

ISSUE:

White Paper: Orphaned Outfalls in Rural Virginia Localities

BACKGROUND:

The Board of Supervisors has previously expressed its concerns relative to the maintenance of outfall ditches along roadways throughout the County.

At its meeting on October 15, 2019, the County's Stormwater Advisory Committee approved a white paper developed by staff to articulate the background and concerns for "orphaned" outfalls in rural localities in Virginia in an effort to solicit support fro action by the General Assembly.

BUDGETARY IMPACT:


None.

RECOMMENDATION:

Per the Board's discussion and direction.

ATTACHMENTS:

Description	Type	Upload Date
White Paper	Backup Material	10/16/2019



**ORPHANED
OUTFALLS in
RURAL
VIRGINIA
LOCALITIES**

OCTOBER 18, 2019

Isle of Wight County, Virginia

**Authored by: IOW Stormwater Division with the
support of IOW Stormwater Advisory Committee**

Introduction

Defining the Issue

Isle of Wight County Stormwater Division staff continue to receive drainage complaints relating to a common theme. Degrading stormwater outfalls from roadway drainage systems are eating away at private property, leaving our citizens with an expensive problem and no clear solution. The purpose of this report is to illuminate this issue to our VACO Partners for discussion and ultimately to create a starting point to craft a fair solution to a growing problem.



Background

An unwanted legacy

In older subdivision developments where HOAs are now defunct or perhaps never existed, an unanticipated and costly asset remains. In a typical scenario, Isle of Wight County (County) staff are called to address involves a roadway drainage system that discharges to a natural area. When subdivision infrastructure was constructed in the past, any portion of the drainage pipe systems that discharge downstream of the VDOT right-of-way were routinely placed in a generic drainage easement. Under modern development regulations this easement is dedicated to the community's HOA, which remains perpetually responsible for routine maintenance and ultimately replacement of the outfall when necessary. For the subject older developments, the easement is typically defined with no beneficiary. The developer or HOA was the implicit beneficiary.

Many years later, a combination of erosion, time, and lack of preventive maintenance have led to severely degraded conditions at the outfall that are now beyond any simple repair effort. Erosive forces that occur with high velocity stormwater flows, at these outfalls, have eaten away at the bedding beneath the original pipe end section. Several joints are often undermined and left disconnected and effectively discarded in an unstable and degrading channel.

The County does not own, operate, or maintain public drainage systems, and thus cannot take responsibility for outfalls on private land without risk of being subject to a perpetual and expensive MS4 permit. Even though the design and installation was approved by VDOT, they do not currently recognize the outfall as VDOT's responsibility when it lies beyond the right-of-way limits. Neither entity has budgeted for repair, replacement, or routine maintenance of this critical public drainage system infrastructure. Thus, the term '**Orphaned Outfall**' was coined by an impacted resident, who found himself frustrated and with nowhere to turn for help in repairing this costly, unsightly, and unsafe condition. Isle of Wight County, in partnership with VACO, is seeking assistance from VDOT and/or the General Assembly to address this ongoing concern in accordance with State Water Control Board requirements.

Ownership Concerns

Commitments and Liabilities

The County engaged its on-call Engineering Consultant to provide a Study to assess the effort and costs associated with completing an example replacement project for an outfall pipe and downstream conveyance. The costs to provide a new pipe and armored open channel from the right-of-way to an adequate channel was approximately \$150,000 to replace a 24-inch outfall pipe. Costs will vary widely depending on pipe size and other site-specific conditions. The Study is included for reference as **Appendix A** of this report.

To approximate this potential expense, our example noted above was completed based on replacing one instance of a VDOT system outfall the County was aware of based on a past complaint. We responded to the citizen at that time that the County cannot undertake these repairs since we don't own any property in the area, and since the easement was not dedicated to the County. The County Attorney's opinion is that the designation as a 'drainage easement' on the subdivision plat does not obligate the County to install or maintain such facilities. Approximately six of these orphaned outfalls exist in one section of this subdivision, and hundreds of these cases likely exist throughout the County. Using round numbers, if we were to consider 100 of these to occur within a county, the order of magnitude spending required would be \$15 Million.

Although the County has initiated a stormwater management fee, the restoration and ownership of outfalls was not contemplated at that time. Since the fee was initiated in 2014, Isle of Wight was successful in convincing the Virginia DEQ to delist our MS4 Permit. In essence, County staff proved the County did not own or operate a drainage 'System' and thus did not merit an MS4 Permit. Although we remain a VSMP Authority, the County is moving forward and intentionally avoiding any semblance of drainage system ownership to remain unpermitted. We have also reduced our fee accordingly, so the County's Capital fund balance is no longer as robust as initially contemplated.

VDOT's practice has been to avoid replacement, ownership, and maintenance of any infrastructure outside the right-of-way. Given the level of expenditure in our one locality example, extrapolating that expense across the entire State would yield a staggering initial investment and similar perpetual maintenance and replacement expenses.

The burden to make repairs at this point does appear to be with these lot owners given the lack of incentive for either VDOT or the locality to fund such repairs. Although the parcel where these outfalls lie is encumbered by an easement, the property itself remains as fee simple ownership. While a title search would reveal the existence of the easement, Virginia real estate law does not require disclosure of this type of encumbrance at the time of sale, so it is possible that a property owner may be unaware of the burden which runs with the land. In the study example noted above, the outfall pipe runs down a lot line between two fee simple lots. If the example repair costs were split evenly between the two impacted property owners, the resulting \$75,000 investment would represent a cost that an individual owner could not likely have contemplated at the time the lot was purchased and would essentially make the purchase of these lots unaffordable and/or the lots unsellable. These conditions impact a wide range of parcels in the County, ranging from upscale waterfront properties to the small tract homes.



Next Steps

Where do we go from here?

This recurring theme results in land owners with failed drainage system outfalls being caught in an impasse between VDOT and the County over a seemingly endless spending and staffing need. Isle of Wight has clear reasons to stay the current course; the very act of repairing one of these could set a precedent that would require multi-million dollar budgets in the future.

Several property owners have inferred they will resort to litigation to resolve this issue. From the County's perspective, this solution would be an uncomfortable, undesirable, and unwanted outcome. If the courts shift this responsibility to VDOT and/or the Commonwealth of Virginia, we will have demonstrated a commitment to be a good County fiduciary and keeper of the public trust while still providing technical and administrative assistance as these complaints come forward. For reference, in previous litigation VDOT has been found responsible for system maintenance. However, if the Courts direct localities to take on this endeavor, it would provide definitive direction and justify the order of magnitude increase to the stormwater utility fee or tax rate that would be required to cover the expense of adopting these orphaned outfalls.

Isle of Wight County will be looking for multi-level partnerships that will lend themselves to an effective resolution to this growing issue.

APPENDIX A

The logo for ATCS, consisting of the letters 'ATCS' in a white, serif font with a registered trademark symbol (®) to the upper right. The logo is positioned in the upper right quadrant of a blue background that features a subtle, wavy pattern of lighter blue lines.

Marsh View Court Outfall Assessment

Isle of Wight County, VA

September 17, 2018

Marsh View Court Outfall Assessment

Overview

The intent of this assessment was to evaluate a typical storm water outfall location in Isle of Wight County to determine potential impacts, risks, and costs associated with the County taking maintenance ownership of storm water outfalls currently located on private properties. The existing storm water outfall located at the intersection of Marsh View Court and White Heron Street in the Brewer's Creek subdivision was selected for assessment. Only the portion of the storm water outfall located outside of the VDOT right-of-way was included in the assessment, as it is assumed that VDOT will continue to own and maintain any portion of the storm sewer system located within their right-of-way.

This assessment was based purely on record documents, as-builts, GIS information, and other readily available desktop data. On-the-ground site investigations and field surveys were not conducted. Therefore, to make this outfall representative of a "typical" outfall in the County, certain assumptions were made to develop the proposed outfall improvements, including:

- From the outfall of the pipe downstream is a jurisdictional channel for the U.S. Army Corps of Engineers (USACE) and thus any impacts will require a permit from the USACE;
- The jurisdictional channel is not perennial and is not tidally influenced;
- The jurisdictional channel is an "average" stream (for mitigation determination purposes);
- The velocities from the outfall are too high for a more natural solution to erosion;
- The improvements to the channel are not predicated from an emergency event (e.g. hurricane or flooding); and
- 100 feet of bank hardening is sufficient to reduce velocities and prevent further erosion.

The following narrative outlines in further detail some of the more critical elements summarized in the associated matrix and probable cost estimate. Major elements of the assessment include the initial professional services and investigations required for the project, environmental investigations and permitting, associated property issues, long-term maintenance, and potential MS4 permit impacts.

Engineering, Design, and Construction

Based on historical information from the County, it is understood that the existing storm water outfall is experiencing significant failures and erosion, including both the storm sewer and the outfall location. In order to fully engineer and design the required maintenance improvements associated with this outfall, a full topographic survey of the project site would be required, including the existing 24" reinforced concrete pipe (RCP), adjacent storm structures, the outfall embankment, and the immediate surrounding area. Additionally, an analysis of the velocities and flow of the storm water runoff at the outfall location should be performed in order to determine the most cost-effective bank stabilization method.

For the purposes of this assessment, it was assumed that the entire run of 24" RCP sewer, from the VDOT right-of-way to the existing flared end section outfall, would have to be excavated, demolished, and replaced with new 24" RCP. Additionally, a "doghouse" manhole would have to be constructed at the VDOT right-of-way line and a new flared end section constructed at the outfall.

As the exact extent of the outfall bank erosion is unknown, a structural gabion mat stabilization measure was selected to stabilize the bank and reduce future erosion. Based on aerial imagery and GIS contours, it was estimated that approximately 100 feet of bank would need to be stabilized. In order to construct and install the gabion matting, additional clearing, grubbing, and vegetative bank stabilizing adjacent to the stream will be required.

It is worth noting that there are other, more natural, options for the bank stabilization measures; such as utilizing a natural fiber mat and planting trees and vegetation. This type of approach is appropriate in areas where there are slow velocities of water coming from the outfall and where the goal is to keep the channel as natural as possible. While a more natural solution would likely be more expensive, it could provide the benefit of preserving the Resource Protection Area (RPA) boundary, should that be a goal for a specific outfall. Additionally, a more natural solution would require additional long-term monitoring to ensure that the trees/vegetation have been properly established and verify that the solution is working.

Environmental

Prior to any design and construction, a wetland delineation should be performed and a request for jurisdictional determination should be submitted to the USACE. This will determine the actual limits of USACE jurisdiction and will inform the decision on the permit type required for the improvements. Based on available information, it appears that the project would likely qualify for a Nationwide Permit (NWP) for bank stabilization (NWP#13) or for Maintenance (NWP#3). A NWP typically takes 45 days from the submittal of a Joint Permit Application (JPA) to the issuance of a permit. A NWP does not have a fee associated with its submittal. However, other types of permits may have a processing fee assessed. Should a different permit be required, it could increase the timeframe of permit issuance to up to nine months for an individual permit.

As we are assuming that a permit is required for the project, it is likely that mitigation will be required for the impacts to the channel. Site-specific information on the channel will determine actual mitigation requirements; however, for the purposes of this study we are assuming a 1:1 impact to mitigation ratio, which means that the project would require 100 stream credits for the proposed hardening.

Since the outfall maintenance project is considered a public utility, no additional work should be needed in order to document the impact to RPAs (County Code - Section 3002: Exemptions of Chapter 17 Appendix B-1), as long as the four (4) conditions below are met:

1. To the degree possible, the location of such utilities and facilities should be outside RPAs;
2. No more land shall be disturbed than is necessary to provide for the proposed utility installation;

3. All such construction, installation, and maintenance of such utilities and facilities shall be in compliance with all applicable state and federal requirements and permits and designed and conducted in a manner that protects water quality; and
4. Any land disturbance exceeding an area of 2,500 square feet complies with Isle of Wight County erosion and sediment control requirements.

The project will likely disturb over 2,500 square feet of land, and therefore it will require a Virginia Stormwater Management Permit (VSMP) administered by the Virginia Department of Environmental Quality (VDEQ). To obtain the permit, a set of erosion and sediment control and stormwater management plans will need to be created for the proposed development and submitted to the VDEQ for approval with a completed Stormwater Pollution Prevention Plan (SWPPP) and a VSMP registration statement. There is likely no fee associated with this permit based on the disturbance amount.

During construction, the VSMP permit requires that the SWPPP be updated and maintained throughout the construction of the project. This would involve at least weekly inspections of the erosion and sediment control measures on the site. This inspection is used to identify deficiencies and correct those deficiencies in a timely manner. The NWP will likely not have conditions for additional monitoring; however, other types of permits may require monthly monitoring to ensure no additional impacts to wetlands are occurring during construction.

Property

Based on County property records, the existing 24" RCP pipe and outfall lie within an existing drainage easement shared between the two adjacent property owners. In order for the County to have access rights to reconstruction and maintain the outfall (both the storm sewer pipe and bank stabilization measures), new plats would need to be developed granting the County permanent access rights. The new drainage and maintenance easements would need to be extended to cover the area down the embankment as well to include the bank stabilization measures. Additionally, temporary construction easement(s) may be needed for the construction access, especially down the embankment.

Maintenance & Operations

In addition to the initial short-term aspects of investigations, engineering, permitting, construction, and property issues, long-term ongoing maintenance and operation by the County will be required for this storm water outfall project. Long-term maintenance and operation measures could include, but are not limited to: inspections, cleaning out of the storm water sewer piping and structures, replacements or repairs of the gabion mats if or when they become clogged by sediment or are no longer effective, control of vegetation and overgrowth, and other potential maintenance of the access routes.

MS4 Permit Status

It should be noted that taking on maintenance and/or ownership on any storm water outfall in the County may be seen as a tacit acknowledgement by the County to the VDEQ that the County should be a MS4 operator. While beyond the scope of this assessment, this issue has implications that should be fully evaluated and understood by the County.

Impact Matrix

Marsh View Court Outfall Assessment "Impact Matrix"					
CONSIDERATION	DESCRIPTION	POTENTIAL IMPACT			
		TIMEFRAME		PERMITTING	MONETARY
		Short-term	Long-term		
SURVEY & ENGINEERING	Requires topographic survey, design, engineering, and construction document preparation	X		NO	YES
ENVIRONMENTAL	Potential stream and wetland impacts that need to be fully investigated, coordinated, and permitted (extent not fully known). Could require mitigation, USACE coordination, and Joint Permit Application.	X		YES	YES
PROPERTY	Will require additional permanent and temporary drainage/maintenance easements for the County to gain access for construction and longterm maintenace on infrastructure	X		NO	YES
CONSTRUCTION / IMPROVEMENTS	Requires the initial removal and construction of new storm sewer, manhole, outfall, and structural bank stabilization; includes disturbance of adjacent property for construction access	X		YES	YES
MAINTENANCE & OPERATIONS	County will take on ownership of the outfalls and associated infrastructure, and will be required to maintain and operate the piping, structures, and bank stablization measures		X	NO	YES
MS4 PERMIT	Taking on maintenace / ownership of these outfalls may result in the County becoming its own MS4 operator	X	X	YES	YES

Probable Cost Estimate

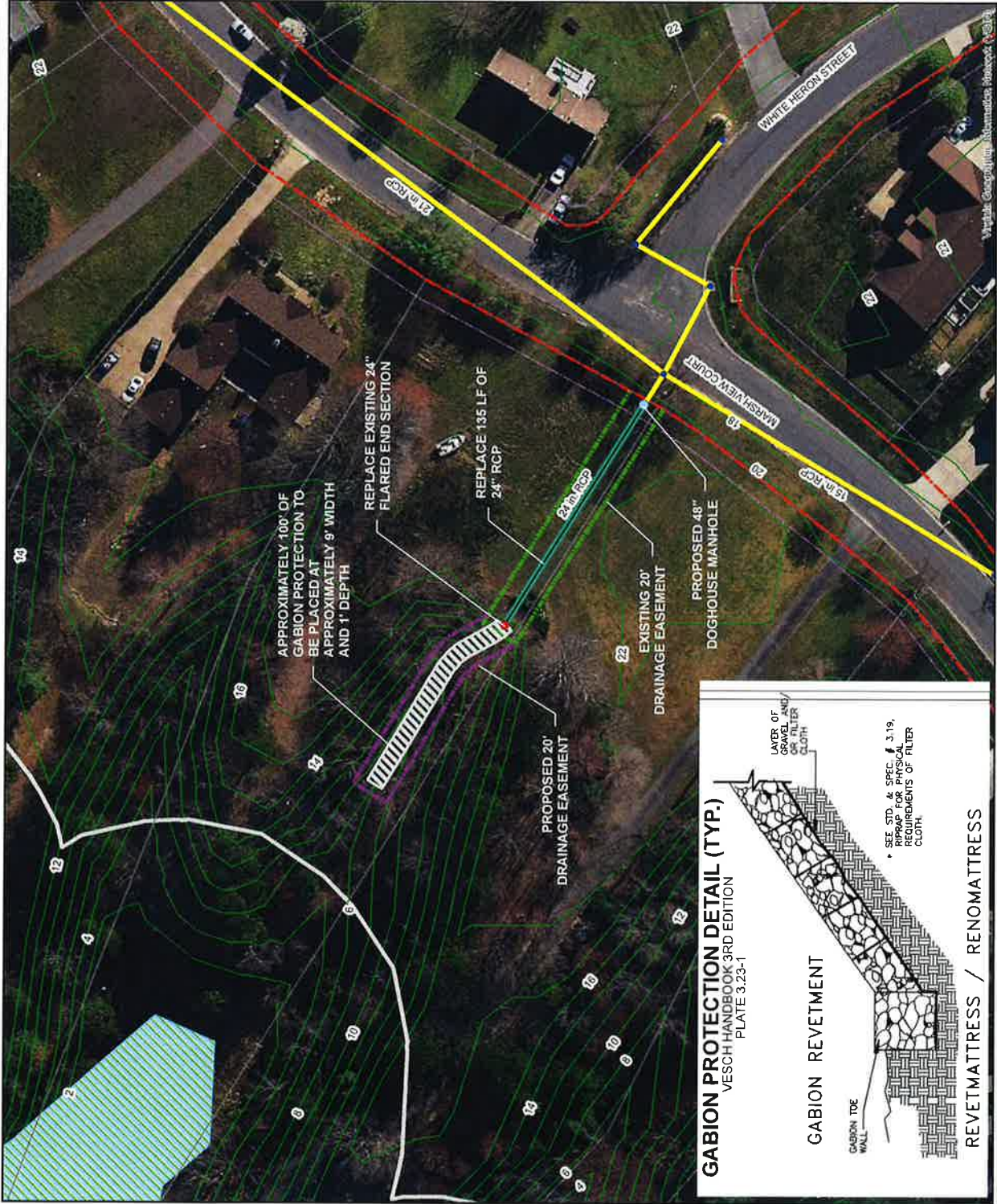
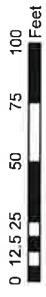
Marsh View Court Outfall Assessment "Probable Cost Estimate"					
Probable Construction Cost Estimate					
Item No.	Item	Unit	Quantity	Unit Price	Total Price
1	EROSION AND SEDIMENT CONTROL	LS	1	\$ 4,000.00	\$ 4,000.00
2	CLEARING AND GRUBBING	LS	1	\$ 4,500.00	\$ 4,500.00
3	STORM PIPE (24" RCP)	LF	135	\$ 120.00	\$ 16,200.00
4	REMOVE EXISTING 24" STORM PIPE	LF	135	\$ 40.00	\$ 5,400.00
5	48" DOGHOUSE MANHOLE	EA	1	\$ 4,800.00	\$ 4,800.00
6	GABION PROTECTION (100' L x 9' W x 1' T)	CY	34	\$ 550.00	\$ 18,700.00
7	RE-ESTABLISHMENT (TOPSOILING, SEEDING, ETC)	SF	4500	\$ 1.25	\$ 5,625.00
8	24" FLARED END SECTION	EA	1	\$ 1,200.00	\$ 1,200.00
				SUBTOTAL:	\$ 60,425.00
9	MOBILIZATION / DEMOBILIZATION	LS	1	\$ 6,043.00	\$ 6,043.00
10	CONTINGENCY (20%)	LS	1	\$ 13,293.60	\$ 13,293.60
				TOTAL:	\$ 79,761.60
Probable Additional Miscellaneous Estimated Costs					
Item No.	Item	Unit	Quantity	Unit Price	Total Price
1	DESIGN / ENGINEERING / TOPOGRAPHIC SURVEY	LS	1	\$ 12,500.00	\$ 12,500.00
2	EASEMENT PLATS	LS	1	\$ 1,000.00	\$ 1,000.00
3	WETLAND DELINEATION / USACE CONFIRMATION	LS	1	\$ 2,000.00	\$ 2,000.00
4	JOINT PERMIT APPLICATION	LS	1	\$ 3,000.00	\$ 3,000.00
5	VSMP PREPARATION	LS	1	\$ 2,000.00	\$ 2,000.00
6	STREAM MITIGATION CREDITS	EA	100	\$ 450.00	\$ 45,000.00
				TOTAL:	\$ 65,500.00

**MARSH VIEW COURT
OUTFALL REPLACEMENT**



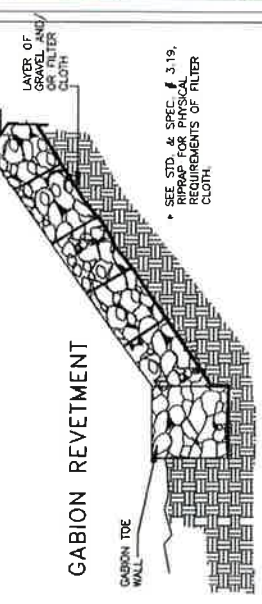
Legend

- Drop Inlet
- Gabion Protection
- Proposed Storm Pipe
- Existing Storm Pipe
- Pr. 20' Drainage Esmt.
- 20' Drainage Easement
- 10' Utility Easement
- Right-of-Way
- Property Lines
- NFWS Wetlands
- RPA Buffer
- 2ft Contours

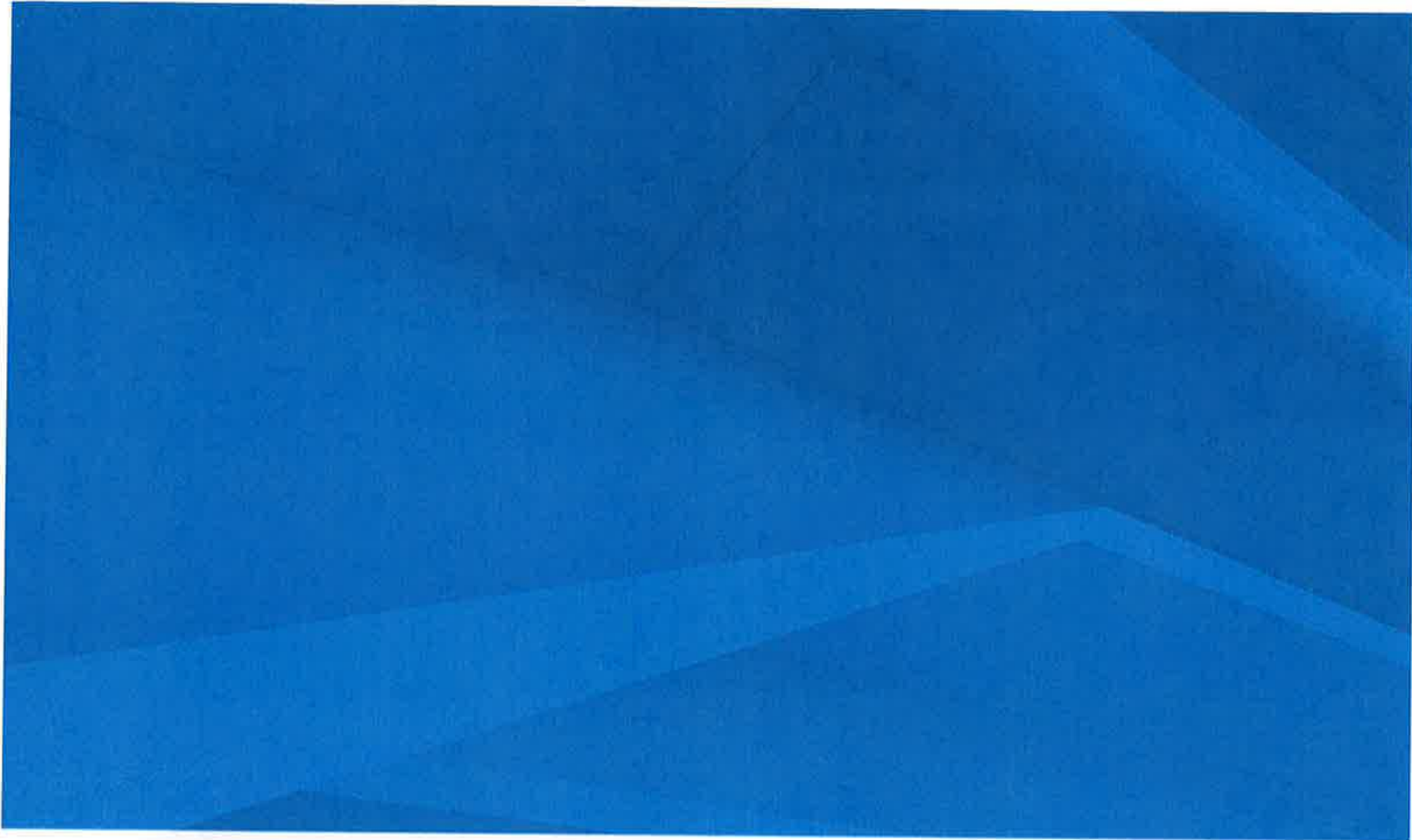


GABION PROTECTION DETAIL (TYP.)

VESCH HANDBOOK 3RD EDITION
PLATE 3.23-1



REVTMATTRESS / RENOMATTRESS



ouroffices

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