Binding Area

DRILL HOLES

SHA V8 CAD Standards Version: 0.0 Title Rev. Date: December 9, 2004

INDEX OF SHEETS
SEE SHEET 2

SHA

Maryland Department of Transportation

STATE HIGHWAY ADMINISTRATION
PLANS OF PROPOSED HIGHWAY

S.H.A. CONTRACT NO. MO5935370

F.A.P NO.

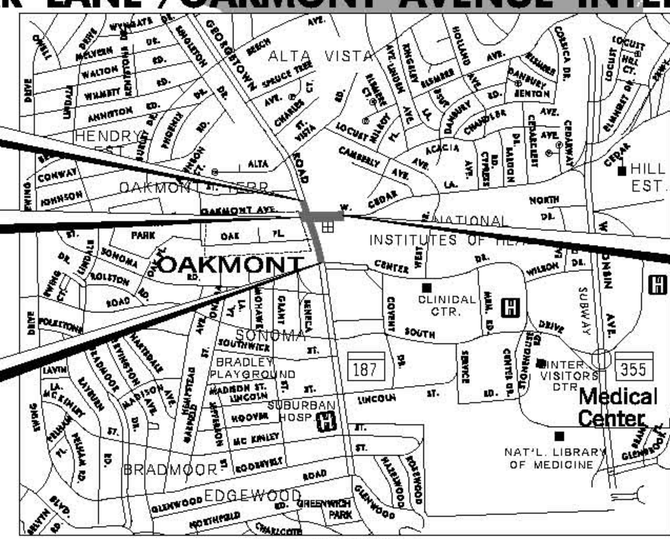
BRAC INTERSECTIONS NEAR NATIONAL NAVAL MEDICAL CENTER
MD 187 AT W. CEDAR LANE /OAKMONT AVENUE INTERSECTION IMPROVEMENTS

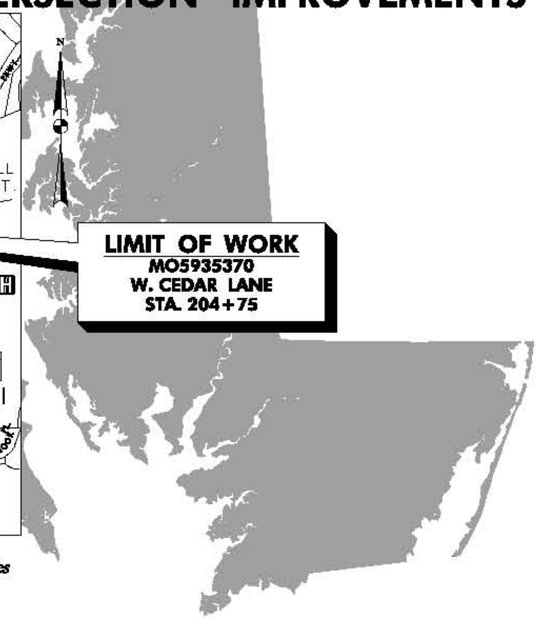
LIMIT OF WORK
MO5935370
MD 187
STA. 18+08.24

LIMIT OF WORK
MO5935370
OAKMONT AVE.
STA. 198+79

LIMIT OF WORK
MO5935370
MD 187
STA. 6+00

LIMIT OF WORK
MO5935370
W. CEDAR LANE
STA. 204+75





MONTGOMERY COUNTY

LENGTH OF PROJECT:
MD. 187 (OLD GEORGETOWN ROAD) = 0.23 miles
W. CEDAR LANE = 0.12 miles

SCALE: 1"=1000'

1000 0 1000 2000 feet

* PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 25423
EXPIRATION DATE: 07-13-2010

HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88

Maryland Department of Transportation
State Highway Administration
OHD
Office of Highway Development
Final Review Submittal
DATED APRIL 20, 2010

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

R-O-W PLAT NUMBERS	SURVEY BOOK NUMBERS
	31283

DESIGN DESIGNATION				
ROADWAY	MD 187		WEST CEDAR LANE/OAKMONT AVENUE	
CONTROLS / YEARS	2008	2011	2008	2011
AVERAGE DAILY TRAFFIC (A.D.T.)	49,950	53,000	12,276	14,250
DESIGN HOURLY VOLUME (D.H.V.)	9%	9%	11%	11%
DIRECTIONAL DISTRIBUTION	52%	52%	71%	71%
% TRUCKS – A.D.T.	5%	5%	4%	4%
% TRUCKS – D.H.V.	5%	5%	3%	3%
DESIGN SPEED M.P.H.	45		35	
FUNCTIONAL CLASSIFICATION	URBAN OTHER PRINCIPAL ARTERIAL		URBAN MINOR ARTERIAL	
CONTROL OF ACCESS	NONE		NONE	
INTENSITY OF DEVELOPMENT	URBAN		URBAN	
TERRAIN	FLAT		FLAT	
ANTICIPATED POSTED SPEED	40		25	

AASHTO DESIGN CRITERIA

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2001 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MUTCD

ALL WORK ON THIS PROJECT SHALL CONFORM TO:
THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 REVISIONS THEREOF OR ADDITIONS THERETO;
THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATIONS BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

RIGHT OF WAY

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE APPROPRIATE RIGHT OF WAY PLATS.

UTILITIES

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS.

ENVIROMENTAL INFORMATION

MDE # 09-SF-0197

ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR CONTRACT NO. MO5935370 SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATIONS BEST MANAGEMENT PRACTICES (BMP) INSPECTION AND REMEDIATION PROGRAM.

SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

OWNERS / DEVELOPERS CERTIFICATION :

I / WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF WAY ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS.

COMPLETENESS OF DOCUMENTS

THE STATE HIGHWAY ADMINISTRATION SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE STATE HIGHWAY ADMINISTRATION'S CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

ADA COMPLIANCE

THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES FOR THE ELDERLY AND HANDICAPPED IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION

REVISIONS NOTE: See Sheet No. 2 for List of Revised Sheet Numbers	

REVIEWED AND APPROVAL RECOMMENDED DATE
CHIEF, HIGHWAY DESIGN DIVISION

APPROVAL RECOMMENDED DATE
DIRECTOR, OFFICE OF HIGHWAY DEVELOPMENT

APPROVED DATE
DEPUTY ADMINISTRATOR – PLANNING, ENGINEERING, REAL ESTATE AND ENVIRONMENT

SURVEY BOOK NO.

$FILE$
$DATETIME$

INDEXED

BY: $USERNAME$

ABBREVIATIONS

AASHTO	American Association of State Highway Transportation Officials
ADT	Average Daily Traffic
AHD	Ahead
APPROX.	Approximate
℄ or B/L	Baseline
BK	Back /Book
BIT.	Bituminous
B.C.	Bituminous Concrete
B.M.	Bench Mark
BOT.	Bottom
C.C.	Center of Curve
CAP	Corrugated Aluminum Pipe
CAPA	Corrugated Aluminum Pipe Arch
CATV	Cable Television
C.B.R.	California Bearing Ratio
℄ or C/L	Centerline
CL.	Class
CLF	Chainlink Fence
CMP	Corrugated Metal Pipe
C.O.	Cleanout
COMB.	Combination
CONC.	Concrete
CONSTR.	Construction
COR.	Corner
CORR.	Correction
CPP-S	Corrugated Polyethylene Pipe – Type 'S'
CSP	Corrugated Steel Pipe – Aluminized Type 2
CSPA	Corrugated Steel Pipe Arch – Aluminized Type 2
C&G	Curb and Gutter
DC	Degree of Curve
D.H.V.	Design Hourly Volume
D.I.	Drop Inlet
DIA.	Diameter
D.O.	Double Opening
E	East
E	Electric
E	External Distance
EA	Each
EB	Eastbound
ELEV	Elevation
ES	End Section
EX or EXIST	Existing
FT	Feet
F or FL	Flowline
F.B.D.	Flat Bottom Ditch
F.H.	Fire Hydrant
FWD.	Forward
G	Gas
G.V.	Gas Valve
H.B.	Handbox
HDPE	High Density Polyethylene
HDWL	Headwall
HERCP	Horizontal Elliptical Reinforced Concrete Pipe
HP	High Point
IN	Inch
I.S.T	Inlet Sediment Trap
INV.	Invert
J.B.	Junction Box
K	K Inlet
L	Length
LF	Linear Feet
L.L.	Liquid Limit
LP	Low Point
L.P.	Light Pole
LT.	Left
MAC.	Macadam
M.C.	Moisture Content
MAX.	Maximum
M.D.D.	Maximum Dry Content
MOD.	Modified
MIN.	Minimum
N	North
NB	Northbound
NE	Northeast
N.P.	Non-Plastic
O.C.	On Center
OHE	Overhead Electric
O.M.	Optimum Moisture
PAV'T.	Pavement
PC	Point of Curvature
PCC	Point of Compound Curvature
PC	Point of Crown
PGE	Profile Grade Elevation
P.G.E.	Profile Ground Elevation
P.G.L.	Profile Grade Line
PGL	Profile Ground Line
PR	Point of Rotation
P.I.	Plasticity Index
PI	Point of Intersection
POC	Point On Curve
POT	Point On Tangent
PPWP	Polyvinyl Chloride Profile Wall Pipe
PROP	Proposed
PRC	Point of Reverse Curve
PT	Point
PT	Point of Tangency
PVC	Point of Vertical Curve
PVC	Polyvinyl Chloride
PVI	Point of Vertical Intersection
PVRC	Point of Vertical Reverse Curve
PVT	Point of Vertical Tangency
R	Radius
R.F.	Rock Fragments
RT	Right
RW or R/W	Right of Way
RCP	Reinforced Concrete Pipe
RCPP	Reinforced Concrete Pressure Pipe
R.Q.D.	Rock Quality Designation
R.M.	Rootmat
S	South
SAN.	Sanitary Sewer
SB or S/B	Southbound
S.D.	Storm Drain
S.D.D.	Surface Drain Ditch
S/E	Super Elevation
SF	Silt Fence
SF	Square Feet
SHT.	Sheet
SPP	Structural Steel Plate Pipe
SPPA	Structural Steel Plate Pipe Arch
S.P.T.	Standard Penetration Testing
SRP	Steel Spiral Rib Pipe – Aluminized Type 2
SRPA	Steel Spiral Rib Pipe Arch – Aluminized Type 2
SSD	Stopping Sight Distance
SSF	Super Silt Fence
STD.	Standard
STA.	Station
SO.	Single Opening
SY	Square Yards
SWM	Stormwater Management
T	Tangent
T	Telephone
T.C.	Top of Cover
T.G.	Top of Grate
T or TL	Traverse Line
T.M.	Top of Manhole
TRAV.	Traverse
TS	Temporary Swale
T.S.	Top of Slab
T.S.	Topsoil
TYP.	Typical
U.D.	Under Drain
U.G.	Underground
U.P.	Utility Pole
USDA	United States Department of Agriculture
VCL	Vertical Clearance
V.C.L.	Vertical Curve Length
W	Water
W	West
WB	Westbound
WB	Wetland Buffer
W.M.	Water Meter
W.S.	Wrapped Steel
WUS	Waters of the United States
W.V.	Water Valve

CONVENTIONAL SIGNS

PROPOSED MEDIAN BARRIER
ELECTRICAL HAND BOX – SIGNALS (H.B.)
FLOW LINE
STATE, COUNTY OR CITY LINES
PROPOSED TRAFFIC BARRIER
EXISTING TRAFFIC BARRIER
PROPOSED FENCE LINE
EXISTING FENCE LINE
RIGHT OF WAY LINE
EXISTING ROADWAY
RAILROAD
BASE LINE OR SURVEY LINE (N 50 E)
FIRE HYDRANT (F.H.)
HISTORIC BOUNDARY (H)
EXISTING SIGN

PROPOSED PIPE /CULVERT
EXISTING PIPE /CULVERT
EXISTING DROP INLET
UTILITY POLE
WETLAND
WETLAND BUFFER (B)
WATERS OF THE U.S. (WUS)
HEDGE /TREE LINE
BUSH /TREE
CONIFEROUS TREE
REMOVE EXISTING TREES
GROUND ELEVATION (DATUM LINE 173.5)
GRADE ELEVATION (DATUM LINE 310.22)
BURIED UTILITY LINES & NO. OF CABLES (4)
EXISTING TOP OF BANK
EXISTING TOE OF FILL
EXISTING CURB
PROPOSED CURB
PROPOSED TOP OF CUT (C)
PROPOSED TOE OF FILL (F)

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04	TS-02	PAVEMENT DETAILS
05	DE-01	SIDEWALK RAMP DETAILS
06	GS-01	BASELINE GEOMETRIC LAYOUT
07	GS-02	CURB & SIDEWALK/SHARED USE PATH GEOMETRY
08	GS-03	CURB & SIDEWALK/SHARED USE PATH GEOMETRY
09	GS-04	INTERSECTION DETAIL
10-11	PS-01 - PS-02	ROADWAY PLANS
12	MT-01	TRAFFIC CONTROL KEY PLAN
13-18	MT-02 - MT-07	MAINTENANCE OF TRAFFIC
19	SW-01	STORM WATER MANAGEMENT PLAN
20	SW-02	STORM WATER MANAGEMENT PROFILE
21	SW-03	STORM WATER MANAGEMENT DETAILS
22	SD-01	STORM DRAIN STRUCTURE SCHEDULES & DETAILS
23	SD-02	STORM DRAIN PROFILES
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30-33	LD-01 - LD-04	LANDSCAPING PLANS
34-35	EF-01 - EF-02	ENVIRONMENTAL FEATURES – TREE IMPACT/PRESERVATION
36	SG-01.1	MOT PHASE 1 – TRAFFIC SIGNAL PLAN (W. CEDAR LANE)
37	SG-02.1	MOT PHASE 1 – GENERAL INFORMATION SHEET (W. CEDAR LANE)
38	SG-03.1	MOT PHASE 1 – TRAFFIC SIGNAL PLAN (CENTER DRIVE)
39	SG-04.1	MOT PHASE 1 – GENERAL INFORMATION SHEET (CENTER DRIVE)
40	SG-05.2	MOT PHASE 2 – TRAFFIC SIGNAL PLAN (W. CEDAR LANE)
41	SG-06.2	MOT PHASE 2 – GENERAL INFORMATION SHEET (W. CEDAR LANE)
42	SG-07.2	MOT PHASE 2 – TRAFFIC SIGNAL PLAN (CENTER DRIVE)
43	SG-08.2	MOT PHASE 2 – GENERAL INFORMATION SHEET (CENTER DRIVE)
44	SG-09.4	MOT PHASE 4 – TRAFFIC SIGNAL PLAN (W. CEDAR LANE)
45	SG-10.4	MOT PHASE 4 – GENERAL INFORMATION SHEET (W. CEDAR LANE)
46	SG-11.5	MOT PHASE 5 – TRAFFIC SIGNAL PLAN (W. CEDAR LANE)
47	SG-12.5	MOT PHASE 5 – GENERAL INFORMATION SHEET (W. CEDAR LANE)
48	SG-13.5	MOT PHASE 5 – TRAFFIC SIGNAL PLAN (CENTER DRIVE)
49	SG-14.5	MOT PHASE 5 – GENERAL INFORMATION SHEET (CENTER DRIVE)
50	SG-15	ULTIMATE – TRAFFIC SIGNAL PLAN (W. CEDAR LANE)
51	SG-16	ULTIMATE – GENERAL INFORMATION SHEET (W. CEDAR LANE)
52	SG-17	ULTIMATE – TRAFFIC SIGNAL PLAN (CENTER DRIVE)
53	SG-18	ULTIMATE – GENERAL INFORMATION SHEET (CENTER DRIVE)
54	SN-1	GENERAL NOTES AND PROPOSAL ITEMS
55	SN-2	SIGNING AND PAVEMENT MARKING PLAN
56	SN-4	GUIDE SIGN AND SUPPORTS
57	SN-11	INDEX OF QUANTITIES

SOILS LEGEND

PLAN LOCATION OF SOIL BORINGS

PLAN LOCATION OF STORM WATER MANAGEMENT BORINGS

BORING LOGS ARE INCLUDED IN THE INVITATION FOR BIDS.

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAME$

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE /OAKMONT AVENUE

REVISIONS

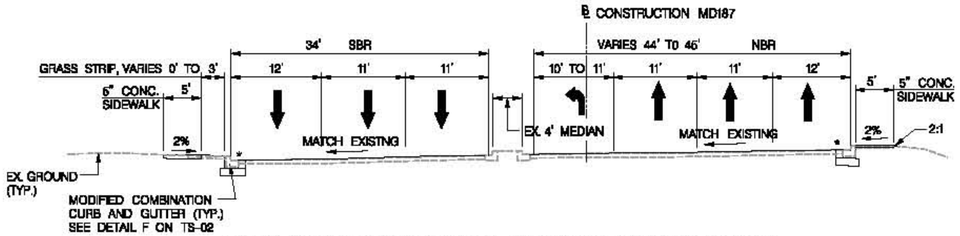
INDEX OF SHEETS AND ABBREVIATIONS

SCALE NTS ADVERTISED DATE ____ CONTRACT NO. M0693537D

DESIGNED BY HQ
DRAWN BY JP
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

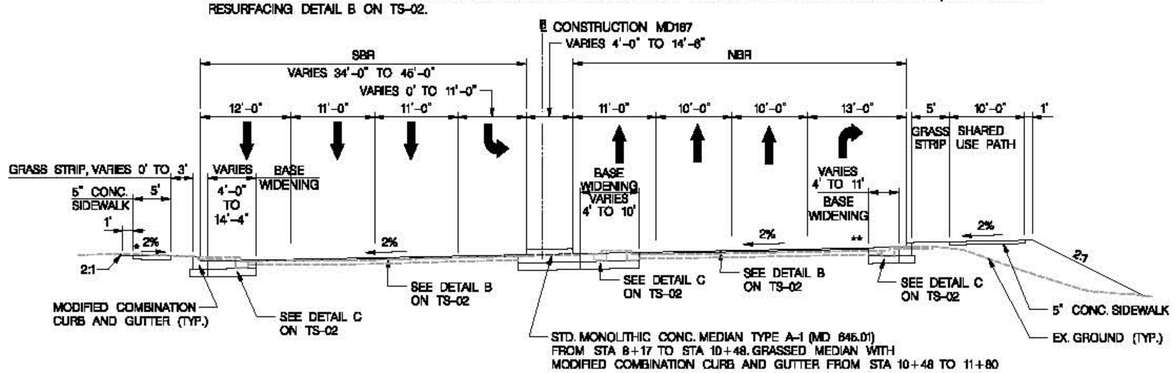
DRAWING NO. AB-01 OF 01 SHEET NO. 2 OF 57

PLOTTED: $DATETIME$
FILE: $FILE$



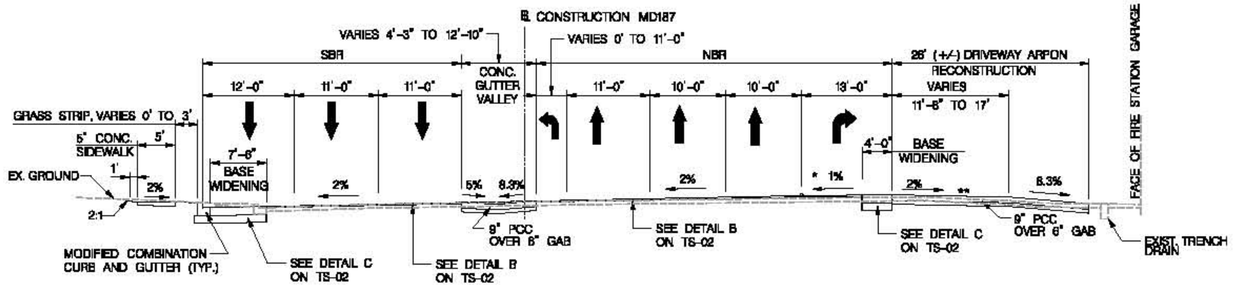
MD 187 STA 6+00 TO STA 8+17 (MATCHING EXISTING SLOPE) (SUPERELEVATED/NORMAL)

NOTE:
* RECONSTRUCTION OF SIDEWALK AND COMBINATION CURB AND GUTTER ALONG THE WEST SIDE OF MD 187 BEGINS AT STA. 7+12.60 LT AND EAST SIDE AT STA. 7+08.50 RT. FOR SECTIONS WHERE SIDEWALK AND C&G ARE NOT TO BE RECONSTRUCTED, USE PAVEMENT RESURFACING DETAIL B ON TS-02.



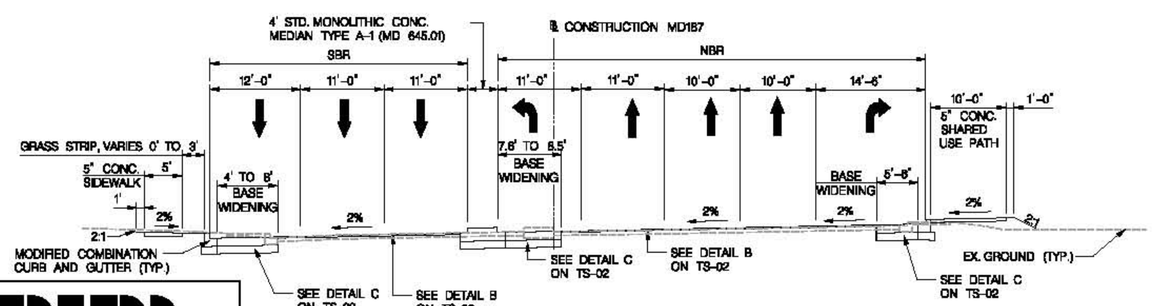
MD 187 STA 8+17 TO STA 11+80 (SUPERELEVATED)

NOTES:
* RECONSTRUCTION OF SIDEWALK AND COMBINATION CURB AND GUTTER ALONG THE WEST SIDE OF MD 187 STARTS FROM STA. 7+84.35 LT.
** PCC BUS PAD TO BE INSTALLED FROM STA 9+42 RT TO STA 10+22 RT. SEE PAVEMENT DETAIL G ON DWG. TS-02



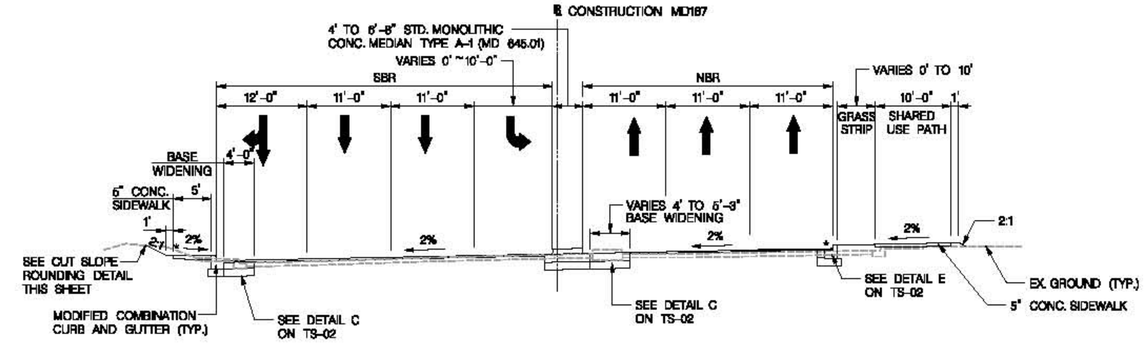
MD 187 STA 11+80 TO STA 12+44 (SUPERELEVATED)

NOTE:
* CROSS SLOPE ON NORTHBOUND RIGHT-TURN LANE TRANSITIONS FROM 2% TO 1% BETWEEN STA 11+80 AND STA 11+90.
**CROSS SLOPE TRANSITIONS FROM 2% TOWARD CURB TO 2% TOWARD FIRE STATION COMPLETE WITHIN THE ADJACENT RAMPS.



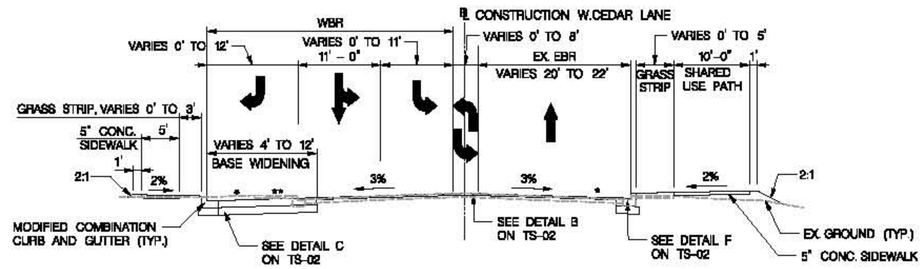
MD 187 STA 12+44 TO STA 13+68 (SUPERELEVATED)

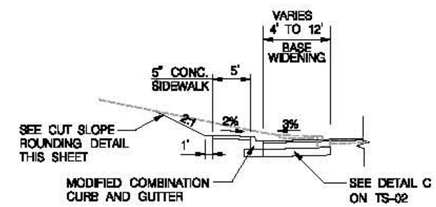
NOTE:
ALL DISTURBED AREAS WILL BE SODDED PER TURFGRASS SOD ESTABLISHMENT ITEM UNLESS OTHERWISE NOTED.



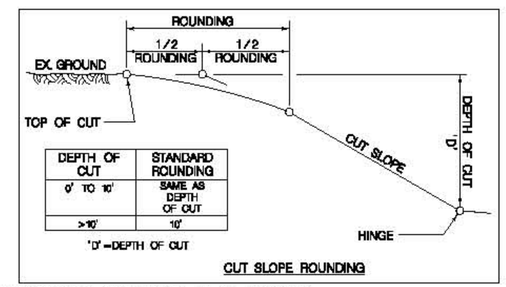
MD 187 STA 14+54 TO STA 17+26 (SUPERELEVATED)

NOTE:
* RECONSTRUCTION OF SIDEWALK RAMP AND COMBINATION CURB ANG GUTTER BETWEEN STA. 17+25 AND 18+09 SHALL BE IN ACCORDANCE WITH DETAIL E ON TS-02. SEE PS-02 FOR PLACEMENT OF SHARED USE PATH





STA 203+60 TO 204+25

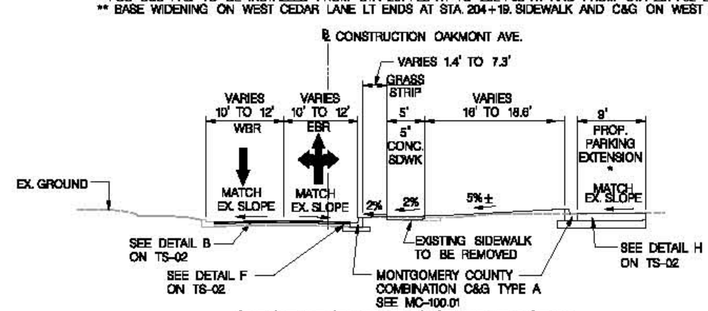


DEPTH OF CUT	STANDARD ROUNDING
0' TO 10'	SAME AS DEPTH OF CUT
>10'	10'

CUT SLOPE ROUNDING

WEST CEDAR LANE STA 200+50 TO 204+75 (SUPERELEVATED/NORMAL)

* PCC BUS PAD TO BE INSTALLED FROM STA 201+23 RT TO 202+03 RT AND FROM STA 201+92 LT TO 202+72 LT. SEE PAVEMENT DETAIL G ON DWG. TS-02
** BASE WIDENING ON WEST CEDAR LANE LT ENDS AT STA. 204+19. SIDEWALK AND C&G ON WEST CEDAR LANE WEST CONSTRUCTION ENDS AT STA. 204+24.50.



OAKMONT AVE. STA 198+73 TO STA 199+25 (NORMAL)

* SEE PS-02 FOR LOCATION AND LIMIT OF PROPOSED PARKING EXTENSION.

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

REVISIONS

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY HYDRAULICS DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE / OAKMONT AVENUE

TYPICAL SECTIONS

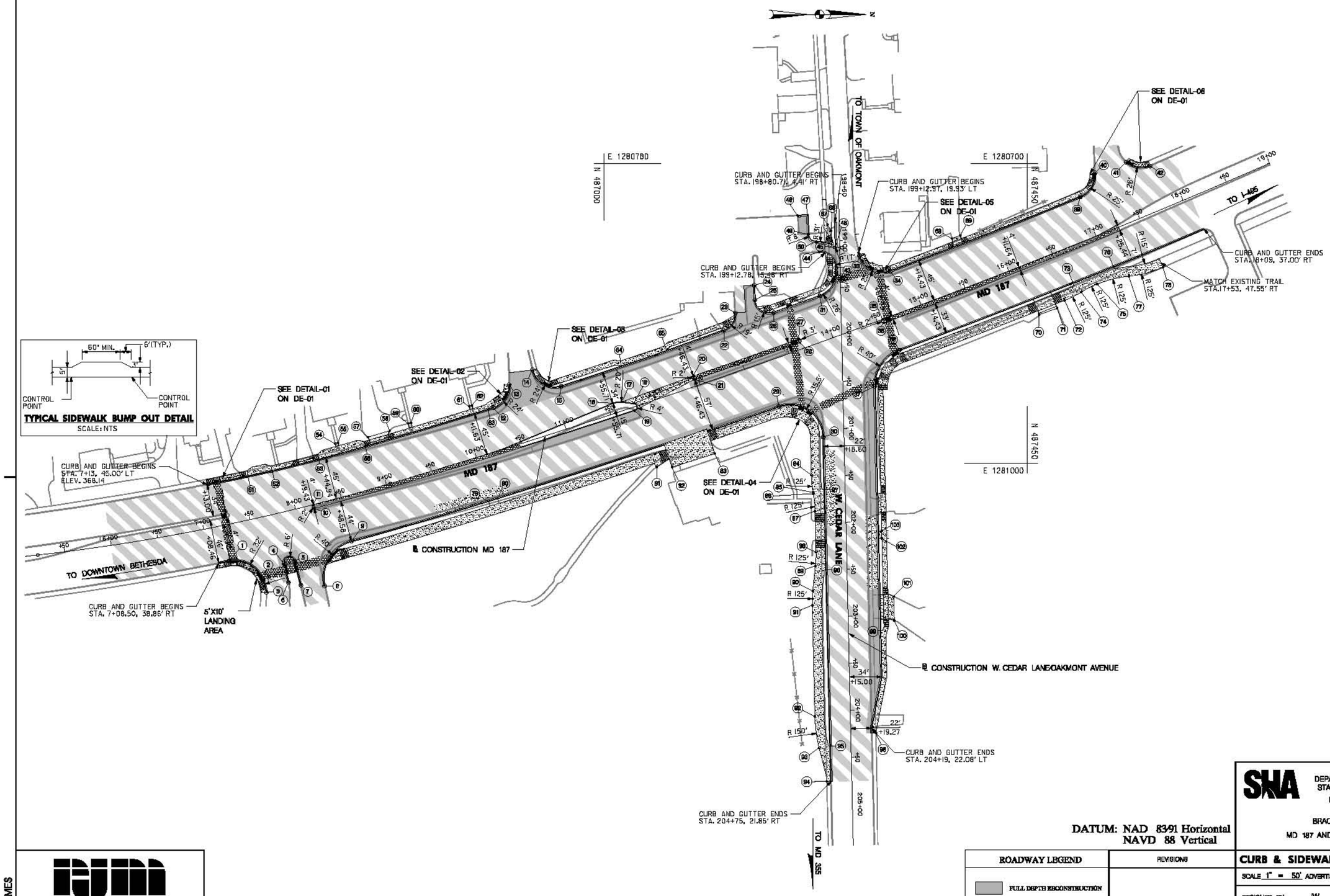
SCALE NTS ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY J.P.
DRAWN BY J.P.
CHECKED BY J.W.
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE _____

DRAWING NO. TS-01 OF 02 SHEET NO. 03 OF 67

PLOTTED: @DATETIME@
FILE: @FILE@

BY: $USERNAME$
BORDER REV: DATE: March 27, 2007
DRILL HOLES
DRILL HOLES
DRILL HOLES



DATUM: NAD 83/91 Horizontal
NAVD 88 Vertical

ROADWAY LEGEND	REVISIONS
FULL DEPTH RECONSTRUCTION	
PAVEMENT GRINDING & RESURFACING	
CONCRETE SIDEWALK / SHARED USE PATH / PCC BUS PAD	
DECORATIVE PAVEMENT	

PLOTTED: @DATETIME@
FILE: $FILE$

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAME$

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

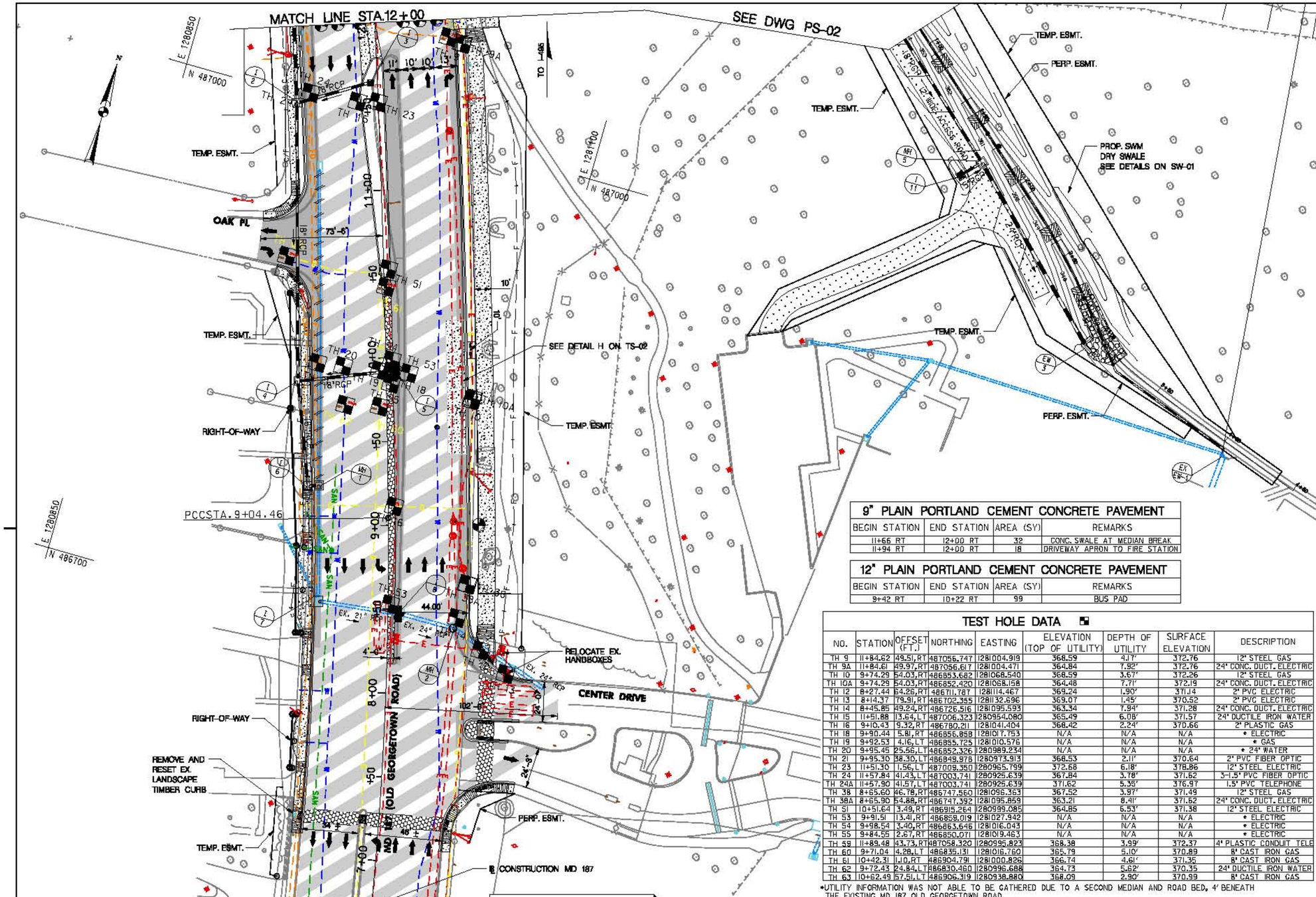
BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE / OAKMONT AVENUE

CURB & SIDEWALK / SHARED USE PATH GEOMETRY

SCALE 1" = 50' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY	JW	COUNTY	MONTGOMERY
DRAWN BY	STAG	LOGMILE	
CHECKED BY	JW	HORIZONTAL SCALE	
F.A.P. NO.	SEE TITLE SHEET	VERTICAL SCALE	

DRAWING NO. GS - 02 OF 04 SHEET NO. 07 OF 67



QUANTITY NOTES

5 INCH CONCRETE SIDEWALK

BEGIN STATION	END STATION	AREA (SF)
7+12, 46' LT	10+56, 63' LT	1967
10+86, 74' LT	12+00, 49' LT	650
7+08, 38' RT	7+50, 79' RT	325
8+19, 60' RT	11+94, 60' RT	3787

DETECTABLE WARNING SURFACE (MD STD 655.40)

STATION	OFFSET	AREA (SF)
7+24	46' LT	10
7+24	12' LT	10
7+24	6' LT	10
7+24	40' RT	13
7+50	62' RT	23
7+77	60' RT	20
7+85	60' RT	20
8+28	58' RT	35
10+52	55' LT	19
10+91	54' LT	18

NON-TRAFFIC BEARING DECORATIVE PORTLAND CEMENT CONCRETE MEDIANS

BEGIN STATION	END STATION	QUANTITY (SY)
8+17 RT	10+48 RT	106
7+76 RT	7+87 RT	16

TRAFFIC BEARING DECORATIVE CROSSWALKS

BEGIN STATION	END STATION	QUANTITY (SY)
7+19 LT & RT	7+27 LT & RT	71
7+50 RT	7+74 RT	27
7+88 RT	8+25 RT	37

MODIFIED COMBINATION CURB AND GUTTER (12" DEPTH)

BEGIN STATION	END STATION	LENGTH (LF)
7+08, 38' RT	7+50, 79' RT	72
7+13, 45' LT	10+60, 64' LT	350
7+74, 74' RT	7+88, 80' RT	69
8+10, 87' RT	11+94, 47' RT	412
10+46 TO 11+89 AROUND GRASS MEDIAN		270
10+84, 71' LT	12+00, 44' LT	130

REMOVAL OF EXISTING MASONRY

STATION	OFFSET	QUANTITY (CY)	REMARKS
11+15	35' LT	4	INLET

REMOVE EXISTING PIPE CULVERT

BEGIN STATION	END STATION	LENGTH (LF)	REMARKS
9+22, 41' LT	11+12, 37' LT	189	18" RCP

SIDEWALK RAMP

STATION	OFFSET	REFERENCE
7+24	46' LT	DETAIL-01, DE-01
7+24	9' LT	MD 655.21
7+24	40' RT	MD 655.12
7+50	62' RT	MD 655.12
8+25	58' RT	MD 655.11
10+50	55' LT	DETAIL-02, DE-01
10+94	54' LT	DETAIL-03, DE-01

DRIVEWAY ENTRANCE

BEGIN STATION	END STATION	REFERENCE
7+27 LT	7+56 LT	DETAIL-01, DE-01
8+09 LT	8+37 LT	MD 630.01
8+89 LT	9+22 LT	MD 630.01

GRINDING HMA PAVEMENT 0 TO 2 INCHES

BEGIN STATION	END STATION	AREA (SY)
6+00	12+00	5045

9" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

BEGIN STATION	END STATION	AREA (SY)	REMARKS
11+66 RT	12+00 RT	32	CONC. SWALE AT MEDIAN BREAK
11+94 RT	12+00 RT	18	DRIVEWAY APRON TO FIRE STATION

12" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

BEGIN STATION	END STATION	AREA (SY)	REMARKS
9+42 RT	10+22 RT	99	BUS PAD

TEST HOLE DATA

NO.	STATION	OFFSET (FT.)	NORTHING	EASTING	ELEVATION (TOP OF UTILITY)	DEPTH OF UTILITY	SURFACE ELEVATION	DESCRIPTION
TH 9	11+84.62	49.51, RT	487056.747	1281004.919	368.59	4.17'	372.76	12" STEEL GAS
TH 9A	11+84.61	49.97, RT	487056.617	1281004.471	364.84	7.92'	372.76	24" CONC. DUCT. ELECTRIC
TH 10	9+74.29	54.03, RT	486853.682	1281068.540	368.59	3.67'	372.26	12" STEEL GAS
TH 10A	9+74.29	54.03, RT	486852.420	1281068.158	364.48	7.71'	372.19	24" CONC. DUCT. ELECTRIC
TH 12	8+27.44	54.26, RT	486711.787	1281114.467	369.24	1.90'	371.14	2" PVC ELECTRIC
TH 13	8+14.37	79.91, RT	486702.345	1281132.696	369.07	1.45'	370.52	2" PVC ELECTRIC
TH 14	8+45.85	49.24, RT	486726.516	1281095.593	363.34	7.94'	371.28	24" CONC. DUCT. ELECTRIC
TH 15	11+51.88	13.64, LT	487006.323	1280954.080	365.49	6.08'	371.57	24" DUCTILE IRON WATER
TH 16	9+10.43	9.32, RT	486780.211	1281041.404	368.42	2.24'	370.66	2" PLASTIC GAS
TH 18	9+90.44	5.81, RT	486656.858	1281017.753	N/A	N/A	N/A	* ELECTRIC
TH 19	9+92.53	4.16, LT	486855.725	1281010.576	N/A	N/A	N/A	* GAS
TH 20	9+95.45	25.56, LT	486852.326	1280989.234	N/A	N/A	N/A	* 24" WATER
TH 21	9+95.30	38.30, LT	486849.978	1280973.913	368.53	2.11'	370.64	2" PVC FIBER OPTIC
TH 23	11+51.30	1.56, LT	487009.350	1280965.789	372.68	6.18'	378.86	12" STEEL ELECTRIC
TH 24	11+57.84	41.43, LT	487003.741	1280925.639	367.84	3.78'	371.62	3-1.5" PVC FIBER OPTIC
TH 24A	11+57.90	41.57, LT	487003.741	1280925.639	371.62	5.35'	376.97	1.5" PVC TELEPHONE
TH 38	8+65.60	46.78, RT	486747.560	1281096.363	367.52	3.97'	371.49	12" STEEL GAS
TH 38A	8+65.90	54.88, RT	486747.392	1281095.859	363.21	8.41'	371.62	24" CONC. DUCT. ELECTRIC
TH 51	10+51.64	3.49, RT	486915.264	1280999.085	364.85	6.53'	371.38	12" STEEL ELECTRIC
TH 53	9+91.51	13.41, RT	486859.019	1281027.942	N/A	N/A	N/A	* ELECTRIC
TH 54	9+98.54	3.40, RT	486863.646	1281016.043	N/A	N/A	N/A	* ELECTRIC
TH 55	9+84.55	2.67, RT	486850.071	1281019.463	N/A	N/A	N/A	* ELECTRIC
TH 59	11+89.48	43.73, RT	487058.320	1280995.823	368.38	3.99'	372.37	4" PLASTIC CONDUIT TELE
TH 60	9+71.04	4.28, LT	486835.131	1281016.750	365.79	5.10'	370.89	8" CAST IRON GAS
TH 61	10+42.31	1.10, RT	486904.791	1281000.826	366.74	4.61'	371.35	8" CAST IRON GAS
TH 62	9+72.43	24.84, LT	486830.460	1280996.688	364.73	5.62'	370.35	24" DUCTILE IRON WATER
TH 63	10+62.49	57.51, LT	486906.319	1280938.880	368.09	2.90'	370.99	8" CAST IRON GAS

*UTILITY INFORMATION WAS NOT ABLE TO BE GATHERED DUE TO A SECOND MEDIAN AND ROAD BED, 4' BENEATH THE EXISTING MD 187 OLD GEORGETOWN ROAD

NOTES:
1. FOR LIST OF TREES TO BE IMPACTED, SEE DRAWINGS EF-01 & EF-02.

DATUM: NAD 8391 Horizontal
NAVD 88 Vertical

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE / OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAMES

LEGEND
FULL DEPTH RECONSTRUCTION
PAVEMENT GRINDING & RESURFACING
CONCRETE SIDEWALK / SHARED USE PATH / PCC BUS PAD
DECORATIVE PAVEMENT
ACCESS ROAD

R/W PLAT NUMBER

CROSS REFERENCE

ITEM	SHEET NOs.
TYPICAL SHEETS	03
PAVEMENT AND SIDEWALK DETAILS	04-05
GEOMETRIC LAYOUT SHEETS	06-09
ROADWAY PLAN SHEETS	10-16
MAINTENANCE OF TRAFFIC	17-17
STORM WATER MANAGEMENT	18-22
EROSION & SEDIMENT CONTROL	23-29
LANDSCAPE PLAN SHEETS	29-32
TRAFFIC SIGNALIZATION PLAN	35-58
SIGNING & MARKING PLANS	60-68

REVISIONS

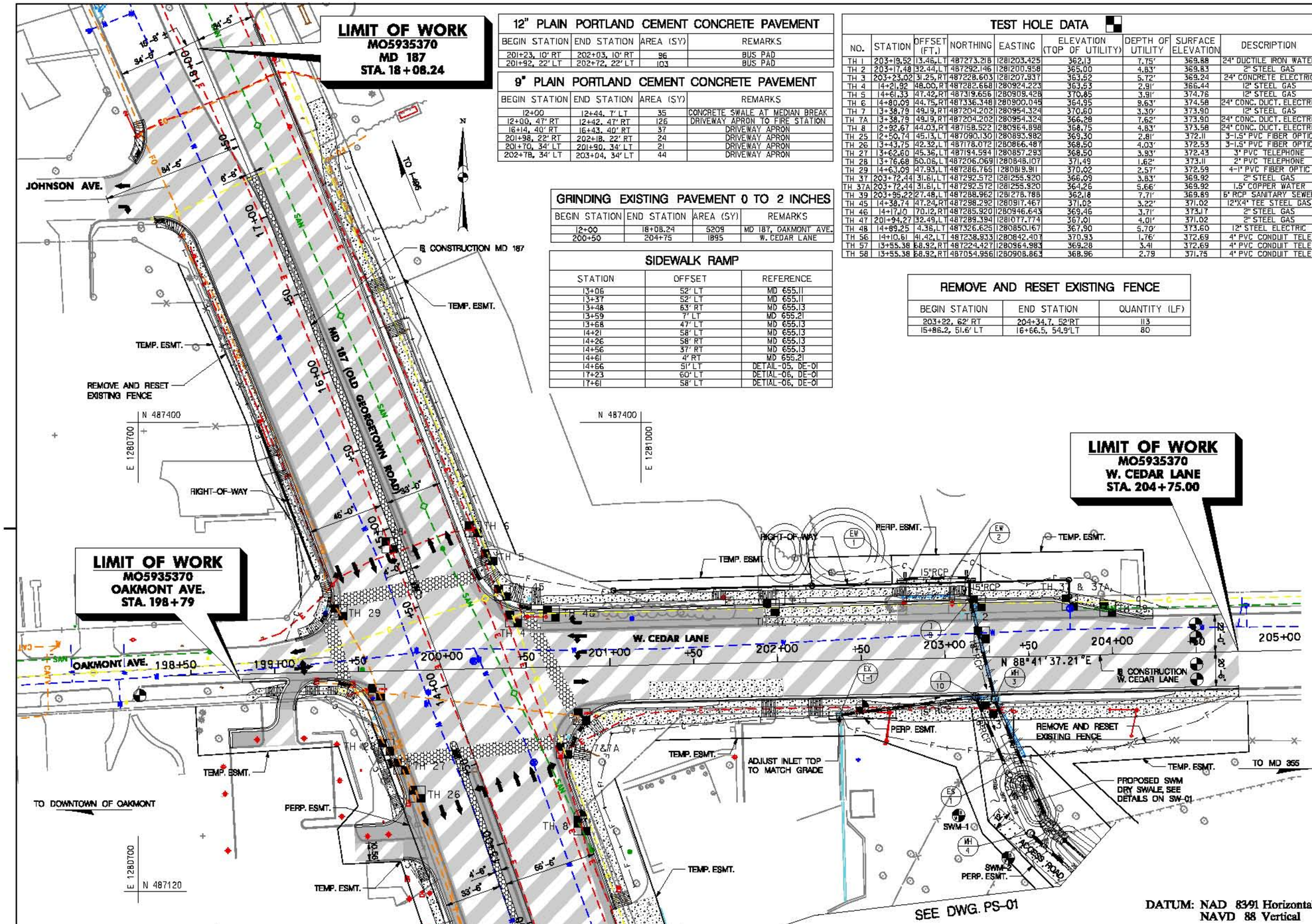
PLOTTED: $DATETIME$
FILE: $FILE$

ROADWAY PLAN

SCALE 1" = 20' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY JW
DRAWN BY ST
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE _____

DRAWING NO. PS-01 OF 02 SHEET NO. 10 OF 67



12" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

BEGIN STATION	END STATION	AREA (SY)	REMARKS
201+23, 10' RT	202+03, 10' RT	96	BUS PAD
201+92, 22' LT	202+72, 22' LT	103	BUS PAD

9" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

BEGIN STATION	END STATION	AREA (SY)	REMARKS
12+00	12+44, 7' LT	35	CONCRETE SWALE AT MEDIAN BREAK
12+00, 47' RT	12+42, 47' RT	126	DRIVEWAY APRON TO FIRE STATION
16+14, 40' RT	16+43, 40' RT	37	DRIVEWAY APRON
201+98, 22' RT	202+18, 22' RT	24	DRIVEWAY APRON
201+70, 34' LT	201+90, 34' LT	21	DRIVEWAY APRON
202+78, 34' LT	203+04, 34' LT	44	DRIVEWAY APRON

GRINDING EXISTING PAVEMENT 0 TO 2 INCHES

BEGIN STATION	END STATION	AREA (SY)	REMARKS
12+00	18+08.24	5209	MD 187, OAKMONT AVE.
200+50	204+75	1895	W. CEDAR LANE

SIDEWALK RAMP

STATION	OFFSET	REFERENCE
13+06	52' LT	MD 655.11
13+37	52' LT	MD 655.11
13+48	63' RT	MD 655.13
13+59	7' LT	MD 655.21
13+68	47' LT	MD 655.13
14+21	58' LT	MD 655.13
14+26	58' RT	MD 655.13
14+56	37' RT	MD 655.13
14+61	4' RT	MD 655.21
14+66	51' LT	DETAIL-05, DE-01
17+23	60' LT	DETIAL-06, DE-01
17+61	58' LT	DETIAL-06, DE-01

TEST HOLE DATA

NO.	STATION	OFFSET (FT.)	NORTHING	EASTING	ELEVATION (TOP OF UTILITY)	DEPTH OF UTILITY	SURFACE ELEVATION	DESCRIPTION
TH 1	203+19.52	13.46, LT	487273.218	1281203.425	362.13	7.75'	369.88	24" DUCTILE IRON WATER
TH 2	203+17.48	32.44, LT	487292.146	1281200.958	365.00	4.83'	369.83	2" STEEL GAS
TH 3	203+23.02	31.25, RT	487228.603	1281207.937	363.52	5.72'	369.24	24" CONCRETE ELECTRIC
TH 4	14+21.92	48.00, RT	487282.668	1280924.223	363.53	2.91'	366.44	12" STEEL GAS
TH 5	14+61.33	47.42, RT	487319.656	1280909.428	370.85	3.91'	374.76	12" STEEL GAS
TH 6	14+80.09	44.75, RT	487336.348	1280900.045	364.95	9.63'	374.58	24" CONC. DUCT. ELECTRIC
TH 7	13+38.79	49.19, RT	487204.202	1280954.324	370.60	3.30'	373.90	12" STEEL GAS
TH 7A	13+38.79	49.19, RT	487204.202	1280954.324	366.28	7.62'	373.90	24" CONC. DUCT. ELECTRIC
TH 8	12+32.67	44.03, RT	487158.522	1280964.898	368.75	4.83'	373.58	24" CONC. DUCT. ELECTRIC
TH 25	12+50.74	45.13, LT	487090.130	1280883.982	369.30	2.81'	372.11	3-1.5" PVC FIBER OPTIC
TH 26	13+43.75	42.32, LT	487178.072	1280866.487	368.50	4.03'	372.53	3-1.5" PVC FIBER OPTIC
TH 27	13+62.60	45.36, LT	487194.594	1280857.293	368.50	3.93'	372.43	3" PVC TELEPHONE
TH 28	13+76.68	50.06, LT	487206.069	1280848.107	371.49	1.62'	373.11	2" PVC TELEPHONE
TH 29	14+63.09	47.93, LT	487286.765	1280819.911	370.02	2.57'	372.59	4-1" PVC FIBER OPTIC
TH 37	203+72.44	31.61, LT	487292.572	1281256.820	366.09	3.83'	369.92	2" STEEL GAS
TH 37A	203+72.44	31.61, LT	487292.572	1281256.820	364.26	5.66'	369.92	1.5" COPPER WATER
TH 39	203+95.22	27.48, LT	487288.962	1281278.788	362.18	7.71'	369.89	6" RCP SANITARY SEWER
TH 45	14+38.74	47.24, RT	487298.292	1280917.467	371.02	3.22'	371.02	12"X4" TEE STEEL GAS
TH 46	14+17.40	70.12, RT	487285.920	1280946.643	369.46	3.71'	373.17	2" STEEL GAS
TH 47	201+94.27	32.49, LT	487289.394	1281077.774	367.01	4.01'	371.02	2" STEEL GAS
TH 48	14+89.25	4.36, LT	487326.625	1280850.167	367.90	5.70'	373.60	12" STEEL ELECTRIC
TH 56	14+10.61	41.42, LT	487238.933	1280842.407	370.83	1.76'	372.69	4" PVC CONDUIT TELE
TH 57	13+55.38	68.92, RT	487224.427	1280964.983	369.28	3.41	372.69	4" PVC CONDUIT TELE
TH 58	13+55.38	68.92, RT	487054.956	1280908.863	368.96	2.79	371.75	4" PVC CONDUIT TELE

REMOVE AND RESET EXISTING FENCE

BEGIN STATION	END STATION	QUANTITY (LF)
203+22, 62' RT	204+34.7, 52'RT	113
15+86.2, 51.6' LT	16+66.5, 54.9'LT	80

QUANTITY NOTES

5 INCH CONCRETE SIDEWALK

BEGIN STATION	END STATION	AREA (SF)
12+00 LT	13+09 LT	557
13+35 LT	199+13 RT	597
14+57 LT	17+24 LT	1430
17+81 LT	17+82 LT	111
198+83 RT	199+07 RT	128
200+60 LT	204+25 LT	2020
12+42 RT	204+75 RT	5016

DETECTABLE WARNING SURFACE (MD 655.40)

STATION	OFFSET	WARNING SURFACE (SF)
13+60	7' LT	10
13+60	11' LT	10
13+43	60' RT	12
13+50	67' RT	12
13+68	47' LT	10
14+21	58' LT	14
14+28	59' RT	15
14+56	40' RT	15
14+61	4' RT	10
14+61	0' RT	10
14+63	55' LT	12
14+71	48' LT	12
17+22	60' LT	12
17+62	58' LT	12

NON TRAFFIC BEARING DECORATIVE PORTLAND CEMENT CONCRETE MEDIANS

BEGIN STATION	END STATION	QUANTITY (SY)
12+44 LT	13+68 LT	55
14+54 RT	17+02 RT	124

TRAFFIC BEARING DECORATIVE CROSSWALKS

BEGIN STATION	END STATION	QUANTITY (SY)
13+42 LT & RT	13+71 LT & RT	90
13+50 RT	14+27 RT	67
14+21 LT	14+76 LT	34
14+51 LT & RT	14+74 LT & RT	73

REMOVAL OF EXISTING MASONRY

STATION	OFFSET	QUANTITY (CY)	REMARKS
202+75	37' LT	0.45	ENDWALL
203+04	37' LT	0.45	ENDWALL
203+18	35' LT	0.59	ENDWALL
203+16	23' LT	2.50	INLET
199+30	36' RT	2.00	EX. WALL

REMOVE EXISTING PIPE CULVERT

BEGIN STATION	END STATION	LENGTH (LF)	REMARKS
202+75, 37' LT	203+04, 37' LT	29	12" RCP
203+18, 35' LT	203+19, 26' LT	10	15" RCP
203+19, 23' LT	203+29, 23' RT	47	15" RCP
203+30, 25' RT	203+46, 60' RT	39	15" RCP

MODIFIED COMBINATION CURB AND GUTTER(12" DEPTH)

BEGIN STATION	END STATION	LENGTH (LF)
12+00, 44' LT	13+11, 60' LT	117
13+39, 81' LT	199+12, 22' RT	165
198+73, 44' RT	198+81, 4' RT	92
199+13, 20' RT	17+24, 62' LT	298
17+59, 61' LT	17+82, 47' LT	28
18+09, 37' RT	204+19, 22' RT	762
12+42, 49' RT	204+75, 22' RT	514

DRIVEWAY ENTRANCE

BEGIN STATION	END STATION	REFERENCE
11+86 RT	12+50 RT	MD 630.02
15+49 LT	15+71 LT	MD 630.01
16+06 RT	16+41 RT	MD 630.02
201+62 LT	201+98 LT	MD 630.02
201+90 RT	202+26 RT	MD 630.01
202+70 LT	203+12 LT	MD 630.02

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE / OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAME$

LEGEND

- FULL DEPTH RECONSTRUCTION
- PAVEMENT GRINDING & RESURFACING
- CONCRETE SIDEWALK / SHARED USE PATH / PCC BUS PAD
- DECORATIVE PAVEMENT
- ACCESS ROAD

R / W PLAT NUMBER

CROSS REFERENCE

ITEM	SHEET NOs.
TYPICAL SHEETS	03
PAVEMENT AND SIDEWALK DETAILS	04-05
GEOMETRIC LAYOUT SHEETS	06-08
ROADWAY PLAN SHEETS	09-10
MAINTENANCE OF TRAFFIC	11-17
STORM WATER MANAGEMENT	18-22
EROSION & SEDIMENT CONTROL	23-28
LANDSCAPE PLAN SHEETS	29-32
TRAFFIC SIGNALIZATION PLAN	35-62
SIGNING & MARKING PLANS	63-68

REVISIONS

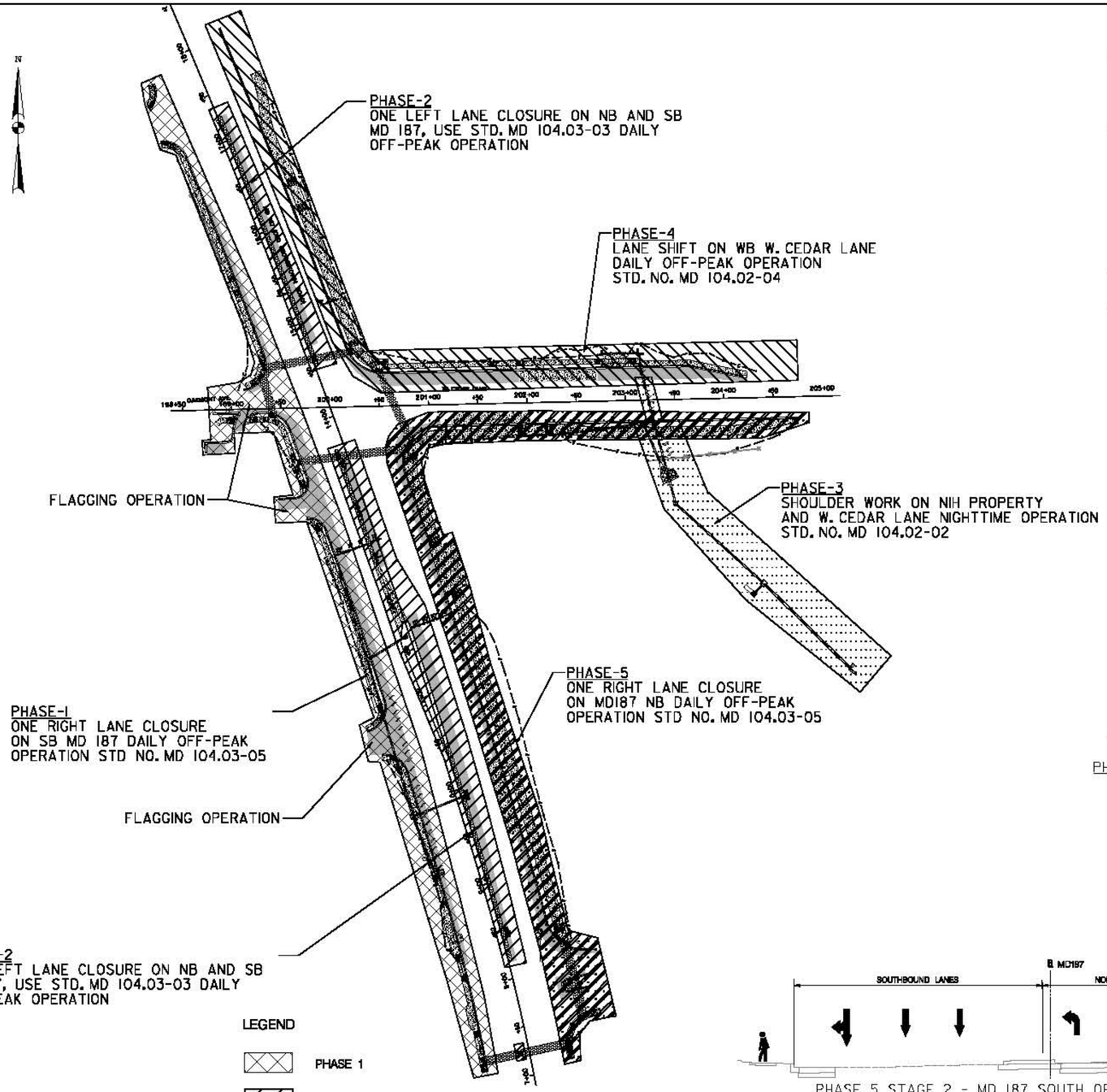
PLOTTED: $DATETIME$
FILE: $FILE$

ROADWAY PLAN

SCALE 1" = 20' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY JW — COUNTY MONTGOMERY
DRAWN BY ST — LOGMILE
CHECKED BY JW — HORIZONTAL SCALE
F.A.P. NO. SEE TITLE SHEET — VERTICAL SCALE

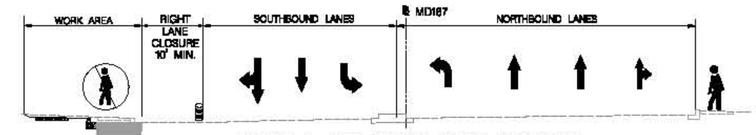
DRAWING NO. PS-02 OF 02 — SHEET NO. 11 OF 67



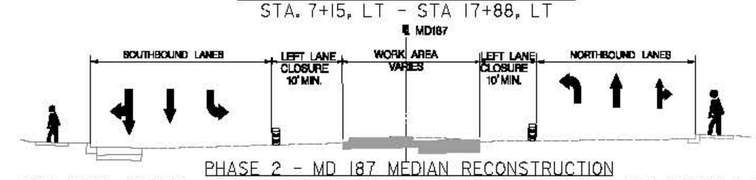
LEGEND

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5
- FULL-DEPTH RECONSTRUCTION

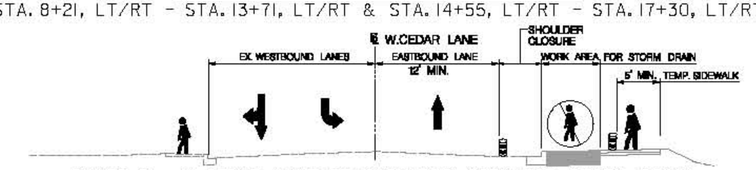
MOT TYPICALS



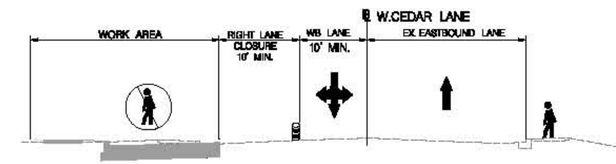
PHASE 1 - MD 187 SB BASE WIDENING
STA. 7+15, LT - STA 17+88, LT



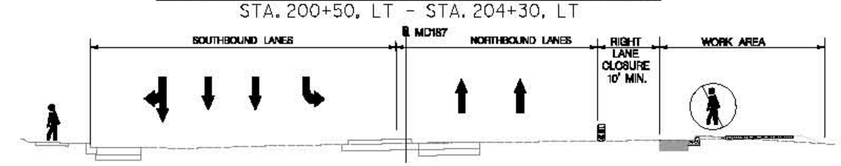
PHASE 2 - MD 187 MEDIAN RECONSTRUCTION
STA. 8+21, LT/RT - STA. 13+71, LT/RT & STA. 14+55, LT/RT - STA. 17+30, LT/RT



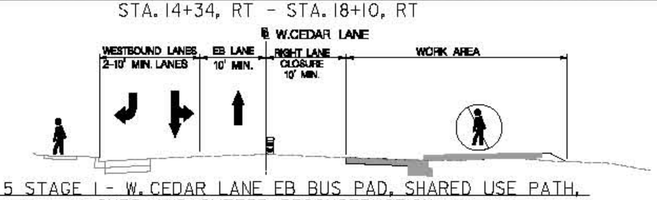
PHASE 3 - W. CEDAR LANE EB SHOULDER WORK FOR STORM DRAIN
STA. 203+09, RT - STA. 203+54, RT



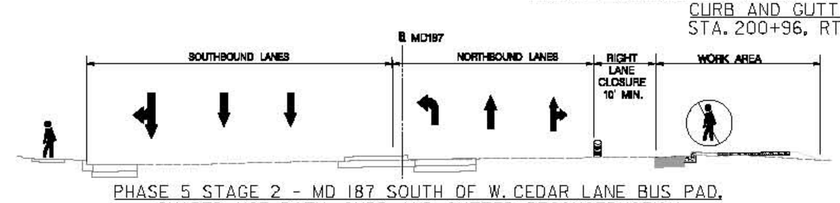
PHASE 4 STAGE 1 - W. CEDAR LANE WB BASE WIDENING
STA. 200+50, LT - STA. 204+30, LT



PHASE 4 STAGE 2 - MD 187 NORTH OF W. CEDAR LANE NB SHOULDER RECONSTRUCTION
STA. 14+34, RT - STA. 18+10, RT



PHASE 5 STAGE 1 - W. CEDAR LANE EB BUS PAD, SHARED USE PATH, CURB AND GUTTER RECONSTRUCTION
STA. 200+96, RT - STA. 204+80, RT



PHASE 5 STAGE 2 - MD 187 SOUTH OF W. CEDAR LANE BUS PAD, SHARED USE PATH, CURB AND GUTTER RECONSTRUCTION
STA. 7+11, RT - STA. 13+53, RT

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAME$

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

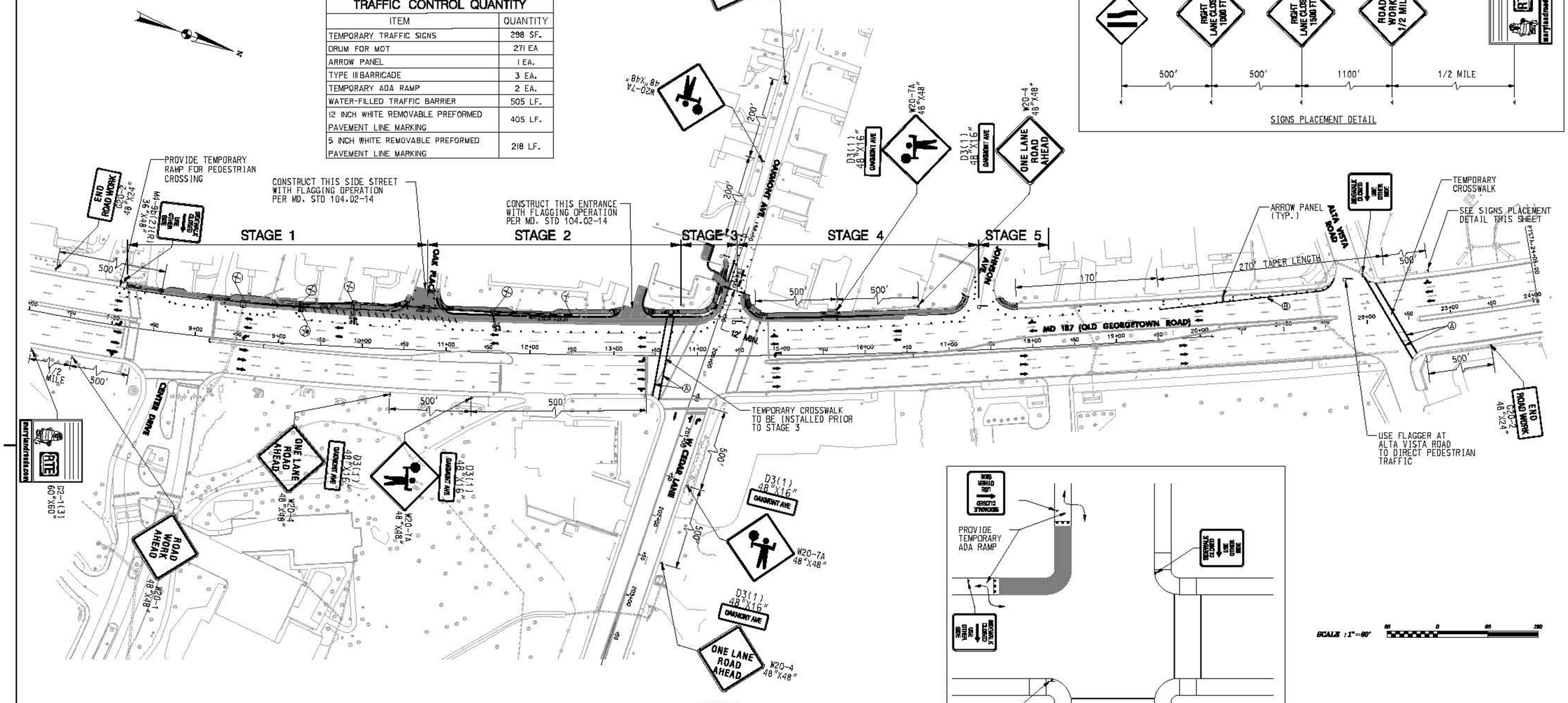
REVISIONS

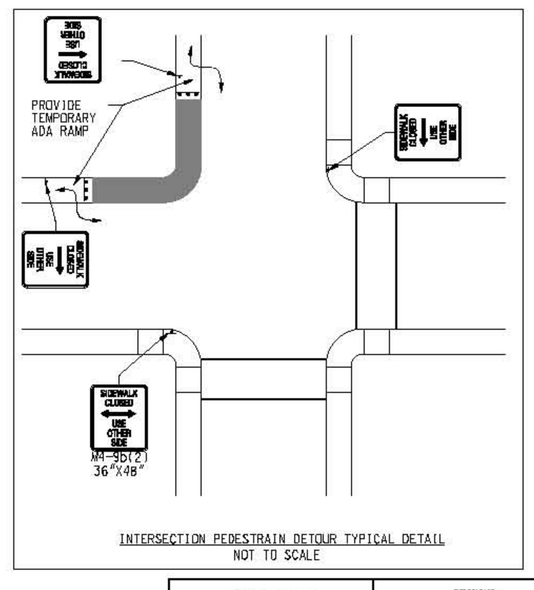
TRAFFIC CONTROL – KEY PLAN

SCALE NTS	DATE APRIL 20, 2010	CONTRACT NO. MO5935370	
DESIGNED BY JW		COUNTY MONTGOMERY	
DRAWN BY AG		LOG MILE	
CHECKED BY JW			
F.A.P. NO. SEE TITLE SHEET			
DRAWING NO. MT-01	OF 07	SHEET NO. 12	OF 57

PLOTTED: #DATETIME#
FILE: #FILE#

TRAFFIC CONTROL QUANTITY	
ITEM	QUANTITY
TEMPORARY TRAFFIC SIGNS	298 SF.
DRUM FOR MOT	271 EA
ARROW PANEL	1 EA.
TYPE III BARRICADE	3 EA.
TEMPORARY ADA RAMP	2 EA.
WATER-FILLED TRAFFIC BARRIER	505 LF.
12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	405 LF.
5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	218 LF.





INTERSECTION PEDESTRAIN DETOUR TYPICAL DETAIL
NOT TO SCALE

SCALE :1"=80'

LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- TRAFFIC DRUM
- WORK AREA
- FLAGGER
- TYPE III BARRICADE
- (A) 12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (B) 6 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (C) 5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (D) 6 INCH WHITE REMOVABLE PREFORMED SKIP 10 30 (STANDARD TRACK) PAVEMENT LINE MARKING
- (E) 6 INCH WHITE REMOVABLE PREFORMED SKIP 3 9 (PUPPY TRACK) PAVEMENT LINE MARKING
- (F) 24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING

NOTES:

1. STAGES 1,2 & 3 SHALL BE BUILT CONSECUTIVELY IN THE NUMERAL ORDER.
2. NO TWO ADJACENT STAGES SHALL BE BUILT CONCURRENTLY.
3. PEDESTRIAN TRAFFIC SHALL BE DIRECTED AT EACH AFFECTED INTERSECTION DURING EACH STAGE PER THE PEDESTRIAN DETOUR TYPICAL DETAIL ON THIS SHEET AND MD SHA STD. MD 104.06-5A AND MD 104.06-5C.
4. REMOVE EXISTING CROSSWALK MARKING PRIOR TO PLACING TEMPORARY CROSSWALK WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER.

PHASE 1 – MD 187 SOUTHBOUND
DAILY OFF-PEAK OPERATION

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

R/W PLAT NUMBER	REVISIONS

MAINTENANCE OF TRAFFIC

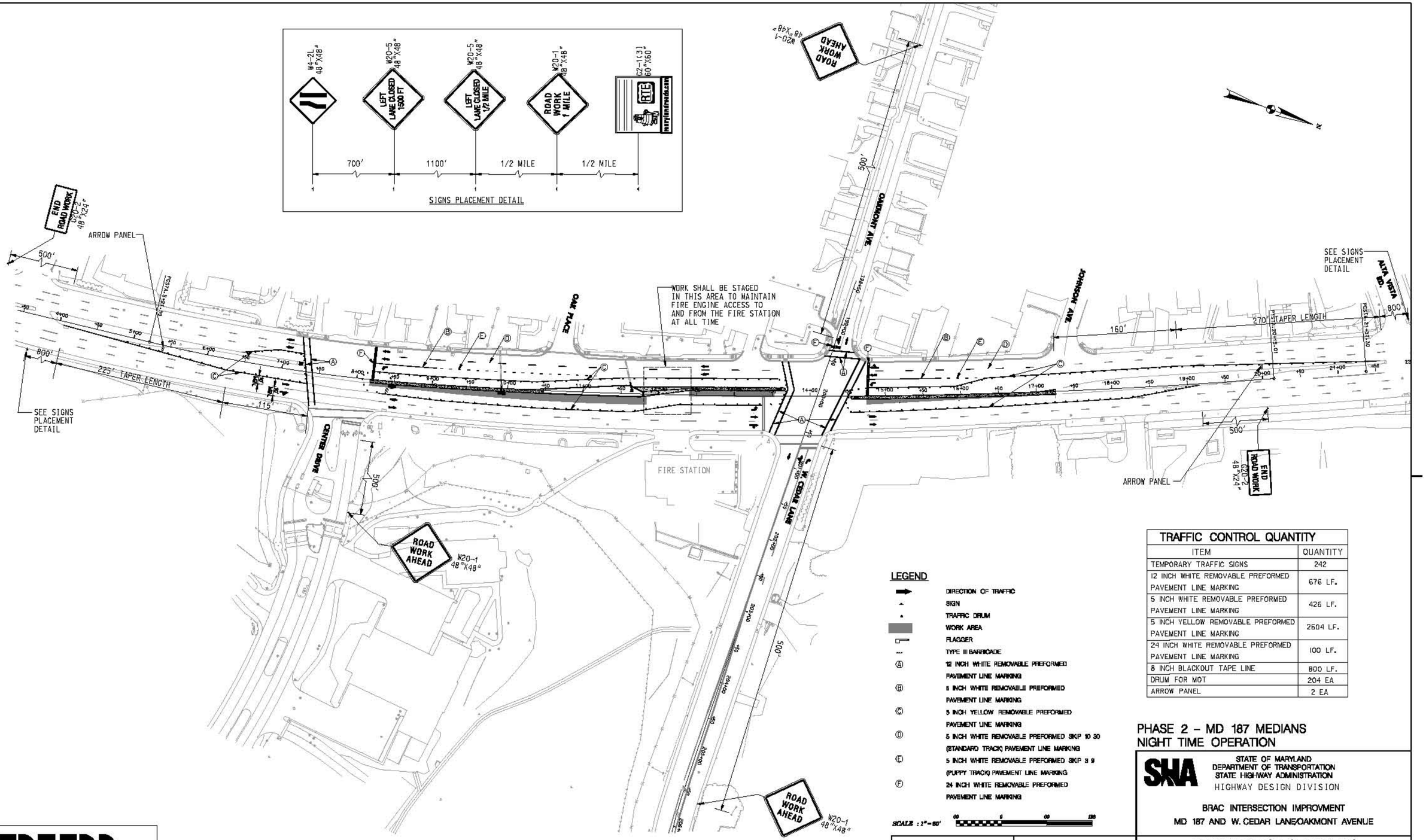
SCALE 1" = 80' DATE CONTRACT NO. MO5935370

DESIGNED BY J.P. COUNTY MONTGOMERY
DRAWN BY A.G. LOGMILE
CHECKED BY J.W.
F.A.P. NO. SEE TITLE SHEET

DRAWING NO. MT-03 OF 07 SHEET NO. 14 OF 57

PLOTTED: #DATETIME#
FILE: #FILE#

BY: $USERNAME$



LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- TRAFFIC DRUM
- WORK AREA
- FLAGGER
- TYPE III BARRICADE
- (A) 12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (B) 5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (C) 5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (D) 5 INCH WHITE REMOVABLE PREFORMED SKIP 10 30 (STANDARD TRACK) PAVEMENT LINE MARKING
- (E) 5 INCH WHITE REMOVABLE PREFORMED SKIP 3 9 (PUPPY TRACK) PAVEMENT LINE MARKING
- (F) 24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING

SCALE : 1"=60' 60 0 60 120

TRAFFIC CONTROL QUANTITY	
ITEM	QUANTITY
TEMPORARY TRAFFIC SIGNS	242
12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	676 LF.
5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	426 LF.
5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING	2604 LF.
24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	100 LF.
8 INCH BLACKOUT TAPE LINE	800 LF.
DRUM FOR MOT	204 EA
ARROW PANEL	2 EA

NOTES:
1. REMOVE EXISTING CROSSWALK MARKING PRIOR TO PLACING TEMPORARY CROSSWALK WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER.

PHASE 2 – MD 187 MEDIANS
NIGHT TIME OPERATION

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

R/W PLAT NUMBER	REVISIONS

MAINTENANCE OF TRAFFIC

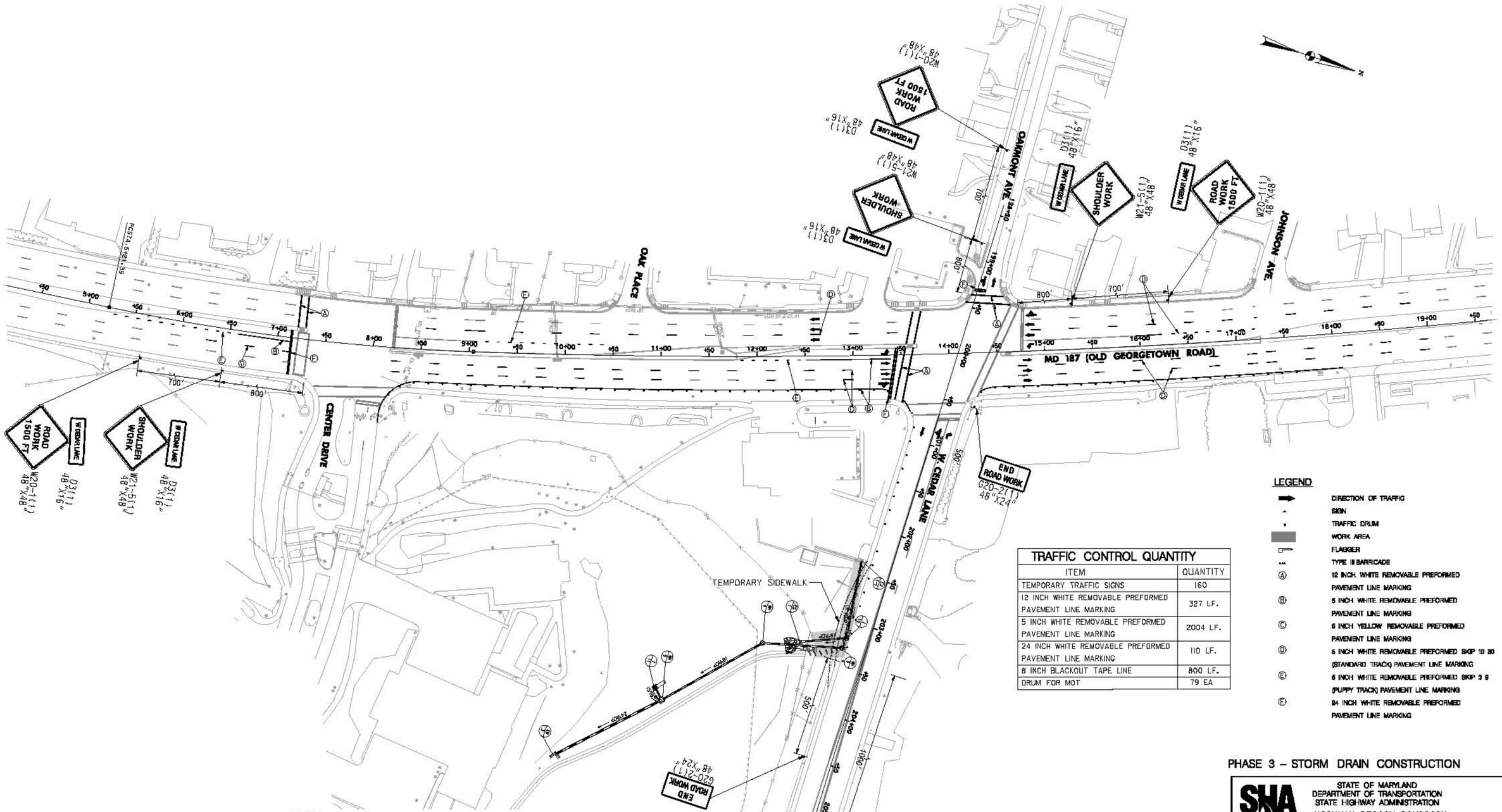
SCALE 1" = 60' DATE _____ CONTRACT NO. MO5935370

DESIGNED BY JP
DRAWN BY AG
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE _____

DRAWING NO. MT-04 OF 07 SHEET NO. 15 OF 57

PLOTTED: $DATETIME$
FILE: $FILE$

BY: $USERNAME$



TRAFFIC CONTROL QUANTITY

ITEM	QUANTITY
TEMPORARY TRAFFIC SIGNS	160
12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	327 LF.
5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	2004 LF.
24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	110 LF.
8 INCH BLACKOUT TAPE LINE	800 LF.
DRUM FOR MOT	79 EA

LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- TRAFFIC DRUM
- WORK AREA
- FLAGGER
- TYPE III BARRICADE
- (A) 12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (B) 5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (C) 6 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (D) 6 INCH WHITE REMOVABLE PREFORMED SKIP 10 30 (STANDARD TRACK) PAVEMENT LINE MARKING
- (E) 6 INCH WHITE REMOVABLE PREFORMED SKIP 3 9 (PUPPY TRACK) PAVEMENT LINE MARKING
- (F) 24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING

NOTES:

1. TEMPORARY SIDEWALK IS TO BE PROVIDED ALONG THE SOUTH SIDE OF W. CEDAR LANE AT THE STORM DRAIN CONSTRUCTION TO CONNECT PEDESTRIAN TRAFFIC WITH EXISTING SIDEWALK. THE TEMPORARY SIDEWALK SHALL HAVE A RUNNING SLOPE OF 12:1 MAX AND A CROSS SLOPE OF 48:1 MAX.
2. TEMPORARY SIDEWALK WILL NOT BE MEASURED AND PAID BUT THE COST WILL BE INCIDENTAL TO THE LUMP SUM PAYMENT OF MAINTENACE OF TRAFFIC.
3. PEDESTRIAN TRAFFIC SHALL BE DIRECTED AT EACH AFFECTED LOCATION DURING EACH STAGE PER THE PEDESTRIAN DETOUR TYPICAL DETAIL ON THIS SHEET AND MD SHA STD. MD 104.06-5A AND MD 104.06-5C.
4. REMOVE EXISTING CROSSWALK MARKING PRIOR TO PLACING TEMPORARY CROSSWALK WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER.

PHASE 3 – STORM DRAIN CONSTRUCTION

SHA STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

R/W PLAT NUMBER	REVISIONS

MAINTENANCE OF TRAFFIC

SCALE 1" = 50' DATE _____ CONTRACT NO. MO6936370

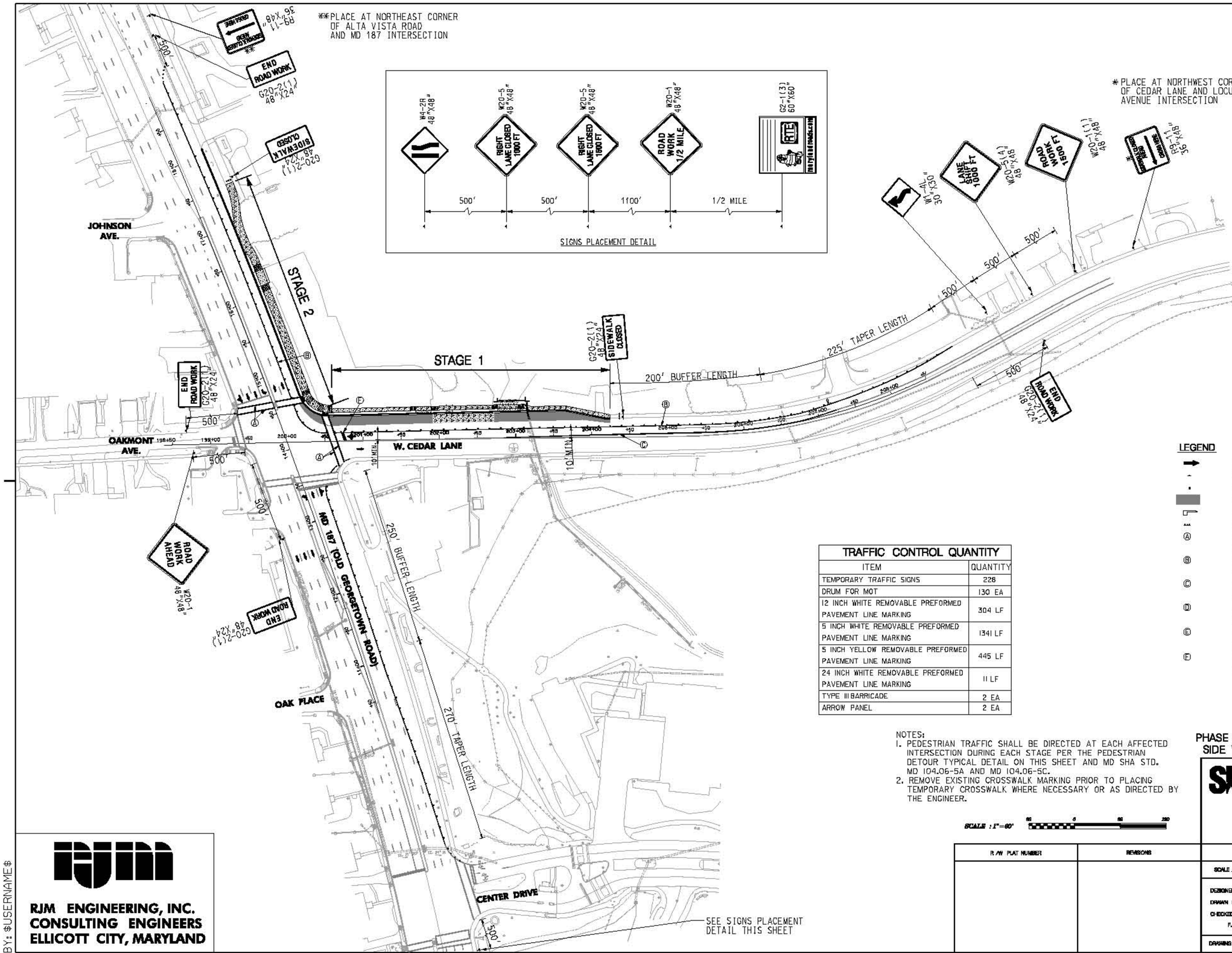
DESIGNED BY JW
DRAWN BY AG
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE _____

DRAWING NO. MT-05 OF 07 SHEET NO. 16 OF 57

PLOTTED: $DATETIME$
FILE: $FILE$

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

BY: $USERNAME$



TRAFFIC CONTROL QUANTITY

ITEM	QUANTITY
TEMPORARY TRAFFIC SIGNS	228
DRUM FOR MOT	130 EA
12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	304 LF
5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	1341 LF
5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING	445 LF
24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	11 LF
TYPE III BARRICADE	2 EA
ARROW PANEL	2 EA

LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- TRAFFIC DRUM
- WORK AREA
- FLAGGER
- TYPE III BARRICADE
- (A) 12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (B) 5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (C) 5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (D) 5 INCH WHITE REMOVABLE PREFORMED SKIP 10 30 (STANDARD TRACK) PAVEMENT LINE MARKING
- (E) 5 INCH WHITE REMOVABLE PREFORMED SKIP 3 9 (PUPPY TRACK) PAVEMENT LINE MARKING
- (F) 24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING

NOTES:
1. PEDESTRIAN TRAFFIC SHALL BE DIRECTED AT EACH AFFECTED INTERSECTION DURING EACH STAGE PER THE PEDESTRIAN DETOUR TYPICAL DETAIL ON THIS SHEET AND MD SHA STD. MD 104.06-5A AND MD 104.06-5C.
2. REMOVE EXISTING CROSSWALK MARKING PRIOR TO PLACING TEMPORARY CROSSWALK WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER.

SCALE : 1"=60'

PHASE 4 – WESTBOUND SIDE W. CEDAR LANE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

R/W PLAT NUMBER	REVISIONS

MAINTENANCE OF TRAFFIC

SCALE 1" = 60' DATE CONTRACT NO. MO5935370

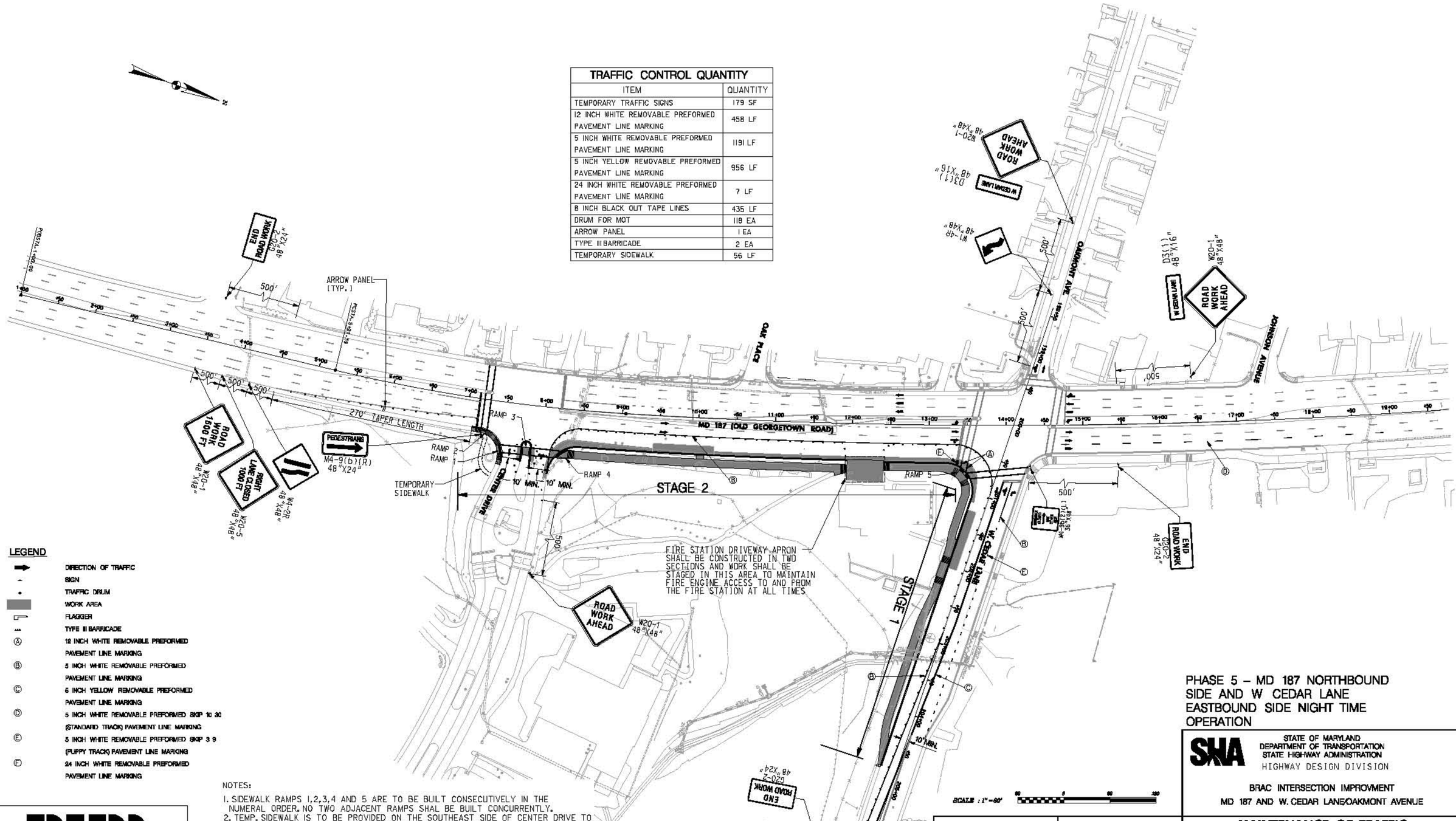
DESIGNED BY JP
DRAWN BY AG
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOG MILE

DRAWING NO. MT-06 OF 07 SHEET NO. 17 OF 57

PLOTTED: $DATETIME$
FILE: $FILE$

BY: $USERNAME$

TRAFFIC CONTROL QUANTITY	
ITEM	QUANTITY
TEMPORARY TRAFFIC SIGNS	179 SF
12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	458 LF
5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	1191 LF
5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING	956 LF
24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING	7 LF
8 INCH BLACK OUT TAPE LINES	435 LF
DRUM FOR MOT	118 EA
ARROW PANEL	1 EA
TYPE III BARRICADE	2 EA
TEMPORARY SIDEWALK	56 LF



LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- TRAFFIC DRUM
- WORK AREA
- FLAGGER
- TYPE III BARRICADE
- (A) 12 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (B) 5 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (C) 5 INCH YELLOW REMOVABLE PREFORMED PAVEMENT LINE MARKING
- (D) 5 INCH WHITE REMOVABLE PREFORMED SKIP 10 30 (STANDARD TRACK) PAVEMENT LINE MARKING
- (E) 5 INCH WHITE REMOVABLE PREFORMED SKIP 3 9 (PUPPY TRACK) PAVEMENT LINE MARKING
- (F) 24 INCH WHITE REMOVABLE PREFORMED PAVEMENT LINE MARKING

NOTES:

1. SIDEWALK RAMPS 1,2,3,4 AND 5 ARE TO BE BUILT CONSECUTIVELY IN THE NUMERAL ORDER. NO TWO ADJACENT RAMPS SHAL BE BUILT CONCURRENTLY.
2. TEMP. SIDEWALK IS TO BE PROVIDED ON THE SOUTHEAST SIDE OF CENTER DRIVE TO CONNECT PEDESTRIAN TRAFFIC TO THE EXISTING SIDEWALK EAST OF RAMP 1 DURING THE CONSTRUCTION OF RAMP 1. THE TEMPORARY SIDEWALK SHALL HAVE A RUNNING SLOPE OF 12:1 MAX AND A CROSS SLOPE OF 48:1 MAX. TEMP. SIDEWALK WILL NOT BE MEASURED AND PAID BUT THE COST WILL BE INCIDENTAL TO THE LUMP SUM PAYMENT OF MAINTENANCE OF TRAFFIC.
3. PEDESTRIAN TRAFFIC SHALL BE DIRECTED AT EACH AFFECTED INTERSECTION DURING EACH STAGE PER THE PEDESTRIAN DETOUR TYPICAL DETAIL ON THIS SHEET AND MD SHA STD. MD 104.06-5A AND MD 104.06-5C.
4. REMOVE EXISTING CROSSWALK MARKING PRIOR TO PLACING TEMPORARY CROSSWALK WHERE NECESSARY OR AS DIRECTED BY THE ENGINEER.

*PLACE AT SOUTHWEST CORNER OF CEDAR LANE AND LOCUST AVENUE INTERSECTION

PHASE 5 – MD 187 NORTHBOUND SIDE AND W CEDAR LANE EASTBOUND SIDE NIGHT TIME OPERATION

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVMENT
MD 187 AND W. CEDAR LANE/OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

R/W PLAT NUMBER	REVISIONS

MAINTENANCE OF TRAFFIC

SCALE 1" = 60' DATE _____ CONTRACT NO. MO5935370

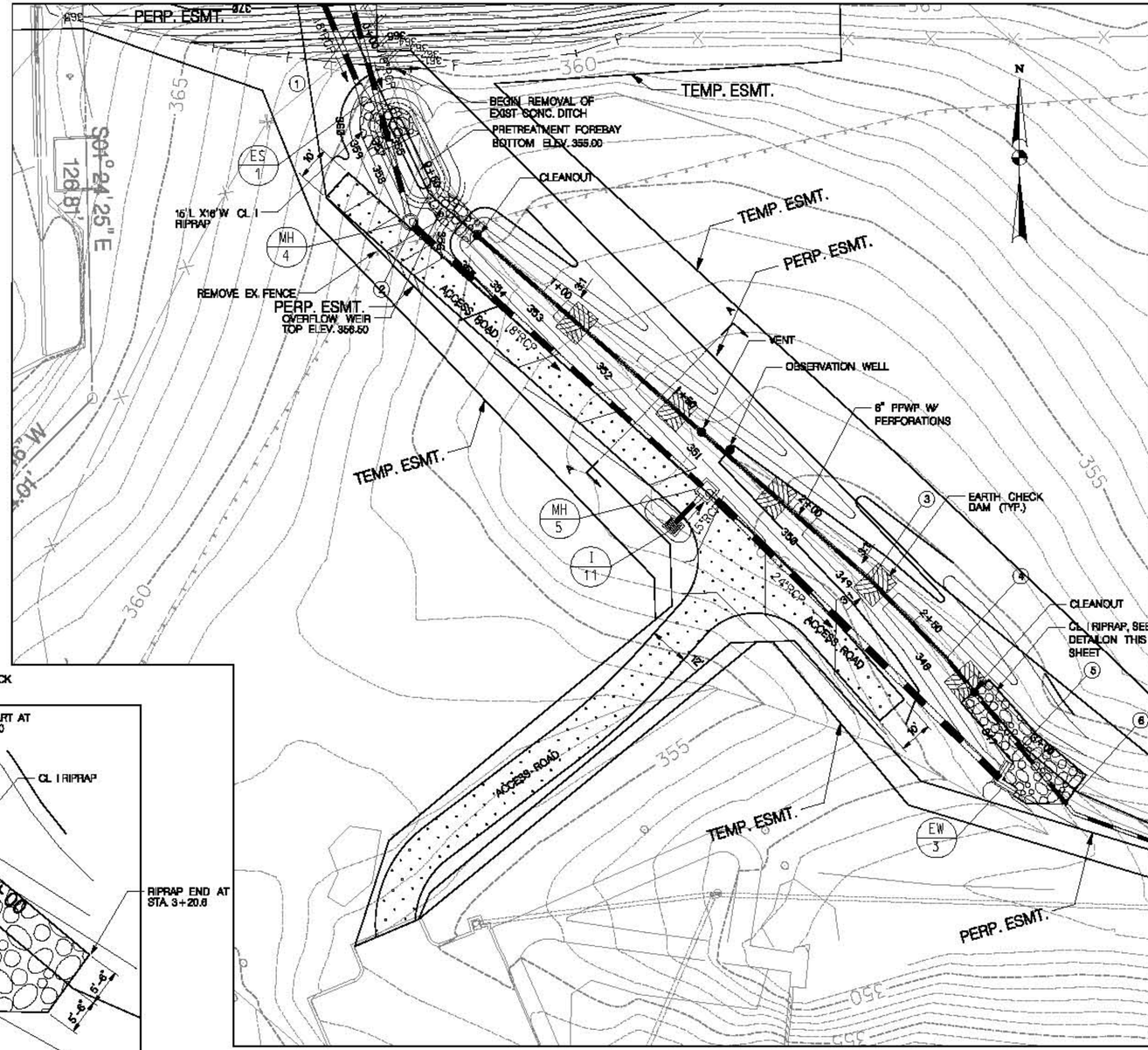
DESIGNED BY J.P. COUNTY MONTGOMERY
DRAWN BY A.G. LOG/MILE _____
CHECKED BY J.W.
F.A.P. NO. SEE TITLE SHEET

DRAWING NO. MT - 07 OF 07 SHEET NO. 18 OF 57

PLOTTED: $DATETIME$
FILE: $FILE$

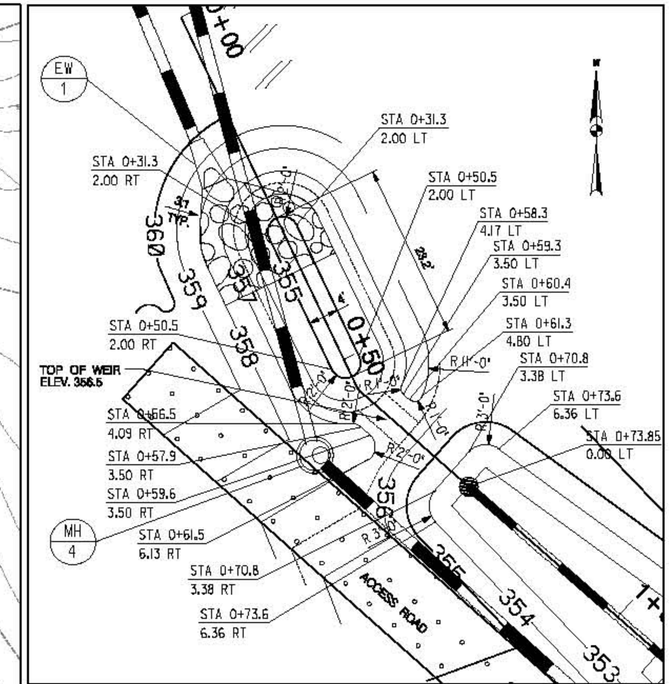
BY: $USERNAME$

GEOMETRIC DATA FOR ℄ DRY SWALE				
POINT NO.	℄ DRY SWALE STATION	℄ W. CEDAR LANE STATION	℄ W. CEDAR LANE OFFSET	REMARKS
1	0+00	203+32.36	47.56' RT	-
2	0+54.42	203+54.61	97.23' RT	-
3	2+31.76	204+85.29	217.12' RT	-
4	2+64.75	205+7.76	241.27' RT	-
5	2+99.79	205+30.11	268.25' RT	-
6	3+21.50	205+45.60	282.60' RT	-
7	3+49.82	205+63.78	294.89' RT	-
8	4+50	206+26.43	338.21' RT	-
	0+00	203+32.36	47.56' RT	-
	0+50	203+52.80	93.19' RT	-
	1+00	203+88.20	128.04' RT	-
	1+50	204+25.04	161.85' RT	-
	2+00	204+61.89	195.64' RT	-
	2+50	204+97.71	230.46' RT	-
	3+00	205+30.27	268.39' RT	-
	3+50	205+63.90	294.96' RT	-
	4+00	205+95.82	315.60' RT	-
	4+50	206+26.43	338.21' RT	-



DRY SWALE GRADING PLAN

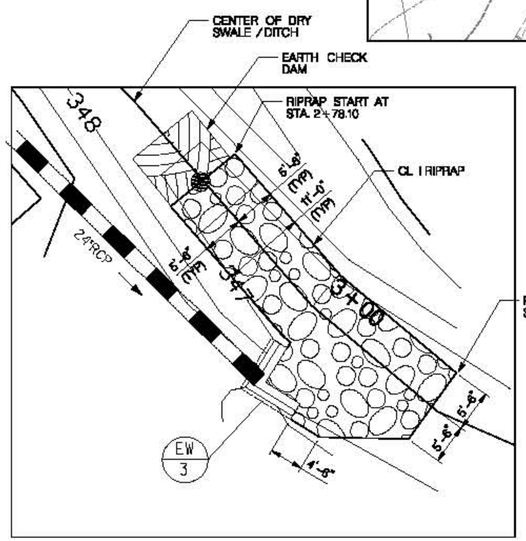
SCALE 1"=20'



PRETREATMENT FOREBAY GEOMETRIC LAYOUT

SCALE 1"=10'

NOTE:
STATIONS AND OFFSETS ARE FROM CENTER LINE OF DRY SWALE.



RIPRAP DETAIL

SCALE 1"=10'

NOTE:
STATIONS AND OFFSETS ARE FROM CENTER LINE OF DRY SWALE.

NOTES:
1. SEE SHEET SW-02 FOR DRY SWALE PROFILE.
2. FOR TYPICAL SECTION OF DRY SWALE, SEE SECTION A-A ON SHEET SW-03.
3. FOR SWM AND ACCESS ROAD DETAILS, SEE SHEET SW-03.

DATUM: NAD 83/91 Horizontal
NAVD 88 Vertical

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
HIGHWAY DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W. CEDAR LANE /OAKMONT AVENUE

RJM ENGINEERING, INC.
CONSULTING ENGINEERS
ELLICOTT CITY, MARYLAND

CROSS REFERENCE	
ITEM	SHEET NOs.
TYPICAL SHEETS	03
PAVEMENT AND SIDEWALK DETAILS	04-05
GEOMETRIC LAYOUT SHEETS	06-08
ROADWAY PLAN SHEETS	09-10
MAINTENANCE OF TRAFFIC	11-17
STORM WATER MANAGEMENT	18-22
EROSION & SEDIMENT CONTROL	23-29
LANDSCAPE PLAN SHEETS	29-32
TRAFFIC SIGNALIZATION PLAN	35-62
SIGNING & MARKING PLANS	63-68

REVISIONS

PLOTTED: $DATETIME$
FILE: $FILE$

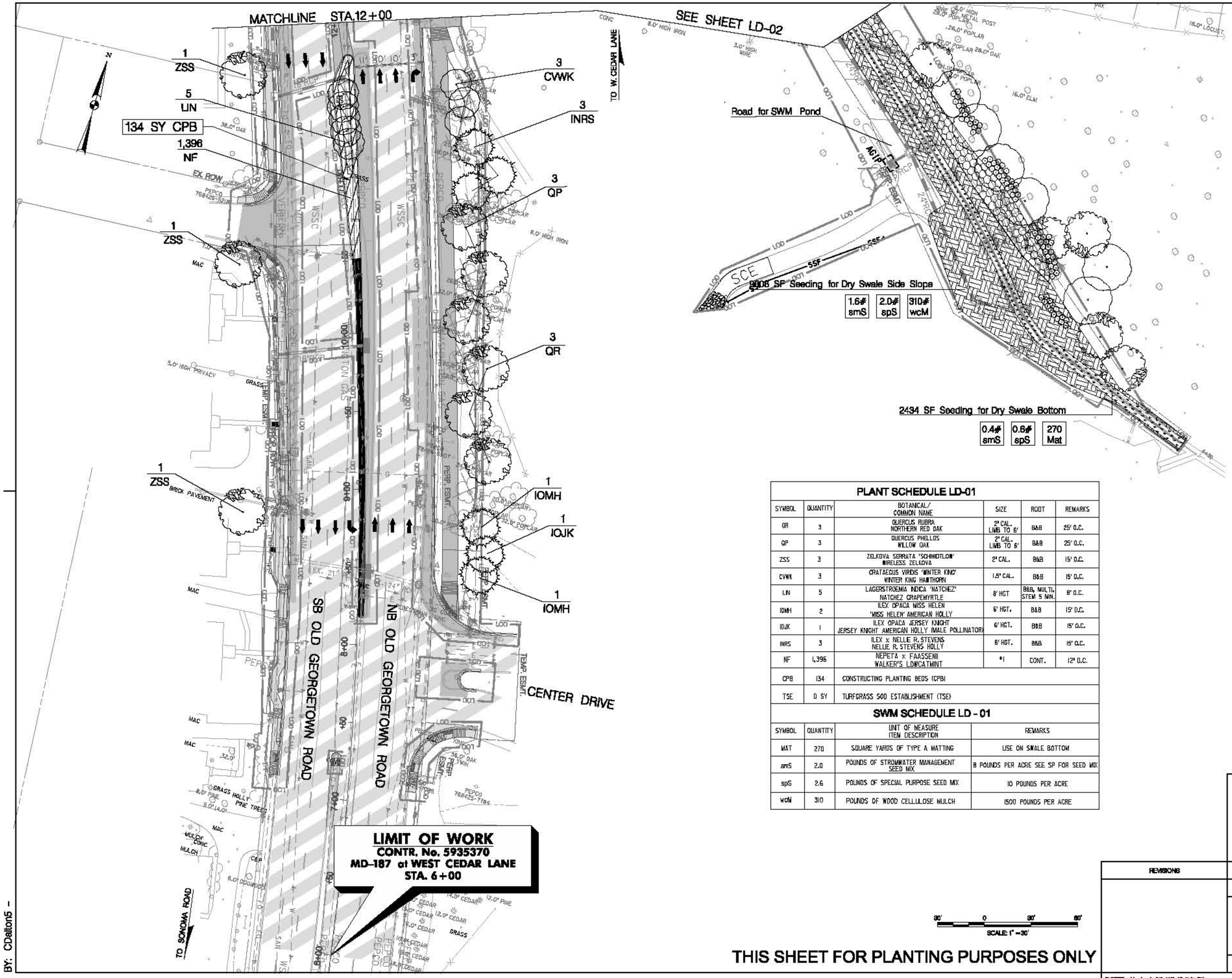
STORMWATER MANAGEMENT PLAN

SCALE SEE PLAN ADVERTISED DATE _____ CONTRACT NO. MO595370

DESIGNED BY JW
DRAWN BY ST
CHECKED BY JW
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

DRAWING NO. SW - 01 OF 03
SHEET NO. 17 OF 67

BY: $USERNAME$



PLANT SCHEDULE LD-01

SYMBOL	QUANTITY	BOTANICAL/ COMMON NAME	SIZE	ROOT	REMARKS
QR	3	QUERCUS RUBRA NORTHERN RED OAK	2" CAL. LIMB TO 6'	B&B	25' O.C.
QP	3	QUERCUS PHELLOS WILLOW OAK	2" CAL. LIMB TO 6'	B&B	25' O.C.
ZSS	3	ZELKOVA SERRATA 'SCHMIDTLOW' WIRELESS ZELKOVA	2" CAL.	B&B	15' O.C.
CVWK	3	CRATAEGUS VIRIDIS 'WINTER KING' WINTER KING HAWTHORN	1.5" CAL.	B&B	15' O.C.
LIN	5	LAGERSTROEMIA INDICA 'NATCHEZ' NATCHEZ CRAPEMYRTLE	8' HGT	B&B, MULTI. STEM 5 MIN.	8' O.C.
IOMH	2	ILEX OPACA MISS HELEN 'MISS HELEN' AMERICAN HOLLY	6' HGT.	B&B	15' O.C.
IOJK	1	ILEX OPACA JERSEY KNIGHT JERSEY KNIGHT AMERICAN HOLLY (MALE POLLINATOR)	6' HGT.	B&B	15' O.C.
INRS	3	ILEX x NELLIE R. STEVENS NELLIE R. STEVENS HOLLY	6' HGT.	B&B	15' O.C.
NF	1,396	NEPETA x FAASSENII WALKER'S LOWCATMINT	#1	CONT.	12" O.C.
CPB	134	CONSTRUCTING PLANTING BEDS (CPB)			
TSE	0 SY	TURFGRASS SOD ESTABLISHMENT (TSE)			

SWM SCHEDULE LD - 01

SYMBOL	QUANTITY	UNIT OF MEASURE ITEM DESCRIPTION	REMARKS
MAT	270	SQUARE YARDS OF TYPE A MATTING	USE ON SWALE BOTTOM
smS	2.0	POUNDS OF STROMWATER MANAGEMENT SEED MIX	8 POUNDS PER ACRE SEE SP FOR SEED MIX
spS	2.6	POUNDS OF SPECIAL PURPOSE SEED MIX	10 POUNDS PER ACRE
wcM	310	POUNDS OF WOOD CELLULOSE MULCH	1500 POUNDS PER ACRE

LANDSCAPE LEGEND

- Existing Tree to be Protected
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED ORNAMENTAL GRASSES
- PROPOSED PERENNIAL
- Seeding with Wood Cellulose Mulch
- Seeding with Type A Soil Stabilization Matting
- LOD Limit of Disturbance

Note: Refer to Drawing No. LD-03 for Master Plant Schedule and General Landscape Notes.

30' 0 30' 60'
SCALE: 1" = 30'

THIS SHEET FOR PLANTING PURPOSES ONLY

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
LANDSCAPE ARCHITECTURE DIVISION

BRAC INTERSECTION IMPROVEMENT
MD. ROUTE 187 AND CEDER LANE /OAKMONT AVENUE

REVISIONS

LANDSCAPE PLAN

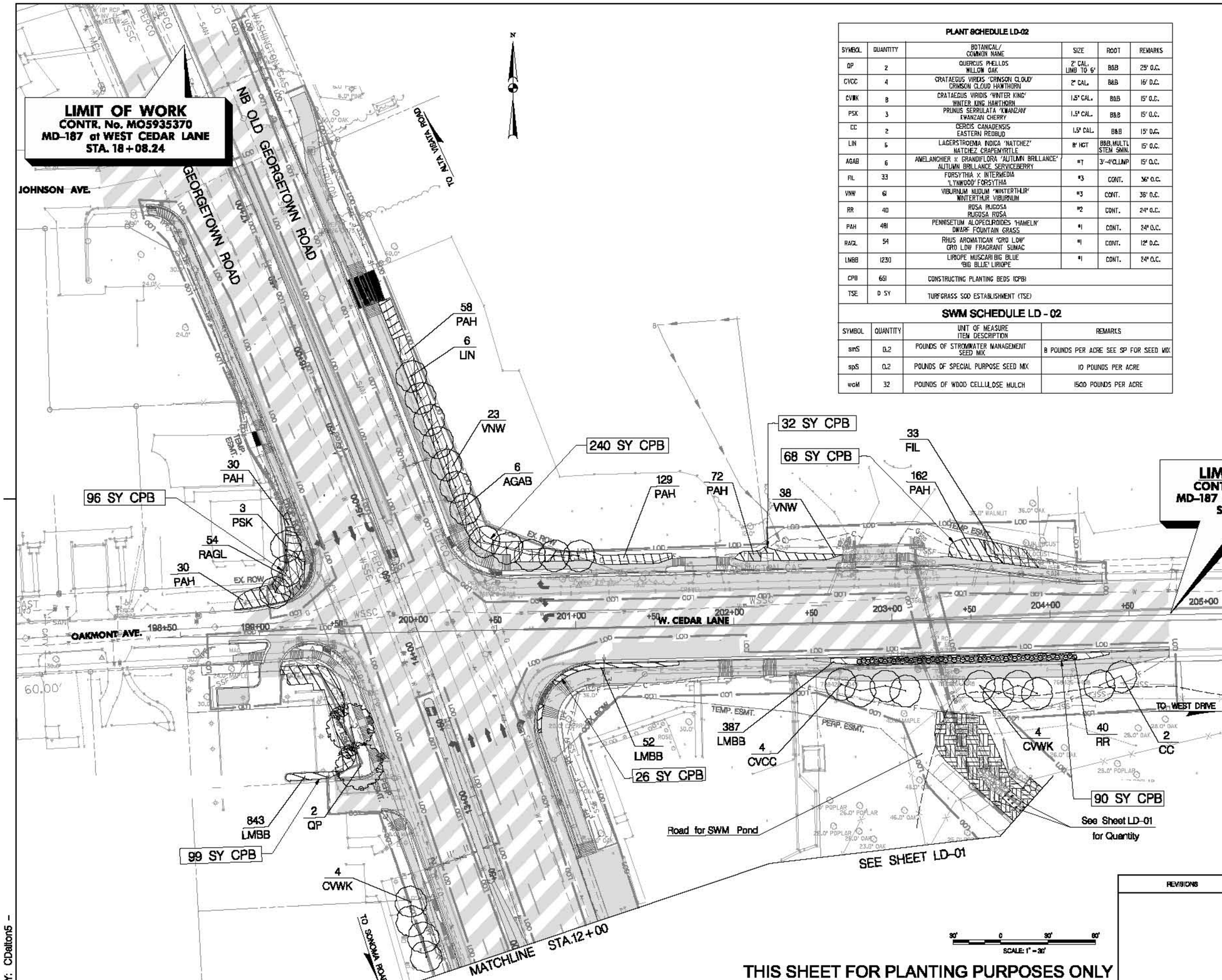
SCALE AS SHOWN ADVERTISED DATE <AD DATE> CONTRACT NO. MO5935370

DESIGNED BY CSD
DRAWN BY CSD
CHECKED BY JRP
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE

DRAWING NO. LD-01 OF 04 SHEET NO. 26 OF 39

PLOTTED: Monday, April 12, 2010 AT 01:34 PM
FILE: I:\pwcadd\d0180795\pLD-0001_MD187.dgn

BY: CDalton5 -



PLANT SCHEDULE LD-02

SYMBOL	QUANTITY	BOTANICAL/ COMMON NAME	SIZE	ROOT	REMARKS
QP	2	QUERCUS PHELLOS WILLOW OAK	2" CAL. LIMB TO 6'	B&B	25' O.C.
CVCC	4	CRATAEGUS VIRIDIS 'CRINSON CLOUD' CRIMSON CLOUD HAWTHORN	2" CAL.	B&B	16' O.C.
CVWK	8	CRATAEGUS VIRIDIS 'WINTER KING' WINTER KING HAWTHORN	1.5" CAL.	B&B	15' O.C.
PSK	3	PRUNUS SERRULATA 'KWANZAN' KWANZAN CHERRY	1.5" CAL.	B&B	15' O.C.
CC	2	CERCIS CANADENSIS EASTERN REDBUD	1.5" CAL.	B&B	15' O.C.
LIN	6	LAGERSTROEMIA INDICA 'NATCHEZ' NATCHEZ CRAPEMYRTLE	8' HGT	BBB,MULTI STEM 5MIN.	15' O.C.
AGAB	6	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLANCE' AUTUMN BRILLANCE SERVICEBERRY	#7	3'-4'CLUMP	15' O.C.
FIL	33	FORSYTHIA X INTERMEDIA 'LYNWOOD' FORSYTHIA	#3	CONT.	36" O.C.
VNW	61	VIBURNUM NUDUM 'WINTERTHUR' WINTERTHUR VIBURNUM	#3	CONT.	36' O.C.
RR	40	ROSA RUGOSA RUGOSA ROSA	#2	CONT.	24" O.C.
PAH	481	PENNISETUM ALOPECUROIDES 'HAMELN' DWARF FOUNTAIN GRASS	#1	CONT.	24" O.C.
RAGL	54	RHUS AROMATICAN 'GRO LOW' GRO LOW FRAGRANT SUMAC	#1	CONT.	12" O.C.
LMBB	1230	LIRIOPE MUSCARI BIG BLUE 'BIG BLUE' LIRIOPE	#1	CONT.	24" O.C.
CPB	651	CONSTRUCTING PLANTING BEDS (CPB)			
TSE	0 SY	TURFGRASS SOD ESTABLISHMENT (TSE)			

SWM SCHEDULE LD - 02

SYMBOL	QUANTITY	UNIT OF MEASURE ITEM DESCRIPTION	REMARKS
smS	0.2	POUNDS OF STROMWATER MANAGEMENT SEED MIX	8 POUNDS PER ACRE SEE SP FOR SEED MIX
spS	0.2	POUNDS OF SPECIAL PURPOSE SEED MIX	10 POUNDS PER ACRE
wcM	32	POUNDS OF WOOD CELLULOSE MULCH	1500 POUNDS PER ACRE

LANDSCAPE LEGEND

- Existing Tree to be Protected
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED ORNAMENTAL GRASSES
- PROPOSED PERENNIAL
- Seeding with Wood Cellulose Mulch
- Seeding with Type A Soil Stabilization Matting
- Limit of Disturbance

Note: Refer to Drawing No. LD-03 for Master Plant Schedule and General Landscape Notes.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
LANDSCAPE ARCHITECTURE DIVISION

BRAC INTERSECTION IMPROVEMENT
MD. ROUTE 187 AND CEDER LANE /OAKMONT AVENUE

REVISIONS

LANDSCAPE PLAN

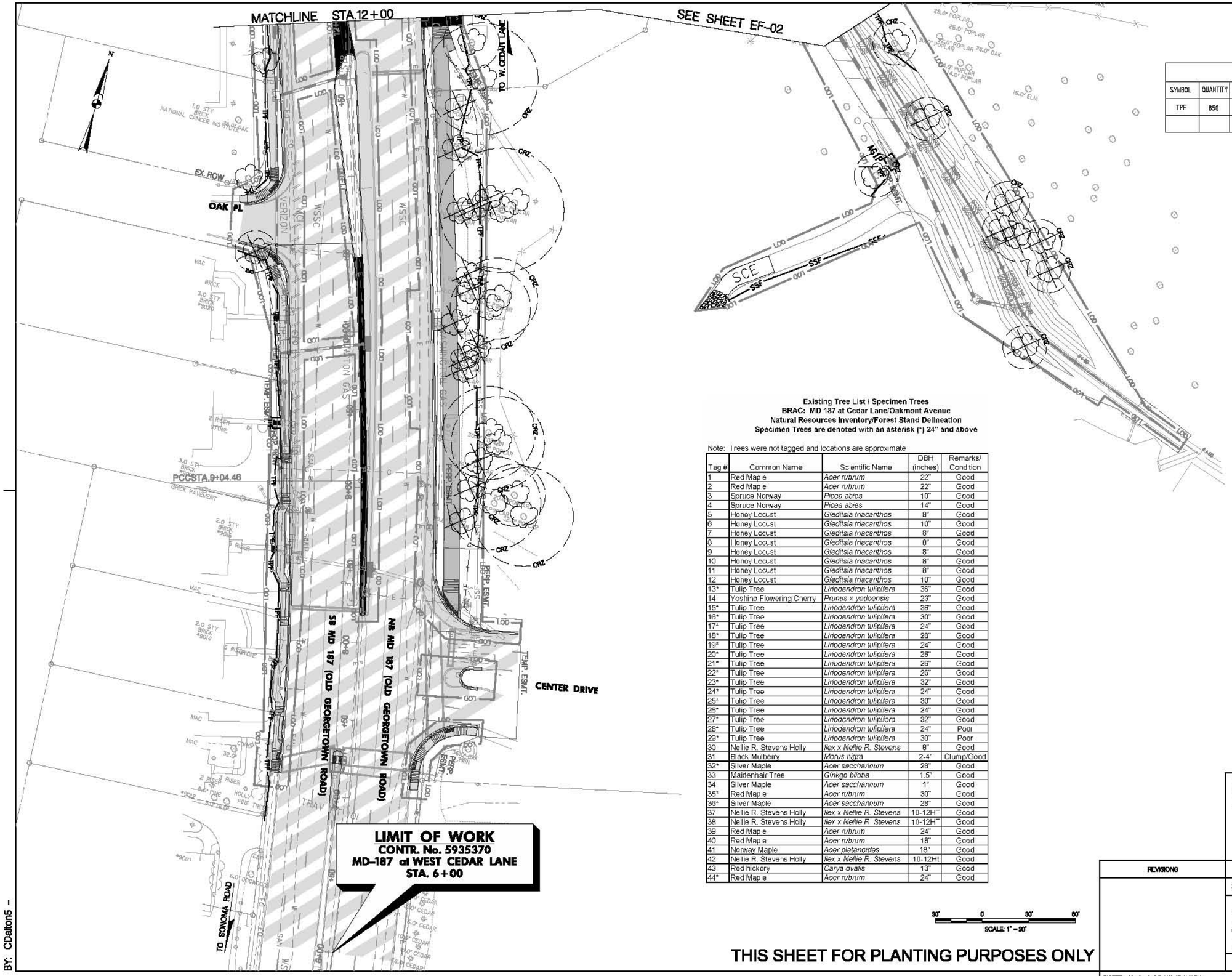
SCALE AS SHOWN ADVERTISED DATE <AD DATE> CONTRACT NO. MO5935370

DESIGNED BY CSD
DRAWN BY CSD
CHECKED BY JRP
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE

DRAWING NO. LD-02 OF 04 SHEET NO. 27 OF 39

PLOTTED: Monday, April 19, 2010 AT 06:06 PM
FILE: S:\projects\d0\MO5935370\ld-02\ld_MO5935370.dgn

BY: CDalton5 -



MATERIALS SCHEDULE EF-01			REFER TO EF DRAWING
SYMBOL	QUANTITY	UNIT OF MEASURE ITEM DESCRIPTION	REMARKS
TPF	850	LINER FEET OF TEMPORARY ORANGE CONSTRUCTION FENCE	USE TO PROECT EXISTING TREES

Existing Tree List / Specimen Trees
BRAC: MD 187 at Cedar Lane/Oakmont Avenue
Natural Resources Inventory/Forest Stand Delineation
Specimen Trees are denoted with an asterisk (*) 24" and above

Note: Trees were not tagged and locations are approximate

Tag #	Common Name	Scientific Name	DBH (inches)	Remarks/ Condition
1	Red Maple	*Acer rubrum*	22"	Good
2	Red Maple	*Acer rubrum*	22"	Good
3	Spruce Norway	*Picea abies*	10"	Good
4	Spruce Norway	*Picea abies*	14"	Good
5	Honey Locust	*Gleditsia triacanthos*	8"	Good
6	Honey Locust	*Gleditsia triacanthos*	10"	Good
7	Honey Locust	*Gleditsia triacanthos*	8"	Good
8	Honey Locust	*Gleditsia triacanthos*	8"	Good
9	Honey Locust	*Gleditsia triacanthos*	8"	Good
10	Honey Locust	*Gleditsia triacanthos*	8"	Good
11	Honey Locust	*Gleditsia triacanthos*	8"	Good
12	Honey Locust	*Gleditsia triacanthos*	10"	Good
13*	Tulip Tree	*Liriodendron tulipifera*	36"	Good
14	Yoshino Flowering Cherry	*Prunus x yedoensis*	23"	Good
15*	Tulip Tree	*Liriodendron tulipifera*	36"	Good
16*	Tulip Tree	*Liriodendron tulipifera*	30"	Good
17*	Tulip Tree	*Liriodendron tulipifera*	24"	Good
18*	Tulip Tree	*Liriodendron tulipifera*	28"	Good
19*	Tulip Tree	*Liriodendron tulipifera*	24"	Good
20*	Tulip Tree	*Liriodendron tulipifera*	26"	Good
21*	Tulip Tree	*Liriodendron tulipifera*	26"	Good
22*	Tulip Tree	*Liriodendron tulipifera*	26"	Good
23*	Tulip Tree	*Liriodendron tulipifera*	32"	Good
24*	Tulip Tree	*Liriodendron tulipifera*	24"	Good
25*	Tulip Tree	*Liriodendron tulipifera*	30"	Good
26*	Tulip Tree	*Liriodendron tulipifera*	24"	Good
27*	Tulip Tree	*Liriodendron tulipifera*	32"	Good
28*	Tulip Tree	*Liriodendron tulipifera*	24"	Poor
29*	Tulip Tree	*Liriodendron tulipifera*	30"	Poor
30	Nellie R. Stevens Holly	*Ilex x Nellie R. Stevens*	8"	Good
31	Black Mulberry	*Morus nigra*	2-4"	Clump/Good
32*	Silver Maple	*Acer saccharinum*	28"	Good
33	Maidenhair Tree	*Ginkgo biloba*	1.5"	Good
34	Silver Maple	*Acer saccharinum*	1"	Good
35*	Red Maple	*Acer rubrum*	30"	Good
36*	Silver Maple	*Acer saccharinum*	28"	Good
37	Nellie R. Stevens Holly	*Ilex x Nellie R. Stevens*	10-12HT	Good
38	Nellie R. Stevens Holly	*Ilex x Nellie R. Stevens*	10-12HT	Good
39	Red Maple	*Acer rubrum*	24"	Good
40	Red Maple	*Acer rubrum*	18"	Good
41	Norway Maple	*Acer platanoides*	18"	Good
42	Nellie R. Stevens Holly	*Ilex x Nellie R. Stevens*	10-12Ht	Good
43	Red hickory	*Carya ovalis*	13"	Good
44*	Red Maple	*Acer rubrum*	24"	Good

30' 0 30' 60'
SCALE: 1" = 30'

THIS SHEET FOR PLANTING PURPOSES ONLY

Environmental Features Legend

- Existing Tree to be Protected
- Existing Tree to be Removed
- LOD — Limit of Disturbance
- TPF — Temporary Orange Construction Fence adjacent to Existing Trees to be Protected
- CRZ — Critical Root Zone of Existing Tree to be Protected

Refer to Drawing EF-01 and EF-02 for Materials Schedule per sheet.

Refer to Section 120 – Tree Preservation of the Standard Specifications for information regarding the protection of existing trees.

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
LANDSCAPE ARCHITECTURE DIVISION

BRAC INTERSECTION IMPROVEMENT
MD. ROUTE 187 AND CEDER LANE /OAKMONT AVENUE

REVISIONS

LANDSCAPE PLAN

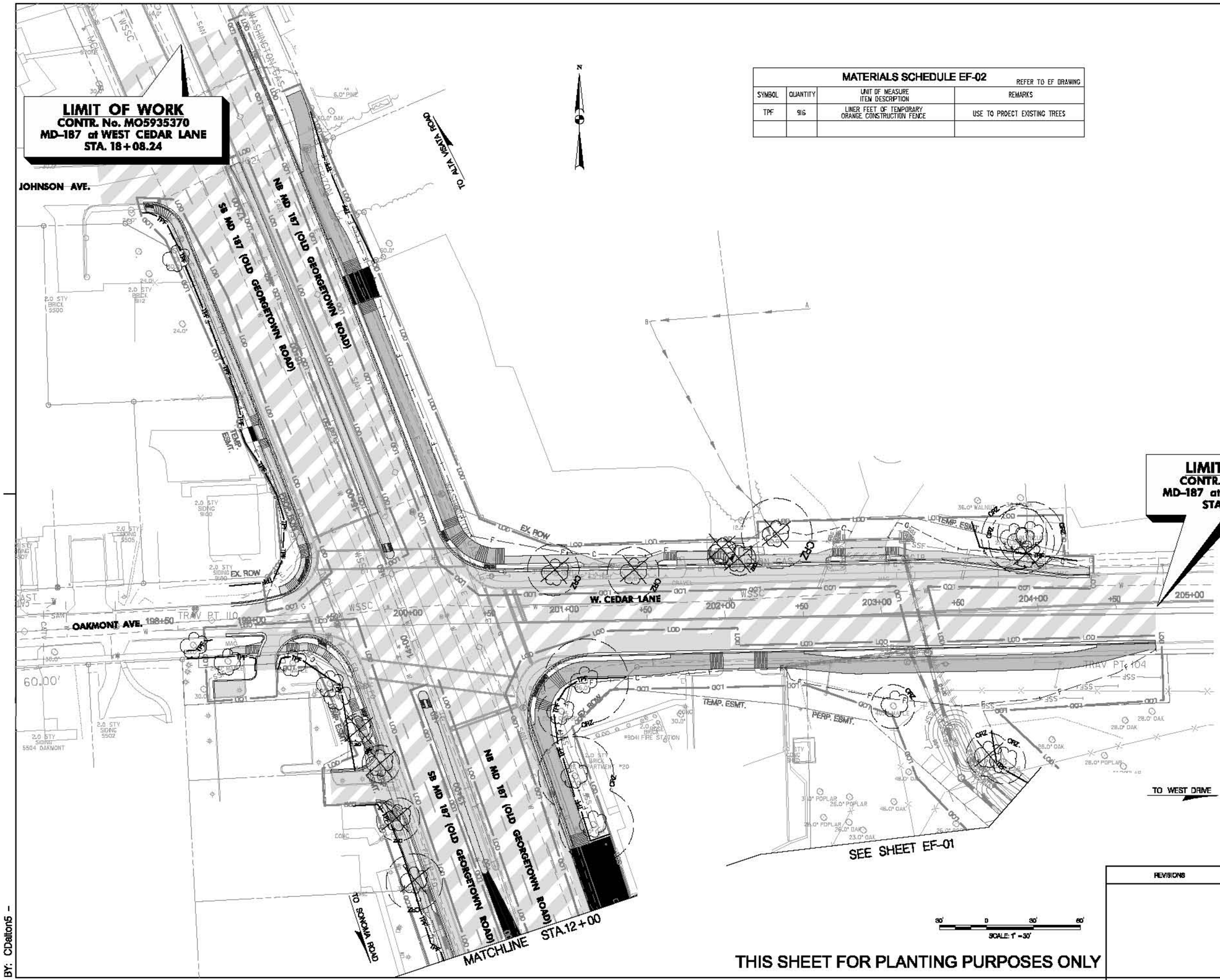
SCALE AS SHOWN ADVERTISED DATE <AD DATE> CONTRACT NO. M05935370

DESIGNED BY CSD
DRAWN BY CSD
CHECKED BY JRP
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE

DRAWING NO. EF-01 OF 02 SHEET NO. 29 OF 39

PLOTTED: Monday, April 12, 2010 AT 01:01 PM
FILE: T:\projects\C5935370\EF-01_MD187.dgn

BY: CDalton5 –



MATERIALS SCHEDULE EF-02

REFER TO EF DRAWING

SYMBOL	QUANTITY	UNIT OF MEASURE ITEM DESCRIPTION	REMARKS
TPF	916	LINER FEET OF TEMPORARY ORANGE CONSTRUCTION FENCE	USE TO PROECT EXISTING TREES

Environmental Features Legend

- Existing Tree to be Protected
- Existing Tree to be Removed
- LOD — Limit of Disturbance
- TPF — Temporary Orange Construction Fence adjacent to Existing Trees to be Protected
- CRZ — Critical Root Zone of Existing Tree to be Protected

Refer to Drawing EF-01 for Specimen Tree List Natural Resources Inventory/Forest Stand Delineation

Refer to Drawing EF-01 and EF-02 for Materials Schedule per sheet.

Refer to Section 120 – Tree Preservation of the Standard Specifications for Information regarding the protection of existing trees.

THIS SHEET FOR PLANTING PURPOSES ONLY

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
LANDSCAPE ARCHITECTURE DIVISION

BRAC INTERSECTION IMPROVEMENT
MD. ROUTE 187 AND CEDER LANE /OAKMONT AVENUE

REVISIONS

LANDSCAPE PLAN

SCALE AS SHOWN ADVERTISED DATE <AD DATE> CONTRACT NO. MO5935370

DESIGNED BY CSD
DRAWN BY CSD
CHECKED BY JRP
F.A.P. NO. SEE TITLE SHEET
COUNTY MONTGOMERY
LOGMILE

DRAWING NO. EF-02 OF 02 SHEET NO. 30 OF 39

PLOTTED: Monday, April 12, 2010 AT 06:03 PM
FILE: E:\projects\d0807005\EF-02\02_MD187.dgn

BY: CDalton5 –

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

PROPOSED SIGNS

34 — Old Georgetown RD; NORTH ← MARYLAND 187 SOUTH → — M1-5(4) 78" x 36"

37 — Old Georgetown RD; SOUTH ← MARYLAND 187 NORTH → — M1-5(4) 78" x 36"

32a ← Oakmont AVE; 32b Oakmont AVE → — D-3(1) DUAL FACED (VAR.x16")

29a ← W. Cedar LN; 29b W. Cedar LN → — D-3(1) DUAL FACED (VAR.x16")

28,31,35 — ONLY — R3-5L (30"x36")

36 — R3-6L (30"x36")

30,38 — ONLY — R3-5R (30"x36")

27,33 — FIREHOUSE SIGNAL — W11-8(1) 82" x 36"

CONSTRUCTION DETAILS

A. INSTALL NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. INSTALL 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. INSTALL 15' "T" STEEL POLE WITH 50' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD. AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERAS, AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. INSTALL 15' "T" STEEL POLE WITH 60' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, OPTICON EYE,AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

E. INSTALL 15' "T" STEEL POLE WITH 38' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERA, AND SIGNS, (2-3" SCHEDULE 80 90° PVC BEND).

F. INSTALL 10' PEDESTAL POLE ON BREAKAWAY BASE WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION, (NOTE: 1-2", 90° PVC SCHEDULE 80 BEND).

G. INSTALL 10' (CUT TO 5') PEDESTAL POLE ON BREAKAWAY BASE WITH AUDIBLE PUSHBUTTON STATION, (1-2" SCHEDULE 80 90° PVC BEND).

H. INSTALL 15' "T" STEEL POLE WITH A TWIN 60' MAST ARM (CUT TO 38') x 70' MAST ARM, TRAFFIC SIGNAL HEADS,AND SIGNS, (2-3" SCHEDULE 80 90° PVC BEND).

J. INSTALL 15" "T" STEEL POLE WITH 60' MAST ARM (CUT TO 50'), TRAFFIC SIGNAL HEADS, AND SIGN, (2-3" SCHEDULE 80 90° PVC BEND).

K. INSTALL ELECTRICAL HANDHOLE.

L. INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

M. INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

N. INSTALL 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

O. INSTALL 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED PRIOR TO FINAL ROAD SURFACE.

P. INSTALL 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). PROVIDE A 1' STUB AND THREE-LENGHTS OF 1-CONDUCTOR NO. 2/0 AWG THHN/THWN COILED AT THE BASE FOR THE INSTALLATION OF SERVICE.

Q. PROPOSED SERVICE FEED BY OTHERS.

R. REMOVE EXISTING HANDHOLE, CAP AND ABANDON CONDUIT.

S. REMOVE EXISTING SIGNAL STRUCTURE, ALL ATTACHED EQUIPMENT AND FOUNDATION 12" BELOW GROUND GRADE.

T. REMOVE CONTROLLER/CABINET, EQUIPMENT, AND FOUNDATION 12" BELOW GROUND GRADE.

PROPOSED SIGNALS

1,2, 9,10 — 15,17 — 5,6 — 11,12, 3,4,7,8, 14,17 — 13,18 — 19-26

12" 12" 12" 12" 12"

16" LED COUNTDOWN PEDESTRIAN SIGNAL

20p 21p 19p 22p 23p,25p 24p,26p

R10-3(1) 9" x 15"

AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON

PUSHBUTTON SIGN NUMBERS INDICATE THE ASSOCIATED PEDESTRIAN SIGNAL HEAD NUMBERS

OPTICON DETECTOR EYE

VIDEO DETECTION ZONE

a.b.c.d.e

VIDEO DETECTION CAMERA

NEMA PHASING

Ø2 Ø3 Ø4 FLASHING OPERATION

Ø5 Ø6 Ø3 ALT. Ø4 ALT.

NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.

Intersection — Fire House

FIREHOUSE PRE-EMPTION

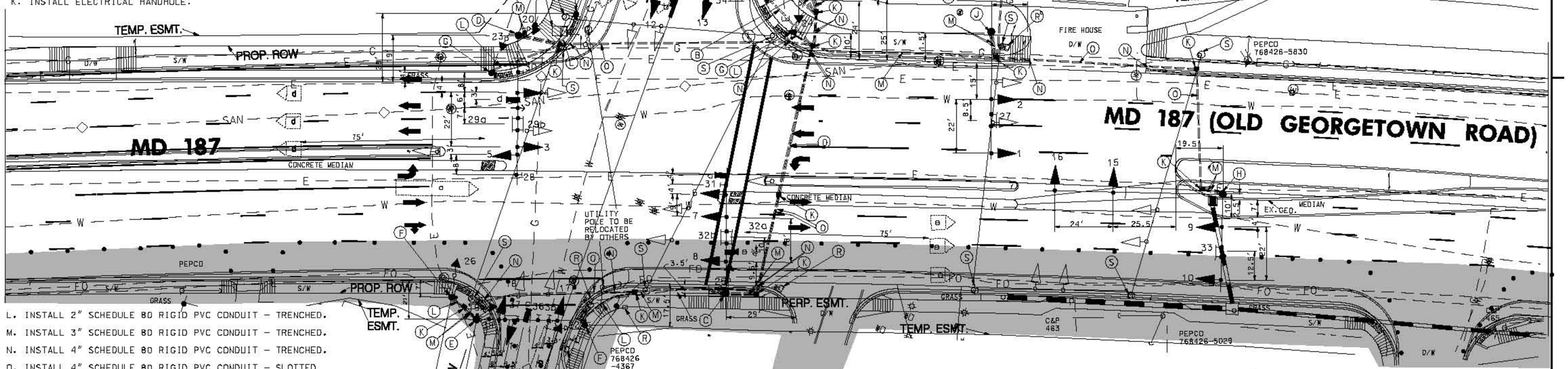
THE FIBER OPTIC CABLES FOR THE SURVEILLANCE CAMERAS AND THE 50 PAIR INTERCONNECT CABLE TRAVELS OVERHEAD ON THE EAST SIDE OF MD 187. THE UTILITY POLE RELOCATION WILL DICTATE THEIR LOCATION.

MOT PHASE 1 NOTES

1. INSTALLATION OF THE PROPOSED TRAFFIC CONTROL SIGNAL SHALL BE COMPLETED BY THE END OF PHASE 1. THE NEW SIGNAL MUST BE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL INFRASTRUCTURE, AND SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
2. BACK GUY THE EXISTING STRAIN POLE TO PROTECT ITS STABILITY WHEN THE SURROUNDING GROUND IS DISTURBED.
3. PROTECT NEW EQUIPMENT, CONDUIT RUNS AND HANDHOLES INSTALLED IN THIS PHASE UNTIL THE END OF ALL CONSTRUCTION, AND THE INTERSECTION BECOMES FILLY OPERATIONAL.
4. THE CONTROLLER CABINET AND THE SERVICE PEDESTAL LOCATIONS ARE OUTSIDE THE CONSTRUCTION AREA OF PHASE 5, BUT ARE REQURIED TO BE INSTALLED DURING THIS PHASE. PROTECTION IS REQUIRED THROUGHOUT THE REMAINING PHASES.
5. SUPPLY 5' OF ELECTRICAL CABLE COILED AT EACH SIGNAL HEAD FOR POSSIBLE RELOCATION DURING THE DIFFERENT CONSTRUCTION PHASES
6. THE PEDESTRIAN TRAFFIC IS LIMITED TO THE EAST SIDE OF MD 187. SEE THE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.
7. ADJUST THE LOCATION OF SIGNAL HEADS, AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.

GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THIS PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF THE NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, AND THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, AND 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL PROPOSED SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SEPARATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTONS, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" x 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTON MUST MEET LOCATION REQUIREMENTSOF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.



CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND	
SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES
F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT

MD 187 AND W.CEDAR LANE / OAKMONT AVENUE
BETHESDA, MD

MOT PHASE 1 – TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY	EMM	COUNTY	MONTGOMERY
DRAWN BY	EMM	LOGMILE	015018701.74
CHECKED BY	MR / NR	TIMS NO.	J691
F.A.P. NO.	SEE TITLE SHEET	TOD NO.	

TS NO. 4428C | DRAWING SG-01.1 OF 18 | SHEET NO. 36 OF 67

BY: nrobinson

PLOTTED: Friday, April 19, 2019 AT 11:42 PM
FILE: M:\MOOR\transportation\27587-06 brac-md187 @ cedar lane-oakmont\geom\p06_P01-and P1 MD187Cedar.dgn

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

CONSTRUCTION DETAILS

A. INSTALL NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. INSTALL 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. INSTALL 15' "T" STEEL POLE WITH TWIN 50' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. INSTALL 10' PEDESTAL POLE ON BREAKAWAY COUPLING ON 18"x 36" FOUNDATION WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION, (NOTE: 1-2", SCHEDULE 80 90° PVC BEND).

E. INSTALL 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). PROVIDE A 1' STUB AND A PULL STRING AT THE BASE FOR THE INSTALLATION SERVICE

F. PROPOSED SERVICE FEED BY OTHERS.

G. INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT – TRENCHED.

H. INSTALL 3" SCHEDULE 80 RIGID PVC CONDUIT – TRENCHED.

J. INSTALL 4" SCHEDULE 80 RIGID PVC CONDUIT – TRENCHED.

K. INSTALL 4" SCHEDULE 80 RIGID PVC CONDUIT – SLOTTED.

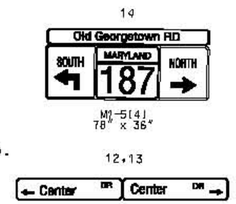
L. INSTALL ELECTRICAL HANDHOLE.

M. REMOVE EXISTING SIGNAL STRUCTURE, ALL ATTACHED EQUIPMENT AND FOUNDATION 12" BELOW GROUND GRADE.

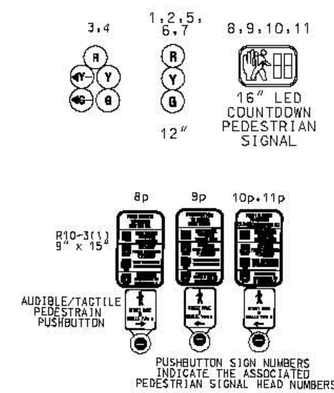
N. REMOVE CONTROLLER/CABINET, EQUIPMENT, AND FOUNDATION 12" BELOW GROUND GRADE.

O. REMOVE EXISTING HANDHOLE, CAP AND ABANDON CONDUIT.

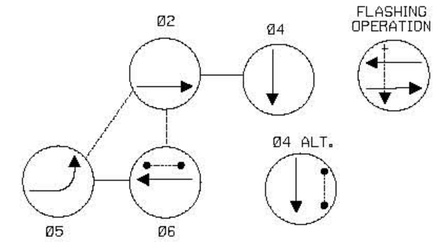
PROPOSED SIGNS



PROPOSED SIGNALS



NEMA PHASING

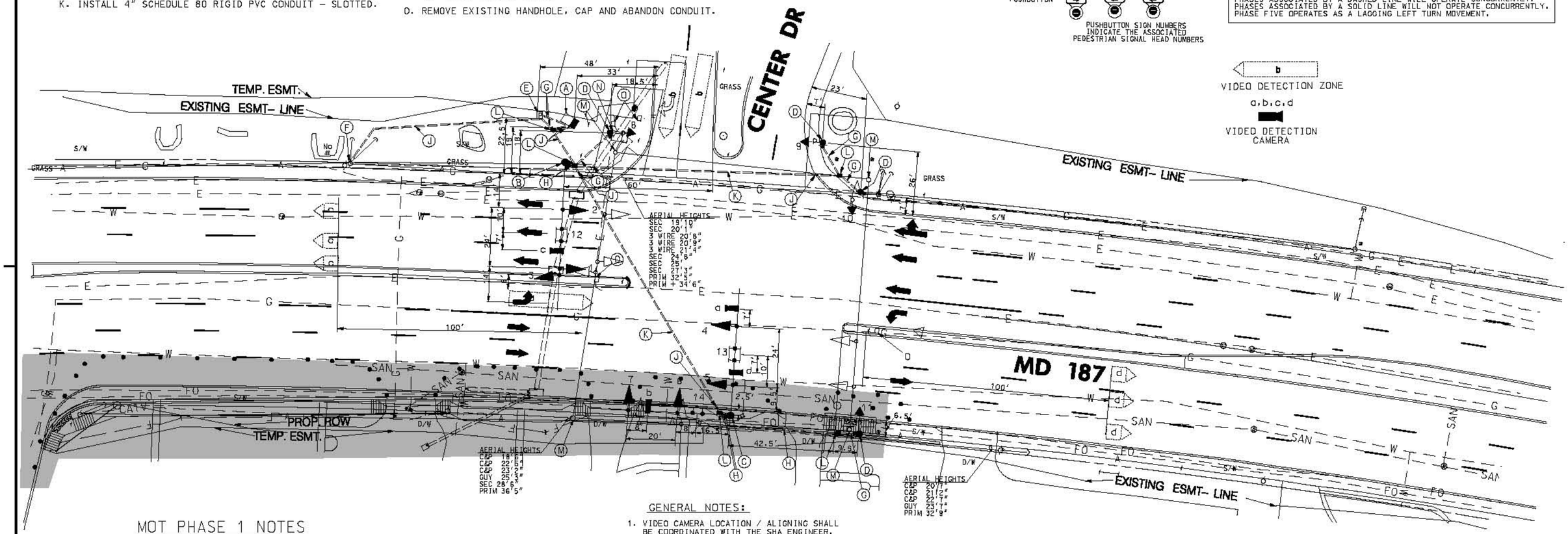


NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
PHASE FIVE OPERATES AS A LAGGING LEFT TURN MOVEMENT.

VIDEO DETECTION ZONE

a,b,c,d

VIDEO DETECTION CAMERA



MOT PHASE 1 NOTES

1. INSTALLATION OF THE PROPOSED TRAFFIC CONTROL SIGNAL SHALL BE COMPLETED BY THE END OF PHASE 1. THE NEW SIGNAL MUST BE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL INFRASTRUCTURE, AND SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
2. BACK GUY THE EXISTING STRAIN POLE TO PROTECT ITS STABILITY WHEN THE SURROUNDING GROUND IS DISTURBED.
3. ADJUST THE LOCATIONS OF SIGNAL HEADS, AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
4. PROTECT NEW EQUIPMENT, CONDUIT RUNS AND HANDHOLES INSTALLED IN THIS PHASE UNTIL THE END OF ALL CONSTRUCTION, AND THE INTERSECTION BECOMES FULLY OPERATIONAL.
5. THE CONTROLLER CABINET AND SERVICE PEDESTAL LOCATIONS ARE OUTSIDE THE CONSTRUCTION AREA OF PHASE 5, BUT ARE REQURIED TO BE INSTALLED DURING THIS PHASE. PROTECTION OF THIS EQUIPMENT IS REQUIRED THROUGHOUT THE REMAINING PHASES.
6. SUPPLY 5' OF ELECTRICAL CABLE COILED AT EACH SIGNAL HEAD FOR POSSIBLE RELOCATION DURING THE DIFFERENT CONSTRUCTION PHASES.
7. PEDESTRIAN TRAFFIC IS LIMITED TO THE EAST SIDE OF MD 187. SEE THE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.

GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THIS PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON THE COMPLETION OF NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UILITIES PRIOR TO INSTALLING PROPOSED SIGNAL EQUIPMENT. IF UILITY CONFLICTS ARISE, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. AND THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SPERATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTON. NOT CENTER TO CENTER POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2. AND THE NCHRP PUBLICATION "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED AND APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND

SD SD	STORM DRAIN
G G	GAS MAIN
W W	WATER MAIN
S S	SEWER MAIN
E E	ELECTRIC CABLES
A A	AERIAL CABLES
T T	TELEPHONE CABLES
F F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND CENTER DRIVE
BETHESDA, MD

MOT PHASE 1 – TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. M05935370

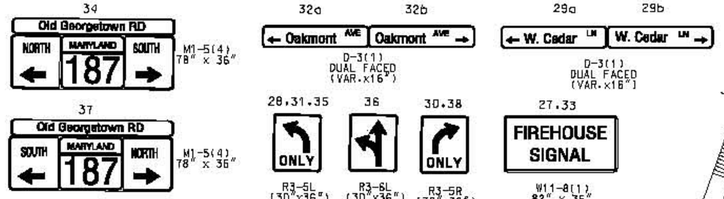
DESIGNED BY	EMM	COUNTY	MONTGOMERY
DRAWN BY	EMM	LOGMILE	015018701.6.2
CHECKED BY	MR / NR	TIMS NO.	J691
F.A.P. NO.		TOD NO.	

TS NO. 4429B | DRAWING SG-03.1 | OF 18 | SHEET NO. 38 OF 57

BY: mrobinson

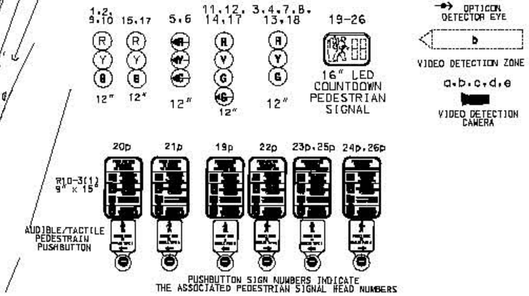
PLOTTED: Friday, April 16, 2010 AT 11:43 PM
FILE: n:\j0008\transportation\27487-06 brac-md187 @ center lane-sidewalk\psset\p08_P01-and P1 MD187center.dgn

SIGNS
INSTALLED FROM PHASE 1

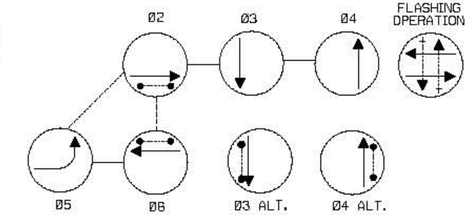


MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

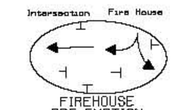
SIGNALS
INSTALLED FROM PHASE 1



NEMA PHASING



NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.



THE CONNECTIONS TO THE FIREHOUSE, THE MONTGOMERY COUNTY INTERCONNECT CABLES, AND THE SURVILLANCE CAMERA AND FIBER OPTIC CABLE WILL BE ADDRESSED BEFORE FINAL REVIEW.

EQUIPMENT DETAILS (Constructed In PHASE 1)

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH 50' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERAS, AND SIGNS,(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 15' "T" STEEL POLE WITH 60' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, OPTICON EYE,AND SIGNS (NOTE: 2-3"SCHEDULE 80 90° PVC BEND).

E. 15' "T" STEEL POLE WITH 38' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERA, AND SIGNS, (2-3" SCHEDULE 80 90° PVC BEND).

F. 10' PEDESTAL POLE ON BREAKAWAY BASE WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION, (NOTE: 1-2", 90° PVC SCHEDULE 80 BEND).

G. 10' (CUT TO 5') PEDESTAL POLE ON BREAKAWAY BASE WITH AUDIBLE PUSHBUTTON STATION, (1-2" SCHEDULE 80 90° PVC BEND).

H. 15' "T" STEEL POLE WITH A TWIN 60' MAST ARM (CUT TO 38') x 70' MAST ARM, TRAFFIC SIGNAL HEADS,AND SIGNS, (2-3" SCHEDULE 80 90° PVC BEND).

J. 15" "T" STEEL POLE WITH 60' MAST ARM (CUT TO 50'), TRAFFIC SIGNAL HEADS, AND SIGN, (2-3" SCHEDULE 80 90° PVC BEND).

K. ELECTRICAL HANDHOLE.

L. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

M. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

N. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

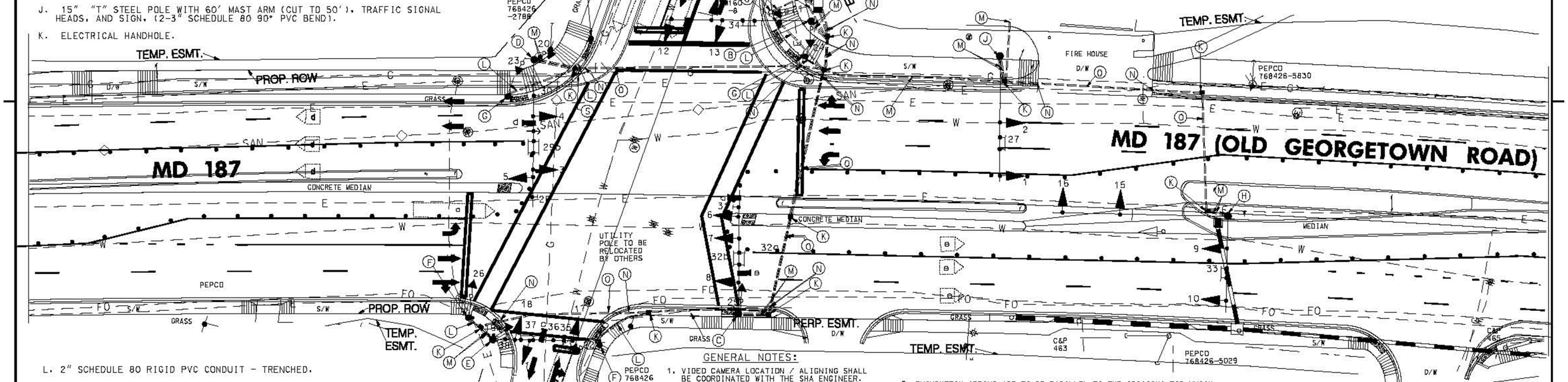
O. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED PRIOR TO FINAL ROAD SURFACE.

P. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). PROVIDE A 1' STUB AND THREE-LENGHTS OF 1-CONDUCTOR NO. 2/0 AWG THHN/THWN COILED AT THE BASE FOR THE INSTALLATION OF SERVICE.

Q. PROPOSED SERVICE FEED BY OTHERS.

MOT PHASE 2 NOTES

1. NEW EQUIPMENT INSTALLED FROM PREVIOUS PHASES, OR BEING INSTALLED IN THIS PHASE SHALL BE PROTECTED THROUGH THE REMAINING PHASES. THE TRAFFIC SIGNAL SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
2. THE CONTROLLER CABINET OUTSIDE THE CONSTRUCTION AREAS SHALL BE PROTECTED THROUGH THE REMAINING PHASES.
3. THE SERVICE PEDESTAL OUTSDE THE CONSTRUCTION AREAS SHALL BE PROTECTED. CONDUIT AND WIRING SHALL REMAIN OPERATIONAL AT ALL TIMES.
4. ADJUST THE LOCATION THE SIGNAL HEADS, AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
5. SEE THE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.



GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THIS PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF THE NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS,TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, AND 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL PROPOSED SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SEPARATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTONS, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" x 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED AND APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND	
SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES
F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT

MD 187 AND W.CEDAR LANE / OAKMONT AVENUE
BETHESDA, MD

MOT PHASE 2 - TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. M05935370

DESIGNED BY	EMM	COUNTY	MONTGOMERY
DRAWN BY	EMM	LOGMILE	015018701.74
CHECKED BY	MR / NR	TIMS NO.	J691
F.A.P. NO.	SEE TITLE SHEET	TOD NO.	

TS NO. 4428C | DRAWING SG-05.2 OF 18 | SHEET NO. 40 OF 67

BY: nrobinson

PLOTTED: Friday, April 16, 2010 AT 11:43 PM
FILE: w:\2008\transportation\37867-06 brac-md187 @ cedar lane-oakmont\geo\j691_P01-and P2 MD187cedar.dgn

EQUIPMENT DETAILS (Constructed in PHASE 1)

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH TWIN 50' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 10' PEDESTAL POLE ON BREAKAWAY COUPLING ON 18"x36" FOUNDATION WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION. (NOTE: 1-2", SCHEDULE 80 90° PVC BEND).

E. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). PROVIDE A 1' STUB AND A PULL STRING AT THE BASE FOR THE INSTALLATION SERVICE

F. PROPOSED SERVICE FEED BY OTHERS.

G. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

H. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

J. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

K. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED.

L. ELECTRICAL HANDHOLE.

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

SIGNS
INSTALLED FROM PHASE 1

14 — Old Georgetown RD; SOUTH / MARYLAND 187 / NORTH — M1-5(4) 78" x 36"

12.13 — ← Center DR | Center DR → — D-3(1) DUAL FACED (VAR.x15")

SIGNALS
INSTALLED FROM PHASE 1

3.4 — R, Y, G, RT, RTA

1,2,5,6,7 — R, Y, G — 12"

8,9,10,11 — 16" LED COUNTDOWN PEDESTRIAN SIGNAL

8p, 9p, 10p,11p — R10-3(1) 9" x 15" — AUDIBLE/TACTILE PEDESTRAIN PUSHBUTTON

PUSHBUTTON SIGN NUMBERS INDICATE THE ASSOCIATED PEDESTRIAN SIGNAL HEAD NUMBERS

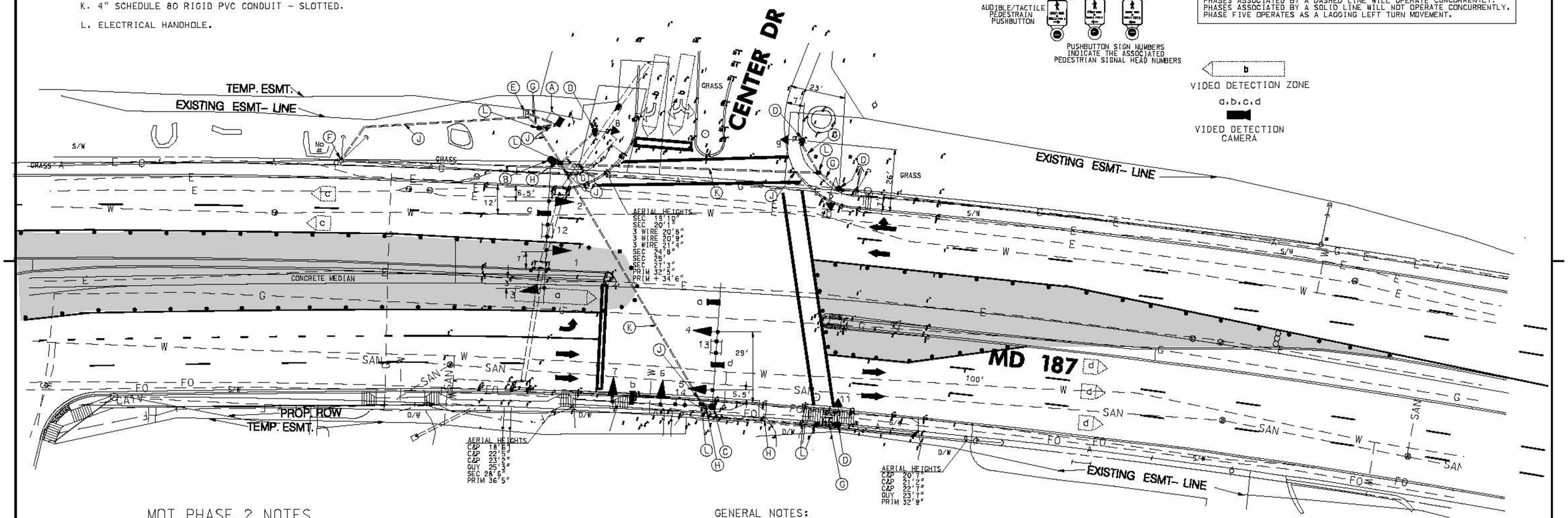
NEMA PHASING

Ø2, Ø4, Ø5, Ø6, Ø4 ALT., FLASHING OPERATION

NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
PHASE FIVE OPERATES AS A LAGGING LEFT TURN MOVEMENT.

b — VIDEO DETECTION ZONE

a,b,c,d — VIDEO DETECTION CAMERA



MOT PHASE 2 NOTES

1. NEW EQUIPMENT INSTALLED FROM PREVIOUS PHASES, OR BEING INSTALLED IN THIS PHASE SHALL BE PROTECTED THROUGH THE REMAINING PHASES. THE TRAFFIC SIGNAL SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
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4. ADJUST THE LOCATION THE SIGNAL HEADS AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
5. SEE THE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.

GENERAL NOTES:

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2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
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CENTURY ENGINEERING
CONSULTING ENGINEERS – PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND

SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
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STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND CENTER DRIVE
BETHESDA, MD

MOT PHASE 2 – TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY EMM — COUNTY MONTGOMERY
DRAWN BY EMM — LOGMILE 015018701.6.2
CHECKED BY MR / NR — TMS NO. J691
F.A.P. NO. _____ — TOD NO. _____

TB NO. 4429B | DRAWING SG-07.2 OF 18 | SHEET NO. 42 OF 57

PLOTTED: Friday, April 19, 2019 AT 11:44 PM
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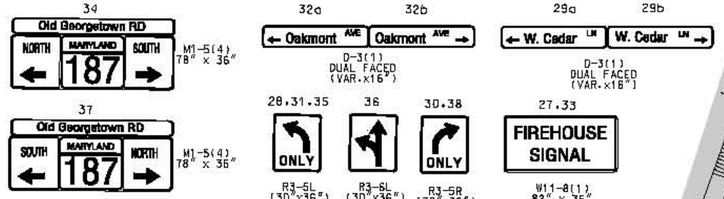
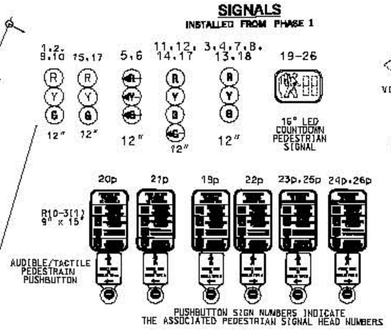
BY: nrobinson

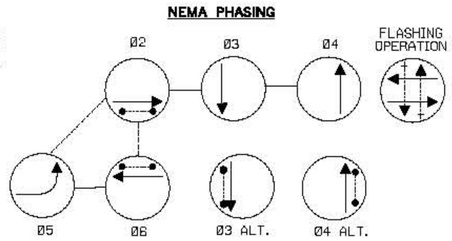
SIGNS
INSTALLED FROM PHASE 1



MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

SIGNALS
INSTALLED FROM PHASE 1





NEMA PHASING

NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.

EQUIPMENT DETAILS (Constructed In PHASE 1)

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH 50' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD. AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERAS, AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 15' "T" STEEL POLE WITH 60' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, OPTICON EYE,AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

E. 15' "T" STEEL POLE WITH 38' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERA, AND SIGNS. (2-3" SCHEDULE 80 90° PVC BEND).

F. INSTALL 10' PEDESTAL POLE ON BREAKAWAY BASE WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION, (NOTE: 1-2", 90° PVC SCHEDULE 80 BEND).

G. 10' (CUT TO 5') PEDESTAL POLE ON BREAKAWAY BASE WITH AUDIBLE PUSHBUTTON STATION, (1-2" SCHEDULE 80 90° PVC BEND).

H. 15' "T" STEEL POLE WITH A TWIN 60' MAST ARM (CUT TO 38') x 70' MAST ARM, TRAFFIC SIGNAL HEADS,AND SIGNS. (2-3" SCHEDULE 80 90° PVC BEND).

J. 15" "T" STEEL POLE WITH 60' MAST ARM (CUT TO 50'), TRAFFIC SIGNAL HEADS, AND SIGN, (2-3" SCHEDULE 80 90° PVC BEND).

K. ELECTRICAL HANDHOLE.

L. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

M. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

N. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

O. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED PRIOR TO FINAL ROAD SURFACE.

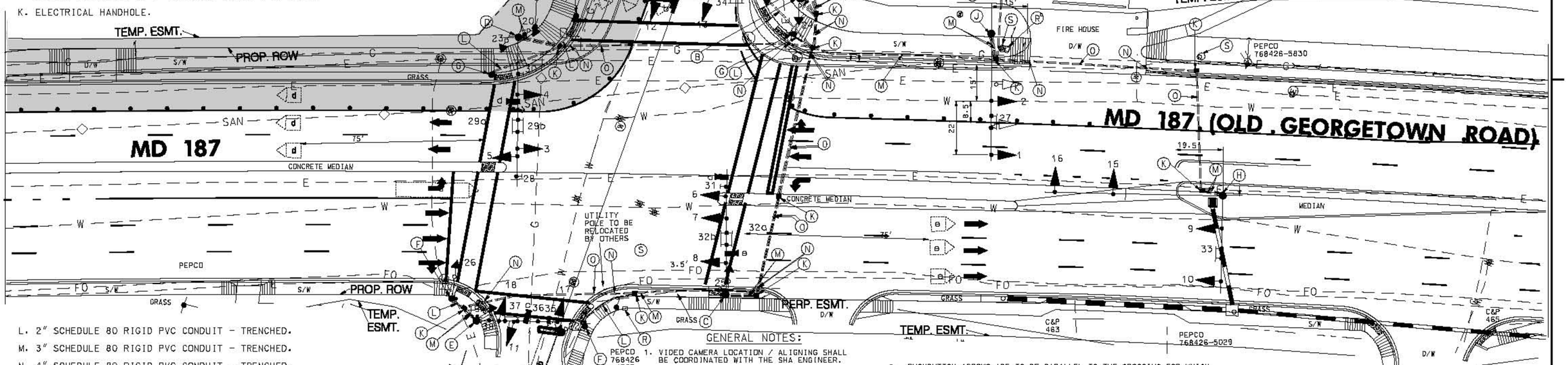
P. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # unknown. THREE-LENGHTS OF 1-CONDUCTOR NO. 2/0 AWG THHN/THWN PROVIDES SERVICE FEED.

Q. PROPOSED SERVICE FEED BY OTHERS.

MOT PHASE 4 NOTES

1. NEW EQUIPMENT INSTALLED FROM PREVIOUS PHASES, OR BEING INSTALLED IN THIS PHASE SHALL BE PROTECTED THROUGH THE REMAINING PHASES. THE TRAFFIC SIGNAL SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
2. THE CONTROLLER CABINET OUTSIDE THE CONSTRUCTION AREAS SHALL BE PROTECTED THROUGH THE REMAINING PHASES.
3. THE SERVICE PEDESTAL OUTSDE THE CONSTRUCTION AREAS SHALL BE PROTECTED. CONDUIT AND WIRING SHALL REMAIN OPERATIONAL AT ALL TIMES.
4. ADJUST THE LOCATION THE SIGNAL HEADS AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
5. SEE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.

THE FIBER OPTIC CABLES FOR THE SURVEILLANCE CAMERAS AND THE 50 PAIR INTERCONNECT CABLE TRAVELS OVERHEAD ON THE EAST SIDE OF MD 187. THE UTILITY POLE RELOCATION WILL DICTATE THEIR LOCATION.



GENERAL NOTES:

1. VIDED CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THIS PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF THE NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, AND THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS,TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, AND 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL PROPOSED SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SEPARATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTONS, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED, APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND

SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES
F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND CEDAR LANE / OAKMONT AVENUE
BETHESDA, MD

MOT PHASE 4 - TRAFFIC SIGNAL PLAN

SCALE 1" = 20' ADVERTISED DATE _____ CONTRACT NO. M06935370

DESIGNED BY	EMM	COUNTY	MONTGOMERY
DRAWN BY	EMM	LOGMILE	015018701.74
CHECKED BY	MR / NR	TMS NO.	J691
F.A.P. NO.	SEE TITLE SHEET	TOD NO.	

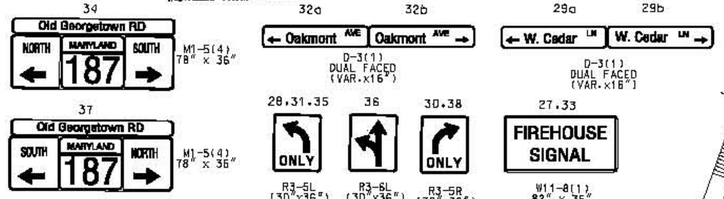
TB NO. 4428C | DRAWING SG-09.4 OF 18 | SHEET NO. 44 OF 67

BY: mrobinson

PLOTTED: Friday, April 16, 2010 AT 11:44 PM
FILE: W:\MDOT\transportation\27687-09 brac-md187 @ cedar lane-oakmont\project\p09_P01-and P4 MD187cedar.dgn

SIGNS

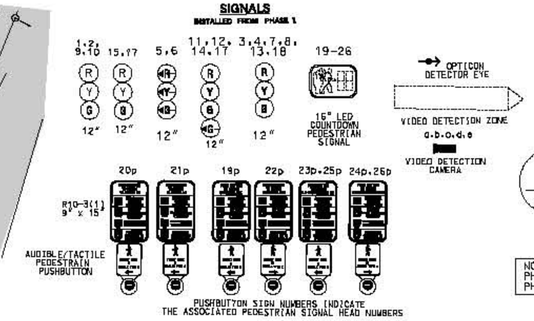
INSTALLED FROM PHASE 1



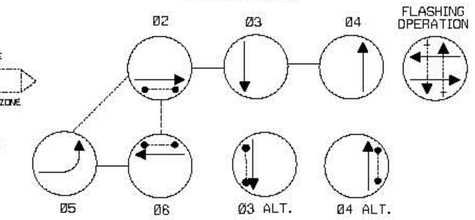
MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

SIGNALS

INSTALLED FROM PHASE 1



NEMA PHASING



NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.

EQUIPMENT DETAILS Constructed in PHASE 1

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH 50' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERAS, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 15' "T" STEEL POLE WITH 60' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, VIDEO DETECTION CAMERA, OPTICON EYE, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

E. 15' "T" STEEL POLE WITH 38' MAST ARM, TRAFFIC SIGNAL HEADS, LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PEDESTRIAN PUSHBUTTON STATION, VIDEO DETECTION CAMERA, AND SIGNS (2-3" SCHEDULE 80 90° PVC BEND).

F. 10' PEDESTAL POLE ON BREAKAWAY BASE WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION (NOTE: 1-2", SCHEDULE 80 90° PVC BEND).

G. 10' (CUT TO 5') PEDESTAL POLE ON BREAKAWAY BASE WITH AUDIBLE PUSHBUTTON STATION (1-2" SCHEDULE 80 90° PVC BEND).

H. 15' "T" STEEL POLE WITH A TWIN 60' MAST ARM (CUT TO 38') x 70' MAST ARM, TRAFFIC SIGNAL HEADS, AND SIGNS (2-3" SCHEDULE 80 90° PVC BEND).

J. 15" "T" STEEL POLE WITH 60' MAST ARM (CUT TO 50'), TRAFFIC SIGNAL HEADS, AND SIGN (2-3" SCHEDULE 80 90° PVC BEND).

K. ELECTRICAL HANDHOLE.

L. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

M. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

N. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

O. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED

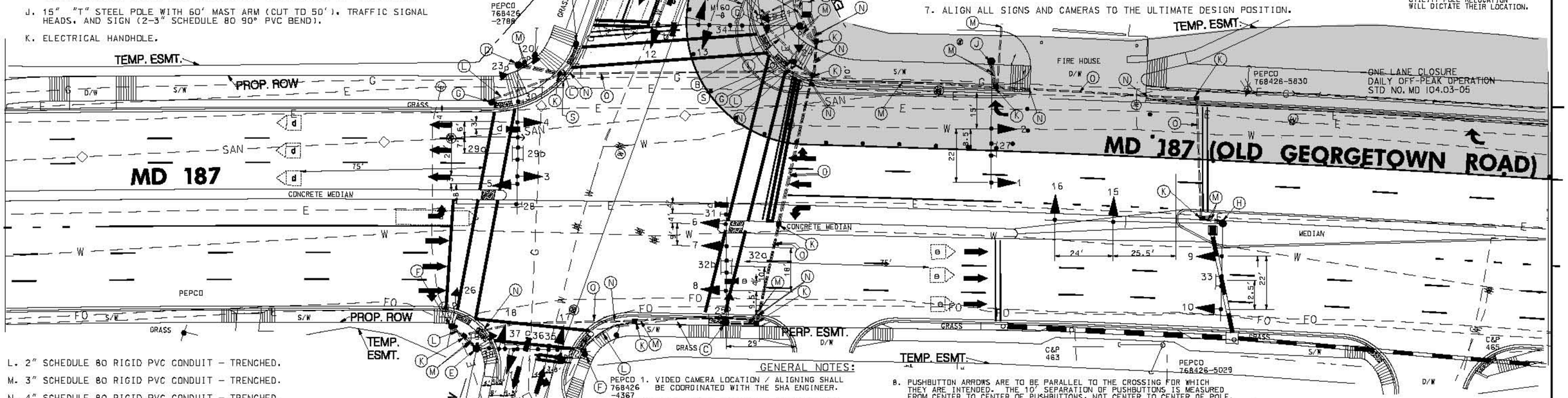
P. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # unknown. THREE-LENGHTS OF 1-CONDUCTOR NO. 2/0 AWG THHN/THWN PROVIDES THE SERVICE FEED

Q. PROPOSED SERVICE FEED BY OTHERS.

MOT PHASE 5 NOTES

1. THE NEW EQUIPMENT INSTALLED FROM PREVIOUS PHASES, OR BEING INSTALLED IN THIS PHASE SHALL BE PROTECTED THROUGH THE REMAINING PHASES. THE TRAFFIC SIGNAL SHALL REMAIN OPERATIONAL THROUGH ALL CONSTRUCTION PHASES.
2. THE CONTROLLER CABINET OUTSIDE THE CONSTRUCTION AREAS SHALL BE PROTECTED THROUGH THE REMAINING PHASES.
3. THE SERVICE PEDESTAL OUTSIDE THE CONSTRUCTION AREAS SHALL BE PROTECTED. CONDUIT AND WIRING SHALL REMAIN OPERATIONAL AT ALL TIMES.
4. ADJUST THE LOCATION OF SIGNAL HEADS, AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
5. SEE THE MDT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.
6. AT THE END OF THIS CONSTRUCTION PHASE, RETURN ALL TRAFFIC SIGNAL HEADS TO THE ULTIMATE DESIGN POSITION.
7. ALIGN ALL SIGNS AND CAMERAS TO THE ULTIMATE DESIGN POSITION.

THE FIBER OPTIC CABLES FOR THE SURVEILLANCE CAMERAS AND THE 50 PAIR INTERCONNECT CABLE TRAVELS OVERHEAD ON THE EAST SIDE OF MD 187. THE UTILITY POLE RELOCATION WILL DICTATE THEIR LOCATION.



GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER. (PEPCO 768426-4367)
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS, REFER TO THE PAVEMENT MARKING PLANS. OTHER THAN THOSE DETAILED ON THE PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF THE NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, AND THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.01, MD 818.02, AND 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL PROPOSED SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SEPARATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTONS, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" x 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED AND APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND

SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES
F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT

MD 187 AND CEDAR LANE / OAKMONT AVENUE
BETHESDA, MD

MOT PHASE 5 – TRAFFIC SIGNAL PLAN

SCALE 1"= 20'	ADVERTISED DATE	CONTRACT NO.	M05935370
DESIGNED BY	EMM	COUNTY	MONTGOMERY
DRAWN BY	EMM	LOGMILE	015018701.74
CHECKED BY	MR / NR	TMS NO.	J691
F.A.P. NO.	SEE TITLE SHEET	TOD NO.	
TS NO. 4428C	DRAWING SG-TL.5	OF 18	SHEET NO. 46 OF 67

BY: nrobinson

PLOTTED: Friday, April 19, 2019 AT 11:44 PM
FILE: s:\3006\transportation\37567-06 brac-and187 @ cedar lane-oakmont\exact\p06_P01-and P5 MD187cedar.dgn

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

EQUIPMENT DETAILS (Constructued in PHASE 1)

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH TWIN 50' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS,(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 10' PEDESTAL POLE ON BREAKAWAY COUPLING ON 18"x36" FOUNDATION WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION (NOTE: 1-2", SCHEDULE 80 90° PVC BEND).

E. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown).

F. PROPOSED SERVICE FEED BY OTHERS.

G. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

H. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

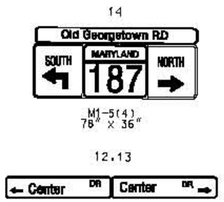
J. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

K. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED.

L. ELECTRICAL HANDHOLE.

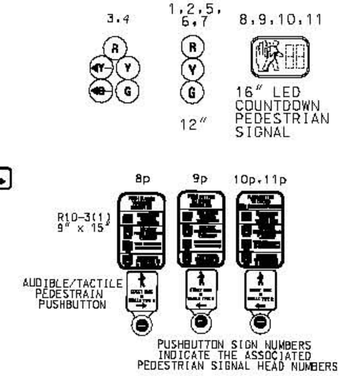
SIGNS

INSTALLED FROM PHASE 1

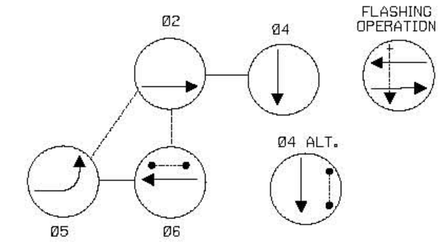


SIGNALS

INSTALLED FROM PHASE 1



NEMA PHASING

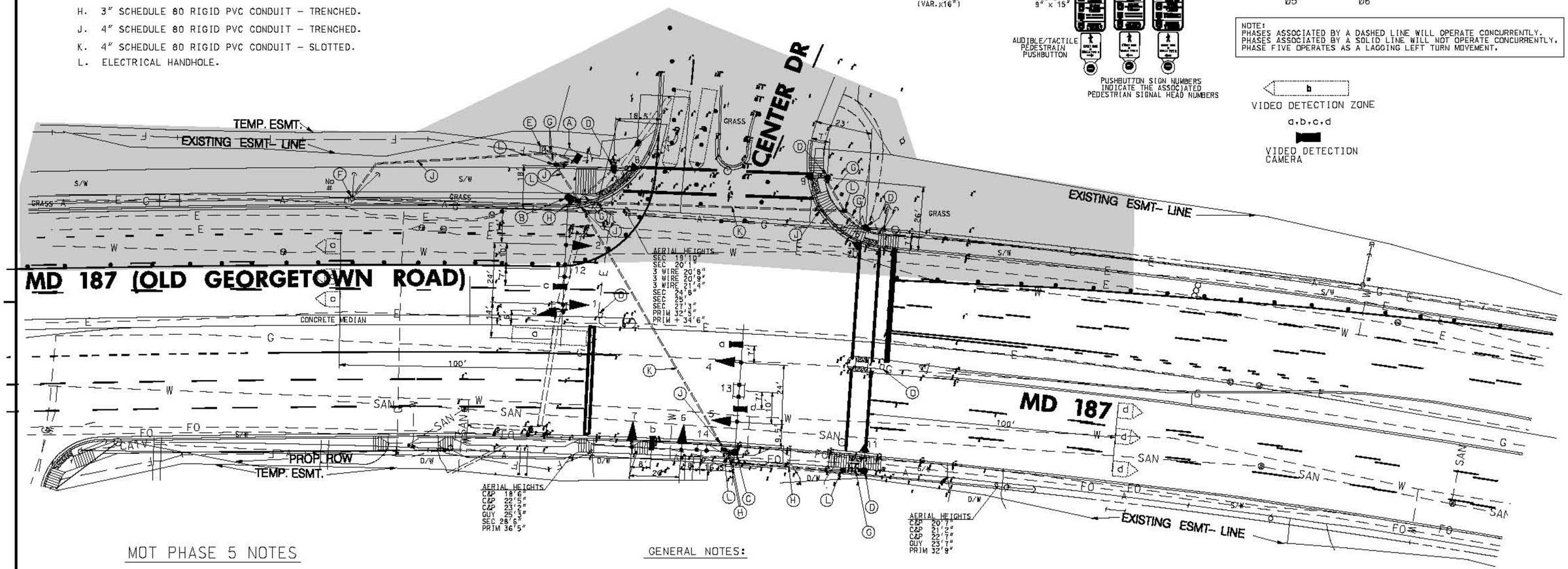


NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
PHASE FIVE OPERATES AS A LAGGING LEFT TURN MOVEMENT.

VIDEO DETECTION ZONE

a,b,c,d

VIDED DETECTION CAMERA



MOT PHASE 5 NOTES

1. THE NEW EQUIPMENT INSTALLED FROM PREVIOUS PHASES, OR BEING INSTALLED IN THIS PHASE SHALL BE PROTECTED DURING THIS PHASE. THE TRAFFIC SIGNAL SHALL REMAIN OPERATIONAL THROUGH THE END OF THIS CONSTRUCTION PHASE.
2. THE CONTROLLER CABINET OUTSIDE THE CONSTRUCTION AREAS SHALL BE PROTECTED THROUGH THE REMAINING CONSTRUCTION.
3. THE SERVICE PEDESTAL OUTSIDE THE CONSTRUCTION AREA SHALL BE PROTECTED. CONDUIT AND WIRING SHALL REMAIN OPERATIONAL AT ALL TIMES.
4. ADJUST THE LOCATION OF SIGNAL HEADS, AS REQUIRED. SIGNAL HEAD ADJUSTMENT MUST BE APPROVED BY THE PROJECT ENGINEER.
5. SEE THE MOT PLANS FOR MAINTENANCE OF PEDESTRIAN MOVEMENT DURING CONSTRUCTION.
6. AT THE END OF THIS CONSTRUCTION PHASE, RETURN ALL TRAFFIC SIGNAL HEADS TO THE ULTIMATE DESIGN POSITION.
7. ALIGN ALL SIGNS AND CAMERAS TO THE ULTIMATE DESIGN POSITION.

GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THIS PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON THE COMPLETION OF NEW SIGNAL.
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8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SPERATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTON, NOT CENTER TO CENTER POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2. AND THE NCHRP PUBLICATION "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED AND APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND

SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
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F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND CENTER DRIVE
BETHESDA, MD

MOT PHASE 5 - TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. MD5935370

DESIGNED BY EMM
DRAWN BY EMM
CHECKED BY MR / NR
F.A.P. NO. _____
COUNTY MONTGOMERY
LOGMILE 015018701,6.2
TMS NO. J691
TOD NO. _____

TS NO. 4429B | DRAWING 50-13.5 OF 18 | SHEET NO. 48 OF 57

PLOTTED: Friday, April 19, 2019 AT 11:45 PM
FILE: n:\3008\transportation\27287-06 brac-ent187 @ center line-alignment\exact\p06_P01-and P5 MD187center.dgn

BY: mrobinson

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

SIGNS

34 — Old Georgetown RD NORTH 187 SOUTH — M1-5(4) 78" x 36"

37 — Old Georgetown RD SOUTH 187 NORTH — M1-5(4) 78" x 36"

32a — ← Oakmont AVE — 32b — Oakmont AVE →: D-3(1) DUAL FACED (VAR.x16")

29a — ← W. Cedar LN — 29b — W. Cedar LN →: D-3(1) DUAL FACED (VAR.x16")

28,31,35 — ONLY — R3-5L (30"x36")

36 — R3-6L (30"x36")

30,38 — ONLY — R3-5R (30"x36")

27,33 — FIREHOUSE SIGNAL — W11-8(1) 82" x 36"

SIGNALS

1,2, 9,10 — 15,17 — 5,6 — 11,12, 14,17 — 3,4,7,8, 13,18 — 19-26

R Y G — 12" 12" 12" 12" 12"

16" LED COUNTDOWN PEDESTRIAN SIGNAL

20p 21p 19p 22p 23p,25p 24p,26p

R10-3(1) 9" x 15"

AUDIBLE/TACTILE PEDESTRAIN PUSHBUTTON

PUSHBUTTON SIGN NUMBERS INDICATE THE ASSOCIATED PEDESTRIAN SIGNAL HEAD NUMBERS

NEMA PHASING

Ø2 Ø3 Ø4 FLASHING OPERATION

Ø5 Ø6 Ø3 ALT. Ø4 ALT.

NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.

OPTICON DETECTOR EYE

VIDEO DETECTION ZONE

a,b,c,d,e VIDEO DETECTION CAMERA

Intersection Fire House — FIREHOUSE PRE-EMPTION

EQUIPMENT DETAILS

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS. TRAFFIC SIGNAL HEADS. LED COUNTDOWN PEDESTRIAN SIGNAL HEADS. VIDEO DETECTION CAMERA. AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH 50' MAST ARM. TRAFFIC SIGNAL HEADS. LED COUNTDOWN PEDESTRIAN SIGNAL HEAD. AUDIBLE PEDESTRIAN PUSHBUTTON STATION. VIDEO DETECTION CAMERAS. AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 15' "T" STEEL POLE WITH 60' MAST ARM. TRAFFIC SIGNAL HEADS. LED COUNTDOWN PEDESTRIAN SIGNAL HEADS. VIDEO DETECTION CAMERA. OPTICON EYE. AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

E. 15' "T" STEEL POLE WITH 38' MAST ARM. TRAFFIC SIGNAL HEADS. LED COUNTDOWN PEDESTRIAN SIGNAL HEADS. AUDIBLE PEDESTRIAN PUSHBUTTON STATION. VIDEO DETECTION CAMERA. AND SIGNS. (2-3" SCHEDULE 80 90° PVC BEND).

F. 10' PEDESTAL POLE ON BREAKAWAY COUPLING 18"x 36" BASE WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS. AUDIBLE PUSHBUTTON STATION. (NOTE: 1-2". SCHEDULE 80 90° PVC BEND).

G. 10' (CUT TO 5') PEDESTAL POLE ON BREAKAWAY COUPLING 18"x 36" BASE WITH AUDIBLE PUSHBUTTON STATION. (1-2" SCHEDULE 80 90° PVC BEND).

H. 15' "T" STEEL POLE WITH A TWIN 60' MAST ARM (CUT TO 38') x 70' MAST ARM. TRAFFIC SIGNAL HEADS.AND SIGNS. (2-3" SCHEDULE 80 90° PVC BEND).

J. 15" "T" STEEL POLE WITH 60' MAST ARM (CUT TO 50'). TRAFFIC SIGNAL HEADS. AND SIGN. (2-3" SCHEDULE 80 90° PVC BEND).

K. ELECTRICAL HANDHOLE.

L. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

M. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

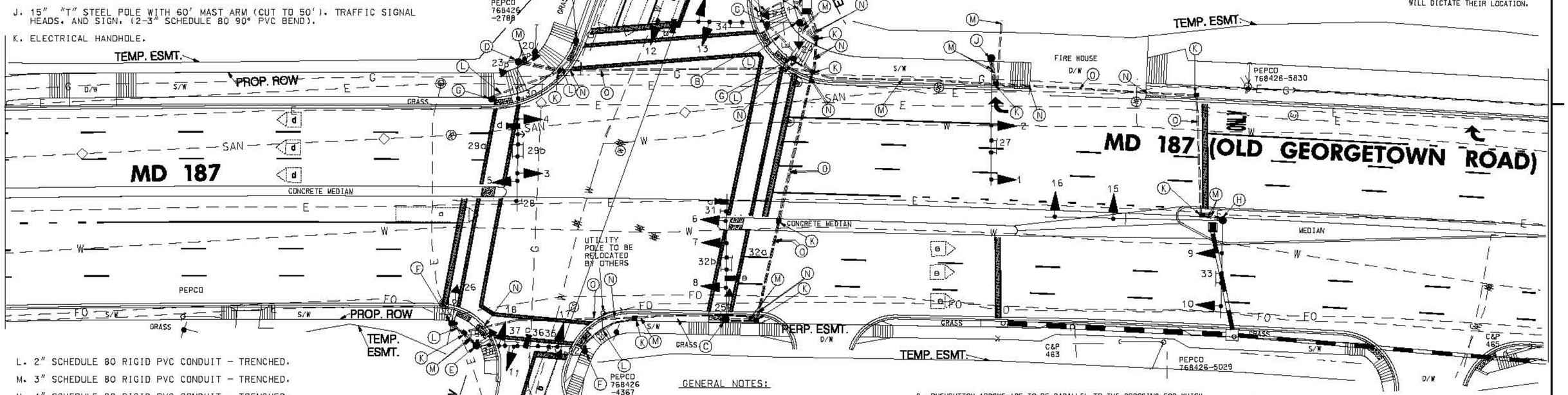
N. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

O. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED

P. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). LENGHTS OF 1-CONDUCTOR NO. 2/0 AWG THHN/THWN TO SUPPY THE SERVICE.

Q. SERVICE FEED BY OTHERS.

THE FIBER OPTIC CABLES FOR THE SURVEILLANCE CAMERAS AND THE 50 PAIR INTERCONNECT CABLE TRAVELS OVERHEAD ON THE EAST SIDE OF MD 187. THE UTILITY POLE RELOCATION WILL DICTATE THEIR LOCATION.



GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
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4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON COMPLETION OF THE NEW SIGNAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATIND ALL SIGNAL CABLE TO THE APPROPRIATE TERMINAL AND FOR PROPERLY LABELING EACH CABLE. MONTGOMERY COUNTY SIGNAL SHOP WILL BE RESPONSIBLE FOR ALL INTERNAL CABINET WIRING AND SPLICING OF INTERCONNECT CABLES.
6. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
7. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. AND THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS. TO MEET CLEARANCES AS SPECIFIED IN MD 816.03. MD 818.01. MD 818.02. AND 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO INSTALLATION OF ALL PROPOSED SIGNAL EQUIPMENT.
8. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED. THE 10' SEPARATION OF PUSHBUTTONS IS MEASURED FROM CENTER TO CENTER OF PUSHBUTTONS. NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 INCHES FROM A 60" x 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
10. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTON MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.09 AND FIG. 4E.2 AND THE NCHRP PUBLICATION. "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET. THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL A DESIGN WAIVER IS OBTAINED. APPROVED BY THE DIRECTOR OF THE OFFICE OF TRAFFIC AND SAFETY.

CENTURY ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031

UTILITY LEGEND	
SD	STORM DRAIN
G	GAS MAIN
W	WATER MAIN
S	SEWER MAIN
E	ELECTRIC CABLES
A	AERIAL CABLES
T	TELEPHONE CABLES
F	FIBER-OPTIC

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND W.CEDAR LANE / OAKMONT AVENUE
BETHESDA, MD

ULTIMATE - TRAFFIC SIGNAL PLAN

APPROVALS: TEAM LEADER / ASST. DIV. CHIEF / DIVISION CHIEF / OFFICE DIRECTOR — ORIGINALS ON FILE IN MONTGOMERY COUNTY

REVISIONS

C	BRAC RECONST. WAST ARMS, APS&CD PEDS, VIDEO DET SHA # M05935370	4/2010	TIMS# J691
EMK/JR			
A	10/29/1974 INSTALL OF SIGNAL (MONT.CO. DRAWING NO.E-74-168)		
AR	WSW	RCW	

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. M05935370

DESIGNED BY AR — COUNTY MONTGOMERY
DRAWN BY — LOGMILE 015018701.74
CHECKED BY — TIMS NO. J691
F.A.P. NO. SEE TITLE SHEET — TOD NO.

TS NO. 4428C | DRAWING SG-15 OF 18 | SHEET NO. 50 OF 67

PLOTTED: Friday, April 16, 2010 AT 11:45 PM
FILE: s:\3008\transportation\27567-06 brac-mc187 @ cedar lane-oakmont\geo\j691_PCDTMD187cedar.dgn

BY: nrobinson

MD 187 (OLD GEORGETOWN RD) IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION

EQUIPMENT DETAILS

A. NEMA 6 BASE-MOUNTED CABINET AND CONTROLLER WITH NECESSARY EQUIPMENT.

B. 15' "T" STEEL POLE WITH 60' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS (NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

C. 15' "T" STEEL POLE WITH TWIN 50' MAST ARMS, TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, AND SIGNS.(NOTE: 2-3" SCHEDULE 80 90° PVC BEND).

D. 10' PEDESTAL POLE ON BREAKAWAY COUPLING ON 18"x36" FOUNDATION WITH LED COUNTDOWN PEDESTRIAN SIGNAL HEADS, AUDIBLE PUSHBUTTON STATION (NOTE: 1-2", SCHEDULE 80 90° PVC BEND).

E. 100 AMP METERED SERVICE PEDESTAL WITH 4" SCHEDULE 80 PVC CONDUIT TO UTILITY POLE # (unknown). PROVIDE A 1' STUB AND A PULL STRING AT THE BASE FOR THE INSTALLATION SERVICE

F. PROPOSED SERVICE FEED BY OTHERS.

G. 2" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

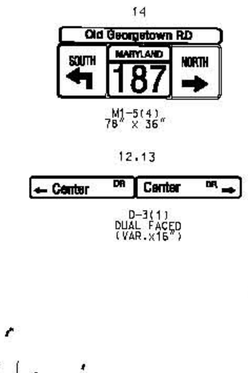
H. 3" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

J. 4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED.

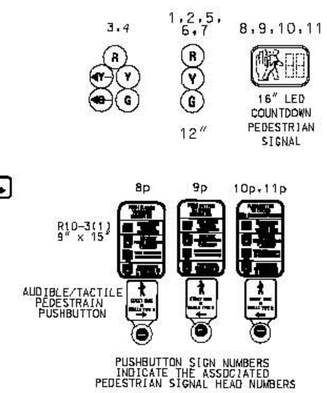
K. 4" SCHEDULE 80 RIGID PVC CONDUIT - SLOTTED.

L. ELECTRICAL HANDHOLE.

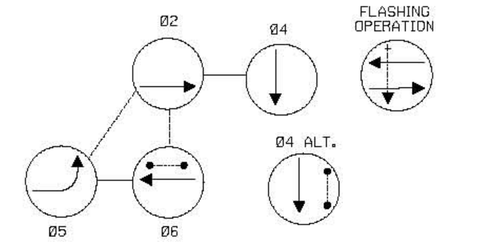
SIGNS



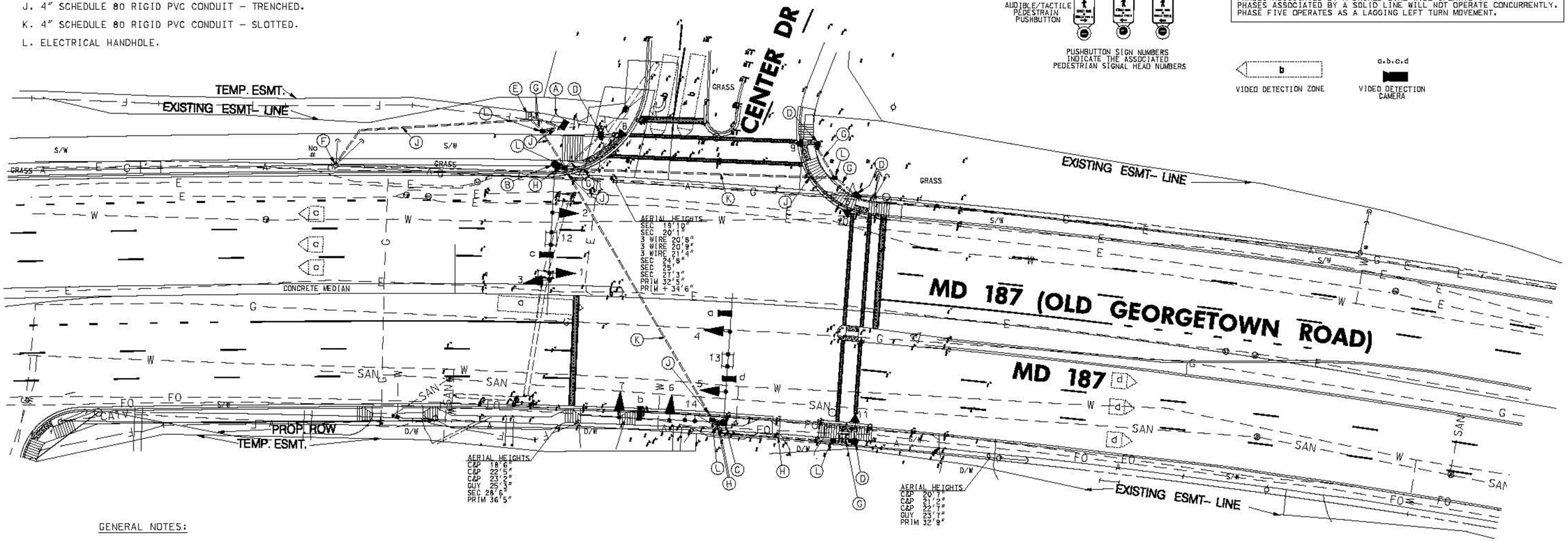
SIGNALS



NEMA PHASING



NOTE:
PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY.
PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
PHASE FIVE OPERATES AS A LAGGING LEFT TURN MOVEMENT.



GENERAL NOTES:

1. VIDEO CAMERA LOCATION / ALIGNING SHALL BE COORDINATED WITH THE SHA ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE AND CABINET LOCATIONS PRIOR TO INSTALLATION.
3. FOR FINAL PAVEMENT MARKINGS REFER TO THE PAVEMENT MARKING PLANS, OTHER THAN THOSE DETAILED ON THE PLAN. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH MSHA STANDARDS.
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UTILITY LEGEND	
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APPROVALS
TEAM LEADER
ASST. DIV. CHIEF
DIVISION CHIEF
OFFICE DIRECTOR
ORIGINALS ON FILE IN MONTGOMERY COUNTY

REVISIONS

B	BRAC RECONST. MAST ARMS, APS&CD PEDS, VIDEO DET SHA # MO5935370 TIMS# J691	4/2010	
EMM			
A	INSTALL OF SIGNAL @MONT.CO. DRAWING NO. E-76-005	1/08/1975	
GSD	WSW	RCW	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF TRAFFIC & SAFETY
TRAFFIC ENGINEERING DESIGN DIVISION

BRAC INTERSECTION IMPROVEMENT
MD 187 AND CENTER DRIVE
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ULTIMATE – TRAFFIC SIGNAL PLAN

SCALE 1"= 20' ADVERTISED DATE _____ CONTRACT NO. MO5935370

DESIGNED BY GSD
DRAWN BY GSD
CHECKED BY WSW
F.A.P. NO. _____
COUNTY MONTGOMERY
LOCAMILE 015018701.6.2
TIMS NO. J691
TOD NO. _____

TS NO. 4429B | DRAWING SG-17 OF 18 | SHEET NO. 51 OF 56

PLOTTED: Friday, April 16, 2010 AT 11:49 PM
FILE: H:\J600\transportation\27567-06 brac-sc\87 @ cedar lane-sidewalk\exact\p06_PCDMD187center.dgn

BY: nrobinson