



STATE HIGHWAY  
ADMINISTRATION



The Office of Highway Development  
Plats and Surveys Division

## **Plat Manual – 2020**

Consultant Version

**Office of Highway Development  
Plats and Surveys Division  
Plat Manual**

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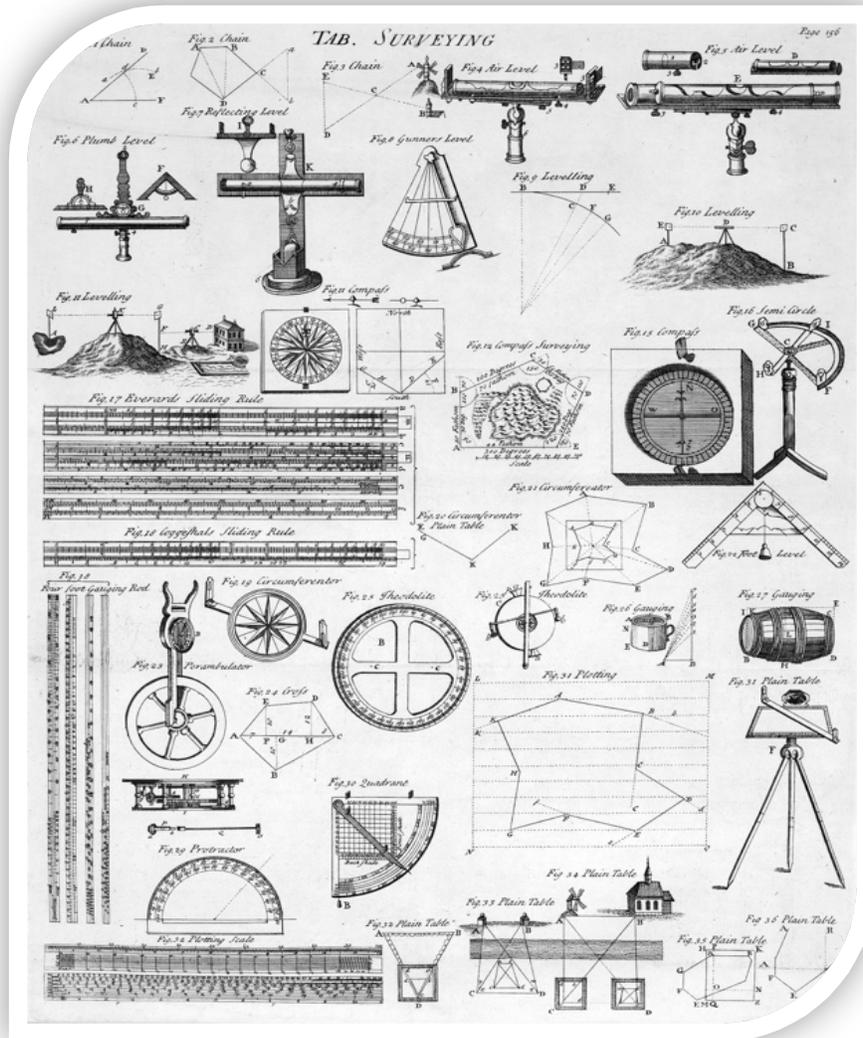
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## MDOT Commonly Used Acronyms

CAD or CADD – Computer Aided Design and Drafting  
COMAR – Code of Maryland Regulations  
DELM – Declaration of Extra Land Memo  
DLR – Department of Licensing and Regulation  
DNR – Department of Natural Resources  
ERD – Engineering Resource Division (SHA OHD)  
GIS – Geographic Information System  
GPS – Global Positioning System  
HDD – Highway Design Division (SHA OHD)  
HHD – Highway Hydraulics Division (SHA OHD)  
ICD – Innovative Contracting Division  
MDOT SHA – Maryland Department of Transportation State Highway Administration  
MOU – Memorandum of Understanding  
NTP – Notice to Proceed  
OBD – Office of Bridge Development (MDOT SHA)  
OED – Office of Environmental Design (MDOT SHA)  
OHD – Office of Highway Development (MDOT SHA)  
OOS – Office of Structures (MDOT SHA)  
OOTS – Office of Traffic and Safety (MDOT SHA)  
OPPE – Office of Planning & Preliminary Engineering (MDOT SHA)  
ORE – Office of Real Estate (MDOT SHA)  
PLS – Professional Land Surveyor/Property Line Surveyor  
PRD – Project Review Division (SHA OHD)  
PSD – Plats and Surveys Division (SHA OHD)  
R/W – Right of way  
SRC – State Roads Commission  
SUE – Subsurface Utility Engineering  
TE – Transportation Engineer or Temporary Employee  
TMDL – Total Maximum Daily Load  
TSO – The Secretary's Office (MDOT)  
USGS – United States Geological Survey

# Preface

The purpose of this manual is to provide all Maryland Department of Transportation State Highway Administration (MDOT SHA) employees, consultants, and other personnel working for the State of Maryland guidelines, policies, and procedures established by the Plats and Surveys Division (PSD) to perform work for the state.



The Plats and Surveys Division creates plats to acquire lands either in fee simple or as an easement at the request of other divisions of the Office of Highway Development (OHD) in addition to other offices, e.g. Office of Structures (OOS), Office of Real Estate (ORE), and Office of Environmental Design (OED). The Plats and Surveys Division also produces plats, frequently accompanied by written descriptions, either to convey extra land or to transfer roads to other government agencies. These products are produced under the direct supervision of Professional Land Surveyors. They each lead a team of Transportation Engineers charged with the production of these plats and descriptions. These products are then signed and sealed by one of the Professional Land Surveyors.



## Introduction

The Plats and Surveys Division's primary function involves identifying topographic features and property boundaries that can influence the design and costs of projects as well as property impacts that are developed and shown on SHA right of way plats. As the custodian of field survey information, PSD maintains an up-to-date inventory of existing survey data, provided by both in-house and consultant surveyors.

The Plats Section investigates and re-establishes existing base lines of right of way, right of way limits, easement locations, and existing boundary lines of adjacent land parcels impacted by roadway improvements. This effort utilizes public and private plats, deeds, and other documents as well as field monumentation to determine these outlines. This section computes new right of way acquisitions and prepares both the plats and the metes and bounds descriptions for those acquisitions. They also prepare plat descriptions for conveyances, road transfers, and condemnations. PSD supports many clients, such as the seven divisions of the Office of Highway Development (OHD), Office of Structures (OOS), the seven District Right of Way and Maintenance Offices, Office of Real Estate (ORE), Maryland Transportation Authority, the Office of Attorney General, and private consultants.

Plat work is supported by the field survey unit, the research and technical support center, the CADD mapping and control section, the topographic mapping team, and the geodetic control section.



## Chapter I - Research

Research is the systematic investigation into the project area to compile all information available pertaining to the project location. In addition, research is the first step when starting a new project. This serves as an introduction to the area and shows what previous work has been done on site and close by. The purpose of the research is to gather useful information that can be used to reset the base line and right of way as it exists today.

Next is a step-by-step list to follow when performing private land research:

1. From one of the following online sources, print a copy of the tax map from MERLIN, MDPGIS, or eGIS/DARS site showing the subject property (or properties) and the surrounding properties.
2. From one of the web sites listed above, print or save the SDAT sheets for each property.
3. Use MDLANDREC to print or save the title deeds of each property. For the subject property, search the title back until the description for that property comes out of a larger parcel.
4. Use PLATS.net to print or save the record plats referenced in the title deeds. Obtain the deed that the plat was created from (known as the underlying deed).
5. If an SDAT sheet either does not list a deed reference or has a wrong deed reference, use the Grantor or the Grantee to search for the deed in MDLANDREC.
  - a. Most counties allow searching of an individual or corporate name back to the 1970's. Active indices are used beyond that. When opening a search window, the indices are arranged by the Grantor or the Grantee and date range. Each county may have a different way of indexing, and the older indexing can be a bit confusing. Read the guidelines found on the webpage on how to search in the older indices.
6. Other useful sites include the local historical societies, Maryland State Archives, the National Archives, and the Library of Congress to mention a few.

There are several private surveyors in the Baltimore area that have gathered records of other retired surveyors and/or surveying businesses and those records are available either at no cost or for a fee depending on the individual.

### List of available resources (Available at MDOT SHA)

- Microfilms (Exhibit 1 and Exhibit 2)
- Microfiche files (Exhibit 3 and Exhibit 4)
- Construction and as-built plan sheets (Exhibit 5)
- Deeds (Exhibit 6)
- Yellow cards (Exhibit 7 and Exhibit 8)
- Road life cards
- Early history files (Exhibit 9)
- Agreements regarding right of way (Exhibit 10)
- Road transfers (Exhibit 11)
- Route folders (Exhibit 12 and Exhibit 13)
- Master plats (Exhibit 14 and Exhibit 15)
- Control maps (Exhibit 16)
- Survey field Books (Exhibit 17)

### List of available online resources

- MDLANDREC.NET (<https://mdlandrec.net/main/index.cfm>) – Needs login information.
- MERLIN-Maryland's Environmental Resource & Land Information Network (<https://gisapps.dnr.state.md.us/MERLIN/index.html>) – Does not need to have account.
- SDAT – State Department of Assessment and Taxation. (<http://sd.dat.maryland.gov/RealProperty/Pages/default.aspx>) Does not need to have account.
- PLATS.NET (<http://plato.mdarchives.state.md.us/pages/index.aspx>) - Does not need to have account.

### List of the available online resources only to SHA employees

- OREMS - Office of Real Estate Management System;
- ORE R/W Plat Search – Plats can be searched by a plat number, contract, route #, county, etc.
- eGIS – This is a SHA wide tool with lots of information based on GIS format. This tool is used to search for a variety of documents from a wide range of offices.
- DARS (Digital Assets Referencing System) – a more in-depth explanation of this tool and some future additions is provided in Chapter VIII – GIS and Special Projects.

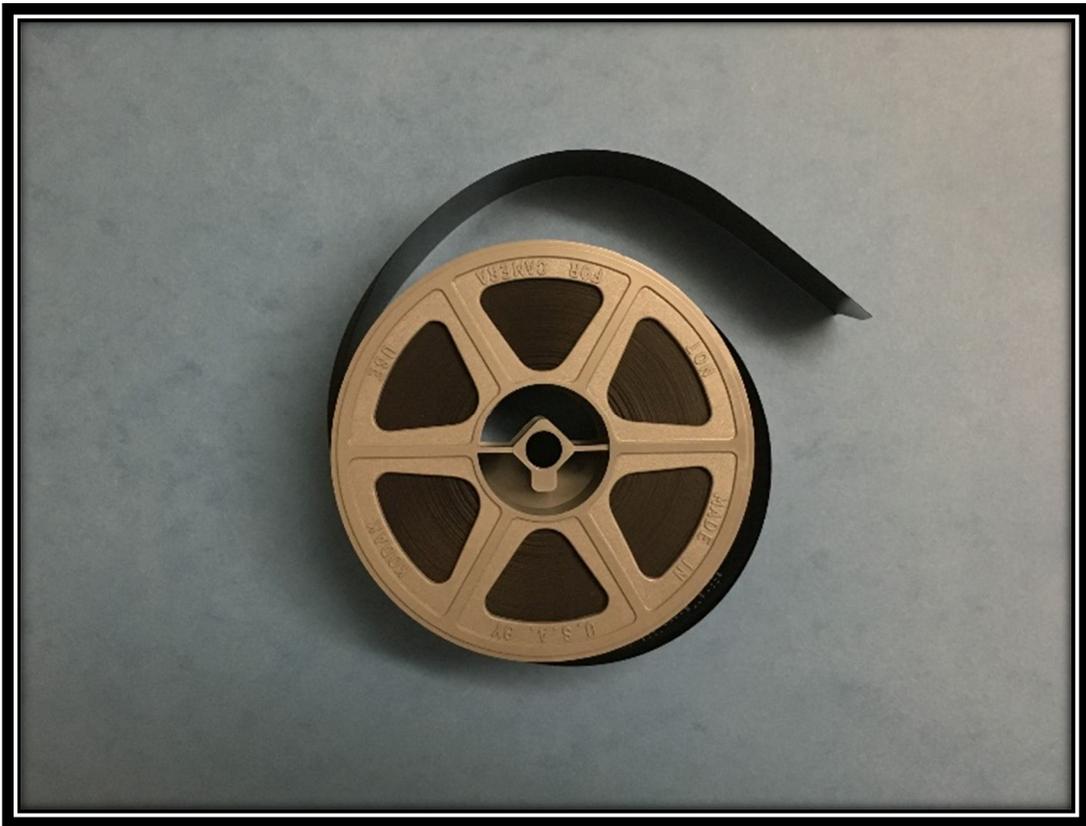
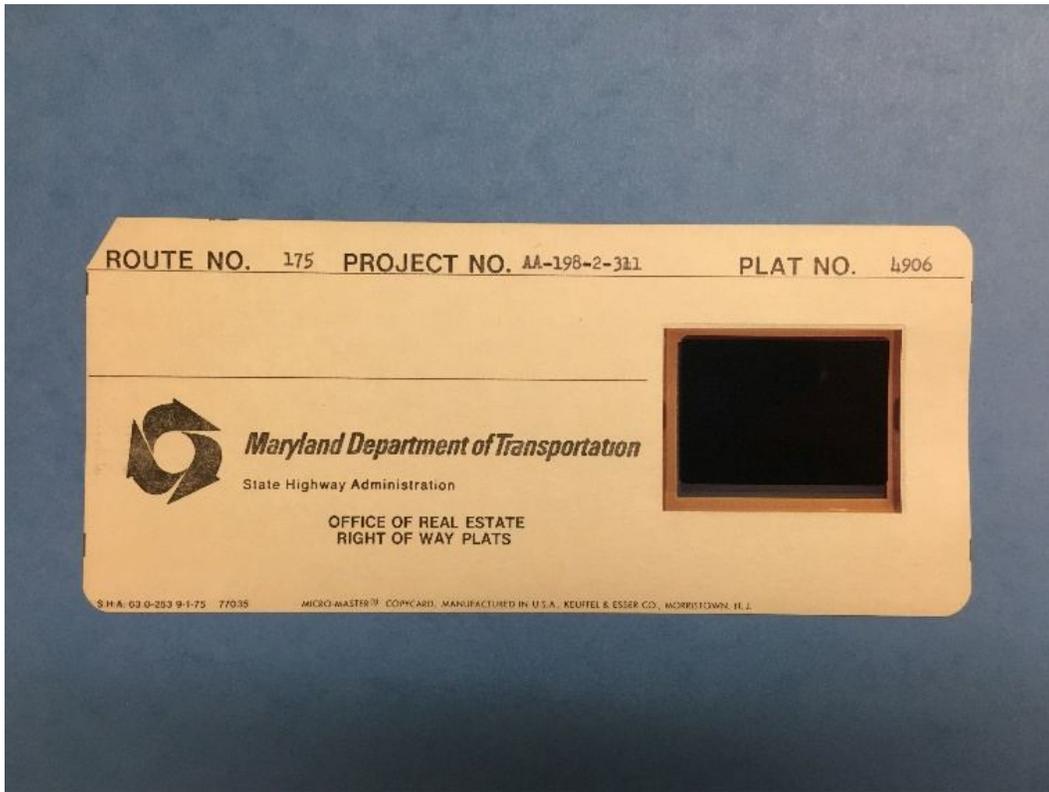
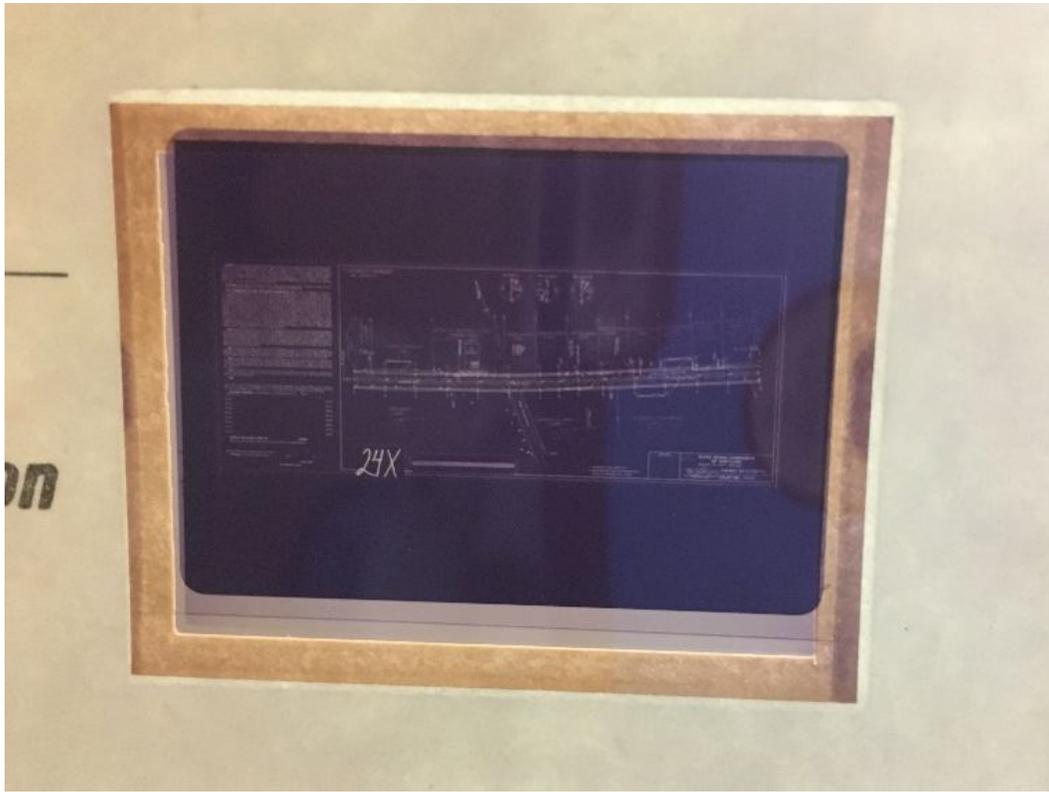


Exhibit 1 – Microfilms are used for item files and some early deeds.

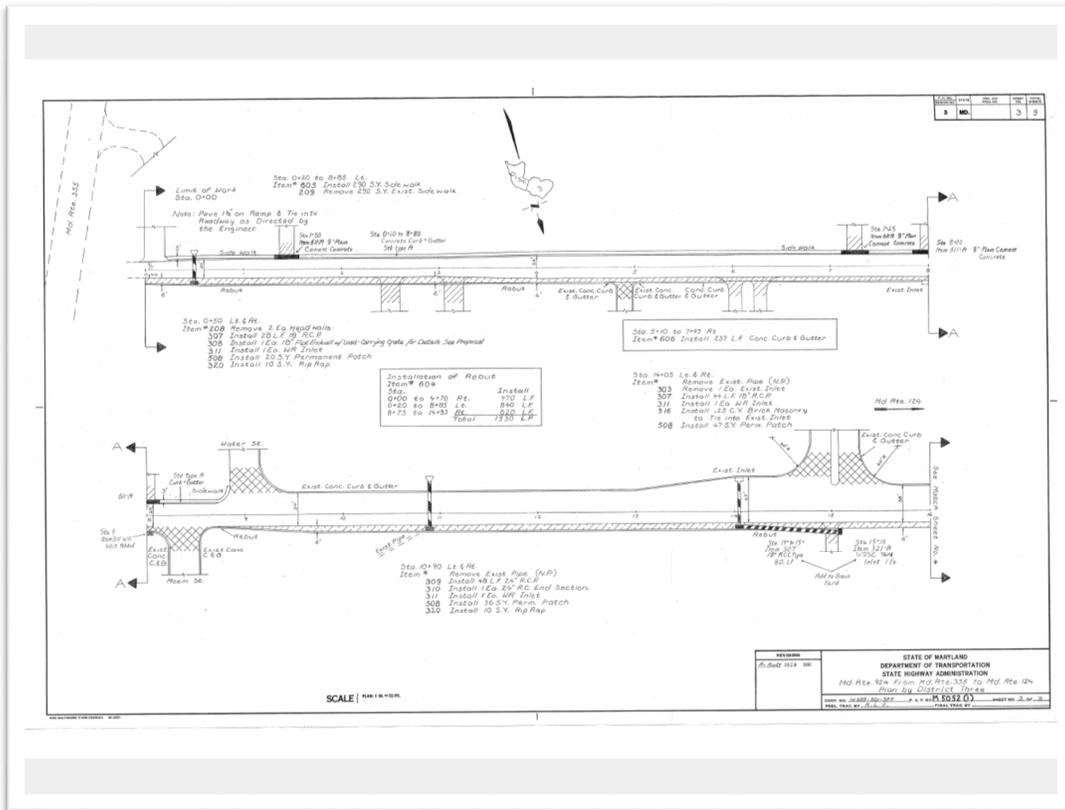




*Exhibit 3 - Microfiche item files contain all the available correspondence relating to the acquisition or other matters under that item number. (Found on the 2<sup>nd</sup> floor of ORE)*



*Exhibit 4 - Microfiche zoomed in to show detail*



**Exhibit 5** – Construction and as-built plan sheets can include helpful information on history of project, e.g. field books and plat numbers.  
 (Found on eGIS or follow the link <shahqfs3:SHA\OHD\OHD-Archives>)  
 (11x17 printout can be found in Appendix A1.)





June 25, 2012



**MEMORANDUM OF ACTION OF GREGORY I. SLATER  
DIRECTOR - OFFICE OF PLANNING AND PRELIMINARY ENGINEERING**

GREGORY I. SLATER, Director of Office of Planning and Preliminary Engineering executed a Road Transfer Agreement, attached hereto, dated June 25, 2012 between the State Highway Administration (SHA) and the City of Gaithersburg, Maryland, relative to the transfer of the following described roadway, MD 117, Old Towne Avenue subject to the conditions more fully set forth in the agreement. The effective date of transfer of the roadway to the City will be upon the date of the complete approval and execution of this agreement.

**State Highway Administration to the City of Gaithersburg, Maryland:**

MD 117: From MD 117 @ Service Road "A" easterly to the beginning of municipal maintenance @ Fuks Corner Avenue

Total Distance to the City: 0.20 +/- miles or 1056 +/- feet

Said agreement has been previously executed by the appropriate City's officials and approved as to form and legal sufficiency by Assistant Attorney General for the State of Maryland, Ms. Ellen A.W. Callahan.

Exhibit 10 - Agreements regarding right of way (Found on the 2<sup>nd</sup> floor of ORE)

Exhibit 11 - Road transfer agreements (RTA) with a county, municipality, or other government agency. (Found on the 2<sup>nd</sup> floor of ORE)

**ROAD TRANSFER AGREEMENT**

THIS ROAD TRANSFER AGREEMENT, made this 25<sup>th</sup> day of June, 2012, by and between the State Highway Administration (SHA) of the Department of Transportation of Maryland, hereinafter referred to as the "Highway Administration", party of the first part, and the City of Gaithersburg, Maryland, a body corporate and politic, hereinafter referred to as the "City", party of the second part.

WHEREAS, under authority contained in Transportation Article Title 8-304 of the Annotated Code of Maryland, the Highway Administration is empowered to agree to transfer title to, jurisdiction over, and responsibility for the maintenance of any State highway, or portion thereof, to the political subdivisions of Maryland, and the political subdivisions of Maryland are empowered to agree to accept title to, jurisdiction over, and responsibility for the maintenance of said State highway, or portion thereof, from the Highway Administration.

WHEREAS, the Highway Administration has agreed to transfer to the City the hereinafter described sections of road that were constructed by the State and the City has agreed to accept same as an integral part of the City's road system.

WHEREAS, the parties hereto wish to evidence their understanding regarding the above.

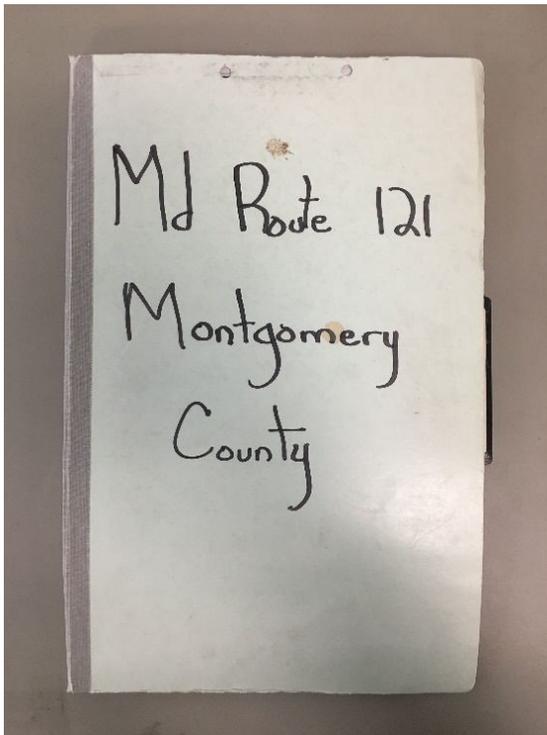
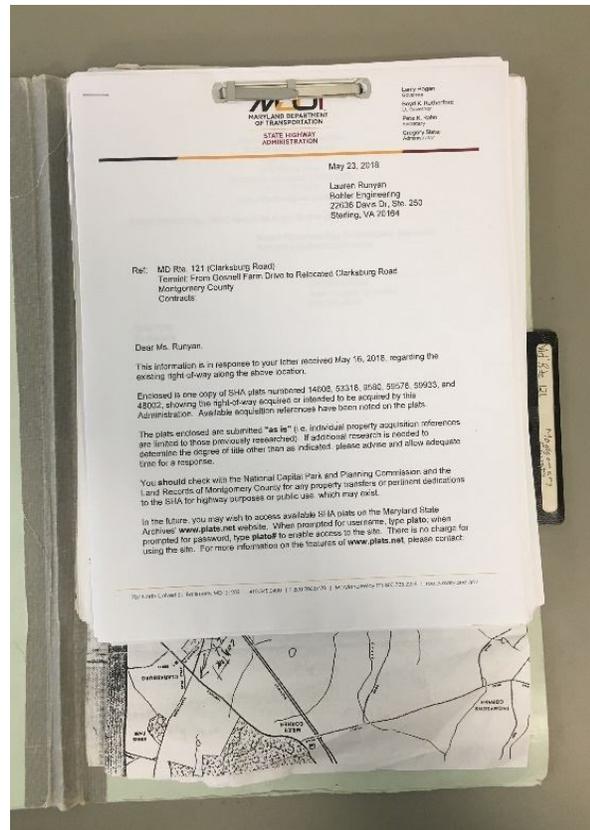


Exhibit 12 – A route folder contains previous research reports, research requests, and maps for the route in question. (Found on the 2<sup>nd</sup> floor of ORE)

Exhibit 13 - Inside look at route folder. (Found on the 2<sup>nd</sup> floor of ORE)



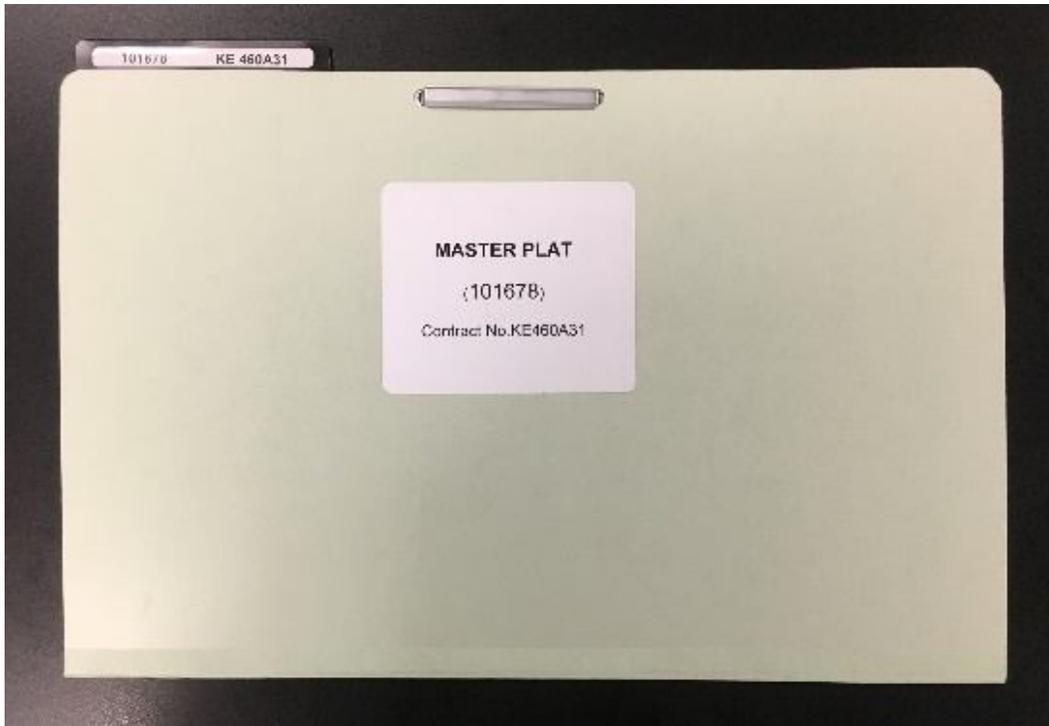


Exhibit 14 – Master plat folders contain all the plats used in the acquisitions for a contract. The location of the master plat file can be found in the yellow cards for the route number. (Found on the 2<sup>nd</sup> floor of ORE)

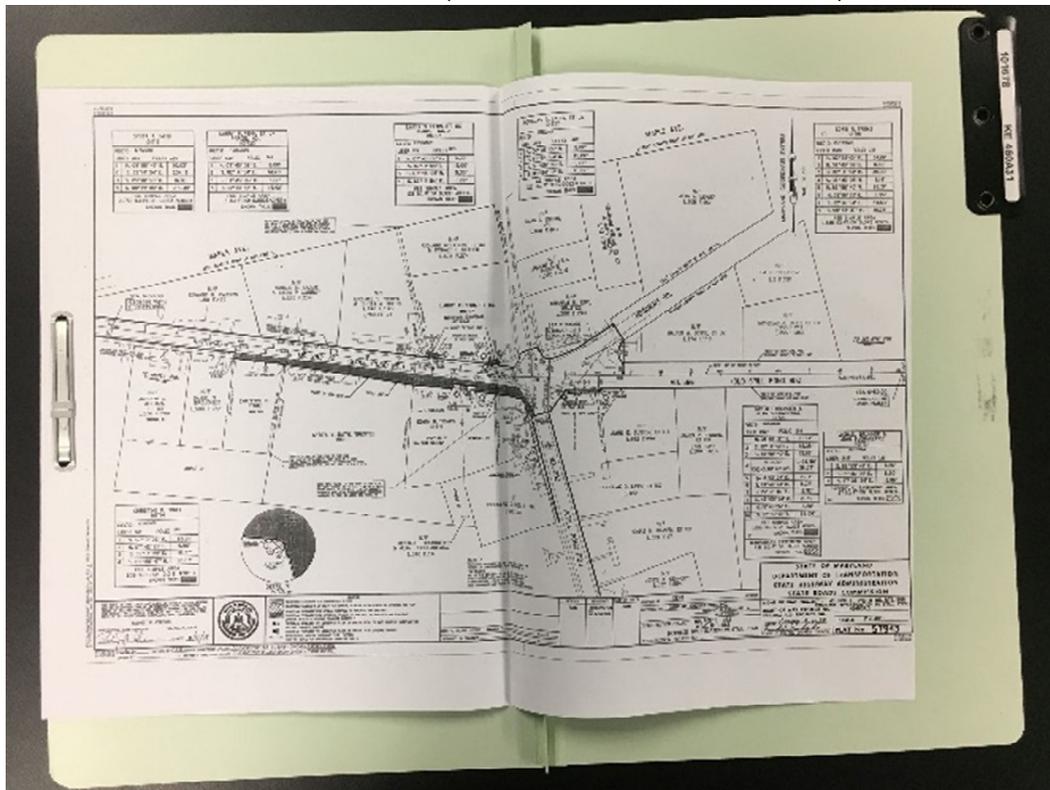


Exhibit 15 - Inside look at master plat folder (Found on the 2<sup>nd</sup> floor of ORE)

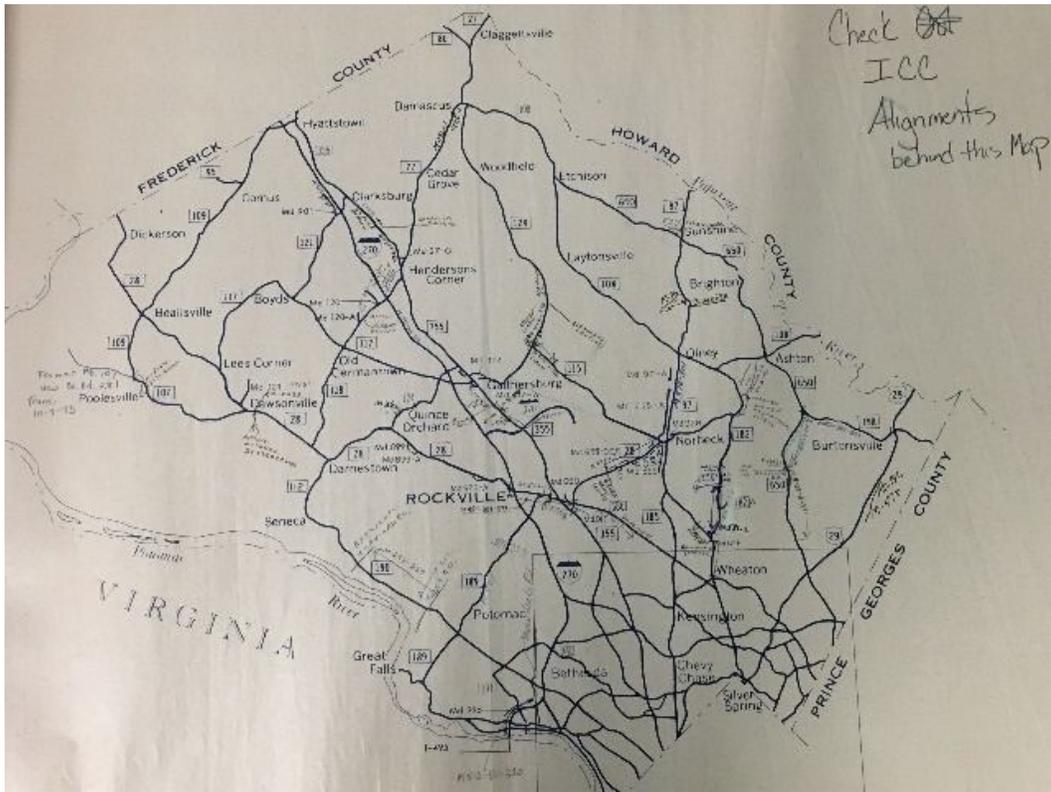


Exhibit 16 – Control maps show an entire county or city with all state and federal routes and corresponding contract numbers. (Found on the 2<sup>nd</sup> floor of ORE)

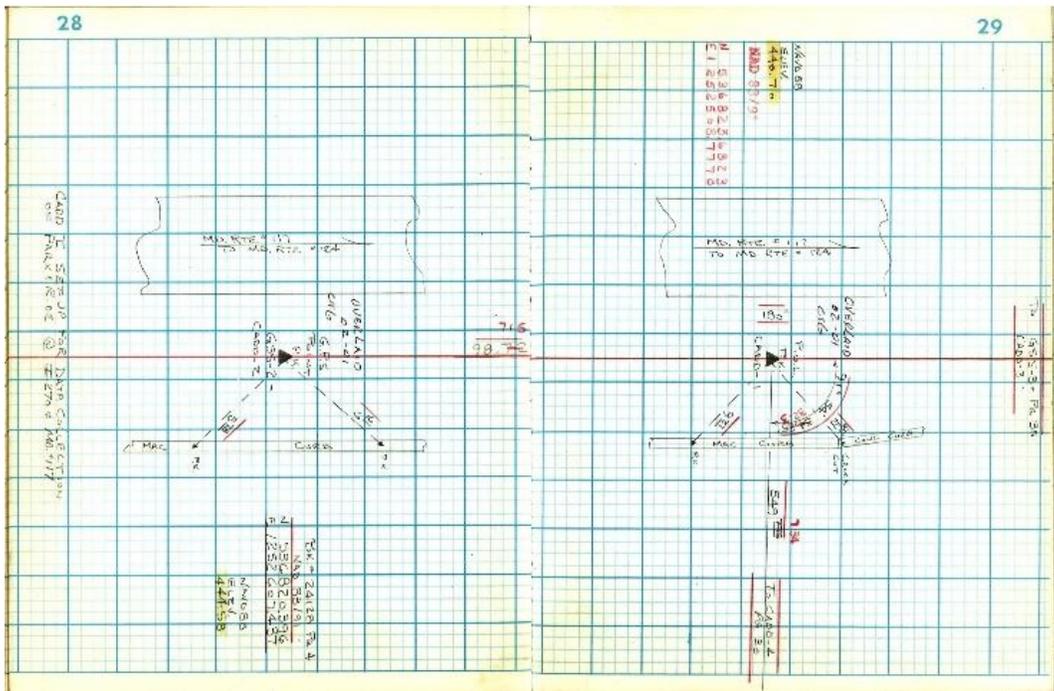


Exhibit 17 – Survey field books have important information like property corners, old traverse, established base line information, right of way monuments, etc. (See Appendix C for a full-size version of this page.)

## Survey field book room research

An additional resource to incorporate into the mosaic is field book research; this helps to recover as much information as needed to help to re-establish the base lines and right of way (Exhibit 18 and Exhibit 19). Book references can be found on plats, road plans (Exhibit 20 and Exhibit 21), construction plats, route work cards, old survey book indices (Exhibit 22, Exhibit 23, Exhibit 24, and Exhibit 25), or online using the Microsoft Access database (Exhibit 26).

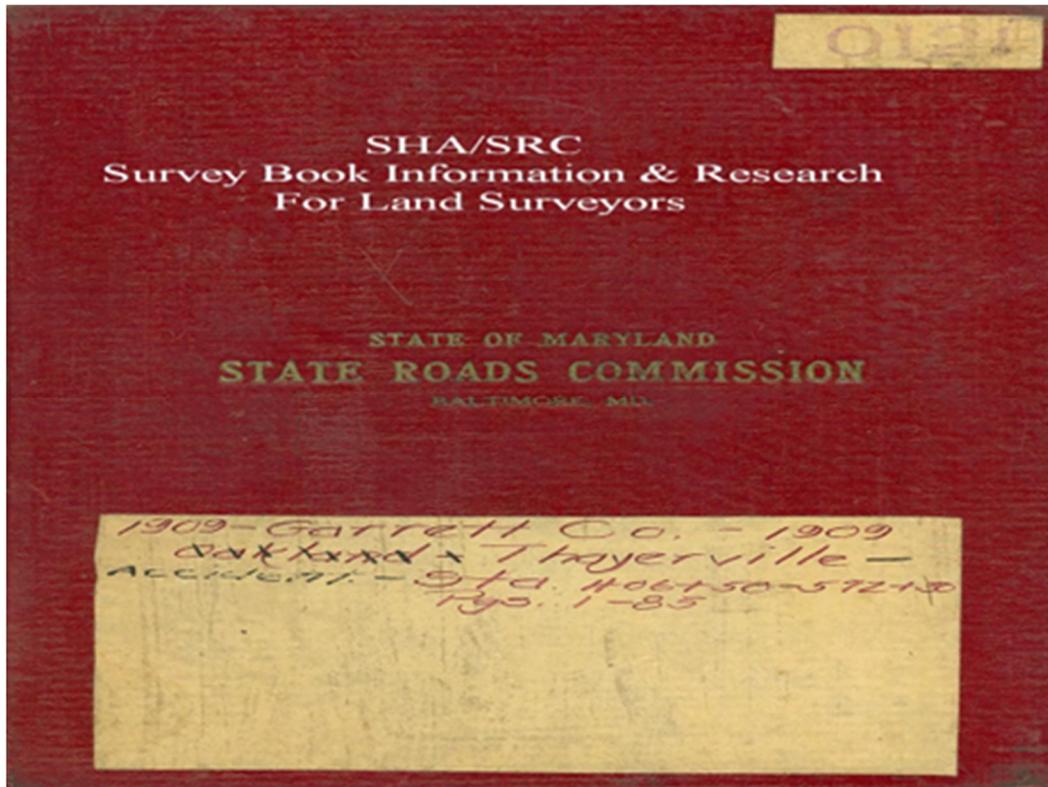


Exhibit 18 – Survey field book cover

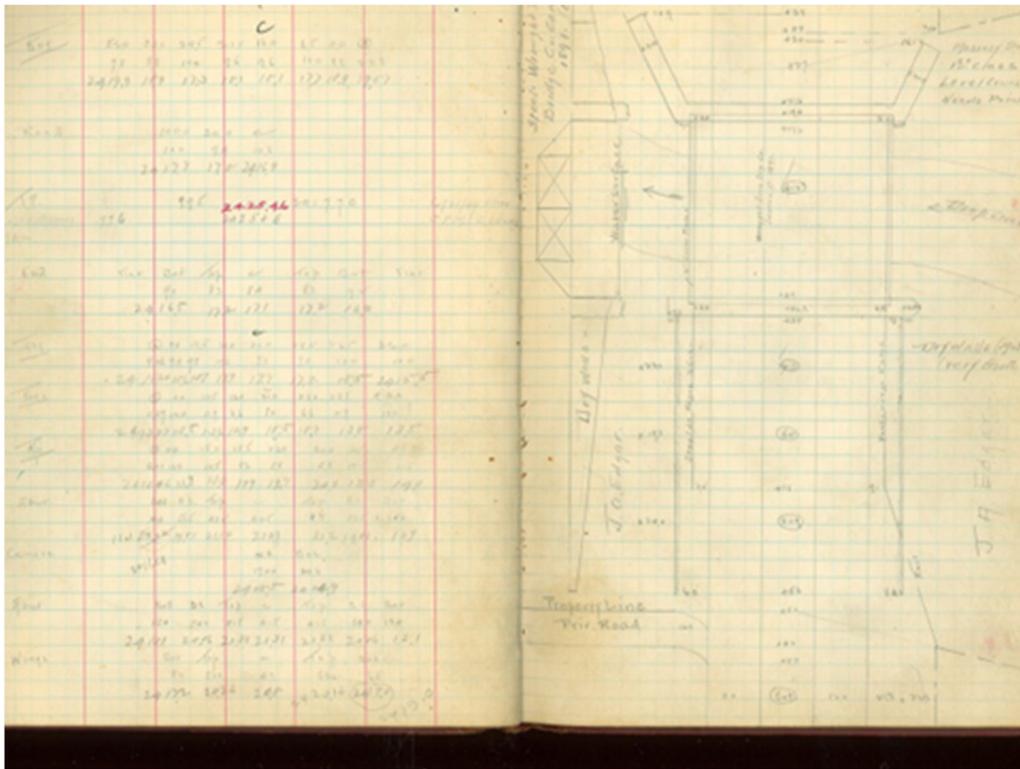


Exhibit 19 - Inside of survey field book showing a detailed drawing a bridge structure being used for re-establishing the base line

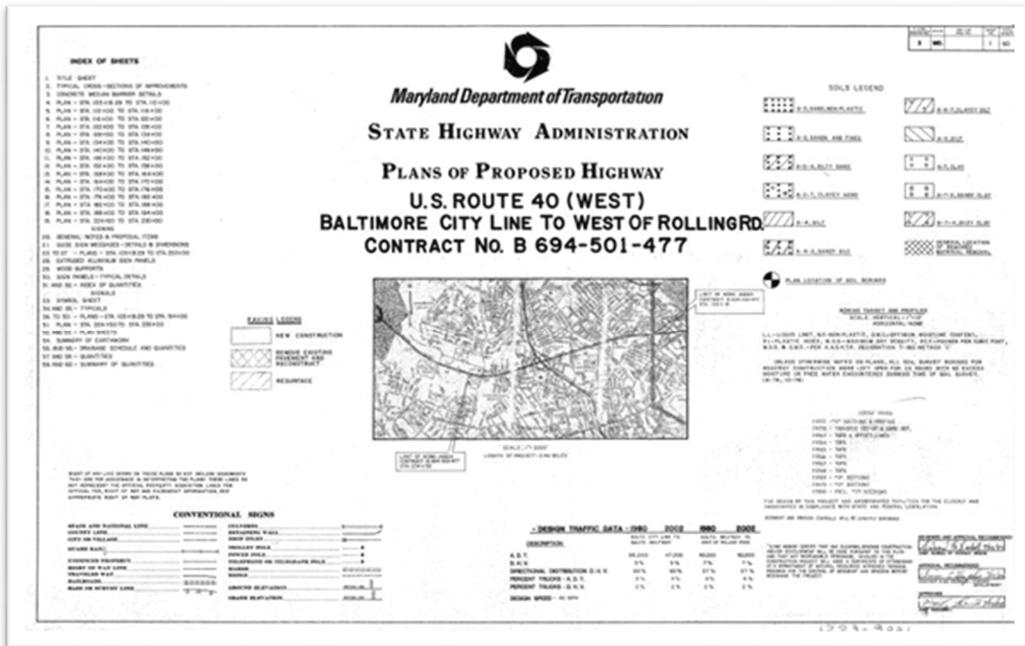


Exhibit 20 - Design plan title sheets show field books related to the project. (Found on eGIS or follow the link shahqfs3:SHA\OHD\OHD-Archives) (11x17 printout can be found in Appendix A2.)

SURVEY BOOKS	
19355	- "X" SECTIONS & PROFILE
19358	- TRAVERSE SET-UP & HAND REF.
19563	- TOPO & OFFSET LINES
19564	- TOPO
19565	- TOPO
19566	- TOPO
19567	- TOPO
19568	- TOPO
19569	- "X" SECTIONS
19570	- "X" SECTIONS
19900	- PREL. "X" SECTIONS

Exhibit 21 - Zoomed in survey field book list on title sheet



Exhibit 22 - Survey field book index cover

DATE	NAME OF ROAD	BALTIMORE COUNTY	STA. TO STA.	BOOK NO.	PAGES
1-1-32	Singer Property at Halethorpe on the Washington Blvd.		0-100	03588	8-13
1-1-32	Sheppard - Black Horse		124+40	03428	2-45
1-1-32	Reloc. of Elizcett City Mill		0+00	03400 ML	03429
1-1-32	Profile		0+00	03400 ML	03429
1-1-32	Reloc. A		0+00	03400 ML	03429
1-1-32	Reloc. B		0+00	03400 ML	03429
1-1-32	Belfast Rd. - Butler	Davis, Keatley, Dixon & Bosley Prop.		03501	
1-1-32	The Hammonds Ferry Rd. fr. the Belle Wash Blvd to the Home Acre Rd. & Line		0+00	128+00	03448
1-1-32	Reloc. of Elizcett City Mill	Prel. & Survey	35+00	68+20	03430
1-1-32	Old Court Road	Granite to Liberty Rd. Loc. of Gas Lines Extended Sec	38+88	74+30	03181
1-1-32	Reisterstown Road	Fr. City Line to Slade Ave. Transit Line	145+82	174+20	03463
1-1-32	Reloc. of Valley Rd.	Reset Stakes & Recross Sec	145+82	174+20	03463
1-1-32	Old Court Rd.	Granite - Liberty Rd. Extension	0+00	28+00	03181
1-1-32	Devils Elbow	Browne Prop.			03734
1-1-32	Jappa Rd.	Carney to Towson Fuller & Dennis Prop.			03750
1-1-32	Grade Elm at Relay	Prop. Thurston	174+42	192+00	03734
1-1-32	Devils Elbow	Prop. Con Gas Elec Light Power	1+00	3+00	03757
1-1-32	Arington Ave.	500' R/W of Loch Blvd.	1+00	3+00	03783
1-1-32	Old Court Rd.	Prop. Dall Worthington Est.	0+00	33+00	03785
1-1-32	Maryland School for the Blind	Lines ABCDE			03785
1-1-32	Reisterstown Rd. from Pikesville to Owens Mills - Transit Line		0+300	149+00	03732
1-1-32	Levels		0+00	13+00	03072
1-1-32	Mod. of Reverse Curve - Wash Blvd. & Prop.		0+00	13+00	03733
1-1-32	Reisterstown Rd. Owens Mills - Reisterstown - Transit Line		180+00	200+00	03734
1-1-32	Owens Mills to Reisterstown - Transit Line		0+00	13+00	03734
1-1-32	Transit Line		149+00	160+00	03734

Exhibit 23 - Inside of a survey field book index

DATE	NAME OF ROAD	BALTIMORE COUNTY	STA. TO STA.	BOOK NO.	PAGES
1-1-32	Reisterstown Rd. from Pikesville to Owens Mills - Transit Line		0+300	149+00	03732
1-1-32	Levels		0+00	13+00	03072
1-1-32	Mod. of Reverse Curve - Wash Blvd. & Prop.		0+00	13+00	03733
1-1-32	Reisterstown Rd. Owens Mills - Reisterstown - Transit Line		180+00	200+00	03734
1-1-32	Owens Mills to Reisterstown - Transit Line		0+00	13+00	03734
1-1-32	Transit Line		149+00	160+00	03734

NORTHWEST EXPRESSWAY  
 1-1-32 - 200' SOUTH OF W. FIELD ROAD

1-1-32 - 200' SOUTH OF W. FIELD ROAD

1-1-32 - 200' SOUTH OF W. FIELD ROAD

Exhibit 24 - Inside of survey field book index



Exhibit 25 - Survey field book indices are organized by county

CONTRACT	ROUTE	TERMINI	MILE POST	WORK TYPE	BOOK1	BOOK2	BOOK3	BOOK4
H743-301	US1	KELLY AVE TO BOND ST	2.00-2.58	T-TP-XS-RW-COSO	19923	19924	20153	
H921-201	US1	US1 @ MD543 TO DEER CREEK	8.38-12.29	CT	24413			
H921-201	US1	US1 2 DEER CREEK	12.29	DC-MB	24413	19201		
H917-201	US1	N. OF MD543 TO GIBSON	8.38-9.00	DC-XS-COSO	23359	23960	24048	
H907-201	US1	US1(BUS) @ BYNUM RUN	3.94	DC-L-MB	23268			
H904-201	US1	MD623 TO CONOWINGO DAM	18.21-20.12	ADIF-COSO	23137	25058		
H904-201	US1	MD623 TO CONOWINGO DAM	18.21-20.12	CT-TP-XS-MB	23137	20799	20796	24829
H901-201	US1	US1 @ BYNUM	3.94	MB	23268			
H063-2-420	US1	DEER CREEK TO CONOWINGO DAM	12.29 - 20.12	CL-XS-SV	08132	08183	08134	08133
B-77 (1926)	US1	CITY LINE TO PUTTY HILL	15.69 - 17.65	TP-PROP TIES	02036	02042		
H4973822	US1	HICKORY BY-PASS	7.19	DC	25127	18428		
AW524-209	US1	BROADWAY ST TO MOORES MILL RD	3.22-3.94	BL-XS-MB-CT	23130	23268		
H743-201	US1	KELLY AVE TO BOND ST	2.00-2.58	TP-XS-MB	18570	18791	15748	19651
H520-004	US1	BOND ST @ US 1	2.58	BL-COSO	19356			
H036-420	US1	BELAIR BY-PASS TOLL GATE RD TO VALE RD	4.11, 5.35	SV-RW-CL-TP-XS	12587	12056	12010	12011, 1
H036-420	US1	BELAIR BY-PASS TOLL GATE RD TO VALE RD	4.11, 5.35	XS-CL-RW-TP	13931	13930	13990	12131
H036-420	US1	BELAIR BY-PASS TOLL GATE RD TO VALE RD	4.11, 5.35	CL-XS-BO-MISC	12671	12436	12562	12259
HA104-201	US1	@GRANARY RD	7.42	T-L-MB	24984	18428		
CE382-2-220	US1	S. OF RISING SUN TO PENN LINE	5.20 - 9.23	CL-TP-XS-SP-RW-SV-RSCL	09171	10411	10414	10415
CE334 (1950)	US1	CONOWINGO DAM TO MD273	0.00-5.20	CL-TP-SV(PROP)	07143	07162	07163	07369
AW246-000	US1	MD222 & MD338	1.43	TS	18917			
H883-301	US1	US1 @ MOORES MILL RD	3.94	BLC-CT	22237			
H950-201	US1	US1 BY-PASS @ WINTERS RUN	3.63	XS	12671			
H0610-201-780	US1	BRIDGE#3007 OVER PATUXENT RIVER	2.47	XS-L-COSO-RW-TP-MISC	19906	31000	31497	
H0589-201-778	US1	@CEDAR AVENUE	5.35	MB-TP-RW	20595			
H0273-4-720	US1	MIDDLE PATUXENT RIVER TO SAVAGE	2.20	RW	21013			
H0223-1-350	US1	WHISKEY BOTTOM RD TO SCAGGSVILLE RD	0.97	T-TP	20666			
802-18001	US1	@BRIDGE#6001	0.00	T-TP-XS-SP	19335			
H4873822	US1	@HICKORY BY-PASS	2.67-8.38	DC-BO	25157			
AW399-204	US1	US1 @ WHITAKER MILL RD	2.59	MB	24425			
AW246X-000	US1	US1 @ MD24	6.15	TS	19328			
AW246X-000	US1	US1 @ MD136	14.35	TS	19345			

Exhibit 26 – Microsoft Access survey field book search



## Chapter II - Mosaics

A mosaic reflects the information found during research in a visual format. It is where the puzzle pieces are made and analyzed to see how they initially fit together and gives an overview of what needs to be searched for in the field. A good mosaic is an inclusive sketch of what the title and adjoining property lines look like along with title and monumentation calls.

### Items to include in a mosaic

- A base line – found on SHA plats;
- Existing right of way (ROW) and easements – found on SHA plats (See Appendix D for an explanation on the types of easements);
- Show all easements of record – found on recorded plats and in deeds;
- Parcels drawn by description or a subdivision plat – found using some of the tools mentioned above;
- Information on the property corners and whether they have been found, set, or monumented;
- A north arrow and a scale;
- All property calls. This can include monuments, roads, adjoiners, and anything else that helps locate the property line in the field;
- Source of the property information, e.g. liber and folio, record plat, SHA plat, valuation map, survey field book, or an unrecorded plat;
- Current owner names and/or tax map and parcel data;
- Error of closure with bearing and distance;
- Place a title block that includes name of the mosaic's creator, FMIS number, date, and any relevant notes.

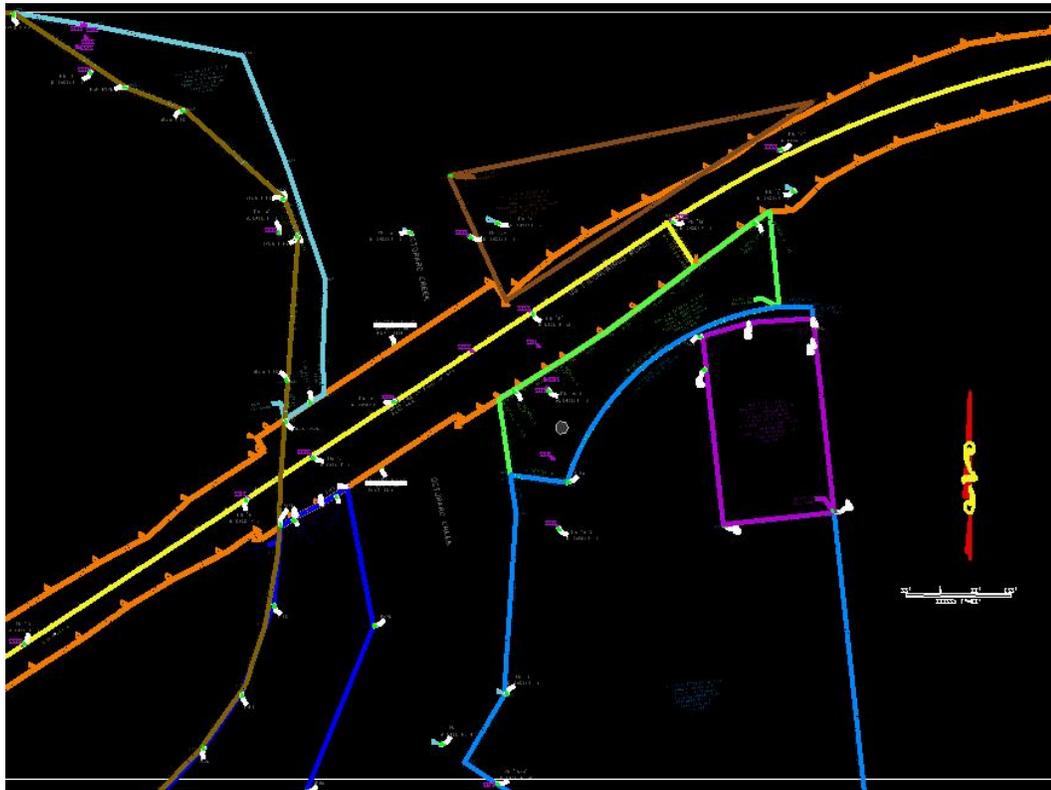
## Other considerations when preparing a boundary or right of way mosaic

- Show any references on the mosaics that are set for all cardinal points on the base line; also, label book and page number for each of the references.
- Look for spur lines. Spur lines may be used to find evidence to help set the base line.
- Send copies of the book with the field crew, so if they cannot find the monuments shown on the mosaic, they will have the hand pulls to help find the references.
- If the base line predates 1970, the reference could be hub & tack, which may be hard to find since the hub could be rotted away.
- If the base line predates 1970, traverses coming off the main base line may locate property evidence. This evidence will be much more accurate than right angle topography.
- If there are bridges or small structures within the project area, send a copy of the plans out with the field crew with what needs to be located to help set the base line.
- The hand pulls can help set the traverse/base line points if the references cannot be located.
- If the mosaic needs to be made into several plots for easier handling for the field crews, use sensible match marks for each plot.
- Point numbers for deed parcels, right of way lines, base lines, easements, and meets and bounds property monumentation should be within the point ranges specified by the ics file:
  - 1-2999 for existing points
  - 3001-3999 for traverse points
  - 4001-4999 for existing monumentation
  - 5001-5999 for base line points
  - 6001-6999 for existing right of way points
  - 7001-7999 for existing easement points
  - 8001-8999 for proposed right of way points
  - 9001-9999 for proposed easement points

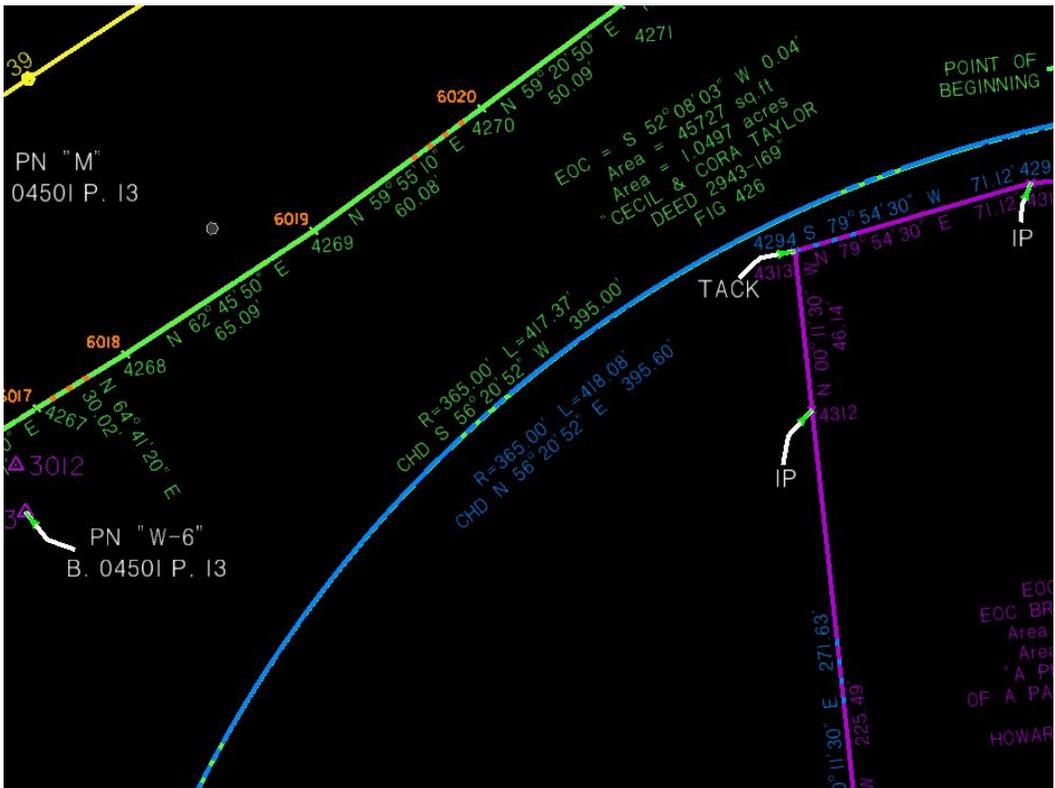
### Note on plotting

When plotting the descriptions, there may be gross errors. This could be the result of a scrivener's error, commonly called a typographic error. In this case, search the title back until the description corrects itself or until it comes out of a larger parcel. The error may have been there from the beginning and can be resolved when completing the boundary determination and/or by evaluating the calls of the adjoiners.

An example of a mosaic is shown below (Exhibit 27 and Exhibit 28).



*Exhibit 27* - Mosaic example showing base line, right of way, easements, and parcels. Base line is shown in yellow, existing right of way is represented by the orange line, and all deed parcels shown here are shown in different colors so they can easily be identified. A north arrow is to be included on mosaics, workmaps, and plats.



*Exhibit 28* – Mosaic example zoomed in for detail. Deed lines have notes indicating the bearing and distance per deed or subdivision plat. Property corners have notes indicating if there is a call and what type of monument (iron pipe, iron angle, iron pin, rebar and cap, concrete monument, etc.). Show survey field book and page number on monuments called for.



## Chapter III - Field Work

A mosaic shows all that was found during research field work is necessary to create the workmap. Evidence found in the field is what allows the surveyor to translate the mosaic information into real world lines set on the ground. All metes and bounds survey requests go to the Survey Assistant Division Chief and Senior Area Engineer. Please refer to the PSD Field Procedures Manual for more detail into field work.

### Information that should be provided to field personnel

- A complete mosaic of the area in CADD format as well as a PDF or print out.
- A PDF of the mosaic overlaid on aerial imagery.
- Copies of any plats, deeds, survey books, or other documented material used in the creation of the mosaic, as requested by the Area Engineer
- A dump file containing coordinates for search points of possible monumentation.
- Instructions of what to look for and what evidence to gather based on research.
- Existing traverse information from MDOT-SHA in the area.

### Information to be received back from the field

- A DGN file that contains all field located evidence. Evidence should be clearly labeled with as much detail as possible, like condition of the evidence found if it is bent or damaged, property cap information, size of pipe, etc.
- A point dump of coordinates for all field located evidence.
- Copies of the bookwork for the location of the evidence.
- Pictures of the evidence located.

### Variables that can affect field work delivery time

- To enter the work area, property notification letters need to be sent out to all property owners at least 30 days in advance of field survey efforts.
- Field searches can require multiple attempts to recover full data sets. The typical search area for a call to a property marker is a 15' radius. Multiple attempts may be made if adjoining evidence requires re-evaluation.
- Field crews will encounter both the public and private property owners, often for projects they know very little about. Some property owners may be inquisitive, some hostile, and some simply curious.
- Field survey timelines can be affected by weather, obstructions, vegetation, traffic, and availability of survey control points. Field data recovered takes considerable efforts to become field "collected" data for engineers to work with.

### Before field work begins please consider the following

- Type of road and average daily traffic (ADT)
- Weather conditions (seasons that the surveys should be performed)
- Condition of the area to be surveyed, if it is open and Global Positioning System Real Time Kinematic (GPS RTK) can be used, or if conventional survey is needed
- Safety measures for crew, availability, and affordability
- Time for approval of the work request (if it is a consultant)
- Available funds for consultant firms



## Chapter IV - Workmaps

A workmap reflects all the research prepared on a mosaic and field effort done to establish property lines and base lines. It documents the Professional Licensed Surveyor's determination of where the lines are in the real world. Plats, descriptions, and other record documents will be built from this workmap. It should clearly reflect what evidence was looked for, what evidence was found and held, and how the property lines were established. This process is called boundary determination.

In preparing a workmap, the surveyor makes decisions on which evidence to use to set the boundary. If evidence in the field has no signs of being disturbed and is found as described in a deed, there is a very good chance that the monument can help to set the boundary. On the other hand, if the monument has signs that it has been disturbed or is a different material to what is described on the deed, those monuments may not be used in the final determination.

A workmap, in contrast to a mosaic file, cannot have a step-by-step guide on how to create the document because it is going to depend mainly on the calls of individual property descriptions, existing roads and monuments, found evidence, and if they were called for in the description. For example, a description can call to a concrete monument in the northernmost point of the parcel, but a rebar and cap is found instead. Though not called for, the rebar and cap can still be used.

### Order of importance to re-establish SHA right of way

1. Recover monumented base line station and/or offset references as shown in SHA centerline survey books (e.g. rebar & caps, x-cuts, P.K. nails, SHA/RR spikes, iron pipes).
2. Recover monumented base line stations and/or swing-tie references along base line spurs as shown in SHA survey books.
3. Recover property corner evidence as shown in SHA metes and bounds books. (Use these property corners as references to the original base line.)
4. If a bridge is near the site, obtain the SHA bridge plans and locate referenced key points on the bridge structure. Use these points as references to the original base line. (e.g. center of bridge joints or piers where they cross the base line.)
5. Use old geographic features as shown in SHA survey books as references to the original base line (e.g. fire hydrant, house corners, gas valves, utility poles, and property corners are sometimes located in topo books)
6. Use the roadway surface and/or the construction plan detail to re-establish the original base line geometry.

### Order of importance to re-establish boundary

When plat engineers work with recovered boundary evidence, the materials and recorded information is weighed based on a doctrine of priorities. They are weighed from greatest to least in the following order:

1. Lines run in the field (established by the original surveyor)
2. Adjoiners
3. Natural monuments (trees, large stones, streams, etc.)
4. Artificial monuments (rebars and caps, concrete monuments, pipes, etc.)
5. Courses
6. Distances
7. Area (intended area of property)
8. Coordinates (state plane or other)

### List of possible situations encountered while creating a workmap

- Property description calls for field evidence that is not found in the field.
- Property description calls for a state or county road that has undergone geometric changes.
- Property description calls for a type of monument, but a different type is found in its place, e.g., the description calls for a stone monument, but a pipe is found.
- Property description call found in the field but has been disturbed.
- Property monumentation found and called for in the description, but the distance is different in the description.
- When a workmap is finished, there is a workmap submittal document that must be filled and submitted to the GIS Team; they oversee adding the workmap to Digital Assets Referencing System (DARS).

## Base line re-establishment without SHA plats

- Receive determination from Records and Research.
  - Turnpike
  - Charter
  - Ordinance
- Ordinances may have been established through a city or municipality.
- District 2 is known for setting right of way monuments very accurately.
- On the shore, concrete roadways were laid out, 9-foot or 15-foot width, and then widened. The center of the concrete roadways the actual center of right of way and not the center of the whole paved width
- Local jurisdictional anomalies abound
- Prescriptive width may need to be used, which is what SHA has maintained for 20 plus years, which may include ditches.
- Use common sense, roadway surfacing, and adjoiner geometry to establish a base line where none exist

## Types of workmaps

There are two types of workmaps specified on the Survey Request Form that PSD produces as a deliverable to its clients: the right of way workmap and the boundary workmap.

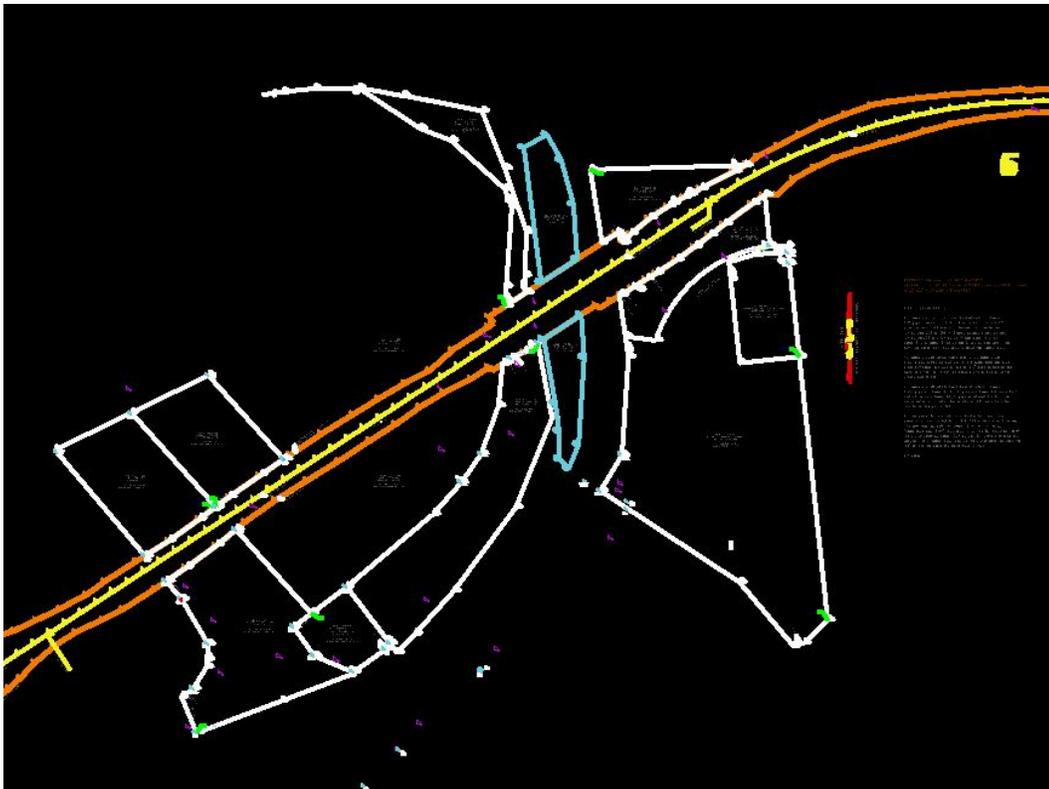
### Right of way workmap

A right of way workmap is requested to determine the land area the State of Maryland owns in a project area. This allows the designer to know if the project can be completed within the existing right of way or if acquisitions are needed. A right of way mosaic is usually recommended to be included on the request. It is the plat engineer's responsibility to talk to the requester and discuss the limits for the workmap after the mosaic is finished. See Exhibit 29 for a right of way workmap example.



the workmap. There should be no duplicate lines and no duplicate point numbers (e.g. one on top of another, two numbers with the same coordinate) in the workmap. For example, if the monument found at Point 357 is being held but its field observed coordinate is not held, label the points accordingly. If Point 357 is an IP (iron pipe) found and held on the right of way line, Point 6027 may be the computed corner that is near Point 357. Label all intersection points on the established right of way line.

5. After all lines have been drawn, annotate all lines in the drawing: lines of division, existing right of way lines, limits of existing easement, base lines of right of way, road names, property information, etc.
6. Add the final information, such as a north arrow, a bar scale, project information, and, most importantly, a summation of the surveyor's report. The surveyor's report is going to summarize the process on how the surveyor determined the boundary lines, right of way lines, base lines of right of way, and which monuments were held.



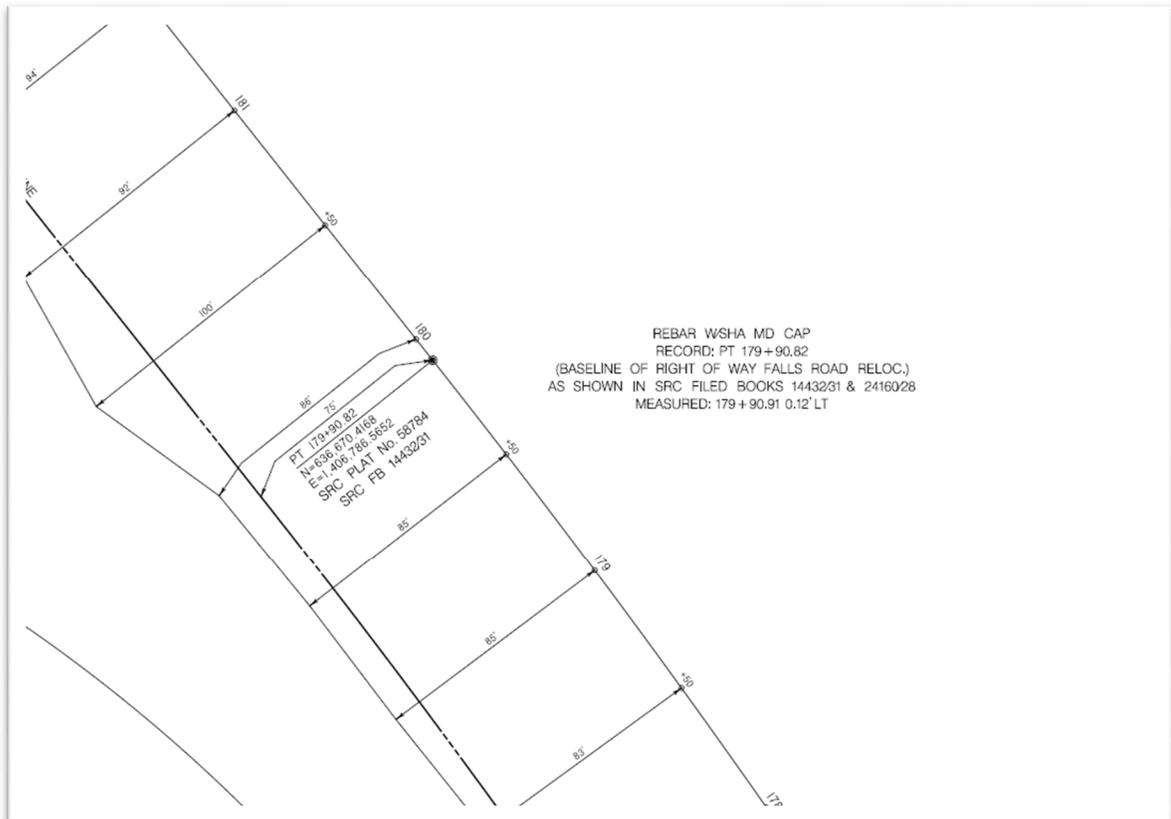
*Exhibit 30 - Boundary Workmap* – Shown here are parcels affected or that might be affected, existing right of way lines, base line of right of way, traverse points, existing easement lines, monumentation found, north arrow indicating coordinate datum used, and the surveyor's report.

## Surveyor's report

There are two options for the surveyor's report: the ics format and the narrative format. The ics format lists off each monument one at a time detailing the monument type, where it was referenced, where it is supposed to be, where it was found, and any special notes about it. An example of the ics format can be seen in Exhibit 31 with Exhibit 32 providing an illustration of the dgn file. The narrative format lists out all the pertinent details regarding the survey and monumentation. A list of necessary information for the surveyor's report narrative format can be found listed below.

```
## 330; RC WITH SHA MD CAP
## NOTE: BELIEVED TO BE PT 179+90.82
## SRC FIELD BOOK: 14432/31 & 24160/28
## RECORD: 179+90.82
## MEASURED: 179+90.91 0.12'LEFT
```

*Exhibit 31* – Ics format of the surveyor's report detailing a monument found in the field

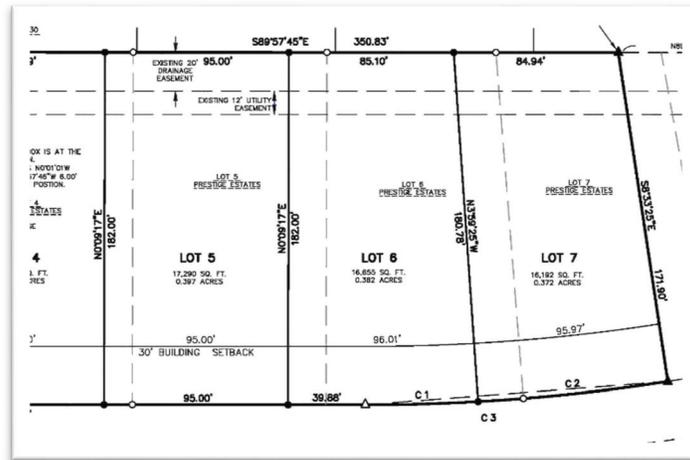


*Exhibit 32* – Close-up of a workmap zoomed in to show a monument and its associated description

## List of items which may be found in a surveyor's report

- Company/Surveyor's Information
  - Company name
  - Company address
  - Company contact number
  - Company email address
  - Surveyor-in-responsible charge/position or title
- Project Information
  - SHA FMIS No.
  - Company Project No.
  - Company Project Manager / Area Engineer / Team Leader
  - Client Information
    - Client
    - Client's address
    - Client's contact number
    - Client's email address
- Purpose of the survey
- Project location/address
- Survey Information
  - Date of the last day of field work on the project
  - Control
    - Horizontal datum
    - Method used to determine datum/realization
    - Control adjustment method/results
    - Calibration/localization results and VRS service provider
    - Type of coordinates (grid/ground)
    - Project grid/ground combined scale factor
    - Survey units
  - Equipment
    - Model and serial numbers of instrumentation
    - Calibration certificates
  - Personnel
    - Field crew names/titles
    - Office staff names/titles
    - Certified QA/QC checklist
    - Daily crew cards/log sheets
  - Records examined (including but not limited to)
    - SHA right of way plats
    - County right of way plats
    - Easement plats/descriptions
    - Subdivision plats
    - Condominium plats
    - Deed descriptions
    - Equity & will records
    - Field book notes
    - Grantor/grantee indices search
    - Public survey records
    - Private survey records
    - Government survey records

- Parole evidence
  - Patent records
  - Photographs
  - Contacts/conversation logs pertinent to the survey
- Property notification letters
  - Include sample letter
  - Names and addresses used for delivery
- Surveyed parcel/lot Information
  - Tax map (with property highlighted)
  - SDAT sheet
  - Current title deed/description
  - Current plat (if applicable)
  - Clear chain of title (at least back to the parent tract)
  - List of encumbrances (servient/dominant estates of the subject property, etc.)
  - List of right of way/easement plats
  - Deed/plat mosaic based on current title description and any prior descriptions, as necessary
  - Describe any differences between current/prior descriptions (include mathematical closures)
  - Narrative explaining in detail method used to establish/re-establish each corner for the above parcel/lot. Include any noteworthy information that may be instrumental in re-establishing the same property corner in the future. Include differences between measured and record survey angle/distances.
  - Without expressing a legal opinion as to the ownership or the nature of a potential encroachment, describe any perceived title issues uncovered while preparing the survey. This could include perceived gaps, overlaps, encroachments, etc.
- Final survey data
  - Signed and sealed work map (boundary survey)
  - Signed and sealed metes and bounds description (if applicable)
  - Final ASCII (American Standard Code for Information Interchange) coordinate list for all project points
  - Final area computations for each surveyed parcel
  - Certified final deliverable check list based on scope
  - Certificate satisfying COMAR (Code of Maryland Regulations) 09.13.06



## Chapter V – Plats

Plat definition: A diagram drawn to scale showing all essential data pertaining to the boundaries and subdivisions of a tract of land, as determined by survey or protraction. A plat should show all the data required for a complete accurate description of the land which it delineates, including the bearings (or azimuths) and lengths of the boundaries of each subdivision. A plat may constitute a legal description of the land and be used in lieu of a written description. (PAGE 196, DEFINITIONS OF SURVEYING AND ASSOCIATED TERMS)

Plat, right of way: A plan of a highway improvement showing the old and the new highways and the right of way (or interest in lands) to be acquired. (PAGE 196, DEFINITIONS OF SURVEYING AND ASSOCIATED TERMS)

### Plat drafting

To draft a plat, there are rules to follow. Some depend on the drafter's preferences. For a DGN file, the color of every line has a meaning (Color numbers are based on Microstation V8 Select Series 2).

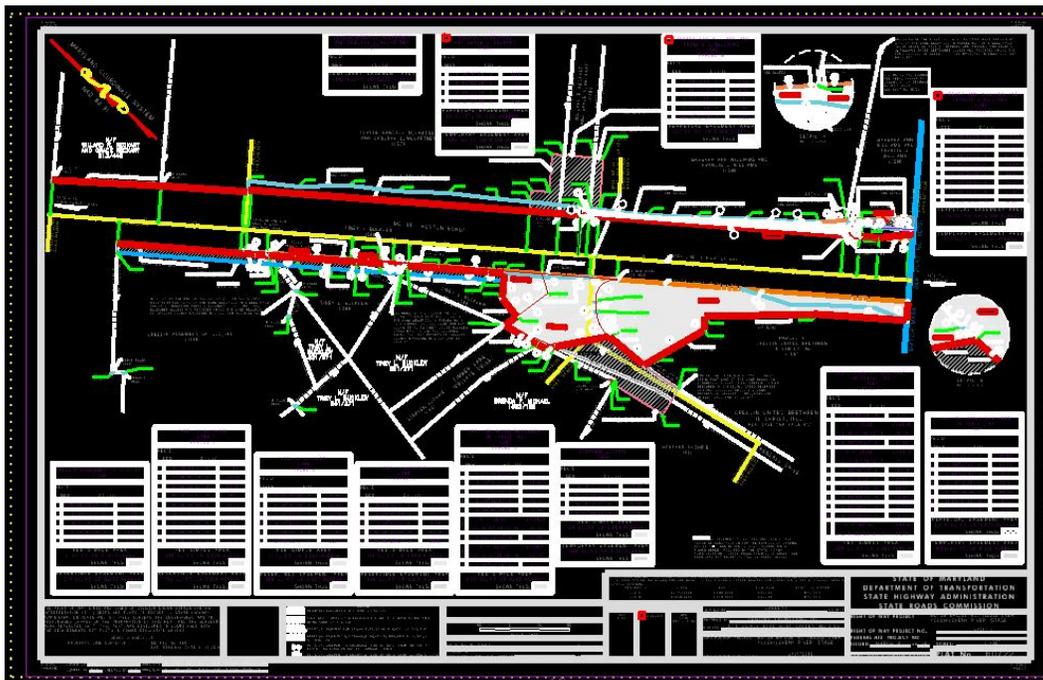
- Yellow (4) – Right of way base line
- Orange (13) – Existing right of way lines to be relinquished
- Red (3) – Right of way (proposed) or to remain
- White (0) – Property lines
- Pink (12) – Temporary easement and proposed perpetual easement
- Light Blue (11) – Existing easement

The Plats and Surveys Division (PSD) has established drafting standards for all manner of plats, topographic drawings, and workmaps: line weight and style, text size and font,

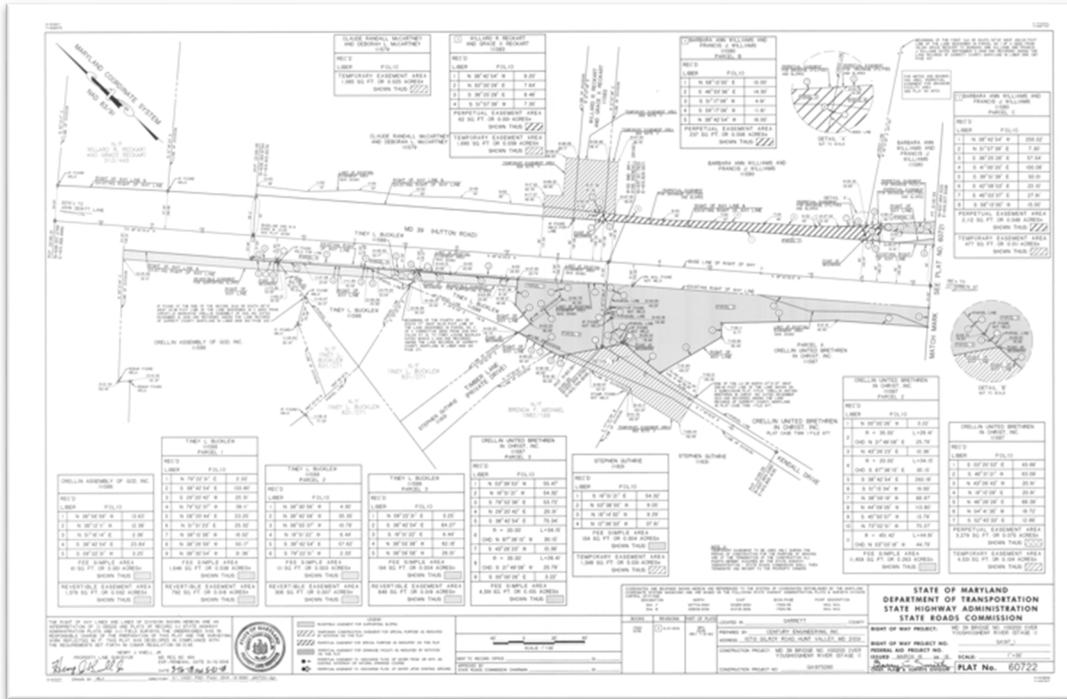
language in notes and the placement of notes in relation to each line type, north arrow, and most other plat elements. These standards have been written in a “Plat Guidelines” document, which is attached as Appendix E for linework and Appendix F for text size. Within MicroStation, under the heading *Menus*, there is a Plats and Surveys Plat Workmap Model (mPL) that, when opened, creates a selectable list of each line type for easements, right of way, property, etc. Also, by utilizing the Plats cell library, it takes the guesswork out of which note, text size, font, etc. to use for the various elements within the plat.

Finally, PSD has developed internally a drafting tool called More COGO Plotting Commands (MCPC) which will assist with the drafting of the Metes and Bounds boxes, base line labeling, and station offset labeling, to name a few. Refer to COMAR 09.13.06.03 and the Plats and Surveys Division Drafter’s Checklist (found in Appendix G).

(See Exhibit 33 for an example of a finished plat in CADD and Exhibit 34 for an example of a finished plat in .pdf format)



*Exhibit 33 - Finished plat for MD 39 at Youghiogheny River Project (CADD version)  
(S:\CADD\PSD\Plats\2014\14-3066)*



*Exhibit 34* – Finished plat for MD 39 at Youghiogheny River Project. (.pdf version)  
 (11x17 printout can be found in Appendix A3.)

### Acquisition plats

An acquisition plat is a plat utilized by the State to acquire land in fee simple, which is used for the construction, maintenance, and operation of a state highway; acquire an easement to encumber a privately owned piece of property for the use of the State Roads Commission/State Highway Administration or other another transportation unit; and acquire a right to discharge or drain water from a State-owned property onto a privately owned property, or other rights as required.

This plat is prepared based on a finalized boundary and right of way workmaps and design plans provided by the Project Manager of the engineered roadway or improvements.

A Preliminary Investigation (PI) is held prior to the issuance of the acquisition plat, this is held at 60% design completion. The PI is held to ensure all variables have been accounted for. This is held in the District Office with the District Right of Way Chief, Access Management, OHD Project Manager, District Utilities Engineer, and any other division that has interest in the project’s development.

Any revisions to the plat after issuance should be approved by OHD’s Division Chief and the District Right of Way Chief.

See Exhibit 34 for an acquisition plat example.

### Item numbers

While item numbers might not be an essential part of the workmap from a surveyor’s point of view, it is an essential part needed from the Office of Real Estate (ORE). Once

the Form 42 (Real Estate Funding report) is completed by the Project Manager and approved, it is submitted to ORE. The item number is assigned to track the parcel that is impacted by any interest taken in the land and represents the land transaction itself. A parcel may have multiple item numbers during its life to identify different land transactions. A plat cannot be issued unless item numbers have been assigned. See Exhibit 35 for an Item Number Request Form example.

As soon as impacts have been analyzed, a request to the District Right of Way Chief should be made to provide item numbers for the parcels affected. A blank form can be found in Appendix H.

STATE HIGHWAY ADMINISTRATION  
PLATS & SURVEYS DIVISION  
MEMORANDUM

DATE: 02/09/2018

TO: David DeMains  
Chief, District # Right of Way

FROM: Mr. Barry C. Smith  
Chief, Plats & Surveys Division

RE: R/W Project No.: GA197\_1  
R/W Project: MD 68 Bridge No. 1100200 Over Youghiogheny River

SUBJECT: Request for Item Numbers

Please issue item numbers for the following:

Garrett County	00000000
Thomas A. & Esther A. Glotfelty	14024530
Robert C. & Anne J. Park	14006354
Board of County Commissioners of Garrett County	14005536
Barbara Ann & Francis J. Williams	14006028
Willard R. & Grace V. Reckart	14004890
Claude Randall & Deborah L. McCartney	14006192
Willard R. & Grace Reckart	14006052
James R. & Linda J. Moon	14005250
Susan M. Snyder	14012567
Steven M. Gibson	14005323
Steven M. Gibson	14005307
Crellin United Brethren in Christ, Inc	14018115
Timsey Louise Bucklev	14005102
Crellin Assembly of God, Inc	14005080

Attached are copies of the real property sheets & a draft plat. Please forward this information to:

Eduardo Alvarez-Adames  
Plats & Surveys Division  
ealvarez@sha.state.md.us  
Phone: 410-545-8411

Attachments: Yes

cc: Jeff Bonnerwith, Assistant Division Chief, Plats & Surveys Division

*Exhibit 35 - Example Item Request Form (Name of property owner on the left and tax account number on the right)*

### Conveyance plats

A conveyance plat is a tool used by the State to dispose of extra land determined to be excess land to an adjoining private owner, to a county government or municipality, or to be auctioned at a public sale. This is accomplished through the Determination of Excess

Land Memorandum (DELM) process. Requests for these plats come from ORE or The Secretary's Office (TSO). Typically, no additional boundary work is needed to prepare these plats. An exception would be if only a portion of the original acquisition is to be conveyed. An example of a conveyance plat can be seen below in Exhibit 36.

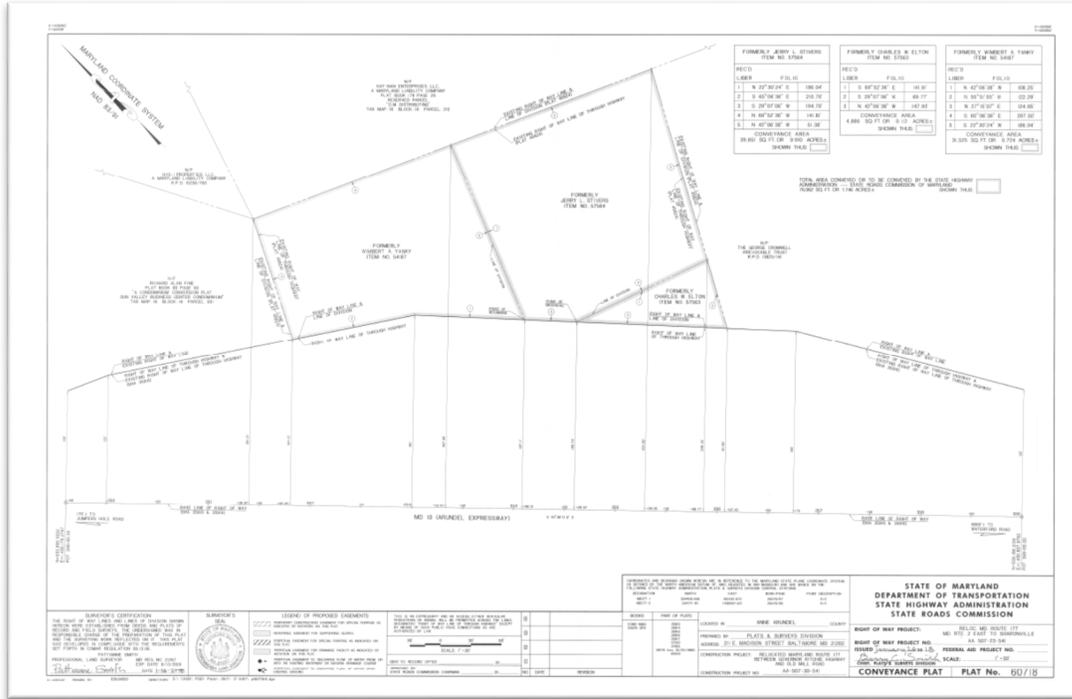


Exhibit 36 - Example of a conveyance plat (11x17 printout can be found in Appendix A4.)

### Road transfer plats

A packet received from ORE should contain:

- MOU – Memorandum of Understanding
- RTA – Road Transfer Agreement
- Aerial with road transfer area delineated
- Road transfer item number
- Any other special instructions
- If any of these items are missing, contact the requestor

Begin by pulling all plats referenced in ORE's packet. Confirm that they are all the latest plats covering the transfer area. The plats used for the initial acquisition of the roadway/right of way are also necessary. Next, plot the plats showing the base line, right of way, and existing easements. Verify that the easements are to be transferred. Place the plats on the current coordinate system, if possible. If not, then reference the plat datum used on the north arrow. If all the area to be conveyed is defined and

delineated on the existing plats, then a new plat may not be necessary. If a new right of way line showing where the division will be between SHA and the entity receiving the road transfer is needed, then a new plat needs to be created.

Identify the following information from the original acquisition:

- Item number
- Grantor(s)
- Liber/Folio
- Deed date or witness date

Make sure all the areas to be transferred are covered.

Create the plat showing the area to be transferred, the new right of way lines, the lines of division from the original acquisition, the station offsets, and the easements, as necessary.

When creating the area to be transferred, use the “Extra Land” metes and bounds box through MCPC. This gives the border shading. Edit the bottom to read “Conveyance Area” instead of “Extra Land Area.” If the area was acquired from a single grantor, then put the “Formerly” citation in the header. If the area was acquired from multiple grantors, then use the following statement in the header:

NOW OR FORMERLY  
STATE OF MARYLAND TO THE USE OF  
THE STATE HIGHWAY ADMINISTRATION OF  
THE DEPARTMENT OF TRANSPORTATION

The right of way project name and number in the title box and the construction project name and number are the same as the original acquisition plat. If multiple contracts are being used, then list them all. If the plat datum is being used, then remove the control box. If the NAD 27 datum is being used, then try to find the control used to list in the control box. List all books and plats used to create the road transfer plat.

Even if a plat for the road transfer is being created, an accompanying description will be needed. See “Chapter VI – Metes and Bounds Description” for instructions on creating a road transfer description. For an example of a road transfer plat, see Exhibit 37.

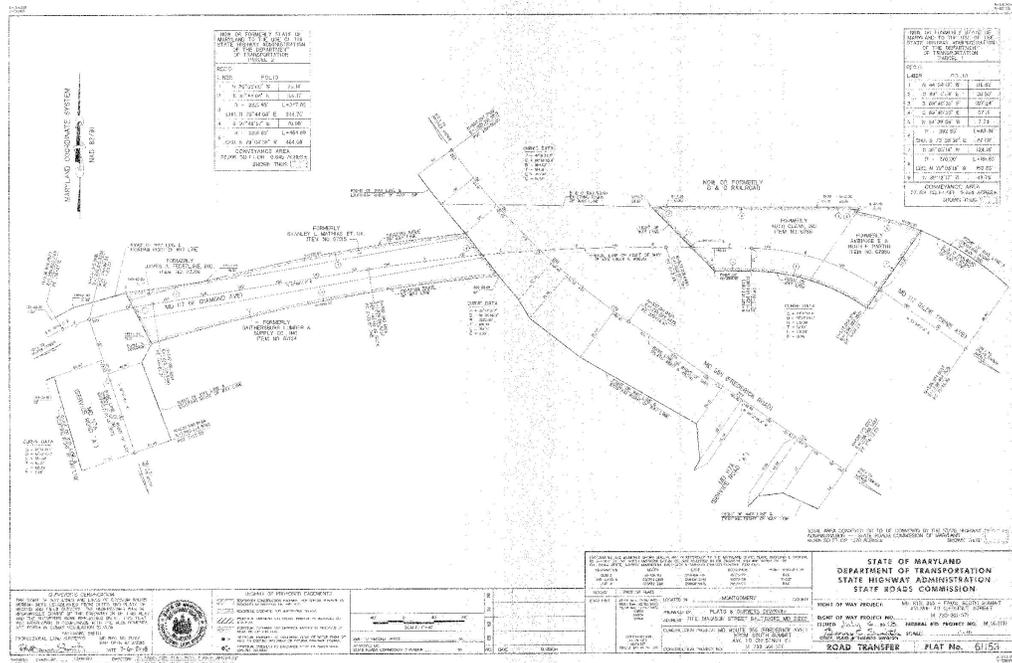


Exhibit 37 - Road transfer plat  
(11x17 printout can be found in Appendix A5.)

### Donation plats

Donation plats are generally created by consultants on behalf of private developers or, occasionally, on behalf of government agencies. For example, as part of a county's subdivision process, a private developer is often required to donate right of way to the State for future road widening. In these cases, the developer hires a surveyor to prepare the plat that will be referenced in the deed that conveys the additional right of way to the State. Some of the surveyors who prepare donation plats have little experience with SHA plat standards, so the plats are reviewed to ensure that they are consistent with SHA plat requirements. There are two types of donation plats: full-size and scanned image.

- Full-size donation plats are similar to other types of SHA plats. They show fee simple lands and easements acquired through donations. In some cases, the developer's surveyor is using AutoCAD, rather than MicroStation, but the goal is still to create a plat that resembles a standard SHA plat as much as possible.
- Scanned image plats are a simpler alternative. Scanned image plats are recorded county subdivision plats that are scanned onto the SHA border. It is critical that SHA review the subdivision plat *before* it is recorded by the county. The developer's surveyor will incorporate SHA's comments, which are typically minor, into the subdivision plat. After the subdivision plat has been approved and recorded by the local county, it is scanned onto mylar inside a SHA plat border by SHA. Donation plats help SHA keep track of the right of way and easements it acquires through the donation process.

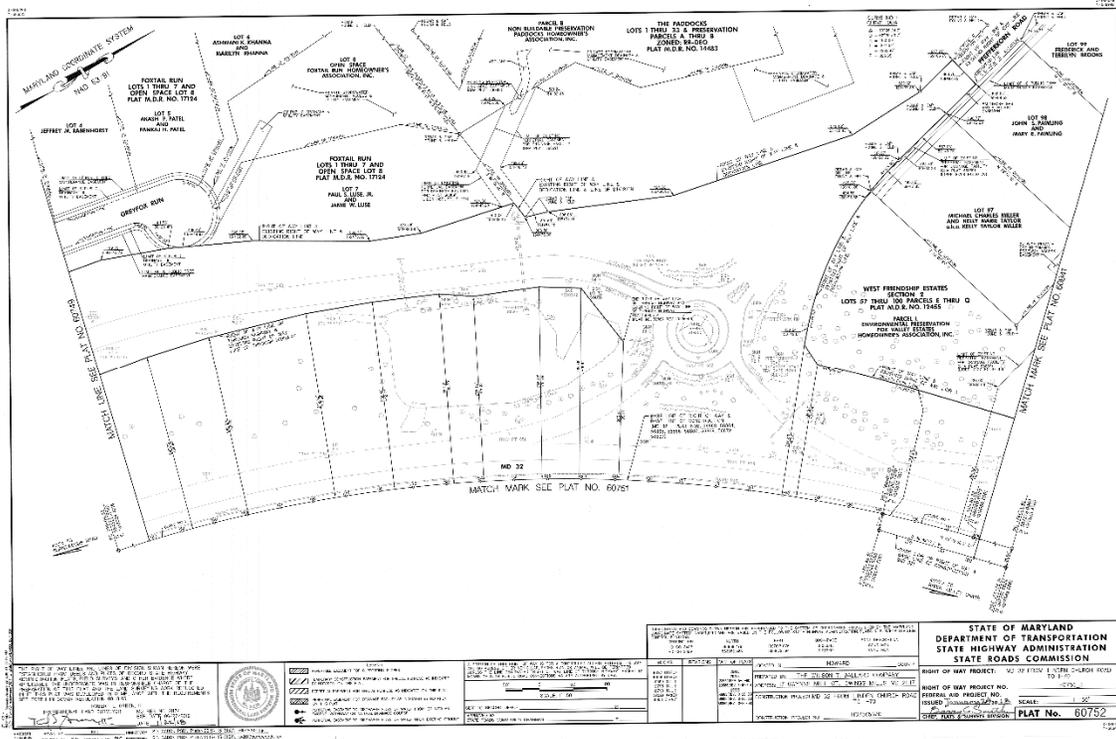
See Exhibit 38 and Exhibit 39 for examples of a scanned image plat and a full-size donation plat. Donation plat guidelines checklist on can be found in Appendix I.



## Definition plats

A definition plat is created to record present conditions of a site. It will show existing right of way lines, base lines, easements, and property lines.

A definition plat is created when the right of way does not appear in a recorded plat or where there is uncertainty in original acquisition from property owners or in cases of highway use by prescription. See Exhibit 40 for an example of a definition plat.



**Exhibit 40 – Definition plat**  
(11x17 printout can be found in Appendix A8.)

## Plat finalization

Steps to take a plat from final revised copy to submitted:

1. After a plat has been reviewed by the Assistant Division Chief and revised by the drafter, the plat must be plotted on mylar media. Mylar is the preferred media for archival purposes due to durability.
2. The mylar is then signed, sealed, and dated by the Professional Land Surveyor of record.
3. After the Professional Land Surveyor (PLS) has signed the mylar of the plat is then taken to the Plats and Surveys Division Chief for issuance. The Division Chief will review, sign, and date, thereby officially issuing the plat.
4. After all signatures, the mylar is scanned at 400 dpi minimum quality in .pdf format for PSD archiving purposes. Please verify scan and make sure all four corner coordinates are shown.
5. After the mylar is scanned and verified, fill out and sign the ORE Plat Transmittal Form (included in Appendix J). Make a copy of the transmittal form to take to a member of the assets management team to be uploaded into DARS.
6. Deliver the mylar and transmittal to ORE's Records and Research Division, located on the second floor of the 211 building. (as of January 2020)



## Chapter VI – Metes and Bounds Descriptions

A metes and bounds description is an intimate part of a deed necessary to define the interest of land conveyed. The description of the property shall be written so that lines of possession and evidence can be retraced clearly. Descriptions shall include courses, distances, intersections, bindings, and calls for landmarks and monumentation to guide future surveyors and/or researchers. In SHA, descriptions are used to convey or transfer property, that SHA no longer has interest in, to another government agency. Metes and bounds descriptions shall be signed by the PLS per COMAR 09.13.06.08 or submitted without a signature as per requirements for what the document will be used for by the requesting party.

There are 3 distinct types of descriptions used in PSD to convey property. These are the metes and bounds description with plat (See Exhibit 41 and Exhibit 42), the road transfer with plat (See Exhibit 43 and Exhibit 44), and the road transfer without plat.

**THE GRANTORS DO HEREBY GRANT, CONVEY AND QUITCLAIM** unto the County of Anne Arundel, Maryland, all right, title and interest in and to a part of the roadbed and right of way of MD 3 (Veterans Highway, also known as East Frontage Road), variable width, together with the appurtenances thereto belonging or in anywise appertaining, for 22,282 linear feet or 4.22 miles, more or less. The centerline of which is described as follows:

*Exhibit 41 - Portion of a metes and bounds description.*  
(The entirety of this page at full-size can be found in Appendix K1.)

Millrace Property Owners Association, Inc. to the State Roads Commission of Maryland; which, by a deed dated September 15, 1989 and recorded among the Land Records of Anne Arundel County, Maryland in Liber H.E.S. 5018, Folio 354 was conveyed by George W. Stone to the State Roads Commission of Maryland; which, by a deed dated October 8, 1987 and recorded among the Land Records of Anne Arundel County, Maryland in Liber H.E.S. 4482, Folio 887 was conveyed by Nicholas E. Plakatoris et al. to the State Roads Commission of Maryland; which, by a deed dated August 7, 1986 and recorded among the Land Records of Anne Arundel County, Maryland in Liber E.A.C. 4145, Folio 635 was conveyed by Charles F. Solomon and Genevieve Solomon to the State Roads Commission of Maryland; which, by an inquisition witnessed April 6, 1988 and recorded among the Land Records of Anne Arundel County, Maryland in Liber H.E.S. 4623, Folio 715 was conveyed by Sharon Mae Pumphrey to the State Roads Commission of Maryland; which, by a deed dated November 10, 1987 and recorded among the Land Records of Anne Arundel County, Maryland in Liber H.E.S. 4562, Folio 361 was conveyed by Anne Arundel County Maryland to the State Roads Commission of Maryland; and which, by a deed dated June 13, 1989 and recorded among the Land Records of Anne Arundel County, Maryland in Liber H.E.S. 4876, Folio 382 was conveyed by Jerome Steller et al. to the State Roads Commission of Maryland.

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*Exhibit 42 - Metes and bounds description (Continued)*  
 (A full-size version of this page can be found in Appendix K2.)

ROAD SEGMENT  
 TO BE CONVEYED BY  
 THE STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION  
 STATE ROADS COMMISSION OF THE STATE HIGHWAY ADMINISTRATION  
 TO  
 CITY OF GAITHERSBURG, MARYLAND

Road Transfer Name: MD 117 (W Diamond Avenue), MD 117 (Olde Towne Ave)  
 Right of Way Project No.: M 733-301-371  
 Right of Way Project: MD. Rte. 355 – From South Summit Avenue to Chestnut Street  
 Item No.: 67814, 67815, 67850, 67851, 72988  
 Road Transfer Item No.: 104326  
 Total Fee Area: 55,305 square feet or 1.270 acres, more or less

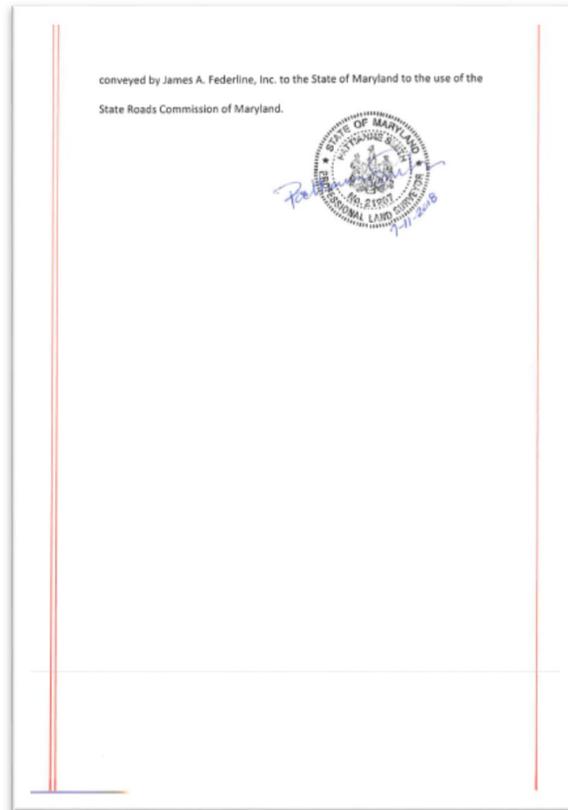
.....

**THE GRANTORS DO HEREBY GRANT, CONVEY AND QUITCLAIM** unto City of Gaithersburg, Maryland, all right, title and interest in and to the roadbed and right of way of MD 117 (W Diamond Avenue) and MD 117 (Olde Towne Ave), together with the appurtenances thereto belonging or in anywise appertaining.

**BEING** all those pieces or parcels of land as shown and delineated on the State of Maryland, Department of Transportation, State Highway Administration, State Roads Commission Plat No. 61153, which has been filed for record with and electronically recorded by the Maryland State Archives.

**TOGETHER WITH** the appurtenances thereto belonging or in anywise appertaining and any road dedication areas of record.

*Exhibit 43 - This road transfer description references a road transfer plat.*  
 (A full-size version of this page can be found in Appendix K3.)



*Exhibit 44 - Road transfer description (Continued)*  
(A full-size version of this page can be found in Appendix K4.)

### Parts of a metes and bounds description

- Caption
  - The first part of the metes and bounds description
  - Recites the property's general area to focus attention there
  - Example: All that portion of Lot 12, Block 15 according to Map No. 12 recorded in the office of the County Clerk of Somerset County, Maryland, more particularly described as follows...
- Body
  - Identifies a land property located within the area described by the caption
  - Must define the deed's goal to make it both certain and clear
  - Specifies courses, consisting of a bearing and distance, between property corners
  - Courses must close mathematically
  - States land area measured in both acres and square feet
  - References previous deed of acquisition
- Qualifying clause
  - Takes back part of the land given by either the body or caption
  - States encumbrances
  - References relevant deed(s)
  - Example: Excepting there from the easterly 100.00 feet

- Augmenting clause
  - Gives a right of usage outside the conveyed, usually easements
  - References relevant deed(s)
  - Example: And granting an easement for road purposes over the westerly 25 feet of the above excepted 100 feet
- Other Notes
  - SHA has a set format for how the header and body of the description are written. See Exhibit 41 and Exhibit 42.
  - The header can be adjusted to suit the need, area to be acquired, easement area, etc.
  - Only horizontal or grid distance may be listed. An actual datum may not be able to be listed. There may not be any item numbers because a prescriptive easement over a roadway that has been abandoned by SHA is being released. There is not a “one size fits all” formula, just guidance on format.
  - Exhibit 41 and Exhibit 42 show the format for a metes and bounds description and road transfer without a plat.
  - Exhibit 43 and Exhibit 44 show the format for a road transfer with a plat.
  - Name the description word document with the item number and road name as follows:
    - Item 91112 MD 484 Marbury-Pisgah Road RT
  - A checklist for writing metes and bounds descriptions can be found in Appendix L.



## Chapter VII - Review

Mosaics, workmaps, plats, and descriptions must be reviewed by a co-worker and supervisor. It is required to perform quality assurance and quality compliance (QA/QC) on deliverables before submitting.

### Mosaic

A mosaic is the visual representation of the research done, as explained in "Chapter II - Mosaics", and the first deliverable. This document is based on descriptions prepared at different times by different surveyors, so the "puzzle" might not have a perfect fit.

When reviewing a mosaic, important information that should be checked is:

- North arrow
- Bar scale
- Base line of right of way
- Right of way
- Easements
- Parcels (if this is a boundary mosaic or if lines from parcels were used to set the right of way on a right of way mosaic)
- Calls for adjoiners by name, by roadway, by stream or water feature, etc.
- Other natural or artificial features that would help set boundary
- Calls for property corner monumentation, (e.g. stones, pipes, and rebar)
- Preparer and date
- Recording reference for all documents (e.g. field survey books, liber and folio, and plat book and page number)

## Workmap

A workmap combines the work performed in the office with the monumentation found during meets and bounds field work. The surveyor decides, based on the research and the field-located evidence, where boundary and right of way lines are determined to be located. See “Chapter IV - Workmaps” for more details and examples. When reviewing work done by another professional surveyor, either in-house or by a consultant, there is some important information to be aware of.

When reviewing a workmap, utilize the workmap checklist found in Appendix M. Important information that should be checked includes:

- North arrow with datum identified (NAD 83/91 as of 01/2020)
  - Typical projects are on NAD 83/91 Datum. However, other assignments may be on a different datum on a task-specific basis.
- Bar scale
- Drafting requirements (line type, line weight, etc.)
- Show monuments found on a metes and bounds survey used to set any base line or boundary
- Roads identified with both route number and name
- Parcel identified with current property owner (Follow guidelines on what information to include on each parcel.)
- Show recorded vs field angles and distances.

## Plat

When reviewing a plat, there are many details to consider, and for that reason, PSD has created a drafter’s checklist to be used when preparing and reviewing a plat. When a plat is finalized and ready for a final review by the Assistant Division Chief, the checklist must be handed in along with the finalized plat. Please check the Appendix I for the latest Drafter’s Checklist. A plat that has been reviewed can be seen in Exhibit 45.

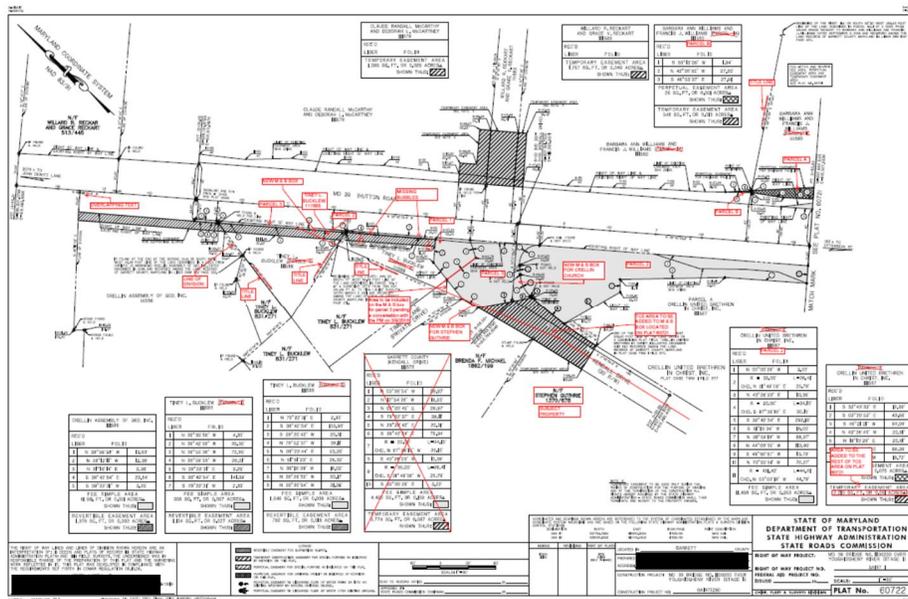


Exhibit 45 – Example of plat with comments  
(11x17 printout can be found in Appendix A9.)



## Chapter VIII – GIS and Special Projects

### Digital Assets Referencing System

This system is only available to all MDOT employees upon request. To access this system, login information must be acquired from the DARS team.

This map is a reference tool for locating areas with prior survey information (workmap or mosaic). The right of way geometry represented in this map was generated either directly by the MDOT SHA PSD or by licensed survey consultants under official contract. Always use the original design data for final deliverables.

An example of layers with PSD information

- All Delivered Total Maximum Daily Load (TMDL) R/W - Right of way re-established by the MDOT SHA PSD, at the request of the MDOT SHA Office of Environmental Design's TMDL Program. Contains workmap or mosaic level information.
- OHD Survey Areas - Centerline representations of prior (non-TMDL) survey jobs found on the S Drive, categorized by how well the job was documented. It contains workmap or mosaic level information.
- Item Number Pilot - This is a pilot service layer. Georeferenced plats were used to identify a series of property item numbers along a given route. Line and point data layers have been drawn to represent the span of these item numbers relative to the route centerline.
- Right of Way Trace Line - This is a pilot service layer. Georeferenced plats were used to trace right of way lines along a given route.
- PSD GPS Points - This is a pilot service layer. Complete inventory of the MDOT SHA GPS control points.

An example of layers with public information

- Maryland SHA Mile points - Mile markers information.
- Georeferenced Plat Boundaries – Georeferenced plats border with plat number description.
- Maryland Parcel Boundaries - This dataset contains tax map parcel polygons of the entire state.

In addition to the procedure for plat in “Chapter V – Plats”, when finalizing a workmap, the plat leader must fill out a workmap submittal, found in Appendix N. This form is then used to update the “OHD Survey Areas” layer with the workmap information and plat information respectively. The GIS Map is a living document that is always growing. New features can be added in the future.

## Appendix

<b>11x17 Plats and Plans</b> .....	<b>A</b>
<i>Construction and as-built plan (Exhibit 5)</i> .....	A1
<i>Design plan title sheet (Exhibit 20)</i> .....	A2
<i>Finished plat (Exhibit 34)</i> .....	A3
<i>Conveyance plat (Exhibit 36)</i> .....	A4
<i>Road transfer plat (Exhibit 37)</i> .....	A5
<i>Scanned image plat (Exhibit 38)</i> .....	A6
<i>Full-size donation plat (Exhibit 39)</i> .....	A7
<i>Definition plat (Exhibit 40)</i> .....	A8
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<b>Deed Example (Exhibit 6)</b> .....	<b>B</b>
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<b>Types of Easements Used by SHA</b> .....	<b>D</b>
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<i>Metes and Bounds Description (Exhibit 41)</i> .....	K1
<i>Metes and Bounds Description (Last Page) (Exhibit 42)</i> .....	K2
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<b>Metes and Bounds Description Checklist</b> .....	<b>L</b>
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