*****SPECIAL MEETING*****

PLANNING BOARD AGENDA

TUESDAY, JUNE 28, 2016, 7:00 P.M.

THIRD FLOOR COUNCIL CHAMBERS, CITY HALL

NEW BUSINESS

1. **SITE DEVELOPMENT PLAN**
   521 Kenduskeag Avenue – Swan Village, Inc., applicant
   Site Development Plan for a 20-space paved parking lot at 521 Kenduskeag Avenue in a High Density Residential District (HDR).

2. **Stormwater Training and Discussion.**
   Philip L. Ruck, P.E., President
   Stillwater Environmental Engineering, Inc.

GENERAL NOTES:
1. BOUNDRARY SURVEY PROVIDED BY SHYKA, SHEPPARD & GARSTER OF BANGOR, MAINE.
2. WETLAND DELINEATION PROVIDED BY MOYSE ENVIRONMENTAL SERVICES OF BANGOR, MAINE, MAY 27, 2014.
3. TOPOGRAPHIC INFORMATION PROVIDED BY THE CITY OF BANGOR, FROM THIER GIS INFORMATION. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.
4. ALL AREAS NOT SHOWN AS BUILDING OR PAVEMENT WILL BE LANDSCAPED.
5. PARKING REQUIRED: 1.5 PER UNIT = 24 TOTAL. PROVIDED: 1.75/UNIT = 28 TOTAL.
6. ALL EXTERIOR LIGHTING TO BE FULLY SHIELDED WITH 0.5 FOOT CANDLE MAXIMUM ADJACENT TO RESIDENTIAL PROPERTIES.
7. THE WELL IS TO BE ABANDONED IN ACCORDANCE WITH THE MAINE DEP GUIDANCE FOR WELL AND BORING ABANDONMENT.
8. EACH BUILDING IS 90' X 32' WITH FOUR 12' X 8' DECKS EACH.
9. BUFFERYARD TYPE C SUBTYPE 2 PLANTING

PER 100 FEET # REQUIRED	
4 CONIFEROUS TREES	60 X 4 = 2.4 – 3
2 DECIDUOUS TREES	60 X 2 = 1.2 – 2
16 SHRUBS	60 X 16 = 9.6 – 10

10. 113' & 115' CONTOURS SHOWN ONLY AS THEY ARE AFFECTED BY THE USF CONSTRUCTION.
11. SPECIMEN TREES SHOWN WITHIN THE LIMIT OF WORK MUST BE REMOVED DUE TO CONSTRUCTION CONFLICTS UNLESS OTHERWISE NOTED. BOUNDARY TREES & TREES NOT SHOWN AND OUTSIDE THE LIMIT OF WORK WILL BE PRESERVED.
12. ROOF LINE DRIP STRIPS NOT SHOWN UNDER DECKS FOR CLARITY BUT SHALL BE PROVIDED.
13. GRADE SURFACE AWAY FROM THE BUILDING AT A MINIMUM OF 2% FOR AT LEAST 10 FEET.
14. 4" FIRE SERVICE INSTALLED ONLY IF IT IS DEEMED NECESSARY TO SPRINKLE THE BUILDINGS.

SITE CRITERIA
BANGOR LAND DEVELOPMENT CODE

CRITERIA	REQUIRED	PROPOSED
ZONING DISTRICT	HDR	HDR
MINIMUM LOT AREA	14,000 SF	148,113 SF
MINIMUM FRONT YARD	20'	22'
MINIMUM SIDE YARD	10'	12'
MINIMUM REAR YARD	20'	339'
DENSITY DWELLING PER ACRE	12	4.7
BUILDING	4	4
MAXIMUM HEIGHT	40'	25'
MAXIMUM LOT COVERAGE	30%	7.78%
MAXIMUM FLOOR AREA RATIO	0.6	0.156
MAXIMUM IMPERVIOUS SURFACE RATIO	0.5	0.248
MINIMUM OPEN SPACE	750 SF/1,000 SF FLOOR AREA	4,637 SF/1,000 SF FLOOR AREA
MINIMUM LOT WIDTH	100 FT	237.42'
MINIMUM BUFFER TYPE	N/A	N/A
PARKING BUFFER	C	C
PARKING REQUIRED	1.5 SPACES PER UNIT	48 (3 PER UNIT)

LEGEND

- Iron Rod with Survey ID Cap to be set
- Iron Rod or Pipe Found
- N/F — Now or Formerly
- 1234/56 — Deed Book/Page Reference
- Water Valve
- Water Shutoff
- Hydrant
- Drain Manhole
- Sewer Manhole
- Utility Pole
- Guy
- EXTERIOR LIGHTING
- SS — PROPSED SANITARY SEWER
- SS — EXISTING SANITARY SEWER
- W — PROPSED WATER LINE
- 12" W — EXISTING WATER LINE
- OHW — Overhead Wires (Elec./Comm.)
- Boundary
- Right of Way
- Lines Scaled from Tax Map
- Line per deed
- Treeline
- Existing Tree (DECIDUOUS/EVERGREEN)
- Wire Fence
- Proposed Tree Line
- Existing Tree Line
- Paved Areas
- Drip Strip
- SB — Sedimentation Barrier
- Proposed Tree (Deciduous/Coniferous)
- EOP — EOP (EDGE OF PAVEMENT)
- EOTW — EOTW (EDGE OF TRAVELED WAY)
- GRADE TO DRAIN

NO.	DATE	DESCRIPTION	DRAWN	APPD.
1.	10/23/14	RESPONSE TO CITY OF BANGOR COMMENTS	AST.	SEB
2.	10/28/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY.	SEB
1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB
2.	6/20/16	RESPONSE TO CITY COMMENTS	DCC	SEB

PROJECT NAME: SWAN VILLAGE
SHEET NAME: AMENDMENT TO OVERVIEW PLAN
BANGOR MAINE

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:
PLAN DATE:
CLIENT: SWAN VILLAGE, INC. 141 ESSEX STREET BANGOR, MAINE 04401
DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB

Plymouth Engineering, Inc.
P.O. Box 49 30 Lower Detroit Road
Plymouth, Maine 04969
Tel: (207) 257-2071 Fax: (207) 257-2130
info@plymouthengineering.com
www.plymouthengineering.com

FOR PERMITTING ONLY
STATE OF MAINE
SCOTT E. BRALEY
No. 5227
LICENSED PROFESSIONAL ENGINEER
DRAWINGS, RECORDS, AND DATA ARE FOR PLANNING PURPOSES ONLY, AND ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION

SHEET 1 OF 6

OV

LOCATION MAP
(not to scale)

SCALE: 1" = 30'
30' 0' 30' 60' 90' 120'

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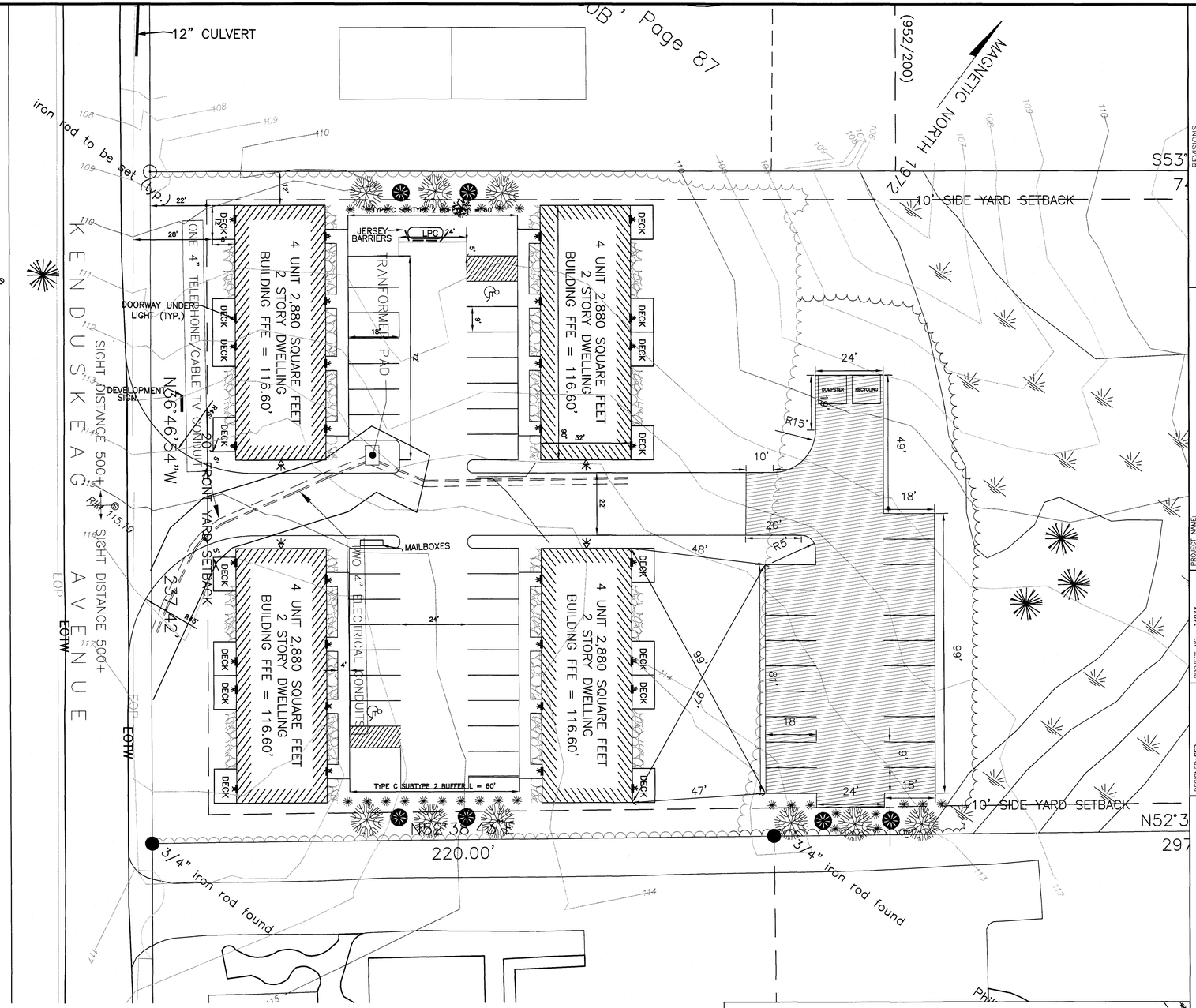

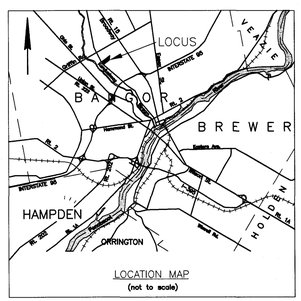

LOCATION MAP
(not to scale)

SCALE: 1" = 20'
20' 0' 20' 40' 60' 80'

LEGEND

⊙	Iron Rod with Survey ID Cap to be set	OHW	Overhead Wires (Elec./Comm.)
●	Iron Rod or Pipe Found		Boundary
N/F	Now or Formerly		Right of Way
1234/56	Deed Book/Page Reference		Lines Scaled from Tax Map
	Water Valve		Line per deed
	Water Shutoff		Treeline
	Hydrant		Existing Tree (DECIDUOUS/EVERGREEN)
	Drain Manhole	x	Wire Fence
	Sewer Manhole		Proposed Tree Line
	Utility Pole		Existing Tree Line
	Guy		Paved Areas
	EXTERIOR LIGHTING	SILT SOCK	Drip Strip Sedimentation Barrier
SS	PROPSED SANITARY SEWER		Proposed Tree (Deciduous/Coniferous)
SS	EXISTING SANITARY SEWER	EOP	EOP (EDGE OF PAVEMENT)
W	PROPSED WATER LINE	EOTW	EOTW (EDGE OF TRAVELED WAY)
12" W	EXISTING WATER LINE		GRADE TO DRAIN

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2.	6/20/16	RESPONSE TO CITY COMMENTS	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: PARKING LAYOUT PLAN

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:
PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:
CLIENT: SWAN VILLAGE, INC.
1411 ESSEX STREET
BANGOR, MAINE 04401

Plymouth Engineering, Inc.
P.O. Box 46 30 Lower Detroit Road
Plymouth, Maine 04969
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info@plymouthengineering.com
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FOR PERMITTING ONLY
STATE OF MAINE SCOTT E. BRALEY No. 6427 LICENSED PROFESSIONAL ENGINEER
DRAWINGS ARE FOR PLANNING PURPOSES ONLY AND ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION

SHEET 2 OF 6

C1

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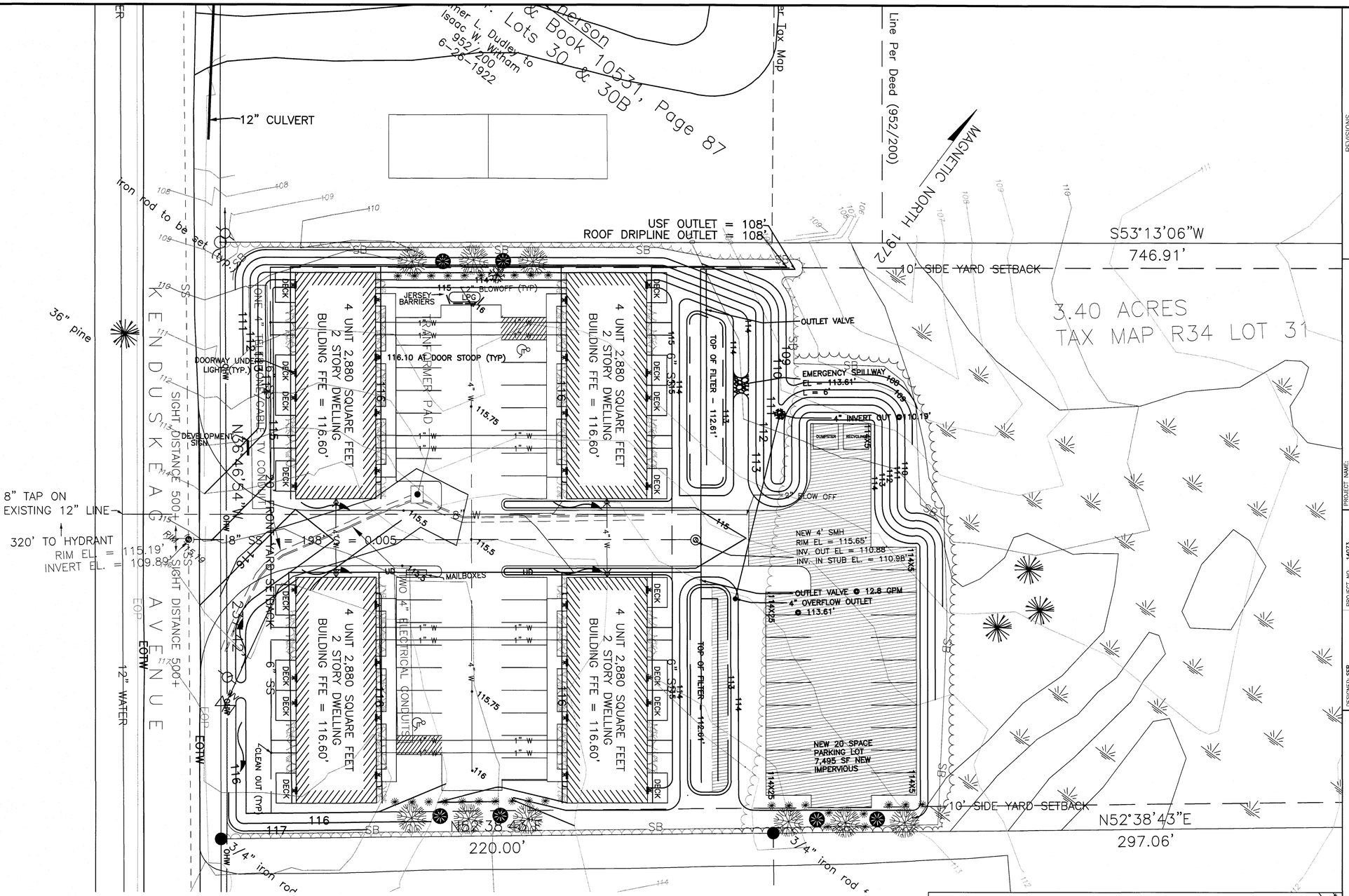

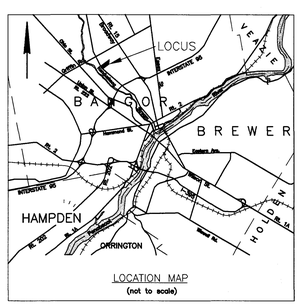

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LEGEND

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	GRADE TO DRAIN

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PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: AMENDMENT TO GRADING & UTILITY PLAN

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
PLAN DATE:
DATE ISSUED:
CLIENT: SWAN VILLAGE, INC. 1411 LESSEX STREET BANGOR, MAINE 04401

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SHEET 3 OF 6

C2

EROSION & SEDIMENTATION CONTROL NOTES

Introduction
This Erosion and Sedimentation Control Plan has been prepared to aid in the prevention of erosion and subsequent sedimentation of the downstream storm water structures during and after construction at the proposed Site. Actual prevention is the responsibility of those involved in site construction. Construction personnel must be observant and prepared to take immediate action to prevent erosion at all times. This plan should be used as a guide, however unforeseen site conditions and storm events may require additional or alternative preventative measures. This plan has been prepared in accordance with the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, most current version.

Administration
This plan has been prepared by Plymouth Engineering, Inc. for use by those involved in the development of the site.

Key Areas of Concern During Construction
During the development of this site the following areas shall be continually monitored for erosion and sedimentation.

Area	Temp. Measures	Permanenet Measures
Natural Slopes Disturbed	Mulch, Grass Cover, Silt Barrier	Grass Coer
Man Made SLopes	Mulch, Grass Cover, Silt Barrier	Grass Cover
Man Made Swales	Check Dams, Mulch, Grass	Rip Rap, Grass Cover
Drainage Structures	Erosion Control Blanket	Rip Rap
Site Improvements	Mulch, Grass Cover, Silt Barrier	Grass Cover

Key Areas of Concern After Construction
Within this development the following areas should be of special concern on an ongoing basis.

Area	Temp. Measures	Permanenet Measures
Project Slopes	Mulch, Grass Cover	Grass Cover
Drainage Swales	As Required by plans	Contact Erosion Control Specialists

Temporary Control Measures
Sedimentation Barriers
- Purpose to intercept and retain small amounts of sediment from disturbed or unprotected areas of limited extent.
- Product: Synthetic filter fabric certified by the manufacturer to meet the following:
  - o Filtering Efficiency (test VTM–51) 75% min.
  - o Tensile Strength at 20% (max)
  - o Elongation (test VTM–52) Extra Strength: 50 lb./in inch; Standard: 30 lb./in inch
  - o Flow Rate (test VTM–51) 0.3 gal/sq. ft./min
- Required Usage: Install along uniform grade of disturbed downhill slopes.
- Installation: Install at the beginning of this project prior to any soil disturbance.
- Execution: Install barrier in accordance with enclosed detail.
- Maintenance: All sediment barriers shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event.
- Sediment barriers shall be maintained in effective condition until all up gradient locations are in finished condition including the vegetation being established.
- Removal: Sediment barriers shall be removed after permanent vegetation is established. Regrade, reseed and mulch affected areas.

Temporary Check Dams
- Purpose: To reduce the velocity of concentrated storm water flows to prevent erosion.
- Products: Stone of 2" to 3" in diameter.
  - o Geotextile fabric of sufficient strength to facilitate removal.
- Required Usage: As shown on Erosion Control Plan
- Installation: Upon rough grading of ditches.
- Execution: Install in accordance with enclosed details.
- Maintenance: All check dams shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event. Check dams shall be maintained in effective condition until permanent channel stabilization has been established.
- Removal: Remove check dams when channel stabilization has been established. Seed and mulch area. Areas of removal shall be inspected until stabilization of these areas is reached.

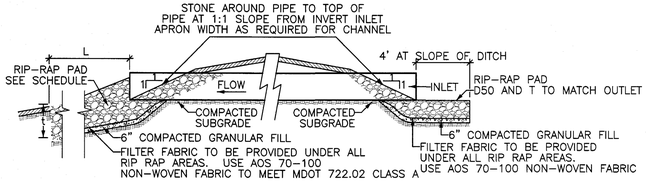
Culvert Inlet Protection
- Purpose: To reduce the velocity of concentrated storm water flows to allow sediments to settle out prior to entrance into drainage structures.
- Products: Rip Rap check dam per MDEP BMP #E–2 Pipe Inlet Protection.
- Required Usage: Locate at all culvert inlets.
- Installation: Install immediately after culvert installation.
- Execution: Install in accordance with MDEP BMP #E–2 Pipe Inlet Protection.
- Maintenance: All protection shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event. Stone check dam protection shall be maintained in effective condition until all permanent erosion control measures are installed for the drainage area served by the inlet.
- Removal: Remove dams when stabilization of drainage area has been established. Seed and mulch non paved areas. Areas of removal shall be inspected until stabilization of these areas is reached.

Temporary Mulch
- Purpose: To prevent erosion by protecting exposed soil surfaces and to aid in the growth of vegetation by conserving available moisture, controlling weeds, and providing protection against extreme heat and cold.
- Product: Organic Mulches: Hay or straw mulch.
- Required Usage: Apply to exposed soil surfaces prior to any storm event and within 7 days of exposure. Apply to all areas exposed after September 15.
- Execution: Application shall be at a rate of 2 bales (70–90 lbs.) per 1,000 square feet.
- Maintenance: All mulches shall be inspected weekly and after every storm event, to check for erosion. Remulching shall be required if less than 90% of soil surface is covered.
- Removal: Temporary mulch shall be removed once vegetative cover has been established or regarding is to be done.

Temporary Grass Cover
- Purpose: To reduce erosion by stabilization of disturbed areas which have not been brought to final grade.
- Product: In accordance with BMP Table 2.1 or winter rye after September 1.
- Require Usage: Provide temporary grass cover to all disturbed areas which will receive no permanent prevention measures for a period of more than 90 days, or after September 1.
- Execution: Loosen topsoil to a depth of 2". Apply 13.8 lb. of 10–10–10 fertilizer per 1,000 sq. ft. and lime at rate of 138 lb. per 1,000 sq. ft. Apply seed uniformly and apply temporary mulch.
- Maintenance: All temporary covers shall be inspected weekly and after every storm event, to check for erosion. Reseeding shall be required if less than 95% of soil surface is covered. Provide for other preventative measures in the interim.

Permanent Control Measures
Permanent Grass Cover
- Purpose: To permanently stabilize the soil to reduce erosion of soils.
- Products: In accordance with BMP Table 3.1 & 3.2.
- Execution: Apply fertilizer, lime in accordance with Temporary Cover and seed rates of BMP Tabl2 3.2. Mulch after seeding. After September 1 provide temporary cover.
- Maintenance: Establish a grass cover and remove mulch. Reseed areas not attaining a cover of 90%.

Culvert Inlet & Outlet Protection
- Purpose: To permanently stabilize soil around culvert inlets and outlets to reduce scouring, under–cutting, and erosion of soils.
- Products: Clean stones sized in accordance with enclosed details
- Installation: Concurrently with installation of culverts.
- Required Usage: Locate at all culvert entrances and discharges.
- Execution: Install in accordance with enclosed details.
- Maintenance: Inspect weekly and after every storm event. Add stones as necessary to protect soil.

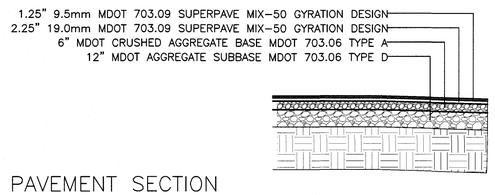


RIP RAP SCHEDULE			
DIA.	d50	t	L
15"	9"	21"	10'
18"	10"	24"	10'
24"	12"	27"	10'
36"	12"	27"	10'
48"	13"	30"	12'

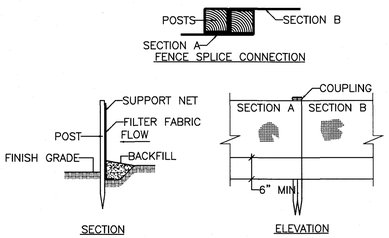
CULVERT INLET/OUTLET DETAIL
NOT TO SCALE

NOTE
1. RIP RAP PROTECTION TO BE ANGULAR STONE

NOTE: BITUMINOUS PAVEMENT SHOULD BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D–2041. TACK COAT IS RECOMMENDED. BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D–1557. SUBBASE FILL PLACED BELOW THE SUBBASE MATERIAL SHOULD BE COMPACTED TO AT LEAST 90 PERCENT OF ASTM D–1557.

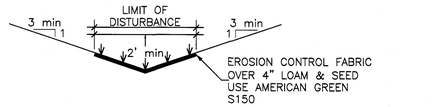


PAVEMENT SECTION
NO SCALE

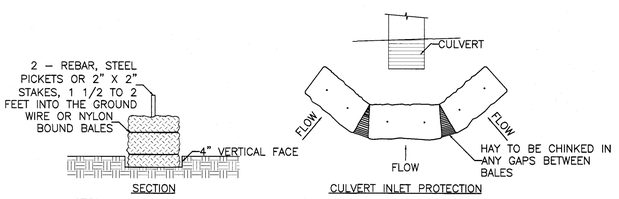


SEDIMENT BARRIER– SILT FENCE OPTION
NOT TO SCALE

NOTES:
1. IF EXTRA STENGTH FABRIC IS USED WIRE MESH MAY BE OMITTED, PROVIDING POST SPACING DOES NOT EXCEED 6' O.C.
2. INSTALL SEDIMENT BARRIER ALONG THE CONTOURS WITH THE ENDS TURN UP–SLOPE. IN AREAS WHERE SEDIMENT BARRIER IS USED AS LIMIT OF DISTURBANCE, REMOVE IMMEDIATELY FOLLOWING STABILIZATION.
3. IN ANY AREA WHERE SEDIMENT BARRIERS ARE SHOWN DOWN GRADIENT OF A STORMWATER CONVEYANCE OR STRUCTURE THAT BARRIER SHALL BE REMOVED UPON COMPLETION AND STABILIZATION OF THE STRUCTURE.
4. REMOVE SEDIMENT ACCUMULATION ONCE IT REACHED 1/2 OF STRUCTURE HEIGHT.

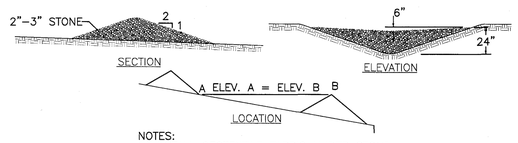


GRASSED SWALE/DITCH DETAIL
NOT TO SCALE



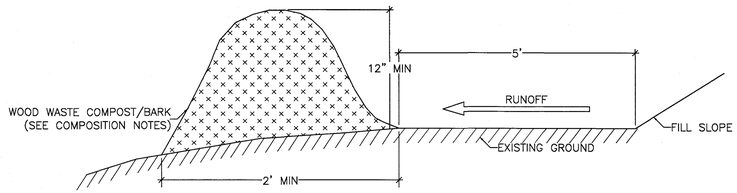
NOTES:
1. BALES SHALL BE PLACES IN A ROW WITH END TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MIN. OF 4".
3. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

HAY BALE CHECK DAM/ INLET PROTECTION
NOT TO SCALE



NOTES:
1. INSTALL GEOTEXTILE FABRIC UNDER STONE CHECK DAMS
2. SEED AND MULCH AREA UPON REMOVAL OF DAM
3. USE ANGULAR STONE NOT FIELD STONE.

STONE CHECK DAM
NOT TO SCALE



SEDIMENT BARRIER– MULCH BERM OPTION
NOT TO SCALE

COMPOSITION
EROSION CONTROL MIX SHAL CONTAIN A WELL–GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS.
– THE ORGANIC MATTER CONTENT SHALLB E BETWEEN 80 AND 100%, DRY WEIGHT BASIS.
– PARTICEL SIZE BY WEIGHT SHALL BE BETWEEN 70 AND 100% PASSING AT A 6" SCREEN, MAXIMUM OF 85%, PASSING A 0.75" SCREEN.
– THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
– LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
– SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM.
– THE pH SHOULD FALL BETWEEN 5.0 AND 8.0.
INSTALLATION
– THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRDIGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
– ON SPOLES LESS THAN 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20 FEET LONG, THE BARRIER MUST BE A MINIMUM OF 13" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, AND A MINIMUM OF TWO FEET WIDE, ON LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL RUNOFF.
– FROZED GROUND, OUTCROPS OF BEDROCK AND VERY ROOTED FORESTED AREAS ARE LOCATIONS WHERE BERMS OF ERISION CONTROL MIX ARE MOST PRACTICAL AND EFFECTIVE.
– OTHER BMPs SHOULD BE USED AT LOW POINTS OF CONCETRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (I.E., A LARGE UP GRADIENT CONTRIBUTING WATERSHED).
– IN ANY AREA WHERE SEDIMENT BARRIERS ARE SHOWN DOWN GRADIENT OF A STORMWATER CONVEYANCE OR STRUCTURE, THAT BARRIER SHALL BE REMOVED UPON COMPLETION AD STABILIZATION OF THE STRUCTURE.
– REMOVE SEDIMENT ACCUMULATION ONCE IT REACHES 1/2 OF STRUCTURE HEIGHT.

OVERWINTER CONSTRUCTION AND STABILIZATIOU

PURPOSE & APPLICATIONS

If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over–winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mix, erosion control mats, riprap or gravel base on a road. The winter construction period is from November 1 through April 15.

CONSIDERATIONS

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is to occur during the following 15 days and that can be mulched in one day prior to any snow event. All area shall be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. A cover of erosion control mix performs the best. Refer to the TEMPORARY MULCHING BMP.
Any added measures, which may be necessary to control erosion/sedimentation, must be installed. These may be dependent upon site conditions, the actual site size and weather conditions.
To minimize areas without erosion control protection, continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized.

SPECIFICATIONS

Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with an erosion control cover.
During winter construction, a double row of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.
Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource.
Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

Mulching

All area shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75–lbs/1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4 inch thickness.
Mulch shall not be spread on top of snow. The snow will be removed down to a one–inch depth or less prior to application.
After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible though the mulch.
Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, asphalt emulsion chemical, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible though the mulch.
After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

Soil Stockpiling

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or with a four–inch layer of erosion control mix. This will be done within 24 hours of stocking and re–established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with mulched) within 100 feet from any natural resources.

Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loomed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.
Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4' of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.
If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Overwinter stabilization of ditches and channels

All stone–lined ditches and channels must be constructed and stabilized by November 15. All grass–lined ditches and channels must be constructed and stabilized by September 1. If a ditch or channel is not grass–lined by September 1, then one of the following actions must be taken to stabilize the ditch for late fall and winter.
Install a sod lining in the ditch: A ditch must be lined with properly installed sod by October 1. Proper installation includes: pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring sod at the base of the ditch with jute or plastic mesh to prevent the sod from sloughing during flow conditions. See the PERMANENT VEGETATION BMP section.
Install a stone lining in the ditch: A ditch must be lined with stone riprap by November 15.
A registered professional engineer must be hired to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the contractor will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross–sectional area.

Overwinter stabilization of disturbed slopes

All stone–covered slopes must be constructed and stabilized by November 15. And all slopes to be vegetated must be seeded and mulched by September 1. The department will consider any area having a grade greater than 15% to be a slope. If a slope to be vegetated is not stabilized by September 1, then one of the following actions must be taken to stabilize the slope for late fall and winter.
Stabilize the soil with temporary vegetation and erosion control mats –– By October 1 the disturbed slope must be seeded with winter rye at a seeding rate of 3 pounds per 1000 square feet and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1, then the contractor will cover the slope with a layer of erosion control mix or with stone riprap as described in the following standards.

Stabilize the soil with sod –– The disturbed slope must be stabilized with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor will not use late–season sod installation to stabilize slopes having a grade greater than 33% (3H:1V) or having groundwater seeps on the slope face.
Stabilize the soil with erosion control mix – Erosion control mix must be properly installed by November 15. The contractor will not use erosion control mix to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face. See the TEMPORARY MULCHING BMP section.
Stabilize the soil with stone riprap –– Place a layer of stone riprap on the slope by November 15. The development's owner will hire a registered professional engineer to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap. See the RIPRAP SLOPE STABILIZATION BMP section.

Overwinter stabilization of disturbed soils

By September 15, all disturbed soils on areas having a slope less than 15% must be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions must be taken to stabilize the soil for late fall and winter.
Stabilize the soil with temporary vegetation –– By October 1, seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1, then mulch the area for over–winter protection as described below.
Stabilize the soil with sod –– Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
Stabilize the soil with mulch –– By November 15, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MAINTENANCE

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.
Following the temporary and/or final seeding and mulching, the contractor shall, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STABILIZATION SCHEDULE BEFORE WINTER

September 15 – All disturbed areas must be seeded and mulched.
All slopes must be stabilized, seeded and mulched.
All grass–lined ditches and channels must be stabilized with mulch or an erosion control blanket.
October 1 – If the slope is stabilized with an erosion control blanket and seeded.
All disturbed areas to be protected with an annual grass must be seeded at a seeding rate of 3 pounds per 1000 square feet and mulched.
November 15 – All stone–lined ditches and channels must be constructed and stabilized.
Slopes that are covered with riprap must be constructed by that date.
December 1 – All disturbed areas where the growth of vegetation fails to be at least three inches tall or at least 75% of the disturbed soil is covered by vegetation, must be protected for over–winter.

NOTE: The dates given are for projects in South–Central Maine. Adjust the dates given based on the project's location within the state – reducing times up to three weeks for project's in Northern Maine and extending times up to two weeks for project's on the coast in extreme Southern Maine.

REVISIONS				
NO.	DATE	DESCRIPTION	DRAWN	APPD.
1	10/23/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY	SEB
2	10/28/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY	SEB
1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: EROSION CONTROL DETAILS

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:
CLIENT: SWAN VILLAGE, INC. 141 ESSEX STREET BANGOR, MAINE 04401

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED: ES

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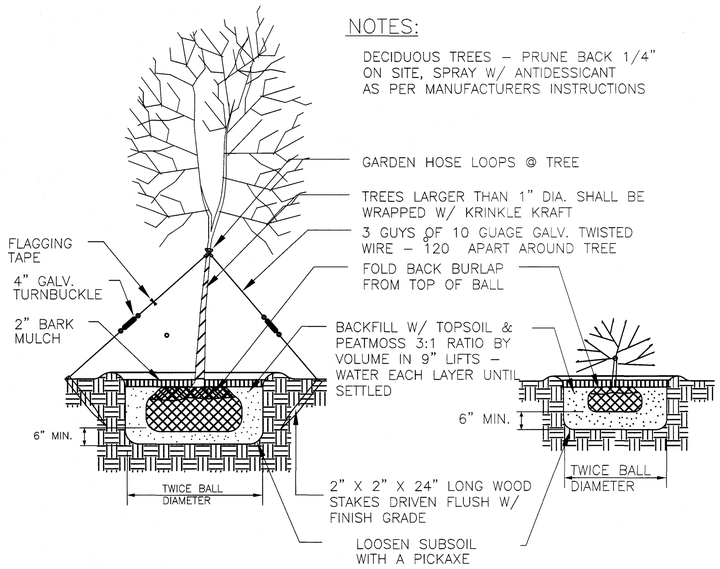
FOR PERMITTING ONLY
STATE OF MAINE SCOTT E. HEALEY No. 6221 LICENSED PROFESSIONAL ENGINEER
DRAWINGS AND DESIGNS ARE "HEADS–UP FOR–PLANNING PURPOSES ONLY" AND ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION

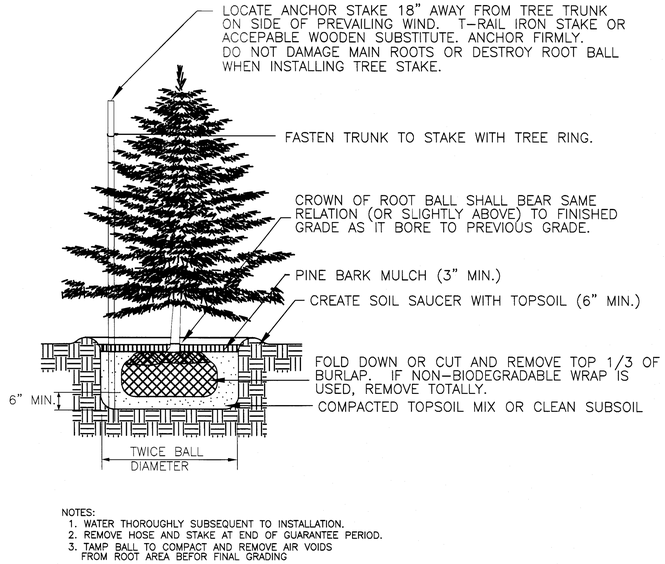
SHEET 4 OF 6

C3



PLANTING DETAIL–DECIDUOUS TREES AND SHRUBS

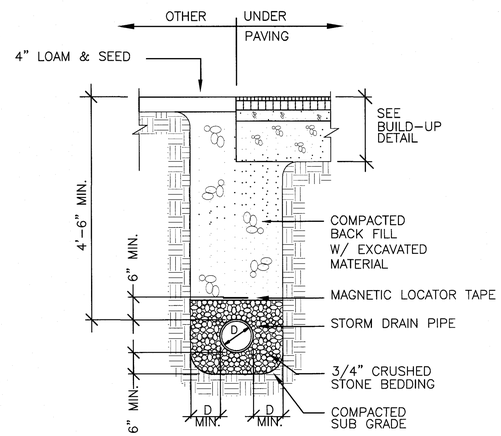
NOT TO SCALE



NOTES:
1. WATER THOROUGHLY SUBSEQUENT TO INSTALLATION.
2. REMOVE HOSE AND STAKE AT END OF GUARANTEE PERIOD.
3. TAMP BALL TO COMPACT AND REMOVE AIR VOIDS FROM ROOT AREA BEFOR FINAL GRADING

PLANTING DETAIL–CONIFEROUS TREES AND SHRUBS

NOT TO SCALE



STORM DRAIN/SANITARY SEWER TRENCH DETAIL

NOT TO SCALE

NOTES:

1. ALL BACKFILL PROCEDURES MUST BE PROVIDED USING MAXIMUM 8" LIFTS, LOOSE MEASURE
2. ANY LINE TO BE PLACED WITH LESS THAN 4'–6" OF COVER MUST BE AUTHORIZED BY THE OWNER. ANY LINE PROVIDED WITH LESS THAN 4.5' OF COVER MUST BE INSULATED WITH 2" OF RIGID INSULATION, WIDTH TO BE DETERMINED DEPENDING UPON DEPTH & LOCATION.
3. ANY LINE CROSSING OF OTHER UTILITIES WHERE THE VERTICAL SEPARATION DISTANCE IS LESS THAN 2 FEET SHALL BE INSULATED WITH 2" OF RIGID INSULATION, IN ALL DIRECTIONS FOR A DISTANCE OF 2' FROM THE CROSSING. (SEE DETAIL).

REVISIONS

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1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: CONSTRUCTION DETAILS

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:
CLIENT: SWAN VILLAGE, INC.
141 ESSEX STREET
BANGOR, MAINE 04401

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:

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STATE OF MAINE
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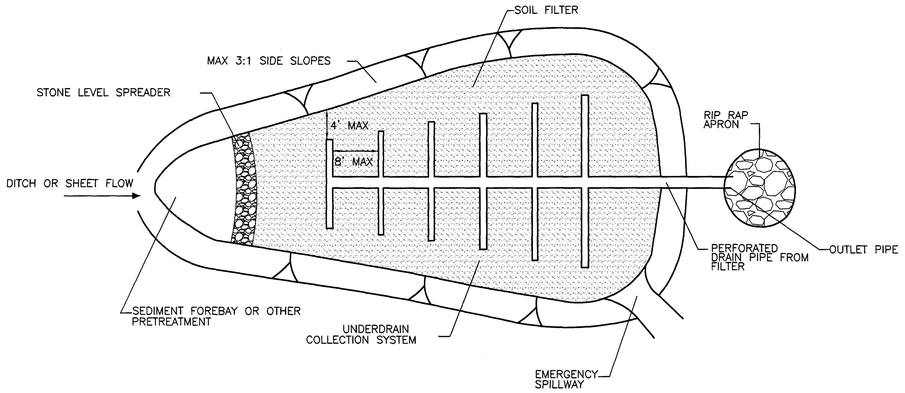
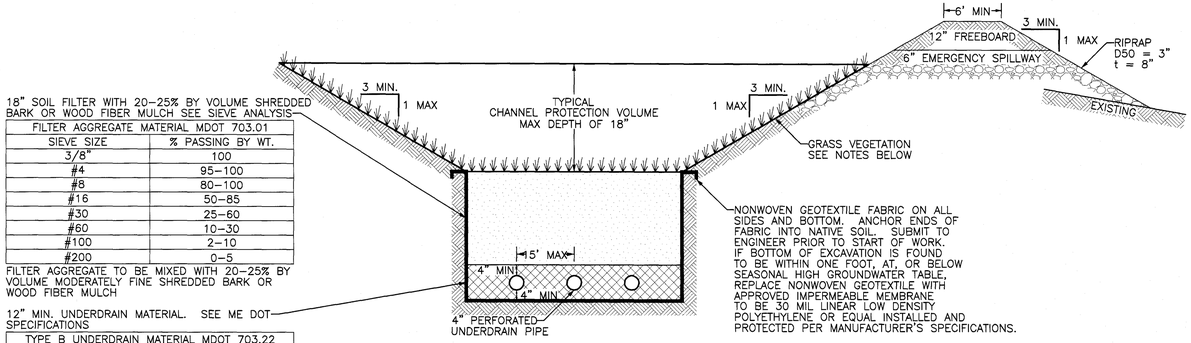
SHEET 5 OF 6

C4



TYPICAL UNDERDRAIN SOIL FILTER PLAN VIEW

NOT TO SCALE



FILTER AGGREGATE MATERIAL MDOT 703.01	
SIEVE SIZE	% PASSING BY WT.
3/8"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TYPE B UNDERDRAIN MATERIAL MDOT 703.22	
SIEVE #	% BY WT.
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

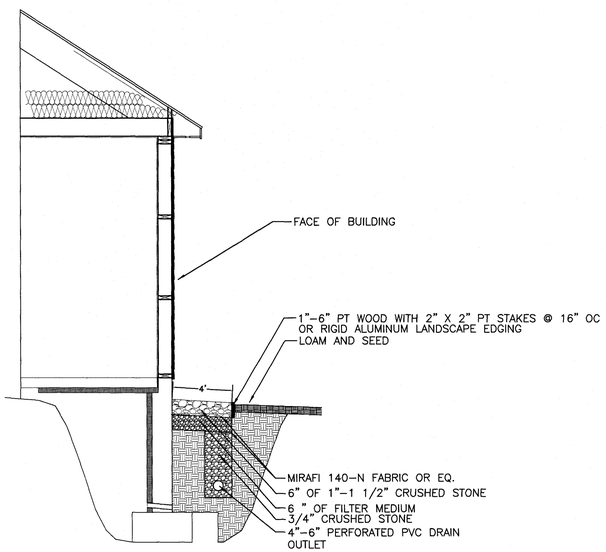
TYPICAL UNDERDRAIN SOIL FILTER DETAIL

NOT TO SCALE

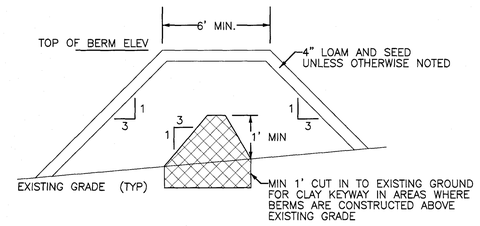
GENERAL NOTES:
1. SIEVE ANALYSIS RESULTS FOR SPECIFIED MATERIALS TO BE SUBMITTED TO ENGINEER PRIOR TO USE.
2. UNDERDRAIN TO BE SEEDED WITH MDOT CONSERVATION MIX MEETING MDOT STANDARD SPECIFICATION 618 SEEDING METHOD # 2 WITH LOW PHOSPHOROUS FERTILIZER.
3. FINAL MIXTURE OF COARSE LOAMY SAND AND SHREDDED BARK OR WOOD FIBER MULCH MUST HAVE NO LESS THAN 8% OR MORE THAN 12% PASSING THE #200 SIEVE. SUBMIT ANALYSIS RESULTS PRIOR TO USE.

UNDERDRAIN SOIL FILTER CONSTRUCTION CRITERIA

1. BASIN EXCAVATION: THE AREA OF THE BASIN MAY BE EXCAVATED IN PREPARATION OF THE INSTALLATION OF THE UNDERDRAIN AND CAN BE USED FOR A SEDIMENT TRAP FROM THE SITE DURING CONSTRUCTION. AFTER EXCAVATION OF THE BASIN, THE OUTLET STRUCTURE AND PIPING SYSTEM MUST BE INSTALLED AT THE APPROPRIATE ELEVATION AND PROTECTED WITH A SEDIMENT BARRIER. IF THE BASIN IS TO BE USED AS A SEDIMENT TRAP, THE SIDES OF THE EMBANKMENTS MUST BE MULCHED AND MAINTAINED TO PREVENT EROSION.
2. COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90 AND 92% STANDARD PROCTOR.
3. OUTLET DISCHARGE: OUTFLOW OF THE FILTER BASIN UNDERDRAIN CAN BE CONTROLLED BY A CONSTRICTIVE ORIFICE OR A VALVE (2" PLASTIC BALL VALVE, TYPE 346, WITH A BALL VALVE HANDLE EXTENSION, TYPE 615, WITH A THREE–PIECE VALVE BOX SHALL BE INSTALLED OVER THE VALVE). UPON COMPLETION OF THE INSTALLATION OF THE SOIL FILTER MEDIA AND THE ESTABLISHMENT OF 90% CATCH OF GRASS COVER OVER THE FILTER MEDIA, THE CONTRACTOR SHALL FLOOD THE VEGETATED BASIN TO THE DESIGN ELEVATION WITH CLEAN WATER AND ADJUST THE OUTFLOW TO OBTAIN A 24 HOUR TO 32 HOUR RELEASE TIME.
4. CONSTRUCTION SEQUENCE: EROSION AND SEDIMENTATION FROM UNSTABLE SUBCATCHMENTS IS THE MOST COMMON REASON FOR FILTER FAILURE. NOT HEEDING THE CONSTRUCTION SEQUENCING CRITERIA IS LIKELY TO RESULT IN THE NEED TO REPLACE SOIL FILTER. THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR PERMANENT STABILIZED. OTHERWISE, THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA MUST BE DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED OR THE DEPARTMENT HAS APPROVED, ON A CASE BY CASE BASIS, THAT APPROPRIATE MEASURES WERE TAKEN TO PREVENT EROSION OF MATERIAL FROM THE UNSTABLE CATCHMENT AREAS AND DEPOSITION ON THE FILTER.
5. REMEDIAL LOAM COVER: IF VEGETATION IS NOT ESTABLISHED WITHIN THE FIRST YEAR, THE CONTRACTOR MAY INSTALL A 2–3 INCH LAYER OF LOAM (WITH LESS THAN 2% CLAY AS TESTED VIA HYDROMETER TEST) ON THE SURFACE OF THE GRASS FILTER; AND RESEED/MULCH.
6. CONSTRUCTION OVERSIGHT: INSPECTION OF THE FILTER BASIN SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:
   - AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
   - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
   - AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
   - AFTER ONE YEAR TO INSPECT VEGEATION UPTAKE AND MAKE CORRECTIONS.
   - ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
7. TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL TESTING RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION:
   - SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLE OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
   - PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
   - PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90–92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.



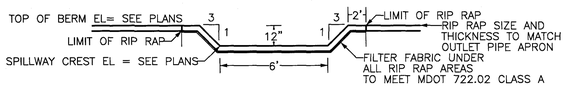
ROOF DRIPLINE FILTRATION DETAIL



EMBANKMENT CONSTRUCTION
1. CONSTRUCTION MATERIAL SHALL MEET M.D.O.T. SPECIFICATION 703.18.
2. PLACE BORROW MATERIAL IN MAXIMUM 12" LIFTS COMPACTED TO 95% OF MAX DENSITY. COMPACTION SHALL BE PERFORMED WITH A VIBRATORY COMPACTION DEVICE SUITABLE TO PROVIDE DESIRED RESULTS.
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS.
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.
5. CLAY KEYWAY CAN BE ELIMINATED FOR BERMS UNDER 3' MAX HEIGHT.
6. CLAY KEYWAY TO EXTEND TO ELEVATION OF PERMENENT POOL.

BERM DETAIL

NOT TO SCALE



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

NOTE: RIP RAP APRON TO EXTEND FROM 12" BELOW CREST INSIDE OF BASIN ACROSS CREST AND DOWN THE BACKSLOPE TO MEET THE EXISTING GRADE

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2	10/28/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY	SEB
1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: UNDERDRAIN SOIL FILTER DETAILS

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:

CLIENT: SWAN VILLAGE, INC.
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STATE OF MAINE SCOTT E. BRAY No. 6227 LICENSED PROFESSIONAL ENGINEER
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SHEET 6 OF 6

C5

GENERAL NOTES:
1. BOUNDRARY SURVEY PROVIDED BY SHYKA, SHEPPARD & GARSTER OF BANGOR, MAINE.
2. WETLAND DELINEATION PROVIDED BY MOYSE ENVIRONMENTAL SERVICES OF BANGOR, MAINE, MAY 27, 2014.
3. TOPOGRAPHIC INFORMATION PROVIDED BY THE CITY OF BANGOR, FROM THIER GIS INFORMATION. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.
4. ALL AREAS NOT SHOWN AS BUILDING OR PAVEMENT WILL BE LANDSCAPED.
5. PARKING REQUIRED: 1.5 PER UNIT = 24 TOTAL. PROVIDED: 1.75/UNIT = 28 TOTAL.
6. ALL EXTERIOR LIGHTING TO BE FULLY SHIELDED WITH 0.5 FOOT CANDLE MAXIMUM ADJACENT TO RESIDENTIAL PROPERTIES.
7. THE WELL IS TO BE ABANDONED IN ACCORDANCE WITH THE MAINE DEP GUIDANCE FOR WELL AND BORING ABANDONMENT.
8. EACH BUILDING IS 90' X 32' WITH FOUR 12' X 8' DECKS EACH.
9. BUFFERYARD TYPE C SUBTYPE 2 PLANTING

PER 100 FEET # REQUIRED	
4 CONIFEROUS TREES	60 X 4 = 2.4 – 3
2 DECIDUOUS TREES	60 X 2 = 1.2 – 2
16 SHRUBS	60 X 16 = 9.6 – 10

10. 113' & 115' CONTOURS SHOWN ONLY AS THEY ARE AFFECTED BY THE USF CONSTRUCTION.
11. SPECIMEN TREES SHOWN WITHIN THE LIMIT OF WORK MUST BE REMOVED DUE TO CONSTRUCTION CONFLICTS UNLESS OTHERWISE NOTED. BOUNDARY TREES & TREES NOT SHOWN AND OUTSIDE THE LIMIT OF WORK WILL BE PRESERVED.
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13. GRADE SURFACE AWAY FROM THE BUILDING AT A MINIMUM OF 2% FOR AT LEAST 10 FEET.
14. 4" FIRE SERVICE INSTALLED ONLY IF IT IS DEEMED NECESSARY TO SPRINKLE THE BUILDINGS.

SITE CRITERIA
BANGOR LAND DEVELOPMENT CODE

CRITERIA	REQUIRED	PROPOSED
ZONING DISTRICT	HDR	HDR
MINIMUM LOT AREA	14,000 SF	148,113 SF
MINIMUM FRONT YARD	20'	22'
MINIMUM SIDE YARD	10'	12'
MINIMUM REAR YARD	20'	339'
DENSITY DWELLING PER ACRE	12	4.7
BUILDING	4	4
MAXIMUM HEIGHT	40'	25'
MAXIMUM LOT COVERAGE	30%	7.78%
MAXIMUM FLOOR AREA RATIO	0.6	0.156
MAXIMUM IMPERVIOUS SURFACE RATIO	0.5	0.248
MINIMUM OPEN SPACE	750 SF/1,000 SF FLOOR AREA	4,637 SF/1,000 SF FLOOR AREA
MINIMUM LOT WIDTH	100 FT	237.42'
MINIMUM BUFFER TYPE	N/A	N/A
PARKING BUFFER	C	C
PARKING REQUIRED	1.5 SPACES PER UNIT	48 (3 PER UNIT)

LEGEND

- Iron Rod with Survey ID Cap to be set
- Iron Rod or Pipe Found
- N/F — Now or Formerly
- 1234/56 — Deed Book/Page Reference
- Water Valve
- Water Shutoff
- Hydrant
- Drain Manhole
- Sewer Manhole
- Utility Pole
- Guy
- EXTERIOR LIGHTING
- SS — PROPSED SANITARY SEWER
- SS — EXISTING SANITARY SEWER
- W — PROPSED WATER LINE
- 12" W — EXISTING WATER LINE
- OHW — Overhead Wires (Elec./Comm.)
- Boundary
- Right of Way
- Lines Scaled from Tax Map
- Line per deed
- Treeline
- Existing Tree (DECIDUOUS/EVERGREEN)
- Wire Fence
- Proposed Tree Line
- Existing Tree Line
- Paved Areas
- Drip Strip
- SB — Sedimentation Barrier
- Proposed Tree (Deciduous/Coniferous)
- EOP — EOP (EDGE OF PAVEMENT)
- EOTW — EOTW (EDGE OF TRAVELED WAY)
- GRADE TO DRAIN

NO.	DATE	DESCRIPTION	DRAWN	APPD.
1.	10/23/14	RESPONSE TO CITY OF BANGOR COMMENTS	AST.	SEB
2.	10/28/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY.	SEB
1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB
2.	6/20/16	RESPONSE TO CITY COMMENTS	DCC	SEB

PROJECT NAME: SWAN VILLAGE
SHEET NAME: AMENDMENT TO OVERVIEW PLAN
BANGOR MAINE

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:
PLAN DATE:
CLIENT: SWAN VILLAGE, INC. 141 ESSEX STREET BANGOR, MAINE 04401
DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB

Plymouth Engineering, Inc.
P.O. Box 49 30 Lower Detroit Road
Plymouth, Maine 04969
Tel: (207) 257-2071 Fax: (207) 257-2130
info@plymouthengineering.com
www.plymouthengineering.com

FOR PERMITTING ONLY
STATE OF MAINE
SCOTT E. BRALEY
No. 5227
LICENSED PROFESSIONAL ENGINEER
DRAWINGS, RECORDS, AND DATA ARE FOR PLANNING PURPOSES ONLY, AND ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION

SHEET 1 OF 6

OV

LOCATION MAP
(not to scale)

SCALE: 1" = 30'
30' 0' 30' 60' 90' 120'

GENERAL NOTES:
1. BOUNDRARY SURVEY PROVIDED BY SHYKA, SHEPPARD & GARSTER OF BANGOR, MAINE.
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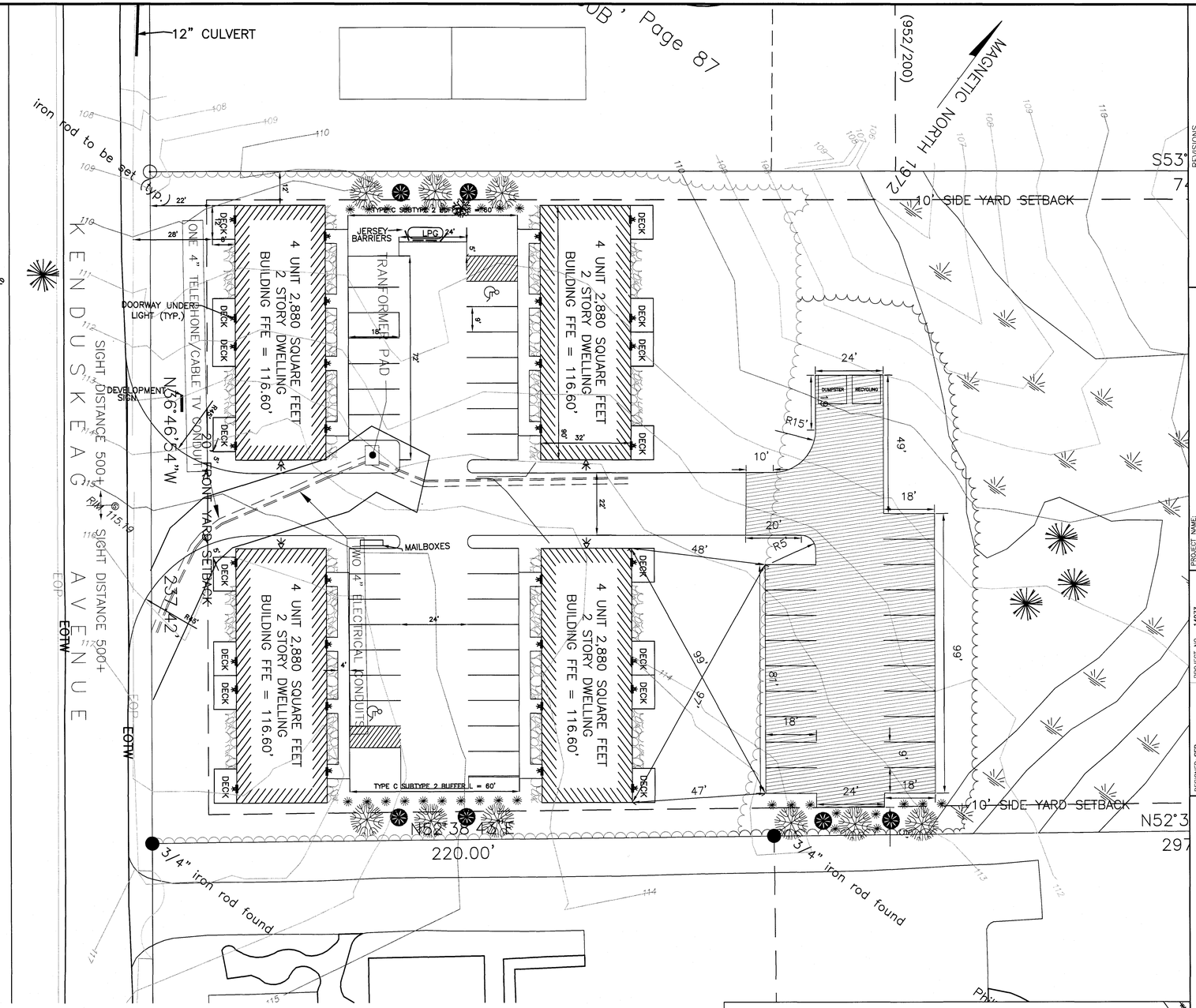

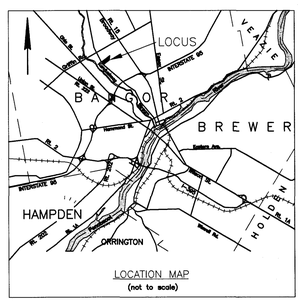

LOCATION MAP
(not to scale)

SCALE: 1" = 20'
20' 0' 20' 40' 60' 80'

LEGEND

⊙	Iron Rod with Survey ID Cap to be set	OHW	Overhead Wires (Elec./Comm.)
●	Iron Rod or Pipe Found		Boundary
N/F	Now or Formerly		Right of Way
1234/56	Deed Book/Page Reference		Lines Scaled from Tax Map
	Water Valve		Line per deed
	Water Shutoff		Treeline
	Hydrant		Existing Tree (DECIDUOUS/EVERGREEN)
	Drain Manhole	x	Wire Fence
	Sewer Manhole		Proposed Tree Line
	Utility Pole		Existing Tree Line
	Guy		Paved Areas
	EXTERIOR LIGHTING	SILT SOCK	Drip Strip Sedimentation Barrier
SS	PROPSED SANITARY SEWER		Proposed Tree (Deciduous/Coniferous)
SS	EXISTING SANITARY SEWER	EOP	EOP (EDGE OF PAVEMENT)
W	PROPSED WATER LINE	EOTW	EOTW (EDGE OF TRAVELED WAY)
12" W	EXISTING WATER LINE		GRADE TO DRAIN

NO.	DATE	REVISIONS DESCRIPTION	DRAWN	APP'D.
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PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: PARKING LAYOUT PLAN

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:
PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:
CLIENT: SWAN VILLAGE, INC.
1411 ESSEX STREET
BANGOR, MAINE 04401

Plymouth Engineering, Inc.
P.O. Box 46 30 Lower Detroit Road
Plymouth, Maine 04969
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info@plymouthengineering.com
www.plymouthengineering.com

FOR PERMITTING ONLY
STATE OF MAINE SCOTT E. BRALEY No. 6427 LICENSED PROFESSIONAL ENGINEER
DRAWINGS ARE FOR PLANNING PURPOSES ONLY AND ARE NOT INTENDED FOR PERMITTING, BIDDING OR CONSTRUCTION

SHEET 2 OF 6

C1

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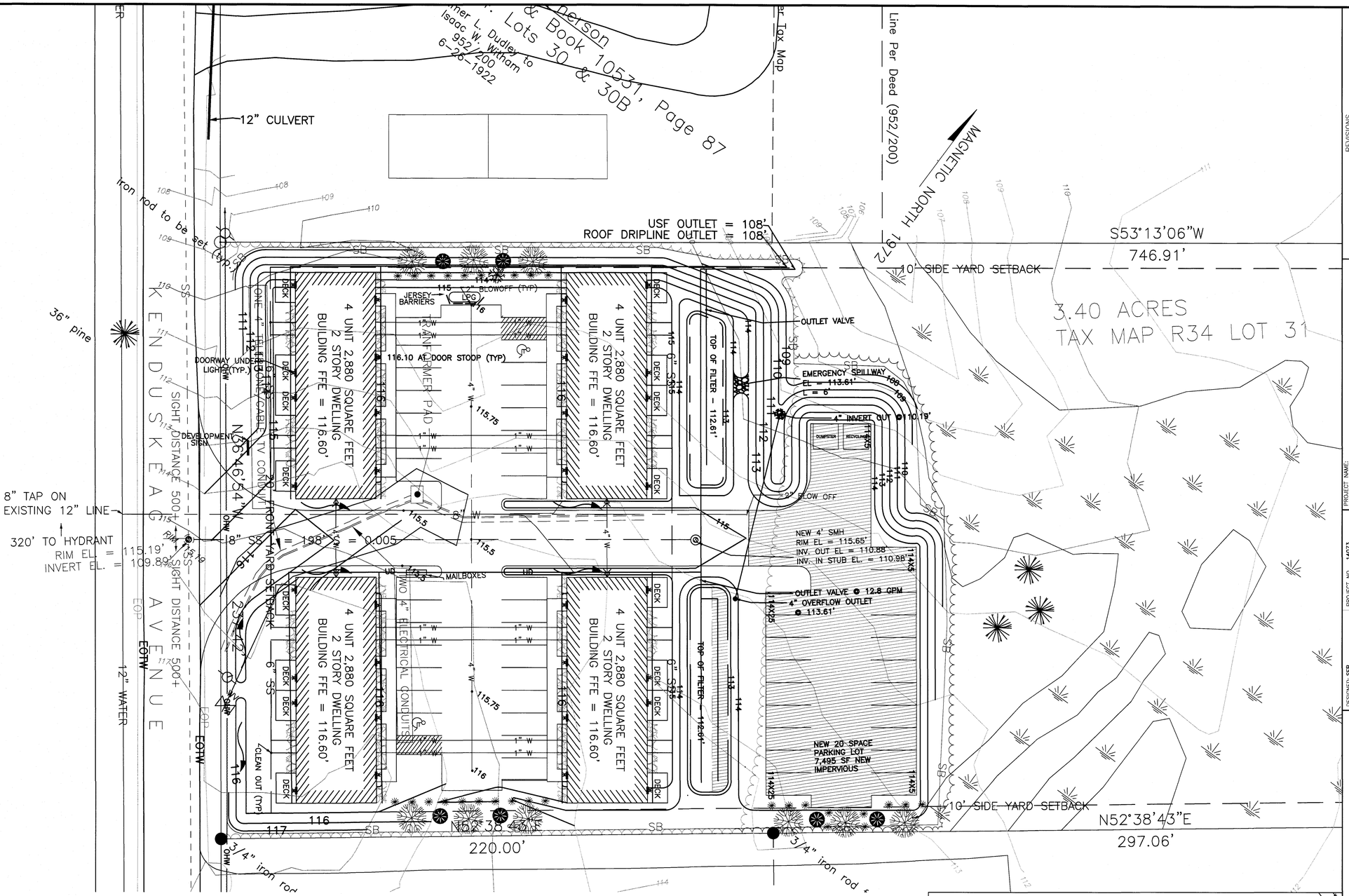

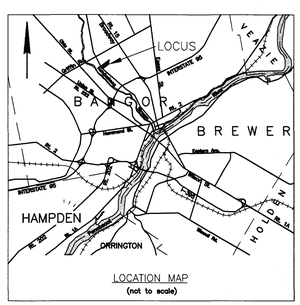

SCALE: 1" = 20'
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LEGEND

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	GRADE TO DRAIN

REVISIONS

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PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: AMENDMENT TO GRADING & UTILITY PLAN

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
PLAN DATE:
DATE ISSUED:
CLIENT: SWAN VILLAGE, INC. 1411 LESSEX STREET BANGOR, MAINE 04401

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STATE OF MAINE SCOTT E. BRADY No. 6227 REGISTERED PROFESSIONAL ENGINEER
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SHEET 3 OF 6

C2

EROSION & SEDIMENTATION CONTROL NOTES

Introduction
This Erosion and Sedimentation Control Plan has been prepared to aid in the prevention of erosion and subsequent sedimentation of the downstream storm water structures during and after construction at the proposed Site. Actual prevention is the responsibility of those involved in site construction. Construction personnel must be observant and prepared to take immediate action to prevent erosion at all times. This plan should be used as a guide, however unforeseen site conditions and storm events may require additional or alternative preventative measures. This plan has been prepared in accordance with the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, most current version.

Administration
This plan has been prepared by Plymouth Engineering, Inc. for use by those involved in the development of the site.

Key Areas of Concern During Construction
During the development of this site the following areas shall be continually monitored for erosion and sedimentation.

Area	Temp. Measures	Permanenet Measures
Natural Slopes Disturbed	Mulch, Grass Cover, Silt Barrier	Grass Coer
Man Made SLopes	Mulch, Grass Cover, Silt Barrier	Grass Cover
Man Made Swales	Check Dams, Mulch, Grass	Rip Rap, Grass Cover
Drainage Structures	Erosion Control Blanket	Rip Rap
Site Improvements	Mulch, Grass Cover, Silt Barrier	Grass Cover

Key Areas of Concern After Construction
Within this development the following areas should be of special concern on an ongoing basis.

Area	Temp. Measures	Permanenet Measures
Project Slopes	Mulch, Grass Cover	Grass Cover
Drainage Swales	As Required by plans	Contact Erosion Control Specialists

Temporary Control Measures
Sedimentation Barriers
- Purpose to intercept and retain small amounts of sediment from disturbed or unprotected areas of limited extent.
- Product: Synthetic filter fabric certified by the manufacturer to meet the following:
  - o Filtering Efficiency (test VTM–51) 75% min.
  - o Tensile Strength at 20% (max)
  - o Elongation (test VTM–52) Extra Strength: 50 lb./in inch; Standard: 30 lb./in inch
  - o Flow Rate (test VTM–51) 0.3 gal/sq. ft./min
- Required Usage: Install along uniform grade of disturbed downhill slopes.
- Installation: Install at the beginning of this project prior to any soil disturbance.
- Execution: Install barrier in accordance with enclosed detail.
- Maintenance: All sediment barriers shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event.
- Sediment barriers shall be maintained in effective condition until all up gradient locations are in finished condition including the vegetation being established.
- Removal: Sediment barriers shall be removed after permanent vegetation is established. Regrade, reseed and mulch affected areas.

Temporary Check Dams
- Purpose: To reduce the velocity of concentrated storm water flows to prevent erosion.
- Products: Stone of 2" to 3" in diameter.
  - o Geotextile fabric of sufficient strength to facilitate removal.
- Required Usage: As shown on Erosion Control Plan
- Installation: Upon rough grading of ditches.
- Execution: Install in accordance with enclosed details.
- Maintenance: All check dams shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event. Check dams shall be maintained in effective condition until permanent channel stabilization has been established.
- Removal: Remove check dams when channel stabilization has been established. Seed and mulch area. Areas of removal shall be inspected until stabilization of these areas is reached.

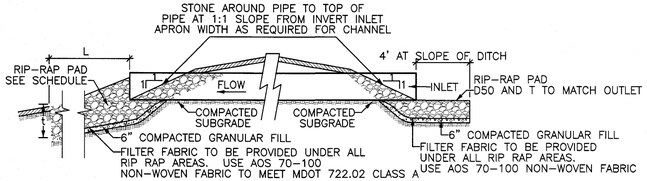
Culvert Inlet Protection
- Purpose: To reduce the velocity of concentrated storm water flows to allow sediments to settle out prior to entrance into drainage structures.
- Products: Rip Rap check dam per MDEP BMP #E–2 Pipe Inlet Protection.
- Required Usage: Locate at all culvert inlets.
- Installation: Install immediately after culvert installation.
- Execution: Install in accordance with MDEP BMP #E–2 Pipe Inlet Protection.
- Maintenance: All protection shall be inspected weekly and after every storm event, to check for sediment build up or failure. Sediments shall be removed after each storm event. Stone check dam protection shall be maintained in effective condition until all permanent erosion control measures are installed for the drainage area served by the inlet.
- Removal: Remove dams when stabilization of drainage area has been established. Seed and mulch non paved areas. Areas of removal shall be inspected until stabilization of these areas is reached.

Temporary Mulch
- Purpose: To prevent erosion by protecting exposed soil surfaces and to aid in the growth of vegetation by conserving available moisture, controlling weeds, and providing protection against extreme heat and cold.
- Product: Organic Mulches: Hay or straw mulch.
- Required Usage: Apply to exposed soil surfaces prior to any storm event and within 7 days of exposure. Apply to all areas exposed after September 15.
- Execution: Application shall be at a rate of 2 bales (70–90 lbs.) per 1,000 square feet.
- Maintenance: All mulches shall be inspected weekly and after every storm event, to check for erosion. Remulching shall be required if less than 90% of soil surface is covered.
- Removal: Temporary mulch shall be removed once vegetative cover has been established or regarding is to be done.

Temporary Grass Cover
- Purpose: To reduce erosion by stabilization of disturbed areas which have not been brought to final grade.
- Product: In accordance with BMP Table 2.1 or winter rye after September 1.
- Require Usage: Provide temporary grass cover to all disturbed areas which will receive no permanent prevention measures for a period of more than 90 days, or after September 1.
- Execution: Loosen topsoil to a depth of 2". Apply 13.8 lb. of 10–10–10 fertilizer per 1,000 sq. ft. and lime at rate of 138 lb. per 1,000 sq. ft. Apply seed uniformly and apply temporary mulch.
- Maintenance: All temporary covers shall be inspected weekly and after every storm event, to check for erosion. Reseeding shall be required if less than 95% of soil surface is covered. Provide for other preventative measures in the interim.

Permanent Control Measures
Permanent Grass Cover
- Purpose: To permanently stabilize the soil to reduce erosion of soils.
- Products: In accordance with BMP Table 3.1 & 3.2.
- Execution: Apply fertilizer, lime in accordance with Temporary Cover and seed rates of BMP Tabl2 3.2. Mulch after seeding. After September 1 provide temporary cover.
- Maintenance: Establish a grass cover and remove mulch. Reseed areas not attaining a cover of 90%.

Culvert Inlet & Outlet Protection
- Purpose: To permanently stabilize soil around culvert inlets and outlets to reduce scouring, under–cutting, and erosion of soils.
- Products: Clean stones sized in accordance with enclosed details
- Installation: Concurrently with installation of culverts.
- Required Usage: Locate at all culvert entrances and discharges.
- Execution: Install in accordance with enclosed details.
- Maintenance: Inspect weekly and after every storm event. Add stones as necessary to protect soil.

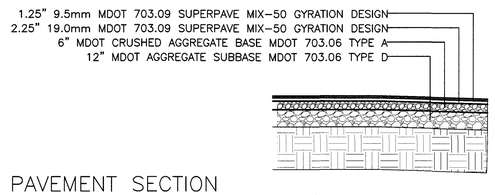


RIP RAP SCHEDULE			
DIA.	d50	t	L
15"	9"	21"	10'
18"	10"	24"	10'
24"	12"	27"	10'
36"	12"	27"	10'
48"	13"	30"	12'

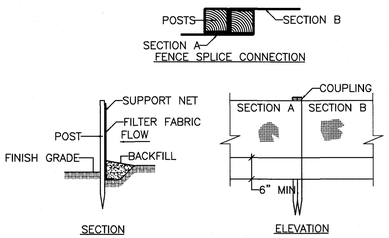
CULVERT INLET/OUTLET DETAIL
NOT TO SCALE

NOTE
1. RIP RAP PROTECTION TO BE ANGULAR STONE

NOTE: BITUMINOUS PAVEMENT SHOULD BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D–2041. TACK COAT IS RECOMMENDED. BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D–1557. SUBBASE FILL PLACED BELOW THE SUBBASE MATERIAL SHOULD BE COMPACTED TO AT LEAST 90 PERCENT OF ASTM D–1557.

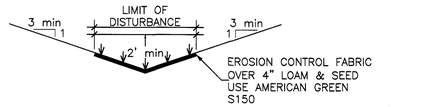


PAVEMENT SECTION
NO SCALE

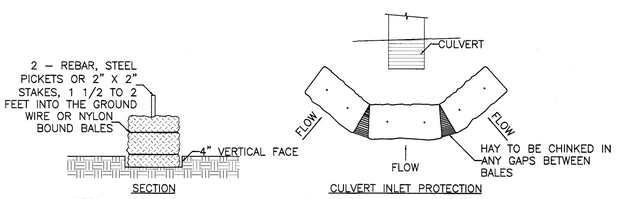


SEDIMENT BARRIER– SILT FENCE OPTION
NOT TO SCALE

NOTES:
1. IF EXTRA STENGTH FABRIC IS USED WIRE MESH MAY BE OMITTED, PROVIDING POST SPACING DOES NOT EXCEED 6' O.C.
2. INSTALL SEDIMENT BARRIER ALONG THE CONTOURS WITH THE ENDS TURN UP–SLOPE. IN AREAS WHERE SEDIMENT BARRIER IS USED AS LIMIT OF DISTURBANCE, REMOVE IMMEDIATELY FOLLOWING STABILIZATION.
3. IN ANY AREA WHERE SEDIMENT BARRIERS ARE SHOWN DOWN GRADIENT OF A STORMWATER CONVEYANCE OR STRUCTURE THAT BARRIER SHALL BE REMOVED UPON COMPLETION AND STABILIZATION OF THE STRUCTURE.
4. REMOVE SEDIMENT ACCUMULATION ONCE IT REACHED 1/2 OF STRUCTURE HEIGHT.

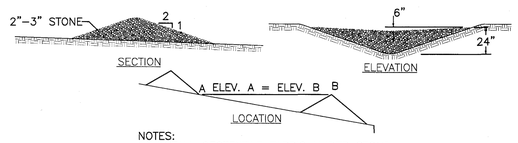


GRASSED SWALE/DITCH DETAIL
NOT TO SCALE



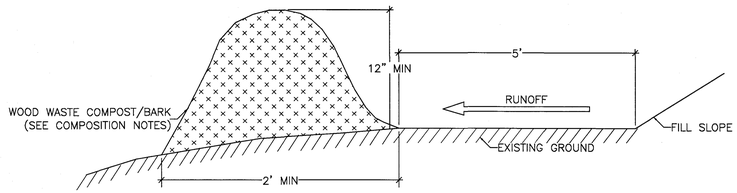
NOTES:
1. BALES SHALL BE PLACES IN A ROW WITH END TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MIN. OF 4".
3. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

HAY BALE CHECK DAM/ INLET PROTECTION
NOT TO SCALE



NOTES:
1. INSTALL GEOTEXTILE FABRIC UNDER STONE CHECK DAMS
2. SEED AND MULCH AREA UPON REMOVAL OF DAM
3. USE ANGULAR STONE NOT FIELD STONE.

STONE CHECK DAM
NOT TO SCALE



SEDIMENT BARRIER– MULCH BERM OPTION
NOT TO SCALE

COMPOSITION
EROSION CONTROL MIX SHAL CONTAIN A WELL–GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS.
– THE ORGANIC MATTER CONTENT SHALLB E BETWEEN 80 AND 100%, DRY WEIGHT BASIS.
– PARTICEL SIZE BY WEIGHT SHALL BE BETWEEN 70 AND 100% PASSING AT A 6" SCREEN, MAXIMUM OF 85%, PASSING A 0.75" SCREEN.
– THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
– LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
– SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM.
– THE pH SHOULD FALL BETWEEN 5.0 AND 8.0.
INSTALLATION
– THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRDIGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
– ON SPOLES LESS THAN 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20 FEET LONG, THE BARRIER MUST BE A MINIMUM OF 13" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, AND A MINIMUM OF TWO FEET WIDE, ON LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL RUNOFF.
– FROZED GROUND, OUTCROPS OF BEDROCK AND VERY ROOTED FORESTED AREAS ARE LOCATIONS WHERE BERMS OF ERISION CONTROL MIX ARE MOST PRACTICAL AND EFFECTIVE.
– OTHER BMPs SHOULD BE USED AT LOW POINTS OF CONCETRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (I.E., A LARGE UP GRADIENT CONTRIBUTING WATERSHED).
– IN ANY AREA WHERE SEDIMENT BARRIERS ARE SHOWN DOWN GRADIENT OF A STORMWATER CONVEYANCE OR STRUCTURE, THAT BARRIER SHALL BE REMOVED UPON COMPLETION AD STABILIZATION OF THE STRUCTURE.
– REMOVE SEDIMENT ACCUMULATION ONCE IT REACHES 1/2 OF STRUCTURE HEIGHT.

OVERWINTER CONSTRUCTION AND STABILIZATIOU

PURPOSE & APPLICATIONS

If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over–winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mix, erosion control mats, riprap or gravel base on a road. The winter construction period is from November 1 through April 15.

CONSIDERATIONS

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is to occur during the following 15 days and that can be mulched in one day prior to any snow event. All area shall be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. A cover of erosion control mix performs the best. Refer to the TEMPORARY MULCHING BMP.
Any added measures, which may be necessary to control erosion/sedimentation, must be installed. These may be dependent upon site conditions, the actual site size and weather conditions.
To minimize areas without erosion control protection, continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized.

SPECIFICATIONS

Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with an erosion control cover.
During winter construction, a double row of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.
Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource.
Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

Mulching

All area shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75–lbs/1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4 inch thickness.
Mulch shall not be spread on top of snow. The snow will be removed down to a one–inch depth or less prior to application.
After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible though the mulch.
Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, asphalt emulsion chemical, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible though the mulch.
After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

Soil Stockpiling

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or with a four–inch layer of erosion control mix. This will be done within 24 hours of stocking and re–established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with mulched) within 100 feet from any natural resources.

Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loomed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.
Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4' of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.
If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Overwinter stabilization of ditches and channels

All stone–lined ditches and channels must be constructed and stabilized by November 15. All grass–lined ditches and channels must be constructed and stabilized by September 1. If a ditch or channel is not grass–lined by September 1, then one of the following actions must be taken to stabilize the ditch for late fall and winter.
Install a sod lining in the ditch: A ditch must be lined with properly installed sod by October 1. Proper installation includes: pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring sod at the base of the ditch with jute or plastic mesh to prevent the sod from sloughing during flow conditions. See the PERMANENT VEGETATION BMP section.
Install a stone lining in the ditch: A ditch must be lined with stone riprap by November 15.
A registered professional engineer must be hired to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the contractor will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross–sectional area.

Overwinter stabilization of disturbed slopes

All stone–covered slopes must be constructed and stabilized by November 15. And all slopes to be vegetated must be seeded and mulched by September 1. The department will consider any area having a grade greater than 15% to be a slope. If a slope to be vegetated is not stabilized by September 1, then one of the following actions must be taken to stabilize the slope for late fall and winter.
Stabilize the soil with temporary vegetation and erosion control mats –– By October 1 the disturbed slope must be seeded with winter rye at a seeding rate of 3 pounds per 1000 square feet and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1, then the contractor will cover the slope with a layer of erosion control mix or with stone riprap as described in the following standards.

Stabilize the soil with sod –– The disturbed slope must be stabilized with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor will not use late–season sod installation to stabilize slopes having a grade greater than 33% (3H:1V) or having groundwater seeps on the slope face.
Stabilize the soil with erosion control mix – Erosion control mix must be properly installed by November 15. The contractor will not use erosion control mix to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face. See the TEMPORARY MULCHING BMP section.
Stabilize the soil with stone riprap –– Place a layer of stone riprap on the slope by November 15. The development's owner will hire a registered professional engineer to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap. See the RIPRAP SLOPE STABILIZATION BMP section.

Overwinter stabilization of disturbed soils

By September 15, all disturbed soils on areas having a slope less than 15% must be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions must be taken to stabilize the soil for late fall and winter.
Stabilize the soil with temporary vegetation –– By October 1, seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1, then mulch the area for over–winter protection as described below.
Stabilize the soil with sod –– Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
Stabilize the soil with mulch –– By November 15, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MAINTENANCE

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.
Following the temporary and/or final seeding and mulching, the contractor shall, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STABILIZATION SCHEDULE BEFORE WINTER

September 15 – All disturbed areas must be seeded and mulched.
All slopes must be stabilized, seeded and mulched.
All grass–lined ditches and channels must be stabilized with mulch or an erosion control blanket.
October 1 – If the slope is stabilized with an erosion control blanket and seeded.
All disturbed areas to be protected with an annual grass must be seeded at a seeding rate of 3 pounds per 1000 square feet and mulched.
November 15 – All stone–lined ditches and channels must be constructed and stabilized.
Slopes that are covered with riprap must be constructed by that date.
December 1 – All disturbed areas where the growth of vegetation fails to be at least three inches tall or at least 75% of the disturbed soil is covered by vegetation, must be protected for over–winter.

NOTE: The dates given are for projects in South–Central Maine. Adjust the dates given based on the project's location within the state – reducing times up to three weeks for project's in Northern Maine and extending times up to two weeks for project's on the coast in extreme Southern Maine.

REVISIONS				
NO.	DATE	DESCRIPTION	DRAWN	APPD.
1	10/23/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY	SEB
2	10/28/14	RESPONSE TO CITY OF BANGOR COMMENTS	ASY	SEB
1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: EROSION CONTROL DETAILS

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:
CLIENT: SWAN VILLAGE, INC. 141 ESSEX STREET BANGOR, MAINE 04401

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED: ES

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FOR PERMITTING ONLY
STATE OF MAINE SCOTT E. HEALEY No. 6221 LICENSED PROFESSIONAL ENGINEER
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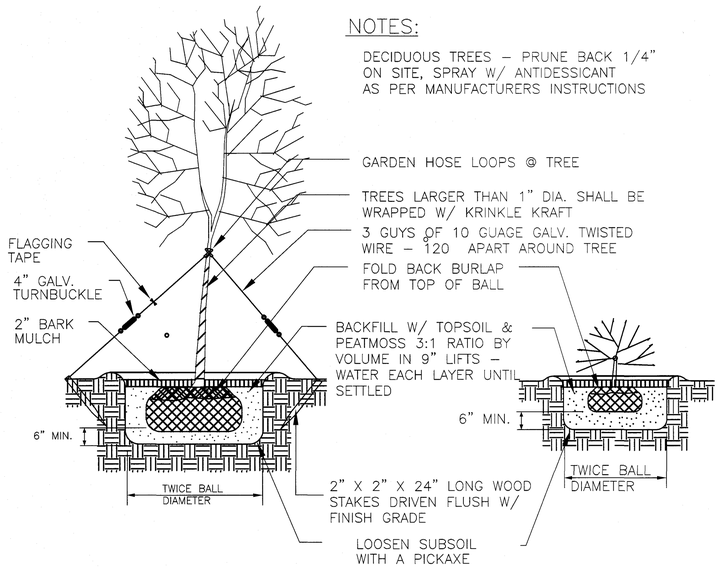
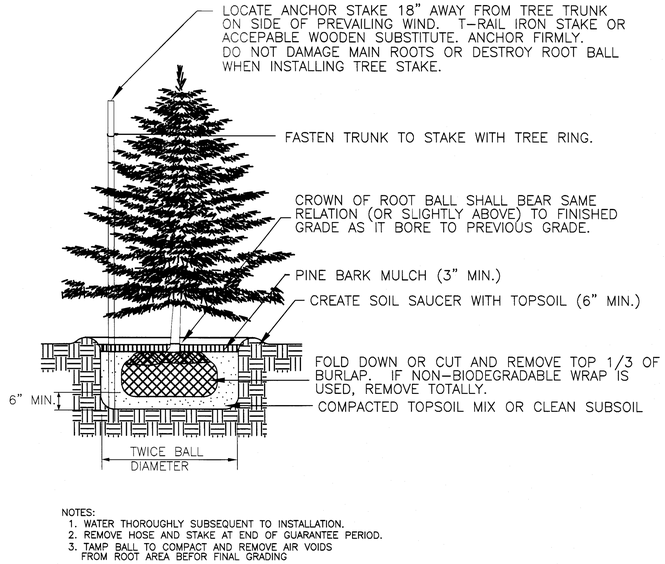
SHEET 4 OF 6

C3



PLANTING DETAIL–DECIDUOUS TREES AND SHRUBS

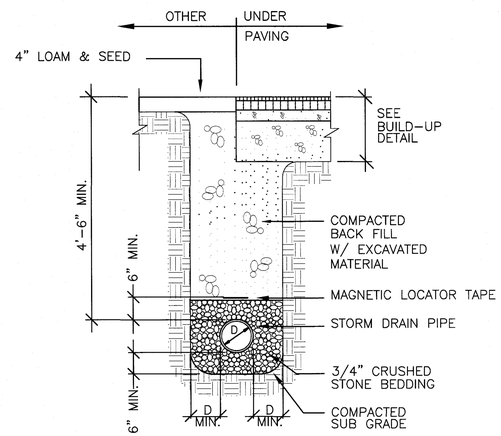
NOT TO SCALE



NOTES:
1. WATER THOROUGHLY SUBSEQUENT TO INSTALLATION.
2. REMOVE HOSE AND STAKE AT END OF GUARANTEE PERIOD.
3. TAMP BALL TO COMPACT AND REMOVE AIR VOIDS FROM ROOT AREA BEFOR FINAL GRADING

PLANTING DETAIL–CONIFEROUS TREES AND SHRUBS

NOT TO SCALE



STORM DRAIN/SANITARY SEWER TRENCH DETAIL

NOT TO SCALE

NOTES:

1. ALL BACKFILL PROCEDURES MUST BE PROVIDED USING MAXIMUM 8" LIFTS, LOOSE MEASURE
2. ANY LINE TO BE PLACED WITH LESS THAN 4'–6" OF COVER MUST BE AUTHORIZED BY THE OWNER. ANY LINE PROVIDED WITH LESS THAN 4.5' OF COVER MUST BE INSULATED WITH 2" OF RIGID INSULATION, WIDTH TO BE DETERMINED DEPENDING UPON DEPTH & LOCATION.
3. ANY LINE CROSSING OF OTHER UTILITIES WHERE THE VERTICAL SEPARATION DISTANCE IS LESS THAN 2 FEET SHALL BE INSULATED WITH 2" OF RIGID INSULATION, IN ALL DIRECTIONS FOR A DISTANCE OF 2' FROM THE CROSSING. (SEE DETAIL).

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PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: CONSTRUCTION DETAILS

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141 ESSEX STREET
BANGOR, MAINE 04401

PROJECT NO. 14073
DRAWING NO.
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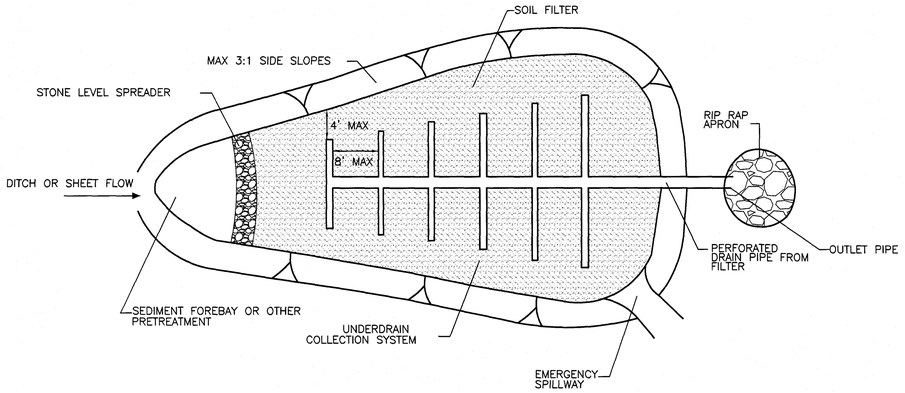
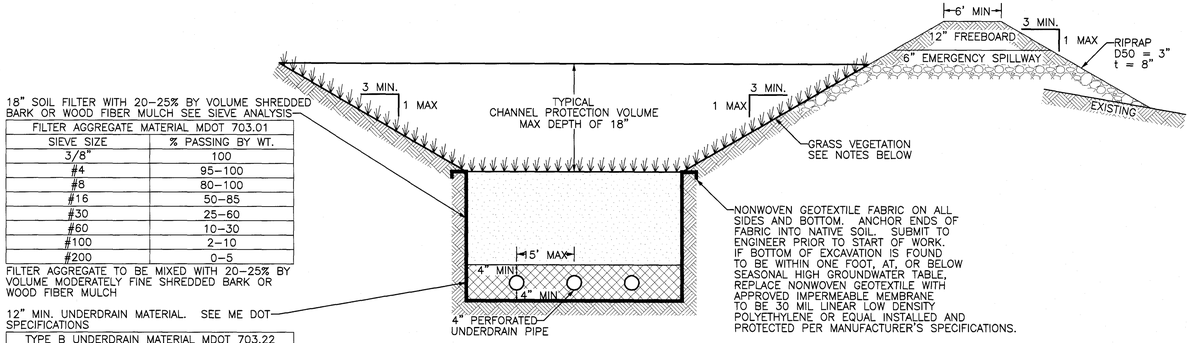
SHEET 5 OF 6

C4



TYPICAL UNDERDRAIN SOIL FILTER PLAN VIEW

NOT TO SCALE



FILTER AGGREGATE MATERIAL MDOT 703.01	
SIEVE SIZE	% PASSING BY WT.
3/8"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TYPE B UNDERDRAIN MATERIAL MDOT 703.22	
SIEVE #	% BY WT.
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

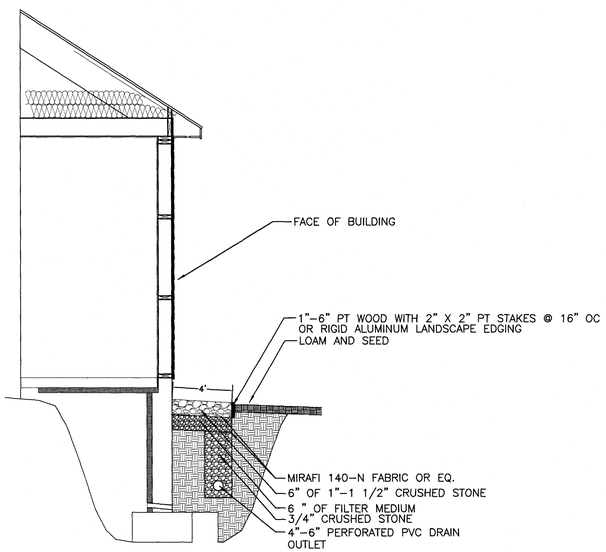
TYPICAL UNDERDRAIN SOIL FILTER DETAIL

NOT TO SCALE

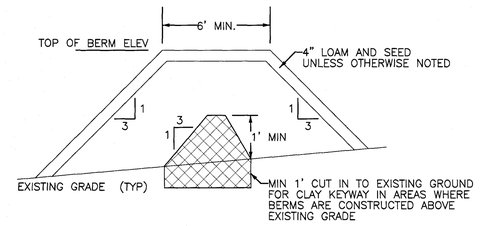
GENERAL NOTES:
1. SIEVE ANALYSIS RESULTS FOR SPECIFIED MATERIALS TO BE SUBMITTED TO ENGINEER PRIOR TO USE.
2. UNDERDRAIN TO BE SEEDED WITH MDOT CONSERVATION MIX MEETING MDOT STANDARD SPECIFICATION 618 SEEDING METHOD # 2 WITH LOW PHOSPHOROUS FERTILIZER.
3. FINAL MIXTURE OF COARSE LOAMY SAND AND SHREDDED BARK OR WOOD FIBER MULCH MUST HAVE NO LESS THAN 8% OR MORE THAN 12% PASSING THE #200 SIEVE. SUBMIT ANALYSIS RESULTS PRIOR TO USE.

UNDERDRAIN SOIL FILTER CONSTRUCTION CRITERIA

1. BASIN EXCAVATION: THE AREA OF THE BASIN MAY BE EXCAVATED IN PREPARATION OF THE INSTALLATION OF THE UNDERDRAIN AND CAN BE USED FOR A SEDIMENT TRAP FROM THE SITE DURING CONSTRUCTION. AFTER EXCAVATION OF THE BASIN, THE OUTLET STRUCTURE AND PIPING SYSTEM MUST BE INSTALLED AT THE APPROPRIATE ELEVATION AND PROTECTED WITH A SEDIMENT BARRIER. IF THE BASIN IS TO BE USED AS A SEDIMENT TRAP, THE SIDES OF THE EMBANKMENTS MUST BE MULCHED AND MAINTAINED TO PREVENT EROSION.
2. COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90 AND 92% STANDARD PROCTOR.
3. OUTLET DISCHARGE: OUTFLOW OF THE FILTER BASIN UNDERDRAIN CAN BE CONTROLLED BY A CONSTRICTIVE ORIFICE OR A VALVE (2" PLASTIC BALL VALVE, TYPE 346, WITH A BALL VALVE HANDLE EXTENSION, TYPE 615, WITH A THREE–PIECE VALVE BOX SHALL BE INSTALLED OVER THE VALVE). UPON COMPLETION OF THE INSTALLATION OF THE SOIL FILTER MEDIA AND THE ESTABLISHMENT OF 90% CATCH OF GRASS COVER OVER THE FILTER MEDIA, THE CONTRACTOR SHALL FLOOD THE VEGETATED BASIN TO THE DESIGN ELEVATION WITH CLEAN WATER AND ADJUST THE OUTFLOW TO OBTAIN A 24 HOUR TO 32 HOUR RELEASE TIME.
4. CONSTRUCTION SEQUENCE: EROSION AND SEDIMENTATION FROM UNSTABLE SUBCATCHMENTS IS THE MOST COMMON REASON FOR FILTER FAILURE. NOT HEEDING THE CONSTRUCTION SEQUENCING CRITERIA IS LIKELY TO RESULT IN THE NEED TO REPLACE SOIL FILTER. THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR PERMANENT STABILIZED. OTHERWISE, THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA MUST BE DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED OR THE DEPARTMENT HAS APPROVED, ON A CASE BY CASE BASIS, THAT APPROPRIATE MEASURES WERE TAKEN TO PREVENT EROSION OF MATERIAL FROM THE UNSTABLE CATCHMENT AREAS AND DEPOSITION ON THE FILTER.
5. REMEDIAL LOAM COVER: IF VEGETATION IS NOT ESTABLISHED WITHIN THE FIRST YEAR, THE CONTRACTOR MAY INSTALL A 2–3 INCH LAYER OF LOAM (WITH LESS THAN 2% CLAY AS TESTED VIA HYDROMETER TEST) ON THE SURFACE OF THE GRASS FILTER; AND RESEED/MULCH.
6. CONSTRUCTION OVERSIGHT: INSPECTION OF THE FILTER BASIN SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:
   - AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
   - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
   - AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
   - AFTER ONE YEAR TO INSPECT VEGEATION UPTAKE AND MAKE CORRECTIONS.
   - ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
7. TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL TESTING RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION:
   - SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLE OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
   - PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
   - PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90–92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.



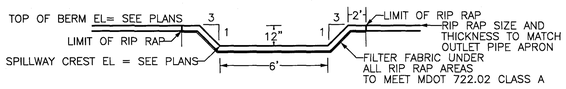
ROOF DRIPLINE FILTRATION DETAIL



EMBANKMENT CONSTRUCTION
1. CONSTRUCTION MATERIAL SHALL MEET M.D.O.T. SPECIFICATION 703.18.
2. PLACE BORROW MATERIAL IN MAXIMUM 12" LIFTS COMPACTED TO 95% OF MAX DENSITY. COMPACTION SHALL BE PERFORMED WITH A VIBRATORY COMPACTION DEVICE SUITABLE TO PROVIDE DESIRED RESULTS.
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS.
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.
5. CLAY KEYWAY CAN BE ELIMINATED FOR BERMS UNDER 3' MAX HEIGHT.
6. CLAY KEYWAY TO EXTEND TO ELEVATION OF PERMENENT POOL.

BERM DETAIL

NOT TO SCALE



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

NOTE: RIP RAP APRON TO EXTEND FROM 12" BELOW CREST INSIDE OF BASIN ACROSS CREST AND DOWN THE BACKSLOPE TO MEET THE EXISTING GRADE

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1.	5/4/16	2016 AMENDMENT TO SITE PLAN	DCC	SEB

PROJECT NAME: SWAN VILLAGE
BANGOR MAINE
SHEET NAME: UNDERDRAIN SOIL FILTER DETAILS

PROJECT NO. 14073
DRAWING NO.
FIELDBOOK: N/A
SCALE:
DATE ISSUED:

DESIGNED: SEB
DRAWN: DCC
CHECKED: SEB
APPROVED: SEB
PLAN DATE:

CLIENT: SWAN VILLAGE, INC.
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SHEET 6 OF 6

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