Project No.
3586.002.020

January 29, 2021

Mr. Uri Eliahu, General Manager
Wiedemann Ranch Geologic Hazard Abatement District
2010 Crow Canyon Place, Suite 250
San Ramon, CA 94583-4634

Subject: Henry Ranch
San Ramon, California

GEOLOGIC HAZARD ABATEMENT DISTRICT MONITORING – FALL 2020

Dear Mr. Eliahu:

ENGEO is pleased to submit this monitoring report for the Henry Ranch development within the Wiedemann Ranch Geologic Hazard Abatement District (GHAD). As described in the Wiedemann Ranch Plan of Control (Reference 1), the purpose of this monitoring is to observe and report on the open space and associated improvements within the Henry Ranch development and adjacent easement. This monitoring event was completed on November 3, 2020.

SCOPE

Site monitoring included observation of the following features:

- Common area and open-space slopes, debris benches, and swales located adjacent to improvements
- Access roadways
- Drainage courses
- Subdrain outlets installed during the mass grading
- Concrete-lined surface drainage ditches
- Storm drain inlets
- Detention basin

In 2009, the Wiedemann Ranch GHAD acquired a 3.52-acre easement area from Philip and Pamela Henry (Figure 1). The easement area is located at the western end of Winding Creek Way and allows the GHAD access to the slope below 16 and 18 Winding Creek Way. As provided in the Access and Maintenance Easement Agreement, the GHAD is responsible for providing monitoring and maintenance on the improvements shown on the Contra Costa County approved plan dated June 1, 2005, and revised December 19, 2006, and specifically includes debris walls, retaining walls, concrete- and riprap-lined drainage ditches, the storm drain system, and mechanically stabilized earth walls. In addition, the GHAD responsibilities include monitoring and maintenance of the slopes, subdrains, and subdrain outfalls, and mitigation of erosion, landslides or other geologic hazards if conditions outlined in the Plan of Control are met. Although outside of the limits of the GHAD, reporting of the conditions within the easement are included in this monitoring report.

COMMON AREA AND OPEN-SPACE SLOPES, DEBRIS BENCHES, AND SWALES

The common area and open-space slopes, debris benches, and swales were observed for evidence of slope instability, including landslides, mudflows, erosion, diverted drainage or standing water. During our site visit, we observed that the site slopes in several locations were disturbed from pig rooting activity. This activity resulted in bare soil, saturated soil, and erosion in various locations across the site. We will continue to monitor these disturbed areas for instability in the future. There are a number of unrepaired landslides within the ungraded portions of the HOA-owned parcels. These landslides moved in the past and will likely do so in the future when wet conditions occur. The landslides within the ungraded portion of the site appeared to be in a similar condition to that described during development of the site.

Slopes adjacent to the gravel-surfaced access road within the easement area are in an oversteepened condition and subject to shallow slope instability (Figure 1, Site Condition A, Photo 1). Retaining walls or debris walls were constructed to protect the road from unstable materials from the uphill slope. There appears to have adequate catchment capacity behind the debris walls. The GHAD periodically removes soil materials that collected behind the debris walls to maintain the catchment capacity.

The rear fence at 6025 Westside Drive was tilted in the downslope direction, an indication of soil creep (Figure 1, Site Condition B, Photo 2). Fluctuations in moisture regimes of expansive soil may result in movement of soil related to shrinkage and swelling, which may result in adverse impact to overlying improvements. Soil creep involves the downslope movement of expansive soil due to wetting and drying of the soil. At the time of the site visit, soil creep did not appear to be of immediate concern and will be monitored in the future. Fences are not a GHAD-maintained improvement.

During our Spring 2018 monitoring event, we noted several areas of significantly disturbed and saturated soil located along the concrete-lined drainage ditches near the rear property fences of the residences. During this monitoring event, extensive damage to the slopes had been inflicted by rooting pigs (Figure 1, Site Condition G, Photos 7 through 9). Irrigation lines and sprinklers were broken resulting in excessive water being expelled and over-saturating the slopes. The earth was torn up and slopes behind several residences were eroded at the time of our recent monitoring. Areas that have been disturbed due to pig rooting are shown in Figure 1. The damage to the slopes did not appear to be impacting the nearby improvements. We will continue to monitor these slopes for evidence of instability and will repair the slopes as needed.

ACCESS ROADWAYS

We observed the condition of the gravel-covered access roadways within the easement area, detention basin, and between Westside Drive and the planned extension of Henry Ranch Drive. The gravel surfaced roadways in the detention basin and between Westside Drive and Henry Ranch Drive are in good condition. Annual vegetation removal is completed during scheduled routine GHAD maintenance.

DRAINAGE COURSE

An unnamed tributary to South San Ramon Creek crosses the extreme southern portion of the development. In general, the creek has a moderately incised channel with a moderate to dense

vegetation cover. The creek banks, which are oversteepened due to previous down cutting, are generally in an unstable condition. We expect that creek bank failures will continue to occur in the future as the creek banks adjust to lowered creek bed levels. As stated in the Plan of Control, the creek channels will be allowed to mature naturally except where this poses a threat to site improvements. We did not observe areas of the creek channel with the potential to impact site improvements.

SUBDRAIN OUTLETS

The following subdrain outlets were observed and monitored during the site visit. Discharge levels flowing from the subdrain outlets are summarized on Table 1.

TABLE 1: Subdrains

LABEL	FLOW (GALLONS/DAY)	COMMENTS
S-1	0	Tied into storm drain catch basin
SL-1	137	Staked; Four outlets. Unable to locate two outlets – buried
SK-2	0	Tied into storm drain catch basin, wet
SK-2A	228	Tied into storm drain catch basin
SL-2	274	Outlets onto adjacent property, Estimate
SK-3	--	Tied into storm drain catch basin; Standing water in catch basin
SK-8	0	Unable to locate – buried
SK-8A	0	Staked; Outlet onto slope
SK-9	0	Staked, Outlet downslope of maintenance road

Subdrain SL-2 outlet is located in an adjacent property not within the GHAD boundary. During our previous monitoring events (Fall 2019 and Spring 2020), the slope below the subdrain outfall appeared to be eroded (Figure 1, Site Condition E). However, if the erosion does threaten GHAD maintained improvements, such as the subdrain pipe, the GHAD will consider repairing the erosion. The area will continue to be monitored in the future.

LINED SURFACE DRAINAGE DITCHES

The concrete drainage ditches were checked for accumulation of debris/sediment and for obvious distress such as cracking or shifting of the concrete. As shown on Figure 1, there are approximately 8,600 lineal feet of concrete-lined drainage ditch within the Henry Ranch development. The concrete-lined ditches need clearing of soil and vegetation and will be cleaned as part of the routine GHAD maintenance. We observed minor cracks and voids in the concrete ditches, with the exception of significant damage to the top of the concrete-lined drainage ditch on the easement (Figure 1, Site Condition C, Photo 3). Minor cracks do not appear to compromise the integrity of the concrete-lined drainage ditches. As part of the routine maintenance, the minor cracks and voids will be resealed to maintain ditch integrity.

During our Spring 2018 monitoring event, we noted there is some cracking surrounding the storm drain inlet and sidewalk at the end of the concrete-lined drainage ditch located at the north end of Lone Tree Lane (Figure 1, Site Condition D, Photo 4). At the time of our monitoring event, the cracking remained unchanged. The sidewalk, which is not a GHAD-maintained improvement, should be repaired to prevent a potential trip hazard.

During our Fall 2019 monitoring event, we noted that there is an approximate 1-inch vertical offset at an expansion joint within the drainage ditch as well as a void underneath the drainage ditch approximately 20 feet east along the previously identified concrete-lined drainage ditch (Figure 1, Site Condition F, Photos 5 and 6). At the time of our monitoring event, the offset did not impede the flow of the drainage ditch. The void, however has continued to grow in size and now undermines a sizable portion of the drainage ditch. The GHAD will have the maintenance contractor fill the void with a controlled density fill to prevent the void from enlarging further. This area will continue to be monitored in future monitoring events.

During this monitoring event, we noted that significant portions of the drainage ditches (Figure 1, Site Condition H, Photo 10) were full of standing water and soil from pig rooting activity. The excessive water was resulted from damage of the irrigation lines and sprinklers on the site slopes. The soil will be removed during routine fall maintenance, which will allow proper drainage and flow within the ditch.

STORM DRAIN INLETS

A number of storm drain inlets within the open space area of the GHAD appear to be in relatively good condition. Some storm drain inlets have accumulated sediment and have overgrown vegetation in and around the inlets. As part of routine GHAD maintenance, the storm drain inlets will be cleared of vegetation.

DETENTION BASIN

A detention basin (Figure 1) is located adjacent to Winding Creek Way. As noted in our previous reports, vegetation within the detention basin includes grasses, cattails, and willow trees. Although vegetation aids in trapping of sediment, the GHAD has removed and will continue to remove regrowth of the willow trees adjacent to the storm drain outfall into the basin to allow for proper surface flow through the basin and maintenance of the inlet and outflow structures.

Monitoring of the detention basin was conducted as part of the Open Space monitoring. The observed conditions for the detention basin are described in the attached Henry Ranch Detention Basin Site Monitoring and Maintenance Form. Contracted ongoing routine maintenance within the water quality/detention basin currently includes roadway maintenance and woody vegetation removal.

PLANNED SPORTS FIELD PARK

Surface drainage from a planned sports field park located west of Henry Ranch Drive flows to a detention basin, and then through an above-ground plastic storm drain pipe into a storm drain inlet. Drainage from the access road to the planned sports park, an unpaved extension of Henry Ranch Drive, is captured along a series of berms that drain through 6-inch-diameter above-ground drainage pipes. Surface drainage around the berms has resulted in some minor erosion along the unsurfaced access road. In addition, we observed some damage to and disconnected segments of the 6-inch-diameter pipes. The City of San Ramon indicated that there are no immediate plans to develop the park into its final planned configuration. Currently, no capital improvement project funds have been allocated for the project through fiscal year 2022/23. As needed, the GHAD will reconnect and repair the drain pipes to help maintain their integrity.

We look forward to continuing our services on this monitoring program. If you have any questions concerning the observations made during this reconnaissance, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated

Mary Bromfield, GIT

Macy Tong, GE

REGISTERED PROFESSIONAL ENGINEER
MACY M.S. TONG
No. 2300
GEOTECHNICAL
STATE OF CALIFORNIA

mb/mt/dt

Attachments: List of Selected References
Site Photographs
Figure 1 – Site Plan
Detention Basin Site Monitoring and Maintenance Form

SELECTED REFERENCES

1. ENGEO; Amendment 1 to the Wiedemann Ranch Geologic Hazard Abatement District (GHAD), Plan of Control, February 1, 2000, Revised July 12, 2002, Project No. 4412-W3.

2. ENGEO; Geologic Hazard Abatement Monitoring – Spring 2020, Henry Ranch, Wiedemann Ranch Geologic Hazard Abatement District, San Ramon, California, June 29, 2020, Project No. 3586.002.019.

3. ENGEO; Operations and Maintenance Facilities for Detention Basin Facilities, Wiedemann Ranch Geologic Hazard Abatement District – Henry Ranch Detention Basin, San Ramon, California, April 3, 2009, Project No. 3586.120.001.

SITE PHOTOGRAPHS

PHOTO 1: Site Condition A – Oversteepened slope and shallow slope instability within easement.

PHOTO 2: Site Condition B – Creep movement affecting rear fence at 6025 Westside Drive.

PHOTO 3: Site Condition C –Damage to concrete-lined drainage ditch within easement.

PHOTO 4: Site Condition D – Cracking on sidewalk surrounding storm drain inlet.

PHOTO 5: Site Condition F – Vertical offset in concrete-lined drainage ditch.

PHOTO 6: Site Condition F – Void underneath concrete-lined drainage ditch.

PHOTO 7: Site Condition G – Erosion and slumping on slope above concrete-lined drainage ditch

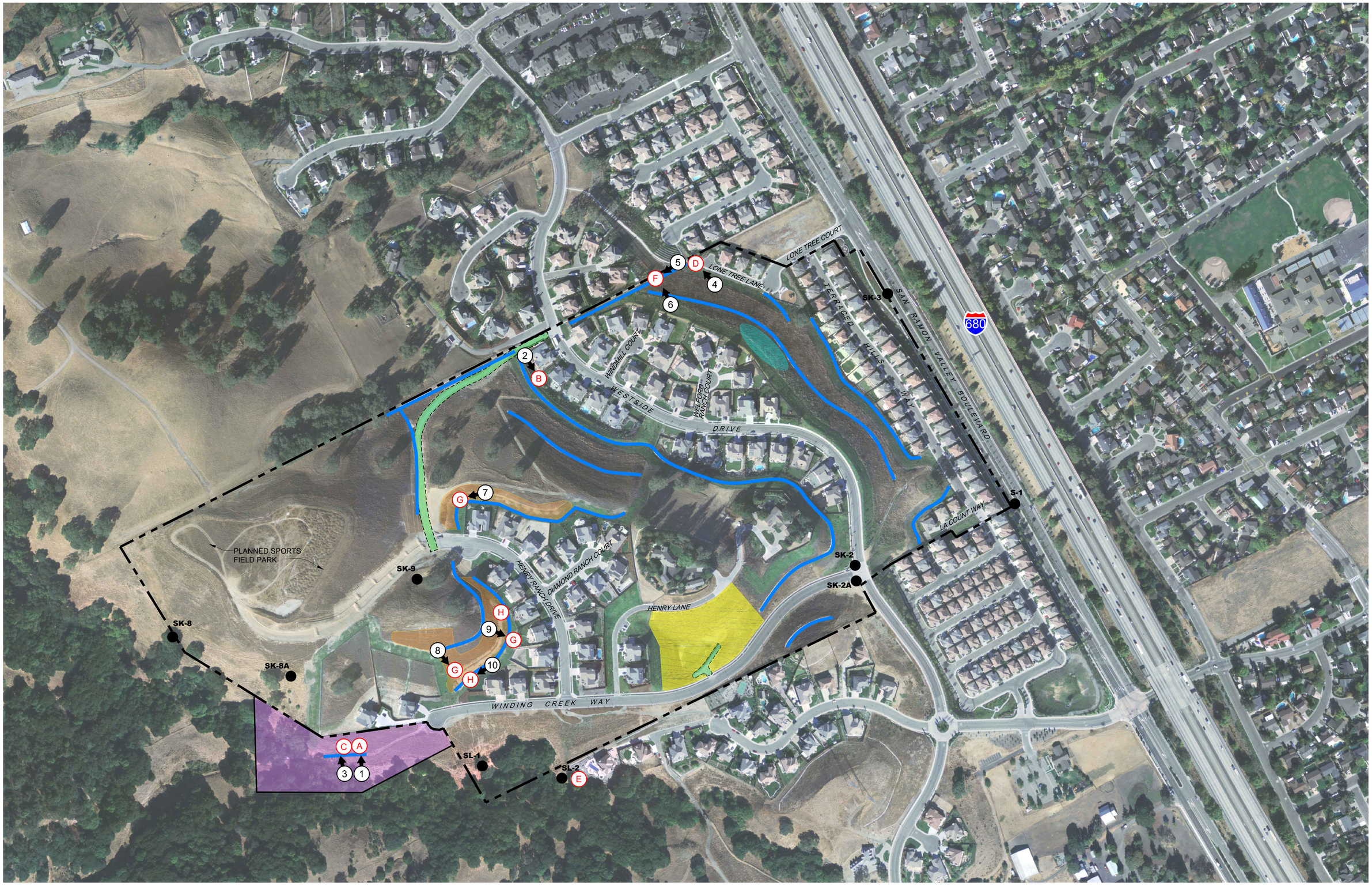
PHOTO 8: Site Condition G – Erosion and rooting on over-saturated slope

PHOTO 9: Site Condition G – Erosion and rooting on slope above concrete-lined drainage ditch and next to property fence

PHOTO 10: Site Condition H – Standing water and soil in concrete-lined drainage ditch

FIGURES

Figure 1 – Site Plan



N

0 200
FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- DRAINAGE DITCH
- LIMIT OF GEOLOGIC HAZARD ABATEMENT DISTRICT (HENRY RANCH)
- SK-9 SUBDRAIN OUTLET
- EASEMENT AREA
- MAINTENANCE ROAD
- DETENTION BASIN
- 10 PHOTO LOCATION AND DIRECTION TAKEN
- H SITE CONDITION
- SIGNIFICANT ANIMAL BURROWS
- DISTURBED SOIL FROM PIG ROOTING

BASE MAP SOURCE: TERRASERVER USA

ENGEO Expect Excellence

SITE PLAN
WEIDEMANN RANCH (HENRY RANCH) GHAD
SAN RAMON, CALIFORNIA

PROJECT NO.: 3586.002.020
SCALE: AS SHOWN
DRAWN BY: CC
CHECKED BY: EH

FIGURE NO. 1

ORIGINAL FIGURE PRINTED IN COLOR

MONITORING REPORT

Henry Ranch
San Ramon, CA

DETENION BASIN OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE
REPORT FORM

Inspector: Mary Bromfield Date: November 3, 2020
Weather Conditions: Sunny
Days since last rainfall: 153 Dry season? X Wet season?
Basin Water Level: Less than 6" at basin inlet
Noteworthy Sediment Accumulated since Last Monitoring Event: No

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the basin to drain and are they in satisfactory condition?	X			
2. Are access roads in satisfactory condition?	X			At the western end of the maintenance road, some soils were eroded, exposing geogrid under the maintenance road. Minor vegetataion was growing on access road. The GHAD will monitor the condition of the exposed geogrid in future monitoring events.
3. Is all perimeter fencing in good condition without breaks, gaps or damage?	X			

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
4. Is the emergency outlet grate free of debris and is it in good condition?	X			
5. Is the embankment surrounding the basin in good condition without rills or failures?	X			Minor animal burrowing.
6. Is emerging woody vegetation less than 5 feet in height?		X		Willows up to about 50 feet in height are growing within the detention basin. As provided in the Operations and Maintenance Manual, willows have not significantly impacted basin capacity; however, the GHAD routinely removes willow trees adjacent to the storm drain outfall into the detention basin.
7. Are embankment slopes protected with mulch or vegetation?	X			Animal burrowing activity has exposed bare soils in small areas.
8. Has water removal been undertaken in the last 3 months? If so, describe procedure.		X		

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
9. Has sediment removal been undertaken in the last 3 months?		X		
10. If so, has it been tested as required in the Maintenance Manual?			X	
11. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the basin?		X		
12. Do any pond devices require maintenance to provide more effective function?		X		
13. Are there signs of leaking irrigation systems?			X	

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
14. Are there any signs of vandalism?		X		
15. Are mosquitoes evident?		X		
16. Has mosquito abatement been undertaken since the last monitoring event?		X		
17. Are there other remedial/repair tasks that should be undertaken in the near future?		X		
18. Is there any evidence or information received in the last 3 months to indicate a lengthy drain time?		X		

"No" answers to Items 1-7 or "Yes" answers to Items 8-18 may require a corrective action.