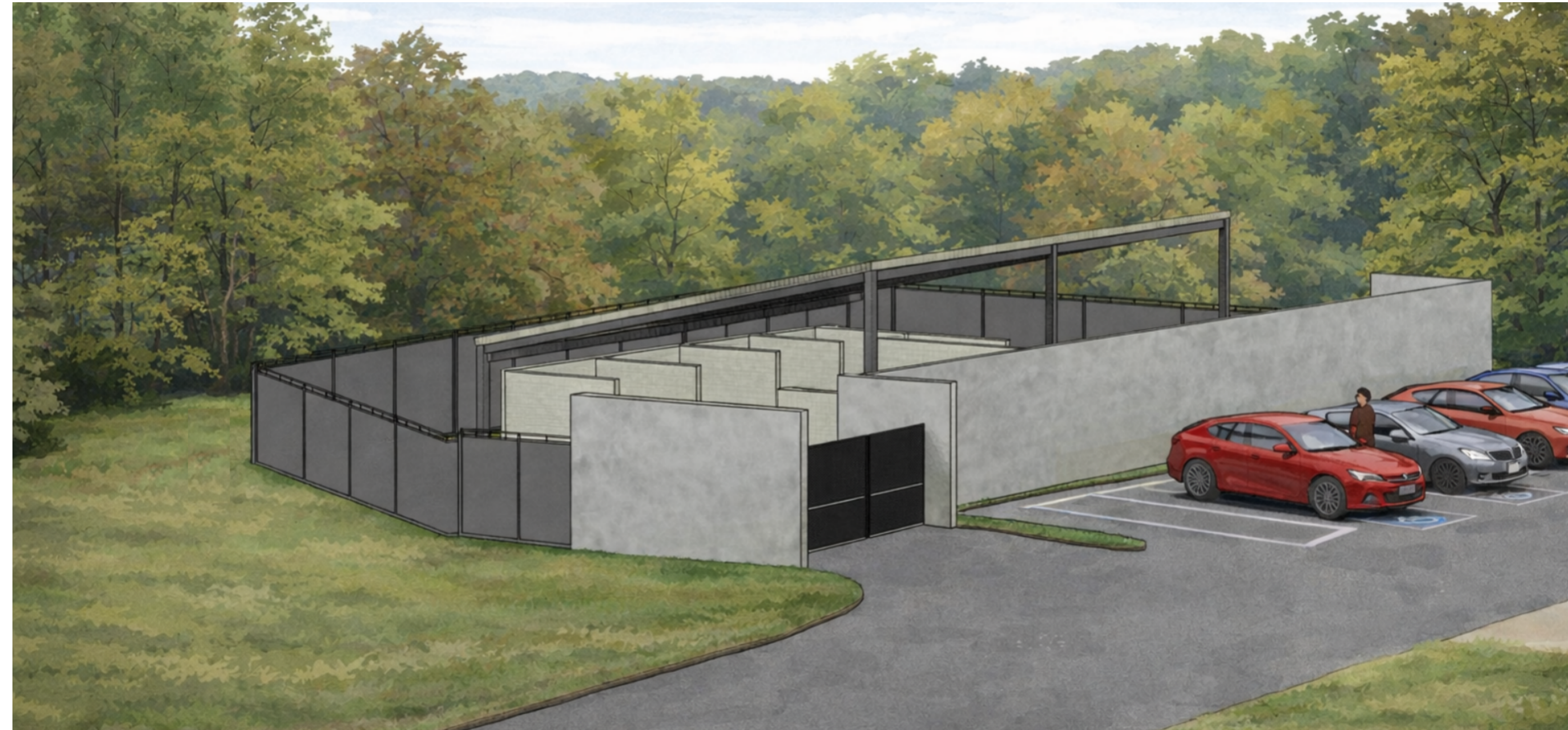


B157 POST-TEST LITHIUM BATTERY STORAGE

100% FINAL DESIGN (IFC) SUBMISSION

05/20/2025

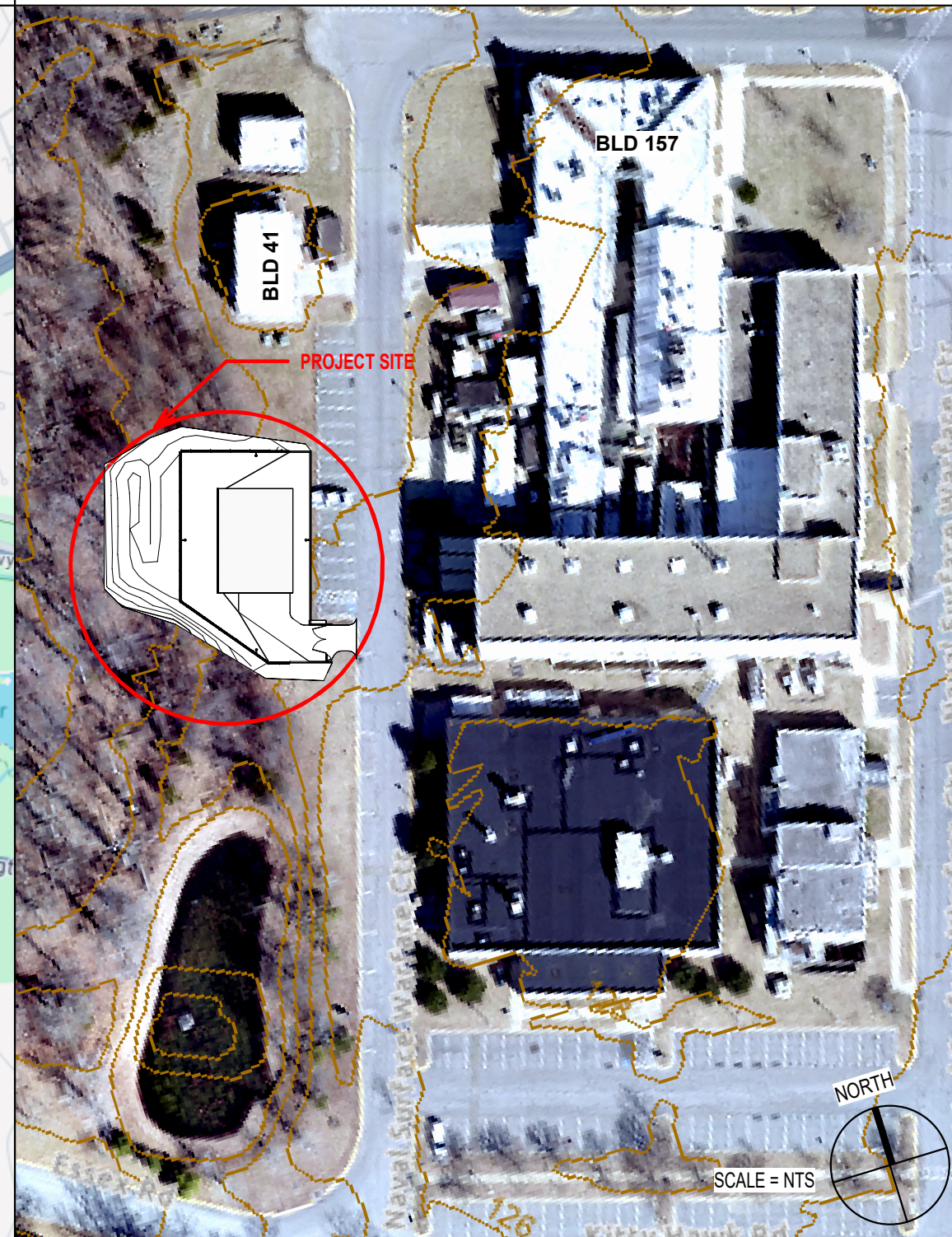
NSWC CARDEROCK DIVISION - MARYLAND
CODE 635 & 636



VICINITY MAP



LOCATION MAP



DRAWING LIST

SHEET #	SHEET NAME	ISSUE DATE
00 - GENERAL		
G1100	COVER SHEET	05-20-2026
G200	SYMBOLS, ABBREVIATIONS & NOTES	05-20-2026
G300	GENERAL NOTES	05-20-2026
GC010	LIFE SAFETY - CODE ANALYSIS	05-20-2026
GC100	LIFE SAFETY - CODE COMPLIANCE SITE PLAN	05-20-2026
GC110	LIFE SAFETY - 1ST FLOOR PLAN	05-20-2026
04 - CIVIL		
C001	CIVIL NOTES	05-20-2026
C101	EXISTING CONDITIONS	05-20-2026
C111	DEMOLITION PLAN	05-20-2026
C121	EROSION AND SEDIMENT CONTROL PLAN - PHASE 1	05-20-2026
C131	EROSION AND SEDIMENT CONTROL PLAN - PHASE 2	05-20-2026
C141	SITE PLAN	05-20-2026
C151	UTILITY PLAN	05-20-2026
C161	GRADING PLAN	05-20-2026
C211	UTILITY PROFILES	05-20-2026
C501	EROSION AND SEDIMENT NOTES	05-20-2026
C502	EROSION AND SEDIMENT CONTROL NOTES	05-20-2026
C503	EROSION AND SEDIMENT CONTROL DETAILS	05-20-2026
C504	EROSION AND SEDIMENT CONTROL DETAILS	05-20-2026
C505	SITE DETAILS	05-20-2026
C506	SITE DETAILS	05-20-2026
C507	STORM DETAILS	05-20-2026
C508	STORM DETAILS	05-20-2026
05 - LANDSCAPE		
L100	LANDSCAPE PLAN	05-20-2026
05 - STRUCTURAL		
SE001	GEN NOTES & SPECS	05-20-2026
SE002	SPECIAL INSPECTIONS	05-20-2026
SE003	SPECIAL INSPECTIONS	05-20-2026
SE101	FOUNDATION PLAN	05-20-2026
SE111	ROOF FRAMING PLAN	05-20-2026
SE201	TYPICAL FOUNDATION DETAILS	05-20-2026
SE202	FOUNDATION SECTIONS AND DETAILS	05-20-2026
SE21	MASONRY - TYPICAL DETAILS	05-20-2026
SE51	TYPICAL STEEL FRAMING DETAILS	05-20-2026
SE801	SCHEDULES	05-20-2026

SHEET #	SHEET NAME	ISSUE DATE
06 - ARCHITECTURAL		
AE100	FLOOR PLAN	05-20-2026
AE150	ROOF PLAN	05-20-2026
AE200	ELEVATIONS	05-20-2026
AE300	WALL TYPES	05-20-2026
AE301	SCHEDULES	05-20-2026
AE400	BUILDING SECTIONS	05-20-2026
AE500	ENLARGED DETAILS	05-20-2026
13 - FIRE PROTECTION		
FA001	FIRE ALARM - GENERAL NOTES, ABBREVIATIONS, & SYMBOLS	05-20-2026
FA101	FIRE ALARM - 1ST FLOOR PLAN	05-20-2026
FA701	FIRE ALARM - RISER DIAGRAM	05-20-2026
14 - ELECTRICAL		
E001	ELECTRICAL COVER SHEET	05-20-2026
ES101	ELECTRICAL SITE PLAN	05-20-2026
E101	ELECTRICAL PHOTOMETRICS PLAN	05-20-2026
E201	ELECTRICAL FLOOR PLAN	05-20-2026
E202	LIGHTNING PROJECTION PLAN	05-20-2026
E501	ELECTRICAL DETAILS	05-20-2026
E502	ELECTRICAL DETAILS	05-20-2026
E601	ELECTRICAL ONE-LINE DIAGRAM	05-20-2026
E700	PANEL BOARD SCHEDULES	05-20-2026
Grand total: 53		

PROJECT DIRECTORY

CONTRACTING SPECIALIST Brook McLean PHONE: 757-362-2149 brooks.a.mclean.civ@us.navy.mil	CONTRACTING OFFICER REPRESENTATIVE (COR) Abdoul Gueye PHONE: 301-227-7085 abdoul.a.gueye.civ@us.navy.mil
MEP/STRUCTURAL ENGINEER HUITT ZOLLARS Address: 225 Reineker Ln Suite 525 Alexandria, VA 22314 PHONE: (571-559-4050)	ARCHITECT CB DESIGN GROUP, INC Address: 225 Reineker Ln Suite 216 Alexandria, VA 22314 PHONE: (888) 585-CBDG (2234)
FIRE PROTECTION ENGINEER MICHAEL BAKER INT Address: 1925 Ballenger Ave, Alexandria, VA 22314 PHONE: (703-960-8800)	GEOTECHNICAL ENGINEER ECS Mid-Atlantic, LLC Address: 16710 Oxon Hill Rd Suite 102, Oxon Hill, MD 20745 PHONE: (301-645-6472)
LANDSCAPE ARCHITECT FLOURA TEETER LANDSCAPE ARCHITECTS Address: 11001 N. Charles Street, Suite 500 Baltimore, MD 21201 PHONE: (410-528-8395)	CIVIL ENGINEER SORBA ENGINEERING Address: 22365 Broderick Drive Suite 265 Dulles, Virginia 20166 PHONE: (571-771-0273)
SURVEYOR COLLIERS ENGINEERING Address: 8444 Westpark Drive Suite 120 McLean, VA 22102 PHONE: (703-564-8484)	STRATEGIC VALUE SOLUTIONS COST ESTIMATOR Address: 1201 Wilson Boulevard Floor 25 Arlington, VA 22209 PHONE: (816-795-0700)



CB DESIGN GROUP, INC.
225 REINEKERS LANE,
STE 216
ALEXANDRIA, VA 22314
888-585-CBDG (2234)

DES	JK	DRW	JK	CHK	CS

Carderock, Bethesda, MD
NAVAL SURFACE WARFARE CENTER
COVER SHEET
SCALE: AS NOTED
EPROJCT NO.:
CONSTR. CONTR. NO.:
G1100
DRAWFORM REVISION: 14 SEP 2023

5/20/2026 11:16:27 PM G1100
A:\desk\Docs\230116.02 NSWC B157 Battery Storage\230116.02 NSWC_B157 BATTERY STORAGE_A25.rvt

DRAWING KEY

X DRAWING TITLE
SCALE: 1 1/2" = 1'-0"

DRAWING BLOCK TITLE, TYPICAL

COLUMN NUMBER
COLUMN LETTER
COLUMN GRID

DETAIL NUMBER
DETAIL INDICATOR
SHEET WHERE DRAWN

TYPICAL DETAIL INDICATOR

DETAIL NUMBER
DETAIL INDICATOR
SHEET WHERE DRAWN

ELEVATION NUMBER
SECTION INDICATOR
SHEET WHERE DRAWN

ELEVATION NUMBER
ELEVATION INDICATOR, EXTERIOR
SHEET WHERE DRAWN

ELEVATION NUMBER
ELEVATION INDICATOR, INTERIOR, SINGLE VIEW
SHEET WHERE DRAWN

ELEVATION NUMBER
ELEVATION INDICATOR, INTERIOR, MULTIPLE VIEW
SHEET WHERE DRAWN

NORTH
NORTH ARROW

DIMENSION LINE

BREAK LINE

CENTER LINE

DOOR / BORROWED LIGHT TAG

VERTICAL HEIGHT INDICATOR

ROOM NAME
ROOM NUMBER
ROOM AREA
PROGRAM AREA

WALL/PARTITION TAG

FURNITURE, FIXTURE, & EQUIPMENT TAG

REVISION CLOUD

KEYNOTE

DEMOLITION KEYNOTE

REVISION

EXISTING CONSTRUCTION TO REMAIN

EXISTING CONSTRUCTION TO BE REMOVED

CONCRETE MASONRY UNITS

RIGID INSULATION

CAST STONE

ALL METALS - SMALL SCALE

CONCRETE

ALUMINUM

STEEL

EARTH

GRAVEL

& @ #	AND AT CENTERLINE NUMBER, POUND	EA EAST, EXISTING EXHAUST AIR, EACH EPOXY COATING EPOXY FINISH SYSTEM EXPANSION JOINT ELEVATION ELECTRICAL ELEVATION EMERGENCY ENCLOSURE ENGINEER ELECTRICAL PANELBOARD EQUAL EQUIPMENT EPOXY RESIN FLOORING ELECTRIC WATER COOLER EYE WASH STATION EXISTING EXPANSION, EXPOSED DIVIDER STRIPS EXTERIOR	FA FIRE ALARM FACE BRICK FLUOROCARBON FLOOR DRAIN FIRE DEPARTMENT CONNECTION FOUNDATION FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET FINISH FACE FOOT GRILLE FIRE HOSE CABINET FINISH	FLR FLOOR FLUOR FLUORESCENT FM FLOOR MATS & FRAMES FO FACE OF FOC FACE OF CONCRETE FOS FACE OF STUD FOW FACE OF WALL FP FOLDING PANEL PARTITION FPRF FIREPROOF(ING) FR FIRE RATING, FRAME FRMG FRAMING FS FULL SIZE, FEATURE STRIPS FT FOOT OR FEET, FLOOR TILE MOSAIC FTCT CERAMIC MOSAIC TILE FTG FOOTING FUR FURRING FUT FUTURE	GA GAUGE GAL GALLON GALV GALVANIZED GALV STL GALVANIZED STEEL GB GRAB BAR GC GENERAL CONTRACTOR GCMU GLAZED FACE CMU GD GUARD GL GLASS GND GROUND GR GRADE GT GRANITE GUMU GLASS MASONRY UNIT GWB GYPSUM WALLBOARD GYP BD GYPSUM WALLBOARD	HB HOSE BIBB HC HOLLOW CORE HD HEAD HDWD HARDWOOD HDWR HARDWARE HM HOLLOW METAL HMD HOLLOW METAL DOOR HMF HOLLOW METAL FRAME HNDRL HANDRAIL HO HOLD OPEN HORIZ HORIZONTAL HP HIGH POINT HPDL PLASTIC LAMINATE HR HANDRAIL, HOUR HSPL HIGH STRENGTH PLASTER HT HEIGHT HVAC HEATING, VENTILATION, AIR CONDITIONING	IBC INTERNATIONAL BUILDING CODE ID IDENTIFICATION, INSIDE DIAMETER / DIMENSION INCH INCL INCLUDE(D) INSUL INSULATION INT INTERIOR INV INVERT	JAN JANITOR JST JOIST JT JOINT	KC PLASTER KEENE CEMENT KP KICK PLATE KO KNOCKOUT						
AA AAC	ANODIZED ALUMINUM, NATURAL FINISH ANODIZED ALUMINUM, COLORED	AB ANCHOR BOLT ABA ARCHITECTURAL BARRIERS ACT ABV ABOVE ACT ACOUSTIC CEILING TILE AD AREA DRAIN ADA AMERICANS WITH DISABILITIES ACT ADJ ADJUSTABLE AF ACCESS FLOORING AFF ABOVE FINISHED FLOOR AFP ACCORDION FOLDING PARTITION AHU AIR HANDLING UNIT AIA AMERICAN INSTITUTE OF ARCHITECTS ALT ALTERNATE ALUM ALUMINUM AMP ACOUSTICAL METAL PLAN CEILING AP ACCESS PANEL APPROX APPROXIMATE ARCH ARCHITECTURAL AT ACOUSTICAL CEILING TILE AT (SP) ACOUSTICAL CEILING, SPECIAL FACED AUTO AUTOMATIC AVG AVERAGE AWF ACOUSTICAL WALLCOVERING AWP ACOUSTICAL WALL PANEL AWT ACOUSTICAL WALL TREATMENT	BD BOARD BE BAKED ON ENAMEL BEL BELOW BF BRICK FLOORING BLDG BUILDING BLK BLOCK BM BEAM BOT BOTTOM BP BRICK PAVING BR BUMPER RAIL, BRICK FACE BRG BEARING BRK BRICK	C, CONC CONCRETE CAB CABINET CAF CARPET ATHLETIC FLOORING CB CATCH BASIN CCT CUBICLE CURTAIN TRACK CEM CEMENT CG CORNER GUARD CGFB CERAMIC GLAZED FACING BRICK CI CAST IRON CIP CAST IN PLACE CJ CONTROL JOINT CL CLOSET CLG CEILING CMU CONCRETE MASONRY UNIT CO CONTRACTING OFFICER COL COLUMN CONF CONFERENCE CONT CONTINUOUS COR CONTRACTING OFFICER'S REPRESENTATIVE	CP CARPET CPT CARPET MODULE TILE CT CERAMIC TILE CU CUBIC	DBL DOUBLE DEMO DEMOLITION DEPT DEPARTMENT DET DETAIL DF DRINKING FOUNTAIN DIA DIAMETER DIM DIMENSION DISP DISPENSER DN DOWN DO DOOR OPENING DOZ DOZEN DP DAMP/PROOFING DR DOOR DS MB DIVIDER STRIPS, MARBLE DWG DRAWING DWGS DRAWINGS DWR DRAWER	AND AT CENTERLINE NUMBER, POUND	EA EAST, EXISTING EXHAUST AIR, EACH EPOXY COATING EPOXY FINISH SYSTEM EXPANSION JOINT ELEVATION ELECTRICAL ELEVATION EMERGENCY ENCLOSURE ENGINEER ELECTRICAL PANELBOARD EQUAL EQUIPMENT EPOXY RESIN FLOORING ELECTRIC WATER COOLER EYE WASH STATION EXISTING EXPANSION, EXPOSED DIVIDER STRIPS EXTERIOR	FA FIRE ALARM FACE BRICK FLUOROCARBON FLOOR DRAIN FIRE DEPARTMENT CONNECTION FOUNDATION FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET FINISH FACE FOOT GRILLE FIRE HOSE CABINET FINISH	FLR FLOOR FLUOR FLUORESCENT FM FLOOR MATS & FRAMES FO FACE OF FOC FACE OF CONCRETE FOS FACE OF STUD FOW FACE OF WALL FP FOLDING PANEL PARTITION FPRF FIREPROOF(ING) FR FIRE RATING, FRAME FRMG FRAMING FS FULL SIZE, FEATURE STRIPS FT FOOT OR FEET, FLOOR TILE MOSAIC FTCT CERAMIC MOSAIC TILE FTG FOOTING FUR FURRING FUT FUTURE	GA GAUGE GAL GALLON GALV GALVANIZED GALV STL GALVANIZED STEEL GB GRAB BAR GC GENERAL CONTRACTOR GCMU GLAZED FACE CMU GD GUARD GL GLASS GND GROUND GR GRADE GT GRANITE GUMU GLASS MASONRY UNIT GWB GYPSUM WALLBOARD GYP BD GYPSUM WALLBOARD	HB HOSE BIBB HC HOLLOW CORE HD HEAD HDWD HARDWOOD HDWR HARDWARE HM HOLLOW METAL HMD HOLLOW METAL DOOR HMF HOLLOW METAL FRAME HNDRL HANDRAIL HO HOLD OPEN HORIZ HORIZONTAL HP HIGH POINT HPDL PLASTIC LAMINATE HR HANDRAIL, HOUR HSPL HIGH STRENGTH PLASTER HT HEIGHT HVAC HEATING, VENTILATION, AIR CONDITIONING	IBC INTERNATIONAL BUILDING CODE ID IDENTIFICATION, INSIDE DIAMETER / DIMENSION INCH INCL INCLUDE(D) INSUL INSULATION INT INTERIOR INV INVERT	JAN JANITOR JST JOIST JT JOINT	KC PLASTER KEENE CEMENT KP KICK PLATE KO KNOCKOUT

NOTES
1. ALL ABBREVIATIONS SHOWN MAY NOT BE USED ON THIS PROJECT.
2. CERTAIN COMMON ABBREVIATIONS MAY NOT BE SHOWN.

ARCHITECTURAL ABBREVIATIONS

L LENGTH LAB LABORATORY LAM LAMINATE LAV LAVATORY LBS POUND LED LIGHT EMITTING DIODE LF LINEAR FEET LG LONG LH LEFT HAND LIN LINEAR LIQ LIQUID LKR LOCKER LL LEAD LINED LLV LONG LEG VERTICAL LM LATEX MASTIC FLOORING LMC LINEAR METAL CEILING LP LOW POINT LRG LARGE LT LIGHT LT WT LIGHTWEIGHT LVR LOUVER LWC LINEAR WOOD CEILING	M MORTAR MAS MASONRY MAT MATERIAL MAX MAXIMUM MB MARBLE MC MULTI-COLOR COATING MECH MECHANICAL MFR MANUFACTURER MH MANHOLE MIN MINIMUM MISC MISCELLANEOUS MO MASONRY OPENING MP MOP PLATE MTD MOUNTED MTL METAL	N NORTH NA NOT APPLICABLE NEC NATIONAL ELECTRICAL CODE NEG NEGATIVE NF NATURAL FINISH NFC NATIONAL FIRE CODE NFPA NATIONAL FIRE PROTECTION ASSOCIATION NIC NOT IN CONTRACT NO NUMBER NOM NOMINAL NTS NOT TO SCALE	OA OVERALL OC ON CENTER OD OUTSIDE DIAMETER / DIMENSION OFF OFFICE OH OPPOSITE HAND, OVERHEAD OPNG OPENING OPP OPPOSITE OZ OUNCE	P PAINT PAV PAVING PC PRECAST CONCRETE PCT PORTLAND CEMENT TERRAZZO PFW POLYPROPYLENE FABRIC WALLCOVERING PL PLATE, PLASTER PLAM PLASTIC LAMINATE PLAS PLASTER PLBG PLYWOOD PLYWD PREMOLDED FILLER, PERFORATED METAL FACING (TILE OR PANELS)	PPT PORCELAIN PAVER TILE PR PAIR PT POINT PTN PARTITION PVT PAVER TILE	QT QUARRY TILE	R RADIUS, RISER RA RETURN AIR RAD RADIUS RB RESILIENT BASE, RUBBER BASE RCP REFLECTED CEILING PLAN, RADIANT CEILING PANEL SYSTEM	RD ROOF DRAIN REF REFERENCE REFR REFRIGERATOR REQ'D REQUIRED REV REVISION RFI REQUEST FOR INFORMATION RFP REQUEST FOR PROPOSAL RH RIGHT HAND RL ROOF LEADER RM ROOM RO ROUGH OPENING RST RESILIENT STAIR TREAD RT RUBBER TILE FLOORING	S SOUTH SA SUPPLY AIR SAN SANITARY SC SOLID CORE, HIGH GLAZED COATING, STRUCTURAL CLAY	SCHED SCHEDULE SCT FACING TILE SDG SUSPENSION DECORATIVE GRIDS SECT SECTION SF SQUARE FEET, STONE FLOORING SFTU GLAZED STRUCTURAL FACING TILE SH SPRINKLER HEAD SHT SHEET SIM SIMILAR SLG SPANDREL GLASS SM SMOKE SPEC SPECIFICATION SPKR SPEAKER SQ SQUARE SS STAINLESS STEEL ST STAIN STA STATION STD STANDARD STO STORAGE STL STEEL STOR STORAGE STRUCT STRUCTURAL SUSP SUSPENDED SYM SYMMETRICAL SYS SYSTEM	T TREAD T&G TONGUE AND GROOVE TEL TELEPHONE TEMP TEMPERED TGC TEXTURED GYPSUM CEILING PANEL THK THICK TIL TECHNICAL INFORMATION LIBRARY (VA) TMC TEXTURED METAL CEILING PANEL TOC TOP OF CONCRETE TOP TOP OF PAVEMENT TOS TOP OF STEEL TOW TOP OF WALL TST THIN SET TERRAZZO TT TERRAZZO TILE TV TELEVISION TYP TYPICAL	UNFIN UNFINISHED UON UNLESS OTHERWISE NOTED	VB VAPOR BARRIER, VINYL BASE VCT VINYL COMPOSITION TILE VERT VERTICAL VIF VERIFY IN FIELD VP VENEER PLASTER VSF VINYL SHEET FLOORING VTR VENT THRU ROOF	W WEST, VINYL COATED FABRIC WALLCOVERING	W/ WITH WB WALL BORDER WD WOOD WF FABRIC WALLCOVERING W/O WITHOUT WP WATERPROOF WSF VINYL SHEET FLOORING (WELDED SEAMS) WT WEIGHT WWF WELDED WIRE FRAME
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DATE

MARK

DESCRIPTION

5/20/26

SEAL

CB DESIGN GROUP, INC.

225 REINEKERS LANE,
STE 216
ALEXANDRIA, VA 22314
888-585-CBDG (2234)

APPROVED

FOR COMMANDER NAVFAC
ACTIVITY

SATISFACTORY TO DATE

DES JK DRW JK CHK CS

PRADM JK

BRANCH MANAGER KJ

CHIEF ENGINEER KJ

FIRE PROTECTION

Carderock, Bethesda, MD

NAVAL SURFACE WAREFARE CENTER

B157 POST-TEST LITHIUM BATTERY STORAGE

SYMBOLS, ABBREVIATIONS & NOTES

SCALE: AS NOTED

EPROJECT NO.:

CONSTR. CONTR. NO.

G1200

DRAWFORM REVISION: 14 SEP 2023

REFERENCES

CODES AND STANDARDS

THE DESIGN OF THIS PROJECT COMPLIES WITH THE FOLLOWING CODES AND STANDARDS:

BUILDING CODES:

- INTERNATIONAL BUILDING CODE (IBC), 2024 EDITION
- NFPA 1, FIRE CODE, 2024 EDITION
- NFPA 101, LIFE SAFETY CODE, 2024 EDITION
- NFPA 221, STANDARD FOR HIGH CHALLENGE FIRE WALLS, FIRE WALLS, AND FIRE BARRIER WALLS, 2024 EDITION
- NFPA 855, STANDARD FOR INSTALLATION OF STATIONARY ENERGY STORAGE SYSTEMS, 2026 EDITION

ELECTRICAL AND FIRE ALARM:

- NFPA 70, NATIONAL ELECTRICAL CODE (NEC), 2023 EDITION
- NFPA 72, NATIONAL FIRE ALARM AND SIGNALING CODE, 2025 EDITION

FIRE PROTECTION:

- NFPA 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS, 2022 EDITION
- NFPA 291, RECOMMENDED PRACTICE FOR FIRE FLOW TESTING AND MARKING OF HYDRANTS, 2025 EDITION

DEPARTMENT OF DEFENSE CRITERIA:

- UFC 1-200-01, DOD BUILDING CODE (GENERAL BUILDING REQUIREMENTS)
- UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES
- UFC 4-010-01, DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS
- FC 1-300-09N, NAVY AND MARINE CORPS DESIGN PROCEDURES
- UFC 3-201-01, CIVIL ENGINEERING
- UFC 3-110-03, ROOFING
- UFC 3-201-02, LANDSCAPE ARCHITECTURE
- UFC 3-301-01, STRUCTURAL ENGINEERING
- UFC 3-501-01, ELECTRICAL ENGINEERING
- UFC 3-530-01, INTERIOR AND EXTERIOR LIGHTING SYSTEMS
- UFC 3-740-05, CONSTRUCTION COST ESTIMATING
- UFC 4-022-03, SECURITY FENCES AND GATES

NAVY CRITERIA:

- NAVSEA S9310-AQ-SAF-010, LITHIUM BATTERY SAFETY PROGRAM

STRUCTURAL STANDARDS:

- ASCE 7-22, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
- ACI 318-19, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- AISC 360-22, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

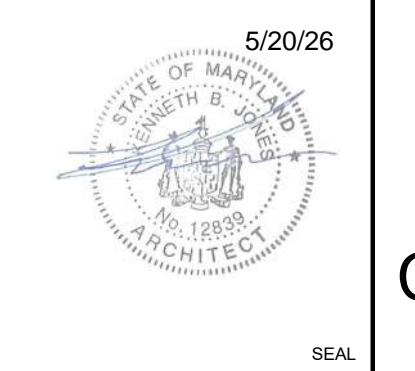
ACCESSIBILITY:

- AMERICANS WITH DISABILITIES ACT (ADA), 2010 STANDARDS
- ARCHITECTURAL BARRIERS ACT (ABA) ACCESSIBILITY STANDARDS

GENERAL NOTES

- A. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND SUPERVISION NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED IN THE PROJECT MANUAL.
- B. COORDINATE ALL WORK WITH NSWC CARDEROCK DIVISION FACILITIES PERSONNEL AND PROJECT MANAGER.
- C. SITE ACCESS AND STAGING AREAS SHALL BE COORDINATED WITH GOVERNMENT REPRESENTATIVE PRIOR TO MOBILIZATION.
- D. IN CASE OF CONFLICT BETWEEN CODES AND STANDARDS, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
- E. WHERE CODES AND STANDARDS CONFLICT WITH CONTRACT REQUIREMENTS, NOTIFY CONTRACTING OFFICER IMMEDIATELY FOR RESOLUTION.
- F. DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING MATERIALS OR BEGINNING WORK.
- G. ALL DIMENSIONS ARE TO FACE OF CONCRETE/MASONRY UNLESS NOTED OTHERWISE.
- H. REPORT ANY DISCREPANCIES, CONFLICTS, OR AMBIGUITIES TO THE CONTRACTING OFFICER BEFORE PROCEEDING WITH AFFECTED WORK.
- I. LARGE SCALE DRAWINGS GOVERN OVER SMALL SCALE DRAWINGS.
- J. DETAILS GOVERN OVER GENERAL DRAWINGS.
- K. THE PROJECT MANUAL AND SPECIFICATIONS ARE PART OF THE CONTRACT DOCUMENTS AND ARE EQUALLY BINDING AS THE DRAWINGS.
- L. ANY ITEM SHOWN ON THE DRAWINGS OR INCLUDED IN THE SPECIFICATIONS SHALL BE PROVIDED, REGARDLESS OF WHETHER IT APPEARS IN BOTH DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.
- M. WHERE REFERENCE IS MADE TO STANDARDS OR CODES, THE LATEST EDITION ADOPTED AT TIME OF DESIGN SHALL APPLY UNLESS SPECIFIC EDITION IS NOTED.
- N. COMPLY WITH ALL MANUFACTURERS' PUBLISHED INSTALLATION INSTRUCTIONS UNLESS SPECIFICALLY MODIFIED BY THESE DOCUMENTS.
- O. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS, AND LOCATIONS OF UTILITIES SHOWN ON DRAWINGS PRIOR TO CONSTRUCTION.
- P. EXISTING UTILITIES SHOWN ON DRAWINGS ARE BASED ON AVAILABLE RECORD INFORMATION AND FIELD SURVEY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT LOCATIONS BEFORE EXCAVATION.
- Q. THIS IS A SECURE MILITARY INSTALLATION. ALL PERSONNEL MUST OBTAIN PROPER CLEARANCES AND CREDENTIALS BEFORE ACCESSING SITE.
- R. CONTRACTOR SHALL COMPLY WITH ALL BASE SECURITY REQUIREMENTS AND ACCESS PROCEDURES.
- S. SITE SHALL BE SECURED AT END OF EACH WORK DAY.
- T. LIMIT ALL CONSTRUCTION ACTIVITIES, STAGING, AND MATERIAL STORAGE TO AREAS DESIGNATED ON SITE PLAN.
- U. EXISTING PAVEMENTS AND LANDSCAPE AREAS OUTSIDE CONSTRUCTION LIMITS SHALL NOT BE USED FOR EQUIPMENT OR MATERIAL STORAGE WITHOUT PRIOR APPROVAL.
- V. PROVIDE AND MAINTAIN CONSTRUCTION FENCING AROUND WORK AREA AS DIRECTED.
- W. ALL MATERIALS MUST BE NEW AND PROVIDED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED AS EXISTING OR AS PROVIDED BY THE GOVERNMENT.

MARK	DESCRIPTION	DATE



CB DESIGN GROUP, INC.
 225 REINEKERS LANE,
 STE 216
 ALEXANDRIA, VA 22314
 888-585-CBDG (2234)

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE
DES JK DRW JK CHK CS
PRJDM JK
BRANCH MANAGER KJ
CHIEF ENGINEER KJ
FIRE PROTECTION

NAVAL SURFACE WARFARE CENTER
 Carderock, Bethesda, MD
 B157 POST-TEST LITHIUM BATTERY STORAGE
 GENERAL NOTES

SCALE: AS NOTED
 EPROJECT NO.:
 CONSTR. CONTR. NO.

FIRE PROTECTION/LIFE SAFETY CODE SUBMITTAL

1. PROJECT NAME

NSWC CARDEROCK - POST-TEST LITHIUM BATTERY STORAGE PAD

2. PROJECT DESCRIPTION

THE BUILDING IS A STORAGE AREA FOR POST-TEST LITHIUM-ION BATTERIES. THE DESIGN WILL CONSIST OF A COVERED, 1,750 SF POURED CONCRETE PAD WITH A DRIVEWAY LEAD-IN FROM THE ADJACENT ROAD FOR FORKLIFT ACCESS. A PERIMETER FENCE FOR ACCESS CONTROL WITH A GATE WILL BE NEEDED, WITH SECTIONS OF THE FENCE REPLACED WITH 3-HOUR RATED FIREWALLS.

THE FACILITY HAS BEEN ANALYZED FOR LIFE SAFETY AND FIRE PROTECTION REQUIREMENTS USING THE CODES AND STANDARDS LISTED BELOW. THE UNIFIED FACILITIES CRITERIA (UFC) APPLIES TO THE MILITARY DEPARTMENTS, THE DEFENSE AGENCIES, AND THE DOD FIELD ACTIVITIES WHICH PROVIDES TECHNICAL CRITERIA FOR NEW AND RENOVATED MILITARY CONSTRUCTION. BASED ON UFC 1-200-01 CHAPTER 2 - MODIFICATIONS TO THE INTERNATIONAL BUILDING CODE (IBC) AND UFC 3-600-01, THE IBC WILL BE USED FOR FIRE RESISTANCE REQUIREMENTS, ALLOWABLE FLOOR AREA, BUILDING HEIGHT LIMITATIONS, BUILDING SEPARATION DISTANCE REQUIREMENTS, BUILDING CONSTRUCTION TYPE, AND OCCUPANCY SEPARATION REQUIREMENTS EXCEPT AS MODIFIED BY UFC 3-600-01. NFPA 101 WILL BE USED TO DETERMINE THE OCCUPANCY CLASSIFICATION AS IT RELATES TO FIRE/SMOKE RESISTANCE RATING OF INTERIOR NON-LOAD BEARING PARTITIONS (OTHER THAN OCCUPANCY SEPARATION), MEANS OF EGRESS, INTERIOR FINISH, FEATURES OF FIRE PROTECTION (INCLUDING VERTICAL OPENINGS) AND ASSOCIATED REQUIREMENTS. IF ANY CONFLICTS OCCUR BETWEEN NFPA 101 AND IBC, RELATED TO FIRE RESISTANCE RATING, NFPA 101 AND APPLICABLE CRITERIA CONTAINED IN UFC 3-600-01 WILL TAKE PRECEDENCE.

3. APPLICABLE CODES AND STANDARDS

- UFC 1-200-01 - DOD BUILDING CODE (GENERAL BUILDING REQUIREMENTS), CHANGE 4, 17 DECEMBER 2024
UFC 3-600-01 - FIRE PROTECTION ENGINEERING FOR FACILITIES, CHANGE 6, 6 MAY 2021
UFC 4-010-01 - DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS, CHANGE 3, 24 MAY 2024
FC 1-300-09N - NAVY AND MARINE CORPS DESIGN PROCEDURES, CHANGE 6, 9 JULY 2021
NFPA 1 - 2024 EDITION - FIRE CODE
NFPA 10 - 2022 EDITION - STANDARD FOR PORTABLE FIRE EXTINGUISHERS
NFPA 70 - 2023 EDITION - NATIONAL ELECTRICAL CODE
NFPA 72 - 2025 EDITION - NATIONAL FIRE ALARM AND SIGNALING CODE
NFPA 101 - 2024 EDITION - LIFE SAFETY CODE
NFPA 221 - 2024 EDITION - STANDARD FOR HIGH CHALLENGE FIRE WALLS, FIRE WALLS, AND FIRE BARRIER WALLS
NFPA 291 - 2025 EDITION - RECOMMENDED PRACTICE FOR FIRE FLOW TESTING AND MARKING OF HYDRANTS
NFPA 855 - 2026 EDITION - STANDARD FOR INSTALLING OF STATIONARY ENERGY STORAGE SYSTEMS
IBC - 2024 EDITION - INTERNATIONAL BUILDING CODE

4. OCCUPANCY CLASSIFICATION

Table with 2 columns: IBC, NFPA 101. Row: MODERATE-HAZARD STORAGE GROUP S-1 (§311.2), STORAGE (CHAPTER 42)

5. MIXED USE AND OCCUPANCY SEPARATIONS (IBC §508)

THE STORAGE PAD IS CLASSIFIED AS S-1 OCCUPANCY ONLY. OCCUPANCY SEPARATION IS NOT REQUIRED.

THE STORAGE PAD IS CONSIDERED OUTDOOR STORAGE WITH WEATHER PROTECTION IN ACCORDANCE WITH NFPA 855 §14.6.

6. CONSTRUCTION TYPE (IBC §602, TABLE 601, TABLE 705.5)

THE STORAGE PAD CONSISTS OF A CONCRETE PAD AND A ROOF STRUCTURE CONSTRUCTED WITH NON-COMBUSTIBLE MATERIALS. THIS QUALIFIES AS A TYPE II-B CONSTRUCTION.

Table: FIRE-RESISTANCE RATING REQUIREMENTS FOR STRUCTURAL ELEMENTS. TYPE II-B CONSTRUCTION. Columns: BUILDING ELEMENT, REQUIRED (HOUR), PROVIDED (HOUR). Includes notes on fire separation distance and analysis references.

7. BUILDING AREA AND HEIGHT (IBC TABLE 504.3, TABLE 504.4, AND TABLE 506.2, AND §508.4.2)

Table: OCCUPANCY TYPE, BASE ALLOWABLE AREA FOR NONSPRINKLERED BUILDING (SF), ACTUAL TOTAL SQUARE FOOTAGE (SF). Row: STORAGE S-1, 17,500, 1,750

Table: ALLOWABLE HEIGHT AND NUMBER OF STORIES FOR TYPE II-B. Columns: OCCUPANCY TYPE, ALLOWABLE HEIGHT ABOVE GRADE PLANE (FT), ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE, BUILDING ACTUAL HEIGHT (STORIES (HEIGHT)). Row: STORAGE S-1, 75, 4, 1 (10)

NOTE: NO HAZARDOUS MATERIALS ARE TO BE STORED AT THE PAD.

8. SEPARATIONS AND PROTECTION FROM HAZARDS (NFPA 101)

BATTERIES SHALL BE STORED IN FIRE-RATED LOCKERS. LARGER BATTERIES SHALL BE STORED BETWEEN CONCRETE OR BRICK WALLS. IN ORDER TO REDUCE CLEARANCES FROM THE PARKING LOT, PER POST-TEST LITHIUM-ION BATTERY STORAGE HAZARD ANALYSIS PREPARED BY KCI TECHNOLOGIES, A 3-HOUR FIRE BARRIER SHALL BE CONSTRUCTED PER NFPA 855 §14.6.2 IN ACCORDANCE WITH NFPA 221.

9. EXTERIOR FIRE SEPARATION

NFPA 101 TABLE 8.3.3.2.2

Table: COMPONENT, WALLS AND PARTITIONS (HOUR), FIRE DOOR ASSEMBLIES (HOUR). Row: FIRE BARRIER, 3, N/A

REFER TO GC100 FOR MORE INFORMATION.

10. MARKING AND IDENTIFICATION OF FIRE BARRIER (IBC §703.5)

FIRE BARRIERS AND SMOKE PARTITIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING. SUCH IDENTIFICATION SHALL:

- 1. BE LOCATED IN ACCESSIBLE CONCEALED FLOOR, CEILING, OR ATTIC SPACE.
2. BE LOCATED WITHIN 15 FEET OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30 FEET MEASURED HORIZONTALLY ALONG THE WALL OR PARTITIONS.
3. INCLUDE LETTERING NOT LESS THAN 3 INCHES IN HEIGHT WITH A MINIMUM 3/8 INCH STROKE IN A CONTRASTING COLOR.
4. WORDING SHALL CONSIST OF THE TYPE OF CONSTRUCTION, PREFACED BY THE HOURS FOR WHICH IT IS RATED, FOR EXAMPLE, "3-HR FIRE BARRIER"

11. INTERIOR FINISH CLASSIFICATION LIMITS

Table: INTERIOR FINISH CLASSIFICATION: NFPA 101, TABLE A.10.2.2. Columns: OCCUPANCY, EXIT ENCLOSURES, EXIT ACCESS CORRIDORS, OTHER SPACES. Includes text: CLASS A INTERIOR WALL AND CEILING FINISH - FLAME SPREAD INDEX 0-25, SMOKE DEVELOPED INDEX 0-450...

12. MEANS OF EGRESS

THE BUILDING IS CLASSIFIED AS A SINGLE USE OCCUPANCY PER NFPA 101. MEANS OF EGRESS WILL COMPLY WITH THE REQUIREMENT OF A STORAGE OCCUPANCY.

THE STORAGE PAD IS PERMITTED TO BE PROVIDED WITH A SINGLE MEANS OF EGRESS PER NFPA 101 §42.2.4.1(2). THE STORAGE PAD PROVIDES OPEN AND UNOBSTRUCTED EGRESS.

Table: EGRESS LIMITATIONS (NONSPRINKLERED BUILDING) NFPA 101, TABLE A.7.6. Columns: OCCUPANCY, DEAD-END (FEET), COMMON PATH OF TRAVEL (FEET), TRAVEL DISTANCE (FEET). Row: STORAGE, 50, 50, 200

13. OCCUPANT LOAD AND EGRESS CAPACITY CALCULATION

THE NUMBER OF OCCUPANTS IS 4 PERSONS. THE COMMON PATH OF TRAVEL FROM THE STRUCTURE DOES NOT EXCEED 50 FEET. THE STRUCTURE IS OPEN ON TWO ENDS. A SINGLE MEANS OF EGRESS IS PERMITTED.

Table: OCCUPANT LOAD. Columns: BUILDING, AREA, OCCUPANCY, USE/FUNCTION, LOAD FACTOR, OCCUPANT LOAD. Row: BATTERY STORAGE, 1750 SF, S-1, STORAGE, 500, 4

Table: EXIT CAPACITY. Columns: EXIT COMPONENT, CLEAR WIDTH, CALCULATED CAPACITY, ACTUAL USE. Rows: E-1, E-2

14. DISCHARGE FROM EXITS (NFPA 101 §7.7)

THE STORAGE PAD PROVIDES OPEN AND UNOBSTRUCTED EXIT DISCHARGE THROUGH A YARD AND PEDESTRIAN GATE TO A PUBLIC WAY.

15. ILLUMINATION OF MEANS OF EGRESS (NFPA 101 §7.8 AND §42.2.8)

AS THE STORAGE PAD IS AN OUTDOOR FACILITY INTENDED TO BE OCCUPIED DURING DAYLIGHT HOURS, ILLUMINATION IN ACCORDANCE WITH NFPA 101 §42.2.8.2 IS SATISFIED. ILLUMINATION OF MEANS OF EGRESS MUST BE CONTINUOUS DURING THE TIME THAT THE CONDITIONS OF OCCUPANCY REQUIRE THAT THE MEANS OF EGRESS BE AVAILABLE FOR USE.

16. MARKING OF MEANS OF EGRESS (NFPA 101 §7.10)

THE STORAGE PAD PROVIDES OBVIOUS, OPEN, AND UNOBSTRUCTED EGRESS. MARKING OF MEANS OF EGRESS IS NOT REQUIRED.

17. PORTABLE FIRE EXTINGUISHERS (NFPA 101 AND NFPA 10)

PORTABLE FIRE EXTINGUISHERS ARE NOT REQUIRED PER UFC 3-600-01 §9-17.1 AND NFPA 101 §42.3.5.

18. FIRE DEPARTMENT ACCESS (NFPA 1)

FIRE DEPARTMENT ACCESS SHALL COMPLY WITH NFPA 1, NFPA 101 AND UFC 3-600-01.

FIRE LANES SHALL BE MARKED WITH APPROVED SIGNS, APPROVED ROADWAY OR CURB MARKINGS, OR OTHER APPROVED NOTICES WHICH SHALL BE PROVIDED AND MAINTAINED TO PROHIBIT THE OBSTRUCTION THEREOF OR BOTH. FIRE LANES MUST HAVE A MINIMUM 20 FEET WIDE WORKING AREA BETWEEN MARKING STRIPES AND HAVE AN OVERHEAD CLEARANCE OF NOT LESS THAN 13 FEET 6 INCHES. TURNS IN FIRE LANES SHALL BE CONSTRUCTED TO PROVIDE SUFFICIENT WIDTH TO ACCOMMODATE THE LARGEST PIECE OF FIRE APPARATUS AVAILABLE TO BE OPERATED ON THE FIRE LANE, BUT IN NO CASE SHALL THE RADIUS TO THE OUTSIDE CURB LINE BE LESS THAN 50 FEET. THE INSIDE TURNING RADIUS SHALL NOT BE LESS THAN 38 FEET.

19. LOCKED KEY BOX

A LOCKED KEY BOX FOR FIRE DEPARTMENT IS NOT REQUIRED.

20. AUTOMATIC SPRINKLERS AND OTHER EXTINGUISHING REQUIREMENTS (NFPA 13 AND UFC 3-600-01)

AUTOMATIC SPRINKLERS ARE NOT REQUIRED PER UFC 3-600-01, IBC, NFPA 101, OR NFPA 855.

21. FIRE HYDRANT LOCATION (UFC 3-600-01)

ALL PARTS OF THE FACILITY EXTERIOR SHALL BE WITHIN 350 FEET OF A HYDRANT WITH CONSIDERATION GIVEN TO ACCESSIBILITY AND OBSTRUCTIONS. PER RFI 20, THE GOVERNMENT HAS DEEMED THE SINGLE HYDRANT LOCATED SOUTH OF THE STORAGE PAD TO SATISFY THE REQUIREMENTS OF UFC 3-600-01.

22. FIRE ALARM SYSTEM (UFC 3-600-01 AND NFPA 72)

A FIRE ALARM SYSTEM ACTIVATED BY A TRIPLE-IR FLAME DETECTION SYSTEM IS TO BE INSTALLED TO ALERT THE ON-SITE FIRE DEPARTMENT IN THE EVENT OF A FIRE EVENT. SYSTEM SHALL BE COMPATIBLE WITH THE HONEYWELL NOTIFIER SYSTEM, WHICH IS THE CURRENT BASE STANDARD.

Vertical sidebar containing: DATE, MARK, DESCRIPTION, NAVSEA WARFARE CENTERS Carderock logo, Michael C. Zellers Professional Engineer registration seal, Michael Baker International contact info, APPROVED, FOR COMMANDER NAVFAC ACTIVITY, SATISFACTORY TO DATE, DES IS DRW DM CHK MZ, BRANCH MANAGER, CHIEF ENGINEER, FIRE PROTECTION MZ, Naval Surface Warfare Center, Bethesda, MD, B157 POST-TEST LITHIUM BATTERY STORAGE, LIFE SAFETY - CODE ANALYSIS, SCALE: AS NOTED, EPROJECT NO., CONSTR. CONTR. NO., GC010, DRAWING REVISION: 14 SEP 2023

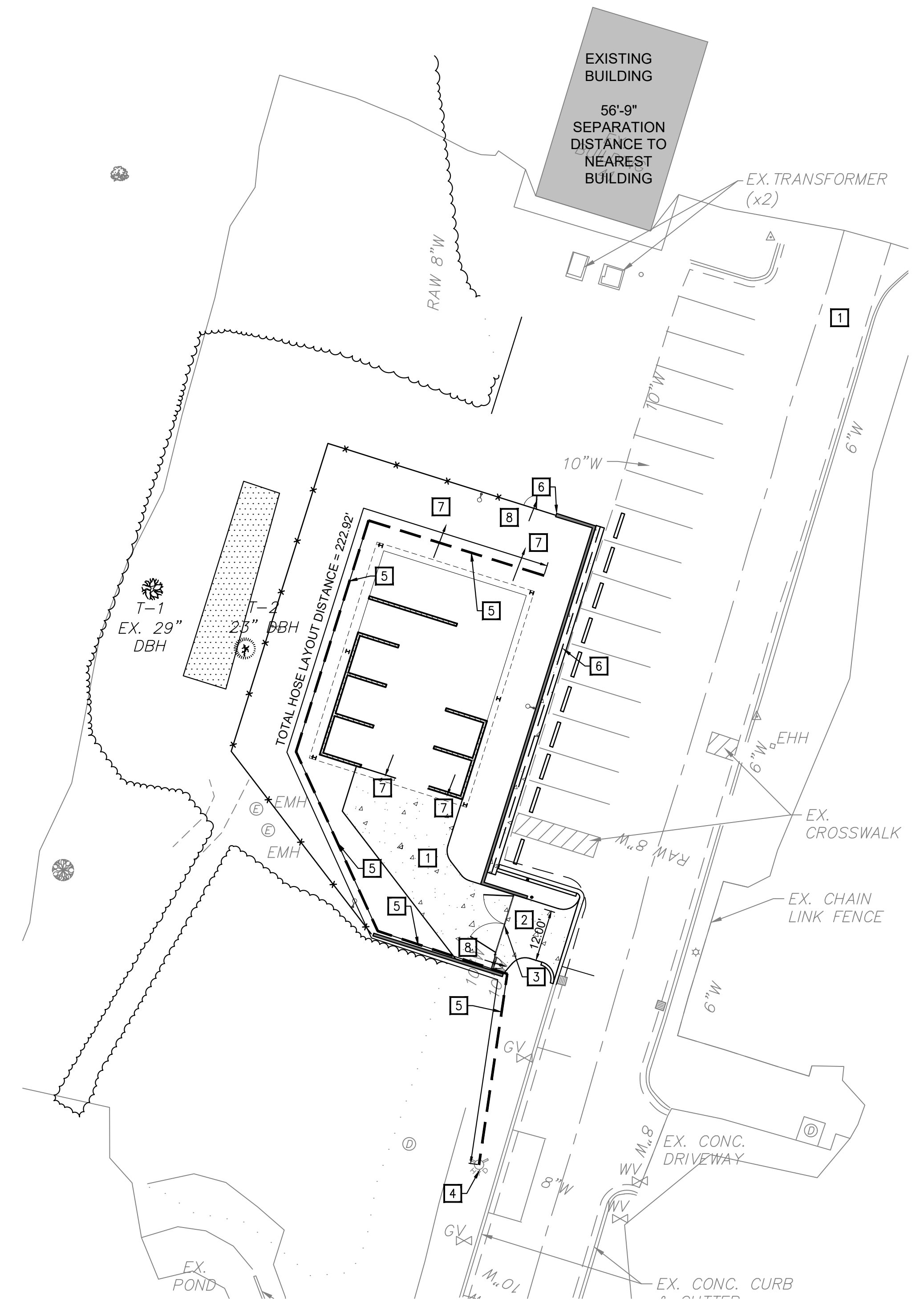
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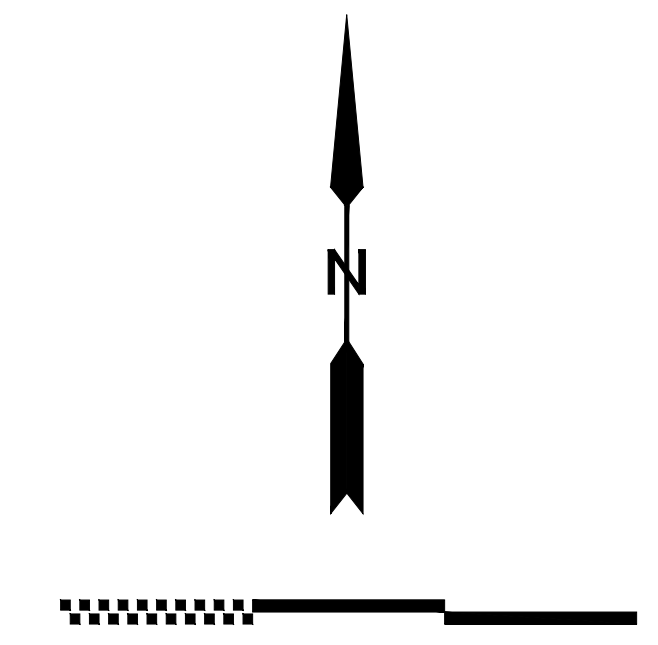
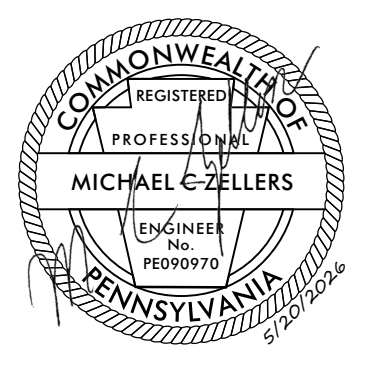
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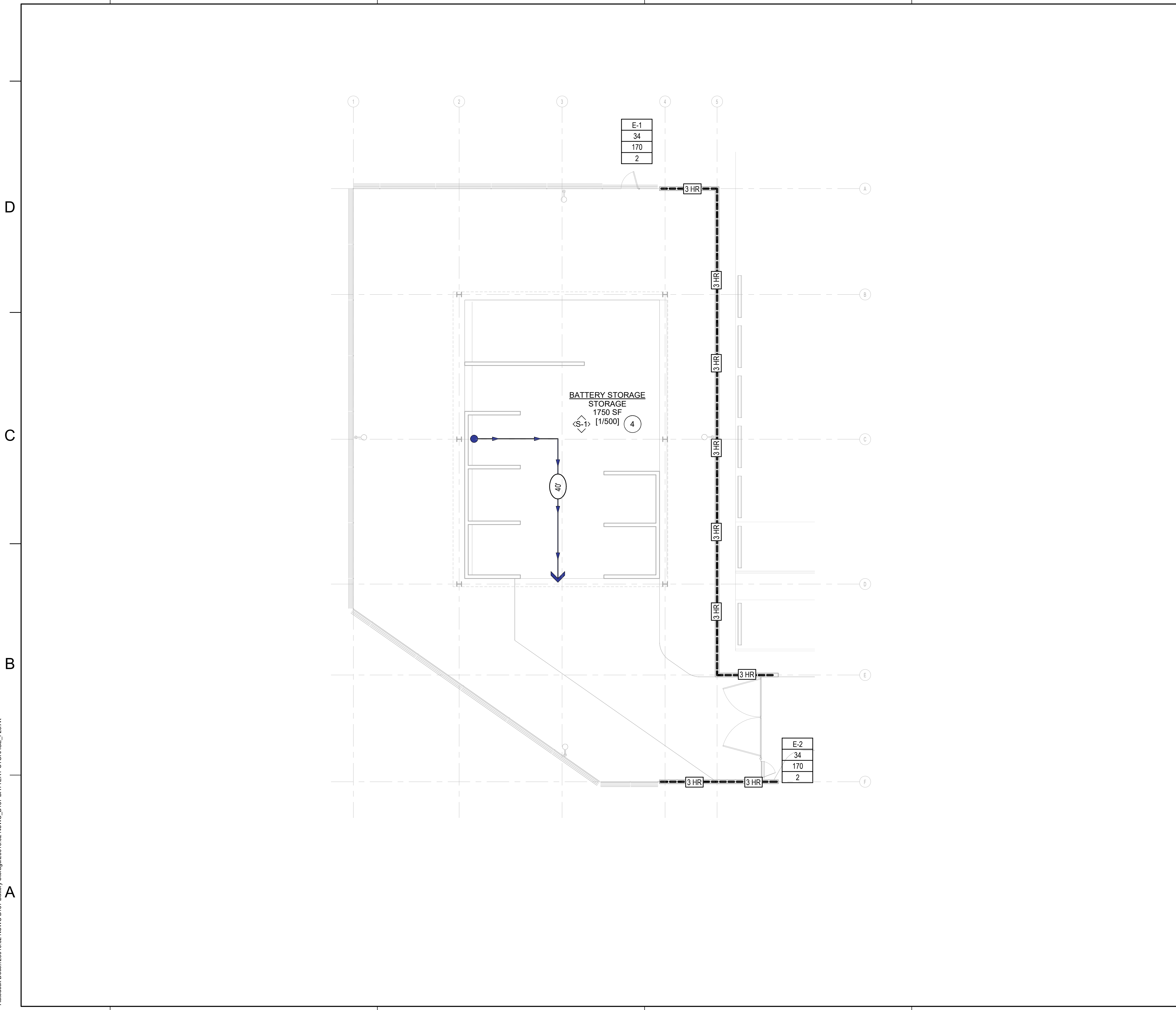


KEYNOTES

- 1 FIRE DEPARTMENT ACCESS ROAD.
- 2 FIRE DEPARTMENT ACCESS ROAD WIDTH.
- 3 MAIN FIRE DEPARTMENT ENTRANCE.
- 4 EXISTING FIRE HYDRANT.
- 5 HOSE LAYOUT DISTANCE, NOT TO EXCEED 350'.
- 6 3 HOUR FIRE WALL.
- 7 EXIT DISCHARGE PATHS.
- 8 ACCESS TO PUBLIC WAY.



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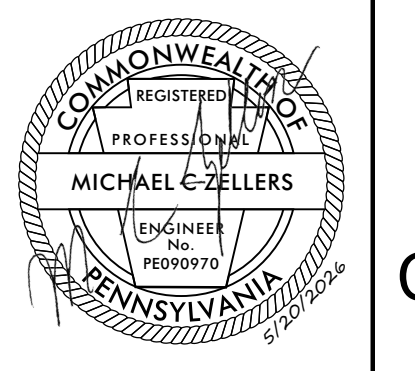
GENERAL NOTES

1. REFER TO SHEET GC010 FOR LIFE SAFETY CODE ANALYSIS.

LEGEND

DESCRIPTION	SYMBOL
3 HOUR FIRE BARRIER	
TRAVEL DISTANCE	
EXIT COMPONENT CLEAR WIDTH	
CALCULATED CAPACITY	
ACTUAL USE	
USE/FUNCTION	OFFICE BUSINESS
AREA	6500 SF [1/150]
OCCUPANCY	B
AREA NAME	AREA NAME
OCCUPANT LOAD	XX
LOAD FACTOR	XX

MARK	DESCRIPTION	DATE



MICHAEL BAKER INTERNATIONAL
 100 AIRSIDE DRIVE,
 MOON TOWNSHIP, PA 15108
 412.269.6246

APPROVED	A/E INFO
FOR COMMANDER NAVFAC ACTIVITY	
SATISFACTORY TO DATE	
DES IS DRW DM CHK MZ	
PRJDM BC	
BRANCH MANAGER	
CHIEF ENGINEER	
FIRE PROTECTION MZ	

NAVAL SURFACE WARFARE CENTER
 Carderock, Bethesda, MD
B157 POST-TEST LITHIUM BATTERY STORAGE
 LIFE SAFETY - 1ST FLOOR PLAN

SCALE: AS NOTED
 EPROJECT NO.:
 CONSTR. CONTR. NO.

GC110
DRAWFORM REVISION: 14 SEP 2023

GENERAL NOTES:

- THE PROPERTY IS LOCATED AT THE NAVAL SURFACE WARFARE CENTER, CARDEROCK DIVISION. THE SITE IS LOCATED IN WEST BETHESDA, MARYLAND. SEE VICINITY MAP, SHEET G1100.
- LIMITS OF WORK IS 0.37 ACRES AND THE LIMITS OF DISTURBANCE IS 0.37 ACRES FOR THIS PROJECT.
- TO THE BEST OF AVAILABLE INFORMATION PROVIDED, THERE IS NO EVIDENCE OF ANY GRAVE, OBJECT OR STRUCTURE MARKING A PLACE OF BURIAL WITHIN THE LIMITS OF LAND DISTURBANCE.
- CONTRACTOR TO ENSURE POSITIVE DRAINAGE FOR STORMWATER RUNOFF IS PROVIDED AWAY FROM ALL BUILDINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CONTRACTING OFFICER, IN WRITING, OF ANY CHANGES OF CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ANY AUTHORITY ISSUING PERMITS.
- ALL LAND, ON OR OFF SITE, WHICH IS DISTURBED BY THIS DEVELOPMENT, AND WHICH IS NOT BUILT UPON OR SURFACED, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING NSWC STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS OF MUD AND/OR ALLY DUST AND TO TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE STREETS ARE KEPT IN A CLEAN AND DUST FREE CONDITION AT ALL TIMES.
- CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN EXISTING UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING: UNITED FACILITIES CRITERIA (UFC), NAVSEA S9310-AQ-SAF-010, MARYLAND DEPARTMENT OF ENVIRONMENT (MDE) STANDARDS AND SPECIFICATIONS, MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL, EROSION AND SEDIMENT CONTROL, NFPA 101, NFPA 241, AND IBC CODES AND STANDARDS.
- THE CONTRACTOR, ANIOR SURVEYOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CONTRACTING OFFICER OF ANY CONDITIONS FOUND IN THE FIELD THAT VARY FROM WHAT IS SHOWN ON THE PLANS. OBSERVATIONS REGARDING APPARENT INCONSISTENCIES IN THE PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR VERIFICATION PRIOR TO STAKEOUT.
- EXISTING AND PROPOSED UTILITY STRUCTURE FRAMES AND COVERS SHALL BE SET FLUSH WITH PROPOSED FINISHED GRADE (EXCEPT IF NOTED OTHERWISE IN THE PLANS) AND BE ABLE TO WITHSTAND VEHICULAR TRAFFIC (AS REQUIRED).
- CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH PERFORMANCE OF ITS WORK AND THE WORK OF ITS SUBCONTRACTORS.
- SEE THIS SHEET FOR LEGEND OF SYMBOLS USED HEREIN.
- MAINTAIN A MINIMUM VERTICAL CLEARANCE OF ONE (1) FOOT (300 MM) BETWEEN CROSSINGS OF ALL UTILITY LINES UNLESS OTHERWISE NOTED. IF THE MINIMUM CLEARANCE OF 1 FOOT (300MM) CAN NOT BE ACHIEVED, VERIFY WITH THE ENGINEER.
- APPROVAL OF THIS PLAN SHALL IN NO WAY GRANT PERMISSION FOR THE CONTRACTOR TO TRESPASS ON OFF-SITE PROPERTIES.
- CONTRACTOR SHALL REVIEW ALL PLANS, NOTES, AND SPECIFICATIONS PRIOR TO COMMENCEMENT OF WORK AND FIELD VERIFY ALL GOVERNING CONSTRUCTION DIMENSIONS.
- CONTRACTOR SHALL EXAMINE ALL ADJOINING WORK OR AREAS UPON WHICH THE PERFORMANCE OF THIS WORK IS IN ANY WAY DEPENDENT.
- CONTRACTOR SHALL, AT ALL TIMES, KEEP THE PREMISES FREE OF ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY CONSTRUCTION ACTIVITIES. WASTE REMOVAL METHODS SHALL BE APPROVED BY THE CONTRACTING OFFICER. MAINTAIN THE CONSTRUCTION SITE IN A CLEAN AND ORDERLY MANNER. ALL DEMOLISHED AND REDUNDANT MATERIALS SHALL BE REMOVED FROM THE SITE.
- ALL DIMENSIONS CRITICAL TO THE PERFORMANCE OF THE WORK OR FABRICATION OF MATERIALS SHALL BE FIELD VERIFIED BY THE CONTRACTOR. IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM THE DRAWINGS.
- CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES, MAINTENANCE OF TRAFFIC AND ANY PERMITS ASSOCIATED WITH SUCH MEASURES. CONTRACTOR TO COORDINATE WITH NSWC SECURITY.
- CONTRACTOR SHALL MAINTAIN EMERGENCY VEHICLE AND PEDESTRIAN ACCESS TO ALL OCCUPIED BUILDINGS DURING CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN FIRE DEPARTMENT ACCESS TO EXISTING FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS AS NOTED ON THE PLANS.
- CONTRACTOR SHALL SUBMIT PRODUCT DATA, INCLUDING SHOP DRAWINGS FOR SPECIFIED PRODUCTS, IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- NO DEMOLITION OR DISTURBANCE SHALL BE PERFORMED OUTSIDE THE LIMITS OF DISTURBANCE WITHOUT APPROVAL OF THE CONTRACTING OFFICER.
- CONTRACTOR IS RESPONSIBLE FOR REVIEWING ENVIRONMENTAL REPORTS CONCERNING HAZARDOUS MATERIALS AND PROVIDING APPROPRIATE DISPOSAL OF SAID MATERIALS.
- THE CONTRACTOR IS AT HISHER RISK BY ORDERING MATERIALS AND/OR CONSTRUCTING IMPROVEMENTS PRIOR TO REQUIRED REGULATORY APPROVALS AND SUBMITTAL APPROVAL.
- ALL EXISTING FACILITIES, INCLUDING, BUT NOT LIMITED TO WALKS, ROADS, LAWNS, SHRUBBERY, ETC. INSIDE OR OUTSIDE OF CONSTRUCTION LIMITS, WHICH ARE TO REMAIN, BUT ARE DISTURBED UNDER THIS CONTRACT SHALL BE REESTABLISHED AND/OR RECONSTRUCTED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- THIS PROJECT IS REQUIRED TO OBTAIN ALL APPROPRIATE PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION. DO NOT START CONSTRUCTION UNTIL ALL REQUIRED PERMIT APPROVALS ARE OBTAINED PER NSWC DESIGN REQUIREMENTS. COORDINATE ALL WORK WITH THE CONTRACTING OFFICER. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AT NO ADDITIONAL COST TO THE GOVERNMENT.
- CONTRACTOR TO VISIT THE SITE PRIOR TO CONSTRUCTION TO VERIFY EXISTING CONDITIONS RELATING TO THE CONSTRUCTION. THOROUGHLY EXAMINE AND BE FAMILIAR WITH EXISTING CONSTRUCTION AS WELL AS THE DRAWINGS, DRAWING NOTES, AND SPECIFICATIONS. FIELD VERIFY ALL DIMENSIONS. DO NOT SCALE THE DRAWINGS.
- COORDINATE WORK SCHEDULE THROUGH THE CONTRACTING OFFICER AND SCHEDULE WORK TO MINIMIZE DISRUPTION TO OCCUPANTS OF THE SURROUNDING BUILDINGS.
- PROTECT EXISTING BUILDINGS, PAVING AND UTILITIES NOT INDICATED FOR REMOVAL OR REPLACEMENT FROM CONSTRUCTION ACTIVITIES. DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE REPAIRED/RESTORED TO ORIGINAL CONDITION.
- ALL UTILITY SHUTDOWNS SHALL BE IN ACCORDANCE WITH ORF MANUAL OGD-1107-DTR-1205 "POLICY AND PROCEDURE UTILITY SHUTDOWN." FORMAL SHUTDOWN OR OUTAGES OF UTILITIES FOR THE WORK SHALL BE PERFORMED ONLY AFTER APPROVAL BY THE CONTRACTING OFFICER. REQUEST FOR UTILITY SHUTDOWNS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER IN WRITING. ALL FORMAL OUTAGES SHALL BE COORDINATED WITH THE MAINTENANCE SERVICES BRANCH AND THE UTILITIES OPERATIONS BRANCH.
- PROVIDE TEMPORARY BARRIERS AND DUST PROTECTION TO PROTECT PUBLIC AREAS & ADJACENT BUILDINGS FROM CONSTRUCTION ACTIVITIES.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING UTILITY SERVICE TO THE EXISTING FACILITIES THROUGHOUT THE CONSTRUCTION, AS WELL AS FOR THE REPLACEMENT, REPAIR OF ANY DAMAGES TO EXISTING FEATURES THAT MAY OCCUR.
- FIRE MARSHAL WILL PERFORM A FINAL INSPECTION PRIOR TO PROJECT CLOSE-OUT. COORDINATE THE SCHEDULING OF THIS FINAL INSPECTION WITH THE CONTRACTING OFFICER.
- CONTRACTOR SHALL COORDINATE WITH NSWC TO MAINTAIN ACCESSIBLE PARKING AND ACCESSIBLE ROUTES TO EXISTING BUILDINGS THROUGHOUT CONSTRUCTION.

EXISTING CONDITIONS NARRATIVE:

INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREIN ARE BASED UPON AVAILABLE INFORMATION OF RECORD PROVIDED BY NSWC, AND SURVEY PREPARED BY COLLIER, DATED NOVEMBER 05, 2025. THE HORIZONTAL DATUM IS REFERENCED TO MARYLAND COORDINATE SYSTEM NAD83 AND THE VERTICAL DATUM IS REFERENCED TO NAVD 1988.

THE GOVERNMENT IS NOT RESPONSIBLE FOR ANY UNDERGROUND CONDITIONS THAT WOULD IN ANY WAY INTERFERE WITH CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES THAT MIGHT OCCUR BY HIS OR HER FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ELEVATIONS OF ALL EXISTING UTILITIES IN ADVANCE OF CONDUCTING CONSTRUCTION OPERATIONS TO ENSURE PROPER CONNECTIONS WITH PROPOSED UTILITIES. ANY DISCREPANCIES IN THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER IN WRITING PRIOR TO THE START OF ANY WORK.

PROPOSED CONDITIONS NARRATIVE:

THIS PROJECT PROPOSES THE CONSTRUCTION OF A NEW LITHIUM BATTERY STORAGE STRUCTURE WITHIN THE NSWC CARDEROCK CAMPUS WEST OF ESSEX ROAD, ASSOCIATED SITE IMPROVEMENTS INCLUDE A NEW DRIVEWAY, FIRE WALL, FENCE, STORM DRAIN INFRASTRUCTURE, AND STORMWATER MANAGEMENT INFRASTRUCTURE.

ABA CONSTRUCTION NOTES:

ALL ACCESSIBLE ROUTES SHALL COMPLY WITH ARCHITECTURAL BARRIERS ACT (ABA) STANDARDS AND REQUIREMENTS.

- ACCESSIBLE ROUTES SHALL BE SLOPED NO MORE THAN 5% (1:20) LONGITUDINALLY. ACCESSIBLE ROUTES WITH SLOPES BETWEEN 5% AND 8.3% SHALL BE CONSTRUCTED AS RAMPS, AND SHALL INCLUDE HANDRAILS AND LANDINGS SPACED NO MORE THAN 30 FEET (9.144M) APART.
- THE CONTRACTOR SHALL CONSTRUCT LANDINGS AT A MINIMUM OF 5 FEET (1.524M) IN LENGTH AND SHALL BE AT LEAST AS WIDE AS THE RAMP.
- THE CROSS SLOPE OF ALL ACCESSIBLE ROUTES, INCLUDING RAMPS AND LANDINGS, SHALL BE NO GREATER THAN 1:48.
- ALL ACCESSIBLE ROUTES SHALL HAVE A MINIMUM CLEAR WIDTH OF 36 INCHES (915MM).

EROSION/SEDIMENT GENERAL REQUIREMENTS:

THE EROSION AND SEDIMENT CONTROL PLAN SHALL FULLY COMPLY WITH ALL FEDERAL AND LOCAL REQUIREMENTS. CONTRACTOR SHALL SUBMIT TO THE CONTRACTING OFFICER COPIES OF ANY APPROVAL LETTERS, WARNING NOTICES, OR VIOLATION NOTICES FOR THE PROJECT. ANY CHANGES MADE TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IN FURTHERANCE OF MAINTAINING APPROVAL SHALL BE THE SOLE AND COMPLETE RESPONSIBILITY OF THE CONTRACTOR WITH NO COST OR DELAY TO THE GOVERNMENT. CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. CONTRACTOR SHALL PERFORM AND DOCUMENT INSPECTIONS AND MAINTENANCE AS REQUIRED PER THE NPDES 20-C PERMIT ISSUED FOR THIS PROJECT IN ORDER TO MAINTAIN THE EFFECTIVENESS OF THE EROSION AND SEDIMENT CONTROL MEASURES. CONTRACTOR SHALL INSPECT AND MAINTAIN THE EROSION AND SEDIMENT CONTROL MEASURES AFTER ANY RUNOFF-PRODUCING EVENT. CONTRACTOR SHALL REMOVE EROSION AND SEDIMENT CONTROLS ONLY AFTER ALL UPSTREAM AREAS HAVE BEEN FULLY STABILIZED AND ACCEPTED BY THE APPROPRIATE REGULATORY BODIES AND WITH PRIOR WRITTEN APPROVAL OF THE MDE COMPLIANCE INSPECTOR AND CONTRACT OFFICER. SEE EROSION AND SEDIMENT CONTROL PLAN SHEETS C121 AND C131.

LINEAR UTILITY INSTALLATION NOTES:

- SHOULD DEWATERING OPERATIONS OCCUR, EFFLUENT FROM THESE OPERATIONS SHALL BE FILTERED OR PASSED THROUGH APPROVED SEDIMENT CONTROL DEVICES, IF APPLICABLE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
- UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
 - FLAGMARK LOCATION OF EXISTING UNDERGROUND UTILITIES, AND CONDUIT RUNS IN FIELD AND REVIEW WITH CONTRACT OFFICER AND ARBORIST PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
 - NO MORE THAN 500 LINEAR FEET OF CONTINUOUS TRENCH MAY BE OPENED AT ANY ONE TIME.
 - MINIMIZE THE CONSTRUCTION ZONE AS MUCH AS POSSIBLE.
 - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED PER EARTH MOVING SPECIFICATION TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
 - HAND EXCAVATE WHERE POSSIBLE. OTHERWISE, CONSTRUCTION VEHICLES SHALL BE EQUIPPED WITH RUBBER TIRES OR TRACKS. IF CONSTRUCTION REQUIRES ACCESS FOR HEAVY TRUCKS, PROVIDE ACCESS ROAD PROTECTIONS AS COORDINATED WITH THE CONTRACT OFFICER.
 - TRENCHING NEAR TREES: COMPLY WITH SPECIFICATIONS SECTION 01 56 39 "TREE PROTECTION AND TRIMMING" SPECIFICATIONS FOR EXCAVATION AND ROOT PROTECTION AND PRUNING. AVOID TREE ROOT SYSTEMS AS MUCH AS POSSIBLE.
 - RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE STANDARDS, MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL CURRENT EDITION, AND THE GENERAL EROSION CONTROL PROGRAM.
 - PLANT SOD OR SEED OF TYPE INDICATED ON LANDSCAPE PLANS, NOTES, AND AS SPECIFIED IN SECTION 32 92 00 "TURF AND GRASSES". PROTECT SEEDED AREA AS INDICATED IN SAME SPECIFICATIONS.

CONTRACTOR'S NOTES:

- CONTRACTOR SHOULD CONTRACT WITH AN INDEPENDENT UTILITY LOCATION FIRM AND BE RESPONSIBLE FOR HAVING UNDERGROUND UTILITIES MARKED AT LEAST 72 HOURS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES THAT OCCUR BY HIS OR HER FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF, DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE OR SHE SHALL IMMEDIATELY NOTIFY THE CONTRACT OFFICER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE UTILITY AND ASSURE THE CONTINUANCE OF SERVICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL IDENTIFIED TREES AND SHALL COORDINATE TREE PRESERVATION WITH THE CONTRACTING OFFICER.
- CONTRACTOR TO ERECT A MINIMUM 6 FOOT (1830 MM) HIGH FENCE AROUND THE PERIMETER OF ALL DEMOLITION AND SITE CONSTRUCTION ACTIVITIES. FENCE TO HAVE LIMITED ACCESS FOR CONSTRUCTION PERSONNEL ONLY. IT SHALL BE THE CONTRACTOR'S OPTION TO RELOCATE / REARRANGE CONSTRUCTION / SAFETY FENCING IN ORDER TO MAINTAIN ACCESS AND CONTINUE DEMOLITION AND CONSTRUCTION OPERATIONS AND ACTIVITIES. FENCE SHALL REMAIN IN PLACE UNTIL REMOVAL IS DIRECTED BY THE CONTRACTING OFFICER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE WORK IN SUCH A MANNER AS TO PREVENT THE WASHING OF ANY TOPSOIL, SILT OR DEBRIS ONTO ADJACENT PROPERTIES.
- CONTRACTOR SHALL ENSURE AN INTEGRATED PEST MANAGEMENT (IMP) PROGRAM FOR THE CONTROL OF PESTS IS IN PLACE FOR ALL PHASES OF CONSTRUCTION.

GENERAL DEMOLITION NOTES:

- ERECT CONSTRUCTION FENCE PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR IS TO FURTHER COORDINATE LOCATION OF FENCE WITH CONTRACTING OFFICER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT ALL LOCAL UTILITY AUTHORITIES AT LEAST 48 HOURS PRIOR TO ALL EXCAVATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR AND IMMEDIATELY NOTIFY THE CONTRACTING OFFICER UPON ANY OMISSIONS AND/OR ADDITIONS OF UTILITIES FOUND DURING EXCAVATION.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL NOT RESULT IN ANY EXTRA COST.
- WHEN WORKING IN AND AROUND THE EXISTING BUILDINGS, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING STRUCTURE AND SERVICES WHICH WILL REMAIN. UTILITIES DAMAGED IN THE EXECUTION OF WORK SHALL BE REPAIRED, REPLACED, OR RESTORED TO THE SATISFACTION OF THE CONTRACTING OFFICER.
- UPON COMPLETION OF WORK, CONTRACTOR SHALL REMOVE ALL EVIDENCE OF WORK INCLUDING DIRT, ASPHALT, TIRE TRACKS, ETC. SWEEP ASPHALT PAVEMENT AND CONCRETE SIDEWALK, AND LEAVE THE SITE IN A NEAT AND ORDERLY CONDITION.
- CONTRACTOR SHALL PLACE TOP SOIL, SEED AND MULCH ON ALL DISTURBED AREAS NOT STABILIZED WITH ASPHALT OR CONCRETE.
- CONTRACTOR SHALL RESTORE ALL EXISTING PAVEMENTS, CURBS, GUTTERS, SIDEWALKS, SIGNS, AND PAVEMENT STRIPING TO THEIR ORIGINAL PRE-CONSTRUCTION CONDITION FOR ALL DISTURBED AREAS.
- CONTRACTOR MUST PROPERLY DISPOSE OF DEMOLISHED DEBRIS OFF NSWC PROPERTY ON A DAILY BASIS.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL MEASURES (VEHICULAR & PEDESTRIAN) IN ACCORDANCE WITH MDSHA BOOK OF STANDARDS FOR HIGHWAYS, INCIDENTAL STRUCTURES, AND TRAFFIC CONTROL APPLICATIONS - CURRENT EDITION, UFC DESIGN AND CONSTRUCTION GUIDELINES, AND AGENCIES HAVING JURISDICTION WHILE WORKING IN ROADWAYS AND PARKING LOTS. CONTRACTOR SHALL SUBMIT A COMPLETE PLAN TO THE CONTRACTING OFFICER FOR REVIEW AND APPROVAL, AS REQUESTED BY THE CONTRACTING OFFICER.
- ALL CONCRETE CURB AND GUTTER AND CONCRETE SIDEWALK INDICATED TO BE DEMOLISHED SHALL BE REMOVED TO THE NEAREST JOINT.
- CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS IMPACTED BY THE PROPOSED WORK PRIOR TO CONSTRUCTION WITH TEST PITS.
- CONTRACTOR SHALL REMOVE EROSION AND SEDIMENT CONTROLS, AFTER OBTAINING APPROVAL FROM THE CONTRACTING OFFICER, AS REQUIRED FOR CONSTRUCTION, REMOVE SHRUBS AND GROUND COVER AND REPLACE WITH NEW AND EQUIVALENT SHRUBS (OF EQUAL HEIGHT) AND GROUND COVER AT COMPLETION OF JOB.
- CONTRACTOR SHALL PROVIDE APPROPRIATE TRAFFIC CONTROL SIGNAGE FOR ALL CONSTRUCTION ACTIVITIES ENCRGING INTO THE ROADWAY AS REQUESTED BY THE CONTRACTING OFFICER.
- CONTRACTOR SHALL PREPARE A DETAILED DEMOLITION PLAN AND REVIEW WITH CONTRACTING OFFICER TO DETERMINE ANY EXISTING UTILITIES THAT ARE IMPACTED BY THIS CONSTRUCTION AND DETERMINE APPROPRIATE REMEDIATION.
- MAINTAIN EMERGENCY ACCESS AT ALL TIMES INCLUDING FIRE DEPARTMENT ACCESS TO BUILDINGS, HYDRANTS, AND FDC CONNECTIONS.
- SEE ADDITIONAL NOTES ON DEMOLITION PLAN C111.

SITE AND UTILITY DEMOLITION NOTES:

GENERAL

- CONTRACTOR SHALL MAINTAIN SERVICE TO THE EXISTING BUILDINGS AT ALL TIMES, UNLESS OTHERWISE INDICATED ON CONSTRUCTION DRAWINGS. ANY DISRUPTIONS TO SERVICE SHALL BE COORDINATED WITH THE CONTRACTING OFFICER.

CONCRETE

- REMOVAL OF CONCRETE PADS, STOOPS, SIDEWALK, STEPS, ETC., SHALL INCLUDE CONCRETE, STEEL REINFORCEMENT, HAND RAILS AND ANY GRAVEL BASE.

STORM

- CONTRACTOR TO COORDINATE WITH OWNER, CONTRACTING OFFICER, OR ENGINEER BEFORE DEMOLISHING ANY PIPE SCHEDULED TO BE DEMOLISHED IF RUNOFF IS ENCOUNTERED IN THE PIPE.
- REMOVAL INCLUDES PIPES, STRUCTURES, AND OTHER APPURTENANCES IN ACCORDANCE WITH MDSHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS - CURRENT EDITION.

CIRCULATION NOTES:

- PROVIDE FLAGGING FOR ALL WORK IN ROADWAYS AS REQUESTED BY THE CONTRACTING OFFICER.
- PROVIDE TEMPORARY LIGHTING FOR ALL TEMPORARY PEDESTRIAN PATHS/DETOURS AS REQUESTED BY CONTRACTING OFFICER.
- COORDINATE WORK WITHIN ROADWAYS SHOWN OUTSIDE OF CONSTRUCTION FENCING LIMITS WITH NSWC TO MINIMALLY DISRUPT OPERATIONS TO THE EXTENT POSSIBLE. ALL EXCAVATIONS SHALL BE CLOSED WITH STEEL PLATE OR OTHER MEANS) AND ROADWAYS SHALL REMAIN OPEN DURING NON WORKING HOURS. DURING WORKING HOURS, MAINTAIN MINIMUM ONE LANE OF TRAVEL THROUGH WORK ZONE PROTECTED BY FLAGGERS. COORDINATE COMPLETE CLOSURE OF ANY ROAD WITH NSWC AND THE AUTHORITY HAVING JURISDICTION A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE.
- MAINTAIN EMERGENCY EGRESS AT ALL TIMES INCLUDING FIRE DEPARTMENT ACCESS TO BUILDINGS AND PEDESTRIAN EGRESS AWAY FROM BUILDINGS. COORDINATE ANY MODIFICATIONS TO PEDESTRIAN AND VEHICLE EGRESS WITH NSWC AND THE AUTHORITY HAVING JURISDICTION.
- INSTALL LOCKS ON ALL TEMPORARY CONSTRUCTION FENCE GATES.
- PROVIDE TEMPORARY SIGNAGE FOR ALL PEDESTRIAN AND VEHICLE PATH CLOSURES.
- PROVIDE MINIMUM SIX-FOOT WIDE TEMPORARY EGRESS PATHS UNLESS OTHERWISE NOTED.
- CIRCULATION TO BE PROVIDED THROUGH SITE AT ALL TIMES.
- WHERE CONSTRUCTION ACTIVITIES OR MATERIALS BLOCK THE VIEW OF AN FDC, PLACE TEMPORARY FDC SIGNS ON THE STREET FRONT VISIBLE TO APPROACHING EQUIPMENT, NO PART OF THE LEGIBLE TEXT SHALL BE LESS THAN 4 FEET ABOVE THE ADJACENT SURFACE. TEMPORARY FDC CONNECTION SIGNS SHALL HAVE THE LETTERS "FDC" AT LEAST SIX INCHES HIGH AND ALL OTHER WORDS OR ARROWS SHALL BE AT LEAST TWO INCHES HIGH.
- PROVIDE FLAGGING FOR ALL ROADWAY CLOSURES AS REQUESTED BY THE CONTRACTING OFFICER. CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF VEHICLE AND PEDESTRIAN MOVEMENT IN THE VICINITY OF THE CONSTRUCTION SITE AT ALL TIMES. THE FREQUENCY AND DURATION OF THE FLAGGERS IS THE RESPONSIBILITY OF THE CONTRACTOR. FLAGGERS ARE NOT REQUIRED WHEN CONSTRUCTION VEHICLES ARE NOT ENTERING PUBLIC TRAVEL WAYS.

FIRE HYDRANT NOTE:

ALL EXISTING FIRE HYDRANTS WITHIN PROJECT AREA ARE TO BE PROTECTED AND REMAIN ACTIVE FOR EMERGENCY USE. ENSURE EMERGENCY ACCESS IS AVAILABLE AS NEEDED.

UNDERGROUND UTILITY CONSTRUCTION NOTES:

- EXCAVATION OR TRENCHING SHALL NOT EXTEND BEYOND THE INTENDED PLACEMENT OF MATERIALS AS INDICATED ON THE PLANS.
- ANY OPEN HOLES OR TRENCHES SHALL BE PROMINENTLY MARKED WITH CONES, BARRICADES AND ORANGE FLAGS; LAYOUT OF BARRICADES SHALL MEET THE REQUIREMENTS OF THE MDSHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS AND OSHA, AND SHALL HAVE YELLOW LIGHTS ATTACHED IF A TRENCH IS LEFT OPEN OVERNIGHT.
- EXCAVATION, SLOPES, AND TRENCHING TO OCCUR DURING CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH OSHA SAFETY REQUIREMENTS.
- CONTRACTOR SHALL PLACE A STEEL PLATE ACROSS ROADWAY EXCAVATION DURING PERIODS THAT THE SITE IS NOT BEING ACTIVELY WORKED. THE STEEL PLATE SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT TRUCK TRAFFIC, AND SHALL BE PREVENTED FROM SLIDING BY STEEL SPIKES AND A BUILT UP ASPHALT RESTRAINING LIP AT ALL SIDES.
- ROADWAY CONSTRUCTION SIGNS SHALL BE PLACED TO WARN APPROACHING VEHICLES OF CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD IN ACCORDANCE WITH MDSHA BOOK OF STANDARDS FOR HIGHWAYS, INCIDENTAL STRUCTURES, AND TRAFFIC CONTROL APPLICATIONS.
- CONTRACT DRAWINGS INDICATE MINIMUM DEPTH OF COVER REQUIRED FOR NEW UTILITIES. CONTRACTOR IS REQUIRED TO INSTALL NEW UTILITIES AT A DEPTH AS REQUIRED TO CLEAR EXISTING UTILITIES. THIS MAY REQUIRE NEW UTILITIES TO BE INSTALLED DEEPER THAN THE MINIMUM DEPTH INDICATED. NO ADDITIONAL COMPENSATION WILL BE DUE TO THE CONTRACTOR IF NEW UTILITIES ARE REQUIRED TO BE INSTALLED DEEPER THAN THE MINIMUM DEPTH TO CLEAR EXISTING UTILITIES.
- MAINTAIN MINIMUM CLEARANCE (AS DIRECTED PER UTILITY PROVIDER) BETWEEN UNDERGROUND CONDUITS INSTALLED UNDER THIS CONTRACT AND EXISTING UNDERGROUND UTILITIES OR OTHER CONDUITS INSTALLED UNDER THIS CONTRACT. IF CLEAR DISTANCE IS LESS THAN 6 INCHES (150 MM), PROVIDE A DUCT PROTECTION CLOSED CELL POLYURETHANE PAD CUSHION BETWEEN THE MEMBERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEFINITE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. UTILITIES SHALL HAVE THE SPECIFIED MINIMUM HORIZONTAL SPACING AND SHALL NOT BE "STACKED."
- CONTRACTOR SHALL EXERCISE CARE WHERE UTILITY LINES ARE WITHIN THE WORK ZONE DURING EXCAVATION WORK TO AVOID DAMAGING OR DISRUPTING EXISTING UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT THE CONTRACTOR'S EXPENSE, ANY DAMAGE TO ANY UTILITY CAUSED BY THE CONTRACTOR.
- CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE FOR BUILDINGS DESIGNATED BY THE CONTRACTING OFFICER TO REMAIN OPERATIONAL DURING CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL RESTORE ALL PAVEMENT AND HARDCAPE FEATURES DISTURBED BY UNDERGROUND UTILITY INSTALLATION AND OTHER CONSTRUCTION TO THEIR EXISTING CONDITION UPON COMPLETION OF CONSTRUCTION OPERATIONS ASSOCIATED WITH THIS PROJECT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EQUIPMENT, ISOLATION VALVES, ETC. AS REQUIRED AT TIE-IN POINTS TO MAINTAIN OPERATING STATUS OF EXISTING UTILITIES, AND TO IMPLEMENT PHASING AND COORDINATION WITH OTHER NSWC PROJECTS AS DIRECTED BY THE CONTRACTING OFFICER.
- SHOULD THE CONTRACTOR, DURING HIS OR HER WORK, ENCOUNTER ANY UTILITIES OR STRUCTURES NOT IDENTIFIED WITHIN THE CONTRACT DRAWINGS, HE OR SHE SHALL STOP WORK IMMEDIATELY AND NOTIFY THE CONTRACTING OFFICER.
- STANDARDS: ALL CONSTRUCTION, MATERIALS, AND APPURTENANCES SHALL COMPLY WITH THE LATEST EDITIONS OF ALL APPLICABLE DESIGN MANUALS, STANDARD DETAILS & DESIGN GUIDELINES, AND SPECIFICATIONS.
- ABANDONMENTS: THE CONTRACTOR MUST PHYSICALLY DISCONNECT EXISTING WATER, SEWER, AND STORM LATERALS THAT ARE TO BE ABANDONED AT THEIR CONNECTION TO THE PUBLIC MAIN. CONTRACTOR TO COORDINATE WITH CONTRACTING OFFICER FOR APPROVAL PRIOR TO ABANDONMENT OF SUCH UTILITIES.
- PRESSURE TESTING AGAINST VALVES WILL NOT BE ALLOWED.
- UTILITY SERVICE DISRUPTIONS: PHASE ALL UTILITY WORK TO MAINTAIN UTILITY SERVICES TO THE SURROUNDING AREA. DURING ALL PHASES OF CONSTRUCTION, LIMIT REQUIRED UTILITY SHUT-DOWNS IN NUMBER AND DURATION. COORDINATE THESE SHUT-DOWNS WITH THE CONTRACTING OFFICER.
- THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE CONTRACTING OFFICER FOR ALL NECESSARY WATER MAIN SHUT DOWNS WITH ADEQUATE ADVANCED NOTICE. ONLY NSWC REPRESENTATIVES MAY SHUT DOWN A PUBLIC WATER MAIN. A CERTIFIED PLUMBER IS ONLY AUTHORIZED TO TURN OFF VALVES INSIDE METER PITS.
- WATER GATE VALVE LOCATION: LOCATE GATE VALVES FOR DOMESTIC AND FIRE SERVICES AS CLOSE TO THE PUBLIC WATER MAIN TEE AS POSSIBLE.
- MATERIAL: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING PRODUCT DATA AND SHOP DRAWINGS TO THE CONTRACTING OFFICER FOR APPROVAL. ONLY APPROVED MATERIALS MAY BE USED.
- TEMPORARY CONDITIONS MINIMUM COVER: A NOMINAL FOUR FEET OF COVER IS REQUIRED FOR ALL WATER MAINS AT FINAL GRADE, UNLESS OTHERWISE NOTED.
- FIRE HYDRANT STATUS: THE CONTRACTOR SHALL NOTIFY THE NSW FIRE MARSHAL AND THE CONTRACTING OFFICER, PRIOR TO TAKING ANY FIRE HYDRANT OUT OF SERVICE OR RENDERING ANY HYDRANT UNAVAILABLE FOR ANY REASON. FIRE MARSHAL IS ALSO TO BE PROVIDED WITH THE LOCATION OF ANY NEW INSTALLATION OF PRIVATE FIRE HYDRANTS, IF APPLICABLE.
- SEWER BACKWATER PREVENTION: THE PLUMBING SYSTEM MUST BE IN COMPLIANCE WITH SECTION 715 OF THE 2012 INTERNATIONAL PLUMBING CODE WHICH STATES A BACKWATER VALVE IS REQUIRED FOR ALL PLUMBING FIXTURES BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR UNDERDRAIN CONNECTION TO STORM SEWER IF APPLICABLE.
- EOI MEANS END OF INVESTIGATION. IT DOES NOT MEAN THAT THE UTILITY DOES NOT EXIST BEYOND THAT POINT.

TREE PRESERVATION NOTES:

- CRITICAL ROOT ZONE:
 - TO PREVENT UNNECESSARY DAMAGE TO EXISTING TREES DURING CONSTRUCTION, PROPER TREE PROTECTION GUIDELINES MUST BE FOLLOWED IN ACCORDANCE WITH TREE PROTECTION DETAIL ON SHEET C504, AT LOCATIONS SHOWN ON SHEETS AND LANDSCAPE CONSTRUCTION DOCUMENTS, PARTICULARLY IN THE ROOT ZONE AREA. THE FOLLOWING ACTIVITIES ARE PROHIBITED WITHIN THIS ZONE:
 - STORAGE OF CONSTRUCTION MATERIALS OR EQUIPMENT
 - TEMPORARY BUILDINGS OR TRAILERS
 - OPERATION OF CONSTRUCTION EQUIPMENT
 - SPILLAGE OF FUELS, OILS, OR OTHER CHEMICALS INCLUDING RINSATE FROM CONCRETE DELIVERY TRUCKS
- CONSTRUCTION, WHEN NECESSARY AND APPROVED BY THE CONTRACTING OFFICER, WITHIN THE CRITICAL ROOT ZONE SHALL BE PERFORMED IN A MANNER THAT AVOIDS INJURY TO THE TREES AND THEIR ROOTS.
- IN GENERAL, CONSTRUCTION AS DESIGNATED WITHIN THE CRITICAL ROOT ZONE SHALL PROCEED WITH EXTREME CARE EITHER BY THE USE OF HAND TOOLS OR WITH EQUIPMENT THAT WILL NOT CAUSE DAMAGE TO THE TREE(S). THE CONTRACTING OFFICER AND A CERTIFIED ARBORIST SHALL APPROVE THE MEANS AND METHODS OF ALL WORK TO BE ACCOMPLISHED WITHIN THE CRITICAL ROOT ZONE PRIOR TO THE WORK BEING UNDERTAKEN.

TREE PROTECTION ZONE BARRIERS:

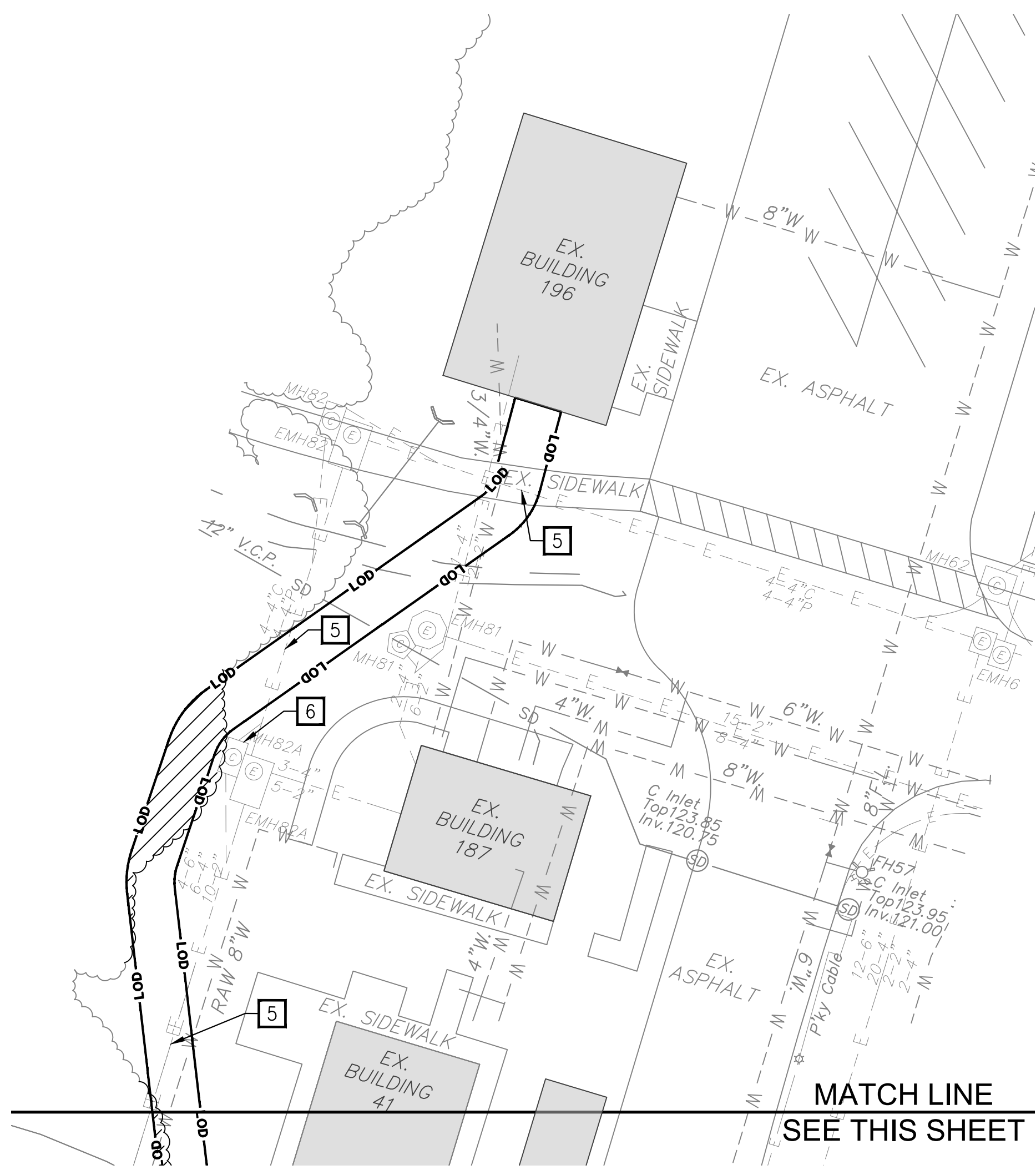
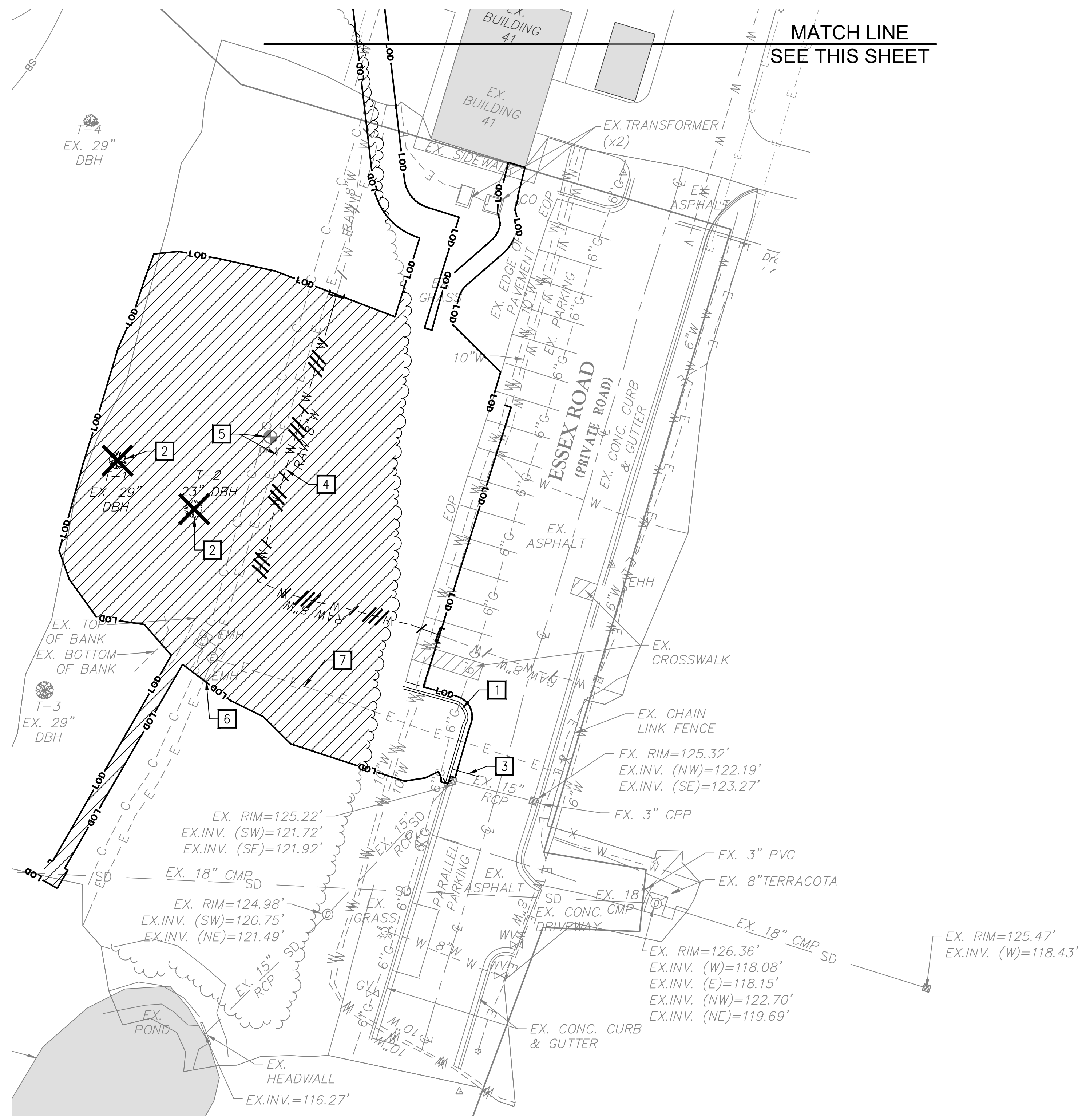
TREE PROTECTION SHALL BE INSTALLED PRIOR TO SITE CLEARING, GRADING, AND DEMOLITION, AND MAINTAINED THROUGH CONSTRUCTION AND LANDSCAPING. COORDINATE WITH NSWC LANDSCAPE ARCHITECT TO FLAG TREE PROTECTION AREAS.

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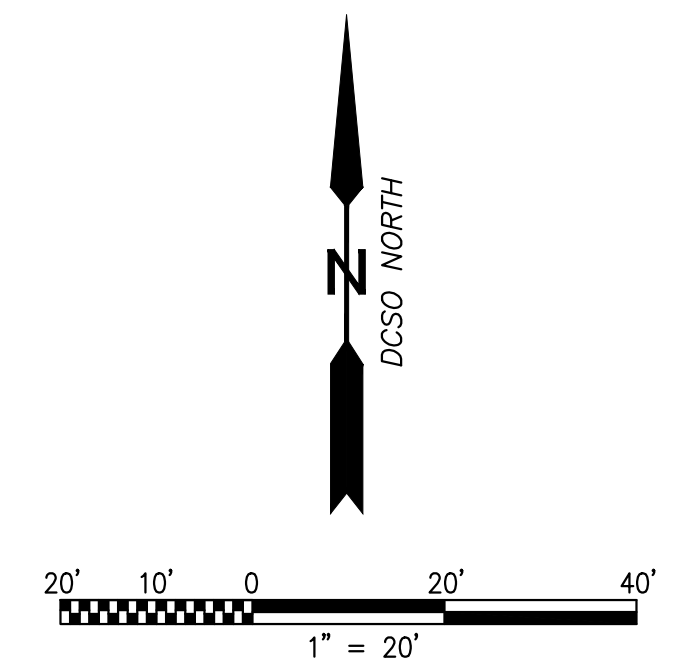


KEYNOTES

- 1 PORTION OF EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED.
- 2 REMOVE EXISTING TREE.
- 3 ERADICATE EXISTING ROAD STRIPING.
- 4 DEMOLISH EXISTING ABANDONED WATER LINE AS NECESSARY TO FACILITATE PROPOSED CONSTRUCTION.
- 5 PROTECT EXISTING ELECTRIC AND FIBER OPTIC CONCRETE ENCASED DUCTBANK.
- 6 PROTECT EXISTING ELECTRIC AND FIBER OPTIC MANHOLE STRUCTURE. ADJUST FRAME AND COVER AS NECESSARY TO BE FLUSH WITH PROPOSED GRADE ON SHEET C161.
- 7 PROTECT EXISTING ELECTRIC CONCRETE ENCASED DUCTBANK.

LEGEND

- DEMOLITION KEY-NOTE [Symbol]
- TERMINATE DEMOLITION [Symbol]
- LIMIT OF DISTURBANCE [Symbol]
- ITEM DEMOLITION [Symbol]
- UTILITY DEMOLITION [Symbol]
- UTILITY CAP [Symbol]
- TREE CLEARING [Symbol]



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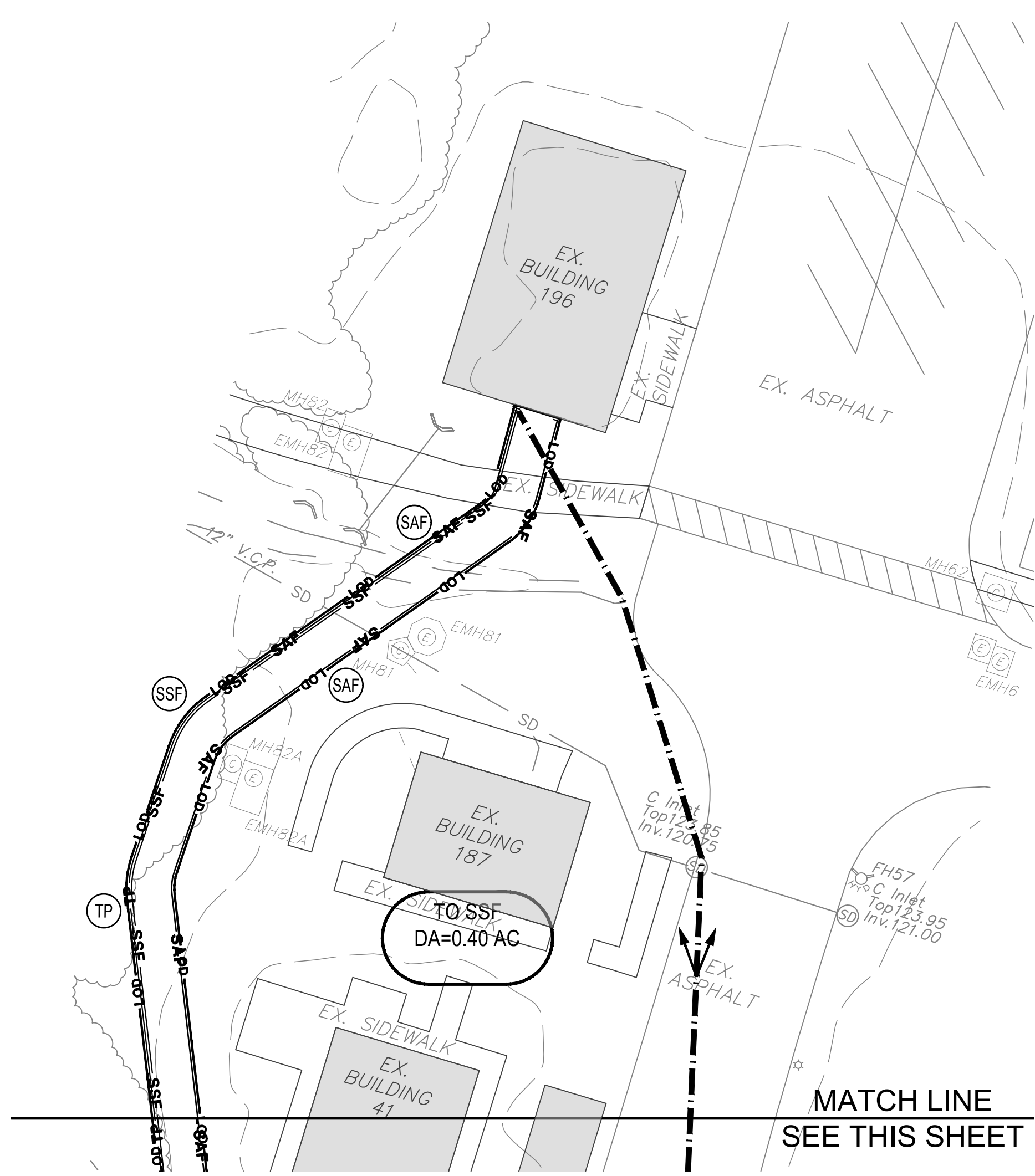
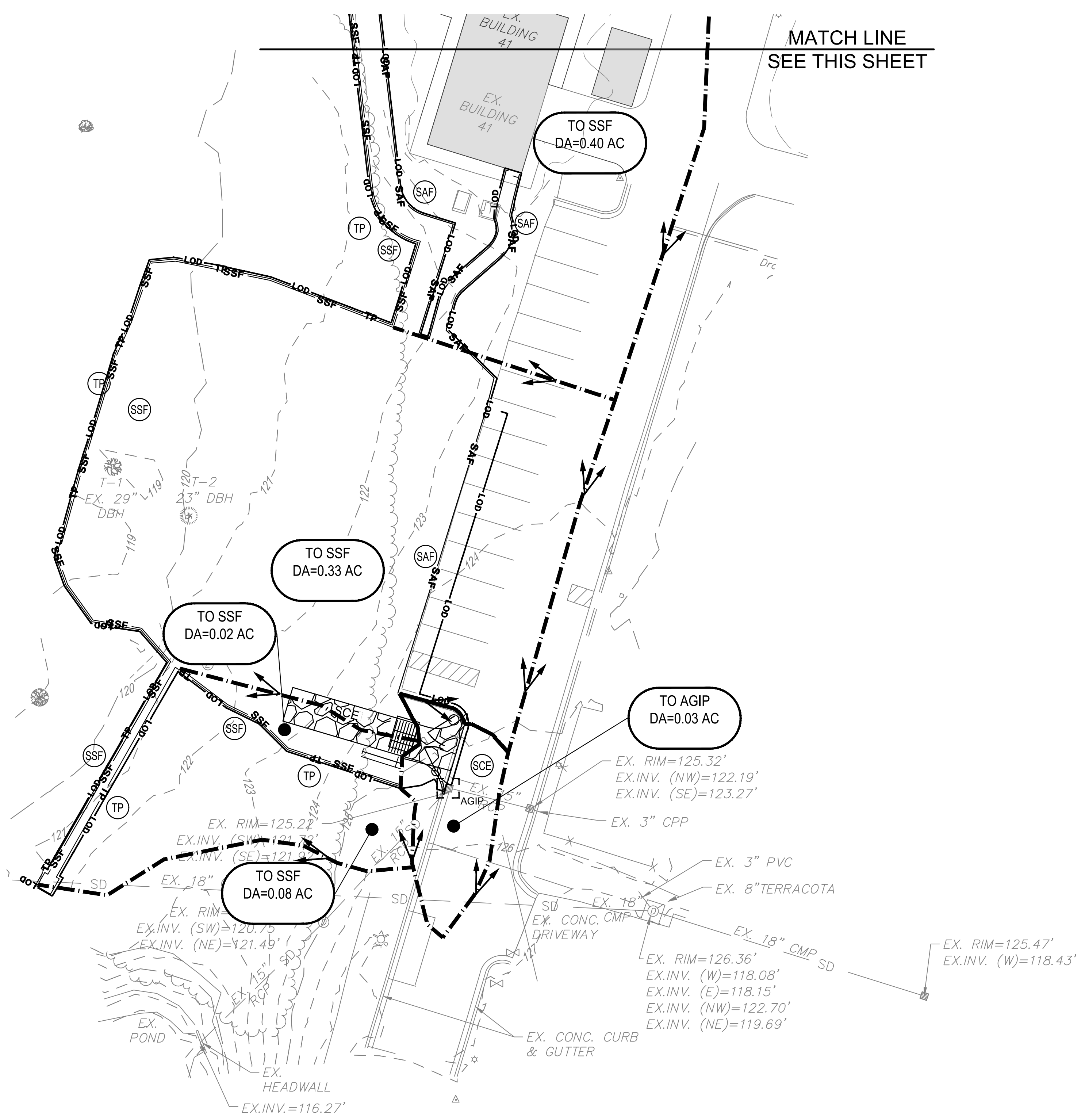
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EROSION LEGEND PHASE 1:

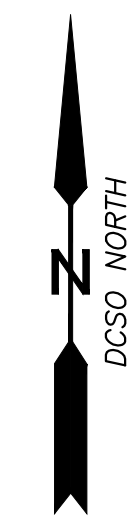
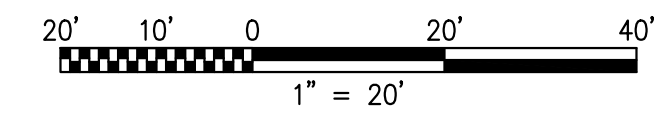
- | | | |
|---|---------|---|
| LIMITS OF DISTURBANCE | — LOD — | |
| STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL B-1. SEE DETAIL ON SHEET C503. | (SCE) | AT-GRADE INLET PROTECTION PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. SEE DETAIL ON SHEET C503. |
| SUPER SILT FENCE PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION E-3. SEE DETAIL ON SHEET C503. | (SSF) | DRAINAGE DIVIDE |
| SAFETY FENCE SEE DETAIL ON SHEET C504. | (SAF) | |
| TREE PROTECTION FENCE. SEE DETAIL ON SHEET C504. | (TP) | |

EROSION AND SEDIMENT CONTROL NOTES

- SEE SHEETS C501 AND C502 FOR EROSION AND SEDIMENT CONTROL NOTES AND SEQUENCE OF CONSTRUCTION.
- TEMPORARY PEDESTRIAN ACCESS MUST COMPLY WITH ABA STANDARDS AND REQUIREMENTS.
- CONTRACTOR MUST ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS.
- SAFETY FENCE, TREE PROTECTION FENCE, AND SILT FENCE TO BE INSTALLED AT LIMITS OF DISTURBANCE. SEPARATION BETWEEN THESE ITEMS ON THE PLANS IS FOR GRAPHICAL PURPOSES.
- EXCAVATION OR CONSTRUCTION WITHIN CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN SHALL BE PERFORMED WITH SPECIAL CARE AS TO NOT DAMAGE, DISTURB, OR REMOVE TREE ROOTS.
- DO NOT REMOVE TREES OUTSIDE LIMITS OF DISTURBANCE WITHOUT OWNER CONSENT.
- SEE SHEET C503 AND C504 FOR EROSION AND SEDIMENT CONTROL DETAILS.

THIS SHEET IS FOR EROSION AND SEDIMENT CONTROL ONLY

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TREES (TYP.) TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES AND TREES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL NOT RESULT IN ANY EXTRA COST.

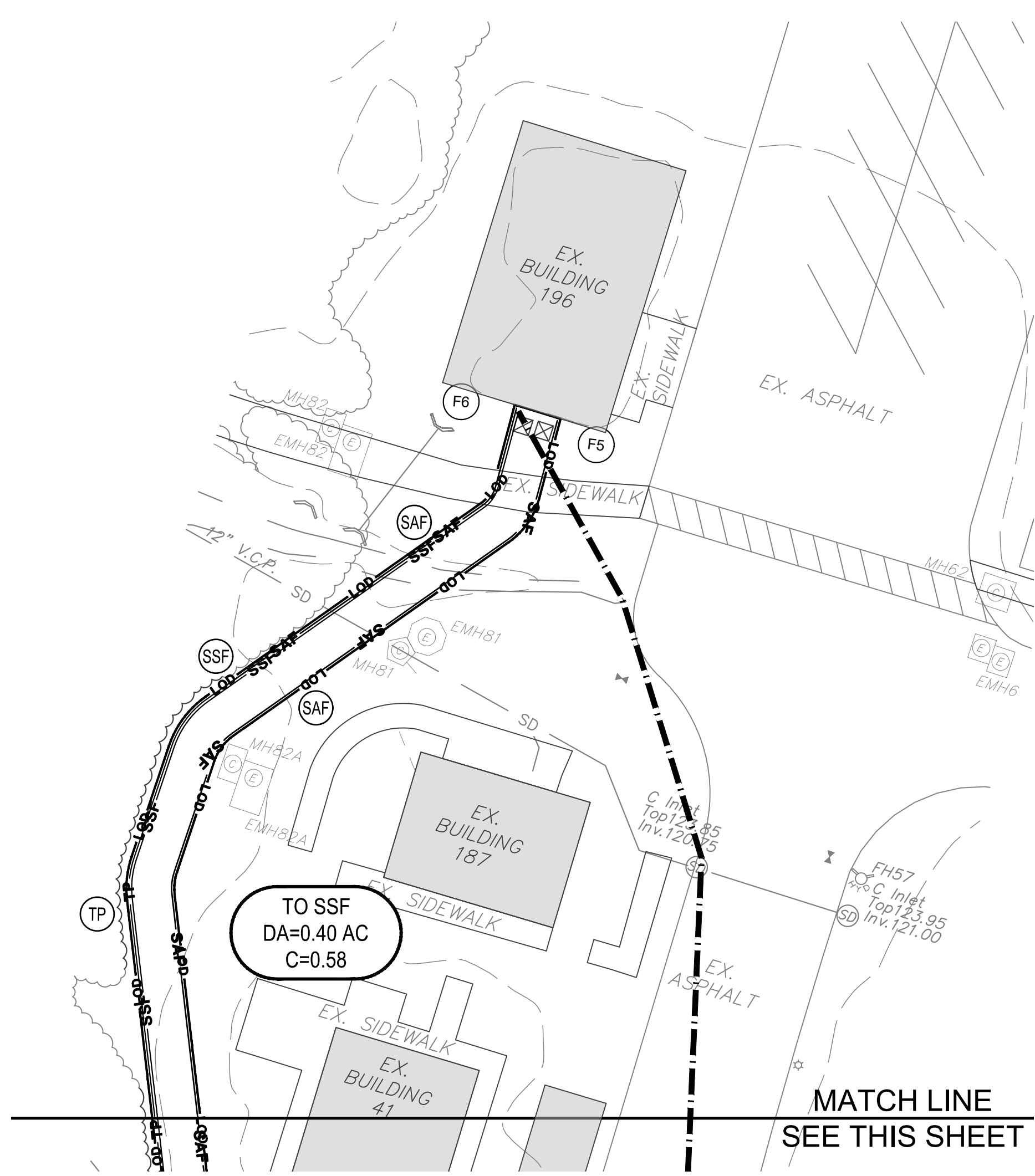
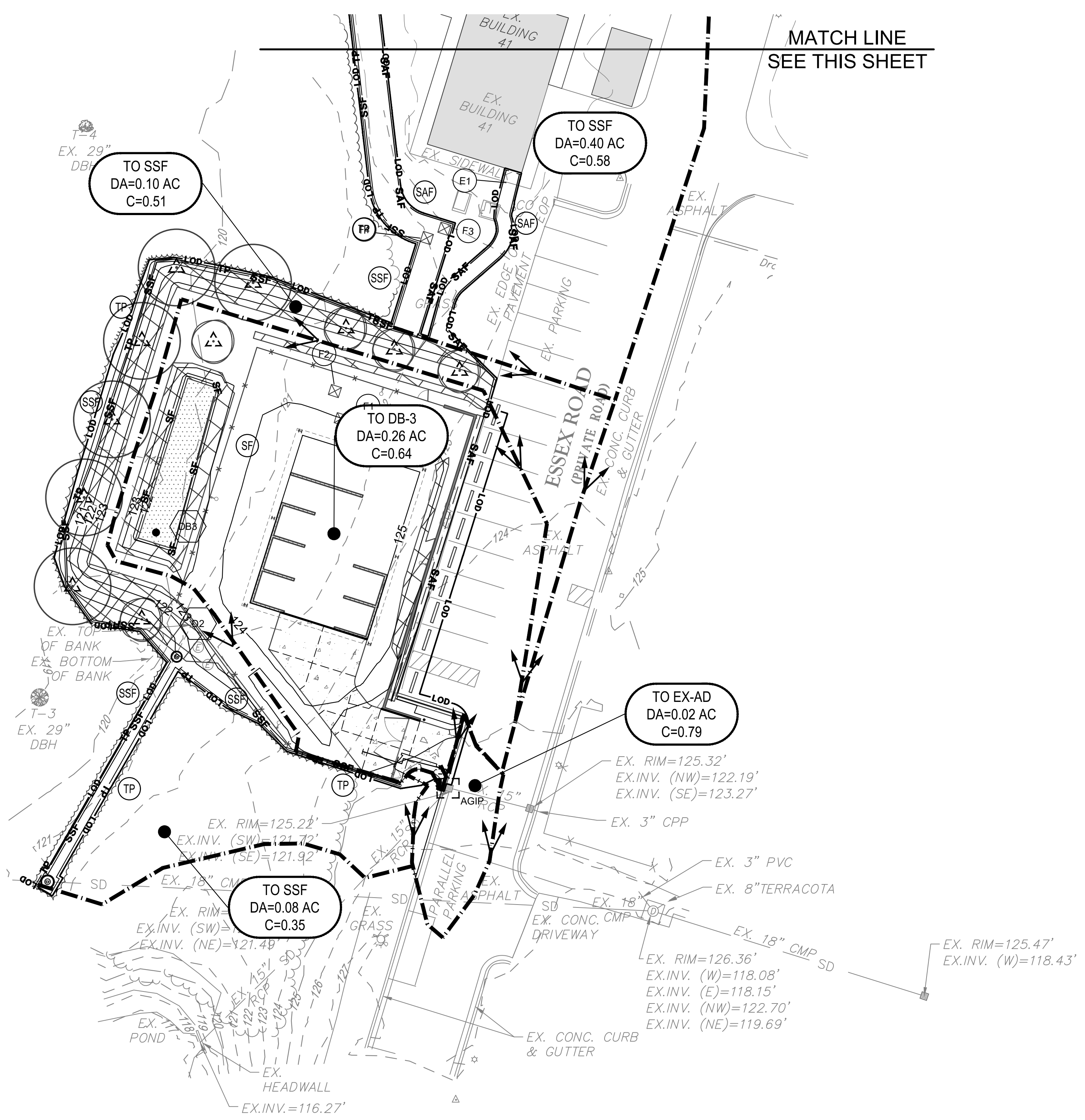


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Carderock, Bethesda, MD	
NAVAL SURFACE WARFARE CENTER	

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- EROSION AND SEDIMENT CONTROL NOTES**
- SEE SHEETS C501 AND C502 FOR EROSION AND SEDIMENT CONTROL NOTES AND SEQUENCE OF CONSTRUCTION.
 - CONTRACTOR MUST ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS.
 - SAFETY FENCE AND TREE PROTECTION FENCE, AND SILT FENCE TO BE INSTALLED AT LIMITS OF WORK. SEPARATION BETWEEN THESE ITEMS ON THE PLANS IS FOR GRAPHICAL PURPOSES.
 - EXCAVATION OR CONSTRUCTION WITHIN CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN SHALL BE PERFORMED WITH SPECIAL CARE AS TO NOT DAMAGE, DISTURB, OR REMOVE TREE ROOTS.
 - DO NOT REMOVE TREES OUTSIDE LIMITS OF DISTURBANCE WITHOUT CONSENT OF NIH PROJECT OFFICER.
 - SEE SHEET C503 AND C504 FOR EROSION AND SEDIMENT CONTROL DETAILS.

EROSION LEGEND PHASE 2:

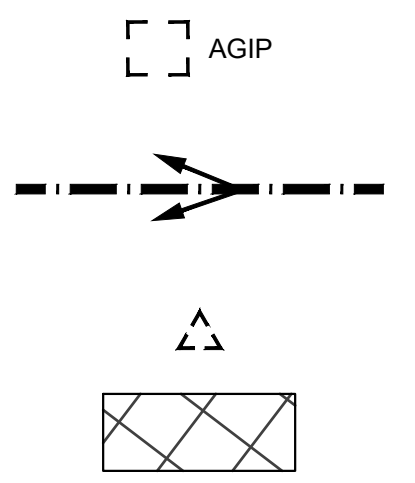
LIMITS OF DISTURBANCE	— LOD —
SILT FENCE PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION E-1. SEE DETAIL ON SHEET C503.	— SF —
SUPER SILT FENCE PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION E-3. SEE DETAIL ON SHEET C503.	— SSF —
TREE PROTECTION FENCE (TREELINE) SEE DETAIL ON SHEET C504.	— TP —
SAFETY FENCE SEE DETAIL ON SHEET C504	— SAF —

AT-GRADE INLET PROTECTION PER MD STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. SEE DETAIL ON SHEET C503.

DRAINAGE DIVIDE

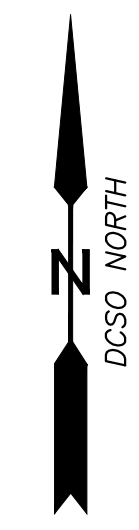
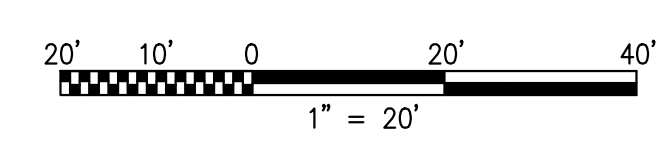
TREE PROTECTION (INDIVIDUAL TREE)

TEMP SOIL STABILIZATION MATTING - IN SLOPE. SEE DETAIL ON SHEET C503



THIS SHEET IS FOR EROSION AND SEDIMENT CONTROL ONLY

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TREES (TYP.) TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES AND TREES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL NOT RESULT IN ANY EXTRA COST.

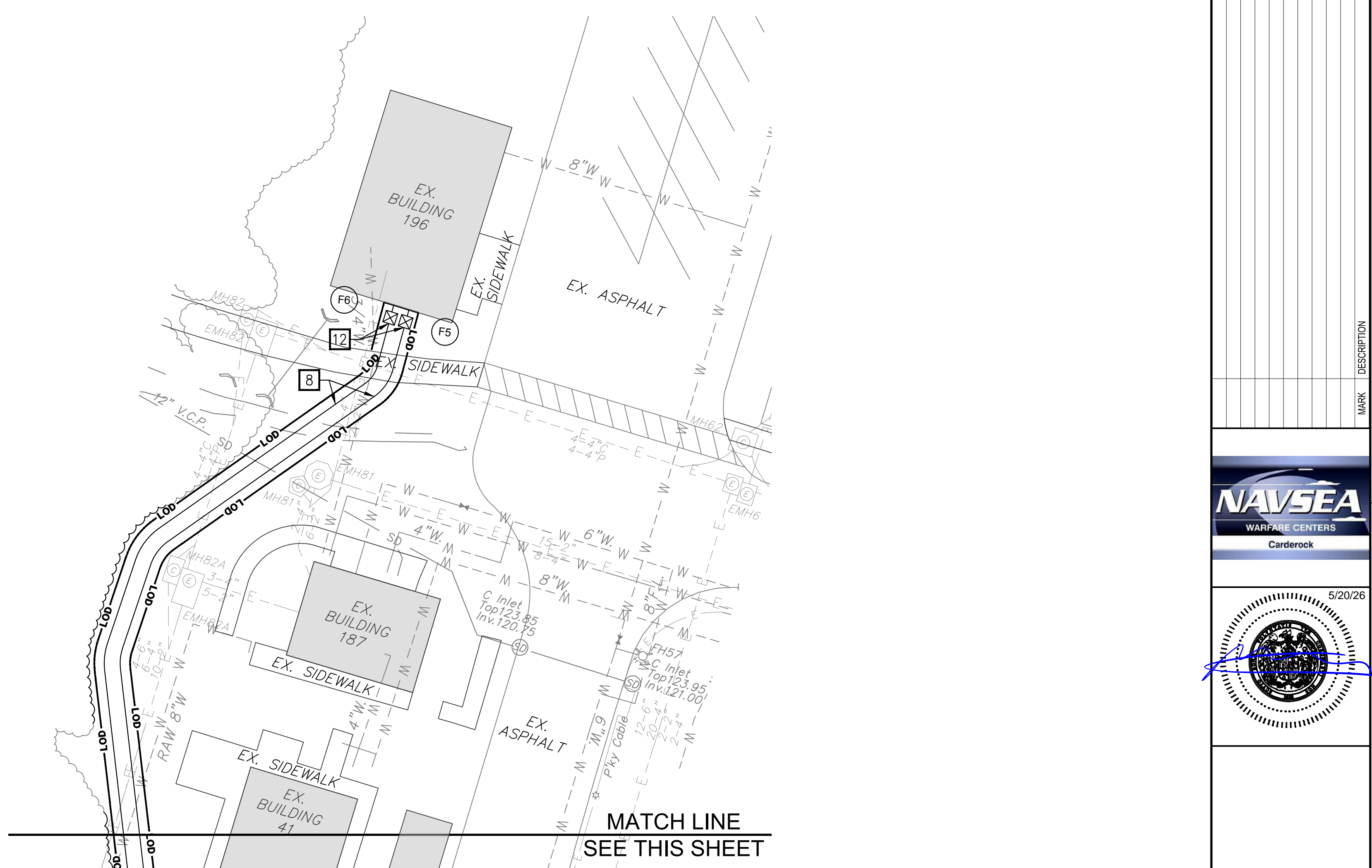
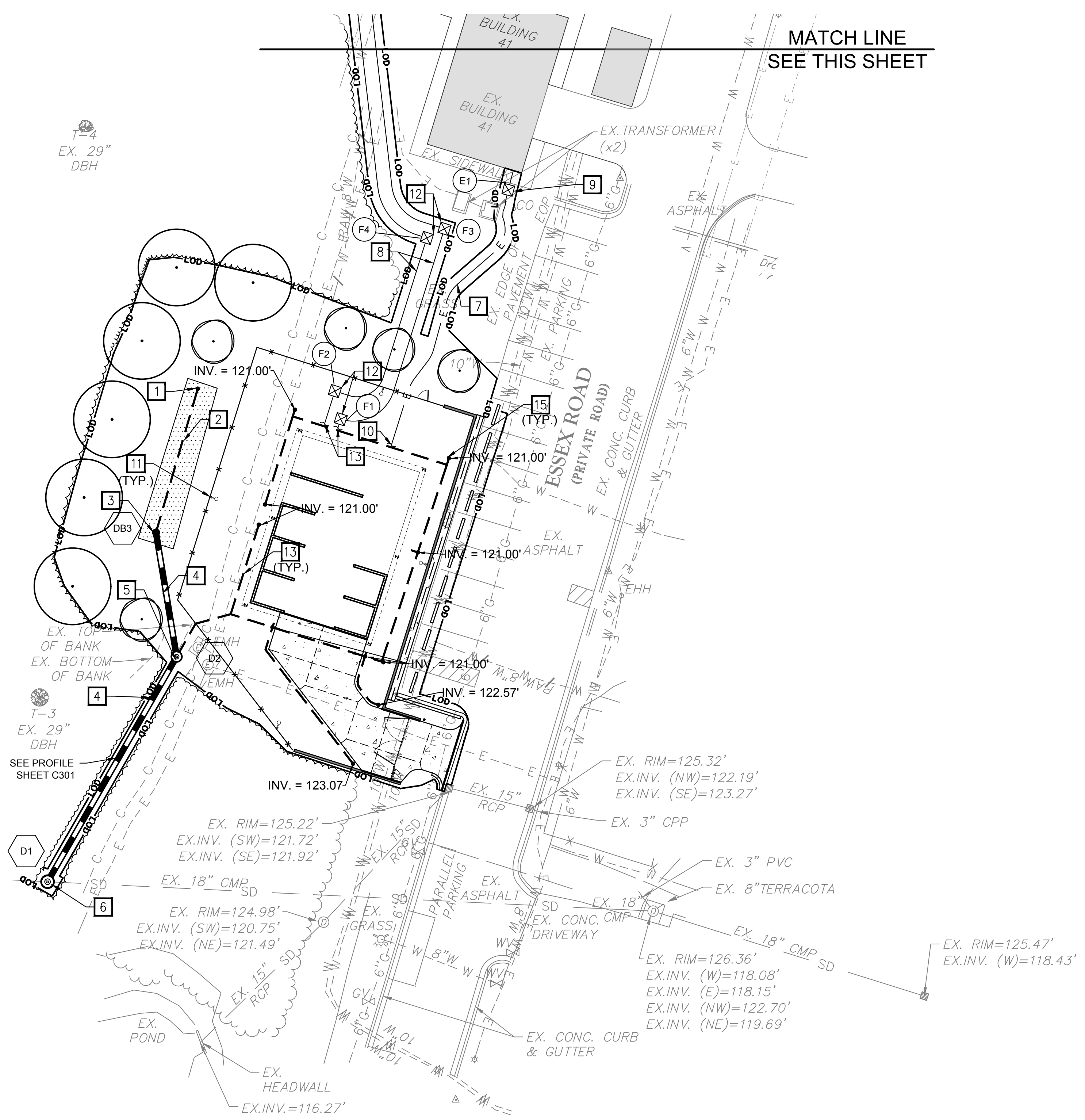


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	DATE
	MARK DESCRIPTION
WARFARE CENTERS Carderock	
5/20/26	
Carderock, Bethesda, MD	
NAVAL SURFACE WARFARE CENTER	

MATCH LINE
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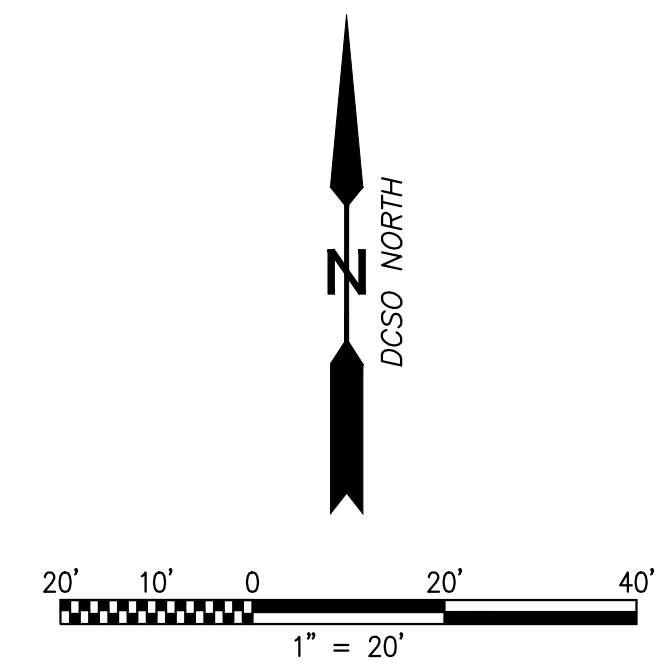


KEYNOTES

- 1 6" PVC CLEAN OUT WITH SCREW CAP. SEE SHEET C507 FOR DETAIL.
- 2 6" PERFORATED PVC SCH-40 UNDERDRAIN.
- 3 18" NYLOPLAST DRAIN BASIN WITH DOMED GRATE. SEE SHEET C508 FOR DETAIL.
- 4 15" RCP STORM SEWER. SEE SHEET C508 FOR UTILITY TRENCH DETAIL.
- 5 48" PRECAST CONCRETE MANHOLE. SEE SHEET C508 FOR DETAIL.
- 6 60" PRECAST CONCRETE DOGHOUSE MANHOLE. SEE SHEET C508 FOR DETAIL.
- 7 DIRECT BURIED 1" SCH-40 PVC TO EXISTING PANELBOARD ON BUILDING 41.
- 8 DIRECT BURIED FIRE ALARM CONDUITS TO EXISTING BUILDING 196 WITH A 4-FOOT MINIMUM HORIZONTAL SEPARATION BETWEEN INCOMING AND OUTGOING. REFER TO SHEET FA701 FOR FURTHER DETAILS.
- 9 ELECTRICAL HANDHOLE PULLBOX. REFER TO ELECTRICAL SHEET E501 FOR DETAILS.
- 10 REFER TO ELECTRICAL SHEET ES101 FOR CONTINUATION INTO BATTERY STORAGE PAD.
- 11 LIGHTING FIXTURE. REFER TO ELECTRICAL SHEET E502 FOR DETAILS AND SHEET E201 FOR CIRCUITING.
- 12 FIRE ALARM HANDHOLE. USE SAME DETAIL AS THE ELECTRICAL HANDHOLE. REFER TO ELECTRICAL SHEET E501 FOR DETAILS.
- 13 REFER TO SHEET FA701 FOR DETAILS IN BATTERY STORAGE PAD.
- 14 6" PERFORATED PVC SUBDRAIN. SEE SHEET C508 FOR DETAIL.
- 15 UNDERDRAIN CLEANOUT. SEE SHEET C508 FOR DETAIL.

LEGEND

- LIMITS OF DISTURBANCE
- PROPOSED STORM SEWER
- PROPOSED PERFORATED PVC UNDERDRAIN
- PROPOSED OVERFLOW DRAIN
- PROPOSED CLEAN OUT
- PROPOSED STORM MANHOLE

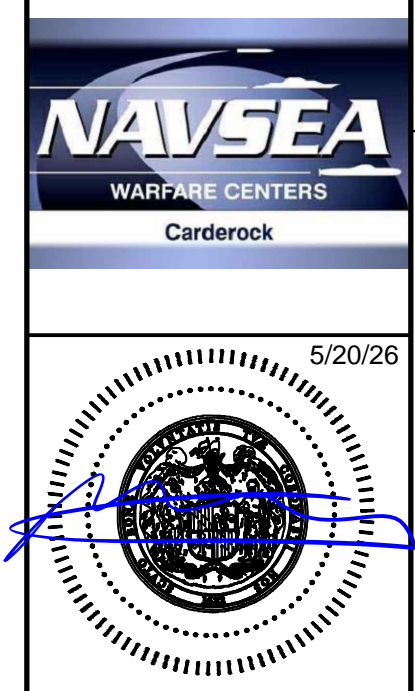


STORM STRUCTURE TABLE					
STRUCTURE NAME	NORTHING	EASTING	TOP/RIM ELEVATION	DESCRIPTION	INVERTS
CO	476,594.78	1,256,153.14	119.58	UNDERDRAIN	INV. 6" OUT TO DB3 = 119.02
D1	476,454.14	1,256,110.28	121.23	60" DOGHOUSE MANHOLE	INV. 15" IN FR D2 = 117.12 INV. 18" IN FR EX. STRM EAST = 117.10 INV. 18" OUT TO EX. STRM WEST = 117.10
D2	476,518.34	1,256,147.11	121.35	48" MANHOLE	INV. 15" IN FR DB3 = 117.50 INV. 15" OUT TO D1 = 117.49 INV. 6" OUT TO SUBDRAINAGE = 119.50
DB3	476,553.76	1,256,141.21	122.78	18" NYLOPLAST DRAIN	INV. 6" IN FR CO = 118.46 INV. 15" OUT TO D2 = 117.71

FIRE ALARM STRUCTURE TABLE					
STRUCTURE NAME	NORTHING	EASTING	TOP/RIM ELEVATION	DESCRIPTION	
F1	476,586.08	1,256,193.92	123.57	FIRE ALARM HANDHOLE	
F2	476,594.11	1,256,192.26	123.21	FIRE ALARM HANDHOLE	
F3	476,640.40	1,256,223.52	122.70	FIRE ALARM HANDHOLE	
F4	476,637.78	1,256,218.50	122.00	FIRE ALARM HANDHOLE	
F5	476,820.71	1,256,270.98	123.77	FIRE ALARM HANDHOLE	
F6	476,821.75	1,256,267.12	123.77	FIRE ALARM HANDHOLE	

ELECTRIC STRUCTURE TABLE				
STRUCTURE NAME	NORTHING	EASTING	TOP/RIM ELEVATION	DESCRIPTION
E1	476,651.49	1,256,241.74	124.32	ELECTRICAL HANDHOLE

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Carderock, Bethesda, MD
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B-4.3 STANDARDS AND SPECIFICATIONS

FOR SEEDING AND MULCHING

Definition: The application of seed and mulch to establish vegetative cover. Purpose: To protect disturbed soils from erosion during and at the end of construction. Conditions Where Practice Applies: To the surface of all perimeter controls, slopes, and any disturbed area not under active grading. Criteria:

- A. Seeding
1. Specifications
a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory.
b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen.
c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species.
d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
2. Application
a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
ii. Apply seed in two directions, perpendicular to each other.
b. Drill or Catpawker Seeding: Mechanized seeders that apply and cover seed with soil.
c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

B-4.4 STANDARDS AND SPECIFICATIONS

FOR TEMPORARY STABILIZATION

Definition: To stabilize disturbed soils with vegetation for up to 6 months. Purpose: To use fast growing vegetation that provides cover on disturbed soils. Conditions Where Practice Applies: Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required. Criteria:

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3) and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4.3.A.1.b and maintain until the next seeding season.

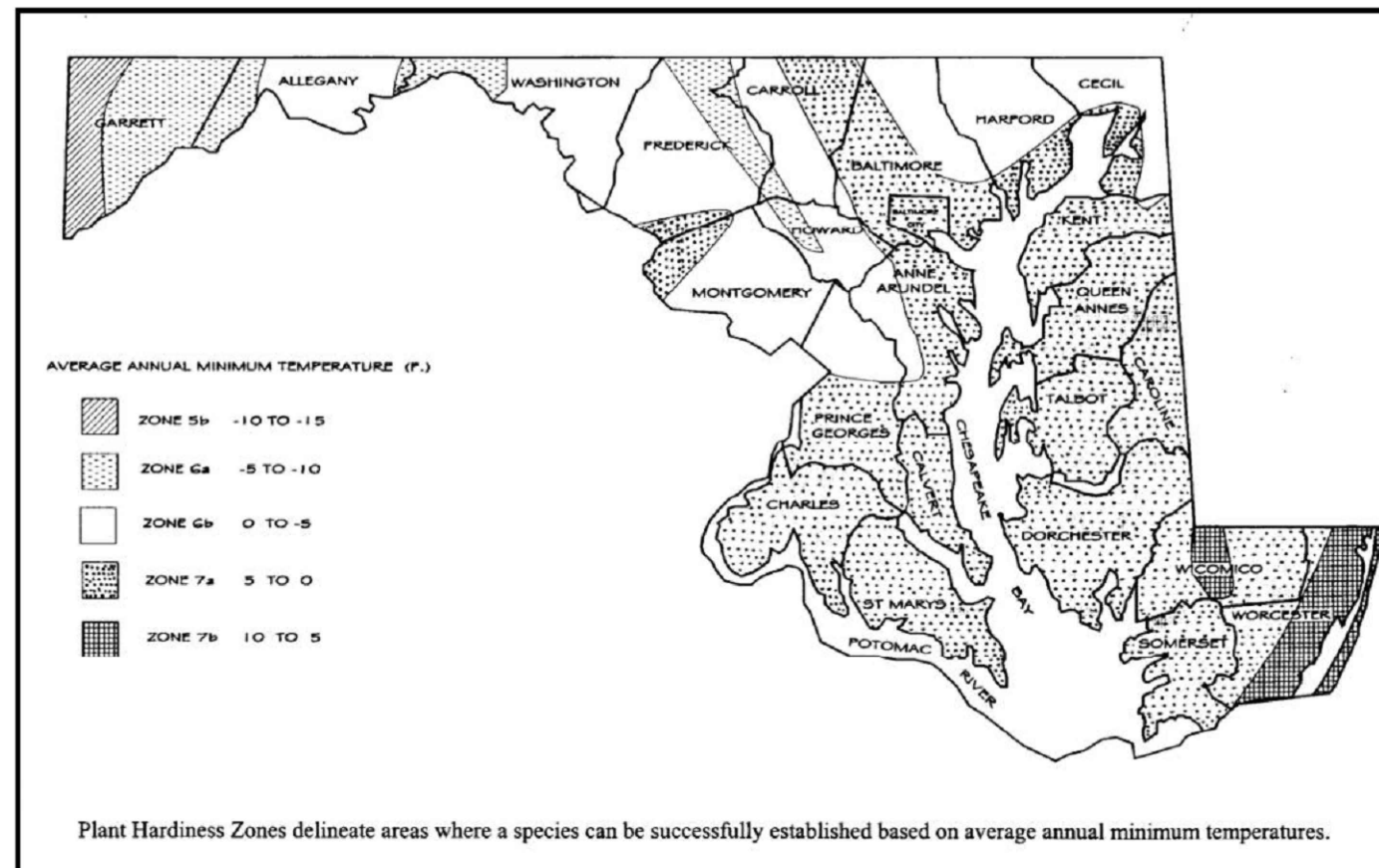


Figure B.3. U.S.D.A. Plant Hardiness Zones

Table B.1: Temporary Seeding for Site Stabilization

Table with columns: Plant Species, Seeding Rate (lb/ac, lb/1000 sq ft), Seeding Depth (inches), and Recommended Seeding Dates by Plant Hardiness Zone (5b and 6a, 6b, 7a and 7b). Rows include Cool-Season Grasses (Annual Ryegrass, Balfour, Oats, Cereal Rye), Warm-Season Grasses (Foxtail Millet, Pearl Millet).

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested.
2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

B-4.5 STANDARDS AND SPECIFICATIONS

FOR PERMANENT STABILIZATION

Definition: To stabilize disturbed soils with permanent vegetation. Purpose: To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils. Conditions Where Practice Applies: Exposed soils where ground cover is needed for 6 months or more. Criteria:

- A. Seed Mixtures
1. General Use
a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2.
b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
c. For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.
d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
2. Turfgrass Mixtures
a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management.
ii. Kentucky Bluegrass/Perennial Ryegrass: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management.
iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade.
iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland". Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

- c. Ideal Times of Seeding for Turf Grass Mixtures
Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed.
e. If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established.

PERMANENT SEEDING SUMMARY table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, N, P2O5, K2O, LIME RATE. Rows include Creeping Red Fescue, Perennial Ryegrass, Flatpea, Creeping Red Fescue, Chewings Fescue, Kentucky Bluegrass.

- B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
b. Sod must be machine cut at a uniform soil thickness of 1/2 inch, plus or minus 1/8 inch, at the time of cutting.
c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
e. Sod must be harvested, delivered, and installed within a period of 36 hours.
2. Sod Installation
a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other.
c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints.
d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet.
3. Sod Maintenance
a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches.
b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

B-5 STANDARDS AND SPECIFICATIONS

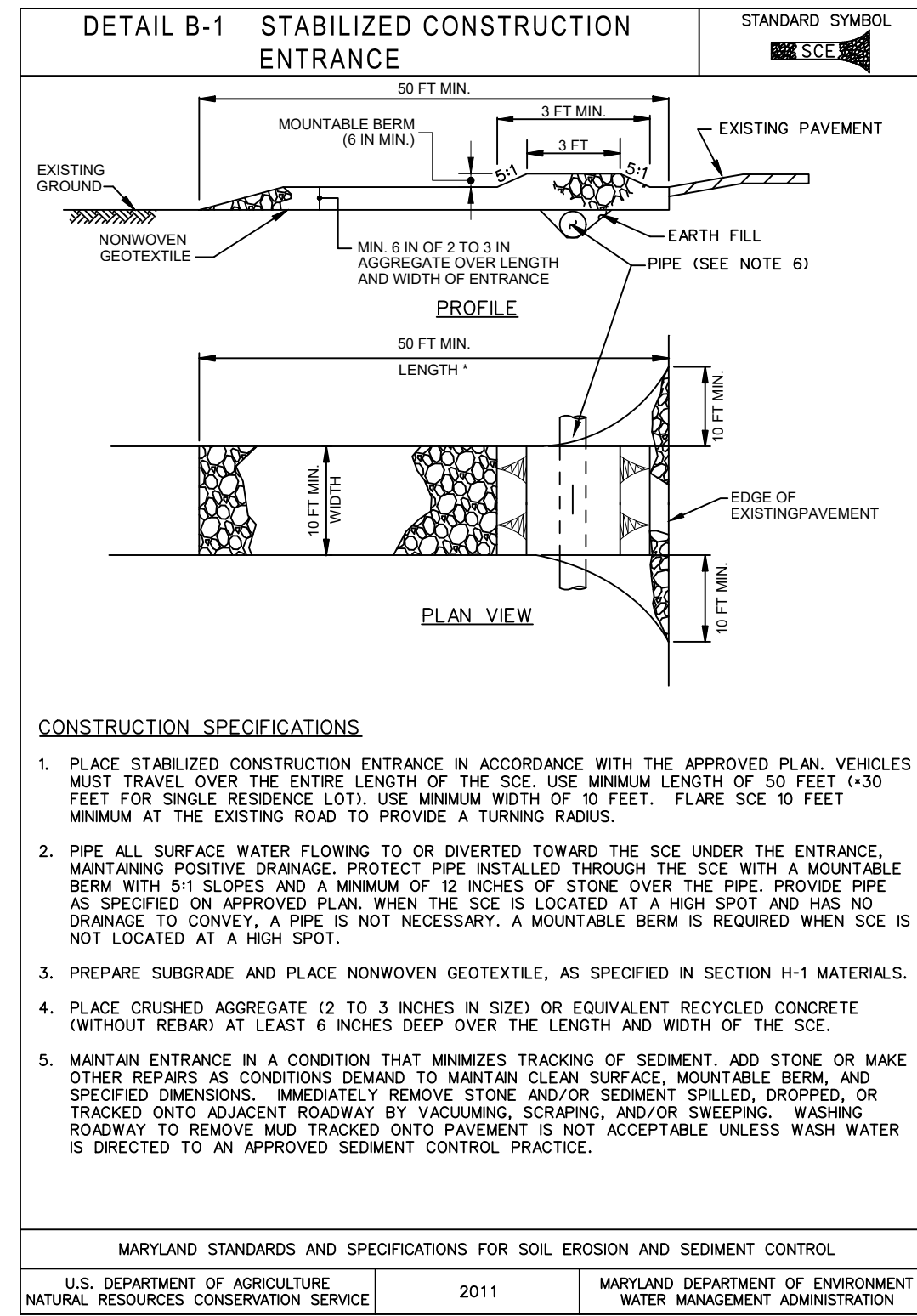
FOR DUST CONTROL

Definition: Controlling the suspension of dust particles from construction activities. Purpose: To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards. Conditions Where Practice Applies: Areas subject to dust blowing and movement where on and off-site damage is likely without treatment. Specifications:

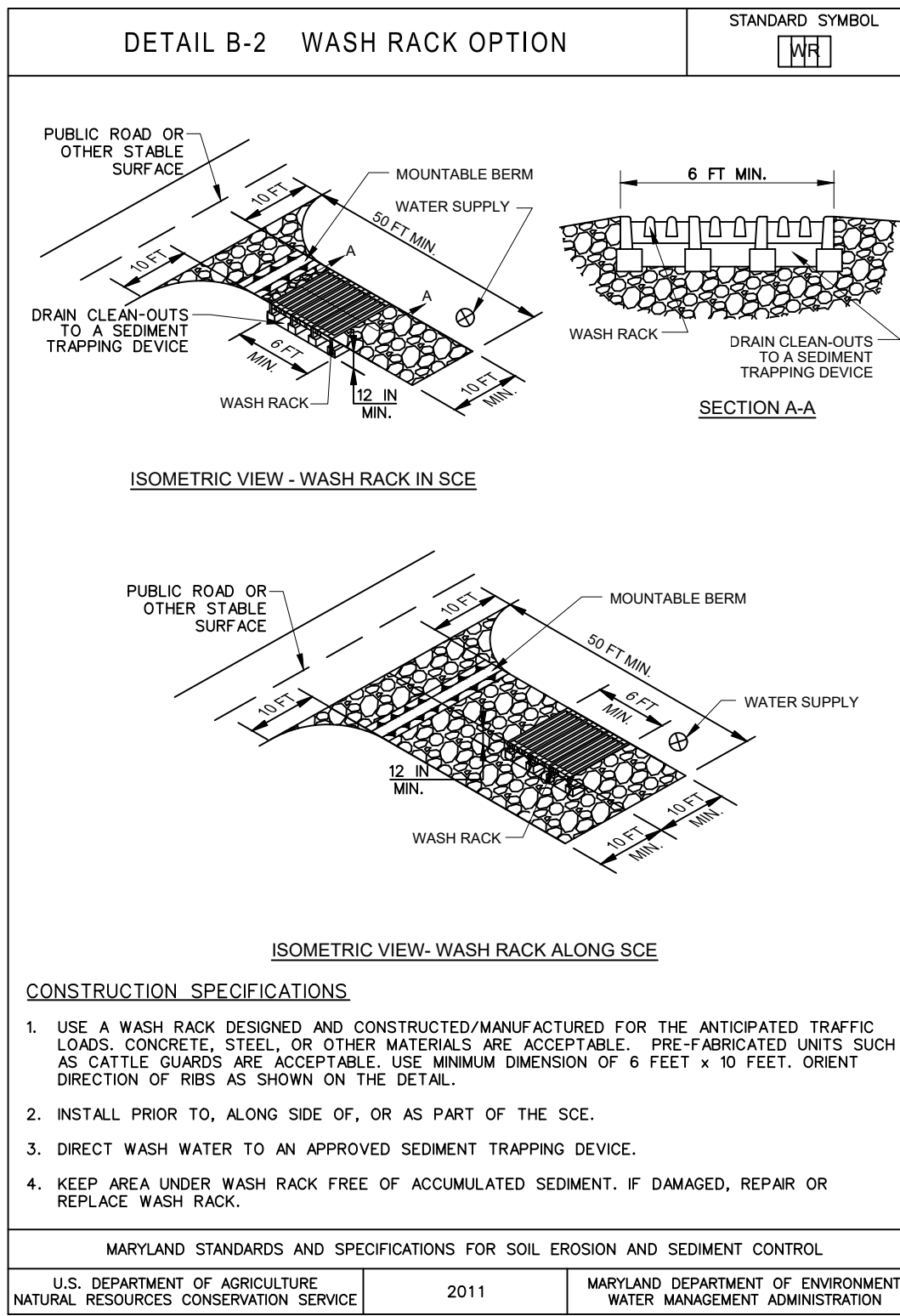
- 1. Mulches: See Section B-4.2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4.3 Seeding and Mulching, and Section B-4.4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
2. Vegetative Cover: See Section B-4.4 Temporary Stabilization.
3. Tillage: Till to roughen surface and bring cloids to the surface.
4. Irrigation: Sprinkle site with water until the surface is moist.
5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

Vertical sidebar containing project information: DATE, MARK, DESCRIPTION, NAVSEA WARFARE CENTERS Carderock, 5/20/26, and a circular seal.

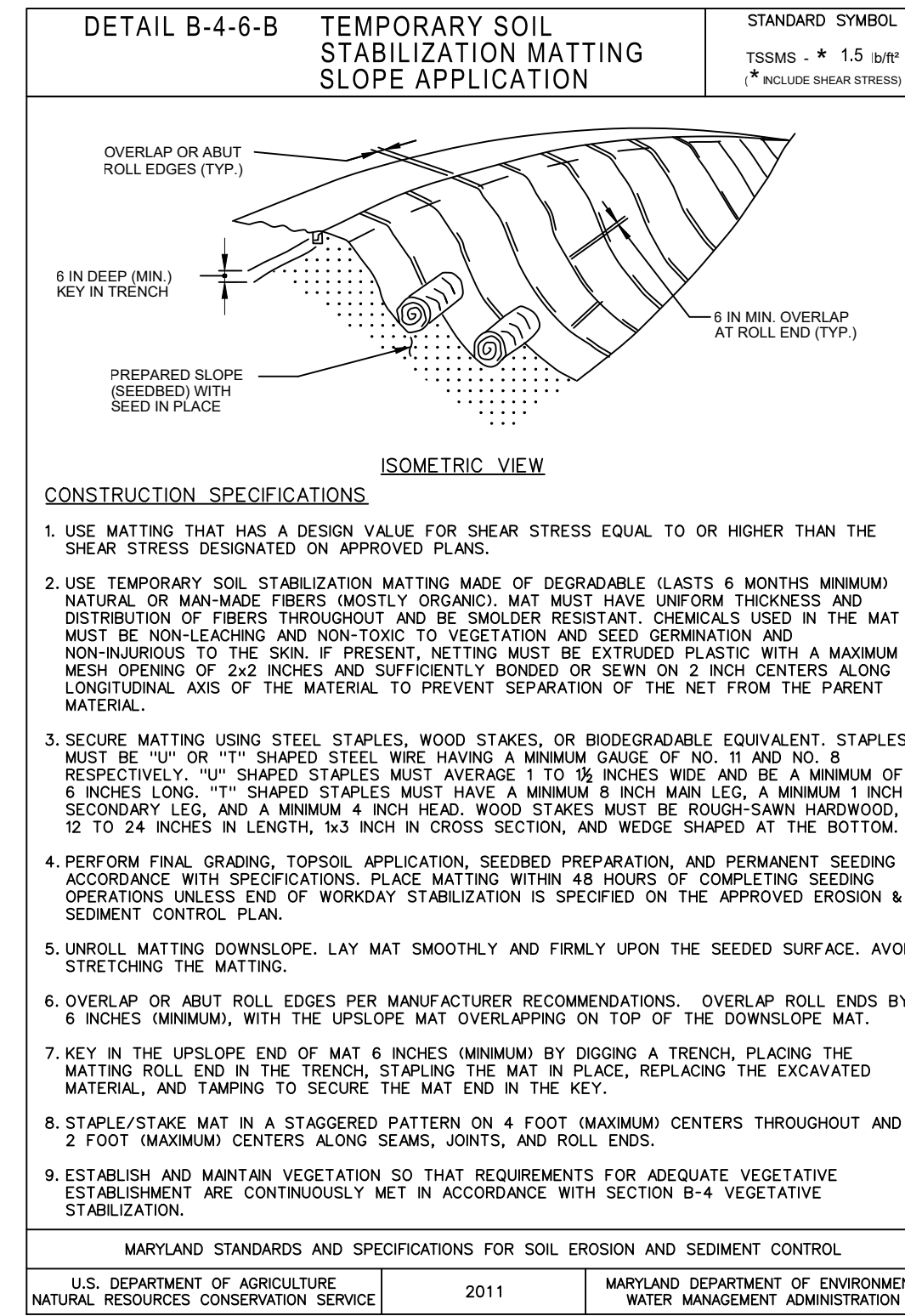
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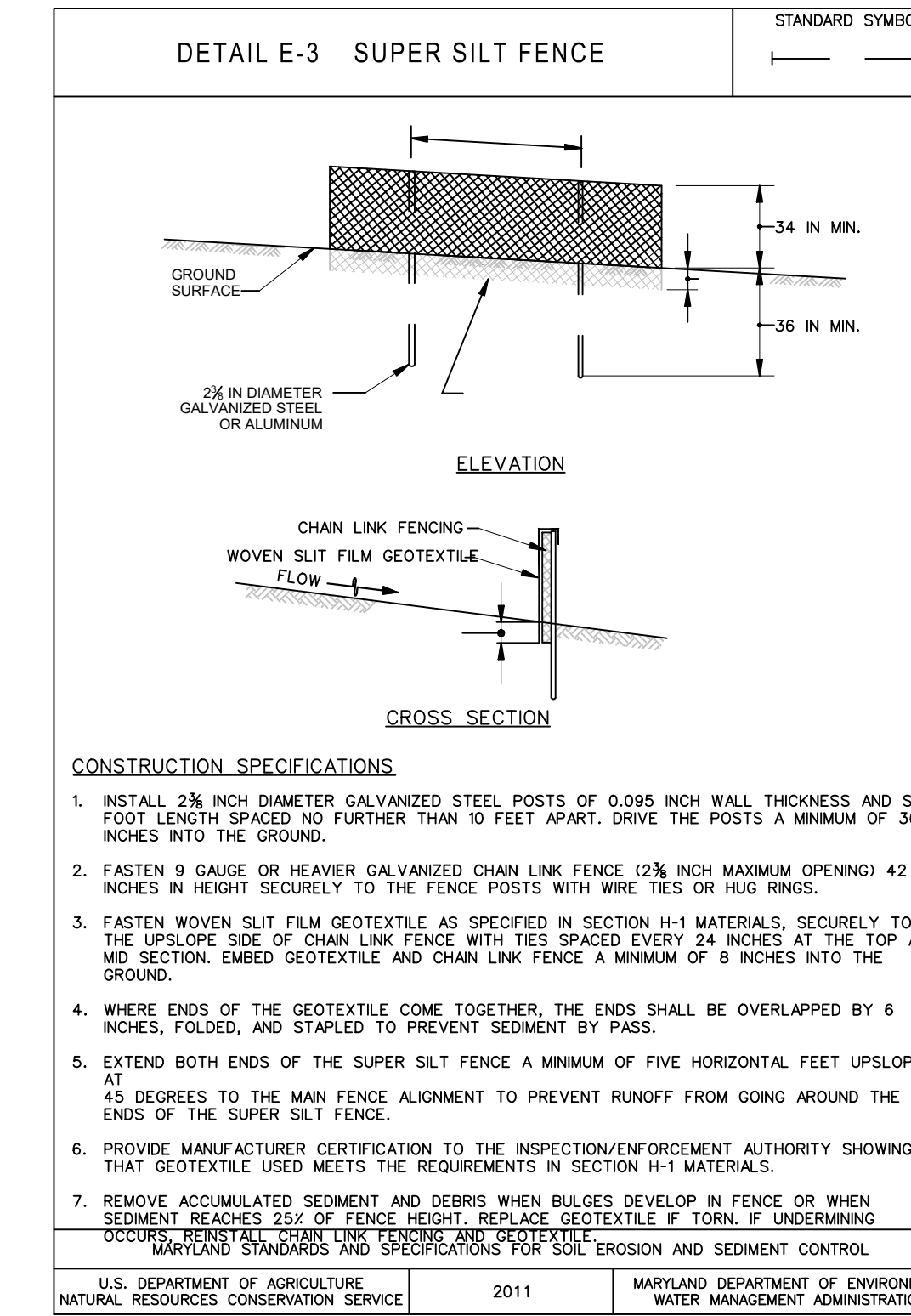
1 STABILIZED CONSTRUCTION ENTRANCE
C503 SCALE: NOT TO SCALE



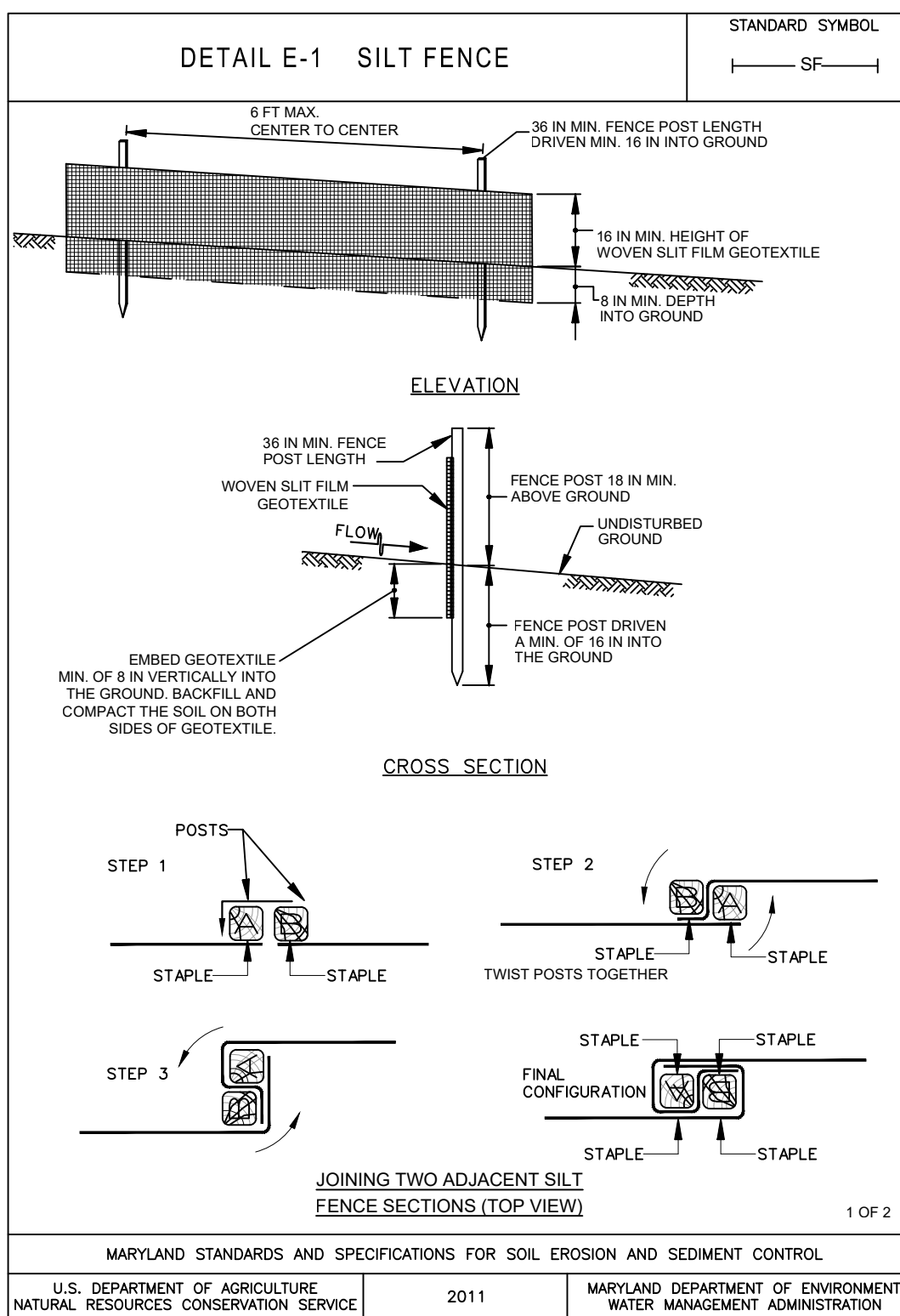
2 WASH RACK
C503 SCALE: NOT TO SCALE



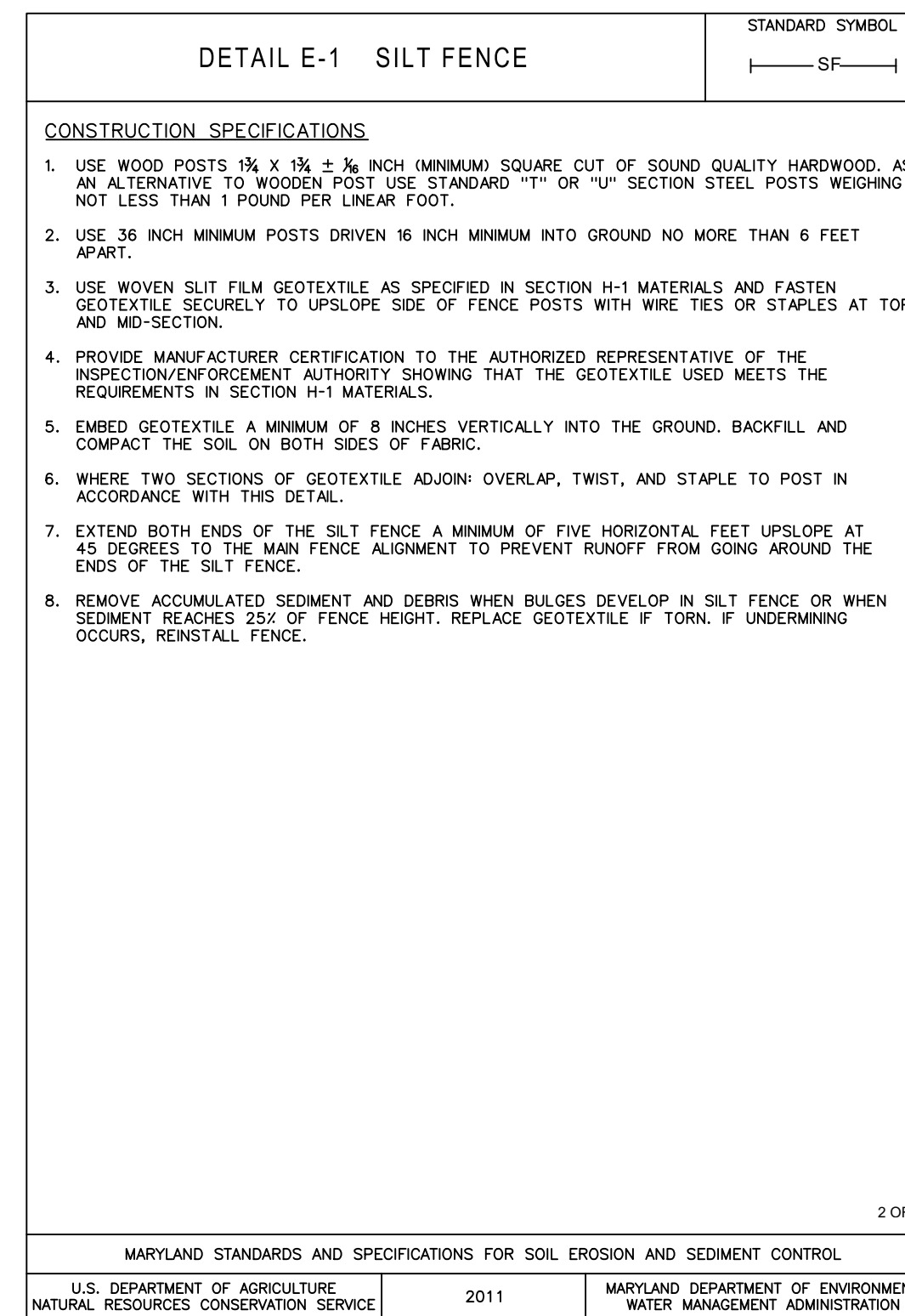
3 TEMP. SOIL STABILIZATION MATTING - IN SLOPE
C503 SCALE: NOT TO SCALE



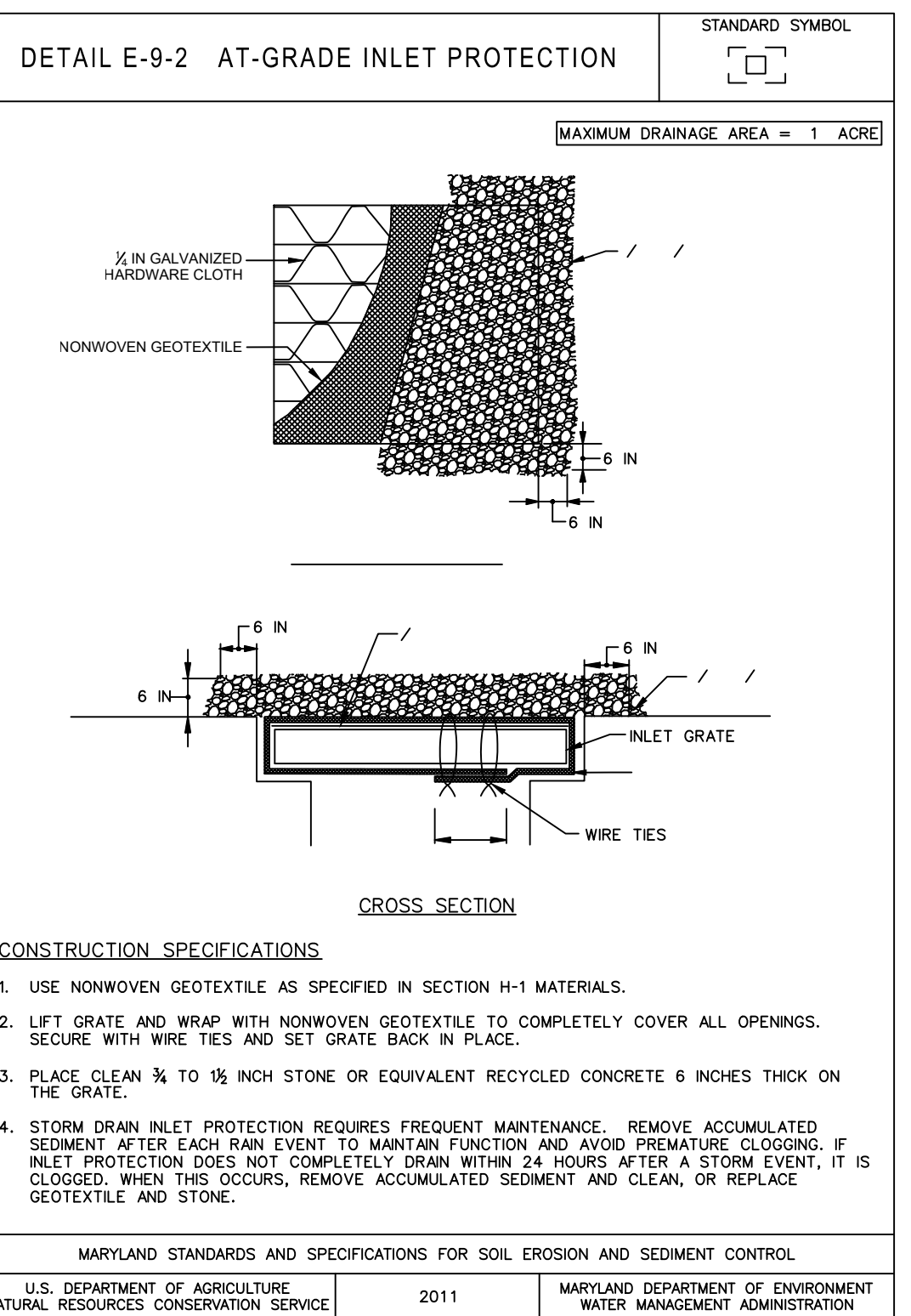
4 SUPER SILT FENCE
C503 SCALE: NOT TO SCALE



5 SILT FENCE
C503 SCALE: NOT TO SCALE



6 SILT FENCE
C503 SCALE: NOT TO SCALE



7 AT-GRADE INLET PROTECTION
C503 SCALE: NOT TO SCALE

DATE

MARK

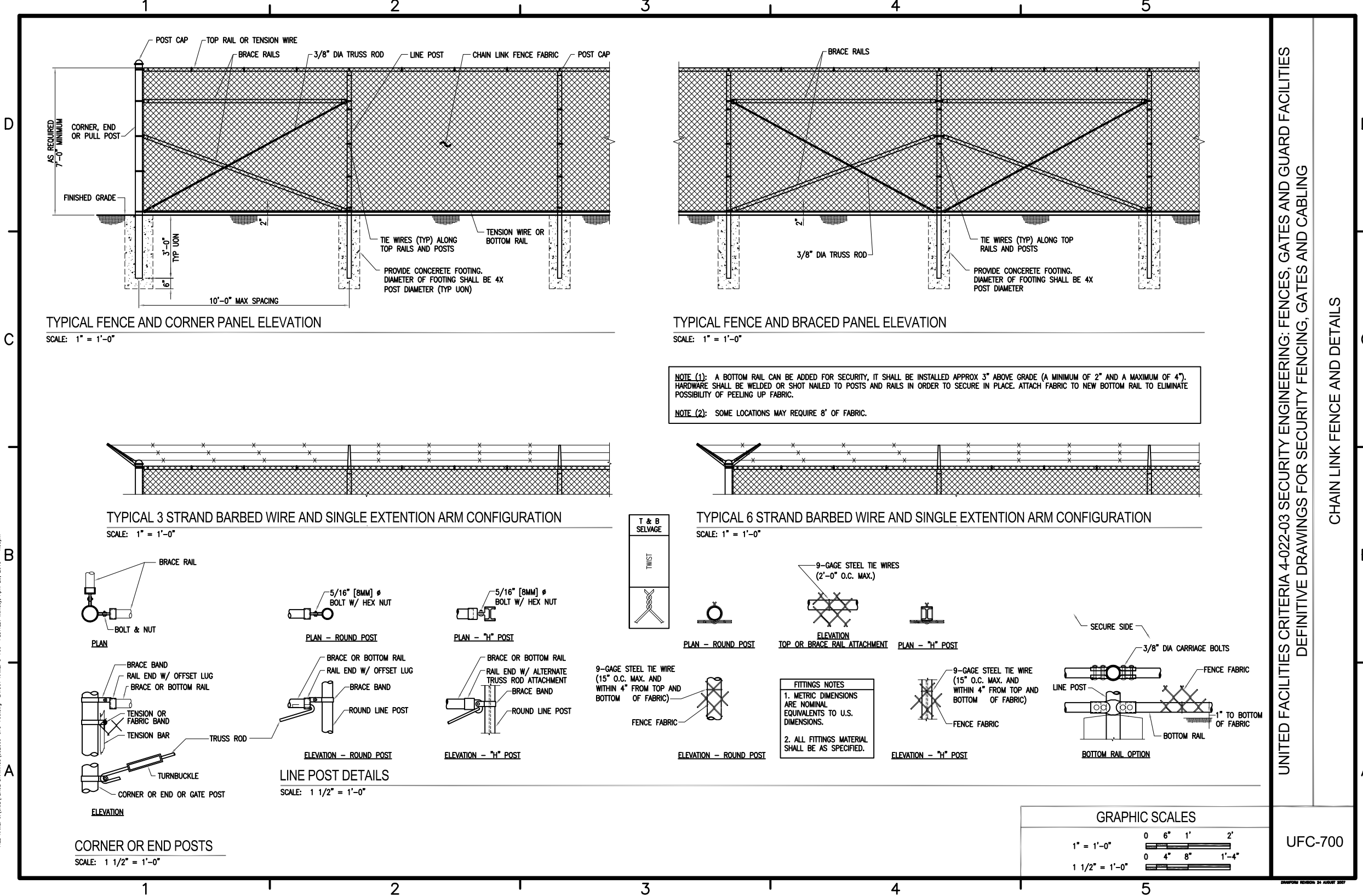
DESCRIPTION

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Carderock

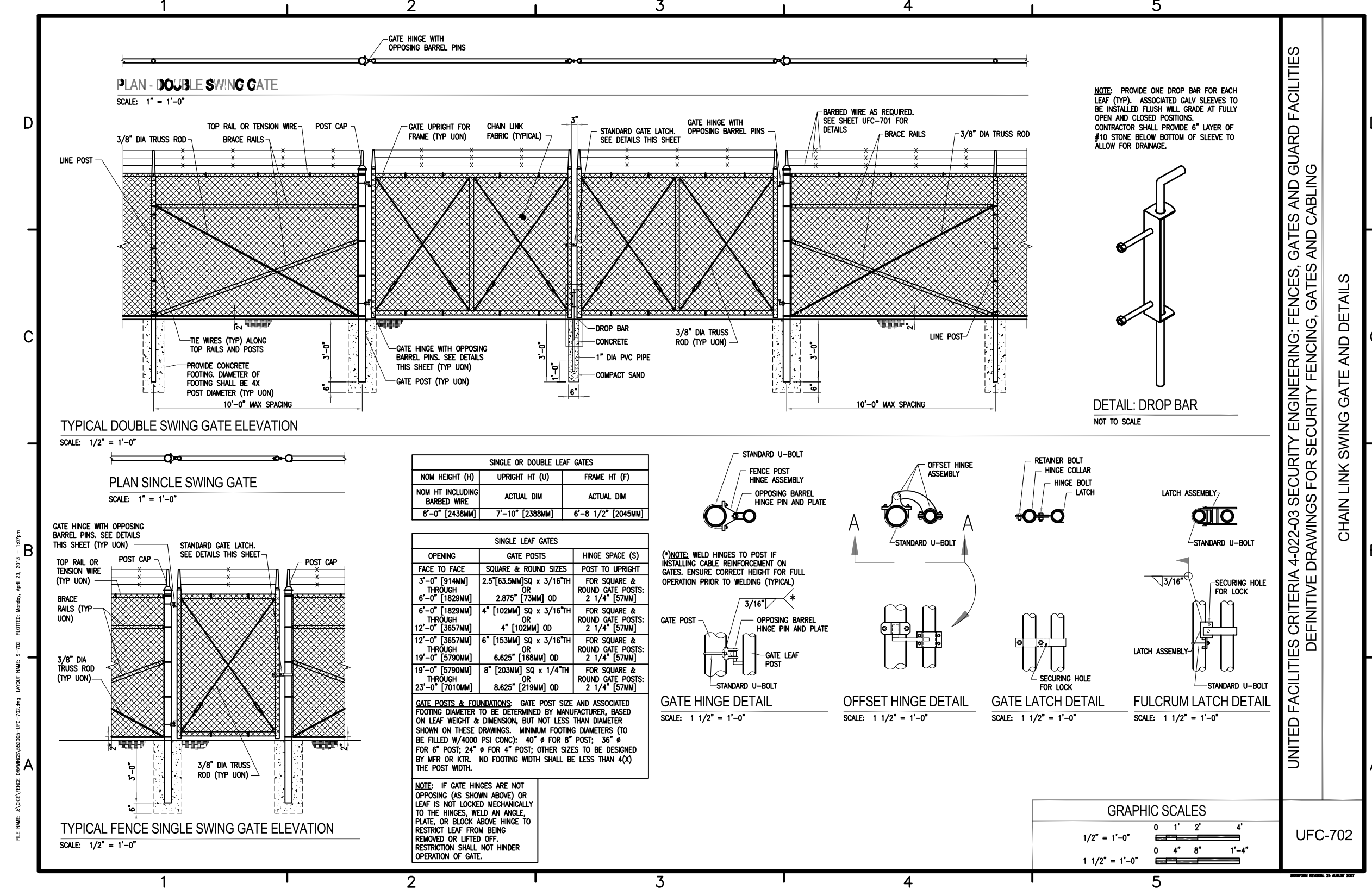
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Carderock, Bethesda, MD

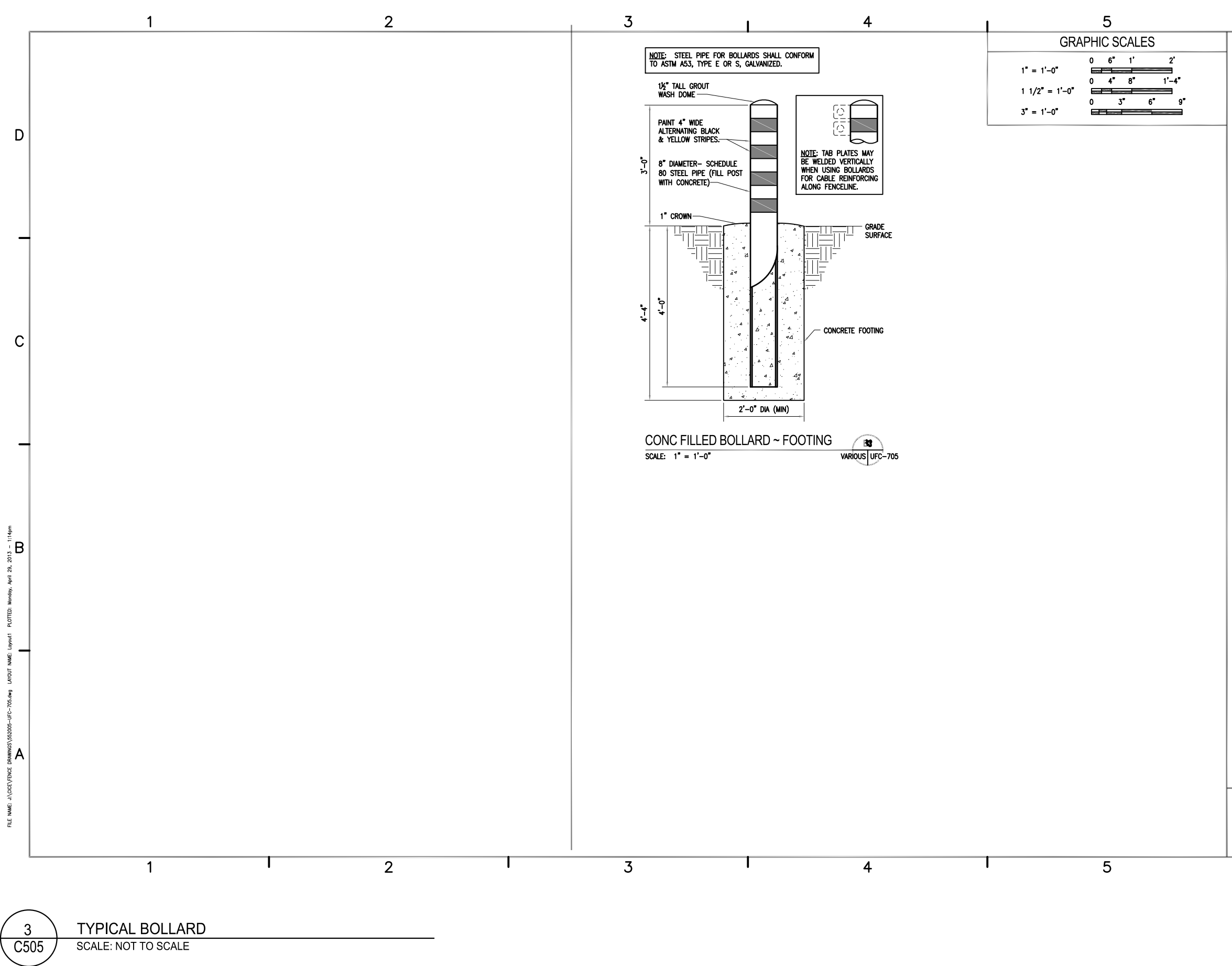
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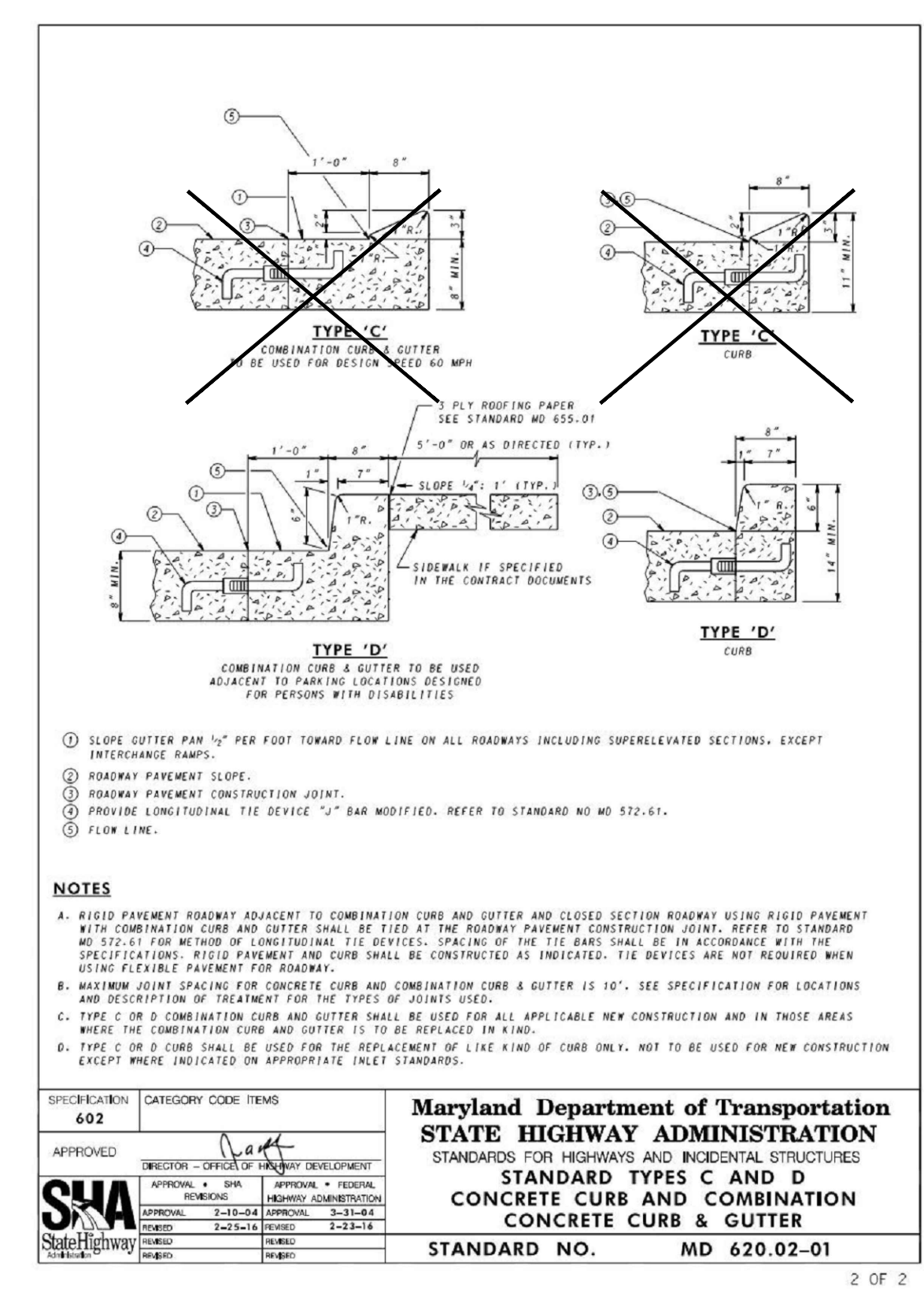
1 CHAIN LINK FENCE
 SCALE: NOT TO SCALE



2 CHAIN LINK SWING GATE
 SCALE: NOT TO SCALE



3 TYPICAL BOLLARD
 SCALE: NOT TO SCALE



4 STANDARD TYPE D CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER
 SCALE: NOT TO SCALE

DATE

MARK DESCRIPTION

NAVSEA
 WARFARE CENTERS
 Carderock

5/20/26

NAVAL SURFACE WARFARE CENTER
 Carderock, Bethesda, MD

2 OF 2

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

3. Reinforced Turf

Reinforced Grass Pavement (RGP) - Whether used with grass or gravel, the RGP thickness shall be at least 1 1/2" thick with a load capacity capable of supporting the traffic and vehicle types that will be carried.

B.4.C Specifications for Micro-Bioretenation, Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretenation practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
Clay Content - Media shall have a clay content of less than 5%.
pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are

Supp. 1

B.4.4

Appendix B.4. Construction Specifications for Environmental Site Design Practices

excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretenation practices can be found in Appendix A, Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8" of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Supp. 1

B.4.5

Supp. 1

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, defolants, or other chemical treatments to the soil is not acceptable. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/2" (No. 4 or 4x4) galvanized hardware cloth.
Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
The main collector pipe shall be at a minimum 0.5% slope.
A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
A 4" layer of pea gravel (1/2" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized

Supp. 1

B.4.6

Table B.3.2 Materials Specifications for Bioretention

Table with 4 columns: Material, Specification, Size, Notes. Rows include Plantings, mulch, geotextile, underdrain gravel, underdrain piping, poured in place concrete, and sand.

Appendix B.3. Construction Specifications for Sand Filters, Bioretention and Open Channels

1 CONSTRUCTION SPECIFICATIONS SCALE: NOT TO SCALE

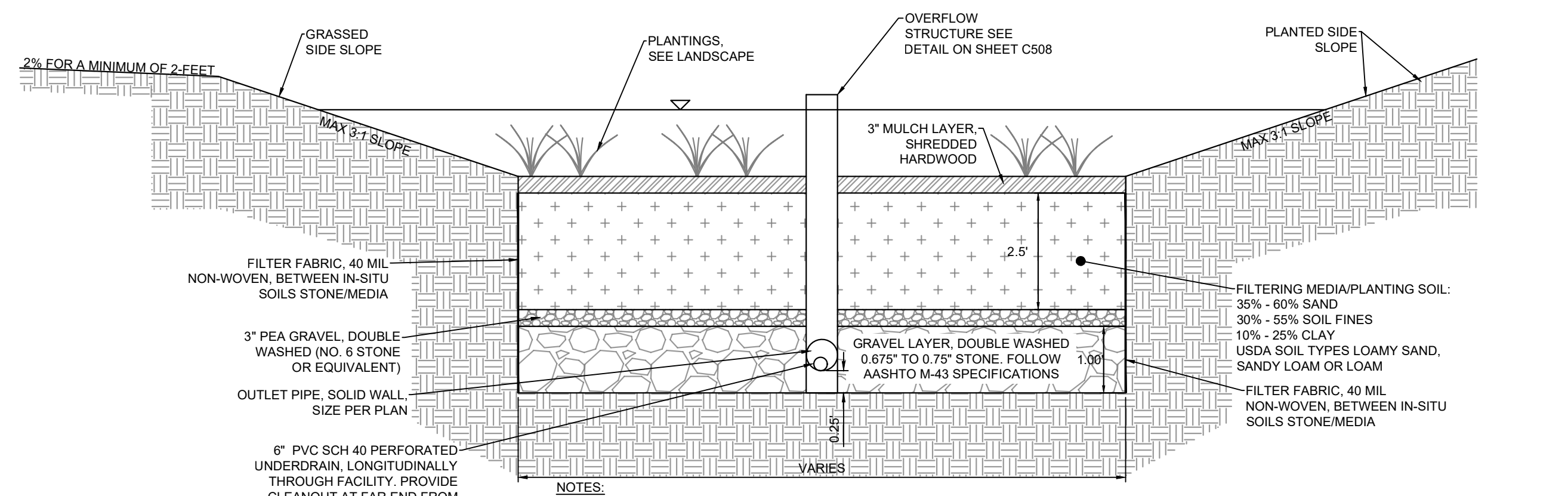
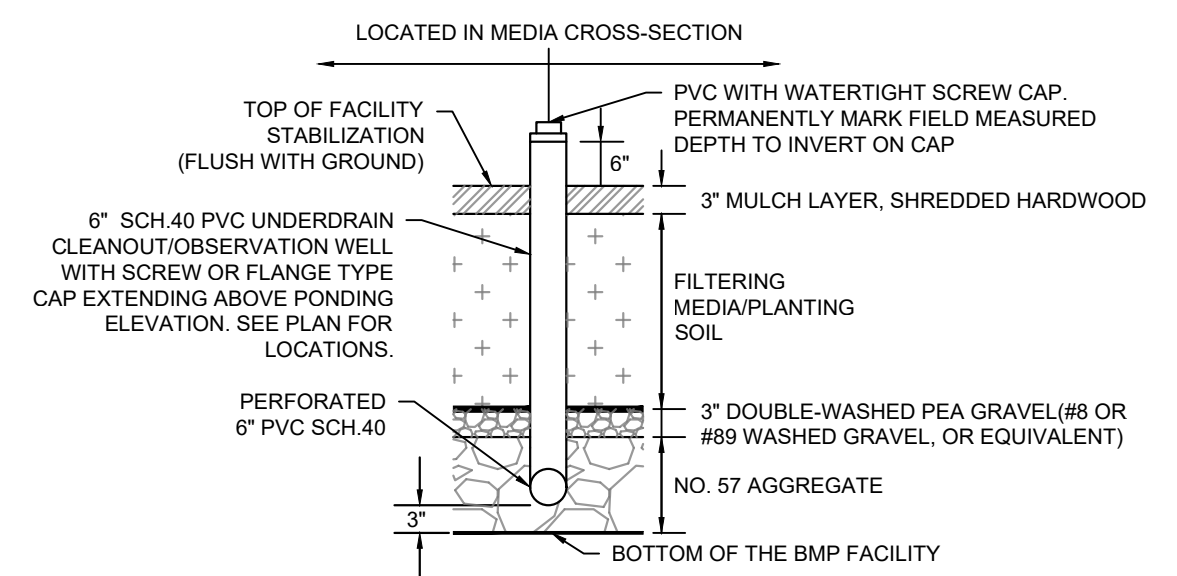


Table with 7 columns: DESIGN, BOTTOM OF FACILITY, TOP OF MULCH SURFACE, PONDING ELEVATION, TOP OF BERM, 10-YR WSEL, OVERFLOW STRUCTURE RIM EL.

2 MICRO-BIORETENTION SECTION DETAIL SCALE: NOT TO SCALE



3 TYPICAL MICRO-BIORETENTION SOLID CLEANOUT DETAIL SCALE: NOT TO SCALE

STORMWATER MAINTENANCE SCHEDULE MICRO-BIORETENTION

Table with 3 columns: Inspection Item, Inspection Requirements, Remedial Action. Divided into Monthly Inspection and Seasonal Inspection After a Major Storm.

4 MAINTENANCE SCHEDULE SCALE: NOT TO SCALE

STORMWATER MANAGEMENT AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE POND CODE 378 SMALL POND STORMWATER MANAGEMENT FACILITY (FACILITIES) SHOWN ON THE PLANS AND INDIVIDUALLY IDENTIFIED BELOW HAS (HAVE) BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS INCLUDED UNDER THE MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL NUMBER 26 - SF-0071...

EACH SWM FACILITY IS IDENTIFIED INDIVIDUALLY BY A UNIQUE SWM FACILITY NUMBER

Name (Printed) Signature
Maryland Registration Number Date

PROFESSIONAL CERTIFICATION. "I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. , EXPIRATION DATE ."

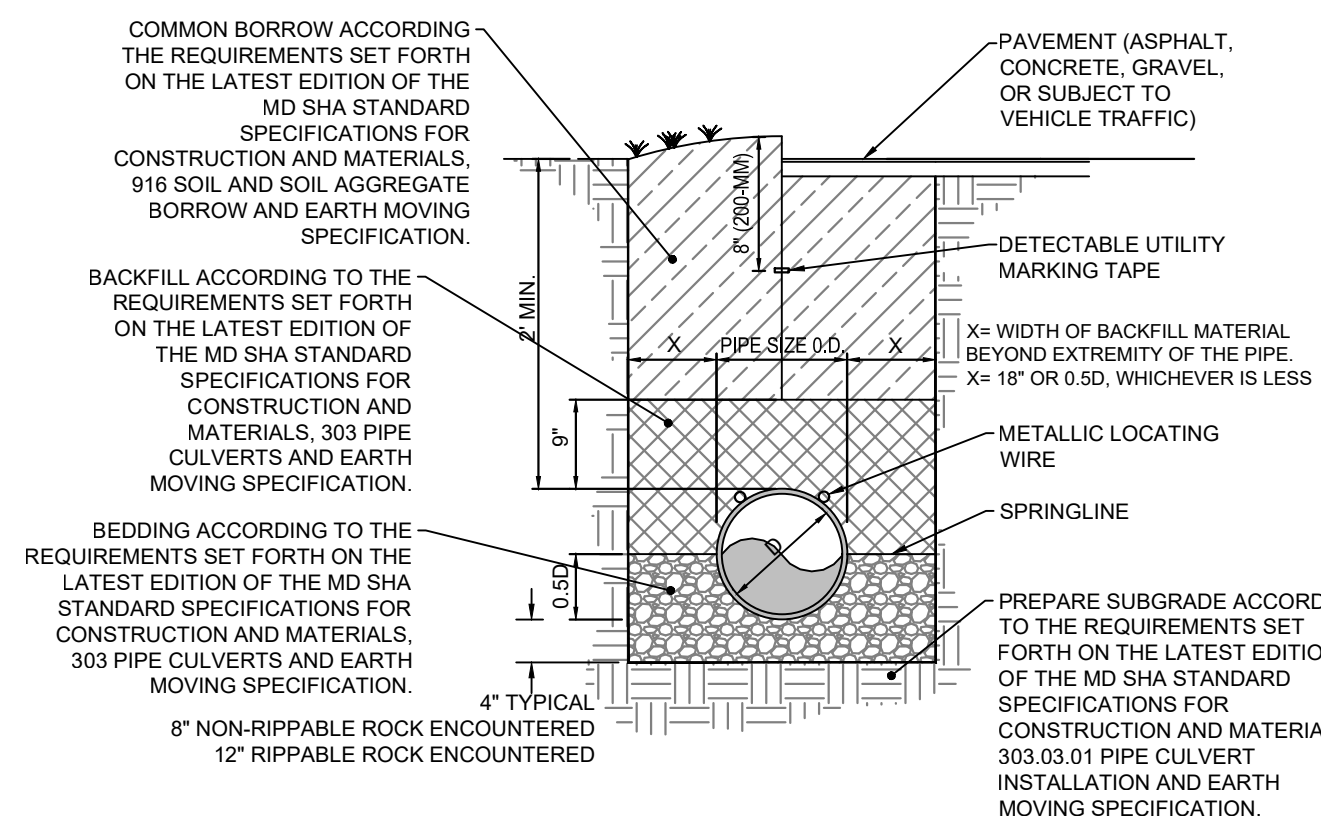
"CERTIFY" MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ON-SITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.

NOTE: AS-BUILT CHECKLISTS CONTAINED IN THE CONTRACT DRAWINGS SHALL BE COMPLETED BY THE AS-BUILT INSPECTOR AND SUBMITTED TO THE SHA ALONG WITH THIS CERTIFICATION.

5 AS-BUILT CERTIFICATION SCALE: NOT TO SCALE

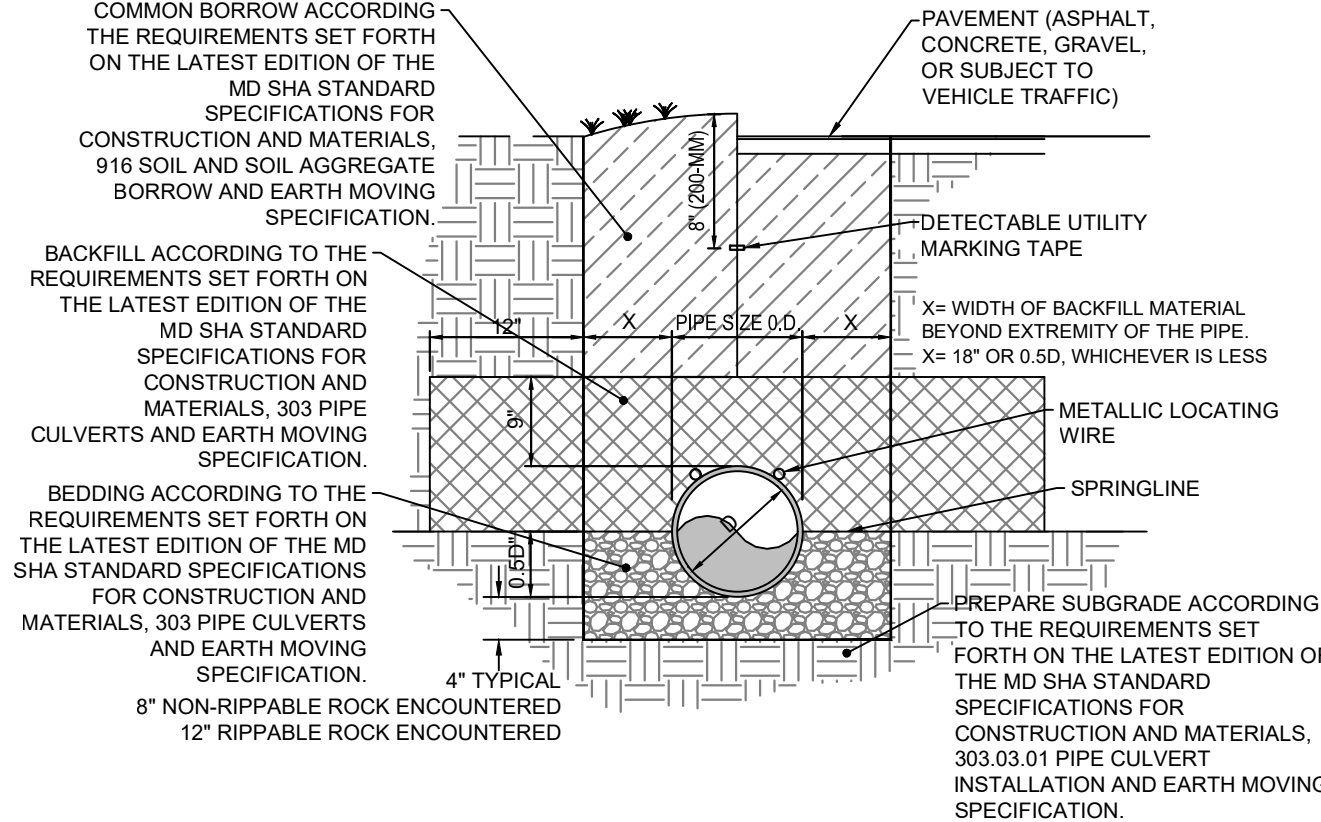
2/12/2025 1:16:05 PM AE100 Autodesk Docs/23016.02 NSWC B 157 Battery Storage/A35.rvt

Vertical sidebar containing project information: NAVSEA WARFARE CENTERS Carderock, 5/20/26, and NAVY SURFACE WARFARE CENTER.



- NOTES:
- FOLLOW ALL GUIDELINES SET FORTH IN THE LATEST EDITION OF THE MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 303 PIPE CULVERTS AND EARTH MOVING SPECIFICATION. IF THERE IS A DISCREPANCY BETWEEN THIS DETAIL, THE INFORMATION IN THE LATEST EDITION OF THE MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 303 PIPE CULVERTS AND EARTH MOVING SPECIFICATION, CONTACT ENGINEER FOR CLARIFICATION.
 - DETECTABLE WARNING TAPE TO STATE THE PURPOSE OF THE UTILITY, I.E. "STORM DRAIN".

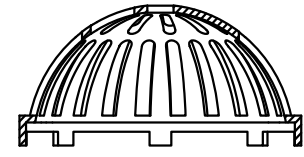
1 CONCRETE PIPE UTILITY TRENCH "A"
SCALE: NOT TO SCALE



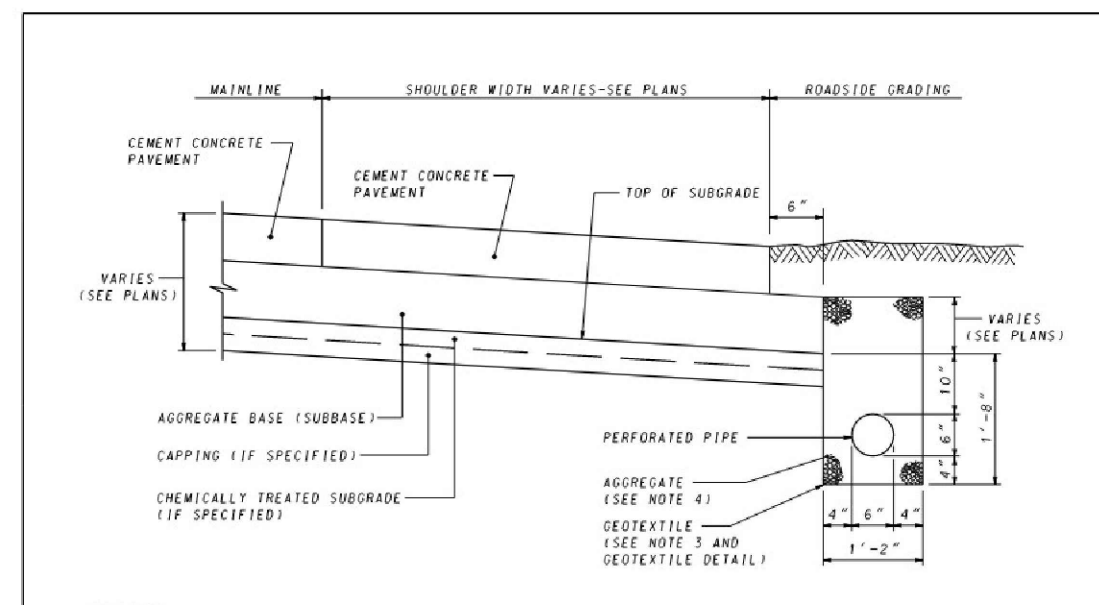
- NOTES:
- FOLLOW ALL GUIDELINES SET FORTH IN THE LATEST EDITION OF THE MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 303 PIPE CULVERTS AND EARTH MOVING SPECIFICATION. IF THERE IS A DISCREPANCY BETWEEN THIS DETAIL, THE INFORMATION IN THE LATEST EDITION OF THE MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, 303 PIPE CULVERTS AND EARTH MOVING SPECIFICATION, CONTACT ENGINEER FOR CLARIFICATION.
 - DETECTABLE WARNING TAPE TO STATE THE PURPOSE OF THE UTILITY, I.E. "STORM DRAIN".

2 CONCRETE PIPE UTILITY TRENCH "B"
SCALE: NOT TO SCALE

- TRENCHING NOTES:
- DETAIL "A" TO BE USED WHEN PROPOSED PIPE IS TO BE INSTALLED ENTIRELY BELOW EXISTING GRADE.
 - DETAIL "B" TO BE USED IN SITUATIONS WHERE PROPOSED PIPE OR A PORTION OF THE PROPOSED PIPE IS TO BE INSTALLED AT OR ABOVE EXISTING GRADE.



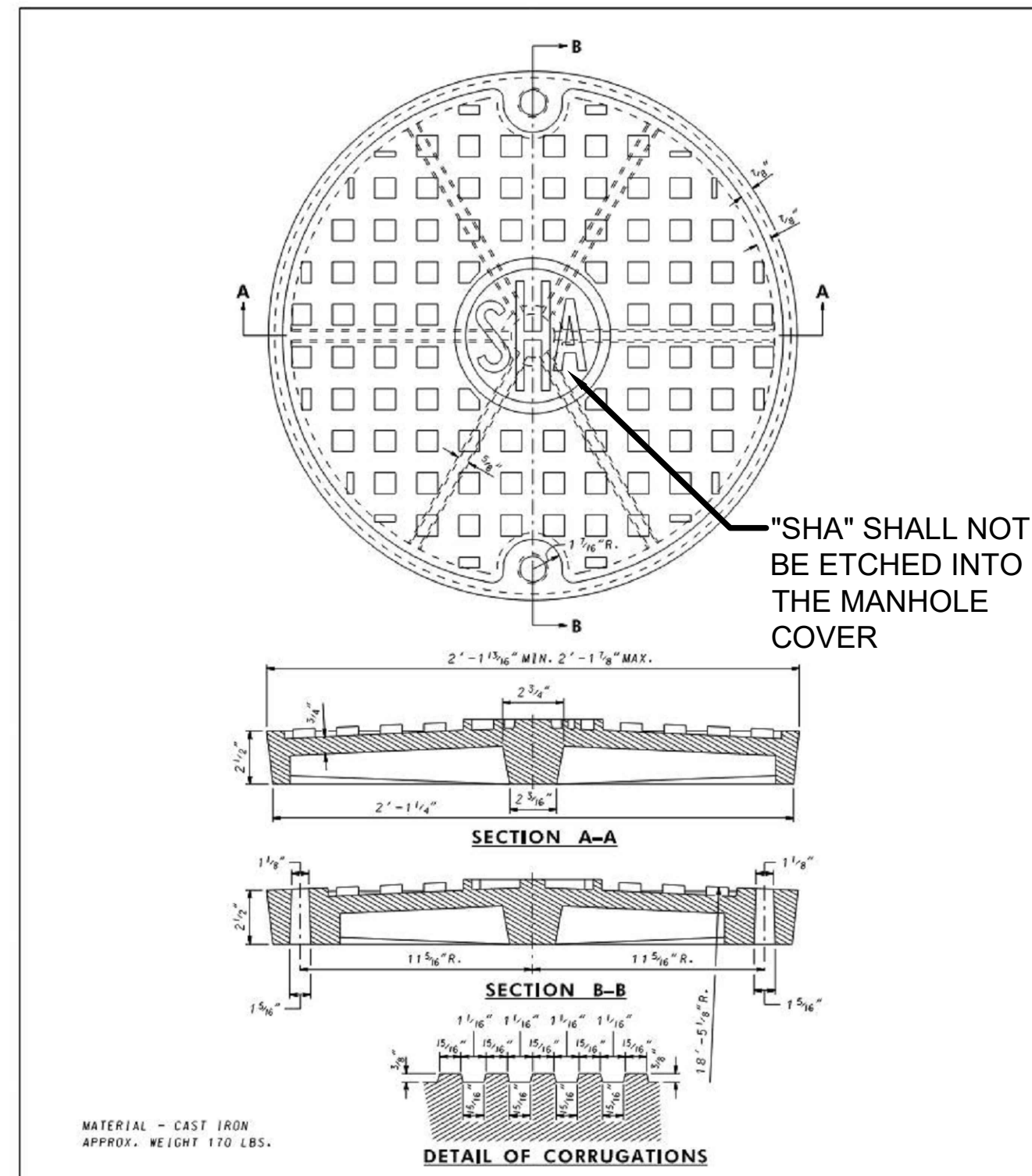
6 IRON DOME GRATE WITH FRAME BASIN COVER DETAIL
SCALE: NOT TO SCALE



- NOTES:
- THE UNDERDRAIN TRENCH SHALL NOT BE CONSTRUCTED BEFORE PLACEMENT OF THE BASE COURSE/CURB CURVE.
 - LONGITUDINAL UNDERDRAIN TRENCH SHALL BE WRAPPED IN CLASS 50 TYPE II GEOTEXTILE.
 - AGGREGATE SHALL CONFORM TO NO. 57 AGGREGATE, 100-101 OF THE STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIALS.
 - AGGREGATE SHALL BE TAMPED WITH A LIGHT VIBRATORY TAMPER PRIOR TO OVERLAPPING THE GEOTEXTILE FABRIC.
 - CONTRACT UNIT PRICE PER LINEAR FOOT FOR 4\"/>

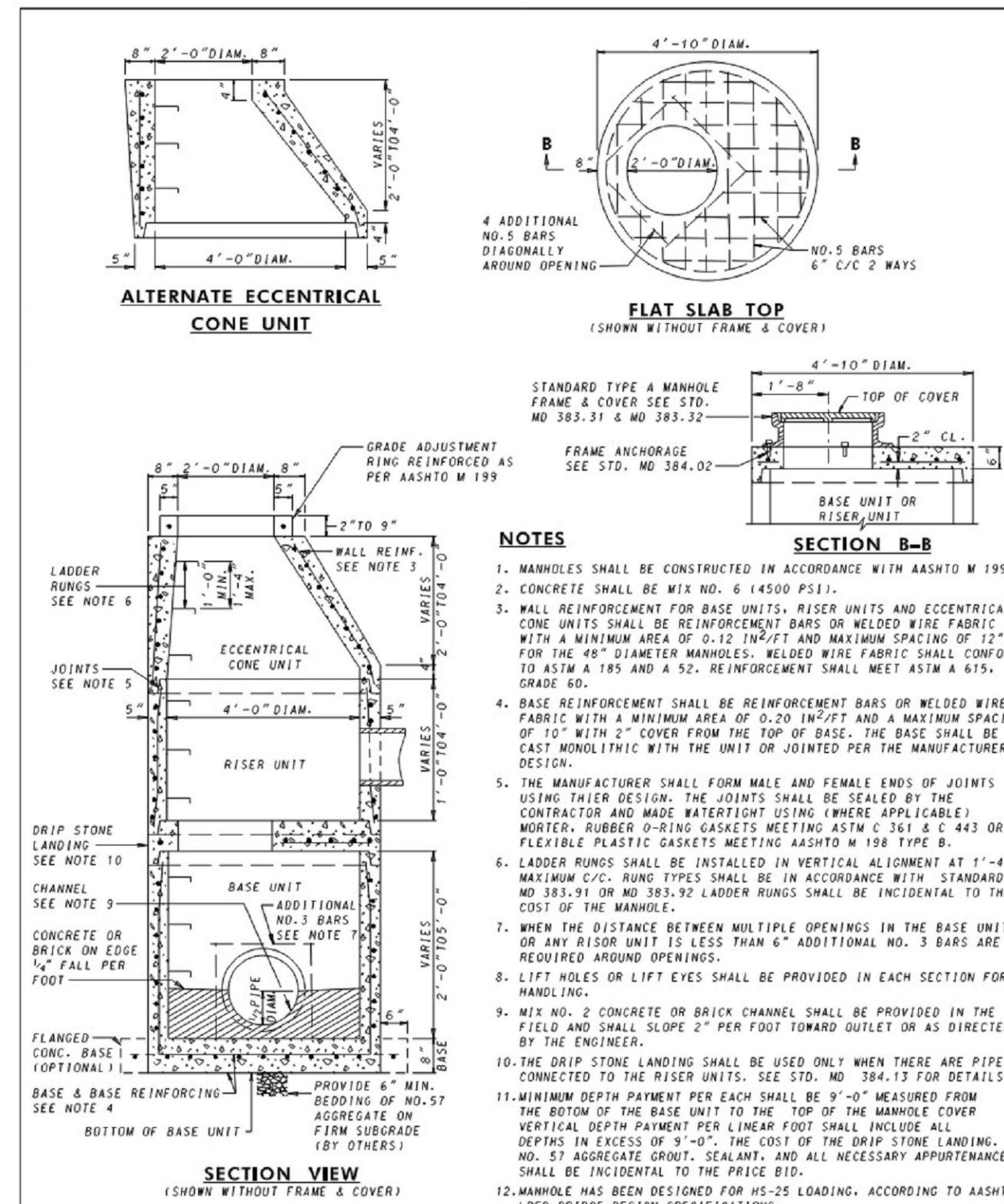
SPECIFICATION		CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES LONGITUDINAL UNDERDRAIN LOCATED AT SHOULDER EDGE FOR RIGID PAVEMENT	
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	APPROVAL - STATE	APPROVAL - FEDERAL	STANDARD NO.	MD 387.21
APPROVED	APPROVAL - STATE	APPROVAL - FEDERAL	APPROVAL - FEDERAL		
REVISION	REVISION	REVISION	REVISION		
DATE	DATE	DATE	DATE		

6 PAVEMENT UNDERDRAIN
SCALE: NOT TO SCALE



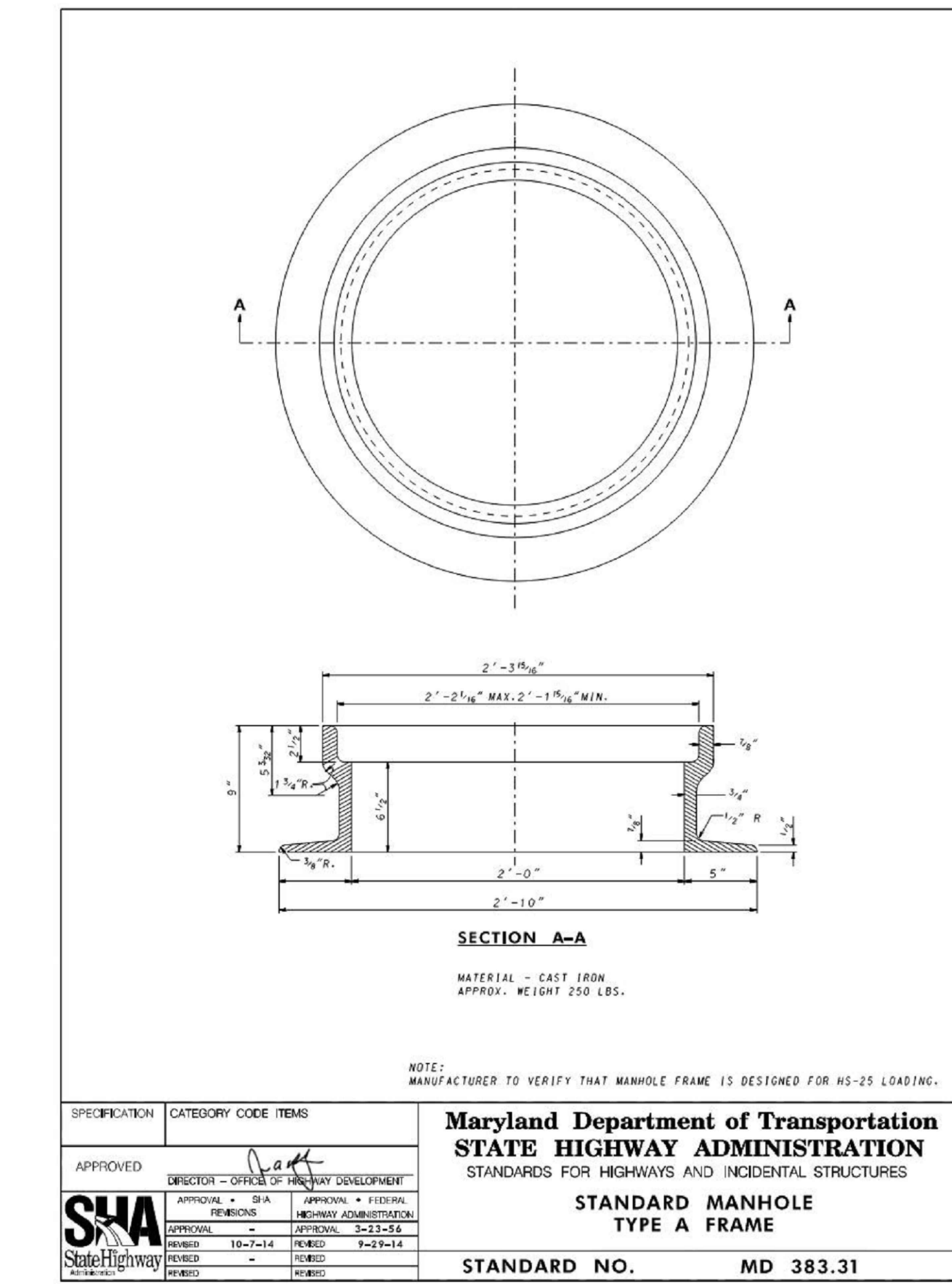
SPECIFICATION		CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD MANHOLE TYPE A COVER	
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	APPROVAL - STATE	APPROVAL - FEDERAL	STANDARD NO.	MD 383.32
APPROVED	APPROVAL - STATE	APPROVAL - FEDERAL	APPROVAL - FEDERAL		
REVISION	REVISION	REVISION	REVISION		
DATE	DATE	DATE	DATE		

6 STANDARD MANHOLE TYPE A COVER
SCALE: NOT TO SCALE

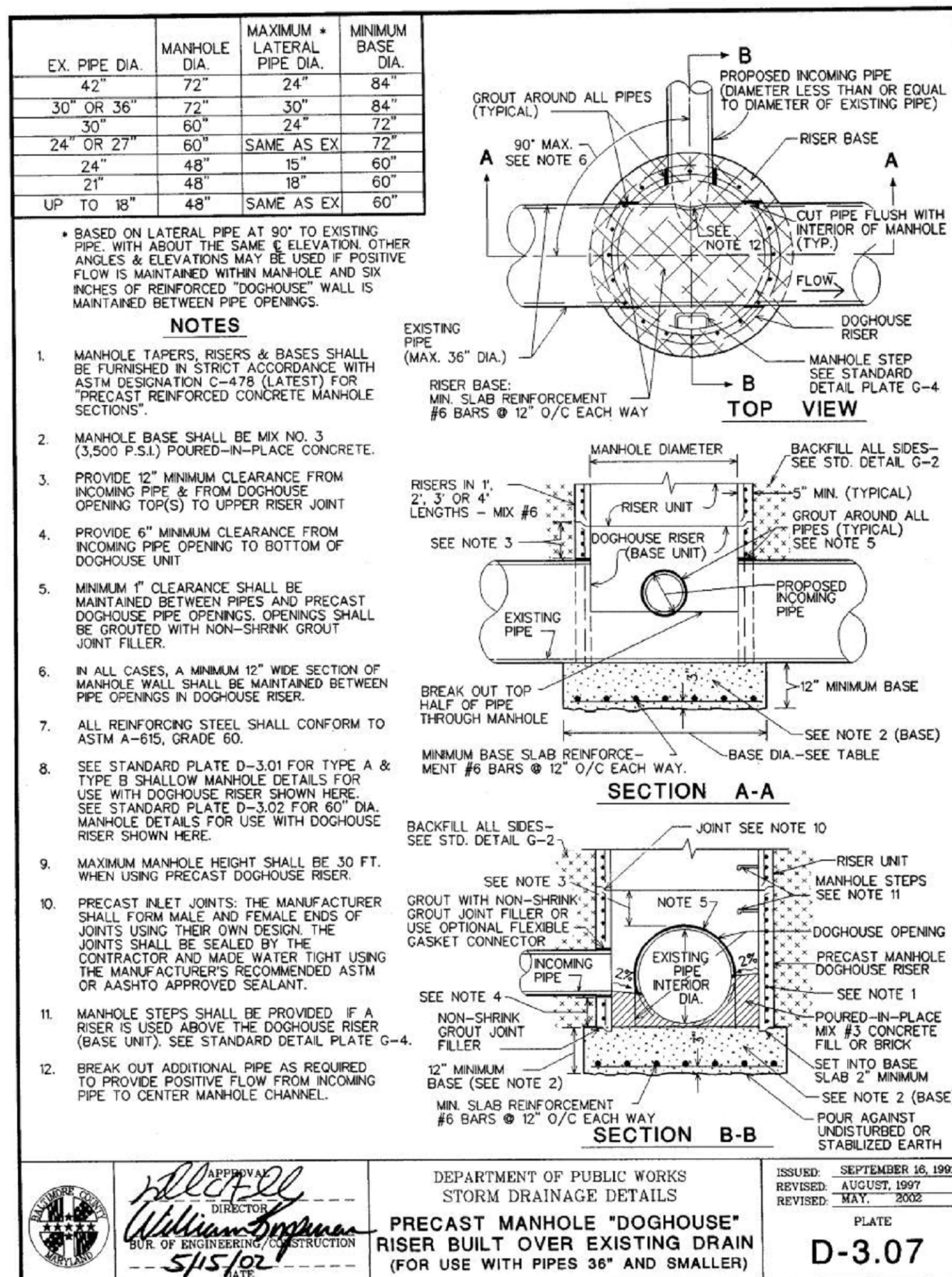


SPECIFICATION		CATEGORY CODE ITEMS		Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES 48\"/>	
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	APPROVAL - STATE	APPROVAL - FEDERAL	STANDARD NO.	MD 384.01
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REVISION	REVISION	REVISION	REVISION		
DATE	DATE	DATE	DATE		

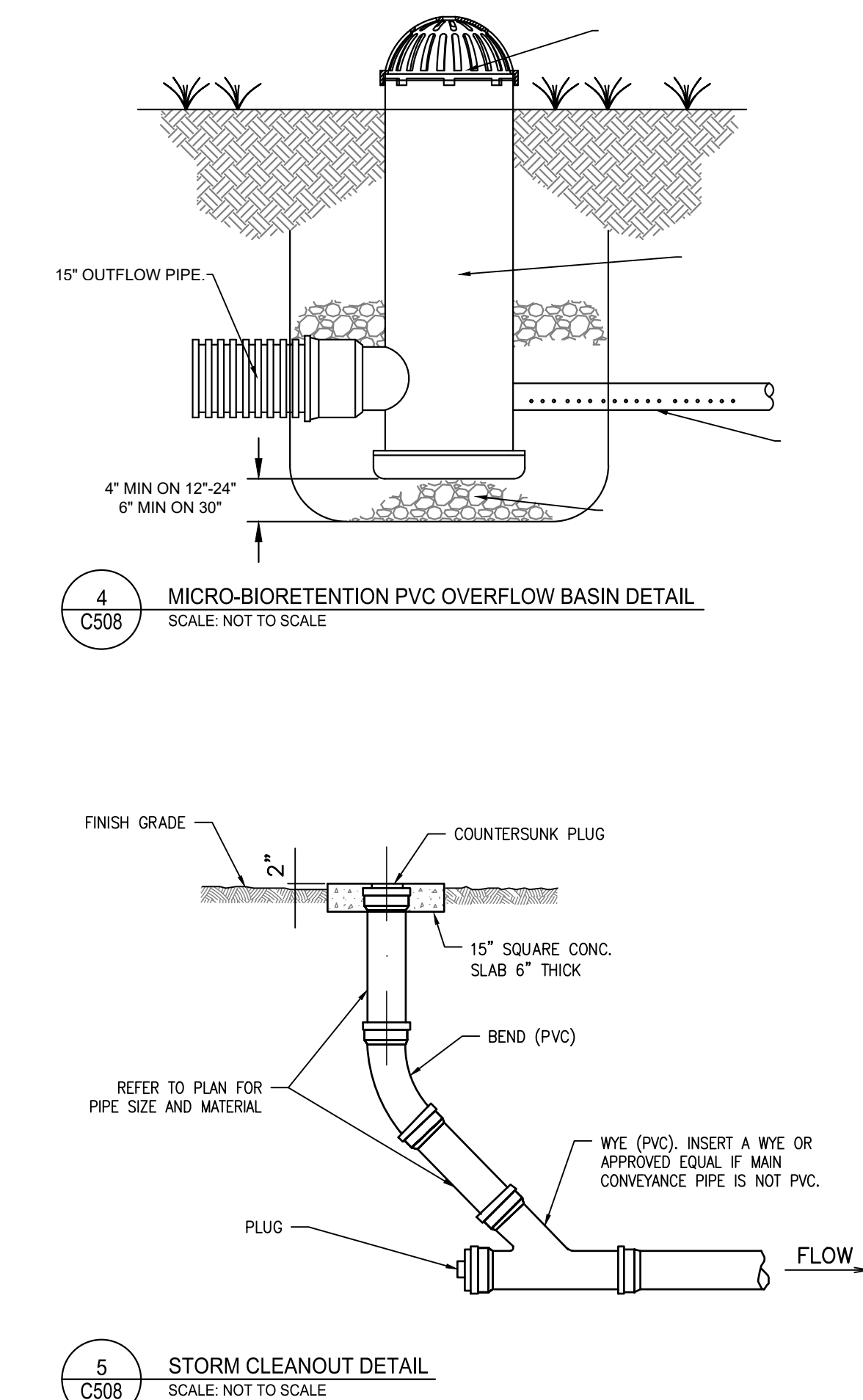
7 48\"/>



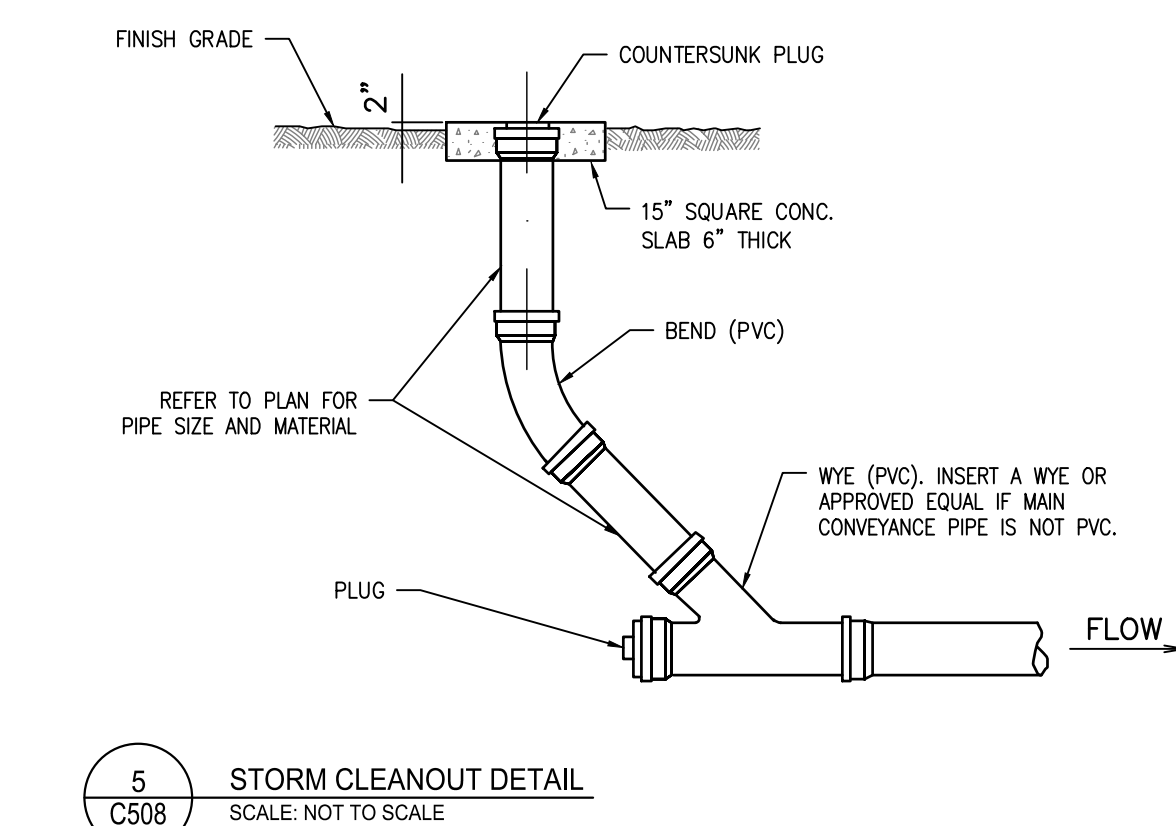
3 STANDARD MANHOLE TYPE A FRAME
SCALE: NOT TO SCALE



8 PRECAST MANHOLE "DOGHOUSE" RISER DETAIL
SCALE: NOT TO SCALE



4 MICRO-BIORETENTION PVC OVERFLOW BASIN DETAIL
SCALE: NOT TO SCALE



5 STORM CLEANOUT DETAIL
SCALE: NOT TO SCALE

DATE

DESCRIPTION

MARK

NAVSEA
WARFARE CENTERS
Carderock

5/20/26

U.S. NAVAL SURFACE WARFARE CENTER

Carderock, Bethesda, MD

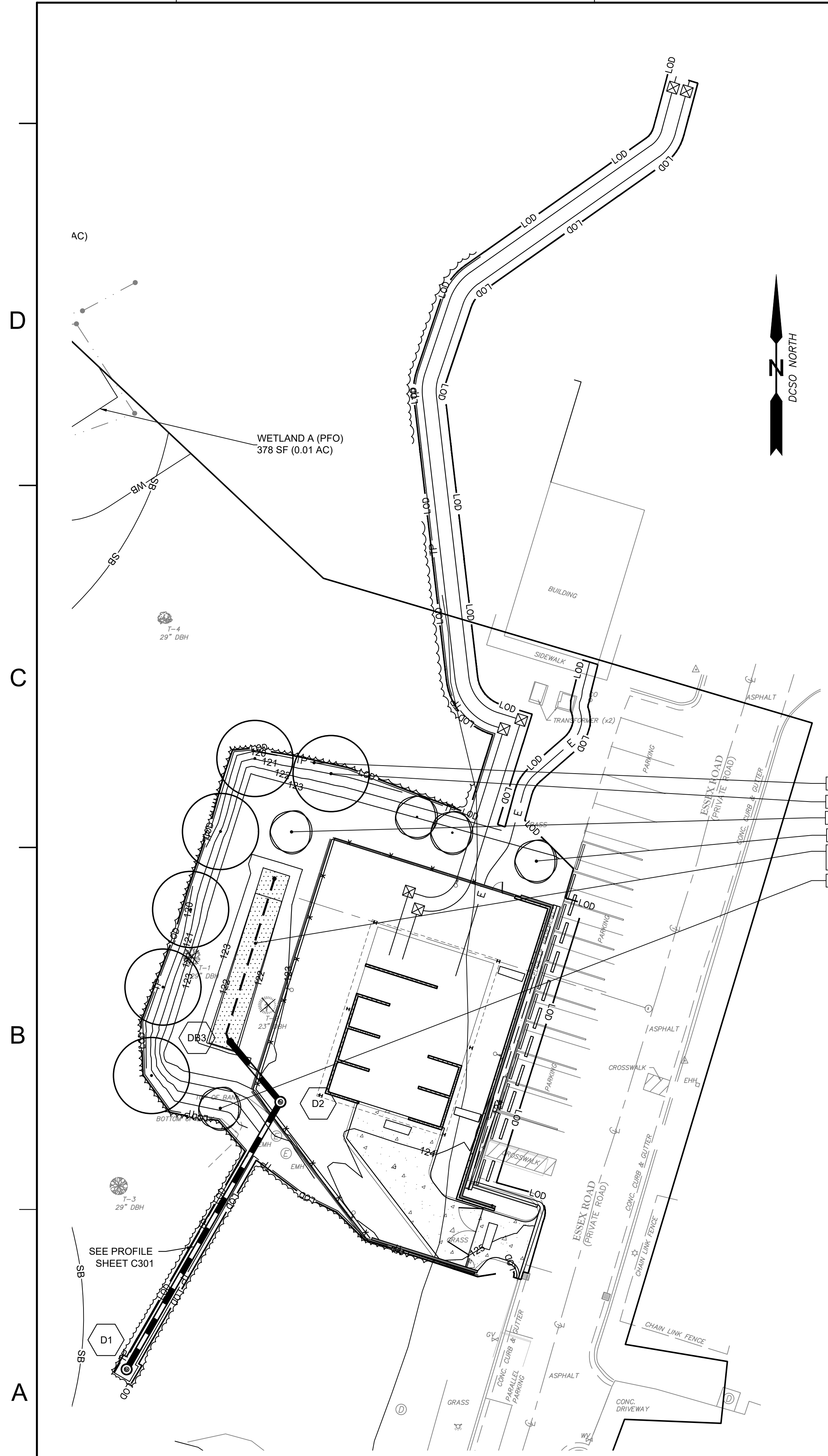
NAVAL SURFACE WARFARE CENTER

LEGEND

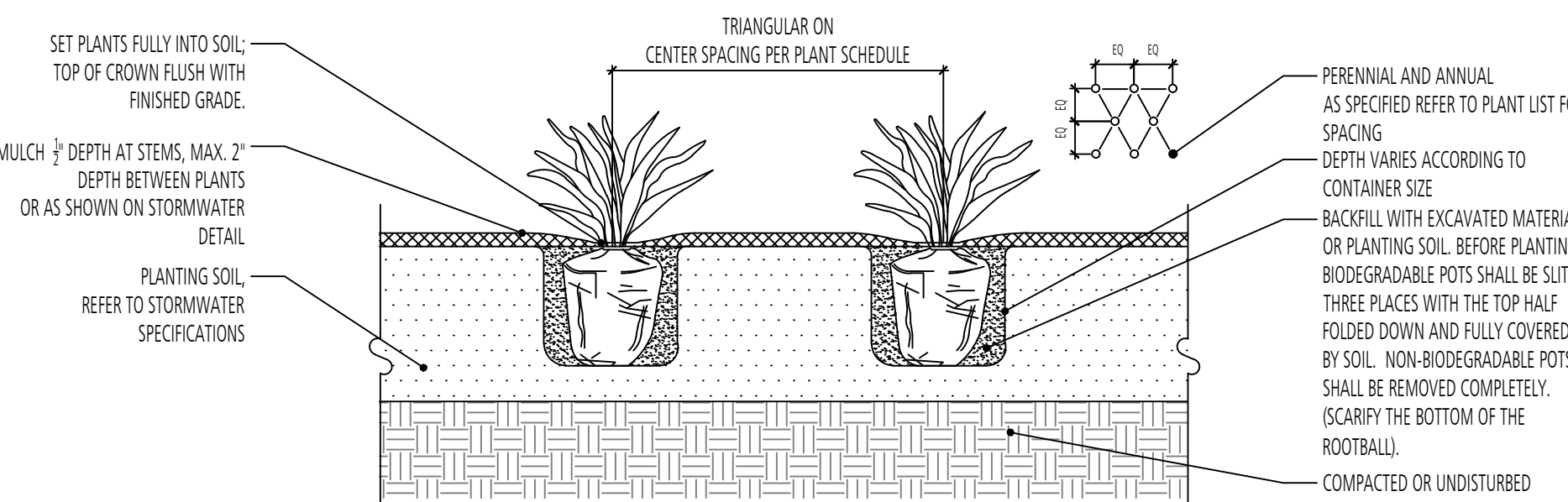
- LIMITS OF DISTURBANCE LOD
- PROPOSED FENCE X-X-X-X-X
- PROPOSED CONCRETE PAVEMENT
- PROPOSED BIORETENTION SWALE PLANTING NATIVE PERENNIAL AND GRASSES AT 24" O.C.
- PROPOSED NATIVE UNDERSTORY TREE
- PROPOSED NATIVE OVERSTORY TREE
- PROPOSED TREE PROTECTION FENCE TO BE INSTALLED AT LOD TP

SIGNIFICANT TREES WITHIN FOREST AREA IDENTIFICATION AND ASSESSMENT CHART							
Symbol	Botanical Name	Common Name	SIZE (DBH")	CRZ (Feet)	Condition	Removal	Notes
T-1	<i>Acer rubrum</i>	Red Maple	29	43.5	Good	Remove	
T-2	<i>Fagus grandifolia</i>	Beech	23	34.5	Good	Remove	
T-3	<i>Quercus rubra</i>	Red Oak	29	43.5	Fair	Retain	Large deadwood and minor vine cover
T-4	<i>Platanus occidentalis</i>	Sycamore	29	43.5	Good	Retain	

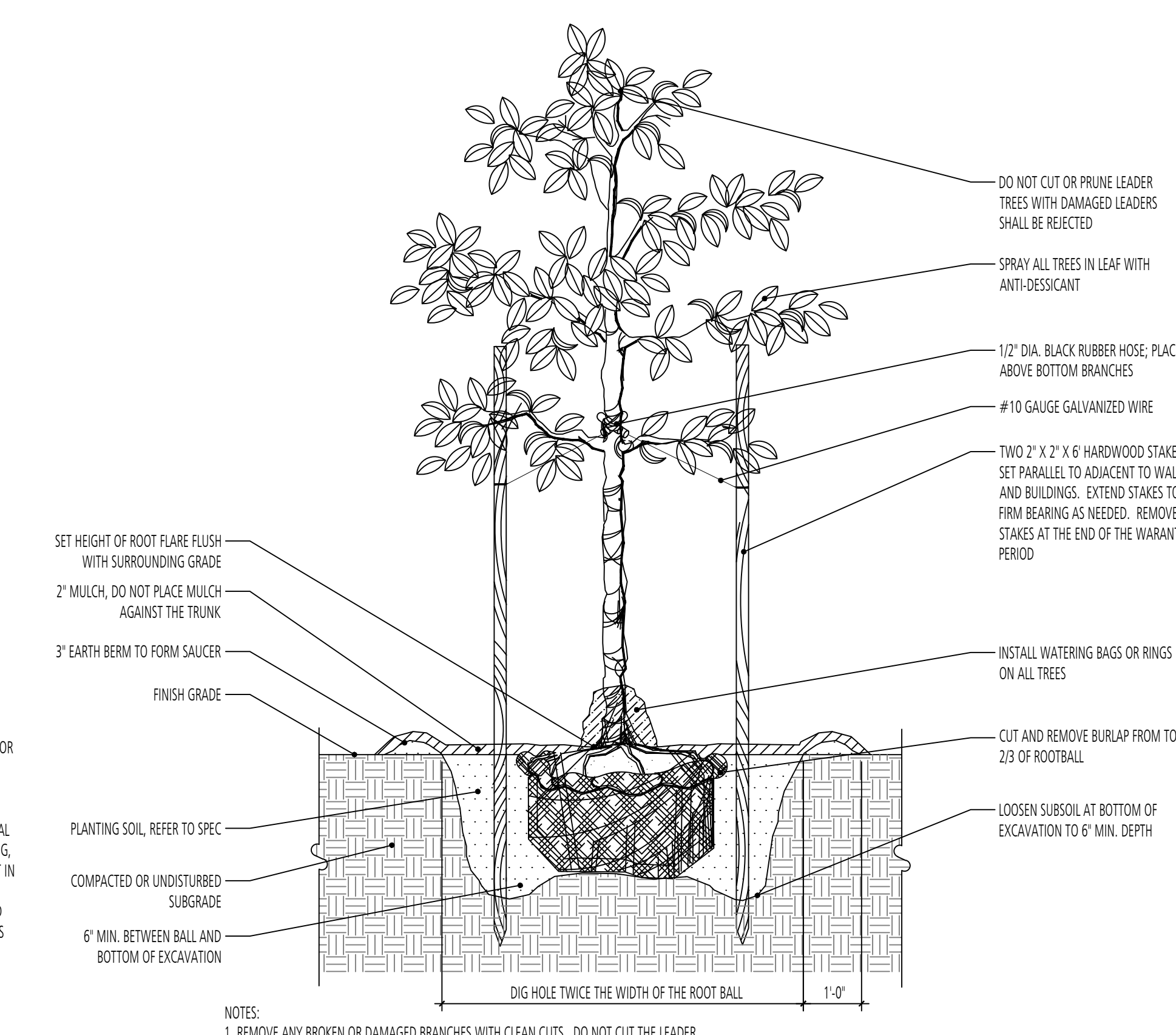
MASTER LANDSCAPE PLANT SCHEDULE						
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
CANOPY TREES						
LS	6	<i>Liquidambar styraciflua</i>	Sweetgum	2" Cal.	B&B/ #25 CONT.	
UNDERSTORY TREES						
MV	5	<i>Magnolia virginiana</i>	Sweetbay Magnolia	6' Ht.	B&B/ #25 CONT.	
PERENNIALS AND GRASSES						
AN	60	<i>Aster novae-belgii</i>	New York Aster		Plug	24" O.C. Spacing
PV	60	<i>Panicum virgatum</i>	Switchgrass		Plug	24" O.C. Spacing
MISC. ITEM/SEED MIXES						
TPF	610	Tree Protection Fence (LF)				
TURF	1,390	Turfgrass establishment (SY) (Not labeled on plans, assume all disturbed areas not otherwise noted)				



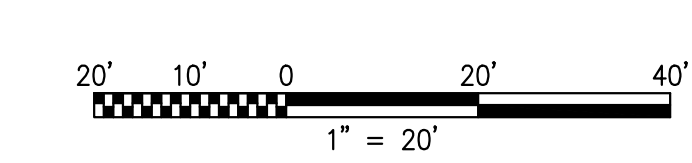
- 610- TPF
- 6- LS
- 1- MV
- 3- MV
- 60- AN
- 60- PV
- 1- MV



1 PERENNIAL PLANTING DETAIL
SECTION
SCALE: 1/2" = 1'-0"



2 TREE PLANTING
SECTION
SCALE: 1/2" = 1'-0"



MARK DESCRIPTION

WARFARE CENTERS
Carderock

5/20/26

FLORINA TEETER
LANDSCAPE ARCHITECTS
1001 N. CHARLES ST.
SUITE 600
BALTIMORE, MD 21201
410-528-8895

APPROVED

FOR COMMANDER NAVFAC ACTIVITY

SATISFACTORY TO DATE

DES GP DRW GP CHK JS

PRADM
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

Carderock, Bethesda, MD

NAVAL SURFACE WARFARE CENTER

B157 POST-TEST LITHIUM BATTERY STORAGE

LANDSCAPE PLAN

SCALE: AS NOTED

EPROJECT NO.
CONSTR. CONTR. NO.

L-100

DRAWING REVISION: 14 SEP 2023

DESIGN CRITERIA

Table with columns: NOTE, DESCRIPTION. Includes criteria for LIVE LOAD PARAMETERS, RAIN LOAD PARAMETERS, WIND LOAD PARAMETERS, and SEISMIC DESIGN PARAMETERS.

GENERAL NOTES

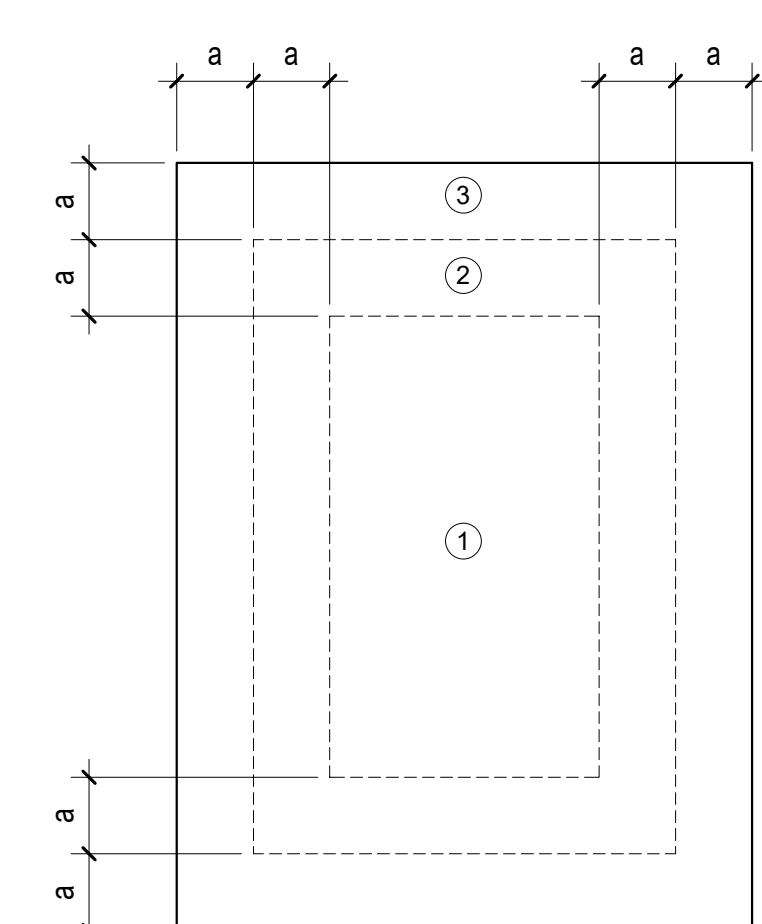
Table with columns: NOTE, DESCRIPTION. Contains 15 general notes regarding construction requirements, safety, and design standards.

CONCRETE NOTES

Table with columns: NOTE, DESCRIPTION. Contains 22 notes detailing concrete reinforcement, curing, and placement requirements.

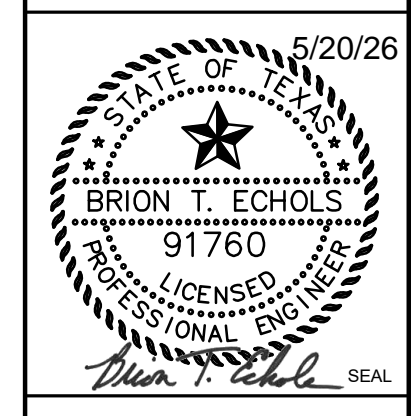
FOUNDATION NOTES (SHALLOW FOUNDATIONS)

Table with columns: NOTE, DESCRIPTION. Contains 8 notes regarding foundation design, soil conditions, and construction details.



C&C WIND PRESSURE TABLE. Table showing wind loads for different zones and directions.

Vertical table with columns: DATE, DESCRIPTION, MARK. Contains a grid for project tracking.



HUITT-ZOLLARS, INC. 500 W. 7TH STREET, SUITE 300 FORT WORTH, TX 76102 817.335.3000

Approval table with columns: APPROVED, FOR COMMANDER NAVFAC, ACTIVITY, SATISFACTORY TO DATE.

DES BTE DRW DES CHK JE

PRADM BRANCH MANAGER CHIEF ENGINEER FIRE PROTECTION

B157 POST TEST BATTERY STORAGE GEN NOTES & SPECS

SCALE: AS NOTED EPROJECT NO. CONSTR. CONTR. NO.

SE001 DRAWFORM REVISION: 14 SEP 2023

5/20/2023 3:09:27 PM SE001 B:\157 Battery Storage\23016 02 NSWC B157 BATTERY STORAGE_S05.rvt Autodesk Docs\7/23/2016 02 NSWC B157

CONCRETE MASONRY UNIT (CMU) NOTES

STRUCTURAL STEEL NOTES

STRUCTURAL ABBREVIATIONS

(ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS)

Table with 2 columns: NOTE, DESCRIPTION. Contains 13 notes regarding CMU wall construction, reinforcement, and joint requirements.

Table with 2 columns: NOTE, DESCRIPTION. Contains 20 notes regarding structural steel detailing, fabrication, erection, and connection requirements.

Large table of structural abbreviations organized by letter (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, R, S, T, U, V, W, Y). Includes terms like ANCHOR BOLT, INSIDE DIAMETER, SOUTH SHEAR CONNECTORS, etc.

Vertical table with columns: DATE, MARK, DESCRIPTION. Contains a grid for project tracking.



HUITT-ZOLLARS, INC. 500 W. 7TH STREET, SUITE 300 FORT WORTH, TX 76102 817.335.3000

Approval table with columns: APPROVED, FOR COMMANDER NAVFAC ACTIVITY, SATISFACTORY TO DATE, DES, BTE, DRW, DES, CHK, JE.

B157 POST TEST BATTERY STORAGE GEN NOTES & SPECS

SCALE: AS NOTED EPROJECT NO.: CONSTR. CONTR. NO.

5/20/2023 3:09:27 PM SE002 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_S05.rvt

SPECIAL INSPECTIONS PER IBC SECTION 1705 (MATERIAL NOT COVERED IN SPECIFIC TABLES)

Table with 5 columns: TYPE, CONTINUOUS, PERIODIC, REFERENCED STANDARD, IBC REFERENCE. Rows include inspection tasks for structural steel, masonry, seismic resistance, and testing.

INSPECTION TASKS FOR WELDING

Table with 6 columns: INSPECTION TASKS PRIOR TO WELDING, QC, QA, INSPECTION TASKS DURING WELDING, QC, QA. Rows include welder qualification, WPS, manufacturer certifications, material identification, welder ID, fit-up, and welding techniques.

INSPECTION TASKS FOR BOLTING

Table with 6 columns: INSPECTION TASKS PRIOR TO BOLTING, QC, QA, INSPECTION TASKS DURING BOLTING, QC, QA, INSPECTION TASKS AFTER BOLTING, QC, QA. Rows include fastener materials, marking, selection, procedure, connecting elements, pre-installation testing, storage, and document acceptance.

INSPECTION OF CONCRETE CONSTRUCTION

Table with 5 columns: REQUIRED VERIFICATION AND INSPECTION, CONTINUOUS, PERIODIC, REFERENCED STANDARD, IBC REFERENCE. Rows include reinforcement inspection, bar welding, anchors, and concrete placement.

INSPECTIONS OF SOILS

Table with 3 columns: REQUIRED VERIFICATION AND INSPECTION, CONTINUOUS DURING TASK LISTED, PERIODICALLY DURING TASK LISTED. Rows include material verification, excavation depth, fill testing, and subgrade preparation.

SPECIAL INSPECTION

- ONE OR MORE SPECIAL INSPECTORS, EMPLOYED BY THE CONTRACTOR, ARE REQUIRED TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED UNDER SECTION 1705 OF THE IBC AND THE TABLES ON THIS SHEET. THE SPECIAL INSPECTOR(S) SHALL BE BY A THIRD PARTY FIRM.

Vertical sidebar containing: DATE, MARK, DESCRIPTION, NAVSEA WARFARE CENTERS Carderock logo, State of Texas Professional Engineer seal for Brion T. Echols, Huitt-Zollars, Inc. contact info, APPROVED signature line, SATISFACTORY TO DATE table, SCALE: AS NOTED, EPROJECT NO., CONSTR. CONTR. NO., and SE003.

1

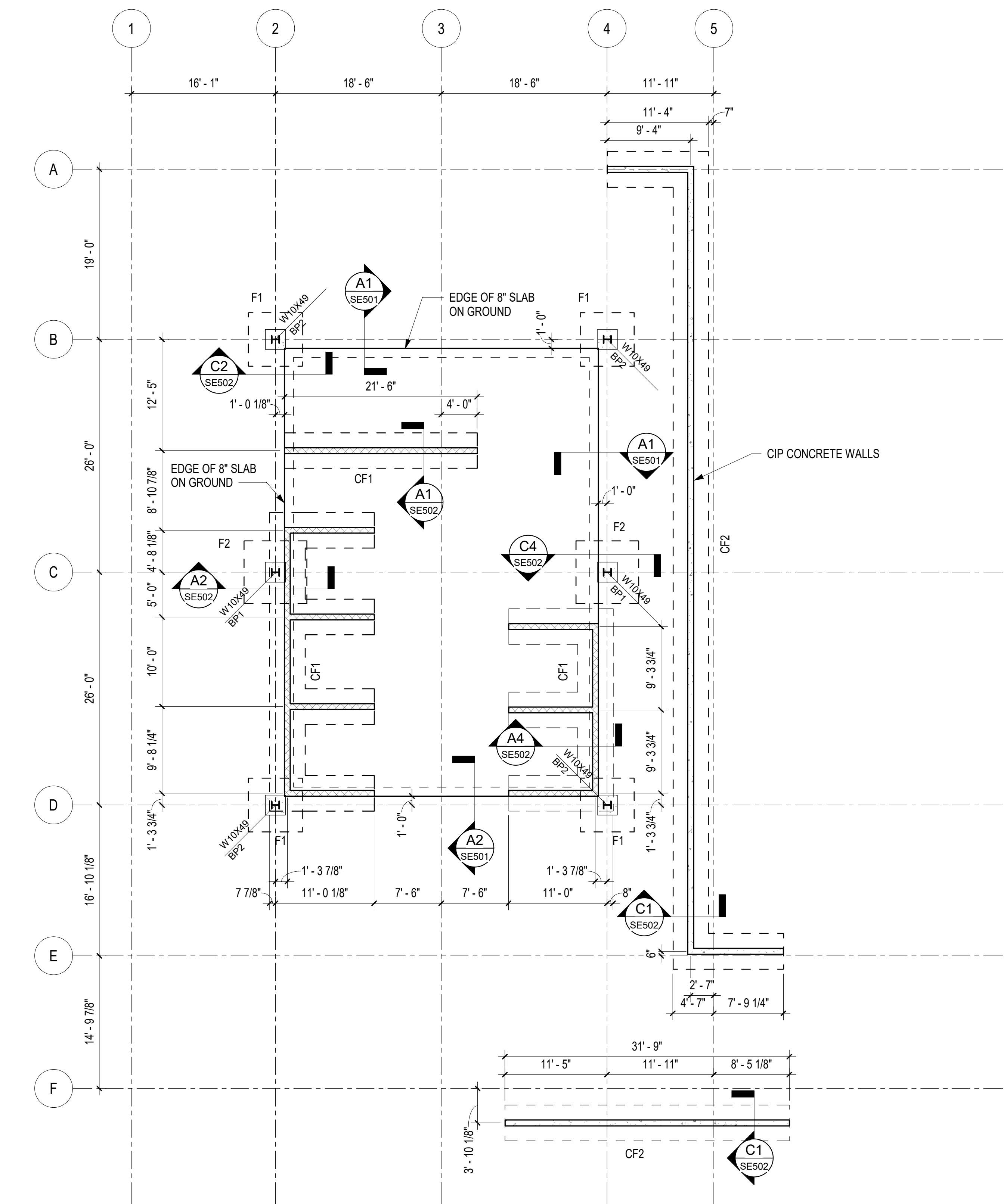
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5

FOUNDATION PLAN NOTES	
NOTE	DESCRIPTION
1.	PLAN ELEVATION 100'-0" IS BASED ON TOP OF BATTERY PAD ELEVATION = 124.00'.
2.	"(-3")", FOR EXAMPLE, DENOTES TOP OF CONCRETE FROM REFERENCE ELEVATION.
3.	PROVIDE 8" SLAB ON GROUND REINFORCED WITH #4@12" OCEW.
4.	DIMENSIONS TAKEN FROM THE CENTERLINE OF THE WALLS COINCIDE WITH THE DIMENSIONS FROM THE CENTERLINE OF THE FOOTINGS, SPREAD OR CONTINUOUS.
5.	SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE PROJECT GEOTECHNICAL REPORT AND GENERAL NOTES SE001.
6.	ALL FOOTING EXCAVATIONS TO BE INSPECTED BY A QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THE ALLOWABLE SOIL BEARING PRESSURE OF THE EXPOSED SOILS.
7.	REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR SITEWORK, GRADING, CONCRETE SLAB DETAILS AND ELEVATIONS ADJACENT TO FOUNDATION ELEMENTS.
8.	$\frac{W10X49}{BP-1}$ DENOTES COLUMN AND BASEPLATE TYPE. SEE SHEET SE601 FOR TYPICAL BASEPLATE AND ANCHOR BOLT DETAILS.
9.	SEE SHEETS SE501 THRU SE502 FOR FOUNDATION DETAILS
10.	"F#" INDICATES SPREAD FOOTING TYPE. SEE DETAILS ON SE502 FOR SIZE AND REINFORCEMENT.
11.	"CF#" INDICATES CONTINUOUS FOOTING TYPE. SEE DETAILS ON SE502 FOR SIZE AND REINFORCEMENT.
12.	REFER TO GENERAL NOTES AND DETAILS FOR SPACING AND ADDITIONAL INFORMATION ON SLAB CONTROL JOINTS.
13.	PROVIDE VERTICAL CONTROL OR CONSTRUCTION JOINTS IN CAST-IN-PLACE CONCRETE WALLS AT 20'-0" MAXIMUM SPACING. SEE C4/SE501 FOR DETAIL.

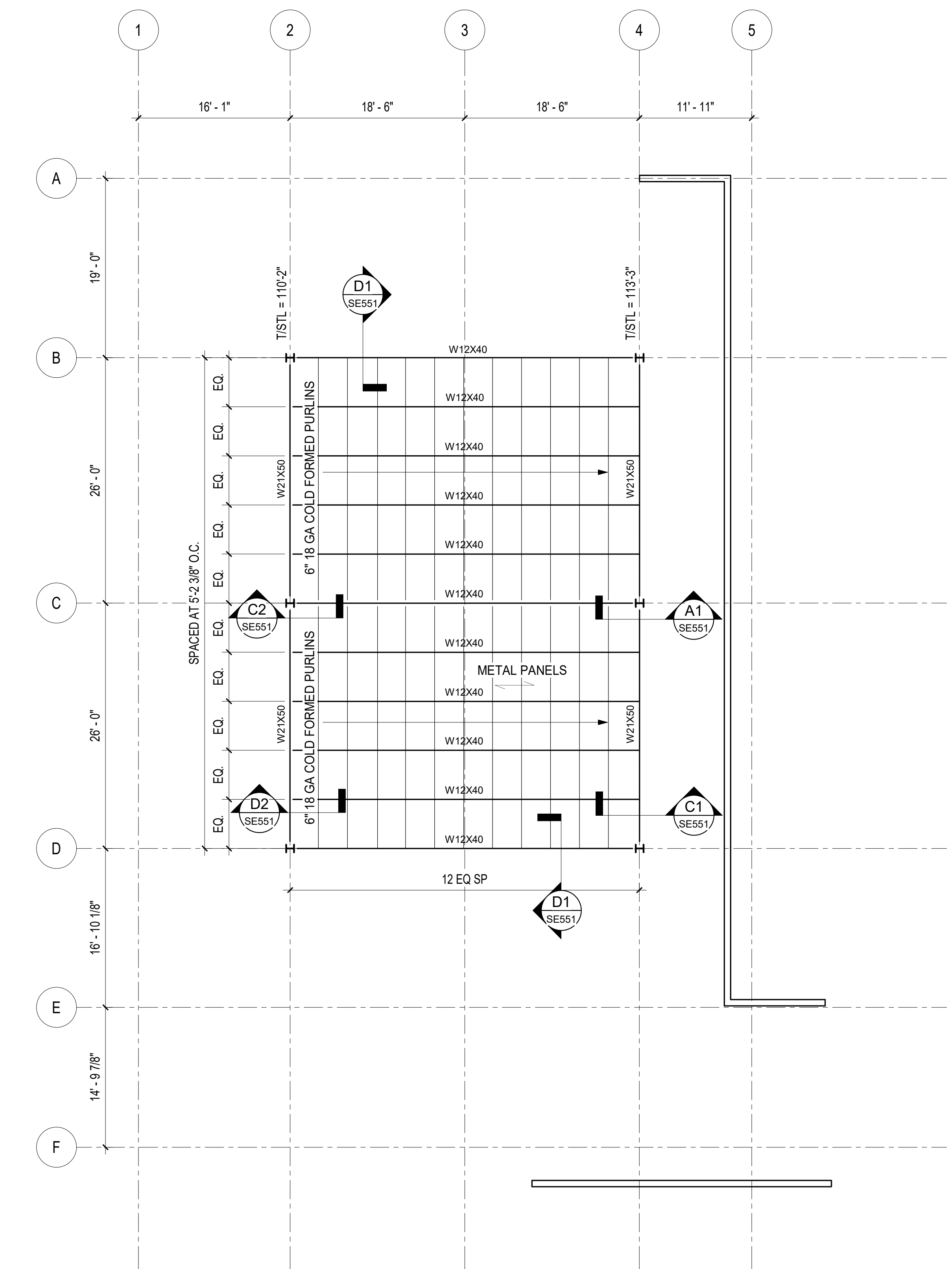


A1 FOUNDATION PLAN
 1/8" = 1'-0"

5/20/2025 3:09:28 PM SE101 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_S05.rvt

HUITT-ZOLLARS, INC. 500 W. 7TH STREET, SUITE 300 FORT WORTH, TX 76102 817.335.3000	
APPROVED _____ FOR COMMANDER NAVFAC ACTIVITY _____ SATISFACTORY TO DATE _____ DES BTE DRW DES CHK JE PRADM BRANCH MANAGER CHIEF ENGINEER FIRE PROTECTION	
B157 POST TEST BATTERY STORAGE FOUNDATION PLAN	FOUNDATION PLAN
SCALE: AS NOTED EPROJECT NO.: CONSTR. CONTR. NO.:	
SE101 <small>DRAWFORM REVISION: 14 SEP 2023</small>	

5/20/2025 3:09:29 PM SE111
 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_S25.M



A1 ROOF FRAMING PLAN
 1/8" = 1'-0"

ROOF FRAMING NOTES	
NOTE	DESCRIPTION
1.	SEE SE001 & SE002 FOR GENERAL NOTES.
2.	SEE SE003 FOR SPECIAL INSPECTION REQUIREMENTS.
3.	← INDICATES DIRECTION OF METAL PANELS
4.	SEE GENERAL NOTES FOR SPECIFICATION OF MINIMUM STEEL STRENGTHS FOR VARIOUS STEEL SHAPES.
5.	ALL EXPOSED STEEL TO BE HOT-DIPPED GALVANIZED, UNLESS NOTED OTHERWISE BY THE ARCHITECT; BLEMISHED SURFACES AND FIELD WELDED PARTS SHALL BE REPAIRED WITH CORROSION RESISTANT PAINTING SYSTEM.
6.	→ INDICATES A CONTINUATION OF THE SAME BEAM SIZE AT THE GIVEN SPACING.
7.	PLAN ELEVATION 100'-0" IS BASED ON TOP OF BATTERY PAD ELEVATION = 124.00'. REFER TO C161 FOR GRADING.

DATE	
DESCRIPTION	
MARK	
HUITT-ZOLLARS, INC. 500 W. 7TH STREET, SUITE 300 FORT WORTH, TX 76102 817.335.3000	
A/E INFO	
APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES	BTE
DRW	DES
CHK	JE
PRJDM	
BRANCH MANAGER	
CHIEF ENGINEER	
FIRE PROTECTION	
B157 POST TEST BATTERY STORAGE	
ROOF FRAMING PLAN	
SCALE: AS NOTED	
EPROJECT NO.:	
CONSTR. CONTR. NO.:	
SE111	
DRAWFORM REVISION: 14 SEP 2023	

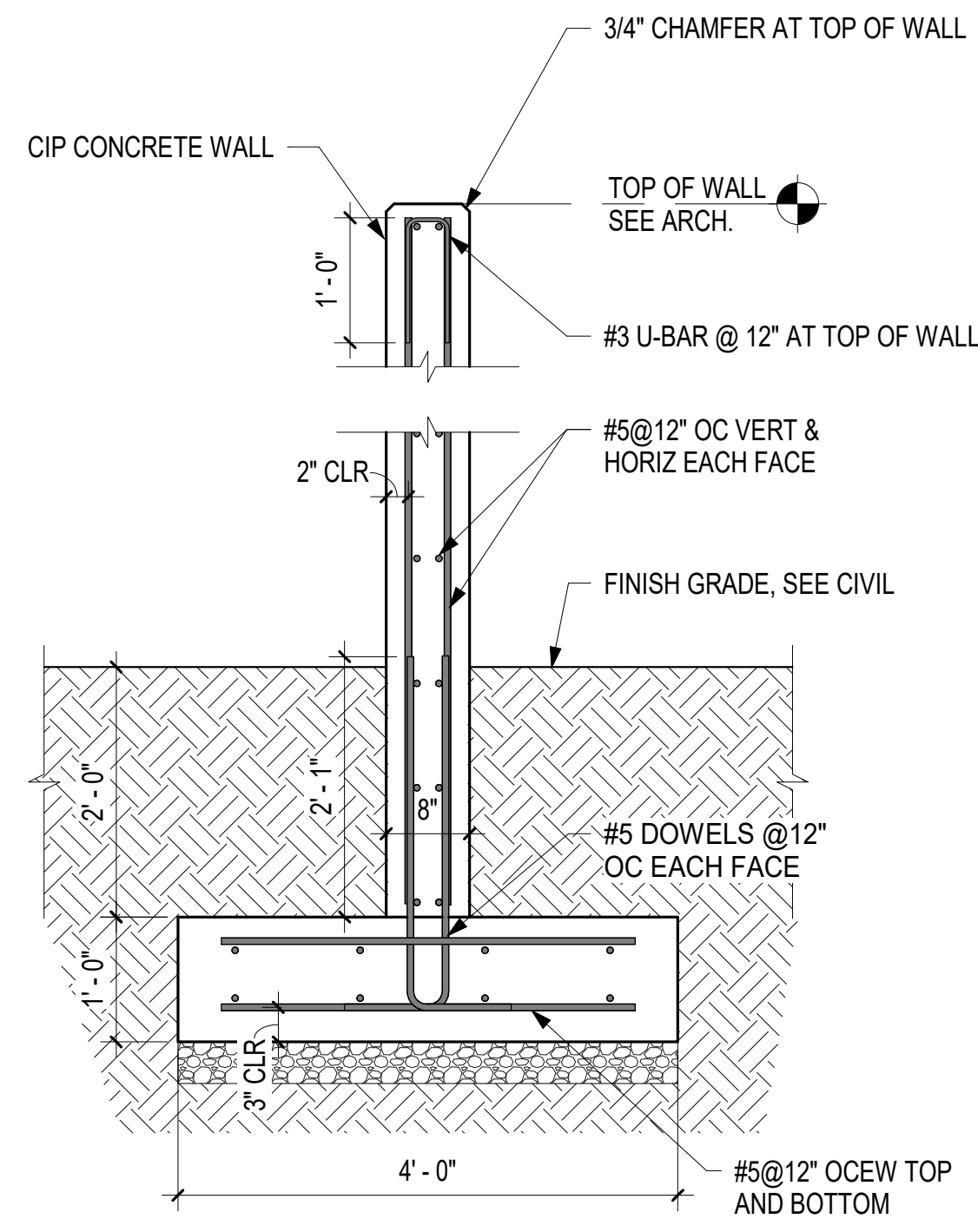
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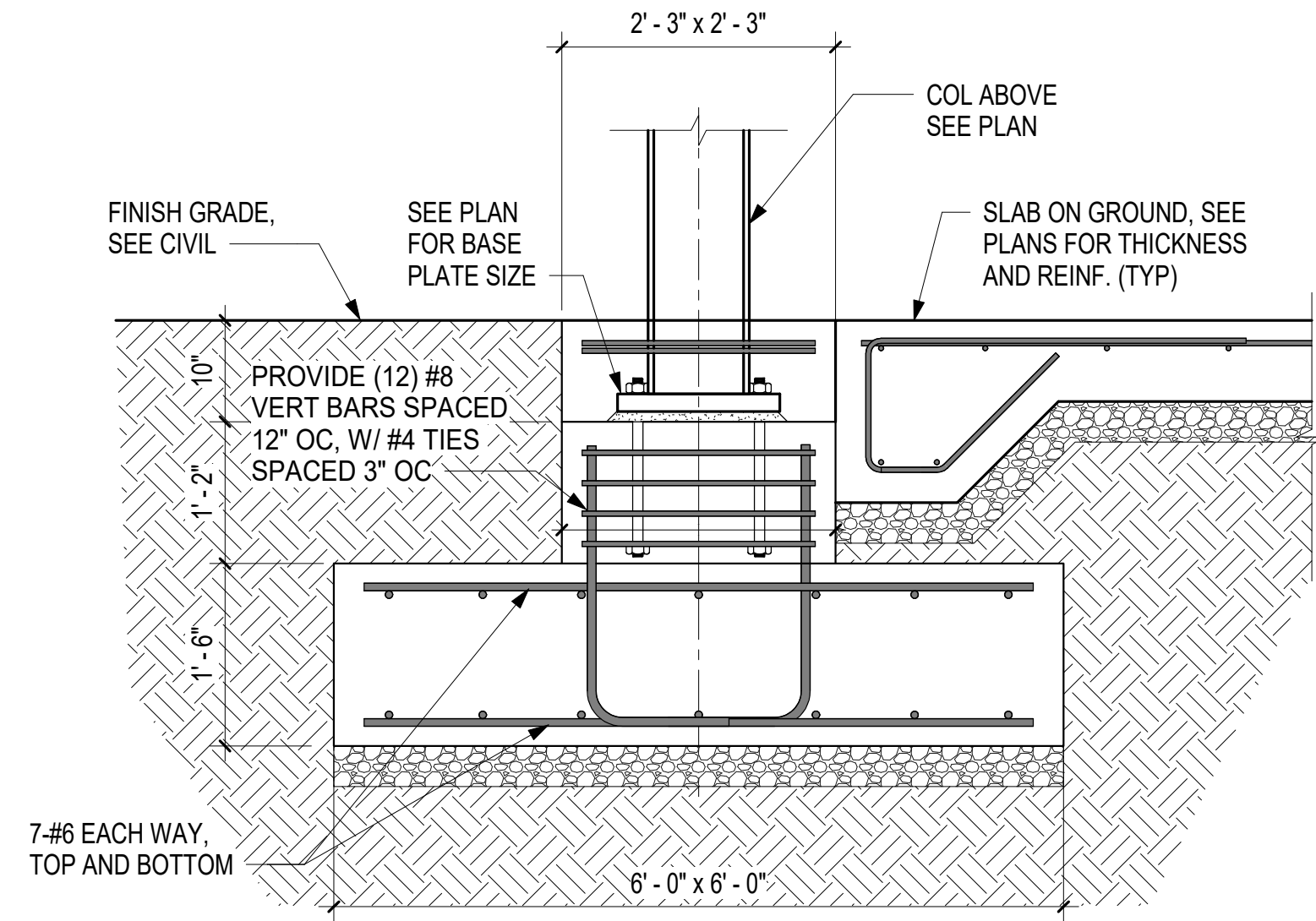
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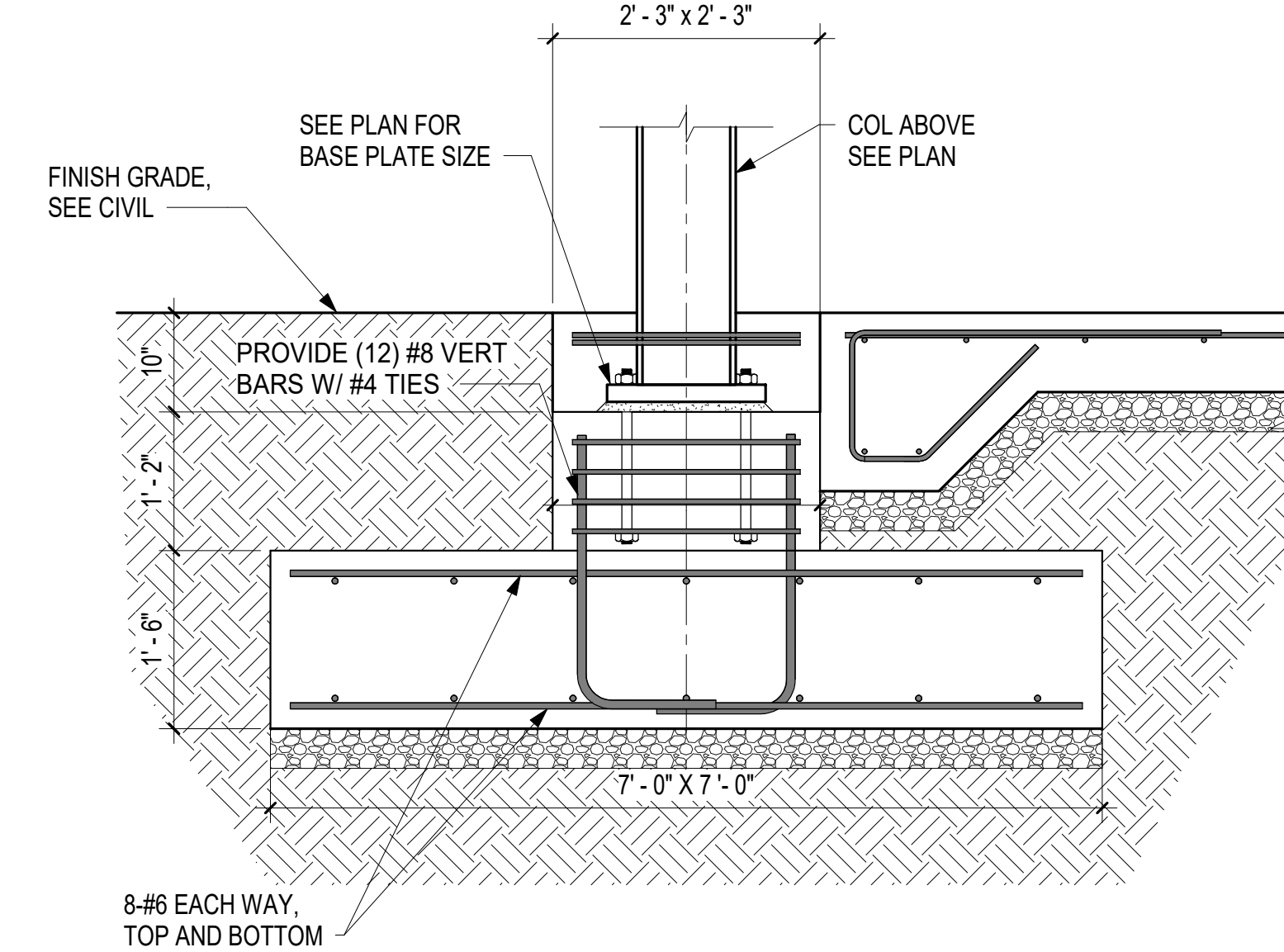
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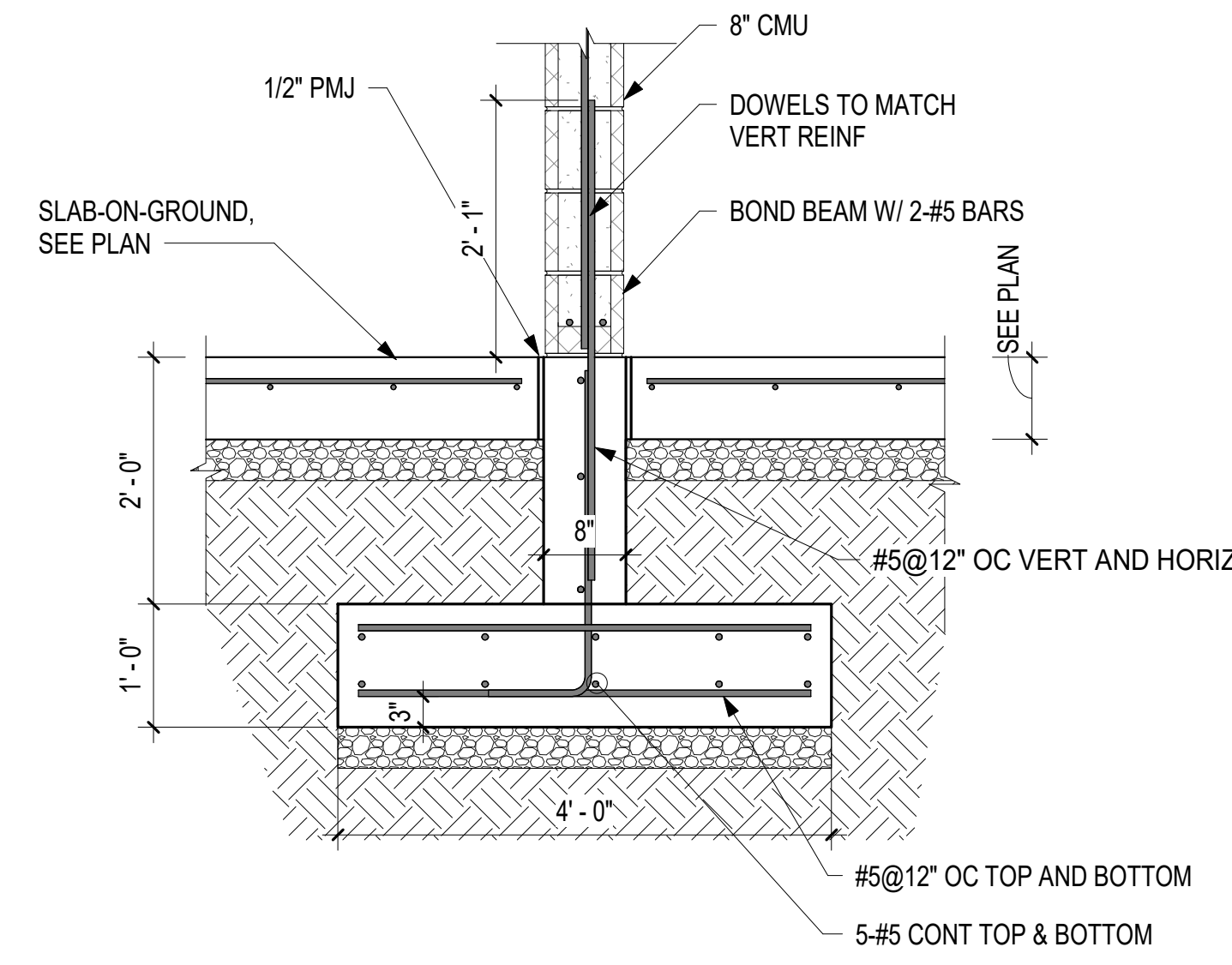
C1 SECTION AT FIREWALL - CF2
3/4" = 1'-0"



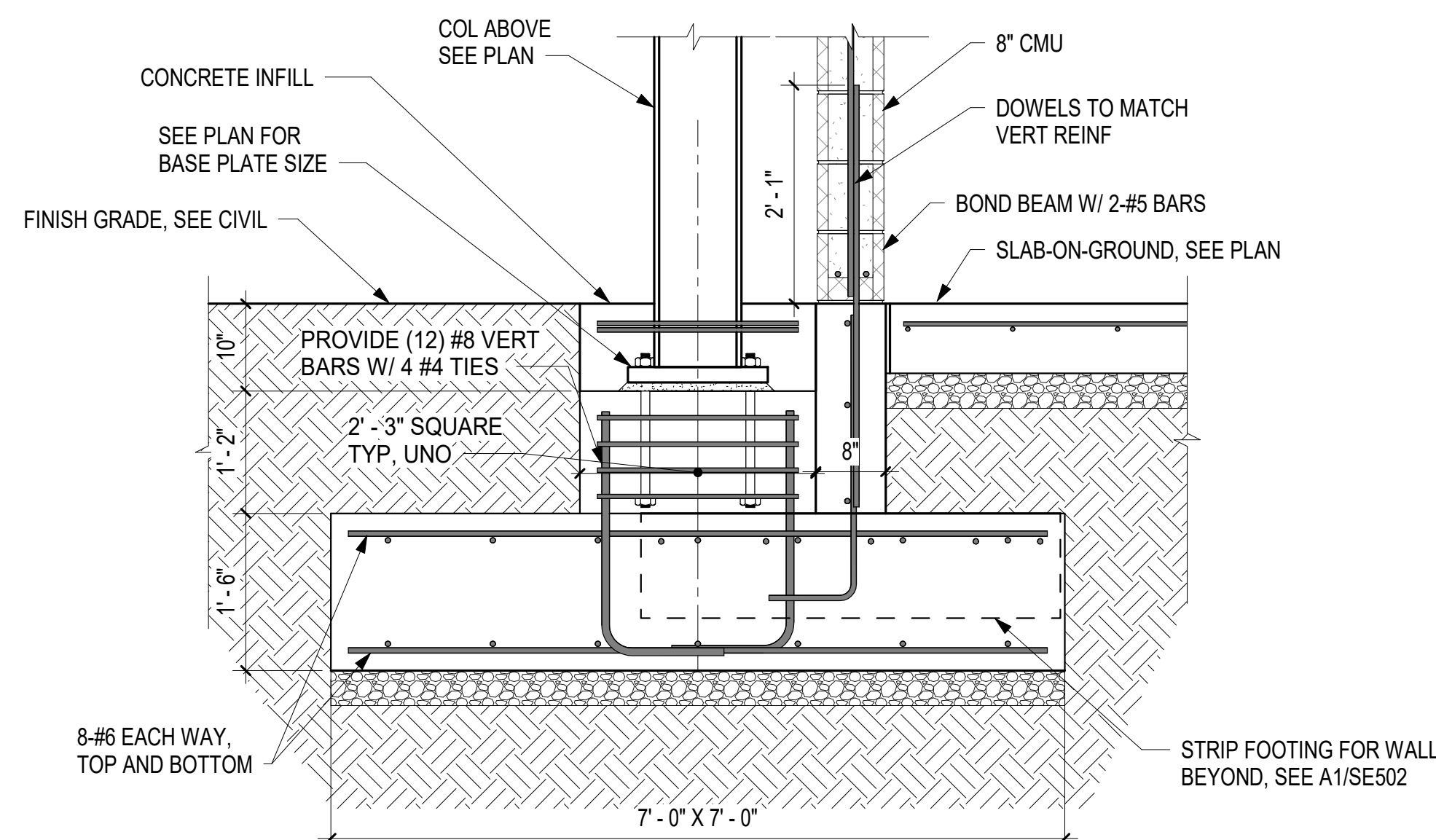
C2 SECTION AT CANOPY FOOTING - F1
3/4" = 1'-0"



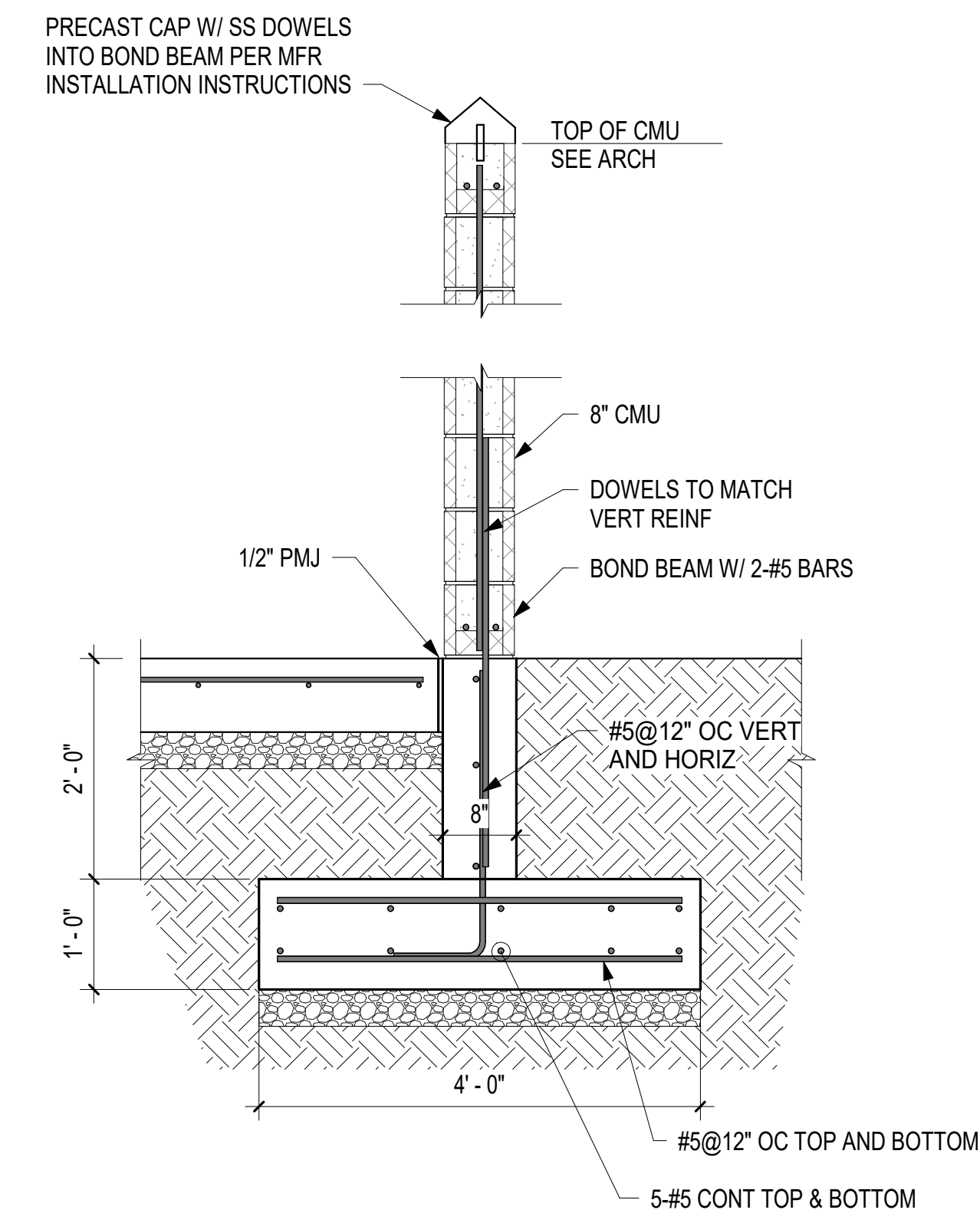
C4 SECTION AT CANOPY FOOTING - F2
3/4" = 1'-0"



A1 SECTION AT CMU WALL - CF1
3/4" = 1'-0"

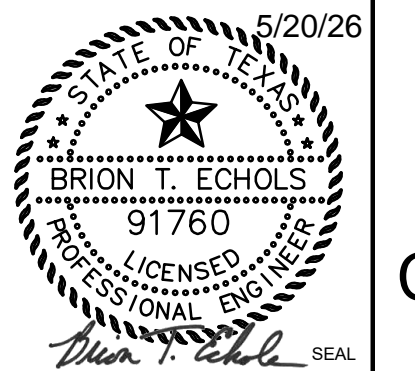


A2 SECTION AT CANOPY FOOTING - F2
3/4" = 1'-0"



A4 SECTION AT CMU WALL - CF1
3/4" = 1'-0"

MARK	DESCRIPTION	DATE



HUITT-ZOLLARS, INC.
500 W. 7TH STREET,
SUITE 300
FORT WORTH, TX 76102
817.335.3000

APPROVED	A/E INFO
FOR COMMANDER NAVFAC ACTIVITY	
SATISFACTORY TO DATE	
DESIGNER/DRW/AUTHOR/CHECKER	
PRJDM	
BRANCH MANAGER	
CHIEF ENGINEER	
FIRE PROTECTION	

B157 POST TEST BATTERY STORAGE
FOUNDATION SECTIONS AND DETAILS

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.

5/20/2023 3:09:30 PM SE502 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_S35.rvt

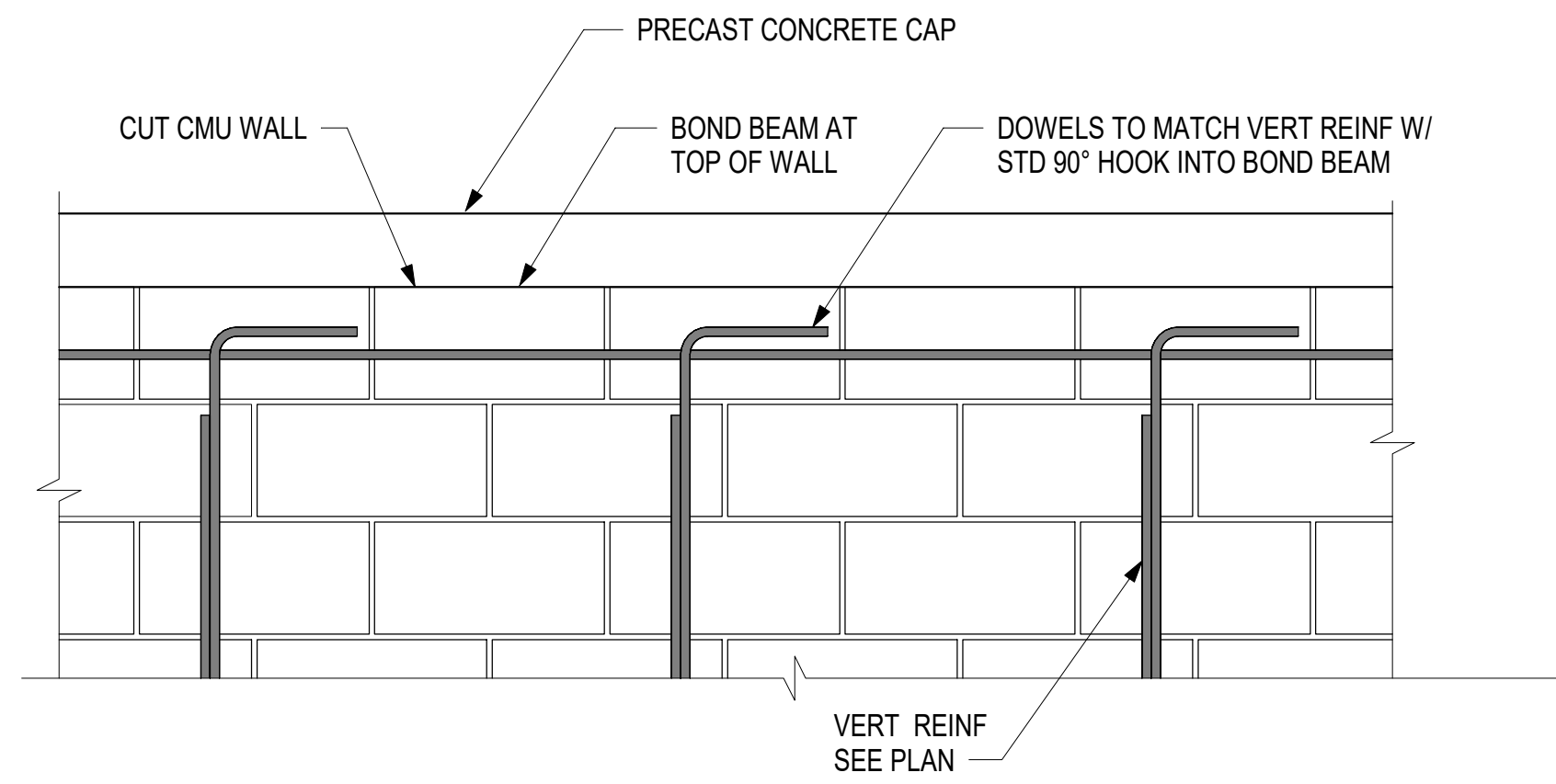
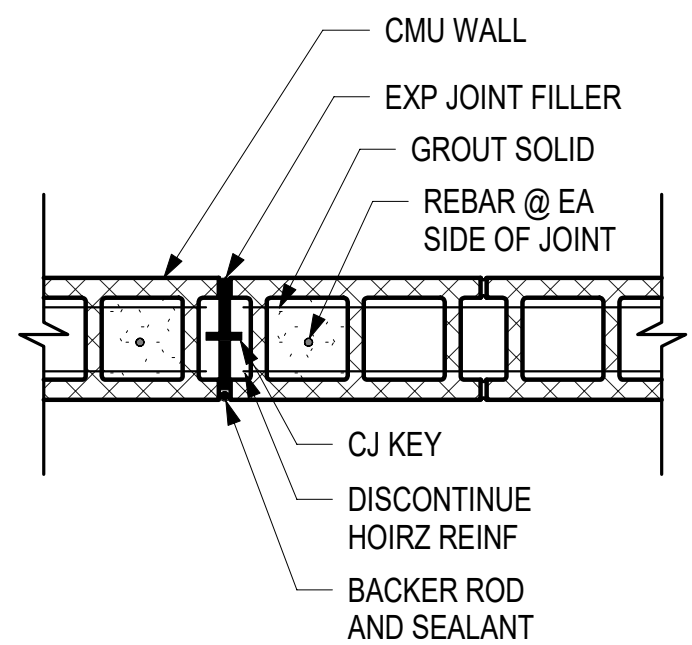
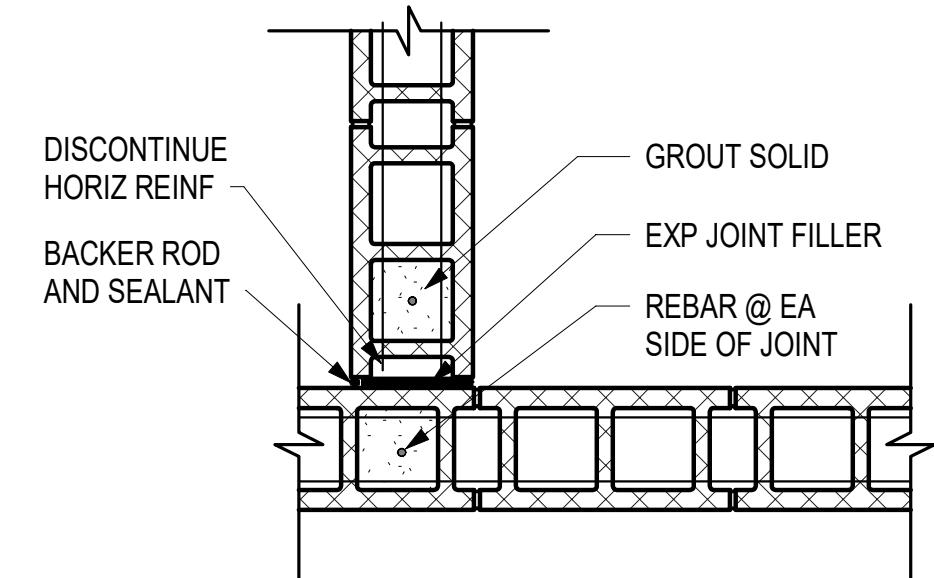
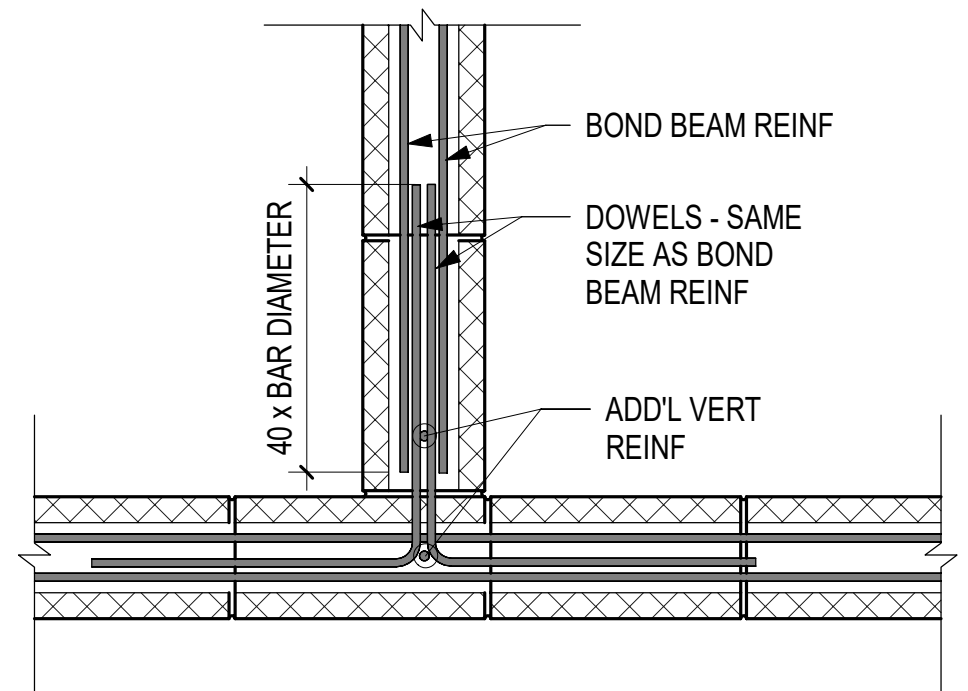
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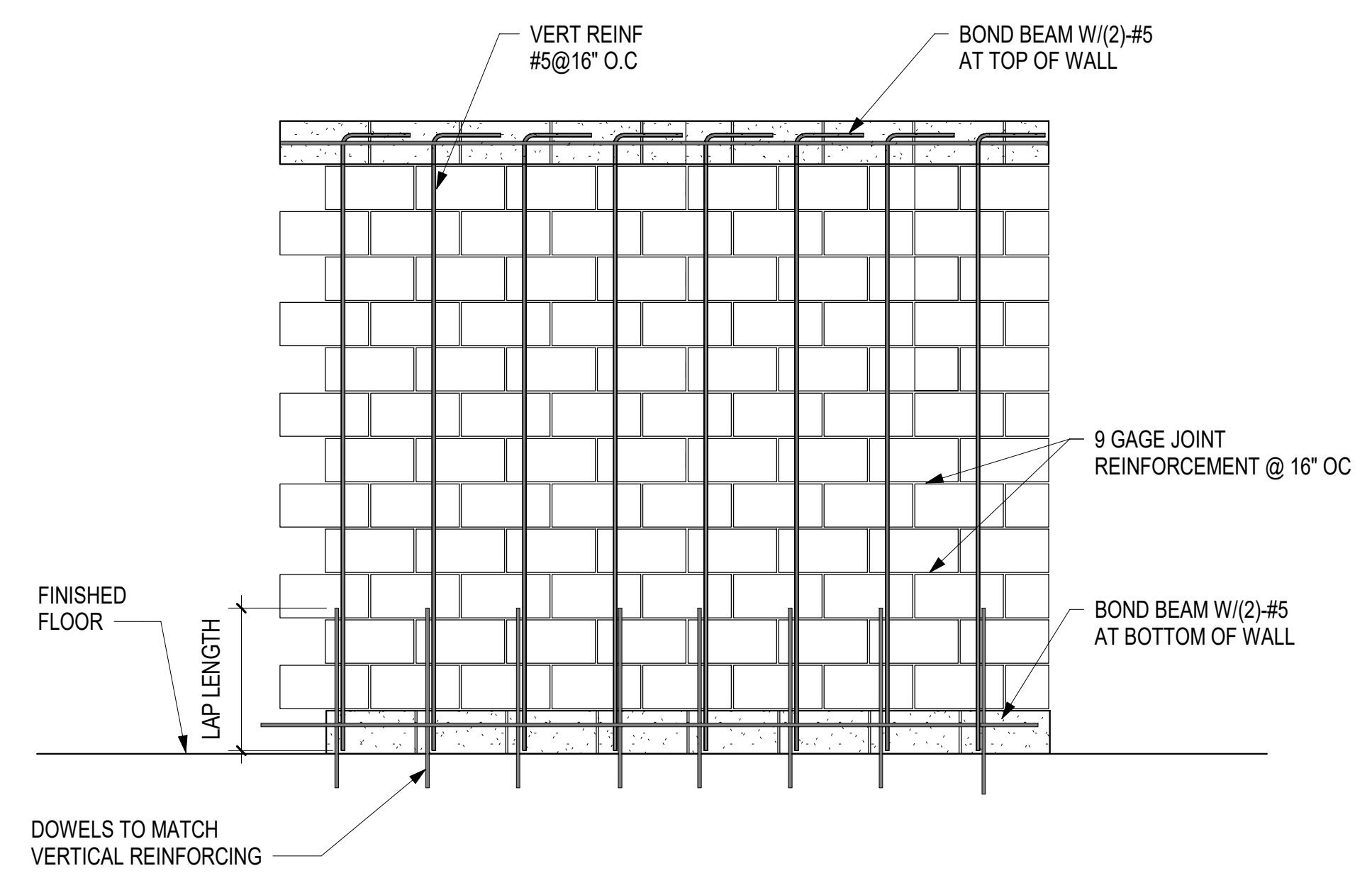
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C1 TYP BOND BEAM SPLICE DETAIL
1" = 1'-0"

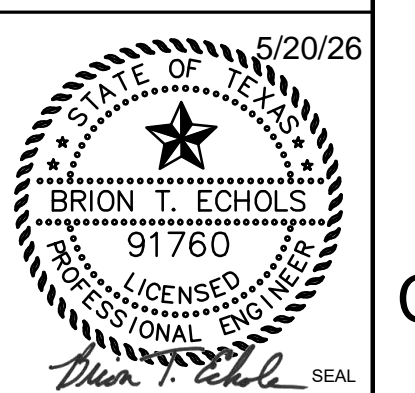
C2 TYP CMU CONTROL JOINT DETAIL
1" = 1'-0"

C3 TOP OF CMU WALL DETAIL
1" = 1'-0"



A1 TYP CMU WALL REINFORCEMENT
1/2" = 1'-0"

DATE	DESCRIPTION	MARK



HUITT-ZOLLARS, INC.
500 W. 7TH STREET,
SUITE 300
FORT WORTH, TX 76102
817.335.3000

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DES BTE DRW BTE CHK JE
PIADM
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

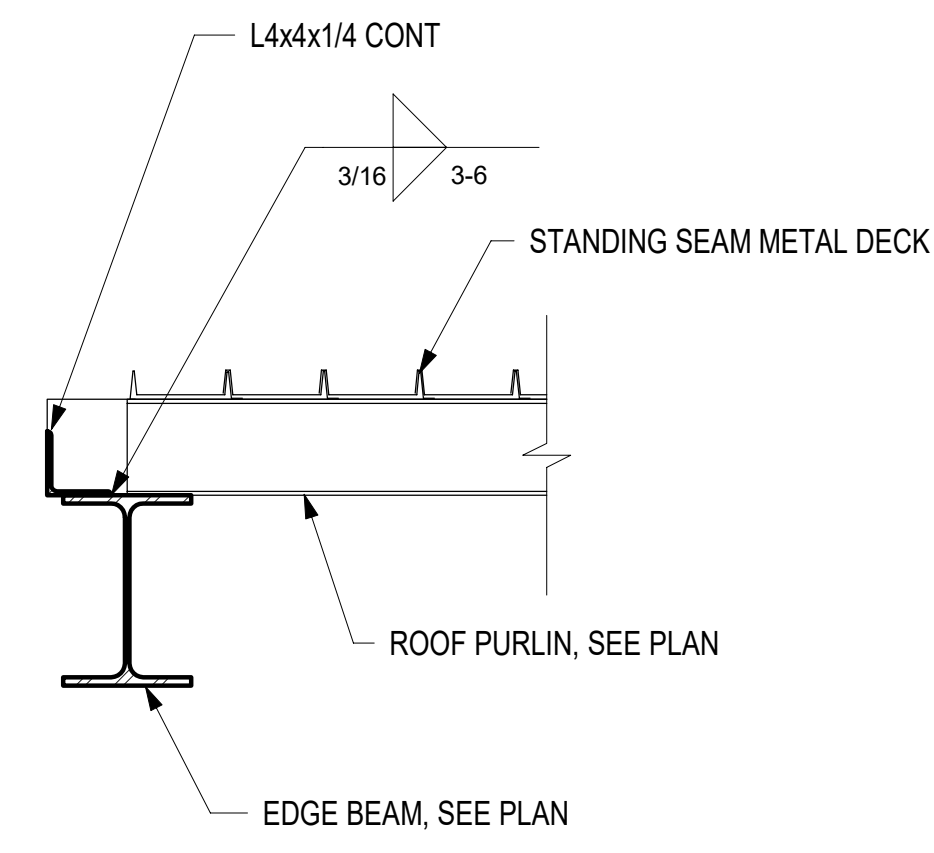
B157 POST TEST BATTERY STORAGE
MASONRY-TYPICAL DETAILS

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.

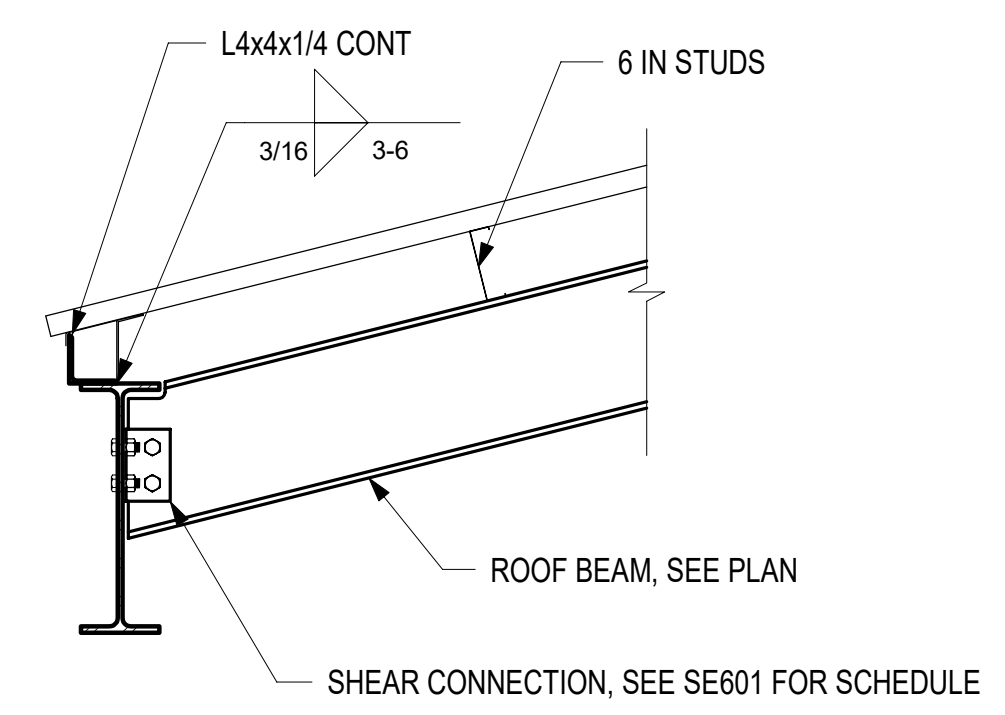
SE521
DRAWFORM REVISION: 14 SEP 2023

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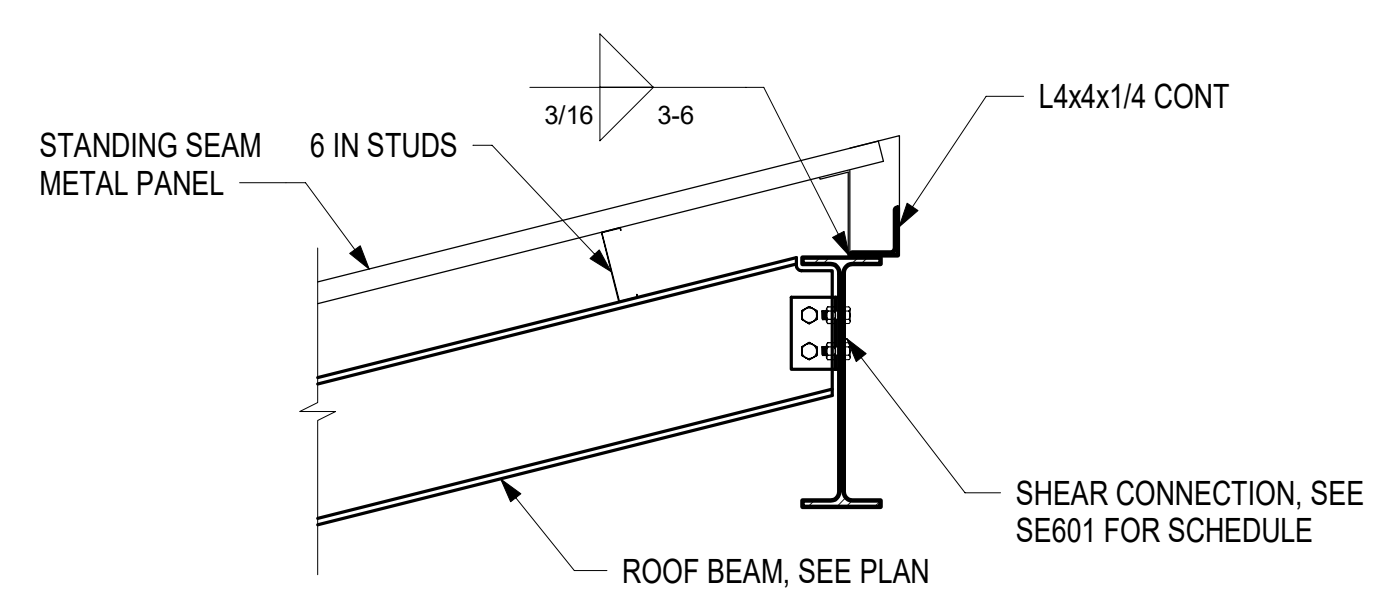
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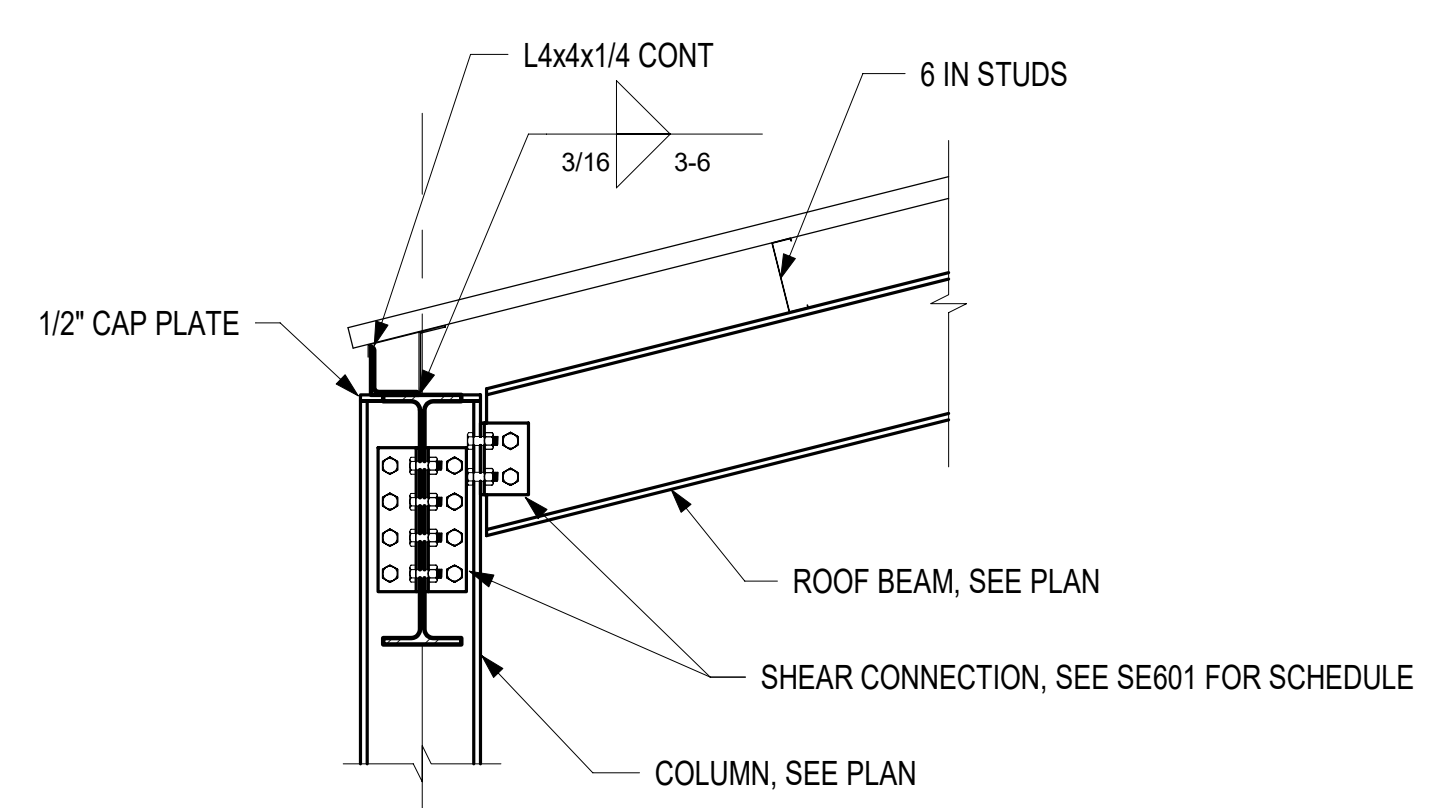
D1 SECTION AT EDGE OF CANOPY
 1" = 1'-0"



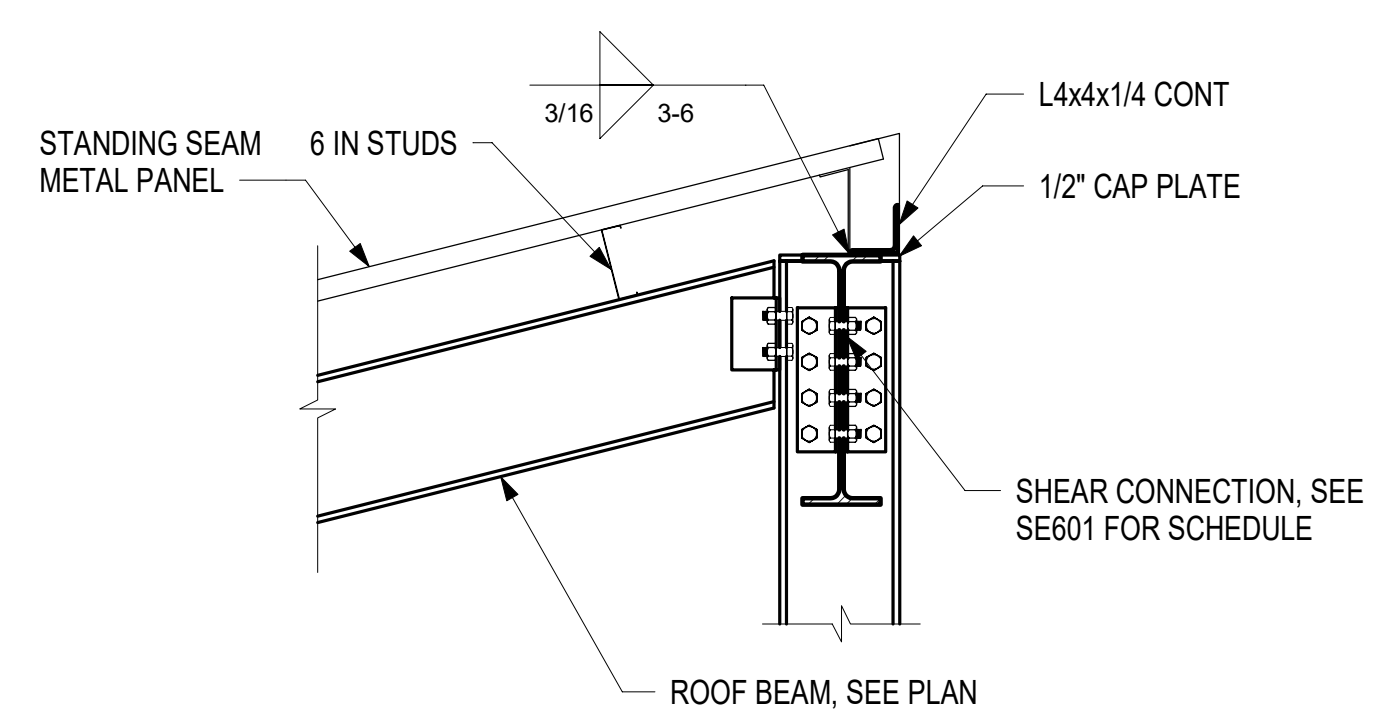
D2 WF BEAM TO WF RAFTER CONNECTION
 3/4" = 1'-0"



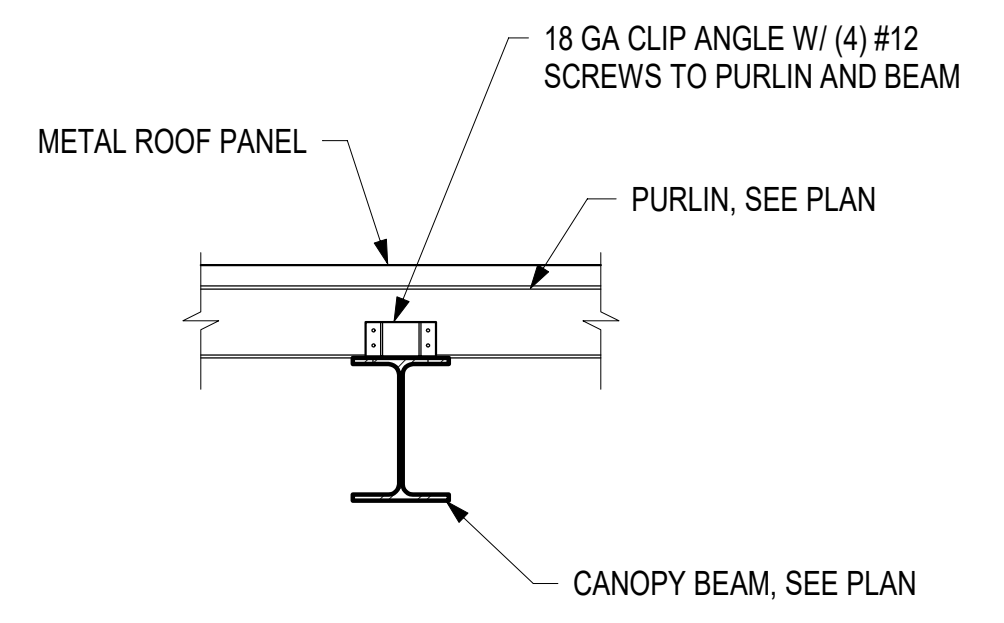
C1 WF BEAM TO WF RAFTER CONNECTION
 3/4" = 1'-0"



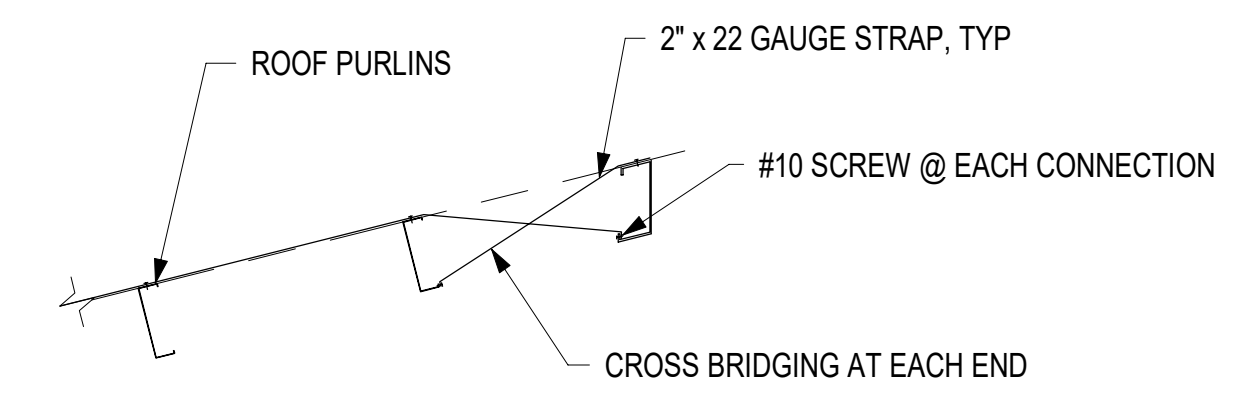
C2 BEAM TO COLUMN CONNECTION
 3/4" = 1'-0"



A1 WF BEAM TO WF RAFTER CONNECTION
 3/4" = 1'-0"



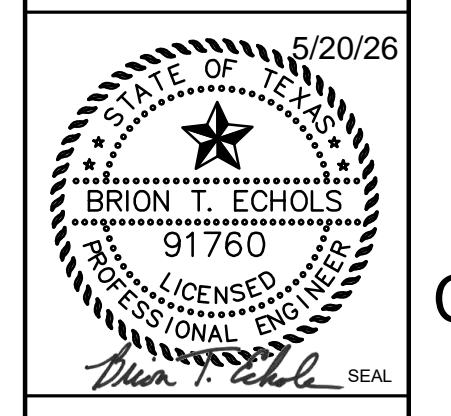
A2 ROOF PURLIN CONNECTION DETAIL
 3/4" = 1'-0"



A4 ROOF PURLIN BRIDGING DETAIL
 3/4" = 1'-0"

NOTE:
 PROVIDE PURLIN BRIDGING AT 10 FT MAX SPACING

MARK	DESCRIPTION	DATE



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 SUITE 300
 FORT WORTH, TX 76102
 817.335.3000

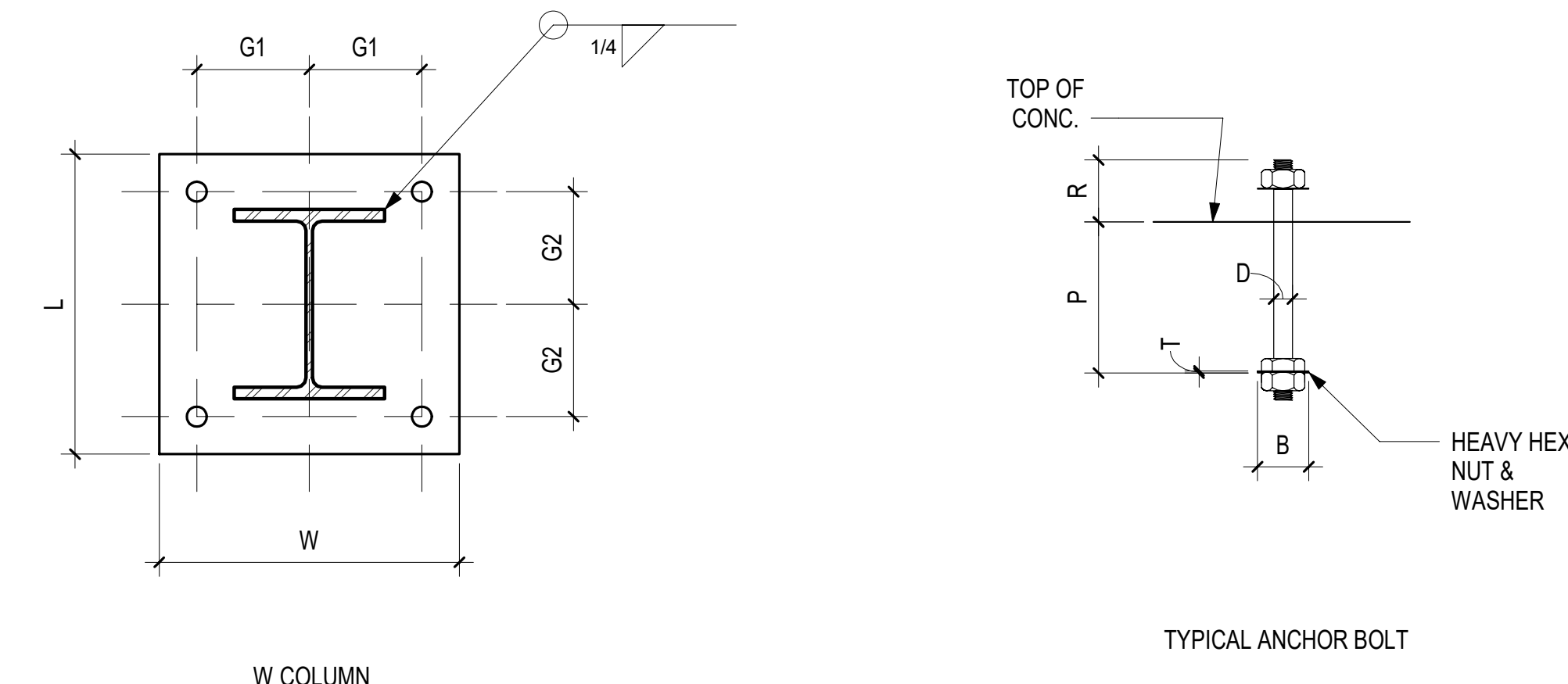
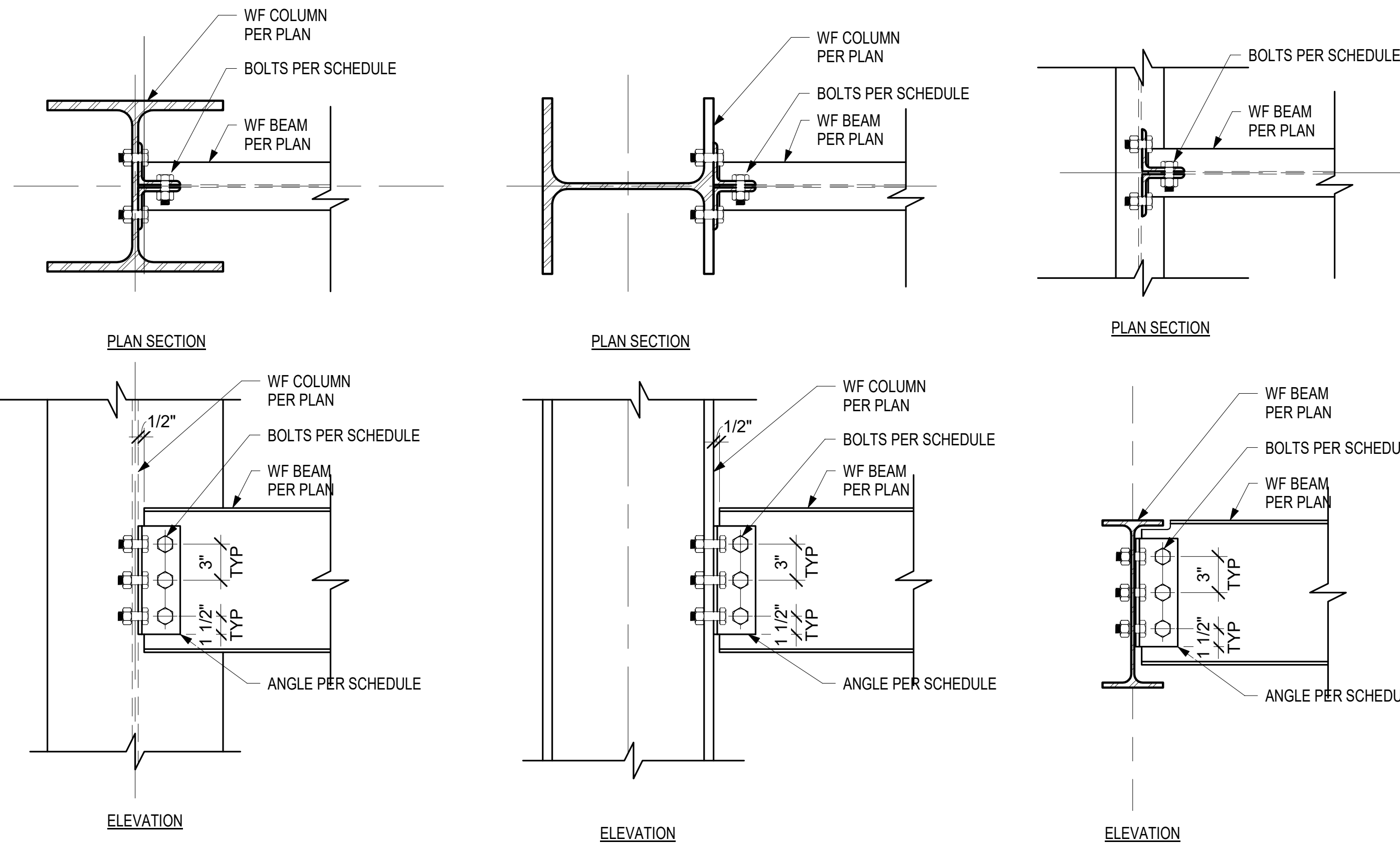
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ACTIVITY
SATISFACTORY TO DATE
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PRADM
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
 TYPICAL STEEL FRAMING DETAILS

SCALE: AS NOTED
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SE551
DRAWFORM REVISION: 14 SEP 2023

TYPICAL BEAM CONNECTION SCHEDULE			
BEAM SIZE	HS A325 BOLT SIZE	ROWS OF BOLTS	ANGLE SIZE
W8 - W10	3/4" DIA	2	2L 3 1/2 x 3 1/2 x 5/16
W12	3/4" DIA	2	2L 3 1/2 x 3 1/2 x 5/16
W14	3/4" DIA	3	2L 3 1/2 x 3 1/2 x 5/16
W16	3/4" DIA	3	2L 3 1/2 x 3 1/2 x 5/16
W18	3/4" DIA	4	2L 3 1/2 x 3 1/2 x 5/16
W21	3/4" DIA	5	2L 3 1/2 x 3 1/2 x 5/16
W24	3/4" DIA	6	2L 3 1/2 x 3 1/2 x 5/16
W27	3/4" DIA	6	2L 3 1/2 x 3 1/2 x 5/16
W30	3/4" DIA	7	2L 3 1/2 x 3 1/2 x 5/16

BASE PLATE / ANCHOR BOLT SCHEDULE											
BASE PLATE	PLATE THICKNESS	BASE PLATE DIMENSIONS				ANCHOR BOLT DIMENSIONS					COMMENTS
		W	L	G1	G2	D	P	B	T	R	
BP1	1 3/4"	16"	16"	6"	6"	1 1/4"	12"	3"	1/8"	AS NEEDED	
BP2	1 1/4"	16"	16"	6"	6"	1"	12"	3"	1/8"	AS NEEDED	



C3 BASE PLATE SCHEDULE
1 1/2" = 1'-0"

B1 TYP BEAM CONNECTION SCHEDULE
NTS

TABLE "A" - REINFORCEMENT TENSION LAPS AND EMBEDMENT									
f _y = 60000 psi f' _c = 4000 psi									
BAR SIZE	BAR DIA. (IN)	EMBEDMENT AND CLASS "A" LAP (IN)				CLASS "B" LAP (IN)			
		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
3	.375	20	28	15	22	25	37	20	28
4	.500	36	38	20	29	33	49	26	38
5	.625	32	48	25	36	41	65	32	48
6	.750	38	56	29	44	49	74	38	56
7	.875	55	82	42	63	71	107	55	82
8	1.000	63	94	48	72	82	121	63	94
9	1.128	71	106	54	82	92	137	71	106
10	1.270	80	119	61	92	103	155	80	119
11	1.410	88	132	68	102	115	171	88	132

NOTES FOR USE WITH TABLE A

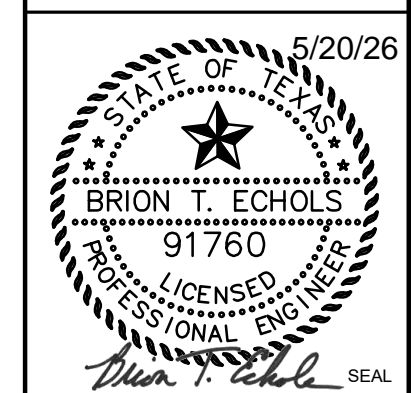
A. TABLE A PRESENTS LENGTHS OF TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS BASED ON ACI 318-19, SECTION 25.4.2.

B. CASE 1 LENGTHS APPLY TO BEAMS AND COLUMNS WITH CONCRETE COVER EQUAL OR GREATER THAN THE BAR DIAMETER, CLEAR BAR SPACING EQUAL OR GREATER THAN THE BAR DIAMETER AND WITH STIRRUPS OR TIES NOT LESS THAN THE CODE MINIMUM THROUGHOUT THE LENGTH IN THE TABLE; AND FOR OTHER ELEMENTS WITH CONCRETE COVER EQUAL TO GREATER THAN THE BAR DIAMETER AND CLEAR SPACING EQUAL OR GREATER THAN TWO TIMES THE BAR DIAMETER.

C. CASE 2 LENGTHS APPLY TO BEAMS AND COLUMNS WITH CONCRETE COVER LESS THAN THE BAR DIAMETER AND CLEAR BAR SPACING LESS THAN THE BAR DIAMETER AND FOR OTHER ELEMENTS WITH CONCRETE COVER LESS THAN THE BAR DIAMETER AND CLEAR BAR SPACING LESS THAN TWO TIMES THE BAR DIAMETER.

D. TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE REINFORCEMENT.

A1 TENSION LAP SCHEDULE
12" = 1'-0"



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CHIEF ENGINEER
FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
SCHEDULES

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SE601
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5/20/2023 3:09:32 PM SE601 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_S05.rvt

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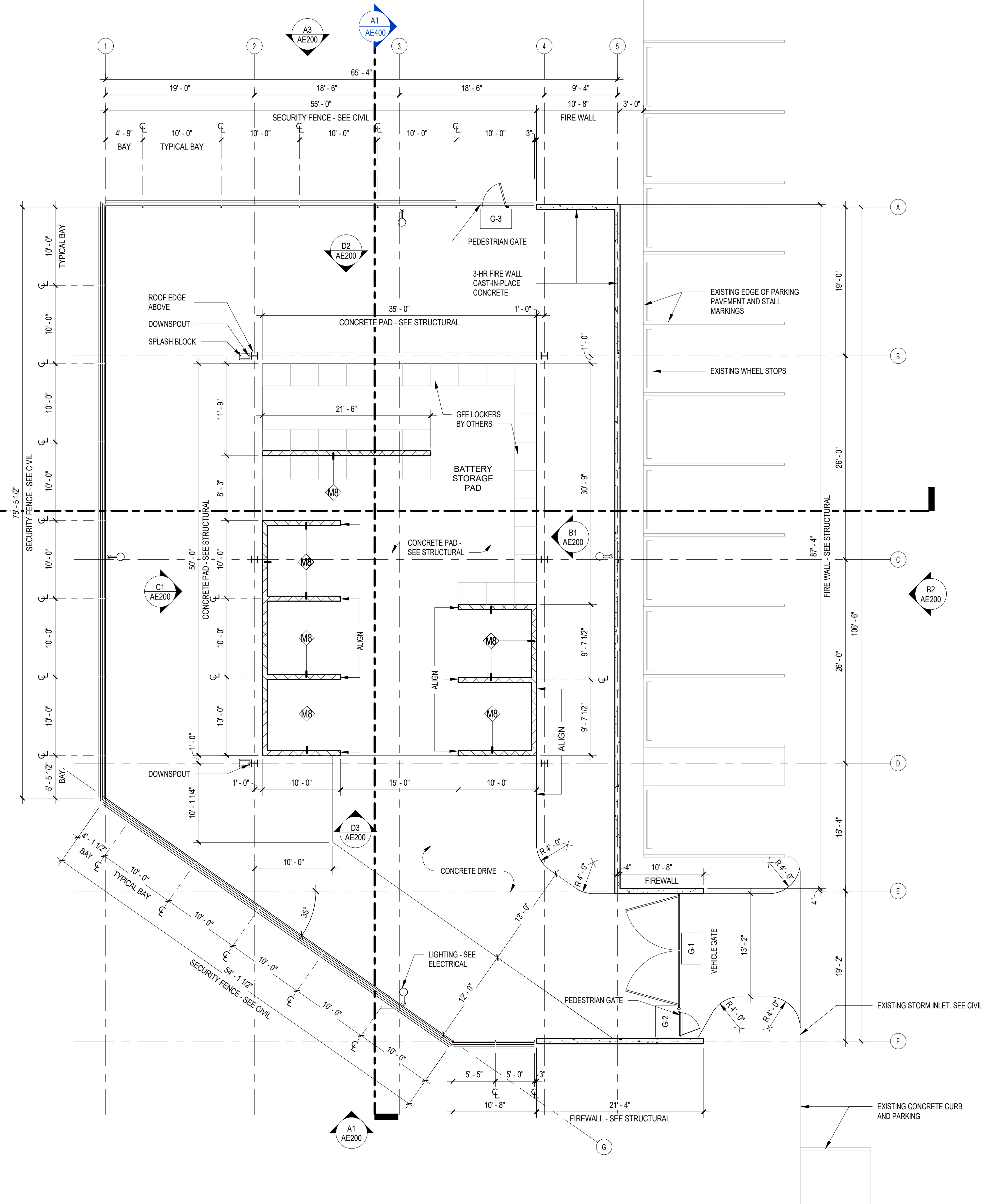
A

D

C

B

A



A1 FLOOR PLAN
1/8" = 1'-0"

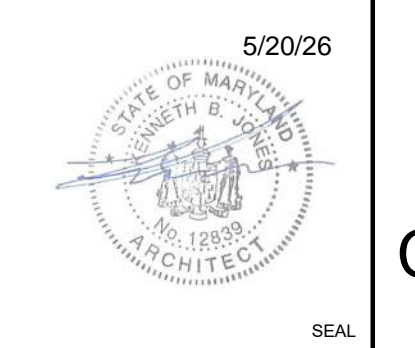
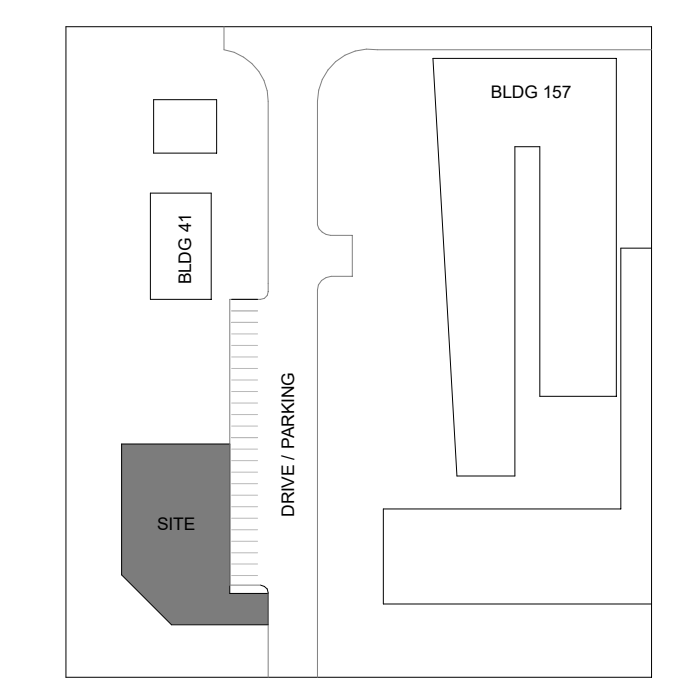
GENERAL NOTES - FLOOR PLAN

1. PERIMETER CAST-IN-PLACE CONCRETE WALLS SHALL BE 3-HOUR FIRE-RATED CONSTRUCTION PER APPROVED UL ASSEMBLY. MAINTAIN FIRE RATING AT ALL JOINTS, AND CONNECTIONS. SEE STRUCTURAL FOR DETAILS.
2. CONCRETE PAD. SEE STRUCTURAL DRAWINGS FOR SLAB THICKNESS, REINFORCING, AND SPECIFICATIONS. BROOM FINISH UNLESS NOTED OTHERWISE.
3. CONTROL JOINTS IN CONCRETE SLAB @ 15'-0" O.C. EACH DIRECTION, TYP - SEE STRUCTURAL.
4. CONTROL JOINTS IN CONCRETE DRIVEWAY, SEE CIVIL DRAWINGS.
5. FIRE-RATED STORAGE LOCKERS ARE GOVERNMENT FURNISHED EQUIPMENT (GFE) AND WILL BE INSTALLED UNDER SEPARATE CONTRACT. LOCKERS SHOWN ARE FOR COORDINATION ONLY. COORDINATE LOCKER LOCATIONS FOR GROUNDING WITH ELECTRICAL DRAWINGS. CONTRACTOR SHALL PROVIDE CLEAR, UNOBSTRUCTED ACCESS.
6. ALL DIMENSIONS ARE TO FACE OF CONCRETE/MASONRY UNLESS NOTED OTHERWISE. COORDINATE ALL WALL LOCATIONS WITH STRUCTURAL GRID AND ROOF FRAMING. VERIFY ELECTRICAL OUTLET AND FIRE DETECTION LOCATIONS IN FIELD BEFORE ROUGH-IN.
7. INTERIOR MASONRY WALLS FOR BATTERY SEGREGATION. HEIGHT SHOWN ON ELEVATIONS.
8. CONCRETE DRIVE TO SLOPE FOR POSITIVE DRAINAGE. VERIFY SLOPE WITH CIVIL DRAWINGS.
9. ALL WALLS TO EXTEND FROM CONCRETE PAD TO SET HEIGHT. SEE ELEVATIONS.
10. FOR GATE HARDWARE SEE CIVIL.
11. VERIFY ALL DIMENSIONS IN FIELD BEFORE FABRICATION AND INSTALLATION.

LEGEND

- SECURITY FENCE
- 3 HR FIRE WALL
- CONTROL JOINT
- ROOF EDGE
- CMU WALL
- STRUCTURAL FRAMING
- GATE

KEY PLAN



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ALEXANDRIA, VA 22314
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SATISFACTORY TO DATE	
DES JK	DRW JK
PRADM JK	CHK CS
BRANCH MANAGER KJ	
CHIEF ENGINEER KJ	
FIRE PROTECTION	

Carderock, Bethesda, MD
NAVAL SURFACE WAREFARE CENTER
B157 POST-TEST LITHIUM BATTERY STORAGE
FLOOR PLAN

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.

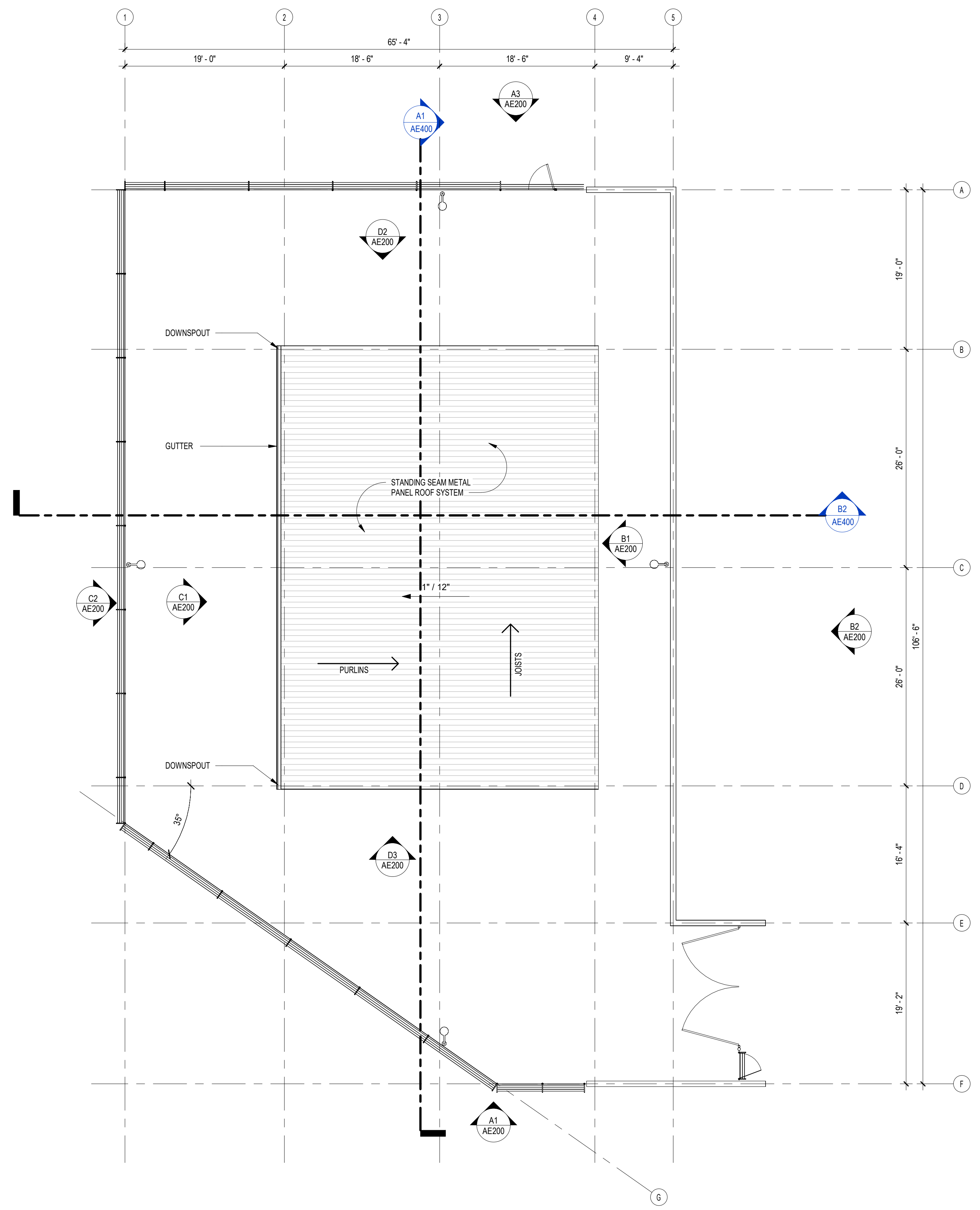
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A1 ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES - ROOF PLAN

1. NO PERMANENT ROOF ACCESS PROVIDED. TEMPORARY ACCESS FOR MAINTENANCE SHALL BE VIA MOBILE EQUIPMENT ONLY. ROOF IS NOT DESIGNED FOR OCCUPANCY OR STORAGE.
2. REFER TO STRUCTURAL DRAWINGS FOR ROOF FRAMING, LOADING, AND SUPPORT SYSTEM.
3. ROOF SLOPE: 1/4:12 MINIMUM PITCH. SLOPE FROM HIGH POINT TO LOW POINT FOR POSITIVE DRAINAGE.
4. ROOFING SYSTEM: STANDING SEAM METAL ROOF PANELS, 24-GAUGE GALVALUME FINISH. MCELROY METAL MIRAGE II OR APPROVED EQUAL.
5. MAINTAIN MINIMUM 110" CLEAR HEIGHT BELOW LOWEST STRUCTURAL MEMBER FOR FORKLIFT OPERATIONS. ALL ROOF PENETRATIONS (CONDUIT, DETECTION EQUIPMENT) SHALL MAINTAIN WEATHER-TIGHT INTEGRITY.
6. LED POLE-MOUNTED LIGHTING FIXTURES AT PERIMETER. EXACT LOCATIONS ON ELECTRICAL DRAWINGS.
7. PROVIDE CONTINUOUS GUTTER AND DOWNSPOUT SYSTEM. SIZE PER CIVIL DRAWINGS FOR STORMWATER MANAGEMENT. ROUTE DISCHARGE TO APPROVED COLLECTION POINTS.
8. LIGHTNING PROTECTION SYSTEM PER NFPA 780. SEE ELECTRICAL DRAWINGS FOR GROUNDING AND BONDING REQUIREMENTS.

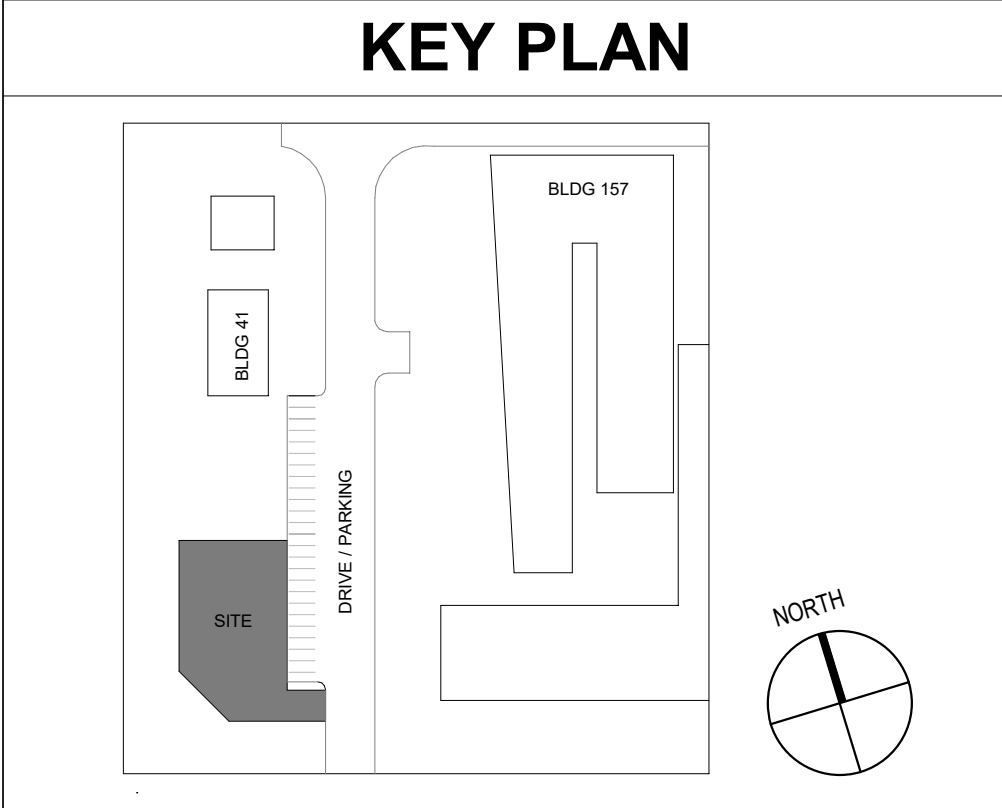


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PRJDM JK	CHK CS
BRANCH MANAGER	KJ
CHIEF ENGINEER	KJ
FIRE PROTECTION	

ROOF DATA

PLAN AREA	1999 SF
SLOPE	1:12
SLOPE FACTOR	1.003
ROOF AREA	2007 SF
GUTTER LENGTH	52'10"



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 ROOF PLAN
 AS NOTED
 AE150
DRAWFORM REVISION: 14 SEP 2023

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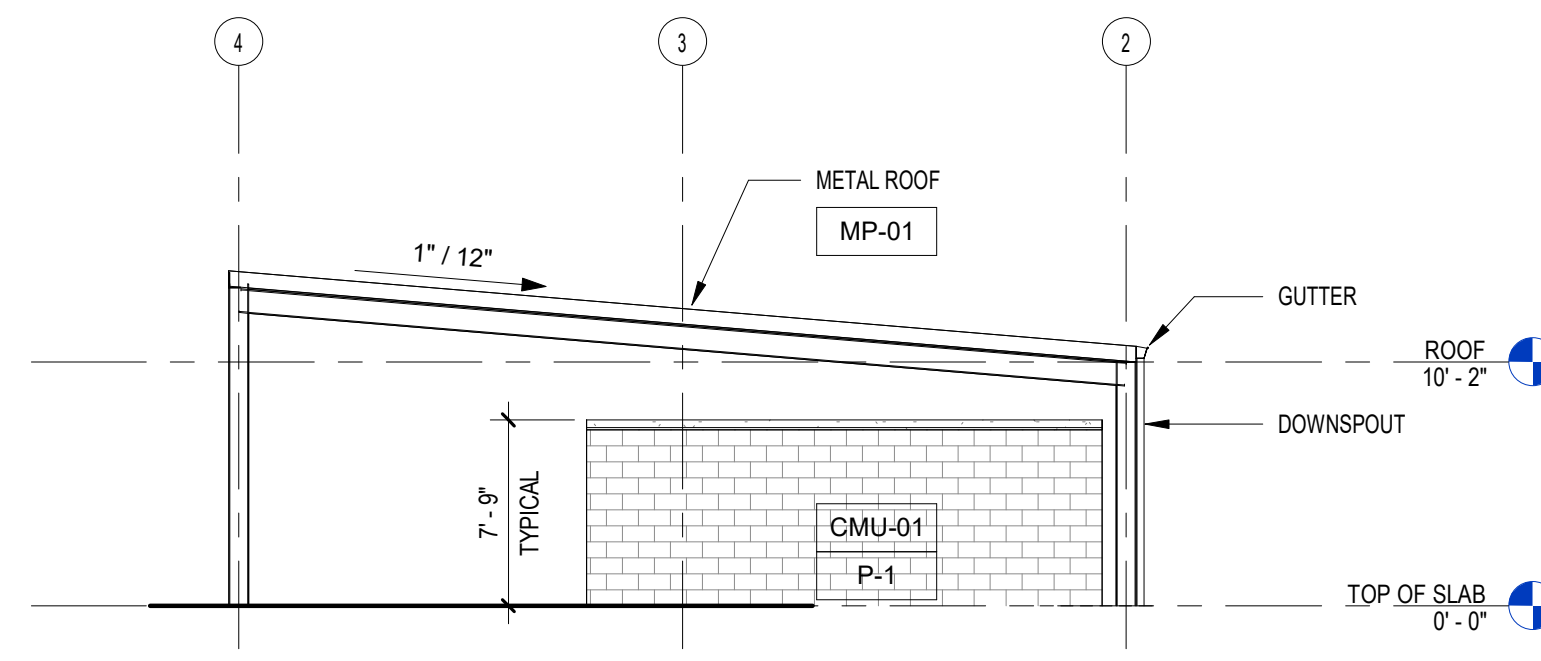
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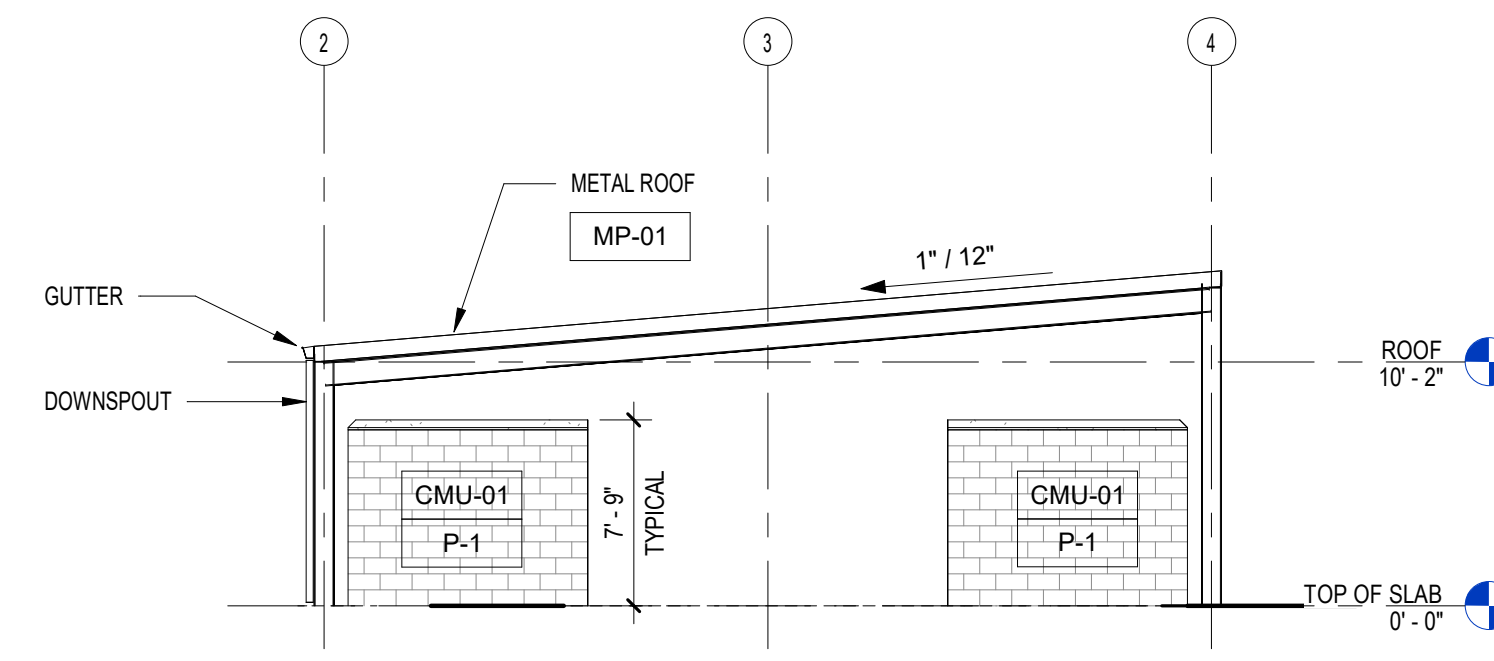
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GENERAL NOTES - ELEVATIONS

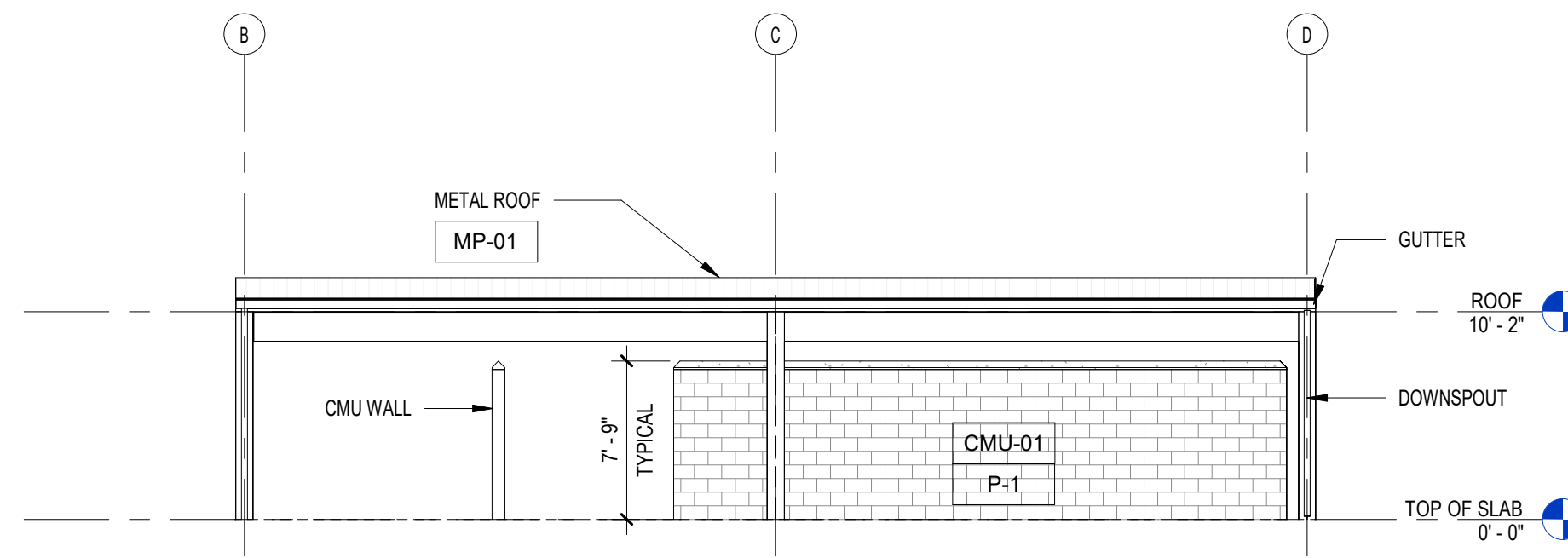
- 1. FINISH GRADE ELEVATIONS SHOWN ARE APPROXIMATE. SEE CIVIL DRAWINGS SHEET C-161 FOR GRADING PLAN AND FINAL ELEVATIONS.
- 2. POLE-MOUNTED LED LIGHT FIXTURES SEE ELECTRICAL DRAWINGS SHEET E201 FOR DETAILS.
- 3. MAINTAIN MINIMUM 110" CLEAR HEIGHT FOR FORKLIFT OPERATIONS.
- 4. SECURITY FENCING SHOWN FOR REFERENCE ONLY. SEE CIVIL DRAWINGS FOR CONSTRUCTION DETAILS AND SPECIFICATIONS.
- 5. 3-HOUR FIRE-RATED PERIMETER WALLS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL DRAWINGS FOR WALL CONSTRUCTION, SPECIFICATIONS, AND DETAILS.
- 6. FIRE WALL EXTERIOR SIDE: CONTROL JOINTS @ 16'-0" O.C. VERTICALLY ALIGNED WITH FORM LINER PATTERN. FORMED JOINTS MATCHING FORM LINER REVEAL DEPTH.
- 7. FIRE WALL INTERIOR SIDE/ FACING CONCRETE PAD: CONTROL JOINTS @ 18'-0" O.C. ALIGNED WITH EXTERIOR SIDE JOINTS. TOOLED OR SAWED JOINTS.



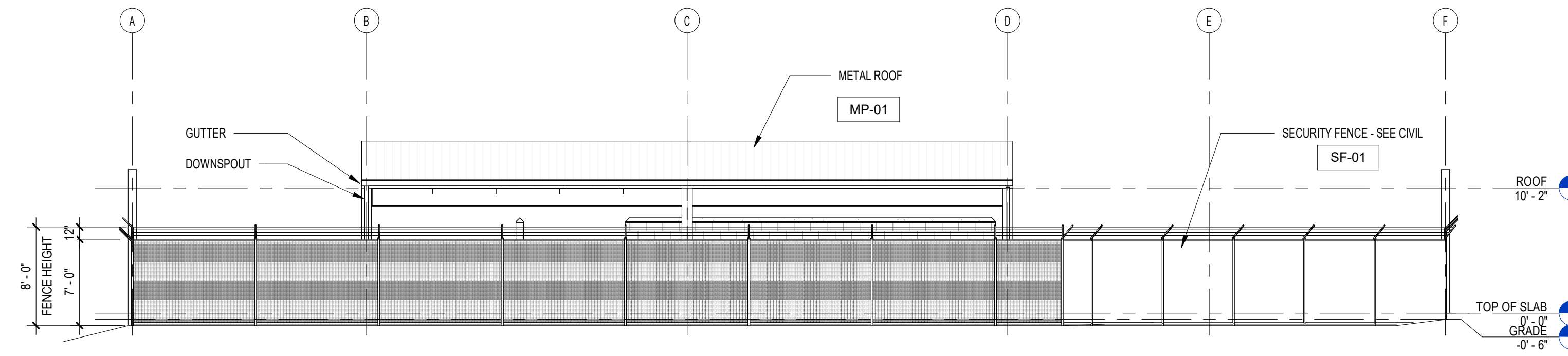
D2 NORTH ELEVATION - BATTERY STORAGE
1/8" = 1'-0"



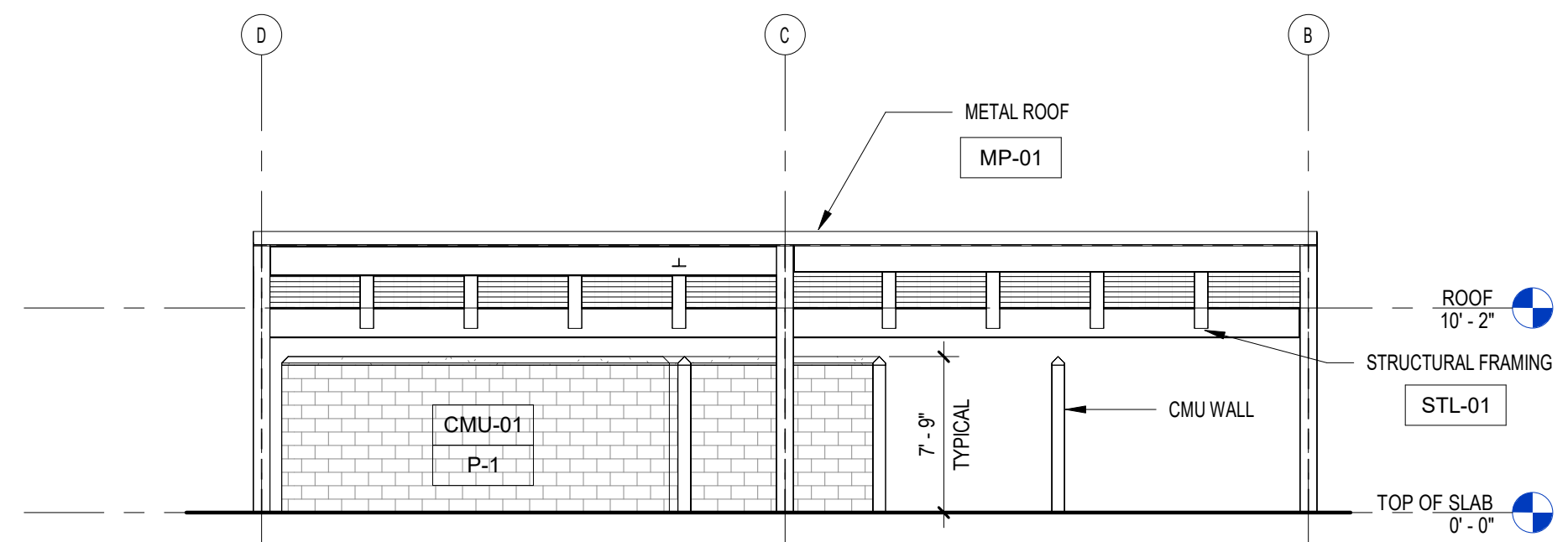
D3 SOUTH ELEVATION - BATTERY STORAGE
1/8" = 1'-0"



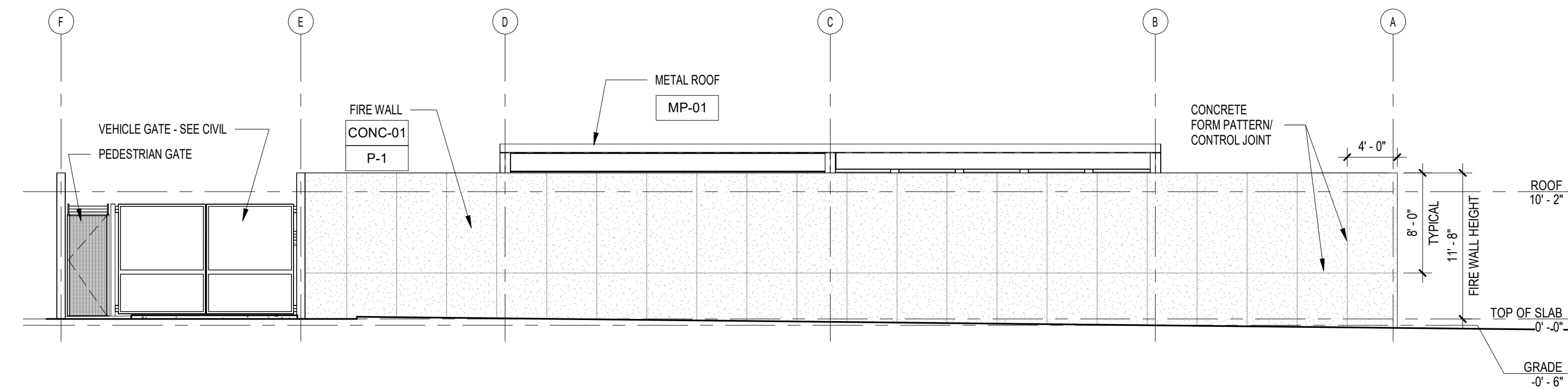
C1 WEST ELEVATION - BATTERY STORAGE
1/8" = 1'-0"



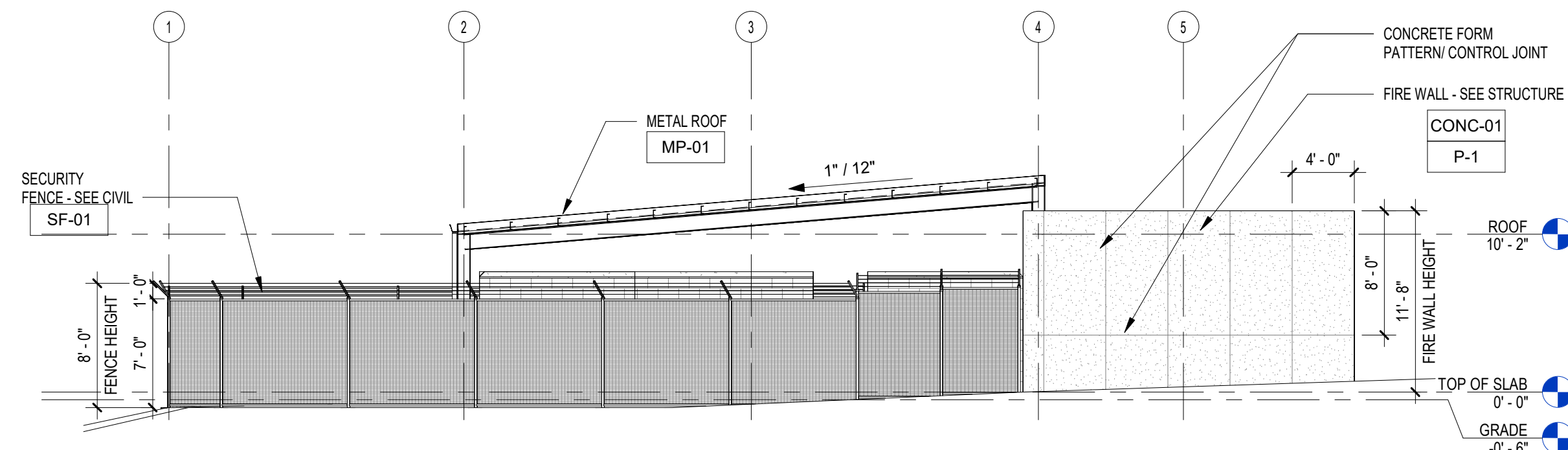
C2 WEST ELEVATION - PERIMETER
1/8" = 1'-0"



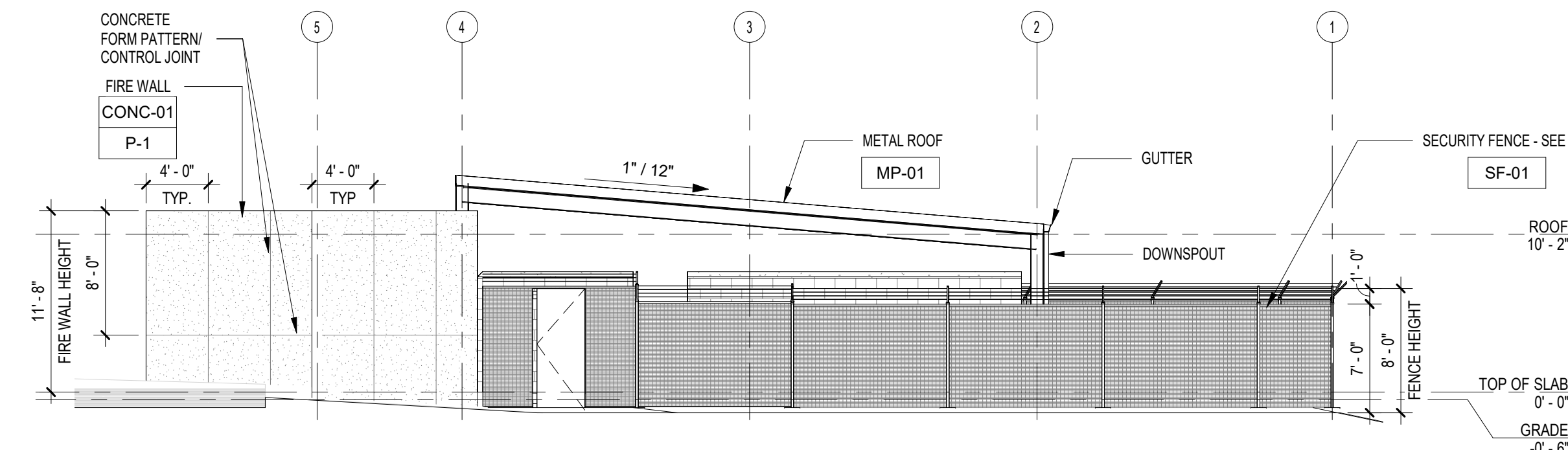
B1 EAST ELEVATION - BATTERY STORAGE
1/8" = 1'-0"



B2 EAST ELEVATION - PERIMETER
1/8" = 1'-0"



A1 SOUTH ELEVATION - PERIMETER
1/8" = 1'-0"



A3 NORTH ELEVATION - PERIMETER
1/8" = 1'-0"



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DES JK DRW JK CHK CS
PRADM JK
BRANCH MANAGER KJ
CHIEF ENGINEER KJ
FIRE PROTECTION

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NAVAL SURFACE WARFARE CENTER
B157 POST-TEST LITHIUM BATTERY STORAGE
ELEVATIONS

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AE200
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5/20/2026 11:16:25 PM AE200 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_A25.rvt

WALL ASSEMBLIES

TYPICAL WALL TYPE NOTES

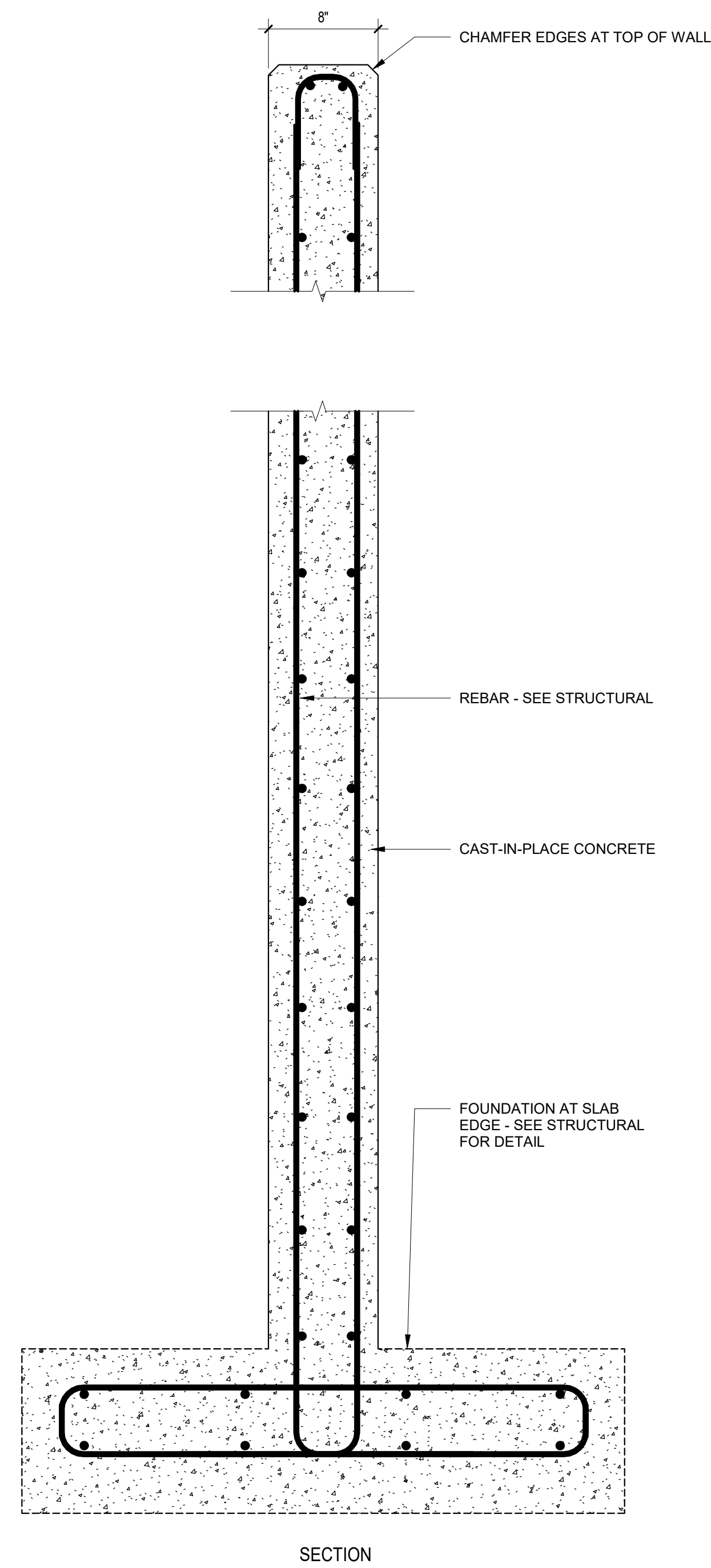
1. THESE WALL TYPES DO NOT SHOW LATERAL BRACING OR WALL REINFORCING. SEE STRUCTURAL AND OTHER DRAWINGS FOR THAT INFORMATION.
2. SEE FINISH SCHEDULE FOR FINISHES TO BE APPLIED TO THESE WALL TYPES.
3. ALL WALLS WITH FIRE RATING INDICATED TO BE BUILT IN STRICT CONFORMANCE WITH A UL TESTED ASSEMBLY OR OTHER TESTED ASSEMBLY WHICH PROVIDES THE FIRE RATING INDICATED.
4. 3-HOUR FIRE-RATED PERIMETER WALLS SHALL BE CAST-IN-PLACE REINFORCED CONCRETE CONSTRUCTION PER SECTION 03 30 00. SEE STRUCTURAL DRAWINGS FOR WALL THICKNESS, REINFORCEMENT, AND FOUNDATION DETAILS. FIRE RATING PER TESTED ASSEMBLY COMPLIANT WITH IBC 2021 AND NFPA 855.
5. FIRE WALLS REQUIRE INDEPENDENT FOUNDATION SYSTEM. SEE STRUCTURAL DRAWINGS FOR FOOTING DESIGN AND CONNECTION TO STORAGE PAD.
6. INTERIOR CONCRETE MASONRY UNIT (CMU) WALLS PROVIDE COMPARTMENTALIZATION FOR BATTERY STORAGE SEPARATION. WALLS ARE NON-LOAD BEARING AND NON-FIRE-RATED UNLESS OTHERWISE NOTED. SEE STRUCTURAL DRAWINGS FOR LATERAL SUPPORT AND ANCHORAGE REQUIREMENTS.
7. CMU WALL CONSTRUCTION SHALL COMPLY WITH SPECIFICATION SECTION 04 20 00. PROVIDE GALVANIZED REINFORCEMENT AND TIES FOR CORROSIVE ENVIRONMENT. ALL CMU CELLS TO BE GROUTED SOLID UNLESS OTHERWISE NOTED.
8. ALL WALLS EXTEND FROM TOP OF CONCRETE STORAGE PAD TO SET HEIGHT UNLESS OTHERWISE NOTED. VERIFY CLEARANCE HEIGHTS IN FIELD BEFORE CONSTRUCTION.
9. VERIFY ALL WALL LOCATIONS AND DIMENSIONS IN FIELD BEFORE CONSTRUCTION. COORDINATE WALL CONSTRUCTION SEQUENCE WITH CONCRETE PAD AND ROOF STRUCTURE INSTALLATION.

D

C

B

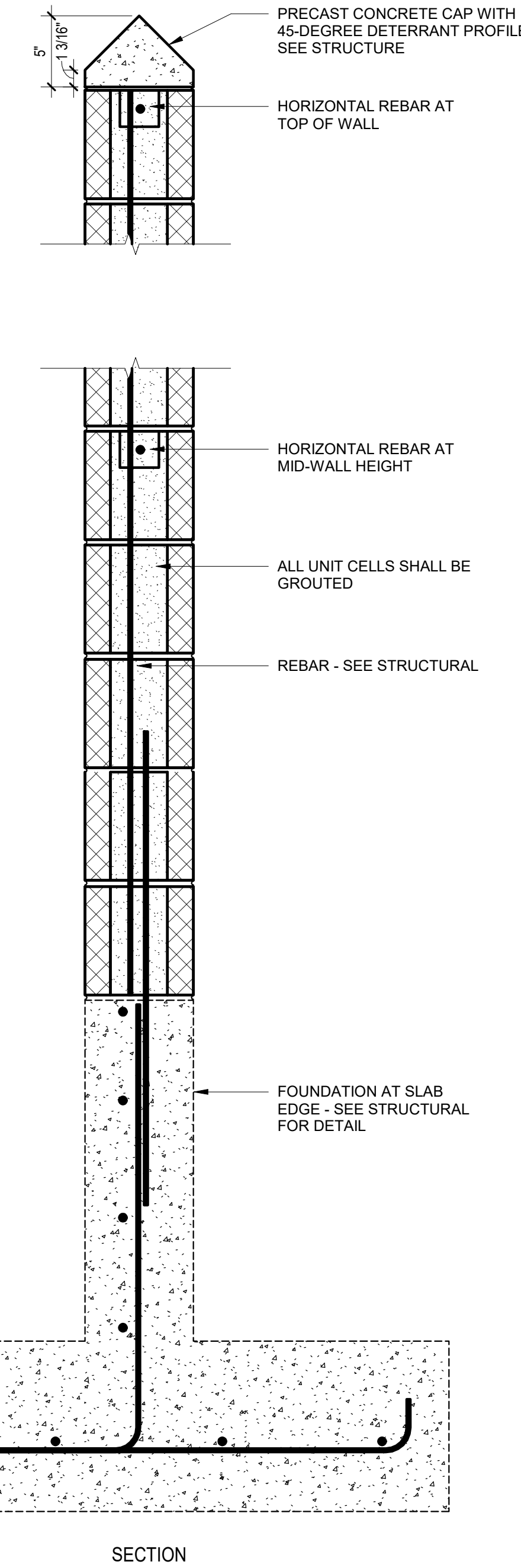
A



TYPE C - CAST-IN-PLACE CONCRETE FIRE WALL

C8 AS DEPICTED, 8" CAST-IN-PLACE CONCRETE

3



TYPE M - CONCRETE MASONRY WALL

M8 AS DEPICTED, 7-5/8" BLOCK

DATE

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SEAL



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SATISFACTORY TO DATE			
DES	JK	DRW	JK
PRADM	JK	CHK	CS
BRANCH MANAGER	KJ		
CHIEF ENGINEER	KJ		
FIRE PROTECTION			

NAVAL SURFACE WARFARE CENTER
Carderock, Bethesda, MD
B157 POST-TEST LITHIUM BATTERY STORAGE
WALL TYPES

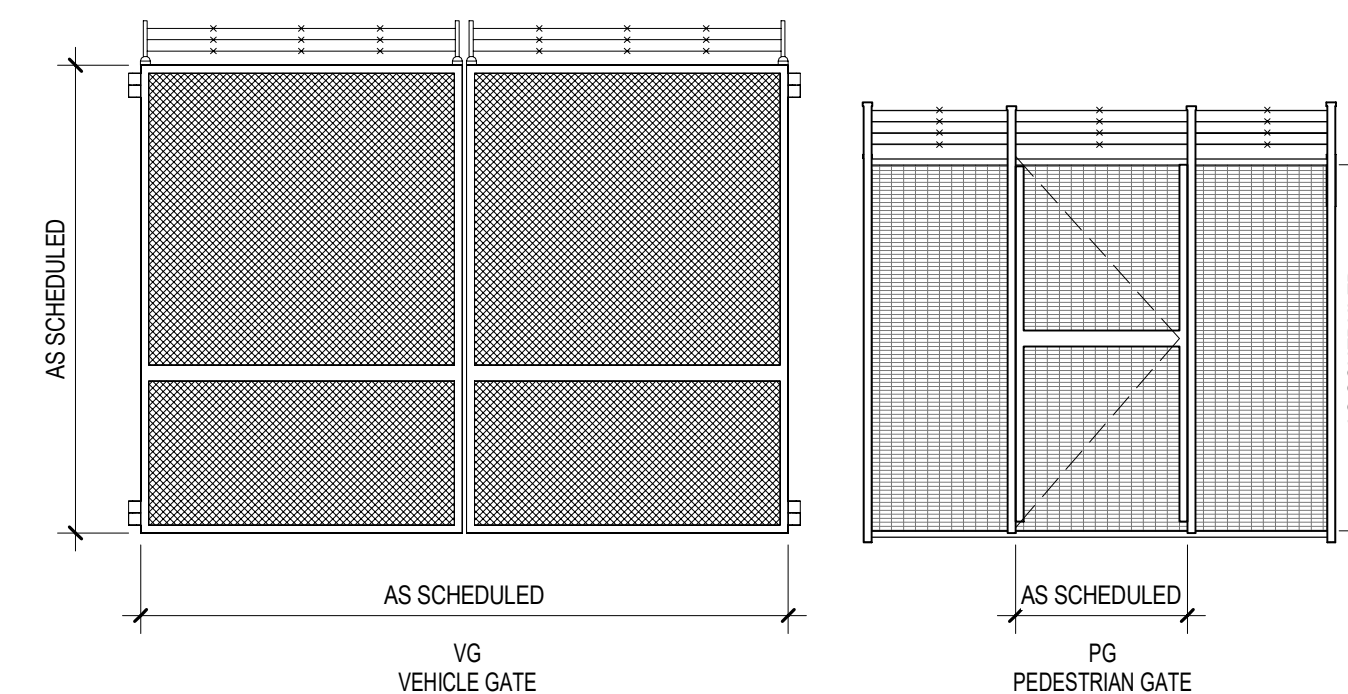
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GATE SCHEDULE						
Mark	Gate Type	Gate Material	FINISH	Gate Height	Gate Width	Remarks
G-1	DOUBLE VEHICLE GATE	STEEL	HOT DIP GALVANIZED	7' - 0"	14' - 0"	MANUAL VEHICLE GATE W/ LOCKING HARDWARE. FOR FORKLIFT ACCESS
G-2	PEDESTRIAN GATE	STEEL	HOT DIP GALVANIZED	7' - 0"	3' - 0"	PEDESTRIAN ENTRY GATE W/ LOCKING HARDWARE
G-3	PEDESTRIAN EGRESS GATE	STEEL	HOT DIP GALVANIZED	7' - 0"	3' - 0"	EXIT DEVICE/NO ENTRY

GATE TYPES



GENERAL GATE NOTES

- ALL GATES AND SECURITY FENCING SHALL COMPLY WITH UFC 4-022-03 SECURITY FENCES AND GATES. SEE CIVIL DRAWINGS FOR COMPLETE FENCE AND GATE DETAILS, AND SPECIFICATIONS.
- IF A DISCREPANCY EXISTS BETWEEN THE GATE SCHEDULE REMARKS AND THE HARDWARE SCHEDULE IN THE SPECIFICATIONS, PROVIDE THE HARDWARE NEEDED TO MEET THE MORE STRINGENT OF THE REQUIREMENTS.
- PEDESTRIAN GATES SHALL BE EQUIPPED WITH PANIC HARDWARE FOR SECONDARY EGRESS COMPLIANCE PER IBC 2021. HARDWARE SHALL BE COORDINATED WITH SECURITY LOCKING SYSTEM.
- ALL GATE HARDWARE, HINGES, AND FASTENERS SHALL BE HOT-DIP GALVANIZED OR STAINLESS STEEL FOR CORROSIVE ENVIRONMENT.
- GATE POSTS AND FOUNDATIONS SHALL BE DESIGNED BY CIVIL ENGINEER. SEE CIVIL DRAWINGS FOR POST SIZING, EMBEDMENT DEPTH, AND CONCRETE FOUNDATION DETAILS.
- ALL PEDESTRIAN GATES ARE TO SWING OUTWARD (AWAY FROM STORAGE FACILITY) UNLESS OTHERWISE NOTED.
- PROVIDE GATE STOPS AND HOLD-OPEN DEVICES AS INDICATED ON CIVIL DRAWINGS.
- GATE FINISHES SHALL MATCH SECURITY FENCING SYSTEM. SEE SPECIFICATION SECTION [XX XX XX] FOR COATING REQUIREMENTS.
- CONTRACTOR SHALL FIELD-VERIFY ALL GATE OPENING DIMENSIONS BEFORE FABRICATION AND INSTALLATION.
- COORDINATE INSTALLATION SEQUENCE: INSTALL GATE POSTS AND FOUNDATIONS PRIOR TO ADJACENT FENCE SECTIONS.

FINISH SCHEDULE							
FINISH CODE	DESCRIPTION	MANUFACTURER	PRODUCT NAME	COLOR NUMBER / NAME	FINISH LOCATION	NOTES	SPEC SECTION
CMU-01	CMU BLOCK - 8IN BLOCK	-	-	NATURAL GRAY	WALL		04 20 00
CONC-01	CAST IN PLACE CONCRETE FIREWALL	-	-	NATURAL GRAY	PERIMETER	EXTERIOR FACE: BROOM FINISH	03 30 00
CONC-02	CONCRETE SLAB	-	-	NATURAL GRAY	FLOOR	BROOM FINISH, SLIP-RESISTANT	03 30 00
MP-01	METAL PANEL ROOF	MCELROY METAL	MIRAGE II PANEL	DARK BRONZE	ROOF		07 61 14
P-1	TYPICAL PAINT	SHERWIN WILLIAMS	MASONRY STAIN, H&C COLOR TOP	BIRCH (CUSTOM MATCH)	WALL		09 90 00
SF-01	SECURITY FENCE	-	HOT-DIP GALVANIZED	NATURAL GRAY	PERIMETER		32 31 13
SHM-01	SHEET METAL	MCELROY METAL	MATCH ROOF	DARK BRONZE	ROOF		07 60 00
SHM-02	GUTTERS/DOWNSPOUT	MCELROY METAL	MATCH ROOF	DARK BRONZE	WALL		07 60 00
STL-01	STRUCTURAL STEEL	-	HOT-DIP GALVANIZED	NATURAL GRAY	WALL		05 50 00

* MATERIALS ARE APPROVED AS THE BASIS OF DESIGN. ALL MATERIAL SUBSTITUTIONS ARE SUBJECT TO OWNERS APPROVAL.

GENERAL FINISH NOTES

- OUTDOOR, UNCONDITIONED STORAGE FACILITY. ALL FINISHES SHALL BE EXTERIOR-GRADE, WEATHER-RESISTANT MATERIALS.
- ALL FINISHES SELECTED FOR CORROSIVE BATTERY STORAGE ENVIRONMENT. PREFERENCE FOR GALVANIZED OR INHERENTLY CORROSION-RESISTANT MATERIALS.
- CONCRETE FIRE WALLS: BROOM FINISH. PATCH ALL DEFECTS PER ACI STANDARDS.
- CMU WALLS: PAINTED AS INDICATED. USE EXTERIOR-GRADE MASONRY COATING PER SECTION 09 91 00.
- ALL METAL SURFACES: HOT-DIP GALVANIZED OR FACTORY GALVALUME FINISH.
- FINISH COLORS SHALL COMPLY WITH NSWC CARDEROCK BASE EXTERIOR ARCHITECTURE PLAN (BEAP). SUBMIT SAMPLES FOR GOVERNMENT APPROVAL.
- ROOF: STANDING SEAM METAL PANELS, GALVALUME FINISH, COLOR BONE WHITE. SEE SECTION 07 61 14.
- EXPOSED FASTENERS AND HARDWARE: STAINLESS STEEL OR HOT-DIP GALVANIZED.

DATE

DESCRIPTION

MARK

5/20/26

SEAL

CB DESIGN GROUP, INC.

225 REINEKERS LANE, STE 216 ALEXANDRIA, VA 22314 888-585-CBDG (2234)

A/E INFO

APPROVED

FOR COMMANDER NAVFAC ACTIVITY

SATISFACTORY TO DATE

DES	JK	DRW	JK	CHK	CS
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PRADM JK

BRANCH MANAGER KJ

CHIEF ENGINEER KJ

FIRE PROTECTION

Carderock, Bethesda, MD

NAVAL SURFACE WARFARE CENTER

B157 POST-TEST LITHIUM BATTERY STORAGE

SCHEDULES

SCALE: AS NOTED

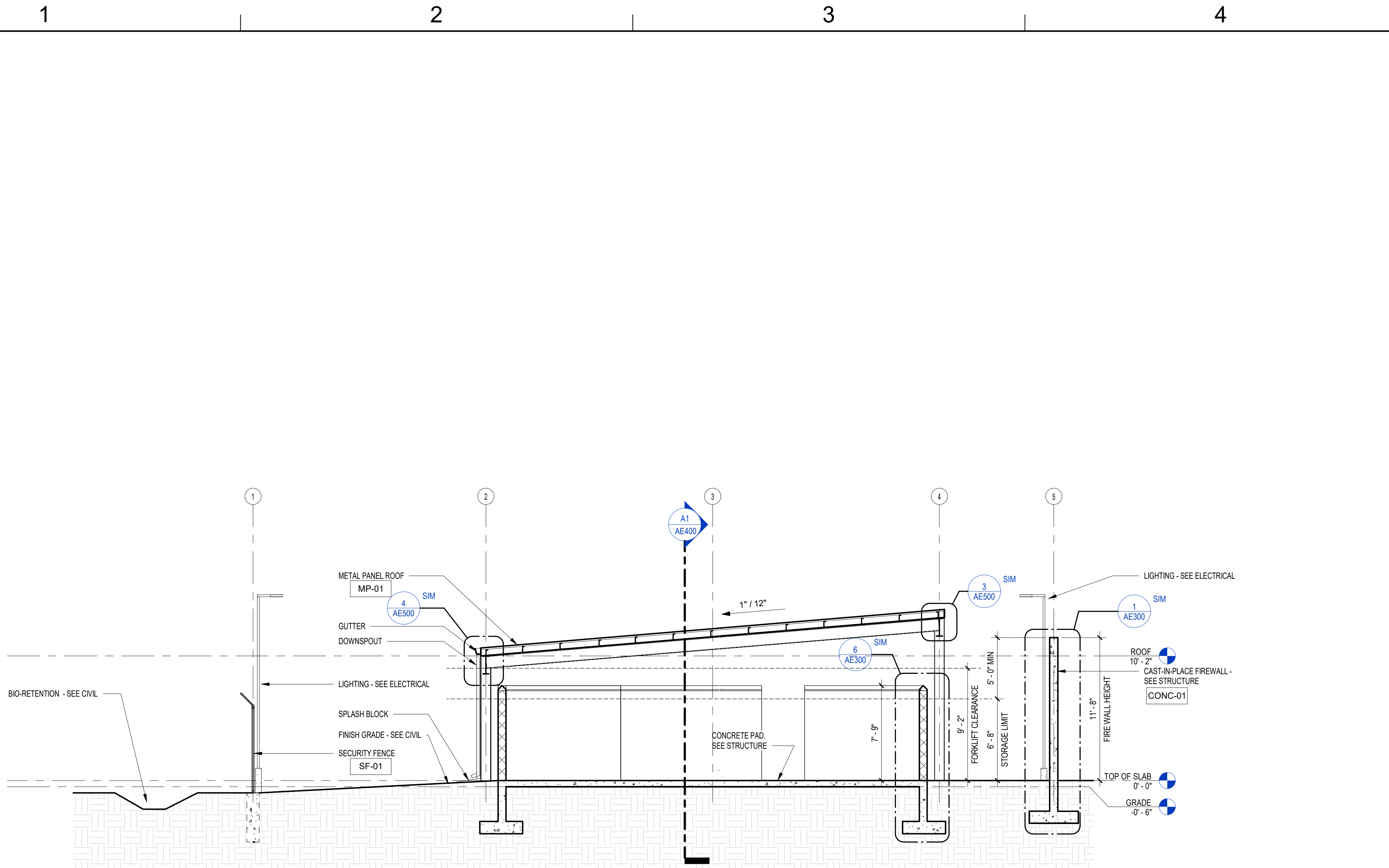
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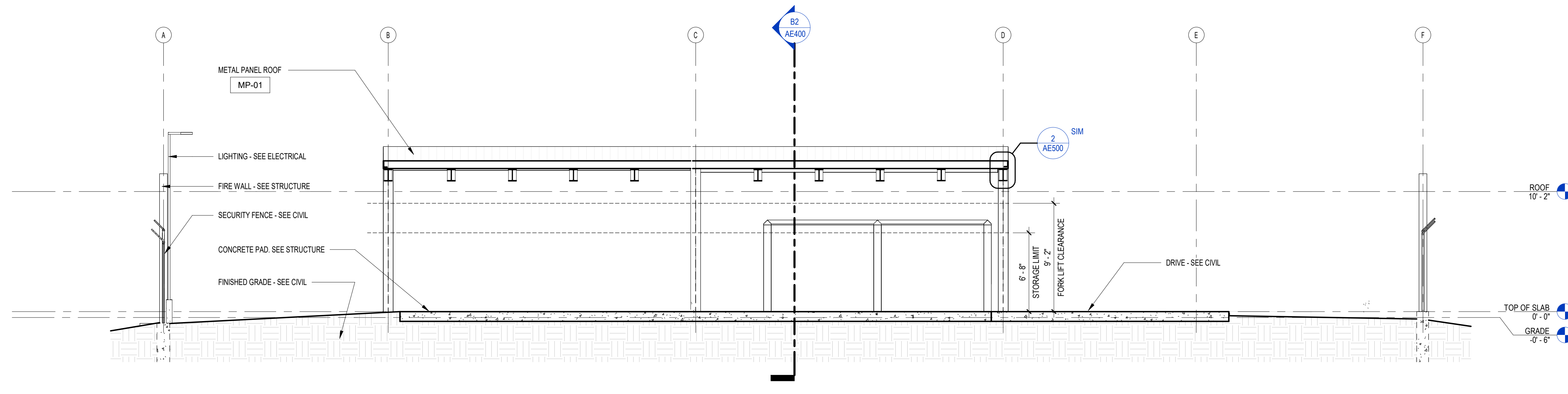
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B2 BUILDING SECTION
3/16" = 1'-0"



A1 BUILDING SECTION
3/16" = 1'-0"

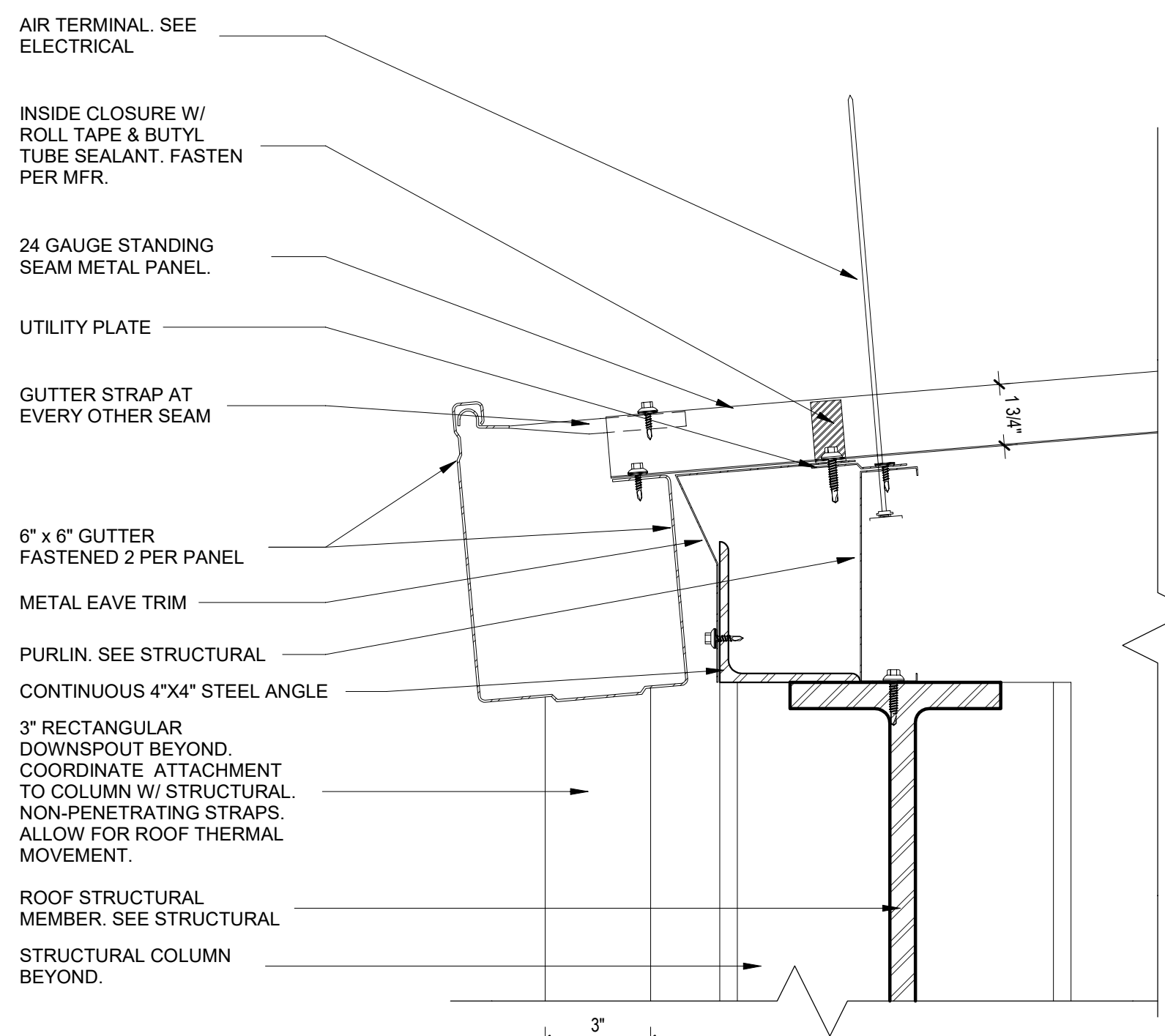
GENERAL SECTION NOTES

1. ALL DIMENSIONS SHOWN ARE TO FACE OF CONCRETE OR FACE OF MASONRY UNLESS OTHERWISE NOTED. VERIFY ALL DIMENSIONS IN FIELD BEFORE CONSTRUCTION.
2. SECTIONS ARE SCHEMATIC AND DO NOT SHOW ALL STRUCTURAL MEMBERS, CONNECTIONS, OR REINFORCEMENT. SEE STRUCTURAL DRAWINGS FOR COMPLETE FRAMING DESIGN, MEMBER SIZES, AND CONNECTION DETAILS.
3. MINIMUM CLEARANCE HEIGHT FROM FINISHED CONCRETE PAD TO UNDERSIDE OF LOWEST ROOF FRAMING MEMBER SHALL BE 9'-2" (110") TO ACCOMMODATE FORKLIFT OPERATIONS AND BATTERY HANDLING EQUIPMENT.
4. FIRE WALLS EXTEND FROM TOP OF CONCRETE PAD FOUNDATION TO A SET HEIGHT OF 11'-8" ABOVE.
5. PROVIDE POSITIVE DRAINAGE FROM ROOF TO GUTTERS AND DOWNSPOUTS. MINIMUM ROOF SLOPE 1/4:12. NO PONDING WATER ALLOWED. COORDINATE DRAINAGE DISCHARGE WITH CIVIL STORMWATER MANAGEMENT SYSTEM.
6. FOUNDATION DEPTHS SHOWN ARE SCHEMATIC. SEE STRUCTURAL AND GEOTECHNICAL DRAWINGS FOR FINAL FOUNDATION DESIGN, BEARING ELEVATIONS, AND FROST DEPTH REQUIREMENTS.
7. CONCRETE PAD THICKNESS AND REINFORCEMENT SHOWN ARE SCHEMATIC. SEE STRUCTURAL DRAWINGS FOR FINAL SLAB DESIGN, SUBGRADE PREPARATION, AND CONSTRUCTION JOINTS.
8. FIRE WALL THICKNESS SHOWN PROVIDES 3-HOUR FIRE RATING PER TESTED ASSEMBLY. DO NOT REDUCE THICKNESS WITHOUT ARCHITECT, STRUCTURAL, AND FIRE PROTECTION ENGINEER APPROVAL.
9. GRADE AT PERIMETER OF CONCRETE PAD SHALL SLOPE AWAY FROM STRUCTURE MINIMUM 2% FOR MINIMUM 10 FEET. SEE CIVIL GRADING PLAN.
10. ELECTRICAL CONDUITS, BOXES, AND EQUIPMENT NOT SHOWN. SEE ELECTRICAL DRAWINGS FOR FINAL ROUTING, SIZES, AND MOUNTING DETAILS.

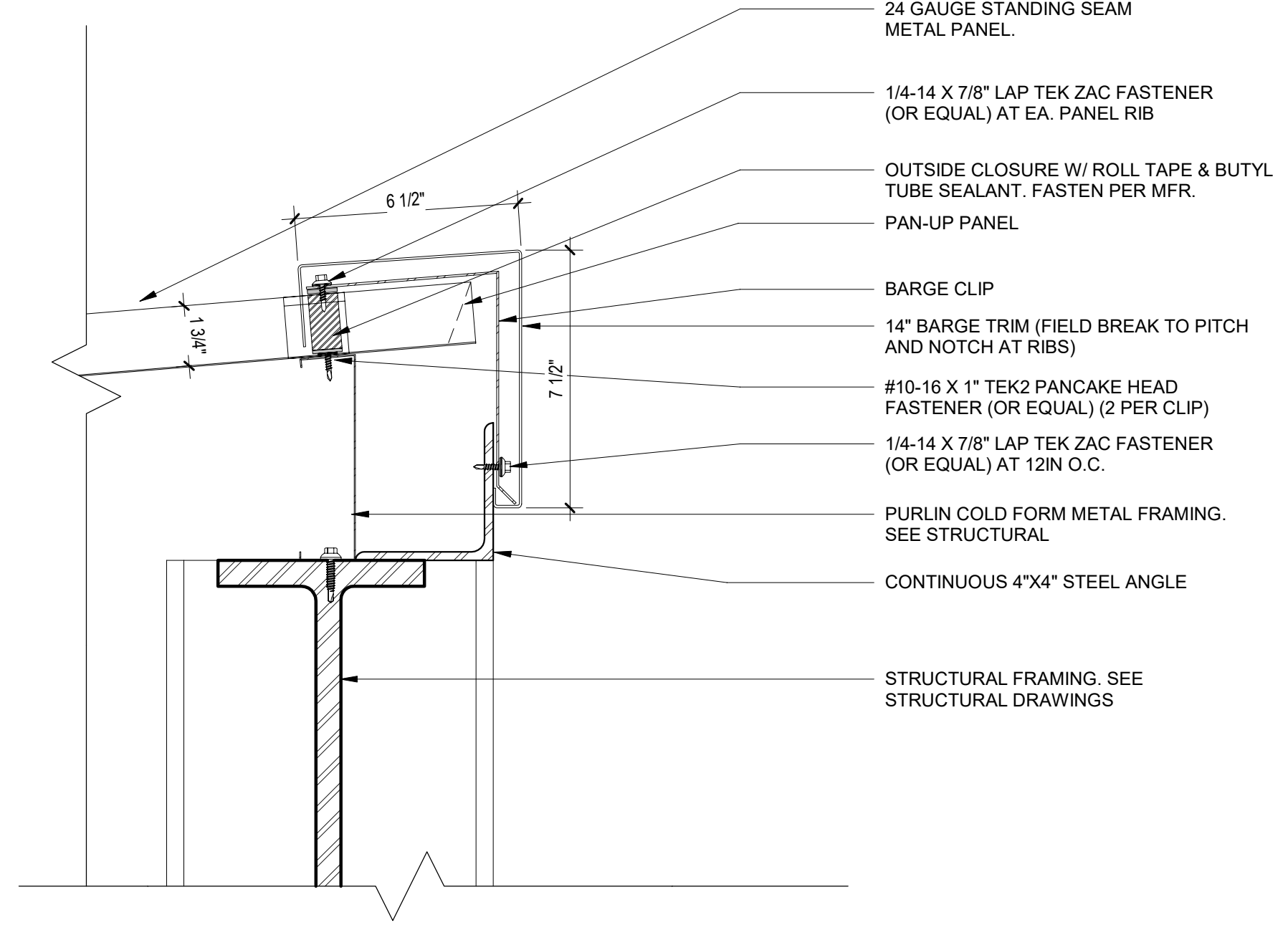
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BRANCH MANAGER	KJ
CHIEF ENGINEER	KJ
FIRE PROTECTION	
CARDEROCK, BETHESDA, MD	
NAVAL SURFACE WAREFARE CENTER	
B157 POST-TEST LITHIUM BATTERY STORAGE	
BUILDING SECTIONS	
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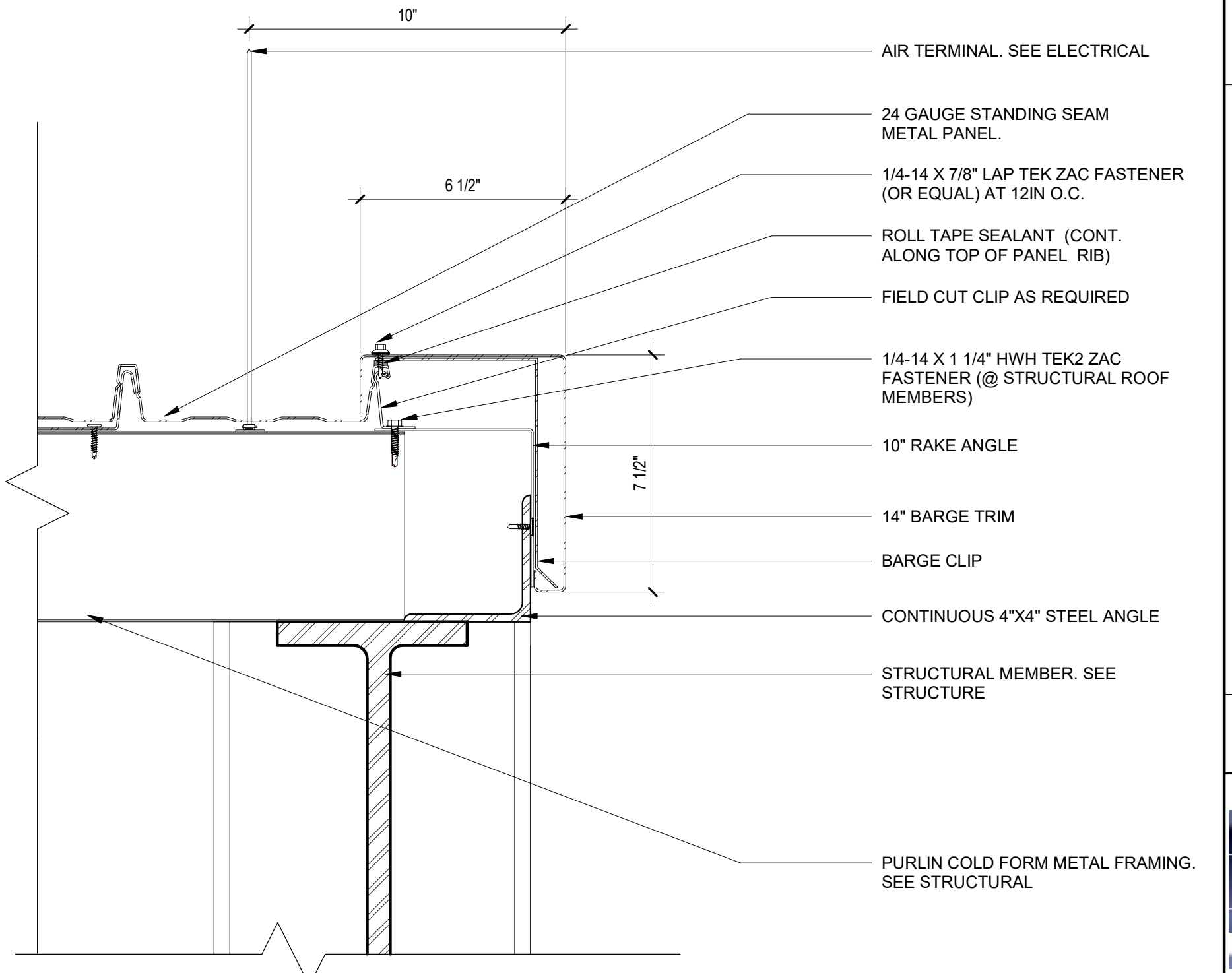
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STE 216
ALEXANDRIA, VA 22314
888-585-CBDG (2234)



4 METAL ROOF EAVE AT GUTTER DETAIL
3" = 1'-0"





3 METAL ROOF HIGH EAVE DETAIL
3" = 1'-0"



2 METAL ROOF AT RAKE END DETAIL
3" = 1'-0"

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PRJDM	JK
BRANCH MANAGER	KJ
CHIEF ENGINEER	KJ
FIRE PROTECTION	
NAVAL SURFACE WARFARE CENTER Carderock, Bethesda, MD	B157 POST-TEST LITHIUM BATTERY STORAGE ENLARGED DETAILS
SCALE: AS NOTED	
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SCOPE

1. EXTEND THE EXISTING FIRE ALARM SYSTEM FROM BUILDING 196 FOR PROTECTION OF THE BATTERY STORAGE PAD. THE EXISTING FIRE ALARM CONTROL UNIT (FACU) IS A NOTIFIER NFS-320. THE FIRE ALARM SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH UFC 3-600-01, NFPA 70 AND NFPA 72.

GENERAL CONTRACTOR RESPONSIBILITIES

- 2. IT IS THE INTENT OF THESE DOCUMENTS TO PROVIDE DESIGN, MATERIALS, AND EQUIPMENT FOR A TOTALLY FUNCTIONING AND OPERATING FIRE ALARM SYSTEM, INCLUDING THE PROPER INTERFACING AND COORDINATION WITH ALL OTHER BUILDING SYSTEMS.
- 3. THE GENERAL CHARACTER AND SCOPE OF THE WORK IS ILLUSTRATED IN THE SPECIFICATIONS AND THE DRAWINGS. THE SPECIFICATIONS AND DRAWINGS ARE DIVIDED INTO SEVERAL SECTIONS FOR CONVENIENCE ONLY AND ALL OF THE CONTRACT DOCUMENTS MUST BE CONSIDERED AS A WHOLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL TRADES, SUBCONTRACTORS, AND VENDORS ENGAGED IN THIS WORK.
- 4. THESE DRAWINGS DEPICT GENERAL LOCATIONS OF FIRE ALARM SYSTEM EQUIPMENT AND FIELD DEVICES. FINAL LOCATIONS, QUANTITIES, APPLIANCE RATINGS, ETC. SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR IN ACCORDANCE WITH THE APPLICABLE CODES, STANDARDS, AND CONTRACT DOCUMENTS.
- 5. THE CONTRACTOR MUST OBTAIN REQUIRED PERMITS AND APPROVALS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR MUST PAY FOR AND SECURE PERMITS AND FEES FOR FIRE PROTECTION SYSTEMS WORK.
- 6. INSTALLING CONTRACTOR SHALL COORDINATE WITH MECHANICAL, ELECTRICAL AND OTHER TRADES TO FACILITATE INSTALLATION THAT IS COORDINATED AND CONSISTENT WITH BUILDING DESIGN, USE AND INTENT.
- 7. COORDINATE FINAL SYSTEM TESTING WITH OTHER CONTRACTORS TO PROVIDE FULL SYSTEM OPERATION AT TIME OF TESTING. COORDINATE WITH NSWC CARDEROCK TO ENSURE NAVFAC PPE IS IN ATTENDANCE FOR SYSTEM TESTING.
- 8. CONTRACTOR SHALL PROVIDE FINAL SYSTEM LAYOUT DRAWINGS INCLUDING BATTERY CALCULATIONS AND VOLTAGE DROP CALCULATIONS AND OBTAIN APPROVAL OF THE FIRE MARSHAL AND ALL AUTHORITIES HAVING JURISDICTION.
- 9. THE FIRE PROTECTION CONTRACTOR MUST BE RESPONSIBLE FOR SCHEDULING AND PERFORMING INSPECTIONS AND TESTS AS REQUIRED BY THE CONTRACTING OFFICER AND THE SPECIFICATIONS.
- 10. FIRE PROTECTION CONSTRUCTION SUBMITTALS SHALL BE REVIEWED AND APPROVED BY A NAVFAC WASHINGTON FIRE PROTECTION ENGINEER (AHJ). INCLUDE SHOP DRAWINGS (FLOOR PLANS, RISER DIAGRAM, SEQUENCE OF OPERATIONS MATRIX, WIRING DIAGRAMS, INSTALLATION DETAILS), CALCULATIONS (CIRCUIT AND BATTERY), AND PRODUCT DATA SHEETS FOR ALL EQUIPMENT REQUIRED FOR THIS CONTRACT. SUBMIT ENTIRE PACKAGE FOR REVIEW. PARTIAL SUBMITTALS WILL BE RETURNED DISAPPROVED WITHOUT REVIEW.
- 11. THE NAVFAC WASHINGTON FIRE PROTECTION ENGINEER (AHJ), WILL WITNESS FORMAL FIRE PROTECTION TESTS AND APPROVE THE SYSTEMS BEFORE THEY ARE ACCEPTED.

INITIATION DEVICES

- 12. THE STORAGE PAD SHALL BE PROVIDED WITH WEATHERPROOF MANUAL PULL STATIONS. MANUAL PULL STATIONS SHALL BE SURFACE MOUNTED. MANUAL PULL STATIONS SHALL BE DUAL ACTION, KEY RESETTABLE, WITHOUT THE USE OF BREAKABLE FRONTS OR RODS.
- 13. ALL ADDRESSABLE MONITOR MODULES SHALL BE LOCATED WITHIN 10 FEET OF THE DEVICES BEING MONITORED.
- 14. TRIPLE IR FLAME DETECTORS SHALL BE INSTALLED FOR PROTECTION OF THE BATTERY PAD IN ACCORDANCE WITH NFPA 72 AND NFPA 855.
- 15. ALL INITIATION DEVICES MUST BE LISTED WEATHERPROOF AND INSTALLED ON WEATHERPROOF BACKBOXES.

NOTIFICATION DEVICES

- 16. PROVIDE FIRE ALARM AND HORN STROBES THROUGHOUT THE BUILDING. PROVIDE ADDITIONAL NOTIFICATION APPLIANCE CIRCUIT (NAC) PANELS IN BUILDING 196 AS REQUIRED FOR THE ADDITIONAL DEVICES. EACH NAC LOADING MUST NOT EXCEED 75% OF ITS RATED OUTPUT.
- 17. PROVIDE WHITE OR CLEAR STROBE MARKED "ALERT" FOR FIRE ALARM SYSTEM.
- 18. ALL NOTIFICATION DEVICES MUST BE LISTED WEATHERPROOF AND INSTALLED ON WEATHERPROOF BACKBOXES.

CONDUIT AND WIRING

- 19. WIRING FOR SLC, NAC AND IDC MUST BE CLASS A.
- 20. SLC AND NAC CIRCUITS SHALL BE INSTALLED IN UNDERGROUND CONDUITS EXTENDING FROM BUILDING 196 TO THE BATTERY STORAGE PAD. REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION.

21. WIRE TYPES BY CIRCUIT SHALL BE AS FOLLOWS:

FIRE ALARM PATHWAY CRITERIA				
CIRCUIT TYPE	CIRCUIT PATHWAY	MINIMUM SIZE	WIRE TYPE	PATHWAY SURVIVABILITY
SIGNALING LINE CIRCUITS (SLC)	CLASS A	#18 AWG	POWER-LIMITED CABLES MUST BE FPL, FPLP, OR FPLR WITH RED COVERING. NON-POWER-LIMITED CABLES MUST COMPLY WITH NFPA 70.	0
STROBE CIRCUITS (NAC)	CLASS A	#14 AWG	POWER-LIMITED CABLES MUST BE FPL, FPLP, OR FPLR WITH RED COVERING. NON-POWER-LIMITED CABLES MUST COMPLY WITH NFPA 70.	0
OPTICAL FLAME DETECTION CIRCUIT	CLASS A	#16 AWG	SHIELDED CABLING POWER-LIMITED CABLES MUST BE FPL, FPLP, OR FPLR WITH RED COVERING. NON-POWER-LIMITED CABLES MUST COMPLY WITH NFPA 70.	0

- 22. WIRING MAY BE SOLID COPPER OR STRANDED AS PERMITTED BY NFPA 70.
- 23. THE PATHWAY SURVIVABILITY LEVEL SHALL BE 0 (ZERO) IN ACCORDANCE WITH NFPA 72.
- 24. FIRE ALARM WIRING SHALL NOT BE INSTALLED IN THE SAME CONDUITS OR JUNCTION BOXES AS LIGHTING, POWER OR OTHER WIRING.
- 25. RUN WIRING TO CONTROL PANELS IN THE VERTICAL OR HORIZONTAL PLANE, MAKE TURNS AT 90 DEGREE ANGLES, AND TIGHTLY BUNDLE, WRAP, AND IDENTIFY CONDUCTORS INDIVIDUALLY WITH PERMANENT MARKINGS.
- 26. ALL CONDUCTORS SHALL BE PULLED SPLICE FREE; CONDUCTORS MUST BE CONTINUOUS FROM DEVICE TO DEVICE. THE USE OF WIRE NUTS, CRIMPED CONNECTORS, OR TWISTING OF CONDUCTORS IS PROHIBITED.
- 27. TERMINATIONS MUST BE AT A TERMINAL STRIP. DEVICES MUST HAVE SCREW TERMINALS.
- 28. PROVIDE ALL FIRE ALARM CIRCUITS IN GALVANIZED RIGID STEEL (GRS) OR INTERMEDIATE METAL CONDUIT (IMC). ALL RACEWAYS MUST BE FACTORY PAINTED RED.
- 29. CONDUIT SIZE AND PERCENTAGE OF FILL TO BE DETERMINED BY INSTALLING CONTRACTOR AND SHALL COMPLY WITH THE NEC. CONTRACTOR SHALL PROVIDE CONDUIT FILL CALCULATIONS TO ENSURE 40% FILL IS NOT EXCEEDED. ALL WIRING MUST BE INSTALLED IN MINIMUM 3/4 INCH CONDUIT.
- 30. EXTERIOR WALL PENETRATIONS MUST BE WEATHERTIGHT. CONDUIT MUST BE SEALED TO PREVENT THE INFILTRATION OF MOISTURE.

SYSTEM PANELS

- 31. EXISTING NFS-320 IN BUILDING 196 IS TO BE UTILIZED. THE PANEL IS TO BE REPROGRAMMED AS NECESSARY FOR THE ADDITION OF ALL DEVICES INSTALLED AT THE BUILDING STORAGE PAD.
- 32. EXISTING BUILDING 196 FIRE ALARM SYSTEM SEQUENCE OF OPERATIONS AND SIGNAL TRANSMISSION SHALL BE UTILIZED. THE EXISTING NFS-320 FACU SHALL BE REPROGRAMMED SUCH THAT ANY SIGNAL INITIATED FROM THE BATTERY PAD WILL SEND A SEPARATE SIGNAL FROM ANY SIGNAL INITIATED FROM BUILDING 196.
- 33. PROVIDE AND INSTALL NOTIFICATION APPLIANCE CIRCUIT (NAC) PANELS AT BUILDING 196 FOR NOTIFICATION APPLIANCES AS NECESSARY TO MEET POWER NEEDS.

OTHER SYSTEM REQUIREMENTS

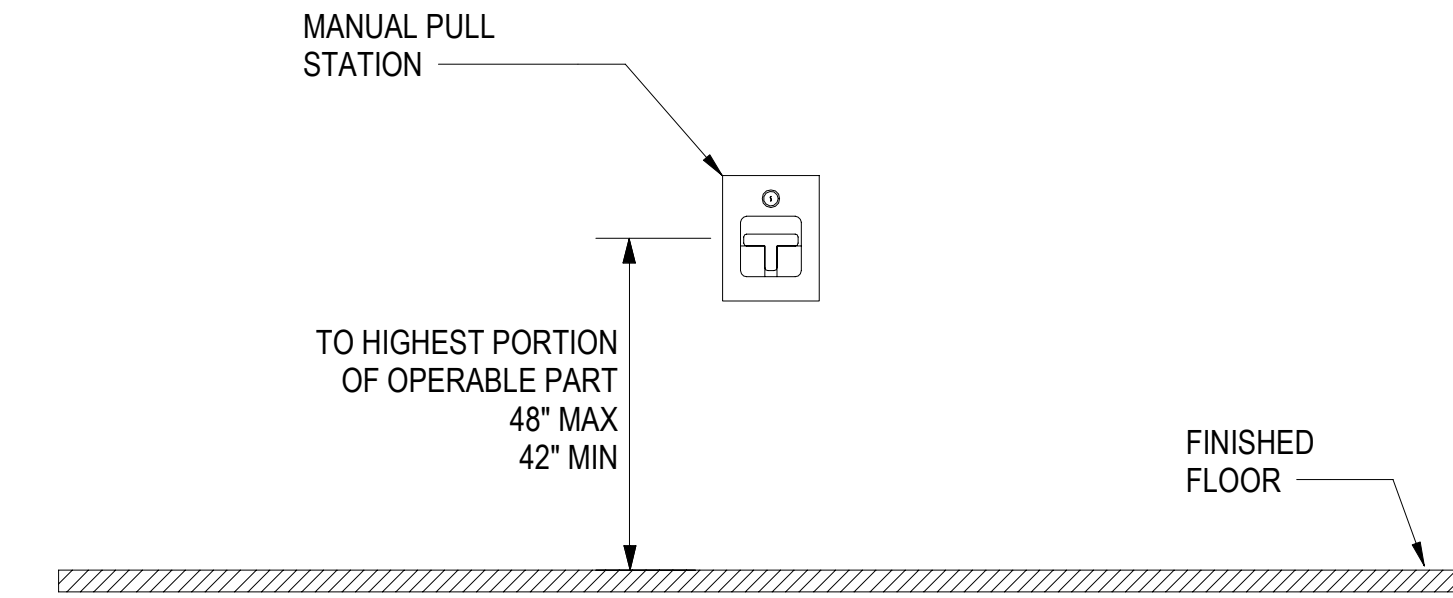
- 34. BATTERY CALCULATIONS SHALL INCLUDE 25 PERCENT SAFETY MARGIN PER NFPA 72.
- 35. SEALED RECHARGEABLE BATTERIES FOR SECONDARY POWER TO THE FACU SHALL BE SIZED TO PROVIDE 48 HOURS OF STANDBY AND 15 MINUTES OF ALARM.
- 36. ALL FLOOR AND WALL CONDUIT PENETRATIONS SHALL BE SLEEVED AND SEALED AS REQUIRED. PROVIDE FIRE STOPPING FOR ALL HOLES FOR CONDUITS OR PIPING PASSING THROUGH FLOOR SLABS, FIRE RATED WALLS, RATED PARTITIONS, CORRIDOR WALLS, AND VERTICAL SERVICE SHAFTS.
- 37. PROVIDE SURGE PROTECTIVE DEVICES (SPD) AT THE INPUT POWER OF ALL NEW PANELS, INCLUDING ANY SUBPANELS AND ON ALL CIRCUITS THAT LEAVE EACH BUILDING. SPD DEVICES SHALL BE INSTALLED IN A SEPARATE ENCLOSURE.

OUTAGE NOTES

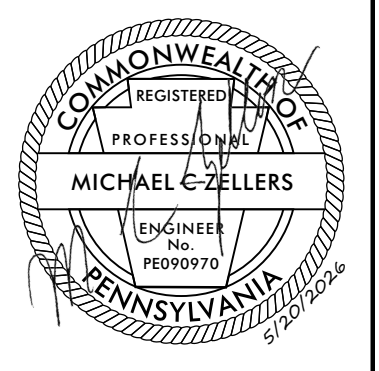
- 38. ALL REQUIRED OUTAGES OF THE FIRE ALARM SYSTEM SHALL BE COORDINATED THROUGH THE CONTRACTING OFFICER NOT LESS THAN 15 WORKING DAYS IN ADVANCE. THE GOVERNMENT FIRE PROTECTION MAINTENANCE CONTRACTOR WILL PROVIDE THE REQUESTED OUTAGE AND ASSOCIATED RESTORATION OF FIRE ALARM SYSTEM. THE GOVERNMENT FIRE PROTECTION MAINTENANCE CONTRACTOR WILL IDENTIFY TO THE CONTRACTOR WHAT CIRCUITS HAVE BEEN TAKEN OUT OF SERVICE ONCE THE OUTAGE HAS BEEN MADE. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR. OUTAGES DO NOT INCLUDE CONNECTION OF NEW FIRE ALARM DEVICES, AND/OR WIRING TO EXISTING SYSTEMS, OR PROGRAMMING CHANGES NECESSARY TO ACCOMMODATE NEW WORK.
- 39. CONTRACTOR MUST OBTAIN THE SERVICES, AT CONTRACTOR'S COST OF THE EXCLUSIVE GOVERNMENT CONTRACTOR RESPONSIBLE FOR MAINTAINING GOVERNMENT FIRE PROTECTION SYSTEMS, TO PERFORM TIE IN OF NEW WORK AND/OR REPROGRAMMING OF OPERATING, EXISTING FIRE ALARM SYSTEMS.
- 40. A FIRE WATCH, AT CONTRACTOR'S COST, WILL BE CONDUCTED CONTINUOUSLY THROUGHOUT THE DURATION OF THE OUTAGE IN ALL AREAS AFFECTED BY THE OUTAGE. FINDINGS/COMMENTS WILL BE DOCUMENTED HOURLY ON FIRE WATCH FORMS PROVIDED BY THE CARDEROCK FIRE PREVENTION DIVISION. DOCUMENTATION OF FINDINGS WILL BE MADE AVAILABLE TO THE CARDEROCK FIRE DEPARTMENT OFFICIALS UPON THEIR REQUEST. IN THE EVENT OF ANY FIRE/SMOKE EMERGENCIES DISCOVERED DURING THE FIRE WATCH, EMERGENCY NOTIFICATION WILL BE CONDUCTED IN ACCORDANCE WITH PROCEDURES OUTLINED IN OPNAVINST 11320.
- 41. OUTAGES WILL NOT BE PERMITTED TO TAKE PLACE FOR THE ENTIRE DURATION OF THE PROJECT.
- 42. OVERNIGHT OUTAGES WILL NOT BE PERMITTED UNLESS WORK IS BEING DONE DURING THAT TIME PERIOD AND THE FIRE ALARM SYSTEM IS PUT BACK INTO SERVICE WITHIN AN HOUR FROM COMPLETION OF WORK. OUTAGES SHALL BE LIMITED TO 8 HOURS.
- 43. THE FIRE ALARM SYSTEMS IS NOT PERMITTED TO HAVE AN OUTAGE FOR MORE THAN AN HOUR BEFORE STARTING WORK. THE FIRE ALARM SYSTEM SHALL BE RESTORED WITHIN AN HOUR OF COMPLETION OF WORK. THE CONTRACTOR CANNOT LEAVE THE CONSTRUCTION SITE UNPROTECTED.

FIRE ALARM LEGEND	
SYMBOL*	DESCRIPTION
[F]	PULL STATION MANUAL BOX
C ∇ CD [X]	HORN STROBE CEILING MOUNTED CD INDICATES CANDELA RATING
∇ _{IR}	INFRARED FLAME DETECTOR
[AIM]	ADDRESSABLE INPUT MONITOR MODULE
[SPD]	SURGE PROTECTION DEVICE
[EOLR]	END OF LINE RESISTOR

*DEVICES INDICATED WITH "WP" ARE INTENDED TO BE WEATHER-PROOF



DATE	DESCRIPTION	MARK

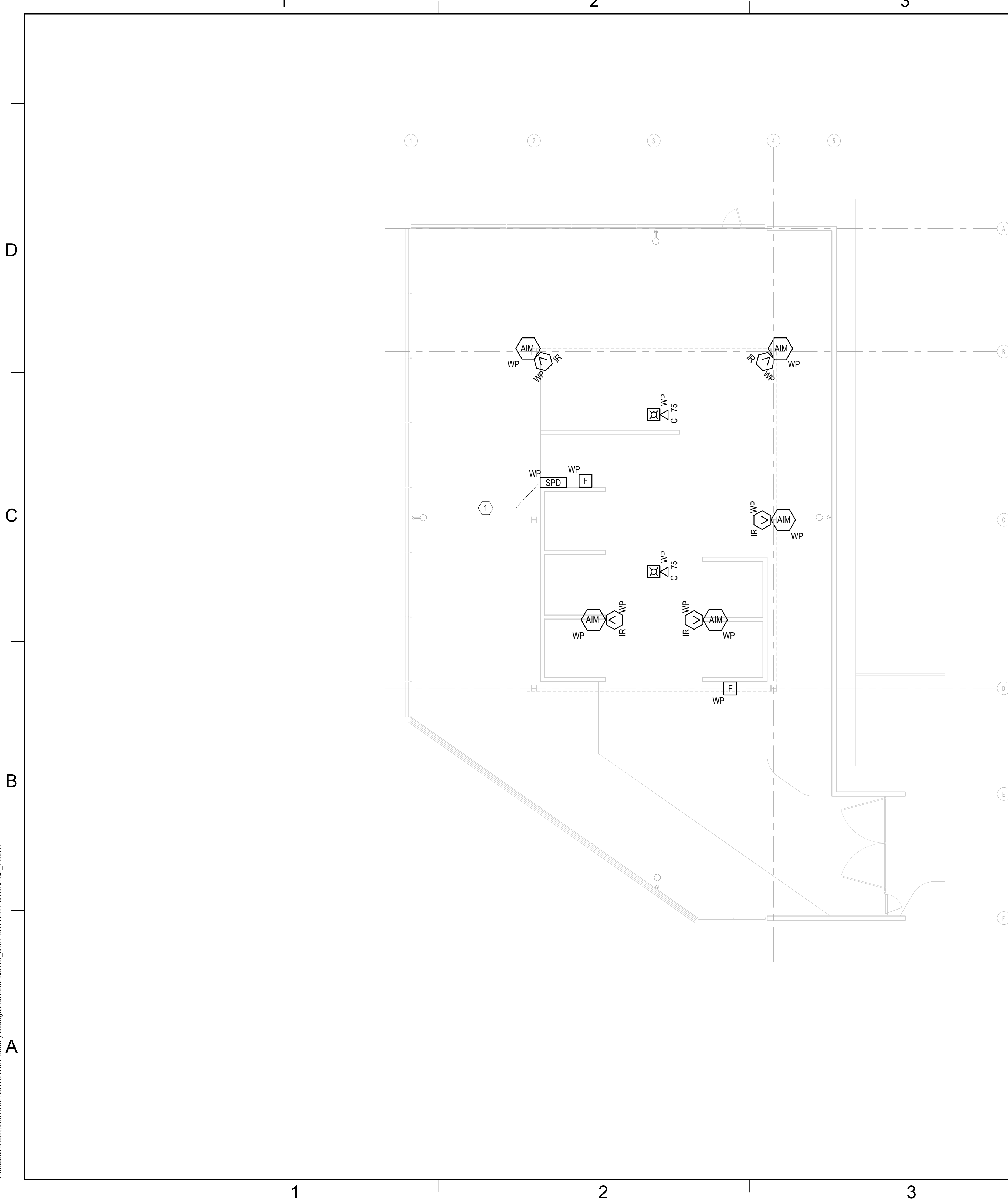


MICHAEL BAKER INTERNATIONAL
100 AIRSIDE DRIVE,
MOON TOWNSHIP, PA 15108
412.269.6246

APPROVED
FOR COMMANDER NAVFAC ACTIVITY
SATISFACTORY TO DATE
DES IS DRW DM CHK MZ
PRADM BC
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION MZ

NAVAL SURFACE WAREFARE CENTER
Carderock, Bethesda, MD
B157 POST-TEST LITHIUM BATTERY STORAGE
FIRE ALARM - GENERAL NOTES, ABBREVIATIONS, & SYMBOLS

SCALE: AS NOTED
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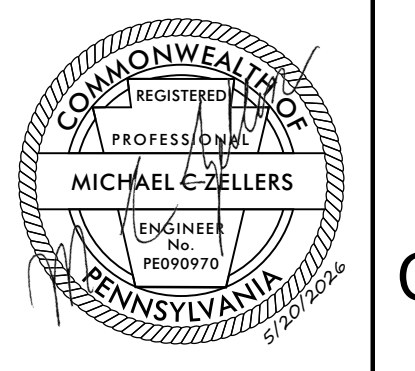
GENERAL NOTES

- REFER TO SHEET FA001 FOR GENERAL NOTES AND SYMBOLS.
- REFER TO SHEET C151 AND ES101 FOR LOCATION OF INCOMING AND OUTGOING CIRCUITS FROM BUILDING 196.

KEYNOTES

- SPD FOR INCOMING SLC AND NAC CIRCUITS FROM BUILDING 196

MARK	DESCRIPTION	DATE



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 MOON TOWNSHIP, PA 15108
 412.269.6246

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PRADM BC
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION MZ

NAVAL SURFACE WARFARE CENTER
 Carderock, Bethesda, MD
B157 POST-TEST LITHIUM BATTERY STORAGE
 FIRE ALARM - 1ST FLOOR PLAN

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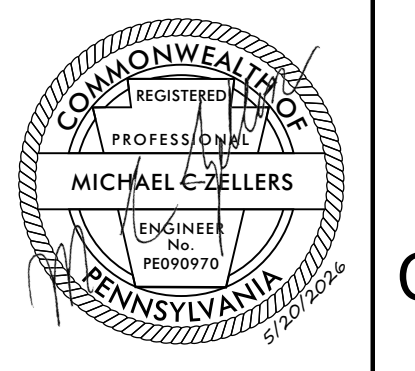
GENERAL NOTES

1. REFER TO SHEET FA001 FOR GENERAL NOTES AND SYMBOLS.

KEYNOTES

- 1. CONTRACTOR TO DETERMINE IF ADDITIONAL NAC PANEL IS REQUIRED FOR NEW DEVICES
- 2. CLASS A PATHWAYS SHALL MAINTAIN MINIMUM 4 FT. HORIZONTAL SEPARATION PER NFPA 72 §12.3.8

MARK	DESCRIPTION	DATE



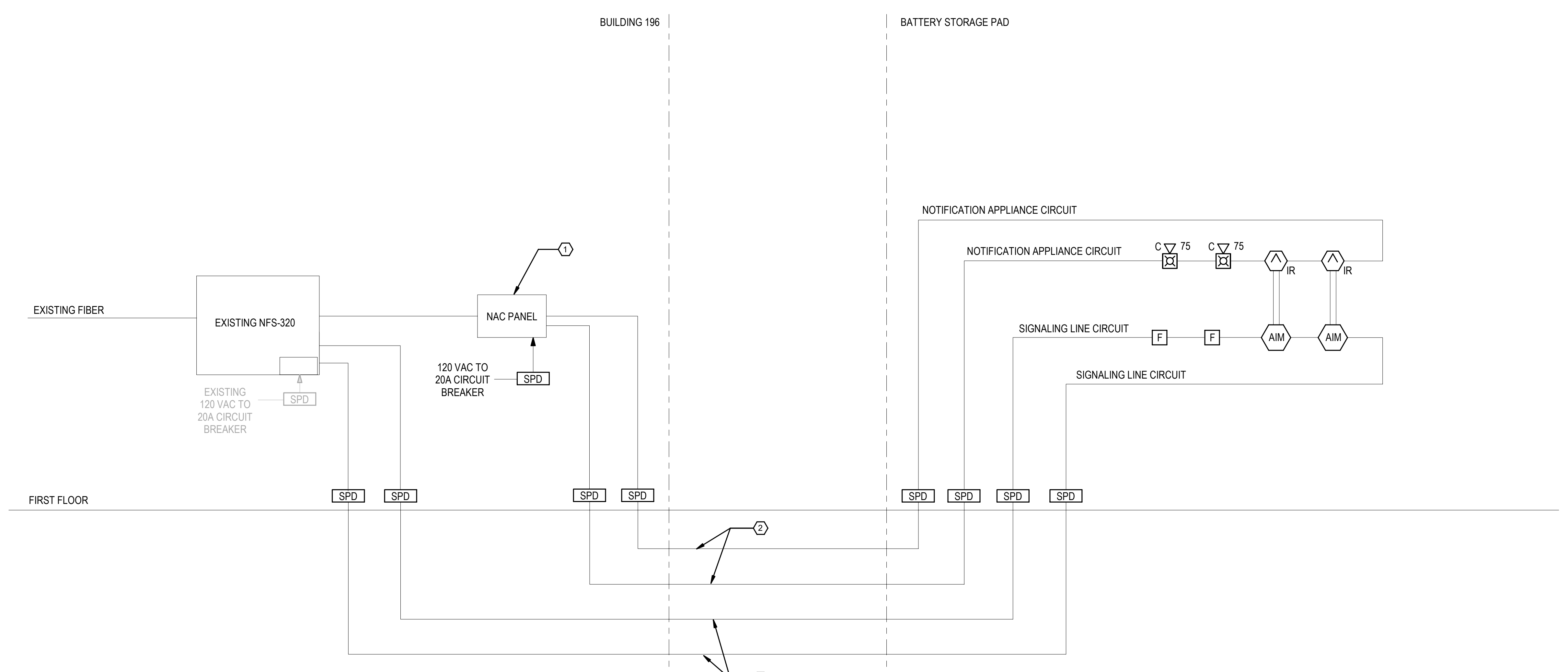
MICHAEL BAKER INTERNATIONAL
 100 AIRSIDE DRIVE,
 MOON TOWNSHIP, PA 15108
 412.269.6246

APPROVED	A/E INFO				
FOR COMMANDER NAVFAC	ACTIVITY				
SATISFACTORY TO DATE					
DES	IS	DRW	DM	CHK	MZ
PRADM	BC				
BRANCH MANAGER					
CHIEF ENGINEER					
FIRE PROTECTION	MZ				

NAVAL SURFACE WARFARE CENTER
 Carderock, Bethesda, MD
 B157 POST-TEST LITHIUM BATTERY STORAGE
 FIRE ALARM - RISER DIAGRAM

SCALE: AS NOTED
 EPROJECT NO.:
 CONSTR. CONTR. NO.

FA701
DRAWING REVISION: 14 SEP 2023



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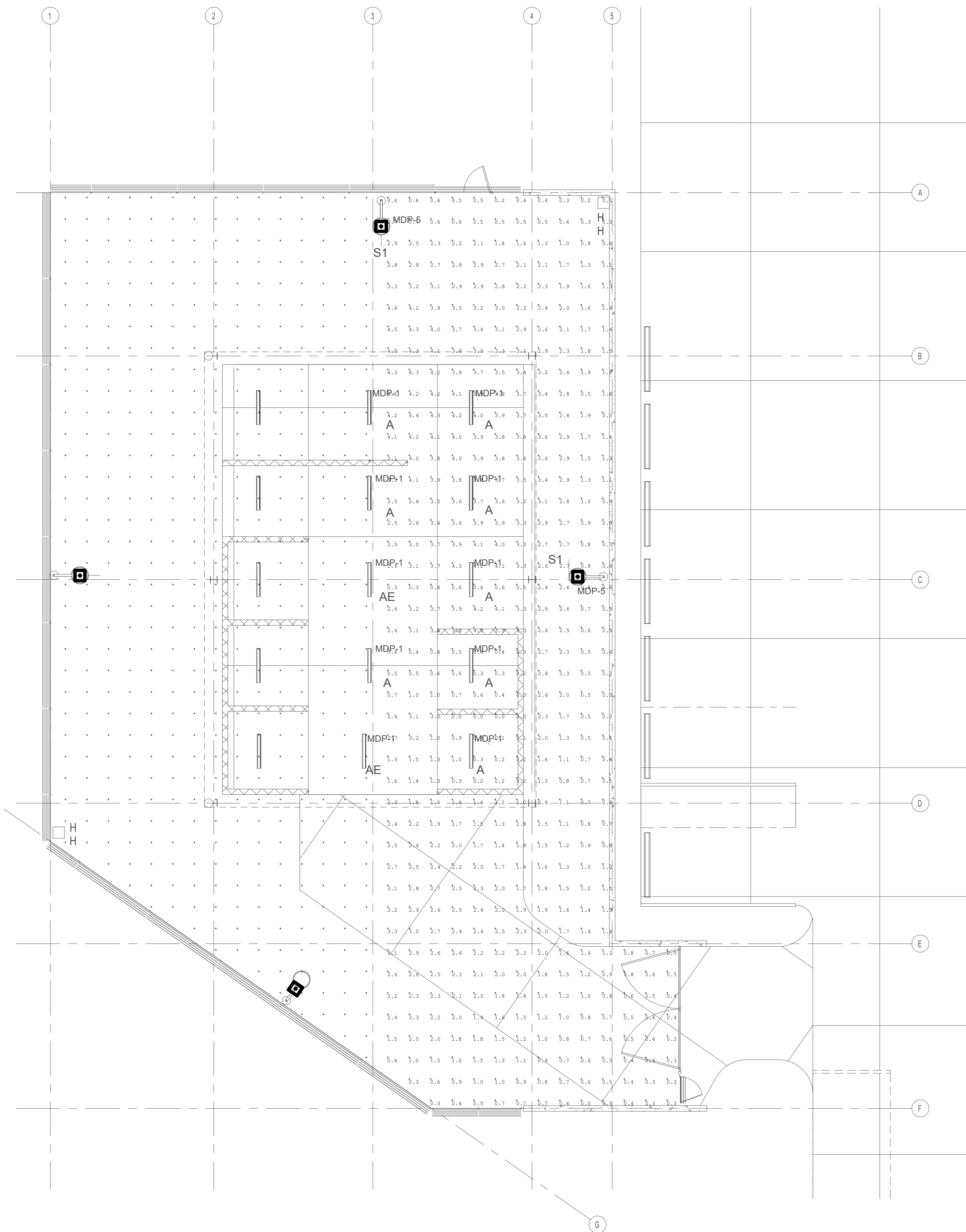
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5/15/2023 9:31:09 AM FA701
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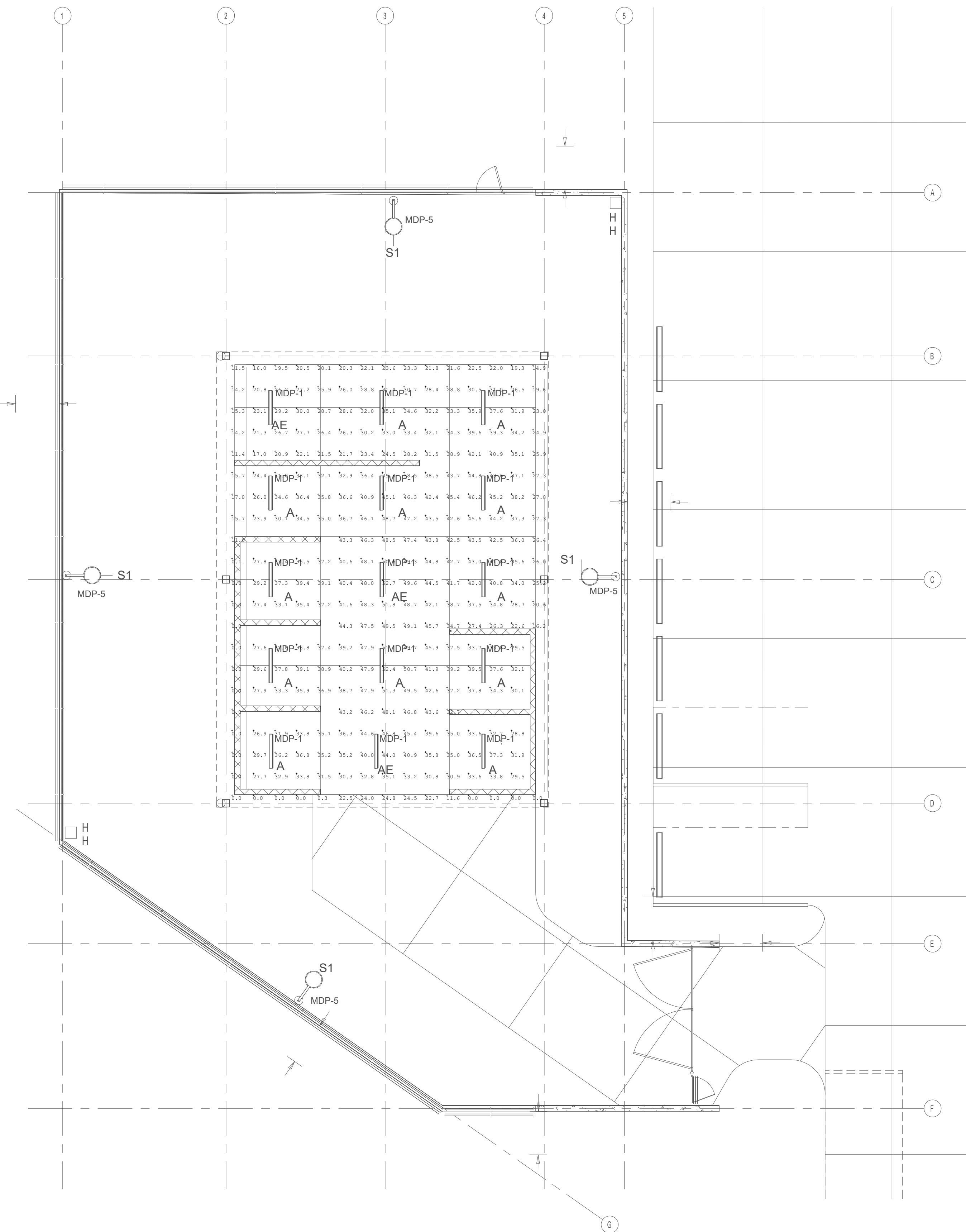
Description	Tag	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
DSX1 LED P1 30K 70CRI BLC3	S1	0.800	5299	50.9	203.6

Symbol	Qty	Label	Arrangement	Description	Tag	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
-	15	HXP1 L48 3 8L 40K	Single	HXP1 L48 3 8L 40K	A/AE	0.800	8220	73.5	1102.5

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Storage	Illuminance	Fc	31.95	52.7	0.0	N.A.	N.A.



1 PERIMETER PHOTOMETRICS PLAN
1/8" = 1'-0"



1 STORAGE PHOTOMETRICS PLAN
1/8" = 1'-0"

MARK	DESCRIPTION	DATE



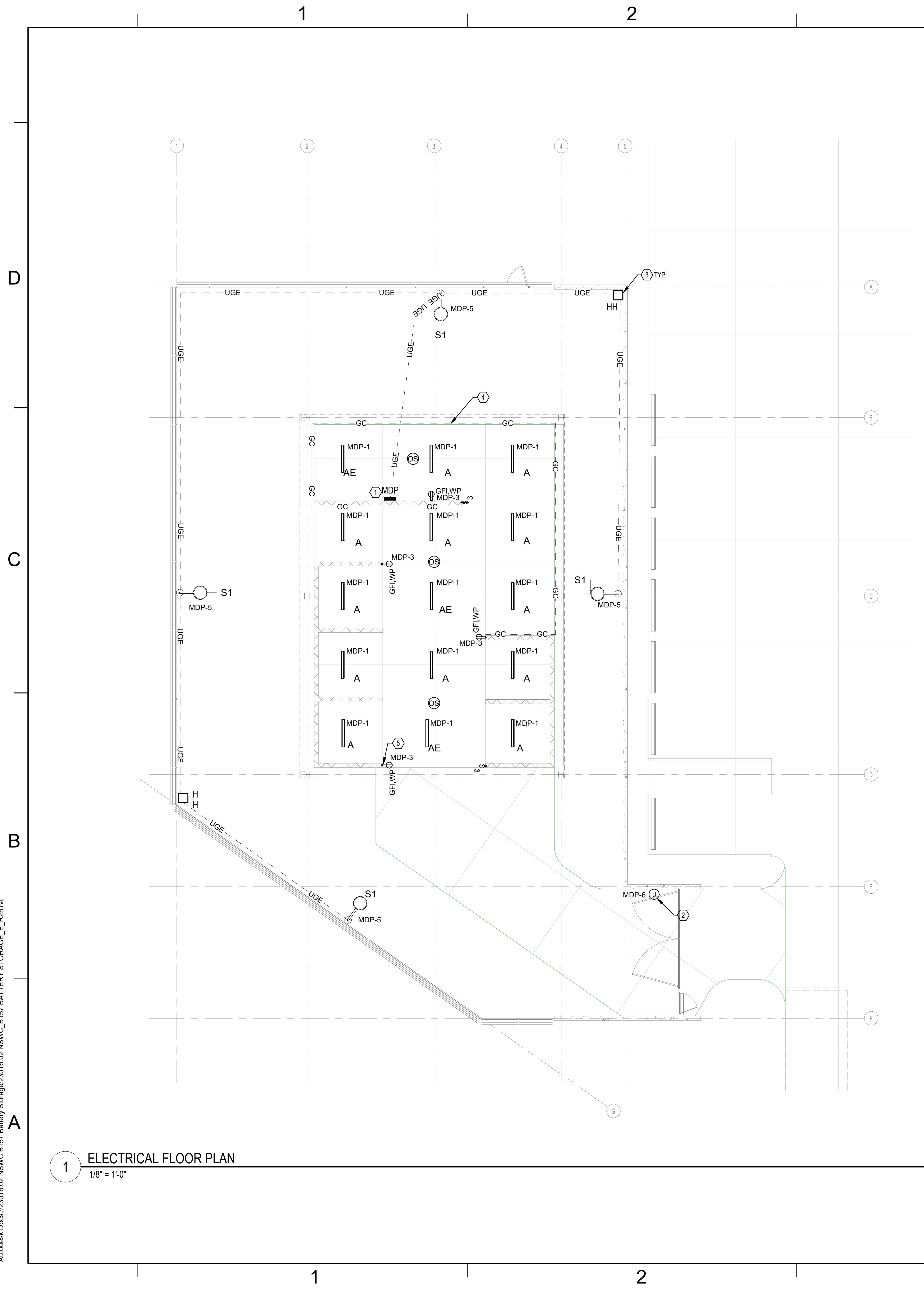
HUITT-ZOLLARS, INC
500 W. 7TH STREET,
SUITE 300
FORT WORTH, TX 76102
817.335.3000

APPROVED	AE INFO
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES JA	DRW JA
CHK JR	
PRJDM	
BRANCH MANAGER	
CHIEF ENGINEER	
FIRE PROTECTION	

B157 POST TEST BATTERY STORAGE
ELECTRICAL PHOTOMETRICS PLAN

SCALE:	AS NOTED
EPROJECT NO.:	
CONSTR. CONTR. NO.:	

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 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC B157 BATTERY STORAGE_E_RS5.rvt

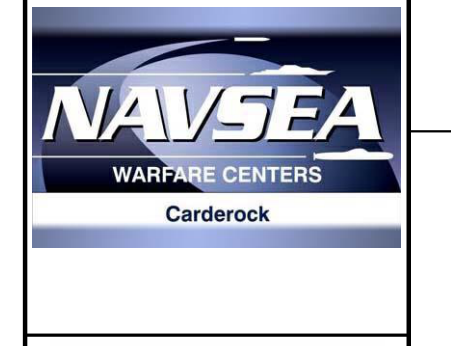


1 ELECTRICAL FLOOR PLAN
 1/8" = 1'-0"

SITE PLAN GENERAL NOTES	
NOTE	DESCRIPTION
A.	IN ADDITION TO "FIRST ENERGY" or NATIONAL "811", CONTRACTOR MUST USE AN UNDERGROUND UTILITY LOCATING CONTRACTOR TO LOCATE AND MARK ALL UTILITIES IN AREAS WHERE TRENCHING OR EXCAVATION IS TO OCCUR.
B.	ALL ANTICIPATED UTILITY CROSSINGS MUST BE TEST PITTED TO VERIFY LOCATIONS AND DEPTHS PRIOR TO BEGINNING CONSTRUCTION ON NEW WORK.
C.	ALL SITE LIGHTING CONDUIT MUST BE DIRECT BURIED 1" SCHED 40 PVC, UNLESS NOTED OTHERWISE.
D.	PROVIDE OUTDOOR HANDHOLES (MIN. 12" X 18", UNO), IN ADDITION TO THOSE SHOWN ON SITE PLANS, FOR ALL SITE LIGHTING BRANCH CIRCUIT CONDUIT RUNS EXCEEDING 150LF, AND AT INTERSECTIONS WHERE CONDUIT RUNS SPLIT IN DIFFERENT DIRECTIONS.
E.	MOUNT RECEPTACLE AT 60" AFF TO ACCOMMODATE BATTERY LOCKER APPLICATION.

KEYED SITE PLAN NOTES	
NOTE	DESCRIPTION
1.	REFER TO ELECTRICAL SITE PLAN ES101 FOR CONDUIT ROUTING FROM EXISTING POWER PANEL TO NEW PANEL MDP.
2.	PROVIDE A 120V, 20A DEDICATED CIRCUIT FOR SECURITY GATE HARDWARE. COORDINATE BRANCH CIRCUIT WIRING AND CONDUIT ROUTING WITH THE GATE TELECOMMUNICATION CABLE AND CONDUIT LINES. COORDINATE FINAL CONNECTION LOCATIONS WITH GATE CONTROLLER MANUFACTURER.
3.	SEE SHEET E502 FOR HANDHOLE PULL BOX DETAIL.
4.	PROVIDE # 1/0 TINNED BARE CU CONDUCTOR SECURED TO WALL AND STRUCTURE WHERE SHOWN. COORDINATE WITH OWNER FOR STORAGE LOCKER HEIGHT TO ENSURE ACCESS ABOVE. BOND CONDUCTOR TO THE STORAGE LOCKERS AND STRUCTURAL STEEL OF THE FACILITY AT TWO POINTS USING EXOTHERMIC WELD.
5.	MOUNT RECEPTACLE AT 60" AFF TO ACCOMMODATE BATTERY LOCKER APPLICATION.

DATE	DESCRIPTION	MARK



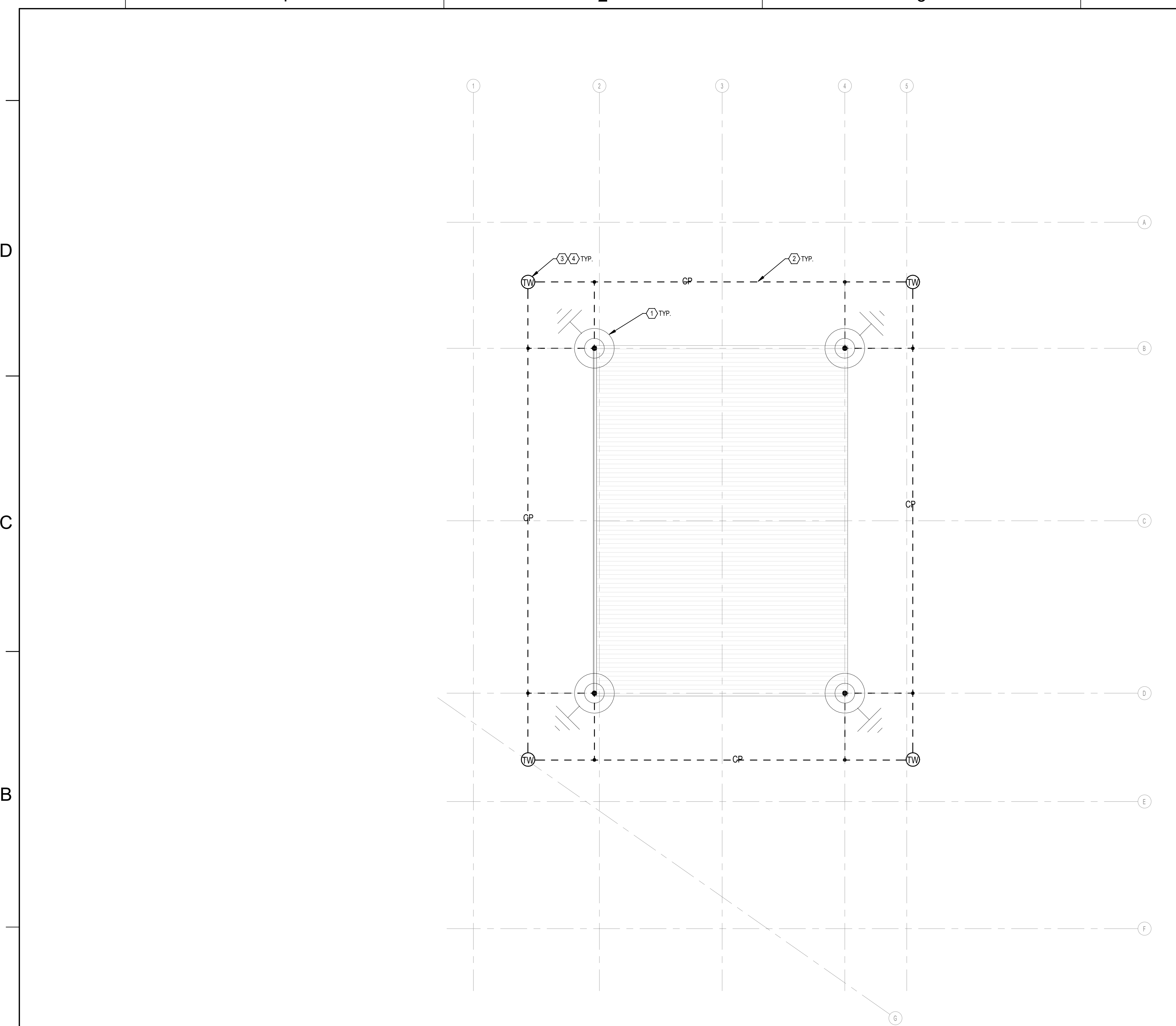
HUITT-ZOLLARS, INC
 500 W. 7TH STREET,
 SUITE 300
 FORT WORTH, TX 76102
 817.335.3000

APPROVED	A/E INFO
FOR COMMANDER NAVFAC	ACTIVITY
SATISFACTORY TO DATE	
DES JA	DRW JA
CHK JR	
PRADM	
BRANCH MANAGER	
CHIEF ENGINEER	
FIRE PROTECTION	

B157 POST TEST BATTERY STORAGE

ELECTRICAL FLOOR PLAN

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 Autodesk Docs/23016.02 NSWC B157 Battery Storage/23016.02 NSWC_B157 BATTERY STORAGE_E_R25.rvt

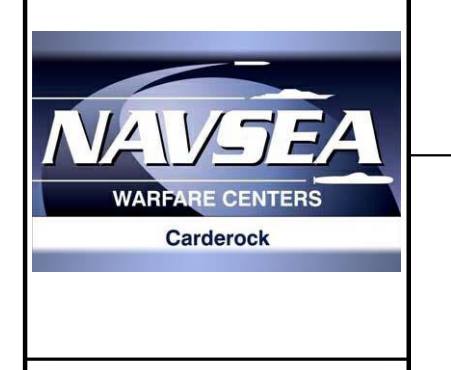


1 LIGHTNING PROTECTION PLAN
 1/8" = 1'-0"

GENERAL NOTES	
NOTE	DESCRIPTION
1.	REFER TO E001 FOR ABBREVIATIONS, LEGEND AND GENERAL NOTES.
2.	BOND ANY GROUND METALLIC BODY WITHIN THE DISTANCE SPECIFIED BY NFPA 780, PARAGRAPH 4.14 TO THE LIGHTNING PROTECTION SYSTEMS.
3.	ALL DESIGNS SHOWN ARE SCHEMATIC AND INTENDED TO SHOW THE BASIC LIGHTNING PROTECTION SYSTEMS. VERIFY ALL DIMENSIONS AND SITE CONDITIONS. DESIGN AND INSTALL A LIGHTNING PROTECTION SYSTEM THAT COMPLIES WITH THE REQUIREMENTS OF THE NFPA 780 - STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS, AND THE UNDERWRITERS LABORATORIES IN UL 98A STANDARD FOR SAFETY INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEMS. CONTRACTOR SHALL HOLD CERTIFICATION FROM THE LIGHTNING PROTECTION INSTITUTE (LPI) AS A DESIGNER/INSTALLER.
4.	BOND ALL METALLIC PIPING ENTERING THE STRUCTURE TO THE LIGHTNING PROTECTION SYSTEM AT ITS NEAREST POINT. BOND THE METAL FENCE TO THIS LIGHTNING PROTECTION SYSTEM.
6.	UTILIZE ALUMINUM CONDUCTORS FOR LIGHTNING SYSTEM ON ROOF. PROVIDE BI-METAL CONNECTIONS FROM DOWN CONDUCTORS TO GROUND GRID TO PREVENT GALVANIC CORROSION.
7.	DOWN CONDUCTORS SHALL BE PROTECTED FROM PHYSICAL DAMAGE IN 2" PVC WITH CAP SEALED AT TOP OF DISPLACEMENT FOR A DISTANCE NOT LESS THAN 8FT ABOVE GRADE.

KEYED NOTES	
NOTE	DESCRIPTION
1.	AIR TERMINAL TO BE 12 TO 24 INCHES.
2.	PROVIDE GROUND LOOP CONDUCTOR 10'-0" FROM THE BUILDING AND MINIMUM 18" BELOW FINISHED GRADE. LOOP CONDUCTOR SHALL BE OF BARE STRANDED COPPER CONDUCTOR WITH A MINIMUM SIZE OF 4/0 AWG.
3.	PROVIDE NLP #TR-1 REINFORCED CONCRETE GROUND INSPECTION WELL WITH CAST IRON LID MARKED "GROUND". FOR LOCATIONS REQUIRING VANDAL RESISTANT LID USE NLP #TR-1/VR. MOUNT WELL FLUSH WITH FINISHED GRADE.
4.	PROVIDE 3/4" X 10' COPPER CLAD GROUND ROD, WITH COPPER HIGH COMPRESSOR FITTING CONNECTION.

DATE	DESCRIPTION	MARK

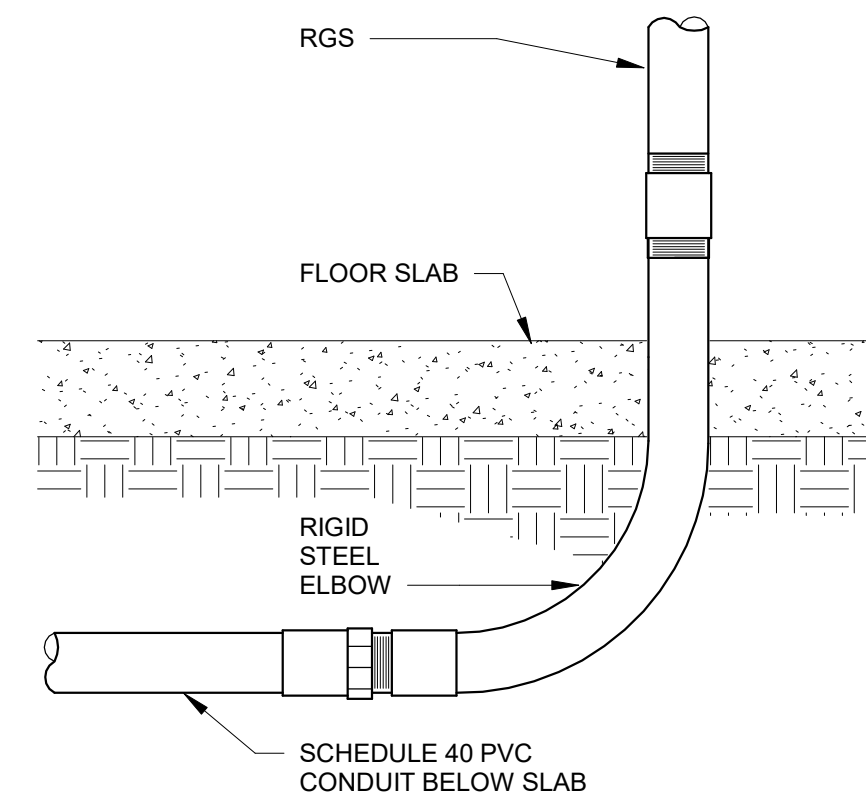


HUITT-ZOLLARS, INC
 500 W. 7TH STREET,
 SUITE 300
 FORT WORTH, TX 76102
 817.335.3000

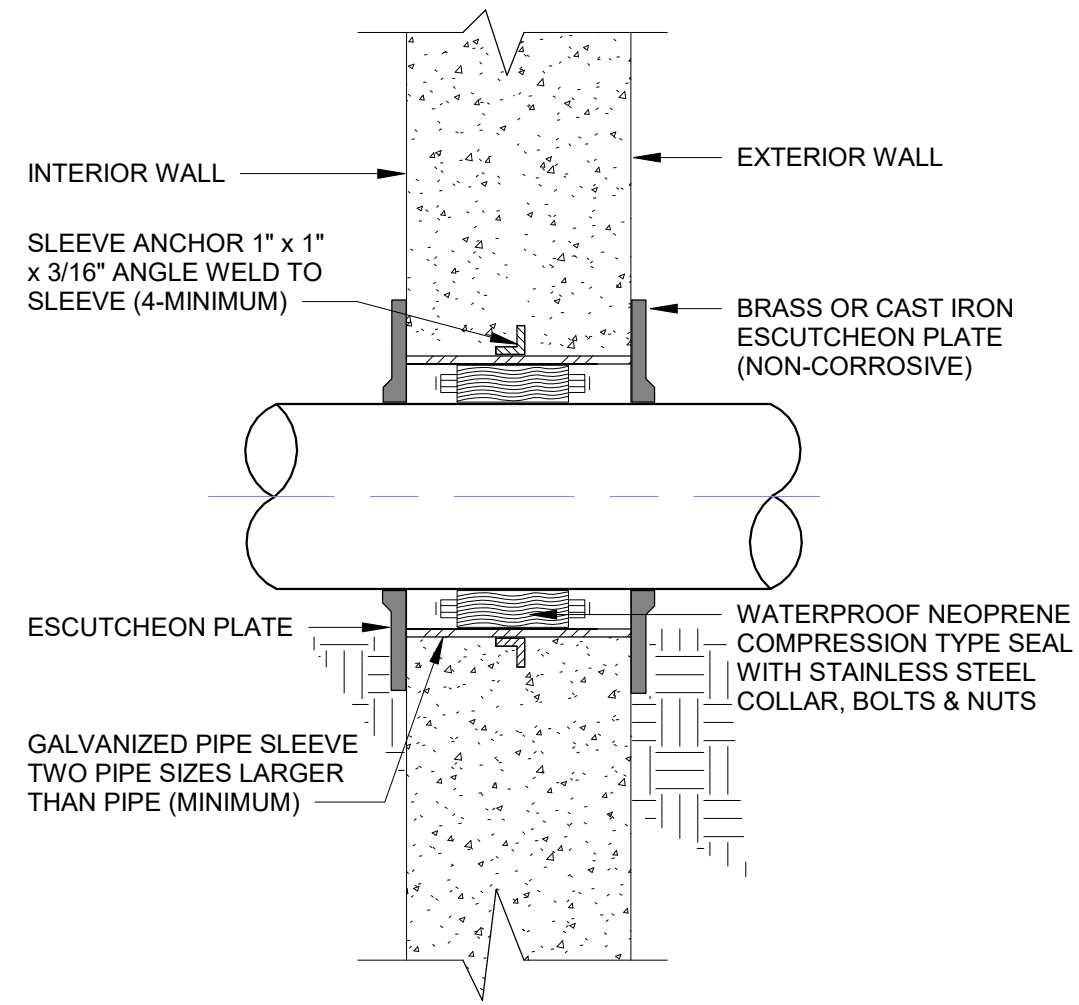
APPROVED
FOR COMMANDER NAVFAC ACTIVITY
SATISFACTORY TO DATE
DES JA DRW JA CHK JR
PRADM
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
 LIGHTNING PROTECTION PLAN

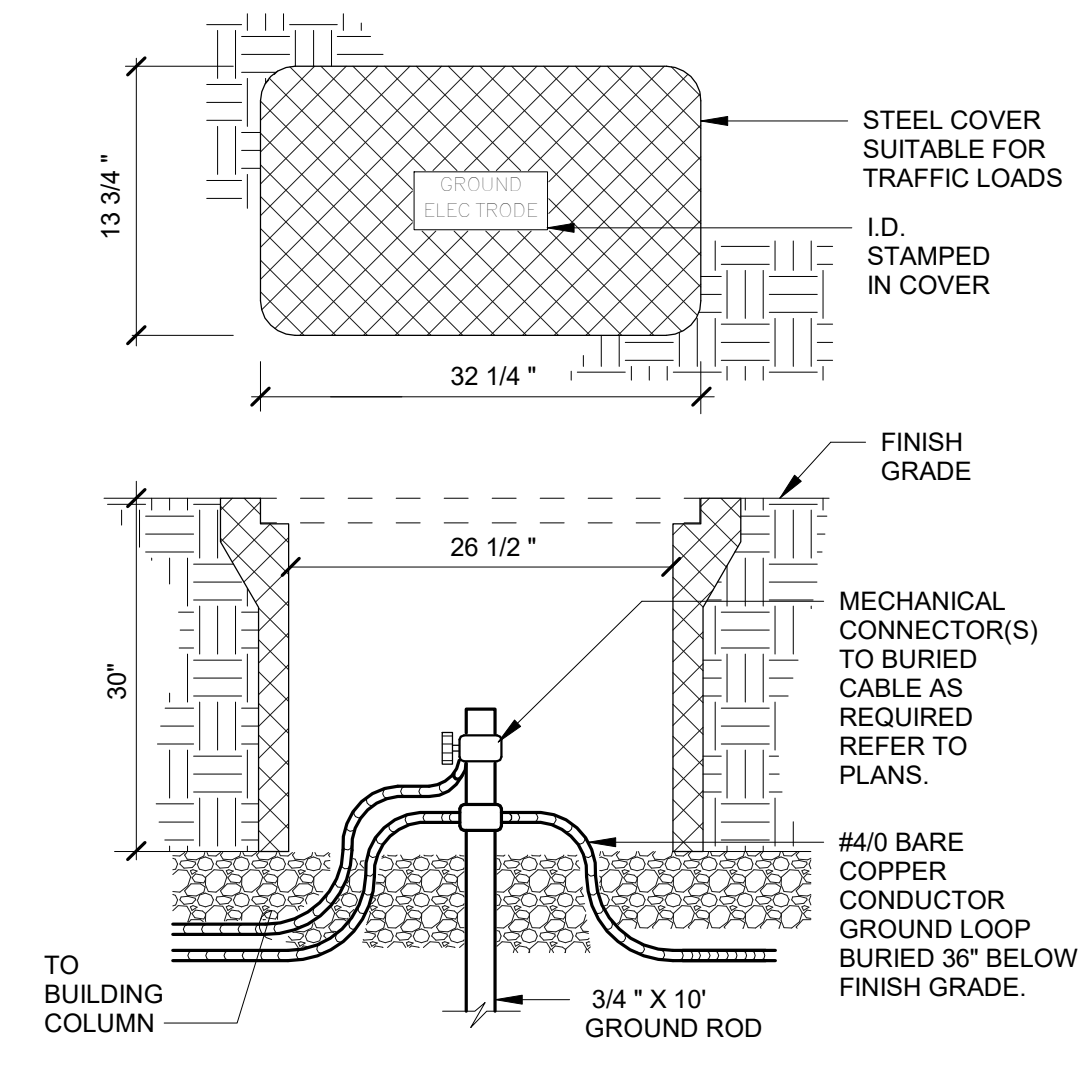
SCALE: AS NOTED
 EPROJECT NO.:
 CONSTR. CONTR. NO.



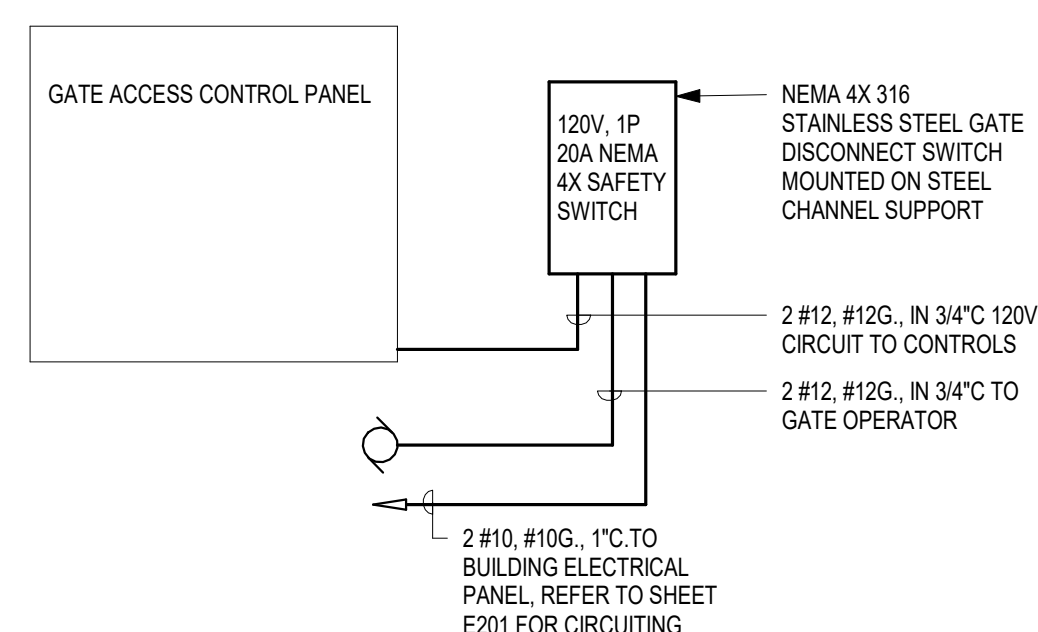
D0.5 CONDUIT UNDER SLAB
NTS



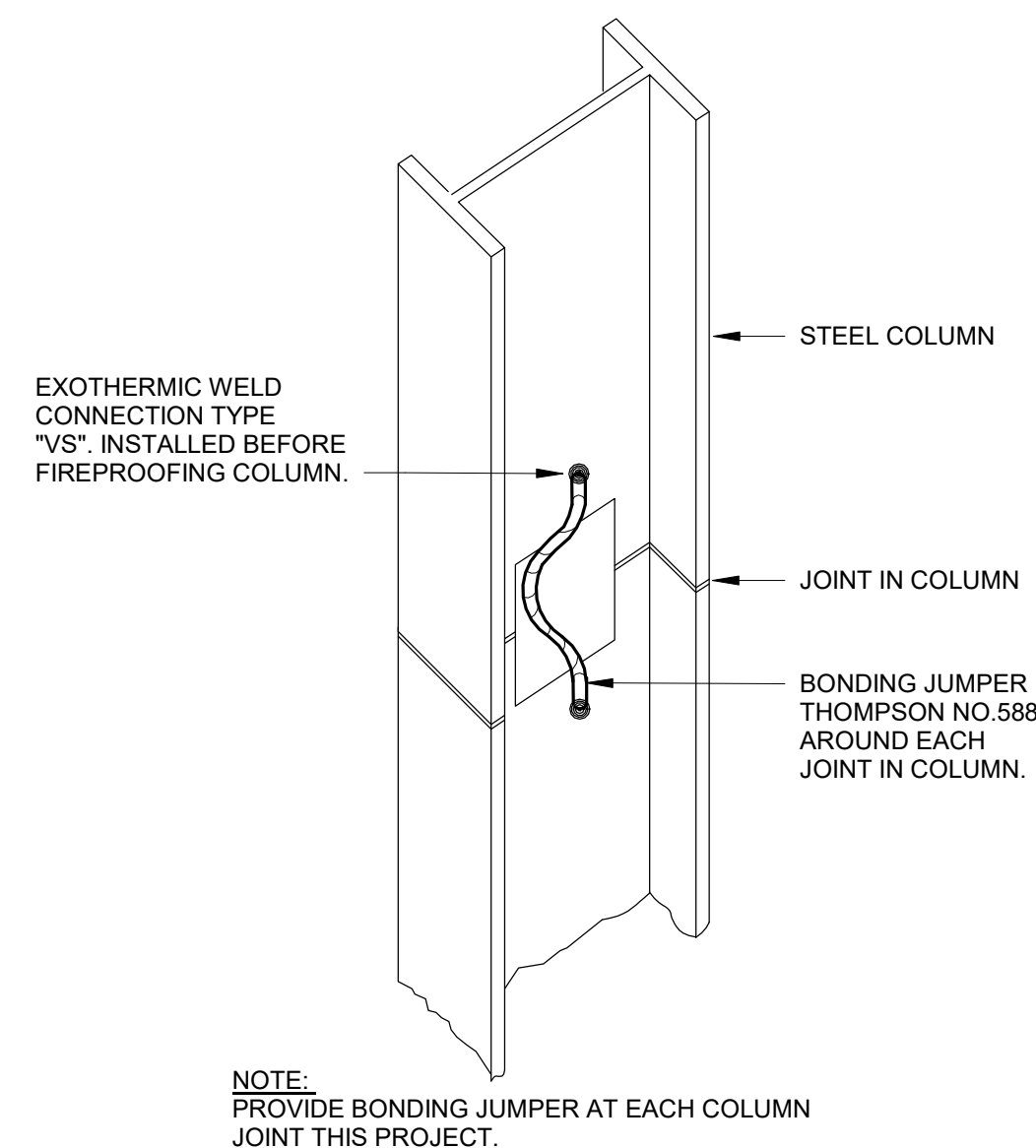
D2 TYPICAL CONDUIT THRU EXTERIOR WALL - ABOVE GRADE
NTS



D9 TYPICAL GROUND ROD TEST STATION
NTS



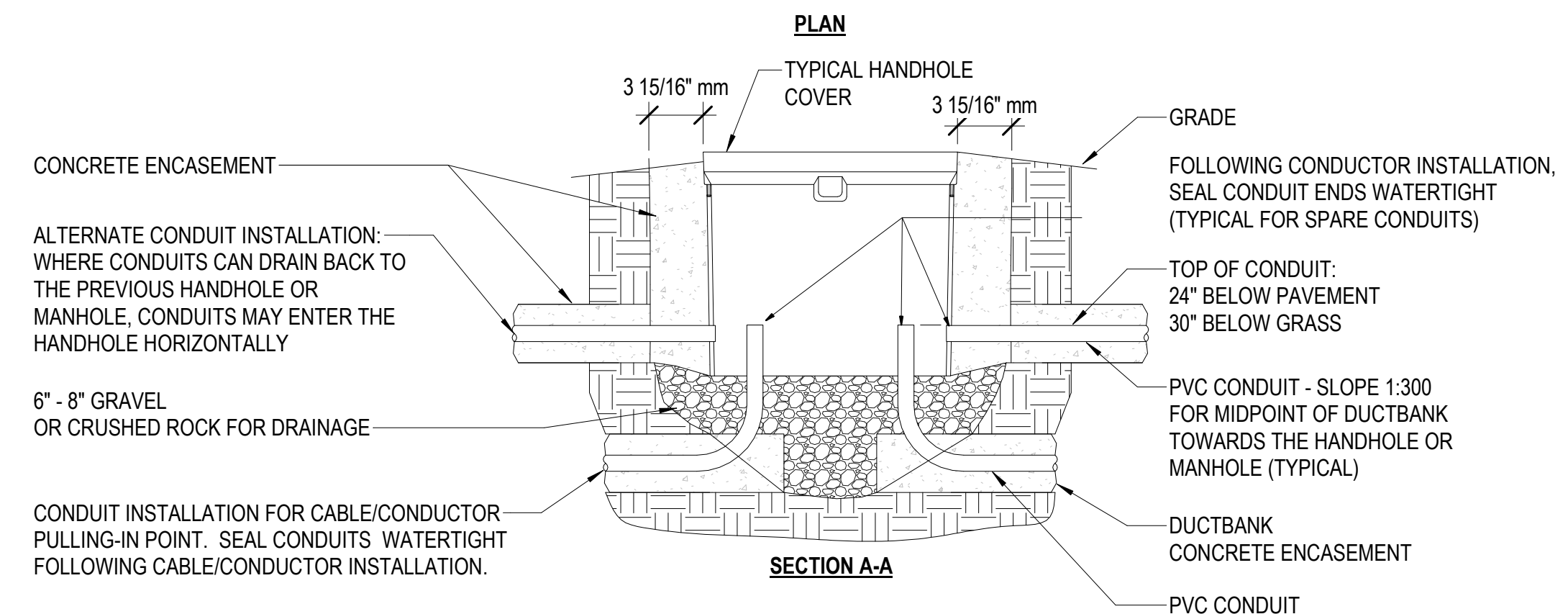
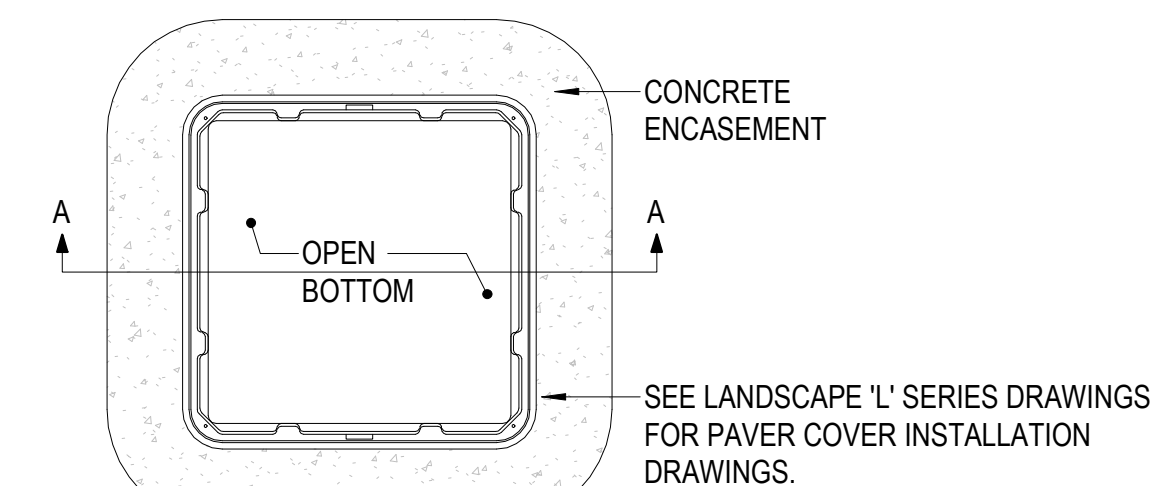
B0.5 GATE ACCESS DISCONNECT DETAIL - TYPICAL
NTS



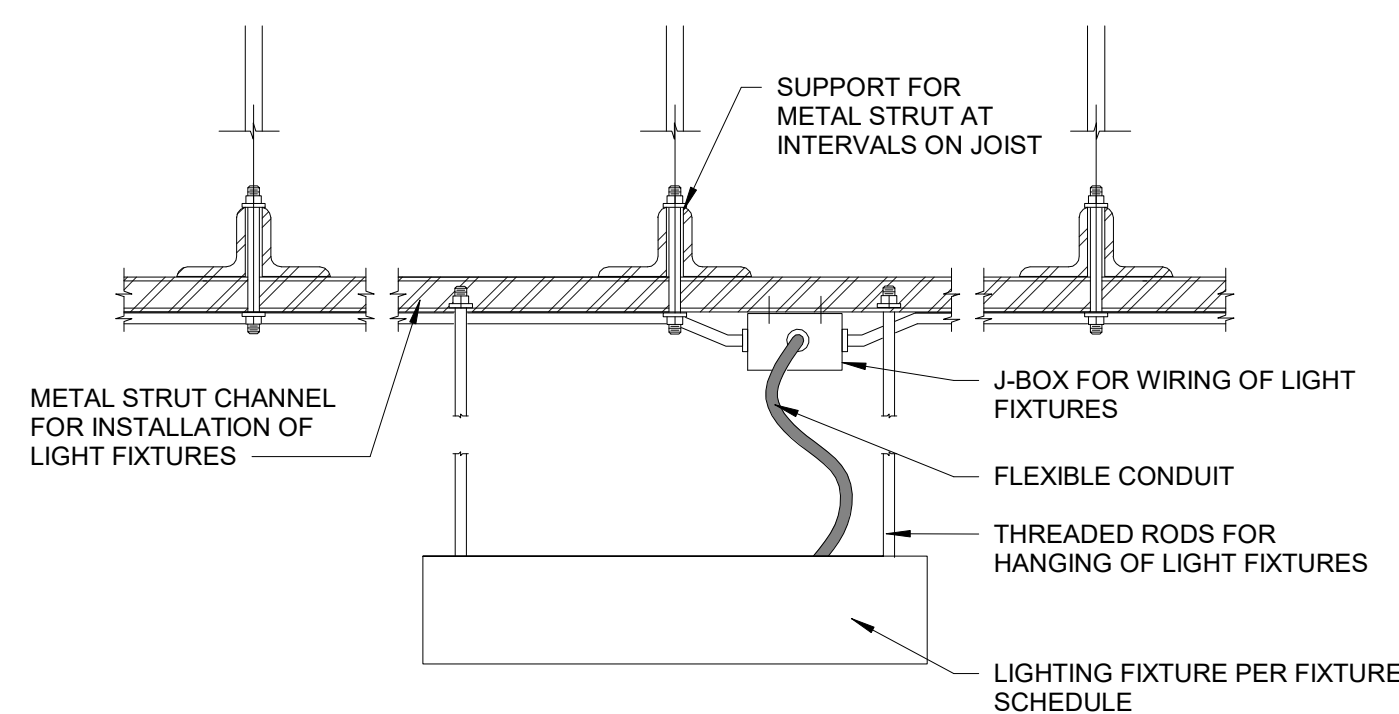
A2 TYPICAL COLUMN BONDING JUMPER
NTS

HANDHOLE/PULLBOX NOTES:

1. PROVIDE COMPOSITE CONCRETE BOX, UL LISTED, WITH OPEN BOTTOM (UNLESS NOTED OTHERWISE).
2. PROVIDE ALL BOXES WITH SECURE COVER LOCKDOWN OPTION FOR TAMPERPROOF BOLTS. PROVIDE THREE DRIVER TOOLS TO OWNER.
3. PROVIDE BOXES RATED FOR ROADWAY OR SIDEWALK LOADING AS REQUIRED.
4. BOX SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. COLOR FOR ALL BOXES SHALL BE STANDARD CONCRETE GRAY.
6. SLOPE GRADE AWAY FROM MANHOLE/HANDHOLE COVERS AS REQUIRED TO PREVENT FUTURE WATER BUILD-UP OR INFILTRATION.
7. THE HANDHOLE/PULLBOX DETAIL IS TYPICAL FOR BOTH ELECTRICAL POWER AND FIRE ALARM SYSTEMS CONDUITS/DUCTS.



A3 PRECAST HANDHOLE PULLBOX INSTALLATION DETAIL
NTS



A0.5 TYPICAL SUSPENDED LIGHTING FIXTURE DETAIL 1
NTS

MARK	DESCRIPTION	DATE



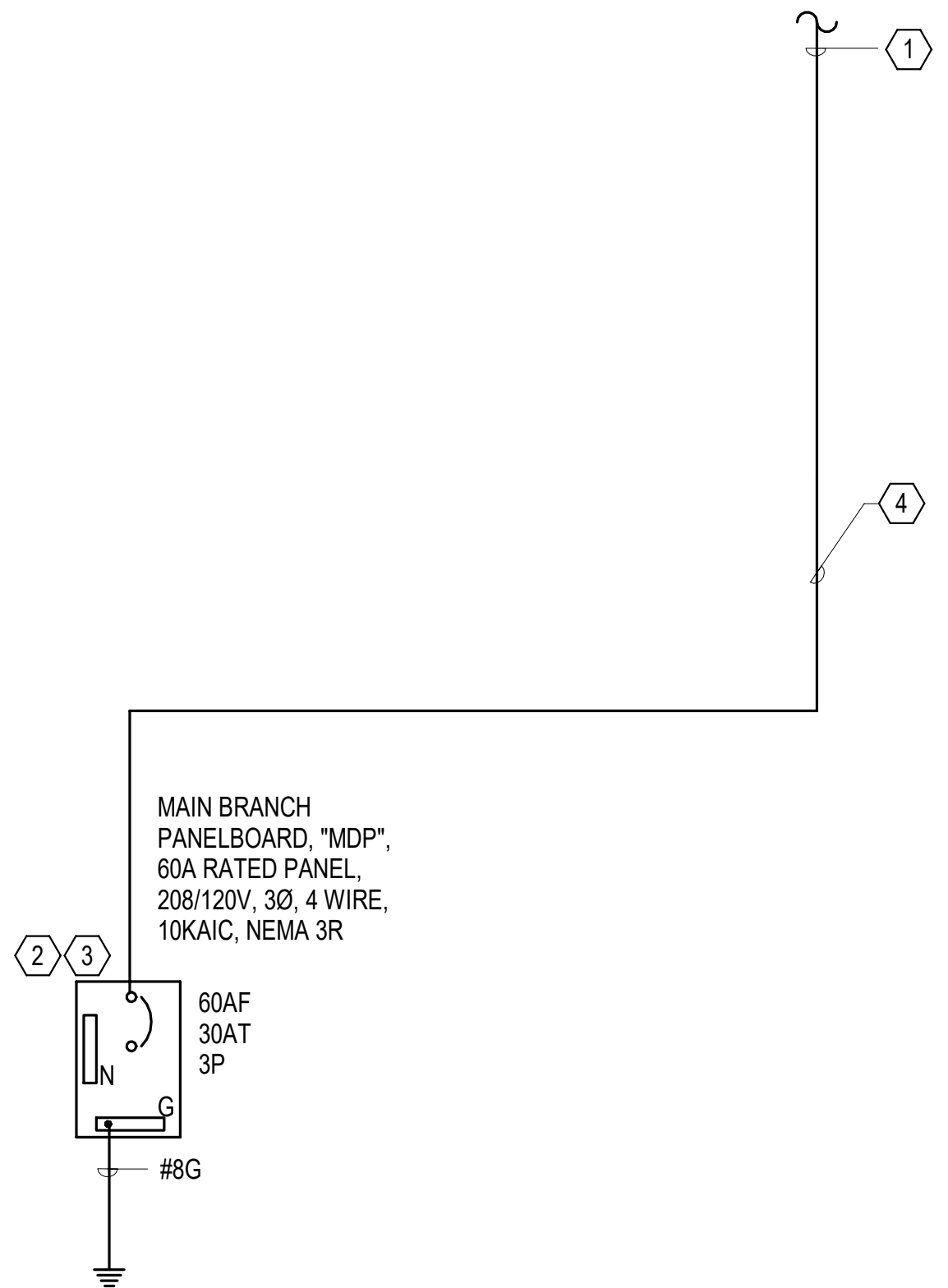
HUITT-ZOLLARS, INC
500 W. 7TH STREET,
SUITE 300
FORT WORTH, TX 76102
817.335.3000

APPROVED	A/E INFO
FOR COMMANDER NAVFAC	ACTIVITY
SATISFACTORY TO DATE	DES JA DRW JA CHK JR
PRADM	BRANCH MANAGER
CHIEF ENGINEER	FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
ELECTRICAL DETAILS

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.
E501
DRAWFORM REVISION: 14 SEP 2023

5/21/2023 9:56:00 AM E501 Autodesk Docs/23016.02 NSVIC B157 Battery Storage/23016.02 NSVIC_B157 BATTERY STORAGE_E_R05.rvt



1 PARTIAL ONE-LINE DIAGRAM
 NTS

SINGLE LINE GENERAL NOTES

- REFER TO DRAWING E001 FOR SYMBOLS, ABBREVIATIONS AND FOR GENERAL NOTES.
- COORDINATE WITH OWNER A MINIMUM OF TWO WEEKS PRIOR TO SHUTDOWN FOR CONNECTION TO EXISTING PANELBOARD.
- PROVIDE UPDATE TO EXISTING ARC FLASH RISK ASSESSMENT AND INSTALL LABEL NEW PANELBOARD.

KEYED NOTES

NOTE	DESCRIPTION
1.	TO EXISTING PANEL 'L' IN BUILDING 41. PROVIDE NEW 3ØA, 3 POLE CIRCUIT BREAKER AT THE PANEL. SEE SITE PLAN ES01 FOR MORE INFORMATION.
2.	SEE SHEET E700 FOR PANEL SCHEDULE LOADS INFORMATION.
3.	CONTRACTOR SHALL PROVIDE PANELBOARD WITH INTEGRAL SPD.
4.	DIRECT BURIED IN 3/4" PVC CONDUIT WITH 4# 10 AWG CONDUCTORS & 1#10G.



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 817.335.3000

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FOR COMMANDER NAVFAC
 ACTIVITY

SATISFACTORY TO DATE

DES	JA	DRW	JA	CHK	JR
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PIADM
 BRANCH MANAGER
 CHIEF ENGINEER
 FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
 ELECTRICAL ONE-LINE DIAGRAM

SCALE: AS NOTED
 EPROJECT NO.:
 CONSTR. CONTR. NO.

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LIGHTING FIXTURE SCHEDULE

MARK	DESCRIPTION	MOUNTING HEIGHT	LAMP	WATTAGE	ELECTRICAL DATA	COMMENTS
A	HEAVY DUTY EXPLOSION-PROOF LED FIXTURE FOR HAZARDOUS ENVIRONMENT	10' AFF	LED	74 W	120 V/1-74 VA	TYPE 'AE' SAME AS TYPE 'A' WITH 90 MINUTE BATTERY BACKUP #EM10WCP
S1	POLE MOUNTED AREA LED LIGHTING FIXTURE	15' AFF	LED	51 W	120 V/1-51 VA	

Branch Panel: MDP

STORAGE PAD NORTH WALL
EXISTING PANEL 'L' ON BLDG 41
Mounting: SURFACE
Enclosure: NEMA 7

Volts: 208V 3Ø
Phases: 3
Wires: 4

A.I.C. Rating: 10KAIC
Mains Type: MCB
Mains Rating: 60 A
MCB Rating: 30 A

Line Lugs: BOTTOM

Notes:

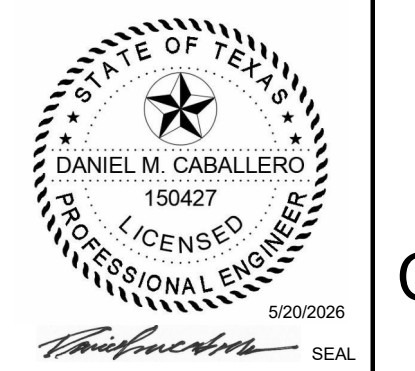
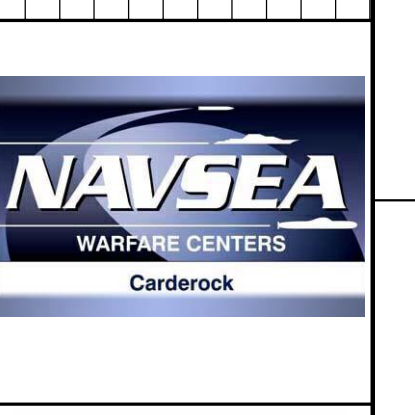
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	LIGHTING, BATTERY STORAGE	20 A	1	1023 VA	--		1	--	SPACE	2
3	RECEPTS	20 A	1		720 VA	--	1	--	SPACE	4
5	LIGHTING - SITE	20 A	1			204 VA	1	20 A	SECURITY GATE, BATTERY STORAGE	6
7	SPARE	20 A	1	0 VA	0 VA		1	20 A	SPARE	8
9	SPARE	20 A	1		0 VA	0 VA	1	20 A	SPARE	10
11	SPARE	20 A	1			0 VA	1	15 A	SPD	12
Total Load:				1023 VA	720 VA	301 VA				
Total Amps:				9 A	7 A	3 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Lighting - Exterior	204 VA	40.00%	82 VA	
RECEPTS	820 VA	100.00%	820 VA	Total Conn. Load: 2038 VA
LTG	1023 VA	125.00%	1279 VA	Total Est. Demand: 2176 VA
				Total Conn. Current: 6 A
				Total Est. Demand Current: 6 A

Notes:

Date 1	DATE
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HUITT-ZOLLARS, INC
500 W. 7TH STREET,
SUITE 300
FORT WORTH, TX 76102
817.335.3000

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BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

B157 POST TEST BATTERY STORAGE
PANELBOARD SCHEDULES

SCALE: AS NOTED
EPROJECT NO.:
CONSTR. CONTR. NO.
E700
DRAWING REVISION: 14 SEP 2023

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5/21/2023 9:56:00 AM E700
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