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PHASE IV REMEDIAL IMPLEMENTATION PLAN (RIP) REPORT
RTN 3-3939

FORMER LANDFILL

FORMER GENERAL MOTORS ASSEMBLY PLANT FRAMINGHAM, MASSACHUSETTS

Prepared for:
General Motors Corporation

OCTOBER 2005
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1.0 INTRODUCTION

1.1 GENERAL

Conestoga-Rovers & Associates Inc. (CRA) has prepared this Phase IV Remedy Implementation Plan (RIP) Report for the Former Landfill (Site), assigned Massachusetts Department of Environmental Protection (MADEP) Bureau of Waste Site Cleanup (BWSC) release tracking number (RTN) 3-3939, on behalf of General Motors Corporation (GM). The Site location is presented on Figure 1.1 and the Site features are presented on Figure 1.2.

1.2 BACKGROUND

The Property is located at 63 Western Avenue in the Town of Framingham, Middlesex County, Massachusetts (Figure 1.1). The Site consists of an approximately seven acre parcel located on the southwest side of the Property. The surface topography in the area of the Former Landfill is relatively flat. There is some larger vegetative growth in the central area of Former Landfill, in the vicinity of a storm sewer manhole. Larger vegetation is also present along the western boundary of the Site. An approximately 3 ft diameter storm sewer transects the central portion of the Former Landfill, generally from south to north. The storm sewer connects Wetland "A" to Beaverdam Brook.

Land uses surrounding the Property include commercial, industrial and residential areas. Industrial, commercial and residential properties border the Property to the north. Beaverdam Brook (RTN 3-4356) borders the Property to the west and the Former Settling Lagoon (RTN 3-3939) is located on the west side of the Beaverdam Brook on the northwest side of the Property. ADESA owns the property to the west and the property around the Former Lagoon. The Consolidated Rail Corporation (Conrail), owned by CSX corporation and Norfolk Southern Corporation, owns the properties on the west side of Beaverdam Brook. ADESA owns the property north and east of the Site. Wetland "A" owned by GM is located to the south of the Site.

As the first Interim Phase II Comprehensive Site Assessment (CSA) Report (Wetland Delineation Report) was submitted in March 2005. The second interim Phase II CSA Report was submitted to MADEP in July 2005 and the Final Phase II CSA Report, including human health and ecological risk assessments and the Phase II CSA Completion Statement was submitted in August 2005. The Phase III Remedial Action

Plan (RAP) Report was submitted in September 2005. This Phase IV RIP report is based on the results of the Phase II CSA Report and the Phase III RAP.

1.3 EXISTING CONDITIONS

The extent of waste was delineated as part of the Phase II CSA activities and determined to be 5.0 acres. The subsurface conditions in perimeter areas of the Site generally consists of from 4 to 14 feet of fill comprised of fine to coarse sand with varying amounts of silt, gravel and clay. The underlying waste materials vary in thickness from 0 ft to approximately 20 ft. A detailed description of the waste materials is presented in Section 2.2.2 of the Phase III RAP (CRA, September 2005). A peat layer approximately 2 ft thick underlies a portion of the waste materials, consistent with the historical presence of water in a low-lying area. A medium dense sand and silt deposit underlies most of the waste material to a thickness ranging from approximately 15 to 25 ft below the peat layer. Bedrock underlies the sand and silt deposit and consists of an undulating surface covered with varying thicknesses of glacial till.

The shallow groundwater table is encountered at approximate depths ranging from 3.4 to 14 ft bgs in the area of the Site depending on location and seasonal fluctuations. Shallow groundwater ranges in depth from 7 to 14 bgs based on 2004 and 2005 monitoring. Shallow groundwater generally flows towards the stormwater sewer that bisects the Site connecting Wetland "A" located to the south of the Site to Beaverdam Brook.

The Phase II CSA activities provided the delineation of wetlands in accordance with the United States Army Corps of Engineers (USCOE), MADEP and FCC regulations and delineation requirements and practice. Wetlands areas "B" and "C" located within the Former Landfill total approximately 4,440 square feet, or 0.1 acres. Additionally, Wetlands "D" and "E" located within the North Stormwater Pond, a managed stormwater structure, and are considered incidental and non-jurisdictional wetlands. Wetlands "B" and "C" have been replicated as part of ADESA's Wetland Replication project. The design used for ADESA project is presented in Appendix B.1.

There are currently seven monitoring wells around the Site (MW1-04 through MW7-04) that will be maintained through remedy implementation as presented on Figure 1.2.

Detailed evaluations of oil and/or hazardous material (OHM) found at the Site are provided in the Phase II CSA and are briefly summarized in this paragraph. Chemical

analysis indicated that soils below the existing 12-inch cover material have concentrations of lead and benzo(a)pyrene at concentrations which exceed S3/GW 3 and/or S-2/GW-3 numerical standards and lead, aluminum, and iron exceed UCLs. In subsurface soils, chemical analysis indicated that antimony, arsenic, benzo(a)pyrene, chrysene, lead, total chromium, and zinc were present at concentrations above MCP S3/GW 3 and/or S-2/GW-3 numerical standards and lead, aluminum, and iron exceed UCLs. Zinc exceeds the UCL at two individual subsurface soil sampling locations. Chemical analysis indicated that sediment samples from the stormwater sewer have polycyclic aromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(a)pyrene, fluoranthene, fluorene, phenanthrene, and pyrene), arsenic, lead, and zinc at concentrations exceeding the (MCP) freshwater sediment screening benchmark values. The Phase II CSA concludes that surface and subsurface soil within the horizontal and vertical extent of the Former Landfill is impacted with OHM.

Xylene was detected in one monitoring well in 2004 at a concentration exceeding the proposed GW 3 numerical standard. In 2005, groundwater quality monitoring did not indicate any exceedances of GW 3 numerical standards. Surface water/stormwater analyses indicated that concentrations of total and dissolved aluminum, total and dissolved copper, total and dissolved iron, lead, and zinc were exceeded the Massachusetts Surface Water Standards for protection of aquatic life.

The surface soil sample analyses for the samples collected in the off-Site north stormwater retention pond (North Pond) indicated that metals and PAHs were present at concentrations exceeding S-2/GW-3 and S-3/GW-3 numerical standards.

1.4 REMEDIAL ACTION OBJECTIVES

The following specific remedial action objectives were developed based on the presence of Site-related OHM, and the results of the HHRA and the ERA to achieve a condition of NSR for the Site for the current and anticipated future use of property as presented in the Phase III RAP (CRA, September 2005):

1. Approximately 170,000 cubic yards (CY) of soil, fill, and solid waste containing OHM are present in the Former Landfill, of which approximately one-half of the volume is below the groundwater table. The selected remedy should prevent contact with, contain, reduce, and/or detoxify the impacted materials (i.e.,

Permanent or Temporary Solution) to ensure a condition of No Significant Risk is maintained for the Site.

2. Address the level of Significant Risk (i.e., cumulative hazard index of 2.7) at the Site for future construction workers posed by exposure to OHM present in surface and subsurface soil, and groundwater within the Former Landfill.
3. Address the exceedances of the UCL for lead in soils within the Former Landfill.
4. Ensure that OHM present in sediment and surface water within the storm sewer which transects the Site and potential OHM infiltration into the storm sewer from Site soil and groundwater does not result in unacceptable human health and/or ecological risk levels.
5. Ensure that OHM present in the waste material and groundwater within the Former Landfill does not migrate to surface water and from groundwater to surface water resulting in unacceptable human health and/or ecological risks.
6. Address the potential ecological impacts to receptors of Site-related OHM in the off-Site North Pond.

1.5 PURPOSE OF REPORT

This Phase IV RIP Report has been prepared in accordance with 310 CMR 40,0874 and provides the engineering design, construction plans and specifications, and OMM requirements for the preferred alternative engineered barrier alternative described in the Phase III RAP. The major components of this report include the following:

- design of the engineered barrier;
- design of stormwater sewer cleaning and lining;
- stormwater management plan;
- construction plans and specifications;
- CQA Plan;
- HASP;
- permits and approvals;
- access and temporary control measures required during the construction period; and

- operation, maintenance, and monitoring (OMM) requirements.

This report includes calculations, drawings, and related documentation in support of the engineered barrier alternative. Technical design specifications and details are provided in the construction specifications and design drawings included in this report.

This report is organized as follows:

Section 1.0	Introduction;
Section 2.0	Proposed Remedial Action;
Section 3.0	Engineering Design;
Section 4.0	Stormwater Management Plan;
Section 5.0	Construction Plans and Specifications;
Section 6.0	Construction Quality Assurance (CQA)Program;
Section 7.0	Health and Safety Plan (HASP);
Section 8.0	Permits and Approvals;
Section 9.0	Proposed Access and Security Controls;
Section 10.0	Operation, Maintenance, and Monitoring (OMM) Plan;
Section 11.0	Activity and Use Limitation;
Section 12.0	Contacts; and
Section 13.0	References.

This report includes the following appendices:

Appendix A	Health and Safety Plan (HASP);
Appendix B	Landfill Design;
Appendix C	Stormwater Management and Drainage Hydraulic Calculations;
Appendix D	Construction Specifications/Drawings;
Appendix E	Construction Quality Assurance Plan;
Appendix F	Permits and Approvals; and
Appendix G	Operation, Maintenance, and Monitoring Plan (OMM Plan).

2.0 PROPOSED REMEDIAL ACTION

The Phase III RAP (CRA, September 2005) determined that the appropriate remedial action alternative was the design and installation of an engineered barrier over the Former Landfill. The primary purpose of the engineered barrier is to prevent direct contact with OHM impacted soil and waste, and secondarily to provide some reduction of the infiltration of precipitation through the soil into groundwater, surface water, and sediment. The engineered barrier consists of a separation layer that is comprised of 4 inches of asphalt and 24 inches of soil, or 48 inches of soil cover and a defining layer. The storm sewer which transects the Site will be cleaned and lined to prevent infiltration. A soil berm also will be constructed with greater than or equal to 48 inches of soil cover along the southern perimeter of the Site, adjacent to Wetland "A".

The engineered barrier remedy also includes groundwater, surface water, and sediment monitoring as part of OMM activities. The engineered barrier remedy includes an Activity and Use Limitation (AUL) that will assist the barrier in achieving a condition of No Significant Risk over the long term. The remedy will achieve a permanent solution/Class A-4 Response Action Outcome (RAO).

The soil berm will extend a mimum of 3 feet above the asphalt barrier surface along the southern boundary of the Former Landfill and will have a 4-ft high wire mesh fence installed on the top of the berm. The berm will be part of the separation layer four feet beyond the limit of waste and then slope at 3 horizontal to 1 vertical (3H:1V) to match the existing embankment grade. The soil berm is designed to minimize potential impacts to buffer zone/wetland areas.

The engineered barrier will be contoured to direct surface water run-off towards existing stormwater management ponds, and away from Wetland "A". The engineered barrier will have an asphalt top layer and which will continue to be used for temporary vehicle parking.

Stormwater management upgrades will also be completed including the rehabilitation of the North Pond.

Additionally, the stormwater sewer system beneath the former landfill will be cleaned and lined to remove impacted material and prevent the potential migration of the OHM. The lining is equivalent to or better than a 4-ft separation layer and unscheduled maintenance and repair activities will be conducted in accordance with the AUL/OMM Plan.

The proposed remedial action for the Site includes long-term monitoring of groundwater, surface water, and sediment quality to ensure the effectiveness of the remedy.

3.0 ENGINEERING DESIGN

This section presents the design for the landfill separation layer, and is organized as follows:

Section 3.1 Design Objectives/Basis;

Section 3.2 Limits of the Separation Layer;

Section 3.3 Contour Design;

Section 3.4 Stormwater Management;

Section 3.5 Separation Layer Components;

Section 3.6 Soil Erosion and Sediment Control; and

Section 3.7 Stormwater Sewer Rehabilitation.

Calculations and information supporting the design of the landfill separation layer are provided in Appendix B. Stormwater drainage hydraulic calculations are provided in Appendix C. Construction specifications/drawings are provided in Appendix D.

3.1 DESIGN OBJECTIVES / BASIS

As required by the MCP and landfill closure policies and guidance, an engineered barrier will be constructed over the Site to achieve the following primary objectives:

- prevent direct human and ecological exposure to OHM impacted soil and waste;
- reduce infiltration into the impacted soil and waste to minimize potential impacts to surface water and groundwater;
- construct an equivalent engineered barrier separation layer around the storm sewer transecting the Site by lining the sewer; and
- maintain a long-term condition of No Significant Risk with the engineered barrier, OMM, and AUL.

Based on the results of the Phase II CSA investigations, applicable guidance and policies, detailed technical evaluations, discussions, and Site visits with the Framingham Conservation Commission (FCC), and discussions the ADESA, the following design criteria were established:

- clearing and grubbing of existing cover;
- proofrolling of the Site prior to barrier construction;
- 100% replication of 4,400 square feet of Wetlands "B" and "C" to be destroyed;
- 2-ft thick soil and 4-inch thick asphalt engineered barrier separation layer;
- upgrading and use of existing Site and Property stormwater management features;
- minimize impacts to Riverfront Areas;
- no net increase in post construction stormwater runoff peak flow discharges from the Site for the 2 and 10-year 24-hour return storm events;
- prevent flooding of on and off-Site areas;
- construction of a vegetated earthen berm along the south side of the Site boundary between the Site and the adjacent Wetland "A" to protect wetlands;
- at least 80 percent total suspended solids removal from stormwater prior to discharge from the Site;
- minimize soil erosion and sediment migration;
- placement of excavated soils within the limits of the engineered barrier; and
- provide a snow management plan.

3.2 LIMITS OF THE ENGINEERED BARRIER

Construction Drawing C-01 presents the existing Site conditions as of June 2005. The Former Landfill will be covered and graded with acceptable non hazardous fill soil from on-Site and off-Site sources. The fill will be graded to cover the landfill and create a subgrade to improve surface water drainage. The separation layer will be placed over the subgrade fill. The engineered barrier extends to four feet beyond the defined limit of OHM impacted soil/waste. Construction Drawing C-02 presents the proposed limits of the engineered barrier.

Lands for the engineered barrier and those required to facilitate construction, OMM, and the AUL are primarily within the boundaries of the Site but also include adjacent lands owned by ADESA.

3.3 CONTOUR DESIGN

The proposed final contours are presented on Construction Drawing C-04.

The design contours maintain a minimum slope of 0.5 percent within the limits of the separation layer. The maximum slope for the landfill separation layer is approximately 20H:1V.

A vegetated earthen berm will be constructed along the southern perimeter of the Site. The berm will extend a minimum of four feet beyond the limit of impacted soil/waste and will have a top elevation of 3 feet above the elevation of asphalt surface of the separation layer. The maximum top of berm elevation is expected to be 171 feet AMSL. The berm will have a maximum side slope of 3H:1V. A 4-ft high wire mesh fence will be installed on the top of the berm.

3.4 STORMWATER MANAGEMENT

Surface drainage from the engineered barrier will be promoted by the minimum 0.5 percent design slope of the separation layer. Surface water will flow on top of the barrier, towards vegetated swales to the northwest, and southeast sides of the Site that will drain into the existing off-Site stormwater ponds. In order to promote drainage and prevent ponding, the minimum slope for the swales has been established at no less than 0.3 percent, with most grades above 0.7 percent. The swales have been sized to collect and convey surface water runoff safely away from the landfill separation layer to the stormwater ponds for up to a 100-year 24-hour return storm event. Surface water from the west side of the Site will flow to the north stormwater management pond and surface water from the east side of the Site will flow to the south stormwater management pond (South Pond). Surface water drainage is further detailed in Section 4.0.

3.5 ENGINEERED BARRIER

As identified in Section 3.1, the engineered barrier will be constructed of 4 inches of asphalt, 12 inches of granular subbase and 12 inches minimum of clean fill placed over the Former Landfill. A small section (approximately 1/3 acre) of the separation layer will not include asphalt or structural subbase but will consist of 48 inches of clean soil in the southwest tip of the landfill and at the cover/berm interface. An existing layer of

clean soil (approximately 12 inches thick) will be incorporated into both separation layer areas.

As detailed in the Phase III RAP, no gas venting layer, low permeability layer, or separation layer for highly toxic materials are required as part of the engineered barrier. The following sub-sections outline the design of each component. In addition, the lining to be installed in the storm sewer is at least equivalent to a 4-ft soil separation layer.

Two railroad spurs that GM owned and operated remain at the Site along the south, north and east boundaries. As part of the remedial action, approximately 100 lineal ft. of loose railroad lines will be removed and disposed of off site. The remaining tracks will be substantially covered with the engineered barrier and identified in the AUL. This containment approach is consistent with the design for the Former Landfill waste and MADEP guidance document: Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails.

3.5.1 ENGINEERED BARRIER PERFORMANCE

The engineered barrier performance is dependent on the installation and maintenance of the barrier as well as the soil berm and stormwater collection system and ponds. Provided the components are installed in accordance with the design and are maintained in a stable and contiguous state in accordance with the OMM Plan and AUL the performance of the barrier will be acceptable over the long term.

3.5.2 SEPARATION LAYER SETTLEMENT

The Site is not expected to significantly settle once the barrier is placed and compacted. The historic waste material appear to be stable since the last waste placement in 1970. A geotechnical assessment of the existing 12-36 inch cover material showed the materials to be competent. In addition, all new fill material will be stabilized if necessary, and compacted to minimize settlement. To mitigate potential settlement issues, existing soils within the Site will be proofrolled with a 30-ton roller prior to construction of the barrier.

3.5.3 COMPONENTS

This components of the engineered barrier are described in this section from the top of the waste material up to the surface of the barrier.

3.5.3.1 EXISTING COVER

Prior to the regrading, the existing ground surface will be cleared and grubbed where necessary. The existing vegetative layer will be stripped and either disposed of off Site (larger stumps) or chipped and used for temporary erosion control on Site during construction. This activity will remove organic material (plants), and small to medium size trees and roots which will interfere with construction and the long-term effectiveness of the remedy.

Following clearing and grubbing, the existing clean landfill cover material (approximately 12 inches thick) will be removed, where necessary, and stockpiled for use in the construction of the barrier. The exposed soil/waste will be proofrolled with a 30-ton roller prior to placement of the engineered barrier.

3.5.3.2 SUBGRADE

The removal of the existing soil cover may temporally expose some areas of the top of waste. To achieve the subgrade contours necessary to construct the engineered barrier and wetland soil fill will be placed and graded to achieve the design grades. Fill material will be obtained from the excavation of stormwater swales and the expansion/rehabilitation of the existing off-Site stormwater pond subject to analytical testing to determine suitability for reuse. The swales and pond expansions are required for the stormwater management plan presented in Section 4.0. The fill material for the subgrade will be dewatered if necessary, and screened to less than 6-inch diameter material, tested, and stabilized (if necessary), prior to placement. The volume of subgrade fill is anticipated to be approximately 8,500 cubic yards. Subgrade fill will be placed in maximum 8-inch lifts and compacted to 95 percent standard maximum dry density (SMDD) when tested in accordance with test method ASTM D 698.

Sub-grade preparation requires surfaces to be smooth and free of unsuitable materials, debris, roots, sticks, and stones larger than 4 inches in diameter prior to placement of the separation layer. Field tests consistent with the Construction Quality Assurance (CQA)

Plan will be conducted to ensure appropriate sub-grade conditions exist prior to placement of the separation layer. The CQA Plan is presented in Appendix E.

3.5.3.3 DEFINITION LAYER

The definition layer is required to identify the barrier/waste interface, should the engineered barrier be disturbed during any future intrusive activities. A definition layer will be placed to delineate the clean separation layer from historical/impacted soil and waste. The definition layer will be a orange construction fence or suitable alternate (e.g., geotextile or warning tape) and will extend four feet horizontally beyond the limit of waste.

3.5.3.4 CLEAN SOIL

A layer of clean common fill soil consisting of a minimum 12 inches of soil will be installed directly on the definition layer. The soil will be obtained from the stockpiled existing cover initially removed from Former Landfill surface. Additional clean soil will be imported as necessary to bring the subgrade up to construction grades. In the south western corner of the Former Landfill, 48 inches of cover soil will be installed in lieu of a 2-ft soil layer and a 4-inch asphalt layer. Clean soil will also be used for construction of the earthen berm along the southern perimeter of the landfill. The earthen berm will be a component of the engineered barrier that extends four feet beyond the limit of waste and will be of sufficient thickness to satisfy the engineered barrier requirement.

Approximately 8,000 cubic yards of clean soil is required to construct the 12-inch clean soil portion of the engineered barrier. The clean soil will be free of unsuitable materials such as foreign matter, materials containing swelling clay, rocks larger than 6 inches, and debris.

The clean soil will be uniformly placed in two lifts on top of the subgrade layer at the same slopes as the sub-grade contours. The soil will be compacted to at least 95 percent of SMDD. The compacted thickness will be at least 12 inches.

Installation and on-Site testing of the clean soil layer will be completed consistent with the technical specifications and CQA Plan. Soil erosion measures will be maintained in place prior to, and following placement of the soil layer.

3.5.3.5 ASPHALTIC SUBBASE

The asphaltic subbase and base layers will be installed over the clean compacted soil layer. In accordance with the Massachusetts Highway Department (MHD) Standard Specifications for Highways and Bridges, the subbase course will consist of 4 inches of crushed stone (Type M2.01.7, Sections 400 and 402 of MHD Standard Specifications for Highway and Bridges) overlying the base course consisting of 8 inches of gravel (Type C, Sections 400 and 401 of MHD Standard Specifications for Highways and Bridges). The subbase and base layer will extend four feet beyond the limit of waste.

3.5.3.6 ASPHALTIC PAVING LAYER

The upper component of the engineered barrier will be an asphalt top layer. A small section of former landfill will not be paved and will instead be covered with soil as discussed in Section 3.5.3.4.

The asphalt paving will consist of a 2-inch binder course (Type J-1, Sections 460 MHD Standard Specifications for Highway and Bridges) and a 2-inch top course (Type J-1, Sections 460 MHD Standard Specifications for Highway and Bridges).

The asphaltic paving will cover the subbase and where required along the north and east sides of the landfill will extend further to overlap with existing asphalt paved or concrete surfaces.

3.5.3.7 TOP SOIL

Top soil will be placed over the small section of the engineered barrier that will not be paved and the earthen berm along the southern Site boundary.

A 6-inch layer of topsoil will be placed over the cover soil/berm layer to support a vegetative cover. This will require approximately 100 cubic yards of topsoil. Additional topsoil may be required to restore disturbed areas outside of the landfill cover system including the perimeter drainage ditches.

Topsoil will have the following general characteristics:

A. topsoil shall be a loam with 2 to 10 percent by volume organic matter;

B. have an approved natural source and/or formulated method;

C. be suitable for use as a seedbed as approved after specified soil testing;

D. be able to support vigorous plant growth;

E. be free of any agricultural herbicides or any other substances that may be injurious to plant health; and

F. be free of unsuitable materials including but not limited to:

   1. trees, stumps, branches, or any other wood or lumber,
   2. sod, leaves, roots, or any other large or undecayed organic matter,
   3. 25 millimeter or larger cobbles, rock, or masonry,
   4. wire, steel, cast iron, cans, drums, or any other metals,
   5. foreign matter including rubber, plastic, refuse, asphalt, and construction debris, and
   6. contaminated or toxic matter.

3.5.3.8 VEGETATIVE LAYER

In non-paved areas, the vegetative layer is integral in maintaining the long-term effectiveness of the remedy. The vegetative layer will serve to:

i) stabilize the topsoil against erosion due to runoff and wind;

ii) minimize percolation of precipitation;

iii) maximize evapotranspiration of soil moisture; and

iv) increase the aesthetic value of the engineered barrier and earthen berm.

The vegetation of the separation layer shall be undertaken with seed mixes selected from the Massachusetts Erosion and Control Guidelines for Urban and Sub-urban Areas, as outlined in the construction specification.

These measures will be implemented during construction, and as required until final vegetation has been established.

3.6 SOIL EROSION AND SEDIMENT CONTROL

3.6.1 TEMPORARY CONTROLS

Requirements and locations for erosion and sediment control during cap construction activities are provided in the Construction Drawings. Erosion and sediment control during construction will be provided by silt fences around the perimeter of construction activity. Along the southern edge of the earthern berm, heavy duty silt fence (or appropriate alternative) will be installed along a 1-2 foot bench to along the existing embankment to protect Wetland "A". The contractor will be responsible for erosion and sediment control during all construction activities. An Erosion and Sediment Control Plan will be developed by the Contractor and submitted to GM/CRA prior to construction.

Existing vegetation around the perimeter of the work area will be left undisturbed where possible to act as a barrier between the construction zone and the downgradient fence-line.

Guidelines for the Erosion and Sediment Control Plan include temporary measures, such as:

i) the installation of silt fences around the perimeter of the Site and in areas downstream of grading activities, to contain sediments within work areas; and

ii) the installation of check dams (silt fencing, filter soxes, wood/rock barriers etc.), to prevent the migration of excess sediments from source areas.

These measures will be implemented while construction is ongoing, and as required until final vegetation has been established.

The cover soil and topsoil stockpiles will be managed to reduce the potential for dust or erosion due to stormwater runoff.

Dust will be controlled through the use of water during dry periods.

3.6.2 PERMANENT CONTROLS

Peak surface water runoff from the engineered barrier is estimated to be 2,527 cubic feet/sec during a 10-year, 24-hour storm event generating 5,340 cubic feet of precipitation. The stormwater runoff analysis is described in Section 4.0.

Along all vegetated side slopes (i.e., berm and swales), erosion control blankets will be installed to minimize soil loss.

The effect of stormwater runoff on the soils of the drainage ditches around the perimeter of the engineered barrier was assessed for erosion potential based on scour velocity exceedances. Turf reinforcement matting will be used to protect the ditches until the grass lining is well established. The design analysis for the drainage system is presented in Appendix C.

In accordance with the Notice of Intent (NOI) submitted to the FCC, the final condition sediment controls include maintenance sweeping of the paved areas to remove accumulated dust and dirt on a regular basis. Rock check dams will be constructed in the drainage swales to minimize the quantity of sediments transported to the stormwater ponds. Periodic maintenance will be performed to remove accumulated sediments from the drainage ditches.

3.7 STORMWATER SEWER REHABILITATION

The storm sewer which transects the Site was inspected by video camera and observations in manholes. A detailed description of the storm sewer features is provided in the Phase II CSA Report. The sediment, rocks, rubble, and debris in the sewer will be removed by water jetting and vacuum truck removal. The accumulated materials will be temporarily stockpiled and characterized to determine whether it can be placed on Site beneath the engineered barrier or requires transportation and off-Site disposal.

After cleaning the storm sewer will be lined with an epoxy resin lining and/or resin impregnated tubing. The manholes also will be lined and extended to surface grade of the engineered barrier. The lining has a low permeability and is at least equivalent to the MADEP Guidance requirement of installing a 4-ft separation barrier around a utility.

Scheduled and unscheduled maintenance and repair as well as monitoring of the storm sewer system will be conducted in accordance with the OMM Plan and the AUL.

4.0 STORMWATER MANAGEMENT PLAN

4.1 PURPOSE

The design and permitting of the stormwater management system for the Site are based on calculations of Site stormwater runoff. These calculations were completed by using a Stormwater Management Model (SWMM) of the Site and surrounding areas. To meet permitting requirements, models of both the existing conditions and the post-construction condition were developed. The Site models quantified the runoff for the 2-year, 10-year and 100-year 24-hour duration rainfall events. The proposed design was modified so that the "post-development" conditions, including the effects of storage in the retention ponds, did not result in an increase in peak discharge flows for the 2, 10, and 24-hour return storm event in comparison to existing conditions. The design also attenuates peak flow for the 100-year 24-hour storm and minimizes potential on and off-Site flooding. The upgrades to Site stormwater management will improve stormwater collection and discharge from the Site in comparison to current conditions.

4.2 HYDROLOGIC MODELING

Stormwater runoff conditions were quantified using SWMM modeling. The SWMM model used was a variant of the U.S. EPA SWMM 4.4h. The model calculates how the rainfall event causes runoff, and how that runoff flows across the Site. For this Site, both the "Runoff" and "Extran" modules were used.

The Site is characterized as a series of sub-catchments within the model. The sub-catchments are homogeneous in terms of slope, surface, infiltration, and other hydrologic characteristics. Surface roughness was selected based on other calibrated models with similar surfaces. Typically, runoff is collected in a series of channels that eventually drain to the Site outlet (or outlets). Sub-catchments typically drain to a channel but in some cases a sub-catchment may drain as surface flow to a second sub-catchment. On this Site, most sub-catchments drain via surface flow to another sub-catchment, with only a final channel and piping flowing to the ponds.

Rainfall was characterized as a single synthetic 24-hour event. As found with previous modeling and calibrated with measured runoff volumes for sites with similar surface and slope conditions, zero-infiltration was assumed with 0.3" initial abstraction. These conditions maximize runoff in a model, provide realistic hydrographs and discharges, and provide conservative predictions.

4.2.1 SITE CONDITIONS

The surface of the Site consists of a relatively level, hard-packed gravel lot that has been used for at least 10 years for the temporary parking of vehicles. This lot was part of a larger former vehicle assembly plant, some of which has been decommissioned and demolished leaving slabs or other open areas on the north side of the Site.

The Site was delineated for hydrologic modeling by a visual examination and detailed topographic surveying. The drainage sub-catchments and drainage paths and channels were delineated using digital contouring of a detailed topographic survey of the Site. The digital contouring reveal flow patterns across what otherwise appears to be a flat Site. The contour map, as presented on Figure 4.1, shows the bumps, dips, and swales of the existing surface of the Site, and how the stormwater runoff currently flows across the Site.

The open area to the east of the Site was previously paved and drains to a stormwater pond, the "South Pond", at the southeast corner of the Site. The former slab to the north of the Site drains to its southwest corner, and then westward to a second stormwater pond, the "North Pond". The North Pond is at the northwest corner of the Site. The North Pond drains to the Beaverdam Brook through the storm sewer that connects Wetland "A" to Beaverdam Brook.

On the south, the Site is bounded by an abandoned railroad spur. A small amount of stormwater or snow melt drains through the trackage into Wetland "A" to the south. The wetland drains to the north through the storm sewer which transects the Site and is located beneath the North Pond into Beaverdam Brook. At the southwest, and west, the Site is bounded by a mainline railroad trackage, and a second abandoned railroad spur. Water draining on the Site towards the southwest, ponds in the southwest corner of the Site. A large portion of the runoff from the Site primarily drains into the North Pond.

Under existing conditions, most of the stormwater drains from the Site. Other small amounts of stormwater either evaporate or infiltrate through the railroad tracks to the south. The Site is hard-packed dirt and gravel and it is likely that nominal stormwater infiltrates through this material.

The proposed design includes an earthen berm along the south edge of the Site, and contouring the Site so the approximate eastern third of the Site would drain to the South

Pond. The remaining two-thirds of the Site will continue to drain to the North Pond. The stormwater collection, retention, and discharge features will be upgraded to contain the stormwater and to provide water quality improvements. Under the proposed conditions all the stormwater would continue to ultimately discharge to Beaverdam Brook.

The remedy construction will cause some changes in flow paths, the rate of runoff and the volumes of water flowing to each of the ponds. Therefore, some changes to the outlets of the two ponds are proposed that will due to off-Site stormwater discharge effects.

In addition to the runoff-hyrograph calculations completed within the SWMM modeling, spreadsheet calculations of the performance of the pond outlets were completed. The outlet performance calculations were used to determine the dimensions of the upgraded outlet pipes and restrictor plates to be placed on the outlet pipes. The outlet control assures that the final discharge hydrographs from the South Pond to Wetland "A" and from the North Pond to Beaverdam Brook for the proposed post-development conditions are the same or of a lesser intensity than for existing conditions.

4.2.2 MODELING RESULTS FOR PRE-DEVELOPMENT AND POST-DEVELOPMENT SITE CONDITIONS

The depths of rainfall used for the design storm events are based on published precipitation data and are listed in Table 1 in Appendix C. Model sub-catchment characteristics for existing conditions are listed in Table 2 in Appendix C. Model sub-catchment characteristics for the proposed post-development conditions are listed in Table 3 in Appendix C. The sub-catchments for post-development conditions are different from those for existing conditions, and a direct comparison of values from same-numbered sub-catchments can not be made.

Calculated runoff volumes from each of the sub-catchments for existing conditions are listed in Table 4 in Appendix C. Calculated runoff from each of the sub-catchments for the proposed post-development conditions are listed in Table 5 in Appendix C.

Calculated runoff hydrograph peak discharges for existing and proposed post-development conditions are listed in Tables 6 and 7 in Appendix C.

4.3 OFF-SITE DRAINAGE

Calculated inflow and outflow from the North and South retention ponds for existing conditions are listed in Tables 8A and 8B in Appendix C. Calculated inflow and outflow from the ponds for proposed post-development conditions are listed in Tables 9A and 9B in Appendix C.

The "Inflow Discharge" provided in Tables 8A, 8B, 9A, and 9B, show the instantaneous peak discharge of stormwater into a pond. On these tables, the column labelled "Controlled Discharge" is the discharge from the pond flowing through the outfall structures and pipes; the column labelled "Surcharge (Overflow) Discharge" is the flood discharge from the pond overflowing the ponds through the "100-year" or emergency outfalls.

For both ponds, during the 2-year and 10-year design rainfall events, all the discharge from the ponds flows through the outfall structures and pipes. The outfalls attenuate the instantaneous peak discharge. Comparison of peak discharges for existing and proposed post-development conditions for the North Pond and South Pond are shown in Tables 10A and 10B. The South Pond calculated 2-year and 10-year peak discharges (1.3 cfs and 2.2 cfs) for proposed post-development conditions are less than the discharges (1.7 cfs and 2.3 cfs) for the same events under existing conditions. The proposed post-development conditions direct additional stormwater to the South Pond to meet the discharges outlined above. The outfall structure for the South Pond will be modified to more effectively attenuate the 2-year and 100-year rainfall events.

Design of the North Pond outfall went through several iterations. Initially, based on available drawings detailing the existing historical Site conditions it was believed that there was no outfall other than emergency overflow from either of the two portions of the North Pond, noting that the outfall pipe from Wetland "A" is beneath the North Pond. On-Site inspection did not reveal any obvious outfalls. However, due to review of additional drawings not previously available it was determined that there were outlet pipes from each side of the North Pond into the sewer that connects Wetland "A" to Beaverdam Brook. These pipes are in fact the outfall drains for the North Pond. Modeling for proposed post-development conditions assumed the pipes to be in working order and draining to Beaverdam Brook. The proposed construction of the North Pond includes re-constructing the drainage pipes and the manhole junction with the Wetland "A" storm sewer pipe. The capacity of the wetland pipe was verified to be

sufficient to convey all flows, even without consideration of the relative timing of the flood peaks from near and distant catchments.

Both ponds are designed to continue overflow during the 100-year rainfall event. However, because of the geometry of the ponds and of the Site, there will not any additional flooding of the Site or off-Site areas. Overflow discharge of the North Pond will be less in the proposed post-development conditions.

Therefore, the design of the remedy will result in post-development peak discharge rates that do not exceed pre-development peak discharge rates.

The overall design of the stormwater management system also provides a minimum of 80 percent removal of total suspended solids prior to stormwater runoff from the Site.

4.3.1 DRAINAGE SWALES

Vegetated drainage swales will be constructed to convey stormwater to the north and south ponds and increase total suspended solids removal. These swales have been designed to convey stormwater from a 100-year event. Rock check dams will be constructed in the swales to reduce sediment tra**n**sport and increase total suspended solids removal.

4.3.2 NORTH POND MAINTENANCE

The existing north pond will be rehabilitated by removing accumulated sediments and repairing/replacing outlet piping. The north pond will also be expanded to accommodate the design runoff flow for the 10-year 24-hour storm event.

5.0 CONSTRUCTION PLANS AND SPECIFICATIONS

The following design drawings, presented in Appendix D.1, were developed to meet the requirements of the (i.e., preferred alternative Engineered Barrier Alternative) identified in the Phase III RAP (CRA, September 2005):

- Drawing 1 Existing Conditions
- Drawing 2 Site Works
- Drawing 3 Proposed On-Site Excavated Spoils Placement Plan
- Drawing 4 Proposed Grading Plan
- Drawing 5 Proposed Cap Sections
- Drawing 6 Proposed Cap Details
- Drawing 7 Soil Erosion And Sediment Control Plan
- Drawing 8 Soil Erosion And Sediment Control Details
- Drawing 9 Miscellaneous Details
- Drawing 10 North Pond Existing Conditions
- Drawing 11 North Pond Proposed Grading Plan
- Drawing 12 North And South Pond Details
- Drawing 13 Storm Sewer Alignment

In addition to the design drawings, project specifications were developed to detail exact requirements, technical details, regulatory requirements, etc. to construct the remedy in accordance with the MCP and associated regulations. The specifications for the Site, presented in Appendix D.2, are:

- Section 01100 Summary
- Section 01200 Price And Payment Procedures
- Section 01300 Administrative Requirements
- Section 01351 Health And Safety
- Section 01400 Quality Requirements
- Section 01500 Temporary Facilities And Controls
- Section 01571 Temporary Soil Erosion And Sediment Control

- Section 01600 Product Requirements
- Section 01700 Execution Requirements
- Section 02117 Material Handling And On-Site Transportation
- Section 02120 Loading, Off-Site Transportation, And Disposal
- Section 02161 Solidification And Stabilization
- Section 02200 Site Preparation
- Section 02316 Fill
- Section 02317 Excavation
- Section 02370 Permanent Erosion And Sedimentation Control
- Section 02740 Flexible Pavement
- Section 02821 Fences And Gates
- Section 02841 Guide Rail
- Section 02921 Hydroseeding
- Section 02957 Sewer Rehabilitation

6.0 CONSTRUCTION QUALITY ASSURANCE (CQA) PROGRAM

The Construction Quality Assurance (CQA) Program forms part of the Action Plan for the former landfill at the Site. The technical specifications provide the detailed inspection and testing required for the Construction Quality Control (CQC) program for the remedial construction activities. The CQA Program is designed to provide comprehensive review of all CQC activities as well as independent third party inspections and testing to verify the CQC program is implemented in accordance with the RIP.

6.1 PURPOSE AND ORGANIZATION OF CQA PROGRAM

The CQA Program presents the quality assurance program to be used during implementation of the Remedial Action at the Site. The purpose of the CQA Program is to ensure that the Remedial Action construction activities meet or exceed all design criteria, plans, and specifications and that the Contractor's Quality Control (QC) program is performed as required by the Construction RIP. Long-term operation, maintenance, and monitoring requirements for the Site are identified in the Operation, Maintenance, and Monitoring (OMM) Plan presented in Section 8.0.

6.2 PROJECT DESCRIPTION

The CQA Program applies to all remedial construction activities. The major construction components of the Remedial Action for the Site include the following:

i) clearing of vegetation;
ii) rehabilitation of stormwater management ponds;
iii) construction of stormwater conveyance ditches;
iv) storm sewer cleaning and lining;
v) construction of engineered barrier (including subgrade) and earthen berm; and
vi) vegetation of the berm, exposed soil, and stormwater ditches.

Detailed requirements for the Contractor's CQC are detailed where required in the specifications presented in Appendix D.2.

6.3 QA INSPECTION AND TESTING ACTIVITIES

6.3.1 SCOPE

Throughout the remedial action, there will be continuous field inspections and testing requirements for specific work tasks. The field inspection and testing activities will ensure compliance with the RIP as presented in the design specifications and drawings, as well as ensure completion of the work according to the designated QA/QC requirements.

Field inspections and testing will provide a qualitative and quantitative means of monitoring the quality and progress of work performed.

The components of each work task that will require construction quality control (CQC)/CQA field inspection or testing are as follows:

i) Construction Facilities and Temporary Controls

- Site support area; and
- Personnel and equipment decontamination facilities.

ii) Construction of Separation Layer

- Sediment and erosion controls;
- Clearing, grubbing, and proofrolling;
- Removing 12-inch existing cover soil for reuse;
- Removal of stormwater pond sediment, testing and stabilization, if required;
- Placement of fill and grading;
- Placement of 12-inch soil layer;
- Placement of asphalt subbase layer;
- Placement of asphalt layer;
- Surveying; and
- Re-vegetation, restoration, and landscaping.

iii) Stormwater Sewer Cleaning and Rehabilitation

- Cleaning;
- Manhole installation/upgrade; and
- Lining.

6.3.2 FIELD INSPECTIONS

Field inspections will be completed throughout construction by the Engineer, CQA Officer and/or CQA support personnel.

The CQA Officer has the primary responsibility for performing and documenting all QA inspection activities. The CQA Officer may delegate certain tasks to support personnel, if prior approval from the Engineer is obtained.

The inspections will examine the following:

- quality of workmanship;
- conformance of materials with specifications;
- conformance with specified lines, grades, and elevations;
- conformance with specified material quantities and thicknesses; and
- conformance with required handling procedures.

Documentation of all QA inspection activities will be included in the CQA Officer's log book. Specific observations and results will be documented and attached to the Daily Construction QA Reports.

Any inspection failures, conformance problems, or other concerns will be reported immediately to the Engineer.

The specific inspection activities, frequencies, conformance standards, and documentation requirements are summarized in Table F1 in Appendix F.

The Licensed Site Professional (LSP) of Record will conduct inspections as required to review and verify that remedial construction activities are being conducted in accordance with the RIP and applicable provisions of the MCP.

6.3.3 TESTING

In addition to the above mentioned inspections, field and laboratory testing will be performed to ensure compliance with material specifications, performance standards, and design criteria.

The CQA Officer has the primary responsibility for conducting and documenting all QA testing activities. The CQA Officer may delegate certain tasks to support personnel, if prior approval from the Engineer is obtained.

Documentation of all QA testing activities will be included in the CQA Officer's log book. Testing results will be documented and attached to the Daily Construction QA reports.

Any test failures, performance problems, or other concerns will be reported immediately to the Engineer.

The specific testing activities, methods, frequencies, performance standards, and documentation requirements are summarized in Table E2 in Appendix E.

6.4 CQA DOCUMENTATION

6.4.1 GENERAL

This section describes the documentation requirements for the CQA activities. The proper, thorough, and accurate documentation of all CQA activities is important to verify that the Remedial Action was completed according to the plans and specifications.

CQA documentation shall consist of daily records, construction problem identification and resolution reports, photographic records, design and specification revisions, weekly progress reports, and a final report. All records shall be maintained at the Site by the CQA Officer, and copies submitted to the Engineer.

6.4.2 DAILY RECORDS

At a minimum, daily records shall consist of field notes, summaries of daily meetings with the Remedial Action Contractor, observation and data sheets, and construction problem and resolution reports.

The CQA Officer will record daily QA activities on observation and data sheets. The observation and data sheets shall include the following information:

- date, time, and weather conditions;
- description of ongoing construction and inspection activities;
- a reduced scale Site plan showing work area, including test locations for each work day;
- a summary of test results identified as passing or failing; or in the event of a failed test, retest results;
- test equipment calibrations, if applicable;
- off-Site materials received and approvals given;
- a summary of decisions regarding acceptance of the work and/or corrective actions taken;
- submittals made by suppliers verifying material quality;
- CQC and CQA quality control test and inspection results;
- construction delays/causes and areas affected;
- QA personnel on Site;
- QA equipment on Site;
- record of instructions given by the Engineer;
- record of changed conditions/conflicts encountered;
- contractor's crew size, equipment, and hours worked; and
- signature of CQA Officer.

6.4.3 CONSTRUCTION PROBLEM/CORRECTIVE ACTION REPORTS

This report shall identify and document construction problems and corrective actions taken. The purpose is to document problems involving rework required to meet the limits and criteria defined in the specifications or by the judgment of the CQA Officer,

Engineer, Project Manager, or LSP. At a minimum, this report shall include the following information:

- detailed description of the problem;
- location and likely cause of the problem;
- how and when the problem was identified;
- estimation of how long the problem has existed;
- plan for corrective action;
- description of the implementation of the corrective action;
- verification and effectiveness of the corrective action;
- suggested methods to prevent similar problems; and
- signature of CQA Officer.

6.4.4 WORK CHANGE PROCEDURE

The Work Change Procedure will be implemented if a significant change in the design is required during construction. The Work Change Procedure shall be as follows:

- detailed description of reason for work change;
- detailed description of work change, including specifications, design drawings, and CQA information, as required;
- submission of work change to GM for approval; and
- implement work change.

6.4.5 PHOTOGRAPHS

A photographic record of construction activities, including significant problems and corrective actions shall be maintained by the CQA Officer. Photographs shall be identified by location, time, date, and individual photographer. One copy of the photographs shall be given to the Engineer on a weekly basis, or more frequently if necessary. The CQA Officer shall also keep a complete set of photographs at the Site.

6.4.6 WEEKLY PROGRESS REPORTS

The CQA Officer shall prepare weekly progress reports summarizing construction and CQC/CQA activities. The report shall be submitted to the Engineer and will be included in progress meeting minutes for distribution. At a minimum, weekly progress reports shall include the following information:

- date, project name, and location;
- summary of work and CQC/CQA activities for the week;
- summary of deficiencies and/or defects and resolutions; and
- signature of CQA Officer.

6.4.7 FINAL REPORT

Upon completion of the Remedial Action construction, the CQA Officer shall submit a report to the Engineer that summarizes the CQA activities performed during the construction. The report shall contain, at a minimum, the following information:

- summary of all quality assurance activities;
- complete set of observation and data sheets and field notes;
- complete set of construction problem/corrective action reports;
- complete set of construction photographs; and
- sampling, inspection, and testing location plans and results.

6.4.8 AS-BUILT CONSTRUCTION REPORT AND FINAL INSPECTION REPORT

Upon completion of remedial construction activities, an As-Built Construction Report and Final Inspection Report will be prepared and submitted to MADEP. The As-Built Construction Report will include detailed documentation of the construction activities, CQC/CQA inspections and testing activities, any significant design modifications, and as-built drawings. The Final Inspection Report will include a description of the final inspection activities and findings, and a list of permits and approvals obtained related to the design, construction, and operation of the remedial action. Both reports will be submitted to MADEP along with a Phase IV Completion Statement.

6.4.9 STORAGE OF RECORDS

During construction, the Engineer shall maintain on-Site copies of the plans and specifications and any construction reports and CQC documentation submitted by the Remedial Action Contractor. The CQA Officer shall maintain on-Site copies of the above-mentioned CQA documentation.

Following construction, GM shall maintain the plans and specifications, as-built drawings, construction reports, CQA reports, and any other submittals until the As-Built Construction Report and Final Inspection Report have been completed and a RAO Completion Statement submitted to MADEP.

7.0 HEALTH AND SAFETY PLAN (HASP)

The Health and Safety Plan (HASP) presented in Appendix A describes the health and safety procedures and emergency response guidelines to be implemented during construction oversight activities for the Remedy Implementation activities for the Site.

Site personnel and visitors must comply with the Remedial Construction Contractor's HASP during all construction activities. The selected Contractor will prepare a HASP for the construction activities in conformance with the requirements detailed in the specifications presented in Appendix D.2.

7.1 PURPOSE

The purpose of this Site-specific HASP is to provide specific guidelines and establish procedures for the protection of personnel performing contractor oversight and sampling activities as described in Section 2.0 Site Operations. The information in the HASP has been developed in accordance with applicable standards and is, to the extent possible, based on information available to date. This HASP is intended to be a living document in that it must continually evolve as Site conditions and knowledge of the Site work activities develop further. Continual updating of the HASP, based upon consistent monitoring and implementation of the HASP adjustments, will provide for the required results.

A vital element of the HASP requires the following measures:

i) communication of the contents of this HASP to Site personnel;

ii) elimination of unsafe conditions. Efforts must be initiated to identify conditions that can contribute to an accident and to remove exposure to these conditions;

iii) reduction of unsafe acts. Personnel shall make a conscious effort to work safely. A high degree of safety awareness must be maintained so that safety factors involved in a task become an integral part of the task; and

iv) frequent inspections. Regular safety inspections of the work Site, materials, and equipment by qualified persons ensure early detection of unsafe conditions. Safety and health deficiencies shall be corrected as soon as possible, or project activities shall be suspended.

The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated shall result in the removal of Site personnel from that area and reevaluation of the hazard and the levels of protection.

7.2 PERSONNEL REQUIREMENTS

All personnel conducting activities at the Site for which a reasonable potential exposure exists must be in compliance with all applicable Occupational Safety and Health Administration (OSHA) regulations, to include but not limited to 29 CFR 1910, 29 CFR 1926, and CRA polices and procedures. Project personnel must also be familiar with the procedures and requirements and comply with the HASP, the Health and Safety specification, and the Contractor's HASP (based on the Health and Safety specification). In the event of conflicting safety procedures/requirements, personnel must implement those safety practices, which afford the highest level of safety and protection.

7.3 ELEMENTS OF HASP

The elements of the HASP are as follows:

i) project management and safety organization;

ii) training and medical surveillance requirements;

iii) Site control;

iv) Site operations;

v) hazard evaluation;

vi) personal protective equipment (PPE);

vii) air monitoring;

viii) decontamination; and

ix) emergency response.

This HASP details all the elements required to safely oversee construction activities. The Contractor's HASP will be developed to meet all construction-related health and safety requirements as detailed in the Health and Safety specification.

8.0 PERMITS AND APPROVALS

In August 2005, MADEP issued an Amended NON which required a RAO completion statement to be submitted by January 1, 2006. In September 2005, MADEP issued notification of presumptive approval of the Tier 1C Permit Application and a Permit expiration date of September 23, 2007.

The following are a list of recent submittals and agency approvals/permits for the Site:

August 03, 2004	Tier II Reclassification Extension
August 03, 2004	Phase II CSA Notice of Intent Wetlands and Waterways
August 31, 2004	Phase II CSA Notice of Intent Supplement Report
September 22, 2004	Notice of Intent approved by the FCC
September 27, 2004	Phase II Comprehensive Site Assessment Work Plan
October 1, 2004	FCC/MADEP Order of Conditions
April 06, 2005	Interim Phase II CSA Report (Wetland Delineation Report) and Phase II CSA Work Plan Addendum No. 2
July 05, 2005	Phase IV CSA Notice of Intent Wetlands and Waterways
July 29, 2005	Interim Phase II CSA Report
August 10, 2005	FCC/MADEP Order of Conditions
August 29, 2005	Final Phase II CSA Report/Tier 1C Permit Application
August 2005	MADEP notification of receipt of Permit Application
September 26, 2005	MADEP notification of Permit approval

The Comprehensive Response Actions for the Site have been conducted in accordance with the Public involvement requirements specified in CMR 40.1400 as presented in Section 1.4 of the Interim Phase II CSA Report (CRA, July 2005).

The required public notification process has been followed for all submittals to date. Previous public notification are presented in the Interim and Final Phase II CSA and the Phase III RAP. Certain public notices are required by the MCP for the implementation of Comprehensive Response Actions. The previous notices provided to local officials [(Chief Municipal Officer (CMO) and the Board of Health (BOH)], the public by notices

published in the Metro West Daily News, and the Environmental monitor are described and copies of the notices are provided in previous Phase I/II and III submittals. Certain public notices also are required for the Phase IV RIP activities. An additional notice has been completed to inform the CMO and BOH of the purpose, nature, and extent of Phase IV field activities, as well as the expected level of protection for Site workers. A copy of the Phase IV notification is provided in Appendix F.

9.0 PROPOSED ACCESS AND SECURITY CONTROLS

Access and security controls exist at the Property to prevent trespassers from gaining access to the Site. A description of the security controls to be maintained during remedial construction activities include:

- routine patrols;
- tracking and escorting of all visitors;
- secured Property access, via the entrance at ADESA G 4 and the exit via ADESA Gate 3, as presented on Figure 9.1; and
- Site perimeter construction fencing.

10.0 OPERATIONS, MAINTENANCE AND/OR MONITORING (OMM)

A Site-specific Operation, Maintenance, and Monitoring (OMM) Plan has been developed to ensure the safe and effective implementation of operation and maintenance activities for the engineered barrier alternative.

The OMM Plan has been developed to maintain the integrity and effectiveness of the remedial action. The OMM Plan will include regular inspections, routine and unscheduled maintenance, repair of damaged areas, environmental monitoring, reporting, and the AUL provision required to maintain a condition of No Significant Risk.

The draft OMM Plan is provided in Appendix G and will be revised, if necessary, and finalized upon the completion of remedial construction activities.

11.0 ACTIVITY AND USE LIMITATION

11.1 NOTICE OF ACTIVITY AND USE LIMITATION

A Notice of AUL will be prepared and implemented for the Site in accordance with the MCP. Upon completion of remedial construction activities, GM will sell the Site property to ADESA. A draft Notice of AUL is provided with the OMM Plan in Appendix G. The Final OMM Plan will include a copy of the final AUL. The AUL is required for the Site since OHM remains at the Site and the risk characterization used to support the Class A-4 RAO and the RAO are based upon the restriction or limitations of Site activities and uses required to maintain the Permanent Solution for a level of No Significant Risk. The AUL has been developed in accordance with the MCP and the Guidance on Implementing AULs, Interim Final Policy BWSC 99-300 (MADEP, May 1999).

The permitted activities and uses set forth in the AUL Opinion will include:

- vehicular parking and vehicular traffic which do not compromise the structural integrity of the pavement and/or disturb contaminated soil located beneath the asphalt cover;
- excavation associated with emergency or short term (three months or less) underground utility (i.e., the storm sewer connecting Wetland "A" to Beaverdam Brook) and/or construction work, provided it is conducted in accordance with a Soil Management Plan and a HASP and involve repair and replacement of asphalt cover with a comparable barrier immediately following the completion of the project;
- activities and uses which are not identified by the AUL as being inconsistent with maintaining a condition of No Significant Risk; and
- any other activities and uses which in the opinion of a LSP shall present no greater risk or harm to health, safety, public welfare, or the environment than the activities and uses set forth in this paragraph.

The activities inconsistent with the AUL Opinion will include:

- use of a portion of the property as a residence, school (except adult education), daycare, nursery, recreational area, and/or any other use at which a child's presence is likely;

- any activity including, but not limited to excavation of pavement and removal of the asphalt cover, which is likely to disturb contaminated soil located below the engineered barrier (asphalt cover), associated with underground utility (i.e., the storm sewer connecting Wetland "A" to Beaverdam Brook) and/or construction work, without prior development and implementation of a Soil Management Plan and a HASP; and
- any activity which is likely to disturb contaminated soil located beneath the engineered barrier (asphalt cover) for a period of time greater than three months, unless such activity is first evaluated by an LSP who renders an opinion stating such activity is consistent with maintaining a condition of No Significant Risk.

The obligations and conditions for certain permitted uses as provided by the AUL include a Soil Management Plan which must be prepared by a LSP and a HASP, prepared or reviewed by a Certified Industrial Hygienist (CIH) prior to commencement of any activity which is likely to disturb contaminated soil below the engineered barrier. Contaminated soil located below the engineered barrier, must remain and may not be relocated, unless such activity is first evaluated by an LSP who renders an opinion which states that such activity poses no greater risk of harm to health, safety, public welfare or the environment and ensures that a condition of No Significant Risk is maintained.

11.2 FINANCIAL ASSURANCE

The OMM Plan is required to document that one or more financial assurance mechanisms have been established and adequately provide for future monitoring, maintenance, and any necessary replacement of the engineered barrier. Consistent with the MADEP Draft Engineered Barrier Guidance, the amount of funds should be as determined by the LSP based upon a site-specific, present-worth analysis of funding needs to implement the post-construction activities plan. The guidance stipulates that, in general, at a minimum, this estimate should provide for:

- at least $30,000 (total) as a one-time allocation for a yearly inspection and monitoring program; and
- at least $50,000 per acre (or portion thereof) as a one-time allocation, to be available for scheduled or needed maintenance or repair activities; and

- at least $20,000 as a one-time allocation for a groundwater/soil gas monitoring program, if needed.

Based on this approach, the Site, therefore, requires, at a minimum, financial assurance totaling $300,000.

A Site-specific present worth analysis of the funding required for the OMM Plan activities for a 30-year period was conducted as part of the Phase III RAP. Based on that analysis, the financial assurance required is $1,700,000 for the following OMM activities:

- periodic inspections and inspection documentation;
- routine and unscheduled maintenance and repair of the engineered barrier, lined storm sewer, Stormwater Management System, and other Site features and controls; and
- groundwater, surface water, and sediment monitoring and reporting.

In accordance with the MADEP Draft Engineered Barrier Guidance, the options available as instruments of financial assurance are as follows:

- Post-Construction Trust Fund;
- Surety Bond guaranteeing payment into a Post-Construction Trust Fund;
- Surety Bond guaranteeing performance of post-construction care;
- Post-Construction Letter of Credit; and/or
- Post-Construction Insurance.

The documentation of the financial assurance will be provided in Attachment C of the Final OMM Plan.

12.0 CONTACTS

CRA Accident Reporting Number	866-529-4886
National Response Center (NRC)	800-424-8802
Agency for Toxic Substances and Disease Registry	404-488-4100 (24 Hours)
Massachusetts Poison Control Center	800-682-9211
USEPA Emergency Response	800-424-8802
Underground Utilities Location Service - Dig Safe Massachusetts	888-344-7233
ADESA Contact - Jack Neshe	508-626-7000
General Motors Contact - Vince Dziechciarz	248-753-5593
CRA Project Manager - Randy Moore	519-884-0510
CRA Licensed Site Professional – Fred Taylor	519-884-0510
CRA Regional Safety and Health Manager - Craig Gebhardt	716-297-6150
CRA SS/SSO - Jamie Catanese	412-979-6537
Framingham Conservation Commission Contact - Michelle Grzenda	508-628-1302

13.0 SCHEDULE

The anticipated schedule for implementation of remediation activities at the Site is:

Late September – Mid October 2005	Mobilization of Labor, Materials, and Equipment Site Preparation/Clearing
Early – Mid October 2005	Stormwater and Erosion Controls
October/November 2005	Engineered Barrier Construction (Soil)
November/December 2005	Engineered Barrier Construction (Asphalt) Stormwater Sewer Cleaning/Lining Demobilization and Project Closeout
December 2005	Filing of AUL and RAO

14.0 REFERENCES

Conestoga-Rovers & Associates (CRA), 2004. Phase II Comprehensive Site Assessment Scope of Work, September 27, 2004.

Conestoga-Rovers & Associates (CRA), March 2005. Interim Phase II CSA Report - Wetland Delineation Report. March 2005.

Conestoga-Rovers & Associates (CRA), 2005. Phase II Comprehensive Site Assessment Scope of Work, Addendum No. 1. April 2005.

Conestoga-Rovers & Associates (CRA), March 2005. Interim Phase II CSA Report - Wetland Delineation Report. March 2005.

Conestoga-Rovers & Associates (CRA), July 2005. (Interim) Phase II CSA Report. July 2005.

Conestoga-Rovers & Associates (CRA), August 2005. Final Phase II CSA Report. August 2005.

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