

GADUS SOLAR

SHEET INDEX:

SHEET NUMBER	SHEET TITLE	DRAWING DATE	REVISION DATE
C-0.00	COVER PAGE PROPOSED SOLAR ARRAY	11/17/21	04/14/22
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C-1.01	EXISTING CONDITIONS AND PRE-DEVELOPMENT DRAINAGE PLAN	05/03/21	03/03/22
C-1.02	PROPOSED CLEARING PLAN	07/02/21	03/03/22
C-1.03	PROPOSED GRADING, ROAD INSTALLATION AND STORMWATER MANAGEMENT PLAN	07/14/21	03/03/22
C-1.04	DETAILED SITE PLAN	07/14/21	03/03/22
C-2.00	CROSS SECTION PLAN FOR NEIGHBORING BUILDING	05/03/21	03/03/22
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C-3.01	DETAILS	05/03/21	03/03/22
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C-3.03	DETAILS	09/17/21	03/03/22

LIST OF WAIVER REQUESTS:

- NO WAIVER REQUESTS



LOCATION MAP
SCALE: 1" = 1/2 MILE

RECEIVED
April 19, 2022
WESTPORT
PLANNING BOARD

WESTPORT PLANNING
BOARD APPROVAL

DATE

GADUS
SOLAR

Horseneck Road
Westport, Massachusetts



APPLICANT:



BIODIVERSITY RESEARCH INSTITUTE



164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

CIVIL ENGINEER:

Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:

BRI Environmental
30 Danforth Street
Suite 213
Portland, ME 04101

OWNER & PROPERTY INFORMATION:

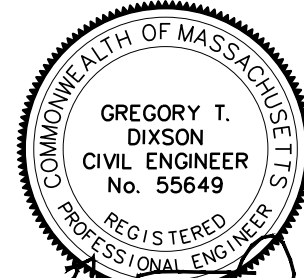
Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

Parcel ID: 76-69S-0

Parcel Address: 0 Horseneck Road
Westport, MA 02790

STAMP:



REV. NO.	REVISIONS/COMMENTS	DATE
1.	Updates after Town meeting	12/20/21
2.	Update project access	01/17/22
3.	Update Fire Department comments	01/20/22
4.	Address updates to plan sheets	01/31/22
5.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22
6.	Remove Waiver Request	04/14/22

DRAWING TITLE:

COVER PAGE PROPOSED
SOLAR ARRAY

DATE of Issue: 11/17/2021

Drawn by: EJM/GTD

Checked by: GTD

Project No.: 21220

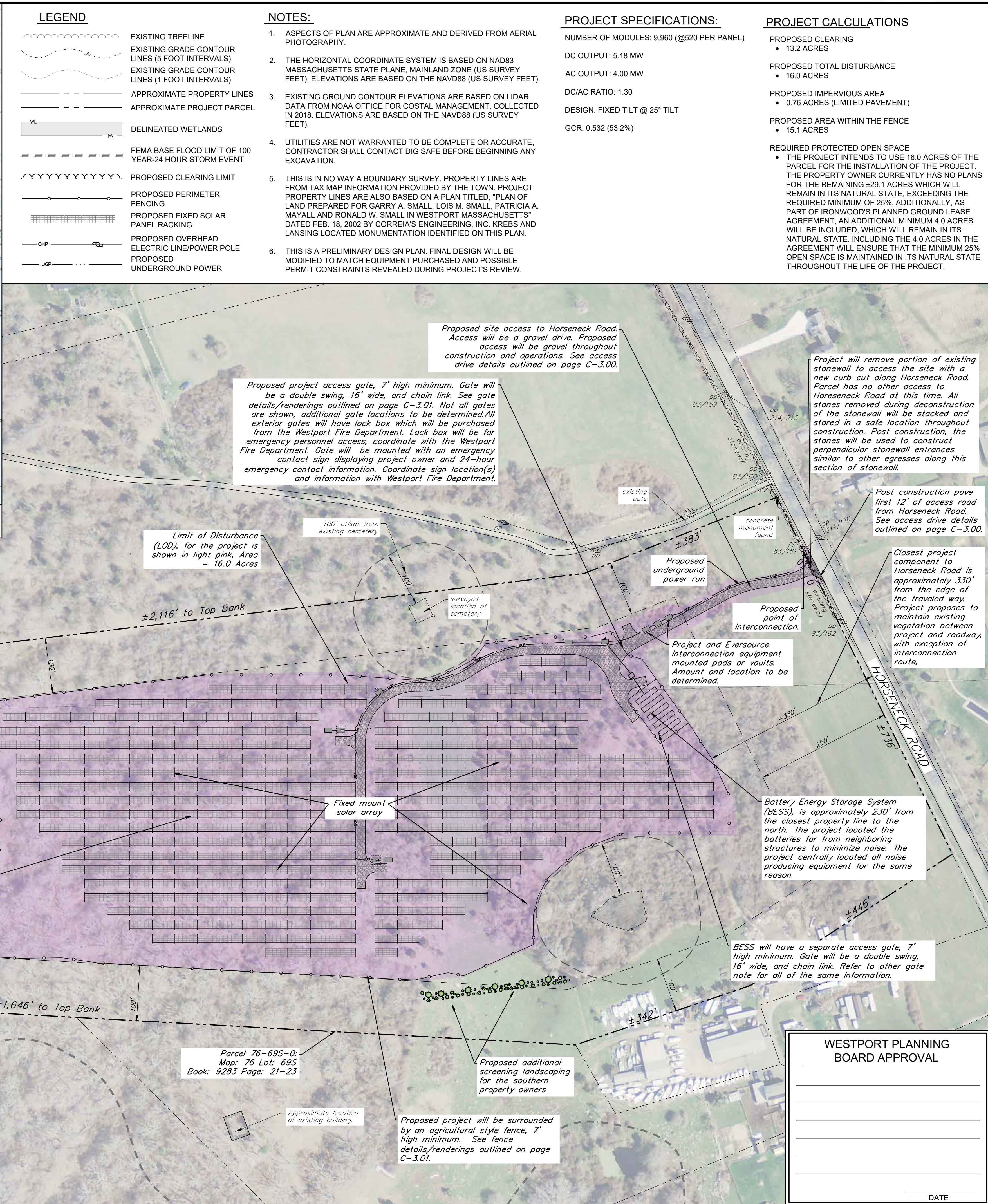
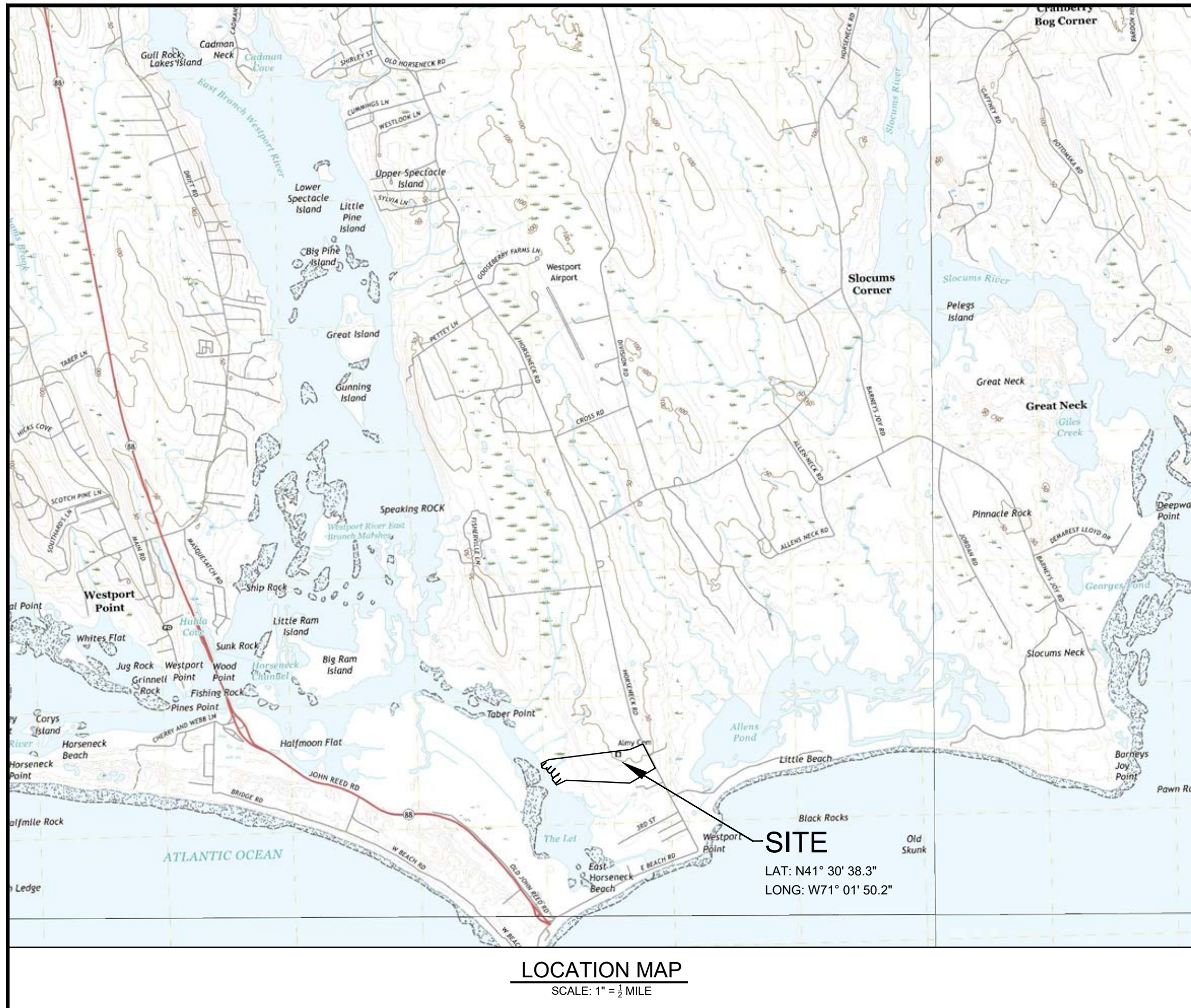
Scale: 1" = 100'

Drawing No.:

Rev No.:

C-0.00

6



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Westport, MA 02790

STAMP:

0' 50' 100' 200' 300'

0' 1" 2" 3"

STANDARD GRAPHIC SCALE (1" = 100')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE
1.	Revise design for new wetlands and project updates	09/17/21
2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update access to project	01/11/22
5.	Update project access	01/17/22
6.	Update Fire Department comments	01/20/22
7.	Show distance to "Let"	01/31/22
8.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

WESTPORT PLANNING BOARD APPROVAL

DATE of Issue: 05/03/2021

Drawn by: EJM/GTD Checked by: GTD

Project No.: 21220 Scale: 1" = 100'

Drawing No.: C-1.00 Rev No.: 8

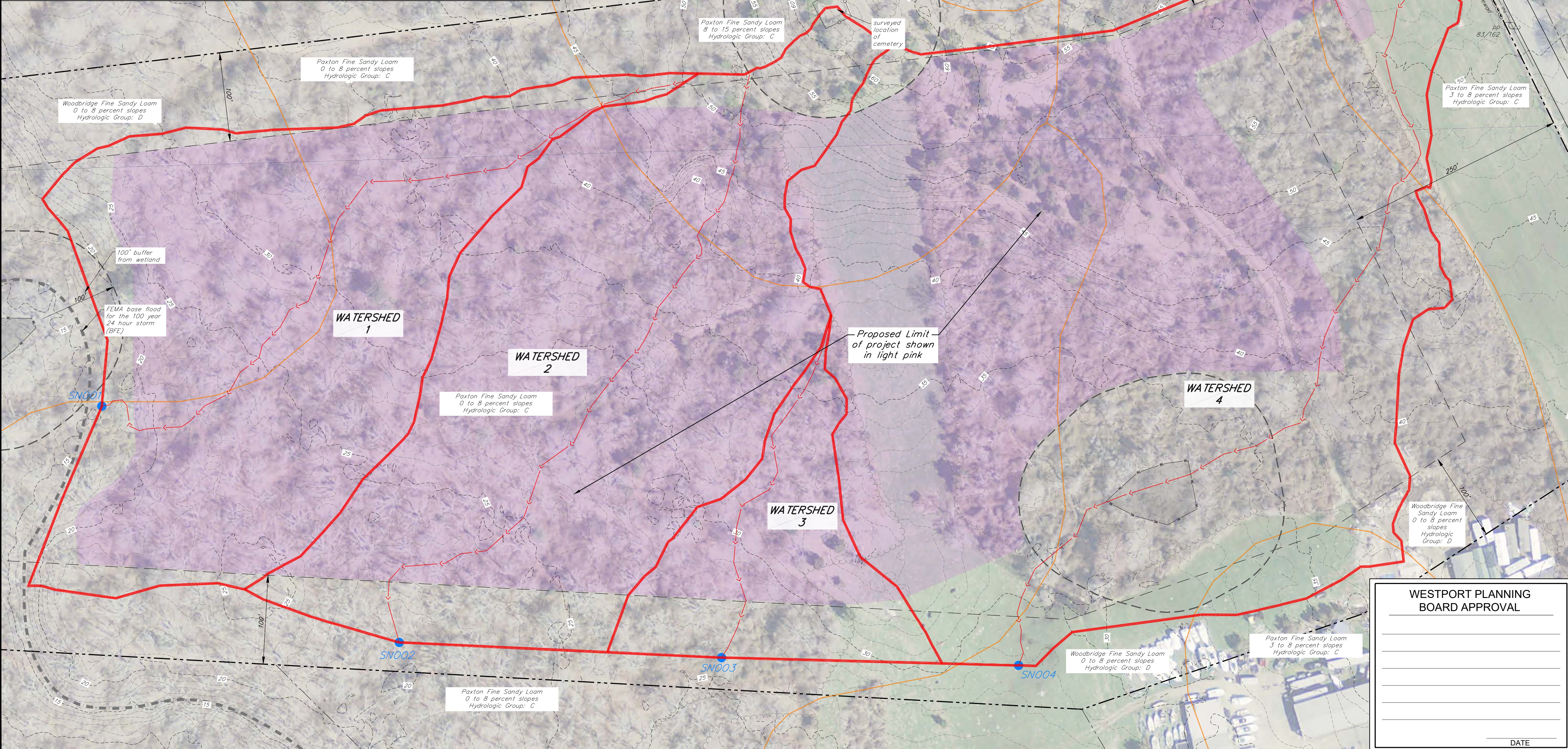
NOTES:

- ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
- THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MASSACHUSETTS STATE PLANE, MAINLAND ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
- EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON LIDAR DATA FROM THE STATE OF MASSACHUSETTS.
- UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
- THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES ARE FROM TAX MAP INFORMATION PROVIDED BY THE TOWN. PROJECT PROPERTY LINES ARE ALSO BASED ON A PLAN TITLED, "PLAN OF LAND PREPARED FOR GARRY A. SMALL, LOIS M. SMALL, PATRICIA A. MAYALL AND RONALD W. SMALL IN WESTPORT MASSACHUSETTS" DATED FEB. 18, 2002 BY CORREIA'S ENGINEERING, INC. KREBS AND LANSING LOCATED MONUMENTATION IDENTIFIED ON THIS PLAN.
- THIS IS A PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECT'S REVIEW.

LEGEND

- EXISTING TREELINE
- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- DELINEATED WETLANDS
- FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT
- NRCS MAPPED SOIL GROUPS
- PRE-CONSTRUCTION FLOW PATHS FOR TIME OF CONCENTRATION CALCULATIONS
- PRE-CONSTRUCTION WATERSHED LIMITS

PRE-DEVELOPMENT PEAK FLOWS (CFS)				
ANALYSIS POINT	2-YEAR 24-HOUR STORM EVENT	10-YEAR 24-HOUR STORM EVENT	25-YEAR 24-HOUR STORM EVENT	100-YEAR 24-HOUR STORM EVENT
SN001	3.21	7.11	9.79	14.13
SN002	4.20	9.84	13.77	20.18
SN003	0.87	1.98	2.75	4.01
SN004	7.75	16.07	21.67	30.61



WESTPORT PLANNING BOARD APPROVAL

DATE

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Horseneck Road
Westport, Massachusetts



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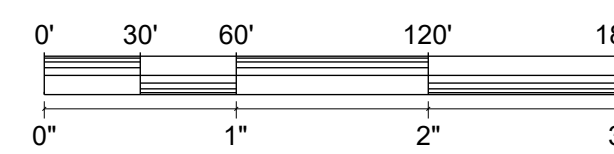
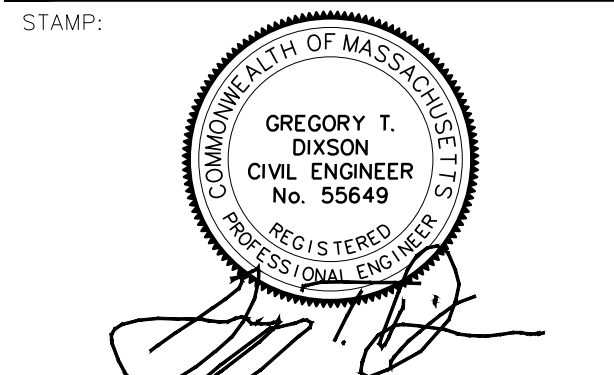
ENVIRONMENTAL:
BRI Environmental
276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:
Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

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VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE
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2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update Fire Department comments	01/20/22
5.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

EXISTING CONDITIONS
AND PRE-DEVELOPMENT
DRAINAGE PLAN

DATE of Issue: 05/03/2021
Drawn by: EJM/GTD
Project No.: 21220
Drawing No.:
Checked by: GTD
Scale: 1" = 60'
Rev No.:

C-1.01

5

NOTES:

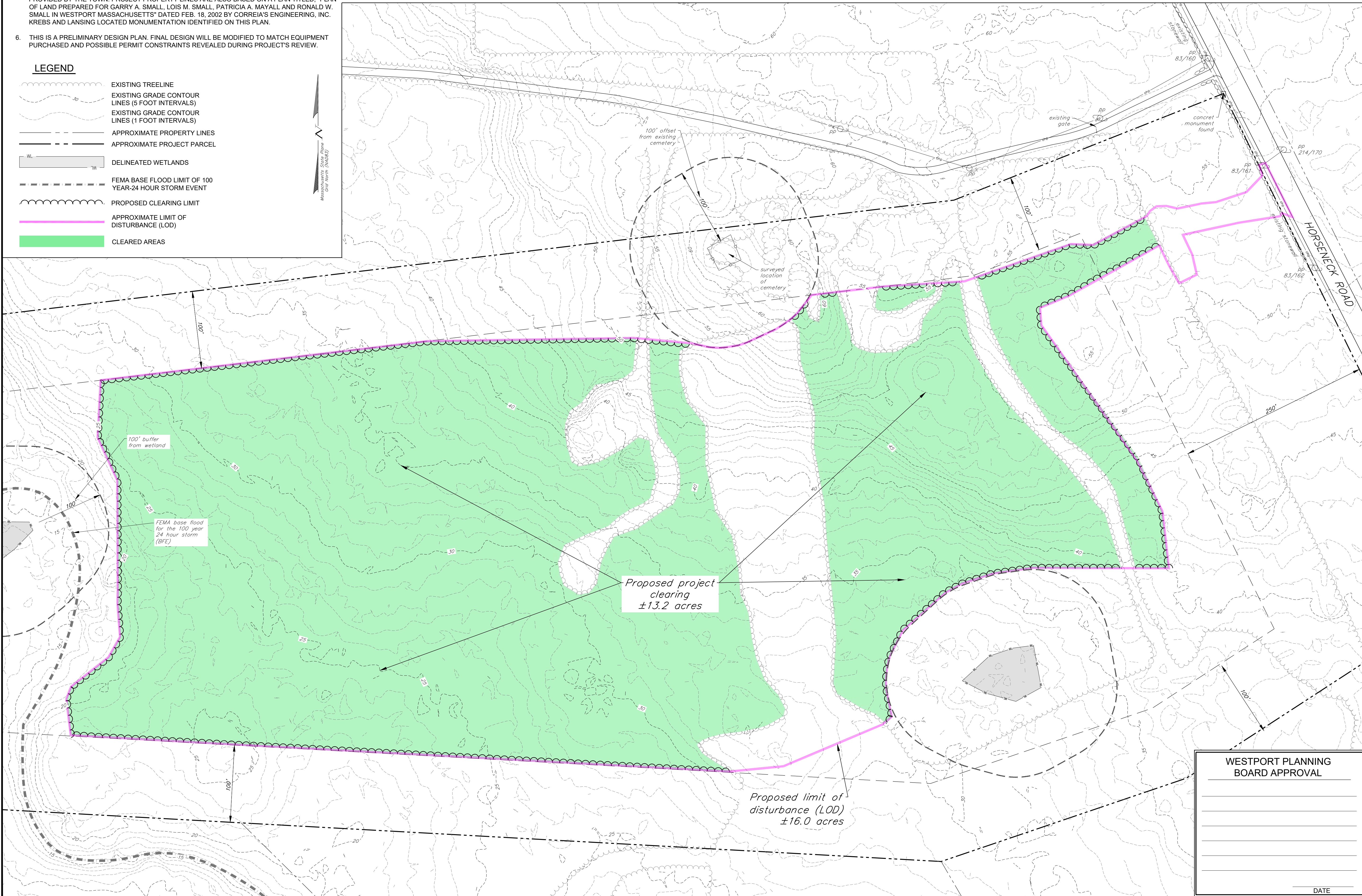
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LEGEND

- EXISTING TREELINE
- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- DELINEATED WETLANDS
- FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT
- PROPOSED CLEARING LIMIT
- APPROXIMATE LIMIT OF DISTURBANCE (LOD)
- CLEARED AREAS

CLEARING NOTES:

- ALL VEGETATION SHOWN IN LIGHT GREEN ON THIS PLAN WILL BE CLEAR CUT. TOTAL AMOUNT OF CLEARING ±13.2 ACRES.
- ALL AREAS WILL BE STUMPED AND GRUBBED. STUMPS WILL BE GROUND/CUT UP AND USE FOR EPSC. TREES MAY BE REMOVED FROM SITE (USED/SOLD). SMALLER TREES, SHRUBS AND BRANCHES WILL BE GROUND/CUT UP AND USED FOR EPSC.



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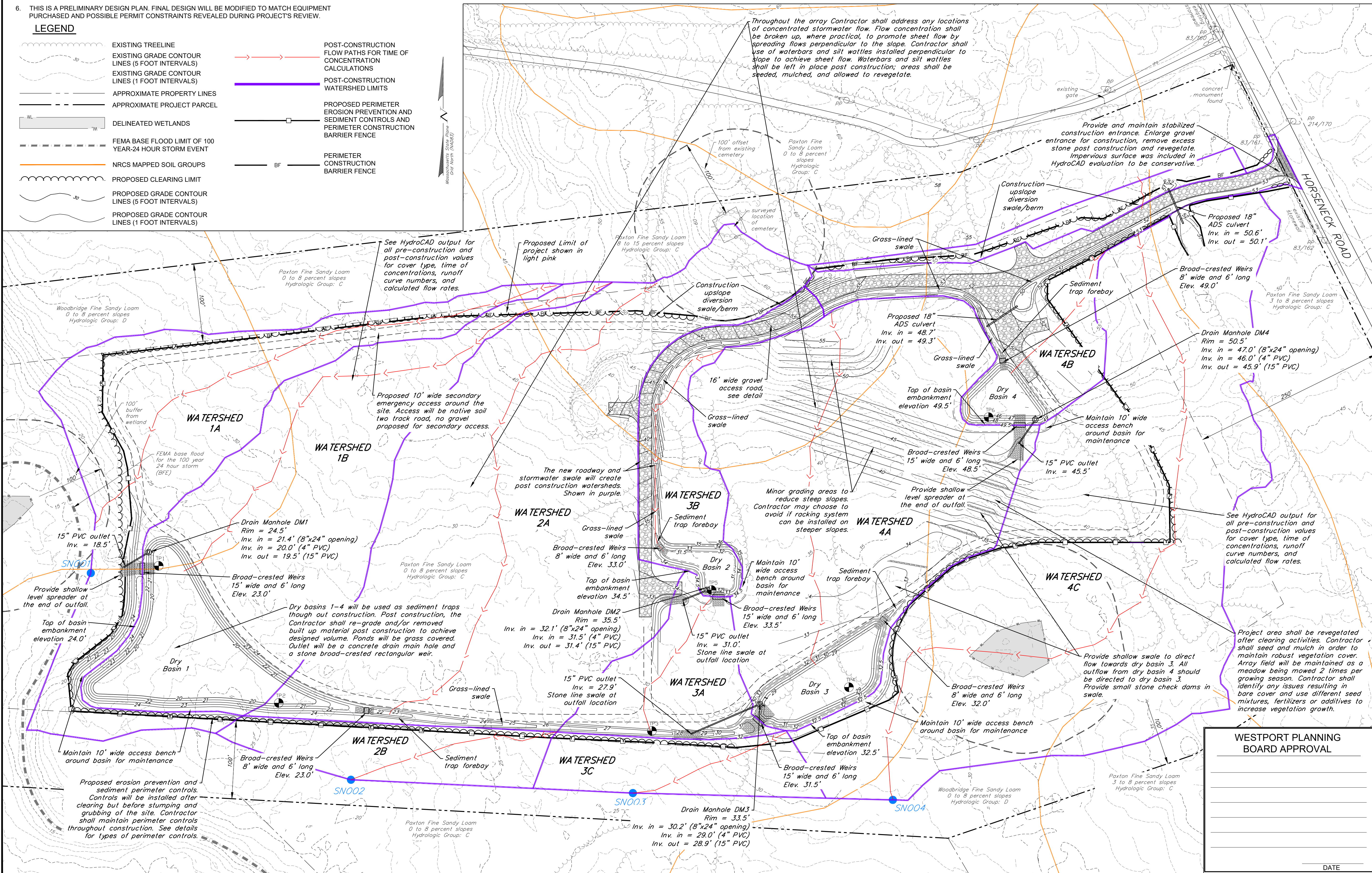
LEGEND

- | | | | |
|--|---|--|--|
| | EXISTING TREELINE | | POST-CONSTRUCTION FLOW PATHS FOR TIME OF CONCENTRATION CALCULATIONS |
| | EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS) | | POST-CONSTRUCTION WATERSHED LIMITS |
| | EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS) | | PROPOSED PERIMETER EROSION PREVENTION AND SEDIMENT CONTROLS AND PERIMETER CONSTRUCTION BARRIER FENCE |
| | APPROXIMATE PROPERTY LINES | | DELINEATED WETLANDS |
| | APPROXIMATE PROJECT PARCEL | | FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT |
| | NRCS MAPPED SOIL GROUPS | | PROPOSED CLEARING LIMIT |
| | PROPOSED GRADE CONTOUR LINES (5 FOOT INTERVALS) | | PROPOSED GRADE CONTOUR LINES (1 FOOT INTERVALS) |

GENERAL GRADING AND SITE WORK NOTES

- ALL AREA DISTURBED AND ALL AREAS WITHIN THE CLEARING LIMITS SHALL BE GRADED AND COVERED WITH A MINIMUM OF 4" OF LOAM TOPSOIL. THE AREAS TO BE LOAMED SHALL BE FREE AND CLEAR OF ROOTS, WASTE MATERIAL AND OTHER DELETERIOUS MATERIAL. TOPSOIL SHALL BE SPREAD AND LIGHTLY COMPACTED TO A DEPTH OF 4". TOPSOIL SHALL BE APPROVED BY THE ENGINEER. ALL SIDE SLOPES ARE TO BE LOAMED.
- ALL TURF ESTABLISHMENT SHALL BE IN ACCORDANCE WITH SECTION 170 OF THE MA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS 2020 AND THE TOWN'S SPECIFICATIONS. MULCHING SHALL FOLLOW SEEDING BY NO MORE THAN 24 HOURS.
- ALL CUT SLOPES SHALL BE NO STEEPER THAN 2.5H ON 1.0V. ALL FILL SLOPES SHALL BE NO STEEPER THAN 2.5H ON 1.0V.
- THE CONTRACTOR SHALL NOT DISTURB ANY GROUND BETWEEN OCTOBER 15TH BETWEEN APRIL 15TH WINTER MONTHS, UNLESS APPROVED BY THE ENGINEER.
- TEMPORARY SILT FENCE SHALL BE ERECTED PRIOR TO ANY CLEARING OR CONSTRUCTION. FENCING MAY BE ERECTED IN PHASES, BUT IN NO CASE SHALL GROUND DISTURBANCE PRECEDE FENCING. SPECIAL AREAS MAY BE DESIGNATED BY THE OWNER FOR PRESERVATION OF EXISTING TREES. THESE AREAS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE NO DAMAGE IS DONE TO DESIGNATED TREES.
- EXISTING PLANTINGS ARE LOCATED IN GENERAL AREAS AS SHOWN ON THIS PLAN. CONTRACTOR SHALL PROTECT PLANTINGS SO AS NOT TO DAMAGE THESE OR THEIR ROOT SYSTEMS.
- SLOPE STABILITY BASED UPON UNSATURATED SOIL CONDITIONS. IF DURING CONSTRUCTION SATURATED SOILS ARE ENCOUNTERED, CONTACT THE ENGINEER IMMEDIATELY.

ANALYSIS POINT	POST-DEVELOPMENT PEAK FLOWS (CFS)			
	2-YEAR 24-HOUR STORM EVENT	10-YEAR 24-HOUR STORM EVENT	25-YEAR 24-HOUR STORM EVENT	100-YEAR 24-HOUR STORM EVENT
SN001	1.85	3.85	6.57	12.26
SN002	0.37	0.85	1.20	1.75
SN003	0.39	0.90	1.27	1.86
SN004	3.80	7.73	10.36	14.56



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276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:

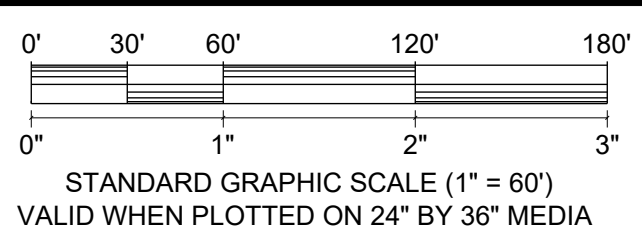
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STAMP:



REV. NO.	REVISIONS/COMMENTS	DATE
1.	Revise design for new wetlands and project updates	09/17/21
2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update project access	01/17/22
5.	Update Fire Department comments	01/20/22
6.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

PROPOSED GRADING,
ROAD INSTALLATION AND
STORMWATER MANAGEMENT
PLAN

DATE of Issue: 07/14/2021

Drawn by: EJM/GTD Checked by: GTD

Project No.: 21220 Scale: 1" = 60'

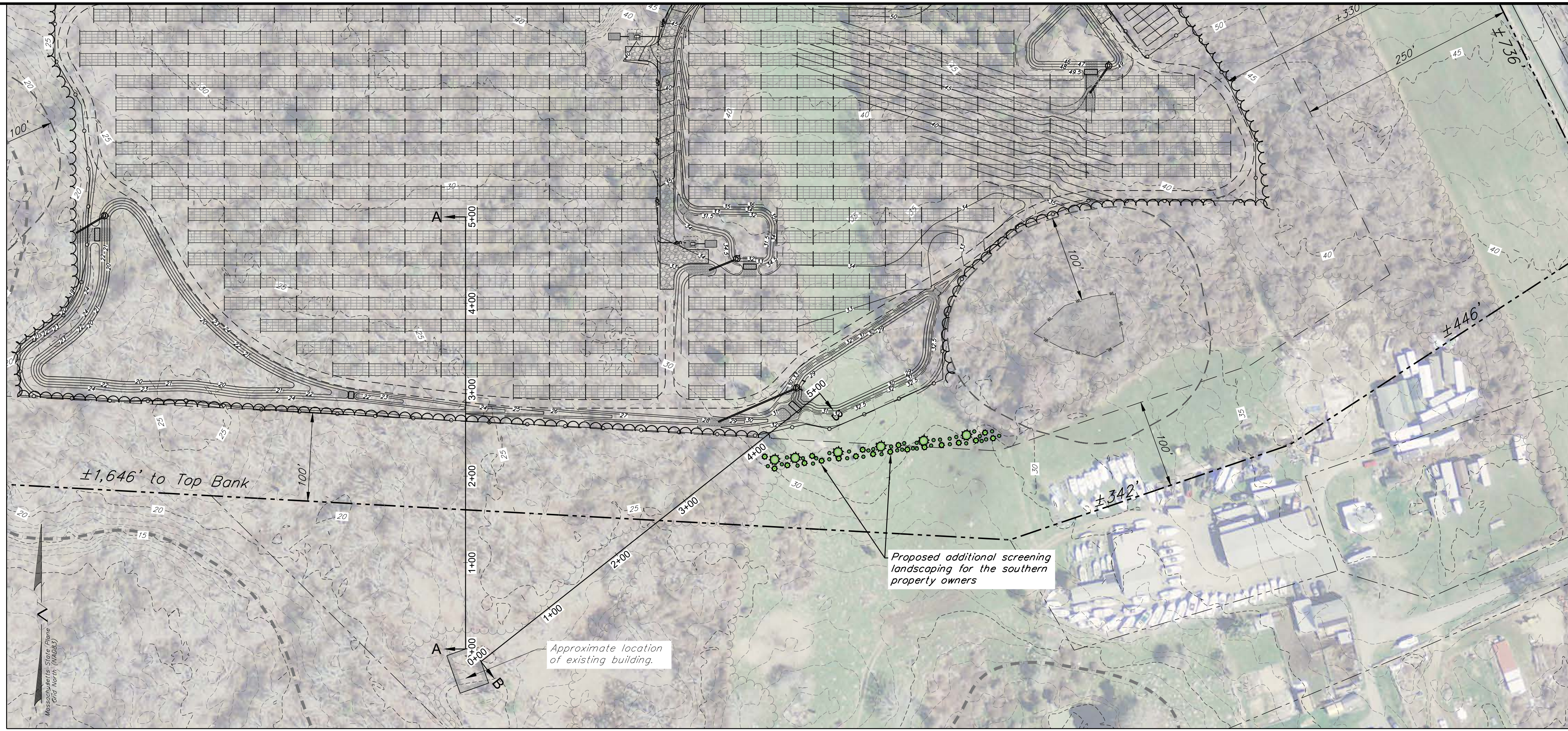
Drawing No.: C-1.03 Rev No.: 6

DATE

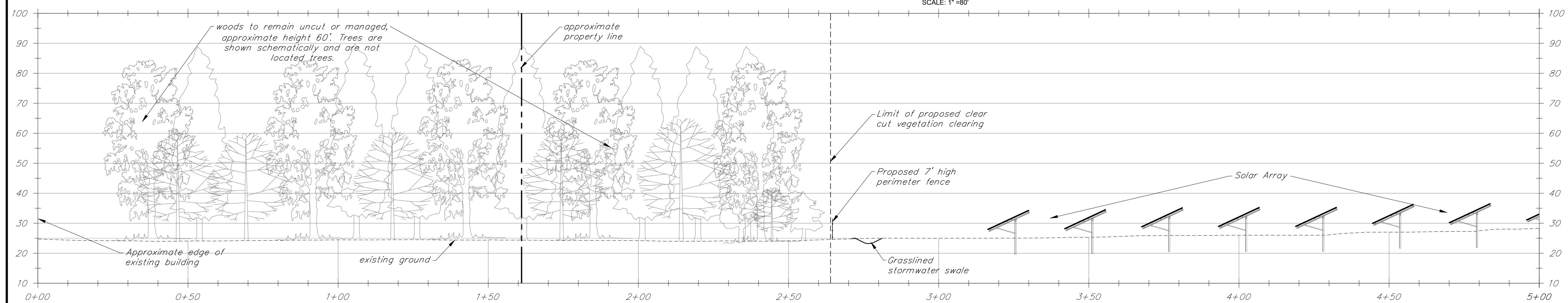
- LEGEND**
- EXISTING TREELINE
 - EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
 - EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
 - APPROXIMATE PROPERTY LINES
 - APPROXIMATE PROJECT PARCEL
 - DELINEATED WETLANDS
 - FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT
 - PROPOSED CLEARING LIMIT
 - PROPOSED PERIMETER FENCING
 - PROPOSED FIXED SOLAR PANEL RACKING
 - PROPOSED OVERHEAD ELECTRIC LINE/POWER POLE
 - PROPOSED UNDERGROUND POWER
 - PROPOSED GRADE CONTOUR LINES (5 FOOT INTERVALS)
 - PROPOSED GRADE CONTOUR LINES (1 FOOT INTERVALS)

NOTES:

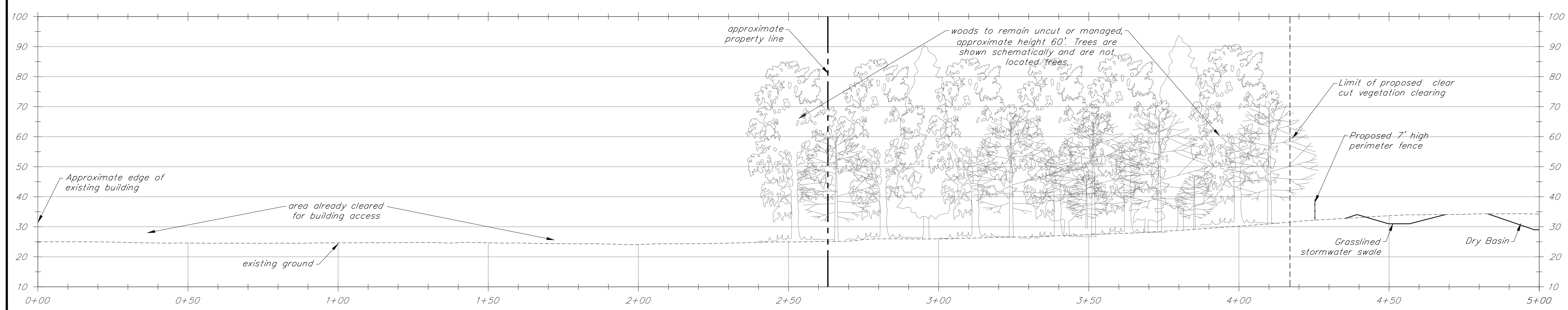
1. SEE PLAN NOTES ON PAGE C-1.00.



SITE PLAN VIEW
SCALE: 1"=80'



ABUTTING HOUSE VIEW SECTION A-A
HORIZONTAL & VERTICAL SCALE: 1"=20'



ABUTTING HOME VIEW SECTION B-B
HORIZONTAL & VERTICAL SCALE: 1"=20'

WESTPORT PLANNING BOARD APPROVAL

DATE

GADUS SOLAR
Horseneck Road
Westport, Massachusetts

IRONWOOD RENEWABLES

APPLICANT:
bri
BIODIVERSITY RESEARCH INSTITUTE

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0' 40' 80' 160' 240'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 80')
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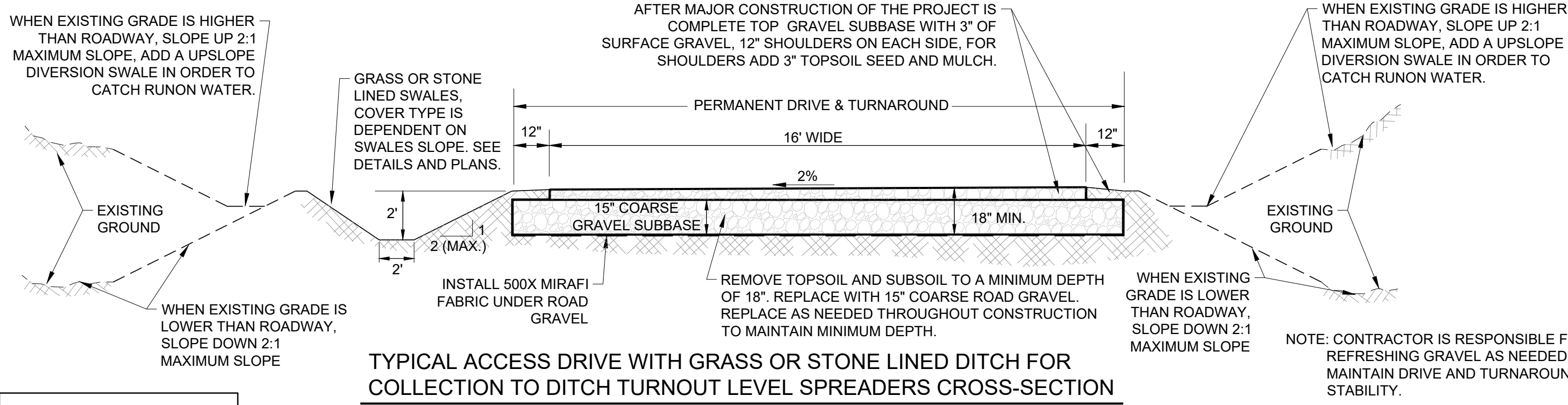
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DRAWING TITLE:

**CROSS SECTION PLAN FOR
NEIGHBORING BUILDING**

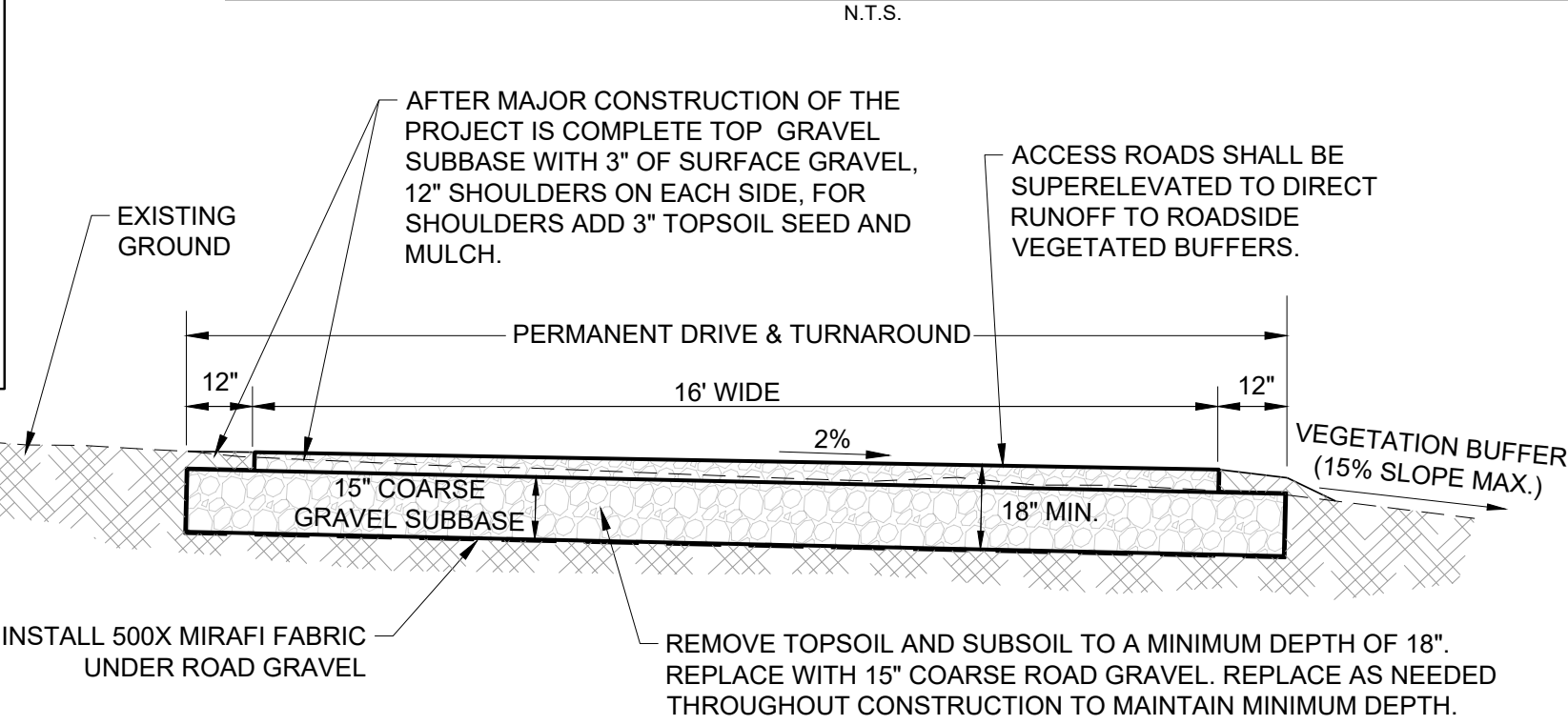
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6



NOTE: FOR THE FIRST 12' OF THE ENTRANCE THE PROJECT WILL PROVIDE A PAVED APRON. CROSS SECTION FOR PAVED APRON WILL MIMIC GRAVEL SECTION BUT WILL HAVE AND ADDITIONAL 3\" BIT. CONCRETE.

- 3\" TYPE II - BASE



PERMANENT SEED MIX SHALL BE USED AS EARLY AS PRACTICABLE BETWEEN 5/15 AND 9/15 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT
RED FESCUE	50%
SHEEP FESCUE	25%
RED TOP	5%
WHITE CLOVER	10%
ANNUAL RYE	10%

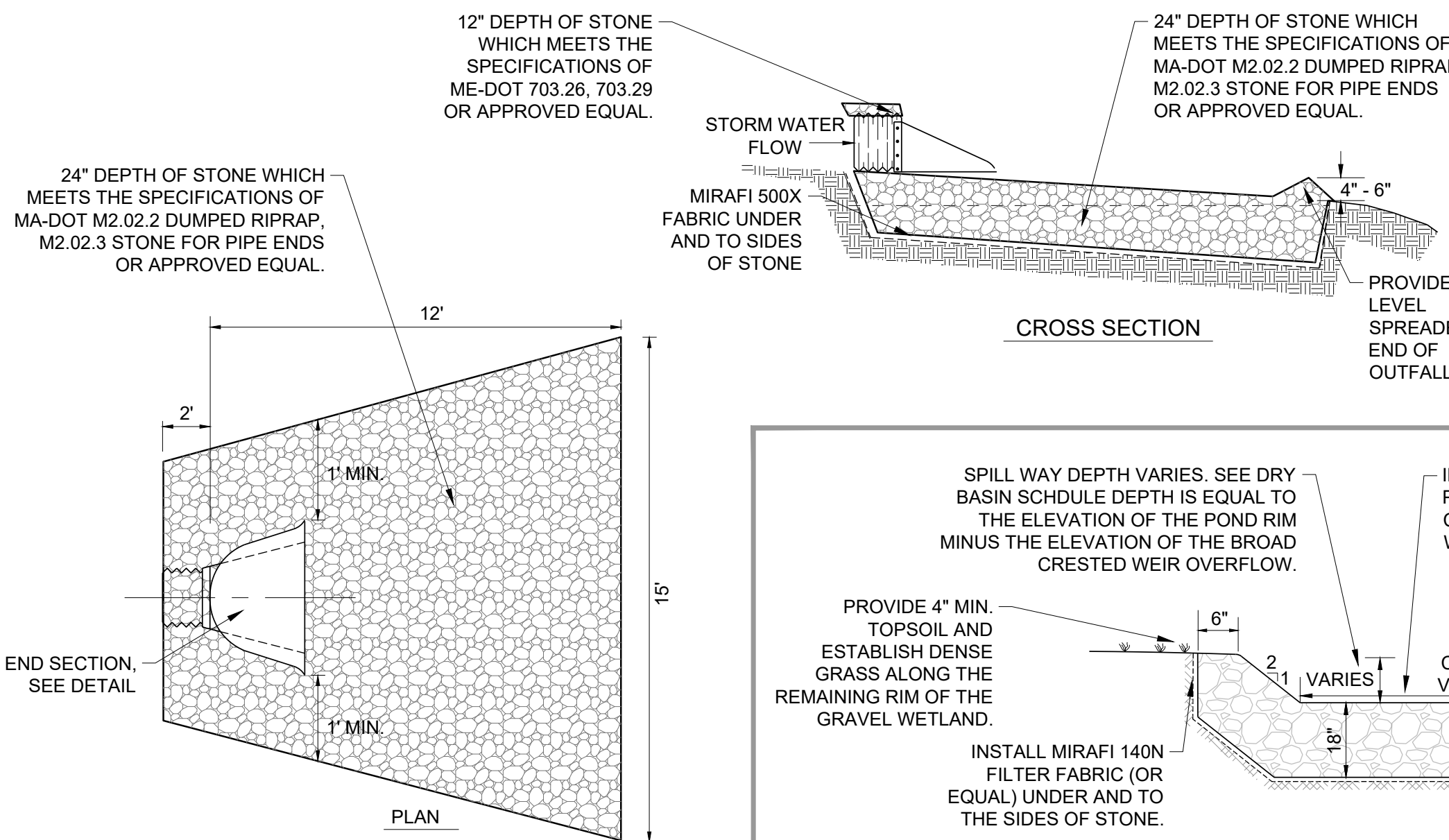
TEMPORARY SEED MIX SHALL BE USED BETWEEN 9/16 AND 5/14 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT	%GERMINATION
WINTER RYE	80% MIN.	85% MIN.
RED FESCUE (CREEPING)	4% MIN.	80% MIN.
PERENNIAL RYE GRASS	3% MIN.	90% MIN.
RED CLOVER	3% MIN.	90% MIN.
OTHER CROP GRASS	0.5% MAX.	
NOXIOUS WEED SEED	0.5% MAX.	
INERT MATTER	1% MAX.	

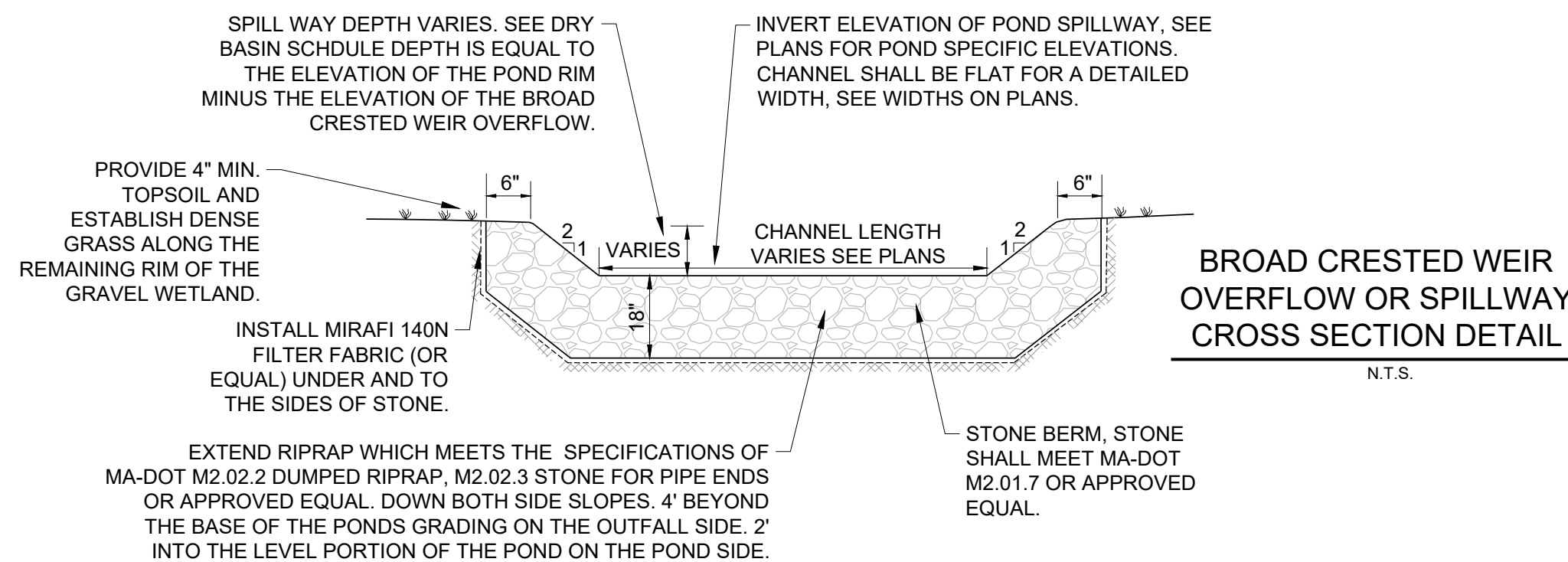
MASSACHUSETTS NORS DRY SITE POLLINATOR MIX OR APPROVED EQUAL:

SEED	% WEIGHT
EASTERN COLUMBINE	5%
BLUE FALSE INDIGO	10%
HORSEFLYWEED	5%
TALL WHITE BEARD TONGUE	5%
OHIO SPIDERWORT	5%
COMMON MILKWEED	5%
BUTTERFLY MILKWEED	10%
PARTRIDGE PEA	10%
WILD BERGAMOT	5%
VIRGINIA MOUNTAIN MINT	2%
EARLY GOLDENROD	3%
SMOOTH ASTER	10%
NEW ENGLAND ASTER	10%
HEATH ASTER	5%
GRAY GOLDEN ROD	5%
LITTLE BLUESTEM	5%

SEEDING SPECIFICATIONS

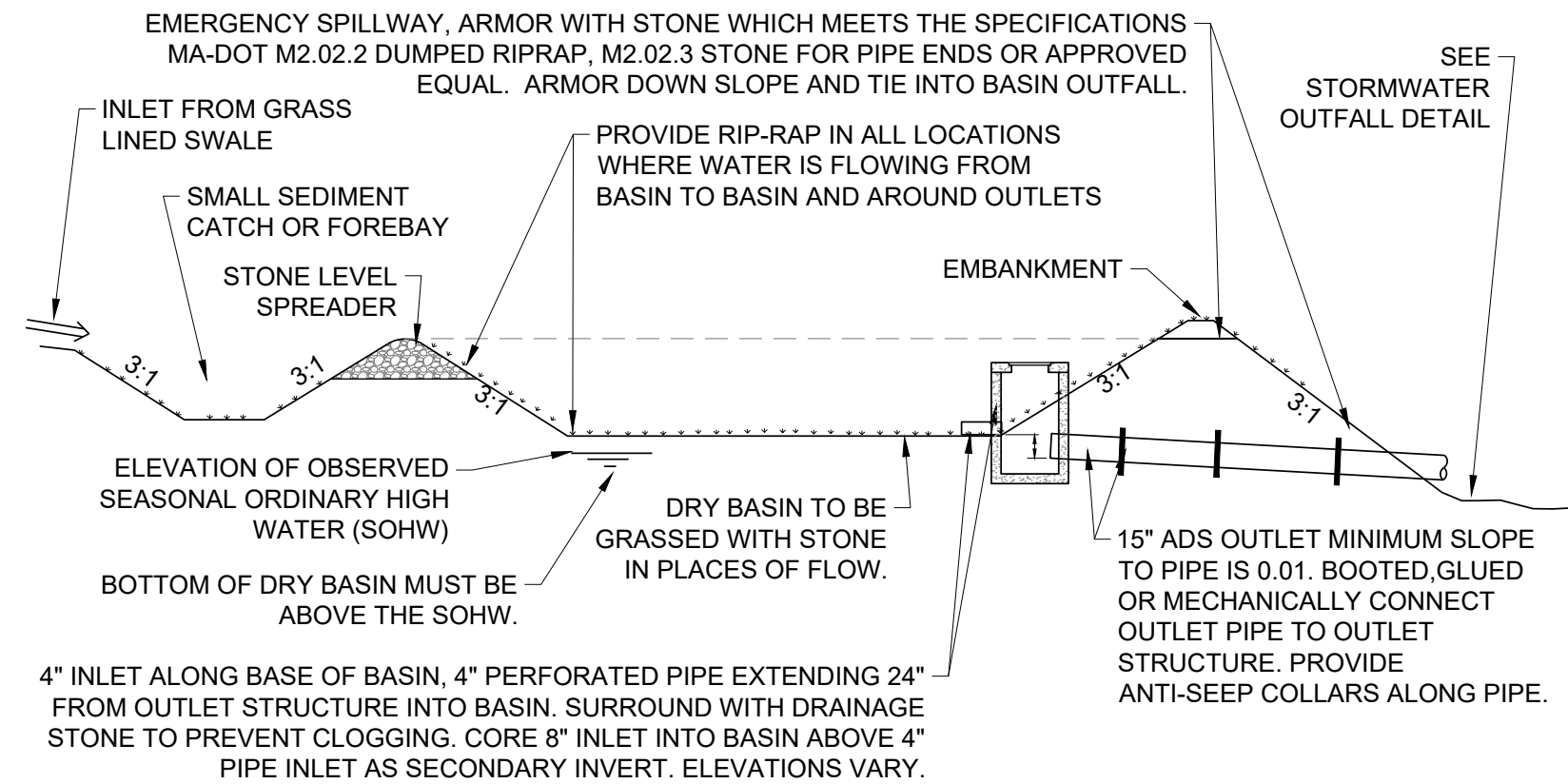


STORMWATER OUTFALL DETAIL
N.T.S.



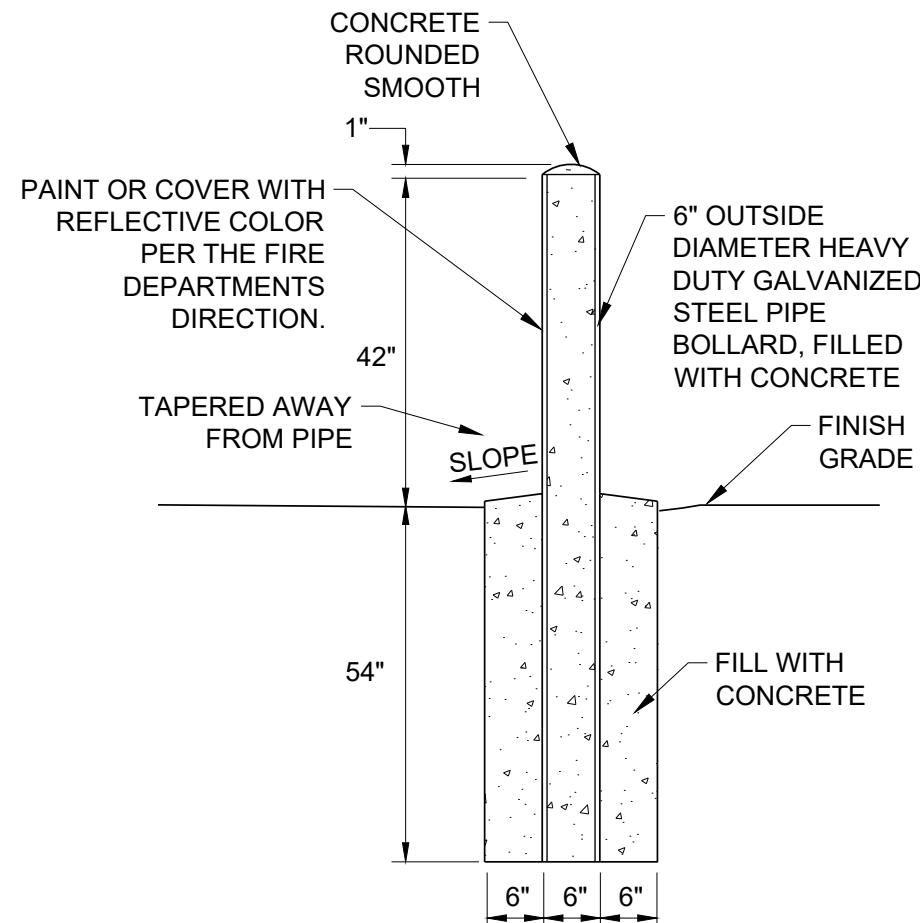
BROAD CRESTED WEIR OVERFLOW OR SPILLWAY CROSS SECTION DETAIL
N.T.S.

GUIDE TO MULCH MATERIALS, RATES, AND USES					
	QUALITY STANDARDS	PER 1000 SQ. FT.	PER ACRE	DEPTH OF APPLICATION	REMARKS
WOOD CHIPS OR SHAVINGS	AIR-DRIED, FREE OF OBJECTIONABLE COARSE MATERIAL	500-900 LBS	10-20 TONS	2 - 7"	USED PRIMARILY AROUND SHRUB AND TREE PLANTINGS AND RECREATION TRAILS TO INHIBIT WEED COMPETITION. RESISTANT TO WIND BLOWING. DECOMPOSES SLOWLY.
WOOD FIBER CELLULOSE (PARTLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS.	-	APPLY WITH HYDROMULCHER. NO TIE DOWN REQUIRED. LESS EROSION CONTROL PROVIDED THAN 2 TONS OF HAY OR STRAW.
GRAVEL, CRUSHED STONE OR SLAG	WASHED, SIZE 2B OR 3A - 1/2"	9 CU. YDS.	405 CU. YDS.	3"	EXCELLENT MULCH FOR SHORT SLOPES AND AROUND PLANTS AND ORNAMENTALS. USE 2B WHERE SUBJECT TO TRAFFIC. (APPROXIMATELY 2,000 LBS./CU. YD.). FREQUENTLY USED OVER FILTER FABRIC FOR BETTER WEED CONTROL.
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS & COARSE MATERIALS	90-100 LBS 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE	USE SMALL GRAIN STRAW WHERE MULCH IS MAINTAINED FOR MORE THAN THREE MONTHS. SUBJECT TO WIND BLOWING UNLESS ANCHORED. MOST COMMONLY USED MULCHING MATERIAL. PROVIDES THE BEST MICRO-ENVIRONMENTAL FOR GERMINATING SEEDS.
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3-9 CU. YDS.	134-402 CU. YDS.	1 - 3"	COARSER TEXTURED MULCHES MAY BE MORE EFFECTIVE IN REDUCING WEED GROWTH AND WIND EROSION.
EROSION CONTROL MIX	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100%, DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	* SLOPES 3(HZ.):1(VERT.) OR FLATTER = 2 INCH DEPTH PLUS ADDITIONAL 1/2 INCH DEPTH PER 20 FT. OF SLOPE UP TO 100 FT. ** SLOPES BETWEEN 3(HZ.):1(VERT.) AND 2(HZ.):1(VERT.) = 4 INCH DEPTH PLUS ADDITIONAL 1/2 INCH PER 20 FT. OF SLOPE UP TO 100 FT. *** SLOPES STEEPER THAN 2(HZ.):1(VERT.) USE OF EROSION CONTROL MIX AND MULCH DEPTH TO BE REVIEWED AND APPROVED PRIOR TO USE BY OSPC OR EPSC SPECIALIST			COMPRISED OF SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. MAY CONTAIN ROCK < 4" IN DIAMETER. ORGANICS SHALL BE FIBROUS AND ELONGATED. NO LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS.

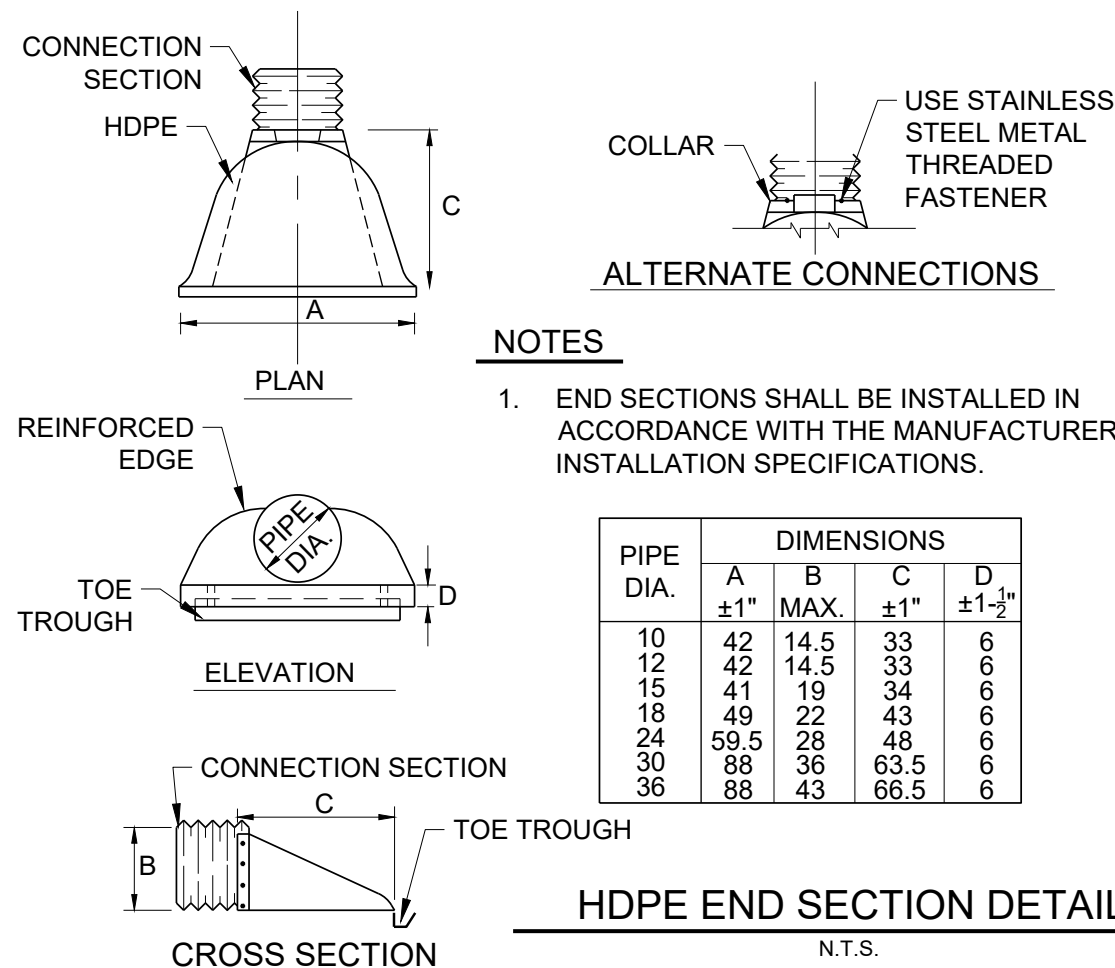


DB ID	VOLUME PROVIDED IN POND (C.F.)	BOTTOM POND ELEV. (FT.)	BROAD CRESTED WEIR OVERFLOW ELEV. (FT.)	TOP OF POND ELEV. (FT.)
#1	±115,000	20.0'	23.0'	24.0'
#2	±11,850	31.5'	33.5'	34.5'
#3	±37,000	29.0'	31.5'	32.5'
#4	±18,200	46.0'	48.5'	49.5'

CROSS-SECTION DETENTION BASIN
N.T.S.



PIPE BOLLARD DETAIL
N.T.S.



HDPE END SECTION DETAIL
N.T.S.

CONSTRUCTION OVERSIGHT NOTES

CONSTRUCTION SEQUENCE:

CONSTRUCTION CAN BE STARTED NO LATER THAN SEPTEMBER 1ST. IF SIDE SLOPES AND BANKS CANNOT BE REVEGETATED AND STABILIZED BY THE END OF THE GROWING SEASON, BASIN CONSTRUCTION SHOULD BE DELAYED TO THE FOLLOWING GROWING SEASON. SEEDING MUST OCCUR BEFORE SEPTEMBER 15TH OR OTHER STABILIZATION MEASURES MUST BE IMPLEMENTED BEFORE WINTER. DO NOT DISCHARGE STORMWATER TO THE BASIN UNTIL THE BASIN IS FULLY STABILIZED OR PROVIDES A SEDIMENT BARRIER AT THE OUTLET.

CONSTRUCTION OVERSIGHT:

- EMBANKMENT FILLS SHALL BE FREE OF FROZEN SOIL, ROCKS OVER 6", SOD, BRUSH STUMPS, TREE ROOTS, WOOD, OR OTHER PERISHABLE MATERIALS. EMBANKMENT FILLS SHALL BE COMPACTED USING METHODS THAT WOULD GUARANTEE A FILL DENSITY OF 90% OF THE MAXIMUM DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM-698). FILLS SHALL BE CONSTRUCTED IN 12" LIFTS.
- ALL AREAS OF CONCENTRATED FLOW IN OR OUT OF THE BASIN ARE TO BE ARMORED IN STONE RIP-RAP. STONE SHALL MEET THE SPECIFICATIONS OF MA-DOT M2.02.2 DUMPED RIPRAP, M2.02.3 STONE FOR PIPE ENDS OR APPROVED EQUAL.
- ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER.
- INSPECTION OF THE DRY POND BY A PROFESSIONAL ENGINEER SHALL CONSIST AT A MINIMUM OF WEEKLY SITE VISITS TO THE SITE TO INSPECT EACH DRY POND. THIS SHALL INCLUDE MATERIAL AND PLACEMENT, FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND SIDESLOPES. INSPECTIONS SHALL INCLUDE WITNESSING THE INSTALLATION OF BERMS AND EMERGENCY SPILLWAYS.

TESTING AND SUBMITTALS:

THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE BASIN. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION.

BLANK

GADUS SOLAR
Horseneck Road
Westport, Massachusetts

IRONWOOD RENEWABLES

APPLICANT:

bri
BIODIVERSITY RESEARCH INSTITUTE

KREBS & LANSING
CONSULTING ENGINEERS

164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

**ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION**

CIVIL ENGINEER:

Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:

BRI Environmental
276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:

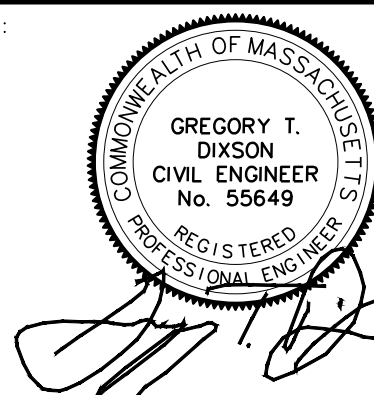
Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

Parcel ID: 76-69S-0

Parcel Address: 0 Horseneck Road
Westport, MA 02790

STAMP:



REV. NO.	REVISIONS/COMMENTS	DATE
1.	Revise design for new wetlands and project updates	09/17/21
2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update Fire Department comments	01/20/22
5.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

DETAILS

DATE of Issue: 05/03/2021

Drawn by: EJM/GTD

Checked by: GTD

Project No.: 21220

Scale: N/A

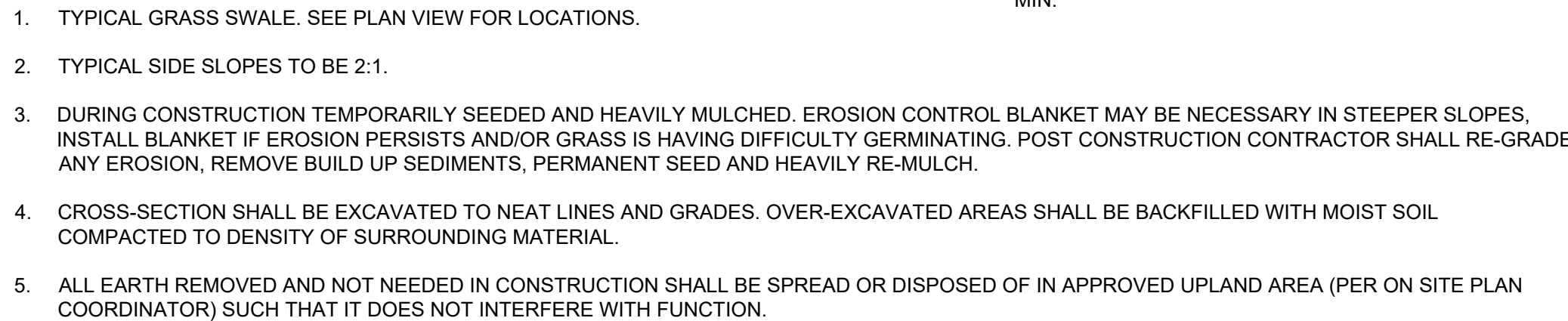
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C-3.00

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DATE



N.T.S.

- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:



1. PREPARE SLOPE: BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEEDS. NOTE: IF USING CELL-0-SEED METHOD, CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE CHANNEL. UNROLL THE BLANKET TO THE DESIRED LENGTH, AND CUT THE BLANKET TO THE DESIRED WIDTH WITH APPROXIMATELY 1/2 (15cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET TO THE DOWN-SLOPE PORTION OF THE TRENCH BY DRIVING A 1/2" (1.3cm) DIA. STEEL PEG INTO THE TRENCH AT THE END OF THE BLANKET. FOLD THE BLANKET OVER THE DOWN-SLOPE PORTION OF THE TRENCH, AND FOLD REMAINING 1/2 (15cm) OF BLANKET BACK OVER THE DOWN-SLOPE PORTION OF THE TRENCH. FOLD THE BLANKET BACK OVER THE DOWN-SLOPE PORTION OF THE TRENCH, AND FOLD REMAINING 1/2 (15cm) OF BLANKET BACK OVER THE DOWN-SLOPE PORTION OF THE TRENCH.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIZE SPACING BETWEEN THEM. IF THE SPACING BETWEEN THE BLANKETS IS NOT APPROPRIATE, ADJUST THE SPACING BY CUTTING OR TIEING IN APPROPRIATE LOCATIONS AS SHOWN IN THE STATESIDE PATENT CROSS-SECTION. WHEN USING CELL-0-SEED SYSTEM, STATESIDE PATENT CROSS-SECTION MUST BE USED TO DETERMINE THE SPACING BETWEEN THE BLANKETS.

4. PLACE CONSECUTIVE BLANKETS END TO END (DOWN-SLOPE STYLE) WITH A 6" (15cm)-10" (25cm) OVERLAP. USE A DOUBLE ROW OF PEGS (SPACING 6" (15cm) AND 9" (23cm) FROM EACH BLANKET) TO SECURE THE BLANKETS TO THE CHANNEL BED.

5. IF USING STATESIDE PATENT CROSS-SECTION, THE SPACING BETWEEN THE BLANKETS SHOULD BE 10" (25cm) IN AN UP-SLOPE AND 6" (15cm) IN A DOWN-SLOPE. BACKFILL AND COMPACT THE TRENCH AFTER STARTING.

6. IF USING CELL-0-SEED SYSTEM, THE SPACING BETWEEN THE BLANKETS SHOULD BE 10" (25cm) IN AN UP-SLOPE AND 6" (15cm) IN A DOWN-SLOPE. BACKFILL AND COMPACT THE TRENCH AFTER STARTING.

7. TO ENSURE PROPER SLOPE ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE EDGE OF THE BLANKET BEING INSTALLED ON THE BOTTOM.

8. IN HIGH FLOW CHANNEL APPLICATIONS, A DOUBLE CELL-0-SEED SYSTEM IS RECOMMENDED AS 30 TO 40 FEET (9-12m) INTERVALS. USE DOUBLE ROWS OF STEEL PEGS TO SECURE THE BLANKETS TO THE CHANNEL BED.

9. THE ENDING END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF PEGS (SPACING APPROXIMATELY 1/2 (15cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STARTING.

CRITICAL POINTS:

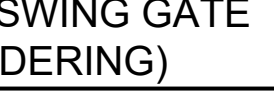
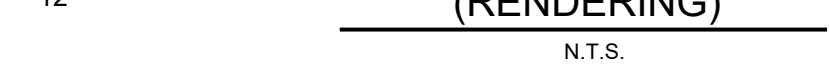
- A. OVERLAPS AND SEAMS MUST BE PROPERLY SECURED TO PREVENT FLOW UNDER THE BLANKETS.
- B. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- C. BLANKETS MUST BE PROPERLY ANCHORED TO THE CHANNEL BED.
- D. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- E. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- F. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- G. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- H. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
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- J. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
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- M. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- N. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
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- R. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- S. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- T. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- U. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- V. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- W. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- X. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- Y. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
- Z. SPACING BETWEEN BLANKETS MUST BE PROPERLY ADJUSTED TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

1649 10th Avenue North, DAVENPORT, FLORIDA 33844-2700
USA 1-800-772-2040 FAX 1-800-440-2700

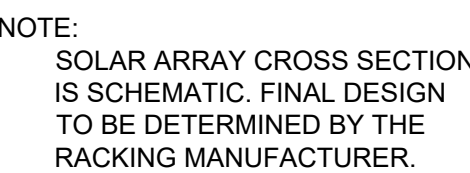
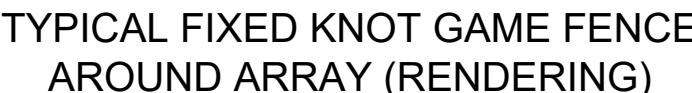
8. THE INSPECTORS CONTACT INFORMATION SHALL BE PROVIDED TO CONSTRUCTION ENGINEER TO BE INCLUDED IN THE PROJECTS SWPPP.

7. CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS 70% GRASS CATCH IN VEGETATED AREAS.

1. TO THE EXTENT PRACTICABLE, VEGETATION SHALL BE PROTECTED AND MAINTAINED TO THE EXTENT PRACTICABLE.
2. A VEGETATED BUFFER SHALL BE MAINTAINED FOR WATER BODIES WHERE FEASIBLE (E.G., WETLANDS AND STREAMS).
3. TO THE EXTENT PRACTICABLE, SURFACE FLOW SHALL BE DIVERTED AWAY FROM EXPOSED SOILS VIA DIVERSION BERMS, EARTH DIKES, PERIMETER DIKES/SWALES, TEMPORARY SWALES, WATER BARS, AND/OR CHECK DAMS.
4. RESOURCE AREAS (E.G., WETLANDS, STREAMS, RTE PLANT SPECIES) SHALL BE FLAGGED PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES OCCURRING WITHIN CLOSE PROXIMITY TO THOSE AREAS.
5. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT VIOLATE WATER QUALITY STANDARDS OR CONTRIBUTE TO EROSION. DEWATERING DETAILS SHALL BE REVIEWED AND APPROVED BY THE CONSTRUCTION ENGINEER PRIOR TO USE.
6. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN STEEP SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL (SEE DETAILS), FLUME, OR SLOPE DRAIN STRUCTURE.
7. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
 - A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
 - B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, WHERE FEASIBLE, BUT NOT IN RESOURCE AREAS.
8. WHERE FEASIBLE, ALL SEDIMENT REMOVED FROM SEDIMENT CONTROL PRACTICES AS PART OF MAINTENANCE SHALL BE DISPOSED OF IN AN AREA THAT IS AT LEAST ONE OF THE FOLLOWING, WITH IMMEDIATE STABILIZATION FOLLOWING DISPOSAL OF MATERIAL:
 - A. LESS THAN 45% SLOPE
 - B. AT LEAST 100 FEET FROM ANY DOWNSLOPE WATER BODY OR CONVEYANCE TO A WATER BODY, INCLUDING A DITCH
 - C. VEGETATED
9. DISTURBED AREAS BORDERING OR DRAINING TO EXISTING ROADS SHALL HAVE AN APPROPRIATE SEDIMENT BARRIER (E.G., SILT FENCE) SPANNING THE EDGE OF THE DISTURBANCE TO PREVENT WASHING OF SEDIMENT ONTO ROADWAYS OR INTO ROAD DITCHES.
10. IN ADVANCE OF PREDICTED RAINFALL OR SNOWMELT, ALL EPSC MEASURES THAT ARE LOCATED IN ACTIVE AREAS OF EARTH DISTURBANCE SHALL BE INSPECTED AND REPAIRED, AS NEEDED. IF NECESSARY, THIS SHALL INCLUDE TEMPORARY STABILIZATION OF ALL DISTURBED SOILS ON THE SITE IN ADVANCE OF THE ANTICIPATED RUNOFF PERIOD.
11. DUST CONTROL SHALL BE HANDLED VIA WATER APPLICATION TO ROADWAYS AND OTHER AREAS WHERE DUST MAY BE GENERATED.



N.T.S.



NOTES

DATE _____

A circular professional engineer seal for the Commonwealth of Massachusetts. The outer ring contains the text "COMMONWEALTH OF MASSACHUSETTS" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom. The center of the seal contains the text "GREGORY T. DIXON", "CIVIL ENGINEER", and "No. 55649". Below the seal is a handwritten signature in black ink.

DETAILS

Checked by: GTD

Scale: N/A

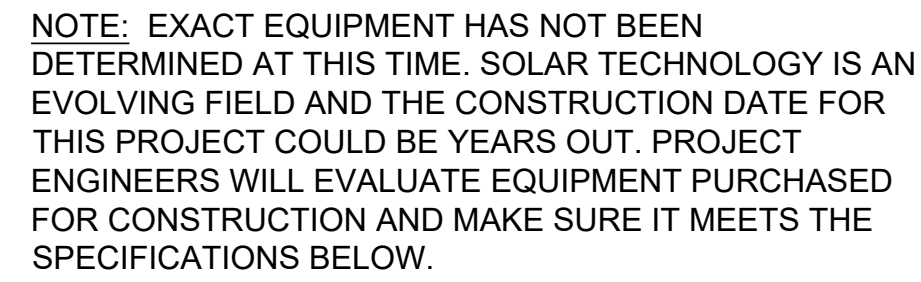
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REQUIRED CAPACITY:
125% OF THE 500 GALLONS OF TRANSFORMER OIL = 625 GAL. = 84 C.F.

REQUIRED MINIMUM FREEBOARD
(24-HOUR DURATION, 25 YEAR STORM) = 6.02" (0.50')
CONTAINMENT AREA & PAD = 17' X 17' = 289 S.F.
VOLUME OF FREEBOARD REQUIRED = 289 S.F. X 0.50 FT. = 145C.F

TOTAL CAPACITY REQUIRED = 84 C.F. + 145 C.F. = 229 C.F.

Diagram illustrating the construction of a concrete transformer vault and its containment area. The vault is a rectangular structure with a base of concrete transformer vault. A polyvinyl impervious barrier is applied to the base and sides of the vault. The interior of the containment moat is to be filled with stone, with a 45% void ratio. The vault is surrounded by a containment area, which is a rectangular area with a width of 17' and a length of 17'. The vault itself has a width of 13' and a length of 7'. The containment area is filled with stone, with a 45% void ratio. The vault is surrounded by a containment area, which is a rectangular area with a width of 17' and a length of 17'. The vault itself has a width of 13' and a length of 7'. The containment area is filled with stone, with a 45% void ratio. The vault is surrounded by a containment area, which is a rectangular area with a width of 17' and a length of 17'. The vault itself has a width of 13' and a length of 7'. The containment area is filled with stone, with a 45% void ratio.

Labels and dimensions in the diagram include:

- ±14" X 8" CONCRETE TRANSFORMER VAULT COVER WILL SIT ON TOP OF BASE. ALL EDGES OF COVER MUST OVERHANG WITHIN CONTAINMENT AREA.
- POLYVINYL IMPERVIOUS BARRIER
- BASE OF CONCRETE TRANSFORMER VAULT. POLYVINYL IMPERVIOUS BARRIER WILL BE FIXED TO EDGES OF VAULT. IF PAD IS USED EVALUATE CALCULATION AND BARRIER WILL BE FIXED TO EDGE OF PAD.
- INTERIOR OF CONTAINMENT MOAT TO BE FILLED WITH STONE, 45% VOID RATIO. TYPICAL VOID RATIO FOR STONE.
- 17'
- 17'
- 13'
- 7'
- 3'
- 24" DIAMETER PERFORATED
- PETRO-PIPE OUTLET, DRAIN UNDERDRAIN.
- NOTE: REFER TO SPI DESIGN FOR SPECIFICATIONS AND DETAILS

NOTE:
REFER TO SPI
DESIGN FOR
SPECIFICATIONS
AND DETAILS

1. THE O&M FIRM WILL REVIEW THE INSTALLATION FOR SAFETY AND CODE COMPLIANCE (BY THE APPROPRIATE QUALIFIED LICENSED MECHANICAL AND ELECTRICAL PROFESSIONALS), ACCURATE AND UP TO DATE REPORTING INFORMATION AND UPDATES REQUIRED. PLEASE NOTE THAT KREBS AND LANSING CONSULTING ENGINEERS, INC. WORK PERTAINS TO THE STORMWATER CONTROLS ONLY. THE SAFETY AND CODE COMPLIANCE PORTION OF THE DESIGN AND REPORT SHALL BE REVIEWED BY THE APPROPRIATE QUALIFIED LICENSED MECHANICAL AND ELECTRICAL PROFESSIONALS (ENGINEERS) HIRED BY THE O&M FIRM PRIOR TO CONSTRUCTION OF THE PROJECT. ANY APPROPRIATE CODE OR SAFETY MODIFICATIONS DICTATED BY THAT REVIEW SHALL BE INCORPORATED INTO O&M PROTOCOLS FOR THE SITE PRIOR TO CONSTRUCTION COMMENCING.

2. THIS DESIGN ASSUMES THAT ALL PENETRATIONS THROUGH THE CONCRETE BASE OF THE TRANSFORMER VAULT COVER WILL BE SEALED. IF PENETRATIONS ARE NOT SEALED CONTRACTOR MUST MAKE BOTTOM OF THE TRANSFORMER VAULT SUMP WATER TIGHT OR INSTALL AN OIL REACTIVE PLUG IN ALL VAULT DRAINS, "PETRO PLUG" OR APPROVED EQUAL.
3. THIS DESIGN IS FOR A 2,000 KVA PAD MOUNTED TRANSFORMER BY COOPER POWER SYSTEMS, FILLED WITH 500 GALLONS OF FLUID.
4. SECONDARY OIL CONTAINMENT WILL BE REVIEWED PRIOR TO INSTALLATION AND DESIGNED SPECIFICALLY FOR THE EQUIPMENT BEING INSTALLED. EQUIPMENT MANUFACTURER MAY PROVIDE THEIR OWN SECONDARY OIL CONTAINMENT. CONTAINMENT DESIGN WILL NEED TO BE REVIEWED BY THE ENGINEER AND FIT THE STATE SPECIFIED VOLUME.

A diagram showing a semi-circular erosion control measure on a slope. The structure has a minimum width of 24 inches and a minimum height of 12 inches. An arrow labeled 'FLOW' indicates the direction of water flow towards the structure. The existing ground surface is labeled 'EXISTING GROUND'.

EROSION CONTROL MIX BERM SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH THE MAIN DEED OF EROSION CONTROL AND SEDIMENT CONTROL APP. 8-1. SEDIMENT BARRIER IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED WOOD AND BARK CHIPS AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. GROUND CONSTRUCTION RISERS SHALL BE REPRODUCED WOOD PRODUCTS WILL NOT BE ACCEPTABLE. ALL MATERIALS USED TO MANUFACTURE THE EROSION CONTROL MIX SHALL BE NATIVE MASSACHUSETTS MATERIALS.

1. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER DOES NOT SLIP OR CATCH ON THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (< 2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, WITH A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
4. EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS:
 - WETLAND AREAS AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER DRAIN SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH ENGINEER APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. IN WETLAND BUFFER AREAS EROSION CONTROL MIX MAY BE USED ONLY IN THE SPECIFIC AREAS THAT HAVE RECEIVED REGULATORY APPROVAL FOR DISTURBANCE FROM EITHER THE STATE OF MASSACHUSETTS OR THE U.S. ARMY CORPS OF ENGINEERS. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS.



1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT (VEGETATION DUFF LAYER). THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS ALL STONE, SAND AND STONE. NO ORGANIC MATERIAL OR OTHER UNDESIRABLE MATERIAL SHALL BE USED. THE EMBANKMENT SHALL BE OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER. THE USE OF GREATER SLOPES MAYBE PERMITTED WITH OSCP OR EPSC SPECIALIST APPROVAL.
4. THE STONE USED IN THE OUTLET SHALL BE VAOT 706.04 TYPE 1 STONE OR APPROVED ON SITE SHOT ROCK, PLACED ON MIRAFI 140N OR APPROVED EQUAL DRAINAGE FABRIC.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO $\frac{1}{2}$ THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. IF THE SEDIMENT TRAP IS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
9. THE MAXIMUM CONTRIBUTING DRAINAGE AREA IS 5 ACRES.

FOR CONSTRUCTED/EXCAVATED TEMPORARY SEDIMENT TRAPS THE SIZE SHALL BE ADJUSTED PROPORTIONALLY FOR LARGER DRAINAGE AREAS BASED ON THE BELOW CHART.

11. FOR THOSE TEMPORARY SEDIMENT TRAPS TO BE PERMANENT DRY OR WET PONDS, SEDIMENT SHALL BE REMOVED AND THE ENTIRE AREA SEEDED AND MULCHED OR COVERED WITH EROSION CONTROL MATTING PRIOR TO PUTTING THE STORMWATER POND INTO USE.
12. LOCATIONS FOR TEMPORARY SEDIMENT TRAPS TO BE APPROVED BY THE OSPC OR THE EPSC SPECIALIST.



DRAWING TITLE:

DATE of Issue: 09/17/2021

Drawn by: EJM/GTD

Drawn by: EJM/GTD

Project No.: 21220

Drawing No.:

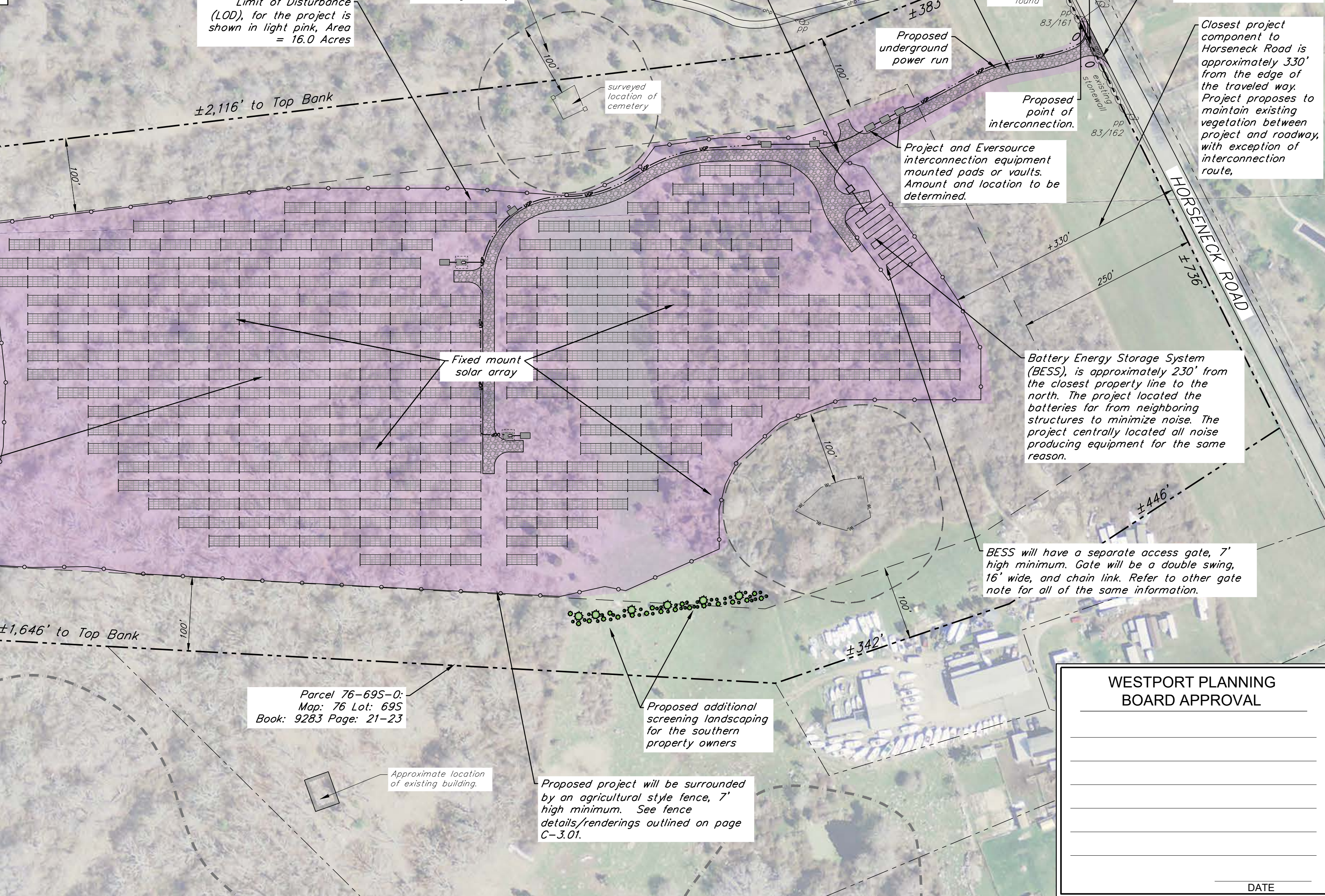
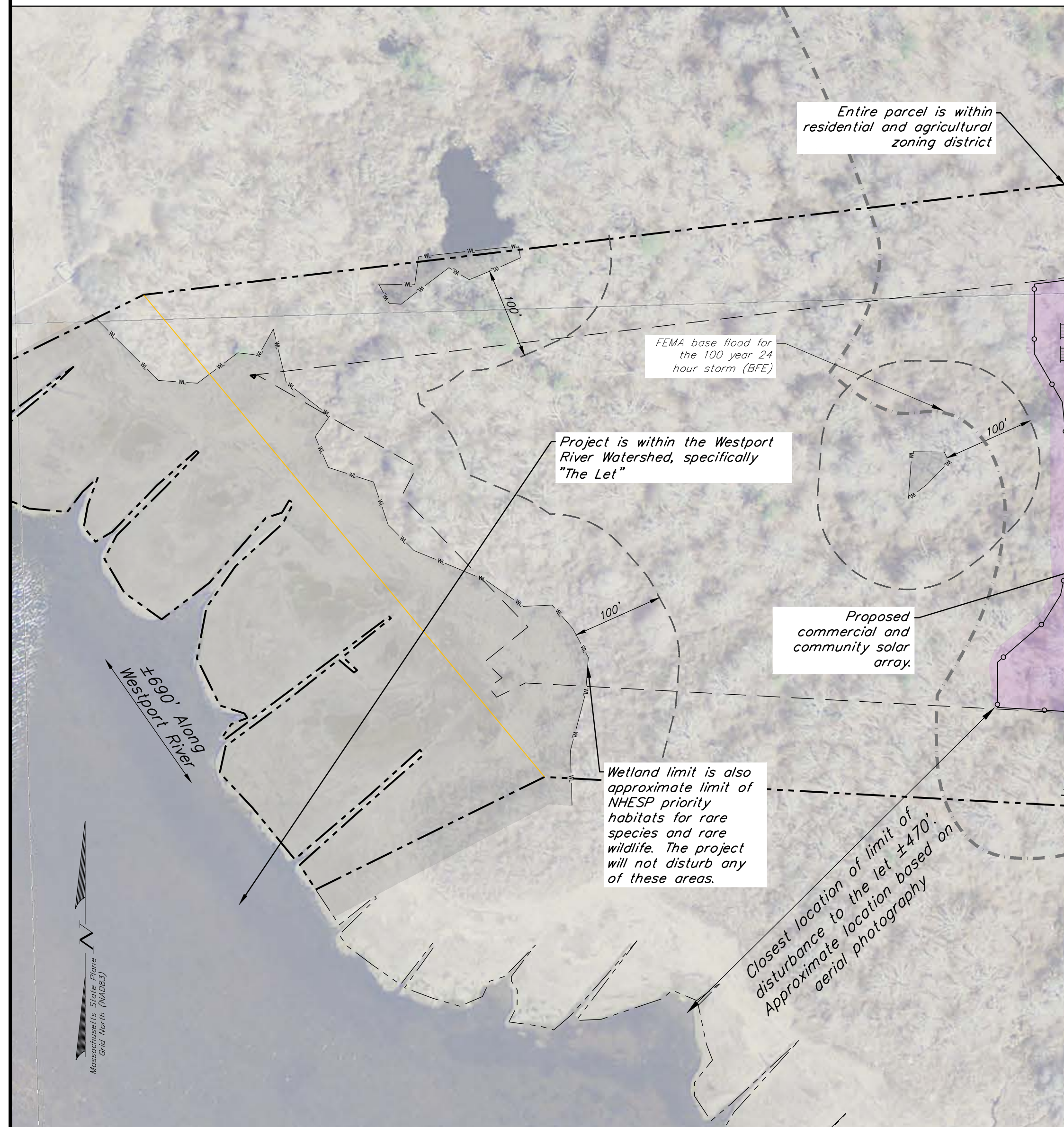
Checked by: GTD

Scale: N/A

Rev No.:

C-3.03

2



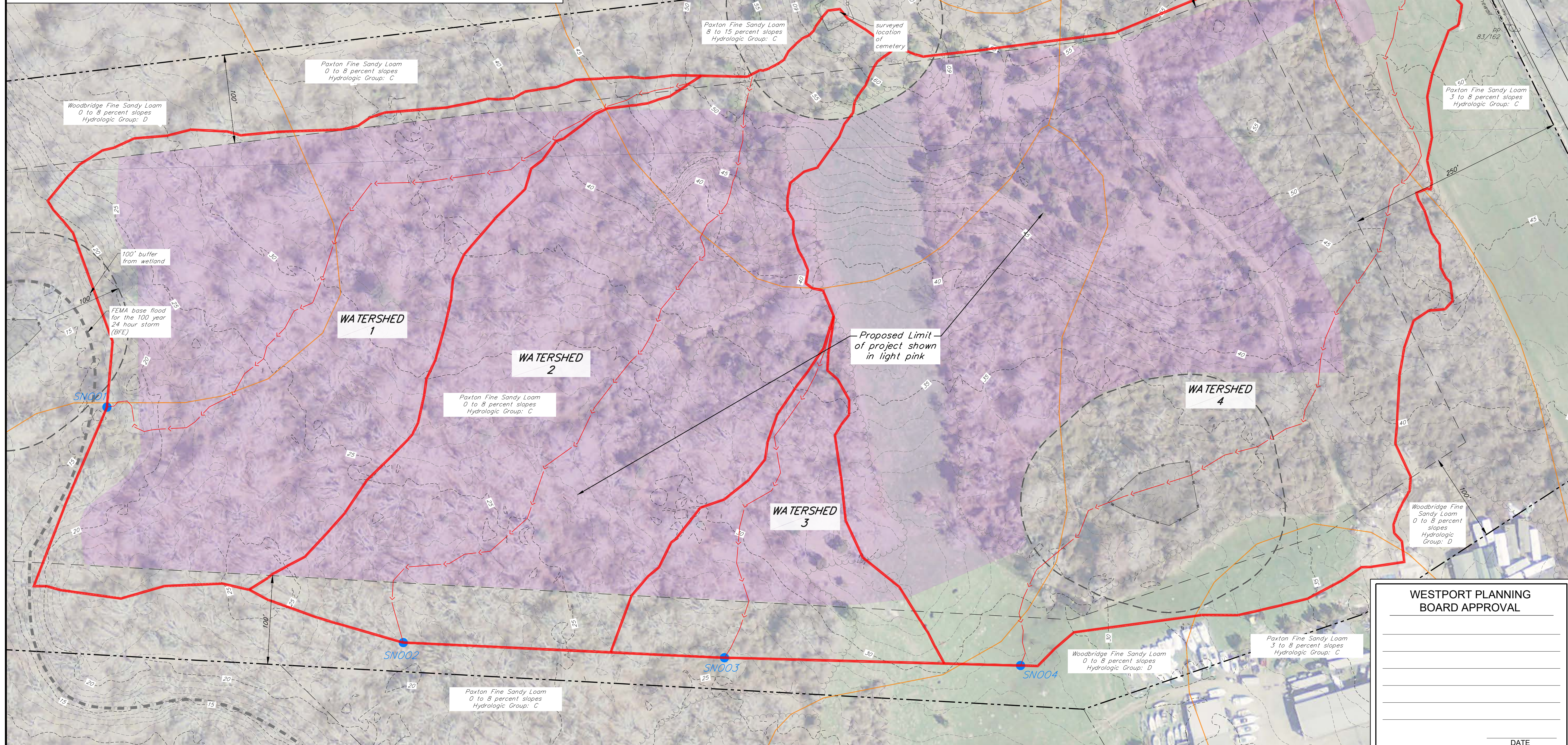
NOTES:

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LEGEND

- EXISTING TREELINE
- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- DELINEATED WETLANDS
- FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT
- NRCS MAPPED SOIL GROUPS
- PRE-CONSTRUCTION FLOW PATHS FOR TIME OF CONCENTRATION CALCULATIONS
- PRE-CONSTRUCTION WATERSHED LIMITS

PRE-DEVELOPMENT PEAK FLOWS (CFS)				
ANALYSIS POINT	2-YEAR 24-HOUR STORM EVENT	10-YEAR 24-HOUR STORM EVENT	25-YEAR 24-HOUR STORM EVENT	100-YEAR 24-HOUR STORM EVENT
SN001	3.21	7.11	9.79	14.13
SN002	4.20	9.84	13.77	20.18
SN003	0.87	1.98	2.75	4.01
SN004	7.75	16.07	21.67	30.61



GADUS SOLAR

Horseneck Road
Westport, Massachusetts

APPLICANT:

BIODIVERSITY RESEARCH INSTITUTE

KREBS & LANSING
CONSULTING ENGINEERS

164 Main Street, Suite 201
Colchester, Vermont 05446

P: (802) 878-0375
www.krebsandlansing.com

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CIVIL ENGINEER:

Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:

BRI Environmental
276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:

Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

Parcel ID: 76-69S-0

Parcel Address: 0 Horseneck Road
Westport, MA 02790

STAMP:

0' 30' 60' 120' 180'

0" 1" 2" 3"

STANDARD GRAPHIC SCALE (1" = 60')

VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE
1.	Revise design for new wetlands and project updates	09/17/21
2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update Fire Department comments	01/20/22
5.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

WESTPORT PLANNING BOARD APPROVAL

DATE

EXISTING CONDITIONS AND PRE-DEVELOPMENT DRAINAGE PLAN

DATE of Issue: 05/03/2021

Drawn by: EJM/GTD Checked by: GTD

Project No.: 21220 Scale: 1" = 60'

Drawing No.: C-1.01 Rev No.: 5

NOTES:

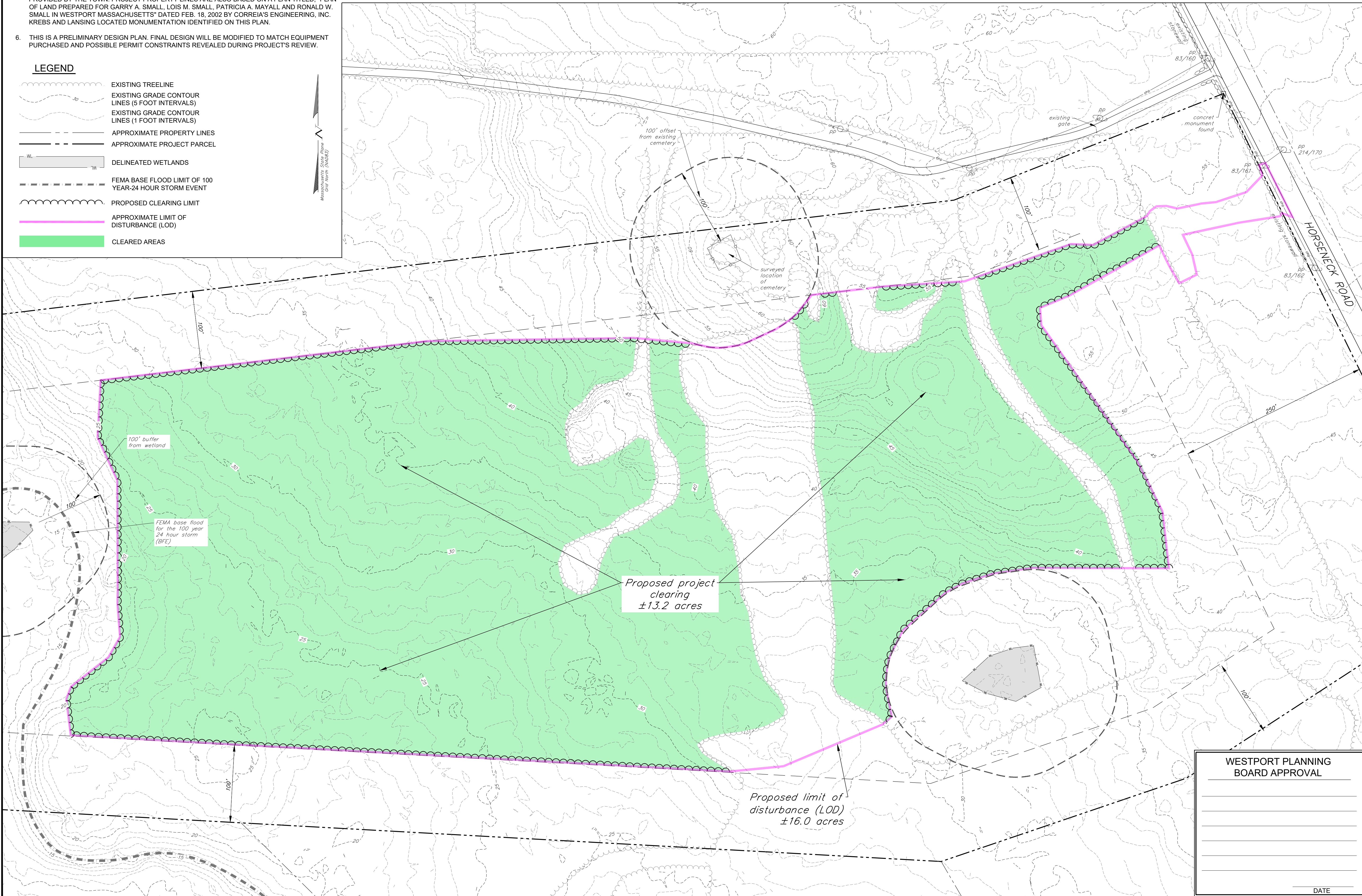
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LEGEND

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- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- DELINEATED WETLANDS
- FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT
- PROPOSED CLEARING LIMIT
- APPROXIMATE LIMIT OF DISTURBANCE (LOD)
- CLEARED AREAS

CLEARING NOTES:

- ALL VEGETATION SHOWN IN LIGHT GREEN ON THIS PLAN WILL BE CLEAR CUT. TOTAL AMOUNT OF CLEARING ±13.2 ACRES.
- ALL AREAS WILL BE STUMPED AND GRUBBED. STUMPS WILL BE GROUND/CUT UP AND USE FOR EPSC. TREES MAY BE REMOVED FROM SITE (USED/SOLD). SMALLER TREES, SHRUBS AND BRANCHES WILL BE GROUND/CUT UP AND USED FOR EPSC.



GADUS SOLAR

Horseneck Road
Westport, Massachusetts



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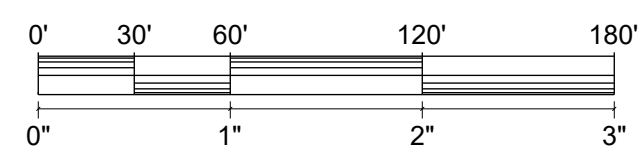
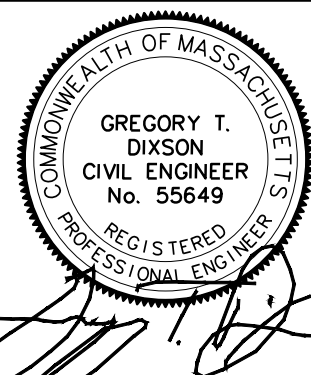
Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

Parcel ID: 76-69S-0

Parcel Address: 0 Horseneck Road
Westport, MA 02790

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4.	Update project access	01/17/22
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6.	Address Board Member Mr. Doylor's comments and Public comments	03/03/22

DRAWING TITLE:

PROPOSED
CLEARING PLAN

DATE of Issue: 07/02/2021

Drawn by: EJM/GTD

Checked by: GTD

Project No.: 21220

Scale: 1" = 60'

Drawing No.:

Rev No.:

C-1.02

6

DATE

NOTES:

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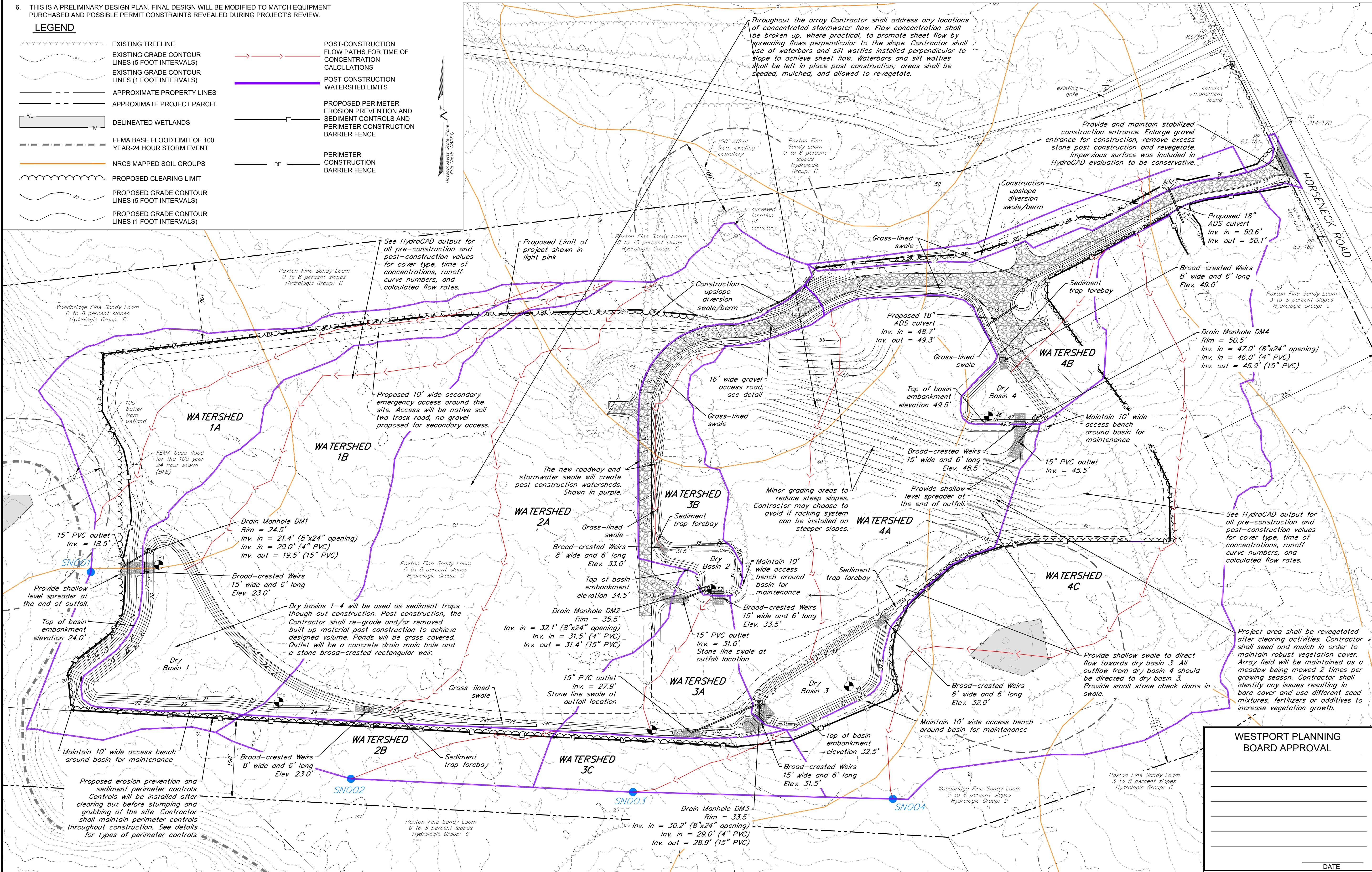
LEGEND

- | | | | |
|--|---|--|--|
| | EXISTING TREELINE | | POST-CONSTRUCTION FLOW PATHS FOR TIME OF CONCENTRATION CALCULATIONS |
| | EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS) | | POST-CONSTRUCTION WATERSHED LIMITS |
| | EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS) | | PROPOSED PERIMETER EROSION PREVENTION AND SEDIMENT CONTROLS AND PERIMETER CONSTRUCTION BARRIER FENCE |
| | APPROXIMATE PROPERTY LINES | | DELINEATED WETLANDS |
| | APPROXIMATE PROJECT PARCEL | | FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT |
| | NRCS MAPPED SOIL GROUPS | | PROPOSED CLEARING LIMIT |
| | PROPOSED GRADE CONTOUR LINES (5 FOOT INTERVALS) | | PROPOSED GRADE CONTOUR LINES (1 FOOT INTERVALS) |

GENERAL GRADING AND SITE WORK NOTES

- ALL AREA DISTURBED AND ALL AREAS WITHIN THE CLEARING LIMITS SHALL BE GRADED AND COVERED WITH A MINIMUM OF 4" OF LOAM TOPSOIL. THE AREAS TO BE LOAMED SHALL BE FREE AND CLEAR OF ROOTS, WASTE MATERIAL AND OTHER DELETERIOUS MATERIAL. TOPSOIL SHALL BE SPREAD AND LIGHTLY COMPACTED TO A DEPTH OF 4". TOPSOIL SHALL BE APPROVED BY THE ENGINEER. ALL SIDE SLOPES ARE TO BE LOAMED.
- ALL TURF ESTABLISHMENT SHALL BE IN ACCORDANCE WITH SECTION 170 OF THE MA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS 2020 AND THE TOWN'S SPECIFICATIONS. MULCHING SHALL FOLLOW SEEDING BY NO MORE THAN 24 HOURS.
- ALL CUT SLOPES SHALL BE NO STEEPER THAN 2.5H ON 1.0V. ALL FILL SLOPES SHALL BE NO STEEPER THAN 2.5H ON 1.0V.
- THE CONTRACTOR SHALL NOT DISTURB ANY GROUND BETWEEN OCTOBER 15TH BETWEEN APRIL 15TH WINTER MONTHS, UNLESS APPROVED BY THE ENGINEER.
- TEMPORARY SILT FENCE SHALL BE ERECTED PRIOR TO ANY CLEARING OR CONSTRUCTION. FENCING MAY BE ERECTED IN PHASES, BUT IN NO CASE SHALL GROUND DISTURBANCE PRECEDE FENCING. SPECIAL AREAS MAY BE DESIGNATED BY THE OWNER FOR PRESERVATION OF EXISTING TREES. THESE AREAS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE NO DAMAGE IS DONE TO DESIGNATED TREES.
- EXISTING PLANTINGS ARE LOCATED IN GENERAL AREAS AS SHOWN ON THIS PLAN. CONTRACTOR SHALL PROTECT PLANTINGS SO AS NOT TO DAMAGE THESE OR THEIR ROOT SYSTEMS.
- SLOPE STABILITY BASED UPON UNSATURATED SOIL CONDITIONS. IF DURING CONSTRUCTION SATURATED SOILS ARE ENCOUNTERED, CONTACT THE ENGINEER IMMEDIATELY.

ANALYSIS POINT	POST-DEVELOPMENT PEAK FLOWS (CFS)			
	2-YEAR 24-HOUR STORM EVENT	10-YEAR 24-HOUR STORM EVENT	25-YEAR 24-HOUR STORM EVENT	100-YEAR 24-HOUR STORM EVENT
SN001	1.85	3.85	6.57	12.26
SN002	0.37	0.85	1.20	1.75
SN003	0.39	0.90	1.27	1.86
SN004	3.80	7.73	10.36	14.56



GADUS SOLAR
Horseneck Road
Westport, Massachusetts



APPLICANT:



164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

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CIVIL ENGINEER:

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164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:

BRI Environmental
276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:

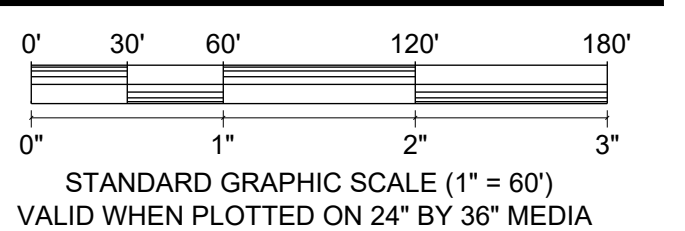
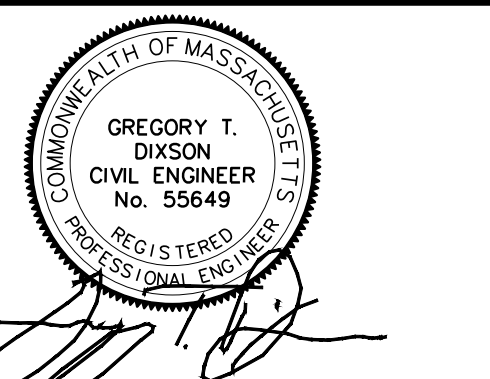
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4.	Update project access	01/17/22
5.	Update Fire Department comments	01/20/22
6.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

PROPOSED GRADING,
ROAD INSTALLATION AND
STORMWATER MANAGEMENT
PLAN

DATE of Issue: 07/14/2021

Drawn by: EJM/GTD Checked by: GTD

Project No.: 21220

Scale: 1" = 60'

Drawing No.:

Rev No.:

C-1.03

6

DATE

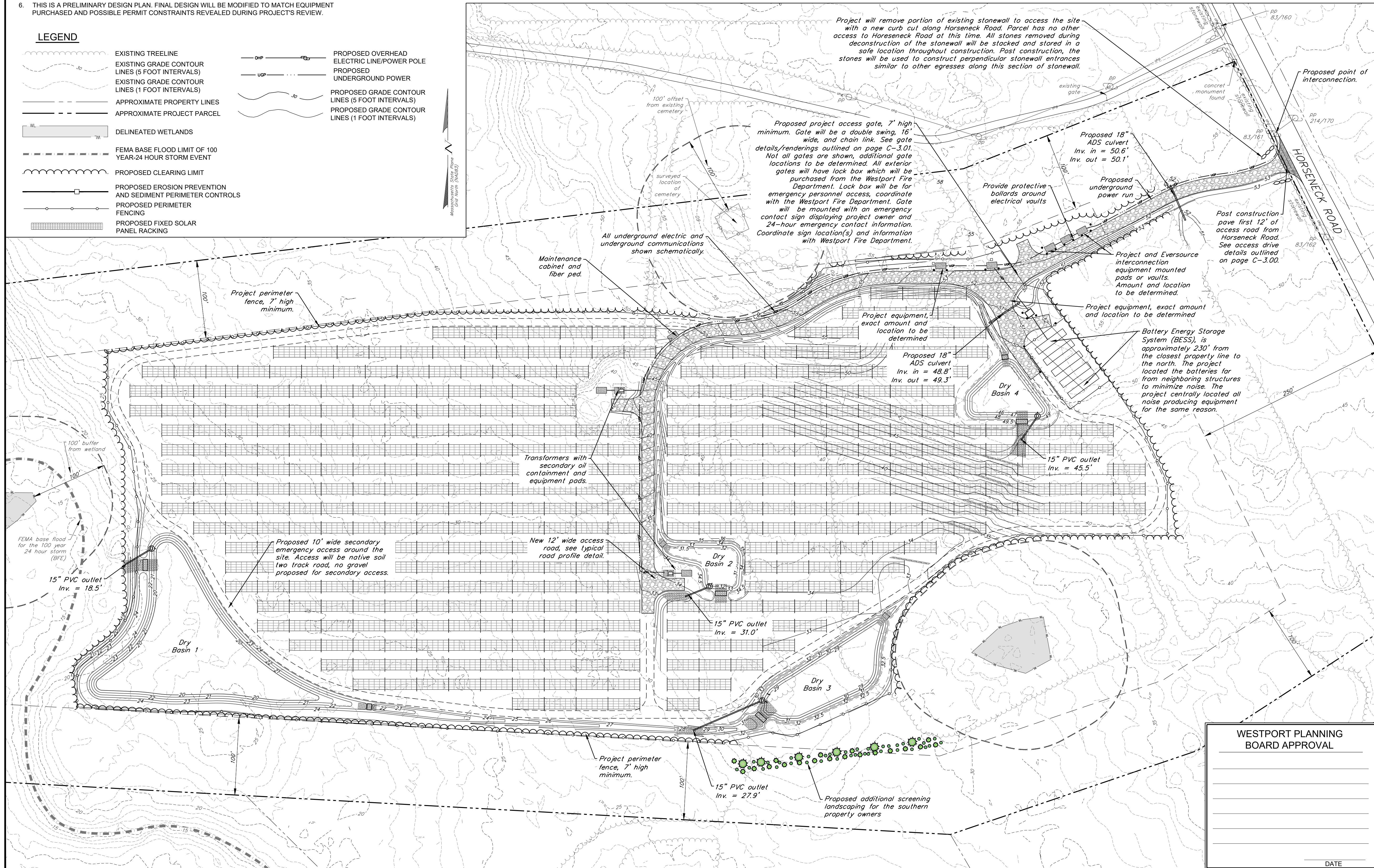
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	EXISTING TREE LINE		PROPOSED OVERHEAD ELECTRIC LINE/POWER POLE
	EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)		PROPOSED UNDERGROUND POWER
	EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)		PROPOSED GRADE CONTOUR LINES (5 FOOT INTERVALS)
	APPROXIMATE PROPERTY LINES		PROPOSED GRADE CONTOUR LINES (1 FOOT INTERVALS)
	APPROXIMATE PROJECT PARCEL		
	DELINEATED WETLANDS		
	FEMA BASE FLOOD LIMIT OF 100 YEAR-24 HOUR STORM EVENT		
	PROPOSED CLEARING LIMIT		
	PROPOSED EROSION PREVENTION AND SEDIMENT PERIMETER		
	PROPOSED PERIMETER FENCING		
	PROPOSED FIXED SOLAR PANEL RACKING		

1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY ENGINEER. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND COMPLETED IN THE TIME SPECIFIED BY OWNER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS SHOWN AND REQUIRED TO MAKE THE JOB COMPLETE. THESE DRAWINGS DO NOT SHOW EVERY FITTING OR APPURTENANCE. MATERIALS SHALL BE AS SPECIFIED ON THE DRAWINGS. MANUFACTURER'S PRODUCT SPECIFICATIONS SHALL BE SUBMITTED FOR ALL MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
3. THE LOCATION AND SIZE OF EXISTING UNDERGROUND UTILITIES IS NOT WARRANTED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES AND SHALL CONTACT THE AFFECTED UTILITY COMPANY. THE ENGINEER AND THE TOWN PRIOR TO MAKING ANY HOOK UPS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL

5. THE WORKMEN AND PUBLIC SHALL BE PROTECTED BY THE CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGMEN. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. KEROSENE POTS ARE NOT ACCEPTABLE. WHEN WORK IS COMPLETED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE SAFETY OF ALL WORKMEN AND THE GENERAL PUBLIC AND ALL DAMAGES TO PROPERTY OCCURRING FROM OR UPON THE WORK

F. THE CONTRACTOR SHALL COORDINATE WITH FINAL ELECTRICAL, STRUCTURAL AND LANDSCAPING PLANS.

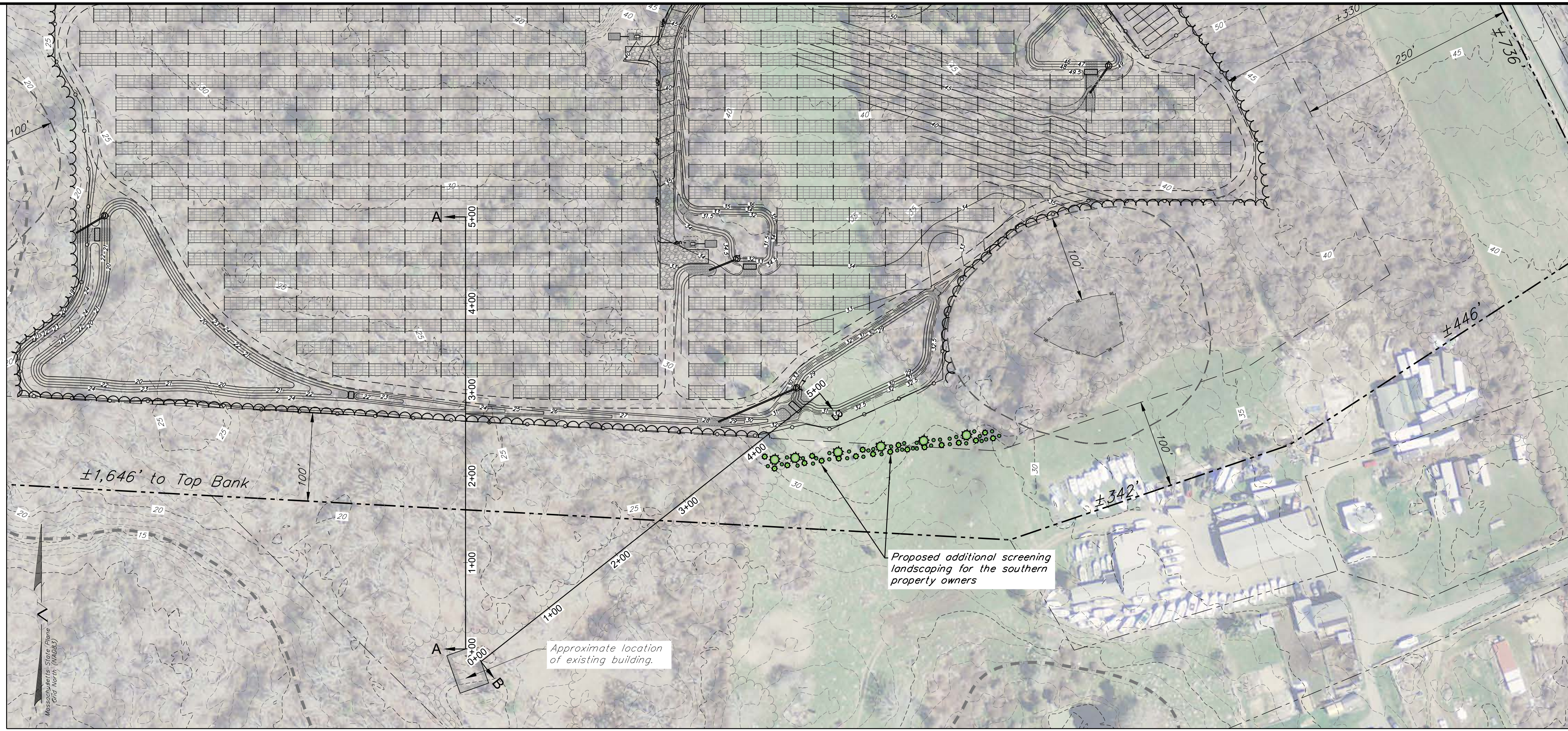


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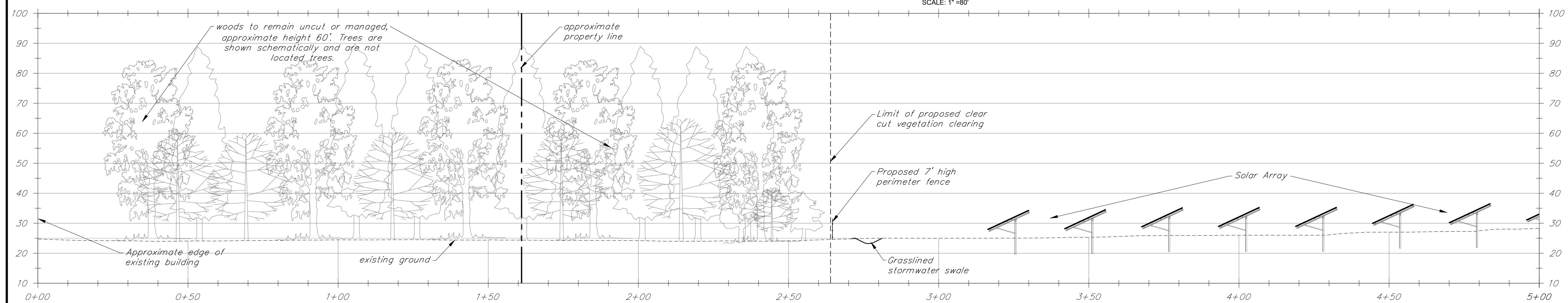
- LEGEND**
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 - PROPOSED FIXED SOLAR PANEL RACKING
 - PROPOSED OVERHEAD ELECTRIC LINE/POWER POLE
 - PROPOSED UNDERGROUND POWER
 - PROPOSED GRADE CONTOUR LINES (5 FOOT INTERVALS)
 - PROPOSED GRADE CONTOUR LINES (1 FOOT INTERVALS)

NOTES:

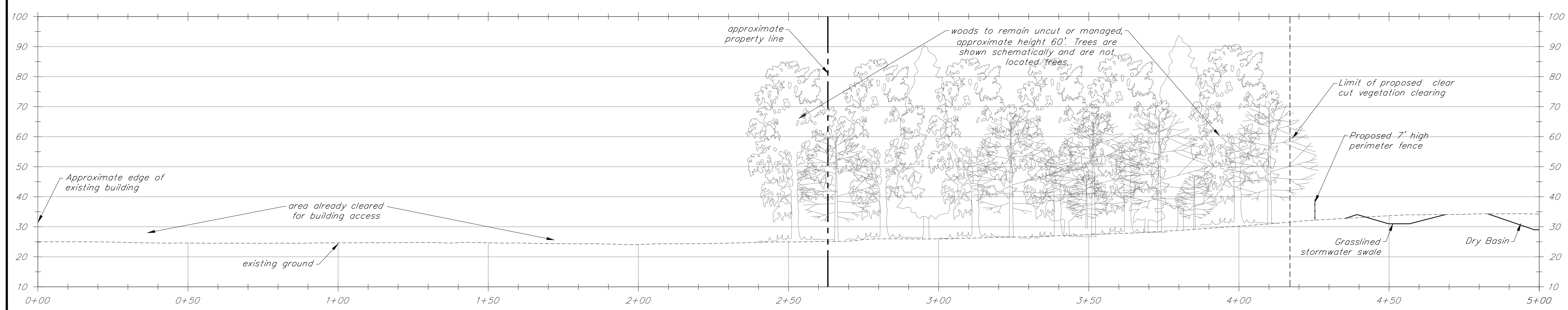
1. SEE PLAN NOTES ON PAGE C-1.00.



SITE PLAN VIEW
SCALE: 1"=80'



ABUTTING HOUSE VIEW SECTION A-A
HORIZONTAL & VERTICAL SCALE: 1"=20'



ABUTTING HOME VIEW SECTION B-B
HORIZONTAL & VERTICAL SCALE: 1"=20'

WESTPORT PLANNING BOARD APPROVAL

DATE

GADUS SOLAR
Horseneck Road
Westport, Massachusetts

IRONWOOD RENEWABLES

APPLICANT:
bri
BIODIVERSITY RESEARCH INSTITUTE

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0' 40' 80' 160' 240'
0" 1" 2" 3"
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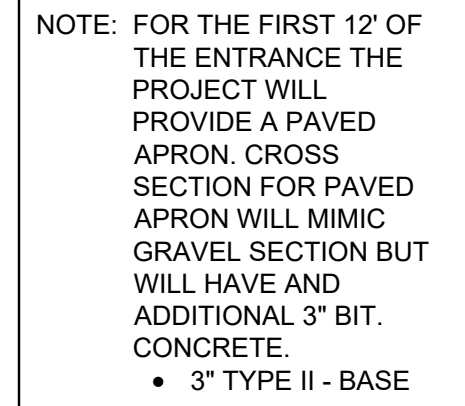
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DRAWING TITLE:

**CROSS SECTION PLAN FOR
NEIGHBORING BUILDING**

DATE of Issue: 05/03/2021
Drawn by: EJM/GTD
Project No.: 21220
Drawing No.:
Checked by: GTD
Scale: 1" = 80'
Rev No.:

C-2.00
6

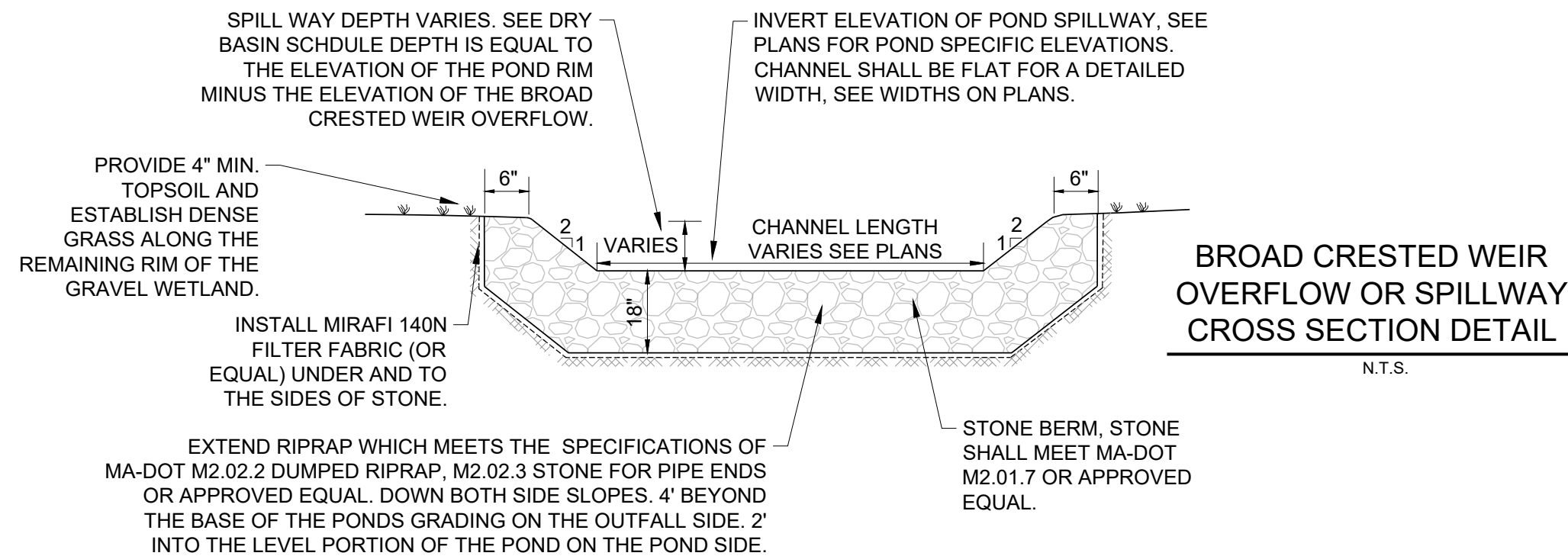


<u>SEED</u>	<u>% WEIGHT</u>
RED FESCUE	50%
SHEEP FESCUE	25%
RED TOP	5%
WHITE CLOVER	10%
ANNUAL RYE	10%

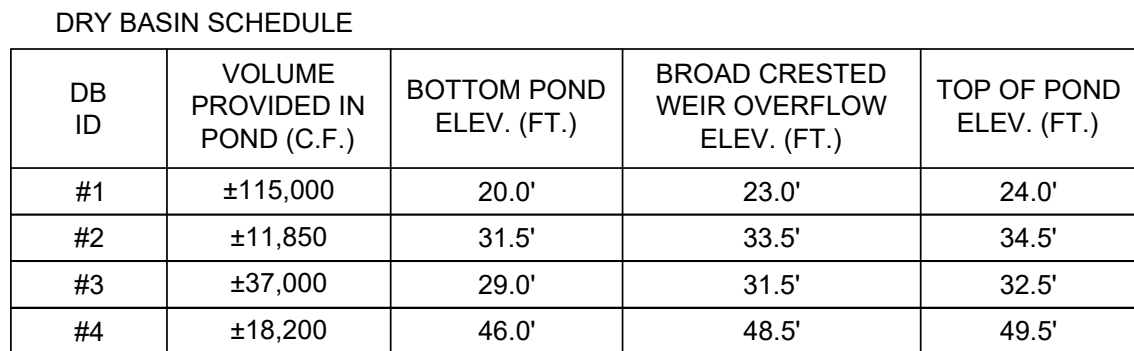
<u>SEED</u>	<u>% WEIGHT</u>	<u>%GERMINATION</u>
WINTER RYE	80% MIN.	85% MIN.
RED FESCUE (CREEPING)	4% MIN.	80% MIN.
PERENNIAL RYE GRASS	3% MIN.	90% MIN.
RED CLOVER	3% MIN.	90% MIN.
OTHER CROP GRASS	0.5% MAX.	
NOXIOUS WEED SEED	0.5% MAX.	
INERT MATTER	1% MAX.	

MASSACHUSETTS NCRS DRY SITE	
POLLINATOR MIX OR APPROVED EQUAL:	
SEED	% WEIGHT
EASTERN COLUMBINE	5%
BLUE FALSE INDIGO	10%
HORSEFLYWEED	5%
TALL WHITE BEARD TONGUE	5%
OHIO SPIDERWORT	5%
COMMON MILKWEED	5%
BUTTERFLY MILKWEED	10%
PARTRIDGE PEA	10%
WILD BERGAMOT	5%
VIRGINIA MOUNTAIN MINT	2%
EARLY GOLDENROD	3%
SMOOTH ASTER	10%
NEW ENGLAND ASTER	10%
HEATH ASTER	5%
GRAY GOLDEN ROD	5%
LITTLE BLUESTEM	5%

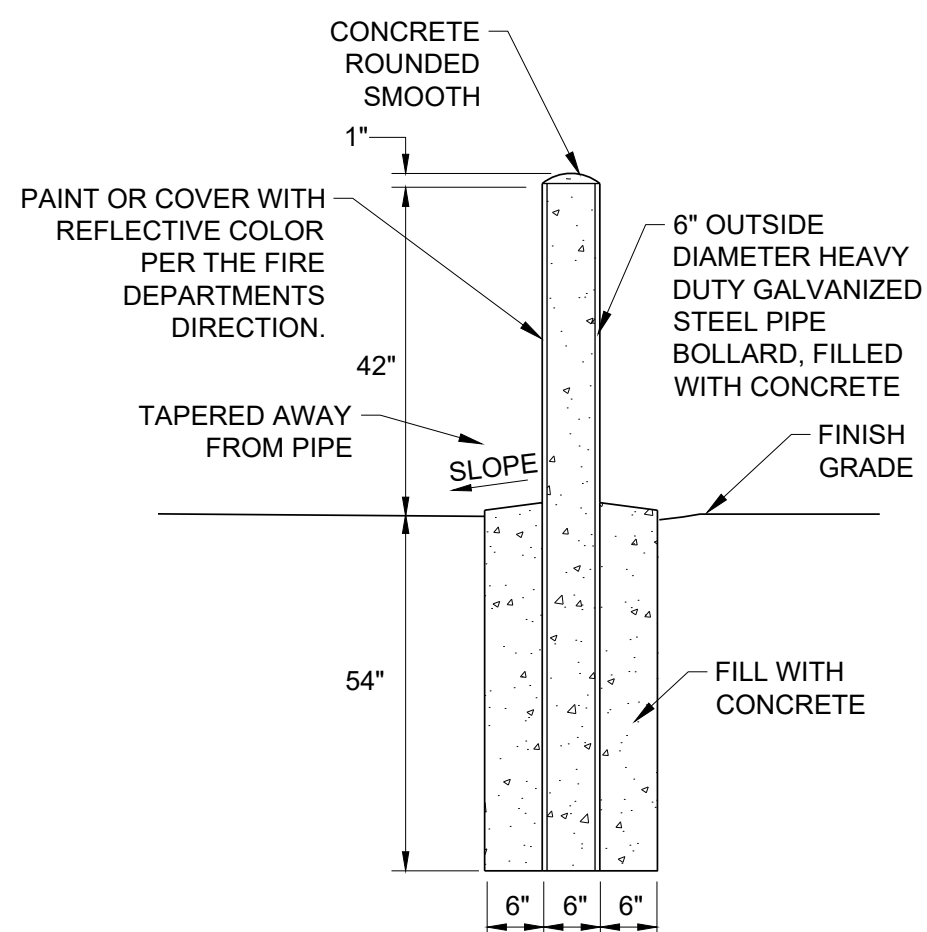
SEEDING SPECIFICATIONS



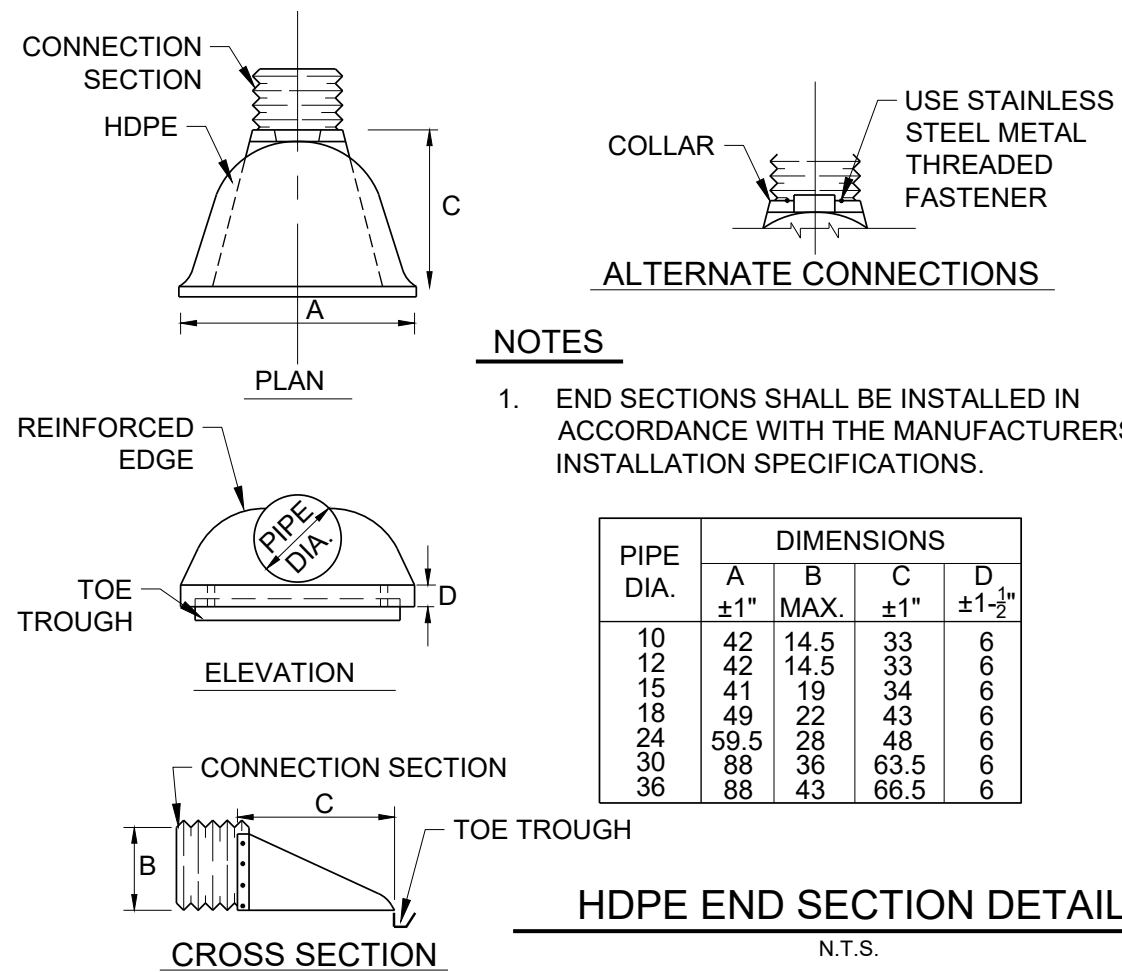
BROAD CRESTED WEIR OVERFLOW OR SPILLWAY CROSS SECTION DETAIL



CROSS-SECTION DETENTION BASIN



PIPE BOLLARD DETAIL



CONSTRUCTION SEQUENCE:

CONSTRUCTION CAN BE STARTED NO LATER THAN SEPTEMBER 1ST. IF SIDE SLOPES AND BANKS CANNOT BE REVEGETATED AND STABILIZED BY THE END OF THE GROWING SEASON, BASIN CONSTRUCTION SHOULD BE DELAYED TO THE FOLLOWING GROWING SEASON. SEEDING MUST OCCUR BEFORE SEPTEMBER 15TH OR OTHER STABILIZATION MEASURES MUST BE IMPLEMENTED BEFORE WINTER. DO NOT DISCHARGE STORMWATER TO THE BASIN UNTIL THE BASIN IS FULLY STABILIZED OR PROVIDES A SEDIMENT BARRIER AT THE OUTLET.

CONSTRUCTION OVERSIGHT:

- EMBANKMENT FILLS SHALL BE FREE OF FROZEN SOIL, ROCKS OVER 6" ,SOD, BRUSH STUMPS, TREE ROOTS, WOOD, OR OTHER PERISHABLE MATERIALS. EMBANKMENT FILLS SHALL BE COMPACTED USING METHODS THAT WOULD GUARANTEE A FILL DENSITY OF 90% OF THE MAXIMUM DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM-698). FILLS SHALL BE CONSTRUCTED IN 12" LIFTS.
- ALL AREAS OF CONCENTRATED FLOW IN OR OUT OF THE BASIN ARE TO BE ARMORED IN STONE RIP-RAP. STONE SHALL MEET THE SPECIFICATIONS OF MA-DOT M2.02.2 DUMPED RIPRAP, M2.02.3 STONE FOR PIPE ENDS OR APPROVED EQUAL.
- ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER.
- INSPECTION OF THE DRY POND BY A PROFESSIONAL ENGINEER SHALL CONSIST AT A MINIMUM OF WEEKLY SITE VISITS TO THE SITE TO INSPECT EACH DRY POND. THIS SHALL INCLUDE MATERIAL AND IMPLEMENTATION OF CRITICAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND SIDESLOPES. INSPECTIONS SHALL INCLUDE WITNESSING THE INSTALLATION OF BERMS AND EMERGENCY SPILLWAYS.

TESTING AND SUBMITTALS:

THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE BASIN. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION.

**GADUS
SOLAR**
Horseneck Road
Westport, Massachusetts



APPLICANT:



164 Main Street, Suite 201
Colchester, Vermont 05446

P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

CIVIL ENGINEER:

Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL

BRI Environmental
276 Canco Road
Portland, ME 04103

OWNER & PROPERTY INFORMATION:

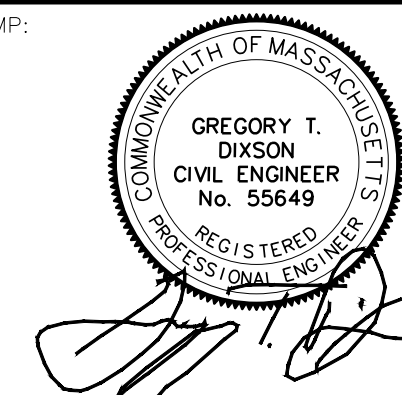
Owner: Bruce and Patricia Mayall

Owner Address: 124 Milton Street
Fall River, MA 02720

Parcel ID: 76-69S-0

Parcel Address: 0 Horseneck Road
Westport, MA 02790

STAMP:



REV. NO.	REVISIONS/COMMENTS	DATE
1.	Revise design for new wetlands and project updates	09/17/21
2.	Updates for Peer Review Report	11/17/21
3.	Updates after Town meeting	12/20/21
4.	Update Fire Department comments	01/20/22
5.	Address Board Member Mr. Daylor's comments and Public comments	03/03/22

DRAWING TITLE:

DETAILS

DATE of Issue: 05/03/2021

Drawn by: EJM/GTC

Project No.: 21220

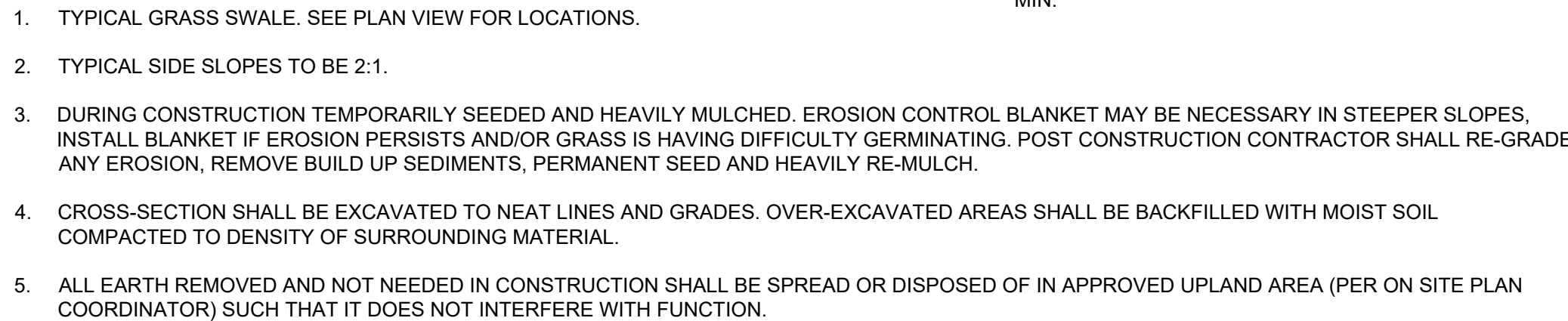
Drawing No.

Rev No.:

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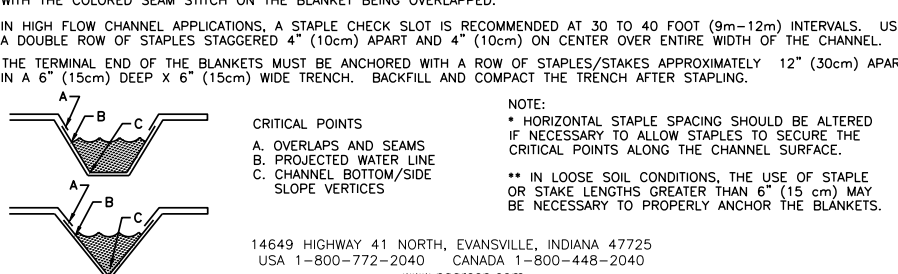
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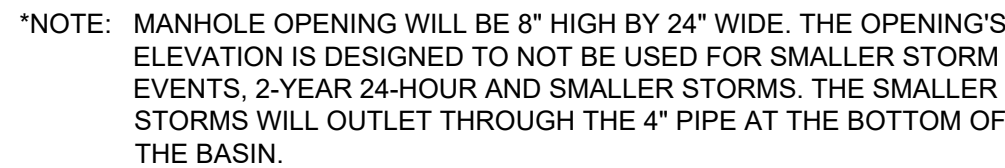
- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:



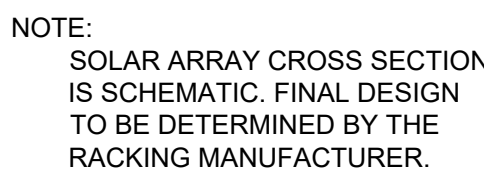
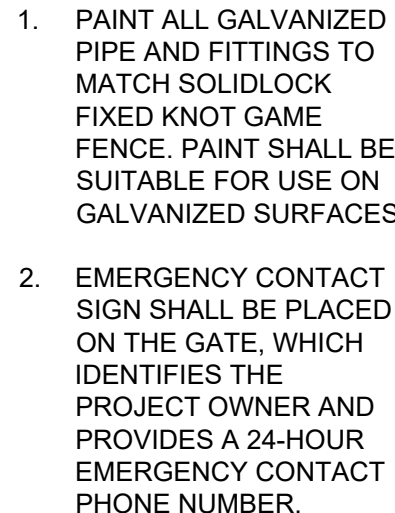
8. THE INSPECTORS CONTACT INFORMATION SHALL BE PROVIDED TO CONSTRUCTION ENGINEER TO BE INCLUDED IN THE PROJECTS SWPPP.

7. CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS 70% GRASS CATCH IN VEGETATED AREAS.

1. EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED TO THE EXTENT PRACTICABLE.
2. A VEGETATED BUFFER SHALL BE MAINTAINED FOR WATER BODIES WHERE FEASIBLE (E.G., WETLANDS AND STREAMS).
3. TO THE EXTENT PRACTICABLE, SURFACE FLOW SHALL BE DIVERTED AWAY FROM EXPOSED SOILS VIA DIVERSION BERMS, EARTH DIKES, PERIMETER DIKES/SWALES, TEMPORARY SWALES, WATER BARS, AND/OR CHECK DAMS.
4. RESOURCE AREAS (E.G., WETLANDS, STREAMS, RTE PLANT SPECIES) SHALL BE FLAGGED PRIOR TO ANY CONSTRUCTION RELATED ACTIVITIES OCCURRING WITHIN CLOSE PROXIMITY TO THOSE AREAS.
5. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT VIOLATE WATER QUALITY STANDARDS OR CONTRIBUTE TO EROSION. DEWATERING DETAILS SHALL BE REVIEWED AND APPROVED BY THE CONSTRUCTION ENGINEER PRIOR TO USE.
6. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN STEEP SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL (SEE DETAILS), FLUME, OR SLOPE DRAIN STRUCTURE.
7. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
 - A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
 - B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, WHERE FEASIBLE, BUT NOT IN RESOURCE AREAS.
8. WHERE FEASIBLE, ALL SEDIMENT REMOVED FROM SEDIMENT CONTROL PRACTICES AS PART OF MAINTENANCE SHALL BE DISPOSED OF IN AN AREA THAT IS AT LEAST ONE OF THE FOLLOWING, WITH IMMEDIATE STABILIZATION FOLLOWING DISPOSAL OF MATERIAL:
 - A. LESS THAN 45% SLOPE
 - B. AT LEAST 100 FEET FROM ANY DOWNSLOPE WATER BODY OR CONVEYANCE TO A WATER BODY, INCLUDING A DITCH
 - C. VEGETATED
9. DISTURBED AREAS BORDERING OR DRAINING TO EXISTING ROADS SHALL HAVE AN APPROPRIATE SEDIMENT BARRIER (E.G., SILT FENCE) SPANNING THE EDGE OF THE DISTURBANCE TO PREVENT WASHING OF SEDIMENT ONTO ROADWAYS OR INTO ROAD DITCHES.
10. IN ADVANCE OF PREDICTED RAINFALL OR SNOWMELT, ALL EPSC MEASURES THAT ARE LOCATED IN ACTIVE AREAS OF EARTH DISTURBANCE SHALL BE INSPECTED AND REPAIRED, AS NEEDED. IF NECESSARY, THIS SHALL INCLUDE TEMPORARY STABILIZATION OF ALL DISTURBED SOILS ON THE SITE IN ADVANCE OF THE ANTICIPATED RUNOFF PERIOD.
11. DUST CONTROL SHALL BE HANDLED VIA WATER APPLICATION TO ROADWAYS AND OTHER AREAS WHERE DUST MAY BE GENERATED.



1. ADDITIONAL BRACING MAY BE REQUIRED ON LONGER FENCE RUNS. CONTRACTOR TO ADD ADDITIONAL BRACING WHEN CONTRACTOR OBSERVES CORNER POST DEFLECTION DURING FENCE TENSINOING/FASTENING.
2. FABRIC TO BE FASTENED TO POSTS WITH STAPLES APPROVED BY THE ENGINEER.



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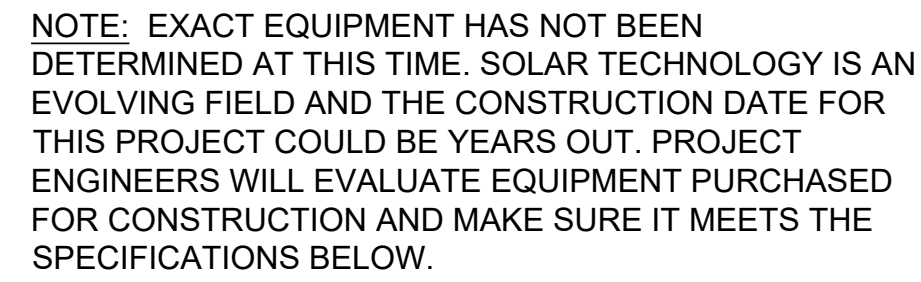
DETAILS

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REQUIRED CAPACITY:
125% OF THE 500 GALLONS OF TRANSFORMER OIL = 625 GAL. = 84 C.F.

REQUIRED MINIMUM FREEBOARD
(24-HOUR DURATION, 25 YEAR STORM) = 6.02" (0.50')
CONTAINMENT AREA & PAD = 17' X 17' = 289 S.F.
VOLUME OF FREEBOARD REQUIRED = 289 S.F. X 0.50 FT. = 145C.F

CAPACITY PROVIDED IN SECONDARY OIL CONTAINMENT SYSTEM:
 AREA OF CONTAINMENT = (17'X17') - (13'X7') = 198 S.F.
 VOLUME OF CONTAINMENT = 198 S.F. X 3.0' OF DEPTH = 594 C.F.
 WHEN FILLED WITH STONE WITH 45% VOLUME RATIO = 594 C.F. * 0.45 = 267 C.F.
 TOTAL CAPACITY PROVIDED = 267 C.F. > 229 C.F. REQUIRED

1. THE O&M FIRM WILL REVIEW THE INSTALLATION FOR SAFETY AND CODE COMPLIANCE (BY THE APPROPRIATE QUALIFIED LICENSED MECHANICAL AND ELECTRICAL PROFESSIONALS), ACCURATE AND UP TO DATE REPORTING INFORMATION AND UPDATES REQUIRED. PLEASE NOTE THAT KREBS AND LANSING CONSULTING ENGINEERS, INC. WORK PERTAINS TO THE STORMWATER CONTROLS ONLY. THE SAFETY AND CODE COMPLIANCE PORTION OF THE DESIGN AND REPORT SHALL BE REVIEWED BY THE APPROPRIATE QUALIFIED LICENSED MECHANICAL AND ELECTRICAL PROFESSIONALS (ENGINEERS) HIRED BY THE O&M FIRM PRIOR TO CONSTRUCTION OF THE PROJECT. ANY APPROPRIATE CODE OR SAFETY MODIFICATIONS DICTATED BY THAT REVIEW SHALL BE INCORPORATED INTO O&M PROTOCOLS FOR THE SITE PRIOR TO CONSTRUCTION COMMENCING.

2. THIS DESIGN ASSUMES THAT ALL PENETRATIONS THROUGH THE CONCRETE BASE OF THE TRANSFORMER VAULT COVER WILL BE SEALED. IF PENETRATIONS ARE NOT SEALED CONTRACTOR MUST MAKE BOTTOM OF THE TRANSFORMER VAULT SUMP WATER TIGHT OR INSTALL AN OIL REACTIVE PLUG IN ALL VAULT DRAINS, "PETRO PLUG" OR APPROVED EQUAL.
3. THIS DESIGN IS FOR A 2,000 KVA PAD MOUNTED TRANSFORMER BY COOPER POWER SYSTEMS, FILLED WITH 500 GALLONS OF FLUID.
4. SECONDARY OIL CONTAINMENT WILL BE REVIEWED PRIOR TO INSTALLATION AND DESIGNED SPECIFICALLY FOR THE EQUIPMENT BEING INSTALLED. EQUIPMENT MANUFACTURER MAY PROVIDE THEIR OWN SECONDARY OIL CONTAINMENT. CONTAINMENT DESIGN WILL NEED TO BE REVIEWED BY THE ENGINEER AND FIT THE STATE SPECIFIED VOLUME.

±14' X 8' CONCRETE TRANSFORMER VAULT COVER WILL SIT ON TOP OF BASE. ALL EDGES OF COVER MUST OVERHANG WITHIN CONTAINMENT AREA.

POLYVINYL IMPERVIOUS BARRIER

BASE OF CONCRETE TRANSFORMER VAULT. POLYVINYL IMPERVIOUS BARRIER WILL BE FIXED TO EDGES OF VAULT. IF PAD IS USED EVALUATE CALCULATION AND BARRIER WILL BE FIXED TO EDGE OF PAD.

FOR OF CONTAINMENT MAT TO BE FILLED WITH STONE. 45% VOID RATIO. TYPICAL VOID RATIO FOR STONE.

5'

13'

7'

2'

3'

17'

17'

24" DIAMETER PERFORATED HDPE PIPE WITH PIPE ACCESS LID, HDPE PIPE WILL HOUSE PETRO-PIPE

PETRO-PIPE OUTLET, DRAIN UNDERDRAIN.

NOTE: REFER TO SPI DESIGN FOR SPECIFICATIONS AND DETAILS

OPTION A
SCHEMATIC OF CONTAINMENT
N.T.S.

±14' x 8' CONCRETE TRANSFORMER VAULT COVER WILL SIT ON TOP OF BASE. ALL EDGES OF COVER MUST OVERHANG WITHIN CONTAINMENT AREA.

INTERIOR OF CONTAINMENT MUST TO BE FILLED WITH STONE. 45% VOID RATIO. TYPICAL VOID RATIO FOR STONE.

POLYVINYL IMPERVIOUS BARRIER

BASE OF CONCRETE TRANSFORMER VAULT. POLYVINYL IMPERVIOUS BARRIER WILL BE FIXED TO EDGES OF VAULT. IF PAD IS USED EVALUATE CALCULATION AND BARRIER WILL BE FIXED TO EDGE OF PAD.

17'

13'

7'

5"

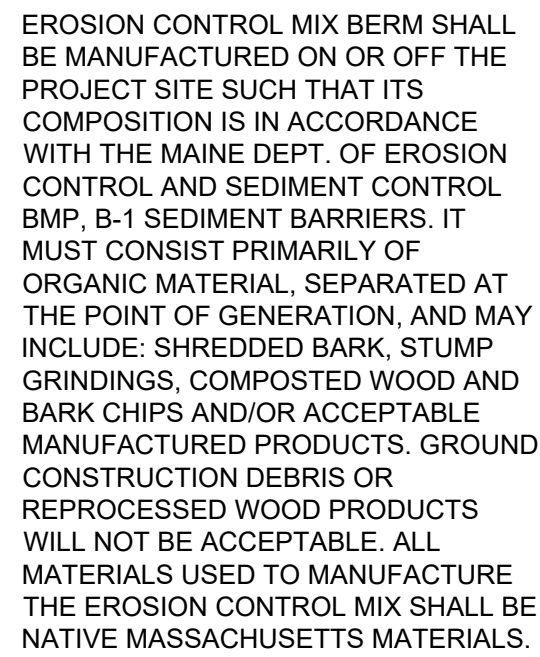
3'

2'

BARRIER BOOM OR APPROVED EQUAL

BARRIER BOOM OR APPROVED EQUAL

OPTION B
SCHEMATIC OF CONTAINMENT
 N.T.S.



1. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER DOES NOT SLIDE OR CAUSE THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (< 2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, WITH A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
4. EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS:
 - WETLAND AREAS AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER DRAIN SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH ENGINEER APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. IN WETLAND BUFFER AREAS EROSION CONTROL MIX MAY BE USED ONLY IN THE SPECIFIC AREAS THAT HAVE RECEIVED REGULATORY APPROVAL FOR DISTURBANCE FROM EITHER THE STATE OF MASSACHUSETTS OR THE U.S. ARMY CORPS OF ENGINEERS. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS.

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT (VEGETATION DUFF LAYER). THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER. THE USE OF GREATER SLOPES MAYBE PERMITTED WITH OSPC OR EPSC SPECIALIST APPROVAL.
4. THE STONE USED IN THE OUTLET SHALL BE VAOT 706.04 TYPE 1 STONE OR APPROVED ON SITE SHOT ROCK, PLACED ON MIRAFI 140N OR APPROVED EQUIT DRAINAGE FABRIC.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO $\frac{1}{2}$ THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. IF THE SEDIMENT TRAP IS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
9. THE MAXIMUM CONTRIBUTING DRAINAGE AREA IS 5 ACRES.
10. GENERAL SIZING REQUIREMENTS FOR ANY SEDIMENT TRAPS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND SHALL BE 3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA. VOLUME CALCULATION FOR NATURAL SEDIMENT TRAPS MAY BE APPROXIMATED USING THE SURFACE AREA AT OUTLET ELEVATION (A), TRAPS MAXIMUM DEPTH (D) AND THE FOLLOWING EQUATION:
 - TOTAL VOLUME = 0.4 * A (IN SQUARE FEET) * D (FEET)

APPROX. DRAINAGE AREA	APPROX. STORAGE VOLUME	RECOMMENDED BOTTOM DIMENSIONS	RECOMMENDED DIMENSIONS AT OUTLET	DEPTH AT OUTLET	SIDE SLOPES
0.25 ACRES (±10,900 S.F.)	±900 C.F.	10 FT. WIDE X 13 FT. LONG	22 FT. WIDE X 25 FT. LONG	3 FT.	2:1

11. FOR THOSE TEMPORARY SEDIMENT TRAPS TO BE PERMANENT DRY OR WET PONDS, SEDIMENT SHALL BE REMOVED AND THE ENTIRE AREA SEEDED AND MULCHED OR COVERED WITH EROSION CONTROL MATTING PRIOR TO PUTTING THE STORMWATER POND INTO USE.
12. LOCATIONS FOR TEMPORARY SEDIMENT TRAPS TO BE APPROVED BY THE OSPC OR THE EPSC SPECIALIST.



APPROX. DRAINAGE AREA	APPROX. STORAGE VOLUME	RECOMMENDED BOTTOM DIMENSIONS	RECOMMENDED DIMENSIONS AT OUTLET	DEPTH AT OUTLET	SIDE SLOPES
0.25 ACRES (±10,900 S.F.)	±900 C.F.	10 FT. WIDE X 13 FT. LONG	22 FT. WIDE X 25 FT. LONG	3 FT.	2:1

TYPICAL TEMPORARY SEDIMENT TRAP
N.T.S.

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DATE _____