

US Army Corps  
of Engineers®  
OMAHA DISTRICT

# REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837) MINOT AFB, NORTH DAKOTA

## VOLUME 1 OF 2

SOLICITATION NO.: W9128F-20-R-0026

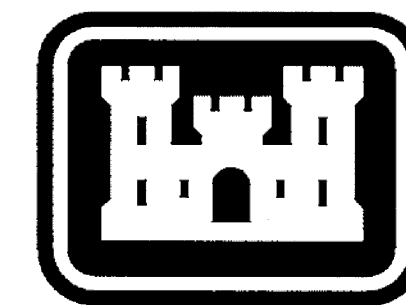
CONTRACT NO.:

ISSUE DATE: 02/19/2020

THIS PROJECT WAS DESIGNED BY THE OMAHA DISTRICT OF THE US ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET.

N/A	DATE	SUBMITTED BY:	RA
CHIEF, GEOTECHNICAL ENGINEERING & SCIENCES BRANCH		CHIEF: ARCH./INTER.	SECTION
		SUBMITTED BY:	PE
		CHIEF: CIVIL	SECTION
	02/19/20	SUBMITTED BY:	PE
CHIEF, DESIGN BRANCH	DATE	CHIEF: EL.EC.	SECTION
		SUBMITTED BY:	PE
		CHIEF: ENVIR.	SECTION
		SUBMITTED BY:	PE
		CHIEF: MECH.	SECTION
N/A	DATE	SUBMITTED BY:	PE
CHIEF, HYDROLOGIC ENGINEERING BRANCH		CHIEF: STRUCT.	SECTION
		SUBMITTED BY:	PE
		CHIEF: GEOT.	SECTION
	3/5/20	SUBMITTED BY:	CADD
CHIEF, ENGINEERING DIVISION, P.E.	DATE	PROJECT COORD.	



US Army Corps  
of Engineers  
Omaha District



US Army Corps  
of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: L.B.C.	ISSUE DATE: 02/19/2020
DRAWN BY: L.B.C.	CONTRACT NO.: W9128F-20-R-0026
CHECKED BY: L.B.C.	FILE NUMBER:
SUBMITTED BY: L.B.C.	FILENAME: MBSG-001.dwg
ANSID:	

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

VOLUME 1  
COVER SHEET

SHEET ID  
G-001



ABBREVIATIONS

Table of abbreviations organized in columns (A-G) and rows (1-10). Includes terms like L ANGLE, A/C AIR CONDITIONING, CS CAST STONE, FRT FIRE-RETARDANT, LTNG LIGHTNING, PSF POUNDS PER SQUARE FOOT, THRES THRESHOLD, etc.

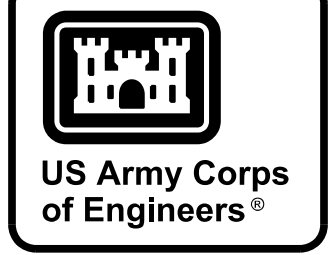


Table with columns: MARK, DESCRIPTION, DATE

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, SUBMITTED BY, FILENAME, SIZE, L.B.C., D.W.N.B.Y., C.O.N.T.R.A.C.T.N.O., F.I.L.E.N.U.M.B.E.R.

Table with columns: U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT, 1816 CAPITOL AVE, OMAHA, NE 68102

SHEET ID G-003

ARCHITECTURAL LEGEND

Table with architectural symbols and descriptions: CONCRETE/ PRECAST CONCRETE, SOIL, SAND, EIFS FINISH COAT, OR CEMENT PLASTER, BRICK, CMU, STONE, FIBERGLASS BATT INSULATION, FIBERGLASS SEMI RIGID INSULATION, MINERAL WOOL SEMI RIGID INSULATION, EXPANDED POLYSTYRENE RIGID INSULATION, EXTRUDED POLYSTYRENE RIGID INSULATION, POLYISOCYANURATE RIGID INSULATION, GYPSUM WALL BOARD, EXTERIOR GYPSUM SHEATHING, EXTERIOR CEMENT BOARD, COATED GLASS MAT WATER RESISTANT GWB, PLYWOOD, COVER BOARD.

CIVIL LEGEND

Table with civil legend symbols and descriptions: EXISTING, NEW, BUILDINGS, ROADS, CURB & GUTTER, WALKS, RAILROAD, CONTOURS, SPOT GRADE ELEVATIONS, DIRECTION OF DRAINAGE, CULVERT, STORM DRAIN, SUBDRAIN, SUBDRAIN OUTLET LINE, WATER LINE, FIRE WATER LINE, SANITARY SEWER, FORCE MAIN, FIRE PROTECTION WATER LINE, WASTE DRAIN, SUBDRAIN FLUSHING & OBSERVATION RISER, MANHOLE SELF EXPLANATORY, CURB INLET, AREA INLET, FIRE HYDRANT, GATE VALVE & VALVE BOX, POST INDICATOR VALVE, DRILL HOLE, MONITORING WELL, CONTROL POINT, PROPERTY LINE MONUMENT.

FENCES

Table with fence symbols and descriptions: EXISTING, NEW, CHAIN LINK SECURITY, BARBED WIRE, WOVEN WIRE, WOOD.

HEATING

Table with heating symbols and descriptions: HPS, MPS, LPS, HPC, MPC, LPC, PC, FW, HTWS, HTWR, HWS, HWR, GHWS, GHWR, BBD, FOG, FOS, FOF, FOR, FOV, GAS, F & T TRAP, THERMODYNAMIC TRAP, BUCKET TRAP, THERMOSTATIC TRAP, FLOAT TRAP.

MISCELLANEOUS PIPING

Table with miscellaneous piping symbols and descriptions: A, VAC, F, F, F, FC.

VALVES & FITTINGS

Table with valve and fitting symbols and descriptions: GLOBE VALVE, O, S, & Y GATE VALVE, GATE VALVE, WAFER CHECK VALVE, HOSE GATE VALVE, PLUG VALVE OR BALANCING COCK, NEEDLE VALVE, STRAINER, RELIEF VALVE, MOTOR OPERATED VALVE, TEMPERATURE REGULATING VALVE, SOLENOID VALVE, PRESSURE REDUCING VALVE, FLOAT VALVE, BUTTERFLY VALVE, BALL VALVE, CALIBRATED BRONZE BALANCING VALVE, ANCHOR, EXPANSION JOINT, SLIDING, EXPANSION JOINT, BELLOWS, ELBOW DOWN, ELBOW UP, TEE DOWN, TEE UP, CAP, UNION, PIPE INCREASER OR DECREASER, FLANGE, BLIND FLANGE.

MECHANICAL LEGEND

Table with mechanical symbols and descriptions: DUCTWORK, SUPPLY GRILLE (SG), RETURN (RG) OR EXHAUST (EG) GRILLE, SUPPLY REGISTER (SR), EXHAUST OR RETURN AIR INLET CEILING, SUPPLY OUTLET, CEILING ROUND, SUPPLY OUTLET, CEILING, RECTANGULAR, OPPOSED BLADE DAMPERS, PARALLEL BLADE DAMPERS, DOOR GRILLE, UNIT HEATER (VERTICAL), UNIT HEATER (HORIZONTAL), POWER OR GRAVITY ROOF VENTILATOR-EXHAUST (ERV), POWER OR GRAVITY ROOF VENTILATOR-SUPPLY (SRV), POINT OF CHANGE IN DUCT CONSTRUCTION, DUCT (1ST FIGURE, SIDE SHOWN), DIRECTION OF FLOW, DUCT SECTION (SUPPLY), DUCT SECTION (EXHAUST OR RETURN), INCLINED RISE (R) OR DROP (D) ARROW, TRANSITIONS, STANDARD BRANCH FOR SUPPLY & RETURN, SPLITTER DAMPER, VOLUME DAMPER MANUAL OPERATION, AUTOMATIC DAMPERS MOTOR OPERATED, ACCESS DOOR (AD), ACCESS PANEL (AP), FIRE DAMPER, SMOKE DAMPER, TURNING VANES, FLEXIBLE DUCT, FLEXIBLE CONNECTION.

GENERAL NOTES:

- 1. THESE LEGENDS ARE COMPOSED OF STANDARD SYMBOLS AND ARE PERTINENT TO THE CONDITIONS ON THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.
2. ADDITIONAL LEGENDS AND/OR ANOTHER LEGEND SHEET MAY APPEAR IN THIS SET OF DRAWINGS TO INDICATE SPECIFIC CONDITIONS IN LIEU OF SYMBOLS SHOWN ON THIS SHEET.
3. EXISTING FACILITIES TO BE REMOVED ARE INDICATED BY USE OF THESE SYMBOLS AND HATCHED THUSLY:///////

PLUMBING

Table with plumbing symbols and descriptions: DCW, DHW, DHWR, SS, V, NG, FFWH, HB, FCO, WCO, FD.

REFRIGERATION

Table with refrigeration symbols and descriptions: RL, RD, RS, CWS, CWR, C, CR, REFRIGERANT STRAINER, THERMOSTATIC EXPANSION VALVE, CHWS, CHWR, GCWS, GCWR, COND.

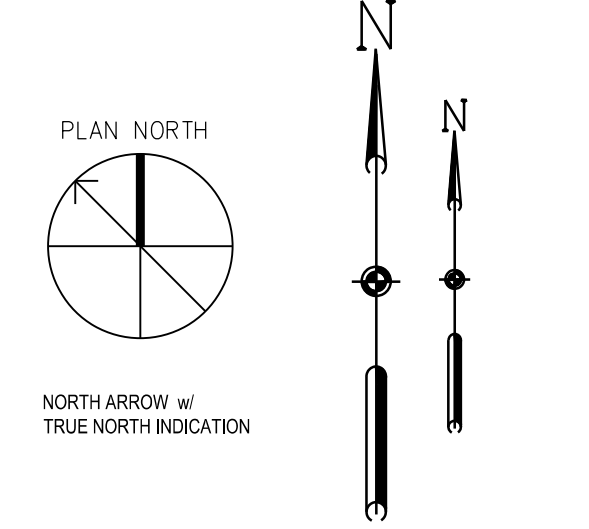
TEMPERATURE CONTROLS

Table with temperature control symbols and descriptions: THERMOSTAT, OUTDOOR AIR THERMOSTAT OR SENSOR, TEMPERATURE SENSOR, NIGHT THERMOSTAT, MANUAL OVER-RIDE SWITCH, EMCS SENSOR, PRESSURE SENSOR, HUMIDITY SENSOR.

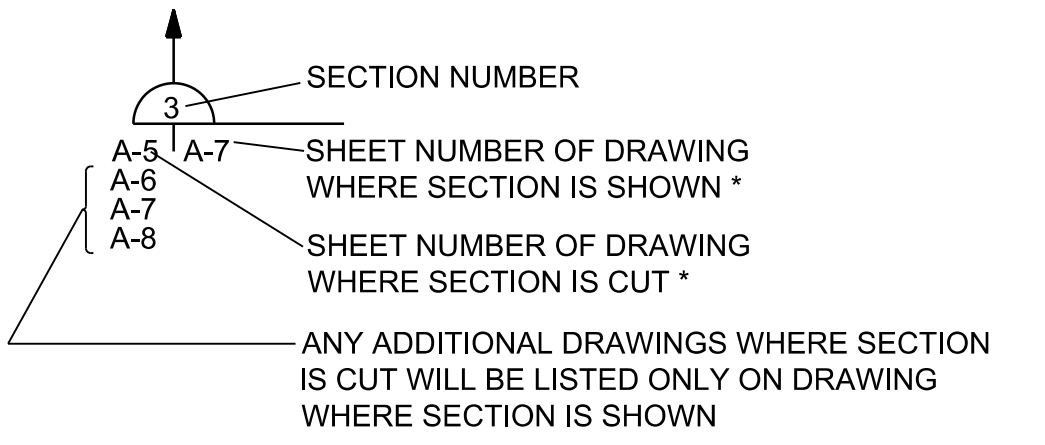
FIRE RATED WALL SYMBOLS:

Table with fire rated wall symbols and descriptions: 1 HR FIRE, 2 HR FIRE, 3 HR FIRE, 4 HR FIRE, 1 HR FIRE/SMOKE WALL, 2 HR FIRE/SMOKE WALL, 3 HR FIRE/SMOKE WALL, 4 HR FIRE/SMOKE WALL.

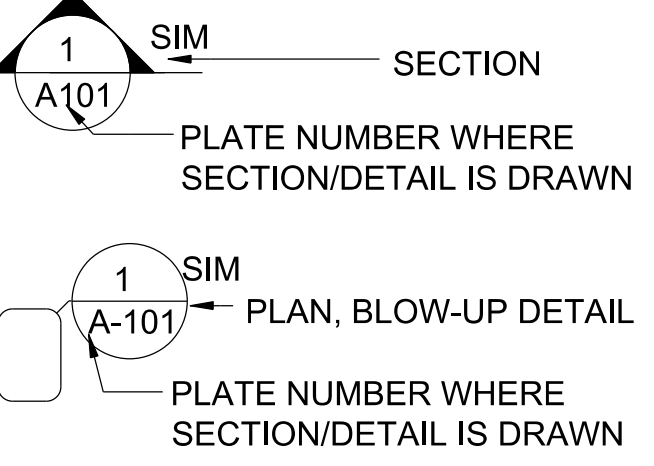
STANDARD NORTH ARROWS



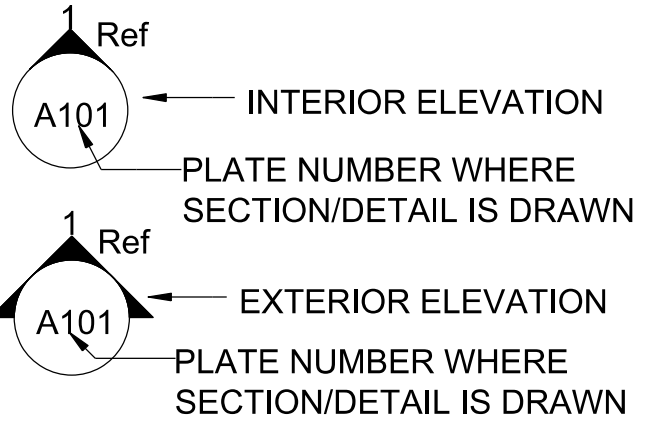
SECTION IDENTIFICATION



\* SHEET NUMBERS OMITTED IF SECTION IS CUT AND DETAILED ON SAME DRAWING.



ELEVATION IDENTIFICATION



ARCHITECTURAL SYMBOLS

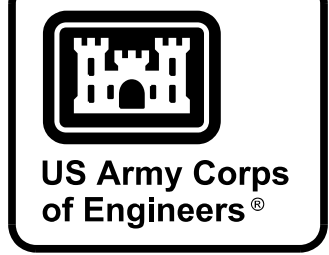
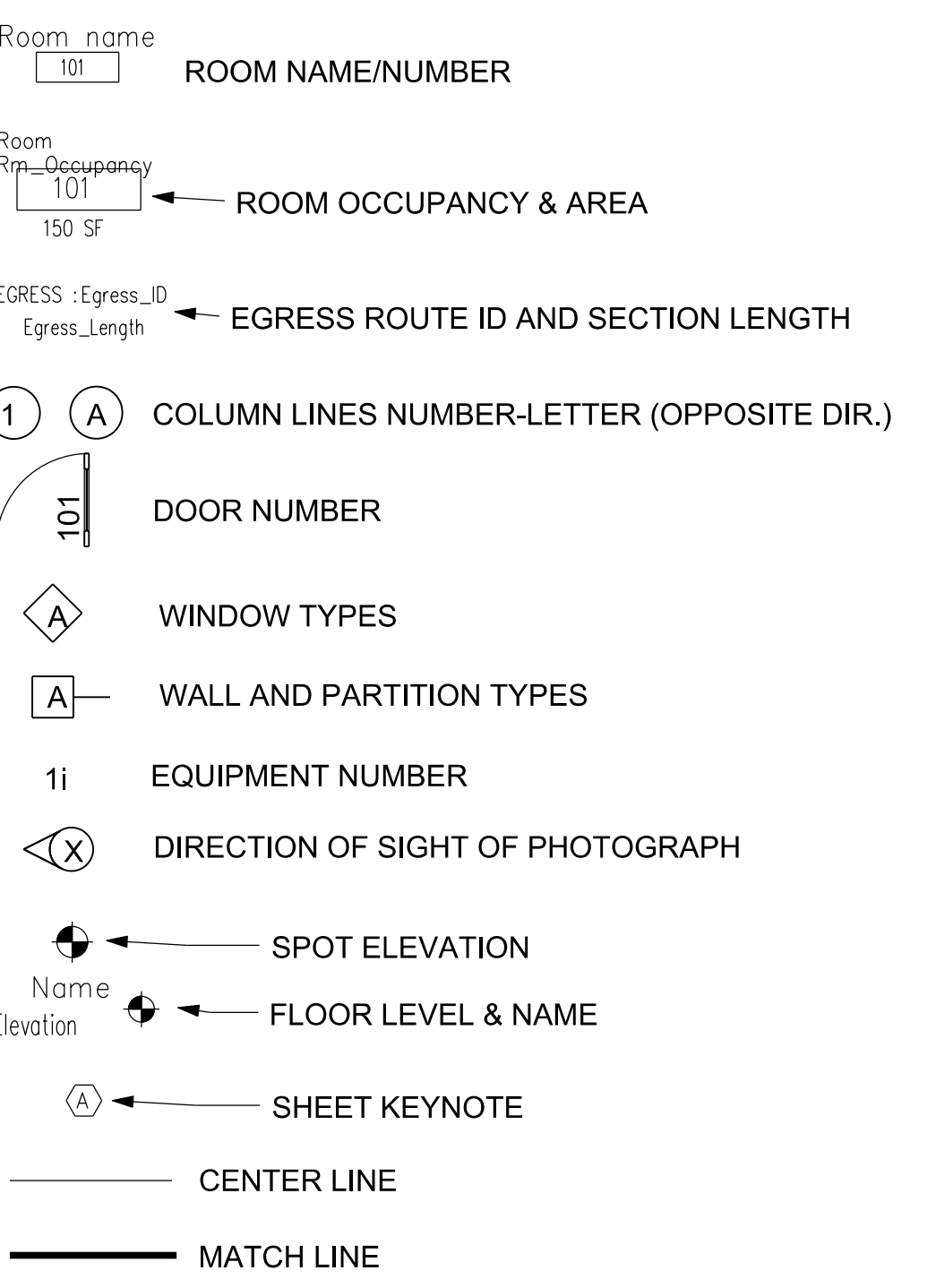


Table with columns: DATE, DESCRIPTION, MARK.

Table with project information: DESIGNED BY, DRAWN BY, CHECKED BY, SUBMITTED BY, FILE NAME, SIZE, U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT, 1816 CAPITOL AVE, OMAHA, NE 68102.

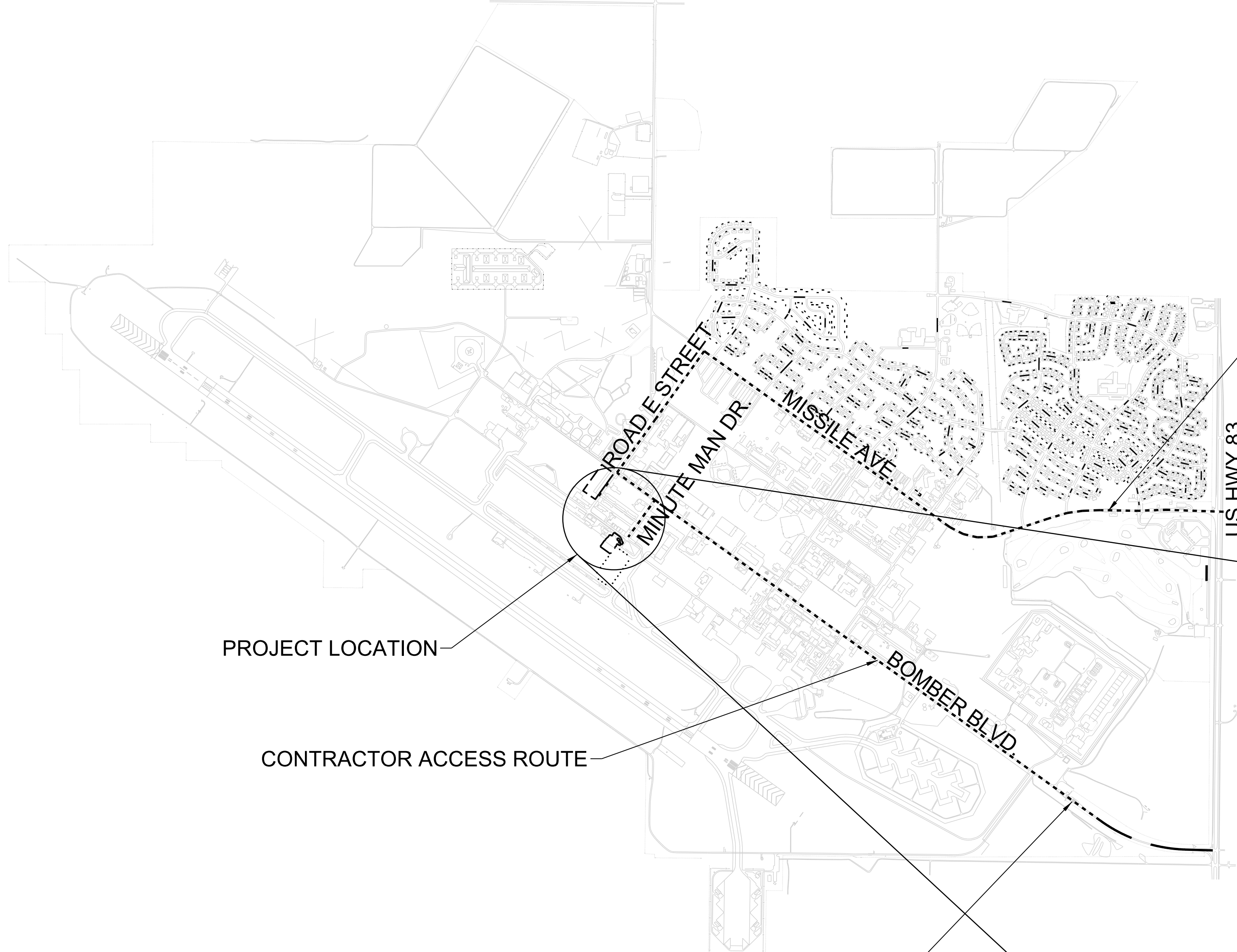
Table with project information: REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837), MINOT AFB, NORTH DAKOTA, LEGEND.

Table with sheet information: SHEET ID, G-004.



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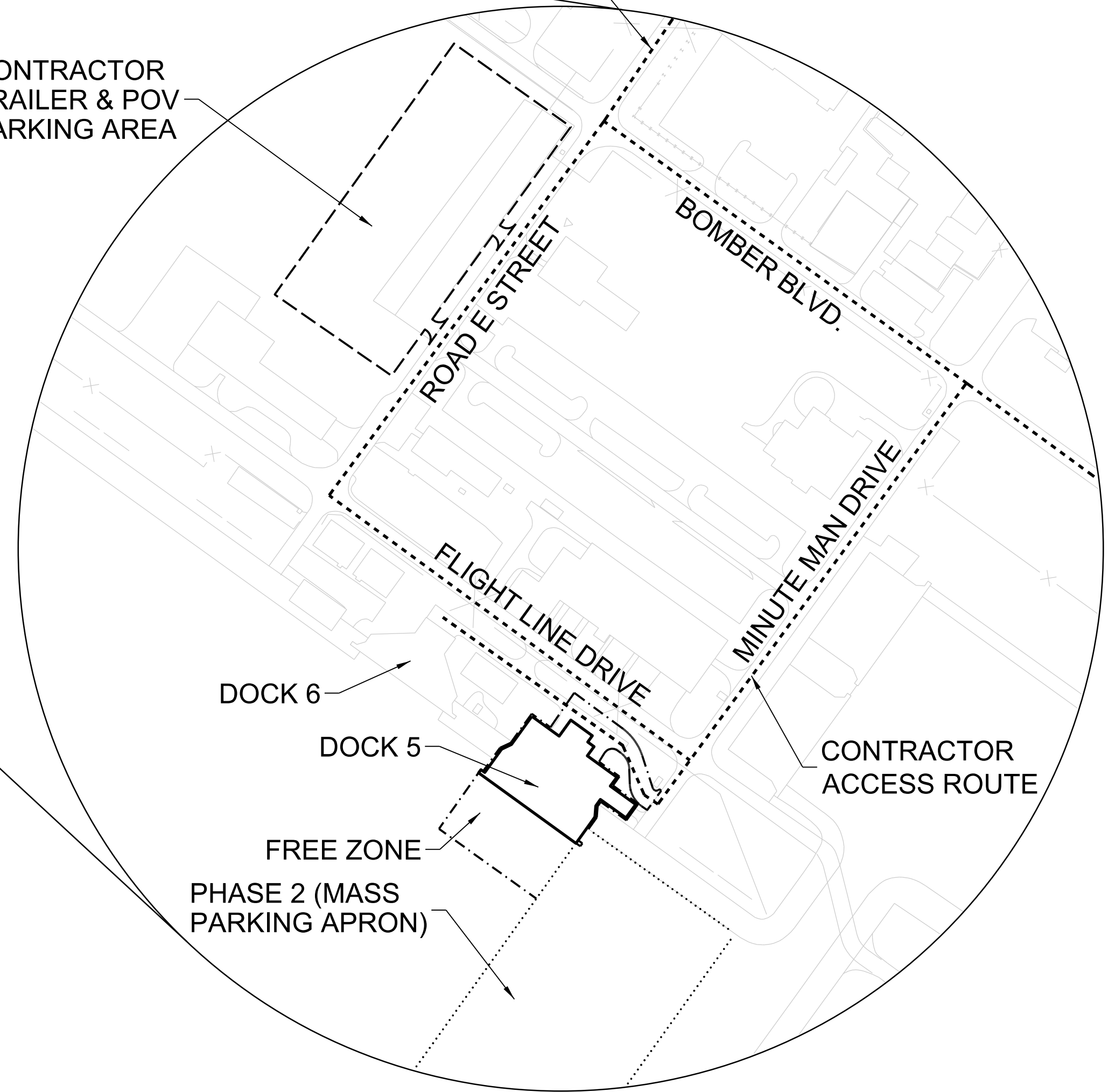
G  
F  
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ALTERNATE CONTRACTOR ACCESS ROUTE

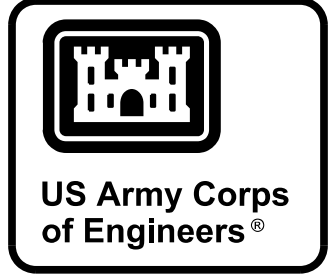
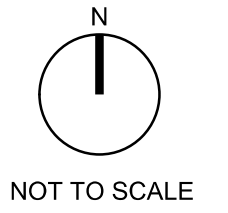
ALTERNATE CONTRACTOR ACCESS ROUTE

CONTRACTOR TRAILER & POV PARKING AREA



PROJECT LOCATION

MINOT AFB



MARK	DESCRIPTION	DATE

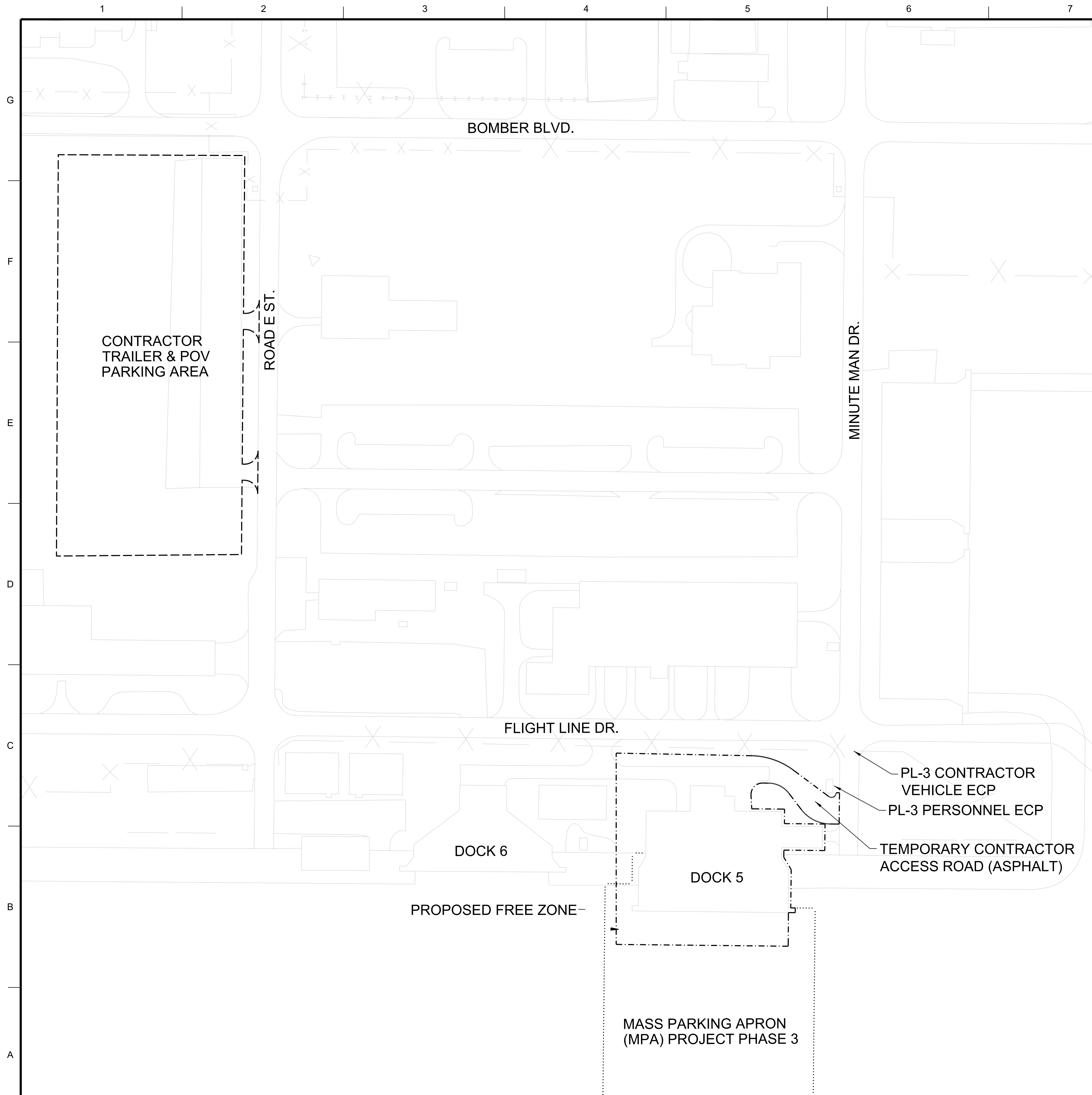
DESIGNED BY: W.C. DAVENPORT	ISSUE DATE: 02/19/2020
DRAWN BY: E.W. BILLO	CONTRACT NO.:
CHECKED BY: W.C. DAVENPORT	
SUBMITTED BY: W.C. DAVENPORT	
SIZE:	ANSI D
MBSG-006.dwg	

U.S. ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT

REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837)  
MINOT AFB, NORTH DAKOTA

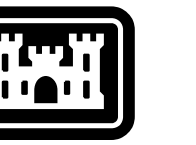
LOCATION PLAN

SHEET ID  
**G-006**



**NOTES:**

1. ALL ACCESS OTHER THAN THROUGH THE TEMPORARY ENTRANCE NEAR THE EXISTING ECP SHALL REQUIRE AN ESCORT PROVIDED BY THE BASE.
2. BASE SECURITY REQUIRES A PHYSICAL BARRIER CONSISTING OF A FENCE AND A LOW-PROFILE BARRIER AROUND THE PERIMETER OF THE PROPOSED FREE ZONE. SEE SHEET G-008 FOR LOW-PROFILE BARRIER DETAILS.
3. ALL CONTRACTOR VEHICLE SHALL BE MARKED WITH THE APPROPRIATE COMPANY LOGO (MAGNETIC STICKER ACCEPTABLE).
4. A TEMPORARY ASPHALT ROADWAY SHALL BE INSTALLED IMMEDIATELY FOLLOWING THE PL-3 ENTRY CONTROL POINT (ECP) TO ALLOW ACCESS TO DOCK 5.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOREIGN OBJECT DEBRIS (FOD) MITIGATION THROUGHOUT THE DURATION OF CONSTRUCTION.



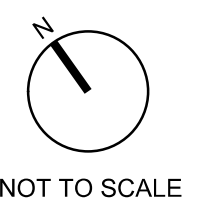
US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. FRANCIULLO	ISSUE DATE: 02/19/2020
DRAWN BY: A. FRANCIULLO	CONTRACT NO.:
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	
SIZE: ANSI D	FILE NAME: MIB5G-007.dwg

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

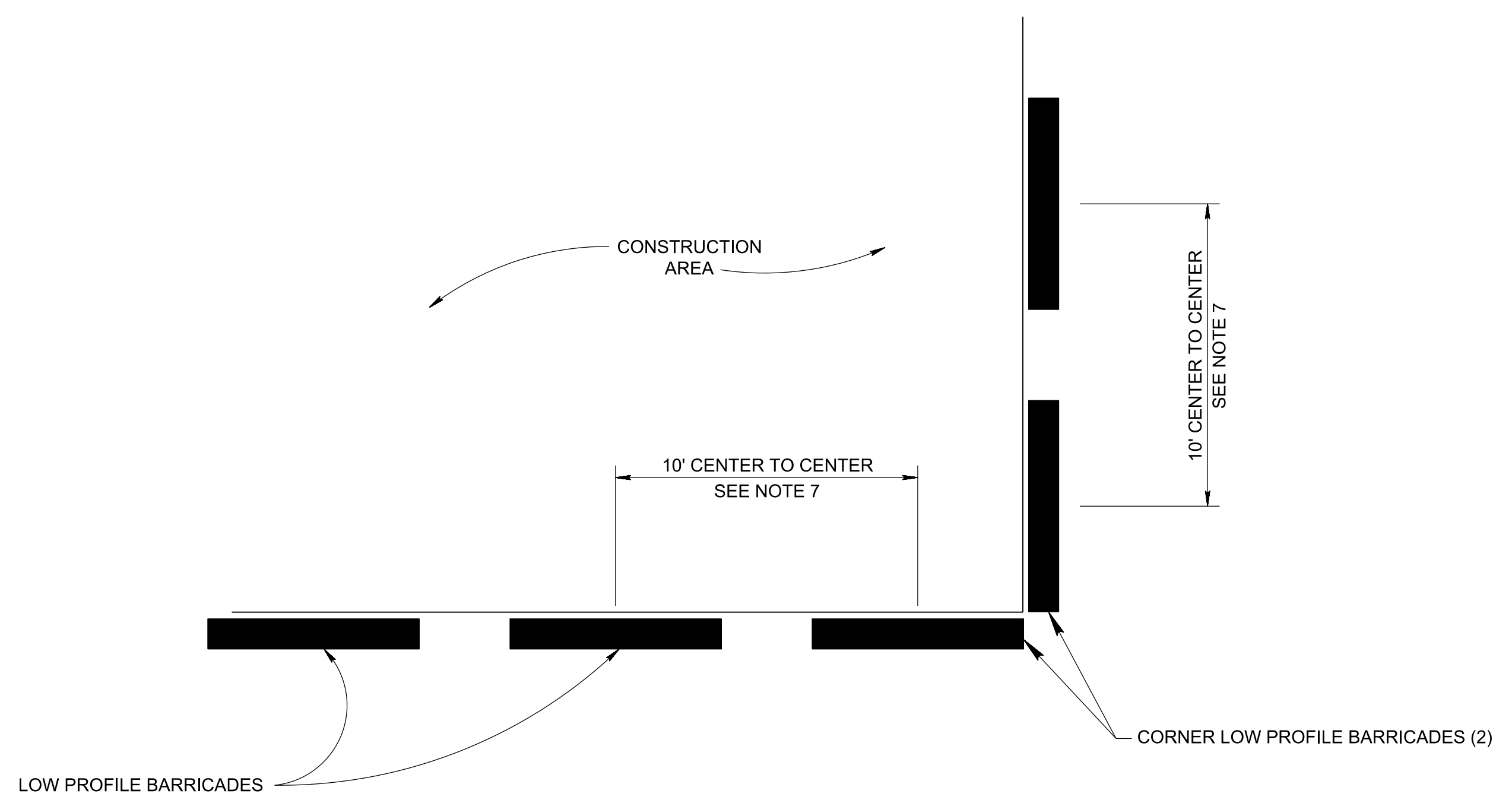
CONTRACTOR ACCESS  
& PHASING PLAN



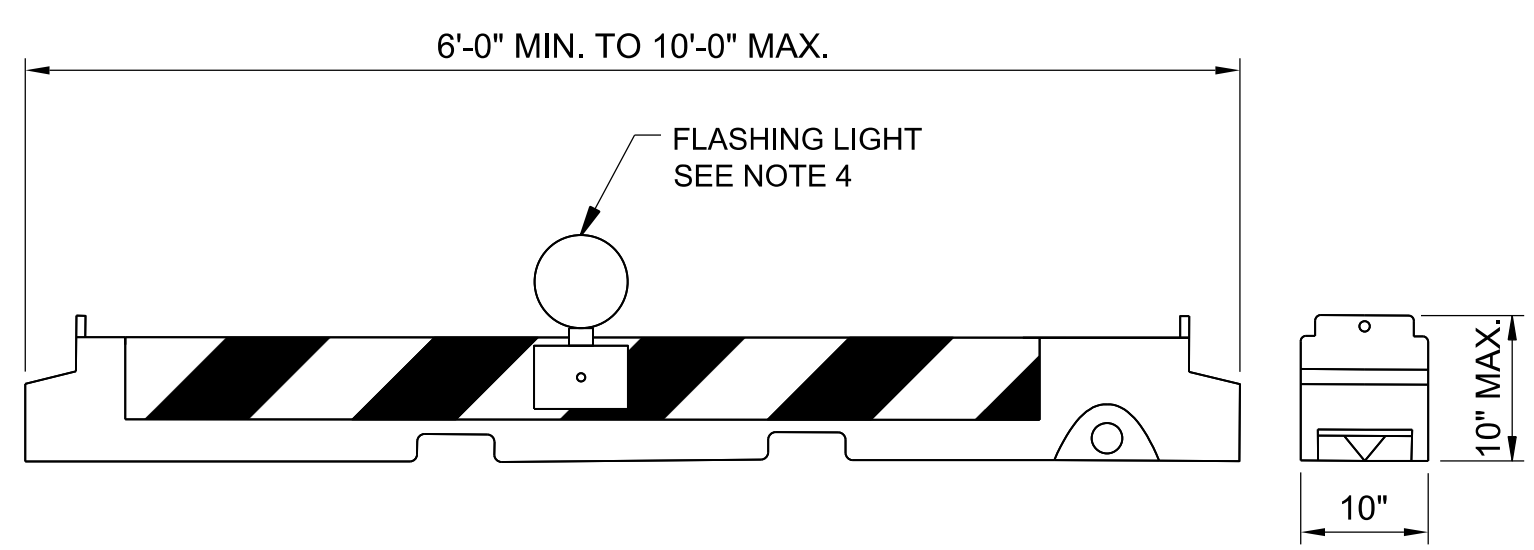
NOT TO SCALE

SHEET ID  
**G-007**

G  
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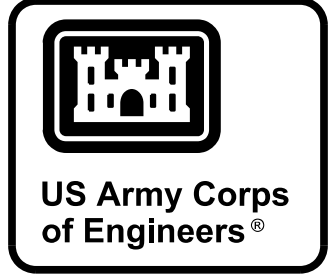


**TYPICAL LOW PROFILE BARRICADE LAYOUT DETAIL**  
NO SCALE



**TYPICAL LOW PROFILE BARRICADE DETAIL**  
NO SCALE

- NOTES:**
1. LOW PROFILE BARRICADES SHALL BE ANCHORED OR OF SUFFICIENT WEIGHT TO PREVENT OVERTURNING DUE TO HIGH WINDS AND JET ENGINE BLAST.
  2. BARRICADES SHALL COMPLY WITH THE REQUIREMENTS OF FAA ADVISORY CIRCULAR 150/5370-2F OR AIR FORCE ETL 04-02.
  3. LOW PROFILE BARRICADES SHALL BE SPACED AT A MAXIMUM OF 10 FOOT INTERVALS AT LOCATIONS INDICATED.
  4. FLASHING LIGHTS SHALL BE RED OR AMBER AND SHALL HAVE AT LEAST 5 CANDELAS EFFECTIVE INTENSITY AND FLASH AT A RATE OF 55 TO 160 FLASHES PER MINUTE.
  5. THE CONTRACTOR SHALL HAVE A PERSON AVAILABLE 24 HOURS A DAY FOR EMERGENCY MAINTENANCE OF LOW PROFILE BARRICADES AND HAZARD LIGHTS. THE CONTRACTOR SHALL INITIATE AND COMPLETE REPAIRS OF LOW PROFILE BARRICADES AND HAZARD LIGHTS WITHIN ONE HOUR OF BEING NOTIFIED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
  6. REFLECTIVE STRIPES SHALL BE ON ALL LONGITUDINAL SIDES EXCEPT BOTTOM. TOP STRIPES NOT SHOWN FOR CLARITY.
  7. PROVIDE ONE 12-FOOT GAP BETWEEN LOW PROFILE BARRICADES AT EACH LOCATION FOR FIRE DEPARTMENT AND SECURITY POLICE ACCESS.



DATE	DESCRIPTION	MARK

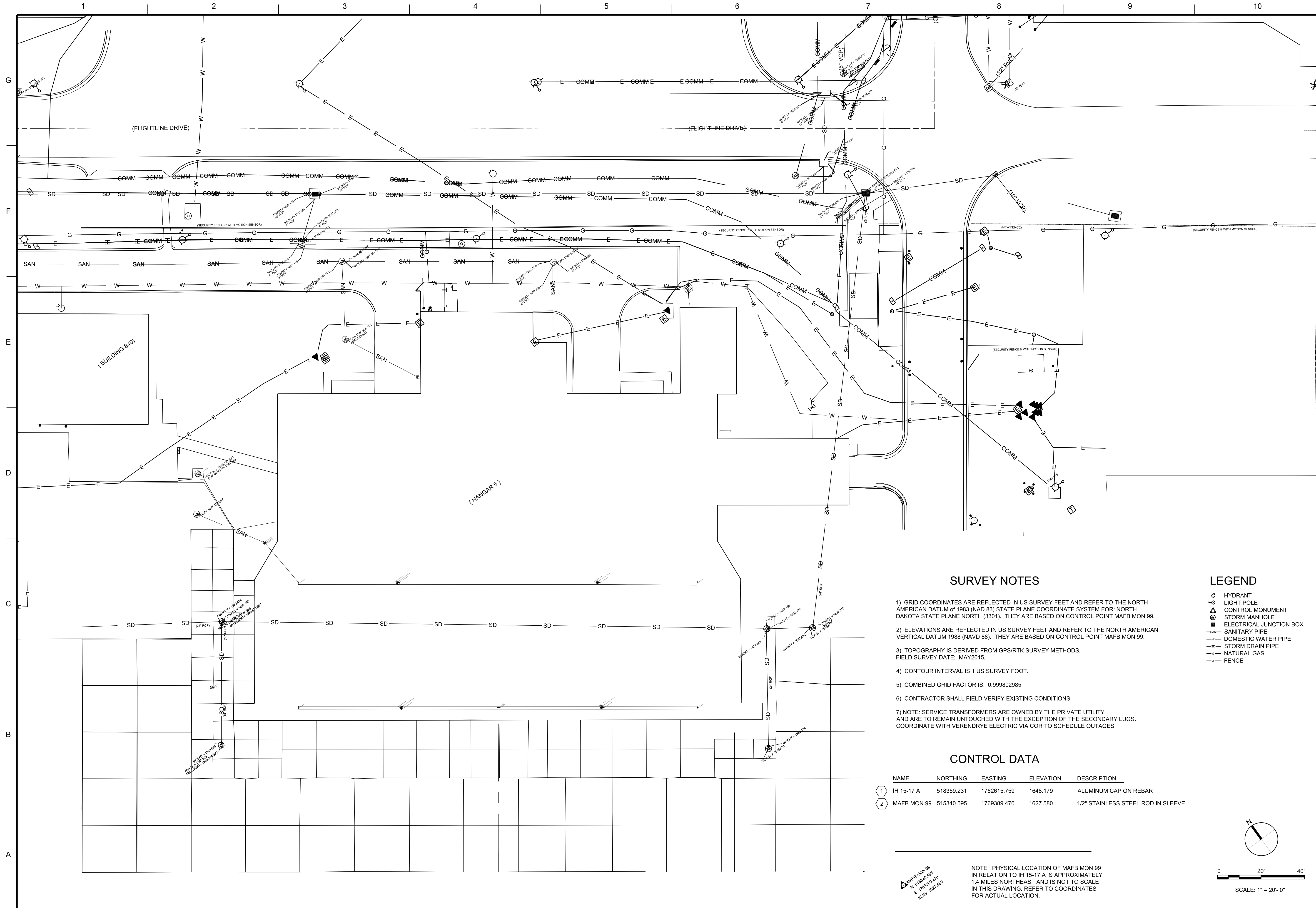
DESIGNED BY: A. FANCIULLO	ISSUE DATE: 02/19/2020
DRAWN BY: A. FANCIULLO	PROJECT NO.: 19312R-20-029
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	
SIZE: ANSI D	FILE NAME: MB5G-008.dwg
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT	

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

**LOW PROFILE BARRIER DETAILS**

SHEET ID  
**G-008**





**SURVEY NOTES**

- 1) GRID COORDINATES ARE REFLECTED IN US SURVEY FEET AND REFER TO THE NORTH AMERICAN DATUM of 1983 (NAD 83) STATE PLANE COORDINATE SYSTEM FOR: NORTH DAKOTA STATE PLANE NORTH (3301). THEY ARE BASED ON CONTROL POINT MAFB MON 99.
- 2) ELEVATIONS ARE REFLECTED IN US SURVEY FEET AND REFER TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). THEY ARE BASED ON CONTROL POINT MAFB MON 99.
- 3) TOPOGRAPHY IS DERIVED FROM GPS/RTK SURVEY METHODS. FIELD SURVEY DATE: MAY2015.
- 4) CONTOUR INTERVAL IS 1 US SURVEY FOOT.
- 5) COMBINED GRID FACTOR IS: 0.999802985
- 6) CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS
- 7) NOTE: SERVICE TRANSFORMERS ARE OWNED BY THE PRIVATE UTILITY AND ARE TO REMAIN UNTOUCHED WITH THE EXCEPTION OF THE SECONDARY LUGS. COORDINATE WITH VERENDRYE ELECTRIC VIA COR TO SCHEDULE OUTAGES.

**CONTROL DATA**

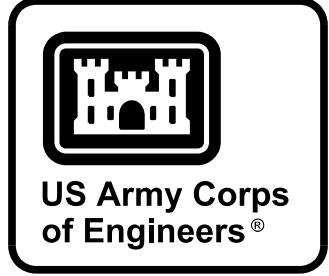
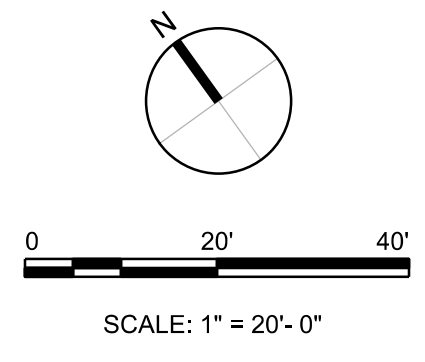
NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
1 IH 15-17 A	518359.231	1762615.759	1648.179	ALUMINUM CAP ON REBAR
2 MAFB MON 99	515340.595	1769389.470	1627.580	1/2" STAINLESS STEEL ROD IN SLEEVE

**LEGEND**

- HYDRANT
- LIGHT POLE
- CONTROL MONUMENT
- STORM MANHOLE
- ELECTRICAL JUNCTION BOX
- SANITARY PIPE
- DOMESTIC WATER PIPE
- STORM DRAIN PIPE
- NATURAL GAS
- FENCE

MAFB MON 99  
N: 515340.595  
E: 1769389.470  
ELEV: 1627.580

NOTE: PHYSICAL LOCATION OF MAFB MON 99 IN RELATION TO IH 15-17 A IS APPROXIMATELY 1.4 MILES NORTHEAST AND IS NOT TO SCALE IN THIS DRAWING. REFER TO COORDINATES FOR ACTUAL LOCATION.



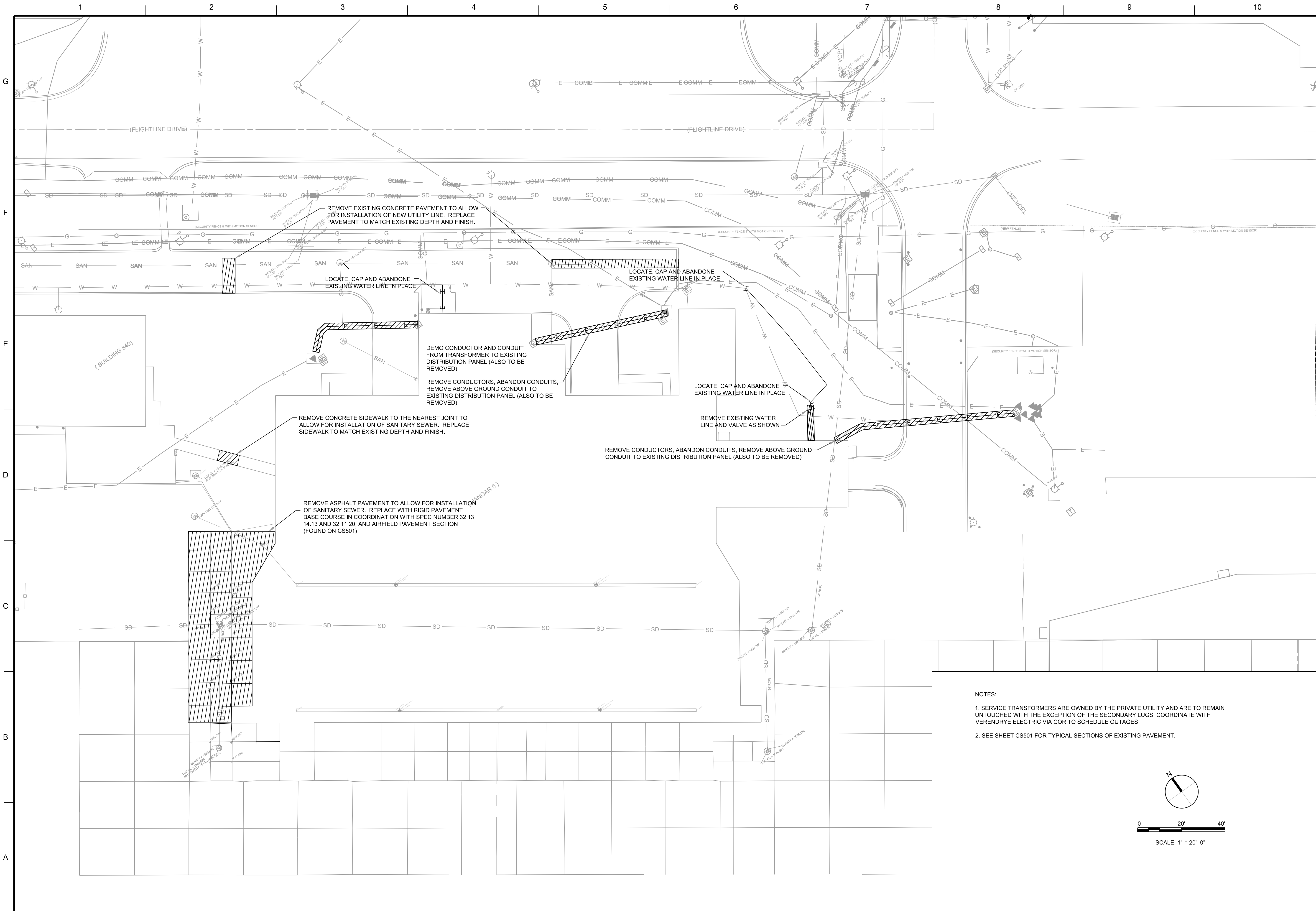
MARK	DESCRIPTION	DATE

DESIGNED BY: A. FANCULLO	ISSUE DATE: 02/19/2020
DRAWN BY: W.C. DAVENPORT	DESIGN NO. (CON NO.): 10313RE-20-0226
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	SCALE: ANSI D
MIBSVF101.dwg	

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

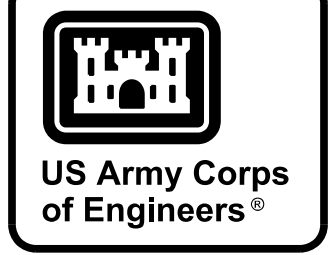
**EXISTING CONDITIONS PLAN**

SHEET ID  
**VF101**



**NOTES:**

- SERVICE TRANSFORMERS ARE OWNED BY THE PRIVATE UTILITY AND ARE TO REMAIN UNTOUCHED WITH THE EXCEPTION OF THE SECONDARY LUGS. COORDINATE WITH VERENDRYE ELECTRIC VIA COR TO SCHEDULE OUTAGES.
- SEE SHEET CS501 FOR TYPICAL SECTIONS OF EXISTING PAVEMENT.



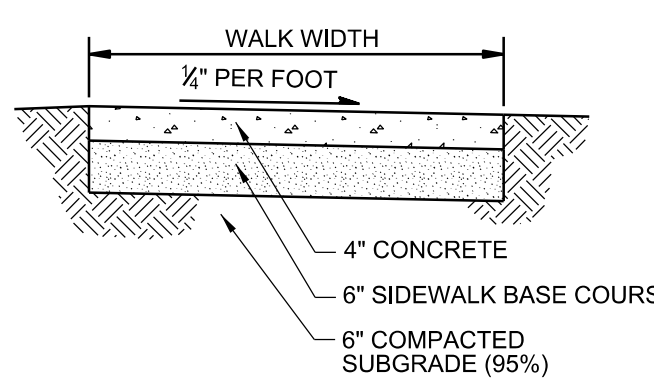
MARK	DESCRIPTION	DATE

<b>DESIGNED BY:</b> A. FANCULLO	<b>ISSUE DATE:</b> 02/19/2020
<b>DRAWN BY:</b> W.C. DAVENPORT	<b>CONTRACT NO.:</b> 190108-20-0026
<b>CHECKED BY:</b> W.C. DAVENPORT	<b>FILE NUMBER:</b> MIBSCD101.dwg
<b>SUBMITTED BY:</b> W.C. DAVENPORT	<b>SIZE:</b> ANSI D

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
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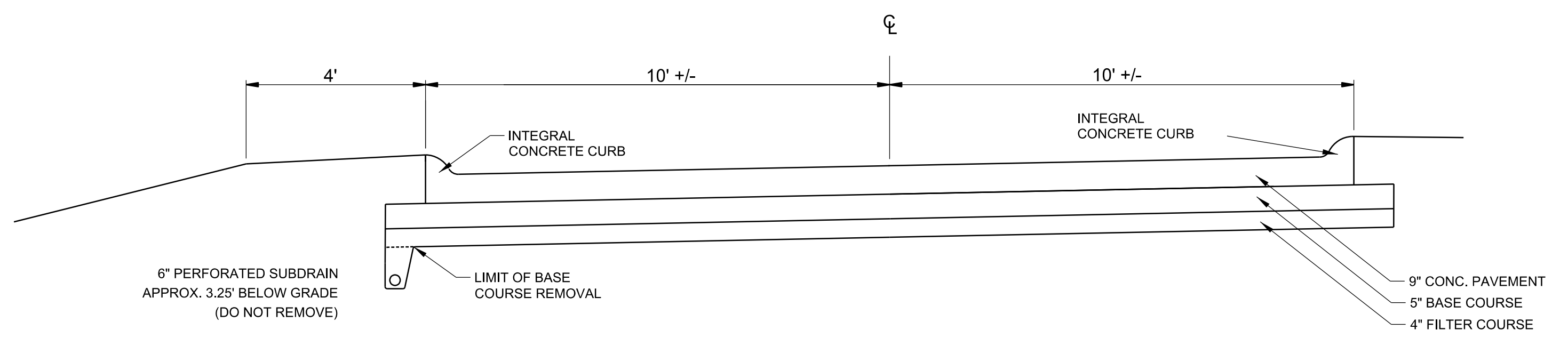
**DEMOLITION PLAN**

SHEET ID  
**CD101**



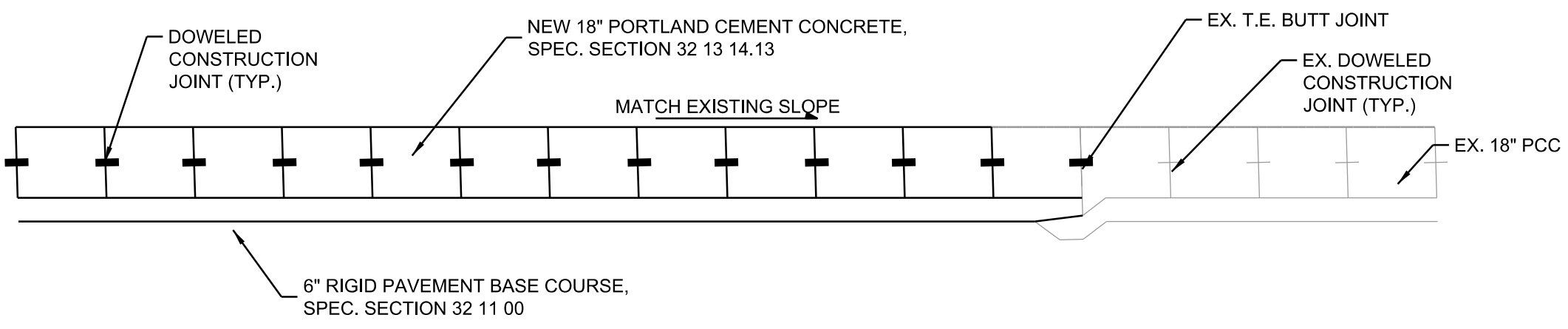
**SINGLE-PURPOSE WALK  
TYPICAL SECTION**  
NO SCALE

NOTES:  
1. SIDEWALK BASE COURSE MATERIAL SHALL INCLUDE MATERIALS CLASSIFIED AS EITHER GW, GW-GM, SW, SM OR SW-SM ACCORDING TO ASTM D 2487. THE AMOUNT OF MATERIAL PASSING THE NO. 200 SIEVE SHALL NOT EXCEED 12 PERCENT BY WEIGHT. SIDEWALK BASE COURSE MATERIAL SHALL BE COMPACTED TO AT LEAST 96 PERCENT OF LABORATORY MAXIMUM DENSITY.



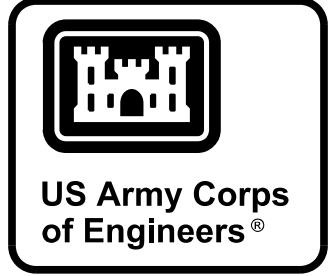
**EXISTING TUG LANE PAVEMENT SECTION**  
NOT TO SCALE (FOR INFORMATION ONLY)

NOTES:  
1. ALL CONCRETE PAVEMENT REMOVAL SHALL INCLUDE EXISTING BASE COURSES AND INTEGRAL CURBS.  
2. MAINTAIN EXISTING SUBDRAIN AND SURROUNDING BACKFILL MATERIAL.



**NEW AIRFIELD PAVING SECTION**  
NOT TO SCALE, PLAN WEST OF DOCK 5

NOTES:  
1. IN AREAS WHERE THE NEW PCC PAVEMENT THICKNESS IS GREATER THAN THE EXISTING PAVEMENT REMOVED, REMOVE EXISTING AGGREGATE BASE COURSE AND SUBGRADE AS NECESSARY TO CONSTRUCT THE THICKER NEW PCC PAVEMENT. ANY UNFORSEEN HAZARDOUS MATERIALS SHALL BE ADDRESSED IN ACCORDANCE WITH SPECIFICATION SECTION 01 35 26.  
2. SCARIFY AND RECOMPACT TOP 4" OF EXISTING SUBGRADE IN ACCORDANCE WITH SPECIFICATION SECTION 31 00 00 EARTHWORK.  
3. ALL NON-CONTAMINATED EXISTING MATERIAL REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR OFF BASE. ALL NON-CONTAMINATED EXISTING AGGREGATE BASE COURSE, SUBBASE COURSE, GRANULAR FILTER COURSE AND SUBGRADE REMOVED TO CONSTRUCT THE NEW ACC PAVEMENT SECTION SHALL BE DISPOSED OF BY THE CONTRACTOR OFF BASE.



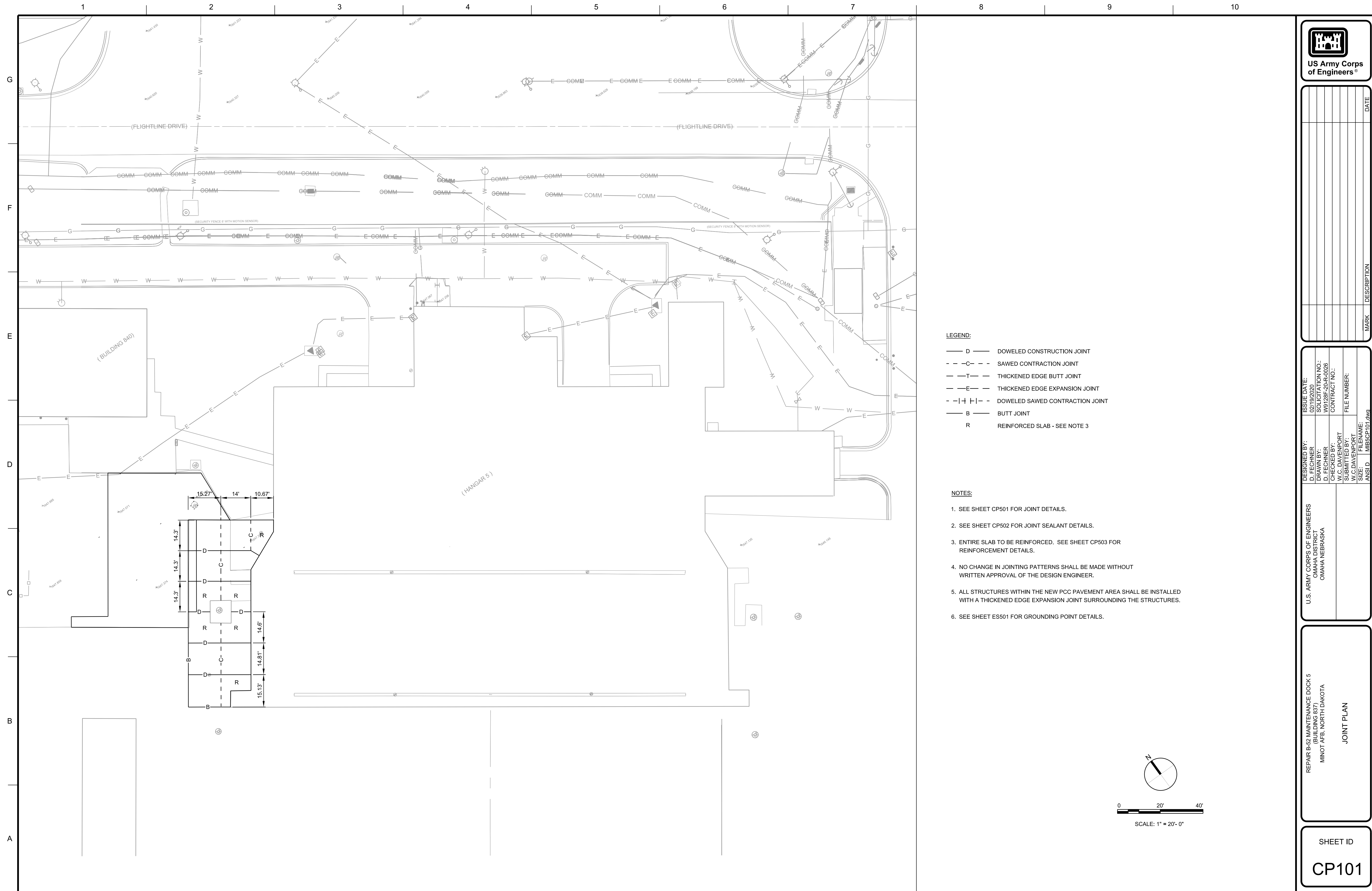
MARK	DESCRIPTION	DATE

DESIGNED BY: A. FANCIULLO	ISSUE DATE: 02/19/2020
DRAWN BY: A. FANCIULLO	CONTRACT NO.:
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	
SIZE: ANSI D	MBSC501.dwg

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

TYPICAL PAVEMENT SECTIONS

SHEET ID  
**CS501**

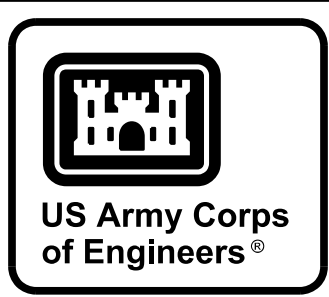
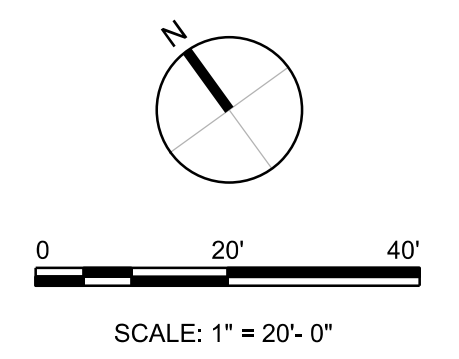


**LEGEND:**

- D — DOWELED CONSTRUCTION JOINT
- - C - - SAWED CONTRACTION JOINT
- T — THICKENED EDGE BUTT JOINT
- E — THICKENED EDGE EXPANSION JOINT
- -| + | - - DOWELED SAWED CONTRACTION JOINT
- B — BUTT JOINT
- R REINFORCED SLAB - SEE NOTE 3

**NOTES:**

- SEE SHEET CP501 FOR JOINT DETAILS.
- SEE SHEET CP502 FOR JOINT SEALANT DETAILS.
- ENTIRE SLAB TO BE REINFORCED. SEE SHEET CP503 FOR REINFORCEMENT DETAILS.
- NO CHANGE IN JOINTING PATTERNS SHALL BE MADE WITHOUT WRITTEN APPROVAL OF THE DESIGN ENGINEER.
- ALL STRUCTURES WITHIN THE NEW PCC PAVEMENT AREA SHALL BE INSTALLED WITH A THICKENED EDGE EXPANSION JOINT SURROUNDING THE STRUCTURES.
- SEE SHEET ES501 FOR GROUNDING POINT DETAILS.



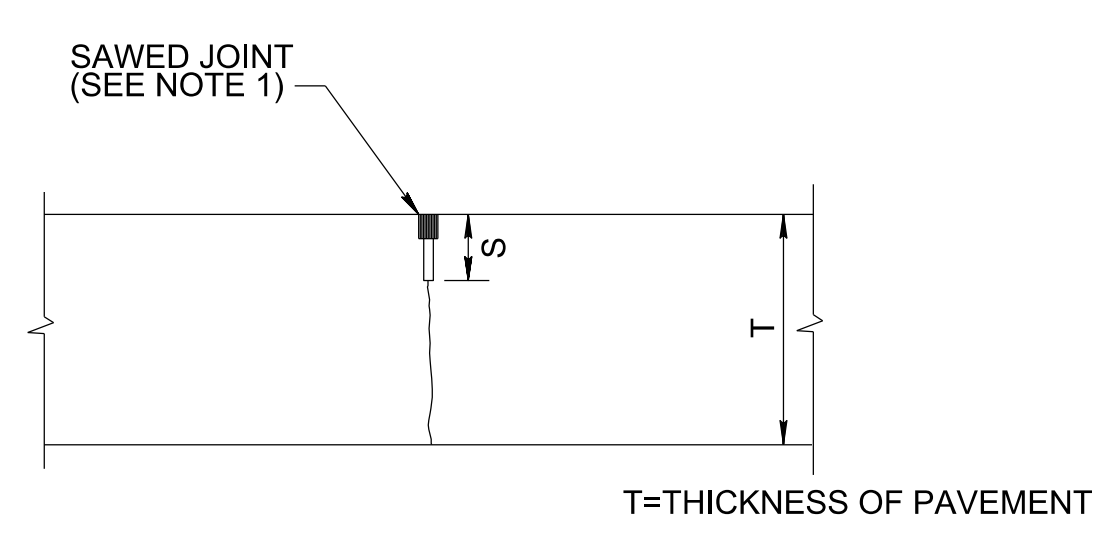
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DESIGNED BY: D. FECHNER	ISSUE DATE: 02/19/2020
DRAWN BY: D. FECHNER	CONTRACT NO.:
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	FILE NUMBER:
SIZE: ANSI D	FILENAME: MBSCPT101.dwg
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT OMAHA, NEBRASKA	

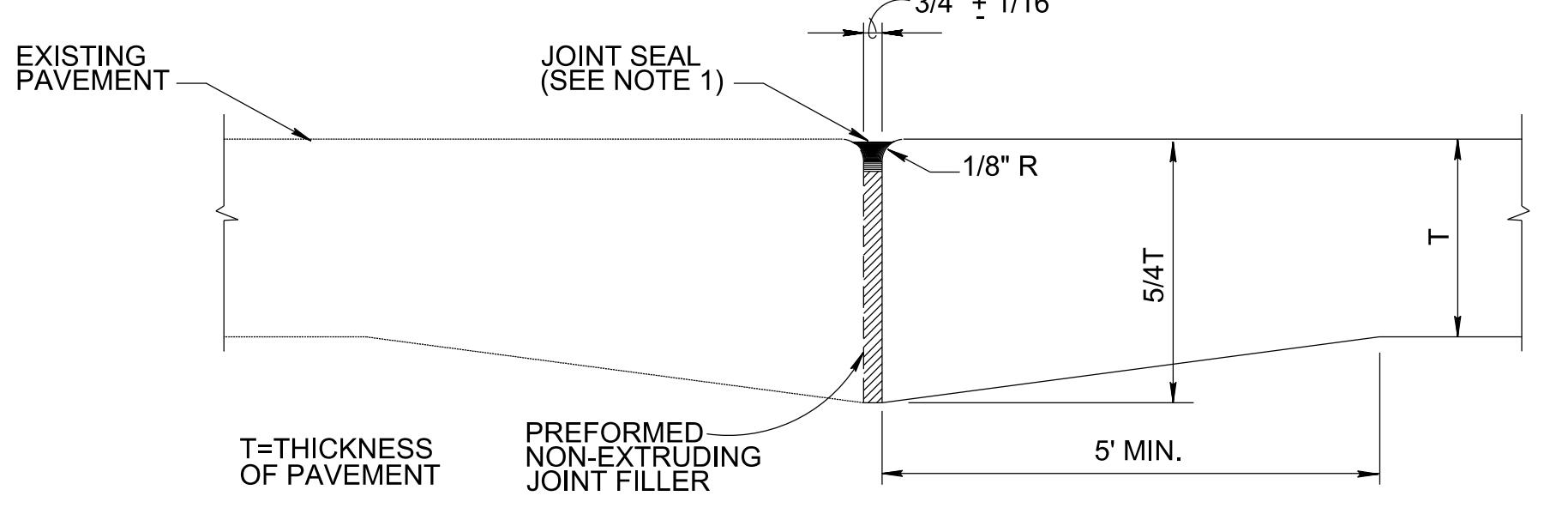
REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837) MINOT AFB, NORTH DAKOTA

JOINT PLAN

SHEET ID  
**CP101**



**SAWED CONTRACTION JOINT**  
NOT TO SCALE

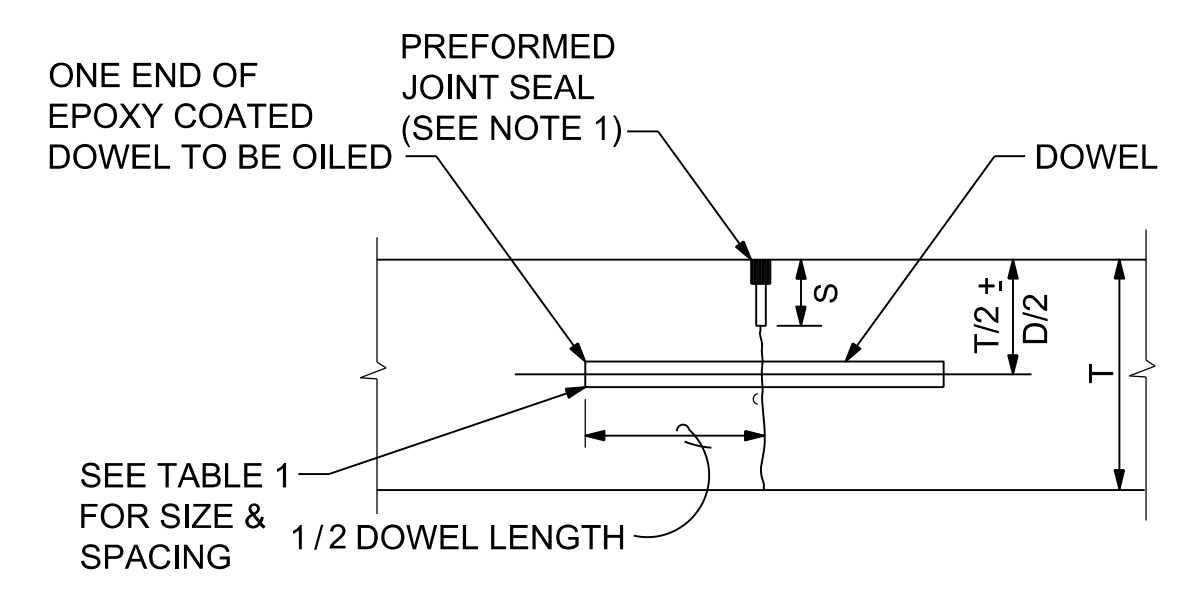


**THICKENED EDGE EXPANSION JOINT (NEW TO EXISTING PAVEMENT)**  
NOT TO SCALE

NOTE: WHEN THICKENED EDGE JOINTS ARE REQUIRED BETWEEN PAVEMENTS OF DIFFERING THICKNESSES, THE PREFORMED JOINT FILL SHALL EXTEND TO A DEPTH EQUAL TO THE THINNEST THICKENED EDGE.

PAVEMENT THICKNESS	MAXIMUM DOWEL SPACING	MINIMUM DOWEL LENGTH	TYPE OF DOWEL
18"	18"	20"	1-1/4 INCH BAR

NOTE: WHEN DOWELS ARE REQUIRED BETWEEN PAVEMENTS OF DIFFERING THICKNESS, DOWELS SHALL BE SIZED FOR THE THINNER PAVEMENT, AND PLACED AT  $T/2 \pm D/2$  OF THE THINNER PAVEMENT.

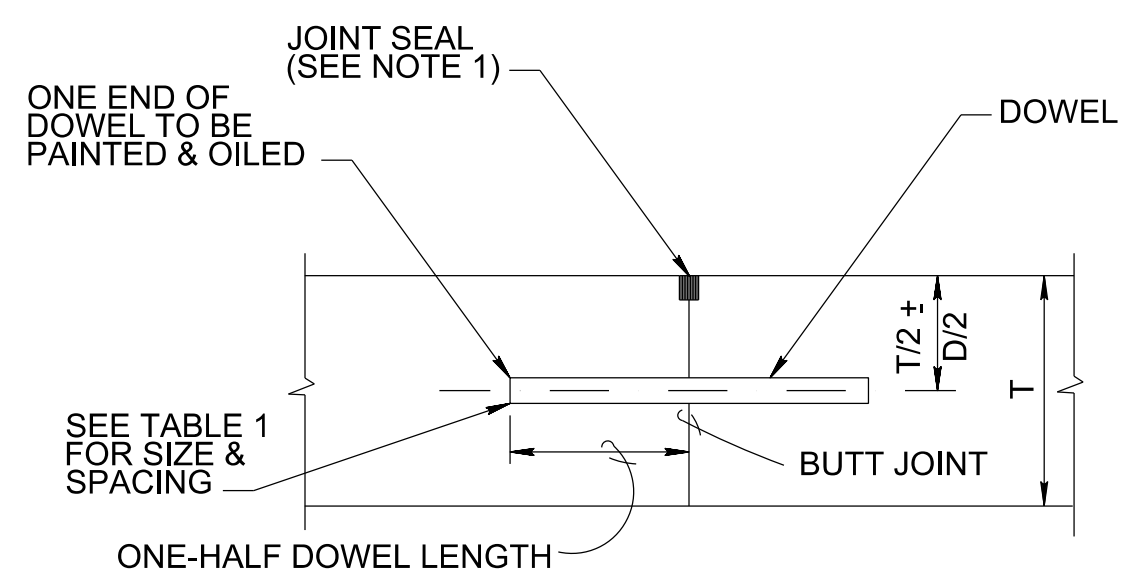


S = DEPTH OF INITIAL SAWCUT, SEE TABLE 1 ON SHEET CP502 FOR DIMENSIONS.

T=THICKNESS OF PAVEMENT

D=DOWEL DIAMETER

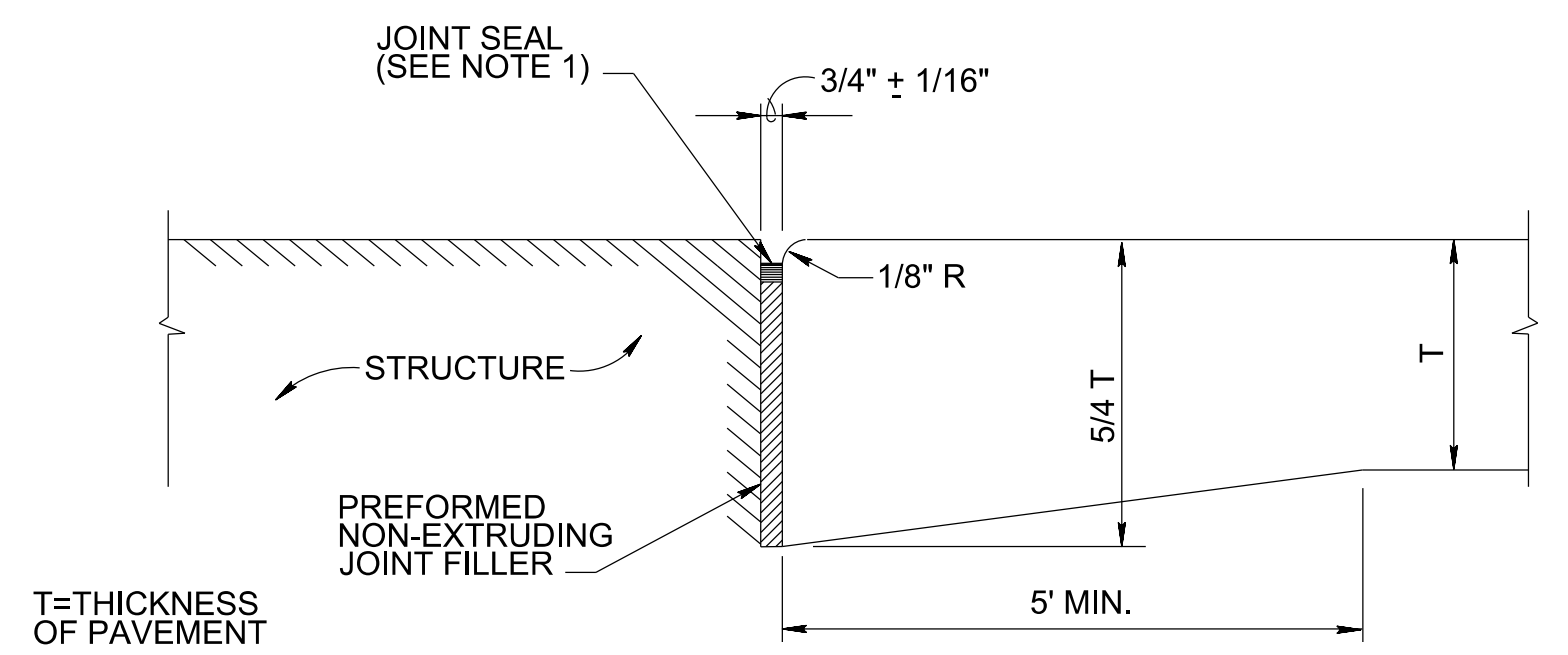
**DOWELED SAWED CONTRACTION JOINT**  
NOT TO SCALE



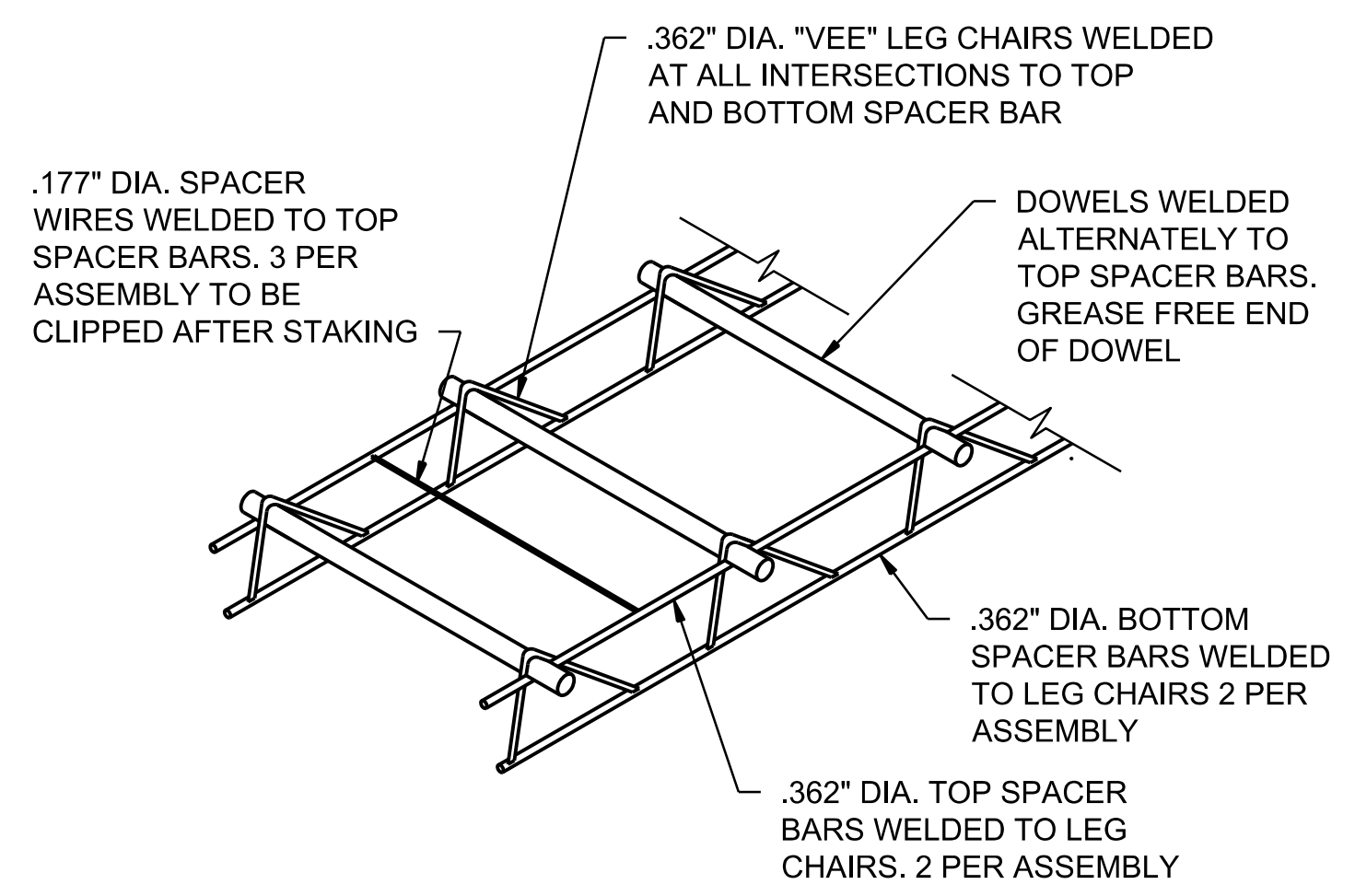
T=THICKNESS OF PAVEMENT

D=DOWEL DIAMETER

**DOWELED TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT (NEW PAVEMENT BOTH SIDES)**  
NOT TO SCALE

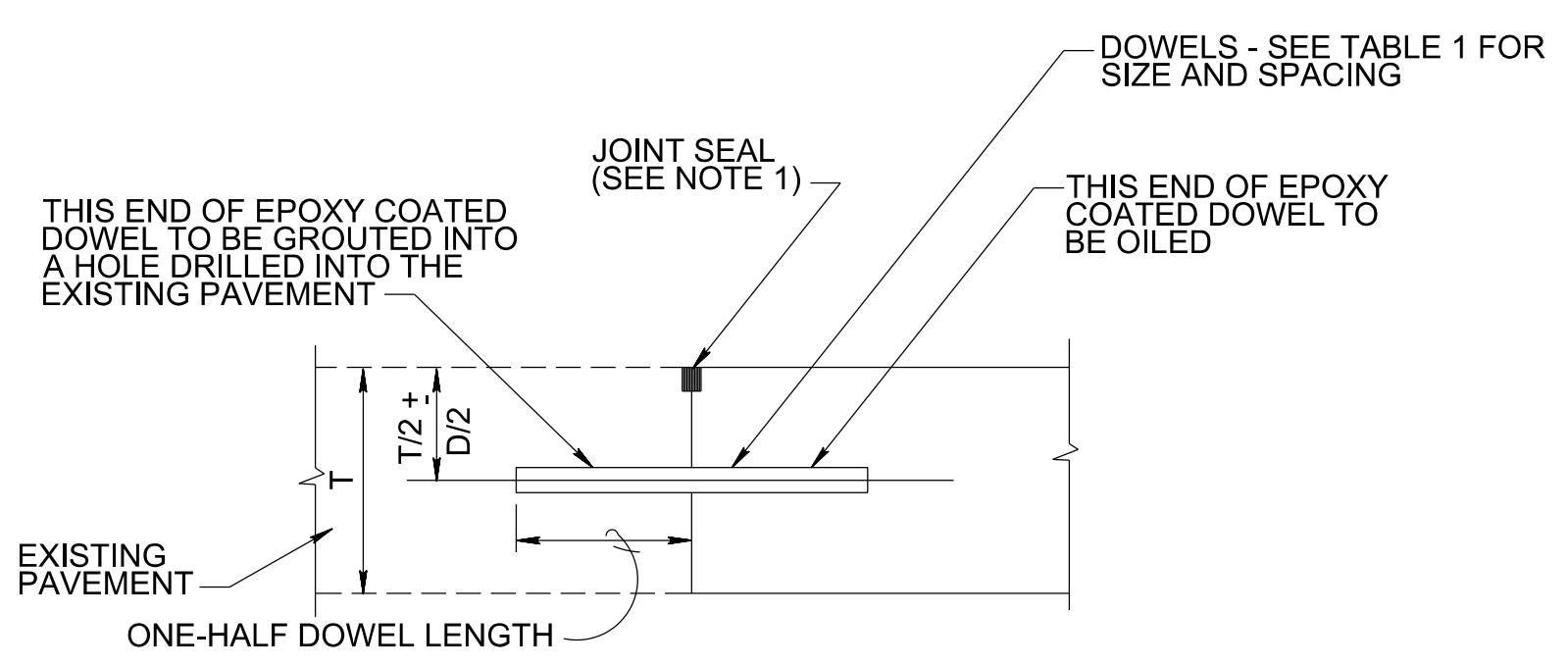


**THICKENED EDGE EXPANSION JOINT (PAVEMENT TO STRUCTURE)**  
NOT TO SCALE



**DOWEL BASKET ASSEMBLY DETAIL**  
NOT TO SCALE

NOTE: 1. SECURELY HOLD THE BASKET ASSEMBLIES IN THE PROPER LOCATION BY MEANS OF SUITABLE PINS OR ANCHORS. DO NOT CUT OR CRIMP THE DOWEL BASKET TIRE WIRES.

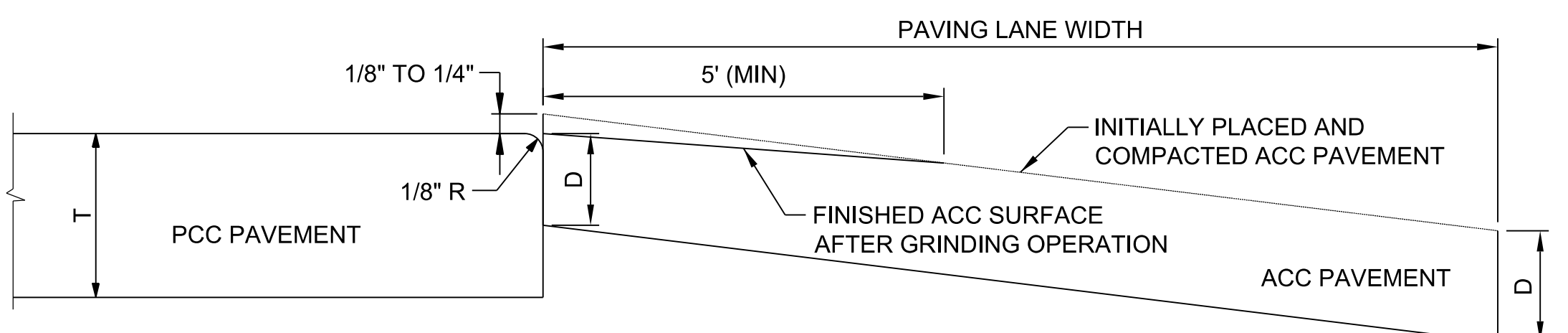


T=THICKNESS OF PAVEMENT

D=DOWEL DIAMETER

NOTE:  
1. ONE SIDE OF JOINT NEW PAVEMENT, THE OTHER SIDE EXISTING PAVEMENT.

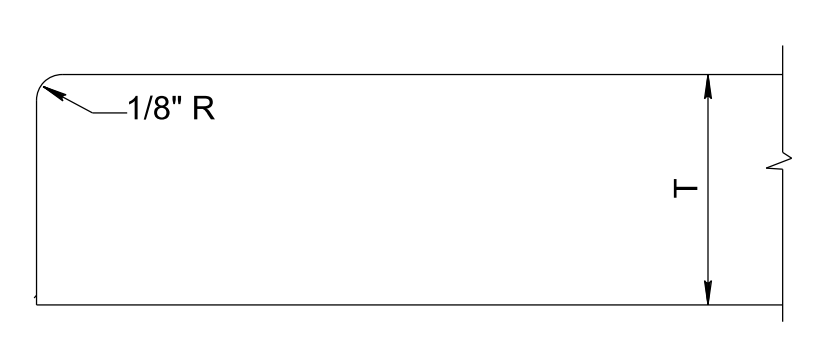
**DOWELED TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT (NEW TO EXISTING PAVEMENT)**  
NOT TO SCALE



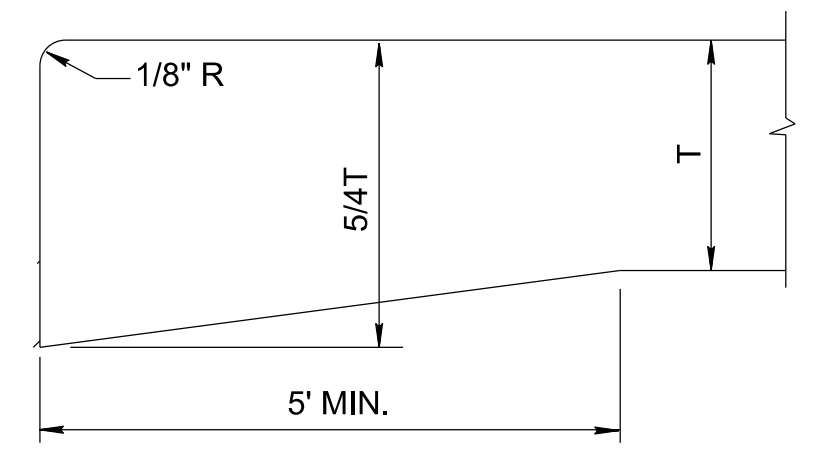
**PCC - ACC JOINT INTERFACE DETAIL**  
NOT TO SCALE

NOTE: SEE SPECIFICATION SECTION 32 12 15.13, PARAGRAPH 3.10.3 FOR REQUIRED CONSTRUCTION TECHNIQUE WHERE NEW ACC PAVEMENT ABUTS NEW PCC PAVEMENT.

(T = THICKNESS OF PAVEMENT, D = DOWEL DIAMETER).

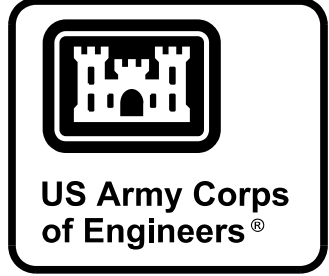


**BUTT JOINT**  
NOT TO SCALE



**THICKENED EDGE BUTT JOINT**  
NOT TO SCALE

NOTE:  
1. ALL NEW PCC PAVEMENT SHALL BE SEALED WITH COMPRESSION JOINT SEALANTS WITH THE FOLLOWING EXCEPTION: NEW PCC TO NEW OR EXISTING STRUCTURES SHALL BE SEALED WITH FIELD MOLDED JOINT SEALANT. SEE SHEET CP502 FOR PAVEMENT JOINT SEALANT DETAILS.  
2. SEE SHEET CP503 FOR PAVEMENT REINFORCEMENT DETAILS.



DATE	DESCRIPTION	MARK

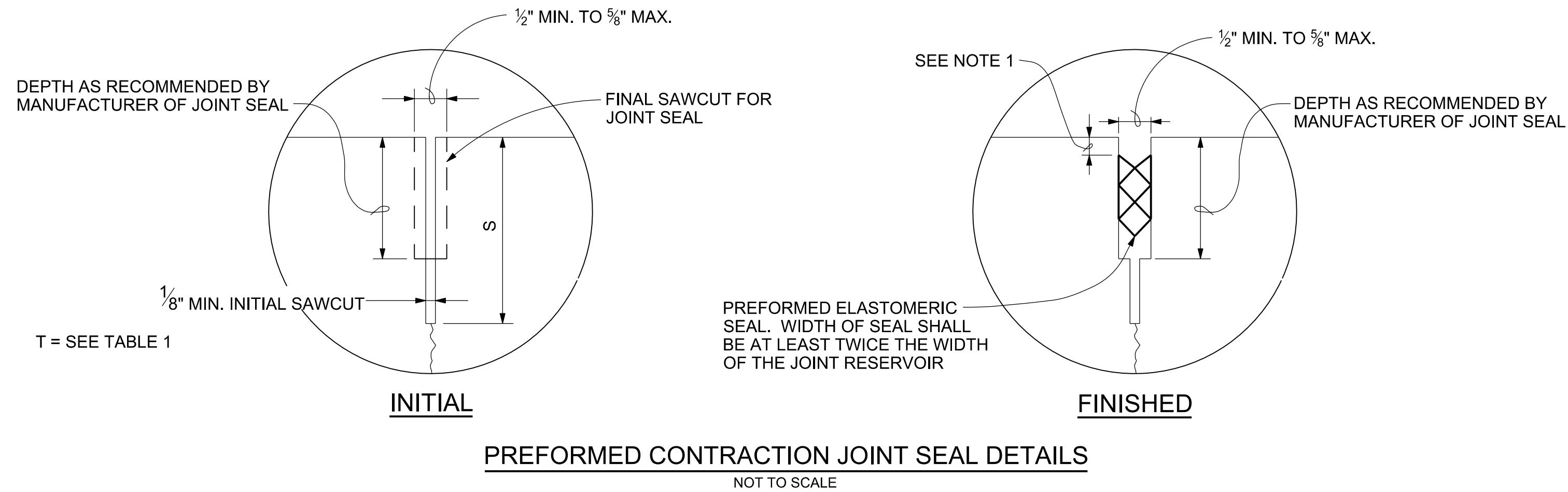
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U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT 1616 CAPITOL AVENUE OMAHA, NE 68102	OMAHA DISTRICT 1616 CAPITOL AVENUE OMAHA, NE 68102	FILE NAME:	FILE SIZE:

REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837)  
MINOT AFB, NORTH DAKOTA

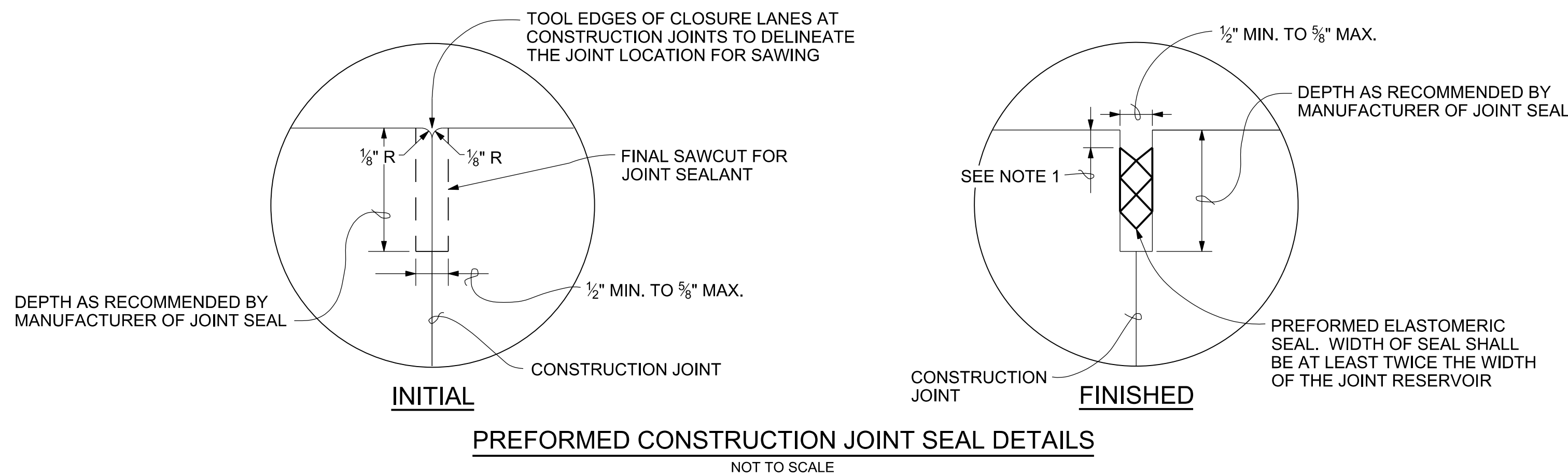
JOINT DETAILS

SHEET ID  
**CP501**

G  
F  
E  
D  
C  
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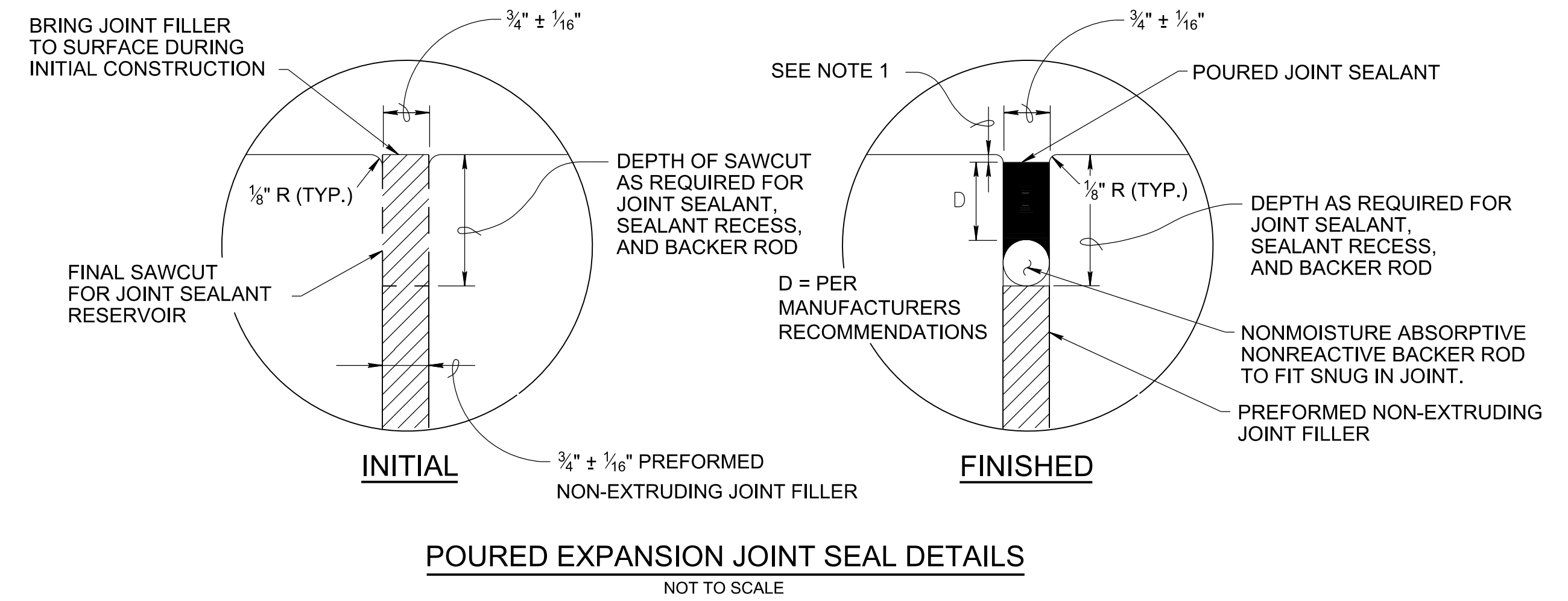


**PREFORMED CONTRACTION JOINT SEAL DETAILS**  
NOT TO SCALE



**PREFORMED CONSTRUCTION JOINT SEAL DETAILS**  
NOT TO SCALE

TABLE 1	
PAVEMENT THICKNESS	DEPTH OF INITIAL SAWCUT - S
LESS THAN 12"	1/4 SLAB THICKNESS
12"-18"	3 INCHES
MORE THAN 18"	1/6 SLAB THICKNESS



**POURED EXPANSION JOINT SEAL DETAILS**  
NOT TO SCALE

**NOTE:**

- 1. DEPTH OF SEAL FROM TOP OF PAVEMENT SHALL BE 1/8" TO 1/4".
- 2. ALL NEW PCC PAVEMENT SHALL BE SEALED WITH COMPRESSION JOINT SEALANTS WITH THE FOLLOWING 2 EXCEPTION: NEW PCC THICKENED EDGE EXPANSION JOINTS TO NEW OR EXISTING STRUCTURES SHALL BE SEALED WITH FIELD MOLDED POURED SEALANT.



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DATE	DESCRIPTION	MARK

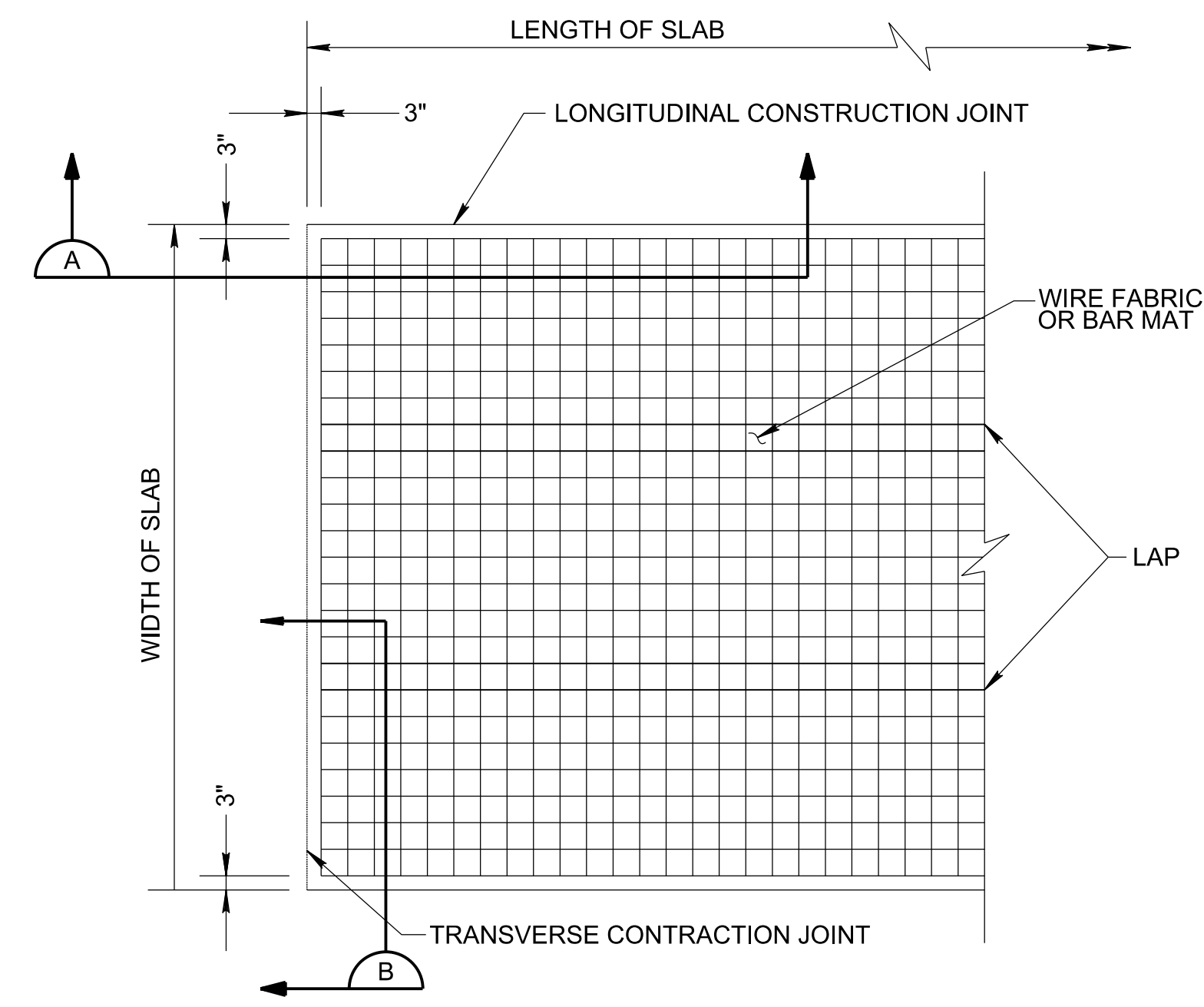
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U.S. ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVENUE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

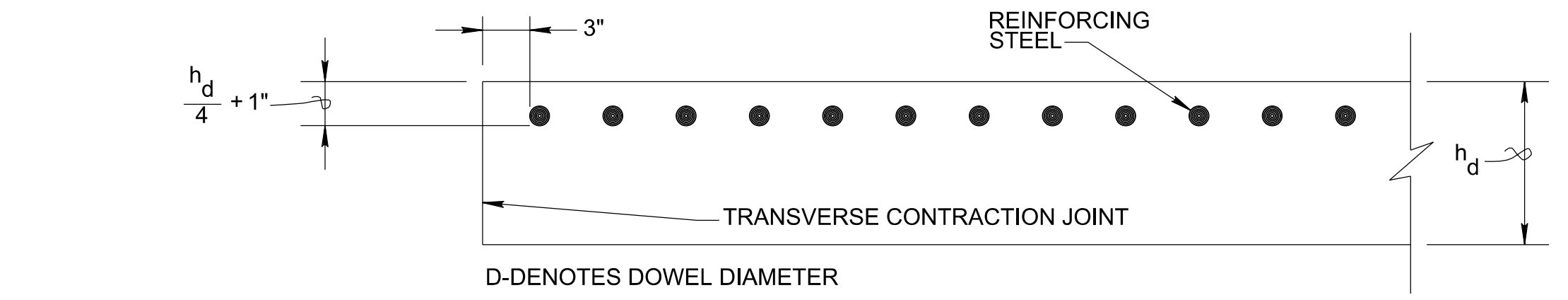
**JOINT SEALANT DETAILS**

SHEET ID  
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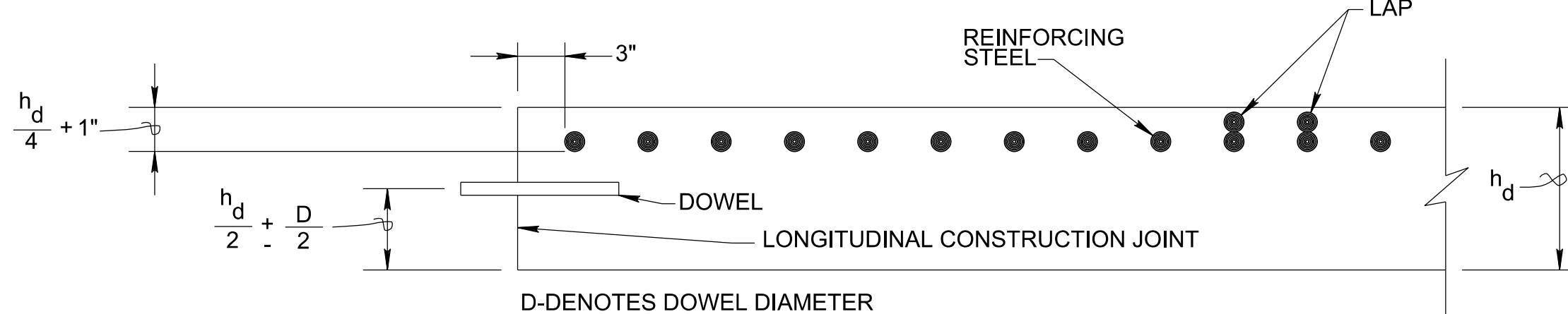


**DETAIL OF SLAB REINFORCEMENT**  
NOT TO SCALE

**NOTE:**  
LAP SPACING:  
BAR MAT - 24 BAR DIAMETERS  
WIRE FABRIC - ONE SPACING OF WIRE OR 32 WIRE DIAMETERS, WHICHEVER IS GREATER



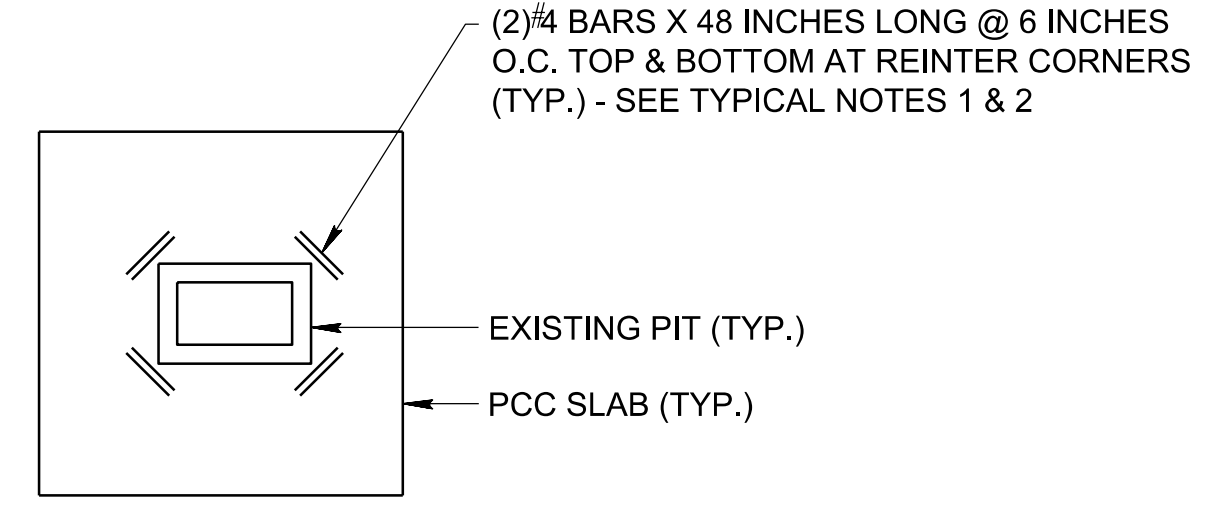
**SECTION A**



**SECTION B**

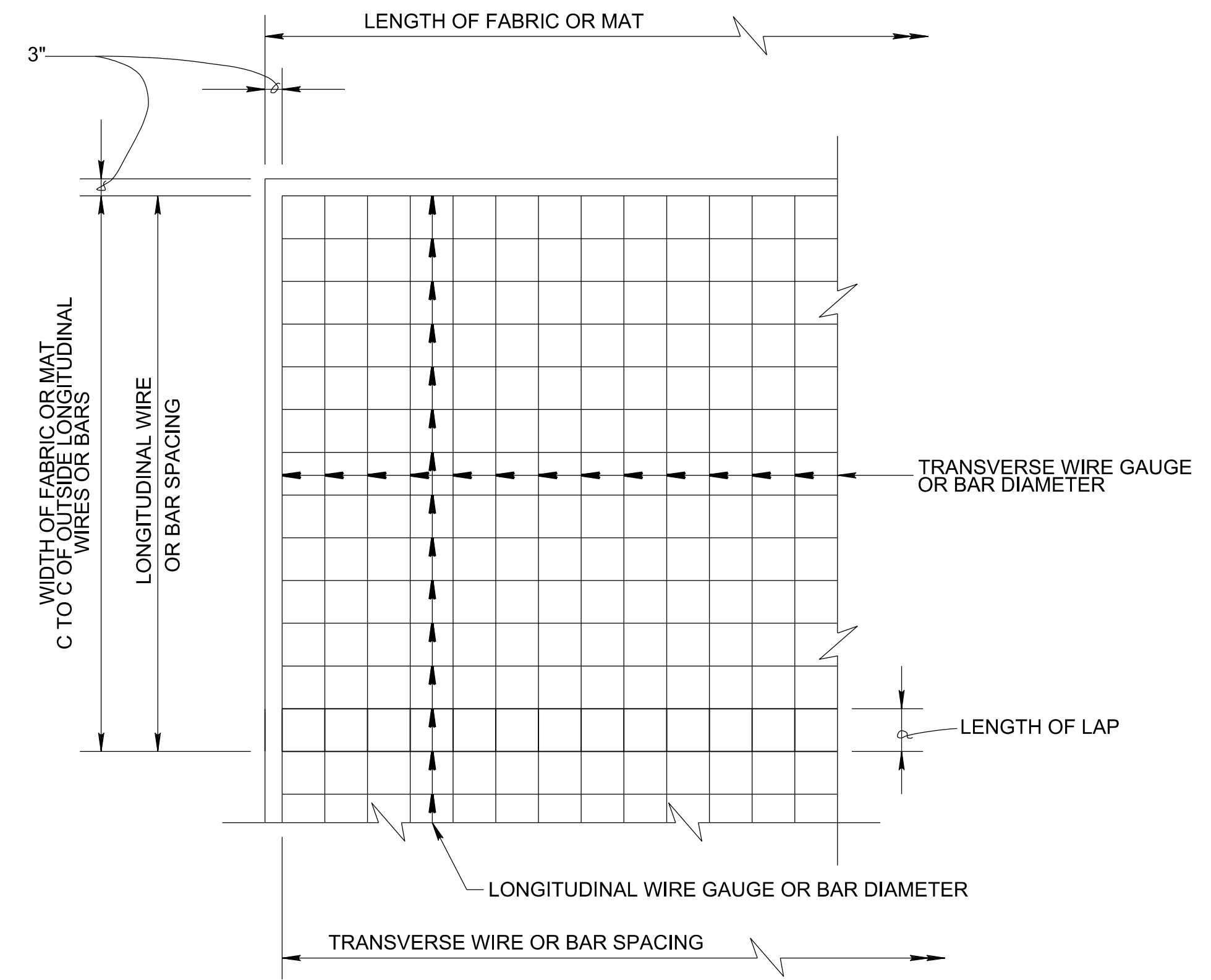
**TABLE 1**

	PAVEMENT THICKNESS
	18"
AREA OF STEEL ( $A_s$ )	0.108



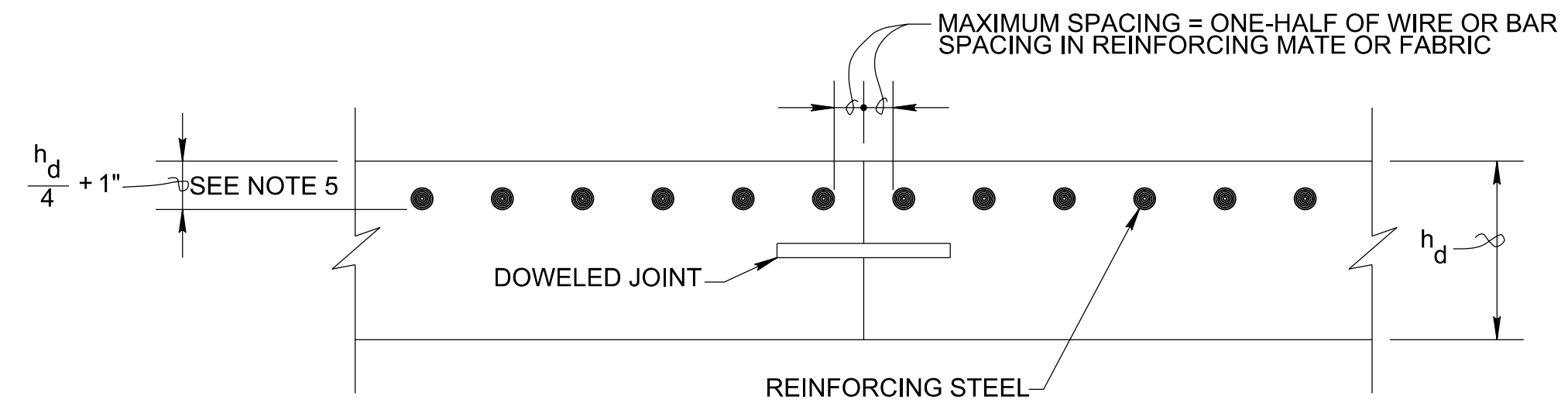
**TYPICAL NOTES:**  
1. 3 INCHES CLEAR FROM TOP AND BOTTOM OF SLAB.  
2. 3 INCHES CLEAR FROM INNER BAR TO OUTSIDE OF PIT WALL.  
3. ENTIRE SLAB SHALL ALSO BE REINFORCED. SEE THIS SHEET FOR DETAILS.

**HYDRANT FUEL PIT CORNER REINFORCEMENT DETAIL**  
NOT TO SCALE



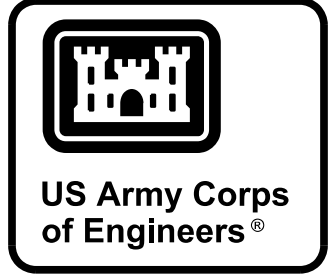
**DETAIL OF WIRE FABRIC OR BAR MAT**  
NOT TO SCALE

**NOTE:**  
LAP SPACING:  
BAR MAT - 24 BAR DIAMETERS  
WIRE FABRIC - ONE SPACING OF WIRE OR 32 WIRE DIAMETERS, WHICHEVER IS GREATER



**DETAIL FOR TERMINATION OF STEEL JOINT**  
NOT TO SCALE

**NOTES:**  
1.  $h_d$  DENOTES REINFORCED CONCRETE PAVEMENT DESIGN THICKNESS.  
2. REINFORCING STEEL IS NOT CARRIED THROUGH JOINT.  
3. SLABS TO BE REINFORCED ARE MARKED WITH R ON THE JOINT LAYOUT SHEETS.  
4. REINFORCING SHALL HAVE A MINIMUM STEEL AREA  $A_s$  AS SHOWN IN TABLE 1. STEEL AREA LISTED IN TABLE 1 IS SQ. IN./FT. IN EACH DIRECTION. MAXIMUM BAR OR WIRE SPACING SHALL NOT EXCEED 12 INCHES.



MARK	DESCRIPTION	DATE

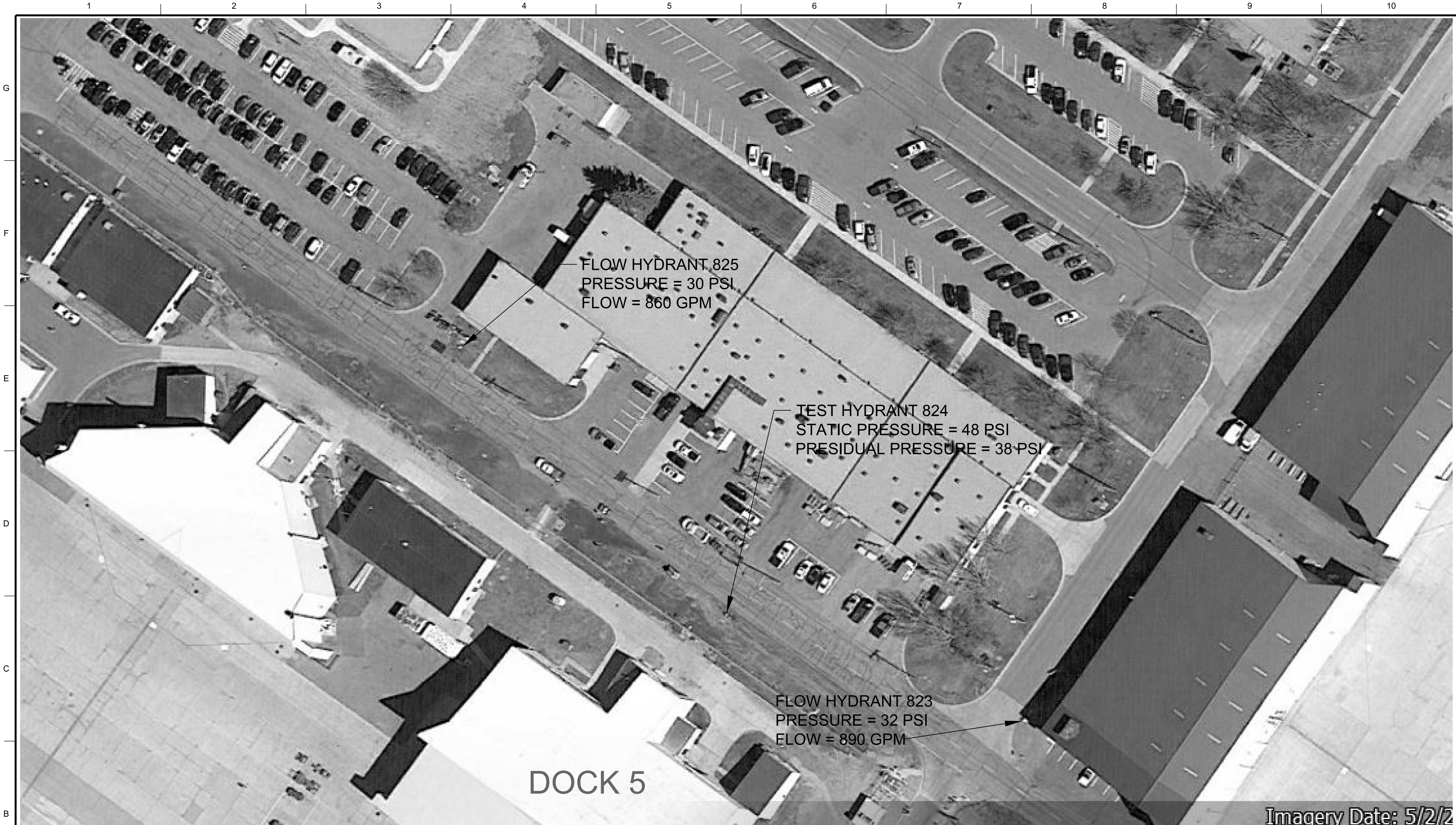
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SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS  
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1616 CAPITOL AVENUE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837)  
MINOT AFB, NORTH DAKOTA

**REINFORCEMENT DETAILS**

SHEET ID  
**CP503**



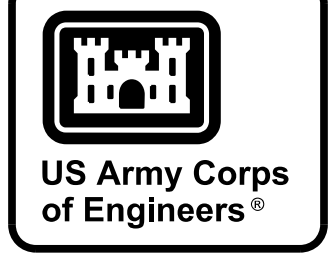
FLOW HYDRANT 825  
 PRESSURE = 30 PSI  
 FLOW = 860 GPM

TEST HYDRANT 824  
 STATIC PRESSURE = 48 PSI  
 RESIDUAL PRESSURE = 38 PSI

FLOW HYDRANT 823  
 PRESSURE = 32 PSI  
 FLOW = 890 GPM

DOCK 5

Imagery Date: 5/2/2



MARK	DESCRIPTION	DATE

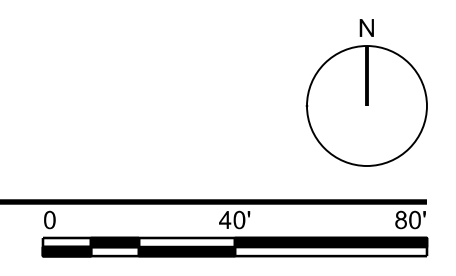
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REPAIR B-52 MAINTENANCE DOCK 5  
 (BUILDING 837)  
 MINOT AFB, NORTH DAKOTA

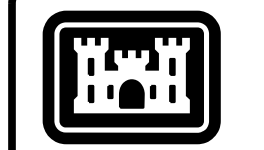
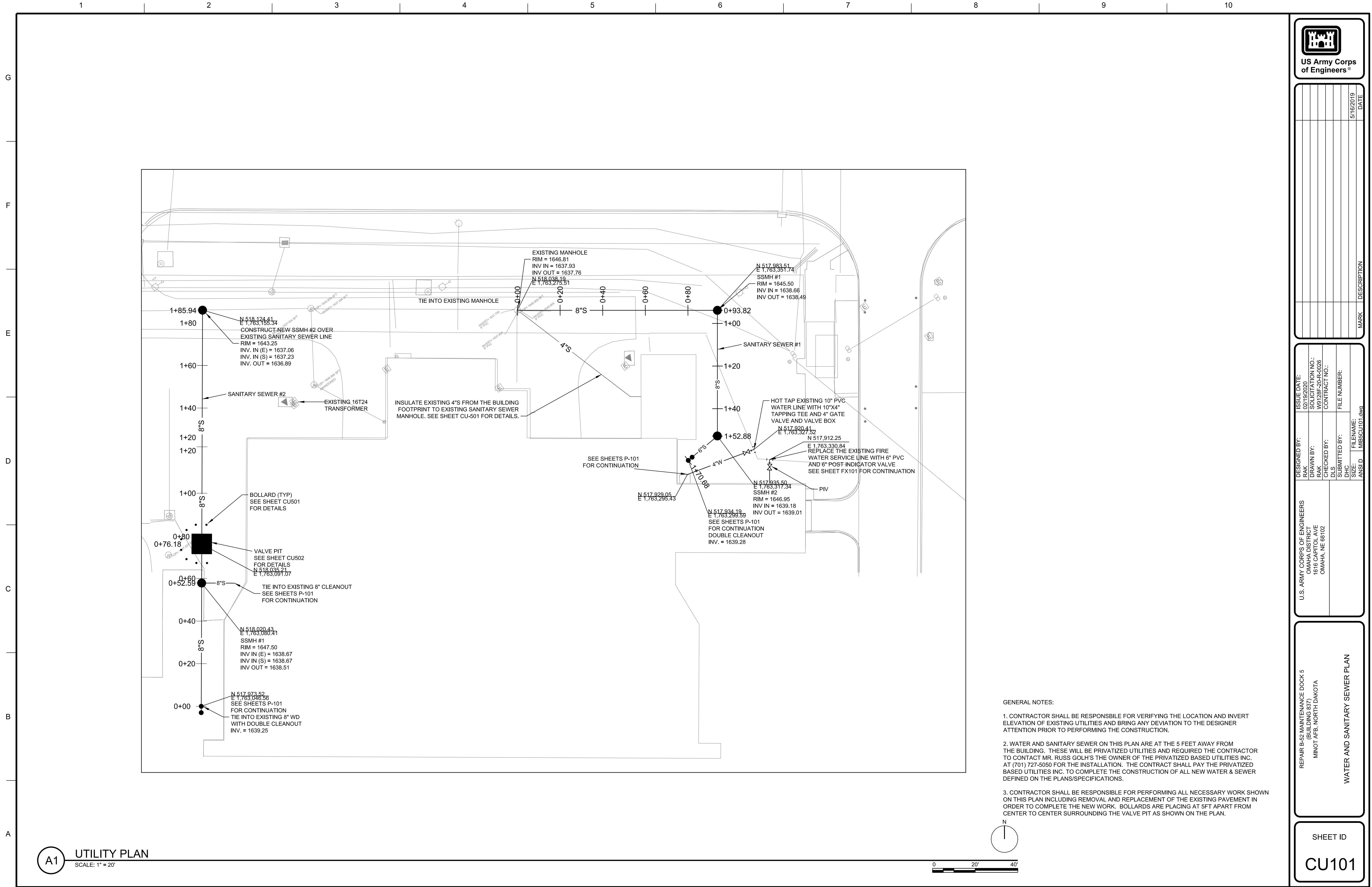
FIRE HYDRANT FLOW TEST

SHEET ID  
**CU100**

**A1** UTILITY PLAN  
 SCALE: 1" = 40'







US Army Corps of Engineers

MARK	DESCRIPTION	DATE

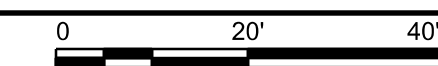
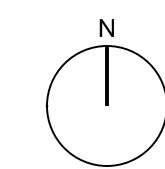
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U.S. ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

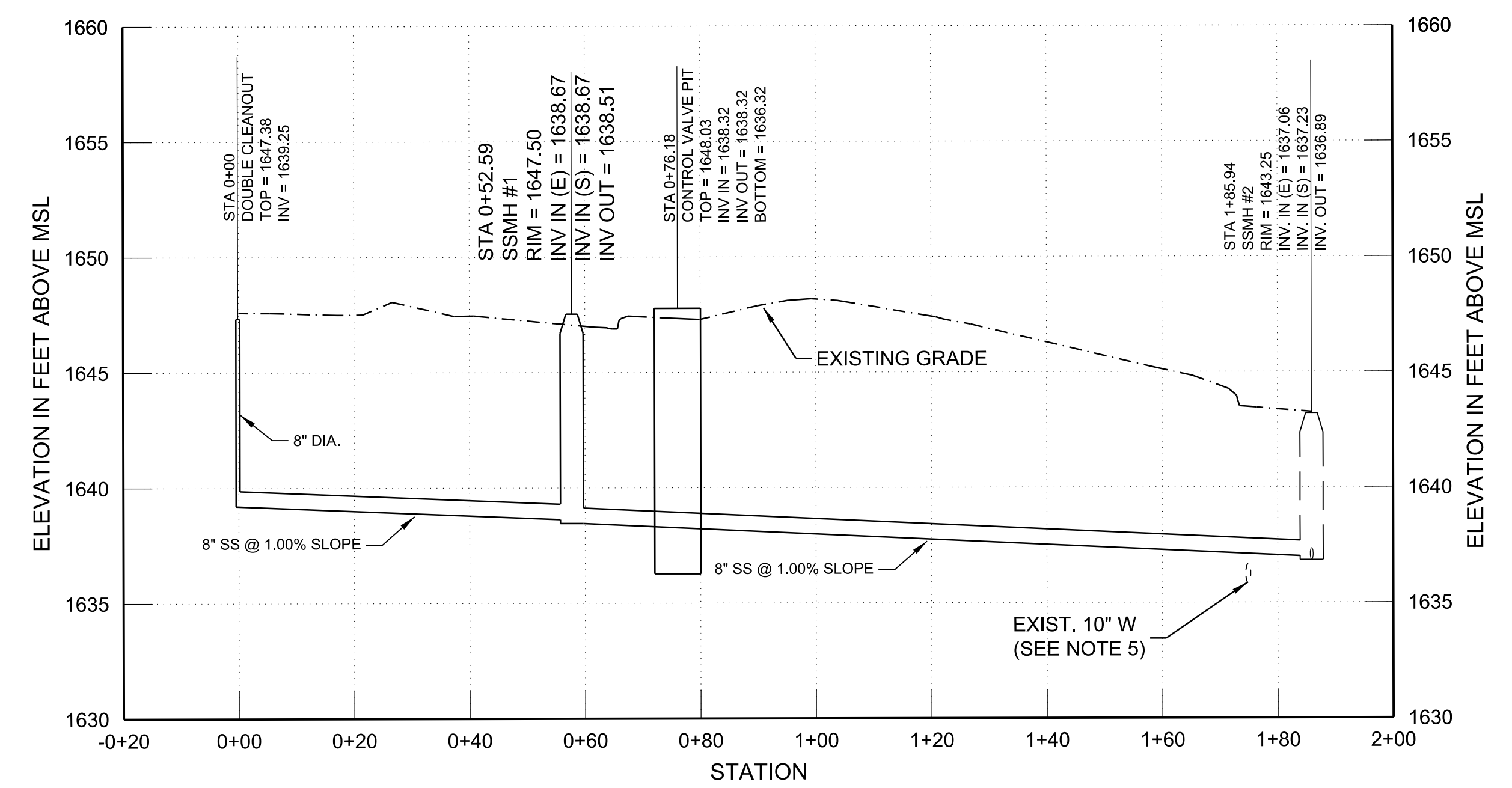
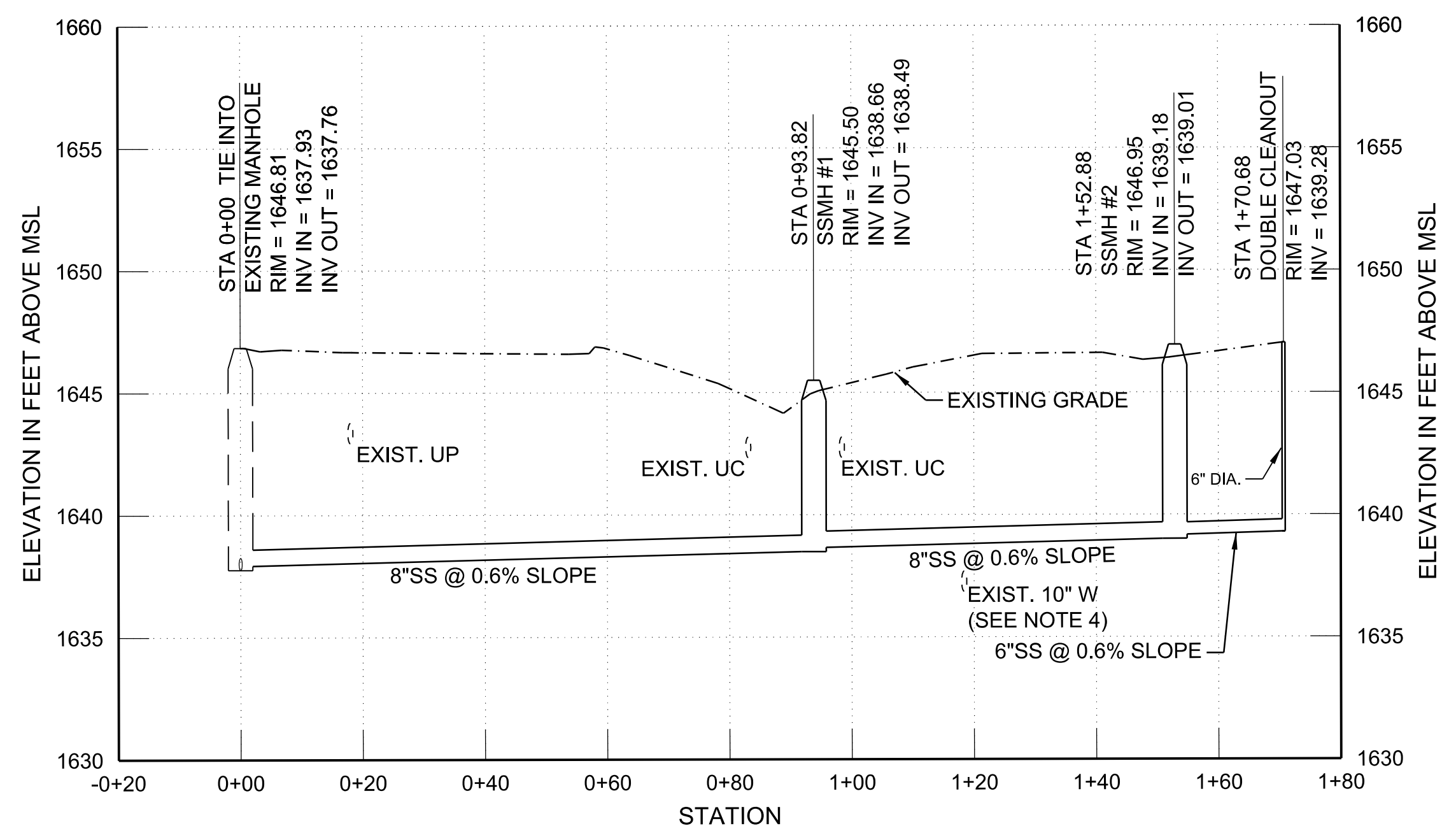
REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837) MINOT AFB, NORTH DAKOTA	WATER AND SANITARY SEWER PLAN
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SHEET ID  
**CU101**

- GENERAL NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND INVERT ELEVATION OF EXISTING UTILITIES AND BRING ANY DEVIATION TO THE DESIGNER ATTENTION PRIOR TO PERFORMING THE CONSTRUCTION.
  2. WATER AND SANITARY SEWER ON THIS PLAN ARE AT THE 5 FEET AWAY FROM THE BUILDING. THESE WILL BE PRIVATIZED UTILITIES AND REQUIRED THE CONTRACTOR TO CONTACT MR. RUSS GOL'S THE OWNER OF THE PRIVATIZED BASED UTILITIES INC. AT (701) 727-5050 FOR THE INSTALLATION. THE CONTRACT SHALL PAY THE PRIVATIZED BASED UTILITIES INC. TO COMPLETE THE CONSTRUCTION OF ALL NEW WATER & SEWER DEFINED ON THE PLANS/SPECIFICATIONS.
  3. CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ALL NECESSARY WORK SHOWN ON THIS PLAN INCLUDING REMOVAL AND REPLACEMENT OF THE EXISTING PAVEMENT IN ORDER TO COMPLETE THE NEW WORK. BOLLARDS ARE PLACING AT 5FT APART FROM CENTER TO CENTER SURROUNDING THE VALVE PIT AS SHOWN ON THE PLAN.

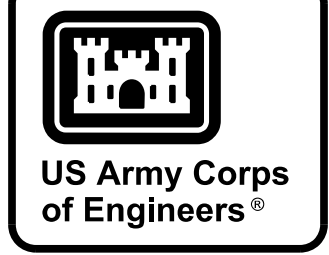
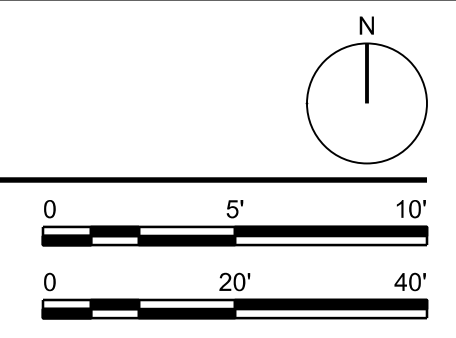


**A1** UTILITY PLAN  
SCALE: 1" = 20'



- NOTES:**
1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS REPRESENTED BASED ON SURVEY DATA.
  2. EXISTING UTILITIES ARE SHOWN AT ASSUMED DEPTHS, WHICH MAY VARY FROM ACTUAL CONDITIONS. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER IF CONDITIONS VARY CONSIDERABLY FROM THE LOCATIONS OR DEPTHS SHOWN AND THE INTENDED WORK CANNOT BE CONSTRUCTED AS INDICATED.
  3. INSTALLATION OF SANITARY PIPING CROSSING A WATER LINE SHALL MEET THE REQUIREMENTS IN SPECIFICATION 33 30 00, PARAGRAPH 3.1.1.1.1.2 AND 3.1.1.1.2.2 WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET AND A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE SANITARY PIPING AND WATER LINE.
  4. SANITARY SEWER #1: FOR BIDDING PURPOSES THE CONTRACTOR SHALL ASSUME THE NEW 8" SANITARY SEWER, FROM SSMH #1 TO SSMH #2, SHALL BE CONSTRUCTED OF AWWA C900 PVC PIPE WITH A MINIMUM PRESSURE CLASS OF 150. SEE SPECIFICATION 33 30 00 FOR FURTHER REQUIREMENTS.
  5. SANITARY SEWER #2: FOR BIDDING PURPOSES THE CONTRACTOR SHALL ASSUME THE NEW 8" SANITARY SEWER, FROM SSMH #2 UPSTREAM A MINIMUM DISTANCE OF 40 LF, SHALL BE CONSTRUCTED OF AWWA C900 PVC PIPE WITH A MINIMUM PRESSURE CLASS OF 150. SEE SPECIFICATION 33 30 00 FOR FURTHER REQUIREMENTS. JOIN AWWA C900 PVC PIPE TO GRAVITY SEWER PIPE USING AWWA C219 BOLTED, SLEEVE-TYPE COUPLING; OR OTHER APPROVED MEANS. MANUFACTURED COUPLING SHALL HAVE CORROSION RESISTANT COATING SUITABLE FOR PERMANENT UG INSTALLATION.

**A1 UTILITY PLAN**  
SCALE: 1" = 20'



MARK	DESCRIPTION	DATE

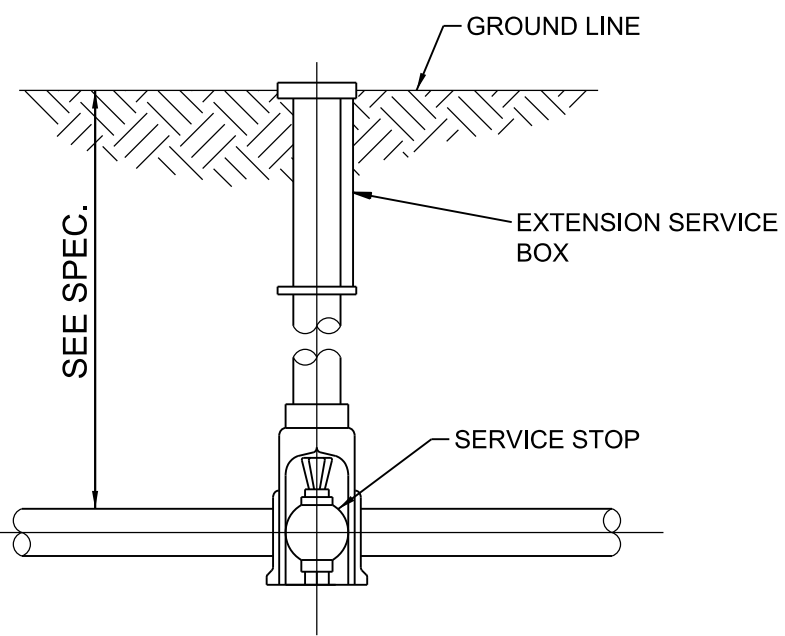
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U.S. ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

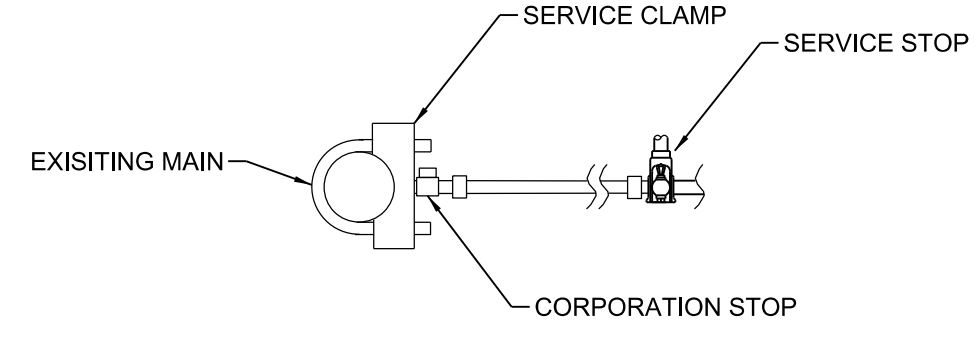
SANITARY SEWER LINE  
PROFILES

SHEET ID  
**CU201**



**TYPICAL SERVICE BOX SETTING**

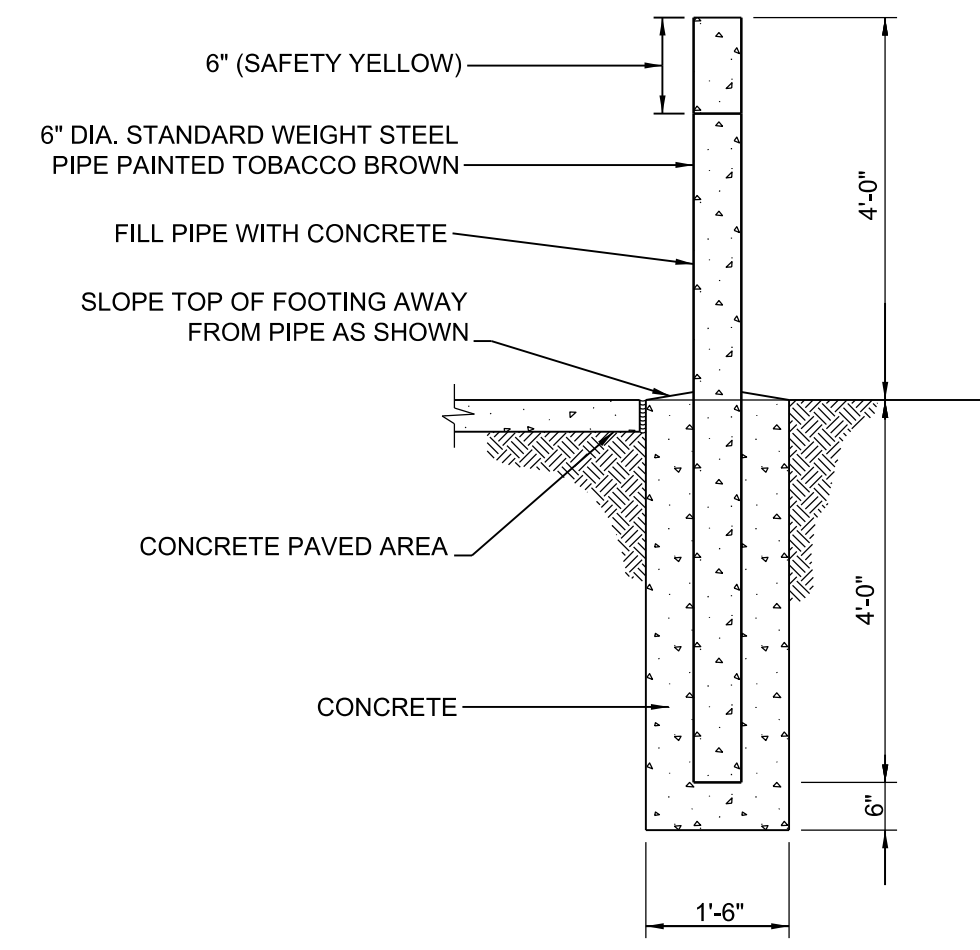
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**TYPICAL SERVICE CONNECTION**

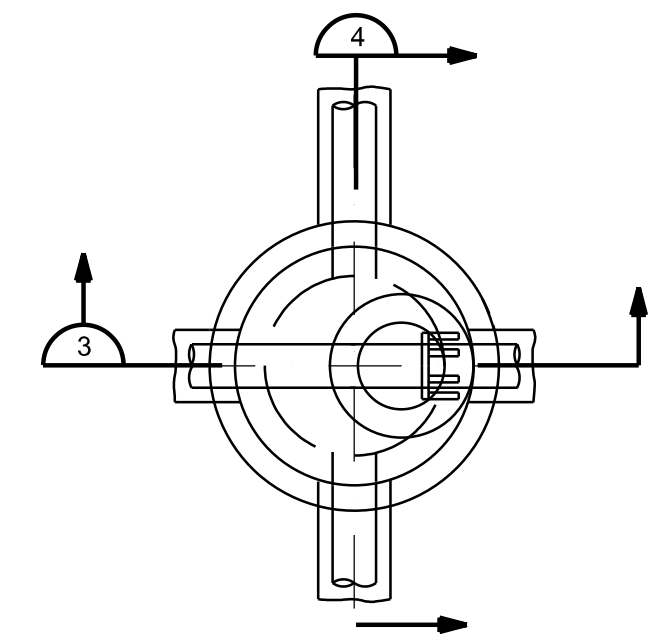
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NOTE:  
WHERE CONNECTIONS ARE MADE BETWEEN FERROUS & COPPER PIPE, A DIELECTRIC UNION SHALL BE PROVIDED.

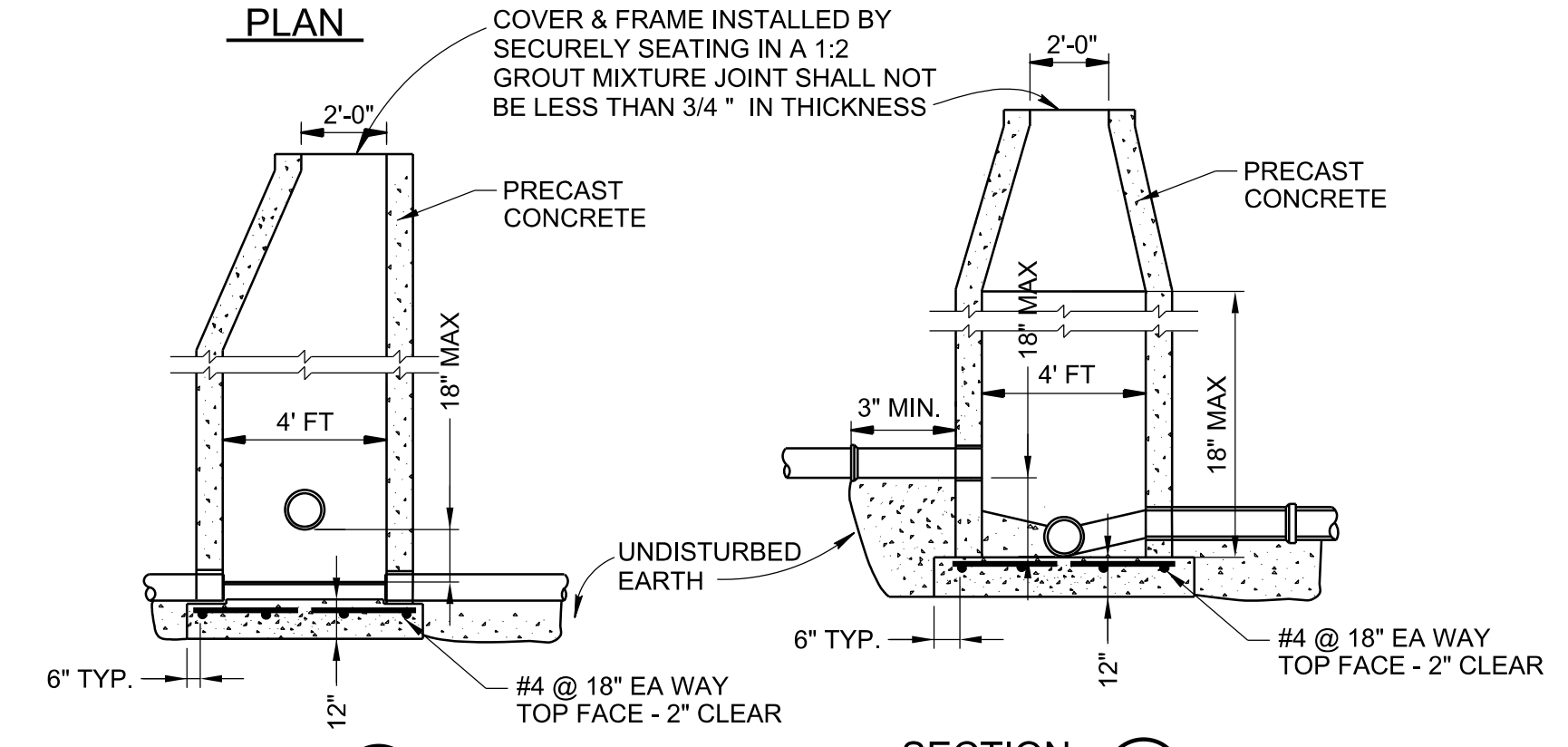


**PIPE GUARD DETAIL**

NO SCALE



**PLAN**

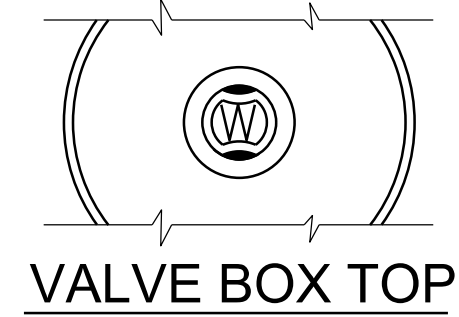


**SECTION 3**

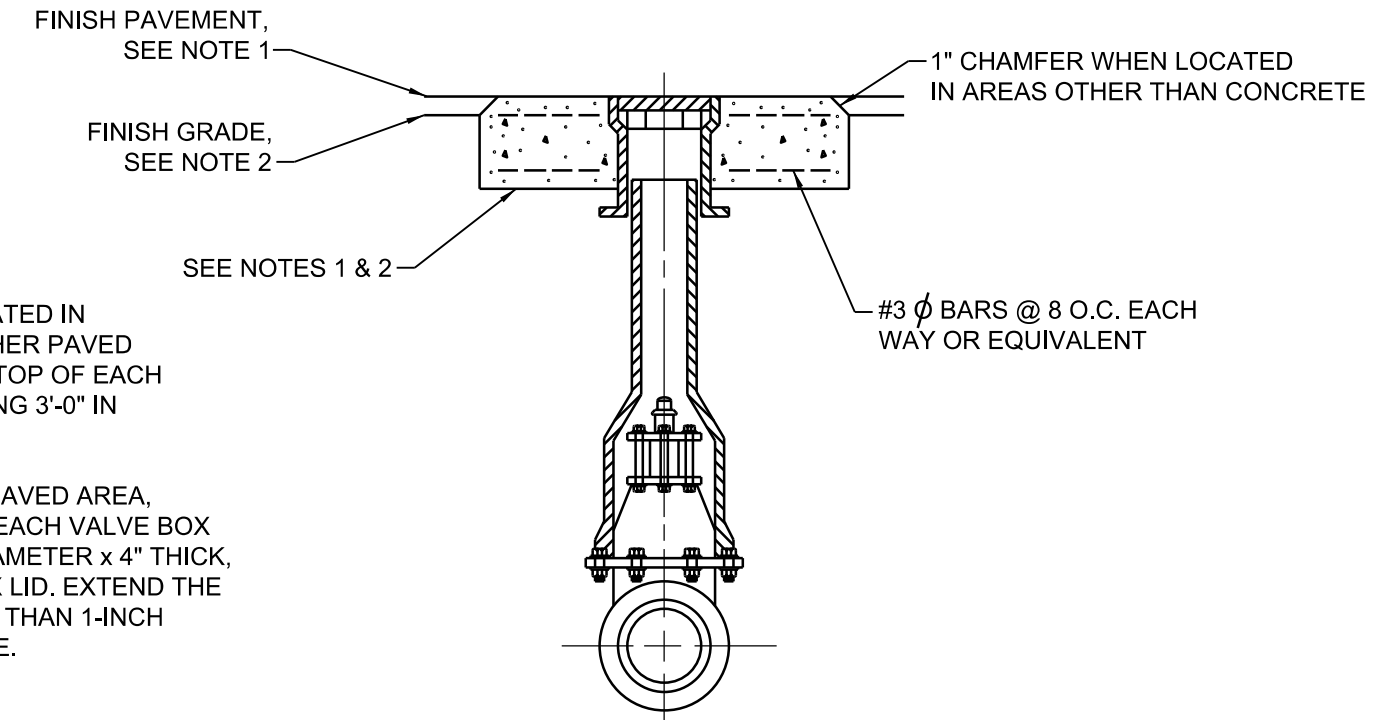
**SECTION 4**

**TYPICAL PRECAST ECCENTRIC MANHOLE DETAILS**

NO SCALE



**VALVE BOX TOP**

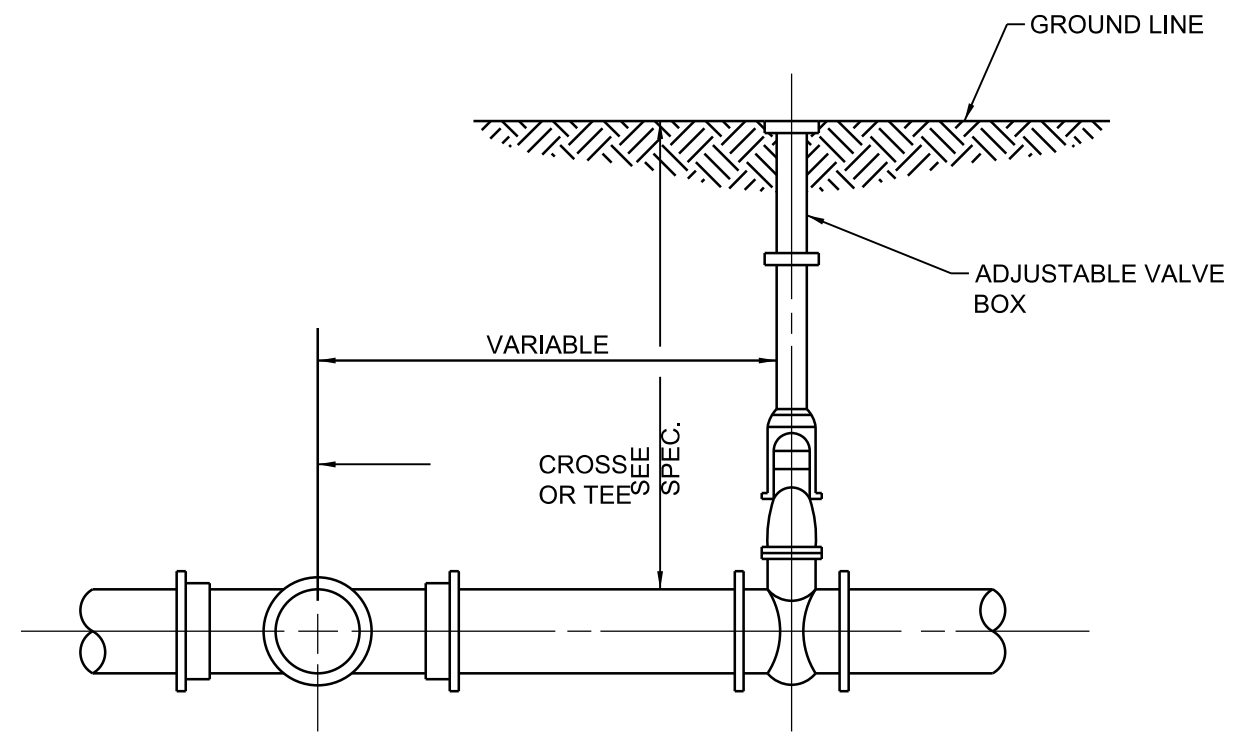


**DETAIL VALVE BOX**

NO SCALE

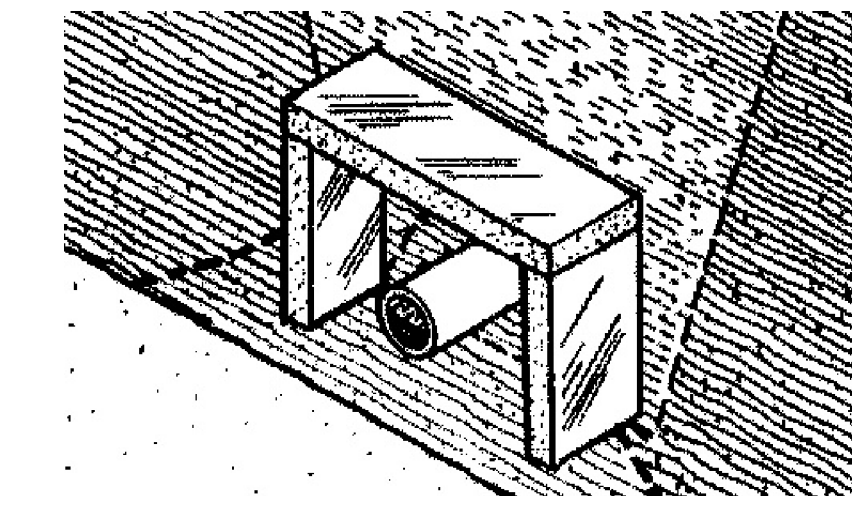
VALVE BOX NOTES:

- WHERE VALVES ARE LOCATED IN ROADS, SIDEWALKS, OR OTHER PAVED AREAS, CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE RING 3'-0" IN DIAMETER x 8" THICK.
- WHEN PLACED IN A NON-PAVED AREA, CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE RING 18" IN DIAMETER x 4" THICK, FLUSH WITH THE VALVE BOX LID. EXTEND THE CONCRETE RING NOT MORE THAN 1-INCH ABOVE THE FINISHED GRADE.



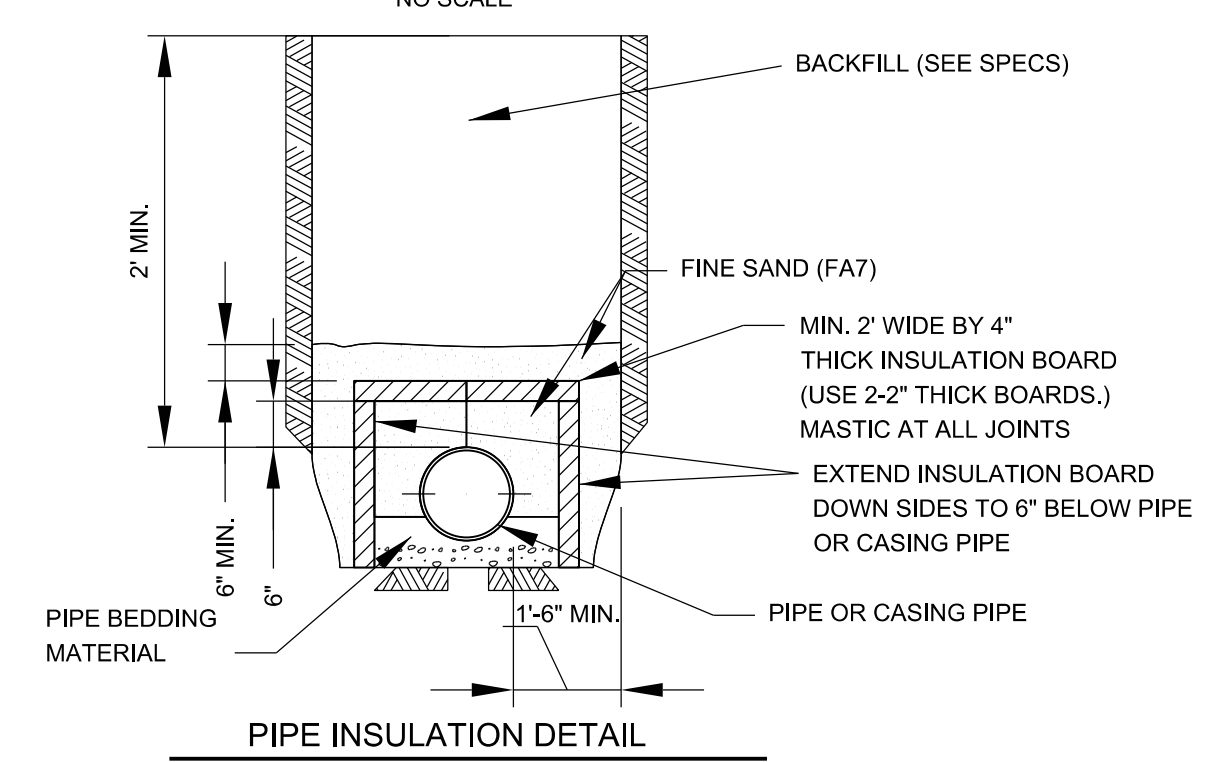
**TYPICAL VALVE SETTING**

NO SCALE



**PIPE INSULATION ISOMETRIC VIEW**

NO SCALE

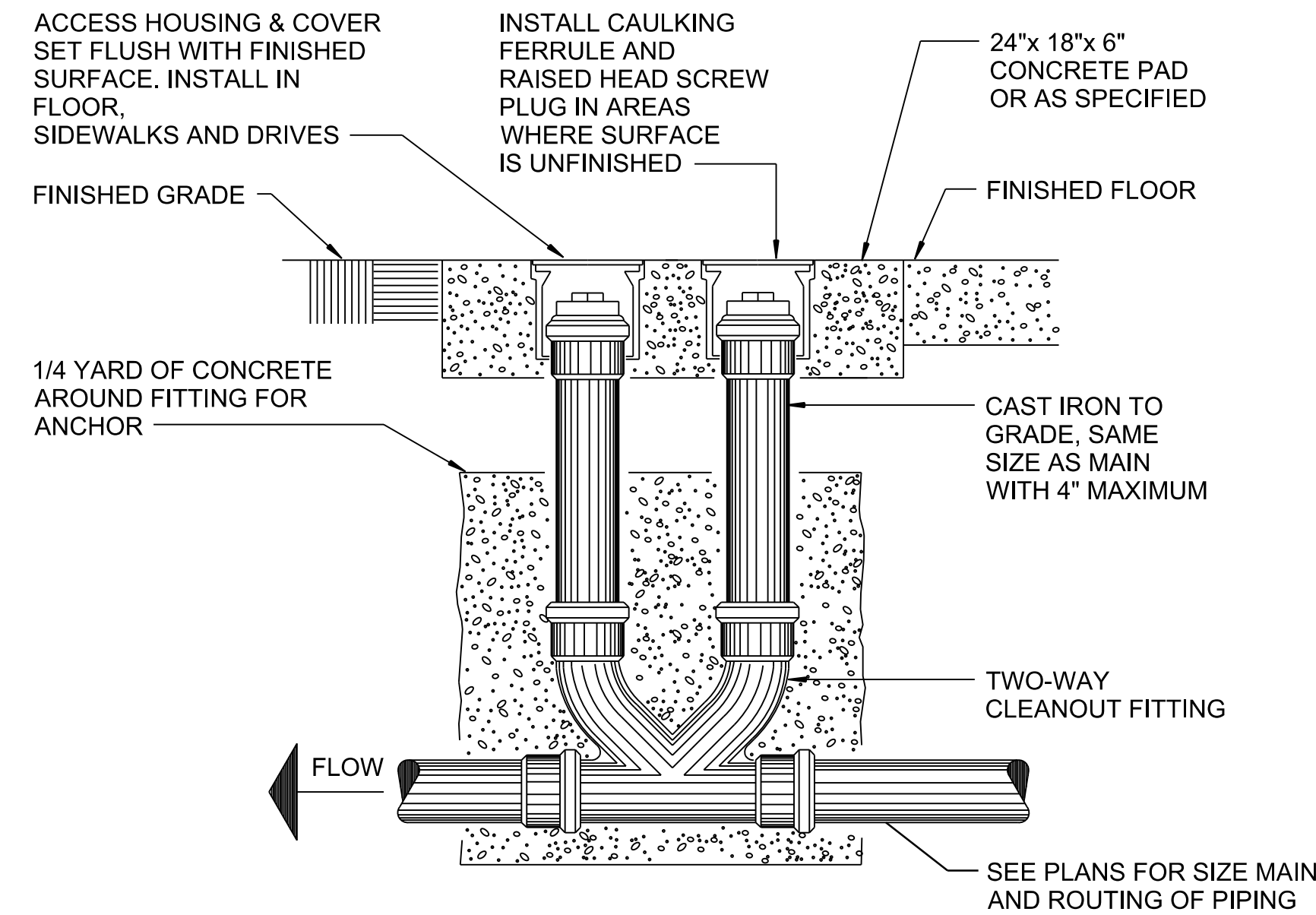


**PIPE INSULATION DETAIL**

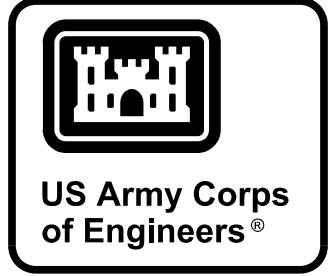
NO SCALE

NOTES:

- INSULATION BOARD SHALL 2" THICK, AND MEET AASHTO M 230 REQUIREMENTS AND SHALL BE OF CLASS VI TYPE (ASTM C 578).
- BACKFILL MATERIAL AROUND INSULATION MUST BE FINE SAND FREE FROM ROOTS, ORGANIC MATTER, OR OTHER INJURIOUS MATERIALS.
- OVERLAP ALL INSULATION BOARD JOINTS.
- EXTEND INSULATION 2' EITHER SIDE OF CROSSING



**SEE PLANS FOR SIZE MAIN AND ROUTING OF PIPING**



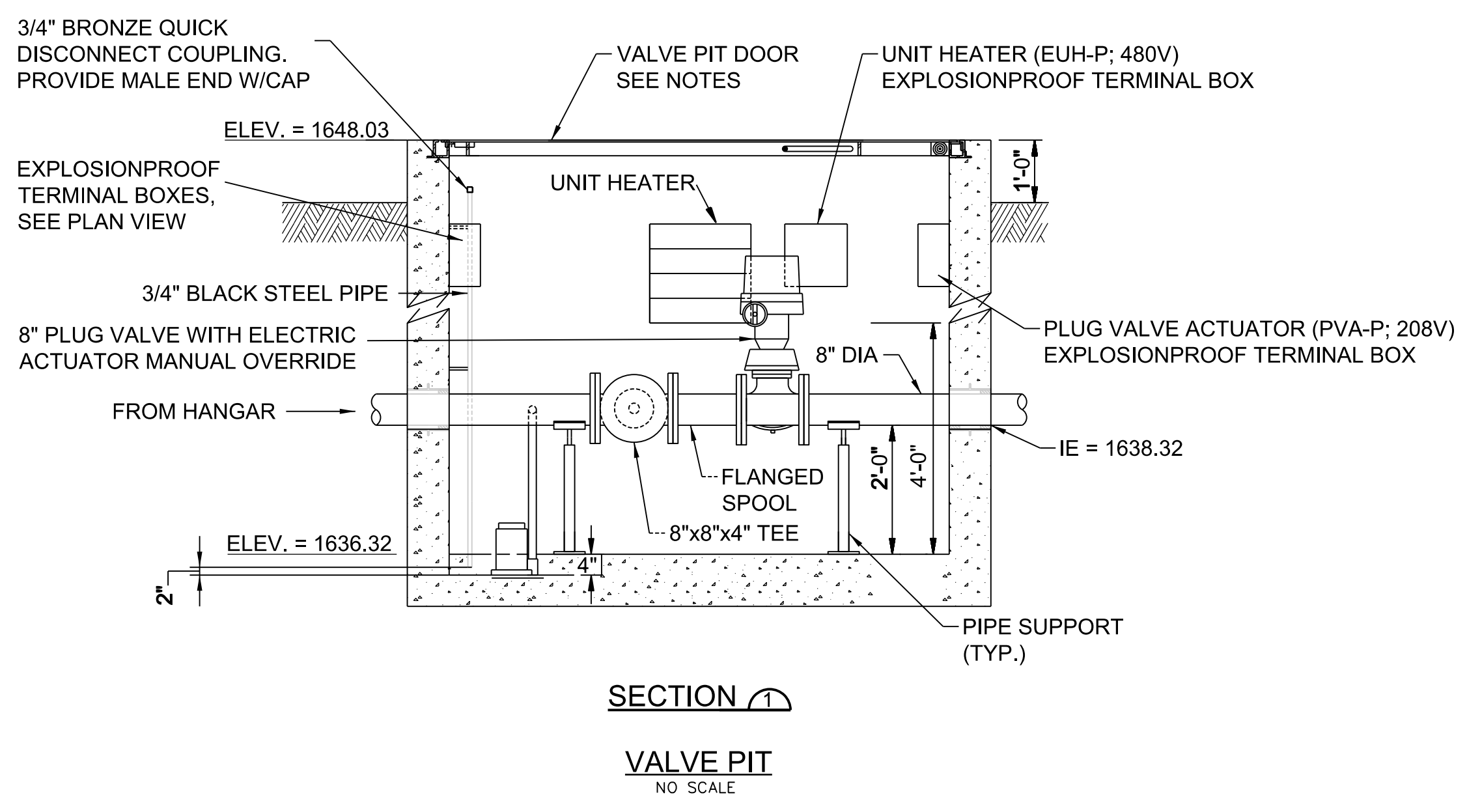
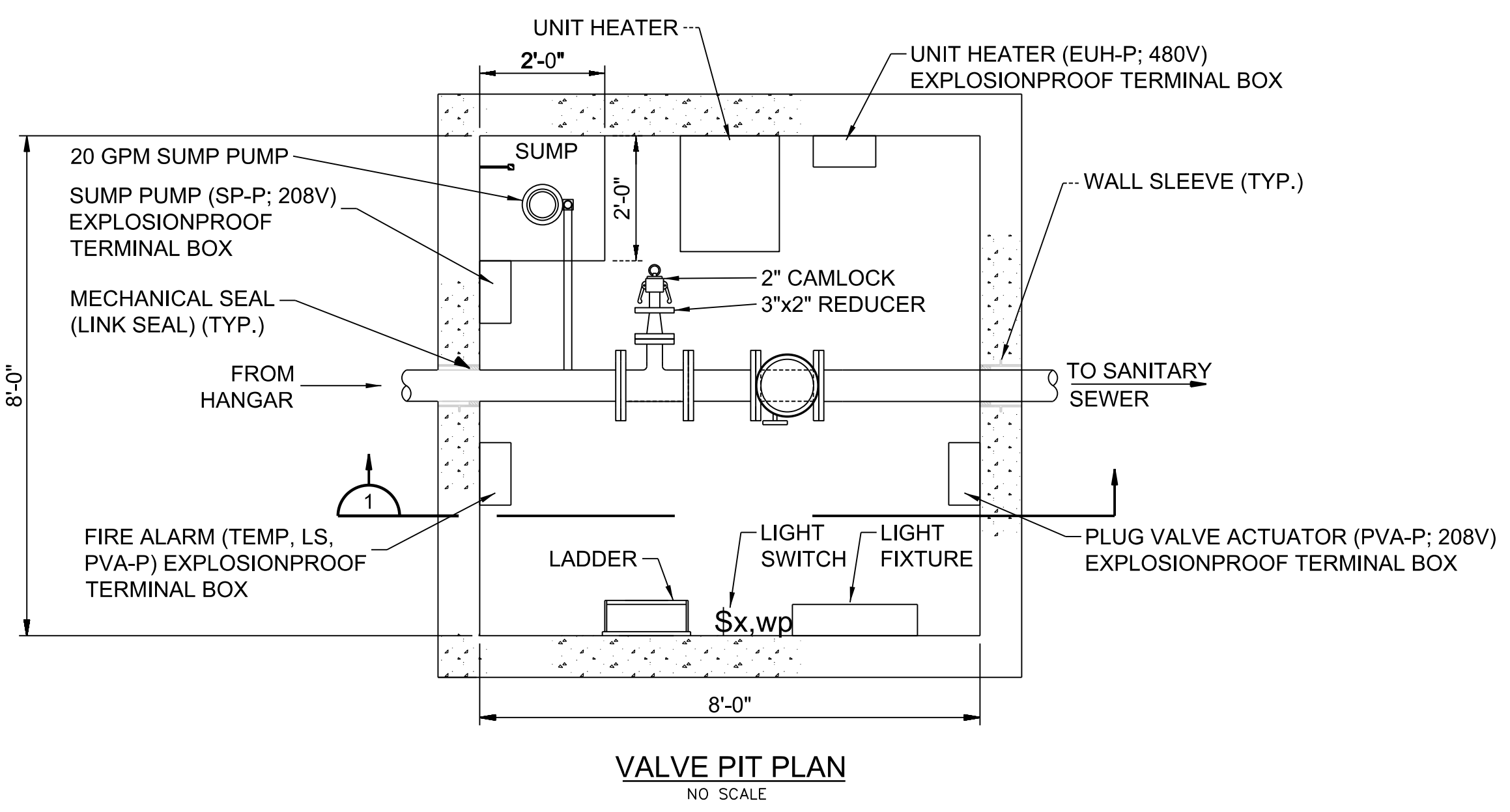
DATE	
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DESCRIPTION	

ISSUE DATE:	02/19/2020
DESIGNED BY:	RAK
CHECKED BY:	DLS
FILE NUMBER:	MIBSCU501.dwg
CONTRACT NO.:	1816 CAPTOL AVE OMAHA, NE 68102

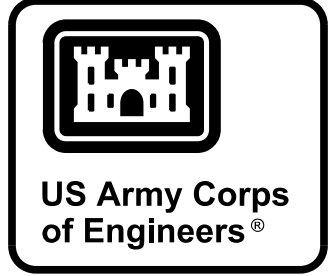
REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837) MINOT AFB, NORTH DAKOTA

**WATER AND SANITARY SEWER LINE DETAILS**

SHEET ID  
**CU501**



- VALVE PIT NOTES**
- VALVE PIT DOORS SHALL BE THE PRODUCT OF A COMPANY REGULARLY ENGAGED IN THE MANUFACTURE OF SUCH DOORS. SEE SPECIFICATION SECTION 05 50 13 "MISCELLANEOUS METAL FABRICATIONS".
  - PIT DOORS SHALL BE DESIGNED TO WITHSTAND A LIVE LOAD OF 150 POUNDS PER SQUARE FOOT.
  - DOORS AND FRAMES SHALL BE OF EITHER ALUMINUM OR STEEL CONSTRUCTION AT THE OPTION OF THE CONTRACTOR UNLESS SPECIFICALLY CALLED OUT AS ALUMINUM. STEEL DOORS AND FRAMES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123
  - SEE SPECIFICATION SECTION 03 42 13.00 10 "PLANT-PRECAST CONCRETE PRODUCTS FOR BELOW GRADE CONSTRUCTION".
  - DUE TO THE POTENTIAL FOR SHALLOW GROUND WATER AT THE SITE, THE CONTRACTOR SHALL SUBMIT A DETAILED DEWATERING AND EXCAVATION SUPPORT PLAN FOR APPROVAL PRIOR TO THE START OF WORK. THE PLAN IS TO BE BASED ON AN ASSUMED GROUNDWATER DEPTH AT THE MID-POINT BETWEEN THE GROUND SURFACE AND BOTTOM OF EXCAVATION.
  - VALVE PIT SHALL HAVE A SAFETY FACTOR OF 1.5 FOR BUOYANCY WHEN COMPLETELY SUBMERGED.
  - ALL JOINTS SHALL BE WATERTIGHT.
  - SEE SHEET EP111 AND FA111 FOR ELECTRICAL DETAILS.
  - ALL PIPING INSIDE VALVE PIT SHALL BE FLANGED DUCTILE IRON.
  - PROVIDE STEEL LADDER, WITH NONSLIP SURFACES, AND CONSISTING OF UPRIGHTS WITH STEPS OR RUNGS. FABRICATE LADDERS WITH TWO STRINGERS A MINIMUM 3/8 INCH THICK AND 2-1/2 INCHES WIDE, AND RUNGS NOT BE LESS THAN 16 INCHES IN WIDTH, 3/4 INCH DIAMETER, SPACED 12 INCHES APART. ANCHOR THE LADDERS TO THE WALL BY MEANS OF STEEL INSERTS SPACED NOT MORE THAN 6 FEET APART VERTICALLY, AND INSTALL TO PROVIDE AT LEAST 6 INCHES OF SPACE BETWEEN THE WALL AND RUNGS. GALVANIZE LADDERS AND INSERTS AFTER FABRICATION IN CONFORMANCE WITH ASTM A123/A123M.
  - PROVIDE SUMP PUMP IN ACCORDANCE WITH SPECIFICATION SECTION 22 14 29.00 40 "SUMP PUMP".
  - SEE SPECIFICATION SECTION 28 31 76 FOR PLUG VALVE ACTUATOR REQUIREMENTS.
  - SOME HEATING, POWER, LIGHTING, CONTROL, AND MONITORING DEVICES, CONNECTIONS, AND PENETRATIONS ARE OMITTED FROM THIS DETAIL. COORDINATE WITH THE M-, EL, EP, AND FA SHEETS.



DATE	DESCRIPTION	MARK

DESIGNED BY: RAK	ISSUE DATE: 02/19/2020	CONTRACT NO.:	FILE NUMBER:
CHECKED BY: RAK	DESIGN NO.:	1816 CAPTOL AVE	ANSID: MBSCU502.dwg
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT 1816 CAPTOL AVE OMAHA, NE 68102	OMAHA DISTRICT 1816 CAPTOL AVE OMAHA, NE 68102	1816 CAPTOL AVE OMAHA, NE 68102	MBSCU502.dwg

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

VALVE PIT DETAILS

SHEET ID  
**CU502**

A. DESIGN CRITERIA AND LOADS

- 1. MINIMUM ROOF LIVE LOADS (ASCE 7-10)
A. MINIMUM ROOF LIVE LOAD: Lo = 20 PSF
B. ROOF STORAGE AREA ABOVE TOILET ROOMS 104 & 105: 80 PSF
2. DESIGN FLOOR LIVE LOADS
A. SLAB-ON-GRADE: 150 PSF
B. SECOND-FLOOR SLAB: 50 PSF
C. STAIRS: 100 PSF OR 300 LB POINT LOAD OVER 4 SQUARE INCHES ON TREAD.
3. WIND LOADS (ASCE 7-10)
A. BASIC WIND SPEED: V = 115 MPH
B. WIND LOAD ON NEW PPE/HANGAR OFFICE WALLS: 15 PSF
C. EXPOSURE CATEGORY: 'C'
D. INTERNAL PRESSURE COEFFICIENT: Gcpi = +/- 0.18 (ENCLOSED)
4. SEISMIC LOADS (ASCE 7-10)
A. SEISMIC LOAD IMPORTANCE FACTOR: Ie = 1.0
B. MAPPED SHORT PERIOD SPECTRAL RESPONSE ACCELERATION: Ss = 0.049
C. SITE CLASSIFICATION: D
D. DESIGN SHORT PERIOD SPECTRAL RESPONSE ACCELERATION: Sds = 0.052g
E. SEISMIC DESIGN CATEGORY: A
5. FOUNDATION REQUIREMENTS
A. STRUCTURAL FILL BELOW SLABS AND FOOTINGS SHALL BE COMPACTED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS TO A DENSITY OF AT LEAST 95% OF MAXIMUM MODIFIED PROCTOR DENSITY.
B. TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE SUBGRADE, FILL, AND BACKFILL MATERIALS ARE PROPERLY COMPACTED.
C. BACKFILL AROUND FOUNDATION WALLS SHALL BE PLACED ON EACH SIDE OF THE WALL IN EQUAL LIFTS.
D. THE EXISTING FOUNDATION SYSTEM CONSISTS OF CONTINUOUS WALL FOOTINGS, AND SPREAD FOOTINGS. THE MINIMUM DEPTH TO THE BOTTOM OF THE FOOTINGS IS 163" BELOW ADJACENT FINISH GRADE FOR EXTERIOR FOOTINGS, UNLESS NOTED OTHERWISE. THE NET ALLOWABLE BEARING CAPACITY IS 2500 PSF FOR SLABS.
E. A 6" THICK CAPILLARY WATER BREAK CONSISTING OF GRANULAR MATERIAL SHALL BE PLACED UNDER ALL INTERIOR CONCRETE SLABS-ON-GRADE. A 10 MIL VAPOR BARRIER SHALL BE PLACED DIRECTLY UNDER ALL INTERIOR CONCRETE SLABS-ON-GRADE WITH THE EXCEPTION OF THE HANGAR BAYS. 1" THICK HIGH DENSITY RIGID UNDER SLAB INSULATION SHALL BE PLACED DIRECTLY UNDER THE HANGAR BAY SLABS-ON-GRADE AND OVER THE 10 MIL VAPOR BARRIER.
F. ALL COMPACTED FILL INSTALLATION SHALL BE INSPECTED AND APPROVED BY A REGISTERED GEOTECHNICAL ENGINEER. A REGISTERED GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE BEARING MATERIALS PRIOR TO THE PLACEMENT OF CONCRETE.
6. SOIL INFORMATION
A. MODULUS OF SUBGRADE REACTION: 100 PCI
B. ALLOWABLE BEARING PRESSURE: 2500 PSF
C. DESIGN FROST DEPTH: 163"
D. MOISTURE CONTENT FOR SOIL COMPACTION: +/- 2% OF OPTIMUM

B. MATERIAL NOTES

- 1. CAST-IN-PLACE CONCRETE
A. COMPRESSIVE STRENGTH AT 28 DAYS: fc = 4,500 psi
B. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60.
C. CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT:
CONCRETE CAST AGAINST EARTH = 3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
#5 BARS AND SMALLER = 1 1/2"
#6 BARS AND LARGER = 2"
E. SLABS-ON-GRADE = 1 1/2" BELOW TOP OF SLAB
LOCATION AND SIZES OF OPENINGS, SLEEVES, ETC. REQUIRED FOR OTHER TRADES MUST BE VERIFIED BY THOSE TRADES BEFORE PLACING CONCRETE.
G. EXPOSED EDGES AND CORNERS SHALL BE CHAMFERED 3/4 INCH
H. PROVIDE DEVELOPMENT LENGTHS AND LAP SPLICES AS INDICATED ON THIS SHEET (S-001).
2. COLD-FORMED METAL FRAMING (CFMF)
A. COLD FORMED STRUCTURAL STEEL FRAMING SHALL CONFORM TO THE MOST CURRENT ADOPTED EDITION OF THE AMERICAN IRON AND STEEL INSTITUTE (AISI) "DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS"
B. STUD AND TRACK PROFILES SHALL BE STANDARD SECTIONS USED BY MEMBERS OF THE STEEL STUD MANUFACTURES ASSOCIATION (SSMA).
C. UNLESS NOTED OTHERWISE ON THE DRAWINGS, MEMBERS SHALL HAVE THE FOLLOWING YIELD STRENGTHS:
STUDS: 33, 43 MIL THICKNESS Fy = 33 KSI
STUDS: 54, 68, 97 MIL THICKNESS Fy = 50 KSI
TRACK: 33, 34, 68, 97 MIL THICKNESS Fy = 33 KSI
D. ALL COLD-FORMED STEEL FRAMING MATERIALS SHALL HAVE A MINIMUM G60 GALVANIZED COATING.
E. POWDER ACTUATED FASTENERS (P.A.F.) SHALL BE INSTALLED WITH A MINIMUM EDGE DISTANCE OF 2 1/4", OR AS RECOMMENDED BY THE MANUFACTURER.
F. SCREWED COLD FOLRMD TO COLD FORMED CONNECTIONS SHALL BE HEX HEAD HILTI "KWIK-PRO" SELF DRILLING TAPPING SCREWS PER ICC ESR-2196, OR ICC APPROVED EQUIVALENT. SCREW SIZE SHALL BE #10 x 3/4" MINIMUM AND MUST PROTRUDE THROUGH AND BEYOND THE CONNECTED STEEL MEMBERS A MINIMUM OF THREE FULL THREADS. SCREWS SHALL BE INSTALLED WITH A MINIMUM EDGE AND END DISTANCE OF THREE SCREW DIAMETERS.
G. ALL BUILT-UP HEADERS REQUIRE WEB STIFFENERS AT EACH SUPPORT.
H. FOR AXIAL LOAD BEARING WALLS, INSTALL BRIDGING PER TYPICAL DETAILS. FOR WALLS WITH NO AXIAL LOAD, INSTALL BRIDGING AT MID-HEIGHT FOR WALLS LESS THAN OR EQUAL TO 10'-0" HIGH, AND 5'-0" O.C. MAXIMUM FOR WALLS GREATER THAN 10'-0" HIGH. IN ADDITION, BRIDGING SHALL BE INSTALLED AT ROOF LINES AND ELSEWHERE AS NOTED ON THE DRAWINGS. FOR NON-BEARING PARTITIONS AND SOFFITS, SEE ARCHITECTURAL DRAWINGS.
I. REFER TO SPECIFICATION SECTION 05 40 00 FOR ADDITIONAL REQUIREMENTS.
3. STEEL ROOF DECK AND FLOOR DECK
A. DESIGN CODE: STEEL DECK INSTITUTE (SDI) DESIGN MANUAL FOR ROOF DECKS AND FLOOR DECKS
B. MATERIAL STRENGTHS: PER SDI SPECIFICATIONS
C. NOTES:
1) STEEL FLOOR DECK SHALL BE FABRICATED AND ERCTED ACCORDING TO SPECIFICATIONS OF THE STEEL DECK INSTITUTE (SDI).
2) PROVIDE ALL RIDGE AND VALLEY PLATES, SUMP PANS, CLOSURE PLATES, POUR STOPS AND ALL OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION.
3) ALLOWABLE STRESS BASED ON SDI AND AISI
4) MAXIMUM DEFLECTION DUE TO SUPERIMPOSED LOADS SHALL BE LIMITED TO L/240.
5) NONCOMPOSITE FLOOR DECK SHALL BE FINISHED PER DECK SCHEDULE ON THIS SHEET (S-001).
6) ALL METAL DECK SHALL BE FABRICATED AND INSTALLED FOR A MINIMUM TWO SPAN CONDITION, UNO. TEMPORARY SHORING OF METAL DECK SHALL NOT BE USED UNLESS APPROVED BY THE CONTRACTING OFFICER.
7) DECKING CONTRACTOR SHALL COORDINATE DECK OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SHALL PROVIDE HEADER MEMBERS AND REINFORCEMENT AS REQUIRED PER TYPICAL DETAILS.
8) REFERENCE THE CONTRACT DRAWINGS FOR DECK TYPE, GAUGE, AND FASTENER SPACING.
9) HANGING LOADS FROM ROOF DECK IS PROHIBITED.
4. STRUCTURAL WALL SHEATHING
A. EXTERIOR WALL SHEATHING SHALL BE 1/2" THICK, MINIMUM.
B. PANEL SPAN RATING: 32/16
C. WALL SHEATHING SHALL BE FASTENED AS FOLLOWS:
6d NAILS (1 7/8") @ 6" O.C. AT EDGES & @ 12" O.C. IN THE FIELD
D. WALL SHEATHING PANELS SHALL BE 4'x8' AND INSTALLED WITH LONG SIDE VERTICAL.

C. GENERAL NOTES

- 1. REFERENCE ELEVATION 100'-0" = TOP OF HANGAR SLAB AT FRONT OF NOSE DOCK. HANGAR SLAB SLOPES IN THE DIRECTION OF THE HORIZONTAL SLIDING HANGAR DOORS. FIELD VERIFY ALL SLAB SLOPES AND CONDITIONS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE LOCATIONS OF ALL EMBEDDED ITEMS, CONDUITS, PIPES AND OPENINGS. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ITEMS NOT INDICATED ON STRUCTURAL DRAWINGS. THE CONTRACTING OFFICER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.
3. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE BRACING AND SHORING FOR STEEL AND CONCRETE WORK AT ALL TIMES DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING ALL GAPS BETWEEN WALLS AND OVERLYING FLOORS, DECKING, AND STRUCTURE AS WELL AS OTHER PENETRATIONS AS REQUIRED BY ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SHEETS, AND BY THE CONTRACT SPECIFICATIONS.

D. SPECIAL INSPECTIONS (IBC 2015)

- 1. PROVIDE SPECIAL INSPECTIONS OF THE FOLLOWING ITEMS:
A. CONCRETE CONSTRUCTION - PER IBC SECTION 1705.3
B. COLD-FORMED STEEL FRAMING
2. INCLUDE SPECIAL INSPECTIONS REQUIREMENTS IN CONTRACTOR'S QUALITY CONTROL (QCP) PLAN.
3. A SPECIAL INSPECTOR IS A QUALIFIED PERSON, EXCLUSIVE OF PERSONNEL INCLUDED UNDER THE COC STAFF, WHO HAS DEMONSTRATED COMPETENCE TO THE CONTRACTING OFFICER'S SATISFACTION.

COLD-FORMED METAL FRAMING CONNECTION SCHEDULE
Table with 4 columns: CONNECTED ELEMENTS, MINIMUM SCREW SIZE, SCREW SPACING, NUMBER OF SCREWS
Rows include: WALL STUDS TO TRACK SECTIONS, BUILT-UP HEADER SECTIONS TO STUDS OR COLUMNS, BUILT-UP BOX SECTIONS (HEADERS AND COLUMNS), DOUBLE STUDS, TRACK TO FOUNDATION (P.A.F.), TRACK SPLICE.

STEEL DECK AND DECK ATTACHMENT SCHEDULE

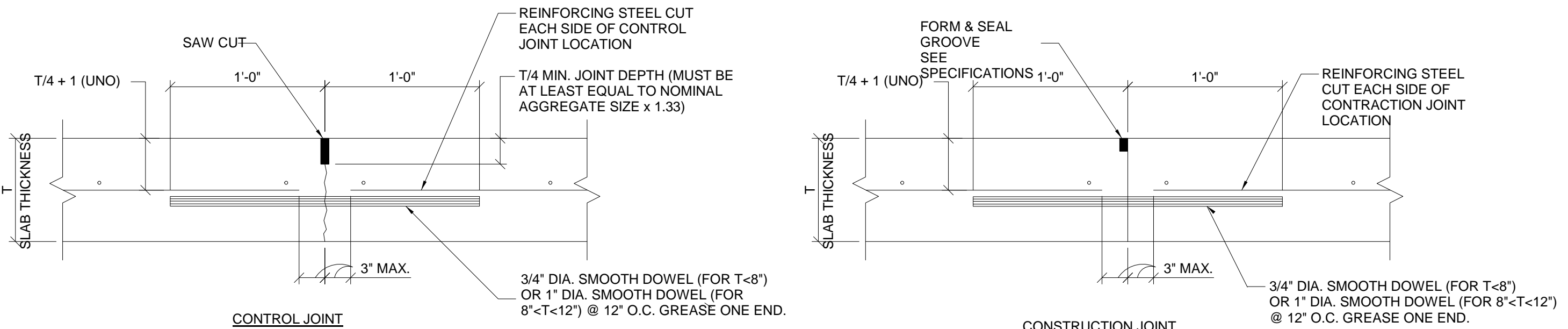
Table with columns: LOCATION, STEEL DECK, TOTAL SLAB DEPTH, SLAB REINFORCEMENT, MINIMUM DECK SECTION PROPERTIES, DECK ATTACHMENT, AS-SUPPLIED DECK FINISH
Rows include: HANGAR OFFICE 2ND FLOOR EL. 112'-0", HANGAR OFFICE ROOF EL. 123'-0"

- DECK SCHEDULE NOTES:
1. TEMPORARY SHORING OF STEEL DECK DURING CONCRETE PLACEMENT IS NOT REQUIRED.
2. STEEL DECK MINIMUM YIELD STRENGTH: Fy = 33 KSI FOR NON-COMPOSITE DECK.

REINFORCING DEVELOPMENT AND LAP SPLICES 4,500 PSI
Table with columns: BAR SIZE, DEVELOPMENT LENGTH, SPLICE LENGTH
Sub-columns: OTHER, TOP, OTHER, TOP
Rows #3 through #11

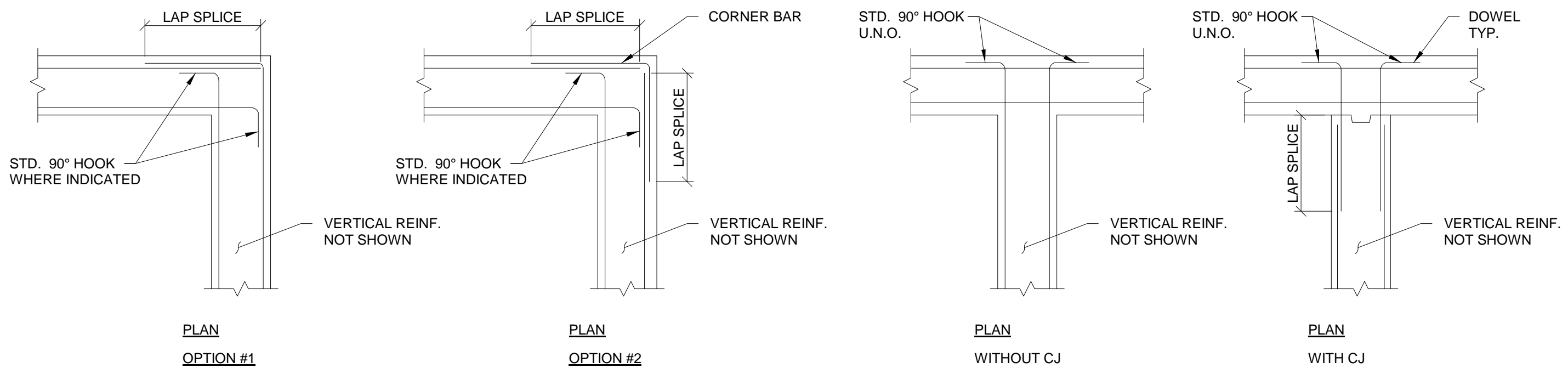
DEVELOPMENT LENGTHS HOOKED BARS
Table with columns: BAR SIZE, LENGTH OR MIN. EMBEDMENT
Rows #3 through #11

- 1. REINFORCING BAR DEVELOPMENT AND LAP SPLICE LENGTH SHALL BE AS SHOWN IN THESE TABLES UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. THE LENGTHS SHOWN IN THE TABLES ARE BASED ON THE FOLLOWING CONCRETE COVERAGE AND REINFORCING C-C SPACING:
BEAMS OR COLUMNS:
COVER (EQUAL OR MORE) 1.0bd (BAR DIAMETER)
CENTER TO CENTER (C-C) SPACING (EQUAL OR MORE) 2.0bd.
ALL OTHERS:
COVER (EQUAL OR MORE) 1.0bd
CENTER TO CENTER SPACING (EQUAL OR MORE) 3.0bd.
3. TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
4. DEVELOPMENT AND SPLICE LENGTH SHOWN SHALL NOT APPLY IF ANY OF THE FOLLOWING CONDITIONS OCCUR:
A) fc < 4500 PSI
B) fy > 60,000 PSI
C) THE COVER OR C-C BAR SPACING IS NOT AS LISTED ABOVE
D) THE REINFORCING STEEL IS EPOXY COATED
E) LIGHT WEIGHT CONCRETE IS USED.



- NOTES:
1. SAW CUT: 1/4" WIDE SAW CUT W/ EPOXY JOINT FILLER.
2. SAW JOINT AS SOON AS SURFACE IS FIRM ENOUGH NOT TO BE TORN OR DAMAGED BY THE BLADE (USUALLY 4 TO 12 HOURS AFTER CONCRETE HARDENS).
3. EPOXY JOINT FILLER TO BE SIKADUR 51 BY SIKA CORPORATION OR APPROVED EQUAL. MINIMUM AGE OF CONCRETE TO BE 28 DAYS WHEN FILLED.

CONCRETE SLAB JOINT DETAILS



- NOTE: UNLESS OTHERWISE INDICATED, THE CONTRACTOR HAS THE OPTION OF REINFORCING CORNERS IN ACCORDANCE WITH OPTION #1 OR OPTION #2.

- NOTE: UNLESS OTHERWISE INDICATED, THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING INTERSECTIONS WITH OR WITHOUT CONSTRUCTION JOINTS. REINFORCE PER APPLICABLE DETAIL.

HORIZ. CONC. REINF. DETAILS

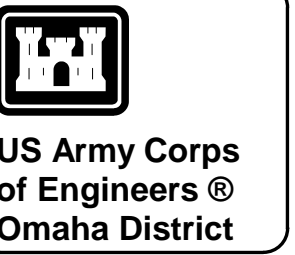
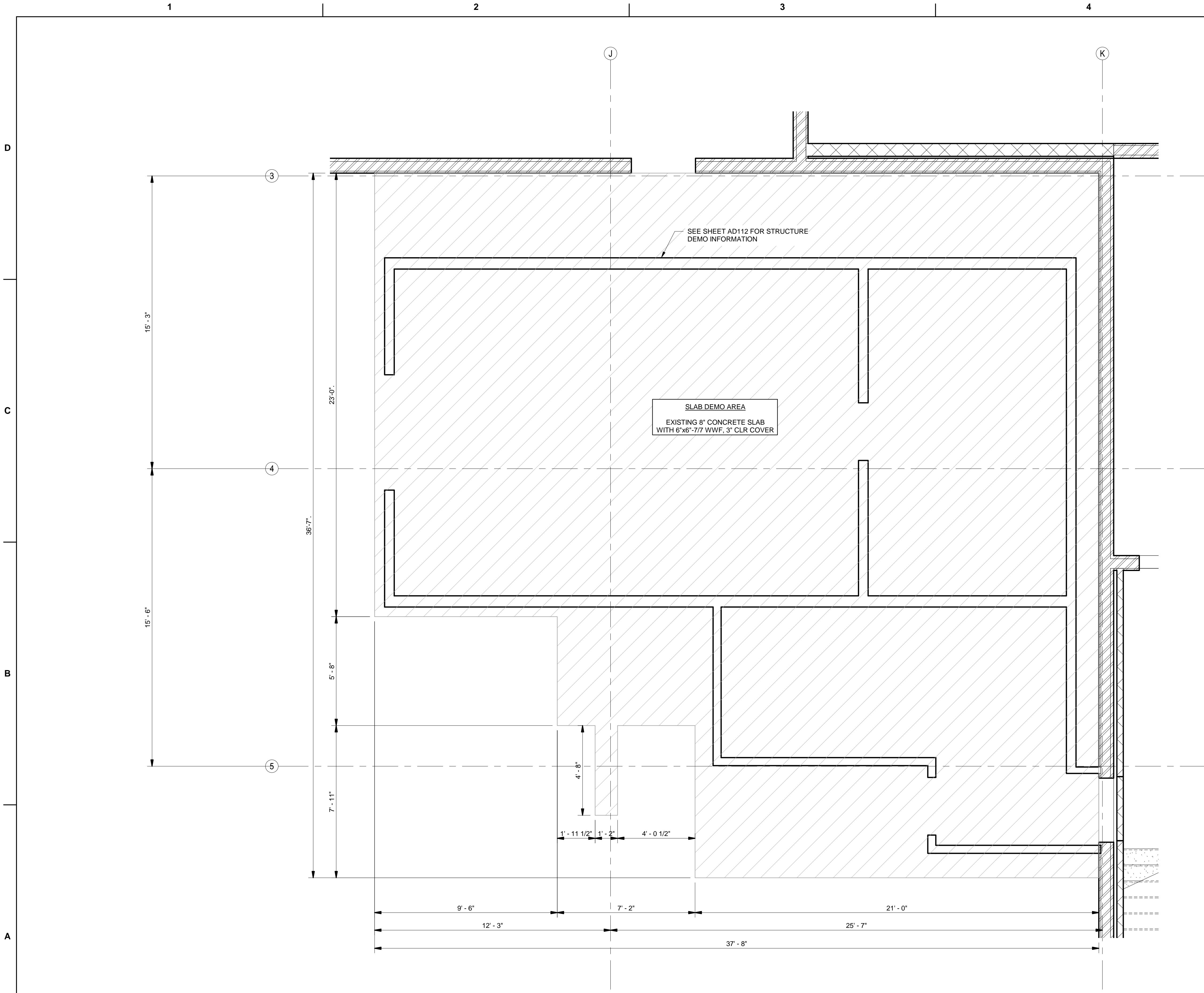


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Table with columns: DESIGNED BY, CHECKED BY, SUBMITTED BY, FILE NAME, ISSUE DATE, SOLICITATION NO., CONTRACT NO., FILE NUMBER

STRUCTURAL NOTES & DETAILS
REPAIR B-52 MAINTENANCE DOCK 5 (BUILDING 837) MINNOT AFB, NORTH DAKOTA



**NOTES:**

1. THIS FACILITY CONTAINS ASBESTOS AND LEAD-CONTAINING MATERIALS AS DESCRIBED IN THE HAZARDOUS MATERIAL SURVEY DATED DECEMBER 2016. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABATEMENT AND REMOVAL OF SUCH ITEMS WHEN REQUIRED BY DEMOLITION ACTIVITIES DESCRIBED IN THE DESIGN DOCUMENTS. ABATEMENT AND REMOVAL ACTIVITIES SHALL BE CONDUCTED IN COMPLIANCE WITH THE APPROPRIATE SPECIFICATIONS AND THEIR REFERENCES.
2. SEE SHEET A-101, ARCHITECTURAL COMPOSITE FLOOR PLAN, FOR GENERAL ORIENTATION AND LOCATION OF WORK.



DATE	DESCRIPTION	MARK

DESIGNED BY: K. SHOOK	ISSUE DATE: 02/19/2020
CHECKED BY: K. CHAN	SOLICITATION NO.: 91286-20R-0026
SUBMITTED BY: WAYNE R. BOECK, P.E.	CONTRACT NO.:
ANSI D	FILE NUMBER:
FILE NAME:	FILE NAME:

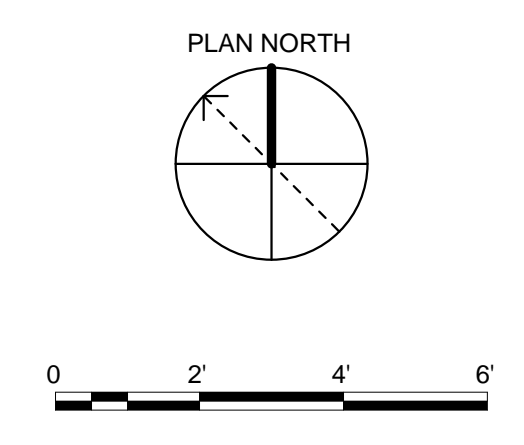
US ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

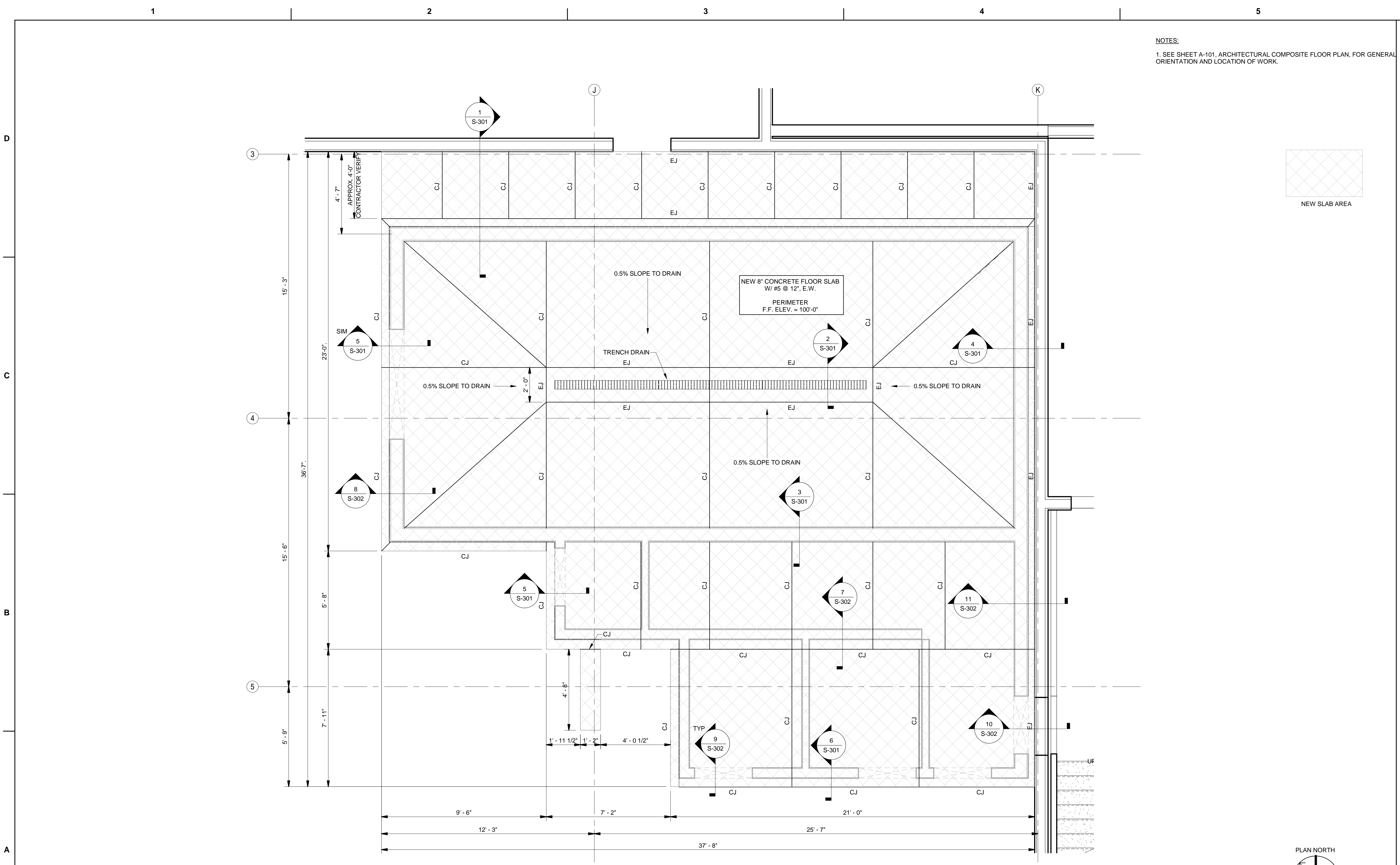
REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

PPE/HANGAR OFFICE - SLAB DEMO PLAN

SHEET ID  
**S-100**

**1** PPE/HANGAR OFFICE - SLAB DEMO PLAN  
S-100 3/8" = 1'-0"





**NOTES:**  
 1. SEE SHEET A-101, ARCHITECTURAL COMPOSITE FLOOR PLAN, FOR GENERAL ORIENTATION AND LOCATION OF WORK.



PLAN NORTH



**1**  
 S-110  
**PPE/HANGAR OFFICE - NEW SLAB PLAN**  
 3/8" = 1'-0"



MARK	DESCRIPTION	DATE

<b>DESIGNED BY:</b> K. SHOOK	<b>ISSUE DATE:</b> 02/19/2020
<b>DRAWN BY:</b> K. SHOOK	<b>SOLICITATION NO.:</b> 91286-20R-0026
<b>CHECKED BY:</b> K. CHAN	<b>CONTRACT NO.:</b>
<b>SUBMITTED BY:</b> WAYNE R. BOECK, P.E.	<b>FILE NUMBER:</b>
<b>SIZE:</b> ANSI D	<b>FILE NAME:</b>

US ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

PPE/HANGAR OFFICE - NEW SLAB PLAN

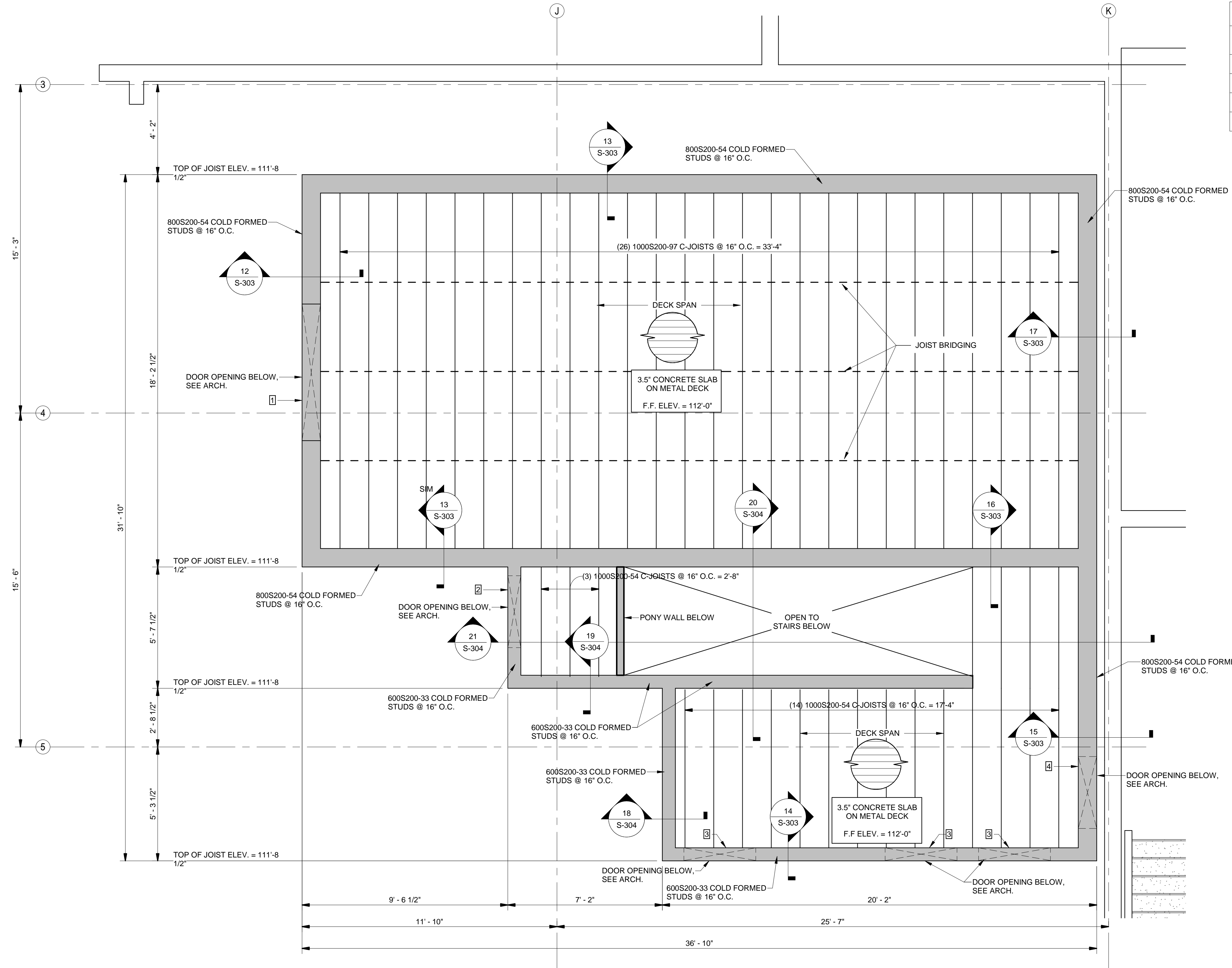
**SHEET ID**  
**S-110**

NOTES:

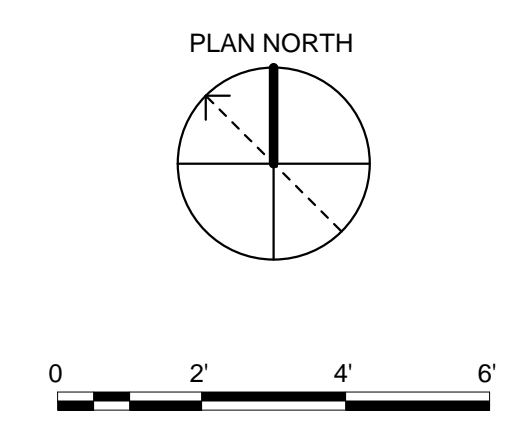
1. SEE SHEET A-101, ARCHITECTURAL COMPOSITE FLOOR PLAN, FOR GENERAL ORIENTATION AND LOCATION OF WORK.

COLD-FORMED METAL FRAMING HEADER SCHEDULE				
MARK	OPENING TYPE	OPENING WIDTH	BOXED HEADER	NOTES
1	EXTERIOR DOUBLE DOOR	6'-4"	(2) 800S200-54	SEE TYPICAL BOX BEAM HEADER DETAILS ON SHEET S-306
2	EXTERIOR SINGLE DOOR	3'-4"	(2) 600S200-33	
3	EXTERIOR SINGLE DOOR	3'-4"	(2) 600S200-33	
4	EXTERIOR SINGLE DOOR	3'-4"	(2) 800S200-54	

D  
C  
B  
A



1 PPE/HANGAR OFFICE - SECOND FLOOR PLAN  
3/8" = 1'-0"



DATE	DESCRIPTION	MARK

DESIGNED BY: K. SHOOK	ISSUE DATE: 02/19/2020
DRAWN BY: K. CHAN	SOLICITATION NO.: W9128F-20-R-0028
CHECKED BY: K. CHAN	CONTRACT NO. 
SUBMITTED BY: WAYNE R. BOECK, P.E.	FILE NUMBER: 
SIZE: ANSI D	FILE NAME: 

US ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1615 CAPITOL AVE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

PPE/HANGAR OFFICE - SECOND FLOOR PLAN

SHEET ID  
S-120



1

2

3

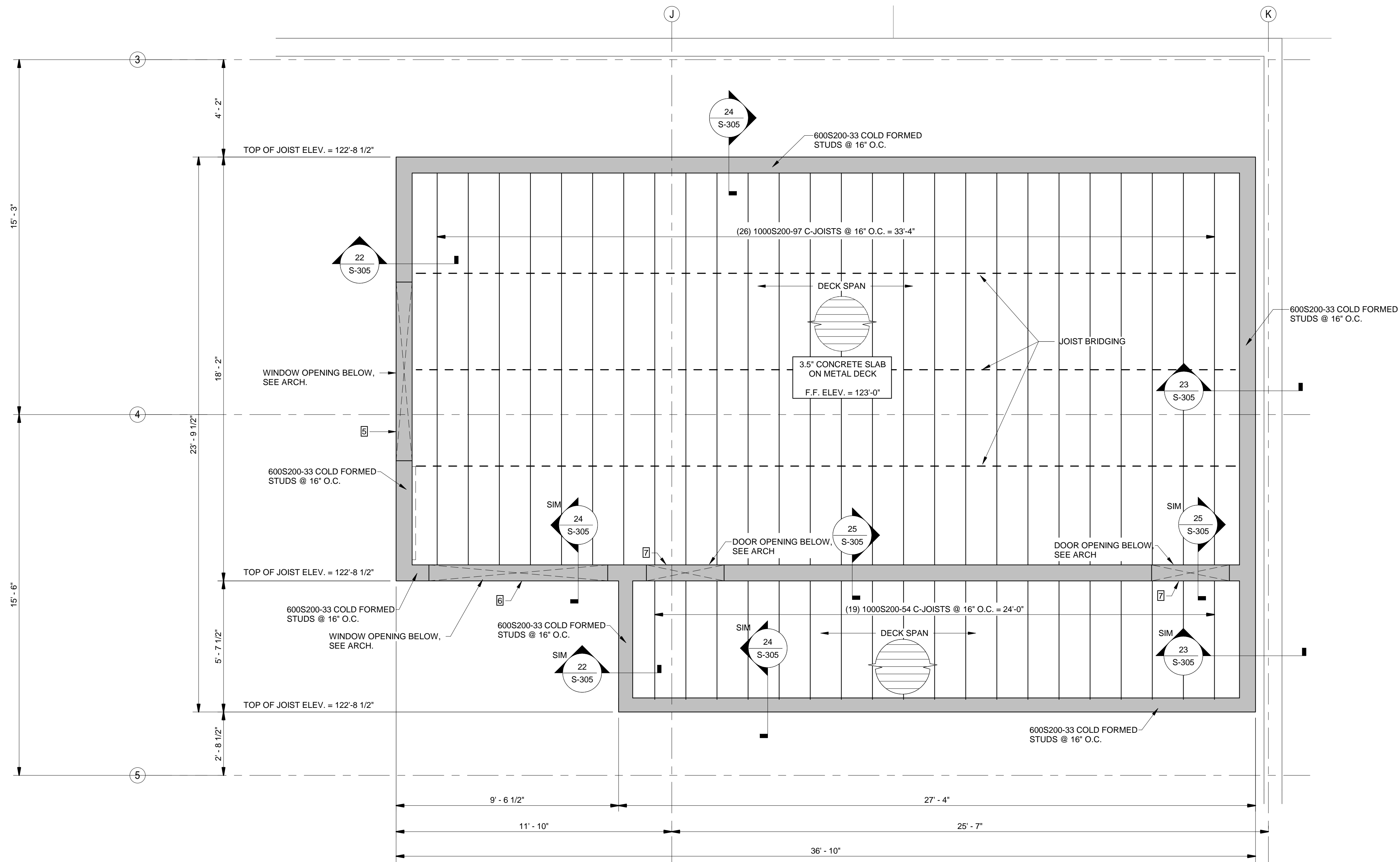
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5

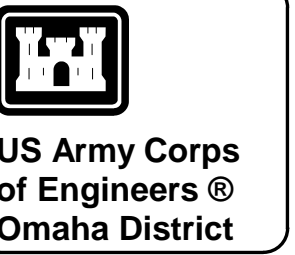
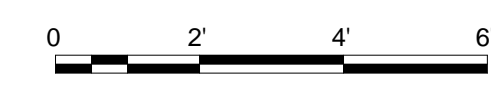
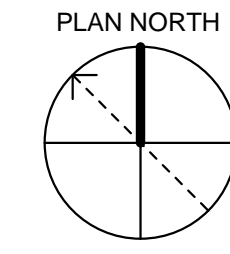
NOTES:

1. SEE SHEET A-101, ARCHITECTURAL COMPOSITE FLOOR PLAN, FOR GENERAL ORIENTATION AND LOCATION OF WORK.

COLD-FORMED METAL FRAMING HEADER SCHEDULE				
MARK	OPENING TYPE	OPENING WIDTH	BOXED HEADER	NOTES
5	EXTERIOR WINDOW	7'-8"	(2) 600S200-33	SEE TYPICAL BOX BEAM HEADER DETAILS ON SHEET S-306
6	EXTERIOR WINDOW	7'-8"	(2) 600S200-97	
7	INTERIOR SINGLE DOOR	3'-4"	(2) 600S200-43	



1 PPE/HANGAR OFFICE - ROOF PLAN  
 S-130 3/8" = 1'-0"



MARK	DESCRIPTION	DATE

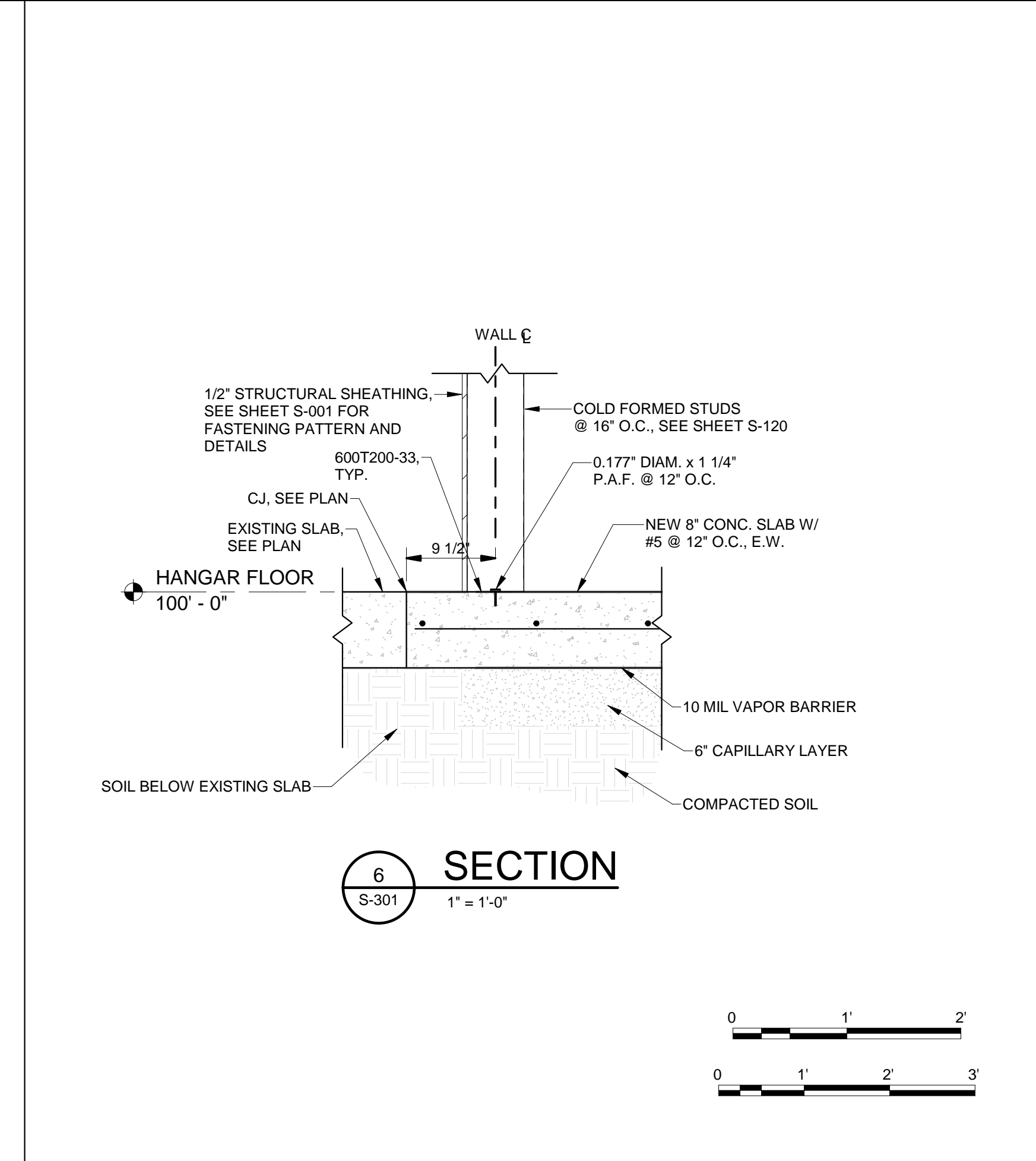
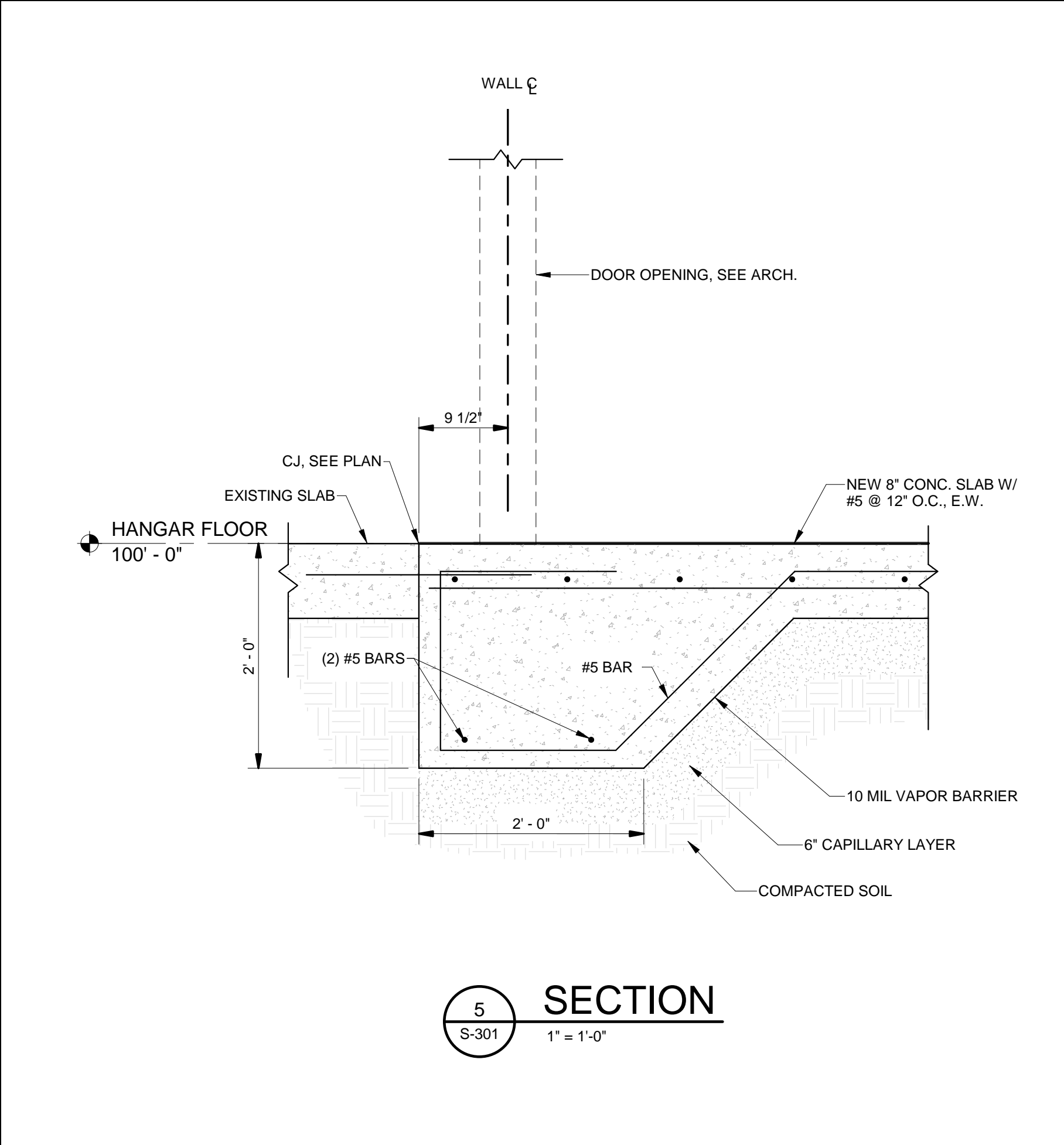
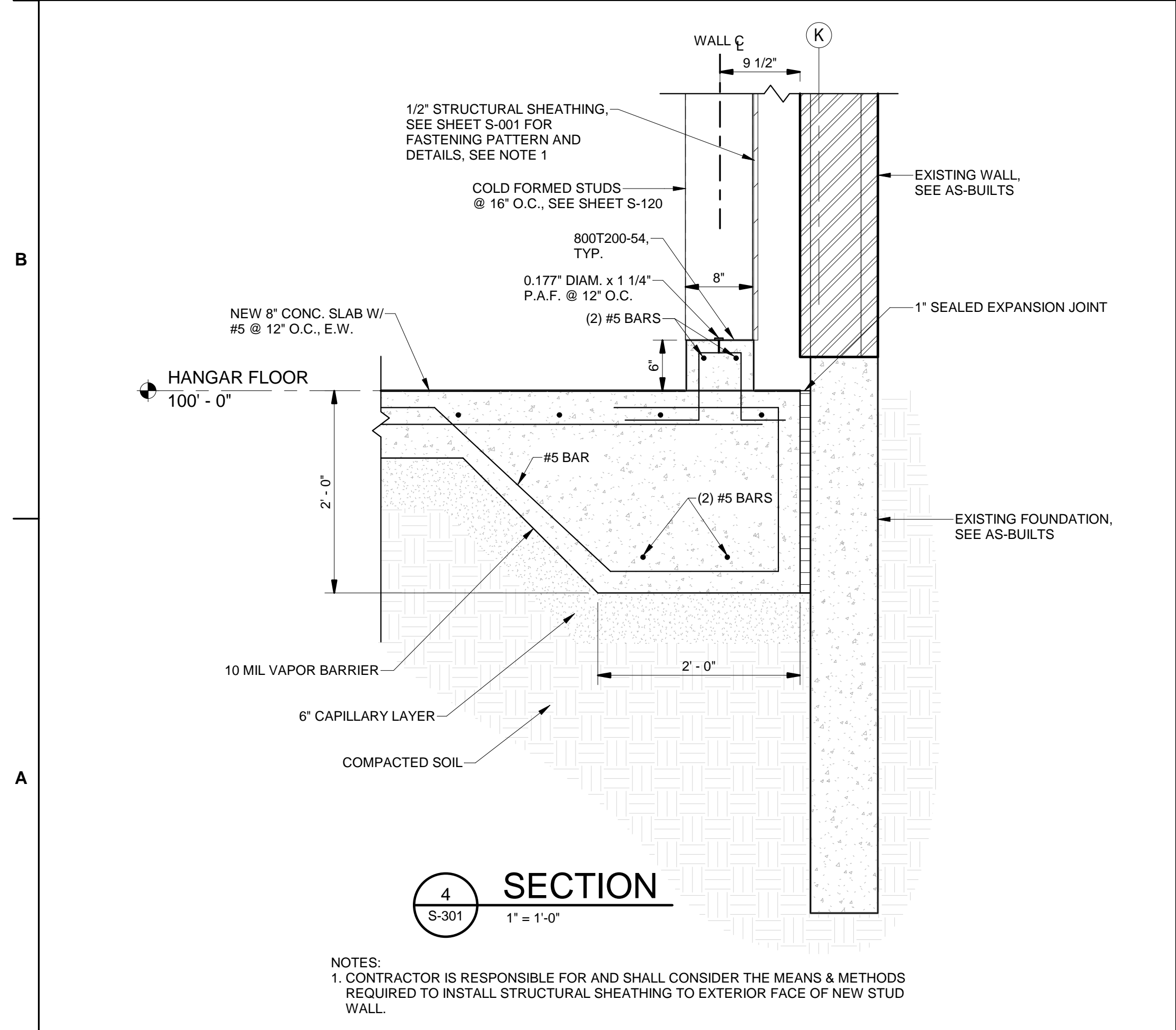
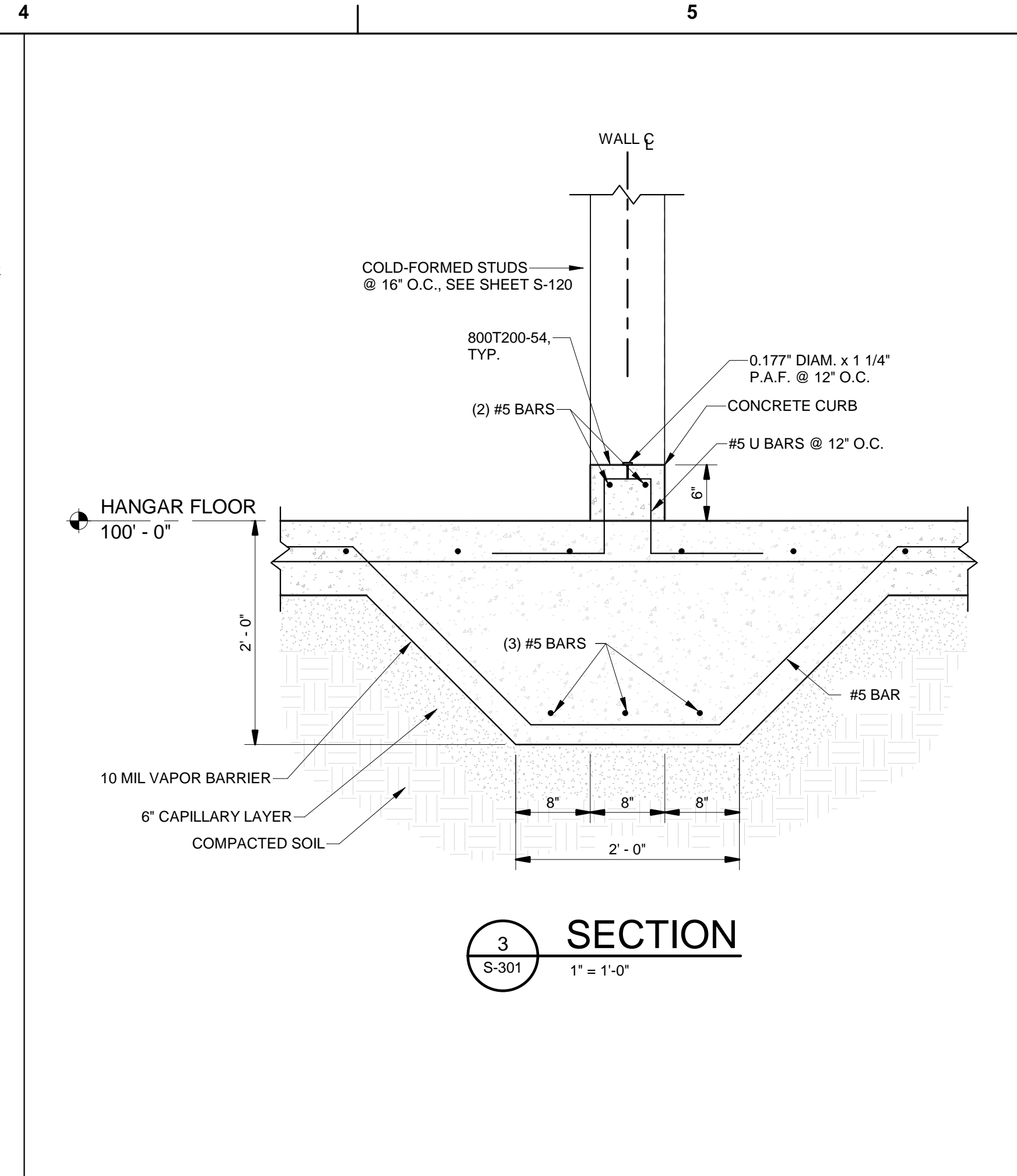
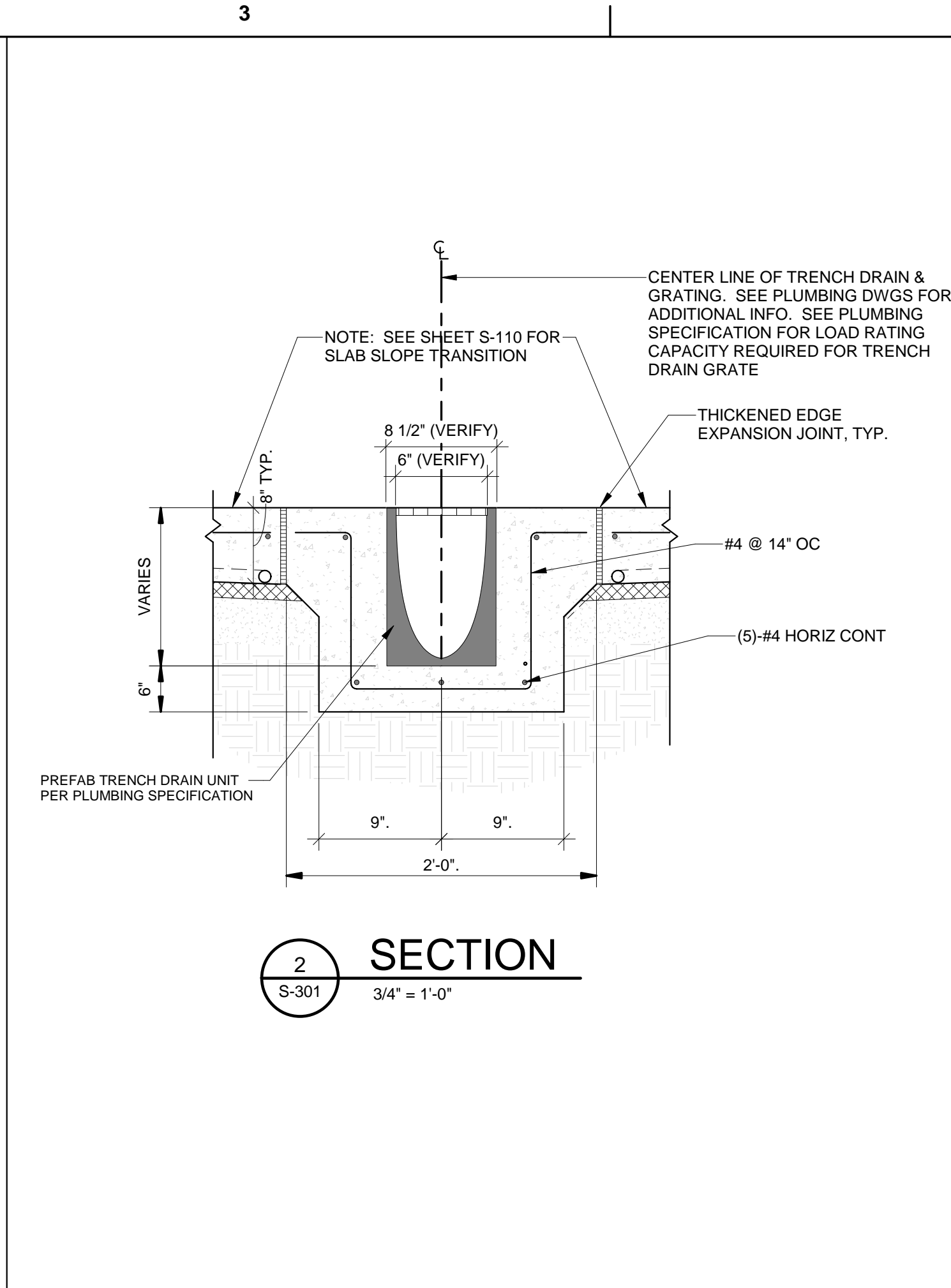
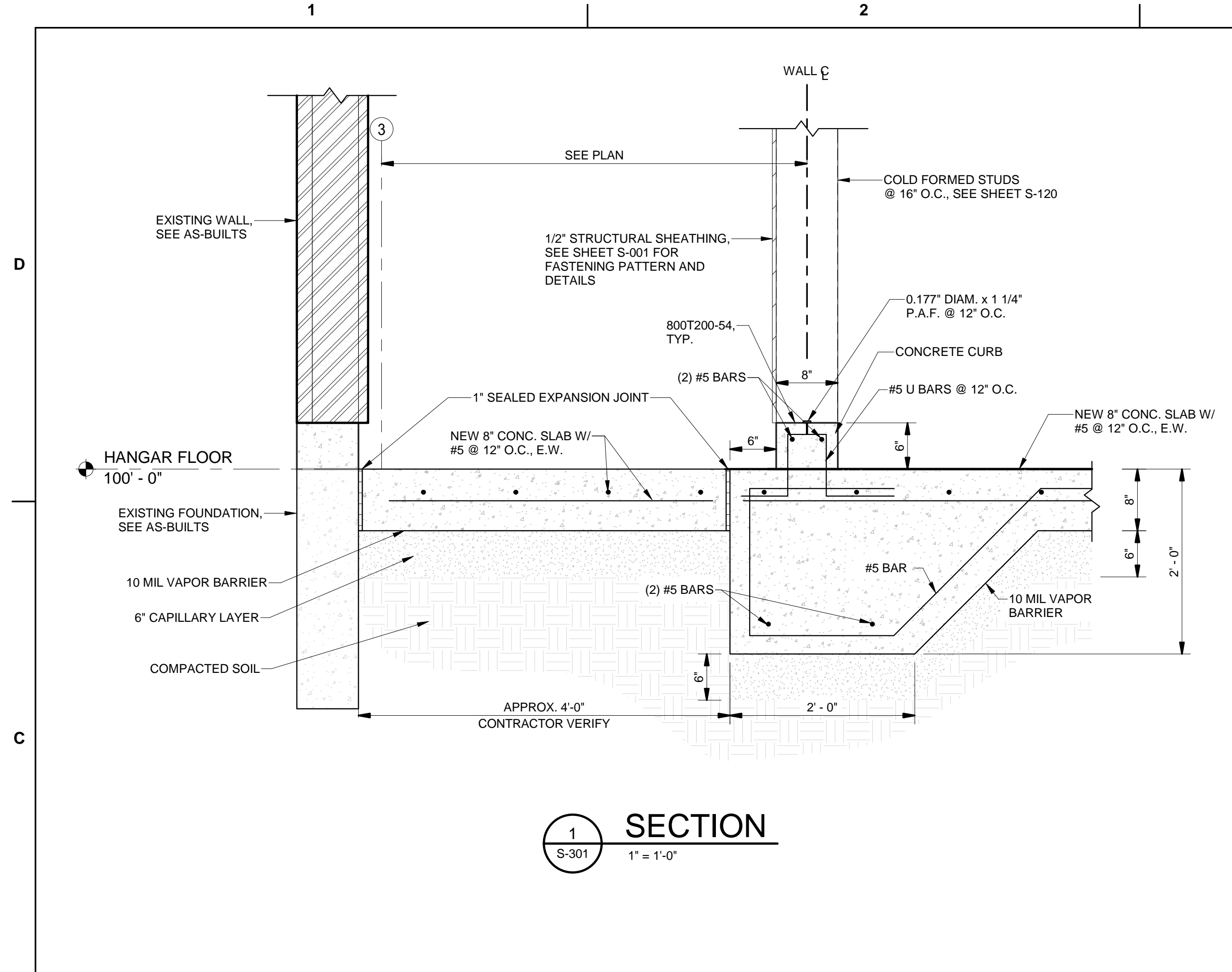
DESIGNED BY: K. SHOOK	ISSUE DATE: 02/19/2020
DRAWN BY: K. SHOOK	SOLICITATION NO.: 91286-20R-0026
CHECKED BY: K. CHAN	CONTRACT NO.:
SUBMITTED BY: WAYNE R. BOECK, P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME:

US ARMY CORPS OF ENGINEERS  
 OMAHA DISTRICT  
 1616 CAPITOL AVE  
 OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
 (BUILDING 837)  
 MINOT AFB, NORTH DAKOTA

PPE/HANGAR OFFICE - ROOF PLAN

SHEET ID  
**S-130**



**US Army Corps of Engineers @ Omaha District**

ISSUE DATE: 02/19/2020  
 SOLICITATION NO.: 91286-20R-0026  
 CONTRACT NO.:  
 FILE NUMBER:  
 SUBMITTED BY: WAYNE R. BOECK, P.E.  
 SIZE: ANS I'D

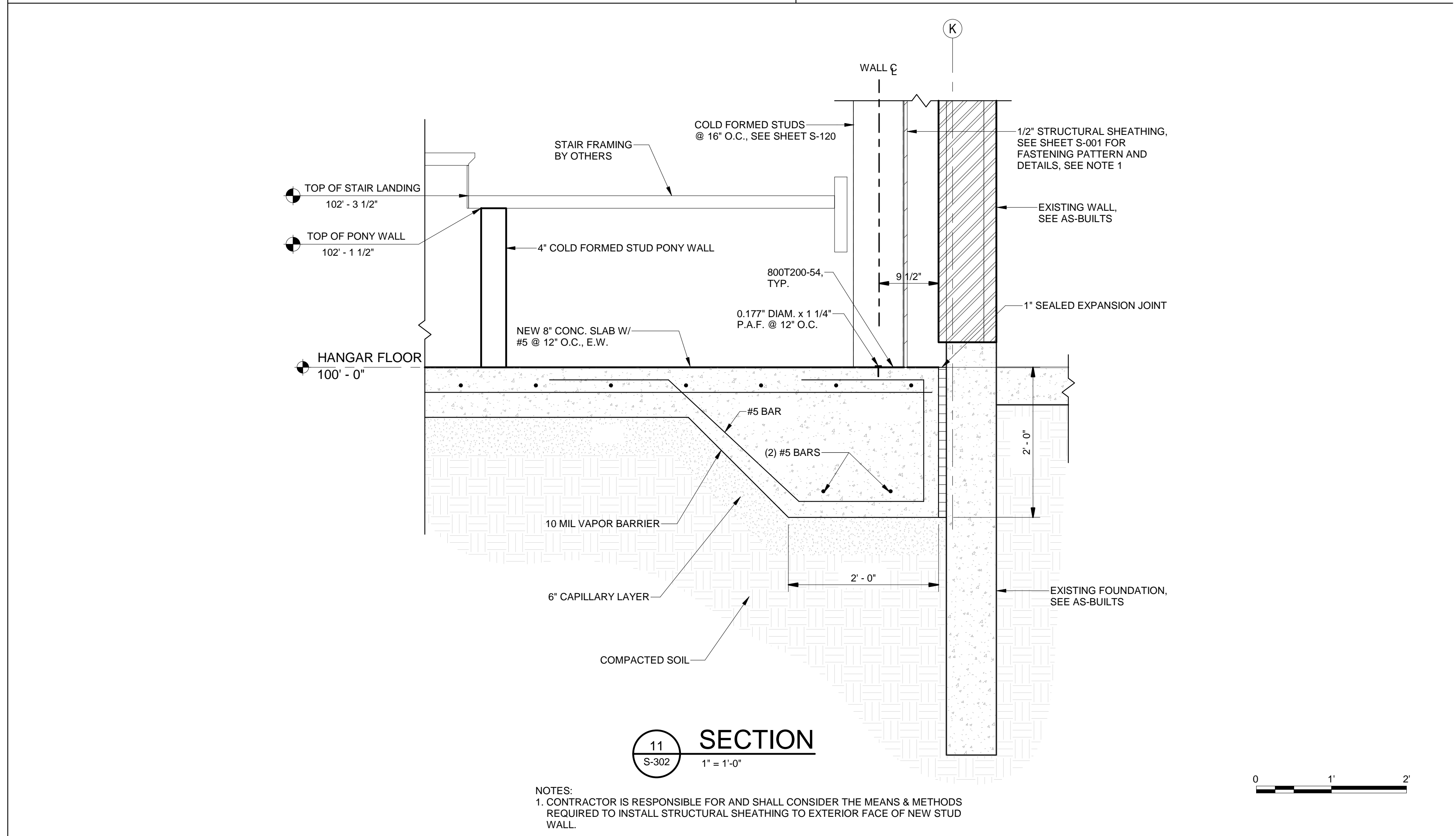
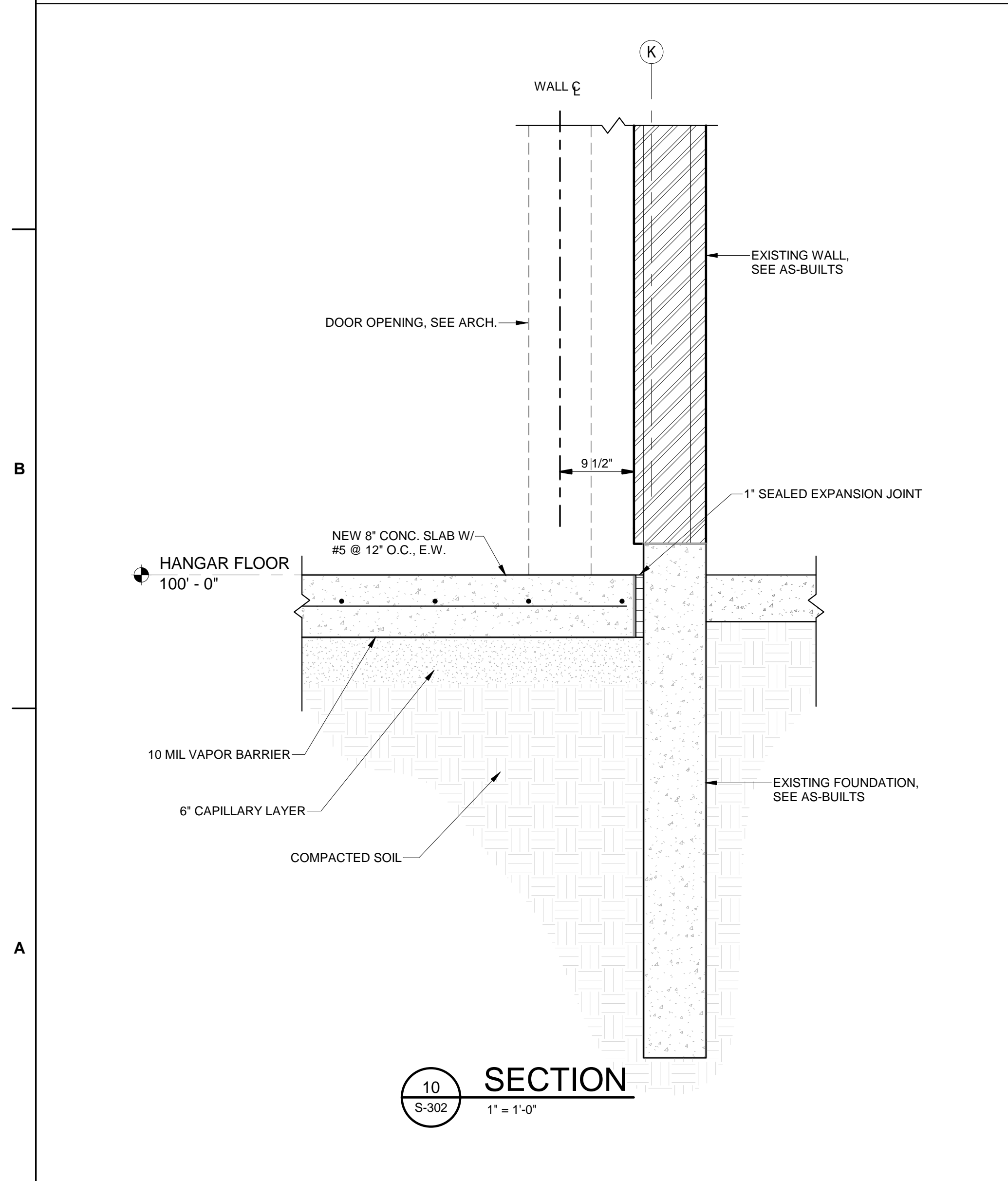
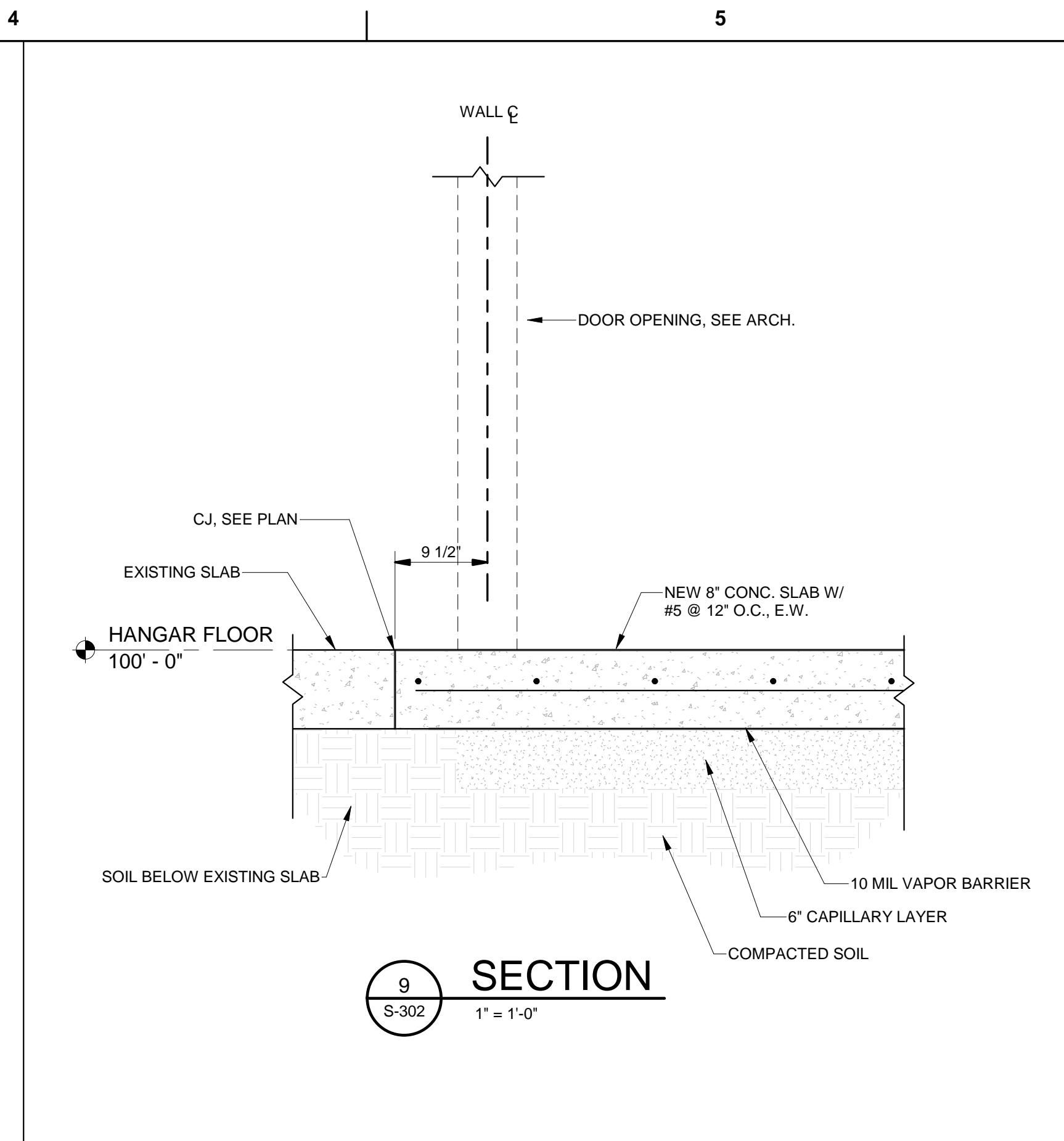
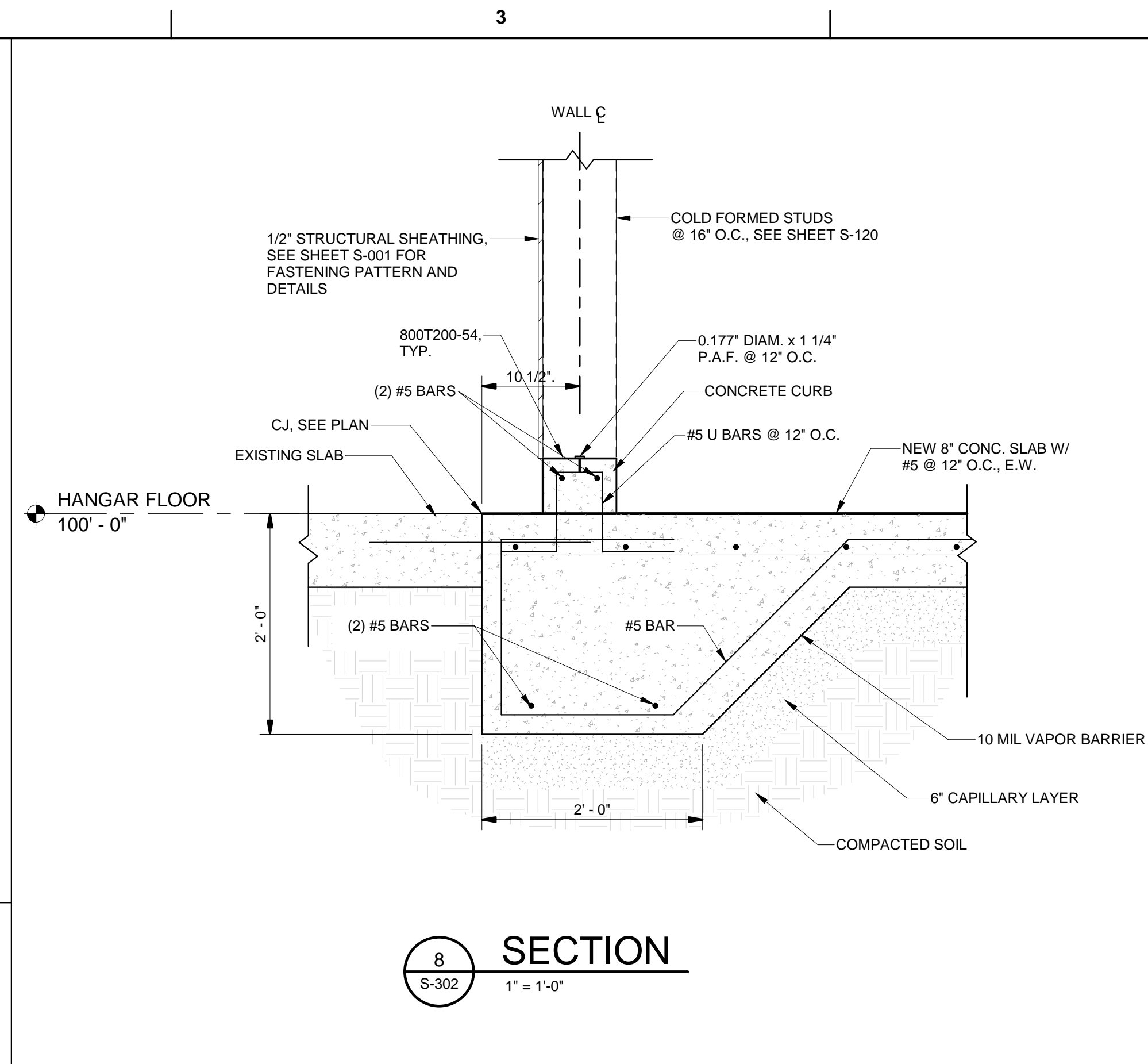
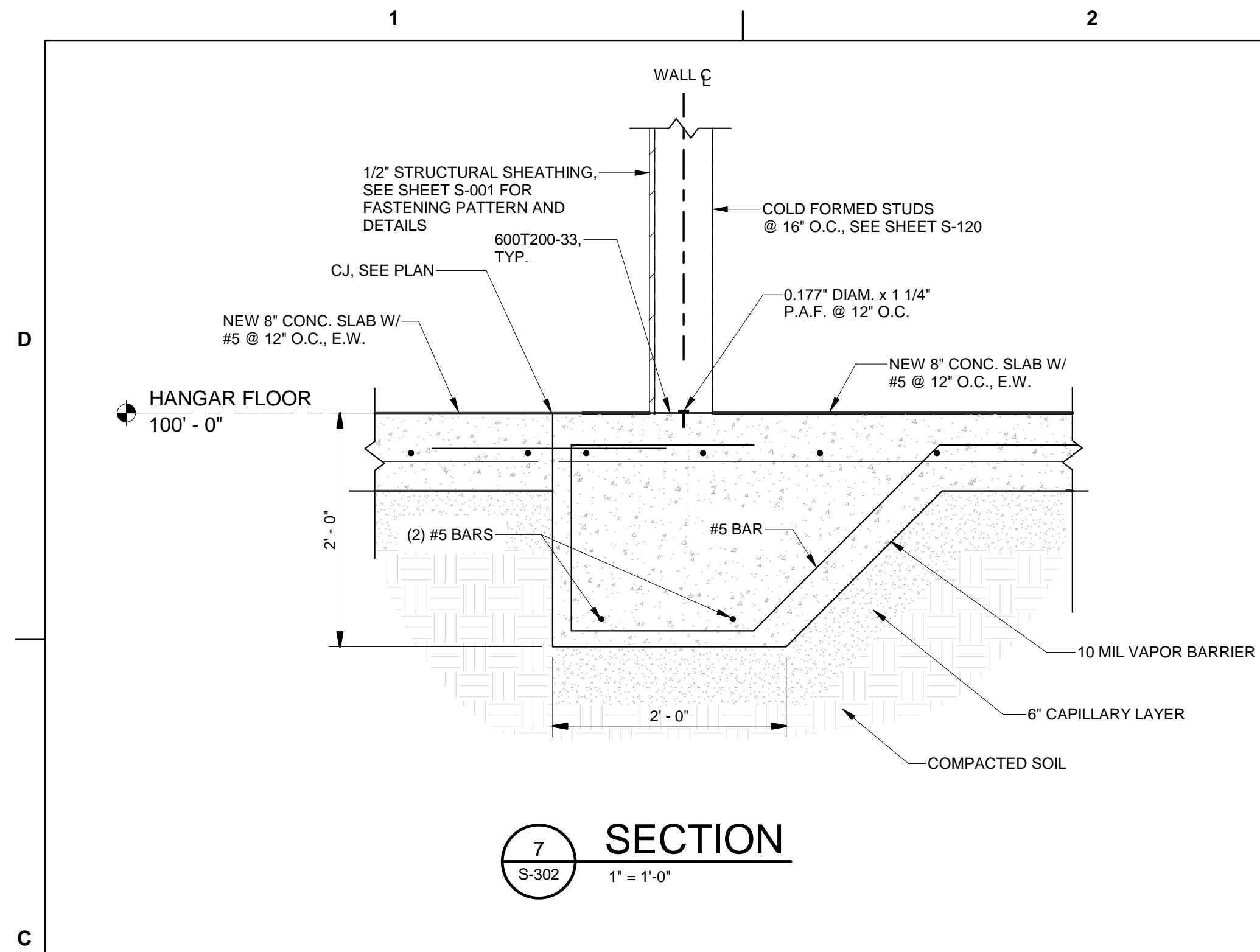
DESIGNED BY: K. SHOOK  
 CHECKED BY: K. CHAN  
 US ARMY CORPS OF ENGINEERS  
 OMAHA DISTRICT  
 1616 CAPITOL AVE  
 OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
 (BUILDING 837)  
 MINOT AFB, NORTH DAKOTA

FOUNDATION SECTIONS & DETAILS

SHEET ID  
**S-301**

DATE	DESCRIPTION	MARK



NOTES:  
1. CONTRACTOR IS RESPONSIBLE FOR AND SHALL CONSIDER THE MEANS & METHODS REQUIRED TO INSTALL STRUCTURAL SHEATHING TO EXTERIOR FACE OF NEW STUD WALL.



**US Army Corps of Engineers @ Omaha District**

ISSUE DATE: 02/19/2020  
SOLICITATION NO.: 91286-20R-0026  
CONTRACT NO.:  
FILE NUMBER:  
WAYNE R. BOECK, P.E.  
ANSI D

DESIGNED BY: K. SHOOK  
CHECKED BY: K. CHAN  
SUBMITTED BY: WAYNE R. BOECK, P.E.  
FILE NAME:

US ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
1616 CAPITOL AVE  
OMAHA, NE 68102

REPAIR B-52 MAINTENANCE DOCK 5  
(BUILDING 837)  
MINOT AFB, NORTH DAKOTA

**FOUNDATION SECTIONS & DETAILS**

SHEET ID  
**S-302**