

RIVERFRONT AREA ANALYSIS

- Existing Riverfront Area on the site = approximately 33,003 square feet (sq. ft.)
- Existing Developed/Degraded Riverfront Area consisting of structures, driveway, parking areas, etc. totaling approximately 4,194 sq. ft. or 12.7% of the Riverfront Area.
- Proposed Developed/Degraded Riverfront Area consisting of structures, driveway, parking areas, etc. totaling approximately 9,137 sq. ft. or 27.7% of the Riverfront Area.

Therefore, the net increase in degraded Riverfront Area is 4,943 sq. ft. or an additional 15% of degraded Riverfront Area than currently exists.

In order to comply with the standards for Redevelopment Within Previously Developed Riverfront Area (310 CMR 10.58(5)), Riverfront Area restoration (310 CMR 10.58(5)(f)), and/or mitigation (310 CMR 10.58(5)(g)), is necessary to permit the increase in proposed degraded Riverfront Area at this site. A combination of Riverfront Area Mitigation and slope stabilization is proposed as part of this project to comply with the Riverfront Redevelopment standards. Please note the following proposed activities:

PROPOSED RIVERFRONT MITIGATION (310 CMR 10.58(5)(g))

- Upon construction of the stone retaining walls to create the terraced planting areas, the terraces planting areas should be filled with clean sandy loam. After filling and grading to the correct elevation/slope, the surface should be covered with 3 inches of clean high organic loam/compost mix to create an organic layer suitable for planting.

Plant native saplings and shrubs throughout the terraced mitigation planting area. The number of plantings is based on DEP's Inland Wetland Replication planting guidelines of saplings spaced 15 feet on center and shrubs spaced 10 feet on center. Using this plant spacing recommendation calculates 7 saplings and 15 shrubs within the proposed terraced mitigation area of approximately 1,330 square feet. Compost and/or organic soil additives may be used during planting activities to supplement the soil. Please see Proposed Plant Tables for specifications regarding plant species, sizes, and numbers.

- The remaining mitigation planting area is approximately 9,900 square feet and is located along the western side of the building and open area to the north of the building. Upon final grading of this area to include covering the surface with clean high organic loam/compost mix, the area should be covered with 3 inches of clean high organic loam/compost mix to create an organic layer suitable for planting.

Plant native saplings and shrubs throughout the 9,900 sq. ft. mitigation planting area. The number of plantings is based on DEP's Inland Wetland Replication planting guidelines of saplings spaced 15 feet on center and shrubs spaced 10 feet on center. Using this plant spacing recommendation calculates 51 saplings and 115 shrubs within the proposed larger mitigation area. Compost and/or organic soil additives may be used during planting activities to supplement the soil. Please see Proposed Plant Tables for specifications regarding plant species, sizes, and numbers.

- Upon planting, the root zones around each sapling and shrub should be mulched with natural wood chips to help retain moisture. Mulch should not be piled against the trunk of the plant.

- All remaining exposed soils within the mitigation area should be hand seeded with a native seed mixture from Ernst Conservation Seeds, Inc. consisting of New England Province Riparian Mix - ERNMX-253. See seed mix profile.

- Watering of the saplings and shrubs would need to be maintained by the contractor during the first growing season.

- Upon completion, the area should be left undisturbed other than typical maintenance activities such as pruning, replacement of dead plant stock, hand pulling of new non-native invasive plants, etc.

PROPOSED SLOPE STABILIZATION

- Remove debris from the slope.
- Cover slope with clean loam to support seed mix.
- Cover slope with jute netting or alternative biodegradable erosion control fabric.
- Hydroseed the slope with a mixture of quick erosion control seed mix consisting Ernst Conservation Seeds, Inc.'s Native Steep Slope Mix w/Annual Ryegrass and PA New England Province Riparian Mix. See attached seed mix profiles.
- Irrigate the slope until seed mix germinates and stabilizes the slope. Additional hydroseeding events may be necessary.

PROPOSED PLANT TABLES

SAPLING SPECIES	SIZE (height)	NUMBER
Red Maple (<i>Acer rubrum</i>)	5 - 6 ft.	12
Red Oak (<i>Quercus rubra</i>)	5 - 6 ft.	12
White Pine (<i>Pinus strobus</i>)	5 - 6 ft.	10
Pignut Hickory (<i>Carya glabra</i>)	5 - 6 ft.	8
Yellow Birch (<i>Betula alleghaniensis</i>)	5 - 6 ft.	8
White Oak (<i>Quercus alba</i>)	5 - 6 ft.	8
Total		58

SHRUB SPECIES	SIZE (height)	NUMBER
Highbush Blueberry (<i>Vaccinium corymbosum</i>)	1.5 - 2 ft.	18
Sweet Pepperbush (<i>Clethra alnifolia</i>)	1.5 - 2 ft.	16
Bayberry (<i>Myrica pennsylvanica</i>)	1.5 - 2 ft.	16
Northern Arrowwood (<i>Viburnum recognitum</i>)	1.5 - 2 ft.	16
Witch Hazel (<i>Hamamelis virginiana</i>)	1.5 - 2 ft.	16
Black Huckleberry (<i>Gaylussacia baccata</i>)	1.5 - 2 ft.	16
Mountain Laurel (<i>Kalmia latifolia</i>)	1.5 - 2 ft.	16
Shadbush (<i>Amelanchier canadensis</i>)	1.5 - 2 ft.	16
Total		130

Ernst Conservation Seeds
 8884 Mercer Pike
 Meadville, PA 16335
 (800) 873-3321 Fax (814) 336-5191
 www.ernstseed.com

PA New England Province Riparian Mix - ERNMX-253

Botanical Name	Common Name	Price/Lb
12.00 % Sorghastrum nutans, PA Ecotype	Indiangrass, NY Ecotype	14.15
12.00 % Andropogon gerardii, 'Niagara'	Big Bluestem, 'Niagara'	12.78
12.00 % Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype	9.27
12.00 % Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype	Little Bluestem, Fort Indiantown Gap-PA Ecotype	15.01
11.00 % Panicum clandestinum, Tioga	Dwartzongue, Tioga	22.52
10.00 % Elymus riparius, PA Ecotype	Riverbank Wildrye, PA Ecotype	8.13
5.00 % Carex vulpinoidea, PA Ecotype	Fox Sedge, PA Ecotype	28.80
5.00 % Panicum rigidulum, PA Ecotype	Rudolp Panicgrass, PA Ecotype	57.60
5.00 % Panicum virgatum, NJ Ecotype	Switchgrass, NJ Ecotype	14.63
3.00 % Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	7.20
2.00 % Helopsis helianthoides, PA Ecotype	Owens Sunflower, PA Ecotype	33.60
2.00 % Anemone frifosa	Soft Rush	48.00
2.00 % Verbena hastata, PA Ecotype	Blue Vervain, PA Ecotype	38.40
1.50 % Asclepias incarnata, PA Ecotype	Swamp Milkweed, PA Ecotype	177.60
1.00 % Senecio hebecarpa, VA & WV Ecotype	Wild Seneca, VA & WV Ecotype	28.80
0.60 % Aster spretianoides, PA Ecotype	Zigzag Aster, PA Ecotype	432.00
0.50 % Esparatum perfoliatum, PA Ecotype	Bonewat, PA Ecotype	192.00
0.50 % Monarda fistulosa, Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	96.00
0.50 % Vernonia noveboracensis, PA Ecotype	New York Ironweed, PA Ecotype	264.00
0.40 % Helenium autumnale, PA Ecotype	Common Sneezeweed, PA Ecotype	216.00
0.20 % Equisetum flitulosum, PA Ecotype	Jaw Paw Weed, PA Ecotype	273.60
0.20 % Aster novae-angliae, PA Ecotype	New England Aster, PA Ecotype	336.00
0.20 % Solidago rugosa, PA Ecotype	Wrinkleleaf Goldenrod, PA Ecotype	264.00

100.00 % Mix Price/Lb Bulk: \$29.20

Seeding Rate: 20 lbs/acre with 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 Jul) or grain rye (1 Aug to 31 Dec).

Grares & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial; Riparian Sites

Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

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Native Steep Slope Mix w/Annual Ryegrass - ERNMX-181

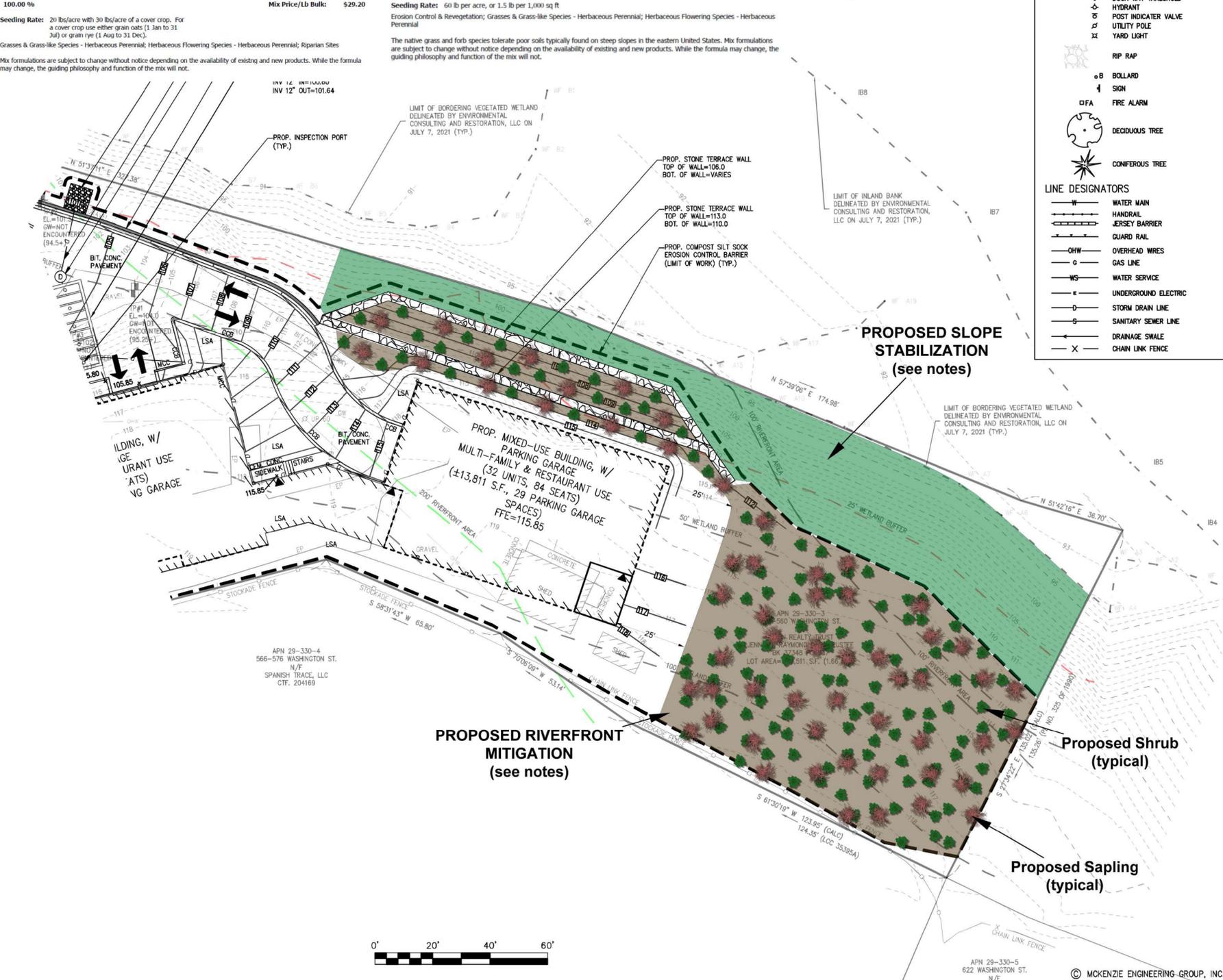
Botanical Name	Common Name	Price/Lb
31.10 % Sorghastrum nutans, NY Ecotype	Indiangrass, NY Ecotype	15.40
20.00 % Lolium multiflorum	Annual Ryegrass	1.20
14.00 % Andropogon gerardii, 'Niagara'	Big Bluestem, 'Niagara'	12.78
10.00 % Elymus canadensis	Canada Wildrye	7.47
7.00 % Elymus virginicus, Madison-NY Ecotype	Virginia Wildrye, Madison-NY Ecotype	10.36
4.00 % Agrostis peruviana, Albany Pine Bush-NY Ecotype	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	16.80
4.00 % Panicum virgatum, Shawnee'	Switchgrass, 'Shawnee'	13.08
3.00 % Panicum clandestinum, Tioga	Dwartzongue, Tioga	22.52
1.50 % Echinacea purpurea	Purple Coneflower	43.20
1.20 % Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	7.20
1.20 % Helopsis helianthoides, PA Ecotype	Owens Sunflower, PA Ecotype	33.60
1.00 % Coreopsis lanceolata	Lanceleaf Coreopsis	28.80
1.00 % Ruteckia hirta	Black-eyed Susan	31.20
0.30 % Monarda fistulosa, Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	96.00
0.20 % Asclepias syriaca	Common Milkweed	96.00
0.20 % Solidago rugosa, PA Ecotype	Wrinkleleaf Goldenrod, PA Ecotype	264.00
0.10 % Aster novae-angliae, PA Ecotype	New England Aster, PA Ecotype	336.00
0.10 % Aster pilosus, PA Ecotype	Health Aster, PA Ecotype	264.00

100.00 % Mix Price/Lb Bulk: \$13.51

Seeding Rate: 60 lb per acre, or 1.5 lb per 1,000 sq ft

Erosion Control & Revegetation; Grasses & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial

The native grass and forb species tolerate poor soils typically found on steep slopes in the eastern United States. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.



ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CEB	CAPE COD BERM
EP	EDGE OF PAVEMENT
BC	BITUMINOUS CONCRETE CURB
(AM)	AS MEASURED
RET WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VCC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
VCC	VERTICAL CONCRETE CURB
CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA

LEGEND

SURVEY SYMBOLS

- REBAR
- ANGLE IRON
- CONCRETE BOUND WITH DRILL HOLE
- STONE BOUND
- STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST
- BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- EXHAUST VENT
- AIR VENT
- DRAINAGE SUMP
- ELECTRIC MANHOLE
- SEWER MANHOLE
- DRAIN MANHOLE
- TELEPHONE MANHOLE
- DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATOR VALVE
- UTILITY POLE
- CHAIN LINK FENCE

LINE DESIGNATORS

- WATER MAIN
- HANDRAIL
- Jersey BARRIER
- GUARD RAIL
- OVERHEAD WIRES
- GAS LINE
- WATER SERVICE
- UNDERGROUND ELECTRIC
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DRAINAGE SWALE
- UTILITY LINK FENCE

BY	APP	DESCRIPTION	DATE	REV

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RIVERFRONT AREA MITIGATION PLAN
 550-560 WASHINGTON STREET
 WEYMOUTH, MASSACHUSETTS
 (APN 29-330-3)

PROFESSIONAL ENGINEER:
 UNION REALTY TRUST
 560 WASHINGTON STREET
 WEYMOUTH, MASSACHUSETTS

OWNERS/APPLICANT:
 UNION REALTY TRUST
 560 WASHINGTON STREET
 WEYMOUTH, MASSACHUSETTS

DESIGNED BY: ESS
 CHECKED BY: BCM
 APPROVED BY: BCM
 DATE: MARCH 8, 2023
 SCALE: 1"=20'
 PROJECT NO.: 222-182
 DWG. TITLE: MITIGATION AND RESTORATION PLAN

DWG. NO: RES-1

PERMIT PLAN SET