POLE MOUNTED LIGHT, TYP; RE: ELEC



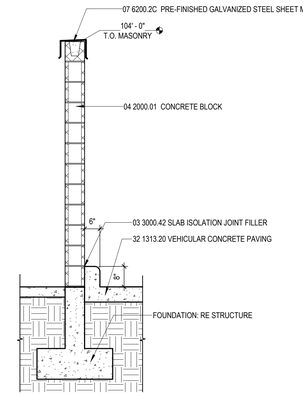
B4 ELEVATION - MONUMENT SIGN
1/2" = 1'-0"



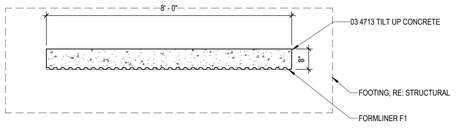
B3 TIRE STORAGE ENCLOSURE - ELEVATION
1/4" = 1'-0"



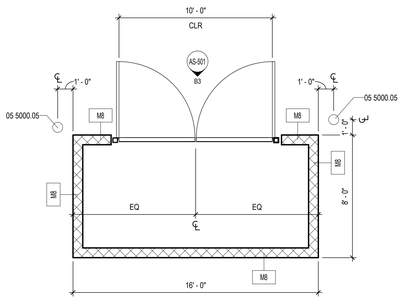
B2 TRASH ENCLOSURE - ELEVATION
1/4" = 1'-0"



B1 TRASH ENCLOSURE - SECTION
1/2" = 1'-0"

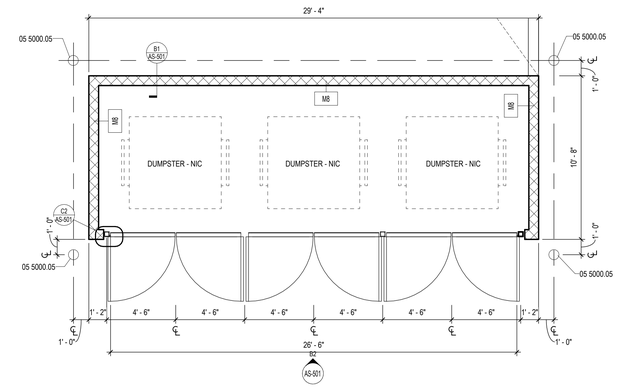


A4 PLAN - MONUMENT SIGN
1/2" = 1'-0"



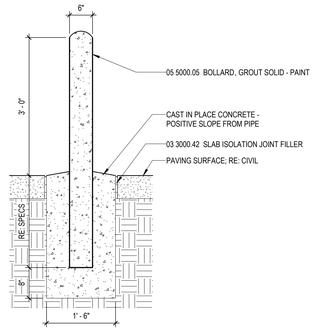
A3 TIRE STORAGE ENCLOSURE - PLAN
1/4" = 1'-0"

PLAN NORTH



A2 TRASH ENCLOSURE - PLAN
1/4" = 1'-0"

PLAN NORTH



A1 BOLLARD DETAIL - TYP
3/4" = 1'-0"

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DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

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08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
ARCHITECTURAL SITE PLAN DETAILS

AS-501

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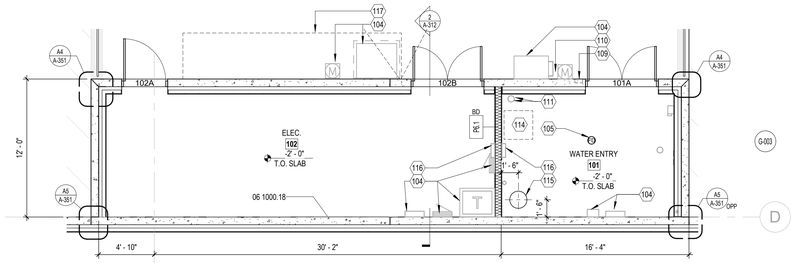
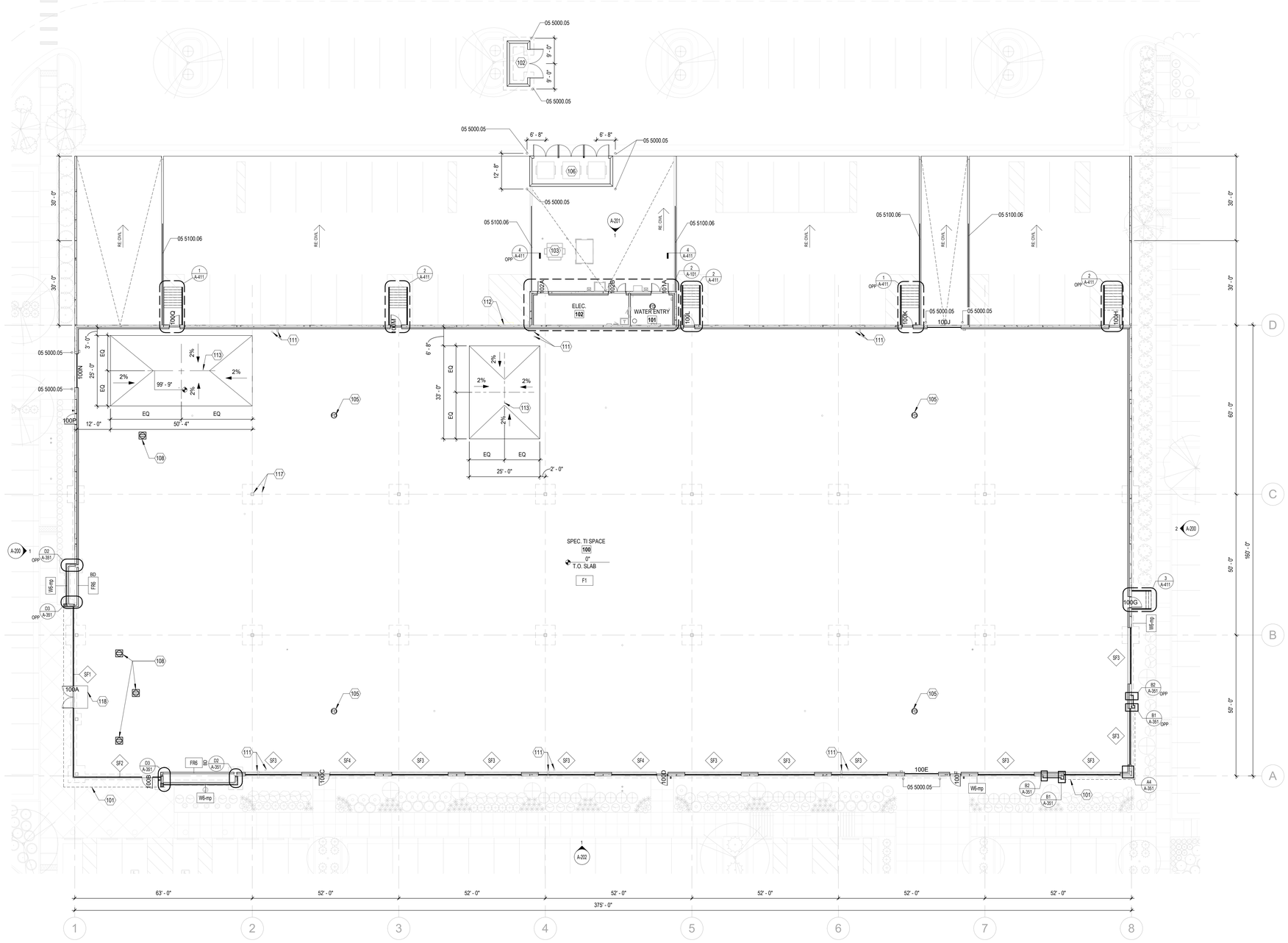


4

2 ELEC CLOSET AND WATER ENTRY ROOM - ENLARGED PLAN
3/16" = 1'-0"



1 FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES

SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

1. EXTERIOR BUILDING DIMENSIONS ARE TO GRID CENTERLINE, EXTERIOR FACE OF SHEATHING/OUTSIDE FACE OF FOUNDATION.
2. INTERIOR BUILDING DIMENSIONS ARE TO GRID CENTERLINE AND FACE OF STUD FRAMING AT NEW CONSTRUCTION.
3. PROVIDE BLOCKING FOR ALL WALL MOUNTED EQUIPMENT, CASEWORK AND ACCESSORIES. NO EXCEPTIONS.
4. ALL EXTERIOR WALL ASSEMBLIES TO BE TYPE CT-9, UNO.
5. LOCATE TYPICAL HINGE SIDE DOOR JAMB 4 " FROM FINISH WALL TO EDGE OF DOOR OPENING. MAINTAIN A MINIMUM FINISHED CLEARANCE OF 18 " TO THE STRIKE SIDE JAMB ON THE PULL SIDE OF ALL PUBLIC ACCESSIBLE DOORS.
6. ALL SITE AND LANDSCAPE INFORMATION SHOWN ON THIS PLAN IS FOR REFERENCE ONLY. REFER TO CIVIL AND LANDSCAPE SHEETS FOR ADDITIONAL DETAILS AND INFORMATION.

FLOOR PLAN: TAG IDENTIFIERS

- 200A — DOOR OPENING / BORROWED LIGHT
- 1 — STOREFRONTS AND WINDOWS
- 1 — SYSTEM ASSEMBLY TYPE: FLOORS, WALLS, CEILINGS, AND ROOFS
- 1 — EQUIPMENT / ACCESSORY / MATERIAL INDENTIFIER (ALSO ON INTERIOR ELEVATIONS)

WALL TAG SYSTEM ASSEMBLIES IDENTIFIERS: WALLS / PARTITIONS

EXTERIOR WALL TYPE CATEGORY
CONCRETE-TILT [CT]
STUD FRAMING - STRUCTURAL WALL [W]

INTERIOR WALL TYPE CATEGORY
STUD FRAMING - NON-STRUCT. PARTITION [P]
FURRING [FR]

WALL CORE SIZE [NOMINAL]
3 = 3-5/8"
6 = 6"
8 = 8"

P3.1 — *FIRE RATING

WALL TAG LEGEND

TYPICAL CONDITION:

XXx — METAL STUD/GYPSUM TO BOTTOM OF METAL DECK

REFERENCE KEYNOTES

SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL.
THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

05 5000.05 BOLLARD
05 5100.06 HANDRAILS AND GUARDS
06 1000.18 PLYWOOD - COMMUNICATIONS / ELECTRICAL ROOM MOUNTING BOARD

SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION.
SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

101 LINE OF SOFFIT ABOVE
102 TIRE DISPOSAL AREA; SEE SITE PLAN
103 XFMR; RE: ELEC
104 ELECTRICAL EQUIPMENT; RE: ELEC
105 FLOOR DRAIN; RE: PLUMBING
106 TRASH ENCLOSURE; SEE SITE PLAN
108 RECESSED FLOOR OUTLET; RE: TI DRAWINGS FOR LOCATION
109 KNOX BOX
110 FIRE DEPARTMENT CONNECTION; RE: CIVIL
111 ROOF AND OVERFLOW DRAIN; RE: PLUMBING
112 GAS METER; RE: CIVIL AND PLUMBING
113 TRENCH DRAIN; RE: PLUMBING
114 ZONE FOR FUTURE FIRE PUMP
115 SUMP PUMP AND BASIN; RE: PLUMBING
116 WALL HEATER; RE: MECH
117 ELECTRICAL EQUIPMENT ABOVE; RE: ELEC
118 RECESS CONCRETE FOR WALK-OFF MAT; RE: TI DRAWINGS

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COLORADO LICENSED
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08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
LEVEL 1 - OVERALL FLOOR PLAN - BUILDING C

PLAN NORTH

A-101

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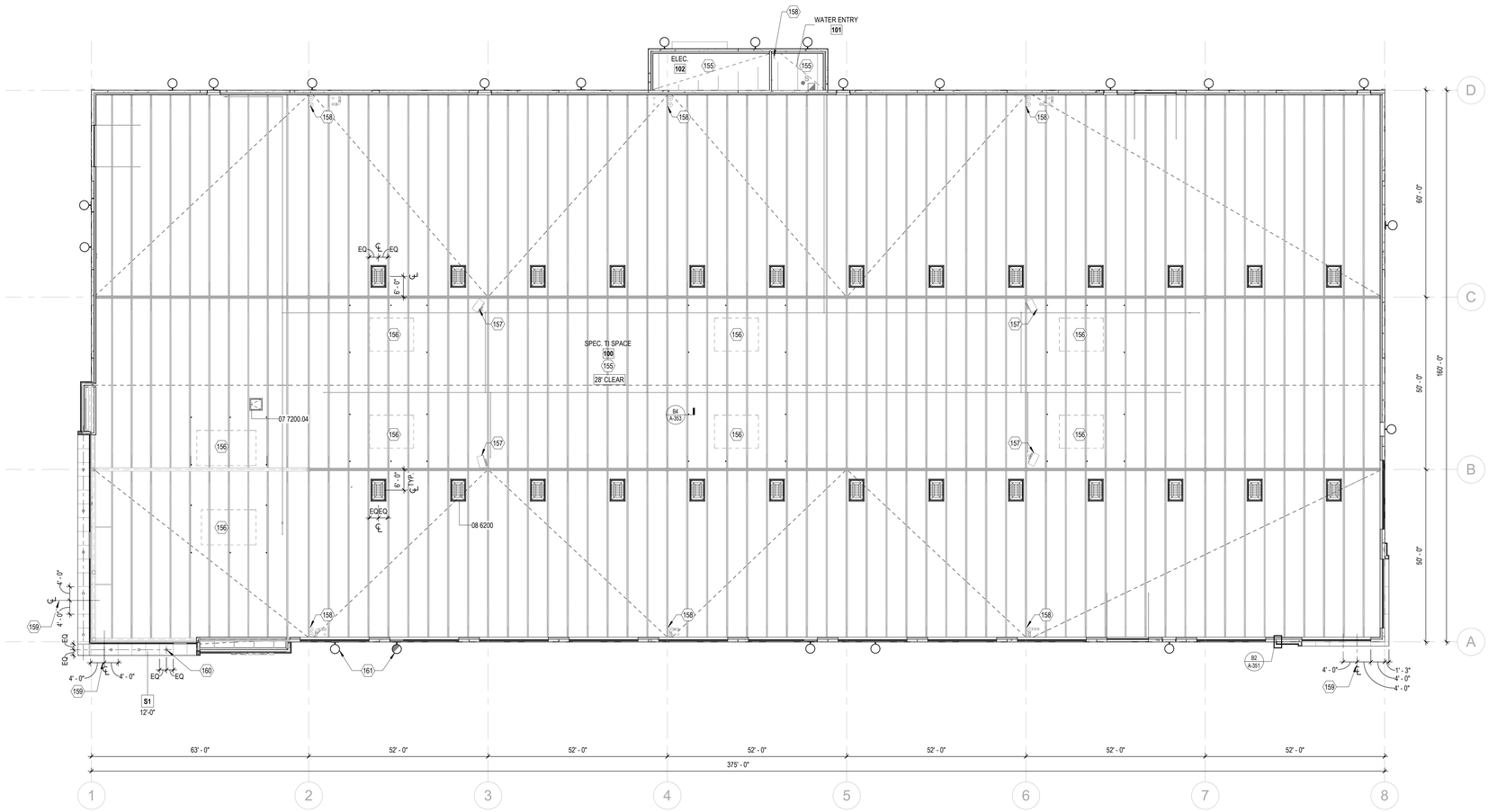

1 LEVEL 1 - REFLECTED CEILING PLAN
1/16" = 1'-0"

GENERAL NOTES

SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

1. THIS PLAN SHOWS LOCATIONS OF ITEMS IN ARCHITECTURALLY SIGNIFICANT SPACES ONLY. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL PLANS FOR ALL ITEMS NOT SHOWN.
2. CENTER ALL CEILING MOUNTED ITEMS LOCATED IN ACOUSTICAL PANELS, GYPSUM BOARD SOFFITS, AND BETWEEN OTHER CEILING MOUNTED FIXTURES, UNO. SPEAKERS, SMOKE DETECTORS AND HEAT DETECTORS MAY BE CENTERED AT ¼ POINT ON ACOUSTICAL PANELS.
3. ALL CEILING ELEVATION REFERENCES ARE RELATIVE TO FINISHED FLOOR SLAB BELOW.
4. COORDINATE LIGHTING LAYOUTS IN UTILITY/STORAGE/ELECTRICAL/IDF/MDF ROOMS WITH OVERHEAD PIPING, DUCTS, AND OTHER CEILING SUSPENDED EQUIPMENT.
5. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR DEVICES AND REFER TO ARCHITECTURAL DRAWINGS FOR THE EXACT PLACEMENT OF DEVICES WITHIN CEILING GRIDS.
6. REFER TO ELECTRICAL DRAWINGS FOR LIGHT FIXTURE SCHEDULE.

REFERENCE KEYNOTES

SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL.
THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

07 7200.04	ROOF HATCH ASSEMBLY
08 6200	UNIT SKYLIGHT

SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

155	EXPOSED STRUCTURE ABOVE
156	FUTURE RTU PAD ON ROOF; RE: TI DRAWINGS
157	CABINET UNIT HEATER; RE: MECH
158	ROOF DRAIN AND OVERFLOW DRAIN; RE: PLUMBING
159	METAL PANEL JOINT TO BE ALIGNED WITH STOREFRONT MULLION
160	DOWNLIGHT, CENTER IN PANEL, TYP ALL DOWNLIGHTS IN SOFFIT; RE: ELEC
161	WALL MOUNTE FIXTURE, TYP; RE: ELEC

CEILING SYMBOLS LEGEND

REFER TO ENGINEERING MECHANICAL, ELECTRICAL, & FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION

- LINEAR LUMINAIRE LIGHT FIXTURE
- EMERGENCY LINEAR LUMINAIRE LIGHT FIXTURE
- RECESSED DOWNLIGHT LUMINAIRE LIGHT FIXTURE
- RECESSED DOWNLIGHT EMERGENCY LUMINAIRE LIGHT FIXTURE
- WALL MOUNTED LUMINAIRE LIGHT FIXTURE
- WALL MOUNTED EMERGENCY LUMINAIRE LIGHT FIXTURE
- WALL MOUNTED DIRECTIONAL LIGHT LUMINAIRE

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Drawn By	MM
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Sheet Name
LEVEL 1 - REFLECTED CEILING PLAN - BUILDING C

PLAN NORTH

A-111

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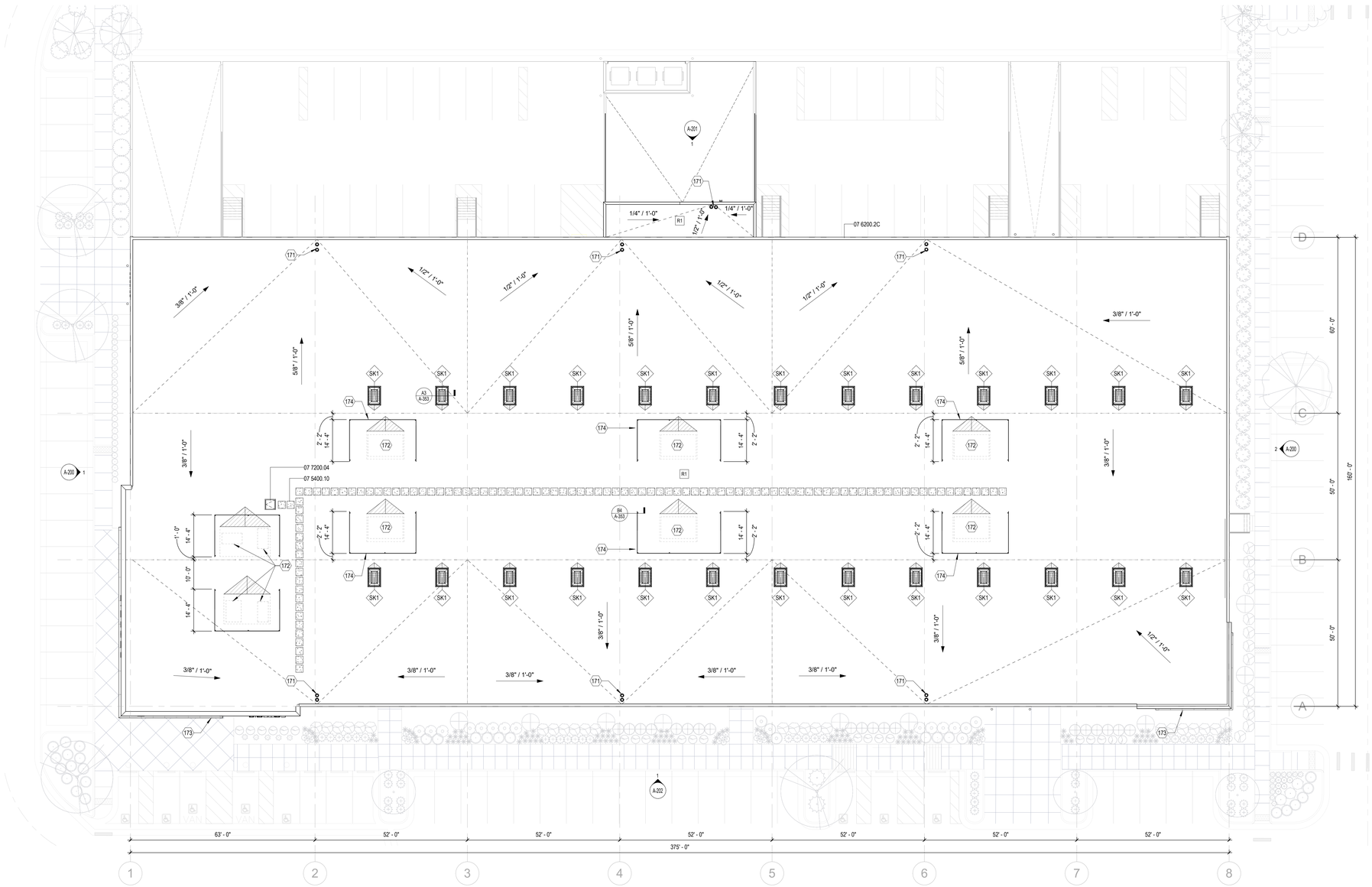

1 ROOF PLAN
1/16" = 1'-0"

GENERAL NOTES

SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

1. COORDINATE ROOF PENETRATION CURB AND FLASHING REQUIREMENTS WITH ALL AFFECTED TRADES.
2. DIMENSIONS FOR MECHANICAL OPENING SUPPORT ARE BASED UPON INFORMATION PROVIDED BY SPECIFIED ROOF EQUIPMENT. COORDINATE SELECTED MANUFACTURER'S REQUIRED CLEAR OPENING WIDTH FOR ALL ROOFTOP EQUIPMENT WITH MECHANICAL SHOW DRAWINGS.
3. REFER TO MECHANICAL AND PLUMBING PLANS FOR LOCATIONS AND EXTEND OF EXPOSED PIPING ON ROOF.
4. MAINTAIN FIRE-RATING AT MECHANICAL FLUE AND COMBUSTION AIR DUCT PENETRATIONS THROUGH ROOF/CEILING ASSEMBLY AT PLENUMS, RE: MECH.
5. MAINTAIN ALL ROOF DRAINS CLEAN AND FREE-FLOWING DURING AND UPON COMPLETION OF CONSTRUCTION.
6. REFER TO PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ROOF MOUNTED EQUIPMENT AND PENETRATIONS. ALL EQUIPMENT PENETRATIONS MAY BE SHOWN ON THIS ROOF PLAN.
7. ALL TAPERED INSULATION TO BE SLOPED TO DRAIN AT 1/4 " PER FOOT, UNO.
8. COORDINATE ROOF PENETRATION CURB AND FLASHING REQUIREMENTS WITH ALL AFFECTED TRADES.

REFERENCE KEYNOTES

SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL.
THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

07 5400.10	WALKWAY PADS
07 6200.2C	PRE-FINISHED GALVANIZED STEEL SHEET METAL - COPING
07 7200.04	ROOF HATCH ASSEMBLY

SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF
NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION.
SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

171	ROOF DRAIN & OVERFLOW DRAIN; RE: PLUMBING
172	FUTURE RTU & CURB; RE: TI DRAWINGS
173	LINE OF ROOF BELOW
174	RTU SCREEN WALL

ROOF PLAN LEGEND:

- CRICKETS FORMED BY TAPERED INSULATION, SLOPE TO DRAIN, 1/4" PER FOOT, TYP.
- ROOF WALKWAY PAD; RE: SPECS
- ROOF DRAIN & OVERFLOW DRAIN, RE: PLUMBING
- R# — ROOF ASSEMBLY TYPE, RE: G-004

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ARCHITECT

REVISION	DATE
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Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
OVERALL ROOF PLAN - BUILDING C

PLAN NORTH

A-121

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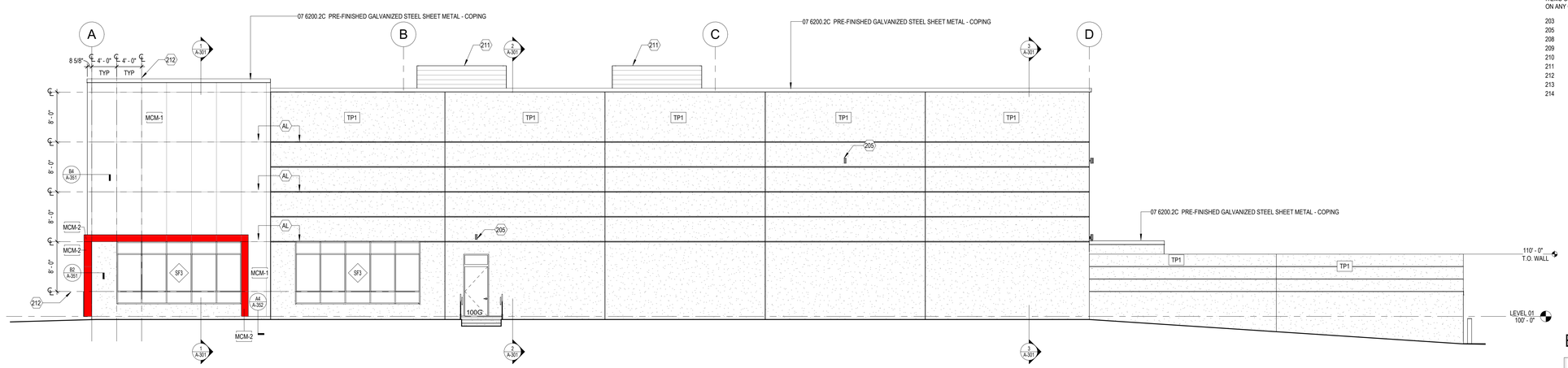
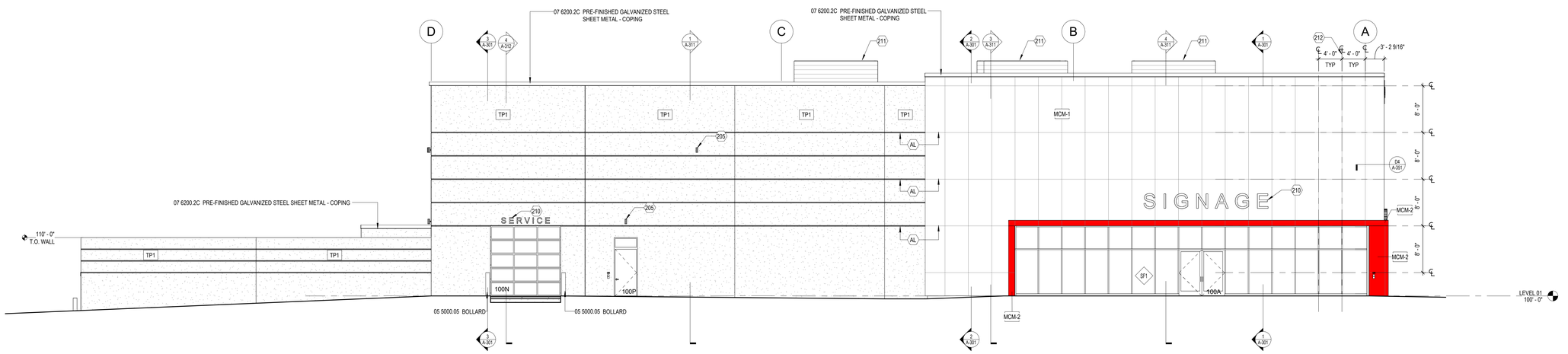


2 NORTH ELEVATION
1/8" = 1'-0"



1 SOUTH ELEVATION
1/8" = 1'-0"

REFERENCE KEYNOTES

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05 5000.05 BOLLARD
07 6200.2C PRE-FINISHED GALVANIZED STEEL SHEET METAL - COPING

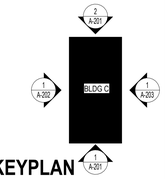
SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

203 LINE OF TRASH ENCLOSURE IN FOREGROUND; SEE 'AS' SERIES
205 EXTERIOR LIGHTING; RE: ELEC
208 KNOCKOUT FOR FUTURE OPENING; RE: STRUCTURAL
209 FIRE DEPARTMENT CONNECTION; RE: CIVIL
210 FUTURE SIGNAGE BY OWNER; RE: ELEC. FOR POWER REQUIREMENTS
211 MECHANICAL SCREEN WALL IN BACKGROUND
212 METAL PANEL JOINT TO BE ALIGNED WITH STOREFRONT MULLION
213 CONCRETE FORMLINER; SEE TILT PANEL ELEVATIONS FOR MORE INFO
214 ELECTRICAL EQUIPMENT, REPRESENTED WITH GREY DASHED LINE; RE: ELEC

EXTERIOR MATERIAL LEGEND

F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE
TP1 - PAINTED CONCRETE TILT PANEL; COLOR TO BE PT-1; SEE FINISH SCHEDULE
MCM-1 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE
MCM-2 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE

KEYPLAN


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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONOPAK
08/15/2024
402336
ARCHITECT

REVISION	DATE
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Project Number	24140
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Sheet Name
EXTERIOR BUILDING ELEVATION

A-200

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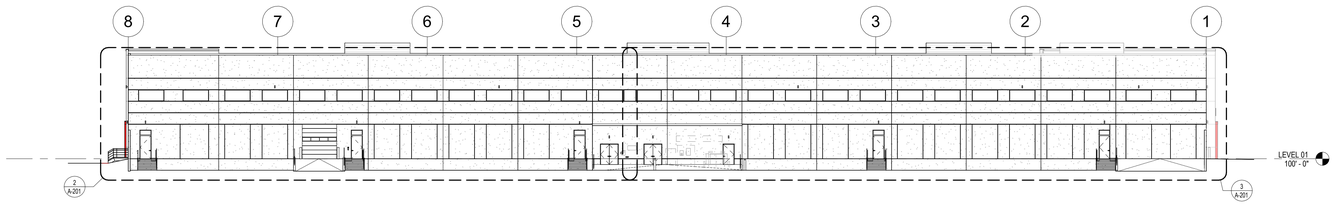
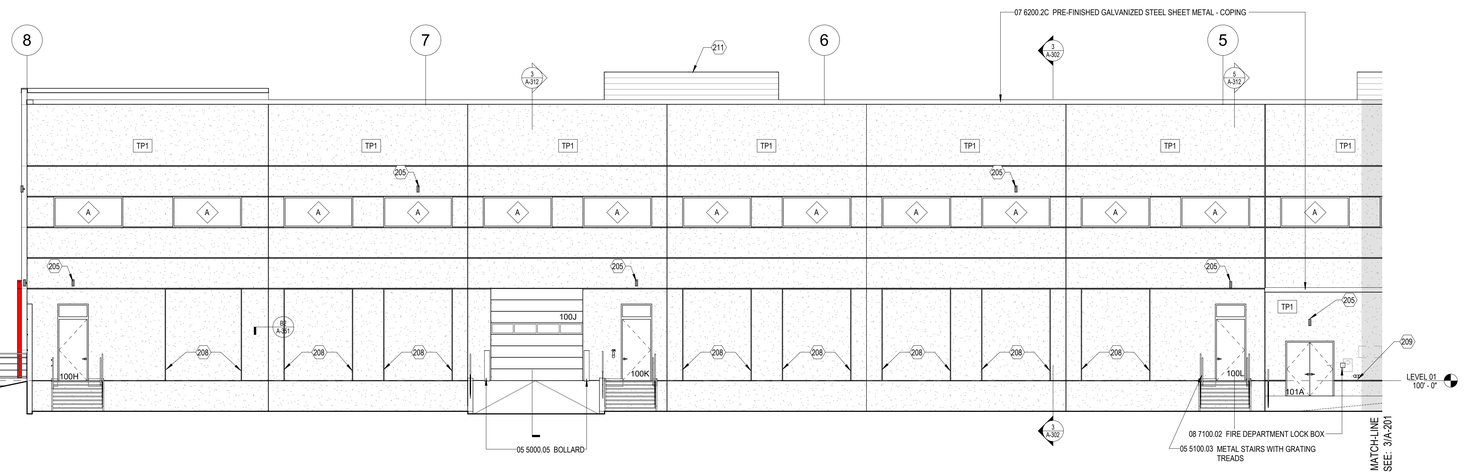
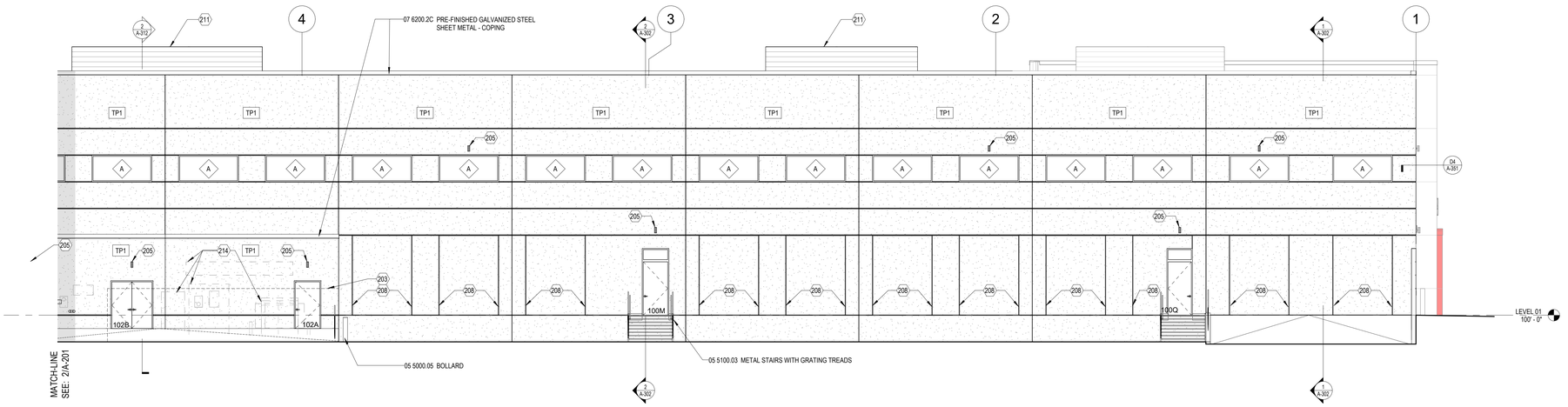


1 WEST ELEVATION - KEY ELEVATION
3/64" = 1'-0"



2 BUILDING C - WEST ELEVATION - LEFT
1/8" = 1'-0"



3 BUILDING C - WEST ELEVATION - RIGHT
1/8" = 1'-0"

EXTERIOR MATERIAL LEGEND

- F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE
- TP1 - PAINTED CONCRETE TILT PANEL; COLOR TO BE PT-1; SEE FINISH SCHEDULE
- MCM-1 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE
- MCM-2 ; ALUCOBOND PANELS, SEE FINISH SCHEDULE

REFERENCE KEYNOTES

SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL.
THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

05 5000.05	BOLLARD
05 5100.03	METAL STAIRS WITH GRATING TREADS
07 6200.2C	PRE-FINISHED GALVANIZED STEEL SHEET METAL - COPING
08 7100.02	FIRE DEPARTMENT LOCK BOX

SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

203	LINE OF TRASH ENCLOSURE IN FOREGROUND; SEE 'AS' SERIES
205	EXTERIOR LIGHTING; RE: ELEC
208	KNOCKOUT FOR FUTURE OPENING; RE: STRUCTURAL
209	FIRE DEPARTMENT CONNECTION; RE: CIVIL
210	FUTURE SIGNAGE BY OWNER; RE: ELEC. FOR POWER REQUIREMENTS
211	MECHANICAL SCREEN WALL IN BACKGROUND
212	METAL PANEL JOINT TO BE ALIGNED WITH STOREFRONT MULLION
213	CONCRETE FORMLINER; SEE TILT PANEL ELEVATIONS FOR MORE INFO
214	ELECTRICAL EQUIPMENT, REPRESENTED WITH GREY DASHED LINE; RE: ELEC

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
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Checked By:	BK
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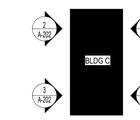
Sheet Name
EXTERIOR BUILDING ELEVATIONS

A-201

KEYPLAN



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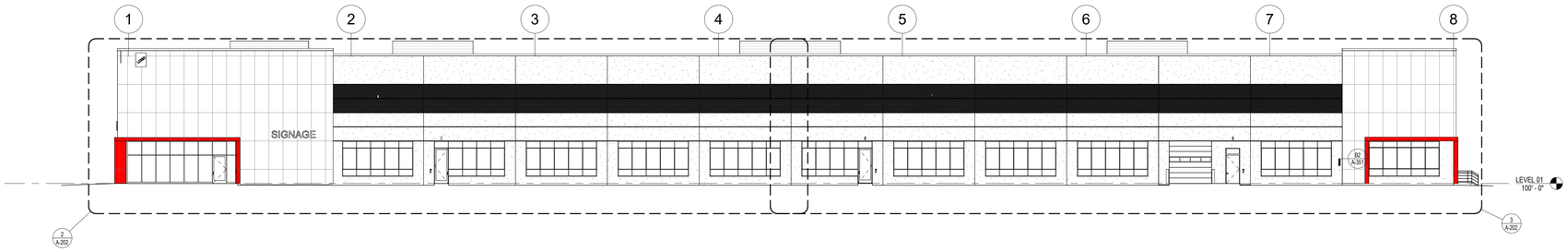
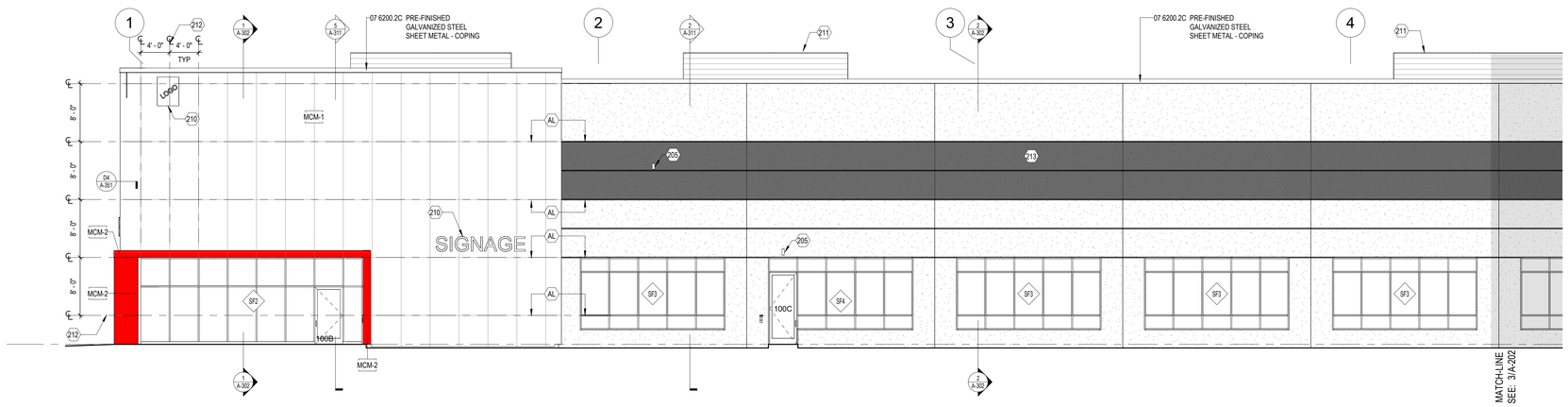
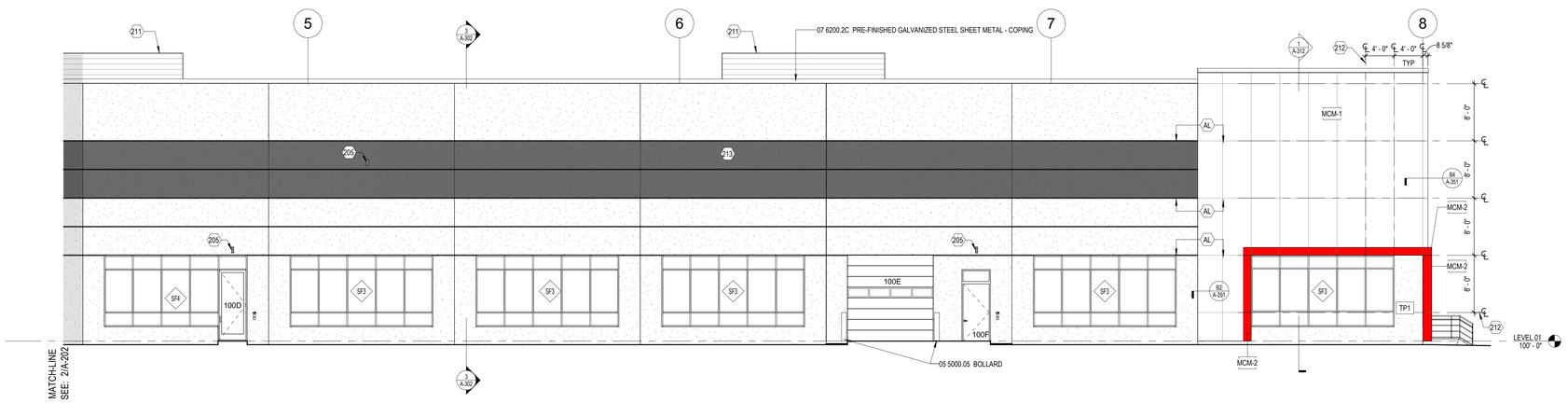


1 EAST ELEVATION - KEY PLAN
1/16" = 1'-0"



2 BUILDING C - EAST ELEVATION - LEFT
1/8" = 1'-0"



3 BUILDING C - EAST ELEVATION - RIGHT
1/8" = 1'-0"

REFERENCE KEYNOTES

SHEET SPECIFIC IDENTIFICATION OF ITEMS DIRECTLY REFERENCED TO CORRESPONDING ARCHITECTURAL SPECIFICATION SECTIONS IN THE PROJECT MANUAL. THE DECIMAL AND SUFFIX NUMBERS / LETTERS ARE NOT IDENTIFIED IN SPECIFICATIONS.

05 5000.05 BOLLARD
07 6200.2C PRE-FINISHED GALVANIZED STEEL SHEET METAL - COPING

SHEET KEYNOTES

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210 FUTURE SIGNAGE BY OWNER; RE: ELEC. FOR POWER REQUIREMENTS
211 MECHANICAL SCREEN WALL IN BACKGROUND
212 METAL PANEL JOINT TO BE ALIGNED WITH STOREFRONT MULLION
213 CONCRETE FORMLINER; SEE TILT PANEL ELEVATIONS FOR MORE INFO
214 [illegible] RE: ELEC

EXTERIOR MATERIAL LEGEND

F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE

TP1 - PAINTED CONCRETE TILT PANEL; COLOR TO BE PT-1; SEE FINISH SCHEDULE

MCM-1 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE

MCM-2 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONCZAL
06/15/2024
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Date	2024.06.15
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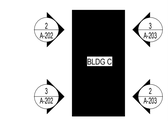
Checked By:	BK

Sheet Name
EXTERIOR BUILDING ELEVATIONS

KEYPLAN



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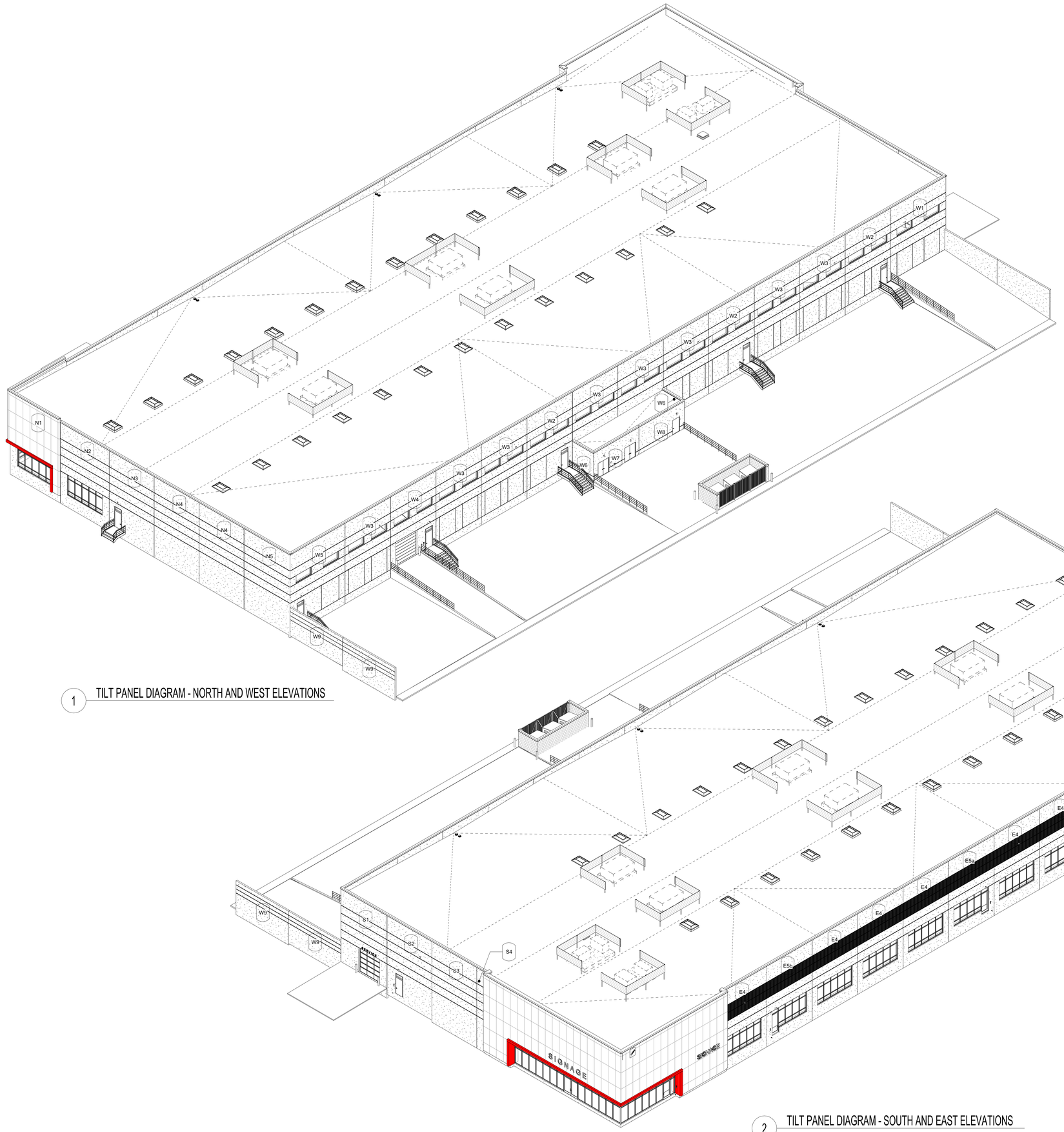


1 TILT PANEL DIAGRAM - NORTH AND WEST ELEVATIONS

2 TILT PANEL DIAGRAM - SOUTH AND EAST ELEVATIONS

GENERAL NOTES

SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

1. THESE AXONOMETRIC DRAWINGS PROVIDED FOR REFERENCE ONLY. NO MEASUREMENTS OR DIMENSIONS ARE TO BE TAKEN OFF OF THESE DRAWINGS.

TILT PANEL NAMING LEGEND

ELEVATION OF BUILDING
[N] = NORTH SIDE OF BUILDING
[S] = SOUTH SIDE OF BUILDING
[E] = EAST SIDE OF BUILDING
[W] = WEST SIDE OF BUILDING

N1A

SEQUENTIAL PANEL NUMBER

ALPHABETICAL PANEL VARIATION

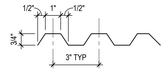
EXTERIOR MATERIAL LEGEND

F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE

TP1 - PAINTED CONCRETE TILT PANEL; COLOR TO BE PT-1; SEE FINISH SCHEDULE

MCM-1 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE

MCM-2 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE



TYPICAL FORMLINER PROFILE 'F1'
MRF: FITZGERALD FORMLINERS
PATTERN: 14315
NAME: FLUTED RIB

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402336
ARCHITECT

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Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
TILT PANEL AXON

A-203

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SHEET KEYNOTES

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231 LINE OF MITERED EDGE BEYOND
232 APPROXIMATE LINE OF ROOF FRAMING; RE: STRUCTURAL
233 LINE OF SLAB BEYOND; RE: STRUCTURAL
234 KNOX BOX; REVIEW SIZING WITH MFR REQUIREMENTS
235 WALL MOUNTED LIGHTING FIXTURE; PROVIDE OPENING FOR 4"X4" JBOX; CENTER LINE OF FIXTURE TO BE LOCATED AT 12'-10" AFF; RE: ELEC
236 WALL MOUNTED LIGHTING FIXTURE(WHERE OCCURS); PROVIDE OPENING FOR 4"X4" JBOX; CENTER LINE OF FIXTURE TO BE LOCATED AT 25'-0" AFF. RE: ELEC
237 WALL MOUNTED LIGHTING FIXTURE; PROVIDE OPENING FOR 4"X4" JBOX; CENTER LINE OF FIXTURE TO BE LOCATED AT 7'-6" AFF (LEVEL 01); RE: ELEC
238 PROVIDE BLOCKOUT FOR CARD READER; RE: DOOR HARDWARE SPECS
239 FORMLINER F1
240 FIRE DEPARTMENT CONNECTION

EXTERIOR MATERIAL LEGEND

- F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE
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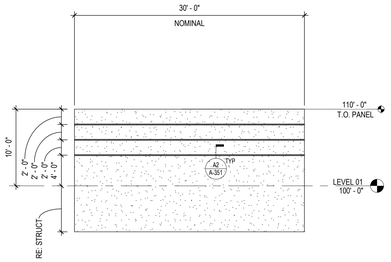
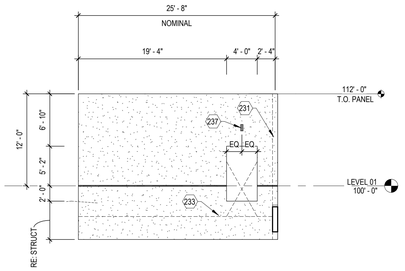
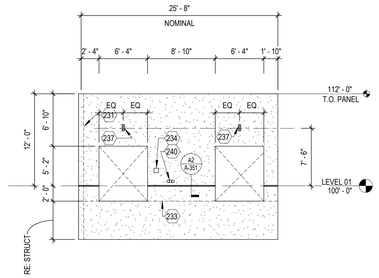


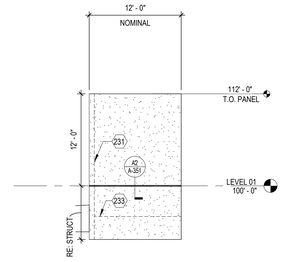
W9 PANEL W9
1/8" = 1'-0"



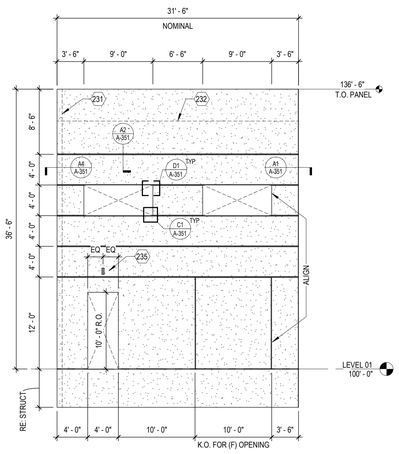
W8 PANEL W8
1/8" = 1'-0"



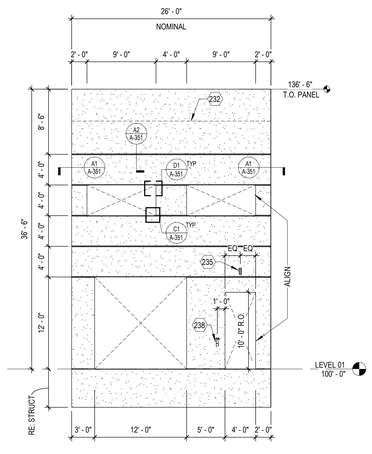
W7 PANEL W7
1/8" = 1'-0"



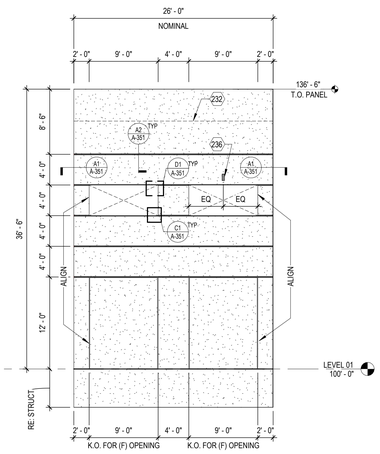
W6 PANEL W6
1/8" = 1'-0"



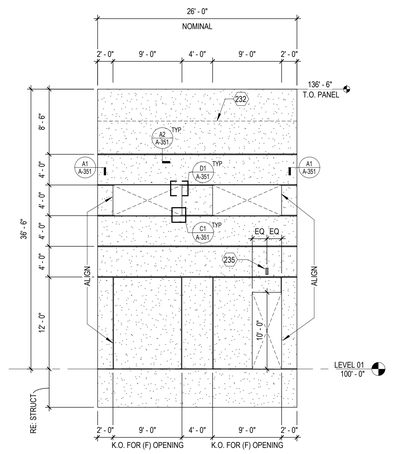
W5 PANEL W5
1/8" = 1'-0"



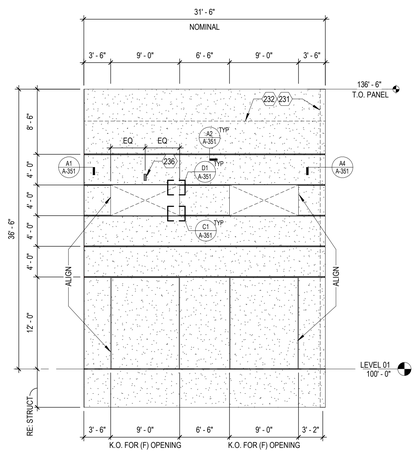
W4 PANEL W4
1/8" = 1'-0"



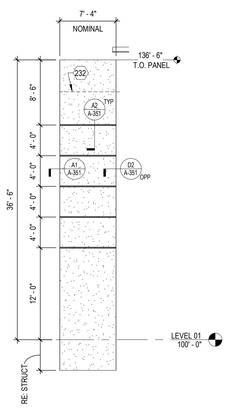
W3 PANEL W3
1/8" = 1'-0"



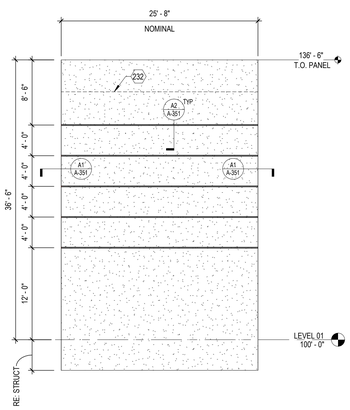
W2 PANEL W2
1/8" = 1'-0"



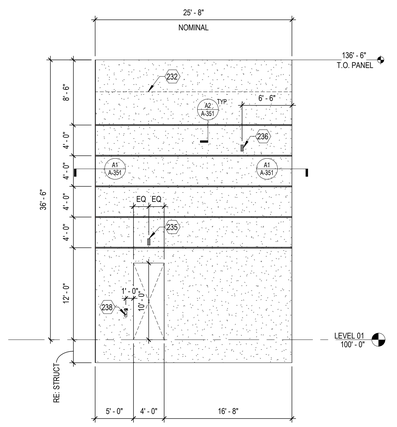
W1 PANEL W1
1/8" = 1'-0"



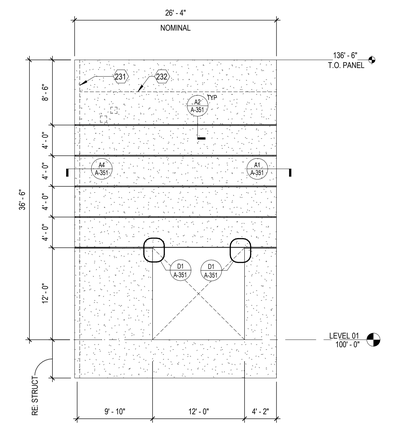
S4 PANEL S4
1/8" = 1'-0"



S3 PANEL S3
1/8" = 1'-0"



S2 PANEL S2
1/8" = 1'-0"



S1 PANEL S1
1/8" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

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ARCHITECT

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Project Number	24140
Date	2024.08.15
Drawn By:	MM
Checked By:	BK

Sheet Name
TILT PANEL ELEVATIONS

A-204

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SHEET KEYNOTES

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EXTERIOR MATERIAL LEGEND

F1 - PAINTED CONCRETE TILT PANEL WITH FORMLINER 1; COLOR TO BE PT-1; SEE FINISH SCHEDULE

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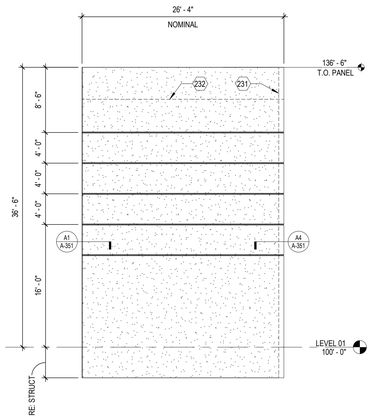
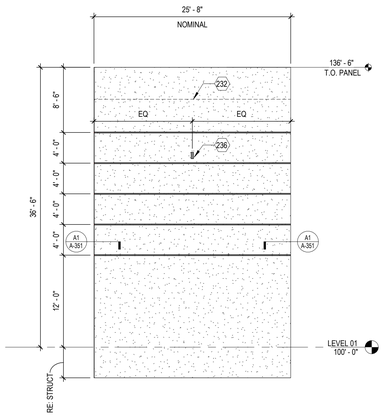
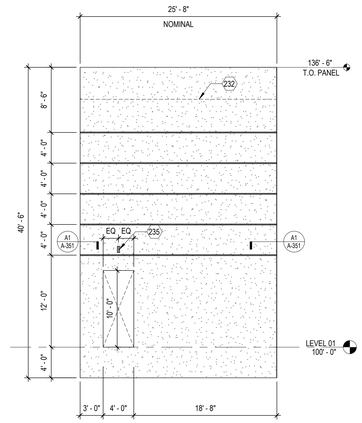
MCM-2 ; ALUCOBOND PANELS; SEE FINISH SCHEDULE



N5 PANEL N5
1/8" = 1'-0"



N4 PANEL N4
1/8" = 1'-0"



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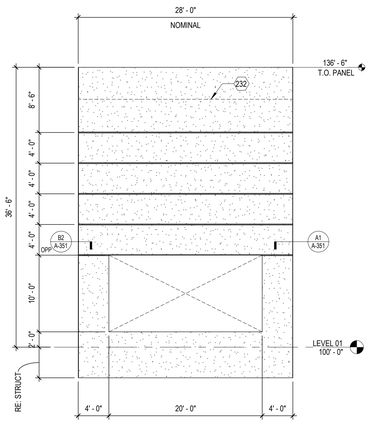
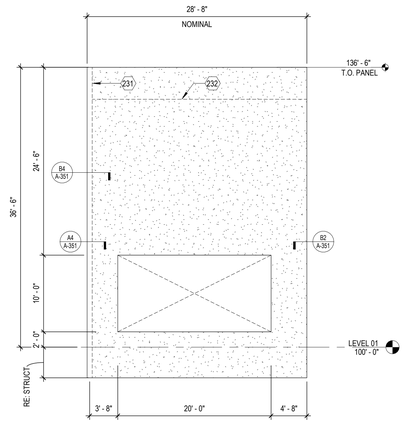
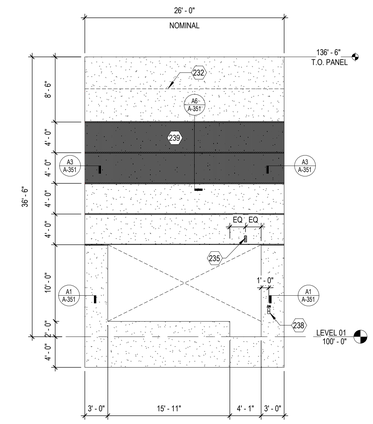
1/8" = 1'-0"



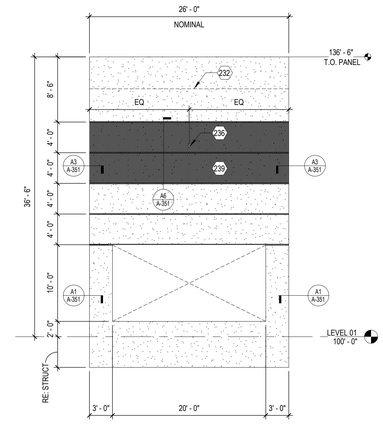
N2 PANEL N2
1/8" = 1'-0"



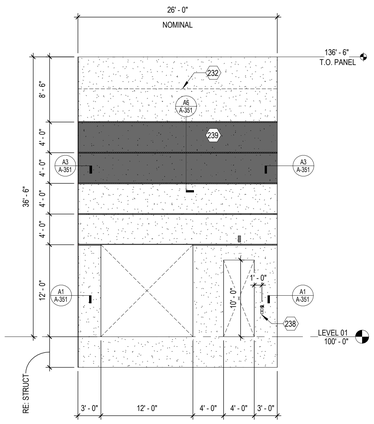
N1 PANEL N1
1/8" = 1'-0"



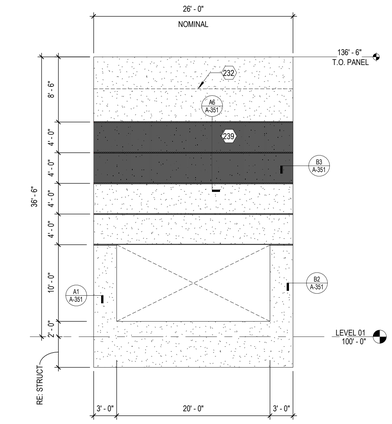
E5 PANEL E5a & E5b
1/8" = 1'-0"



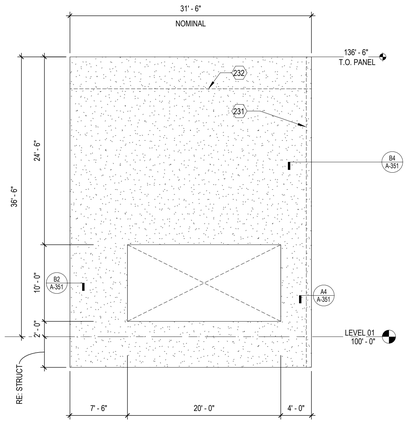
E4 PANEL E4
1/8" = 1'-0"



E3 PANEL E3
1/8" = 1'-0"



E2 PANEL E2
1/8" = 1'-0"



E1 PANEL E1
1/8" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONCHAK
05/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.06.15
Drawn By:	MM
Checked By:	BK

Sheet Name
TILT PANEL ELEVATIONS

A-205

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GENERAL NOTES

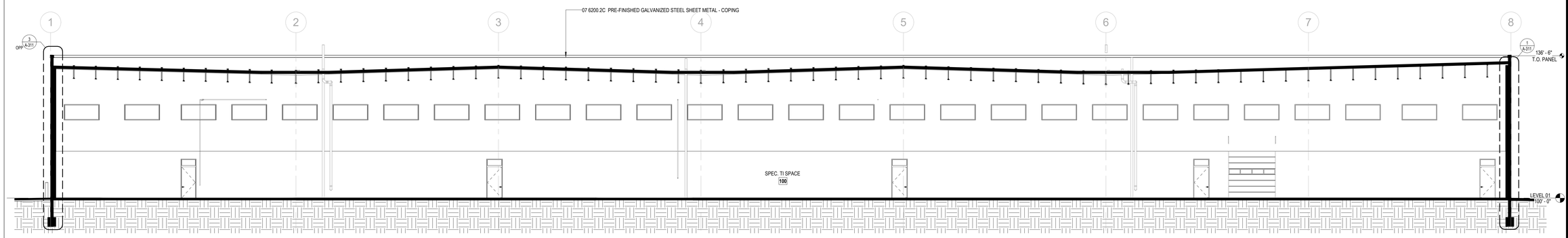
SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

1. _

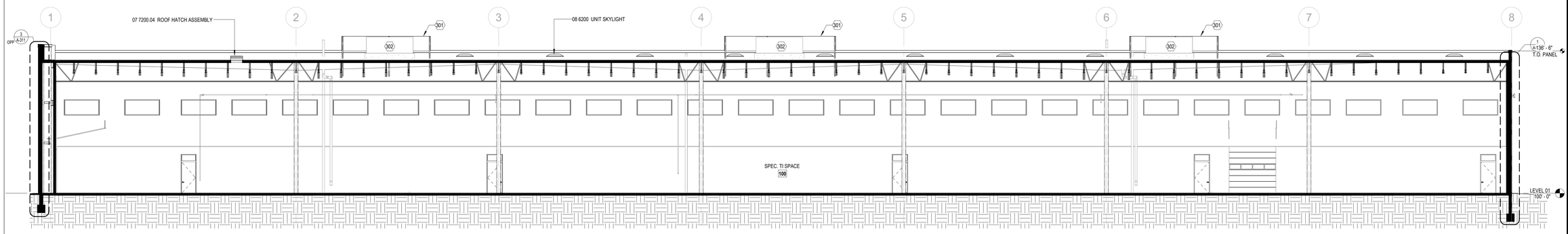
SHEET KEYNOTES

NUMBERING IS GROUPED BY TYPE / PHASE OF WORKSHEET OF NON-ARCHITECTURAL ITEMS OR INFORMATIONAL / INSTRUCTIONAL NOTATION. SOME NUMBERS MAY BE SKIPPED ON ANY GIVEN DRAWING SHEET.

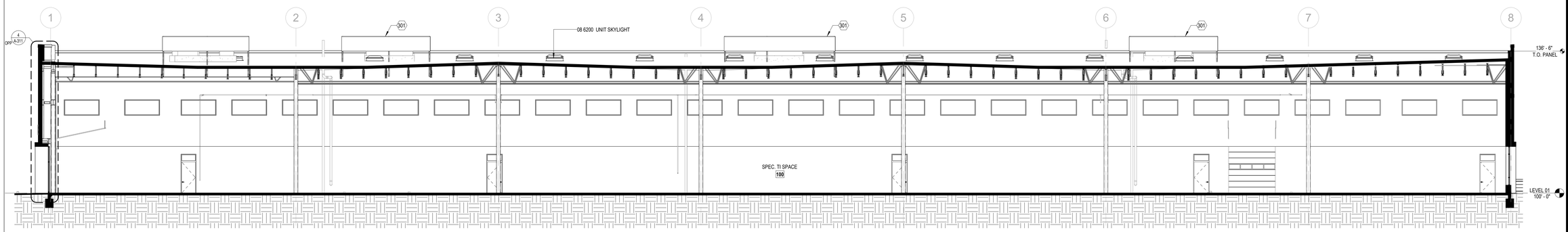
301 MECHANICAL SCREEN WALL BEYOND
302 FUTURE RTU; SIZE TBD



3 BUILDING SECTION - NORTH SOUTH 3
3/32" = 1'-0"



2 BUILDING SECTION - NORTH SOUTH 2
3/32" = 1'-0"



1 BUILDING SECTION - NORTH SOUTH 1
3/32" = 1'-0"

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Sheet Name
BUILDING SECTIONS

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SHEET KEYNOTES

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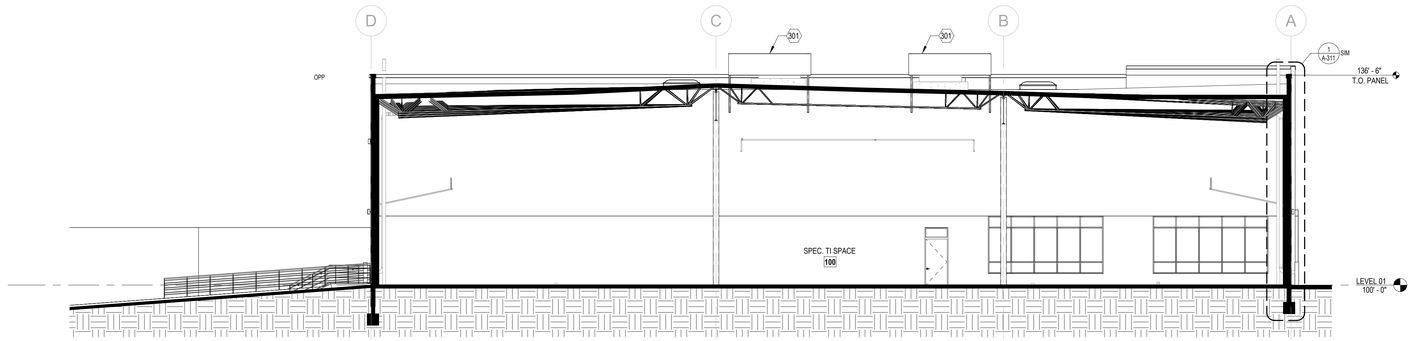
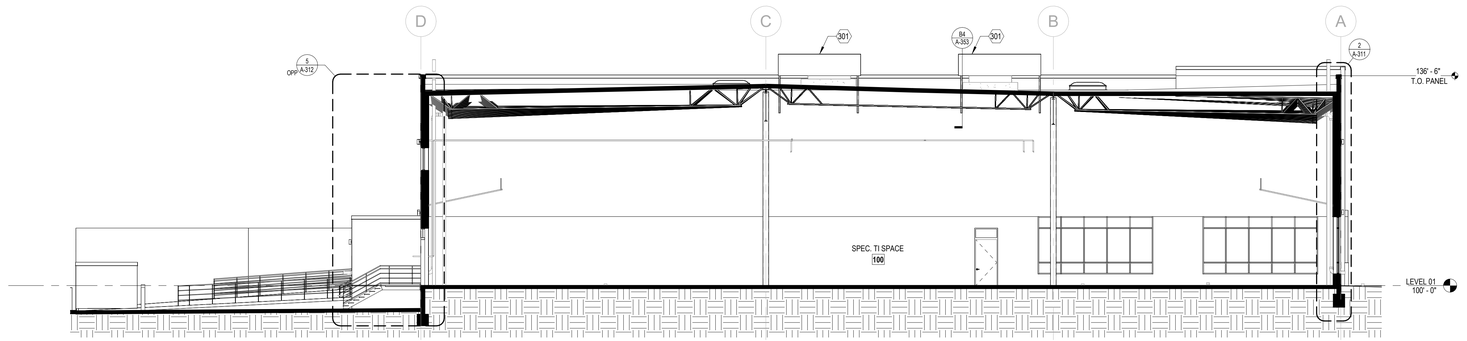
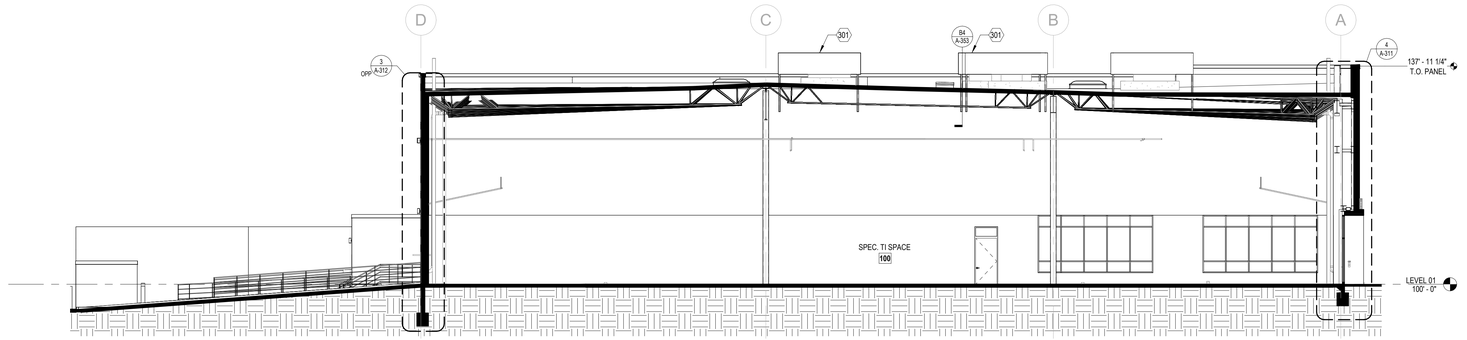
301 MECHANICAL SCREEN WALL BEYOND
302 FUTURE RTU; SIZE TBD



3 BUILDING SECTION - EAST WEST 3
3/32" = 1'-0"



2 BUILDING SECTION - EAST WEST 2
3/32" = 1'-0"



1 BUILDING SECTION - EAST WEST 1
3/32" = 1'-0"

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BUILDING SECTIONS

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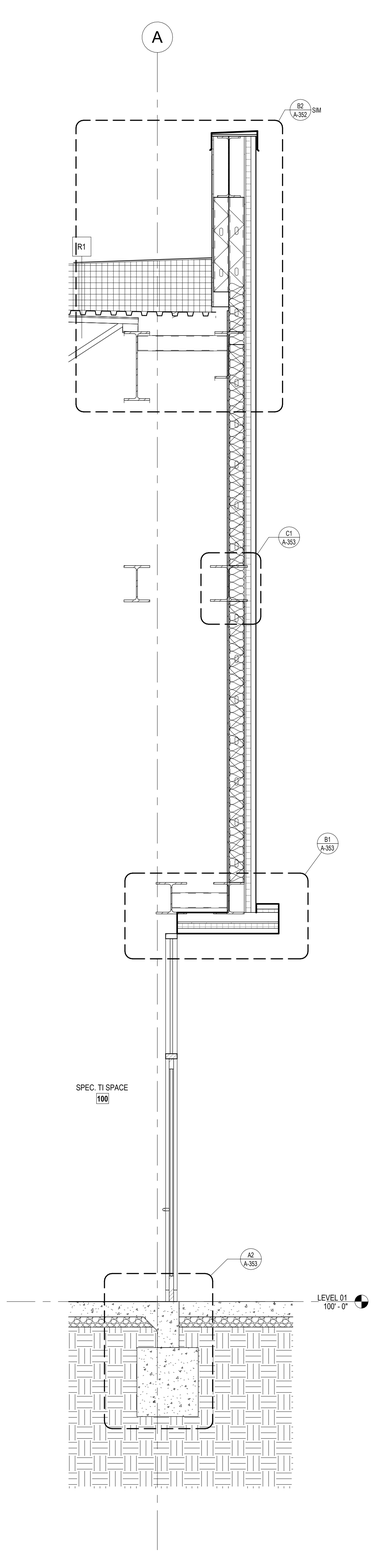
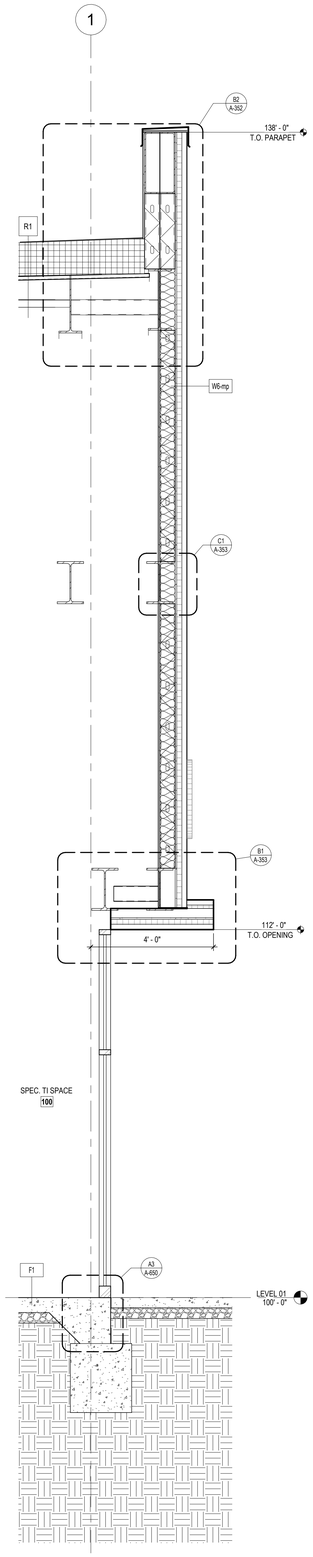
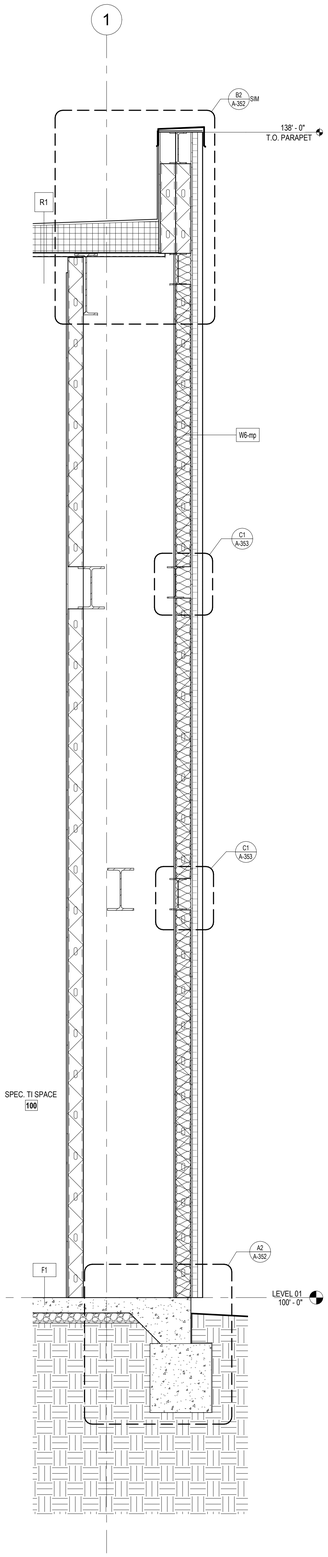


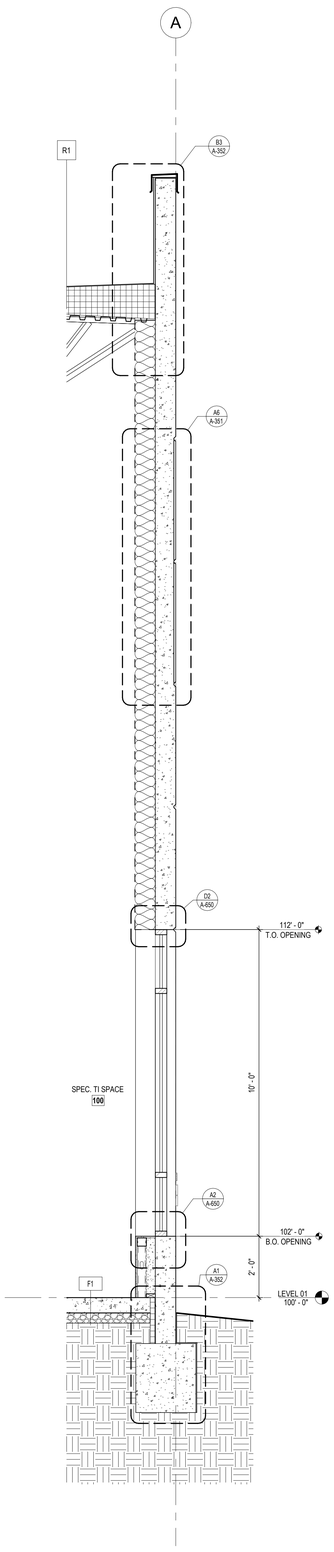
5 WALL SECTION - EAST FACADE METAL PANEL
1/2" = 1'-0"



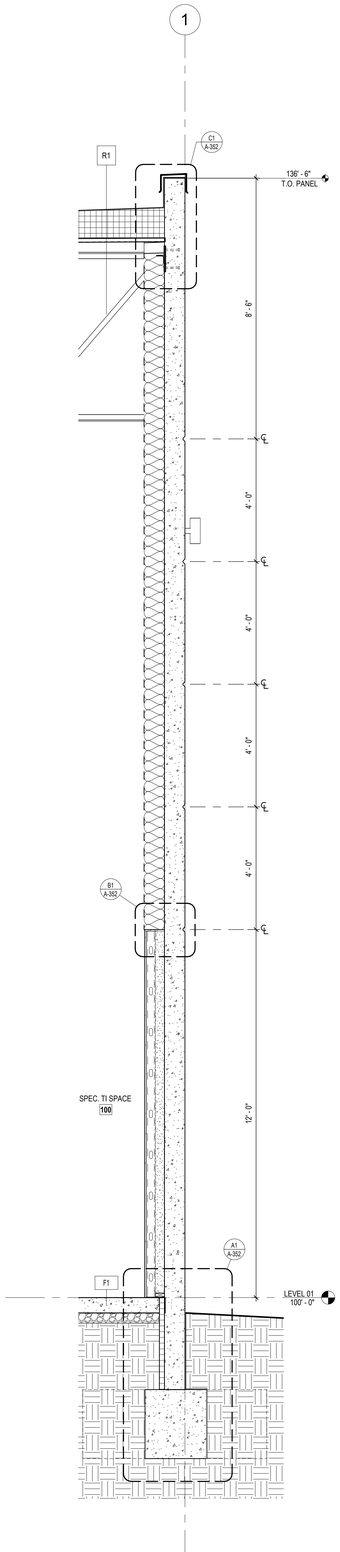
4 WALL SECTION - MAIN ENTRY
1/2" = 1'-0"



3 WALL SECTION - MCM CLADDING - TYP
1/2" = 1'-0"



2 WALL SECTION - CT8 - PUNCHED OPENING - TYP
1/2" = 1'-0"



1 WALL SECTION - TILT PANEL - TYP
1/2" = 1'-0"

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Sheet Name
WALL SECTIONS

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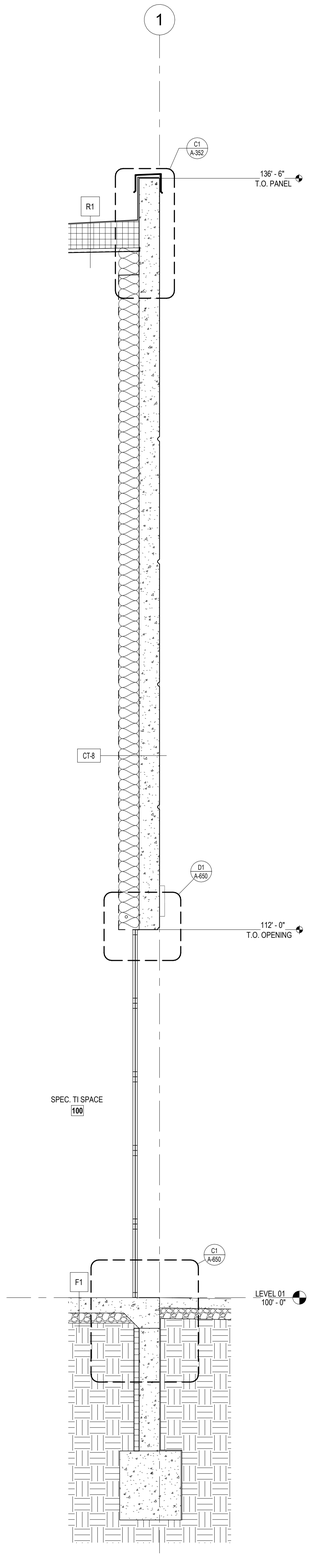
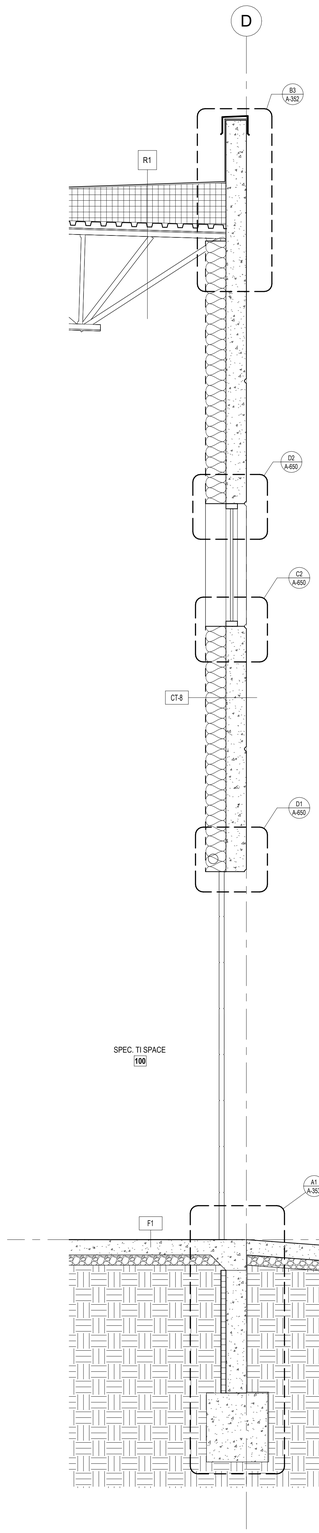
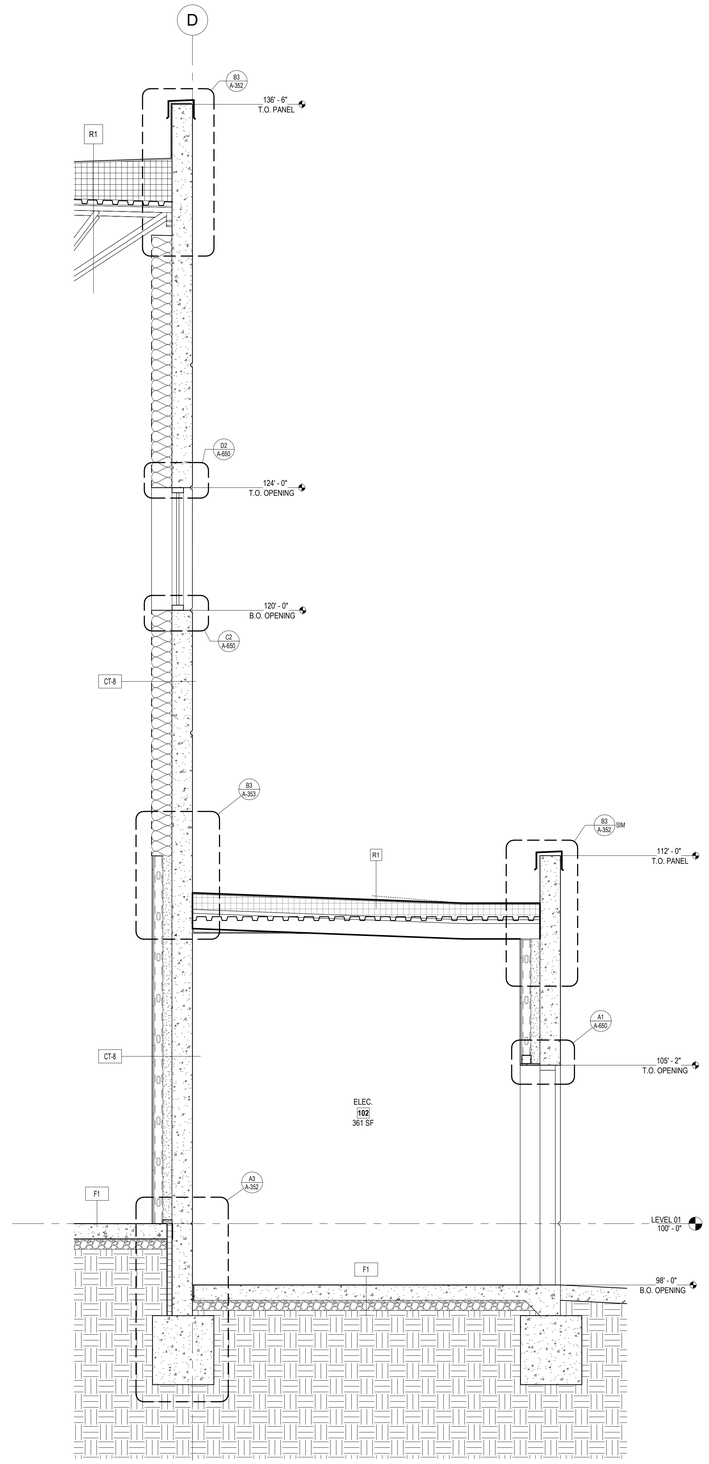


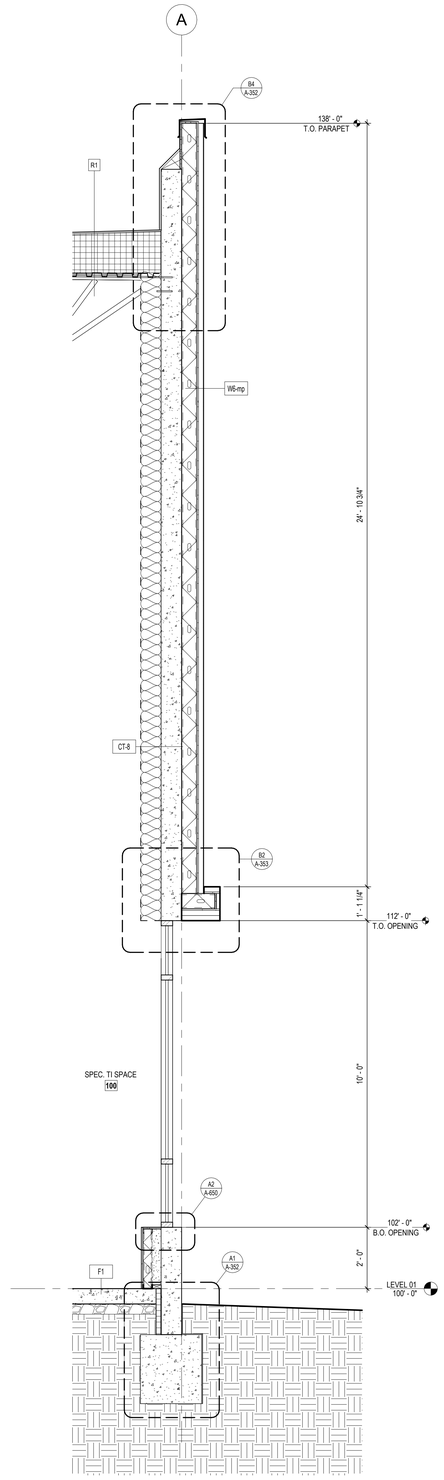
4 WALL SECTION - TILT PANEL WITH OH DOOR
1/2" = 1'-0"



3 WALL SECTION - OVERHEAD DOOR AT LOADING DOCK
1/2" = 1'-0"



2 WALL SECTION - TILT PANEL AT ELEC ROOM
1/2" = 1'-0"



1 WALL SECTION - METAL PANEL AT NORTH CORNER
1/2" = 1'-0"

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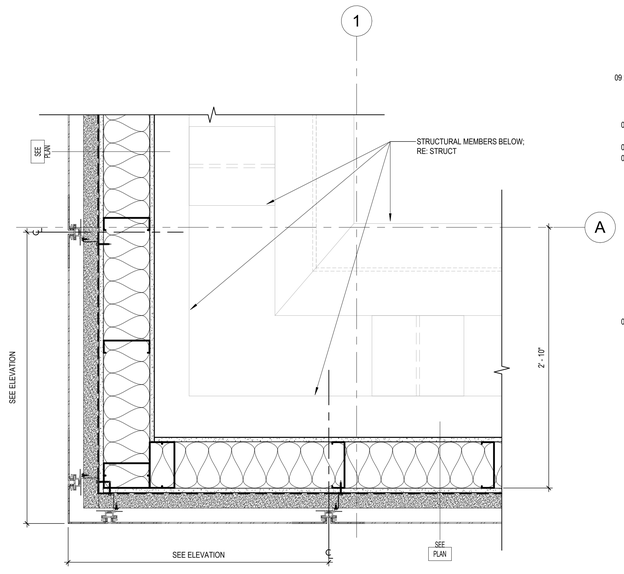
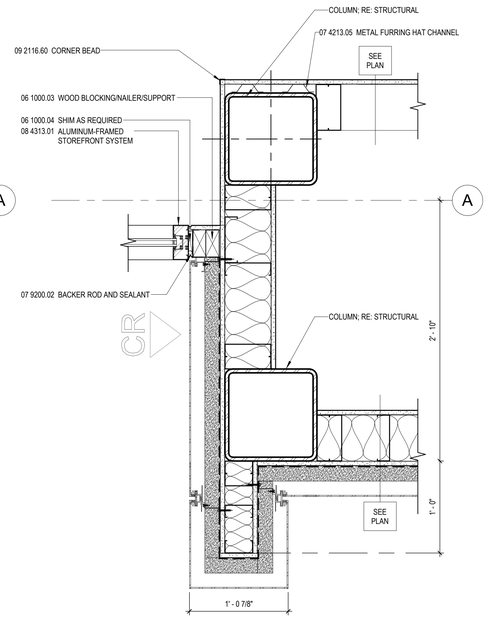
WALL SECTIONS

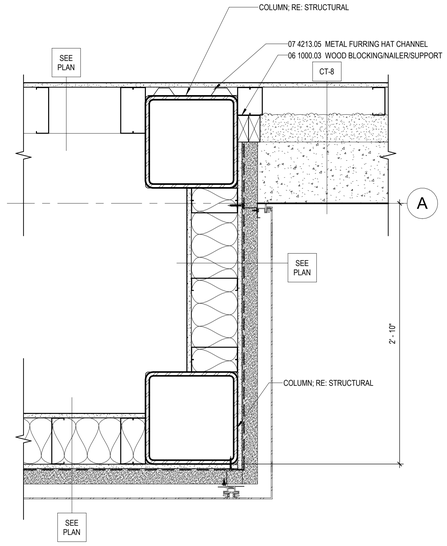
A-312



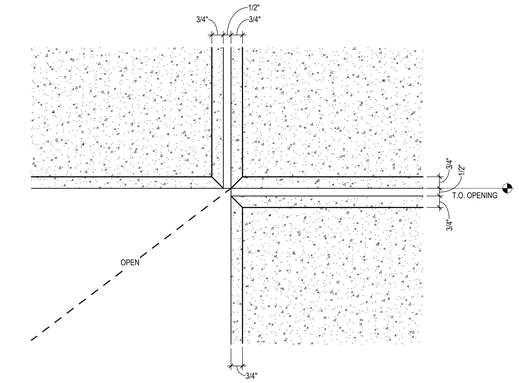
D4 MTL CORNER AT STEEL
1 1/2" = 1'-0"



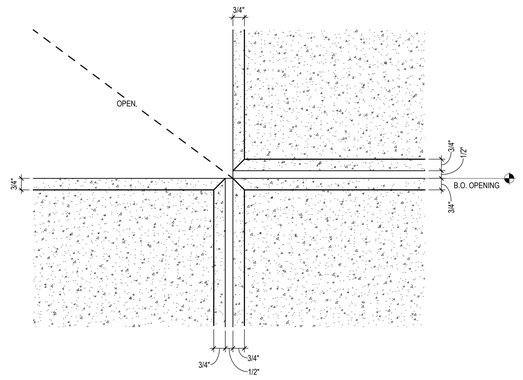
D3 PLAN DETAIL - METAL CORNER AT STOREFRONT
1 1/2" = 1'-0"



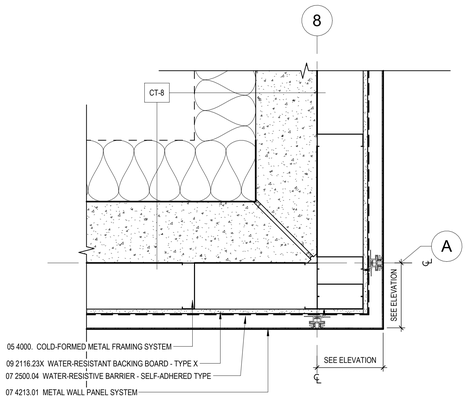
D2 PLAN DETAIL - METAL CORNER AT TILT PANEL
1 1/2" = 1'-0"



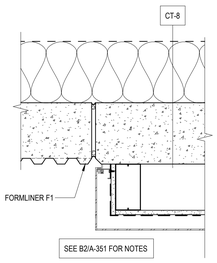
D1 ELEVATION - TILT PANEL AT T.O. OPENING
3" = 1'-0"



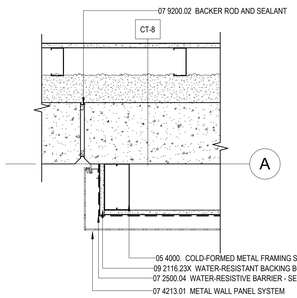
C1 ELEVATION - TILT PANEL AT B.O. OPENING
3" = 1'-0"



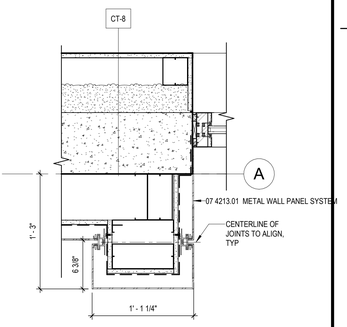
B4 METAL PANEL ON CONCRETE - CORNER
1 1/2" = 1'-0"



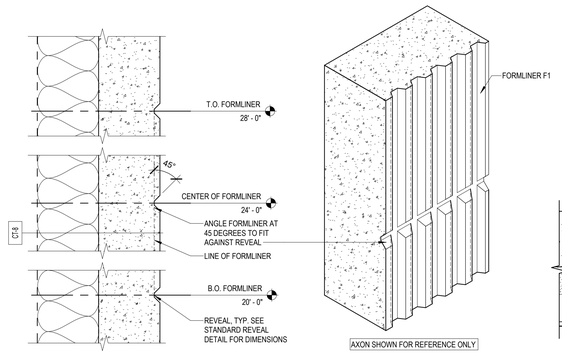
B3 FORMLINER DETAIL XX
1 1/2" = 1'-0"



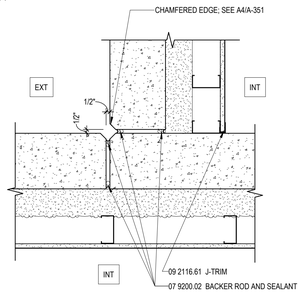
B2 PLAN DETAIL - MTL CORNER AT CONCRETE
1 1/2" = 1'-0"



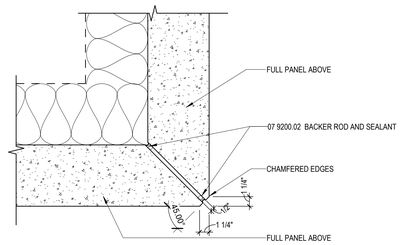
B1 PLAN - MTL PANEL FIN AT STOREFRONT
1 1/2" = 1'-0"



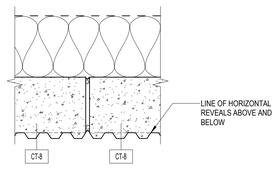
A6 FORMLINER DETAIL - VERTICAL
1 1/2" = 1'-0"



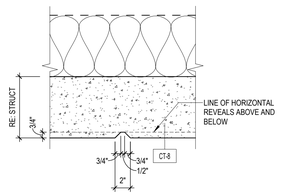
A5 TILT PANEL - INTERIOR CORNER
1 1/2" = 1'-0"



A4 TILT UP PANEL EXT CORNER - MITER JOINT
1 1/2" = 1'-0"

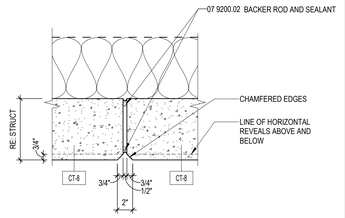


A3 PLAN - TILT UP PANEL JOINT AT 'F1'
1 1/2" = 1'-0"



A2 PLAN - TILT UP PANEL REVEAL
1 1/2" = 1'-0"

NOTE: REVEAL USED BOTH HORIZONTALLY AND VERTICALLY IN CT-8



A1 PLAN - TILT UP PANEL JOINT
1 1/2" = 1'-0"

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Sheet Name
EXTERIOR DETAILS - TYPICAL

A-351

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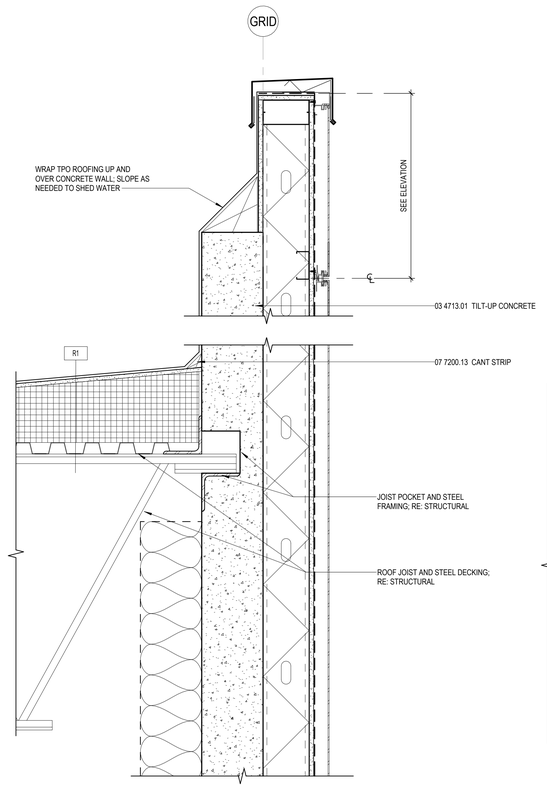
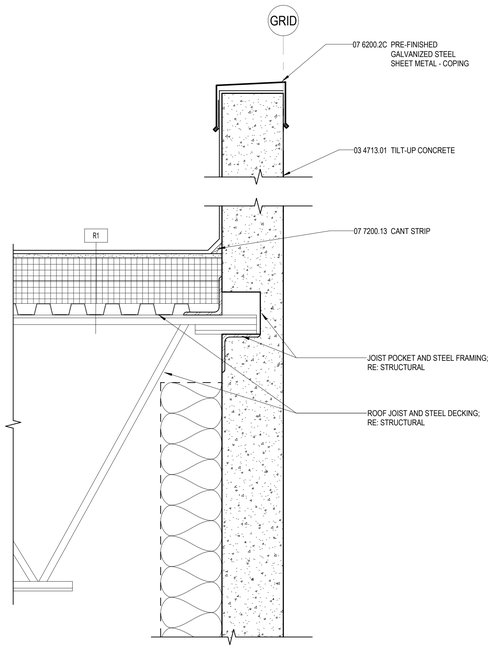
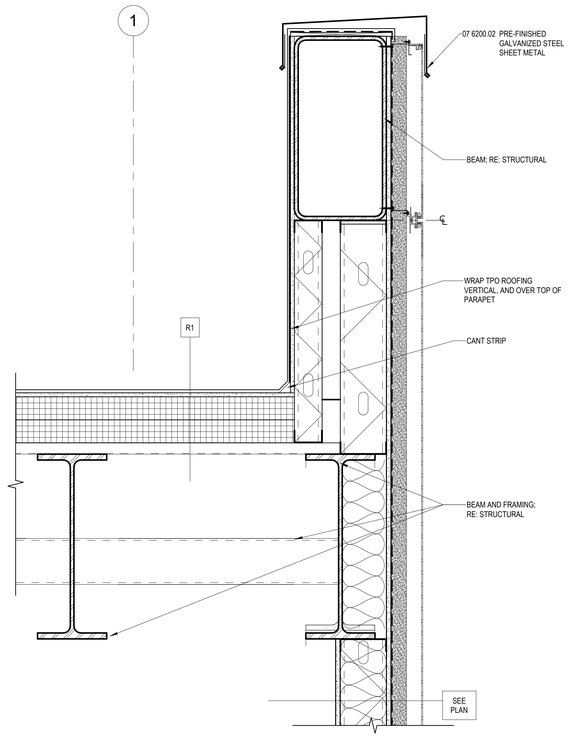


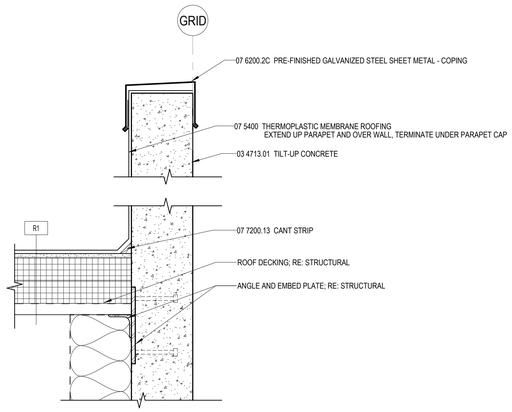
B4 PARAPET DETAIL AT MTL PANEL
1 1/2" = 1'-0"



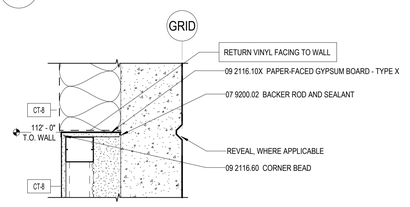
B3 PARAPET DETAIL AT TILT PANEL - TYP AT GRIDS A & D
1 1/2" = 1'-0"

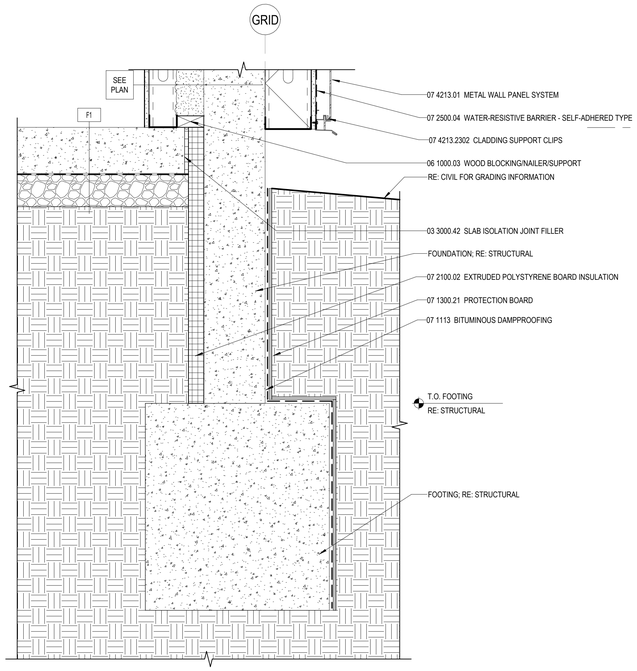


B2 TOP OF PARAPET - HSS
1 1/2" = 1'-0"

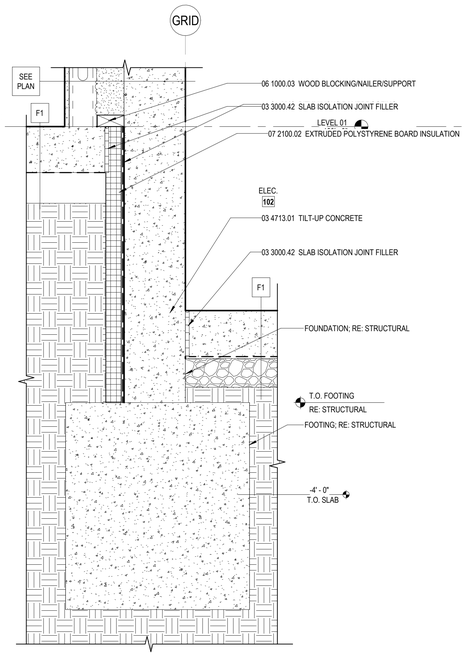


C1 PARAPET DETAIL AT TILT PANEL - TYP AT GRIDS 1 & 8
1 1/2" = 1'-0"

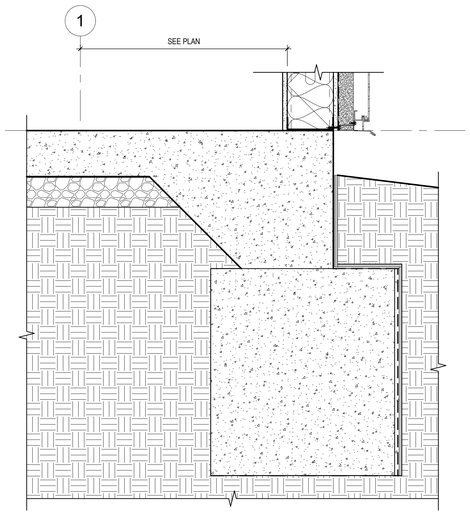




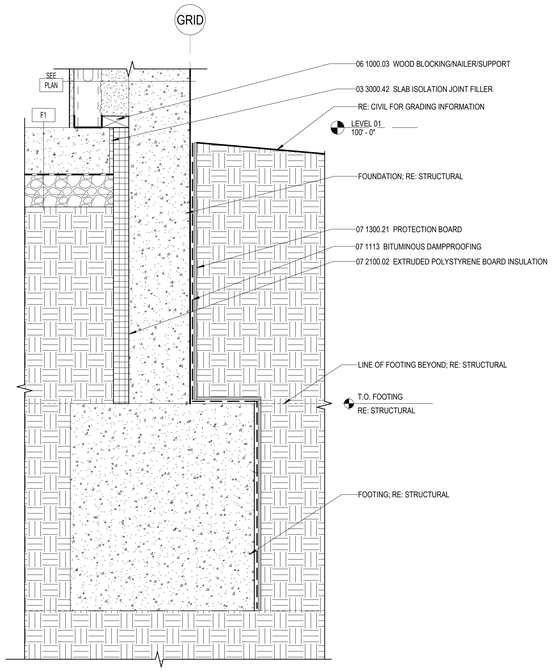
A4 FOUNDATION AT MTL PANEL
1 1/2" = 1'-0"



A3 FOUNDATION DETAIL - ELEC CLOSET
1 1/2" = 1'-0"



A2 FOUNDATION - WALL W/ MCM
1 1/2" = 1'-0"



B1 SECTION - FURRING TO BATT INSULATION
1 1/2" = 1'-0"

A1 FOUNDATION - TILT PANEL AT FOOTING - TYPICAL
1 1/2" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONCHAK
08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
EXTERIOR DETAILS - SECTION

A-352

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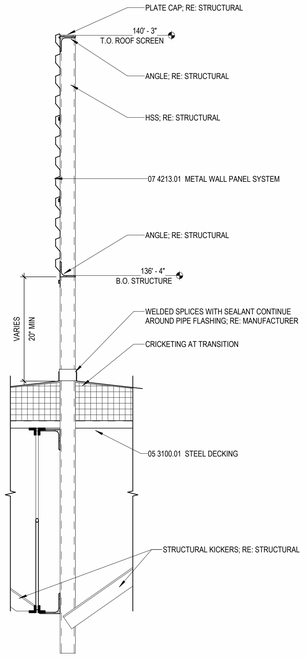
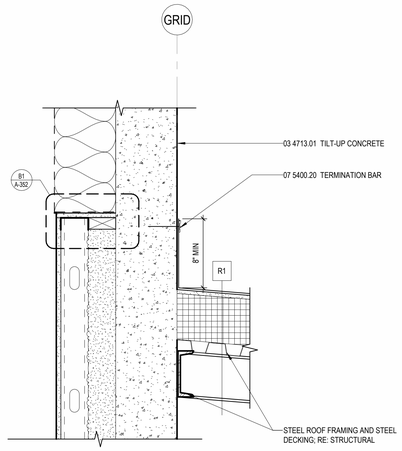
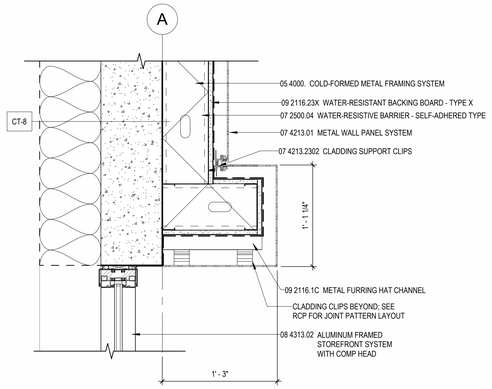


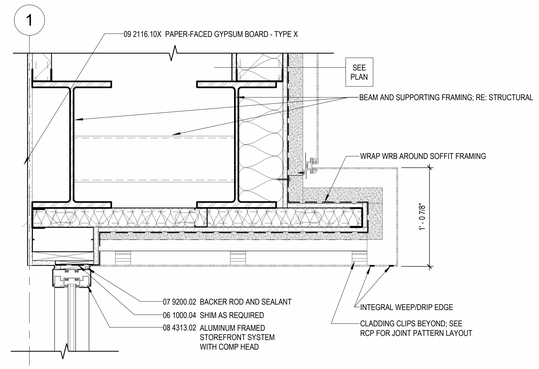
B4 SECTION - MECHANICAL EQUIPMENT SCREENING
1" = 1'-0"



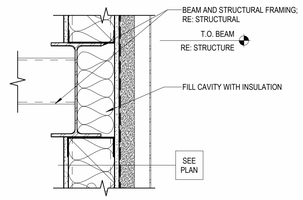
B3 SECTION - T.O. PARAPET - ELEC CLOSET
1 1/2" = 1'-0"



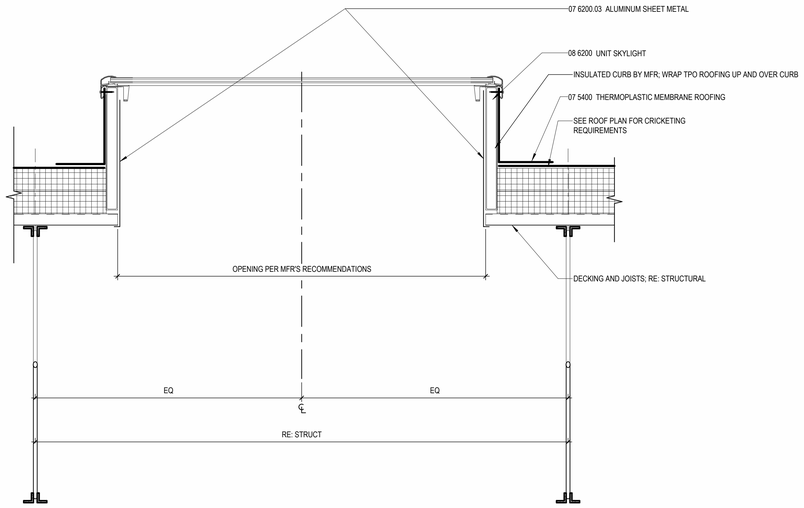
B2 SECTION - STOREFRONT AT NE CORNER
1 1/2" = 1'-0"



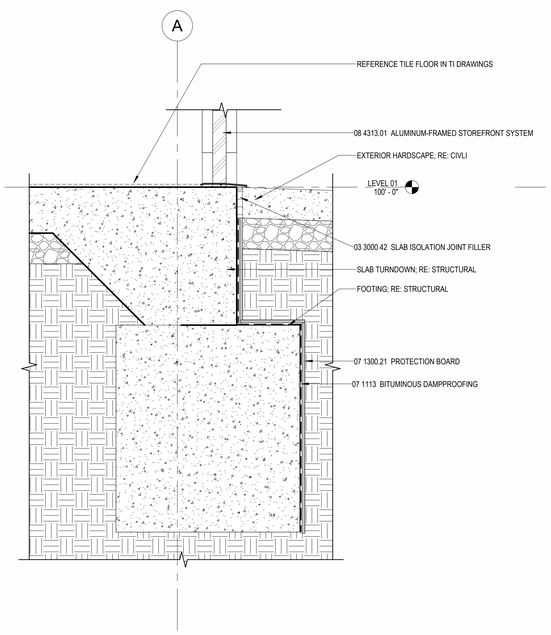
B1 SECTION - STOREFRONT AT SE CORNER
1 1/2" = 1'-0"



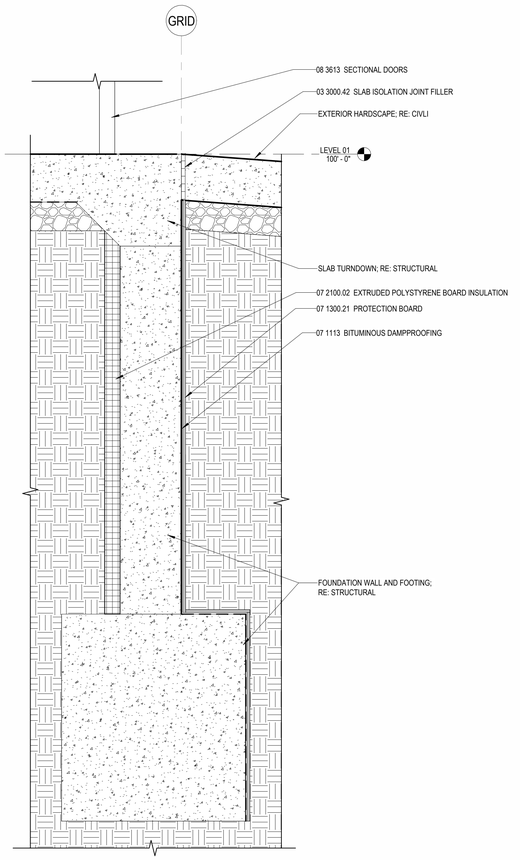
C1 SECTION - MTL PANEL AT WIDE FLANGE
1 1/2" = 1'-0"



A3 SECTION - SKYLIGHT, TYP
1 1/2" = 1'-0"



A2 FOUNDATION AT STOREFRONT
1 1/2" = 1'-0"



A1 FOUNDATION - RAMP AND OVERHEAD DOOR
1 1/2" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONOPAK
08/15/2024
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REVISION	DATE
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Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
EXTERIOR DETAILS - SECTION

A-353

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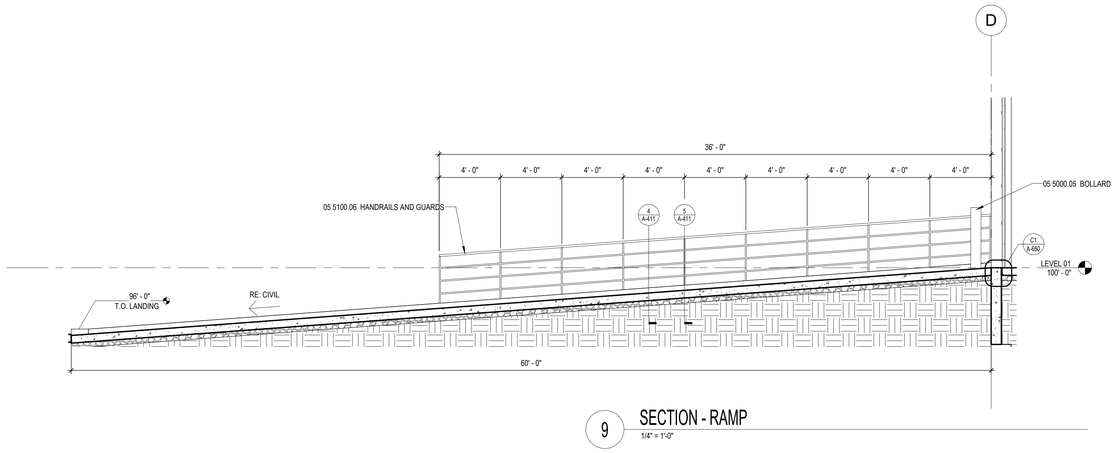
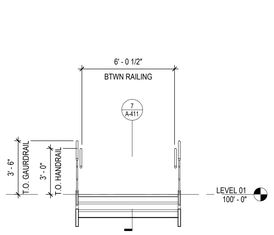
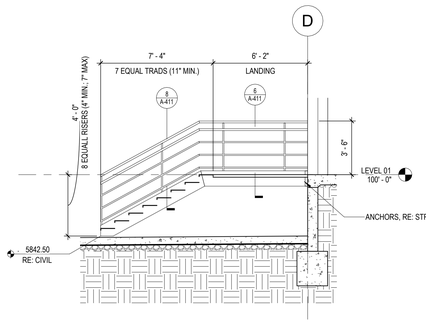


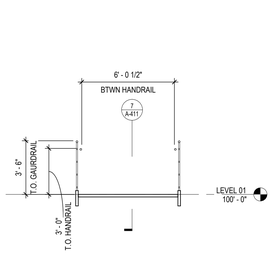
9 SECTION - RAMP
1/4" = 1'-0"



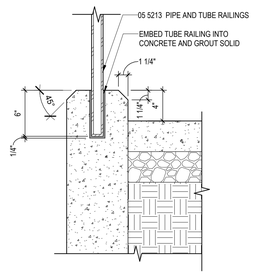
8 MTL STAIR 2 - TREAD SECTION
1/4" = 1'-0"



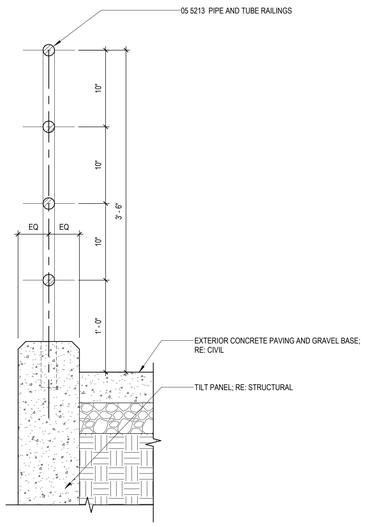
7 MTL STAIR 2 - SECTION
1/4" = 1'-0"



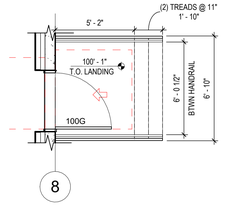
6 MTL STAIR 2 - CROSS SECTION
1/4" = 1'-0"



5 SECTION - GUARD RAIL EMBED
1 1/2" = 1'-0"

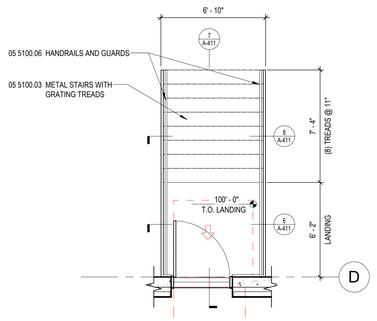


4 SECTION - GUARD RAIL
1 1/2" = 1'-0"

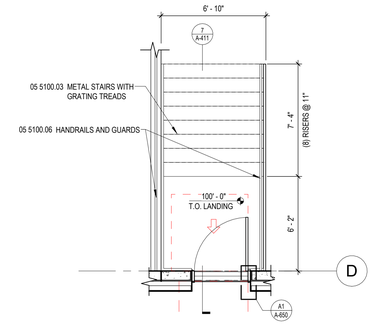


8

3 MTL STAIR 3 - PLAN
1/4" = 1'-0"



2 MTL STAIR 2 - PLAN
1/4" = 1'-0"



1 MTL STAIR 1 - PLAN
1/4" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
BRIAN M KONCHAK
08/15/2024
402336
ARCHITECT

REVISION	DATE
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Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
LARGE SCALE PLANS - EXTERIOR STAIRS

A-411

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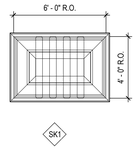
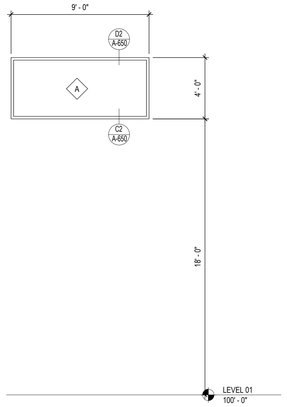
	WINDOW SCHEDULE						
	SIZE						
Type Mark	WIDTH	HEIGHT	LENGTH	SEE SPECS TYPE	MATL	GLZ	NOTES
A	9' - 0"	4' - 0"			AL	IG-1	
SK1	4' - 0"	1' - 5 1/8"	6' - 0"	Traditional Dome Skylight	SEE SPECS	SEE SPECS	SEE SPEC SECTION 08 6200

DOOR AND FRAME SCHEDULE

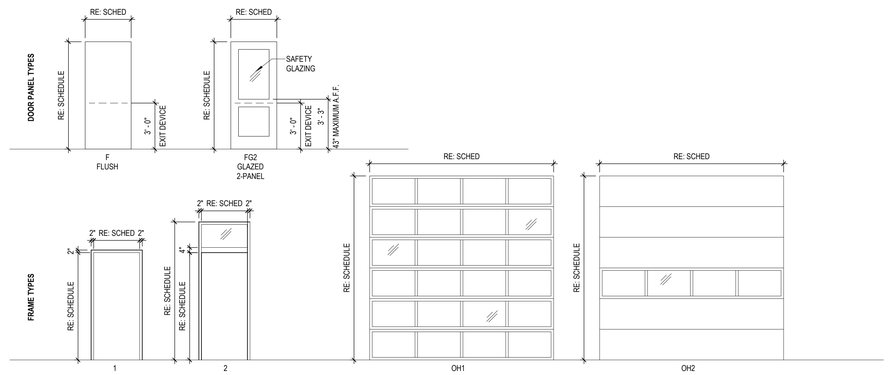
		DOOR				FRAME				HARDWARE	
		SIZE						DETAIL			
MARK	PAIR	W	HT	MATL	EL	MATL	EL	HEAD	JAMB	SET NO	NOTES
100A	PAIR 3'-0"	7' - 10"	7' - 11"	AL	FG2	AL	SF1			AL-02	180 DEGREE SWING; 8' CLEAR REQUIRED
100B		3' - 10"	7' - 11"	AL	FG2	AL	SF2			AL-01	PANIC HARDWARE & CARD READER
100C		3' - 9"	9' - 11"	AL	FG2	AL	SF6			AL-01	PANIC HARDWARE & CARD READER
100D		3' - 9"	9' - 9"	AL	FG2	AL	SF6			AL-01	PANIC HARDWARE & CARD READER
100E		12' - 0"	12' - 0"	AL	OH2	AL	PER MFR.			OH-01	PROVIDE REMOTE ACCESS CONTROL FOR OPENER
100F		3' - 8"	8' - 0"	HM	F	HM	2			4	PANIC HARDWARE & CARD READER
100G		3' - 8"	8' - 0"	HM	F	HM	2			3	PANIC HARDWARE
100H		3' - 8"	8' - 0"	HM	F	HM	2			2	PANIC HARDWARE
100J		12' - 0"	12' - 0"	AL	OH2	AL	PER MFR.			OH-01	PROVIDE REMOTE ACCESS CONTROL FOR OPENER
100K		3' - 8"	8' - 0"	HM	F	HM	2			5	PANIC HARDWARE & CARD READER
100L		3' - 8"	8' - 0"	HM	F	HM	2			3	PANIC HARDWARE
100M		3' - 8"	8' - 0"	HM	F	HM	2			3	PANIC HARDWARE
100N		12' - 0"	12' - 0"	AL	OH1	AL	PER MFR.			OH-01	PROVIDE REMOTE ACCESS CONTROL FOR OPENER
100P		3' - 8"	8' - 0"	HM	F	HM	2			4	PANIC HARDWARE & CARD READER
100Q		3' - 6"	8' - 0"	HM	F	HM	2			2	PANIC HARDWARE
101A	PAIR 3'-0"	6' - 0"	7' - 0"	HM	F	HM	1			6	PANIC HARDWARE
102A		3' - 8"	7' - 0"	HM	F	HM	1			1	PANIC HARDWARE
102B	PAIR 3'-0"	6' - 0"	7' - 0"	HM	F	HM	1			6	PANIC HARDWARE



SKYLIGHT TYPES



WINDOW TYPES



DOOR LEAF & FRAME ELEVATION TYPES

GENERAL NOTES

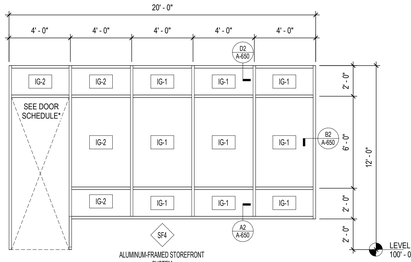
SHEET SPECIFIC GENERAL INFORMATION AND/OR INSTRUCTION

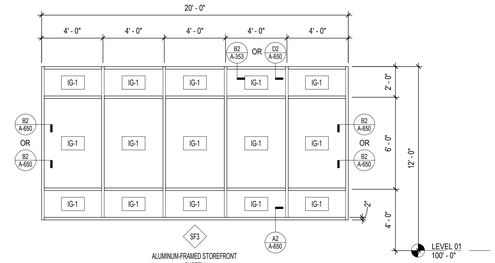
1. ALL EXTERIOR STOREFRONT IS TO HAVE IG-1 INSULATED GLAZING PER SPECIFICATIONS UNLESS NOTED OTHERWISE.
2. ALL STOREFRONT TO BE CLEAR ANODIZED COLOR UNLESS NOTED OTHERWISE.
3. GC TO VERIFY OPENING SIZES IN FIELD PRIOR TO FABRICATION.

GLAZING INFILL TYPES

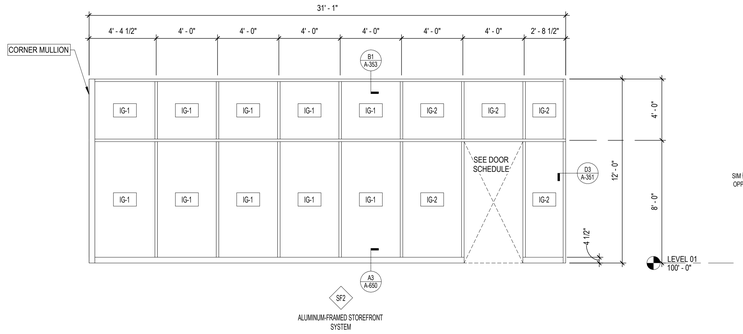
REFER TO SPEC FOR INFORMATION ON GLAZING TYPES

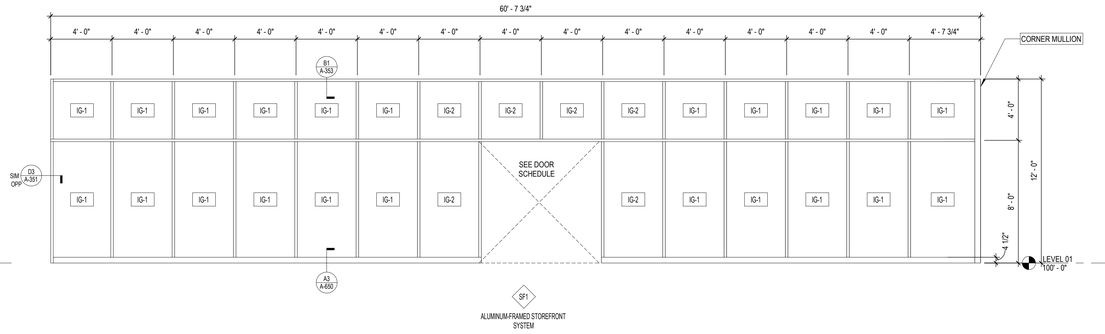
- IG-1 1" INSULATED GLAZING, RE: SPECIFICATIONS
- IG-2 1" INSULATED SAFETY GLAZING; RE: SPECIFICATIONS





*REFER TO PLANS FOR DOOR LOCATION WITHIN SF4





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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO LICENSED
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06/15/2024
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Drawn By	MM
Checked By:	BK

Sheet Name
DOOR, FRAME & WINDOW SCHEDULE

A-601

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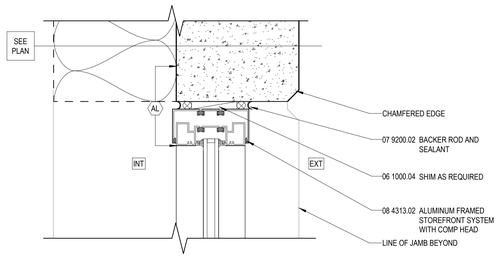
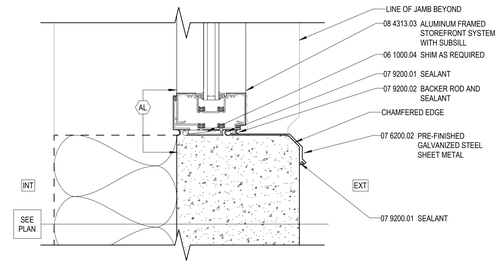
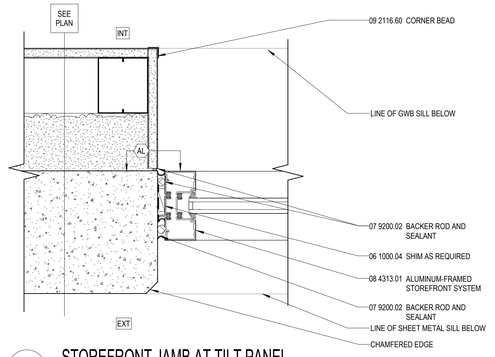


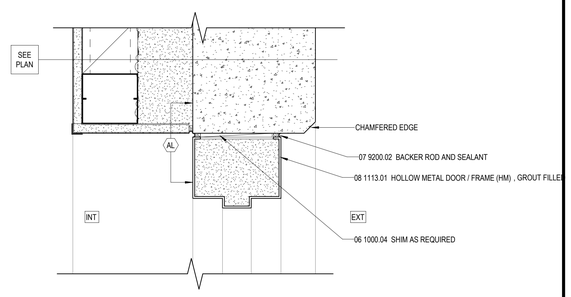
D2 STOREFRONT HEAD AT TILT PANEL
3" = 1'-0"



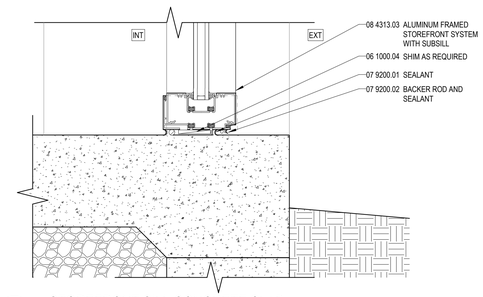
C2 CLERESTORY SILL AT TILT PANEL
3" = 1'-0"



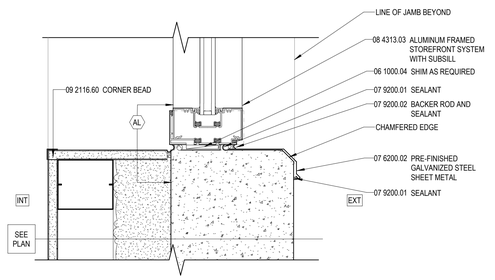
B2 STOREFRONT JAMB AT TILT PANEL
3" = 1'-0"



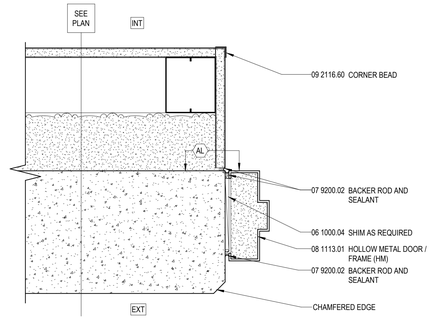
B1 HM DOOR HEAD AT TILT PANEL
3" = 1'-0"



A3 STOREFRONT SILL CONCRETE SLAB
3" = 1'-0"



A2 STOREFRONT SILL AT TILT PANEL
3" = 1'-0"



A1 HM DOOR JAMB AT TILT PANEL
3" = 1'-0"

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
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08/15/2024
402336
ARCHITECT

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	MM
Checked By:	BK

Sheet Name
HEAD, JAMB & SILL DETAILS

A-650

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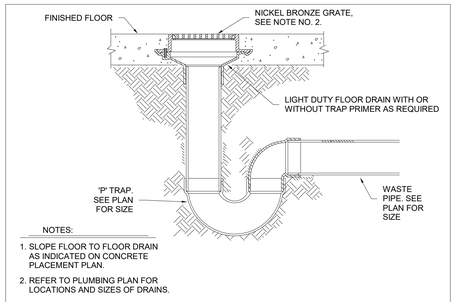
SPECIFICATIONS

1. Follow all Local and state codes/ordinances and general conditions of contract. Pay all required fees and obtain all required permits. Submit these plans to building department for plan review. Implement all code review required changes into installation.
2. Equipment, insulation and controls shall be provided as required by the Adopted energy code.
3. Visit site to verify existing conditions prior to ordering equipment, providing price quote or fabricating piping. Change orders for non-compliance will not be accepted.
4. Plumbing drawings are schematic and not to be scaled. Refer to architectural, certified drawings, and site measurements for all dimensions prior to duct and piping fabrication.
5. Contractor shall purchase, receive, uncrate, assemble, insure, and install in conformance to manufacturer's recommendations all Plumbing equipment. Plumbing Contractor shall install and final connect owner furnished equipment as indicated.
6. Provide 2 operating manuals to owner and engineer for all systems and equipment including manufacturer's maintenance manuals. Include lubrication, filter types and sizes, starting and stopping procedures. List contractor's telephone numbers.
7. Supports and anchors shall be provided for plumbing work. No chain, tape, or wire.
8. Sleeves shall be provided for all pipe thru walls, floors, and ceilings. Provide chrome plated escutcheons for piping penetrations in finished areas.
9. Conceal all work in finished areas.
10. Cut and patch to match adjacent areas. No structural member shall be cut or notched.
11. Electrical: confirm voltage, phase, and ampacity with electrical contractor prior to ordering equipment. All 24v controls including interlock wiring for plumbing equipment by division 15 contractor. Provide magnetic starters for all 3-phase motors with protection on all three leads. Electrical equipment to automatically restart after power failure. All wire in conduit per NEC latest edition.
12. Excavate for all mechanical work. Compact to 95% AASHO or proctor density in 6" maximum lifts at optimum moisture content. Rework if any settlement within first years guarantee.
13. Valves shall be provided to isolate each piece of equipment and for all rough-ins excluding waste and vent. Water valves shall be apollo ball valve line-size rated for 200 psig wog. Gas valves shall be AGA listed line-size lubricated.
14. Waste and vent piping shall be cast iron no-hub listed for location installed. Schedule-40 plastic PVC may be used if code approved. Provide cleanouts 50'-0" min oc of appropriate type inside buildings. Vent thru roof with a total cross sectional area to equal to or greater than building sewer main shall be provided.
15. Pipe each evaporative pan drain with p-trap 3/4" minimum to waste.
16. Water piping shall be no-lead ASTM B32 solder and ASMT B813 flux soldered joint type-L copper above grade. Buried piping or piping within 6" of grade shall be 15% silver sil-phos brazed joint type-K. Insulate all hot and cold water lines routed in ceiling or crawl space with 1/2" thick preformed fiberglass (1" for circulated Hot Water lines) with UL-181 class-1 plenum rated jacket. Route all piping inboard of building insulation to avoid freezing. Electric heat trace all piping located in unheated areas with chromalox 7.0 watts/ft mi cable and 1" thick fiberglass piping insulation with cover.
17. Insulate all horizontal roof drain piping with 1.5" fiberglass insulation with UL-181 class-1 plenum rated jacket.
18. Gas piping shall be schedule 40 black iron with malleable screwed fittings inside building and from meter to building where not buried. Verify gas line routing with architect and building department prior to installation. Costs involved in gas service shall be included in bid. Provide line size valve immediately prior to entering building. Provide equipment regulators to suit pressure supplied and gas equipment requirements. Gas piping on roof shall run on B-Line C-Port supports per code. Paint all exposed gas piping per code. Prior to each piece of equipment, provide gas valve, union, dirt leg, all accessible per code.
19. Pressure test all piping per code but to at least 150% max working pressure.
20. Fire caulk fire rated wall/ceiling/floor penetrations with HILTI or equal listed fire caulk.
21. Guarantee all labor and new equipment for one year from the date of acceptance by owner.

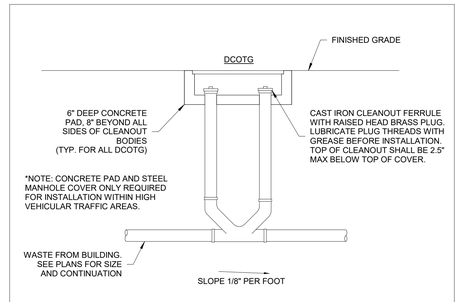
PLUMBING FIXTURE SCHEDULE

ITEM	FIXTURE	MANUFACTURER	MODEL NO.	CW	HW	WASTE	VENT	REMARKS	NOTES
WH	WALL HYDRANT	WOODFORD	B67	3/4"	-	-	-	FLUSH NON-FREEZE BOX TYPE, ALL BRASS WITH ROUGH CHROME COVER, SELF DRAINING BODY W/ DOUBLE CHECK BACKFLOW PREVENTER	VERIFY LOCATION
TD	TRENCH DRAIN	JR SMITH	9940	-	-	4"	3"	6" WIDE 120" LONG 5" DEE LOAD CLASS C	16
RD	ROOF DRAIN	ZURN	Z121	-	-	SEE PLAN	-	CAST IRON DOME STRAINER, 12"Ø	
OD	OVERFLOW DRAIN	ZURN	Z101	-	-	SEE PLAN	-	CAST IRON DOME STRAINER 2" INTERNAL DAM FOR OVERFLOW, 20"Ø	
DNZ	DOWNSPOUT NOZZLE	ZURN	Z199	-	-	-	-	NICKEL BRONZE BODY FLANGE WITH INSIDE THREADED CONNECTION, PROVIDE WITH BIRDSCREEN	
RPBFP	BACKFLOW PREVENTER	WATTS	LF009	-	-	-	-	REDUCED PRESSURE TYPE, TWO CHECK VALVES, ONE RELIEF VALVE, INLET/OUTLET VALVES, STRAINER, TEST COCK, DRAIN FUNNEL	UNIT SHALL HAVE ASSE APPROVAL
PRV	PRESSURE REDUCING VALVE	WATTS	LF223					PILOT-OPERATED, BRASS, LEAD FREE	NSF/ANSI 372
DCOTG	DOUBLE CLEANOUT TO GRADE	ZURN	Z1474-N-VP	-	-	-	-	CAST IRON BODY, BRONZE DOUBLE FLANGED HOUSING, TWO HEAVY DUTY SECURED COVERS 2-WAY CLEANOUT EQUAL TO TYLER 54600 SERIES	
FCO	FLOOR CLEANOUT	ZURN	CO2452	-	-	-	-	CAST IRON BODY, TAPER THREAD BRONZE CLOSURE PLUG, SCORIATED NICKEL BRONZE FRAME AND COVER PLATE.	
WCO	WALL CLEANOUT	ZURN	CO2410	-	-	-	-	TEE WITH COUNTERSUNK PLUG TAPPED FOR 1/4"-20 THREAD, FLAT STYLE S/S WALL COVER.	
FD	FLOOR DRAIN	SIOUX CHIEF	832	-	-	SEE PLAN	SEE PLAN	CAST BODY,DEEP SEAL TRAP, BRONZE GRATE	16
SP 1	SUMP PUMP	ZOELLER	M139	-	-	2"	2"	80 GPM @ 8 FT HD, 460V/3Ø, 1/2 HP. ZOELLER 31-2380 SUMP BASIN 18" DIA X 30"	PROVIDE OIL GUARD SYSTEM
SO 1	SAND OIL INTERCEPTOR	STRIEM	OT-2000	-	-	4"	4"	2000 GALLON	INSTALL PER MANUFACTORER'S SPECIFICATION'S

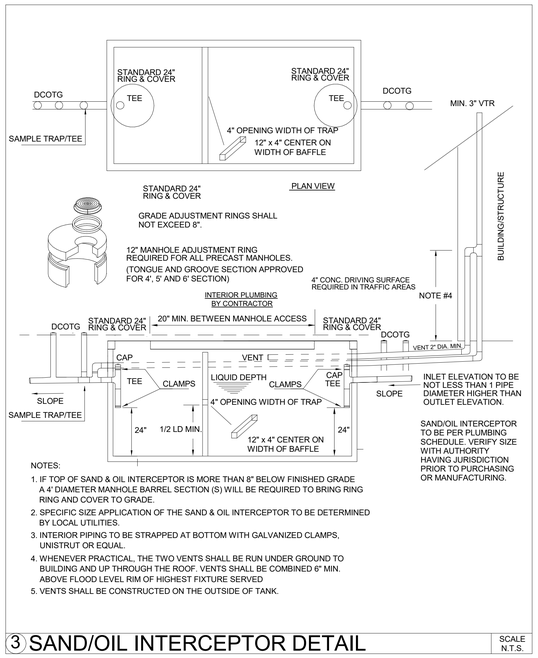
NOTES: 1 - Open Front Seat 2 - Wall Carrier 3 - UL Listed Trap Primer With VAC Breaker 4 - Handicap Trap Wrap 5 - Bolt Caps 6 - Vacuum Breaker 7 - Chrome Plated Cast Brass P-Trap With Clean-Out 8 - Open Grid Drain 9 - Pop-Drain 10 - Angle Supply With Stops 11 - 1/2 GPM Flow Limiters 12 - Anchors, Supports Trim Complete 13 - UL and AGA Listed, Reg Stat. High Limit Safety, ASME P&T Relief To Drain, ASHRAE 90A80 Insulation 14 - 2.5 GPM Flow Limiters 15 - Provide Thermostatic Mixing Valve 16 - Provide ASSE Certified Trap Seal Where Required 17 - Water Hammer Arrestor 18 - Pair with Taco SP115-1 Smart Controller/Temperature Sensor and Taco IFS01BF-1 Flow Switch 19 - Provide heat trap piping on supply and return piping.



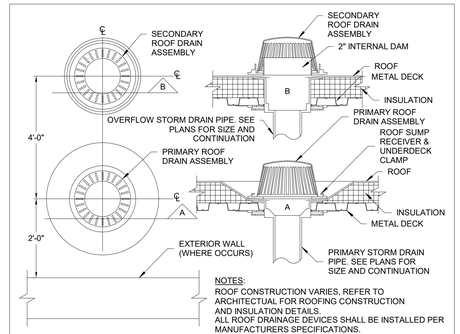
1 LIGHT DUTY FLOOR DRAIN DETAIL — SCALE N.T.S.



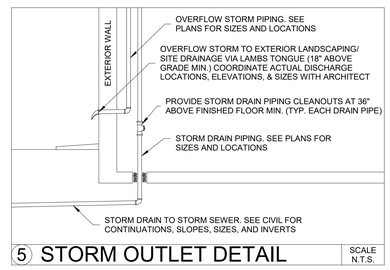
2 DOUBLE CLEANOUT DETAIL — SCALE N.T.S.



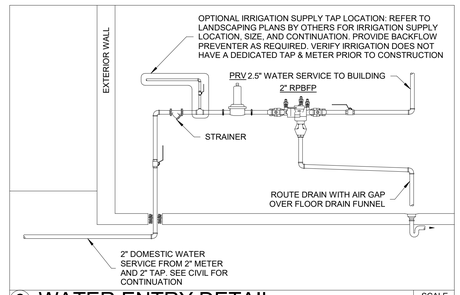
3 SAND/OIL INTERCEPTOR DETAIL — SCALE N.T.S.



4 ROOF & OVERFLOW DRAIN DETAIL — SCALE N.T.S.



5 STORM OUTLET DETAIL — SCALE N.T.S.



6 WATER ENTRY DETAIL — SCALE N.T.S.

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

STATE OF COLORADO — REGISTERED LICENSED — RICHARD A. SAMS — 46574 — 08/15/2024 — PROFESSIONAL ENGINEER

REVISION	DATE

Project Number	2023-019
Date	08/15/2024
Drawn By	KN
Checked By:	JB/RS
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Sheet Name
PLUMBING DETAILS AND SCHEDULES

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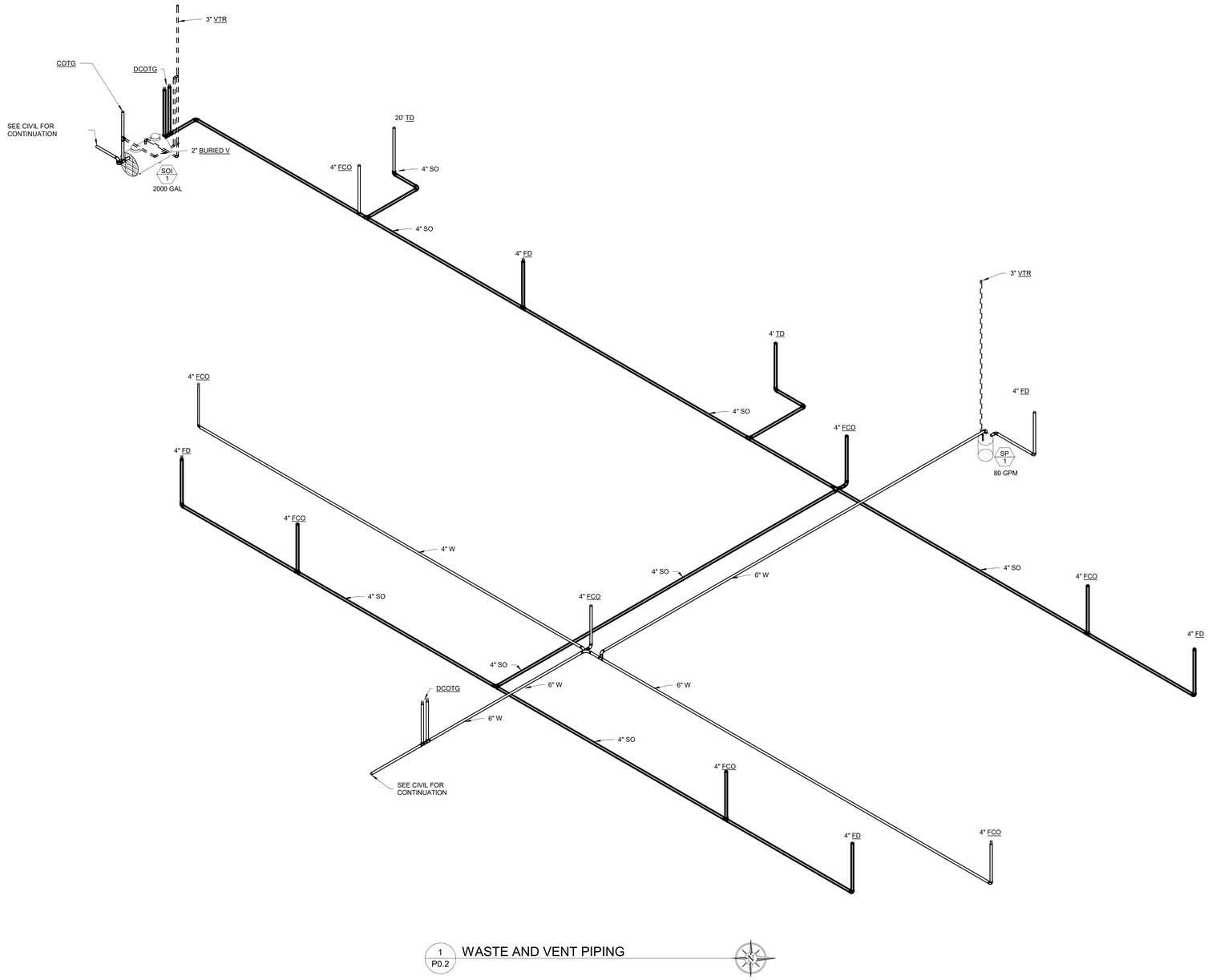

1 P0.2 WASTE AND VENT PIPING

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

COLORADO LICENSED
RICHARD A. SANDY
46574
08/15/2024
PROFESSIONAL ENGINEER

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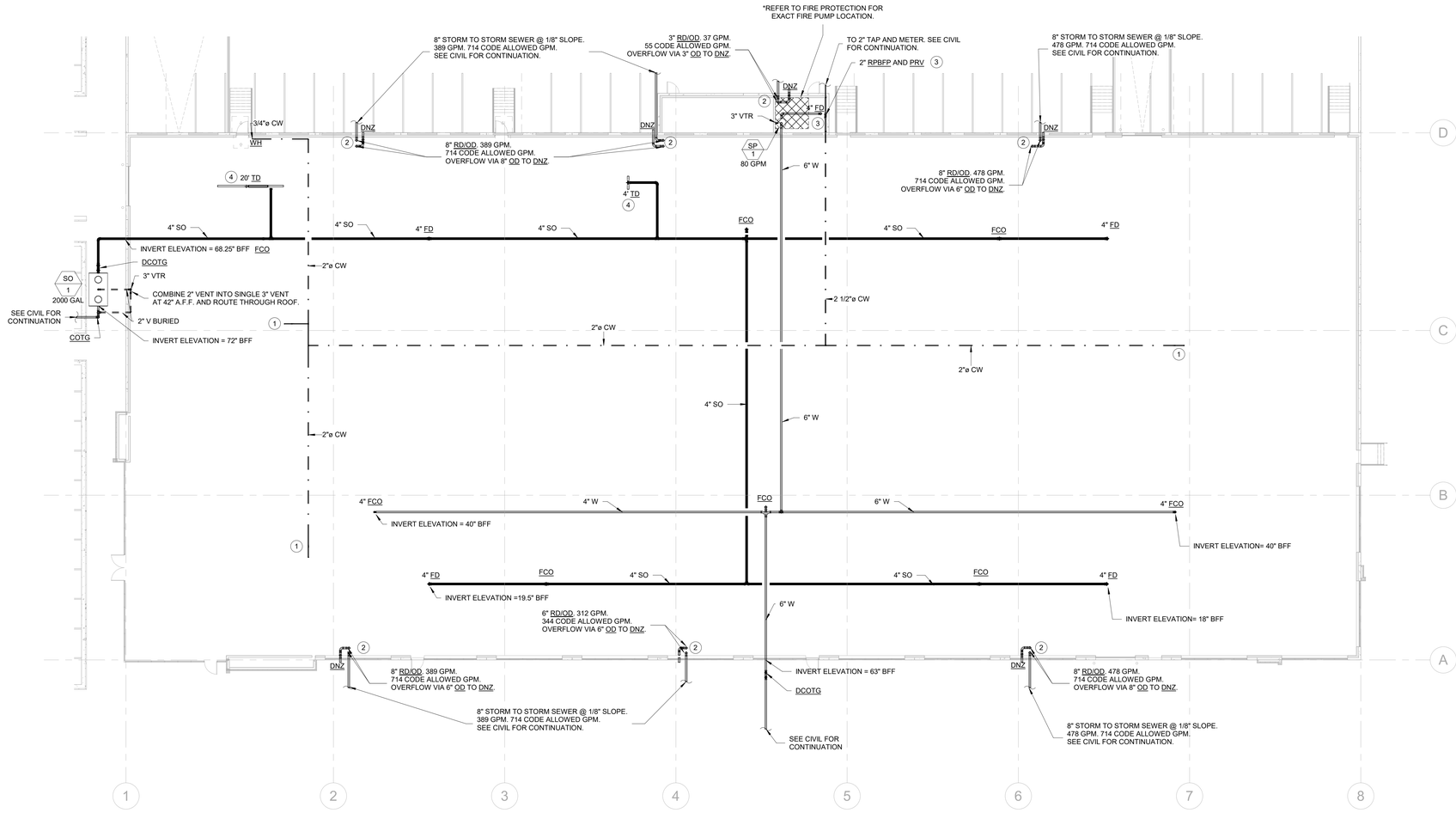
3D WASTE AND VENT PLAN

P0.2



1 P1.0 OVERALL PLUMBING PLAN

1/16" = 1'-0"

SHEET NOTES	
1	PROVIDE 1.5" ISOLATION VALVE AND CAP FOR FUTURE CONNECTION.
2	ROUTE STORM PIPING ON INTERIOR WALL TO BELOW SLAB. VERTICAL LEADERS TO BE COORDINATED WITH DOORS OR OTHER OBSTRUCTIONS. SEE CIVIL FOR CONTINUATION. VERIFY OUTLET INVERT WITH CIVIL.
3	REDUCED PRESSURE BACKFLOW PREVENTER TO INDIRECT DRAIN TO FLOOR DRAIN. SEE DETAIL ON SHEET P0.1.
4	VERIFY EXACT LOCATION OF TRENCH DRAIN WITH ARCHITECHURAL OR OWNER PRIOR TO INSTALLATION.

GENERAL NOTES	
1.	WASTE PIPING 2" DIAMETER OR SMALLER TO BE SLOPED AT A MINIMUM 1/4" PER FOOT. ALL OTHER WASTE PIPING TO BE SLOPED AT A MINIMUM 1/8" PER FOOT.
2.	VERIFY ACTUAL SIZE, LOCATION, FLOW DIRECTION, AND INVERT OF EXISTING WASTE AND VENT PIPING PRIOR TO CONSTRUCTION.
3.	ALL DOMESTIC WATER LINES TO BE 3/4" UNLESS OTHERWISE NOTED. SEE SCHEDULE FOR CONNECTION SIZES.
4.	WATER PIPING: MINIMUM SIZES 3/4" CW AND HW PIPING SERVING MULTIPLE FIXTURES WITH 1/2" TO A SINGLE FIXTURE. NO 1/2" TEES ALLOWED.
5.	VERIFY ACTUAL SIZE AND LOCATION OF EXISTING WATER PIPING PRIOR TO CONSTRUCTION.
6.	ALL EQUIPMENT TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS. MAINTAIN ALL REQUIRED CLEARANCES.

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HELIX WEST - BUILDING C - CORE & SHELL

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OVERALL PLUMBING PLAN

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COMBUSTION AIR CALCULATIONS

MINIMUM INDOOR COMBUSTION AIR REQUIRES 50 CUBIC FEET OF INDOOR AIR PER 1 MBH. A TOTAL APPLIANCE INPUT RATING OF 1,600 MBH IN THE WAREHOUSE REQUIRES 80,000 CUBIC FEET OF INDOOR AIR TO SATISFY THE INTERNATIONAL FUEL & GAS CODE SECTION 304.5.1. THE 60,000 SQUARE FOOT WAREHOUSE HAS APPROXIMATELY 2,100,000 CUBIC FEET OF INDOOR AIR.

NATURAL GAS SERVICE INFORMATION

METERING PRESSURE = 2 PSIG

CURRENT TOTAL GAS LOAD = 1,600 MBH

FUTURE ESTIMATED TOTAL GAS LOAD = 4,000 MBH

APPLICABLE CODES

2021 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2021 INTERNATIONAL FUEL GAS CODE (IFGC)
2021 INTERNATIONAL MECHANICAL CODE (IMC)
2021 INTERNATIONAL PLUMBING CODE (IPC)

MECHANICAL SPECIFICATIONS

1. Follow all local and state codes/ordinances and general conditions of contract. Pay all required fees and obtain all required permits. Submit these plans to building department for plan review. Implement all code review required changes into installation.
2. Equipment, insulation and controls shall be provided as required by the adopted energy code.
3. Visit site to verify existing conditions prior to ordering equipment, providing price quote and/or fabricating ductwork or piping. Change orders will not be considered for non-compliance.
4. Contractor shall purchase, receive, uncrate, assemble, insure, and install in conformance to manufacturer's recommendations all Mechanical equipment.
5. Mechanical drawings are schematic and not to be scaled. Refer to architectural, certified drawings, and site measurements for all dimensions prior to duct and piping fabrication.
6. As-built scale drawings shall be provided by contractor and submitted to division 23 Engineer at completion showing all piping, duct, and equipment changes.
7. Contractor shall check shop drawings for 100% compliance with contract documents. Submit digital copy to division 23 engineer for review prior to ordering.
8. Base bid on specified equipment as shown on plans and in specifications. Substitutions will be processed as change-orders after bidding with all electrical, building alterations, flue requirements and dollar amounts included.
9. Extra costs or change orders allowed only if approved in writing by engineer with dollar amount prior to ordering equipment or fabricating ductwork or piping. No extensions of completion time unless agreed upon by all parties.
10. Provide 2 operating manuals to owner and engineer for all systems and equipment including manufacturer's maintenance manuals. Include lubrication, filter types and sizes, starting and stopping procedures. List contractor's telephone numbers.
11. Supports and anchors shall be provided for Mechanical work. No chain, tape, or wire.
12. Sleeves shall be provided for all pipe and ducts thru walls, floors, and ceilings.
13. Conceal all work in finished areas.
14. Cut and patch to match adjacent areas. No structural member shall be cut or notched.
15. Electrical: confirm voltage, phase, and ampacity with electrical contractor prior to ordering equipment. All 24v controls including interlock wiring for Mechanical equipment by division 23 contractor. Provide magnetic starters for all 3-phase motors with protection on all three leads. Electrical equipment to automatically restart after power failure. All wire in conduit per NEC latest edition.
16. Vibration isolation shall be provided for all equipment. Provide UL listed flexible duct connections on all fans
17. Temperature control shall be by equipment manufacturer 24v low voltage. Provide all transformers, relays, thermostats, min 18 ga. low voltage wiring in conduit per NEC for a complete operating system.
18. Provide condensate pumps as required where gravity drain condensate is not possible. Provide condensate acid neutralization for all condensate drains to sanitary sewer.
19. Ductwork shall be galvanized sheet metal with 45° max reducing fitting, 20° max increasing fittings. All construction and installation shall be per SMACNA and code standards.
20. All environmental air exhaust (not considered hazardous or noxious) shall discharge a minimum of 3' from property lines and operable openings, and a minimum of 10' from mechanical air intakes. Product conveying exhaust outlets shall discharge a minimum of 10' from property lines, operable openings, and above adjoining grade. Product conveying exhaust outlets shall discharge a minimum of 3' from exterior walls and roofs.
21. All rectangular HVAC supply, return, and outside air ducts shall be internally lined. Liner shall be Schuller Permacote 1" thick ul-181 class-1 EPA registered anti-microbial fiberglass liner attached with stic-klips 12" oc each way and 100% coverage of flame proof adhesive. Duct exposed to weather to be insulated with Alumaguard wrap at 3" thickness. Increase duct interior dimension to allow for liner. Elbows for rectangular duct shall be provided multi-blade turning vanes or 1.5 centerline radius. Round ducts shall be externally wrapped with 1/2" thick UL-181 class-1 covered fiberglass strapped and taped in place. Exposed spiral duct is not to be insulated on exterior. All round/ovular spiral HVAC supply/return ducts that are located in unconditioned spaces shall be internally lined. Provide storm louvers with 1/4" galv-mesh and 0.12" max air friction. Flexible Ductwork shall be limited to 6ft or max allowed by local code. Flexible ductwork shall be provided with UL listed and plenum rated Thermaflex FlexFlow elbow supports at inlet/outlet connections. Supply/return air ducts and plenums located in unconditioned spaces to have insulation not less than R-6 insulation in Climate Zones 0-8. Supply/return air ducts located outside of the building to have insulation not less than R-8 insulation in Climate Zones 0-4 and not less than R-12 insulation in Climate Zones 5-8.
22. All return air plenum materials shall be plenum rated or shall be enclosed in a plenum rated enclosure.
23. Seal duct joints and seams with 3-m hard-cast or equivalent per code. Spiral duct joints shall be sealed using approved connectors and 100% silicone sealant
24. Provide balancing dampers in accessible locations as required. Test and air balance all systems to attain quantities shown on plans. Air CFM flow rates shall be adjusted as required based on site altitude. Balance with dampers at conical spin-in fittings at main trunk with registers/diffusers wide open or provide dampers at registers/diffusers as required due to inaccessibility of manual balancing dampers. Motors to draw 95% max nameplate amps. Tabulate all motors, grilles, registers, and diffusers with full type-written test and balance report submitted to engineer for approval prior to final payment. Balance airflow within 5% of noted CFM
25. Fire dampers and fire smoke dampers where noted on plan or where required; Provide Greenheck or equal listed damper approved for application. No dampers shall be installed in hazardous, range, or grease exhaust ducts. Ducts 4" or less in diameter penetrating fire rated assemblies do not require fire dampers, provide approved fire caulking at penetrations. All fire/smoke dampers shall be 120v rated and wired by electrical contractor and shall be interlocked with fire protection controls. Provide remote test stations as required by code.
26. Requests for information (RFI's) from contractor shall include at least one proposed solution which complies with the intent of these contract documents.
27. Fire caulk fire rated wall/ceiling/floor penetrations with HILTI or equal listed fire caulk.
28. Guarantee all labor and new equipment per this contract for one year from the date of acceptance by owner.

GAS FIRED UNIT HEATER SCHEDULE

Plan Code UH #	Manufacturer	Model	MBH Input (Sea Level)	MBH Output (Alt. Derate)	Thermal Efficiency %	Electrical HP	Electrical Volt	Electrical Phase	Unit Wt. (LBS.)	Location	CFM @ S.L.	Equip. Control Interlock	Dimensions W X D X H	Remarks
UH 1-4	Modine	PDP-400	400	262	82	3/4	115	1	406 LBS	See Plans	5440	Thermostat	40" X 38.2" X 40.3"	1, 3, 5, 6, 7 A,B,C - 6" Dia.

1 MOUNT THERMOSTAT ON NEARBY COLUMN OR WALL OR SUSPEND 5 FEET MINIMUM BELOW UNIT 2 WALL MOUNT CABINET 3 DISCONNECT SWITCH 4 SUMMER/WINTER SWITCH 5 CEILING MOUNTED 6 HIGH LIMIT SWITCH 7 AUTO FAN RELAY 8 ADJUSTABLE SPEED RELAY 9 OSA LOUVER AND DUCT

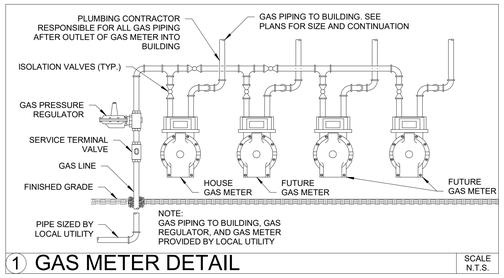
NOTES: A - INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. B - VERIFY VOLTAGE, PH AND HP PRIOR TO ORDERING. C - PROVIDE TYPE-B FLUE VENT UP THROUGH ROOF TO MANUFACTURERS APPROVED TERMINATION, SIZE PER REMARKS

ELECTRIC WALL HEATER SCHEDULE

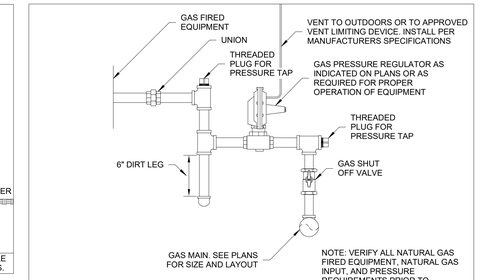
PLAN CODE EWH #	MANUFACTURER	MODEL	WATTS	BTU/H	ELECTRICAL DATA VOLTS	ELECTRICAL DATA PHASE	WT. (LBS)	CFM @ S.L.	AREA SERVED	EQUIPMENT CONTROL	DIMENSIONS	NOTES
EWH 1-2	INDEECO	9321W-3404-W	3,000	10,236	208	1	25	-	SEE PLANS	A	15.8"W X 19.5"H X 5"D	1, 3, 4, 6, 7, 8

1. EQUIPMENT SCHEDULE BASED ON INDEECO. ACCEPTABLE ALTERNATES INCLUDE BERKO.
2. EXPLOSION PROOF UNIT.
3. THERMAL CUTOUT.
4. FAN DELAY.
5. SURFACE MOUNTING KIT.
6. RECESSED MOUNTING KIT.
7. DISCONNECT SWITCH.
8. VERIFY VOLTAGE, PHASE, AND KW WITH EC PRIOR TO ORDERING.

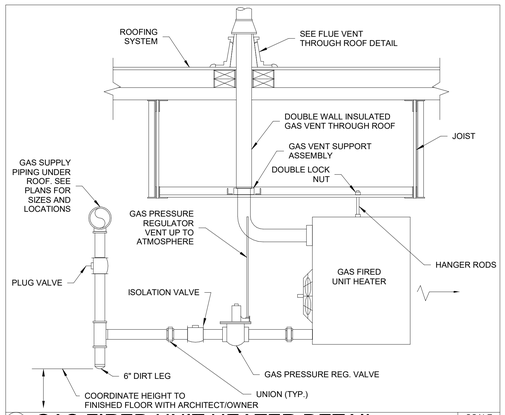
A. INTEGRAL THERMOSTAT.
B. LINE-VOLTAGE SINGLE STAGE THERMOSTAT
C. LINE-VOLTAGE 2-STAGE THERMOSTAT
D. LOW-VOLTAGE SINGLE STAGE THERMOSTAT
E. SUMMER-W/NTER SWITCH



1 GAS METER DETAIL — SCALE N.T.S.



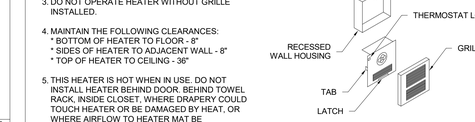
2 GAS CONNECTION DETAIL — SCALE N.T.S.



3 GAS FIRED UNIT HEATER DETAIL — SCALE N.T.S.

NOTES:

1. DO NOT USE A REMOTE THERMOSTAT WITH THIS HEATER. BUILT IN THERMOSTAT CYCLES THE HEATING ELEMENT ONLY. FAN DELAY CONTROL AUTOMATICALLY TURNS FAN ON AND OFF, AND PROVIDES A FAN DELAY OFF FEATURE TO REMOVE RESIDUAL HEAT AFTER THERMOSTAT HAS TURNED HEATING ELEMENTS OFF. WIRING OF HEATER IN ANY MANNER WHICH DEFEATS THE FAN DELAY OFF FEATURE CAN RESULT IN OVERHEATING AND PERMANENT DAMAGE TO HEATER, AND WILL VOID THE WARRANTY
2. FOR WALL MOUNTING ONLY WITH AIR DISCHARGE DOWNWARD. DO NOT INSTALL IN FLOOR, CEILING, UPSIDE DOWN (AIR DISCHARGE UPWARD). OR SIDEWAYS.
3. DO NOT OPERATE HEATER WITHOUT GRILLE INSTALLED.
4. MAINTAIN THE FOLLOWING CLEARANCES:
   * BOTTOM OF HEATER TO FLOOR - 8"
   * SIDES OF HEATER TO ADJACENT WALL - 8"
   * TOP OF HEATER TO CEILING - 36"
5. THIS HEATER IS HOT WHEN IN USE. DO NOT INSTALL HEATER BEHIND DOOR, BEHIND TOWEL RACK, INSIDE CLOSET, WHERE DRAPERY COULD TOUCH HEATER OR BE DAMAGED BY HEAT, OR WHERE AIRFLOW TO HEATER MAT BE OBSTRUCTED. KEEP ELECTRICAL CORDS, BEDDING, FURNITURE, AND OTHER ITEMS AWAY FROM HEATER
6. HEATER MUST BE CLEANED PERIODICALLY (AT LEAST ANNUALLY) TO ASSURE PROPER PERFORMANCE AND PREVENT OVERHEATING



4 ELECTRIC WALL HEATER DETAIL — SCALE N.T.S.

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

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MECHANICAL DETAILS AND SCHEDULES

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COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	Shea Helix Building C
Location:	Broomfield, Colorado
Climate Zone:	5b
Project Type:	New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

4 UH1-4 (Unknown w/ PerimeterSystem):
Heating: 1 each - Unit Heater, Gas, Capacity = 400 kBtu/h
Proposed Efficiency = 82.00% Ec, Required Efficiency: 80.00 % Ec

2 EWH 1-2 (Single Zone w/ PerimeterSystem):
Heating: 1 each - Radiant Heater, Electric, Capacity = 10 kBtu/h
No minimum efficiency requirement applies

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Richard A. Saba — Name - Title
Signature
08/13/2024 — Date

RICHARD A. SABA 46574 08/13/2024 PROFESSIONAL ENGINEER

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2]†	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9]†	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.13.2 [FO5]†	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature above 50F and outdoor temperature above 40F	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.13.3 [FO5]†			

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6]†	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41]†	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.8.1 [ME65]†	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.8.3 [ME117]†	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.8.3 [ME117]†	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.9 [ME144]†	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3 [ME55]†	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.2 [ME59]†	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.1 [ME59]†	Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.2 [ME115]†	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.6 [ME141]†	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2)	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.4 [ME57]†	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.5 [ME116]†	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and locally hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.1.1 [ME63]†	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.2.1 [ME53]†	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.11.3.1, C403.11.3.2 [ME123]†	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26]†	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27]†	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Motors certified under a certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28]†	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29]†	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30]†	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31]†	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8]†	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.1 [FI27]†	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.1 [FI47]†	Heating and cooling to each zone is controlled by a thermostat control. Each thermostat humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.1.2 [FI38]†	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.1.3 [FI20]†	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.2 [FI39]†	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.4.2.1, C403.4.2.2 [FI40]†	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.1.1 [FI57]†	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming, procedures and means of illustrating how the HVAC systems, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.1 [FI28]†	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.1 [FI31]†	HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.2 [FI10]†	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.4 [FI29]†	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI7]†	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI43]†	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.2 [FI30]†	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

RICHARD A. SABA 46574 08/15/2024 PROFESSIONAL ENGINEER

REVISION	DATE

Project Number	2023-019
Date	08/15/2024
Drawn By	KN
Checked By:	JB/RS
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Sheet Name
MECHANICAL COMCHECK

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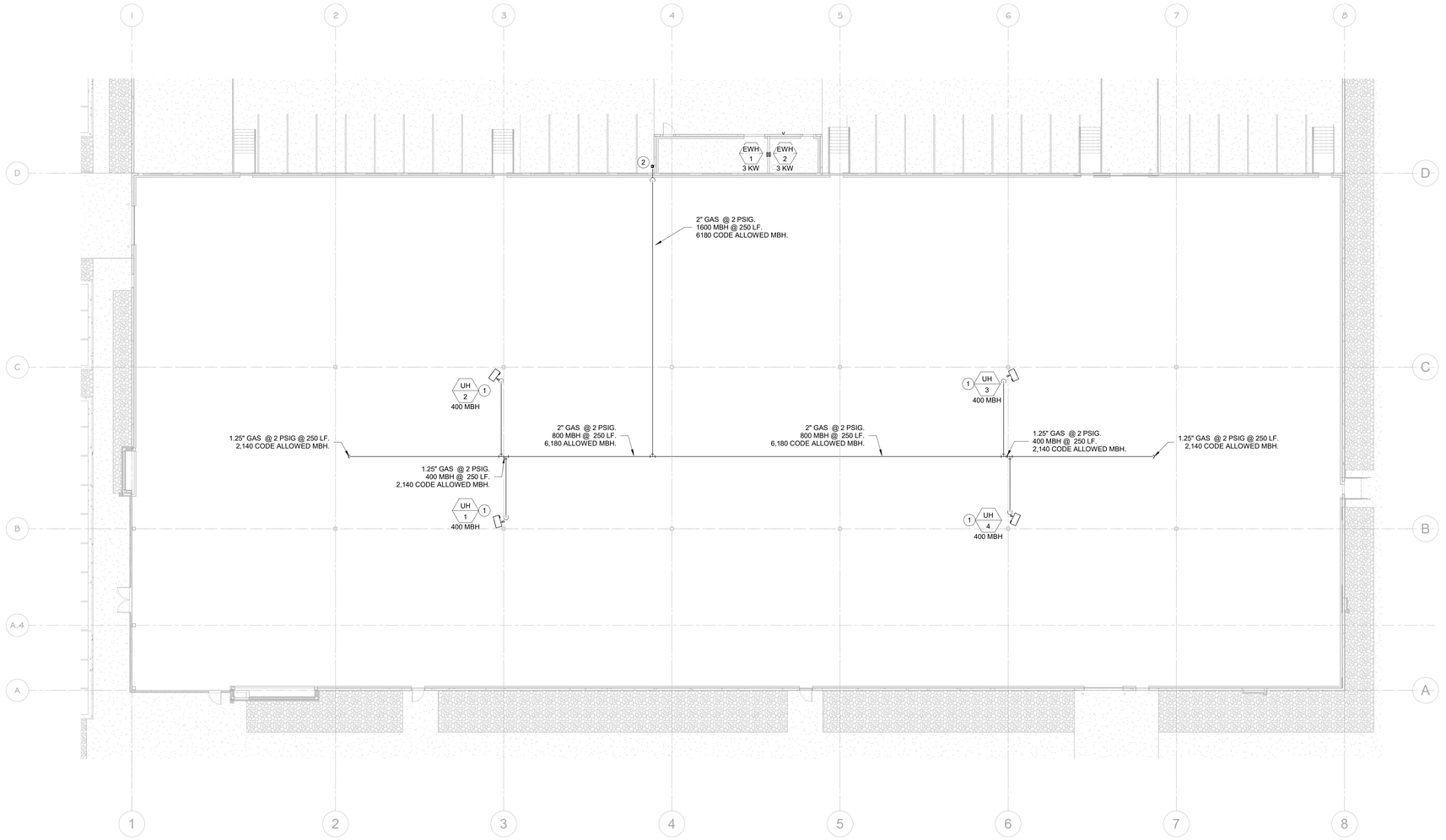

1 M1.0 OVERALL MECHANICAL PLAN
1/16" = 1'-0"

SHEET NOTES	
1	PROVIDE GAS PRESSURE REGULATOR (2.0 PSIG TO 7" W.C.) AND GAS ISOLATION VALVE. VENT GAS PRESSURE REGULATOR TO EXTERIOR PER MANUFACTURERS SPECIFICATIONS.
2	NEW GAS METER BY XCEL ENERGY. PROVIDE 2.0 PSIG METERING PRESSURE. TOTAL CONNECTED LOAD OF 1600 MBH. TOTAL DEVELOPED LENGTH NOT TO EXCEED 250 LF.

GENERAL NOTES	
1.	ALL ROOFTOP EQUIPMENT TO BE INSTALLED A MINIMUM OF 10 FEET FROM BUILDING EDGE UNLESS 42" PARAPET IS PROVIDED.
2.	ALL EXHAUST, FLUES, AND VENT OUTLETS TO DISCHARGE A MINIMUM OF 10 FEET FROM ANY OUTSIDE AIR INTAKE.
3.	ALL EQUIPMENT TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS. MAINTAIN ALL REQUIRED CLEARANCES.

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT

COLORADO LICENSED
RICHARD A. THOMPSON
46574
08/15/2024
PROFESSIONAL ENGINEER

REVISION	DATE

Project Number	2023-019
Date	08/15/2024
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Sheet Name
OVERALL MECHANICAL PLAN

M1.0

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FIRE ALARM

FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR/GRAPHIC MAP
FA-RPS	FIRE ALARM REMOTE POWER SUPPLY
C	CONTROL MODULE
M	MONITOR MODULE
	MANUAL PULLDOWN STATION
S	WALL MOUNTED ADA STROBE
	ADA HORN OR SPEAKER WITH STROBE
	MINI HORN / STROBE
MH	ELECTROMAGNETIC DOOR HOLD OPEN
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
T	THERMAL DETECTOR
S	PHOTOELECTRIC SMOKE DETECTOR
	DUCT SMOKE DETECTOR, SUPPLY OR RETURN
TS	REMOTE INDICATING LIGHT (TEST SWITCH)
D	120V. MOTORIZED SMOKE DAMPER
RA	RESCUE ASSISTANCE PHONE
F	FIRE FIGHTERS PHONE JACK

DISTRIBUTION AND RACEWAY

MDC	MAIN DISTRIBUTION CENTER (MDC)
	SURFACE MTD PANELBOARD
	RECESSED PANELBOARD
T	TRANSFORMER
	BRANCH CIRCUIT HOMERUN
	CONDUIT CONCEALED IN FLOOR OR UNDERGROUND
	CONDUIT EXPOSED OR CONCEALED IN WALL OR CEILING
	RACEWAY UP
	RACEWAY DOWN
	CAPPED CONDUIT
	CURRENT TRANSFORMER
	CIRCUIT BREAKER SWITCH
	FUSED SWITCH
	GROUNDING ELECTRODE CONDUCTOR
M	METER
GFP	GROUND FAULT PROTECTION

SYSTEMS

	TTB, MDF OR IDF SYSTEM BACKBOARD
	TELECOMMUNICATION OUTLET
	FLOOR MOUNTED TELECOMMUNICATION OUTLET
	TELEVISION OUTLET
	CABLE TRAY (LENGTH AS INDICATED ON DRAWINGS)

LIGHTING FIXTURES

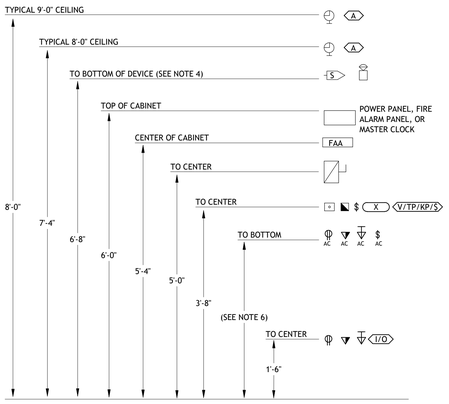
$A1_a$	LUMINAIRE TYPE, REFERENCING LUMINAIRE SCHEDULE, TYPICAL ALL FIXTURES. SUBSCRIPT, IF SHOWN, REFERENCES WALL SWITCH OR RELAY/ZONE CONTROL
	WALL MOUNTED LUMINAIRE
	SURFACE OR PENDANT MOUNTED LUMINAIRE
	RECESSED LUMINAIRE
	RECESSED DOWNLIGHT LUMINAIRE
	SURFACE CEILING LUMINAIRE
	PENDANT LUMINAIRE
	ARROW INDICATES DIRECTIONAL LUMINAIRE
	MONOPOINT LUMINAIRE
	SURFACE OR PENDANT TRACK LUMINAIRE REFER TO FIXTURE SCHEDULE FOR HEAD QTY.
	LED TAPE LUMINAIRE
	FESTOON LIGHTING
	RECESSED MULTI-HEAD LUMINAIRE
	FLOOR OR TABLE LAMP
	EXIT LUMINAIRE - SHADED INDICATES FACE / DIRECTIONAL ARROWS AS SHOWN
	BATTERY PACK EMERGENCY LUMINAIRE
	HATCH INDICATES EMERGENCY LUMINAIRE
K	PORCELAIN KEYLESS LAMP HOLDER
	STEP LIGHT TYPE LUMINAIRE
	IN-GRADE UPLIGHT
	BOLLARD LUMINAIRE
	PEDESTRIAN POLE OR POST TOP LUMINAIRE
	EXTERIOR AREA LIGHT

WIRING DEVICES

	DUPLEX RECEPTACLE
	FOUR PLEX RECEPTACLE
	SINGLE RECEPTACLE
	COMBO RECEPTACLE/SWITCH
	SWITCHED DUPLEX RECEPTACLE
	EMERGENCY POWERED DUPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE
	FLOOR MOUNTED SPECIAL PURPOSE RECEPTACLE
	FLOOR MOUNTED RECEPTACLE DUPLEX/QUAD
CLG CLG	CEILING MOUNTED RECEPTACLE DUPLEX/QUAD
SR	SURFACE RACEWAY
	CLOCK RECEPTACLE
J	JUNCTION BOX
J	WALL MOUNTED J-BOX
FJ	FLOOR MOUNTED JUNCTION BOX
	MOLDED CASE CIRCUIT BREAKER IN ENCLOSURE
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC CONTROLLER (STARTER)
	COMBINATION STARTER/DISCONNECT SWITCH
HP	MOTOR
R	RELAY
TC	TIME CLOCK
PC	PHOTOCELL
^{TO}	THERMAL OVERLOAD SWITCH
$	SINGLE POLE SWITCH, LINE VOLTAGE
$^{3}	3-WAY SWITCH, LINE VOLTAGE
$^{4}	4-WAY SWITCH, LINE VOLTAGE
$^{K}	KEY OPERATED SWITCH
$^{D}	DIMMER SWITCH, LINE VOLTAGE
$^{DOOR}	RECESSED DOOR SWITCH
X	LIGHTING CONTROL DEVICE, REFER TO DETAILS FOR CONTROL INTENT

ABBREVIATIONS AND SYMBOLS

A	AMPERE(S)
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BFF	BELOW FINISHED FLOOR
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCT	CORRELATED COLOR TEMPERATURE
CLG	CEILING
CT	CURRENT TRANSFORMER
DED	DEDICATED CIRCUIT
DISC	DISCONNECT
DW	DISHWASHER
DWG(S)	DRAWING(S)
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
(ER)	EXISTING TO BE RELOCATED
EM	EMERGENCY
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
F	FUSE
FLA	FULL LOAD AMPS
FS	SPRINKLER FLOW SWITCH
G	GROUND
GC	GENERAL CONTRACTOR
GD	GARBAGE DISPOSAL
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HP	HORSEPOWER
IDF	INTERMEDIATE DISTRIBUTION FACILITY
IG	ISOLATED GROUND
ISC	SHORT CIRCUIT CURRENT
KVA	KILOVOLT AMPERE(S)
KW	KILOWATT(S)
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPERE(S)
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION CENTER
MDF	MAIN DISTRIBUTION FACILITY
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NC	NORMALLY CLOSED
NL	NIGHT LIGHT - SEE GENERAL NOTES
NO	NORMALLY OPEN
OAE	OR APPROVED EQUAL
OFH	OVERALL FIXTURE HEIGHT
OH	OVERHEAD
P	POLE
PART	PARTIAL CIRCUIT
PH	PHASE
PNL	PANEL
RCPT	RECEPTACLE
REF	REFRIGERATOR
RFD	RECESSED FIXTURE DEPTH
(R)	EXISTING TO BE REMOVED
(RL)	RELOCATED LOCATION
SPD	SURGE PROTECTION DEVICE
TS	SPRINKLER TAMPER SWITCH
UC	UNDER COUNTER/CABINET
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT(S)
W	WATT(S) OR WIRE
WFD	WALL FIXTURE DEPTH
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER
X	POOL EQUIPMENT SCHEDULE NOTATION
X	KITCHEN EQUIPMENT SCHEDULE NOTATION
X X	MECHANICAL EQUIPMENT SCHEDULE NOTATION
X	DETAIL NOTE
X	DELTA REVISION NOTE
X	ELECTRICAL WIRE SIZE
T1	LIGHTING CONTROLS SEQUENCE OF OPERATION



NOTES:

1. WHERE MULTIPLE LINE VOLTAGE DEVICES ARE SHOWN ADJACENT TO EACH OTHER, THEY ARE ALL TO SHARE THE SAME JUNCTION BOX, UP TO FOUR GANGS.
2. WHERE MORE THAN FOUR DEVICES ARE SHOWN ADJACENT TO EACH OTHER, DEVICES ARE TO STACK VERTICALLY ABOVE ONE ANOTHER IN TWO ROWS IN AS SMALL OF GANG BOXES AS POSSIBLE. I.E. SIX DEVICES WILL USE TWO THREE GANG BOXES, FIVE DEVICES WILL USE ONE THREE GANG AND ONE TWO GANG BOX. WHEN DIMMERS ARE GANGED TOGETHER, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR DE-RATING.
3. BACK-TO-BACK JUNCTION BOXES IN COMMON WALLS ARE NOT PERMITTED. JUNCTION BOXES SHALL BE SEPARATED BY AT LEAST ONE STUD WHEREVER POSSIBLE.
4. AUDIBLE/VISUAL FIRE ALARM DEVICES SHOWN ARE TO BE MOUNTED AT 90" OR 6" BELOW CEILING, WHICHEVER IS LOWER. ADA STROBES TO BE MOUNTED AT 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.
5. MAXIMUM ELEVATION FOR ALL LOAD CENTER CIRCUIT BREAKERS SHALL NOT EXCEED 48" AFF, WITHIN DWELLING UNITS.
6. THE E.C. SHALL REFER TO ARCHITECTURAL ELEVATIONS TO COORDINATE ALL COUNTER HEIGHTS. ALL "AC" DEVICES SHALL HAVE BOTTOM OF BACK-BOX MOUNTED 4" ABOVE THE BACK/SIDE SPLASH.

1 | DEVICE MOUNTING HEIGHT

E-000 | NTS

COVERSHEET NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL NECESSARY FOR A COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM.
2. MATERIALS AND INSTALLATION SHALL COMPLY WITH CODES, LAWS AND ORDINANCES OF FEDERAL, STATE AND LOCAL GOVERNING BODIES HAVING JURISDICTION.
3. MATERIALS AND EQUIPMENT SHALL BE LISTED AND/OR LABELED BY U.L., ETL, CSA OR ANOTHER RECOGNIZED TESTING LAB.
4. ALL WORK REQUIRED FOR THE INSTALLATION AS SHOWN ON DRAWINGS INCLUDING LABOR, EQUIPMENT AND MATERIALS SHALL BE IN STRICT COMPLIANCE WITH THE BUILDING STANDARDS, EXCEPT AS NOTED OTHERWISE.
5. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES AND LICENSES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE ELECTRICAL WORK.
6. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO GOVERNMENTAL AGENCIES AND UTILITY COMPANIES SHOP DRAWINGS, WHICH ARE REQUIRED BY THESE AGENCIES, FOR THEIR APPROVAL.
7. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER/OWNER OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF LAWS, ORDINANCES, RULES OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
8. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE CONTRACT DOCUMENTS, VISIT THE SITE, AND THOROUGHLY BECOME FAMILIAR WITH THE BUILDING STANDARDS AND LOCAL CONDITIONS RELATING TO THE WORK. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.
9. ALL MATERIALS, AND EQUIPMENT SHALL BE ERECTED, INSTALLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED, AND PLACED IN SERVICE IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
10. ALL CUTTING, DRILLING AND PATCHING OF MASONRY, STEEL OR IRON WORK BELONGING TO THE BUILDING MUST BE DONE BY THIS CONTRACTOR IN ORDER THAT THEIR WORK MAY BE PROPERLY INSTALLED, BUT UNDER NO CONDITIONS MAY STRUCTURAL WORK BE CUT, EXCEPT AT THE DIRECTION OF THE ARCHITECT-DESIGNER OR THEIR REPRESENTATIVE.
11. E.C. IS TO REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ALL FIRE RATED PENETRATION INSTALLATION REQUIREMENTS. E.C. IS TO NOTIFY ENGINEER AND ARCHITECT PRIOR TO INSTALLING ANY FIXTURES WITHIN A FIRE RATED CEILING OR WALL. FIRE RATING MUST BE MAINTAINED FOR THIS TYPE OF INSTALLATION WITH DRYWALL TENTING.
12. E.C. SHALL PROVIDE COORDINATION STUDY OF NEW AND/OR NEW GEAR COMBINED WITH EXISTING GEAR DURING THE SUBMITTAL PROCESS.
13. SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S NAMES, CATALOG NUMBERS, CUTS, DIAGRAMS AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDENTIFY AND REVIEW THE EQUIPMENT. SUBMITTALS SHALL BE IN LOGICAL GROUPS, FOR EXAMPLE, ALL LIGHTING FIXTURES, PARTIAL SUBMITTALS WILL NOT BE REVIEWED.
14. SUBMIT (3) COPIES OF THE FOLLOWING SHOP DRAWINGS FOR REVIEW:
    A. SWITCH BOARD, PANELBOARDS, AND METERING EQUIPMENT
    B. DISCONNECTS
    C. FIRE ALARM SYSTEMS
    D. LIGHT FIXTURES
    E. LIGHTING CONTROLS
    F. TRANSFORMERS
    G. PROVIDE "AS-BUILT" DRAWINGS AND SUBMIT TO ARCHITECT/DESIGNER.
15. PROVIDE THE FOLLOWING INFORMATION, PER IECC 2021 C408.3.2.2. TO THE PARTY RESPONSIBLE FOR PROJECT COMMISSIONING PLAN (COMMISSIONING AGENT/ MECHANICAL ENGINEER) AND ELECTRICAL ENGINEER:
    A. CUTSHEETS FOR ALL INSTALLED LIGHTING AND LIGHTING CONTROLS.
    B. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF INSTALLED LIGHTING, REQUIRED ROUTINE MAINTENANCE ACTIONS, CLEANING AND RECOMMENDED RELAMPING SHALL BE CLEARLY IDENTIFIED.
    C. SCHEDULE FOR INSPECTING AND RECALIBRATING ALL LIGHTING CONTROLS. INSPECTION OF ALL LIGHTING CONTROLS SHALL BE PERFORMED PRIOR TO ELECTRICAL ENGINEER'S COMMISSIONING SITE VISIT. RECALIBRATION OF LIGHTING CONTROLS SHALL BE PERFORMED FOLLOWING SITE VISIT AND SHALL BE BASED UPON THE RECOMMENDATIONS OF THE ELECTRICAL ENGINEER.
16. ALL MATERIAL, EQUIPMENT, WIRING DEVICES, ETC. SHALL BE NEW, UNLESS SPECIFICALLY INDICATED AS EXISTING TO BE REUSED.
17. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS. ELECTRICAL CONTRACTOR IS TO SUBMIT A COMPLETE CONSTRUCTION DRAWING SET TO THE ELECTRICAL UTILITY COMPANY WITHIN 10 DAYS OF AWARD OF CONTRACT. COORDINATE TIMELINE OF THE REVIEW, APPROVAL, ALL ASSOCIATED DOWN TIME, CONSTRUCTION SCHEDULING, DELIVERY, AND INSTALLATION OF THE UTILITY TRANSFORMER. NOTIFY OWNER OF SCHEDULING CONFLICTS.
18. ALL NEW CIRCUIT BREAKERS FOR NEW OR EXISTING PANELBOARDS SHALL MATCH EXISTING BUILDING PANELBOARD MANUFACTURER AND BREAKER TYPE. THE CONTRACTOR SHALL PROVIDE NEW TYPE WRITTEN PANEL DIRECTORIES FOR ALL NEW PANELS AND EXISTING PANELS WHICH HAVE CHANGED. PANELBOARD SHALL BE MARKED WHERE THE SOURCE OF POWER SUPPLY ORIGINATES, AND IF SERIES COMBINATION SYSTEMS ARE UTILIZED AND THEIR LISTED AMPERE RATING.
19. DO NOT SHARE NEUTRAL CONDUCTORS FOR MULTIWIRE BRANCH CIRCUITS. WHERE SHARED NEUTRAL CONDUCTORS ARE REQUIRED (SUCH AS POWERED FURNITURE SYSTEMS), HANDLE TIES SHALL BE PROVIDED ON THE CIRCUIT BREAKERS, WITH SHARED NEUTRALS, SUCH THAT IT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS. ALL HANDLE TIES ARE REQUIRED TO BE INDICATED ON THE PANELBOARD SHOP DRAWINGS.
20. SHOULD ACTUAL FIELD CONDITIONS REQUIRE INDICATED CIRCUIT DESIGNATIONS TO VARY, INDICATE THE CIRCUIT NUMBER USED ON THE "AS-BUILT" DRAWINGS.
21. ALL SERVICE EQUIPMENT (OTHER THAN IN DWELLING UNITS) SHALL BE LEGIBLY MARKED IN THE FIELD BY THE ELECTRICAL CONTRACTOR WITH THE MAXIMUM AVAILABLE FAULT CURRENT AS INDICATED WITHIN THESE DOCUMENTS. THE FIELD MARKING(S) SHALL COMPLY WITH ELECTRICAL SPECIFICATIONS FOR READABILITY AND DURABILITY.
22. PROVIDE COMPLETE METAL RACEWAY SYSTEMS AND ENCLOSURES FOR ALL WIRING THROUGHOUT THE EXTENT OF THE REQUIRED DISTRIBUTION SYSTEM.
    A. UTILIZE RIGID POLYVINYL CHLORIDE CONDUIT (PVC) IN THE FOLLOWING LOCATIONS:
        - UNDERGROUND
    B. UTILIZE ELECTRICAL METALLIC TUBING (EMT), MINIMUM SIZE OF 3/4", IN THE FOLLOWING LOCATIONS:
        - SERVICE & FEEDERS
        - POWER CIRCUIT HOMERUN
        - BRANCH CIRCUITS IN CONCEALED OR EXPOSED LOCATIONS
        - TELEPHONE/DATA/CATV ROUGH-IN
    C. UTILIZE METAL-CLAD CABLE (MC) IN THE FOLLOWING LOCATIONS:
        - BRANCH CIRCUIT IN CONCEALED LOCATIONS
        - FINAL CONNECTION TO RECESSED LIGHTING FIXTURES
        - FINAL CONNECTION TO STEP-DOWN TRANSFORMERS
24. ALL NEW CIRCUITS SHALL HAVE A GROUND WIRE INSTALLED.
25. ALL WIRING NOT INSTALLED IN CONDUIT AND INSTALLED IN THE CEILING SPACE SHALL BE PLENUM RATED.
26. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SPECIAL OUTLET BOXES THAT MAY BE REQUIRED TO ENCLOSE RECEPTACLES.
27. EACH SWITCH, LIGHT, RECEPTACLE AND OTHER MISCELLANEOUS DEVICE SHALL BE PROVIDED WITH A GALVANIZED OR PRESSED STEEL OUTLET BOX OF THE KNOCKOUT TYPE, OF NOT LESS THAN NO. 14 U.S. GAUGE STEEL. CONDUITS SHALL BE FASTENED WITH LOCKNUTS AND BUSHINGS AND ALL UNUSED KNOCKOUTS MUST BE LEFT SEALED. THERE MUST BE SUFFICIENT ROOM FOR WIRES AND BUSHINGS AND DEEP BOXES SHALL BE INSTALLED WHERE REQUIRED. BOXES SHALL BE SECURELY AND ADEQUATELY SUPPORTED.
28. IN EXPOSED AND SUSPENDED CEILING APPLICATIONS, ROUTE CONDUIT AS CLOSE TO STRUCTURAL SLAB OR DECK AS POSSIBLE, AND SUPPORT CONDUIT AND JUNCTION BOXES DIRECTLY FROM THE STRUCTURAL SLAB, DECK, OR FRAMING PROVIDED FOR THAT PURPOSE. LIGHTING BRANCH CIRCUIT CONDUITS SHALL NOT BE CLIPPED TO THE CEILING SYSTEM HAS BEEN SPECIFICALLY DESIGNED FOR THAT PURPOSE.
29. ALL EXPOSED CONDUIT SHALL BE CONCEALED TO THE GREATEST EXTENT POSSIBLE, AND SHALL BE INSTALLED PARALLEL AND CLOSE TO STRUCTURAL MEMBERS. GENERAL CONTRACTOR SHALL PAINT CONDUIT TO MATCH ADJACENT FINISHES.
30. WHERE FLOOR FITTINGS REQUIRE PENETRATION OF THE FLOOR SLAB, THEY SHALL BE STANDARD DEVICE LISTED BY UL FOR THE PURPOSE AND HAVE A UL FIRE RATING EQUAL TO THE FLOOR RATING. FLOOR SERVICE BOXES SHALL BE MODULAR, ADJUSTABLE FLUSH TYPE, DUAL SERVICE UNITS SUITABLE FOR WIRING METHOD USED. COMPARTMENT BARRIERS SHALL SEPARATE POWER FROM LOW VOLTAGE CABLING. PROVIDE RECTANGULAR SERVICE PLATE WITH SATIN FINISH.
31. ALL RECEPTACLES SHALL BE SPECIFICATION GRADE NEMA 5-20R, UNLESS OTHERWISE NOTED.
32. ALL LIGHT SWITCHES SHALL BE SPECIFICATION GRADE, QUIET OPERATION RATED 120/277 VOLT, 20 AMPS, UNLESS OTHERWISE NOTED.
33. ALL FACE PLATE AND DEVICE COLORS SHALL BE APPROVED BY ARCHITECT OR OWNER/LEASEE.
34. PROVIDE LUMINAIRES SHOWN AS SHADED WITH EMERGENCY BATTERY BACKUP POWER. EMERGENCY LUMINAIRES SHALL SENSE UNSWITCHED POWER TO THE SPACE AND OPERATE AUTOMATICALLY UPON LOSS OF NORMAL POWER. ALL SHADED LUMINAIRES WITH LED SOURCES SHALL BE PROVIDED WITH 90 MINUTES OF BATTERY BACKUP POWER. ALL EMERGENCY LUMINAIRES SHALL HAVE INTEGRAL OR REMOTE TEST SWITCHES AS INDICATED IN THE FIXTURE SCHEDULE AND VISIBLE INDICATING LIGHTS. CONNECT THE EMERGENCY BATTERY BALLAST/DRIVER TO THE UN-SWITCHED LEG OF THE LIGHTING CIRCUIT INDICATED.
35. CIRCUIT ALL EMERGENCY LIGHTING UNITS (FROG EYES) AND EXIT SIGNS TO NEAREST LOCAL AREA LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHLEGS, UNLESS OTHERWISE NOTED.
36. UNLESS OTHERWISE NOTED, LUMINAIRES DESIGNATED AS NIGHT LIGHT (NL) SHALL BE CONNECTED AHEAD OF LOCAL SWITCHING AND REMAIN ON 24 HOURS A DAY.
37. ALL DIMMED LIGHTING CIRCUITS ARE TO RECEIVE DEDICATED NEUTRALS. DO NOT SHARE NEUTRALS ON DIMMED LIGHTING CIRCUITS.
38. PROVIDE OWNER WITH A COMPLETE LISTING OF ALL LAMPS UTILIZED ON THE PROJECT INCLUDING MANUFACTURER AND CATALOG INFORMATION. PROVIDE A SUGGESTED SOURCE, INCLUDING CONTACT NAME AND PHONE NUMBER, FOR REORDERING.
39. THE CONTRACTOR SHALL VERIFY THE CEILING TYPE BEFORE ORDERING LIGHTING.
40. ROUGH-IN FOR MECHANICAL EQUIPMENT SHALL ONLY OCCUR AFTER MECHANICAL EQUIPMENT SUBMITTALS ARE THOROUGHLY REVIEWED FOR CHANGES. NOTIFY ENGINEER OF ANY DISCREPANCIES.
41. FINAL LAYOUT AND QUANTITY OF ALL FIRE ALARM DEVICES SUBJECT TO APPROVAL OF LOCAL AUTHORITY HAVING JURISDICTION.
42. EC SHALL COORDINATE ELECTRIC WATER COOLER RECEPTACLE PLACEMENT SUCH THAT THE RECEPTACLE IS ACCESSIBLE WITHIN THE WATER COOLER SHROUD, YET CONCEALED BY THE SHROUD PER NEC 422.33(A). PROVIDE 5mA GFCI CIRCUIT BREAKER IN ELECTRICAL PANEL PER NEC SECTION 422.
43. THE POWER AND CONTROL REQUIREMENTS FOR ALL EQUIPMENT CONNECTIONS SHALL BE CONFIRMED WITH APPROVED SHOP DRAWINGS PRIOR TO ELECTRICAL ROUGH-IN. FINAL POWER REQUIREMENTS, DIMENSIONED ROUGH-IN LOCATIONS, LOW VOLTAGE SYSTEM CONNECTIONS, ETC. SHALL BE CONFIRMED AND MODIFIED AS REQUIRED.
44. ALL DEVICES IN OR ABOVE COUNTERS SHALL HAVE LOCATIONS AND MOUNTING HEIGHTS CONFIRMED WITH ARCHITECTURAL ELEVATIONS & OWNER PRIOR TO ROUGH-IN. ANY ADJUSTMENTS TO MOUNTING HEIGHTS REQUIRED BY LACK OF COORDINATION WILL BE AT THE CONTRACTOR'S EXPENSE.
45. ALL EXISTING ELECTRICAL SERVICES NOT SPECIFICALLY INDICATED TO BE REMOVED OR ALTERED SHALL REMAIN AS THEY PRESENTLY EXIST.
46. CONTRACTOR TO CONDUCT FUNCTIONAL TESTING OF LIGHTING CONTROLS EQUIPMENT AS REQUIRED BY IECC 2021, SECTION C408.3. AFTER THIS TESTING IS OBSERVED AND COMPLETED, THE REGISTERED DESIGN PROFESSIONAL OR COMMISSIONING AUTHORITY SHALL PROVIDE DOCUMENTATION TO THE AHJ THAT CERTIFIES THAT THE INSTALLATION MEETS THE DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405. TO INQUIRE ABOUT CERTIFIED COMMISSIONING SERVICES PROVIDED BY AE DESIGN, INC. CALL (303) 296-3034.
47. IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OF PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.
48. UNLESS OTHERWISE NOTED, ALL GFCI RECEPTACLES SHALL HAVE TEST/RESET SWITCHES INTEGRAL TO RECEPTACLE DEVICE.

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HELIX WEST - BUILDING C - CORE & SHELL

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100% CD's	

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Sheet Name
ELECTRICAL COVER SHEET

E-000

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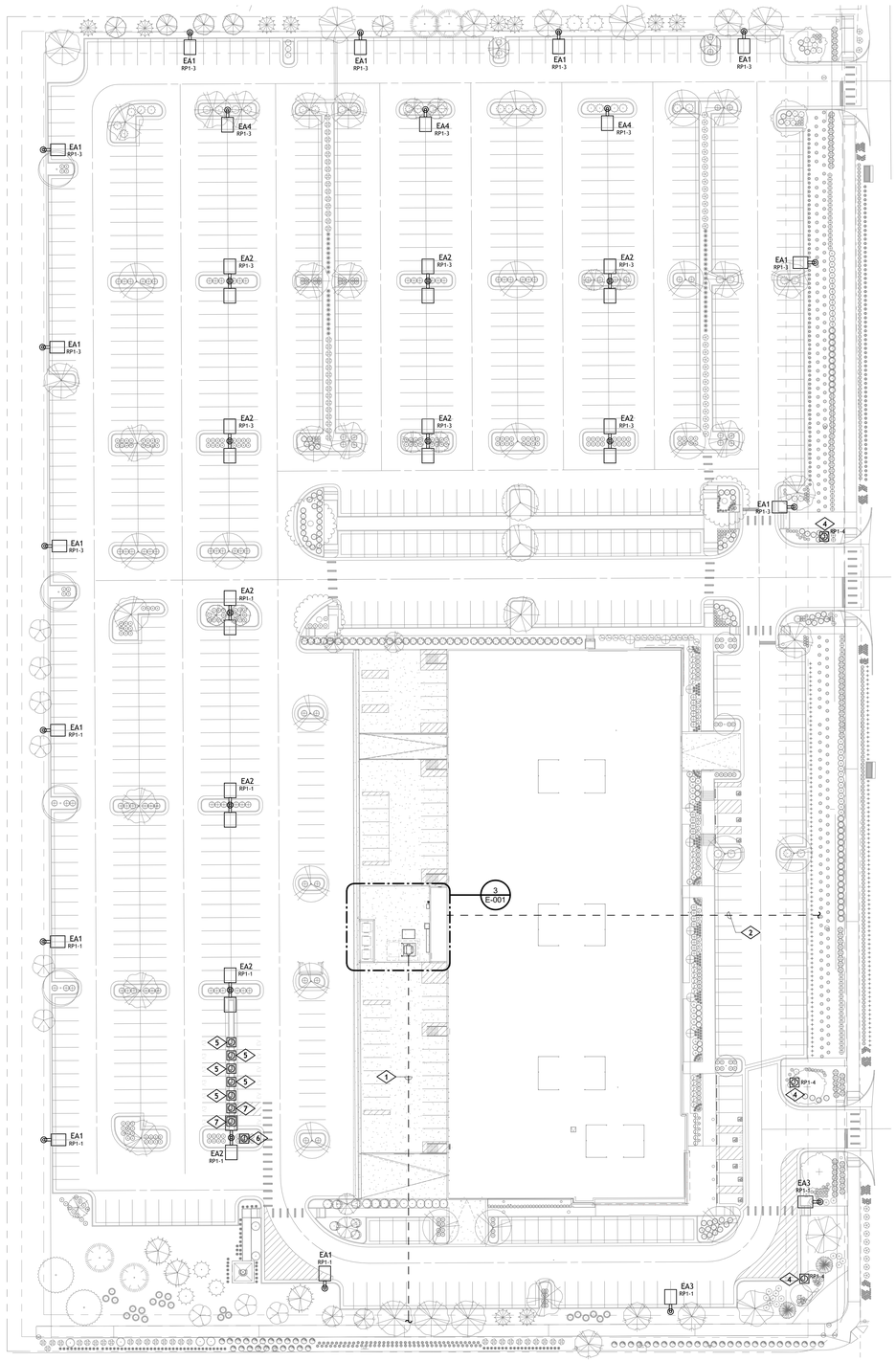
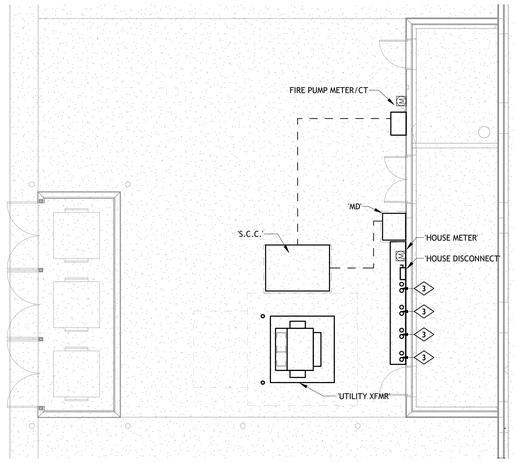


1 | ELECTRICAL SITE PLAN
E-001 | 1" = 40'-0"

NORTH



3 | ENLARGED ELECTRICAL SITE PLAN
E-001 | 1/8" = 1'-0"

SITE GENERAL NOTES

A.	ALL EXTERIOR LIGHTING CIRCUITS SHALL UTILIZE A MINIMUM WIRE SIZE OF #8AWG COPPER, UON.

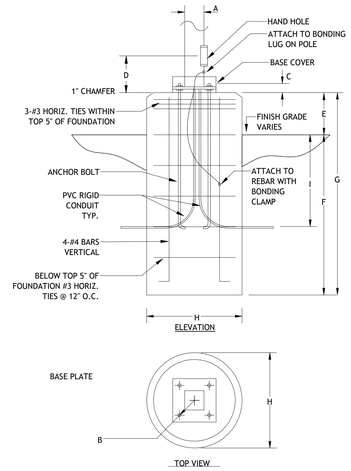
KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	APPROXIMATE ROUTING OF UNDERGROUND CONDUIT BETWEEN UTILITY PRIMARY AND NEW TRANSFORMER. REFER TO THE ELECTRICAL ONE LINE FOR MORE INFORMATION.
2	APPROXIMATE ROUTING OF LOW-VOLTAGE CONDUITS FROM PEDESTAL TO BUILDING 'MDF'. SEE DETAIL #2/E-600 FOR MORE INFORMATION.
3	EC TO ROUTE (2) 4" CONDUITS FROM BELOW BUSSED GUTTER AT GROUND TO INTERIOR ELECTRICAL ROOM FOR FUTURE TENANT DISTRIBUTION.
4	PROVIDE 120V, 20A POWER CONNECTION FOR ILLUMINATED MONUMENT SIGNAGE. COORDINATE ELECTRICAL REQUIREMENTS WITH APPROVED SIGNAGE SHOP DRAWINGS PRIOR TO ROUGH-IN. REFER TO LIGHTING PLANS FOR CONTROL REQUIREMENTS.
5	EC SHALL PROVIDE (2) SEPARATE 1-1/4" CONDUITS FOR FUTURE DUAL-PORT ELECTRIC VEHICLE CHARGING STATION, ROUTED FROM ELEC 102 TO STUB-UP LOCATION AT NEW JUNCTION BOX. EC SHALL COORDINATE EXACT LOCATION BETWEEN (2) ADJACENT PARKING STALLS WITH TI ARCHITECT/OWNER IN FIELD PRIOR TO INSTALLATION. TI ARCHITECT SHALL VERIFY LOCATION AND SET-BACK DISTANCE FROM CURB WITH PARKING STALL CLEARANCE AS REQUIRED TO AVOID POTENTIAL DAMAGE FROM VEHICULAR IMPACT.
6	EC SHALL PROVIDE (2) 4" CONDUITS FOR FUTURE ELECTRIC VEHICLE CHARGING CABINET, ROUTED FROM ELEC 102 TO STUB-UP LOCATION AT NEW JUNCTION BOX. EC SHALL COORDINATE EXACT LOCATION WITH TI ARCHITECT/OWNER IN FIELD PRIOR TO INSTALLATION.
7	EC SHALL PROVIDE (1) 4" CONDUIT FOR FUTURE ELECTRIC VEHICLE CHARGING STATION, ROUTED FROM FUTURE ELECTRIC VEHICLE CHARGING CABINET TO STUB-UP LOCATION AT NEW JUNCTION BOX. EC SHALL COORDINATE EXACT LOCATION BETWEEN (2) ADJACENT PARKING STALLS WITH TI ARCHITECT/OWNER IN FIELD PRIOR TO INSTALLATION. TI ARCHITECT SHALL VERIFY LOCATION AND SET-BACK DISTANCE FROM CURB WITH PARKING STALL CLEARANCE AS REQUIRED TO AVOID POTENTIAL DAMAGE FROM VEHICULAR IMPACT.

SITE SEQUENCE OF OPERATIONS

THE FOLLOWING CONTROL SEQUENCE OF OPERATIONS ARE UTILIZED IN THIS PLAN. REFER TO PLAN AND/OR ZONE/RELAY SCHEDULE FOR SPECIFIC ASSOCIATED SEQUENCE.

ET1



POLE KEY	OVERALL HEIGHT	HEIGHT OF LUMINOUS SURFACE	A	ANCHOR BOLT DATA (B) (SIZE) (C) (D)	E	F	G	H	I
EA1	30' - 0"	29' - 10"	4"	PER MANUFACTURER	1' - 6"	8' - 0"	9' - 6"	24"	36"
EA2	30' - 0"	29' - 10"	4"	PER MANUFACTURER	2' - 6"	8' - 0"	10' - 6"	24"	36"
EA3	30' - 0"	29' - 10"	4"	PER MANUFACTURER	1' - 6"	8' - 0"	9' - 6"	24"	36"
EA4	30' - 0"	29' - 10"	4"	PER MANUFACTURER	2' - 6"	8' - 0"	10' - 6"	24"	36"

2 | POLE BASE DETAIL
E-001 | N.T.S.

PLAN NORTH

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HELIX WEST - BUILDING C - CORE & SHELL

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08/15/2024
PROFESSIONAL ENGINEER

REVISION	DATE
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ELECTRICAL SITE PLAN

E-001

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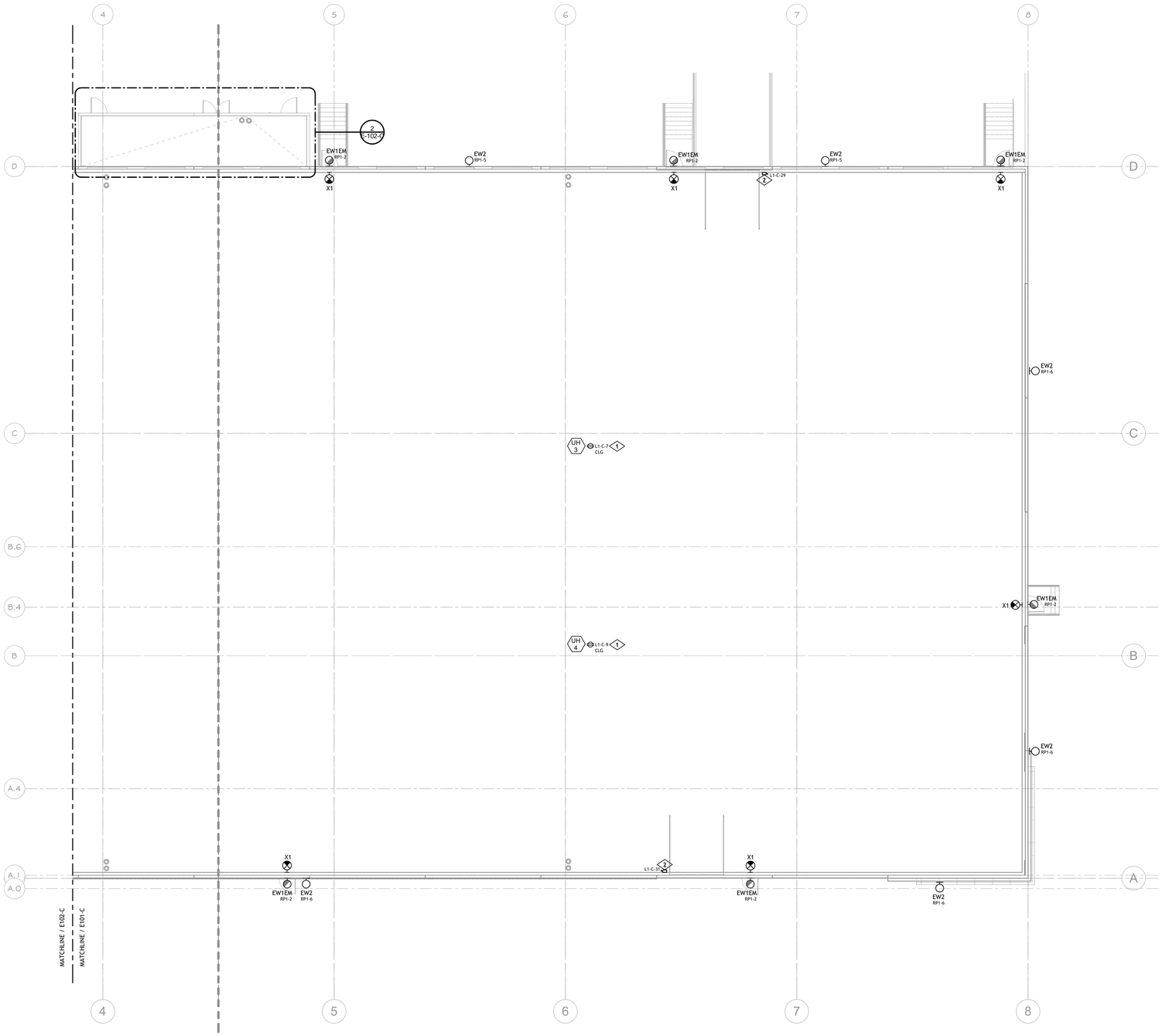

1 | OVERALL ELECTRICAL PLAN - BUILDING C - NORTH
E-101-C | 3/32" = 1'-0"

NORTH

POWER AND LIGHTING GENERAL NOTES

A. ALL EXIT SIGNS, EMERGENCY LIGHT FIXTURES, AND INTEGRAL EMERGENCY BALLASTS SHALL BE WIRED AHEAD OF LOCAL SWITCH AND CIRCUITED TO LOCAL AREA LIGHTING CIRCUIT.

B. 120V, 20A FEEDS:
   a. EC SHALL UTILIZE #12CU FOR DISTANCES LESS THAN 150 FEET.
   b. EC SHALL UTILIZE #10CU FOR DISTANCES BETWEEN 150 FEET AND 250 FEET.
   c. EC SHALL UTILIZE #8CU FOR DISTANCES BETWEEN 250 FEET AND 400 FEET.
   d. EC SHALL UTILIZE #6CU FOR DISTANCES BETWEEN 400 FEET AND 700 FEET.

C. 277V, 20A FEEDS:
   a. EC SHALL UTILIZE #12CU FOR DISTANCES LESS THAN 450 FEET.
   b. EC SHALL UTILIZE #10CU FOR DISTANCES GREATER THAN 150 FEET.
   c.

D. ALL CONDUIT, LIGHT FIXTURES, ETC. ROUTED AT THE ROOF STRUCTURE IS TO BE INSTALLED ABOVE THE BOTTOM CHORD OF THE JOISTS.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	PROVIDE AND INSTALL RECEPTACLE WITHIN 25'-0" OF UNIT HEATER PER NEC 210.63. EC TO CONNECT TO UNIT HEATER CIRCUIT.
2	EC SHALL PROVIDE 120V, 45A CONNECTION FOR MOTORIZED OVERHEAD DOOR. PROVIDE LOCAL 60A/1P FUSED DISCONNECT AND RUN 2#6, 1#10G, IN 1"C. COORDINATE EXACT ELECTRICAL CONNECTION REQUIREMENTS AND LOCATION WITH APPROVED SHOP DRAWINGS.

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED 35717 PROFESSIONAL ENGINEER
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Sheet Name
OVERALL ELECTRICAL PLAN - BUILDING C - NORTH

PLAN NORTH

E-101-C

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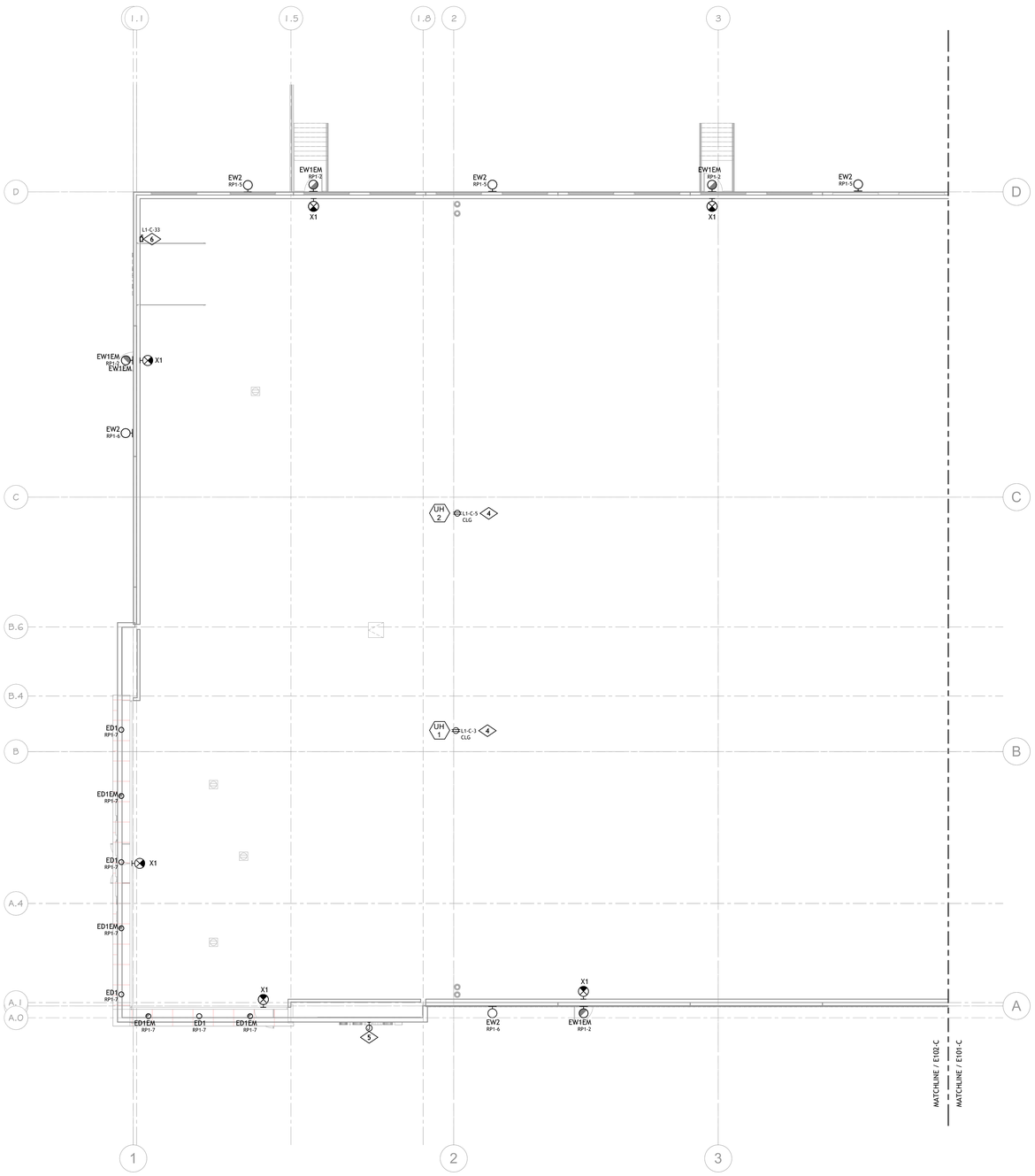
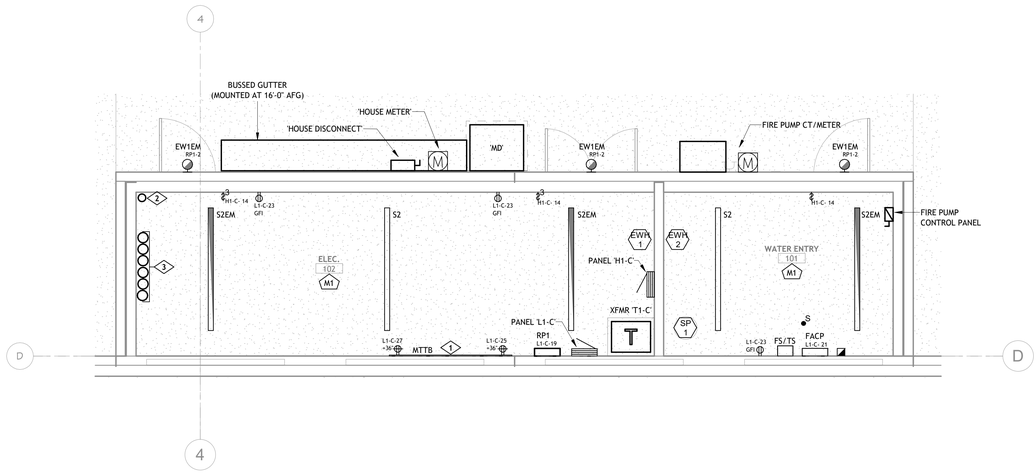


1 | OVERALL ELECTRICAL PLAN - BUILDING C - SOUTH

E-102-C | 3/32" = 1'-0"

NORTH



2 | ENLARGED ELECTRICAL PLAN - BUILDING C - ELECTRICAL ROOM

E-102-C | 1/4" = 1'-0"

POWER AND LIGHTING GENERAL NOTES

A.	ALL EXIT SIGNS, EMERGENCY LIGHT FIXTURES, AND INTEGRAL EMERGENCY BALLASTS SHALL BE WIRED AHEAD OF LOCAL SWITCH AND CIRCUITED TO LOCAL AREA LIGHTING CIRCUIT.
B.	120V, 20A FEEDS: a. EC SHALL UTILIZE #12CU FOR DISTANCES LESS THAN 150 FEET. b. EC SHALL UTILIZE #10CU FOR DISTANCES BETWEEN 150 FEET AND 250 FEET. c. EC SHALL UTILIZE #8CU FOR DISTANCES BETWEEN 250 FEET AND 400 FEET. d. EC SHALL UTILIZE #6CU FOR DISTANCES BETWEEN 400 FEET AND 700 FEET.
C.	277V, 20A FEEDS: a. EC SHALL UTILIZE #12CU FOR DISTANCES LESS THAN 450 FEET. b. EC SHALL UTILIZE #10CU FOR DISTANCES GREATER THAN 150 FEET. c.
D.	ALL CONDUIT, LIGHT FIXTURES, ETC. ROUTED AT THE ROOF STRUCTURE IS TO BE INSTALLED ABOVE THE BOTTOM CHORD OF THE JOISTS.

KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	EC SHALL PROVIDE PLYWOOD WALL BOARD FOR LENGTHS AS INDICATED WITHIN THE TELECOMMUNICATIONS ROOM. REFER TO LOW VOLTAGE ROUGH-IN DIAGRAM, SHEET E-6.01 FOR MORE INFORMATION.
2	APPROXIMATE ROUTING OF 3"C AND PULL STRING FOR PV SYSTEM INFRASTRUCTURE.
3	EC SHALL PROVIDE (6) 4" CONDUITS ALONG THIS WALL.
4	PROVIDE AND INSTALL RECEPTACLE WITHIN 25'-0" OF UNIT HEATER PER NEC 210.63. EC TO CONNECT TO UNIT HEATER CIRCUIT.
5	EC SHALL PROVIDE 120V, 20A, HARD-WIRED POWER CONNECTION FOR BUILDING SIGNAGE. RUN 2#12, 1#12G, IN 3/4"C. COORDINATE EXACT HEIGHT AND LOCATION WITH TI ARCHITECT PRIOR TO ROUGH-IN.
6	EC SHALL PROVIDE 120V, 45A CONNECTION FOR MOTORIZED OVERHEAD DOOR. PROVIDE LOCAL 60A/1P FUSED DISCONNECT AND RUN 2#6, 1#10G, IN 1"C. COORDINATE EXACT ELECTRICAL CONNECTION REQUIREMENTS AND LOCATION WITH APPROVED SHOP DRAWINGS.

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

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Sheet Name
OVERALL ELECTRICAL PLAN - BUILDING C - SOUTH

PLAN NORTH

E-102-C

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FEEDER SCHEDULE

KEY/ AMPS	FEEDER CONDUIT AND CONDUCTORS	KEY/ AMPS	FEEDER CONDUIT AND CONDUCTORS
SERVICE ENTRANCE FEEDERS		SDS XFMR FEEDERS (NOTE 1)	
400N	2[4#3/0, 2"C]	30S	4#10, 1#8G, 3/4"C
600N	2[4#350, 3"C]	50S	4#6, 1#8G, 1-1/4"C
800N	2[4#500, 3-1/2"C]	100S	4#1, 1#6G, 1-1/2"C
1000N	3[4#400, 3-1/2"C]	150S	4#1/0, 1#6G, 2"C
1200N	4[4#350, 3"C]	250S	4#250, 1#2G, 3"C
1600N	5[4#400, 3-1/2"C]	400S	2[4#3/0, 1#2G, 2"C]
2000N	6[4#400, 3-1/2"C]	500S	2[4#250, 1#1/0G, 3"C]
2500N	7[4#500, 3-1/2"C]	800S	2[4#500, 1#2/0G, 3-1/2"C]
3000N	8[4#500, 3-1/2"C]	1000S	3[4#400, 1#4/0G, 3-1/2"C]
3500N	10[4#500, 3-1/2"C]	1600S	5[4#400, 1#350G, 3-1/2"C]
4000N	11[4#500, 3-1/2"C]	2500S	7[4#500, 1#500G, 3-1/2"C]
EQUIPMENT FEEDERS			
20NG	4#12, #12G, 3/4"C	20G	3#12, #12G, 3/4"C
30NG	4#10, 1#10G, 3/4"C	30G	3#10, 1#10G, 3/4"C
40NG	4#8, 1#10G, 1"C	40G	3#8, 1#10G, 1"C
50NG	4#6, 1#10G, 1-1/4"C	50G	3#6, 1#10G, 1"C
60NG	4#4, 1#10G, 1-1/4"C	60G	3#4, 1#10G, 1"C
70NG	4#4, 1#8G, 1-1/4"C	70G	3#4, 1#8G, 1-1/4"C
80NG	4#3, 1#8G, 1-1/4"C	80G	3#3, 1#8G, 1-1/4"C
90NG	4#2, 1#8G, 1-1/2"C	90G	3#2, 1#8G, 1-1/4"C
100NG	4#1, 1#8G, 1-1/2"C	100G	3#1, 1#8G, 1-1/2"C
110NG	4#1, 1#6G, 2"C	110G	3#1, 1#6G, 1-1/2"C
125NG	4#1/0, 1#6G, 2"C	125G	3#1/0, 1#6G, 1-1/2"C
150NG	4#1/0, 1#6G, 2"C	150G	3#1/0, 1#6G, 1-1/2"C
175NG	4#2/0, 1#6G, 2"C	175G	3#2/0, 1#6G, 2"C
200NG	4#3/0, 1#6G, 2-1/2"C	200G	3#3/0, 1#6G, 2"C
225NG	4#4/0, 1#4G, 2-1/2"C	225G	3#4/0, 1#4G, 2"C
250NG	4#250, 1#4G, 3"C	250G	3#250, 1#4G, 2-1/2"C
300NG	4#350, 1#4G, 3"C	300G	3#350, 1#4G, 2-1/2"C
350NG	4#500, 1#3G, 3-1/2"C	350G	3#500, 1#3G, 3"C
400NG	2[4#3/0, 1#3G, 2-1/2"C]	400G	2[3#3/0, 1#3G, 2"C]
450NG	2[4#4/0, 1#2G, 2-1/2"C]	450G	2[3#4/0, 1#2G, 2"C]
500NG	2[4#250, 1#2G, 3"C]	500G	2[3#250, 1#2G, 2-1/2"C]
600NG	2[4#350, 1#1G, 3"C]	600G	2[3#350, 1#1G, 2-1/2"C]
700NG	2[4#500, 1#1/0G, 3-1/2"C]	700G	2[3#500, 1#1/0G, 3"C]
800NG	2[4#500, 1#1/0G, 3-1/2"C]	800G	2[3#500, 1#1/0G, 3"C]
1000NG	3[4#400, 1#2/0G, 3-1/2"C]	1000G	3[3#400, 1#2/0G, 3"C]
1200NG	4[4#350, 1#3/0G, 3"C]	1200G	4[3#350, 1#3/0G, 3"C]
1600NG	5[4#400, 1#4/0G, 3-1/2"C]	1600G	5[3#400, 1#4/0G, 3"C]
2000NG	6[4#400, 1#250G, 3-1/2"C]	2000G	6[3#400, 1#250G, 3"C]
GROUNDING CONDUCTORS		ABBREVIATIONS	
G8	1#8, 3/4" C	MECH	SEE MECH SCHEDULE
G6	1#6, 3/4" C	XFMR	SEE XFMR SCHEDULE
G4	1#4, 3/4" C		
G2	1#2, 3/4" C		
G10	1-1/0, 3/4" C		
G20	1-2/0, 3/4" C		
G30	1-3/0, 3/4" C		

NOTES:
1. FEEDER FOR SECONDARY OF SEPARATELY DERIVED SYSTEM (SDS). GROUND SIZE PER NEC 250.66.
2. ALL CONDUCTORS ARE SINGLE CONDUCTOR COPPER THWN UNLESS NOTED OTHERWISE. AMPACITY BASED ON NEC TABLE 310.16.
3. ALL CONDUITS ARE EMT UNLESS NOTED OTHERWISE, FILL RATIOS BASED ON NEC ANNEX C TABLE C1.

TRANSFORMER SCHEDULE - COPPER WINDINGS (2016 DOE EFFICIENCY STANDARDS)

KVA RATING	PRIMARY FLA	SECONDARY FLA	PRIMARY PROTECTION	PRIMARY FEEDER	SECONDARY PROTECTION	SECONDARY FEEDER	GROUNDING ELECTRODE CONDUCTOR (GEC)	TRANSFORMER IMPEDANCE	APPROX. DIMENSIONS HIGH	APPROX. DIMENSIONS WIDE	APPROX. DIMENSIONS DEEP	APPROX. WEIGHT	SPECIFIC NOTES
3	3.6	8.3	15A/3P	3#12, 1#12G, 3/4"C	15A/3P	4#12, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	15	15	11	140LBS	1,2
6	7.2	16.7	15A/3P	3#12, 1#12G, 3/4"C	20A/3P	4#12, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	15	15	11	145LBS	1,2
9	10.8	25.0	15A/3P	3#12, 1#12G, 3/4"C	30A/3P	4#10, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	20	20	15	245LBS	1,2
15	18.1	41.7	25A/3P	3#10, 1#10G, 3/4"C	50A/3P	4#6, 1#8G, 1-1/4"C	1#8, 3/4"C	2.88%	26	21.88	17.75	250LBS	
30	36.1	83.3	45A/3P	3#6, 1#10G, 1"C	100A/3P	4#1, 1#6G, 1-1/2"C	1#6, 3/4"C	2.56%	36.88	24.88	21.13	415LBS	
45	54.2	125.0	70A/3P	3#4, 1#8G, 1-1/4"C	150A/3P	4#1/0, 1#6G, 2"C	1#6, 3/4"C	3.44%	36.88	24.88	21.13	475LBS	
75	90.3	208.3	125A/3P	3#1, 1#6G, 1-1/2"C	250A/3P	4#250MCM, 1#2G, 3"C	1#2G, 3/4"C	3.21%	43	30.54	24	676LBS	
112.5	135.4	312.5	175A/3P	3#2/0, 1#6G, 2"C	400A/3P	2[4#3/0, 1#2G, 2-1/2"C]	1#2G, 3/4"C	3.63%	51	34.5	31.5	1263LBS	
150	180.5	416.7	225A/3P	3#4/0, 1#4G, 2"C	500A/3P	2[4#250MCM, 1#1/0G, 3"C]	1#1/0G, 3/4"C	3.39%	51	34.5	31.5	1410LBS	
225	270.8	625.0	350A/3P	3#500MCM, 1#3G, 3"C	800A/3P	2[4#500MCM, 1#2/0G, 3-1/2"C]	1#2/0G, 3/4"C	4.34%	60	38	33.5	1745LBS	
300	361.0	833.3	450A/3P	2[3#4/0, 1#2G, 3"C]	1000A/3P	3[4#400MCM, 1#3/0G, 3-1/2"C]	1#3/0G, 3/4"	3.48%	66.18	42.18	33.5	2354LBS	
500	601.7	1388.9	750A/3P	2[3#500MCM, 1#1/0G, 3"C]	1600A/3P	5[4#400MCM, 1#3/0G, 3-1/2"C]	1#3/0G, 3/4"	4.57%	60	56	36	3450LBS	1,2
750	902.5	2083.3	1200A/3P	3[3#350MCM, 1#3/0G, 3"C]	2500A/3P	7[4#500MCM, 1#3/0G, 3-1/2"C]	1#3/0G, 3/4"	4.57%	74	56	41	3950LBS	1,2

GENERAL NOTES:
A. ALL TRANSFORMERS ARE 480V, 3PHASE, DELTA PRIMARY AND 208Y/120V, 3PHASE SECONDARY.
B. ALL CONDUCTORS ARE THWN, COPPER, SEE PLANS FOR INCREASED CONDUCTOR SIZE DUE TO VOLTAGE DROP.
C. BONDING AND GROUNDING CONDUCTORS ARE TO BE INSTALLED PER NEC 250.30 - GROUNDING SEPERATELY DERIVED ALTERNATING CURRENT SYSTEMS.
D. WEIGHT SHOWN FOR REFERENCE ONLY, AND MAY VARY BY MANUFACTURER.

SPECIFIC NOTES:
A. TRANSFORMER IMPEDANCE IS THE ASSUMED VALUE AND IS USED FOR FAULT-CURRENT CALCULATIONS. IF SUBMITTED TRANSFORMER IS OF A DIFFERENT VALUE, REVISED CALCULATIONS MAY BE REQUIRED.
B. EC TO FIELD VERIFY WEIGHTS OF NON DOE 2016 AS THEY MAY VARY BY MANUFACTURER.

LIGHTNING PROTECTION SYSTEM NOTES

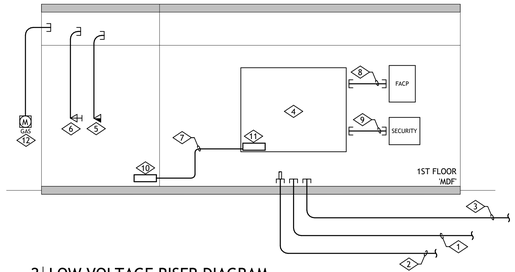
ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL A LIGHTNING PROTECTION SYSTEM WITH AN UNDERWRITER'S LABORATORIES LISTED MASTER C LABEL. REFER TO PERFORMACE SPECIFICATION SECTION 26 4113 FOR SYSTEM REQUIREMENTS. COORDINATE ALL GROUND ROD LOCATIONS ON ROOF WITH ARCHITECT WHILE DEVELOPING SUBMITTALS. COORDINATE ALL DOWN CONDUCTOR LOCATIONS WITH ARCHITECT AND MANUFACTURER DURING SUBMITTALS. SUBMITTALS REQUIRE FULL ROOF PLANS WITH ALL GROUND ROD (AND ALL OTHER EQUIPMENT) TO BE INDICATED FOR REVIEW PRIOR TO SUBMITTAL APPROVAL.

GENERAL NOTES

1. PROVIDE EMT FOR ALL CABLING ROUTED THROUGH AREAS WITH EXPOSED STRUCTURAL CEILINGS AND THROUGH INACCESSIBLE CEILINGS, COORDINATE CONDUIT SIZE REQUIREMENTS WITH CABLE INSTALLER.
2. ALL EXPOSED CONDUIT SHALL BE CONCEALED TO THE GREATEST EXTENT POSSIBLE, AND SHALL BE INSTALLED PARALLEL AND CLOSE TO STRUCTURAL MEMBERS, PAINT CONDUIT TO MATCH ADJACENT FINISHES.
3. PROVIDE PULLCORD FOR ALL CONDUIT INSTALLED FOR CABLE.
4. PROVIDE PULLBOXES AS REQUIRED BY ABLE INSTALLER FOR RUNS EXCEEDING MAXIMUM PULL DISTANCE, AS IDENTIFIED BY CABLE INSTALLER.
5. FOR ALL FREELY RUN ARMORED METALLIC FIBER OPTIC CABLING, CONTRACTOR SHALL GROUND CABLING ARMOR TO THE NEAREST PBB OR SBB.
6. PROVIDE SLEEVES AND CONDUIT BETWEEN FLOORS FOR ROUTING OF CABLE. COORDINATE CONDUIT SIZE WITH CABLE INSTALLER. COORDINATE LOCATION OF RACEWAY WITH ARCHITECT AND CABLE INSTALLER.
7. ALL CONDUIT AND CABLING IN CRAWL SPACE IS TO BE SUPPORTED BY AND TIGHT TO STRUCTURE ABOVE WHERE CONDUIT TRANSITIONS FROM BEING SUPPORTED BY STRUCTURE INTO SOIL. ADD LOOP AND/OR FLEXIBLE CONDUIT FOR ANTICIPATED SOIL MOVEMENT.
8. NOTE THAT ALL UNDERGROUND CONDUIT BENDS ARE TO BE GALVANIZED RIGID CONDUIT. UNDERGROUND CONDUIT EXTENDING ABOVE SLAB IS ALSO TO BE GALVANIZED RIGID CONDUIT. REFER TO SPECIFICATIONS FOR FULL CONDUIT REQUIREMENTS.

KEYNOTE LEGEND

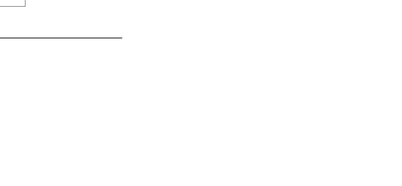
KEY VALUE	KEYNOTE TEXT
1.	NEW (1) 4" PVC CONDUIT ROUTED 30" BELOW GRADE FOR CONNECTION TO SITE TELEPHONE SERVICE POINT. ELECTRICAL CONTRACTOR SHALL VERIFY CONDUIT SIZING AND QUANTITY WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
2.	NEW (1) 2" PVC CONDUIT ROUTED 30" BELOW GRADE FOR CONNECTION TO SITE FIBER OPTIC SERVICE POINT. ELECTRICAL CONTRACTOR SHALL VERIFY CONDUIT SIZING AND QUANTITY WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
3.	NEW (1) 4" PVC CONDUIT ROUTED 30" BELOW GRADE FOR CONNECTION TO SITE CATV SERVICE POINT. ELECTRICAL CONTRACTOR SHALL VERIFY CONDUIT SIZING AND QUANTITY WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
4.	MAIN TELEPHONE TERMINAL BOARD 'MTTB' SHALL CONSIST OF 3/4", FIRE-RETARDANT TREATED PLYWOOD INSTALLED FLOOR TO CEILING IN ROOM, FOR LENGTHS AS INDICATED ON THE PLAN DRAWINGS. ALL RECEPTACLE DEVICES SHOWN IN BACKBOARD ON PLANS SHALL BE FLUSH MOUNT, UON.
5.	NEW TYPICAL WORK AREA COMMUNICATIONS OUTLET FOR STRUCTURED CABLE TERMINATIONS. PROVIDE 2" DEEP, 2-GANG BOX WITH 1-GANG PLASTER RING. PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING AND BUSH END. RECEPTACLE FACEPLATE, JACK, CABLING, AND TERMINATIONS BY OTHERS.
6.	NEW TYPICAL WORK AREA OUTLET FOR CABLE TV TERMINATION. PROVIDE 2" DEEP, 2-GANG BOX WITH 1-GANG PLASTER RING. PROVIDE 1-1/4" CONDUIT TO ACCESSIBLE CEILING AND BUSH END. CATV RECEPTACLE FACEPLATE, JACK, CABLING, AND TERMINATIONS BY OTHERS.
7.	PROVIDE #6AWG GREEN COPPER GROUNDING CONDUCTOR (TYPICAL) BETWEEN GROUNDING BUSSES AS INDICATED.
8.	ROUTE (1) 1/2" CONDUIT FOR FIRE ALARM CONTROL PANEL COMMUNICATIONS CABLING RACEWAY.
9.	ROUTE (1) 1/2" CONDUIT FOR SECURITY ALARM CONTROL PANEL COMMUNICATIONS CABLING RACEWAY.
10.	PRINCIPAL GROUND POINT NEAR ELECTRICAL SERVICE EQUIPMENT.
11.	TELECOMMUNICATIONS MAIN GROUNDING BAR 'TCMGB' FUNCTIONING AS INTERSYSTEM BONDING TERMINATION DEVICE, COMPLYING WITH NEC 250.94.
12.	PROVIDE (1) 1" RACEWAY WITH PULL STRING, FROM UTILITY GAS METER COMMUNICATIONS OUTLET TO MTTB, FOR STRUCTURED CABLE TERMINATION. PROVIDE 2" DEEP, 2-GANG BOX WITH 1-GANG PLASTER RING, FOR GAS TRANSPORT SERVICE METERING CONNECTION TO UTILITY PROVIDER'S TRANSLATION SYSTEM. PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING AND BUSH END. RECEPTACLE FACEPLATE, JACK, CABLING, AND TERMINATIONS BY OTHERS.



2 | LOW VOLTAGE RISER DIAGRAM
E-200-C | NTS

GROUNDING ELECTRODE SYSTEMS NOTES

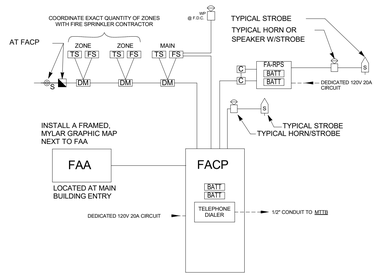
1. METAL UNDERGROUND WATER PIPE - MAKE CONNECTION TO METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 10' OR AND ELECTRICALLY CONTINUOUS TO THE POINTS OF CONNECTION TO THE GROUNDING ELECTRODE CONDUCTOR AND BONDING CONDUCTORS. CONNECTION POINT TO BE AT A MAXIMUM OF 5' OF THE POINT OF ENTRANCE ON THE INTERIOR OF THE BUILDING.
2. BUILDING STEEL - THE METAL FRAME OF THE BUILDING OR STRUCTURE, WHERE ANY OF THE FOLLOWING METHODS ARE USED TO MAKE AN EARTH CONNECTION:
   A. AT LEAST ONE STRUCTURAL METAL MEMBER THAT IS IN DIRECT CONTACT WITH THE EARTH FOR 10' OR MORE, WITH OR WITHOUT CONCRETE ENCASEMENT.
   B. HOLD-DOWN BOLTS SECURING THE STRUCTURAL STEEL COLUMN THAT ARE CONNECTED TO A CONCRETE ENCASED ELECTRODE THAT COMPLIES WITH 250.52(A)(3) AND IS LOCATED IN THE SUPPORT FOOTING OR FOUNDATION. THE HOLD-DOWN BOLTS SHALL BE CONNECTED TO THE CONCRETE-ENCASED ELECTRODE BY WELDING, EXOTHERMIC WELDING, THE USUAL STEEL TIE WIRES, OR OTHER APPROVED MEANS.
3. UFER GROUND (CONCRETE-ENCASED ELECTRODE) - AN ELECTRODE ENCASED BY AT LEAST 2" OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH, CONSISTING OF AT LEAST 20' OF ONE OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2" IN DIAMETER, OR CONSISTING OF AT LEAST 20' OF BARE COPPER CONDUCTOR NOT SMALLER THAN NO. 4 AWG. REINFORCING BARS SHALL BE PERMITTED TO BE BONDED TOGETHER BY THE USUAL STEEL TIE WIRES OR OTHER EFFECTIVE MEANS.
4. GROUND ROD - ROD IS TO BE 8FT IN LENGTH AND SHALL BE MADE OF IRON OR STEEL AT LEAST 5/8" DIAMETER. INSTALLATION METHODS FOR GROUND ROD SHALL BE IN COMPLIANCE WITH THE NEC SUCH THAT AT LEAST 8' OF LENGTH IS IN CONTACT WITH THE EARTH.



GENERAL GROUNDING NOTES

1. ALL CABLES TO BE TERMINATED ONTO BUS BAR WITH TWO HOLE COMPRESSION LUGS AND ATTACHED TO BUS BAR WITH TAB COMPRESSION BELLEVILLE WASHERS AND TORK BOLT ASSEMBLY.
2. ALL GROUND CONNECTORS SHALL BE STRANDED.
3. ALL BUS BARS SHALL BE ATTACHED TO SURFACE WITH NON-CONDUCTIVE STAND-OFFS.
4. GROUND BUS BAR AND GROUNDING SYSTEM SHALL BE UL LISTED AND COMPLY WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.

3 | ELEC DISTRIBUTION GROUNDING ONE-LINE DIAGRAM & NOTES
E-200-C | NTS



FIRE ALARM NOTE:
INFORMATION SHOWN IS FOR REFERENCE ONLY.

4 | FIRE ALARM DIGRAM
E-200-C | NO SCALE

FAULT CURRENT CALCULATION SCHEDULE

POINT	LOCATION DESCRIPTION	LENGTH (L) (ft)	VOLTAGE (EL-L)	VOLTAGE (EL-N)	PHASE	WIRE SIZE	CONDUCTOR MATERIAL	CONDUCTOR TYPE	CONDUIT MATERIAL	VOLTAGE CLASS	C VALUE	# OF PARALLEL RUNS	Isc AVAILABLE UPSTREAM	Isc AT EQUIP (3ph) OR (L-L)	POINT
F0	UTILITY XFMR												--	33,900	F0
F1	MAIN DISC	25	480	277	3	500	ALUMINUM	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	21390	10	33,900	33,422	F1
F2	200A DISC	5	480	277	3	3X	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	12843	1	33,422	31,923	F2
F3	PANEL H1-C	30	480	277	3	3X	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	12843	1	31,923	25,155	F3
F4	XFMR T1-C PRI	5	208	120	3	1	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	7292	1	25,155	21,996	F4
F5	XFMR T1-C SEC			----							----			5,751	F5
F6	PANEL L1-C	5	208	120	3	250	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	16483	1	5,751	5,669	F6
F7	FIRE PUMP CT	40	480	277	3	1X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	9317	1	33,900	22,227	F7
F8	FPCP	25	480	277	3	1X	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	8924	1	22,227	18,149	F8

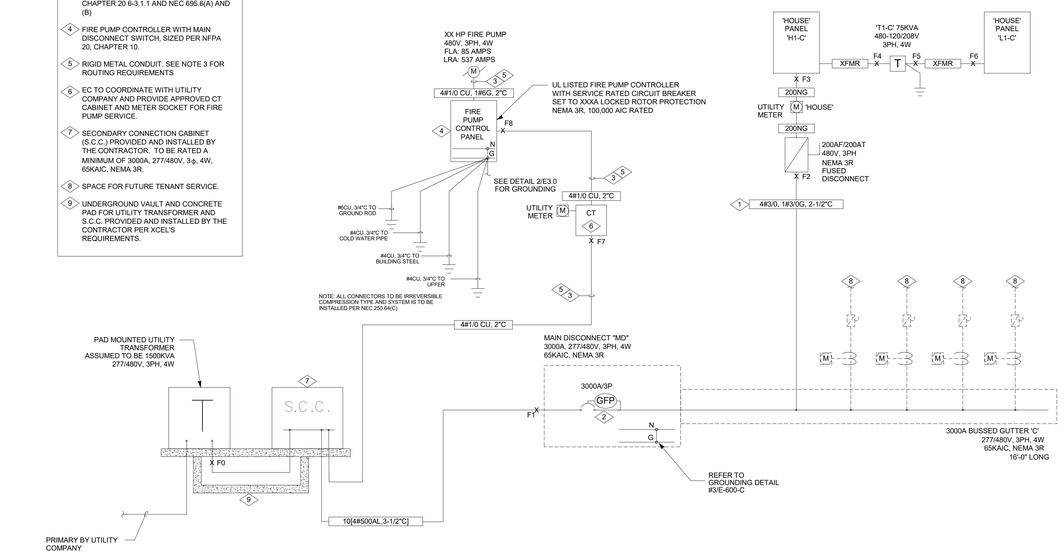
NOTES:
1. ALL CALCULATIONS WERE DONE USING BUSSMAN "POINT-TO-POINT" METHOD.
2. REFER TO PLANS FOR ASSUMED UTILITY TRANSFORMER SIZE UTILIZED FOR CALCULATIONS.
3. TRANSFORMER IMPEDANCES USED IN THE CALCULATIONS WERE TAKEN FROM EATON'S PUBLISHED IMPEDANCES FOR DOE 2016 DRY-TYPE TRANSFORMERS.
4. CONDUCTOR LENGTHS INDICATED IN THIS SCHEDULE ARE FOR THE PURPOSES OF FAULT CURRENT CALCULATIONS ONLY. THESE LENGTHS ASSUME WORST CASE SHORTEST DISTANCE CONDITIONS AND SHOULD NOT BE UTILIZED BY THE ELECTRICAL CONTRACTOR FOR BIDDING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND MEASURING ACTUAL FIELD CONDITION LENGTHS AS PART OF THE BID PROCESS.

DETAIL NOTES

1. FEEDER TAP IS NOT TO EXCEED 10 FEET, NEC 240.21(B)(1) AND THE EQUIPMENT GROUNDING CONDUCTOR IS TO BE SIZED PER 250.122(G).
2. PROVIDE ARC ENERGY REDUCTION FOR OCP RATED 1200A AND HIGHER.
3. SERVICE CONDUCTORS TO RUN "OUTSIDE OF BUILDING" - UNDER SLAB OR CONCRETE ENCASED PER NFPA CHAPTER 20 6-3.1.1 AND NEC 695.6(A) AND (B)
4. FIRE PUMP CONTROLLER WITH MAIN DISCONNECT SWITCH, SIZED PER NFPA 20, CHAPTER 10.
5. RIGID METAL CONDUIT. SEE NOTE 3 FOR ROUTING REQUIREMENTS
6. EC TO COORDINATE WITH UTILITY COMPANY AND PROVIDE APPROVED CT CABINET AND METER SOCKET FOR FIRE PUMP SERVICE.
7. SECONDARY CONNECTION CABINET (S.C.C.) PROVIDED AND INSTALLED BY THE CONTRACTOR. TO BE RATED A MINIMUM OF 3000A, 277/480V, 3-ϕ, 4W, 65KAIC, NEMA 3R.
8. SPACE FOR FUTURE TENANT SERVICE.
9. UNDERGROUND VAULT AND CONCRETE PAD FOR UTILITY TRANSFORMER AND S.C.C. PROVIDED AND INSTALLED BY THE CONTRACTOR PER XCEL'S REQUIREMENTS.

POWER GENERAL NOTES

A. ALL TRANSFORMERS ARE 480V, 3PH, DELTA PRIMARY AND 208Y/120V, 3 PHASE SECONDARY.
B. ALL CONDUCTORS ARE THWN, COPPER. SEE PLANS FOR INCREASED CONDUCTOR SIZE DUE TO VOLTAGE DROP.
C. BONDING AND GROUNDING CONDUCTORS ARE TO BE INSTALLED PER NEC 250.30 GROUNDING SEPARATELY DERIVED ALTERNATING CURRENT SYSTEMS.



1 | ELECTRICAL ONE-LINE DIAGRAM - BUILDING C
E-200-C | NO SCALE

MOA ARCHITECTURE
COLORADO | WYOMING
414 14TH STREET, SUITE 300
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COLORADO REGISTERED PROFESSIONAL ENGINEER 35717 08/15/2024

HELIX WEST - BUILDING C - CORE & SHELL
DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	ENM
Checked By:	BDJ, JEB

Sheet Name
ELECTRICAL ONE LINE DIAGRAM - BUILDING C

E-200-C

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MECHANICAL EQUIPMENT SCHEDULE - BUILDING C

KEY		EQUIPMENT DESCRIPTION	LOAD	ELECTRICAL	MOCP/MFS	FEEDER	DISCONNECT	PANEL	CIRCUIT	NOTES
EWH	1	ELECTRIC WALL HEATER	3000 W	208 V/1-3000 VA	15A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	11,13	1,2
EWH	2	ELECTRIC WALL HEATER	3000 W	208 V/1-3000 VA	15A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	15,17	1,2
SP	1	SUMP PUMP	1/2 HP	480 V/3-1584 VA	15A	3#12, 1#12G, 3/4"C	30A/3P	H1-C	1,3,5	
UH	1	GAS FIRED UNIT HEATER	3/4 HP	120 V/1-1656 VA	20A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	3	2
UH	2	GAS FIRED UNIT HEATER	3/4 HP	120 V/1-1656 VA	20A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	5	2
UH	3	GAS FIRED UNIT HEATER	3/4 HP	120 V/1-1656 VA	20A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	7	2
UH	4	GAS FIRED UNIT HEATER	3/4 HP	120 V/1-1656 VA	20A	2#12, 1#12G, 3/4"C	SEE NOTE	L1-C	9	2

MECHANICAL EQUIPMENT GENERAL NOTES

A.	REFER TO MECHANICAL PLANS FOR SPECIFIC EQUIPMENT LOCATIONS AND REQUIREMENTS.
B.	PRIOR TO ROUGH-IN, COORDINATE ALL MECHANICAL EQUIPMENT POWER AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR'S FINAL SHOP DRAWINGS.
C.	PROVIDE ALL 120V CONTROL WIRING, REFER TO SPECIFICATIONS FOR FURTHER CONTROL WIRING CLARIFICATION.
D.	FOR ANY VAV SYSTEM COORDINATE POWER REQUIREMENTS WITH MECHANICAL CONTRACTOR AND PROVIDE 120V CONNECTIONS AT EACH VAV BOX, OR AT CENTRAL CONTROL PANEL LOCATION(S) AS REQUIRED. IF EXACT QUANTITIES AND LOCATIONS FOR CONTROL PANELS ARE NOT KNOWN AT BID TIME, E.C. IS TO INCLUDE ONE 120V CONNECTION AT EACH VAV DEVICE IN THE BASE BID PRICE AND PROVIDE A CREDIT DURING CONSTRUCTION IF LESS CONNECTIONS ARE REQUIRED.
E.	EXTERIOR DISCONNECT SWITCHES ARE TO BE PROVIDED AS NEMA 3R EQUIPMENT UNLESS OTHERWISE NOTED.
F.	PROVIDE WEATHERPROOF 120 VOLT GFCI RECEPTACLES WITHIN 25' OF ALL ROOFTOP HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT. CIRCUIT TO SPARE CIRCUIT ON NEAREST 120V PANELBOARD OR AS INDICATED ON PLANS.
G.	PROVIDE DUCT DETECTION ON ALL RETURN AIR SYSTEMS OF 2,000 CFM OR GREATER, AND FOR ALL SUPPLY AIR SYSTEMS 15,000 CFM OR GREATER, INCLUDING THOSE SYSTEMS SERVING MULTIPLE FLOORS. PROVIDE ADDITIONAL DUCT DETECTORS AND INSTALL REMOTE INDICATOR LIGHTS AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
H.	EC TO PROVIDE HAND/OFF/AUTO STARTERS FOR ALL MOTORS WHEN NOT INDICATED AS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR ON THE MECHANICAL PLANS. SIZE OF STARTER TO BE BASED UPON SIZE OF MOTOR HORSEPOWER INDICATED.

MECHANICAL EQUIPMENT SPECIFIC NOTES

1.	UNIT PROVIDED WITH FACTORY INSTALLED DISCONNECT SWITCH.
2.	MOUNT ON WALL.

PANEL: H1-C

LOCATION: ELEC. 102
SUPPLY FROM:
MOUNTING: Surface
ENCLOSURE: Type 1

VOLTS: 480/277 Wye
PHASES: 3
WIRES: 4

A.I.C. RATING: 25K AIC
MAINS TYPE: MLO
MAINS RATING: 225 A
MCB RATING: N/A

Notes:

CKT	LOAD TYPE	LOAD DESCRIPTION	TRIP	POLES	CB TYPE	A		B		C		CB TYPE	POLES	TRIP	LOAD DESCRIPTION	LOAD TYPE	CKT
1	E	SP-1	15	3		528	1736						1	20	LTG - EXTERIOR AREA POLES SOUTH	L	2
3	--	--	--	--				528	2976				1	20	LTG - EXTERIOR AREA POLES NORTH	L	4
5	--	--	--	--						528	80		1	20	LTG - EXTERIOR DOWNLIGHTS	L	6
7	--	SPARE	20	1		0	1080						1	20	LTG - EXTERIOR BLDG	L	8
9	--	SPARE	20	1				0	1296				1	20	LTG - EXTERIOR BLDG	L	10
11	--	SPARE	20	1						0	143		1	20	LTG - EXTERIOR BLG EM	L	12
13	--	SPARE	20	1		0	185						1	20	LTG - WATER ENTRY & ELEC RM	L	14
15	--	SPARE	20	1				0	0				1	20	SPARE	--	16
17	--	SPARE	20	1						0	--		1	--	BUSSED SPACE	--	18
19	--	SPARE	20	1		0	--						1	--	BUSSED SPACE	--	20
21	--	SPARE	20	1				0	--				1	--	BUSSED SPACE	--	22
23	--	SPARE	20	1						0	--		1	--	BUSSED SPACE	--	24
25	--	BUSSED SPACE	--	1		--	--						1	--	BUSSED SPACE	--	26
27	--	BUSSED SPACE	--	1				--	--				1	--	BUSSED SPACE	--	28
29	--	BUSSED SPACE	--	1						--	--		1	--	BUSSED SPACE	--	30
31	--	BUSSED SPACE	--	1		--	--						1	--	BUSSED SPACE	--	32
33	--	BUSSED SPACE	--	1				--	--				1	--	BUSSED SPACE	--	34
35	--	BUSSED SPACE	--	1						--	--		1	--	BUSSED SPACE	--	36
37	--	BUSSED SPACE	--	1		--	11516						3	125	PANEL L1-C	L; E;...	38
39	--	BUSSED SPACE	--	1				--	10352				--	--	--	--	40
41	--	BUSSED SPACE	--	1						--	9696		--	--	--	--	42
		Total Load:				15045 VA		15152 VA		10447 VA							
		Total Amps:				57 A		57 A		38 A							

CB TYPE LEGEND

GFCI: 5mA GROUND FAULT CIRCUIT INTERRUPTER
GFEP: 30mA GROUND FAULT PROTECTION FOR EQUIPMENT
AFCI: ARC FAULT CIRCUIT INTERRUPTER
CAFCI: COMBINATION ARC FAULT & 5mA GROUND FAULT CIRCUIT INTERRUPTER
HC(-ON/OFF): HANDLE CLAMP FOR LOCKING IN ON/OFF POSITION
HT#: HANDLE TIE WITH GROUPING #
ST: SHUNT TRIP
LOCK: PERMANENTLY LOCKABLE BREAKER

CIRCUIT PHASE CODE LEGEND

N1. EXISTING LOAD ON EXISTING CIRCUIT BREAKER.
N2. NEW LOAD ON EXISTING CIRCUIT BREAKER.
N3. NEW LOAD ON NEW CIRCUIT BREAKER. CIRCUIT BREAKER AND AIC RATING TO MATCH EXISTING.

LOAD TYPE:	LOAD	DEMAND LOAD	PANEL TOTALS	
LIGHTING:	10496 VA	13120 VA		
RECEPTACLE:	1980 VA	1980 VA	TOTAL CONN. LOAD:	40644 VA
MOTOR:	12960 VA	14040 VA	TOTAL EST. LOAD:	44348 VA
EQUIPMENT:	15208 VA	15208 VA	TOTAL CONN.:	49 A
KITCH EQUIP:			TOTAL EST. DEMAND:	53 A
CONTINUOUS:				
EXISTING:				

NOTES:

PANEL: L1-C

LOCATION: ELEC. 102
SUPPLY FROM: T1-C
MOUNTING: Surface
ENCLOSURE: Type 1

VOLTS: 120/208 Wye
PHASES: 3
WIRES: 4

A.I.C. RATING: 10K AIC
MAINS TYPE: MCB
MAINS RATING: 250 A
MCB RATING: 250 A

Notes:

CKT	LOAD TYPE	LOAD DESCRIPTION	TRIP	POLES	CB TYPE	A		B		C		CB TYPE	POLES	TRIP	LOAD DESCRIPTION	LOAD TYPE	CKT
1	L	MONUMENT SIGN	20	1		3000	0						1	20	SPARE	--	2
3	E; R	UH-1	20	1				1836	0				1	20	SPARE	--	4
5	E; R	UH-2	20	1						1836	0		1	20	SPARE	--	6
7	E; R	UH-3	20	1		1836	0						1	20	SPARE	--	8
9	E; R	UH-4	20	1				1836	0				1	20	SPARE	--	10
11	E	EWH-1	15	2						1500	0		1	20	SPARE	--	12
13	--	--	--	--		1500	0						1	20	SPARE	--	14
15	E	EWH-2	15	2				1500	0				1	20	SPARE	--	16
17	--	--	--	--						1500	0		1	20	SPARE	--	18
19	E	RELAY PANEL - RP1	20	1		500	0						1	20	SPARE	--	20
21	E	FACP	20	1				500	0				1	20	SPARE	--	22
23	R	RCPTS - WATER ENTRY & ELEC RM	20	1						540	0		1	20	SPARE	--	24
25	R	IT EQUIPMENT	20	1		360	0						1	20	SPARE	--	26
27	R	IT EQUIPMENT	20	1				360	0				1	20	SPARE	--	28
29	M	OVERHEAD DOOR	45	1						4320	0		1	20	SPARE	--	30
31	M	OVERHEAD DOOR	45	1		4320	0						1	20	SPARE	--	32
33	M	OVERHEAD DOOR	45	1				4320	0				1	20	SPARE	--	34
35	--	SPARE	20	1						0	0		1	20	SPARE	--	36
37	--	BUSSED SPACE	--	1		--	--						1	--	BUSSED SPACE	--	38
39	--	BUSSED SPACE	--	1				--	--				1	--	BUSSED SPACE	--	40
41	--	BUSSED SPACE	--	1						--	--		1	--	BUSSED SPACE	--	42
		Total Load:				11516 VA		10352 VA		9696 VA							
		Total Amps:				97 A		87 A		81 A							

CB TYPE LEGEND

GFCI: 5mA GROUND FAULT CIRCUIT INTERRUPTER
GFEP: 30mA GROUND FAULT PROTECTION FOR EQUIPMENT
AFCI: ARC FAULT CIRCUIT INTERRUPTER
CAFCI: COMBINATION ARC FAULT & 5mA GROUND FAULT CIRCUIT INTERRUPTER
HC(-ON/OFF): HANDLE CLAMP FOR LOCKING IN ON/OFF POSITION
HT#: HANDLE TIE WITH GROUPING #
ST: SHUNT TRIP
LOCK: PERMANENTLY LOCKABLE BREAKER

CIRCUIT PHASE CODE LEGEND

N1. EXISTING LOAD ON EXISTING CIRCUIT BREAKER.
N2. NEW LOAD ON EXISTING CIRCUIT BREAKER.
N3. NEW LOAD ON NEW CIRCUIT BREAKER. CIRCUIT BREAKER AND AIC RATING TO MATCH EXISTING.

LOAD TYPE:	LOAD	DEMAND LOAD	PANEL TOTALS	
LIGHTING:	3000 VA	3750 VA		
RECEPTACLE:	1980 VA	1980 VA	TOTAL CONN. LOAD:	31564 VA
MOTOR:	12960 VA	14040 VA	TOTAL EST. LOAD:	33394 VA
EQUIPMENT:	13624 VA	13624 VA	TOTAL CONN.:	88 A
KITCH EQUIP:			TOTAL EST. DEMAND:	93 A
CONTINUOUS:				
EXISTING:				

NOTES:

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moaarch.com

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aedesign-inc.com Proj #:8222.01

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
35717
08/15/2024

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	ENM
Checked By:	BDJ, JEB

Sheet Name
ELECTRICAL SCHEDULES - BUILDING C

E-300-C

8/5/2024 4:17:11 PM

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTAGE	LAMP QUAN.	LAMP WATTAGE	LAMP / CCT / CRI	MAX WATTAGE	LUMEN OUTPUT	DIMMING / MIN LEVEL	FIXTURE FINISH	MOUNTING	BOF/RFD/OFH	NOTES
S2	8-FOOT LINEAR SUSPENDED LED, ROUND DIFFUSE LENS	LITHONIA	CLX-L96-6000LM-SEF-RDL-MVOLT-GZ10-35K-80CRI-WH	277 V	1	37 W	LED / 3500K / 80	37 VA	5897	0-10V	WHITE	SUSPENDED CEILING	12'-0" BOF	
S2EM	8-FOOT LINEAR SUSPENDED LED, ROUND DIFFUSE LENS, EMERGENCY BATTERY BACKUP	LITHONIA	CLX-L96-6000LM-SEF-RDL-MVOLT-GZ10-35K-80CRI-PS1050-WH	277 V	1	37 W	LED / 3500K / 80	37 VA	5897	0-10V	WHITE	SUSPENDED CEILING	12'-0" BOF	
X1	EDGE LIT LED EXIT SIGN, GREEN LETTERING, NICKEL CADMIUM BATTERY	LITHONIA	EDG-W-1-G-EL	277 V	1	3 W	LED	3 VA	N/A	N/A	WHITE	VARIES	CENTER ABOVE DOOR	
EA1	EXTERIOR LED AREA POLE LIGHT, SINGLE HEAD TYPE II, HOUSE SIDE SHIELD	LITHONIA	DSX1-LED-P4-30K-80CRI-T2M-MVOLT-HS-DBLXD	277 V	1	124 W	LED / 3000K / 80	124 VA	15849	SWITCHING	BLACK	POLE	30'-0" OFH	1
EA2	EXTERIOR LED AREA POLE LIGHT, DUAL HEAD TYPE II	LITHONIA	DSX1-LED-P4-30K-80CRI-T2M-MVOLT-DBLXD	277 V	1	248 W	LED / 3000K / 80	248 VA	31698	SWITCHING	BLACK	POLE	30'-0" OFH	1
EA3	EXTERIOR LED AREA POLE LIGHT, SINGLE HEAD TYPE IV BACKLIGHT CONTROL	LITHONIA	DSX1-LED-P4-30K-80CRI-BLC4-MVOLT-DBLXD	277 V	1	124 W	LED / 3000K / 80	124 VA	15849	SWITCHING	BLACK	POLE	30'-0" OFH	1
EA4	EXTERIOR LED AREA POLE LIGHT, SINGLE HEAD TYPE II	LITHONIA	DSX1-LED-P4-30K-80CRI-T2M-MVOLT-DBLXD	277 V	1	124 W	LED / 3000K / 80	124 VA	15849	SWITCHING	BLACK	POLE	30'-0" OFH	1
ED1	RECESSED LED DOWNLIGHT	LITHONIA	LDN6-35/10-L06-WR-TRW-MVOLT-GZ10	277 V	1	10 W	LED / 3500K / 80	10 VA	950	SWITCHING	WHITE	RECESSED CEILING	6-7/16" RFD	
ED1EM	RECESSED LED DOWNLIGHT WITH EMERGENCY BATTERY BACKUP	LITHONIA	LDN6-35/10-L06-WR-TRW-MVOLT-GZ10	277 V	1	10 W	LED / 3500K / 80	10 VA	950	SWITCHING	WHITE	RECESSED CEILING	6-7/16" RFD	
EW1EM	WALL MOUNTED LED SCONCE WITH EMERGENCY BATTERY BACKUP	LITHONIA	WST-LED-P1-30K-VW-MVOLT-E7WH	277 V	1	11 W	LED / 3000K / 70	11 VA	1548	SWITCHING	BLACK	SURFACE MOUNTED	12'-10" BOF	1
EW2	WALL MOUNTED LED SCONCE	LITHONIA	DSX1-LED-P8-30K-80CRI-TFTM-MVOLT	277 V	1	216 W	LED / 3000K / 80	216 VA	27485	SWITCHING	BLACK	SURFACE MOUNTED	25'-0" BOF	1

LIGHTING FIXTURE GENERAL NOTES

A.	BOF = BOTTOM OF FIXTURE HEIGHT, RFD = RECESSED FIXTURE DEPTH, OFH = OVERALL FIXTURE HEIGHT
B.	LUMENS LISTED ARE DELIVERED LUMENS, NOT INITIAL.
C.	FOR ALL SPECIFIED LUMINAIRES, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MOUNTING HARDWARE, ACCESSORIES, COMPONENTS, LEADER/JUMPER CABLES, WIRE FEED, CONNECTORS, END CAPS, REMOTE POWER SUPPLIES, AND ANY OTHER NECESSARY COMPONENT AS REQUIRED FOR INSTALLING A SECURE AND FULLY FUNCTIONAL SYSTEM.
D.	THE CONTRACTOR SHALL VERIFY THE CEILING TYPE BEFORE ORDERING LIGHT FIXTURES TO ENSURE COMPATIBILITY WITH SPECIFIED FIXTURES. NOTIFY SPECIFIER OF ANY DISCREPANCIES.
E.	ALL FINISH SELECTIONS SHALL BE VERIFIED BE ARCHITECT/INTERIOR DESIGNER/OWNER AS PART OF THE SUBMITTAL PROCESS. UNLESS OTHERWISE NOTED, EC SHALL ASSUME STANDARD LUMINAIRE FINISH OPTION FOR PRICING.
F.	ALL MOUNTING HEIGHTS SHALL BE VERIFIED WITH ARCHITECTURAL ELEVATIONS PRIOR TO ANY ROUGH-IN.

LIGHTING FIXTURE SPECIFIC NOTES

1.	CONFIRM FIXTURE FINISH WITH OWNER/ARCHITECT PRIOR TO ORDERING.

LIGHTING SEQUENCE OF OPERATION

CONTROL SEQUENCE	ON	OFF	SENSOR TYPE	TIME OUT	DIMMING	CONTROLLED RECEPTACLE	DAYLIGHT HARVESTING	TARGET ILLUMINANCE (FC)	NOTES
ET1	TIMECLOCK AUTOMATIC ON 30 MINUTES PRIOR TO SUNSET	TIMECLOCK AUTOMATIC OFF 30 MINUTES AFTER SUNRISE	NONE	N/A	SWITCHING	NO	NO	--	
M1	MANUAL ON	MANUAL OFF	NONE	N/A	SWITCHING	NO	NO	--	

LIGHTING RELAY SCHEDULE - RP1 - BUILDING C

RELAY ID	RELAY DESCRIPTION	DIMMING / SWITCHING	VOLTAGE	PANEL-CIRCUIT	CONTROL SEQUENCE
RP1-1	EXTERIOR AREA LIGHTS SOUTH	SWITCHING	277 V	H1-C-2	ET1
RP1-2	EXTERIOR BUILDING MOUNTED EM LIGHTS	SWITCHING	277 V	H1-C-12	ET1
RP1-3	EXTERIOR AREA LIGHTS NORTH	SWITCHING	277 V	H1-C-4	ET1
RP1-4	EXTERIOR MONUMENT SIGN	SWITCHING	277 V	L1-C-1	ET1
RP1-5	EXTERIOR BUILDING MOUNTED LIGHTS	SWITCHING	277 V	H1-C-8	ET1
RP1-6	EXTERIOR BUILDING MOUNTED LIGHTS	SWITCHING	277 V	H1-C-10	ET1
RP1-7	ENTRY DOWNLIGHTS	SWITCHING	277 V	H1-C-6	ET1
RP1-8	SPARE	SWITCHING	277 V		

LIGHTING CONTROLS NAMING CONVENTION

SYSTEM TYPE:
N = NETWORKED
R = ROOM CONTROLLER
W = WIRELESS
- THE ABSENCE OF LETTERS UNDER 'SYSTEM TYPE' INDICATES A WIRED STANDALONE SYSTEM
- THE ABSENCE OF 'W' MEANS THE SYSTEM IS WIRED

SENSOR TYPE:
O = OCCUPANCY
V = VACANCY
P = PHOTOCELL

DEVICES:
D = DIMMER
S = SWITCH
H = HUB
U = UNIQUE DEVICE TYPE

NUMBERING:
1,2,3... = QUANTITY AS REQUIRED FOR DIFFERENT HARDWARE, DEVICE CHARACTERISTICS, OR MOUNTING CONDITIONS.

LIGHTING CONTROL NOTES

GENERAL CONTROL NOTES

G1	THE LIGHTING CONTROL SYSTEM CONSISTS OF THE FOLLOWING: a. STAND-ALONE CONTROLS b. NETWORKED RELAY BASED LIGHTING CONTROL PANEL SYSTEM
G2	ALTERNATE MANUFACTURER'S WILL BE REVIEWED ACCORDING TO THE NOTES PROVIDED IN THE LIGHTING FIXTURE SCHEDULE.
G3	ALL WIRING DIAGRAMS WITHIN THESE DRAWINGS ARE PROVIDED TO COMMUNICATE THE DESIGN INTENT. SYSTEM SHALL BE WIRED ACCORDING TO THE APPROVED SHOP DRAWINGS.
G4	ALL STRUCTURED CABLE WIRING SHOWN ON RISER DIAGRAMS IS INTENDED TO BE BY CONTROL MANUFACTURER APPROVED STANDARD STRUCTURED CABLING, UNLESS OTHERWISE NOTED. EC SHALL PROVIDE ALL CABLING WITHIN THE LIGHTING CONTROL SYSTEM, CABLING BETWEEN THE NETWORKED HEAD-END AND THE BUILDINGS COMMUNICATION NETWORK SHALL BE PROVIDED BY THE LOW VOLTAGE CONTRACTOR/OWNER.
G5	ALL MANUALLY DIMMED LIGHT LOADS SHALL BE CAPABLE OF DIMMING LIGHTS TO OFF SETTING. DIMMING COMPATIBILITY BETWEEN THE CONTROLS AND LIGHT FIXTURES SHALL BE COORDINATED BY THE EC TO ENSURE THAT LIGHTING IS ABLE TO DIM TO LEVEL NOTED ON LIGHTING FIXTURE SCHEDULE.
G6	LIGHTING CONTROL SYSTEM SHALL INCLUDE A MINIMUM OF (4) HOURS OF MANUFACTURER'S REPRESENTATIVE TIME ON SITE FOR SYSTEM CHECK-OUT AND OWNER TRAINING. ELECTRICAL CONTRACTOR SHALL VIDEO RECORD TRAINING SESSION AND PROVIDE COPY OF VIDEO TO OWNER AS PART OF PROJECT COMPLETION SUBMITTALS.
G7	ALL DIGITAL SWITCHES FOR OVERRIDE CONTROL OF LIGHTING CONTROL SYSTEM(S) SHALL HAVE A MAXIMUM SETTING OF 2 HOURS PER IECC REQUIREMENTS.
G8	FINAL OCCUPANCY AND DAYLIGHT SENSOR LOCATION SHALL BE PROVIDED BY MANUFACTURER AND LOCATED PER APPROVED SHOP DRAWINGS AND DEVICE REQUIREMENTS. LOCATIONS INDICATED IN THESE DRAWINGS SHALL BE REVIEWED AND ALTERED AS NECESSARY FOR CORRECT OPERATION BY MANUFACTURER. IF OPERATIONS OF SENSORS DOES NOT MEET THE INTENT OUTLINED IN THESE DOCUMENTS THE MANUFACTURER REPRESENTATIVE SHALL PROVIDE FIELD RECTIFICATION SERVICES AS NECESSARY IN ORDER TO RECONFIGURE SYSTEM TO MEET OUTINED INTENT.
G9	OCCUPANCY SENSORS SHALL BE COORDINATED SUCH THAT THE MOUNTING IS NOT WITHIN 6' OF AIR RETURN SYSTEMS.
G10	PHOTOCELL SENSORS SHALL BE COORDINATED SUCH THAT THE DEVICE(S) ARE NOT WITHIN PROXIMATY TO INDIRECT LIGHTING OR WHERE SUBJECT TO VEILING REFLECTIONS FROM GLASS OR WATER SURFACES.
G11	WHERE APPLICABLE, WALLSTATIONS WITH MORE THAN ONE GANG SHALL BE CONGREGATED TOGETHER UNDER A SINGLE FACEPLATE, UON.

STANDALONE LIGHTING CONTROL GENERAL NOTES

S1	APPROVED STANDALONE LIGHTING CONTROLS TO BE PROVIDED BY ONE OF THE FOLLOWING PRE-APPROVED MANUFACTURERS: a. LEVITON b. nLIGHT/SENSORSWITCH c. LUTRON d. GREENGATE e. WATTSTOPPER f. DOUGLAS

NETWORKED RELAY BASED LIGHTING CONTROL PANEL SYSTEM

N1	APPROVED NETWORKED RELAY BASED LIGHTING CONTROLS TO BE PROVIDED BY ONE OF THE FOLLOWING PRE-APPROVED MANUFACTURERS: a. CRESTRON b. nLIGHT c. LUTRON e. WATTSTOPPER f. DOUGLAS
N2	REFER TO ELECTRICAL LIGHTING LAYOUTS FOR LAYOUT OF DEVICES CONNECTED TO DISTRIBUTED LIGHTING CONTROL SYSTEM. DISTRIBUTED COMPONENTS ARE INDICATED IN THE "LIGHTING CONTROL DEVICE" SCHEDULE, THESE COMPONENTS START WITH THE DESIGNATION 'N'.
N3	RELAY BASED CONTROL PANELS SHALL BE PROVIDED BASED ON THE QUANTITY OF RELAYS INDICATED IN THE SYSTEM RISER DIAGRAM. COMPONENTS PROVIDED SHALL BE CAPABLE OF PROVIDING FUNCTIONALITY IN ACCORDANCE WITH 'SEQUENCE OF OPERATIONS' SCHEDULE.
N4	LIGHTING CONTROL SYSTEM SHALL BE DIGITAL AND CONSIST OF A MASTER LIGHTING CONTROL PANEL AND ADDITIONAL SLAVE LIGHTING CONTROL PANELS. REFER TO RELAY PANEL SCHEDULE FOR DIMMING REQUIREMENTS.
N5	RELAY PANELS SHALL BE PRE-WIRED, PRE-ASSEMBLED, PRE-PROGRAMMED AND LISTED TO UL916 OR UL924 WHEN USED WITH CENTRAL INVERTER OR LIFE SAFETY GENERATOR (DEPENDING ON NORMAL OR EMERGENCY OPERATION). PANELS SHALL BE PROVIDED WITH DUAL VOLTAGE POWER SUPPLY AND 16 GAGE BARRIERS TO SEPARATE HIGHER AND LOWER VOLTAGES, NORMAL AND EMERGENCY POWER.
N6	ELECTRICAL CONTRACTOR SHALL COORDINATE PRE-PROGRAMMING SCHEDULE OF OPERATIONS WITH OWNER PRIOR TO PREPARING SUBMITTALS.
N7	STANDARD RELAYS SHALL HAVE A NORMALLY CLOSED (NC) CONTACT RATED FOR 120/277V, 20A. STANDARD RELAYS SHALL BE ZERO-CROSS TYPE, NO EXCEPTIONS.
N8	ALL INCANDESCENT LIGHTING RELAYS SHALL BE CONTROLLED BY A NC/SOFTSTART RELAY.
N9	RELAY PANEL ELECTRONICS SHALL PROVIDE CURRENT VISUAL STATUS AND CONTROL OF EACH RELAY OR ZONE. ALL SYSTEM CONTROL ELECTRONICS SHALL STORE PROGRAMMING IN A NON-VOLATILE MEMORY AND PROVIDE 10 YEAR BATTERY BACKUP FOR TIME OF DAY.
N10	LIGHTING CONTROL PANELS SHALL BE CONTROLLED BY A 32-CHANNEL DIGITAL TIMECLOCK (DTC) THAT CONTROLS AND PROGRAMS THE ENTIRE LIGHTING CONTROL SYSTEM. THE DTC SHALL SUPPLY ALL TIME FUNCTIONS AND ACCEPT OTHER INPUTS. THE DTC SHALL ACCEPT CONTROL LOCALLY USING BUILT IN BUTTON PROMPTS AND USE OF AN 8 LINE 21 LETTER DISPLY FORM A COMPUTER/ MODEM/ ETHERNET/ INTERNET. ALL COMMANDS SHALL BE IN ENGLISH.
N11	NETWORKED LIGHTING SWITCH INPUT LOCATIONS SHALL BE CAPABLE OF REMOTE PROGRAMMING.
N12	STANDARD LIGHTING CONTROL SYSTEM SOFTWARE, PRE-INSTALLED INTO THE DTC, SHALL CONSIST OF AND USE STANDARD GRAPHICAL MANAGEMENT SOFTWARE PAGES.

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aedesign-inc.com Proj #.S222.01

HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

REVISION	DATE
100% CD's	

Project Number	24140
Date	2024.08.15
Drawn By	ENM
Checked By:	BDJ, JEB

Sheet Name
ELECTRICAL LIGHTING SCHEDULES

E-400

8/5/2024 4:17:11 PM

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 6222.01 - Helix West - Building C
Project Type: New Construction

Construction Site:
Englewood, Colorado

Owner/Agent:

Designer/Contractor:
AE Design
1900 Wazee Street #205
Denver, Colorado 80202
720.248.9520

Additional Efficiency Package(s)

Credits: 10.0 Required 79.0 Proposed
Reduced lighting power, 79.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Warehouse	60000	0.45	27000
		Total Allowed Watts =	27000

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Warehouse				
LED: S2/S2EM: 8FT STRIP LIGHT: Other:	1	6	37	222
		Total Proposed Watts =		222

Interior Lighting PASSES: Design 99% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Erin Mahoney - Senior Project Engineer
Name - Title

Signature

08/15/2024
Date

COMcheck Software Version COMcheckWeb

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 6222.01 - Helix West - Building C
Project Type: New Construction
Exterior Lighting Zone 2 (Light industrial area with limited nighttime use (LZ2))

Construction Site:
Englewood, Colorado

Owner/Agent:

Designer/Contractor:
AE Design
1900 Wazee Street #205
Denver, Colorado 80202
720.248.9520

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Parking area	370902 ft2	0.04	Yes	14836
Pedestrian and vehicular entrances and exits	39 ft of	14	Yes	546
Walkway >= 10 feet wide	1479 ft2	0.1	Yes	148
			Total Tradable Watts (a) =	15530
			Total Allowed Watts =	15530
			Total Allowed Supplemental Watts (b) =	400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Parking area (370902 ft2): Tradable Wattage				
LED: EA1: AREA LIGHT: Other:	1	13	124	1612
LED: EA2: AREA LIGHT: Other:	1	10	248	2480
LED: EA3: AREA LIGHT: Other:	1	2	124	248
LED: EA4: AREA LIGHT: Other:	1	3	124	372
LED: EW2: WALL MOUNT: Other:	1	11	216	2376
Pedestrian and vehicular entrances and exits (39 ft of door width): Tradable Wattage				
LED: EW1EM: EM WALL SCONCE: Other:	1	13	11	143
Walkway >= 10 feet wide (1479 ft2): Tradable Wattage				
LED: ED1/ED1EM: DOWNLIGHTS: Other:	1	8	10	80
			Total Tradable Proposed Watts =	7311

Exterior Lighting PASSES: Design 54% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Erin Mahoney - Senior Project Engineer
Name - Title

Signature

08/15/2024
Date

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 85.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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HELIX WEST - BUILDING C - CORE & SHELL

DOUBLE HELIX COURT
ENGLEWOOD, COLORADO

COLORADO REGISTERED PROFESSIONAL ENGINEER
35717
08/15/2024

REVISION	DATE
100% CD's	

Project Number 24140
Date 2024.08.15
Drawn By ENM
Checked By: BDJ, JEB

Sheet Name
ELECTRICAL LIGHTING COMPLIANCE - BUILDING C

E-500-C

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