SEPARATIONS PROCESS RESEARCH UNIT (SPRU)
DISPOSITION PROJECT (DP)

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR SPRU DP

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URS

2425 River Road, SP-22
Niskayuna, New York 12309

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LIST OF FIGURES

LIST OF ACRONYMS

CB	Catch Basin
D&D	Decontaminate & Decommission
DOE	U.S. Department of Energy
DP	Disposition Project
E&SC	Erosion and Sediment Control
ESA	Equipment Staging Area
GP	General Permit for Stormwater Discharges from Construction Activity
HSG	Hydrologic Soil Group
HVF	Hudson Soils, Very Steep
KAPL	Knolls Atomic Power Laboratory
MCB	Multiple Catch Basin
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOT	Notice of Termination
NYSDEC	New York State Department of Environmental Conservation
PCSMP	Post-Construction Stormwater Management Practice
PP	Pollution Prevention
ScB	Scio silt loam
SPDES	State Pollutant Discharge Elimination System
SPRU	Separations Process Research Unit
SWPPP	Stormwater Pollution Prevention Plan
THDS	Temporary Hillside Drain System
TSS	Total Suspended Solids
UIC	Underground Injection Control
URS	URS

1.0 STORMWATER POLLUTION PREVENTION PLAN

1.1 Regulatory Information

This SWPPP has been prepared to instruct personnel on mitigation measures to prevent pollutants in stormwater runoff from entering surface waters of the State. The following sections discuss and describe actions/requirements to be taken as part of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, General Permit (GP) GP-0-15-002 (effective January 29, 2015).

The Notice of Intent (NOI) for this project was completed and submitted in accordance with the requirements specified in the General Permit. The NOI was approved by NYSDEC on September 17, 2009. The NOI is maintained on the site and by the Document Control-Records Management Department.

1.2 SWPPP Development, Review, and Update

In addition to state requirements, this SWPPP was developed in accordance with accepted engineering practices and includes the following:

- Practices that will be used to reduce pollutant loadings from stormwater runoff during construction activities
- Protective measures to minimize sediment transport
- Potential sources of pollution that may affect the quality of stormwater discharges
- Compliance with the General Permit conditions

URS has prepared this SWPPP on behalf of the U.S. Department of Energy (DOE) Separations Process Research Unit (SPRU) Disposition Project (DP) in support of its project to decontaminate and decommission (D&D) facilities, including G2, H2 & G2/H2 Pipe Tunnel, and excavate contaminated soil and debris from SPRU DP at the Knolls Atomic Power Laboratory (KAPL).

1.2.1 SWPPP Review

Applicable federal, state, and local regulatory agencies, which have jurisdiction over SPRU DP, may elect to review this SWPPP. Should the SWPPP require revisions based upon this review, DOE SPRU and SPRU DP will make the necessary changes within 14 days of notification from the regulatory authority and provide a written notification of the changes made and implemented to NYSDEC. This SWPPP will be kept available at the project site for review by regulatory agencies, project personnel, engineers, and subcontractors.

1.2.2 SWPPP Update

SPRU DP and DOE SPRU may amend this SWPPP when a significant change occurs in one or more of the following project components, which affects the potential for discharge of pollutants from stormwater runoff associated with the construction activities.

- Design
- Construction
- Operation
- Maintenance

The SWPPP shall also be updated or amended by SPRU DP under the following conditions:

- Control measures are determined to be ineffective in minimizing pollutants and/or achieving the objectives for controlling pollutants from stormwater discharges
- To address issues or deficiencies identified during an inspection by the qualified inspector, the Department or other regulatory authority
- To identify a new subcontractor that will implement any control measure of the SWPPP

1.3 Site Owner

The name and address of the Site Owner, including contact information, is as follows:

Site Owner	Contact
U.S. Department of Energy Separations Process Research Unit (SPRU) 2425 River Road Niskayuna, NY 12309-7100	Steve Feinberg DOE SPRU Site Manager Telephone: 518-395-4580

1.4 Site Description

1.4.1 Project Description

The objective of the SPRU DP is to D&D two buildings (G2 and H2), and the connecting G2/H2 Tunnel, and remove radiologically or chemically impacted soil present in the vicinity of these buildings. The project remedial action objectives are: 1) restore SPRU DP site to a state suitable for reuse by KAPL as industrial and research use; and 2) reduce future surveillance and maintenance costs by eliminating conditions that could lead to future radiological and/or chemical releases.

1.4.2 Site Location

The SPRU DP site covers approximately 2 acres and is located in the northwest corner of the 170-acre KAPL site in the town of Niskayuna, Schenectady County. The geographic coordinates for the project in NYTM units are 592,541 (easting), 4,741,944 (northing). Figure 1 is a regional location map showing SPRU DP and KAPL sites with respect to the town of Niskayuna. Figure 2 is a close up showing SPRU DP and KAPL sites and the nearby Mohawk River. Figure 2 also shows the portion of the site covered with vegetation (hillside along the western site boundary), trees (hillside north of the site), the SP-27 soil pile and the equipment staging areas (ESA) that are located in the southeastern portion of the KAPL site.

Land use west of SPRU DP site is undeveloped land zoned for industrial and research use. Medium-to high-density residential and recreational land is located south of the KAPL site, and includes recreational areas like the Mohawk Hudson Bikeway trail, and baseball fields and tennis courts built upon a redeveloped former Town of Niskayuna municipal landfill. Niskayuna High School is located approximately two miles to the southwest. Across the Mohawk River are low-density residences of the Town of Clifton Park, Saratoga County.

Figure 3 is a site topographic map showing SPRU DP situated on a gentle northward sloping knoll and bounded by a hillside on the west. It also shows the established boundaries between the two sites and the pre-construction KAPL stormwater collection system.

The determination of permit eligibility with regard to historic places was reviewed. The stormwater discharge or construction activities will not have an effect on a property that is listed or eligible for listing on the State or National Register of Historic Places. The historic places screening determination was conducted using the GIS online resources available at http://nysparks.state.ny.us/shpo/. On Sept. 5, 2007, the State Historic Preservation Office has recommended that the planned project will have No Adverse Effect on cultural resources listed or eligible for listing on the National Register of Historic Places.

1.4.3 Wetlands

No existing on-site surface waters or wetlands exist in the project area.

1.4.4 Soils

The project site's underlying native soil for the G2/H2 (Upper Level) is Scio silt loam (ScB), which is a hydrologic soil group (HSG) Type B soil. To the west of G2/H2 the hillside slope consists of Hudson Soils, Very Steep (HVF) which is an HSG Type C soil. The ScB soils consist of deep, nearly level or gently sloping, moderately well-drained, medium-textured soils that formed on lake plains and terraces. The HVF soils are very steep and moderately well drained with slopes averaging 19%. Figure 4 shows the distribution of these soils and Figure 5 is a geologic cross section.

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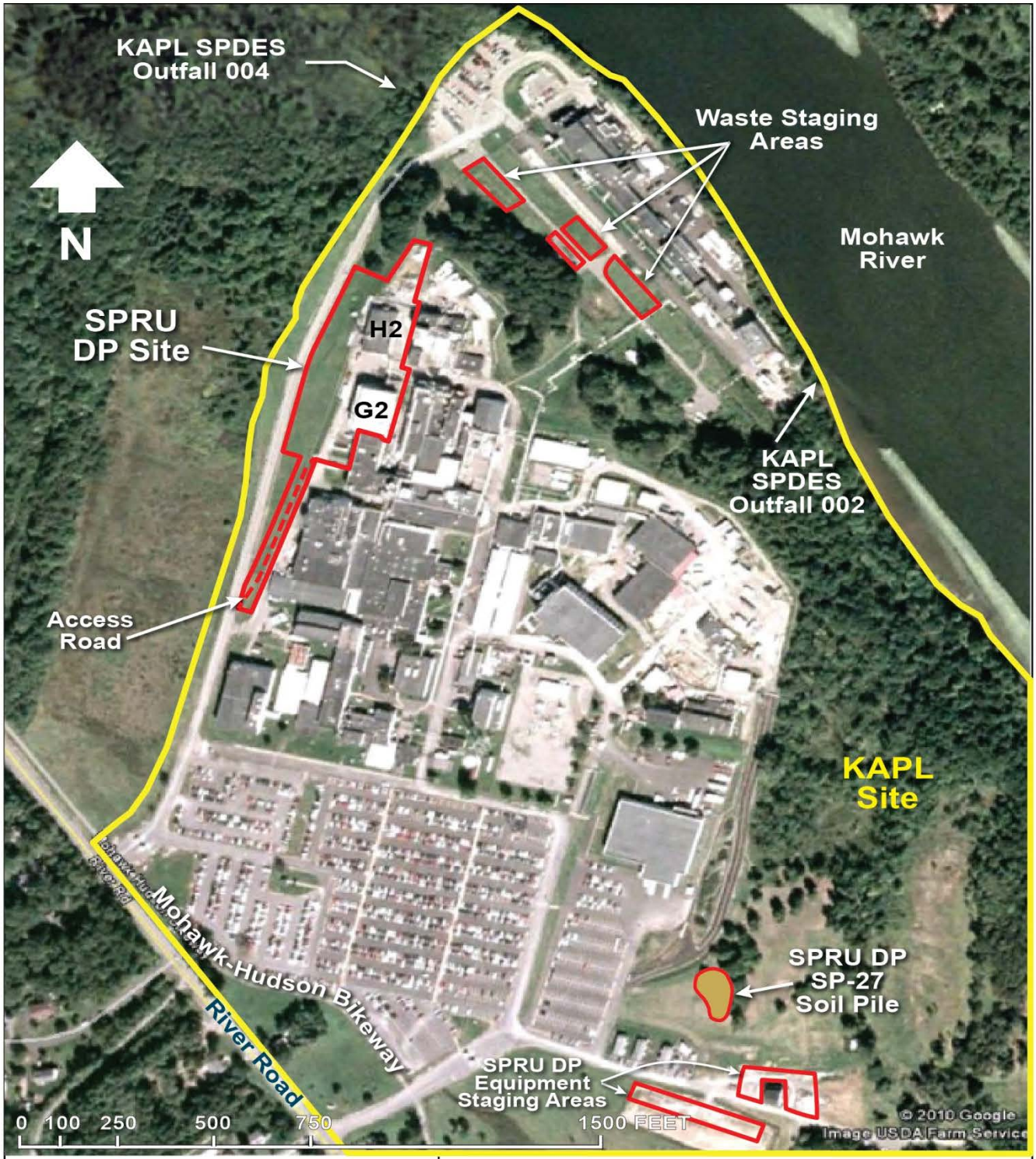
KAPL SITE
SPRU DP SITE
LOCATION MAP

SIZE	PROJECT NUMBER:	DRAWING NUMBER:	REV
A	SWPPP-09001	FIGURE 1	0

SCALE:	DATE:	SHEET:
1" = 1.25 MILES	11/15/2010	1 OF 1



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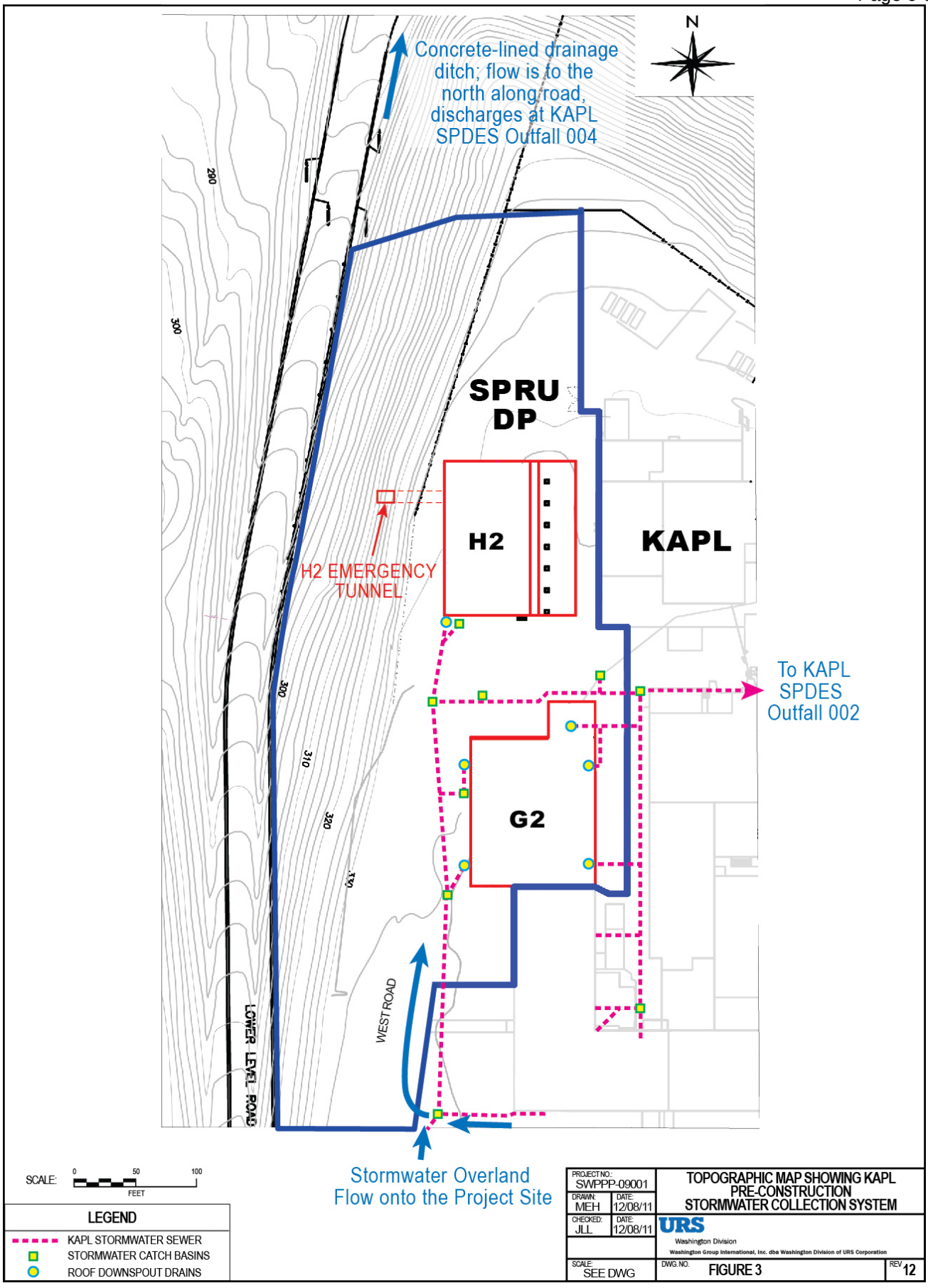
KAPL SITE
AND
SPRU DP SITE

SIZE	PROJECT NUMBER:	DRAWING NUMBER:	REV
A	SWPPP-09001	FIGURE 2	20

SCALE:	DATE:	SHEET:
1" = 370'	12/17/2015	1 OF 1


N
Concrete-lined drainage ditch; flow is to the north along road, discharges at KAPL SPDES Outfall 004
SPRU DP
KAPL
H2
H2 EMERGENCY TUNNEL
G2
To KAPL SPDES Outfall 002
WEST ROAD
LOWER LEVEL ROAD
Stormwater Overland Flow onto the Project Site
SCALE: 0 50 100 FEET
LEGEND
KAPL STORMWATER SEWER
STORMWATER CATCH BASINS
ROOF DOWNSPOUT DRAINS
PROJECT NO.: SWPPP-09001
DRAWN: MEH DATE: 12/08/11
CHECKED: JLL DATE: 12/08/11
SCALE: SEE DWG
TOPOGRAPHIC MAP SHOWING KAPL PRE-CONSTRUCTION STORMWATER COLLECTION SYSTEM
URS Washington Division
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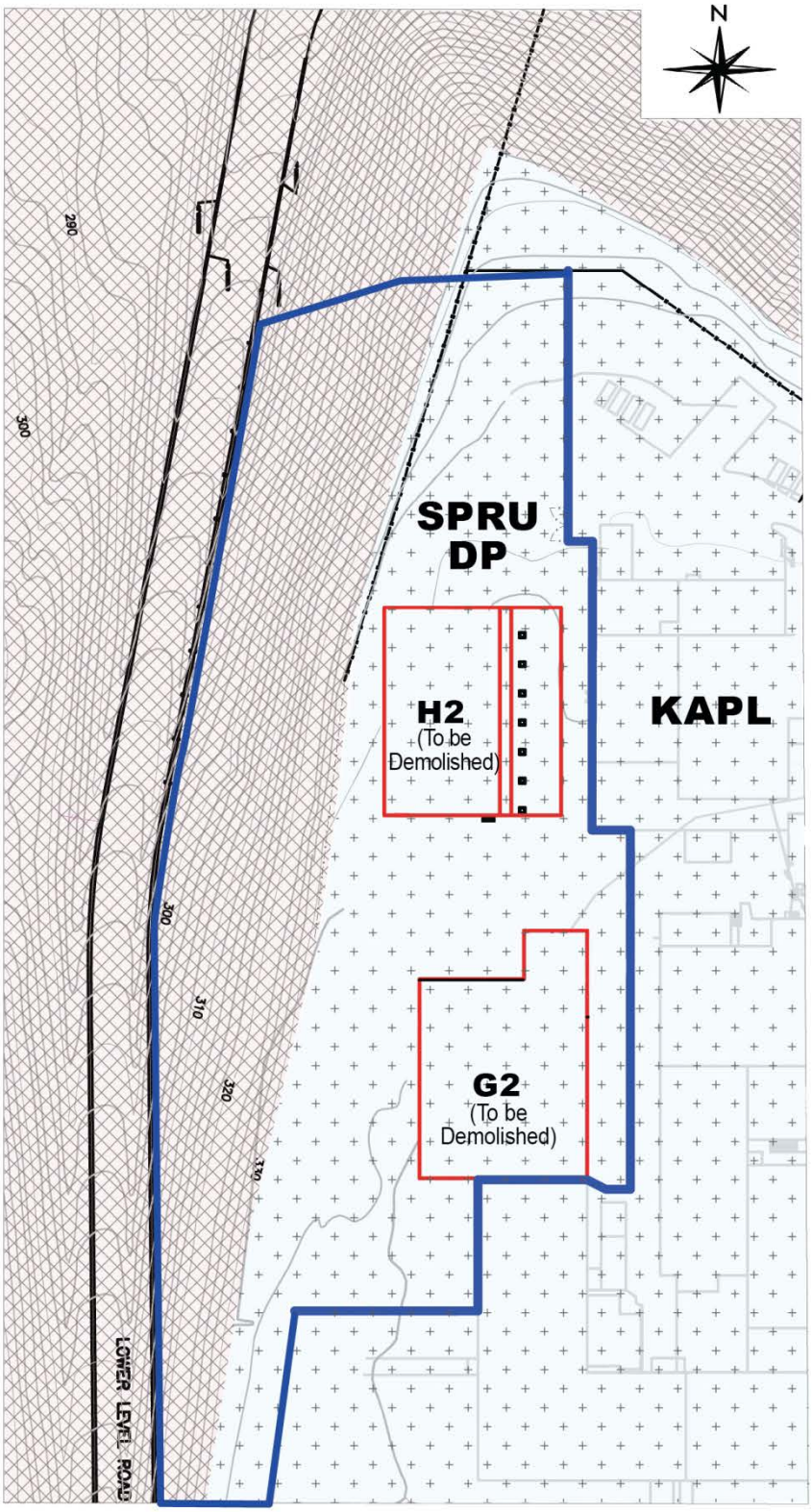
DWG.NO. FIGURE 3
REV 12

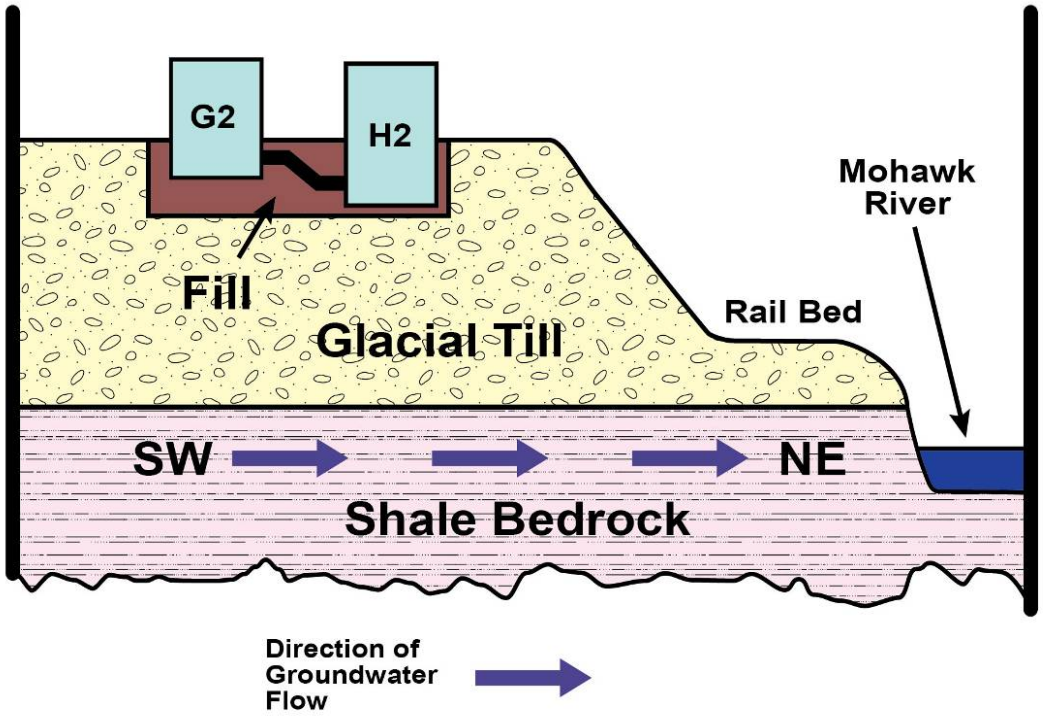


LEGEND

- HUDSON SOILS, VERY STEEP (HVF)
- SCIO SILT LOAM (ScB)

SCALE: 0 50 100 FEET

PROJECT NO.: SWPPP-09001	SPRU DP SOIL TYPES
DRAWN: MEH DATE: 12/15/15	
CHECKED: JLL DATE: 12/15/15	URS Washington Division
	Washington Group International, Inc. dba Washington Division of URS Corporation
SCALE: SEE DWG	DWG NO. FIGURE 4 REV 4



Modified from ERM-Northeast, 1992, *Final Report - Hydrogeologic Evaluation of the Knolls Atomic Power Laboratory* - Knolls Site, July 8, 1992

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SPRU DISPOSITION PROJECT

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SPRU-DP
GENERALIZED GEOLOGIC
CROSS SECTION

SIZE	PROJECT NUMBER:	DRAWING NUMBER:	REV
A	SWPPP-09001	FIGURE 5	0

SCALE:	DATE:	SHEET:
NTS	11/15/2010	1 OF 1

1.4.5 Pre-Construction Stormwater Conditions

The majority of SPRU DP stormwater originated as precipitation that fell directly onto the project site. Historically (prior to SPRU DP construction), rainwater on KAPL asphalt roadways occasionally flowed to what is now the SPRU DP site during heavy rainfall (see Figure 3). Storm water run-on from KAPL was collected in the SPRU area catch basins (CBs). Quantities of the historic run-on were variable and unknown. Sandbags were temporarily placed along the eastern property boundary, prior to (D&D), to prevent stormwater run-on from occurring along this site boundary. Pre-construction stormwater in the vicinity of G2 and H2 was collected through CBs and roof gutters/ downspouts that discharged directly to the KAPL stormwater system (see Figure 3). Site topography directed runoff to the CBs. Hillside stormwater infiltrated into the soil and could collect in subsurface hillside feather drains that flowed directly into the concrete-lined ditch at the foot of the hill. Stormwater quantity for SPRU DP for a 25-year storm (2.3 inches rainfall for one-hour duration) is presented below:

SPRU DP Area	**Area**	**Stormwater Quantity**	**Stormwater Description**	**KAPL SPDES Outfall**
G2 and H2	27,130 ft^2	4,400 ft^3 (33,000 gal)	• Clean; roof water discharges directly to stormwater system	Outfall 002
Roads and open areas surrounding G2 and H2	32,235 ft^2	6,200 ft^3 (46,000 gal)	• Visually clean, water flows primarily over asphalt to CBs, or onto the vegetated hillside	Outfall 002
Western Hillside (vicinity of G2 and H2)	14,790 ft^2	2,850 ft^3 (21,000 gal)	• Hillside runoff to the concrete-lined ditch at the foot of the slope generally not observed • Subsurface hillside feather drains collect infiltrated water & flows to the concrete-lined ditch at the foot of the slope; visually the water is clean	Outfall 004
Run-on to SPRU south from KAPL asphalt	15,420 ft^2	Variable/ unknown	• Visually clean; water primarily flows over asphalt	Outfall 002

To properly locate the sources of stormwater and specify necessary treatment per the Order on Consent, a sampling and analysis plan (SAP) has been developed (Attachment 1).

1.5 Construction Sequence

In preparation for planned building D&D and environmental restoration activities, an access road was constructed (see Figure 2) and the roadway south and west of G2 expanded to create additional space for placement of construction trailers, equipment storage sheds, and for staging of empty waste containers. Road construction included installation of a gabion wall and regrading of the hillside west of G2. Figure 6 shows the location of the widened roadway, construction trailers, G2 and H2, and the extent of the planned soil removal. The excavation area shown is based on the depth of the building basements and a 2:1 excavation slope to eliminate the need for shoring of the excavation slopes. Soils were excavated above the H2 Tank Farm area east of H2 from October 2009 until January 2010.

In preparation for planned demolition, all of the existing stormwater collection features on SPRU DP (CBs and roof downspout drains) were isolated from the KAPL stormwater collection system in September 2010. This was done to prevent possible mobilization of building contaminants into the stormwater collection system.

To manage onsite stormwater during construction, a stormwater collection system was installed that included French drain collection trenches and distribution header. Figure 7 shows the location of these stormwater collection system features and shows modifications made to the original system. In September 2010, the storm drains were closed and the H2 roof and part of the south end of the G2 roof was demolished. Demolition of G2 and H2 was temporarily halted on September 29, 2010.

The KAPL area adjacent to the southern portion of the SPRU site is primarily paved roadways that abut office, laboratory, and machining/welding facilities. These facilities do not contribute or impact stormwater runoff. All stormwater runoff from the KAPL area in the vicinity of the SPRU site is a result of rainfall on paved areas, which primarily flows north and west to enter localized CBs that direct flow to Outfall 002. A 100+ year storm event occurred on September 30 /October 1, 2010, in which rain fell onto KAPL asphalt roadways and the runoff flowed down the road onto the site from the southern end. This run-on, combined with the extraordinary rainfall, added significant water to the west hillside and soil sloughing occurred. Sandbags were temporarily placed along the southern SPRU site boundary to minimize run-on from KAPL and a swale was added to the SPRU area to try to divert future KAPL water run-on. This swale directs minor overflow from the KAPL site onto a stable portion of the west hillside. More storm events caused run-on from KAPL to SPRU DP. On 7/11/11, KAPL CB-31 E&SC measures (i.e., silt barriers) were modified to try to allow more flow into CB-31, which flowed to KAPL Outfall 002. Storm events continued to cause run-on from KAPL to SPRU DP south. On 7/10/13, heavy intense rainfall overwhelmed KAPL's CB-7 and led to KAPL stormwater flowing onto SPRU DP southeast of H2 and causing localized flooding near the SPRU H2 Building. Maintenance was performed on the SPRU French drain to improve water collection and mitigate future impacts.

Stormwater that fell within G2 and H2 was contained by sandbags and building perimeter concrete walls and accumulated in the buildings. A primary and secondary berm installed within the H2 basement emergency exit tunnel contained rainwater accumulation within the basement. Accumulated basement water was routinely pumped to 20,000 gallon frac tanks located in the northern portion of the site and then shipped for treatment and disposal offsite.

In April 2012, two micropiles and a whaler were installed at the Hillside Sump area to ensure the concrete sump (which collects groundwater, not surface water) remains stable. Because of hillside stability concerns, work was performed along the H2 hillside area for building structural support modifications in Fall 2012. Micropiles were installed for structural support of the H2 enclosure ventilation system. In November and December, 2012, portions of the culvert (at the bottom of the west hillside) were cleaned out and pipe and stone were placed in the culvert to limit potential impacts from hillside sloughing and work activities near the culvert. In Spring 2013, pipe and stone were placed in additional sections of the culvert.

D&D activities resumed in 2014, and the work was performed in fabric-enclosed structures. G2 is wrapped in fabric. H2 is covered with a fabric structure and is enclosed along with portions of the surrounding area. A gutter/roof downspout system is installed on the H2 and G2 enclosures. Stormwater from the H2 and G2 enclosures is discharged to the KAPL stormwater system, which discharges to outfall 002. The 25-year, 1-hour estimated stormwater quantity will be 2,300 ft^3 (17,000 gal) for the G2 structure and 3,900 ft^3 (29,300 gallons) for the H2 enclosure. Figure 7 shows the location of the building fabric enclosures and the location of the KAPL multiple catch basin (MCB-7) which collects the roof water discharges. The new H2 and G2 roof drains connect by new underground lines to MCB-7.

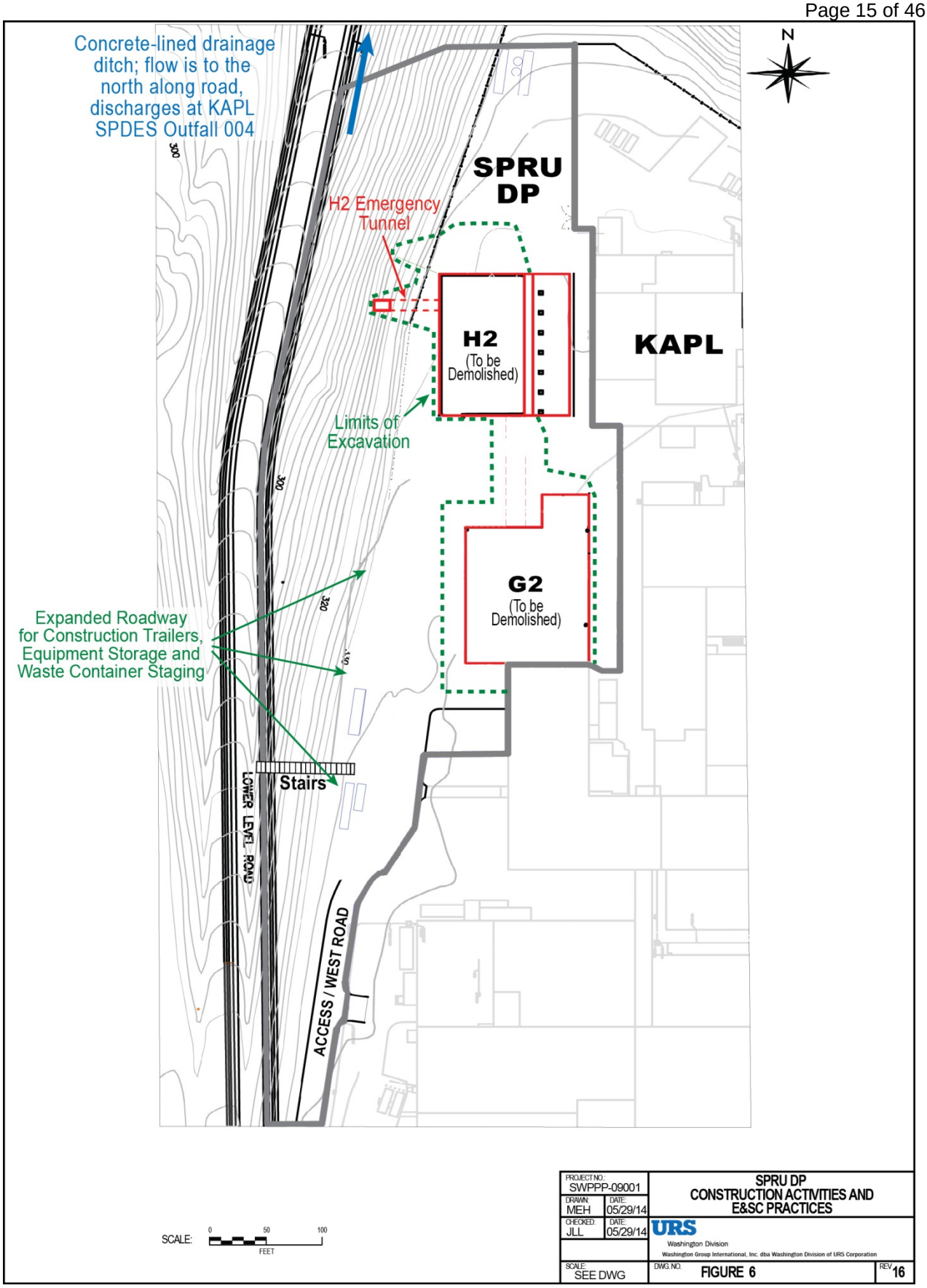
1.5.1 Engineering Plan/Schedule

Project activities are planned to include the following actions. Sequencing and operations are subject to contractual, engineering and logistical considerations.

1) Demolish and remove above grade portions of H2
   Demolish and remove above grade portions of G2
2) Demolish and remove below grade portions of H2 and contaminated soil
   Demolish and remove below grade portions of G2 and contaminated soil
3) Backfill of H2 and G2 excavations
4) Remove G2/H2 tunnel and contaminated soil
5) Backfill excavated areas, utilize the SP-27 soil pile, and seed/mulch

Activities: Portions of the work to support activities listed under 1 and 2 above began in 2014 in the buildings while they are enclosed and will continue in 2016. Depending on contractual considerations, work progress, and engineering analyses, completion of the G2 and H2 interior work will be accomplished in 2016, followed by removal of the enclosures and D&D. Activities listed under 3, 4 & 5 above are scheduled to be completed in 2016. Work activities in G2 and H2 will involve heavy truck activities.

Figure 8 shows the final site topographic map and the KAPL stormwater collection system.


Concrete-lined drainage ditch; flow is to the north along road, discharges at KAPL SPDES Outfall 004
N
SPRU DP
H2 Emergency Tunnel
H2
(To be Demolished)
KAPL
Limits of Excavation
G2
(To be Demolished)
Expanded Roadway for Construction Trailers, Equipment Storage and Waste Container Staging
Stairs
LOWER LEVEL ROAD
ACCESS / WEST ROAD
SCALE: 0 50 100 FEET
PROJECT NO.: SWPPP-09001
DRAWN: MEH
DATE: 05/29/14
CHECKED: JLL
DATE: 05/29/14
SCALE: SEE DWG
SPRU DP
CONSTRUCTION ACTIVITIES AND E&SC PRACTICES
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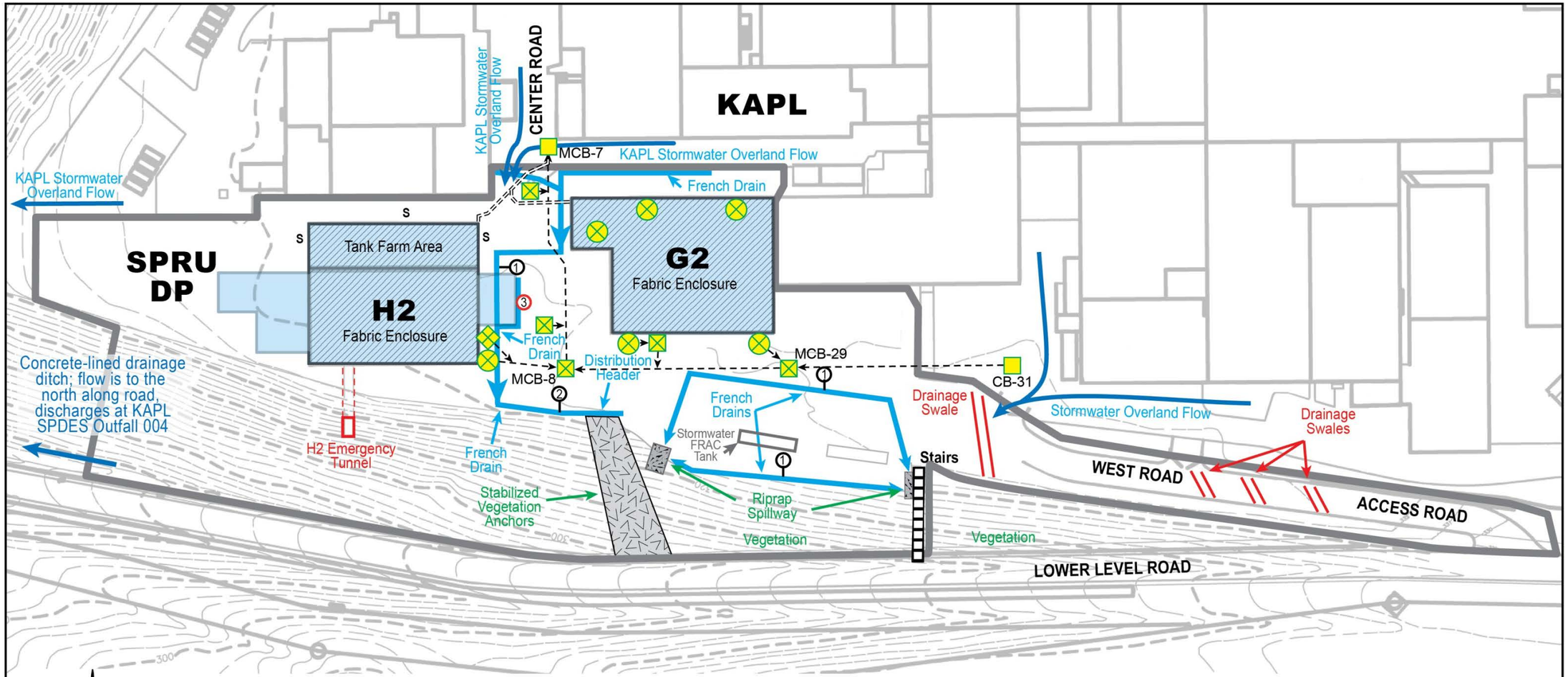
DWG. NO. FIGURE 6
REV. 16


KAPL
CENTER ROAD
KAPL Stormwater Overland Flow
MCB-7
KAPL Stormwater Overland Flow
KAPL Stormwater Overland Flow
French Drain
SPRU DP
Tank Farm Area
G2
Fabric Enclosure
H2
Fabric Enclosure
S
S
S
French Drain
Distribution Header
MCB-8
MCB-29
CB-31
Concrete-lined drainage ditch; flow is to the north along road, discharges at KAPL SPDES Outfall 004
H2 Emergency Tunnel
French Drain
French Drains
Stormwater FRAC Tank
Drainage Swale
Stormwater Overland Flow
Drainage Swales
Stairs
WEST ROAD
ACCESS ROAD
Stabilized Vegetation Anchors
Riprap Spillway
Vegetation
Vegetation
LOWER LEVEL ROAD
300
N
SCALE: 0 50 100
FEET
LEGEND
SEALED ROAD INLET
SEALED ROOF DRAINS
SEALED CATCH BASINS
OPEN KAPL CATCH BASIN
KAPL STORMWATER SYSTEM
NEW STORMWATER SYSTEM TO MCB-7
LIMITS OF FABRIC ENCLOSURE
3 ROCK IN FRENCH DRAIN
S STORMWATER SUMP PUMP
2'-0"
MIRAFI 500X WOVEN GEOTEXTILE
#2 CLEAN WASHED STONE
FILTER CLOTH LINER
4" CORRUGATED PERFORATED POLY DRAIN PIPE
EXISTING GRADE
VARIES
1 STORMWATER RUNOFF TRENCH DETAIL
000-006 NTS
BERMED AREA TO PREVENT OVERFLOW
2'-0"
1'-0"
MIRAFI 140N NON-WOVEN GEOTEXTILE
#2 CLEAN WASHED STONE
12" DIA. SMOOTH WALL PERFORATED HDPE PIPE
EXISTING GRADE
VARIES
2 STORMWATER RUNOFF TRENCH DETAIL
000-006 NTS
PROJECT NO: SWPPP-09001
DRAWN: MEH DATE: 6/29/16
CHECKED: JLL DATE: 6/29/16
SCALE: SEE DWG
MODIFIED SPRU DP CONSTRUCTION STORMWATER COLLECTION SYSTEM
URS
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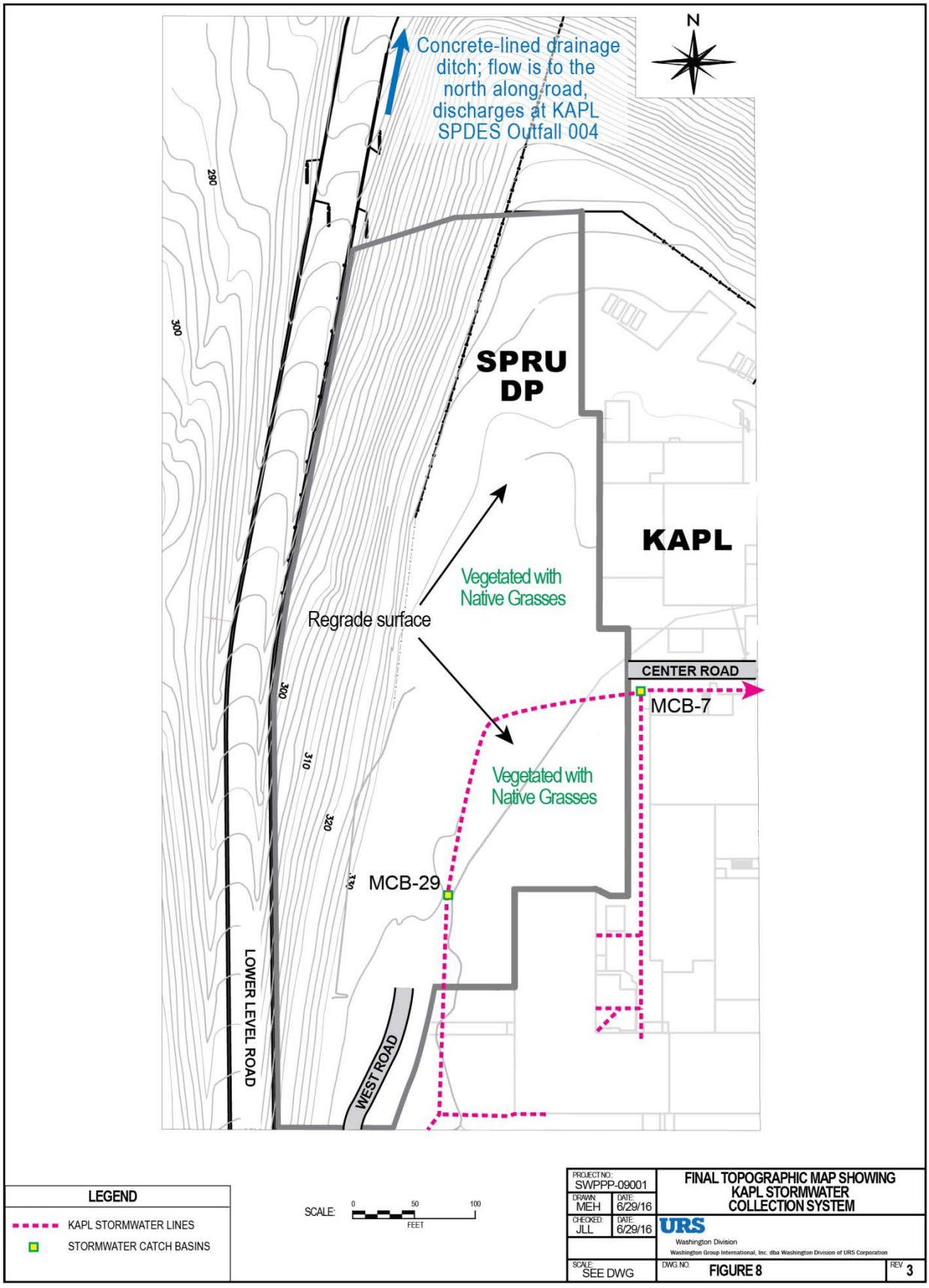
DWG NO: FIGURE 7
REV 12


N
Concrete-lined drainage ditch; flow is to the north along road, discharges at KAPL SPDES Outfall 004
290
300
SPRU DP
KAPL
Vegetated with Native Grasses
Regrade surface
CENTER ROAD
MCB-7
310
320
Vegetated with Native Grasses
MCB-29
LOWER LEVEL ROAD
WEST ROAD
LEGEND
KAPL STORMWATER LINES
STORMWATER CATCH BASINS
SCALE:
0
50
100
FEET
PROJECT NO: SWPPP-09001
DRAWN: MEH
DATE: 6/29/16
CHECKED: JLL
DATE: 6/29/16
SCALE: SEE DWG
FINAL TOPOGRAPHIC MAP SHOWING KAPL STORMWATER COLLECTION SYSTEM
URS
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DWG NO: FIGURE 8
REV 3

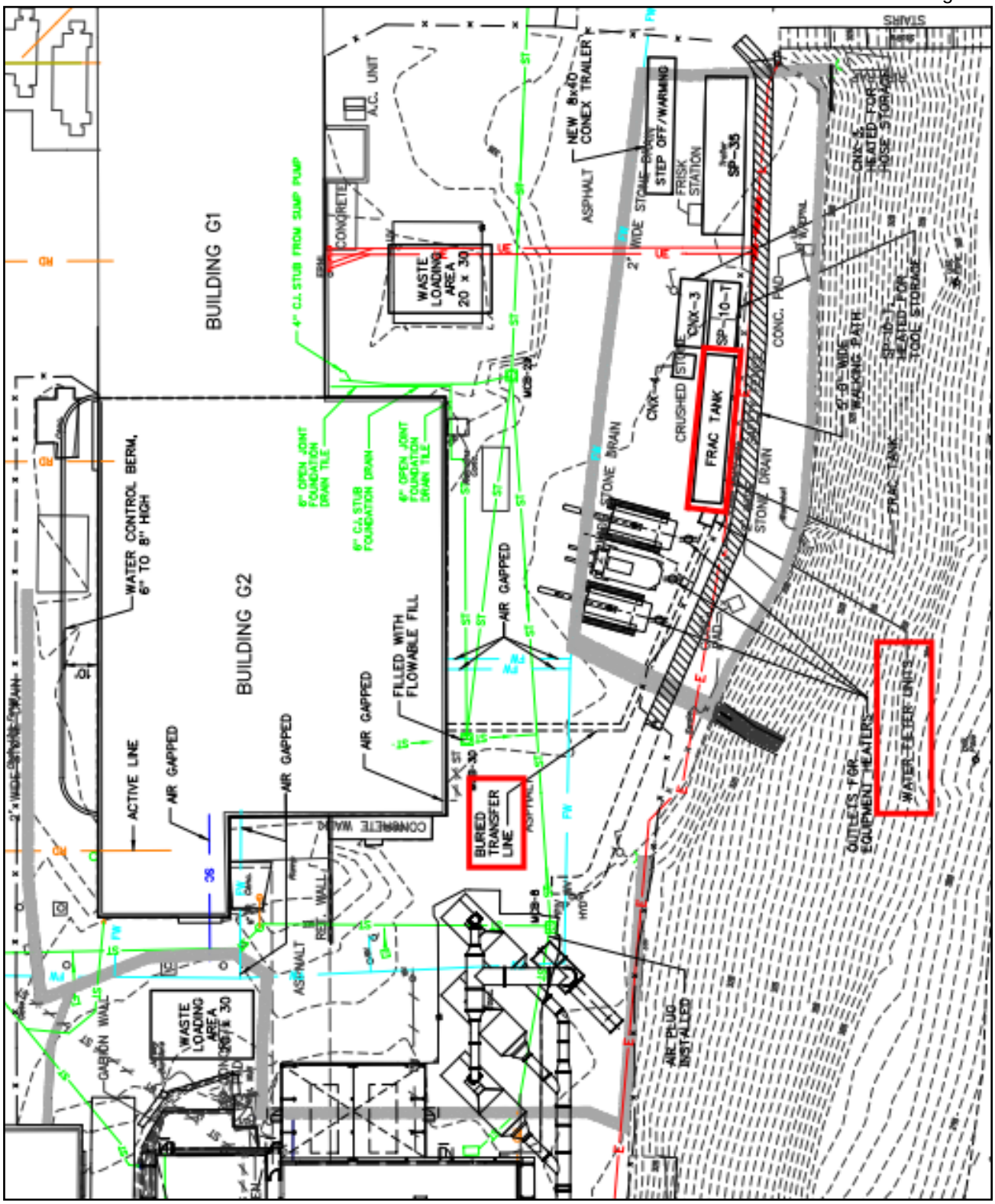


FIGURE 9 – Water Collection System for G2 Footprint

1.5.2 Engineering Plan/Schedule for Stormwater Management

Stormwater is managed through a network of French drain collection trenches and swales/spillways that drain to the distribution header or vegetation. In 2014, the French drains were registered with the EPA as part of the Underground Injection Control program (UIC ID: 14NY09399036). On 9/4/11, MCB-8 & MCB-29 were opened as a temporary measure to allow stormwater from G2 roof and stormwater in the area of G2 to enter the KAPL stormwater system (Figure 7).

In March, 2012, with completion of the H2 enclosure roof drains, clean H2 enclosure stormwater was also discharged to the KAPL stormwater system (Figure 7) via corrugated pipe which flows to Outfall 002. In May 2012, Engineering's final design connected the H2 enclosure stormwater and G2 roof water drains to the KAPL MCB-7. Then, MCB-8 and MCB-29 were closed. Enclosing H2 and G2 with fabric greatly decreased stormwater accumulation within the structures; minor amounts of water that do accumulate are still collected for treatment and disposal offsite. The fabric enclosures will remain until completion of building D&D. Since the amount of water from the H2 basement and hillside sump is essentially the same as the amount of water that will be produced from the H2 enclosure roof and hillside sump, existing capacity is sufficient to store water, if needed. In addition, 5 more frac tanks are available at the Lower Level.

Currently, some KAPL stormwater lines run under the SPRU site. It is contemplated that the stormwater lines may be re-routed through the current G2 footprint as part of the final site restoration. The path shown in Figure 8 shows the general path as currently conceived.

In 2014, to collect stormwater and minimize infiltration, a rubber membrane was placed at the east & west sides of H2 (May) with Controlled Low Strength Material (CLSM) addition for slope away from part of the west side (September). Stormwater sump pumps may be used to direct stormwater to the French drain or other appropriate locations.

Upon completion of building D&D, the underground roof downspouts will be disconnected and permanently sealed. In the period between disconnecting the downspouts from the storm drains and removal of the gutters, clean roof water will be diverted to the French drain or the ground outside the berm. Removal of some building concrete and associated soil will be performed in the open air. Berms will be placed around the demolition area or excavation as needed to prevent stormwater inflow and outflow. Rain that falls directly into the excavation will be collected (including into the stormwater frac tank shown in Figure 7) for treatment and disposal. The more detailed view of the G2 Building Area in Figure 9 shows the dewatering frac tank and the transfer line from the G2 footprint. Water collected from the building excavation may be transferred as needed to the storage tank system north of H2 and at the Lower Level per SPRU-OPS-110.

After completion of excavation, the area will be graded with structural fill, properly compacted and seeded. MCB-29 is planned to be reopened (see Figure 8). The area near MCB-29 will be graded to collect the stormwater.

1.6 Pollution Prevention Measures

The potential pollutant sources identified in this SWPPP are those associated with the building removal and remediation project. SPRU-ESH-004 identifies the notification chain-of-command and telephone numbers should a spill/release occur on the project. Effective pollution prevention measures minimize the discharge of pollutants and prevent a violation of the water quality standards. At a minimum, such measures must be designed, installed, implemented and maintained to:

1.6.1 Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

1.6.2 Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used.

1.6.3 Prevent the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

1.6.4 Diesel fuel and gasoline for on-site equipment are materials with spill potential that will be brought on site, as needed. Refueling should be performed over asphalt pavement, whenever possible. When refueling, response personnel should be in the general area.

1.6.5 Groundwater collected from the H2 hillside sump and conveyed to the hillside sump collection system storage tanks is a source of potential spillage. The hillside sump collection system has two pumps and redundant features, including a third pump which is electrically independent with a high-level alarm. As a further control measure, a fourth pump with a portable generator is available to pump the sump water to the H2 basement should the redundant system features fail to operate. As a final measure, if the redundant backup systems fail, a 1,500 gallon tank would receive gravity-fed sump overflow groundwater. Facility components are inspected per SPRU operating procedure SPRU-OPS-101 to verify that the system is operating as designed and minimize spill potential. If a spill is identified, personnel performing the inspections will notify management who are aware of appropriate actions to be undertaken and the chain-of-command for reporting spills/releases.

1.6.6 Dust control measures will be implemented to minimize dust migration off site; measures include the application of uncontaminated water.

1.6.7 Access roads and work areas at the site have been identified for construction vehicle transit or ESA; to the extent possible, construction vehicles are parked on impervious surfaces or drip pads are placed under the vehicles.

1.6.8 Vehicles leaving areas with potential for radiological contamination will be radiologically surveyed before exiting those project areas. The tires of all these vehicles should be free of mud prior to the survey. Maintenance of gravel paved roadways minimizes the potential for mud to adhere to the tires of any vehicles entering and leaving the site.

1.6.9 The access road is graded to encourage run-off to the vegetated areas on the road side.

1.7 Construction and Waste Material Storage

The materials or substances listed below are expected to be present on site during construction activities:

- Stockpiled clean soil
- Erosion and sediment control (E&SC) devices such as silt fence
- Traffic control and warning devices, such as orange construction fence and cones
- Construction debris and trash
- Diesel and gasoline fuels (when needed for equipment refill)
- Hydraulic fluids and lubricants (when needed for maintenance)

1.7.1 Spill Prevention

The following material management and good housekeeping practices shall be used to reduce the risk of spills or other accidental exposure of hazardous materials to stormwater runoff.

A. Hazardous materials with potential for spillage should be stored in an orderly manner in their appropriate containers.
B. Products shall be kept in their original containers with the original manufacturer’s label.
C. Substances shall not be mixed with one another, unless recommended by the substance

manufacturer.

D. Manufacturers' recommendations for proper use and disposal shall be followed.

E. On-site vehicles shall be monitored and inspected for leaks and receive regular preventive maintenance to reduce the chance of leakage of petroleum products. Vehicle maintenance will be performed off site to the extent practicable to minimize potential spills. Heavy equipment, such as the excavator that operates in radiological contamination areas, will undergo maintenance inside the contamination areas to avoid the expense of decontamination.

F. To limit on site storage, materials shall be brought on site in the minimum quantities required.

1.7.2 Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous section, the following practices shall be adhered to for spill control and cleanup.

A. Reportable spills of petroleum or hazardous material shall be reported to appropriate state or local government agencies and documented (see SPRU-ESH-004 for notification chain-of-command and telephone numbers). The report shall include a description of the spill, what caused it, and the corrective measures taken to mitigate the spread of contamination. SPRU DP will also investigate spills to identify the cause and implement corrective action to prevent future spills (see SPRU-ESH-007).

B. Site response personnel are aware of the location of cleanup supplies.

C. Materials and equipment necessary for spill cleanup shall be kept onsite. Equipment and materials should include items such as shovels, rags, gloves, goggles, spill control materials, and absorbents.

D. Spills shall be cleaned up as soon as possible.

E. The spill area may be ventilated and personnel shall wear appropriate protective clothing for the hazard.

1.8 Maintaining Water Quality

In accordance with the GP on maintaining water quality, it shall be a violation for any discharge to an outfall to either cause or contribute to a violation of water quality standards, such as:

- There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
- There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
- There shall be no residue from oil and floating substances, or visible oil film, or globules of grease.

If stormwater runoff from the SPRU site is identified to potentially cause a violation of the water quality standards to receiving waters (as seen where it enters KAPL stormwater collection systems such as the culvert), the SPRU inspector or other personnel will take immediate actions to investigate and mitigate the problem and notify KAPL.

1.8.1 Temporary and Permanent Structural and Vegetative Control

A. Listed below is a description of temporary and permanent control measures that shall be implemented. Specific methods and materials employed in the installation and maintenance of E&SC measures conform to the New York State Standards and Specifications for Erosion and Sediment Control document (NYSDEC, August 2005). The standards and specifications for E&SC measures described in this SWPPP are included in Attachment 2.

Silt fence will be installed down gradient of disturbed soil areas not in asphalt that could lead to E&SC issues offsite. Silt fence will be the primary E&SC measure.

B. Storm drain inlet protection is placed at the storm drains for sediment control.

C. A stormwater French drain and distribution header were installed to provide capacity to handle the stormwater runoff from between G2 and H2 and direct it to the distribution header with possible overflow to a vegetated area stabilized with Duckbill® anchors.

D. All trees and other vegetation that will remain should be protected and remain undisturbed to the extent practicable.

E. Areas chosen for clean soil stockpiling operations shall be dry and stable. Clean soil stockpiles shall be established with an appropriate maximum slope. Prior to stockpiling, E&SC issues shall be addressed. Areas used for stockpiling, such as SP-27, include a vegetative cover for E&SC.

1.8.2 Stabilization Practices

The following stabilization practices shall be employed:

A. Temporary Stabilization means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for E&SC, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and E&SC mats (e.g. jute twisted yarn, excelsior wood fiber mats). Where land disturbance is necessary, an erosion control method (such as temporary seed, mulch or a tarp) must be used on areas which will be exposed for more than 14 days.

B. Final Stabilization. After all soil disturbing activities have ceased, final stabilization will be achieved when a uniform, perennial vegetative cover with a density of 80% over the entire pervious surface has been established or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

1.8.3 Details of E&SC Measures

E&SC measures were designed in accordance with the following documents. The standard and specifications are included in Attachment 2.

- NYSDEC Standards and Specifications for Erosion and Sediment Control (2005)
- New York State Stormwater Management Design Manual (2015)

These documents have been developed for E&SC measures and include specifications to be adhered to by SPRU DP when installing required E&SC components in compliance with this SWPPP.

1.8.4 Implementation Schedule

Prior to the disturbance of soil, the E&SC measures described in this SWPPP will be implemented, inspected, and fully functional. Field operations and inspection/maintenance of E&SC measures are anticipated to be ongoing for about 1 year.

Construction activities, stormwater control & E&SC implementation activities will generally be incorporated into the schedule as follows:

- Installed storm drain inlet protection around storm drain covers for sediment control
- Installed silt fence on west hillside for trailer installation west of G2
- Installed trailer French drain system west of G2

- Excavated soil at H2 Tank Farm area
- Installed silt fence at THDS building and soil pile
- Established clean soil pile area at SP-27 with silt fence and vegetative cover
- Closed storm drains and installed stormwater French drain and distribution header to control runoff
- Re-opened MCB-8 and MCB-29 as a temporary measure to capture clean roof water from the G2 roof and stormwater in the area of G2, following hurricane Irene.
- New H2 and G2 roof drains routed to MCB-7
- Closed MCB-8 and MCB-29
- Evaluate need for silt fence at H2 exterior along down gradient portion
- Excavate soil at G2 east, H2 exterior, and G2/H2 Tunnel
- Install new stormwater line in the area of G2
- Backfill G2, H2, and G2/H2 Tunnel and grade area.
- Seed and mulch completed excavations that have been backfilled to establish vegetation
- Remove temporary E&SC as vegetation is established
- Submit Notice of Termination (NOT) to NYSDEC Bureau of Water Permits

1.9 Construction Period Maintenance Schedule

This SWPPP provides a description of tasks that shall be utilized to maintain the effectiveness of the E&SC measures during construction activities.

The tasks include:

- Maintenance inspections in accordance with Section 1.11.1
- When soil disturbance activities are ongoing, a qualified inspector shall conduct a site inspection at least once every seven calendar days
- Cleaning, repairing, or replacement of temporary measures, as necessary
- Cleaning and/or maintaining project roadways with gravel, as necessary
- Maintain perimeter run-on/runoff controls, as necessary

1.10 Receiving Water

The site is located within the Mohawk River Watershed, approximately 0.25 miles south of the Mohawk River, which exceeds a fifth-order stream. Surface water runoff from SPRU DP is no longer conveyed by underground piping to a permitted outfall that discharges to the Mohawk River. Stormwater that falls onto the H2 and G2 enclosure roofs is discharged to the KAPL stormwater system, which flows to Outfall 002.

Stormwater runoff is collected in a French drain collection system between G2 and H2 and a stormwater distribution header. Stormwater runoff is collected in the trailer French drain collection system for controlled flow to a vegetated area through two spillways. Heavy rain has historically soaked into the vegetation on the hillside and produced no stormwater flow to the culvert. Stormwater runoff (via the spillways) along the hillside has the potential to flow to the concrete-lined drainage ditch located at the foot of the hill. This ditch flows to KAPL SPDES Outfall 004.

1.11 Implementation Responsibilities

KAPL is a non-traditional MS4 and therefore an MS4 acceptance form is not required.

1.11.1 Inspection Responsibilities

SPRU DP shall provide a trained contractor to inspect disturbed soil areas of the construction site for compliance with the control measures. Prior to commencement of construction, SPRU DP will identify contractors and subcontractors that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the E&SC practices included in the SWPPP. SPRU DP shall have each of the contractors or subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. SPRU DP shall ensure that at least one trained contractor is on site on a daily basis when soil disturbance activities are being performed. SPRU DP shall have each of the subcontractors identified above on a copy of the Contractor SWPPP Certification Statement (Attachment 3). SPRU DP shall attach the Contractor SWPPP Certification Statement(s) to the copy of the SWPPP that is maintained at the construction site.

A trained contractor shall inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. When soil disturbance activities are on-going, a full site inspection will be performed by a qualified inspector at least once every seven calendar days. A typical inspection report form, SPRU DP SWPPP Inspection Report (SPRU-3518), for conducting these inspections is included as Attachment 4. Maintenance inspection frequency may be reduced if soil disturbance activities have been temporarily suspended and temporary stabilization measures have been applied to all disturbed areas. Site Rounds are conducted per SPRU-OPS-101 and include observations during and after rain events. If Rounds observations identify an abnormal condition related to soil migration on the west hillside, a site inspection will be performed by the qualified inspector. Per DEC Region 4 recommendation, when rain exceeds ½ inch in 24 hours (per on-site rain gauge) and no abnormal stormwater or erosion conditions have been noted, a qualified inspector will conduct an inspection no later than the next work day and upon installation of each erosion control device, and periodically thereafter, photographs will be taken and placed in the SWPPP binder on-site to show proper operating condition.

The weekly inspection report shall include the inspector’s name/title, date/time of inspections, description of weather and soil conditions, description of the condition of the runoff at all points of discharge from the construction site, identification of E&SC practices and PP measures that need repair or maintenance or were not installed properly or are not functioning as designed and need to be reinstalled or replaced, description and sketch of areas; with active soil disturbance activity; areas that have been disturbed but are inactive at the time of the inspection; and areas that have been stabilized since last inspection, and actions that must be taken to install, repair, replace, or maintain E&SC practices & PP measures. Within one business day of the completion of an inspection, the qualified inspector shall notify the owner or operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. SPRU DP will begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable timeframe. Each inspection report will remain on file at the site as part of this SWPPP.

Digital photographs, with date stamp, that clearly show the condition of all E&SC practices that have been identified as needing corrective actions shall be addressed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

When soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once every 30 calendar days. SPRU DP shall notify the NYSDEC Region 4 Office stormwater contact person, in writing, prior to reducing the frequency of inspections.

1.12 Structural Practices to Limit Sediment Runoff

The design basis of the SWPPP is to limit sediment in runoff from the soil disturbed areas to minimize or prevent discharge of pollutants into surface waters of the State per the GP. In all cases, E&SC measures will be installed with minimal disturbance of vegetated areas that are not planned to be disturbed as part of the construction project. Figure 6 shows the placement of E&SC measures.

1.13 Existing Stormwater Data

KAPL Outfall 002 received stormwater runoff from existing pavement and building roofs within the contributing drainage area until 9/15/10 (see section 1.4.5) and after 9/4/11 until May 2012. Stormwater on the H2 and G2 enclosures is still routed to the KAPL stormwater system. Currently, Outfall 004 has potential to receive runoff from the vegetated western hillside. The stormwater around G2 and south of H2 flows into the French drain and distribution header. The maximum depth of water in the 5 foot deep stormwater distribution header was 3 feet and occurred during the October 1, 2010 rain event. The stormwater around the trailers west of G2 infiltrates into the placed rock and could distribute to a vegetated area through constructed spillways.

1.14 Post-Construction Stormwater Management Practices

After completing the planned D&D and soil excavation, the area will be backfilled and regraded. Disturbed soil will be seeded/mulched.

This construction activity falls under “Industrial facilities” on the Appendix B, Table 2 of the GP. However, because this is considered a redevelopment project and the imperviousness is being reduced by more than 25%, in accordance with the Design Manual, no post-construction water quality controls are required. Also, because stormwater has the potential to be discharged to a fifth order or greater stream (Mohawk River), no water quality controls are required after vegetation has been re-established on disturbed portions of the site.

Figure 8 shows the location of the stormwater CBs and underground stormwater lines. This is under evaluation and can change. Final grading will be a combination of permeable and impermeable surfaces so as to control flow and minimize erosion.

1.15 Details of Water Quality Control Measures

Water quality control measures are designed in accordance with the following document:

- New York State Stormwater Management Design Manual (2015).

This document was developed for water quality control measures and includes specifications that will be adhered to when installing the required water quality control components in compliance with this SWPPP. The control measures shall be implemented to control the impact of stormwater runoff on the water quality of the receiving water. A structural component being utilized for the stormwater management control system is the French drain and stormwater distribution header. A hydrologic and hydraulic analysis was conducted by the Engineering department at SPRU DP (see attachment 5).

1.16 Stormwater Analysis

1.16.1 Hydrologic and Hydraulic Analysis of Structural Components

Analysis of the French drain and stormwater distribution header was performed to ensure stormwater capacity can be maintained on-site (see Attachment 5).

1.16.2 Comparison of Post-Development Runoff with Pre-Development Conditions

Buildings will be demolished and vegetation will be established. The vegetated area will be approximately doubled after SPRU DP is completed and runoff will be decreased. MCB-29 will be reopened (see Figure 8). The area near MCB-29 will be graded to send water to it.

1.16.3 Post-Construction Maintenance Schedule

Following completion of site stabilization, SPRU DP will establish vegetation in accordance with the technical specifications. The maintenance schedule includes routine lawn care.

2.0 URS CERTIFICATION

All responsible SPRU DP personnel and subcontractors shall understand the SWPPP and their names shall be listed on the Contractor SWPPP Certification Statement (Attachment 3).

3.0 NOTICE OF TERMINATION

Following final stabilization of the project site, as defined in the GP, SPRU DP will assist DOE SPRU in filing a NOT.

4.0 PENALTIES FOR FALSIFICATION OF REPORTS

Article 17 of the ECL provides for a civil penalty of $37,500 per day per violation of this permit. Articles 175 and 210 of the New York State Penal Law provide for a criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

5.0 RETENTION OF RECORDS

The following will be retained for a period of five years from the date that the site achieves final stabilization:

- Notice of Intent
- Notice of Intent Acknowledgement Letter
- Stormwater Pollution Prevention Plan
- Inspection reports

6.0 REFERENCES

SPRU-DC-RM-001, Document Control, Correspondence Control, and Records Management Program Administration

SPRU-ESH-004, Spill Reporting/Response Plan

SPRU-ESH-007, Emergency Spill/Release Response

SPRU-EM-001, SPRU DP Emergency Preparedness

SPRU-OPS-101, SPRU Round Sheets

SPRU-OPS-110, Demolition Dewatering System Operation

DOE, 2006a, Land Area Historical Site Assessment for the SPRU Disposition Project, U.S. Department of Energy, December 2006

NYSDEC, 2015, SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-15-002, New York State Department of Environmental Conservation, January 2015

NYSDEC, 2005, New York State Standard and Specifications for Erosion and Sediment Control, New York State Department of Environmental Conservation, August 2005

NYSDEC, 2015, New York State Stormwater Management Design Manual, New York State Department of Environmental Conservation, January 2015

7.0 RECORDS

Any records generated due to implementation of this plan will be forwarded to the Document Control/Records Management Department to be maintained in accordance with SPRU-DC-RM-001, Document Control, Correspondence Control, and Records Management Program Administration.

SPRU-3518, SPRU DP SWPPP Inspection Report

8.0 EXHIBITS/ATTACHMENTS

Attachment 1 – Sampling and Analysis Plan for Stormwater at SPRU DP

Attachment 2 – Selected New York Standards and Specifications for Erosion and Sediment Control

Attachment 3 – Contractor SWPPP Certification Statement

Attachment 4 – Example SPRU DP SWPPP Inspection Report (SPRU-3518)

Attachment 5 – Engineering Calculations - French Drain Collection Trench

Attachment 1

Sampling and Analysis Plan for Stormwater at SPRU DP

SAMPLE PLAN TITLE SAP for Stormwater at SPRU DP (SWAS)

SAMPLE PLAN NUMBER 10-010

December 2010

Prepared by: Jason Litwiller, ES&H Specialist

Bruce Ehleringer, Hydrogeologist

Approved by: Dale Bignell, Environmental Manager

Dave Hall, ESH&QA Manager

Location

The Separations Process Research Unit Disposition Project (SPRU DP) site is located in the western portion of the Knolls Atomic Power Plant (KAPL), Niskayuna, Schenectady County, New York. The geographic coordinates for the project in NYTM units are 592,541 (easting), 4,741,944 (northing). Figure 1 is a regional location map showing SPRU DP and KAPL sites with respect to the town of Niskayuna. Figure 2 is a close up showing SPRU DP and KAPL sites and the nearby Mohawk River.

Purpose

Per the Order on Consent, the purpose of this sampling and analysis plan (SAP) is to properly locate the sources of stormwater and specify necessary treatment.

Background

SPRU DP uses a Stormwater Pollution Prevention Plan (SWPPP) that has been created in accordance with the GP. SPRU DP has developed and implemented a comprehensive strategy to manage stormwater. This strategy minimizes stormwater run-on to SPRU DP, isolates clean stormwater, and collects water that gets into the building basements so that it can get treatment and disposal offsite. Stormwater is managed through French drains and swales and is directed in a controlled fashion to vegetated areas and a stormwater distribution header. In December 2010, no stormwater point source discharges existed from SPRU DP. Stormwater control measures largely isolate the project from the adjacent KAPL facility. On 9/15/10, stormwater CBs, that previously discharged rainwater to the KAPL stormwater system, were sealed. As of December 2010, roof downspouts on G2, that discharged stormwater into the KAPL stormwater system, have been diverted so that water flow is to the ground, French drains and the stormwater distribution header. French drain and sandbags have been placed along the eastern site boundary fence line to prevent stormwater from transferring to and from KAPL. Stormwater transfer onto SPRU DP from KAPL is now limited to the west road in the southern portion of the site.

As of December 2010, stormwater is primarily managed through a system of French drain collection trenches. One French drain collection system between G2 and H2 sends collected water to a stormwater distribution header located next to a vegetated area. Another French drain collection system captures stormwater around the G2 west trailer area. Two rip-rap spillways distribute the trailer French drain water onto a vegetated area.

Stormwater that falls in the G2 and H2 buildings is contained by perimeter concrete walls and is directed to the basements. A primary and secondary berm installed within the H2 basement emergency exit tunnel ensures containment of rainwater within the H2 basement. Water that accumulates in the G2 and H2 basements is routinely pumped to 20,000 gallon frac tanks. This water is analyzed and shipped for treatment and disposal offsite.

Figure 7 identifies stormwater control features currently utilized at SPRU DP. Additional descriptions of these systems are available throughout the SWPPP.

Groundwater from the H2 footer drain flows to the H2 groundwater collection sump. It is pumped to 20,000 gallon frac tanks located in the northern portion of the site. Until October 6, 2010, the groundwater was treated onsite and discharged to the KAPL stormwater system. The groundwater is now shipped for treatment and disposal offsite.

The H2 groundwater sump collection system has two pumps and redundant features, including a third pump which is electrically independent with a high-level alarm. As a further control measure, a fourth pump with a portable generator is available to pump the sump water to the H2 basement should the redundant system features fail to operate. As a final measure, if the redundant backup systems fail, a 1,500 gallon tank would receive gravity-fed sump overflow groundwater. The H2 groundwater sump collection system components (sump, pumps, conveyance hose, and frac storage tanks) are inspected. The H2 emergency exit tunnel berms and the stormwater distribution header are inspected based on SPRU-OPS-101.

A monitoring program exists for stormwater flowing overland to the French drain collection trenches to monitor if water is present in the stormwater distribution header. Since installation of the French drain and stormwater distribution header, when enough water was present in the stormwater distribution header, a water sample was collected and analyzed until September 2011. Also, water samples were collected and analyzed from the rip-rap spillways during major storm events for which stormwater has been observed flowing onto the spillways. No stormwater discharge has overflowed the stormwater distribution header during any rainfall event, including the September 30/October 1, 2010, 100+ year storm event, in which 7-inches of rain fell in a 24-hour period. The

maximum depth of water in the 5 foot deep stormwater distribution header was 3 feet and occurred during the above storm.

Per the GP and the SWPPP, any stormwater discharge to surface waters of the State shall not have visible oil film, an increase in turbidity that will cause a substantial visible contrast to natural conditions, or an increase in suspended or colloidal solids that will cause deposition or impair the waters for their best usages.

Scope of Sampling and Analysis Plan

This SAP will include the following actions:

- Continue to conduct visual reconnaissance of SPRU DP to ensure all sources of stormwater are properly located and E&SC measures are functioning properly.
- Perform visual assessments of stormwater turbidity during rain events that cause surface runoff and assess whether it would cause a substantial visible contrast to natural conditions, as if it were to be discharged into surface waters of the State. If such a condition does exist and E&SC practices are not adequate, take actions to address.
- Sample and analyze for oil and grease if stormwater from KAPL onto SPRU DP has a visible oil film. If visible oil film is observed, use SPRU-ESH-004 “Spill Reporting/Response Plan” for necessary actions.
- Sample and analyze for oil and grease if stormwater entering the French drains has a visible oil film. If visible oil film is observed, use SPRU-ESH-004 for necessary actions.
- Sample in accordance with SPRU-RC-119 “Sample Collection”.
- Attach sample results to the SWPPP.

Instrumentation

- Rain gage – a manual, non-recording rain gage measuring total accumulation to one hundredth of one inch (0.01 inches) is installed on the site.
- Write-in-the rain field notebook
- Sample containers (Table 1)

Stormwater Source Identification and Basis for Sample Collection and Analysis

All known sources of stormwater have been identified in the SWPPP. Any additional sources that are identified should be added to the SWPPP. Sampling equipment should be available at all times to sample any runoff that exhibits a visible oil film.

Method for Collecting Samples

The water sample shall be collected and tracked per SPRU-RC-119. A short description of these procedures is as follows and in the next few sections:

1. Collect sample in the laboratory-provided sample container (see Table 1). Perform sampling wearing disposable powder-free gloves and required SPRU DP personal protective equipment. Keep hands away from the opening of the sample container during sampling to prevent contaminating the sample.
2. Fill the sample container to the top, place and secure the cap, and turn over to ensure no leakage.
3. Mark the Sample Time, Date, ID Number, location, name of person collecting the sample on the sample containers, and record on a chain of custody.
4. Place the sample containers into a cooler for delivery to an approved SPRU DP laboratory.

Sample Equipment Cleaning Procedure

Sampling equipment should be cleaned before and after use per SPRU-RC-119.

Duplicate Samples

One duplicate sample shall be taken for every 10 samples collected. One equipment rinse blank should be collected for every 10 samples collected. At a minimum, at least one sample duplicate and trip blank should be collected during each sampling round.

Sample Chain of Custody Requirements

Each sample shall be tracked on SPRU-RC-119, Attachment 1, "Field Sample Data Sheet".

Information to be Recorded

The sample containers supplied by the laboratory should be labeled as follows:

Stormwater at SPRU DP (SWAS)
Sample Location Number and Date, *e.g.*, SWAS-1 (2, 3, etc.) –Year Month Day
Date_____ Time_____
Initials_____

NOTE: Sample numbers should be in the format SWAS –A – XXYYZZ , where: SWAS refers to Stormwater at SPRU DP sample, and AA is the sample location number, XX is the year, YY is the month, and ZZ is the day. Use SWAS –A – XXYYZZ – D, where "D" refers to duplicate of sample "A" and SWAS –A – XXYYZZ – RB, where "RB" refers to equipment rinse blank.

Identification of Special Handling, Treatment or Preparation of Samples

Each batch of samples shall have a survey prior to releasing the samples from the collection/storage area.

Identification of Analytical Laboratory and Required Analyses

Table 1 - Sampling Parameters and Analytical Requirements for Stormwater Sampling

ANALYTICAL PARAMETER	SIZE	CONTAINER TYPE	PRESERVATIVE	MAXIMUM HOLD TIME
Oil and Grease Method 1664	1 liter wide mouth	Glass	HCl and Cool to 4 deg C	7 days

Health and Safety Requirements and Job Hazards Analysis

A Job Hazards Analysis (JHA) is required for this work.

Workers shall be briefed on this Sample Plan. A Training Attendance Sheet shall be completed prior to start of work to document the briefing.

Sample Plan Close-Out

Once data review is complete, attach copies of sample results to this SAP and note any deviations to the SAP in a cover memo. Submit to Records Management for filing. File the results and submit them for revision to the SWPPP.

References

SPRU-RC-119, Sample Collection

ATTACHMENT 2
Selected NEW YORK STANDARDS AND SPECIFICATIONS
FOR EROSION AND SEDIMENT CONTROL

STANDARD AND SPECIFICATIONS FOR CHECK DAM

Definition

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable material across a drainage way.

Purpose

To reduce erosion in a drainage channel by restricting the velocity of flow in the channel.

Condition Where Practice Applies

This practice is used as a temporary or emergency measure to limit erosion by reducing velocities in small open channels that are degrading or subject to erosion and where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:

$$S = h/s$$

Where:

S = spacing interval (ft.)
h = height of check dam (ft.)
s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows:

$$S = \frac{2 \text{ ft.}}{.04 \text{ ft/ft.}} = 50 \text{ ft.}$$

Stone size: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 5A.9 on page 5A.24 for details.

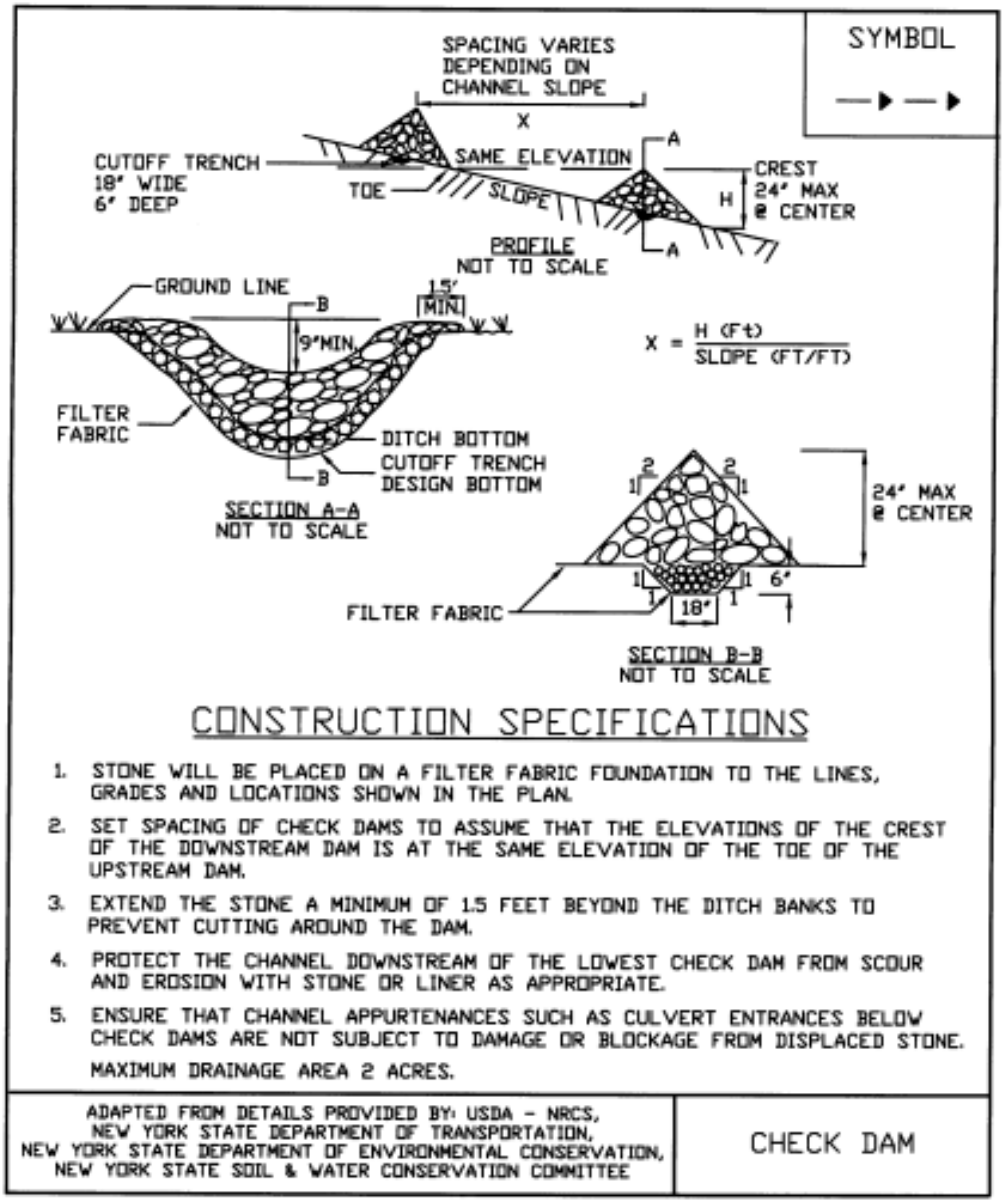
Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. Replace stones as needed to maintain the design cross section of the structures.

Figure 5A.9
Check Dam



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	CHECK DAM

STANDARD AND SPECIFICATIONS FOR MULCHING

Definition

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq. ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

ATTACHMENT 2
Selected NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (continued)

Table 3.7
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	8" x 100" 2-sided plastic, 48" x 180" 1-sided plastic	—	—	Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Compost	Up to 3" pieces, moderately to highly stable	3-9 cu. yds.	134-402 cu. yds.	1-3"	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Table 3.8
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45° Fahrenheit are required.

ATTACHMENT 2
Selected NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL
(continued)

STANDARD AND SPECIFICATIONS FOR SILT FENCE

Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

Slope Steepness	Maximum Length (ft.)
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and

3. Erosion would occur in the form of sheet erosion; and

4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

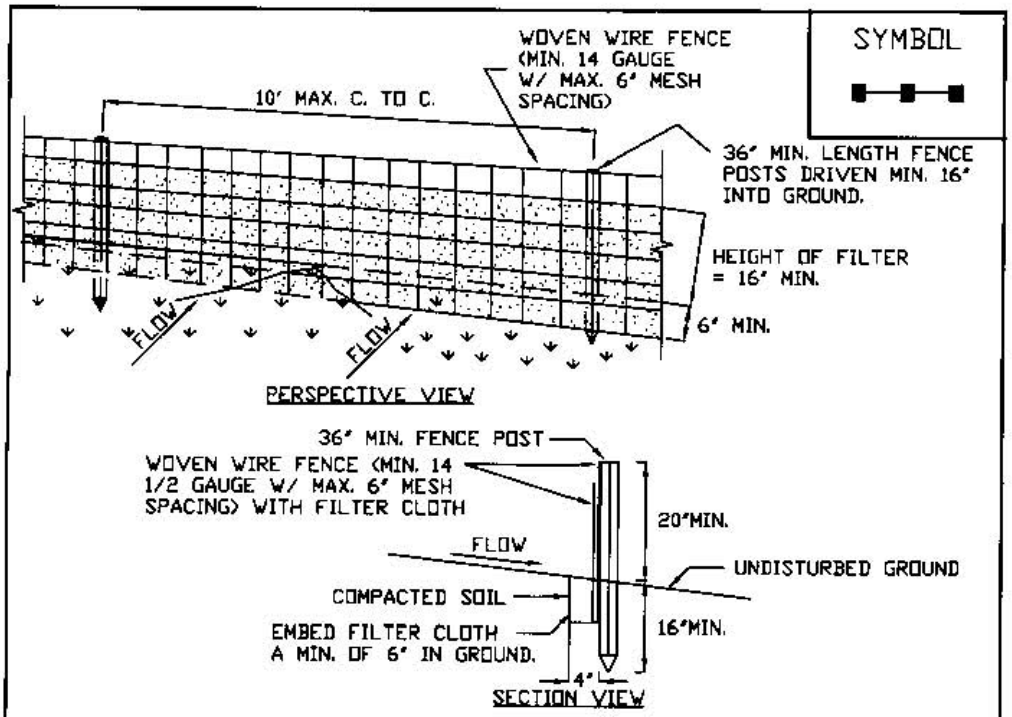
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

ATTACHMENT 2
Selected NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL
(continued)



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	SILT FENCE

ATTACHMENT 2
Selected NEW YORK STANDARDS AND SPECIFICATIONS
FOR EROSION AND SEDIMENT CONTROL
(continued)

STANDARD AND SPECIFICATIONS FOR DUST CONTROL

Definition

The control of dust resulting from land-disturbing activities.

Purpose

To prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the local permitting authority.

Construction Specifications

A. **Non-driving Areas** – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. **Driving Areas** – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access routes.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geotextiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

All Stormwater Pollution Prevention Plans must contain the NYS DEC issued "Conditions for Use" and "Application Instructions" for any polymers used on the site. This information can be obtained from the NYS DEC website.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

ATTACHMENT 3
CONTRACTOR SWPPP CERTIFICATION STATEMENT

I. SITE INFORMATION

Construction Site Name: _____

Site Location: _____

II. CONTRACTOR INFORMATION

Company Name: _____

Company Address: _____

_____

Company Phone Number: _____

Company Contact #1: _____

Company Contact #2: _____

Company Contact #3: _____

III. STORMWATER MEASURES

The contractor is responsible for but not limited to the following stormwater measures:

_____ _____

_____ _____

_____ _____

_____ _____

IV. CERTIFICATION

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

V. SIGNATURES

Name/Title of Person Providing Certification: _____

Signature/Date: _____

Name/Title of Trained Individual (print): _____

Signature/Date: _____

ATTACHMENT 4
SPRU DP SWPPP INSPECTION REPORT

SPRU DP SWPPP INSPECTION REPORT			
Date and time of inspection.	Date of Inspection:		Time of Inspection:
Name/Title of person performing inspection.	Print Name:		Print Title:
Description of weather and soil condition (e.g., dry, wet, saturated) at the time of the inspection.	Description:		
Description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. [Include discharges from conveyance systems (i.e., pipes, culverts, ditches, etc.) and overland flow.]	Description:		
Identification of all erosion and sediment control (E&SC) practices and pollution prevention (PP) measures that need repair or maintenance.	Description:		
Identification of all E&SC practices and PP measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.	Description:		
Description and sketch of areas with active soil disturbance activity, soil areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection. Digital photographs, with date stamp, that clearly show the condition of all E&SC practices that have been identified as needing corrective actions.	Description:	Sketch:	
Corrective actions that must be taken to install, repair, replace, or maintain E&SC practices & PP measures. Notify owner or operator within one business day. Begin corrective action within one business day of notification.	Corrective Actions:		
Signature and Date	Signature:		Date:

ATTACHMENT 5
ENGINEERING CALCULATIONS – FRENCH DRAIN COLLECTION TRENCH

PROJECT EXECUTION Efficiency with Certainty | URS Washington Division | Form No. 356-01(MM) Rev. Date: 24 Jan 2008

URS Washington Division

CALCULATION COVER SHEET

Calculation No.

Prel	Final	Void	Revision
	X		1

CLIENT	KAPL		Discipline CIVIL
PROJECT TITLE	SPRU DISPOSITION PROJECT		Project No. 29463-B.UL.02.ST.TA
SUBJECT/FEATURE	TEMPORARY DRAINAGE DITCH CALCS		No. of Sheets 7 (including cover sheet)

CALCULATION OBJECTIVE: TEMPORARY DRAINAGE TRENCH DESIGN

RESULTS/CONCLUSIONS: TRENCH DESIGN FOR 2 YEAR STORM USING RATIONAL FORMULA

ASSUMPTIONS/OPEN ITEMS: NONE

DESIGN BASIS/SOURCE DATA: BENTLEY FLOWMASTER COMPUTER PROGRAM

SOURCES OF FORMULA AND REFERENCES: RATIONAL METHOD

PROJECT EXECUTION Efficiency with Certainty | URS Washington Division | Form No. 356-01(MM) Rev. Date: 24 Jan 2008

URS Washington Division

CALCULATION COVER SHEET

Calculation No.

Prel	Final	Void	Revision
	X		1

CLIENT	KAPL	**Discipline** CIVIL
PROJECT TITLE	SPRU DISPOSITION PROJECT	**Project No.** 29463-B.UL.02.ST.TA
SUBJECT/FEATURE	TEMPORARY DRAINAGE DITCH CALCS	**No. of Sheets** 7 (including cover sheet)

Drainage area is 34, 870 s.f. per the field project team calculations.

A = 34,870 s.f. = 0.80 Acres

Use Rational Method due to small size of drainage area to estimate Peak Flow into trench.

Q =c*i*A

A = 0.80 acres

c = 0.90 for roof and paved areas

t = time of concentration = 10 minutes (assumed using engineering judgment)

Use a 2 year – 1 hour design storm (selected using engineering judgment)

Site is located in eastern New York State near Albany.

Rainfall intensity curve for this area is ~1.25 inches/hour (see attached worksheet)

i = 3.9 in/hr (see attached worksheet)

Q= (0.90)*(3.9)*(0.80) = 2.81 cfs = 1258 gpm

Design trench capacity based on the capacity of the pipe in the gravel trench.

Trench slope at south end of the ditch is = 1.58% >>>> (inv. 329.00 – inv. 327.42) / 100'

Use a 12" diameter smooth interior HDPE perforated Pipe with roughness coefficient = 0.015

Per Manning's equation, Pipe capacity = 1740 gpm (see attached computer printout)

Therefore, selected pipe is acceptable. (1740 > 1258)

Analyze the trench overflow as a Broad Crested Weir.

Weir Length = 17 feet Weir Breadth = 2 feet

Height of water over weir = 0.16 feet = 2 inches (see attached computer printout)

Set top of overflow weir 1.0' below top of trench elevation at low point of trench system.

Rev. No.	Description of Changes	Revision On Page(s)	Dated
0	Original Issue	All	07/24/09
1	Update section 1.8.1 B and reformat procedure	All	07/01/10
2	Revise text in sections 1.4.2, 1.5, & 1.8.4: to include stormwater French drain near G2 and H2 area, updated D&D plan, closed CBs on 9/15/10, & soil staging areas.	6, 7, 10, 11 & 13	
	Update Figures	34-38 & 42	10/28/10
3	Update DOE Contact / Update Project Status	5 & 7	11/15/10
4	Update to address new Site Owner Point of Contact Update SWPPP for consistency with GP-0-10-001 Review and approval by a NY Professional Engineer	All	11/17/10
5	Update All Figures Update with comments from KAPL, DOE and Naval Reactors	All	11/22/10
6	Update to address Order on Consent from DEC	All	12/28/10
7	Update to address revised Order on Consent from DEC (retracted #18)	All	01/28/11
8	Update to address discharge of H2 enclosure stormwater to the H2 SW roof drain. Update per DOE comments	12-18,21,23,25	03/18/11
9	Update to address discharge of H2 enclosure stormwater to the stormwater system.	All	05/31/11
10	Per DOE request, update discharge of H2 enclosure stormwater to Outfall 004. Add 2 staging areas on Fig 2. Move French drain on Fig 8. Delete stormwater collection drum east of H2.	8,16,18,21	08/25/11
11	Per DEC request, update discharge of H2 enclosure stormwater to Outfall 002. Open CB-8 & CB-29 & modified Fig 8 to show it.	16,18,23,28	09/09/11
12	Add WTS on Fig 2. Update Fig 6. Update dates on page 18.	8,13,14,18,19,21,28	12/09/11
13	Close CB-8 & CB-29. Update Figures 6 & 8.	13,14,16,18,22	06/19/12
14	Update Fig 6 for silt fence removed. Label CBs on Fig 7.	13-15,17,21,23	10/11/12
15	Project update. Respond to DEC comments (12/18) such as: planned KAPL stormwater bypass may occur in future & KAPL run-on to SPRU didn't occur during start of project.	8,12-16,18,20,22	01/29/13
16	Respond to DEC recommendation-2/5 (more inspections; if >1" rain & daily when disturbing soil) & 2/21 (inspection if ½" rain-not 1" & more description of run-on from rain onto KAPL asphalt road). 3/4-Reword 1.5.2 ¶#3 & 1.5¶#5 for updated information from KAPL that was already supplied by KAPL days earlier	12-14,18,20,23,26	03/05/13
17	E&SC acronym. H2 annexes are complete. SPRU-OPS-101.	3,8,16,19	04/10/13
18	Fig 2-Delete ESAs. Fig 7-Add: rock weep, FD @ H2 S-Annex, & KAPL stormwater flow onto SPRU DP. Attachment 2 – Delete 2 unused standards (straw bale dike & storm drain inlet).	8,14,16 13	06/18/13 07/10/13
	Update activities for 2014 per DEC request.	14	11/21/13
19	2014 update per DEC. Clarify that project activities are subject to change in sequencing & implementation. Fig 2-Add new ESA. Fig 7-Delete rock weep.	8,13,14,16	12/05/13
20	2015 update for DEC. Fig 2-Remove WTS. Fig 6-Update. Fig 7-Add 2 sump pumps (H2-E&S)	8,14-16,18,24	12/15/14
21	2016 update for DEC. Update Figures 2,7-8. Update per DEC GP (2015) & new requirements.	4,8,14,17-26,37	12/17/15
22	Per 1.5.2, reference a stormwater collection tank (Fig 7) for demolition	16 & 18	06/17/16
23	Include details for activities and protections during demolition	2-5,13,16-24	06/30/16