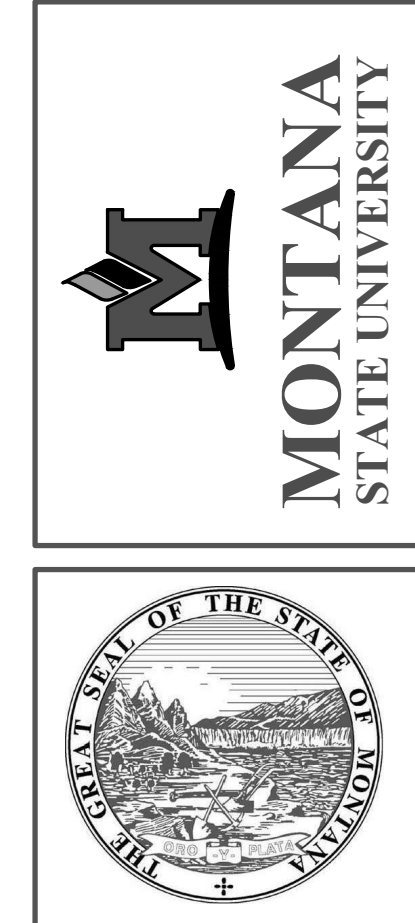


MONTANA STATE UNIVERSITY BART FARM FARRIER SCHOOL

WEST LINCOLN STREET, BOZEMAN, MONTANA



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ABBREVIATIONS

A	AS-BUILT	M	MAXIMUM
AB	AGENCY HAVING JURISDICTION	MIN	MINIMUM
B		MPWSS	MT PUBLIC WORKS STANDARD SPECIFICATIONS MONTANA
BLDG	BUILDING	MT	
BVCE	BEGIN VERTICAL CURVE ELEVATION	N	NORTH
BVCS	BEGIN VERTICAL CURVE STATION	NT	NOT IN CONTRACT
BTM	BOTTOM	NTS	NOT TO SCALE
C		O	ON CENTER
CATV	CABLE TV	O.C.C.	OPPOSITE
CL	CENTER LINE	P	POINT OF VERTICAL INTERSECTION
CJ	CONSTRUCTION JOINT	PVI	PROPERTY
D		PROP	
DTL	DETAIL	R	REFERENCE
DIA	DIAMETER	REQ'D	REQUIRED
DIM	DIMENSION	REV	REVISION
DIV	DIVISION	ROW	RIGHT-OF-WAY
DWG	DRAWING	S	SANITARY SEWER
E		SCH	SCHEDULE
EW	EACH WAY	SIM	SIMILAR
E	EAST	S	SOUTH
EA	EDGE OF ASPHALT	SPEC	SPECIFICATION
ELEC	ELECTRIC	STD	STANDARD
ELEV	ELEVATION	SD	STORM DRAIN
ED	EMERGENCY DEPARTMENT	T	TELEPHONE
EQ	EQUAL	TYP	TYPICAL
EQUIP	EQUIPMENT	TBC	TOP BACK OF CURB
EVCE	END VERTICAL CURVE ELEVATION	U	UNLESS NOTED OTHERWISE
EVCS	END VERTICAL CURVE STATION	V	VERTICAL
EXIST	EXISTING	W	WEST
F		WTR	WITH
FO	FIBER OPTIC	W	
FF	FINISHED FLOOR ELEVATION	W/	
G			
GIS	GEOGRAPHIC INFORMATION SYSTEM		
H			
HT	HEIGHT		
HORIZ	HORIZONTAL		
HR	HOUR		
I			
I.T.C.	INTERNATIONAL BUILDING CODE		
K			
KRH	KALISPELL REGIONAL HEALTHCARE		

SITE LOCATION PLAN



INDEX OF DRAWINGS

SHEET #	SHEET TITLE	RELEASE DATE	LATEST REVISION
T0.00	TITLE SHEET	1-11-2021	
C0.10	EXISTING SITE SURVEY AND DEMO PLAN	1-11-2021	
C1.10	SITE PLAN	1-11-2021	
C1.30	SITE GRADING PLAN	1-11-2021	
S0.00	STRUCTURAL NOTES	1-11-2021	
S1.00	SLAB PLAN	1-11-2021	
S1.10	ALT 1 SLAB PLAN	1-11-2021	
S4.00	STRUCTURAL DETAILS	1-11-2021	

LEGEND

GAS METER	FENCE	EXISTING ASPHALT
CABLE PEDESTAL	EXISTING PROPERTY LINE	EXISTING BUILDING
TELEPHONE PEDESTAL	EXISTING OVERHEAD POWER	EXISTING SIDEWALK
ELECTRICAL JUNCTION BOX	EXISTING UNDERGROUND POWER	PROPOSED ASPHALT
ELECTRICAL PEDESTAL	EXISTING FIBER OPTIC	PROPOSED BUILDING
TRAFFIC SIGN	EXISTING UNDERGROUND PHONE	PROPOSED 4" SIDEWALK
LIGHT POLE	EXISTING UNDERGROUND CABLE	EXISTING DIRT/GRAVEL
EXISTING LIGHT POLE	EXISTING GAS	STANDARD CURB AND GUTTER
UTILITY POLE	EXISTING WATER	SPILL CURB AND GUTTER
TRANSFORMER	EXISTING SANITARY SEWER	DRIVE OVER CURB AND GUTTER
CAP WITH THRUST BLOCK	EXISTING STORM DRAIN	EXISTING SPOT GRADE
FIRE HYDRANT	EXISTING STORM DRAIN	DESIGN SPOT GRADE
FROST FREE YARD HYDRANT	PROPOSED PROPERTY LINE	TBC DESIGN SPOT GRADE
WATER GATE VALVE	OVERHEAD POWER	
WATER CURB STOP	UNDERGROUND POWER	
WATER TEE	UNDERGROUND FIBER OPTIC	
THRUST BLOCK	UNDERGROUND TELEPHONE	
IRRIGATION VALVE BOX	UNDERGROUND CABLE	
WATER METER PIT	GAS MAIN	
FIRE DEPARTMENT CONNECTION	WATER MAIN	
PIPE CAP	SANITARY SEWER MAIN	
CLEAN OUT	STORM DRAIN	
SEWER MANHOLE	ROOF DRAIN	
STORM MANHOLE	DRAINAGE SWALE	
CATCH BASIN	TOP OF POND	
STORM DRAIN DRYWELL	EXISTING CONTOUR	
CURB INLET	DESIGN CONTOUR	

GENERAL NOTES

- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH ALL GOVERNING CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL REQUIRED PERMITS. THE GENERAL CONTRACTOR IS TO HAVE A FULL TIME QUALIFIED SUPERVISOR ON THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED.
- ALL MATERIAL SPECIFIED IS TO BE NEW AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. GENERAL CONTRACTOR IS TO CONSTRUCT PROJECT IN ACCORDANCE WITH THE DOCUMENTS. ANY DEVIATION FROM THE INTENT OF THE DOCUMENTS, WITHOUT ENGINEER'S APPROVAL, ARE AT THE CONTRACTOR'S OWN RISK AND MAY RESULT IN THE WORK BEING DONE OVER AT CONTRACTOR'S EXPENSE (MATERIALS AND LABOR). CONTRACTOR TO REVIEW AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. ANY CONDITIONS NOT INDICATED ON CONTRACT DOCUMENTS ARE TO BE REPORTED TO THE ENGINEER PRIOR TO BEGINNING WORK.
- THE CONTRACTOR SHALL REMOVE ALL DEBRIS AS A RESULT OF THIS PROJECT. ALL DEBRIS TO BE DISPOSED OF IN A MANNER MEETING ALL FEDERAL, STATE AND LOCAL REQUIREMENTS. THE CONTRACTOR WILL REMOVE EXISTING EQUIPMENT, FIXTURES, ETC. IN THE SPACE PRIOR TO CONSTRUCTION AND RELOCATE PER OWNER'S INSTRUCTION. THE CONTRACTOR SHALL SCHEDULE HIS WORK AND MATERIAL AND EQUIPMENT DELIVERIES SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATION.
- THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, EQUIPMENT, FIXTURES, ETC. FROM DAMAGE DURING THE COURSE OF CONSTRUCTION.
- ALL SURFACES AND/OR FINISHES DAMAGED AS A RESULT OF AND ADJACENT TO THE WORK SHALL BE REPAIRED AND FINISHED TO EQUAL OR BETTER THAN ORIGINAL CONDITION.
- ALL ITEMS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY PERSONS SKILLED IN THEIR RESPECTIVE TRADE AND WHO NORMALLY PARTICIPATE IN THE WORK OF THAT TRADE. THE ENGINEER SHALL BE IN THE FIRST INSTANCE THE SOLE INTERPRETER OF THE DRAWINGS AND SPECIFICATIONS WITH REGARD TO THEIR MEANING OR INTENT. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY AND TRAFFIC CONTROL DURING CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO, SWPPP.
- ALL WORK IS TO BE COMPLETED PER CITY OF BOZEMAN STANDARDS FOR DESIGN AND CONSTRUCTION.

BASE BIDS AND ALTERNATES

BASE BID TO INCLUDE ALL WORK INDICATED ON THE DRAWINGS AND SPECIFICATIONS NOT SPECIFICALLY CALLED OUT AS AN ALTERNATE.

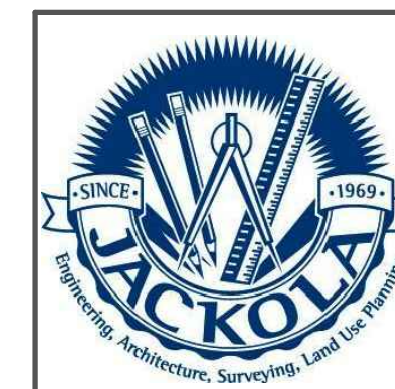
- ALTERNATE #1: REMOVE AND REPLACE THE EXISTING CONCRETE AS DETAILED ON DRAWING C0.10, C1.10 AND S1.10 WITHIN THE BUILDING

PROJECT ENGINEER:
JACKOLA ENGINEERING & ARCHITECTURE
ERIK GARBERG, PE
406-586-0707
EGARBERG@JACKOLA.COM

PROJECT MANAGER:
CAMPUS PLANNING, DESIGN, AND CONSTRUCTION
ARA MESKIMEN
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BID SET

BART FARM
CONCRETE SLAB INSTALL



DRAWN BY: JRC
REVIEWED BY: EDG
REV. DESCRIPTION DATE

PPA #20-0105
A/E#00-00-00

201113
SHEET TITLE
TITLE SHEET

SHEET
T0.10

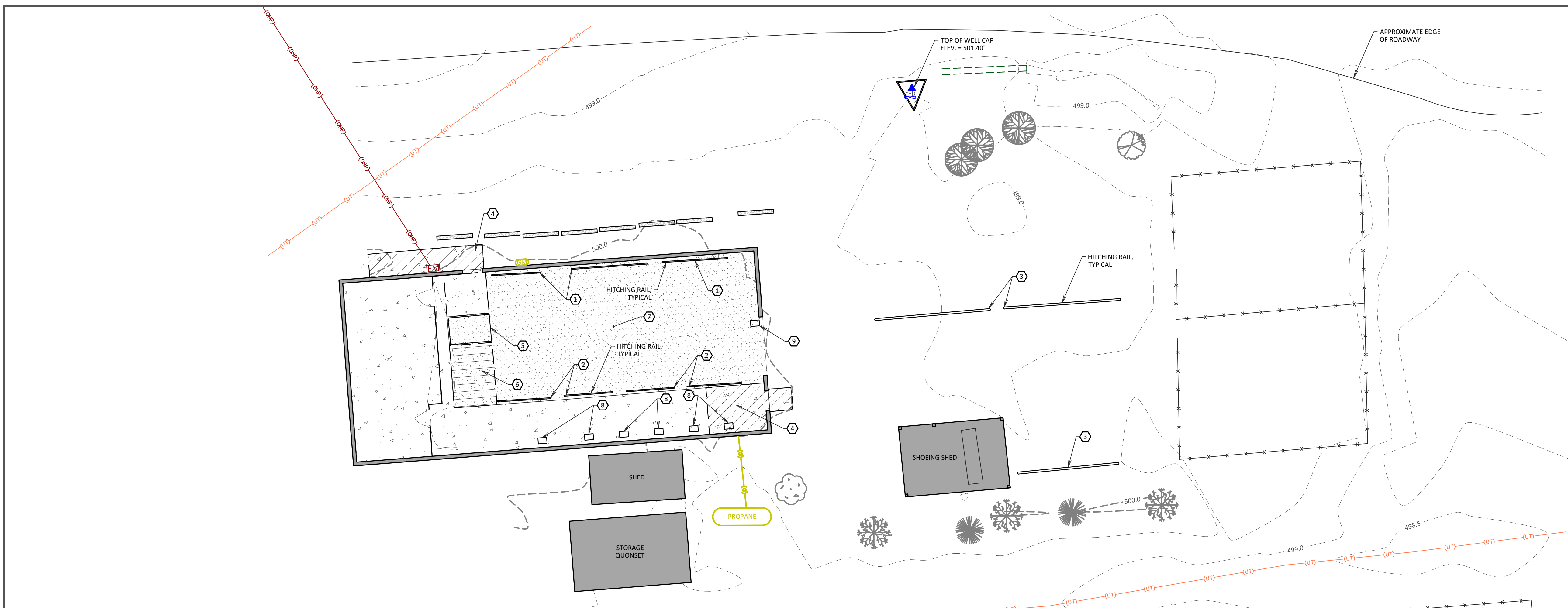
DATE
1/24/2021

- DEMO NOTES:**
- HITCHING RAIL TO BE REMOVED.
 - HITCHING RAIL TO BE REMOVED. SALVAGE MATERIAL FOR POSTS TO RECEIVE OWNER-SUPPLIED EQUIPMENT.
 - HITCHING RAIL TO BE DISMANTLED FOR CONCRETE INSTALLATION AND THEN RE-INSTALLED. SEE STRUCTURAL DETAILS.
 - NEATLY SAWCUT, REMOVE, AND PROPERLY DISPOSE OF EXISTING CONCRETE. BASE BID CONTRACTOR TO REMOVE COAL FURNACE. COORDINATE WITH OWNER.
 - REMOVE WOOD PLANKING
 - DIRT AND GRAVEL FLOOR WITH RUBBER MATS REMOVED BY OWNER.
 - COORDINATE FURNACE REMOVAL WITH OWNER. WALL BRACKETING TO REMAIN. FURNACE LOCATIONS ARE APPROXIMATE. THIS WORK TO BE COMPLETED OUTSIDE OF THIS CONTRACT AT THE DIRECTION OF THE OWNER. JACKOLA ENGINEERING AND ARCHITECTURE IS NOT RESPONSIBLE FOR THE DESIGN OR SPECIFICATION OF THIS ITEM. ALL REFERENCE HERE IS INFORMATIONAL ONLY.
 - REMOVE AND SALVAGE EXISTING METAL FRAME AND PEDESTAL.

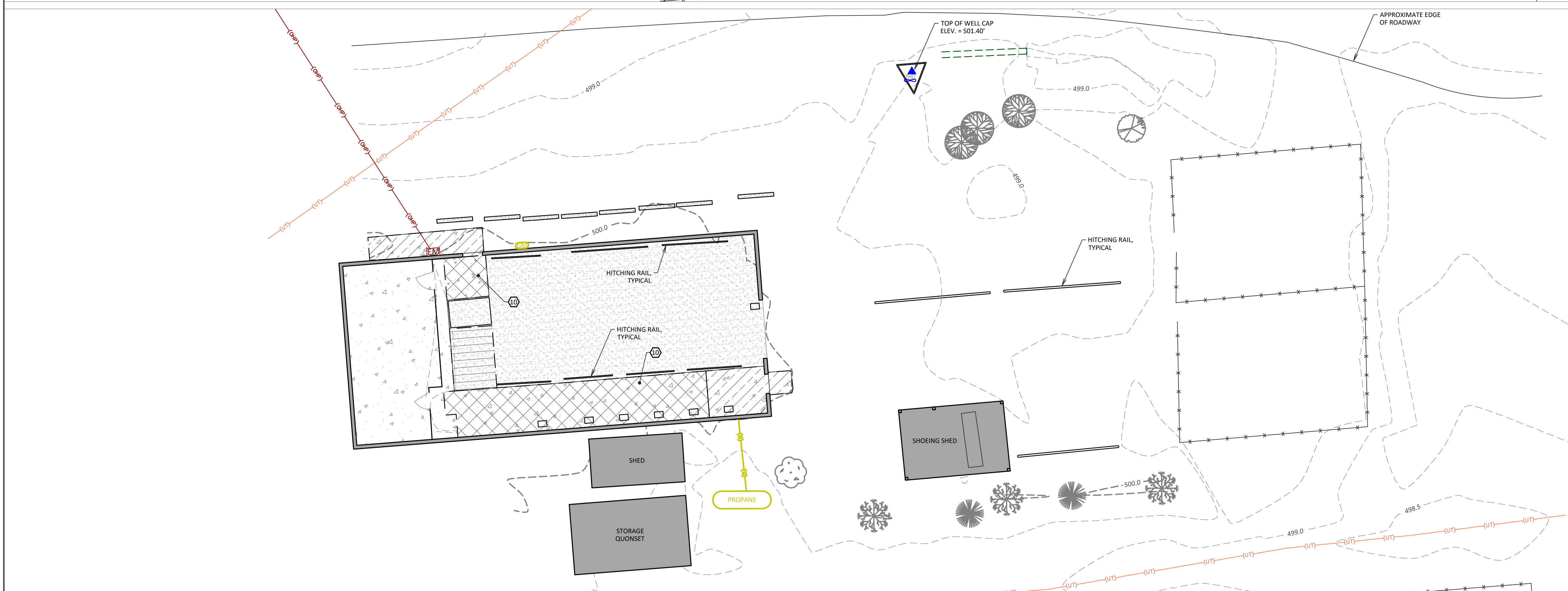
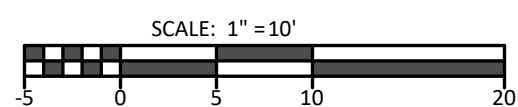
- EXISTING CONCRETE
- EXISTING BUILDING
- EXISTING DIRT/GRAVEL
- DEMO EXISTING CONCRETE
- DEMO EXISTING WOOD DECKING

- ADD ALTERNATE DEMO NOTES:**
- NEATLY SAWCUT, REMOVE, AND PROPERLY DISPOSE OF EXISTING CONCRETE.

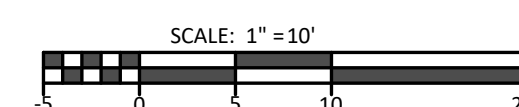
- EXISTING CONCRETE
- EXISTING BUILDING
- EXISTING DIRT/GRAVEL
- ADD ALTERNATE DEMO EXISTING CONCRETE

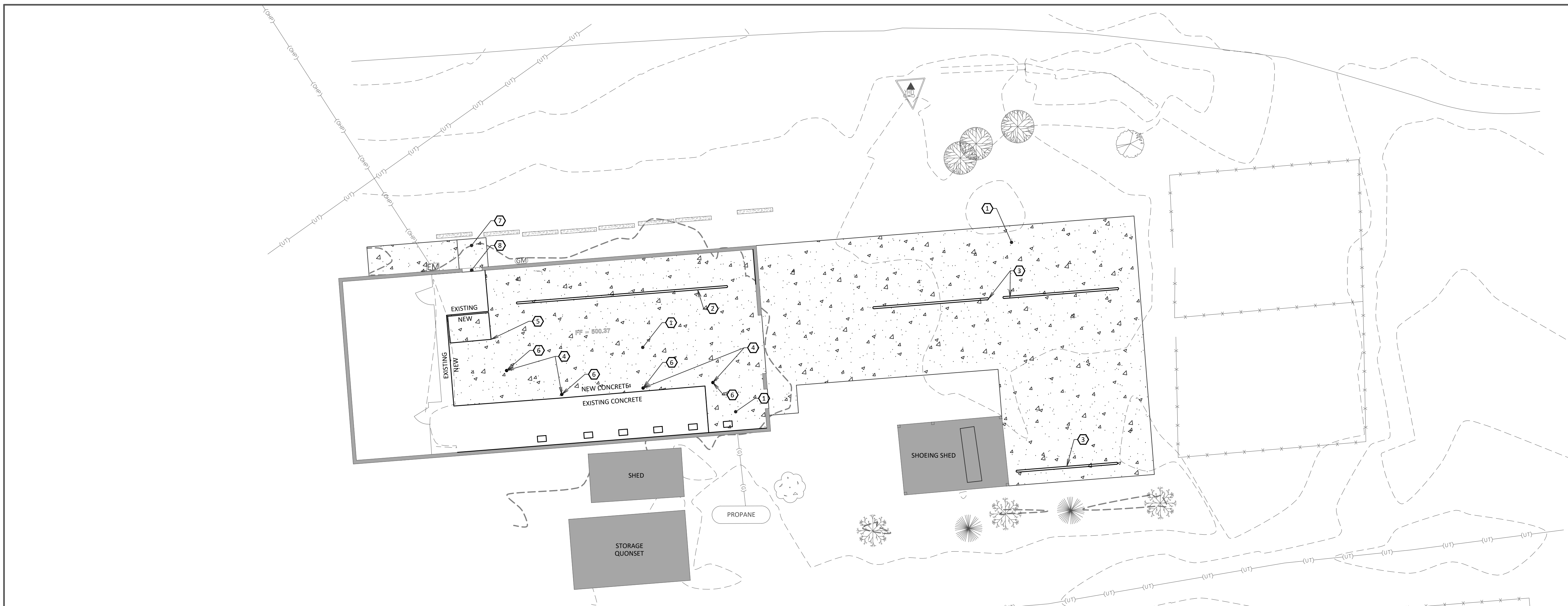


1 EXISTING SITE AND DEMO PLAN
1" = 10'



2 ADD ALTERNATE EXISTING SITE AND DEMO PLAN
1" = 10'





- KEYNOTES:**
1. NEW 6" TRAFFIC-RATED CONCRETE SECTION PER STRUCTURAL PLANS.
 2. NEW RAILS TO MATCH EXTERIOR RAILING STYLE AND DIMENSIONS. PER STRUCTURAL PLANS.
 3. ORIGINAL RAILING TO BE RE-INSTALLED IF POSSIBLE. PER STRUCTURAL PLANS.
 4. SALVAGED OR NEW MATERIAL FOR HITTING POSTS TO RECEIVE OWNER-SUPPLIED EQUIPMENT. PER STRUCTURAL PLANS.
 5. CONTRACTOR SHALL RE-INSTALL FURNACE. COORDINATE EXACT WITH OWNER.
 6. CENTER POSTS BETWEEN FURNACES SO EACH ONE CAN BE SHARED BY TWO FURNACES. LOCATION SHOWN APPROXIMATE. COORDINATE EXACT LOCATION WITH OWNER.
 7. NEW 4" SIDEWALK AND STOOP
 8. PATCH CONCRETE AT EXISTING DOOR THRESHOLD
- GENERAL NOTES:**
1. SEE STRUCTURAL PLANS DIMENSIONS.
 2. NEW CONCRETE GRADES WILL MATCH GRADE OF ADJACENT EXISTING CONCRETE.
- EXISTING CONCRETE
 EXISTING BUILDING
 PROPOSED CONCRETE

1 SITE PLAN
1" = 10'

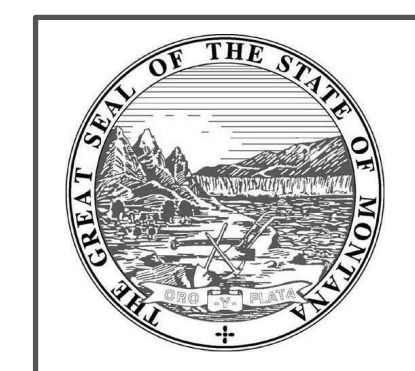
SCALE: 1" = 10'



- ADD ALTERNATE KEYNOTES:**
9. NEW 6" REINFORCED CONCRETE SECTION PER STRUCTURAL PLANS.
- EXISTING CONCRETE
 EXISTING BUILDING
 PROPOSED CONCRETE
 ADD ALTERNATE NEW CONCRETE

2 ADD ALTERNATE SITE PLAN
1" = 10'

SCALE: 1" = 10'

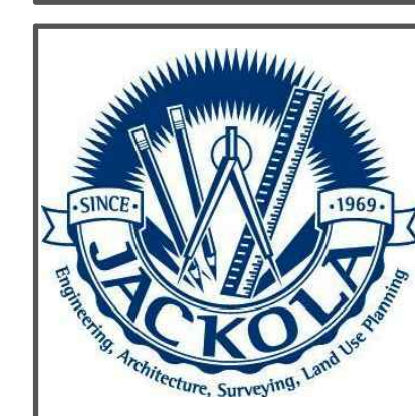


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BID SET

BART FARM

CONCRETE SLAB INSTALL



DRAWN BY: JRC		
REVIEWED BY: EDG		
REV.	DESCRIPTION	DATE

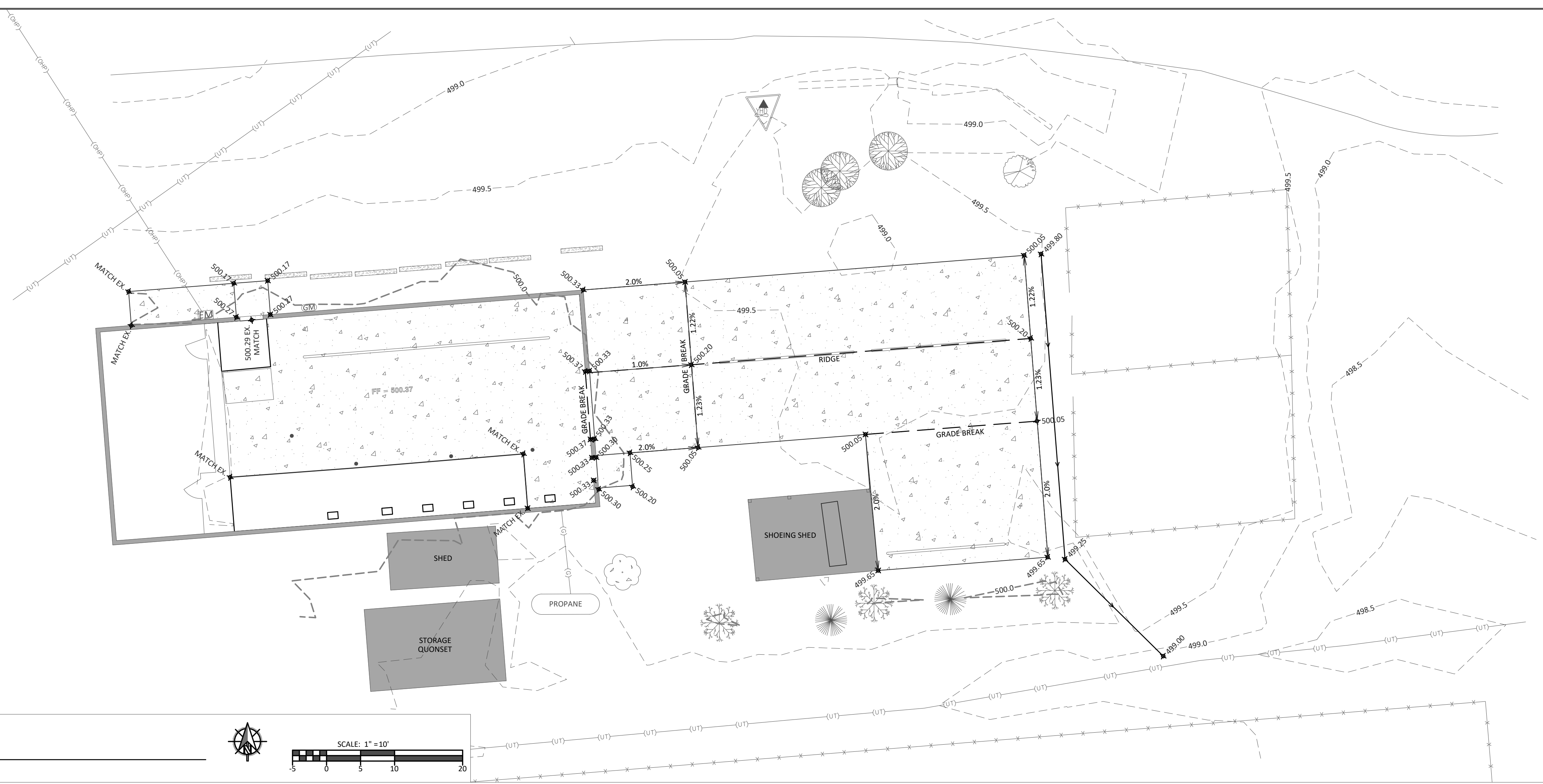
PPA #20-0105
A/E#00-00-00
201113
SHEET TITLE
SITE PLAN

SHEET
C1.10

DATE
1/24/2021

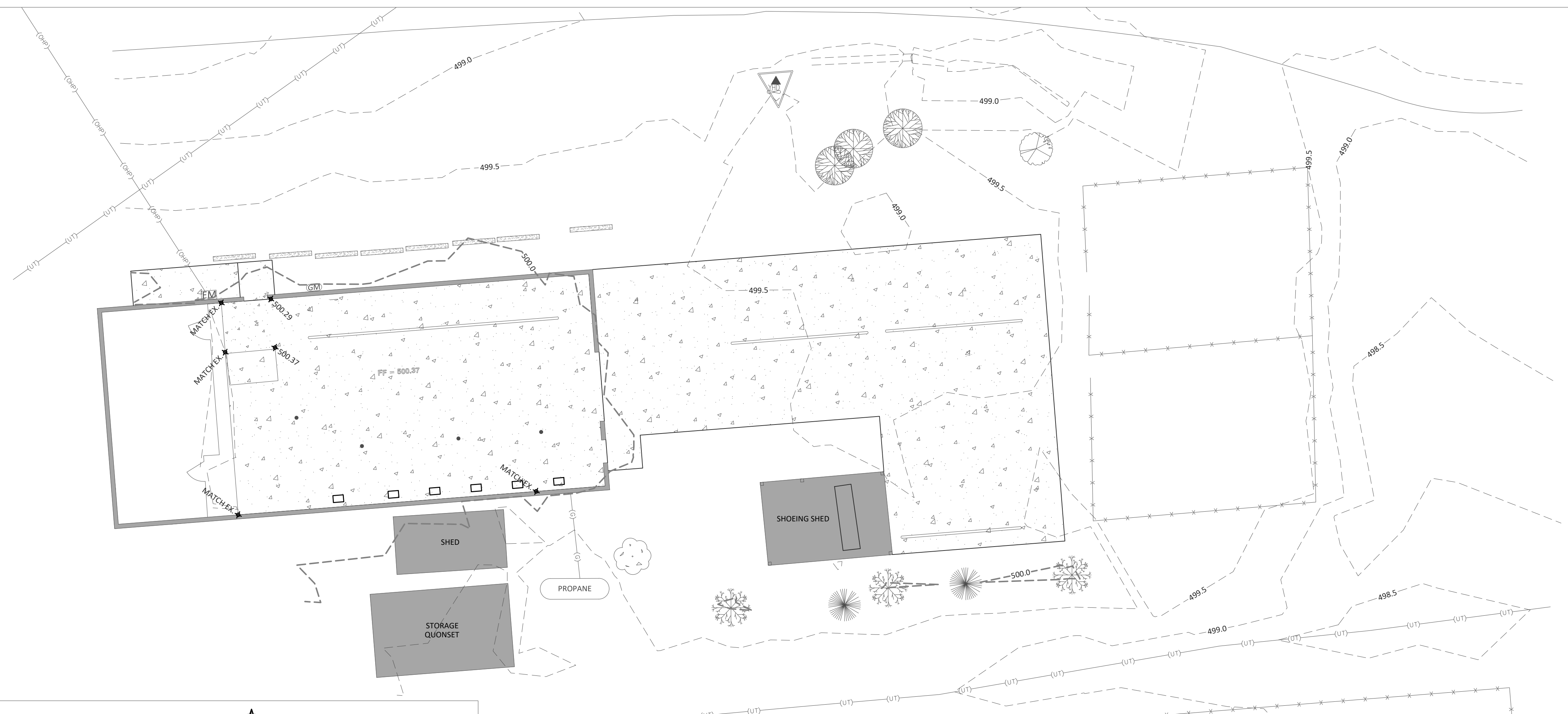
LEGEND:
 3985.62(±) ▣ EXISTING SPOT GRADE
 3985.67(±) ▣ DESIGN SPOT GRADE
 (3986.17) ▣ DESIGN TBC SPOT GRADE

GENERAL NOTES:
 1. GRADE TO FINISH FLUSH WITH SLAB FOR ENTIRE PERIMETER.



1 SITE GRADING PLAN
 1" = 10'

GRADING TO MATCH ABOVE

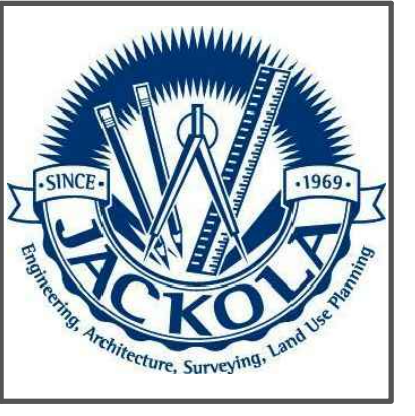


2 ADD ALTERNATE SITE GRADING PLAN
 1" = 10'



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BID SET
BART FARM
CONCRETE SLAB INSTALL



DRAWN BY:	JRC	
REVIEWED BY:	EDG	
REV.	DESCRIPTION	DATE

PPA #20-0105
A/E#00-00-00
201113
SHEET TITLE
GRADING PLAN

SHEET
C1.30

DATE
1/24/2021

STRUCTURAL DESIGN

A. GOVERNING CODES AND GENERAL NOTES
 INTERNATIONAL BUILDING CODE (IBC) 2018
 AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) - MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES- ASCE 7-16
 AMERICAN CONCRETE INSTITUTE (ACI) - BUILDING CODE & COMMENTARY ACI 318-14
 AMERICAN CONCRETE INSTITUTE (ACI) - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES ACI 530-14
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) - STEEL CONSTRUCTION MANUAL FOURTEENTH EDITION AISC 360-16
 AMERICAN FOREST & PAPER ASSOCIATION (AF&PA) - NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION NDS 2018
 AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) 9TH EDITION
 THE CONTRACTOR IS RESPONSIBLE FOR LOCATING OR HAVING LOCATED THE BUILDING ON THE SITE AND VERIFYING ALL FOUNDATION DIMENSIONS, AND SETBACK REQUIREMENTS FROM EASEMENTS AND PROPERTY LINES WITH THE ARCHITECT PRIOR TO CONSTRUCTION.

1 STRUCTURAL DESIGN INFORMATION
 1" = 1'-0"

CONCRETE

A. SEE 3/50.00 FOR SITE PREP AND STRUCTURAL FILL REQUIREMENTS ON THIS SHEET FOR SUBGRADE PREP.
 B. ALL CEMENT IN CONCRETE TO CONFORM TO ASTM C150 SPECIFICATION FOR PORTLAND CEMENT.
 C. ALL AGGREGATE TO CONFORM TO ASTM C39 SPECIFICATION FOR CONCRETE AGGREGATES.
 D. CONCRETE SUPPLIER TO MIX BASED ON THEIR TESTING TO ASSURE THIS MINIMUM COMPRESSIVE STRENGTH PER ACI 318 SECTION 5.3. IN THE ABSENCE OF SUFFICIENT TEST DATA, CONCRETE PROPORTIONING SHALL BE DONE IN ACCORDANCE WITH ACI 318 SECTION 5.3.1.2, 5.3.2.2, 5.3.3.2, & 5.4.
 E. THE MAXIMUM NOMINAL AGGREGATE SIZE SHALL BE ONE FIFTH THE NARROWEST DIMENSION BETWEEN THE FORMS OR ONE THIRD THE DEPTH OF THE SLAB, OR THREE-FOURTHS THE MINIMUM CLEAR SPACING BETWEEN INDIVIDUAL REINFORCING BARS OR WIRES, WHICHEVER APPLIES. THESE PROVISIONS ARE TO ASSURE CONCRETE PLACEMENT WITHOUT VOIDS OR HONEYCOMBS AND MAY BE WAIVED ONLY BY THE BUILDING OFFICIAL IF THEY JUDGE THAT LARGER SIZES ARE ADEQUATE BECAUSE OF WORKABILITY AND METHODS OF CONSOLIDATION.
 F. CONCRETE CURING (OTHER THAN HIGH-EARLY) SHALL BE MAINTAINED ABOVE A TEMPERATURE OF 50°F AND IN A MOIST CONDITION FOR AT LEAST THE FIRST SEVEN DAYS AFTER PLACEMENT. HIGH EARLY CONCRETE SHALL BE CURED ABOVE 50°F AND IN A MOIST CONDITION FOR AT LEAST THE FIRST THREE DAYS.
 G. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING FREEZING OR NEAR-FREEZING WEATHER. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND WHICH THE CONCRETE IS TO BE IN CONTACT WITH IS TO BE FREE OF FROST. FROZEN MATERIALS OR MATERIALS CONTAINING ICE SHALL NOT BE USED.
 H. DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION, AND CURING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES AND EVAPORATION THAT MAY IMPAIR REQUIRED STRENGTH OR SERVICEABILITY OF THE MATERIAL.
 I. CONDUITS, PIPES, AND SLEEVES SHALL BE ALLOWED ONLY WHERE NOTED ON THE PLANS. ANY ADDITIONAL ALTERATIONS ARE NOT PERMITTED WITHOUT ENGINEER APPROVAL THAT IT WILL NOT COMPROMISE STRUCTURAL INTEGRITY.
 J. THE SURFACE OF ALL CONSTRUCTION JOINTS SHALL BE CLEANED AND LANTANCE REMOVED. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, JOINTS SHALL BE WETTED AND STANDING WATER REMOVED. PROVISIONS SHALL BE MADE TO TRANSFER SHEAR FORCES THROUGH THE CONSTRUCTION JOINT.
 K. INTERIOR SLAB ON GRADE SHALL HAVE A HEAVY BROOM FINISH FLOOR SHALL BE WITHIN 1/8" PER 10 FT FOR FLATNESS REQUIREMENTS. SLAB SHALL BE SEALED, WITH EUCLID DIAMOND HARD OR APPROVED EQUAL
 L. CONCRETE IN SIDEWALKS OR EXTERIOR SLABS THAT WILL BE EXPOSED TO FREEZING/THAWING OR DEICING CHEMICALS SHALL HAVE A MINIMUM 0.45 WATER/CEMENTITIOUS RATIO BY WEIGHT FOR NORMAL WEIGHT AGGREGATE CONCRETE AND BE 4000 PSI MINIMUM. EXTERIOR SLABS AND SIDEWALKS TO HAVE A HEAVY BROOM FINISH.
 M. ALL REINFORCING BARS SPECIFIED SHALL BE DEFORMED BARS AT LEAST GRADE 60.
 N. ALL BENDING OF REINFORCING MATERIAL SHALL BE DONE COLD AND MINIMUM BEND DIAMETER SHALL BE 6 TIMES THE NOMINAL BAR DIAMETER FOR #3-#8 BAR AND 8 TIMES THE NOMINAL BAR DIAMETER FOR #9-#11 BARS. REINFORCEMENT PARTIALLY IMBEDDED IN CONCRETE MAY BE FIELD BENT.
 O. REINFORCEMENT, ANCHORS AND EMBEDDED ITEMS SHALL BE ACCURATELY PLACED AND SUPPORTED BEFORE CONCRETE IS PLACED AND SHALL BE SECURED AGAINST DISPLACEMENT WITHIN TOLERANCES OF SECTION 1907.5 OF THE CURRENT VERSION OF CURRENT IBC.
 P. #5 BAR REQUIRED 2" CLEAR FROM TOP AND BOTTOM OF STEM WALLS AROUND FULL PERIMETER OF FOUNDATION, MIN.
 Q. STANDARD HOOK ON REINFORCING BAR SHALL BE:
 1. 180° BEND PLUS 4d EXTENSION, BUT NOT LESS THAN 2 1/2" AT FREE END OF BAR.
 2. 90° BEND PLUS 12d EXTENSION AT FREE END OF BAR.
 3. FOR STIRRUP AND THE HOOKS: SEE 5.3.0
 R. MINIMUM REBAR LAPS - FOR #3-15", #4-20", #5-24 & #6-30" WITH A CLEAR SPACING OF NOT LESS THAN 2d AND CLEAR COVER OF NOT LESS THAN d. ALL OTHER SPLICES CONDITIONS SHALL BE BY THE EOR AND ILLUSTRATED ON FOUNDATION PLAN & DETAIL SHEETS.
 S. REFER TO TABLE BELOW FOR MINIMUM COVER AND TOTAL AIR CONTENT FOR CONCRETE IN DIFFERENT SERVICE CONDITIONS.

CONCRETE PROTECTION FOR REINFORCEMENT CAST-IN-PLACE CONCRETE (NON-PRESTRESSED)	
DESCRIPTION	MINIMUM COVER (IN)
CONCRETE CAST AGAINST & PERMANENTLY EXPOSED TO EARTH	3
CONCRETE EXPOSED TO EARTH OR WEATHER:	
No. 6 THRU No. 18 BAR	2
No. 5 BAR, W31 OR D31 WIRE AND SMALLER	1-1/2
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:	
SLABS, WALLS, AND JOISTS:	
No. 11 BAR AND SMALLER	3/4
No. 8 BAR AND SMALLER	1

	28 DAY COMPRESSIVE STRENGTH	SLUMP (IN) MAX/MIN	MAX W/C RATIO	AIR CONTENT (%)
INTERIOR SLAB	4000 PSI	3/1	.45	3 MAX
EXTERIOR SLAB	4000 PSI	3/1	.45	6 +/- 1.5%

2 CONCRETE NOTES
 1" = 1'-0"

SOILS AND FOUNDATIONS

A. CONSTRUCTION MATERIAL - EARTHWORK:
 1. STRUCTURAL FILL SHALL CONSIST OF APPROVED ON-SITE SOILS OR BE FROM AN APPROVED MATERIAL SOURCE.
 2. GRANULAR STRUCTURAL FILL SHALL MEET THE FOLLOWING GRADATION & COMPOSITION

SIEVE SIZE	% PASSING BY WEIGHT
3 INCH	100
1 1/2"	85-100
NO. 4	30-60
NO. 200	10 MAXIMUM

BOTH STRUCTURAL FILL & GRANULAR STRUCTURAL FILL SHALL MEET THE FOLLOWING:
 a. PLACED IN NO GREATER THAN 8" THICK LIFTS COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698
 b. MOISTURE CONTENT OF THE STRUCTURAL FILL AT THE TIME OF COMPACTION SHOULD BE WITHIN 3% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM 698
 c. COBBLES AND BOULDERS LARGER THAN 4" MAXIMUM SIZE SHOULD NOT BE USED IN FILL MATERIALS
 d. SAND & GRAVEL SIZE PARTICLES COMPRISING THE FILL SHOULD BE HARD DURABLE ROCK MATERIALS THAT WILL NOT DEGRADE BY MOISTENING OR UNDER MECHANICAL ACTION OF THE COMPACTION EQUIPMENT; I.E. NO SHALE OR OTHER CLAYEY ROCK TYPES
 e. THE BINDER/FINES SHOULD HAVE MAXIMUM LIQUID LIMIT AND PLASTIC INDEX VALUES OF 25 & 10% RESPECTIVELY
 f. NO FROZEN, ORGANIC OR OTHER DELETERIOUS MATERIALS SHOULD BE PRESENT IN FILL MATERIAL.
 g. FROST FREE GRANULAR STRUCTURAL FILL SHALL HAVE A MAXIMUM OF 5% PASSING THE No. 200 SIEVE.
 3. OPEN GRADED ANGULAR CRUSH ROCK:
 a. BETWEEN 3/4 TO 3/4" ANGULAR CRUSHED ROCK
 b. COMPACTED USING VIBRATORY COMPACTION METHODS UNTIL WELL KEYED
 4. VAPOR BARRIER: 10 MIL WR MEADOWS PERMIATOR, STEGO INDUSTRIES STEGO WRAP CLASS A OR APPROVED EQUAL. ALL SEAMS SHALL BE OVERLAPPED & SEALED WITH MANUFACTURER APPROVED TAPE. ALL PROTRUSIONS & PENETRATIONS SHALL BE SEALED. HOLES SHALL BE REPAIRED. SEAL THE VAPOR BARRIER TO THE VERTICAL FACE OF THE STEM WALL WITH THE MANUFACTURER RECOMMENDED ATTACHMENT DETAIL. INSTALLATION SHALL MEET ASTM E 1643-C STANDARD PRACTICE FOR INSTALLATION OF VAPOR RETARDER USED IN CONTACT WITH EARTH OR FILL UNDER CONCRETE SLAB

B. SITE PREPARATION:
 1. THE REMOVAL OF TOPSOIL AND OTHER ORGANIC MATERIAL, INCLUDING THE CLEARING AND GRUBBING OF SURFICIAL VEGETATION AND ROOT ZONES, SHOULD BE ACCOMPLISHED WITHIN THE CONSTRUCTION ZONE PRIOR TO ANY EARTHWORK CONSTRUCTION.
 2. SURFACE DRAINAGE SHOULD BE ESTABLISHED TO DIRECT RUNOFF AWAY FROM THE CONSTRUCTION AREA CARE SHOULD BE TAKEN TO MINIMIZE CONSTRUCTION TRAFFIC OVER MOISTURE SENSITIVE SUBGRADE SOILS. DURING WET WEATHER CONDITIONS, IN AREAS WHERE HEAVY CONSTRUCTION TRAFFIC IS ANTICIPATED, HAUL ROADS WITH A MINIMUM GRAVEL THICKNESS OF 2" SHOULD BE CONSTRUCTED OVER THE PLANNED SUBGRADE WITH A GEOTEXTILE SEPARATION FABRIC.
 4. THE STABILITY OF CONSTRUCTION EXCAVATIONS AND ASSOCIATED WORKER SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH CURRENT OSHA REGULATIONS; THIS RESPONSIBILITY MAY REQUIRE DESIGN BY A REGISTERED PROFESSIONAL ENGINEER BASED ON THE PREDOMINANT SOIL TYPES ENCOUNTERED. ACTUAL SUBSURFACE CONDITIONS AT THE TIME OF EXCAVATION SHOULD BE OBSERVED BY A GEOTECHNICAL ENGINEER TO DETERMINE WHETHER SLOPE FLATTENING, BRACING OR OTHER STABILIZATION IS NECESSARY DUE TO SEEPAGE OR OTHER UNEXPECTED CONDITIONS.
 5. EXCAVATIONS SHALL BE COMPLETED WITH A SMOOTH-LIPPED BUCKETS IN AREAS OF SOILS FINE GRAINED AND WHERE MOISTURE CONTENT OF SUBGRADE IS GREATER THAN OPTIMUM PER ASTM D698. THE BASE OF THE EXCAVATION SHALL BE OBSERVED BY THE OWNER. ANY AREAS OF RUTTING, EXCESSIVE DEFORMATION, OR OTHER NON-UNIFORM PERFORMANCE OF THE NATIVE SURFACE OR THE BACKFILL SHALL BE REMOVED AND REPLACED BY GRANULAR STRUCTURAL FILL

C. SLAB PREPARATION:
 1. BACKFILL COMPACTION WITHIN 5 FEET OF FOUNDATION WALLS SHOULD BE CONDUCTED USING HAND OPERATED TAMPING EQUIPMENT ONLY.
 2. INTERIOR SLAB PREPARATION: EXISTING MATERIAL SHALL BE REMOVED TO REQUIRED SUB GRADE. SUBGRADE SHALL BE EXAMINED BY OWNER, OWNERS AND DESIGNATED REPRESENTATIVES. AREAS OF UNSUITABLE FILL MATERIAL OR WHERE RUTTING, YIELDING, OR OTHER NON-UNIFORM SUBGRADE PERFORMANCE IS OBSERVED, SHALL BE REMOVED OR RECOMPACTED AS RECOMMENDED BY THE PROJECT GEOTECHNICAL ENGINEER. FOLLOWING THE SUBGRADE PREPARATION & INSTALLATION OF THE GEOTEXTILE ANY SITE GRADING PER DG BELOW SHALL BE COMPLETED. A NOMINAL 8-INCH THICK LAYER OF OPEN-GRADED ANGULAR CRUSHED ROCK TO BE INSTALLED FOR A CAPILLARY BREAK BENEATH THE CONCRETE SLAB. THE UPPER 2 INCHES OF THIS 8 INCH THICK LAYER CAN BE SUBSTITUTED WITH 3/4 INCH MINUS CRUSHED ROCK TO PROVIDE A COMPACT SURFACE FOR CONSTRUCTION ACTIVITIES. THE SLAB-ON GRADE BASE COURSE SHOULD BE COMPACTED USING VIBRATORY COMPACTION METHODS UNTIL WELL KEYED. A VAPOR BARRIER PER B7 SHALL BE INSTALLED UNDER THE SLAB EXTERIOR SLAB PREPARATION
 a. EXTERIOR SLABS AT ENTRYWAYS FIXED TO THE BUILDING SHALL BE PROTECTED AGAINST FROST HEAVES
 b. A MINIMUM OF 3" OF GRANULAR STRUCTURAL FILL SHALL BE INSTALLED UNDER A 6" LAYER OF OPEN GRADED ANGULAR ROCK UNDERNEATH SLABS. ALL ITEMS SHALL BE COMPACTED PER THE ABOVE SPECIFICATIONS.
 4. IF GRADE NEEDS TO BE RAISED UNDER THE SLAB BETWEEN THE NATIVE & THE BASE OF THE CAPILLARY BREAK LAYER EITHER STRUCTURAL OR GRANULAR FILL PER B1 & B2 ABOVE SHALL BE INSTALLED.
 5. PERIMETER SLOPED BACKFILL SHALL BE OVERBUILT BY 2" & TRIMMED BACK AFTER CONSTRUCTION TO PROVIDE A SURFACE THAT IS MORE RESISTANT TO LOCALIZED SLOUGHING WHEN THE SLOPE IS GREATER THAN 5' / 1'. TOP SOIL SHALL BE 'TRACK WALK-ON' WITH A SMALL DOZER.

D. QUALITY CONTROL SHALL BE COMPLETED PER THE REQUIREMENTS OF THE STATEMENT OF SPECIAL INSPECTIONS

3 SOILS & GEOTECHNICAL NOTES
 1" = 1'-0"

HITCHING RAIL AND VISE NOTES:

- ALL STEEL SHALL BE PRICED AS NEW.
- HITCHING RAIL #1 (INSIDE) SHALL BE NEW. CONTRACTOR WITH OWNERS APPROVAL MAY REUSE EXISTING STEEL HITCHING RAILS FOR THE VISE POST OR THE EXTERIOR HITCHING RAILS.
- POSTS SHALL BE INSTALLED VERTICAL WITH A MAXIMUM OF +/- 1/4" OUT OF PLUM. RAILS SHALL BE HORIZONTAL WITH A VARIATION OF +/- 1/4"
- PARALLEL AND GROOVE WELDS TO BE GROUND SMOOTH TO ELIMINATE BURS AND ROUGH SURFACES. ALL WELDING TO USE AWS E70 ELECTRODES.
- PIPES SHALL BE ASTM A53 Gr. B PIPE (SCH 40) OR ASTM A500 Gr. B (HSS ROUND SECTIONS)
- SUBMIT SHOP DRAWINGS FOR APPROVAL.
- STEEL SHALL NOT BE PAINTED.

4 HITCHING RAIL AND VISE POST NOTES
 1" = 1'-0"



MSU-CPDC
 MONTANA STATE UNIVERSITY
 BOZEMAN, MONTANA
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BID SET
BART FARM
CONCRETE SLAB INSTALL



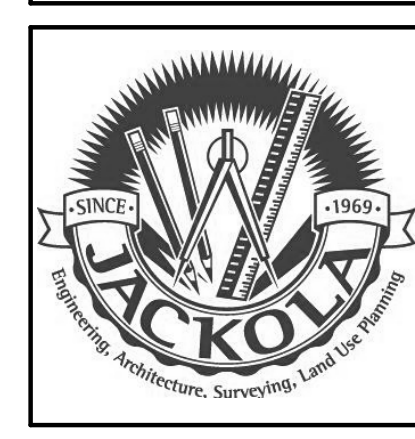
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REVIEWED BY:	KH	
REV.	DESCRIPTION	DATE

PPA#20-0105
 A/E#00-00-00
 201113
 SHEET TITLE
 STRUCTURAL
 NOTES
 SHEET
S0.00
 DATE
 1/24/2021

BID SET

BART FARM

CONCRETE SLAB INSTALL



DRAWN BY:	HH	
REVIEWED BY:	KH	
REV.	DESCRIPTION	DATE

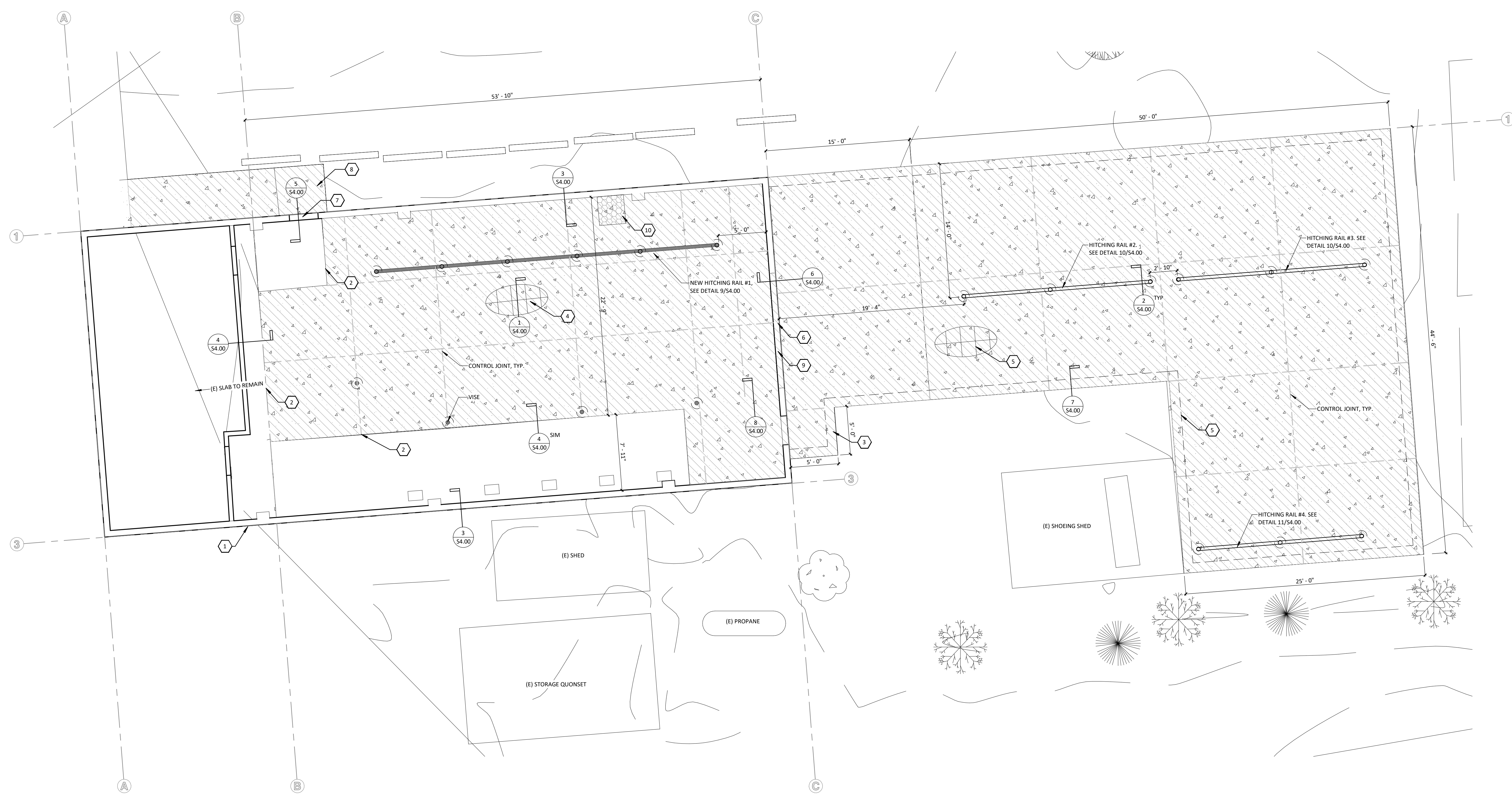
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201113

SHEET TITLE
 SLAB PLAN,
 BASE BID

SHEET
\$1.00

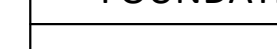
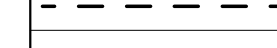
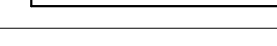
DATE
1/24/2021



1 SLAB PLAN- BASE BID
 3/16" = 1'-0"



SLAB PLAN KEYNOTES	
1	EXISTING CMU FARRIER BUILDING
2	MATCH EXISTING TOP OF CONCRETE. NOTE NEW TO EXISTING CONCRETE HEIGHT DIFFERENCE +/- 1/4"
3	EXISTING STOOP
4	INTERIOR 6" SLAB #4 @ 18" O.C.
5	EXTERIOR 6" SLAB #4 @ 18" O.C. W/ TURN DOWN EDGE @ ALL EXTERIOR EDGES
6	PROVIDE TURN DOWN EDGE @ OPENING
7	REMOVE 6" SECTION OF STOOP AND REPAIR WITH CONCRETE. (BASE BID)
8	NEW STOOP AND SIDEWALK
9	REMOVE AND REPLACE (E) GARAGE DOOR. THIS WORK TO BE COMPLETED OUTSIDE OF THIS CONTRACT AT THE DIRECTION OF THE OWNER. JACKOLA ENGINEERING AND ARCHITECTURE IS NOT RESPONSIBLE FOR THE DESIGN OR SPECIFICATION OF THIS ITEM. ALL REFERENCE HERE IS INFORMATION ONLY.
10	CEILING MOUNTED HEATING UNIT TO REMAIN. THIS WORK TO BE COMPLETED OUTSIDE OF THIS CONTRACT AT THE DIRECTION OF THE OWNER. JACKOLA ENGINEERING AND ARCHITECTURE IS NOT RESPONSIBLE FOR THE DESIGN OR SPECIFICATION OF THIS ITEM. ALL REFERENCE HERE IS INFORMATION ONLY.

FOUNDATION LEGEND	
	THICKENED SLAB
	SAWCUT
	CONTROL JOINT

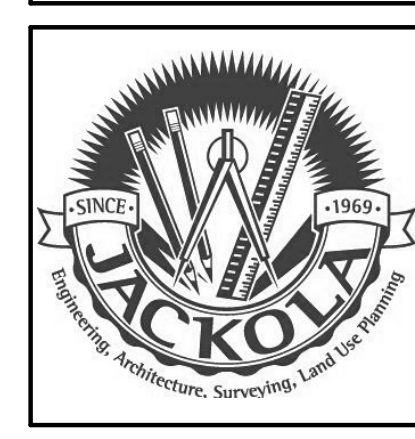
BID LEGEND	
	BASE BID- REINFORCED CONCRETE SLAB. EXISTING CONCRETE TO REMAIN, UNO.

GENERAL PLAN NOTES:
 1. COORDINATE WITH COUL ON SPOT ELEVATIONS AND SLOPE. SPOT ELEVATIONS PROVIDE FOR REFERENCES ON EXISTING T.O.C.
 2. LOCATION OF HITCHING POST TO BE FINALIZED WITH OWNER.
 3. SEE \$4.00 FOR HITCHING POST DETAILS.

BID SET

BART FARM

CONCRETE SLAB INSTALL



DRAWN BY:	HH	
REVIEWED BY:	KBH	
REV.	DESCRIPTION	DATE

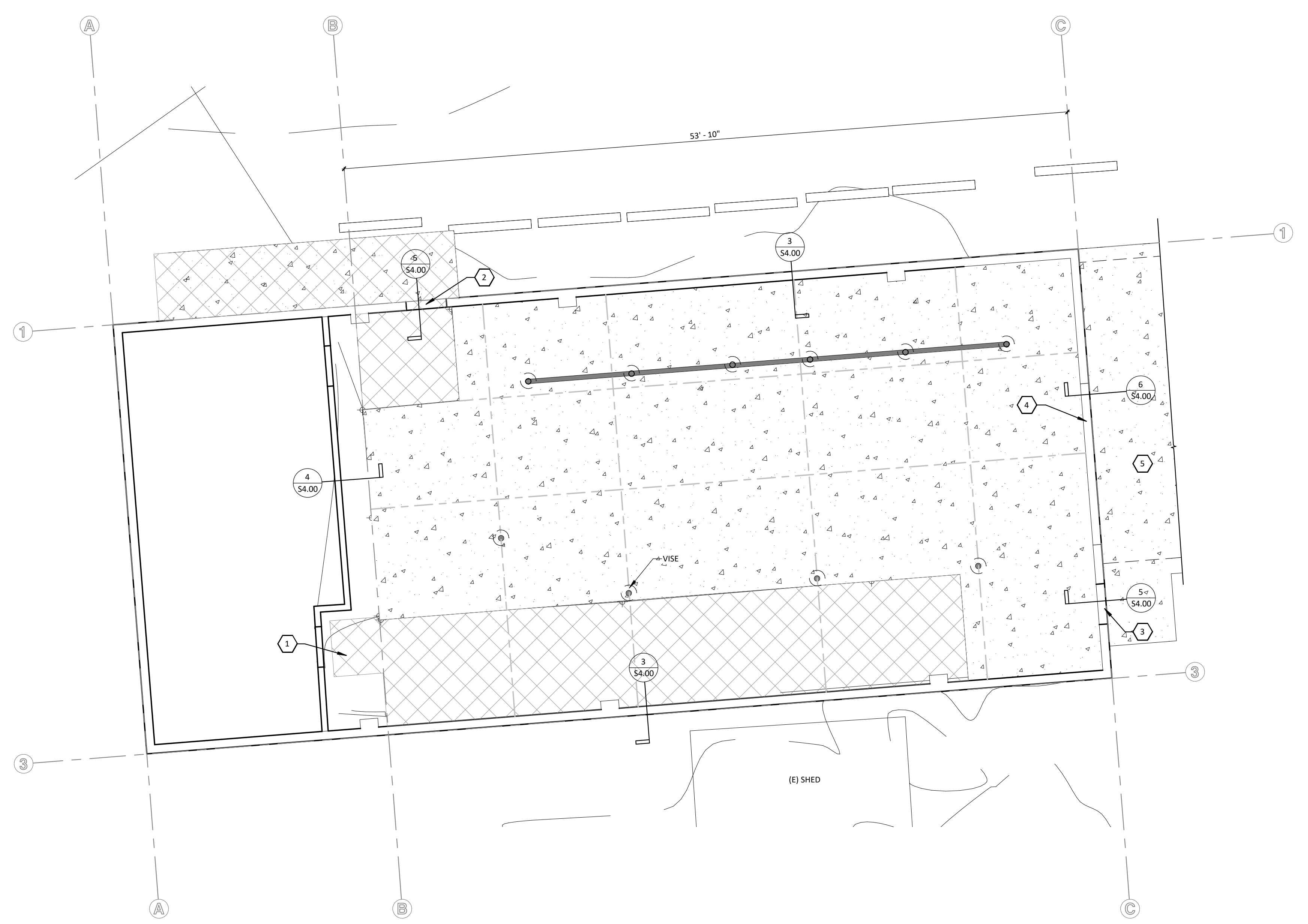
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201113

SHEET TITLE
ALT 1 SLAB PLAN

SHEET
S1.10

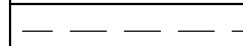
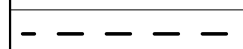

DATE
1/24/2021




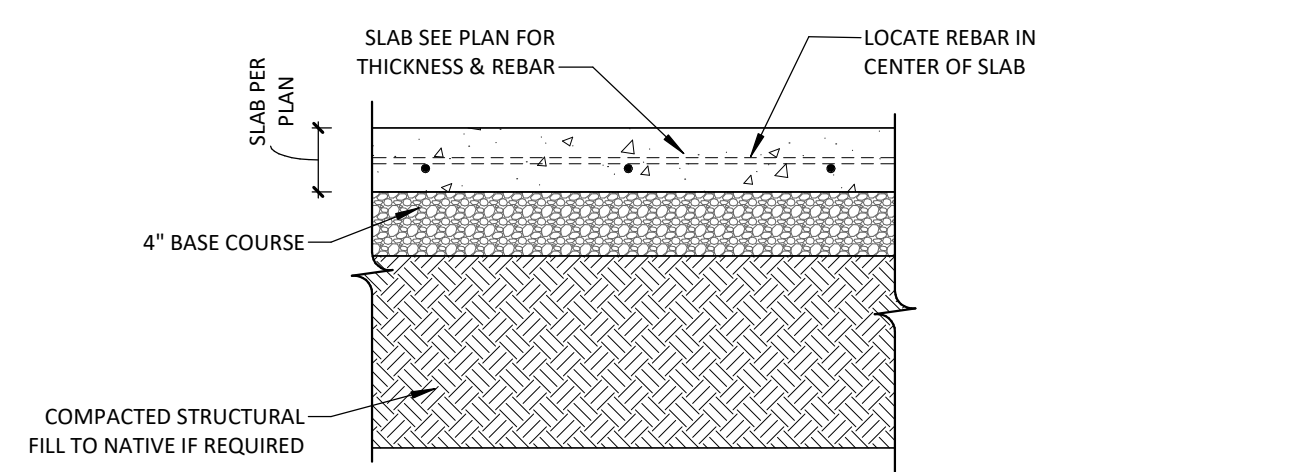
1 ALT 1 SLAB PLAN
 3/16" = 1'-0"

ALT 1 SLAB PLAN	
1	SAW CUT SECTION OF SLAB TO ELIMINATE "RAMP"
2	REMOVE 6" SECTION OF STOOP AND POUR REPAIR WITH CONCRETE. BASE BID.
3	POUR THRU @ THIS DOOR. BASE BID
4	PROVIDE TURN DOWN EDGE @ DOOR OPENING
5	SEE S1.00 FOR EXTERIOR CONCRETE AND CALLOUTS ON INTERIOR CONCRETE

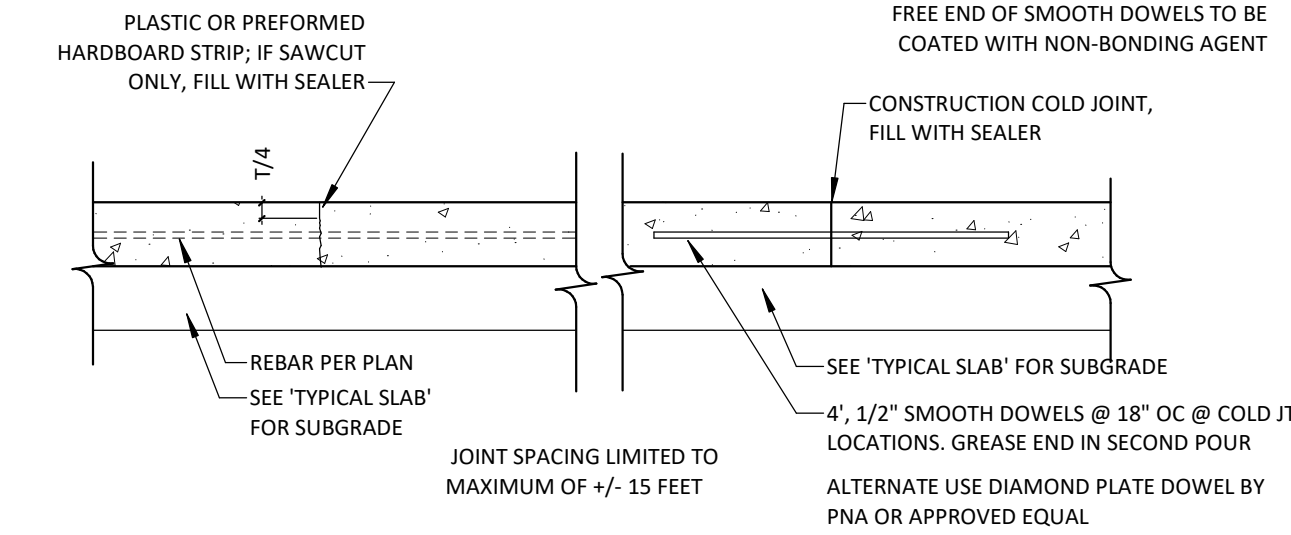
GENERAL PLAN NOTES:
 1. DIMENSIONS PER S1.00

FOUNDATION LEGEND	
	THICKENED SLAB
	SAWCUT
	CONTROL JOINT

ALT-1 BID LEGEND	
	ADDITIONAL 6" CONCRETE SLAB AND SUB BASE TO BE INCLUDED IN ALT -1



TYPICAL INTERIOR SLAB

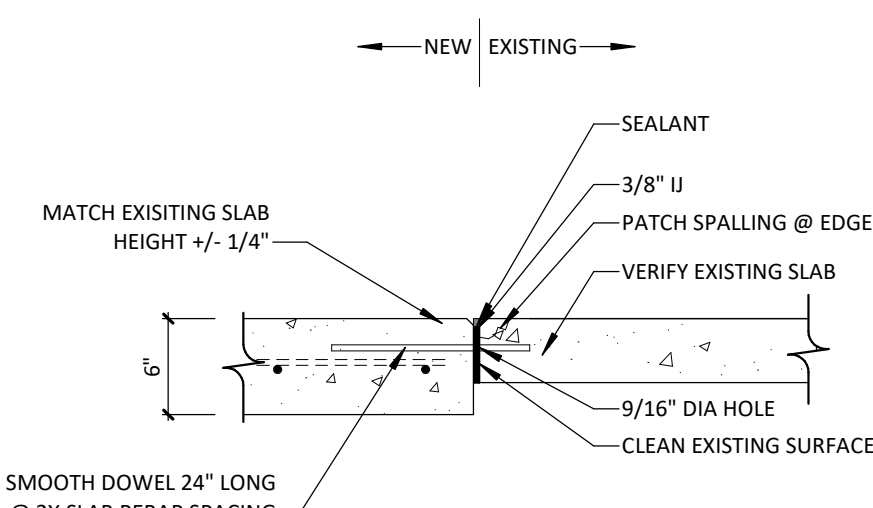


CONTROL JOINT

CONSTRUCTION JOINT

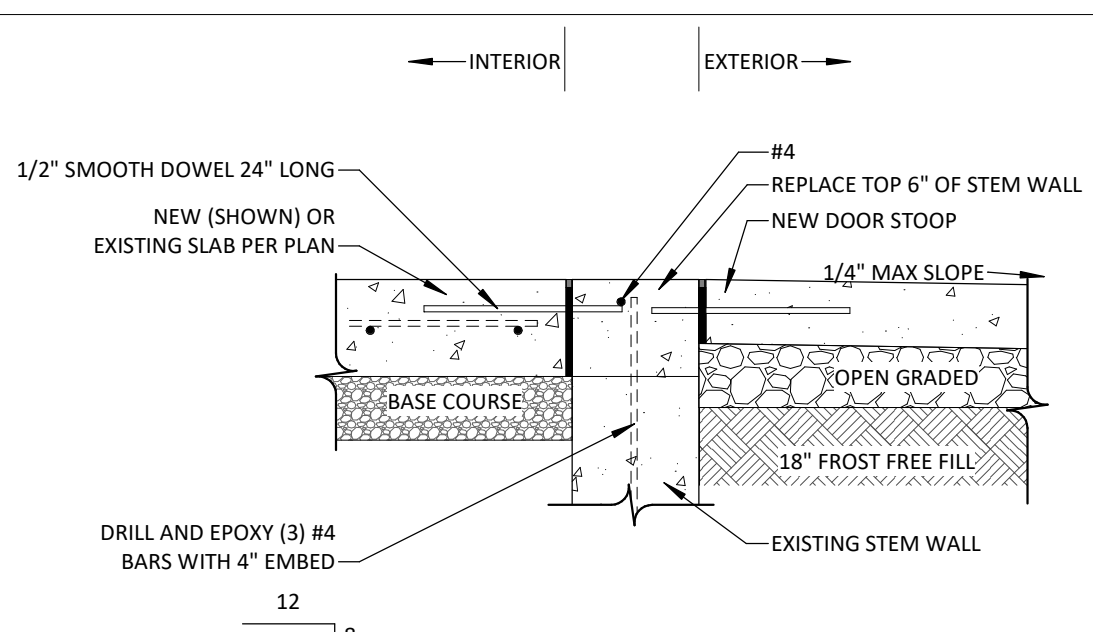
1 SLAB AND CONTROL JOINTS

1" = 1'-0"



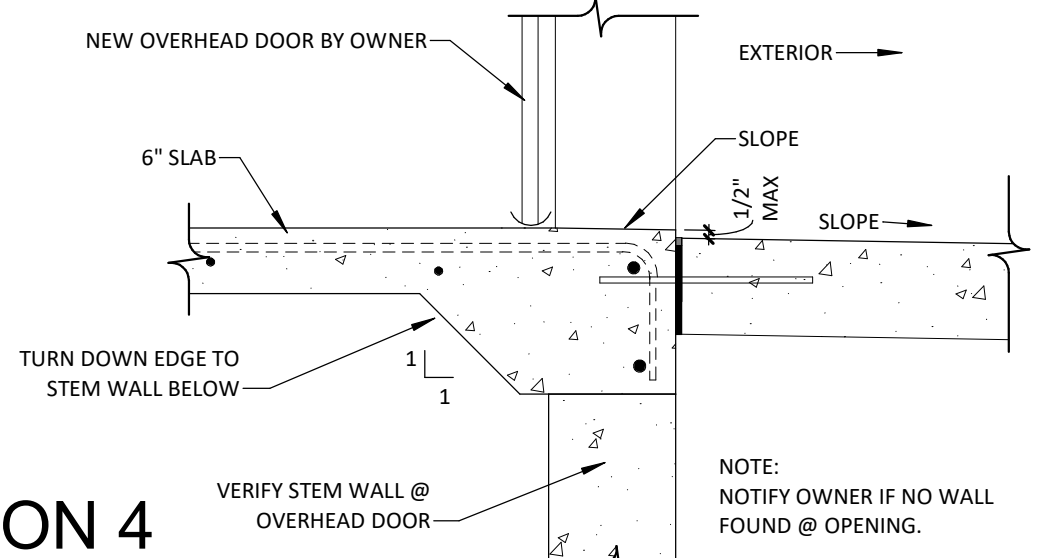
4 NEW/EXISTING SLAB JOINT

1" = 1'-0"



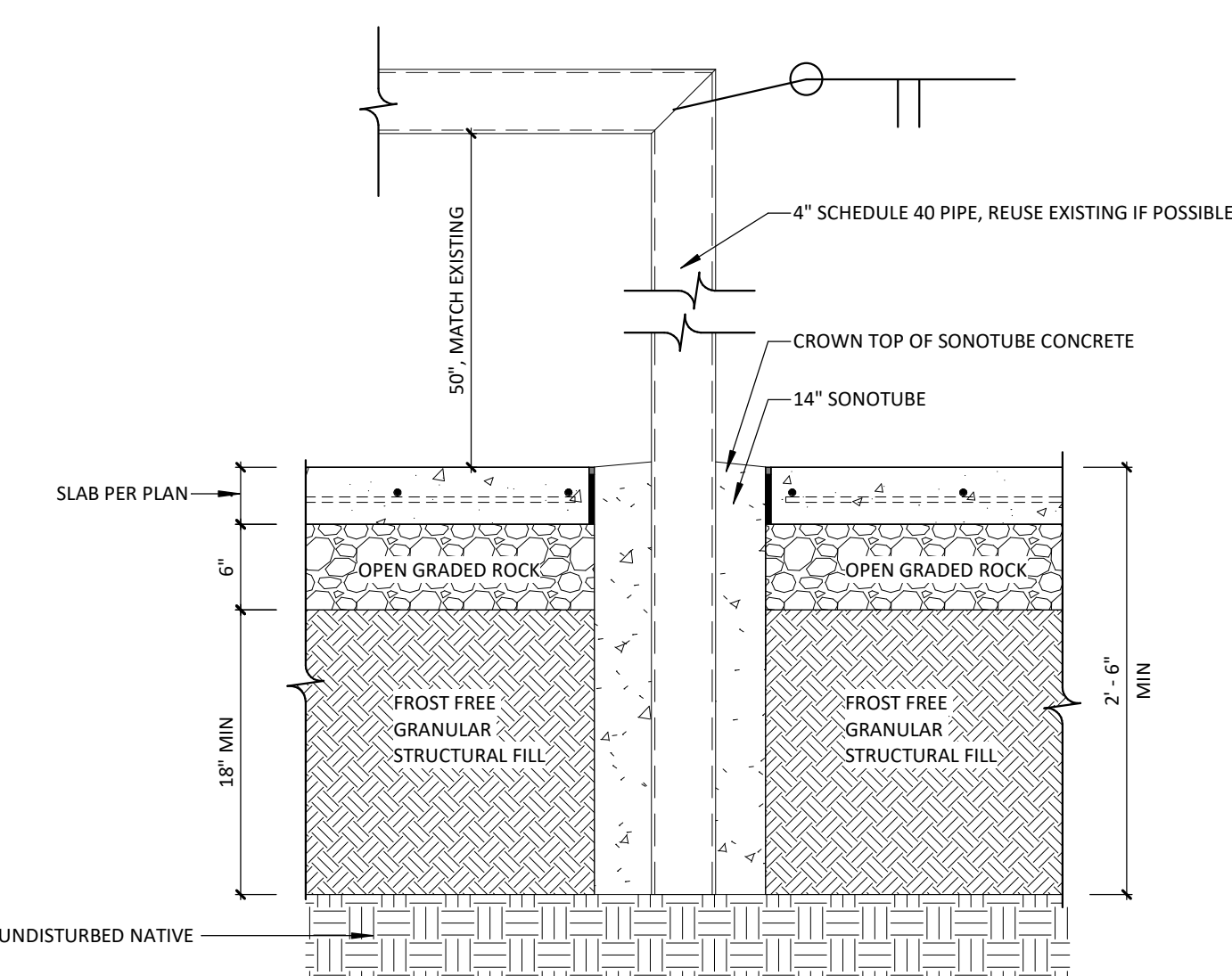
5 REPAIR @ MAN DOOR

1" = 1'-0"



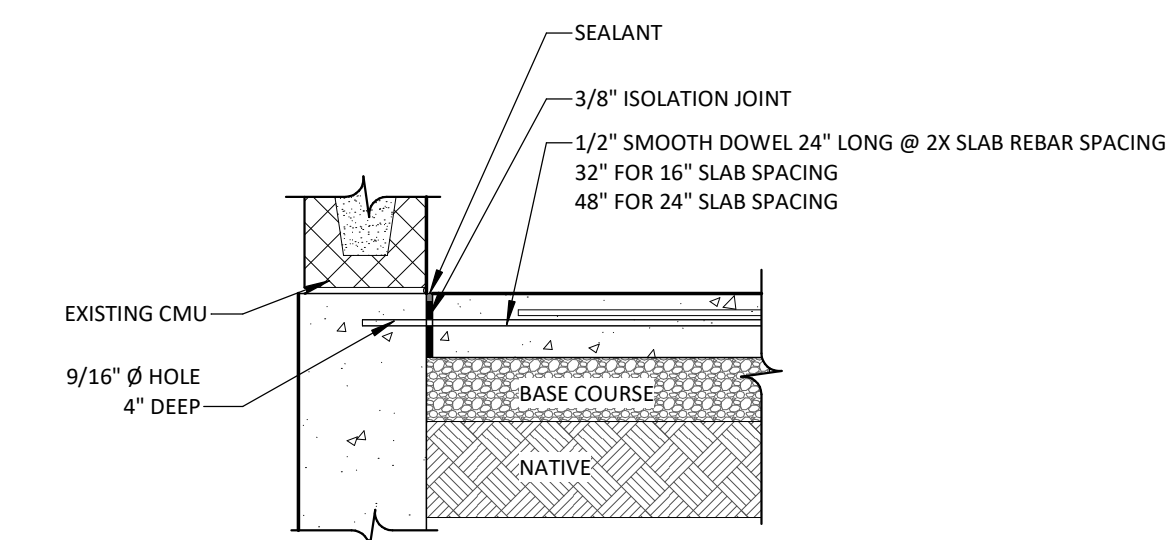
6 SECTION 4

1" = 1'-0"



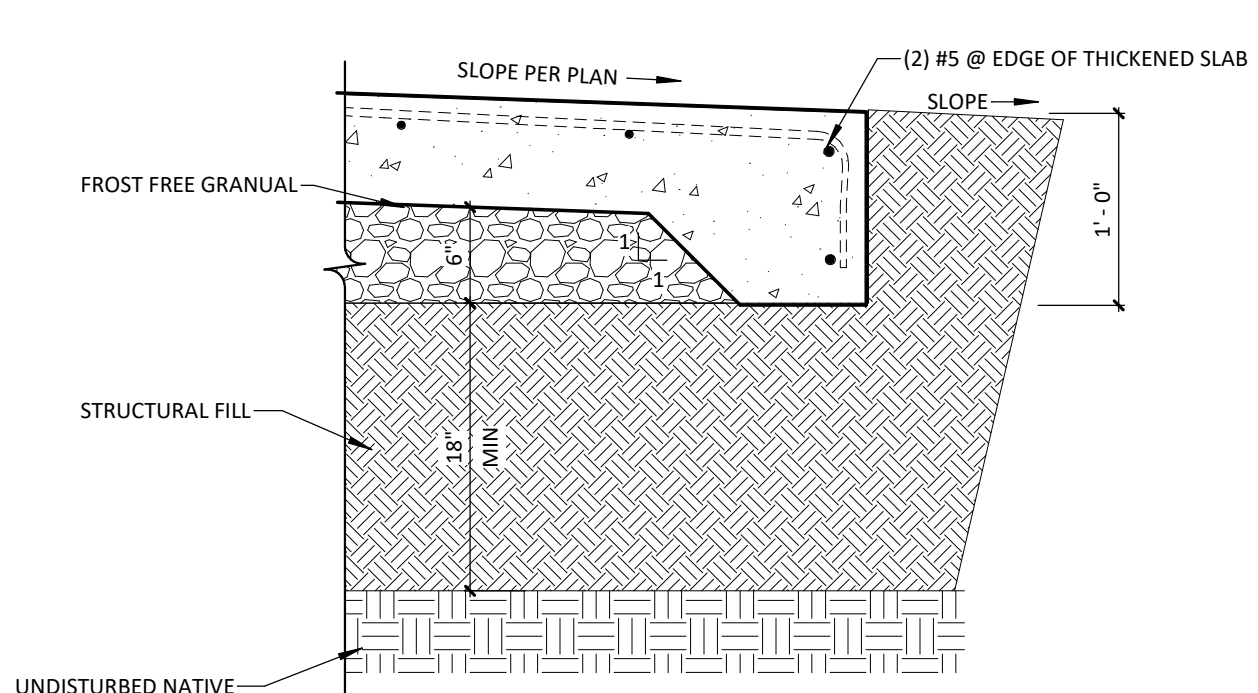
2 EXTERIOR POSTS AND SLAB

1" = 1'-0"



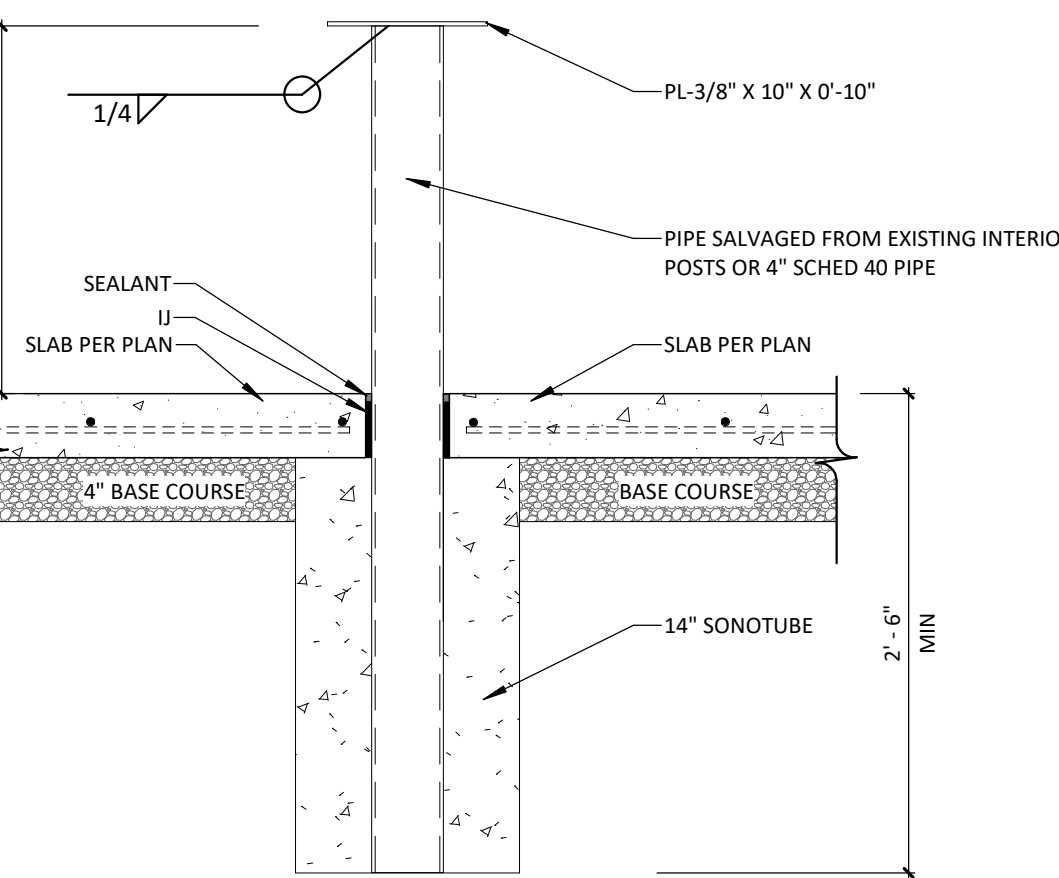
3 TYP. EDGE OF WALL/SLAB DETAIL

1" = 1'-0"



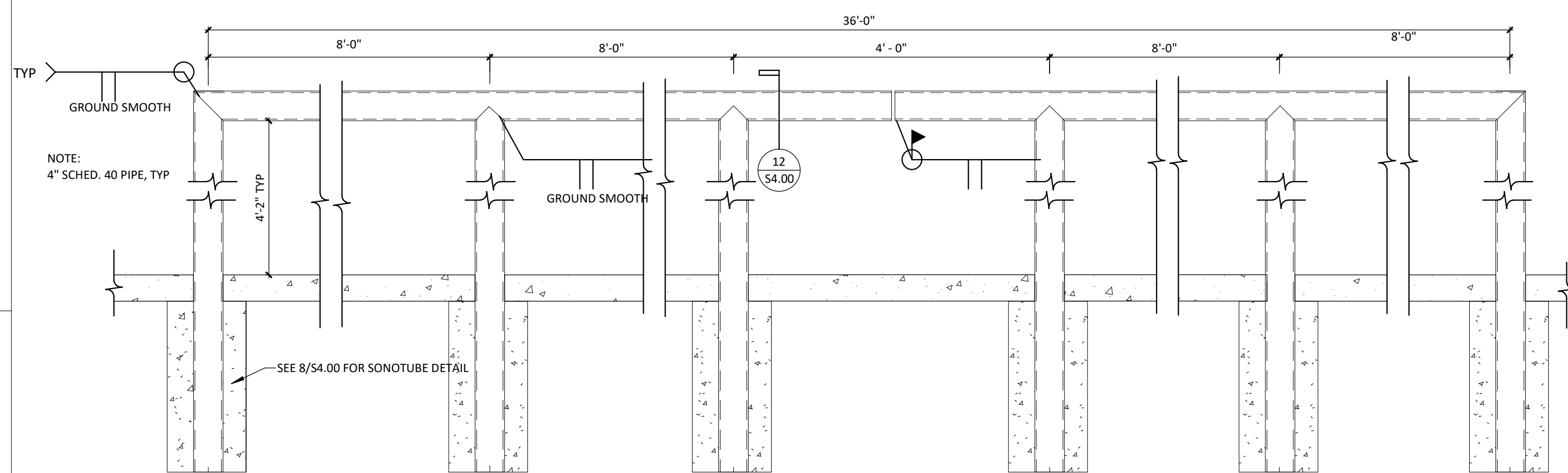
7 SECTION 5

1" = 1'-0"



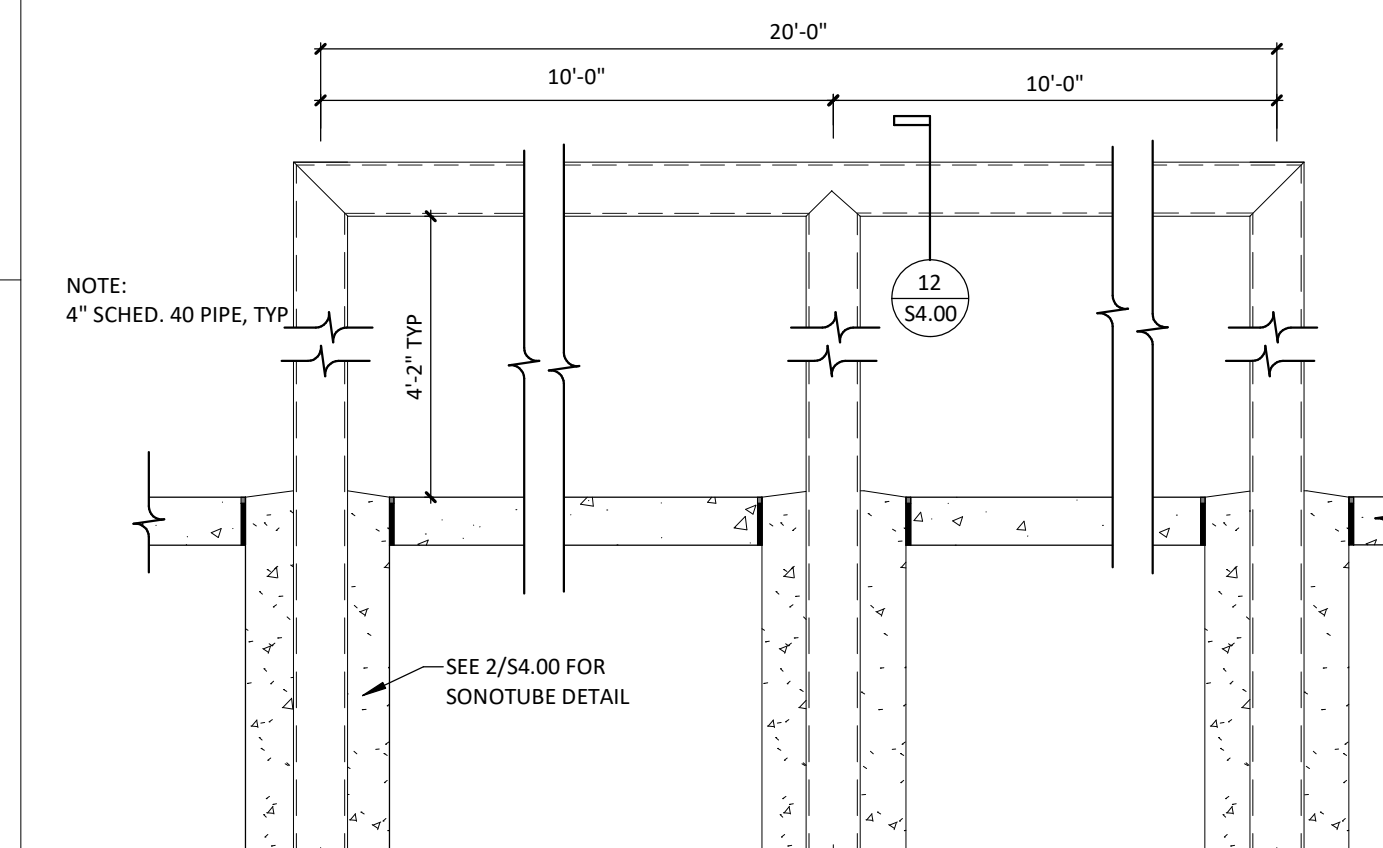
8 INTERIOR VISE POST (4) LOCATIONS

1" = 1'-0"



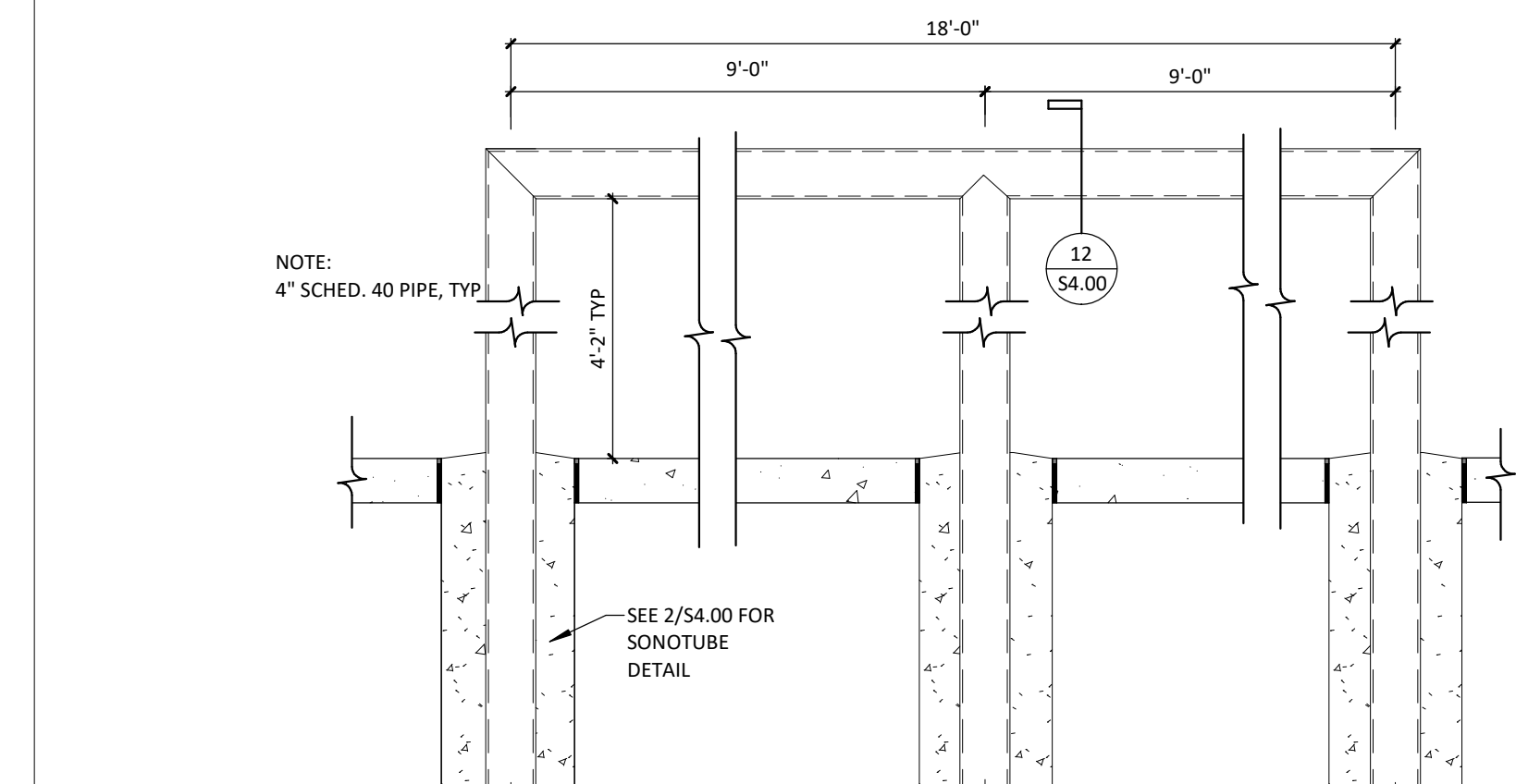
9 HITCHING RAIL #1 (INTERIOR)

3/4" = 1'-0"



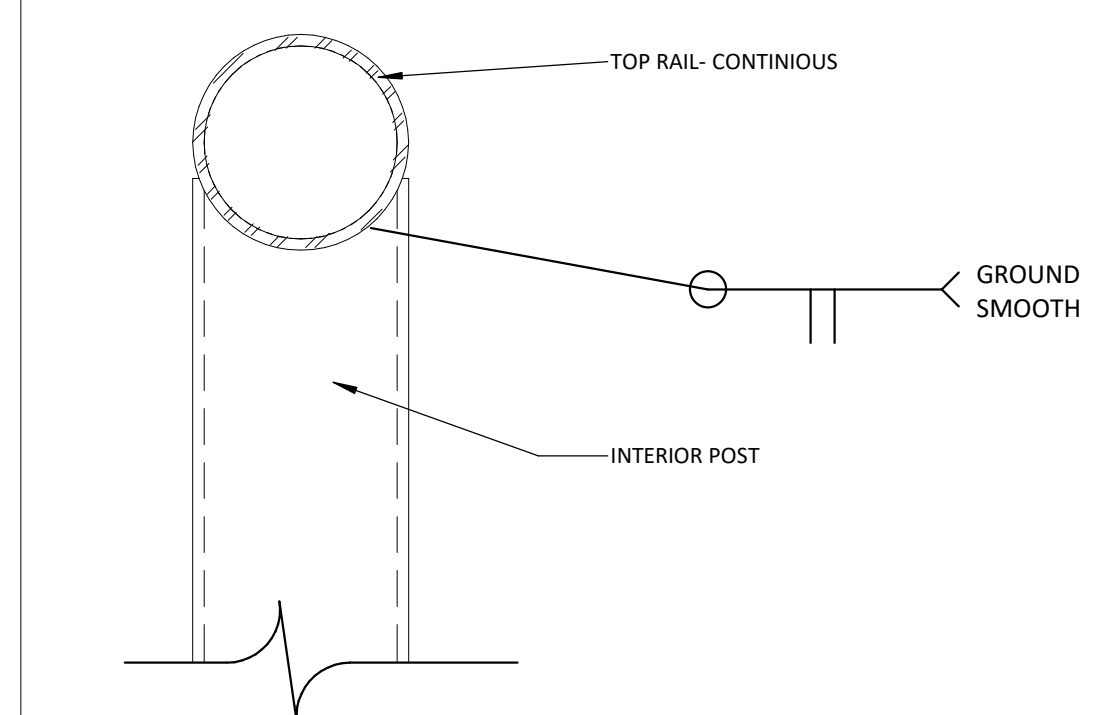
10 HITCHING RAIL #2, #3

3/4" = 1'-0"



11 HITCHING RAIL #4

3/4" = 1'-0"



12 SUPPORT TO TOP RAIL CONN.

3" = 1'-0"

BID SET