

October 31, 2014

Via Email and First Class Mail

Mr. Justin Bragg
The Michigan Department of Environmental Quality
Water Resources Division, Gaylord Field Office
2100 W. M-32
Gaylord, Michigan 49735-9282

Re: **Village at Grand Traverse Response to October 21, 2014
Notice of Violation VN-005944 (“NOV”) Addressing Stormwater
Runoff**

Dear Mr. Bragg:

This firm represents The Village at Grand Traverse, L.L.C. (“VGT”) in connection with the above-referenced NOV. This letter formally responds to the NOV and your preceding October 10, 2014 correspondence to VGT summarizing the Michigan Department of Environmental Quality’s (the “Department”) inspection of the Grand Traverse Town Center construction site (the “Site”). The Site is located at the intersection of Lautner Road and M-72 in Acme Township, Grand Traverse County, Michigan.

Introduction

Both the NOV and the October 10 letter concern runoff of turbid stormwater from the Site to adjacent wetlands and Acme Creek. As set forth in the attached materials, VGT has taken extraordinary measures to address this runoff. Shallow geologic conditions at the Site and its proximity to significant natural features present unique challenges in managing precipitation-related erosion, but implementation of these measures already has and will continue to reduce erosion and control of turbidity in Site runoff. VGT appreciates the Department’s commitment of substantial resources over the past several weeks to work through issues associated with implementation of these measures, and acknowledges the significant time spent at the Site by you and Brian Jankowski, as well as Pete Bruski and Bruce Remai from the Grand Traverse County Soil Erosion and Sedimentation Control Department. VGT also appreciates you and Mr. Jankowski taking the time to meet with VGT, County and Township officials last Tuesday to review and evaluate different approaches for addressing the Site.

The October 10 letter summarizes the Department's inspection of the Site on October 2 after heavy rainfall events in September and early October. The letter alleges violations of Parts 31 and 91 of the Michigan Natural Resources and Environmental Protection Act ("NREPA") and implementing rules due to "sediment-laden water" leaving the Site. In addition to the alleged violations, the letter identifies "areas of concern" at the Site, and directs VGT to correct the alleged violations and areas of concern by October 24. The letter further directs VGT to restore certain wetlands adjacent to the Site by November 10 and to submit a written response to the Department once VGT completes the restoration. The letter did not specify a response date. The written response was to include: (1) a description of corrective actions taken and planned in response to the items noted in the October 10 letter with a timeline to prevent discharges of sediment-laden water from leaving the Site (the "Corrective Action Plan"), and (2) a revised Soil Erosion and Sedimentation Control ("SESC") plan highlighting new control measures put in place, with descriptions of timing and sequencing of these measures and the remaining earth change activities at the Site through final stabilization efforts.

The NOV reiterates these alleged violations of Parts 31 and 91 of NREPA and their implementing rules, and also alleges violations of VGT's Part 91 permit and NPDES Certificate of Coverage ("COC"). The alleged violations encompass the Department's observations during the October 2 site inspection noted in the October 10 letter, but also address observations during Department inspections made on September 23, October 3, and October 15. The NOV requests a written response providing essentially the same information requested in the October 10 letter (but with the Corrective Action Plan addressing the additional items included in the NOV), specifying a response date of October 29. The NOV also invites VGT to provide any other information that VGT would like the Department to consider.

Based on our telephone conversation on Friday, October 24, and subsequent email exchange, the Department and VGT agreed that VGT would provide this letter and Corrective Action Plan as a combined response to the October 10 letter and NOV by Friday, October 31. The Department and VGT also agreed that a revised SESC plan would be submitted to the Department separately from this response, in order to incorporate any feedback from the Department on the Corrective Action Plan. (VGT anticipates that the updated SESC plan will be submitted to the Department (and County SESC authorities) within seven days of receiving the Department's comments or concurrence on measures described in the Corrective Action Plan.) Accordingly, this response sets forth information that the Department should consider in evaluating the technical and compliance issues raised in the October 10 letter and NOV, and encloses the Corrective Action Plan requested in both documents.

Relevant Site Background

Given the Site's proximity to Acme Creek and the east arm of Grand Traverse Bay, control of soil erosion during wet weather has always been an important aspect of both VGT's

development plans and local governmental review and approval of these plans. All parties have allocated substantial technical resources to the issue. Acme Township initially approved a Special Use Permit (“SUP”) for development of the Site based on VGT’s conceptual site plan in 2004. As the 2004 SUP (and its voluminous attachments) make clear, stormwater drainage and erosion control measures were key areas of focus, and VGT’s conceptual drainage and erosion control plan incorporated use of best management practices (“BMPs”) conforming to Grand Traverse County’s Part 91-approved Stormwater, Soil Erosion and Sedimentation Control Ordinance. Subsequent litigation over the SUP through the Michigan Court of Appeals ratified the Township’s and VGT’s approach to the development in the 2004 SUP, subject to further Township review and approval of more detailed plans for specific phases of development.

In 2009, VGT submitted a plan for “Phase I” of the development to the Township, which included a 23-acre earth change for a Meijer store on the eastern third of the Site. The Township issued a permit to VGT for the Phase I development that required VGT to include construction of the main access road off M-72, installation of utilities under the road and storm sewers simultaneously with the Meijer construction. This change was intended to assure future development of the Site out-lots and to mitigate traffic and other disruptions associated with subsequent phases of development. However, this requirement also resulted in approximately 55.3 additional acres of the Site (along with the 23-acre Meijer parcel) needing to be stripped of vegetation and temporarily exposed, greatly increasing the Site’s erosive potential.

In conjunction with the Phase I plan, VGT submitted a Soil Erosion and Sedimentation Control Act permit application to the County, detailing extensive erosion control measures for the Site. The County approved the application and issued VGT an initial Part 91 permit in 2012. (The Site is operating under SESC Permit No. 25309, reissued to VGT on June 17, 2014.) The Township formally approved VGT’s Phase I site plan in May of 2012, finding that it complied with the soil erosion requirements of the Township’s Master Plan and the 2004 SUP. On July 2, 2014, the Department issued COC MIR112950 for the Site based on the Part 91 permit, in accordance with Michigan’s permit-by-rule for stormwater discharges associated with construction activity (*See* MACR 323.2190). The COC authorizes discharges of stormwater runoff from the Site to surface waters of the state under Michigan’s NPDES permit program.

Importantly, VGT constructed the BMPs (including the basins, swales and silt fencing) for erosion control required under its Part 91 permit and maintained them throughout the wet weather events addressed in the October 10 letter and NOV. However, the nature of Site soils, coupled with the large area of exposed soils, create significant challenges in control of erosion. Site soils are an extremely fine-grained clay (less than 1 micron diameter). Therefore, these particles suspend easily in water and once suspended, remain suspended for long periods of time. In a sense, site soils therefore behave more as a “colorant” of the runoff than a suspended solid, creating a misimpression of large amounts of silt and sediment being present in the discharge. Site geology, which consists of upwards of 20 feet of this clay substrate, renders the Site very

“flashy” (i.e. very little storm water infiltrates to underlying clay) in terms of surface runoff, adding to the challenge of controlling runoff from the Site. Further complicating matters is the seed mix that VGT is required to use to revegetate the swales. These swales comprise a crucial component of approved BMPs for the Site. This seed mix, which VGT developed in consultation with the Township’s consultants, contains mostly native wetland plant species that may take two or more years to fully vegetate. While this approach makes sense when viewing the Site from a long-term, developed perspective, it provides negligible immediate benefit in terms of sediment removal from storm water in the swales during construction.

Corrective Action Plan

Although VGT installed and maintained the erosion control measures required by its Part 91 permit and COC, VGT immediately and comprehensively augmented these measures as Site conditions dictated during and after the heavy rain events underlying the NOV. These additional measures included use of flocculent materials in its stormwater basins, additional silt fencing, use of PAM blocks to capture sediments in water flowing through the swales, check dams and other measures. VGT even took the unprecedented step of sequestering stormwater on site and hauling it off by truck for safe discharge to groundwater. The Corrective Action Plan in Attachment 1 to this Response provides additional detail on these and other measures taken to address the items referenced in the October 10 letter and NOV. The plan also describes measures that will be implemented to further stabilize the site between now and next spring to minimize runoff. VGT believes this plan will effectively control turbidity in Site runoff through the balance of the Phase I construction until the Site is vegetated and construction is complete.

Regulatory Context Governing Site Runoff and The Department’s Evaluation of Corrective Action Plan

VGT continues to dedicate every available resource to resolution of the issues raised in the October 10 letter and NOV. VGT’s response has been immediate, thorough, and around the clock. This response is, therefore, devoted primarily to exposition of the causes and corrective measures bracketing the runoff events underlying the NOV. However, VGT thinks it is also important to offer its preliminary observations on VGT’s compliance status and the scope of its obligations regarding the control of runoff from a construction site.

As a threshold matter, VGT notes that regulation of wet weather discharges from construction sites is a matter of significant regulatory complexity. Observed turbidity in construction site runoff is not a violation *per se* of federal and state regulations governing runoff from these sites. For example, the federal Clean Water Act NPDES program for construction site runoff imposes no blanket prohibition on discharges of sediment from construction sites to waters of the United States. To the contrary, this program allows discharges of runoff from

construction sites with significant--though unspecified--turbidity. Specifically, the U.S. EPA recently declined to incorporate a numeric turbidity standard of 280 NTUs¹ into NPDES stormwater general permits for construction activities, conceding that turbidity control is a complex, site-specific issue not readily amenable to one-size-fits all numeric standards. (See 77 Fed. Reg. 12288 (February 29, 2012); 77 Fed. Reg. 112-01, 120 (Jan. 3 2012).)

Similarly, Part 91 imposes no prohibition on turbid runoff per se, requiring instead that “a person who owns land on which an earth change has been made that may result in or contribute to soil erosion or sedimentation of waters of the state shall implement and maintain soil erosion and sedimentation control measures that will effectively reduce soil erosion and sedimentation from the land on which the earth change is made.” See M.C.L. 324.9116; see also R.323.1702 (2). Part 91’s focus on “implementing and maintaining” control measures that “effectively reduce” soil erosion and sedimentation (as opposed to preventing or eliminating it) is instructive. Compliance with Part 91 turns on construction and deployment of established best control practices at construction sites, as opposed to the quality or impact of the discharge. Here, VGT “implemented and maintained” the control measures specified in its permit, and it heeded its Part 91 permit requirement to “modif[y] these approved measures “as work occurs and weather conditions dictate.” (See SESC Permit No. 23509 paragraph 2.)

By contrast, compliance with Part 31 and the construction stormwater provisions set forth in the Department’s permit-by-rule (R. 323.2190) and the COC for the Site does specifically turn on the quality of the water discharged from the Site and the impact of the discharge on waters of the state. However, like the CWA and Part 91, Part 31 does not impose a blanket prohibition on turbid discharges to these waters or wetlands. Rule 2190 does not require that COC holders eliminate pollutants in construction site runoff--only that site owners comply with their SESC permits and “properly maintain and operate...soil control measures selected for the site.” R. 323.2190 (2). And in terms of evaluating impacts of runoff to surface waters, the Department’s “Part 4” rules (delineating Michigan’s surface water quality standards under Part 31) state “the surface waters of the state shall not have any turbidity in “unnatural quantities *which are or may become injurious to any designated use.*” (See R 323.1050.) Designated uses are defined to include agriculture, navigation, industrial water supply, warmwater fishery, other indigenous aquatic life and wildlife, partial body contact recreation and fish consumption. See R. 323.1100(1). Therefore, an observed turbid discharge even in the receiving stream, in itself, is not conclusive evidence of a Part 31 violation. The question becomes whether this turbidity was of significant enough mass, duration, or spatial impact to have injured (or threatened injury) to

¹ “NTU” stands for “Nephelometric Turbidity Units.” As the photograph in Attachment 2 to this response illustrates, a discharge of 280 NTUs would represent substantially turbid water that is comparable to the turbidity in runoff observed at the Site. (The attached photograph was taken from a website called “Ohio Environmental Law Blog.” While VGT cannot vouch for the accuracy of the samples depicted relative to the NTU levels shown, the picture still illustrates the point that even under the rule EPA withdrew, allowable turbidity in discharges would have been significant.)

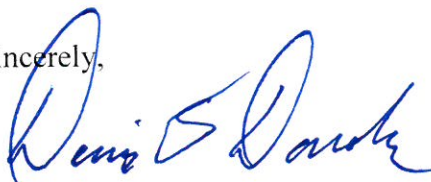
any of the specific designated uses listed above. This inquiry, in turn, entails (among other things) evaluation of other upstream and downstream contributions of turbidity and baseline conditions during wet weather in the watershed.

The point here is that the regulatory scheme governing runoff from active construction sites clearly acknowledges that some level of turbid runoff from these sites is an inevitable -- though temporary--aspect of construction. Accordingly, these regulations focus primarily on industry adoption and use of certain best practices that reduce the level of turbidity in the runoff from construction sites, not eliminating it. Although VGT has taken interim steps that essentially prevent turbid water from leaving the Site's designated discharge points, the effectiveness of the longer--term measures described in the Corrective Action Plan should be evaluated by reference to the standards incorporated into these regulations, as opposed to some "zero discharge" approach that is not reflected in the regulations or reality.

To that end, VGT therefore requests further discussions with the Department over the coming weeks to determine what an acceptable discharge would be in light of site conditions, the geology of the watershed draining to Acme Creek, the quality of the receiving water and its designated uses, the public's concerns and other pertinent factors.

Thank you for your time and attention to this matter. If you have any additional questions or concerns, do not hesitate to call me at 616-752-2192.

Sincerely,



Dennis J. Donohue

DJD/seb

c: Mr. Brian Jankowski, DEQ
Mr. Joe Hass, DEQ
Ms. Robyn Schmidt, DEQ
Mr. Bill Larsen, DEQ
Mr. Barry Selden, DEQ
Mr. Pete Bruski, Grand Traverse County CEA
Mr. Steve Schooler, Director of Construction
Mr. Terry Boyd, Gourdie Fraser
Mr. T. Eric Ritchie, Team Elmer's
Mr. Steve Folkersma, Team Elmer's
Mr. Jay B. Zollinger, Acme Township Supervisor

ATTACHMENT 1

Corrective Action Plan

CORRECTIVE ACTION PLAN

for

**STORM WATER DISCHARGE FROM
CONSTRUCTION ACTIVITIES**

at the

**GRAND TRAVERSE TOWN CENTER SITE
4900 EAST M-72
ACME TOWNSHIP
GRAND TRAVERSE COUNTY, MICHIGAN**

Prepared for:

**Village at Grand Traverse, LLC
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Prepared by:

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October 2014

WNJ-1401

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- II Photographs Documenting Site Soil Erosion and Sedimentation Control Measures

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1.0 INTRODUCTION

This document constitutes a Corrective Action Plan (“CAP”) for construction storm water management practices at the Grand Traverse Town Center site, located at 4900 East M-72 in Acme Township, Grand Traverse County, Michigan. This CAP was developed by Horizon Environmental Corporation (“Horizon”), on behalf of Village at Grand Traverse, LLC (“VGT”) in response to Violation Notice #VN-005944 (referred to herein as the “NOV”), as issued to VGT by the Michigan Department of Environmental Quality, Water Resources Division (“MDEQ”, “WRD”), on October 21, 2014. This CAP also responds to October 10, 2014 MDEQ correspondence to VGT regarding storm water management practices at the site.

Consistent with the NOV, this document is intended to identify actions taken, and to be taken, to reduce discharge of soils in storm water from the site and to reduce further discharge of soil laden storm water from the site to regulated wetlands and adjacent surface waters. More specifically, this CAP contains a detailed description and compilation of activities undertaken to date, as well as a description of activities planned for future implementation to reduce future discharge of water carrying soil from the site to adjacent properties, wetlands or surface water. Schedules are provided for measures that will be undertaken subsequent to issuance of the CAP. Photos are also provided of placement of SESC measures that have been implemented prior to and subsequent to MDEQ’s issuance of the NOV.

The information and proposed activities outlined in this CAP are based on best available information at the time of its development. Certain activities presented in the CAP are evaluative in nature or present engineered solutions that are conceptual in nature. Corrective actions will be developed in additional detail and are therefore subject to change. Evaluation of alternative technologies to mitigate site erosion or otherwise improve the condition of site runoff will continue after completion of this CAP. Site construction activities, weather conditions, identification of “better solutions” and/or other events at the site during completion of construction are expected to necessitate modification of the corrective measures outlined here or implementation of other measures in response to observed circumstances. In response to such changes, periodic revisions or updates to this CAP are expected to be developed and issued to the MDEQ over the remaining period of site construction.

2.0 PERMITTING/REGULATORY FRAMEWORK

Storm water discharge from construction activities on the Grand Traverse Town Center site is regulated under two permits: Grand Traverse County Soil Erosion and Sedimentation Control (“SESC”) Permit #23059, dated June 17, 2014, and Authorization #MIR112950, Dated February 5, 2014, for discharge under Michigan’s National Pollutant Discharge Elimination System (“NPDES”) Permit-by-Rule for Construction Activities. The Grand Traverse County SESC permit was issued pursuant to a SESC permit application submitted to Grand Traverse County by VGT on June 12, 2012.

In addition, a permit was issued by the MDEQ, WRD on January 17, 2012, pursuant to Part 301 (“Inland Lakes and Streams”) and Part 303 (“Wetlands Protection”) of 1994 Michigan P.A. 451, as amended (“Act 451”), for placement of approximately 3,100 cubic yards of fill in wetlands at the site and construction of a storm water basin within 500 feet of Acme Creek.

Development of the site is being completed in a manner that storm water flow on the site occurs in two separate watersheds, designated Area 1 and Area 2. The areas respectively drain through storm water detention basins referred to as Basin #1 and Basin #2. A site plan depicting site development, including the bifurcation of the site into separate watersheds, is presented as Attachment I.

Area 1 is a land area of 47.0 acres and constitutes the eastern portion of the site where the Meijer retail store is under construction. Site preparation and stabilization in Area 1 is largely complete, with ground surfaces covered with impervious surfacing (e.g., bituminous pavement, concrete) or engineered storm water management structures (i.e., bioswales). Permanent storm water conveyances (i.e., manholes, catch basins, subgrades storm sewer piping) have been constructed throughout Area 1. SESC measures remain in place in Area 1 until the area is fully stabilized via establishment of permanent vegetation.

Area 2 is a land area of 40.2 acres and constitutes the western area of the property. Development activities completed to date in Area 2 generally consist of site grading/soil balancing, construction of subsurface utilities, including storm and sanitary sewer and construction of a corridor road. Stabilization of Area 2, primarily via placement of topsoil, seed and mulch is ongoing and is anticipated to be completed prior to the conclusion of the 2014 construction season. No structures are present in Area 2 and none are anticipated to be constructed in the near term.

3.0 SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

The SESC permit application for the development was based on implementation of certain SESC measures to mitigate soil erosion during construction. The SESC measures originally planned to be implemented at the site included: (1) construction of silt fencing at certain locations; (2) placement of inlet protection filter drops in storm sewer catch basins; (3) construction of storm sewer catch basins with base sumps to allow gravity separation of sediments from storm water; (4) construction of the permanent storm water detention basins, drainage swales and associated riprap aprons for long-term use in treatment of storm water at the site subsequent to completion of construction; and (5) construction of bioswales in the Area 1 development area. In addition, seeding with placement of mulch or matting was proposed for most disturbed areas on the property, including seeding of storm water retention basins and swales with wetland plantings native to the State of Michigan.

A site development plan depicting site SESC measures, as developed by Gourdie-Frasier, Inc. ("GFI") and modified by Horizon for the purposes of this CAP, is presented as Attachment I. SESC measures presented on this plan include: (1) originally planned SESC measures as described in the original SESC permit application for the development (highlighted in yellow); (2) additional SESC measures implemented in the course of construction through October 31, 2014 (highlighted or presented in red); and (3) SESC measures proposed in this CAP, but not yet implemented (presented or highlighted in blue).

4.0 SESC INSPECTIONS AND CORRECTIVE ACTIONS UNDERTAKEN

In the time since the above-referenced SESC permit and authorization to discharge under Michigan's NPDES permit-by-rule for construction activities, VGT has completed permit required inspections and maintenance of SESC measures and maintained documentation of the same at the site. Inspection reports from October 2013 through June of 2014 indicate the typical need for periodic repair of silt fencing or removal of accumulated sediments from SESC measures, which was promptly completed by Team Elmer's (VGT's site preparation contractor).

Prior to onset of fall rains, the property owner and Team Elmer's worked diligently to assure control of soil erosion and compliance with the above-referenced permits. Additional SESC measures implemented by VGT via Team Elmer's, as dictated by site conditions, include the following:

1. Placement of stacked hay bales along the silt fence on the south side of the property **(Completed 6/17/14)**.
2. Installation of additional silt fence at the discharge swale from Basin #1. **(Completed 6/19/14)**.
3. Placement of hay bales and stone to slow water runoff to the localized topographic depression by the stabilization pads **(Completed 6/23/14)**.
4. Removal of silt buildup and placement of a second row of silt fence and stacked hay bales in a low area near the wetland at the southern site boundary. **(Completed 7/16/14)**.
5. Installation of a second row of silt fence at end of the discharge swale from Basin #1. Needed silt fence repairs also completed. **(Completed 7/16/14)**.
6. Added topsoil, seed and mulch in low lying areas of site. High velocity mulch blanket added to bottom of Basin #1 discharge swale. West side of property seeded following addition of topsoil **(Completed 8/5/14)**.
7. Silt buildup removed from south low point in wetland area and hay bales placed to reinforce silt fence **(Completed 8/18/14)**.

During the period from September 1 through October 14, 2014, four significant rainfall events occurred at the site. These rainfall events, the results of inspections of SESC measures completed during this period, and the corrective actions related to SESC measures that were undertaken during this period are summarized as follows:

September 4 and 5, 2014: 3.06 Inches of Rainfall¹

Subsequent to this rainfall event, sediment buildup was observed in low areas of the site and against select silt fences in the southern area of the property. The accumulated sediment was removed and placed on the property on September 6. Pondered water accumulated in low areas of the property, including low areas near the dinner theatre property west of the development, was

¹ Rainfall records are taken from the National Oceanic and Atmospheric Administration ("NOAA") records for the Traverse City, Cherry Capitol Airport. Representatives of the Grand Traverse County Soil Erosion and Sedimentation Control Department and Acme Township indicate that rainfall totals locally in Acme Township during these precipitation events were significantly greater.

pumped back onto the site to reduce the potential for sediment discharge to surface water. Additional silt fencing was constructed and straw bales were placed at storm water discharge locations and at the perimeter of wetlands adjoining the property.

September 20 and 21, 2014: 1.74 Inches of Rainfall

Pete Bruski, Grand Traverse County Soil Erosion Inspector, inspected the site on September 22 and 23, 2014. Additional SESC measures and actions requested in Mr. Bruski's inspection logs were completed and are summarized as follows:

September 22, 2014 Site Visit

1. Provide two additional rows of silt fence south of the discharge swale from Basin #2. **(Completed 9/23/14)**
2. Install two additional rows of silt fence north of the discharge swale from Basin #2. **(Completed 9/23/14)**
3. Install one additional row of silt fence 10 to 15 feet south of the existing silt fence at the MDEQ-approved wetland road crossing. **(Completed 9/23/14)**
4. Provide two additional rows of silt fence on the west side of the property and one additional row of silt fence on the south side of the property **(Completed 9/22/14)**
5. Construction of temporary berms to reduce/prevent runoff from disturbed areas of the site, including a large temporary bermed area north of the site corridor road, where storm drains were plugged, allowing this area to function as a storm water impoundment.
6. Installation of straw wattles and fiber wattles in discharge swales.

September 23, 2014 Site Visit

1. Install velocity reducers in the basin overflow channels. **(Completed 9/25/14)**
2. Seed and mulch Basin #2 discharge swale. Place topsoil, seed and mulch on all stripped ground in this area of the site. **(Completed 9/27/14)**
3. Place approved polyacrylamide ("PAM") blocks in Basin #2 discharge swale. **(Completed 9/25/14)**
4. Place PAM blocks in Basin #1 discharge swale. **(Completed 9/26/14)**
5. Use Sedikeep filter system on Basin #2 pump discharge until completion of basin liner. **(Completed 9/26/14)**
6. Install stone check dams/velocity reducers in access road channel. Also, place topsoil, seed and mulch. **(Completed 9/27/14)**
7. Install silt fence at wetland road crossing. **(Completed 9/25/14)**
8. Remove sediment near creek when dry. **(Completed 9/26/14)**
9. Maintain all silt fences on site. **(Ongoing)**

10. Cover as much of the exposed areas as practical with topsoil, seed and mulch, including covering of the swale drain area in Area 1 and repair/restoration of grading, seeding and mulching in eroded areas.

October 2 and 3, 2014: 2.13 Inches of Rainfall

Justin Bragg, MDEQ Environmental Quality Analyst inspected the site on October 2 and 3, 2014. In response to concerns voiced during these site visits, the following actions were undertaken by VGT via Team Elmer's:

- Team Elmer's personnel were present on the site on a continuous basis (i.e., 24 hours per day) through October 6 to monitor storm water pumping operations and SESC measures and immediately respond to potential SESC problems or events (**ongoing, as needed**);
- Damaged silt fences observed during Mr. Bragg's inspection were repaired (**Completed 10/2/14**);
- Additional PAM blocks were placed in the discharge swales from Basins 1 and 2 to improve retention of sediment on the property (**Completed 10/3/14**);
- Discharge from the site storm water basins was mechanically blocked and accumulated storm water from Basin #1 and Basin #2 was transported from the site and managed via off-site disposal;
- Storm water runoff from the terminus of the Basin #2 swale was pumped back to Basin #2 to limit storm water discharge;
- Sediment was removed from storm sewer catch basins and manholes using a vacuum truck and new sediment capture inserts installed;
- Paved portions of Area #1 were mechanically swept;
- Storm water runoff was pumped through both a Storm Klear sediment treatment system and sediment removal filter bags prior to discharge (**Initiated 10/3/14**);
- Silt fencing that had been compromised as a result of slope erosion south of the corridor road was re-established and the slope was re-graded and mulch mats were placed. Disruption of wetland vegetation was minimized during these activities.

October 13 and 14, 2013: 1.96 Inches of Rainfall

The site was again inspected by Pete Bruski, County Soil Erosion Inspector, on October 14, in response to this rainfall event. Based on Mr. Bruski's observations during this inspection, the following response actions were taken to improve SESC measures at the site:

- Silt fencing damaged as a result of soil erosion and significant rainfall was repaired as necessary;
- Ground surface damaged as a result of erosion was repaired as needed via grading, replacement of topsoil, seeding and mulch;
- Placement of topsoil, seed and mulch was continuing at this time;

- Team Elmer's personnel continued working seven days per week and 24 hours/day as needed in response to site conditions;
- Sediment was removed from storm sewer catch basins and manholes using a vacuum truck;
- Paved portions of Area #1 were mechanically swept;
- Storm water Basin #2 discharge was temporarily plugged and accumulated water was pumped through Storm Klear treatment system and sediment filter bags prior to discharge and, subsequently, accumulated storm water from both basins was trucked from the site to an off-site location for disposal.

During the storm event of October 2 and 3, sediment was observed to have eroded from the bank south of the site corridor road into the adjacent wetland. Approximately 1 cubic yard of sediment accumulation within and upslope of the wetland was removed using a small tracked excavator on October 22 and 23, at such time as the ground surface had dried sufficiently to support these work activities. The material was placed in a secure upland location and the slope where erosion occurred was restored via placement of seeding and coconut mulch blanket.

Photographs documenting completion of certain activities outlined above are presented as Attachment II to this CAP.

5.0 PROPOSED ADDITIONAL CORRECTIVE ACTIONS

In addition to the significant work completed to date, additional corrective actions are proposed to be implemented to mitigate soil erosion and off-site sedimentation. These measures include short-term treatment of collected storm water via coagulation and filtration prior to discharge of storm water from the property, augmentation of seeding/matting, as well as implementation of additional structural controls, consisting of slope stabilization, construction of a shallow interceptor trench to collect sheet flow of water, and construction of check dams to reduce sediment loading in the drainage swale from Basin #2. These additional corrective actions are intended to be implemented prior to the onset of winter conditions at the site and will continue, on an as needed basis, into the spring of 2015 until the site has been stabilized. Additional detail regarding each of these measures is presented in the following sections.

5.1 STORM WATER TREATMENT AND MANAGEMENT

As noted above, as an extraordinary, temporary measure to limit discharge of storm water containing sediment from the site, accumulated storm water was removed from the site detention basins and transported to an off-site location for disposal. Additional removal of accumulated storm water from the property to an off-site location may occur on an as needed basis throughout the remainder of construction.

In order to limit the need to transport water from the property, an on-site treatment system will be deployed to the site as soon as practicable (anticipated to be on or about November 1), to treat accumulated storm water. Water accumulated in either or both of the storm water detention basins will be treated on an as needed basis in response to the volume of water in the basins and the observed quality of the water. Storm water will be treated via coagulation and filtration to

reduce turbidity. Polymeric additives will be introduced to the storm water to coagulate the fine sediments and the coagulated sediments will then be removed from the storm water via sand filtration and subsequent bag filtration. Approval of the necessary polymeric water treatment additives has been obtained by VGT from the MDEQ, WRD. Treated water will be discharged to the ground surface via sediment filtration bags in a manner that reduces channeling of water and the potential for soil erosion. Sediment removed from water will be managed via placement on the site in a secure upland location.

Storm water treatment will be discontinued with the onset of freezing conditions on the property in 2014. The goal of storm water treatment is to leave the on-site storm water basins with as little water in them as is practicable, in order to provide storage capacity for future thaw of accumulated snowfall. Other temporary bermed areas used on the property for sequestration of storm water will also be emptied and, if practical, berms will be removed at the conclusion of the 2014 construction season. Storm water treatment will resume, as necessary, in the spring of 2015 and will continue on an as needed basis until the site is stabilized.

5.2 SLOPE STABILIZATION

Construction of the site corridor road involved MDEQ permitted placement of fill in a regulated wetland and related grading of a slope immediately south of the corridor road. As noted in the MDEQ's October 10, 2014 correspondence to VGT, rainfall events in October of 2014 resulted in erosion of this slope and discharge of sediment to the adjacent wetland. This sediment was removed from the wetland in October of 2014 and the slope was stabilized via seeding and placement of mulch matting.

To reduce the potential for further erosion in this area, more robust stabilization of this slope is proposed. The area of proposed slope stabilization is depicted on the site plan presented as Attachment I. Slope stabilization will likely be accomplished via placement of geotextile fabric overlain by 8-12 inch riprap. The specific nature of the slope stabilization has not been established at this time. Geotechnical conditions in this area, other engineering considerations or wetland considerations may necessitate that alternative methods (e.g., shotcrete, concrete gabions) of slope stabilization be employed. Final techniques will be established in an amendment to the site's MDEQ permit for wetland construction activities.

5.3 SURFACE WATER INTERCEPTION

Design and construction of an interceptor trench is proposed to reduce overland flow of surface water in the western portion of the site. At present, significant areas in the western portion of the site drain overland, through vegetated areas, to surface water near the end of the drainage swale from Basin #2. Despite conveyance of this water through vegetated upland and SESC measures, including multiple layers of silt fencing, water at the discharge point has exhibited visual turbidity. In response, this water has been managed via pumping of water from the swale discharge location back to Basin #2, where it is co-managed with other accumulated storm water.

In response to this, a shallow surface water interceptor trench is proposed to be constructed in the western portion of the site to capture this overland runoff and return it to Basin #2 for settling/treatment. The approximate location of this interceptor trench is depicted on the site

plan presented as Attachment I. The interceptor trench is planned to be shallow (nominally two feet deep), lined with polymeric sheeting to reduce contact between storm water and the underlying clay, and filled with pea stone. A perforated plastic drainage tile will be bedded in the pea stone at the base of the trench and will convey water to a collection sump, from which it will be pumped to Basin #2.

In addition to this temporary interceptor trench, overland flow of water in the northwest corner of the property (near the adjacent dinner theatre property) is proposed to be manually intercepted, on an “as needed” basis based on water volume and quality, via pumping of accumulated surface water from localized surface depressions. Similarly, storm water that accumulates behind silt fence near the outlet of the drainage swale from Basin #2 will be manually intercepted, on an “as needed” basis based on water volume and quality. Water pumped from these areas is proposed to be conveyed back to Basin #2 via temporary hoses and the lift station associated with the interceptor trench described above, for subsequent treatment and management.

Finally, although not specifically a SESC measure, an underground culvert is planned to be constructed underlying the main construction access road to the site to allow continued functionality of the Grand Traverse County drainage swale located immediately south of M-72. VGT has obtained a permit from the Grand Traverse County Road Commission for construction of this culvert. The location of this culvert is presented on the site plan in Attachment I.

5.4 SWALE MATTING AND DORMANT SEEDING

Storm water discharge swales conveying storm water from Basins #1 and 2 are currently lined with jute mats and have been seeded with a mix of wetland plantings indigenous to the State of Michigan, as outlined below. The wetland plantings require a significant period of time – estimated at two to three years – to fully vegetate the swales.

The swales from Basins #1 and 2 from the basin outlet points to their discharge points will be surfaced with coconut matting, a robust, biodegradable mat, with a life expectancy expected to be consistent with the time required for establishment of wetland vegetation in the swales. In addition, in acknowledgement of the time required for full vegetation of the swales with the selected wetland species, dormant grass seeding of the swales is also proposed prior to placement of the matting. Dormant seeding will be completed with a Michigan Department of Transportation (“MDOT”) specified “roadside mix” of grasses, in order to vegetate/stabilize the swales as soon as practicable in the 2015 growing season.

5.5 CHECK DAM CONSTRUCTION

Riprap check dams are proposed to be constructed in the drainage swale from Basin #2 to replace existing velocity reducers previously placed in the swale. The riprap check dams will be constructed in a manner similar to riprap check dams constructed elsewhere on the property (e.g., the swale immediately south of Basin #2).

5.6 BASIN RESTORATION

As noted in Section 5.1 of this CAP, treatment of accumulated storm water in Basins #1 and #2 is proposed for the remainder of the construction season. As part of this effort, water elevations

in both storm water basins will be drawn down substantially, exposing water and relatively concentrated sediment near the bases of the basins. Corrective actions are proposed at that time to stabilize or remove accumulated sediments from the bases of the basins prior to the onset of winter conditions. The proposed corrective actions will not materially reduce the available volume of the basins for storm water treatment and are intended to reduce or eliminate the propensity of sediments accumulated in the basins to discharge with storm water. Specific measures are under study at this time and may include fixation/stabilization, coagulation with previously-approved polymeric agents or other measures.

5.7 SEEDING/SITE STABILIZATION

5.7.1 SEEDING OF STORM WATER SWALES AND BASIN SHELVES

As noted above, seeding of the site storm water retention basins and swales has been completed using a variety of wetland plant species native to the State of Michigan. Wetland species were selected based on their compatibility with runoff from paved parking areas and variable water levels anticipated to be present in the site storm water basins. Full propagation of these wetland species in the swales may require two to three years and augmentation of soils on the shelves of the storm water basins may be necessary to promote establishment of robust vegetation.

Dormant seeding of the swales will occur prior to the conclusion of the 2014 construction season using an MDOT roadside mix, in order to encourage prompt germination of vegetation in the swales in the 2015 growing season.

Additional seeding and other actions are anticipated to be necessary to promote more rapid growth of wetland vegetation in the swales and on the shelves of the storm water basins. These additional actions may include: (1) seeding of the swales and basin shelves with a subset of the previously used wetland species chosen based on short germination/propagation time; (2) augmentation of soils on the shelves of the storm water basins with organic material to promote more rapid growth; and/or (3) vegetation of the swales and basin shelves using live plant plugs in lieu of seeding. Seeding/vegetation of the swales may also require modification or removal/replacement of the mats present in the swales.

However, because the 2014 growing season is now complete, no significant additional seeding/vegetation actions, other than the matting and dormant seeding outlined above, will be implemented prior to the onset of winter conditions at the site. Seeding or placement of vegetation cannot be completed until spring of 2015 and the specific timing of seeding will be dependent on weather conditions/soil temperatures. To further clarify plans for spring seeding/vegetation efforts, VGT proposes to develop a Vegetation Augmentation Plan (“VAP”) which will describe measures proposed to enhance vegetation of the discharge swales and storm water retention basins. The VAP will be issued to MDEQ for review and consideration in January of 2015 to allow review, comment and consultation well in advance of implementation in the spring of 2015.

5.7.2 SEEDING OF OTHER DISTURBED AREAS

Placement of topsoil, seed and mulch/mats in disturbed areas of the site has been ongoing throughout construction at the site, initiated promptly upon completion of construction activities

in specific areas. Vegetation in certain areas of the site (e.g., in western areas following sanitary sewer construction) is established sufficiently to mitigate soil erosion. Placement of topsoil, seed and mulch will continue such that all disturbed areas are seeded prior to the conclusion of the 2014 construction season. Placement of additional topsoil, seed and mulch will be completed on an as needed basis early in the 2015 growing season to assure prompt site stabilization.

6.0 IMPLEMENTATION SCHEDULE

A proposed implementation schedule for the corrective actions outlined herein is presented as Figure 1. As noted on Figure 1, implementation schedules for these activities, particularly those to be implemented in the spring of 2015, are highly weather dependent and the actual schedule may vary from that presented on Figure 1. VGT will provide the MDEQ with periodic updates regarding any such schedule variations.

7.0 LONG-TERM DEVELOPMENT CONSIDERATIONS

Recognizing that additional construction activities will occur on the site for several years to complete the planned site development, measures are proposed to further reduce potential soil erosion. These measures include: (1) scheduling/managing future construction to reduce the areal extent of land disturbance associated with future construction activities (which was not feasible for this phase of work based on site development agreements) and; (2) use of additional, localized SESC measures in areas of future construction in lieu of reliance upon SESC measures addressing larger areas of the property or located at the site perimeter.

Lastly, the design of the storm water basins and swales, and other structural controls (e.g., check dams, manhole and catch basin sumps) will be reviewed on an ongoing basis through the remainder of construction project in keeping with the best practice of “adaptive management”. Field observation of the actual performance of constructed elements of the storm water management system will be conducted in a systematic and iterative fashion to assure that the design concepts/principles are being achieved. If appropriate, minor modifications/adjustments may be recommended to improve function (e.g., micrograding in or near swales or modification of basin/swale plantings). The goal of the ongoing review will be to assess the adequacy of the storm water management structures to reduce contaminants in storm water from the finished site under stabilized site conditions.

ALL DATES/DURATIONS ARE APPROXIMATE AND WEATHER DEPENDENT

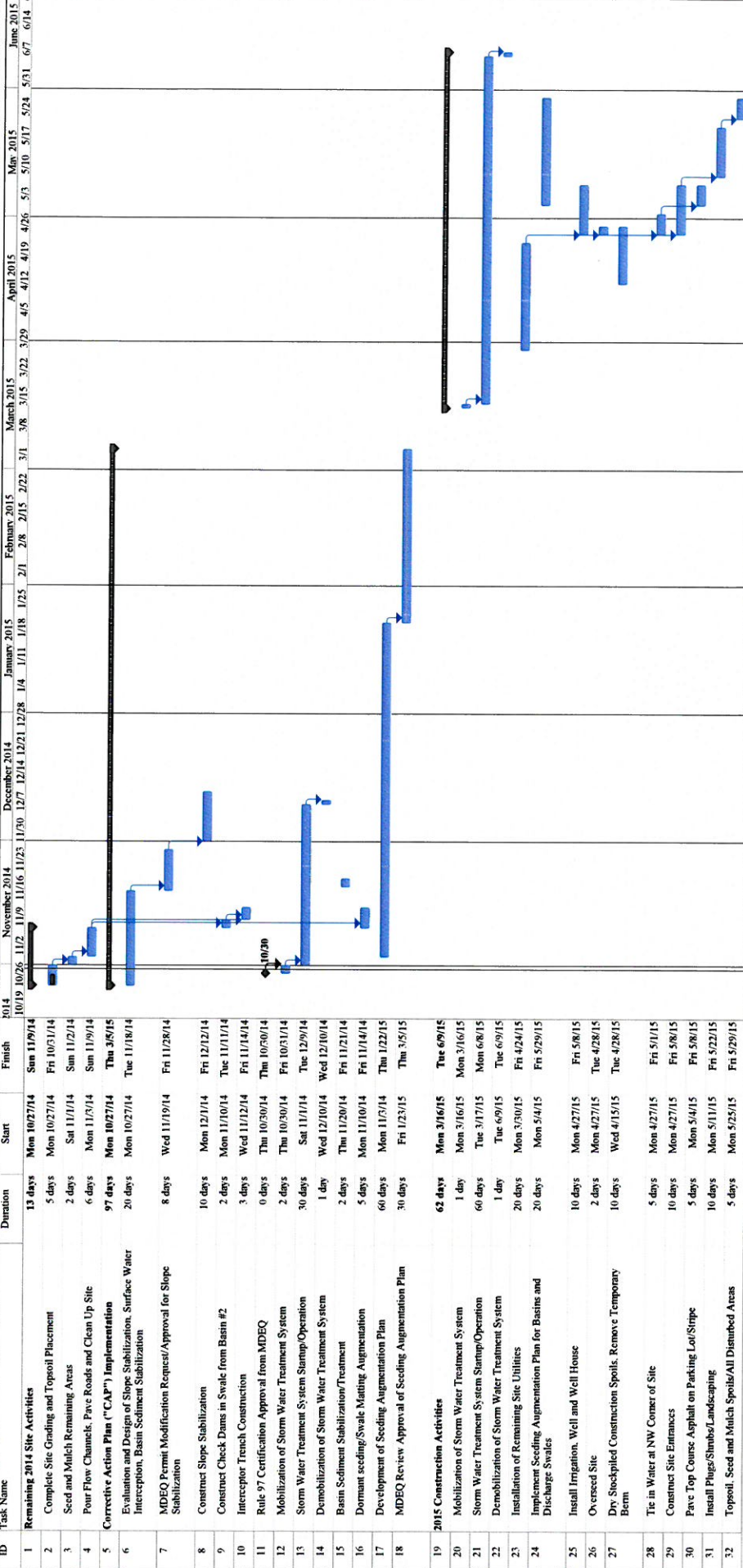


Figure 1
Grand Traverse Town Center
Construction/Storm Water CAP Implementation Schedule

Task
 Spill
 Milestone
 Summary
 Project Summary

External Tasks
 External Milestone
 Inactive Task
 Inactive Milestone

Inactive Summary
 Manual Task
 Duration-only
 Manual Summary Rollup
 Manual Summary

Start-only
 Finish-only
 Progress
 Deadline

ATTACHMENT I

**GRAND TRAVERSE TOWN CENTER
SITE PLAN DEPICTING EXISTING AND PROPOSED
SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

ATTACHMENT II

***PHOTOGRAPHS DOCUMENTING SITE
SOIL EROSION AND SEDIMENTATION CONTROL MEASURES***

Photograph No. 1

Multiple Rows of Silt Fence Near Swale 2 Discharge, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 2

Polyacrylamide (“PAM”) Flocculant Blocks and Wattle in Basin 1 Swale, October 25, 2014
Photo Credit: C. Grobbel, from www.acmefuture.org



Photograph No. 3

Topsoil, Seeding and Mulch Matting at Slope South of Corridor Road, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 4

Topsoil and Erosion Control Matting Near South Slope, October 25, 2014
Photo Credit: C. Grobbel, from www.acmefuture.org



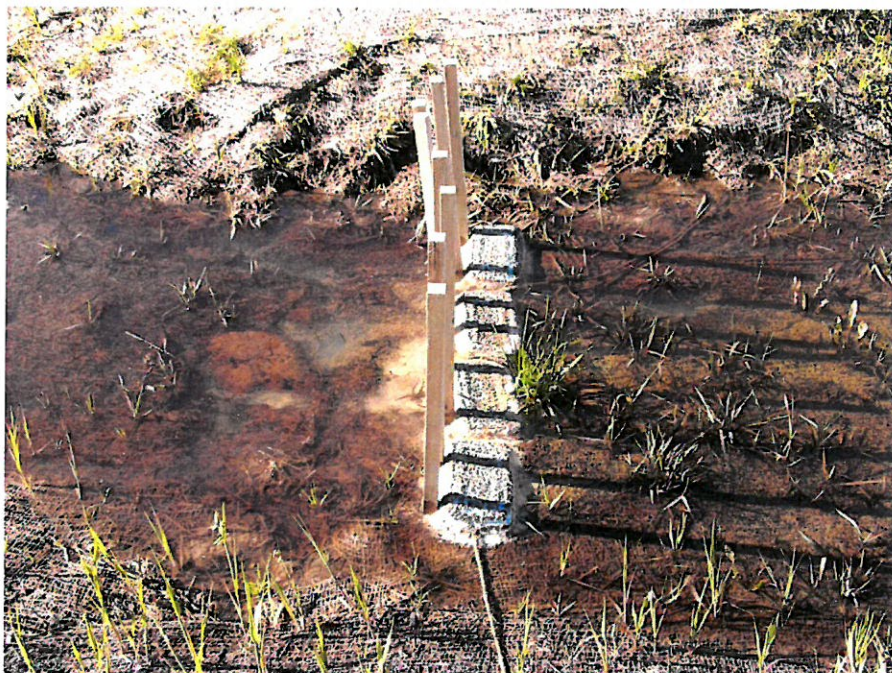
Photograph No. 5

Perimeter Silt Fencing and Hay Bales, October 24, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 6

PAM Flocculant Blocks in Basin 1 Discharge Swale, October 25, 2014
Photo Credit: C. Grobbel, from www.acmefuture.org



Photograph No. 7

Riprap Apron, PAM Flocculant Blocks and Silt Fence at Basin 2 Discharge, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 8

Stabilized Discharge Swale from Basin 2 with Velocity Reducers, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 9

Topsoil, Seeding and Mulch Blanket at Southern Extent of Grading, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 10

Stabilized Drainage Swale and Riprap Check Dams South of Basin 2, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 11

Topsoil, Seeding and Mulch Matting at Slope South of Corridor Road, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



Photograph No. 12

Wattles & Velocity Reducers in Basin 2 Swale, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental

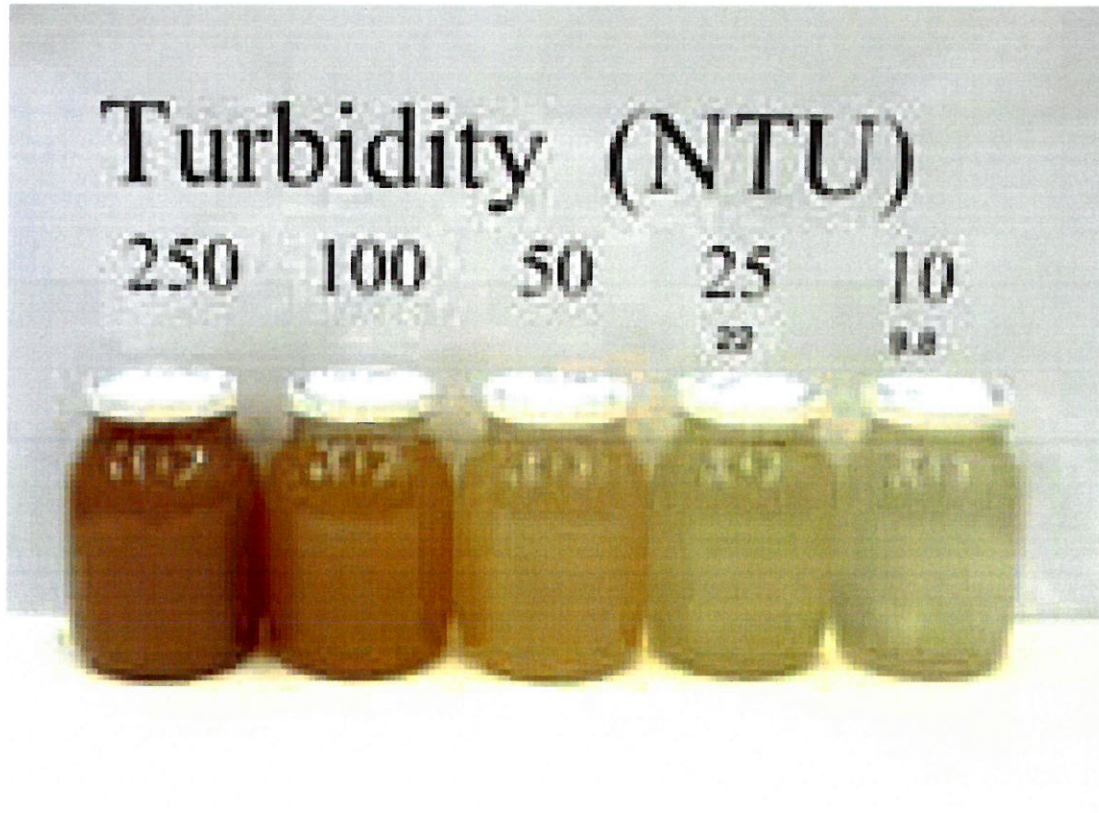


Photograph No. 13

Topsoil, Matting, Silt Fence and Wetland Restoration at South Slope, October 27, 2014
Photo Credit: M. Potter, Horizon Environmental



ATTACHMENT 2



Available at: <http://www.ohioenvironmentallawblog.com/2011/09/articles/water/us-epa-to-start-all-over-on-numeric-limits-for-construction-site-stormwater/>