HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
PINE TREE ROAD & GLEN COURT DRAINAGE AND ROADWAY IMPROVEMENTS
HOWARD COUNTY CAPITAL PROJECT D–1140
PHASE 2 (PH.2) CONSTRUCTION

GENERAL NOTES

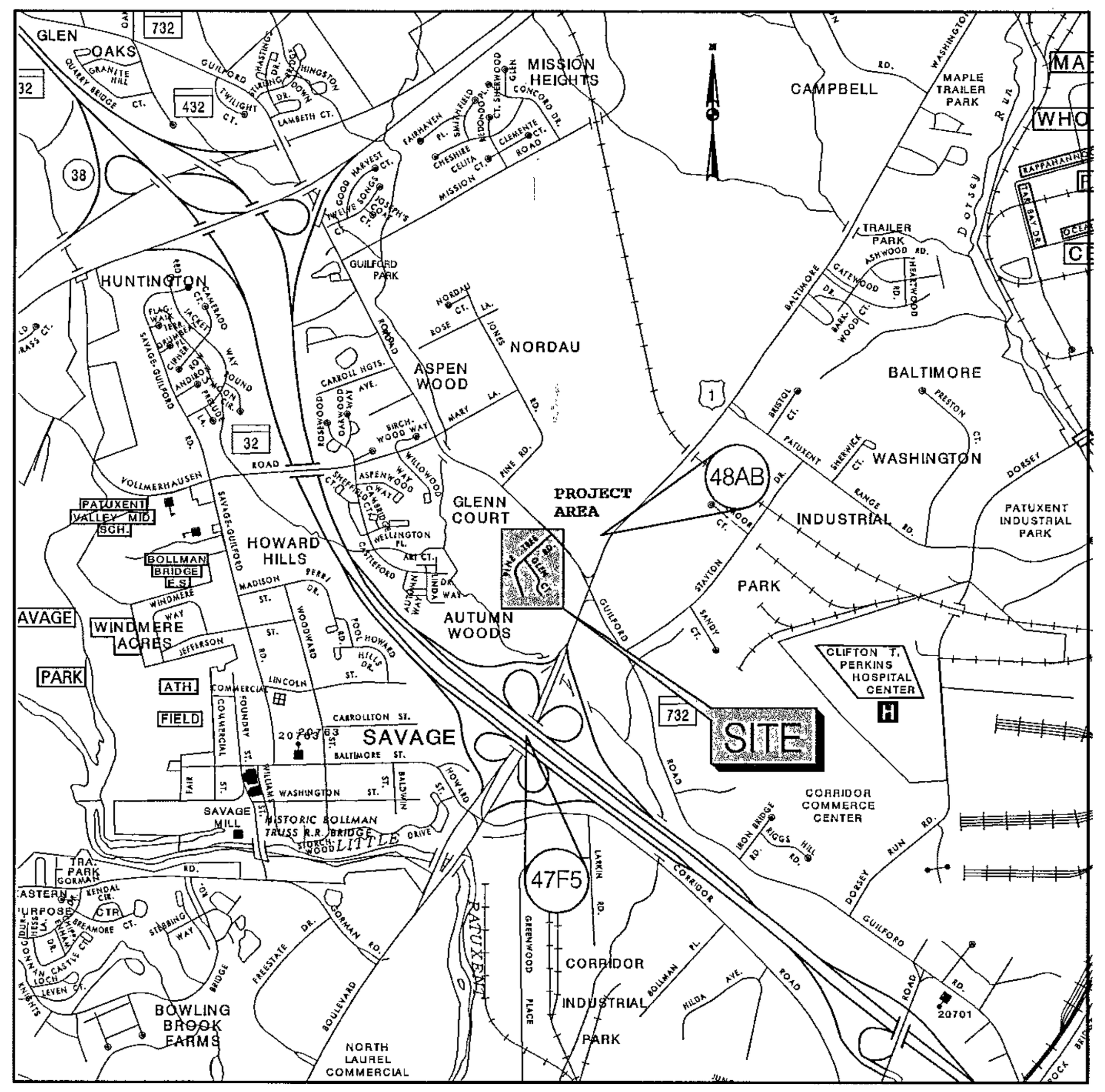
1. This contract shall be constructed under provisions of the Maryland Department of Transportation, State Highway Administration (S.H.A.) "Standard Specifications for Construction and Materials," dated January 2001, including all revisions thereof and additions thereto, except where noted otherwise; the Special Provisions included in the invitation for bids book; the Administration Book of Standards for Highways and incidental Structures; as well as the latest Howard County Design Manual Standards and Specifications & Details for Construction dated 2006 and revisions thereof and additions thereto.
2. The Contractor shall notify the Department of Public Works/Bureau of Engineering/ Construction Inspection Division at (410) 313-1870 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 forty-eight (48) hours prior to any excavation work. The Contractor shall contact the following utilities at least 5 days prior to beginning any work under this contract. For additional information and requirements with respect to utilities, see Special Provisions.
   BGE Gas Division (410) 291-5834
   BGE Electric Division (410) 855-6958
   Verizon (410) 224-9980
   Comcast (410) 497-0232
4. Project Background: Location: Savage, Maryland
   Tax Map: 47
   Election District: 6
5. Traffic control devices, markings, and signing and their locations shall be in accordance with the latest edition of the Maryland Manual on Uniform Traffic Control Devices (MdMUTCD).
6. Any damage caused by the Contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the Contractor's expense.
7. The existing utilities shown hereon are located from the best information available, but no guarantee is made to their accuracy. The approximate location of existing utilities are shown for the Contractor's information and convenience. The Contractor shall locate existing utilities to his/her own satisfaction and well in advance of any construction activities. Additionally, the Contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service.
8. Horizontal and vertical datums based on to the Maryland State Plane Coordinate System NAD 83 and NAVD 88 and is referenced to Howard County Survey Control Monuments: 47F5 N 535,985.0356 E 1,365,653.5044 Elev. 235.045 & 48AB N 538,384.4557 E 1,366,415.8225 Elev. 225.702
9. Clearing shall be limited to the "Limit of Disturbance" as shown on the sediment and erosion control plan. Grading shall be done in such a manner as to provide positive drainage. Contractor shall seed and mulch all disturbed areas except as otherwise directed.
10. The contractor shall take extreme caution not to disturb the existing vegetation outside the limits of disturbance. Soil stabilization shall conform to "Maryland Standards and Specifications for Soil Erosion and Sediment Control," dated 2011, published jointly by Water Management Administration, Soil Conservation Service, and State Soil Conservation Committee.
11. All fill areas shall be compacted to a minimum of 95% of the maximum dry density as determined and verified in accordance with AASHTO T–180.
12. This drawing is based on a field ran topographic survey performed by Associated Engineering Services, Inc. (AESI) 34 West Franklin St, Hagerstown, Maryland 21740 on or about October 2006 and May 2008.
13. All sign posts used for traffic control signs installed in the County Right–of–Way shall be mounted on a 2" galvanized steel, perforated ("Quick Punch"), square tube post (14 gauge) inserted into a 2–1/2" galvanized steel, perforated, square tube sleeve (12 gauge) – 3' long. The anchor 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.
14. A staging and stockpile area will be determined by the contractor and approved by the Howard County Engineer.
15. There are numerous residential sump pump outlet pipes present within the area of this project. The contractor shall walk the project with the engineer to note the exact location of these pipes and make allowences to provide positive drainage from them to the proposed curb and gutter flow line.

MAINTENANCE OF TRAFFIC (MOT)

1. All work shall be done in accordance with MD SHA Standard Detail MD 104.02-10, MD 104.00-14 Pavement Edge Drop Off, and MD 104.06-18. Note, Contractor shall obtain a copy of the required Standard Details and retain for reference.
2. Contractor to maintain a minimum 10' travel lane at all times.
3. Throughout the period of construction, traffic will be maintained by implementing standard traffic control work zone typical plans in accordance with the latest plans and manuals of the Maryland State Highway Administration. The contractor will be required to adhere to The Maryland Manual of Uniform Traffic Control Devices (MdMUTCD), (2009 edition and all revisions). All open trenches shall be plated and construction barriers shall be removed during non-working hours (4:00pm-9:00am). The contractor is required to maintain access to all driveways at all times for the duration of the project. If the contractor is unable to reconstruct existing driveway aprons after curb installation, contractor shall provide graded aggregate backfill behind curb to maintain use of driveways. All items not listed in the itemized schedule of prices, required for maintaining traffic, including but not limited to signing, barriers, drums, temporary aggregate and pavement, shall be included in the lump sum unit bid price for maintainance of traffic.

FOREST CONSERVATION NOTES

1. This project is exempt from Forest Conservation requirements. For the encroachment along the Rowe Property, 8614 Pine Tree Road for the installation of the storm drain system the linear project exemption is applicable because it is a single lot clearing less than 20,000 square feet of forest.
2. For the Open Space beyond the ES-1 outfall, the Forest Conservation obligations have already been met under F-95-15 for the Winterbook Subdivision.



LOCATION MAP
SCALE: 1" = 2000'

GREGORY W. FILAR, P.E. — 6/16/16 DATE

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS ARE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20762, EXPIRATION DATE: 3/08/2017."

■ PLAN LOCATION OF TEST PIT

NOTE:
ROADWAY BORING AND TEST PIT LOG SUMMARY SHEETS ARE INCLUDED IN THE INFORMATION FOR BID (IFB) BOOK.

INDEX OF DRAWINGS

EP-11-004

SEDIMENT CONTROL

Owners/Developer Certification:

"I/We certify that any clearing, grading, construction or development will be done persuant to this approved erosion and sediment control plan, including inspecting and maintaining controls and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."

Owner's/Developer Signature: Marshall N. [signature] — Date: 6/27/16

Printed Name & Title: MARSHALL N. DAVIDSON, Proj. Mgr.

Design Certification:

"I hereby certify that this plan had been designed in accordance with current Maryland erosion and sediment control laws, regulations and standards, that it represents a practical and workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District".

Designer's Signature: [signature] — Date: 6/16/16

Printed Name: Gregory W. Filar — MD Registration No. 20762 P.E., R.L.S. or R.L.A. (circle one)

These plans are approved for soil erosion and sediment control by the Howard Soil Conservation District.

Howard S.C.D.: [signature] — Date: 7/5/16

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 7/1/16	CHIEF, BUREAU OF ENGINEERING	DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS	DATE 6/29/2016	CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	DATE 6/29/16

GPI — GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2649 www.gpinet.com

	BY	NO.	REVISION	DATE
DES: GWF/JRW				
DRN: JRW				
CHK: CSN				
DATE: JUNE, 2016				

TITLE SHEET

600' SCALE MAP NO. ______ BLOCK NO. ______

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D–1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

NOTES

1. WIDTH OF EXISTING PAVEMENT MAY EXTEND BEYOND LIMIT OF PROPOSED CURB AND GUTTER. IF REQUIRED, REMOVE EXISTING ROADWAY PAVEMENT BEYOND FACE OF NEW CURB GUTTER PAN. REMOVAL OF PAVEMENT SHALL BE INCIDENTAL TO CLASS I EXCAVATION.

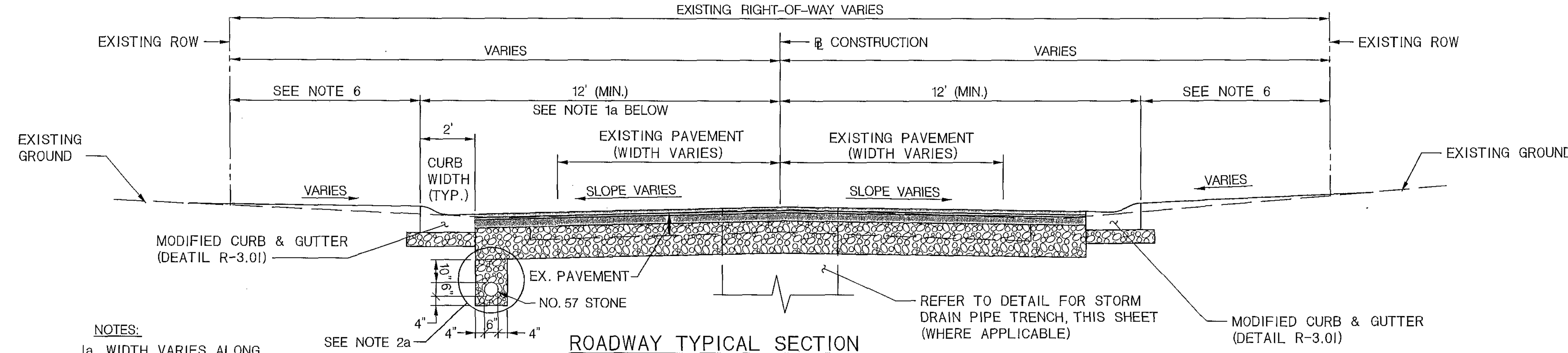
2. AREA BEHIND BACK OF CURB TO BE ADJUSTED TO MEET EXISTING GROUND. WHERE DRIVEWAY MEETS CURB CONTRACTOR TO RECONSTRUCT DRIVEWAY APRON SIMILAR TO HO. CO. STD. DETAIL R-6.05 EXCEPT THAT DRIVEWAY WIDTH SHALL MATCH THE WIDTH OF EXISTING DRIVEWAY. DRIVEWAY APRON RECONSTRUCTION TO CONSIST OF P-1 PAVEMENT SECTION, OR REINFORCED CONCRETE AS NOTED.

3. ALL FULL DEPTH SAW CUTS REQUIRED WILL NOT BE MEASURED BUT THE COST WILL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR THE CURB AND GUTTER PAY ITEM.

4. THE GAB PLACED UNDER AND BEHIND CURB & GUTTER WILL NOT BE MEASURED BUT THE COST WILL BE INCIDENTAL TO THE CONTRACT UNIT PRICE FOR THE CURB & GUTTER PAY ITEM.

5. DURING CONSTRUCTION OF STORM DRAIN ALONG GLEN COURT IF TRENCH EXCAVATION CANNOT BE BACKFILLED AND TOPPED WITH HMA AT THE END OF WORKDAY, A STEEL PLATE SHALL BE INSTALLED OVER OPEN EXCAVATION. THE EXISTING PAVEMENT SHALL BE NOTCHED OR GROUND TO DEBTH OF PLATES TO ENSURE SECURE INSTALLATION.

6. AREA TO BE STABILIZED WITH 4-INCH TOPSOIL AND TURFGRASS ESTABLISHMENT UNLESS OTHERWISE NOTED.



ROADWAY TYPICAL SECTION

SCALE: 1" = 3'

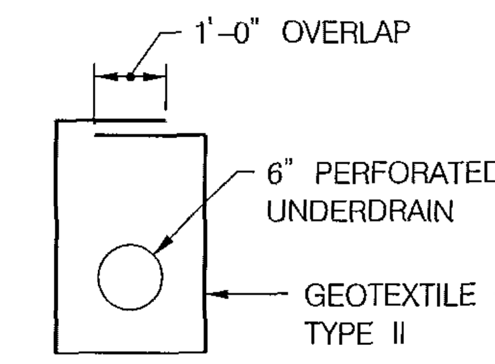
GLEN COURT

STA. 201+50 TO STA. 203+76.39
STA. 300+17.49 TO STA. 308+33.04

NOTES:

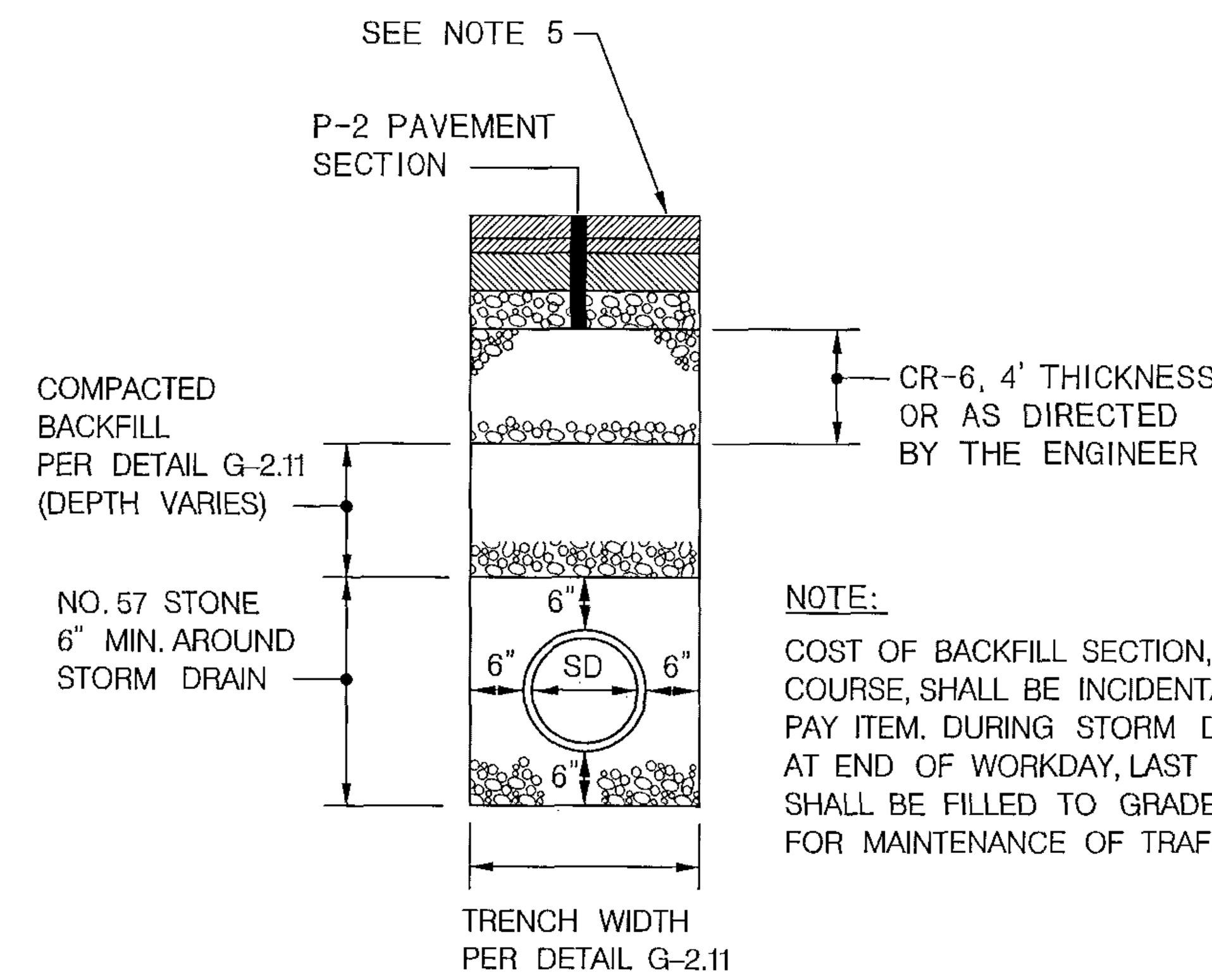
1a. WIDTH VARIES ALONG LEFT SIDE OF ℄ CONSTRUCTION GLEN COURT #2. REFER TO BASELINE & FLOWLINE ELEVATION TABLE (THIS SHEET) AND FLOW LINE CONTROL POINT LOCATION PLAN.

2a. LONGITUDINAL UNDERDRAIN TO BE INSTALLED FROM STA. 300+50 TO 303+00, LEFT. UNDERDRAIN TO CONNECT TO INLET I-15 AND I-16.



LONGITUDINAL UNDERDRAIN GEOTEXTILE FABRIC DETAIL

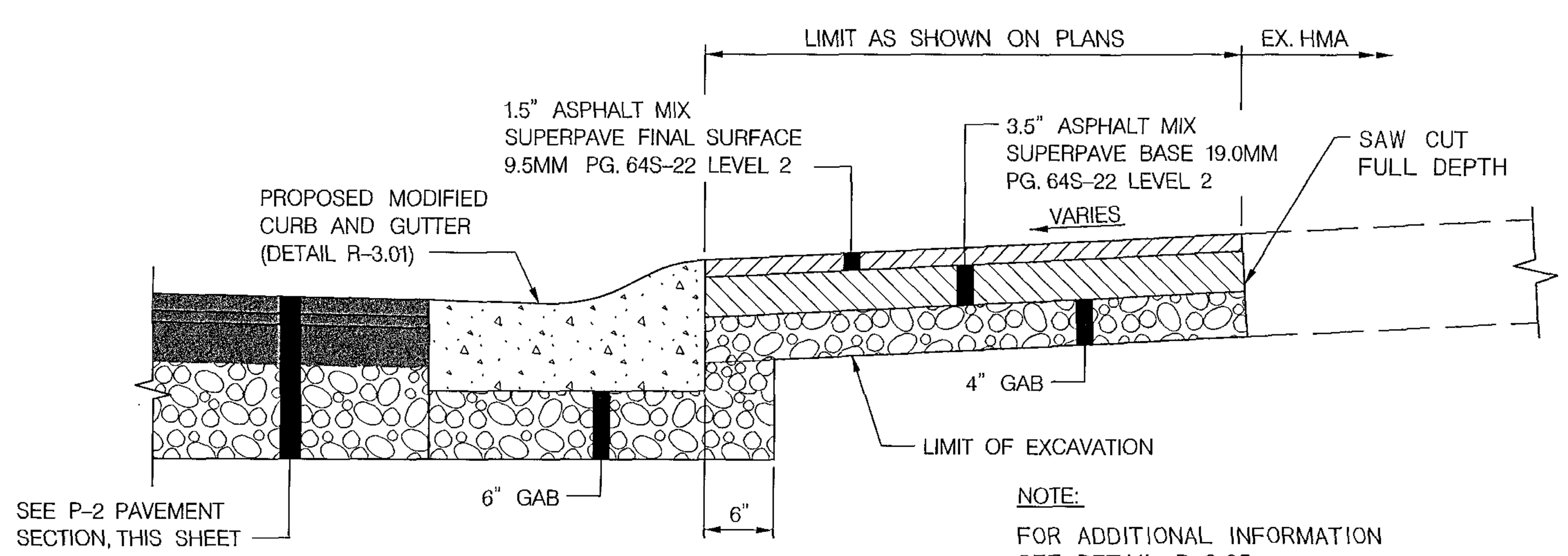
NOT TO SCALE



NOTE:
COST OF BACKFILL SECTION, UP TO HMA SURFACE COURSE, SHALL BE INCIDENTAL TO STORM DRAIN PAY ITEM. DURING STORM DRAIN CUSTRUCTION AT END OF WORKDAY, LAST 3 INCHES OF TRENCH SHALL BE FILLED TO GRADE WITH ASPHALT FOR MAINTENANCE OF TRAFFIC (PER PAY ITEM).

DETAIL FOR STORM DRAIN PIPE TRENCH BACKFILL

NOT TO SCALE

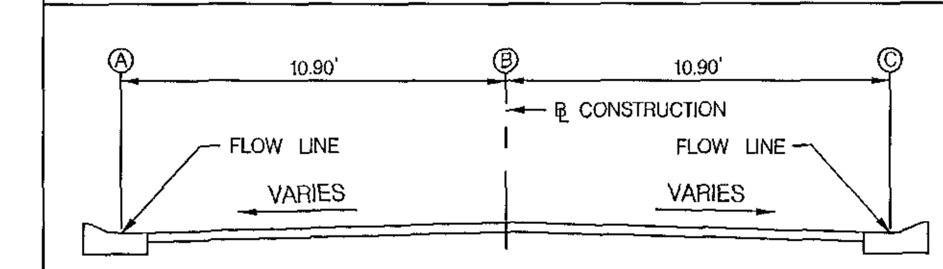


NOTE:
FOR ADDITIONAL INFORMATION SEE DETAIL R-6.05

P-1 PAVEMENT SECTION FOR DRIVEWAY RECONSTRUCTION

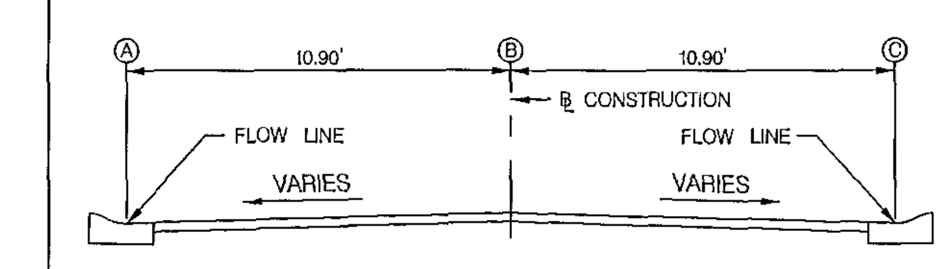
NOT TO SCALE

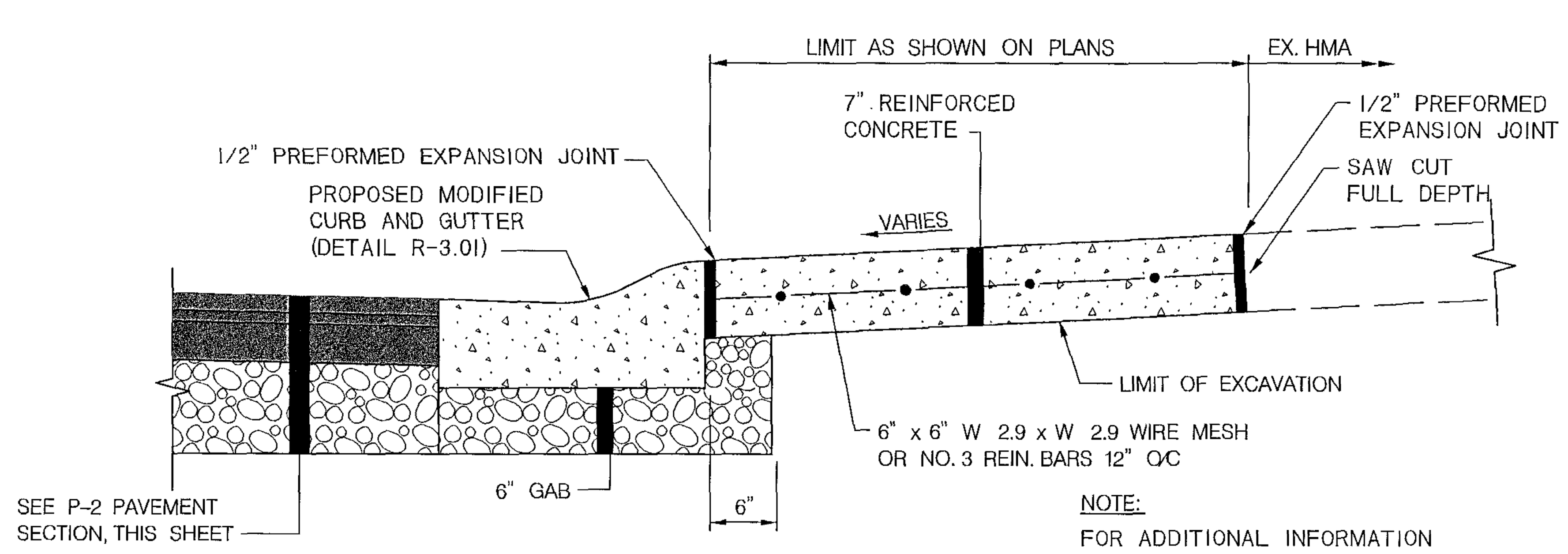
BASELINE & FLOW LINE ELEVATION TABLE				
GLEN COURT				
	Ⓐ	Ⓑ		Ⓒ
STATION	PROP.	EXIST.	PROP.	PROP.
201+50	216.52	216.76	216.84	216.39
201+75	216.49	216.59	216.67	216.04
202+00	216.06	216.27	216.36	216.03
202+25	215.58	215.89	215.98	215.66
202+50	215.20	215.52	215.60	215.24
202+75	214.79	215.15	215.24	215.01
203+00	214.31	214.71	214.79	214.38
203+25	213.70	214.07	214.16	213.63
203+50	213.18	213.41	213.50	213.11
203+75	——	212.65	212.80	212.29



OFFSET DISTANCE FROM ℄ TO FLOWLINE			
① 12.43'	④ 12.24'	⑦ 22.43'	⑩ 23.76'
② 12.04'	⑤ 11.82'	⑧ 11.27'	
③ 12.90'	⑥ 22.59'	⑨ 13.25'	

BASELINE & FLOW LINE ELEVATION TABLE				
GLEN COURT				
	Ⓐ	Ⓑ		Ⓒ
STATION	PROP.	EXIST.	PROP.	PROP.
300+00	——	211.93	212.04	211.00 ①
300+25	212.30	211.70	211.78	210.86
300+50	211.80 ②	211.42	211.51	210.75
300+75	210.87 ③	210.66	210.74	209.97
301+00	210.27 ④	209.68	209.77	208.93
301+25	208.81	208.65	208.74	207.98
301+50	207.96	207.64	207.90	207.08
301+75	206.93	206.79	206.87	206.30
302+00	206.40	206.18	206.27	206.10
302+25	205.88	205.64	205.72	205.26
302+50	205.22	204.99	205.07	204.71
302+75	204.08 ⑤	204.18	204.30	203.81
303+00	202.74	202.98	203.07	202.90
303+25	201.65	201.77	201.85	201.76
303+50	200.72	200.81	201.25	201.12
303+75	199.98	200.18	200.26	200.08
304+00	199.50	199.91	199.99	199.72
304+25	199.20 ⑥	199.77	199.85	199.62
304+50	199.34 ⑦	199.74	199.82	199.55
304+75	199.58 ⑧	199.81	199.91	199.78
305+00	199.87	200.29	200.37	200.21
305+25	200.78	200.97	201.06	200.73
305+50	201.39	201.62	201.75	201.62
305+75	202.13	202.36	202.78	202.65
306+00	202.81	203.19	203.52	203.39
306+25	204.00	204.16	204.30	204.17
306+50	204.85	205.23	205.48	205.25
306+75	205.97	206.54	206.65	206.53
307+00	208.25 ⑨	208.55	208.63	208.11
307+25	211.14 ⑩	210.62	210.70	209.84
307+50	212.19	211.75	211.83	210.99
307+75	212.23	211.93	212.00	211.50
308+00	212.17	211.96	212.05	211.43
308+25	212.12	212.00	212.10	211.11

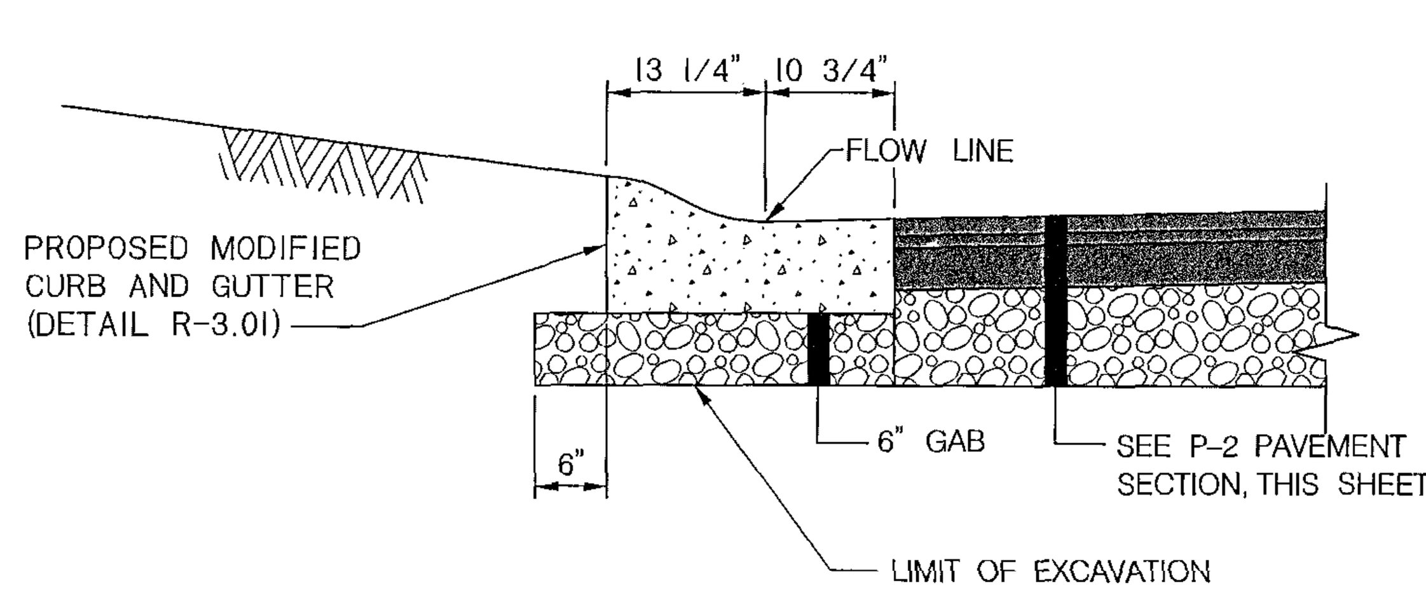




NOTE:
FOR ADDITIONAL INFORMATION SEE DETAIL R-6.05

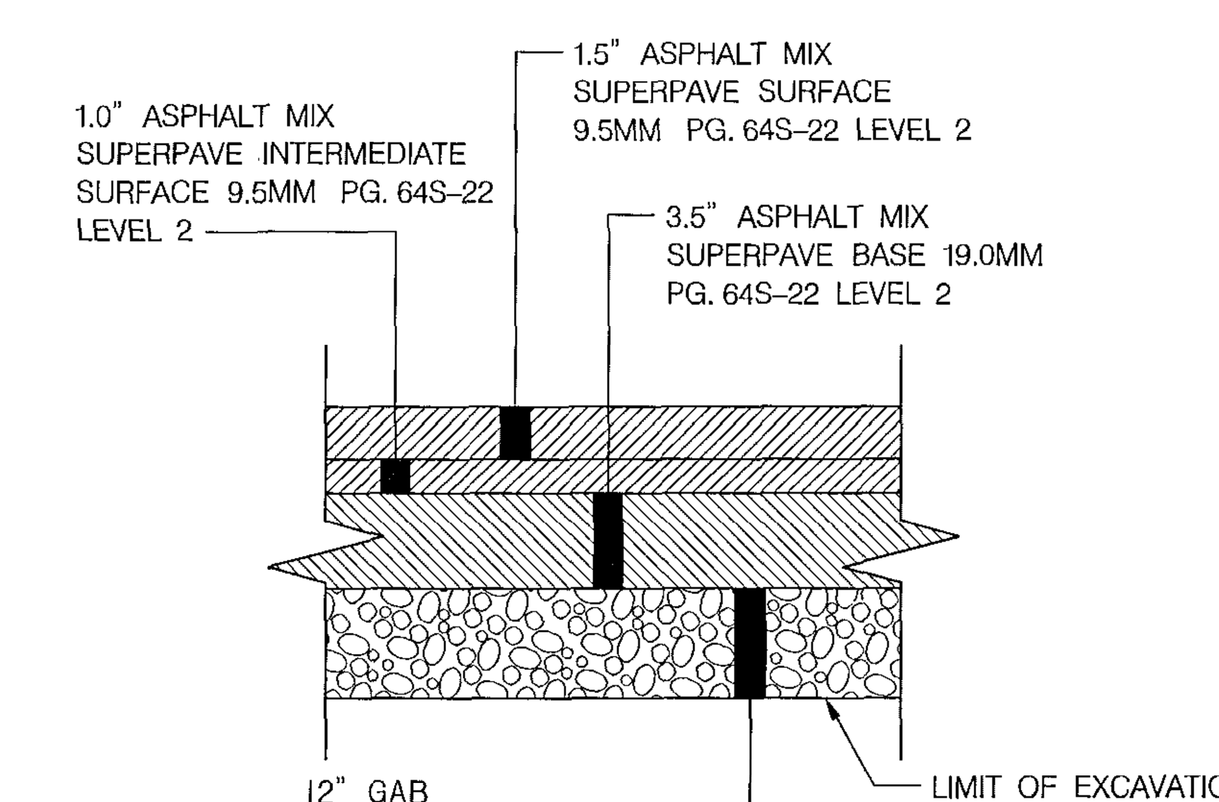
REINFORCED CONCRETE SECTION FOR DRIVEWAY RECONSTRUCTION

NOT TO SCALE



DETAIL FOR MODIFIED COMBINATION CURB AND GUTTER CONSTRUCTION

NOT TO SCALE



P-2 PAVEMENT SECTION (MODIFIED) DETAIL FOR ROADWAY PAVEMENT RECONSTRUCTION

NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	7/1/16 DATE	CHIEF, BUREAU OF ENGINEERING	6/29/16 DATE
CHIEF, BUREAU OF HIGHWAYS	6/29/2016 DATE	CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	6/29/16 DATE

GPI GREENMAN-PEDERSEN, INC. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS 10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701 WASH. (301) 470-2772 BALT. (410) 880-3055 FAX: (301) 490-2649 www.gpinet.com

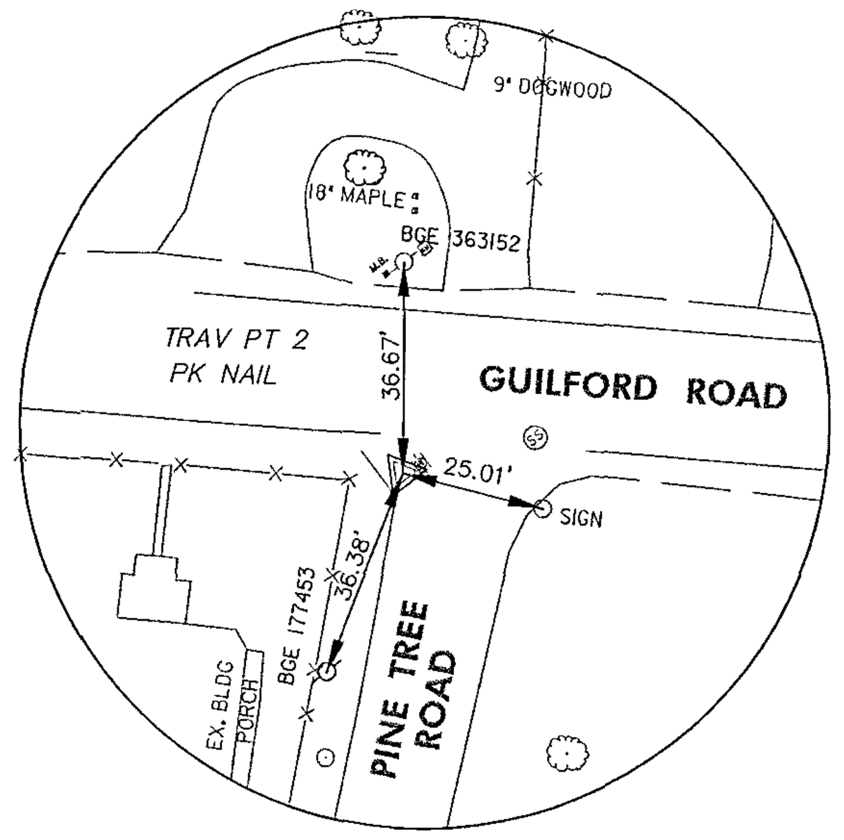
DES: GWF/JRW				
DRN: JRW				
CHK: CSN				
DATE: JUNE, 2016	BY	NO.	REVISION	DATE

TYPICAL ROADWAY SECTIONS AND DETAILS

600' SCALE MAP NO. ______ BLOCK NO. ______

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN



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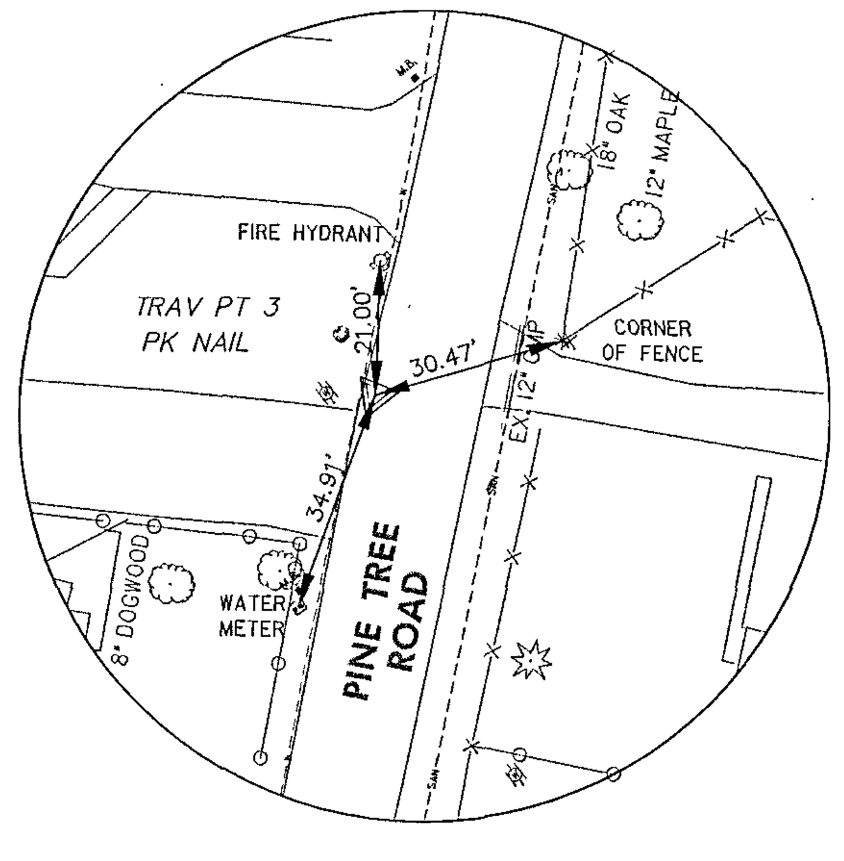
ELEV. 225.86
NOT TO SCALE



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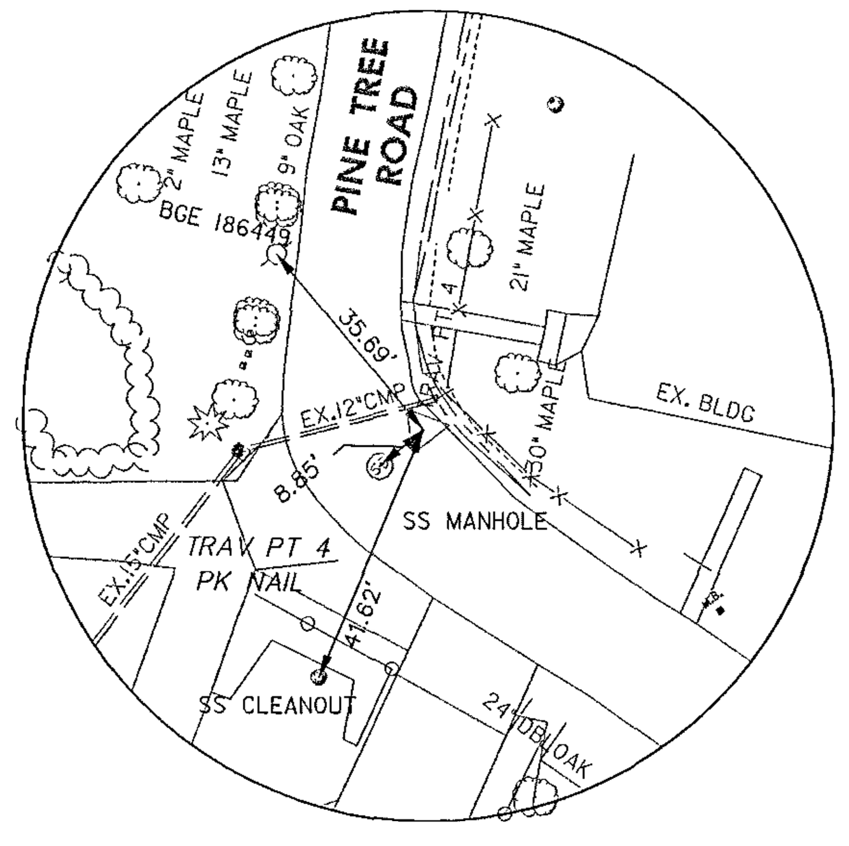
NOT TO SCALE



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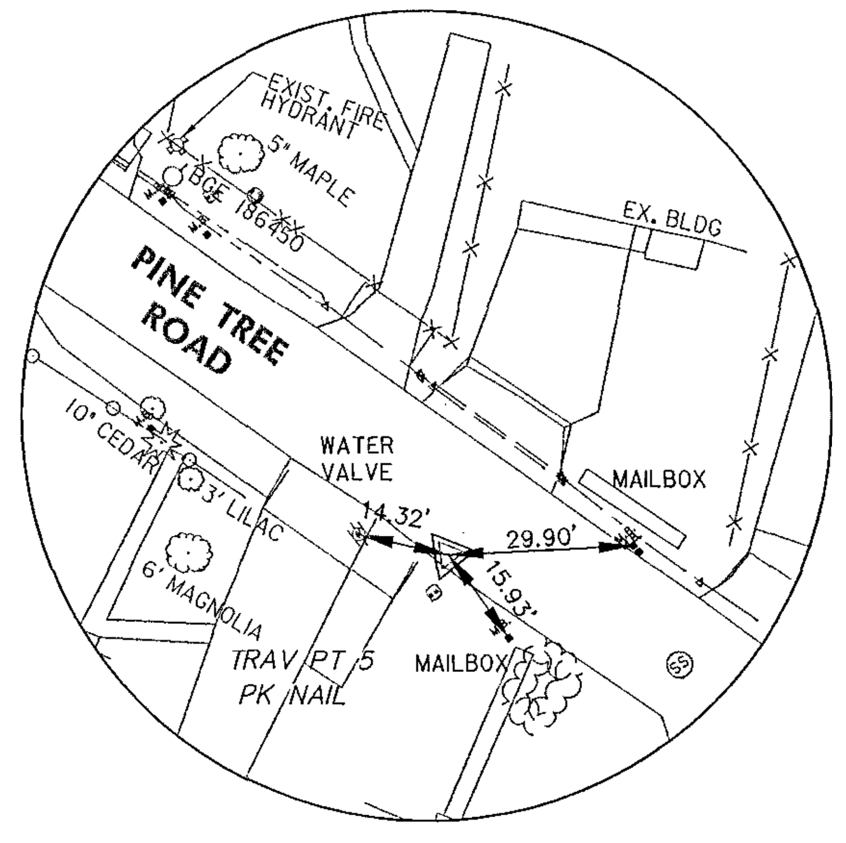

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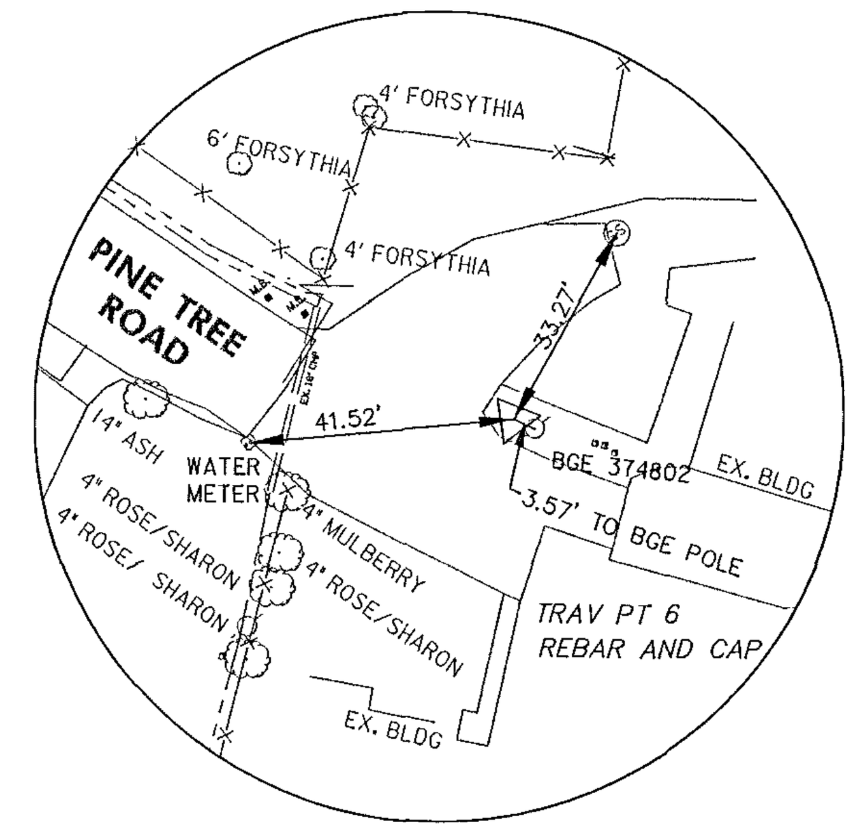

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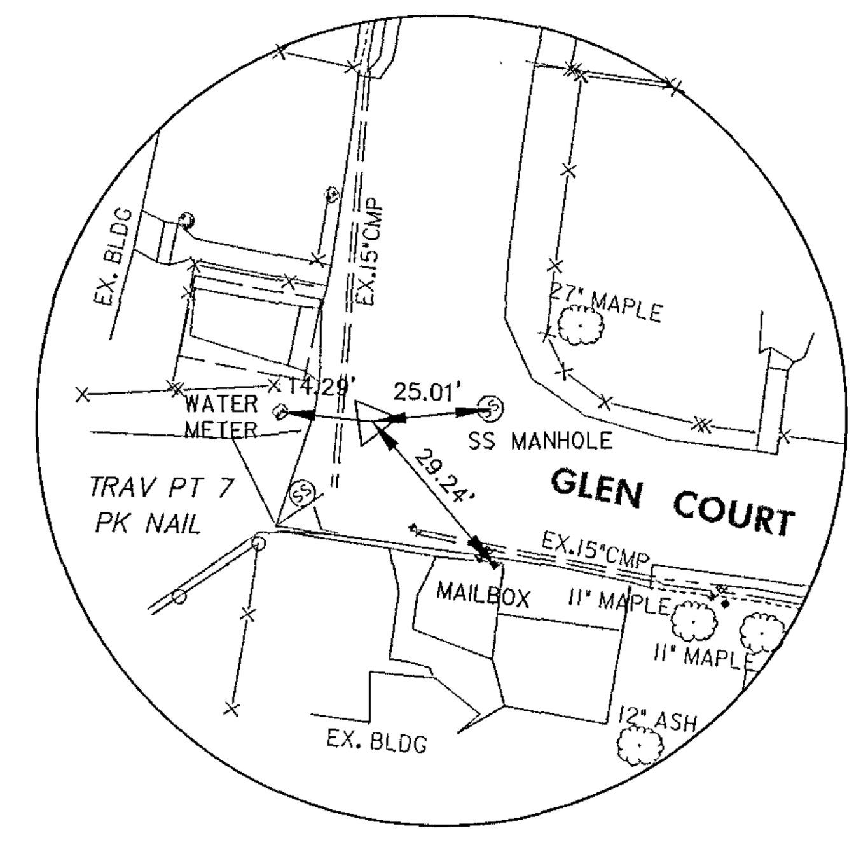

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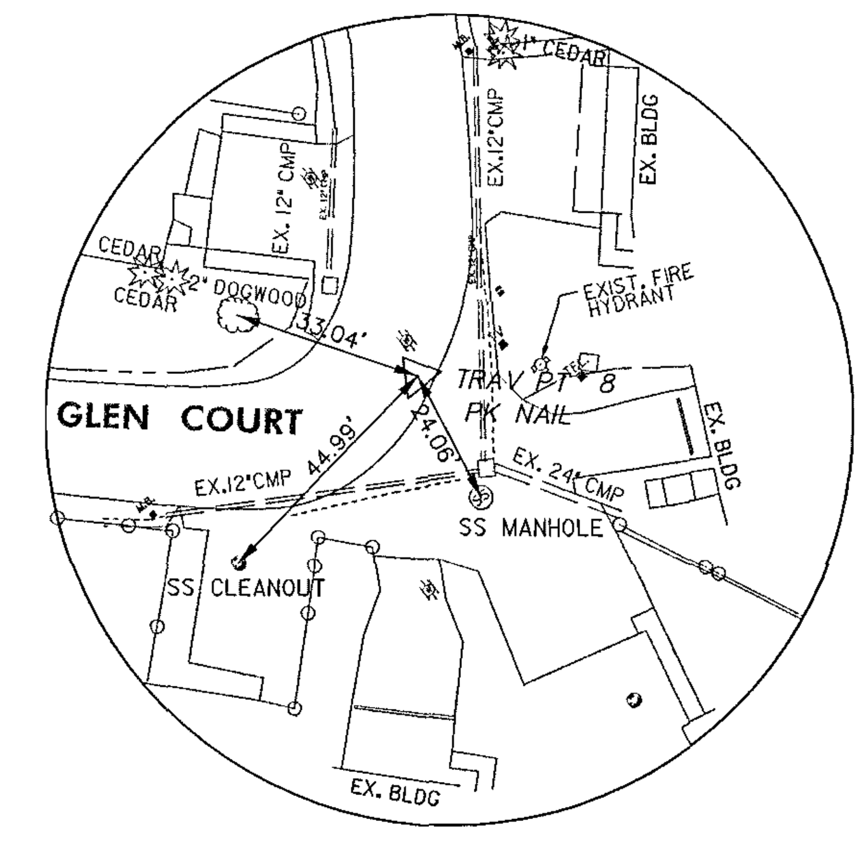

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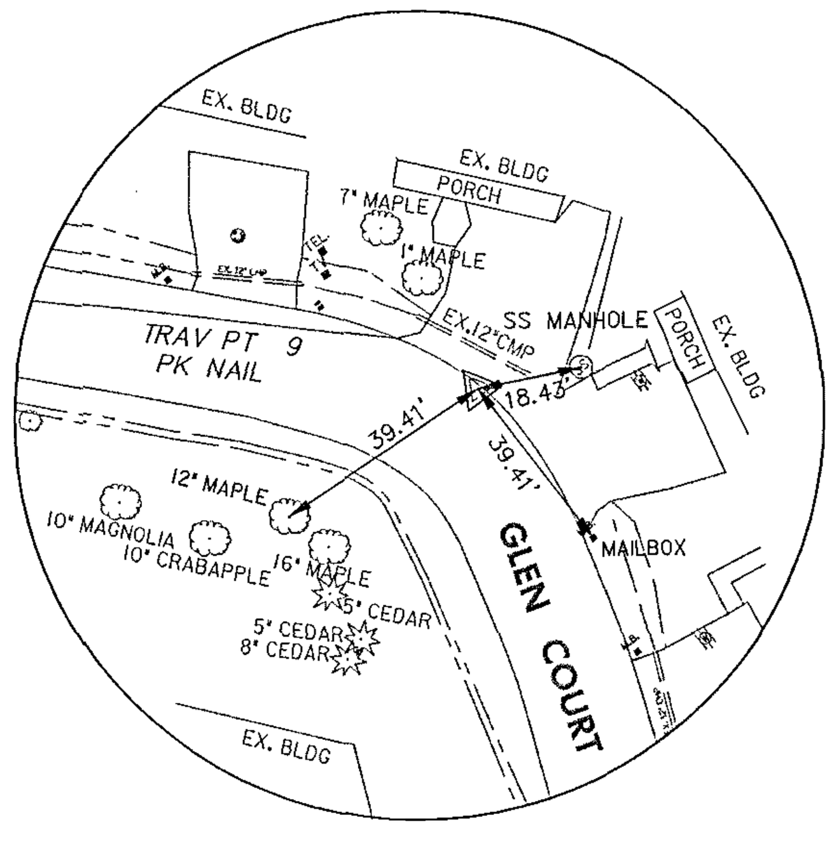

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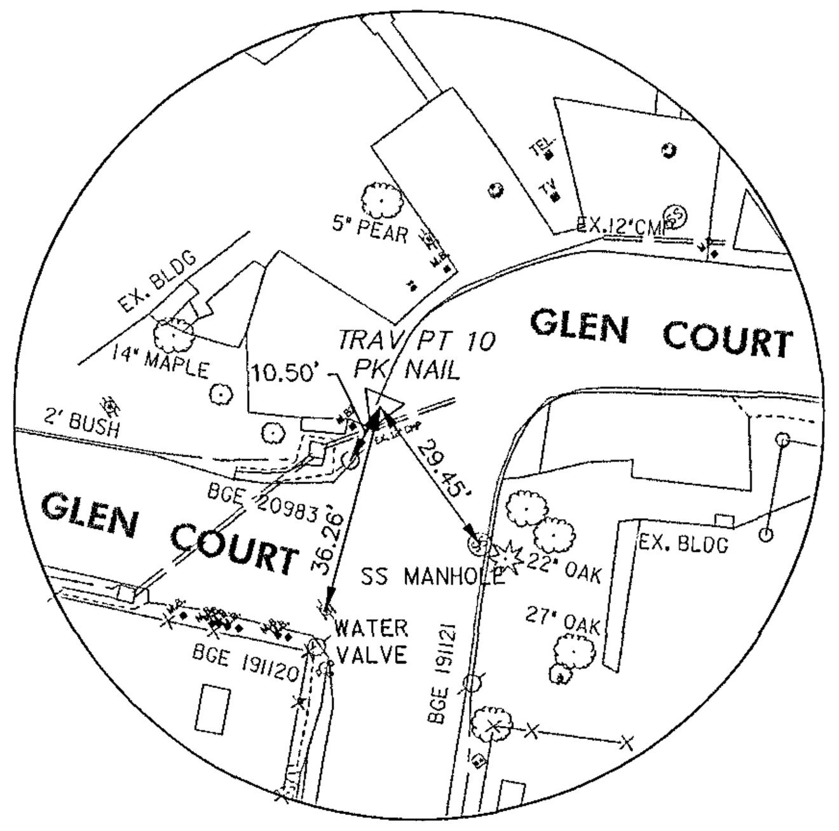

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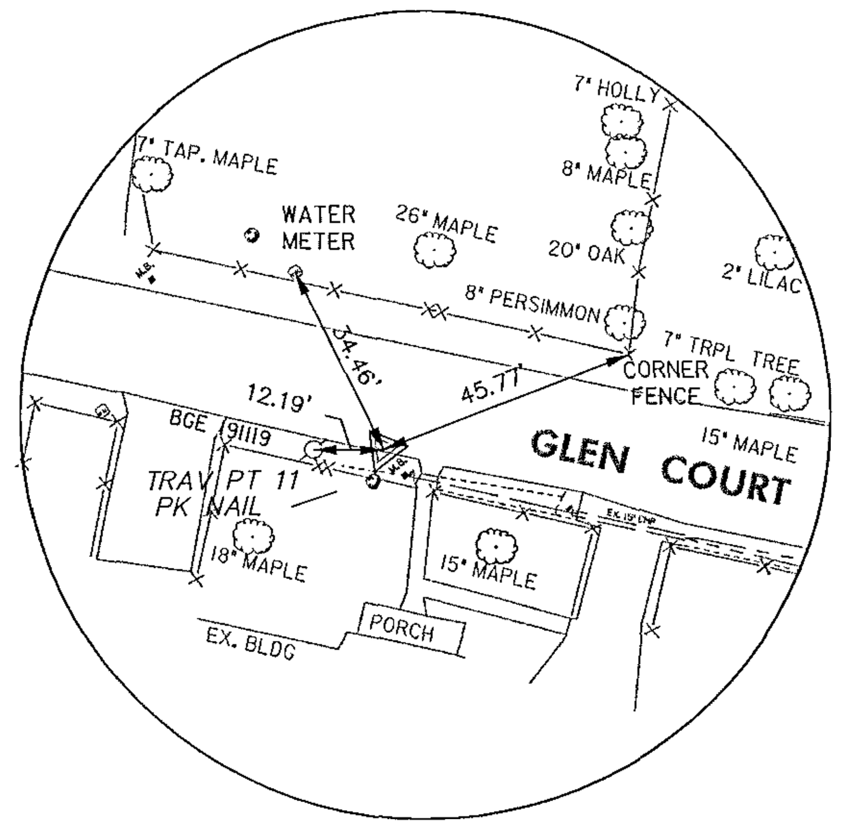

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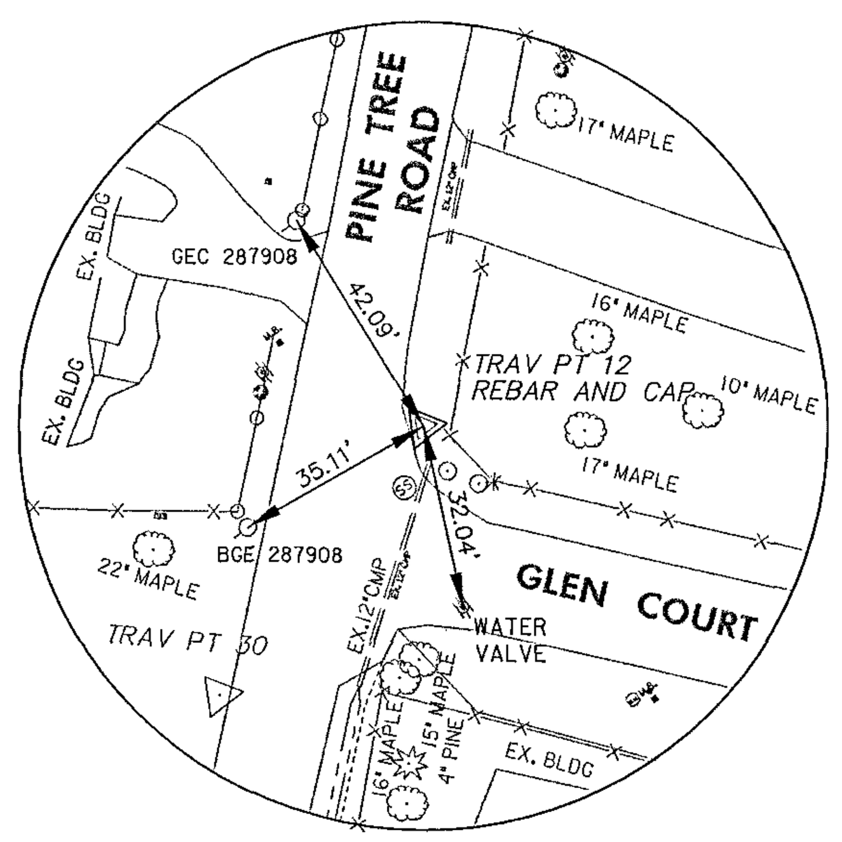

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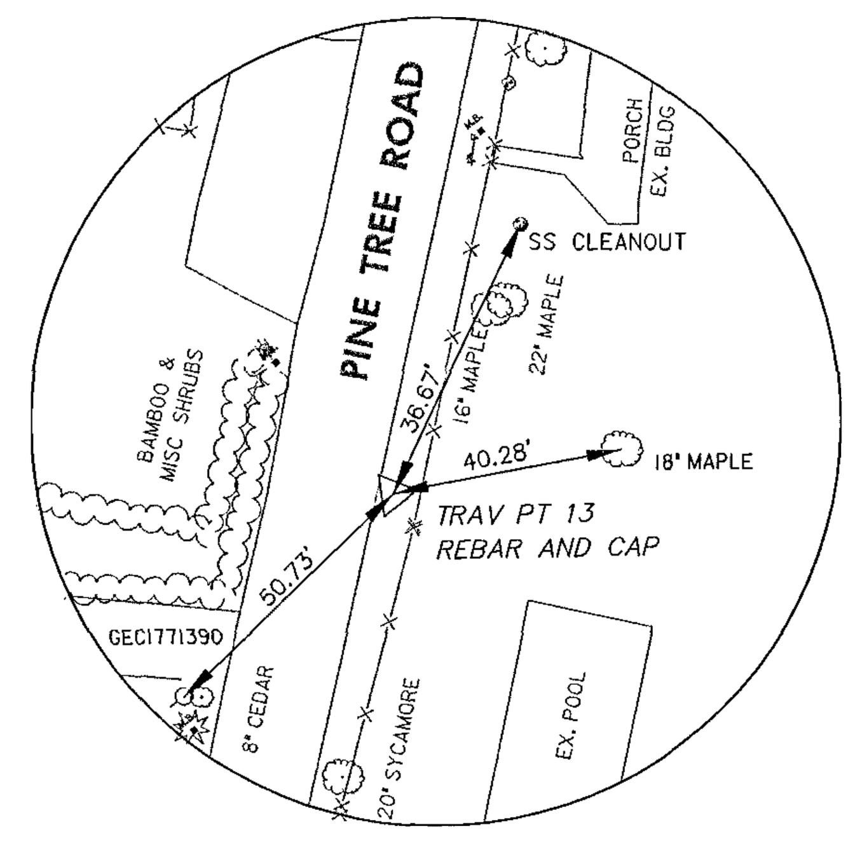

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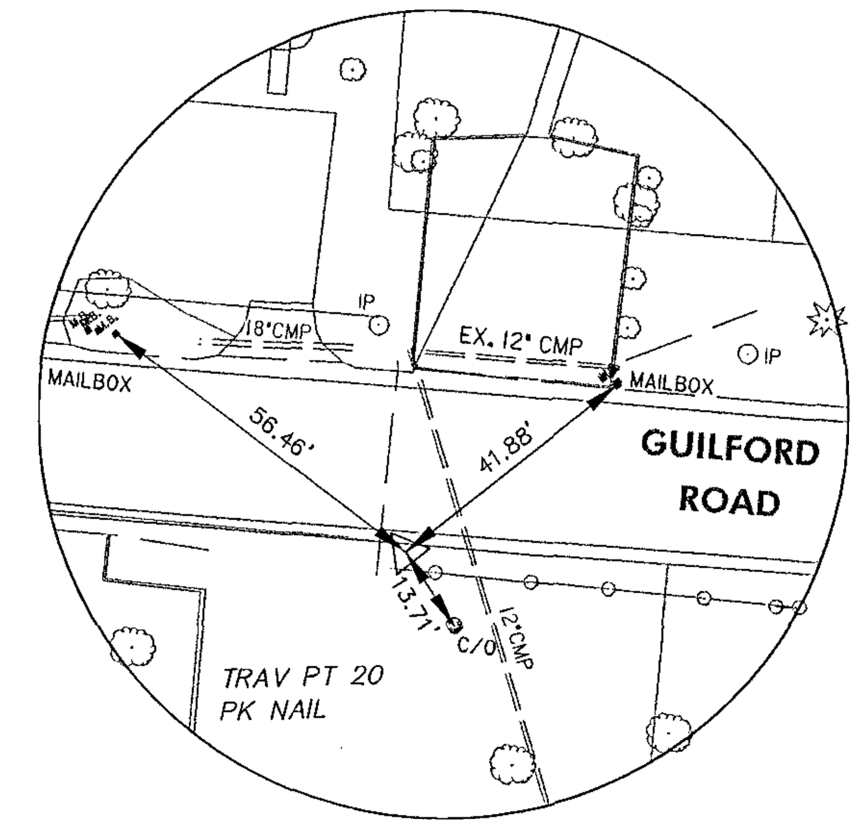

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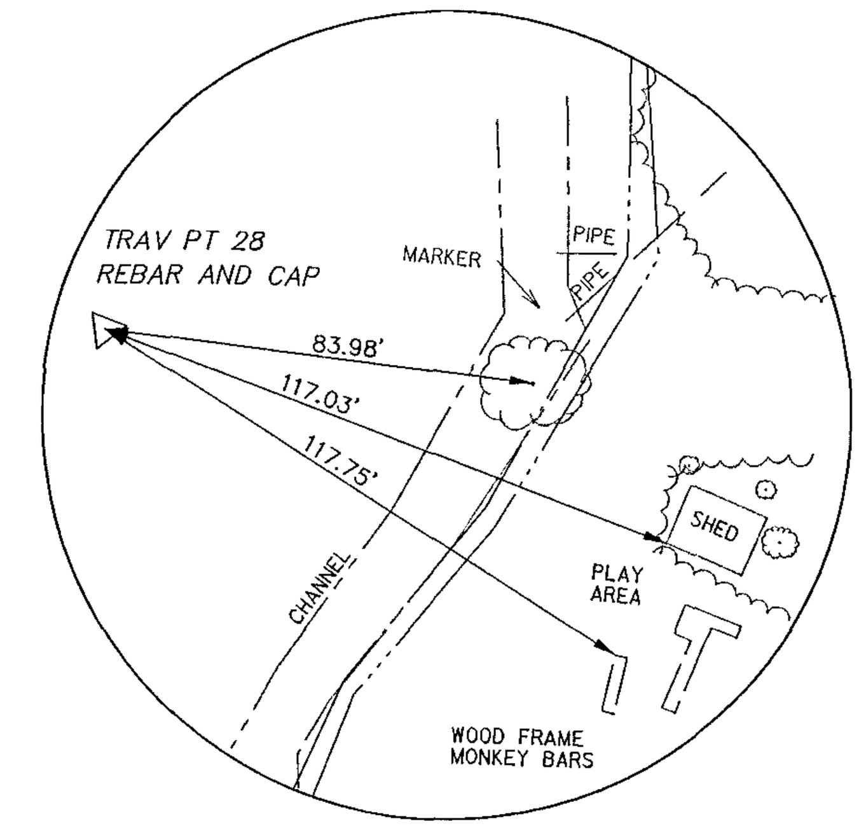

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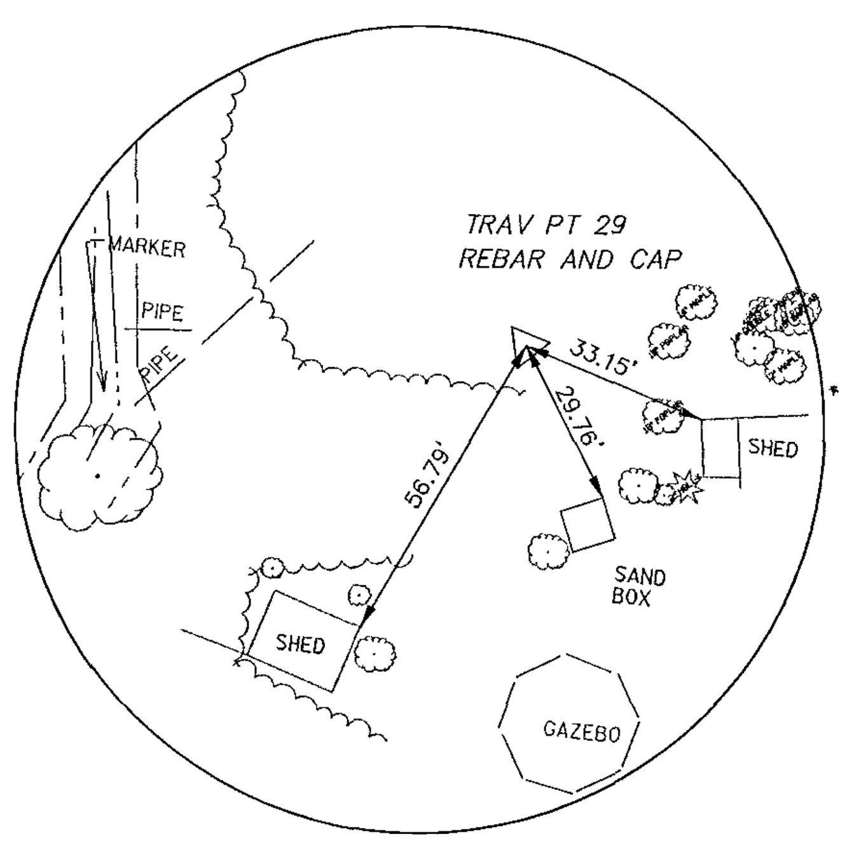

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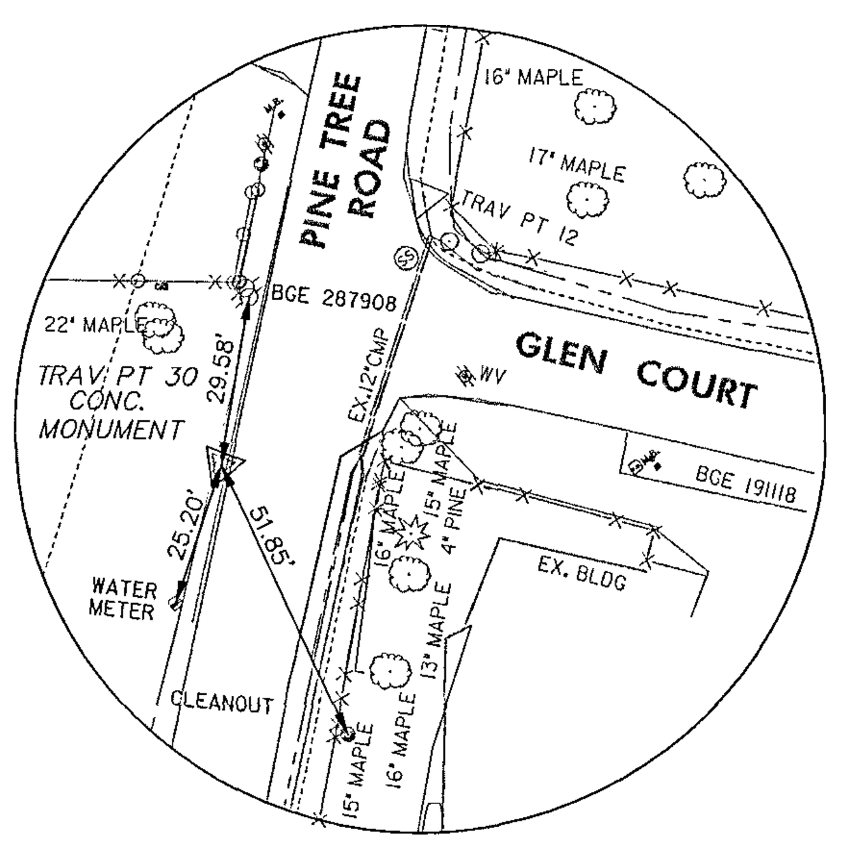

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ELEV. 214.81
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 7/1/16	CHIEF, BUREAU OF ENGINEERING	DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS	DATE 6/29/2016	CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION	DATE 6/29/16

GPI GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2649 www.gpinet.com

DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

600' SCALE MAP NO. ______ BLOCK NO. ______

TRAVERSE CONTROL POINT LOCATION

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 3 OF 11

CURVE DATA - PINE TREE DRIVE					
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH
C-1	8°57'28.19" RT	28°38'52.40"	200.00'	15.67'	31.27'
C-2	8°24'45.38" LT	28°38'52.40"	200.00'	14.71'	29.37'
C-3	9°06'07.27" LT	76°23'39.74"	75.00'	5.97'	11.91'
C-4	9°31'51.63" RT	76°23'39.74"	75.00'	6.25'	12.48'
C-5	7°07'03.29" LT	28°13'28.28"	203.00'	12.63'	25.22'
C-6	7°07'03.29" RT	28°38'52.40"	200.00'	12.44'	24.85'
C-7	66°58'05.83" LT	154°51'12.45"	37.00'	24.48'	43.25'
C-8	7°31'49.41" LT	76°23'39.74"	75.00'	4.94'	9.86'
C-9	7°25'11.05" RT	76°23'39.74"	75.00'	4.86'	9.71'

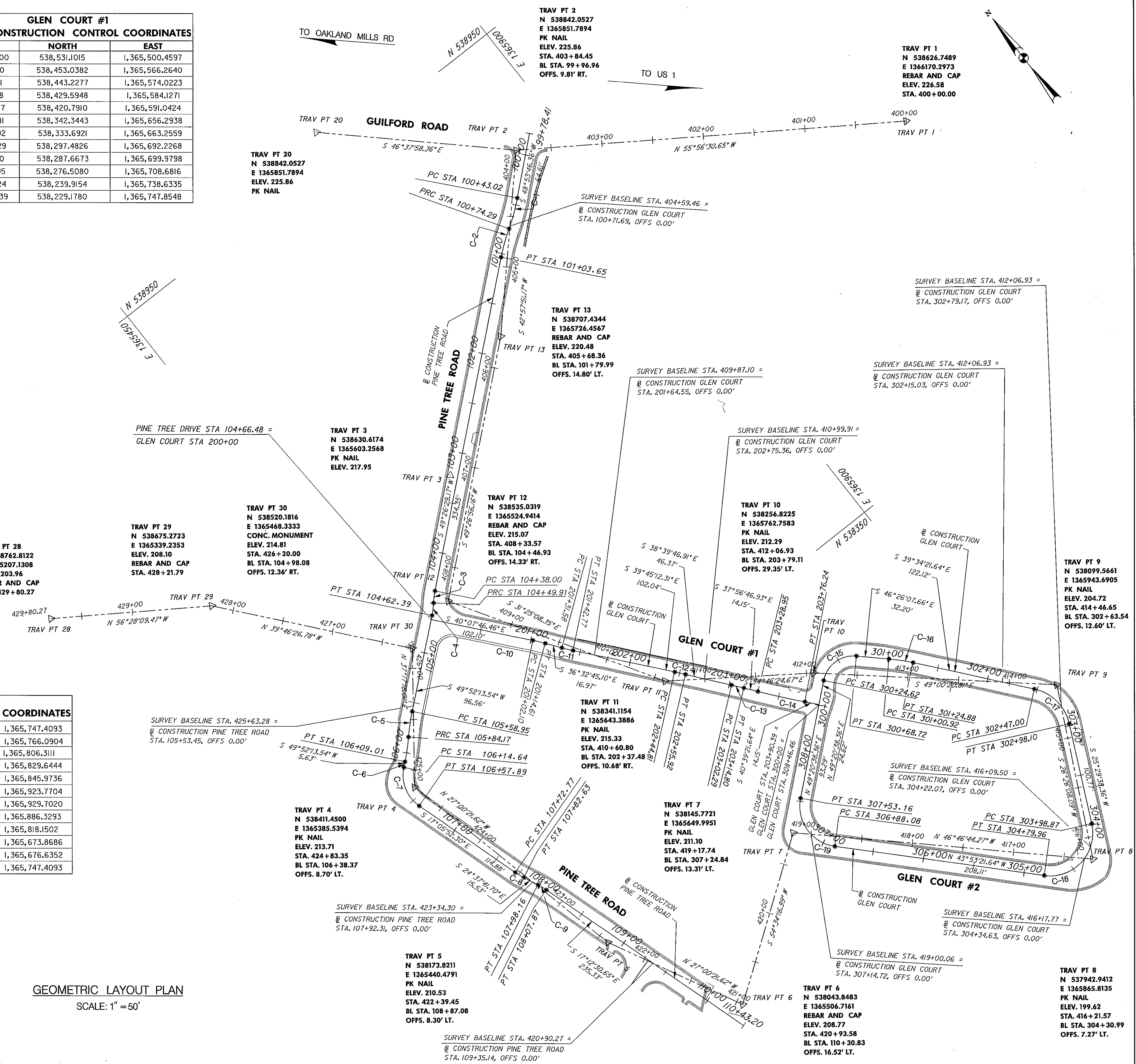
CURVE DATA - GLEN COURT #1					
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH
C-10	3°35'01.37" RT	28°38'52.40"	200.00'	6.26'	12.51'
C-11	3°12'27.22" LT	28°38'52.40"	200.00'	5.60'	11.20'
C-12	0°19'05.33" RT	2°51'53.24"	2000.00'	5.55'	11.11'
C-13	0°42'59.98" RT	5°43'46.48"	1000.00'	6.25'	12.51'
C-14	2°42'34.71" LT	5°43'46.48"	1000.00'	23.65'	47.29'
CURVE DATA - GLEN COURT #2					
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH
C-15	84°13'13.98" RT	190°59'09.35"	30.00'	27.12'	44.10'
C-16	6°51'46.02" RT	28°38'52.40"	200.00'	11.99'	23.96'
C-17	65°04'00.00" RT	127°19'26.24"	45.00'	28.71'	51.10'
C-18	110°37'00.00" RT	136°25'06.68"	42.00'	60.67'	81.09'
C-19	93°14'00.00" RT	143°14'22.02"	40.00'	42.32'	65.09'

TRAVERSE POINTS CONTROL COORDINATES				
POINT NO.	NORTH	EAST	ELEVATION	DESCRIPTION
TRAV PT 1	538626.7489	1366170.2973	226.58	REBAR & CAP
TRAV PT 2	538842.0527	1365851.7894	225.86	PK NAIL
TRAV PT 3	538630.6174	1365603.2568	217.95	PK NAIL
TRAV PT 4	538411.4500	1365385.5394	213.71	PK NAIL
TRAV PT 5	538173.8211	1365440.4791	210.53	PK NAIL
TRAV PT 6	538043.8483	1365506.7161	208.77	REBAR & CAP
TRAV PT 7	538145.7721	1365649.9951	211.10	PK NAIL
TRAV PT 8	537942.9412	1365865.8135	199.62	PK NAIL
TRAV PT 9	538099.5661	1365943.6905	204.72	PK NAIL
TRAV PT 10	538256.8225	1365762.7583	212.29	PK NAIL
TRAV PT 11	538341.1154	1365643.3886	215.33	PK NAIL
TRAV PT 12	538535.0319	1365524.9414	215.07	REBAR & CAP
TRAV PT 13	538707.4344	1365726.4567	220.48	REBAR & CAP
TRAV PT 20	538842.0527	1365851.7894	225.86	PK NAIL
TRAV PT 28	538762.8122	1365207.1308	203.96	REBAR & CAP
TRAV PT 29	538675.2723	1365339.2353	208.10	REBAR & CAP
TRAV PT 30	538520.1816	1365468.3333	214.81	CONC MON

GLEN COURT #1 BASELINE CONSTRUCTION CONTROL COORDINATES		
STATION	NORTH	EAST
POB 200+00.00	538,531.1015	1,365,500.4597
PC 201+02.10	538,453.0382	1,365,566.2640
PT 201+14.61	538,443.2277	1,365,574.0223
PC 201+31.58	538,429.5948	1,365,584.1271
PT 201+42.77	538,420.7910	1,365,591.0424
PC 202+44.81	538,342.3443	1,365,656.2938
PT 202+55.92	538,333.6921	1,365,663.2559
PC 203+02.29	538,297.4826	1,365,692.2268
PT 203+14.80	538,287.6673	1,365,699.9798
PC 203+28.95	538,276.5080	1,365,708.6816
PT 203+76.24	538,239.9154	1,365,738.6335
POE 203+90.39	538,229.1780	1,365,747.8548

PINE TREE ROAD BASELINE CONSTRUCTION CONTROL COORDINATES		
STATION	NORTH	EAST
POB 99+78.41	538,846.8684	1,365,872.2163
PC 100+43.02	538,804.3946	1,365,823.5342
PT 100+74.29	538,785.7595	1,365,798.4647
PRC 100+74.29	538,785.7595	1,365,798.4647
PT 101+03.65	538,768.3688	1,365,774.8353
PC 104+37.99	538,550.9666	1,365,520.8164
PT 104+49.91	538,542.5346	1,365,512.4164
PRC 104+49.91	538,542.5346	1,365,512.4164
PT 104+62.39	538,533.7390	1,365,503.5886
PC 105+58.95	538,471.5041	1,365,429.7597
PT 105+84.17	538,454.0965	1,365,411.5363
PRC 105+84.17	538,454.0965	1,365,411.5363
PT 106+09.01	538,436.9462	1,365,393.5822
PC 106+14.64	538,433.3178	1,365,389.2778
PT 106+57.89	538,394.1498	1,365.377.7602
PC 107+72.77	538,284.3433	1,365,411.5366
PT 107+82.63	538,275.1390	1,365,415.0446
PC 107+98.16	538,261.0199	1,365,421.5173
PT 108+07.88	538,251.9540	1,365,424.9825
POE 110+43.20	538,027.1616	1,365,494.6040

GLEN COURT #2 BASELINE CONSTRUCTION CONTROL COORDINATES		
POB 300+00.00	538,228.7954	1,365,747.4093
PC 300+24.63	538,244.8387	1,365,766.0904
PT 300+68.72	538,243.8176	1,365,806.3111
PC 301+00.92	538,221.6251	1,365,829.6444
PT 301+24.88	538,204.1167	1,365,845.9736
PC 302+47.00	538,109.9852	1,365,923.7704
PT 302+98.10	538,061.9489	1,365,929.7020
PC 303+98.87	537,970.9915	1,365.886.3293
PT 304+79.96	537,959.9518	1,365,818.1502
PC 306+88.08	538,109.9384	1,365,673.8686
PT 307+53.17	538,168.0145	1,365,676.6352
POE 308+46.46	538,228.7954	1,365,747.4093



GEOMETRIC LAYOUT PLAN

SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — 7/1/16 — DATE
CHIEF, BUREAU OF ENGINEERING — 6/28/16 — DATE
CHIEF, BUREAU OF HIGHWAYS — 6/29/2016 — DATE
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — 6/29/16 — DATE

GPI GREENMAN-PEDERSEN, INC.

DES: GWE/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

GEOMETRIC LAYOUT

600' SCALE MAP NO. ________ BLOCK NO. ________

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 4 OF 11

PLOTTED: Monday, June 27, 2016 AT 09:10 AM

RECONSTRUCT DRIVEWAY WITH P-1 PAVEMENT ℄ CONSTRUCTION GLEN COURT #1
STA. 201+91.54 TO STA. 202+09.44, RT. - 118 S.F.
STA. 201+73.95 TO STA. 201+86.35, LT. - 77 S.F.
STA. 202+77.48 TO STA. 202+88.47, RT. - 77 S.F.

RECONSTRUCT DRIVEWAY WITH P-1 PAVEMENT ℄ CONSTRUCTION GLEN COURT #2
STA. 300+28.64 TO STA. 300+38.20, LT. - 101 S.F.
STA. 300+47.60 TO STA. 300+59.76, LT. - 124 S.F.
STA. 300+62.87 TO STA. 300+82.35, LT. - 161 S.F.
STA. 300+24.89 TO STA. 300+93.75, RT. - 621 S.F.
STA. 301+50.59 TO STA. 301+80.50, LT. - 209 S.F.
STA. 301+66.34 TO STA. 301+79.85, RT. - 166 S.F.
STA. 302+16.44 TO STA. 302+33.30, LT. - 286 S.F.
STA. 302+52.98 TO STA. 302+86.76, LT. - 318 S.F.
STA. 303+08.99 TO STA. 303+28.47, LT. - 136 S.F.
STA. 303+46.47 TO STA. 303+64.17, LT. - 147 S.F.
STA. 303+45.26 TO STA. 303+64.04, RT. - 131 S.F.
STA. 303+88.52 TO STA. 304+18.19, RT. - 158 S.F.
STA. 303+82.40 TO STA. 304+07.71, LT. - 196 S.F.
STA. 304+27.87 TO STA. 304+52.49, LT. - 314 S.F.
STA. 304+57.82 TO STA. 304+69.84, LT. - 129 S.F.
STA. 305+20.99 TO STA. 305+45.40, LT. - 171 S.F.
STA. 305+52.29 TO STA. 305+81.57, LT. - 205 S.F.
STA. 305+86.94 TO STA. 306+11.57, RT. - 185 S.F.
STA. 306+87.17 TO STA. 307+01.96, LT. - 138 S.F.
STA. 307+21.02 TO STA. 307+29.45, LT. - 137 S.F.
STA. 307+77.71 TO STA. 307+89.75, RT. - 78 S.F.
STA. 307+32.73 TO STA. 307+39.16, LT. - 15 S.F.

ADJUST EXISTING SANITARY CLEANOUT ℄ CONSTRUCTION GLEN COURT
STA. 202+37, RT. - 1 EA
STA. 304+67, LT. - 1 EA

ADJUST EXISTING WATER VALVE ℄ CONSTRUCTION GLEN COURT
STA. 303+55, RT. - 1 EA
STA. 303+96, RT. - 1 EA

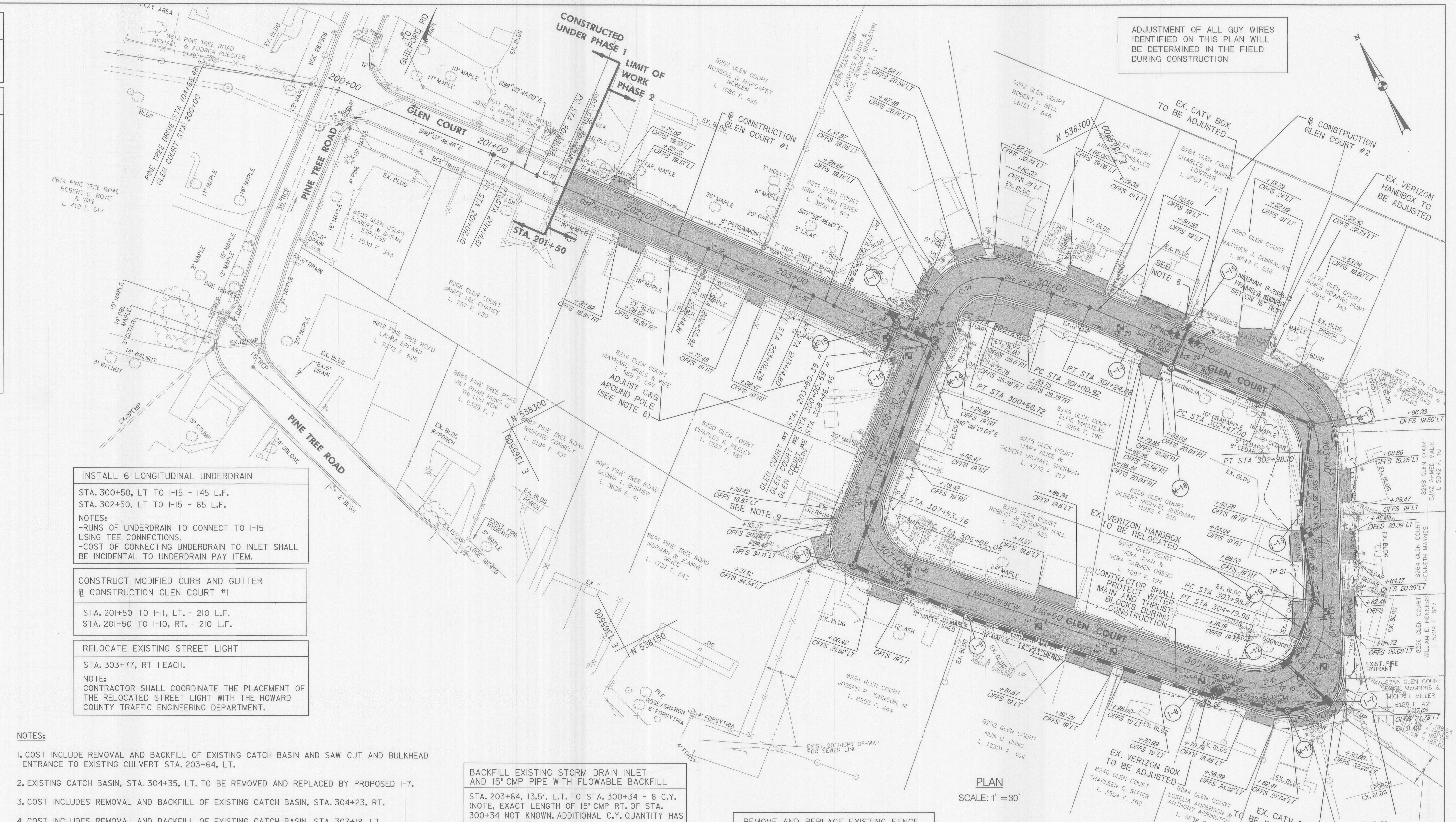
REMOVE EXISTING BUSH / HEDGE ℄ CONSTRUCTION PINE TREE ROAD
STA. 303+39, RT. - 1 EA
STA. 303+58, RT. - 1 EA

REMOVE EXISTING TREES ℄ CONSTRUCTION GLEN COURT
STA. 306+08, LT. - 1 EA
STA. 306+11, LT. - 1 EA
STA. 306+20, LT. - 1 EA
STA. 306+44, LT. - 1 EA
STA. 306+58, LT. - 1 EA

ADJUST EXISTING WATER METER ℄ CONSTRUCTION GLEN COURT
STA. 201+88, RT. - 1 EA
STA. 201+56, RT. - 1 EA
STA. 200+58, RT. - 1 EA
STA. 305+11.5, LT. - 1 EA
STA. 307+30, LT. - 1 EA
STA. 307+52, LT. - 1 EA
STA. 308+11, RT. - 1 EA

LEGEND

- PROPERTY LINE
- R.O.W. LINE
- EXISTING STORM DRAIN (EX. 12" RCP)
- PROPOSED STORM DRAIN (PROP. 15" RCP)
- TEST PIT LOCATION (TP-1)
- PROPOSED RIP RAP
- PROPOSED ASPHALT PAVING
- EXIST. PAVEMENT TO BE REMOVED
- PROPOSED CUT OR FILL LINE (C, F)
- TRAVERSE POINT



INSTALL 6" LONGITUDINAL UNDERDRAIN
STA. 300+50, LT TO I-15 - 145 L.F.
STA. 302+50, LT TO I-15 - 65 L.F.
NOTES: -RUNS OF UNDERDRAIN TO CONNECT TO I-15 USING TEE CONNECTIONS. -COST OF CONNECTING UNDERDRAIN TO INLET SHALL BE INCIDENTAL TO UNDERDRAIN PAY ITEM.

CONSTRUCT MODIFIED CURB AND GUTTER ℄ CONSTRUCTION GLEN COURT #1
STA. 201+50 TO I-11, LT. - 210 L.F.
STA. 201+50 TO I-10, RT. - 210 L.F.

RELOCATE EXISTING STREET LIGHT
STA. 303+77, RT 1 EACH.
NOTE: CONTRACTOR SHALL COORDINATE THE PLACEMENT OF THE RELOCATED STREET LIGHT WITH THE HOWARD COUNTY TRAFFIC ENGINEERING DEPARTMENT.

NOTES:

1. COST INCLUDE REMOVAL AND BACKFILL OF EXISTING CATCH BASIN AND SAW CUT AND BULKHEAD ENTRANCE TO EXISTING CULVERT STA. 203+64, LT.
2. EXISTING CATCH BASIN, STA. 304+35, LT. TO BE REMOVED AND REPLACED BY PROPOSED I-7.
3. COST INCLUDES REMOVAL AND BACKFILL OF EXISTING CATCH BASIN, STA. 304+23, RT.
4. COST INCLUDES REMOVAL AND BACKFILL OF EXISTING CATCH BASIN, STA. 307+18, LT.
5. EXISTING WATER HOUSE CONNECTIONS (WHC) ARE PRESENT WITHIN AREA OF CONSTRUCTION. THE EXACT LOCATION IS NOT KNOWN AT PERSENT. PAY ITEM HAS BEEN INCLUDED FOR TEST PITTING AND CONTINGENT PAY ITEM IS INCLUDED FOR RELOCATION OF WHC.
6. EXISTING DRAIN TO BE EXTENDED AND DAYLIGHTED PER DIRECTION OF THE ENGINEER. CONTINGENT PAY ITEM HAS BEEN INCLUDED AS PART OF CONRACT.
7. AREA N VICINITY OF 12" PVC TO BE GRADED AT ACCEPT POSITIVE DRAINAGE FROM EXISTING PVC SUMP OUTLET (8284 GLEN CT.), SEE NOTE 6.
8. CONTRCATOR SHALL ADJUST CURB AND GUTTER TO PROVIDE 1.5' CLEAR BETWEEN POLE AND BACK OF CURB. ALIGNMNET ADJUSTMENT SHALL MEET WITH THE APPROVAL OF THE ENGINEER.
9. CONTRACTOR TO VERIFY LOCATION OF CARPORT SUPPORT POSTS AND ADJUST PAVEMENT, CURB AND GUTTER IN AREA TO AVOID DISTURBANCE.
10. LOCATION OF EXISTING GRATE PLACED OVER EXISTING CMP CULVERT. EXACT DIRECTION AND LENGTH UNKNOWN, CONTRACTOR SHALL LOCATE AND REMOVE PER DIRECTION OF THE ENGINEER. PAY ITEM FOR REMOVAL HAS BEEN ADJUSTED TO PROVIDE ADDITIONAL QUANTITY.
11. CONTRACT SHALL VERIFY OR TEST PIT ALL WATER MAIN AND UTILITIES LOCATIONS AT STORM DRAIN CROSSINGS TO ENSURE ADEQUATE CLEARANCE EXISTS.

BACKFILL EXISTING STORM DRAIN INLET AND 15" CMP PIPE WITH FLOWABLE BACKFILL
STA. 203+64, 13.5', L.T. TO STA. 300+34 - 8 C.Y. (NOTE, EXACT LENGTH OF 15" CMP RT. OF STA. 300+34 NOT KNOWN. ADDITIONAL C.Y. QUANTITY HAS BEEN INCLUDED)

CONSTRUCT MODIFIED CURB AND GUTTER ℄ CONSTRUCTION GLEN COURT #2
STA. 300+17.49 TO STA. 308+33.04, LT. - 943 L.F. (PROVIDE CURB HEIGHT TRANSITION PER DETAIL R-3-02)
STA. 300+00.00 TO STA. 308+46.46, RT. - 778 L.F.

RELOCATE EXISTING FIRE HYDRANT (PER HO. CO. STD. DETAIL W-1-11)
STA. 308+30.5, LT. - 1 EACH
NOTE: CONTRACTOR SHALL COORDINATE THE PLACEMENT OF RELOCATED FIRE HYDRANT WITH THE HOWARD COUNTY BUREAU OF UTILITIES.

RECONSTRUCT DRIVEWAY WITH REINFORCED CONCRETE ℄ CONSTRUCTION GLEN COURT #2
STA. 301+05.46 TO STA. 301+29.33, LT. - 20 S.Y.

REMOVE AND REPLACE EXISTING FENCE ℄ CONSTRUCTION GLEN COURT
STA. 201+47 TO STA. 201+91, RT. - 45 LF
STA. 201+91 TO STA. 202+75, LT. - 90 LF
STA. 202+10 TO STA. 202+44, RT. - 35 LF
STA. 202+48 TO STA. 202+76, RT. - 30 LF
STA. 202+90 TO STA. 203+75, RT. - 85 LF
STA. 300+98 TO STA. 301+02, RT. - 70 LF
STA. 304+50.5 TO STA. 304+56, LT. - 20 LF
STA. 304+74 TO STA. 304+96.5, LT. - 30 LF
STA. 305+48 - 10 LF
STA. 305+31.5 TO STA. 305+85, RT. - 70 LF
STA. 306+13 TO STA. 307+30, RT. - 100 LF
STA. 305+84 TO STA. 306+46, LT. - 75 LF

CONSTRUCT 7-INCH COMBINATION CURB AND GUTTER
I-11 TO STA. 300+17.49, LT. GLEN CT. #2 - 16 L.F.
I-10 TO STA. 308+33.04, LT. GLEN CT. #2 - 14 L.F.

REMOVE EXISTING PIPE CULVERT ℄ CONSTRUCTION GLEN COURT
STA. 203+42.5, RT TO 203+64, 13.5' RT. - 32 LF(SEE NOTE 1)
STA. 300+65, LT (SEE NOTE 10)
STA. 301+38 TO 301+81.5, LT. - 44 LF
STA. 302+15 TO 302+34, LT. - 20 LF
STA. 301+60 TO 301+76, RT. - 16 LF
STA. 302+52.5 TO 302+68, LT. - 22 LF
STA. 303+09 TO 303+29, LT. - 20 LF
STA. 303+46 TO 303+66, LT. - 20 LF
STA. 303+44 TO 303+64, RT. - 20 LF
STA. 303+79.5 TO 304+35, LT. - 72 LF (SEE NOTE 2)
STA. 303+88 TO 304+23, RT. - 26 LF (SEE NOTE 3)
STA. 303+23, RT. TO 304+35, LT. - 40 LF (SEE NOTE 2)
STA. 304+35 TO 304+75, LT. - 55 LF (SEE NOTE 2)
STA. 305+50.5 TO 305+90.5, LT. - 40 LF
STA. 306+83.5 TO 307+18 , LT. - 49 LF (SEE NOTE 4)
STA. 307+18 TO 307+72, LT. - 68 LF (SEE NOTE 4)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/6/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 6/29/16

GPI GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
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DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

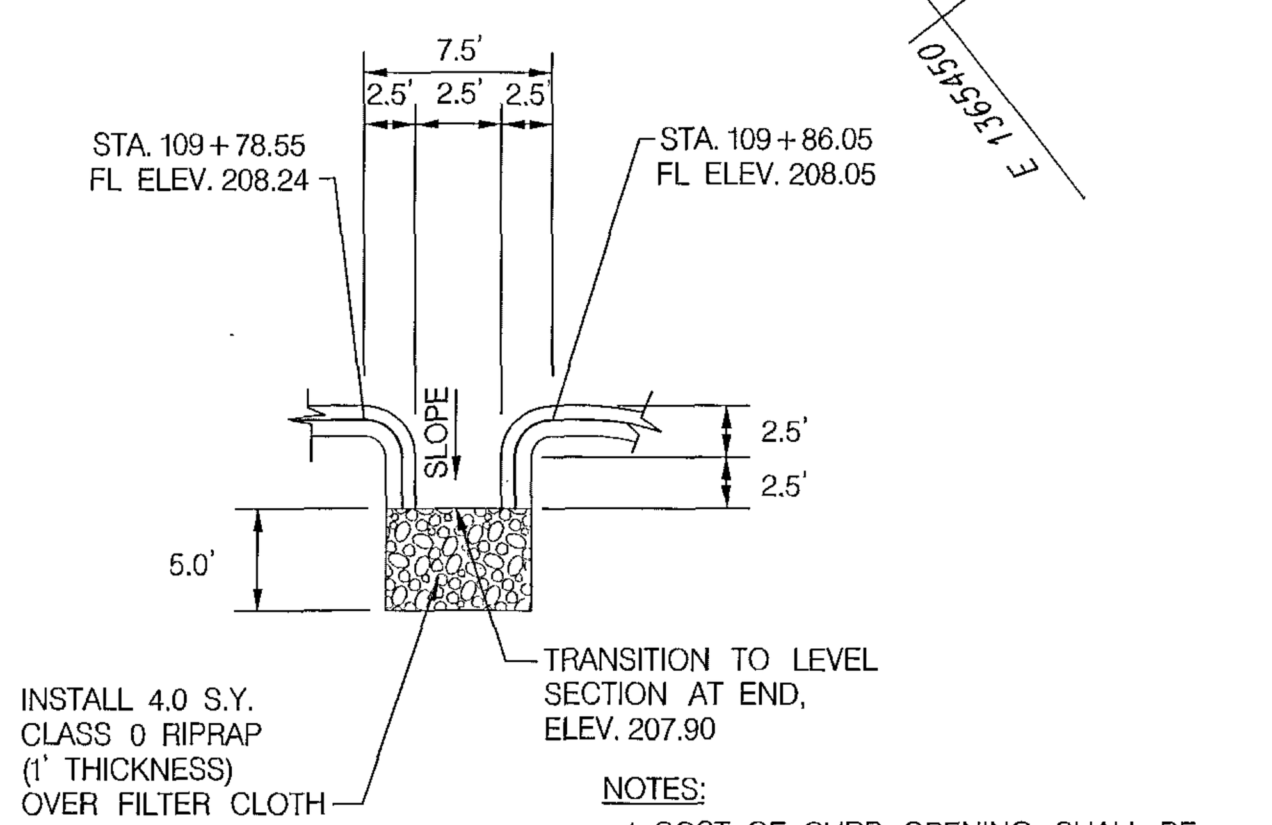
ROADWAY PLAN

600' SCALE MAP NO. ________ BLOCK NO. ________

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

CONTROL POINTS						
CONTROL POINT	STATION	OFFSET	BASELINE	ELEVATION	NORTH	EAST
1	99+95.24	22.10' RT	PINE TREE RD	MEET EXIST.	538,852.45	1,365,845.01
2	100+05.17	10.90' RT	PINE TREE RD	225.26	538,837.49	1,365,844.88
3	99+91.48	20.10' LT	PINE TREE RD	MEET EXIST.	538,823.16	1,365,875.55
4	100+01.45	10.90' LT	PINE TREE RD	225.33	538,823.51	1,365,862.03
5	100+43.02	10.90' RT	PINE TREE RD	223.77	538,812.61	1,365,816.37
6	100+74.29	10.90' RT	PINE TREE RD	222.59	538,794.99	1,365,792.67
7	101+03.65	10.90' RT	PINE TREE RD	221.93	538,776.65	1,365,767,75
8	100+43.02	10.90' LT	PINE TREE RD	223.34	538,796.18	1,365,830.70
9	100+74.29	10.90' LT	PINE TREE RD	222.58	538,776.53	1,365,804.26
10	101+03.65	10.90' LT	PINE TREE RD	222.24	538,760.09	1,365,781.92
11	104+38.00	10.90' RT	PINE TREE RD	215.58	538,559.25	1,365,513.73
12	104+49.91	10.90' RT	PINE TREE RD	215.26	538,549.59	1,365,504.11
13	104+62.39	10.90' RT	PINE TREE RD	215.19	538,542.07	1,365,496.56
14	104+31.63	10.90' LT	PINE TREE RD	215.90	538,546.83	1,365,532.74
15	200+32.88	10.90' LT	GLEN COURT #1	215.90	538,512.99	1,365,529.99
16	200+25.90	10.90' RT	GLEN COURT #1	215.61	538,504.27	1,365,508.82
17	104+92.38	10.90' LT	PINE TREE RD	214.96	538,506.07	1,365,487.68
18	105+58.95	10.90' LT	PINE TREE RD	214.11	538,463.07	1,365,436.66
19	105+84.17	10.90' LT	PINE TREE RD	213.91	538,446.70	1,365,419.54
20	106+24.44	15.85' RT	PINE TREE RD	213.13	538,435.11	1,365,369.68
21	106+44.23	14.36' RT	PINE TREE RD	213.38	538,408.65	1,365,361.90
22	106+14.64	10.90' LT	PINE TREE RD	213.81	538,424.98	1,365,396.30
23	106+57.89	10.90' LT	PINE TREE RD	213.70	538,397.36	1,365,388.18
24	107+72.77	10.90' RT	PINE TREE RD	211.82	538,281.14	1,365,401.12
25	107+82.63	10.90' RT	PINE TREE RD	211.76	538,270.60	1,365,405.14
26	107+98.16	10.90' RT	PINE TREE RD	211.72	538,256.48	1,365,411.61
27	108+07.87	10.90' RT	PINE TREE RD	211.65	538,248.73	1,365,414.57
28	107+72.77	10.90' RT	PINE TREE RD	212.93	538,287.55	1,365,421.96
29	107+82.63	10.90' LT	PINE TREE RD	212.89	538,279.68	1,365,424.95
30	107+98.16	10.90' LT	PINE TREE RD	212.76	538,265.56	1,365,431.43
31	108+07.87	10.90' LT	PINE TREE RD	212.55	538,255.18	1,365,435.40
32	109+91.55	10.90' LT	PINE TREE RD	209.44	538,079.72	1,365,489.74
33	109+02.03	10.90' RT	PINE TREE RD	210.05	538,158.79	1,365,442.43
34	109+16.68	24.74' RT	PINE TREE RD	209.45	538,140.41	1,365,433.63
35	109+17.34	29.35' RT	PINE TREE RD	209.32	538,138.70	1,365,429.33
36	109+41.24	27.06' RT	PINE TREE RD	209.32	538,115.71	1,365,436.47
37	109+41.41	29.34' RT	PINE TREE RD	209.34	538,116.56	1,365,438.59
38	109+56.19	10.90' RT	PINE TREE RD	209.59	538,107.05	1,365,458.45
39	201+02.10	10.90' LT	GLEN COURT #1	216.69	538,460.06	1,365,574.60
40	201+14.61	10.90' LT	GLEN COURT #1	216.70	538,449.72	1,365,582.78
41	201+02.10	10.90' RT	GLEN COURT #1	216.56	538,446.01	1,365,557.93
42	201+14.61	10.90' RT	GLEN COURT #1	216.57	538,436.74	1,365,565.57
43	201+31.58	10.90' RT	GLEN COURT #1	216.52	538,423.07	1,365,575.40
44	201+44.75	10.90' RT	GLEN COURT #1	216.43	538,412.31	1,365,583.93
45	201+25.03	10.90' LT	GLEN COURT #1	216.66	538,441.35	1,365,588.99
46	201+44.75	10.90' LT	GLEN COURT #1	216.56	538,426.25	1,365,600.69
47	202+70.50	10.97' LT	GLEN COURT #1	214.86	538,329.15	1,365,680.93
48	202+92.07	10.90' LT	GLEN COURT #1	214.46	538,312.28	1,365,694.35
49	202+70.85	10.83' RT	GLEN COURT #1	215.05	538,315.27	1,365,664.13
50	202+91.51	10.90' RT	GLEN COURT #1	214.59	538,299.09	1,365,676.98
51	203+02.29	10.90' RT	GLEN COURT #1	214.26	538,304.29	1,365,700.74
52	203+14.80	10.90' LT	GLEN COURT #1	213.94	538,294.37	1,365,708.58
53	203+02.29	10.90' RT	GLEN COURT #1	214.31	538,290.67	1,365,683.72
54	203+14.80	10.90' RT	GLEN COURT #1	213.94	538,280.97	1,365,691.38
55	203+28.95	10.90' LT	GLEN COURT #1	213.62	538,283.21	1,365,717.28
56	203+73.45	10.90' LT	GLEN COURT #1	212.66	538,249.12	1,365,745.11
57	300+17.49	10.90' LT	GLEN COURT #2	212.47	538,248.46	1,365,753.58
58	203+76.39	10.90' RT	GLEN COURT #1	212.24	538,232.70	1,365,730.47
59	308+33.04	10.90' LT	GLEN COURT #2	212.19	538,228.33	1,365,730.13
60	300+69.84	12.90' LT	GLEN COURT #2	211.01	538,252.40	1,365,816.00
61	300+84.30	12.90' LT	GLEN COURT #2	210.67	538,242.42	1,365,826.49
62	308+33.16	10.90' RT	GLEN COURT #2	211.07	538,211.87	1,365,744.43
63	300+09.98	13.40' RT	GLEN COURT #2	210.95	538,225.17	1,365,763.68
64	300+24.62	10.90' RT	GLEN COURT #2	210.86	538,236.62	1,365,773.25
65	300+68.72	10.90' RT	GLEN COURT #2	210.18	538,235.92	1,365,798.80
66	301+00.92	10.90' RT	GLEN COURT #2	208.89	538,213.73	1,365,822.13
67	301+24.88	10.90' RT	GLEN COURT #2	207.98	538,197.17	1,365,837.57
68	302+49.56	11.00' LT	GLEN COURT #2	205.22	538,114.47	1,365,934.20
69	302+95.54	11.00' LT	GLEN COURT #2	202.96	538,060.14	1,365,940.91
70	302+47.00	10.90' RT	GLEN COURT #2	204.76	538,103.04	1,365,915.37
71	302+98.10	10.90' RT	GLEN COURT #2	202.98	538,066.64	1,365,919.86
72	303+98.87	10.90' RT	GLEN COURT #2	199.74	537,975.68	1,365.876.49



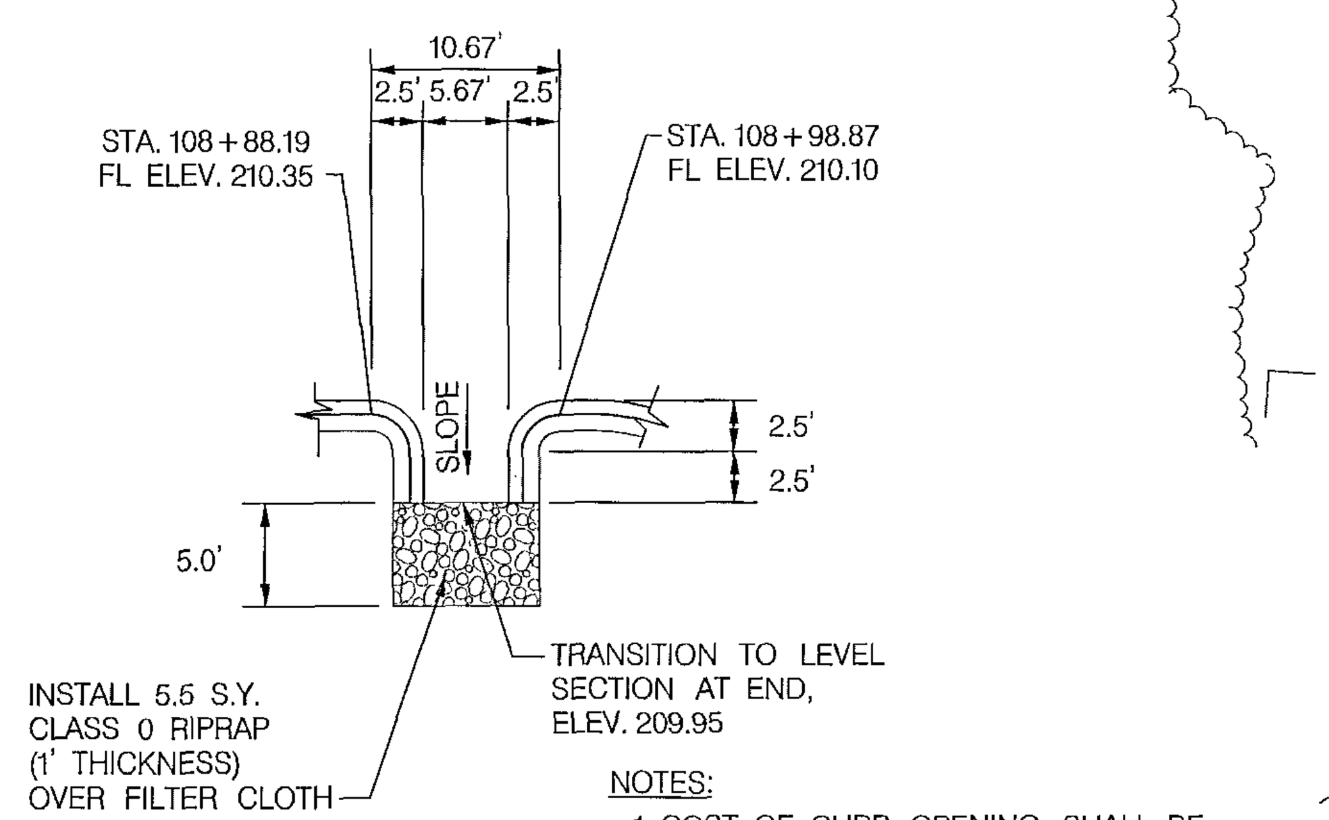
NOTES:

1. COST OF CURB OPENING SHALL BE INCIDENTAL TO MODIFIED COMBINATION CURB PAY ITEM

(STA. 109+78.55 TO STA. 109+86.05)

CURB OPENING DETAIL

NOT TO SCALE



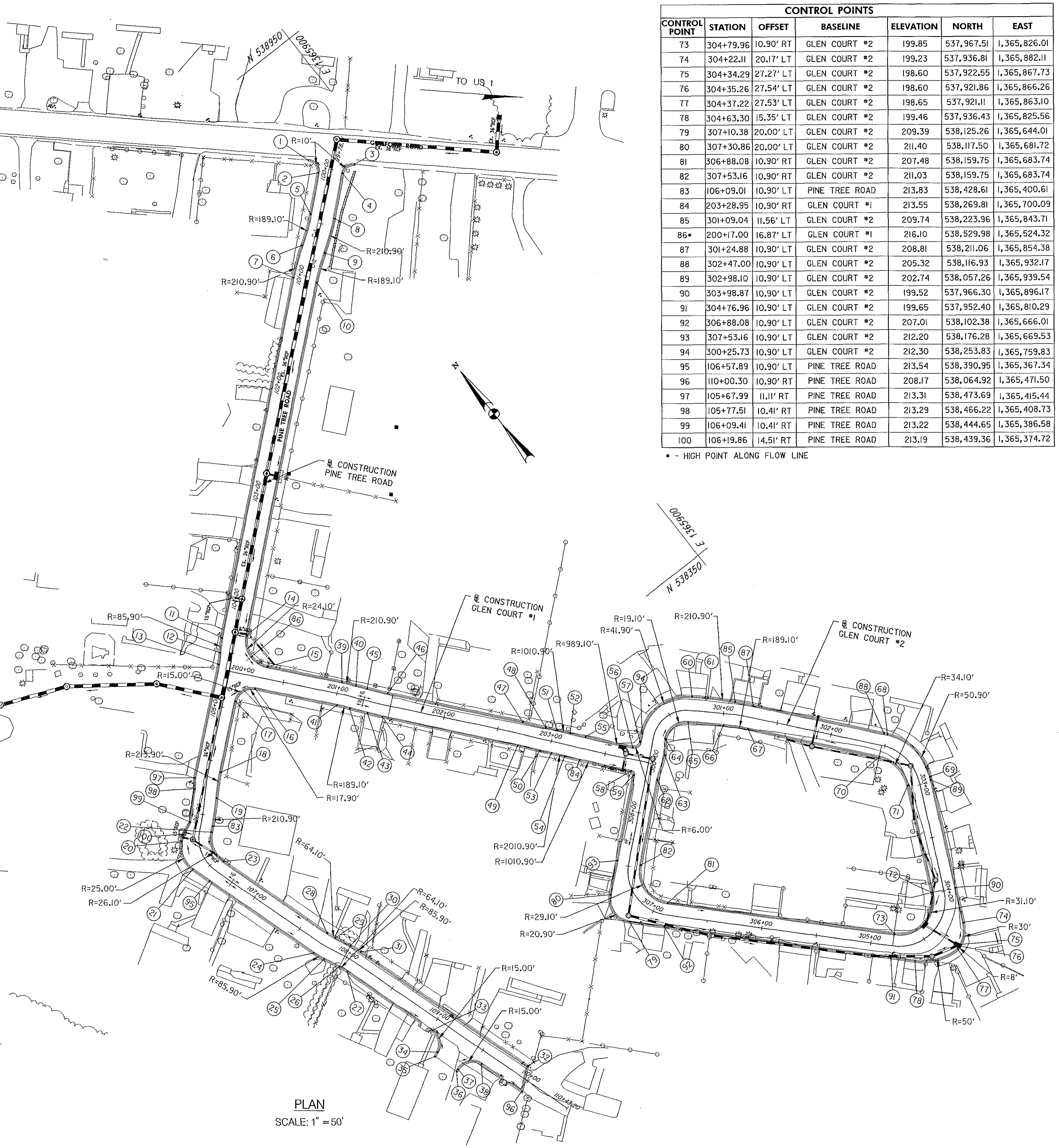
NOTES:

1. COST OF CURB OPENING SHALL BE INCIDENTAL TO MODIFIED COMBINATION CURB PAY ITEM

(STA. 108+88.19 TO STA. 108+98.87)

CURB OPENING DETAIL

NOT TO SCALE



CONTROL POINTS						
CONTROL POINT	STATION	OFFSET	BASELINE	ELEVATION	NORTH	EAST
73	304+79.96	10.90' RT	GLEN COURT #2	199.85	537,967.51	1,365,826.01
74	304+22.11	20.17' LT	GLEN COURT #2	199.23	537,936.81	1,365,882.11
75	304+34.29	27.27' LT	GLEN COURT #2	198.60	537,922.55	1,365,867.73
76	304+35.26	27.54' LT	GLEN COURT #2	198.60	537,921.86	1,365,866.26
77	304+37.22	27.53' LT	GLEN COURT #2	198.65	537,921.11	1,365,863.10
78	304+63.30	15.35' LT	GLEN COURT #2	199.46	537,936.43	1,365,825.56
79	307+10.38	20.00' LT	GLEN COURT #2	209.39	538,125.26	1,365,644.01
80	307+30.86	20.00' LT	GLEN COURT #2	211.40	538,117.50	1,365,681.72
81	306+88.08	10.90' RT	GLEN COURT #2	207.48	538,159.75	1,365,683.74
82	307+53.16	10.90' RT	GLEN COURT #2	211.03	538,159.75	1,365,683.74
83	106+09.01	10.90' LT	PINE TREE ROAD	213.83	538,428.61	1,365,400.61
84	203+28.95	10.90' RT	GLEN COURT #1	213.55	538,269.81	1,365,700.09
85	301+09.04	11.56' LT	GLEN COURT #2	209.74	538,223.96	1,365,843.71
86*	200+17.00	16.87' LT	GLEN COURT #1	216.10	538,529.98	1,365,524.32
87	301+24.88	10.90' LT	GLEN COURT #2	208.81	538,211.06	1,365,854.38
88	302+47.00	10.90' LT	GLEN COURT #2	205.32	538,116.93	1,365,932.17
89	302+98.10	10.90' LT	GLEN COURT #2	202.74	538,057.26	1,365,939.54
90	303+98.87	10.90' LT	GLEN COURT #2	199.52	537,966.30	1,365,896.17
91	304+76.96	10.90' LT	GLEN COURT #2	199.65	537,952.40	1,365,810.29
92	306+88.08	10.90' LT	GLEN COURT #2	207.01	538,102.38	1,365,666.01
93	307+53.16	10.90' LT	GLEN COURT #2	212.20	538,176.28	1,365,669.53
94	300+25.73	10.90' LT	GLEN COURT #2	212.30	538,253.83	1,365,759.83
95	106+57.89	10.90' LT	PINE TREE ROAD	213.54	538,390.95	1,365,367.34
96	110+00.30	10.90' RT	PINE TREE ROAD	208.17	538,064.92	1,365,471.50
97	105+67.99	11.11' RT	PINE TREE ROAD	213.31	538,473.69	1,365,415.44
98	105+77.51	10.41' RT	PINE TREE ROAD	213.29	538,466.22	1,365,408.73
99	106+09.41	10.41' RT	PINE TREE ROAD	213.22	538,444.65	1,365,386.58
100	106+19.86	14.51' RT	PINE TREE ROAD	213.19	538,439.36	1,365,374.72

* - HIGH POINT ALONG FLOW LINE

PLAN

SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — 7/1/16 DATE

CHIEF, BUREAU OF ENGINEERING — 6/29/16 DATE

CHIEF, BUREAU OF HIGHWAYS — 6/29/2016 DATE

CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — 6/29/16 DATE

GPI GREENMAN-PEDERSEN, INC. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS 10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701 WASH. (301) 470-2772 BALT. (410) 880-3055 FAX: (301) 490-2649 www.gpiinet.com

DES: GWF/JRW

DRN: JRW

CHK: CSN

DATE: JUNE, 2016

BY	NO.	REVISION	DATE

600' SCALE MAP NO. ______ BLOCK NO. ______

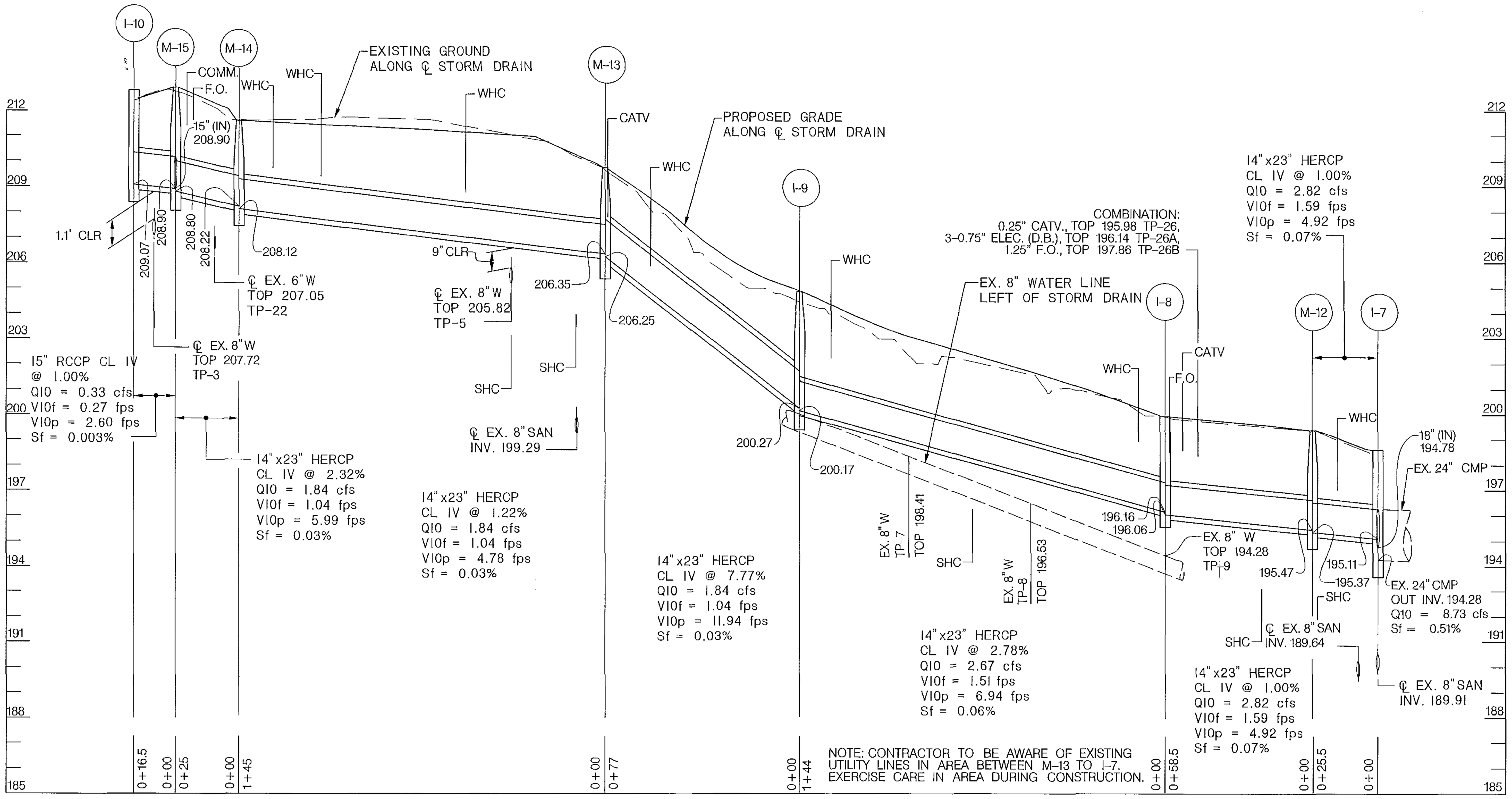
FLOW LINE CONTROL POINT LOCATION PLAN AND DETAILS

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

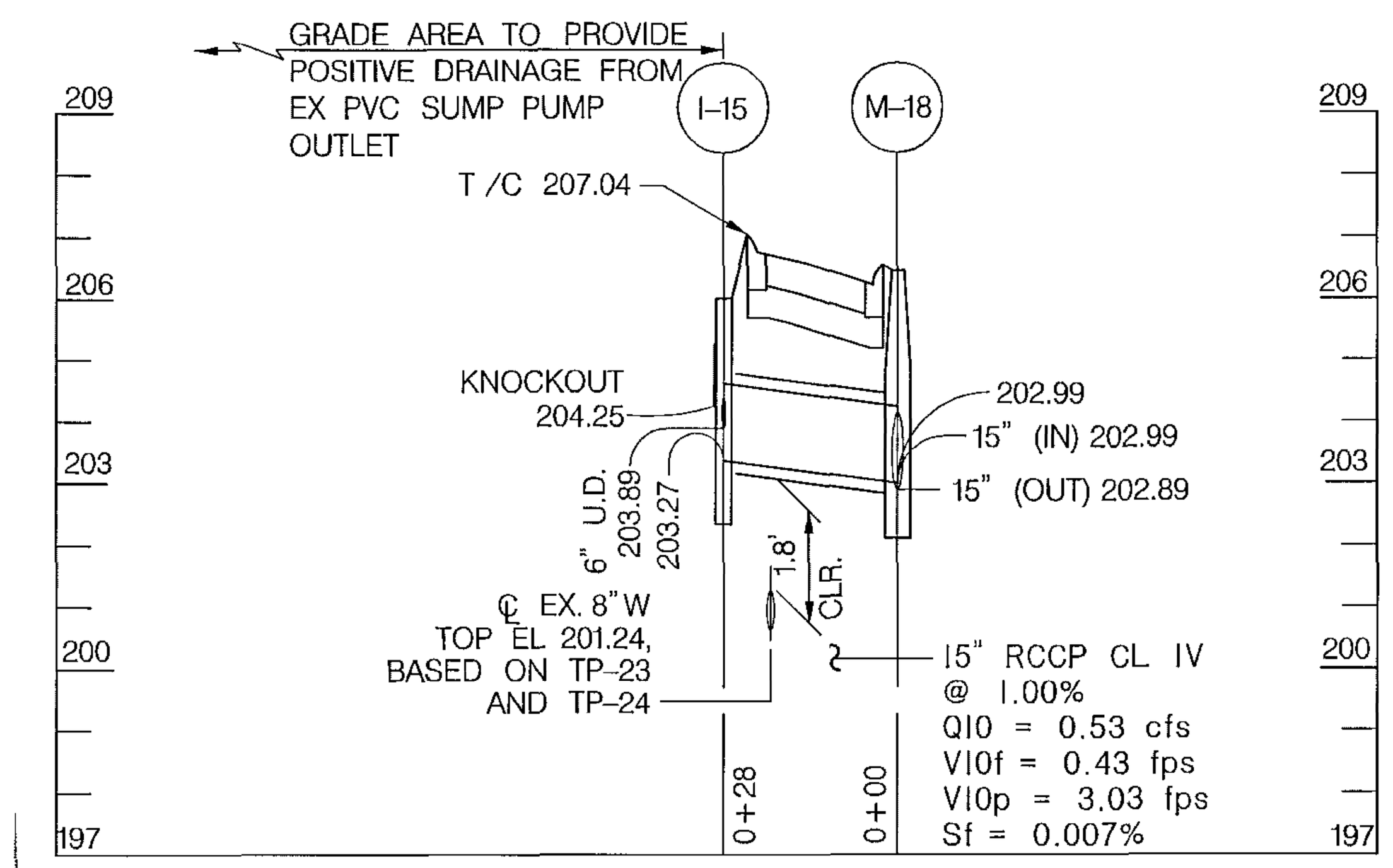
SHEET 6 OF 11

NOTE:
UTILITY, WATER AND SANITARY CROSSINGS SHOWN ON THESE PROFILES REPRESENTS APPROXIMATE LOCATIONS AND ELEVATIONS BASED ON MAPPING PROVIDED BY MISS UTILITY, INFRAMAP AND RECORD PLANS. TEST PIT LOCATIONS AND ELEVATIONS TAKEN FROM FIELD INVESTIGATIONS CONDUCTED BY KCI AND INFRAMAP. CONTRACTOR SHALL REFER TO TEST PIT LOCATIONS SHOWN ON ROADWAY PLAN AND TEST PIT LOGS. CONTRACTOR SHALL VERIFY CROSSING LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION.



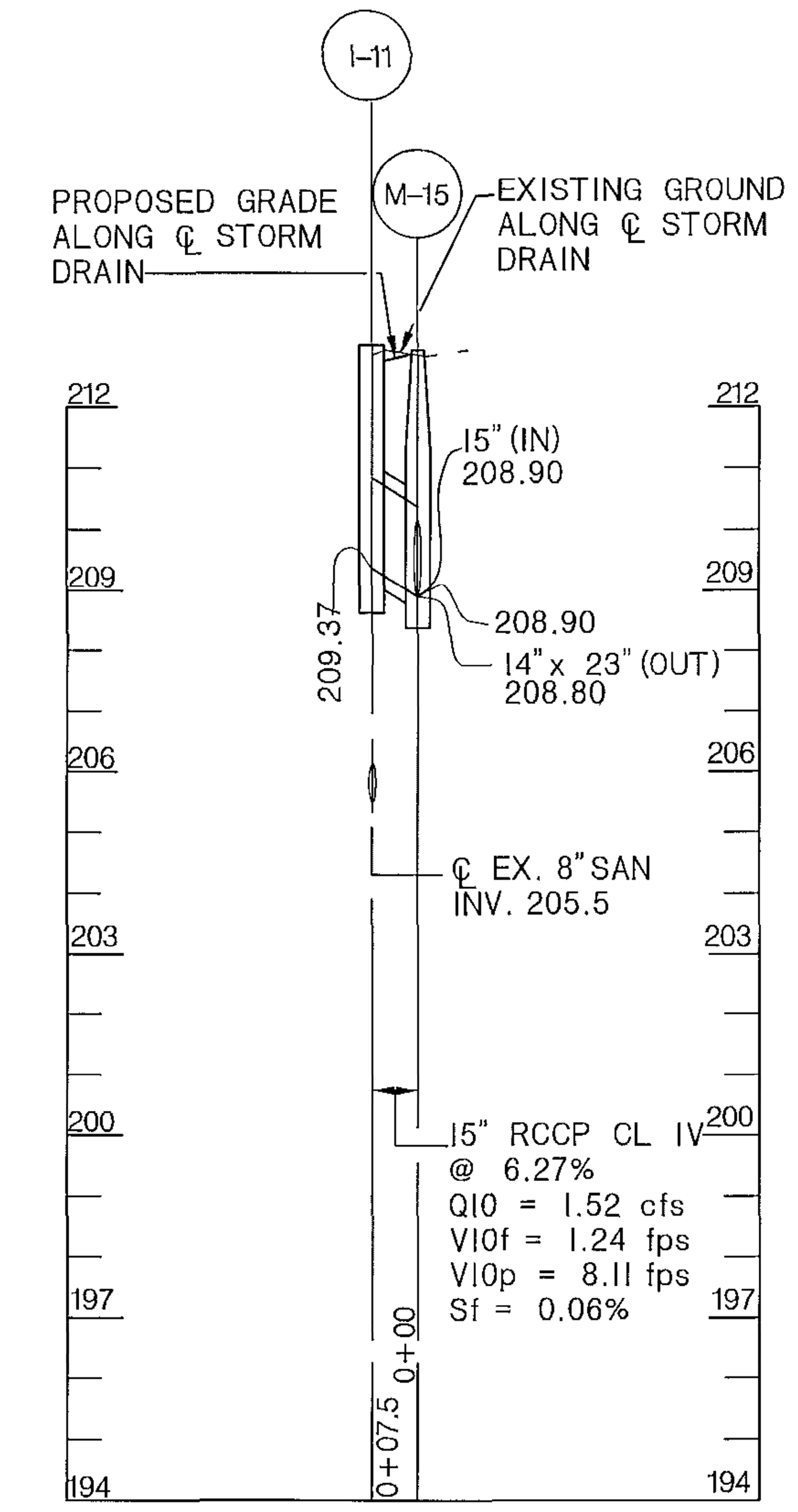
STORM DRAIN PROFILE I-10 TO I-7

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'



STORM DRAIN PROFILE I-16 TO M-18

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'



STORM DRAIN PROFILE I-11 TO M-15

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

DRAINAGE STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP EL.	STD. NO.
I-7	DOUBLE TYPE 'S' INLET	STA. 304+35.4, 24.6' LT. (1)	195.11 (14"x23") 194.78 (18")	EX. 24"CMP 194.28	198.60**	HO. CO. STD. D-4.23
I-8	A-5 PRECAST INLET	STA. 305+01.0, 11.0' LT.	196.16	196.06	200.19*	HO. CO. STD. D-4.01
I-9	A-5 PRECAST INLET	STA. 306+45.2, 11.0' LT.	200.27	200.17	205.01*	HO. CO. STD. D-4.01
I-10	A-5 PRECAST INLET	STA. 203+68.39, 11.0' RT.	——	209.07	212.83*	HO. CO. STD. D-4.01
I-11	STD TYPE 'S' COMB. INLET DBL GRATE	STA. 203+64.01, 11.0' LT.	——	209.37	212.87**	SHA STD. NO. MD-374.71
I-12	STD TYPE 'S' COMB. INLET DBL GRATE	STA. 304+40.0, 11.0' RT.	195.79	195.69	199.50**	SHA STD. NO. MD-374.71
I-13	A-10 PRECAST INLET	STA. 303+38.2, 11.0' RT.	196.99	196.89	201.81*	HO. CO. STD. D-4.02
I-14	A-10 PRECAST INLET	STA. 301+55.84, 11.0' RT.	——	203.96	207.50*	HO. CO. STD. D-4.02
I-15	YARD INLET	STA. 301+85.0, 13.5' LT.	(12") 204.25(2) (6") 203.89	203.37	206.00	HO. CO. STD. D-4.14(3)
M-12	SHALLOW PRECAST MH	STA. 304+51.8, 17.5' LT.	195.47	195.37	199.40	HO. CO. STD. G-5.12
M-13	SHALLOW PRECAST MH	STA. 307+13.7, 16.5' LT.	206.35	206.45	209.75	HO. CO. STD. G-5.12
M-14	SHALLOW PRECAST MH	STA. 300+04.8, 3.0' RT.	208.22	208.12	211.62	HO. CO. STD. G-5.12
M-15	SHALLOW PRECAST MH	STA. 203+68.39, 4.0' LT.	208.90 208.90	208.80	212.89	HO. CO. STD. G-5.12
M-16	SHALLOW PRECAST MH	STA. 303+94.0, 4.5' RT.	196.24	196.14	199.95	HO. CO. STD. G-5.12
M-17	SHALLOW PRECAST MH	STA. 302+80.5, 1.0' RT.	200.56	200.31	204.00	HO. CO. STD. G-5.12
M-18	SHALLOW PRECAST MH	STA. 301+85.0, 14.42' RT.	(15") 202.99 202.99	202.89	206.45**	HO. CO. STD. G-5.12

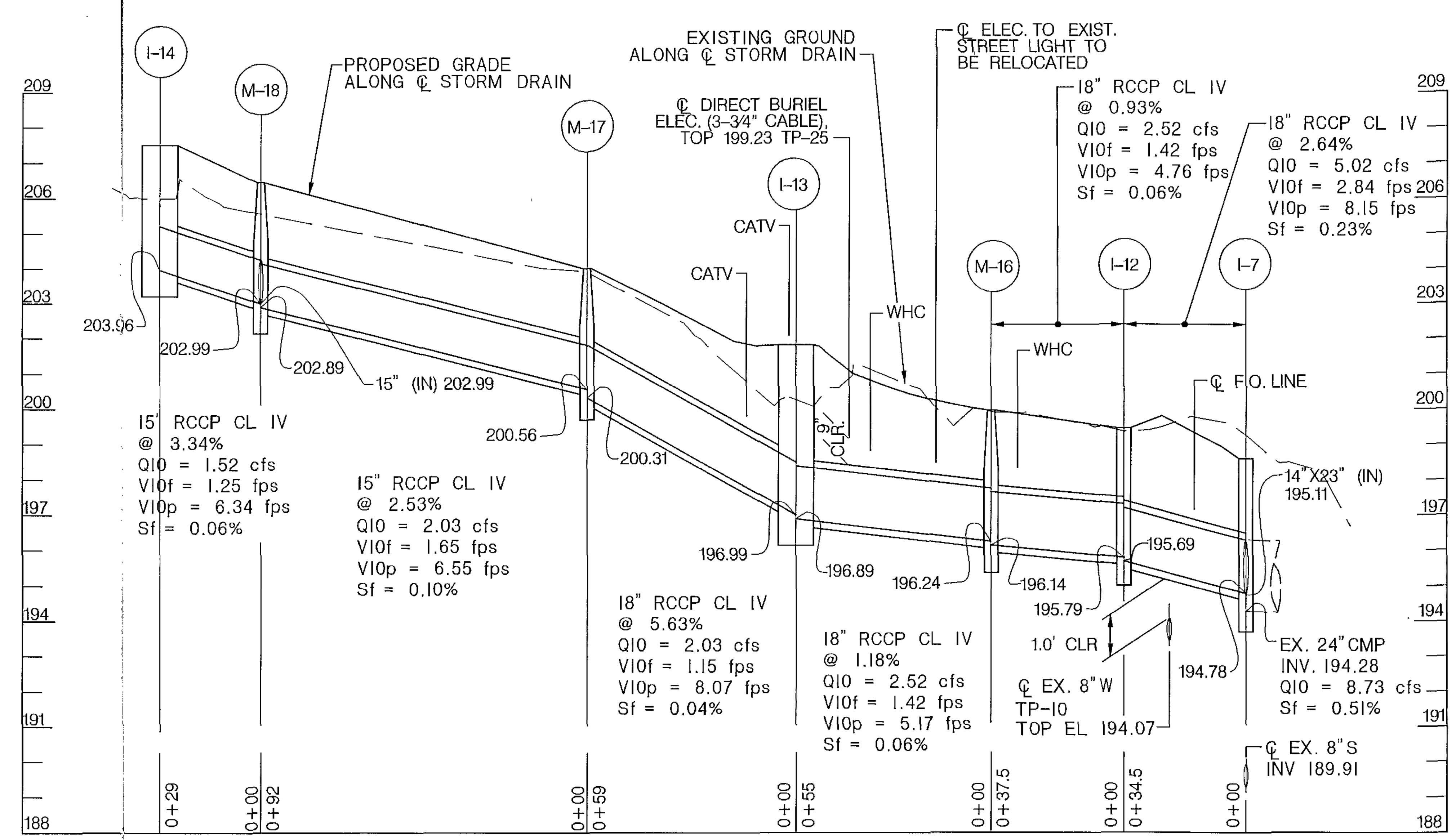
* TOP OF SLAB ELEVATION
** TOP OF GRATE ELEVATION AT FLOW LINE
(1) LOCATION GIVEN TO TOP OF GRATE, CENTER OF INLET

NOTES:

1. ALL DRAINAGE STRUCTURES SHALL BE FITTED WITH KNOCK-OUTS TO ACCOMODATE 4" UNDERDRAIN.
2. I-15 INLET TO BE PROVIDED WITH KNOCK-OUT FOR POSSIBLE FUTURE 12" PVC CONNECTION.
3. I-15 INLET TO BE FITTED WITH NEENAH R-6450-HG GRATE. ADJUST GRADES IN AREA TO ACCOMODATE CURB AND GUTTER AND EXISTING UTILITIES.

DRAINAGE PIPE SCHEDULE				
FROM STRUCT.	TO STRUCT.	SIZE (IN.)	TYPE	LENGTH (FT.)
I-10	M-15	15"	RCCP CL IV	17
I-11	M-15	15"	RCCP CL IV	8
M-15	M-14	14"x23"	HERCP	25
M-14	M-13	14"x23"	HERCP	145
M-13	I-9	14"x23"	HERCP	77
I-9	I-8	14"x23"	HERCP	144
I-8	M-12	14"x23"	HERCP	59
M-12	I-7	14"x23"	HERCP	26
I-14	M-18	15"	RCCP CL IV	29
M-17	I-13	18"	RCCP CL IV	59
I-13	M-16	18"	RCCP CL IV	55
M-16	I-12	18"	RCCP CL IV	38
I-12	I-7	18"	RCCP CL IV	35
I-18	M-17	15"	RCCP CL IV	92
I-15	M-18	15"	RCCP CL IV	28

CURB AND GUTTER TRANSITION TABLE FOR STORMDRAIN INLETS		
INLET	LOCATION	REMARKS
I-8	STA. 304+83.17 TO I-8 I-8 TO STA. 305+18.83	PER DETAIL R-3.06
I-9	STA. 306+27.37 TO I-9 I-9 TO STA. 306+63.03	PER DETAIL R-3.06
I-10	STA. 203+50.56 TO I-10 FROM I-10, SEE ROADWAY PLAN	PER DETAIL R-3.06
I-11	STA. 203+47.74 TO I-11 FROM I-11, SEE ROADWAY PLAN	PER DETAIL R-3.06
I-12	STA. 304+18.19 TO I-12 I-12 TO STA. 304+62.00	TRANSITION LENGTH FROM STA. 304+18.19 TO I-12 LESS THAN 13' ADJUST TRANSITION WITHIN LIMITS.
I-13	STA. 303+17.87 TO I-13 I-13 TO STA. 303+42.26	TRANSITION LENGTH FROM END OF I-13 TO STA. 303+45.26 LESS THAN 15' ADJUST TRANSITION WITHIN LIMITS.
I-13	STA. 303+35.51 TO I-14 I-14 TO STA. 301+66.34	TRANSITION LENGTH FROM END OF I-14 TO STA. 301+66.34 LESS THAN 15' ADJUST TRANSITION WITHIN LIMITS.



STORM DRAIN PROFILE I-14 TO I-7

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/1/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 6/29/16

GPI GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
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WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2649 www.gpinet.com

DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

STORM DRAIN PROFILES, DRAINAGE /PIPE SCHEDULES AND DETAILS

100' SCALE MAP NO. ______ BLOCK NO. ______

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

INSTALL INLET PROTECTION (SEE NOTE 1 UNDER SEQUENCE OF CONTRUCTION ON SHEET 10)
I-7 - 1 EACH, (AGIP)
I-8 - 1 EACH, (CIP)
I-9 - 1 EACH, (CIP)
I-10 - 1 EACH, (CIP)
I-11 - 1 EACH, (COIP)
I-12 - 1 EACH, (COIP)
I-13 - 1 EACH, (CIP)
I-14 - 1 EACH, (CIP)
I-15 - 1 EACH, (AGIP)

LEGEND

- FULL DEPTH PAVEMENT
- CONCRETE DRIVEWAY
- 140 EXISTING CONTOURS
- 140 PROPOSED CONTOURS
- LOD LIMIT OF DISTURBANCE
- SF SILT FENCE
- IP INLET PROPTECTION

INSTALL SILT FENCE
STA. 302+87 TO 303+08, LT - 30 LF
STA. 303+30 TO 303+45, LT - 18 LF
STA. 303+24 TO 303+34, RT - 41 LF
STA. 303+65 TO 303+80, LT - 15 LF
STA. 304+08 TO 304+27, LT - 39 LF
STA. 307+15 TO 307+78, RT - 49 LF
STA. 307+90 TO 300+24, RT - 85 LF

PLAN
SCALE: 1" = 30'

NOTES:

1. SPOIL FROM TRENCHING OPERATION IS TO BE PLACED ON THE UPHILL SIDE OF EXCAVATION.
2. FOR SEQUENCE OF CONSTRUCTION, SEE SHEET 10.
3. NO STOCKPILE OR STAGING AREA HAS BEEN SHOWN ON THIS PLAN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SUITABLE LOCATIONS FOR STAGING AND STOCKPILE AREA. THE CONTRACTOR SHALL PROVIDE PROPER EROSION AND SEDIMENT CONTROL MEASURES AT THE LOCATION AND MEET THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/1/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
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FAX: (301) 490-2649 www.gpinet.com

DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. ________ BLOCK NO. ________

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 8 OF 11

HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:

   a. Prior to the start of earth disturbance,
   b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
   c. Prior to the start of another phase of construction or opening of another grading unit,
   d. Prior to the removal or modification of sediment control practices.

   Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.

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 2011 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 is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

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 topsoil (Sec. B-4-2), 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 applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).

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

6. Site Analysis:

Total Area of Site:	0.96	Acres
Area Disturbed:	0.96	Acres
Area to be roofed or paved:	0.63	Acres
Area to be vegetatively stabilized:	0.33	Acres
Total Cut:	---	Cu. Yds.
Total Fill:	---	Cu. Yds.
Offsite waste/borrow area location:		

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:

   - Inspection date
   - Inspection type (routine, pre-storm event, during rain event)
   - Name and title of inspector
   - Weather information (current conditions as well as time and amount of last recorded precipitation)
   - Brief description of project's status (e.g., percent complete) and/or current activities
   - Evidence of sediment discharges
   - Identification of plan deficiencies
   - Identification of sediment controls that require maintenance
   - Identification of missing or improperly installed sediment controls
   - Compliance status regarding the sequence of construction and stabilization requirements
   - Photographs
   - Monitoring/sampling
   - Maintenance and/or corrective action performed
   - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).

9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.

10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD-approved field changes.

11. Disturbance shall not occur outside the L.O.D. 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 CID. Unless otherwise specified and approved by the CID, no more than 30 acres cumulatively may be disturbed at a given time.

12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.

14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.

15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
    - Use I and IP March 1 - June 15
    - Use III and IIIP October 1 - April 30
    - Use IV March 1 - May 31

16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

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

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

   a. 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.

   b. Apply fertilizer and lime as prescribed on the plans.

   c. Incorporate lime 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 are:

      i. Soil pH between 6.0 and 7.0.

      ii. 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 soil (less than 30 percent silt plus clay) 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.

   b. 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 3 to 5 inches.

   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

   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 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 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, 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.

   c. The original soil to be vegetated contains material toxic to plant growth.

   d. 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. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.

   b. 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.

   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist 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 topsoil.

   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compacted 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.

   c. 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 Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime 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.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) 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. Lime 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 clays, ground limestone should be spread at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

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

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

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

Conditions Where Practice Applies

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

Criteria

A. Seeding

1. Specifications

   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. 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 and rate of seed used.

   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 thaws.

   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. 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.

   d. Sod or seed must 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.

      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

      i. 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.

   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

      i. 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; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.

      ii. Lime: 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 hydroseeding.

      iii. Mix seed and fertilizer on site and seed immediately and without interruption.

      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Specifications (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: Only sterile straw mulch should be used 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 dye, 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 soil without inhibiting the growth of the grass seedlings.

      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: Apply mulch to all seeded areas immediately after seeding.

   a. 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.

   b. 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: Perform mulch anchoring immediately following application 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. 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 be used on the contour if possible.

   b. 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.

   c. 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.**

   d. 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 3,000 feet long.

B-4-4 STANDARD SPECIFICATIONS
FOR
TEMPORARY STABILIZATION

Definition

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

Purpose

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

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 stablization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table b.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with applications rates, seeding dates and seeding depths. if this Summary is not on the plan and completed, then Table B.1 plus fertilizer and lime rates, must be put on the plan.
2. For sites having soil test performed, use and show the recommended rates by the testing agency. Soil test are not required for temporary seeding.
3. If stabilization is required outside of a seeding season, apply mulch alone as prescribed in section B-4-3 and maintain until next the next seeing season.

TEMPORARY SEEDING SUMMARY

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.1): ____					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac) (1)	Seeding Dates	Seeding Depths (2)		
	Annual Ryegrass	40	3/1 to 5/15 8/1 to 10/15	0.5"	436 lb/ac (10 lb/1000 sf)	2 Tons/ac (90 lb/1000 sf)
	Barley	96	3/1 to 5/15 8/1 to 10/15	1.0"		
	Foxtail Millet	30	5/16 to 7/31	0.5"		
	Pearl Millet	20	5/16 to 7/31	0.5"		

NOTES:

(1) Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For small-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond seeding dates for the temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plans. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

(2) For sandy soils, plant seeds at twice the depth listed above.

B-4-5 STANDARDS AND SPECIFICATIONS
FOR
PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

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

Conditions Where Practice Applies

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

Criteria

A. Seed Mixtures

1. General Use

   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. 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. Turfgrass Mixtures

   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. 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 by weight.

      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid 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.

      iv. 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: 1½ to 3 pounds per 1000 square feet.

      Notes:
      Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

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

   c. Ideal Times of Seeding

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSE ONLY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/1/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 6/29/16

GPI
GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2649 www.gpinet.com

DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

600' SCALE MAP NO. ________ BLOCK NO. ________

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

PLOTTED: Wednesday, June 15, 2016 AT 10:27 AM
FILE: ...\2015042.00\Task 03 Glen Court Phase II\Dgn\ES-NPH2_02_PineTree.dgn

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ 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

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.1): ____					Fertilizer (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
9	SELECT ONE SPECIES OF FESCUE:							
	Tall Fescue (Lolium arundinaceum) (formerly Festuca arundianceum)	60						
	OR Hard Fescue (Festuca trachyphylla)	40	3/1 to 5/15 8/1 to 10/15	0.25" -0.5"				
	AND ADD: Kentucky Bluegrass (Poa pratensis)	40						
	Perennial Ryegrass (Lolium perenne)	20						
5	SELECT TWO GRASSES:							
	Creeping Red Fescue (Festuca rubra var. rubra)	20						
	OR Hard Fescue (Festuca trachyphylla)	20	3/1 to 5/15 8/1 to 10/15	0.25" -0.5"				
	Perennial Ryegrass (Lolium perenne)	10						
	OR Redtop (Agrostis gigantean)	1						
	AND ADD THE FOLLOWING LEGUME: Flatpea (Lathyrus sylvestris)	15			45 lb/ac (1.0 lb/ 1000 sf	90 lb/ac (2.0 lb/ 1000 sf	90 lb/ac (2.0 lb/ 1000 sf	2 Tons/ac (90 lb/1000 sf)
1	SELECT ONE WARM-SEASON GRASS:							
	Switch Grass (Panicum virgatum)	10						
	OR Costal Panic Grass (Panicum amarum var. amarulum)	10						
	AND ADD: Creeping Red Fescue (Festuca rubra var. rubra)	15	3/1 to 5/16 5/16 to 6/15	0.25" -0.5"				
	PLUS ONE OF THE FOLLOWING LUGUMES: Partiridge Pea (Chamaecrista fasciculate)	4						
	Bush Clover (Lespedeza capitata)	2						
	Wild Indigo (Baptisia tinctoria)	2						
10	Orchardgrass (Dactylis glomerata)	25						
	Creeping Red Fescue (Festuca rubra var. rubra)	10						
	Redtop (Agrostis gigantean)	1	3/1 to 5/15 8/1 to 10/15	0.25" -0.5"				
	Alsike Clover (Trifolium hybridum)	3						
	White Clover (Trifolium repens)	3						

NOTE: FOR THE PERIOD BETWEEN 6/1 TO 8/14 PROVIDE NURSE CROPS IN ACCORDANCE WITH NOTE (1) LOCATED BELOW TEMPORARY SEEDING SUMMARY TABLE.

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

1. General Specification:

a. Class of turfgrass sod must be Maryland or Virginia State Certified or Approved. Sod labels must be made available to the job foreman and inspector.
b. Sod must be machine cut at a uniform soil thickness of 3 /4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement of thickness must exclude top growth and thatch. Individual pieces of sod must be cut to the supplier width and length. Maximum allowable deviation from standard widths and lengths must be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
c. Standard size of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation:

a. During periods of excessively high temperatures 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 wedge against each other. Stagger lateral joint 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 long edges parallel to the contour and with staggered joints. Roll and tamp, peg or otherwise secure 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

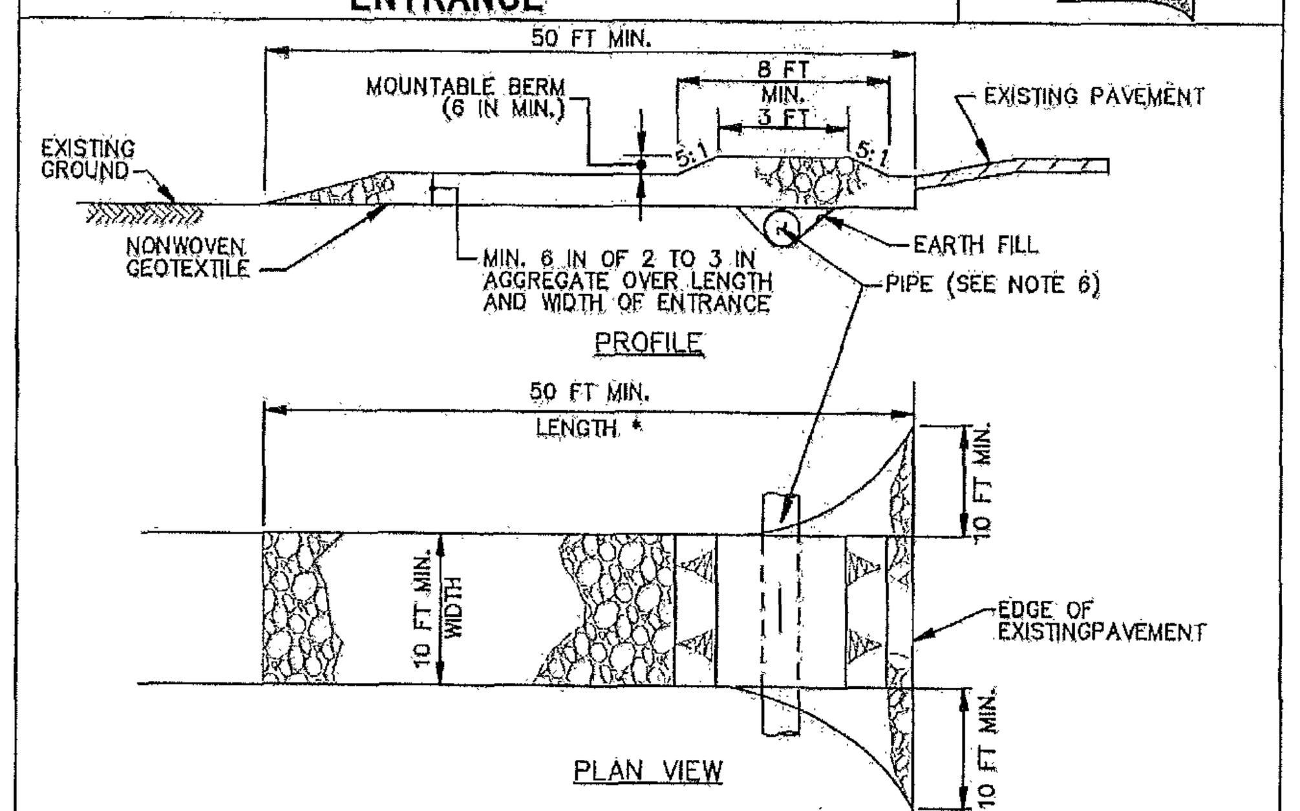
a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

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 ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain grass height between 2 and 3 inches unless otherwise specified.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

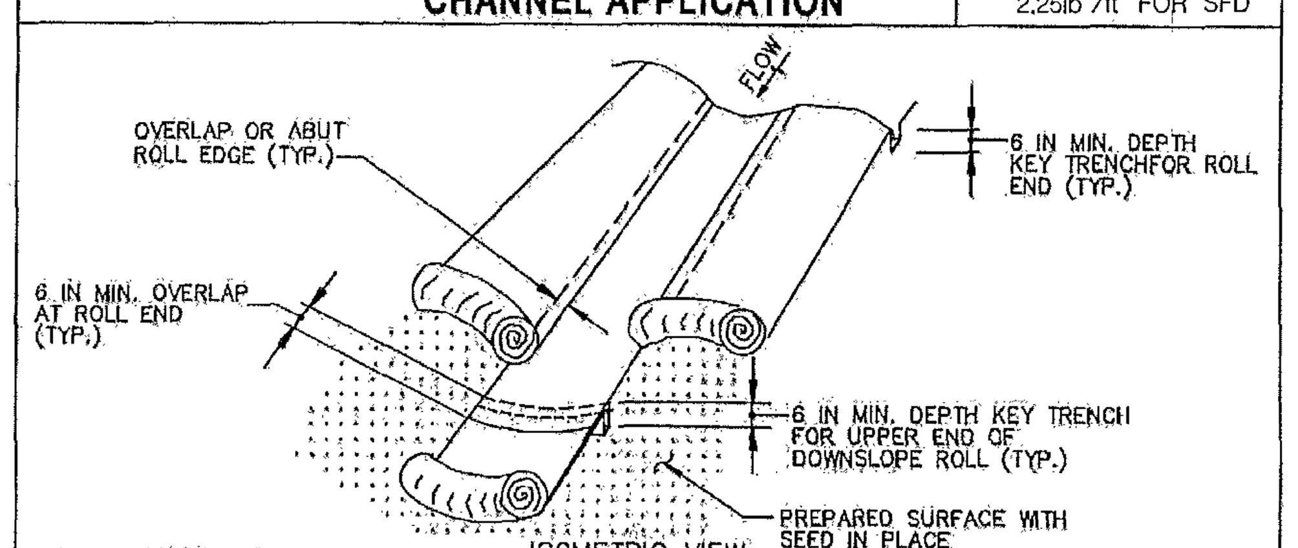
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL

TSSMC – 1.5 lb /ft^2
2.25lb /ft^2 FOR SFD



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 48 HOURS BEFORE STARTING ANY WORK.
3. CONSTRUCT STORM DRAIN SYSTEM FROM I-7 TO I-11 PROCEEDING UPGRADE WITH THE AMOUNT OF OPEN EXCAVATION THAT CAN BE BACKFILLED AND STABILIZED AT THE END OF WORK DAY. STABILIZATION TO INCLUDE METAL PLATES FOR OPEN SECTION OF ROADWAY. INSTALL INLET PROTECTION. (SEE NOTE NO. 1 BELOW).
4. CONSTRUCT STORM DRAIN SYSTEM FROM I-7 TO I-14 AND I-15 PROCEEDING UPGRADE WITH THE AMOUNT OF OPEN EXCAVATION THAT CAN BE BACKFILLED AND STABILIZED AT THE END OF WORK DAY. STABILIZATION TO INCLUDE METAL PLATES FOR OPEN SECTION OF ROADWAY. INSTALL INLET PROTECTION. (SEE NOTE NO. 1 BELOW).
5. REMOVE EXISTING PAVEMENT PER ROADWAY PLANS AND EXCAVATE FULL DEPTH PAVEMENT SECTION ALONG GLEN COURT. LIMIT THE AMOUNT OF WORK THAT CAN BE DONE AND STABILIZED WITH GRADED AGGREGATE BASE (G.A.B.) AT THE END OF THE WORK DAY. (SEE NOTE NO. 2 BELOW).
6. CONSTRUCT CURB AND GUTTER ALONG GLEN COURT.
7. CONSTRUCT FULL DEPTH PAVEMENT SECTION PER ROADWAY PLANS.
8. RECONSTRUCT DRIVEWAY ENTRANCES AS PER ROADWAY PLANS. LIMIT THE AMOUNT OF WORK THAT CAN BE EXCAVATED AND STABILIZED WITH G.A.B. AT THE END OF THE WORK DAY.
9. PROVIDE REQUIRED BACKFILL, TOPSOIL, SEED & MULCH FOR GRADE TIE-IN AREA BEHIND CURB AND GUTTER. LIMIT THE AMOUNT OF WORK THAT CAN BE BACKFILLED AND STABILIZED AT THE END OF THE WORK DAY. CARE SHALL BE TAKEN SO AS NOT TO DAMAGE EXISTING VEGETATION AND PRIVATE PROPERTY.
10. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES.

NOTES:

1. DETAILS HAVE BEEN PROVIDED FOR INLET PROTECTION. IT SHALL BE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR BASED ON FIELD CONDITIONS TO IMPLEMENT THE INSTALLATION OF SAID PROTECTION. AS THE MAXIMUM DRAINAGE AREA (1/4 AC.) TO INLETS I-9, I-11, I-12 AND I-14 IS EXCEEDED THE INLET PROTECTION SHALL BE UPGRADED BY WRAPPING THE INLET WITH "SUPER SILT FENCE". THE SEDIMENT CONTROL INSPECTOR SHALL INSTRUCT THE CONTRACTOR AS TO PROPER PROCEDURE TO UPGRADE THE INLET PROTECTION. ANY ADDITIONAL COST TO PERFORM UPGRADE SHALL BE INCIDENTAL TO THE UNIT COST PAY ITEM FOR INLET PROTECTION.
2. DETAILS HAVE BEEN PROVIDED FOR STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, DIVERSION FENCE AND SUPER SILT FENCE. SAME DAY STABILIZATION HAS BEEN NOTED BUT DUE TO VARYING FIELD CONDITIONS, IT MAY BE NECESSARY TO IMPLEMENT THE INSTALLATION OF SAID CONTROL, IT SHALL BE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO DIRECT THE IMPLEMENTATION OF THE CONTROLS BY THE CONTRACTOR TO DIVERT CLEAN OFF SITE WATER AROUND OR THROUGH THE CONSTRUCTION AREA. CONTINGENT QUANTITIES OF SILT FENCE AND SUPER SILT FENCE HAS BEEN INCLUDED IN THE CONTRACT TO COVER THE POSSIBLE IMPLEMENTATION.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSE ONLY

PLOTTED: Wednesday, June 15, 2016 AT 10:18 AM
FILE: N:\2015\2015042.00\Task 03 Glen Court Phase II\Dgn\pES-NPH2_01_PineTree.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/1/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 6/29/16

GPI GREENMAN-PEDERSEN, INC.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD. 20701
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2649 www.gpinet.com

DES: GWF/JRW
DRN: JRW
CHK: CSN
DATE: JUNE, 2016

BY	NO.	REVISION	DATE

600' SCALE MAP NO. ______ BLOCK NO. ______

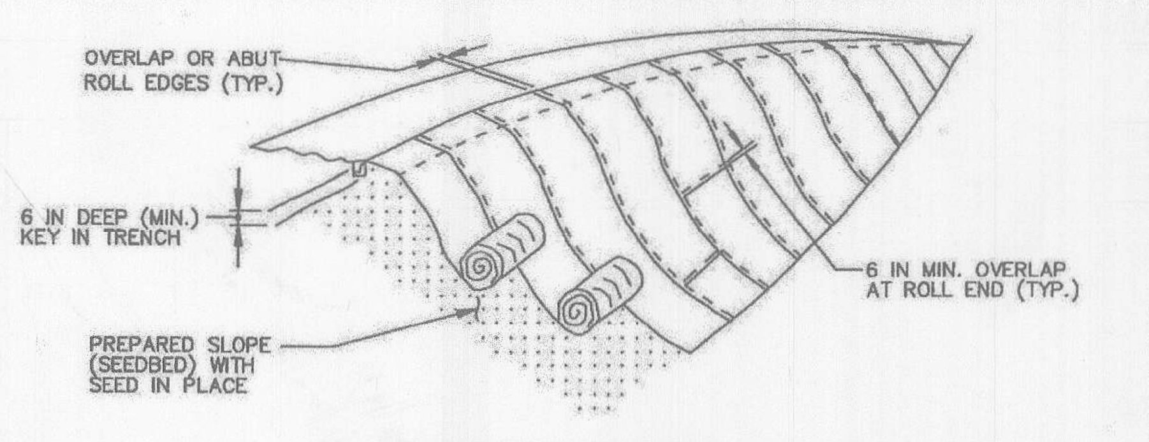
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 10 OF 11

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: TSSMC – 2.0 lb/ft²



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

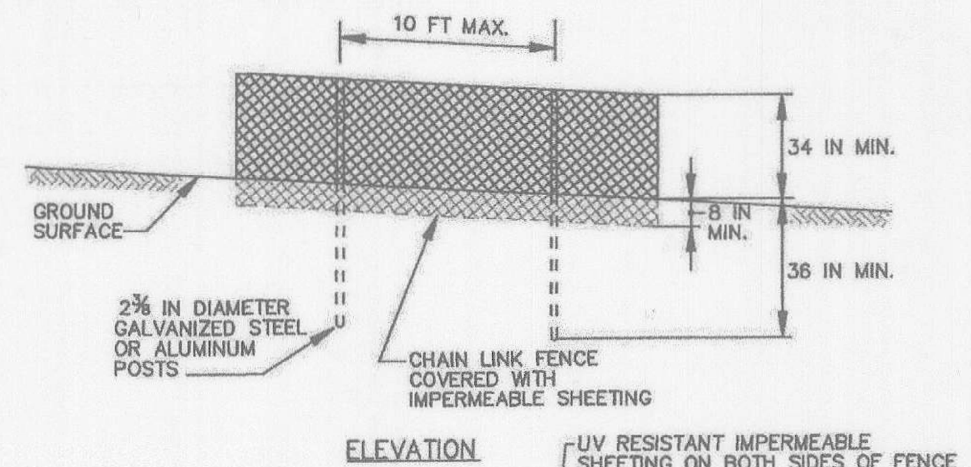
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

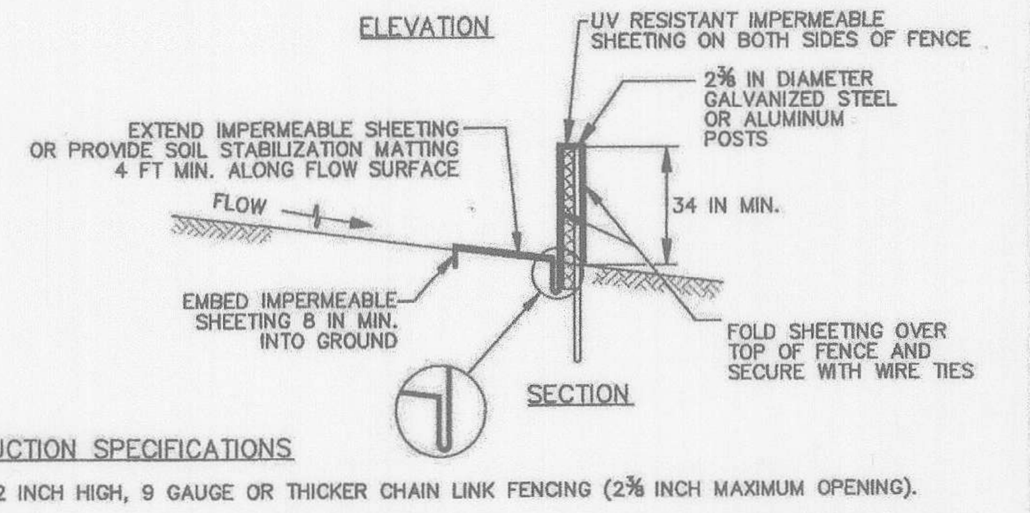
DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: —DF—

MAXIMUM DRAINAGE AREA = 2 ACRES



ELEVATION



SECTION

CONSTRUCTION SPECIFICATIONS

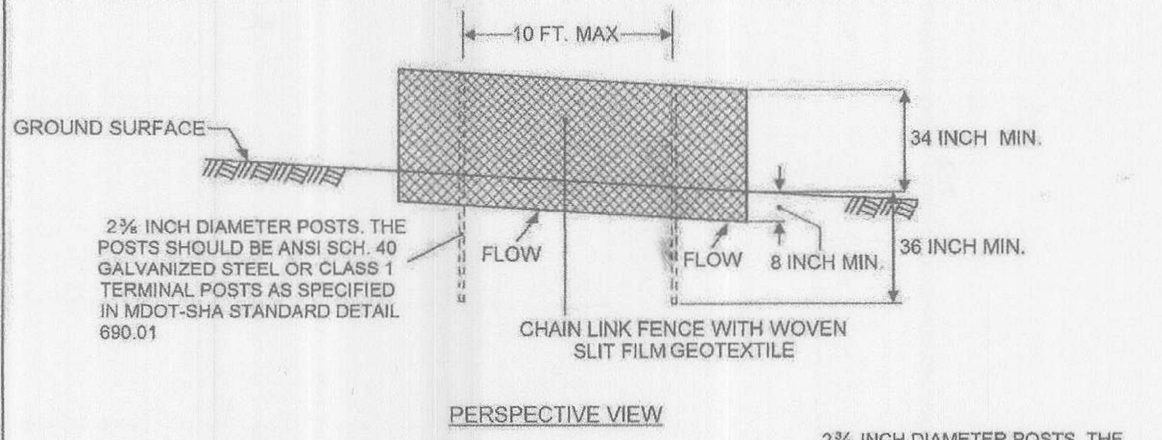
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

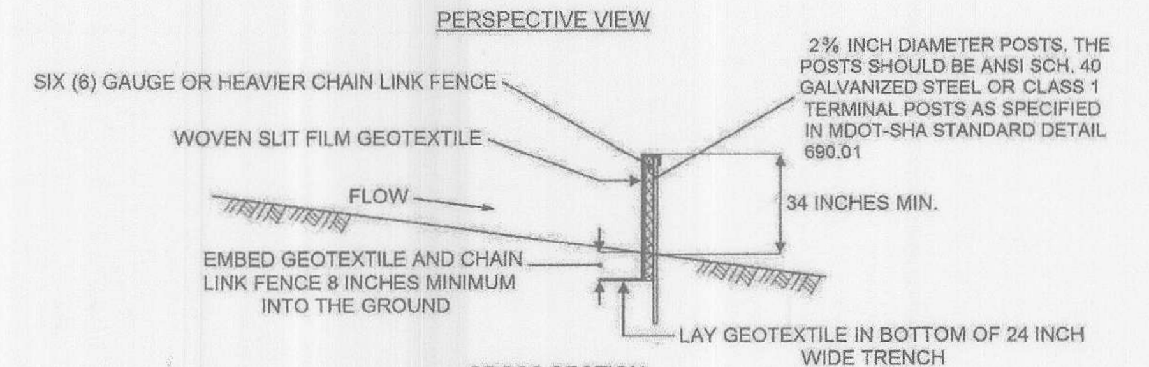
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: —SSF—



PERSPECTIVE VIEW



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. LAY THE GEOTEXTILE IN THE BOTTOM OF THE 24 INCH WIDE TRENCH.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UPHILL A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURERS CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H - 1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

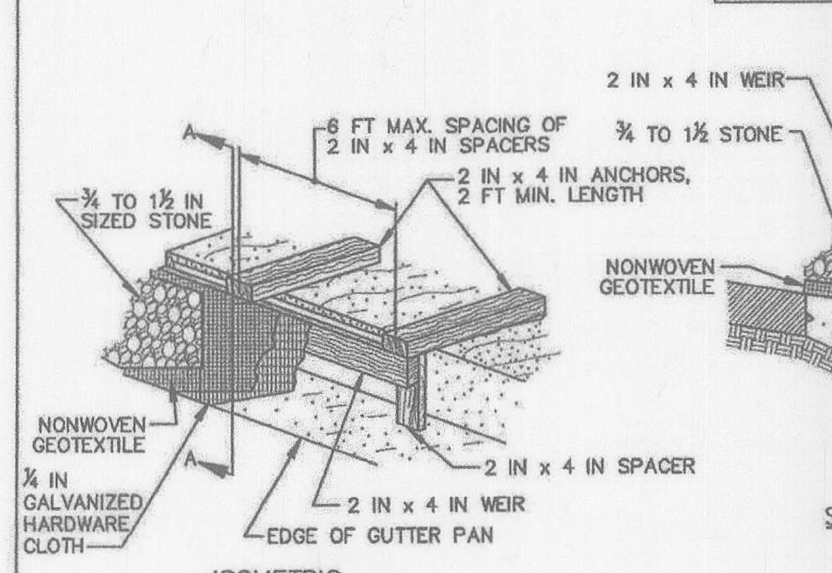
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

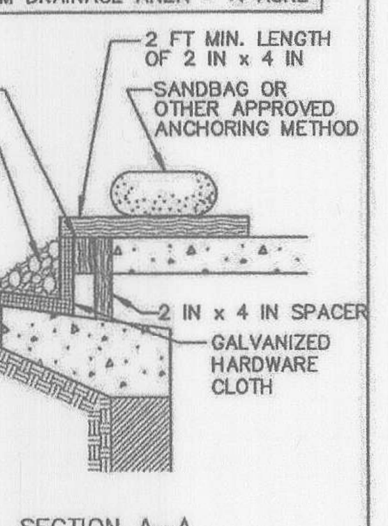
DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



ISOMETRIC



SECTION A–A

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

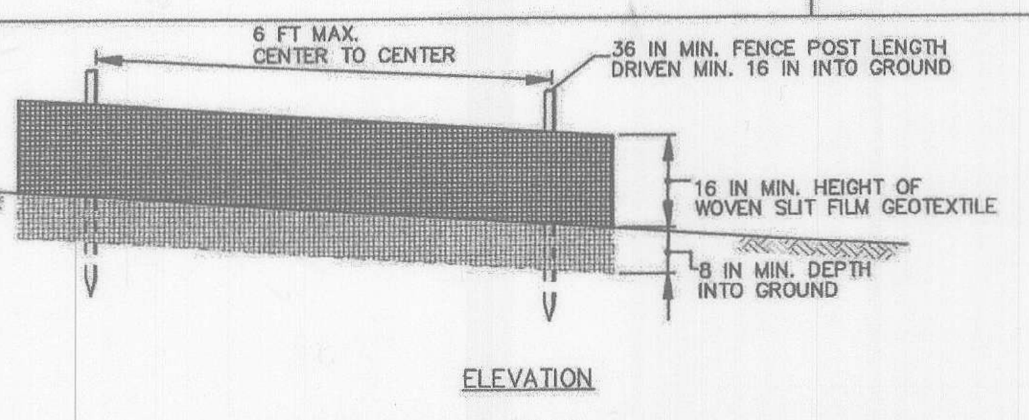
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

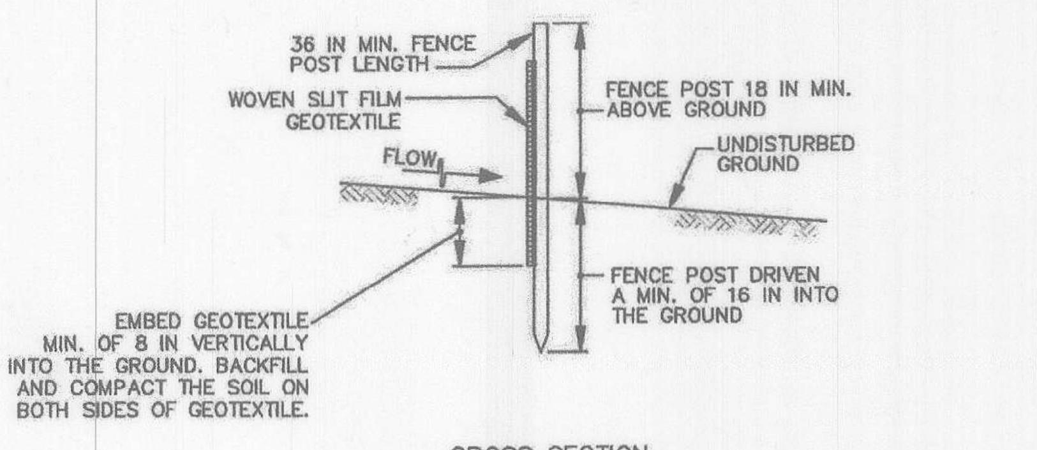
E.27

DETAIL E-1 SILT FENCE

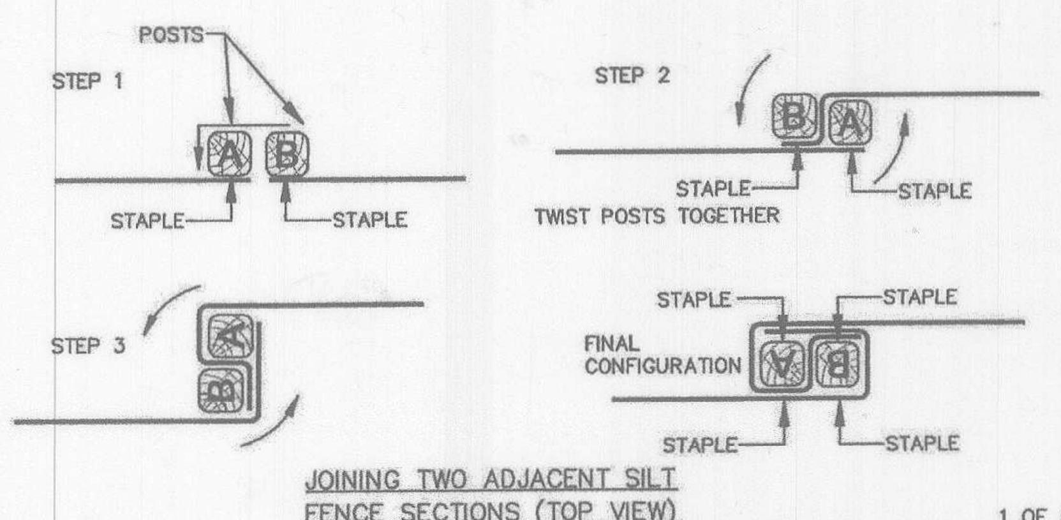
STANDARD SYMBOL: —SF—



ELEVATION



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.2

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: —SF—

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

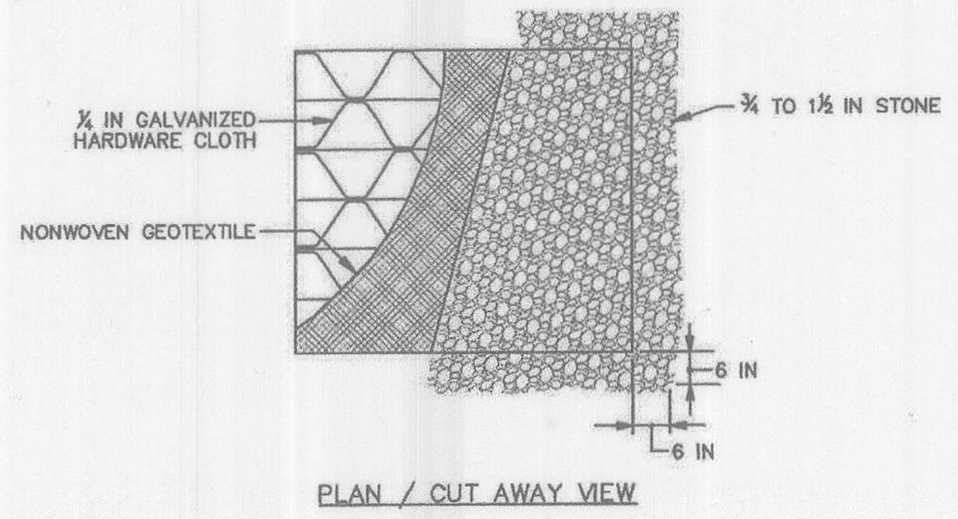
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.3

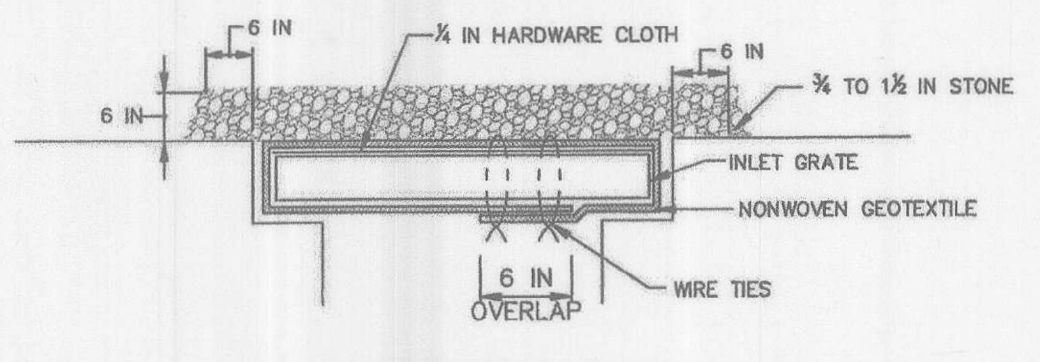
DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



PLAN / CUT AWAY VIEW



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

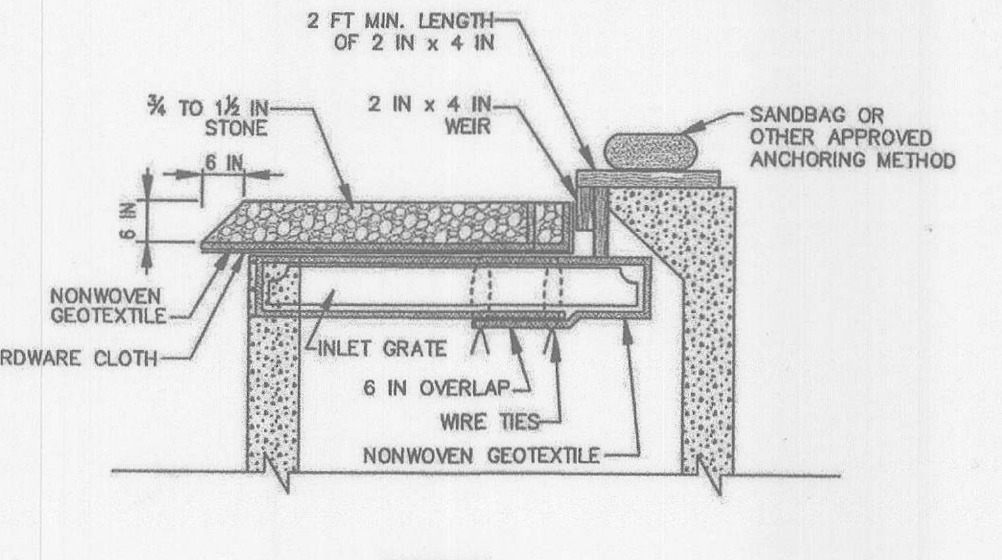
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.26

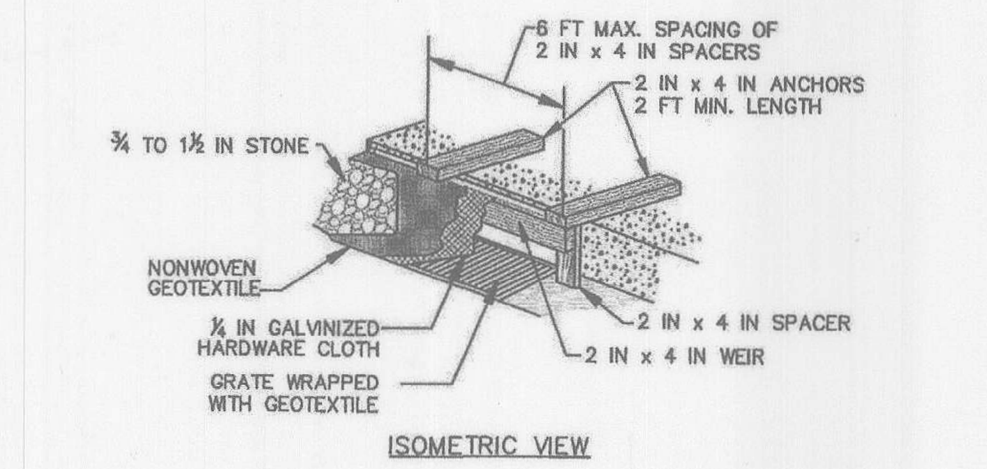
DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



SECTION



ISOMETRIC VIEW

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.30

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2X4 WEIR TO THE TOP OF A 9 INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS OF 2x4 INCH TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.31

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSE ONLY

PLOTTED: Wednesday, June 15, 2016 AT 10:16 AM
FILE: N:\2015\2015042.00\Task 03 Glen Court Phase II\Dgn\ES-DPH2_01_PineTree.dgn

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 7/1/16
CHIEF, BUREAU OF ENGINEERING — DATE 6/29/16
CHIEF, BUREAU OF HIGHWAYS — DATE 6/29/2016
CHIEF, TRANSPORTATION AND SPECIAL PROJECTS DIVISION — DATE 6/29/16

GPI
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STATE OF MARYLAND

DES: GWF/JRW	BY	NO.	REVISION	DATE
DRN: JRW				
CHK: CSN				
DATE: JUNE, 2016				

600' SCALE MAP NO. ______ BLOCK NO. ______

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

PINE TREE /GLEN COURT
DRAINAGE AND ROADWAY IMPROVEMENTS, PH.2
CAPITAL PROJECT D-1140
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN