

GRAND CANYON UNIFIED SCHOOL DISTRICT

GRAND CANYON ELEMENTARY



RETAINING WALL - 030204001-9999-004-BRG



100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

ABBREVIATIONS

(ARCHITECTURAL DRAWINGS ONLY)

AB.	ANCHOR BOLT	I.B.C.	INTERNATIONAL BUILDING CODE
ABC	AGGREGATE BASE COURSE	I.E.	INVERT ELEVATION
AVC	AIR CONDITIONING	INSUL.	INSULATION
A.F.F.	ABOVE FINISH FLOOR	LAM.	LAMINATE
ALT.	ALTERNATE	MAS.	MASONRY
A.C.P.	ACOUSTICAL CEILING PANEL	LAV.	LAVATORY
BD.	BOARD	MAS.	MASONRY
BFP	BACK FLOW PREVENTER	MAT.	MATERIAL
BLDG	BUILDING	MAX.	MAXIMUM
BLKG	BLOCKING	MIN.	MINIMUM, MINUTE
BM	BEAM	MTL.	METAL
B.O.S.	BOTTOM OF STEEL	MTD.	MOUNTED
BTM	BOTTOM	N.I.C.	NOT IN CONTRACT
CAB	CABINET	N.T.S.	NOT TO SCALE
CL.	CENTERLINE	N.O.	NUMBER
C.C.	CENTER TO CENTER	NOM.	NOMINAL
C.I.P.	CAST-IN-PLACE	O.C.	ON CENTER
C.J.	CONTROL JOINT	OPP.	OPPOSITE
CLG	CEILING	PCP	PORTLAND CEMENT PLASTER
C.M.U.	CONCRETE MASONRY UNIT	PL.	PLATE
C.O.	CLEAN OUT	PTD.	PAINTED
CONC.	CONCRETE	QT	QUARRY TILE
CONST.	CONSTRUCTION	REINF.	REINFORCING
CONT.	CONTINUOUS	R.M.	ROOM
CORR.	CORRIDOR	S.C.	SOLID CORE
CT	CERAMIC TILE	SCHED.	SCHEDULE
DET.	DETAIL	SECT.	SECTION
DIA.	DIAMETER	S.F.	SQUARE FOOT (FEET)
DIM	DIMENSION	SIM.	SIMILAR
EA.	EACH	SPECS.	SPECIFICATIONS
E.J.	EXPANSION JOINT	STL.	STEEL
ELEV.	ELEVATION	SUSP.	SUSPENDED
ELECT.	ELECTRIC	T.O.	TOP OF
EQ.	EQUAL	T.O.F.	TOP OF FRAMING
E.M.C.	ELECTRIC WATER COOLER	T.O.M.	TOP OF MASONRY
EXIST.	EXISTING	T.O.S.	TOP OF STEEL
EXP. BT.	EXPANSION BOLT	TLT	TOILET
EXP. STR.	EXPOSED STRUCTURE	T.S.	TUBE STEEL
EXT.	EXTERIOR	TYP.	TYPICAL
F.D.	FLOOR DRAIN	U.B.C.	UNIFORM BUILDING CODE
F.E.	FIRE EXTINGUISHER	UN.O.	UNLESS NOTED OTHERWISE
F.E.C.	FIRE EXTINGUISHER CABINET	VCT.	VINYL COMPOSITION TILE
F.F.L.	FINISH FLOOR LINE	VERT.	VERTICAL
F.F.	FINISH FLOOR	VEST	VESTIBULE
FIN.	FINISH	VAC	VINYL WALL COVERING
FLR.	FLOOR	WD.	WOOD
FT.	FOOT, FEET	W.H.	WATER HEATER
FTG.	FOOTING	W/	WITH
GA.	GUAGE	W/O	WITHOUT
G.I.	GALVANIZED IRON	WT.	WEIGHT
GALV.	GALVANIZED	WAF	WELDED WIRE FABRIC
GL.	GLASS	XFMR.	TRANSFORMER
GYP. BD.	GYP. BOARD		
H.M.	HOLLOW METAL		
H.C.	HANDICAP		
H-CONC.	HARDENED CONCRETE		
H.B.	HOSE BIBB		
H/H	HAND HOLE		
HORIZ.	HORIZONTAL		
HT.	HEIGHT		

SYMBOLS

(ARCHITECTURAL DRAWINGS ONLY)

BUILDING SECTION MARKER

SECTION IDENTIFICATION LETTER
 SIM - ADDITIONAL INFORMATION (WHERE APPLICABLE)
 SHEET NUMBER ON WHICH SECTION IS DRAWN

WALL SECTION MARKER

SECTION IDENTIFICATION LETTER
 SIM - ADDITIONAL INFORMATION (WHERE APPLICABLE)
 SHEET NUMBER ON WHICH SECTION IS DRAWN

DETAIL MARKER

SECTION IDENTIFICATION LETTER
 SIM - ADDITIONAL INFORMATION (WHERE APPLICABLE)
 SHEET NUMBER ON WHICH SECTION IS DRAWN

ELEVATION MARKER

ELEVATION IDENTIFICATION LETTER
 SIM - ADDITIONAL INFORMATION (WHERE APPLICABLE)
 SHEET NUMBER ON WHICH ELEVATION IS DRAWN

DOOR MARKER

DOOR NUMBER

WINDOW MARKER

WINDOW NUMBER

REVISION MARKER

REVISION NUMBER

GATE MARKER

GATE NUMBER

FINISH MARKER

FINISH

MATERIALS LIST

(ARCHITECTURAL DRAWINGS ONLY)

	ASPHALTIC CONCRETE PAVING
	BASE COURSE
	CONCRETE
	EARTH
	CONCRETE MASONRY UNIT
	STEEL
	BATT OR ACOUSTICAL INSULATION
	RIGID INSULATION
	FINISH WOOD
	GYP. PLASTER, OR STUCCO
	PLYWOOD
	RESILIENT FLOORING

GENERAL NOTES

- THE CONTRACTOR SHALL VISIT THE PREMISES TO REVIEW & UNDERSTAND EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGED TO PERFORM THE WORK. THE CONTRACTOR SHALL HARMONIZE HIS WORK SO EACH PIECE OF EQUIPMENT WILL BE INSTALLED TO FUNCTION PROPERLY. THE CONTRACTOR SHALL COORDINATE W/OTHER TRADES. WHERE DRAWINGS INDICATE EXISTING CONDITIONS, AN ATTEMPT HAS BEEN MADE TO SHOW ELECTRICAL EQUIPMENT, BUILDING, SITE DETAILS, ETC. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL EXISTING BUILDINGS, SITE DETAILS, ETC.
- THE CONTRACTOR SHALL PERFORM ALL TEMPORARY AND REMODELING WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS INCLUDING MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
- CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND SHALL DETERMINE THE SEQUENCE OF CONSTRUCTION THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO; EXISTING, TEMPORARY, REMODELED AND NEW AREAS. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING, AND/OR OTHER REPAIR DUE TO THE CONSTRUCTION HERE IN.
- AT THE END OF THE DAY, THE CONTRACTOR SHALL PROVIDE TRAFFIC COVERS OVER ANY EXPOSED TRENCHES. CONTRACTOR SHALL PROVIDE SUITABLE BARRICADES AND CONSTRUCTION TAPE AROUND ALL WORK AREAS MAINTAINING A SAFE ENVIRONMENT BY MEANS OF EGRESS AND ACCESSIBILITY.
- AT NO TIME SHALL THE CONTRACTOR, HIS SUB-CONTRACTOR, OR ANY PERSON IN HIS EMPLOY HAVE CONTACT WITH ANY SCHOOL STAFF, FACULTY OR STUDENTS UNLESS ABSOLUTELY NECESSARY FOR THE PROGRESS OF THE WORK.
- CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ACCURACY OF ALL MEASUREMENTS, ESTIMATES OF MATERIALS QUANTITIES AND SIZES, AND SITE CONDITIONS AFFECTING THE WORK.
- PHOTOS USED FOR REFERENCE ONLY AND REPRESENT A PAST EXISTING CONDITION. CONTRACTOR TO VERIFY ALL CURRENT CONDITIONS PRIOR TO BID.
- CONTRACTOR RESPONSIBLE TO MONITOR INTERIOR AND REVIEW FOR SAFETY ALL SPACES THAT COULD POTENTIALLY BE AFFECTED BY PROJECT WORK AND RETURN THEM TO PREVIOUS USABLE CONDITION.
- CONTRACTOR RESPONSIBLE TO ABATE HAZARDOUS MATERIALS DISTURBED BY THE PROJECT WORK IN ACCORDANCE WITH HGM REPORT INCLUDED AS PART OF BID DOCUMENTS, INCLUDING ALL CERTIFICATIONS AND INSPECTIONS/ REPORTS.
- ANY ONSITE WELDING, TORCHING OR FLAME OR SPARK PRODUCING WORK WILL REQUIRE A NPS HOT WORK PERMIT. A MINIMUM THREE WORKING DAY NOTIFICATION IS REQUIRED.
- ANY EXCAVATION WILL REQUIRE NPS DIG PERMITTING PROCESS AND APPROVAL. A MINIMUM THREE WORKING DAY NOTIFICATION IS REQUIRED.

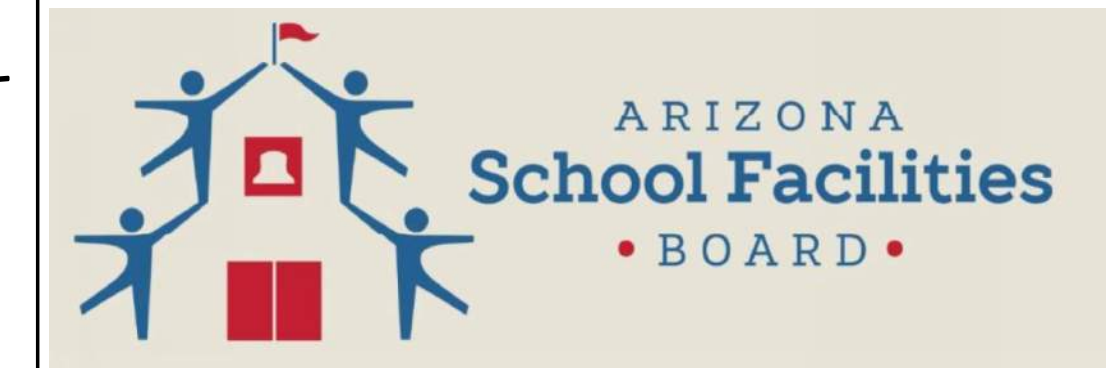
OWNER / TENANT

OWNER
GRAND CANYON USD
 1 BOULDER ST
 GRAND CANYON VILLAGE, AZ 86023
 PHONE: (928)-638-2461
 FAX: (928)-638-2045
 CONTACT: FACILITIES

TENANT
GRAND CANYON ELEMENTARY SCHOOL
 1 BOULDER ST
 GRAND CANYON VILLAGE, AZ 86023
 PHONE: (928)-638-2461
 FAX: (928)-638-2045
 CONTACT: FACILITIES

PROJECT INFORMATION

GRANT FUND
AZ SCHOOL FACILITIES BOARD
 1700 N. WASHINGTON STE 104
 PHONE: (602)-542-6567
 CONTACT: DAVID KENNON



CONSULTANTS

STRUCTURAL
BIXLER & ASSOCIATES
 8360 EAST RAINTREE DRIVE, SUITE 110
 SCOTTSDALE, AZ 85260
 PHONE: (480)-219-2886
 FAX: (480)-588-8584
 CONTACT: DAVID BIXLER, P.E., S.E., PRESIDENT

SFB PROJECT: 030204001-9999-004 BRG
 GRAND CANYON ELEMENTARY - WALL

SHEET LIST

GENERAL	
G001	GENERAL INFORMATION & SHEET INDEX
SITE DEVELOPMENT	
SD01	SITE DEVELOPMENT PLAN
SD02	SITE DETAILS
ARCHITECTURAL	
A100	FLOOR PLAN DEMO
A101	FLOOR PLAN NEW
STRUCTURAL	
S1	GSN
S2	TYPICAL DETAILS
S3	WALL SECTIONS

e TIC #GRCA113173712

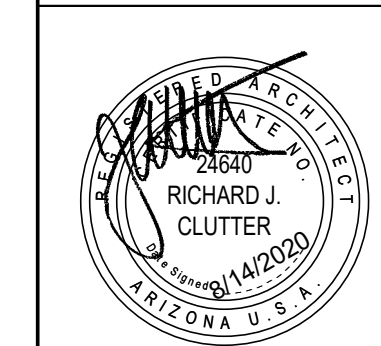
#	REVISIONS / SUBMISSIONS	DATE
1	NPS COMMENTS	10/15/2020

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
 RETAINING WALL - 030204001-9999-004-BRG
 100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

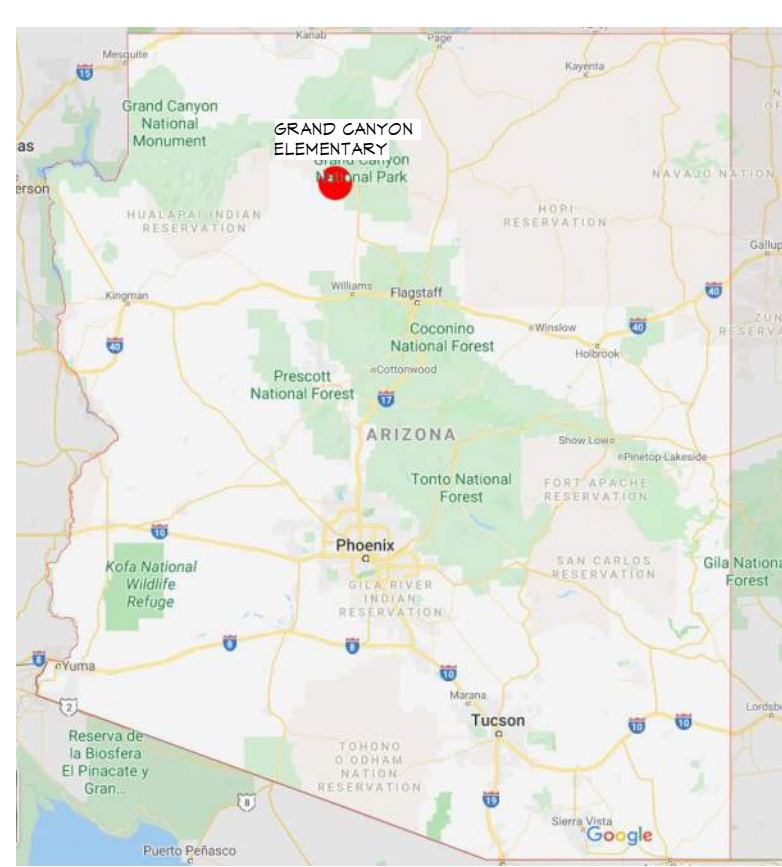
Emc2
 Architects ■ Planners, PC
 Emc2 Group ARCHITECTS/PLANNERS, PC
 1635 N. Greenfield Road, Suite 144
 Mesa, Arizona 85205
 P 480 830 3838
 F 480 830 3860
 www.emc2architects.com

DRAWING TITLE:
GENERAL INFORMATION & SHEET INDEX

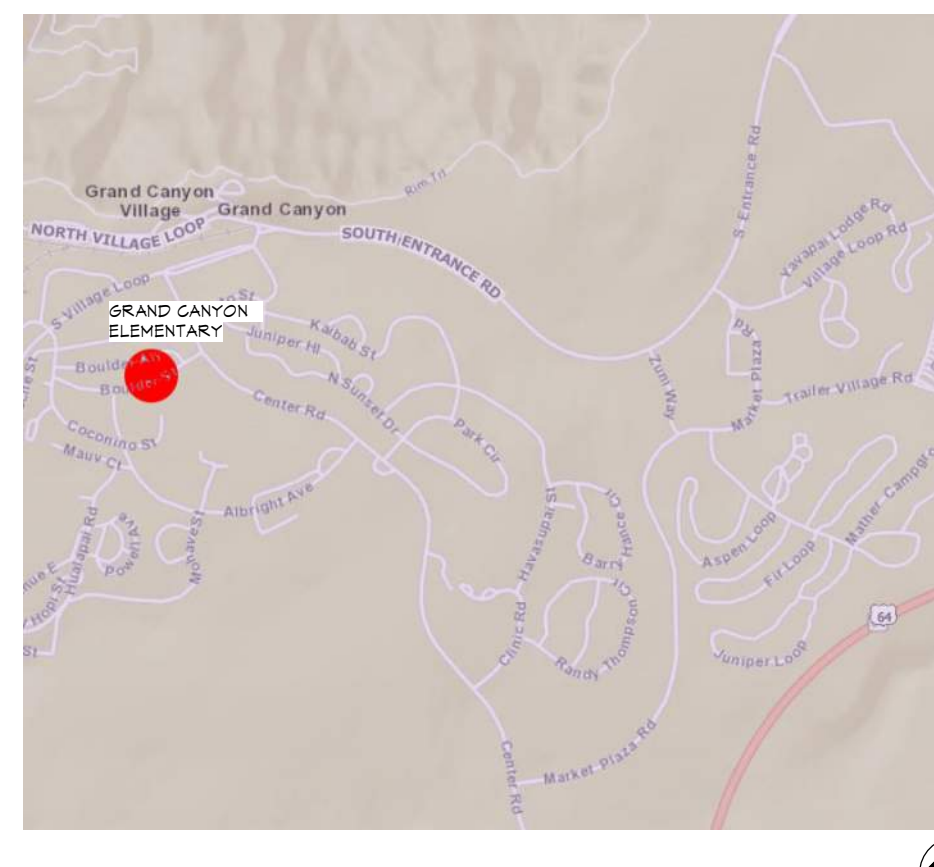
DESIGNED BY: EMC2	PROJECT NO. 14819710
DRAWN BY: JV,CW,MV	SCALE: As indicated
CHECKED BY: RICHARD J. CLUTTER	DRAWING NO.
DATE: 06-08-2020	G001
DATA FILE: 710 Grand Canyon ES Wall.rvt	



STATE MAP



VICINITY MAP



PROJECT MAP





N1 PHOTO 1
12" = 1'-0"



N5 PHOTO 2
12" = 1'-0"



N9 PHOTO 3
12" = 1'-0"



N13 PHOTO 4
12" = 1'-0"



N17 PHOTO 5
12" = 1'-0"



J1 PHOTO 6
12" = 1'-0"



J5 PHOTO 7
12" = 1'-0"



J9 PHOTO 8
12" = 1'-0"



J13 PHOTO 9
12" = 1'-0"



J17 PHOTO 10
12" = 1'-0"



A1 REFERENCE SITE PLAN
1" = 100'-0"



E13 PHOTO 11
12" = 1'-0"



E17 PHOTO 12
12" = 1'-0"

e TIC #GRCA113173712

#	REVISIONS / SUBMISSIONS	DATE
1	NPS COMMENTS	10/15/2020

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
 RETAINING WALL - 030204001-9999-004-BRG

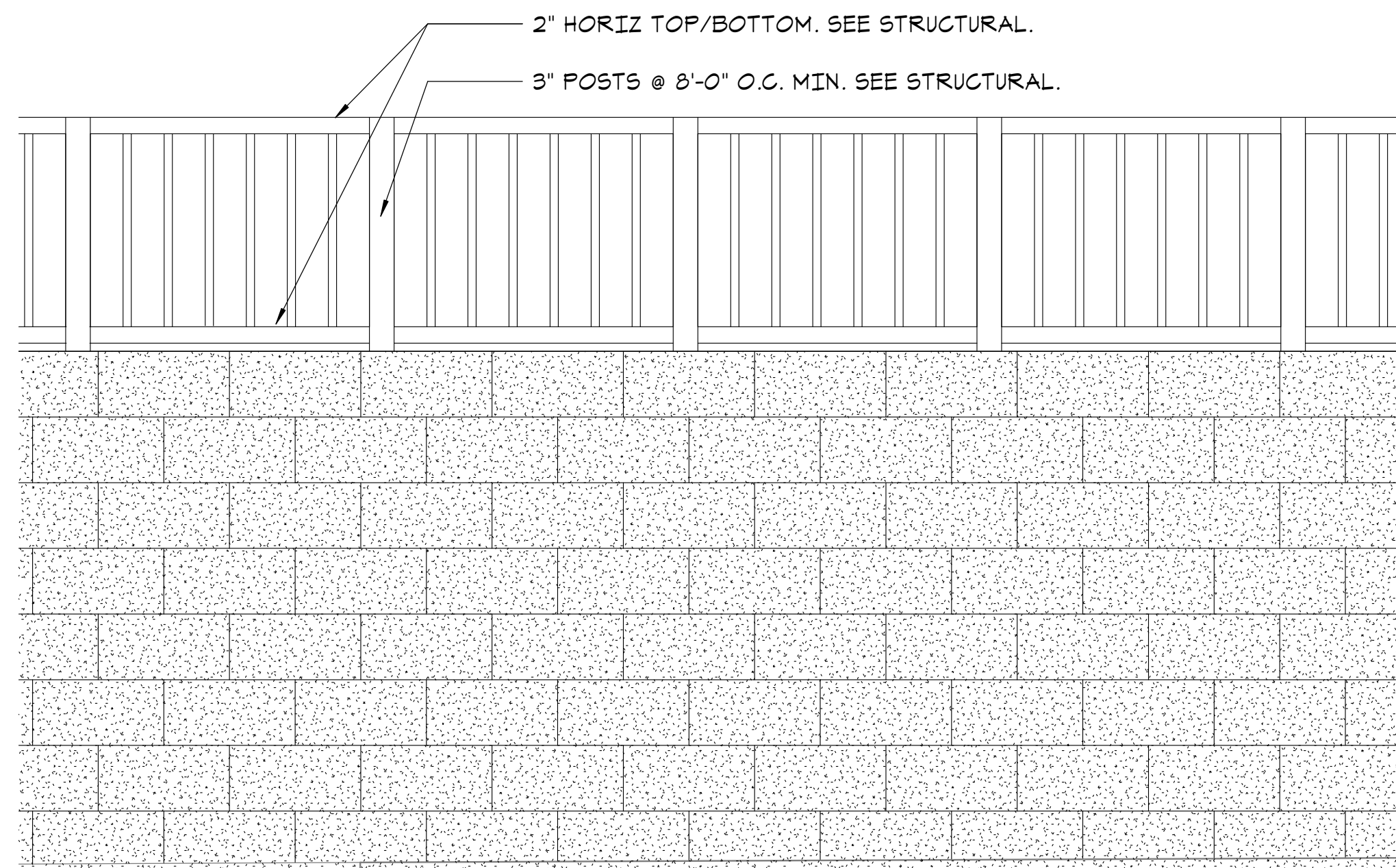
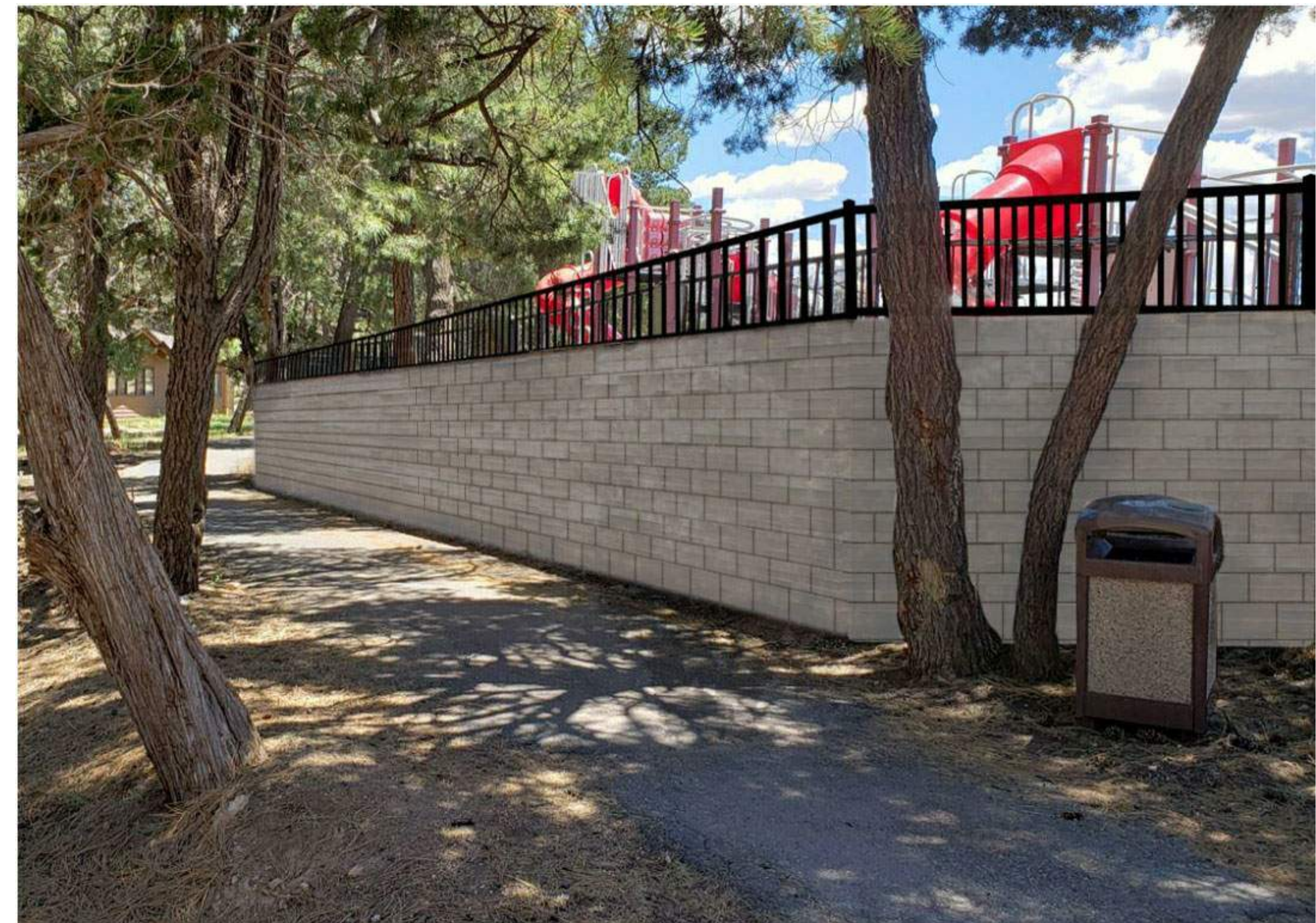
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2 Architects ■ Planners, PC
 Emc2 GROUP ARCHITECTS/PLANNERS, PC
 1635 N. Greenfield Road, Suite 144
 Mesa, Arizona 85205
 P 480 830 3838
 F 480 830 3860
 www.emc2architects.com

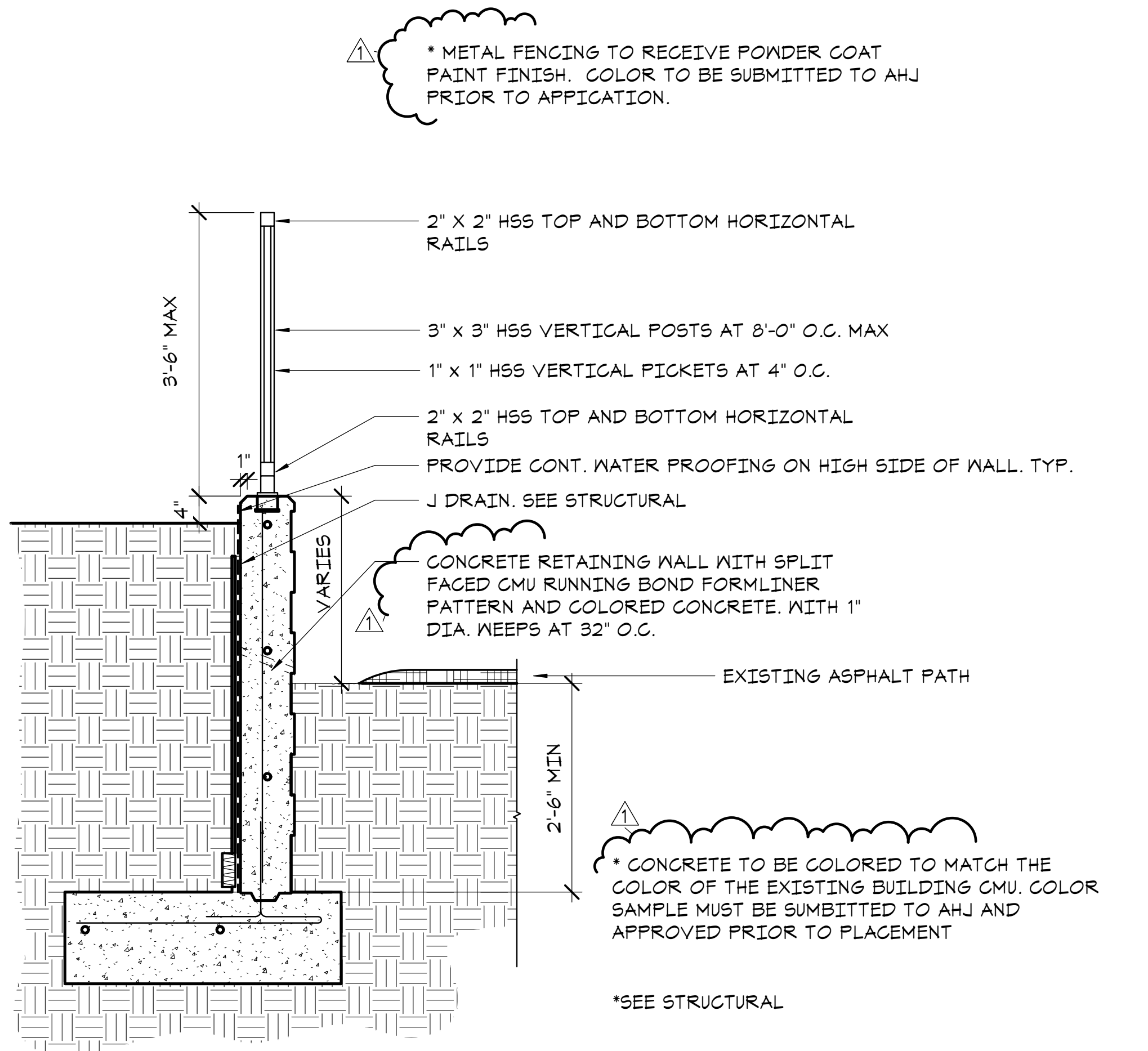
DRAWING TITLE:
SITE DEVELOPMENT PLAN

	DESIGNED BY: EMC2	PROJECT NO. 14819710
	DRAWN BY: JV,CW,MV	SCALE: As indicated
	CHECKED BY: DMM	DRAWING NO. SD01
	DATE: 06-08-2020	

DATA FILE:
710 Grand Canyon ES Wall.rvt



J13 TYPICAL ELEVATION
3/4" = 1'-0"



A13 SLOPED CONCRETE SITE WALL WITH SLAB / SIDEWALK / RAMP
3/4" = 1'-0"

GENERAL NOTES

- A. ALL FIRE LANES MUST REMAIN ACCESSIBLE DURING CONSTRUCTION.
- B. CONSTRUCTION ACCESS TO ROOF TO BE AS INDICATED UNLESS APPROVED BY DISTRICT.
- C. PROVIDE SAFETY PROTECTION FROM ALL STUDENT AREAS ADJACENT TO THE WORK.
- D. SCHOOL MUST REMAIN IN SESSION DURING THIS PROJECT. THE CONTRACTOR MUST LIMIT THE IMPACT OF THIS PROJECT DURING IN SCHOOL HOURS. 2 CLASSROOMS AT A TIME MAY BE RENDERED UNUSABLE FOR PROJECT RELATED REASONS (NOISE, FUMES, HVAC DISCONNECTION, ETC.) WITH MIN. 3 DAY NOTICE TO DISTRICT.
- E. CONTRACTOR RESPONSIBLE FOR ASSESSING CONDITION OF SIDEWALKS AND STAGING AREAS, AND ENSURE THEY ARE RETURNED TO ORIGINAL CONDITION AT PROJECT COMPLETION, INCLUDING THE REPLACEMENT, REPAIR OR CLEANING OF DAMAGED SIDEWALKS, LANDSCAPE AREAS AND IRRIGATION.
- F. OCCUPANT EGRESS AND PEDESTRIAN ACCESS MUST BE ACCOMMODATED THROUGHOUT PROJECT DURATION.
- G. CONTRACTOR TO COORDINATE WITH STAGING AND STORAGE AREAS WITH DISTRICT. DISTRICT TO APPROVE ALL MATERIAL AND EQUIPMENT DELIVERY TIMES AND LOCATION.
- H. CITY TO BE NOTIFIED IF ANY RIGHT OF WAY WORK IS REQUIRED.

* TIC #GRCA113173712

#	REVISIONS / SUBMISSIONS	DATE
1	NPS COMMENTS	10/15/2020

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
RETAINING WALL - 030204001-9999-004-BRG
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2 Architects ■ Planners, PC
Emc2 GROUP ARCHITECTS/PLANNERS, PC
1635 N. Greenfield Road, Suite 144
Mesa, Arizona 85205
P 480 830 3838
F 480 830 3860
www.emc2architects.com

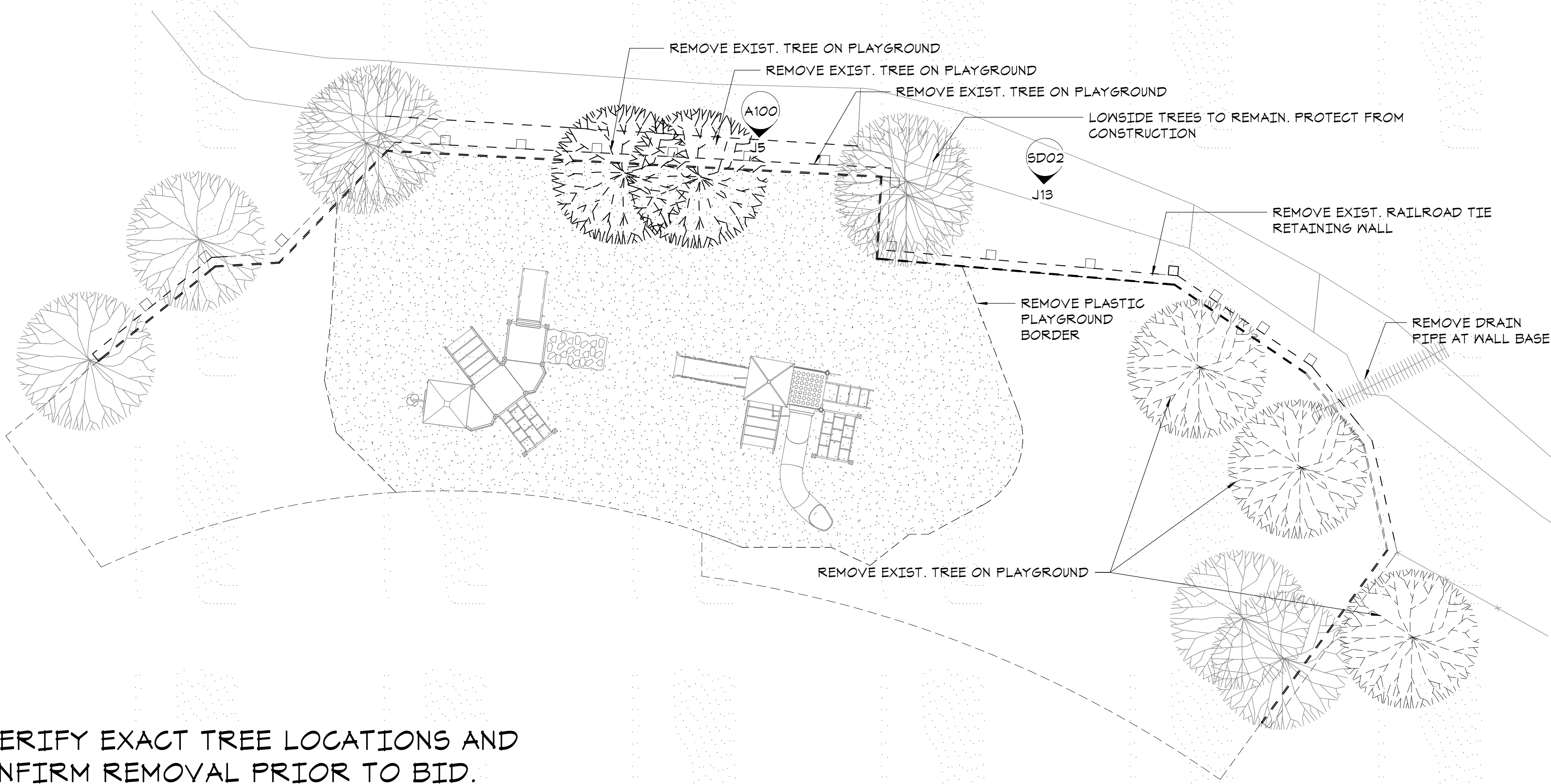
DRAWING TITLE:
SITE DETAILS

DESIGNED BY: EMC2	PROJECT NO. 14819710
DRAWN BY: JV,CW,MV	SCALE: 3/4" = 1'-0"
CHECKED BY: DMM	DRAWING NO. SD02
DATE: 06-08-2020	
DATA FILE: 710 Grand Canyon ES Wall.rvt	



J5 WALL ELEVATION - DEMO

1/8" = 1'-0"



* VERIFY EXACT TREE LOCATIONS AND CONFIRM REMOVAL PRIOR TO BID.

A5 FLOOR PLAN DEMO

1/8" = 1'-0"

e TIC #GRCA113173712

#	REVISIONS / SUBMISSIONS	DATE
1	NPS COMMENTS	10/15/2020

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
 RETAINING WALL - 030204001-9999-004-BRG

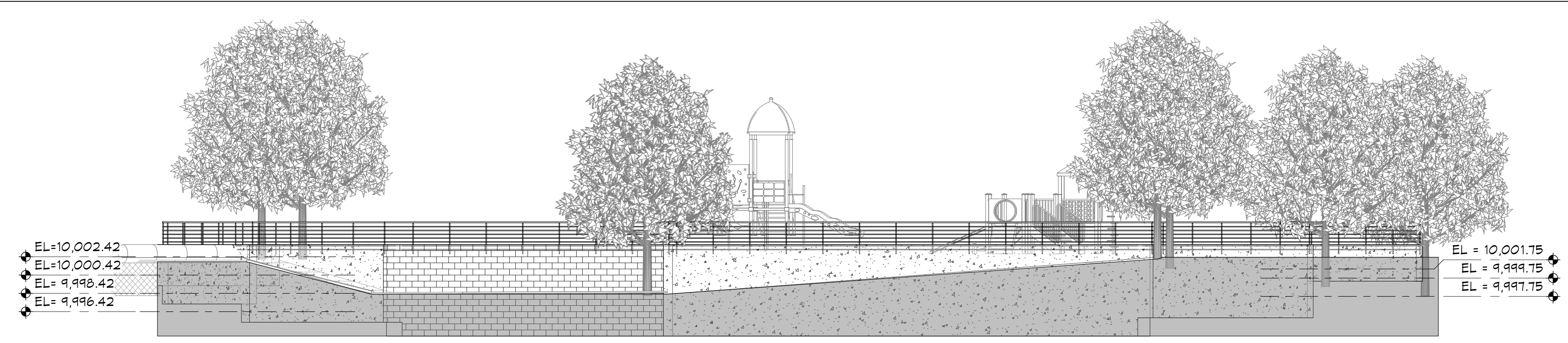
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2 Architects ■ Planners, PC
 Emc2 Group Architects/Planners, PC
 1635 N. Greenfield Road, Suite 144
 Mesa, Arizona 85205
 P 480 830 3838
 F 480 830 3860
 www.emc2architects.com

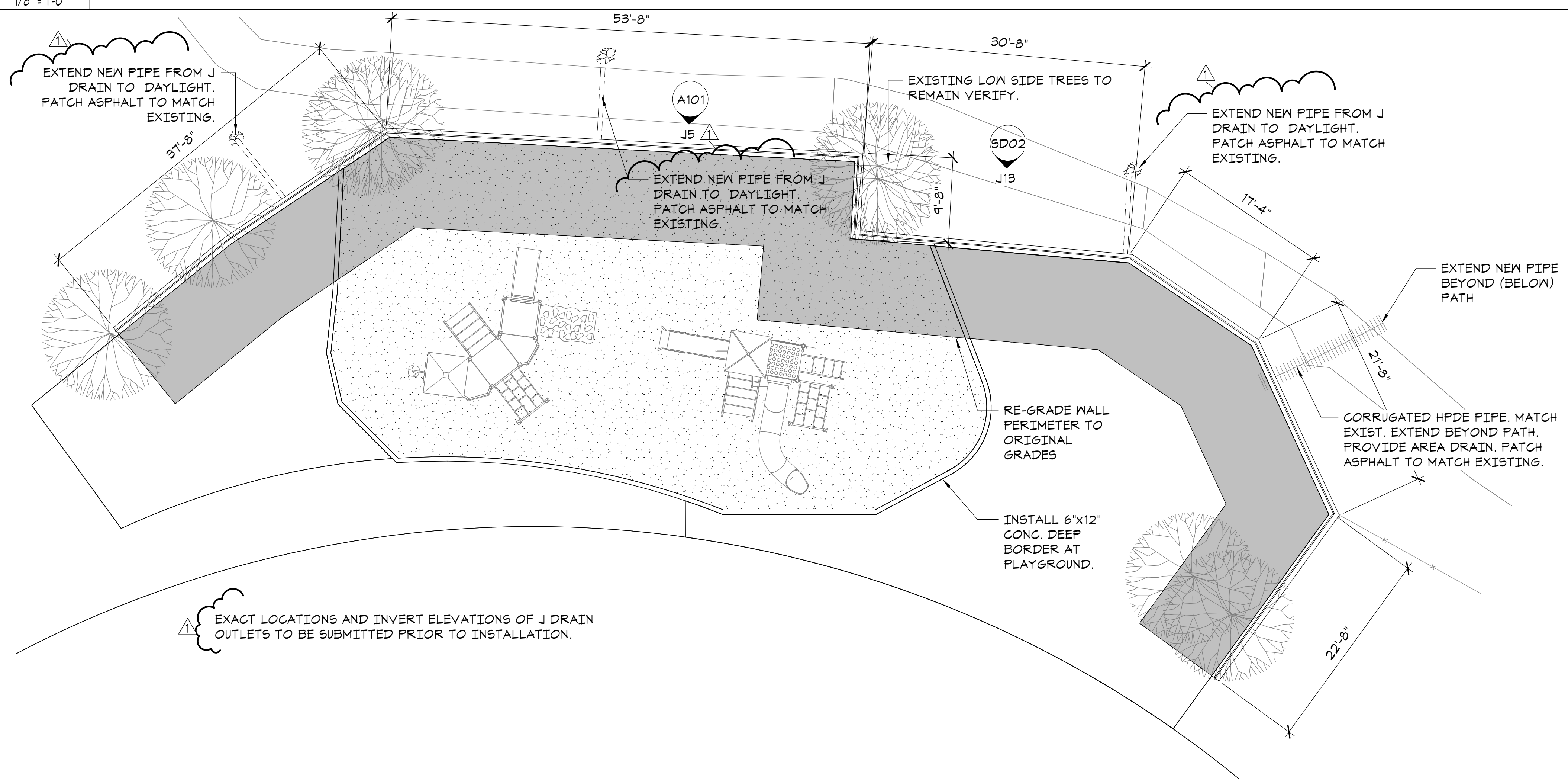
DRAWING TITLE:
FLOOR PLAN DEMO

	DESIGNED BY: EMC2	PROJECT NO. 14819710
	DRAWN BY: JV,CW,MV	SCALE: 1/8" = 1'-0"
	CHECKED BY: DMM	DRAWING NO. A100
	DATE: 06-08-2020	

DATA FILE:
710 Grand Canyon ES Wall.rvt



J5 WALL ELEVATION - NEW
1/8" = 1'-0"



A5 FLOOR PLAN NEW
1/8" = 1'-0"

e TIC #GRCA113173712

#	REVISIONS / SUBMISSIONS	DATE
1	NPS COMMENTS	10/15/2020

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
RETAINING WALL - 030204001-9999-004-BRG
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2 Architects ■ Planners, PC
Emc2 Group Architects/Planners, PC
1635 N. Greenfield Road, Suite 144
Mesa, Arizona 85205
P 480 830 3838
F 480 830 3860
www.emc2architects.com

DRAWING TITLE:
FLOOR PLAN NEW

	DESIGNED BY: EMC2	PROJECT NO. 14819710
	DRAWN BY: JV,CW,MV	SCALE: 1/8" = 1'-0"
	CHECKED BY: DMM	DRAWING NO. A101
	DATE: 06-08-2020	
DATA FILE: 710 Grand Canyon ES Wall.rvt		

GENERAL STRUCTURAL NOTES

(APPLY UNLESS NOTED OTHERWISE)

GENERAL NOTES:

- 1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS... 2. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE (IBC) 2018 EDITION WITH LOCAL AMENDMENTS... 3. THE WORK AS OUTLINED IS SUBJECT TO SPECIAL INSPECTIONS AS DESCRIBED IN CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE... 4. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, AND OTHER REQUIREMENTS NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW STRUCTURE... 5. WIND DESIGN CRITERIA: WIND LOAD (ULTIMATE)-----95 MPH, WIND LOAD IMPORTANCE FACTOR (IW)-----1.00, WIND EXPOSURE CATEGORY-----C, RISK CATEGORY-----I... 6. SEISMIC DESIGN CRITERIA: SEISMIC LOAD IMPORTANCE FACTOR(IE)-----1.0, DESIGN SPECTRAL RESPONSE ACCELERATION SS.....0.375g S1.....0.114g, SDS.....0.375g SD1.....0.180g, RISK CATEGORY-----I, SEISMIC SOIL SITE CLASS-----D, HOME: RESPONSE MODIFICATION FACTOR (R)-----2... 7. CONSTRUCTION MATERIAL LOADS SHALL BE PLACED SUCH THAT THE LOADS DO NOT EXCEED THE LIVE LOADS SPECIFIED ON THE CONTRACT DOCUMENTS... 8. SECTIONS AND DETAILS SHALL BE INCORPORATED AT ALL APPROPRIATE LOCATIONS, WHETHER SPECIFICALLY CUT OR NOT... 9. THESE DOCUMENTS REPRESENT THE COMPLETED STRUCTURE. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS AND METHODS OR THE SAFETY PRECAUTIONS REQUIRED.

FOUNDATION NOTES:

- 1. FOUNDATIONS FOR THIS STRUCTURE HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL EXPLORATION REPORT, PREPARED BY SPEEDIE & ASSOC, DATED 05/27/2020, REPORT NUMBER #2004515F... 2. FOUNDATIONS HAVE BEEN DESIGNED FOR A NET ALLOWABLE SOIL BEARING PRESSURE OF 3500 PSF... 3. FOUNDATIONS SHALL BEAR ON COMPACTED FILL MATERIAL 24" IN DEPTH. SCARIFY AND RECOMPACT TOP 12 INCHES OF EXISTING SUBGRADE AND EACH 6" LAYER OF BACKFILL OR FILL SOIL MATERIAL TO A MINIMUM OF 95% MODIFIED PROCTOR IN ACCORDANCE WITH ASTM D698... 4. THE MINIMUM DEPTH OF THE TOP OF FOOTINGS BELOW THE FINISHED GRADE SHALL BE 12"... 5. PRIOR TO PLACING FOUNDATION CONCRETE, ALL FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY THE OWNER'S TESTING AGENCY TO EXPLORE THE EXTENT OF LOOSE, SOFT OR OTHERWISE UNSATISFACTORY SOIL MATERIAL AND TO VERIFY DESIGN BEARING PRESSURE... 6. NO UNBALANCED BACKFILL SHALL BE PLACED AGAINST MASONRY OR CONCRETE WALLS UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING... 7. PROVIDE PROPER DRAINAGE WITHIN 15'-0" OF THE BUILDING EXTERIOR ACCOUNT FOR SURFACE RUN-OFF OF THE BUILDING AND ADJACENT SURFACES... 8. REFER TO ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR SLABS NOT SHOWN... 9. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ANY GEOTECHNICAL ASPECTS OF THIS PROJECT.

CAST-IN-PLACE CONCRETE NOTES:

- 1. ALL CONCRETE WORK SHALL CONFORM WITH THE REQUIREMENTS OF ACI 301 AND ACI 318... 2. ALL CONCRETE WORK SHALL COMPLY WITH THE FOLLOWING: CEMENT PER ASTM C150, TYPE II, AGGREGATE PER ASTM C33, CONCRETE SHALL BE NORMAL WEIGHT, CONCRETE SHALL BE READY MIXED IN ACCORDANCE WITH ASTM C94... 3. CONCRETE SHALL BE NORMAL WEIGHT AND SHALL BE DESIGNED FOR A MINIMUM 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS: WALLS -----4,000 PSI, FOUNDATIONS -----3,000 PSI* *DESIGNED FOR 2500 PSI... 4. FLY ASH IF PERMITTED BY ARCHITECT - SHALL CONFORM TO ASTM C618, CLASS F AND SHALL BE LIMITED TO 18% OF CEMENTITIOUS MATERIALS... 5. ALL CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4". IF A SUPER PLASTICIZER IS USED, AN 8" MAXIMUM SLUMP IS ALLOWED AT THE POINT OF PLACEMENT... 6. ALL REINFORCING STEEL AND EMBEDDED ITEMS SUCH AS ANCHOR BOLTS AND WELD PLATES SHALL BE ACCURATELY PLACED IN THE POSITIONS SHOWN AND ADEQUATELY TIED AND SUPPORTED BEFORE CONCRETE IS PLACED TO PREVENT DISPLACEMENT BEYOND PERMITTED TOLERANCES... 7. MECHANICALLY VIBRATE ALL CONCRETE PER ACI.

- 8. ALL CONCRETE SLABS ON GRADE SHALL BE BOUND BY CONTROL JOINTS AS SHOWN ON THE FOUNDATION PLAN... 9. ALL CONCRETE PLACEMENT SHALL COMPLY WITH THE HOT AND COLD WEATHER REQUIREMENTS OF ACI UNLESS APPROVED BY THE ARCHITECT... 10. ALL CONCRETE SHALL BE TESTED FOR COMPRESSIVE STRENGTH AND SLUMP PER ASTM C31, C39 AND C143... 11. REINFORCING STEEL SHALL CONFORM TO THE LATEST ACI AND CRSI DETAILING MANUAL AND THE FOLLOWING: #4 AND LARGER DEFORMED BARS-----ASTM A615 (Fy = 60 KSI), #3 AND SMALLER DEFORMED BARS-----ASTM A615 (Fy = 40 KSI), ALL WELDED REINFORCING BARS-----ASTM A706 WELDED WIRE FABRIC-----ASTM A185, WIRE-----ASTM A82... 12. ACCURATELY SUPPORT ALL REINFORCING, INCLUDING WELDED WIRE FABRIC, WITH GALVANIZED METAL CHAIRS, SPACERS OR HANGERS FOR THE FOLLOWING CLEAR CONCRETE COVERAGES UNO: CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ----- 3", EXPOSED TO EARTH OR WEATHER #6 OR LARGER ----- 2", #5 AND SMALLER ----- 1 1/2", COLUMNS (TO TIES) ----- 1 1/2", BEAMS (TO STIRRUPS) ----- 1 1/2", INTERIOR FLAT SLAB ----- 3/4", EXTERIOR FLAT SLAB EXPOSED TO WEATHER-----1 1/2"... 13. LAP SPLICES, UNLESS NOTED OTHERWISE, SHALL BE CLASS "B" TENSION LAP SPLICES... 14. LAP SPLICES IN WELDED WIRE FABRIC SHALL BE A MINIMUM OF 8". REMOVE CROSS LINK OF WELDED WIRE FABRIC AT EACH SAW JOINT... 15. ALL SPLICE LOCATIONS SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER... 16. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS... 17. STRUCTURAL STEEL NOTES: ALL STEEL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE AISC HANDBOOK... 18. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS: STRUCTURAL STEEL SHAPES, PLATES AND BARS (EXCEPT W-SHAPES) ASTM A 36, Fy =36 KSI, HOLLOW STRUCTURAL SHAPES (HSS) ASTM A 500, GRADE B, Fy = 46 KSI FOR SQUARE AND RECTANGULAR SHAPES... 19. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, "STRUCTURAL WELDING CODE - STEEL"... 20. SHOP PAINT ALL STEEL SURFACES WITH FABRICATOR'S STANDARD RUST-INHIBITTING PRIMER EXCEPT AT SURFACES ENCASED IN CONCRETE... 21. SHOP DRAWINGS: SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS... 22. THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL... 23. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER OR FABRICATOR... 24. THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS... 25. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY... 26. REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR... 27. ALLOW FIVE WORKING DAYS FOR REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL ENGINEER.

SPECIAL INSPECTION:

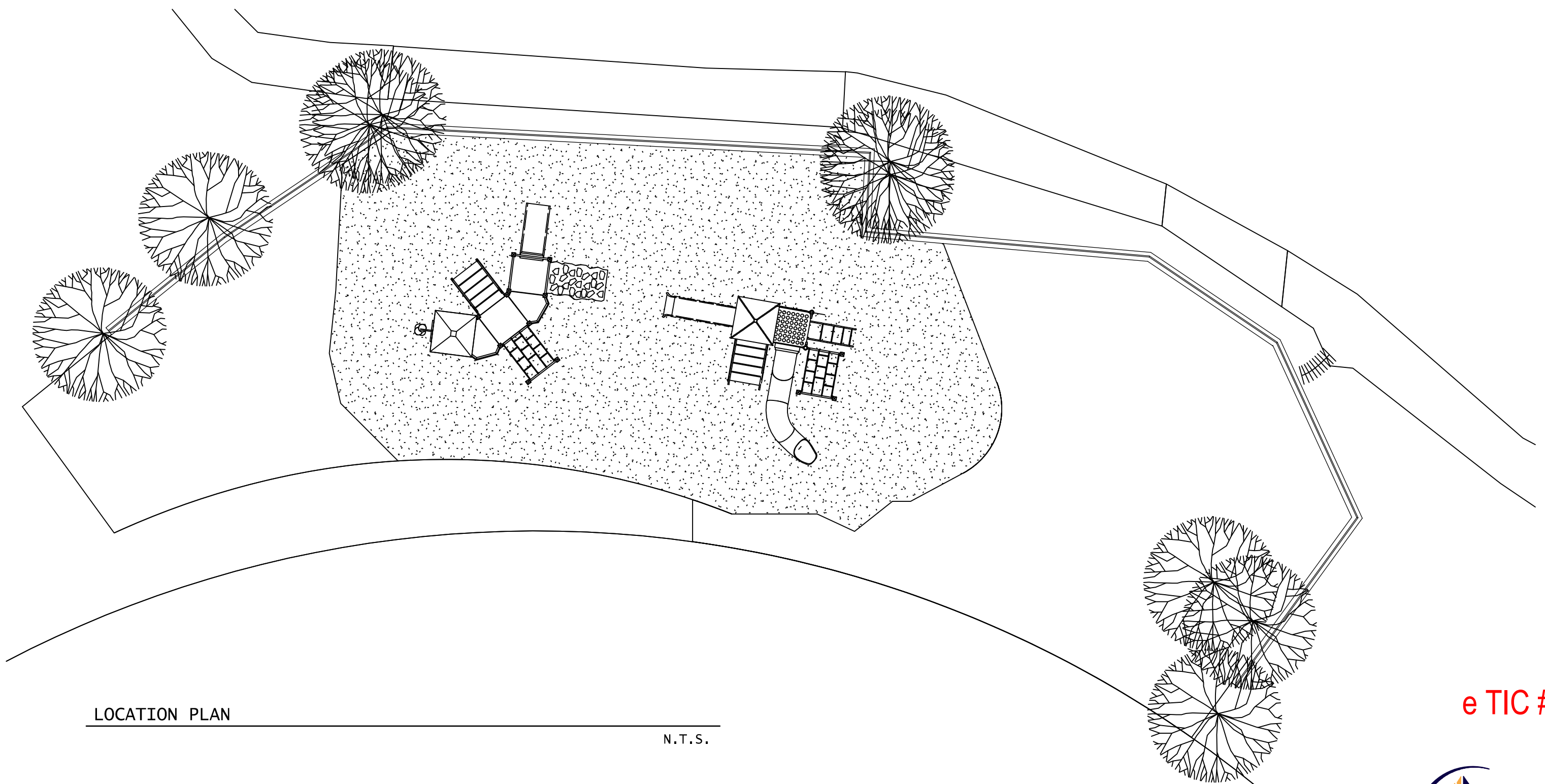
- 1. PER IBC CHAPTER 17, SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING ITEMS:

SOILS: PER IBC SECTION 1704.7

CONCRETE CONSTRUCTION: PER IBC SECTION 1704.4 & TABLE 1704.4. NOT REQUIRED FOR SLABS ON GRADE.

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATION. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL IF REQUESTED, AND TO THE ENGINEER OR ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL. UPON COMPLETION OF THE ASSIGNED WORK THE ENGINEER OR ARCHITECT SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.



e TIC #GRCA113173712

DBAA STRUCTURAL ENGINEERING Proj. No. 19.140 15150 North Hayden Road Suite 220 Scottsdale, Arizona 85260 Phone: (480) 219-2886 Fax: (480) 588-8584 david.bixler@dbaeng.com

Table with 3 columns: #, REVISIONS / SUBMISSIONS, DATE

GRAND CANYON UNIFIED SCHOOL DISTRICT GRAND CANYON ELEMENTARY RETAINING WALL - 030204001-9999-004-BRG

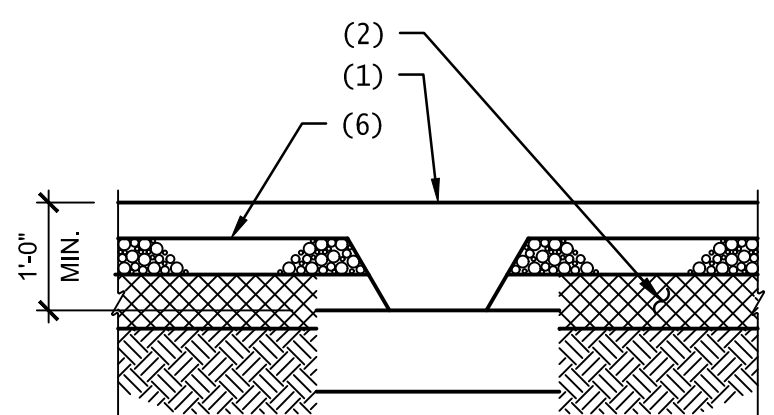
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2 Architects Planners, PC Emc2 Group Architects Planners PC 1635 N. Greenfield Road, Suite 144 Mesa, Arizona 85205 P 480 830 3838 F 480 830 3860 www.emc2architects.com

DRAWING TITLE: GENERAL STRUCTURAL NOTES

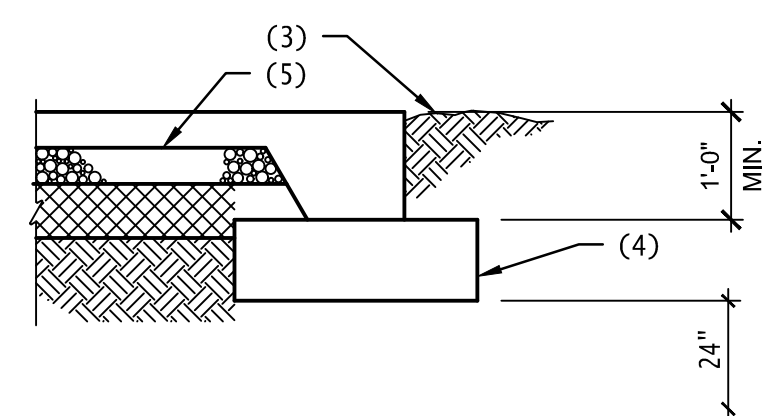
DESIGNED BY: EMC2 PROJECT NO. 14819710 DRAWN BY: JVCW/MV SCALE: 1/8" = 1'-0" CHECKED BY: DMM DRAWING NO. S1 DATE: 06-08-2020 DATA FILE: 710 Grand Canyon ES Wall.rvt

C:\Users\dmonacchio\Documents\710 Grand Canyon ES Wall_dmonacchio.rvt

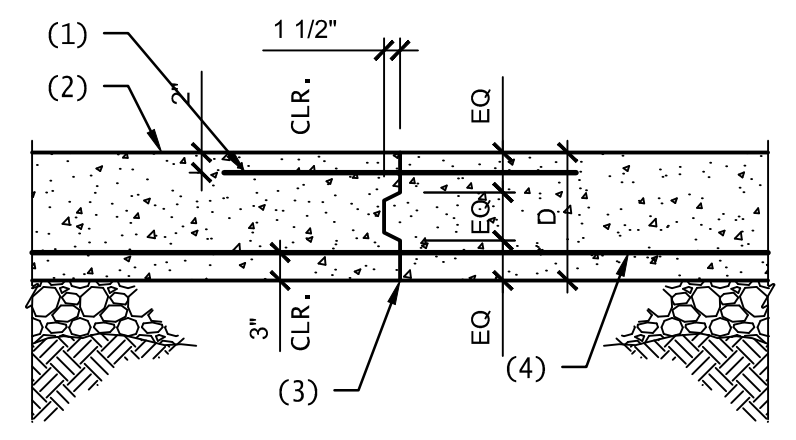


- NOTES:
1. CONCRETE SLAB ON GRADE.
 2. SCARIFY, MOISTEN, OR DRY AS REQUIRED, AND COMPACT ALL SUB GRADE SOILS BENEATH SLABS TO A MINIMUM DEPTH OF 6".
 3. FINISHED GRADE.
 4. SEE PLANS FOR TOP OF FOOTING ELEVATION.
 5. 4" AGGREGATE BASE COURSE.

ISOLATED FOOTINGS



CONTINUOUS FOOTINGS AND SLAB

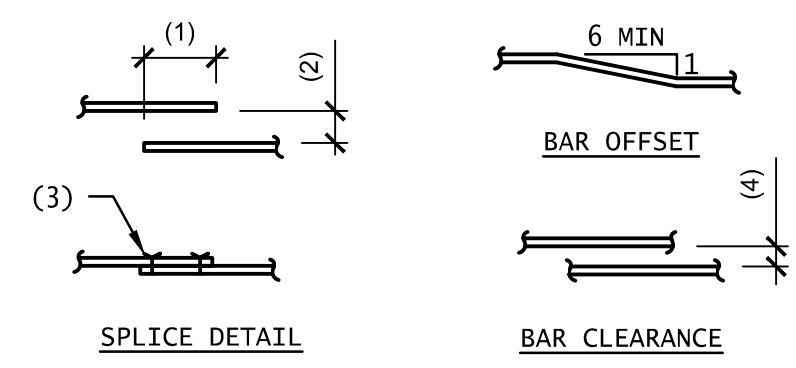


TYPICAL KEY IN CONCRETE

- NOTES:
1. 2 - #5 x 4'-0" CENTERED ON JOINT.
 2. CONCRETE FOOTING.
 3. PROVIDE KEY FULL WIDTH OF FOOTING.
 4. BOTTOM REINFORCING IS CONTINUOUS THROUGH JOINT.

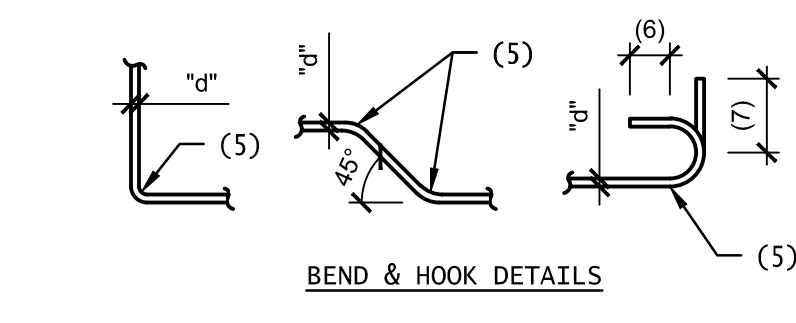
CONC PSI	TENSION SPLICE LENGTHS (CLASS B)										COMP. BARS			
	f'c ≤ 3,000 PSI		f'c ≤ 4,000 PSI		f'c ≤ 5,000 PSI		f'c ≤ 5,000 PSI		ALL f'c					
	REGULAR	TOP	REGULAR	TOP	REGULAR	TOP	REGULAR	TOP	STD LAP	ENCLOSED w/ SPIRAL TIES				
#3	24"	36"	31"	46"	19"	28"	25"	37"	17"	25"	22"	33"	12"	12"
#4	32"	47"	41"	61"	25"	37"	33"	49"	23"	34"	29"	44"	15"	12"
#5	39"	59"	51"	77"	31"	47"	41"	61"	28"	42"	36"	54"	19"	15"
#6	47"	71"	61"	92"	37"	56"	49"	73"	34"	50"	44"	65"	23"	18"
#7	69"	103"	89"	134"	54"	81"	71"	106"	49"	73"	63"	95"	27"	21"
#8	78"	117"	102"	153"	62"	93"	81"	121"	56"	83"	72"	108"	30"	23"
#9	88"	132"	115"	172"	70"	105"	91"	136"	63"	94"	81"	122"	34"	26"
#10	100"	149"	129"	194"	79"	118"	102"	153"	71"	106"	92"	137"	39"	30"
#11	110"	165"	143"	215"	87"	131"	114"	170"	78"	117"	102"	152"	43"	33"

- NOTES:
1. TOP BARS ARE ANY HORIZONTAL BARS PLACED WITHIN 8" OF THE TOP OF THE MEMBER.



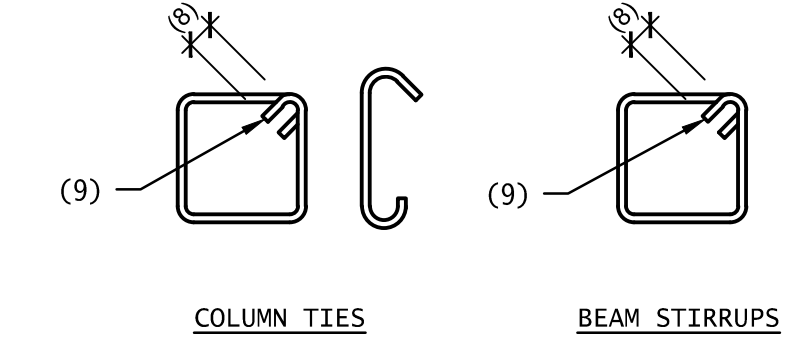
SPLICE DETAIL

BAR OFFSET



BAR CLEARANCE

BEND & HOOK DETAILS



COLUMN TIES

BEAM STIRRUPS

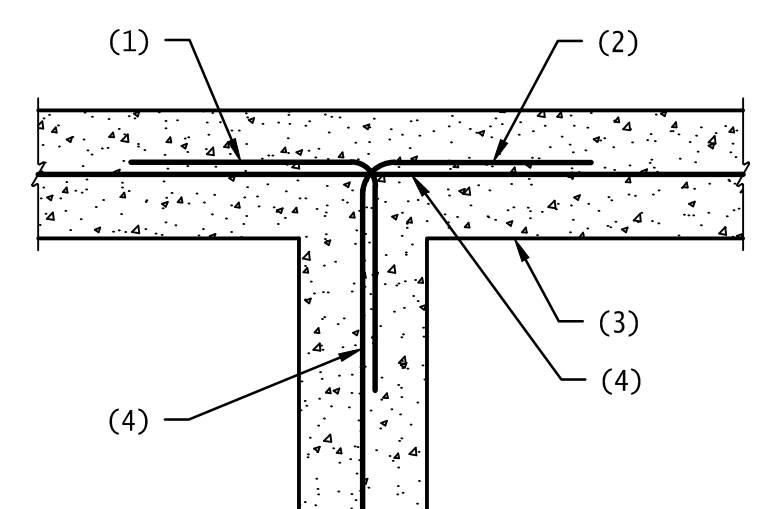
- NOTES:
1. LAP PER G.S.N.
 2. MAXIMUM DISTANCE 1/5 OF REQUIRED LAP LENGTH BUT NOT MORE THAN 6".
 3. WIRE TIES.
 4. 1d OR 1", WHICHEVER IS GREATER.
 5. RADIUS=3d FOR BARS LESS THAN #9; 4d FOR #9 TO #11 BARS; 5d FOR #14 AND #18 BARS; 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK.
 6. 4d OR 4", WHICHEVER IS GREATER.
 7. 12d (90 DEGREE HOOK.)
 8. 6d OR 4", WHICHEVER IS GREATER.
 9. 135 DEGREE HOOK.

TYPICAL CONCRETE REINFORCING BAR DETAILS

N.T.S.

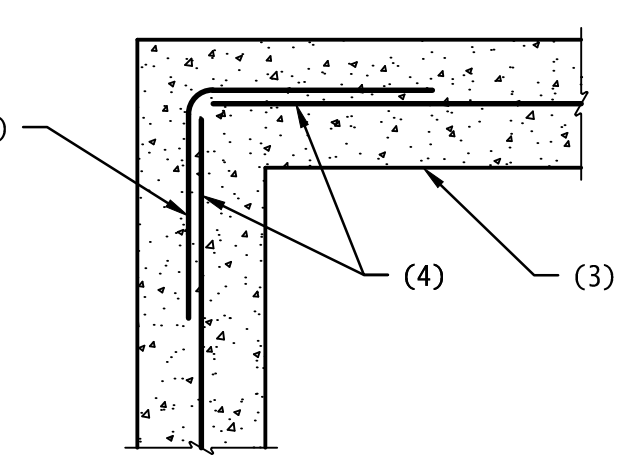
TYPICAL EARTHWORK DETAIL

N.T.S.



INTERSECTION

- NOTES:
1. CORNER BARS SAME SIZE AND SPACING AS HORIZONTAL REINFORCING. LAP PER G.S.N. (24" MINIMUM.)
 2. ALTERNATE BEND.
 3. CONCRETE STEM WALL OR FOOTING.
 4. REINFORCING PER PLANS AND/OR G.S.N.

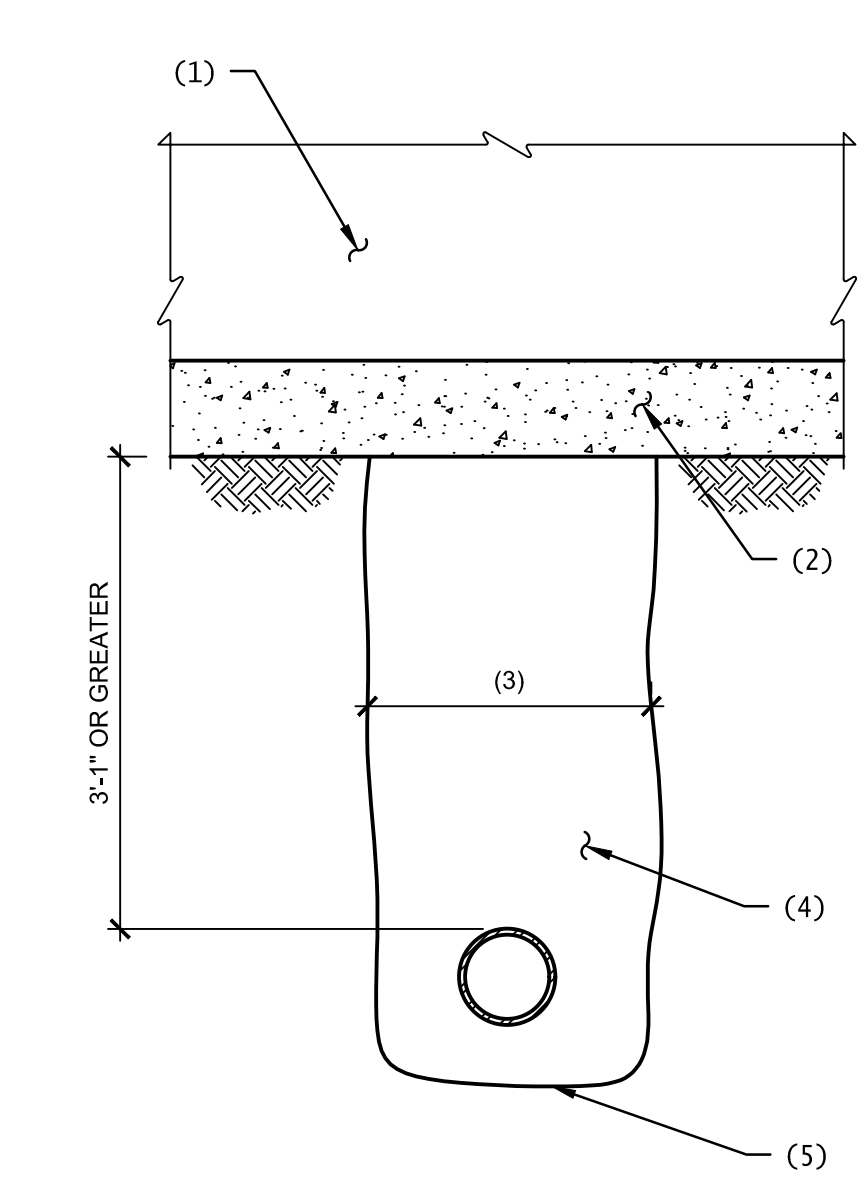


PLAN - CORNER REINFORCING IN CONCRETE FOOTING AND/OR STEM WALL

N.T.S.

TYPICAL KEY IN CONCRETE

N.T.S.



PIPE PASSING BELOW WALL FOOTING IN DEEP TRENCH

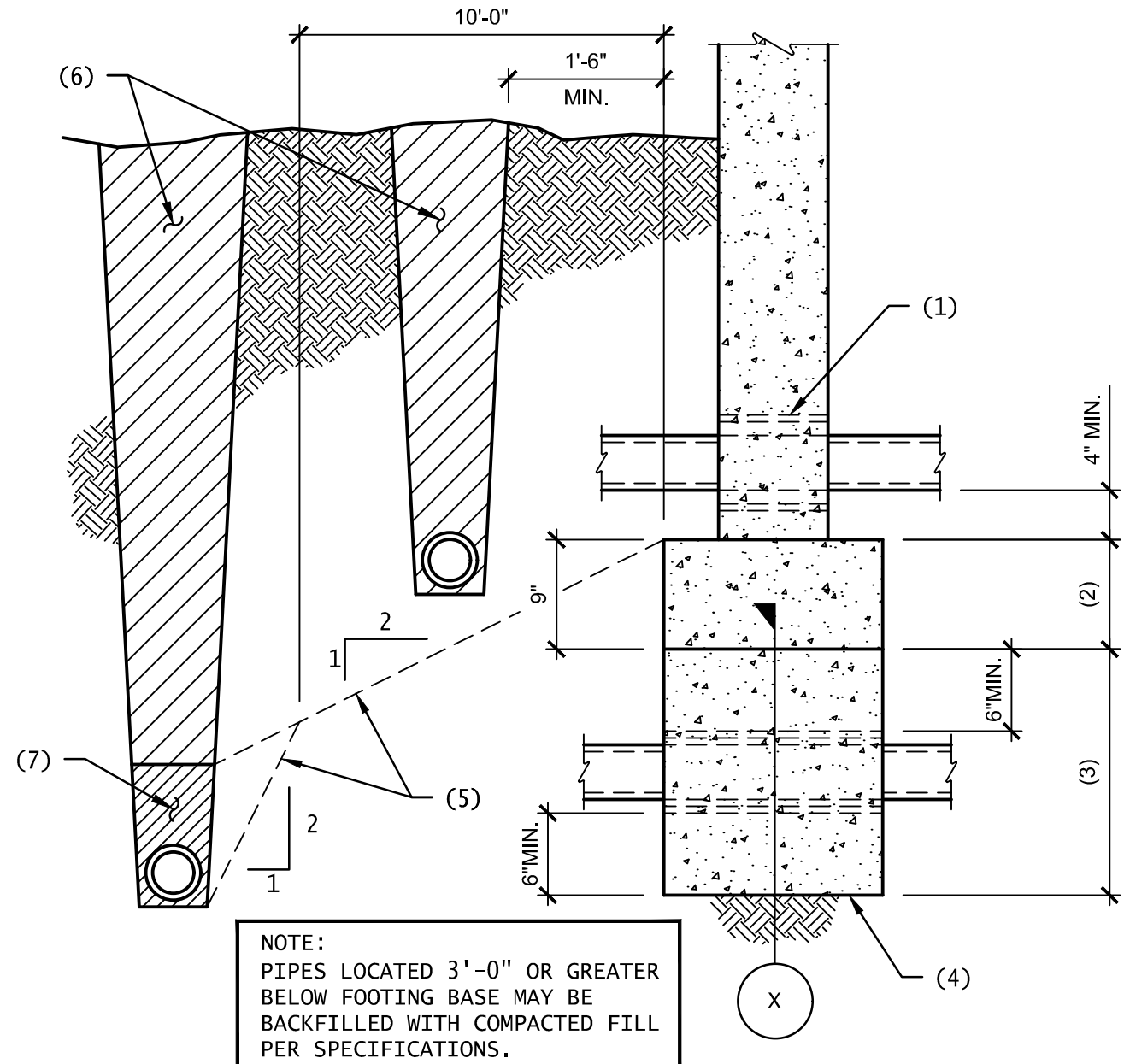
N.T.S.

- NOTES:
1. STEM WALL.
 2. CONCRETE FOOTING.
 3. 1'-6" MAXIMUM WIDTH - WHERE TRENCH EXCEEDS 1'-6" NOTIFY ENGINEER OF RECORD PRIOR TO PLACEMENT OF FOOTING.
 4. BACKFILL AND RECOMPACT TRENCH.
 5. BOTTOM OF TRENCH.

NOTE:
FOR TRENCH DEPTHS OF 3'-6" OR LESS, SEE TYPICAL PIPE BELOW FOOTING AND AT TRENCH DETAIL.

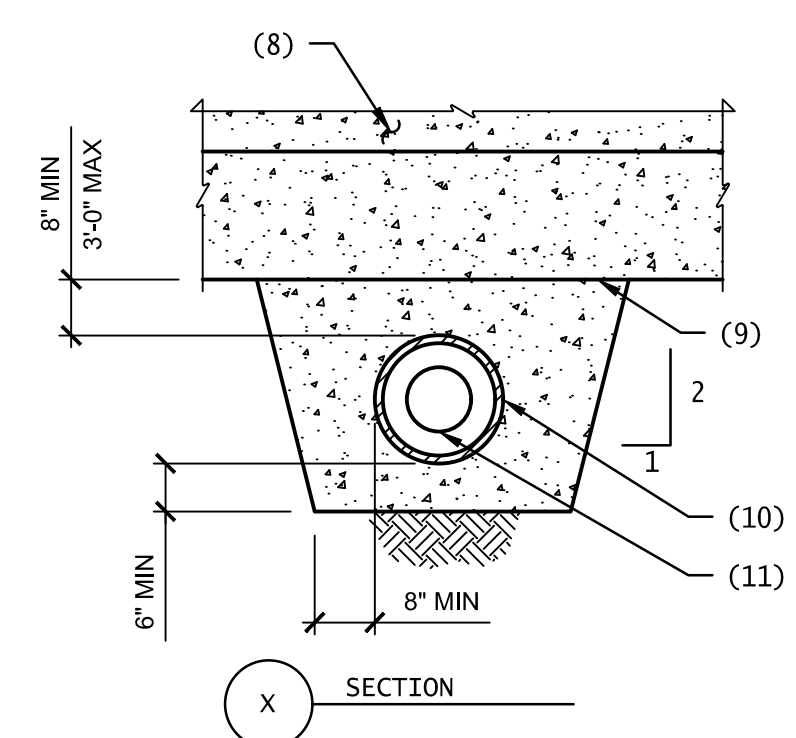
MINIMUM REINFORCING BAR SPLICE LENGTHS IN CAST IN PLACE CONCRETE

N.T.S.



TYPICAL PIPE BELOW FOOTING AND AT TRENCH

NOTE:
PIPES LOCATED 3'-0" OR GREATER BELOW FOOTING BASE MAY BE BACKFILLED WITH COMPACTED FILL PER SPECIFICATIONS.

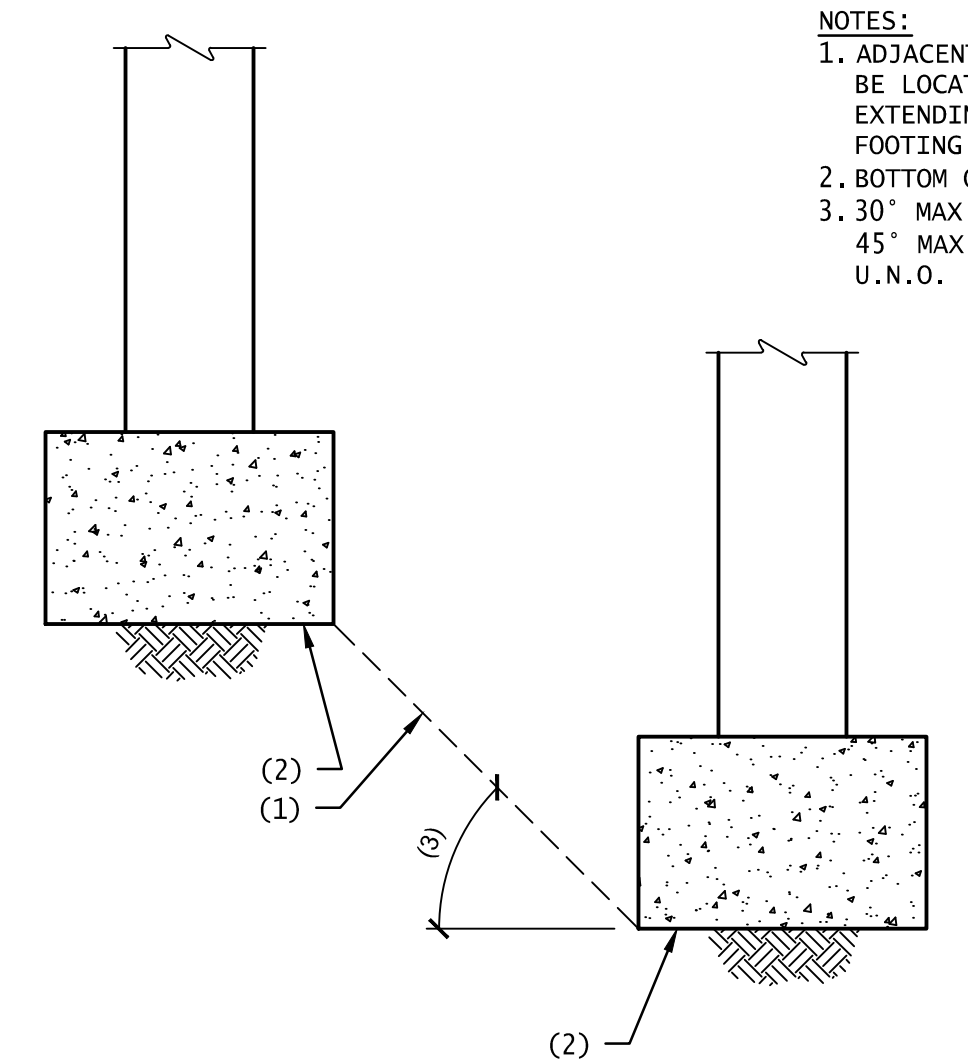


NOTES:
A. PIPES SHALL NOT PASS UNDER COLUMN FOOTINGS.
B. FOR TRENCHES GREATER THAN 3'-6" BELOW BOTTOM OF FOOTING, SEE TYPICAL PIPE BELOW WALL FOOTING DETAIL.

- NOTES:
1. CAST IRON SLEEVE SHALL BE 2" LARGER THAN PIPE.
 - NO SLEEVES PERMITTED IN THIS AREA OF FOOTING.
 - 3'-0" MAXIMUM - STEP FOOTING IF NECESSARY.
 - FILL PIPE TRENCH WITH CONCRETE.
 - EXCAVATION BELOW THESE LINES NOT PERMITTED.
 - BACK FILL.
 - COMPACT TO 90% DENSITY (ASTM D-698.)
 - STEM WALL.
 - CONCRETE FOOTING.
 - SLEEVE - PROVIDE 1/2" MINIMUM CLEARANCE AROUND PIPE OR CONDUIT.
 - PIPE OR CONDUIT.

e TIC #GRCA113173712

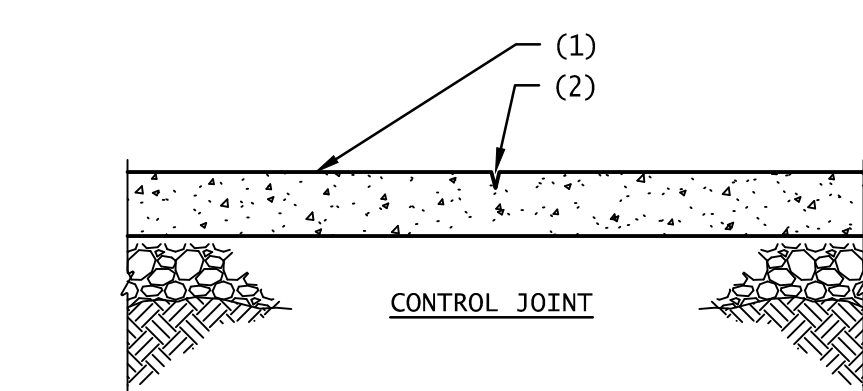
DBAA
STRUCTURAL ENGINEERING
15150 North Hayden Road Suite 220
Scottsdale, Arizona 85260
Phone: (480) 219-2886
Fax: (480) 588-8584
david.bixler@dbaaeng.com
Proj. No. 19.140
UNLESS THIS DRAWING IS SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER, IT IS A PRELIMINARY DESIGN AND SHALL NOT BE USED FOR CONSTRUCTION.



MAXIMUM SLOPE BETWEEN ADJACENT FOOTING

N.T.S.

- NOTES:
1. ADJACENT FOOTING SHALL NOT BE LOCATED BELOW LINE EXTENDING FROM BOTTOM OF FOOTING.
 2. BOTTOM OF CONCRETE FOOTING.
 3. 30" MAX IN GRANULAR SOILS, 45" MAX IN OTHER SOILS U.N.O.



TYPICAL CONTROL JOINTS IN CONCRETE SLAB ON GRADE

N.T.S.

NOTE:
PLACE CONSTRUCTION JOINTS AT 25'-0" O.C. MAX.

- NOTES:
1. CONCRETE SLAB ON GRADE.
 2. SAWCUT, 1/8" WIDE x 1/4 WALL THICKNESS IN DEPTH. CUT SHALL BE MADE AS SOON AS POSSIBLE AFTER POUR TO PREVENT SHRINKAGE CRACKING, BUT AFTER THE CONCRETE HAS CURED SUFFICIENTLY TO PREVENT SPALLING OF THE CONCRETE WHILE SAWING.

#	REVISIONS / SUBMISSIONS	DATE

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
RETAINING WALL - 030204001-9999-004-BRG

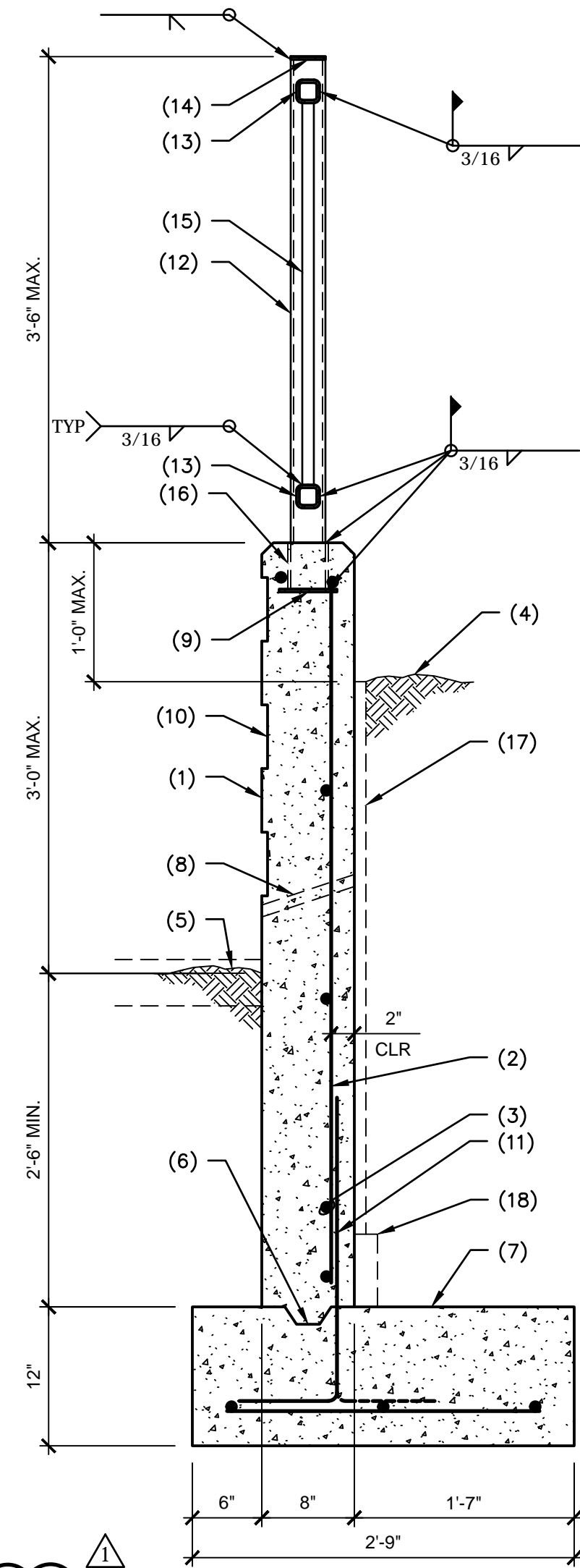
100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2
Architects ■ Planners, P.C.
Emc2 GROUP ARCHITECTS PLANNERS PC
1635 N. Greenfield Road, Suite 144
Mesa, Arizona 85205
P 480 830 3838
F 480 830 3860
www.emc2architects.com

DRAWING TITLE:
TYPICAL SECTIONS & DETAILS

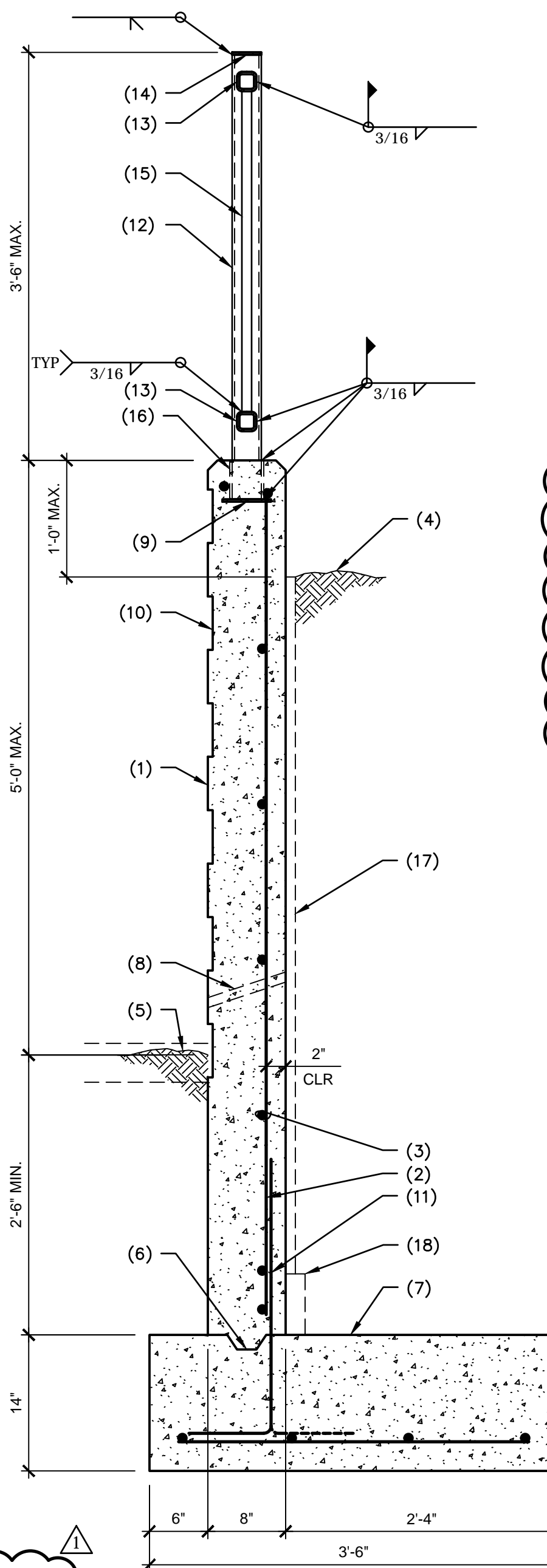
DESIGNED BY: EMC2	PROJECT NO. 14819710
DRAWN BY: JV,CW,MV	SCALE: 1/8" = 1'-0"
CHECKED BY: DMM	DRAWING NO. S2
DATE: 06-08-2020	
DATA FILE: 710 Grand Canyon ES Wall.rvt	

6/24/2020 3:40:31 PM



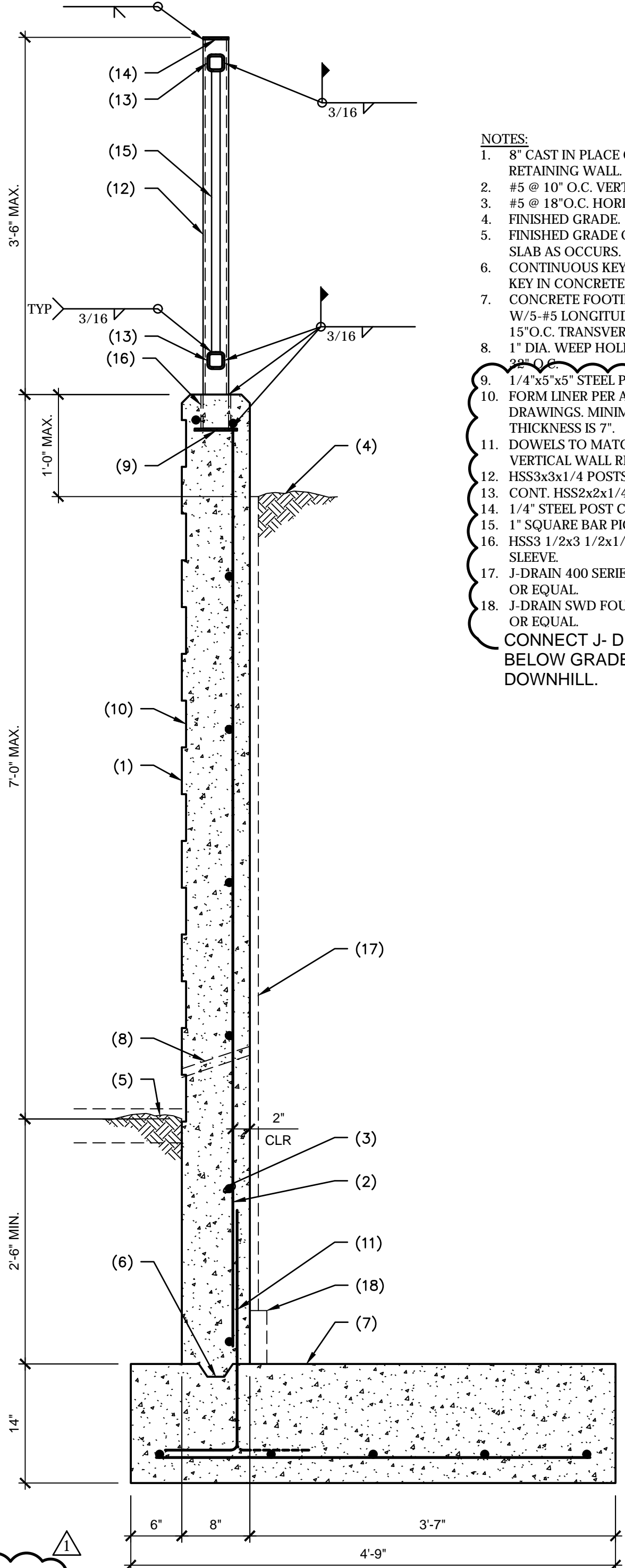
- NOTES:**
- 8" CAST IN PLACE CONCRETE RETAINING WALL.
 - #5 @ 16" O.C. VERTICAL.
 - #5 @ 18" O.C. HORIZONTAL.
 - FINISHED GRADE.
 - FINISHED GRADE OR CONCRETE SLAB AS OCCURS.
 - CONTINUOUS KEY - SEE TYPICAL KEY IN CONCRETE DETAIL.
 - CONCRETE FOOTING REINFORCED W/4-#5 LONGITUDINAL & #5 @ 24" O.C. TRANSVERSE.
 - 1" DIA. WEEP HOLES AT 36" O.C.
 - 1/4"x5"x5" STEEL PLATE.
 - FORM LINER PER ARCHITECTURAL DRAWINGS. MINIMUM CONCRETE THICKNESS IS 7".
 - DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING.
 - HSS3x3x1/4 POSTS @ 8'-0" O.C. MAX.
 - CONT. HSS2x2x1/4 RAIL.
 - 1/4" STEEL POST CAP.
 - 1" SQUARE BAR PICKETS @ 4" O.C.
 - HSS3 1/2x3 1/2x1/4 x 4" LONG SLEEVE.
 - J-DRAIN 400 SERIES DRAINAGE MAT OR EQUAL.
 - J-DRAIN SWD FOUNDATION DRAIN OR EQUAL.

1 TYPICAL 3'-0" MAX. CONCRETE RETAINING WALL N.T.S.



- NOTES:**
- 8" CAST IN PLACE CONCRETE RETAINING WALL.
 - #5 @ 16" O.C. VERTICAL.
 - #5 @ 18" O.C. HORIZONTAL.
 - FINISHED GRADE.
 - FINISHED GRADE OR CONCRETE SLAB AS OCCURS.
 - CONTINUOUS KEY - SEE TYPICAL KEY IN CONCRETE DETAIL.
 - CONCRETE FOOTING REINFORCED W/4-#5 LONGITUDINAL & #5 @ 24" O.C. TRANSVERSE.
 - 1" DIA. WEEP HOLES AT 36" O.C.
 - 1/4"x5"x5" STEEL PLATE.
 - FORM LINER PER ARCHITECTURAL DRAWINGS. MINIMUM CONCRETE THICKNESS IS 7".
 - DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING.
 - HSS3x3x1/4 POSTS @ 8'-0" O.C. MAX.
 - CONT. HSS2x2x1/4 RAIL.
 - 1/4" STEEL POST CAP.
 - 1" SQUARE BAR PICKETS @ 4" O.C.
 - HSS3 1/2x3 1/2x1/4 x 4" LONG SLEEVE.
 - J-DRAIN 400 SERIES DRAINAGE MAT OR EQUAL.
 - J-DRAIN SWD FOUNDATION DRAIN OR EQUAL.

2 TYPICAL 5'-0" MAX. CONCRETE RETAINING WALL N.T.S.



- NOTES:**
- 8" CAST IN PLACE CONCRETE RETAINING WALL.
 - #5 @ 10" O.C. VERTICAL.
 - #5 @ 18" O.C. HORIZONTAL.
 - FINISHED GRADE.
 - FINISHED GRADE OR CONCRETE SLAB AS OCCURS.
 - CONTINUOUS KEY - SEE TYPICAL KEY IN CONCRETE DETAIL.
 - CONCRETE FOOTING REINFORCED W/5-#5 LONGITUDINAL & #5 @ 15" O.C. TRANSVERSE.
 - 1" DIA. WEEP HOLES AT 36" O.C.
 - 1/4"x5"x5" STEEL PLATE.
 - FORM LINER PER ARCHITECTURAL DRAWINGS. MINIMUM CONCRETE THICKNESS IS 7".
 - DOWELS TO MATCH AND LAP VERTICAL WALL REINFORCING.
 - HSS3x3x1/4 POSTS @ 8'-0" O.C. MAX.
 - CONT. HSS2x2x1/4 RAIL.
 - 1/4" STEEL POST CAP.
 - 1" SQUARE BAR PICKETS @ 4" O.C.
 - HSS3 1/2x3 1/2x1/4 x 4" LONG SLEEVE.
 - J-DRAIN 400 SERIES DRAINAGE MAT OR EQUAL.
 - J-DRAIN SWD FOUNDATION DRAIN OR EQUAL.
- CONNECT J-DRAIN TO 4" PIPE BELOW GRADE AND DAYLIGHT DOWNHILL.

3 TYPICAL 7'-0" MAX. CONCRETE RETAINING WALL N.T.S.

e TIC #GRCA113173712

DBAA
STRUCTURAL ENGINEERING

15150 North Hayden Road
Suite 220
Scottsdale, Arizona 85260
Phone: (480) 219-2886
Fax: (480) 588-8584
david.bixler@dbaaeng.com

Proj. No. 19.140

UNLESS THIS DRAWING IS SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER, IT IS A PRELIMINARY DESIGN AND SHALL NOT BE USED FOR CONSTRUCTION.

#	REVISIONS / SUBMISSIONS	DATE
1	COMMENT RESPONSE	08/10/20

GRAND CANYON UNIFIED SCHOOL DISTRICT
GRAND CANYON ELEMENTARY
RETAINING WALL - 030204001-9999-004-BRG

100 BOULDER STREET, GRAND CANYON VILLAGE AZ 86023

Emc2
Architects ■ Planners, PC

Emc2 GROUP ARCHITECTS PLANNERS PC
1635 N. Greenfield Road, Suite 144
Mesa, Arizona 85205
P 480 830 3838
F 480 830 3860
www.emc2architects.com

DRAWING TITLE:
RETAINING WALL SECTIONS

DESIGNED BY: EMC2	PROJECT NO. 14819710
DRAWN BY: JV,CW,MV	SCALE: 1/8" = 1'-0"
CHECKED BY: DMM	DRAWING NO. S3
DATE: 06-08-2020	
DATA FILE: 710 Grand Canyon ESWall.rvt	