

MITIGATE STORM WATER AT ELEPHANT YARDS
SF PROJECT No. 2233104

FINAL SUBMISSION

NATIONAL ZOOLOGICAL PARK
3001 CONNECTICUT AVENUE NW
WASHINGTON D.C 20008

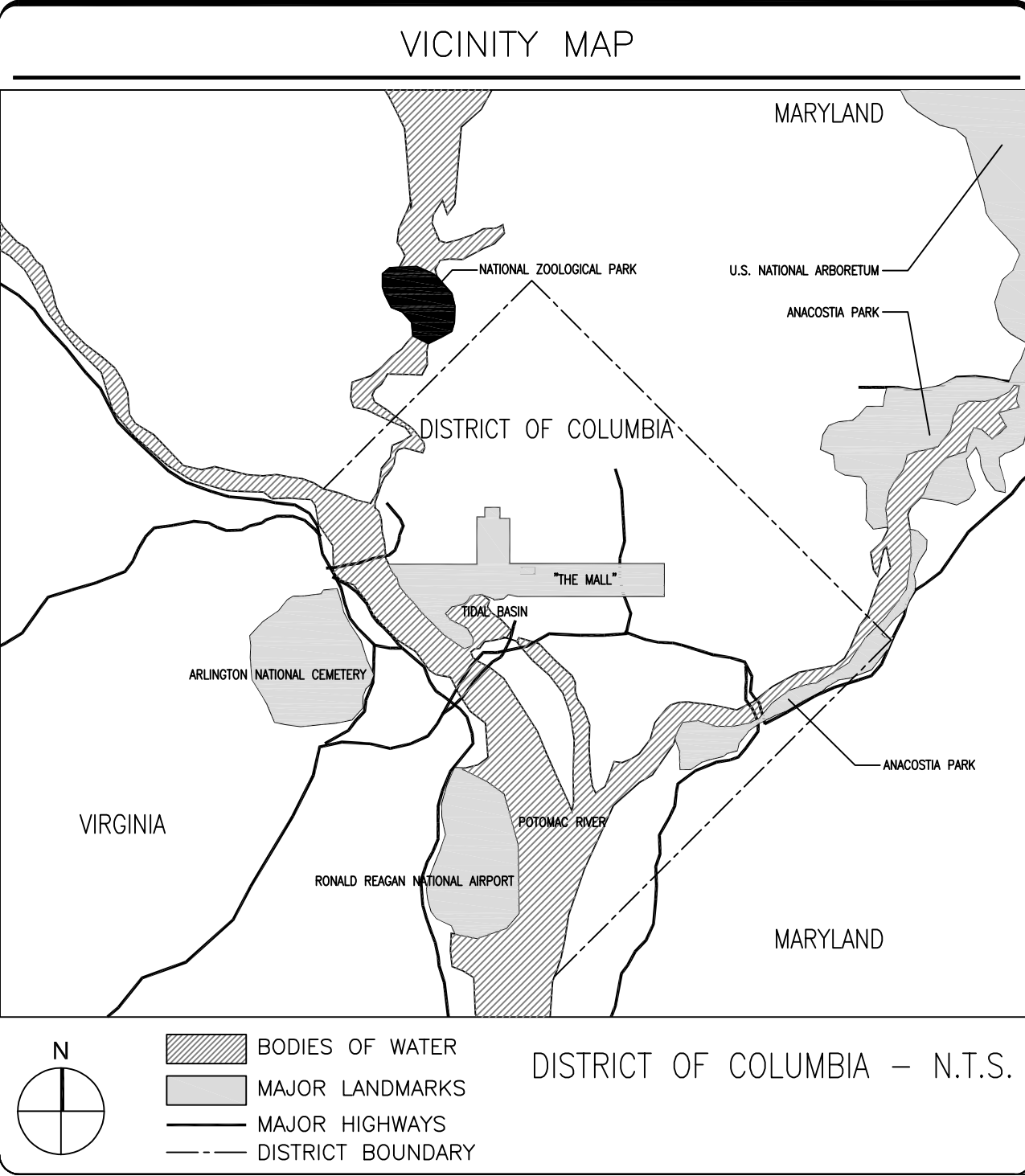
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LISTING OF OPTIONS FOR BID:

- Add/Alternate 1: Yard 4 Sod
- Use of sod i.l.o seed for re-greening Yard 4.
- Option 1: Pool 1 Decorative Concrete Paving
- Application of stamped concrete patterns on all visible surfaces of the Pool 1 concrete berm and swale.
- Option 2: Pool 1 Reconstruction
- Demolition and reconstruction of existing Pool 1 ramp and floor.



INDEX OF DRAWINGS

SHEET #	DRAWING NUMBER			DRAWING TITLE
GENERAL				
01	G	0	01	COVER SHEET
02	G	0	02	CONSTRUCTION LOGISTICS PLAN
CIVIL				
03	C	0	00	NOTES AND ABBREVIATIONS
04	C	1	00	EXISTING CONDITIONS - YARD 1
05	C	1	01	EXISTING CONDITIONS - YARD 2
06	C	1	02	EXISTING CONDITIONS - YARD 4 EAST
07	C	1	03	EXISTING CONDITIONS - YARD 4 WEST
08	C	1	04	EXISTING UTILITY INFORMATION
09	C	1	10	DEMOLITION PLAN - YARD 1
10	C	1	11	DEMOLITION PLAN - YARD 2
11	C	1	12	DEMOLITION PLAN - YARD 4 EAST
12	C	1	13	DEMOLITION PLAN - YARD 4 WEST
13	C	1	20	SITE & GRADING PLAN - YARD 1
14	C	1	21	SITE & GRADING PLAN - YARD 2

SHEET #	DRAWING NUMBER			DRAWING TITLE
15	C	1	22	SITE & GRADING PLAN - YARD 4 EAST
16	C	1	23	SITE & GRADING PLAN - YARD 4 WEST
17	C	1	30	SITE DETAILS & SECTIONS - YARD 1
18	C	1	31	SITE DETAILS & SECTIONS - YARD 2
19	C	1	32	SITE DETAILS & SECTIONS - YARD 4 EAST
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21	C	1	40	EROSION & SEDIMENT CONTROL PLAN - YARD 1
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24	C	1	43	EROSION & SEDIMENT CONTROL PLAN - YARD 4 WEST
25	C	1	44	EROSION & SEDIMENT CONTROL NOTES
26	C	1	45	EROSION & SEDIMENT CONTROL DETAILS
27	C	1	50	STORM PROFILES - YARD 1
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SHEET #	DRAWING NUMBER			DRAWING TITLE
31	C	1	60	SITE DETAILS
LANDSCAPE				
32	LS	1	01	LANDSCAPE PLAN - YARD 1
33	LS	1	02	LANDSCAPE PLAN - YARD 4 EAST
34	LS	1	03	LANDSCAPE PLAN - YARD 4 WEST
35	LS	5	01	LANDSCAPE DETAILS
STRUCTURAL				
36	S	0	01	OPTION 2 - GENERAL NOTES
37	S	0	02	OPTION 2 - SPECIAL INSPECTIONS
38	S	1	00	OPTION 2 - PLANS
39	S	2	00	OPTION 2 - DETAILS

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STAMP 1	STAMP 2
STAMP 3	STAMP 4
STAMP 5	STAMP 6
STAMP 7	STAMP 8
STAMP 9	STAMP 10

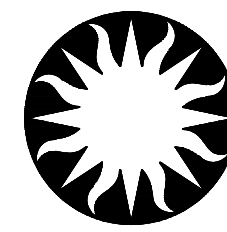
SMITHSONIAN OPDC
APPROVAL BLOCK

DM: _____
DESIGN CHIEF: _____
R.E.: _____
OPPM: _____
OFM&R: _____
OSHEM: _____
OPS: _____

THIS PROJECT IS APPROVED AS BEING
IN CONFORMANCE WITH THE APPLIC-
ABLE PROVISIONS OF SMITHSONIAN
INSTITUTION DIRECTIVE 410.

MICHAEL CARRANCHO, P.E., DEPUTY DIRECTOR, OEDC

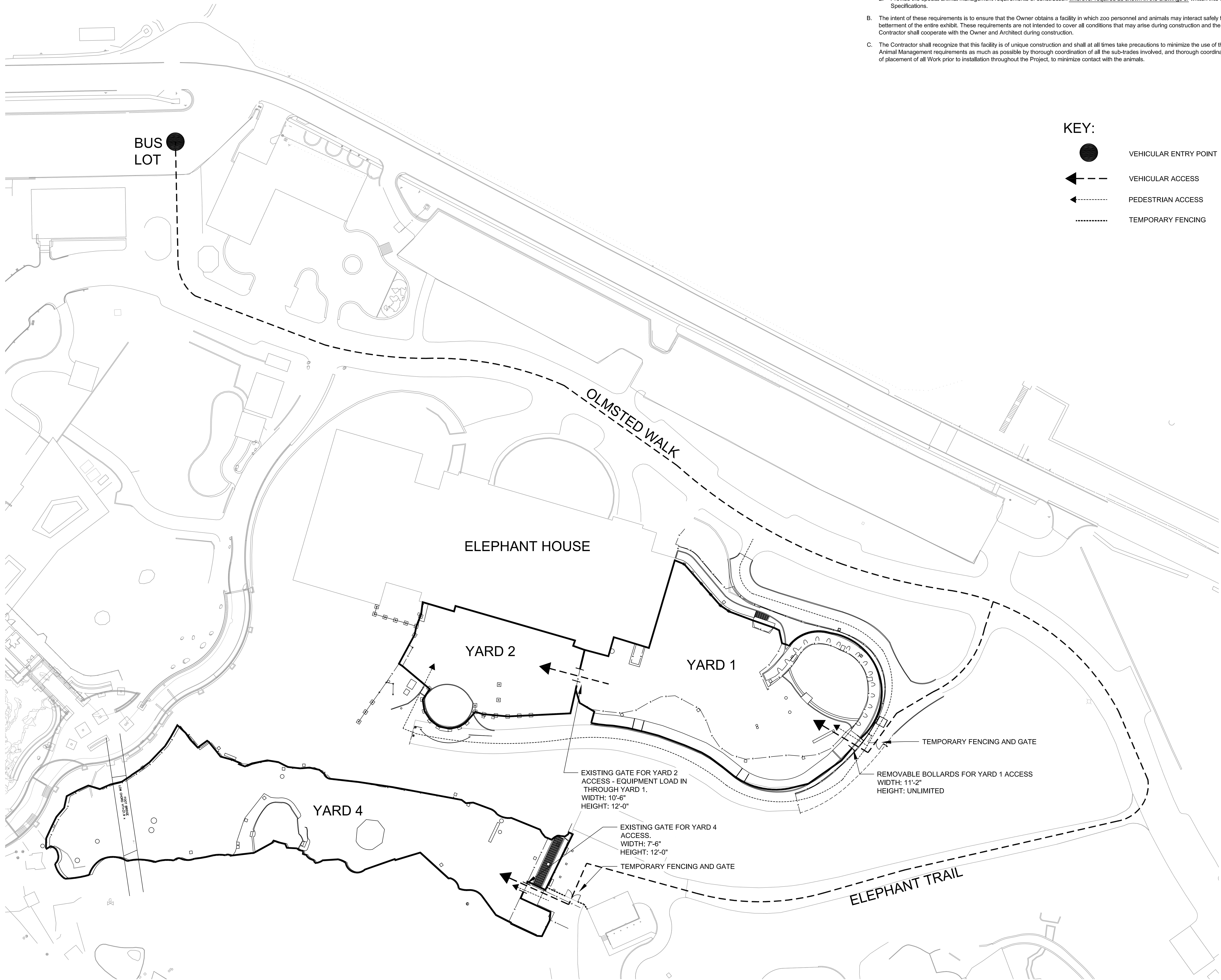
DATE	SUBMISSION
1/30/26	FINAL SUBMISSION
REVISION 1	REVISION
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	
REVISION 7	



Smithsonian
Institution

Smithsonian Facilities
600 Maryland Avenue S.W. Suite 5001
Washington, DC 20024-2520

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONNECTICUT AVE NW WASHINGTON, DC, 20008
PROJECT TITLE	STORM WATER MITIGATION ELEPHANT YARDS 1 & 4
SF PROJECT NUMBER	2233104
A/E PROJECT NUMBER	20230426
DRAWING TITLE	COVER SHEET
DRAWING TYPE	GENERAL
WORKING STAFF	MR MR RR
DESIGNED BY	DRAWN BY
CHECKED BY	
SHEET NO.	G O 01
01 OF 39	DISCIPLINE TYPE SEQUENCE



ANIMAL MANAGEMENT REQUIREMENTS OF CONSTRUCTION

- A. Animal Management requirements of construction are indicated at various areas of the Construction Documents. These requirements are general in nature and indicate universal type details required to be constructed as part of the Base Contract Price for this Project. Inclusive of these requirements, the contractor and all sub-contractors shall, as part of the Base Contract Price, do the following:
1. Animals have been known to injure themselves due to items left in exhibit spaces. Each contractor is responsible for regularly removing all construction debris in compliance with this requirement for work in his/her area including, but not limited to nails, screws, wire, wood & metal scraps, welding rods, and other small fasteners or miscellaneous items.
 2. Provide the special animal management requirements of construction wherever required as shown in the drawings or written into these Specifications.
- B. The intent of these requirements is to ensure that the Owner obtains a facility in which zoo personnel and animals may interact safely for the betterment of the entire exhibit. These requirements are not intended to cover all conditions that may arise during construction and the Contractor shall cooperate with the Owner and Architect during construction.
- C. The Contractor shall recognize that this facility is of unique construction and shall at all times take precautions to minimize the use of the Animal Management requirements as much as possible by thorough coordination of all the sub-trades involved, and thorough coordination of placement of all Work prior to installation throughout the Project, to minimize contact with the animals.

- KEY:
- VEHICULAR ENTRY POINT
 - VEHICULAR ACCESS
 - PEDESTRIAN ACCESS
 - TEMPORARY FENCING

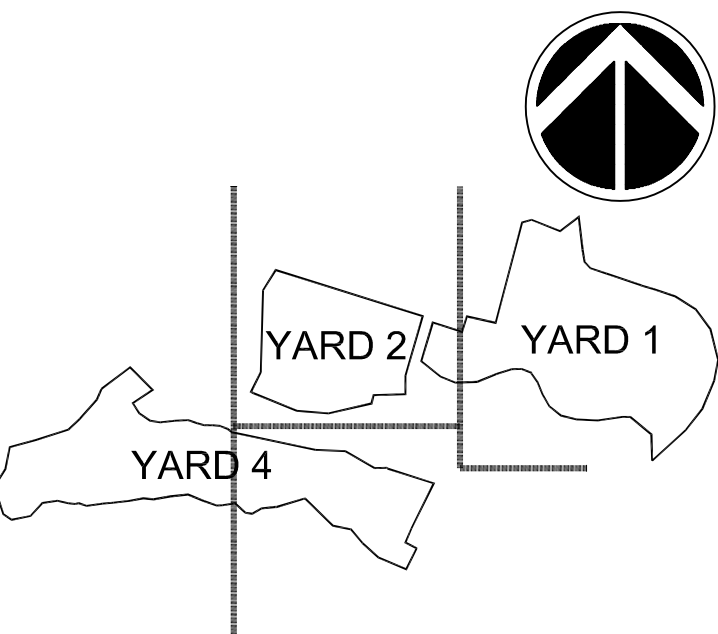
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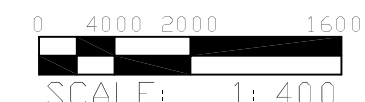
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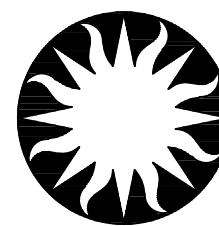


KEY PLAN & SECTION



GRAPHIC SCALE(S)

DATE	SUBMISSION
01/30/26	FINAL SUBMISSION
REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	
REVISION 7	



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SHEET NO.	G	0	02
02 OF 39	DISCIPLINE	TYPE	SEQUENCE

LEGEND

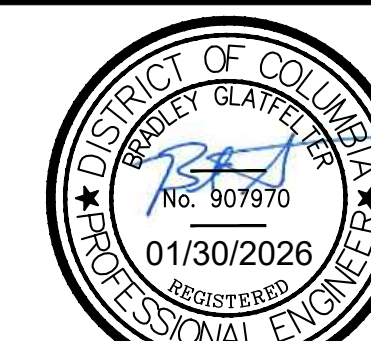
EXISTING	DESCRIPTION	PROPOSED
	INDEX CONTOUR	
	INTERMEDIATE CONTOUR	
	EDGE OF PAVEMENT	
	CURB AND GUTTER	
	TRANSITION FROM CG-6R TO CG-6	
	PROPOSED HEADER CURB	
	PROPERTY LINE	
	DEPARTING PROPERTY LINE	
	LOT LINE	
	RIGHT-OF-WAY	
	CENTERLINE	
	FLOOD PLAIN	
	LIMITS OF DISTURBANCE	
	TREE LINE	
	FLOW LINE OF SWALE	
	STREAM	
	OVERLAND RELIEF PATHWAY	
	FENCE LINE	
	EASEMENT	
	WATER LINE	
	WATER VALVE	
	WATER REDUCER	
	SANITARY SEWER	
	STORM SEWER	
	CABLE TV	
	ELECTRIC SERVICE	
	TELEPHONE SERVICE	
	GAS LINE	
	OVERHEAD ELECTRIC	
	OVERHEAD TELEPHONE	
	UNKNOWN UTILITY	
	SPOT ELEVATION	
	UTILITY POLE	
	BUTTERFLY VALVE	
	SANITARY SEWER IDENTIFIER	
	STORM DRAIN IDENTIFIER	
	WATER METER	
	FIRE HYDRANT	
	PARKING INDICATOR	
	STREET LIGHT	
	VEHICLES PER DAY (TRAFFIC COUNT)	
	TEST PIT LOCATION RECOMMENDED/REQUIRED	
	CRITICAL SLOPE	
	SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK	
	HANDICAP RAMP (CG-12)	
	DENOTES LOCATION OF STD VDOT CG-12 AND/OR JURISDICTIONAL STANDARD RAMP CONSTRUCTION	
	DENOTES CLEAR SIGHT TRIANGLE	
	TREE	
	BENCHMARK	
	ASPHALT TRAIL	
	CONCRETE SIDEWALK	
	END WALLS	
	END SECTIONS	
	STREET SIGN	
	HANDICAP PARKING SPACE (VAN)	
	RIP RAP	
	DOOR ENTRANCE	
	FOOTERS FOR SHADE STRUCTURE	

ABBREVIATIONS

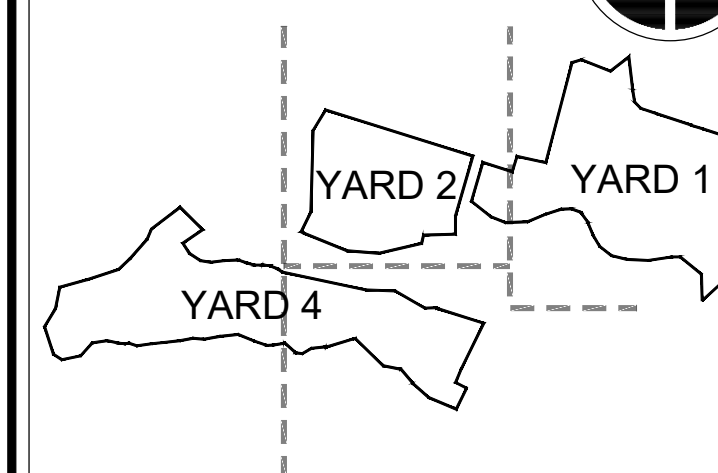
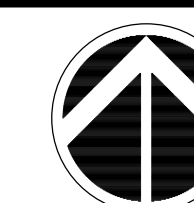
A	AREA OF ARC	JB	JUNCTION BOX	W	WEIGHT OR WIDTH
AASHTO	AMERICAN ASSOCIATION OF STATE HWY & TRANSP OFFICIALS	JNT	JOINT	WBL	WEST BOUND LANE
AC	ACRE	K	SIGHT DISTANCE COEFFICIENT	WDF	WOOD FENCE
ADJ	ADJACENT	Ke	CULVERT ENTRANCE LOSS COEFFICIENT	WL	WATER LINE
AGOR	AGGREGATE	L	LENGTH	WM	WATER METER
AHD	AMERICAN NATIONAL STANDARDS INSTITUTE	LAT	LATERAL	WRF	WROUGHT IRON FENCE
APPROX	APPROXIMATE	LCG	LIMITS OF CLEARING & GRADING	W/M	WATER MAIN
ARCH	ARCHITECTURAL	LF	LINEAR FEET	WM	WATER MAIN
ART(A)	ART-CHEETAH	LL	LOWER LEVEL	WOIA	WATER QUALITY IMPACT ASSESSMENT
ASC	ASPHALT CURB	LOS	LINE OF SIGHT	WV	WATER VALVE
ASPH	ASPHALT	LP	LOW POINT	XF	TRANSFORMER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LS	LOADING SPACE	YI	YARD INLET
AWWA	AMERICAN WATER WORKS ASSOCIATION	LSA	LANDSCAPE AREA	YR	YEAR
B	BREADTH	LT	LEFT	Z	SIDE SLOPES
BC	BACK OF CURB	M	MONUMENT FOUND		
BF	BASEMENT FLOOR	MAX	MAXIMUM		
BLDG	BUILDING	MECH	MECHANICAL		
BLD HT	BUILDING HEIGHT	MH	MANHOLE		
BM	BENCHMARK	MI	MILE		
BMP	BEST MANAGEMENT PRACTICES (WATER QUALITY)	MIN	MINIMUM		
BOV	BLOW OFF VALVE	MISC	MISCELLANEOUS		
BRG	BEARING	MPH	MILES PER HOUR		
BRU	BUILDING RESTRICTION LINE	MS	MEDIAN STRIP		
BVCE	BEGINNING VERTICAL CURVE ELEVATION	MSL	MEAN SEA LEVEL		
BVCS	BEGINNING VERTICAL CURVE STATION	NA	NOT APPLICABLE		
BW	BOTTOM OF WALL	N/A	NOT APPLICABLE		
c.e	CENTER CORRECTION ON VERTICAL CURVE	NBL	NORTH BOUND LANE		
C	RUNOFF COEFFICIENT	N/F	NOW OR FORMERLY		
CATV	CABLE TELEVISION	NFA	NET FLOOR AREA		
CAC	CONCRETE ANIMAL FEEDER	NO.	NUMBER		
C&G	CURB AND GUTTER	#	NUMBER		
CBS	CATCH BASIN	OC	ON CENTER		
CBR	CALIFORNIA BEARING RATIO	OBJ	OBJECT		
CC	CONCRETE CURB	OD	OUTSIDE DIAMETER		
CF	CUBIC FEET	OH	OVERHANG		
CFS	CUBIC FEET PER SECOND	O/H	OVERHEAD		
CG(R)	CURB AND GUTTER (REVERSE SLOPE)	OHC	OVERHEAD CABLE		
CH	CHORD	OHE	OVERHEAD ELECTRIC		
CHBRG	CHORD BEARING	OHT	OVERHEAD TELEPHONE		
CIP	CAST IRON PIPE	P	PERIMETER		
CL	CENTERLINE OR CLASS	P&P	PLAN AND PROFILE		
C/L	CENTERLINE	PC	POINT OF CURVATURE		
CLF	CHAIN LINK FENCE	PCC	POINT OF COMPOUND CURVE		
CLR	CLEAR	PCTC	POINT OF CURVATURE TOP OF CURB		
CM	CUBIC METERS	PCEP	POINT OF CURVE EDGE OF PAVEMENT		
OMP	CORRUGATED METAL PIPE	PFM	PUBLIC FACILITIES MANUAL		
CMS	CUBIC METERS PER SECOND	PG	PAGE		
CN	RUNOFF CURVE NUMBER	PGL	POINT OF GRADE LINE		
CONT	CONTINUOUS	PI	POINT OF INTERSECTION		
CO	CLEAN OUT	PL	PROPERTY LINE		
CONC	CONCRETE	PL	PROPERTY LINE		
COTR	CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVES	PRC	POINT OF REVERSE CURVE		
CS	CURB STOP	PRELIM	PRELIMINARY		
CSW	CONCRETE SIDE WALK	PROP	PROPOSED		
CT	COURT	PT	POINT OF TANGENCY		
CTR	CENTERLINE	PVC	POINT OF VERTICAL CURVE		
CY	CUBIC YARD	PVI	POINT OF VERTICAL INTERSECTION		
D	DEPTH	PVMT	PAVEMENT		
DA	DRAINAGE AREA	PVRC	POINT OF VERTICAL REVERSE CURVE		
DB	DEED BOOK	PVT	POINT OF VERTICAL TANGENT		
DEQ	VA. DEPARTMENT OF ENVIRONMENTAL QUALITY	Q (cfs)	AMOUNT OF RUNOFF (FLOW RATE)		
DET	DETAIL	R	RADIUS		
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE		
DIP	DUCTILE IRON PIPE	RD	ROAD OR ROOF DRAIN		
DI	DROP INLET	REINF	REINFORCED		
DIST	DISTANCE	REQD	REQUIRED		
DL	DOMESTIC LINE	RET	RETAINING		
DM	DROP MANHOLE	REV	REVISION		
DOM	DOMESTIC	RGP	ROUGH GRADING PLAN		
DR	DRIVE	RMA	RESOURCE MANAGEMENT AREA		
DRN	DRAINAGE AREA	ROM	REMOTE OUTSIDE MONITOR		
DS	DOWN SPOUT	RPA	RESOURCE PROTECTION AREA		
DU	DWELLING UNITS	RR	RAILROAD		
DWG	DRAWING	RT	RIGHT		
D/W	DRIVEWAY	RTE	ROUTE		
Δ	DELTA	R/W	RIGHT OF WAY		
E	RATE OF SUPER ELEVATION	S	SPEED OR SLOPE		
EA	EACH	SAN	SANITARY		
EBL	EAST BOUND LANE	SBL	SOUTH BOUND LANE		
EC	EROSION CONTROL	SCH	SCHEDULE		
EG	EDGE OF GUTTER	SD	SIGHT DISTANCE		
EGL	ENERGY GRADIENT LINE	SEC	SECTION		
EL	ELEVATION	SECT	SECTION		
ELEC	ELECTRIC	SEW	SEWER		
ELEV	ELEVATION	SF	SQUARE FEET		
ENGR	ENGINEER	SN	SIGN		
ENT	ENTRANCE	SH	SHOULDER		
EP	EDGE OF PAVEMENT	SP	SPACE OR SITE PLAN		
EQUIP	EQUIPMENT	SPEC	SPECIFICATIONS		
ES	END SECTION	ST	STORM		
ESMT	EASEMENT	STA	STATION		
ETD	EXISTING TO BE DEMOLISHED	STD	STANDARD		
ETR	EXISTING TO REMAIN	STK	STACK		
ETRL	EXISTING TO BE RELOCATED	STR	STRUCTURE		
ETRP	EXISTING TO BE REPLACED	SVC	SERVICE		
EVCE	ENDING VERTICAL CURVE ELEVATION	SW/W	SIDEWALK		
EVCS	ENDING VERTICAL CURVE STATION	SWL	SOLID WHITE LINE		
EW	END WALL	SWM	STORM WATER MANAGEMENT		
EX	EXISTING	Sx	CROSS SLOPE		
EQC	ENVIRONMENTAL QUALITY CORRIDOR	SY	SQUARE YARD		
F	FIRE LINE	SYL	SOLID YELLOW LINE		
FAR	FLOOR AREA RATIO	T	TANGENT		
FC	FACE OF CURB	TB	TOP OF BANK OR TEST BORING		
FCR	FIRE CONTROL ROOM	TC	TOP OF CURB		
FD	FLOOR DRAIN	TCP	TERRACOTTA PIPE		
FDC	FIRE DEPARTMENT CONNECTION	Tc	TIME OF CONCENTRATION		
FF	FINISHED FLOOR	TEL	TELEPHONE		
FH	FIRE HYDRANT	TEMP	TEMPORARY		
FL	FLOW LINE	TH	TEST HOLE		
FND	FOUNDATION	TOS	TOP OF SLAB		
FOY	FOYER	TP	TEST PIT OR TREE PROTECTION		
FP	FLOOD PLAIN	TRANSP	TRANSPORTATION		
FPS	FEET PER SECOND	TW	TOP OF WALL OR TAILWATER		
FS	FIRE SERVICE OR FACTOR OF SAFETY	TYP	TYPICAL		
FT	FOOT / FEET	UG	UNDERGROUND		
G	GAS	UGE	UNDERGROUND ELECTRIC		
GAR	GARAGE	UGT	UNDERGROUND TELEPHONE		
GFA	GROSS FLOOR AREA	UGC	UNDERGROUND CABLE		
GR	GUARD RAIL OR GRATE INLET	UD	UNDERDRAIN		
H	HEAD	UL	UPPER LEVEL		
HC	HANDICAP	UNK	UNKNOWN		
HB	HORIZONTAL BEND	UP	UTILITY POLE		
HGL	HYDRAULIC GRADE LINE	USGS	US GEOLOGICAL SURVEY		
HORZ	HORIZONTAL	V OR VOL	VOLUME		
HP	HIGH POINT	V OR VEL	VELOCITY		
HR	HAND RAIL	VA	VIRGINIA		
HT	HEIGHT	VAN	HANDICAPPED VAN PARKING SPACE		
HW	HEADWATER	VB	VERTICAL BEND		
I	RAINFALL INTENSITY	VC	VERTICAL CURVE		
ID	INSIDE DIAMETER OR IDENTIFICATION	VCP	VITRIFIED CLAY PIPE		
IE	INVERT ELEVATION	VDT	VA DEPT OF TRANSPORTATION		
IN	INCH	VF	VERTICAL FOOT		
INV	INVERT				
IP	IRON PIPE				
IPF	IRON PIPE FOUND				
IPS	IRON PIPE SET				

SITE CONSTRUCTION NOTES:

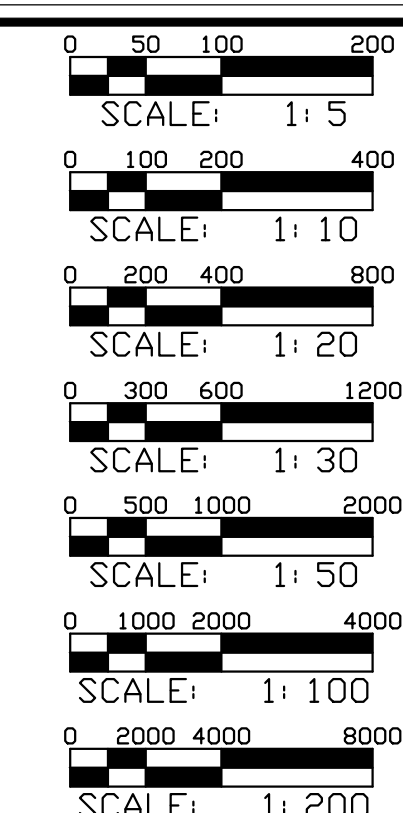
- STANDARDS: ALL CONSTRUCTION, MATERIALS, AND APPURTENANCES SHALL COMPLY WITH THE LATEST EDITIONS OF THE PROJECT DESIGN MANUAL, CONSTRUCTION DETAILS, DESIGN NOTES, AND SPECIFICATIONS.
- LEAD SERVICE REPLACEMENT: LEAD IS NOT ANTICIPATED TO BE ENCOUNTERED. HOWEVER IF IDENTIFIED, CONTRACTOR TO IMMEDIATELY NOTIFY COTR.
- DC WATER RESPONSIBILITY: DC WATER IS ONLY RESPONSIBLE FOR THE PUBLIC WATERLINES UP TO THE METER.
- CONTRACTOR MUST USE AN INDEPENDENT LOCATOR TO IDENTIFY ALL UTILITIES. MISS UTILITY WILL ONLY LOCATE AND IDENTIFY NATURAL GAS INFRASTRUCTURE.
- UNMETERED WATER: THERE SHALL BE NO UNMETERED CONNECTIONS TO THE CITY'S WATER SYSTEM, INCLUDING CONNECTIONS BYPASSING METERS FOR TESTING ON-SITE PLUMBING OR FOR OBTAINING CONSTRUCTION WATER.
- PRESSURE TESTING AGAINST VALVES: PRESSURE TESTING AGAINST VALVES WILL NOT BE ALLOWED.
- WATER METER INSTALLATION: CONTRACTOR TO CONTACT COTR FOR ANY WATER METER OR SUB-METER INSTALLATIONS.
- CROSS CONTAMINATION CONTROL: INTERNAL BACKFLOW PREVENTER (BFP) INSPECTION TEAM SHALL BE CONTACTED AND ANY DISCREPANCIES WITH THE PLAN DISCUSSED WITH THEM.
- UTILITY SERVICE DISRUPTIONS: PHASE ALL UTILITY WORK TO MAINTAIN UTILITY SERVICES TO THE SURROUNDING AREAS DURING ALL PHASES OF CONSTRUCTION. LIMIT REQUIRED UTILITY SHUT-DOWNS IN NUMBER AND DURATION. COORDINATE THESE SHUT DOWNS WITH COTR, ACS, AND PLANNING DEPARTMENT.
- WATER VALVE OPERATION: THE CONTRACTOR IS REQUIRED TO COORDINATE WITH OFMR FOR ALL NECESSARY WATER MAIN SHUT DOWNS WITH ADEQUATE ADVANCED NOTICE. ONLY OFMR EMPLOYEES MAY SHUT DOWN A PUBLIC WATER MAIN.
- WATER GATE VALVE LOCATION: LOCATE GATE VALVES FOR DOMESTIC AND FIRE SERVICES AS CLOSE TO THE WATER MAIN TEE AS POSSIBLE. HOWEVER, IF ADJUSTMENTS TO VALVE LOCATION ARE REQUIRED DUE TO CONFLICTS, COORDINATE WITH COTR, ACS, AND PLANNING DEPARTMENT INSPECTORS.
- MATERIAL: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING SHOP DRAWINGS AND CUTSHEETS TO THE APPROPRIATE OPDC AND COTR FOR APPROVAL. ONLY APPROVED MATERIALS MAY BE USED.
- A NOMINAL FOUR FEET OF COVER IS REQUIRED FOR ALL WATER MAINS AT FINAL GRADE. COVER OF LESS THAN FOUR FEET REQUIRES COORDINATION WITH COTR.
- AS-BUILT: CONTRACTORS AND/OR PLUMBERS MUST SUBMIT FINAL CONSTRUCTION AS-BUILT INFORMATION TO THE COTR FOR REVIEW AND APPROVAL UPON COMPLETION OF INSTALLATION OF NEW SERVICES OR ABANDONMENT OF EXISTING SERVICES.
- CONFLICTS: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITIES. UNLESS OTHERWISE DIRECTED, A MINIMUM OF ONE FOOT VERTICAL AND FIVE FEET HORIZONTAL CLEARANCE FROM OTHER UTILITIES SHALL BE MAINTAINED FROM ANY UTILITIES AND WATER AND SEWER MAINS.
- FIRE HYDRANT USE: THE USE OF A FIRE HYDRANT AS A WATER SOURCE IS PERMITTED ON SI PROPERTY PROVIDED THERE IS A METER. CONTRACTOR TO PROVIDE THEIR OWN METER IF NECESSARY.
- FIRE HYDRANT STATUS: THE CONTRACTOR SHALL NOTIFY OFMR. OFMR WILL REPORT TO THE DC FIRE MARSHAL IF ANY HYDRANTS NEED TO BE TAKEN OFF LINE.
- SEWER BACKWATER PREVENTION: THE PLUMBING SYSTEM MUST BE IN COMPLIANCE WITH SECTION 715 OF THE 2006 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 SEWER.
- WHERE NEW WORK MEETS EXISTING, NOTE FIELD LOCATION AND ELEVATIONS OF EXISTING FEATURES BEFORE BEGINNING CONSTRUCTION AND REPORT ANY DISCREPANCY TO THE COTR.
- VERIFY LOCATION OF EXISTING UTILITIES BEFORE PROCEEDING WITH WORK. NOTIFY OWNER'S REPRESENTATIVE 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATIONS. HAND DIG TEST PITS AT ALL UTILITY CROSSINGS AND DETERMINE EXACT CLEARANCE OF ALL PROPOSED INSTALLATIONS WELL IN ADVANCE OF CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS WITH PLAN ELEVATIONS.
- ELEVATIONS SHOWN HEREON ARE BASED ON MARYLAND NAD83 & NADV88.
- FRAMES AND COVERS OF EXISTING STRUCTURES TO BE ADJUSTED TO MATCH NEW FINISHED GRADES.
- OMISSIONS AND/OR ADDITIONS OF UTILITIES FOUND DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE COTR IMMEDIATELY OF ANY INFORMATION CONCERNING FOUND UTILITY, NOT SHOWN ON PLANS.
- EXISTING SURFACE CONDITIONS DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED TO MATCH EXISTING CONDITIONS. CONTRACTOR TO COORDINATE EXTENT WITH COTR.
- TEST PITS ARE REQUIRED AT ALL LOCATIONS (WHERE PROPOSED UTILITIES CROSS EXISTING UTILITIES) TO IDENTIFY HORIZONTAL LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES. THE COTR IS TO BE NOTIFIED OF THIS INFORMATION. ANTICIPATED LOCATIONS ARE INDICATED ON THE UTILITY PLAN.
- IF A 1' MINIMUM VERTICAL CLEARANCE CAN NOT BE MAINTAINED AT UTILITY CROSSING, THE CONTRACTOR IS TO NOTIFY THE COTR BEFORE PROCEEDING WITH WORK.
- TRANSITION CURB, GUTTER, PAVING AND SIDEWALK TO MEET EXISTING IN LINE AND ON GRADE OR AS DIRECTED BY COTR.
- ALL DEBRIS AND EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED BY COTR AND ACS OFF-SITE LOCATION.
- WHERE PORTIONS OF EXISTING BITUMINOUS OR CONCRETE PAVING ARE TO BE REMOVED, THE EXISTING PAVEMENT SHALL BE SAW-CUT.
- REMOVE FRAMES AND COVERS OF SEWER MANHOLE/INLETS AND/OR WATER MAIN VALVE CASTINGS TO BE ABANDONED AND FILL TO GRADE WITH APPROVED FILL MATERIAL.
- ALL CURB ELEVATION SPOT SHOTS ARE TOP OF CURB, UNLESS OTHERWISE NOTED.
- NOTIFY WASHINGTON GAS AT 202-750-4205, 48 HOURS PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY TRANSMISSION MAIN. FOR FURTHER INFORMATION OR PROBLEMS, CONTACT MR. CHUCK WHITEY AT WASHINGTON GAS AT 703-750-4205.
- PROVIDE A MINIMUM OF 5 FEET HORIZONTAL AND 1 FOOT VERTICAL CLEARANCE BETWEEN 12" DIAMETER AND SMALLER DISTRIBUTION EXISTING GAS FACILITIES AND PROPOSED FACILITIES.
- PROVIDE A MINIMUM OF 5 FEET HORIZONTAL AND 2 FEET VERTICAL CLEARANCE BETWEEN 16" DIAMETER OR GREATER TRANSMISSION GAS FACILITIES AND PROPOSED FACILITIES.
- CONTRACTOR SHALL BE RESPONS



11



KEY PLAN & SECTION



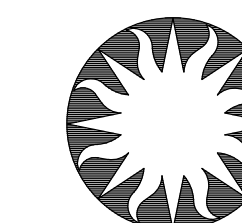
GRAPHIC SCALE(S)

DATE
01/30/202

26

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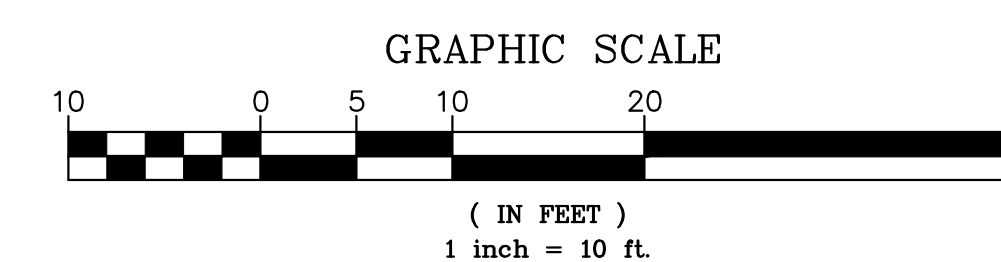
PROJECT TITLE	MITIGATE STORMWATER AT ELEPHANT YARDS
---------------	---------------------------------------

SF PROJECT NUMBER	2233104
A/E PROJECT NUMBER	20230426

DRAWING TITLE: EXISTING CONDITIONS -
YARD 1

DRAWING TYPE	CIVIL		
WORKING STAFF	KJB	JVM	KJB
	DESIGNED BY	DRAWN BY	CHECKED BY

SHEET NO.	C	1	00
04.05.20			

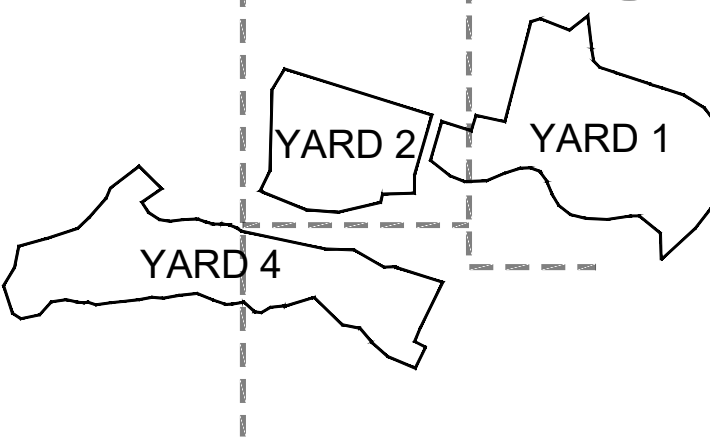
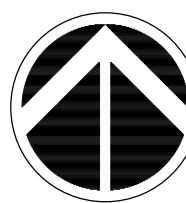


SEE SHEET C101 FOR YARD 2

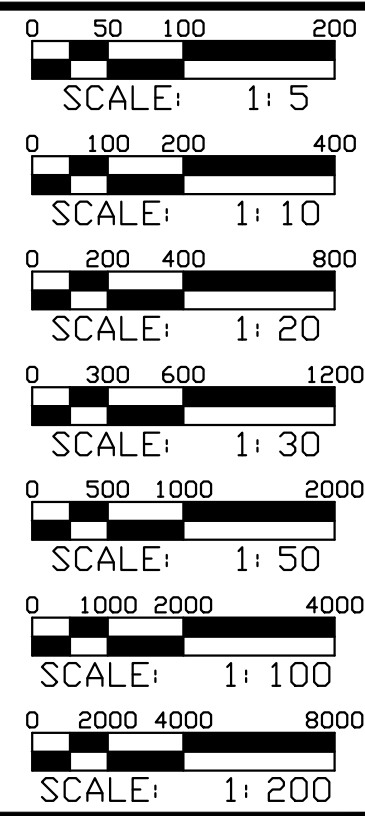
SEE SHEET C102 FOR YARD 4 EAST



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KEY PLAN & SECTION



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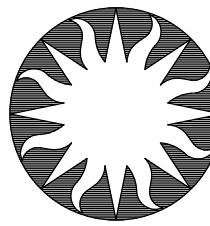
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PROJECT TITLE

MITIGATE STORMWATER AT
ELEPHANT YARDS

SF PROJECT NUMBER

2233104

AVE PROJECT NUMBER

20230426

DRAWING TITLE

EXISTING CONDITIONS -
YARD 2

DRAWING TYPE

CIVIL

WORKING STAFF

KJB

JVM

KJB

DESIGNED BY

DRAWN BY

CHECKED BY

SHEET NO.

C

1

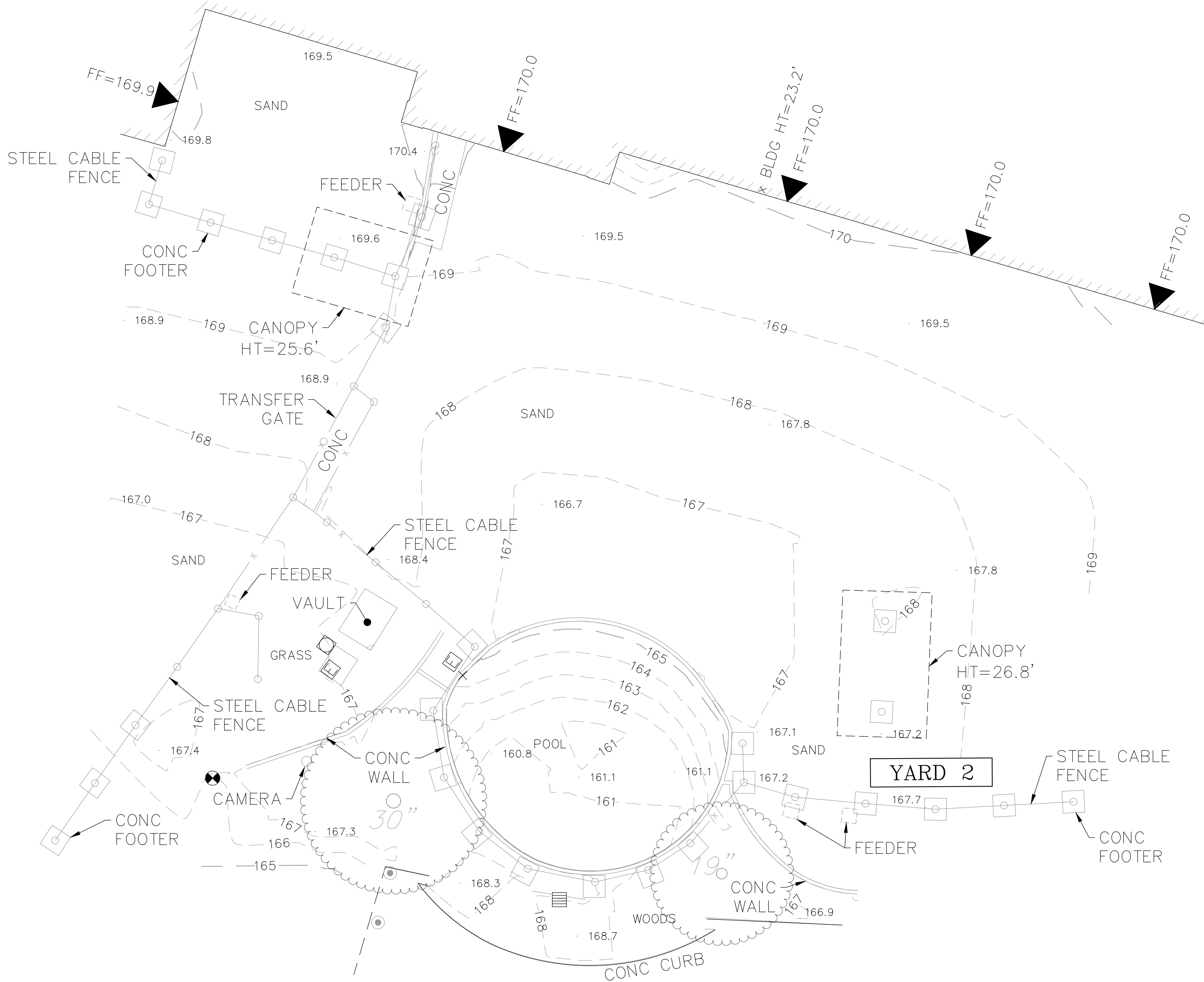
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05 OF 39

DISCIPLINE

TYPE

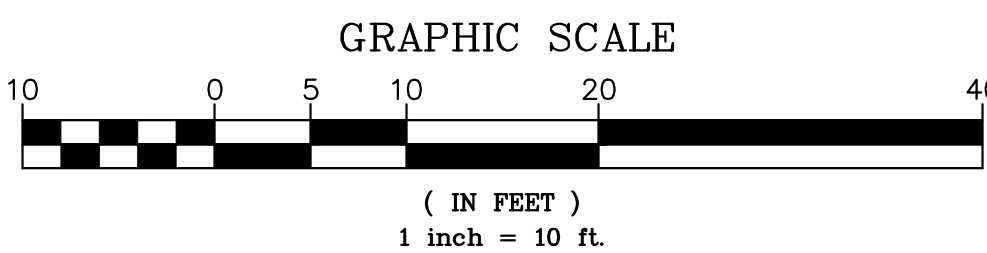
SEQUENCE

"ELEPHANT TRAILS"
NATURAL ASIAN
ELEPHANT ENCLOSURE

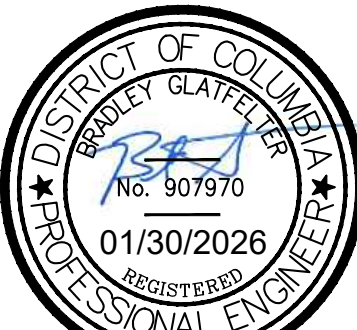
SEE SHEET C103 FOR YARD 4 WEST

SEE SHEET C102 FOR YARD 4 EAST

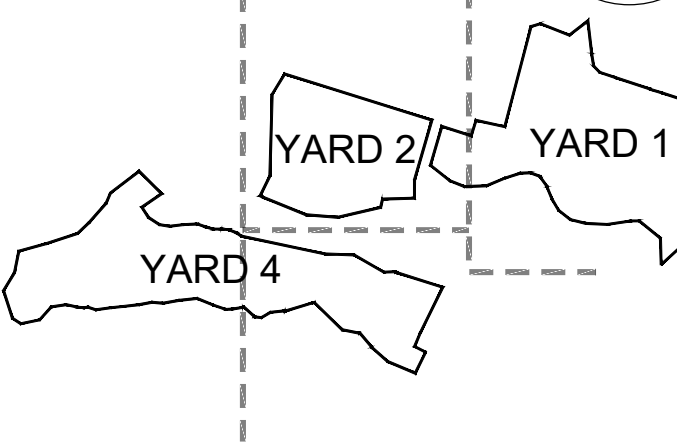
SEE SHEET C100 FOR YARD 1



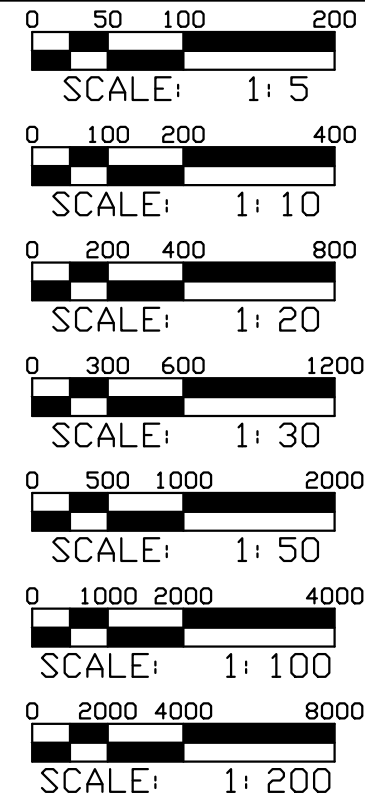
1 inch = 10 ft.



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KEY PLAN & SECTION

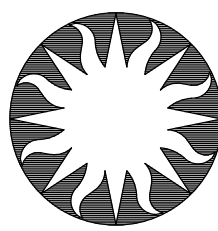


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PROJECT TITLE
MITIGATE STORMWATER AT
ELEPHANT YARDS

SF PROJECT NUMBER
2233104

AVE PROJECT NUMBER
20230426

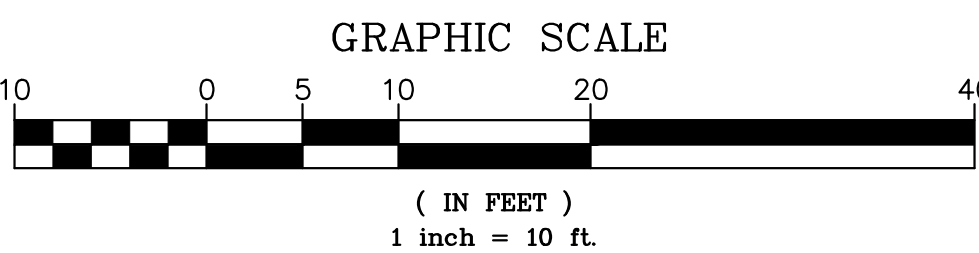
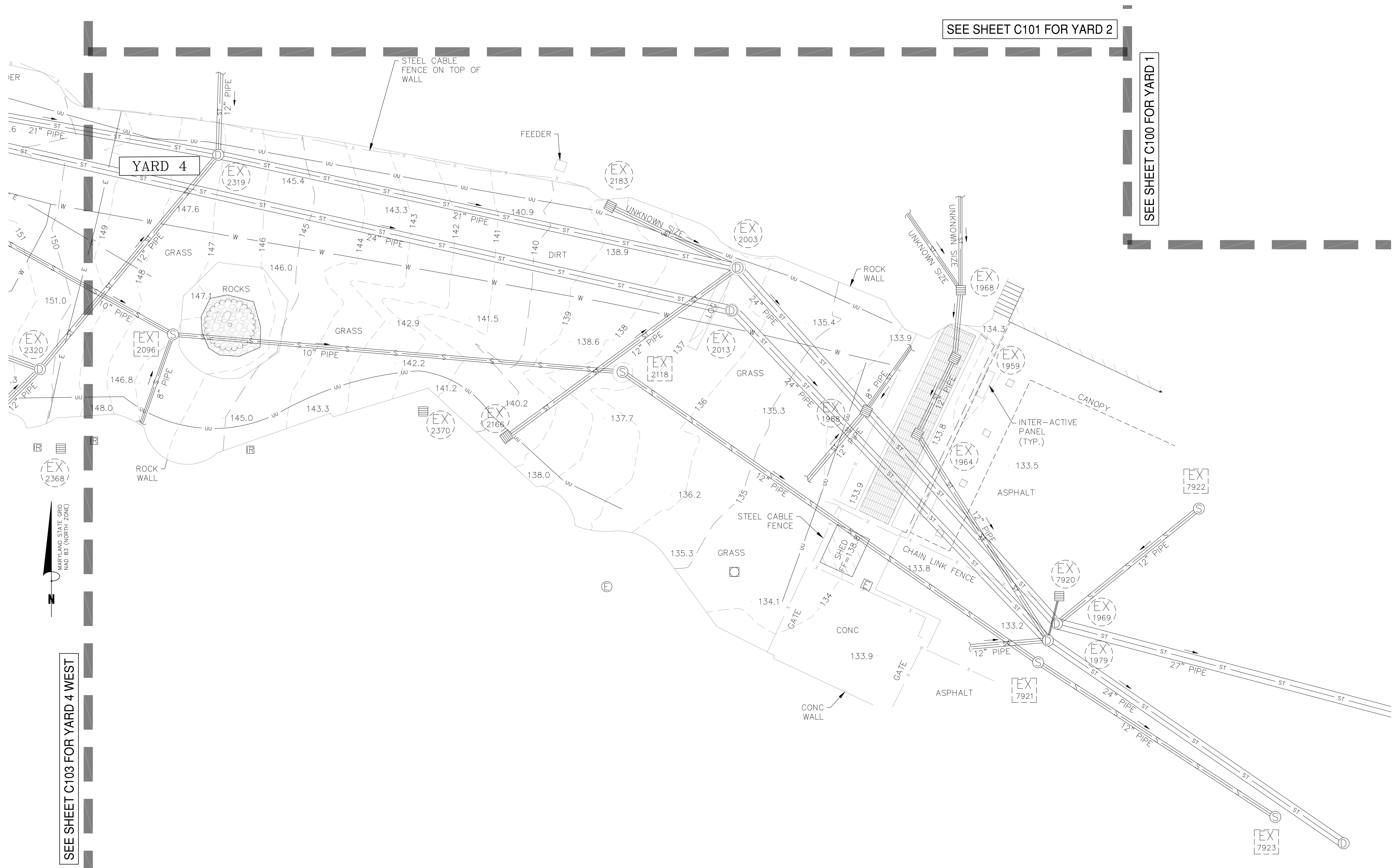
DRAWING TITLE
EXISTING CONDITIONS --
YARD 4 EAST

DRAWING TYPE
CIVIL

WORKING STAFF
DESIGNED BY KJB DRAWN BY JVM CHECKED BY KJB

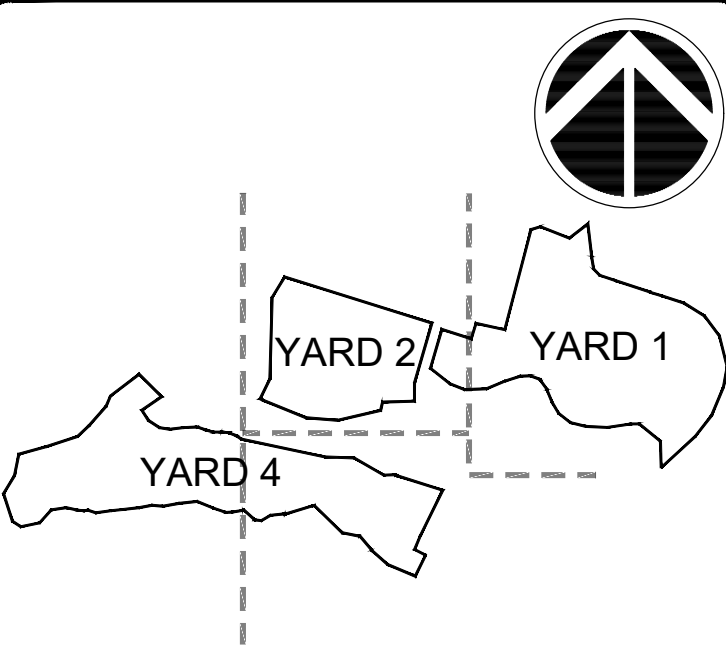
SHEET NO.
06 OF 39

DISCIPLINE TYPE SEQUENCE
C 1 02

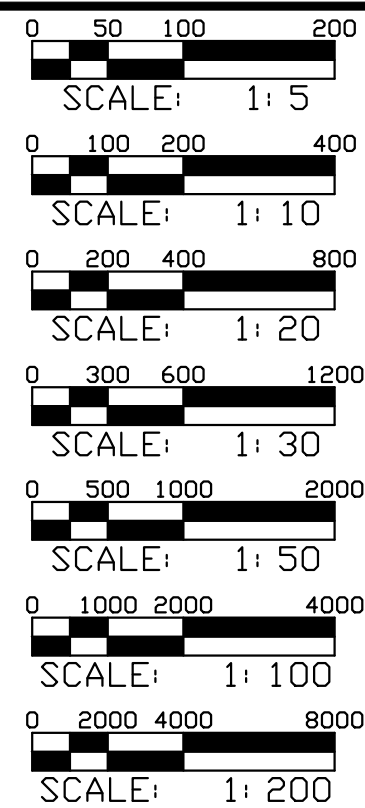




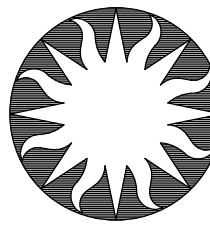
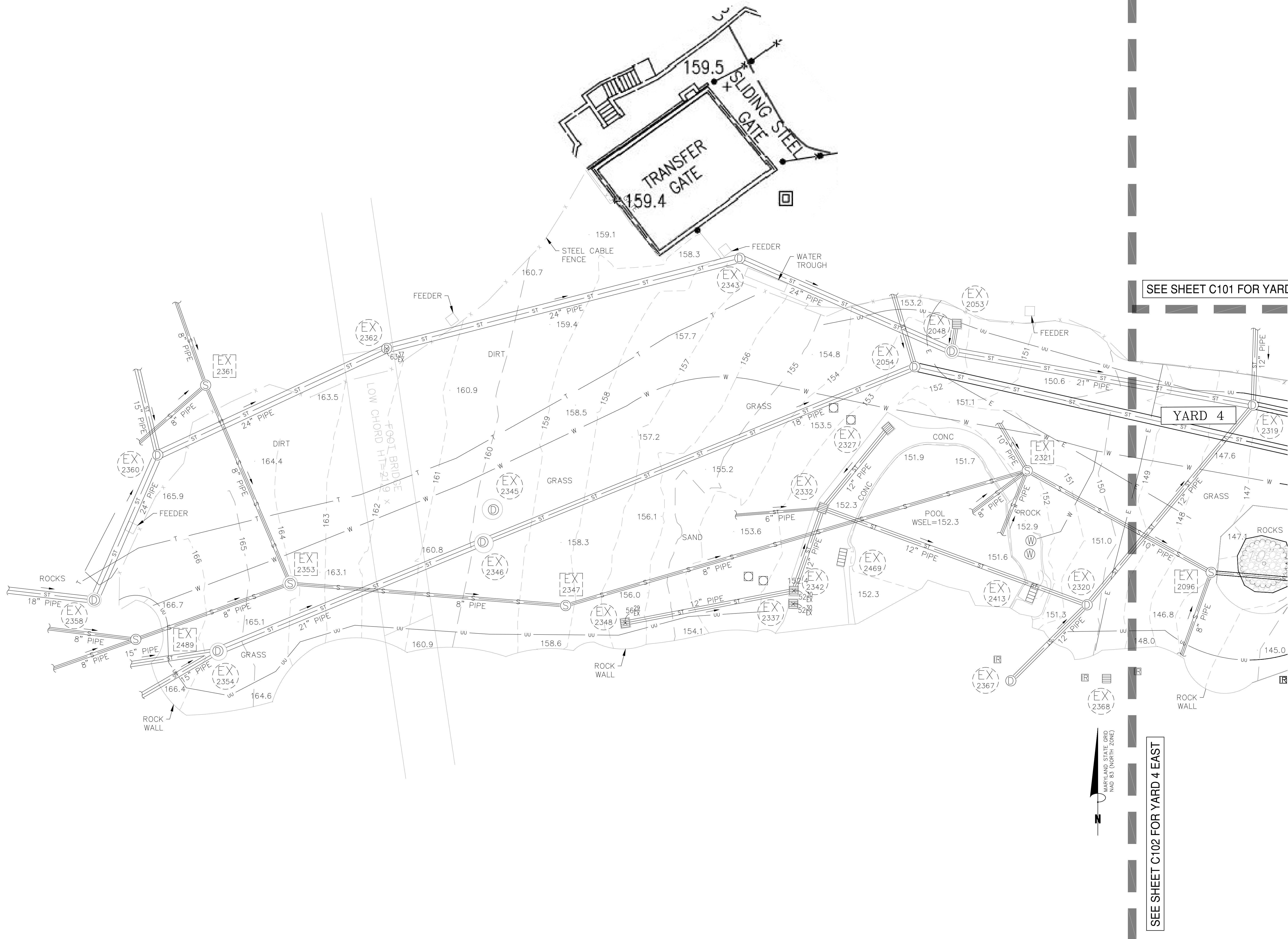
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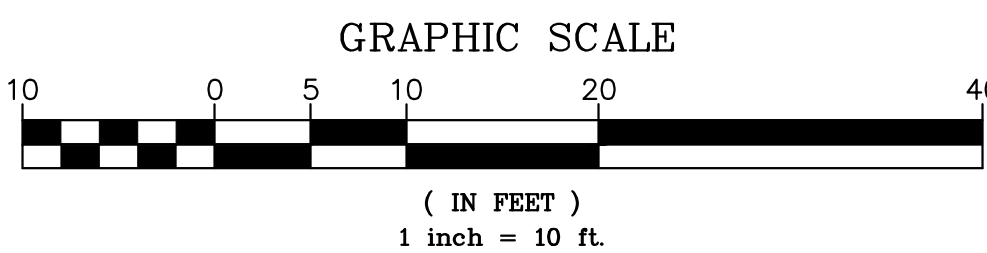
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ADDRESS
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WASHINGTON, DC 20008PROJECT TITLE
SF PROJECT NUMBER
AVE PROJECT NUMBER
MITIGATE STORMWATER AT
ELEPHANT YARDS
2233104
20230426DRAWING TITLE
DRAWING TYPE
WORKING STAFF
EXISTING CONDITIONS --
YARD 4 WEST
CIVIL
DESIGNED BY
KJB
JVM
KJB
DRAWN BY
CHECKED BYSHEET NO.
07 OF 39C 1 03
DISCIPLINE TYPE SEQUENCE

SEE SHEET C101 FOR YARD 2

YARD 4

SEE SHEET C102 FOR YARD 4 EAST



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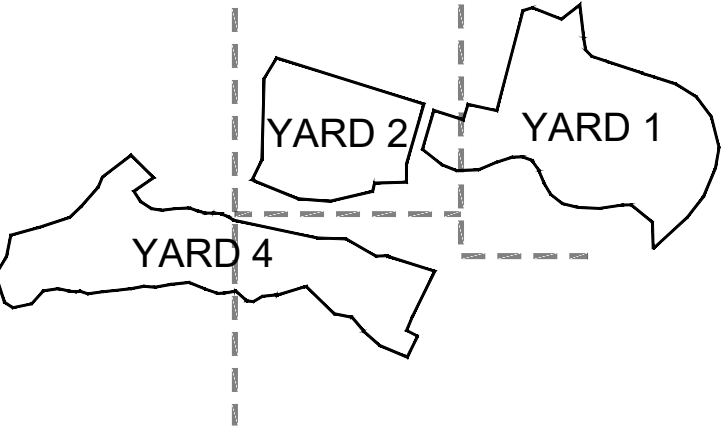


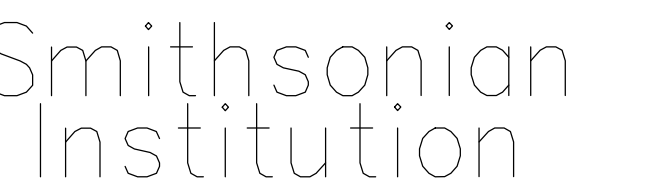
Figure 1 consists of eight horizontal bar charts arranged vertically, each representing a different number of iterations (N). The X-axis for each chart represents the number of iterations, and the Y-axis represents the accuracy. The charts are labeled with their respective N values and the corresponding X and Y axis scales.

- Chart 1 (N=50):** X-axis scale: 50, 100, 200; Y-axis scale: 1, 5.
- Chart 2 (N=100):** X-axis scale: 100, 200, 400; Y-axis scale: 1, 10.
- Chart 3 (N=200):** X-axis scale: 200, 400, 800; Y-axis scale: 1, 20.
- Chart 4 (N=300):** X-axis scale: 300, 600, 1200; Y-axis scale: 1, 30.
- Chart 5 (N=500):** X-axis scale: 500, 1000, 2000; Y-axis scale: 1, 50.
- Chart 6 (N=1000):** X-axis scale: 1000, 2000, 4000; Y-axis scale: 1, 100.
- Chart 7 (N=2000):** X-axis scale: 2000, 4000, 8000; Y-axis scale: 1, 200.
- Chart 8 (N=3000):** X-axis scale: 3000, 6000, 12000; Y-axis scale: 1, 300.

The charts demonstrate that the accuracy of the proposed algorithm increases as the number of iterations increases, and the rate of increase slows down as the number of iterations approaches 2000.

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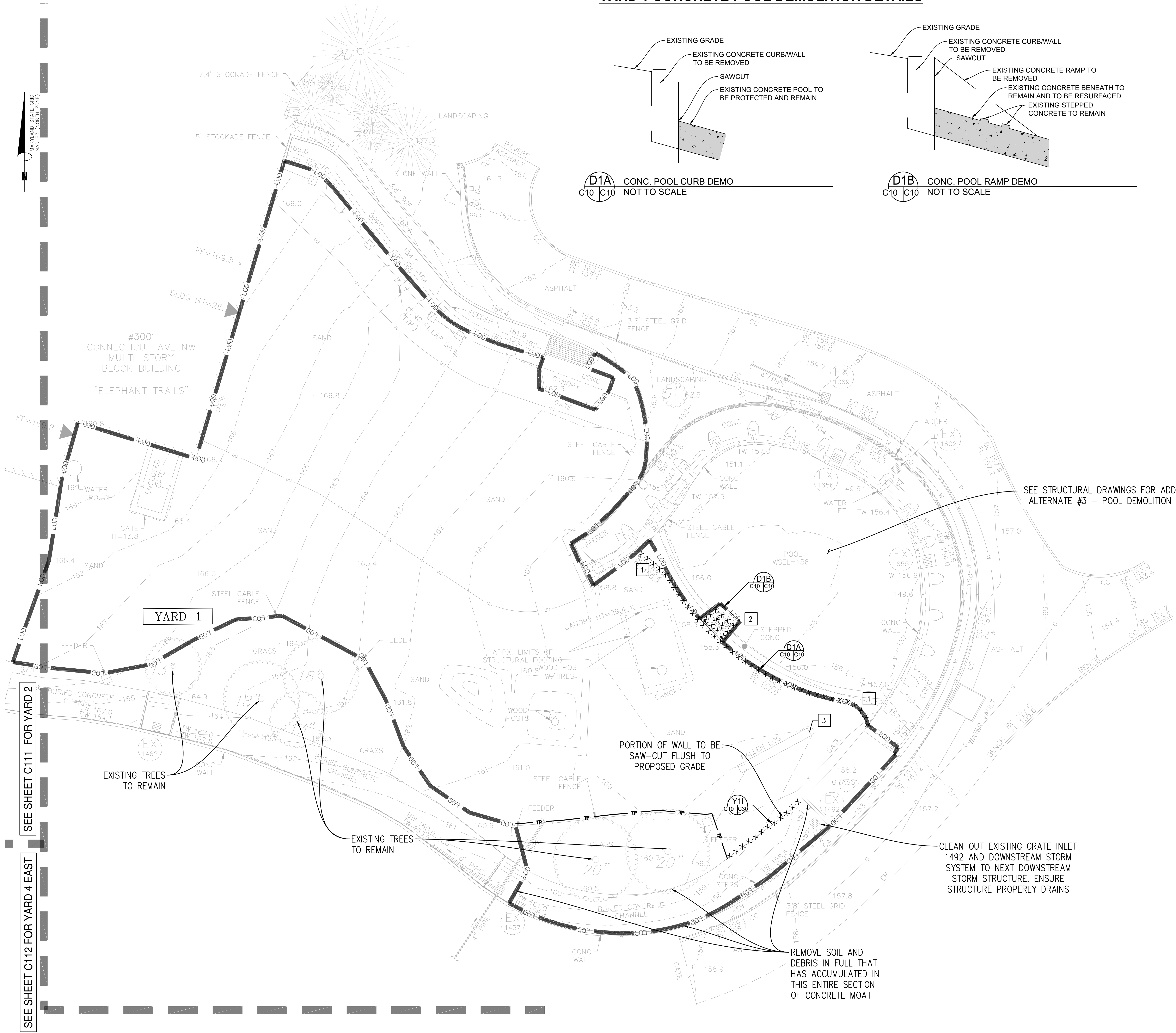
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DRAWING TITLE	DEMOLITION PLAN - YARD 1		
	CIVIL		
	KJB	JVM	KJB
DRAWING TYPE	DESIGNED BY	DRAWN BY	CHECKED BY
DRAWING STAFF			

SHEET NO.	C	1	10
09 OF 39	DISCIPLINE	TYPE	SEQUENCE



EXISTING CONCRETE TO BE DEMOLISHED

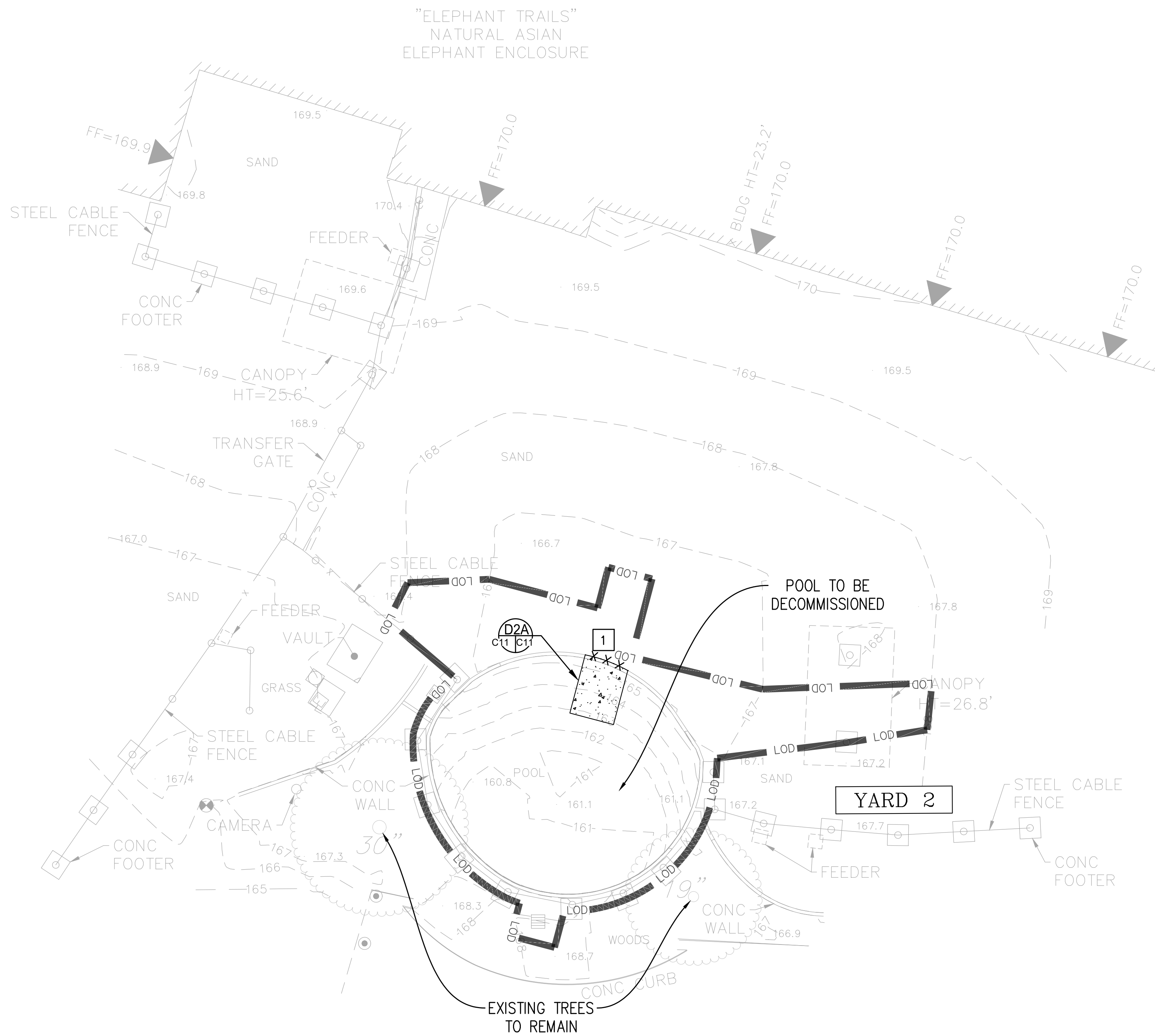
— LOD — : LOD - LIMITS OF DISTURBANCE
 . : EXTENTS OF DEMOLITION - SEE KEY NOTES
 — : TREE PROTECTION FENCING
 NOTE: ALL EXISTING SITE FEATURES ARE TO REMAIN
 UNLESS NOTED OTHERWISE ON THESE PLANS

1	EXISTING CONCRETE CURB TO BE REMOVED
2	EXISTING CONCRETE RAMP TO BE REMOVED
3	FALLEN LOG TO BE REMOVED

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SEE SHEET C113 FOR YARD 4 WEST



MARYLAND STATE GRID
NAD 83 (NORTH ARROW)

DEMOLITION LEGEND:

EXISTING CONCRETE TO BE DEMOLISHED

LOD - LIMITS OF DISTURBANCE

EXTENTS OF DEMOLITION - SEE KEY NOTES

NOTE: ALL EXISTING SITE FEATURES ARE TO REMAIN
UNLESS NOTED OTHERWISE ON THESE PLANS

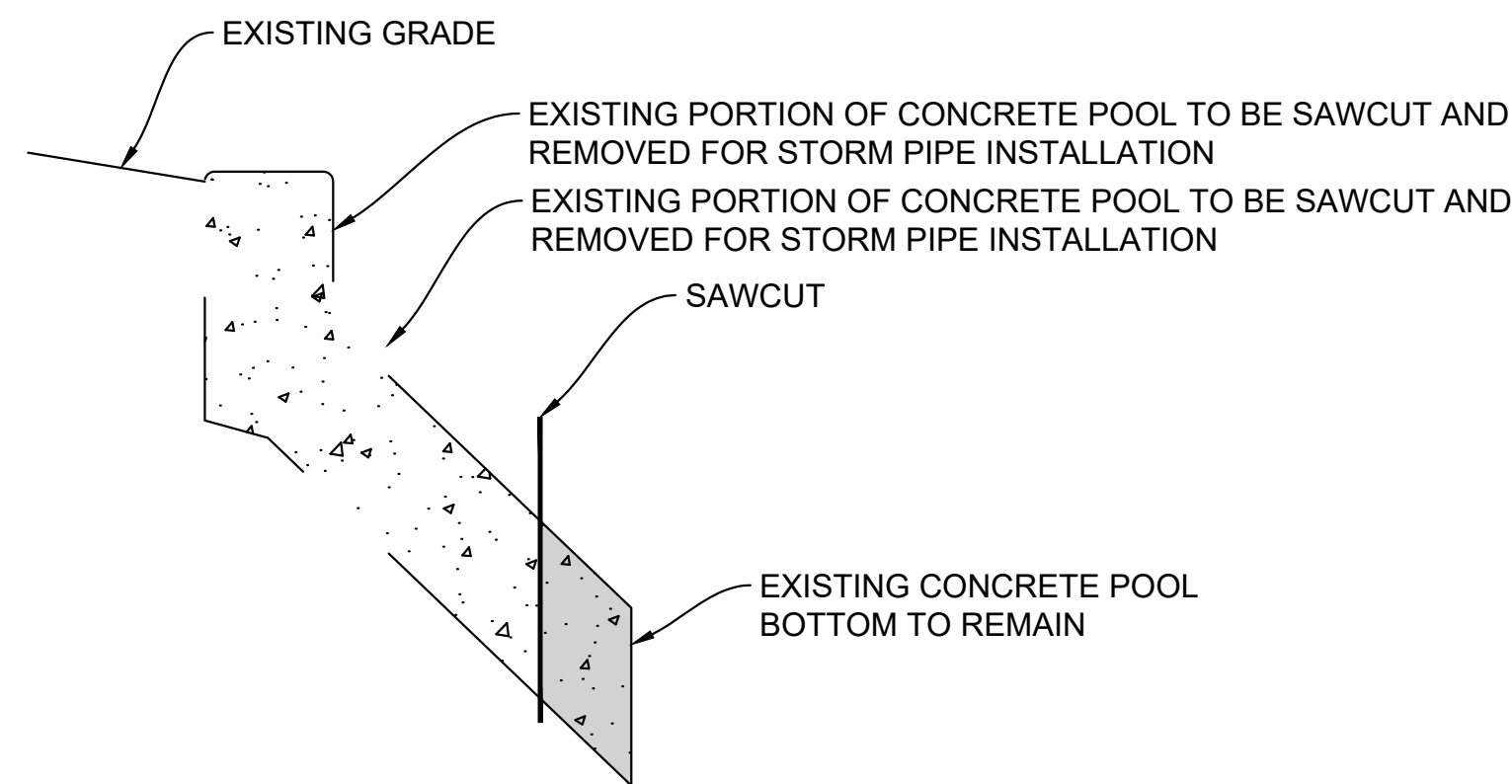
DEMOLITION KEY NOTES:

1 EXISTING CONCRETE CURB TO BE DEMOLISHED

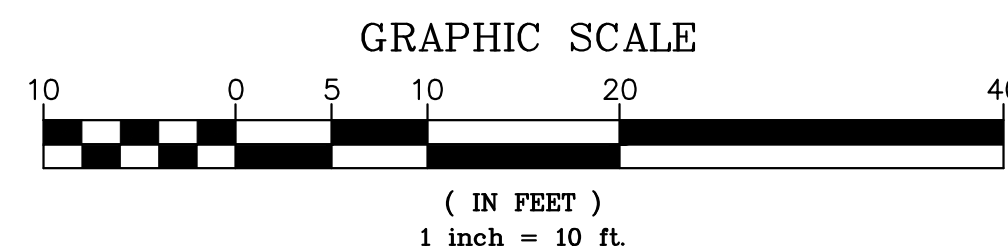
SEE SHEET C110 FOR YARD 1

SEE SHEET C112 FOR YARD 4 EAST

YARD 2 CONCRETE POOL DEMOLITION DETAILS



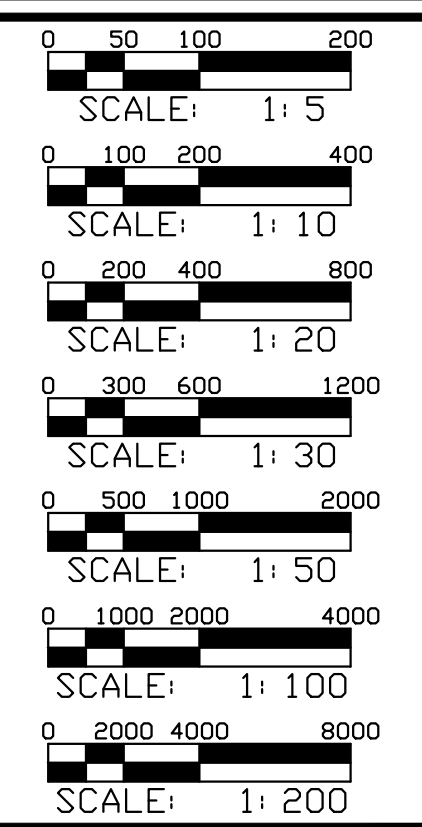
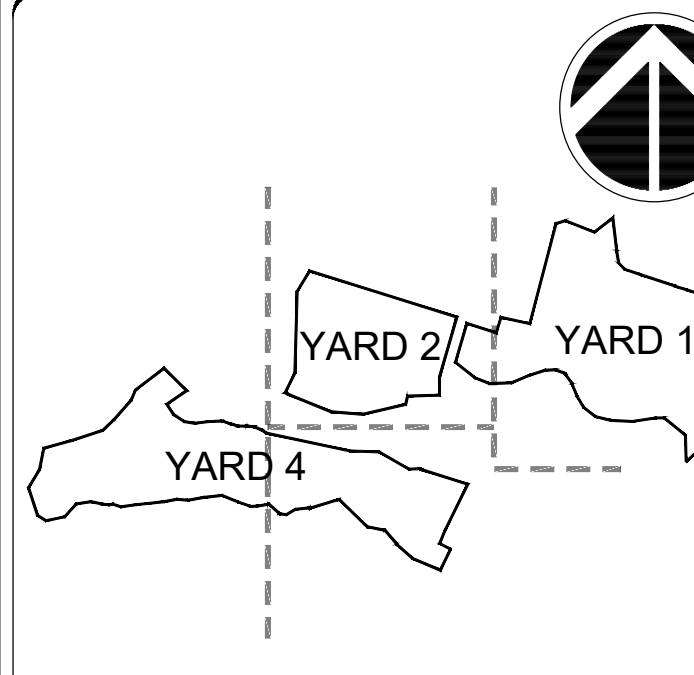
D2A CONC. POOL DEMO FOR STORM PIPE INSTALLATION
C11 NOT TO SCALE



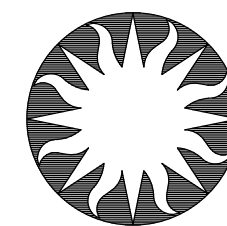
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PROJECT TITLE: MITIGATE STORMWATER AT
ELEPHANT YARDS
SF PROJECT NUMBER: 2233104
AVE PROJECT NUMBER: 20230426

DRAWING TITLE: DEMOLITION PLAN - YARD 2
DRAWING TYPE: CIVIL
WORKING STAFF: KJB JVM KJB
DESIGNED BY: KJB
DRAWN BY: JVB
CHECKED BY: KJB

SHEET NO. C 1 11
10 OF 39
DISCIPLINE TYPE SEQUENCE

DEMOLITION LEGEND:

EXISTING CONCRETE TO BE DEMOLISHED

LOD : LOD - LIMITS OF DISTURBANCE

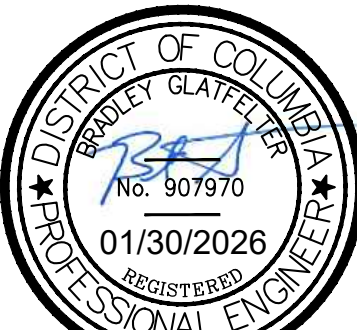
: TREE PROTECTION FENCING

NOTE: ALL EXISTING SITE FEATURES ARE TO REMAIN UNLESS NOTED OTHERWISE ON THESE PLANS

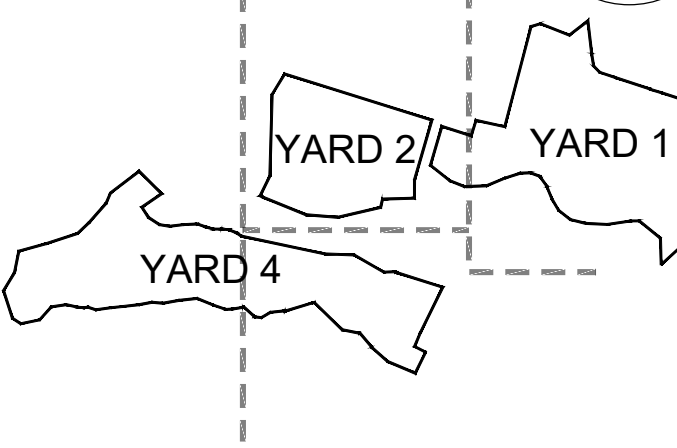
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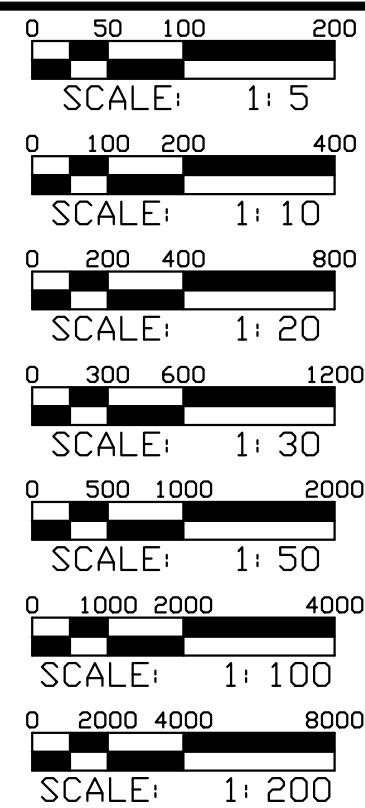
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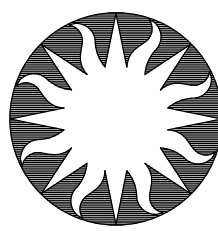


GRAPHIC SCALE(S)

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PROJECT TITLE
MITIGATE STORMWATER AT
ELEPHANT YARDS

SF PROJECT NUMBER
2233104

A/E PROJECT NUMBER
20230426

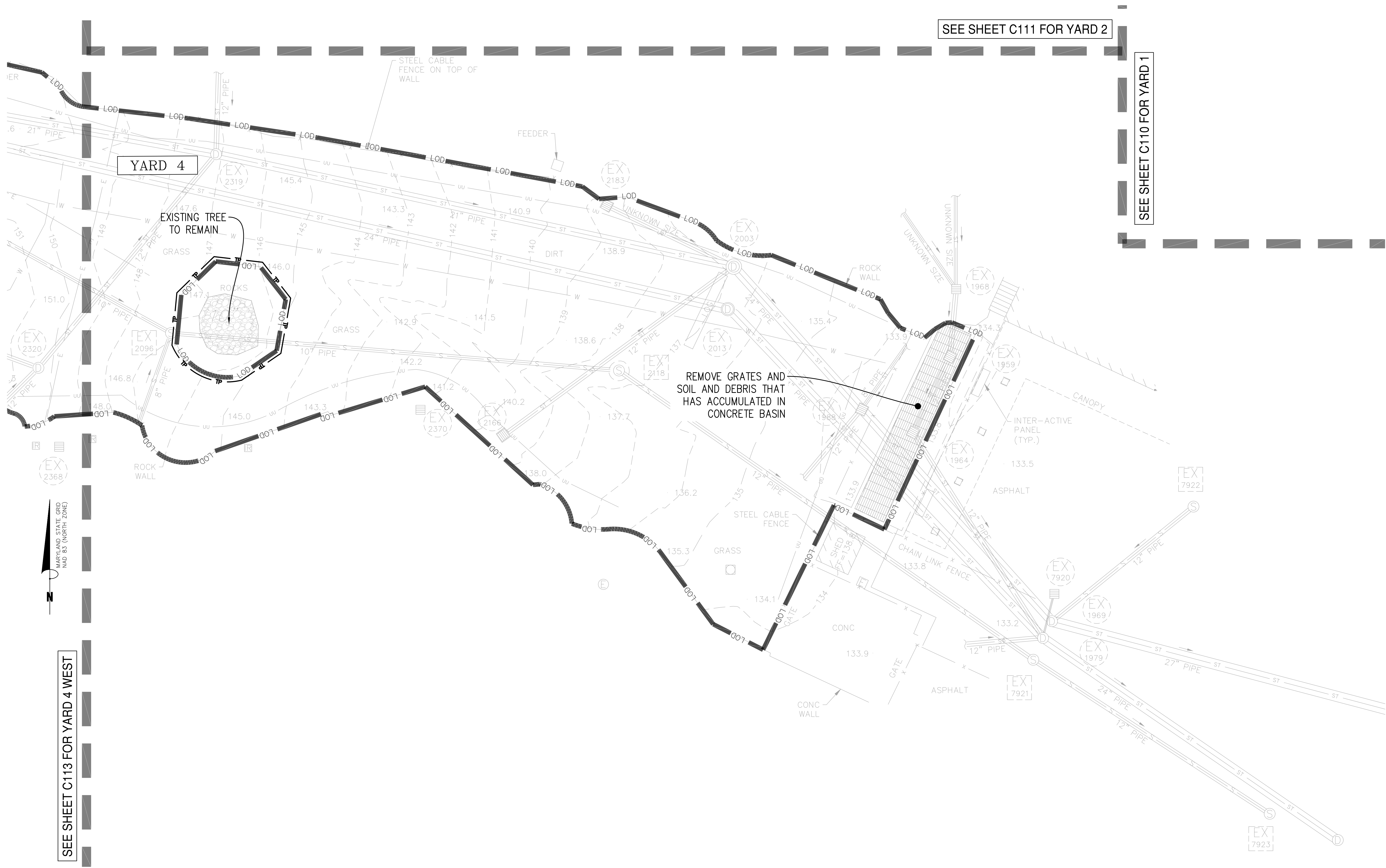
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DEMOLITION PLAN - YARD 4
EAST

DRAWING TYPE
CIVIL

WORKING STAFF
DESIGNED BY KJB DRAWN BY JVM CHECKED BY KJB

SHEET NO.
11 OF 39

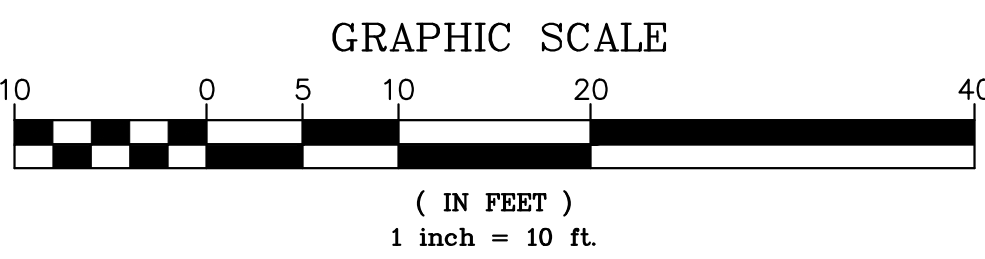
DISCIPLINE TYPE SEQUENCE
C 1 12



SEE SHEET C111 FOR YARD 2

SEE SHEET C110 FOR YARD 1

SEE SHEET C113 FOR YARD 4 WEST



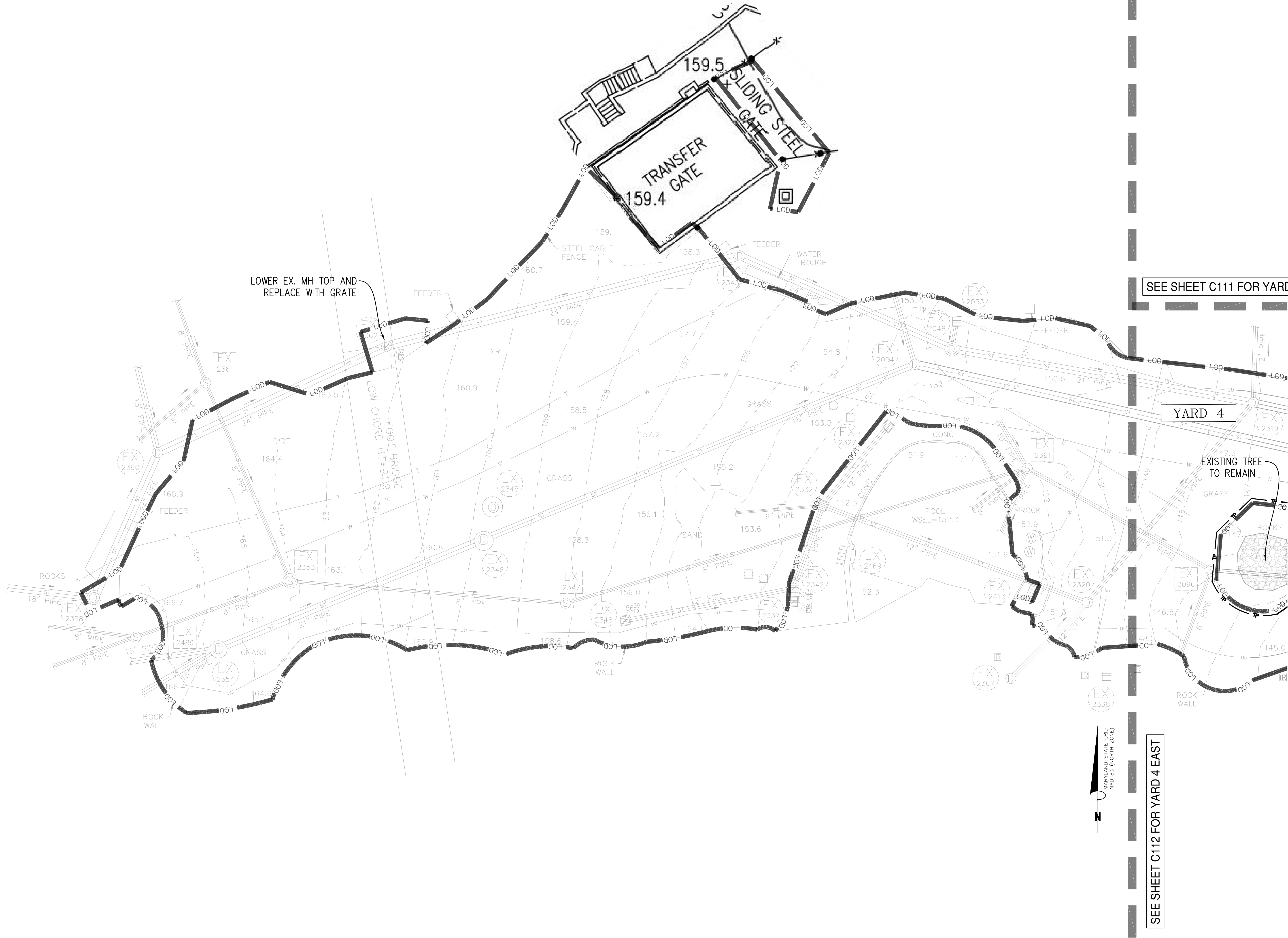
DEMOLITION LEGEND:

EXISTING CONCRETE TO BE DEMOLISHED

LOD - LIMITS OF DISTURBANCE

TREE PROTECTION FENCING

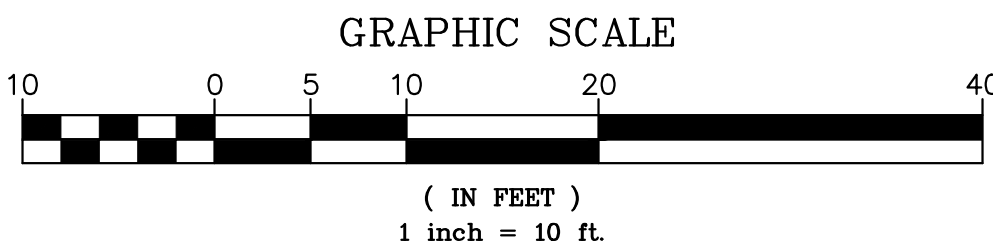
NOTE: ALL EXISTING SITE FEATURES ARE TO REMAIN UNLESS NOTED OTHERWISE ON THESE PLANS



SEE SHEET C111 FOR YARD 2

YARD 4

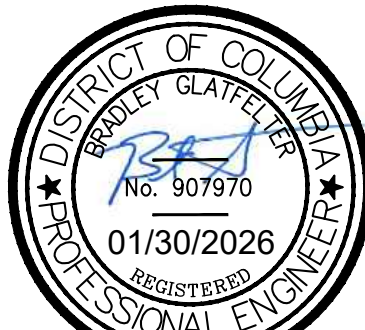
SEE SHEET C112 FOR YARD 4 EAST



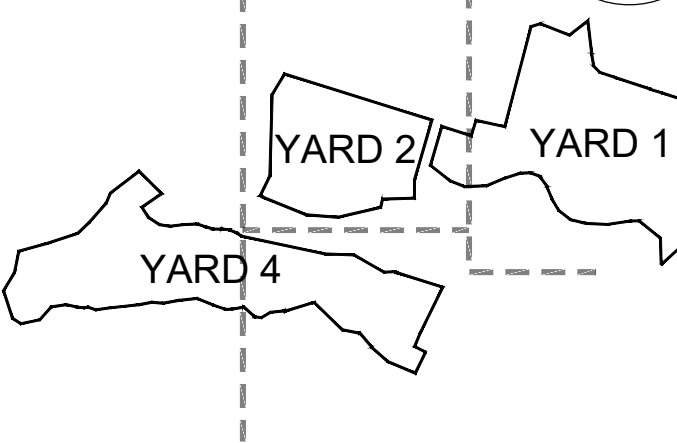
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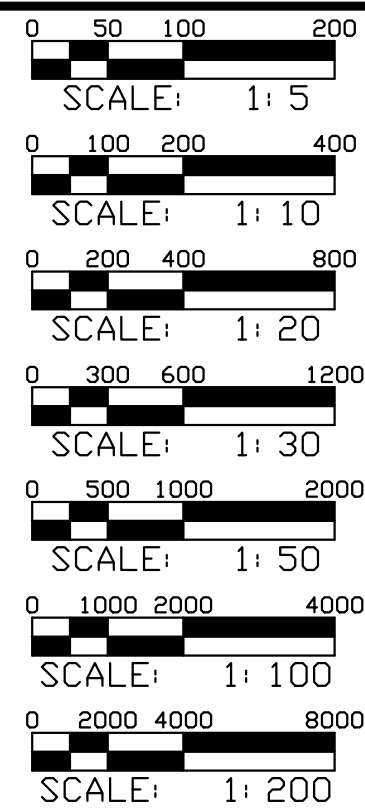
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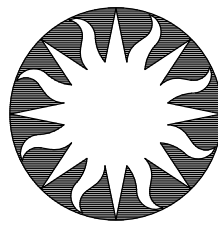


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PROJECT TITLE
MITIGATE STORMWATER AT
ELEPHANT YARDS

SF PROJECT NUMBER
2233104

A/E PROJECT NUMBER
20230426

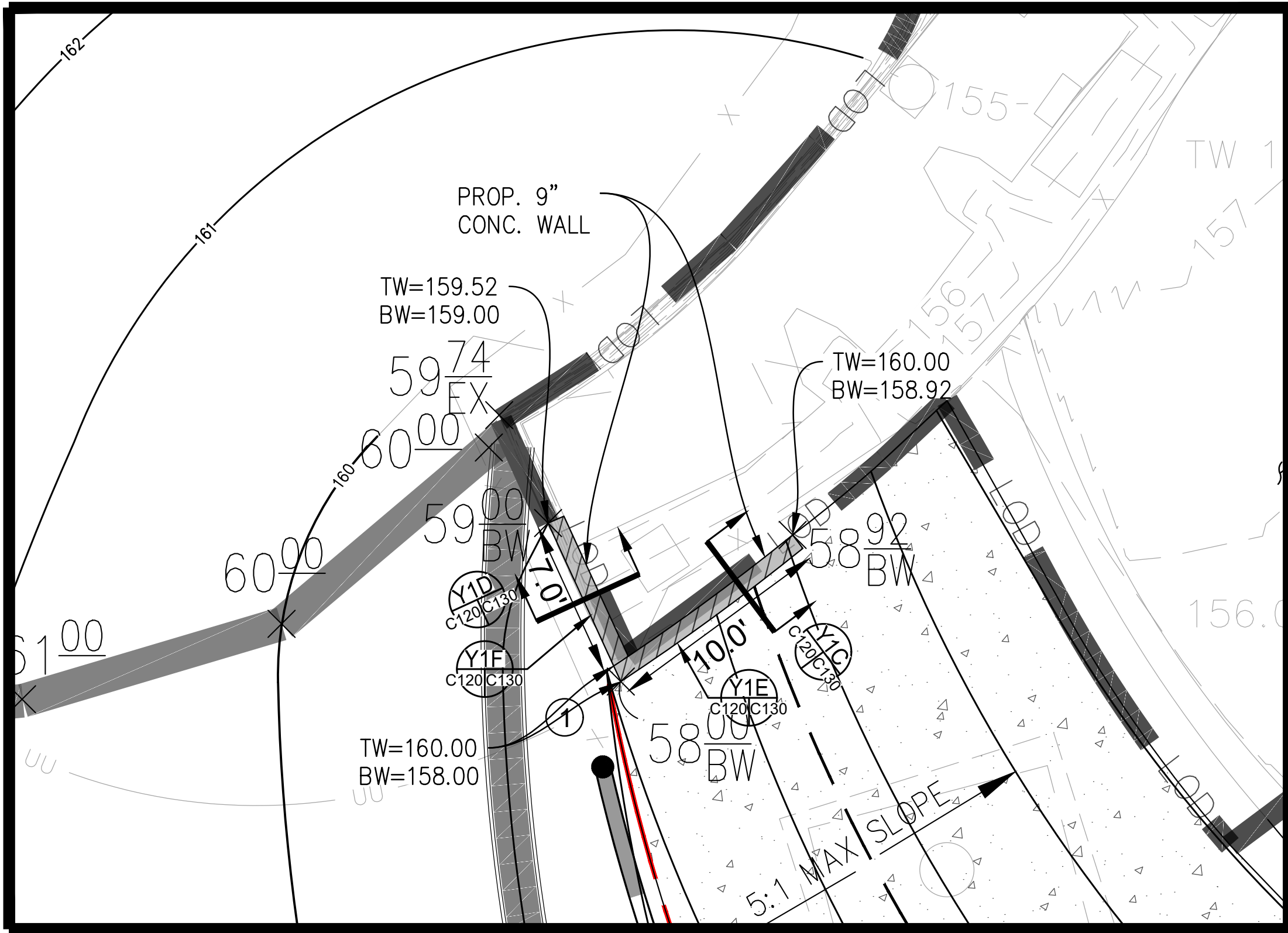
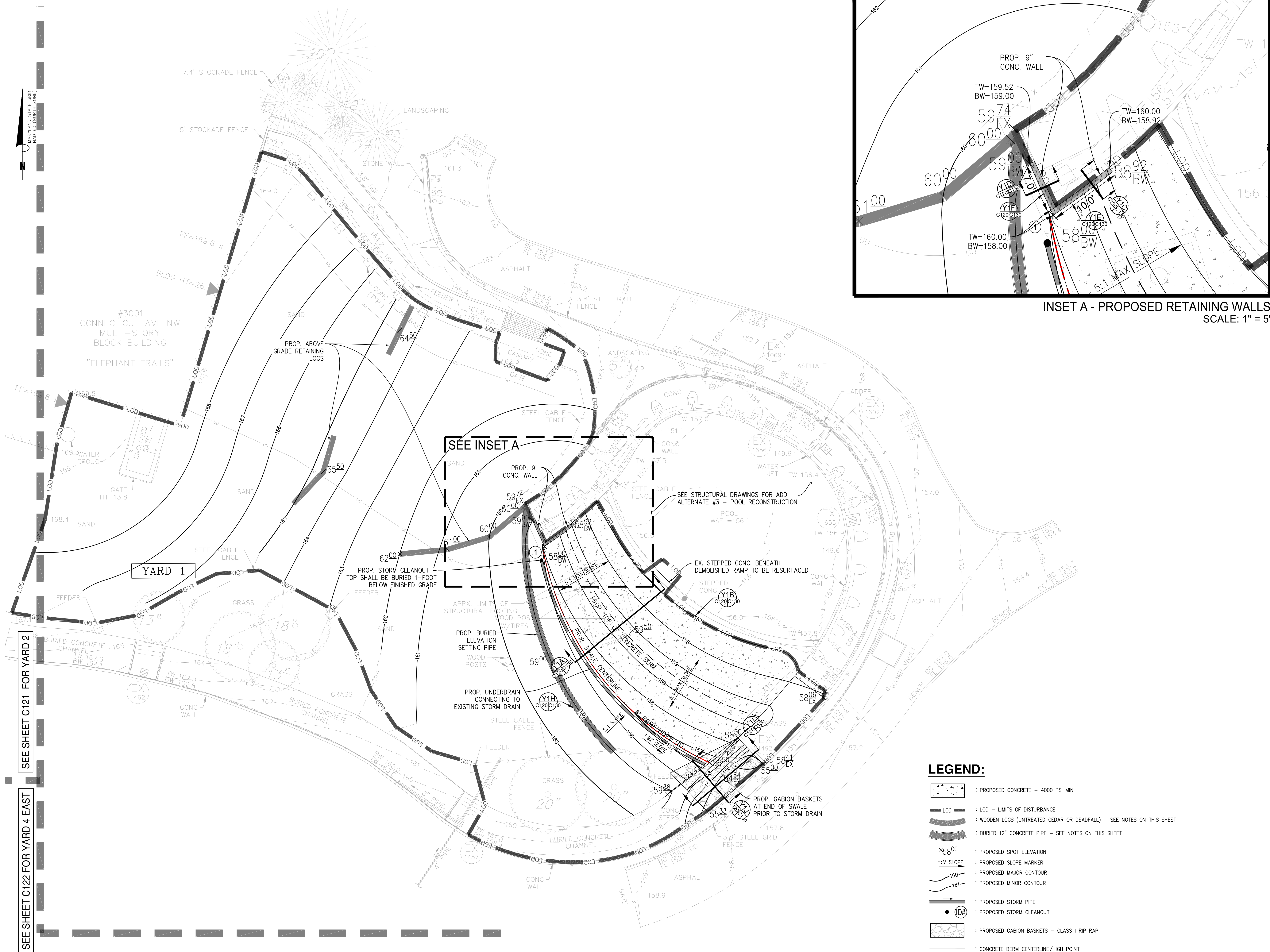
DRAWING TITLE
DEMOLITION PLAN - YARD 4
WEST

DRAWING TYPE
CIVIL

WORKING STAFF
DESIGNED BY KJB DRAWN BY JVM CHECKED BY KJB

SHEET NO.
12 OF 39

DISCIPLINE C TYPE 1 SEQUENCE 13



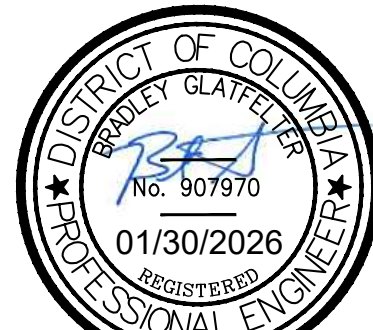
INSET A - PROPOSED RETAINING WALLS
SCALE: 1" = 5'

SITE PLAN NOTES
1. BURIED ELEVATION SETTING PIPES SHALL BE 12" REINFORCED CONCRETE PIPE W/FLOWABLE FILL
2. ABOVE-GRADE LOGS SHALL BE 16"-20" DEADFALL - SEE LS501 FOR DETAILS

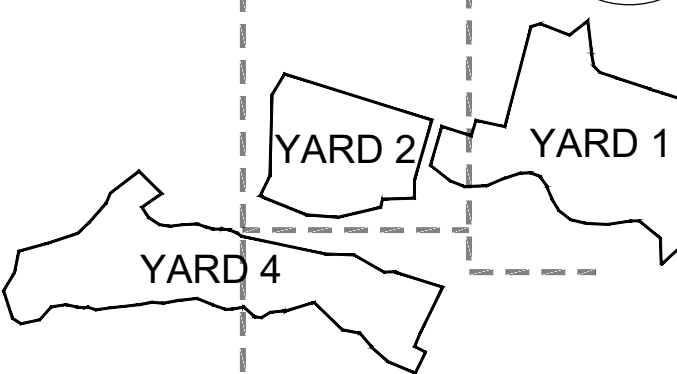
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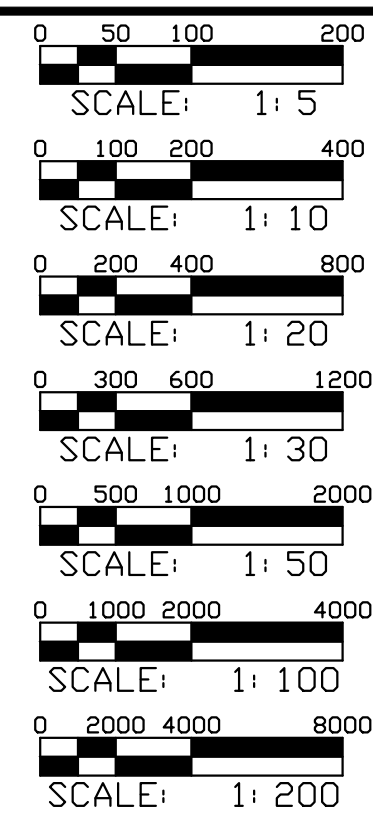
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KEY PLAN & SECTION



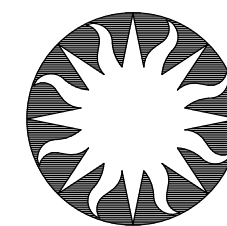
GRAPHIC SCALE(S)

DATE
01/30/2026

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Smithsonian Facilities
600 Maryland Avenue S.W. Suite 5001
Washington, DC 20024

ADDRESS
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3001 CONNECTICUT AVE NW
WASHINGTON, DC 20008

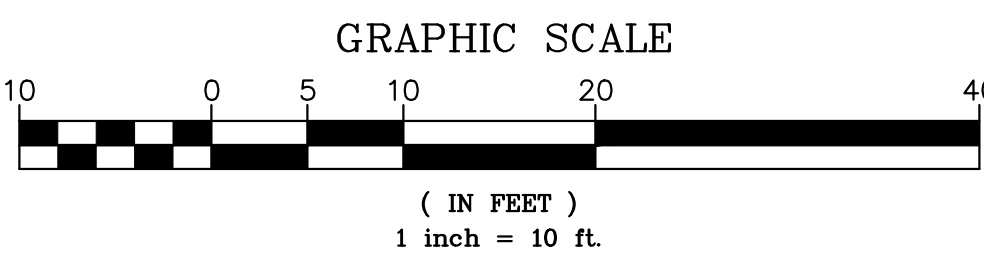
PROJECT TITLE
MITIGATE STORMWATER AT
ELEPHANT YARDS
SF PROJECT NUMBER
2233104
AVE PROJECT NUMBER
20230426

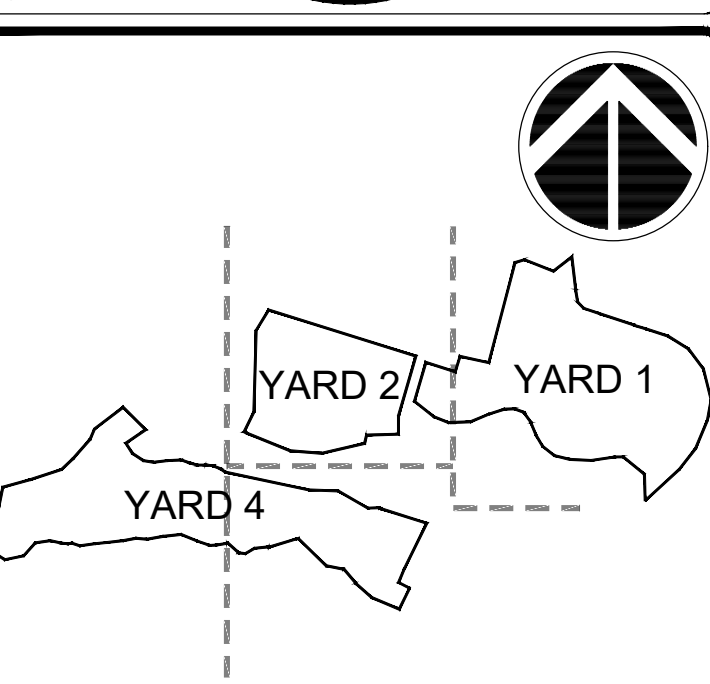
DRAWING TITLE
SITE & GRADING PLAN -
YARD 1
DRAWING TYPE
CIVIL
WORKING STAFF
KJB JWM KJB
DESIGNED BY
DRAWN BY
CHECKED BY

SHEET NO.
13 OF 39
DISCIPLINE
TYPE
SEQUENCE

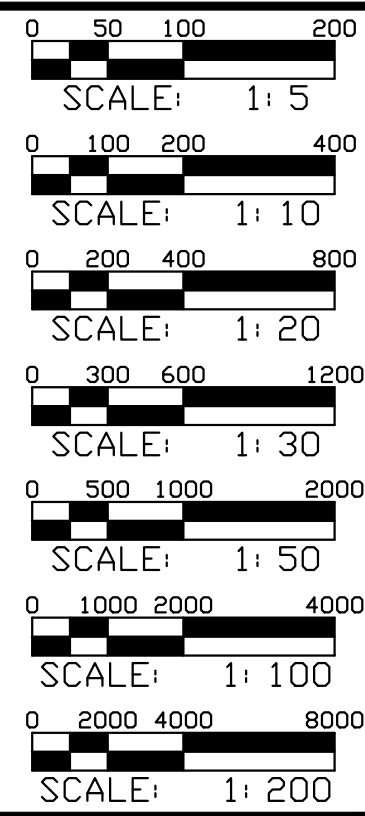
LEGEND:

- PROPOSED CONCRETE - 4000 PSI MIN
- LOD - LIMITS OF DISTURBANCE
- WOODEN LOGS (UNTREATED CEDAR OR DEADFALL) - SEE NOTES ON THIS SHEET
- BURIED 12" CONCRETE PIPE - SEE NOTES ON THIS SHEET
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE MARKER
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM PIPE
- PROPOSED STORM CLEANOUT
- PROPOSED GABION BASKETS - CLASS 1 RIP RAP
- CONCRETE BERM CENTERLINE/HIGH POINT
- CONCRETE SWALE CENTERLINE
- PROPOSED RETAINING WALL





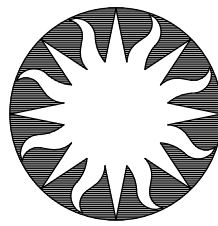
KEY PLAN & SECTION



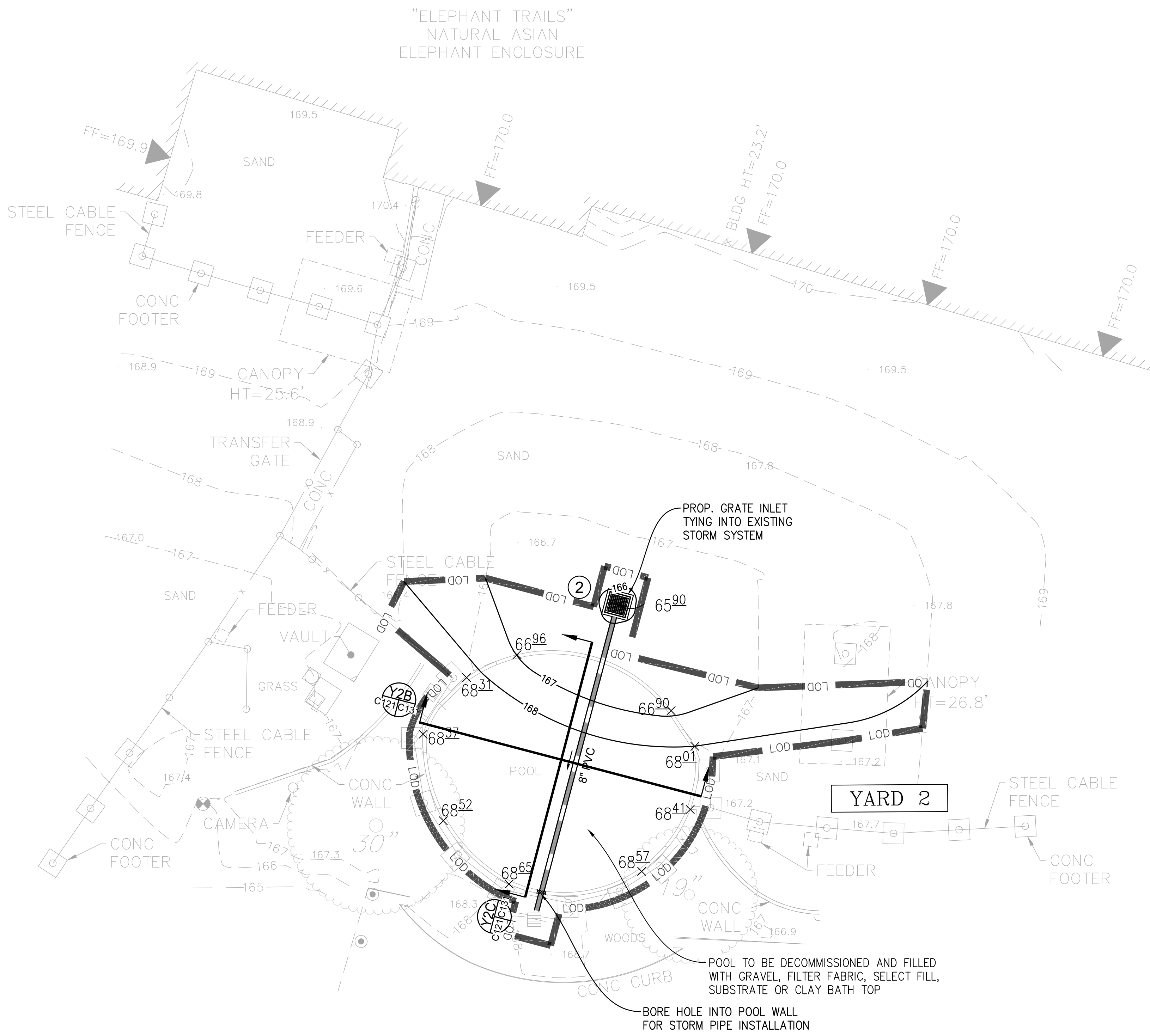
GRAPHIC SCALE(S)

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600 Maryland Avenue S.W. Suite 5001
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3001 CONNECTICUT AVE NW
WASHINGTON, DC 20008PROJECT TITLE
MITIGATE STORMWATER AT
ELEPHANT YARDSSF PROJECT NUMBER
2233104A/E PROJECT NUMBER
20230426DRAWING TITLE
SITE & GRADING PLAN -
YARD 2DRAWING TYPE
CIVILWORKING STAFF
DESIGNED BY KJB DRAWN BY JWM CHECKED BY KJBSHEET NO.
14 OF 39C 1 21
DISCIPLINE TYPE SEQUENCE

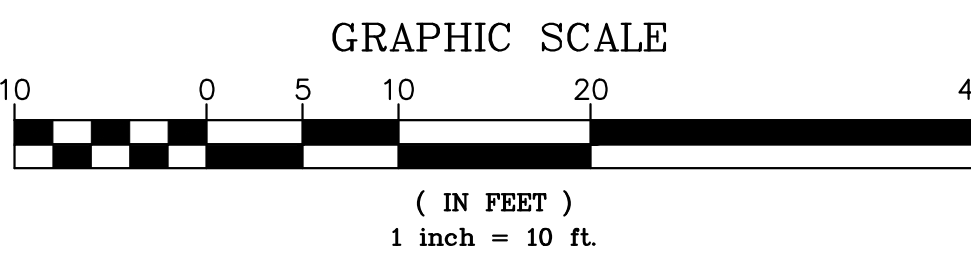
SEE SHEET C123 FOR YARD 4 WEST



SEE SHEET C122 FOR YARD 4 EAST

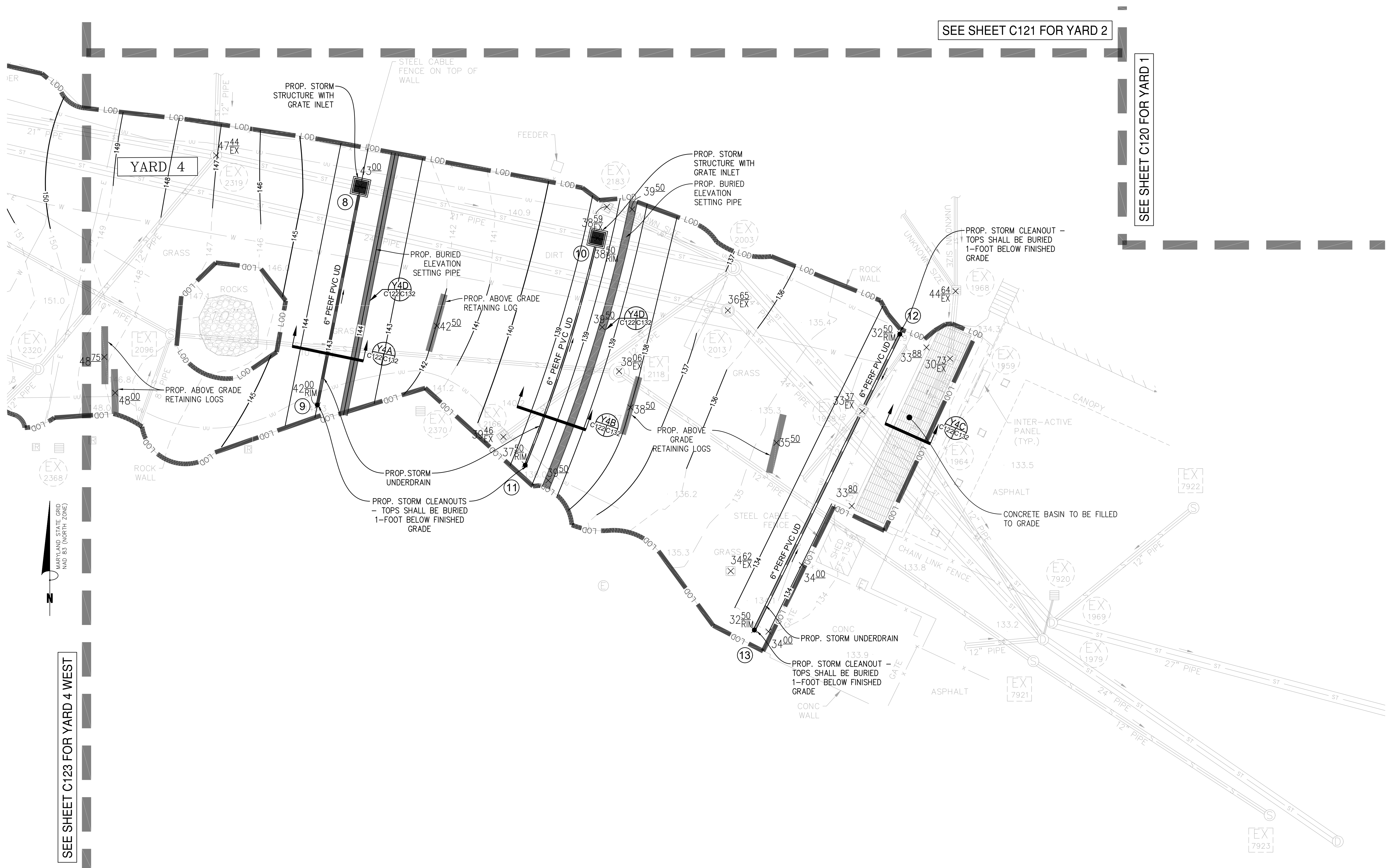
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- LOD - LOD - LIMITS OF DISTURBANCE
- X5800 - PROPOSED SPOT ELEVATION
- 160 - PROPOSED MAJOR CONTOUR
- 161 - PROPOSED MINOR CONTOUR
- PROPOSED STORM PIPE
- ID# - PROPOSED 28" X 28" STORM GRATE INLET



LEGEND:

- LOD : LOD - LIMITS OF DISTURBANCE
- WOODEN LOGS (UNTREATED CEDAR OR DEADFALL) - SEE NOTES
- BURIED 12" CONCRETE PIPE - SEE NOTES ON THIS SHEET
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE MARKER
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM PIPE
- PROPOSED STORM CLEANOUT
- PROPOSED 28" X 28" STORM GRATE INLET



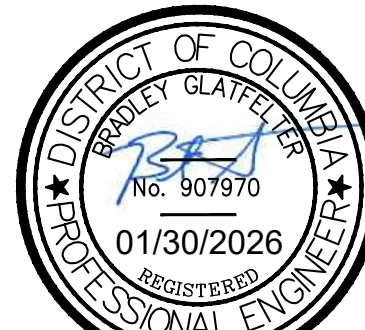
SITE PLAN NOTES

- BURIED ELEVATION SETTING PIPES SHALL BE 12" REINFORCED CONCRETE PIPE W/FLOWABLE FILL
- ABOVE-GRADE LOGS SHALL BE 16"-20" DEADFALL - SEE LS501 FOR DETAILS

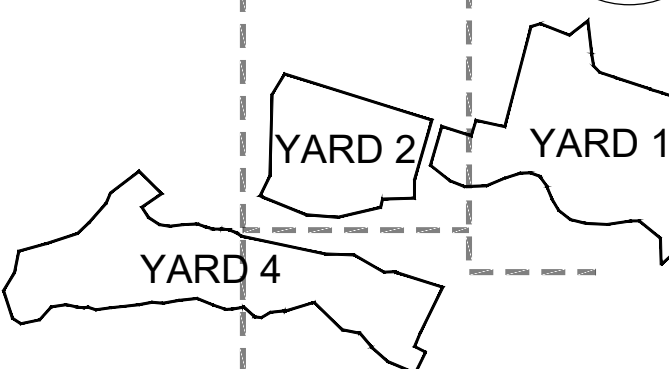
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100 North 6th Street
Philadelphia, PA 19106-1590
Tel: 215-923-2020 Fax: 215-574-0952

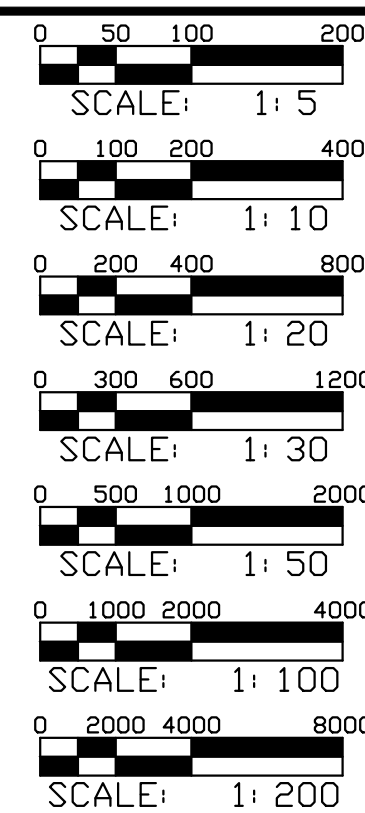
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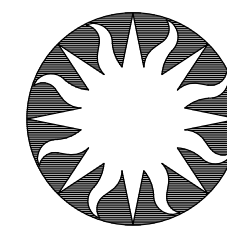
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ELEPHANT YARDS

2233104
20230426

DRAWING TITLE
SITE & GRADING PLAN -
YARD 4 EAST

CIVIL
KJB JVM KJB
DESIGNED BY DRAWN BY CHECKED BY

SHEET NO.
15 OF 39

C 1 22
DISCIPLINE TYPE SEQUENCE

