Maryland State Highway Administration
Hydrologic and Hydraulic Guidelines
for Access Permits

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Attachments

1 Introduction

This document summarizes the standard policies and procedures regarding the hydrologic analysis and hydraulic design requirements of access and utility permit applications for work within and adjacent to state roadways and facilities. While numerous references are made regarding minimum requirements, they are never substitutes for sound, professional engineering judgment. The criteria and standards cannot provide for all situations and are not intended to unreasonably limit any innovative or creative effort that may result in a more effective achievement of the intent of the requirements. Any proposed departure from such standards is judged on the likelihood that it will produce a compensatory or comparable result, adequate in every way, for the citizens of Maryland and users of the State's roadway network. All analysis and design must be performed by a Professional Engineer licensed in the State of Maryland.

2 Review Process

All projects proposed by private developers, local municipalities, counties, and state or federal agencies adjacent to and/or within the right-of-way are reviewed to ensure there are no adverse impacts to the state and to verify that improvements within the right-of-way conform to all requirements and the intent of the requirements. SHA District Offices perform the review and may sometimes need to coordinate with the SHA Office of Highway Development's (OHD's) Highway Hydraulics Division (HHD). OHD-HHD only reviews submissions it receives from District Offices. Access-permit related project submittals should only be sent to the District Engineer with the attention of the Regional Engineer.

In general, hydraulic reviews ensure that:

- All inlets, pipes, ditches, swales, channels, and stormwater management (SWM) facilities constructed within the right-of-way and/or easements meet SHA criteria.
- The design of proposed drainage facilities and infrastructure connecting directly and/or indirectly to SHA drainage facilities and/or systems either upstream or downstream are adequate, do not adversely affect state assets, and do not compromise the safety of state assets.
- Proposed developments served by on-site drainage systems that do not connect directly to the SHA drainage and conveyance systems do not directly or indirectly result in an adverse impact upon SHA assets and do not compromise the function or safety of state assets.
- Cross-sectional elements of proposed improvements do not create safety or erosion hazards.
- Grading plans and activities within the right-of-way do not cause increases in flow towards the state assets.
- Erosion and sediment control (ESC) work within the right-of-way is appropriate, adequate, and will not cause a release of sediment or sediment-laden runoff to enter the SHA drainage system and/or other SHA assets.

2.1 Conditional Approval. Projects may be eligible for conditional hydraulic approval, allowing the applicant to submit their access permit package if the District Office determines that all other project comments have been satisfied and the project is ready for permit issuance. Conditional approval may be granted when there are only a few minor plan presentation comments remaining to be addressed, e.g. adding SWM facility numbers or correcting callouts. HHD has the sole discretion, largely delegated to District Office hydraulic reviewers, to grant conditional hydraulic approval and will not grant it when design-related comments are outstanding.

2.2 Final Approval. Final hydraulic approval will not be issued until a complete submittal of documents specified herein is received, reviewed, and deemed acceptable by the District Office reviewers. Since SHA is not an approving agency for SWM and ESC for non-SHA projects, the applicant is responsible for obtaining approval from the local approving agency, i.e. the town, county, and/or soil conservation district (SCD). The applicant is also responsible for obtaining any other necessary environmental permits and approvals including but not limited to Non-Tidal Wetland and Waterway Permits, Tidal Wetlands Licenses, Army Corps of Engineers Permits, and Critical Area Commission approval. Applicants should engage any applicable environmental stakeholders prior to submitting to SHA for Final Approval. Documentation of final approvals from other agencies is not a requirement for hydraulic approval; however, demonstration of concurrence from other approving agencies is recommended. Submissions to SHA for Final Approval must reflect the final design.

3 Reference Documents

All analyses and design are required to be in accordance with the latest versions of the documents listed below for the hydrologic and hydraulic analysis and design of drainage systems and infrastructure, SWM facilities, and ESC plans within or affecting, directly or indirectly, SHA right- of-way, easements, infrastructure, and assets.

- SHA Highway Drainage Manual and Office of Structures Manual for Hydrologic and Hydraulic Design – These documents provide the standard analytical methodologies and design criteria for the design of drainage systems, culverts, and bridges, as well as provides links to design exception request and technical report templates.

- SHA Book of Standards for Highway and Incidental Structures – Provides standard details for asset and infrastructure items.

- SHA Standard Specifications for Construction and Materials – Provides standard specifications for construction and materials to be used and also includes supplemental special provisions that supersede the Standard Specifications.

- SHA Stormwater Management and Erosion & Sediment Control Resources – Provides requirements for SWM and ESC within SHA right-of-way and easements.

- MDE Plan Review – Provides guidance and criteria for the analysis and design of SWM facilities and ESC techniques including various Technical Memorandums.

- MDE Maryland Standards and Specifications for Soil Erosion and Sediment Control – Provides guidance and criteria for the design of ESC and accepted practices.

- MDE Dam Safety – Provides guidance and criteria for the analysis and design of Dams and Small Ponds including various policy memorandums.

Where discrepancies exist, this document shall supersede all other reference documents above.

4 Exemptions from Hydraulic Review

Under limited circumstances, projects may be exempt from hydraulic review. Refer to the **Hydraulic Review Waiver Request** that includes a flow chart to determine whether a specific project may qualify for exemption. Send review requests to the appropriate District Office for concurrence. Regardless of the results of the flow chart, SHA reserves the right to review all projects when it deems a review is necessary.

5 Drainage Design

All drainage systems located within SHA right-of-way and easements are designed per criteria and requirements documented in the SHA Highway Drainage Manual.

5.1 Basic Concepts. Refer to Chapter 1 of the SHA Highway Drainage Manual.

5.2 Inlet Capacity and Spread. Refer to Chapter 5 of the SHA Highway Drainage Manual. Provide computations to demonstrate criteria is met. Additional specific requirements are as follows:

a. The maximum allowable flow across entrances is 1.0 cfs.
b. The maximum allowable flow onto downstream property owners from the end of curb and gutter is 0.5 cfs when SHA has the right to discharge at that location. Supply the pertinent plat that shows the right to discharge.
c. Avoid curb cuts and use Standard COG/COS Openings in the SHA Book of Standards for Highway and Incidental Structures.
d. Prepare a pre- and post-development analysis for existing inlets when runoff from the proposed development is directed toward the highway. Additional flow from the development may not be directed toward the roadway.
e. When proposed conditions cannot accommodate a standard SHA structure, a specially- designed structure may be proposed. The structure design must be signed and sealed by a professional engineer licensed in Maryland.

5.3 Inlet Selection. The following are basic guidelines to inlet selection.

a. Curb Opening Inlets
   - Preferred when heavy truck traffic is anticipated in a turning or parking lane.
   - Assume a one-foot gutter pan with a 1.5 inch local depression.
b. Grate Inlets
   - Grates include those that are safely traversable by bicycles. (This is not applicable for roadways in which bicycles are prohibited.)
   - In sumps containing an inlet, reduce the perimeter length to 75% of actual length to compensate for potential clogging.

5.4 Storm Drains. Provide existing and proposed conditions analyses of the storm drains that are directly and indirectly affected by the proposed development. Analysis and design guidance is located within the Chapter 5 of the SHA Highway Drainage Manual. Additional specific requirements are as follows.

a. All new or replacement drainage structures within SHA right-of-way or easement must conform to the latest version of the SHA Book of Standards for Highway and Incidental Structures, except where the use of specially-designed modified or non-standard structures is expressly noted on the approved plans.
b. Approval of modified or non-standard structures within SHA right-of-way or easement is at the sole discretion of HHD. The District Office will review the hydraulic design for non-standard structures and upon acceptance will submit to HHD for review of the structural design prior to final approval.

c. Before pre-cast structures are ordered, shop drawings must be approved prior to installation of the structure.
d. Minimize the number of storm drain trunk lines and cross pipes running beneath travel lanes.
e. If the storm drain extends beyond SHA right-of-way to the development site, place a manhole structure just inside the SHA right-of-way to set the maintenance limits.
f. All new or replacement drainage pipes shall conform to the approved materials listed in the latest versions of the Standard Specifications for Construction and Materials and Highway Drainage Manual.

5.5 Open Channels. Provide an analysis for all channels adjacent to state highways and any that may be affected as a result of the proposed development. This may include channels that are located beyond the property boundaries. Size inlet and outlet channels of culverts for the design storm of the roadway functional classification. Additional guidance may be found in Chapter 3.6 of the SHA Highway Drainage Manual.

5.6 Culverts. Provide an analysis for all existing and proposed culverts within SHA right-of- way that may be affected as a result of the proposed development. This may include culverts that are located beyond the property boundaries. If hydrologic computations for existing culverts show no increase in peak discharge for all storms up to the design storm of the roadway, a culvert analysis is not required. The roadway's design storm is based on the functional classification as set forth in the Highway Location Reference.

Headwalls and endwalls are required on pipes 36" in diameter and larger; otherwise end sections are required. Include AASHTO safety and clear zone requirements in the decision-making for determining the most appropriate entrance and end treatments of culverts.

5.7 Utility Clearances. Provide clearances with existing and proposed utilities in accordance with the criteria established by the specific utility owner. Utilities should be avoided within the structural backfill of drainage pipe. Ensure utility designations have been completed and include them on final design plans; include test pit information. Coordinate test pits during the design phase, prior to issuance of the permit, with the District Utility Engineer (DUE) and obtain the pertinent permits from the DUE. Additional information may be found in the SHA Utility Manual. In the event of utility conflicts during construction, any alternative designs require approval from HHD.

Unforeseen or improperly evaluated conflicts with underground utilities can have a profound effect on the schedule and cost of construction. Redesign of proposed storm drainage systems may require considerable engineering efforts and relocation of the utility may be the only acceptable alternative. Applicants are advised to utilize appropriate resources early in the design process to positively identify the precise horizontal and vertical location of all underground utilities at

points of potential conflict with proposed storm drainage systems.

5.8 Discharge Easements. Provide a perpetual discharge easement when creating a new location where concentrated discharge leaves the SHA right-of-way. A recorded deed and plat into the public record are required. Direct all plat and deed related questions to SHA's Plats and Surveys Division (https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=64).

6 Stormwater Management

6.1 Approval Authority. Regulatory approval authority of SWM and ESC for any project within Maryland is based on the applicant and location of the project, typically either a local jurisdiction or MDE. Except for projects undertaken by SHA itself, SHA is not a regulatory authority for SWM and ESC. However, as an affected landowner and asset owner responsible for maintenance, SHA has supreme authority regarding the location, type, and design for any SWM and ESC practices proposed within SHA right-of-way and easements and is due compensatory mitigation for adverse impacts within the SHA right- of-way and easements should they arise as a direct or indirect result of the proposed development.

All work within the SHA right-of-way must comply with all SHA requirements, criteria, and standards *regardless* of local standards.

6.2 Design and Analysis Requirements. All SWM facilities must be designed and analyzed using the NRCS TR-55 Hydrograph Method. No other methods are accepted. The SWM computations must include the appropriate pre- and post-development discharge rates. In addition, computations based on the design storm for the roadway functional class are required.

The following specific requirements apply to all SWM facilities proposed within the SHA right-of-way.

a. SWM facilities may only manage SHA impervious areas. All other impervious areas are excluded.
b. In general, joint-use facilities are prohibited; however, they may be approved on a case- by-case basis if a direct benefit to SHA is demonstrated.
c. The reduced curve number method may only be used for the 2-year design storm and does not apply to any higher-volume storms. To determine the reduced discharge influenced by a Chapter 5 SWM facility, the appropriate design storm may be routed through the facility using TR-20 methodology.
d. SWM filtration facilities using the SHA bioretention soil mix (BSM) must be designed using the "Surface Storage Volume Tables for Bioretention, Bioswales, Rain Gardens, and Landscape Infiltration."

6.3 Peak Discharge Requirements. SHA drainage systems are designed for storm events that may differ from local flood control and stormwater management

requirements. It is the applicant's responsibility to ensure that their development does not adversely affect SHA drainage systems per the following requirements.

a. For any proposed improvements in which stormwater runoff will enter SHA right-of-way, the applicant must demonstrate no increases in peak discharges *entering* SHA right-of-way for the 2, 10, 25, 50, and 100-year design storms.

b. For any proposed improvements in which stormwater runoff will exit SHA right-of-way, the applicant must demonstrate no increases in peak discharges *exiting* SHA right-of-way for the 2, 10, 25, 50, and 100-year design storms.

If these peak discharge requirements cannot be met, the applicant must provide a detailed hydraulic analysis of the SHA drainage system and/or adjacent drainage systems demonstrating that all state and local drainage criteria are met and there are no adverse effects on downstream properties considering all environmental regulatory guidance (e.g. MDE Dam Safety policy on roadway embankments).

6.4 Impervious Area Requirements. For any improvements or alterations that increase the amount of impervious area within the SHA right-of-way, regardless of the need or amount of new impervious area, the applicant must provide direct treatment of the Environmental Site Design Volume (ESDv) for the increase in impervious area. Direct treatment is provided by runoff from the SHA impervious area flowing directly into a SWM facility. Treatment may be provided by either of the following:

a. Constructing a SWM facility within the right-of-way that directly receives runoff from the impervious area it is managing within the right-of-way. Areas outside of the right- of-way, impervious or otherwise, may not be managed by any SWM facilities located within the right-of-way. All SWM facilities within the right-of-way are owned and maintained by SHA like any other asset or infrastructure within the right-of-way. As such, the SWM facility must meet all SHA requirements for design, materials, and construction.

b. Constructing a SWM facility on the proposed development site and entirely outside the right-of-way or easement that directly receives runoff from the impervious area it is managing, including the impervious area from the right-of-way or easement. SWM facilities located outside of the right-of-way are owned and maintained by the property owner.

Treatment requirements related to the reconstruction of existing pavement is deferred to the regulatory agency responsible for approving the stormwater management for the project.

Alternative management may not be provided by fee-in-lieu, overcompensation or over-management elsewhere on the development site, and Final Hydraulic Approval will not be granted, regardless of whether or not the local approval authority accepts or approves such an alternative.

6.5 Modifications to Existing SHA SWM Facilities. Any modifications to an existing SHA-owned SWM facility requires approval from HHD. HHD will coordinate with SHA's Plan Review Division as needed.

6.6 SWM Facility Numbers. All SWM facilities, regardless of location and ownership, receiving runoff from impervious area located in the SHA right-of-way must receive a SWM Facility Number from HHD. Instructions for receiving the SWM facility numbers are included in HHD comments. Numbers are issued prior to Final Hydraulic Approval and only when all design-related comments have been satisfactorily addressed.

7 Erosion and Sediment Control

Establish an ESC plan that is approved by the local approval authority. SHA will review the ESC plan to ensure the plan prevents sediment and sediment-laden runoff from entering SHA drainage systems, SWM facilities, similar infrastructure and assets, and the right-of-way. Projects exempt from ESC approval as determined by the local approval authority are still required to have an appropriate ESC plan for work within the SHA right-of-way and easements and the project remains prohibited from releasing sediment and sediment-laden runoff onto SHA property.

Note on the ESC plans that any impact to existing SHA drainage systems that reduces functionality shall be mitigated and restored to original condition within a reasonable timeframe.

8 Submittal Requirements

Deliver all submissions to the appropriate District Office contact. The H&H review will not be performed on submissions made directly to the District-assigned hydraulic reviewer. Depending on the proposed design, the hydraulic reviewer may need to coordinate with OHD-HHD (e.g. when a design exception is being requested). The hydraulic reviewer will manage all appropriate coordination.

8.1 Traffic Impact Study (TIS) Phase Reviews. Because of the potential for significant roadway changes that affect drainage and SWM, hydraulic review will not review projects for which a TIS is required but not approved.

8.2 Plan Reviews. Prepare and present all computations neatly, well organized, and sufficiently and appropriately labeled so they may be easily reviewed. Include references to all design charts and publications used in the preparation of the computations.

At a minimum, submit the following for hydraulic review:

a. Plans
    i. A set of the latest approved development site plans signed and sealed by a professional engineer licensed in the State of Maryland.

ii. A set of the latest SHA roadway improvement plans (if separate from the development site plans) signed and sealed by a professional engineer licensed in the State of Maryland.
iii. Proof of county and/or local approving agency approval of the SWM and ESC plans.

b. Drainage Computations
   i. Pre- and post-development drainage area maps.
   ii. Inlet spacing computations. Included existing and proposed conditions. For existing storm drain system modifications, provide documentation demonstrating condition. Structures found to be in deficient condition may need to be replaced to ensure safety.
   iii. Storm drain design computations. Include existing and proposed conditions. For existing storm drain pipes, provide documentation demonstrating condition. Pipes found to be in deficient condition may need to be replaced to ensure safety.
   iv. Hydraulic gradient computations. Include existing and proposed conditions.
   v. Flow computations for open channels and ditches. Include existing and proposed conditions.
   vi. Hydraulic analyses for culverts. Include existing and proposed conditions. For existing culverts, provide documentation demonstrating condition. Culverts found to be in deficient condition may need to be replaced to ensure safety.

c. Stormwater Management Report
   i. Pre- and post-development drainage area maps for all points and lines of investigation. Points of investigation (POIs) are locations where concentrated runoff from a drainage area flows from the project site. A POI is typically identified at the right-of-way boundary to determine the effects on the downstream property. Lines of investigation are for situations with sheet flow rather than concentrated flow.
   ii. Impervious area summary detailing the amount of new impervious, existing impervious, redevelopment, and removed impervious areas within the SHA right- of-way and easements.
   iii. Peak discharge computations demonstrating no increase in peak flow into and out of the SHA right-of-way and easements.
   iv. Design computations for all SWM facilities within or adjacent to the SHA right-of- way and easements.
   v. Complete supporting documentation of the hydrologic analysis e.g.: t_c paths, runoff curve numbers, soil types, TR-20 Schematic Diagrams, land uses, etc.).

8.3 Computational Software. Only outputs from SHA-approved software will be reviewed. Approved software may be found in Chapter 1.10 of the SHA Highway Drainage Manual.

8.4 Modifications. In the event that the permitted drainage systems, SWM facilities, and other items that directly or indirectly affect runoff drainage patterns cannot be constructed according to the approved plans due to utility conflicts, adverse site conditions, and other factors discovered during construction activities, the applicant is responsible to provide a functionally equivalent or improved design that meets or exceeds the intent and function of the approved design and submit revised plans to SHA for approval, including an amended hydraulic review approval when necessary.

At the SHA inspector's discretion, certain changes may be approved in the field. All other changes require an amended hydraulic review approval.

8.5 SWM Facility As-Built Drawings. Submit approved SWM facility as-builts to the applicable District Office for all SWM facilities constructed within SHA right-of-way and easements. The applicable District Office reviews the as-builts and will forward the approved submittal with all comments addressed to HHD.

Frequently Asked Questions

Drainage

1. We are connecting our development's storm drain system to a storm drain system running along the travel lane in highly urban areas due to lack of other storm drains in the area. Is it allowable to install manholes in middle of a travel lane on a collector type road?

   Manholes are allowed within travel lanes; however, the manhole covers are preferred to be located outside of the typical wheel path within the lane per section 5.2.11 of the SHA Drainage Manual.

2. The existing storm drain is being impacted by our proposed development and the design results in a minimal increase to peak discharges. We demonstrate that the existing storm drain has capacity and that the outfall is stable. Is this allowed?

   Any increase in peak discharge to SHA ROW and storm drain systems that's 0.01 cfs or greater is to be justified by the designer. The designer needs to request a design exception and demonstrate that there are no adverse flooding, safety, or stability impacts to SHA property or other properties downstream of the SHA drainage network.

3. My design has improved the roadway drainage conditions but we are unable to practically meet the SHA Highway Drainage Manual criteria. Do I still need to meet the Drainage Manual criteria?

   If drainage conditions are improved and impractical hardship is required to meet SHA Highway Drainage Manual criteria, the designer may pursue a design exception that is to be reviewed by the SHA hydraulic reviewer and included in the project records.

4. Our development is connecting to an existing storm drain system and there are no records of design calculations for this system. The SHA Drainage Manual indicates that if original design calculations are not available, then the HGL elevation must be taken from top of a downstream manhole. This is a conservative approach resulting in the HGL being significantly higher than the road surface and drainage structures. Is there something else that the designers can do?

   Engineers can have the existing storm drain system surveyed to be able to perform more accurate analysis. County governments may be able to help facilitate locating storm drain plans and/or layouts for systems that extend beyond SHA right-of-way.

5. We are proposing a commercial driveway entrance with roadway runoff flowing across the entrance but there is no existing storm drain in the vicinity even though there is a curb. What would the criteria be when there are no storm drains to tie into?

   Refer to Section 5.3.3.C of the SHA Drainage Manual for guidance on inlet locations. A design exception would need to be approved by SHA for installations not meeting criteria outlined in the SHA Drainage Manual.

6. During the as-built review process it was determined that the contractor failed to construct a pipe per the approved design plans. Will SHA approve the as-builts?

   Variations from the approved design must be justified and the developer must demonstrate that the service life meets or exceeds the original design and hydraulic performance is sufficient for safety and operations. A design exception would need to be approved by SHA for installations not meeting criteria outlined in the SHA Drainage Manual. If the end product presents safety or functional deficiencies when compared to the approved design, corrections such as repair or replacement may be required.

7. Who approves shop drawings for access permits?

   All drainage structure shop drawing reviews associated with Access Permits need to be submitted to the District Office. The District Office coordinates with the Office of Highway Development (OHD) Highway Hydraulics Division (HHD) for the review/approval.

8. Where can I find a list of allowable drainage pipe materials for use in SHA right-of-way?

   Please refer to Section 4.9.4 of the MDOT SHA Highway Drainage Manual for allowable drainage pipe materials.

9. Can I use a drainage detail that I used for another state/jurisdiction?

   Ensure all drainage structures within SHA right-of-way follow SHA standards or SHA-approved substitutes. Modified standards must be reviewed by SHA prior to issuing the access permit.

Stormwater Management

10. How are situations handled where a SWM facility is located outside SHA ROW on the developers site treating SWM runoff from SHA ROW?

    A SWMFAC number is assigned, but as-builts are approved by the County/local jurisdiction as SHA does not maintain those facilities.

11. For sidewalk/shared use path type projects, are developers allowed to propose pervious pavement within the SHA ROW?

    Pervious pavement is not a preferable practice within SHA ROW. District maintenance offices and Counties have limited resources to maintain new installations.

12. For projects in an urban environment (e.g. BRT projects) where there is very limited space to put any SWM infrastructure due to topographic and site constraints, what would be SHA's approach to providing SWM?

    Stormwater is to be managed in accordance with state and local regulations. When partnering with counties and local municipalities, ultra-urban SWM practices can be proposed and reviewed on a case-by-case basis.

13. Counties often state that as long as ESD volumetric requirements are met, the designers have met ESD to MEP. SHA has an increased focus on treating the Impervious Area Requiring Treatment (IART) within their right-of-way. Since the county is the permitting authority, do I need to meet both ESD volumetric requirements and IART requirements?

    Yes, refer to Section 4.0 of SHA Plan Review Division Sediment and Stormwater Guidelines and Procedures which indicate that SWM plans shall incorporate a design to capture the entire IART. This helps ensure SHA is in compliance with its MS4 permit requirements.

14. Some counties do not require developers to hydrologically analyze site developments with points of interest (POIs). SHA is asking us to separate the flows into different POI's where runoff leaves the project ROW or LOD prior to draining to SHA's ROW. Should the county or SHA requirements be followed?

    POIs are to be defined in accordance with MDE and SHA-PRD definitions. POIs are locations where runoff from the drainage area leaves the project site. Refer to the MDE Plan Review Division Technical Memorandum #10 for additional information on identifying POIs.

15. Our access permit was granted and then the project was shelved for 4 years. In this period, there was an adjacent development further upstream that cleared woods and developed the property. The site for which the access permit was issued had assumed wooded conditions in the upstream areas. Are we required to reflect the latest site conditions given that the site conditions changed over this time?

    ***Access permits are valid for three years. Once the permit expires, developers need to reflect the latest site conditions in their SWM analysis*.**

16. SHA requires that the applicant demonstrate no increase in peak discharge entering/exiting SHA right-of-way for the 2, 10, 25, 50, and 100 year storms. Counties often indicate that as long as ESD to MEP has been incorporated, the SWM requirements are met unless there is known flooding in the area. Why does SHA hold developers to a higher standard?

    SHA drainage systems are designed for storm events that may differ from local flood control and stormwater management requirements. It is the applicant's responsibility to ensure that their development does not adversely affect SHA drainage systems. Additionally, SHA projects are required to follow regulatory peak management criteria and can mitigate any increase in peak discharge by purchasing right-of-way and easements where needed. Applicants typically do not buy downstream properties or evaluate impacts downstream of SHA right-of-way. Therefore, increases in peak discharge are avoided to maintain safe and stable conveyance through SHA right-of-way and mitigate liability for the Administration.

17. Developers have requested that SHA consider using planter boxes or other alternative micro-ESD facilities in urban areas. What is SHA's stance if the District agrees to maintain these facilities?

    Ultra-urban stormwater management practices can present unique design challenges to ensure optimized performance and efficient maintenance. The design of ultra-urban facilities should be a last resort and vetted with the Highway Hydraulics Division prior to approval. Maintenance should be conducted according to manufacturer specifications and SHA guidance. In the absence of SHA guidance, a maintenance plan should be developed by the designer and the local District office must agree to follow the maintain plan for ultra-urban facilities.

18. If the county agrees to maintain, what is SHA's stance on use of underground and proprietary water quality devices within the ROW?

    Underground and proprietary water quality devices should only be considered after other traditional means of providing SWM have been exhausted. The implementation and maintenance of underground and proprietary facilities should not adversely affect safety and should not unreasonably affect traffic flow.

19. If an existing SWM facility is not designed to current standards, what portion of the facility (either percentage, or type of impact) would need to be impacted for SHA to require re-design/reconstruction of the whole facility to the current standards?

    Temporary impacts to SWM facilities do not require re-design to current standards. Permanent impacts resulting in a complete replacement of a

SWM facility require the facility to meet current standards. Other situations will be assessed by SHA on a case-by-case basis.

20. Who should the developer's engineer send the as-built certification to in order to demonstrate that the work was completed?

    Developers should send as-built certifications for SWM facilities to the District Regional Engineer.

21. Can I modify an existing SHA SWM facility?

    Yes, it's possible to modify an existing SHA SWM facility with approval from the District reviewer and concurrence from the SHA Highway Hydraulics Division. Small ponds constructed to MD Pond Code 378 will also require SHA Plan Review Division concurrence.

22. Are joint-use facilities allowed?

    In general, joint-use facilities are prohibited; however, they may be approved on a case-by-case basis if a direct benefit to SHA is demonstrated. ***Joint-use SWM facilities require a Memorandum of Understanding to be developed by the designer to outline responsibilities for all parties.***

23. How can developers access as-built data for existing SWM facilities?

    Developers should request this information from the SHA District Office. SHA hydraulic reviewers can use the SWMFac Editor that accessible to those with an SHA account and an ArcGIS login. This tool enables users to search for data associated with SHA SWM facilities including as-builts, calculations, inspections, etc.

24. What other permits/approvals should applicants have when submitting for an access permit?

    The applicant is responsible for obtaining stormwater management and erosion & sediment control approvals from the local review authorities. The applicant is also responsible for obtaining any other applicable permits.

25. Why must the applicant demonstrate direct treatment for the water quality associated with the new impervious within SHA right-of-way?

    An accounting of all new and removed impervious within SHA right-of-way and direct treatment of new impervious within SHA right-of-way is required for SHA to remain compliant with its MS4 permit.

26. My project is a small residential subdivision with a shared driveway. This project generates a small water quality requirement and small increase in peak discharge for various storm events. Requiring SWM facilities seems overly burdensome. Can my project be exempt from SWM requirements?

    Net increases in impervious area that do not round up to 0.01 acres (i.e. 217 sq. ft. and below) are considered de minimis from a water quality perspective. Increases above that should be mitigated in accordance with the H&H guidelines for access permits and the appropriate regulatory authority.

27. SHA SWM Facility identification numbers are necessary for facilities treating SHA impervious area and these numbers are required to be shown on the SWM plans. Where can I find SHA SWM Facility identification number request forms?

    The SHA SWM Facility identification number request form is available on the SHA website: https://roads.maryland.gov/mdotsha/pages/Index.aspx?PageId=432.

28. During the as-built review process it was determined that the contractor failed to construct a SWM facility within SHA's right-of-way per the approved design plans. Will the SWM facility have to be reconstructed?

    Variations from the approved design must be justified and the developer must demonstrate that the SWM facility meets or exceeds the original design requirements for safety and operations. A design exception would need to be approved by SHA for installations not meeting criteria outlined in the SHA SWM Design Guidance Drawings. If the end product presents safety or functional deficiencies when compared to the approved design, corrections and/or monitoring may be required prior to SHA releasing the performance bond.

Maryland SHA Access Permit Hydraulic Review Waiver Form

PROJECT NAME: _____

STATE ROUTE(S): _____

Based on my review of the proposed development plans dated _____, in my judgment this project does not warrant a formal hydraulic/hydrologic review.

WAIVER JUSTIFICATION:

☐ Meets “Hydraulic Review Determination Chart” criteria.

☐ Driveway culvert replacement with the same diameter and invert as existing. No existing drainage problems.

☐ Hydraulic design criteria is to be addressed under another project (please describe):

_____
_____
_____

☐ Other:

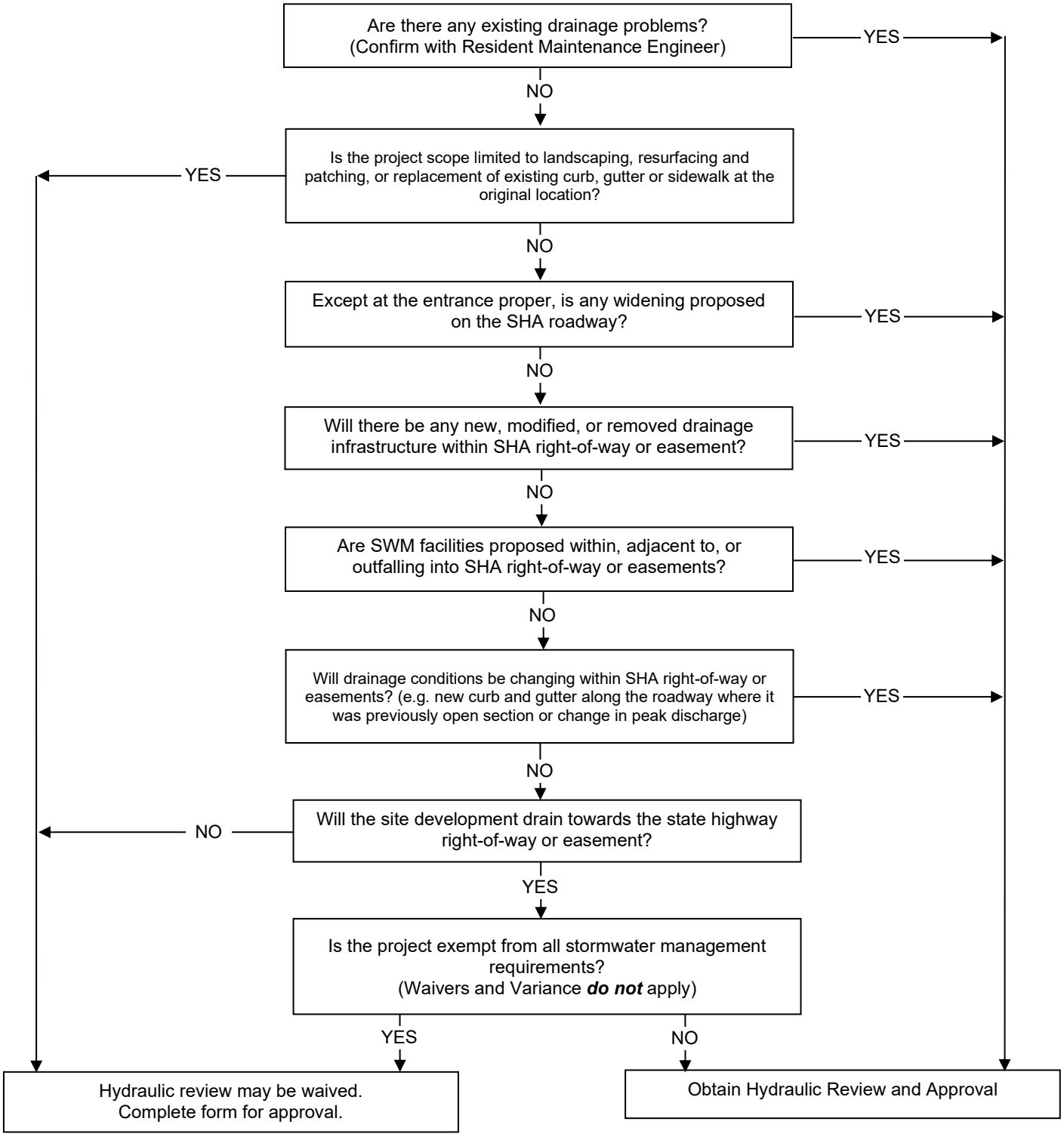
_____
_____
_____
_____
_____
_____
_____
_____

_____ _____
Prepared by: Applicant Date

_____ _____
Regional Engineer Concurrence Date

_____ _____
Waiver Approval by: Hydraulic Reviewer Date

HYDRAULIC REVIEW DETERMINATION CHART



Notes:

1. All projects shall be evaluated on a case-by-case basis.
2. Use of this chart is not a substitute for professional judgment.
3. Obtain SHA concurrence and approval as early in the project as possible.
4. Chart may be used to present your line of reasoning.
5. Waiver is invalid if the project scope changes.