NZP - INSTALL CAROUSEL PAVILION IN LOWER ZOO

NATIONAL ZOOLOGICAL PARK
3001 CONNECTICUT AVE, NW
WASHINGTON DC 20008

OFEO # 1133115

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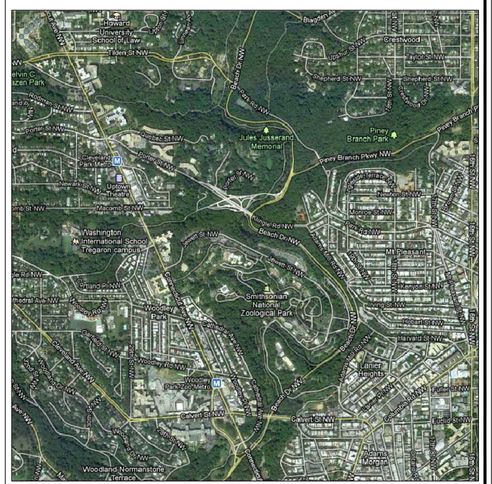
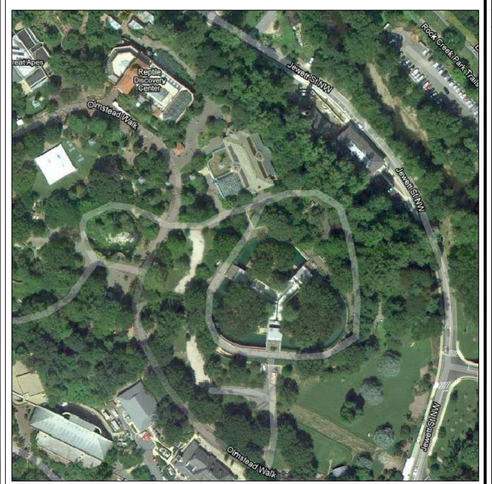
VICINITY MAP



LOCATION MAP



INDEX OF DRAWINGS

DRAWING NAME			DRAWING TITLE	DRAWING NAME			DRAWING TITLE
DISCIPLINE	TYPE	SEQUENCE		DISCIPLINE	TYPE	SEQUENCE	
G	0	01	COVER SHEET				
ESC	1	01	EROSION SEDIMENT CONTROL PLAN				
ESC	1	02	EROSION SEDIMENT CONTROL PLAN				
ESC	1	03	EROSION AND SEDIMENT CONTROL GENERAL NOTES				
WL	1	01	WATER PLAN				
L	1	01	TREE PRES. & PROTECTION PLAN				
L	2	01	SITE PLAN				
L	2	02	DETAIL SITE PLAN				
L	2	03	GRADING PLAN				
L	3	01	SITE SECTIONS				
L	5	01	PLANTING PLAN				
L	5	02	PLANTING SCHEDULE				
A	1	01	DETAILED GROUND PLAN				
A	2	01	ELEVATION AND SECTION DRAWINGS				
A	4	01	PRE-ENGINEERED TICKET BOOTH				
S	1	01	FOUNDATION DETAILS				
S	1	02	FOUNDATION DETAILS				
E	1	01	SITE PLAN ELECTRICAL - NEW WORK				
E	7	01	SPECIFICATIONS				

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STAMP 1 | STAMP 2 | STAMP 3 | STAMP 4

OFFICE OF FACILITIES ENGINEERING AND OPERATIONS
APPROVAL BLOCK

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

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

MICHAEL J. CARRANCHO, P.E., ASSOCIATE DIRECTOR, OEDC

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	
REVISION 7	

Smithsonian Institution

Office of Facilities Engineering and Operations
600 Maryland Avenue S.W. Suite 5001
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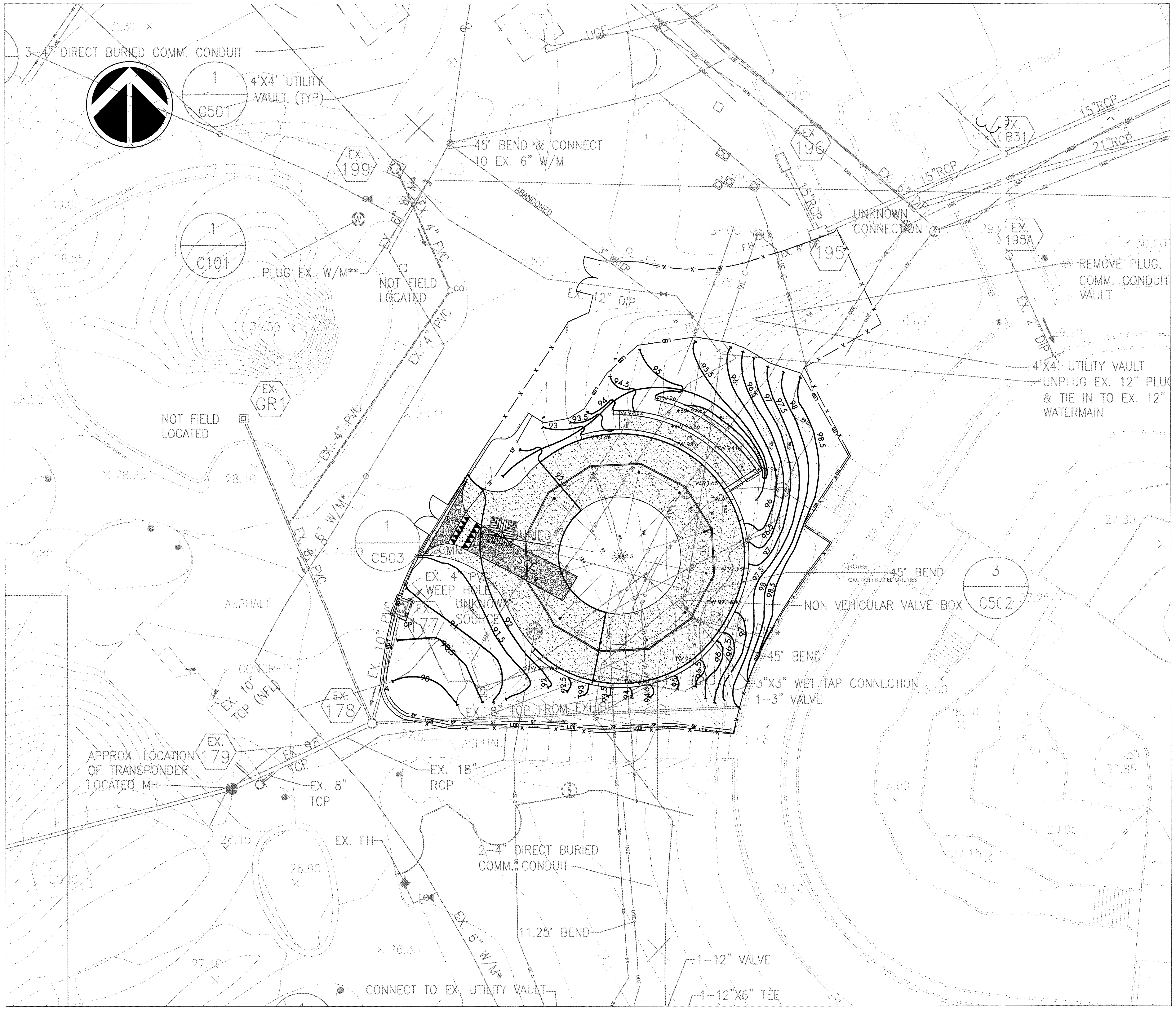
BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	COVER SHEET
DRAWING TYPE	GENERAL
WORKING STAFF	DESIGNED BY / DRAWN BY / CHECKED BY
SHEET NO.	G (DISCIPLINE) 0 (TYPE) 01 (SEQUENCE)

SCALE: 1:1



GENERAL NOTES:

1. THE TOPOGRAPHIC AND THE UTILITY INFORMATION SHOWN HEREON, WAS PROVIDED BY ASG IN FEBRUARY 2012. IT IS UP TO THE RECEIVER OF THIS DRAWING TO VERIFY THE EXISTING CONDITIONS TO HIS/HER SATISFACTION.

2. THE VERTICAL LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE UNKNOWN. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY BY CONDUCTING TEST HOLES, PRIOR TO CONSTRUCTION. IF ANY CONFLICTS WITH THE DESIGN ARE IDENTIFIED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND PROVIDE A FEASIBLE SOLUTION, PRIOR TO CONSTRUCTION.

3. ALL EROSION AND SEDIMENT CONTROL MEASURES AND PROCEDURES SHALL BE IN ACCORDANCE WITH THE "DISTRICT OF COLUMBIA, DEPARTMENT OF HEALTH, ENVIRONMENTAL HEALTH ADMINISTRATION, BUREAU OF ENVIRONMENTAL QUALITY, WATERSHED PROTECTION DIVISION, 2003 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".

4. ALL EXISTING FEATURES OUTSIDE OF THE LIMIT OF DISTURBANCE ARE TO REMAIN, UNLESS OTHERWISE NOTED. ITEMS OUTSIDE THESE LIMITS THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE RETURNED TO PRE-DEMOLITION CONDITIONS OR REPLACED IN-KIND AT NO ADDITIONAL COST TO THE OWNER.

5. LIMITS OF DISTURBANCE SHOWN ARE APPROXIMATE AND DO NOT RELIEVE THE CONTRACTOR OF GOING BEYOND THESE LIMITS AS REQUIRED TO COMPLETE EROSION AND SEDIMENT CONTROL REQUIREMENTS.

6. EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.

7. CONTRACTOR TO SUBMIT, PAY ASSOCIATED FEES AND RECEIVE DC SOIL EROSION AND SEDIMENT CONTROL PERMIT.

EROSION AND SEDIMENT CONTROL LEGEND

Symbol	Description
—— LOD —— LOD ——	LIMIT OF DISTURBANCE
—— x —— x —— x ——	LIMIT OF WORK / LIMIT OF TEMPORARY CONSTRUCTION FENCE
CIP	CURB INLET PROTECTION
—— SF ——	SILT FENCE
SCE	STABILIZED CONSTRUCTION ENTRANCE WITH TRUCK WASH RACK
	EXISTING CONTOUR
90	PROPOSED CONTOUR

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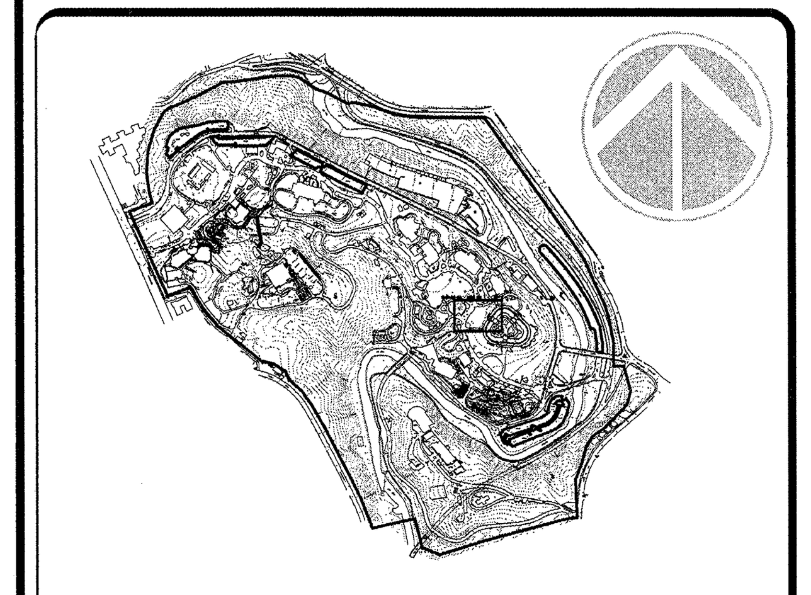
CONSULTANTS

STAMP: DISTRICT OF COLUMBIA — DAVID WAYNE WALLACE — CIVIL — PROFESSIONAL ENGINEER



KEY PLAN

DRAWING SCALE: 20 0 10 20 40 (IN FEET) 1 inch = 20ft.

DATE	SUBMISSION
04/17/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

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DRAWING TYPE	C
WORKING STAFF	DMB (DESIGNED BY) / DMB (DRAWN BY) / SRR (CHECKED BY)
SHEET NO.	ESC (DISCIPLINE) / 1 (TYPE) / 01 (SEQUENCE)

EROSION & SEDIMENT CONTROL GENERAL NOTES:

1. ALL SEDIMENT AND EROSION CONTROL METHODS SHALL BE INSTALLED AT THE DIRECTION OF THE INSPECTOR BEFORE THE START OF ANY EXCAVATION AND/OR CONSTRUCTION PER THE STANDARDS AND SPECIFICATIONS 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.
2. ALL DEBRIS IS TO BE REMOVED FROM SITE.
3. STREETS SHALL BE SWEPT CLEAN AT ALL TIMES DURING EXCAVATION AND CONSTRUCTION.
4. ALL CATCH BASINS AND AREA DRAINS SHALL BE PROTECTED DURING EXCAVATION AND CONSTRUCTION.
5. IF ANY CATCH BASIN OR DRAIN BECOMES CLOGGED AS A RESULT OF EXCAVATION OR CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS CLEANING.
6. ANY STOCKPILING, REGARDLESS OF LOCATION ON THE SITE, SHALL BE STABILIZED WITHIN 20 DAYS AFTER ITS ESTABLISHMENT AND FOR THE DURATION OF THE PROJECT.
7. A VEHICLE WASH AREA SHALL BE PROVIDED AT EACH STABILIZED CONSTRUCTION ENTRANCE. EACH VEHICLE WASH AREA SHALL INCLUDE A WATER SUPPLY AND HOSE SYSTEM TO CLEAN TRUCKS AND OTHER VEHICLES, AND SHALL BE GRADED SO THAT DRAINAGE DOES NOT LEAVE THE SITE AND IS DIRECTED TO ON-SITE SEDIMENT CONTROL PRACTICES.
8. ADDITIONAL LOCATIONS AND TYPES OF ESC MEASURES WILL BE DETERMINED AS DEEMED NECESSARY BY INSPECTORS FROM THE INSPECTION/ENFORCEMENT BRANCH, WATERSHED PROTECTION DIVISION, DISTRICT DEPARTMENT OF THE ENVIRONMENT DURING LAND DISTURBING ACTIVITY.
9. CONTRACTOR TO HAVE AN INDEPENDENT UTILITY LOCATOR MARK EXISTING UTILITY LOCATIONS WITHIN THE SITE, BEFORE BEGINNING DEMOLITION OR EXCAVATION.

SEQUENCE OF OPERATIONS:

1. THE CONTRACTOR SHALL CALL THE INSPECTION/ENFORCEMENT BRANCH, WATERSHED PROTECTION DIVISION, DISTRICT DEPARTMENT OF THE ENVIRONMENT AT (202)535-2240 FOR A PRE-CONSTRUCTION MEETING 72 HOURS PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY.
2. ALL SEDIMENT AND EROSION CONTROL PRACTICES THAT ARE INTENDED FOR USE PRIOR TO EXCAVATION SHALL BE INSTALLED BEFORE THE START OF EXCAVATION AND/OR DEMOLITION AS PER THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE DISTRICT OF COLUMBIA. IF ANY ON-SITE INSPECTION REVEALS FURTHER EROSION CONTROL MEASURES ARE NECESSARY, THE SAME SHALL BE PROVIDED.
3. CLEAR SITE AS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS AND INSTALL PERIMETER CONTROLS.
4. REMOVE EXISTING TREES, SIDEWALKS AND ALL SITE FURNISHINGS, ROUGH GRADE DISTURBED AREA AND PROVIDE TEMPORARY STABILIZATION.
5. PERFORM UTILITY CAPPING AND ABANDOMENENT/REMOVAL AS SHOWN ON THE UTILITY DISPOSITION PLANS, ROUGH GRADE DISTURBED AREA AND PROVIDE TEMPORARY STABILIZATION.
6. EXCAVATE FOR AND INSTALL PROPOSED UTILITIES. DEWATER EXCAVATIONS AS NECESSARY WITH DDOE APPROVED DEVICES SUCH AS A SUMP PIT. THE CONTRACTOR SHALL HAUL EXCESS EXCAVATED MATERIAL OFF-SITE TO A LOCATION WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALL INLET PROTECTION ON NEWLY INSTALLED INLETS.
7. EROSION AND SEDIMENT CONTROL DEVICES CAN BE REMOVED ONLY AFTER ALL AREAS DRAINING TO THE DEVICES HAVE BEEN PERMANENTLY STABILIZED AND APPROVAL FROM THE INSPECTOR HAS BEEN OBTAINED.

SEDIMENT CONTROL NARRATIVE:

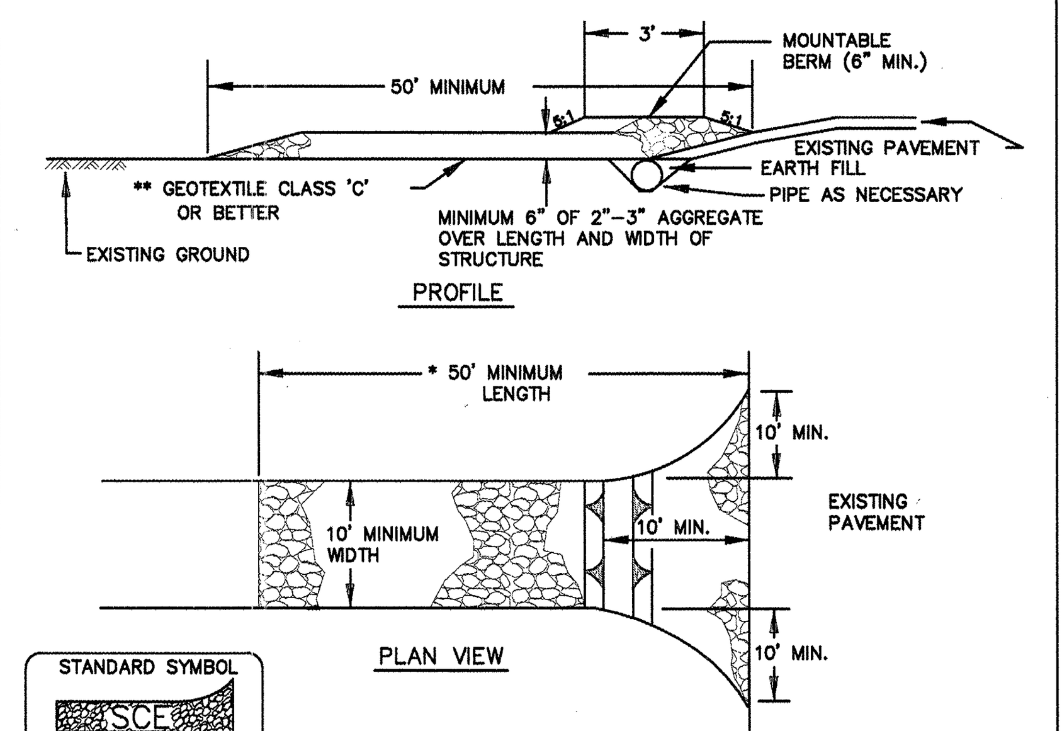
PROJECT DESCRIPTION: THE NZP CAROUSEL PAVILION SITE, AN APPROXIMATE 15,389 SF (0.35 AC.) PARCEL IS PART OF THE SMITHSONIAN INSTITUTION NATIONAL ZOOLOGICAL PARK.

EXISTING CONDITIONS: EXISTING CONDITIONS INCLUDE WALKWAYS AT ALL FOUR SIDES. THE TOPOGRAPHY SLOPES GENTLY FROM THE NORTHEAST CORNER AT APPROXIMATELY 98.5 FT. TO THE SOUTHWESTERN CORNER AT APPROXIMATELY 90.0 FT.

SOILS: ALL SOILS ON THIS SITE ARE CLASSIFIED BY NRCS AS SgB - SASSAFRAS-URBAN LAND COMPLEX, WITH A HYDROLOGIC SOIL GROUP RATING OF B.

SEDIMENT CONTROL PRACTICES: SEE THIS SHEET FOR DETAILS OF SEDIMENT CONTROL PRACTICES TO BE USED AT THE SITE, WHICH INCLUDE SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE, AND INLET PROTECTION. SEE EROSION AND SEDIMENT CONTROL GENERAL NOTES SHEET FOR STANDARD VEGETATIVE STABILIZATION METHODS, WHICH IN THIS PROJECT INCLUDES TEMPORARY AND PERMANENT SEEDING/MULCHING.

DETAIL 1 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

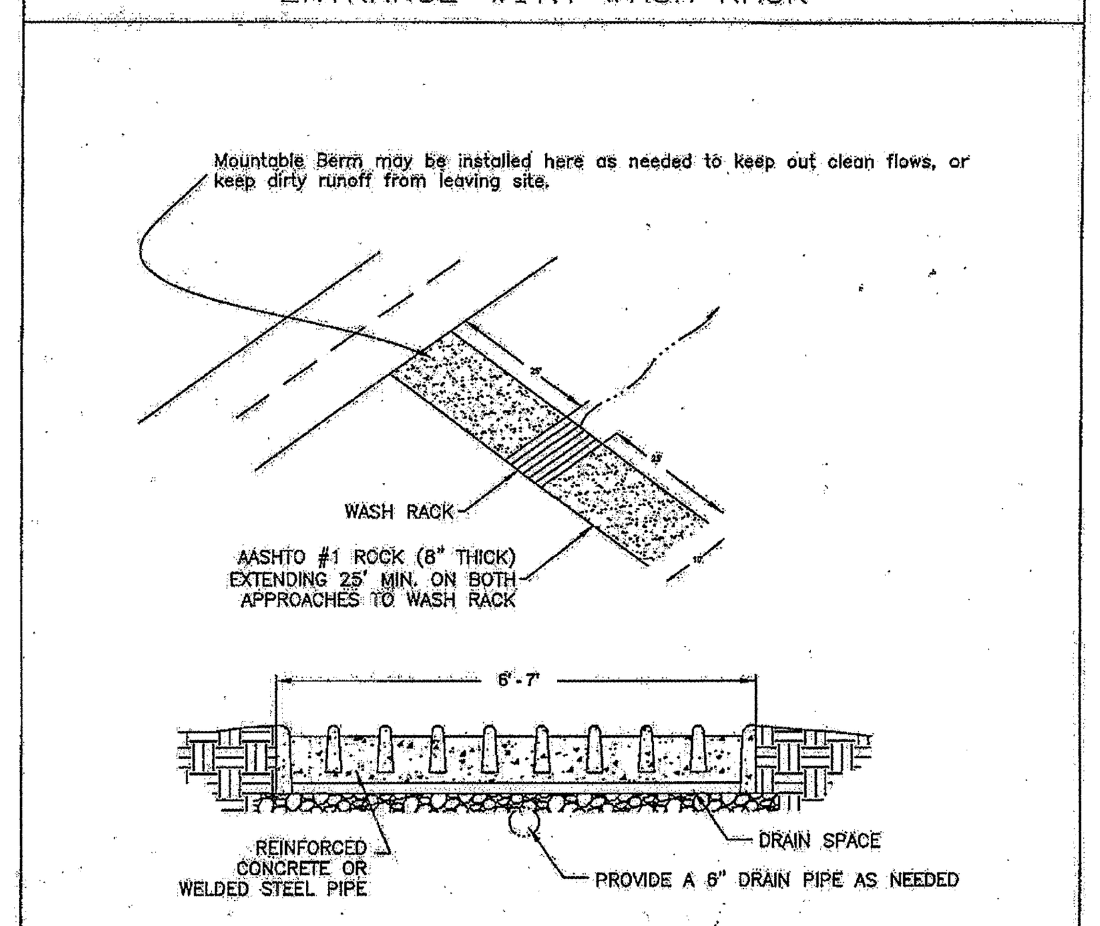
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE A – 1 – 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 2 – STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK

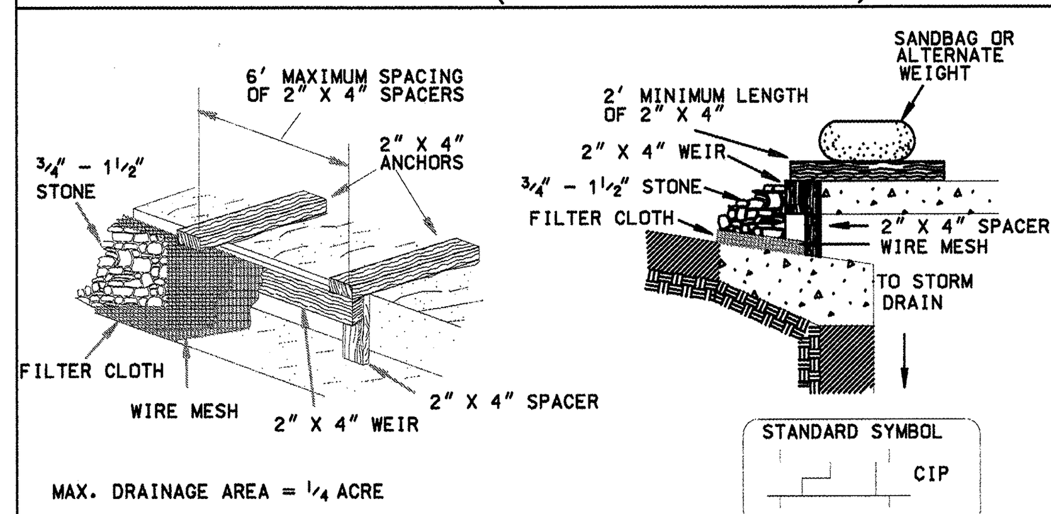


MAINTENANCE: Stabilized Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile of rock material shall be maintained on site for this purpose. Drain space under wash rack shall be kept open at all times. Damage to the wash rack shall be repaired prior to futher use of the rack. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.

Construction vehicles shall stop with first the front wheels, then the rear wheels over the wash rack in order for both sets of wheels to behosed off.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE A – 2 – 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)

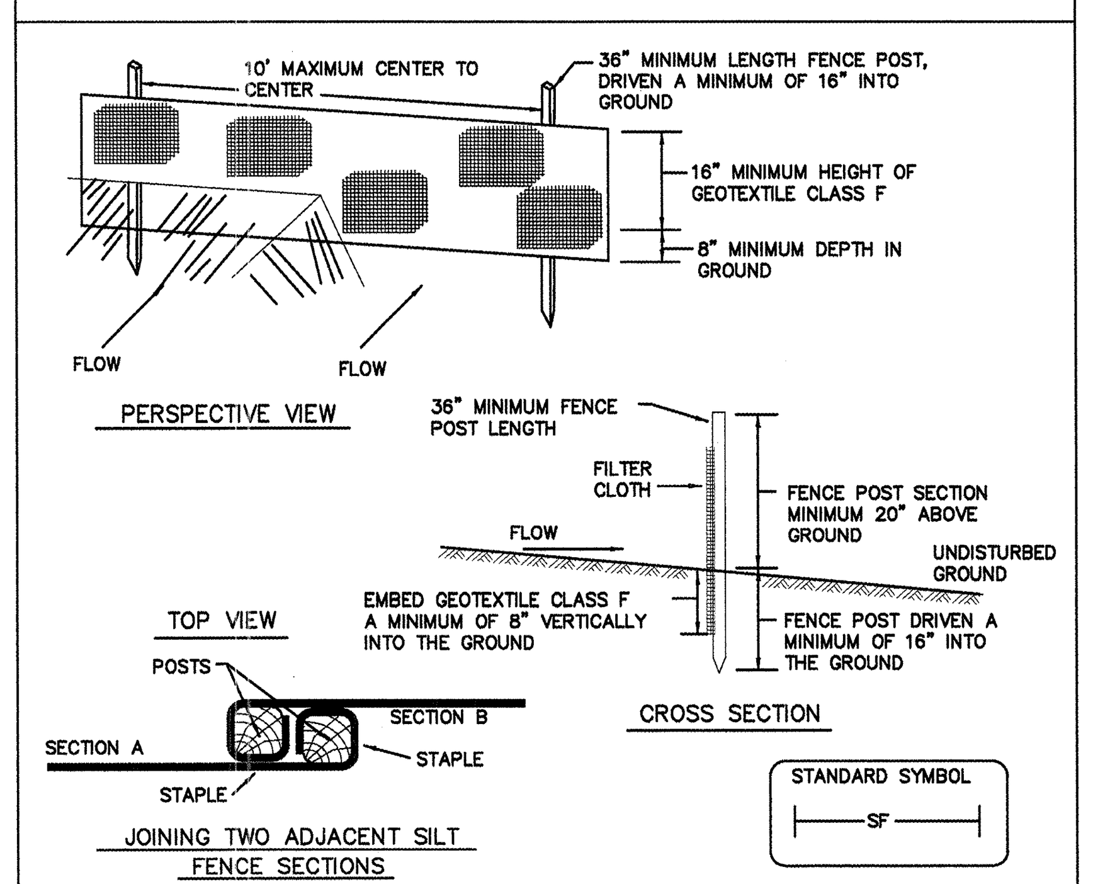


Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length, plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1 ' beyond both ends of the throat opening.
6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE B – 7 – 7	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

DETAIL 4 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE B – 5 – 3	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCE CONSERVATION SERVICE	PAGE B – 5 – 4	WATERSHED PROTECTION DIVISION DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH

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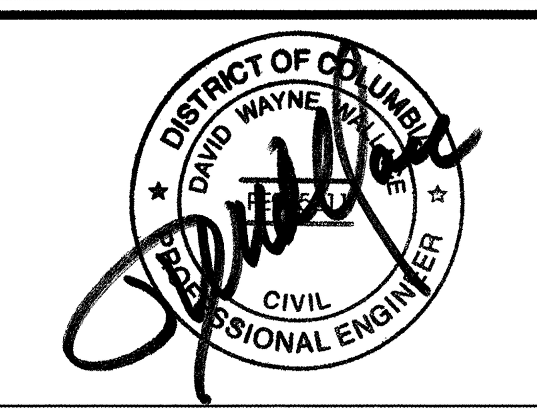

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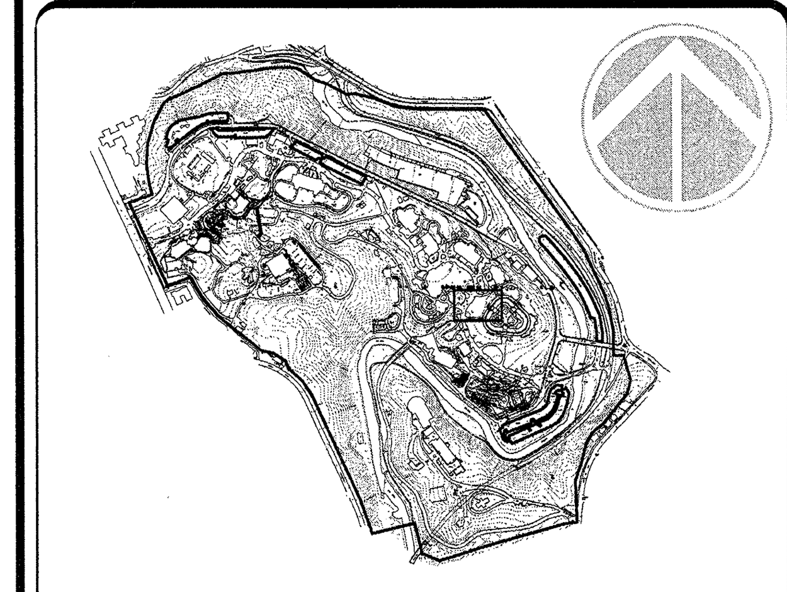

KEY PLAN

20 0 10 20 40
(IN FEET)
1 inch = 20ft.
DRAWING SCALE

DATE	SUBMISSION
04/17/12	100% SUBMISSION

REVISION	REVISION
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SHEET NO.	ESC	1	02
	DISCIPLINE	TYPE	SEQUENCE

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures,berms, waterways, or sediment control basins.

ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may by performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may be also used for chemical analyses.

ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98 - 100% will pass through a #20 mesh sieve.

iv. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

C. Mulch Specifications (In order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the NRCS Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm./ diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

D. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

i. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.

iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50lbs. of wood cellulose fiber per 100 gallons of water.

E. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should appear uniform after binder application. Synthetic binders - such as Acrylic DLR (agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

iv. Biodegradable netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' wide and 300 to 3,000 feet long.

Section II - Sod: To provide quick cover on all areas

A. General specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.

ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 3" and 4" unless otherwise specified.

NOTE:
VEGETATIVE STABILIZATION METHODS ON THIS SHEET ARE INTENDED TO BE A MINIMUM REQUIREMENT AND DO NOT SUPERCEDE INFORMATION IN THE CONTRACT SPECIFICATIONS.

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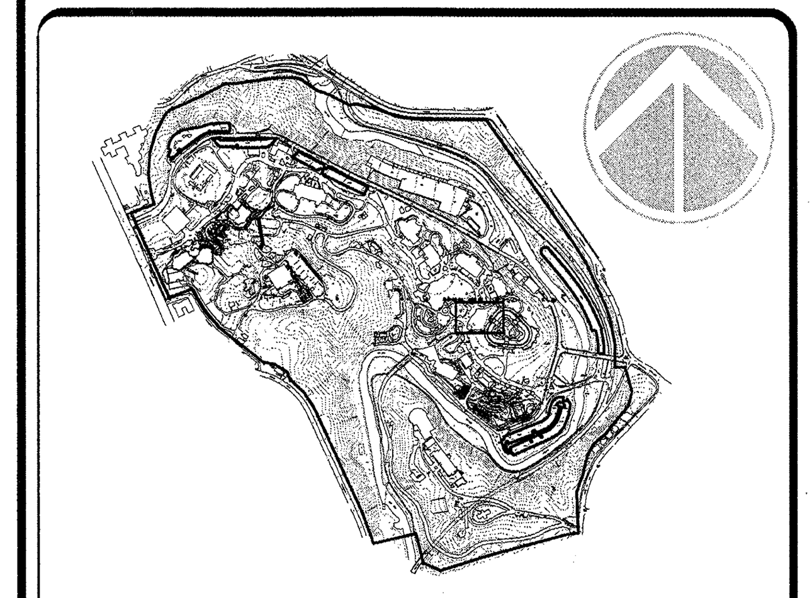

KEY PLAN

20 0 10 20 40
(IN FEET)
1 inch = 20ft.
DRAWING SCALE

DATE	SUBMISSION
04/17/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

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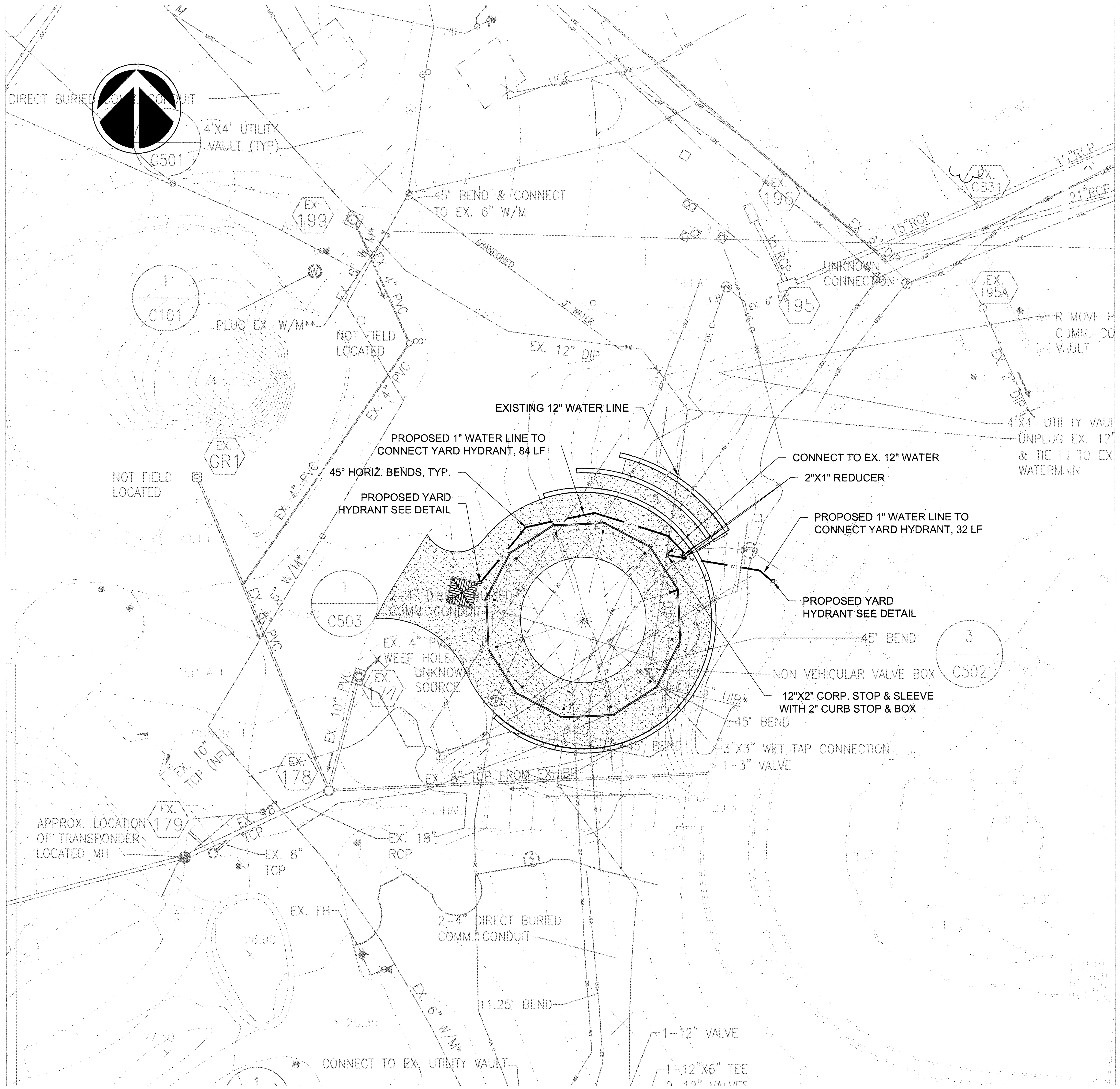
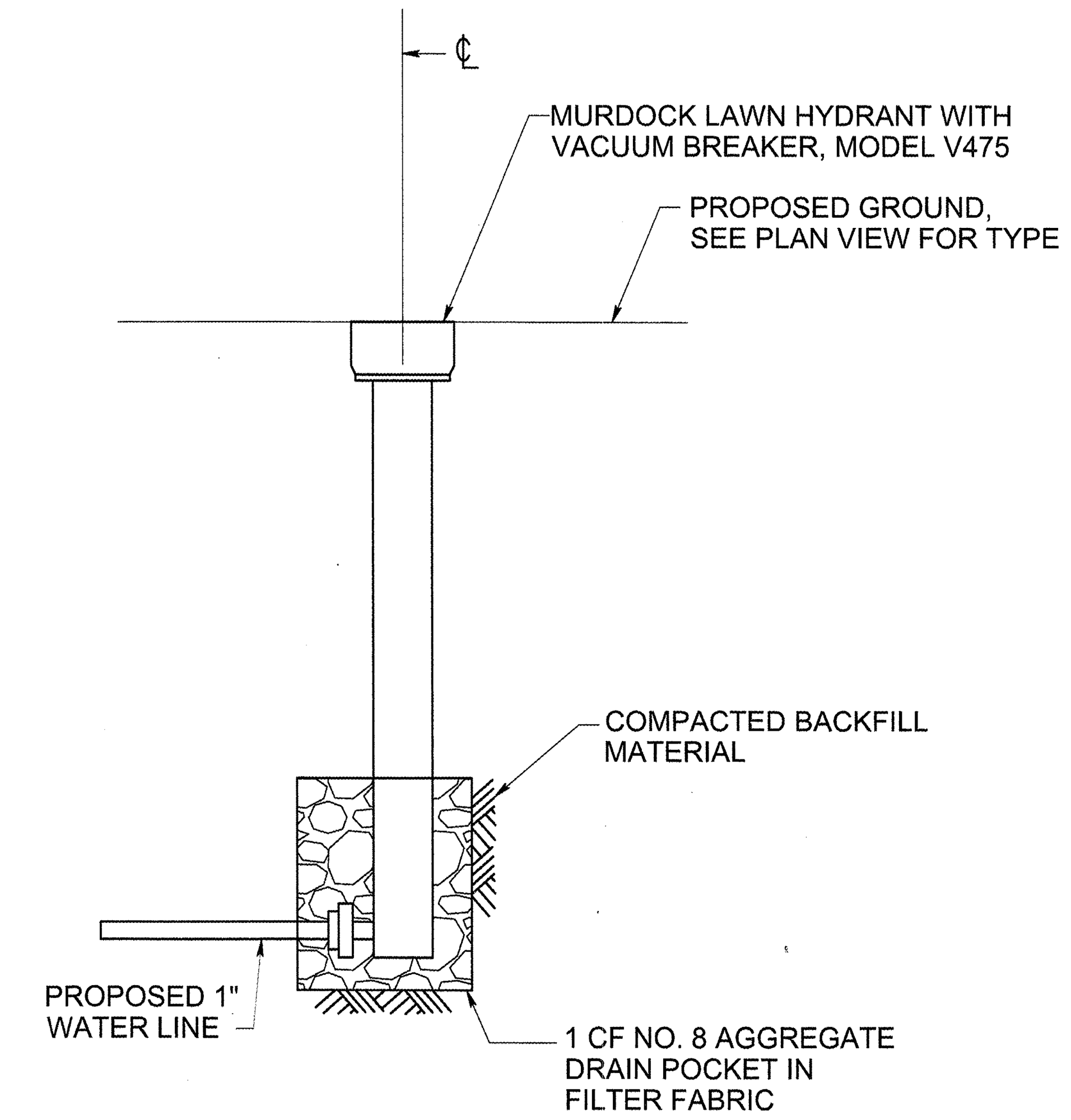
BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONNECTICUT AVE NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	EROSION AND SEDIMENT CONTROL GENERAL NOTES
DRAWING TYPE	C
WORKING STAFF	DMB (DESIGNED BY) / DMB (DRAWN BY) / SRR (CHECKED BY)
SHEET NO.	ESC (DISCIPLINE) / 1 (TYPE) / 03 (SEQUENCE)



GENERAL NOTES:

1. THE TOPOGRAPHIC AND THE UTILITY INFORMATION SHOWN HEREON, WAS OBTAINED FROM ASG IN FEBRUARY 2012. THE INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS/HER OWN SATISFACTION.
2. THE VERTICAL LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE UNKNOWN. THE CONTRACTOR SHALL LOCATE ANY EXISTING UTILITIES HORIZONTALLY AND VERTICALLY BY CONDUCTING TEST HOLES PRIOR TO CONSTRUCTION. IF ANY CONFLICTS WITH DESIGN ARE IDENTIFIED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND PROVIDE A FEASIBLE SOLUTION PRIOR TO CONSTRUCTION.
3. ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE AND IN SERVICE THROUGHOUT CONSTRUCTION, UNLESS OTHERWISE NOTED. OWNER AUTHORIZATION IS REQUIRED PRIOR TO INTERRUPTING UTILITY SERVICES.
4. ALL EXISTING UTILITY STRUCTURE SURFACE FEATURES (INLETS, MANHOLES, ETC.) WITHIN THE LIMIT OF DISTURBANCE TO BE ADJUSTED TO FINISHED GRADE UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ANY BUILDINGS DURING ALL PHASES OF CONSTRUCTION.
6. NEW WATER INSTALLATION SHALL CONFORM TO DC WATER STANDARDS AND SPECIFICATIONS.
7. PROPOSED WATER LINES SHALL BE 3' BELOW THE PROPOSED GRADE.
8. COPPER TUBING SHALL BE TYPE K AND DRAWN TEMPER.
9. PROPOSED YARD HYDRANT TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



YARD HYDRANT INSTALLATION

NTS

UTILITY LEGEND

EX. 10" PVC	EXISTING STORM DRAIN AND INLET
	EXISTING MANHOLE
	PROPOSED YARD HYDRANT
	PROPOSED WATER LINE

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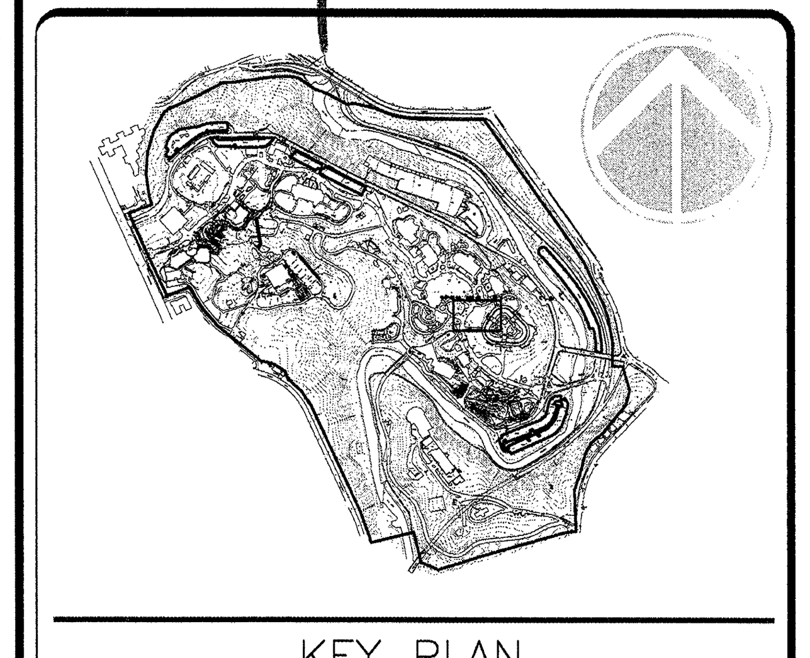

KEY PLAN

20 0 10 20 40

(IN FEET)
1 inch = 20ft.

DRAWING SCALE

DATE	SUBMISSION
04/17/12	100% SUBMISSION

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REVISION 5	
REVISION 6	

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BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONNECTICUT AVE NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	WATER PLAN
DRAWING TYPE	UP
WORKING STAFF	DMB (DESIGNED BY) / DMB (DRAWN BY) / SRR (CHECKED BY)
SHEET NO.	WL (DISCIPLINE) / 1 (TYPE) / 01 (SEQUENCE)

TREE PROTECTION AND PRESERVATION PROCEDURES:

1. Contractor shall coordinate with the COTR to meet with the Architect and NZP-LA and Arborist prior to commencement of any construction. The purpose of this meeting is to review all procedures and requirements with the construction foreman and crew. Provide three (3) working days notice is required.

2. Final location for the tree preservation fencing may be combined with the erosion and sediment control fencing. These will be adjusted as required by the COTR in consultation with NZP Arborist. Install fencing prior to construction activities and maintain in place throughout construction.

3. Contractor shall install 6' Ht Chain Link Fencing as Tree Protection Fencing along all trees to be saved and preserved, and around the project area Limit of Disturbance (LOD).

4. All weather signs reading "TREE PRESERVATION FENCING,- DO NOT REMOVE" shall be posted every twenty (20) feet or as designated by the COTR.

5. Cover and protect existing tree root areas to remain with two (2) inches of shredded hardwood mulch.

6. In the event fencing must be temporarily removed for any reason, contact the COTR prior to removal for coordination with the NZP Arborist. Contractor shall notify COTR of any work in and around tree #4284, three (3) working days prior so that NZP Arborist can be present during work within this tree CRZ.

7. As part of the utility and grading work, tree roots shall be exposed by air trenching methods by a certified Arborist so any roots that require pruning may be root-pruned with a walk-behind trenching machine to provide clean cuts and to avoid tearing of root tissue. Any roots greater than one (1) inch diameter must be cut by hand tools. An organic root stimulant may be applied to the ground immediately behind and in the root-pruning trench if directed by the COTR. Contact the COTR a minimum of three (3) working days prior for an inspection and allow the NZP Arborist to be present during root pruning operations as required.

8. Work within 10 feet of the trunk shall be performed by hand or as approved by the COTR.

9. Protect newly exposed root areas with two (2) inches of shredded hardwood mulch.

10. If required to the 4 trees to be protected contractor shall monitor water and fertilize as required by the COTR.

11. All existing trees to be removed will be performed by NZP Staff.

12. No vehicles or storage of materials of any kind are allowed outside the limits of work or within the Tree Protection fencing. No storage of materials or debris is allowed beyond limits of work and Tree protection fencing. No burning will be allowed on site.

LEGEND

EXISTING TREES IN PROXIMITY TO LOD TO REMAIN PROVIDE PROTECTIVE PRUNING, TREE PROTECTION ARMOR AND PROTECTION FENCING.

EXISTING TREES WITHIN LOD TO BE REMOVED AND HAULED OFF-SITE

EXISTING TREES TO BE RELOCATED AS PER COTR DIRECTION

AIR TRENCH & ROOT PRUNE AS PER ITEM #7 ABOVE

TREE PROTECTION MULCH

TREE PROTECTION FENCING (L.O.W.)
6' CHAINLINK WITH TENNIS NETTING

LIMIT OF DISTURBANCE (L.O.D., GRADING)

NOTE:
ALL SHRUBS WITHIN LOD TO BE REMOVED UNLESS OTHERWISE NOTED.

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COMMONWEALTH OF VIRGINIA
LANDSCAPE ARCHITECT
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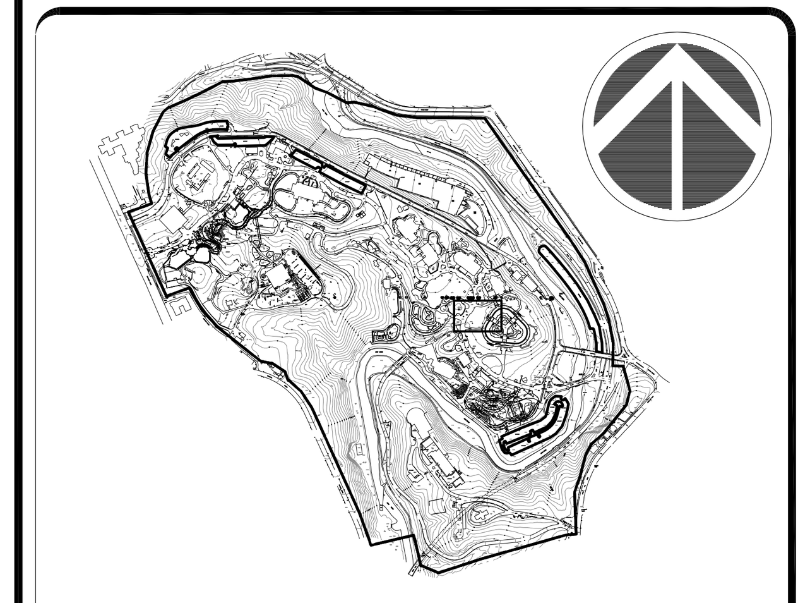

KEY PLAN

1/16"=1'-0" GRAPHIC SCALE
0 5' 10' 20' 40'
DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

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BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	TREE PRESERVATION & PROTECTION PLAN
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)

SHEET NO.	DISCIPLINE	TYPE	SEQUENCE
	L	1	01

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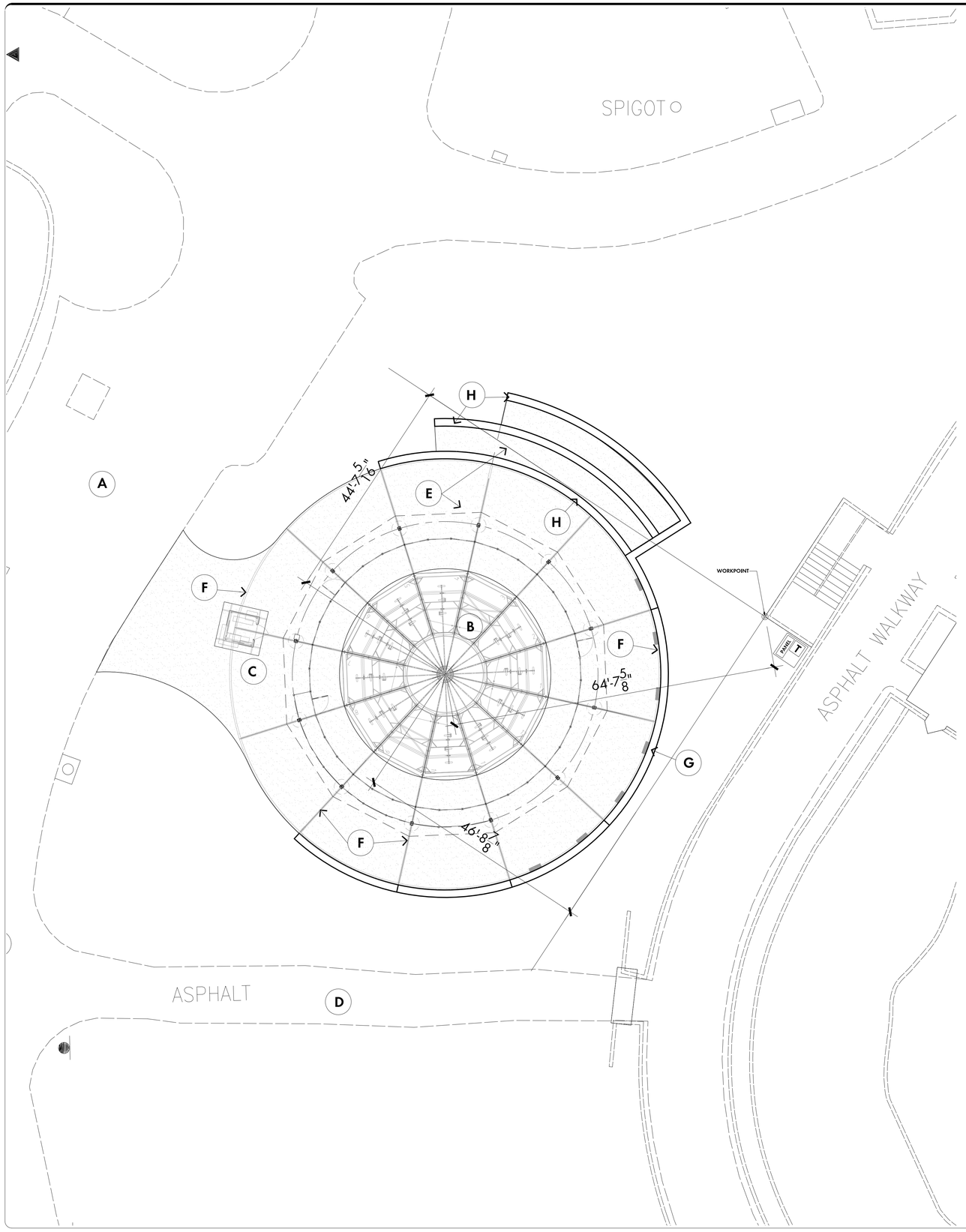
SCALE : 1:1



FLEXIBLE PERVIOUS PAVING NOTES

PART 1 - GENERAL

1.1 SCOPE

A. This specification provides requirements for the construction of flexible pervious paving within the NZP Carousel Project.

B. In case the requirements of this specification conflict with the contract documents, this document shall govern.

1.2 DEFINITIONS

A. Exposure Condition, Moderate: Exposure to a climate where the paving will not be in a saturated condition when exposed to freezing and will not be exposed to deicing agents or other aggressive chemicals.

B. Exposure Condition, Severe: Exposure to deicing chemicals or other aggressive agents or where the paving can become saturated by continual contact with moisture or free water before freezing.

C. Base Reinforcement: The use of a geosynthetic within the aggregate base course to enhance the performance of a paving

D. Geogrid: Biaxial or triaxial woven polypropylene material for base course reinforcement and confinement, and subgrade stabilization and increased subgrade load capacity

E. Panel: An individual paving slab bordered by joints or slab edges.

F. Pervious Paving: A paving comprising material with sufficient continuous voids to allow water to pass from the surface to the underlying layers.

G. Pervious: The property of a material that permits movement of water through it under ordinary hydrostatic pressure.

H. Flexible Pervious Paving: Paving system comprised of three components: recycled passenger car tires, aggregate, and urethane binder that provides a strong, pervious, yet flexible paving.

I. Subbase: A layer in a paving system between the subgrade and the base course, or between the subgrade and a flexible pervious paving.

J. Subgrade: The soil prepared and compacted to support a structure or paving system.

1.3 REFERENCED STANDARDS

A. ASTM standards:

1. ASTM C 666/C 666M-03, "Standard Test Method for Resistance of Concrete to Freezing and Thawing, Procedure A - freezing and Thawing in Water." Samples shall indicate only minimal mass change results after 300 nominal freeze-thaw cycles, and visual examination of the test specimens shall indicate no cracks or breaks.
   a. D 3385-03 Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.
   b. D 3665-06 Standard Practice for Random Sampling of Construction Materials E 329-06a Specification for Agencies Engaged in Construction Inspection and/or Testing.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Flexible Pervious Paving installer shall be currently certified by the Manufacturer and have successfully installed a minimum of 10,000 square feet within the mid-Atlantic region within the last year.
2. Flexible Pervious Paving installer shall employ no less than two Manufacturer-certified Flexible Pervious Paving technicians on staff who directly oversee or perform the installations during all Flexible Pervious Paving placements, unless otherwise specified.
3. A qualified stone or brick mason shall install Hanover Edge pavers. Installers shall have demonstrated at least 5 similar unit paver and edge restraint system installations.

1.5 SUBMITTALS

A. Qualification Data

1. For Pervious Paving Installer:
   a. Provide a list of successfully installed Flexible Pervious Paving projects, as required herein, including the address, square footage, and photographs for each project.
   b. Manufacturer's Certifications.

B. Proposed Mix Design.

C. Proposed Mix Colors: Note contractors shall provide allowance for a maximum of three colors to be used on the project. These shall be determined by NZP at time of mock-up preparation.

D. Samples for Verification: Provide two 6" diameter samples, full thickness.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for pedestrian traffic as required for other construction activities.

B. Schedule placements to minimize exposure to wind and heat before curing materials are applied.

C. Avoid placing pervious paving if rain, snow, or frost is forecast within 24 hours. Protect fresh paving from moisture and freezing.

1.7 MOCK-UPS

A. Contractor to coordinate with NZP representative to locate and construct a minimum of three 3'x4' mock-up to determine porous pavement color and edge detail compatibilities.

B. Contractor to install Hanover paver and concrete edge detail on at least one of the mock-ups prior to the installation of the flexi-pave in order to verify all potential detail conditions of the final product.

C. Due to the nature of the product it is likely that these samples will not be usable for the final installation.

PART 2 - PRODUCTS

2.1 SUBBASE

A. Coarse aggregates shall meet the durability requirements of ASTM C33 and ASTM D448-08 for the 'Standard Classifications for Aggregate for Road and Bridge Construction'.

2.2 FLEXIBLE PERVIOUS PAVING

A. Bonding: Have the capacity to bind with: wood; steel; concrete; aluminum; compacted aggregate; enamel tile, or; fiberglass

B. Resistance to degradation: Resistant to: chlorine; ozone; bromine; muriatic acid; salt water; oil; transmission oil, and; hydraulic oil.

C. Type: Flexi-pave shall be HD2000 or equal.

D. Aggregate:

1. Stone: Triple-washed coarse aggregate, No. 8 coarse aggregate (3/8 to ½ inch) per ASTM C 33. Bagged and labeled as tested and certified by Flexible Pervious Paving Manufacturer.
   a. Nominal maximum aggregate size shall not exceed 1/3 of the specified paving thickness.
2. Rubber: Recycled passenger tires ground to 3/8" nominal with the wire remnants removed.

E. Binding agent: Urethane liquid prepolymer based upon Diphenylmethane-Diisocyanate.

F. Air Entraining Agents: Prohibited.

G. Mix Design: Using materials acceptable to the Manufacturer design a tentative mix and test for the consistency intended for use on the work and specified.

1. The volume by weight of aggregate per cu. yd. shall be 50% of the total dry mix.
2. The volume by weight of the rubber product per cu. yd. shall be 50% of the total dry mix.
3. Permeability: Pervious infiltration rate of 2,000 gallons/square foot/hour

2.3 FORMS

A. Make forms with steel, wood, or other material that is sufficiently rigid to maintain specified tolerances, and capable of supporting concrete and mechanical concrete placing equipment.

B. Forms shall be clean and free of debris of any kind, rust, and hardened concrete.

C. Form release: Bio-diesel or vegetable oil coating.

D. Construct circular forms around each tree to be incorporated into the flexi-pave system. Provide a minimum of a 16" diameter ring from the center of the 4" diameter tree trunk to allow 6" space on either side of the flexi-pave system to the face of the tree trunk.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

A. Prepare subgrade as specified in the contract documents and as per structural engineer.

B. Construct subgrade to ensure that the required paving thickness is obtained in all locations.

C. Keep all traffic off of the subgrade during construction to the maximum extent practical. Regrade subgrade disturbed by delivery vehicles or other construction traffic, as needed.

D. Compact the material added to obtain final subgrade elevation.

E. Determine subgrade permeability in accordance with ASTM D3385 before pervious paving placement. Confirm that subgrade permeability meets requirements of Contract Documents.

3.2 SUBBASE

A. Install a 6" layer of Compacted #57 stone to the required level to meet the grades of the final Carousel paving.

3.3 SETTING FORMWORK

A. Set, align, and brace forms so that the hardened paving meets the tolerances specified herein.

B. Apply form release agent to the form face that will be in contact with pervious paving, immediately before placing paving.

C. The vertical face of previously placed concrete may be used as a form.

1. Protect previously placed paving from damage.
2. Do not apply form release agent to previously placed concrete.
3. Apply liquid urethane bonding agent to face of surfaces when adhesion is desired

D. Placement width shall be as specified in Contract Documents.

3.4 EDGING

A. Provide single bands of 4"x8" Hanover pavers (Tudor Gray) at radial points and along the outer perimeter of the circular Carousel plaza. Set pavers between PVC edging to contain and provide straight radials from pavilion columns.

B. Install all unit paver edging prior to installation of the Flexi-pave paving system.

C. Contact the project COTR for approval of all paver bands prior to installation of the Flexi-pave.

3.5 BATCHING, MIXING, AND DELIVERY

A. Batch and mix on site in compliance with Manufacturer's written specifications, except that discharge shall be completed within 5 minutes of the introduction of urethane to the dry products.

3.6 PLACING AND FINISHING PAVING

A. Do not place pervious paving on frozen or wet subgrade or subbase

B. Deposit pervious paving directly onto the subbase as indicated on the drawings. Do to site constraints contractor is encouraged to place the material trough the use of a wheelbarrow or material handler.

C. Use care to not disturb the line and level of the Carousel radial paver edges. Protect the unit pavers from staining or other damage as a result of the flexi-pave installation.

D. Deposit pervious paving between the unit paver radial bands and forms to a uniform height.

E. Spread the pervious paving using a come-along, short-handle, square-ended shovel or rake.

F. Use steel trowels to finish to the elevations and thickness specified in Contract Documents.

3.7 FINAL SURFACE TEXTURE

A. Final surface of pervious paving shall be smoothed with bull float and magnesium trowels.

3.8 CURING

A. Begin curing within 20 minutes of paving discharge, unless longer working time is acceptable to the Manufacturer.

B. Completely cover the paving surface with a minimum 4 mil thick polyethylene sheet only if rain or sprinklers are imminent within 20 minutes. Cut sheeting to a minimum of a full placement width.

1. Cover all exposed edges of paving with polyethylene sheet.
2. Secure curing cover material without using dirt.

C. Cure paving for a minimum of 24 uninterrupted hours, unless otherwise specified.

3.9 HOT- AND COLD-WEATHER CONSTRUCTION

A. When hot weather is anticipated up to 95 degrees Fahrenheit, no special procedures are necessary.

B. In cold weather when temperatures may fall below freezing just after an installation, utilize a fan to maintain airflow over pervious paving during the curing process.

3.10 OPENING TO TRAFFIC

A. Do not open the paving to light vehicular traffic until the pervious paving has cured for at least 24-hours during warm weather, and 48-hours during very cold temperatures at or near freezing and not until the pervious paving is accepted by the Owner for opening to traffic.

LEGEND

- A EXISTING OLMSTED WALK
- B PROPOSED CAROUSEL PAVILION
- C PROPOSED TICKET BOOTH
- D EXISTING ASPHALT PATH
- E POROUS PAVEMENT
- F PAVER EDGING
- G STONE VENEER RETAINING WALLS
- H STONE VENEER SEATWALLS

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LANDSCAPE ARCHITECT

KEY PLAN

3/32"=1'-0" GRAPHIC SCALE
0 5' 10' 20' 30'
DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

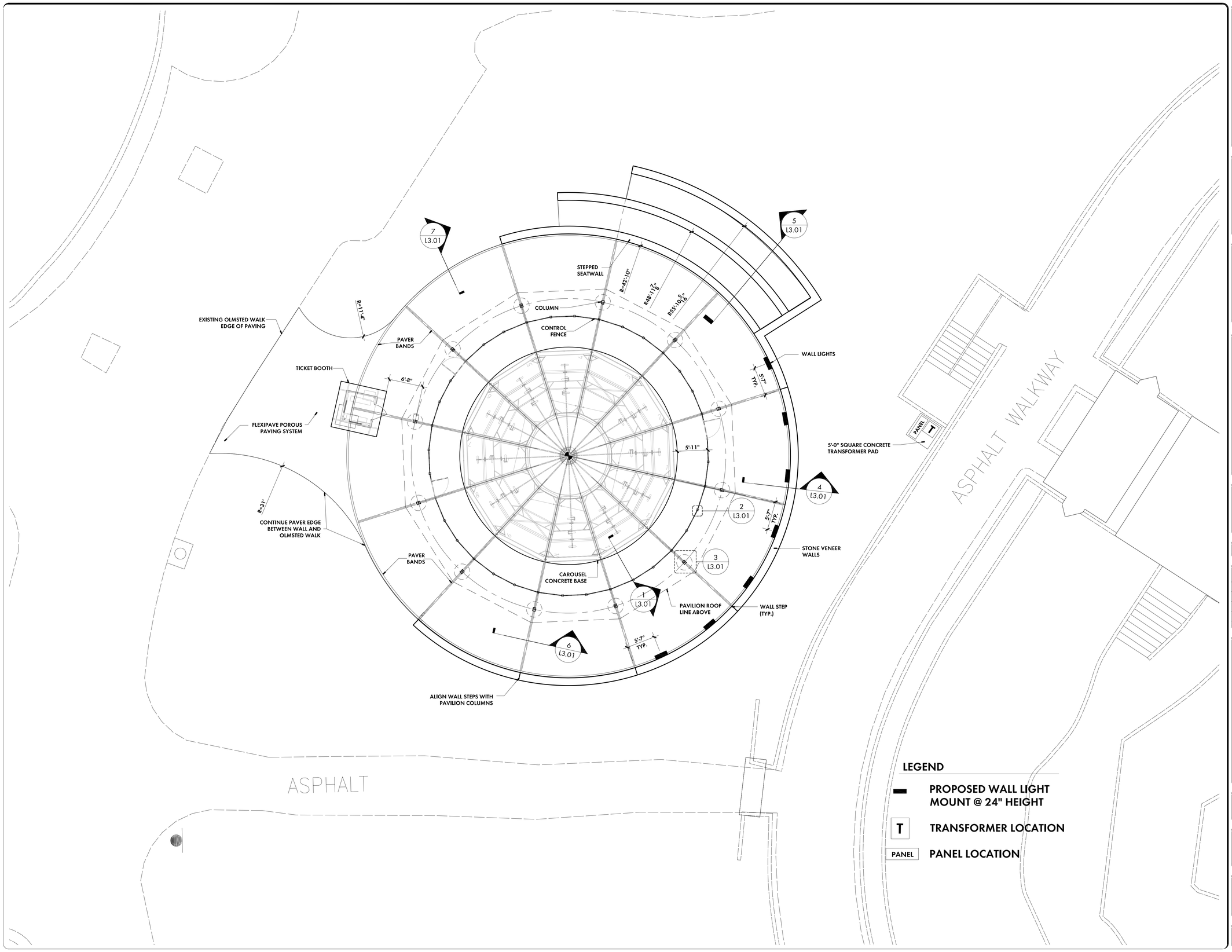
REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

Smithsonian Institution

Office of Facilities Engineering and Operations
600 Maryland Avenue S.W. Suite 5001
Washington DC 20024-2520

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	SITE PLAN
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)
SHEET NO.	L (DISCIPLINE) 2 (TYPE) 01 (SEQUENCE)

SY-1 DWG
SCALE: 1:1



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DEBORAH A. HAYS
Reg. No. 000292
LANDSCAPE ARCHITECT

KEY PLAN

1/8"=1'-0" GRAPHIC SCALE
0 4" 8" 16" 24"
DRAWING SCALE

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DRAWING TITLE	DETAILED SITE PLAN
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)

SHEET NO.

L	2	02
DISCIPLINE	TYPE	SEQUENCE

1" = 1'-0"
SCALE: 1" = 1'-0"

NOTES:

1. THE TOPOGRAPHIC AND THE UTILITY INFORMATION SHOWN HEREON, WAS OBTAINED FROM ASG FEBRUARY 2012. THE INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRATOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS/HER OWN SATISFACTION.

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0 4' 8' 16' 24'

DRAWING SCALE

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DRAWING TITLE	GRADING PLAN
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)

SHEET NO.

L	2	03
DISCIPLINE	TYPE	SEQUENCE

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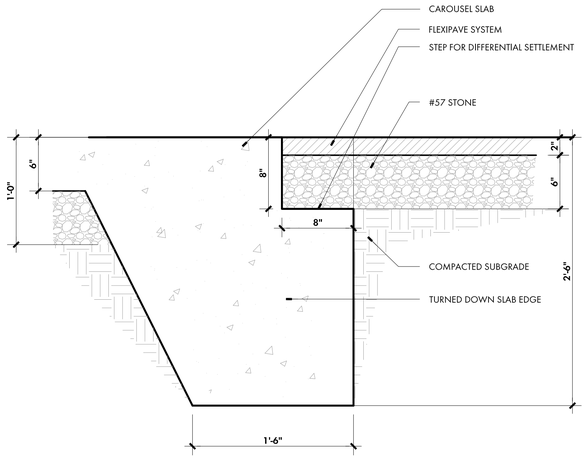
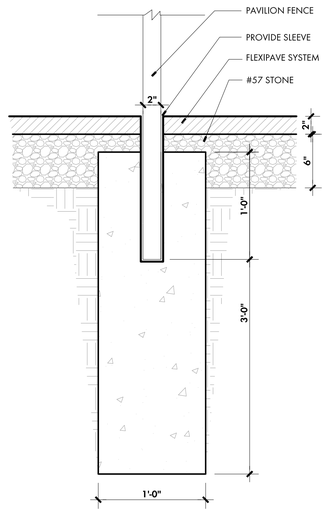


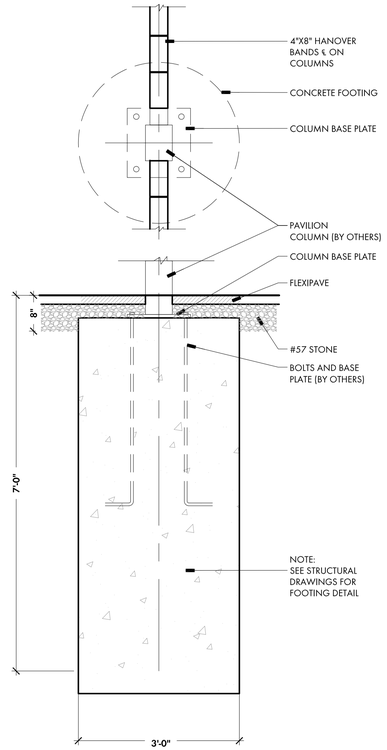
1 SECTION @ CAROUSEL SLAB

SCALE: 1 1/2" = 1'-0"



2 FENCE FOOTING SECTION

SCALE: 1 1/2" = 1'-0"

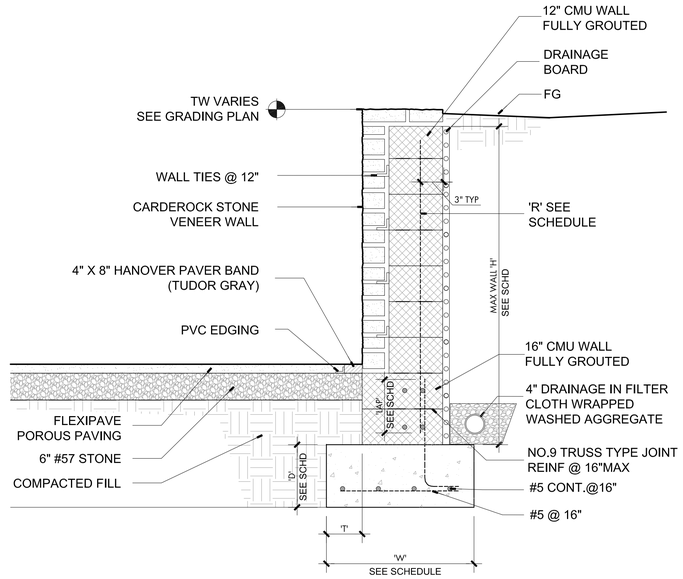


3 SECTION @ COLUMNS

SCALE: 3/4" = 1'-0"

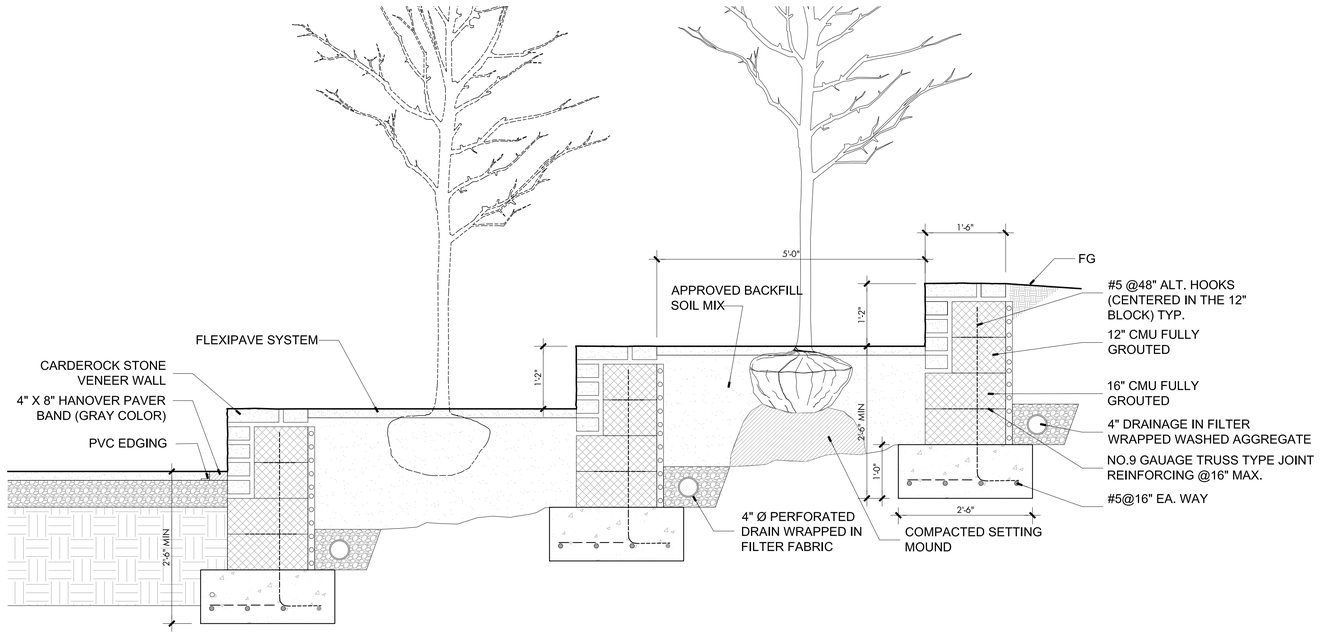
CMU RETAINING WALL SCHEDULE

MAX. WALL H	DIMENSIONS AND REINFORCING					REQUIRED BEARING CAPACITY (PSF)
	D	W	T	LAP	R	
3'-6"	1'-0"	3'-0"	1'-0"	NO LAP	#5@48"	1000
5'-0"	1'-0"	4'-6"	1'-6"	2'-6"	#5@32"	1000
6'-6"	1'-0"	6'-0"	2'-0"	2'-6"	#5@16"	1000



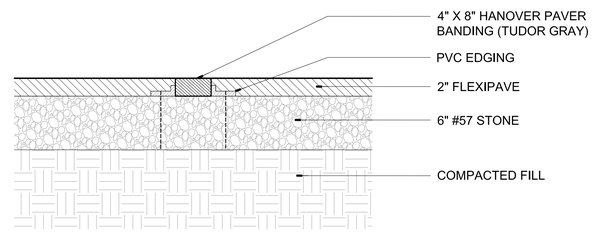
4 TYPICAL WALL SECTION

SCALE: 3/4" = 1'-0"



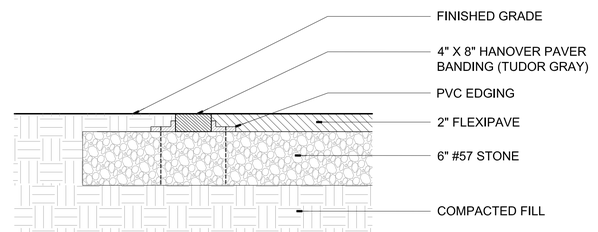
5 WALL SEAT SECTION @ SEATWALLS

SCALE: 3/4" = 1'-0"



6 TYPICAL INTERIOR PAVER BAND

SCALE: 1 1/2" = 1'-0"



7 TYPICAL EDGE PAVER BAND

SCALE: 1 1/2" = 1'-0"

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JAMES A. PAYS
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KEY PLAN

AS_INDICATED

DRAWING SCALE

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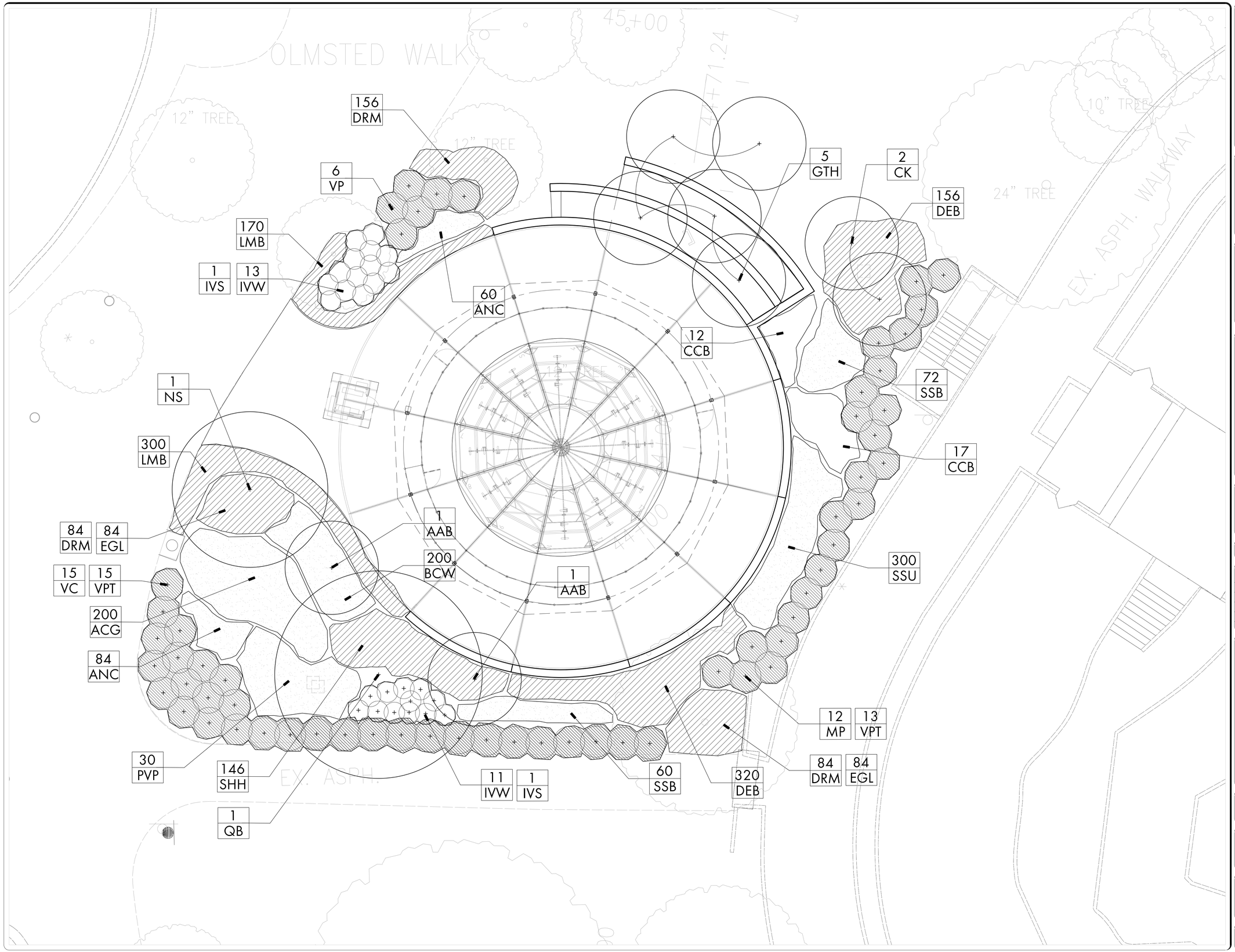
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	SITE SECTIONS
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH / DW / BC (DESIGNED BY / DRAWN BY / CHECKED BY)
SHEET NO.	L 3 01 (DISCIPLINE / TYPE / SEQUENCE)

S1-1.DWG
SCALE: 1:1



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A/E PROJECT NUMBER	21186.00
DRAWING TITLE	PLANTING PLAN
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)

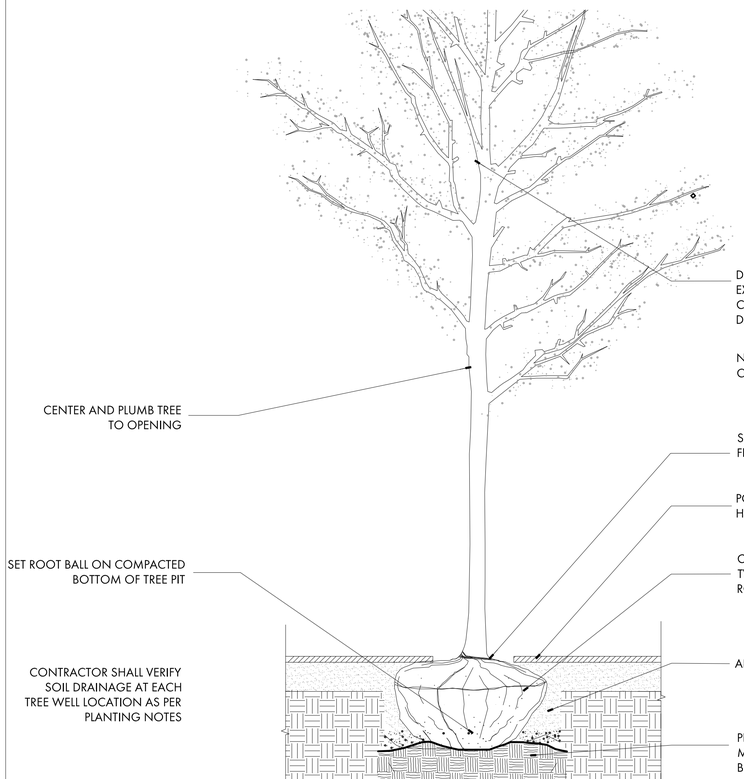
SHEET NO.

L	5	01
DISCIPLINE	TYPE	SEQUENCE

S1-1.DWG
SCALE: 1:1

PLANT MATERIALS SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE		REMARKS	NOTES
		TREES					
AAB	2	Amelanchier 'Autumn Brilliance'	*Autumn Brilliance Serviceberry*	10-12'	Height	B&B Multistem	Spring White Flr Accent Tree
CK	2	Cladrastis kentuckea	*American Yellowwood*	3"	Caliper	B&B Single Stem	Spring White Flr Accent Tree
GTH	5	Glidistia triacanthos "Halka'	*Halka Honey Locust*	3-5"-4"	Caliper	B&B Matched Specimens Branched @ 8' Ht.	Seat Steps Bosque Tree
NS	1	Nyssa sylvatica	*Blackgum*	3-5"-4"	Caliper	B&B Specimen	Replacement Tree
QB	1	Quercus bicolor	*Swamp White Oak*	3-5"-4"	Caliper	B&B Specimen	Spring & Fall Flr Accent Tree
		SHRUBS					
CCB	29	Caryopteris clandonensis "Blue Knight'	*Blue Mist Shrub*	18-24"		B&B or Cont., 3'o.c.	Deer Resisitant Accent w/ Blue Flwr
IVW	24	Ilex verticillata 'Winter Red'	*Winter Red Holly*	18-24"		B&B or Cont., 3'o.c.	Red Berry/ Winter Interest
IVS	2	Ilex verticillata 'Southern Gentleman'	*Male Pollenator Holly*	18-24"		B&B or Cont., 3'o.c.	Male Pollinator
MP	12	Myrica pensylvanica	*Northern Bayberry*	30-36"		B&B or Cont., 4'o.c.	Deer Resisitant Evergreen
VC	15	Viburnum x 'Conoy'	*Conoy Viburnum*	40-48"		B&B only	Evergreen Accent Plant
VP	6	Viburnum x pragense	*Prague Viburnum*	30-36"		B&B or Cont., 5'o.c.	Evergreen Accent Plant
VPT	28	Viburnum plicatum v. tomentosum 'Mariesii'	*Doublefile Viburnum*	40-48"		B&B only	Evergreen Accent Plant
		GROUNDCOVERS & FERNS					
EGL	168	Epimedium grandiflorum "Lilafee'	*Barrenwort*	1Qt.		Cont. sp @ 12" o.c.	Dry-shade, Deer resistant groundcover
LMB	470	Liriope muscari 'Big Blue'	*Big Blue Lily Turf*	1 Gal.		Cont. sp @ 12" o.c.	Evergreen Edging Groundcover
DEB	476	Dryopteris erythrosora 'Brilliance'	*Brilliant Autumn Fern*	1 Gal.		Cont. sp @ 12" o.c.	Evergreen Fern
DRM	324	Dryopteris marginalis	*Marginal Wood Fern*	1 Gal.		Cont. sp @ 12" o.c.	Native Fern
SHH	146	Sarcococca hookeriana humilis	*Sweet Box*	1 Gal.		Cont. sp @ 18" o.c.	Deer Resisitant Evergreen
		PERENNIALS & GRASSES					
ACG	200	Acorus gramineus	*Dwarf Sweet Flag*	1 Gal.		Cont. sp @ 18" o.c.	(OBL) Rhizom with Green Texture
ANC	144	Anemone canadensis	*Meadow Anemone*	1 Gal.		Cont. sp @ 12" o.c.	(FACW) Can be used in moist areas
BCW	200	Bergenia cordifolia 'Winter Glow'	*Bergenia*	1 Gal.		Cont. sp @ 12" o.c.	Red glossy course textured accent
PVP	33	Panicum virgatum 'Prairie Sky'	*Blue Switch Grass*	1 Gal.		Cont. sp @ 36" o.c.	(FAC) Highly Versatile almost any soil type
SSB	132	Schizachyrim scoparium 'The Blues"	*Little Bluestem Grass*	1 Gal.		Cont. sp @ 18" o.c.	Very blue accent grass great for poor soils
SSU	300	Sisyrinchium 'Suwannee'	*Blue-Eyed Grass*	1 Gal.		Cont. sp @ 12" o.c.	Versatile native groundcover w/blue flowers



1 SEATWALL TREES
SCALE: 1/2" = 1'-0"

LANDSCAPE PLANTING NOTES

GENERAL REQUIREMENTS:

1. Contractor shall prepare a separate bid for the Landscape portion of the Project. Provide a breakdown of all plant material, topsoil, fertilizers, soil amendments, mulch and organic top dressings, plant installation, maintenance, and warrantees.
2. Submittals:
   A. Contractors Qualifications: If the subcontractor has not been prequalified and accepted by the COTR, submit the following information: Years of experience, List of completed projects having similar Scope of Work identified by date, name, and location, and A minimum of three current references with names and phone numbers to be contacted.
   B. Plant material quantities shall be as shown on the Landscape Drawings not Plant Materials Schedule. Quantities are provided for convenience of the contractor. Submit the following items: The specific variety, quantity and size of plant to be provided, Nurseries, where plant material is to be obtained, unit prices for each type and size, and a planting schedule showing dates for planting in each of the project site.
   C. Warranty and Maintenance: Submit written warranty and maintenance agreement for all workmanship and materials installed.
3. Delivery and Storage of Materials:
   A. The Contractor shall contact the COTR a minimum 24 hours prior to the delivery of any plant material.
   B. All plant material shall be inspected by the COTR at the job site upon delivery. Only plants approved by the COTR shall be installed.
   C. The COTR reserves the right to refuse any plant material they deem unacceptable. Any and all rejected plant material shall be removed from the job site on the day rejection.
   D. Bulk deliveries of mulch, topsoil, and inert material shall be accompanied with delivery tickets showing weight, origin, and composite and stored in such a manner as to prevent the inclusion of foreign materials.
   E. Due to the confined area of the project site, Trees, shrubs, and groundcovers not installed on the day of delivery to the site may not be stored overnight without approval of the COTR. NO PLANTS OR OTHER MATERIALS SHALL BE STORED ON THE SITE FOR A PERIOD GREATER THAN 5 BUSINESS DAYS.
4. Planting Season: No plants may be planted when the ground is frozen or during days of extreme heat (Greater than 80 Degrees). Plants shall be installed between March 1st and June 15th or from August 15th until the ground freezes. The COTR must approve any change from these planting periods.

MATERIAL STANDARDS:

1. Size and standards of plant materials shall conform to latest edition 01 "American Standards for Nursery Stock", as published by The American Association of Nurserymen, Inc. (ANSI Z60-1.1 1991) 1250 I Street, NW, Suite 500, Washington, D.C. 2005.)
2. All plant material supplied by a contractor shall be true to form size and shape, and shall verify its botanical nomenclature, as per "Hortus Third", Dictionary of Plants Cultivated in the United States and Canada, as compiled by the Bailey Hortorium, Cornell University, Macmillian Publishing Co., 1976 Edition.
3. Quality: Provide sound, healthy, vigorous plants, well-branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae, with healthy, well-developed root systems as accepted by the COTR. Plants shall be typical of their species or variety and shall have a normal habit of growth.
4. Size: Comply with measurements on Plant Schedule, except plants larger than specified may be used if acceptable to COTR at no change to Contract sum. If larger plants are accepted, increase ball of earth in proportion to size of plant.
5. Trees: Measure caliper at point on trunks 6 inches above natural ground line for trees up to 4 inches in diameter, and 12 inches above natural ground line for trees over 4 inches in diameter. Do not prune trees before delivery. All trees shall be grown within 50 miles of NZP.
6. Specimen Trees: Provide plants of "specimen quality", exceptionally full, symmetrical, and tightly knit where specified on the plant material schedule.
7. Shrubs: Measure plants when branches are in normal position, after pruning. Height and spread dimensions specified refer to main body of plant and not from branch tip to branch tip. If size range is given, comply with minimum sizes and provide 50 percent of plants of maximum size.
8. Nursery Cultivation: Provide plants that are nursery grown in accordance with good horticultural practices and grown under climatic conditions similar to those in locality of the Project for at least two years. Provide plants that have been root pruned within last two years.
9. Provide Fresh Plants: Dig plants fresh for delivery to the project during season for planting. Should the time- table for plant installation be out of phase with recommended planting times please notify MSA so that an alternative plant digging schedule can be approved. No B&B heeled-in plants, out of season dug, or plants from cold storage will be accepted.
10. Container Grown Stock: Grown in container in which delivered for at least 6 months, but not longer than 2-years. Root system shall be well developed and distributed throughout container, such that roots visually extend to inside face of growing container.
11. Plant Acceptance: COTR or their representative may view plants at their place of growth or upon delivery. COTR reserves the right to tag plants at their place of growth. For distant material, photographs may be submitted in lieu of on site inspections or for preliminary reviews prior to on site inspection or delivery. Send COTR written request for plant inspection at their place of growth at least ten calendar days prior to digging. Identify place of growth and quantity of plants to be inspected.
12. Contractor shall not substitute plant species or varieties without the COTR prior knowledge and permission. All plant material shall be approved by the COTR prior to installation.

SOIL MIX:

1. Topsoil, ASTM D5268: The following are the acceptable ranges for soil test results:
   - Soil pH (non Buffered): 5.5 - 7.0
   - Organic Matter Minimum 5%
   - Magnesium (Mg) 100+ units
   - Phosphorus (P2O2) 150+ units
   - Potassium (K2O) 120+ units

   Soluble Salts/Conductivity: not to exceed 900ppm/ 0.9mmhos/cm (in soil) not to exceed 3000ppm/ 2.5 mmhos/cm (high organic mix).

   Provide a complete soils particle analysis of all soils tested. Testing shall be performed by: CLC Labs, Inc. 325 Venture Drive, Westerville, Ohio 43081-8828, Phone (614) 888-1063, or another soils testing laboratory with similar capabilities as approved by the COTR. The cost for these tests shall be included in the contract price.
2. Soils shall be free from subsoil, refuse, stones larger than 1 inch, noxious seeds, sticks, brush, litter, and other deleterious substances; suitable for the germination of seeds and support of vegetative growth.
3. Imported soils: If existing soils are not sufficient to complete planting contractor shall meet the minimums of the above acceptable soil test results, and shall be of a similar textural composition to the on site soils if possible as classified by the Soil Conservation Service USDA, Soil Classification System and as determined by soil testing. Use and approval of import soils shall be as directed and approved by the COTR.
4. Backfill Mixtures:

   Excavate Shrub planters to a minimum depth of 24" removing and stockpiling soil for reuse and amendments. Remove large stones greater than 2" diameter, brickbats, or other deleterious material not contusive to good plant growth discard and haul off site. Add to remaining soil for backfilling planting beds with min 50% Pro-Mix BX, mixing thoroughly into soil.
5. Fertilizer Quantities for planting in non amended soils only:

   Trees: 1/2 pound of 10:6:4 commercial fertilizers per inch of trunk diameter.
   Shrubs: 1/4 pound of 10:6:4 commercial fertilizer per foot of height or spread per plant, or 3-5 pounds of 10:6:4 commercial fertilizer per 100 square feet of bed area.
   Groundcover: 3 pounds of 10:6:4 commercial fertilizers per 100 square feet of bed area.
   Perennials, annuals, and bulbs: 3 pounds of super phosphate per 100 square feet of bed area.
   Bulbs: 4 - 8 pounds of bone meal per 100 square feet of bed area may be used in lieu of super phosphate.

INSTALLATION GUIDELINES

1. Installer Qualification: Not less than 5 years documented successful experience in installation of work similar to Work of this Project.
2. Contractor shall be responsible for making themselves familiar with all underground utilities, pipes and structures prior to digging. Contractor shall take responsibility for costs incurred due to damage to NZP utilities.
3. Do not willfully proceed with planting as designed when it is obvious that conditions and/or obstructions exist that may not have been known during design. Such conditions shall be brought to the attention of COTR. The Contractor may assume responsibility for necessary revisions due to failure to give such notification to COTR so that material can be relocated or conditions corrected prior to planting.
4. Contractor shall verify soil drainage through an approved Leach Field Percolation Testing Procedure. Procedure must use soil presoaking in order to receive valid test results. Measure drainage time intervals between 10 to 15 minutes apart. Keep time interval constant during testing. Minimum approved soil percolation rate shall be 1" per 60 minutes.
5. Should the landscape contractor encounter soil conditions which indicate poor drainage, planting beds and material may be raised slightly, no more than six (6) inches above existing grades, to compensate for these conditions. Where standing water, or areas, which do not drain at all, are encountered, these areas will require verification of soil drainage through an approved perk test and /or the installation of underground drainage piping. The contractor shall bring these conditions to the attention of COTR for testing, corrective drainage procedures or relocation of the plant material should these conditions not be corrected.
6. Plant material installed by a landscape contractor, unless otherwise specified or detailed on these drawings shall conform to the second edition of, "The Landscape Specifications Guidelines for Baltimore-Washington Metropolitan Areas" as published by The American Society of Landscape Architects, Potomac Chapter and The Landscape Contractors Association of Metropolitan Washington.
7. Final acceptance and location of plant material shall be subject to COTR approval. Contractor should notify the COTR for inspection after layout of each area is complete and before final installation of the plant material. Plant material installed by a contractor, shall be guaranteed for a period of one (1) year from the date of final acceptance by the COTR.

PRUNING:

1. Prune plants when planted according to standard horticultural practice to preserve natural character of plant. Notify COTR prior to pruning. Use only clean, sharp tools for pruning. Remove dead wood, suckers, and broken or badly bruised branches.

MULCHING AND BED TOP DRESSINGS:

1. Trees, Shrubs, and Groundcovers: Mulch pits and beds with a 2-inch layer of mulch immediately after planting. Smooth planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. If directed by the COTR, provide 6-inch deep saucer around tree pits.
2. Perennials: Top dress beds with a 1-inch layer of pine fines immediately after planting. Smooth beds to conform to grades and adjust for settlement.

SOD:

1. Sod all disturbed areas not designated to receive plant material or mulch. Contractor shall prepare all areas to receive sod by tilling a minimum depth of 6" and apply 3" layer of organic top dressing. Sod with the latest Dwarf Type Tall Fescue produced by an approved Maryland Department of Agriculture Certified Sod Farm. Acceptable seed types used to prepare sod shall be as per the following, but not limited too: Falcon IV or V, Shenandoah II or III, Finelawn Elite, or Rebel IV or Advanced. Sod shall be a blend of three or more seed types with minimum 10% Kentucky Bluegrass.

NO BARE GROUND:

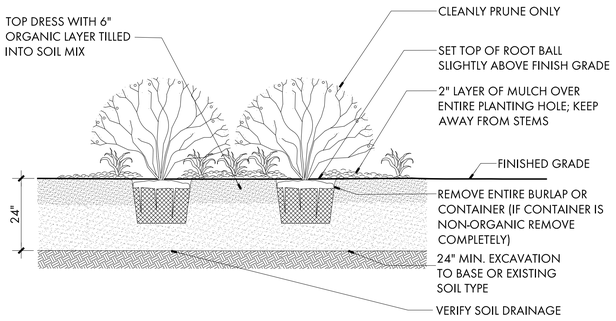
1. All areas shall be covered by either with plant materials, sod or mulch, with the exception of natural areas as noted and approved on the plans. These areas shall be cleaned from unsightly and debris not conducive to a natural appearance. Natural areas shall have natural leaf litter floor comprised of natural ground covers.

MAINTENANCE:

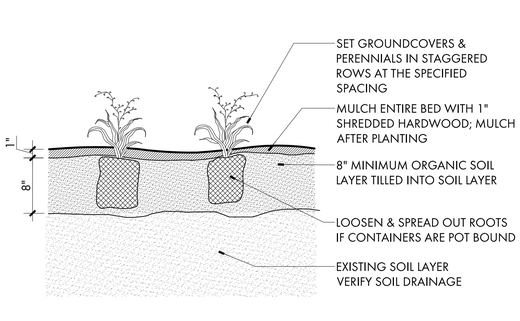
1. Begin watering and maintenance immediately after plants are installed and continue until initial acceptance by the COTR and turnover to the COTR maintenance staff.
2. Protect plants and planting areas from damage and keep plants healthy, vigorous, trim, and neat. Prune to maintain plants in normal growth pattern.
3. Spray to control disease and insects. Maintain mulch bed to 2-inch depth. Re-mulching of the plant materials is not required as part of the work. Keep beds free of weeds. Provide manpower in order to water all plant materials as required to maintain adequate moisture, and when directed by the COTR.
4. No tree guying or staking is required.

GUARANTEE:

1. Contractor shall warrant that all trees, shrubs, vines, groundcovers, perennials, and bulbs planted under this Contract will be healthy and in flourishing condition of active growth for a Warranty Period of 12 Months from date of completion and initial acceptance of the work.
2. Any delay in completion of planting operations, which extends the planting into more than one planting season, shall extend the Warranty period correspondingly. Contractor shall provide written warranty certificates to the COTR.
3. Warranty Provisions: Remove plants that are in the opinion of the COTR are at least 25% dead, unsightly, or not in healthy condition. Replace removed plants, and plants missing due to Contractor's negligence. Replace when weather conditions permit and within specified planting period, or as directed by Landscape COTR.
4. Provide replacement plants closely matching adjacent specimens of same species. Warrant replacement plants for additional period of one year from date of their acceptance after replacement.



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



3 GROUNDCOVER PLANTING DETAIL
SCALE: 1 1/2" = 1'-0"

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LANDSCAPE ARCHITECT
Michael Vergason Landscape Architects
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CONSULTANTS

STAMP
COMMONWEALTH OF VIRGINIA
JAMES A. PAYNE
No. 0402.002292
LANDSCAPE ARCHITECT

KEY PLAN

AS INDICATED
DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

Smithsonian Institution

Office of Facilities Engineering and Operations
600 Maryland Avenue S.W. Suite 5001
Washington DC 20024-2520

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	PLANTING SCHEDULE
DRAWING TYPE	LANDSCAPE
WORKING STAFF	DH (DESIGNED BY) / DW (DRAWN BY) / BC (CHECKED BY)
SHEET NO.	L (DISCIPLINE) 5 (TYPE) 02 (SEQUENCE)

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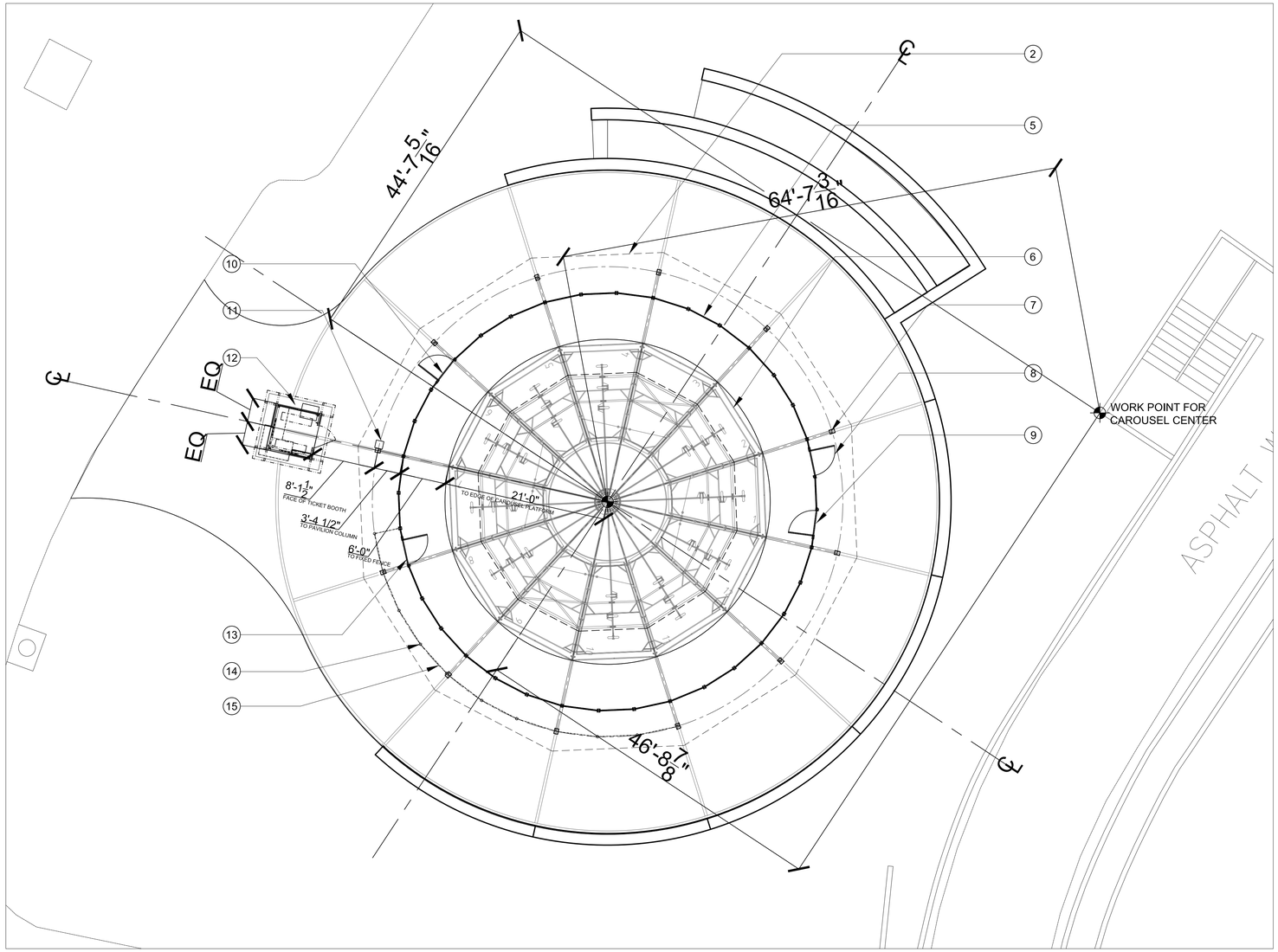
SCALE: 1=1



1 A-101 DETAILED GROUND PLAN

SCALE: 1/8" = 1'-0"

KEY NOTES

NOT ALL NOTES APPLY TO ALL DRAWINGS

1. EDGE OF COPULA
2. EDGE OF PAVILION CANOPY
3. TYPICAL 6:12 GUTTER AND 3" DIA. DOWNSPOUT AT CANOPY EDGE* (SEE GENERAL NOTE BELOW)
4. METAL WEATHERVANE (INSTALLED BY CONTRACTOR)**
5. 42" STEEL HANDRAIL (MANUFACTURER'S STANDARD COLOR TBD BY COTR) ON 28'-9" R, 3 STANCHIONS PER PIE SEGMENT (POLIGON PAVILION TAMPA ORNAMENTATION PACKAGE OR EQUAL)*
6. PRE-ENGINEERED CAROUSEL (SUPPLIED AND INSTALLED UNDER SEPARATE CONTRACT)**
7. TYPICAL PRE-ENGINEERED PAVILION COLUMN W/ ELECTRICAL ACCESS HOLE (MANUFACTURER'S STANDARD COLOR TBD BY COTR), (POLIGON PAVILION TAMPA ORNAMENTATION PACKAGE OR EQUAL)*
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11. CAROUSEL OPERATION PEDESTAL (SUPPLIED AND INSTALLED UNDER SEPARATE CONTRACT)**
12. PRE-ENGINEERED TICKET BOOTH (B.I.G. ENTERPRISES OR EQUAL)
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14. FIXED BOLLARDS/STANCHIONS W/ RETRACTABLE BELT SYSTEM (TO BE USED FOR CROWD CONTROL)**
15. FIXED MOUNTED RETRACTABLE BELT**
16. STEEL STRUCTURE CLERESTORY W/ METAL FRAMED OPENINGS (POLIGON PAVILION TAMPA ORNAMENTATION PACKAGE OR EQUAL)*
17. ROOF: CARLISLE ECOSTAR SHINGLE ROOFING - SLATE SHINGLE APPEARANCE ON TONGUE AND GROVE STRUCTURAL INSULATED PANELS*
18. METAL FRAMED TRANSOM (POLIGON PAVILION TAMPA ORNAMENTATION PACKAGE OR EQUAL)*
19. FINISH GRADE REFERENCE
20. STRUCTURAL INSULATED PANEL INTERIOR SHEATHING-FIR PLYWOOD GROOVED 4" ON CENTER*
21. PRE-FABRICATED PAVILION (POLIGON 66 WITH CLERESTORY AS BASIS OF DESIGN OR EQUAL), (MANUFACTURER'S STANDARD COLOR TBD BY COTR,*

GENERAL NOTES

*INCLUDED IN PAVILION MANUFACTURER'S PACKAGE
**PROVIDED BY COTR

CONTRACTOR TO PROVIDE COTR WITH MANUFACTURER'S SHOP DRAWINGS FOR VERIFICATION AND APPROVAL PRIOR TO PLACEMENT OF ORDER

PAVILION MANUFACTURER USED FOR BASIS OF DESIGN: POLIGON - PORTERCORP MANUFACTURING AND OR COTR APPROVED EQUAL.

PORTERCORP MANUFACTURING PACKAGES INCLUDED IN BASES OF DESIGN: TAMPA ORNAMENTATION & ALMA K80 2" COLUMN ACCENT BAND.

PAVILION STANDARD DETAILS TO BE INCLUDED IN MANUFACTURERS PACKAGE
CONTRACTOR TO USE MANUFACTURER'S STANDARD COLORS, COLOR TBD BY COTR.
PAVILION FRAME FINISH
- MEMBERS SHOT BLASTED TO NEAR WHITE CONDITION (SSPC SP-10).
- WASHED AND SEALED IN PHOSPHATE SPRAY.
- PRIME COATED WITH POLI-5000 HIGH PERFORMANCE POWDER APPLIED EPOXY.
- TOP COATED WITH SUPER-DURABLE TGIC POLYESTER POWDER AND OVEN CURED
PAVILION GUTTER SPECIFICATION
- GUTTER TO BE PROVIDED BY PAVILION MANUFACTURER AND COLOR TO MATCH PAVILION.
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CONSULTANTS

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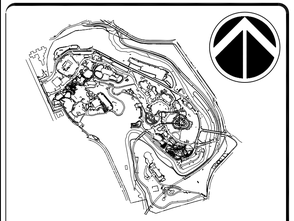

KEY PLAN

1/8" = 1'-0"

DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
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REVISION 4	
REVISION 5	
REVISION 6	

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

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	DETAILED GROUND PLAN
DRAWING TYPE	ARCHITECTURAL
WORKING STAFF	JK (DESIGNED BY) / JK (DRAWN BY) / JW (CHECKED BY)

SHEET NO. A (DISCIPLINE) 1 (TYPE) 01 (SEQUENCE)

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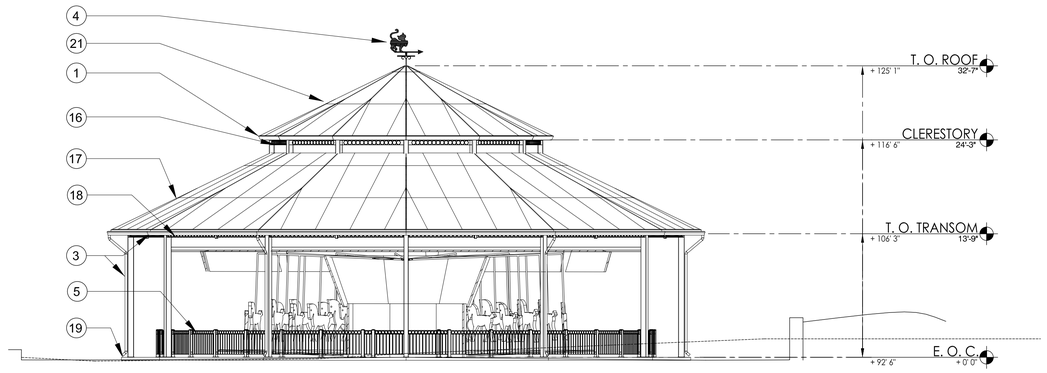
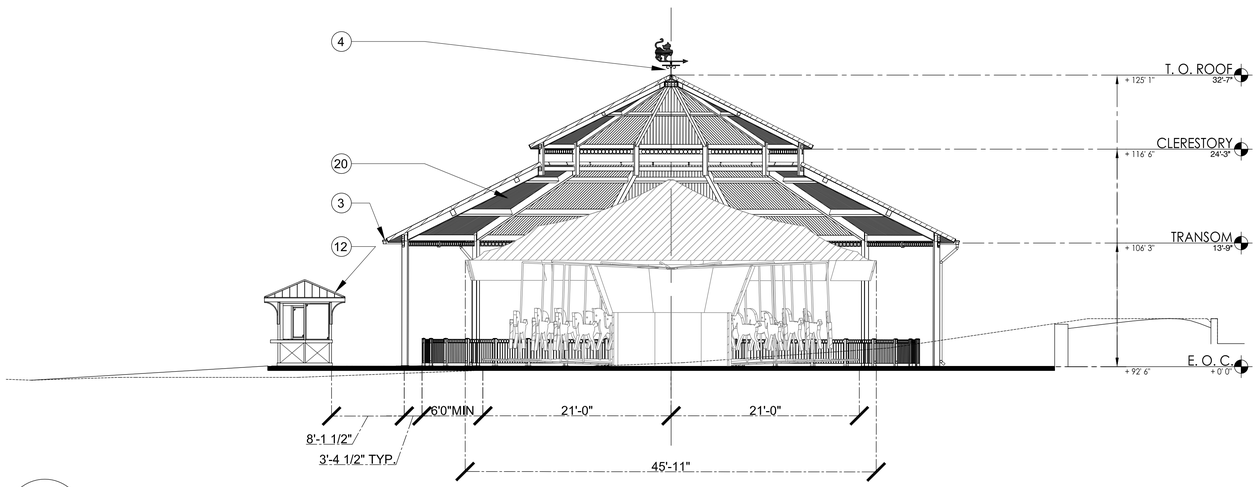
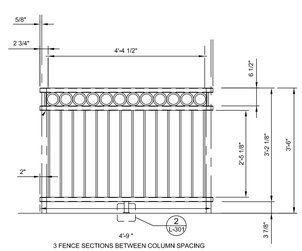
PAGE 1.11



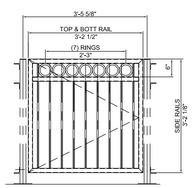
1 A-201 PAVILION ELEVATION
SCALE: 1/8" = 1'-0"



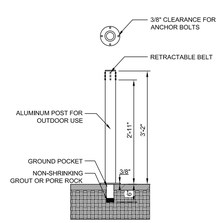
2 A-201 PAVILION SECTION
SCALE: 1/8" = 1'-0"



3 A-201 TYP. FENCE ELEVATION
SCALE: 1/2" = 1'-0"



4 A-201 TYP. GATE DETAIL
SCALE: 1/2" = 1'-0"



5 A-201 STANCHION DETAIL
SCALE: 1/2" = 1'-0"

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**PROVIDED BY COTR

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RETRACTABLE STANCHION NOTE: CONTRACTOR TO USE VISIONTRON CORP. MODEL 300R OR EQUAL. POST ARE FIXED AND USED FOR CROWD CONTROL. SEE PLAN FOR LOCATION. ALL INSTALL HARDWARE TO BE STAINLESS STEEL.

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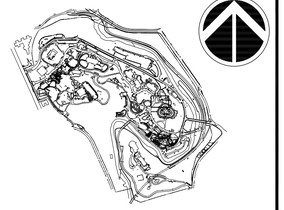

KEY PLAN

1/8" = 1'-0"
DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
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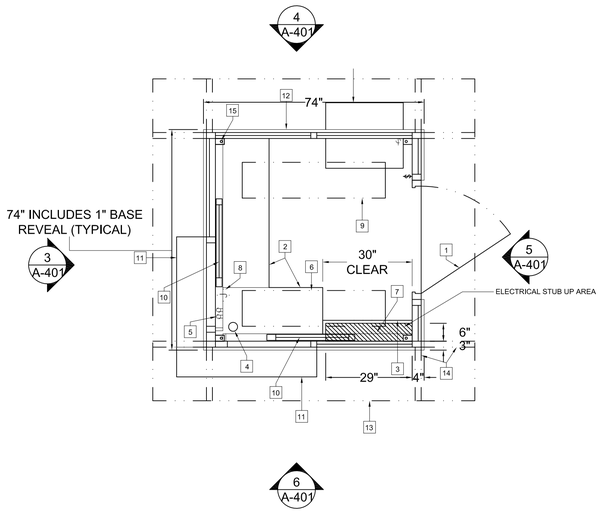
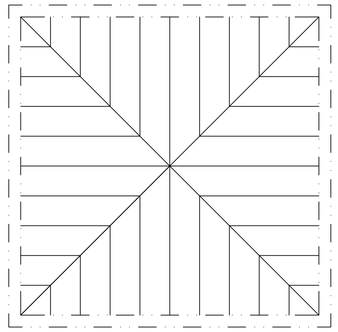
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	ELEVATION AND SECTION DRAWINGS
DRAWING TYPE	EL - SC
WORKING STAFF	JK (DESIGNED BY) / JK (DRAWN BY) / JW (CHECKED BY)

SHEET NO. A (DISCIPLINE) 2 (TYPE) 01 (SEQUENCE)

21=1 INCH
SCALE : 1:1



1 A-401 FLOOR PLAN
SCALE: $\frac{1}{2}$" = 1'-0"



2 A-401 ROOF PLAN
SCALE: $\frac{1}{2}$" = 1'-0"

LEGEND:

1	SWING DOOR	6	FLUORESCENT FIXTURES	11	10" SHELF
2	18" SHELF	7	LOAD CENTER & STUB-UP	12	1" REVEAL
3	ELECTRICAL CABINET	8	TELEPHONE JUNCTION BOX	13	18" OVERHANG
4	3" CORD ACCESS HOLE	9	AIR CONDITIONER	14	ROLLED ARCHITECTURAL SUPPORTS (8 PLACES)
5	RECEPTACLES (2)	10	SLIDING WINDOW	15	ANCHOR CLIP (4 PLACES)

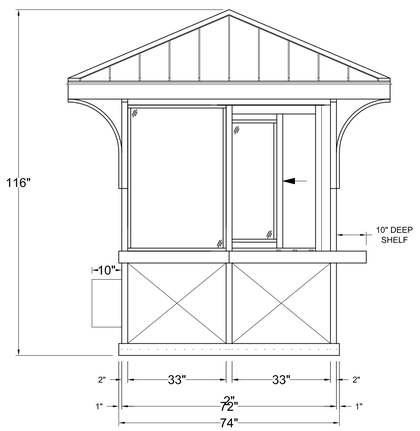
GENERAL NOTES

CONTRACTOR TO PROVIDE COTR WITH MANUFACTURER'S SHOP DRAWINGS FOR VERIFICATION AND APPROVAL PRIOR TO PLACEMENT OF ORDER

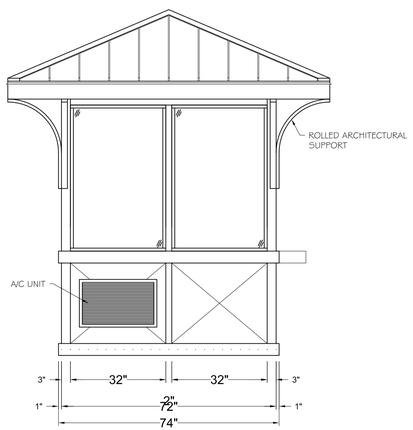
TICKET BOOTH MANUFACTURER USED FOR BASIS OF DESIGN: B.I.G. ENTERPRISES, INC. AND OR COTR APPROVED EQUAL.

TICKET BOOTH NOTES

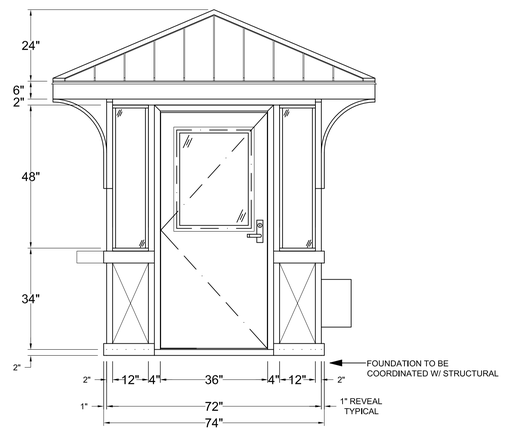
1. Frame work to be 2" x 2" & 2" x 3" x .083" A500 tube.
2. Unit to have half glazed 16 ga galvanized steel walls with 16 ga galvanized interior liners.
2a. Walls to have a 1" x 4" horizontal reveal at the sill line and at the base, with an "X" stamped pattern in-between
2b. Walls to have an R-10 insulation value.
3. Unit to have custom standing seam pyramid roof with a 6" fascia, and an 18" overhang on all sides. Roof to consist of steel framing covered with 3/4" exterior grade plywood, a roof sealing membrane, and a 24 ga. standing seam deck.
3a. Roof to have rolled architectural supports, two at each corner. (8 total)
3b. Roof to have an R-19 insulation value.
4. Unit to have 11ga A569 steel floor covered with 1/8" thick x 19" square, black rubber tiles with 4" high black perimeter cove molding. Floor to be mounted on a 2" steel tube frame. Underside of floor to be fully coated with bituminous undercoating sealant.
5. Unit to have one 16 ga custom commercial glazed steel swing door. Hardware to include a Corbin Russwin ADA compliant deadbolt mortise lock set with keyed operation outside, thumb turn inside, a hydraulic closer, stainless steel NRP hinges, and weather stripping.
6. Unit to have two steel framed horizontal sliding windows. All windows to have a sill height of 34" above finished floor.
6a. Unit to have 1/4" tinted tempered safety glass throughout.
6b. COTR to specify the color of tint prior to B.I.G. production release. Standard tint colors are Bronze or Gray.
6c. If COTR does not provide a tint selection, B.I.G. will choose a standard tint color that best complements the paint color selected.
7. Unit to have one 3 wire single phase, 12 pole, 125 amp 120/240 volt, load center flush mounted in an SK60 cabinet. All electrical equipment to be U.L. listed and all wiring to be per current published NEC standards. All conductors to be copper, with a minimum size of #12. Exposed wiring to be in surface mounted EMT conduit. Concealed wiring to be in flexible aluminum conduit. Final power connection and grounding to be done on site by others. All work to be done by a qualified electrician in accordance with all applicable local codes.
7a. Unit to be classified by Underwriters Laboratories to the current National Electrical Code.
8. Unit to have two 1' x 4' fluorescent light fixtures recessed in the steel ceiling and controlled by a single pole wall switch.
9. Unit to have two duplex outlets mounted under the shelf.
9a. Unit to have one single gang junction box mounted under the shelf. Junction box is to have an empty 1/2" conduit run to the electrical stub up area for telephone lines by others.
10. Unit to have one wall mount air conditioner with 11,600 BTU cooling and 11,600 BTU electric heat at 230V.
10a. A/C to be plug and cord connected, and will have a dedicated circuit.
10b. A/C to have a louver grill.
11. Unit to have one 18" "L" shaped shelf with a 3" electric access grommet insert. Shelf to be mounted at 33" above finished floor.
11a. Unit to have one 10" deep exterior shelf mounted at 33" above finished floor.
12. All exposed steel surfaces to be coated with two component high solids polyurethane rust inhibitive primer, and two component high solids polyurethane finish coat.
12a. Unit to have a two tone color scheme. One color to be selected for the entire interior and the exterior from the fascia down. The second color is for the roof deck and is to be chosen from the roof deck manufacturers standard color chart.
12b. COTR to provide color selections prior to the start of manufacturing.
13. Unit to have four interior anchor clips. Four 5/8" Hilti KB-TZ bolts with 3 1/8" minimum embedment in 2500 psi concrete (or equal) are required for placement of booth. Concrete to be level. If sloped, slope towards drain opening(s) on booth. Concrete, bolts and mounting shall be by others. Anchor bolts will require special inspection per ESR-1917.



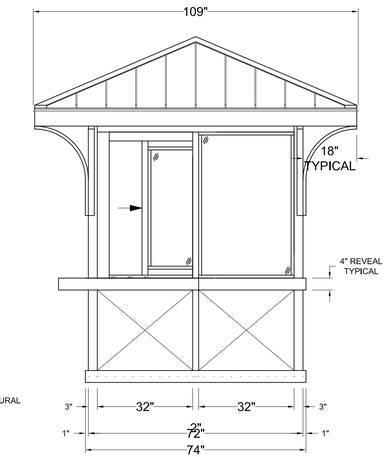
3 A-401 FRONT ELEVATION
SCALE: $\frac{1}{2}$" = 1'-0"



4 A-401 RIGHT ELEVATION
SCALE: $\frac{1}{2}$" = 1'-0"



5 A-401 REAR ELEVATION
SCALE: $\frac{1}{2}$" = 1'-0"



6 A-401 LEFT ELEVATION
SCALE: $\frac{1}{2}$" = 1'-0"

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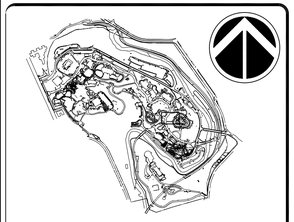

KEY PLAN

AS INDICATED

DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

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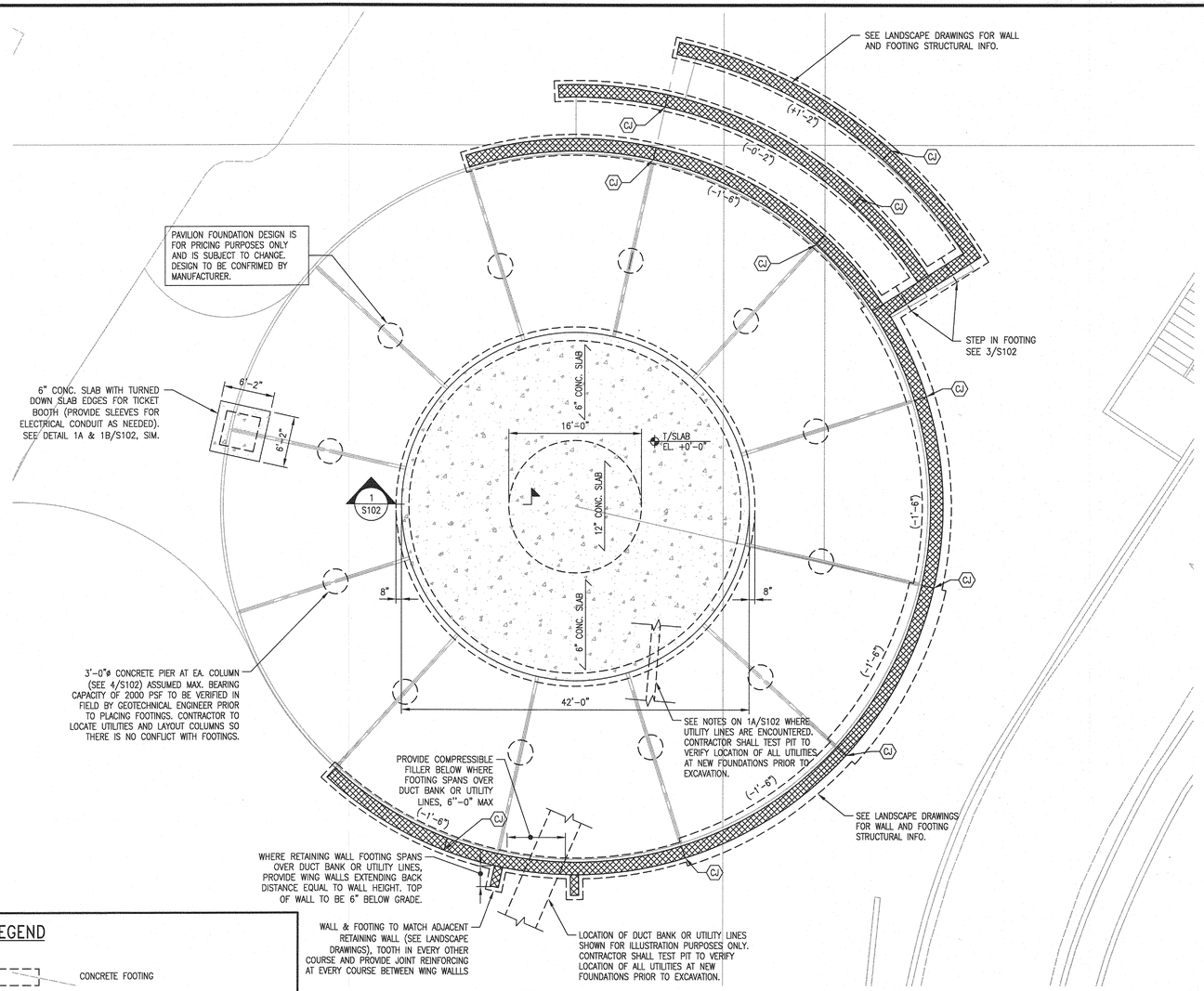
600 Maryland Avenue S.W. Suite 5001
Washington DC 20024-2520

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	PRE- ENGINEERED TICKET BOOTH
DRAWING TYPE	FP - EL
WORKING STAFF	JK (DESIGNED BY) / JK (DRAWN BY) / JW (CHECKED BY)
SHEET NO.	A (DISCIPLINE) / 4 (TYPE) / 01 (SEQUENCE)

S1=1.0PIC
SCALE: 1:1



LEGEND

- CONCRETE FOOTING
- CONCRETE SLAB
- (###.#') INDICATES TOP OF FOOTING ELEVATION
- CJ INDICATES CONTROL JOINT LOC (SEE TYP DETAIL)
- CMU RETAINING WALL

1 / S101 **FOUNDATION PLAN**
SCALE: 1/8"=1'-0"

NOTES:

1. REFERENCE ELEVATION IS TOP OF SLAB = 92.5'.
2. SEE ARCHITECTURAL AND LANDSCAPE DRAWINGS FOR DIMENSIONS.
3. CAROUSEL FOUNDATION DESIGN BASED ON INFORMATION OBTAINED FROM DRAWINGS PROVIDED BY CAROUSEL WORKS, INC. DATED 02/02/2012.

DESIGN LOADS AND FACTORS

DESIGN CODE: IBC 2006

LIVE LOADS		SNOW LOADS		WIND DESIGN PARAMETERS		SEISMIC DESIGN PARAMETERS	
FLOOR OR ROOF AREA	LOAD (PSF)	LOAD TYPE	LOAD (PSF)	PARAMETER	VALUE	PARAMETER	VALUE
TYP. FLOOR	100	SNOW	30	BASIC WIND SPEED	90 MPH	SEISMIC DESIGN CATEGORY	B
		DRIFT	N/A	WIND EXPOSURE	B	OCCUPANCY CATEGORY	II
				IMPORTANCE FACTOR	1.15	SITE CLASS (ASSUMED)	D
						SHORT PERIOD MAP VALUE (S_{SS})	0.16g
						1.0 SEC. PERIOD MAP VALUE (S_{S1})	0.08g
		PARAMETER	VALUE			RESPONSE MODIFICATION (R)	--
		GROUND SNOW LOAD (P_g)	30				
		SNOW EXPOSURE FACTOR (C_e)	1.0				
		SNOW LOAD IMPORTANCE FACTOR (I)	1.1				
		TERRAIN EXPOSURE	B				
SPECIAL CONSIDERATIONS:		SPECIAL CONSIDERATIONS:		SPECIAL CONSIDERATIONS:		SPECIAL CONSIDERATIONS:	

GENERAL NOTES

1. ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS, INCLUDING THE INTERNATIONAL BUILDING CODE, LATEST EDITION.
2. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING, SHEETING AS PROJECT CONDITIONS REQUIRE. SHORING AND SHEETING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION HIRED BY THE CONTRACTOR WHO SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE COTR'S REVIEW.
3. DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION GIVEN IN STRUCTURAL DRAWINGS ARE BASED ON INFORMATION CONTAINED IN VARIOUS ORIGINAL DESIGN AND CONSTRUCTION DOCUMENTS PROVIDED BY THE OWNER, AND LIMITED FIELD OBSERVATIONS AND MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY ACTUAL MEASUREMENT AND OBSERVATION AT THE SITE. ALL DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN IN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE COTR FOR EVALUATION BEFORE THE AFFECTED CONSTRUCTION IS PUT IN PLACE.

FOUNDATIONS

1. BUILDING FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL HAVING MINIMUM BEARING CAPACITY OF 1000 PSF U.N.O. ON PLANS. ADEQUACY OF BEARING STRATUM SHALL BE VERIFIED IN FIELD PRIOR TO PLACING CONCRETE. ADJUST BOTTOM OF FOOTING ELEVATIONS AS REQUIRED.
2. ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 2'-6" BELOW FINAL GRADE.
3. CONCRETE SHALL BE POURED IN DRY EXCAVATIONS.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE ACI FOLLOWING GOVERNING STANDARDS.
   A. AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318), LATEST EDITION.
   B. ACI "MANUAL OF CONCRETE PRACTICE" LATEST EDITION
   C. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE" LATEST EDITION
2. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS, AND W/C RATIO OF 0.45, U.N.O. ALL FOUNDATION CONCRETE SHALL INCLUDE 6% AIR ENTRAINMENT, SUITABLE FOR EXPOSURE CLASS F2.
3. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 OR A775 EPOXY COATED WHEN CALLED OUT ON PLAN. REINFORCING STEEL SHALL BE DETAILED ACCORDING TO THE ACI "DETAILS AND DETAILING OF REINFORCEMENT", (ACI 315), LATEST EDITION.
4. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185, WITH A MINIMUM YIELD STRENGTH OF 65,000 PSI.
5. COORDINATE SIZE AND LOCATION OF ALL OPENINGS AND PIPE SLEEVES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. MINIMUM CONCRETE BETWEEN SLEEVES SHALL BE 6". CORE DRILLING OF WALLS AND SLABS SHALL NOT BE PERMITTED.
6. ALL GROUT SHALL BE NONSHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
7. PROVIDE CLEARANCE FROM FACE OF CONCRETE TO REINFORCEMENT AS FOLLOWS:
   SLABS" ¾"
   BEAMS, COLUMNS: 1 ½"
   FOOTINGS: 3"
   EXTERIOR WALLS: 2" FOR #6 OR LARGER, 1 ½" FOR #5 OF SMALLER
   INTERIOR WALLS: ¾"
8. SHOP DRAWINGS SHALL BE SUBMITTED TO THE COTR FOR REVIEW AND APPROVAL. NO CONCRETE WORK SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.
9. CLEAN AND ROUGHEN TO ¼" AMPLITUDE ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE PRIOR TO PLACEMENT.
10. SEE OTHER DRAWINGS IN THIS PROJECT FOR SIZE AND LOCATIONS OF EQUIPMENT PADS, INSERT AND EMBED ITEMS.
11. REINFORCING DOWELS, WATERSTOPS AND OTHER EMBED ITEMS SHALL BE INSTALLED AND SECURED PRIOR TO CONCRETE PLACEMENT. "WET-SETTING" OF EMBEDDED ITEMS IS NOT PERMITTED.

SPECIAL INSPECTIONS

1. INSPECTIONS REQUIRED BY THE COTR SHALL BE PERFORMED BY A TESTING AGENCY PROVIDED BY THE OWNER FOR THE FOLLOWING ITEMS:
   A. CONCRETE CONSTRUCTION (IBC 1704.4, TABLE 1704.4)
      i. MATERIALS (IBC 1704.4.1)
   B. SOILS (IBC 1704.7, TABLE 1704.7)
   C. MASONRY – LEVEL 1 SPECIAL INSPECTION (IBC TABLE 1704.5.1)

THE TESTING AGENCY FOR THE INSPECTIONS SHALL FILE ALL APPROPRIATE FORMS WITH THE BUILDING DEPARTMENT.

RSA STANDARD ABBREVIATIONS

ADD'L	ADDITIONAL	HORIZ.	HORIZONTAL
ADJ.	ADJACENT	H.P.	HIGH POINT
A/E	DESIGN TEAM OF RECORD	HT.	HEIGHT
ALT.	ALTERNATE	INFO	INFORMATION
ANCH.	ANCHOR	L.P.	LOW POINT
APPROX.	APPROXIMATE/APPROXIMATLEY	L.W.	LIGHTWEIGHT
ARCH.	ARCHITECTURAL/ARCHITECT	MAX	MAXIMUM
B.O.	BOTTOM OF	MECH	MECHANICAL
BM.	BEAM	MEP	MECH., ELECT., PLUMBING, & F.P.
BOT.	BOTTOM	MFR	MANUFACTURER
BRG.	BEARING	MIN	MINIMUM
CANT.	CANTILEVER	MISC	MISCELLANEOUS
C.I.P.	CAST IN PLACE	N.T.S.	NOT TO SCALE
C.J.	CONTRACTION JOINT	N.W.	N.W. NORMAL WEIGHT
CLR.	CLEAR	O.C.	ON CENTER
COL.	COLUMN	OPNG	OPENING
CONC.	CONCRETE	OPP	OPPOSITE
CONST.	CONSTRUCTION	PERP	PERPENDICULAR
CONT.	CONTINUOUS	PL	PLATE
COORD.	COORDINATE/COORDINATION	PLF	POUNDS PER LINEAR FOOT
COTR	CONTRACT OFFICER'S TECHNICAL REP.	PREFAB	PREFABRICATED
CTR.	CENTER	PSF	POUNDS PER SQUARE FOOT
DBL.	DOUBLE	PSI	POUNDS PER SQUARE INCH
DEMO	DEMOLITION/DEMOLISH	REINF	REINFORCE(D), REINFORCEMENT
DTL.	DETAIL	REQ'D	REQUIRED
DIA.	DIAMETER	REV	REVISION
DIAG.	DIAGONAL	SCHED	SCHEDULE
DIM.	DIMENSION	SECT	SECTION
DN.	DOWN	SIM	SIMILAR
DWG(S)	DRAWING(S)	S.O.G.	SLAB ON GRADE
DWL.	DOWEL	SPEC	SPECIFICATION
EA.	EACH	SQ.	SQUARE
EXP. JT.	EXPANSION JOINT	STD	STANDARD
EL.	ELEVATION	STL.	STEEL
ELEC.	ELECTRICAL	SYM.	SYMMETRIC
EMBED.	EMBEDMENT	T.O.	TOP OF
ENGR.	ENGINEER	T & B	TOP & BOTTOM
E.O.R.	ENGINEER OF RECORD	TEMP.	TEMPORARY/TEMPERATURE
EQ.	EQUAL	TYP.	TYPICAL
EXP.	EXPANSION	U.N.O.	UNLESS NOTED OTHERWISE
EXT.	EXTERIOR	VERT.	VERTICAL
E.W.	EACH WAY	W/	WITH
FDN.	FOUNDATION	W.P.	WORK POINT
FIN.	FINISH	W.W.F.	WELDED WIRE FABRIC
FLR.	FLOOR	#	NUMBER/SIZE
FT.	FEET	℄	CENTERLINE
FTG.	FOOTING	ø	DIAMETER
GALV.	GALVANIZED	℄	PLATE/PROPERTY LINE
G.B.	GRADE BEAM		

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DISTRICT OF COLUMBIA
MARK J. METTAM
No. 900764
LICENSED
PROFESSIONAL ENGINEER

KEY PLAN

1/8" = 1'-0"
DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

Smithsonian Institution

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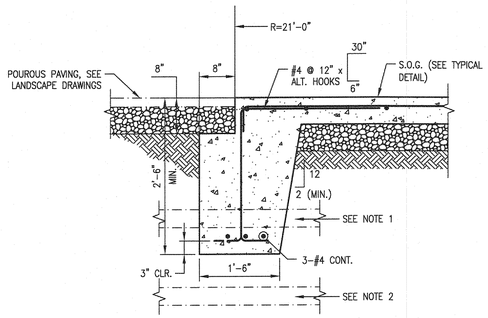
600 Maryland Avenue S.W. Suite 5001
Washington DC 20024-2520

BUILDING NAME / ADDRESS	NATIONAL ZOOLOGICAL PARK 3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFED PROJECT NUMBER	1133115
A/E PROJECT NUMBER	W2770
DRAWING TITLE	FOUNDATION DETAILS
DRAWING TYPE	STRUCTURAL
WORKING STAFF	EB (DESIGNED BY) / AN (DRAWN BY) / KM (CHECKED BY)

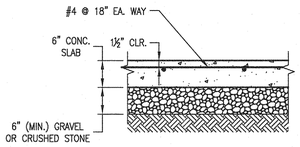
SHEET NO. 1 OF __

S	1	01
DISCIPLINE	TYPE	SEQUENCE



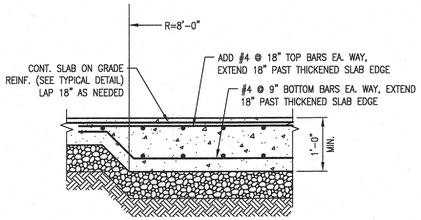
NOTES:
1. WHERE UTILITY LINES CROSS THROUGH THICKENED SLAB EDGE PROVIDE STEEL SLEEVE 2" LARGER THAN PIPE DIAMETER.
2. WHERE UTILITY LINES CROSS UNDER THICKENED SLAB EDGE REINFORCING SHOWN CAN SPAN 18" ON EITHER SIDE OF PIPE.

1A / S102 TURNED-DOWN SLAB EDGE
SCALE: 3/4" = 1'-0"



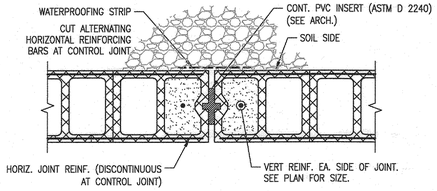
NOTES:
1. GRAVEL OR CRUSHED STONE SHALL BE PLACED ON UNDISTURBED SOIL OR FILL COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
2. SEE CONC. NOTES FOR REQUIRED STRENGTH, AIR ENTRAINMENT, AND W/C RATIO.

1B / S102 TYPICAL 6" SLAB ON GRADE
SCALE: 3/4" = 1'-0"

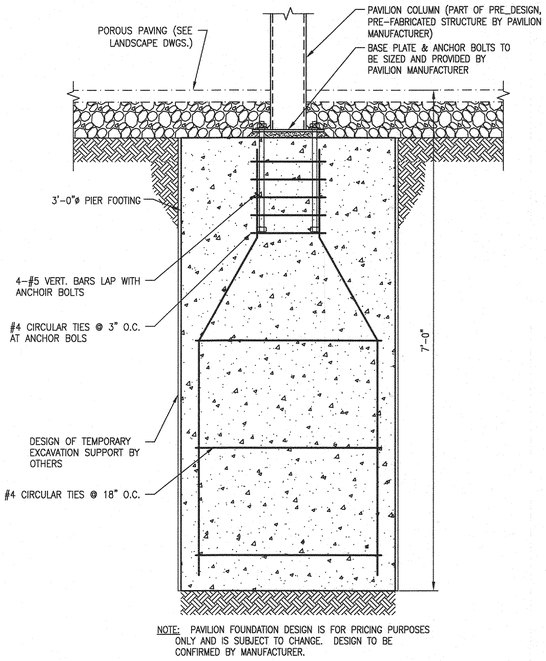


NOTES:
1. GRAVEL OR CRUSHED STONE SHALL BE PLACED ON UNDISTURBED SOIL OR FILL COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
2. SEE CONC. NOTES FOR REQUIRED STRENGTH, AIR ENTRAINMENT, AND W/C RATIO.
3. COORDINATE SLAB THICKNESS WITH CAROUSEL ANCHORAGE REQUIREMENTS. THICKEN SLAB LOCALLY AS NEEDED.

1C / S102 THICKENED 12" SLAB AT CAROUSEL
SCALE: 3/4" = 1'-0"

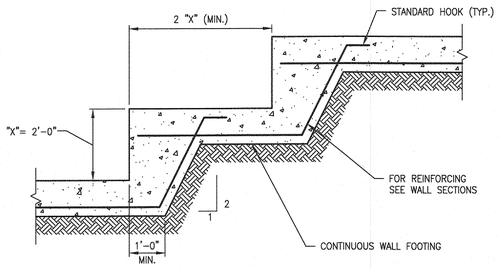


2 / S102 TYP. CMU CONTRACTION/EXPANSION JOINT
SCALE: N.T.S.



NOTE: PAVILION FOUNDATION DESIGN IS FOR PRICING PURPOSES ONLY AND IS SUBJECT TO CHANGE. DESIGN TO BE CONFIRMED BY MANUFACTURER.

4 / S102 PIER FOOTING AT PAVILION
SCALE: 1" = 1'-0"



3 / S102 TYPICAL DETAIL STEPPED WALL FOOTING
SCALE: 1/2" = 1'-0"

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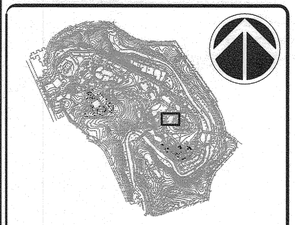

KEY PLAN

DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

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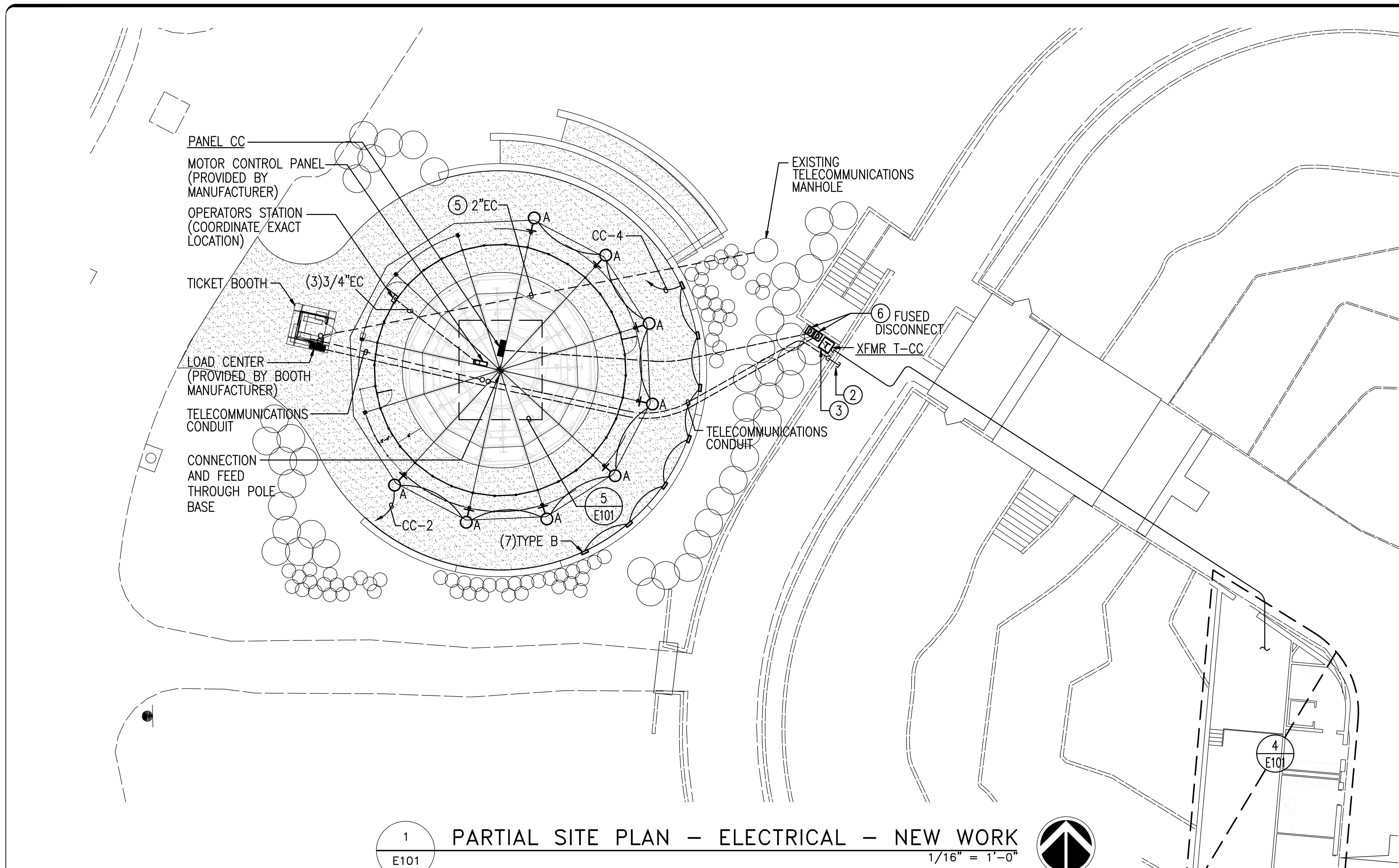
SHEET NO.	1 OF __
	S (DISCIPLINE) / 1 (TYPE) / 02 (SEQUENCE)



1 E101 PARTIAL SITE PLAN – ELECTRICAL – NEW WORK
1/16" = 1'-0"

SPECIFIC NOTES:

1. STUB CONDUIT UP IN CAROUSEL AND TICKET BOOTH FOR TELECOMMUNICATIONS CABLING. COORDINATE EXACT LOCATION IN THE FIELD WITH EQUIPMENT AND ENCLOSURES INSTALLED.
2. STUB CONDUIT IN ACCESSIBLE CEILING SPACE FOR TELECOMMUNICATIONS CABLING BETWEEN BUILDING AND CAROUSEL/TICKET BOOTH.
3. CONCRETE EQUIPMENT PAD, NOMINAL 60"Lx60"Wx6"H, POURED 2000PSI REINFORCED CONCRETE, CHAMFERED EDGES.
4. MOUNT PANELBOARD TO STRUCTURAL CHANNEL SUPPORT. COORDINATE EXACT LOCATION AND MOUNTING CONDITION WITH CAROUSEL IN THE FIELD.
5. RUN CONDUIT BETWEEN EXISTING TELECOMMUNICATIONS MANHOLE AND TICKET BOOTH. STUB CONDUIT UP IN TICKET BOOTH FOR TELECOMMUNICATIONS CABLING. COORDINATE EXACT LOCATION IN THE FIELD WITH EQUIPMENT AND ENCLOSURES INSTALLED.
6. MOUNT DISCONNECTS TO STRUCTURAL CHANNEL SUPPORT. COORDINATE EXACT LOCATION AND MOUNTING CONDITION WITH EQUIPMENT PAD IN THE FIELD.

GENERAL NOTES:

A. CONTRACTOR SHALL CARRY AN ALLOWANCE TO PROVIDE AN ADDITIONAL 50-FEET OF 1" CONDUIT FOR INSTALLATION PER COTR DIRECTION.

WIRING PANEL SCHEDULE CC

120 / 208 VOLTS — 3 PHASE 4 WIRE — 125 AMP MAINS — SURFACE MOUNTED

CIRCUIT	POLE	DESCRIPTION	WIRE/ CONDUIT	BREAKER POLE	BREAKER AMP	AØ	AØ	BØ	BØ	CØ	CØ	CIRCUIT	POLE	DESCRIPTION	WIRE/ CONDUIT	BREAKER POLE	BREAKER AMP
1	1	CAROUSEL MOTOR		3	50	4.2	0.4					2	2	LTG - WALKWAY	#12-3/4"C	1	20
-	3							4.2	0.3			4	4	LTG - SEATING	#12-3/4"C	1	20
-	5									4.2	-	6	6	SPARE	--	1	20
7	7	LTG - CAROUSEL	#12-3/4"C	1	20	1.6	-					8	8	SPARE	--	1	20
9	9	LTG - ENGINE ROOM	#12-3/4"C	1	20			0.3	-			10	10	SPARE	--	1	20
11	11	LTG - ENGINE ROOM	#12-3/4"C	1	20					0.3	-	12	12	SPARE	--	1	20
13	13	LTG - ENGINE ROOM	#12-3/4"C	1	20	0.3	-					14	14	SPARE	--	1	20
15	15	REC - CAROUSEL	#12-3/4"C	1	20			0.4	-			16	16	SPARE	--	1	20
17	17	SPARE	--	1	20					-	-	18	18	SPARE	--	1	20
19	19	TVSS	4#12+	3	15	-	-					-	20	SPACE & PROVISIONS	--	-	-
-	21		#12G-					-	-			-	22	SPACE & PROVISIONS	--	-	-
-	23		3/4"C							-	-	-	24	SPACE & PROVISIONS	--	-	-
						6.1	0.4	4.9	0.3	4.5	0.0						
						6.5		5.2		4.5							

CONNECTED LOAD = 16.2 KVA

DEMAND LOAD = 13.7 KVA

MIN AIC RATING = 10,000 AMPS SYMMETRICAL

MAIN BREAKER 125 AMPS

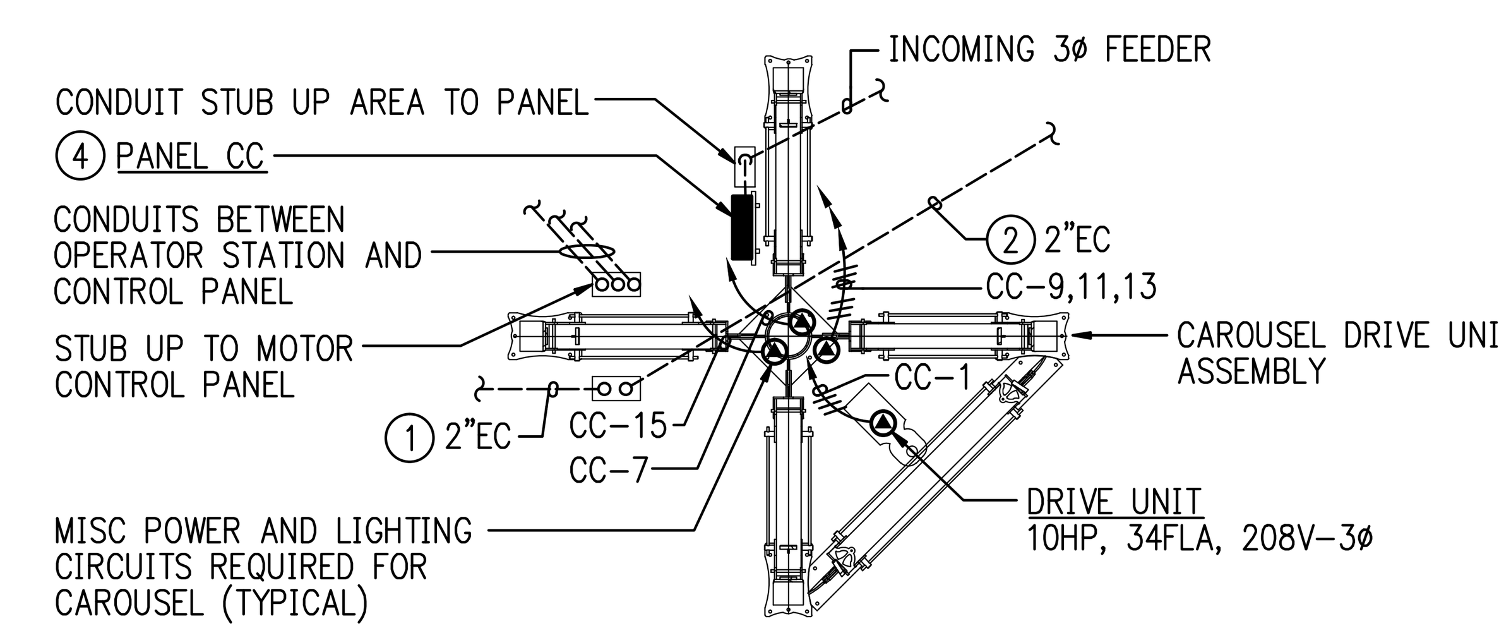
LOCATION CAROUSEL

LIGHTING FIXTURE SCHEDULE

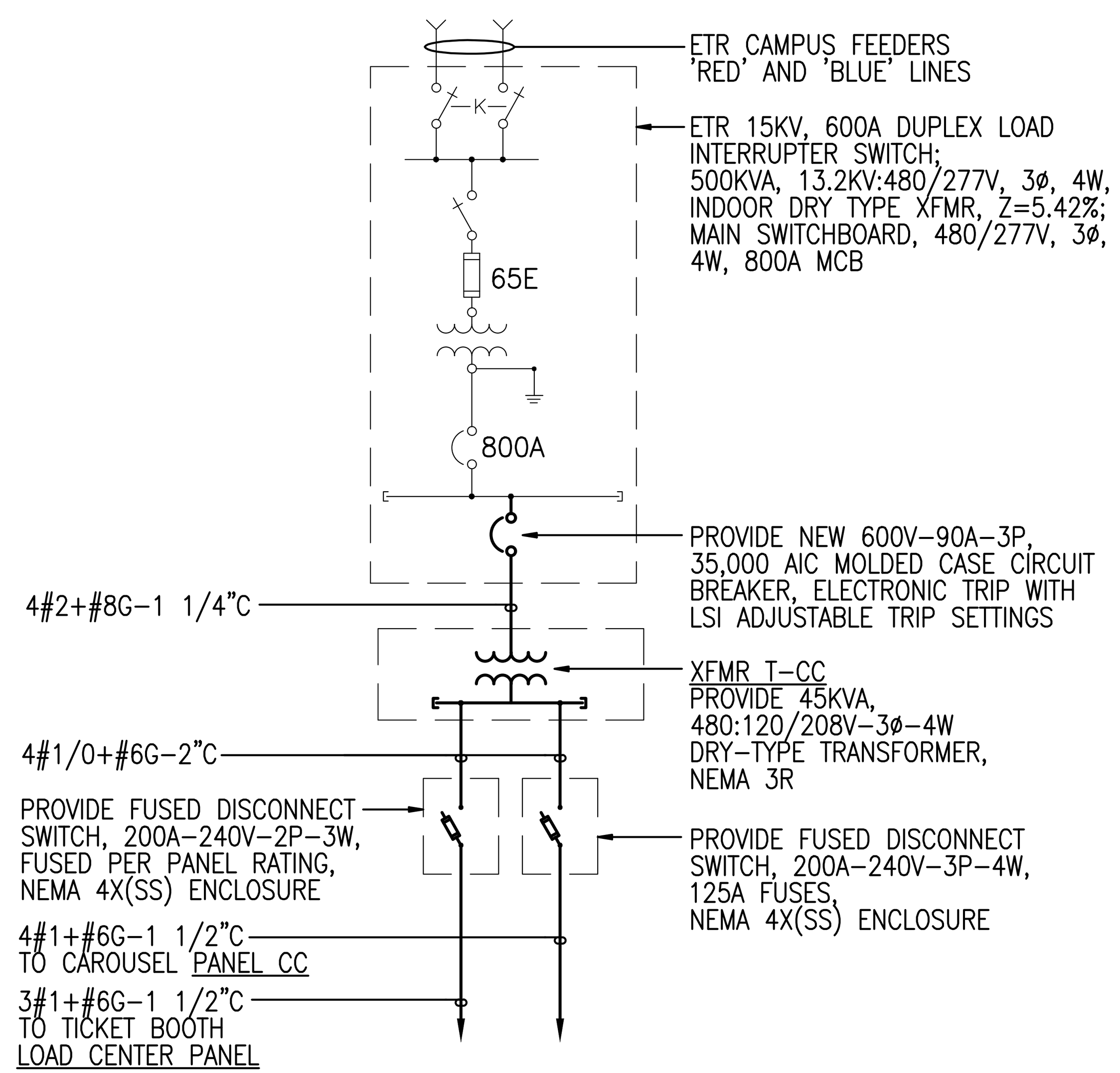
FIXTURE TYPE	DESCRIPTION	LAMP	MANUFACTURER	CATALOG NO.	VOLT	MOUNTING	NOTES
A	WALL MOUNTED COMPACT FLUORESCENT SCONCE WITH INTEGRAL REFLECTOR, ANGLED BODY, FULL CUTOFF, CLEAR SAFETY GLASS LENS, WET LOCATION RATED.	(1) 26W TRT	BEGA	3544P-BRZ	120	SURFACE POST @ 8'-0" AG	--
			OR APPROVED EQUAL				
			----	----			
B	IN-WALL LED LUMINAIRE, ASYMMETRIC THROW, SHIELDED LAMP SOURCE, 3000K LEDS, SILVER FINISH, CONCRETE POUR HOUSING, WET LOCATION RATED.	900LM LED	BEGA	2384LED-3000K-SLV	120	IN-WALL @ 24"AG / CONCRETE	--
			OR APPROVED EQUAL				
			----	----			

GENERAL NOTES:

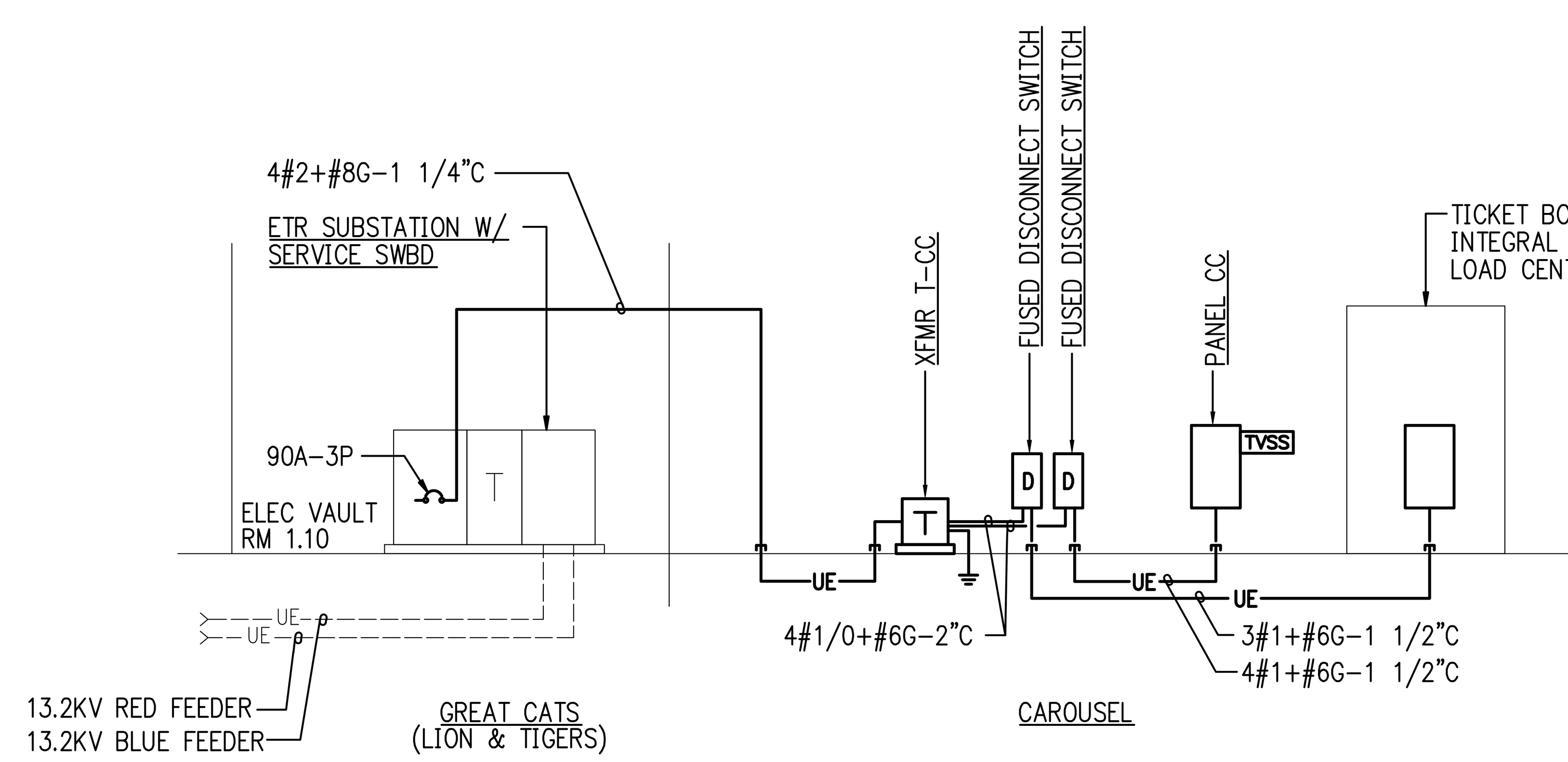
A. LAMPS SHALL BE 3000K COLOR TEMPERATURE, 86 CRI MINIMUM. PROVIDE MANUFACTURER'S STANDARD ELECTRONIC BALLAST.



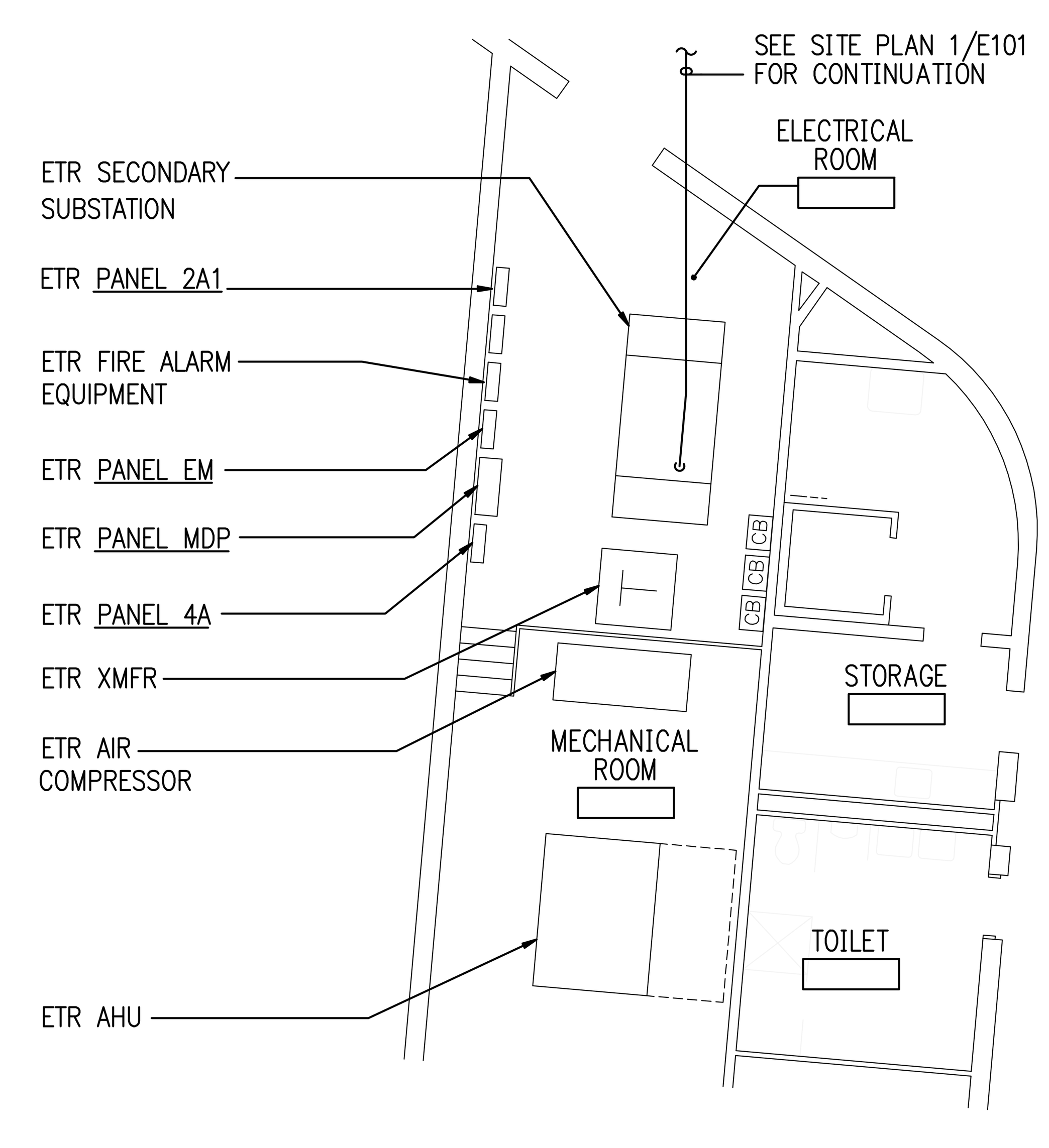
5 E101 CAROUSEL DRIVE UNIT DETAIL
NO SCALE



2 E101 ONE-LINE DIAGRAM
NO SCALE



3 E101 ELECTRICAL RISER DIAGRAM
NO SCALE



4 E101 PART PLAN – ELEC RM
1/8"=1'-0"

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CONSULTANTS

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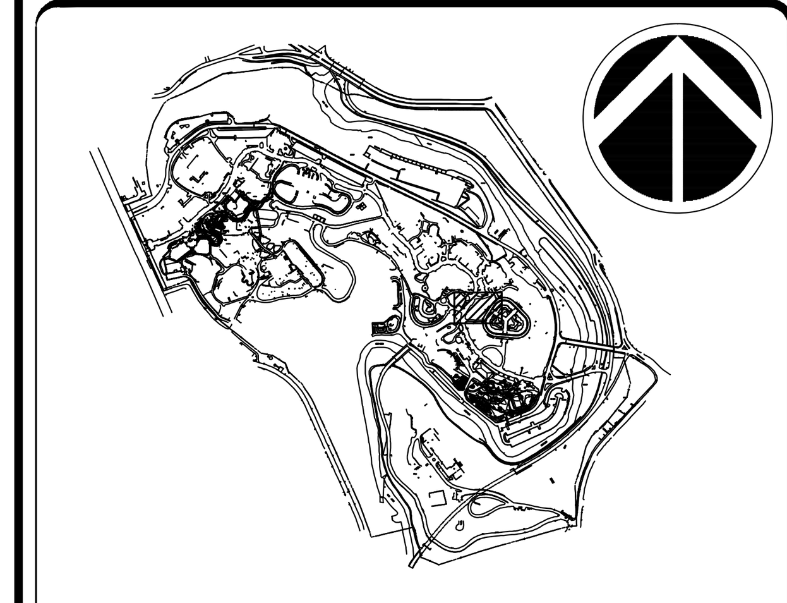
STAMP



KEY PLAN

8 4 0 8 16

SCALE: 1/8" = 1'-0"

DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

Smithsonian Institution
Office of Facilities Engineering and Operations
600 Maryland Avenue S.W. Suite 5001
Washington DC 20024-2520

BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFEO PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	SITE PLAN & DIAGRAMS ELECTRICAL - NEW WORK
DRAWING TYPE	ELECTRICAL
WORKING STAFF	TMC (DESIGNED BY) / TMC (DRAWN BY) / REL (CHECKED BY)
SHEET NO.	E (DISCIPLINE) 1 (TYPE) 01 (SEQUENCE)

April 18, 2012 3:17 p.m.

ELECTRICAL SPECIFICATIONS

16000 – ELECTRICAL

A. PROVIDE ELECTRICAL SYSTEMS, MATERIALS, AND EQUIPMENT AS SPECIFIED AND INDICATED ON THE DRAWINGS.

16050 BASIC ELECTRICAL MATERIALS AND METHODS

A. DESIGN REQUIREMENTS

1. DO NOT PROPOSE PRODUCTS WITH DIMENSIONS OR OTHER CHARACTERISTICS DIFFERENT FROM THE DESIGN BASIS PRODUCT THAT MAKE THEIR USE IMPRACTICAL OR CAUSE FUNCTIONAL FIT, ACCESS, OR CONNECTION PROBLEMS.

2. THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC, AND DO NOT INDICATE ALL FITTINGS OR OFFSETS IN CONDUIT OR ALL PULL BOXES, ACCESS PANELS, OR OTHER SPECIALTIES REQUIRED.

   a. INSTALL CONDUIT EXPOSED TO VIEW PARALLEL WITH THE LINES OF THE BUILDING AND AS CLOSE TO WALLS, COLUMNS, AND CEILINGS AS MAY BE PRACTICAL, MAINTAINING ADEQUATE CLEARANCE FOR ACCESS AT PARTS REQUIRING SERVICING.

   b. INSTALL CONDUIT A SUFFICIENT DISTANCE FROM OTHER WORK TO PERMIT A CLEARANCE OF NOT LESS THAN 0.5 INCH BETWEEN ITS FINISHED COVERING AND ADJACENT WORK.

   c. PULL BOXES AND OTHER APPURTENANCES, WHICH REQUIRE OPERATION OR MAINTENANCE, SHALL BE EASILY ACCESSIBLE. DO NOT CUT OR FORM HANDHOLES FOR OPERATION OR MAINTENANCE OF APPLIANCES THROUGH WALLS OR CEILINGS.

B. GROUNDING

1. GROUND WIRE, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE COPPER, 98 PERCENT CONDUCTIVITY, SOLID FOR NO. 10 AND SMALLER AND STRANDED FOR NO. 8 AND LARGER.

2. MECHANICAL TYPE GROUND CONNECTORS: IEEE 837 AND UL 467, EQUAL TO BURNDY G SERIES, LISTED FOR USE FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND CONNECTED ITEMS.

3. JOINT CONNECTORS:

   a. EQUAL TO "CADWELD," MANUFACTURED BY ERICO PRODUCTS CO., EXOTHERMIC WELDED TYPE IN KIT FORM, SELECTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

   b. BOLTED CONNECTORS SHALL HAVE A MINIMUM OF TWO BOLTS SECURED WITH "ENDURA" BOLTS AND LOCKWASHERS.

4. PROVIDE THE COMPLETE GROUNDING OF CONDUIT SYSTEMS, ELECTRICAL EQUIPMENT, CONDUCTOR AND EQUIPMENT ENCLOSURES, MOTORS, TRANSFORMERS, AND NEUTRAL CONDUCTORS IN ACCORDANCE WITH APPLICABLE CODES. GROUNDED NEUTRAL CONDUCTORS SHALL BE CONTINUOUSLY IDENTIFIED. CONTINUITY OF METAL RACEWAYS SHALL BE INSURED BY DOUBLE LOCKNUTS.

5. GROUND SYSTEM CONNECTIONS, WHICH ARE BENEATH THE FLOOR AND IN A CONCEALED OR INACCESSIBLE LOCATION, SHALL BE BRAZED OR WELDED. BRAZING AND WELDING SHALL BE "CADWELD."

6. EQUIPMENT GROUNDING: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS TO ALL FEEDERS AND BRANCH CIRCUITS.

16100 WIRING METHODS

A. WIRES AND CABLES

1. CONDUCTORS: COPPER, 98 PERCENT CONDUCTIVITY, RATED FOR 75 DEGREES C, SUITABLE FOR 600–VOLT DUTY, TYPE THW, THWN, OR THHN, SOLID FOR NO. 10 AND SMALLER AND STRANDED FOR NO. 8 AND LARGER AND WHEN SPECIFICALLY NOTED.

2. SPLICING SHALL BE DONE IN OUTLET BOXES AND JUNCTION BOXES AND NOT IN CONDUIT.

3. WIRING IN HIGH AMBIENT TEMPERATURE AREAS SHALL BE OF TYPES REQUIRED BY NFPA 70.

4. TYPE MC CABLE:

   a. METAL CLAD CABLE: TYPE MC, COPPER, 600–VOLT MULTICONDUCTOR WITH INSULATED GROUND, INTERLOCKING ARMOR, AND BONDING WIRE. SOLID COPPER NO. 10 AND SMALLER, STRANDED COPPER NO. 8 CONFORMING TO ASTM B.3 OR B.8

   b. FITTINGS: STEEL OR MALLEABLE IRON, EQUAL TO APPLETON ELECTRIC PRODUCTS.

   c. INSTALLING MC CABLE

      1. INSTALL IN COMPLIANCE WITH NFPA 70.

      2. CABLE LARGER THAN NO. 8 SHALL NOT BE PERMITTED.

      3. HOMERUN FROM PANELBOARD TO FIRST JUNCTION BOX: WIRE IN EMT OR IMC RACEWAY.

B. CONDUIT AND FITTINGS

1. RIGID GALVANIZED STEEL (RGS) CONDUIT WITH FULL THREADED HUB FITTINGS: UL 6 AND ANSI C80.1.

2. INTERMEDIATE STEEL CONDUIT (IMC) WITH FULL THREADED HUB FITTINGS: UL 1242 AND ANSI C80.6.

3. ELECTRICAL METALLIC TUBING (EMT) WITH CONCRETE– OR RAIN–TIGHT, COMPRESSION OR TYPE COUPLINGS: UL 797 AND ANSI C80.3.

4. FLEXIBLE METAL CONDUIT (FMC) WITH NYLON INSULATED THROAT CONNECTORS: UL 1.

5. LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LTFMC) AND CONNECTORS: UL 360 AND UL 14814A

6. PROVIDE COMPLETE, SEPARATE AND INDEPENDENT RACEWAY SYSTEM FOR EACH OF THE VARIOUS WIRING SYSTEMS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

   a. LIGHTING
   b. POWER

6. TYPES AND LOCATIONS OF CONDUITS:

   a. IMC OR RGS WITH SCREW JOINT COUPLINGS: WIRING TO EXTERIOR EQUIPMENT AND CONDUITS FOR ALL CONDUITS GREATER THAN 2 INCHES.

   b. EMT: SIZES 2 INCHES AND SMALLER, EXCEPT AS NOTED ABOVE.

8. WHERE CONDUIT IS CONNECTED TO A CABINET, JUNCTION BOX, PULL BOX, OR AUXILIARY GUTTER, PROTECT THE CONDUCTORS WITH AN INSULATING BUSHING. PROVIDE LOCKNUTS BOTH INSIDE AND OUTSIDE THE ENCLOSURE. WHERE CONDUIT IS STUBBED UP TO ABOVE CEILINGS FOR FUTURE WIRING, CLOSE ENDS WITH BUSHINGS.

9. SIZES:

   a. DO NOT USE CONDUIT SMALLER THAN 0.75 INCH.

   b. FEEDER CONDUITS SHALL BE AS LARGE AS INDICATED, OR AS REQUIRED BY NFPA 70 (WHICHEVER IS LARGER). DO NOT INSTALL MORE THAN ONE FEEDER IN A SINGLE CONDUIT.

   c. CONDUIT SIZES SHOWN ON DRAWINGS ARE BASED ON TYPE THHN/THWN WIRE.

10. RUN CONDUITS CONCEALED IN NEW CONSTRUCTION EXCEPT WHERE CONNECTING TO SURFACE–MOUNTED CABINETS AND EQUIPMENT, CONDUITS SHALL BE EXPOSED IN ELECTRICAL AND MECHANICAL EQUIPMENT SPACES. INSTALL CONDUIT ABOVE SUSPENDED CEILINGS AND WITHIN WALLS AND PARTITIONS.

11. PROVIDE ALL CONDUIT SUPPORTS, HANGERS, BRACES AND ATTACHMENTS REQUIRED FOR THE WORK. SUPPORTS, HANGERS, BRACES AND ATTACHMENTS SHALL BE STANDARD MANUFACTURED ITEMS OR FABRICATED STRUCTURAL STEEL SHAPES.

12. FLEXIBLE CONDUIT:

   a. INSTALLATION SHALL COMPLY WITH NFPA 70.

   b. MINIMUM LENGTH: TWO FEET.

   c. MAXIMUM LENGTH: SIX FEET.

   d. MAKE IMMEDIATE CONNECTIONS TO RECESSED LIGHTING FIXTURES, SPEAKERS, AND OTHER EQUIPMENT IN SUSPENDED CEILINGS WITH FLEXIBLE METAL CONDUIT. INCLUDE SUFFICIENT SLACK TO PERMIT REMOVAL OF FIXTURE OR EQUIPMENT.

   e. MAKE IMMEDIATE CONNECTIONS TO MOTORS AND TRANSFORMERS WITH LIQUIDTIGHT FLEXIBLE CONDUIT. INCLUDE SUFFICIENT SLACK TO REDUCE THE EFFECTS OF VIBRATION.

   f. IN WET LOCATIONS, INSTALL LIQUIDTIGHT TYPE, IN SUCH A MANNER THAT LIQUIDS TEND TO RUN OFF THE SURFACE AND NOT DRAIN TOWARD THE FITTINGS.

   g. WHERE FITTINGS ARE BROUGHT INTO AN ENCLOSURE WITH A KNOCKOUT, INSTALL A GASKET ASSEMBLY CONSISTING OF AN O RING AND RETAINER ON THE OUTSIDE.

C. BOXES

1. OUTLET, SWITCH, AND JUNCTION BOXES: SHERARDIZED OR GALVANIZED STAMPED, OR CAST–STEEL OR CAST–ALUMINUM, WHERE REQUIRED FOR WEATHER–EXPOSED LOCATIONS.

2. JUNCTION AND PULL BOXES IN FEEDER CONDUIT RUNS: GALVANIZED, OF SIZE REQUIRED FOR CONDUIT ARRANGEMENT AND NOT LESS THAN THE SIZE REQUIRED BY NFPA 70, AND FURNISHED WITH SCREWED COVERS.

3. PROVIDE BOX AT EACH OUTLET, SWITCH, AND APPURTENANCE. EACH BOX SHALL BE OF A TYPE SUITABLE FOR THE DUTY INTENDED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

   a. WHERE CONDUIT IS EXPOSED, PROVIDE CAST–STEEL OR –ALUMINUM BOXES.

4. OUTLET BOXES USED FOR SUPPORTING LIGHTING FIXTURES: FURNISH WITH MALLEABLE IRON FIXTURE STUDS OF "NO–BOLT" TYPE, SECURED BY LOCKNUT. PROVIDE STRUCTURAL CHANNEL SUPPORTS FOR BOXES OCCURRING IN CEILINGS. OUTLETS IN CEILINGS DIRECTLY ON BOTTOM OF JOISTS SHALL BE SUPPORTED INDEPENDENT OF CEILING CONSTRUCTION. OUTLETS IN SUSPENDED CEILINGS SHALL NOT BE SUPPORTED FROM CEILING CONSTRUCTION. SPECIAL SUPPORTS FOR BOXES SHALL BE AS DIRECTED AND APPROVED BY THE ARCHITECT.

5. ALL BOXES SHALL BE FURNISHED WITH APPROPRIATE COVERS.

D. WIRING DEVICES

1. MANUFACTURERS: PASS AND SEYMOUR, INC. (P&S); LEVITON MANUFACTURING CO.; HUBBELL/BRYANT ELECTRIC; COOPER INDUSTRIES/COOPER WIRING DEVICES; WIREMOLD/LEGRAND.

2. RECEPTACLES: EQUAL PS5362 (NEMA 5–20R), 2095 (NEMA 5–20R, GFCI).

3. DEVICE COLOR: WHITE.

5. DEVICE PLATES: NYLON, COLOR TO MATCH DEVICE.

6. INSTALL DEVICES IN COMPLETE COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATION.

E. LOW–VOLTAGE PROTECTIVE DEVICES

1. DISCONNECTING SWITCHES, FUSED

   a. MANUFACTURERS: EQUAL TO EATON, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

   b. PROPERLY SIZE SWITCHES FOR NUMBER OF POLES AND PROVIDE FUSED OR NON–FUSED AS REQUIRED FOR PROJECT CONDITIONS AND TO MEET NFPA 70 REQUIREMENTS.

   c. SWITCHES SHALL BE LOCKABLE IN EITHER OPEN OR CLOSED POSITION.

   d. FUSED SWITCHES: HEAVY–DUTY TYPE ON ALL VOLTAGES.

   e. INSTALL DISCONNECTING SWITCHES WHERE INDICATED AND AS REQUIRED BY NFPA 70 FOR MOTOR OUTLETS OR OTHER EQUIPMENT.

2. FUSES FOR DISCONNECTING SWITCHES:

   a. FUSES 0–600 AMPS FOR 600 V OR 250 V, UL LABELED CLASS RK1 WITH TIME DELAY, WITH A MINIMUM SHORT–CIRCUIT INTERRUPTING CAPACITY OF 200,000 RMS SYMMETRICAL AMPERES, AND SHALL CARRY 500 PERCENT OF RATING FOR A MINIMUM OF 10 SECONDS.

   b. FUSES FOR DISCONNECTING SWITCHES FOR PACKAGED HVAC EQUIPMENT: SIZE AND TYPE RECOMMENDED BY THE EQUIPMENT MANUFACTURER AND AS REQUIRED FOR EQUIPMENT TO MEET UL RATING.

3. ENCLOSURES: EXTERIOR NEMA TYPE 4X, STAINLESS STEEL.

4. ENCLOSED MOTOR CONTROLLERS

   a. MANUAL MOTOR–STARTING SWITCH AND MANUAL CONTACTOR: EQUAL TO SQUARE D CLASS 2510, SINGLE– OR TWO–POLE AS REQUIRED, WITH BUILT–IN THERMAL OVERLOAD PROTECTION.

F. PANELBOARDS

1. FACTORY–ASSEMBLED COMPLETE WITH BREAKERS, UL 67, LISTED AND LABELED, EQUAL TO CUTLER HAMMER.

2. INTEGRATED EQUIPMENT SHORT–CIRCUIT RATING: EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT–CIRCUIT RATING EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN OR SCHEDULED ON THE DRAWINGS.

3. ENCLOSURES: FLUSH– OR SURFACE–MOUNTED AS INDICATED, NEMA PB 1, TYPE 3R, UL 50, GALVANIZED STEEL.

4. CABINET FRONT: HINGED DOOR TRIM WITH ENTIRE FRONT HINGED TO CABINET BOX WITH PIANO HINGE AND SCREW FASTENERS FOR SURFACE MOUNTED CABINETS.

   a. LOCK: ON ALL DOORS. ALL LOCKS SHALL BE KEYED ALIKE. PROVIDE TWO KEYS PER LOCK.

   b. PROVIDE A METAL FRAME WITH CLEAR PLASTIC COVER ON THE INSIDE OF THE DOOR, FOR THE CIRCUIT DIRECTORY.

5. CIRCUIT BREAKERS: UL 489; VOLTAGE, CONTINUOUS–CURRENT RATING, AND INTERRUPTING RATING AS INDICATED ON THE DRAWINGS; BOLT–ON, THERMAL–MAGNETIC, MOLDED–CASE TYPE WITH TRIP RATING PERMANENTLY INDICATED ON THE BREAKER.

6. BUSSING ASSEMBLY: PANELBOARD BUS STRUCTURE AND MAIN LUGS OR MAIN CIRCUIT BREAKER SHALL HAVE CURRENT RATINGS AS SHOWN ON THE PANELBOARD SCHEDULE. CURRENT–CARRYING PARTS OF THE BUS STRUCTURE SHALL BE HARD–DRAWN COPPER, 98 PERCENT CONDUCTIVITY. PROVIDE A SEPARATE GROUND BUS WITH SCREW TERMINALS.

7. INSTALL IN ACCORDANCE WITH NEMA PB 1.1 AND MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

8. FRAME AND MOUNT PRINTED SCHEDULE OF CIRCUITS INDICATING TYPE AND LOCATION OF EQUIPMENT OUTLETS ON EACH CIRCUIT.

9. LABEL EACH PANELBOARD WITH ENGRAVED NAMEPLATE.

G. DRY TYPE TRANSFORMERS

1. FACTORY–ASSEMBLED AND –TESTED, SELF–COOLED, DRY TYPE, COPPER WINDINGS OF SIZE, PHASE, AND VOLTAGE RATING INDICATED ON THE DRAWINGS, HEAVY–GAUGE STEEL ENCLOSURE AND BASE, DESIGNED IN ACCORDANCE WITH NEMA ST–20, EQUAL TO SQUARE D. DRY–TYPE, GENERAL–PURPOSE TRANSFORMERS SHALL BE ENERGY EFFICIENT TYPE IN COMPLIANCE WITH NEMA TP 1.

1. INSULATION: THE MAXIMUM HOT SPOT TEMPERATURE CAN BE 30 DEGREES C HIGHER THAN THE SPECIFIED AVERAGE BELOW.

   a. TRANSFORMERS 15 KVA AND HIGHER: CLASS 220 DEGREES C HAVING A MAXIMUM TEMPERATURE RISE UNDER FULL LOAD CONDITIONS NOT EXCEEDING 150 DEGREES C WHEN THE TRANSFORMER IS OPERATING IN 40 DEGREES C AMBIENT TEMPERATURE.

3. TAPS: FOUR, 2.5 PERCENT RATED KVA TAPS, TWO BELOW AND TWO ABOVE RATED PRIMARY VOLTAGES, EXCEPT TRANSFORMERS RATED 15 KVA AND SMALLER MAY HAVE TWO 5–PERCENT–RATED KVA TAPS BELOW RATED PRIMARY VOLTAGE.

4. SOUND LEVELS BASED ON NEMA ST 20 TEST PROCEDURE:

   a. TRANSFORMER 50 KVA AND SMALLER: NOT MORE THAN 45 DB.

   b. TRANSFORMERS 51 TO 150 KVA: NOT MORE THAN 50 DB.

5. GROUND NEUTRALS OF DRY TYPE TRANSFORMERS AS REQUIRED BY NEC (NFPA 70).

6. MAKE IMMEDIATE CONNECTIONS TO AND FROM TRANSFORMERS THROUGH FLEXIBLE METAL CONDUIT.

K. TESTS:

1. DURING THE PROGRESS OF THE WORK AND AFTER COMPLETION, TEST THE BRANCH CIRCUITS AND DISTRIBUTION SYSTEM, AND THE LOW VOLTAGE ALARM AND SIGNAL SYSTEMS.

2. RESULTS OF THE TESTS SHALL SHOW THAT THE WIRING MEETS THE REQUIREMENTS OF THIS SPECIFICATION. SHOULD ANY TEST INDICATE DEFECT IN MATERIALS OR WORKMANSHIP, IMMEDIATELY REPAIR, OR REPLACE WITH NEW, THE FAULTY INSTALLATION, AND RETEST THE AFFECTED PORTIONS OF THE WORK.

3. FURNISH EQUIPMENT AND INSTRUMENTS NECESSARY FOR TESTING.

4. TESTS SHALL DEMONSTRATE THE FOLLOWING:

   a. LIGHTING, POWER, AND CONTROL CIRCUITS ARE CONTINUOUS, FULLY FUNCTIONING, AND FREE FROM SHORT CIRCUITS AND GROUNDS.

   b. THE RESISTANCE TO GROUND OF EACH NON–GROUNDED CIRCUIT IS NOT LESS THAN ONE MEG–OHM.

   d. CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS.

5. MAKE VOLTAGE BUILT–UP TESTS WITH A VOLTAGE SUFFICIENT TO DETERMINE THAT NO SHORT CIRCUITS EXIST.

6. IMMEDIATELY REPAIR DEFECTS AND RETEST UNTIL SYSTEMS ARE OPERATING CORRECTLY.

L. CLEANING, PAINTING AND FINISHES:

1. CLEAN ALL SURFACES PRIOR TO APPLICATION OF ADHESIVES, COATINGS, PAINT, OR OTHER FINISHES.

2. PROTECT ALL FINISHES AND RESTORE ANY DAMAGED FINISHES TO THEIR ORIGINAL CONDITION.

3. REMOVE ALL CONSTRUCTION MARKINGS AND WRITING FROM EXPOSED EQUIPMENT, CONDUIT AND BUILDING SURFACES.

16500 LIGHTING

A. FIXTURES SHALL BE COMPLETE WITH SOCKETS, CASINGS, FITTINGS, HOLDERS, SHADES, GLASSWARE, LAMPS, AND APPURTENANCES, WIRED AND COMPLETELY ASSEMBLED.

B. FLUORESCENT LAMP BALLASTS: ELECTRONIC, PROGRAMMED RAPID START TYPE, UL LISTED, CLASS P, SOUND LEVELS NOT EXCEEDING CLASS A AMBIENT NOISE LEVELS.

C. LAMPS

1. LAMPS SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC, PHILIPS OR SYLVANIA.

2. FLUORESCENT COLOR TEMPERATURE AND MINIMUM COLOR–RENDERING INDEX: 3000 K AND 85 CRI, UNLESS OTHERWISE INDICATED.

3. LAMPS: PROVIDE WATTAGES AND TYPES AS SCHEDULED, EACH LAMP COMPATIBLE WITH THE FIXTURE IN WHICH IT IS INSTALLED.

D. LIGHTING FIXTURE INSTALLATION

1. FURNISH AND INSTALL A COMPLETE LIGHTING FIXTURE FOR EVERY OUTLET INDICATED ON THE DRAWINGS SO THAT EVERY OUTLET SHALL BE PROPERLY PROVIDED WITH A SUITABLE FIXTURE OF TYPE SPECIFIED, OF WATTAGE INDICATED.

2. FIXTURE WIRE SHALL BEAR UL LABEL. FIXTURE WIRING FOR FLUORESCENT FIXTURES AND BRANCH CIRCUIT WIRING IN FLUORESCENT FIXTURE CHANNELS SHALL BE TYPE THHN.

3. EACH FIXTURE SHALL BE COMPLETELY EQUIPPED WITH LAMPS OF THE SIZE, TYPE, WATTAGE AND SHAPE INDICATED AND SPECIFIED.

4. FURNISH FIXTURES IN THE QUANTITIES, SIZES, AND TYPES INDICATED ON DRAWINGS.

END OF MECHANICAL AND ELECTRICAL SPECIFICATIONS

AYERS SAINT GROSS
ARCHITECTS + PLANNERS
800 EYE STREET, SUITE 600
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KEY PLAN

DRAWING SCALE

DATE	SUBMISSION
4/18/12	100% SUBMISSION

REVISION	REVISION
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	

Smithsonian Institution

Office of Facilities Engineering and Operations
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BUILDING NAME	NATIONAL ZOOLOGICAL PARK
ADDRESS	3001 CONN. AVENUE, NW WASHINGTON DC 20008
PROJECT TITLE	NZP INSTALL CAROUSEL PAVILION IN LOWER PARK
OFED PROJECT NUMBER	1133115
A/E PROJECT NUMBER	21186.00
DRAWING TITLE	SPECIFICATIONS
DRAWING TYPE	ELECTRICAL
WORKING STAFF	TMC (DESIGNED BY) · TMC (DRAWN BY) · REL (CHECKED BY)
SHEET NO.	E (DISCIPLINE) · 7 (TYPE) · 01 (SEQUENCE)

1/2 LONG SCALE: 1:1

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