

r		·			: JLT	DES	
COVE					1: JLT/AM		1 <sub>4</sub>
						СНК	
600' SCALE MAP NO	DATE	REVISION	NO.	BY	TE: 08/14/14	HEREBY CLAY A THAT THE CALONE THAT I AN PREPARED BY ANALYTIC BY INCLUDING THAT I AN A DULY LICENSED FROTTEE UNL DISINCER INFOR THE LAVE OF THE STATE OF MARY LAND, LICENSE DO INICAL EXPERIENCE DATE: COMMON	

			DR ARRIANNA VIAY	DAKS	LVNDWOOD	ESTS MARKHAM MORES	Sawl one of the same
SITE ANALYSIS DATA CH	HART		44	FOX HUNT ESTS	- Sales	Woods	
a. Total Project Area: b. Limit of Submission:	101.89 Ac+/- / 25.87 Ac+/- /		A-3 the A-3 th	SI:	E		
c. Limit of Disturbed Area: d. Present Zoning Designation:	20.41 Ac+/- / M-1	889,066 SF	35.6		Timbers of A	Le ganner	SHOW ME DO
e. Proposed Use for Site and Structures:	Sports Fields Restrooms ar Parking \$ SW	d Associated	506148; MM	WILLY OOD		GATHERING RAT	Gay
f. Parking Spaces Required:	Determined b		8 2 44	OUS S STOLES OF STOLES			TROYHILL
g. Floodplain Within Limit of Submission:	0.00 Ac+/-		Like Nmt			$\mathbb{X}$	CORPORATE
PARKING TABULATION			Effsn Independ	ent woocume a star		C Tro	CENTER
a. REQUIRED (AS DETERMINED BY DRP):	100 SF	ACEG	a garante A			Historie Ste	wood E
50 SPACES PER FIELD X 2 FIELDS 10 SPACES PER PLAYGROUND X 1 PLAYGROU			A B B DR	3 - 3 - 4 -			
O SPACES PER PAVILION X 5 PAVILIONS *	O SPA		X X DR	Stephens Meth	S King and a second		
TOTAL	lio sp/	CES REQUIRED	A CORONY	Meth	¥4	doixiido#	
b. PROVIDED:			E B BAN		🥑 (103) 💦	and the state	<b>C</b>
PHASE I - THREE PARKING LOTS	146 SPACES I	PROVIDED ACCESSIBLE SPAC	S LAGE G	MANOR ME		8-20500	12PT
PHASE 2 - TWO PARKING LOTS	496 SPACES	PROVIDED					
	•	ACCESSIBLE SPAC	CES Y	ICINITY		· (-	=200
TOTAL - FIVE PARKING LOTS	AND 5 BUS P 641 SPACES 1	ARKING SPACES)					
		2 ACCESSIBLE SPA	CES REN	<b>ICHMARK</b>	5	NADAR	5/91 & NAVD88
	•	ARKING SPACES)		ALSO KNOWN AS	The second s	D: JV0628 ELE	
C. EXCESS PROVIDED FOR THIS SITE PLAN APP	ROVAL	386 SPACES		DISC ON BRIDGE			
d. Excess provided from SDP-11-003 e. Total available for future building pr		46 SPACES 432 SPACES		ALSO KNOWN AS POLE BOLT AT ENI			EV: 170.156 BL.
* PER DRP:							·
PAVILIONS ARE DESCRIBED BY ARCHITECTURAL AS A FUNCTION, THEY ARE SHADE STRUCTURES	and restroom I	FACILITIES	DR	awing ind	DEX		

THE TROY PARK PI	HASE 2 PROJECT IS COMPRISE	D OF THE FOLLOWING PARCELS:
PARCEL A-22	PLAT #15170	RECORDED PLAT
PARCEL A-21	PLAT #15171	RECORDED PLAT
TAX MAP 31	TAX PARCEL #345	UNRECORDED TAX PARCEL
TAX MAP 37	TAX PARCEL #342	UNRECORDED TAX PARCEL
TAX MAP 37	TAX PARCEL #561	UNRECORDED TAX PARCEL

<u>SHEET #</u>	DRAWING #	DRAWING TITLE
<u>10F67</u>	0.01	COVER SHEET
2 OF 61	CO.02	SITE NOTES
3 OF 67	<u> </u>	BUILDING ELEVATIONS
4 OF 67	<u>CI.00</u>	EXISTING CONDITIONS & DEMOLITION PLAN
5 OF 67	<u>CI.OI</u>	SITE LAYOUT PLAN
6 OF 67	<u> </u>	SITE LAYOUT PLAN
7 OF 67	CI.03	SITE LAYOUT PLAN
8 OF 67	<u> </u>	SITE LAYOUT PLAN
9 OF 67	<u>CI.II</u>	DETAIL REFERENCE PLAN
10 OF 67	CI.12	DETAIL REFERENCE PLAN
11 OF 67	CI.13	DETAIL REFERENCE PLAN
12 OF 67	CI.14	DETAIL REFERENCE PLAN
13 OF 67	CI.20	PAVING AND SIGNAGE PLAN
14 OF 67	CI.21	LIGHTING LEVELS PLAN
15 OF 67	C2.01	SITE DETAILS
16 OF 67	62.02	SITE DETAILS
17 OF 67	62.03	SITE DETAILS
18 OF 67	C2.04	SITE DETAILS
19 OF 67	62.05	SITE DETAILS
20 07 67	62.06	SITE DETAILS
21 OF 67	C3.01	STORM DRAIN PROFILES
22 OF 67	C3.02	STORM DRAIN PROFILES
23 OF 61	<u> </u>	STORM DRAIN PROFILES
24 OF 67	C3.04	STORM DRAIN PROFILES
25 OF 61	C3.05	STORM DRAIN PROFILES
26 OF 61	C3.06	STORM DRAIN & SANITARY SEVER PROFILES
27 OF 61	C3.07	STORM DRAIN & SANTART SEALER FROM LLS
28 OF 67	C3.II	STORM DRAIN DRAINAGE AREA MAP
29 OF 61	C4.00	GRADING SITE MAP
30 OF 61	C4.01	GRADING PLAN
31 OF 67	64.02	GRADING PLAN
32 OF 67	C4.03	GRADING PLAN
33 OF 67	C4.04	GRADING PLAN
34 OF 67	C4.II	DETAIL LAYOUT & GRADING PLAN
35 OF 61	C4.12	DETAIL LAYOUT & GRADING PLAN
36 OF 67	C4.13	DETAIL LAYOUT & GRADING PLAN
37 OF 67	<u>C4.14</u>	DETAIL LAYOUT & GRADING PLAN
38 OF 67		DETAIL LAYOUT & GRADING PLAN
39 OF 67		EROSION AND SEDIMENT CONTROL SITE MAP
40 OF 67	ESCI.OI	EROSION AND SEDIMENT CONTROL PLAN
41 OF 67	ESCI.02	EROSION AND SEDIMENT CONTROL PLAN
42 OF 67	ESCI.03	EROSION AND SEDIMENT CONTROL PLAN
43 OF 67	ESCI.04	EROSION AND SEDIMENT CONTROL PLAN
44 OF 67	ESC2.01	EROSION AND SEDIMENT CONTROL DETAILS
45 OF 67		EROSION AND SEDIMENT CONTROL DETAILS
46 OF 67		EROSION AND SEDIMENT CONTROL NOTES
47 OF 67		EROSION AND SEDIMENT CONTROL NOTES
48 OF 67	SWMI.00	STORMWATER MANAGEMENT SITE MAP
49 OF 67	SWMI.01	STORMWATER MANAGEMENT PLAN
50 OF 67	SWMI.02	STORMWATER MANAGEMENT PLAN
51 OF 67	SWMI.03	STORMWATER MANAGEMENT PLAN
52 OF 67	SWMI.04	STORMWATER MANAGEMENT PLAN
53 OF 67		STOR WATER MANAGEMENT DETAILS
54 OF 67		STORMWATER MANAGEMENT DETAILS
55 OF 67		STORMWATER MANAGEMENT NOTES
56 OF 67	SWM2.12	STORMWATER MANAGEMENT NOTES
57 OF 67	SWM2.21	STORMWATER MANAGEMENT SOIL BORINGS
58 OF 67	LI.OI	PLANTING PLAN
59 OF 67	LI.02	PLANTING PLAN
60 OF 67	L1.03	PLANTING PLAN
61 OF 67		PLANTING PLAN
62 OF 67	L2.01	PLANTING DETAILS AND NOTES
63 OF 67		FOREST CONSERVATION PLAN
64 OF 67	FC1.02	FOREST CONSERVATION PLAN & DETAILS AND NOTES
65 OF 67	FCI.03	FOREST CONSERVATION NOTES
66 OF 67	RWI.OI	RETAINING WALL PLAN
67 OF 67		RETAINING WALL PLAN
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## GENERAL NOTES (THESE NOTES PERTAIN TO ALL CIVIL DRAWINGS)

- All construction shall be in accordance with the latest standards and specifications of Howard County, 2010 ADA Standards for Accessible Design and MSHA standards and specifications if applicable.
- 2. The contractor shall notify the Department of Public Works/Bureau of Engineering/ Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
- 3. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the Maryland Manual of Uniform Traffic Control Devices (MdMUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt. All sign posts used for traffic control signs installed the County Right-of-Way (including Recreation & Parks ROW) shall be mounted on a 2" galvanized steel, perforated, ("Quick Punch" type), square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated, square tube sleeve (12 gauge) - 3" long. The sleeve shall not extend more than two Quick Punch holes above ground level. A galvanized steel pole cap shall be mounted on top of each post.
- 5. All plan dimensions are to face of curb unless otherwise noted.
- 6. The existing topography was obtained from a combination of aerial survey with I foot contour intervals on March 31, 2009 performed by Axis GeoSpatial, LLC and designed arading from Troy Park - Phase One (SDP-11-003). Additional topography shown taken from Howard County GIS.
- The coordinates shown hereon are based on NAD '83 coordinate values of SHA Plat #56701 and two Plats of Survey for Parcels 371 and 345 prepared by the Howard County Department of Public Works.
- 8. Water connection will be made at 12" public line in Mansion Lane (Contract 14-4698-D).
- 9. Sewer connection will be made at 8" public line in Mansion Lane (Contract 14-4698-D).
- 10. Stormwater Management will be provided by environmental site design (ESD) practices, including Micro-bioretention and Non Rooftop Disconnection, and in a Sand Filter. The facilities are to be publicly maintained.
- Existing utilities are based on surveys performed by Shanaberger and Lane, design information from Troy Park - Phase One (SDP-11-003) and Howard County GIS, the contractor must determine the exact location of utilities by digging test pits, by hand, at all utility crossings prior to construction.
- 12. The floodplains shown on this site are based on the FEMA National Flood Insurance Program, Flood Insurance Rate Map, Howard County, Maryland, Panel 35 of 45, Map Number 240044 0035B (Dated Dec.4, 1985) however there is a Floodplain Easement shown on this plan from Plat #15171, Dated Dec. 27, 2001 by Patton, Harris, Rust and Associates.
- 13. There are streams and stream buffers located on this site as shown on the plan. The wetlands shown on this site were field located by Shanaberger and Lane Dated April 23, 2010 and delineated in the field by Eco-Science Professionals Inc.
- 14. A traffic study and APFO Test was conducted by The Traffic Group, dated January 23,
- 15. No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the wetlands, streams or their buffers, forest conservation easement areas, steep slopes 25% or greater and 100 year floodplain except as approved by DPZ per WP-10-173.
- 16. All exterior light fixtures shall be oriented to direct light downward on-site, away from adjoining properties and public roads in accordance with the requirements of Section 134 of the Howard County Zoning Regulations. Light trespass onto adjoining residential use properties shall be limited to 0.5 foot condles and no foot condle requirement for adjoining non-residential uses.
- 17. There are no cemeteries or grave sites on the subject property
- 18. This project is subject to the amended fifth edition of the Subdivision and Land Development Requilations and the Zoning Regulations approved under Council Bill #32-2013. Development or construction must comply with setback and buffer regulations in effect at the time of submission of the Site Development Plan, waiver petition application or building/grading permit.
- 19. All utilities constructed within fill material must be installed in accordance with

## 20. ABBREVIATIONS:

AASHTO-TIBO.

PROP EX BIT CONC M or MH SD I SAN FF BF	Proposed <sup>*</sup> Existing Bituminous Concrete Manhole Storm Drain Inlet Sanitary Sewer Finished Floor Elevation Basement Floor Elevation		Ductile Iron Pipe Polyvinyl Chloride Pipe High Density Polyethylene Pipe Corrugated Metal Pipe Reinforced Concrete Pipe Concrete Curb & Gutter Invert Elevation Fire Department Connection Fire Hydrant
TC TS TW PC PT PI AGIP P AGIP PS SFD SFS SFS SF S	Top of Curb Top of Step Top of Wall Point of Curvature Point of Tangency Point of Intersection At-Grade Inlet Protection Combination Inlet Protection Filter Bag Removable Pumping Station Super Fence Diversion Sump Pit Temporary Swale	BC BS BW PS HC TYP CIP ED IB SCE SIP SSF TSOS	Bottom of Curb Bottom of Step Bottom of Wall Parking Space Handicapped Parking Space Typical Curb Inlet Protection Earth Dike Inlet Blocking Stabilized Construction Entrance Standard Inlet Protection Super Silt Fence Temporary Stone Outlet Structure

\*Proposed means work included in the base contract unless accompanied by the phrases "N.I.C." or "By Others."

- 21. The subject property is zoned M-I per the Comprehensive Zoning Plan effective
- 10/6/2013
- 22. All spot elevations are at flowline / bottom of curb unless otherwise mentioned.
- 23. Developer shall be responsible for any damage to the public right-of-way.
- 24. This plan has been prepared in accordance with Section 16.124 of the Howard County Code and the Landscape Manual. Financial surety is not required for this project because this is a County Capital Project.

## 25. Retaining Wall General Notes

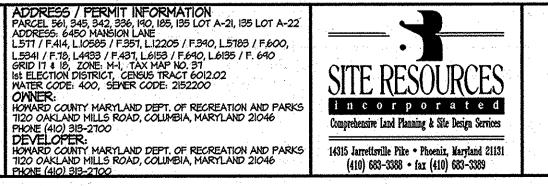
- a) Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and a (NICET, WACEL or equivalent) certified solls technician.

APPROVED: DEPARTMENT OF PLANNING & ZONING	<b>s</b>
m.s. m. ung U.	9/18/1
DIRECTOR	DATE
Clud Eduda	9.3.11
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Ket Sheelook	9-18-1
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

- b) The required bearing pressure beneath the footing of the wall shall be veri in the field by a certified soils technician. Testing documentation shall be provided to the Howard County Inspector prior to the start of construction. required test procedure shall be the Dynamic Cone Penetrometer Test AST STP-399
- c) The suitability of fill material shall be confirmed by the onsite soils technicia Each eight (8) inch lift shall be compacted to a minimum of 95% Standard Procter Density and the testing report shall be made available to the Howa County Inspector upon completion of construction.
- d) For "CRITICAL" walls, one soil boring shall be required every 100' along the entire length of the wall. Copies of all boring reports shall be provided to I Howard County Inspector prior to the start of construction. Refer to Howar County DPW Design Manual, Volume III.
- 28. EXISTING INFORMATION AND CONDITIONS NOT GUARANTEED; VERIFY AND TEST EXISTING UTILITIES: The correctness and completeness of the information showing existing conditions is not guaranteed. Before beginning construction, the Contract shall perform the following tasks:
- (a) Notify Miss Utility at 1-800-257-7777, and make sure they complete the mar of utilities within the limits of construction at least 48 hours prior to installing sediment control measures. Maintain all markings throughout construction. The Contractor shall also include in his bid price marking of on-site utilities that might not be marked by MISS Utility; the contractor shall either mark these on-site utilities himself or by subcontracting with a private on-site utility locat
- (b) Verify the general accuracy of the existing conditions shown on the site drawings by visual inspection of the surface of the site and all existing structures, paving and utility appurtenances visible thereon;
- (c) With regard to the structures & appurtenances observed as required per it (b) above, determine the type, size, location and elevation of all those existing utilities (including but not limited to all storm drains, sanitary lines, water lines, gas lines, steam lines, electric lines, telephone lines, and communication ducte and all manholes, inlets, clean-outs, valves, handholes, etc. related thereto) within the limits of construction in order to: (1) avoid damaging or disrupting service, and (ii) to coordinate and facilitate construction of proposed utilitie and other improvements. In addition to the Contractor's visual observation the utility marking (as required above), the contractor shall schedule and complete Test Pitting of all existing utilities (for the purposes set forth above and shall do so in a timely manner in order to allow time for analysis and redesign by Site Resources and/or other consultants, without delaying the project schedule.
- (d) Immediately report to Site Resources, Inc. the results of steps (a), (b) and ( which might indicate any discrepancy between actual conditions and those sho on the plan, and any potential conflicts between proposed improvements and existing condition.
- Test pitting defined: For the purposes of this contract, excavation of utility trenches does not constitute test pitting. Test pitting is a separate operati completed at least seven days before utility installation is scheduled to beg Test pitting means excavation to expose existing utilities in two situations: ( where proposed improvements cross existing utilities (pipes, lines, structures appurtenances) and; (ii) where proposed utilities are designed to connect to existing utilities. Test pitting includes recording the type, size, location and elevation of the exposed utilities, and faxing and mailing the record to Site Resources, Inc. and the Owner. The record may be a legible hand-written field sketch.
- 29. EXISTING AND PROPOSED GAS LINES, ELECTRIC LINES, TELEPHONE LINES, COMMUNICATION LINES AND OTHER UTILITIES: These drawings include information depictions of Baltimore Gas # Electric Company's (BGE) electric and/or gas utili located within the general project area. Locations, dimensions, depths, and other details of any such utilities may not be as actually constructed, and the information shall not be relied upon without field verification by test pitting as defined above Excavators must employ safe digging practices when approaching BGE electric and/or gas utilities and comply with all applicable federal, state, and local laws including, but not limited to, the law governing notification of Miss Utility. No representation, guarantees, or warranties expressed or implied are made by BGE Site Resources, Inc. as to the quality, completeness, or accuracy of the BGE utility information, and in accepting these drawings, the recipient expressly agrees that i not relying on the accuracy of the same.
- Existing and proposed gas lines, steam lines, electric lines, telephone lines, communication ducts and other such utilities are NOT part of the scope of work s on these site plans and Site Resources, Inc. has no responsibility for design, specification or installation of said utilities. To the extent that some or all of suc utilities (whether existing or proposed) appear on the site drawings, it is presente only for the convenience of the contractor and the correctness and completeness the information showing these utilities is not guaranteed.
- 30. COORDINATION BETWEEN PROPOSED UTILITIES: The contractor shall adjust the location and elevation of proposed gas lines, electric lines, telephone lines, communication lines, and water lines as needed to construct the proposed storm drains and sanitary sewer with minimum clearances. Coordinate with the Mechanical/Electrical Drawings and Specifications and appropriate utility company
- 31. RELOCATION OF EXISTING UTILITIES: In the event that the location or elevation existing minor underground electric lines and phone lines conflict with proposed drains, sanitary sewer lines or water lines, the contractor shall, with the permission the owner and without an extra cost to the project, adjust these lines to permit installation of the new utilities. In the event that any other utility is relocated to accommodate a new utility, said relocation shall be an extra cost to the project, subject to the terms and conditions of the construction contract.
- 32. UTILITIES TO REMAIN OPERATIONAL; ADJUSTMENT FOR FINAL GRADE: All existin utilities shall be retained unless marked otherwise. Existing utilities not to be removed are to remain operational at all times. Existing utilities to be replaced relocated shall remain in service until replaced or relocated utilities are operational. All existing utility appurtenances shall be adjusted for final grade.
- 33. UTILITY TRENCHING, BACKFILL AND COMPACTION: All trenching for sanitary sew storm drains and water mains shall be done in accordance with the Howard Count Standard Specifications and Details for Construction.
- 34. UTILITY CERTIFICATION: The Contractor shall have a professional engineer registered in the State of Maryland certify, on a form provided by the Owner, the all proposed storm drains, sanitary sewers and water lines shown hereon were installed in accordance with these plans and Howard County specifications. If sale Certification is not possible because the utilities were not installed in accordance with these plans and Howard County specifications, then the Owner has the option waiving, in writing, this Certification, in whole or part. If the Owner does not elect waive the Certification, the Contractor shall adjust and, if necessary, reconstruct utilities to bring them in conformance with these plans and Howard County specifications.

ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 135 LOT A-21, 135 LOT A-22 ADDRESS: 6450 MANSION LANE L5T1 / F.414, LI0585 / F.357, L12205 / F.340, L5783 / F.600,

L.5341 / F.18, L4433 / F.431, L6153 / F.640, L6135 / F. 640 GRID 17 & 18, ZONE: M-I, TAX MAP NO. 37 Ist ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SENER CODE: 2152200



			·		
ified The	35	. UTILITY CAPPING AND PROTECTION: All building connections shall be capped at upstream end, 5 feet from proposed buildings, caissons or column footings or as noted, and shall be protected by providing three stakes (the height being a minimum	5	51.	Thi fo
M	94	of 18 inches above proposed grade) with high visibility flagging around the capped end of the utility.		.1	а.
n. ard	36	. PROPOSED PRIVATE WATER LINES: Proposed water lines shall have a minimum of 4'-O" cover from finished grade, 1'-O" clearance from storm drains and 1'-O" clearance from sanitary sewers, unless otherwise noted on the plans. All water lines shall be high-density polyethylene unless otherwise noted on the plans.			Ь.
he the	37	. PROPOSED STORM DRAINS: All storm drains 12 inches and larger shall be class IV reinforced circular concrete pipe (RCCP) unless indicated otherwise on these construction drawings.			
rd	38	. PROPOSED PRIVATE SANITARY SEVERS: All pipe and fittings for sanitary house connection shall be polyvinyi chloride (PVC) meeting material requirements of ASTM D3034, (SDR-35). Joints shall be elastomeric gasketed.		•	с.
PIT 9 tor	39	. STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS: Unless otherwise noted or detailed on the drawings, all construction shall follow the latest Howard County Standard Specifications and Details for Construction.	•		d,
king	40	SEDIMENT CONTROL: The contractor shall coordinate installation of all utilities to avoid construction problems/conflicts with sediment and erosion control measures.		e de la composition de la comp	а.
9	anda Shekara ya	Any disturbance to sediment and erosion control measures shall be repaired at the end of each working day. Contractor shall, without extra cost to the project, repair	n e e e e e Se se se se		
otion		and maintain existing sediment control devices until all areas within limits of construction are stabilized. With the approval of sediment control inspector, all		52.	
ation		sediment control devices shall be removed and areas restored and stabilized. All sediment control measures referred to on these plans shall be in accordance with		· 2 * • • •	Se
- 		the publication entitled 2011 Maryland Standards and Specifications For Soil Erosion and Sediment Control.		• •	Ea Co fro
tem ting	41.	DISTURBED AREAS: All areas disturbed by the contractor during or prior to construction, not designated to receive paving, mulch or solid sod shall be fine			Ce op
s, s,		graded, seeded and mulched in accordance with the permanent seeding notes and specifications shown on the Sediment Control drawings.			Čc wit
на на Спорт	42	REPAIR AND REPLACEMENT OF DAMAGE CAUSED BY CONTRACTOR AND	1223,113 •	- 2	ac ac
es and		SUBCONTRACTORS: In the event that the contractor or any of his subcontractors damage any existing curb, gutter, paving, utilities, sidewalks, trees, shrubs, lawns, or		<del>3</del> .	int po
ove)		any other existing conditions (not indicated to be demolished), or any newly installed proposed improvement, the general contractor shall repair and replace said damage to owner's satisfaction, at general contractor's sole cost and expense.		54.	
(c)	43	. BENCHMARKS: See Cover Sheet.	5	5.	Tr
d d	44	. ELEVATION AND LABELING: All spot grade elevations in roadways and parking lots are for bottom of curb unless otherwise noted. Elevations on hard surfaces (roads,			Inv 20
	¢.	walks, walls, steps, manholes, inlets, etc.) are labeled to the hundredth of a foot (e.g. 245.45). Elevations on proposed lawn and planting areas are labeled to the tenth of		6.	
ion	a An An An An	a foot (e.g. 2455).		e-1 .	fo
gin. (1) s, o	45	DIMENSIONS: Unless otherwise noted on the drawing, all dimensions shown on the site drawings follow these conventions:			а. Ь.
	nt an	(a) dimensions to a building or retaining wall are to the face of the wall; (b) dimensions to a curb are to the face (not the back) of the curb;			6.
əld	'	(c) dimensions to a fence are to the centerline of the fence; (d) dimensions for sidewalks abutting a curb are from the face of curb to the back edge of the walk;	· · · · ·	·.	· · · ·
and	· · ·	(e) dimensions for other sidewalks or open paving sections are measured to the edge of paving;			d.
ties pr on		(f) dimensions to a manhole, inlet, cleanout, pipe bend, valve, fire hydrant or other utility appurtenance are to the center of the structure;	•		е.
8.		<ul> <li>(g) dimensions for steps are to the outer edge of the staircase and the nose of the top or bottom step;</li> <li>(h) layout of sediment control measures and plant material shall be scaled.</li> </ul>			
E or	46	. GRADING: It is the intent of the grading design to achieve positive drainage and	, <b>5</b>	57.	Th
ty t it is		aesthetically pleasing vertical curves and lines. Transitions between existing and proposed pavement shall be smooth and joints flush. Unless otherwise expressly noted on the plan (by arrow with the percent slope labeled), all proposed bituminous	<b>5</b>	58.	.Pc me
shown		paving shall have a slope of at least 2 percent and all concrete shall have a minimum slope of 1.5 percent in the direction indicated by proposed contours. Unpaved areas shall have a minimum slope of 2 percent and a maximum slope of 2:1.	5	59.	
sh		Final grading shall achieve positive surface drainage away from buildings and toward drainage facilities (swales, gutters, inlets, etc.).			Re fie
ted ss of		Round top and bottom of slopes.	e	0.	Co
		Correct Method Incorrect Method			Ve
			é	51.	ca
ny.				_	pir
-	47	. COMPACTION: All earth fill material under slabs, footings and paved areas shall be placed in 8" loose layers and compacted to 95% of maximum dry density at optimum	. 6	52.	lor
of storm		moisture content as determined by ASTM D 698. All other fill shall be compacted to 90%.			ot
on of	48	. HEADINGS: The headings contained in these General Notes are for the convenience	Ľ	<b>63</b> .	it ac
<b>7</b>	· .	of the reader only and shall not limit the responsibility of the Contractor. It shall be distinctly understood that failure to mention specifically any work which would normally be required to complete the project shall not relieve the Contractor from completing such work.		<b>54</b> .	00
g	49	. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES): It is the			00
or	· · · · · · · · · · · · · · · · · · ·	contractor's responsibility to implement all the provisions and requirements of the NPDES permit. The permit has been applied for by the Owner, but no land disturbance is permitted until the NPDES permit has been issued.		55. 56.	ma
er, ty	50	The public right of way for Mansion Lane from approximately 0+50 to 11+00 was abandoned in accordance with County Council of Howard County, Maryland resolution		~	pc sh
		number 122-2010, approved on 10/28/10.	é	57.	
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DES: JLT

DRN: JLT/AM HK: AFE DATE: 08/14/14 BY NO. REVISION DATE 600' SCALE MAP NO.

is project is subject to the waiver petition WP-10-173 approved 7/06/10 for the

- Section 16.116(a)(2)(iv) requires that grading, removal of vegetative cover and trees, paving and new structures shall not be permitted within 50 feet of a perennial streambank buffer in non-residential zoning districts. the waiver is to allow minimal disturbance to provide emergency access road improvements to widen an existing road with a culvert extension to provide a second means of emergency access from the county park to U.U. Route I.
- Section 16.1202(a)(2) requires the submission of a Forest Conservation Plan for approval for the entire project as part of the Site Development Plan submission. The waiver is to allow the forest conservation requirements for this project to be reviewed in phases rather than under one submission for the entire county park.
- Section 16.1204(d)(8) requires the recording of a plat of Forest Conservation Easement (FCE) for the entire project along with the establishment of Forest Conservation Easements with the forest conservation plan. The waiver is to allow for the temporary deferral for submission and recording of the plat of fce until the last phase of development for the county park.
- Section 16.1205(a)(7) and (10) requires that priority on-site retention of state champion trees, trees 75% of the diameter of state champion trees, trees 30" in diameter or larger and specimen trees be left undisturbed during the grading and construction process. The waiver is to allow for the removal of 4 specimen trees within phase I of the county park project.
- Forest Conservation Easement will been established to fulfill the requirements of action 16.1200 of the Howard County Code and the Forest Conservation Act. No earing, grading or construction is permitted within the Forest Conservation sements, however, forest management practices as defined in the Deed of Forest preservation Easement are allowed. Development on Lots A21 \$ A22 are exempt om the Forest Conservation Act as they are part of the Troy Hill Corporate enter which is a planned business park of at least 75 acres which received proval prior to 12/31/92 in accordance with Section 16.1202 (b)(1)(v) of the Howard ounty Code. A forest conservation obligation for Phase 1 of 17.4 acres will be met th 3.3 acres of on-site retention and 14.1 acres of on-site reforestation. Of the 14.1 cres of reforestation, 1.6 acres will be completed in Phase 1 with the remaining 12.5 cres will be planted with future phases of the development.
- accordance with Section 128.A.10 of the Zoning regulations, setbacks from lot lines ternal to a development are not required when two or more continuous lots or arcels are treated as a single lot for development purposes.
- storic Troy Mansion and associated grounds, MHT #44, will not be disturbed under ase II.
- oy Mansion and it's arounds are listed on the Howard Countu Historic Sites rentory as HO-44. This plan came to the Historic District Commission on April 1, DIO for Advisory Comments.
- waiver to allow mass grading of the site prior to SDP approval was applied for 09/13/10. The waiver MP-11-038 was approved on 10/08/10 subject to the llowing conditions.
- Approval from the Howard Soil Conservation District and the Department of Inspections, Licenses and Permits is required for the associated arading plan prior to the issuance of any required permits.
- The limit of disturbance and grading permit shall not exceed the limits as shown on the waiver plan exhibit submitted with this waiver request. The developer must continue processing SDP-II-003 to it's completion of
- signature approval and meet all applicable processing deadlines. If the SDP is voided or withdrawn for any reason, the developer will be required to address the forest conservation obligation requirement for the limit of disturbance indicated for this site under the grading plan and grading permit application. The grading shown on the exhibit is temporary and shall be stabilized in
- accordance with the latest Sediment and Erosion Control standards and specifications. Final grading and development shall be approved in accordance with
- SDP-II-003 which will design the final stormwater management requirements for the final design conditions.
- e Howard County Council adopted Resolution 122-2010, which closes an proximately 16 mile part of Mansion Lane. It was adopted on 10/28/10.
- ivilions 1, 2, 3, 4 and the Grandstand Restroom Building will have private water sters inside the building in the mechanical room.
- e Howard County Council adopted a Variance Request Resolution under County esolution 168-2013 to reduce the 50 foot structure and use setback to 22 feet for old S-3 and the related fence under Phase I of the Troy Park site plan.
- onstruction plans for any structure wherein pre-packaged food products are sold r prepared will have to be reviewed and approved by the Health Department. endors desiring to distribute pre=packaged or prepared foods at events must ply to the Health Department for a temporary permit and be approved per event.
- ontractor shall provide AASHTO T-180 Specifications references for roads or oes in fill.
- sidewalks, paths and other paved areas shall be finish graded with a maximum naitudinal slope of 5% (1:20) and a maximum cross slope of 2% (1:50) unless perwise noted
- is the contractor's responsibility to ensure that all site elements are constructed in accordance with the ADA 2010 Standards for Accessible Design or most current.
- the extent that quantities may be listed on these plans, they are for permitting proses only and NOT for bidding purposes. Contractor shall form his own onclusions about the quantities of all materials and operations necessary to mplete the project.
- 'esign engineer shall confirm the turf section for adequate drainage with the turf anufacturer.
- e pavilions at Troy Park at Elkridge will not be rented out for public use. The willions are for programmatic use only. Therefore, the ADA parking spaces, as own on the SDP plan, should be sufficient to meet ADA requirements.
- o the extent that quantities may be listed on these plans, they are for permitting proses only and NOT for bidding purposes. Contractor shall form his own inclusions about the quantities of all materials and operations necessary to mplete the project.

# ASSOCIATED PROJECT REVIEW FILE NUMBERS

5-90-005, P-90-23, F-91-24, F-96-136, F-98-169, WP-96-91, F-00-103, F-02-94, ECP-10-008 Plans associated with Troy Hill Corporate Center and Mansion Lane.

MP 10-173 Troy Park waiver for road crossing stream, removal of specimen trees, adjust Forest Conservation review, postpone Forest Conservation easements, and setback from right-of-way.

WP 11-038 Troy Park waiver to allow mass grading of the site prior to approval of the SDP.

SDP-II-003 Troy Park Phase I Site Development Plan.

ECP-10-08 Troy Park Phase | Environmental Concept Plan

A Simplified Environmental Concept Plan (ECP) for Troy Park Phase 2 was submitted to and approved by Howard county on January 22, 2014.

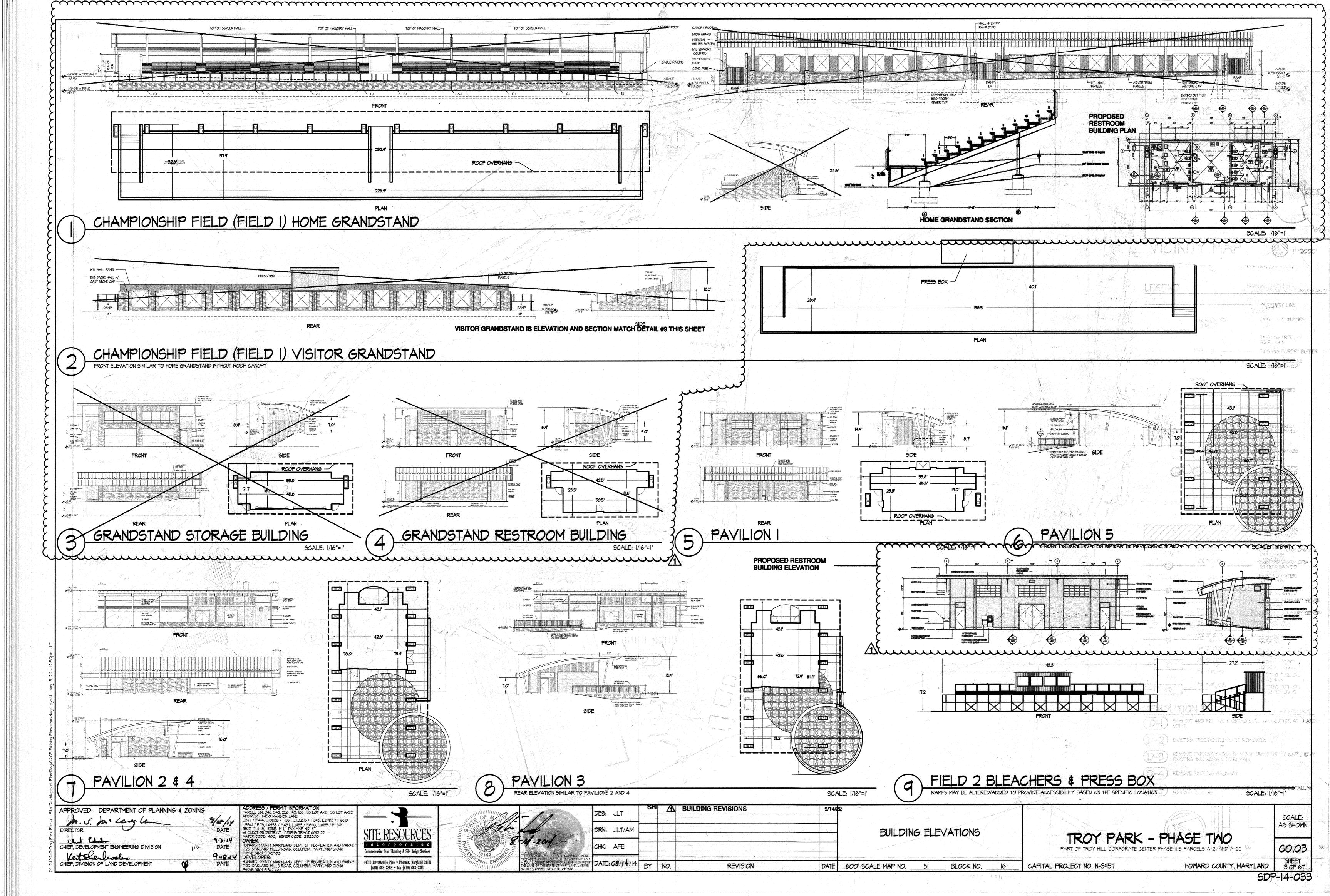
## LIGHTING FIXTURE SCHEDULE

				LAMPS		- MAX W.	MOUNTING	MANU. / MODEL No.	
SYMBOL	TYPE	DESCRIPTION	VOLTS	VOLTS NO. TYPE		- POW AL MOUNTING		(OR APPROVED EQUAL)	
⊛∎	STREET	SHOEBOX FIXTURE MOUNTED AT 30' ON A FIBERGLASS POLE.		I	LED	250	30' POLE	XSB CROSSOVER AREA LIGHT	
<b>BQB</b>	STREET	DOUBLE SHOEBOX FIXTURE MOUNTED AT 30' ON A FIBERGLASS POLE.	-	2	LED	250	30' POLE	XSB CROSSOVER AREA LIGHT	
<u> </u>	SPORT FIELD	MULTIPLE FIXTURES MOUNTED AT 70 '- 110' ON A STEEL POLE.	-	VARIES	MZ	1500	70' - 110' POLE	MUSCO	

## EXISTING VEGETATIVE COMMUNITIES

The site was largely covered by successional forest approximately 20-40 years of age. Approximately 39.5 acres of the site was cleared and mass araded during Phase I of Troy Park. The condition of most of the remaining forest stand is fair with many invasive species and dense vine cover. There is a small stand containing some mature, larger trees outside of the developed area adjacent to Rt.100.



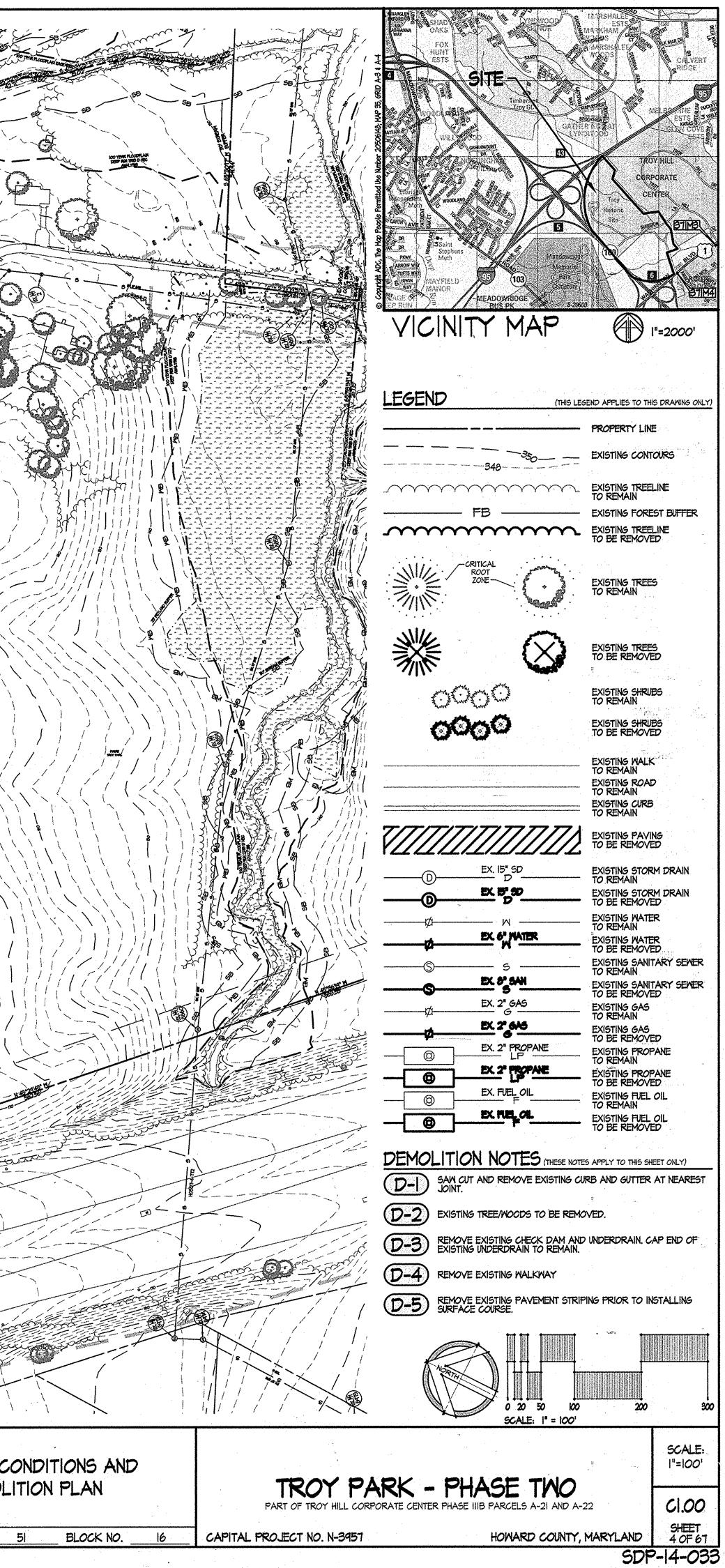




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LY LICENSED PROFESSIONAL'I LANS OF THE STATE OF MARY 16144, EXPIRATION DATE: 08/19

DATE 600' SCALE MAP NO.



37/26	862' STA 5+76.82 LT 12.00 STA 6+99.18 LT 30.00
	530-1 D STA 6499.78 LT 17.09
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LINE TABLE

_	LINE #	BEARING	DISTANCE		
	LI	N80" 23'44"E	44.56'		
	L2	526* 42'43"E	354.95'		
	13	563° 17'17''W	402.79'	: *	
	L4	526* 42'43"E	426.90'	 CURVE #	RAD
	L5	526° 42'43"E	437.27'	 CI	330.
	L6	526" 42'43"E	430.09'	62	150.0
	L7	526° 42'43"E	400.55'	C3	350.
	LØ	563° 17'17"W	43.00'	C4	54.0
•	L9	526° 42'43"E	301.00'	<b>C</b> 5	17.0
	LIO	N63" 17'17"E	60.00'	C6	190.0
	LII	N26° 27'02"W	74.41'	73	190.0
~	LI2	NGT 44'56"W	9.82'	63	50.0
-	LI3	542' 23'08"E	125.34'	Cq	470.

Chief, DEVELOPMENT ENGINEERING DIVISION Ket Sle Lipolic CHIEF, DIVISION OF LAND DEVELOPMENT OB

NY

50.00'

C9 470.66'

162.93'

228.71

DATE

2.3.14 DATE

**9-18-14** DATE

CURVE #	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
CI	330.00'	136.18'	135.21	N51" 27'59"E	023' 38'37"
C2	150.00'	40.00'	39.88'	N47" 17'04"E	015" 16'47"
СЗ	350.00'	154.98'	153.72'	N67" 3634"E	025' 22'14"
64	54.00'	84.82'	76.37'	518° אידוידו	089" 59'58"
<b>C</b> 5	17.00'	26.70'	24.04'	518° 17'17"W	090.00,000"
C6	190.03'	138.59'	135.54	N46" 51'18"W	041° 47'16"
C7	190.00'	198.66'	189.74'	N37" 47'41"W	059" 54'31"
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CURVE TABLE

226.46'

ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 135 LOT A-21, 135 LOT A-22 ADDRESS, 6450 MANGION LANE L5T1 / F.414, LIO585 / F.957, LI2205 / F.340, L5T83 / F.600, L5341 / F.78, L4433 / F.437, L6153 / F.640, L6135 / F. 640 GRID, IT & 18, ZONE: M-1, TAX MAP NO. 31 Ist ELECTION DISTRICT, CENSIS TRACT 6012.02 WATER CODE: 400, SEVER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS T120 OAKLAND MILLS ROAD, COLIMEIA, MARYLAND 21046 PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS
HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 1120 OAKLAND MILLS ROAD, COLIMBIA, MARYLAND 21046 PHONE (410) 313-2700

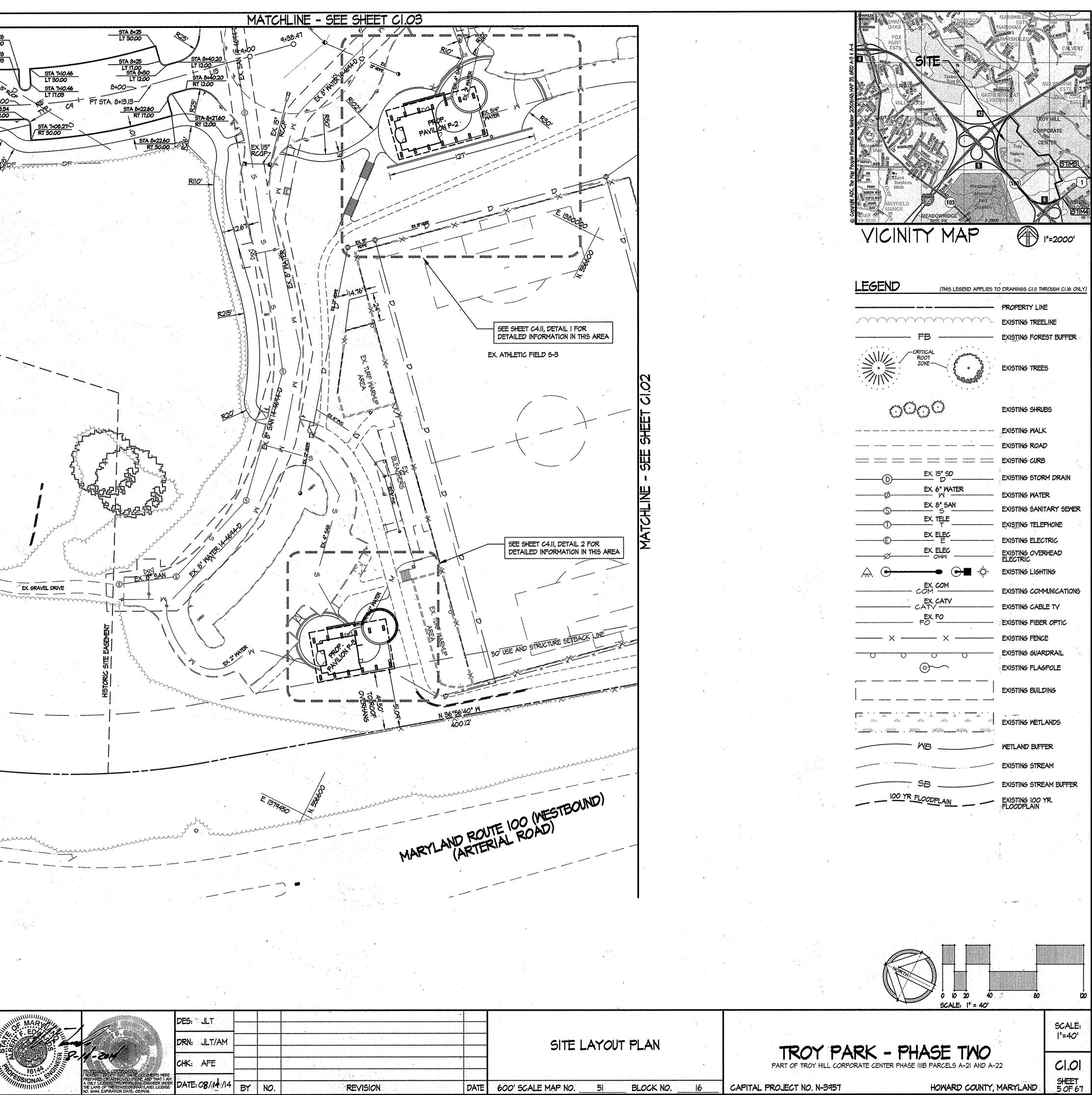
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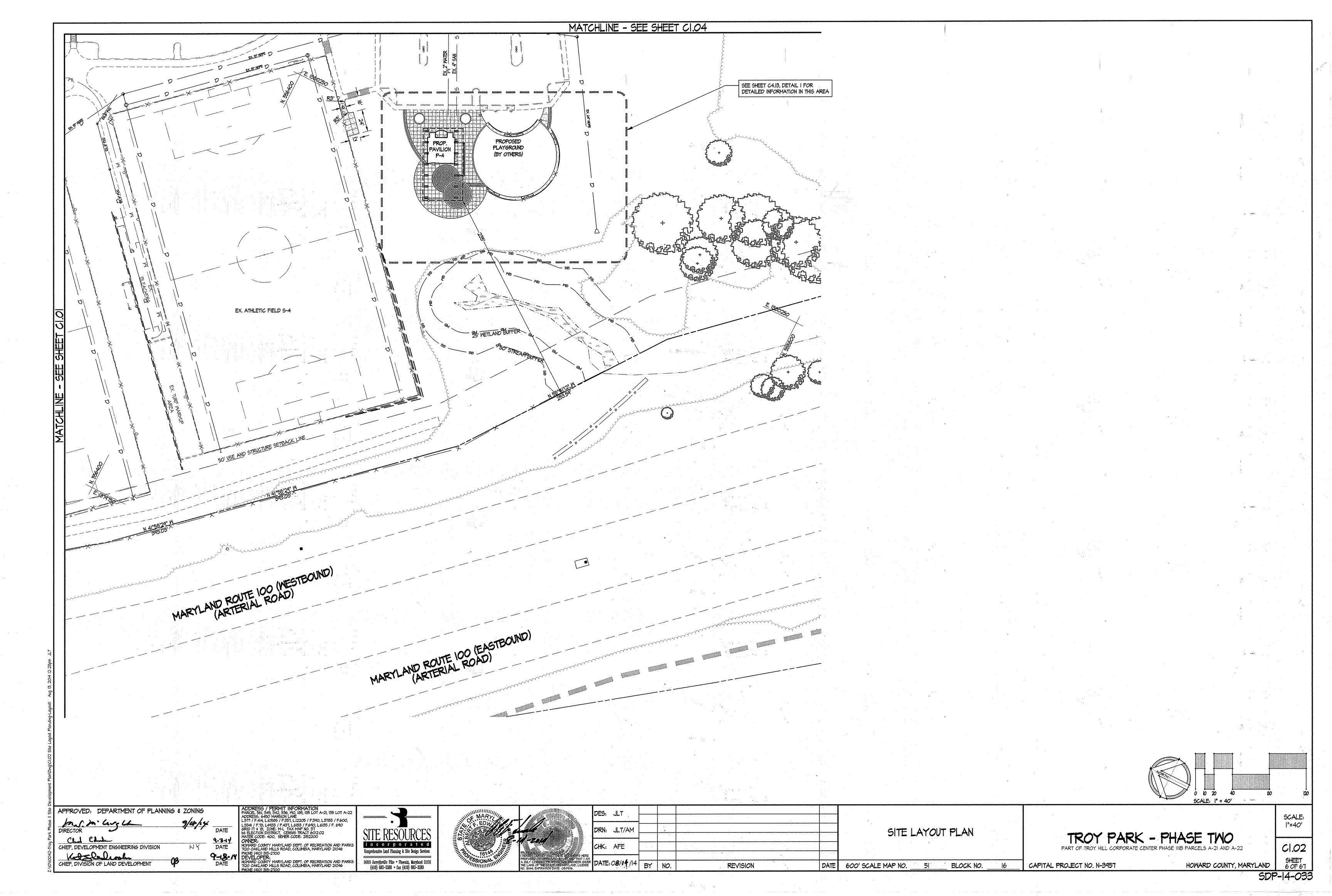
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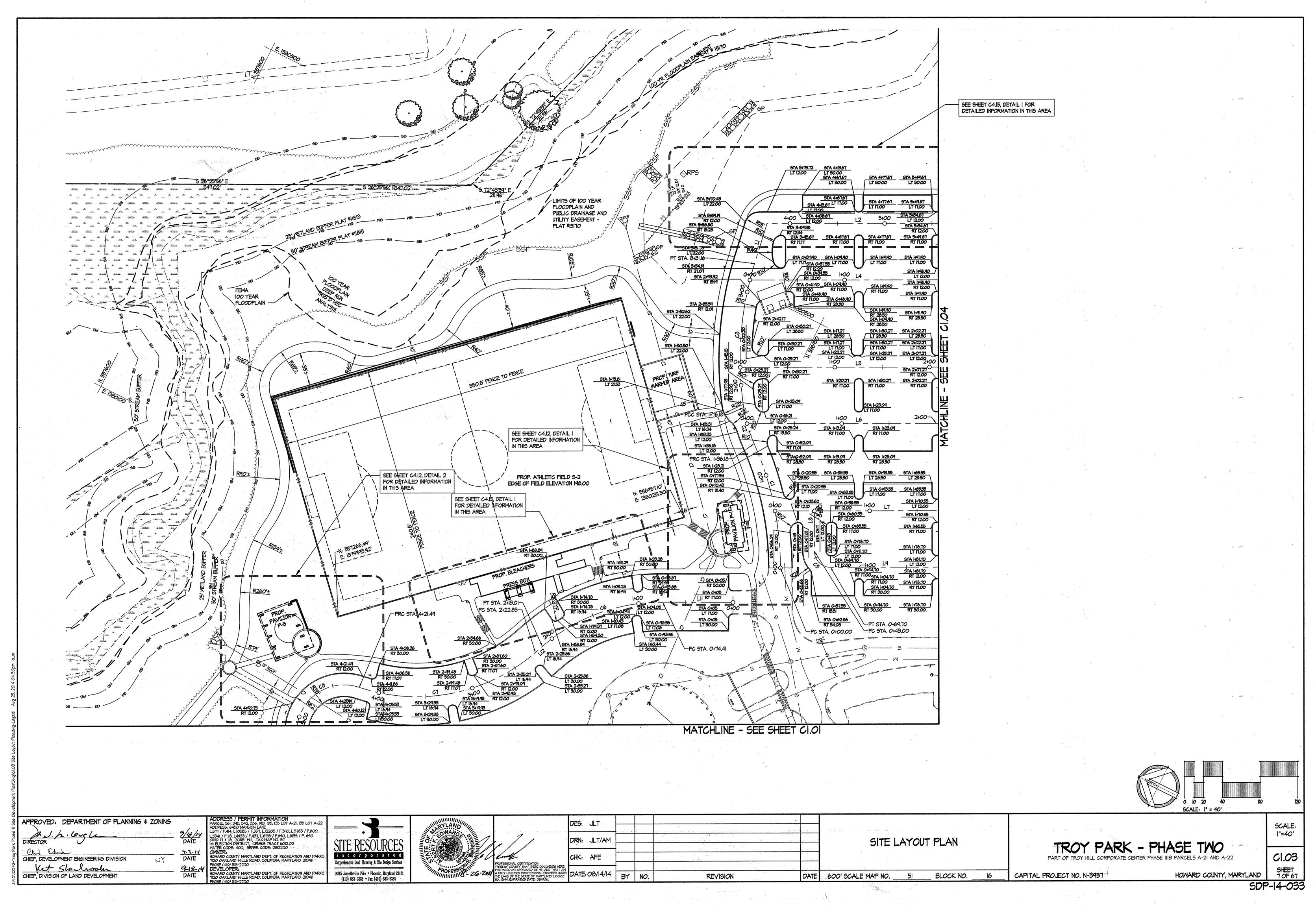
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BLOCK NO.

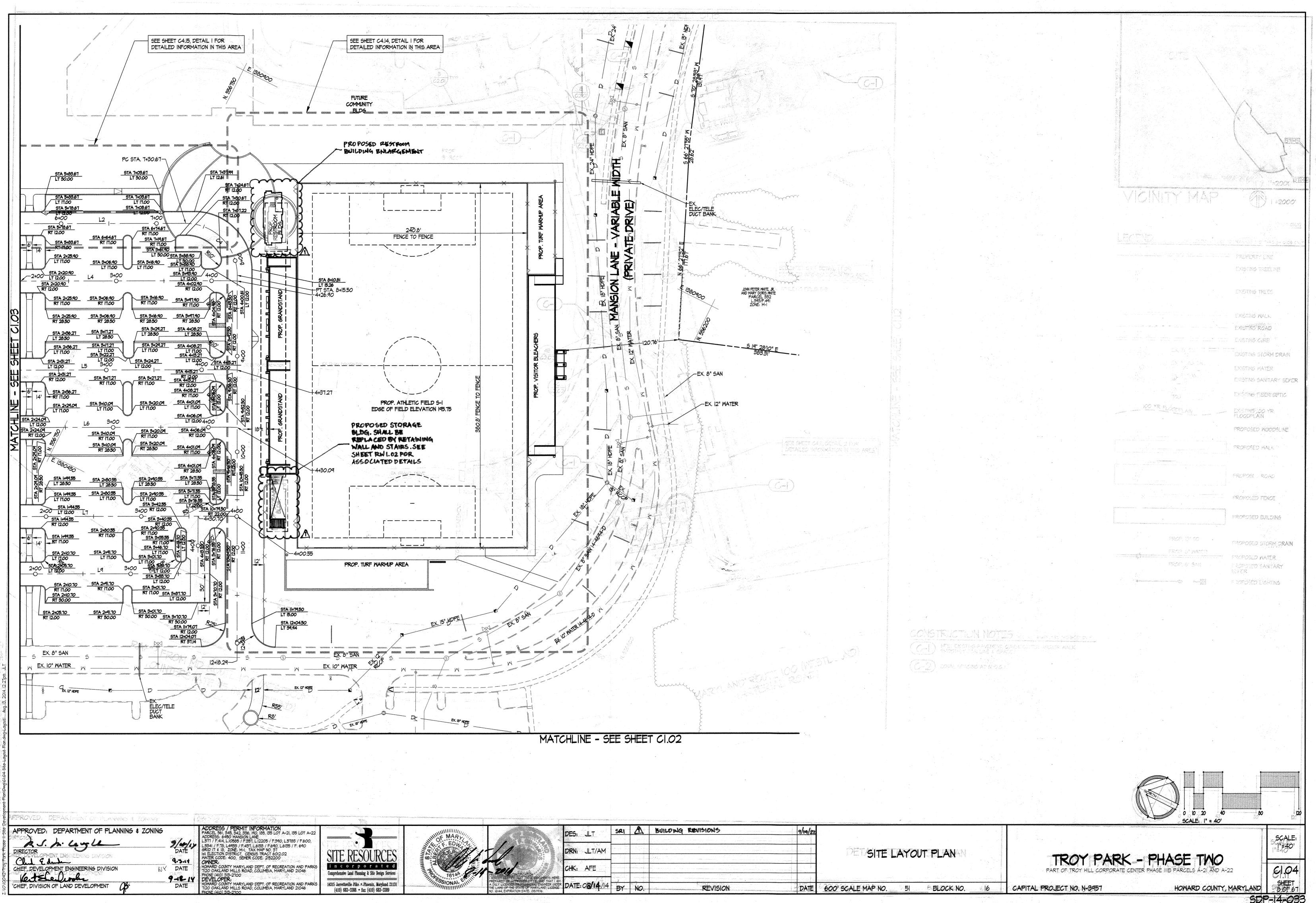
CAPITAL PROJECT NO. N-3957

HOWARD COUNTY, MARYLAND SHEET 5 OF 67 SDP-14-033



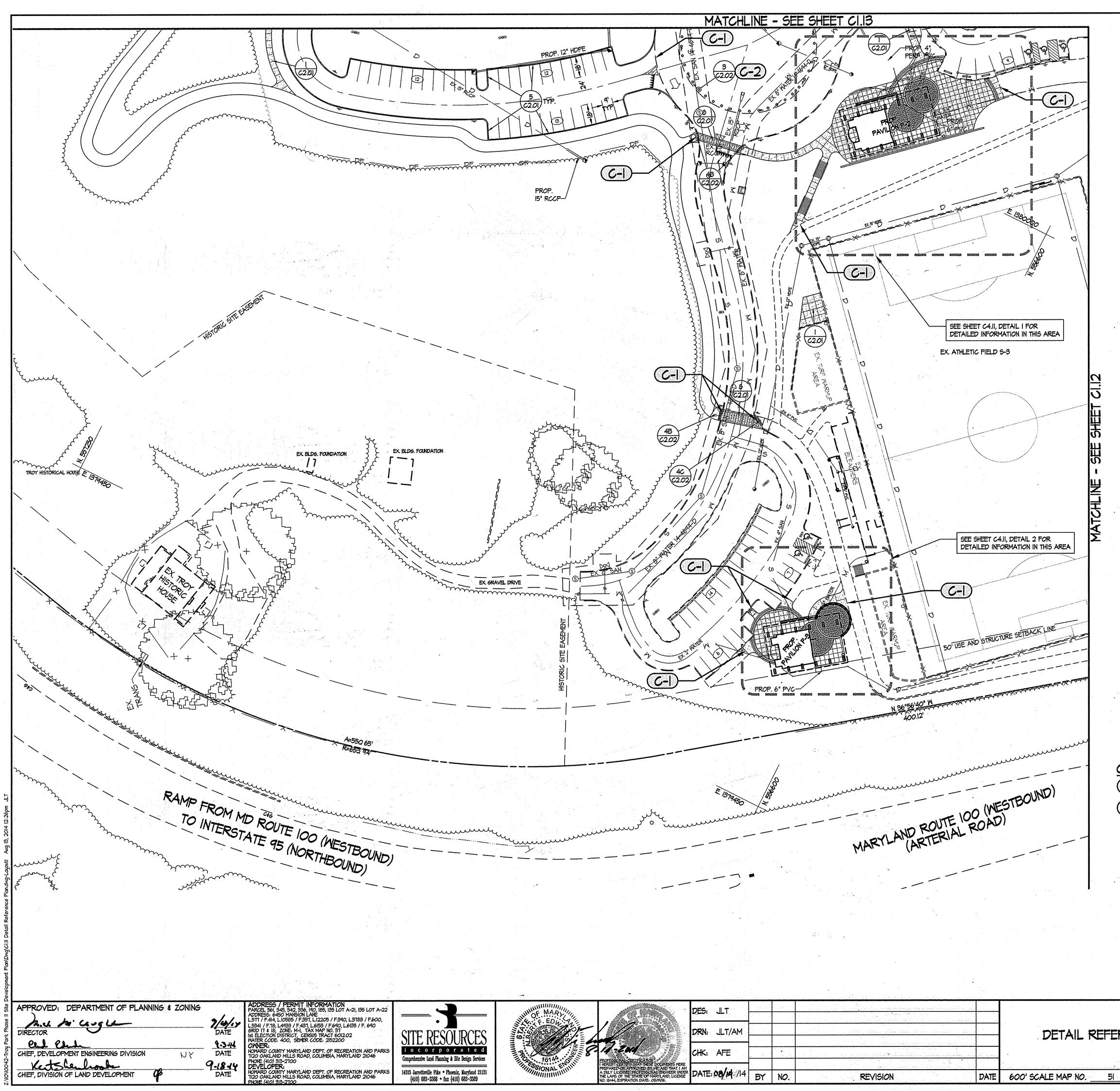


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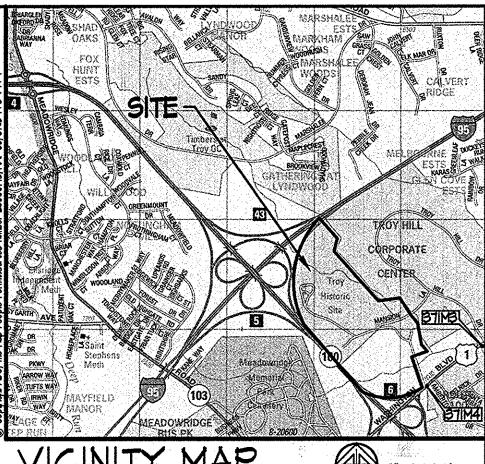




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# VICINITY MAP

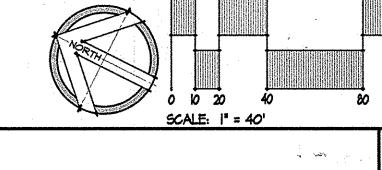
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	EXISTING CURB
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EX. 6" WATER	EXISTING WATER
EX. 8" SAN	EXISTING SANITARY SEVER
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100 YR FLOODPLAIN	Existing 100 yr. Floodplain
	PROPOSED WOODSLINE
	PROPOSED WALK
· · · · · · · · · · · · · · · · · · ·	PROPOSED ROAD
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CONSTRUCTION NOTES (THESE NOTES APPLY TO THIS SHEET ONLY) C-I MEET EXISTING PAVEMENT, CURB& GUTTER AND/OR WALK SMOOTHLY FOR LINE & GRADE.

C-2 EQUAL SPACING AT 6' O.C.±

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BLOCK NO.

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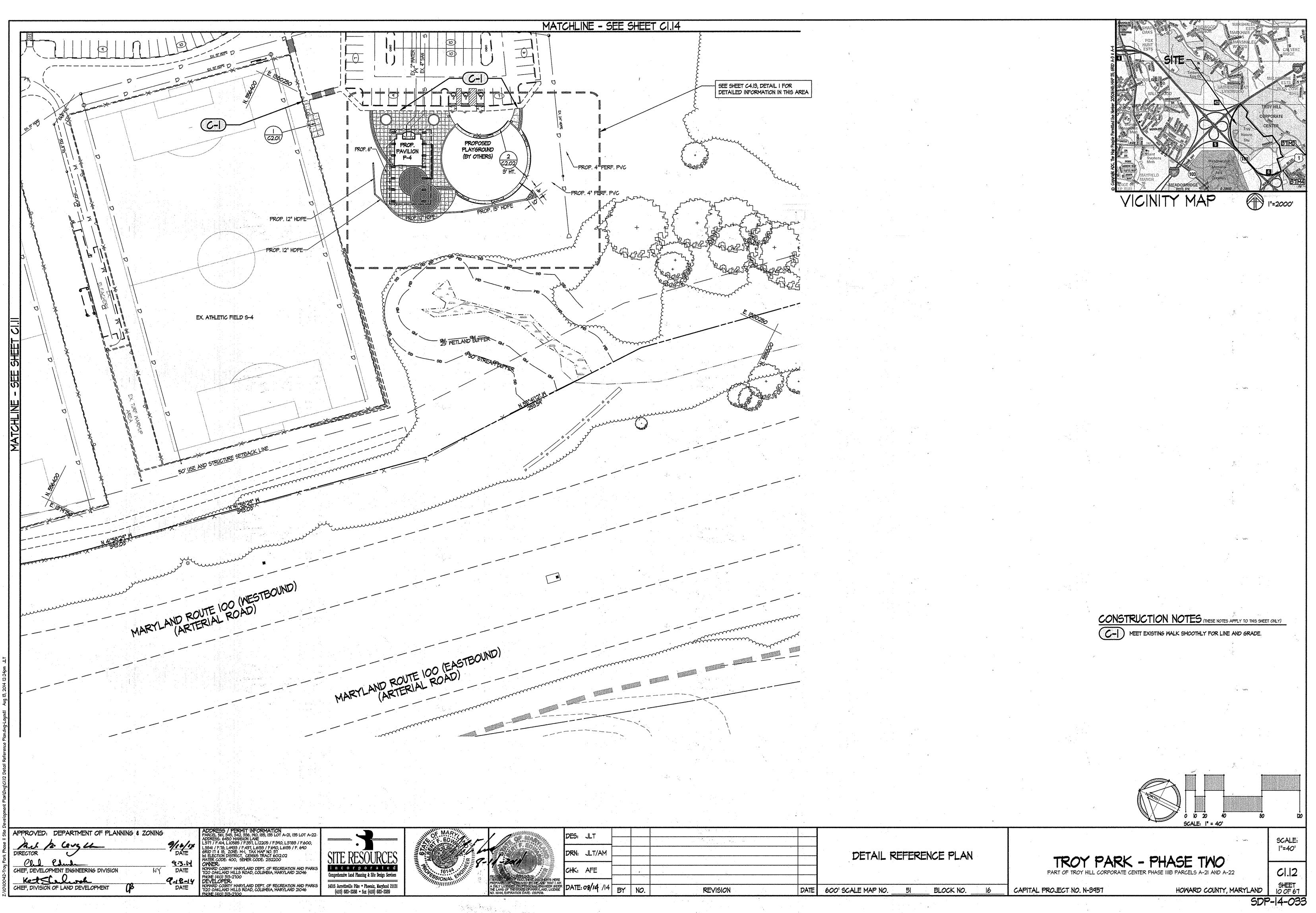
CAPITAL PROJECT NO. N-3957

HOWARD COUNTY, MARYLAND 90F67

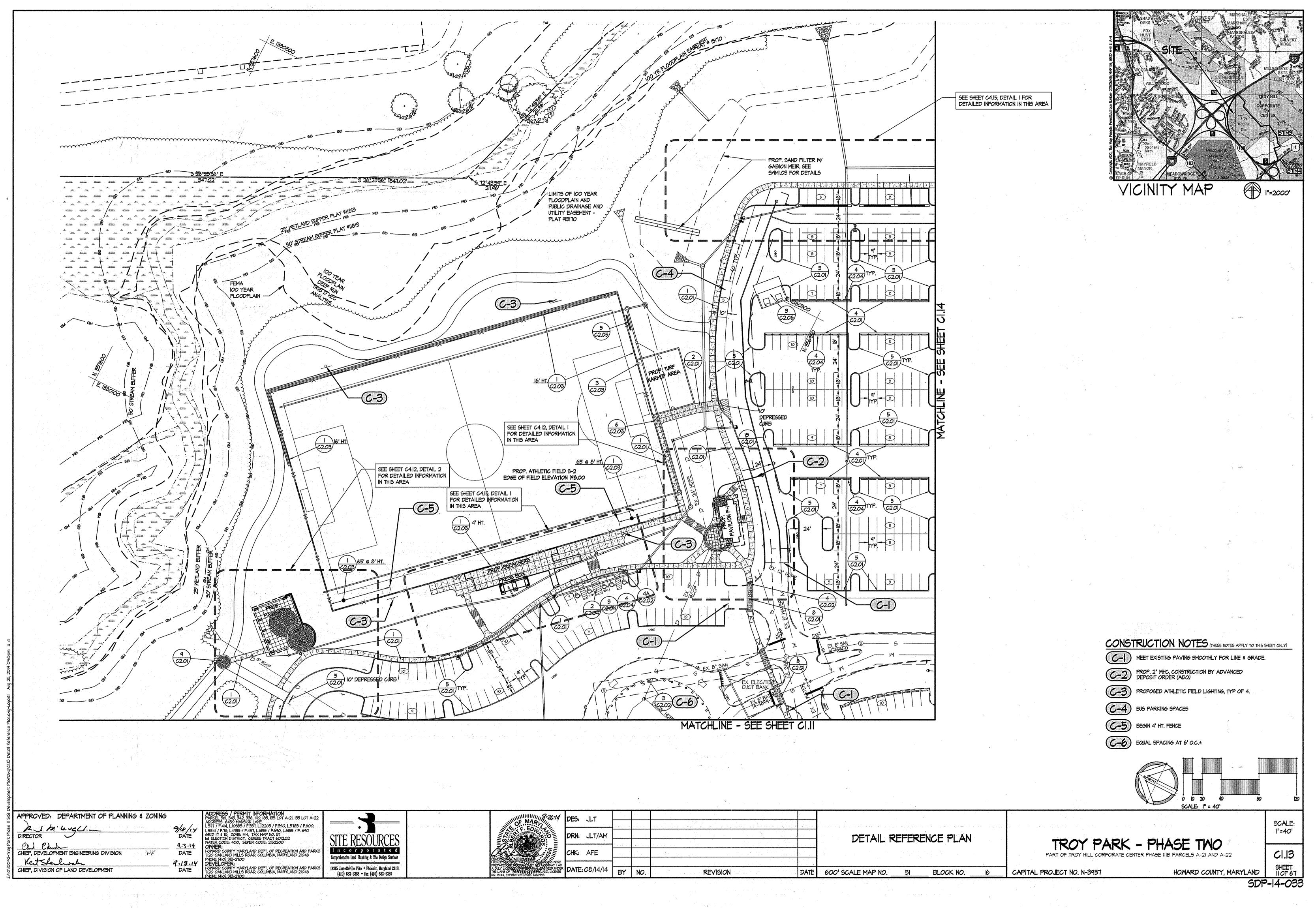
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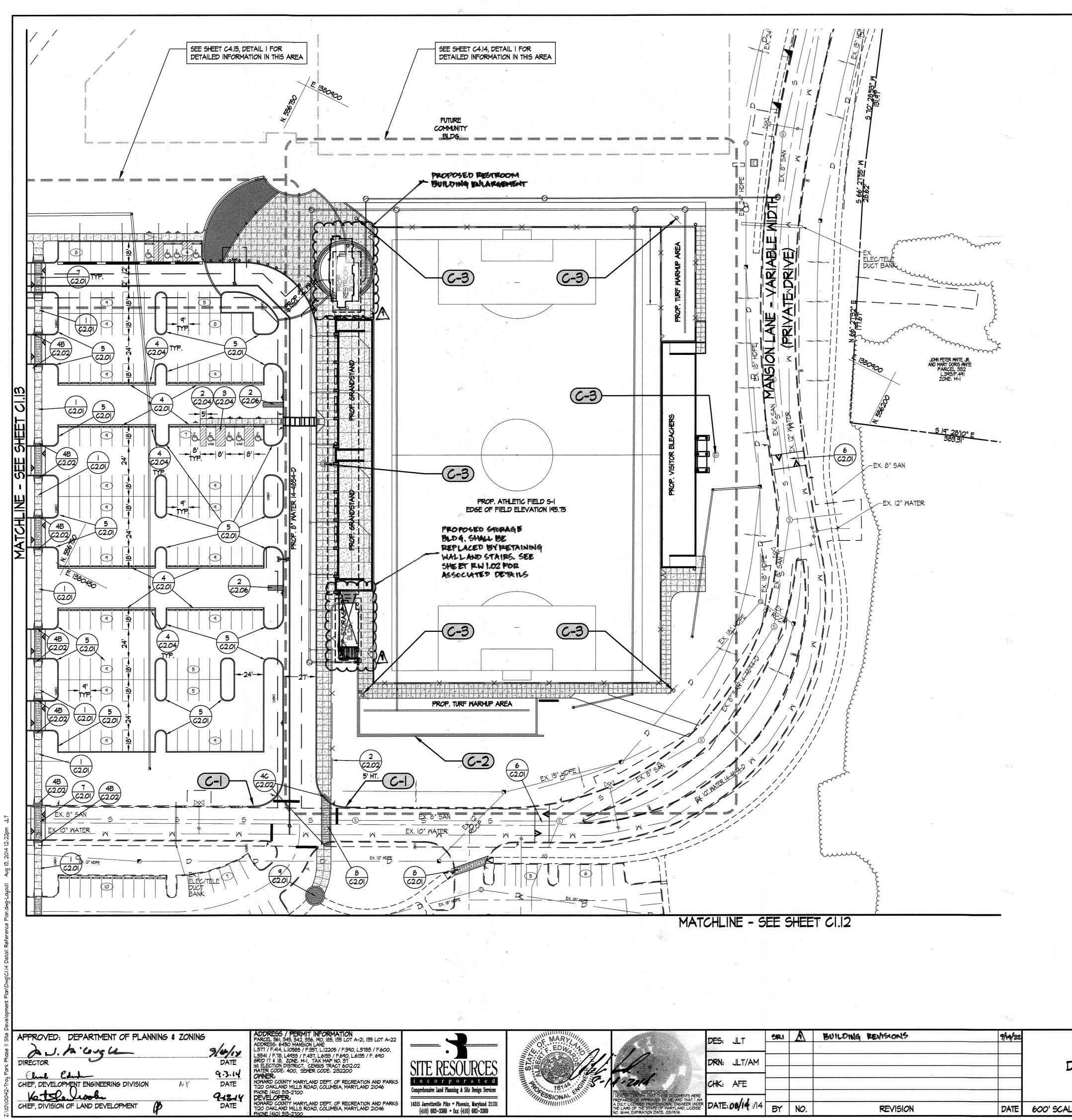
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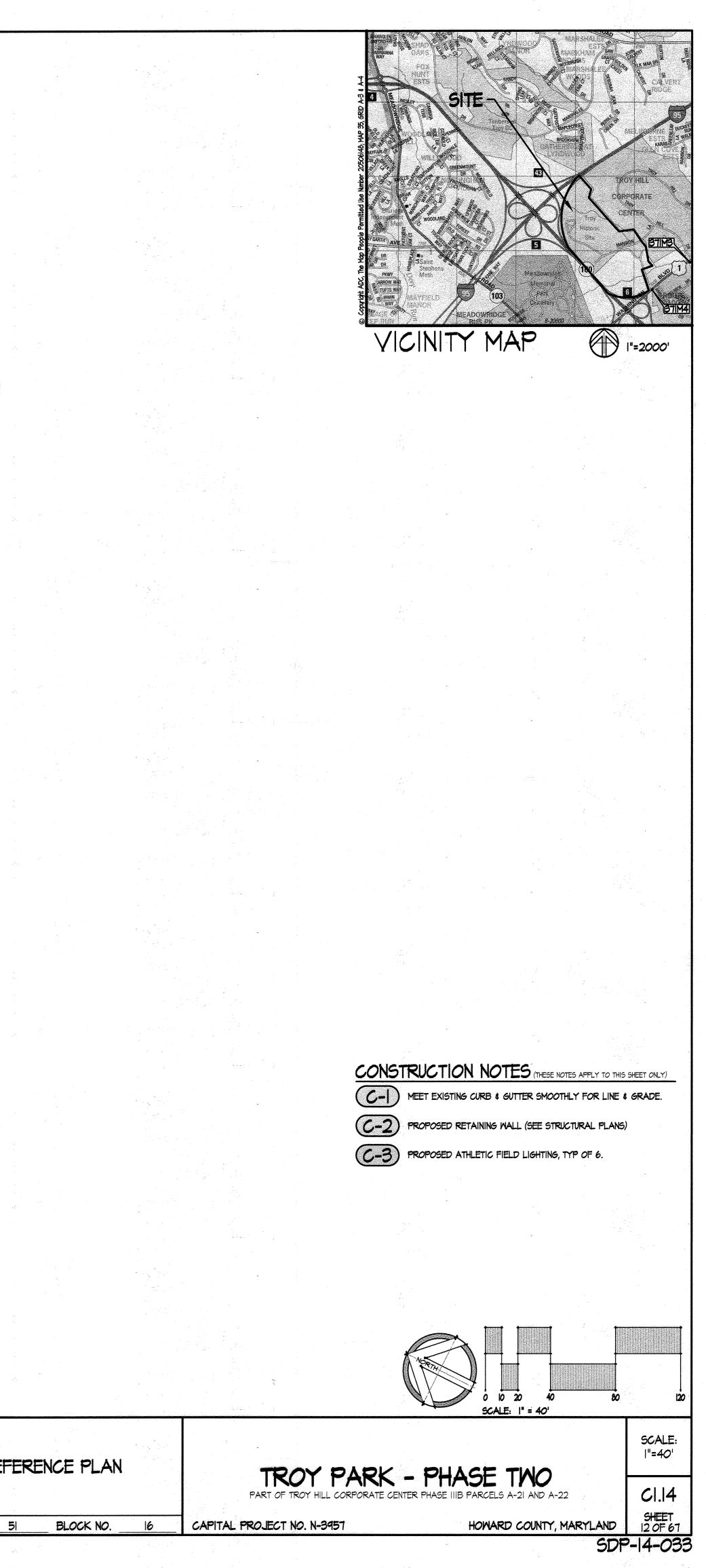


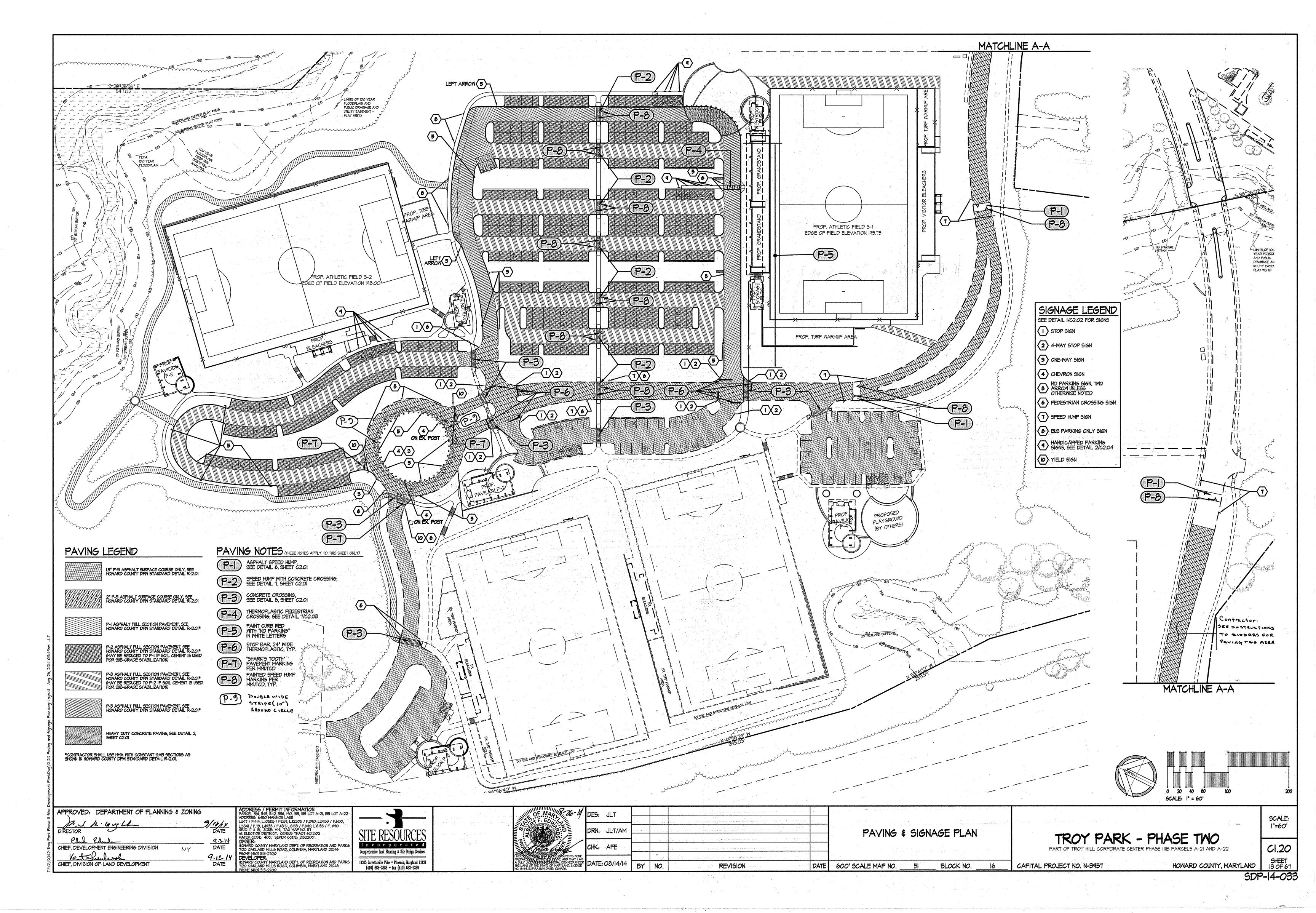
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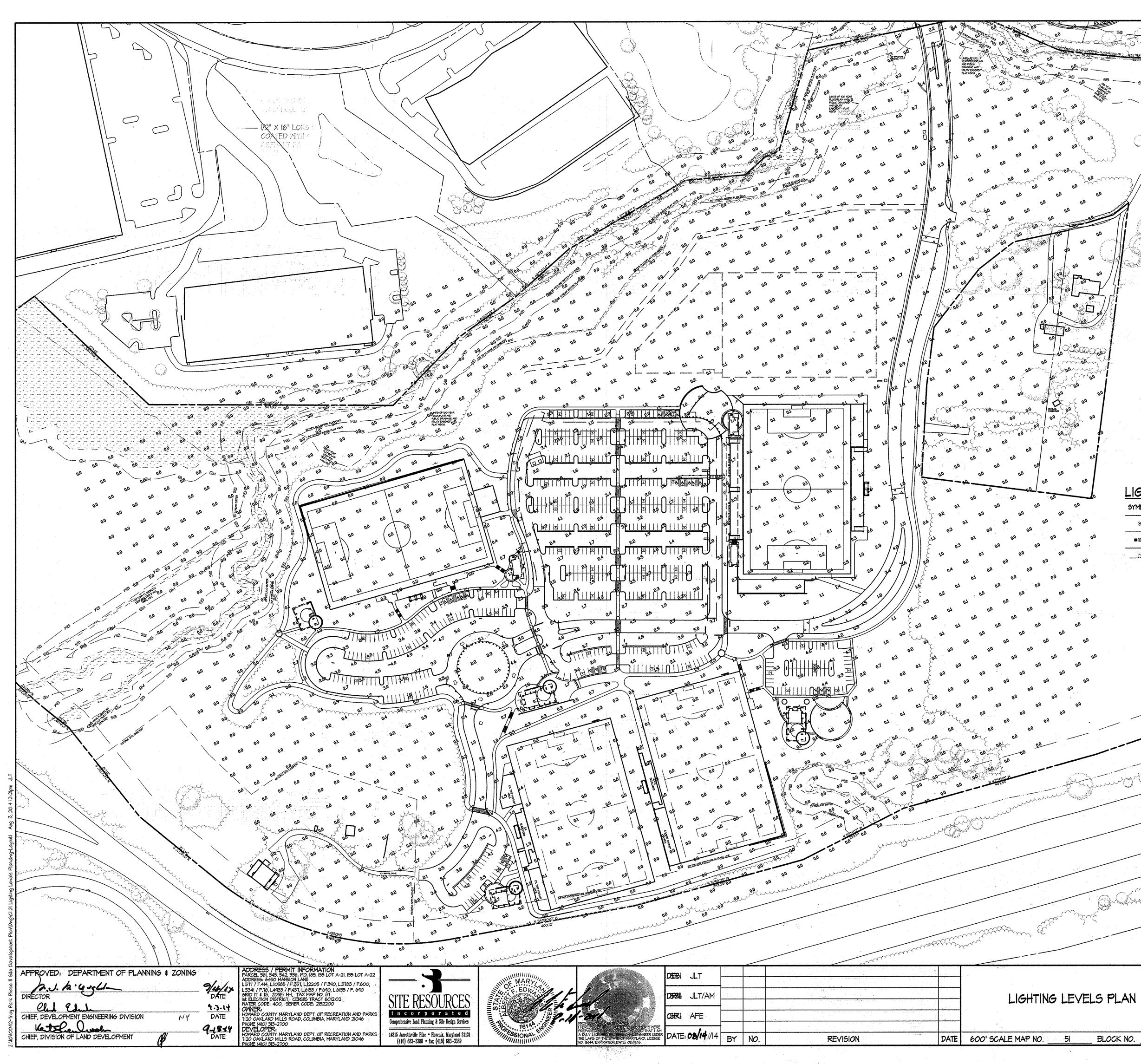


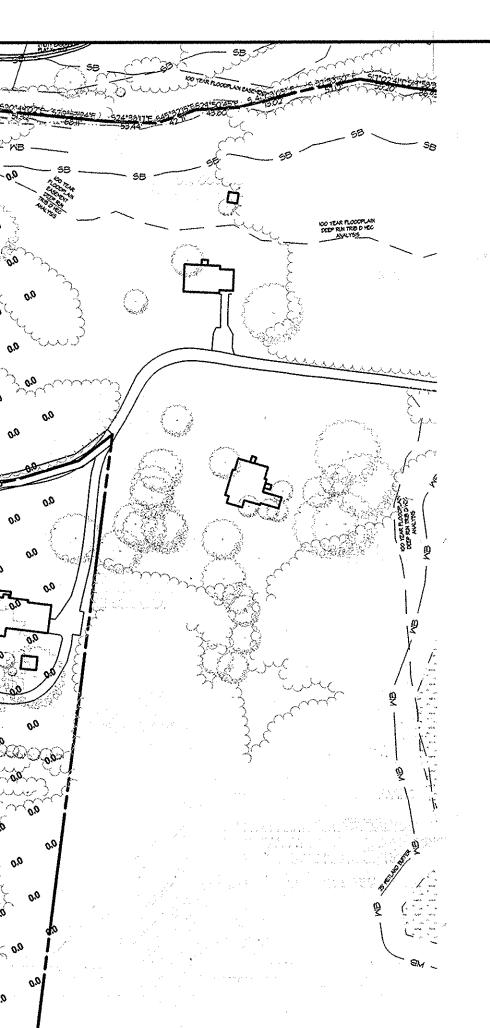


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## LIGHTING FIXTURE SCHEDULE

SYMBOL				LAMPS		1.2.1. V/ 14F	MONTHA	MANU. / MODEL No.
	TYPE	DESCRIPTION	VOLTS	NO.	TYPE	- MAX W.	MOUNTING	(OR APPROVED EQUAL)
₢■	STREET	SHOEBOX FIXTURE MOUNTED AT 30' ON A FIBERGLASS POLE.	<b>L</b>		LED	250	30' POLE	XSB CROSSOVER AREA LIGHT
₩⊖₩	STREET	DOUBLE SHOEBOX FIXTURE MOUNTED AT 30' ON A FIBERGLASS POLE.	-	2	LED	250	30' POLE	XSB CROSSOVER AREA LIGHT
	SPORT FIELD	MULTIPLE FIXTURES MOUNTED AT 70 '- 110' ON A STEEL POLE.	-	VARIES	MZ	1500	70' - 110' POLE	MUSCO

0 20 40 60 SCALE: 1" = 60'

TROY PARK - PHASE TWO

PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

LIGHTING LEVELS PLAN

16

CAPITAL PROJECT NO. N-3957

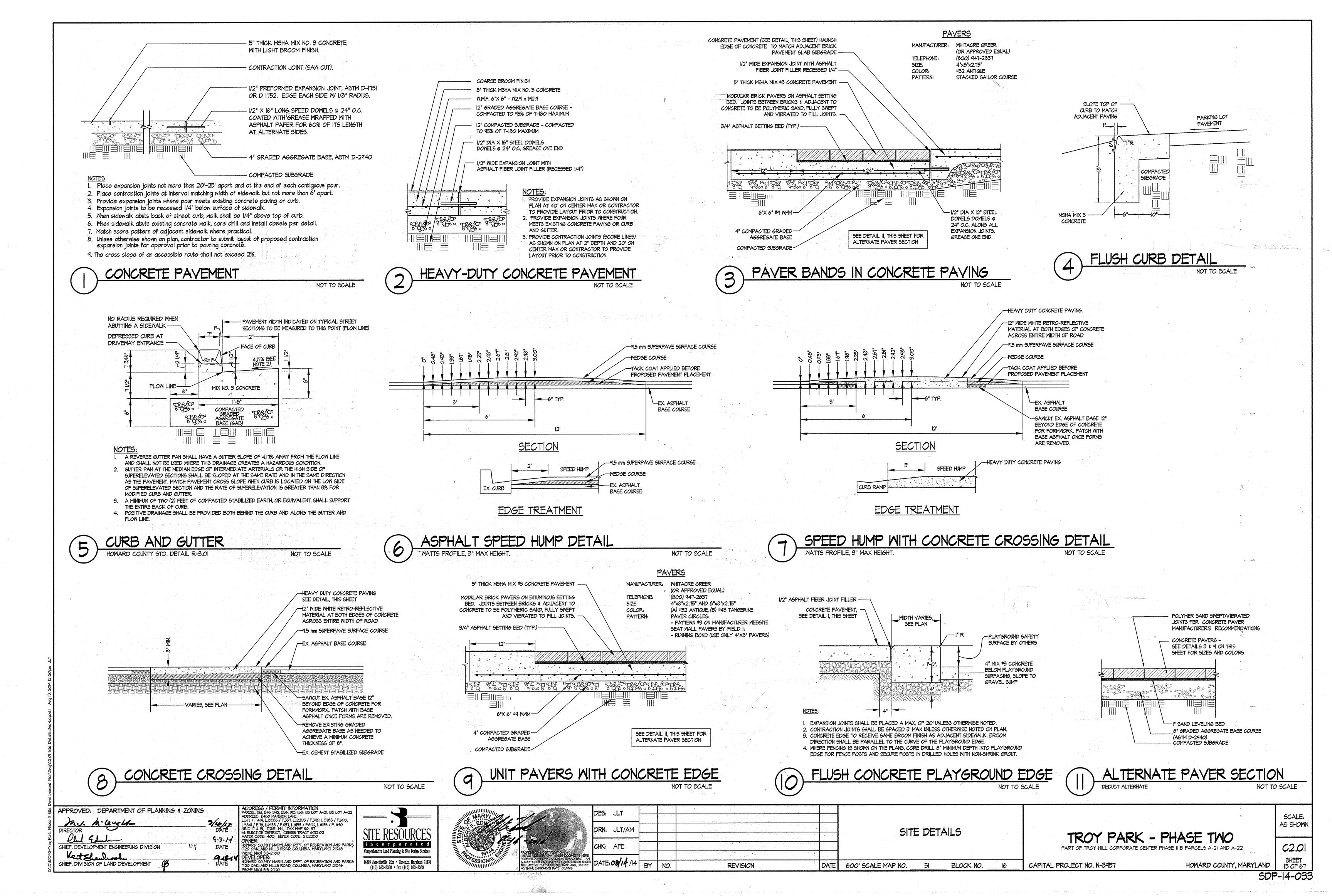
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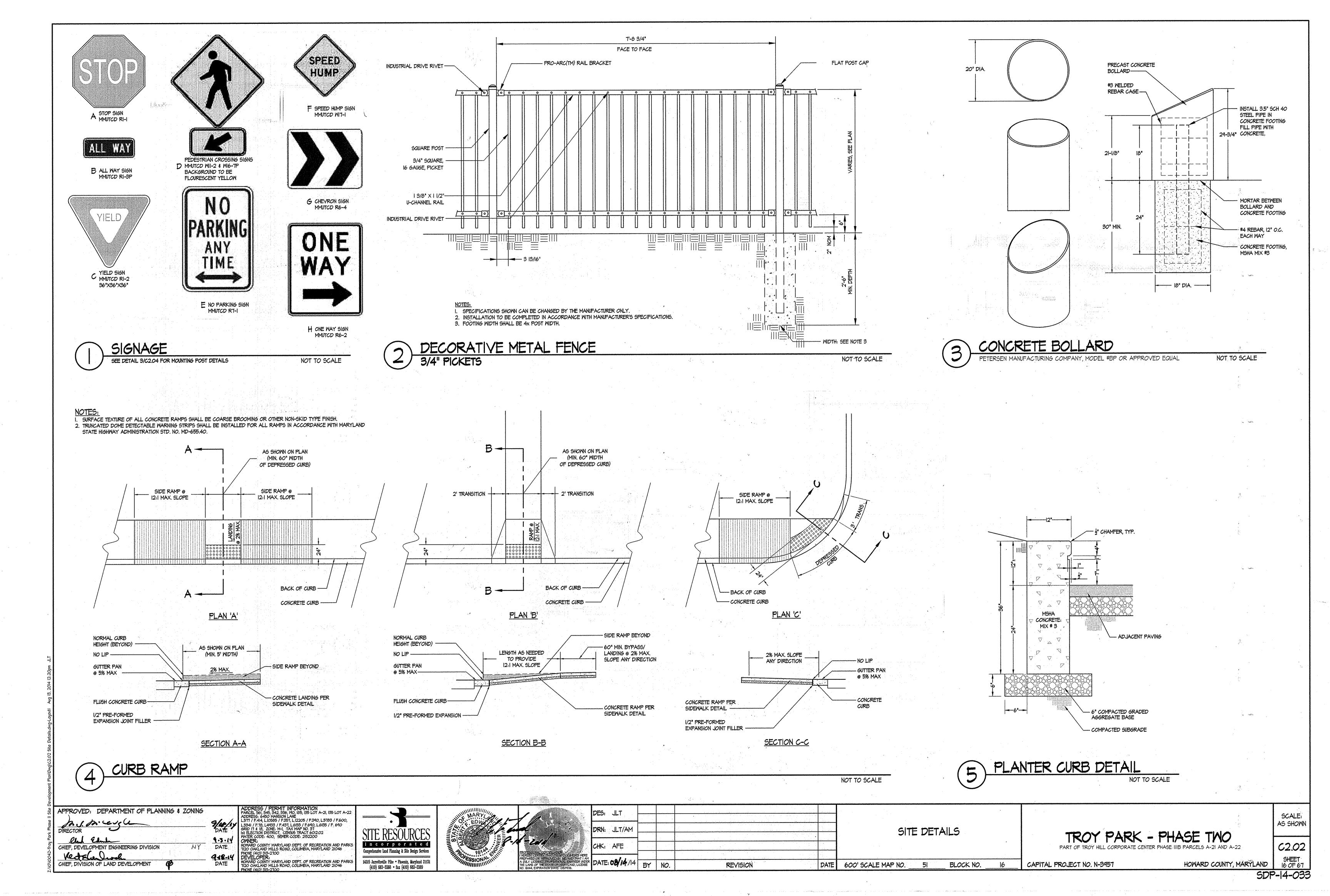
HOWARD COUNTY, MARYLAND 14 OF 67

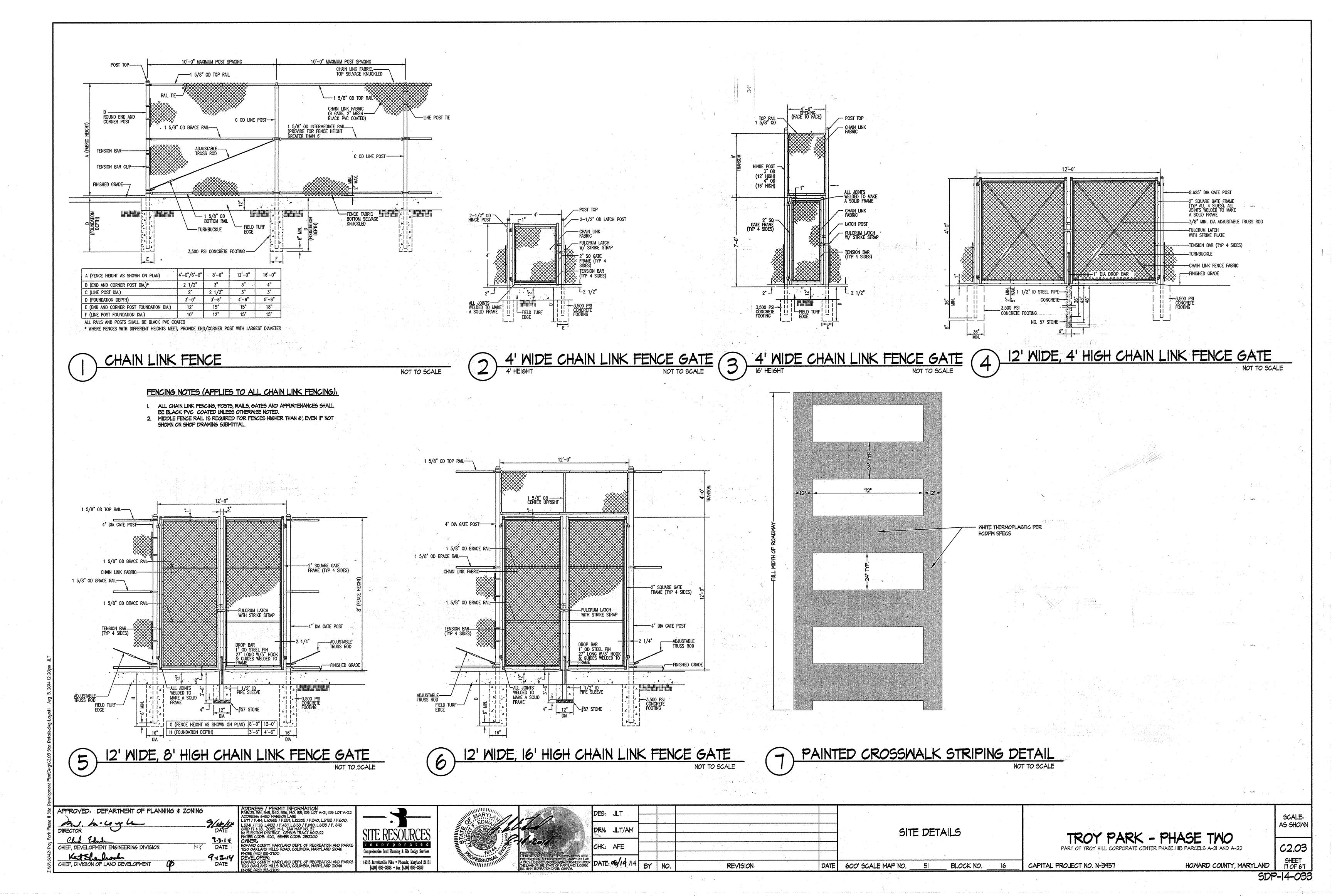
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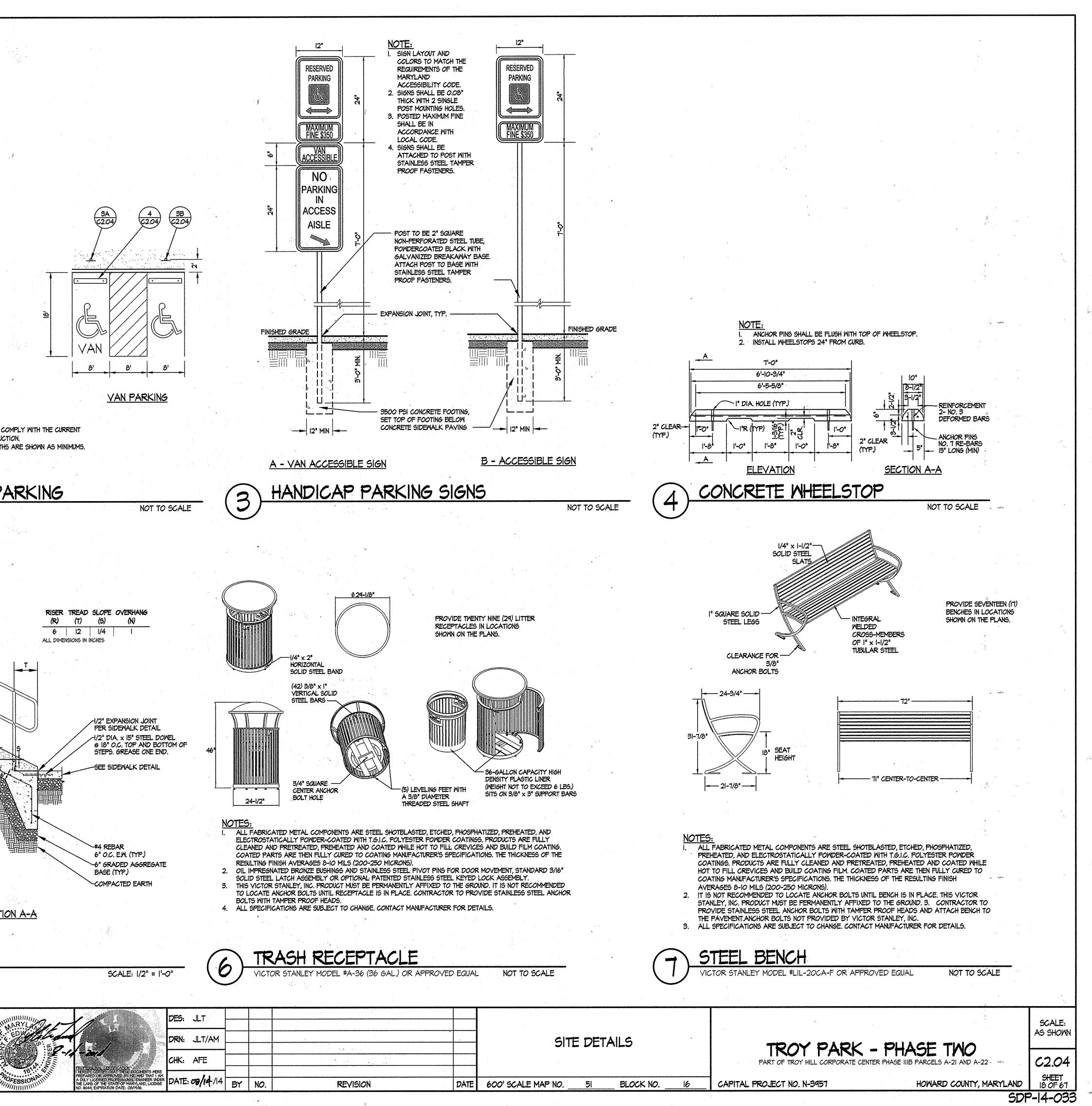
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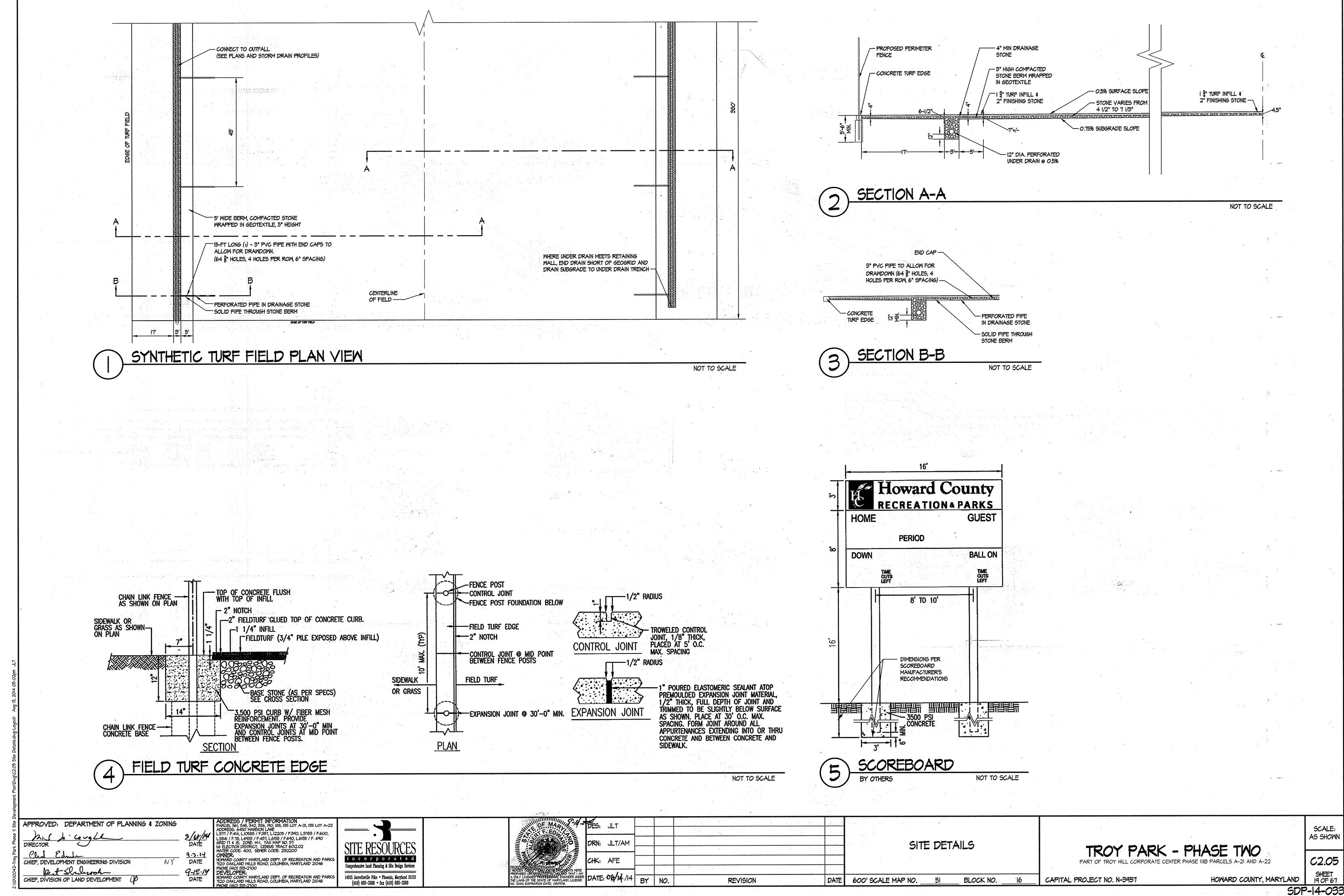




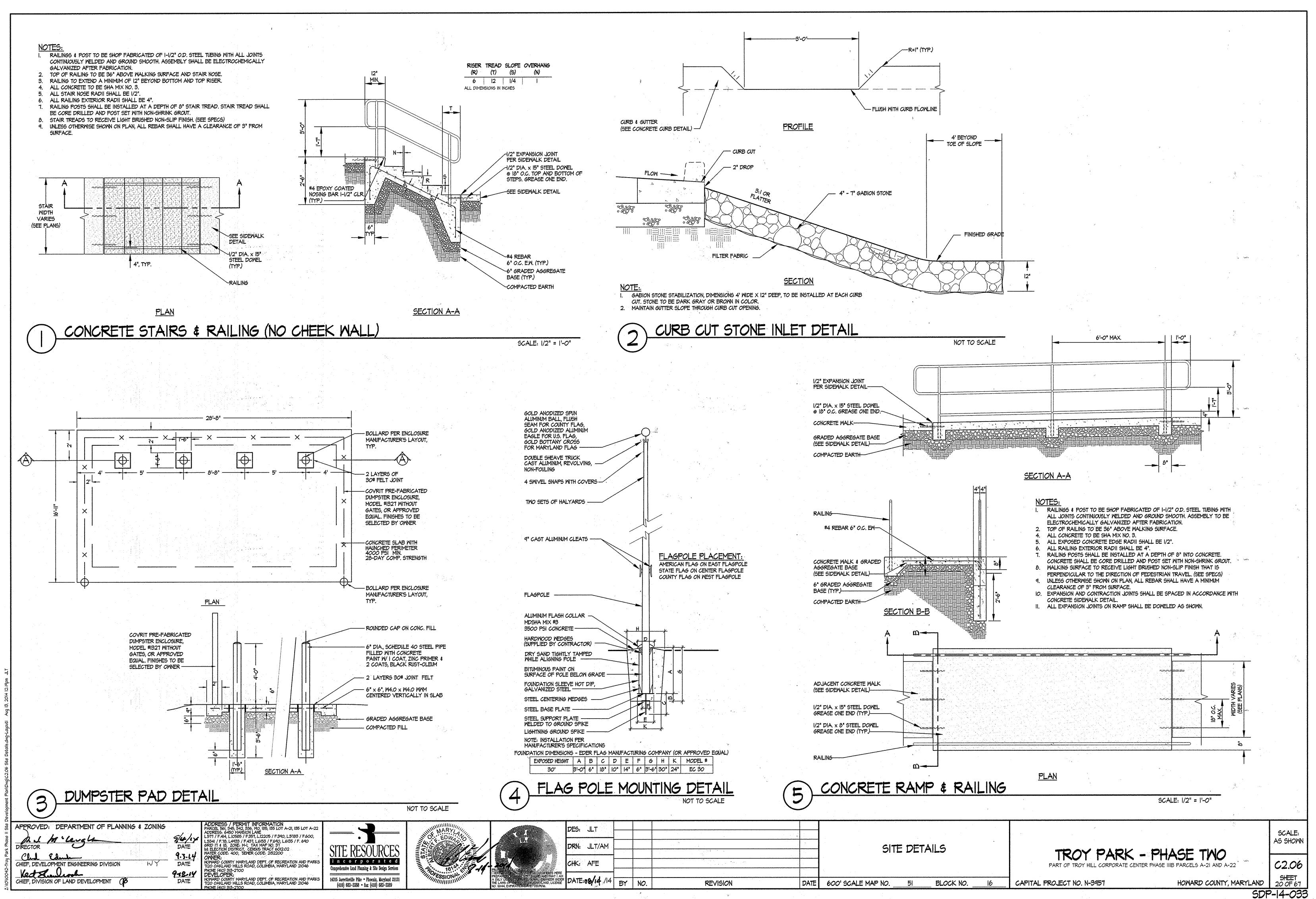


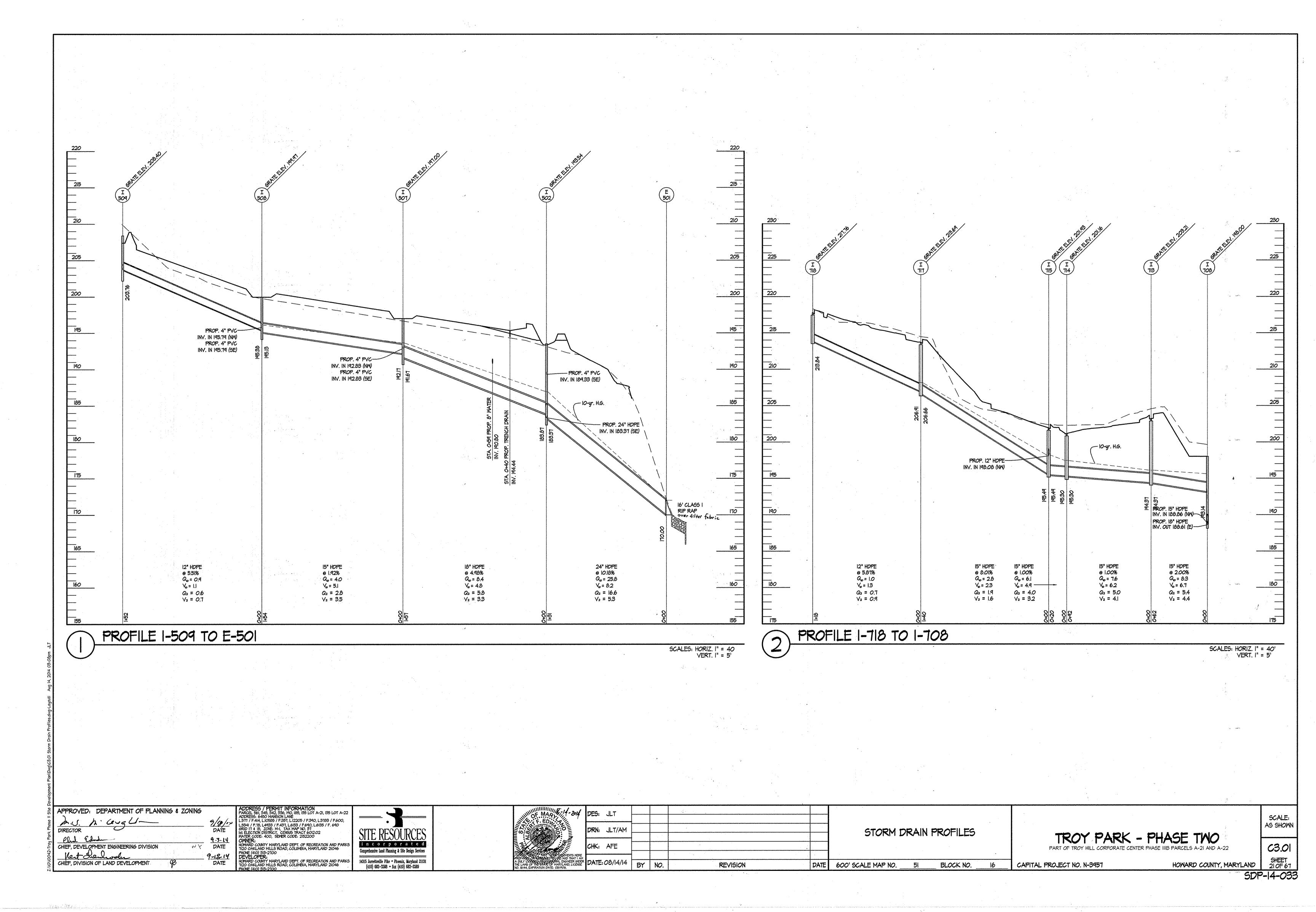
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8" Min. Low Permeable S		Keystone Cap Unit Keystone Compac III Unit		
	1/8"	<u> </u>		
Retained Soil		8" /- Finished Grade H		
(3/4" Crushed Rock or Stone)				
Approximate Limits				8' 5' 8'
of Excavation 4" Perforated PVC Draina		Inreinforced Concrete or Crushed Stone Leveling Pad		╺───₽┤╡───₽┤
Wrapped in Filter Fabric (If Required)	(Foundation Soil)		Š	STANDARD PARKING
			NOTES:	CAP PARKING AND ACCESS SI
	S A MAXIMUM OF 36" EXPOSED HEIGHT	He design or exact dimensions of t	ADA F	REQUIREMENTS AT TIME OF COUNS STALL AND ACCESS AISLE
SEGMENTAL BLOCK RETAI & IS THE RESPONSIBILITY	INING WALL, SPECIFIC DESIGN & DETAIL OF THE WALL UNIT SUPPLIER IN CONJUN	ING OF THE WALL SHALL BE DETERMINE CTION WITH THE INSTALLING CONTRACTO	Ð	a an
	KE" TO MATCH EXISTING WALLS ON THE		$\sim$	
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	BE SHOP FABRICATED OF 1-1/2" O.D. S ED AND GROUND SMOOTH. ASSEMBLY S			
GALVANIZED AFTER 1 2. TOP OF RAILING TO E	FABRICATION. BE 36" ABOVE WALKING SURFACE AND	STAIR NOSE.		12" 1 Aut 1
4. ALL CONCRETE TO B	A MINIMUM OF 12" BEYOND BOTTOM ANI E SHA MIX NO. 3. D STAIR NOSE RADII SHALL BE 1/2".	D TOP RISER.		MIN
6. CHEEK WALL SHALL E 7. ALL RAILING EXTERIO	BE 2" ABOVE STAIR NOSE AND WALKIN OR RADII SHALL BE 4".		ł	
SHALL BE CORE DRIL	L BE INSTALLED AT A DEPTH OF 8" INT LED AND POST SET WITH NON-SHRINK ( ECEIVE LIGHT BRUSHED NON-SLIP FINISH	GROUT.		
	HOWN ON PLAN, ALL REBAR SHALL HAV		3. [17]	
				N
8" CHEEK WALL				
A		Â	7 7 #4 EPOXY COAT	
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ROVED: DEPARTMENT C	OF PLANNING & ZONING	ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 135 LOT / ADDRESS: 6450 MANSION LANE L 511 / F.414, LI0585 / F.357, LI2205 / F.340,	A-21, 135 LOT A-22	
J. h. Log Le		L 577 / F.414, L.10585 / F.357, L.12205 / F.390, L 5341 / F.70, L4933 / F.437, L.6153 / F.690, LJ GRID 17 & 18, ZONE: M-1, TAX MAP NO. 37 Ist ELECTION DISTRICT, CENSUS TRACT 6012.0 WATER CODE: 400, SEVER CODE: 2152200	15003 / F.600, 6135 / F. 640 02	DECUIDCEC
DEVELOPMENT ENGINEERING	DIVISION NY DATE	HOWARD COUNTY MARYLAND DEPT. OF RECRI 1120 OAKLAND MILLS ROAD, COLUMBIA, MARY	EATION AND PARKS	e Land Planning & Site Design Services asrille Pike • Phoenir, Maryland 21131 383-3388 • far (410) 683-3389
DIVISION OF LAND DEVELOPI	9-18-1	PHONE (410) 313-2700	EATION AND PARKS	re Land Planning & Site Design Services tsville Pike • Phoenir, Maryland 21131
	T	7120 OAKLAND MILLS ROAD, COLUMBIA, MART PHONE (410) 313-2700	(410)	583-3388 • fax (410) 683-3389

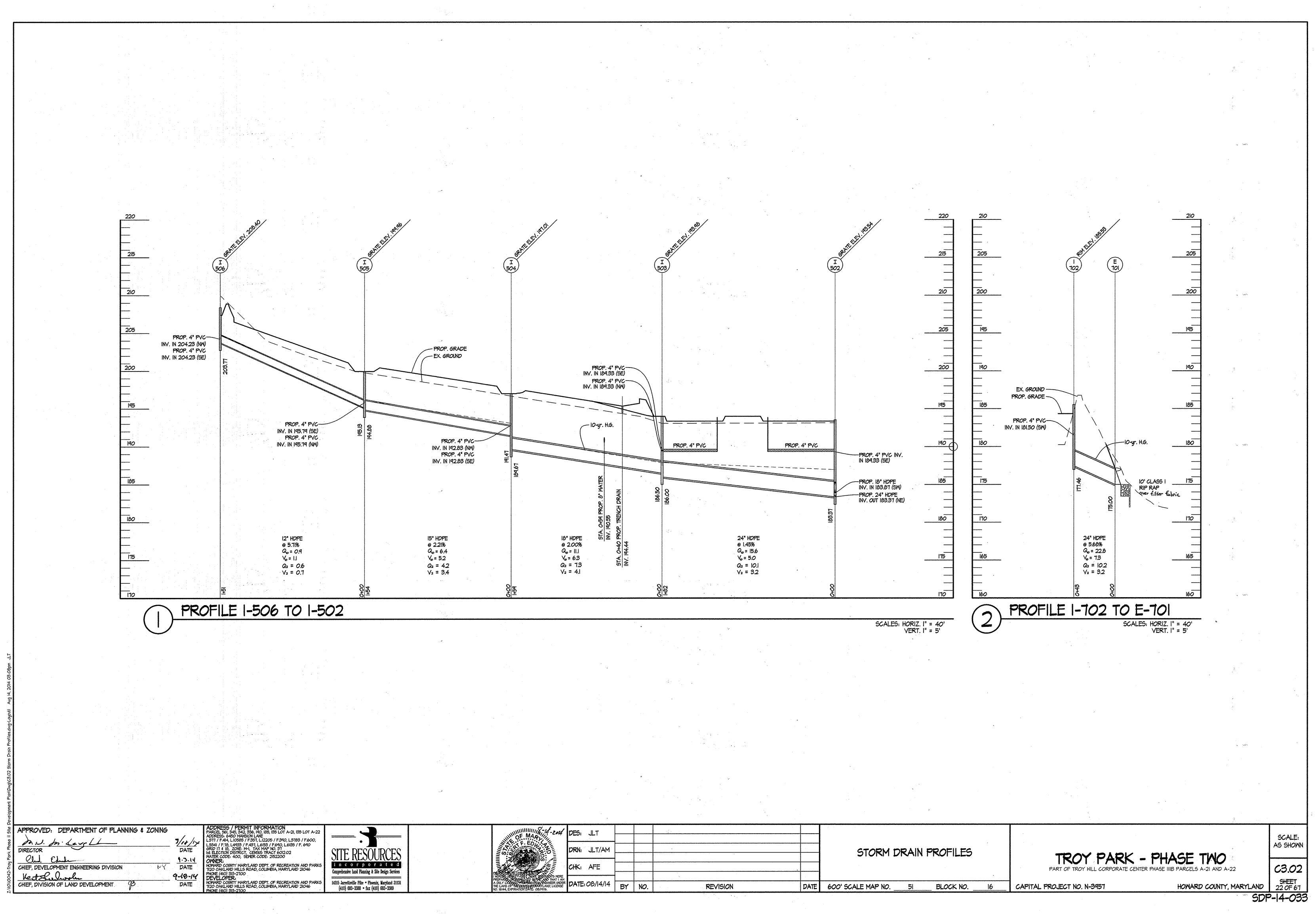


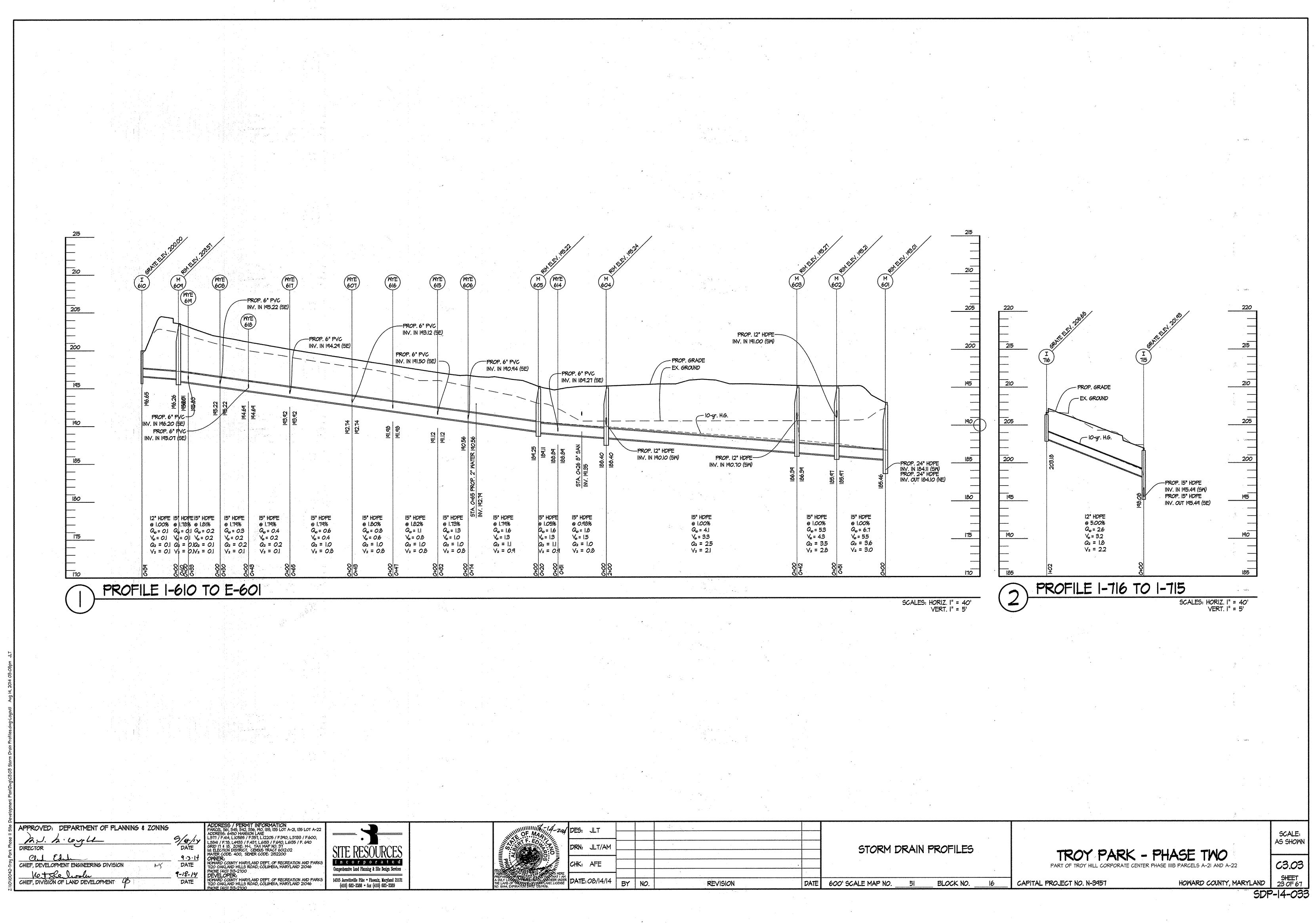


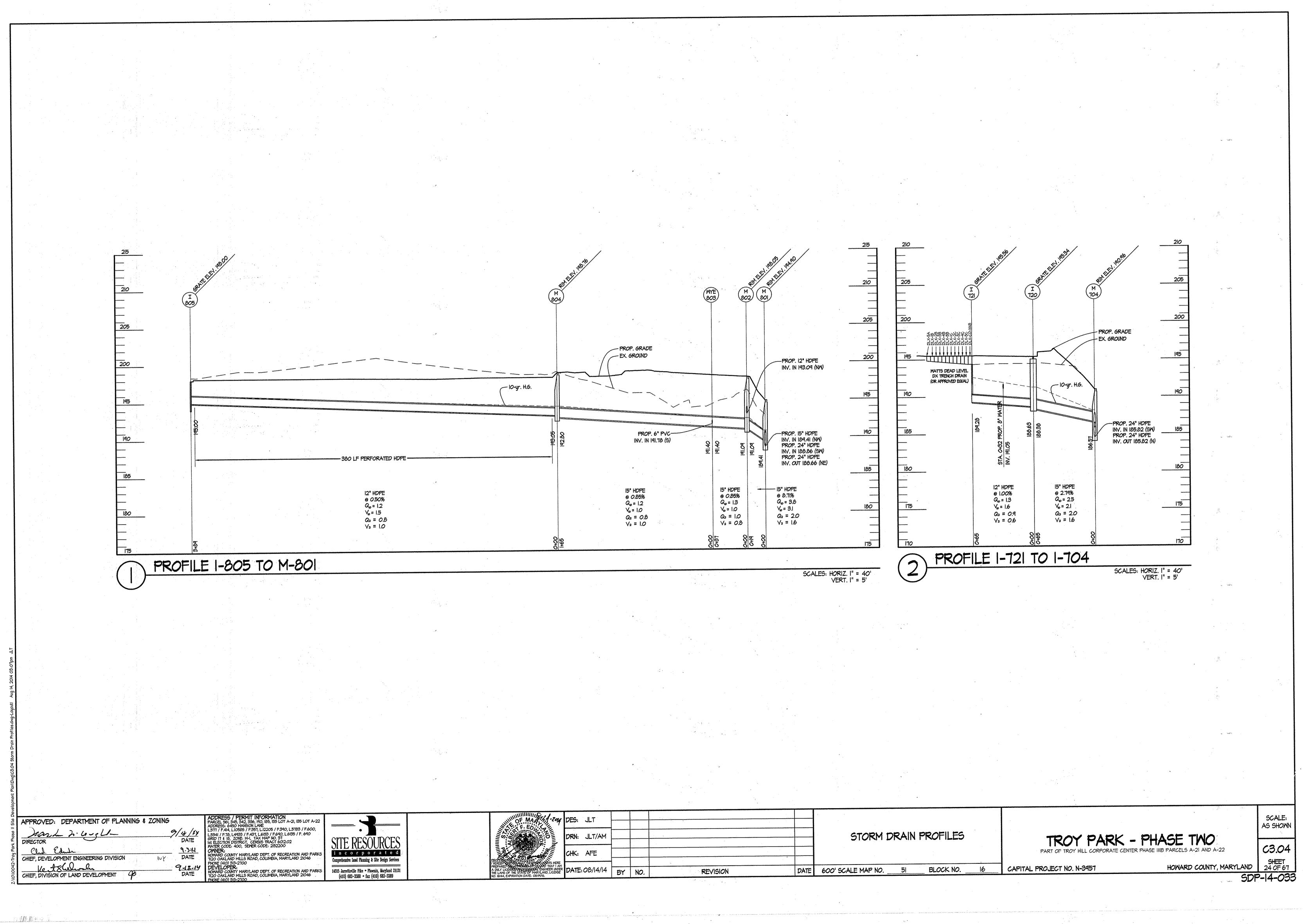


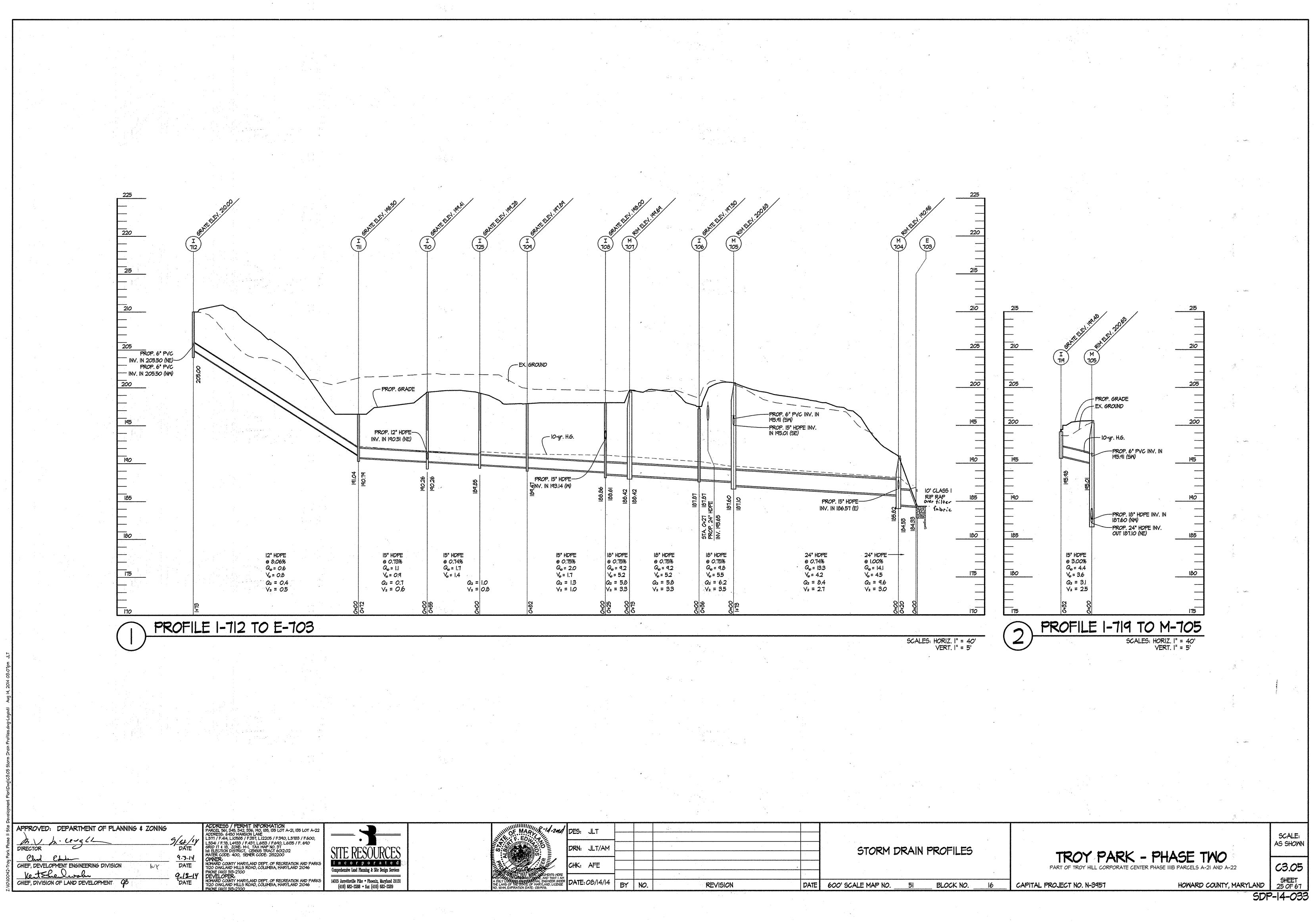




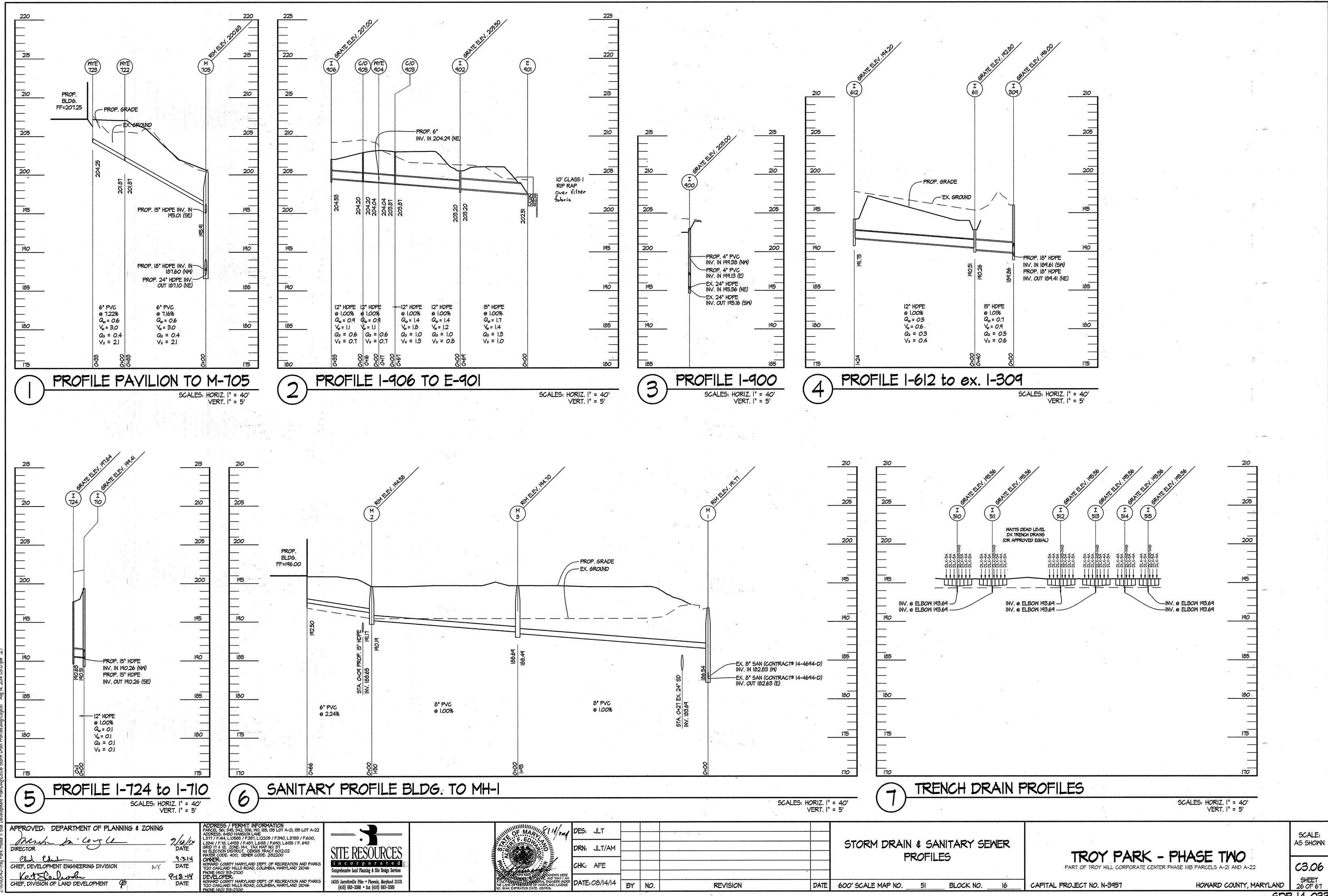








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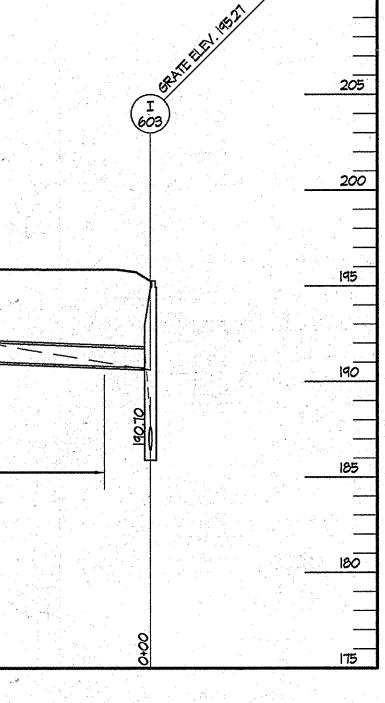
STRUCTURE # STRUCTURE TYP	STRUCTURE TABLE	PROFILE I-		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	<u>190</u> <u>190</u> <u>185</u> <u>185</u> <u>185</u> <u>185</u> <u>185</u> <u>185</u> <u>185</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>190</u> <u>1</u>	13.26 13.26 13.15 13.26		210 	
E TOP ELEV. INV. IN		-621 TO 1-603					PROP. GRADE	EL-189.14	
INV. OUT COORDINATES			V₂ = 0.6	$\begin{array}{l} 12^{*} \text{ HDPE} \\ @ 0.51\% \\ Q_{b} = 0.7 \\ V_{b} = 0.9 \\ Q_{2} = 0.5 \\ V_{2} = 0.6 \end{array}$			· · · · · · · · · · · · · · · · · · ·		
STRUCTURE # STRUCTURE	STRUCTURE TABLE								

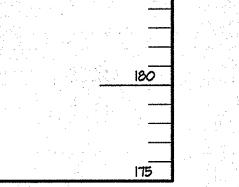
STRUCTURE #	STRUCTURE TYPE	TOP ELEV.	INV. IN	INV. OUT	COORDINATES	STRUCTURE #	STRUCTURE TYPE	TOP ELEV.	inv. In	INV. OUT	COORDINATES
1-501	24" HDPE END SECTION	172.25	24" HDPE (SW) 170.00		N: 557,071,03 E: 1,380,761,99	1-609	HO.CO. G-5.12 48" PRECAST MANHOLE	203.57	12" HDPE (SE) 196.26	15" HDPE (NE) 196.01	N: 556,530.38 E: 1,380,471.17
1-502	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE	193.54	24" HDPE (SE) 183.37 18" HDPE (SW) 183.87	24" HDPE (NE) 183.37	N: 556,993.97 E: 1,380,655.73	1-610	24" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE*	200.00		12" HDPE (NW) 196.65	N: 556,496.22 E: 1,380,488.4
			4" PVC (SE) 189.33 18" HDPE (SW) 186.50			<b>I-6</b> 1	24" NYLOPLAST DRAIN BASIN WITH H-IO PEDESTRIAN GRATE*	192.80	12" HDPE (W) 190.51	15" HDPE (SE) 190.26	N: 556,292.94 E: 1,380,751.41
1-503	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE <sup>®</sup>	193.98	4" PVC (SE) 189.33 4" PVC (NW) 189.33	24" HDPE (NW) 186.00	N: 556,832.11 E: 1,380,738.47	1-612	24" NYLOPLAST DRAIN BASIN WITH H-IO PEDESTRIAN GRATE*	194.20		12" HDPE (E) 191.75	N: 556,253.23 E: 1,380,634.16
1-504	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE	197.01	15" HDPE (SW) 191.47 4" PVC (NW) 192.83 4" PVC (SE) 192.83	18" HDPE (NE) 189.67	N: 556,747,91 E: 1,380,604.11	1-613	24" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE*	195.79	12" HDPE (NW) 192.75	12" HDPE (NE) 192.75	N: 556,276.31 E: 1,380,568.7
1-505	24" NYLOPLAST DRAIN BASIN	199.96	12" HDPE (SW) 195.13 4" PVC (SE) 195.79	15" HDPE (NE) 194.88	N: 556,678.39	<b>I-62</b> I	24" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE *	195.36		12" HDPE (SE) 193.26	N: 556,315.61 E: 1,380,536.7
	WITH DOMED GRATE *		4" PVC (NW) 195.79		E: 1,380,466.56	1-701	24" HDPE END SECTION	177.25	24" HDPE (S) 175.00		N: 557,187.32 E: 1,380,650.1
1-506	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE	208.40	4" PVC (NW) 204.23 4" PVC (SE) 204.23	12" HDPE (NE) 203.77	N: 556,610.08 E: 1,380,331.41	1-702	24" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE *	185.53	4" PVC (SW) 181.50	24" HDPE (N) 177.46	N: 557,146.58 E: 1,380,635.6
1-507	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE	197.00	15" HDPE (SW) 192.17 4" PVC (NW) 192.83 4" PVC (SE) 192.83	18" HDPE (NE) 191.67	N: 556,922.79 E: 1,380,516.10	1-703	24" HOPE END SECTION	186.58		24" HDPE (S) 184.33	N: 557,102.30 E: 1,380,492.11
1-508	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE*	199.97	4" PVC (NW) 195.79 4" PVC (SE) 195.79 12" HDPE (SW) 195.38	15" HDPE (NE) 195.13	N: 556,853.89 E: 1,380,378.24	1-704	HO.CO. G-5.12 48" PRECAST MANHOLE	190.96	24" HDPE (SW) 185.82 15" HDPE (E) 186.57 24" HDPE (N) 184.53		N: 557,082.66 E: 1,380,494.9
1-509	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE #	208.40	4" PVC (NW) 204.22 4" PVC (SE) 203.71	12" HDPE (NE) 203.76	N: 556,785,88 E: 1,380,242.18	1-705	HO.CO. G-5.12 48" PRECAST MANHOLE	200.63	18" HDPE (NW) 187.60 15" HDPE (SE) 195.01 6" PVC (SW) 195.91	24" HDPE (NE) 187.10	N: 557,002.30 E: 1,380,341.8
1-510	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE *	194.95		6" PVC (NE) 193.69	N: 556,947.00 E: 1,380,634.72	1-706	18" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE *	197.50	18" HDPE (SW) 187,87	18" HDPE (SE) 187.87	N: 557,027.38 E: 1,380,315.73
1-511	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE*	194.95		6" PVC (NE) 193.69	N: 556,914.84 E: 1,380,650.90	1-707	HO.CO. G-5.12 48" PRECAST MANHOLE	199.69	18" HDPE (W) 188.42	18" HDPE (NE) 188.42	N: 556,978.88 E: 1,380,261,2
1-512	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE*	194.95		6" PVC (NE) 193.69	N: 556,852.31 E: 1,380,682.37	1-708	HO.CO. G-5.12 48" PRECAST MANHOLE	198.00	15" HDPE (NW) 188.86 15" HDPE (W) 193.14	18" HDPE (E) 188.61	N: 556,983.79 E: 1,380,236.3
1-513	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE*	194.95		6" PVC (NE) 193.69	N: 556,820.15 E: 1,380,698.55	1-709	24" NYLOPLAST DRAIN BASIN	197.89	15" HDPE (NW) 189.47	15" HDPE (SE) 189.47	N: 557,039.66
1-514	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE	194.95		6" PVC (NE) 193.69	N: 556,793.36 E: 1,380,712.03	<b>I-7</b> 10	WITH H-10 PEDESTRIAN GRATE*	[99.4]	15" HDPE (NW) 190.26	15" HDPE (SE) 190.26	E: 1,380,176.20 N: 557,103.24
1-515	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE *	194.95		6" PVC (NE) 193.69	N: 556,771.92 E: 1,380,722.82	I-711	WITH H-10 PEDESTRIAN GRATE* 24" NYLOPLAST DRAIN BASIN	196.50	12" HDPE (NE) 190.51	15" HDPE (SE) 190.79	E: 1,380,092.9 N: 557,160.61
1-601	HO.CO. G-5.12 48" PRECAST MANHOLE	193.01	24" HDPE (SW) 184.11 15" HDPE (NW) 185.46	24" HDPE (NE) 184.10	N: 556,373.30 E: 1,380,973.31	I-712	WITH H-IO PEDESTRIAN GRATE*	210.00	6" PVC (NE) 205.50	12" HDPE (SE) 205.00	E: 1,380,049.1 N: 557,286.73
1-602	HO.CO. G-5.12 48" PRECAST MANHOLE	195.21	15" HDPE (NW) 185.97 12" HDPE (SW) 191.00	15" HDPE (SE) 185.97	N: 556,418.98 E: 1,380,950.24	I-713	WITH H-10 PEDESTRIAN GRATE* HO.CO. D-4.37 SINGLE WR INLET PRECAST		6" PVC (NW) 205.50	15" HDPE (E) 194.37	E: 1,379,930.4 N: 556,996.79
1-603	HO.CO. G-5.12 48" PRECAST MANHOLE	195.27	15" HDPE (NW) 186.39 12" HDPE (SW) 190.70	15" HDPE (SE) 186.39	N: 556,456.28 E: 1,380,931.47	I-714	HO.CO. D-4.37 SINGLE WR INLET PRECAST		15" HDPE (NW) 195.30	15 HDPE (SE) 195.30	E: 1,380,176.0
1-604	HO.CO. G-5.12 48" PRECAST MANHOLE	195.24	15" HDPE (NW) 188.40 12" HDPE (SW) 190.10	15" HDPE (SE) 188.40	N: 556,635.19 E: 1,380,841,44	. 47					E: 1,380,112.4ª
1-605	HO.CO. G-5.12 48" PRECAST MANHOLE	195.22	15" HDPE (SW) 189.25	15" HDPE (SE) 189.11	N: 556,698.86 E: 1,380,809.40						

ZONINGADDRESS / PERMIT INFORMATION<br/>PARCEL 561, 345, 342, 336, 190, 105, 135 LOT A-21, 135 LOT A-22<br/>ADDRESS: 6450 MANSION LANE<br/>LSTI / F.44, LIOS85 / F.357, LI2205 / F.390, LST83 / F.600,<br/>LS341 / F.70, L4933 / F.437, L6153 / F.690, L6135 / F. 690<br/>Ist ELECTION DISTRICT, CENSUS TRACT 6012.02<br/>WATER CODE: 400, SENER CODE: 2152200<br/>OWNER:<br/>HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS<br/>TI20 OAKLAND MILLS ROAD, COLIMENA, MARYLAND 21046<br/>PHONE (410) 313-2700NYDATE94.5.14DEVELOPER:<br/>HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS<br/>TI20 OAKLAND MILLS ROAD, COLIMENA, MARYLAND 21046<br/>PHONE (410) 313-2700 APPROVED: DEPARTMENT OF PLANNING & ZONING DIRECTOR <u>Chil Chil</u> CHIEF, DEVELOPMENT ENGINEERING DIVISION <u>Kot Shelwoh</u> CHIEF, DIVISION OF LAND DEVELOPMENT P











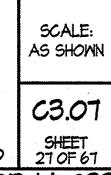
STRUC	TURE TABLE				
STRUCTURE #	STRICTURE TYPE	TOP ELEV.	INV. IN	INV. OUT	COORDINATES
1-715	HO.CO. D-4.37 SINGLE WR INLET PRECAST	201.93	12" HDPE (NW) 198.08 15" HDPE (SW) 195.49	15" HDPE (SE) 195.49	N: 557,073.96 E: 1,380,095.73
1-716	HO.CO. D-4.37 SINGLE WR INLET PRECAST	206.68		12" HDPE (SE) 203.18	N: 557,126.21 E: 1,380,008.18
1-717	HO.CO. D-4.37 SINGLE WR INLET PRECAST	213.69	12" HDPE (NW) 206.91	15" HDPE (NE) 206.66	N: 557,005.79 E: 1,379,973.98
1-718	HO.CO. D-4.37 SINGLE WR INLET PRECAST	217.76		12" HDPE (SE) 213.84	N: 557,101.36 E: 1,379,904.61
1-719	HO.CO. D-4.37 SINGLE WR INLET PRECAST	199.48		15" HDPE (NW) 195.98	N: 556,974.45 E: 1,380,358.06
1-720	HO.CO. D-4.35 DOUBLE WR INLET PRECAST	195.34	12" HDPE (SE) 188.63	15" HDPE (W) 188.38	N: 557,067.27 E: 1,380,558.06
I-72I	WATTS DEAD LEVEL DX TRENCH DRAIN WITH DI-ADA DUCTILE IRON GRATE*	194.37		12" HDPE (NW) 189.28	N: 557,017.11 E: 1,380,599.44
I <b>-</b> 724	12" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE *	197.64		12" HDPE (SW) 190.63	N: 557,112.46 E: 1,380,099.05
1-725	24" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE <b>*</b>	199.28	15" HDPE (NW) 189.85	15" HDPE (SE) 189.85	N: 557,072.54 E: 1,380,138.66
I-900	24" NYLOPLAST DRAIN BASIN WITH DOMED GRATE #	203.00	24" HDPE (NE) 195.36 4" PVC (NW) 199.38 4" PVC (E) 199.13	24" HDPE (SW) 195.16	N: 556,071.40 E: 1,380,295.60
1-901	15" HDPE END SECTION	203.67	15" HDPE (NW) 202.51		N: 556,094.15 E: 1,380,256.91
1-902	15" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE #	205.50	12" HDPE (NW) 203.20	15" HDPE (SE) 203.20	N: 556,149.13 E: 1,380,214.61
1-906	12" NYLOPLAST DRAIN BASIN WITH H-10 PEDESTRIAN GRATE #	207.00		12" HDPE (SW) 204.53	N: 556,255.16 E: 1,380,218.42

\*OR APPROVED EQUAL

# PIPE QUANTITIES

PIPE SIZE/TYPE	QUANTITY
12" HDPE	2,954
15" HDPE	2,152
18" HDPE	907
24" HDPE	I,222
4" PVC	1,215
6" PVC	999

	WITH OF MADINE-11	DEG. ILT				
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	PROFESSION AND THE PROMENTS WERE					
	A DULY LICENSED FROTESIONAL ENSINEER LADER THE LAVIS OF THE STATE OF MARTLAND, LICENSE NO. 16144, EXPIRATION DATE: 08/19/16.	DATE:08/14/14	BY	NO.	REVISION DAT	E 600' SCALE MAP NO. 51 BLOCK NO. 16
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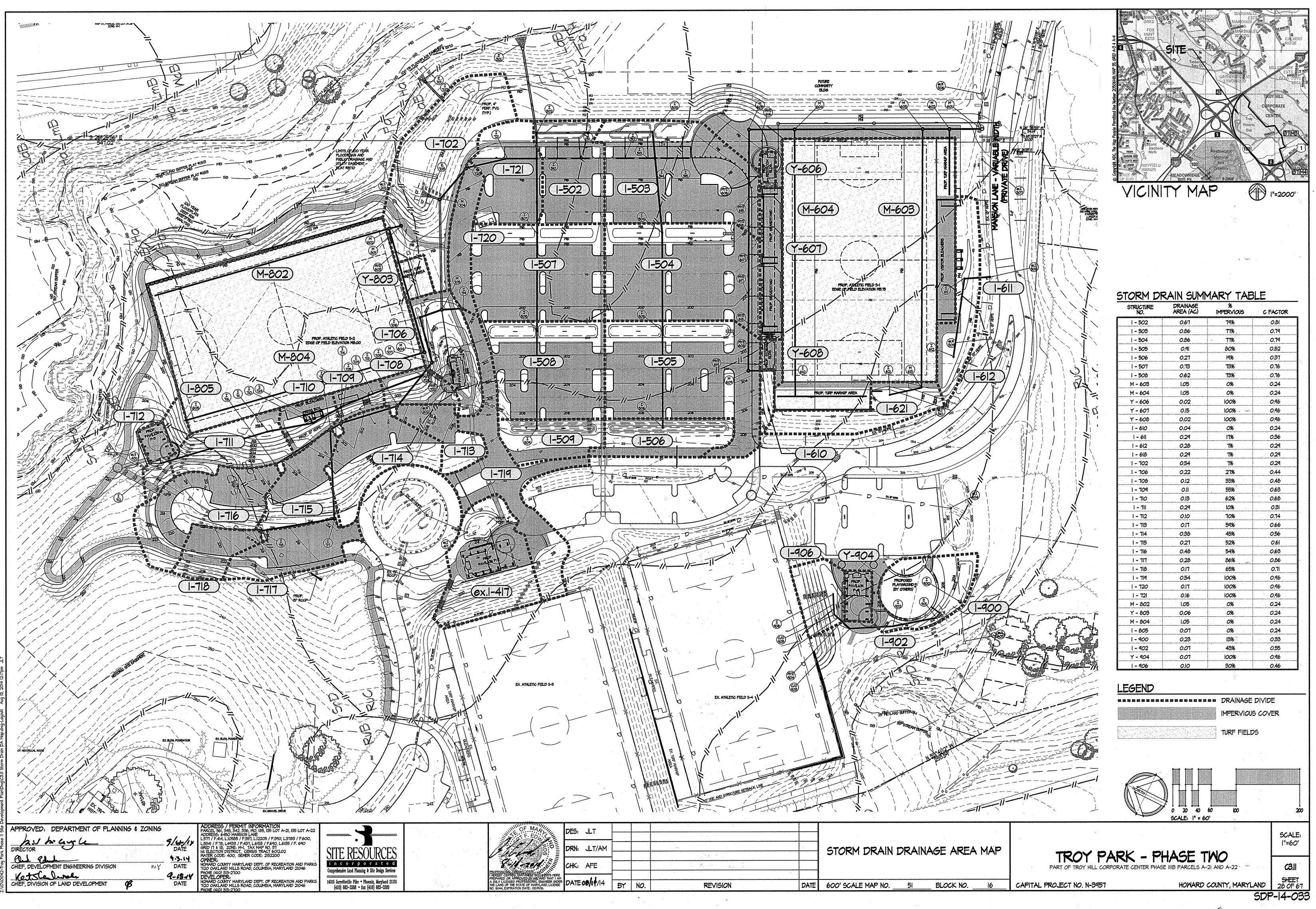
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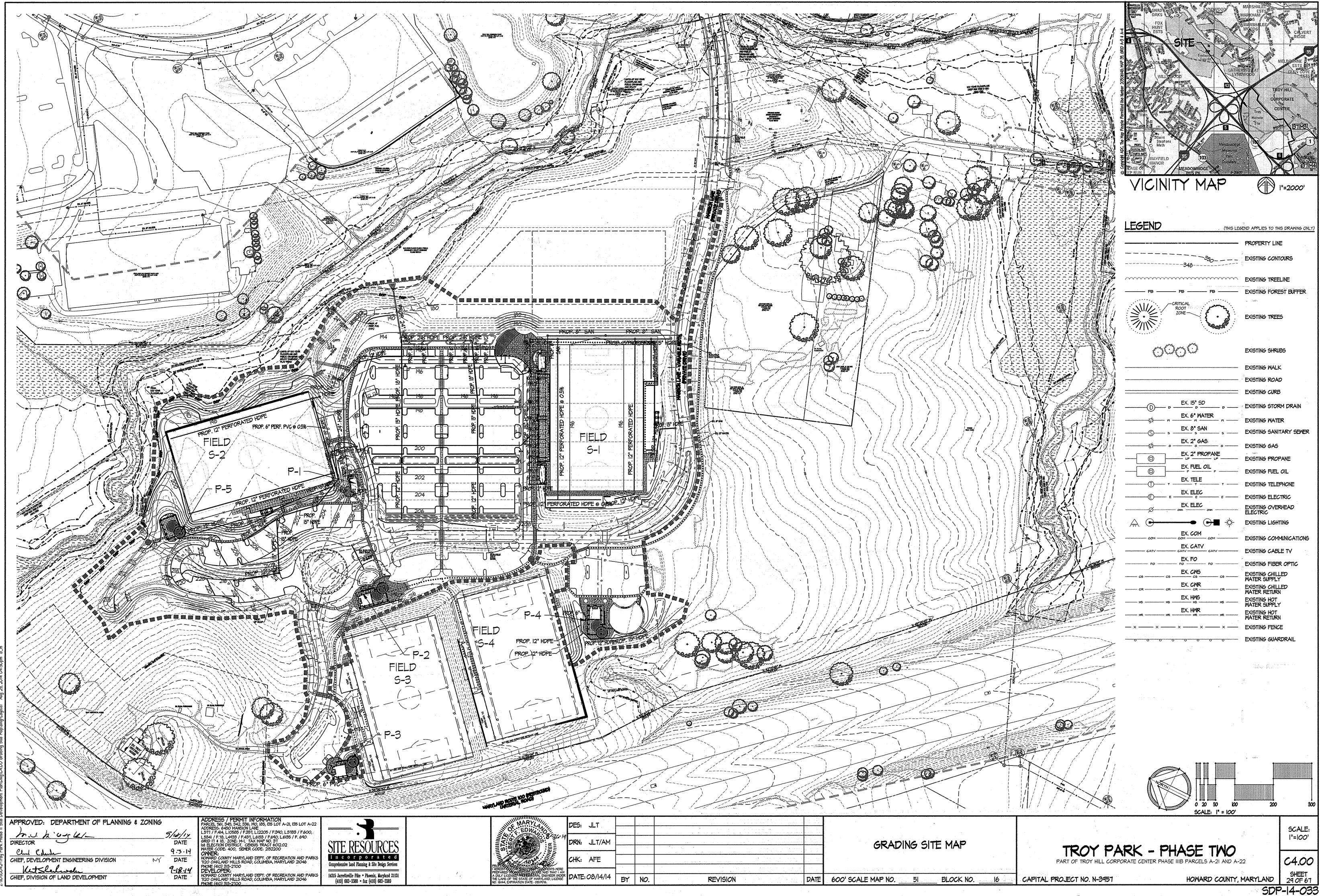
HOWARD COUNTY, MARYLAND SHEET 27 OF 67 SDP-14-033

CAPITAL PROJECT NO. N-3957



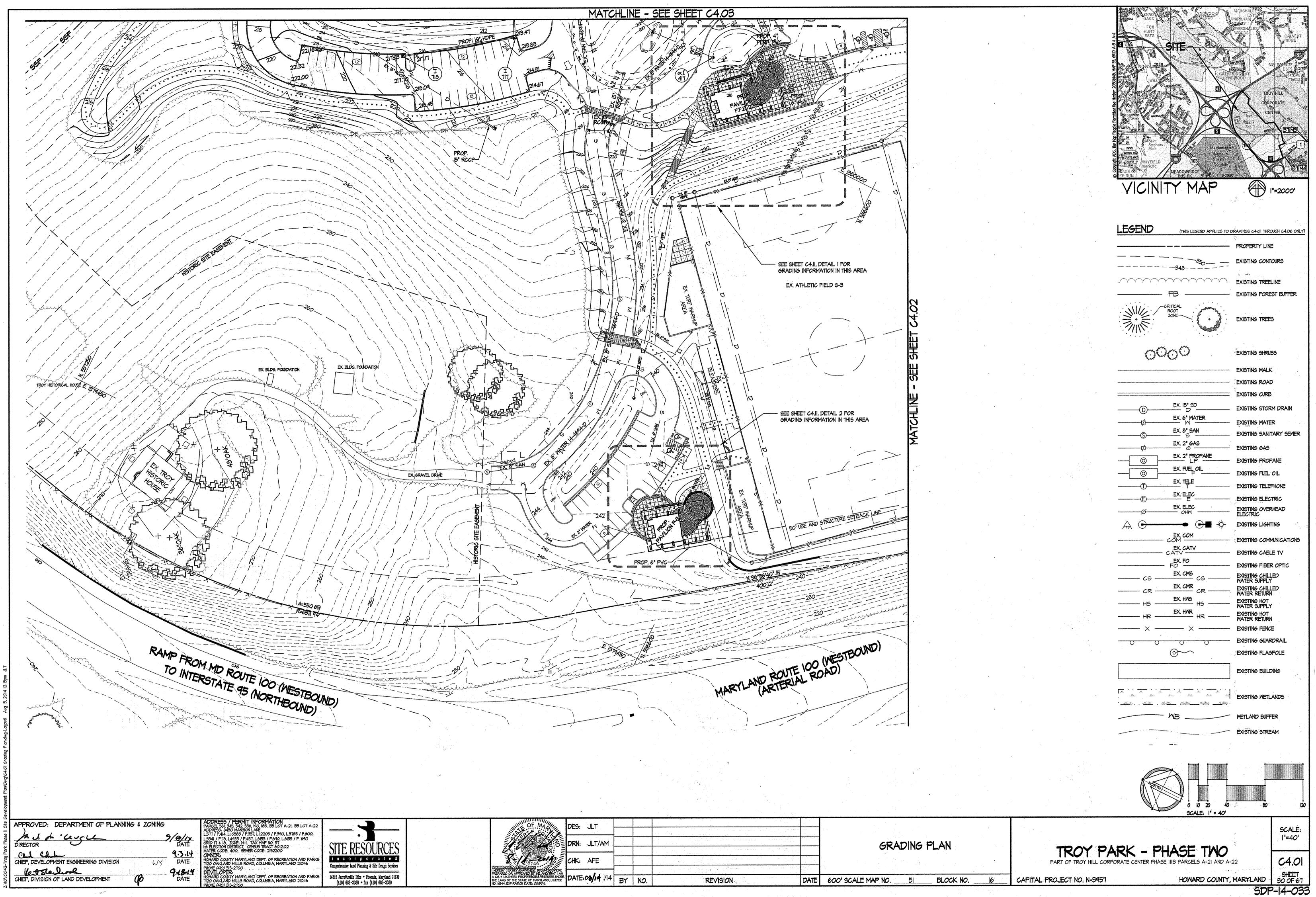
STRUCTURE NO.	DRAINAGE AREA (AC)	% IMPERVIOUS	C FACTOR
1 - 502	0.67	79%	0.81
- 503	0.86	T7%	0.79
l <b>- 50</b> 4	0.86	· 77%	0.79
- 505	0.91	80%	0.82
- 506	027	19%	0.37
1 - 507	0.13	T3% <sup>°</sup>	0.76
1 - 508	0.62	T3%	0.76
M - 603	1.05	0%	0.24
M - 604	1.05	0%	0.24
Y - 606	0.02	100%	0.96
Y - 607	0.15	100%	0.96
Y - 608	0.02	100%	0.96
1 - 610	0.04	0%	024
- 6	0.29	17%	0.36
1 - 612	0.28	7%	0.29
1 - 618	0.29	7%	0.29
1 - 702	0.54	7%	0.29
I - 706	0.22	27%	0.44
1 - 708	0.12	33%	0.48
1 - 709	0.11	55%	0.63
1 - 710	0.13	62%	0.68
- 7	0.29	10%	0.31
1 - 712	0.10	70%	0.74
1 - 713	0.17	59%	0.66
1 - 714	0.38	45%	0.56
1 - 715	0.27	52%	0.61
1 - 716	0.48	54%	0.63
1 - 717	0.28	86%	0.86
1 - 718	0.17	65%	0.71
1 - 719	0.54	100%	0.96
- 720	0.17	100%	0.96
I - 72I	0.16	100%	0.96
M - 802	1.05	0%	0.24
Y - 803	0.06	0%	0.24
M - 804	1.05	0%	0.24
I - 805	0.01	0%	0.24
1 - 900	0.23	13%	0.33
I - 902	0.07	43%	0.55
Y - 904	0.07	100%	0.96
1 - 906	0.10	30%	0.46



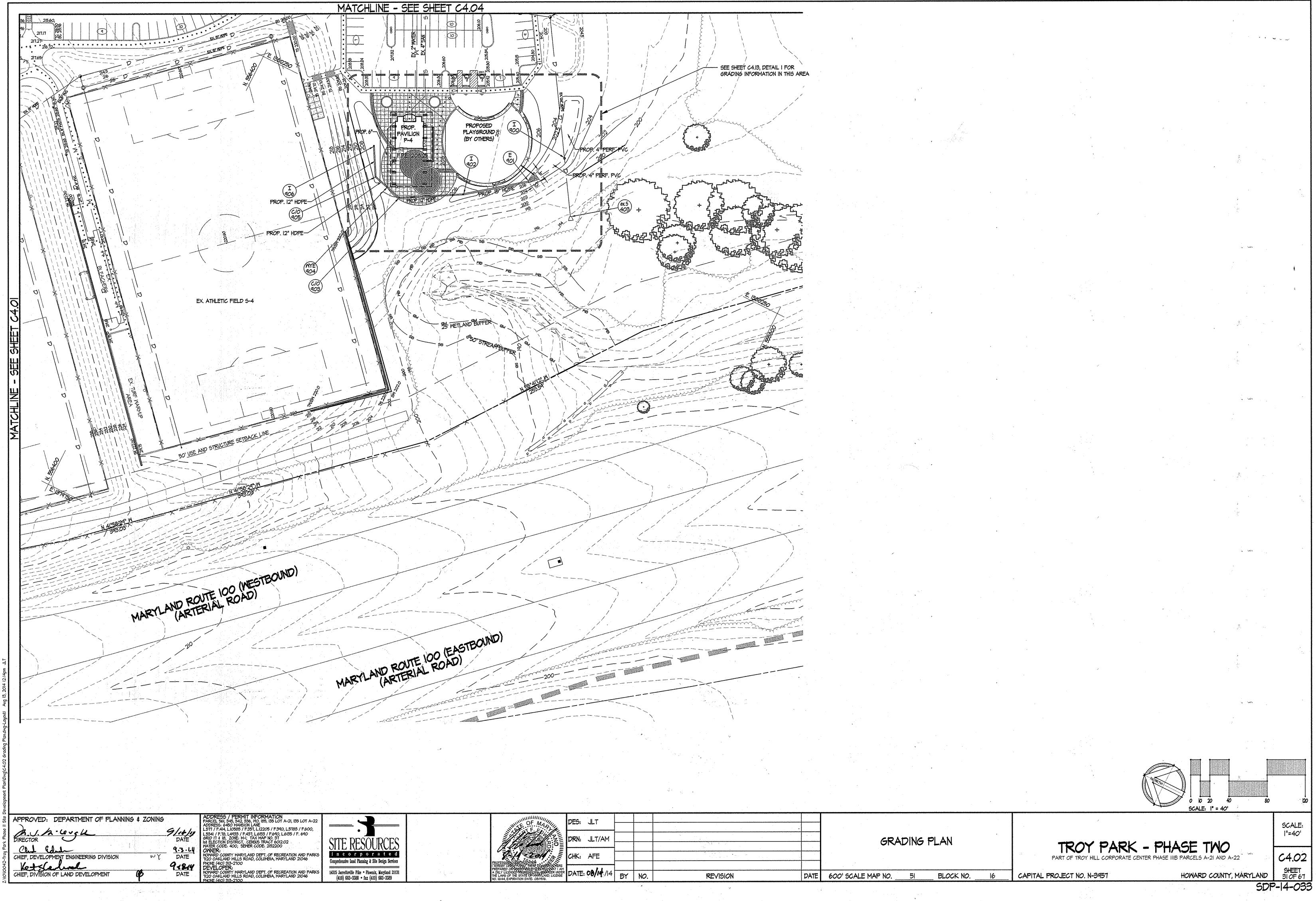


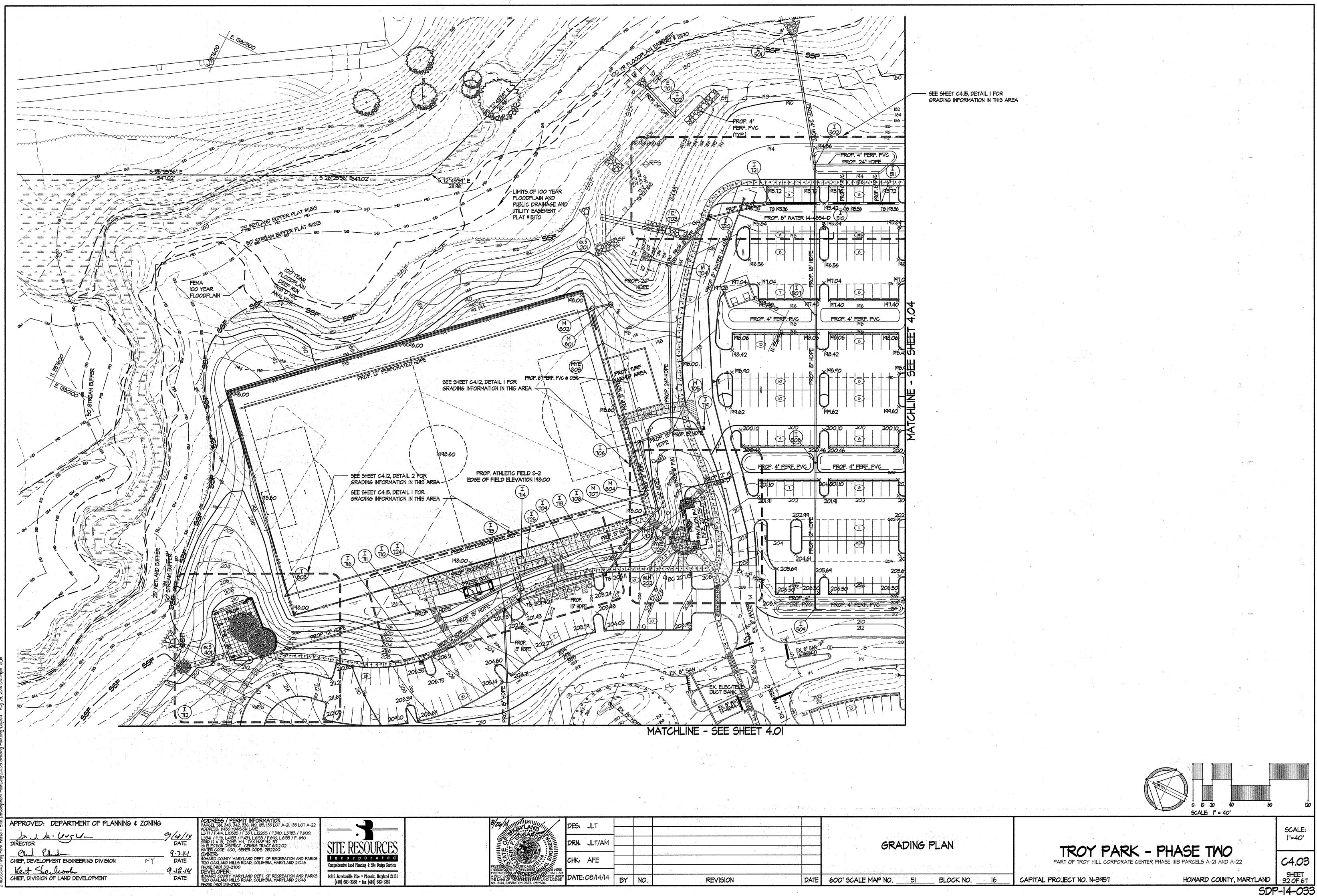


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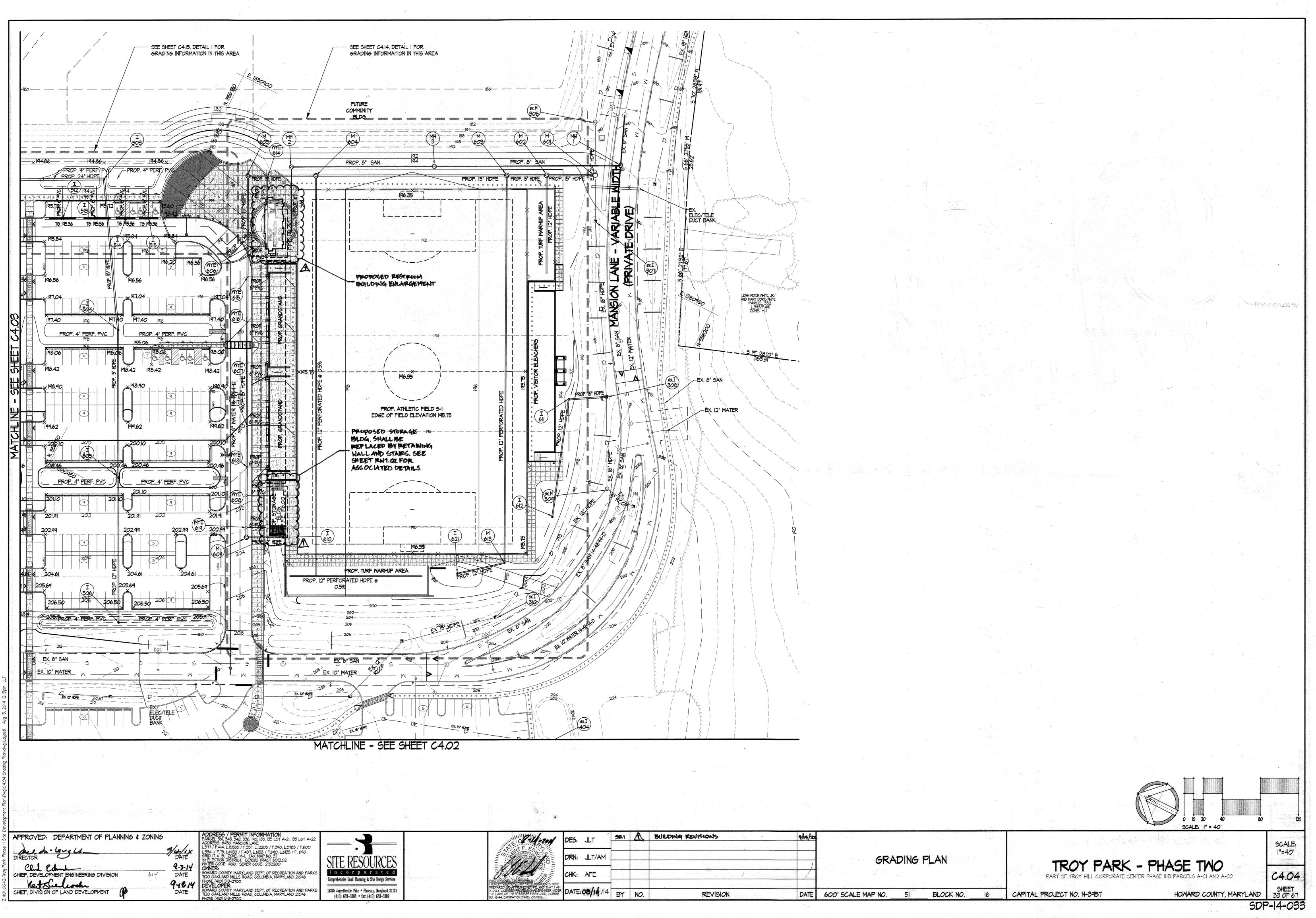


 A DULY LICENSED PROFESSIONAL ENSINEER INDER THE LANS OF THE STATE OF MARYLAND, LICENSE NO. 16144, EXPIRATION DATE: 08/19/16.	DATE:09/14	/14 BY	NO.	REVISION	DATE	600' SCALE MAP NO. 5
PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE ROOMENTE ARE PREPARED OR APPROVED, BY ME ANATHAT I AM						
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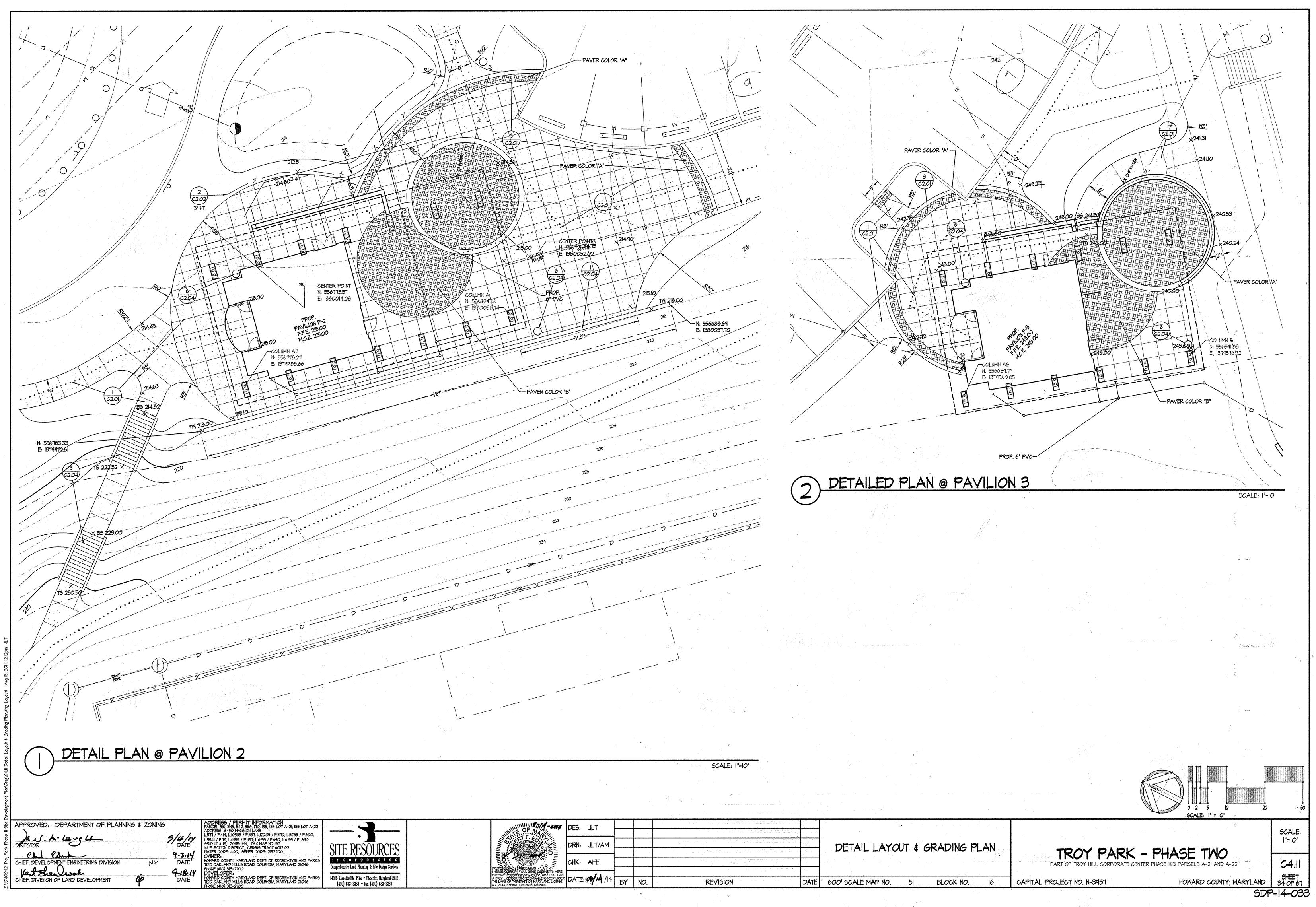


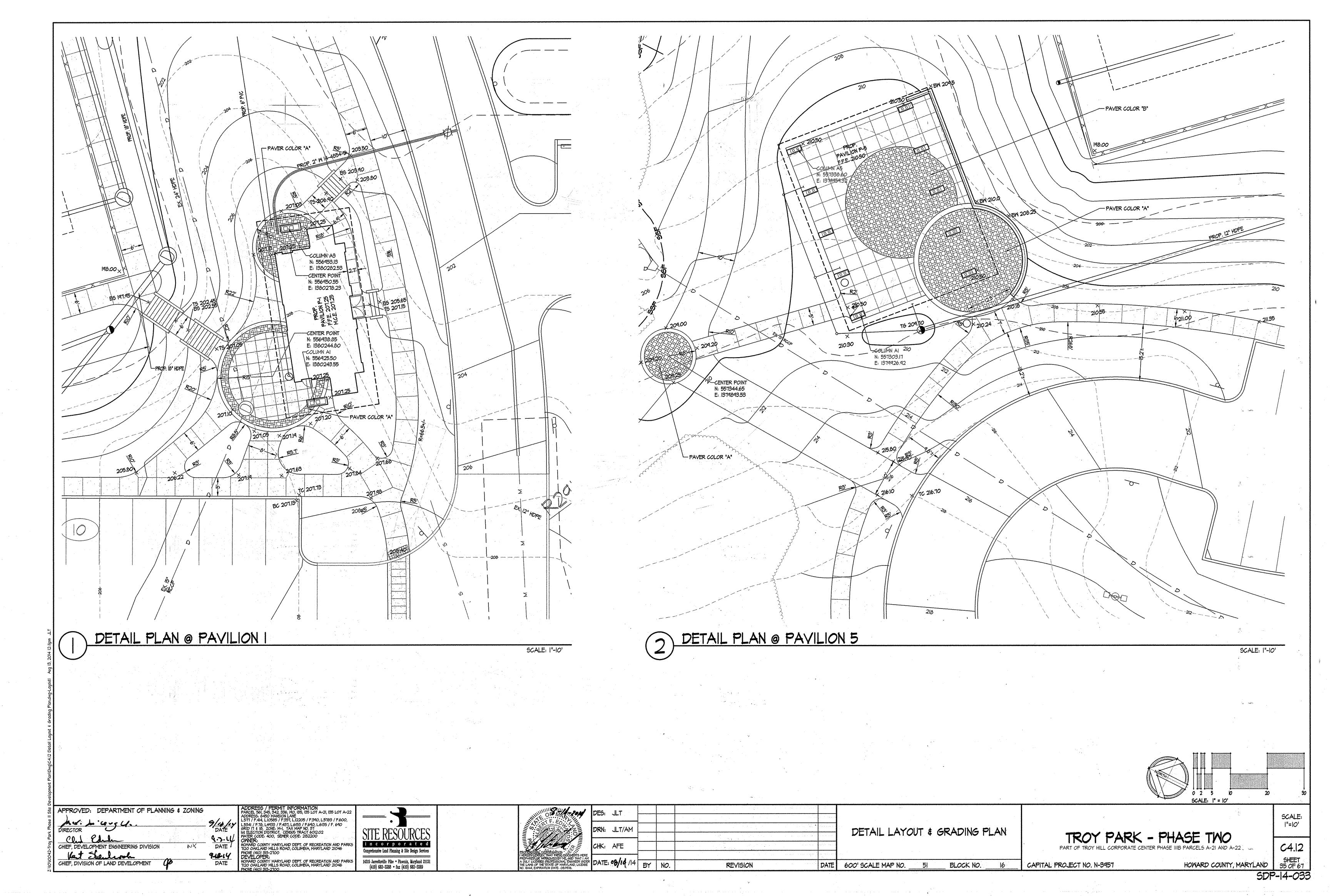


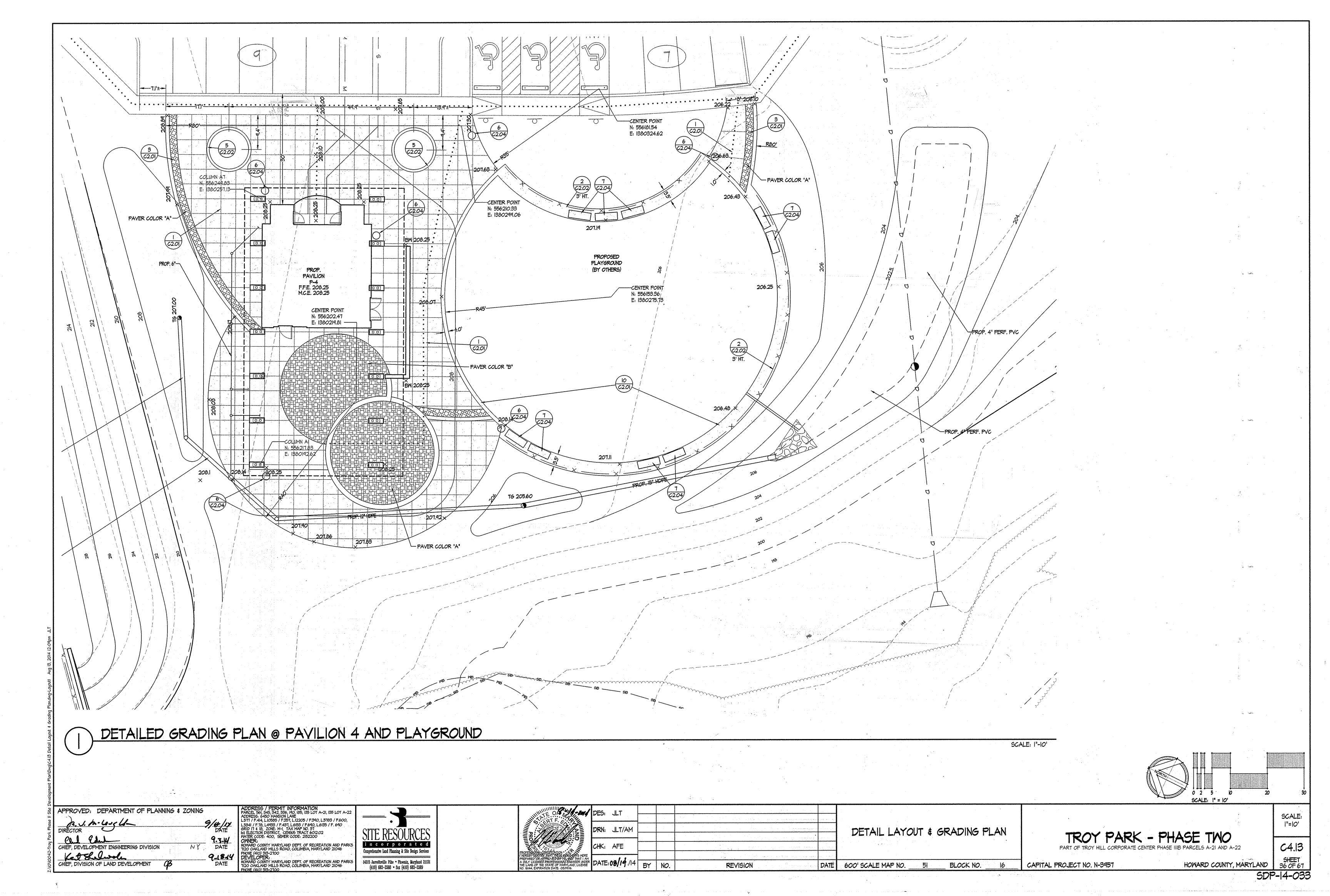
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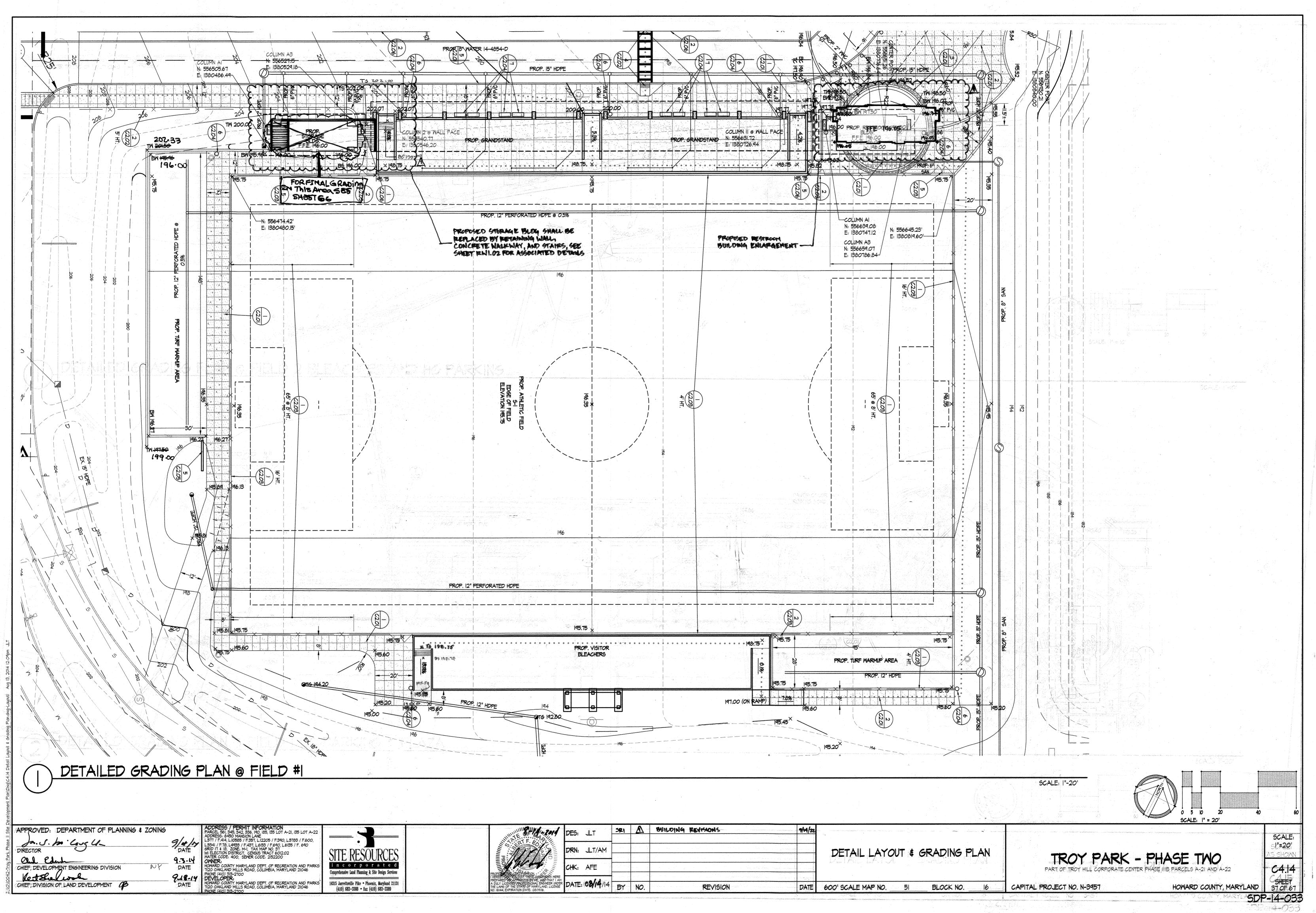


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	A DULY LICENSED PROFESSIONAL ENGINEER INDER THE LANS OF THE STATE OF MARYLAND, LICENSE NO. 16144, EXPIRATION DATE: 06/19/16.	DATE:08/14 /14	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 5

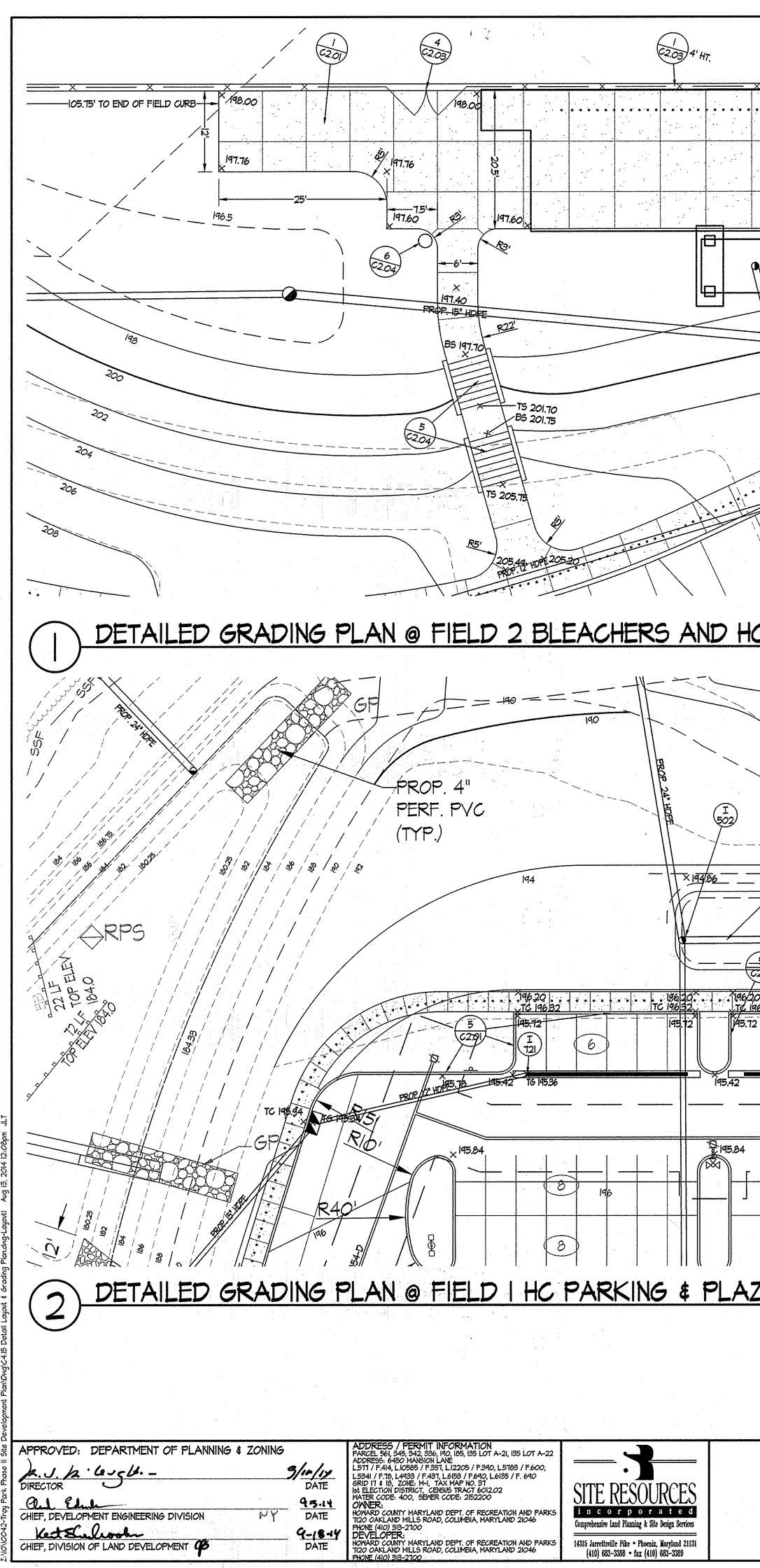


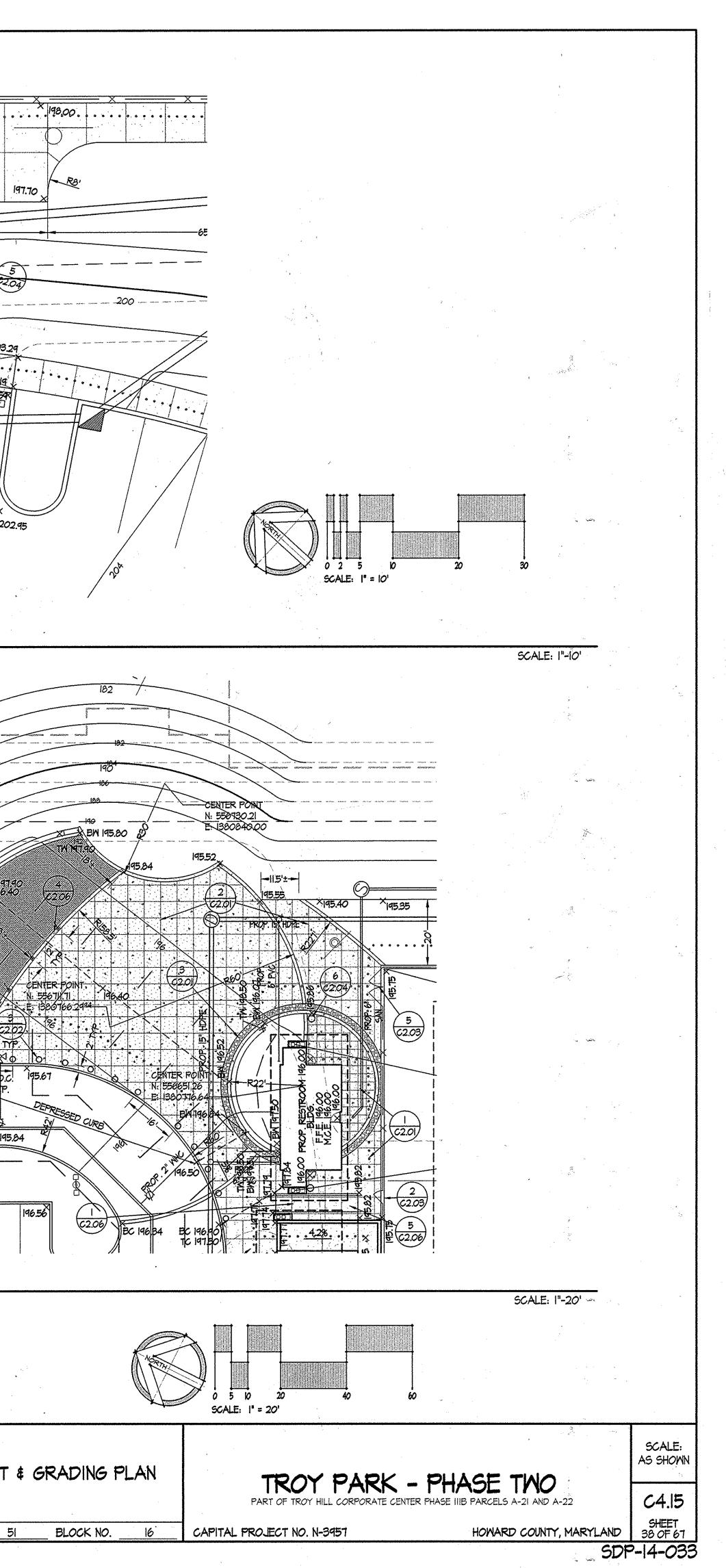




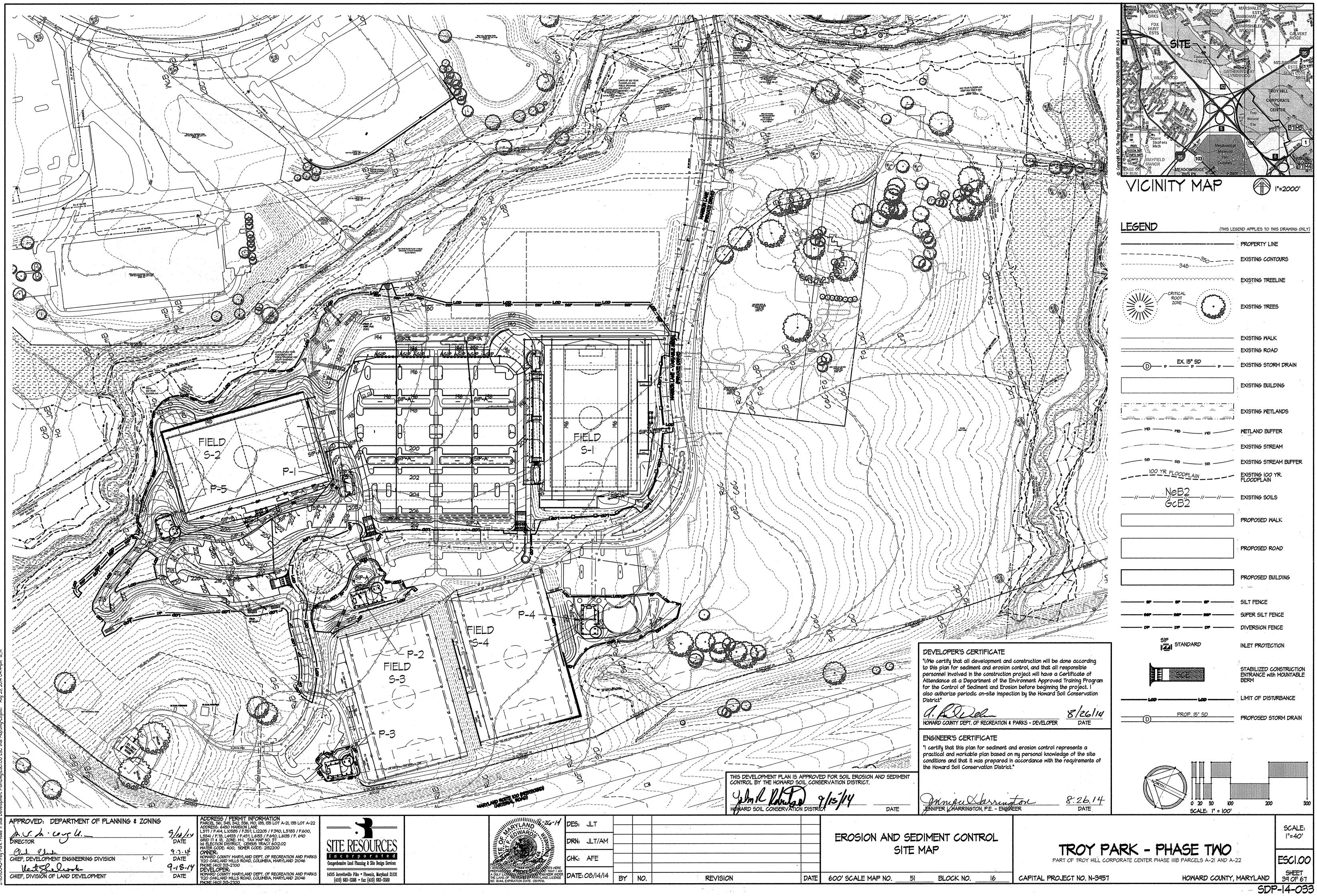
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a er en ser er e	RT F. ED	DRN:	JLT/AM					DETAIL LAYOUT
	PROFEMENTE CERTIFICATION	снк:	AFE				and a second	Star Filing Lafer T. A.
	I HEREBY OR TO A THAT THESE DOWNENTS WERE PREPARED OR APPROVED BY WE AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LANG OF THE STATE OF MARTLAND, LICENSE NO. 16144, EXPIRATION DATE: OB/19/16.	DATE	: <b>08/14</b> /14	BY	NO.	REVISION	DATE	600' SCALE MAP NO.



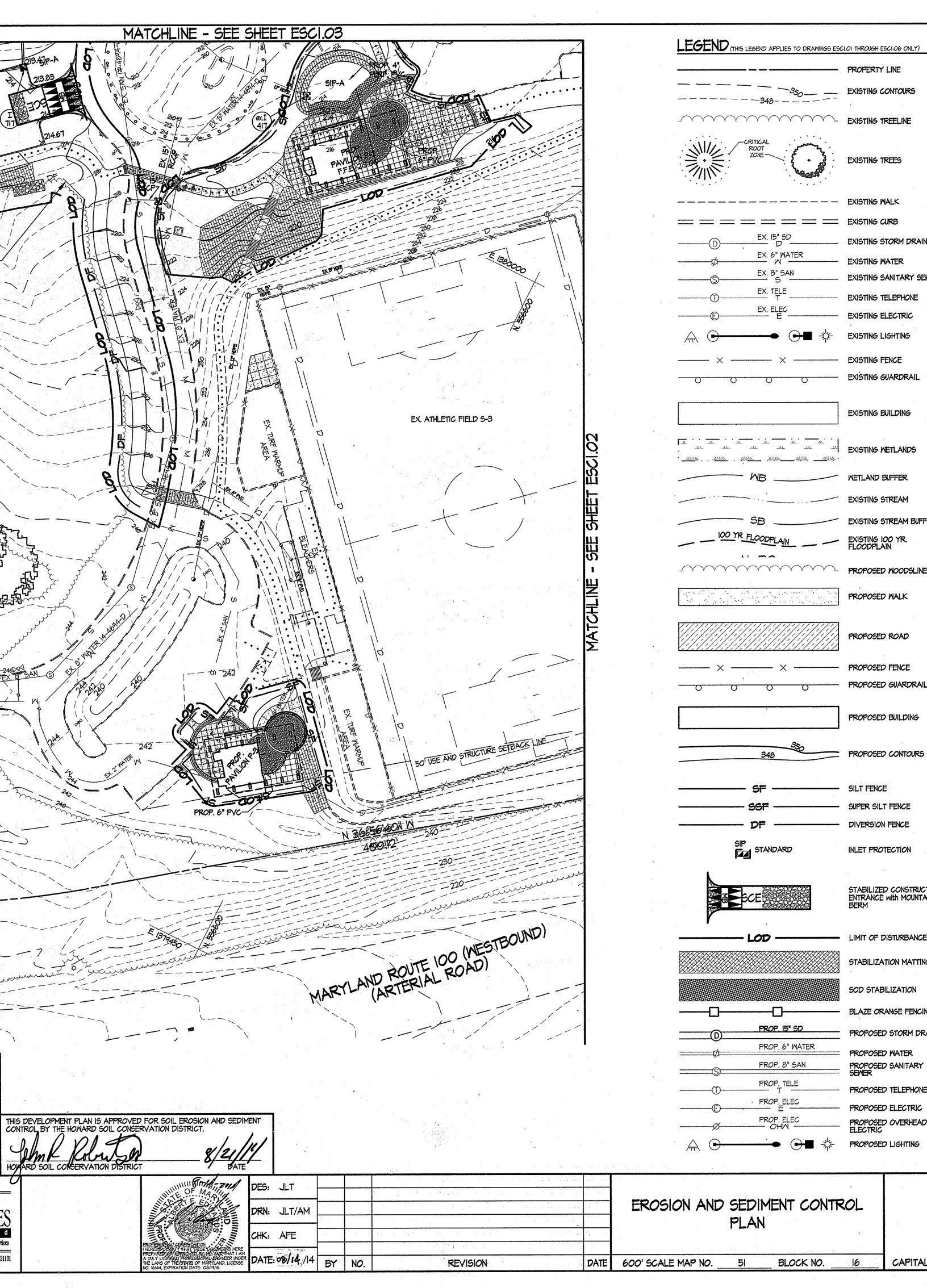
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C PARKING		1.79 202	VAN PROP. 15" HDPE	x 20
		9900000000 Galagements andre andre andre andre andre andre andre andre and		
		24" HDPE 193.36 5 62.01 4 62.0 5 62.01 4 4 62.0 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	-PROP. 4" PERF. PVC -INV. 193.36 	TN 196
2 B B B T 510 B T 510 B T 510 B T 510 B T 511 145.72 T 511 145.72 T 511 510 T 511 510 T 510 T 510 T 51	195.45 1251 195.45 T6 195.36	195.40 T TG 195.36 T	195.36 195.40 16 195.36 1195.42	
PROP. 8" WATER 14-4854-D	× 195.84	9 196	2 (2.04) (2.04) (2.01) (2.01) (2.01) (3.04) (45.84	
PROP. 8" WATER 14-4854-D	×195.84	9 196		<u>₽</u>



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. . . . . . . 00 PROP. J5" RCCP-INSPECT AND RECONSTRUCT, IF NECESSARY, EXISTING SEDIMENT CONTROLS FROM DP-11-003 TO REMAIN -EX. BLDG. FOUNDATIO EX. BLDG. FOUNDATION EX GRAVEL DRIVE mm RAMP FROM MD ROUTE 100 (WESTBOUND) TO INTERSTATE 95 (NORTHBOUND) ENGINEER'S CERTIFICATE DEVELOPER'S CERTIFICATE "I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation "I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District." District\* wind 1 Mu JENNIFER L HARRINGTON, P.E. - ENGINEER HOWARD COUNTY DEPT. OF RECREATION & PARKS - DEVELOPER DATE DATE ADDRESS / FERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 135 LOT A-21, 135 LOT A-22 ADDRESS: 6450 MANSION LANE L517 / F.414, LIO585 / F.357, LI2205 / F.340, L5783 / F.600, APPROVED: DEPARTMENT OF PLANNING & ZONING p.J. p. level-9/4/14 DATE 5341 / F.70, L4933 / F.437, L6153 / F.640, L6155 / F. 640 FID 17 & 10, ZONE: M-1, TAX MAP NO. 37 ELECTION DISTRICT, CENSUS TRACT 6012.02 NATER CODE: 400, SEMER CODE: 2152200 DIRECTOR URCES and Edu 9.3.14 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 incorporated CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE NΥ Comprehensive Land Planning & Site Design Services Ket Sheelwohn HONE (410) 313-2100 PHONE (410) 313-2100 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 CN8-14 DATE 14315 Jarrettsville Pike • Phoenix, Maryland 21131 CHIEF, DIVISION OF LAND DEVELOPMENT (410) 683-3388 • fax (410) 683-3389 HONE (410) 313-2700

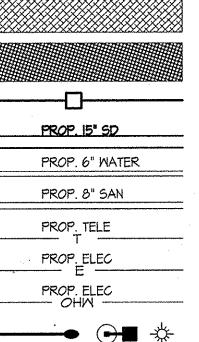


# ----------------------PROPERTY LINE EXISTING TREELINE

EX. 15" SD EX. 6" WATER EX. 8" SAN EX. TELE -Ûr × ----- EXISTING FENCE EXISTING BUILDING . Alle Alle Alle Alle 100 YR FLOODPL/ PROPOSED WOODSLINE

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348	33Q
- SF	
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EROSION AND SEDIMENT CONTROL PLAN

-350 \_\_\_\_ EXISTING CONTOURS

EXISTING TREES

\_\_\_\_ EXISTING STORM DRAIN EXISTING WATER EXISTING SANITARY SEVER EXISTING TELEPHONE EXISTING ELECTRIC EXISTING LIGHTING

EXISTING GUARDRAIL

WETLAND BUFFER

EXISTING STREAM EXISTING STREAM BUFFER EXISTING 100 YR. FLOODPLAIN

PROPOSED ROAD

PROPOSED WALK

PROPOSED FENCE PROPOSED GUARDRAIL

PROPOSED BUILDING

PROPOSED CONTOURS

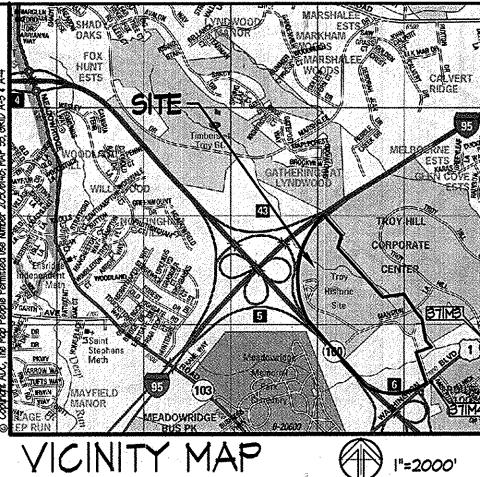
SILT FENCE SUPER SILT FENCE DIVERSION FENCE INLET PROTECTION

STABILIZED CONSTRUCTION ENTRANCE with MOUNTABLE

LIMIT OF DISTURBANCE STABILIZATION MATTING SOD STABILIZATION BLAZE ORANGE FENCING PROPOSED STORM DRAIN PROPOSED WATER PROPOSED SANITARY SEWER PROPOSED TELEPHONE

PROPOSED ELECTRIC PROPOSED OVERHEAD ELECTRIC PROPOSED LIGHTING

CAPITAL PROJECT NO. N-3957

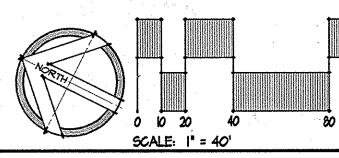


BENCHMARKS NAD83/91 € NAVD88 IN USE #371M3 ALSO KNOWN AS R-125 NGS PID: JV0628 ELEV: 123.961 BRASS DISC ON BRIDGE ABUTMENT ON US-1 0.5 MI. NORTHEAST OF RT-100.

#371M4 ALSO KNOWN AS N/A NGS PID: N/A ELEV: 170.156 LIGHT POLE BOLT AT END OF RAMP FROM 1-100 TO US-1 SBL.

NOTE:

ALL VEGETATIVE AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL PRIOR TO PERMANENT SEEDING AND/OR CURLEX APPLICATION. SEE SPECIFICATIONS.



TROY PARK - PHASE TWO PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

BLOCK NO. 6

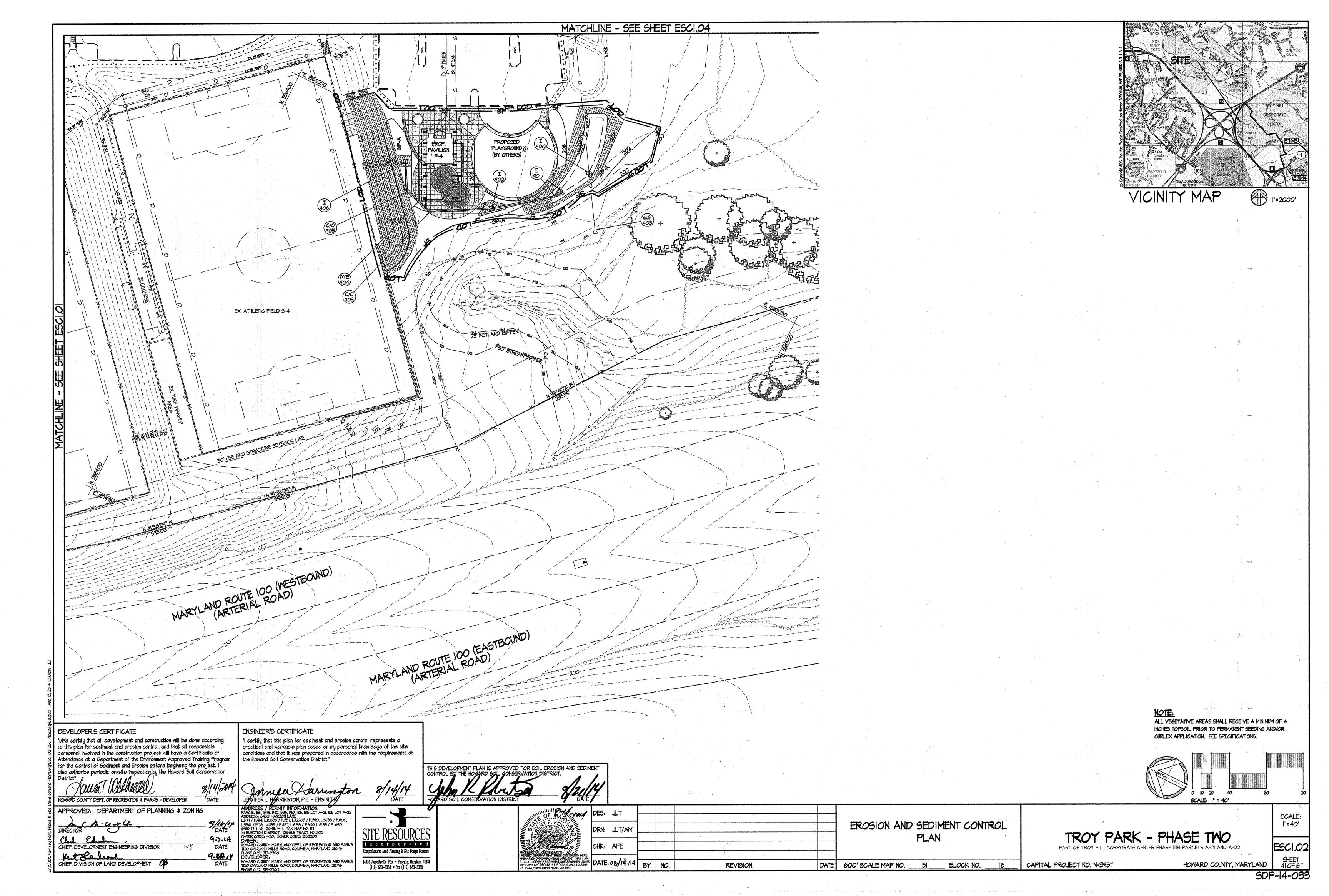
HOWARD COUNTY, MARYLAND

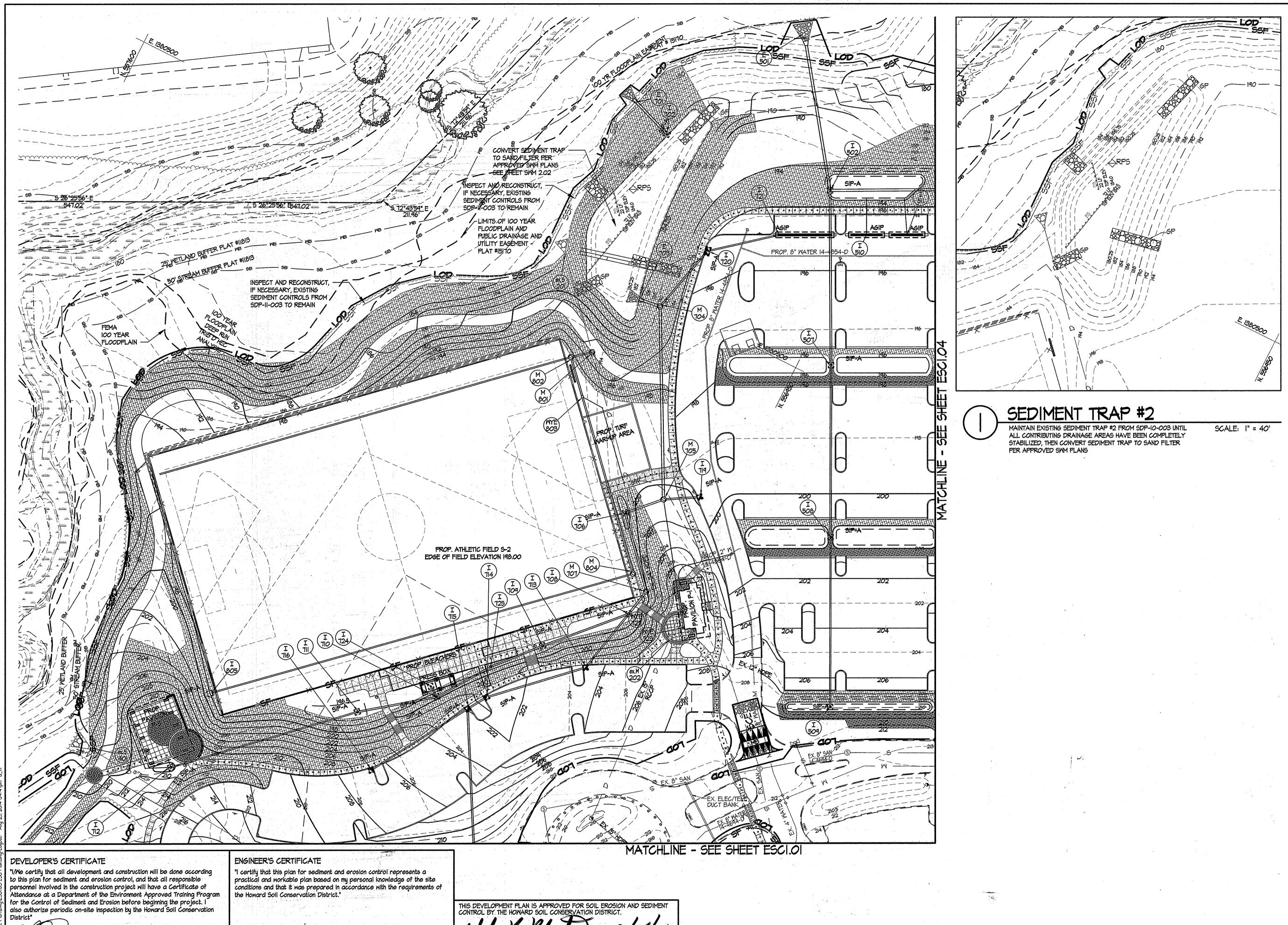
SCALE:

|"=40'

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SHEET 40 OF 67





HOWARD COUNTY DEPT. OF RE APPROVED: DEPAR DIRECTOR CHIEF, DIVISION OF LAND DEVELOPMENT

HOWARD COUNTY DEPT. OF RECREATION & PARKS - DEVELOPER DATE	JEANIFER L
APPROVED: DEPARTMENT OF PLANNING & ZONING	ADDRESS / PARCEL 561, 341 ADDRESS: 6450 L5TT / F.414, L14 L5341 / F.78, L4 GRID 17 4 18, 27 Ist ELECTION DIS
Chil Columber CHIEF, DEVELOPMENT ENGINEERING DIVISION WY DATE	WATER CODE: 4 OWNER: HOWARD COUNT 7120 OAKLAND

9-18-14 DATE

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

ger/serrina MARRINGTON, P.E. - ENGINEER

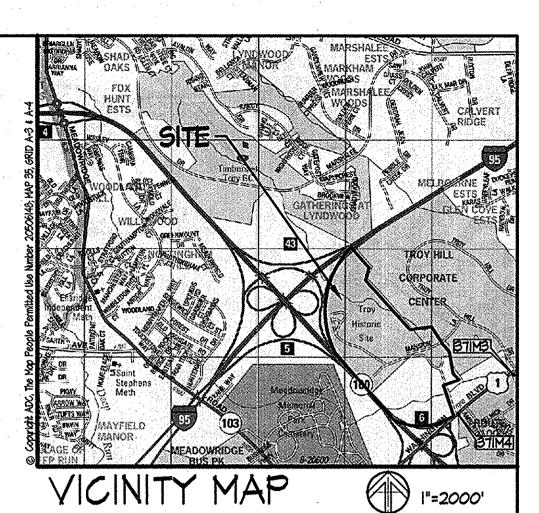
PERMIT INFORMATION 45, 342, 336, 190, 185, 135 LOT A-21, 135 LOT A-22 50 MANSION LANE 10585 / F351, L12205 / F340, L5183 / F600, 4433 / F431, L6153 / F640, L6135 / F. 640 ZONE: M-1, TAX MAP NO. 31 DISTRICT, CENSUS TRACT 6012.02 400, SEMER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 1120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 1120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700

(ULI incorpora ted Comprehensive Land Planning & Site Design Services 14315 Jarrettsville Pike • Phoenix, Maryland 21131 (410) 683-3388 • fax (410) 683-3389

<u>8.26.14</u> date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMER CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. HOWARD SOIL CONSERVATION DISTRICT HOWARD SOIL CONSERVATION DISTRICT	IT /	
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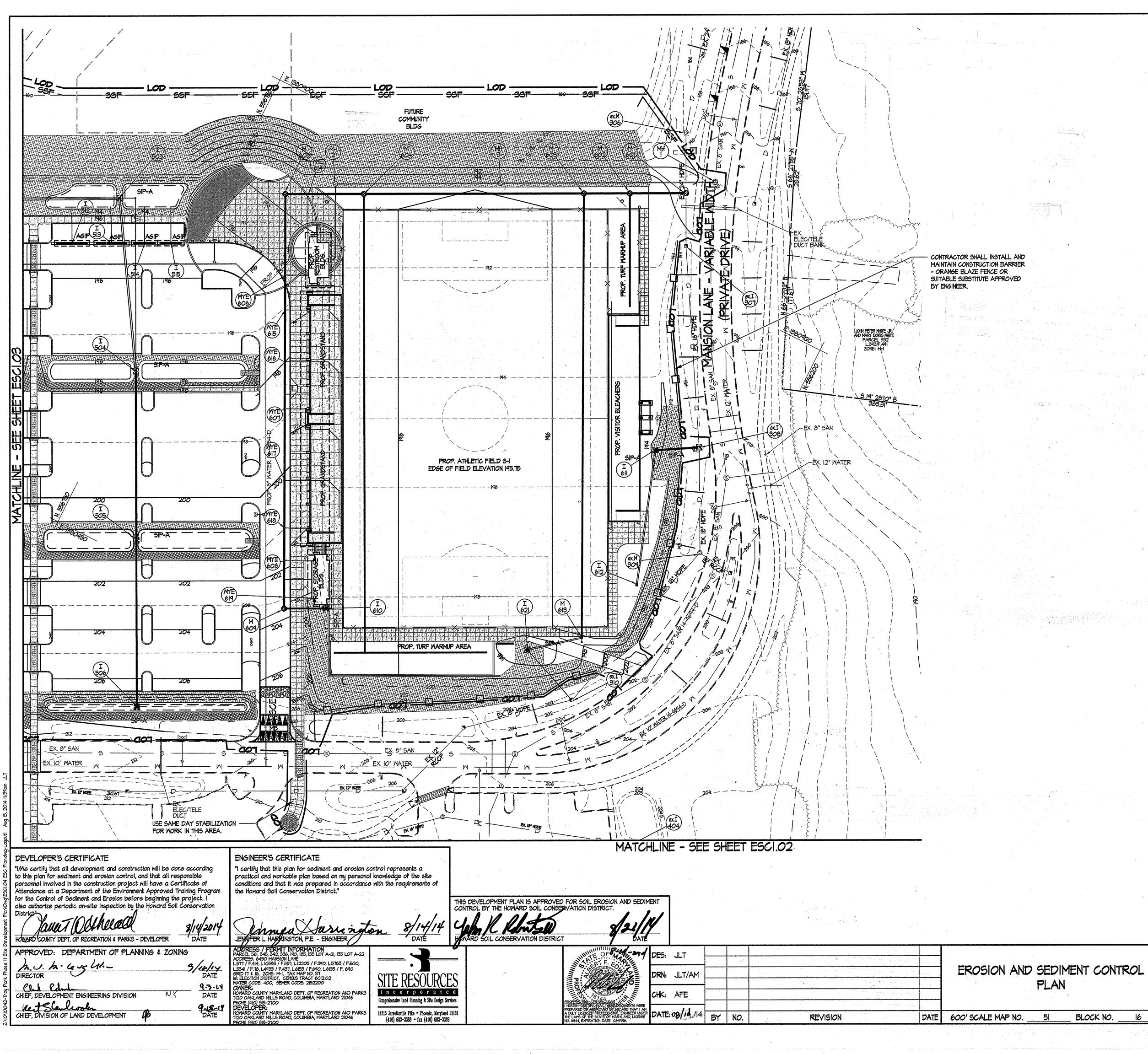
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	A DULY LICESCHOP PROTESTICAL ENGINEER LADER THE LAWS OF THE STIMLE OF MARYLAND, LICENSE NO. 16144, EXPIRATION DATE: 08/19/16.	DATE	08/14/14	BY	NO.	REVISION		DATE	600' SCALE MAP NO. 51
		<b>5</b>	1 - 14						



SDP-14-033

NOTE: ALL VEGETATIVE AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL PRIOR TO PERMANENT SEEDING AND/OR CURLEX APPLICATION. SEE SPECIFICATIONS.

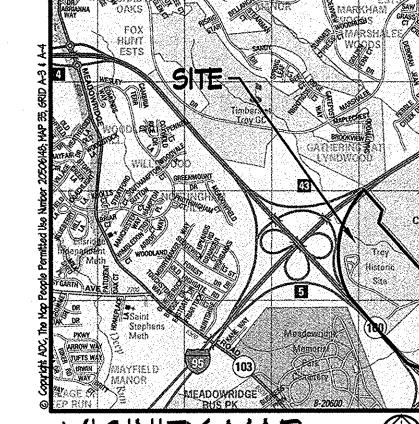
10 20 SCALE: 1" = 40' SCALE: EDIMENT CONTROL l"=40' TROY PARK - PHASE TWO LAN ESCI.03 PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22 HOWARD COUNTY, MARYLAND SHEET 42 OF 67 BLOCK NO. CAPITAL PROJECT NO. N-3957 6







BLOCK NO.



VICINITY MAP

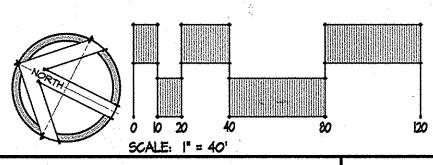
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NOTE:

ALL VEGETATIVE AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL PRIOR TO PERMANENT SEEDING AND/OR CURLEX APPLICATION. SEE SPECIFICATIONS.



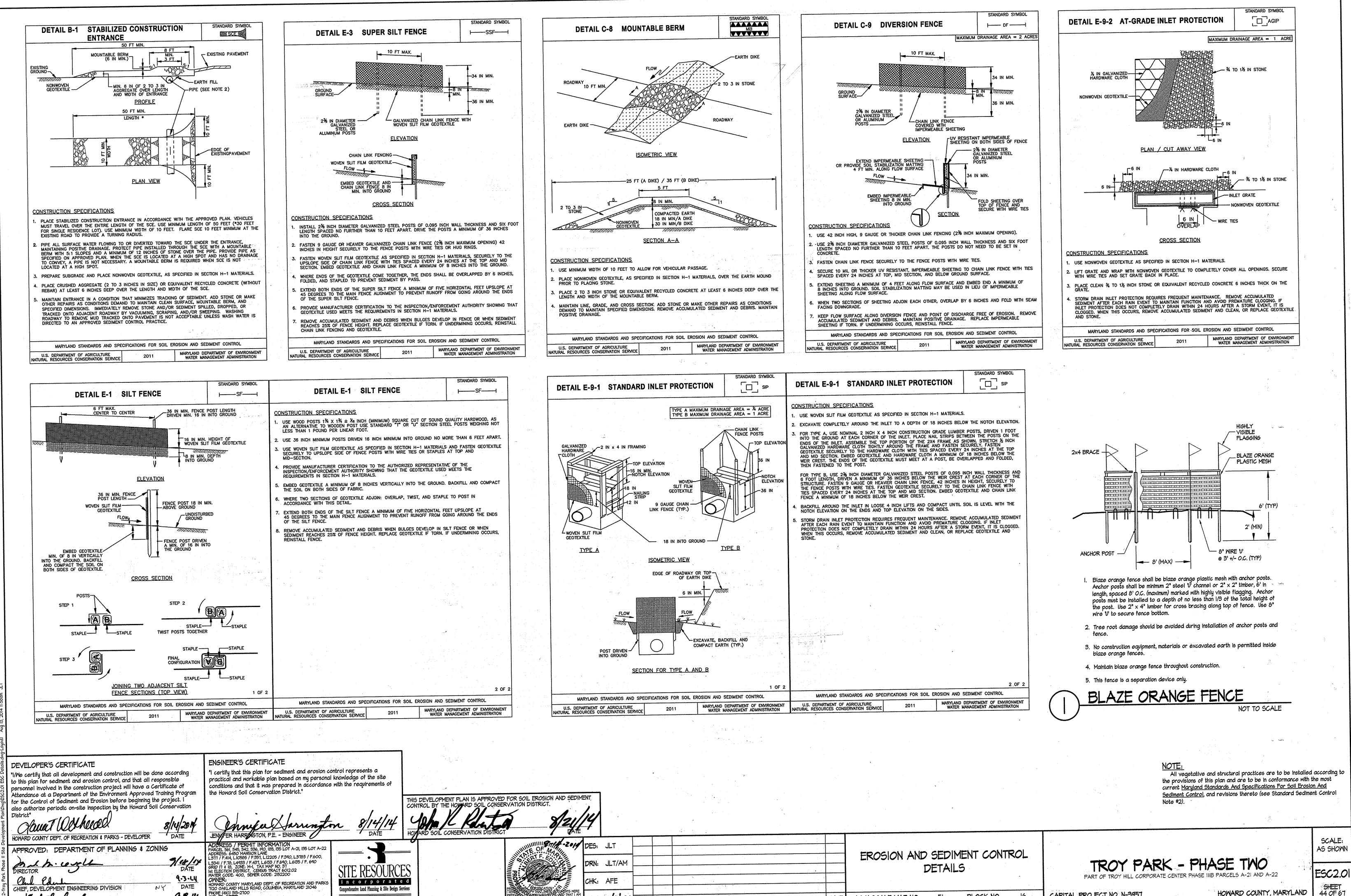
TROY PARK - PHASE TWO PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

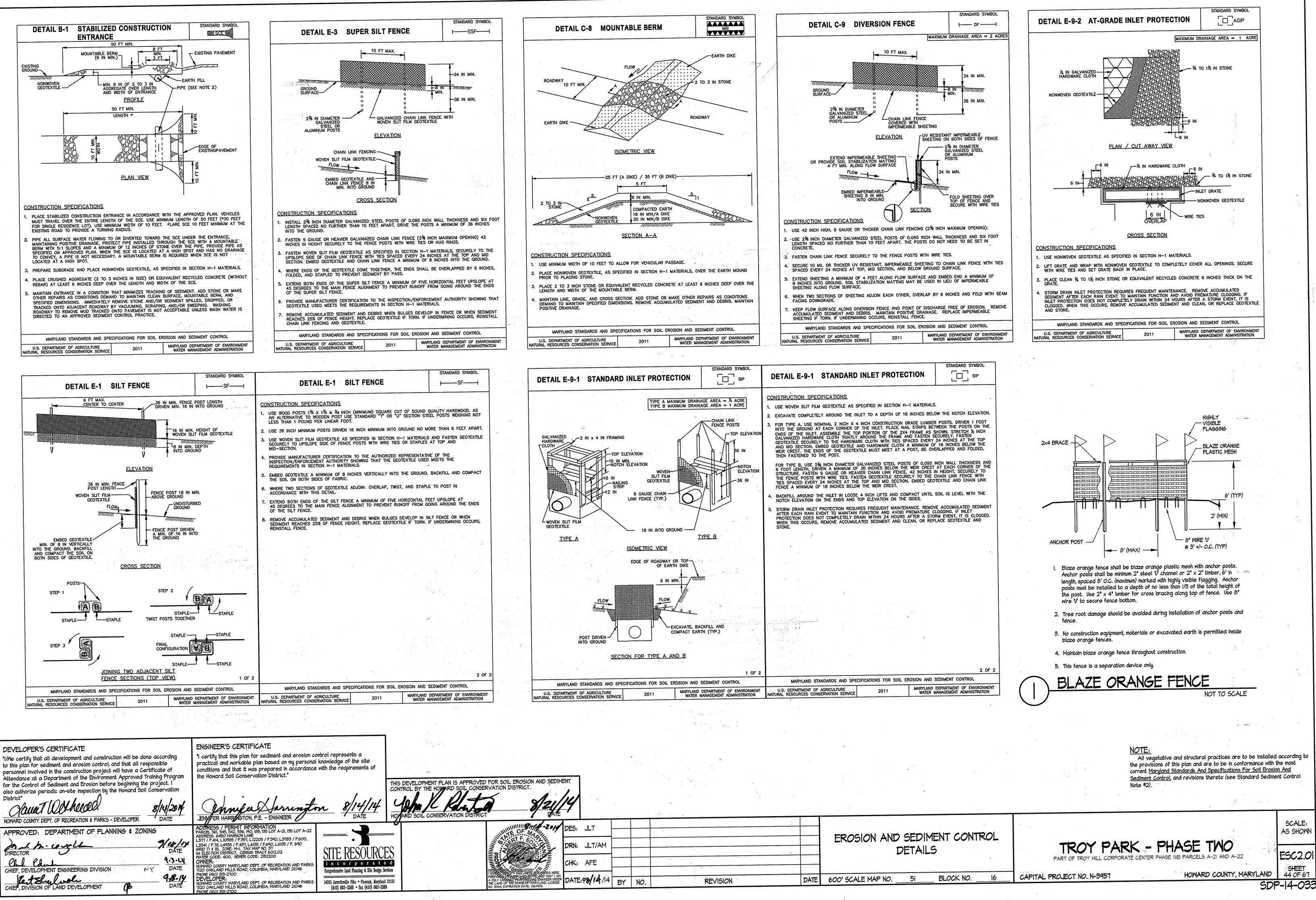
ESCI.04 HOWARD COUNTY, MARYLAND 43 OF 67

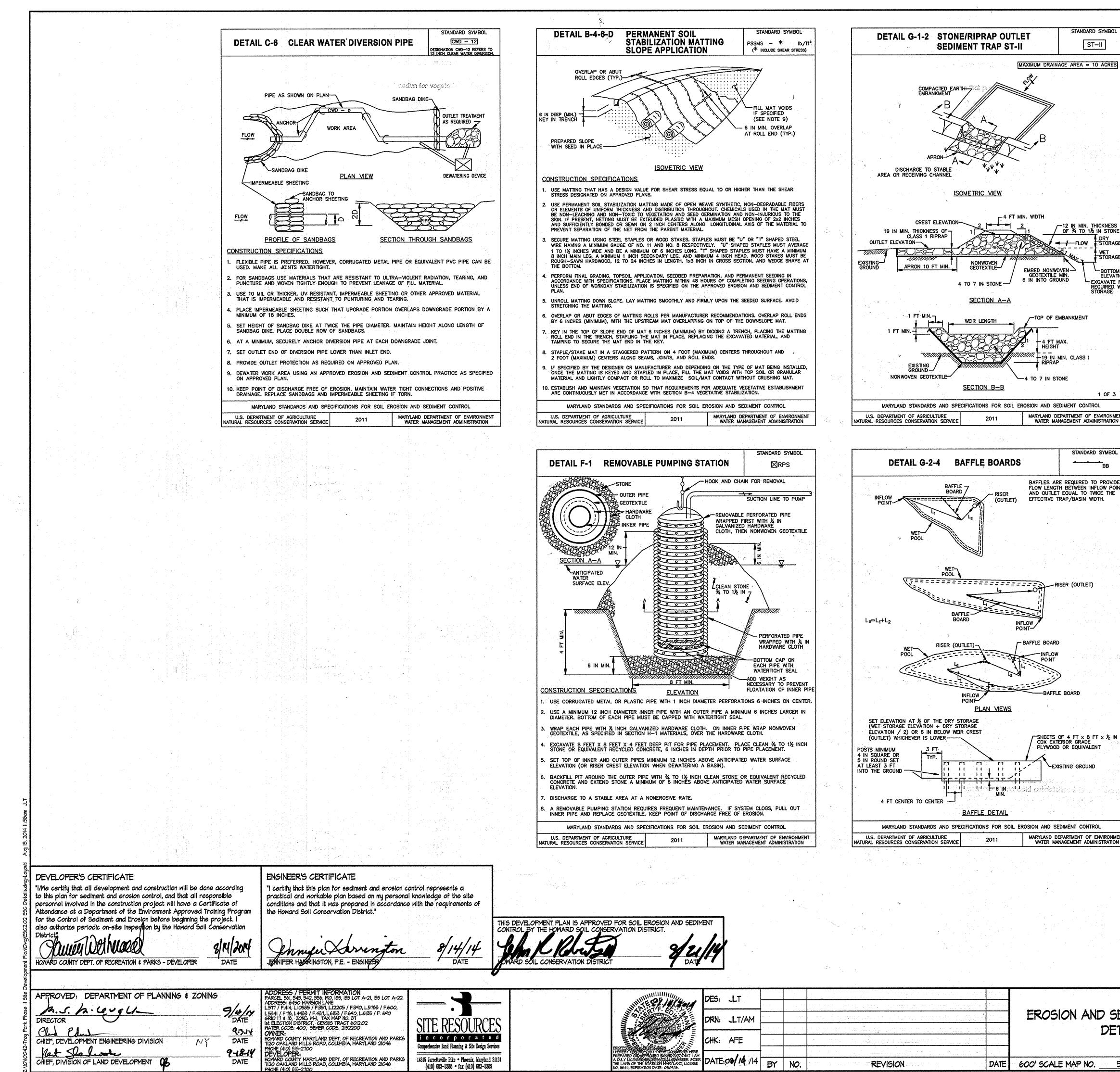
SCALE:

l<sup>\*</sup>=40'

CAPITAL PROJECT NO. N-3957 6







	A DULY LICENSEMMOR ESSONAL ENGINEER INDER THE LAYS OF THE STATE OF MARTLAND, LICENSE NO. 16144, EXPIRATION DATE: 08/19/16.	DATE:08/14/14	BY	NO.	DATE	600' SCALE MAP NO. 51
	HEREBY CERTIFY THAT THESE DOWNERS WERE PREPARED CRASTROCED BOND ADDINAT I AM	1.	-			·
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		DRN: JLT/AM		1 N.N.		EROSION AND SE
	NING EST AL		 			
		DES: JLT				

DETAIL G-1-2 STONE/RIPRAP OUTLET	STANDARD SYMBOL			
SEDIMENT TRAP ST-II	ST-II		1 1 2	
CONSTRUCTION SPECIFICATIONS 1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER	POLLUTION ARE AVOIDED.			
AND TRAP BOTTOM.				
MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKM 4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CI	MENT. REST. COMPACT THE EMBANKMENT		·	
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.	till and National			
SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. O AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACE	OVERLAP SECTIONS OF GEOTEXTILE ED ON TOP. EMBED GEOTEXTILE AT			
		*		
UPSTREAM FACE OF THE WEIR.			, ,	
THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR. 10. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AN				
11. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS W TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT	REMOVED SEDIMENT IN AN			
OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION DEBRIS, MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIRE ESTABLISHMENT IN ACCORDANCE WITH SECTION 8-4 VEGETATIVE S	N, AND REMOVE ACCUMULATED MENTS FOR ADEQUATE VEGETATIVE TABILIZATION, REMOVE ANY TREES,			
MAINTAIN LINE, GRADE, AND CROSS SECTION. 12. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN API				
	RAP.			
			in ware	,
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSIC	2 of 3 ON AND SEDIMENT CONTROL			
U.S. DEPARTMENT OF AGRICULTURE 2011	ARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION		•	
			4 4 1 1	24 74
THESE DETAILS, F-1, G-1-2, AND G-2-4.				
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	NOTE: All veg	etative and structural pro	actices are to be installed acc	ording to
	the provisi current <u>Ma</u> Sediment C	ons or this plan and are ryland Standards And Sp <u>ontrol,</u> and revisions ther	to be in conformance with the m <u>ecifications For Soil Erosion An</u> teto (see Standard Sediment Co	nost I <u>d</u> ontrol
	Note #2).			
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CAPITAL PROJECT NO. N-3957 BLOCK NO. 16

HOWARD COUNTY, MARYLAND SDP-14-033

PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

ESC2.02

SHEET 45 OF 67

# B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition Using vegetation as cover to protect exposed soil from erosion.

To promote the establishment of vegetation on exposed soil.

### Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

### Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

### Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

- . Adequate vegetative stabilization requires 95 percent groundcover.
- 2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding. 3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using
- half of the rates originally specified.
- 4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

### B-4-I STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

Definition Establishment of vegetative cover on cut and fill slopes.

<u>Purpose</u> To provide timely vegetative cover on cut and fill slopes as work progresses. Conditions Where Practice Applies Any cut or fill slope greater than 15 feet in height. This practice also applies to

- <u>Criteria</u> A. Incremental Stabilization Cut Slopes I. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work

  - progresses.
    Construction sequence example (Refer to Figure B.I):
    a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
    b. Perform Phase I excavation, prepare seedbed, and stabilize.
    c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed
  - Phase I areas as necessary. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

- B. Incremental Stabilization Fill Slopes 1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work
- Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed on the plans. 3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a
- non-erosive manner
- Construction sequence example (Refer to Figure B.2):
   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
- At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
- Place Phase I fill, prepare seedbed, and stabilize Place Phase 2 fill, prepare seedbed, and stabilize. Place final phase fill, prepare seedbed, and stabilize. Overseed previously
- seeded areas as necless'ary

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

### DEVELOPER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. also authorize periodic on-site inspection by the Howard Soll Conservation

8/14/2014 Janui Weller HOWARD COUNTY DEPT. OF RECREATION & PARKS - DEVELOPER

ENGINEER'S CERTIFICATE

Ket Shelwood

CHIEF, DIVISION OF LAND DEVELOPMENT

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

ENNIFER HARSINGTON, P.E. - ENGINEER THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. AFTROVED: DEPARTMENT OF PLANNING & ZONING Jans. Ja-leugli-9/15/14 DATE DIRECTOR CHIEF, DEVELOPMENT ENGINEERING DIVISION 9.3.14

DATE

9-18-14

### B. Topsolling Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative

materials toxic to plants, and/or unacceptable soil gradation. 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil

- profile section in the Soil Survey published by USDA-NRCS. 3. Topsoiling is limited to areas having 2:1 or flatter slopes where: a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - The original soil to be vegetated contains material toxic to plant growth. The soil is so acidic that treatment with limestone is not feasible.
  - 4. Areas having slopes steeper than 2:1 require special consideration and design. 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
    - a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoll must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, aravel, sticks, roots, trash, or other materials larger than 11/2 inches in
  - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
  - Topsoil substitutes or amendments, as recommended by a qualified aaronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - 6. Topsoil Application a. Erosion and sediment control practices must be maintained when applying
  - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
  - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Line Specifications)

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

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must

- bear the name, trade name or trademark and warranty of the producer. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseedina) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98
- to 100 percent will pass through a #20 mesh sieve 4. Line and fertilizer are to be evenly distributed and incorporated into the top 3
- to 5 inches of soil by disking or other suitable means. 5. Where the subsoil is either highly acidic or composed of heavy claus, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000
- square feet) prior to the placement of topsoil.

ADDRESS / PERMIT. INFORMATION PARCEL 561, 345, 342, 336, 190, 185, 135 LOT A-21, 135 LOT A-22 ADDRESS: 6450 MANSION LANE LSTT / F.414, L.10585 / F.351, L.12205 / F.340, L.5783 / F.600, L5341 / F.78, L4433 / F.437, L6153 / F.640, L6135 / F. 640 GRID 17 & 18, ZONE: M-1, TAX MAP NO. 37 Ist ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SENER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046



- 3 to 5 inches. by the results of a soil test.
- objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top I to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

# The process of preparing the solls to sustain adequate vegetative stabilization.

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

<u>Criteria</u> A. Soll Preparation

Temporary Stabilization

- Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
- Apply fertilizer and lime as prescribed on the plans.
- Incorporate line and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
- 2. Permanent Stabilization
- a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment
- Soil pH between 6.0 and 7.0.
- Soluble salts less than 500 parts per million (ppm). III. Soil contains less than 40 percent clay but enough fine grained
- material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If lovegrass will be planted, then a sandy soll (less than 30 percent silt plus clau) would be acceptable.
- iv. Soil contains 1.5 percent minimum organic matter by weight. v. Soil contains sufficient pore space to permit adequate root penetration.
- Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
- c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of
- d. Apply soil amendments as specified on the approved plan or as indicated
- e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large

PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046

# B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

### B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover.

To protect disturbed soils from erosion during and at the end of construction.

### Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

<u>Criteria</u> A. Seeding I. Specifications

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon
- request to the inspector to verify type of seed and seeding rate.
  b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied
- when the ground thams. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less
- effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
- 2. Application
- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.I, Permanent Seeding Table B.3, or
- site-specific seeding summarles. Apply seed in two directions, perpendicular to each other. Apply half
- the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soll contact. b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover
- seed with soil. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm
- after planting
- II. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed
- and fertilizer) If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre;
- K20 (potassium), 200 pounds per acre. ii. Line: Use only ground agricultural limestone (up to 3 tons per acre
- may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseedina. ill. Mix seed and fertilizer on site and seed immediately and without
- interruption. iv. When hydroseeding do not incorporate seed into the soil.

### B. Mulching

- Mulch Materials (In order of preference) a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed or excessively dusty. Note: Use only sterile straw mulch in areas where one
- species of grass is desired. b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state. I. WCFM is to 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.
- ii. WCFM, including due, must contain no germination or growth inhibiting factors. III. WCFM materials are to 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 must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soll without inhibiting the growth of the grass seedlinas
- IV. WCFM material must not contain elements or compounds at
- concentration levels that will be phyto-toxic v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

- a. Apply mulch to all seeded areas immediately after seeding When straw mulch is used, spread it over all seeded areas at the rate of 2
- tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. 3. Anchoring
- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 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 follow the contour. Wood cellulose fiber may be used for anchoring straw. Apply the fiber
- binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water
- Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
- Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3000 feet long.

# B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

### Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

- I. Select one or more of the species or seed mixtures listed in Table B.I for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.I plus fertilizer and lime rates must be put on the plan.
- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch
- alone as prescribed in Section B-4-3.A.I.b and maintain until the next seeding season.

TEMPORARY SEEDIN	NG.	SUMMARY
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	<u>۲</u>	HARDINE	65 ZONE <u>66</u>	<u>.</u>	
Species	Application Rate (ibs./ac.)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate
Annual Ryegross	40 lbs/ac.	3/1 - 5/15 7/1 - 10/15	1/2*	436 lb/ac.	2 tons/ac.
Foxtail Millet	30 lbs/ac.	5/16 - 7/31	¥2"	(10 16/1000 sf	(90 lb/1000 s.f

### B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION Definition

To stabilized disturbed soils with permanent vegetation.

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

<u>Criteria</u>

A. Seed Mixtures

- General Use a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide. Section 342 - Critical Area Planting
- c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
- 2. Turfarass Mixtures
- a. Areas where turfarass may be desired include lawns, parks, playarounds, and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent

Seeding Summary. The summary is to be placed on the plan. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars

Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture bu weiaht

- Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas whererapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the
- total mixture by weight. III. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to

medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass

Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 11/2 to 3 pounds per 1000 square feet.

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# growth. Soils of concern have low moisture content, low nutrient levels, low pH,

2 of fores

Select turfarass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, Turfgrass Cultivar Recommendations for Maruland"

Choose certified material. Certified material is the best quarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

- c. Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June I, August I to October I (Hardiness Zones: 5b, 6a) Central MD: March I to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March I to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- e. If soll moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

### PERMANENT SEEDING SUMMARY

	HARDI	NESS ZONE	<u>6b</u>		f	Fertilizer Ra (10-20-20)		
No.	Specles	Application Rate (Ib/ac)	Seeding Dates	Seeding Depths	N	P2O5	K20	Lime Rate
	Tall Fescue*	285 ib/ac**	3/1 - 5/15 8/15 - 10/15	1/4* - 1/2*	45 lb/ac	90 lb/ac (2 lb/	90 ib/ac (2 lb/	2 tons/ac (901b/
	Kentucky Bluegrass*	15 lb/ac	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"	(1,0 lb/ 1000sf)	(2 10/ 1000 st)	(210) 1000 sf)	(9010) 1000 st)

Select turforass varieties from those listed as proven cultivors in the most current University of Maryland publication, "Acronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland." \*\* For tall fescue choose 3 proven cultivars to be used in equal proportions in the seed mix.

B. Sod: To provide quick cover on disturbed areas (2:1 'grade or flatter). General Specifications

- a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- b. Sod must be machine cut at a uniform soil thickness of 34 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its nstallation.
- 2. Sod Installation a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to
- laying the sod. b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints 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.
- c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
- d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
- 3. Sod Maintenance a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist
  - soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting. b. After the first week, sod watering is required as necessary to
- maintain adequate moisture content.
- c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

### NOTE:

over prosida -

1. But when a set

ALL VEGETATIVE AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL PRIOR TO PERMANENT SEEDING AND/OR CURLEX APPLICATION. SEE SPECIFICATIONS.



16

BLOCK NO.

SCALE: AS SHOWN ESC2. SHEET 46 OF 67

HOWARD COUNTY, MARYLAND

WARD COUNTY DEPT. OF RECREA	TION & PARKS - DEVELOPER DATE	ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 185 LOT A-21, 18 ADDRESS: 6450 MANSION LANE L571 / F.414, L.10585 / F.357, L.12205 / F.340, L578 L5341 / F.70, L4433 / F.437, L6153 / F.640, L6135 / GRID 17 & 18, ZONE: M-1, TAX MAP NO, 37 Ist ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SEVER CODE: 2152200	35 LOT A-22 3 / F.600, F. 690	DECOLIDCEC	SOIL CONSERVATION DIST	ICT SIZE SIZE	ATE DES: DRN:
o this plan for sediment and er personnel involved in the constr Attendance at a Department of or the Control of Sediment and also authorize periodic on-site i	TE nt and construction will be done according osion control, and that all responsible uction project will have a Certificate of the Environment Approved Training Program I Erosion before beginning the project. I Inspection by the Howard Soil Conservation	ENGINEER'S CERTIFICATE "I certify that this plan for sediment an practical and workable plan based on conditions and that it was prepared in the Howard Soil Conservation District."	d erosion control repre my personal knowledge accordance with the re	of the site quirements of THIS DEVI	ELOPMENT PLAN IS APPROV BY THE HOWARD SOIL GOI	VED FOR SOIL EROSION AND	SEDIMENT
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# RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2 No to be while the pool coop 11 000

EXISTING TO BE MAINTAINED FROM	SDP-11-00	3)
DRAINAGE AREA - INITIAL	8.3	ACRES
DRAINAGE AREA - INTERIM		ACRES
DRAINAGE AREA - FINAL	3.86	ACRES
TOTAL STORAGE REQUIRED	13896	CF
TOTAL STORAGE PROVIDED	25967	CF
WET STORAGE REQUIRED	6948	CF
WET STORAGE PROVIDED	15982	CF
DRY STORAGE REQUIRED	6948	CF
DRY STORAGE PROVIDED	15542	CF
EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION)	183	FT
TRAP BOTTOM ELEVATION	180.25	FT
TRAP BOTTOM DIMENSIONS	147 x 40	FT x FT
WEIR LENGTH	34	FT
WEIR CREST (DRY STORAGE) ELEVATION	184.9	FT
CLEANOUT ELEVATION	182	FT
TOP OF EMBANKMENT ELEVATION	186.75	FT
SIDE SLOPE	2:1	H₊∨
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	· 10	FT
OUTLET PROTECTION - DEPTH	19	ļ IN
		North Constants All

# SEDIMENT AND EROSION CONTROL NOTES

- (410-313-1855).
- araded areas on the project site.
- Sediment Control Inspector. 6. SITE ANALYSIS:
  - Total Area of Site:
  - Area Disturbed: Area to be roofed or paved Area to be vegetatively stat
  - Total Cut: Total Fill:
- Offsite Waste/Borrow Area Location: must be repaired on the same day of disturbance.
- Sediment Control Inspector.
- inspection agency is made.
- the plan approval authority prior to proceeding with construction.
- a given time.

REVISION		DATE	600' SCALE MAP NO.	51
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			
			SEDIMENT	TPL
* * *				*, <i>*</i>

NO.

I. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto. 3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of

5. All sediment control structures are to remain in place and are to be maintained in operative conditions until permission for their removal has been obtained from the Howard County

	· · · · · · · · · · · · · · · · · · ·	
	101.89 Acres	Scenotele
1.	<u>20.32</u> Acres	
d:	8.73 Acres	on sheet
bllized:	11.59 Acres	20567
	<u>180,000</u> Cu. Yds.	
	180,000 Cu. Yds.	

7. Any sediment control practice which is disturbed by grading activity for placement of utilities 8. Additional sediment control must be provided, if deemed necessary by the Howard County

9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the

10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter. II. Any changes or revision to the sequence of construction must be reviewed and approved by

12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at

# SEQUENCE OF CONSTRUCTION

 Assure that Grading Permit and all other necessary permits are obtained from Owner.
 Notify Howard County Department of Public Works at least 48 hours before start of work. Contact Miss Utility at 1-800-257-7777 at least three days in advance of starting work shown on plans.

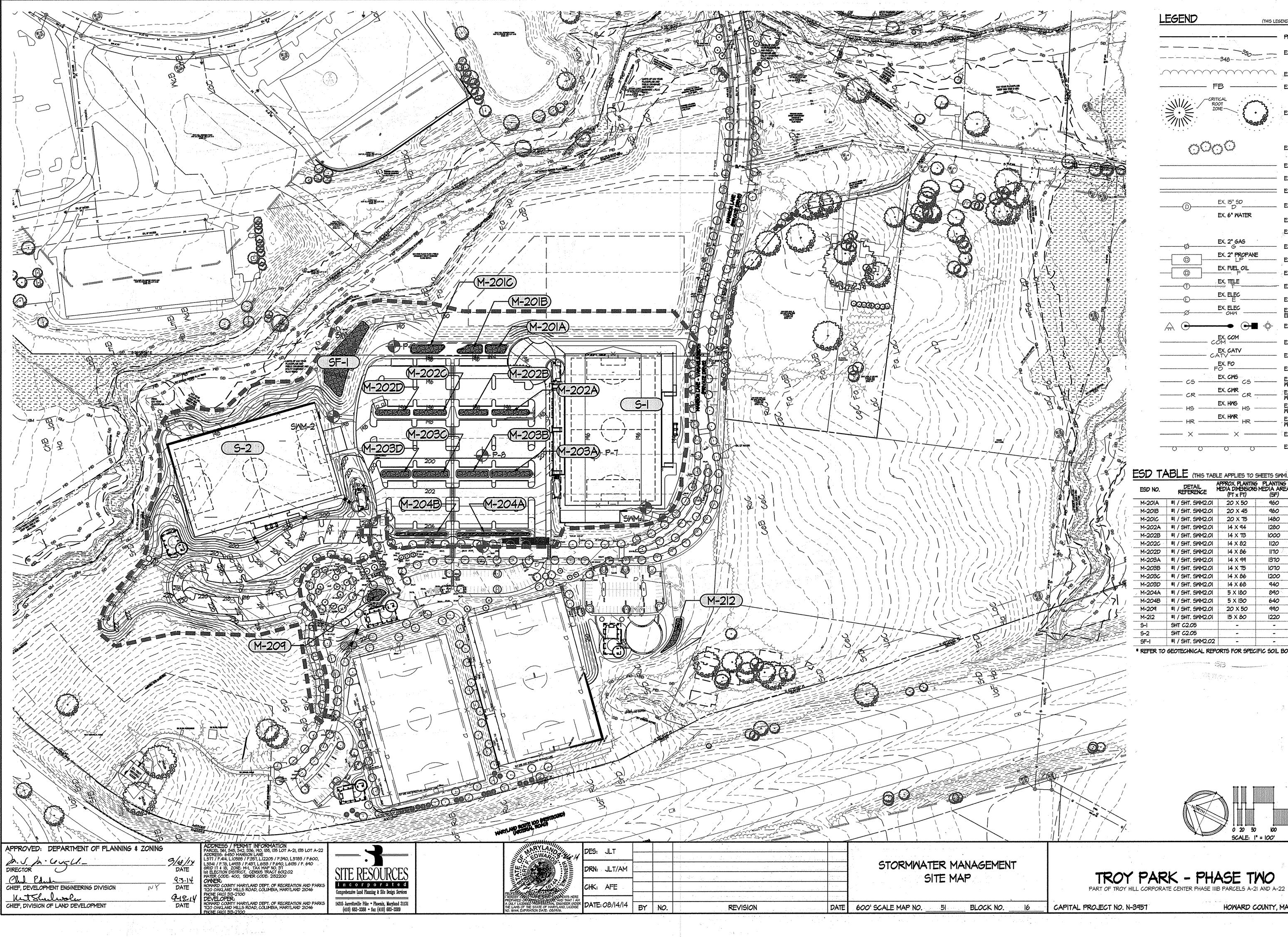
- 3. Clear and arvb for and install erosion and sediment control measures or devices. See ESC 1.00 for the overall sediment control plan. 3.a. Retain Sediment Trap 2 from Phase 1 - SDP-11-003. This trap will be converted to a
- Sand Filter later in the sequence. 3.b. Maintain diversion fence (DF) at the north side of the site from the nearest point to the Historic House to the point where the existing diversion fence turns to the east near to the proposed loop parking area. From this point, extend diversion fence to the north a distance of about 150 linear feet as shown. Install rock outlet protection (ROP III) 8'
- wide by 24' long, class I riprap at each outfall of the diversion fence as shown. 3.c. Maintain existing super silt fence (SSF) where shown along the northern limit of disturbance near to Turf Field 5-2. Install super silt fence (SSF) at remaining locations as shown. 3.d. install the stabilized construction entrances (SCE) and inlet protection (IP).
- 4. Notify Sediment Control Inspector and Engineer upon completion of this installation. 5. The three development areas for Pavilion construction shall occur such that no more than 20 acres of area is disturbed at one time. This construction project will not exceed 20 acres of
- disturbance during any time. 6. For access and construction of the three development areas for the proposed Pavilions, use
- only rubber tired construction equipment where access to these areas will be through recently stabilized site construction areas. 7. Install storm drains. Construct the 900 series storm drains as part of the Pavilion P-4 work.
- Construct the 800 series storm drains as part of the Athletic Field 5-2 work. Construct the 700 series storm drains as part of the loop drive work. Construct the 600 series storm drains as part of the Athletic Field S-1 work. Construct the 500 series storm drains as part of the primary parking area work. Install inlet protection as shown on approved Erosion and Sediment Control Plans.
- 8. Install water and sanitary sewer lines and manholes.
- 9. Fine grade and install base course for all road surfaces and parking lots. Install curb and 10. Construct synthetic fields in accordance with manufacturer's specifications including underdrains,
- concrete edging for fencing, and turf surface. Construction bleachers and walks associated with Fields I and 2.
- II. Final grade the remaining areas and permanently stabilize those areas. 12. After all contributing drainage areas have been completely stabilized, install proposed SWM facilities per approved SWM plans.
- 13. Convert Sediment Trap 2 to a Sand Filter per approved SWM plans.
- 14. Pave all road surfaces with the final surface course. 15. After permanent stabilization of site with established vegetation and with permission of the
- Sediment Control Inspector, remove erosion and sediment control measures or devices, and stabilize those areas disturbed by this process.

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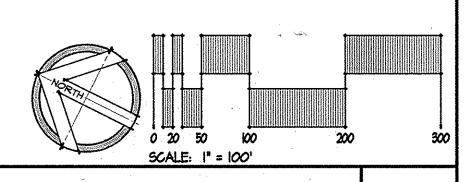


EGEND (THIS LE	GEND APPLIES TO THIS DRAWING ONL
	PROPERTY LINE
	Existing contours
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FB	EXISTING FOREST BUFFER
-CRITICAL ROOT	*.
ZONE	Existing trees
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	EXISTING WALK
	EXISTING ROAD
	EXISTING CURB
EX. 15" SD	
D D EX. 6" WATER	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEVER
EX. 2" GAS	EXISTING GAS
EX. 2" PROPANE	EXISTING PROPANE
	EXISTING FUEL OIL
	- EXISTING TELEPHONE
	EXISTING ELECTRIC
EX. ELEC	EXISTING OVERHEAD
	ELECTRIC
	Existing Lighting
COM	EXISTING COMMUNICATIONS
CATV	EXISTING CABLE TV
EX. FO FO	EXISTING FIBER OPTIC
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	EXISTING FENCE
	EXISTING GUARDRAIL
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	ABLE (THIS TAE	APPROX. PLANTING		PERFORATED	NEARES
ESD NO.	DETAIL REFERENCE	MEDIA DIMENSION (FT x FT)		4" PIPE (LF)	SOIL
M-201A	#1 / SHT. SWM2.01	20 X 50	960	45	5-14
M-20IB	#1 / SHT. SWM2.01	20 X 45	960	40	<b>S-14</b>
M-2010	#1 / SHT. SWM2.01	20 X 75	1480	70	5-13
M-202A	#1 / SHT. SWM2.01	14 X 94	1280	89	B-20
M-202B	#1 / SHT. SWM2.01	14 X 73	1000	68	P-8
M-2020	#1 / SHT. SWM2.01	14 X 82	1120	11	P-8
M-202D	#1 / SHT. SMM2.01	14 X 86	IITO	ଥା	SMM-:
M-203A	#1 / SHT. SWM2.01	14 X 99	1370	94	P-8
M-203B	#1 / SHT. SWM2.01	14 X 75	1070	70	P-8
M-203C	#I / SHT. SWM2.01	14 X 86	1200	81	P-8
M-203D	#1 / SHT. SWM2.01	14 X 68	940	63	B-204
M-204A	#I / SHT. SWM2.01	5 X 180	890	175	P-4
M-204B	#1 / SHT. SWM2.01	5 X 130	640	125	P-3
M-209	#I / SHT. SWM2.01	20 X 50	990	45	B-214
M-2 2	#I / SHT. SWM2.01	15 X 80	1220	75	B-217
S-1	SHT C2.05	neren generannen en inneren inn under			P-7
5-2	SHT C2.05	-	-	É	SMM-:
SF-I	#1 / SHT. SWM2.02	-	-	-	SMM-3

\* REFER TO GEOTECHNICAL REPORTS FOR SPECIFIC SOIL BORING INFORMATION

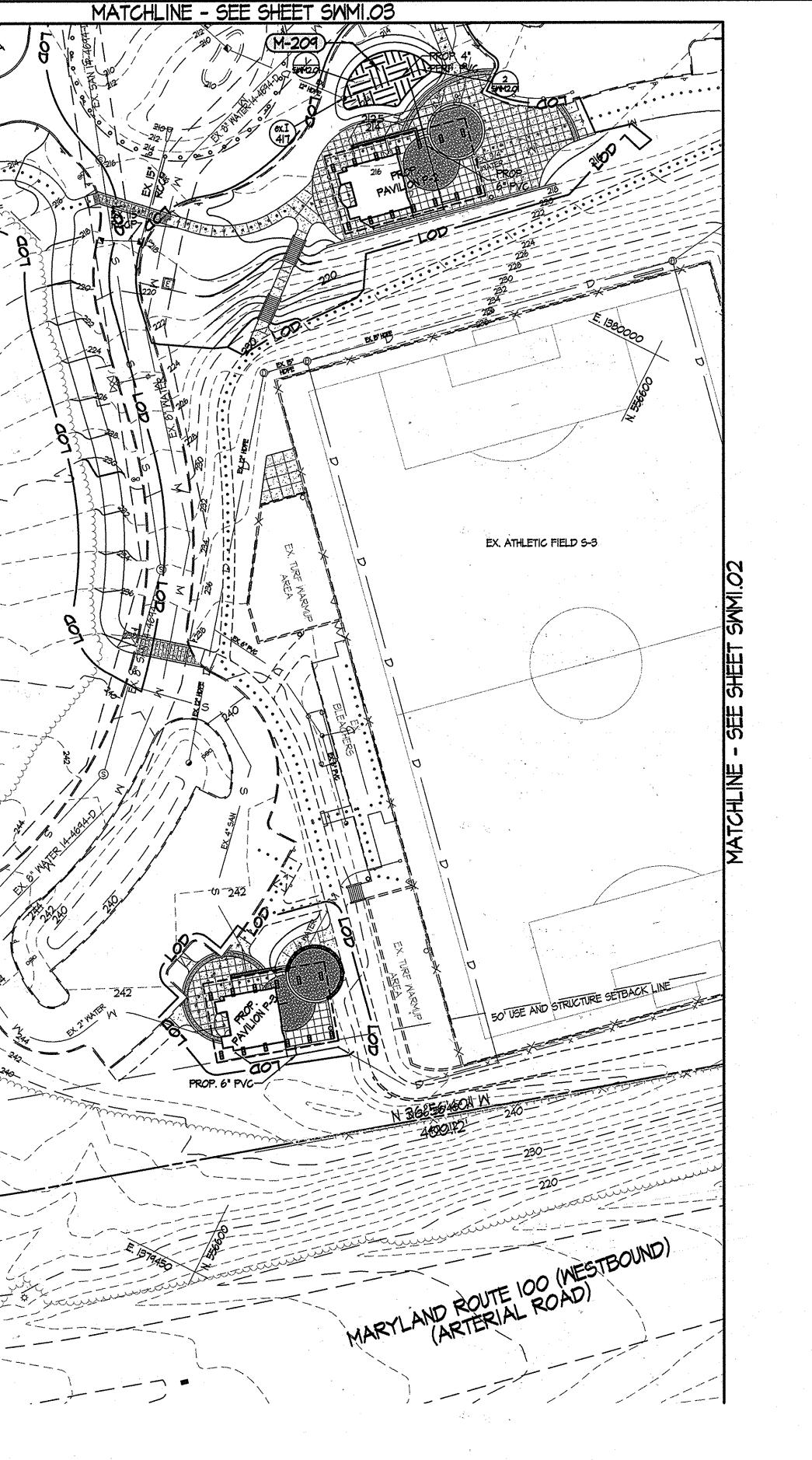


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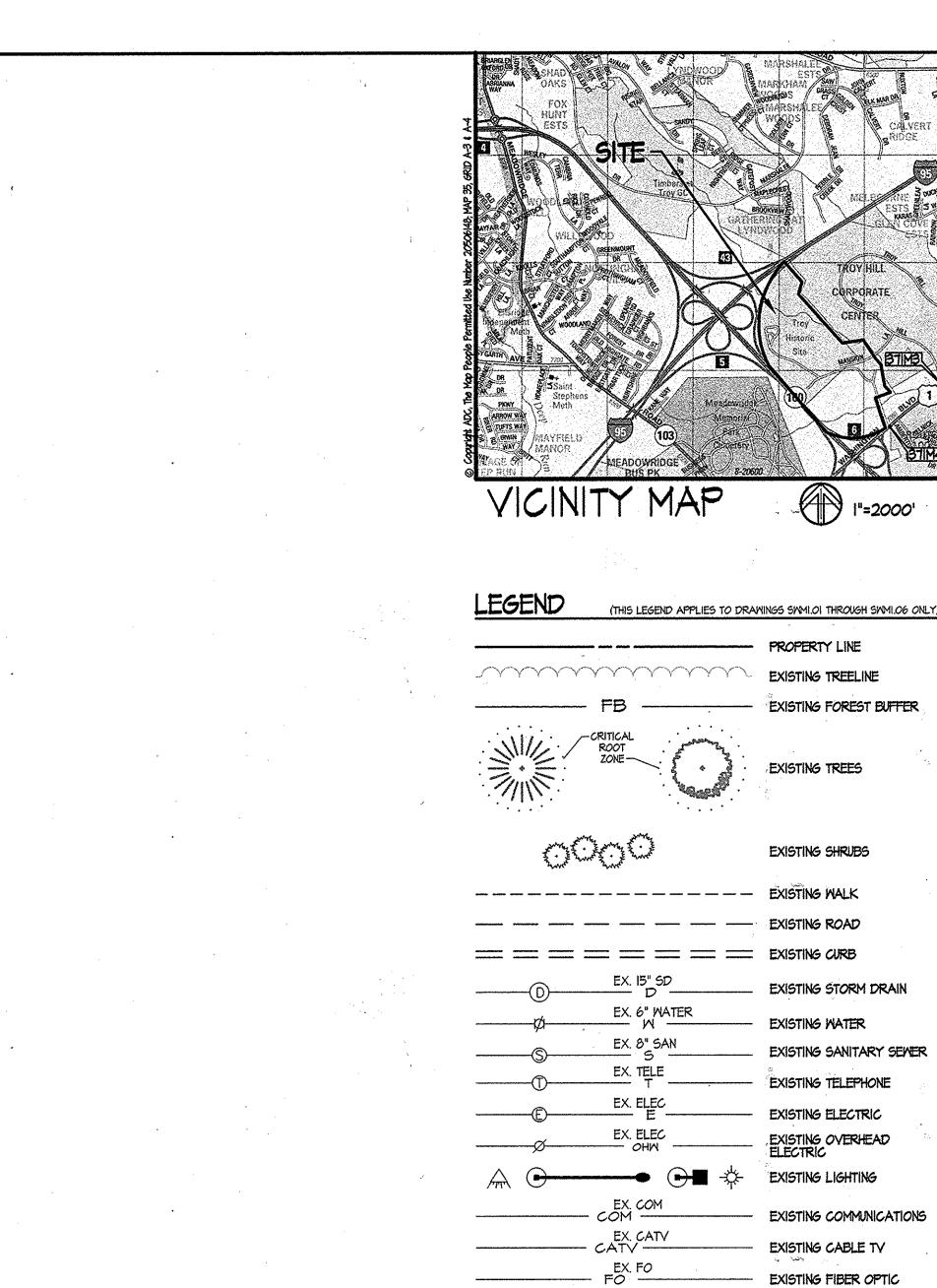
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HOWARD COUNTY, MARYLAND SHEET 48 OF 67 SDP-14-033

-mp ....... **DO** 007 PROP. J5" RCCP-EX. BLOG. FOUNDATIO EX. BLDG. FOUNDATION EX GRAVEL DRIVE RAMP FROM MD CIG TO INTEROCTATE 100 (WESTBOUND) TO INTERSTATE 95 (NORTHBOUND) ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 190, 185, 135 LOT A-21, 135 LOT A-22 ADDRESS: 6450 MANGION LANE L5T1 / F.414, LIO585 / F.35T, LI2205 / F.390, L5783 / F.600, L5341 / F.78, L4933 / F.437, L6153 / F.690, L6135 / F. 690 GRID I7 4 18, ZONE: M-1, TAX MAP NO. 37 Ist ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SEVER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS T120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS T120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 APPROVED: DEPARTMENT OF PLANNING & ZONING parch to carged .\_ 9/15/14 DATE DIRECTOR SITE RESOURCES Chief, DEVELOPMENT ENGINEERING DIVISION Ket Stenling CHIEF, DIVISION OF LAND DEVELOPMENT 9.3.11 DATE NY Comprehensive Land Planning & Site Design Services DATE 14315 Jarrettsville Pike • Phoenix, Maryland 21131 (410) 683-3388 • fax (410) 683-3389



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A D THE	U.Y LICENSED PROFESSIONAL ENGINEER UNDER LAVIS OF THE STATE OF MARYLAND, LICENSE 16444 EXPIRATION DATE DOMINIO	DATE	:08/14/14	BY	NO.	REVISION		DATE	600' SCALE MAP NO. 5



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 $\bigcirc$ 

EXISTING FENCE

EXISTING GUARDRAIL EXISTING FLAGPOLE

EXISTING BUILDING

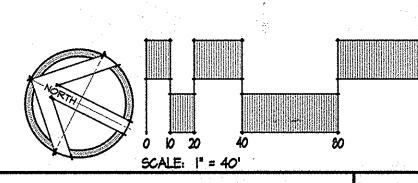
EXISTING WETLANDS

WETLAND BUFFER EXISTING STREAM

EXISTING STREAM BUFFER 

SCALE: |"=40'

SWMI.01

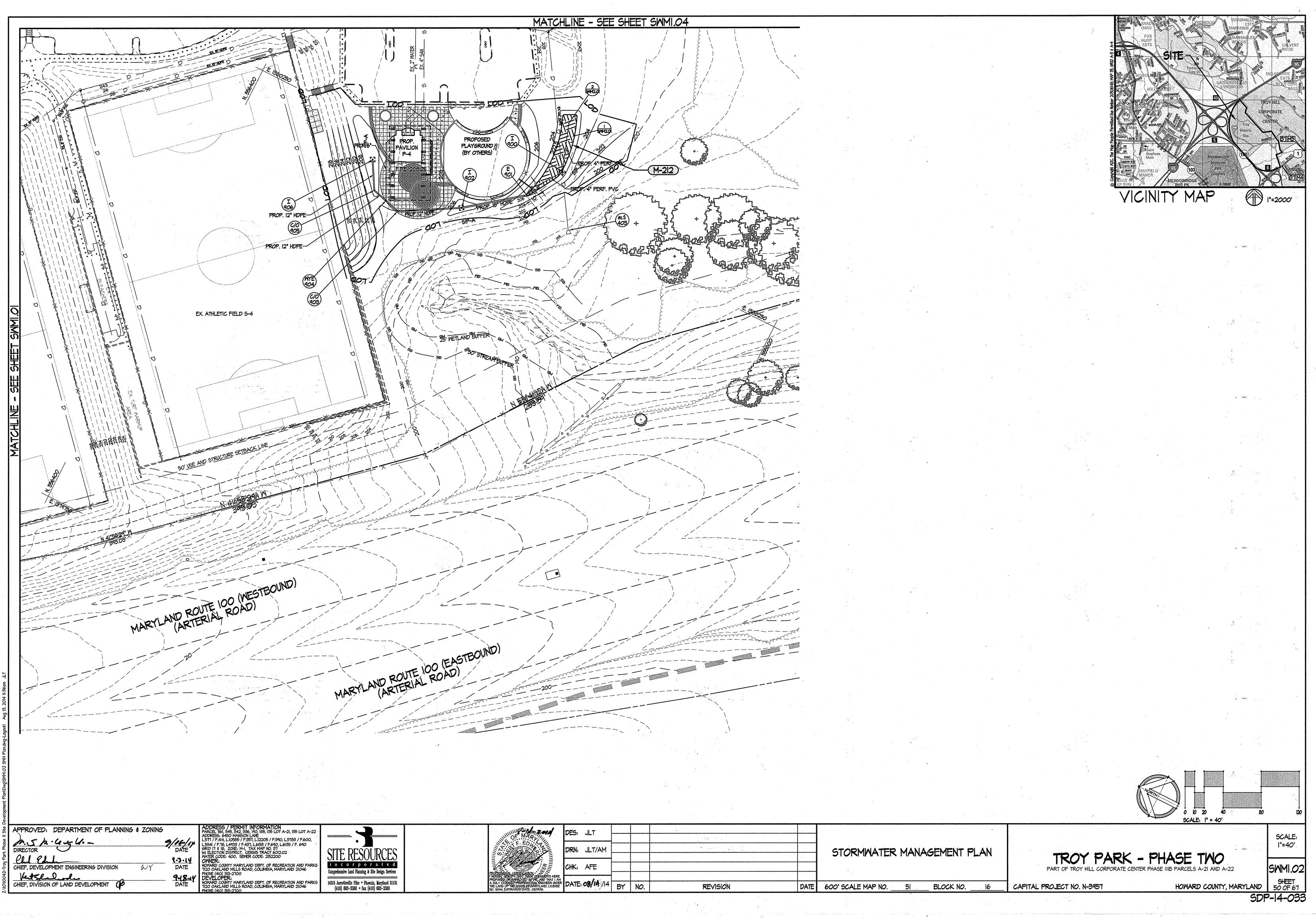


IANAGEMENT PLAN

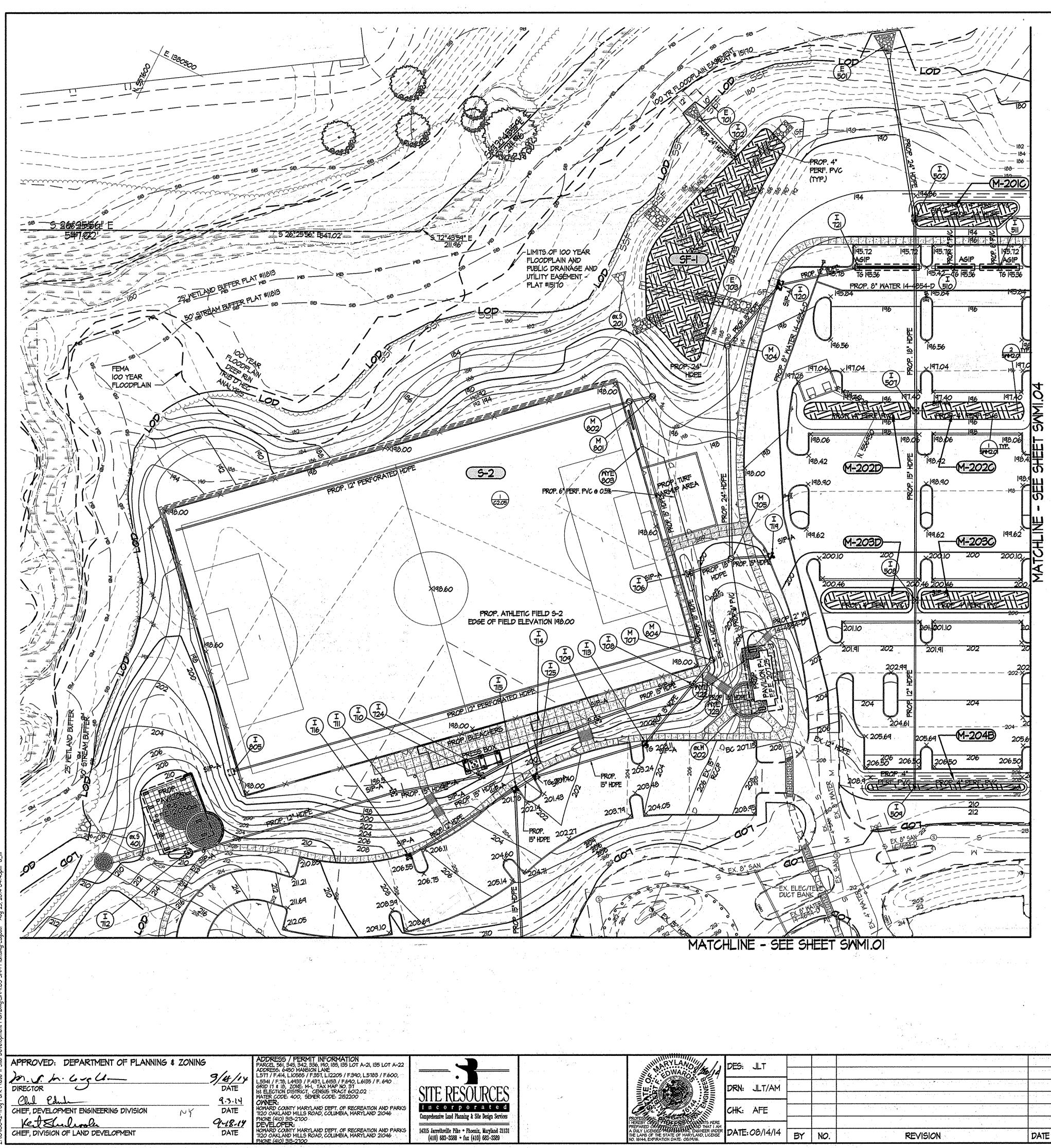
TROY PARK - PHASE TWO PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

BLOCK NO. 16 CAPITAL PROJECT NO. N-3957

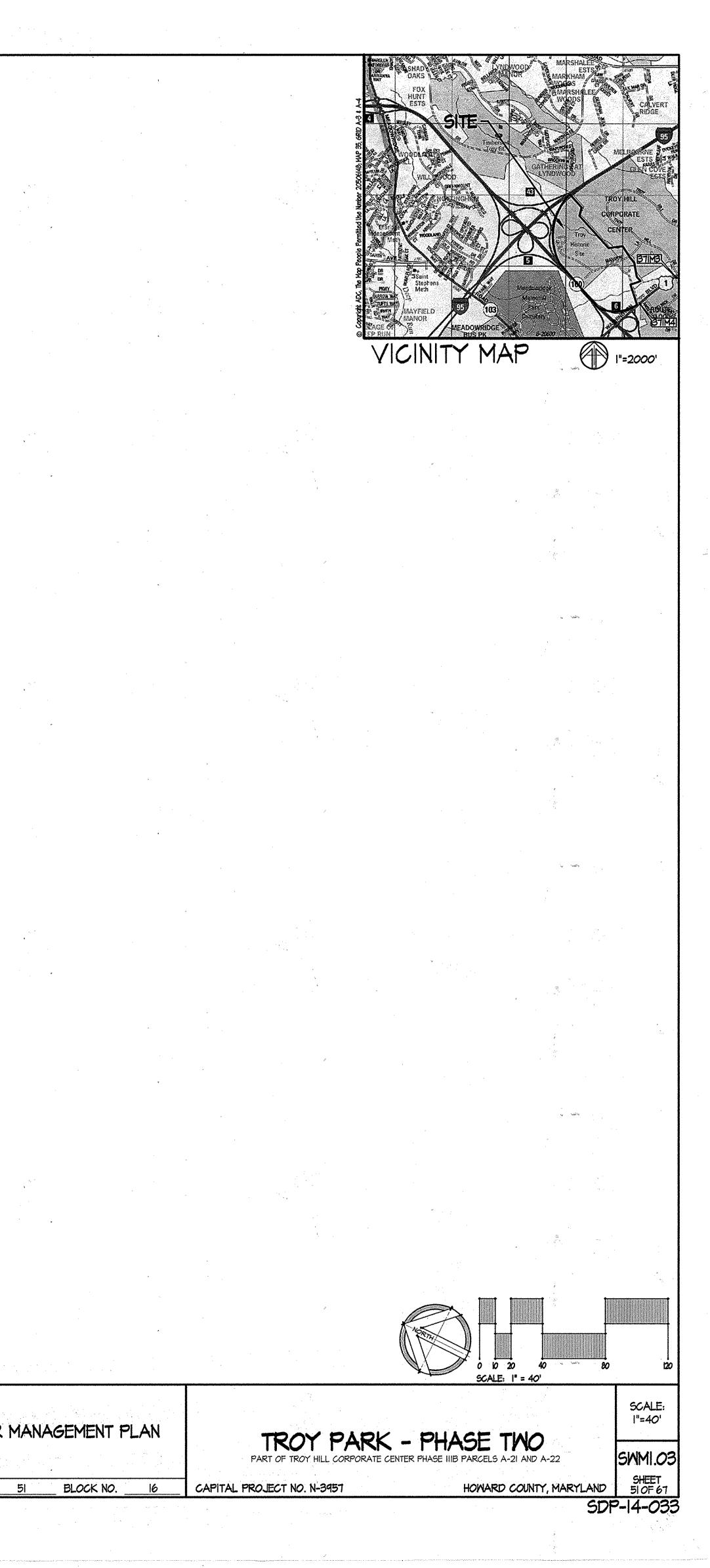
HOWARD COUNTY, MARYLAND 49 OF 67 SDP-14-033

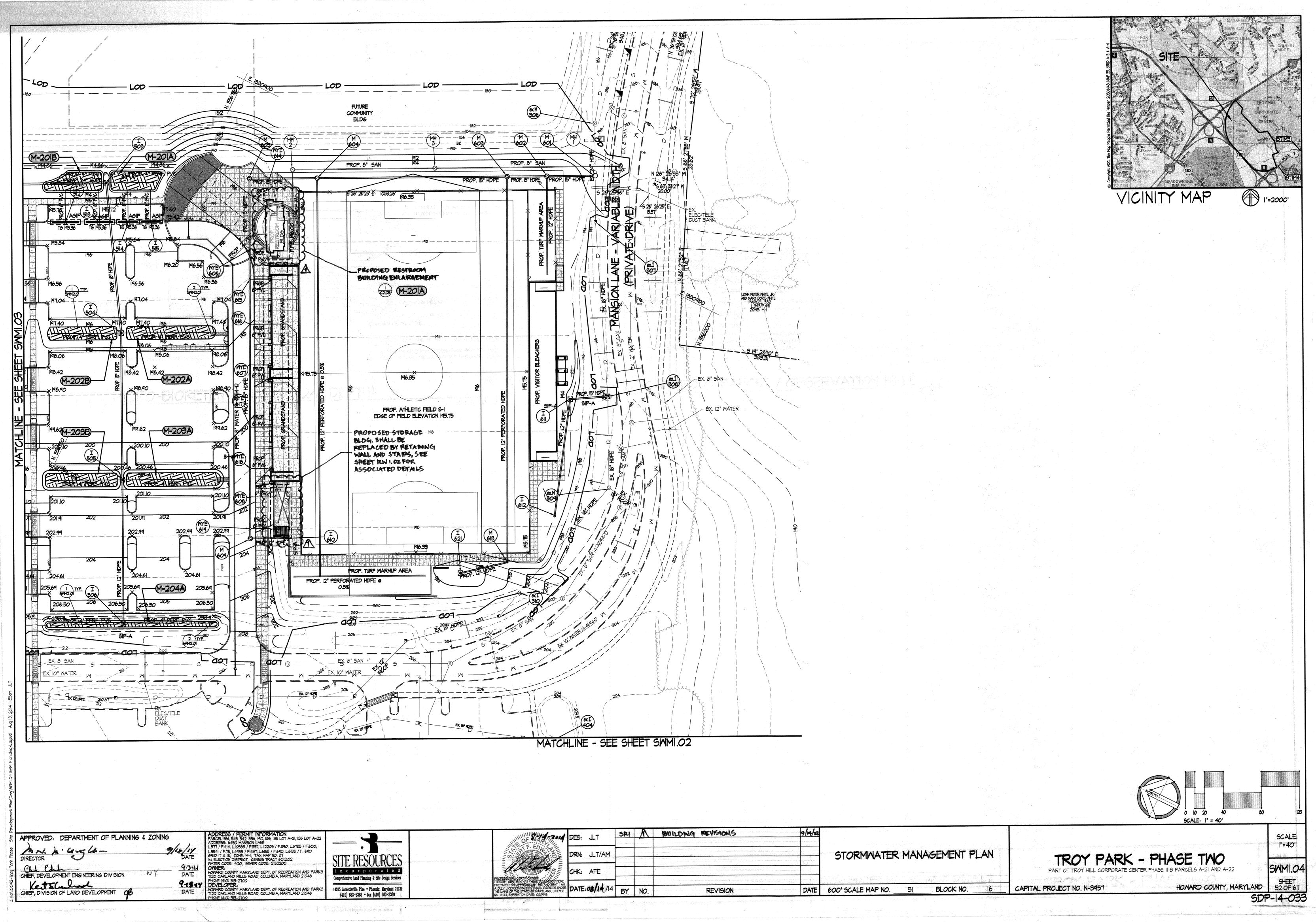


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GINEER UNDER AND, LICENSE 6.	DATE: 08/14 /14	BY	NO.	REVISION	DATE	600' 50

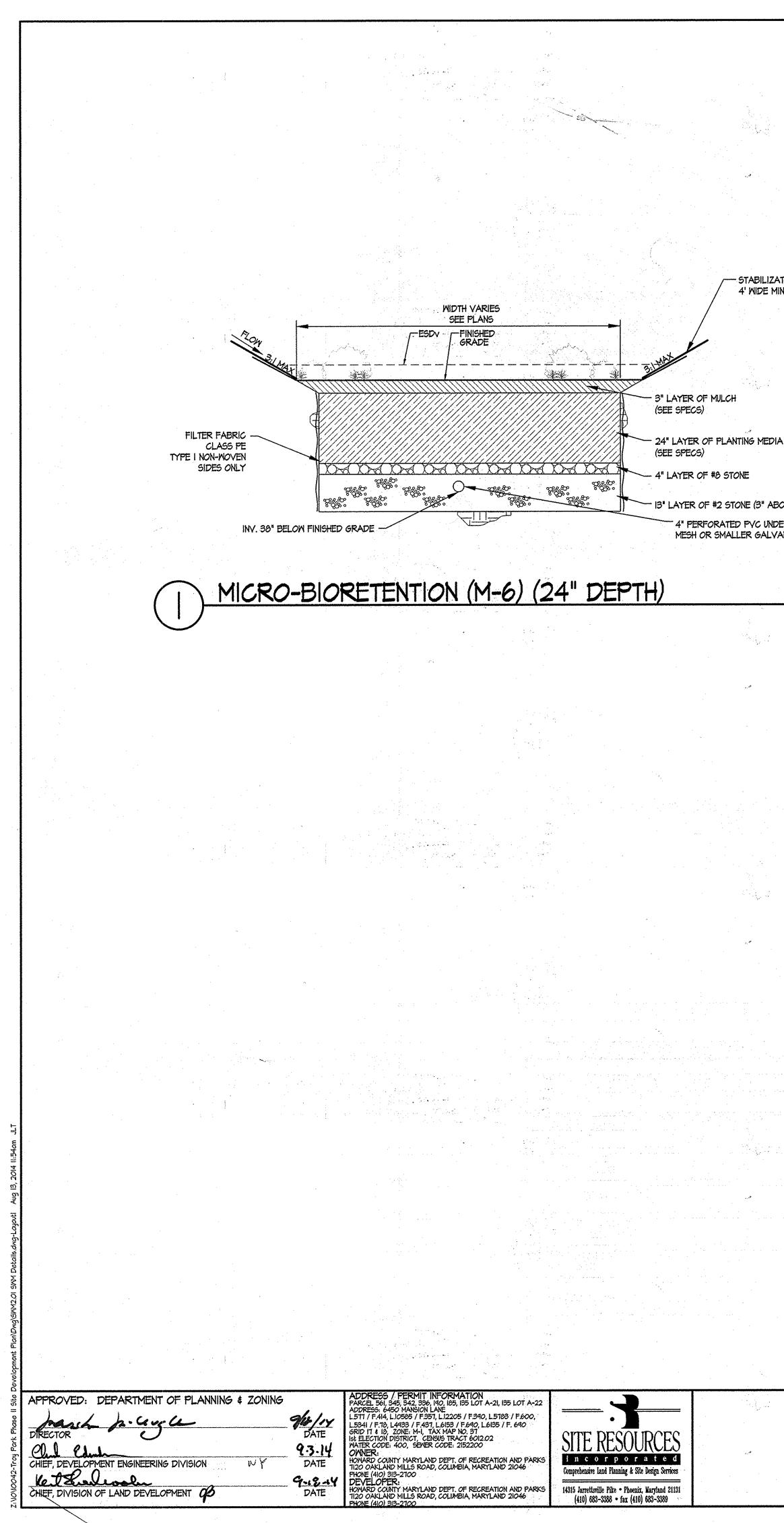


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	A DULY LICENSED <b>PROTISION</b> DISINEER NOTE THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16144, EXPIRATION DATE: 00/19/16.		BY	NO.	REVISION	DATE	600' SCALE MAP NO.
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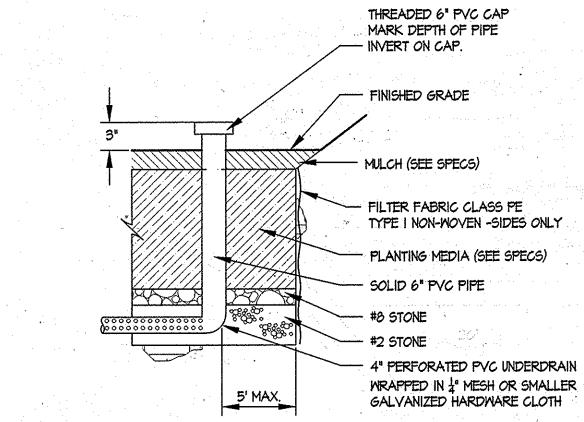
OF MAR TOPOID	DES:	JLT.	SRI	V	BUILDING KEVISIONS	9/14/2	
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PROFESSIONALCERTIFICATION	снк:	AFE					
I HEREBY CERTIFICTHAT THESE DOCUMENTS WERE PREPARED OR APTROVIDUBY ME AND THAT I AM A DULY LICENSED/PROFESSIONAL BUSINEER UNDER THE LAWS OF THE STATE OF MARTLAND, LICENSE NO. 16144, EXPIRATION DATE: OB/19/16.	DATE	:08/14/14	BY	NO.	REVISION	DATE	600' SCALE MAP NO.



# 

3" LAYER OF #2 STONE (3" ABOVE AND 6" BELOW PIPT <sup>-</sup> 4" PERFORATED PVC UNDERDRAIN WRAPPED IN  $\frac{1}{4}$ " MESH OR SMALLER GALVANIZED HARDWARE CLOTH

NOT TO SCALE



# 6" CAPPED CLEANOUT / OBSERVATION WELL

DES: JLT

DRN: JLT/AM

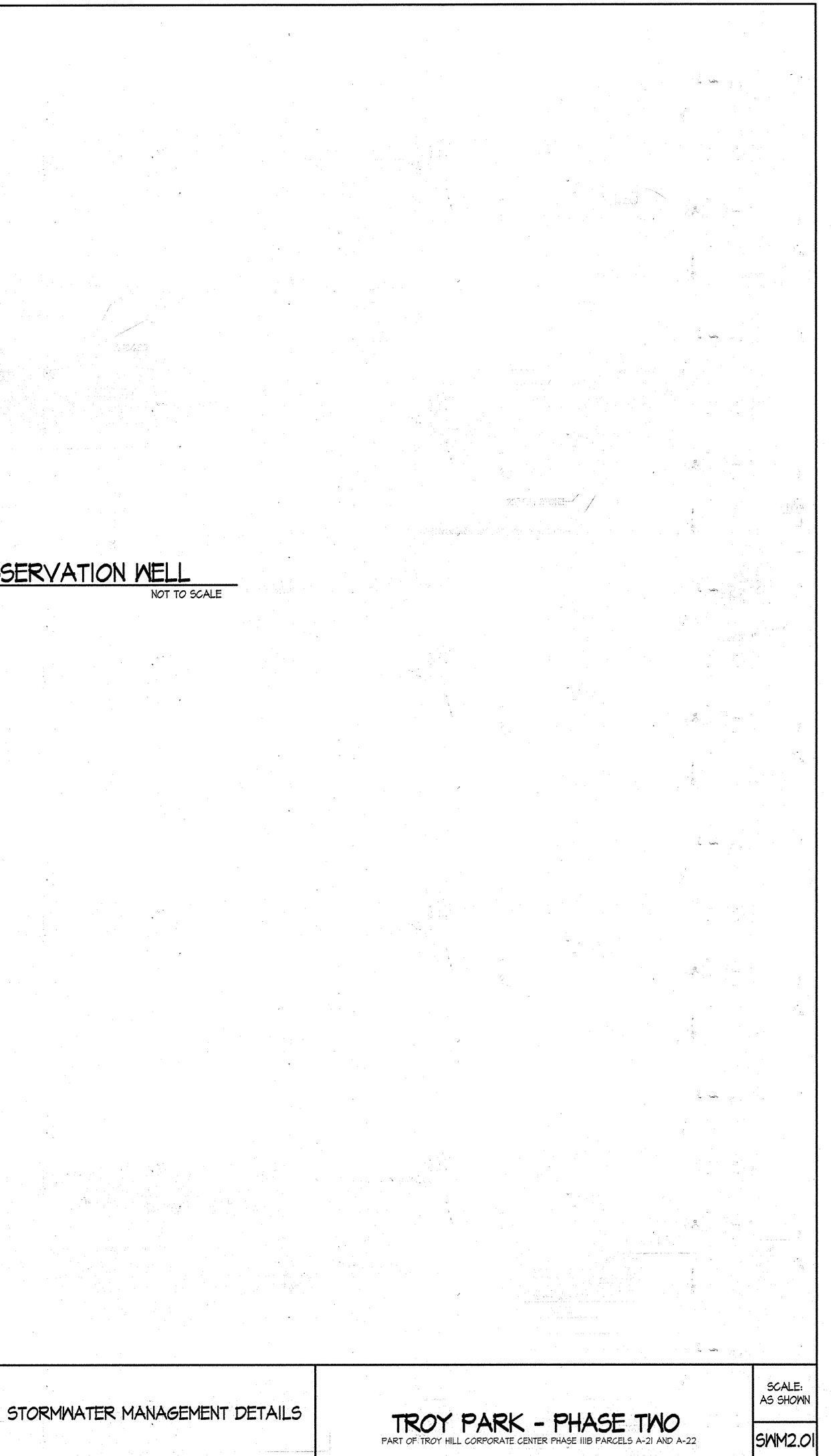
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DATE: 08/14 /14 BY NO. REVISION

DATE 600' SCALE MAP NO.



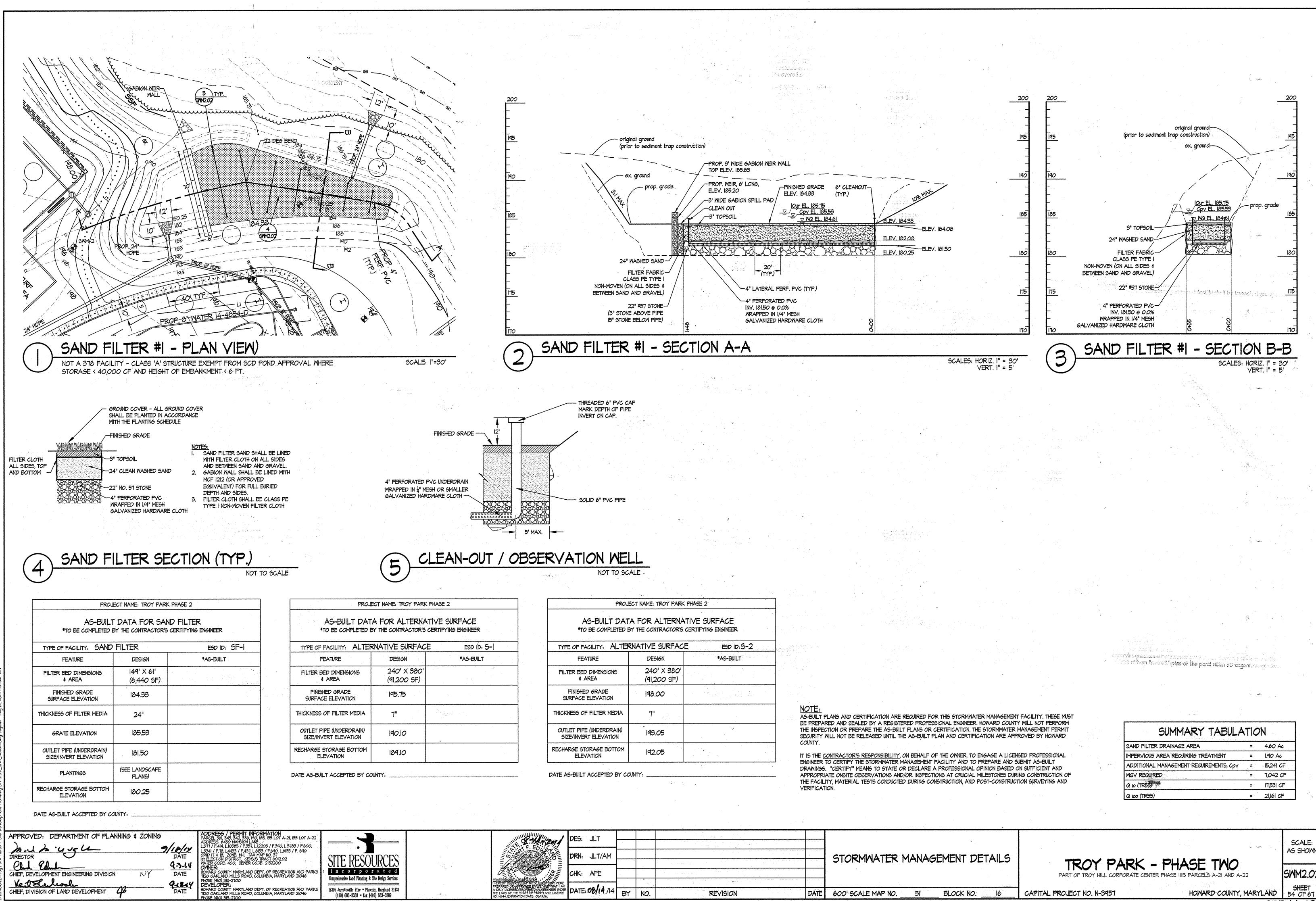
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CAPITAL PROJECT NO. N-3957

A STREET

SDP-14-033

1987 1 1 1 1 1 1 1 1 1 1



TYPE OF FACILITY: ALTER	RNATIVE SURFAC	E ESD ID: S-2
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	240' X 380' (91,200 SF)	
FINISHED GRADE SURFACE ELEVATION	198.00	
THICKNESS OF FILTER MEDIA	7"	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	193.05	
RECHARGE STORAGE BOTTOM ELEVATION	192.05	

DATE: 08/14/14 BY NO.

SCALE: AS SHOWN SWM2.02 SDP-14-033

### 920.01.05 MDSHA BIORETENTION SOIL MIX 920.01.05 Bioretention Soil Mix (BSM). A homogeneous mixture composed by loose volume of 5

(a) Components. Components of BSM shall be sampled, tested and approved before mixing as

parts Coarse Sand, 3 parts Base Soil, and 2 parts Fine Bark. BSM shall conform to the following:

(1) Coarse Sand. MSMT 356. Coarse Sand shall be washed silica sand or crushed glass that conforms to ASTM Fine Aggregate C-33. Coarse Sand shall include less than 1% by weight of clay or silt size particles, and less than 5% by weight of any combination of diabase, greystone, calcareous or dolomitic sand.

(2) Base Soll. Base Soll shall be tested and certified by the producer to conform to the following requirements:

		CON	POSITION - BASE SOIL		4	
TEST PROPERTY	TEST METHOD		TEST VALUE AND AMENDMENT			
PROHIBITED WEEDS	-	1 .	FREE OF SEED AND VIABLE PLANT PARTS OF SPECIES IN 920.06.02(a)(b)(c) WHEN INSPECTED.			
DEBRIS	-		BERVABLE CONTENT OF C D GRAVEL OR CONSTRUCT			
			SIEVE SIZE		BY WEIGHT 1UM %	
GRADING ANALYSIS	T 87		2 IN.	100		
ANAL 1515	ANALTSIS		NO. 4	90		
			NO. IO	80 - 1 - 1 - 1 - <b>80</b> - 1 - 1 - 1 - 1 - 1		
		PARTICLE		% Passing	BY WEIGHT	
75 V71 53 A 1		SIZE	mm	MINIMUM	MAXIMUM	
TEXTURAL ANALYSIS	T 88	SAND	2.0-0.050	50	85	
10001010		SILT	0.050-0.002	5	45	
		CLAY	LESS THAN 0.002	5	10	
SOIL pH	D 4972	pH OF !	5.7 TO 6.9			
ORGANIC MATTER	t 194	I.O TO IO.0% BY WEIGHT				
SOLUBLE SALTS	ECI:2 (V:V)	500 ppm (1.25 mmhos/cm) OR LESS				
HARMFUL MATERIALS	<b></b>	920.01.	920.01.01(a)			

(3) Fine Bark. Fine Bark shall be the bark of hardwood trees that is milled and screened to a uniform particle size of 2 in. or less. Fine Bark shall be composted and aged for 6 months or longer, and be free from sawdust and foreign materials. A I to 2 lb sample of Fine Bark shall be submitted to the Landscape Operations Division for examination.

(b) Composition. BSM shall be sampled and tested according to the requirements of MSMT 356 and conform to the following:

	COM	POSITION	I - BIORETE	NTION SOIL	MIX (BSM)		
TEST PROPERTY	TEST METHOD		TEST VALUE AND AMENDMENT				
WEEDS			FREE OF SEED AND VIABLE PLANT PARTS OF SPECIES IN 920.06.02(a)(b)(c) WHEN INSPECTED.				
DEBRIS	-	920.01.	05(a)(2)		· .		
and the second second			PARTICL	E	%	Passing by	WEIGHT
		SIZE	1	nm	MIN	IMUM	MAXIMUM
TEXTURAL	т 88	SAND	2.0-	0.050		5	85
ANALISIS		SILT	0.050	-0.002		-	20
		CLAY	LESS TH	IAN 0.002		[	8
SOIL pH	D 4972	pH OF :	ph of 5.7 to 7.1				
ORGANIC MATTER	T 194	MINIMUN	MINIMUM 1.5% BY WEIGHT				
		CONCENTRATION					
		ELEMENT		MINIM	UM	MAXIMUM	
				ppm	FlV	ppm	FIV
NUTRIENT		CALCIU	M (Ca)	32	25	NO LIMIT	NO LIMIT
ANALYSIS	MEHLICH-3	MAGNES	SIUM (Mg)	<b>15</b>	25	NO LIMIT	NO LIMIT
AND		PHOSPH	iorus (p)	18	25	92	100
SOLUBLE		POTAS	51UM (K)	22	25	NO LIMIT	NO LIMIT
SALTS		SULFUR	SULFUR (SO4)		N/A	NO LIMIT	NO LIMIT
	ECI:2 (V:V)	SOLUBL SALTS	E	40	N/A	500	N/A
HARMFUL MATERIALS		920.01.	01(a)				

(c) Amendment or Failure. BSM that does not conform to composition requirements for pH or nutrient analysis shall be amended as specified by the NMP. BSM that exceeds maximum phosphorus concentration or fails other composition requirements will not be accepted, and shall not be delivered or used as BSM.

(d) Storage. 920.01.02(b). BSM shall be stored in a stockpile that is protected from weather under tarp or shed. BSM stored for 6 months or longer shall be resampled, retested, and reapproved before use.

(e) Approval. 920.01.02(c). (f) Certification and Delivery. 920.01.02(d).

ATERIAL	SPECIFICATION	SIZE	D-SWALE RAIN GARDENS & LANDSCAPE INFILTRATION
PLANTINGS	SEE PLANTING PLAN	NA	PLANTINGS ARE SITE-SPECIFIC
Planting Soil 2' to 4' deep)	LOAMT SAND (60-65%) & COMPOST (35-40%) OR SANDY LOAM (30%), COARSE SAND (30%) &	NA	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM;
MICRO	COMPOSI (40%)		
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D 2974)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
CURTAIN DRAIN	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2" TO 5"	
SEOTEXTILE		N/A	PE TYPE I NONWOVEN
SRAVEL (UNDERDRAINS AND NFILTRATION BERMS)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (%" TO ¾")	
NDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR 35	SLOTTED OR PERFORATED PIPE: 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW: MINIMUM OF 3" OF GRAVEL OVER PIPES: NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4 INCH GALVANIZED HARDWARE CLOTH.
POURED IN PLACE CONCRETE IF REQUIRED)	MSHA MIX NO. 3; F'2=3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-60.	<b>V/A</b>	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 350.R/89: VERTICAL LOADING (H-10 OR H-20): ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES): AND ANALYSIS OF POTENTIAL CRACKING.
3and	AASHTO-M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

\* SEE MATERIAL SPECIFICATIONS FOR SHA BIORETENTION SOIL MIX (BSM) THIS SHEET FOR SPECIFIC BIORETENTION SOIL MIX FOR THIS PROJECT.



INFILTRATION AND INFILTRATION BERMS I. Material Specifications

2. Filtering Media or Planting Soil The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

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

3. Compaction It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

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

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

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

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

4. Plant Material Section A.2.3.

APPROVED: DEPARTMENT OF PLANNING & ZONING	ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 190, 185, 135 LOT A-21, 135 LOT A-22, ADDRESS: 6450 MANSION LANE L5TT / F.414, LI0585 / F.351, L12205 / F.340, L5783 / F.600,	
DIRECTOR DATE	L5341 / F.18, L4933 / F.437, L6153 / F.690, L6135 / F. 690 GRID 17 & 18, ZONE: M-I, TAX MAP NO. 37 Ist Election District, Census tract 6012.02 WATER CODE: 400, SEVER CODE: 2152200	SITE RESOURCES
CHIEF, DEVELOPMENT ENGINEERING DIVISION	OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700	in corporated Comprehensive land Planning & Site Design Services
CHIEF, DIVISION OF LAND DEVELOPMENT OF DATE	DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2100	14315 Jarrettsville Pike * Phoenir, Maryland 21131 (410) 683-3388 * fax (410) 683-3389

# SEQUENCE OF CONSTRUCTION

I. Assure that Grading Permit and all other necessary permits are obtained from Owner.

- 2. Notify Howard County Department of Public Works at least 48 hours before start of work. Contact Miss Utility at 1-800-257-7777 at least three days in advance of starting work shown on plans.
- 3. Clear and grub for and install erosion and sediment control measures or devices. See ESC 1.00 for the overall sediment control plan.
- 3.a. Retain Sediment Trap 2 from Phase 1 SDP-11-003. This trap will be converted to a Sand Filter later in the sequence. 3.b. Maintain diversion fence (DF) at the north side of the site from
- the nearest point to the Historic House to the point where the existing diversion fence turns to the east near to the proposed loop parking area. From this point, extend diversion fence to the north a distance of about 150 linear feet as shown. Install rock outlet protection (ROP III) 8' wide by 24' long, class I riprap at each outfall of the diversion fence as
- 3.c. Maintain existing super silt fence (SSF) where shown along the northern limit of disturbance near to Turf Field S-2. Install super silt fence (SSF) at remaining locations as shown.
- 3.d. Install the stabilized construction entrances (SCE) and inlet protection (IP).
- 4. Notify Sediment Control Inspector and Engineer upon completion of this installation.
- 5. For access and construction of the three small development areas to the west of Mansion Drive, use only rubber tired construction eavloment.
- 6. Install storm drains. Install water and sanitary sewer lines and manholes. Install inlet protection as shown on approved Erosion and Sediment Control Plans.
- 7. Fine arade and install base course for all road surfaces and parking lots. Install curb and gutter.
- 8. Construct synthetic fields in accordance with manufacturer's specifications including underdrains, concrete edging for fencing,
- and turf surface. Construction bleachers and walks associated with Fields I and 2. 9. Final grade the remaining areas and permanently stabilize those
- areas. 10. After all contributing drainage areas have been completely
- stabilized, install proposed SWM facilities per approved SWM plans. II. Convert Sediment Trap 2 to a Sand Filter per approved SWM
- 12. Pave all road surfaces with the final surface course. 13. After permanent stabilization of site with established vegetation and with permission of the Sediment Control Inspector, remove erosion and sediment control measures or devices, and stabilize those areas disturbed by this process.

# CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIORETENTION AND OPEN CHANNELS

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS, LANDSCAPE

The allowable materials to be used in these practices are detailed in Table B.4.I.

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

· Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification) • Organic Content - Minimum 1.5% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).

### Clay Content - Media shall have a clay content of less than 8%. • pH Range - Should be between 5.7 - T.I. Amendments (e.g., lime, iron sulfate plus sulfur)

may be mixed into the soil to increase or decrease pH.

Recommended plant material for micro-bioretention practices can be found in Appendix A,

### 5. Plant Installation

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

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

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

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

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

### 6. Underdrains

- Underdrains should meet the following criteria:
- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Tupe PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is
- slotted, 4" rigid pipe (e.g., PVC or HDPE). • Perforations - If perforated pipe is used, perforations should be 3/8" diameter located
- 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a "4" (No. 4 or 4x4) aalvanized hardware cloth. · Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and
- below the underdrain.
- The main collector pipe shall be at a minimum 0.5% slope. • A rigid, non-perforated observation well must be provided (one per every 1,000 square
- A 4" layer of pea gravel (1/1" to 3/1" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be

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

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

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	2.	The BaySaver wate
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	4	The inlet and outle
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	5.	The owner shall re
		the Howard County
	MICI	RO BIO-RETENTION
	١.	Annual maintenance
		Maintenance of mul
		Any mulch replacen
		for disease and in
		pruning.
	2.	Schedule of plant I
		include removal of
		treatment of all di
		and wires.
	З.	Mulch shall be inspi

month and after heavy storm events.

# STORMWATER INFILTRATION TRENCHES (I-I)

- 1. The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- 2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.
- 3. A logbook shall be maintained to determine the rate at which the facility drains. 4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- 5. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- 6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

- I. Top and side slopes of the embankment shall be moved a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be moved as needed. 2. Debris and litter shall be removed during regular mowing operations and as needed.
- 3. When deemed necessary for aesthetic reasons, and upon approval from the Department of Public Works, sediment shall be removed from the pond.

- proper
- 2. The top and side slopes of the embankment shall be mowed a minimum of once per year, when vegetation reaches 18" in helaht or as needed.
- 3. Debris and litter shall be removed during regular mowing operations and as needed. 4. Visible signs of erosion in the facility shall be repaired as soon as it is noticed.
- 5. Remove slit when it exceeds four (4) inches deep in the forebay.
- insure that the soil maintains the infiltration capabilitu.
- 6. The bottom of the facility shall be rototilled at least once every two (2) years to A loopook shall be maintained to determine the rate at which the facility drains. The
- maintenance loabook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria. 8. Once the performance characteristics of the infiltration basin have been verified, the

- Routine Maintenance: performed during wet weather to determine if the pond is functioning properly. per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.
- I. Facility shall be inspected annually and after major storms. Inspections shall be 2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times
- 3. Debris and litter shall be removed during regular mowing operations and as needed. 4. Visible signs of erosion in the pond as well as the riprap or gabion outlet area shall be repaired as soon as it is noticed.

- Non-Routine Maintenance: I. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected
- during routine maintenance operations. 2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond, or forebay, is half full of sediment, or, when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.

- PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (I-I) 1. The monitoring wells and structures shall be inspected on a quarterly basis and after
- every large storm event. period of several days to insure trench drainage.
- 2. Water levels and sediment build up in the monitoring wells shall be recorded over a
- 3. A logbook shall be maintained to determine the rate at which the facility drains. 4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- compliance with operation and maintenance criteria.
- 5. The maintenance logbook shall be available to Howard County for inspection to insure 6. Once the performance characteristics of the infiltration facility have been verified,
- the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

- PRIVATELY OWNED AND MAINTAINED STORMCEPTOR WATER QUALITY DEVICE I. The Stormceptor water quality structure shall be periodically inspected and cleaned to maintain operation and function. The owner shall inspect the Stormceptor unit yearly at a minimum, utilizing the Stormceptor Inspection/Monitoring Form. Inspections shall be done by using a clear Plexiglas tube ("sludge judge") to extract a water column sample. When the sediment depths exceed the level specified in Table 6 of the Stormceptor Technical Manual, the unit must be cleaned.
- 2. The Stormceptor water quality structure shall be checked and cleaned immediately

	Ruld. Zoud				
2	UNIT OF MAD				
	S.S.ED	DRN: JLT/AM			STORMWATER M
					STORMALER M
		CHK: AFE			
	PROPESSION, CERTIFICATION I HEREBY CERTIFY THAT SHOE DO CHENE WERE PREPARED CONFERENCED BY MANAGEMENT I AM				
	A DULY LICENSELOPROFESSION, THENEER INDER THE LANS OF THE STATE OF MARYLAND, LICENSE NO. 16144, EXPIRATION DATE OF MARYLAND, LICENSE	DATE:08/14/14	BY NO.	REVISION	ATE 600' SCALE MAP NO.

feet) to provide a clean-out port and monitor performance of the filter. considered part of the filter bed when bed thickness exceeds 24" .

# OPERATION AND MAINTENANCE SCHEDULE

BAYSAVER WATER QUALITY DEVICE I. The BaySaver water quality structure shall be periodically inspected and cleaned to maintain operation and function. The owner shall inspect the BauSaver unit yearly at a minimum, utilizing the BaySaver inspection/Monitoring Form. Inspections shall be done by using a Grade Stick or similar device. When the sediment depths exceed 2 feet, eaned.

- ter quality structure shall be checked and cleaned immediately pills. The owner shall contact the appropriate regulatory agencies. of the BaySaver unit shall be done using a vacuum truck which will sediment, debris, floating hydrocarbons and other materials in the ing and disposal of the removed materials and liquid must be
- et pipes shall be checked for any obstructions at least once every ructions are found the owner shall have them removed. Structural aver unit shall be repaired as needed. tain and make the BauSaver Inspection/Monitoring Forms available
- officials upon their request.
- AREAS (M-6) & BIO-SWALES (M-8)
- of plant material, mulch layer and soil layer is required. ulch and soil is limited to correcting areas of erosion or wash out. nent shall be done in the spring. Plant material shall be checked sect infestation and maintenance will address dead material and
- nspection will be twice a year in spring and fall. This inspection will dead and diseased vegetation considered beyond treatment, seased trees and shrubs and replacement of all deficient stakes
- pected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- 4. Soil erosion to be addressed on an as needed basis, with a minimum of once per
- JOINTLY MAINTAINED STORMWATER PONDS (P-I THROUGH P-5)
- PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION BASINS (1-2) I. The infiltration basin shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning
- monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.
- PRIVATELY OWNED AND MAINTAINED STORMWATER PONDS (P-I THROUGH P-5)

- after petroleum spills. The owner shall contact the appropriate regulatory agencies. The maintenance of the Stormceptor unit shall be done using a vacuum truck which will remove the water, sediment, debris, floating hydrocarbons and other materials in the unit. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner
- The inlet and outlet pipes shall be checked for any obstructions at least once every six months. If obstructions are found the owner shall have them removed. Structural parts of the Stormceptor unit shall be repaired as needed.
- The owner shall retain and make the Stormceptor Inspection/Monitoring Forms available the Howard County officials upon their request.
- PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1, F-4, AND F-5) L. The stormwater wetland facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is
- functioning properly. 2. The top and side slopes of the embankment shall be mowed a minimum of once per year, when vegetation reaches 18" in height or as needed.
- Filters that have a grass cover shall be mowed a minimum of three (3) times per
- growing season to maintain a maximum grass height of less than 12 inches. Debris and litter shall be removed during regular mowing operations and as needed. Visible signs of erosion in the facility shall be repaired as soon as it is noticed.
- Remove silt when it exceeds four (4) inches deep in the forebay When water ponds on the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper
- cleaning and disposal of the removed materials and liquid must be followed by the owner 8. A logbook shall be maintained to determine the rate at which the facility drains.
- 9. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- 10. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

### PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

- The underground stormwater management facility is privately owned and it shall be the responsibility of the owner to periodically inspect and clean the facility to maintain its operation and function.
- 2. The underground stormwater management facility shall be inspected yearly at a minimum and after especially severe storm events. When sediment accumulation of more than 2" is observed or any debris that might
- obstruct the outfall is observed, the facility shall be cleaned. The facility shall be cleaned immediately after petroleum spills. The owner shall
- contact the appropriate regulatory agencies notifying them of the splil and cleanup operation.
- The sediment and debris shall be removed from the underground stormwater management facility by vacuum truck or other manual means. The owner shall follow proper cleaning and disposal of the removed material and liquid.
- The inlet and outlet pipes shall be checked for any obstructions at least once every 'six (6) months. If obstructions are found, the owner shall have them removed and properly disposed of.

### PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS (F-2 AND F-3) I. The sediment chamber outlet devices shall be cleaned and/or repaired when

- drawdown times within the chamber exceed 36 hours. 2. Debris and litter shall be removed as necessary to insure proper operation of the
- Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a
- depth of 6 inches. Vegetation within the sediment chamber shall be limited to a height of 18 inches.
- When water ponds on the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the
- 5. A logbook shall be maintained to determine the rate at which the facility drains. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration sustem have been verified. the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

These plans have been reviewed for the Howard Soil Conservation District These plans have been reviewed for the richard and another the technical requirements for small pond construction, soil ero and continent control.

USDA - Natural Resources Conservation Service Date These plans for small-point construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

### BY THE ENGINEER:

"I certify that this plan for grand construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise people construction and provide the Honard Soil Conserva Prista international Base Institution

8.14.2014 Signature of Enginee Date Albert F. Edwards P.E. Printed Name of Engineer

### BY THE DEVELOPER:

TROY PARK - PHASE TWO

PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage an egister

and Soll Conservati 30-days of completion | also authorize periodic on-site inspections by the Howard Soil Conservation District."

Hamat Wellhuad	diyladig
Signature of <b>REVELOPER</b>	Date
Laura T. Wetherold	8/14/2014
Printed Name of DENELOPER	

IANAGEMENT NOTES

CAPITAL PROJECT NO. N-3957 BLOCK NO. 16 16

17548

HOWARD COUNTY, MARYLAND

55 OF 67 SDP-14-033

SCALE: AS SHOWN

SWM2.

SHEET

Date

PROJ	ECT NAME: TROY PARK	PHASE 2
	TA FOR MICRO-E BY THE CONTRACTOR'S	
TYPE OF FACILITY: MICRO	D-BIORETENTION	ESD ID: 201A
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	20' X 78' (1470 SF)	
FINISHED GRADE SURFACE ELEVATION	192.5	
THICKNESS OF FILTER MEDIA	24 <sup>ª</sup>	
GRATE ELEVATION	193.50	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	189.33	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	188.83	

DATE AS-BUILT ACCEPTED BY COUNTY: \_\_\_\_\_

PROJECT NAME: TROY PARK PHASE 2

AS-BUILT DATA FOR MICRO-BIORETENTION \*TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYING ENGINEER

TYPE OF FACILITY: MICR	O-BIORETENTION	ESD ID: 2020
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	14' X 82' (1120 SF)	· · · · · · · · · · · · · · · · · · ·
FINISHED GRADE SURFACE ELEVATION	196.0	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	197.00	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	193.83	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	193.33	

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJ	ECT NAME: TROY PARI	< PHASE 2
	TA FOR MICRO- BY THE CONTRACTOR'S	BIORETENTION CERTIFYING ENGINEER
TYPE OF FACILITY: MICRO	O-BIORETENTION	ESD ID: 203D
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	14' X 68' (940 SF)	
FINISHED GRADE SURFACE ELEVATION	199.0	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	199.97	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	196.80	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	196.30	

DATE AS-BUILT ACCEPTED BY COUNTY: \_\_

PROJECT NAME: TROY PARK PHASE 2 AS-BUILT DATA FOR MICRO-BIORET \*TO BE COMPLETED BY THE CONTRACTOR'S CERTIFY!! TYPE OF FACILITY: MICRO-BIORETENTION FEATURE DESIGN 20' X 75' FILTER BED DIMENSIONS (1450 SF) & AREA FINISHED GRADE 192.5 SURFACE ELEVATION THICKNESS OF FILTER MEDIA 24" 193.50 GRATE ELEVATION OUTLET PIPE (UNDERDRAIN) 189.33 SIZE/INVERT ELEVATION (SEE LANDSCAPE PLANTINGS PLANS) RECHARGE STORAGE BOTTOM 188.83 ELEVATION

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJECT NAME: TROY PARK PHASE 2

AS-BUILT DATA FOR MICRO-BIORETE \*TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYING

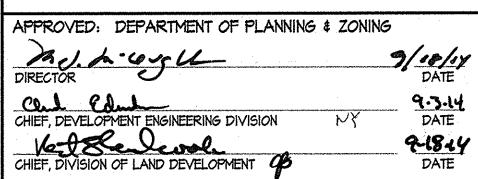
TYPE OF FACILITY: MICRO	O-BIORETENTION	
FEATURE	DESIGN	
FILTER BED DIMENSIONS & AREA	14' X 86' (1170 SF)	
FINISHED GRADE SURFACE ELEVATION	196.0	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	197.00	- - -
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	193.83	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	193.33	

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJECT NAME: TROY PARK PHASE 2
AS-BUILT DATA FOR MICRO-BIORETE
\*TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYIN
TYPE OF FACILITY: MICRO-BIORETENTION
FEATURE DESIGN

FEATURE	DESIGN	
FILTER BED DIMENSIONS & AREA	5' X 180' (890 SF)	
FINISHED GRADE SURFACE ELEVATION	207.4	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	208.40	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	205.23	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	204.73	
the second s		

DATE AS-BUILT ACCEPTED BY COUNTY:



ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 140, 185, 155 LOT A-21, 135 LOT A-22 ADDRESS: 6450 MANSION LANE L5T1 / F.414, L10585 / F.951, L12205 / F.940, L5783 / F.600, L5341 / F.718, L4433 / F.437, L6153 / F.640, L6135 / F. 640 GRID 17 & 18, ZONE: M-1, TAX MAP NO. 3T Ist ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SENER CODE: 2152200 OWNER: HOMARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS T120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS T120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700



ite Development PlanDrg/SMM2.12 SMM Notes drg-Layout1 Aug 13, 2014 11:52am JL

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ENTION Ig engineer	
ESD ID: 202D	
*AS-BUILT	

ENTION ng engineer
ESD ID: 204A
*AS-BUILT
<i></i>

	TA FOR MICRO-E BY THE CONTRACTOR'S	
TYPE OF FACILITY: MICRO	D-BIORETENTION	ESD ID: 2010
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	20' X 89' (1720 SF)	
FINISHED GRADE SURFACE ELEVATION	192.5	
THICKNESS OF FILTER MEDIA	24 <sup>11</sup>	
GRATE ELEVATION	193.50	×
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	189.33	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	188.83	

DATE AS-BUILT ACCEPTED BY COUNTY:

						1.6	•
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						~	
	PROJECT	NAME:	TROY	MAKK	PHASE	2	

AS-BUILT DATA FOR MICRO-BIORETENTION \*TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYING ENGINEER

		<ul> <li>A second s</li></ul>
TYPE OF FACILITY: MICRO	D-BIORETENTION	ESD ID: 203A
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	14' X 99' (1370 SF)	
FINISHED GRADE SURFACE ELEVATION	199.0	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	199.97	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	196.80	•
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	196.30	
	· · · · · · · · · · · · · · · · · · ·	

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJ	ECT NAME: TROY PARI	< PHASE 2
· · · · · · · · · · · · · · · · · · ·	TA FOR MICRO- BY THE CONTRACTOR'S	BIORETENTION CERTIFYING ENGINEER
TYPE OF FACILITY: MICRO	D-BIORETENTION	ESD ID: 204B
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	5' X 130' (640 SF)	
FINISHED GRADE SURFACE ELEVATION	207.4	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	208.40	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	205.23	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	204.73	
· · · · · · · · · · · · · · · · · · ·	·····	· · · · · · · · · · · · · · · · · · ·

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJECT NAME: TROY PARK AS-BUILT DATA FOR MICRO-E \*TO BE COMPLETED BY THE CONTRACTOR'S ( TYPE OF FACILITY: MICRO-BIORETENTION FEATURE DESIGN 14' X 94' FILTER BED DIMENSIONS (1280 SF) & AREA FINISHED GRADE 196.0 SURFACE ELEVATION THICKNESS OF FILTER MEDIA 24" 197.00 GRATE ELEVATION OUTLET PIPE (UNDERDRAIN) 193.83 SIZE/INVERT ELEVATION (SEE LANDSCAPE PLANTINGS PLANS) RECHARGE STORAGE BOTTOM 193.33 ELEVATION

DATE AS-BUILT ACCEPTED BY COUNTY:

PROJ	ECT NAME: TROY PARK	< P
	TA FOR MICRO- BY THE CONTRACTOR'S	
TYPE OF FACILITY: MICRO	D-BIORETENTION	
FEATURE	DESIGN	
FILTER BED DIMENSIONS & AREA	14' X 75' (1070 SF)	
FINISHED GRADE SURFACE ELEVATION	199.0	
THICKNESS OF FILTER MEDIA	24"	× ×
GRATE ELEVATION	199.97	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	196.80	

(SEE LANDSCAPE

196.30

PLANS)

DATE AS-BUILT ACCEPTED BY COUNTY:

PLANTINGS

RECHARGE STORAGE BOTTOM

ELEVATION

		1. 1.
PRO	JECT NAME: TROY PARK	K PHASE 2
	ATA FOR MICRO- BY THE CONTRACTOR'S	
TYPE OF FACILITY: MICR	O-BIORETENTION	
FEATURE	DESIGN	
FILTER BED DIMENSIONS ¢ AREA	20' X 50' (990 SF)	
FINISHED GRADE SURFACE ELEVATION	212.5	
THICKNESS OF FILTER MEDIA	24 <sup>°</sup>	
GRATE ELEVATION	213.5	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	209.33	1. * *
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	208.83	
	*. <u></u>	

DATE AS-BUILT ACCEPTED BY COUNTY:

Ni As PF M/ IT M/

DES: JLT DRN: JLT/AM STORMWATER MA CHK: AFE DATE: 08/14/14 BY NO. DATE 600' SCALE MAP NO. REVISION

PROFESSION OF MARKEN AND A DECEMPTION OF MARKEN

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	ESD ID:	203B
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	ESD ID:	209
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PRO	ECT NAME: TROY PARI	< PHASE 2		
	TA FOR MICRO- BY THE CONTRACTOR'S			· · · · · · · · · · · · · · · · · · ·
TYPE OF FACILITY: MICR	O-BIORETENTION	······································	ESD ID:	202B
FEATURE	DESIGN		*AS-BUILT	
FILTER BED DIMENSIONS & AREA	14' X 73' (1000 SF)			
FINISHED GRADE SURFACE ELEVATION	196.0		· · · · ·	
THICKNESS OF FILTER MEDIA	24"			7 * * *
GRATE ELEVATION	197.00			
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	193.83			
PLANTINGS	(SEE LANDSCAPE PLANS)			
RECHARGE STORAGE BOTTOM ELEVATION	193.33			

DATE AS-BUILT ACCEPTED BY COUNTY:

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PROJECT NAME: TROY PARK PHASE 2 AS-BUILT DATA FOR MICRO-BIORETENTION

TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYING ENGINEER

TYPE OF FACILITY: MICRO	ESD ID: 2030	
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	14' X 86' (1200 SF)	
FINISHED GRADE SURFACE ELEVATION	199.0	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	199.97	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	196.80	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	196.30	

DATE AS-BUILT ACCEPTED BY COUNTY:

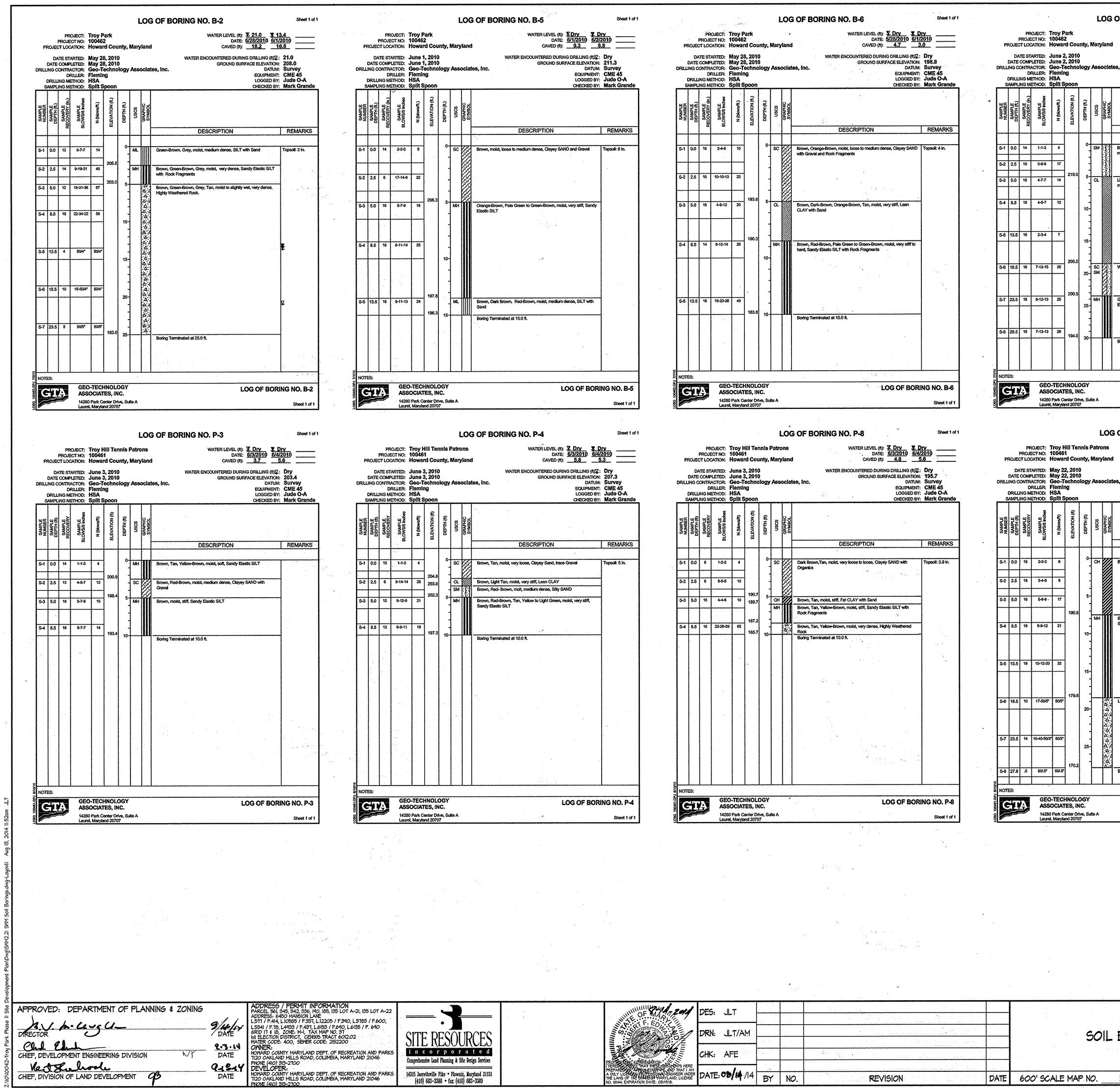
PROJ	ECT NAME: TROY PARI	< PHASE 2
	TA FOR MICRO- BY THE CONTRACTOR'S	BIORETENTION CERTIFYING ENGINEER
TYPE OF FACILITY: MICRO	D-BIORETENTION	ESD ID: 212
FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS & AREA	15' X 80' (1220 SF)	
FINISHED GRADE SURFACE ELEVATION	202.5	
THICKNESS OF FILTER MEDIA	24"	
GRATE ELEVATION	203.5	
OUTLET PIPE (UNDERDRAIN) SIZE/INVERT ELEVATION	200.33	
PLANTINGS	(SEE LANDSCAPE PLANS)	
RECHARGE STORAGE BOTTOM ELEVATION	199.83	an an an an Gordana a' a

NOTE:

AS-BUILT PLANS AND CERTIFICATION ARE REQUIRED FOR THIS STORMWATER MANAGEMENT FACILITY. THESE MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. HOWARD COUNTY WILL NOT PERFORM THE INSPECTION OR PREPARE THE AS-BUILT PLANS OR CERTIFICATION. THE STORMWATER MANAGEMENT PERMIT SECURITY WILL NOT BE RELEASED UNTIL THE AS-BUILT PLAN AND CERTIFICATION ARE APPROVED BY HOWARD COUNTY.

IT IS THE <u>CONTRACTOR'S RESPONSIBILITY</u>, ON BEHALF OF THE OWNER, TO ENGAGE A LICENSED PROFESSIONAL ENGINEER TO CERTIFY THE STORMWATER MANAGEMENT FACILITY AND TO PREPARE AND SUBMIT AS-BUILT DRAWINGS. "CERTIFY" MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ONSITE OBSERVATIONS AND/OR INSPECTIONS AT CRUCIAL MILESTONES DURING CONSTRUCTION OF THE FACILITY, MATERIAL TESTS CONDUCTED DURING CONSTRUCTION, AND POST-CONSTRUCTION SURVEYING AND VERIFICATION.

NAGEMENT DETAILS			SCALE: AS SHOWN
	TROY PARK PART OF TROY HILL CORPORATE CEN	- PHASE IIB PARCELS A-21 AND A-22	SWM2.12
51 BLOCK NO. 16	CAPITAL PROJECT NO. N-3957	HOWARD COUNTY, MARYLAND	SHEET 56 OF 67
		SDI	P-14-033



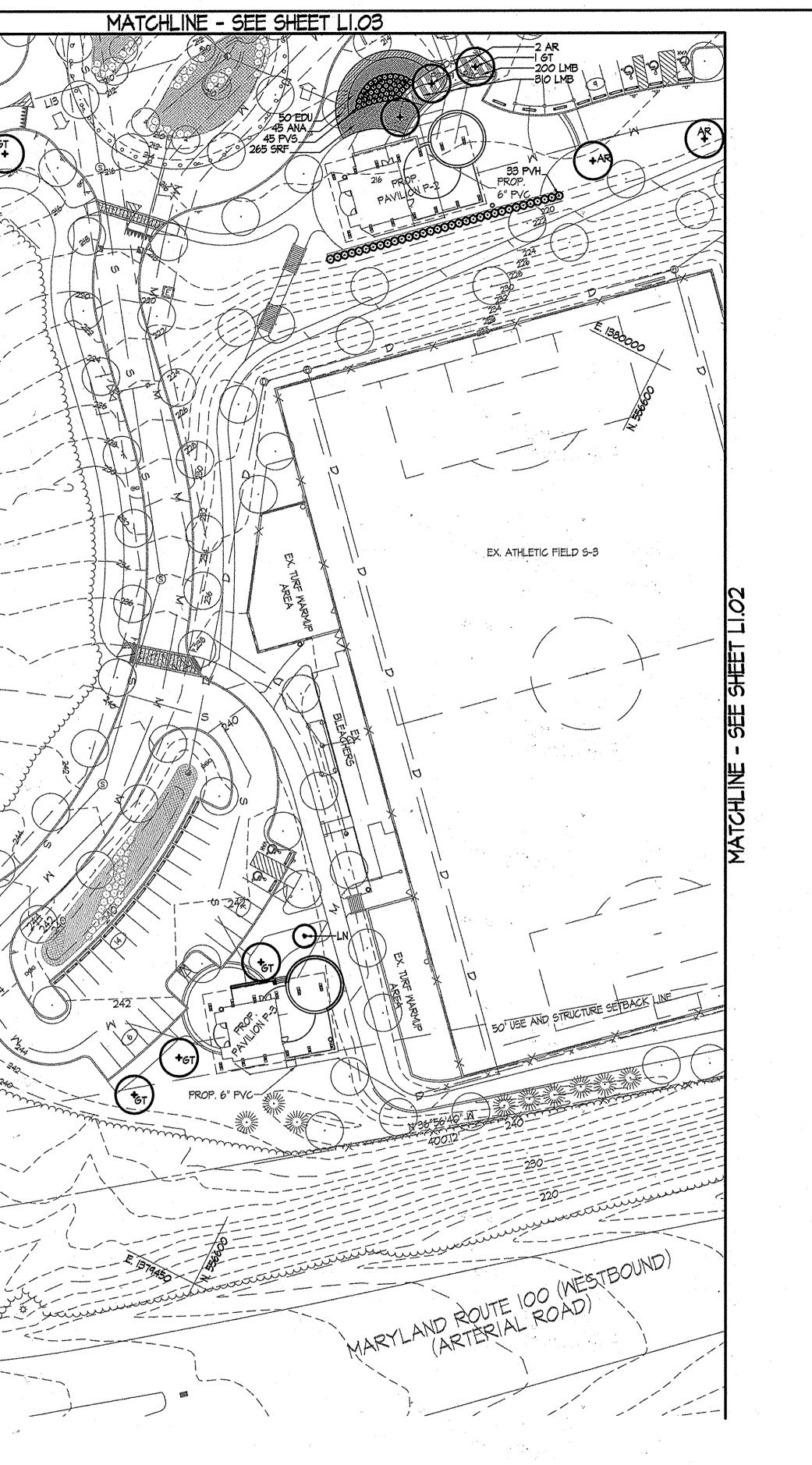
SOIL DATE: 09/14 /14 EDENNE, AND THAT I AN HESTOWN ENGINEER INDE HEIST MARYLAND, LICENSE BY NO. REVISION DATE 600' SCALE MAP NO. 144, EXPIRATION DATE: 08/19/16.

					<b>X</b>
OF BORING NO. LP-1	Sheet 1 of 1		LOG OI	F BORING NO. P-2	Sheet 1 of 1
WATER LEVEL (n): V Dry 1	7.6	PROJECT:	Froy Hill Tennis Patrons	WATER LEVEL (ft	x Y Dry Y Dry
DATE: 6/2/2010 6/3/	2010 8.6	PROJECT NO: 1		DATE CAVED (R	≥ <u>5/24/201</u> 0 <u>5/25/201</u> 0
WATER ENCOUNTERED DURING DRILLING (#)∑: GROUND SURFACE ELEVATION:	Dry 224.0	DATE STARTED: 1 DATE COMPLETED: 1	May 24, 2010 May 24, 2010	WATER ENCOUNTERED DUR GROUND SL	RFACE ELEVATION: <b>195.2</b>
s, inc. Datum: Equipment:	Survey CME 45	DRILLING CONTRACTOR: 0 DRILLER: 1	Geo-Technology Associates, II Fleming	nc.	DATUM: SURVEY EQUIPMENT: CME 45
	Jude O-A Mark Grande	DRILLING METHOD: 1 SAMPLING METHOD: 3			LOGGED BY: Jude O-A CHECKED BY: Mark Grande
· · · · · ·		SAMPLE SAMPLE NUMBER SAMPLE SAMPLE RECOVERY BLOWS/8 hoh	N (Mowan) ELEVATION (1) DEPTH (11) USCS GRAPHIC SYMBOL	1999 1	
DESCRIPTION	REMARKS			DESCRIPTION	REMARKS
			S		
Brown, Light Brown, Orange-Brown, Tan, moist, very loose to medium dense, Silty SAND	Topsoil: 3in.	\$-1 0.0 12 244		wn, Grey, moist, medium stiff to very stiff, Se Gravel and Rock Fragments	indy Elastic SiLT Topsoil: 4 in.
	х	S-2 2.5 12 11-14-14	28		
Light Brown, Brown, Orange-Brown, Red-Brown, Tan, moist, medium stiff to stiff, Sandy Lean CLAY		S-3 5.0 18 15-23-18	190.2 5 SM (1) Bro	wn, Grey, moist, dense, Sitty SAND with Gra	vel and Rock
				gments	
		S-4 8.5 18 27-31-36	186.7	wn, Gray, moist, very dense, Highly Weather	ed Rock
	· ·			ing Terminated at 10.0 ft	
				and the second	
	<b>7</b> .				
White to Light Grey, moist, medium dense, Siky Clayey SAND					
	1				2 2
Grey, Pale Green to Green-Brown, Tan, moist, very stiff, Sandy Elastic SiLT with Rock Fragments				. • •	
				х	
Boring Terminated at 30.0 ft.					
•	<u> </u>				
LOG OF BORIN	IG NO LP-1		TECHNOLOGY		LOG OF BORING NO. P-2
	Sheet 1 of 1	8 14280	OCIATES, INC. Park Center Drive, Suite A	X	Sheet 1 of 1
		8 Laure	Maryland 20707	· · · · · · · · · · · · · · · · · · ·	
	~				
OF BORING NO. S-9	Sheet 1 of 1				an a
WATER LEVEL (n): ¥ 21.1 ¥ 1 DATE: 5/22/2010 5/25	/2010				
CAVED (R): <u>22.5</u> WATER ENCOUNTERED DURING DRILLING (R)又:	<u>1.3                                    </u>	<b>x</b>	·		
GROUND SURFACE ELEVATION: s, inc. DATUM:	: 198.0 : Survey	¥			
	: CME 45 : Jude O-A : Mark Grande				-
CHECKED BT.					· · ·
		•.			
· · ·		· #			
DESCRIPTION	REMARKS				•
Brown, moist, medium stiff to very stiff, Fat CLAY, trace Gravel	Topsoil: 4 in.				· · · · · · · · · · · · · · · · · · ·
					in the second second
			· .		<i>,</i>
			The plans have been	n reviewed for the Howard	Sail Concentration District
Brown, Dark-Brown, Tan, Yellow-Brown, moist, very stiff to hard,			and meet the technica		nd construction soll erosion
Sandy Elastic SILT with Rock Fragments			and sediment control.		
			USDA - Natural Reso	purces Conservation Service	Date
		•			
	¥.	<b>b</b>	meet the requirements	pond construction, soil acce of the Howard Soil Conser	Volton District.
Light-Grey to Grey, moist, very dense, Highly Weathered Rock			Hernard Soll Conserv	ration District	Date
			BY THE ENGINE		
•			represents a practica	i for pond construction, eros il and workable plan based	on my personal knowledge
			of the site conditions.	This plan was prepared in a oward Soil Conservation Dis	accordance with the
Dolog Townload at 67 0 A			developer that he/she	must engage a registered	professional engineer to
Boring Terminated at 27.8 ft	,		District with an "as-bui	uction and provide the How plan of the pond within E	10 days of completion."
					8.14.2014
LOG OF BOR	ING NO. S-9		Signature of Enginee	ſ	Date
	Sheet 1 of 1		<u>Albert F. E.</u> Printed Name of Eng	Las F.E.	· · · · · · · · · · · · · · · · · · ·
		. * *	Printed Name of Eng	ineer	an a
· · · · ·		X			3
			BY THE DEVEL		
· · · · ·	· ,		to these plans, and the	evelopment and/or construct at any responsible personne	tion will be done according
			construction project w	III have a Certificate of At proved Training Program fo	tendance at a Department 🔅
		· . &	and Erosion before be	ginning the project. I shall	engage a registered
			Howard Soll Conserva	to supervise pond construction District with an "as-built	tion and provide the the the the the the the the the pond within
•		,	30 days of completion Howard Soll Conserva	n. I also authorize periodic ( tion District."	on-site inspections by the
	,		Name Tre)	themad	alistant
			Signature of Person	AT MARKER	<b>B//4/2019</b> Date
				The second se	
	٨		Laura T. We Printed Name of De		
· · · · · · · · · · · · · · · · · · ·					
			* .		SCALE: AS SHOWN
BORINGS		TONYON	DY DU	ACE TINO	
			RK - PH	HOE INO	2 SWM2.2
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51 BLOCK NO. 16	CAPITAL PRO	DJECT NO. N-3957		HOWARD COUNTY, N	IARYLAND SHEET 57 OF 67

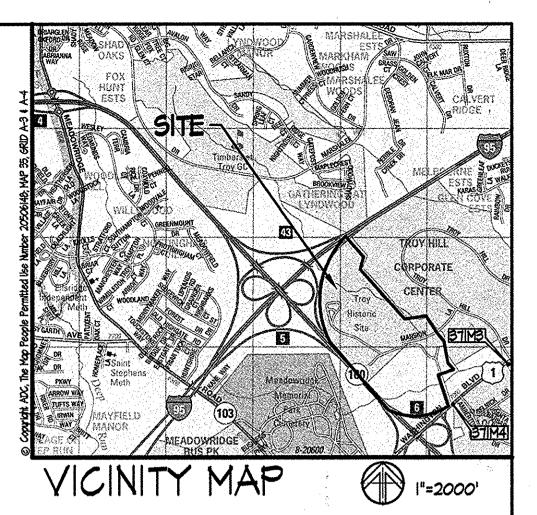
SDP-14-033

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15" RESP-EX. BLDG. FOUNDATION EX GRAVEL DRIVE monter R=653 7 RAMP FROM MD ROUTE T OD TWESTBOUND) .- (NORTHBOUND) ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 190, 185, 155, LOT A-21, 135, LOT A-22 ADDRESS: 6450 MANSION LANE L571 / F.414, L.10585 / F.357, L12205 / F.340, L5783 / F.600, L5341 / F.78, L4933 / F.437, L6153 / F.640, L6135 / F. 640 GRID IT 4 18, ZONE: M-1, TAX MAP NO. 37 Ist ELECTION DISTRICT. CENSUS TRACT 6012.02 WATER CODE: 400, SEMER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 DEVELOPER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700 APPROVED: DEPARTMENT OF PLANNING & ZONING DIRECTOR B. Cargeli-2/15/17 DATE SITE RESOURCES Club Educ CHIEF, DEVELOPMENT ENGINEERING DIVISION VOID Statust CHIEF, DIVISION OF LAND DEVELOPMENT 9.3.14 DATE **N**Y Comprehensive Land Planning & Site Design Services **9-18-14** DATE 14315 Jarrettsville Pike • Phoenix, Maryland 21131 (410) 683-3368 • fax (410) 683-3389



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POURDOUDDEDE RELIEVED DA		DATE: 08/19/14	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 51
	CAN STATIS						en e
		CHK: AFE		- 			•
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	MURAN OF MANAGE	DFG UT					



# (THIS LEGEND APPLIES TO DRAWINGS LI.OI THROUGH LI.O4 ONLY) ------٠ 8000 600

----- PROPERTY LINE ----- EXISTING FOREST BUFFER

EXISTING TREES

EXISTING SHRUBS

EXISTING PHASE I TREES

PROPOSED SHADE TREE

PROPOSED ORNAMENTAL TREE

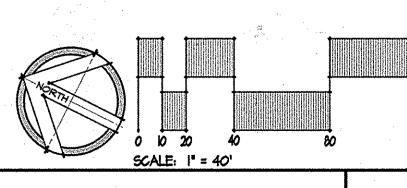
PROPOSED SHRUBS

# PROPOSED GROUNDCOVERS/ PERENNIALS/GRASSES

(D)	EX. 15" SD
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Ø	EX. 2" GAS
	EX. 2" PROPANE
	EX. FUEL OIL
	EX. TELE
(F)	EX. ELEC
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		100 Y	R_FLOG	DPLAIN	l	

	EXISTING WALK
	EXISTING ROAD
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ran kasaya	EXISTING STORM DRAIN
	EXISTING WATER
	EXISTING SANITARY SEVER
	EXISTING GAS
	EXISTING PROPANE
•••••••	EXISTING FUEL OIL
	EXISTING TELEPHONE
	EXISTING ELECTRIC
	EXISTING OVERHEAD
<u>.</u>	EXISTING LIGHTING
	EXISTING COMMUNICATIONS
upiterijinis kardula;	EXISTING CABLE TV
	EXISTING FIBER OPTIC
	EXISTING CHILLED WATER SUPPLY
	EXISTING CHILLED
*******	EXISTING HOT WATER SUPPLY
	EXISTING HOT WATER RETURN
	EXISTING FENCE
	EXISTING GUARDRAIL
	EXISTING FLAGPOLE
	EXISTING BUILDING
	EXISTING WETLANDS
	WETLAND BUFFER
	EXISTING STREAM
	EXISTING STREAM BUFFER
	EXISTING IOO YR. FLOODPLAIN



SCALE: |"=40'

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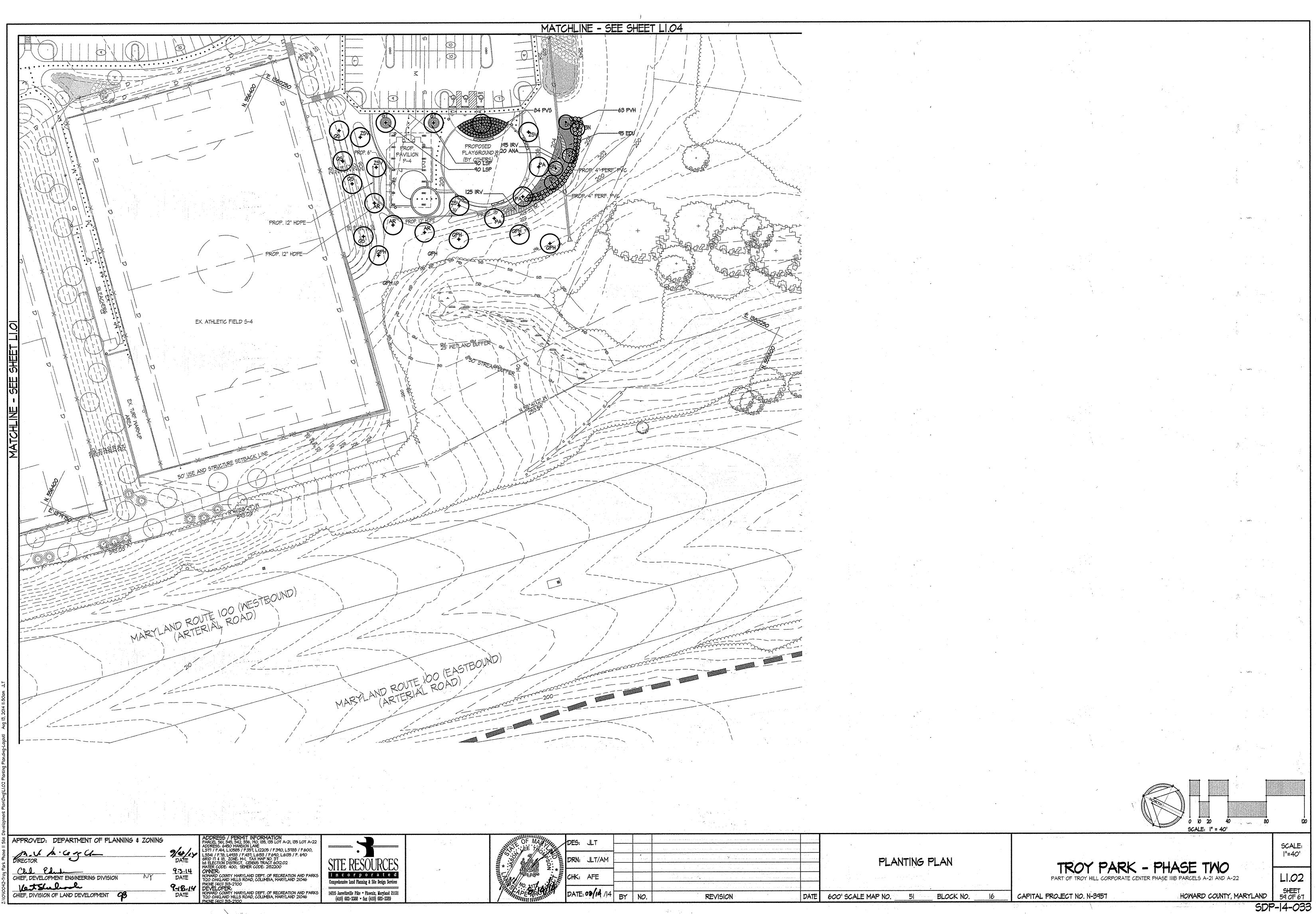
BLOCK NO.

16

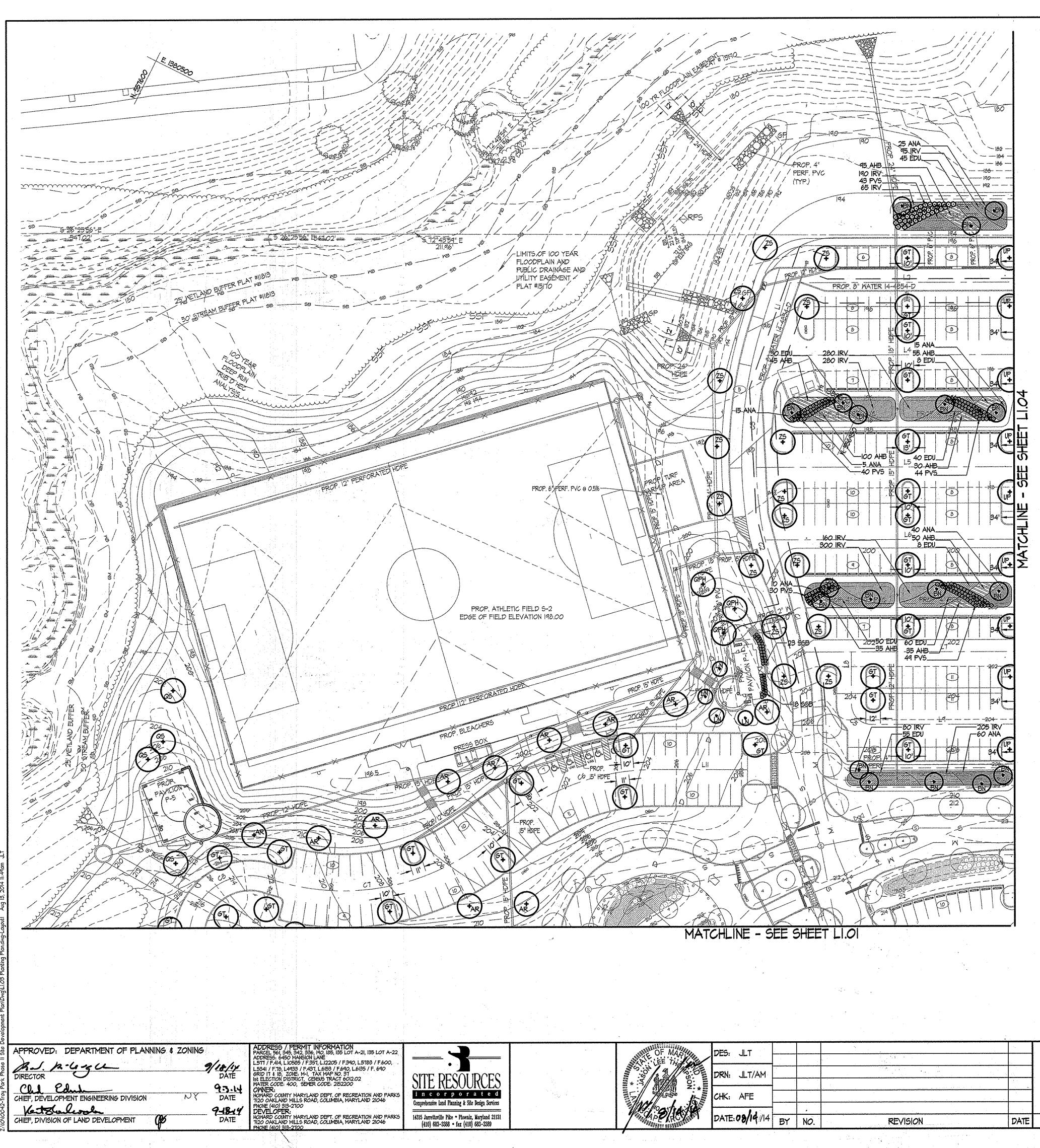
GAPITAL PROJECT NO. N-3957

HOWARD COUNTY, MARYLAND 58 OF 67 SDP-14-033

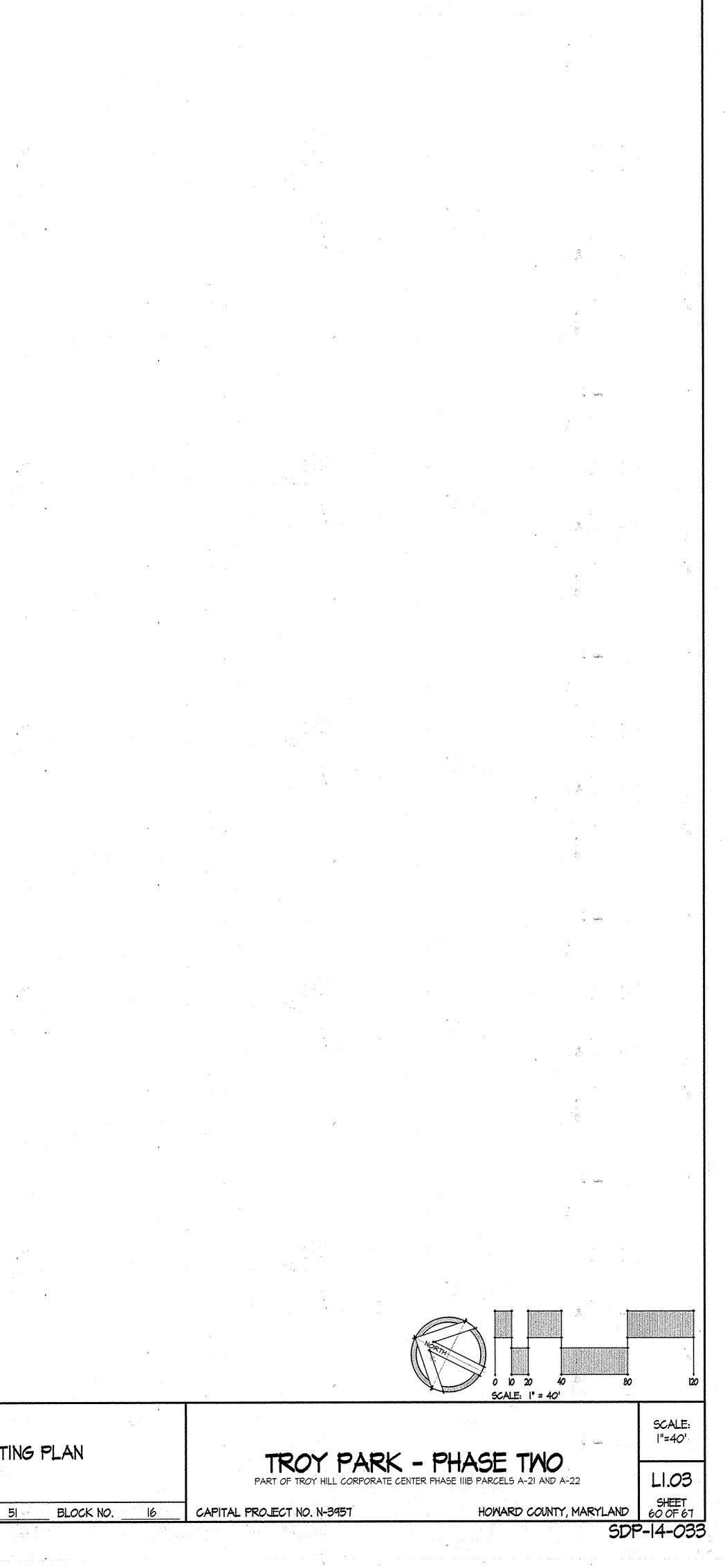
TROY PARK - PHASE TWO PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22

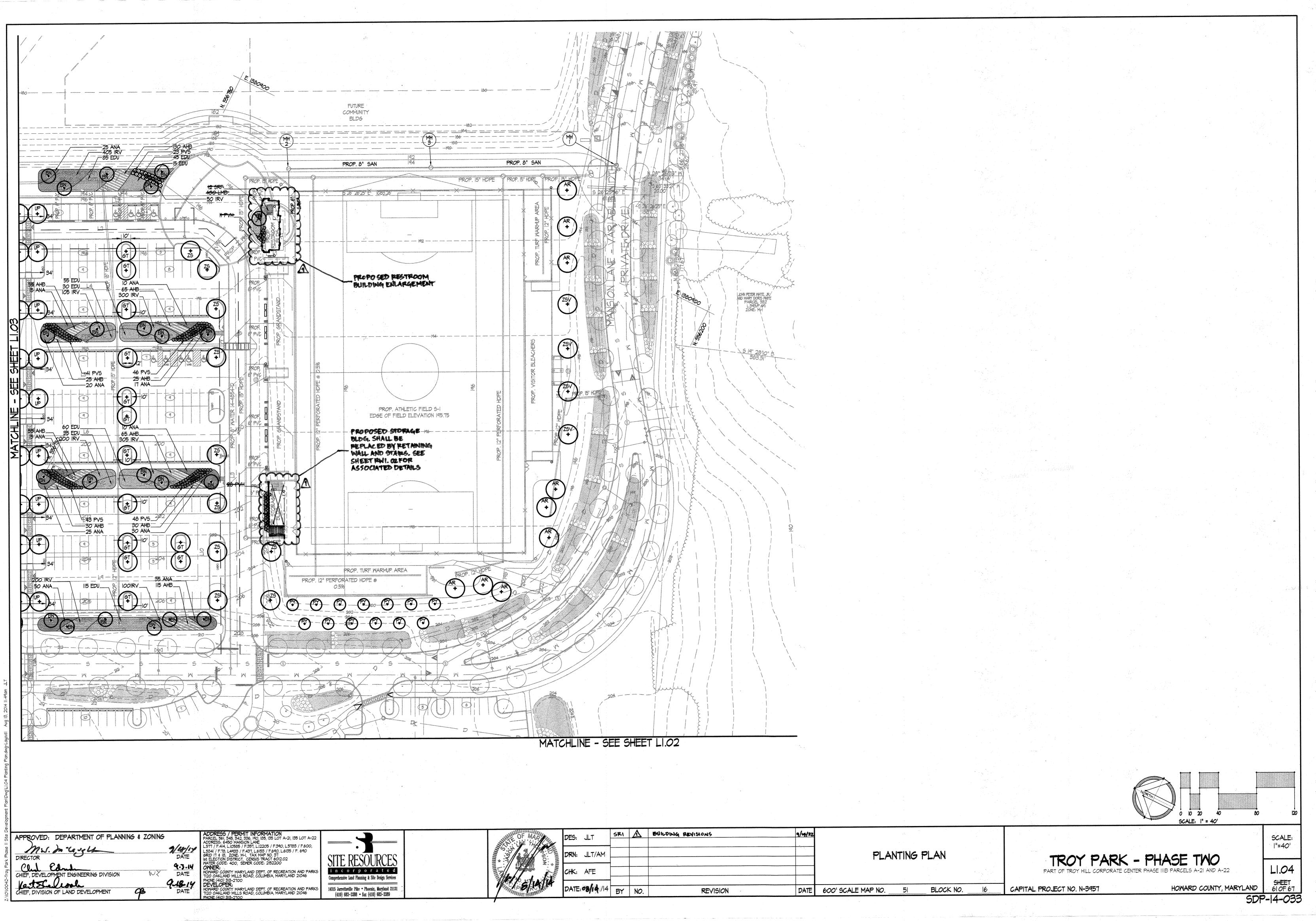


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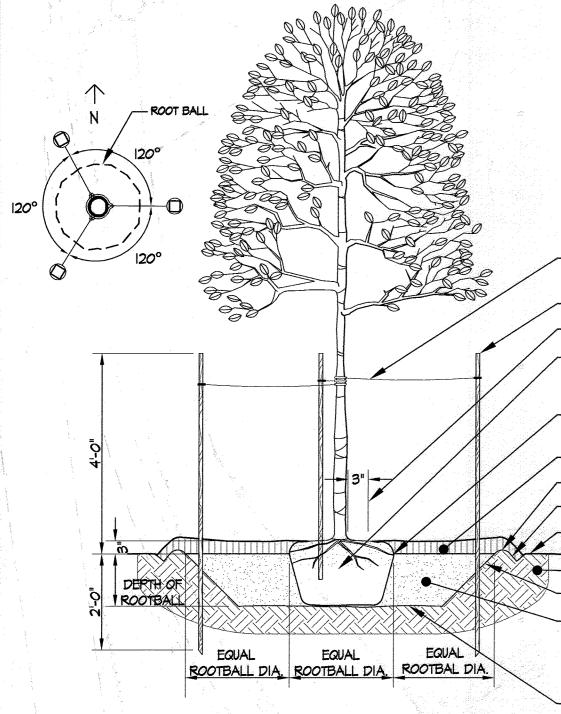
THE ARC NEWLY	DATE	08/19/14	BY	NO.		REVISION	 DATE	600' SCALE MAP NO.
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OF MANUEL	DES:	II T	;			· · · · · · · · · · · · · · · · · · ·	 - 14	





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NUMBER OF MASSING	DES:	JLT	SRI	Δ	BUILDING REVISIONS	9/4/22	
HIMMINI	DRN:	JLT/AM	·				PLANT
NON	CHK:	AFE					
Manufactor and the second	DATE	. <b>08/14</b> /14	BY	NO.	REVISION	DATE	600' SCALE MAP NO.

ATY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
SHADE T	REES				a the provide of the passing forest
CA Com 29	AR	ACER RUBRUM 'BRANDYWINE'	BRANDYWINE RED MAPLE	2.5" CAL.	FULL CROWN, CENTRAL LEADER
50	GT	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	2.5" CAL.	FULL CROWN, EVENLY BRANCHED
3	PA	PLATANUS X ACERIFOLIA 'COLUMBIA'	COLUMBIA LONDON PLANETREE	2.5" CAL.	FULL CROWN, CENTRAL LEADER
7	QPH	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	FULL CROWN, CENTRAL LEADER
·	QS	QUERCUS SHUMARDII	PIN OAK	2.5" CAL.	FULL CROWN, CENTRAL LEADER
18	UP	ULMUS PARVIFOLIA 'EMER II' PP 7552	ALLEE ELM	2.5" CAL.	FULL CROWN, EVENLY BRANCHED
26	ZS	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2.5" CAL.	FULL CROWN, EVENLY BRANCHED
8	ZSV	ZELKOVA SERRATA 'VILLAGE GREEN'	VILLIAGE GREEN ZELKOVA	2.5" CAL.	FULL CROWN, EVENLY BRANCHED
ORNAMEN	TAL TREE	<b>5</b>		· · · · · · · · · · · · · · · · · · ·	
AF44 A5]	BN	BETULA NIGRA 'DURA-HEAT'	DURA-HEAT RIVER BIRCH	12' HT.	MULTI-STEM; 3 STEM MIN.
From the differ	20	CERCIS CANADENSIS	EASTERN REDBUD	6' HT.	MULTI-STEM; 3 STEM MIN.
5	LN	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPEMYRTLE	IO' HT.	MULTI-STEM; 3 STEM MIN., HEAVY FOL
alman <mark>a (<b>13</b>) a</mark>	PY	PRUNUS X YEDOENSIS	YOSHINO FLOWERING CHERRY	1.5" CAL.	SINGLE STEM
PERENNIA	LS / ORN	AMENTAL GRASSES			
1,040	AHB	AMSONIA HUBRICHTII	THREAD-LEAF BLUE STAR	#I CONT.	PLANT 24" O.C.
487	ANA	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	4" POT	PLANT 36" O.C.
881	EDU	EUPATORIUM DUBIUM 'LITTLE JOE'	DWARF JOE PYE WEED	4" POT	PLANT 36" O.C.
3,640	IRV	IRIS VERSICOLOR/IRIS PSEUDOCORUS	BLUE FLAG IRIS/YELLOW FLAG IRIS	4" POT	PLANT 18" O.C., MIX 50/50 WITHIN E
A (510 AO)	LMB	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LIRIOPE	4" POT	PLANT 12" O.C.
2000	LSP	LIRIOPE SPICATA	CREEPING LIRIOPE	4" POT	PLANT 12" O.C.
A (96 135)	PVH	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	4" POT	PLANT 36" O.C.
536	PVS	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	4" POT	PLANT 36" O.C.
A (265277)	SRF	SOLIDAGO RUGOSA 'FIREWORKS'	GOLDENROD	#I CONT.	PLANT 18" O.C.
- Cur	-55B	SCHIZACHYRIUM SCOPARIUM	'THE BLUES' LITTLE BLUESTEM	#I CONT.	PLANT 18" O.C.



### DECIDUOUS TREE DETAIL

T 12

### NOTES:

- THE CENTRAL LEADER SHALL NOT BE CUT.
   CONTRACTOR SHALL LOOSEN ROOTS OF ALL
- CONTAINER GROWN MATERIAL TO ENCOURAGE LATERAL GROWTH OF ROOTS.
- 3. CONTRACTOR SHALL SCARIFY SIDES OF TREE PIT TO ELIMINATE SPADE GLAZING.
- #IO GAUGE WIRE W/ BLACK RUBBER HOSE @ TRUNK (LEAVE SLACK IN WIRE TO ALLOW FREE MOVEMENT OF TRUNK) - (3) EVENLY SPACED 2"X2" HARDWOOD STAKES
- KEEP MULCH 3" FROM TRUNK

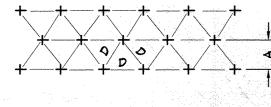
- COMPLETELY REMOVE WIRE BASKET, BURLAP, AND WIRE PRIOR TO PLANTING

- FIRST LATERAL ROOT FLUSH WITH FINISH GRADE; CLEANLY CUT ANY GIRDLING ROOTS

- 3" MULCH
- 3" SOIL WELL TO HOLD WATER - SHOVEL CUT EDGE
- FINISH GRADE

- UNDISTURBED SOIL

- EXCAVATE SIDES TO ILI SLOPE
- BREAK DOWN SIDES OF PLANTING PIT WHEN BACKFILLING PLANTING MIX 1/3 COMPOSTED ORGANICS
- 1/3 TOP SOIL 1/3 SOIL FROM HOLE
- GENTLY COMPACT & WATER TO ELIMINATE LARGE AIR POCKETS - TAMP TO PREVENT SETTLING



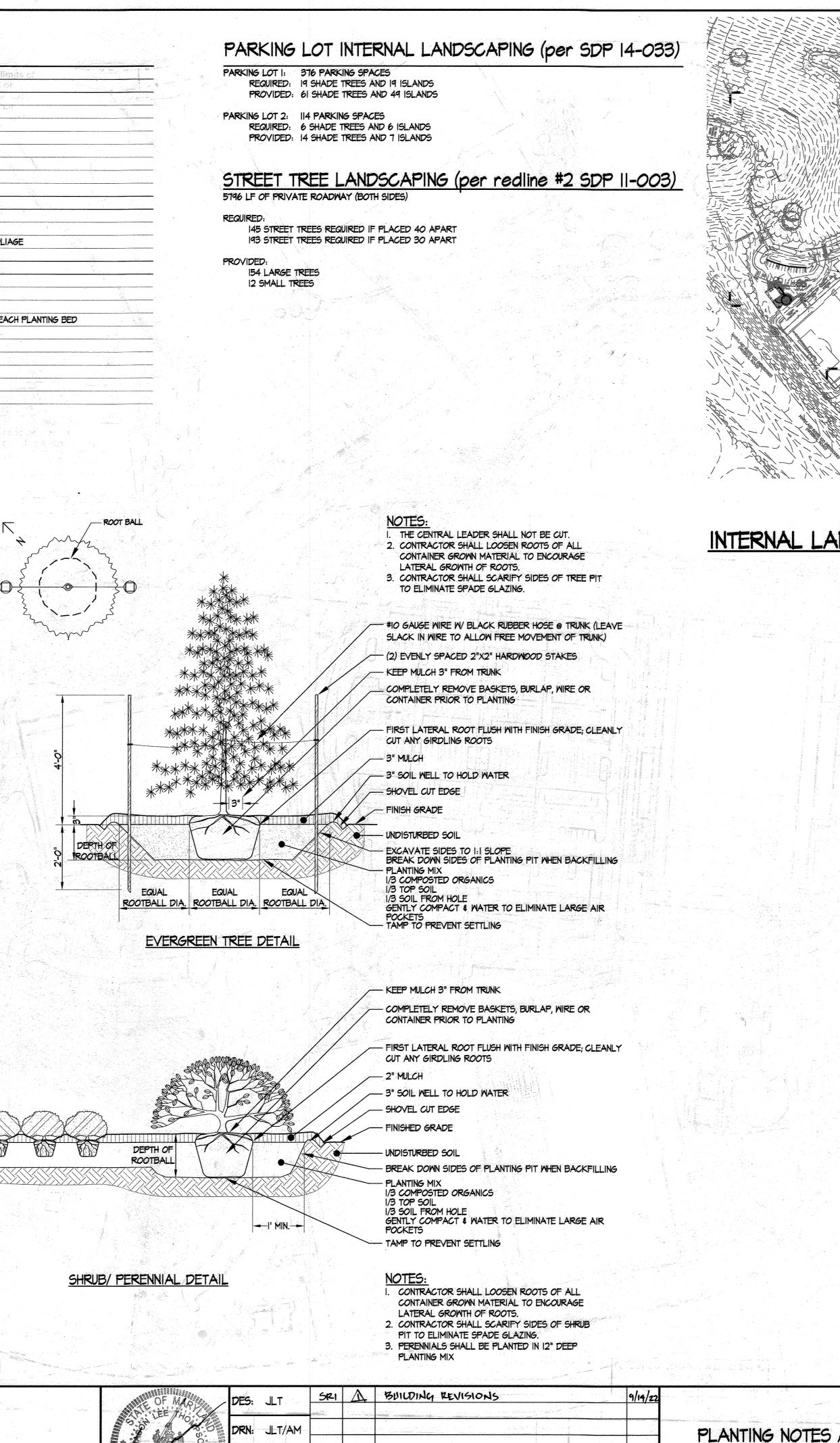
NOTE:

FOR USE ONLY WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER AS SHOWN, AND SPECIFIED IN THE PLANT LIST.

SPACING "D"	Row "A"	PLANTS / S.F.
6" O.C.	5.20"	4.6
8" O.C.	6.93"	2.60
10" O.C.	8.66"	1.66
12" 0.C.	10.40°	1.15
15" O.C.	13.00"	.738
18" O.C.	15.60"	.512
24" O.C.	20.80"	.290
30° 0.C.	26.00"	.185
36" O.C.	30.00"	.128

PLANT SPACING CHART

APPROVED: DEPARTMENT OF PLANNING & ZONING	ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 345, 336, 140, 185, 135 LOT A-21, 135 LOT A-22	
Drasshe pr-length - g/12/14	ADDRESS: 6450 MANSION LANE L.5TT / F.141, L.10585 / F.357, L.12205 / F.390, L.5783 / F.600, L.5341 / F.78, L4933 / F.437, L.6153 / F.690, L.6135 / F. 690 GRID 17 & 18, ZONE: M-1, TAX MAP NO. 37	•
DIRECTOR DATE	IST ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SEWER CODE: 2152200	SITE RESOURCES
Chief, DEVELOPMENT ENGINEERING DIVISION NY DATE	OWNER: HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS. 1120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046	incorporated
Vert Shelooh 9-13-14	PHONE (410) 313-2700 DEVELOPER:	Comprehensive Land Planning & Site Design Services
CHIÉF, DIVISION OF LAND DEVELOPMENT DATE	HOWARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 1120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2700	14315 Jarrettsville Pike • Phoenix, Maryland 21131 (410) 683–3388 • fax (410) 683–3389



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REVISION

DATE 600' SCALE MAP NO.

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# INTERNAL LANDSCAPE PLAN

16

CAPITAL PROJECT NO. N-3957

BLOCK NO.

5

PARKING LOT

### LANDSCAPING NOTES

 QUANTITIES SHOWN ON THE PLANTING SCHEDULE ARE ESTIMATES ONLY; THE CONTRACTOR IS REQUIRED TO INSTALL THE QUANTITIES LABELED IN PLAN VIEW. CONTRACTOR SHALL NOTIFY SITE RESOURCES OF ANY DISCREPANCY BETWEEN THE QUANTITIES LISTED IN THE PLANTING SCHEDULE AND QUANTITIES SHOWN IN PLAN VIEW.

0 40 100

SCALE: |" = 200'

200

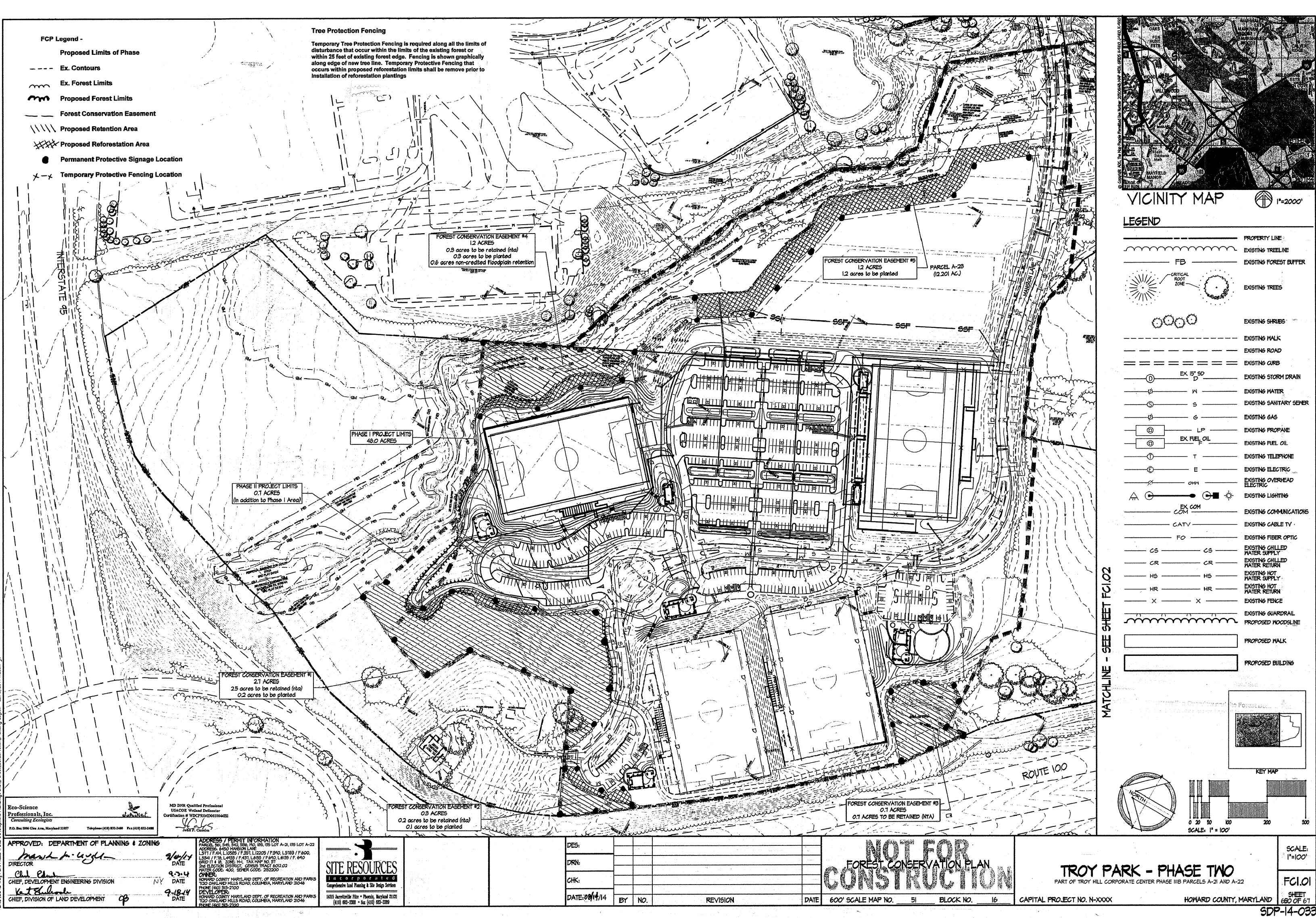
- 2. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING PLANTING AND CONSTRUCTION.
- 3. DAMAGE TO EXISTING CONDITIONS AND UTILITIES SHALL BE REPAIRED AND RESTORED AT THE EXPENSE OF THE CONTRACTOR.
- 4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL 5. ANY WIRE BASKETS USED TO SECURE PLANT ROOT BALLS SHOULD BE COMPLETELY REMOVED PRIOR TO PLANT INSTALLATION.
- 6. THIS PROJECT IS EXEMPT FROM SWM AREA LANDSCAPE MANUAL REQUIREMENTS, HOWEVER, THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE 2007 SWM MANUAL.
- 1. LANDSCAPE SURETY FOR THE REQUIRED PLANTING MATERIAL IS NOT REQUIRED FOR COUNTY CAPITAL PROJECTS.

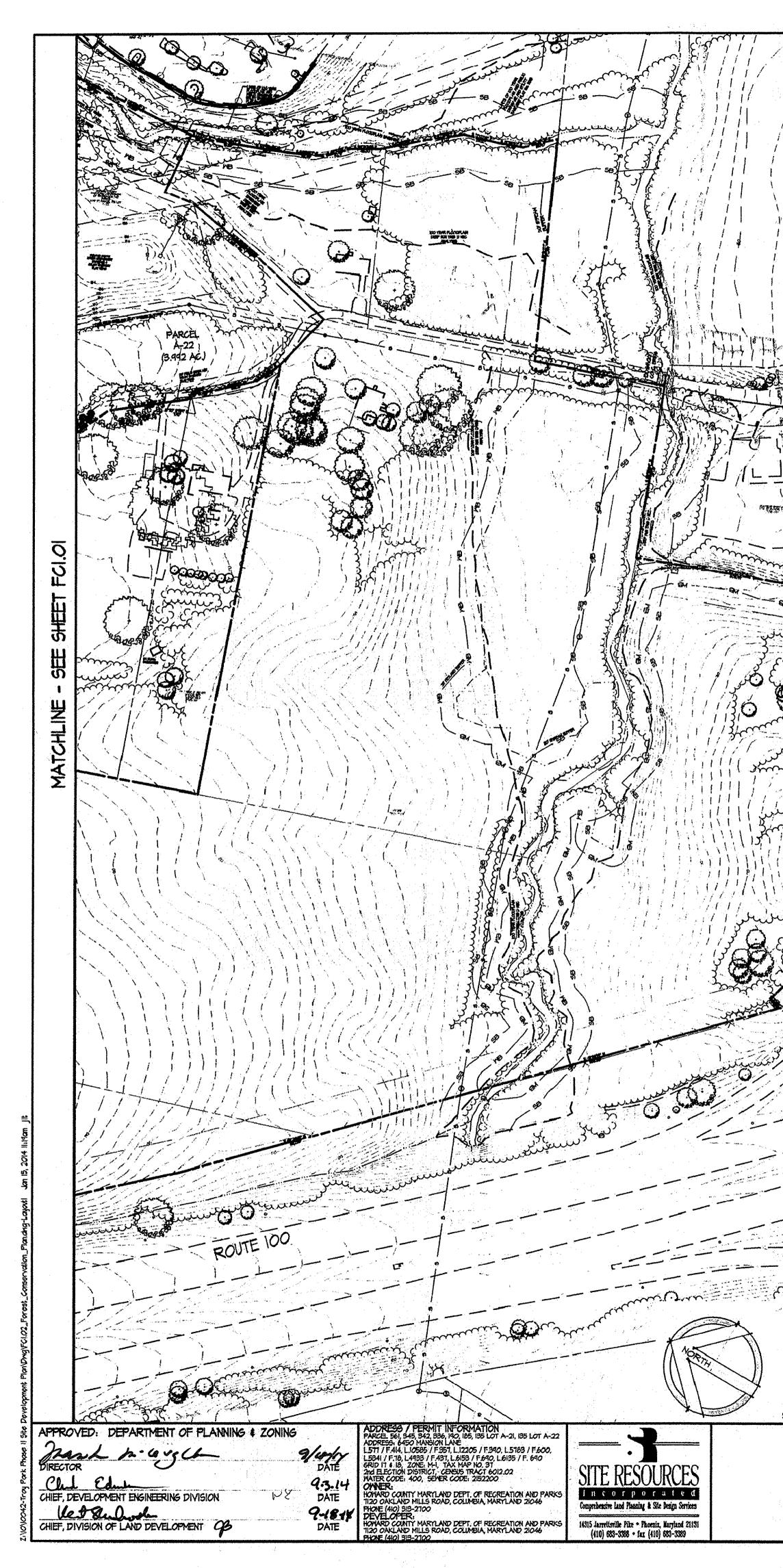
### GENERAL PLANTING NOTES

- I. PLANT MATERIAL SUBSTITUTIONS ARE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT.
- 2. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCE BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE UNLESS THE REQUIREMENT IS SPECIFICALLY WAIVED.
- 3. LOCATIONS OF ALL PLANT MATERIAL SHALL BE STAKED FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR THE OWNER'S REPRESENTATIVE.
- 4. ALL SHRUB AND GROUND COVER AREAS SHALL BE PLANTED IN CONTINUOUS PREPARED BEDS, MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILED AND SPECIFIED.
- 5. PLANTING BEDS SHALL HAVE POSITIVE DRAINAGE WITH A MINIMUM 2 PERCENT SLOPE EXCEPT IN ESD AREAS. 6. CONTRACTOR SHALL VERIFY ACCURACY OF BASE INFORMATION AND EXISTING CONDITIONS IN THE FIELD TO HIS OWN
- SATISFACTION. BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN AND SHALL CONFORM TO AMERICAN NURSERYMEN ASSOCIATION STANDARDS.
   ALL PLANTING PROCEDURES SHALL CONFORM TO THE LATEST EDITION OF LANDSCAPE CONTRACTOR ASSOCIATION GUIDELINES FOR THE BALTIMORE/WASHINGTON METROPOLITAN AREA AND THE PROJECT SPECIFICATIONS.
- 9. SEE GRADING & UTILITY DRAWINGS FOR EXISTING & PROPOSED GRADES AND UTILITIES. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS TO HIS OWN SATISFACTION.
- IO. SEE PREVIOUS SHEETS FOR PLANTING PLAN.
   II. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE
- DEPARTMENT OF PLANNING AND ZONING. 12. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN DIE, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- 13. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPLACED.
- 14. SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AND MAINTAINED, AS NEEDED, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS. STABILIZE ALL DISTURBED AREAS AS SOON AS FINAL GRADING HAS BEEN COMPLETED. ALL DISTURBED AREAS SHALL BE SEEDED WITH THE EXCEPTION OF PLANTING BEDS.
- 15. INSTALL TREE PROTECTION FENCING ALONG THE LIMITS OF DISTURBANCE (LOD) OF ALL EXISTING WOODS TO REMAIN (SEE ESC PLANS). ALL SITE GRADING, PLANTING BED PREPARATION, AND TREE AND SHRUB PLANTING MUST BE DONE OUTSIDE OF THE DRIP LINE OF EXISTING TREES TO BE PRESERVED, UNLESS OTHERWISE NOTED, IN ORDER TO MAINTAIN AND PROTECT THE ROOT SYSTEM.
- 16. TREES ARE NOT TO BE INSTALLED CLOSER THAN 6' TO ANY EDGE OF PAVEMENT, CURB OR SIDEWALK, UNLESS OTHERWISE NOTED.
   17. PER THE LANDSCAPE MANUAL, LANDSCAPING IS NOT REQUIRED BETWEEN INTERNAL LOTS OR PARCELS WITHIN THE SAME DEVELOPMENT, THEREFORE PARCEL A-21 IS EXEMPT BECAUSE IT IS PART OF THE TROY HILL CORPORATE CENTER SUBDIVISION.
- PERIMETER LANDSCAPING FOR THE REMAINING TROY PARK PROJECT WILL BE REQUIRED WITH FUTURE PHASES OF DEVELOPMENT.

HOWARD COUNTY, MARYLAND

			I/We certify that the lan the plan, Section 16.124 Development Regulation	dered CERTIFICATE descaping shown on this pl of the Howard County Suk is and the Landscape Ma	lan will be done ad bdivision and Land inual. I/We further o	certify that
PREPARED BY:	JASON L. THOMPSON, PLA STATE OF MARYLAND REGISTERED LANDSCAPE A REGISTRATION NO. 3172	RCHITECT	upon completion a lette	r of Landscape Installation antee of plant materials and Zoning.	on, accompanied b	ny an to the
ND DÉTAI	LS					SCALE: AS SHOWN
Non-Charles C. 1996; T. P.			PARK - PH CORPORATE CENTER PHASE			L2.01







UPDATED JANUARY 9, 2014

Phase	Comment	Gross Acreage	Nət Tract Area	Existing Forest (nta)	Forest to be Cleared	Forest to be Retained	Afforestation Required	Reforestation Required/ Provided	Retention in excess of BEP *
1	1	48.0	34.9	33.9	30.6	3.3	0	14.1/1.1	0
. JJ	2	48.7	35.6	34.6	30.9	3.7	0,	13.7/1.8	0
Future	3	51.9	38.0	36.1		Break Even	Point for Entire	Site = 25.9 acres	3

Comment 1 - revised per plan update 7/1/13

Comment 2 - Phase II is comprised of 48.0 acres of Phase I plus 0.7 acres of additional land area. Reductions in overall forest retention shown from Phase I value is the result of grading/clearing of forest that was proposed to be retained as part of Phase I site design but will be impacted by Phase II improvements. Forest clearing calculations shown in Phase II include clearing and retention amounts for work performed under Phases I and II and are not additive. Comment 3 - Values shown for "Future" reflects the acreage and forest outside of the defined boundary of Phases I and II. If forest retention for the entire site can meet the 25.9 acres break even point, no reforestation will be required.

### FOREST CONSERVATION WORKSHEET Version 1.0

Project: Troy Park Date: January 22, 2014

NET TRACT AREA	Whole	Phase I	Phase I
	Site ACRES	ACRES	ACRES
A. Total tract area	100.6	48.0	48.7
B. Area within Exempt Lots A-21 and A-22	16.1	12.5	12.5
C. Area within 100 year floodplain outside Lots A21 and A 22	and the second se	0.6	0.6
D. Net Tract Area	73.6	34.9	35.6
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA			IDA
E. Afforestation Threshold (percentage) 15%	11.0	5.2	5.3
F. Conservation Threshold (percentage) 20%	14.7	7.0	7.1
EXISTING FOREST COVER:		00.0	010
G. Existing forest cover (excluding floodplain)	70.7	33.9	34.6
H. Area of forest above afforestation threshold	58.7	28.7	29.3
I. Area of forest above conservation threshold	56.0	26.9	27.5
BREAK EVEN POINT:	56.0	26.9	
		26.9 5.4	5.5
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi	56.0	26.9 5.4 12.4	5.5 12.6
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation	56.0	26.9 5.4	5.5
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi	56.0 11.2 nt 25.9	26.9 5.4 12.4	5.5 12.6
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4	5.5 12.6
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING:	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5	5.5 12.6 22.0
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6	5.5 12.6 22.0 30.9
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI M. Total area of forest to be Retained in FCE PLANTING REQUIREMENTS:	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6	5.5 12.6 22.0 30.9
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI M. Total area of forest to be Retained in FCE PLANTING REQUIREMENTS: N. Reforestation for clearing above Conservation Threshold P. Reforestation for clearing below Conservation Threshold	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6 3.3 6.7 7.4	5.5 12.6 22.0 30.9 3.7 6.9 6.8
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI M. Total area of forest to be Retained in FCE PLANTING REQUIREMENTS: N. Reforestation for clearing above Conservation Threshold P. Reforestation for clearing below Conservation Threshold Q. Credit for retention above conservation threshold	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6 3.3 6.7 7.4 0	5.5 12.6 22.0 30.9 3.7 6.9 6.8 0
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI M. Total area of forest to be Retained in FCE PLANTING REQUIREMENTS: N. Reforestation for clearing above Conservation Threshold P. Reforestation for clearing below Conservation Threshold Q. Credit for retention above conservation threshold	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6 3.3 6.7 7.4	5.5 12.6 22.0 30.9 3.7 6.9 6.8
BREAK EVEN POINT: J. Forest retention above threshold with no mitigation Break-Even Poi K. Clearing permitted without mitigation PROPOSED FOREST CLEARING: L. Total area of forest to be Cleared or Retained Outside FCI M. Total area of forest to be Retained in FCE PLANTING REQUIREMENTS: N. Reforestation for clearing above Conservation Threshold P. Reforestation for clearing below Conservation Threshold Q. Credit for retention above conservation threshold	56.0 11.2 nt 25.9 44.8	26.9 5.4 12.4 21.5 30.6 3.3 6.7 7.4 0	5.5 12.6 22.0 30.9 3.7 6.9 6.8 0

J. Forest retention above threshold with no mitigation	11.2	5.4	5.5
Break-Even Point	25.9	12.4	12.6
K. Clearing permitted without mitigation	44.8	21.5	22.0
PROPOSED FOREST CLEARING:	· ·		
. Total area of forest to be Cleared or Retained Outside FCE		30.6	30.9
M. Total area of forest to be Retained in FCE		3.3	3.7
PLANTING REQUIREMENTS:			
N. Reforestation for clearing above Conservation Threshold	·····	6.7	6.9
P. Reforestation for clearing below Conservation Threshold		7.4	6.8
Q. Credit for retention above conservation threshold		0	0
R. Total reforestation required		14.1	13.7
S. Total afforestation required		0	0
Total reforestation and afforestation required		14.1	13.7

\* To meet the break even point for the entire site, the future phases will need to retain 22.2 acres of existing forest.

KEY MAP

0 20 50 100 SCALE: 1" = 100"	P	CO-Science rofessionals, Consulting Ecolo O. Box 5006 Glub Arr	ogists	1057 Telephone (416) \$32	-2480 Fax (410) 832-2488	MD DNR Qualified Professi USACOE Wetland Delinea Certification AWDCP933,00061 John P. Canoles	lor	
	DES				Martania ana amin'ny firany dia mampika amin'ny dia amin'ny dia amin'ny dia amin'ny dia amin'ny dia amin'ny dia		•	
19 A.	 DRN:					······································		FOREST GONSER
	снк:							CONSTES AND
	DATE: 08/14/	14 BY	NO.		REVISION		DATE	600' SCALE MAP NO. 51

Future Phases

ACRES 51.9 3.6 10.3 38.0

IDA

5.7 7.6

36.1

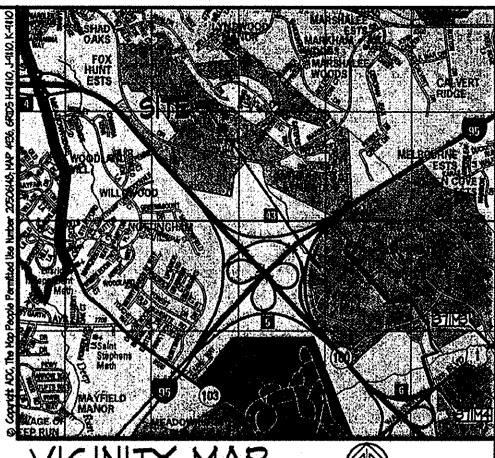
30.4 28.5

5.7

13.3

22.8 \*

\* forest retained in excess of BEP may be credited toward retention requirements of other phases



VICINITY MAP

() 1"=2000'

### FCP NOTES

1. A waiver (Waiver petition file WP-10-173) was granted July 6, 2010 to allow the Forest Conservation requirement for this project to be reviewed in phases rather than under one submission for the entire County Park.

Weises of sciedling (on approval)

- 2. A waiver has been granted to allow for the temporary deferral for submission and recording of the Plat of FCE until the last phase of the development for the County Park.
- 3. A waiver has been granted to allow for the removal of four specimen trees within Phase I of the project
- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Limits of disturbance shall be restricted to areas within 5. the limit of temporary fencing.
- There shall be no clearing, grading, construction or disturbance of vegetation 6. beyond the depicted limits of disturbance, except as permitted by Howard County DPZ
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within 7. areas designated as non-disturbance areas.
- Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the 8. proposed forest retention limits.
- Development on Lots A21 and A-22 are exempt from the Forest Conservation Act as they are part of the Troy Hill corporate Center which is a planned business park of at least 75 acres which received approved prior to 12/31/92 in accordance with Section 16.1202 (b)(1)(v) of the Howard County Code.
- Phase II of the project will be constructed primarily on areas of the site that were graded as part of Phase I of the development plan. Phase II will expand the disturbance area 0.7 acres but also will result in impacts to forest that was proposed 10. for retention under Phase I. The calculations for the project have been updated for Phase II so that they include the total area of the site to be impacted by Phases I and Il and so that they reflect the actual proposed forest retention/clearing required for both of these phases.
- 11. As indicated on the Forest Conservation Overview and the Forest Conservation Worksheet the reforestation obligation for Phases I and II is 13.7 acres. This reforestation obligation will be re-evaluated upon the preparation of development plans for future phases of the project. It is possible that retention credit available in future phases could offset this reforestation obligation. If reforestation is required for the overall project, it is likely that this obligation will be met in an offsite location.
- The forest conservation easement has been established to fulfill the requirements of 12. section 16.1200 of the Howard County code and the Forest conservation Act. No clearing. Grading or construction is permitted within the forest conservation easements. However, forest management practices defined in the Deed of Forest **Conservation Easement area allowed.**



HOWARD COUNTY, MARYLAND

SCALE:

AS SHOWN

FCI.02

SHEET 661 OF 67

### PLANTING SCHEDULE

### FCE # 1 - 0.2 acre planting area Planting units Required: 140 Planting units Provided: 140

Qty	Species	Size	Spacing	Total FCA Units
4	Cercis canadensis - Red bud	2" cal.	20' o.c.	1
8	Cornus florida - Flowering dogwood	2" cal.	20' o.c.	l ·
4	Liriodendron tulipifera - Tulip poplar	2" cal.	20' o.c.	Ι
4	Quercus alba - White oak	2" cal.	20' o.c.	· · · ·
20		Total 2" caliner trees x 7 units/b	reo= FCA unit credit	140

### FCE # 2 - 0.1 acre planting area Planting units Required: 70

Planting units Provided: 70

Qty	Species	Size	Spacing	Total FCA Units
2	Cercis canadensis - Red bud	2" cal.	20' o.c.	
- 4	Cornus florida - Flowering dogwood	2" cal.	20' o.c.	
- 2	Linodendron tulipifera - Tulip poplar	2" cal.	20' o.c.	
2	Quercus alba - White cak	2" cal.	20' o.c.	
10	Total	2" caliper trees x 7 uni	ts/tree= FCA unit credit	70
			Total Unit Credit	70

Total Unit Credit

### FCE # 4 - 0.3 acre planting area Planting units Required: 211

Planting units Provided: 210

Qty	Species	Size	Spacing	Total FCA Units
6	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
6	Total 1	* caliper trees x 3.5 units	tree= FCA unit credit	. 21
10	Acer rubrum - Red maple	~ 2-3' whip	11' O.C.	
20	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
10	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' O.C.	
20	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
15	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
20	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
95	Total	whip plantings x 2 units /		190
		Total Unit Credi		211

### FCE # 5 - 1.2 acre planting area

Planting units Required: 840 Planting units Provided: 840

Qty	Species	Size	Spacing	Total FCA Units
15	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
25	Quercus rubra - Red oak	1" ca.	15' o.c.	
40	Total 1	caliper trees x 3.5 units	Aree= FCA unit credit	140
50	Acer rubrum - Red maple	2-3' whip	11' o.c.	
45	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
40	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
75	Prunus serotina - Black cherry	2-3' whip	11' o.c.	~
75	Robinia pseudo-acacia - Black locust	2-3' whip	11' O.C.	
65	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
350	Total	whip plantings x 2 units /		700
		Total Unit Credi		840

### PLANTING NOTES:

APPROVED: DEPARTMENT OF PLANNING & ZONING

parsh percenali

Vert Shen Jusch

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR

Chil Edul

Planting density based spacing requirements:1" caliper trees @ 15' on center, whips with shelter @ 11' on

1" caliper trees should be staggered along the perimeter of the planting area to serve as demarcation of the boundary as indicated on the plan. Actual spacing may be greater than spacing credit shown in planting schedule chart. Spacing credit is used to determine square foot credit per planting unit and may not define actual spacing in the field.

Planting may be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance

Multiflora rose/heavy brush removal/control may be required prior to installation of planting. All whips are required to be installed with tree shelters per Howard County FCA requirements.

Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seedling or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips w/shelters, or 200 1" caliper trees, or 100 2" caliper trees. By conversion it has been determined that a seeding or whip without shelter = 1 unit, whip with shelter = 2 units, 1"caliper tree = 3.5 units and 2" caliper tree =7 units. The use of plant units simplifies the plant density calculations when mixing stock size.

Typical Planting Layout							
Lt		Ps		Lt		Ar	
	Ar		Rp		Lt		
Qa	•	Vp		Ar		Rp	
• • • •	Lt		Ps		Rp		
Ar		Rp		Lt		Lt	

This diagram shows a typical dispersal of species within planting area. The spacing shall be in accordance with the approved planting schedule. Where the size of the planting stock varies, the planting units shall installed at averaged spacing to provide approximately uniform coverage.

DATE

9.3.14

DATE

9-10-1

NY

ADDRESS / PERMIT INFORMATION PARCEL 561, 345, 342, 336, 190, 185, 195 LOT A-21, 195 LOT A-22 ADDRESS: 6450 MANSION LANE LSTI / F.414, LJ0505 / F.351, LJ2205 / F.340, LS183 / F.600, LS341 / F.10, L4433 / F.431, L6153 / F.640, L6135 / F. 640 GRID 17 & 10, ZONE: M-1, TAX MAP NO. 31 2nd ELECTION DISTRICT, CENSUS TRACT 6012.02 WATER CODE: 400, SEIVER CODE: 2152200 OWNER: HOWARD COUNTY MARYLAND DEPT, OF RECREATION AND PARKS TI20 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046 PHONE (410) 313-2100

HOMARD COUNTY MARYLAND DEPT. OF RECREATION AND PARKS 1120 OAKLAND MILLS ROAD, COLUMBIA, MARYLAND 21046

PHONE (410) 313-2700 DEVELOPER:

HONE (410) 313-2700

# recommended. 2. 3.

- 4.
- prior to planting.
- the site.

### Sequence of Construction

1.	Sediment control shall be
2.	Plants shall be installed a
3.	Upon completion of the pl
4.	Plantings shall be maintai
	requirements for project.

### Maintenance of Plantings

1.	Maintenance of plantings shall last for a period
2.	Plantings must receive 2 gallons of water, eith 1st growing season, as needed. During secon September, if needed.
3.	Invasive exotics and noxious weeds will be rer and/or with limited herbicide. Old field success
4.	Plants shall be examined a minimum two time and diseases. Serious problems will be treate
5.	Dead branches will be pruned from plantings.

### **Guarantee Requirements**

	A 90 percent survival rate of
•	
	All plant material below the 9
	second growing season. At 1
	required. All plant material b
	of the next growing season.

### **Education of New Occupants**

The developer shall provide educational information to all property owners within the new development/home about the proper use of forest conservation areas.

### **Final Inspection and Release of Obligations**

	At the end of the pos
	certification to the Co
	restored to appropria
	permanent protection
×.	County will inform the
	Forest Conservation

Undisturbed Soll
HECHTI ODOTSAILL KOS ASONE FONSHELO GENDE
Disturbed Soli
HEGHT DOTTALL LOL ARCNE HINSHED GRADE
Planting on Slope
ODCOMUL CRADE
Source Adapted from Forest Conservation Manual, 19
Container Grown and B&B

	MD DNR Quell USACOE Wett	fied Professionsi and Defineator
	JL	CP93MD061004432
Eco-Science Professiona	ls, Inc.	
Consulting E P.O. Box 5006 Gkm	Cologists Arm, Maryland 21057	Telephone (410) 832-
SITE F	ESOURCE	= S

Comprehensive Land Planning & Site Design Services

14315 Jarrellsville Pike . Phoenix, Maryland 21131

(410) 683-3388 • fax (410) 683-3389

### **Planting/Soil Specifications**

Installation of bareroot/plug plant stock shall take place between March 15 - April 20; b&b/container stock March 15 - May 30 or September 15 - November 15. Fall planting of B&B stock is not

Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed. Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications,

for woody plants. Herbaceous plant shall be fertilized with Osmocote 8-6-12. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist

The contractor shall remove all non-organic debris associated with the planting operation from

all be installed in accordance with general construction plan for site. led as per Plant Schedule and the Planting/Soil Specifications for the project. the planting, signage shall be installed as shown. aintained and guaranteed in accordance with the Maintenance and Guarantee

lings shall last for a period of two years. ve 2 gallons of water, either through precipitation or watering, weekly during the as needed. During second growing season, once a month during May-

noxious weeds will be removed, as required, from planting areas mechanically erbicide. Old field successional species will be retained. ined a minimum two times during the growing season for serious plant pests ous problems will be treated with the appropriate agent.

I rate of the reforestation plantings will be required after one growing season. ow the 90 percent survival threshold will be replaced at the beginning of the son. At the end of the second growing season, a 75 percent survival rate will be aterial below the 75 percent survival threshold will be replaced by the beginning

st-construction management and protection period the developer shall submit a county that all forest conservation areas have remained intact or have been ate condition, that the stipulated survival rates have been achieved, and that any on measures required by the plan are in place. Upon review and acceptance, the he developed of their release the development of future obligations related to the

The retention/reforestation areas shown hereon will be placed into a Forest Conservation Easement.

A. Planting Plan and Methods

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control afforestation costs. If bareroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easements all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide used shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

### B. Planting and Soll Specifications

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

### C. Maintenance of Plantings

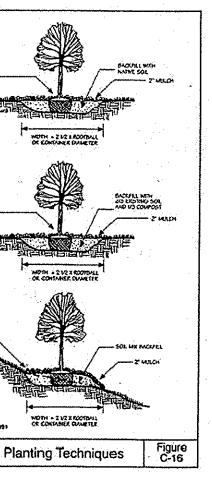
For information regarding maintenance of the reforestation plantings, see Post Construction Management Plans.

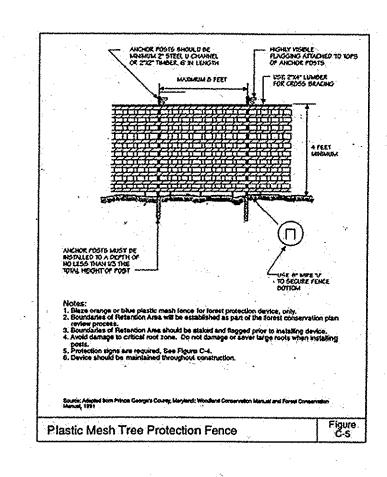
### D. Guarantee Requirements

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

### E. Security for Reforestation

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc.) with the County to insure that all work is done in accordance with the FCP. Security is not required for County Capital Projects





FOREST AREA DO NOT DISTURB MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS PROHIBITED AOLATORS ARE SUBJECT TO FINES IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF signs to be higher than top of tree protection fence, e placed approximately 50 feet apart. Conditions on Source: Adapted from Forest Conservation Manual, 195 **Construction Signs** 

Strate .		•				
Fax (410) \$32-2455	· ·					
	DES:	· .				
•	DRN:	-				FOREST CONS
						P AND NOTES AND
	CHK:					<b>UCMOIN</b>
	DATE: 08/4/14	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 51

### CONSTRUCTION PERIOD PROTECTION PROGRAM

### A. Forest Protection Techniques

### 1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of a its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

### 2. Fencing and Signage

Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.

### **B. Pre-Construction Meeting**

Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed development. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.

### **D. Sequence of Construction**

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

Below find a proposed sequence of construction.

- 1. Install all signage and sediment control devices.
- 2. Hold pre-construction meeting between developer, contractor and County inspector. 3. Build access roads, install well and septic systems, and construct houses. Stabilize all disturbed areas accordingly.
- 4. Begin multiflora rose removal. Install permanent protective signage for Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
- 5. Remove sediment control.

6. Hold post-construction meeting with County inspectors to assure compliance with FCP. Submit Certification of Installation. 7. Monitor and maintain plantings for 2 years.

y was

### **E.** Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation

### F. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that plantings have been installed.

### **POST-CONSTRUCTION MANAGEMENT PLAN**

Howard County requires a two year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

A. Fencing and Signage

Permanent signage indicating the limits of the retention/reforestation area shall be maintained.

B. General Site Inspections/Maintenance of Plantings

Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the afforestation plantings. Appropriate measures will be taken to rectify any problems which may arise.

In addition, maintenance of the afforestation plantings will involve the following steps:

- Watering All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing
- season, once a month during May-September, if needed. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.
- Identification of serious plant pests and diseases, treatment with appropriate agent.
- Pruning of dead branches. After 12 and 24 months, replacement of plants, if required, in accordance with the Guarantee Requirements shown on the FCP.

### C. Education

The developer will provide appropriate materials to property owners informing them of the location and purpose of the afforestation area. Materials may include site plans and information explaining the intent of the forest conservation law.

### **D. Final Inspection**

CAPITAL PROJECT NO. N-XXXX

At the end of the two year post-construction management period, Eco-Science Professionals, or another gualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/ reforestation/afforestation requirements have been met

TROY PARK - PHASE TWO

PART OF TROY HILL CORPORATE CENTER PHASE IIIB PARCELS A-21 AND A-22



Figure Č-4

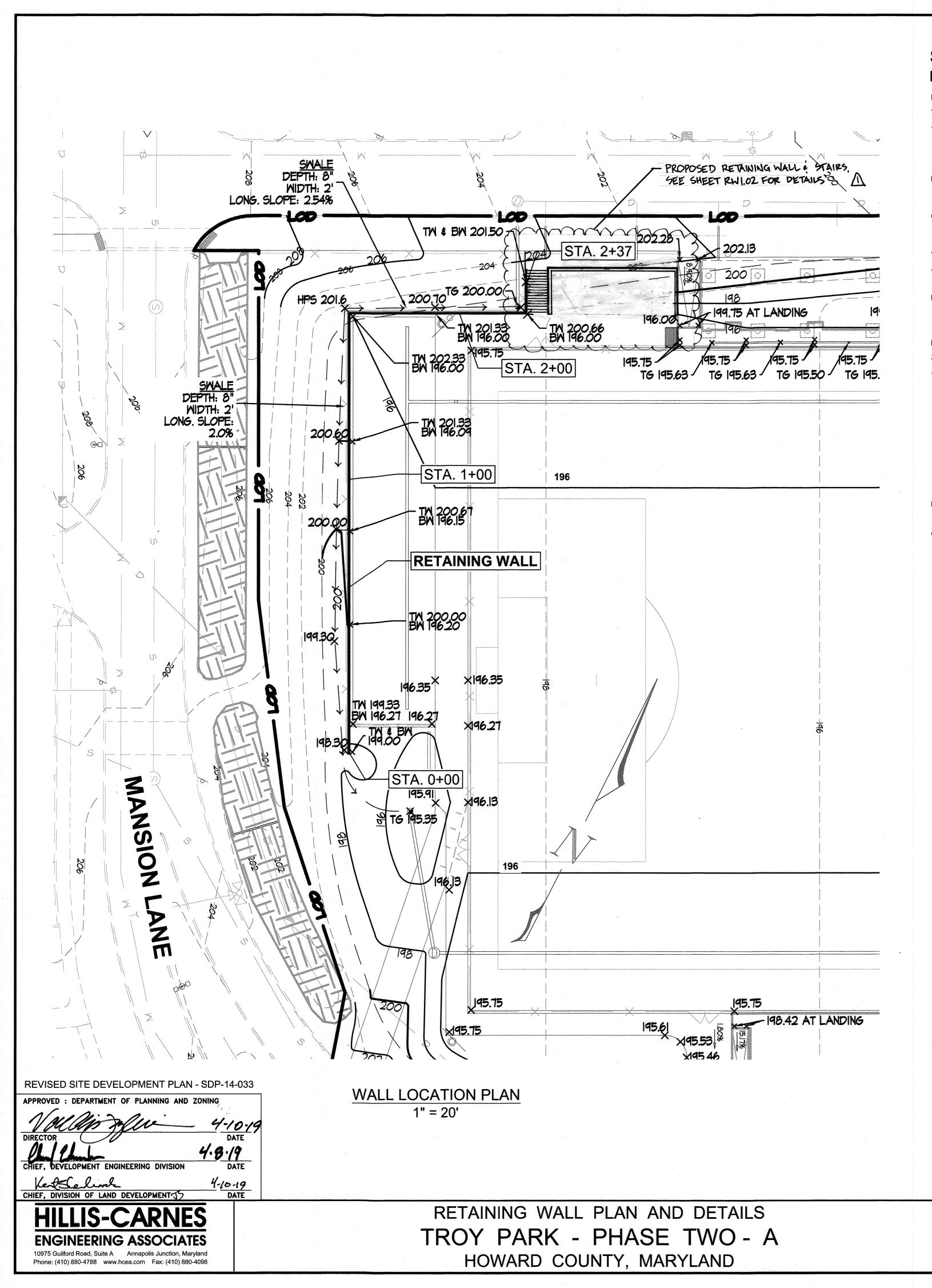
HOWARD COUNTY, MARYLAND

SCALE:

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FC1.03

69 OF 67



# SPECIFICATIONS

### MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

- 1.01 DESCRIPTION
- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES. GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.
- 1.02 DELIVERY, STORAGE AND HANDLING
- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.
- PART 2: PRODUCTS
- 2.01 MODULAR CONCRETE RETAINING WALL UNITS
- A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS: FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.

FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

- BOND CONFIGURATION RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM
- A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING. B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD
- SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS. C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH

APPROPRIATE REFERENCES:

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM: ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) x 18" (W) x 12" (D) MINIMUM;

UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE. GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

- D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS: VERTICAL SETBACK = 1/8"+ PER COURSE (NEAR VERTICAL)
- OR 1"+ PER COURSE PER THE DESIGN; ALIGNMENT AND **GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO** PER UNIT MINIMUM;

MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH. 2.02 SHEAR CONNECTORS

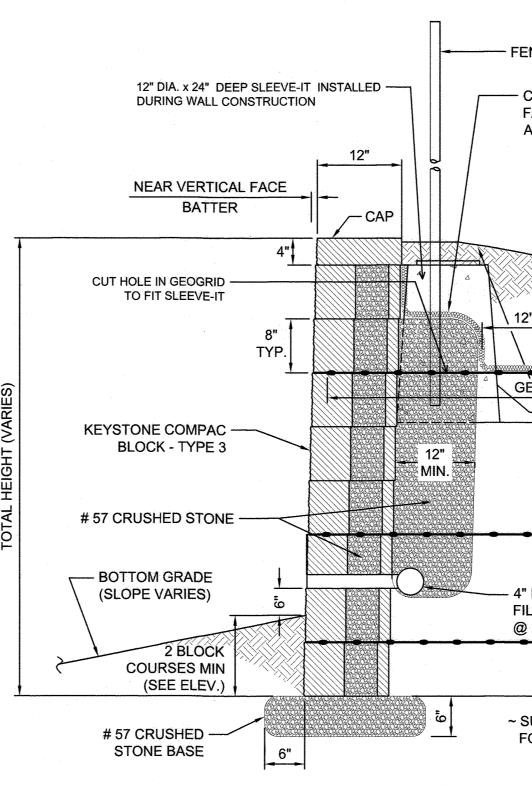
- A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.
- 2.03 BASE LEVELING PAD MATERIAL
- A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- 2.04 UNIT DRAINAGE FILL
- A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE

2.05 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL BE TYPE SM, BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

NOT ENTILO ONOVIN ON THE LEAN.		
SIEVE SIZE	PERCENT PAS	
2 INCH	100-75	
3/4 INCH	100-75	
NO. 40	0-60	
NO. 200	0-35	

- D-4318. B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET, UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.
- 2.06 GEOGRID SOIL REINFORCEMENT GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL
- REINFORCEMENT APPLICATIONS AND SHALL BE



### **TYPICAL WALL SECTION** N.T.S.

AND DETAILS	REVISION NO.	DESCRIPTION
SE TWO - A	#1	REVISION TO RETAINING WALL
	51-1 1	BUILDING REVISIONS
/IARYLAND		

- PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM

- MANUFACTURED FROM HIGH TENACITY POLYESTER YARN. 2.07 DRAINAGE PIPE
- A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.
- PART 3 EXECUTION 3.01 EXCAVATION
- A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. **OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR** INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.
- 3.02 BASE LEVELING PAD
- A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.
- B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS
- 3.03 MODULAR UNIT INSTALLATION
- A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.
- B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.
- D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.
- E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS. PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES. 3.04 STRUCTURAL GEOGRID INSTALLATION
- A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL **ALIGNMENT**
- B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.
- D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS

- THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.
- 3.05 REINFORCED BACKFILL PLACEMENT
- A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.
- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.
- REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF C THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.
- D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.
- E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.
- F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE

3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

- THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.
- AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD B. INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

- FENCE PER HOWARD COUNTY CODE

CONTINUOUS FILTER FABRIC OVER #57 STONE ABOVE TOP GRID LAYER		
TOP GRADE (SLOPE VARIES)	- PROPOSED SWALE - SEE GRADING PLAN FOR DETA	
	KAT AL MAN	
MIRAGRID 3XT		
	the second s	
EOGRID EMBEDMENT LENGTH VAI	RIES	
<u>+</u>		
COMPACTED FILL TYPE SM	SEE	
γ = 125 PCF Ø = 30° MIN	GRID SPACING VARIES - SEE	
	G VA	
HDPE DRAIN PIPE WRAPPED IN	ACIN	
LTER FABRIC WITH 2" PVC WEEP 20' O.C.		
20 0.6.	GRI /	
UBGRADE APPROVED ~ OR 2000 PSF BEARING		

DATE

04-01-2019

08/14/2022

SCALE:

DATE:

### PROFESSIONAL CERTIFICATIO HEREBY CERTIFY THAT THESE PLA WERE PREPARED OR APPROVED BY M AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/19 JOB NUMBER: **DESIGNED BY:** 10439-G

AS SHOWN

11/27/2018



50P-14-033

