

**New Bedford Regional Airport
Runway Safety Improvements Project – Phase 4
Reconstruct, Mark, and Groove Runway 5-23
MassDEP File No. SE049-0635**

ENVIRONMENTAL MONITOR INSPECTION FORM

Environmental Monitor: **Amanda Atwell and Michael Howard**

Date/ Time of Inspections: **7/17/14 (all day) and 7/24/14 (afternoon).**

Weather Conditions: **7/17/14 70s sunny, overcast; On 7/16/14 EWB received 2.26 inches of rain as a result of heavy thunderstorms. 7/24/14 80s, sunny, overcast- (weatherunderground.com).**

Observed Construction Activities Underway (attach additional pages if necessary):

On 7/17/14 Epsilon reviewed the project area and met with the WS onsite. The contractor was working within the 81-hr Airport shutdown, where the runway intersection paving was underway and the Airport was closed to all fixed wing traffic. Operations included striping, paving, electrical work and stormwater infrastructure within this area. On 7/16/14 the Airport received 2.26 inches of rain during a series of violent thunderstorms. The majority of erosion controls were functioning as intended. However, a few discrete areas within the construction paving operation failed as a result of the storm. These include the area by all three stormwater headwalls, a discrete area at the Runway 5 end RSA, and a discrete area at the Runway 23 end RSA. In addition tree clearing work was ongoing within the Dartmouth area. Two additional areas were noted where the silt fence failed, but sediment was not observed beyond the silt fence. Erosion controls along the ILS road are still holding back sediment from the adjacent wetland, but sediment is starting to bury these features in specific areas. The WS and contractor addressed some issues during the EM's visit. The EM spoke with the WS regarding erosion control issues. The WS was aware of the issues and created a punchlist of specific issues of which the contractor addressed on the following day, Friday 7/18/14, as documented in the WS report. The contractor completed the runway intersection on Friday morning.

On 7/24/14 the contractor was continuing with its grading, site prep, stormwater installation work, and electrical trenching on the Runway 23 end. The contractor was spreading loam along the Runway 5 end and is intending to seed the area soon. Tree clearing work is ongoing and approximately 20 acres have been cleared; daily turtle sweeps are continuing. Many of the erosion controls had been fixed by the contractor where problems were identified, except where noted below. These areas include two of the three stormwater headwalls, including a small tear in the silt fence by the outfall after Catch Basin 1 and tying in the toe of the silt fence repair by the outfall after Catch Basin 11 (immediately southwest of the Runway intersection and the discrete area at the Runway 5 end RSA). The ILS road was generally repaired using equipment to remove excess sediment from the road and adding wood chips and hay to stabilize the areas where compost tubes have been dislodged or sediment has covered these controls. More work is necessary in this area to more completely protect sediment mobilized from dragging "twich" (tree branch loads). Wagner Wood has modified their operations at the request of the WS as described below. The stockpile remained in good condition and outside the 100 foot buffer zone.

Status of Existing BMPs and Other Inspection Items

Control Measure	Cleaning or Repair Needed	Comments/Recommendations from the EM
Erosion Control Devices	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	Erosion controls were generally in good condition throughout the work zone. The contractor repaired and restaked silt fence and hay bales in areas where the heavy rains knocked them over. No sediment was found downgradient of the silt fence and the fence was repaired by the time of inspection. A discrete area of silt fence/ turtle barrier was damaged along the 23 end, this area was fixed.

Control Measure	Cleaning or Repair Needed	Comments/Recommendations from the EM
		<p>At the 7/17 visit Epsilon noted that the headwall by the 5 end and infiltration trench was an area of another blow out and sedimentation occurred downslope of the erosion controls. A small amount of sediment was translocated into the adjacent west ditch. Sediment was removed where feasible. This area was repaired and armed significantly as observed during the 7/24 visit.</p> <p>At the 7/24/14 site visit, Epsilon noted that while hay bales were restaked the silt fence at the RSA 5 end blow out location were not properly toed in. The WS was immediately notified. The WS's weekly report indicated that this area was properly toed in and hay bales were restaked. Sediment was mobilized on the slope of the relocated west ditch and a small amount made it into the west ditch, as indicated in photos from the WS report, sediment was hand removed from this area and mulched. Epsilon also noted a small tear in the silt fence by the headwall from Catch Basin 11 (the headwall by Taxiway A). Water was slowly releasing from this tear, but was generally clear as the tear was above the point where settling occurred. The WS was also notified of this issue. Epsilon observed water overtopping the silt fence at the headwall from Catch Basin 1, southwest the runway intersection on 7/17, the WS and RE was immediately notified. The contractor placed a second row of silt fence at that area and armed the area with a second row of hay bales. On 7/24 Epsilon noted that the second row of silt fence was not properly toed in. The contractor is currently working on this area. Currently no sediment laden water is mobilizing, but this area needs to be fixed.</p> <p>Areas where previous failures were observed are continuing to be monitored and no additional issues have been observed except where noted. Erosion controls along the ILS road are discussed within the tree clearing section. The contractor has an emergency supply of silt fence and compost tubes present on the site.</p>
Box Turtle Barriers, Gates and Protection Measures	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	Turtle barriers were in good condition at time of inspections. The moveable gate installed at the West Ditch arch culvert was functioning properly at the time of inspections. Turtle gates inspected and had been fixed in areas where sediment needed to be added.
Stabilized Construction Entrances, Haul Roads, Dust Control	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	The stone tracking pad was in good shape with no significant silt or sediment on the roadway. An individual from ET&L was stationed at both entrances for site access control and sediment control. The gravel access road was stabilized with pavement millings to minimize erosion in the buffer zone and adjacent wetlands and dust generated by the heavy construction equipment – this approach worked very well as the access road held up extremely well following the tropical rain event. Epsilon observed watering of exposed surfaces

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		throughout the work zone and sweeping the construction entrance and Shawmut Ave. by ET&L to minimize dust.
Stockpiling Materials	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	Contractor staging area remains in good condition. Sediment stockpile and tree clearing staging area remain in good condition outside of the 100 foot buffer zone. Soil from the large stockpile located in the RSA has been utilized onsite.
Dewatering	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	Some locally low areas were being dewatered after the storm including some areas at the Runway intersection and the large temporary holding pond at the Runway 23 end. Dewatering was not actively observed by Epsilon, but no adverse impact was noted. The ends of the dewatering hoses were staged in upland areas outside of resource areas.
Construction Equipment Storage and Refueling	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	Equipment storage is located within the designated lay down area. Supplies and equipment staging for the tree clearing work is located in the Runway 5 RSA. No issues were observed.
Site Clean-up and Stabilization	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	There was a sediment release at the relocated west ditch. The bank and west ditch was hand cleared on Friday 7/25. Epsilon is continuing to monitor wetland resources downgradient from the erosion controls at each headwall. Sediment may need to be removed from these areas. These areas will be monitored, cleaned and stabilized as necessary. There were no other specific areas in need of clean up or additional stabilization measures.
Timber Swamp Matting in Wetlands for Tree Clearing in Dartmouth	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> n/a	As a result of the tropical storm, multiple layers of timber mats were placed in specific areas where necessary and the contractor created bridges to allow water to flow under the timber mats in a few discrete areas. These mats and the overall timber mat road are in good condition. The contractor is actively mending the road whenever necessary to avoid issues and still driving extremely slow and keeping an eye on the water to make sure that water movement is not appreciable. The contractor has also placed moderate sized tree branches and trunks perpendicularly from the timber mats to make sure that water does not move far and sediment is not re-deposited.
Work Area 1A – Tree Clearing in Dartmouth	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> n/a	By the end of the week of July 14 th , the ILS road had deteriorated. Compost tubes were dislodged or covered with sediment due to tree branches scraping the soil surface and creating some very local movement, and while no sediment had reached the adjacent wetlands it was possible that it could in the future. It had appeared that the operator was not driving down the center of the ILS road. As a result, Wagner Wood has modified their operations at the request of the WS. As a result of the ongoing deterioration of the ILS road shoulders the contractor is staging more, including cutting trees within the clearing area with a chainsaw. The contractor is now dragging smaller twitch loads and has added a skidder to remove large logs from the clearing area. The result is that there is a smaller twitch load footprint and less erosional force on the road. There is also strict enforcement that the operator

Control Measure	Cleaning or Repair Needed	Comments/Recommendations from the EM
		<p>must drive down the center of the ILS road. The contractor repaired and restaked silt fence and hay bales along the ILS road. Logs are still being used to arm these controls. The contractor cleared excess sediment off the road has used wood chips and straw to arm and protect the compost tubes in the worst areas. More wood chips can be used to protect the compost tubes along the whole road. As of Friday 7/25/14, the contractor was working to arm the entire ILS road as directed by MassDEP and the Conservation Commission Agent (S. Porter). No sediment was noted in the adjacent wetlands. These sediment controls will be replaced prior to electrical trenching and earthwork. More timber mats were added to protect the West Ditch culvert.</p> <p>Tree clearing itself has been progressing smoothly. There is one feller buncher and three grappler machines to remove trees. Three pieces of equipment are moving trees to the processing area and fixing the timber mats as needed. The feller buncher on its own series of mats was clearing trees while one grappler was moving trees to the timber mat access road. One snag per acre has been identified and shored off at approximately 10-12 ft. One trailer of logs is removed from the site daily. Tree processing is ongoing.</p>
Work Area V – Wetland Replication Area	<input type="checkbox"/> yes <input type="checkbox"/> no <input checked="" type="checkbox"/> n/a	This work has not yet started nor have the wetlands been filled for the MALSR light station work.
Overall Adherence to Environmental Permits		The project site was in generally good condition during the inspection period and no obvious contradictions or intentional violations with the various permits and approvals were noted.

Other General Comments:

On 7/17/14 Epsilon reviewed the Runway 5 end, Runway 23 end, ILS road and stormwater headwalls with the WS. The site held up nicely after the storm, except where noted above. The contractor is working on fixing erosion control issues as a result of the storm in a few discrete areas. Erosion control stockpiles, including extra compost filter tubes, are on site for repairs.

On 7/25/14 – reviewed the Runway 5 end, Runway 23 end, ILS road and stormwater headwalls with the WS, Sarah Porter, New Bedford Conservation Commission and Michael O'Reilly, Dartmouth Conservation Commission. Although a few erosion control issues were outstanding at the conclusion of the day, the WS reported that these areas were addressed on Friday or will be completed early this week. The site was generally in good condition and erosion controls were holding up nicely.

Open action items from the June 12 meeting with MassDEP: (1) ASG to follow up with MassDEP on the use of pavement millings BMP; (2) formal proposal to stabilize interface between Turtle Area 3 and Site 6 with mulch (we may opt for a “wait-and-see” approach as the area is beginning to vegetate and the sand is not currently migrating; it too held up very well after the tropical rain event); and (3) a follow up response to MassDEP's June 4, 2014 email regarding potential long term stabilization measures for runoff near West Ditch.

Are additional erosion control measures needed?

☐no ☒yes If yes, describe: **As noted above.**

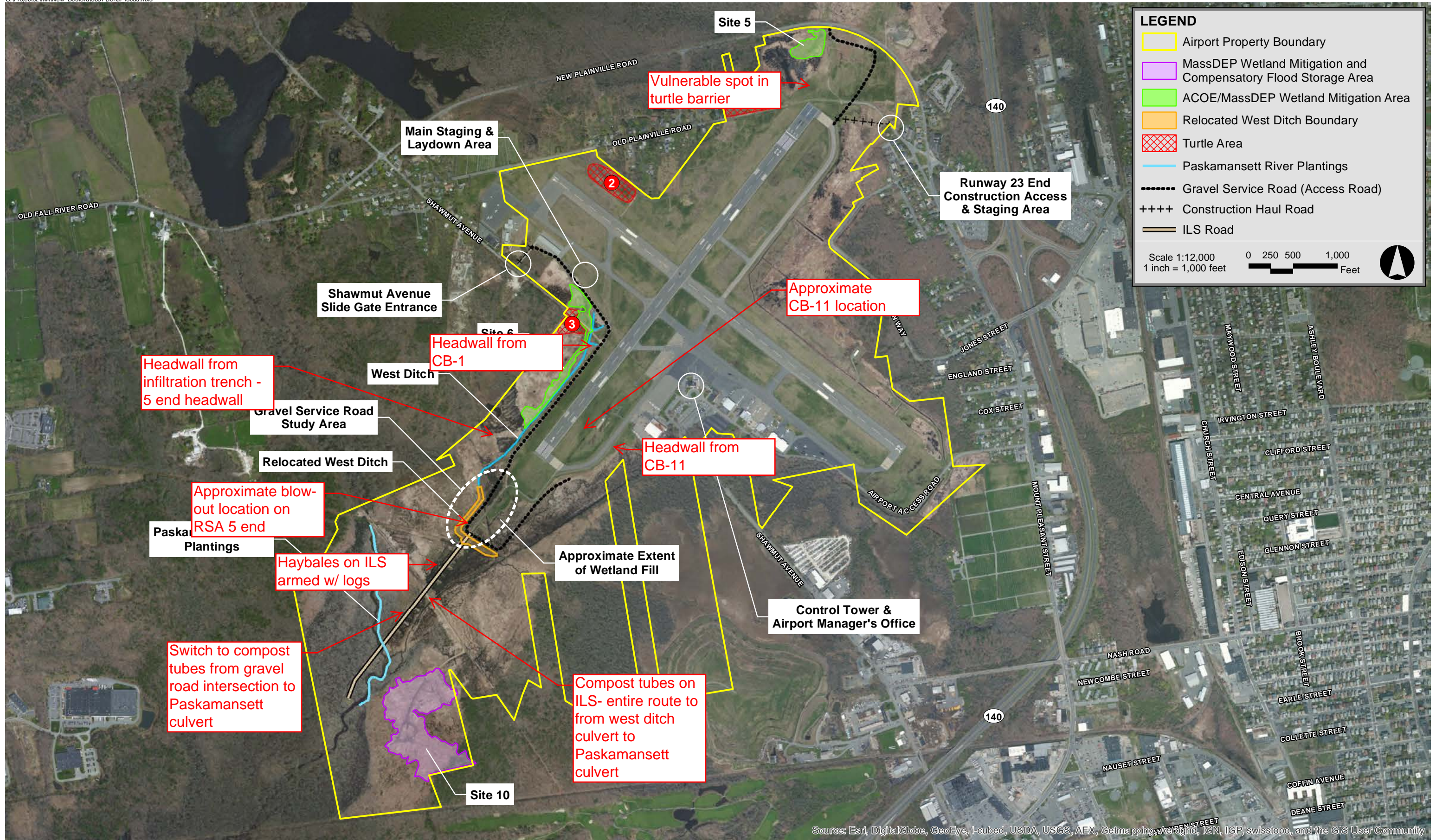
Are sediment/pollution discharges from the site present?

☒no ☐yes If yes, describe: **Minimal sediment discharges were noted as a result of the violent thunderstorms on Wednesday 7/16/14. These areas have generally been restablized and hand cleared as necessary and noted above.**

Describe any corrective action required at this time: **None at this time. WS continues to work with ET&L to mitigate any potential erosion issues.**

Attach additional sheets with notes, comments, illustrations and issues as needed. Use site plan to identify locations of work areas or issues noted above: **Photos are attached. See action items identified above.**

AA/MH





Paving operations at the Runway 23 end (7/24/14).



View of partially installed stormwater infiltration and infrastructure at Runway 23 end (7/24/14).



View of temporary holding pond and drainage on south side of Runway 23 end, standing up gradient wetland (7/17/14).



View of newly constructed (interim condition) drainage swale at Runway 23 end (7/24/14).



Upland dewatering area

View of dewatering temporary pond, water is retained in the north area and leads to drainage swale and ultimately wetland (note above photo) (7/24/14)



View of temporary turbid condition in west ditch on 7/17/14



View of headwall from Catch Basin 11 on 7/24/14. A second row of silt fence was added after the failure and the outfall was armed.



View of water moving through these erosion controls. The lower erosion control had failed. The upper erosion control needs to be properly toed in. (7/24/14)



View of Catch Basin 11, water is clear within the catch basin.



View of newly added loam and Runway 5 end infiltration trench (7/24/14).



View of infiltration trench outlet on 7/17/14. A hay bale was dislodged by water and holding water back from the outlet, causing water to overtop this area. The WS removed the hay bale from the outlet in order to allow water to flow properly. Arrow shows removed hay bale.

Repaired on 7/24/14.



View from 7/17/14

View of repaired headwall erosion controls. This area was armed and sediment was cleared.



View of small release from catch basin at Runway 5 end on 7/17/14.



View of cleaned area on 7/24/14

View of repaired area on 7/24/14



View of headwall by catch basin 11, area was armed. (7/24/14).



View of water beyond erosion controls. A small tear was noted and reported to the WS. (7/24/14).



View of catch basin 11 on 7/24/14.



Example of erosion control matted down by water on 7/17/14. These erosion controls were repaired and restaked.



View of blow out from thunderstorm. On 7/17/14 it was obvious that the hay bale was not removed but compromised by the force of the water. Water tunneled through the two silt fences, laying one down and moving the other.



View of sediment and rock translocated into the west ditch restoration bank area and a small portion into the west ditch on 7/17/14.



View of replaced hay bales.

View of sediment that needs to be removed from the west ditch restoration area. 7/24/14. The WS reported that this area was fixed: silt fence toed in and sediment removed on 7/25/14.



View of deteriorated compost tube on 7/17/14.



View of erosion control along the ILS road 7/24/14, wood chips and hay were added to discrete areas at time of inspection.



View of repaired ILS road with wood chips from 7/24/14.



Tree clearing observed on 7/17/14.



View of logs being removed from Dartmouth down the timber mat road on 7/24/14.



View of "twigs" being removed from Dartmouth 7/24/14.



View of cleared area from 7/17/14.