



Certified Mail No. 7018 1130 0001 9208 2582
Return Receipt Requested

M.G.L. Chapter 253
Dam Safety Permit
Permit No. 118-2020-118

Applicant

Karen Fung, P.E.
Chappell Engineering Associates, LLC
201 Boston Post Road West, Suite 101
Marlborough, MA 01752

On behalf of:
Town of South Hadley
c/o Michael Sullivan, Town Administrator
Town Hall
116 Main Street
South Hadley, MA 01075

and MassDOT
c/o Eamon Kernan
10 Park Plaza, Room 6340
Boston, MA 02116

Re: Queensville Pond Dam Rehabilitation Project
National Dam ID: MA02709
Registry Location: Hampshire County, Deed Book 1875, Page 120
Owner: Inhabitants of the Town of South Hadley
Dam Location: South Hadley

Date: April 27, 2020

Dear Ms. Fung:

Reference is made to the Chapter 253 Dam Construction Permit Part B application dated March 10, 2020 prepared by Chappell Engineering Associates, LLC (CEA). This was submitted for Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) regulatory review of the above-referenced dam rehabilitation project.

Permission is hereby granted under M.G.L. Chapter 253, as amended, to perform work depicted on drawing sheets 25, 86, 98, 99 and 105 of 173 of the permit application referenced above.

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2199
617-626-1250 617-626-1351 Fax
www.mass.gov/orgs/departement-of-conservation-recreation



Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Kathleen A. Theoharides, Secretary
Executive Office of Energy & Environmental Affairs

Jim Montgomery, Commissioner
Department of Conservation & Recreation

Permission is granted subject to the following conditions:

- (a) At least 21 days before the start of construction, the applicant shall provide a completed **DAM SAFETY IMPROVEMENTS – NOTICE OF CONSTRUCTION** (form attached) with a construction schedule to the DCR/ODS - Permits Section.
- (b) For all features of the repair project, the Dam Engineer (CEA) shall notify ODS of any design change from the original design submitted with the permit application due to regulatory requirements, changes in field conditions or any other unanticipated occurrence. This notification shall be a formal submittal to ODS which includes all relevant revised plans, computations and data (survey, geotechnical, etc.) supporting the design change(s). This submittal shall be forwarded to ODS by registered mail, return receipt requested, and will require an amendment to the permit. Review time may vary based upon the complexity of the design change(s), however, ODS will generally issue the permit amendment within five (5) business days of receipt of a complete design revision submittal.
- (c) The Dam Engineer must report to ODS any unforeseen incidents that occur at the work site during the repair work. Unforeseen incidents include, but are not limited to, significant uncontrolled seepage into the work area, significant earth support failures or slope failures. The report must explain in detail what occurred, corrective measures taken to mitigate the occurrence and any impacts the occurrence may have had on the repair plan. If the incident results in a design change, ODS must be provided revised design documents (refer to Condition (b), above).
- (d) The following shall be prepared by the contractor, approved by the Dam Engineer, and submitted to ODS prior to construction:
 - Cofferdam designs. The cofferdams shall be carefully designed to resist anticipated forces without failing and to ensure that seepage around, under, or through the cofferdams is manageable;
 - A water control and diversion plan describing methods to be employed to allow work to be performed “in the dry” and to manage both the water level in Titus Pond and outflow from Titus Pond while dam rehabilitation is in progress; and
 - A flood response plan. While construction is underway, weather forecasts, stream flows and water levels must be monitored to allow adequate time to respond to rising water levels at the construction site. If high water levels are expected, equipment and materials shall be removed from the work area and personnel evacuated. Sufficient materials and equipment required for flood response shall be maintained in a safe location at, or near, the construction site.
- (e) The Dam Engineer shall invite ODS to the preconstruction meeting, another project meeting at 50% completion and the final inspection meeting. ODS reserves the right to make site visits and inspections at any time during the permit period. ODS requests the following items be addressed at the pre-construction meeting:

- Identification of the
 - resident engineer (Owner's representative overseeing the project);
 - contractor's qualified site superintendent; and
 - Dam Engineer's representative overseeing the project;
- Provide emergency contact information for the contractor and resident engineer;
- Water control features anticipated and the process for the Dam Engineer to either develop or approve the overall control and diversion of water plan. Any flood emergency warning and response procedures shall be identified;
- Level of Dam Engineer construction oversight including: identification of any critical construction items to be overseen by the Dam Engineer; procedures for the Dam Engineer's review and approval of shop drawings and other submittals; documentation of Dam Engineer's approval of any design modifications; procedures for coordinating and scheduling the Dam Engineer's inspection of critical construction elements; and
- Presentation of the initial construction schedule with identification and discussion of major items.

ODS shall be provided a copy of the preconstruction meeting minutes.

- (f) The Dam Engineer shall provide ODS written documentation that he/she has reviewed and approved all pertinent submittals or samples concerning critical project dam features including, but not limited to: embankment fill; riprap, crushed stone; geotextiles; and seed mix. This documentation may be in the form of a submittal log which may be submitted as part of the "as-built" report, described below.
- (g) Upon completion of work the Applicant shall submit to ODS a **DAM SAFETY CERTIFICATE OF COMPLETION** (form attached). With this certificate of completion submit one bound (utilizing plastic comb bindings) as-built report with 11"x17" record drawings signed and stamped by a registered professional civil engineer with contractor's signature attesting that all work was performed according to the plans and specifications. The as-built report shall include documentation of submittals reviewed and approved by the Dam Engineer, copies of any materials or construction testing reports and color photos of construction phases and appurtenant installations. Photograph numbers, location and direction in which each photo was taken must be identified. An electronic copy of the as-built report and record drawings shall be provided in PDF (compatible with Adobe Reader Version 9.3 or later) on CD-R (not CD-RW) format compact disc. Each CD shall be provided with a jewel case and a label indicating the dam project name, NID No., the town in which the dam is located and the date of the as-built report.
- (h) Once the dam repairs have been completed the Dam Engineer shall submit a Phase I Inspection documenting the condition of the dam. The Phase I Inspection report and as-built report are required prior to ODS issuing a Certificate of Compliance.

- (i) The Certificate of Completion, as-built report and Phase I Inspection report described above shall be provided to ODS within 90 days of substantial completion of work unless ODS agrees to later submission of these documents.

Any permit issued by DCR shall be subject to revocation by order of the Commissioner if the permittee fails to conform to 302 CMR 10.00, Dam Safety Rules and Regulations, provisions of this permit, or any other applicable laws and regulations.

This permit does not release the applicant from the requirements of any other regulatory authority.

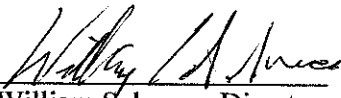
Such authorizations and/or notifications include, but are not limited to:


Local Conservation Commission;
Massachusetts Department of Environmental Protection (DEP);
Massachusetts Department of Fish and Game (DFG);
Massachusetts Executive Office of Environmental Affairs (EOEA), MEPA Unit; and
U.S. Army Corps of Engineers.

This permit must be recorded by the applicant at the Registry of Deeds in the county where the dam lies. Recording must be done prior to the commencement of construction and a copy of the recorded permit filed with the Office of Dam Safety.

This permit remains valid for two (2) years from the date of issue: **April 27, 2020.**

Permit expiration date: **April 27, 2022.**


William Salomaa, Director
DCR, Office of Dam Safety


David Ouellette, Permit Engineer
DCR, Office of Dam Safety

Attachments: Dam Safety Improvements – Notice of Construction form
Dam Safety Certificate of Completion form

Informational (NOT TO BE RECORDED AT REGISTRY OF DEEDS)

Excerpts from Dam Safety Rules Regulations:

302 CMR 10.09(5): Recording a Chapter 253 Permit.

A permit to construct, drawdown, repair, alter, breach or remove a dam shall be recorded at the Registry of Deeds in the county where the dam lies. Recording must be done prior to the commencement of construction and a copy of the recorded permit filed with the Commissioner.



Certified Mail No. 7017 3380 0001 0713 8593
Return Receipt Requested

March 4, 2020

Karen S. Fung, PE
Chappell Engineering Associates, LLC
201 Boston Post Road West, Suite 101
Marlborough, MA 01752

RE: Chapter 253 Part A Permit Application
Newton Smith – Lower Dam
Nat. ID: MA01975
South Hadley, Massachusetts

Dear Ms. Fung:

The Office of Dam Safety (ODS) is in receipt of your Chapter 253 Permit Application (Part A) dated January 22, 2020 for work proposed at Newton Smith – Lower Dam.

In accordance with M.G.L. Chapter 253 s.44-48, as amended by Chapter 330 of the Acts of 2002, 302 CMR 10.00 Dam Safety Rules and Regulations, Newton Smith – Lower Dam falls into the DCR non-jurisdictional category as it does not meet the minimum impoundment volume for jurisdiction.

Per information provided by your office, the proposed work will not result in an increase in the dam's maximum impoundment volume and therefore does not warrant a change to the dam's non-jurisdictional classification. A Ch. 253 Dam Safety permit is therefore not required.

If additional work is to be undertaken which could increase the dam structure's impoundment volume, it is recommended that ODS be notified to determine if a dam safety permit is required.

Please note that this determination regarding the dam safety permit is relative to the Chapter 253 process and this determination does not release the applicant from the requirements of any other regulatory authority such as but not limited to:

Local Conservation Commission
Massachusetts Department of Environmental Protection (DEP)
Massachusetts Department of Fish and Game (DFG)
U.S. Army Corps of Engineers

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2199
617-626-1250 617-626-1351 Fax
www.mass.gov/orgs/departments-of-conservation-recreation



Charles D. Baker
Governor

Karyn E. Polite
Lt. Governor

Kathleen A. Theoharides, Secretary
Executive Office of Energy & Environmental Affairs

Jim Montgomery, Acting Commissioner
Department of Conservation & Recreation

Historical records of a dam's construction can be useful in diagnosing dam problems and in planning future dam repair and maintenance efforts, therefore, ODS endeavors to maintain up-to-date records on the construction and modification of dams within the Commonwealth. In support of this effort, ODS requests that at the completion of construction the Applicant provide to ODS an as-built plan and photographs documenting work performed.

If you have any questions, please contact David Ouellette at 617-626-1347 or by email at david.ouellette@mass.gov.

Sincerely,



William C. Salomaa, Director
Office of Dam Safety

cc: Michael Sullivan, Town Administrator
Town Hall, 116 Main Street, South Hadley, MA 01075

Eamon Kernan, Project Manager
MassDOT, 10 Park Plaza, Room 6340, Boston, MA 02116

COMPENSATION

Payment for all work under this Item shall be made at the contract unit price, lump sum, which shall include all work detailed above, including Plan preparation, required revisions, revisions/addenda during construction, monthly reports and filing fees.

Payment of fifty (50) % of the contract price shall be made upon acceptance of the Stormwater Pollution Prevention plan. Payment of forty (40) % of the contract price shall be made in equal installments for implementation of the Stormwater Pollution Prevention plan. Payment of the final ten (10) % of the contract price shall be paid upon satisfactory submissions of a Notice of termination (NOT) when final stabilization has been achieved.

ITEM 765.442 SEEDING - ROADSIDE RIVERBANK – SQUARE YARD PART SHADE MIX

The work under this item shall conform to the relevant provisions of Subsection 765 of the Standard Specifications and the following:

The work shall consist of planting and establishing a stand of grass in the areas shown on the plans or as required by the Engineer. For the purposes of these specifications, the term “grass” shall apply to all the forbs, grasses, sedges, and rushes included in the materials.

For this Project, where seeding for restoration is indicated, use Item 765.442 Seeding – Roadside Riverbank – Part Shade Mix.

All seeding shall be done by a company having a minimum of five years of experience with native grass establishment. Prior to beginning work, the seeding Contractor shall furnish proof of qualifications to the Engineer for approval. Proof of qualifications includes, if requested, providing documentation (photos and contacts) to demonstrate knowledge and expertise with native seeding and proof of having completed successful native seeding projects.

Seeding shall be done within 48 hours of placement of loam and final grading. Mulch for seed shall be Compost Topdressing or hydromulch as specified below, and shall be incidental to this item.

SEEDING SEASON

Seeding seasons shall be April 1 through May 15 and October 1 through December 1 for dormant seeding. *Seeding that occurs outside of these periods, shall be increased by 50%.*

MATERIALS

Seed

Samples and Submittals

- 1) Certificate of Materials. 60 days prior to ordering, the Contractor shall submit to the Engineer the manufacturer or supplier's notarized Certificate of Materials. This document shall not be used as proof of purchase, proof of material delivered, or proof of material seeded, but simply to verify supplier availability of seed listed on the date certified. The species listed shall match those specified on the plans or herein, however, cultivars may vary due to availability. Substantial substitutions or changes in the mix from that specified on the plans or herein shall be approved by MassDOT Landscape Design Section.
- 2) Seed Tag Certification. All seed lots have a seed analysis tag as required by State and Federal law. The contractor shall submit seed tags for each bag of seed used on the project site or ensure that each tag is photo documented by the Engineer. Number of tags shall match number of bags sent by the supplier to meet rate of Pure Live Seed specified on the plans. Tag must include: kind and variety of seed; lot number; origin of seed; net weight; % purity; germination; dormant seed; germination test date; inert matter; weed, noxious and other crop seed; and name and address of company responsible for the analysis. Seeding may be considered unacceptable for payment if no tags are submitted.
- 3) Certificate of Compliance. Prior to payment, contractor shall submit a bill of lading or a signed, dated and notarized Certificate of Compliance from the Supplier that serves as proof of purchase. This document shall include kind and variety of seed, lot number, net weight shipped, date of sale, invoice number under which seed was purchased, and name and address of Supplier or Manufacturer. All information must be included on the notarized form, including lot number and net weight shipped for specified job. This information shall match Seed Tag Certification and quantity of seed applied on the job. Seeding may be considered unacceptable for payment if information is incomplete.
- 4) Seed Sample. Contractor may be asked, prior to seeding, to submit a seed sample for testing.

Quantities specified are Pure Live Seed (PLS). Greater quantities of ordered seed may be required to achieve actual specified seeding rates. Pure Live Seed is defined as the fraction of pure seed species within the mix that, by standard seed testing practices, will germinate. This is determined by multiplying the percent of seed purity by the percent of seed germination.

Seed mix shall be a custom blend as shown on the plans or shall be as specified below. Seed cultivars shall be those that are as regional to New England or the local ecotype as possible.

Any species substitutions shall be with a species having similar characteristics and native to New England. Substantial changes in the mix shall be approved by MassDOT Landscape Design Section.

Seed Species and Seeding Rates

Item 765.442 Seeding – Roadside Riverbank –Part Shade Mix

<u>Botanical Name</u>	<u>Common Name</u>	<u>% PLS By Weight</u>
Grass		
Elymus virginicus	Virginia Wild Rye	25.00%
Elymus canadensis	Canada Wild Rye	20.00%
Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	20.00%
Festuca rubra	Creeping Red Fescue	12.00%
Dichanthelium clandestinum 'Tioga'	Deertongue grass 'Tioga'	8.00%
Agrostis perennans	Upland Bentgrass	6.00%
Carex vulpinoidea	Fox Sedge	2.00%
Juncus tenuis	Path Rush	2.00%
Juncus effusus	Soft Rush	0.10%
		<hr/> 95.10%
Herb/Forb		
Penstemon digitalis	Beard-tongue	2.00%
Aster novae-angliae	New England Aster	1.00%
Solidago caesia	Woodland Goldenrod	0.50%
Aster cordifolius	Blue Wood Aster	0.50%
Eupatorium maculatum	Joe-pye Weed	0.30%
Geum canadense	White Avens	0.30%
Solidago rigida	Rigid Goldenrod	0.20%
Rudbeckia hirta	Black-eyed Susan	0.10%
		<hr/> 4.90%
		<hr/> 100.00%

Seeding Rate - Seeding – Roadside Riverbank –Part Shade Mix:

Apply this mix at 20 lbs PLS/acre on areas of less than 3:1 slope and 25 lbs PLS on areas of greater than 3:1 slope.

Add 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 July) or grain rye (1 Aug to 31 Dec). Cover crop shall be incidental to seeding item.

Fertilizer

No fertilizers shall be applied.

Water

Water, including hose and all other watering equipment required for the work, shall be furnished by the Contractor to the site at no additional cost. Water shall be suitable for irrigation and free from ingredients harmful to plant life. All plants injured or work damaged due to the lack of water or the use of too much water shall be the Contractor's responsibility to correct.

Mulch

Mulch for seeding and topdressing shall be incidental to this item. Mulch shall be:

- Compost Topdressing meeting the material and submittal requirements of Item 751.7,
OR
- Compost Topsoil and as specified below under Seeding and Mulching.
OR
- Hydromulch per the manufacturer's recommendation. Mulch for hydroseeding shall be wood fiber only.

Photo Documentation

Contractor shall submit photo documentation to the Engineer and Landscape Design Section. Each photo shall be date stamped. Photos shall be submitted after the following stages of construction:

- Soil preparation
- Seed and hydromulch/compost topdressing
- Germination
- Grass establishment after one full growing season (growing season is June-September)

CONSTRUCTION**Surface Preparation**

Soil preparation and seeding shall occur only when the bed is in a friable condition, not muddy or hard. Bare soils shall be raked to remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. Ruts and depressions shall be filled with additional loam or compost and the soil shall be re-graded to a smooth and even finish corresponding to the required grades.

When seeding over existing or compacted soil, surface will be prepared by raking or tracking to a depth of 2 inches prior to seeding and prior to Compost Topdressing (when applicable).

Surface preparation shall be compensated for under Item 751. Loam Borrow.

Surface preparation shall be approved by the Engineer prior to seeding.

Seeding over Various Substrates

Loam: Seeding shall occur within 48 hours of site preparation to prevent loss of topsoil. Seeding shall be hydroseeding or broadcast as specified below.

Compost Topdressing: Compost Topdressing shall be applied as specified in the Special Provisions. Seed should be broadcast at the same time as compost application to ensure a thin cover of compost over seed. ***When seeding is done after application of Compost Topsoil the rate shall be increased by 50% and area shall be hydromulched.***

Compost Mulch over Modified Rock: Compost Mulch shall be applied as specified under Item 767.78 and shall be such that only the voids in the rock are filled so that seed has an organic substrate for germination. Seed shall be broadcast after compost application. No hydromulch is required.

Seeding Methods

No seeding or surface preparation work shall be done if soils are muddy or dry and compacted.

Broadcast Seeding: Seed shall be broadcast spread using a cyclone or whirlwind seeder or hand broadcast. Small or light-seeded species such as bluestem may be mixed with approved filler (e.g., sawdust, rice, kitty litter, or clean damp sand) to achieve an even distribution. Broadcast seeding shall be undertaken in two separate passes at ninety degrees to each other. One-half the seeding rate shall be applied in each direction.

To ensure seed to soil contact with broadcasting of seed, seed shall be tracked or rolled with a weighted roller.

All broadcast seeding shall be followed by hydromulching unless seeding is done as part of Compost Topdressing and as specified above.

Hydroseeding shall include hydromulch.

Hydromulching shall be per the Standard Specifications and per the manufacturer's directions.

After seeding and mulching, water seeded areas to moisten soil to a depth of at least 2 inches.

Seed and Grass Care

During Germination: Contractor shall care for seeded areas as determined necessary by the Engineer and the MassDOT Landscape Architect. Care may include irrigation and weed control as necessary for germination.

During Establishment: Following germination of seeded species, the contractor shall maintain the stand of grasses to ensure healthy growth. Work shall include mowing or weed-whacking for weed control, irrigation if necessary, and monitoring for invasive plants.

Watering shall provide uniform coverage without eroding soil or grassed surfaces. Treatment of invasive plants shall be per the direction of MassDOT Landscape Architect.

The Contractor shall provide all labor, equipment, materials, and water required for establishment. Contractor shall water all seeded areas as necessary to a depth of 2 inches or greater.

Areas within Dam Limits

For this Project, where newly established and existing grasses are uniformly higher than three (3) inches within the dam construction areas for Newton Smith Lower Pond Dam and Queensville Pond Dam, the areas shall be mowed down to a height of 3 inches prior to the Final Payment for Item 765.442 Seeding – Roadside Riverbank – Part Shade Mix. The Dam Owner shall be contacted 24 hours prior to mowing.

Over-seeding

If there are areas of bare ground greater than 2-3 feet in diameter, these areas shall be over-seeded with the specified mix. Over-seeding application rates and methods shall be the same as those listed above. After seeding, areas shall be mulched with straw mulch or ¼ - ½ inch Compost Topsoil and watered with a fine mist to moisten soil to a depth of at least 2 inches.

Areas that are invaded by weeds shall be mowed as low as possible and over-seeded as directed. Soil that is compacted shall be raked or roughened prior to over-seeding. Following over-seeding, soil shall be lightly tamped to ensure seed to soil contact.

Over-seeding and mulch for over-seeding shall be incidental to this item.

ESTABLISHMENT

Native upland grasses and forbs will not look like turf grass. Many of the native grasses are bunch type grasses and will not form a uniform growth or have a sod-type appearance. However, seeded area shall show general uniform growth of the seeded species throughout the area. Areas with significant gaps of bare soil, generally greater than 2-3 feet in diameter, will require over-seeding.

A well-established stand of grasses at the end of one full growing season (June-September), as determined by the Engineer and the MassDOT Landscape Architect, will be required for acceptance. At least 80-90 percent of the grass established shall be the seeded species and any invasive or aggressive weeds (mugwort, ragweed, or knapweed) shall have been cut or otherwise managed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Unless otherwise indicated, Item 765.442 Seeding – Roadside Riverbank – Part Shade Mix will be measured for payment by the square yard after one full growing season (June-September) has elapsed between seed application and inspection and upon approval of establishment by the Engineer and the MassDOT Landscape Architect.

Item 765.442 Seeding – Roadside Riverbank – Part Shade Mix will be paid for at the Contract unit price per Square Yard upon receipt of required submittals as specified above and upon approval of established stand of grass as specified above.

This price shall include seeding, rolling to ensure seed-to-soil contact, care during germination and establishment, irrigation, mulching, over-seeding, labor, materials, equipment, photo documentation, and all incidental costs required to complete the work. Site preparation, including raking, tilling, removal of debris and stones, and other work to the prepare site for seeding shall be compensated for under Item 751, Loam Borrow.

Mowing of grasses within dam construction limits shall be considered as incidental to seeding items.

ITEM 767.121**SEDIMENT CONTROL BARRIER****FOOT**

The work under this item shall conform to the relevant provisions of Subsections 751 and 767 of the Standard Specifications and Subsection 670 of the Standard Supplemental Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment Control Barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

Where specified or required by permits, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

ITEM 102.3 **HERBICIDE TREATMENT FOR INVASIVE PLANTS** **HOOR**

Work under this item consists of controlling plants, invasive or non-invasive, at the Newton Smith Pond Dam, Queensville Pond Dam, and controlling invasive plants at other areas designated by the Engineer and within the project limits.

For control of invasive plants within the limits of the dams, the primary intent is to improve the condition of the dam embankment by removing brush, invasive and non-invasive, which may be detrimental to the embankment structure and which may obstruct dam inspection. Non-invasive species on the dam embankments shall be considered as invasive and shall be removed as indicated in the Drawings or as directed by the Engineer per the Invasive Plant Management Strategy described below.

DO NOT REMOVE ROOTS BIGGER THAN 2 INCHES OR STUMPS BIGGER THAN 4 INCHES FROM THE DAM EMBANKMENT. EXCAVATION INTO THE DAM EMBANKMENT IS BEYOND THE SCOPE OF THIS PROJECT.

For areas away from the dams, control of invasive plants applies only to invasive species.

An Invasive Plant Management Strategy (IPMS) for their control shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on site. The IPMS shall be measured and paid for under Item 102.33, Invasive Plant Management Strategy.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Herbicide shall be applied during day time hours only.

Payment is per hour on site and shall be compensation for a minimum crew of 2 licensed applicators, 2 back-pack sprayers and mist-blowers, a properly equipped spray truck with spray hoses, and a tank with sufficient capacity for a full day of work.

The overall intent is to improve the habitat value of the site, protect proposed landscape restoration, improve future maintenance operations, and attempt to prevent future spread both on-site and to adjacent sites.

Measures to prevent the introduction of invasive plant species to the site and to correct their introduction as a result of construction-related activities shall be covered under the Standard Specifications, Division I - Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property as amended in these Special Provisions.

Plant species targeted for management under this item shall be as determined in the field per the site walk and as specified in the IPMS.

The definition of invasive plant species shall be as described by Massachusetts Invasive Plant Advisory Group (MIPAG): “non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems.”

Control of invasive plants shall be in accordance with the Invasive Plant Management Strategy. Treatment areas shall include stockpile locations and may, upon approval of the Engineer, extend outside the project limit. Treatment shall be done each consecutive year for the duration of the contract unless specified otherwise in the IMPS or unless directed otherwise by the MassDOT invasive species contact. Work shall be done during the growing season from May – October unless otherwise specified in the IPMS.

Areas identified for vegetation control measures shall be as shown on the plans and as determined in the field by the Engineer and a MassDOT Landscape Architect. Contact at MassDOT Landscape Design Section is George Batchelor at (857) 368 -9179 or george.batchelor@dot.state.ma.us.

NOTIFICATIONS

For work occurring near the dam, the Contractor shall give 48-hour notice to the Town DPW and Engineer prior to starting work. The Engineer or Town DPW shall witness all work on or near the dam.

SUBMITTALS

No work shall begin without approval of the submittals.

Within 15 business days prior to the site walk, the Contractor shall submit all qualifications to the Engineer for approval by MassDOT Landscape Design.

Submittals include the following items.

Hours Worked at the Dam

All work to remove vegetation taking place on or near the dam shall be OBSERVED by the Engineer or Town DPW who shall, in writing, supply the Contractor with a written statement giving the count of persons in the work crew, the date, and duration of the work. The Contractor shall submit the signed statement for measurement and basis for payment for work on or near the dam.

Qualifications

1. Company must provide proof of qualifications by providing the following:
 - a. Narrative describing company, its expertise and experience with invasive plant control.
 - b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas.
 - c. Describe company’s technical qualifications and past performance.

2. Company must meet licensing requirements:
 - a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
 - b. At least one or more applicator must have ROW certification if required for specific project.
 - c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
 - d. Company must provide documentation of any warnings, penalties or fines received in the last three (3) years.

3. Company must provide proof of experience with invasive plant control and include following:
 - a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
 - b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
 - c. Photo documentation of these projects.
 - d. GPS coordinates of project locations, if available.

4. Crew leader must have expertise with invasive plant control and provide the following:
 - a. Have held Core license for at least five (5) years.
 - b. Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

The following companies are pre-approved by MassDOT Landscape Design Section:

Groundscapes Express, Inc.

P.O. Box 737
Wrentham, MA 02093
Contact: Butch Goodwin
Email: butch@groundscapesexpress.com
Phone: 508-400-5366

Solitude Lake Management

590 Lake Street
Shrewsbury, MA 01545
Contact: Keith Gazaille
kgazaille@solitudelake.com
Phone: 508-885-0101

Land Stewardship, Inc.

PO Box 511
Turner Falls, MA 01376
Contact: Chris Polatin
Email: info@landstewardshipinc.com
Phone: 413-367-5292

SWCA Environmental Consultants

15 Research Drive
Contact: Scott Fisher
Phone: 413-658.2056
Email: sfisher@swca.com
Amherst, MA 01002

Native Habitat Restoration

P.O. Box 582
Stockbridge, MA 01262
Contact: Jess M. Toro : 413-358-7400
Email: nativehabitatrestoration@gmail.com
Phone: 413-394-0277

Vegetation Control Service, Inc.

2342 Main St.
Athol, MA 01331
Contact: Andrew Powers
Email: apowers@vegetationcontrol.com
Phone: 800-323-7706

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

Follow-Up Treatment

Depending on treatment results after the first year, the IPMS may be amended for the second year to address additional concerns or adjust to conditions. Treatment shall be adjusted accordingly.

Herbicide Use Report

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report. Where applicable, the Contractor shall provide the name/s of the associated water body/bodies affected by potential discharge, per the requirements of Sections 7.1 and 7.2 of the USEPA Pesticide General Permit for the Discharges from the Application of Pesticides.

Photo Documentation

Digital photos with date and time stamp shall be provided with IPMS and follow-up reporting. Photos shall show existing conditions and post-treatment conditions.

MATERIALS

All proposed herbicides shall be as approved in the IPMS. Herbicides shall be labeled for the method of treatment and shall meet all federal, state and local regulation requirements. Application rates will depend on herbicide proposed and shall be per the manufacturer's label for specific application.

CONSTRUCTION METHODS

All methods used shall be as approved in the IPMS.

Prior to the start of any work, Contractor shall walk the site with the Engineer and the MassDOT Landscape Architect. The purpose of the site inspection is to identify limits of work, mark locations

of areas designated for treatment, and mark individual plants targeted for treatment or removal according to the IPMS. Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

CONTROL OF VEGETATION AT DAMS

The Contractor shall provide 48-hour notice to the Engineer and Dam Owner prior to performing work on or near the dam.

All work to remove vegetation taking place adjacent to the dam shall be OBSERVED by the Engineer or Dam Owner who shall, in writing, supply the Contractor with a written statement giving the count of persons in the work crew, the date, and duration of the work.

Herbicide Applications

All herbicide application shall conform to Massachusetts Pesticide Laws and Regulations per the Massachusetts Department of Agricultural Resources (MDAR) Pesticide Bureau.

Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on their labels and all applicable federal, state, and local regulations. Mixing shall not occur within sensitive areas, wetlands, or buffer zones.

Contractor shall not spray 2 hours prior to precipitation, during rain, or during windy conditions. The Contractor shall be responsible for monitoring weather conditions and adjusting the work schedule as appropriate for the herbicide and application method to be used.

Targeted vegetation shall be identified and marked prior to treatment. Plants treated by foliar spray, injection or glove application or other methods that leave standing vegetation, as opposed to cut-stump application, shall remain clearly marked for identification through the contract period.

Desirable vegetation shall be protected from both spray and other physical damage.

Contractor is responsible for any damage to vegetation not designated for removal or treatment. Vegetation damaged shall be restored. Cost of replacement plants and/or restoration shall be borne by the Contractor.

Contractor shall ensure that the public does not enter a work area while herbicide application or spraying is underway.

Disposal Of Invasive Plant Material

All material to be cleared shall become the property of the Contractor. The satisfactory disposal of all cleared plant material (seeds, roots, woody vegetation, associated soils, etc.) shall be the Contractor's responsibility.

The Contractor shall take measures to prevent viable plant material from leading to further infestations (seeds, roots, woody material, etc.) while stockpiled, in transit, or at final disposal locations. All precautions shall be taken to avoid contamination of natural landscapes with invasive plants or invasive plant material.

Chipping, shredding, or on-site burning of plant material shall not be permitted unless written approval is given as part of the Invasive Plant Management Strategy.

For plant material taken to an incinerating facility per the IPMS, a receipt from that facility shall be submitted to the Engineer as proof of disposal.

Where feasible, it is preferable to dispose of plants on site or to bury them on site with on-going monitoring for re-sprouting. Disposal locations and methods must be approved and included in the IPMS. Site work such as grading and seeding to stabilize and restore disposal area shall be incidental to this item.

Contractor shall be responsible for treating areas of re-growth due to improper disposal.

MONITORING

After initial herbicide treatment, all treated plants and areas shall be monitored through visual observation and re-treated as necessary and appropriate throughout the season and for the duration of the contract per the management proposal and schedule for control submitted by Contract. Monitoring shall be incidental paid for under Item 102.33, Invasive Plant Management Strategy.

MEASURE OF SUCCESS

The expectation is a minimum of 85-95 percent control achieved after the first treatment, depending on plants targeted and extent of population, and based on the expectations laid out in the IPMS. The expectation for the contract duration is 95-100% eradication by the end of the treatment period, unless otherwise specified in the IPMS.

METHOD OF MEASUREMENT

Work at the dams shall be measured by the Hour as witnessed by the Engineer or Dam Owner.

Work at other locations for Item 102.3 will be measured for payment by the Hour of crew time spent on the project doing actual work. A crew shall be defined as a minimum of two licensed applicators each equipped with (at minimum) back-pack sprayer and mist blower. The crew shall also have a properly equipped spray truck with hoses and a tank with sufficient capacity for a full day of work.

BASIS OF PAYMENT

Work at the dams shall be based on the hours stated in the Contractor's submitted statement, as signed by the Engineer or Dam Owner.

Work at other locations for Item 102.3 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools and all incidentals required to complete the work.

Payment will be based upon time spent on the project doing actual work and shall not include travel time to and from the Contractor's place of business and shall also not include time for investigative field trips.

The Invasive Plant Management Strategy will be paid for under Item 102.33.

ITEM 102.33 INVASIVE PLANT MANAGEMENT STRATEGY HOOR

This item consists of providing an Invasive Plant Management Strategy (IPMS) for the control of invasive plants on the project site and shall be coordinated with Item 102.3 Control of Invasive Plants Existing on Site. The IPMS shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on site.

Invasive plant control treatment on site shall be as described under Item 102.3 Control of Invasive Plants Existing on Site and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Individual attending the site walk and determining the Invasive Plant Management Strategy must demonstrate expertise with vegetation management and invasive plant control.

Additionally, per Dam Safety regulations, invasive and non-invasive brush growing on dam embankments shall be removed as the growth may be detrimental to the embankment structure and may obstruct dam inspection. Areas for removal shall be as indicated in the Drawings or as directed by the Engineer. Removal operations shall be in accordance with the Invasive Plant Management Strategy.

THE CONTRACTOR SHALL TAKE NOTE THAT VEGETATION REMOVAL ON OR NEAR DAMS REQUIRES SPECIAL CARE AND ATTENTION AND SUCH WORK SHALL BE SPECIFICALLY ADDRESSED IN THE INVASIVE PLANT MANAGEMENT STRATEGY.

SUBMITTALS

Individual shall be from the same company as that providing services for Item 102.3 Control of Invasive Plants Existing on Site or shall meet the following requirements:

- Submit copy of current Core license
- Submit a resume listing five (5) or more years of experience managing invasive plants with a company specializing in vegetation management.

Task Summary: for measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the following tasks performed, which shall include at least: Site Walk/s, IPMS Written Reports, Site Monitoring if required, and Final Report if required.

Invasive Plant Management Strategy (IPMS)

Prior to the start of any invasive plant control treatment, submit in writing an IPMS proposal and Schedule of Control for approval by the Engineer and MassDOT Landscape Architect at least thirty (30) days prior to proposed treatment. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall include the following:

- 1. MEANS AND METHOD OF INVASIVE PLANT MANAGEMENT AND MONITORING ON AND NEAR DAMS. MEANS AND METHODS SHALL COMPLY WITH BEST PRACTICES FOR VEGETATION REMOVAL FOR DAMS AS RECOMMENDED BY THE MASS DEPARTMENT OF CONSERVATION & RECREATION - OFFICE OF DAM SAFETY.**
2. Description of treatment areas including identification of targeted invasive plant species, locations, approximate size of areas and digital photos with time/date stamp. Delineate treatment areas with polygons outlining their perimeter or locations of individual plants. A free-hand sketch drawn on construction plans or an aerial photo can be used to show locations.
3. Note coordination as required with items for clearing, clearing and grubbing, tree removal, mowing, planting, and wetland mitigation.
4. Describe strategy for management of soils that contain invasive plant roots or seeds based on input from the Contractor and the Engineer.
5. Proposed methods of treatment for each species or area. Treatment may include manual removal if herbicides are not permitted.
6. If herbicides are proposed, submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
7. Proposed time of treatment based on target plant species and construction schedule.
8. Method for disposing of invasive plant material including stems, trunks, branches, roots, and roots, if required.
9. General monitoring schedule.

10. Preliminary re-treatment schedule. Re-treatment shall be based on assessment of initial results and time of year.
11. Proposed performance metrics, or measure of treatment success, which shall be agreed upon by MassDOT.
12. Expected end date of contract and last treatment.

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide approved IPMS may jeopardize this item, in which case, the contractor will be responsible for control of invasive plants found on site at no cost to the contract.

Follow-Up Treatment Schedule

Depending on treatment results after the first year, the IPMS may be amended for the following year/s to address additional concerns or adjust to conditions. A follow-up treatment schedule shall follow the same format as outlined above and submitted to the Engineer and MassDOT Landscape Architect for approval at least thirty (30) days prior to proposed treatment.

Reporting

Within two (2) weeks after each application, the Contractor shall provide to the Engineer a completed and signed MassDOT Herbicide Use Report. Where applicable, the Contractor shall provide the name/s of the associated water body/bodies affected by potential discharge, per the requirements of Sections 7.1 and 7.2 of the USEPA Pesticide General Permit for the Discharges from the Application of Pesticides.

Reporting of vegetation control at dams is required and shall include photos of the work done and photos of the adjacent dam embankment. Include any observations of wet spots, soft spots, or dead grass adjacent to any work area and **NOTIFY THE DAM OWNER IMMEDIATELY**.

Final Report

A final report documenting status of invasive control at the end of the project may be required for regulatory purposes or for instances where control will be continued by other means. Report shall include photo documentation, notation on a plan or aerial image of area treated, summary of treatment performed, and control achieved.

Photo Documentation

Digital photos with date and time stamp shall be provided with IPMS and follow-up reporting.

METHOD OF MEASUREMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal.

IPMS revisions needed for the Engineer's Approval shall be incidental and shall not be measured for payment.

BASIS OF PAYMENT

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools and all incidentals required to complete the work.

Payment shall not include travel time to and from the Contractor's place of business. IPMS revisions needed for the Engineer's Approval shall be incidental.

ITEM 102.45

TRIM HEDGE

FOOT

Work under Item 102.45 Trim Hedge shall conform to the relevant provisions of Subsection 771 and the following:

Work under this item consists of trimming hedges to provide sight distance and clearance of a sidewalk as shown in the Drawings or in other areas as directed by the Engineer.

CONSTRUCTION METHODS

Provide a minimum of 8" clearance between the sidewalk and hedge row. Before trimming, inspect the hedge to be pruned and obtain the Engineer's approval if removing more than 1/3 of the individual bush.

After trimming, clean debris from the remaining hedge and area, including existing debris from around the stems. Before leaving for the day, supply adequate water to the remaining hedge and dress the ground surface around the stems with a layer of aged pine bark mulch, approximately 4-inches thick. Properly dispose removed debris.

COMPENSATION

Item 102.45 Trim Hedge will be measured by the linear FOOT of hedge removed and properly disposed. Trim Hedge will be paid for at the Contract Unit Price per Foot which will be considered as adequate compensation for trimming, debris removal, watering, and all tools, equipment, materials, and labor needed to complete the work.

Aged pine bark mulch is measured and paid for under Item 767.6 Aged Pine Bark Mulch.