G:\Projects\4415\01\18 HHA 2025 Capital Fund Projects\4415\01\18 (11) 2026 Stewart Homes Concrete Repairs\03 Design - Drawings - Specs\3 - Revit 2025\4415018(11) Stewart Homes Concrete Repairs.rvt
7/1/2026 10:38:04 AM

HELENA HOUSING AUTHORITY

STEWART HOMES CONCRETE REPAIRS

LICENSED ARCHITECT
HELENA
STATE OF MONTANA
MONTANA
1066
2441
5412

CWG Architecture + Interiors

P.O. Box 1198 59624
650 Power Street
Helena, Montana 59601

Tel (406) 443-2340
Fax (406) 442-8565
cwg@cwg-architects.com

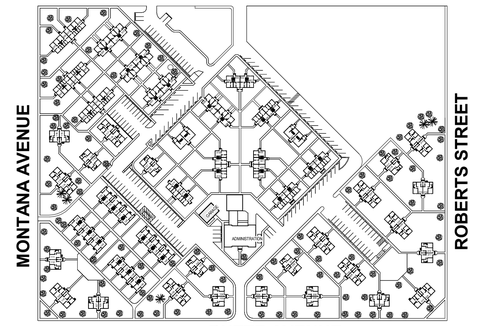
© 2022 Crossman-Whitney-Griffin, Inc.

GENERAL NOTES

1. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SIZES, QUANTITIES, AND LOCATIONS BEFORE BEGINNING WORK.
2. VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. ANY UTILITIES LOCATED ARE SHOWN APPROXIMATE AND SHOULD NOT BE USED TO DETERMINE THEIR LOCATION ON THE GROUND, AND DOES NOT RELIEVE ANY PERSON OR COMPANY OF THEIR RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION BY CALLING UTILITIES UNDERGROUND LOCATION CENTER AT 1-800-424-5555.
3. THERE ARE NO KNOWN HAZARDOUS MATERIALS STORED ON THE PREMISES AS DEFINED BY 2018 IBC.
4. PROJECT SHALL COMPLY WITH THE 2021 IBC, 2021 IEBC, ICC A117.1, 2021 IECC, 2021 UPC, 2021 IMC, 2021 IFC, 2021 IFGC, 2020 NEC .
5. ELECTRONIC DRAWING FILES ARE AVAILABLE FROM THE ARCHITECT, STRUCTURAL, MECHANICAL AND ELECTRICAL ENGINEERS AT $100.00 PER DRAWING & $25.00 FOR PDF. DRAWINGS WILL BE STRIPPED OF ALL DATA EXCEPT FOR BASIC PLAN OR SECTION INFORMATION. A WAIVER WILL NEED TO BE SIGNED AND RECEIVED PRIOR TO RELEASE OF DRAWING FILES.
6. IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATIONS OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMATION WITH THE BUILDING DESIGN. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

VICINITY MAP



ABBREVIATIONS

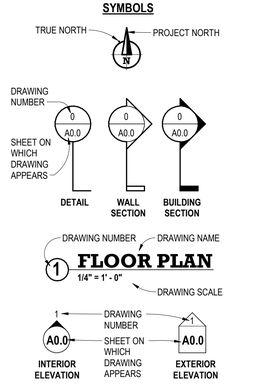
±	PLUS OR MINUS	GA	GAUGE
°	DEGREE	GALV	GALVANIZED
Ø	DIAMETER	GL	GLU-LAM
℄	CENTERLINE	GYP BD	GYPSUM BOARD
ACT	ACCOUSTICAL CEILING TILE	HM	HOLLOW METAL
		HORIZ	HORIZONTAL
ADJ	ADJUSTABLE	INSUL	INSULATION
AFF	ABOVE FINISH FLOOR	I&W	ICE & WATER SHIELD
ALT	ALTERNATE	MAX	MAXIMUM
ALUM	ALUMINUM	MDF	MEDIUM DENSITY FIBER BOARD
BD	BOARD	MECH	MECHANICAL
B.O.	BOTTOM OF	MFR	MANUFACTURER
BTM	BOTTOM	MIN	MINIMUM
BRG	BEARING	MISC	MISCELLANEOUS
CJ	CONTROL JOINT	MO	MASONRY OPENING
CLG	CEILING	MTL	METAL
CLR	CLEAR	NIC	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
		OC	ON CENTER
CO	CLEAN OUT	OCEW	ON CENTER EACH WAY
COL	COLUMN	OSB	ORIENTED STRAND BOARD
CONC	CONCRETE		
CONT	CONTINUOUS	PLWD	PLYWOOD
CPT	CARPET	PREFIN	PREFINISHED
CT	CERAMIC TILE	PT	PRESSURE TREATED
DBL	DOUBLE	RD	ROOF DRAIN
DF	DRINKING FOUNTAIN	REINF	REINFORC(ED)(ING)
DIA	DIAMETER	REQ'D	REQUIRED
DIM	DIMENSION	RO	ROUGH OPENING
DS	DOWNSPOUT	SCHD	SCHEDULE
(E)	EXISTING	SIM	SIMILAR
ELEC	ELECTRICAL	SPEC	SPECIFICATION
EQ	EQUAL	STL	STEEL
EQUIP	EQUIPMENT	STRUCT	STRUCTURAL
EXP	EXPANSION	SUSP	SUSPENDED
EXT	EXTERIOR	SV	SHEET VINYL
EW	EACH WAY	T.O.	TOP OF
FACT	FACTORY	TS	TUBE STEEL
FD	FLOOR DRAIN	TYP	TYPICAL
FDC	FIRE DEPARTMENT CONNECTION	VCT	VINYL COMPOSITION TILE
FE	FIRE EXTINGUISHER	VERT	VERTICAL
FEC	FIRE EXTINGUISHER CABINET	W/	WITH
FIN	FINISH	WD	WOOD
FLR	FLOOR	WDW	WINDOW
FDN	FOUNDATION		
FRP	FIBER REINFORCED PLASTIC		
FS	FLOOR SINK		
FTG	FOOTING		

PATTERNS & SYMBOLS

HATCH PATTERNS

- ADA CLEARANCE
- BATT INSUL
- EARTH
- GYP BD
- PLYWOOD
- SPRAY-FOAM INSULATION
- BLOWN-IN INSUL
- CONCRETE
- GRAVEL
- METAL STUDS
- RIGID INSULATION BOARD
- WOOD STUDS

SYMBOLS



SHEET LIST

GENERAL

G0.0	COVER SHEET
G2.1	ADA GENERAL DETAILS

ARCHITECTURAL

A0.1	SITE PLAN - OVERALL
A1.1	ENLARGED DEMO & NEW WORK PLANS
A1.2	ENLARGED DEMO & NEW WORK PLANS
A1.3	ENLARGED DEMO & NEW WORK PLANS & DETAILS

REVISIONS

#	DESCRIPTION	DATE

CITY PERMIT STAMP

HELENA HOUSING AUTHORITY

STEWART HOMES CONCRETE REPAIRS

4415-01-18 (11)

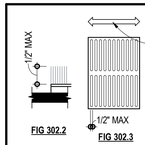
COVER SHEET

DATE 7/1/2026

G0.0

CWG Architecture + Interiors ©2023

G:\Projects\4415\01\8 HHA 2025 Capital Fund Projects\4415\01\8 (11) 2026 Stewart Homes Concrete Repair\03 Design - Drawings - Specs\3 - Revs\20250441501118 (11) Stewart Homes Concrete Repair.rvt
7/1/2026 10:38:09 AM



PREDOMINATE DIRECTION OF TRAVEL

1/2" MAX OPENINGS, EXCEPT AS ALLOWED IN 407.4.3, 408.4.3, 409.4, AND 805.10. LONG DIMENSION PERPENDICULAR TO PREDOMINANT PATH OF TRAVEL.

FIG 302.2 FIG 302.3

303.3 BEVELED
CHANGES BETWEEN 1/4" AND 1/2" TO BE BEVELED NOT STEEPER THAN 1:2

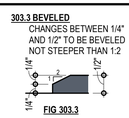
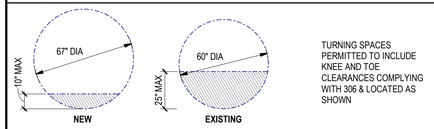


FIG 303.3

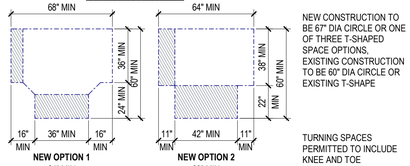
303.4 RAMPS
CHANGES GREATER THAN 1/2" TO BE RAMP COMPLYING WITH 405 OR 406.

1 SECTION 302 FLOOR SURFACES
SCALE: NTS

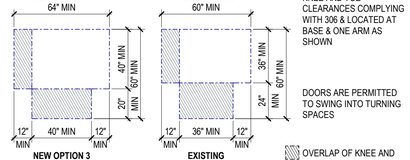


TURNING SPACES PERMITTED TO INCLUDE KNEE AND TOE CLEARANCES COMPLYING WITH 306 & LOCATED AS SHOWN

304.3.1 CIRCULAR SPACE



NEW CONSTRUCTION TO BE 67" DIA CIRCLE OR ONE OF THREE T-SHAPED SPACE OPTIONS. EXISTING CONSTRUCTION TO BE 60" DIA CIRCLE OR EXISTING T-SHAPE



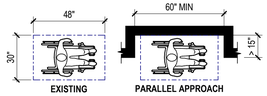
TURNING SPACES PERMITTED TO INCLUDE KNEE AND TOE CLEARANCES COMPLYING WITH 306 & LOCATED AT BASE & ONE ARM AS SHOWN

DOORS ARE PERMITTED TO SWING INTO TURNING SPACES

OVERLAP OF KNEE AND TOE CLEARANCE

304.3.2 T-SHAPED SPACE

2 SECTION 304 TURNING SPACE
SCALE: NTS



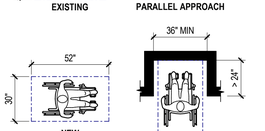
305.1
CLEAR FLOOR SPACE SHALL COMPLY WITH SECTION 305.

305.3
NEW SHALL BE 52" x 30", EXISTING SHALL BE 48" x 30".

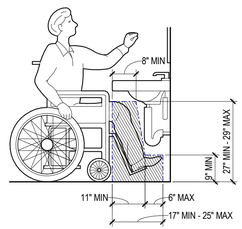
305.4
PERMITTED TO INCLUDE KNEE AND TOE CLEARANCE COMPLYING WITH SECTION 306.

305.6
ONE FULL AND UNOBSTRUCTED SIDE TO ADJOIN AN ACCESSIBLE ROUTE.

305.7
CLEAR FLOOR SPACE TO BE PARALLEL OR FRONT APPROACH.



3 SECTION 305 CLEAR FLOOR SPACE
SCALE: NTS



306.2 TOE CLEARANCE
TOE CLEARANCE IS THE SPACE BENEATH AN ELEMENT & THE FLOOR, 9" MAX HEIGHT

17" MIN AND 25" MAX DEEP BENEATH ELEMENT

SPACE GREATER THAN 6" BEYOND KNEE CLEARANCE NOT INCLUDED

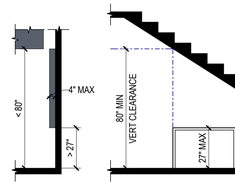
30" MIN IN WIDTH CENTERED ON THE ELEMENT

306.3 KNEE CLEARANCE
BETWEEN 9" AND 27" ABOVE FLOOR

MAX DEPTH OF 25" @ 9" AFF
MIN DEPTH OF 11" @ 9" AFF
MIN DEPTH OF 8" @ 27" AFF

30" MIN WIDTH CENTERED ON ELEMENT

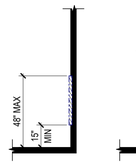
4 SECTION 306 TOE AND KNEE CLEARANCE
SCALE: NTS

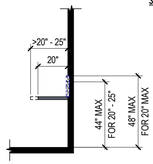


307 PROTRUDING OBJECTS
OBJECTS WITH LEADING EDGES > 27" AND < 80" AFF CAN PROTRUDE 4" MAX HORIZONTALLY INTO CIRCULATION PATH. HANDRAILS CAN PROTRUDE 4 1/2" MAX

307.4 VERTICAL CLEARANCE
VERTICAL CLEARANCE < 80" AFF SHALL HAVE BARRIER OR GUARD 27" MAX AFF. DOOR CLOSERS & STOPS 78" MIN AFF

5 SECTION 307 PROTRUDING OBJECTS
SCALE: NTS

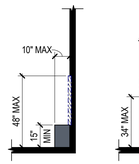


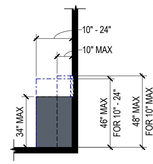


308.2 FORWARD REACH
UNOBSTRUCTED, HIGH SIDE REACH IS 48" MAX, LOW SIDE IS 15" MIN AFF

OBSTRUCTED HIGH SIDE REACH IS 48" MAX IF OBSTRUCTION < 20" DEEP, 44" MAX IF OBSTRUCTION BETWEEN 20" - 25" DEEP

WHERE FORWARD REACH IS OVER AN OBSTRUCTION, CLEAR FLOOR SPACE & KNEE & TOE CLEARANCE SHALL BE PROVIDED EQUAL TO THE REACH RANGE

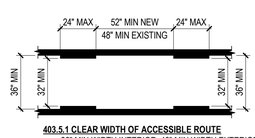




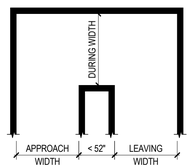
308.3 SIDE REACH
UNOBSTRUCTED, WITHIN 10" MAX FROM ELEMENT, HIGH SIDE REACH IS 48" MAX, LOW SIDE IS 15" MIN AFF

OBSTRUCTED HIGH SIDE REACH IS 48" MAX IF OBSTRUCTION < 10" DEEP, 46" MAX IF OBSTRUCTION BETWEEN 10" - 24" DEEP AND UNDER 34" MAX HEIGHT

6 SECTION 308 REACH RANGES
SCALE: NTS



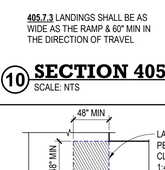
403.5.1 CLEAR WIDTH OF ACCESSIBLE ROUTE
36" MIN WIDTH INTERIOR, 48" MIN WIDTH EXTERIOR
CLEAR WIDTH CAN REDUCE TO 32" FOR 24" MAX
EVERY 52" MIN IN NEW & EVERY 48" IN EXISTING



403.5.2 CLEAR WIDTH AT 180-DEGREE TURN

	APPROACH WIDTH	DURING WIDTH	LEAVING WIDTH
NEW 1	36" MIN	60" MIN	36" MIN
NEW 2	42" MIN	48" MIN	42" MIN
NEW 3	43" MIN	43" MIN	43" MIN
EXISTING A	42" MIN	48" MIN	42" MIN
EXISTING B	36" MIN	60" MIN	36" MIN

WHEN THE OBJECT BEING TURNED AROUND IS > 52" COMPLY WITH 403.5.3 FOR 90-DEGREE CORNERS



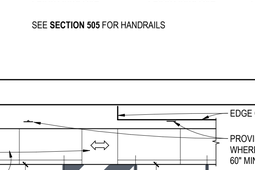
403.5.3.1 CLEAR WIDTH AT 90-DEGREE TURN
BOTH LEGS SHALL BE 40" MIN IN WIDTH FOR A MINIMUM OF 28" FROM THE INNER CORNER

BOTH LEGS SHALL BE 36" MIN IN WIDTH IF INNER CORNER IS CHAMFERED 8" ALONG BOTH WALLS

IF ONE LEG WIDTH IS 42" MIN, THE OTHER LEG CAN BE 38" MIN WIDTH

IF ONE LEG WIDTH IS 44" MIN, THE OTHER LEG CAN BE 36" MIN WIDTH

IN EXISTING, BOTH LEGS CAN BE 36" MIN WIDTH



403.5.4 PASSING SPACE
AN ACCESSIBLE ROUTE WITH A CLEAR WIDTH OF LESS THAN 60" SHALL PROVIDE PASSING SPACES AT 200' MAX. PASSING SPACES SHALL EITHER BE A 60" MIN SQUARE SPACE, OR AN INTERSECTION OF TWO WALKING SURFACES THAT PROVIDE A T-SHAPE TURNING SPACE, PROVIDED THAT THE BASE OF THE T-SHAPED SPACE EXTEND 52" BEYOND THE INTERSECTION.

7 SECTION 403 WALK SURFACES
SCALE: NTS

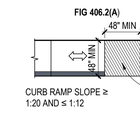


FIG 404.2.3.2(A)

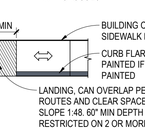


FIG 404.2.3.2(B)

"54" MIN IF DOOR HAS CLOSER

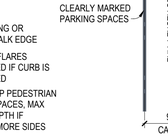


FIG 404.2.3.2(D)

"48" MIN IF DOOR HAS CLOSER

FIG 404.2.3.2(F)

FIG 404.2.3.2(G)

FIG 404.2.3.2(H)

SEE SECTION 404.2.3.5 FOR DOORS RECESSED > 8"

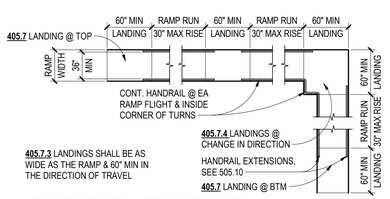
8 SECTION 404.2.3 DOOR CLEARANCES
SCALE: NTS

48" MIN BETWEEN DOORS IN SERIES, PROVIDE TURNING SPACE BETWEEN DOORS, EXISTING DOORS USE EXISTING TURNING SPACES.

WHERE BOTH DOORS ARE AUTOMATIC DOORS, TURNING SPACE IS NOT REQUIRED

9 SECTION 404.2.5 DOORS IN SERIES
SCALE: NTS

405.1 RAMPS ALONG ACCESSIBLE ROUTES SHALL COMPLY WITH SECTION 405.
405.2 ANY PART OF AN ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 SHALL BE CONSIDERED A RAMP.
405.3 CROSS SLOPE OF RAMP RUNS IS 1:48 MAX, LANDING MAX SLOPE OF 1:48.
405.5 CLEAR WIDTH OF 36" MIN BETWEEN HANDRAILS
405.8 RAMPS WITH A RISE > 6" SHALL HAVE A HANDRAIL BOTH SIDES.



405.7.3 LANDINGS SHALL BE AS WIDE AS THE RAMP & 60" MIN IN THE DIRECTION OF TRAVEL

405.9 EDGE PROTECTION SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND LANDINGS WITH VERTICAL DROP GREATER THAN 1/2" WITHIN 10" OF WALKING SURFACE. EDGE PROTECTION NOT REQUIRED ON RAMPS NOT REQUIRED TO HAVE HANDRAILS AND HAVING FLARED SIDES, SIDES OF RAMP LANDINGS SERVING AN ADJOINING RAMP RUN OR STAIRWAY, AND WHERE RAMPED AISLES PROVIDE ACCESS TO ADJACENT SEATS AN ACCESS WAYS.

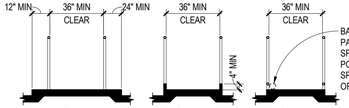


FIG 405.9.1 EXTENDED FLOOR SURFACE
FIG 405.9.2.1 EXTENDED FLOOR SURFACE
FIG 405.9.2.2 EXTENDED FLOOR SURFACE

SEE **SECTION 505** FOR HANDRAILS

10 SECTION 405 RAMPS
SCALE: NTS

11 SECTION 406 CURB RAMPS
SCALE: NTS

12 SECTION 502 PARKING SPACES
SCALE: NTS

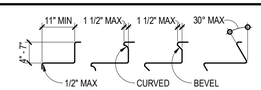
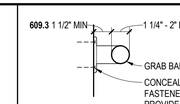


FIG 504.2 FIG 504.5(B) FIG 504.5(C) FIG 504.5(D)

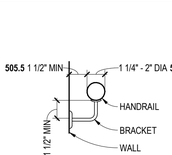
504.3 OPEN RISERS ARE NOT PERMITTED.
504.4 STAIR TREADS SLOPE LESS THAN 1:48
504.7 STAIRS SHALL HAVE HANDRAILS COMPLYING WITH 505
504.10 STAIR LEVEL SIGNS COMPLYING WITH 703.3 & 703.4 AT EACH FLOOR LEVEL LANDING IN ALL ENCLOSED STAIRWAYS. SIGN STATING "EXIT" AT DOOR LEADING TO EXTERIOR OR EXIT DISCHARGE

13 SECTION 504 STAIRWAYS
SCALE: NTS



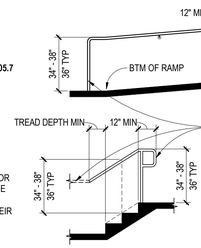
609.3 NO PROJECTING ELEMENTS WITH 1 1/2" OF BOTTOM AND SIDES AND 12" OF TOP OF GRAB BAR. RECESSED DISPENSERS < 1/4" PROJECTION ALLOWED

SECTION 609.2 14 GRAB BARS
SCALE: NTS

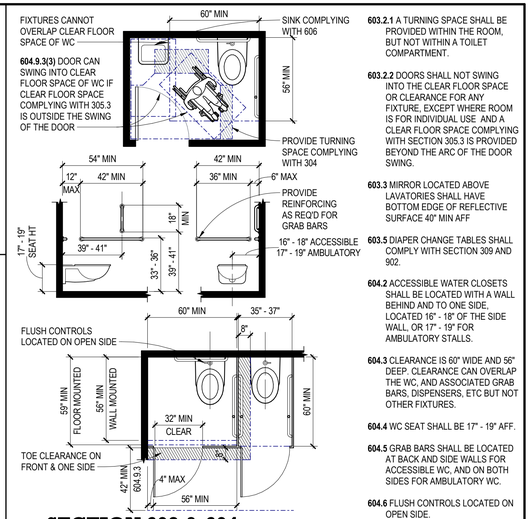


505.8 HANDRAILS, AND ANY ADJACENT SURFACES SHALL BE FREE OF SHARP OR ABRASIVE ELEMENTS, ALL EDGES TO BE ROUNDED
505.9 HANDRAILS SHALL NOT ROTATE IN THEIR FITTINGS

SECTION 505.7 15 HANDRAILS
SCALE: NTS



SECTION 505.10 16 HANDRAIL EXTENSIONS
SCALE: NTS



603.2.1 A TURNING SPACE SHALL BE PROVIDED WITHIN THE ROOM, BUT NOT WITHIN A TOILET COMPARTMENT.

603.2.2 DOORS SHALL NOT SWING INTO THE CLEAR FLOOR SPACE OR CLEARANCE FOR ANY FIXTURE, EXCEPT WHERE ROOM IS FOR INDIVIDUAL USE AND A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305.3 IS PROVIDED BEYOND THE ARC OF THE DOOR SWING.

603.3 MIRROR LOCATED ABOVE LAVATORIES SHALL HAVE BOTTOM EDGE OF REFLECTIVE SURFACE 40" MIN AFF

603.5 DIAPER CHANGE TABLES SHALL COMPLY WITH SECTION 309 AND 902.

604.2 ACCESSIBLE WATER CLOSETS SHALL BE LOCATED WITH A WALL BEHIND AND TO ONE SIDE, LOCATED 16" - 18" OF THE SIDE WALL, OR 17" - 19" FOR AMBULATORY STALLS.

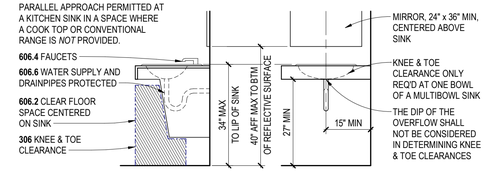
604.3 CLEARANCE IS 60" WIDE AND 56" DEEP. CLEARANCE CAN OVERLAP THE WC, AND ASSOCIATED GRAB BARS, DISPENSERS, ETC BUT NOT OTHER FIXTURES.

604.4 WC SEAT SHALL BE 17" - 19" AFF.

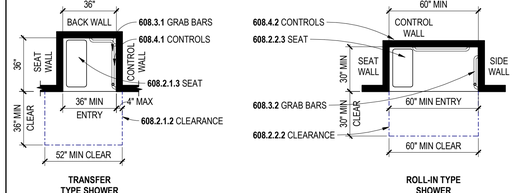
604.5 GRAB BARS SHALL BE LOCATED AT BACK AND SIDE WALLS FOR ACCESSIBLE WC, AND ON BOTH SIDES FOR AMBULATORY WC.

604.6 FLUSH CONTROLS LOCATED ON OPEN SIDE.

SECTION 603 & 604 17 TOILET ROOMS & COMPARTMENTS
SCALE: NTS



18 SECTION 606 LAVS & SINKS
SCALE: NTS



19 SECTION 608 SHOWERS
SCALE: NTS

902 DINING AND WORK SURFACES
CLEAR FLOOR SPACE POSITIONED FOR FOR FORWARD APPROACH SHALL BE PROVIDED. TOP SHALL BE 28" MIN TO 34" MAX AFF.

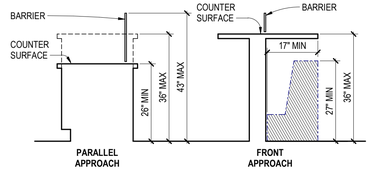
903 BENCHES
CLEAR FLOOR SPACE REQ'D AT END OF SEAT AND PARALLEL TO THE SHORT ACCESS . SEAT 42" MIN IN LENGTH, 20" MIN TO 24" MAX DEPTH. BACK SUPPORT 42" MIN IN LENGTH AND FROM 2" MAX ABOVE SEAT TO 18" MIN ABOVE SEAT. TOP OF SEAT 17" MIN TO 19" MAX AFF.

904.3 SALES AND SERVICE COUNTERS
COUNTERS PROVIDED SHALL EXTEND SAME DEPTH AS THE PUBLIC PORTION OF THE COUNTER. 43" MAX HEIGHT OF ANY BARRIER BETWEEN PUBLIC AND SERVICE PERSONNEL. PROVIDE EITHER PARALLEL APPROACH WITH 36" LENGTH COUNTER, 26" MIN TO 36" MAX COUNTER HEIGHT, OR FOWARD APPROACH WITH 30" MIN COUNTER LENGTH, 36" MAX AFF WITH KNEE & TOE CLEARANCE.

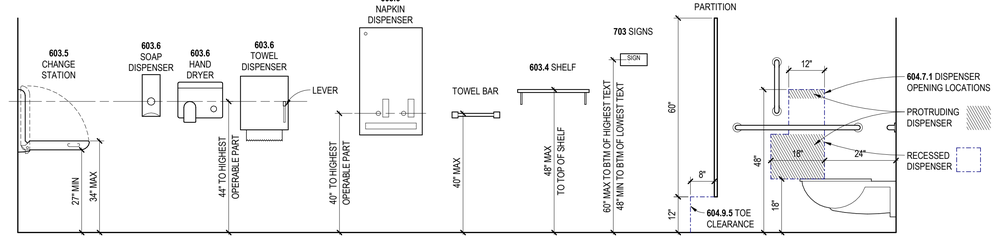
904.4 CHECKOUT AISLES
AISLES SHALL COMPLY WITH SECTION 403. COUNTER SURFACE 38" MAX AFF. TOP OF EDGE PROTECTION 2" MAX ABOVE COUNTER. CHECK WRITING SURFACES COMPLY WITH 902.4.

904.5 FOOD SERVICE LINES
SELF-SERVICE SHELVES AND DISPENSING DEVICES FOR TABLEWARE, DISHWARE, CONDIMENTS, FOOD AND BEVERAGEES SHALL COMPLY WITH SECTION 308 REACH RANGES.

904.6 SECURITY GLAZING
WHERE COUNTERS OR TELLER WINDOWS HAVE SECURITY GLAZING TO SEPARATE PERSONNEL FROM THE PUBLIC, A METHOD TO FACILITATE VOICE COMMUNICATION SHALL BE PROVIDED.



20 CHAPTER 9 FURNISHINGS & EQUIPMENT
SCALE: NTS



- PROVIDE CLEAR FLOOR SPACE COMPLYING WITH SECTION 305 FOR AT LEAST ONE OF EACH PIECE OF EQUIPMENT OR ACCESSORY.
- ALL OPERABLE PARTS TO BE MOUNTED TO MEET REACH RANGES OF SECTION 308 FOR FRONT OR PARALLEL APPROACH.
- NO OBJECT CAN PROJECT MORE THAN 4" INTO AN ACCESSIBLE ROUTE PER SECTION 307.

21 MOUNTING HEIGHTS
SCALE: NTS

DETAILS ARE FOR REFERENCE ONLY, SEE 2017 ICC A117.A AND 2010 ADA STANDARDS

LICENSED ARCHITECT
HELENA
BRADLEY P. GRIFFIN
KORBIN J. CROSSMAN-WHITNEY
2441
5412
STATE OF MONTANA

CWG Architecture + Interior
550 Power St
P.O. Box 1198
Helena, MT 59624
(406)443-2340
cwg@cwgarchitecture.com

© 2022 Crossman-Whitney-Griffin, Inc.

REVISIONS		
#	Desc	Date

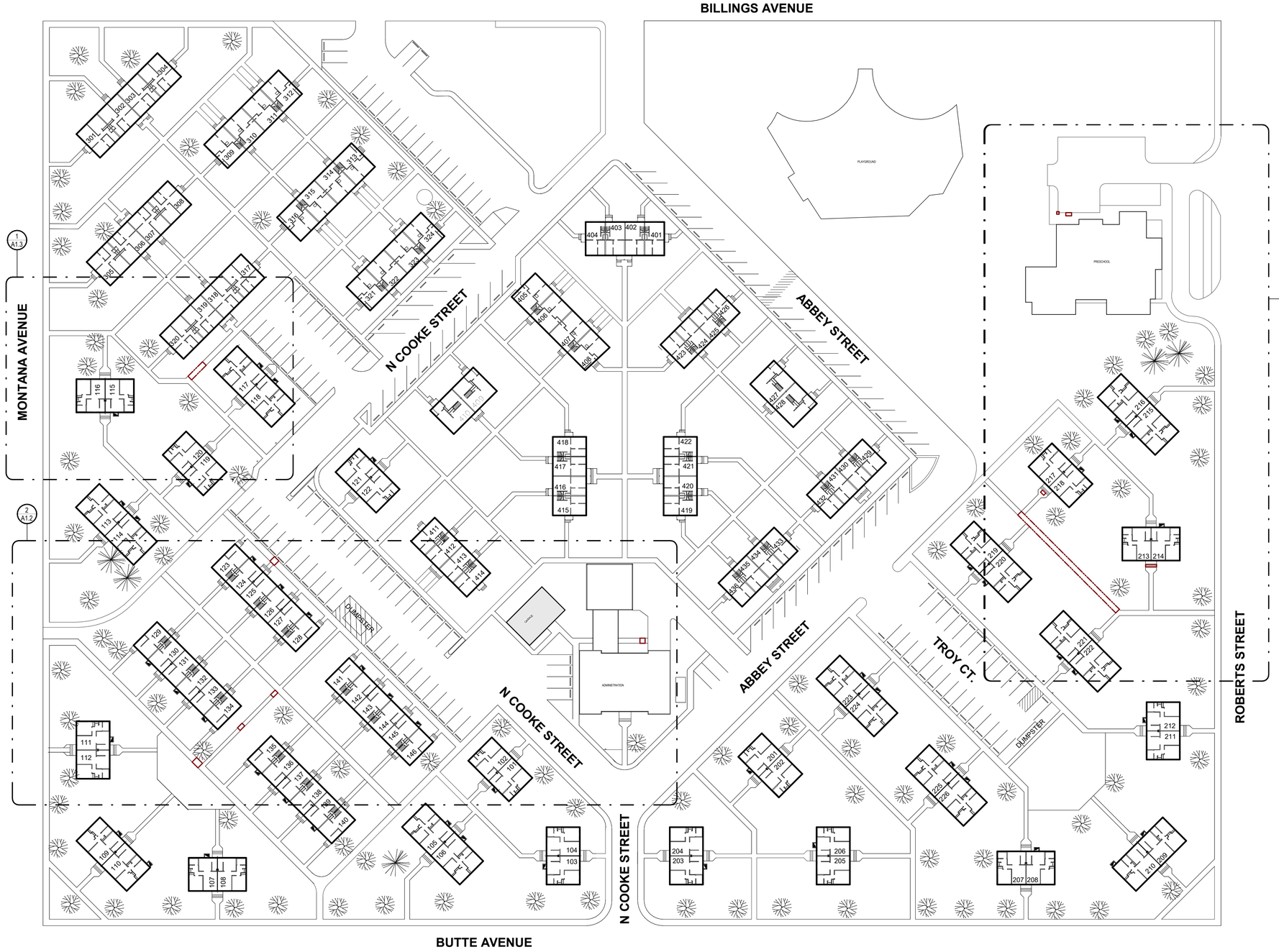
HELENA HOUSING AUTHORITY
STEWART HOMES CONCRETE REPAIRS
ADA GENERAL DETAILS

4415-01-18 (11)	
DRAWN BY	CWG
APPROVED BY	CWG
DATE:	7/1/2026

G2.1

CWG Architecture + Interior ©2023

G:\Projects\4415\01\18 HHA 2025 Capital Fund Projects\4415\01\18 (11) 2026 Stewart Homes Concrete Repairs\03 Design - Drawings - Specs\3 - Revit\20264415011811 Stewart Homes Concrete Repair.rvt
7/1/2026 10:38:01 AM



1 SITE PLAN - OVERALL
SCALE: 1" = 40'-0"

COGNIZANT NOTE
THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THE PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.

COORDINATION NOTE
IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

LICENSED ARCHITECT
KOBY W. GRIFFIN
2441
5412
MONTANA
STATE OF MONTANA

CWG Architecture + Interior
550 Power St
P.O. Box 1198
Helena, MT 59624
www.cwgarchitecture.com
cwg@cwgarchitecture.com
(406)443-2340

© 2022 Crossman-Whitney-Griffin, Inc.

REVISIONS

#	Desc	Date

HELENA HOUSING AUTHORITY
STEWART HOMES CONCRETE REPAIRS

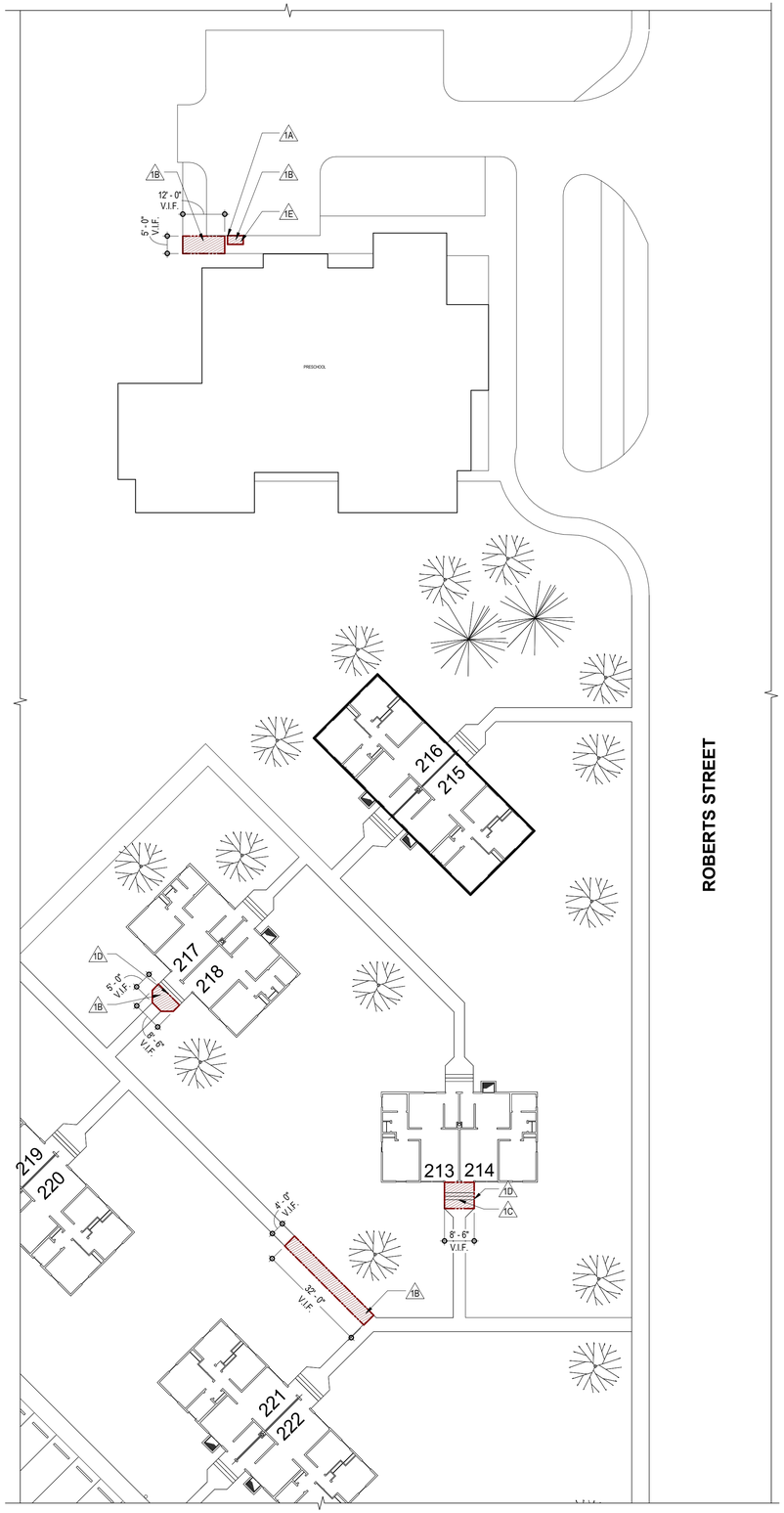
SITE PLAN - OVERALL

4415-01-18 (11)	
DRAWN BY	CWG
APPROVED BY	CWG
DATE	7/1/2026

A0.1

CWG Architecture + Interior ©2023

G:\Projects\4415\01\18 HHA 2025 Capital Fund Projects\4415\01\18(11) 2026 Stewart Homes Concrete Repairs\03 Design - Drawings - Specs\3 - Revs\20264415011811 Stewart Homes Concrete Repair.rvt
7/1/2026 10:38:02 AM



1 **SITE PLAN - NORTHEAST - DEMO**
SCALE: 1" = 20'-0"

DEMOLITION NOTES:

INDICATES DEMOLISHED ITEM

- VERIFY LOCATION AND EXTENT OF CONCRETE WORK WITH OWNER PRIOR TO STARTING DEMO WORK.
- HOUSING UNITS TO REMAIN ACCESSIBLE TO RESIDENTS & HHA STAFF AT ALL TIMES.
- CONTRACTOR TO COORDINATE WITH OWNER FOR SEQUENCING AND SCHEDULING OF DEMOLITION TO MINIMIZE IMPACT TO RESIDENTS & HHA STAFF.
- ALL INTERRUPTIONS TO EXISTING SERVICES AND OPERATIONS WILL BE MINIMAL AND AVOIDED WHENEVER POSSIBLE IF UNAVOIDABLE, STOPPAGE TO EXISTING SERVICE TO BE COORDINATED WITH THE OWNER AT LEAST **ONE WEEK** PRIOR TO INTERRUPTION.
- ANY UTILITIES SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND IDENTIFICATION OF ALL EXISTING UTILITIES.
- CONTRACTOR TO PROVIDE ALL TEMPORARY PARTITIONS AND OTHER SYSTEMS TO CONTROL THE SPREAD OF CONSTRUCTION DEBRIS AND DUST.
- CONTRACTOR TO PROVIDE ALL REQUIRED TEMPORARY SHORING AND BRACING.
- CONTRACTOR TO PROTECT ALL FINISHES TO REMAIN.
- MAINTAIN UNOBSTRUCTED PATHS TO BUILDING EXITS DURING DEMOLITION AND REMODELING, AT ALL TIMES.
- DISPOSE OF ALL DEBRIS OFF-SITE.

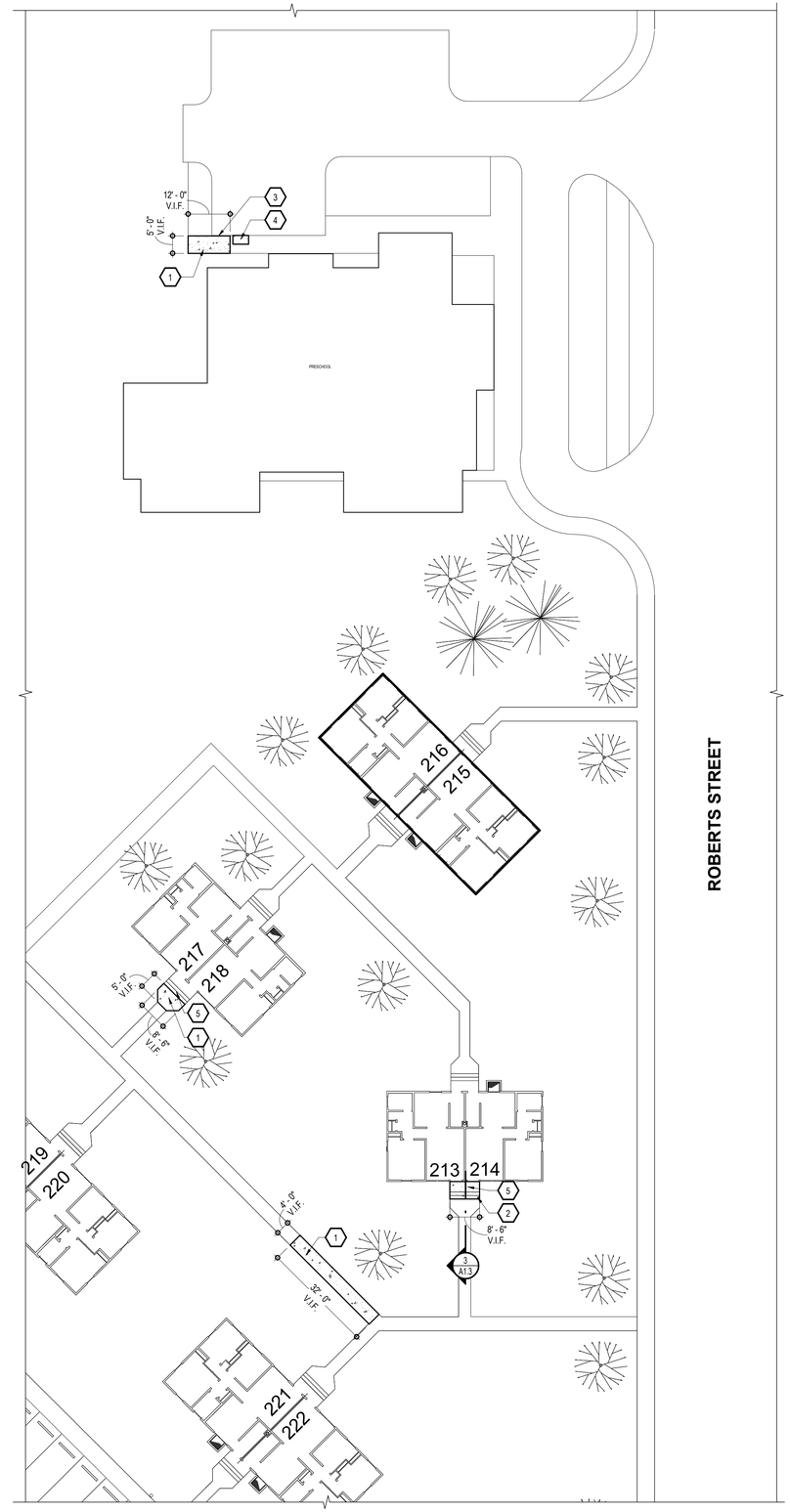
1A REMOVE EXISTING CONCRETE CURB/GUTTER AS REQUIRED AND PREP FOR NEW CONCRETE CURB & GUTTER.

1B REMOVE EXISTING CONCRETE SIDEWALK

1C REMOVE EXISTING CONCRETE STAIRS. REMOVE LANDING SLAB AS NEEDED TO ACCOMMODATE NEW HANDRAIL

1D REMOVE EXISTING STEEL HANDRAILINGS.

1E REMOVE EXISTING DETECTABLE WARNING SURFACE



2 **SITE PLAN - NORTHEAST - NEW WORK**
SCALE: 1" = 20'-0"

COGNIZANT NOTE

THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THE PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.

COORDINATION NOTE

IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

PLAN NOTES:

INDICATES EXTENTS OF NEW CONCRETE WORK

1. NOT ALL PLAN KEY NOTES BELOW USED AT EACH SITE LOCATION. VERIFY PER SITE PLAN.
2. BACKFILL W/TOPSOIL ON EITHER SIDE OF CONCRETE SIDEWALK OR STAIRS AND PLACE SOD.
3. REPAIR SPRINKLER IRRIGATION SYSTEM AS REQUIRED BY DEMO & NEW WORK

PLAN KEY NOTES:

1. POUR NEW 4" CONCRETE SIDEWALK (8" THICKENED EDGE WHERE ABUTTING ASPHALT), BROOM FINISH CONCRETE, SEE 10/G2.1 FOR ADA SLOPE & CROSS SLOPE REQUIREMENTS
2. NEW CONCRETE STAIRS W/ #4 REBAR EA. WAY OVER 4" COMPACTED ENGINEERED SUBGRADE AT HOUSING UNIT
3. NEW CONCRETE CURB TO MATCH EXISTING. PATCH ASPHALT ROAD AS REQUIRED.
4. PROVIDE ADA CURB RAMP WITH METAL TRUCATED DOMES PER ANSI 117.1 WERE CONCRETE AND ASPHALT JOIN. USE CITY OF HELENA STANDARD DETAIL FOR SINGLE & DOUBLE ADA LAYDOWNS WITH TRUNCATED DOMES.
5. PROVIDE NEW STEEL HANDRAIL AT CENTER AND EACH SIDE OF STAIRS LANDING. SEE 3/A1.3 & 4/A1.3 FOR TYPICAL HANDRAIL DETAILS

LICENSED ARCHITECT
KOBY J. WHITNEY-GRIFFIN
STATE OF MONTANA
HELENA, MONTANA
2441
5412

CWG Architecture + Interior
550 Power St
P.O. Box 1198
Helena, MT 59624
cwg@cwgarchitecture.com
(406)442-2340

© 2022 Crossman-Whitney-Griffin, Inc.

REVISIONS

#	Desc	Date

HELENA HOUSING AUTHORITY
STEWART HOMES CONCRETE REPAIRS

ENLARGED DEMO & NEW WORK PLANS

4415-01-18 (11)	
DRAWN BY	CWG
APPROVED BY	CWG
DATE	7/1/2026

A1.1

CWG Architecture + Interiors ©2023

G:\Projects\4415\01-18 HHA 2025 Capital Fund Projects\4415\01-18 (11) 2026 Stewart Homes Concrete Repairs\03 Design - Drawings - Specs\3 - Revs\20264415011811 Stewart Homes Concrete Repair.rvt
7/1/2026 10:38:03 AM

1 SITE PLAN - SOUTHWEST - DEMO

SCALE: 1" = 20'-0"

2 SITE PLAN - SOUTHWEST - NEW WORK

SCALE: 1" = 20'-0"

COGNIZANT NOTE

THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THE PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.

COORDINATION NOTE

IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

DEMOLITION NOTES:

INDICATES DEMOLISHED ITEM

- VERIFY LOCATION AND EXTENT OF CONCRETE WORK WITH OWNER PRIOR TO STARTING DEMO WORK.
- HOUSING UNITS TO REMAIN ACCESSIBLE TO RESIDENTS & HHA STAFF AT ALL TIMES.
- CONTRACTOR TO COORDINATE WITH OWNER FOR SEQUENCING AND SCHEDULING OF DEMOLITION TO MINIMIZE IMPACT TO RESIDENTS & HHA STAFF.
- ALL INTERRUPTIONS TO EXISTING SERVICES AND OPERATIONS WILL BE MINIMAL AND AVOIDED WHENEVER POSSIBLE IF UNAVOIDABLE, STOPPAGE TO EXISTING SERVICE TO BE COORDINATED WITH THE OWNER AT LEAST **ONE WEEK** PRIOR TO INTERRUPTION.
- ANY UTILITIES SHOWN ARE FOR REFERENCE ONLY, CONTRACTOR IS RESPONSIBLE FOR LOCATION AND IDENTIFICATION OF ALL EXISTING UTILITIES.
- CONTRACTOR TO PROVIDE ALL TEMPORARY PARTITIONS AND OTHER SYSTEMS TO CONTROL THE SPREAD OF CONSTRUCTION DEBRIS AND DUST.
- CONTRACTOR TO PROVIDE ALL REQUIRED TEMPORARY SHORING AND BRACING.
- CONTRACTOR TO PROTECT ALL FINISHES TO REMAIN.
- MAINTAIN UNOBSTRUCTED PATHS TO BUILDING EXITS DURING DEMOLITION AND REMODELING, AT ALL TIMES.
- DISPOSE OF ALL DEBRIS OFF-SITE.

1A REMOVE EXISTING CONCRETE CURB/GUTTER AS REQUIRED AND PREP FOR NEW CONCRETE CURB & GUTTER.

1B REMOVE EXISTING CONCRETE SIDEWALK

1C REMOVE EXISTING CONCRETE STAIRS. REMOVE LANDING SLAB AS NEEDED TO ACCOMMODATE NEW HANDRAIL

1D REMOVE EXISTING STEEL HANDRAILINGS.

1E REMOVE EXISTING DETECTABLE WARNING SURFACE

PLAN NOTES:

INDICATES EXTENTS OF NEW CONCRETE WORK

1. NOT ALL PLAN KEY NOTES BELOW USED AT EACH SITE LOCATION. VERIFY PER SITE PLAN.
2. BACKFILL W/TOPSOIL ON EITHER SIDE OF CONCRETE SIDEWALK OR STAIRS AND PLACE SOD.
3. REPAIR SPRINKLER IRRIGATION SYSTEM AS REQUIRED BY DEMO & NEW WORK

PLAN KEY NOTES:

1. POUR NEW 4" CONCRETE SIDEWALK (8" THICKENED EDGE WHERE ABUTTING ASPHALT), BROOM FINISH CONCRETE, SEE 10/G2.1 FOR ADA SLOPE & CROSS SLOPE REQUIREMENTS
2. NEW CONCRETE STAIRS W/ #4 REBAR EA. WAY OVER 4" COMPACTED ENGINEERED SUBGRADE AT HOUSING UNIT
3. NEW CONCRETE CURB TO MATCH EXISTING. PATCH ASPHALT ROAD AS REQUIRED.
4. PROVIDE ADA CURB RAMP WITH METAL TRUCATED DOMES PER ANSI 117.1 WERE CONCRETE AND ASPHALT JOIN. USE CITY OF HELENA STANDARD DETAIL FOR SINGLE & DOUBLE ADA LAYDOWNS WITH TRUNCATED DOMES.
5. PROVIDE NEW STEEL HANDRAIL AT CENTER AND EACH SIDE OF STAIRS LANDING. SEE 3/A1.3 & 4/A1.3 FOR TYPICAL HANDRAIL DETAILS

LICENSED ARCHITECT — KORBIN F. GRIFFIN — 2441 — 5412 — STATE OF MONTANA — HELENA, MONTANA

CWG Architecture + Interior
550 Power St
P.O. Box 1198
Helena, MT 59624
cwg@cwgarchitects.com
(406)443-2340

© 2022 Crossman-Whitney-Griffin, Inc.

REVISIONS

#	Desc	Date

HELENA HOUSING AUTHORITY

STEWART HOMES CONCRETE REPAIRS

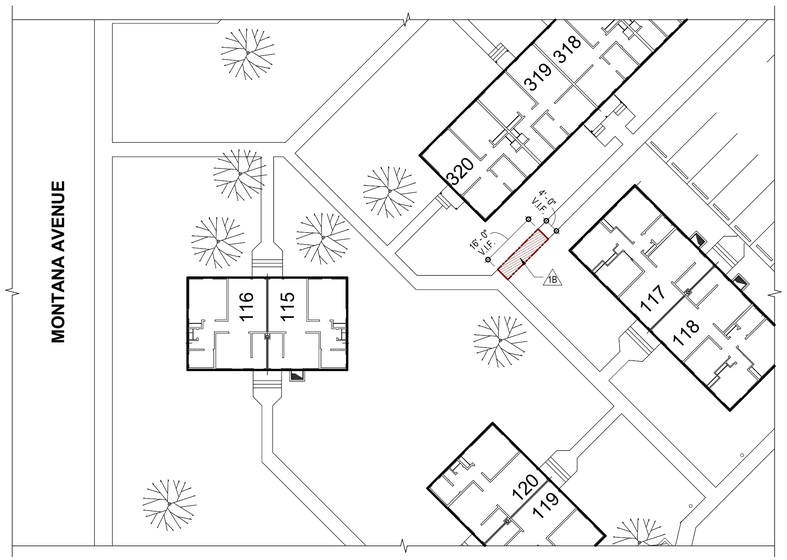
ENLARGED DEMO & NEW WORK PLANS

4415-01-18 (11)	
DRAWN BY	CWG
APPROVED BY	CWG
DATE	7/1/2026

A1.2

CWG Architecture + Interiors ©2023

G:\Projects\4415\01\18 HHA 2025 Capital Fund Projects\4415\01\18 (11) 2026 Stewart Homes Concrete Repairs\03 Design - Drawings - Specs\3 - Revit\2025\4415\01\18 (11) Stewart Homes Concrete Repair.rvt
7/1/2026 10:38:03 AM



1 SITE PLAN - NORTHWEST - DEMO
SCALE: 1" = 20'-0"

DEMOLITION NOTES:

INDICATES DEMOLISHED ITEM

- VERIFY LOCATION AND EXTENT OF CONCRETE WORK WITH OWNER PRIOR TO STARTING DEMO WORK.
- HOUSING UNITS TO REMAIN ACCESSIBLE TO RESIDENTS & HHA STAFF AT ALL TIMES.
- CONTRACTOR TO COORDINATE WITH OWNER FOR SEQUENCING AND SCHEDULING OF DEMOLITION TO MINIMIZE IMPACT TO RESIDENTS & HHA STAFF.
- ALL INTERRUPTIONS TO EXISTING SERVICES AND OPERATIONS WILL BE MINIMAL AND AVOIDED WHENEVER POSSIBLE IF UNAVOIDABLE, STOPPAGE TO EXISTING SERVICE TO BE COORDINATED WITH THE OWNER AT LEAST **ONE WEEK** PRIOR TO INTERRUPTION.
- ANY UTILITIES SHOWN ARE FOR REFERENCE ONLY, CONTRACTOR IS RESPONSIBLE FOR LOCATION AND IDENTIFICATION OF ALL EXISTING UTILITIES.
- CONTRACTOR TO PROVIDE ALL TEMPORARY PARTITIONS AND OTHER SYSTEMS TO CONTROL THE SPREAD OF CONSTRUCTION DEBRIS AND DUST.
- CONTRACTOR TO PROVIDE ALL REQUIRED TEMPORARY SHORING AND BRACING.
- CONTRACTOR TO PROTECT ALL FINISHES TO REMAIN.
- MAINTAIN UNOBSTRUCTED PATHS TO BUILDING EXITS DURING DEMOLITION AND REMODELING, AT ALL TIMES.
- DISPOSE OF ALL DEBRIS OFF-SITE.

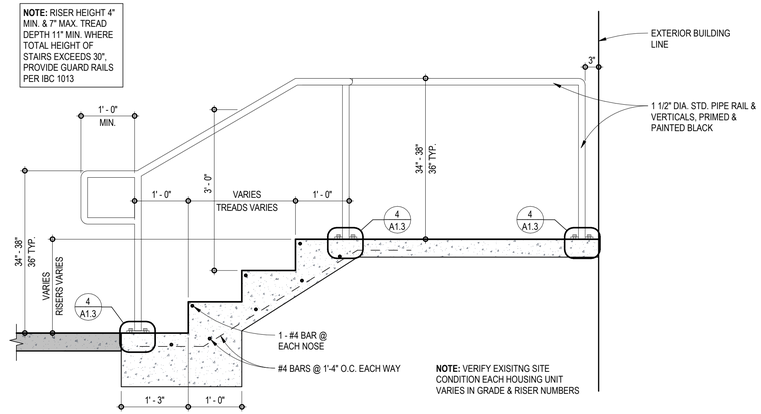
1A REMOVE EXISTING CONCRETE CURB/GUTTER AS REQUIRED AND PREP FOR NEW CONCRETE CURB & GUTTER.

1B REMOVE EXISTING CONCRETE SIDEWALK

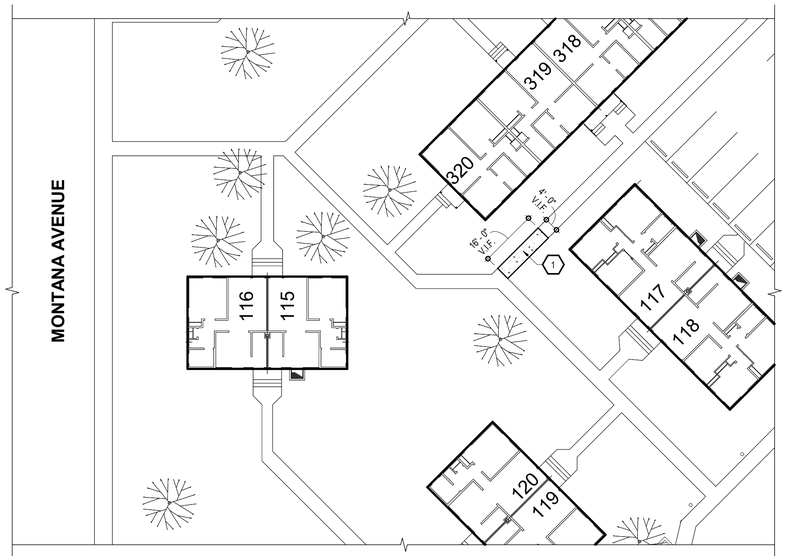
1C REMOVE EXISTING CONCRETE STAIRS. REMOVE LANDING SLAB AS NEEDED TO ACCOMMODATE NEW HANDRAIL

1D REMOVE EXISTING STEEL HANDRAILINGS.

1E REMOVE EXISTING DETECTABLE WARNING SURFACE



3 STAIR DETAIL - W/ RAILING TYP.
SCALE: 3/4" = 1'-0"



2 SITE PLAN - NORTHWEST - NEW WORK
SCALE: 1" = 20'-0"

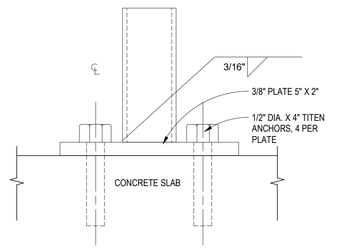
PLAN NOTES:

INDICATES EXTENTS OF NEW CONCRETE WORK

1. NOT ALL PLAN KEY NOTES BELOW USED AT EACH SITE LOCATION. VERIFY PER SITE PLAN.
2. BACKFILL W/TOPSOIL ON EITHER SIDE OF CONCRETE SIDEWALK OR STAIRS AND PLACE SOD.
3. REPAIR SPRINKLER IRRIGATION SYSTEM AS REQUIRED BY DEMO & NEW WORK

PLAN KEY NOTES:

1. POUR NEW 4" CONCRETE SIDEWALK (8" THICKENED EDGE WHERE ABUTTING ASPHALT), BROOM FINISH CONCRETE, SEE 10/G2.1 FOR ADA SLOPE & CROSS SLOPE REQUIREMENTS
2. NEW CONCRETE STAIRS W/ #4 REBAR EA. WAY OVER 4" COMPACTED ENGINEERED SUBGRADE AT HOUSING UNIT
3. NEW CONCRETE CURB TO MATCH EXISTING. PATCH ASPHALT ROAD AS REQUIRED.
4. PROVIDE ADA CURB RAMP WITH METAL TRUCATED DOMES PER ANSI 117.1 WERE CONCRETE AND ASPHALT JOIN. USE CITY OF HELENA STANDARD DETAIL FOR SINGLE & DOUBLE ADA LAYDOWNS WITH TRUNCATED DOMES.
5. PROVIDE NEW STEEL HANDRAIL AT CENTER AND EACH SIDE OF STAIRS LANDING. SEE 3/A1.3 & 4/A1.3 FOR TYPICAL HANDRAIL DETAILS



4 BASE PLATE
SCALE: 6" = 1'-0"

COGNIZANT NOTE
THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THE PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.

COORDINATION NOTE
IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

LICENSED ARCHITECT — KORBIN F. BRUNK — 2441 — 5412 — HELENA, MONTANA — STATE OF MONTANA

CWG Architecture + Interior
550 Power St
P.O. Box 1198
Helena, MT 59624
cwg@cwgarchitecture.com
(406)443-2340

© 2022 Crossman-Whitney-Griffin, Inc.

REVISIONS

#	Desc	Date

HELENA HOUSING AUTHORITY
STEWART HOMES CONCRETE REPAIRS

ENLARGED DEMO & NEW WORK PLANS & DETAILS

4415-01-18 (11)	
DRAWN BY	CWG
APPROVED BY	CWG
DATE	7/1/2026

A1.3

CWG Architecture + Interiors ©2023

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

PART 3 EXECUTION

2.01 SCOPE

A. Remove items as indicated on drawings.

B. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill to match existing grade.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.
   4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   6. Do not close or obstruct roadways or sidewalks without permit.
   7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

E. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

F. Partial Removal of Paving, Slabs and Curbs: Neatly saw cut at right angle to surface.

2.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.

3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

C. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.
   5. Damage to existing concrete, asphalt, sod, irrigation or other items shall be repaired to existing condition by Contractor.

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks and stair steps.

1.02 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete; 2016.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

D. ACI 305R - Guide to Hot Weather Concreting; 2010.

E. ACI 306R - Guide to Cold Weather Concreting; 2016.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018, with Editorial Revision (2018).

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2018.

H. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2016, with Editorial Revision (2016).

I. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2018.

J. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2017a.

K. ASTM C150/C150M - Standard Specification for Portland Cement; 2018.

L. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.

M. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).

N. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.

O. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2017.

P. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.

Q. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2018.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Comply with applicable requirements of ACI 301.

B. Design paving for parking and residential streets.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751).
   1. Thickness: 1/2 inch.

2.03 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 80 (80,000 psi) yield strength; deformed billet steel bars; unfinished.

B. Steel Welded Wire Reinforcement: Plain type, ASTM A1064/A1064M; in flat sheets; unfinished.
   1. WWR Style: 6 x 6-W10 x W10.

C. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Normal - Type I Portland cement, gray color.

B. Fine and Coarse Mix Aggregates: ASTM C33/C33M.

C. Fly Ash: ASTM C618, Class C or F.

D. Calcined Pozzolan: ASTM C618, Class N.

E. Silica Fume: ACI 211.1.

F. Water: Clean, and not detrimental to concrete.

G. Fiber Reinforcement: Synthetic fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 1/2 inch length.

H. Air-Entraining Admixtures: ASTM C260/C260M.

I. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
   1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.05 ACCESSORIES

A. Curing Compound: ASTM C309, Type 1, Class A.

B. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
   1. Material: ASTM D1751, cellulose fiber.

2.06 CONCRETE MIX DESIGN

A. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

C. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

D. Concrete Properties:
   1. Compressive strength, when tested in accordance with ASTM C39/C39M at 28 days; 4000 psi.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
   4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
   5. Water-Cement Ratio: Maximum 40 percent by weight.
   6. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
   7. Maximum Slump: 3 inches.

2.07 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. Prepare subbase in accordance with State of Montana Highways standards.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Interrupt reinforcement at contraction joints.

3.06 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Do not place concrete when base surface is wet.

C. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.08 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components.

C. Provide sawn joints.
   1. At intervals to match existing.
   2. Between sidewalks and curbs.
   3. Between curbs and pavement.

D. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.09 FINISHING

A. Area Paving: Light broom, texture perpendicular to pavement direction.

B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.

C. Curbs and Gutters: Light broom, texture parallel to pavement direction.

D. Inclined Vehicular Ramps: Broomed perpendicular to slope.

E. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.
   2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

B. Compressive Strength Tests: ASTM C39/C39M; for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed at each job site.
   1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
   2. Perform one slump test for each set of test cylinders taken.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION