

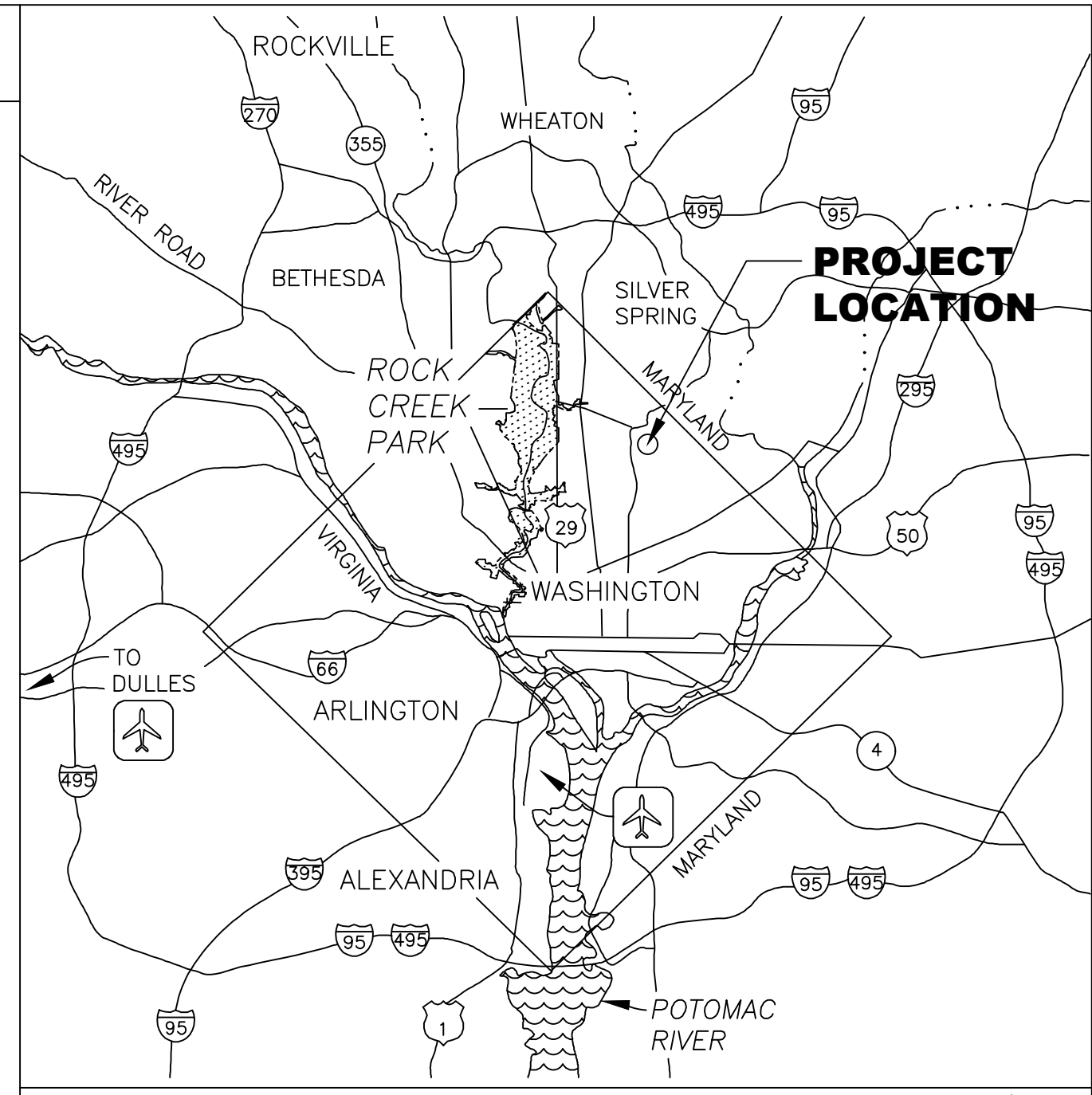
ROCK CREEK PARK

IMPROVE & FORMALIZE FORT TOTTEN TRAIL

LEGEND

- PARK BOUNDARY
- - - STATE LINE
- ... CREEK
- HQ. PARK HEADQUARTERS
- AIRPORT
- INFORMATION CENTER
- PARKING
- AMPHITHEATER
- MAINTENANCE YARD

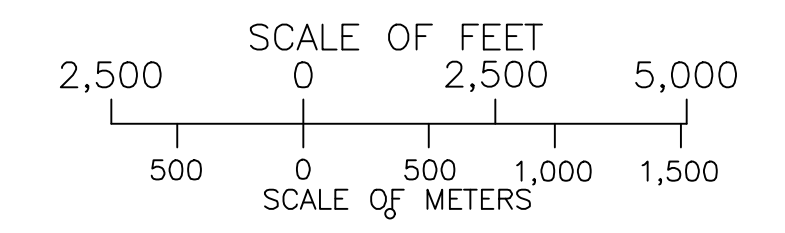
- GENERAL NOTES**
- ALL ARCHITECTURAL & ENGINEERING WORK SHALL CONFORM TO THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) & FAMILY OF INTERNATIONAL CODES. WORK SHALL CONFORM TO THE LIFE SAFETY CODE.
 - ALL NEW WORK SHALL COMPLY WITH ADAABAAG, THE AMERICANS WITH DISABILITIES ACT (ADA 28 CFR PART 36) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES; ARCHITECTURAL BARRIERS ACT (ABA) ACCESSIBILITY GUIDELINES WHERE APPLICABLE.
 - NOTIFY THE CONTRACTING OFFICER / CONTRACT SPECIALIST / CONTRACTING OFFICER'S REPRESENTATIVE (CO/CS/COR) A MINIMUM OF 72 HOURS IN ADVANCE OF BORING, DIGGING OR ANY GROUND DISTURBING ACTIVITIES. A NPS ARCHEOLOGIST AND/OR CULTURAL RESOURCE MANAGER MAY BE INVOLVED TO OBSERVE WORK IN PROGRESS.
 - UTILITY MARKING: NOTIFY MISS UTILITY OR OTHER QUALIFIED UTILITY LOCATING SERVICE 48 HOURS PRIOR TO COMMENCEMENT OF ON-SITE WORK. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONTACTING MISS UTILITY OR PRIVATE UTILITY LOCATING SERVICE, IN ADVANCE, FOR MARKING OF ALL UNDERGROUND UTILITIES WITHIN WORK ZONES WHERE DIGGING, TEST PITS, PROBES, ETC. ARE ANTICIPATED. 1-800-252-7777 OR 811. THE UTILITY INFORMATION IS NOT TO BE RELIED ON AS EITHER EXACT OR COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING UNDERGROUND UTILITIES MARKED AT LEAST 48 HOURS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES AND THE CONTRACTOR SHALL CONDUCT ALL NECESSARY REPAIRS AT NO ADDITIONAL COST TO THE GOVERNMENT. IF, DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE CO/CS/COR AND TAKE PROPER STEPS TO PROTECT THE UTILITY AND ASSURE THE CONTINUANCE OF SERVICE.
 - ALL WORK SHALL BE IN ACCORDANCE WITH STANDARD OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) GUIDELINES AND REGULATIONS.
 - IN COORDINATION WITH NPS AND NPS' ANOMALY AVOIDANCE SUPPORT CONTRACTOR, CONSTRUCTION CONTRACTOR IS REQUIRED TO MONITOR THE SITE FOR EXPLOSIVES OF CONCERN (MEC)/ UNEXPLODED ORDNANCE (UXO) DURING CONSTRUCTION ACTIVITIES WITHIN THE PROJECT SITE.
 - THE D.C. DEPARTMENT OF ENVIRONMENT AND ENERGY (DOEE)- EROSION AND SEDIMENT CONTROL PERMIT IS APPROVED. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES FOR TRADE PERMITS, DDT PERMIT FEES FOR STEEL PLATES IN THE ROADWAY, DUMPSTER PERMIT FEES, TEMPORARY UTILITY CONNECTION FEES, INSPECTION FEES AND OTHER PERMITS AND FEES REQUIRED FOR WORK UNDER THIS CONTRACT FROM THE D.C. AUTHORITIES HAVING JURISDICTION.
 - HOT WORK SHALL ONLY BE PERFORMED IN DESIGNATED OR PERMIT-REQUIRED AREAS. BEFORE ANY HOT WORK OPERATION BEGINS, AN APPROVED HOT WORK PERMIT MUST BE ISSUED BY THE PARK STRUCTURAL FIRE COORDINATOR (PSFC), OR ASSIGNED PERMIT AUTHORIZING INDIVIDUAL (PAI). THE PAI SHALL BE A PARK NPS EMPLOYEE, PROPERLY TRAINED IN ISSUING HOT WORK PERMITS; FOR EXAMPLE, A FACILITY MANAGER, SAFETY MANAGER, OR SUPERVISOR. ALL HOT WORK PERMITS ARE WRITTEN FOR ONE DAY AT A TIME; THEY MUST BE ISSUED THE DAY OF THE HOT WORK OPERATION AND DISPLAYED ON THE WORK SITE.



WASHINGTON, D.C. SCALE OF MILES

DRAWING INDEX

SHEET NO.	DRAWING NO.	TITLE OF SHEET
1.	C-1	COVER SHEET
CIVIL		
2.	C-2	LEGEND AND NOTES
3.	C-3	EXISTING CONDITION, DEMOLITION, EROSION AND SEDIMENT CONTROL PHASE I PLAN
4.	C-4	EROSION AND SEDIMENT CONTROL PHASE II PLAN
5.	C-5	SITE LAYOUT PLAN
6.	C-6	TYPICAL SECTIONS
7.	C-7	PROPOSED TRAIL CENTERLINE PROFILE
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9.	C-9	DETAILS SHEET - 1
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12.	C-12	BMP-SWM PLANS AND NARRATIVE
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15.	C-15	PERMEABLE PAVEMENT CONSTRUCTION & MAINTENANCE CHECKLISTS
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17.	C-17	CROSS SECTION SHEET - 1
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22.	L-1	LANDSCAPE PLAN AND TREE MITIGATION - 1
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27.	L-6	LANDSCAPE PLAN AND TREE MITIGATION - 6



PMIS NO.: 226805B
DRAWING NO.: ROCR 821 136939

A/E Firm	Mark	Sheet	REVISION	Date	Initial
AECOM 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900					

QUALITY DESIGN CERTIFICATION

Prepared in Accordance with Design Development (Title I) Drawing No. _____

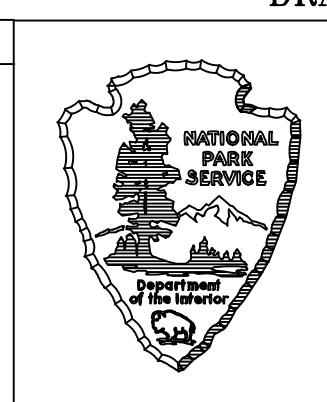
OR

Variance from Design Development (Title I) Approved by Superintendent on _____ Date _____

OR

Construction Drawing Not Preceded by Design Development (Title I)

Project Manager _____ Date _____



70% SUBMITTAL

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

TITLE OF DRAWING
COVER SHEET

LOCATION WITHIN PARK
GALLOWAY ST. & GALLATIN ST., NE

NAME OF PARK
ROCK CREEK PARK

REGION
NAT'L CAPITAL

STATE
WASHINGTON, D.C.

DRAWING NO.
C-1

PKG. NO. _____

SHEET
1

OF 27

ABBREVIATION LIST

ABDN	ABANDONED	FC	FIELD CONNECTION	R =	RADIUS
AC	ACRE	FDI	FOUNDATION DRAIN INVERT	RCP	REINFORCED CONCRETE PIPE
AGG	AGGREGATE	FND	FOUNDATION	RD	ROOF DRAIN
ARCH	ARCHITECTURAL	FF	FINISHED FLOOR	REV	REVISION
		FH	FIRE HYDRANT	RL	REMOVAL LIMITS
		FIN	FINISHED	ROW	RIGHT OF WAY
B & B	BALL & BURLAP	FPS	FEET PER SECOND	S	SOUTH
BRL	BUILDING RESTRICTION LINE	FS	FIRE SERVICE	SAN	SANITARY
BIT	BITUMINOUS	FT	FEET	SC	SIAMASE CONNECTION
BM	BENCH MARK	G	NATURAL GAS	SEW	SEWER
		GAL	GALLON	SF	SQUARE FOOT/FEET
C&G	CURB AND GUTTER	GM	GAS METER	SHT	SHEET
C&P	CHESAPEAKE AND POTOMAC TELEPHONE	GPM	GALLONS PER MINUTE	SPEC	SPECIFICATION
CA	CONCRETE ANCHOR	HB	HORIZONTAL BEND	SPK	SPRINKLER
CAP	CAPACITY	HC	HANDICAP	STA	STATION
CFS	CUBIC FEET PER SECOND	HDP	HIGH DENSITY POLYETHYLENE	STD	STANDARD
CL	CENTER LINE/CLASS	INV	INVERT	STM	STORM
CLF	CHAIN LINK FENCE	IPF	IRON PIPE FOUND	S/W	SIDEWALK
CO	CLEAN OUT	L	LENGTH	TELE	TELEPHONE
CONC	CONCRETE	LAT	LATERAL	TH	TEST HOLE
CT	CURB TRANSITION	LP	LOW POINT/LIGHT POLE	TW	TOP OF WALL
		LS	LOADING SPACE	TYP	TYPICAL
D	DIESEL	MAX	MAXIMUM	UFT	UNDERGROUND FUEL TANK
DIP	DUCTILE IRON PIPE	MECH	MECHANICAL	UE	UNDERGROUND ELECTRIC
DOM	DOMESTIC	MEG	MATCH EXISTING GRADE	UP	UNDERGROUND POWER
DRN	DRAIN	MH	MANHOLE	UT	UNDERGROUND TELEPHONE
DS	DOWN SPOUT	MIN	MINIMUM		
		MON	MONUMENT		
E	EAST	N	NORTH	VC	VERTICAL CURVE
ELEC	ELECTRIC	NP	NO PARKING	VENT	VENT PIPE
ELEV	ELEVATION	OC	ON CENTER	W	WATER
EP	EDGE OF PAVEMENT	OP	OVERHEAD POWER	W/	WITH
ESMT	EASEMENT	PVC	POLYVINYL CHLORIDE	WL	WATER LINE
EW	ENDWALL	PVMT	PAVEMENT	WM	WATER MAIN
EX	EXISTING	PROW	PUBLIC RIGHT OF WAY		
EXP	EXPOSED				

OWNER REPRESENTATIVE

NATIONAL PARK SERVICE – NATIONAL CAPITAL REGION

1100 OHIO DRIVE SW,
WASHINGTON DC 20024–2001

CIVIL ENGINEER

AECOM

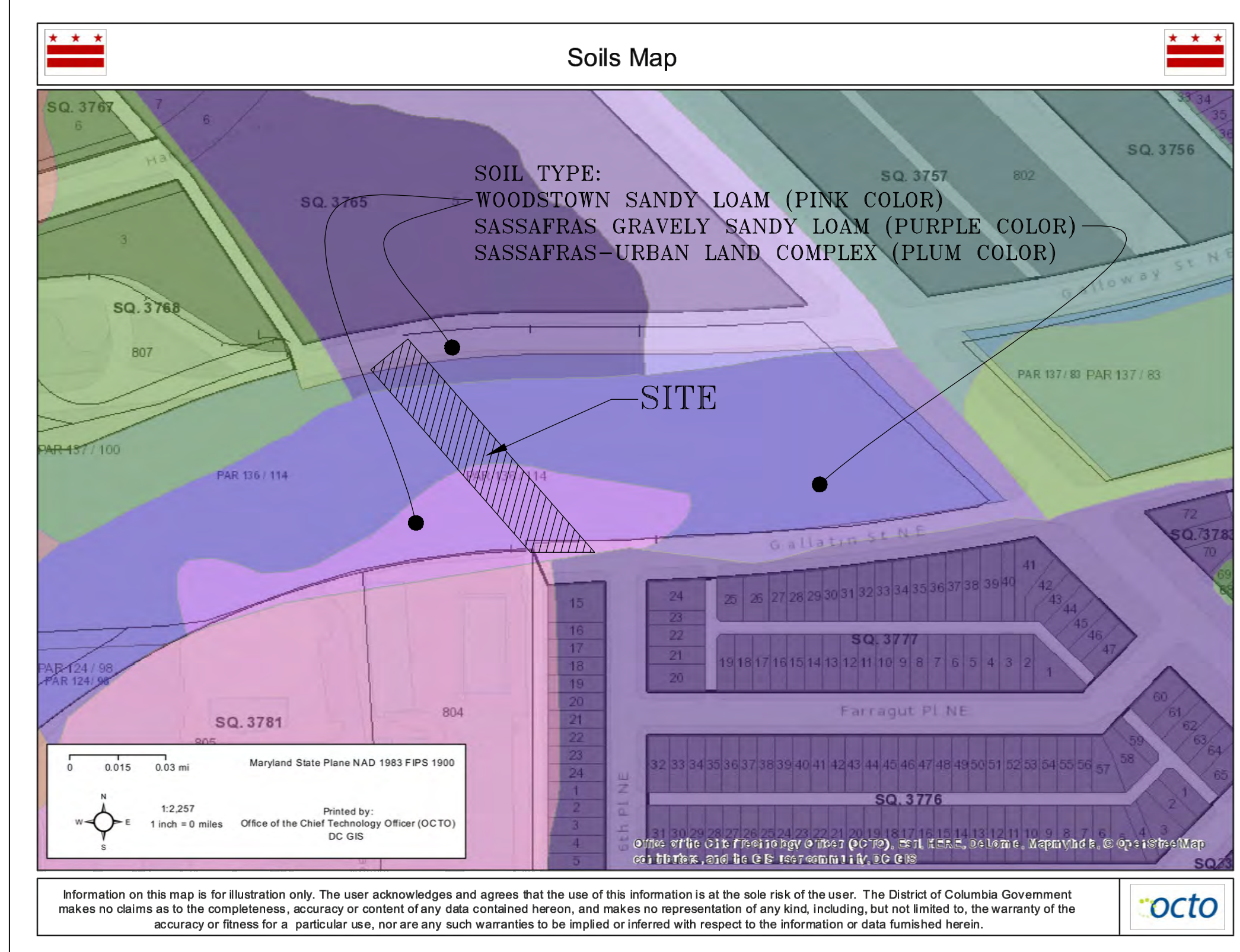
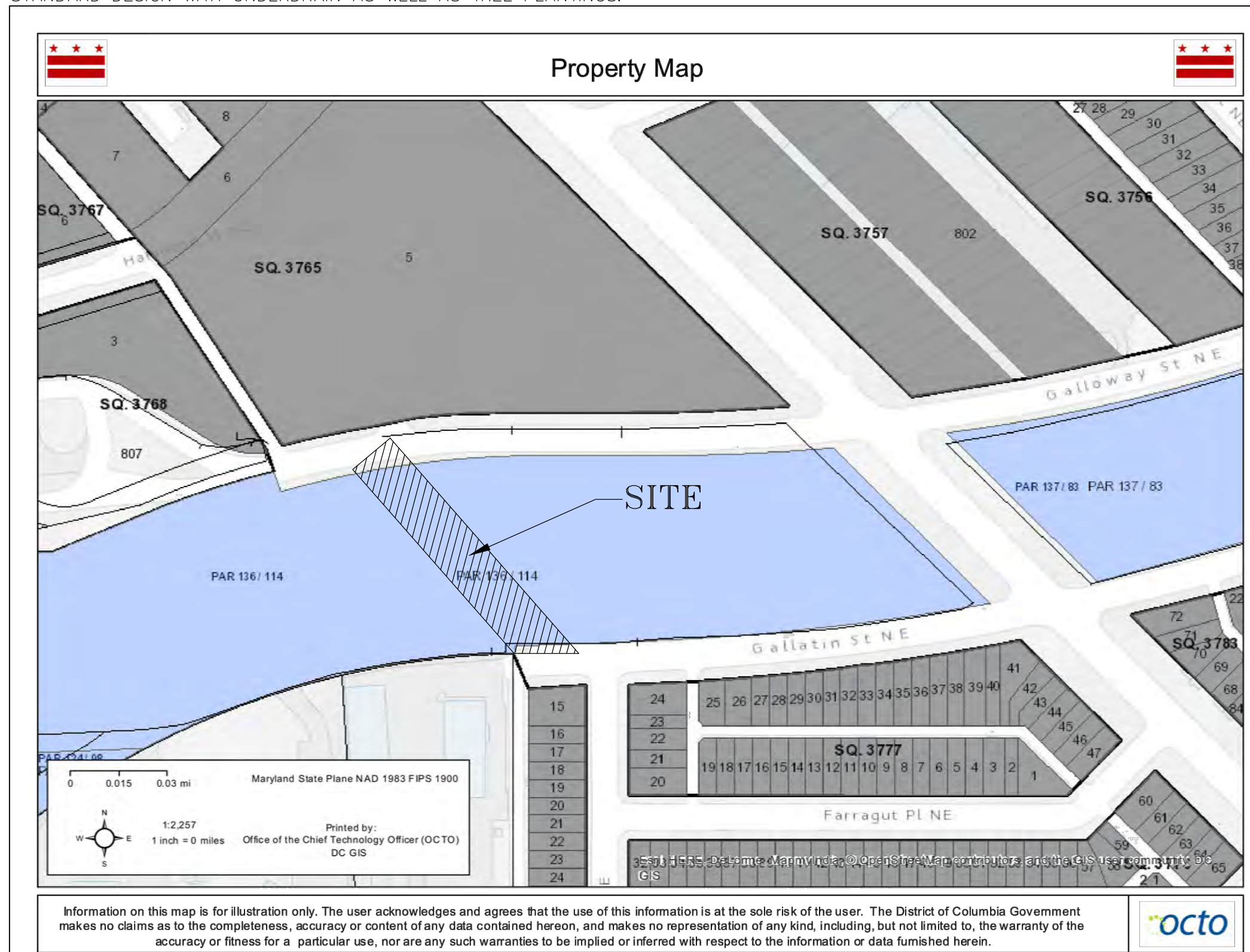
SAMEER SHUKLA
CIVIL TEAM LEADER
3101 WILSON BLVD, SUITE 900
ARLINGTON, VA 22201 USA
PHONE: 703–340–3100
SAMEER.SHUKLA@AECOM.COM

GENERAL SURVEY NOTES:

- THE INFORMATION SHOWN RESULTS FROM A FIELD SURVEY BY WILES-MENSCH, LAST DATE OF FIELD SURVEY DECEMBER 14, 2022.
- NO TITLE REPORT FURNISHED, EASEMENTS AND/OR OTHER ENCUMBRANCES OF RECORD MAY EXIST AND ARE NOT SHOWN HEREON.
- AS OF DECEMBER 14, 2022, PARCEL 136/114 IS IN THE NAME OF THE UNITED STATES OF AMERICA.
- ELEVATIONS SHOWN ARE REFERENCED TO WMATA DATUM, MERIDIAN REFERENCED TO WMATA.
- PROPERTY IS IDENTIFIED AS ZONE X – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS IDENTIFIED ON FIRM COMMUNITY PANEL 1100010030C, PANEL NOT PRINTED, EFFECTIVE DATE SEPTEMBER 27, 2010.
- AS OF DECEMBER 14, 2022, THE PROPERTY IS ZONED RA-1 AS DELINEATED ON THE ZONING MAP FROM DISTRICT OF COLUMBIA'S OFFICE OF ZONING (<http://maps.dcoz.dc.gov/zr16>); MINIMUM BUILDING SETBACK, MAXIMUM PERMITTED FLOOR AREA RATIOS, AND MAXIMUM BUILDING HEIGHTS ARE BASED UPON INTERPRETATIONS OF THE PROPOSED USE BY THE DISTRICT OF COLUMBIA ZONING OFFICE.
- ALL OF THE SURVEYED PROPERTY IS WITHIN THE 300 FOOT WMATA METRO RAIL LINE BUFFER (GREEN LINE).

PROJECT NARRATIVE

THIS PROPERTY IS LOCATED IN FORT TOTTEN PARK, NE, WASHINGTON DC. THE TOTAL AMOUNT OF DISTURBANCE IS 10,838 SQUARE FEET OR 0.25 ACRES. THIS PROJECT IS FOR THE CONSTRUCTION OF A 215 FOOT–LONG, 10–FOOT WIDE PERMEABLE PAVEMENT TRAIL AND 205 FOOT– LONG, 10–FOOT IMPERMEABLE PAVEMENT TRAIL BETWEEN GALLOWAY STREET AND GALLATIN STREET WITH ASSOCIATED UTILITIES (SITE LIGHTING AND STORM PIPE) AND ASSOCIATED LANDSCAPING ADJACENT TO EXISTING COMPACTED DIRT PATH (SEE NOTE 4 ON SUB–SHEET C–4, SHEET 4). SINCE THE TOTAL AMOUNT OF DISTURBANCE IS GREATER THAN 5,000 SQUARE FEET WATER QUANTITY AND WATER QUALITY CONTROLS WILL BE EMPLOYED. WATER QUALITY AND QUANTITY CONTROL WILL BE PROVIDED BY PERMEABLE PAVEMENT TRAIL WITH STANDARD DESIGN WITH UNDERDRAIN AS WELL AS TREE PLANTINGS.



NOTES:

- THE CONTRACTOR IS TO DO THE FOLLOWING:
 - CONTACT DOEE INSPECTION (202) 535–2977 TO SCHEDULE AT THE PRE–CONSTRUCTION MEETING AT LEAST (3) BUSINESS DAYS BEFORE THE COMMENCEMENT OF A LAND–DISTURBING ACTIVITY.
 - DC WATER CONSTRUCTION INSPECTION SECTION AT (202) 787–4024 AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF UTILITY CONSTRUCTION TO SCHEDULE PRE–CONSTRUCTION MEETING.
 - DC WATER DEPARTMENT OF WATER SERVICES AT (202) 612–3400 AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF WATER UTILITY CONSTRUCTION.
 - DC WATER DEPARTMENT OF SEWER SERVICES AT (202) 264–3862 OR 3873 AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF SEWER UTILITY CONSTRUCTION.
 - THE CONTRACTOR SHALL NOTIFY THE TRAFFIC SERVICES ADMINISTRATION PRIOR TO THE START OF WORK (202) 671–2700.
 - CONTRACTOR SHALL MAINTAIN TWO LANES OF TRAFFIC AT ALL TIMES ADVANCE WARNING SIGNS SHALL BE 43x48 FLORESCENT ORANGE WORK HOURS ARE 9:30 AM TO 3:30 PM UNLESS ALLOWED OTHERWISE BY PERMIT
- THE CONTRACTOR SHALL NOTIFY CO/CS/COR PRIOR TO PROCEEDING WITH WORK IN THE EVENT THAT EXISTING SITE CONDITIONS ARE ENCOUNTERED WHICH WILL REQUIRE THE USE OF CONSTRUCTION METHODS OTHER THAN INDICATED ON THESE PLANS.
- IT SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING STRUCTURES AND UTILITIES FROM DAMAGE THAT MAY RESULT FROM CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES AND ASCERTAIN THAT THE ALIGNMENT SHOWN AND MATERIALS SPECIFIED CAN BE INSTALLED AS INDICATED PRIOR TO ORDERING MATERIALS.
- THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, BACKFILLING, REPAVING AND RESTORATION OF PUBLIC SPACE FOR STREET AND SIDEWALK CUTS, FOR NEW UTILITIES, CONNECTIONS, TAPS, REMOVALS. THE CONTRACTOR IS RESPONSIBLE FOR THE ABANDONMENT OF SERVICES AT WATER OR SEWER LINE WITHIN PUBLIC SPACE AND REPAIRED UNDER DC WATER INSPECTION. THE CONTRACTOR IS RESPONSIBLE FOR FINAL RESTORATION OF STREET AND SIDEWALK CUTS.
- TRAFFIC CONTROL FOR THIS PROJECT WILL BE IN ACCORDANCE WITH DDOT WORK ZONE TEMPORARY TRAFFIC CONTROL MANUAL 2006 AND DDOT STANDARD DRAWING 2009.
- PATH AND ANY ASSOCIATED CURB RAMP SHALL COMPLY WITH THE FOLLOWING AMERICANS WITH DISABILITIES ACT (ADA), ARCHITECTURAL BARRIERS ACT (ABA) AND DC DEPARTMENT OF TRANSPORTATION (DDOT) REQUIREMENTS:
 - <https://www.access-board.gov/the-board/laws/architectural-barriers-act-aba>
 - https://www.ada.gov/2010adostandards_index.html
 - <https://ddot.dc.gov/page/standard-drawings-2015> (specifically section 600)

PEPCO NOTE:

CONTRACTOR SHALL NOTIFY AT 1–800–257–7777 – 48 HOURS IN ADVANCE OF ANY CONSTRUCTION OR TEST BORINGS TO HAVE PEPCO FACILITIES LOCATED AND MARKED IN THE FIELD. TEST HOLES SHOULD BE DUG TO VERIFY EXACT LOCATIONS AND DEPTHS OF PEPCO FACILITIES. EXTREME CAUTION SHOULD BE EXERCISED WHILE DIGGING THE TEST HOLES AS WELL AS TAKING THE TEST BORINGS NEAR OUR UNDERGROUND FACILITIES.

WMATA NOTE:

CONTRACTOR SHALL CONTACT WMATA 30 DAYS PRIOR TO CONSTRUCTION TO SETUP A PRE–CONSTRUCTION MEETING TO ENSURE ANY ABOVE OR BELOW GROUND FACILITIES ARE NOT IN CONFLICT: WMATA–DEPARTMENT OF SAFETY & ENVIRONMENTAL MANAGEMENT WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY 300 7TH ST SW, WASHINGTON, DC 20024 OFFICE: (202) 249–SAFE (7233)

AFTER REGULAR BUSINESS HOURS CONTACT SAFETY DUTY OFFICER VIA
OCC – (202) 962–1970
ROCC – (202) 962–1952
BOCC – (202) 962–1815

EXISTING IMPROVEMENT REPLACEMENT NOTE:

CONTRACTOR TO REPLACE PAVEMENT, CURB IN EQUIVALENT TYPE, COLOR, AND/OR PAVEMENT SECTION.

A/E FIRM AECOM 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703–640–4800	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE – NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	DESIGNED
								DWG NO 821136939 DATE 2.28.2024 SHEET 2 OF 27
LEGEND AND NOTES						C–2	SUB SHEET NUMBER	
TITLE OF DRAWING								

Table 2.4 Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ¹		Seeding Depth (inches) ²	Recommended Seeding Dates Plant Hardiness Zone 7a and 7b ³
	lb/ac	lb/1,000 ft ²		
Cool-Season Grasses				
Annual Ryegrass	40	1.0	0.5	Feb. 15 to Apr. 30; Aug. 15 to Nov. 30
Barley	96	2.2	1.0	Feb. 15 to Apr. 30; Aug. 15 to Nov. 30
Oats	72	1.7	1.0	Feb. 15 to Apr. 30; Aug. 15 to Nov. 30
Wheat	120	2.8	1.0	Feb. 15 to Apr. 30; Aug. 15 to Nov. 30
Cereal Rye	112	2.8	1.0	Feb. 15 to Apr. 30; Aug. 15 to Dec. 15
Warm-Season Grasses				
Foxtail Millet	30	0.7	0.5	May 1 to Aug. 14
Pearl Millet	20	0.5	0.5	May 1 to Aug. 14

DDOE SOIL EROSION AND SEDIMENT CONTROL PLAN GENERAL NOTES

- Following initial land disturbance or re-disturbance, permanent or interim stabilization must be completed within seven (7) calendar days for the surfaces of all perimeter controls, dikes, swales, ditches, perimeter slopes, and slopes greater than three (3) horizontal to one (1) vertical (3:1); and fourteen (14) days for all other disturbed or graded areas on the project site. These requirements do not apply to areas shown on the plan that are used for material storage other than stockpiling, or for those areas on the plan where actual construction activities are being performed. Maintenance shall be performed as necessary so that stabilized areas continuously meet the appropriate requirements of the District of Columbia Standards and Specifications for Soil Erosion and Sediment Control (ESC). [21 DCMR § 542.9 (o)]
- ESC measures shall be in place before and during land disturbance. [21 DCMR § 543.6]
- Contact DDOE Inspection (202) 535-2977 to schedule a preconstruction meeting at least three (3) business days before the commencement of a land-disturbing activity. [21 DCMR § 503.7 (a)]
- A copy of the approved plan set will be maintained at the construction site from the date that construction activities begin to the date of final stabilization and will be available for DDOE inspectors. [21 DCMR § 542.15]
- ESC measures shall be in place to stabilize an exposed area as soon as practicable after construction activity has temporarily or permanently ceased but no later than fourteen (14) days following cessation, except that temporary or permanent stabilization shall be in place at the end of each day of underground utility work that is not contained within a larger development site. [21 DCMR § 543.7]
- Stockpiled material being actively used during a phase of construction shall be protected against erosion by establishing and maintaining perimeter controls around the stockpile. [21 DCMR § 543.16 (a)]
- Stockpiled material not being actively used or added to shall be stabilized with mulch, temporary vegetation, hydro-seed or plastic within fifteen (15) calendar days after its last use or addition. [21 DCMR § 543.16 (b)]
- Protect best management practices from sedimentation and other damage during construction for proper post construction operation. [21 DCMR § 543.5]
- Request a DDOE inspector's approval after the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. [21 DCMR § 542.12 (a)]
- Request a DDOE inspector's approval after final stabilization of the site and before the removal of erosion and sediment controls. [21 DCMR § 542.12 (b)]
- Final stabilization means that all land-disturbing activities at the site have been completed and either of the following two criteria have been met: (1) a uniform (for example, evenly distributed, without large bare areas) perennial vegetative cover with a density of seventy percent (70%) of the native background vegetative cover for the area has been established on all ungraded areas and areas not covered by permanent structures, or (2) equivalent permanent stabilization measures have been employed (such as the use of riprap, gabions, or geotextiles). [21 DCMR § 542.12 (b.1, b.2)]
- Follow the requirements of the United States Environmental Protection Agency approved Stormwater Pollution Prevention Plan (SWPPP) and maintain a legible copy of this SWPPP on site. [21 DCMR § 543.10 (b)]
- Post a sign that notifies the public to contact DDOE in the event of erosion or other pollution. The sign will be placed at each entrance to the site or as directed by the DDOE inspector. Each sign will be no less than 18 x 24 inches in size and made of materials that will withstand weather for the duration of the project. Lettering will be at least 1 inch in height and easily readable by the public from a distance of twelve feet (12 ft). The sign must direct the public, in substantially the following form: "To Report Erosion, Runoff, or Stormwater Pollution" and will provide the construction site address, DDOE's telephone number (202-535-2977), DDOE's e-mail address (IEB.scheduling@dc.gov), and the 311 mobile app heading ("Construction-Erosion Runoff"). [21 DCMR § 543.22]
- If a site disturbs 5,000 square feet of land or greater, the ESC plan must contain the following statement:

14. A Responsible Person must be present or available while the site is in a land-disturbing phase. The Responsible Person is charged with being available to (a) inspect the site and its ESC measures at least once biweekly and after a rainfall event to identify and remedy each potential or actual erosion problem, (b) respond to each potential or actual erosion problem identified by construction personnel, and (c) speak on site with DDOE to remedy each potential or actual erosion problem. A Responsible Person shall be (a) licensed in the District of Columbia as a civil or geotechnical engineer, a land surveyor, or architect; or (b) certified through a training program that DDOE approves, including a course on erosion control provided by another jurisdiction or professional association. During construction, the Responsible Person shall keep on site proof of professional licensing or of successful completion of a DDOE-approved training program. [21 DCMR § 547]

EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

- THE CONTRACTOR SHALL CONDUCT OPERATIONS AND MAINTAIN THE PROJECT SITE AS TO MINIMIZE THE CREATION AND DISPERSION OF THE DUST. DUST CONTROL SHALL BE USED THROUGHOUT THE WORK AT THE SITE.
- THE CONTRACTOR MUST PROVIDE CLEAN WATER, FREE FROM SALT, OIL, AND OTHER DELETERIOUS MATERIAL TO BE USED FOR ON-SITE DUST CONTROL.
- THE CONTRACTOR SHALL SUPPLY WATER SPRAYING EQUIPMENT CAPABLE OF ACCESSING ALL WORK AREAS.
- THE CONTRACTOR SHALL IMPLEMENT STRICT DUST CONTROL MEASURES DURING ACTIVE CONSTRUCTION PERIODS ON-SITE. THESE CONTROL MEASURES WILL GENERALLY CONSIST OF WATER APPLICATIONS THAT SHALL BE APPLIED A MINIMUM OF ONCE PER DAY DURING DRY WEATHER OR MORE OFTEN AS REQUIRED TO PREVENT DUST EMISSIONS.
- FOR WATER APPLICATION TO UNDISTURBED SOIL SURFACES, THE CONTRACTOR SHALL:
 - APPLY WATER WITH EQUIPMENT CONSISTING OF TANK, SPRAY BAR, PUMP WITH DISCHARGE PRESSURE GAUGE;
 - ARRANGE SPRAY BAR HEIGHT, NOZZLE SPACING AND SPRAY PATTERN TO PROVIDE COMPLETE COVERAGE OF GROUND WITH WATER;
 - DISPERSE WATER THROUGH NOZZLES ON SPRAY BAR AT 20 PSI (137.8 KPA) MINIMUM. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING;
- FOR WATER APPLICATION TO SOIL SURFACES DURING DEMOLITION AND/OR EXCAVATION, THE CONTRACTOR SHALL:
 - APPLY WATER WITH EQUIPMENT CONSISTING OF A TANK, PUMP WITH DISCHARGE GAUGE, HOSES AND MIST NOZZLES;
 - LOCATE TANK AND SPRAYING EQUIPMENT SO THAT THE ENTIRE EXCAVATION AREA CAN BE MISTED WITHOUT INTERFERING WITH DEMOLITION AND/OR EXCAVATION EQUIPMENT OR OPERATIONS. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING;
 - APPLY WATER SPRAY IN A MANNER TO PREVENT MOVEMENT OF SPRAY BEYOND THE SITE BOUNDARIES.

EROSION & SEDIMENT CONTROL LEGEND:

"DISTRICT OF COLUMBIA EROSION AND SEDIMENT CONTROL HANDBOOK (2017 EDITION)"

KEY	TITLE	
CE	TEMPORARY CONSTRUCTION ENTRANCE w/WASHRACK	
FS	FILTER SOCK	
TP	TREE PROTECTION FENCING	
CIP	CURB INLET PROTECTION	

NOTES

- ALL WORK SHALL CONFORM TO THE DC DEPARTMENT OF THE ENVIRONMENT, ENVIRONMENTAL HEALTH ADMINISTRATION, BUREAU OF ENVIRONMENTAL QUALITY, WATERSHED PROTECTION DIVISION'S "2003 DISTRICT OF COLUMBIA STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
- LEGEND AND ABBREVIATION LIST ARE LOCATED ON SHEET C-2.
- ANY TREE ROOT THAT MIGHT BE AFFECTED BY THE TRAIL WORK MUST BE PRUNED BY USING PROPER PRUNING GUIDELINES, INCLUDING PROPER MANUAL CUTTING USING SHARP CUTTING TOOLS AS DIRECTED BY OWNER REPRESENTATIVE. SEE SHEET C-9 AND C-10 FOR DETAILS.

DEMOLITION LEGEND

EX. FULL DEPTH COMPACTED DIRT PATH TO BE REMOVED	
EX. CURB TO BE REMOVED	XXXXXXXXXX
EX. LANDSCAPING TO BE REMOVED	X

EROSION AND SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSTALLED BEFORE THE START OF ANY EXCAVATION AND/OR CONSTRUCTION AS PER STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE DISTRICT OF COLUMBIA. IF AN ON-SITE INSPECTION REVEALS FURTHER EROSION CONTROL MEASURES ARE NECESSARY, THE SAME SHALL BE PROVIDED.
- ALL SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN CONFORMANCE WITH THE MOST RECENT EDITION OF THE D.C. SOIL EROSION AND SEDIMENT CONTROL STANDARDS AND SPECS.
- PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES MUST BE PROVIDED TO ENSURE INTENDED PURPOSE IS ACCOMPLISHED. THE SEDIMENT CONTROL INSPECTOR REPRESENTING THE DISTRICT OF COLUMBIA SHALL MAINTAIN THE AUTHORITY TO REQUIRE ADDITIONAL SEDIMENT CONTROL MEASURES AS NECESSARY TO PREVENT THE INTRUSION OF SEDIMENT INTO STORM DRAIN SYSTEM OR PUBLIC SPACE.
- ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS WILL BE PROTECTED TO PREVENT TRACKING OF MUD ONTO PUBLIC WAYS. A VEHICLE WASH AREA SHALL BE PROVIDED ON-SITE. THE AREA MAY BE CONSTRUCTED OF RUBBLE OR OTHER HARD POROUS MATERIAL. A WORKING WATER HOSE MUST BE LOCATED IN THE AREA DURING ALL CONSTRUCTION ACTIVITY.
- SILT REMOVED FROM TRAPS SHALL BE PLACED AND STABILIZED ON DESIGNATED AREAS ON-SITE IN SUCH A MANNER THAT IT DOES NOT FOUL EXISTING AND PROPOSED STORM DRAINAGE SYSTEM AND AREAS ALREADY STABILIZED.
- ALL WATER PUMPED FROM EXCAVATION DURING CONSTRUCTION SHALL BE PUMPED EITHER TO A SEDIMENT TANK AND/OR A SEDIMENT TRAP. WHEN A SEDIMENT TRAP/SEDIMENT TANK HAS REACHED 67% CAPACITY, THE CLEAN OUT OF SAME IS REQUIRED. NO WATER WILL BE PUMPED TO THE STORM DRAIN SYSTEM WITHOUT THE CONSENT OF THE SEDIMENT CONTROL INSPECTOR.
- ALL WATER DISCHARGED FROM THE SEDIMENT TANKS OR PUMPED FROM THE SITE MUST BE CLEAN AND FREE OF SEDIMENT.
- ALL DEBRIS IS TO BE REMOVED FROM SITE.
- ALLEY AND/OR STREETS/SIDEWALKS SHALL BE SWEEPED CLEAN AT ALL TIMES DURING EXCAVATION AND CONSTRUCTION.
- ALL CATCH BASIN OR DRAIN AREAS SHALL BE PROTECTED DURING EXCAVATION AND CONSTRUCTION.
- IF ANY CATCH BASIN OR DRAIN BECOMES CLOGGED AS A RESULT OF EXCAVATION OR CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS CLEANING.
- ANY STOCKPILING, REGARDLESS OF LOCATION, SHALL BE STABILIZED AND COVERED WITH PLASTIC OR CANVAS AFTER ITS ESTABLISHMENT AND FOR DURATION OF THE PROJECT.
- CONTRACTOR TO CONTROL DUST BLOWING AND MOVEMENT PER SECTION 44.0 - STANDARDS AND SPECIFICATION FOR DUST CONTROL OF D.C.'S SOIL EROSION AND SEDIMENT CONTROL STANDARDS AND SPECS.
- AFTER A RAZE OR DEMOLITION, THERE IS THE NEED FOR GROUND COVER SUCH AS SEED, SOIL, PAVEMENT, BRICKBAT, OR MULCH TO PREVENT EROSION AND SEDIMENT RUNOFF FROM OCCURRING.

EROSION AND SEDIMENT CONTROL PHASE I ACTIVITIES:

- INSTALL GRAVEL CONSTRUCTION ENTRANCE WITH WASH RACK. CONTRACTOR SHALL PROVIDE TEMPORARY WATER SOURCE FOR REMOVAL OF MUD AND DEBRIS FROM TRAFFIC EXITING SITE.
- INSTALL INLET PROTECTION, FILTER SOCK, AND TREE PROTECTION FENCE
- THE INLET PROTECTION, FILTER SOCK, AND TREE PROTECTION FENCE BARRIER SHALL REMAIN IN PLACE THROUGH ALL CONSTRUCTION OPERATION, AND UNTIL SITE IS PERMANENTLY STABILIZED.
- ALL PHASE I CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ENTIRE DISTURBED SITE AREA IS PERMANENTLY STABILIZED.
- AFTER PHASE I CONTROLS HAVE BEEN INSTALLED THE SITE INSPECTOR MUST REVIEW, INSPECT AND APPROVE PHASE I CONTROLS PRIOR TO ANY FURTHER CONSTRUCTION OR LAND DISTURBING ACTIVITY.

EROSION AND SEDIMENT CONTROL PHASE II ACTIVITIES:

- INSPECT AND MAINTAIN ALL PHASE I CONTROLS. ENSURE PERMANENT DIVERSION DIKE, CULVERTS AND RIVER ROCK DRAINAGE SWALE ARE FUNCTIONING PROPERLY.
- REMOVE SITE FEATURES PER PLAN AND GRADE SITE AROUND PROPOSED TRAIL ALIGNMENT.
- EXCAVATE AND INSTALL UNDERDRAINS WITH ASSOCIATED STRUCTURES, TRAIL STONE SUBBASE.
- COMPLETE OTHER DRY UTILITY IMPROVEMENTS (SITE LIGHTING AND CONDUITS).
- AFTER ALL SURROUNDING AREAS WITHIN THE LIMITS OF DISTURBANCE AREA PERMANENTLY STABILIZED, INSTALL PERMEABLE PAVEMENT TRAIL AND CONCRETE RAMP WITH CURB AND GUTTER.
- ALL PHASE II SEDIMENT AND EROSION CONTROLS ARE TO REMAIN IN PLACE UNTIL SITE IS STABILIZED AND CAN ONLY BE REMOVED AT DIRECTION OF THE CITY INSPECTOR.

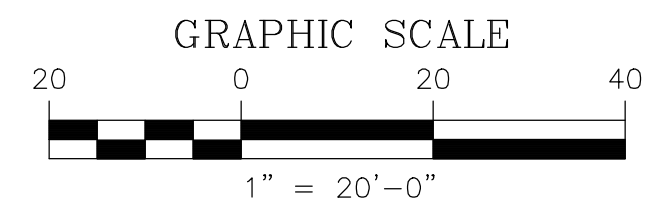
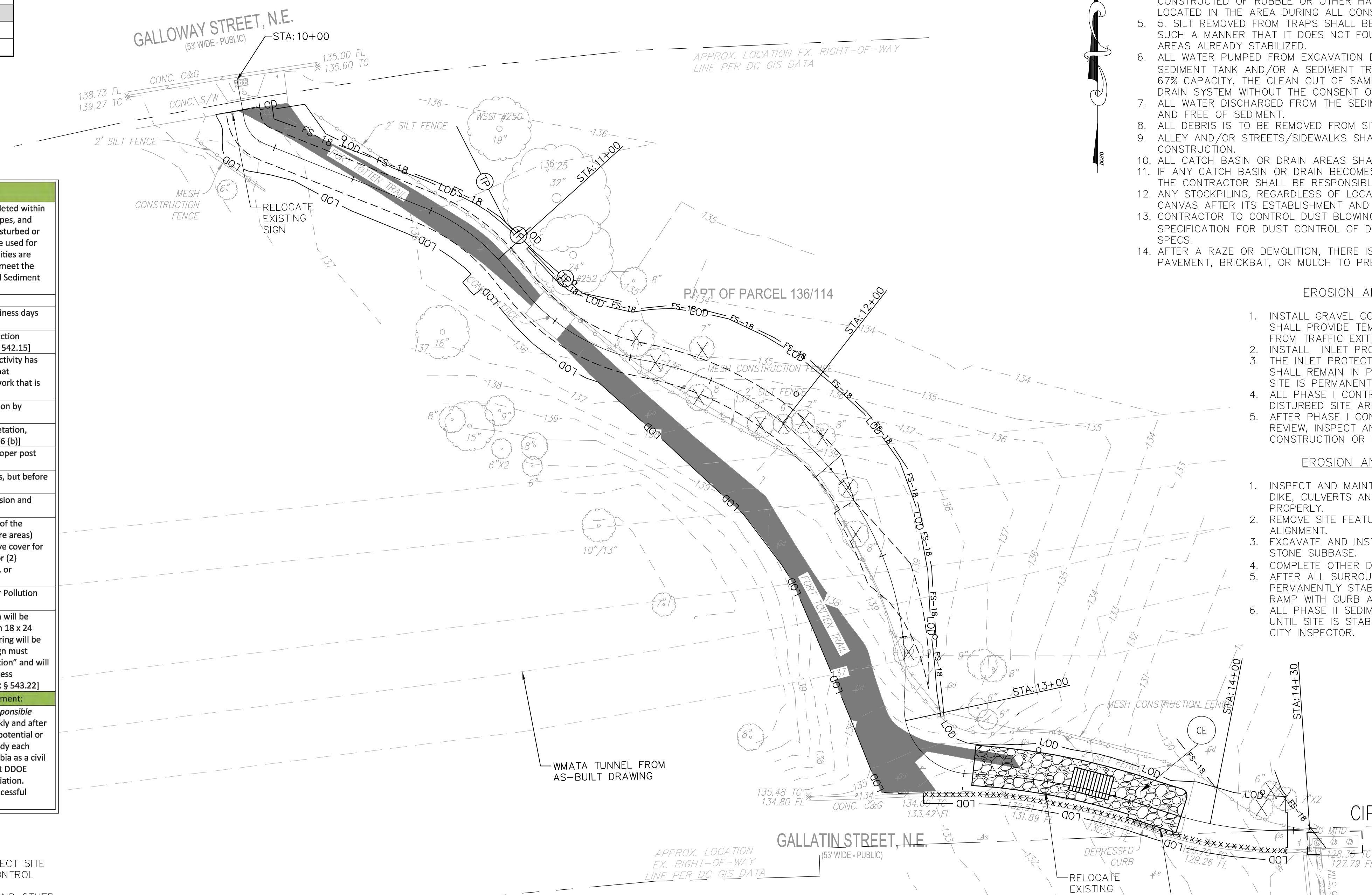
SEQUENCE OF CONSTRUCTION

- SCHEDULE AND HOLD PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR. CALL 202-535-2977 FOR APPOINTMENT.
- CONTRACTOR TO PROVIDE TRAFFIC CONTROL PER SHEET C-16.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTING A CHAIN LINK FENCE AROUND THE EXCAVATION AREA, AS REQUIRED BY LAW, FOR SAFETY.

EROSION & SEDIMENT CONTROL MAINTENANCE NOTES

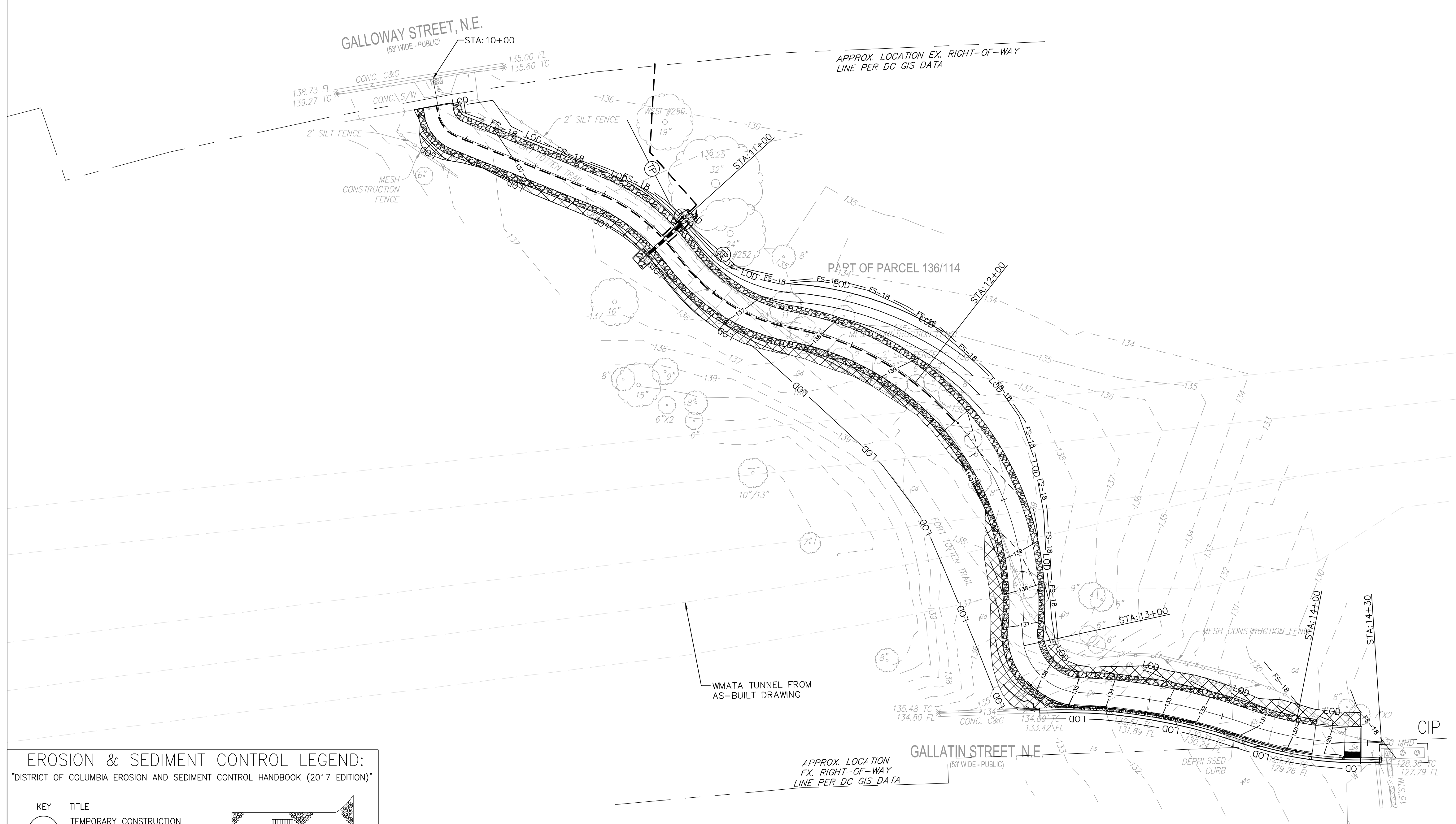
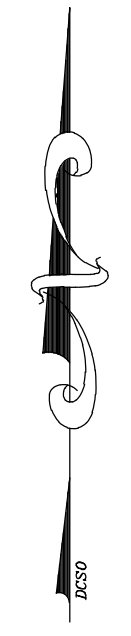
THE CONTRACTOR SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (i.e., SEEDING AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS, ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO ENSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.

VEHICLE MAINTENANCE MEASURES: ALL CONSTRUCTION VEHICLES EGRESSING FROM THE SITE SHALL BE WASHED AS NECESSARY TO ENSURE THAT SEDIMENT WILL NOT BE REMOVED FROM THE SITE. WASH WATER TO BE TRUCKED IN OR PROVIDED BY PUBLIC WATER SYSTEM.



A/E FIRM	Mark	Sheet	REVISION		Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	
								DESIGNED	DRAWN
AECOM 3161 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-646-4900							C-3	IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	
	EXISTING CONDITION, DEMOLITION, EROSION AND SEDIMENT CONTROL PHASE I PLAN							SUB SHEET NUMBER	DSG. NO. ROCR DATE 821136939 SHEET 2.28.2024 3 of 27

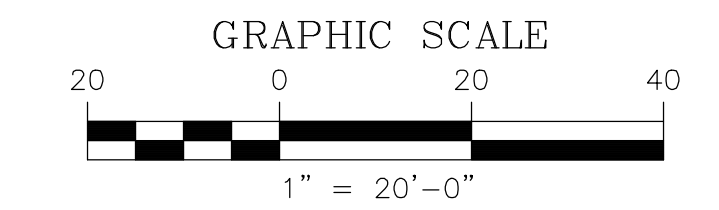
NOTES:
 1. ABBREVIATION LIST IS LOCATED ON SHEET C-2
 2. LEGEND IS LOCATED ON SHEET C-2
 3. EROSION & SEDIMENT CONTROL LEGEND AND NOTES ARE LOCATED ON SHEET C-3 AND EROSION & SEDIMENT CONTROL DETAILS ARE LOCATED ON SHEET C-9
 4. ALL AREAS DISTURBED NOT COVERED BY PAVEMENT OR CONCRETE SHALL BE PERMANENTLY SEEDED OR SODDED OVER 3 INCHES OF TOPSOIL



Structure Table	
Structure Name	Structure Details
430 MHD	RIM = 128.18 15" INV OUT = 123.86 S

EROSION & SEDIMENT CONTROL LEGEND:
 "DISTRICT OF COLUMBIA EROSION AND SEDIMENT CONTROL HANDBOOK (2017 EDITION)"

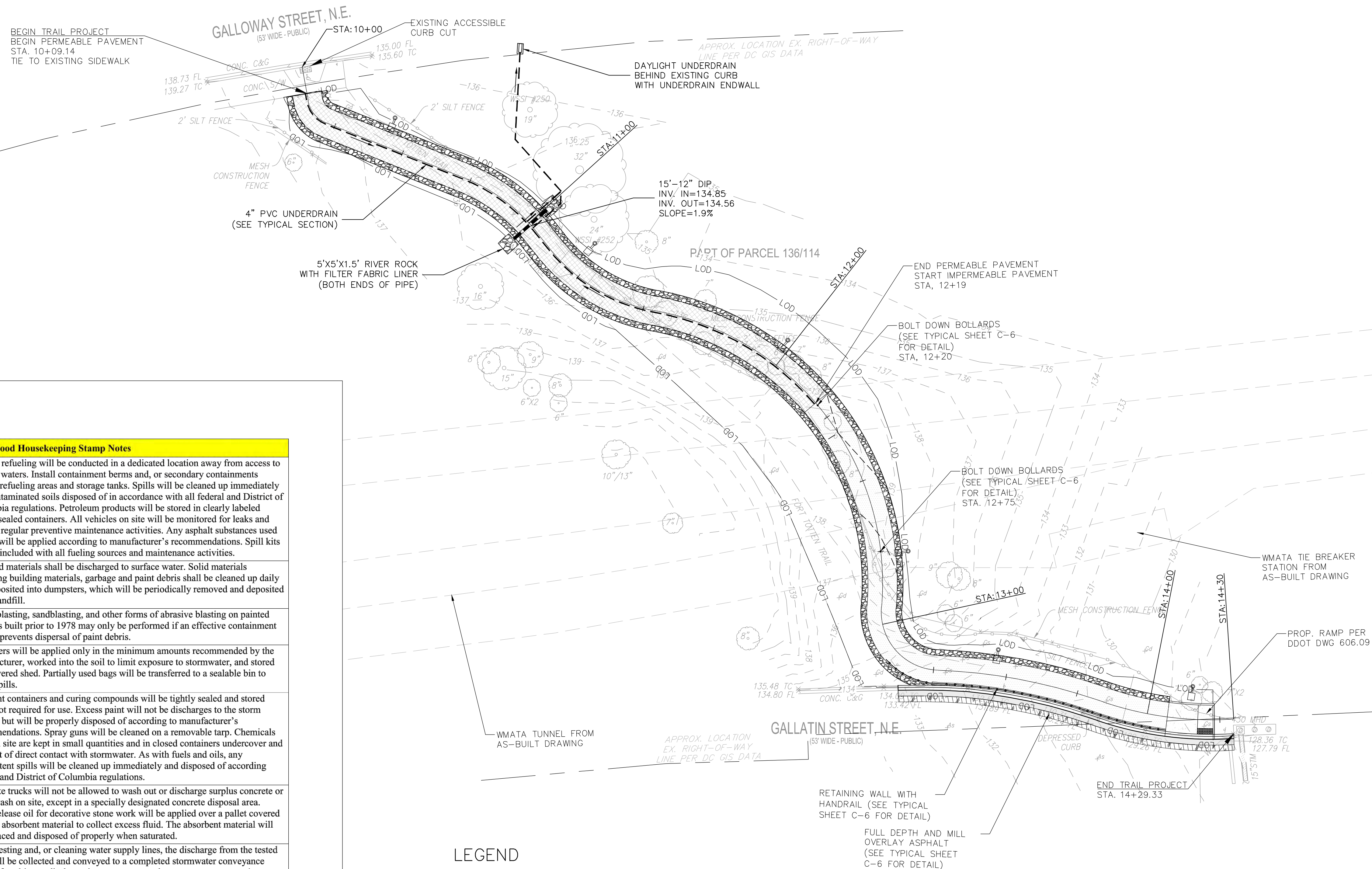
KEY	TITLE	
(CE)	TEMPORARY CONSTRUCTION ENTRANCE w/WASHRACK	
(FS)	FILTER SOCK	
(TP)	TREE PROTECTION FENCING	
(CIP)	CURB INLET PROTECTION	
(TECM)	TEMPORARY EROSION CONTROL MATTING	



A/E FIRM AECOM <small>3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900</small>	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
	EROSION AND SEDIMENT CONTROL PHASE II PLAN TITLE OF DRAWING							C-4
SUB SHEET NUMBER							821136939 DATE 2.28.2024 SHEET 4 OF 27	

NOTES

THE CONTRACTOR SHALL CONDUCT A THOROUGH ASSESSMENT OF THE CURRENT STATE OF THE TUNNEL WATERPROOFING SYSTEM. DURING CONSTRUCTION IT IS IMPERATIVE TO ENSURE THE PRESERVATION OF THE EXISTING TUNNEL WATERPROOFING. IMPLEMENT PROTECTIVE BARRIERS, SUCH AS TEMPORARY WATERPROOF COVERINGS OR BARRIERS, TO SHIELD THE EXISTING TUNNEL WATERPROOFING FROM ANY POTENTIAL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES.



PIPE CALCULATIONS

DRAINAGE AREA = 2.41 AC
 RATIONAL C = 0.25 (WOODS)
 15-YR INTENSITY = 7.16 IN/HR
 Q₁₅ = 4.3 CFS
 MIN. PIPE SLOPE = 1.24%

Pollution Prevention Good Housekeeping Stamp Notes

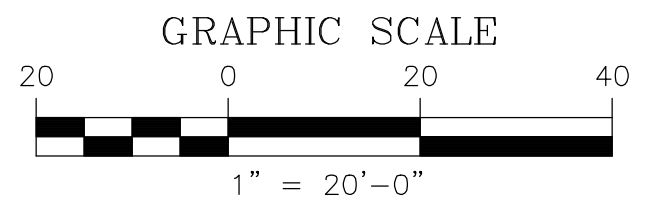
Fuels and Oils	On-site refueling will be conducted in a dedicated location away from access to surface waters. Install containment berms and, or secondary containments around refueling areas and storage tanks. Spills will be cleaned up immediately and contaminated soils disposed of in accordance with all federal and District of Columbia regulations. Petroleum products will be stored in clearly labeled tightly sealed containers. All vehicles on site will be monitored for leaks and receive regular preventive maintenance activities. Any asphalt substances used on site will be applied according to manufacturer's recommendations. Spill kits will be included with all fueling sources and maintenance activities.
Solid Waste	No solid materials shall be discharged to surface water. Solid materials including building materials, garbage and paint debris shall be cleaned up daily and deposited into dumpsters, which will be periodically removed and deposited into a landfill.
Abrasive Blasting	Water blasting, sandblasting, and other forms of abrasive blasting on painted surfaces built prior to 1978 may only be performed if an effective containment system prevents dispersal of paint debris.
Fertilizer	Fertilizers will be applied only in the minimum amounts recommended by the manufacturer, worked into the soil to limit exposure to stormwater, and stored in a covered shed. Partially used bags will be transferred to a sealable bin to avoid spills.
Paint and Other Chemicals	All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewers, but will be properly disposed of according to manufacturer's recommendations. Spray guns will be cleaned on a removable tarp. Chemicals used on site are kept in small quantities and in closed containers under cover and kept out of direct contact with stormwater. As with fuels and oils, any inadvertent spills will be cleaned up immediately and disposed of according to federal and District of Columbia regulations.
Concrete	Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash on site, except in a specially designated concrete disposal area. Form release oil for decorative stone work will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.
Water Testing	When testing and, or cleaning water supply lines, the discharge from the tested pipe will be collected and conveyed to a completed stormwater conveyance system for ultimate discharge into a stormwater best management practice (BMP).
Sanitary Waste	Portable lavatories located on site will be services on a regular basis by a contractor. Portable lavatories will be located in an upland area away from direct contact with surface waters. Any spills occurring during servicing will be cleaned immediately and contaminated soils disposed of in accordance with all federal and District of Columbia regulations.

LEGEND

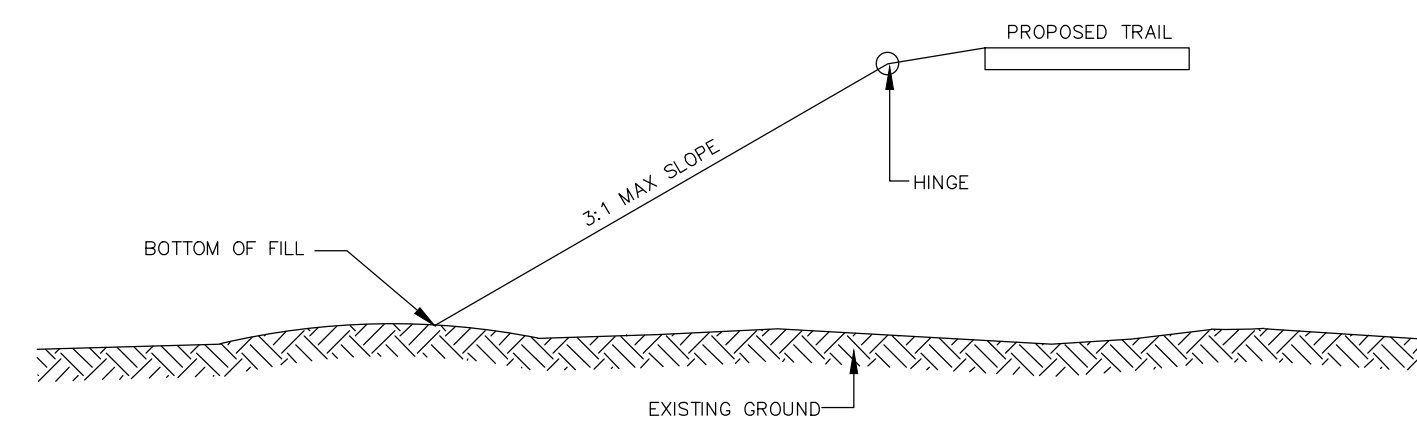
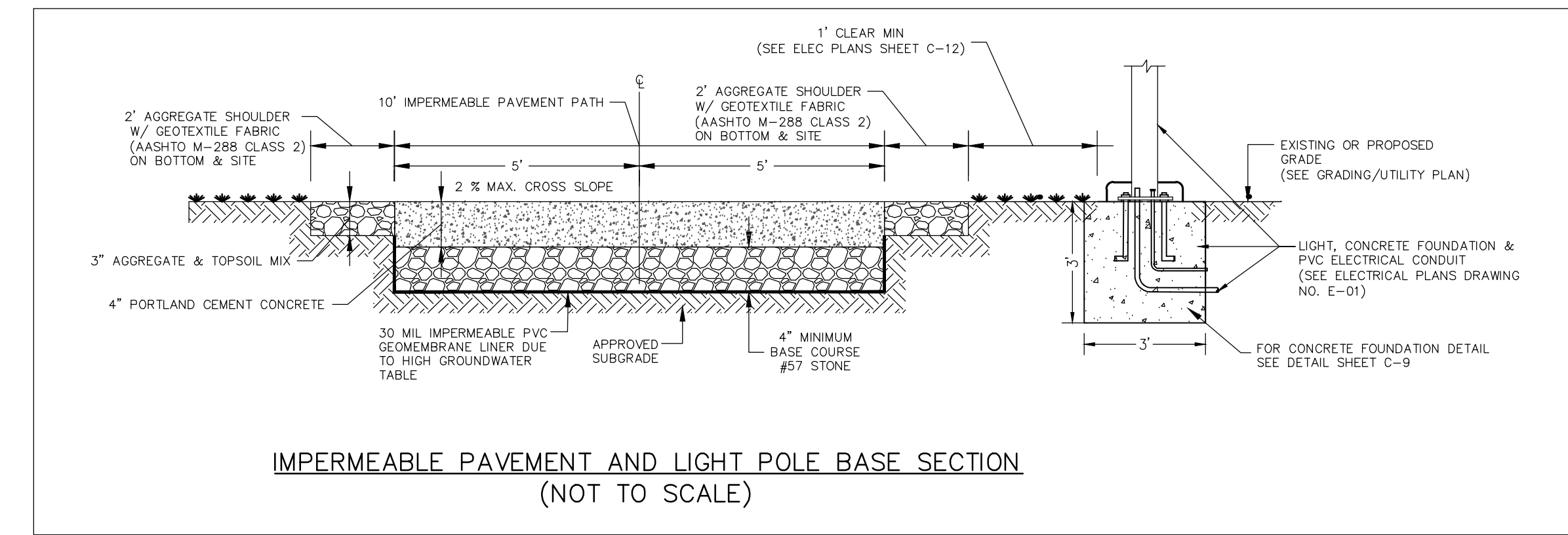
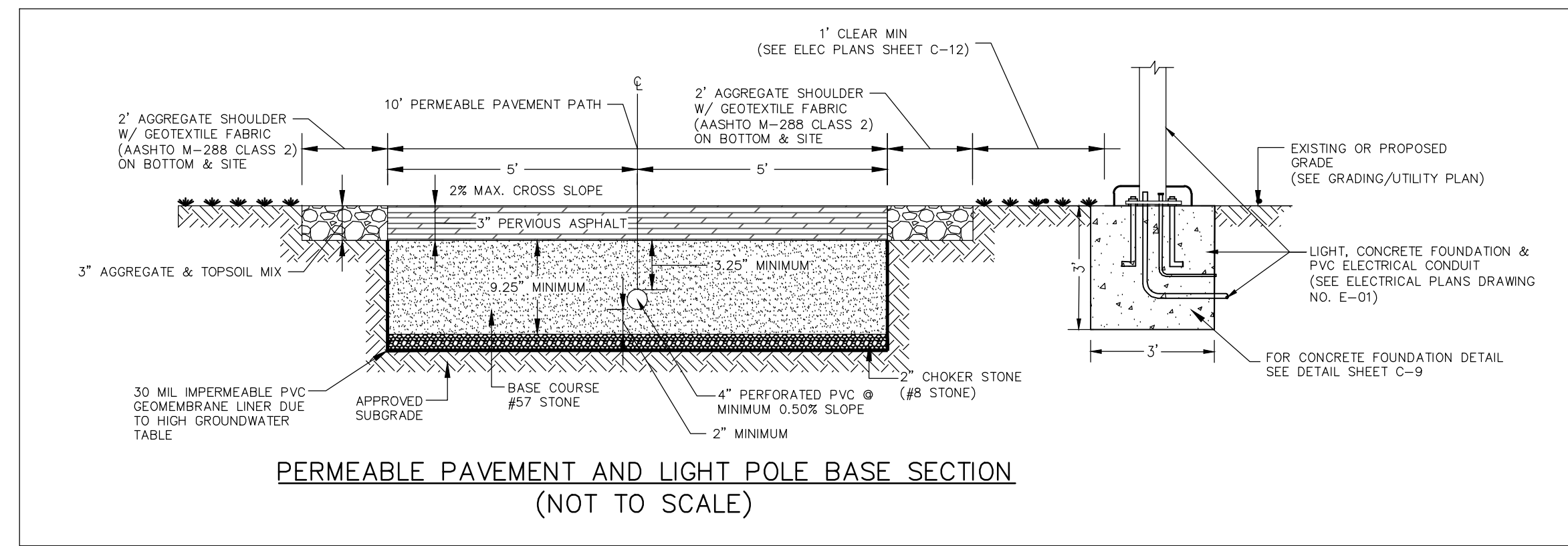
IMPERMEABLE PAVEMENT SURFACE	
PERMEABLE PAVEMENT SURFACE	
AGGREGATE SHOULDER	
CONCRETE PAVEMENT SURFACE	
ADA DETECTABLE WARNING PAVER	
FULL DEPTH ASPHALT PAVEMENT	
MILL OVERLAY ASPHALT PAVEMENT	

Structure Table

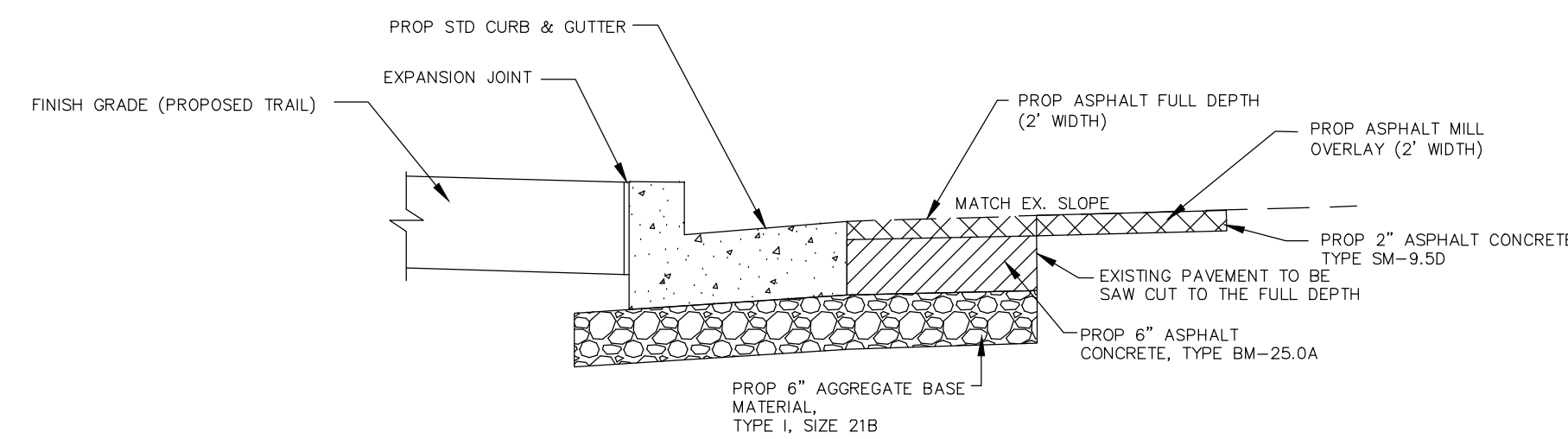
Structure Name	Structure Details
430 MHD	RIM = 128.18 15" INV OUT = 123.86 S



<p>A/E FIRM</p> <p>AECOM</p> <p>3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900</p>	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
SITE LAYOUT PLAN						C-5	IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	CHECKED
TITLE OF DRAWING								SUB SHEET NUMBER



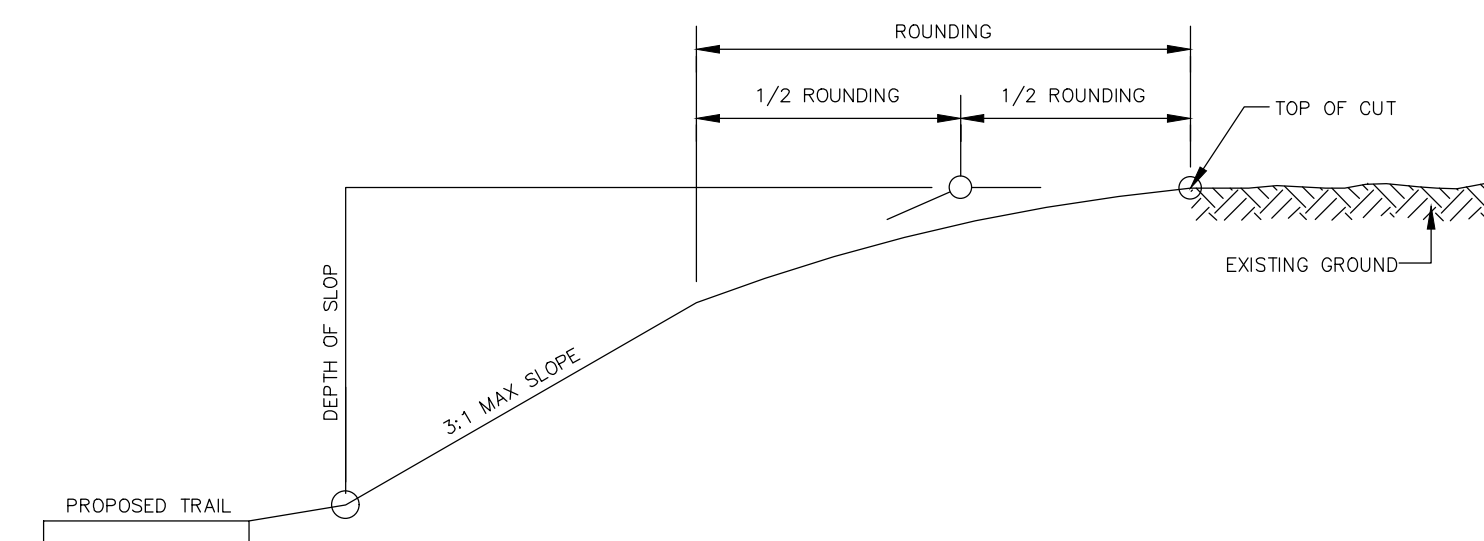
CUT SLOPE DETAIL
(NOT TO SCALE)



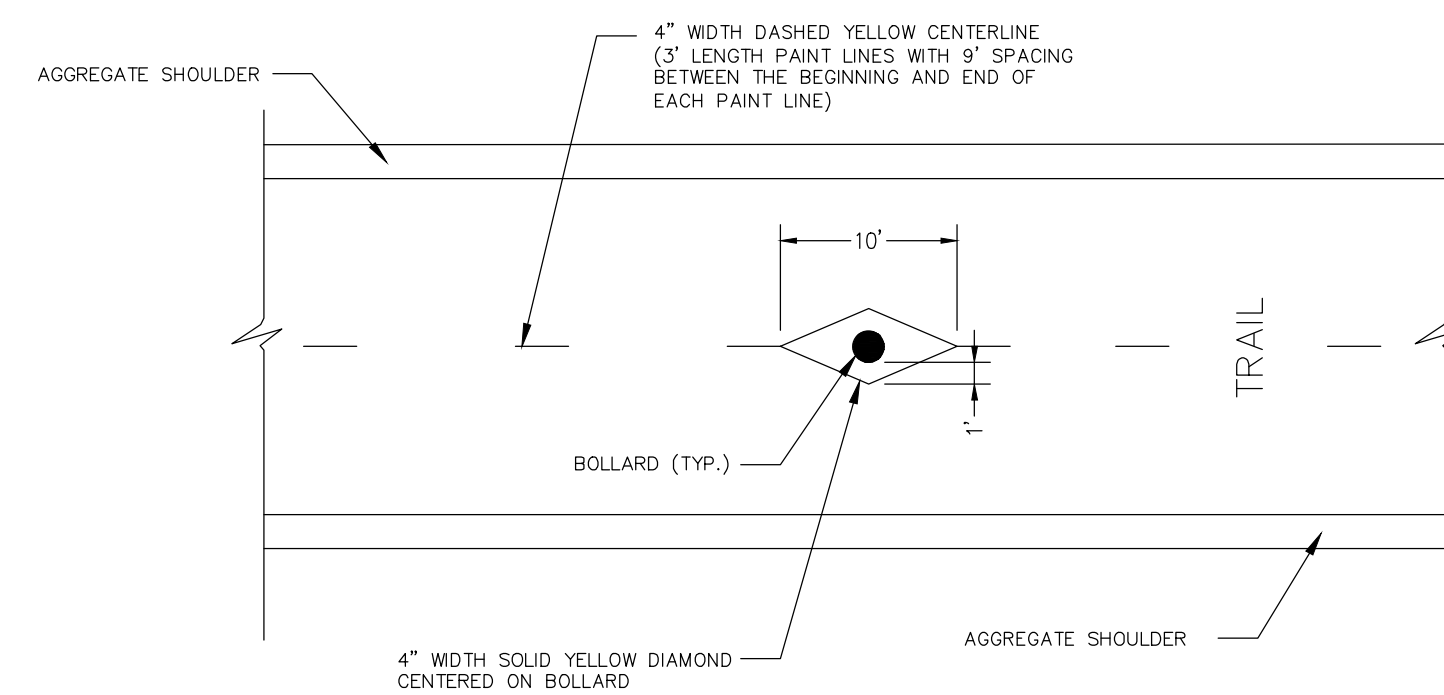
PROPOSED CURB & GUTTER, FULL DEPTH
AND MILL OVERLAY ASPHALT DETAIL
(NOT TO SCALE)



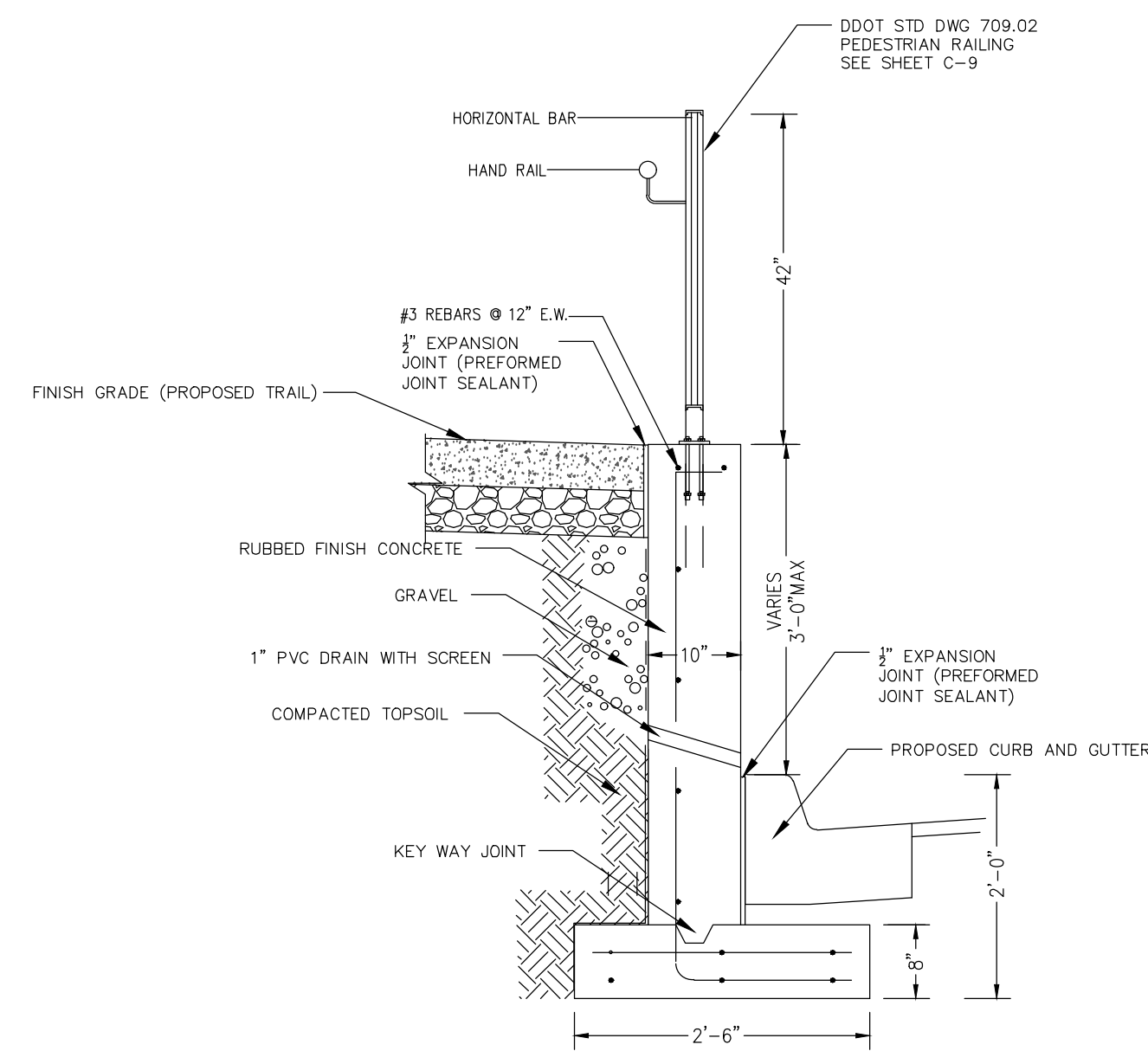
SAMPLE COLLAPSIBLE BOLLARDS IMAGE
(NOT TO SCALE)



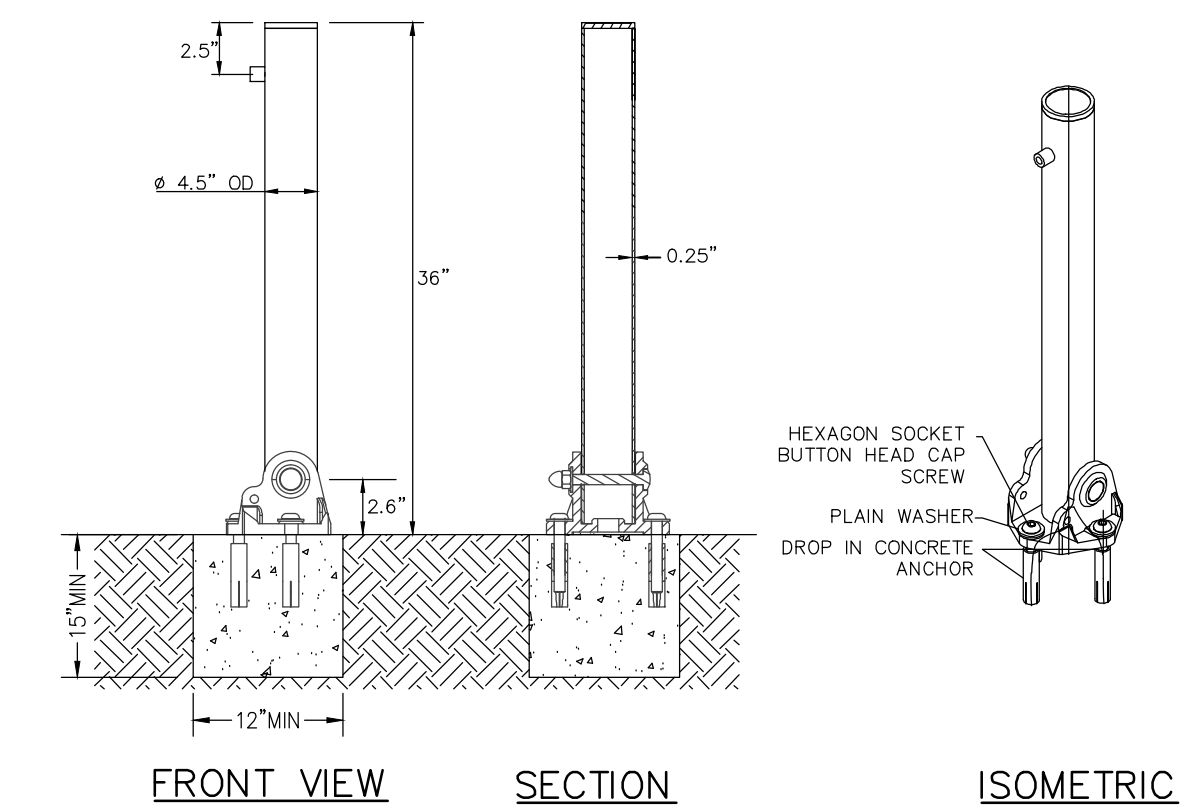
FILL SLOPE DETAIL
(NOT TO SCALE)



TRAIL PAVEMENT MARKINGS DETAIL
(NOT TO SCALE)

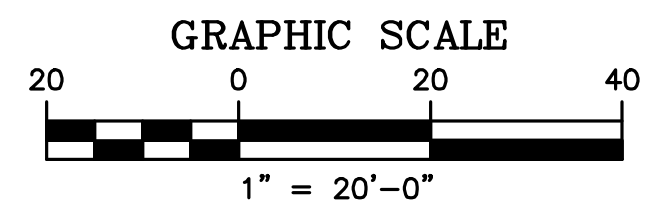


RETAINING WALL AND HANDRAIL DETAIL
(NOT TO SCALE)

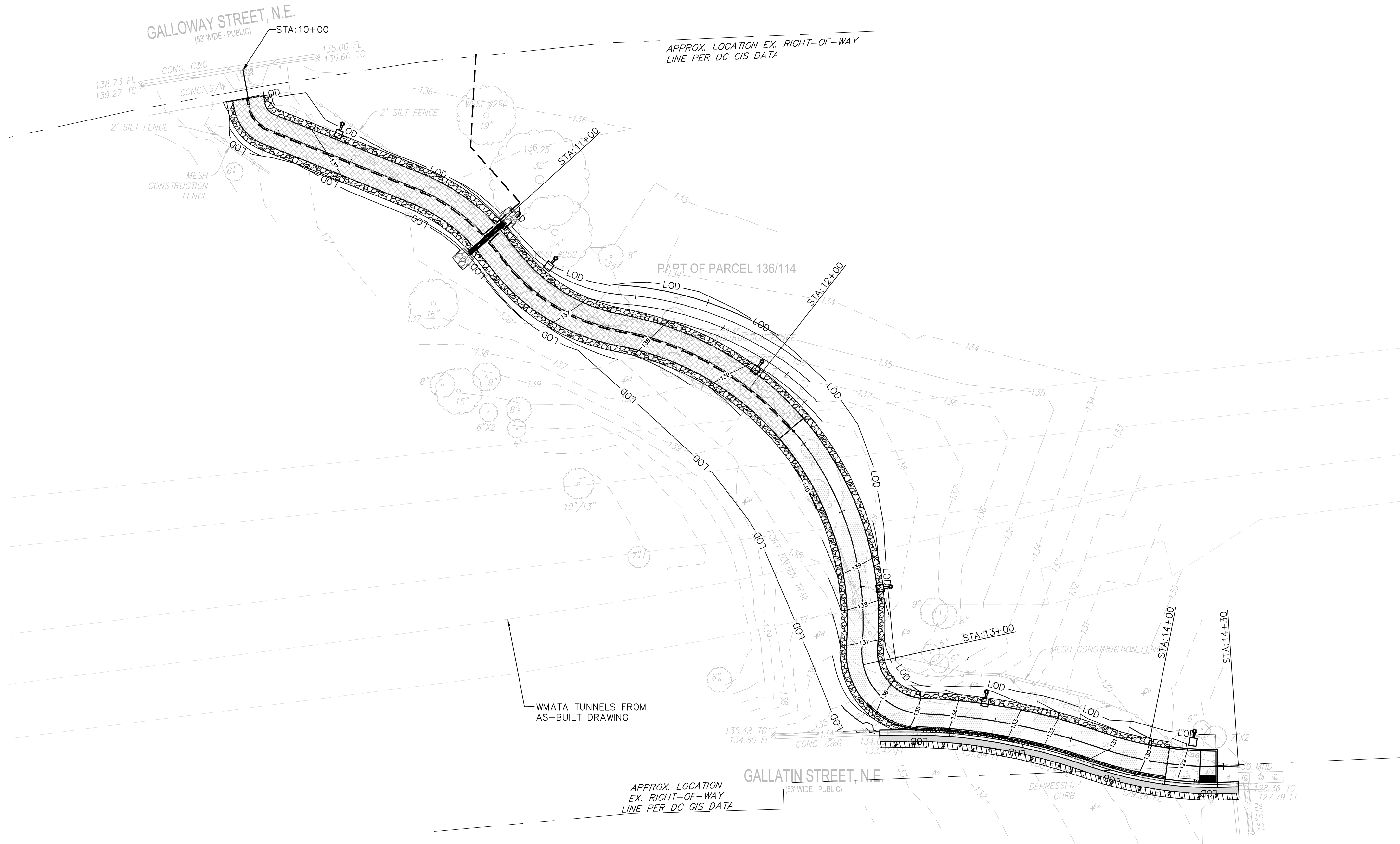


COLLAPSIBLE BOLLARDS DETAIL
(NOT TO SCALE)

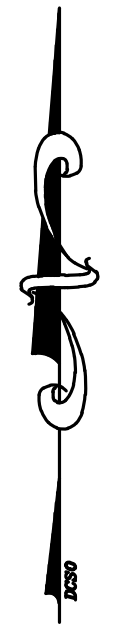
A/E FIRM AECOM 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	DESIGNED
								C-6
TYPICAL SECTIONS								CHECKED
TITLE OF DRAWING								DWG. NO. ROCR
SUB SHEET NUMBER								DATE 2.28.2024
								SHEET 6 OF 27



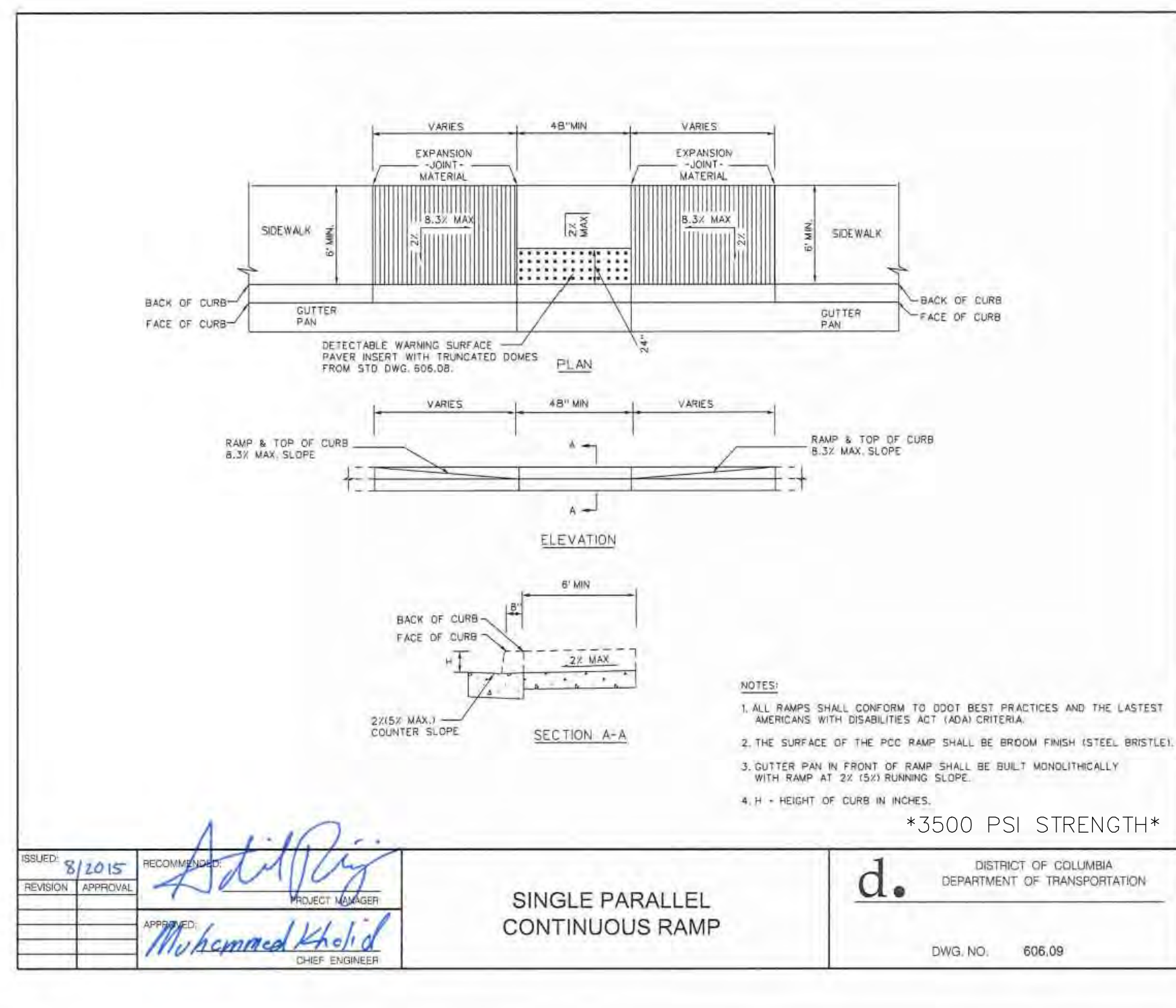
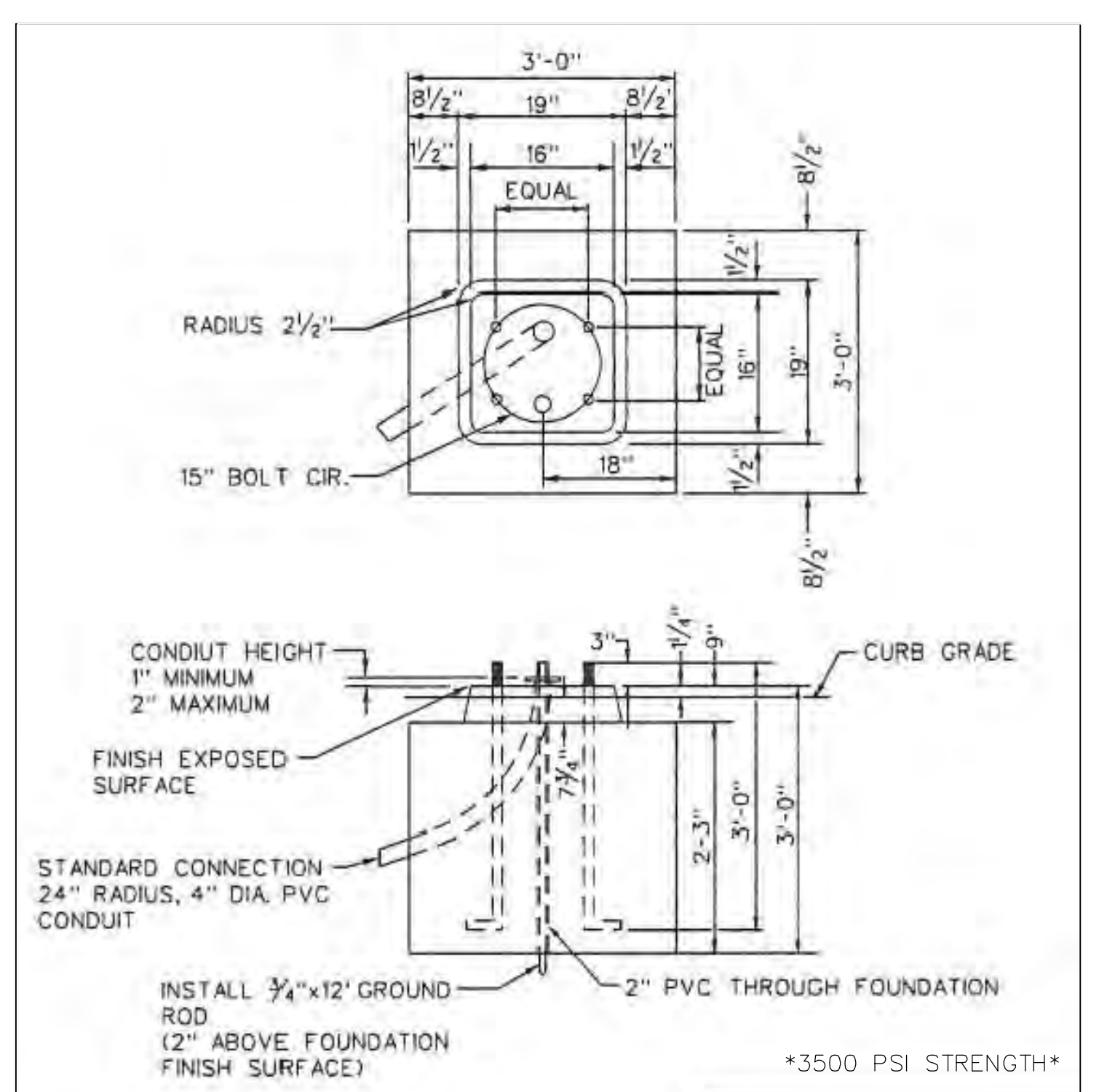
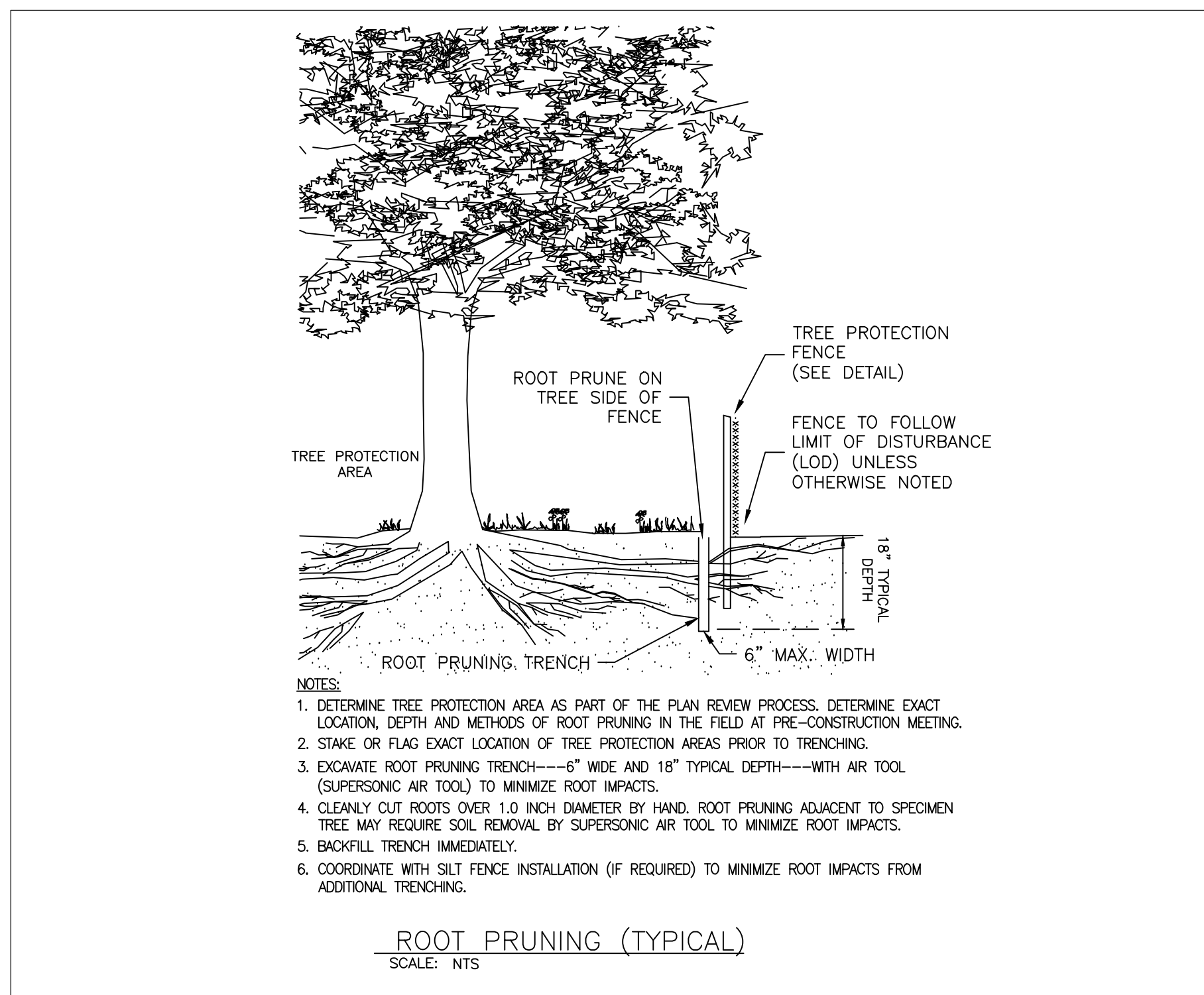
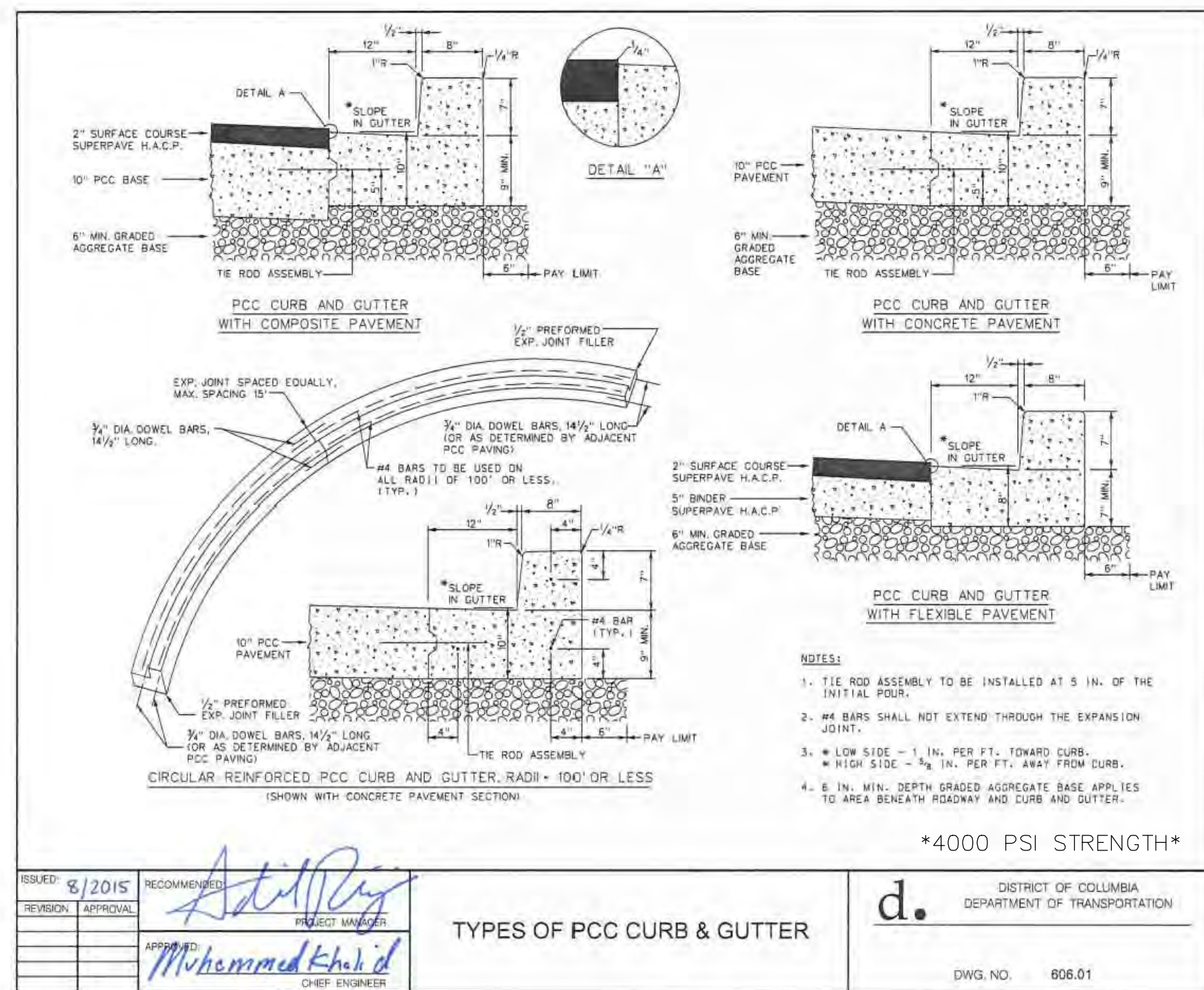
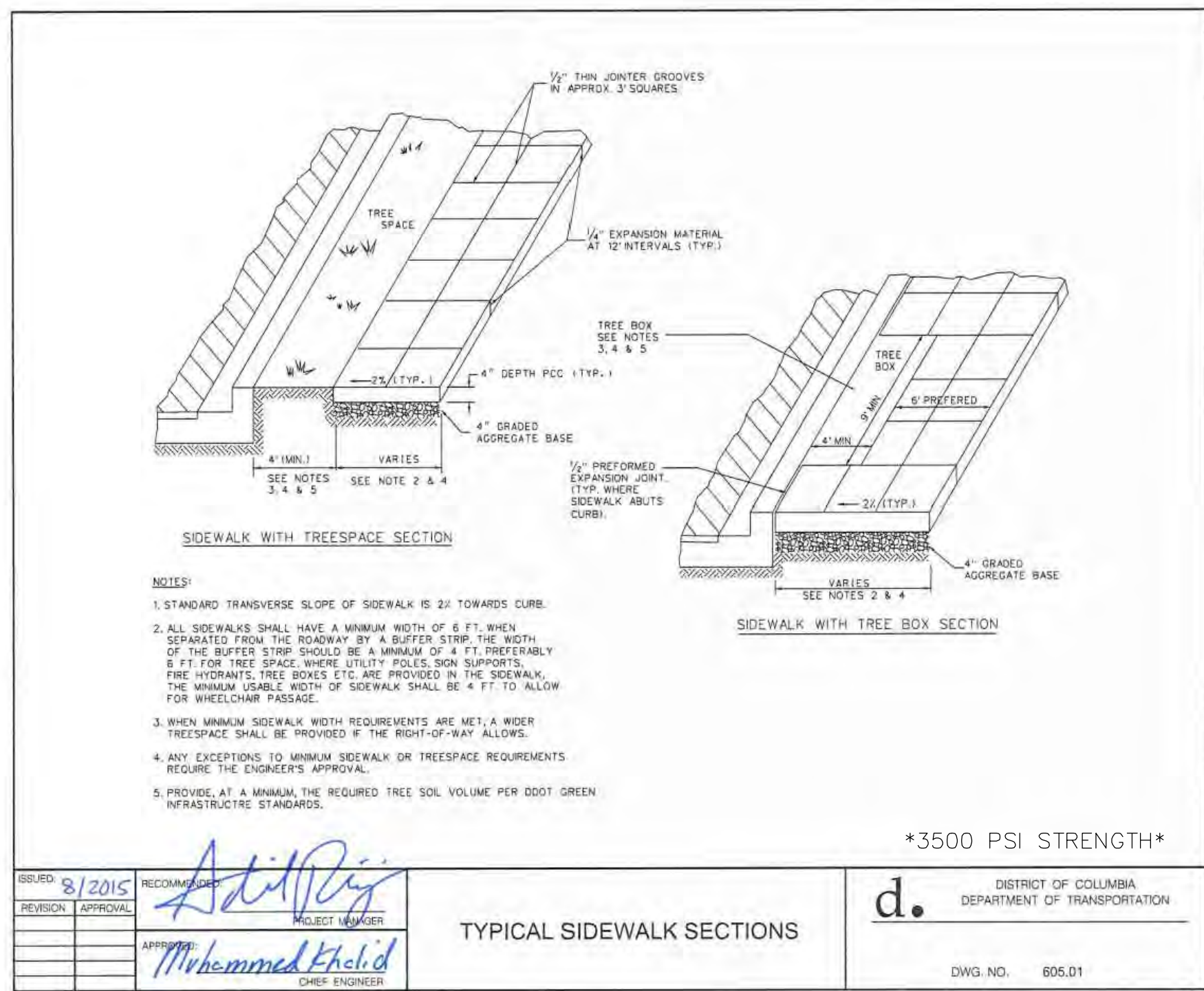
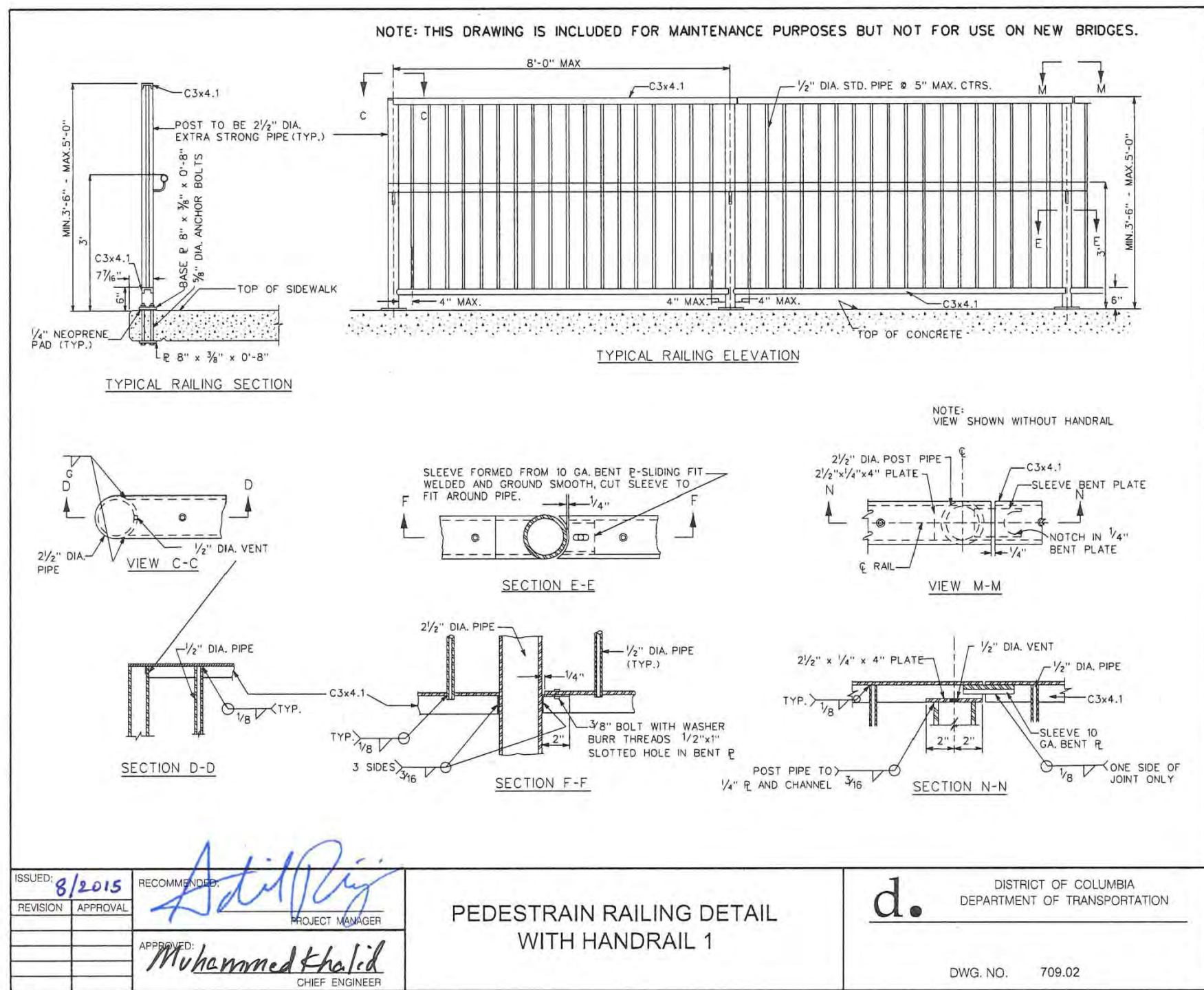
- NOTES:**
1. ABBREVIATION LIST IS LOCATED ON SHEET C-2
 2. LEGEND IS LOCATED ON SHEET C-2
 3. EROSION & SEDIMENT CONTROL LEGEND AND NOTES ARE LOCATED ON SHEET C-3 AND EROSION & SEDIMENT CONTROL DETAILS ARE LOCATED ON SHEET C-3
 4. ALL AREAS DISTURBED NOT COVERED BY PAVEMENT OR CONCRETE SHALL BE PERMANENTLY SEEDED OR SODDED OVER 3 INCHES OF TOPSOIL



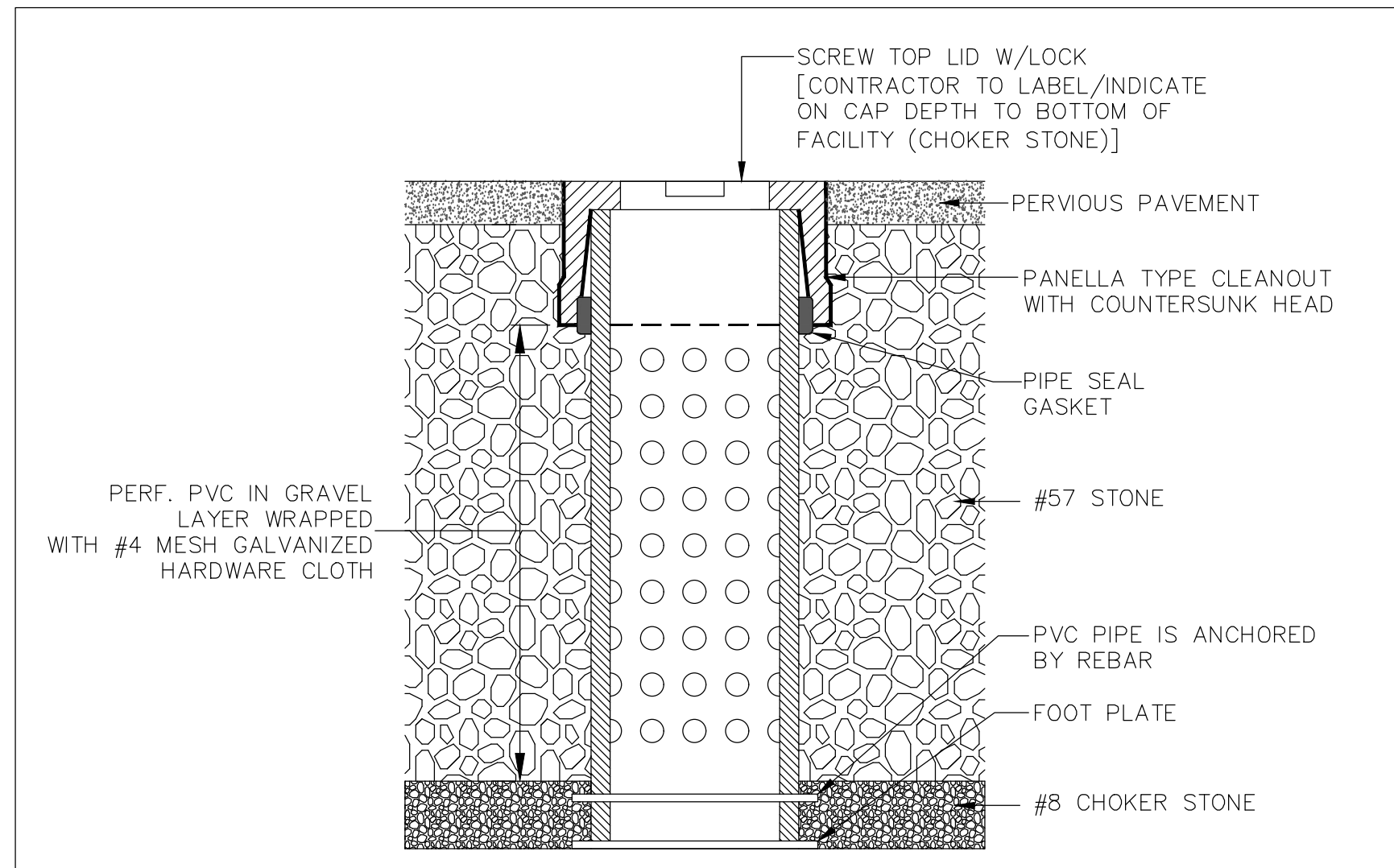
NOTE:
ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. SEE SHEETS L-1 TO L-6



A/E FIRM AECOM <small>3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900</small>	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
	GRADING AND UTILITY PLAN							C-8
TITLE OF DRAWING						SUB SHEET NUMBER	IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	821136939 DATE 2.28.2024 SHEET 8 OF 27

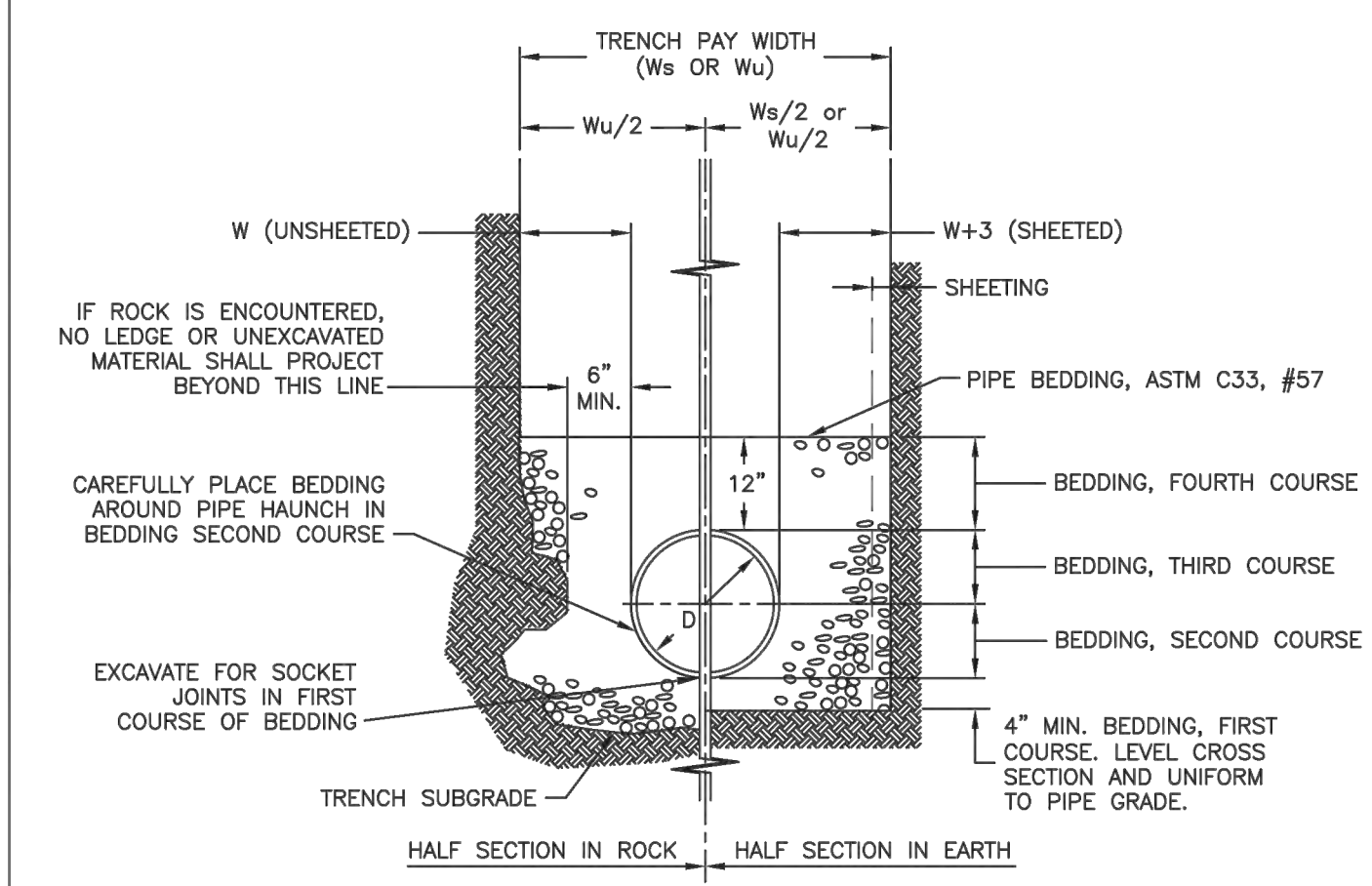


A/E FIRM	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	DESIGNED	
								DRAWN
3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	DETAILS SHEET - 1						C-9 SUB SHEET NUMBER	
	TITLE OF DRAWING							IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK



- EACH OBSERVATION WELL/CLEANOUT SHALL INCLUDE THE FOLLOWING:
1. FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL/CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST TO BOTTOM OF STONE WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
 2. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.

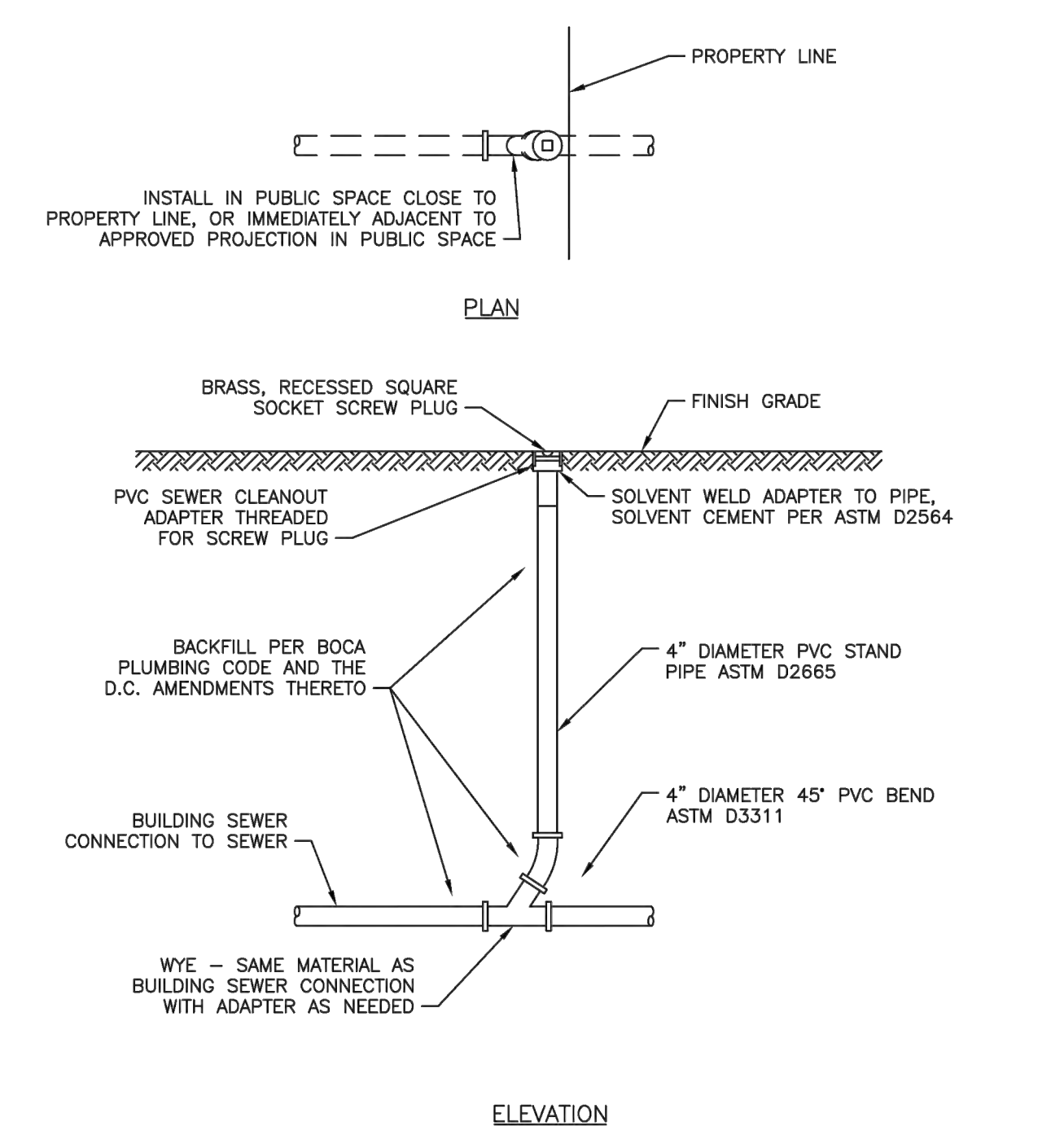
OBSERVATION WELL DETAIL
(NOT TO SCALE)



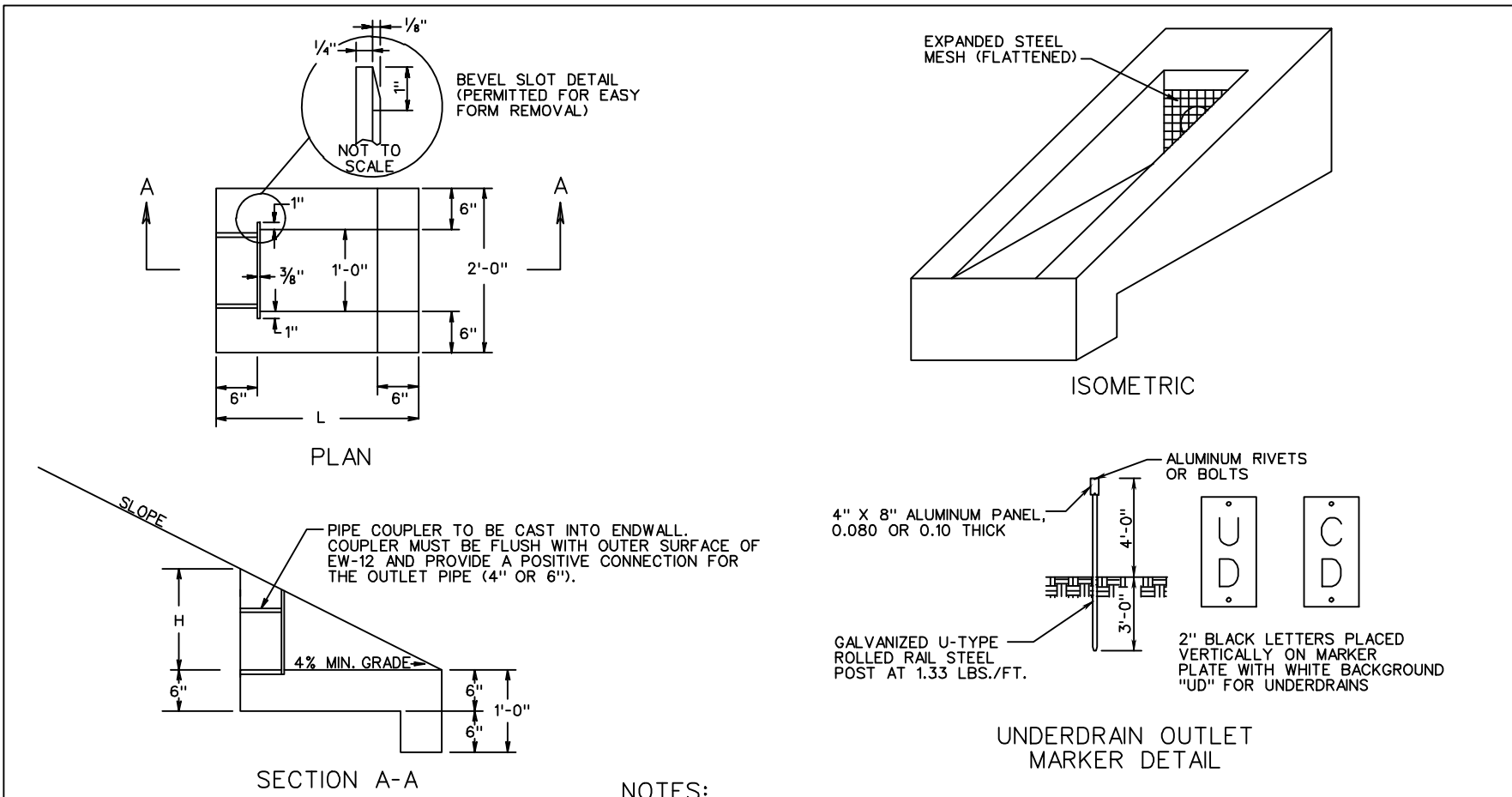
PIPE DIAMETER D	TRENCH WIDTH W	TRENCH PAY WIDTH (Ws OR Wu)	
		TRENCH WIDTH CLEAR	TRENCH PAY WIDTH
10"	12"	2'-11"	3'-5"
12"	12"	3'-0"	3'-6"
15"	12"	3'-3"	3'-9"
18"	12"	3'-7"	4'-1"
21"	12"	3'-10"	4'-4"
24"	12"	4'-1"	4'-7"
27"	12"	5'-4"	5'-10"

- NOTES:
1. IF NECESSARY TO EXCEED W BELOW A HORIZONTAL PLANE 1'-0" ABOVE TOP OF PIPE, SEE SPECIFICATION SECTION 02220.
 2. SHEETING, IF USED, SHALL BE REMOVED IN CONJUNCTION WITH THE BACKFILLING OPERATION UNLESS OTHERWISE SPECIFIED OR SHOWN ON DRAWING.

APPROVED DATE: June 20, 2003
 REVISION NO.: 0
 DATE: 6/20/03
 PREPARED BY: OBG/BK/V
 CHECKED BY: W.DARROW
 STANDARD DETAIL
 POLYVINYL CHLORIDE (PVC) PIPE SEWER
 TRENCH LAYING CONDITION



APPROVED DATE: June 20, 2003
 REVISION NO.: 0
 DATE: 6/20/03
 PREPARED BY: OBG/BK/V
 CHECKED BY: W.DARROW
 STANDARD DETAIL
 BUILDING SEWER COLLECTION CLEANOUT



- NOTES:
1. TYPICAL ENDWALL TO BE PLACED AT THE ENDS OF ALL UNDERDRAIN OUTLETS, BARRING LOCATIONS WHERE UNDERDRAIN IS TIED INTO OTHER DRAINAGE STRUCTURES. ENDWALL TO BE INSTALLED PERPENDICULAR TO ROADWAY AND FLUSH WITH THE SLOPE.
 2. OUTLET PIPES SHALL BE RIGID NONPERFORATED, SMOOTH-BORE PIPE, MEETING THE REQUIREMENTS OF 70 POSTESTED ACCORDING TO ASTM 2412.
 3. EXPANDED STEEL MESH (FLATTENED) SHALL HAVE OPENINGS OF APPROX. 1/2" X 1" AND WEIGH APPROX. 0.82 LBS. PER SQ. FT. MESH SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123. THE MESH SHALL EXTEND A MINIMUM OF 1" ABOVE THE O.D. OF THE PIPE, AND IS A BARRIER FOR RODENTS, ETC. THE SLOT FOR THE STEEL MESH IS TO BE CONSTRUCTED SO THAT THE MESH CAN BE REMOVED FOR CLEANOUT PURPOSES.
 4. THIS ITEM MAY BE PRECAST OR CAST IN PLACE. ALL CONCRETE IS TO BE CLASS 4000.
 5. STEEL POSTS SHALL BE GALVANIZED IN ACCORDANCE WITH DDOT SPECIFICATIONS. ALUMINUM MARKER PLATES SHALL BE ASTM 5052 ALLOY 5052-H38F SHEETING FOR WHITE BACKGROUND AND BLACK LETTERS SHALL CONFORM TO SECTION 8240F OF THE SPECIFICATIONS.
 6. MARKER SHALL BE PLACED AT ALL INSTALLATIONS WITH 2 INCH LETTERS PLACED VERTICALLY DESIGNATING UNDERDRAINS WITH "UD".
 7. MARKER COST IS INCIDENTAL TO UNDERDRAIN ENDWALL.

PIPE I.D.	SLOPE	DIMENSIONS		CLASS 4000 CONCRETE CUBIC YARDS
		L	H	
4"	2:1	2'-5 1/2"	1'-2 3/4"	0.19
4"	3:1	3'-5 1/2"	1'-1 3/4"	0.25
4"	4:1	4'-5"	1'-1 1/4"	0.30
6"	2:1	2'-10 1/2"	1'-5 1/2"	0.20
6"	3:1	4'-1 1/4"	1'-4 1/4"	0.30
6"	4:1	5'-3"	1'-3 3/4"	0.38

ENDWALL FOR PIPE UNDERDRAIN

A/E FIRM AECOM <small>3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900</small>	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL C-11 SUB SHEET NUMBER	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	DESIGNED
								DRAWN
								CHECKED
TITLE OF DRAWING DETAILS SHEET - 3							DWG NO 821136939 DATE 2.28.2024 SHEET 11 OF 27	

SWM/BMP/OUTFALL NARRATIVE:

FORT TOTTEN TRAIL IS LOCATED WITHIN AN NPS "FORT CIRCLE PARK" PROPERTY BETWEEN GALLOWAY ST, NE AND GALLATIN ST, NE, BETWEEN THE METRO RED LINE AND SOUTH DAKOTA AVE, NE. THE SITE IS SURROUNDED TO THE NORTH BY MEDIUM DENSITY RESIDENTIAL DEVELOPMENT, TO THE WEST AND EAST BY PARK AND SOUTH BY LOW DENSITY RESIDENTIAL DEVELOPMENT. GENERALLY, THE WORK INCLUDES THE CONSTRUCTION OF PERMEABLE PAVEMENT TRAIL (POROUS ASPHALT) WITH ASSOCIATED UNDERDRAIN ALONG WITH CONCRETE HANDICAP RAMP, CONCRETE TRAIL, OTHER ASSOCIATED UTILITY WORK (TRAIL LIGHTING) AND LANDSCAPING.

THE PRE-DEVELOPMENT AREA WITHIN THE LIMITS OF DISTURBANCE CONSISTS OF A HIGHLY COMPACTED DIRT TRAIL (EFFECTIVELY IMPERVIOUS AREA) WITH THE REMAINING PORTION BEING TREES/UNDERBRUSH OF FORT TOTTEN PARK. HOWEVER, THIS AREA COVERS THE WMATA GREEN LINE TUNNEL, SO IT IS COMPACTED, NOT NATURAL COVER. THE POST DEVELOPMENT AREA WITHIN THE LIMITS OF DISTURBANCE CONSISTS OF PERMEABLE AND IMPERMEABLE PAVEMENT IN ROUGHLY THE SAME LOCATION AS DIRT TRAIL, WITH THE REMAINING PORTION BEING RESTORED COMPACTED COVER.

THIS SITE IS CONSIDERED A MAJOR LAND DISTURBING ACTIVITY AND IS NOT LOCATED IN THE ANACOSTIA WATERFRONT DEVELOPMENT ZONE, THEREFORE THERE IS NO WATER QUALITY TREATMENT VOLUME REQUIREMENT. AS A PROJECT IN EXISTING PROW, THERE IS NO REQUIREMENT FOR CONTROL OF THE 2-YR OR 15-YR STORMS (2020 DOEE SWM GUIDEBOOK §2.6-2.7).

RETENTION COMPLIANCE COMPUTATIONS ARE BASED ON THE LIMITS OF DISTURBANCE AND THE IMPERVIOUS AREA WITHIN THIS AREA. STORMWATER RETENTION WILL BE PROVIDED BY PERMEABLE PAVEMENT (POROUS ASPHALT WITH STANDARD DESIGN WITH UNDERDRAINS) LOCATED NORTH OF THE TUNNEL, WITH SOME IMPERVIOUS DISCONNECTIONS ALONG WITH TREE PLANTINGS (SEE COMPUTATIONS THIS SHEET). THE DRAINAGE AREA TO THE PERMEABLE PAVEMENT CONSISTS OF THE TRAIL ITSELF (THE RAISED TRAIL CREATES DITCHES THAT DIVERT RUNOFF AROUND IT). THE SLOPE ON THE SOUTH SIDE OF THE TUNNEL IS STEEP (>8%) DUE TO THE TRAIL NEEDING TO BE RAISED TO CLEAR THE TUNNEL; DUE TO THE HIGH SLOPE, PERMEABLE PAVEMENT IS NOT PRACTICAL IN THAT SECTION OF TRAIL, SO IT WILL BE [IMPERMEABLE] CONCRETE. THE PERMEABLE PAVEMENT WILL BE NEED TO BE LINED WITH IMPERMEABLE MEMBRANE DUE TO PROXIMITY TO THE METRO TUNNEL, SO NO INFILTRATION TESTING IS NECESSARY.

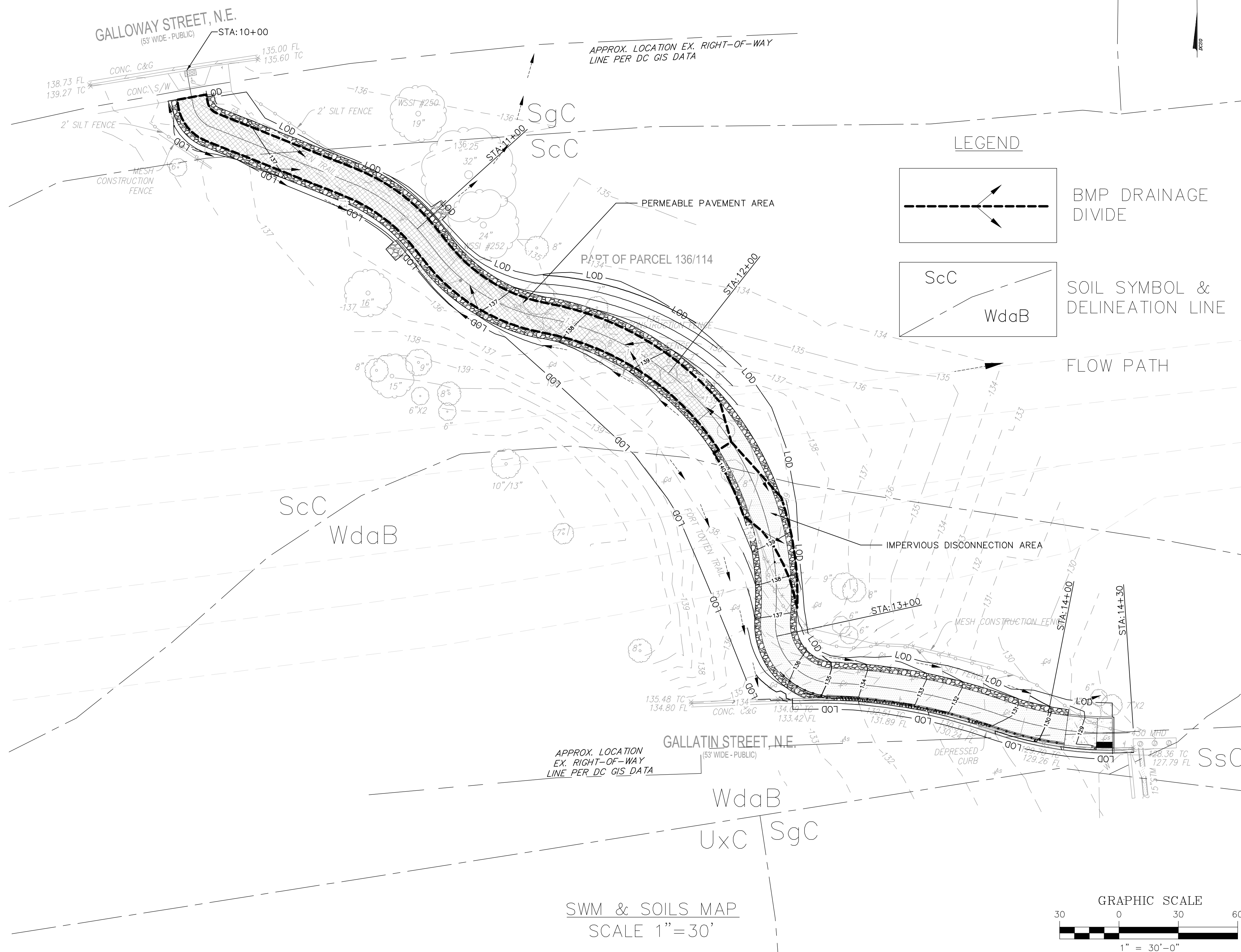
THERE ARE EFFECTIVELY TWO OUTFALLS FROM THE SITE LOCATED TO THE NORTHEAST AND SOUTHEAST OF THE LIMITS OF DISTURBANCE:

OUTFALL #1 IS LOCATED APPROXIMATELY 90 FEET SOUTH FROM THE START OF THE TRAIL AT GALLOWAY ST, NE. THIS OUTFALL TAKES DRAINAGE FROM THE PERMEABLE PAVEMENT UNDERDRAIN DISCHARGE ALONG WITH OVERLAND RUNOFF FROM THE WEST WOODED AREA OF FORT TOTTEN PARK CONVEYED VIA DITCH ON THE WEST SIDE OF THE TRAIL TO A 12" DIP STORM CULVERT UNDERNEATH THE TRAIL. THIS CULVERT IS PROTECTED BY RIVER ROCK STONE INFLOW AND OUTFLOW PROTECTION, AND DRAINS TO THE EXISTING NATURAL DRAINAGE SWALE EAST OF THE TRAIL. THIS OUTFALL COMBINES WITH SHEET FLOW FROM THE TRAIL, COMBINING IN THE GUTTER ALONG GALLOWAY ST.

OUTFALL #2 IS LOCATED TO THE SOUTHEAST AT THE EXISTING CURB INLET IN GALLATIN ST, NE. THIS OUTFALL TAKES DRAINAGE FROM APPROXIMATELY 1/2 OF THE TRAIL TO THE EXISTING STORM CURB INLET ALONG WITH OVERLAND RUNOFF FROM THE WEST WOODED AREA OF FORT TOTTEN PARK CONVEYED VIA DITCH DRAINING TO THE GUTTER ON GALLATIN ST.

SINCE THIS PROJECT IS PROW, THERE IS NO DETENTION REQUIREMENT.

TREES WILL NOT BE PLANTED HERE DUE TO VISIBILITY AND SAFETY CONCERNS. SOME TREES WILL BE PLANTED WITHIN THE AREA OF METROPOLITAN BRANCH TRAIL, BUT THESE WILL NOT BE CREDITED TO FORT TOTTEN TRAIL FOR SWRV. THIS PROJECT WILL NOT BE ABLE TO MEET USUAL SWRV REQUIREMENTS DUE TO THE LIMITED AREA AND LIMITED BMP TYPES AVAILABLE FOR USE. ALL PRACTICAL BMPS HAVE BEEN CONSIDERED, AND THE PROJECT IS BEING REQUESTED TO BE REVIEWED UNDER THE "TRAILS" SECTION OF THE DOEE PRACTICABLE PROCESS, WITH THE REMAINDER OF SWRV REQUIREMENTS WAIVED.



SOIL DATA

ScC = Sassafras gravelly sandy loam, 8 to 15 percent slopes (HSG B)
 WdaB = Woodstown sandy loam, 2 to 5 percent slopes, Northern Coastal Plain (HSG C)
 SgC = Sassafras-Urban land complex, 8 to 15 percent slopes (HSG B)

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								C-12
BMP-SWM PLANS AND NARRATIVE								
TITLE OF DRAWING								
						SUB SHEET NUMBER		

Equation 3.2 Reservoir Layer Minimum Depth

$$d_p = \frac{\left(\frac{P \times Rv \times CDA}{A_p}\right) - (K_{sat} \times t_f)}{\eta_r} = \frac{\left(\frac{1.2/12 \times 0.95 \times 2096 \text{ ft}^2}{2096 \text{ ft}^2}\right) - 0}{0.40} = 0.24$$

$$d_p = \frac{0.095 - 0}{0.40} = 0.24 \text{ feet} \approx 2.85 \text{ inches}$$

where:

- d_p = minimum depth of the reservoir layer (ft)
- P = rainfall depth for the SWRv or other design storm (ft)
- Rv = 0.95 (runoff coefficient of the CDA)
- CDA = total contributing drainage area, including permeable pavement surface area (ft²)
- A_p = permeable pavement surface area (ft²)
- K_{sat} = field-verified saturated hydraulic conductivity for the subgrade soils (ft/day). If an impermeable liner is used in the design, then $K_{sat} = 0$.
- t_f = time to fill the reservoir layer (day) (assume 2 hours or 0.083 day)
- η_r = 0.4 (effective porosity for the reservoir layer)

This equation makes the following design assumptions:

- If the subgrade will be compacted to meet structural design requirements of the pavement section, the measured saturated hydraulic conductivity shall be based on measurement of the subgrade soil subjected to the compaction requirements.
- The porosity (η_r) for No. 57 stone is 0.4.

The depth of the reservoir layer cannot be less than the depth required to meet the pavement structural requirement. The depth of the reservoir layer may need to be increased to meet structural or larger storage requirements.

Designers must ensure that the captured volume in standard designs will drain from the pavement in 36 to 48 hours. For infiltration designs without underdrains or designs with infiltration sumps, can be used to determine the drawdown time in the reservoir layer or infiltration sump. The maximum drawdown time is 48 hours.

Equation 3.3 Drawdown Time

$$t_d = \frac{d_p \times \eta_r}{K_{sat}} \quad \text{N/A, since } K_{sat}=0 \text{ due to liner}$$

where:

- t_d = drawdown time (days)
- d_p = depth of the reservoir layer (for designs without underdrains) or the depth of the infiltration sump (for Enhanced Designs with underdrains) (ft)
- η_r = 0.4 (effective porosity for the reservoir layer)
- K_{sat} = field-verified saturated hydraulic conductivity for the subgrade soils (ft/day). If an impermeable liner is used in the design, then $K_{sat} = 0$.

For designs with underdrains, the drawdown time should be determined using the hydrologic routing or modeling procedures used for detention systems with the depth and head adjusted for the porosity of the aggregate. For more information on orifice design equations, see Appendix H - Design of Flow Control Structures.

The total storage volume provided by the practice, Sv, should be determined using Equation 3.4.

Equation 3.4 Permeable Pavement Storage Volume

$$Sv = A_p [(d_p \times \eta_r) + K_{sat} \times t_f]$$

where:

$$S_v = A_p \times \left[(d_p \times \eta_r) + \left(\frac{t_f}{2}\right) \right] = 2096 \text{ ft}^2 \times [(0.24 \times 0.40) + (0)]$$

$$S_v = 201 \text{ ft}^3$$

- S_v = storage volume (ft³)
- d_p = depth of the reservoir layer (ft)
- η_r = 0.4 (effective porosity for the reservoir layer)
- A_p = permeable pavement surface area (ft²)
- K_{sat} = field-verified saturated hydraulic conductivity for the subgrade soils (ft/day). If an impermeable liner is used in the design, then $K_{sat} = 0$.
- t_f = time to fill the reservoir layer (days) (assume 2 hours or 0.083 days)

Detention Storage Design. Permeable pavement can also be designed to address, in whole or in part, the detention storage needed to comply with channel protection and/or flood control requirements. The designer can model various approaches by factoring in storage within the stone aggregate layer (including chamber structures that increase the available storage volume), expected infiltration, and any outlet structures used as part of the design. Routing calculations can also be used to provide a more accurate solution of the peak discharge and required storage volume.

Once runoff passes through the surface of the permeable pavement system, designers should calculate outflow pathways to handle subsurface flows. Subsurface flows can be regulated using underdrains, the volume of storage in the reservoir layer, the bed slope of the reservoir layer, and/or a control structure at the outlet (see Section 3.5.2, "Permeable Pavement Conveyance Criteria").

Table 3-11 Permeable Pavement Specifications for a Variety of Typical Surface Materials

Material	Specification	Notes
Porous Asphalt (PA)	Void content: 15-20% Thickness: Typically 3-7 inches (depending on traffic load) Open void fill media: None	Reservoir layer required to support the structural load.

Table 3-12 Material Specifications for Typical Layers Beneath the Pavement Surface

Material	Specification	Notes
Bedding Layer	PC: 3-4 inches of No. 57 stone if No. 2 stone is used for Reservoir Layer PA: 3-4 inches of No. 57 stone PP: Follow manufacturer specifications	ASTM D448 size No. 57 stone (i.e., 1/2 to 1-1/2 inches in size). Must be washed clean and free of fines (no more than 2% passing the No. 200 sieve)
Reservoir Layer	PC: No. 57 stone or No. 2 stone PA: No. 2 stone PP: Follow manufacturer specifications	ASTM D448 size No. 57 stone; No. 2 Stone (i.e., 3/4 to 3 inches in size). Depth is based on the pavement structural and hydraulic requirements. Must be washed clean and free of fines. Other appropriate materials may be used if accepted by DOE.
Underdrain	Use 4- to 6-inch diameter perforated PVC pipe (or equivalent corrugated HDPE) may be used for smaller load-bearing applications), with 3 or 4 rows of 3/8-inch perforations at 6 inches on center. Perforated pipe installed for the full length of the permeable pavement cell, and non-perforated pipe, as needed, used to connect with the storm drain system. T's and Y's should be installed as needed, depending on the underdrain configuration. Extend cleanout pipes to the surface.	
Infiltration Sump (optional)	An aggregate storage layer below the underdrain invert. The material specifications are the same as Reservoir Layer.	
Filter Layer (optional)	The underlying native soils should be separated from the stone reservoir by a 2- to 4-inch layer of choker stone (e.g., No. 8).	
Geotextile (optional)	Use an appropriate geotextile fabric for both sides and/or bottom that complies with AASHTO M-288 Class 2 requirements and has a permeability of at least an order of magnitude (10 times) higher than the soil subgrade permeability. Low-permeability geotextile fabric may be used as a check dam material.	
Impermeable Liner (optional)	Where appropriate, use PVC geomembrane liner or equivalent.	
Observation Well	Use a perforated 4- to 6-inch vertical PVC pipe (AASHTO M-252) with a lockable cap, installed flush with the surface.	

3.5.6 Permeable Pavement Construction Sequence

Experience has shown that proper installation is critical to the effective operation of a permeable pavement system.

Soil Erosion and Sediment Controls. The following soil erosion and sediment control guidelines must be followed during construction:

- All permeable pavement areas must be fully protected from sediment intrusion by silt fence or construction fencing, particularly if they are intended to infiltrate runoff.
- Permeable pavement areas intended to infiltrate runoff must remain outside the limits of disturbance during construction to prevent soil compaction by heavy equipment and loss of design infiltration rate (unless the area has been determined to have a low California Bearing Ratio and will require compaction during the permeable pavement construction phase) (ASTM, 2009). Where it is infeasible to keep the proposed permeable pavement areas outside of the limits of disturbance, there are several possible remedies for the impacted area.
 - If excavation in the proposed permeable pavement areas can be restricted, then remediation can be achieved with deep tilling practices. This is only possible if in situ soils are not disturbed any deeper than 2 feet above the final design elevation of the bottom of the aggregate reservoir course. In this case, when heavy equipment activity has ceased, the area is excavated to grade, and the impacted area must be tilled to a depth of 12 inches below the bottom of the reservoir layer.
 - Alternatively, if it is infeasible to keep the proposed permeable pavement areas outside of the limits of disturbance, and excavation of the area cannot be restricted, then infiltration tests will be required prior to installation of the permeable pavement to ensure that the design infiltration rate is still present. If tests reveal the loss of design infiltration rates, then deep tilling practices may be used in an effort to restore those rates. In this case, further testing must be done before the permeable pavement can be installed to establish that design rates have been achieved.
 - Finally, if it is infeasible to keep the proposed permeable pavement areas outside of the limits of disturbance, excavation of the area cannot be restricted, and infiltration tests reveal design rates cannot be restored, then a resubmission of the SWMP will be required.
- Permeable pavement areas must be clearly marked on all construction documents and grading plans.
- During construction, care should be taken to avoid tracking sediments onto any permeable pavement surface to avoid post-construction clogging and long-term maintenance issues.

- Any area of the site intended ultimately to be a permeable pavement area with an infiltration component should not be used as the site of a temporary sediment trap or basin. If locating a temporary sediment trap or basin on an area intended for permeable pavement is unavoidable, the remedies are similar to those discussed for heavy equipment compaction.
 - If it is possible, restrict the invert of the sediment trap or basin to at least 1 foot above the final design elevation of the bottom of the aggregate reservoir course of the proposed permeable pavement. Then remediation can be achieved with proper removal of trapped sediments and deep tilling practices.
 - An alternate approach to deep tilling is to use an impermeable liner to protect the in situ soils from sedimentation while the sediment trap or basin is in use.
 - In each case, all sediment deposits in the excavated area must be carefully removed prior to installing the sub-base, base, and surface materials. The plan must also show the proper procedures for converting the temporary sediment control practice to a permeable pavement BMP, including dewatering, cleanout, and stabilization.

Permeable Pavement Installation. The following is a typical construction sequence to properly install permeable pavement, which may need to be modified depending on the particular type of permeable pavement that is being installed.

Step 1: Stabilize Contributing Drainage Area. Construction of the permeable pavement should only begin after the entire CDA has been stabilized. The proposed site should be checked for existing utilities prior to any excavation. Do not install the system in rain or snow and do not install frozen bedding materials.

Step 2: Install Soil Erosion and Sediment Control Measures for the Permeable Pavement. As noted above, temporary soil erosion and sediment controls are needed during installation to divert stormwater away from the permeable pavement area until it is completed. Special protection measures, such as erosion control fabrics, may be needed to protect vulnerable side slopes from erosion during the excavation process. The proposed permeable pavement area must be kept free from sediment during the entire construction process. Construction materials contaminated by sediment must be removed and replaced with clean material.

Step 3: Minimize Impact of Heavy Installation Equipment. Where possible, excavators or backhoes should work from the sides to excavate the reservoir layer to its appropriate design depth and dimensions. For small pavement applications, excavating equipment should have arms with adequate extension so they do not have to work inside the footprint of the permeable pavement area (to avoid compaction). Contractors can utilize a cell construction approach, whereby the proposed permeable pavement area is split into 500- to 1,000-square foot temporary cells with a 10- to 15-foot-wide earth bridge in between, so cells can be excavated from the side. Excavated material should be placed away from the open excavation so as to not jeopardize the stability of the side walls.

Step 4: Promote Infiltration Rate. The native soils along the bottom of the permeable pavement system should be scarified or tilled to a depth of 3 to 4 inches prior to the placement of the filter layer or geotextile fabric. In large-scale paving applications with weak soils, the soil subgrade may need to be compacted to 95% of the Standard Proctor Density to achieve the desired load-bearing capacity.

Note: This may reduce or eliminate the infiltration function of the installation, and it must be addressed during hydrologic design.

Step 5: Order of Materials. Geotextile fabric should be installed on the sides of the reservoir layer (and the bottom if the design calls for it). Geotextile fabric strips should overlap down-slope by a minimum of 2 feet and be secured a minimum of 4 feet beyond the edge of the excavation. Where the filter layer extends beyond the edge of the pavement (to convey runoff to the reservoir layer), install an additional layer of geotextile fabric 1 foot below the surface to prevent sediment from entering into the reservoir layer. Excess geotextile fabric should not be trimmed until the site is fully stabilized.

Step 6: Install Base Material Components. The up-gradient end of underdrains in the reservoir layer should be capped. Where an underdrain pipe is connected to a structure, there shall be no perforations within 1 foot of the structure. Ensure there are no perforations in clean-outs and observation wells within 1 foot of the surface.

Step 7: Stone Media. Spread 6-inch lifts of the appropriate stone aggregate (usually No. 2 or No. 57 stone) washed clean and free of fines. Place at least 4 inches of additional aggregate above the underdrain, and then compact it using a vibratory roller in static mode until there is no visible movement of the aggregate. Do not crush the aggregate with the roller.

Step 8: Reservoir Media. Install the desired depth of the bedding layer, depending on the type of pavement, as indicated in Table 3-12.

Step 9: Paving Media. Paving materials shall be installed in accordance with manufacturer or industry specifications for the particular type of pavement.

Installation of Porous Asphalt. The following has been excerpted from various documents, most notably Jackson (2007):

- Install porous asphalt pavement similarly to regular asphalt pavement. The pavement should be laid in a single lift over the filter course. The laying temperature should be between 230°F and 260°F, with a minimum air temperature of 50°F, to ensure the surface does not stiffen before compaction.
- Complete compaction of the surface course when the surface is cool enough to resist a 10-ton roller. One or two passes of the roller are required for proper compaction. More rolling could cause a reduction in the porosity of the pavement.
- The mixing plant must provide certification of the aggregate mix, abrasion loss factor, and asphalt content in the mix. Test the asphalt mix for its resistance to stripping by water using the standards in ASTM D1664. If the estimated coating area is not above 95%, additional anti-stripping agents must be added to the mix.
- Transport the mix to the site in a clean vehicle with smooth dump beds sprayed with a non-petroleum release agent. The mix shall be covered during transportation to control cooling.
- Test the full permeability of the pavement surface by application of clean water at a rate of at least 5 gallons per minute over the entire surface. All water must infiltrate directly, without puddle formation or surface runoff.
- Inspect the facility 18 to 30 hours after a significant rainfall (0.5 inch or greater) or artificial flooding to determine if the facility is draining properly.

*THE FOLLOWING TASKS MUST BE AVOIDED FOR THE PERMEABLE PAVEMENT:
 i.) SANDING
 ii.) RE-SEALING
 iii.) RE-SURFACING
 iv.) POWER WASHING
 v.) STORAGE OF SNOW PILES CONTAINING SAND
 vi.) STORAGE OF MULCH OR SOIL MATERIALS
 vii.) CONSTRUCTION STAGING ON UNPROTECTED PAVEMENT

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						SUB SHEET NUMBER	DESIGNED DRAWN CHECKED
TITLE OF DRAWING BMP-SWM COMPUTATIONS & DETAILS						SUB SHEET NUMBER	DESIGNED DRAWN CHECKED
TITLE OF DRAWING							
UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT							DESIGNED DRAWN CHECKED
IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK							
DATE							821136939
DATE							2.28.2024
SHEET							13 OF 27

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment



Construction and Maintenance Branch

Permeable Pavement - CONSTRUCTION INSPECTION REPORT

Building Permit # _____ Plan and File # _____ Lot: _____ Square: _____
 Project Address: _____ Ward: _____
 Contractor: _____ Email: _____
 Engineer: _____ Email: _____
 Responsible For Maintenance: _____ Email: _____
 Date Started: _____ Final Inspection Date: _____ As-Built Plan Due Date: _____

Inspection Items	Yes	No	Remarks	Date Completed
Permeable pavement type: <input type="checkbox"/> Standard <input type="checkbox"/> Enhanced				
Site Preparation: Have erosion and sediment controls been properly installed according to approved plans?				
Is storm water runoff being diverted around the facility?				
Has the contributing drainage area been fully stabilized?				
Subgrade Preparation: Is subgrade suitable free of debris, standing water, properly graded?				
If enhanced design (for infiltration), is subgrade compaction avoided?				
Filter Layer or Filter Fabric (where Applicable): Does the filter layer and/or filter fabric meet the specifications and is it installed according to the plan specifications?				
Underdrain and Reservoir Layer: Does the underdrain meet specifications with correct hole pattern, elevation, slope, size, and number? Are caps placed on the upstream (but not the downstream) ends of the underdrains? Is the upstream end of the underdrain capped? Does the stone reservoir meet specifications (clean, washed, free of fines) and is it installed to design depth? Is at least 2 inches of aggregate provided above and (for standard design) a maximum of 2 inches below the underdrains?				
Surface Material: Does the surface material meet the specification and has it been properly installed? Is the surface slope to spec (max 5%) and can runoff spread evenly across it? Has the surface material had adequate curing time (for Porous Asphalt and Pervious Concrete)? Is the surface free of fines and areas of clogging?				
Over Flow Drain (where Applicable): Is overflow invert at correct elevation?				
Observation Well: Is observation well(s) placed per plan specification?				
Setback: If facility is within 10 feet of property line/building, is adequate waterproofing protection provided?				
Final Inspection: Observation well(s)/cleanout(s) free of construction debris and sediment? Can water infiltrate properly into the practice?				

Note: Material invoices and certifications should be submitted to show conformance to specifications.

Owner/Agent _____ Inspector _____ Date _____

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment



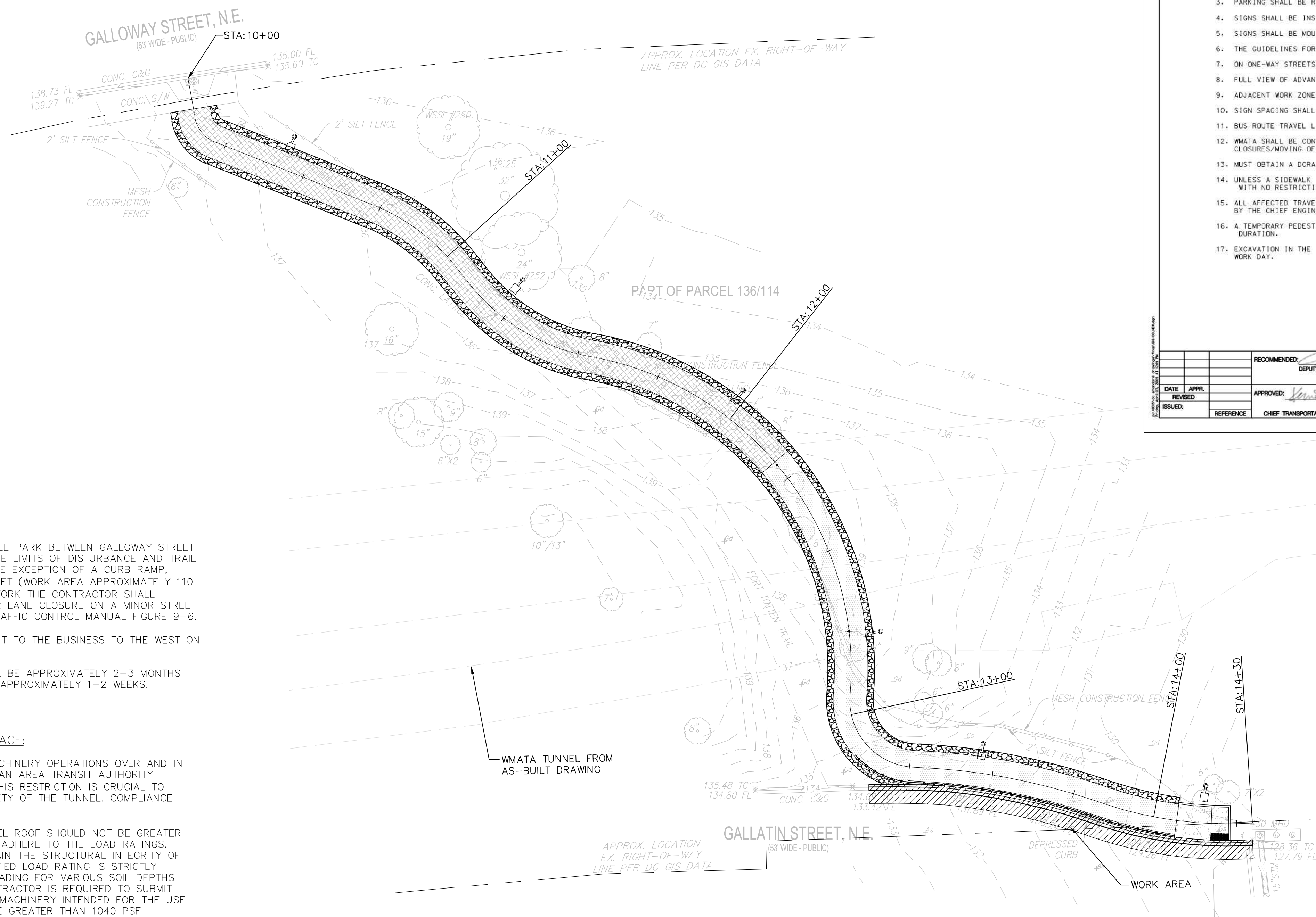
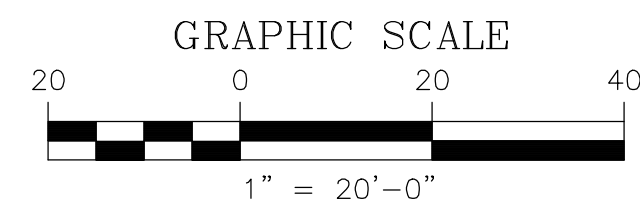
Permeable Pavement Maintenance Inspection Report

Name/Facility Address:	File/Plan no.:
Owner/Agent:	Ward:
Mailing Address:	
Phone/Email:	
Date/Weather:	
Maintenance Item	
Yes/No/N/A	
Comments	
1. Surface Condition	
Clear of debris/sediment/weeds:	
Evidence of surface clogging:	
Sweeping needed:	
Surface deformation or spalling:	
Structure repair needed:	
2. Underdrains and Cleanouts	
Underdrain(s):	
Observation well(s):	
Evidence of surface clogging:	
Standing water:	
Last rain event → I#:	____ Hours / ____ Days
3. Overflow	
Overflow device:	
Debris and sediment in overflow:	
Overflow repair needed:	
Actions to be Taken:	

DEPARTMENT OF ENERGY & ENVIRONMENT
1200 First Street, NE, 5th Floor, Washington, DC 20002 | (202) 535-2600 | doee.dc.gov



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PERMEABLE PAVEMENT CONSTRUCTION & MAINTENANCE CHECKLISTS TITLE OF DRAWING						SUB SHEET NUMBER		CHECKED DWS. NO. ROCR 821136939 DATE 2.28.2024 SHEET 15 of 27



MAINTENANCE OF TRAFFIC NARRATIVE

THIS PROPERTY IS LOCATED WITHIN FORT CIRCLE PARK BETWEEN GALLOWAY STREET AND GALLATIN STREET NE WASHINGTON DC. THE LIMITS OF DISTURBANCE AND TRAIL IMPROVEMENTS ARE WITHIN THE PARK WITH THE EXCEPTION OF A CURB RAMP, RETAINING WALL AND CURB ON GALLATIN STREET (WORK AREA APPROXIMATELY 110 SQUARE FEET COMBINED). TO PERFORM THIS WORK THE CONTRACTOR SHALL ADHERE TO TEMPORARY TRAFFIC CONTROL FOR LANE CLOSURE ON A MINOR STREET PER THIS SHEET FROM THE DC TEMPORARY TRAFFIC CONTROL MANUAL FIGURE 9-6.

THE CONTRACTOR SHALL ALLOW ENTRANCE/EXIT TO THE BUSINESS TO THE WEST ON GALLATIN STREET VIA FLAGGERS.

CONSTRUCTION FOR THESE IMPROVEMENTS WILL BE APPROXIMATELY 2-3 MONTHS AND THE WORK AT GALLATIN STREET WILL BE APPROXIMATELY 1-2 WEEKS.

RESTRICTION ON HEAVY MACHINERY USAGE:

DURING THE CONSTRUCTION PHASE, HEAVY MACHINERY OPERATIONS OVER AND IN THE VICINITY OF THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY (WMATA) TUNNEL ARE STRICTLY PROHIBITED. THIS RESTRICTION IS CRUCIAL TO ENSURE THE STRUCTURAL INTEGRITY AND SAFETY OF THE TUNNEL. COMPLIANCE WITH THIS LIMITATION IS MANDATORY.

AT ANY GIVEN TIME, TOTAL LOADING ON TUNNEL ROOF SHOULD NOT BE GREATER THAN 1040 PSF. CONTRACTOR MUST STRICTLY ADHERE TO THE LOAD RATINGS. THIS LOAD LIMITATION IS ESSENTIAL TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE TUNNEL. ANY DEVIATION FROM THE SPECIFIED LOAD RATING IS STRICTLY PROHIBITED. THE TABLE BELOW SHOWS THE LOADING FOR VARIOUS SOIL DEPTHS FOR THE BUILT CONDITION OF THE TRAIL. CONTRACTOR IS REQUIRED TO SUBMIT THE SIMILAR TABLE INCLUDING THE LOADS OF MACHINERY INTENDED FOR THE USE OVER TUNNEL. TOTAL LOADING SHOULD NOT BE GREATER THAN 1040 PSF.

PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES WITHIN THE TUNNEL, CONTRACTORS MUST SUBMIT DETAILED CONSTRUCTION METHODOLOGIES TO NPS (NATIONAL PARK SERVICE), AECOM, AND WMATA FOR APPROVAL. THESE CONSTRUCTION METHODOLOGIES SHOULD PROVIDE A COMPREHENSIVE OVERVIEW OF THE TECHNIQUES, PROCESSES, AND EQUIPMENT TO BE USED DURING THE CONSTRUCTION PHASE.

TUNNEL LOAD RATINGS TABLE

Soil Depth over Roof (ft)	Unit Weight of Soil (pcf)	Dead Load of Soil (psf)	Pedestrian Live Load (psf)	Total Load on Tunnel Roof (psf)
8	130	1040		1040
7	130	910	150	1060
6	130	780	150	930
5	130	650	150	800
4	130	520	150	670
3	130	390	150	540
2	130	260	150	410

GENERAL NOTES:

- ALL TRAFFIC CONTROL SHALL CONFORM TO THE MOST STRINGENT STANDARDS SET FORTH IN THE LATEST EDITIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE DDOT WORK AREA TRAFFIC CONTROL MANUAL AND DDOT STANDARDS SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES.
- TYPICAL CAN BE USED ONLY IF IT REFLECTS ACTUAL ROADWAY CONFIGURATION.
- PARKING SHALL BE RESTRICTED 72 HOURS IN ADVANCE UNLESS THERE IS AN EMERGENCY.
- SIGNS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK AND REMOVED IMMEDIATELY AFTER COMPLETION OF ACTIVITIES.
- SIGNS SHALL BE MOUNTED ON SPRING LOADED STANDS.
- THE GUIDELINES FOR SIGN AND CONE SPACING ARE LISTED IN THE MUTCD.
- ON ONE-WAY STREETS SIGNS SHALL BE INSTALLED ON BOTH SIDES OF ROADWAY APPROACHING WORK ZONE.
- FULL VIEW OF ADVANCE WARNING SIGNS SHALL BE CLEAR OF OBSTRUCTION ON APPROACH TO WORK ZONE.
- ADJACENT WORK ZONES SHALL COORDINATE SIGNAGE TO AVOID CONFUSING MESSAGES.
- SIGN SPACING SHALL BE ADJUSTED TO AVOID CONFLICT WITH EXISTING PERMANENT SIGNAGE.
- BUS ROUTE TRAVEL LANES SHALL BE A MINIMUM OF 11 FEET IN WIDTH.
- WMATA SHALL BE CONTACTED AT (202) 962-1811 PRIOR TO ANY WORK ALONG A BUS ROUTE. WMATA MUST APPROVE ALL CLOSURES/MOVING OF BUS STOPS IN ADVANCE. FOR LONGER TERM BUS STOP RELOCATION, CALL WMATA AT (202) 962-5678.
- MUST OBTAIN A DCRA NOISE PERMIT FOR RESIDENTIAL WEEKEND AND NIGHT-TIME WORK.
- UNLESS A SIDEWALK IS FULLY OR PARTIALLY CLOSED, A MINIMUM OF 6 FEET WIDTH WITH NO RESTRICTION (FREE OF FIXTURE) SHALL BE MAINTAINED.
- ALL AFFECTED TRAVEL LANES MUST MAINTAIN A 10 FOOT MINIMUM WIDTH UNLESS OTHERWISE APPROVED BY THE CHIEF ENGINEER.
- A TEMPORARY PEDESTRIAN ACCESS MUST BE PROVIDED FOR A SIDEWALK CONSTRUCTION OVER 2 WEEKS DURATION.
- EXCAVATION IN THE SIDEWALK SHALL BE PLATED OR TEMPORARILY BACKFILLED AT THE END OF EACH WORK DAY.

SPEED (MPH)	MINIMUM CONE SPACING (FT)
15	100
20	150
25	200
30	250
35	300
40	350
45	400
50	450
55	500
60	550
65	600
70	650

DATE:	APPR.:	RECOMMENDED:
REVISED:	APPROVED:	DEPUTY CHIEF ENGINEER
ISSUED:	REFERENCE:	CHIEF TRANSPORTATION ENGINEER

TCP GENERAL NOTES

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION
DWG. NO. 618.00

D.C. TEMPORARY TRAFFIC CONTROL MANUAL July 2006

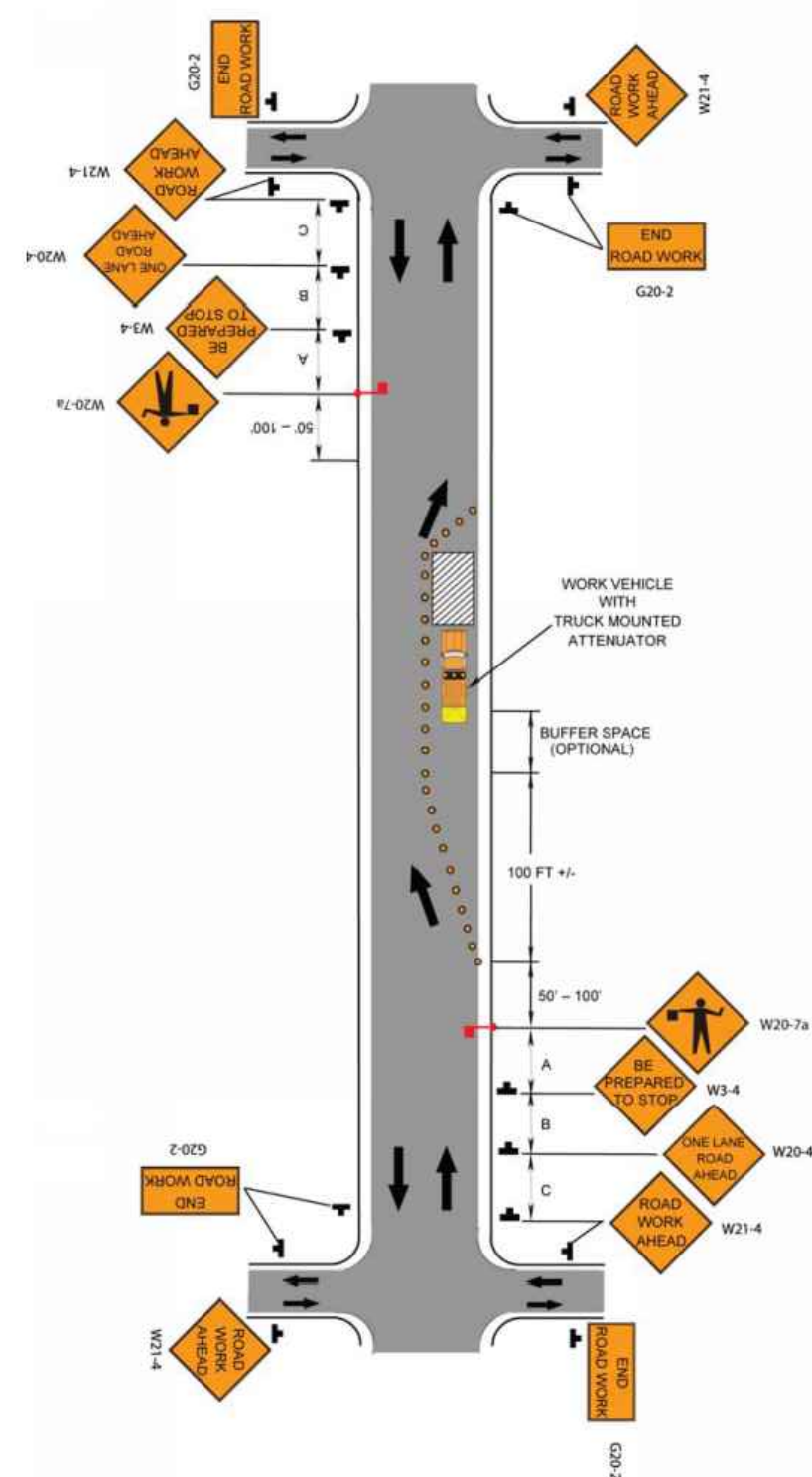


Figure 9-6. Typical Application: Lane Closure on a Minor Street

d. District Department of Transportation 9-15

A/E FIRM AECOM 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
	MAINTENANCE OF TRAFFIC PLAN TITLE OF DRAWING							C-16 SUB SHEET NUMBER
							IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	

ELECTRICAL GENERAL NOTES


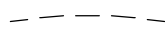

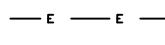

1. SCOPE: PROVIDE AND INSTALL ALL ELECTRICAL SYSTEMS AS INDICATED AND REQUIRED, COMPLETE AND OPERABLE.
 2. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, SERVICES AND SKILLED SUPERVISION NECESSARY FOR THE CONSTRUCTION, RIGGING, ERECTION, INSTALLATION, CONNECTION, TESTING AND ADJUSTMENT OF ALL CIRCUITS AND ELECTRICAL EQUIPMENT SPECIFIED HEREIN OR SHOWN, OR NOTED ON THE DRAWINGS. DELIVER MATERIALS AND EQUIPMENT TO SITE PROTECTED, COMPLETE IN ALL RESPECTS, READY FOR INSTALLATION.
 3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, AND SHALL BE FABRICATED IN ACCORDANCE WITH INDUSTRY STANDARDS.
 - A. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
 - B. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
 - C. UNDERWRITERS LABORATORIES (UL)
 - D. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - E. ILLUMINATION ENGINEERING SOCIETY (IES)
 - F. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
- INSTALLATION SHALL CONFORM WITH THE FOLLOWING CODES AND REGULATIONS:
- G. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS
 - H. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) REGULATIONS
 - I. ARCHITECTURAL BARRIER ACT (ABA)
 - J. THE INTERNATIONAL BUILDING CODE (IBC)
 - K. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
 - 1) NFPA 70, NATIONAL ELECTRICAL CODE (NEC)
 - 2) NFPA 101, CODE FOR SAFETY TO LIFE FROM FIRE IN BUILDINGS AND STRUCTURES (LIFE SAFETY CODE)
 - L. NATIONAL PARK SERVICE REGULATIONS
4. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE INTENT OF THE PLANS AND SPECIFICATIONS. MANUFACTURER, MODEL, SERIES AND CATALOG NUMBERS ARE USED HERE STRICTLY AS REFERENCE. THEY REPRESENT THE TYPE, SIZE, CONSTRUCTION, PERFORMANCE AND LEVEL OF QUALITY DESIRED. EQUIPMENT AND APPURTENANCES FROM OTHER MANUFACTURERS THAT MATCH OR SURPASS THE CHARACTERISTICS OF THOSE REFERENCED WILL BE ACCEPTABLE AND SUBJECT TO APPROVAL OF THE NATIONAL PARK SERVICE REPRESENTATIVE.
 5. CONSULT CIVIL PLANS AND DETAILS FOR TYPES OF CONSTRUCTION, DUCT BANK ROUTING, HANDHOLE LOCATION AND DETAILS. NATIONAL PARK SERVICE REPRESENTATIVE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THOSE DRAWINGS.
 6. INSTALLATION OF MATERIALS, CONDUITS, WIRING, ETC., SHALL CONFORM TO APPLICABLE REGULATIONS AND MANUFACTURER'S RECOMMENDATIONS.
 7. MATERIALS AND SUBSTITUTIONS: THE CONTRACTOR SHALL SUBMIT A LIST OF ALL MATERIALS AND EQUIPMENT TO THE NATIONAL PARK SERVICE REPRESENTATIVE FOR APPROVAL. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PERMISSION OF THE NATIONAL PARK SERVICE REPRESENTATIVE IN WRITING.
 8. ALL CUTTING AND PATCHING SHALL BE PERFORMED IN A WORKMANLIKE MANNER ACCEPTABLE TO THE CONTRACTING OFFICER'S REPRESENTATIVE. WHERE CUTTING AND PATCHING ARE REQUIRED, IT SHOULD BE COORDINATED WITH THE CO/CS/COR.
 9. CONDUITS: ALL CONDUITS SHALL BE PVC FOR UNDERGROUND DUCTS AND RIGID GALVANIZED STEEL CONDUIT FOR EXPOSED CONDUITS.


10. WARNING SIGN AND SAFETY MEASURE: PROVIDE SIGN, BARRICADE, GUARDS, AND PROTECTION FOR SAFETY. WORK AREA SHALL BE KEPT CLEAN, CLEAR OF OBSTRUCTIONS, WELL ILLUMINATED, AND UNDER ORGANIZED MATERIAL STORAGE.
11. CIRCUIT AND SPACE ADJUSTMENT: IF THE EQUIPMENT SELECTED FOR INSTALLATION HAS DIFFERENT RATING AND PHYSICAL SIZES FROM THOSE SHOWN, CONTRACTOR SHALL MAKE ADJUSTMENT TO CIRCUIT CAPACITY, BREAKER TRIP, DISCONNECT SWITCH AND FUSES, TO SUIT AS RECOMMENDED BY MANUFACTURERS, AT NO ADDITIONAL COST TO THE GOVERNMENT. EQUIPMENT THAT DOES NOT FIT INTO AVAILABLE SPACES AND/OR HAVING FRONT CLEARANCE LESS THAN THAT REQUIRED BY NEC, SHALL NOT BE USED.
12. WIRE AND CABLE: TYPE THWN, 600 VOLT, COPPER CONDUCTORS, COLOR CODED. THE MINIMUM SIZE TO BE #12 A.W.G., 75°C TEMPERATURE RATING.
13. GROUNDING: ALL SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), AND ALL LOCAL CODES. PROVIDE GROUND WIRE FOR EACH PIECE OF EQUIPMENT. GROUND SYSTEM SHALL BE TESTED. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR FOR ALL CIRCUITS INSTALLED.
14. TESTING: ALL SYSTEMS, EQUIPMENT AND ELECTRICAL WIRING WORK SHALL BE TESTED AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION AND TO THE SATISFACTION OF THE CO/CS/COR.
15. CLEANING: REMOVE FROM SITE ALL MATERIALS NOT USED IN THIS PROJECT. CLEAR ALL DEBRIS FROM AREA OF WORK AND LEAVE SITE IN CLEAN CONDITION.

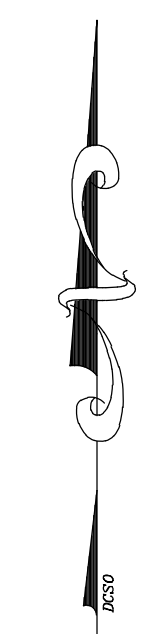
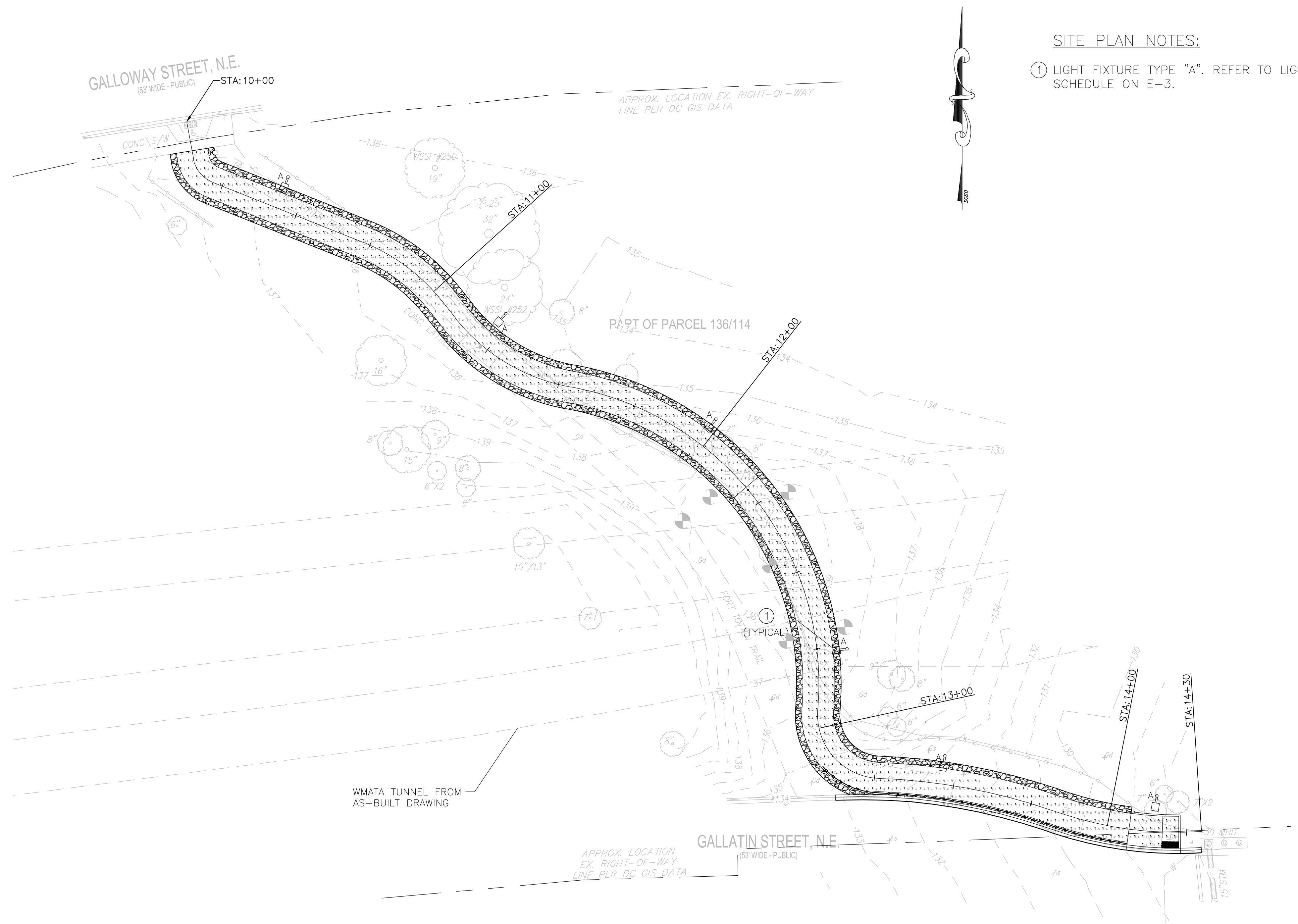
ABBREVIATIONS:

A	AMPERE
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
°C	DEGREES CELSIUS
COTR	CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE
DEMO	DEMOLITION
DIA	DIAMETER
DISC	DISCONNECT
DWG	DRAWING
E	EXISTING
EA	EACH, EXHAUST AIR
E.C.	EMPTY CONDUIT
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ER	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
EX	EXISTING
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METALLIC CONDUIT
FNC	FLEXIBLE NONMETALLIC CONDUIT
G	GROUND
GALV	GALVANIZED
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS
kW	KILOWATT
kWh	KILOWATT-HOUR
kVA	KILOVOLT-AMPERE
kVAR	KILOVOLT-AMPERE REACTIVE
LFMC	LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT
m	METER
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MH	MOUNTING HEIGHT
MIN	MINIMUM
MLO	MAIN LUGS ONLY
mm	MILLIMETER
NEC	NATIONAL ELECTRICAL CODE
NECA	NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
No.	NUMBER
NTS	NOT TO SCALE
P	POLE, PUMP
PH	PHASE
PNL	PANELBOARD
R	RELOCATED DEVICE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
V	VOLT
W	WATT, WIRE
W/	WITH
WP	WEATHERPROOF
X	EXISTING TO BE REMOVED

ELECTRICAL SYMBOLS:

	LED LIGHT FIXTURE ON 12' LIGHT POLE
	UNDERGROUND PVC CONDUIT
	UTILITY POLE
	UTILITY OVERHEAD LINE
	NEW WORK KEY NOTE

A/E FIRM  3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4800	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
ELECTRICAL NOTES, ABBREVIATIONS, SYMBOLS TITLE OF DRAWING						E-1	IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	CHECKED
								821136939 DATE 2.28.2024 SHEET 19 of 27

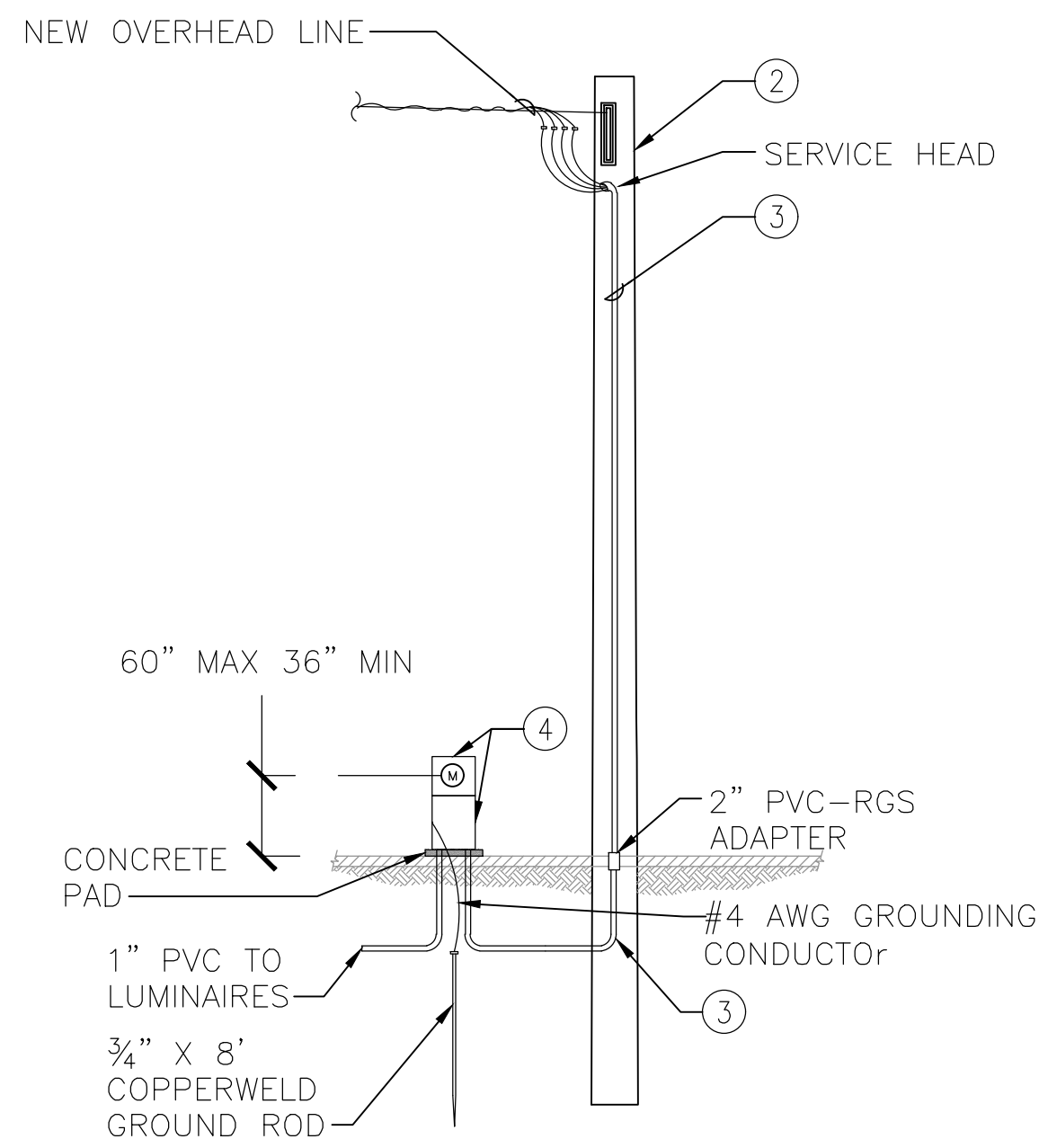


SITE PLAN NOTES:
 ① LIGHT FIXTURE TYPE "A". REFER TO LIGHT FIXTURE SCHEDULE ON E-3.

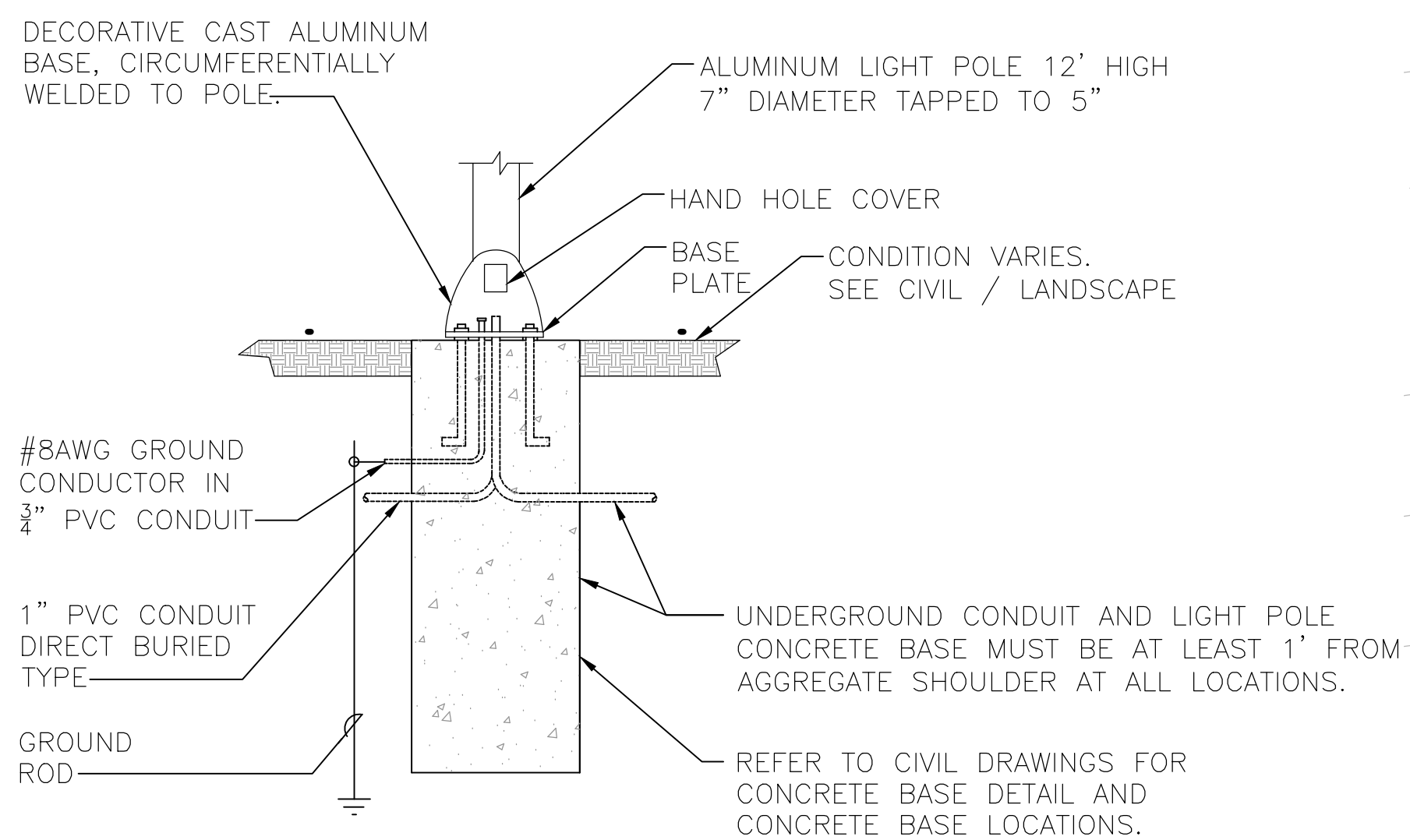
CALCULATION SUMMARY							
CALC LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
TRAIL	ILLUMINANCE	FC	2.31	6.2	0.9	2.57	6.89

AASHTO SUGGESTED MAINTAINED ILLUMINANCE VALUES			
WALKWAY CLASSIFICATION	LIGHT SOURCES	AVERAGE MAINTAINED ILLUMINANCE	ILLUMINANCE UNIFORMITY RATIO
		(FOOT-CANDLES)	
	GENERAL LAND USE	(MIN)	AVG/MIN
PEDESTRIAN WAYS & BICYCLE LANES	ALL	2.0	3:1

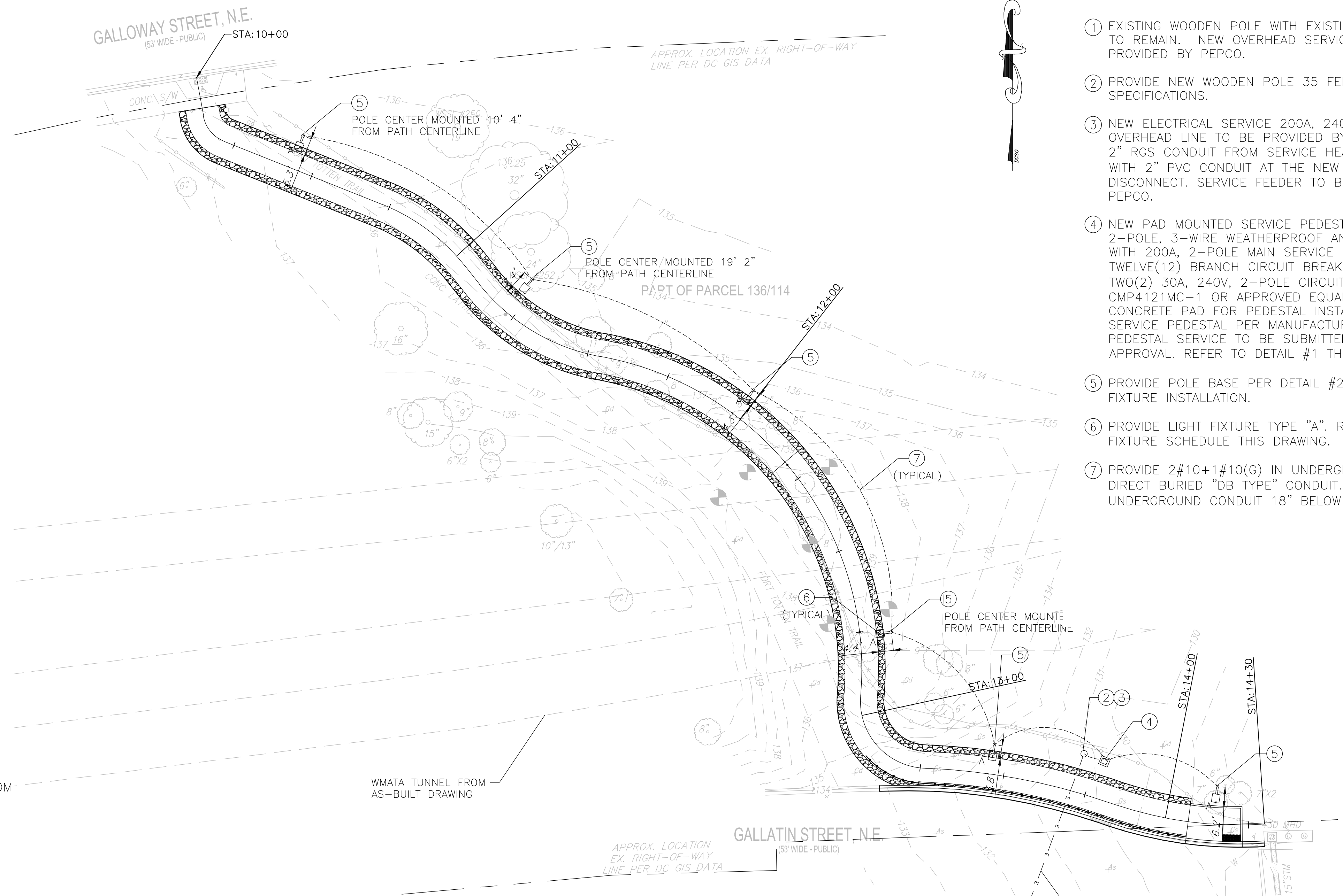
A/E FIRM AECOM <small>3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900</small>	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT IMPROVE & FORMALIZE FORT TOTTEN TRAIL <small>TITLE OF PROJECT</small> GALLOWAY ST. & GALLATIN ST., NE <small>LOCATION WITHIN PARK</small> FORT TOTTEN TRAIL (ROCR) <small>NAME OF PARK</small>	DESIGNED
								E-2 <small>SUB SHEET NUMBER</small>
PHOTOMETRIC CALCULATION SHEET								
TITLE OF DRAWING								



① PEPCO OVERHEAD SERVICE DETAIL NOT TO SCALE



② LIGHT POLE DETAIL NOT TO SCALE



SITE PLAN NOTES:

- ① EXISTING WOODEN POLE WITH EXISTING OVERHEAD LINES TO REMAIN. NEW OVERHEAD SERVICE LINES TO BE PROVIDED BY PEPCO.
- ② PROVIDE NEW WOODEN POLE 35 FEET HIGH PER PEPCO SPECIFICATIONS.
- ③ NEW ELECTRICAL SERVICE 200A, 240V 1-PHASE AND OVERHEAD LINE TO BE PROVIDED BY PEPCO. PROVIDE 2" RGS CONDUIT FROM SERVICE HEAD TO TERMINATE WITH 2" PVC CONDUIT AT THE NEW MOUNTED SERVICE DISCONNECT. SERVICE FEEDER TO BE PROVIDED BY PEPCO.
- ④ NEW PAD MOUNTED SERVICE PEDESTAL 200A, 240V, 2-POLE, 3-WIRE WEATHERPROOF AND PEPCO METER WITH 200A, 2-POLE MAIN SERVICE CIRCUIT BREAKER, TWELVE(12) BRANCH CIRCUIT BREAKER PANEL WITH TWO(2) 30A, 240V, 2-POLE CIRCUIT BREAKERS, EATON CMP4121MC-1 OR APPROVED EQUAL. PROVIDE CONCRETE PAD FOR PEDESTAL INSTALLATION. INSTALL SERVICE PEDESTAL PER MANUFACTURER INSTRUCTIONS. PEDESTAL SERVICE TO BE SUBMITTED TO PEPCO FOR APPROVAL. REFER TO DETAIL #1 THIS DRAWING.
- ⑤ PROVIDE POLE BASE PER DETAIL #2 FOR LIGHT FIXTURE INSTALLATION.
- ⑥ PROVIDE LIGHT FIXTURE TYPE "A". REFER TO LIGHT FIXTURE SCHEDULE THIS DRAWING.
- ⑦ PROVIDE 2#10+1#10(G) IN UNDERGROUND 1" PVC DIRECT BURIED "DB TYPE" CONDUIT. INSTALL UNDERGROUND CONDUIT 18" BELOW GRADE.

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION	MH (AFF)	LAMP			VOLT	REMARKS
					QTY.	TYPE	COLOR		
A	US ARCHITECTURAL LIGHTING	DSS2-VLED-11-48LED-350mA-240-XPD-RAL-8019	DSS SERIES LED LUMINAIRE, CAST ALUMINUM HOUSING, IES DISTRIBUTION II, PHOTOCCELL, WET LABEL, FULL CUT-OFF; DARK BRONZE SMOOTH FINISH	POLE	1	LED 53W	3000K, 82 CRI	240	12 FOOT ALUMINUM POLE SUN VALLEY 25-1075C STANDARD TENONS WITH 2500 BASE CAST ALUMINUM.

A/E FIRM



3101 Wilson Boulevard, Suite 900
Arlington, Virginia 22201
703-640-4800

Mark	Sheet	REVISION	Date	Initial

ELECTRICAL PLAN SHEET
TITLE OF DRAWING

70% SUBMITTAL

E-3

SUB SHEET NUMBER

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION
DESIGN AND PROJECT MANAGEMENT

IMPROVE & FORMALIZE FORT TOTTEN TRAIL
TITLE OF PROJECT
GALLOWAY ST. & GALLATIN ST., NE
LOCATION WITHIN PARK
FORT TOTTEN TRAIL (ROCR)
NAME OF PARK

DESIGNED	
DRAWN	
CHECKED	
DWG. NO.	ROCR
DATE	2.28.2024
SHEET	21 OF 27

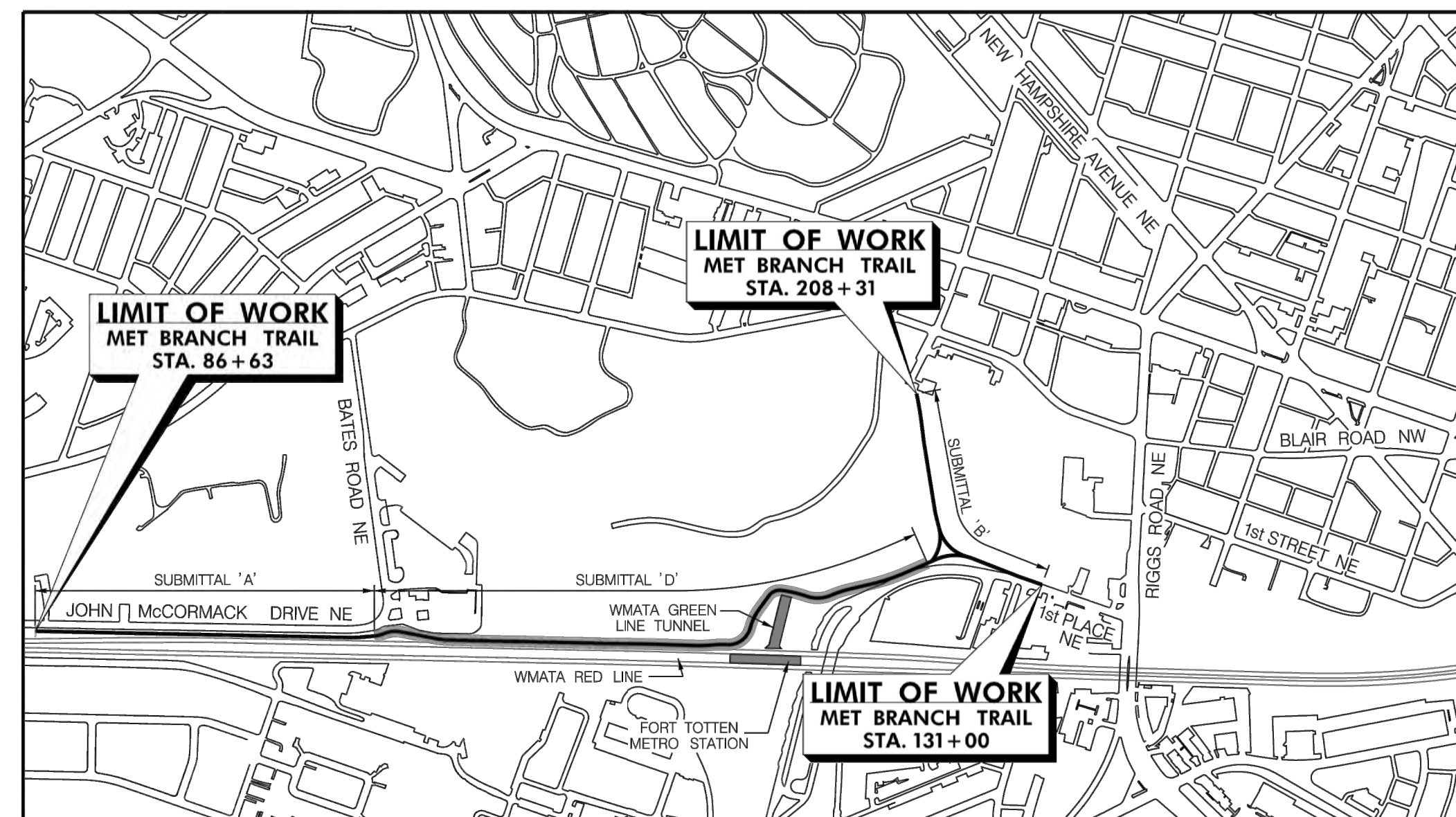
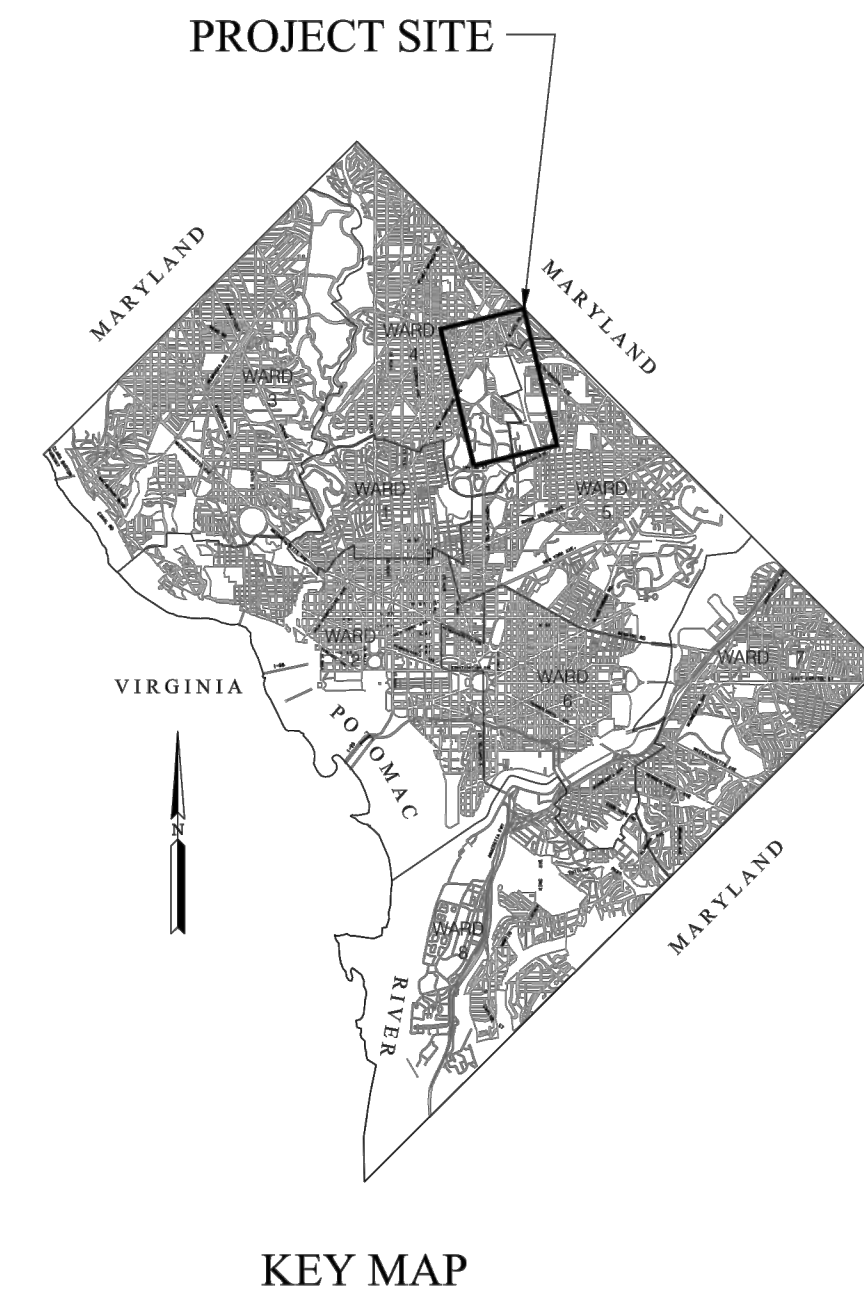
F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	D.C.	2016 10601	1	96

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION PLAN OF PROPOSED METROPOLITAN BRANCH TRAIL SOUTH DESIGN BUILD SEGMENT FROM BROOKLAND TO FORT TOTTEN

FROM JOHN McCORMACK DRIVE NE TO 1ST PLACE NE
LENGTH OF PROJECT: 5300 FT

DC F.A.P. NO. 2016(060)
DC CONTRACT NO. DCKA-2016-C-0044

SUBMITTAL 'D' STA. 101+85 TO STA. 127+60



HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91
VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

M CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
2820 DORR AVENUE, SUITE 230
FAIRFAX, VA 22031
PHONE: (571) 282-4099

DESCRIPTION	NAME	DATE

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION	DEPT. OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
RECOMMENDED FOR APPROVAL: PROGRAM MANAGER / TEAM 3, WARDS 5 & 6	APPROVED: DIVISION ADMINISTRATOR
APPROVED: CHIEF ENGINEER / DEPUTY DIRECTOR	DATE: _____

NEW TREES ARE NOT RECOMMENDED ALONG THE FT. TOTTEN TRAIL IN ORDER TO PRESERVE OPEN LINES OF SIGHT FOR PEDESTRIANS DUE TO SECURITY CONCERNS.

ADDITIONAL TREES ARE PROPOSED AT THE METROPOLITAN BRANCH TRAIL AS LANDSCAPE IMPACT MITIGATION FOR THE FT. TOTTEN TRAIL.

ORIGINAL PLAN SHEETS OF THE METROPOLITAN BRANCH TRAIL PROJECT ARE USED TO DENOTE LOCATIONS, QUANTITIES, AND TYPES OF PROPOSED TREES PLANTED AS PART OF THE FT. TOTTEN TRAIL PROJECT.

 CV INC. 1395 PICCARD DR, SUITE 370 ROCKVILLE, MD 20850	 DISTRICT OF COLUMBIA COURTNEY G. VIVAS No. PE 901861 PROFESSIONAL ENGINEER
<p>SHEET NOS. 23 - 46 (STORMWATER MANAGEMENT, STORM DRAIN, EROSION & SEDIMENT CONTROL)</p> <p>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 DISTRICT OF COLUMBIA.</p> <p>DC LICENSE NO. PE901861 EXPIRATION DATE: 8-31-2020</p>	 DISTRICT OF COLUMBIA VENETIA HAGA V. PIVOTI No. PE909005 PROFESSIONAL ENGINEER
 DANIEL CONSULTANTS, INC. CONSULTING ENGINEERS AND PLANNERS 8950 R.I. 08 E. SUITE 229 COLUMBIA, MD 20945 PHONE: 410-995-0090 FAX: 410-992-7038	 DISTRICT OF COLUMBIA THOMASZ KUBICKI No. PE906412 PROFESSIONAL ENGINEER
<p>SHEET NOS. 61 - 71 (LIGHTING PLANS, SCHEMATICS, STANDARD DETAILS & TABLES)</p> <p>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 DISTRICT OF COLUMBIA.</p> <p>DC LICENSE NO. PE909006 EXPIRATION DATE: 8-31-2020</p>	 DISTRICT OF COLUMBIA M. CENTURY ENGINEERING No. PE906412 PROFESSIONAL ENGINEER
<p>SHEET NOS. AND OTHER CLARIFICATIONS ALL REMAINING SHEETS - TRAIL, TRAFFIC, MOT, STRUCTURES</p> <p>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 DISTRICT OF COLUMBIA.</p> <p>DC LICENSE NO. PE906412 EXPIRATION DATE: 8-31-2020</p>	 DISTRICT OF COLUMBIA M. CENTURY ENGINEERING No. PE906412 PROFESSIONAL ENGINEER

Wednesday, November 20, 2019 AT 10:26 AM
T:\2017\Transportation\0001 MB Trail DB Project\CADD\000-1000-MTB-SUB-D.dgn

NOTE:

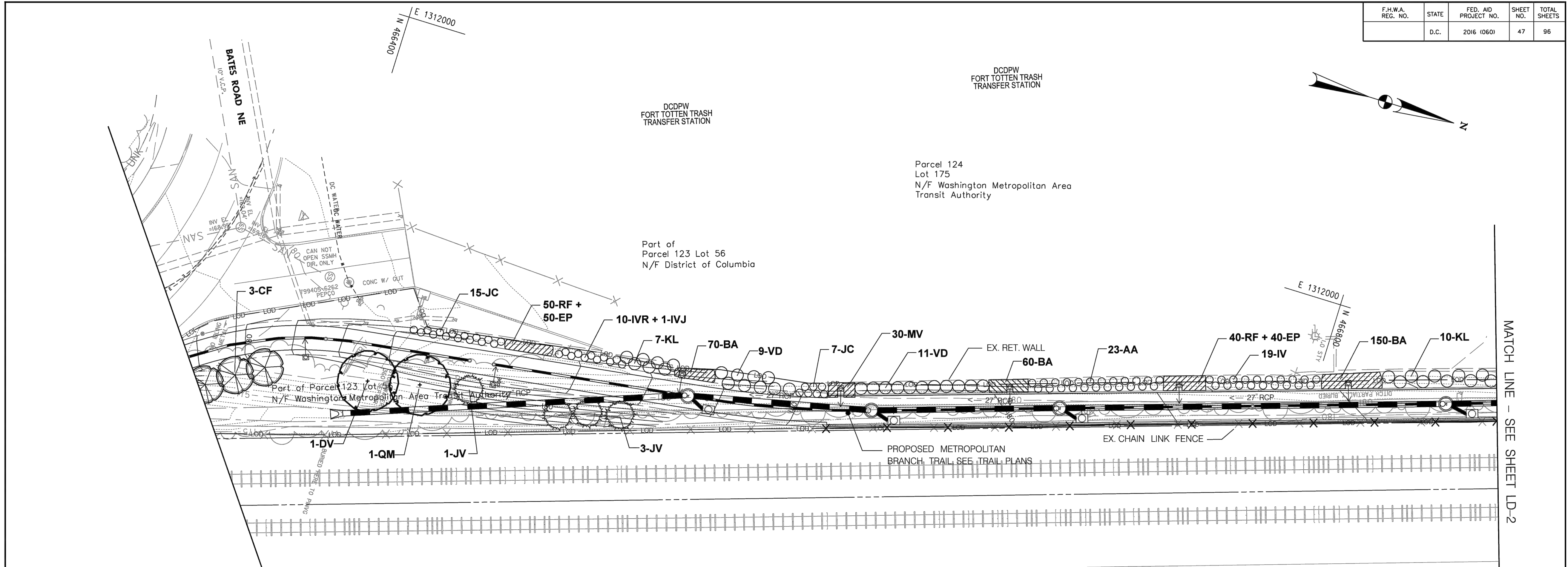
ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWRv CREDIT.

ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLDED TREES.

METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS

 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
								L-1 SUB SHEET NUMBER

F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	D.C.	2016 10601	47	96



KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SHADE TREES					
DV	1	Diospyros virginiana	Common Persimmon *	2"-2 1/2" cal.	B & B, specimen
NS		Nyssa sylvatica 'Wildfire'	Wildfire Black Gum	2"-2 1/2" cal.	B & B, specimen
QA		Quercus alba	White Oak	2"-2 1/2" cal.	B & B, specimen
QM	1	Quercus montana	Chestnut Oak	2"-2 1/2" cal.	B & B, specimen
QV		Quercus velutina	Black Oak	2"-2 1/2" cal.	B & B, specimen
Total	2				
FLOWERING TREES					
AC		Amelanchier canadensis	Downy Serviceberry	6'-8' ht.	B & B, multi-stem, 3 stem min.
AT		Asimina triloba	Common Pawpaw *	6'-8' ht.	B & B, strong central leader
CC		Carpinus caroliniana	American Hornbeam	1 1/2"-2" cal.	B & B, strong central leader
CF	3	Cornus florida 'Appalachian Spring'	Appalachian Spring Flowering Dogwood	1 1/2"-2" cal.	B & B, multi-stem, 3 stem min.
Total	3				
EVERGREEN TREES					
IOK		Ilex opaca 'Jersey Knight'	Jersey Knight American Holly	6'-8' ht.	B & B, heavy to ground
IOP		Ilex opaca 'Jersey Princess'	Jersey Princess American Holly	6'-8' ht.	B & B, heavy to ground
JV	4	Juniperus virginiana	Eastern Redcedar	6'-8' ht.	B & B, heavy to ground
Total	4				
SHRUBS					
AA	23	Aronia arbutifolia	Red Chokeberry	24"-30" ht.	B & B
CS		Cornus sericea 'Cardinal'	Cardinal Red Twig Dogwood	24"-30" ht.	B & B
IV	19	Itea virginica	Virginia Sweetspire	24"-30" ht.	B & B
IVJ	1	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry Holly	24"-30" ht.	B & B
IVR	10	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry Holly	24"-30" ht.	B & B
JC	22	Juniperus conferta	Shore Juniper	24"-30" ht.	B & B
KL	17	Kalmia latifolia	Mountain Laurel	30"-36" ht.	B & B
VD	20	Viburnum dentatum	Arrowwood Viburnum	30"-36" ht.	B & B
Total	112				
GROUNDCOVER					
BA	280	Baptisia australis	Wild Blue Indigo	1 gal.	Cont. 12" o.c.
ED		Eurybia divaricata	Wildwood Aster	1 gal.	Cont. 12" o.c.
EP	90	Echinacea purpurea	Purple Coneflower	1 gal.	Cont. 12" o.c.
MV	30	Mertensia virginica	Virginia Bluebells	1 qt.	Cont. 12" o.c.
RF	90	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal.	Cont. 12" o.c.
Total	490				
VINES					
BC		Bignonia capreolata	Crossvine	1 gal.	Cont. 42" o.c., 3 per wall section
CR		Campsis radicans	Trumpet Vine	2 gal.	Cont. 42" o.c., 3 per wall section
LS		Lonicera sempervirens	Trumpet Honeysuckle	2 gal.	Cont. 42" o.c., 3 per wall section
PQ		Parthenocissus quinquefolia	Virginia Creeper	1 gal.	Cont. 5' o.c., 2 per wall section
WF		Wisteria frutescens	American Wisteria	2 gal.	Cont. 5' o.c., 2 per wall section
Total					

* Note: Plant a mix of male and female species to promote pollination.

NOTE: CHAIN LINK FENCING ON OR ABUTTING NPS LAND TO BE VINYL-COATED BLACK.

HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 8391
VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

MM CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
2820 DORR AVENUE, SUITE 230
FAIRFAX, VA 22031
PHONE: (571) 282-4099

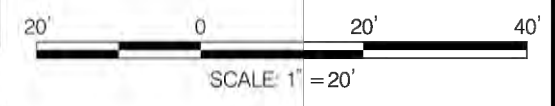


D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

CONSTRUCTION OF
THE METROPOLITAN BRANCH TRAIL
JOHN MCCORMACK DRIVE NE TO 1ST PLACE NE

SUBMITTAL 'D'
LANDSCAPE PLAN

PROJECT ENG.	TK
DESIGNED BY	TK
CHECKED BY	MA
DRAWN BY	SC
PROJECT MGR.	-
DIVISION CHIEF	
DATE	NOVEMBER 2019
FILE	
SHEET	LD-1 OF LD-8



NOTE:

ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWR CREDIT.
ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLD TREES.
METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS.

NOT TO SCALE

Mark	Sheet	REVISION	Date	Initial

70% SUBMITTAL
L-2
SUB SHEET NUMBER

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION
DESIGN AND PROJECT MANAGEMENT

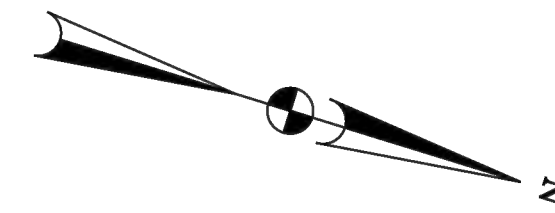
IMPROVE & FORMALIZE FORT TOTTEN TRAIL
TITLE OF PROJECT
GALLOWAY ST. & GALLATIN ST., NE
LOCATION WITHIN PARK
FORT TOTTEN TRAIL (ROCR)
NAME OF PARK

DESIGNED	TK
DRAWN	SC
CHECKED	MA
PROJECT MGR.	-
DATE	2.28.2024
SHEET	23 OF 27

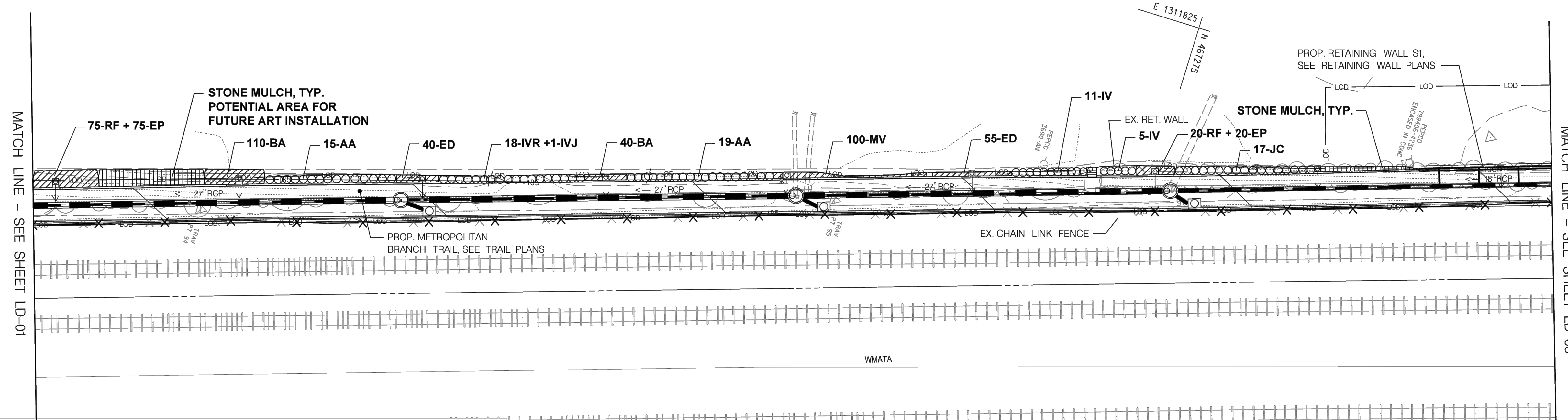
Monday, November 18, 2019 AT 08:29 AM
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F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	D.C.	2016 10601	48	96

05699y N
E 1311825



AGGREGATE INDUSTRIES
Parcel 124
Lot 181
N/F Super Concrete Corp.



KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SHADE TREES					
DV		Diospyros virginiana	Common Persimmon *	2"-2 1/2" cal.	B & B, specimen
NS		Nyssa sylvatica 'Wildfire'	Wildfire Black Gum	2"-2 1/2" cal.	B & B, specimen
QA		Quercus alba	White Oak	2"-2 1/2" cal.	B & B, specimen
QM		Quercus montana	Chestnut Oak	2"-2 1/2" cal.	B & B, specimen
QV		Quercus velutina	Black Oak	2"-2 1/2" cal.	B & B, specimen
Total					
FLOWERING TREES					
AC		Amelanchier canadensis	Downy Serviceberry	6'-8' ht.	B & B, multi-stem, 3 stem min.
AT		Asimina triloba	Common Pawpaw *	6'-8' ht.	B & B, strong central leader
CC		Carpinus caroliniana	American Hornbeam	1 1/2"-2" cal.	B & B, strong central leader
CF		Cornus florida 'Appalachian Spring'	Appalachian Spring Flowering Dogwood	1 1/2"-2" cal.	B & B, multi-stem, 3 stem min.
Total					
EVERGREEN TREES					
IOK		Ilex opaca 'Jersey Knight'	Jersey Knight American Holly	6'-8' ht.	B & B, heavy to ground
IOP		Ilex opaca 'Jersey Princess'	Jersey Princess American Holly	6'-8' ht.	B & B, heavy to ground
JV		Juniperus virginiana	Eastern Redcedar	6'-8' ht.	B & B, heavy to ground
Total					
SHRUBS					
AA	34	Aronia arbutifolia	Red Chokeberry	24"-30" ht.	B & B
CS		Cornus sericea 'Cardinal'	Cardinal Red Twig Dogwood	24"-30" ht.	B & B
IV	18	Ilex virginica	Virginia Sweetgum	24"-30" ht.	B & B
IVJ	1	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry Holly	24"-30" ht.	B & B
IVR	18	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry Holly	24"-30" ht.	B & B
JC	17	Juniperus conferta	Shore Juniper	24"-30" ht.	B & B
KL		Kalmia latifolia	Mountain Laurel	30"-36" ht.	B & B
VD		Viburnum dentatum	Arrowwood Viburnum	30"-36" ht.	B & B
Total	86				
GROUNDCOVER					
BA	150	Baptisia australis	Wild Blue Indigo	1 gal.	Cont. 12" o.c.
ED	95	Eurybia divaricata	Wildwood Aster	1 gal.	Cont. 12" o.c.
EP	95	Echinacea purpurea	Purple Coneflower	1 gal.	Cont. 12" o.c.
IVV	100	Mertensia virginica	Virginia Bluebells	1 gal.	Cont. 12" o.c.
RF	95	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal.	Cont. 12" o.c.
Total	535				
VINES					
BC		Bignonia capreolata	Crossvine	1 gal.	Cont. 42" o.c., 3 per wall section
CR		Campsis radicans	Trumpet Vine	2 gal.	Cont. 42" o.c., 3 per wall section
LS		Lonicera sempervirens	Trumpet Honeysuckle	2 gal.	Cont. 42" o.c., 3 per wall section
PQ		Parthenocissus quinquefolia	Virginia Creeper	1 gal.	Cont. 5" o.c., 2 per wall section
WF		Wisteria frutescens	American Wisteria	2 gal.	Cont. 5" o.c., 2 per wall section
Total					

* Note: Plant a mix of male and female species to promote pollination.

NOTE: CHAIN LINK FENCING ON OR ABUTTING NPS LAND TO BE VINYL-COATED BLACK.

HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 8391
VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

MM CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
2820 DORR AVENUE, SUITE 230
FAIRFAX, VA 22031
PHONE: (571) 282-4099

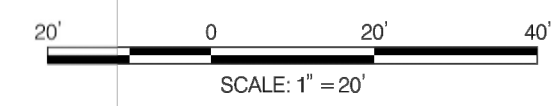


D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

CONSTRUCTION OF
THE METROPOLITAN BRANCH TRAIL
JOHN MCCORMACK DRIVE NE TO 1ST PLACE NE

SUBMITTAL 'D'
LANDSCAPE PLAN

PROJECT ENG.	TK
DESIGNED BY	TK
CHECKED BY	MA
DRAWN BY	SC
PROJECT MGR.	-
DIVISION CHIEF	
DATE	NOVEMBER 2019
FILE	
SHEET	LD-2 OF LD-8



REVISIONS	DESCRIPTION	NAME	DATE

NOTE:

ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWRV CREDIT.
ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLDDED TREES.
METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS.

NOT TO SCALE

A/E FIRM
AECOM
3101 Wilson Boulevard, Suite 900
Arlington, Virginia 22201
703-640-4900

Mark	Sheet	REVISION	Date	Initial

70% SUBMITTAL

L-3

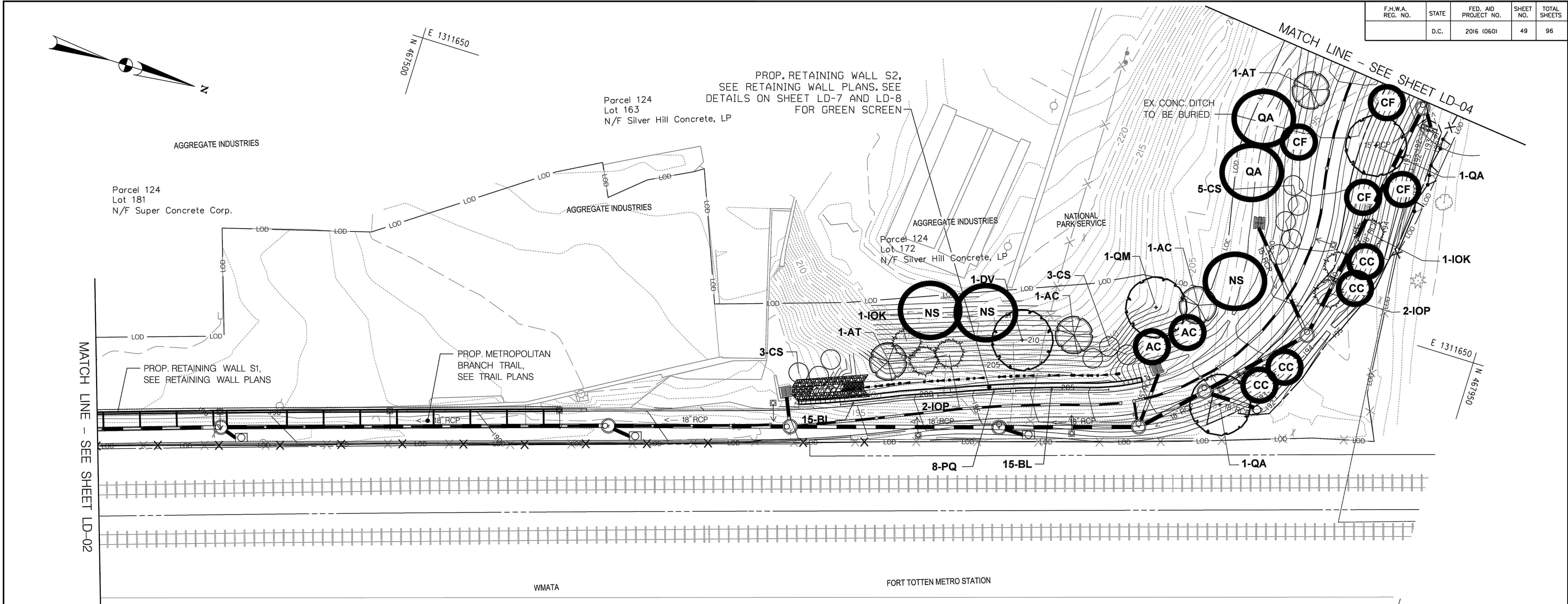
SUB SHEET NUMBER

LANDSCAPE PLAN AND
TREE MITIGATION - 3
TITLE OF DRAWING

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION
DESIGN AND PROJECT MANAGEMENT
IMPROVE & FORMALIZE FORT TOTTEN TRAIL
TITLE OF PROJECT
GALLOWAY ST. & GALLATIN ST., NE
LOCATION WITHIN PARK
FORT TOTTEN TRAIL (ROCR)
NAME OF PARK

DESIGNED	
DRAWN	
CHECKED	
ENG. NO.	ROCR
DATE	821136939
SHEET	2.28.2024
	24 OF 27

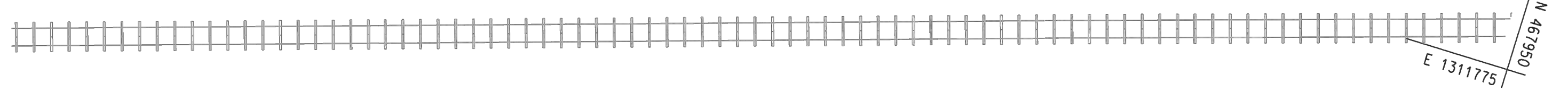
F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
D.C.		2016 10601	49	96



PLANT SCHEDULE

KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SHADE TREES					
DV	1	Diospyros virginiana	Common Persimmon *	2"-2 1/2" cal.	B & B, specimen
NS	3	Nyssa sylvatica 'Wildfire'	Wildfire Black Gum	2"-2 1/2" cal.	B & B, specimen
QA	4	Quercus alba	White Oak	2"-2 1/2" cal.	B & B, specimen
QM	1	Quercus montana	Chestnut Oak	2"-2 1/2" cal.	B & B, specimen
QV	4	Quercus velutina	Black Oak	2"-2 1/2" cal.	B & B, specimen
Total	4				
FLOWERING TREES					
AC	4	Amelanchier canadensis	Downy Serviceberry	6'-8' ht.	B & B, multi-stem, 3 stem min.
AT	2	Asimina triloba	Common Pawpaw *	6'-8' ht.	B & B, strong central leader
CC	4	Carpinus caroliniana	American Hornbeam	1 1/2"-2" cal.	B & B, strong central leader
CF	4	Cornus florida 'Appalachian Spring'	Appalachian Spring Flowering Dogwood	1 1/2"-2" cal.	B & B, multi-stem, 3 stem min.
Total	4				
EVERGREEN TREES					
IQK	2	Ilex opaca 'Jersey Knight'	Jersey Knight American Holly	6'-8' ht.	B & B, heavy to ground
IOP	4	Ilex opaca 'Jersey Princess'	Jersey Princess American Holly	6'-8' ht.	B & B, heavy to ground
JV	1	Juniperus virginiana	Eastern Redcedar	6'-8' ht.	B & B, heavy to ground
Total	6				
SHRUBS					
AA	1	Aronia arbutifolia	Red Chokeberry	24"-30" ht.	B & B
CS	11	Cornus sericea 'Cardinal'	Cardinal Red Twig Dogwood	24"-30" ht.	B & B
IV	1	Ilex virginica	Virginia Sweetpire	24"-30" ht.	B & B
IVJ	1	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry Holly	24"-30" ht.	B & B
IVR	1	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry Holly	24"-30" ht.	B & B
JC	1	Juniperus conferta	Shore Juniper	24"-30" ht.	B & B
KL	1	Kalmia latifolia	Mountain Laurel	30"-36" ht.	B & B
VD	1	Viburnum dentatum	Arrowwood Viburnum	30"-36" ht.	B & B
Total	11				
GROUND COVER					
BA	1	Baptisia australis	Wild Blue Indigo	1 gal.	Cont., 12" o.c.
ED	1	Eurybia divaricata	Wildwood Aster	1 gal.	Cont., 12" o.c.
EP	1	Echinacea purpurea	Purple Coneflower	1 gal.	Cont., 12" o.c.
MV	1	Mertensia virginica	Virginia Bluebells	1 qt.	Cont., 12" o.c.
RF	1	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal.	Cont., 12" o.c.
Total	5				
VINES					
BC	15	Bigonia capreolata	Crossvine	1 gal.	Cont., 42" o.c., 3 per wall section
CR	15	Campsis radicans	Trumpet Vine	2 gal.	Cont., 42" o.c., 3 per wall section
LS	1	Lonicera sempervirens	Trumpet Honeysuckle	2 gal.	Cont., 42" o.c., 3 per wall section
PQ	8	Parthenocissus quinquefolia	Virginia Creeper	1 gal.	Cont., 5' o.c., 2 per wall section
WF	1	Wisteria frutescens	American Wisteria	2 gal.	Cont., 5' o.c., 2 per wall section
Total	38				

* Note: Plant a mix of male and female species to promote pollination.



- NOTES:**
1. IN THE EVENT OF OBSERVED DEER ANTLER RUBBING ON TRUNKS DURING REGULAR MAINTENANCE VISITS, INSTALL 48" TALL MESH TRUNK PROTECTOR AROUND EACH AFFECTED TREE.
 2. REFER DDOT SPECIFICATION 608.02 FOR PLANTING INSTALLATION, PLANTING SEASON, AND MAINTENANCE DURING PLANT ESTABLISHMENT PERIOD.
 3. REFER DDOT DETAIL 608.03 AND 608.05 FOR PLANTING DETAILS.

NOTE: CHAIN LINK FENCING ON OR ABUTTING NPS LAND TO BE VINYL-COATED BLACK.

HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91
VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

MM CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
2820 DORR AVENUE, SUITE 230
FAIRFAX, VA 22031
PHONE: (571) 282-4099



D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

CONSTRUCTION OF
THE METROPOLITAN BRANCH TRAIL
JOHN MCCORMACK DRIVE NE TO 1ST PLACE NE

SUBMITTAL 'D'
LANDSCAPE PLAN

PROJECT ENG. TK
DESIGNED BY TK
CHECKED BY MA
DRAWN BY SC
PROJECT MGR. --

DIVISION CHIEF
DATE: NOVEMBER 2019
FILE
SHEET LD-3 OF LD-8

DESCRIPTION	NAME	DATE
REVISIONS		

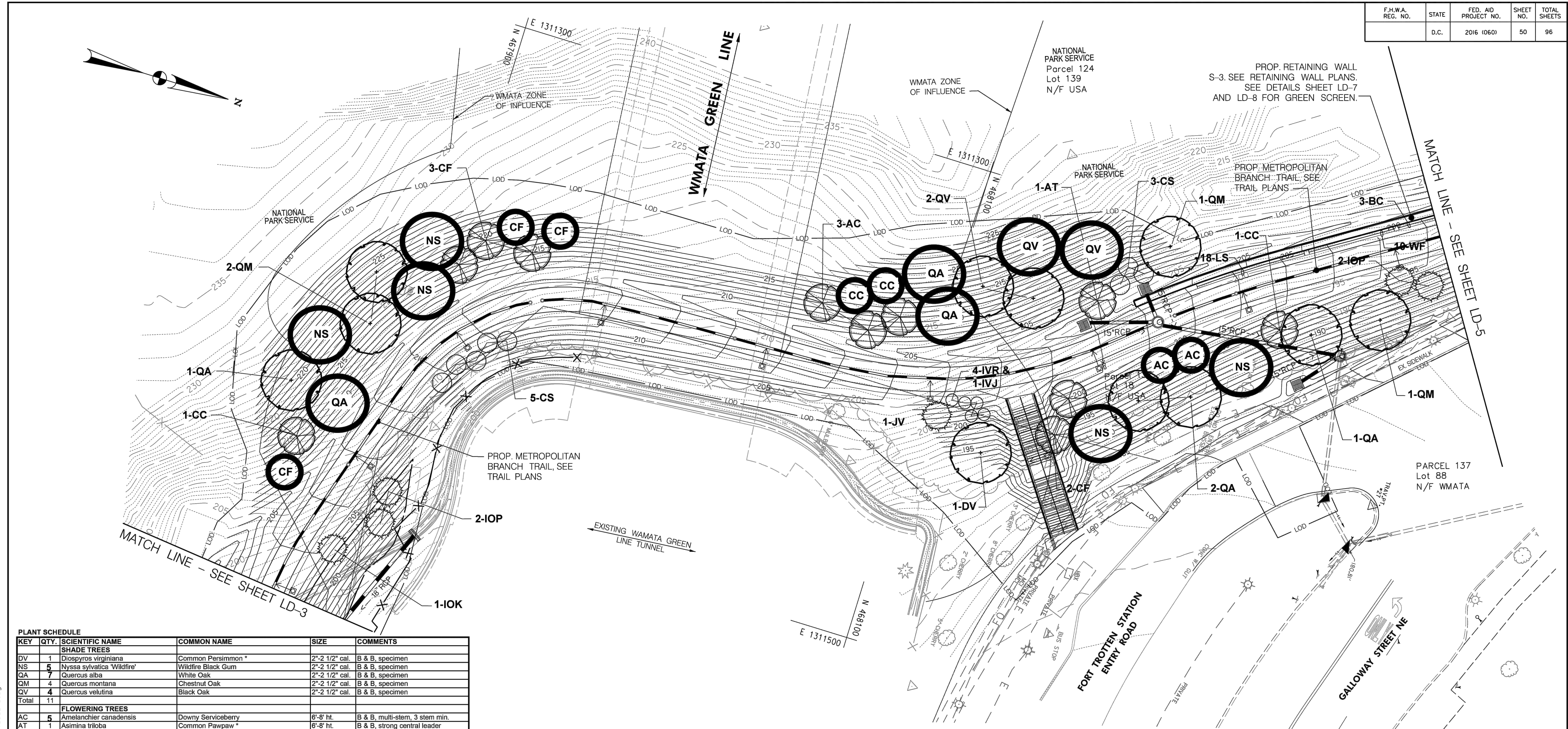
NOTE:
ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWRV CREDIT.
ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLDED TREES.
METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS.

NOT TO SCALE

 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	L-4	SUB SHEET NUMBER	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT IMPROVE & FORMALIZE FORT TOTTEN TRAIL TITLE OF PROJECT GALLOWAY ST. & GALLATIN ST., NE LOCATION WITHIN PARK FORT TOTTEN TRAIL (ROCR) NAME OF PARK	DESIGNED	
											CHECKED

Monday, November 18, 2019 AT 08:30 AM
T:\2019\Transportation\DDOT MB Trail\DB Project\CADD\LD-0003_MBT.SUB-D.dgn

F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	D.C.	2016 10601	50	96



KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SHADE TREES					
DV	1	Diospyros virginiana	Common Persimmon *	2"-2 1/2" cal.	B & B, specimen
NS	5	Nyssa sylvatica 'Wildfire'	Wildfire Black Gum	2"-2 1/2" cal.	B & B, specimen
QA	7	Quercus alba	White Oak	2"-2 1/2" cal.	B & B, specimen
QM	4	Quercus montana	Chestnut Oak	2"-2 1/2" cal.	B & B, specimen
QV	4	Quercus velutina	Black Oak	2"-2 1/2" cal.	B & B, specimen
Total	11				
FLOWERING TREES					
AC	5	Amelanchier canadensis	Downy Serviceberry	6"-8" ht.	B & B, multi-stem, 3 stem min.
AT	1	Asimina triloba	Common Pawpaw *	6"-8" ht.	B & B, strong central leader
CC	4	Carpinus caroliniana	American Hornbeam	1 1/2"-2" cal.	B & B, strong central leader
CF	8	Cornus florida 'Appalachian Spring'	Appalachian Spring Flowering Dogwood	1 1/2"-2" cal.	B & B, multi-stem, 3 stem min.
Total	11				
EVERGREEN TREES					
IOK	1	Ilex opaca 'Jersey Knight'	Jersey Knight American Holly	6"-8" ht.	B & B, heavy to ground
IOP	4	Ilex opaca 'Jersey Princess'	Jersey Princess American Holly	6"-8" ht.	B & B, heavy to ground
LJV	1	Juniperus virginiana	Eastern Redcedar	6"-8" ht.	B & B, heavy to ground
Total	6				
SHRUBS					
AA	1	Aronia arbutifolia	Red Chokeberry	24"-30" ht.	B & B
CS	8	Cornus sericea 'Cardinal'	Cardinal Red Twig Dogwood	24"-30" ht.	B & B
IV	1	Itea virginica	Virginia Sweetspire	24"-30" ht.	B & B
IVJ	1	Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry Holly	24"-30" ht.	B & B
IVR	4	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry Holly	24"-30" ht.	B & B
JC	1	Juniperus conferta	Shore Juniper	24"-30" ht.	B & B
KL	1	Kalmia latifolia	Mountain Laurel	30"-36" ht.	B & B
VD	1	Viburnum dentatum	Arrowwood Viburnum	30"-36" ht.	B & B
Total	13				
GROUNDCOVER					
BA	1	Baptisia australis	Wild Blue Indigo	1 gal.	Cont. 12" o.c.
ED	1	Eurybia divaricata	Wildwood Aster	1 gal.	Cont. 12" o.c.
EP	1	Echinacea purpurea	Purple Coneflower	1 gal.	Cont. 12" o.c.
MV	1	Mertensia virginica	Virginia Bluebells	1 qt.	Cont. 12" o.c.
RF	1	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal.	Cont. 12" o.c.
Total	5				
VINES					
BC	3	Bignonia capreolata	Crossvine	1 gal.	Cont. 42" o.c., 3 per wall section
CR	1	Campsis radicans	Trumpet Vine	2 gal.	Cont. 42" o.c., 3 per wall section
LS	18	Lonicera sempervirens	Trumpet Honeysuckle	2 gal.	Cont. 42" o.c., 3 per wall section
PQ	1	Parthenocissus quinquefolia	Virginia Creeper	1 gal.	Cont. 5' o.c., 2 per wall section
WF	10	Wisteria frutescens	American Wisteria	2 gal.	Cont. 5' o.c., 2 per wall section
Total	31				

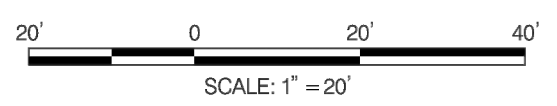
* Note: Plant a mix of male and female species to promote pollination.

- NOTES:**
- IN THE EVENT OF OBSERVED DEER ANTLER RUBBING ON TRUNKS DURING REGULAR MAINTENANCE VISITS, INSTALL 48" TALL MESH TRUNK PROTECTOR AROUND EACH AFFECTED TREE.
 - REFER DDOT SPECIFICATION 608.02 FOR PLANTING INSTALLATION, PLANTING SEASON, AND MAINTENANCE DURING PLANT ESTABLISHMENT PERIOD.
 - REFER DDOT DETAIL 608.03 AND 608.05 FOR PLANTING DETAILS.

NOTE: CHAIN LINK FENCING ON OR ABUTTING NPS LAND TO BE VINYL-COATED BLACK.

HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 8391
 VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

CENTURY ENGINEERING
 CONSULTING ENGINEERS - PLANNERS
 2820 DORR AVENUE, SUITE 230
 FAIRFAX, VA 22031
 PHONE: (571) 282-4099



D.C. DEPARTMENT OF TRANSPORTATION
 INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

CONSTRUCTION OF
THE METROPOLITAN BRANCH TRAIL
 JOHN MCCORMACK DRIVE NE TO 1ST PLACE NE

SUBMITTAL 'D'
LANDSCAPE PLAN

PROJECT ENG. TK
 DESIGNED BY TK
 CHECKED BY MA
 DRAWN BY SC
 PROJECT MGR. _____

DIVISION CHIEF
 DATE: NOVEMBER 2019
 FILE
 SHEET LD-4 OF LD-8

REVISIONS	DESCRIPTION	NAME	DATE

70% SUBMITTAL

L-5

SUB SHEET NUMBER

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION
 DESIGN AND PROJECT MANAGEMENT

IMPROVE & FORMALIZE FORT TOTTEN TRAIL
 TITLE OF PROJECT
 GALLOWAY ST. & GALLATIN ST., NE
 LOCATION WITHIN PARK
 FORT TOTTEN TRAIL (ROCR)
 NAME OF PARK

DESIGNED
 DRAWN
 CHECKED
 FILED

821136939
 DATE: 2.28.2024
 SHEET 26 OF 27

NOTE:

ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWRV CREDIT.

ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLDDED TREES.

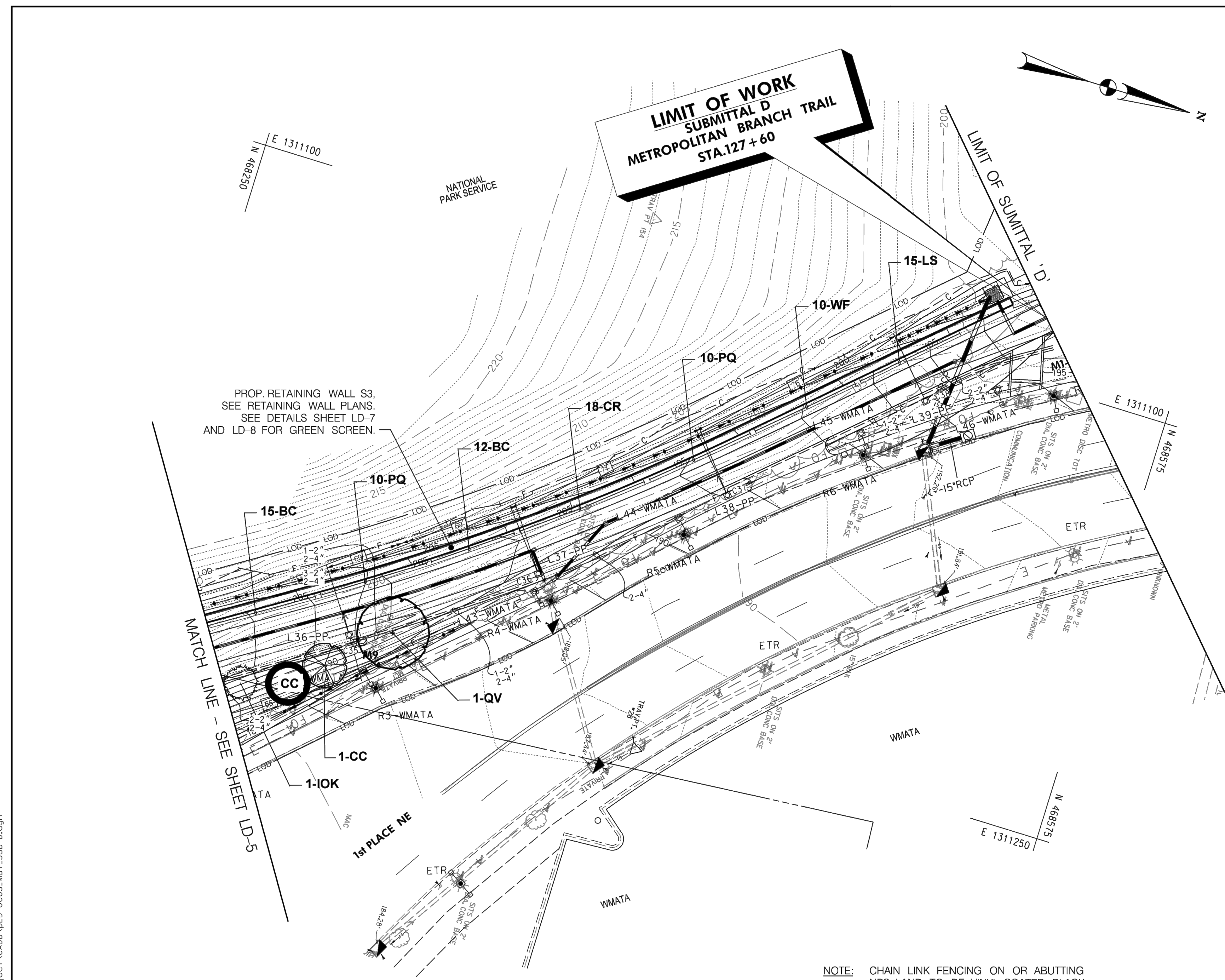
METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS.

NOT TO SCALE



LANDSCAPE PLAN AND TREE MITIGATION - 5
 TITLE OF DRAWING

F.H.W.A. REG. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
	D.C.	2016 10601	51	96



KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SHADE TREES					
DV		<i>Diospyros virginiana</i>	Common Persimmon *	2" - 2 1/2" cal.	B & B specimen
NS		<i>Nyssa sylvatica</i> 'Wildfire'	Wildfire Black Gum	2" - 2 1/2" cal.	B & B specimen
QA		<i>Quercus alba</i>	White Oak	2" - 2 1/2" cal.	B & B specimen
QM		<i>Quercus montana</i>	Chestnut Oak	2" - 2 1/2" cal.	B & B specimen
QV	1	<i>Quercus velutina</i>	Black Oak	2" - 2 1/2" cal.	B & B specimen
FLOWERING TREES					
AC		<i>Amelanchier canadensis</i>	Downy Serviceberry	6"-8" ht.	B & B, multi-stem, 3 stem min.
AT		<i>Asimina triloba</i>	Common Pawpaw *	6"-8" ht.	B & B, strong central leader
CC	2	<i>Carpinus caroliniana</i>	American Hornbeam	1 1/2" - 2" cal.	B & B, strong central leader
CF		<i>Cornus florida</i> 'Appalachian Spring'	Appalachian Spring Flowering Dogwood	1 1/2" - 2" cal.	B & B, multi-stem, 3 stem min.
EVERGREEN TREES					
IOK	1	<i>Ilex opaca</i> 'Jersey Knight'	Jersey Knight American Holly	6"-8" ht.	B & B, heavy to ground
IOP		<i>Ilex opaca</i> 'Jersey Princess'	Jersey Princess American Holly	6"-8" ht.	B & B, heavy to ground
JV		<i>Juniperus virginiana</i>	Eastern Redcedar	6"-8" ht.	B & B, heavy to ground
SHRUBS					
AA		<i>Aronia arbutifolia</i>	Red Chokeberry	24"-30" ht.	B & B
CS		<i>Cornus sericea</i> 'Cardinal'	Cardinal Red Twig Dogwood	24"-30" ht.	B & B
IV		<i>Itea virginica</i>	Virginia Sweetspire	24"-30" ht.	B & B
IVJ		<i>Ilex verticillata</i> 'Jim Dandy'	Jim Dandy Winterberry Holly	24"-30" ht.	B & B
IVR		<i>Ilex verticillata</i> 'Red Sprite'	Red Sprite Winterberry Holly	24"-30" ht.	B & B
JC		<i>Juniperus conferta</i>	Shore Juniper	24"-30" ht.	B & B
KL		<i>Kalmia latifolia</i>	Mountain Laurel	30"-36" ht.	B & B
VD		<i>Viburnum dentatum</i>	Arrowwood Viburnum	30"-36" ht.	B & B
GROUND COVER					
BA		<i>Baptisia australis</i>	Wild Blue Indigo	1 gal.	Cont., 12" o.c.
ED		<i>Eurybia divaricata</i>	Wildwood Aster	1 gal.	Cont., 12" o.c.
EP		<i>Echinacea purpurea</i>	Purple Coneflower	1 gal.	Cont., 12" o.c.
MV		<i>Mertensia virginica</i>	Virginia Bluebells	1 qt.	Cont., 12" o.c.
RF		<i>Rudbeckia fulgida</i> 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal.	Cont., 12" o.c.
VINES					
BC	27	<i>Bignonia capreolata</i>	Crossvine	1 gal.	Cont., 42" o.c., 3 per wall section
CR	18	<i>Campsis radicans</i>	Trumpet Vine	2 gal.	Cont., 42" o.c., 3 per wall section
LS	15	<i>Lonicera sempervirens</i>	Trumpet Honeysuckle	2 gal.	Cont., 42" o.c., 3 per wall section
PQ	20	<i>Parthenocissus quinquefolia</i>	Virginia Creeper	1 gal.	Cont., 5" o.c., 2 per wall section
WF	10	<i>Wisteria frutescens</i>	American Wisteria	2 gal.	Cont., 5" o.c., 2 per wall section
Total	90				

* Note: Plant a mix of male and female species to promote pollination.

- NOTES:**
1. IN THE EVENT OF OBSERVED DEER ANTLER RUBBING ON TRUNKS DURING REGULAR MAINTENANCE VISITS, INSTALL 48" TALL MESH TRUNK PROTECTOR AROUND EACH AFFECTED TREE.
 2. REFER DDOT SPECIFICATION 608.02 FOR PLANTING INSTALLATION, PLANTING SEASON, AND MAINTENANCE DURING PLANT ESTABLISHMENT PERIOD.
 3. REFER DDOT DETAIL 608.03 AND 608.05 FOR PLANTING DETAILS.

NOTE: CHAIN LINK FENCING ON OR ABUTTING NPS LAND TO BE VINYL-COATED BLACK.

HORIZONTAL DATUM: MARYLAND STATE PLANE COORDINATE SYSTEM NAD 8391
 VERTICAL DATUM: D.C. ENGINEERS SURVEY DATUM

CENTURY ENGINEERING
 CONSULTING ENGINEERS - PLANNERS
 2820 DORR AVENUE, SUITE 230
 FAIRFAX, VA 22031
 PHONE: (571) 282-4099

DESCRIPTION	NAME	DATE

D.C. DEPARTMENT OF TRANSPORTATION
 INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

CONSTRUCTION OF
THE METROPOLITAN BRANCH TRAIL

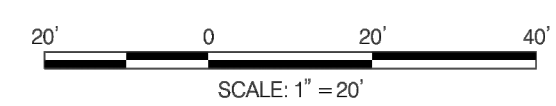
JOHN MCCORMACK DRIVE NE TO 1ST PLACE NE

SUBMITTAL 'D'
LANDSCAPE PLAN

PROJECT ENG. TK
 DESIGNED BY TK
 CHECKED BY MA
 DRAWN BY SC
 PROJECT MGR. --

DIVISION CHIEF
 DATE: NOVEMBER 2019
 FILE
 SHEET LD-5 OF LD-8

Monday, November 18, 2019 AT 08:30 AM
 I:\2017\Transportation\001\MB Trail DB Project\CADD\LD-5-0005_MBT_SUB-D.dgn



NOTE:
 ADDITIONAL TREES TO BE PLANTED AT METROPOLITAN BRANCH TRAIL AS SPACE IS AVAILABLE. THESE TREES WILL NOT RECEIVE SWRV CREDIT.
 ADDITIONAL TREES DENOTED IN BOLD SYMBOLOLOGY. GENERAL NOTES APPLY ONLY TO BOLDDED TREES.
 METROPOLITAN BRANCH TRAIL ORIGINAL DESIGN BY OTHERS.

NOT TO SCALE

 3101 Wilson Boulevard, Suite 900 Arlington, Virginia 22201 703-640-4900	Mark	Sheet	REVISION	Date	Initial	70% SUBMITTAL	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE - NATIONAL CAPITAL REGION DESIGN AND PROJECT MANAGEMENT	DESIGNED
								L-6