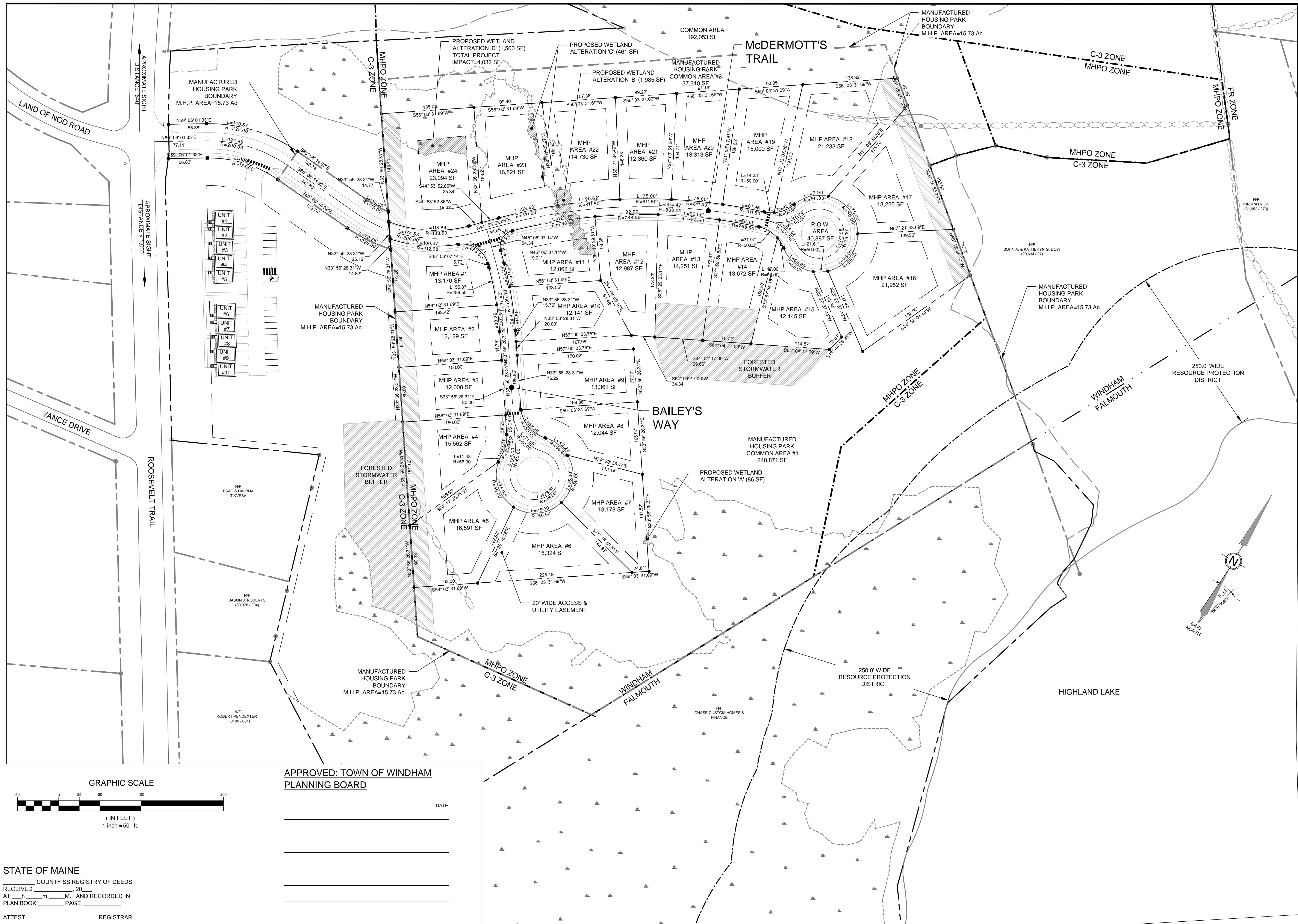



MATCHLINE - SEE SHEET C-1.1



SIGNATURE DATE: 3/31/2017

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CONSULTANTS, LLC

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Fax: (207) 221-1317
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Civil Engineering • Land Planning • Stormwater Design • Environmental Permitting

SHEET DESCRIPTION

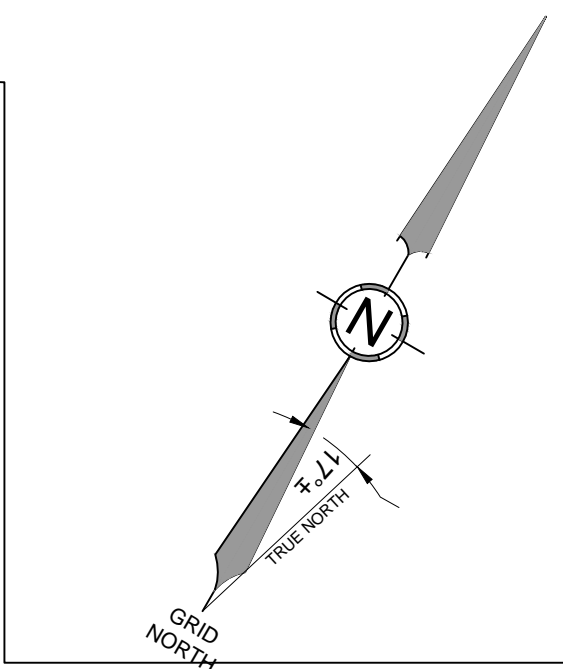
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
SUBDIVISION PLAN

PREPARED FOR

CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	3/31/2017
SCALE:	AS SHOWN
DESIGNED:	JDA
JOB NO:	1636
FILE: 1636 SB.DWG	

SHEET C-1.0



REVISED PER TOWN & MDEP COMMENTS - SUBMITTED FOR PRELIM. APPROVAL SUBMITTED TO MDEP & REVISED PER TOWN COMMENTS
REVISIONS

submitting

TERRADYN
CONSULTANTS, LLC
Engineering - Land Planning

Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting



STATE OF MAINE
____ COUNTY SS REGISTRY OF DEEDS
RECEIVED _____, 20____
AT ____h ____m ____M. AND RECORDED IN
PLAN BOOK _____ PAGE _____
ATTEST _____ REGISTRAR

NET RESIDENTIAL AREA (N.R.A.)	612,530 SF
MINIMUM N.R.A. PER LOT	60,000 SF
TOTAL PERMITTED LOTS/UNITS	10.2
TOTAL PROPOSED LOTS/UNITS	10

1. THE RECORD OWNER OF THE PARCEL IS CHASE CUSTOM HOMES & FINANCE BY DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 33,226, PAGE 279.

2. THE PROPERTY IS SHOWN AS LOT 63 & 66 ON THE TOWN OF WINDHAM TAX MAP 7 AND IS LOCATED IN THE COMMERCIAL III (C3) ZONE. A PORTION OF THE PROPERTY IS ALSO LOCATED WITHIN THE MANUFACTURED HOUSING PARK OVERLAY ZONE.

3. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON A STANDARD BOUNDARY BY WAYNE WOOD & CO. LOCATED AT 30 WOOD DRIVE, GRAY MAINE 04639, DATED AUGUST 2016.

4. TOPOGRAPHIC INFORMATION SHOWN HEREON IN ALL DEVELOPMENT IS BASED UPON A TOPOGRAPHIC SURVEY PERFORMED BY WAYNE T. WOOD & COMPANY, INC. IN JUNE 2016. ALL OTHER TOPOGRAPHY IS BASED UPON LIDAR DERIVED INFORMATION OBTAINED FROM THE STATE OF MAINE DEPARTMENT OF GIS.

5. SPACE AND BULK CRITERIA:

COMMERCIAL III STANDARDS	
MIN. LOT SIZE:	80,000 SF (DWELLING MIXED USE)
NET RESIDENTIAL DENSITY:	60,000 SF/LOT
MIN. FRONTAGE:	200' (DWELLING)
MIN. FRONTAGE:	100' (NON RESIDENTIAL)
MIN. FRONT SETBACK:	60' (ON ARTERIAL)
MIN. FRONT SETBACK:	40' (NON-ARTERIAL)
MIN. FRONT LANDSCAPED BUFFER:	20'
MIN. SIDE SETBACK:	10'
MIN. REAR SETBACK:	10'
MAX. BUILDING HEIGHT:	35'

MANUFACTURED HOUSING PARK OVERLAY ZONE (MHPPO) STANDARDS	
MIN LOT SIZE:	12,000 SF (WITH CENTRAL SEWAGE SYSTEM)
NET RESIDENTIAL DENSITY:	20,000 SF/UNIT
MIN. FRONTAGE:	75' (WITH CENTRAL SEWAGE SYSTEM)
MIN. FRONT SETBACK:	30'
MIN. SIDE SETBACK:	15'
MIN. REAR SETBACK:	15'

6. THE PROPERTY DOES NOT CONTAIN ANY FLOOD HAZARD AREAS ACCORDING TO FLOOD INSURANCE RATE MAPS 230045 0006 B, 230045 0010 B, 230054 0001 B & 230189 0030 B.

7. THE WETLANDS ON THIS PLAN WERE DELINEATED BY MARK CENCI OF MARK CENCI GEOLOGIC, INC.

8. THESE LOTS ARE TO BE SERVICED BY PUBLIC WATER, A COMMON PRIVATE SEPTIC SYSTEM AND UNDERGROUND UTILITIES.

9. ALL MONUMENTS WITHIN THIS SUBDIVISION SHALL BE SET IN ACCORDANCE WITH THE TOWN OF WINDHAM LAND USE ORDINANCE SECTION 911.A.3.

10. ANY HOUSE WITHIN THIS SUBDIVISION SHALL BE CONSTRUCTED WITH A POSITIVE FREE OUTLET FOUNDATION DRAIN.

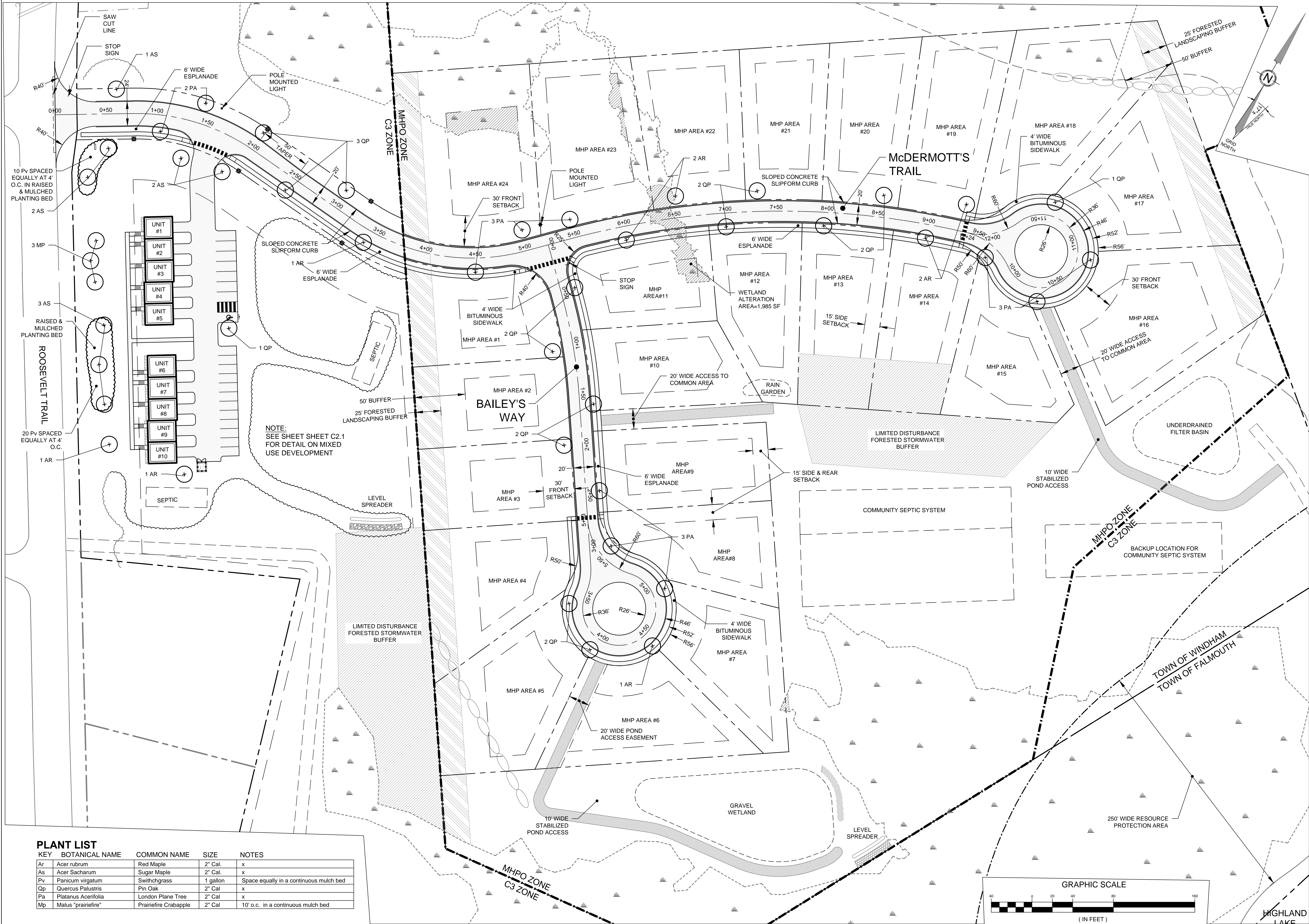
11. STORMWATER RESTRICTIONS:

- THE MAXIMUM IMPERVIOUS SURFACE COVERAGE FOR LOTS 1, 2 & 3 IS 2,800 SF. ALL OTHER LOTS ARE LIMITED TO 3,000 SF.
- A RAIN GARDEN SHALL BE CONSTRUCTED ON LOTS 10 & 12 UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.
- ROOF DRAIN FILTER STRIPS SHALL BE INSTALLED ON THE REAR OF EACH MANUFACTURED HOUSING UNIT UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.

12. ANY NEED FOR ADDITIONAL UNDERDRAIN / GEOTEXTILE FABRIC WILL BE ADDRESSED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 911 M.S.B.8.III OF THE LAND USE ORDINANCE.

13. THE FORESTED BUFFERS SHOWN ON THIS PLAN ARE INTENDED TO REMAIN IN A NATURAL VEGETATIVE STATE. ONLY DEAD OR DISEASED TREES MAY BE REMOVED. THESE BUFFERS SHALL BE MARKED OUT WITH PERMANENT SIGNAGE AND PROTECTED BY DISTURBANCE IN ACCORDANCE WITH THE MAINE DEP CHAPTER 500 SUGGESTED TEMPLATES FOR DEED RESTRICTIONS PRIOR TO CONSTRUCTION.

14. REFERENCE IS MADE TO THE ENGINEERING PLANS AS PREPARED BY TERRADYN CONSULTANTS, LLC SUBMITTED AS PART OF THIS APPROVAL.



PLANT LIST				
KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
Ar	Acer rubrum	Red Maple	2" Cal.	x
As	Acer Sacharum	Sugar Maple	2" Cal.	x
Pv	Panicum virgatum	Switchgrass	1 gallon	Space equally in a continuous mulch bed
Qp	Quercus Palustris	Pin Oak	2" Cal	x
Pa	Platanus Acerifolia	London Plane Tree	2" Cal	x
Mp	Malus "prairiefire"	Prairiefire Crabapple	2" Cal	10' o.c. in a continuous mulch bed

SIGNATURE DATE: 3/31/2017

NO.	DATE	REVISIONS	APPROVED BY
2	3/31/2017	REVISED PER TOWN & MDP COMMENTS - SUBMITTED FOR PRELIM. APPROVAL	
1	7/10/2017	SUBMITTED TO MDP & REVISED PER TOWN COMMENTS	

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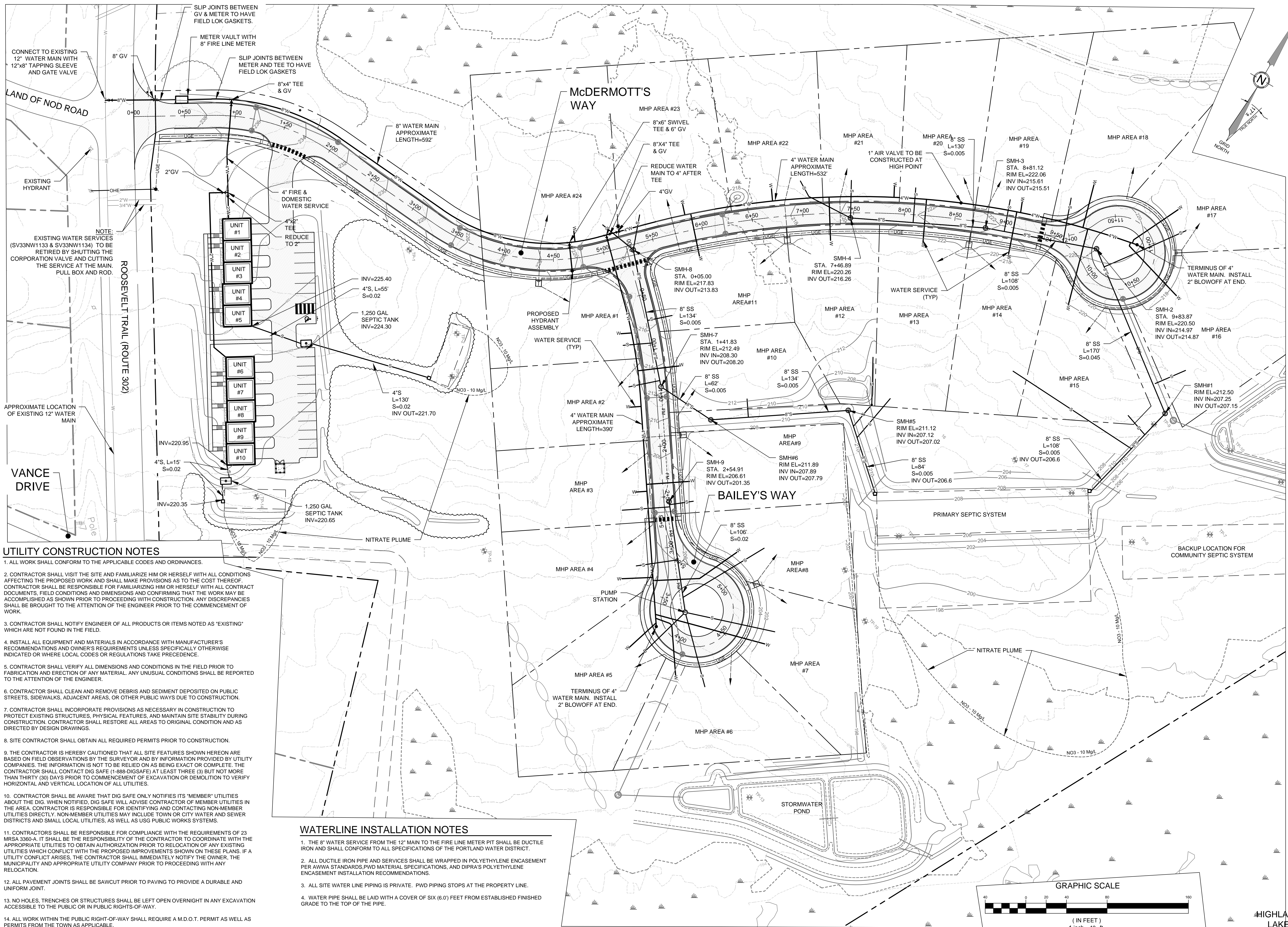
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
**HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
SITE & LANDSCAPING PLAN**

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	3/31/2017
SCALE:	1"=40'
DESIGNED:	JDA
JOB NO:	1636
FILE:	1636 S

SHEET **C-2.0**



UTILITY CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.
2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.
4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.
7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.
8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
10. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.
11. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.
12. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
13. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.
14. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

WATERLINE INSTALLATION NOTES

1. THE 8" WATER SERVICE FROM THE 12" MAIN TO THE FIRE LINE METER PIT SHALL BE DUCTILE IRON AND SHALL CONFORM TO ALL SPECIFICATIONS OF THE PORTLAND WATER DISTRICT.
2. ALL DUCTILE IRON PIPE AND SERVICES SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT PER AWWA STANDARDS. PWD MATERIAL SPECIFICATIONS, AND DIPRA'S POLYETHYLENE ENCASEMENT INSTALLATION RECOMMENDATIONS.
3. ALL SITE WATER LINE PIPING IS PRIVATE. PWD PIPING STOPS AT THE PROPERTY LINE.
4. WATER PIPE SHALL BE LAID WITH A COVER OF SIX (6.0) FEET FROM ESTABLISHED FINISHED GRADE TO THE TOP OF THE PIPE.

SIGNATURE DATE: 3/31/2017

NO.	DATE	REVISIONS	APPROVED BY
2	3/31/2017	REVISED PER TOWN & MDP COMMENTS - SUBMITTED FOR PRELIM. APPROVAL	
1	1/5/2017	REVISED PER PWD COMMENT	

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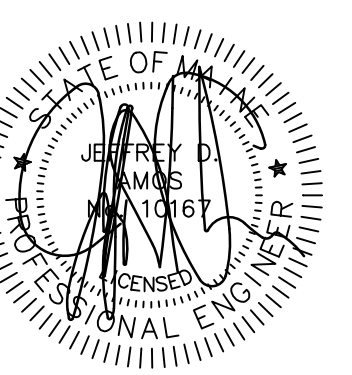
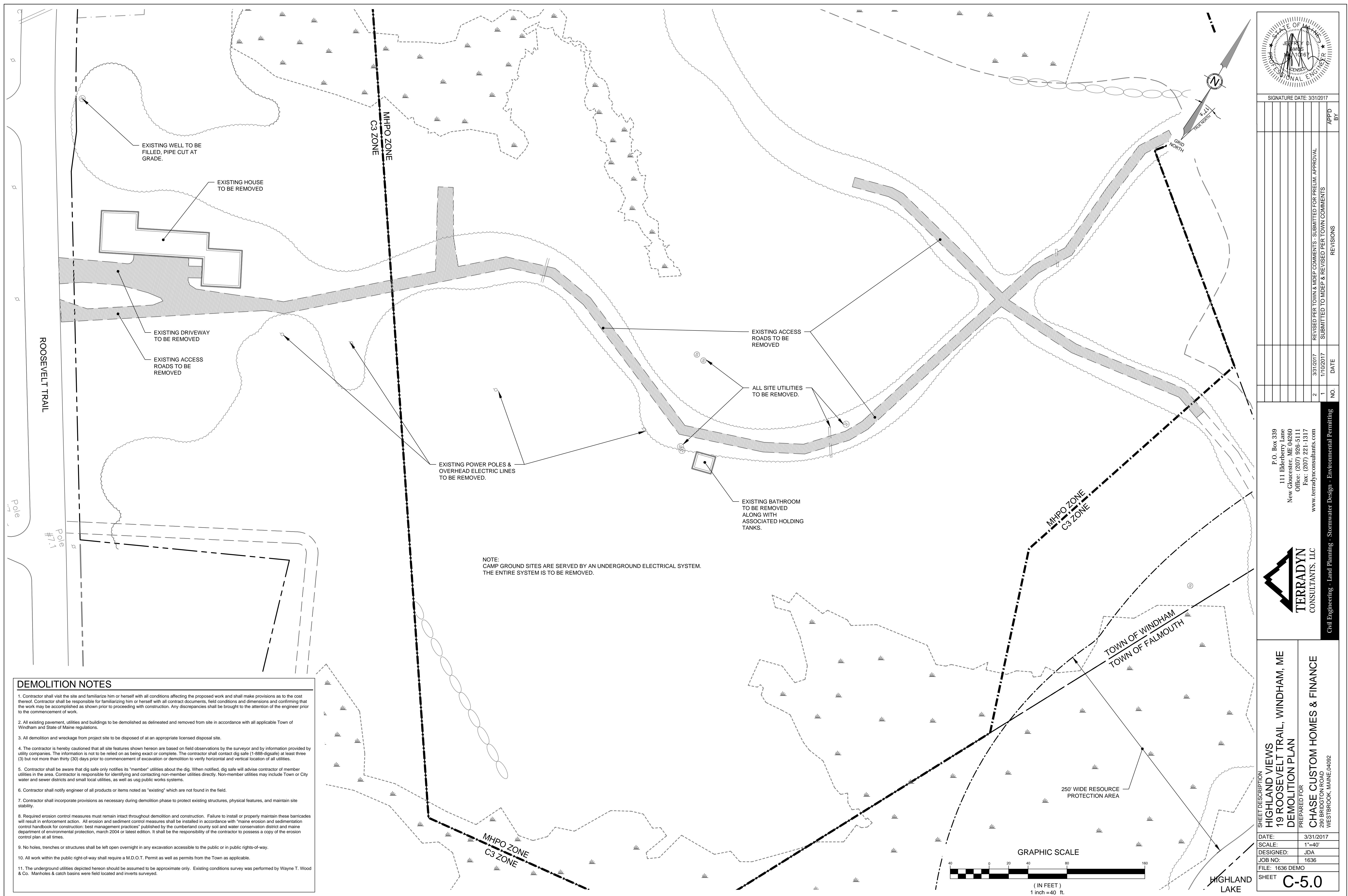
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
UTILITY PLAN

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
280 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE: 3/31/2017
SCALE: 1"=40'
DESIGNED: JDA
JOB NO: 1636
FILE: 1636 U

SHEET
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SIGNATURE DATE: 3/31/2017

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www.terradynconsultants.com



Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

**HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
DEMOLITION PLAN**

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04093

DATE:	3/31/2017
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DATE:	3/31/2017
SCALE:	1"=40'

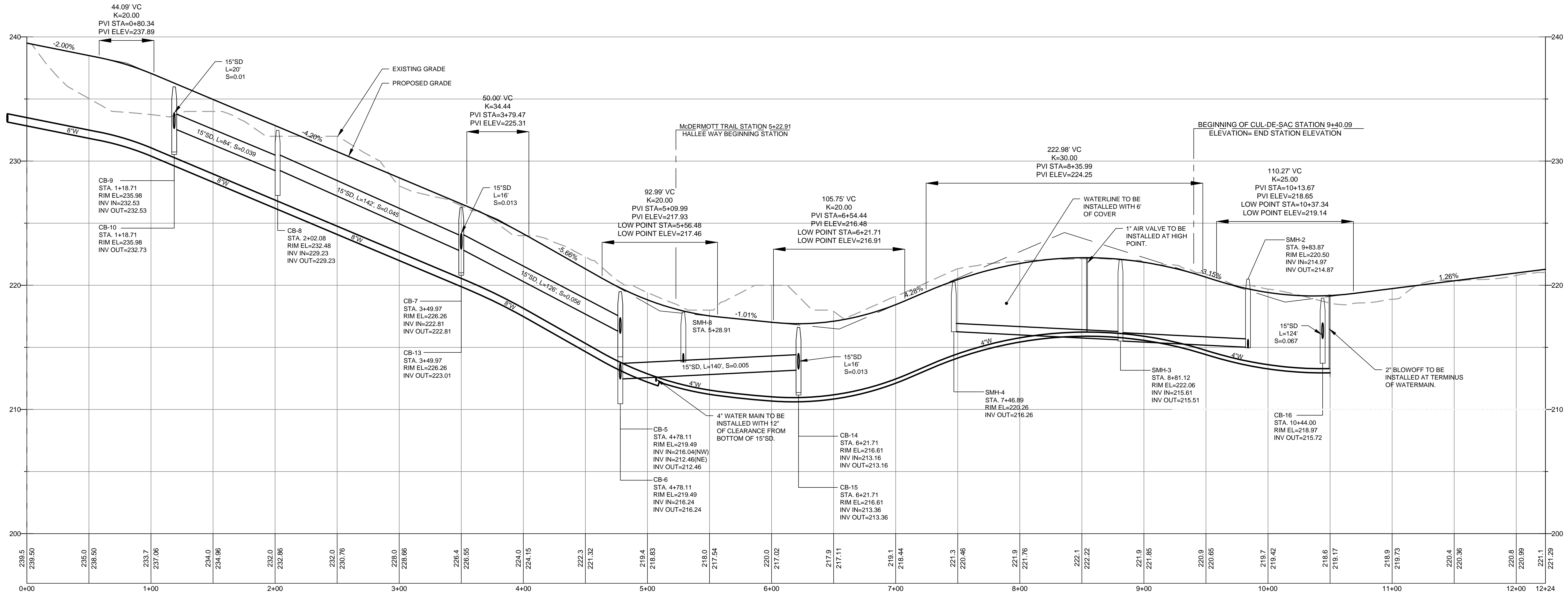
DESIGNED:	JDA
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OB NO:	1636
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FILE: 1636 DEMO

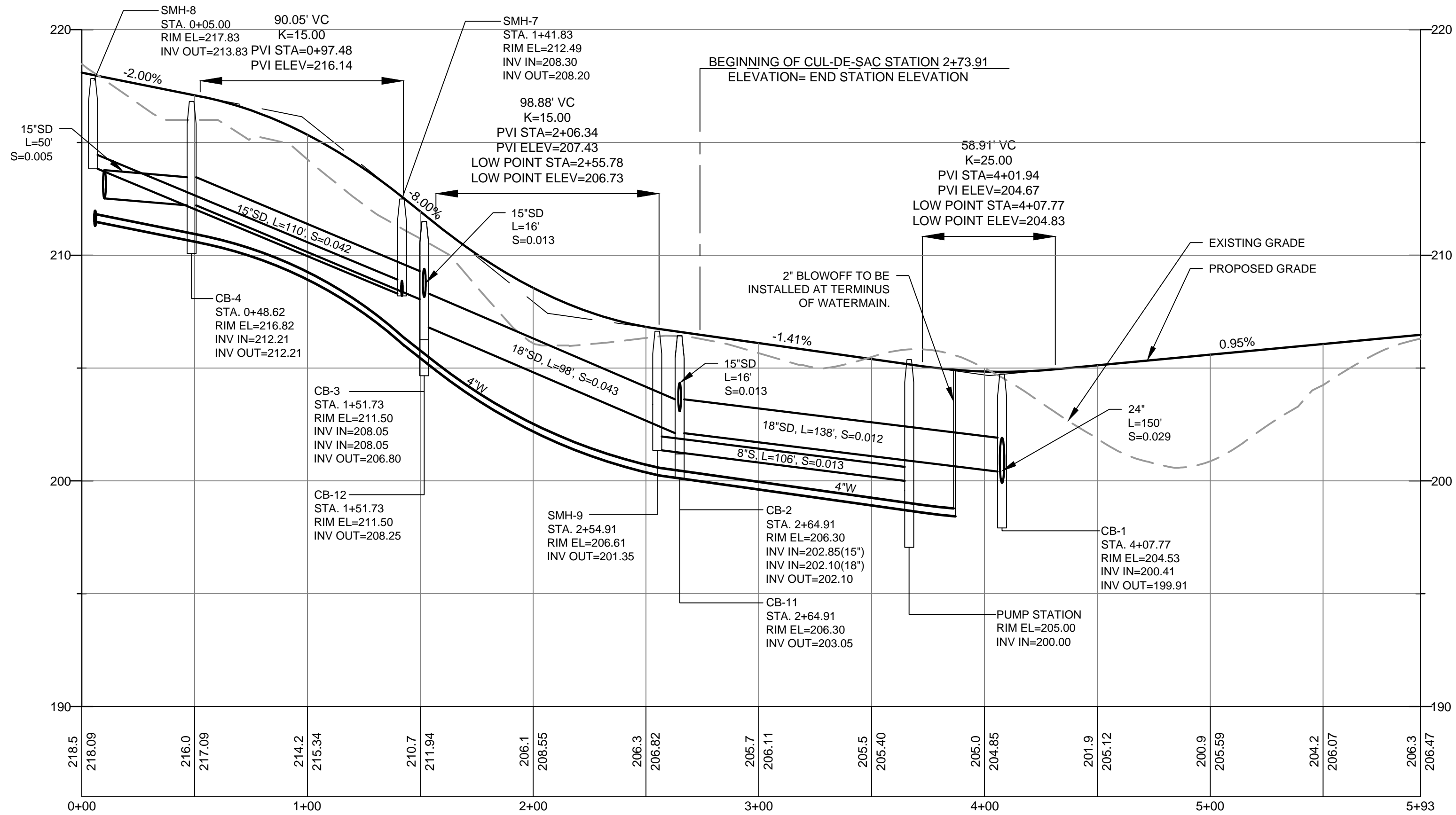
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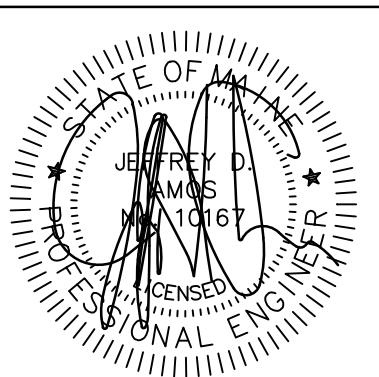
PROFILE OF McDERMOTT'S TRAIL

SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



PROFILE OF BAILEY'S WAY

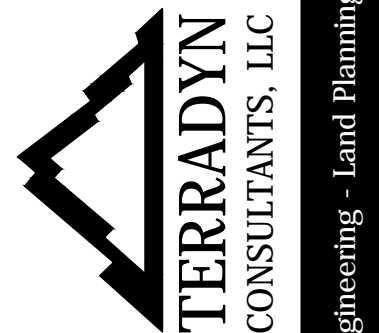
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



SIGNATURE DATE: 3/31/2017

NO.	DATE	REVISIONS
2	3/31/2017	REVISED PER TOWN L&DEP COMMENTS - SUBMITTED FOR PRELIM. APPROVAL
1	1/10/2017	SUBMITTED TO WDEP & REVISED PER TOWN COMMENTS

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SHEET DESCRIPTION
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
PROFILES
PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
280 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE: 3/31/2017
SCALE: AS SHOWN
DESIGNED: JDA
JOB NO: 1636
FILE: 1636 B
SHEET C-6.0

EROSION AND SEDIMENT CONTROL PLAN

Pre-Construction Phase

A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 mrsa § 480-b. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken. The site must be maintained to prevent unreasonable erosion and sedimentation. Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable.

BMP Construction Phase

A. Sediment barriers. Prior to the beginning of any construction, properly install sediment barriers at the edge of any downgradient disturbed area and adjacent to any drainage channels within the proposed disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized.

B. Construction entrance: Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection with the proposed access drive and the existing roadway to avoid tracking of mud, dust and debris from the site.

C. Riprap: Since riprap is used where erosion potential is high, construction must be sequenced so that the riprap is put in place with the minimum delay. Disturbance of areas where riprap is to be placed should be undertaken only when final preparation and placement of the riprap can follow immediately behind the initial disturbance. Where riprap is used for outlet protection, the riprap should be placed before or in conjunction with the construction of the pipe or channel so that it is in place when the pipe or channel begins to operate. Maintain temporary riprap, such as temporary check dams until the disturbed area is permanently stabilized.

D. Temporary stabilization. Stabilize with temporary seeding, mulch, or other non-erodible cover any exposed soils that will remain unworked for more than 14 days except, stabilize areas within 100 feet of a wetland or waterbody within 7 days or prior to a predicted storm event, whichever comes first. If hay or straw mulch is used, the application rate must be 2 bales (70-90 pounds) per 1000 sf or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90% of the ground surface. Hay mulch must be kept moist or anchored to prevent wind blowing. An erosion control blanket or mat shall be used at the base of grassed waterways, steep slopes (15% or greater) and on any disturbed soil within 100 feet of lakes, streams and wetlands. Grading shall be planned so as to minimize the length of time between initial soil exposure and final grading. On large projects this should be accomplished by phasing the operation and completing the first phase up to final grading and seeding before starting the second phase, and so on.

E. Vegetated waterway. Upon final grading, the disturbed areas shall be immediately seeded to permanent vegetation and mulched and will not be used as outlets until a dense, vigorous vegetative cover has been obtained. Once soil is exposed for waterway construction, it should be immediately shaped, graded and stabilized. Vegetated waterways need to be stabilized early during the growing season (prior to september 15). If final seeding of waterways is delayed past september 15, emergency provisions such as sod or riprap may be required to stabilize the channel. Waterways should be fully stabilized prior to directing runoff to them.

Permanent stabilization defined

A. Seeded areas. For seeded areas, permanent stabilization means an 90% cover of the disturbed area with mature, healthy plants with no evidence of washing or rilling of the topsoil.

B. Sodded areas. For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.

C. Permanent mulch. For mulched areas, permanent mulching means total coverage of the exposed area with an approved mulch material. Erosion control mix may be used as mulch for permanent stabilization according to the approved application rates and limitations.

D. Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

E. Agricultural use. For construction projects on land used for agricultural purposes (e.G., pipelines across crop land), permanent stabilization may be accomplished by returning the disturbed land to agricultural use.

F. Paved areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.

G. Ditches, channels, and swales. For open channels, permanent stabilization means the channel is stabilized with mature vegetation at least three non-erodible lining capable of withstanding the anticipated flow velocities and flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or down-cutting of the channel.

General Construction Phase

The following erosion control measures shall be followed by the contractor throughout construction of this project:

A. All topsoil shall be collected, stockpiled, seeded with rye at 3 pounds/1,000 sf and mulched, and reused as required. Silt fencing shall be placed down gradient from the stockpiled loam. Stockpile to be located by designation of the owner and inspecting engineer.

B. The inspecting engineer at his/her discretion, may require additional erosion control measures and/or supplemental vegetative provisions to maintain stability of earthworks and finish graded areas. The contractor shall be responsible for providing and installing any supplemental measures as directed by the inspecting engineer. Failure to comply with the engineer's directions will result in discontinuation of construction activities.

C. Erosion control mesh shall be applied in accordance with the plans over all finish seeded areas as specified on the design plans.

D. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved erosion and sediment control plan until they are adequately stabilized.

E. All erosion, and sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved erosion and sediment control plan.

F. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable materials.

G. Areas shall be scarified to a minimum depth of 3 inches prior to placement of topsoil.

H. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.

I. All fills shall be placed and compacted in layers not to exceed 8 inches in thickness.

J. Except for approved landfills or non-structural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory lifts.

K. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.

L. Fill shall not be placed on a frozen foundation.

M. Seeps or springs encountered during construction shall be handled appropriately.

N. All graded areas shall be permanently stabilized immediately following finished grading.

O. Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

Permanent vegetation

Permanent vegetative cover should be established on disturbed areas where permanent, long lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment.

Seedbed preparation

A. Grade as feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance.

B. Apply limestone and fertilizer according to soil tests such as those offered by the university of maine soil testing laboratory. Soil sample mailers are available from the local cooperative extension service office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 800 pounds per acre or 18.4 pounds per 1,000 square feet using 10-20-20 (n-p2o5-k2o) or equivalent. Apply ground limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of 3 tons per acre (138 lb. Per 1,000 sq. Ft).

C. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrow operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.D. Remove from the surface all stones 2 inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, concrete, clods, lumps or other unsuitable material.

E. Inspect seedbed just before seeding. If traffic has left the soil compacted; the area must be tilled and firmed as above.

F. Permanent seeding should be made 45 days prior to the first killing frost or as a dormant seeding with mulch after the first killing frost and before snowfall. When crown vetch is seeded in later summer, at least 35% of the seed should be hard seed (unscarified). If seeding cannot be done within the seeding dates, mulch according to the temporary mulching bmp and overwinter stabilization and construction to protect the site and delay seeding until the next recommended seeding period.

G. Following seed bed preparation, swale areas, fill areas and back slopes shall be seeded at a rate of 3 lbs./1,000 s.F. With a mixture of 35% creeping red h. Fescue, 6% red top, 24% kentucky bluegrass, 10% perennial ryegrass, 20% annual ryegrass and 5% white dutch clover.

I. Areas which have been temporarily or permanently seeded shall be mulched immediately following seeding.

J. Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.

Winter construction phase

If an area is not stabilized with temporary or permanent measures by november 15, then the site must be protected with additional stabilization measures.

A. Permanent stabilization consists of at least 90% vegetation, pavement/gravel base or riprap.

B. Do not expose slopes or leave slopes exposed over the winter or for any other extended time of work suspension unless fully protected with mulch.

C. Apply hay mulch at twice the standard rate (150 lbs. Per 1,000 sf). The mulch must be thick enough such that the ground surface will not be visible and must be anchored.

D. Use mulch and mulch netting or an erosion control mulch blanket or all slopes greater than 8 % or other areas exposed to direct wind.

E. Install an erosion control blanket in all drainageways (bottom and sides) with a slope greater than 3 %.

F. See the vegetation measures for more information on seeding dates and types.

G. Winter excavation and earthwork shall be completed so that no more than 1 acre of the site is without stabilization at any one time.

H. An area within 100 feet of a protected natural resource must be protected with a double row of sediment barrier.

I. Temporary mulch must be applied within 7 days of soil exposure or prior to any storm event, but after every workday in areas within 100 feet from a protected natural resource.

J. Areas that have been brought to final grade must be permanently mulched that same day.

K. If snowfall is greater than 1 inch (fresh or cumulative), the snow shall be removed from the areas due to be seeded and mulched.

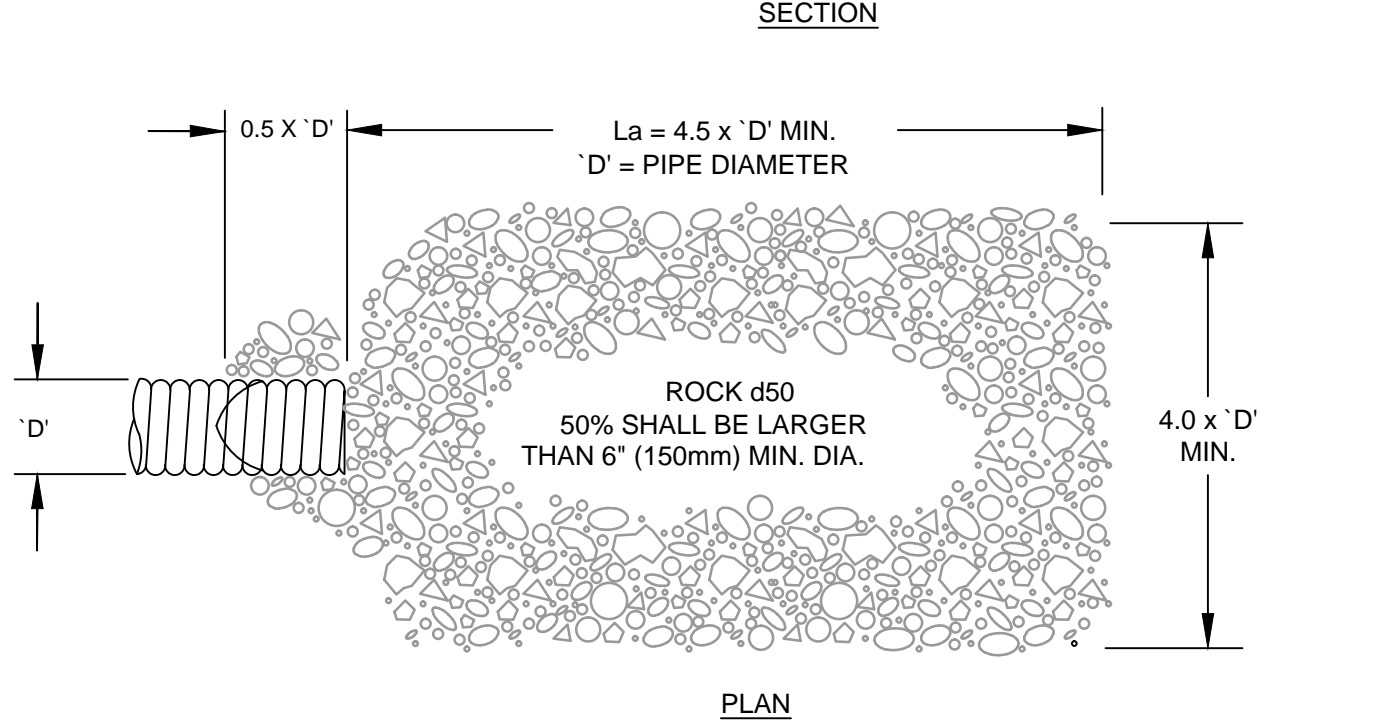
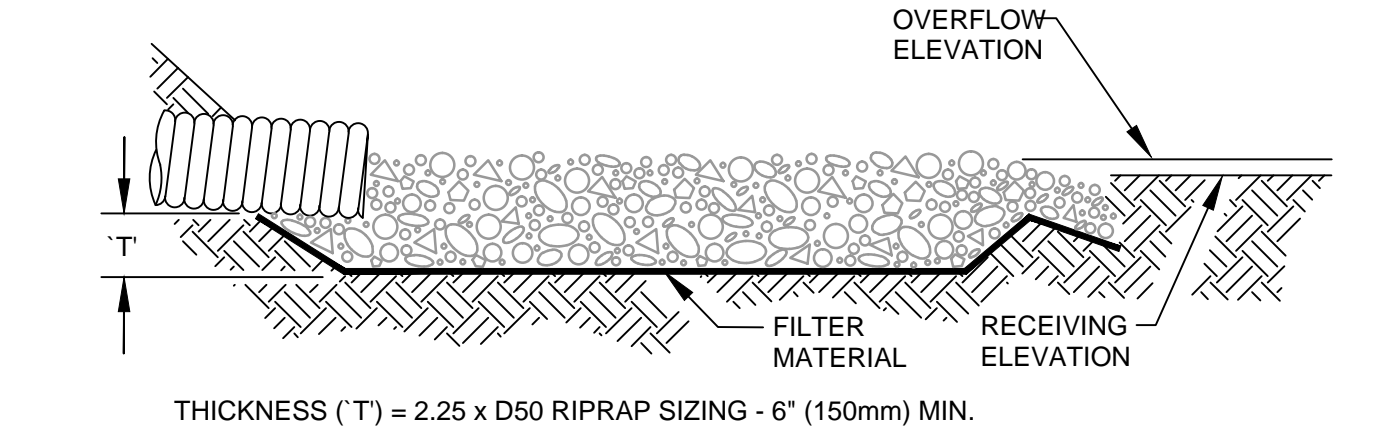
L. Loam shall be free of frozen clumps before it is applied.

M. All vegetated ditch lines that have not been stabilized by november 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the department.

Maintenance and inspection phase

A. Contractor shall inspect disturbed and impervious areas, and erosion and stormwater control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the parcel at least once a week and before and after a storm event, prior to completion of permanent stabilization. A person with knowledge of erosion and stormwater must conduct the inspection. This person must be identified in the inspection log. If best management practices (bmps) need to be modified or if additional bmps are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

B. A log (report) must be kept summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, the date(s) of the inspection, and major observations relating to operation of erosion and sedimentation controls and pollution prevention measures. Major observations must include: bmps that need to be maintained; location(s) of bmps that failed to operate as designed or proved inadequate for a particular location; and location(s) where additional bmps are needed that did not exist at the time of inspection. Follow-up to correct deficiencies or enhance controls must also be indicated in the log and dated, including what action was taken and when.



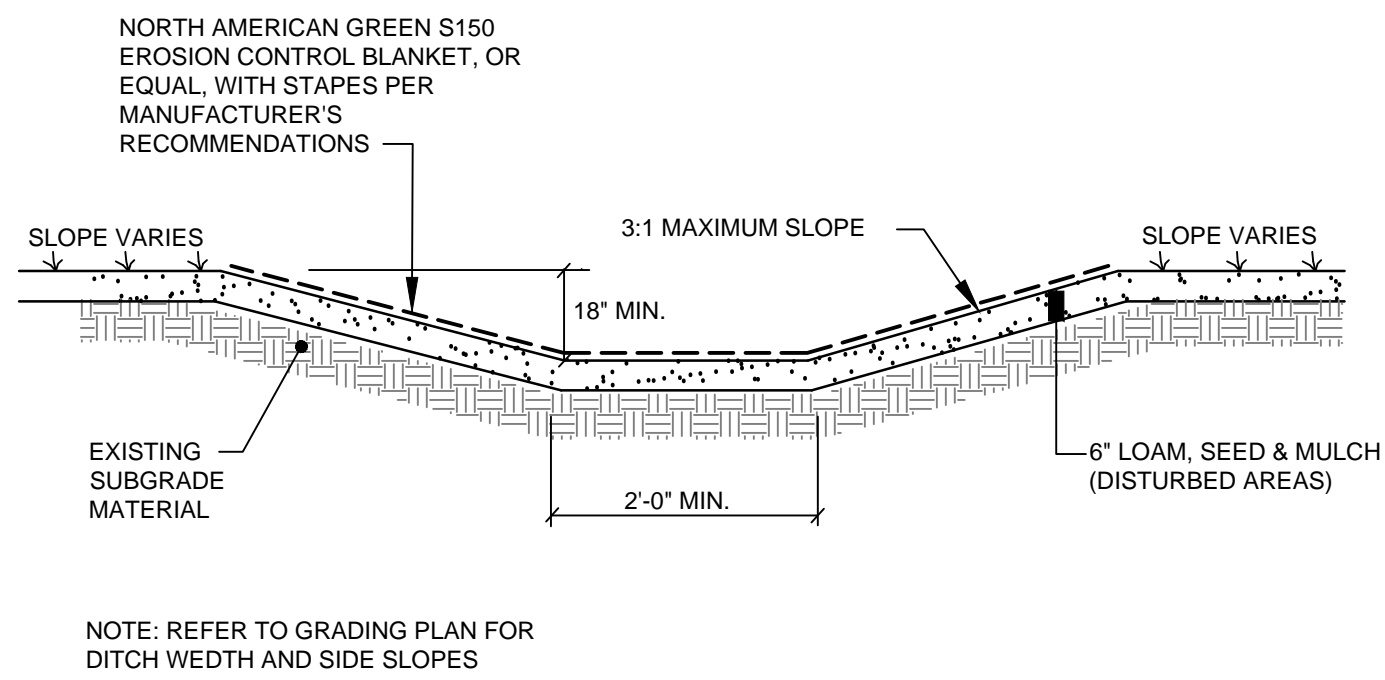
PIPE OUTLET PROTECTION SIZING TABLE			
PIPE SIZE (IN)	RIP RAP SIZING (D50)	LENGTH (FT)	WIDTH (FT)
6	3	2.5	2.0
12	5	5.0	4.0
15	6	6.25	5.0
18	8	7.5	6.0
24	10	10.0	8.0
30	12	13.0	10.0
36	14	15.0	12.0

NOTES:

1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
3. FILTER MATERIAL SHALL BE FILTER FABRIC (MIRAFI 600X OR APPROVED EQUAL) OR 6\"/>

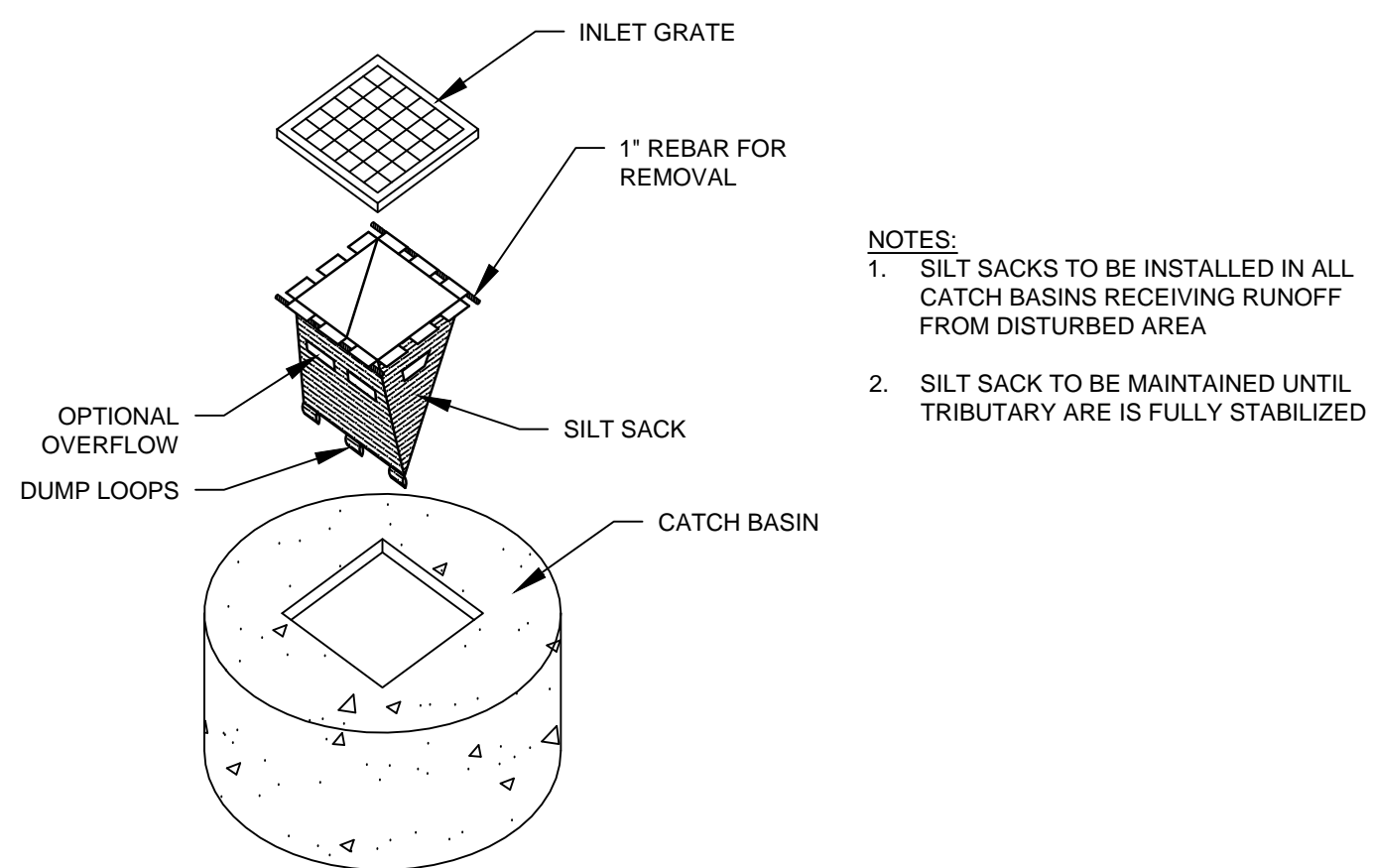
PIPE OUTLET PROTECTION

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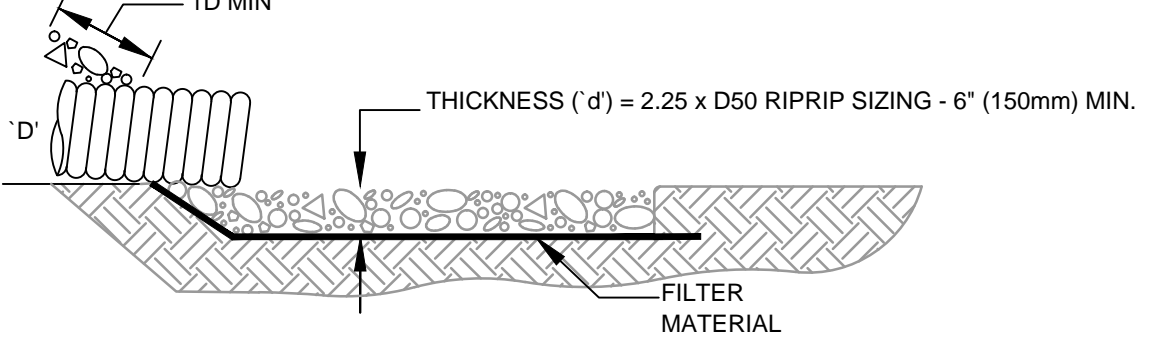
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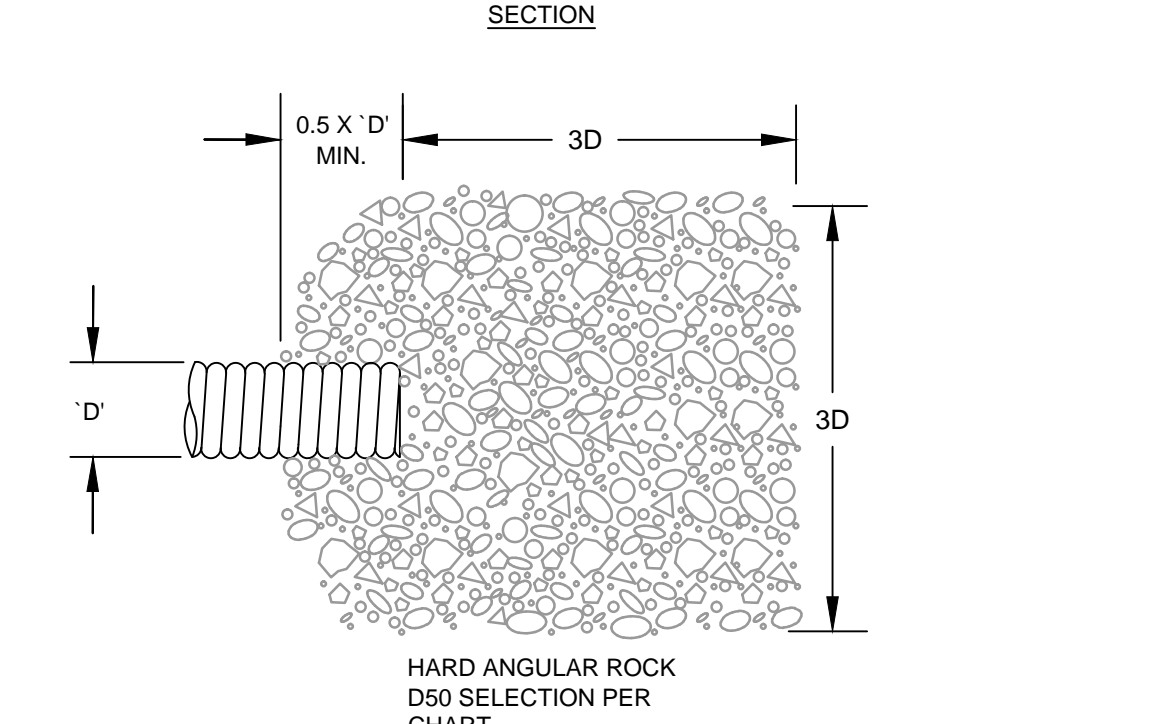


SILT SACK DETAIL

NOT TO SCALE



- NOTE:
1. GEOTEXTILE FILTER FABRIC BENEATH STONE BASED ON UNDISTURBED SOILS, OR 6\"/>
 2. GEOTEXTILE TO BE MIRAFI 600X OR APPROVED EQUAL.



PIPE INLET PROTECTION SIZING TABLE

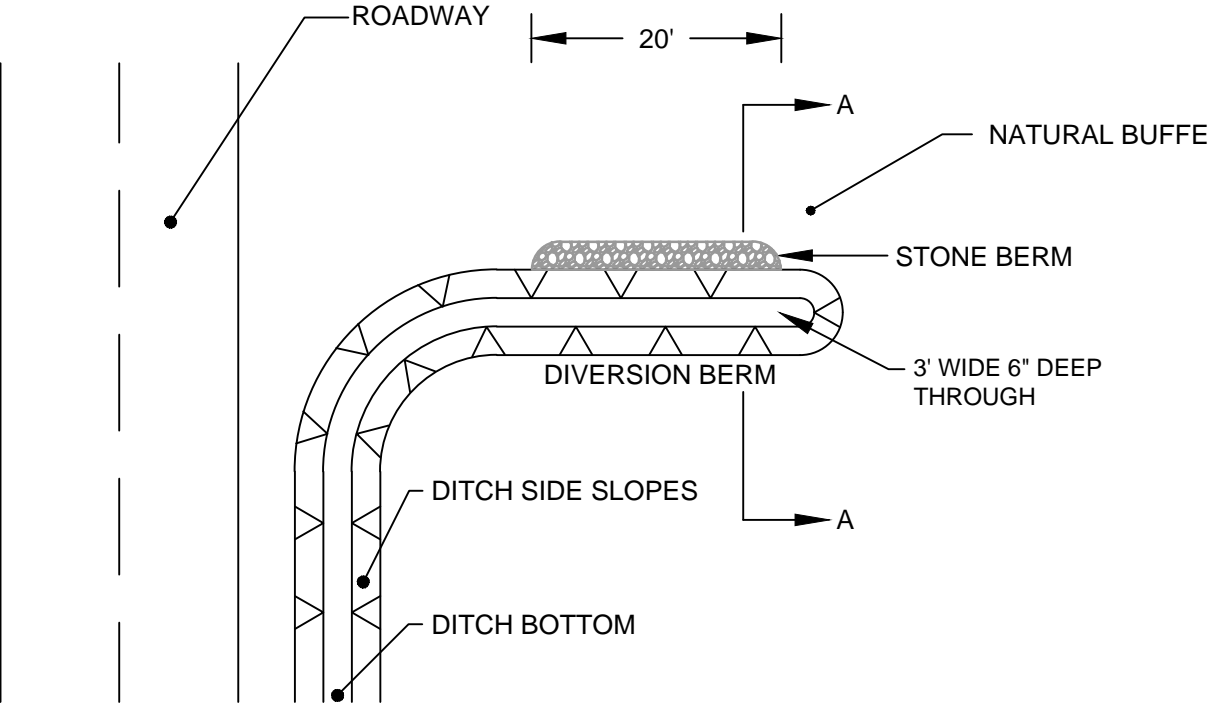
PIPE SIZE (IN)	RIPRAP SIZING (D50)	LENGTH (FT)	WIDTH (FT)
6	3	2.0	1.5
12	5	3.5	3.0
15	6	4.5	3.75
18	8	5.25	4.5
24	10	7.0	6.0
30	12	8.75	7.5
36	14	10.5	9.0

NOTES:

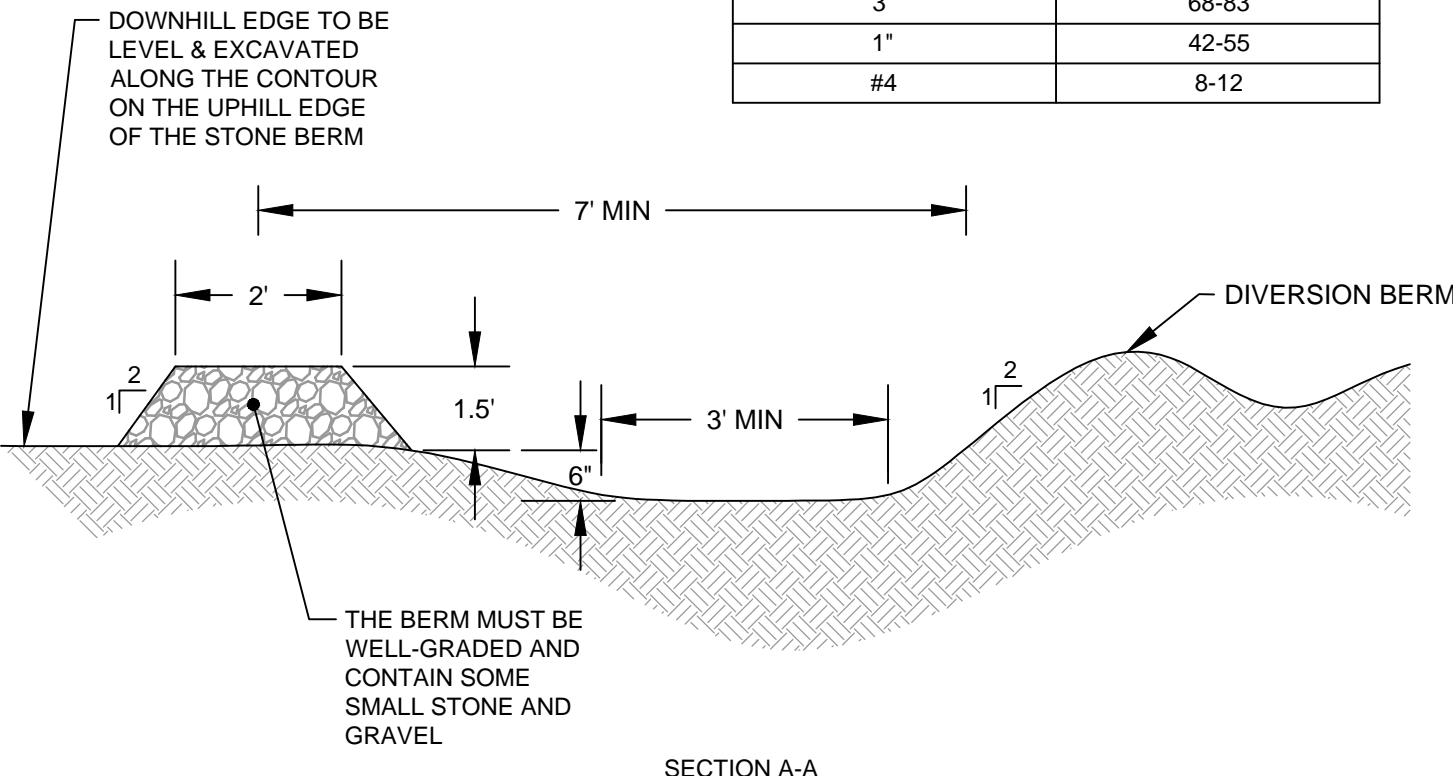
1. IN DEFINED CHANNELS, APRON SHALL EXTEND FULL WIDTH OF BOTTOM AND ONE FOOT ABOVE MAX. HEADWATER OR UP TO BANK FULL, WHICHEVER IS LESS.

PIPE INLET PROTECTION

NOT TO SCALE

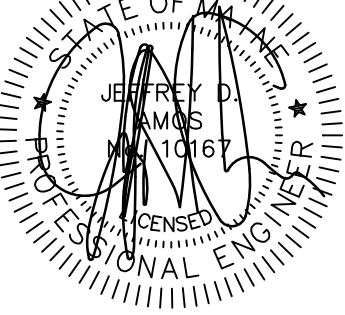


BERM STONE SIZE	
SIEVE DESIGNATION	% BY WEIGHT PASSING SQUARE MESH SIEVES
12"	100
6"	84-100
3"	68-83
1"	42-55
#4	8-12



TYPICAL LEVEL LIP SPREADER

NOT TO SCALE



SIGNATURE DATE: 3/31/2017

APPROVED BY: _____

REVISIONS

REVISOR COMMENTS

DATE

NO.

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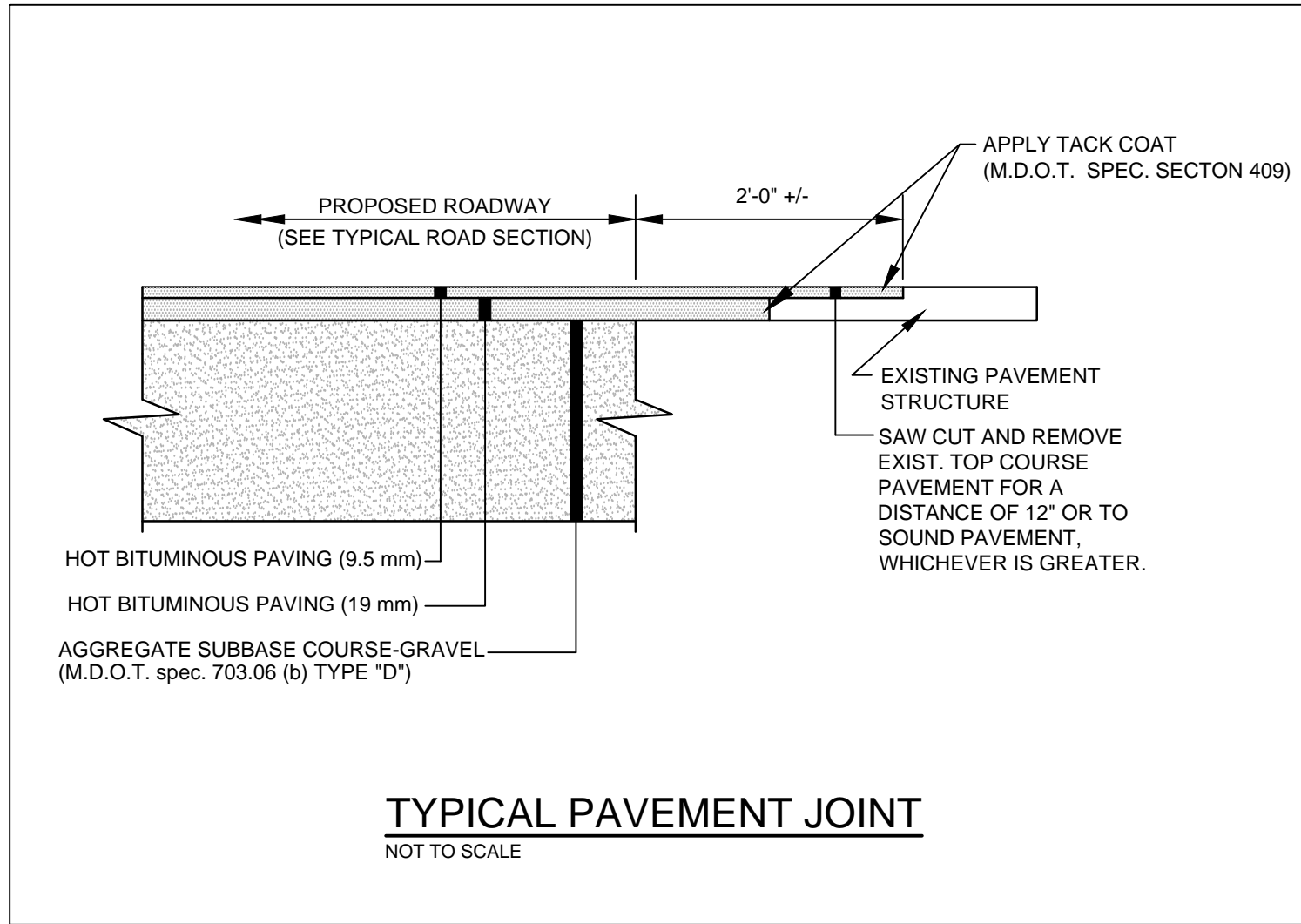
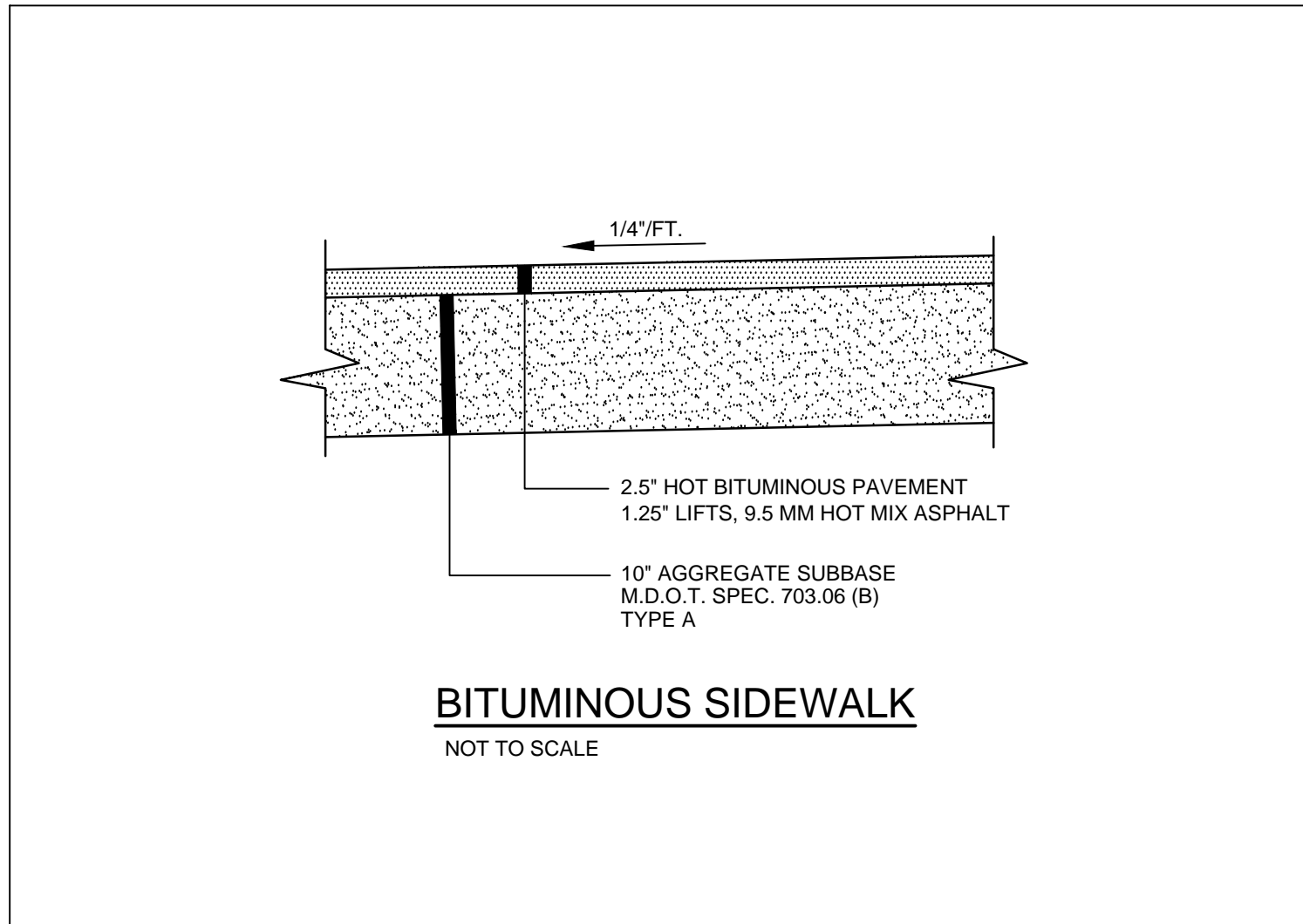
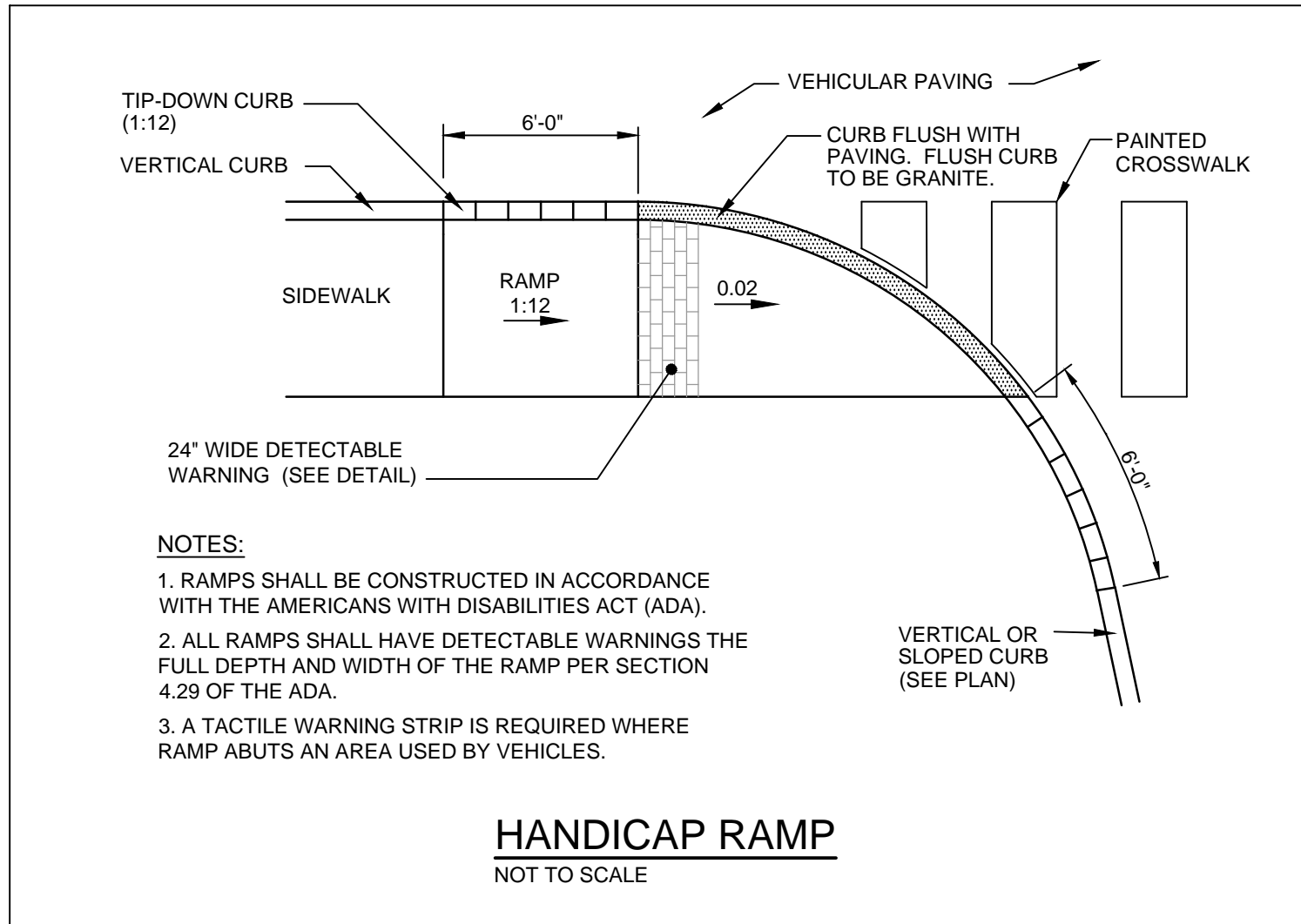
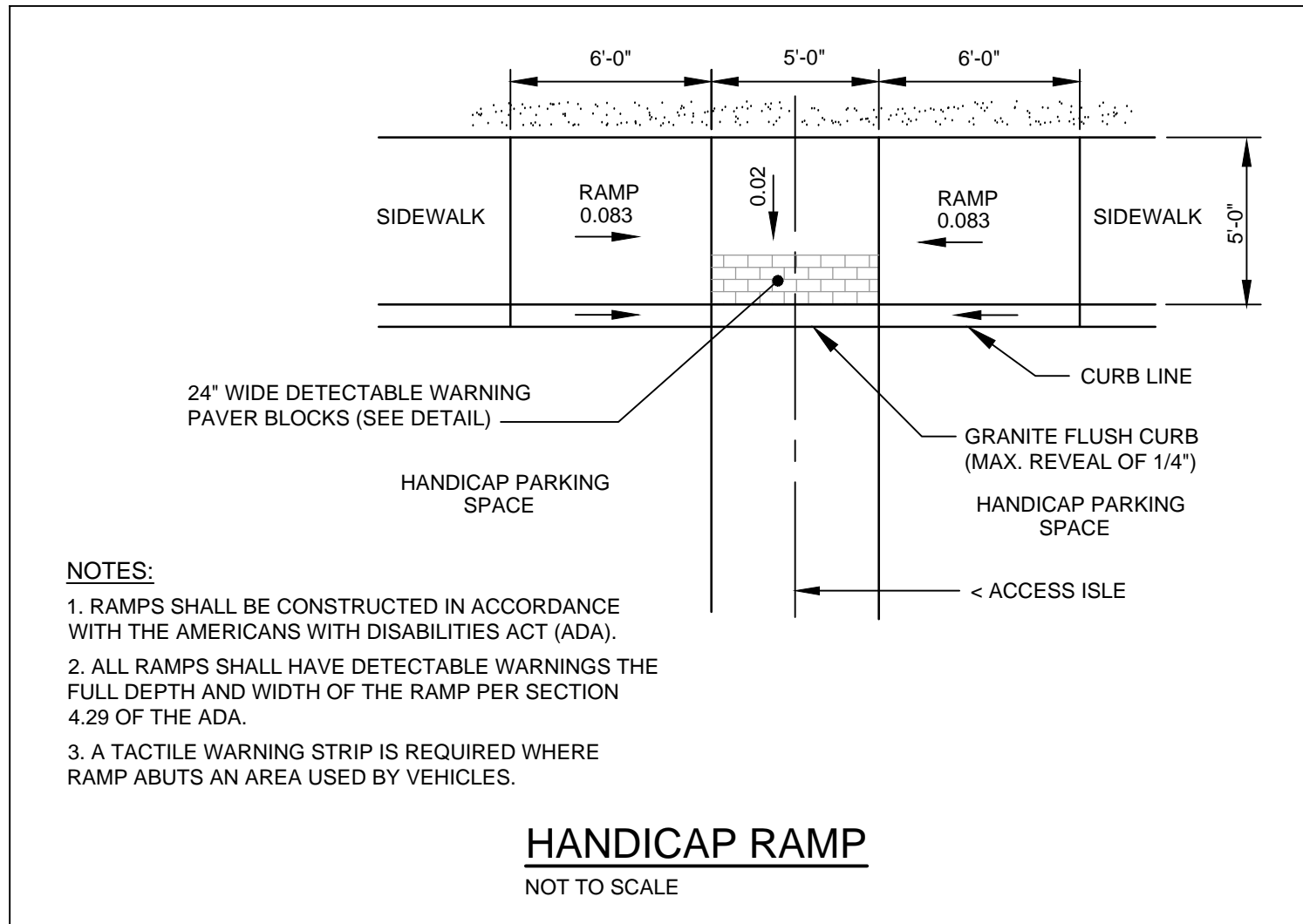
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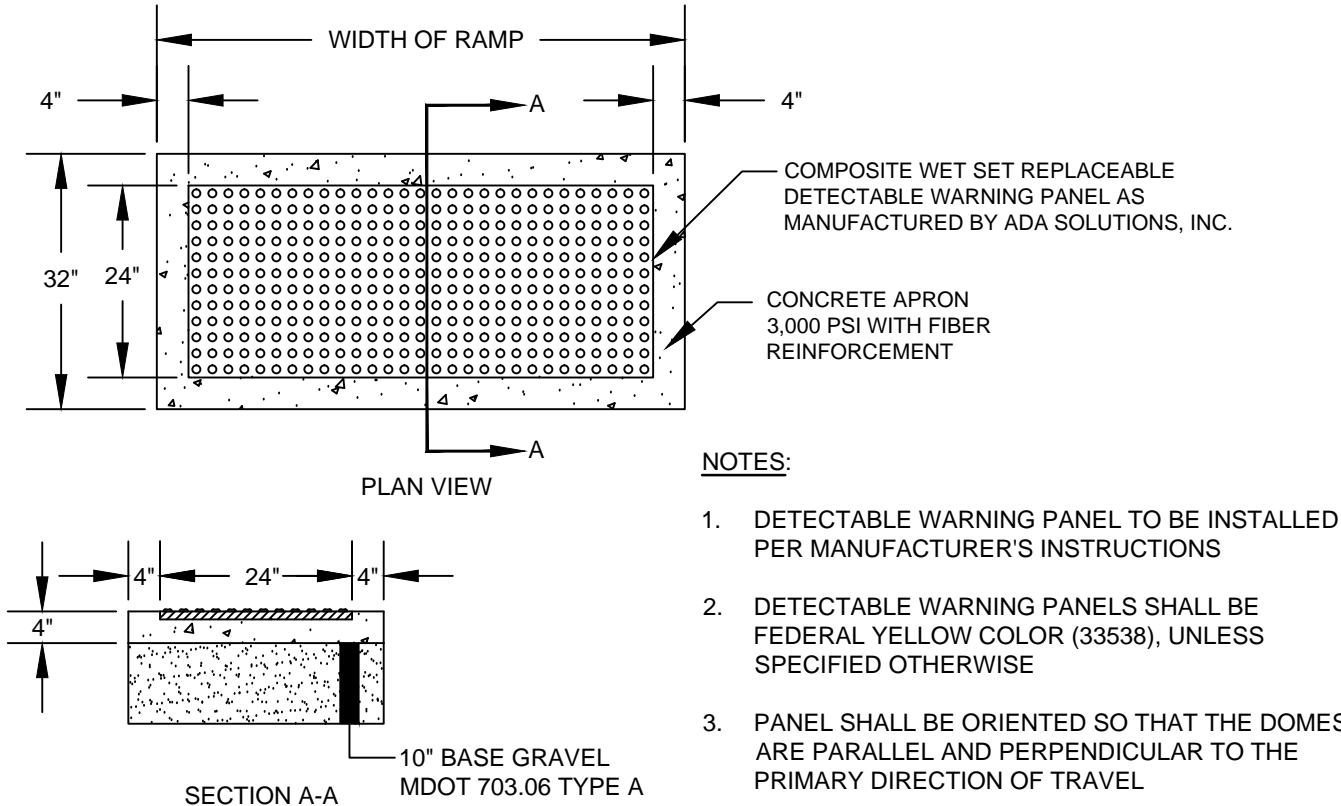
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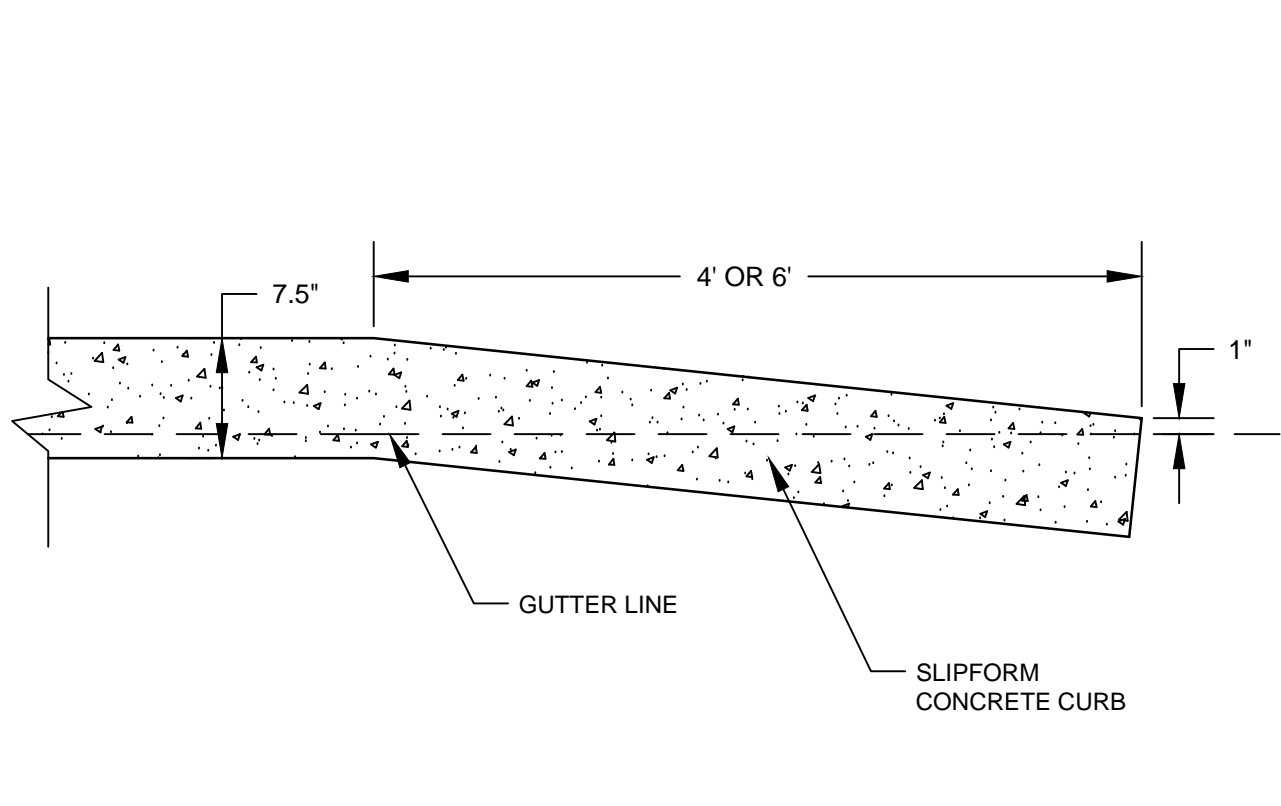


CONSTRUCTION NOTES

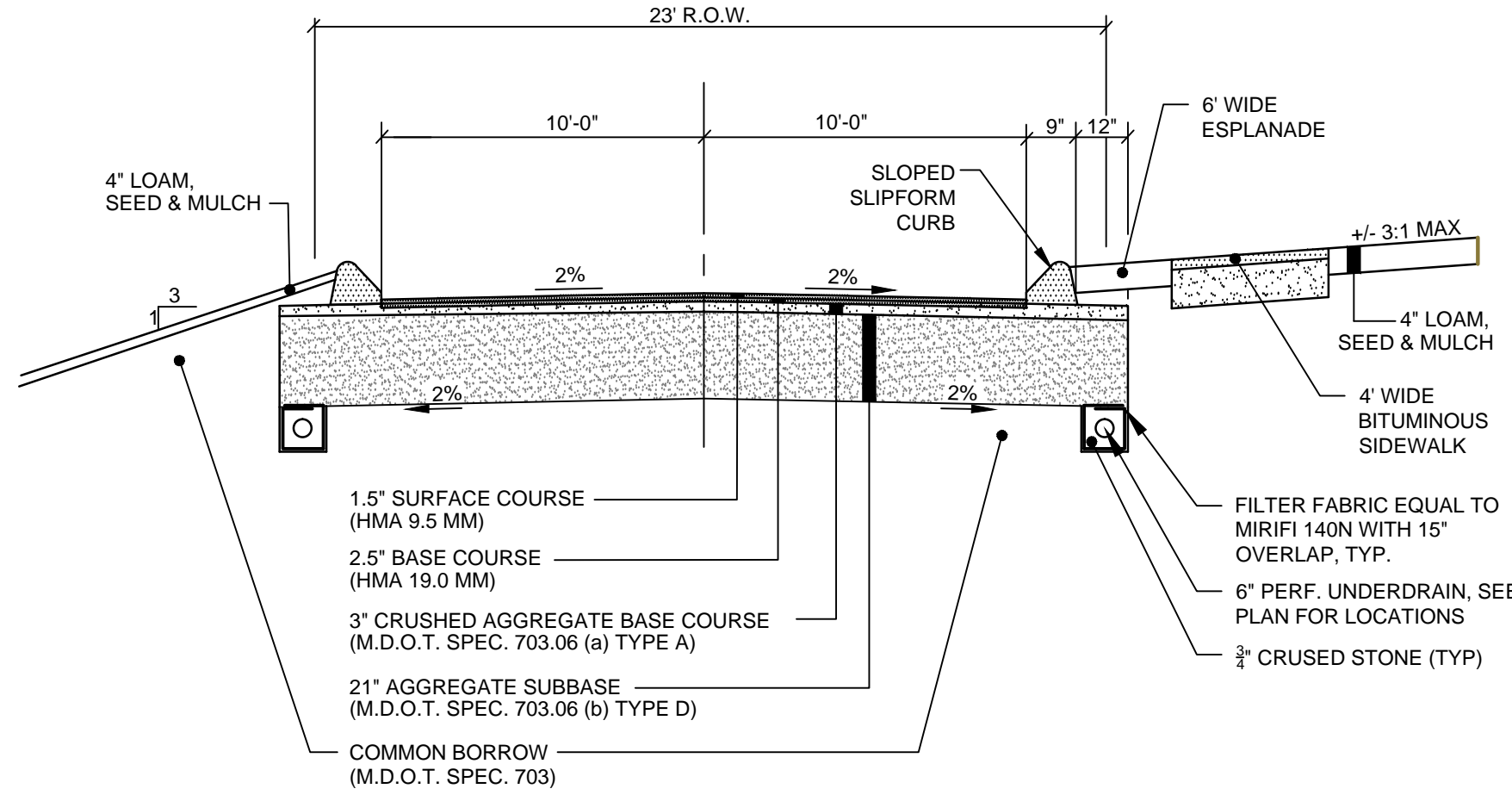
1. All work shall conform to the applicable codes and ordinances.
2. Contractor shall visit the site and familiarize him or herself with all conditions affecting the proposed work and shall make provisions as to the cost thereof. Contractor shall be responsible for familiarizing him or herself with all contract documents, field conditions and dimensions and confirming that the work may be accomplished as shown prior to proceeding with construction. Any discrepancies shall be brought to the attention of the engineer prior to the commencement of work.
3. Contractor shall notify engineer of all products or items noted as "existing" which are not found in the field.
4. Install all equipment and materials in accordance with manufacturer's recommendations and owner's requirements unless specifically otherwise indicated or where local codes or regulations take precedence.
5. Contractor shall verify all dimensions and conditions in the field prior to fabrication and erection of any material. Any unusual conditions shall be reported to the attention of the engineer.
6. Contractor shall clean and remove debris and sediment deposited on public streets, sidewalks, adjacent areas, or other public ways due to construction.
7. Contractor shall incorporate provisions as necessary in construction to protect existing structures, physical features, and maintain site stability during construction. Contractor shall restore all areas to original condition and as directed by design drawings.
8. Site contractor shall obtain all required permits prior to construction.
9. All erosion and sediment control measures shall be installed in accordance with "Maine Erosion and Sedimentation Control BMP's" published by the Maine DEP in 2003.. A copy of the manual can be found at <http://maine.gov/dep/blwg/docstand/esccbmps/index.htm>. It shall be the responsibility of the contractor to possess a copy of the erosion control plan at all times.
10. The contractor is hereby cautioned that all site features shown hereon are based on field observations by the surveyor and by information provided by utility companies. The information is not to be relied on as being exact or complete. The contractor shall contact dig safe (1-888-digsafe) at least three (3) but not more than thirty (30) days prior to commencement of excavation or demolition to verify horizontal and vertical location of all utilities. Contractor shall be aware that dig safe only notifies its "member" utilities about the dig. When notified, dig safe will advise contractor of member utilities in the area. Contractor is responsible for identifying and contacting non-member utilities directly. Non-member utilities may include town or city water and sewer districts and small local utilities, as well as usg public works systems.
11. Contractors shall be responsible for compliance with the requirements of 23 mrsa 3360-a. It shall be the responsibility of the contractor to coordinate with the appropriate utilities to obtain authorization prior to relocation of any existing utilities which conflict with the proposed improvements shown on these plans. If a utility conflict arises, the contractor shall immediately notify the owner, the municipality and appropriate utility company prior to proceeding with any relocation.
12. All pavement markings and directional signage shown on the plan shall conform to the manual of uniform traffic control devices (mutcd) standards.
13. All pavement joints shall be sawcut prior to paving to provide a durable and uniform joint.
14. No holes, trenches or structures shall be left open overnight in any excavation accessible to the public or in public rights-of-way.
15. All work within the public right-of-way shall require a M.D.O.T. Permit as well as permits from the town as applicable.
16. The proposed limits of clearing shown hereon are approximate based upon the proposed limits of site grading. The applicant reserves the right to perform normal forest management activities outside of the clearing limit as shown. Tree removal outside of the limits of clearing may be necessary to remove dead or dying trees or tree limbs. This removal is due to potential safety hazards and to promote proper forest growth.
17. Immediately upon completion of cuts/fills, the contractor shall stabilize disturbed areas in accordance with erosion control notes and as specified on plans.
18. The contractor shall be fully and solely responsible for the removal, replacement and rectification of all damaged and defective material and workmanship in connection with the contract work. The contractor shall replace or repair as directed by the owner all such damaged or defective materials which appear within a period of one year from the date of substantial completion.
19. All work performed by the general contractor and/or trade subcontractor shall conform to the requirements of local, state or federal laws, as well as any other governing requirements, whether or not specified on the drawings.
20. Where the terms "approved equal", "other approved", "equal to", "acceptable" or other general qualifying terms are used in these notes, it shall be understood that reference is made to the ruling and judgment of Terradyn Consultants, LLC.
21. The general contractor shall provide all necessary protection for the work until turned over to the owner. Before the final acceptance of the project, the contractor shall remove all equipment and materials, repair or replace private or public property which may have been damaged or destroyed during construction, clean the areas within and adjacent to the project which have been obstructed by his/her operations, and leave the project area neat and presentable.
22. The general contractor shall maintain a current and complete set of construction drawings on site during all phases of construction for use of all trades.
23. The contractor shall take full responsibility for any changes and deviation of approved plans not authorized by the architect/engineer and/or client/owner.
24. Details are intended to show end result of design. Any modification to suit field dimension and condition shall be submitted to the engineer for review and approval prior to any work.
25. The applicant will retain the services of a professional engineer to inspect the construction and stabilization of all stormwater management structures. If necessary, the inspecting engineer will interpret the pond's construction plan for the contractor. Once all stormwater management structures are constructed and stabilized, the inspecting engineer will notify the department in writing within 30 days to state that the pond has been completed. Accompanying the engineer's notification must be a log of the engineer's inspections giving the date of each inspection, the time of each inspection, and the items inspected on each visit, and include any testing data or sieve analysis data of every mineral soil and soil media specified in the plans and used on site.



COMPOSITE DETECTABLE WARNING PANEL DETAIL
NOT TO SCALE

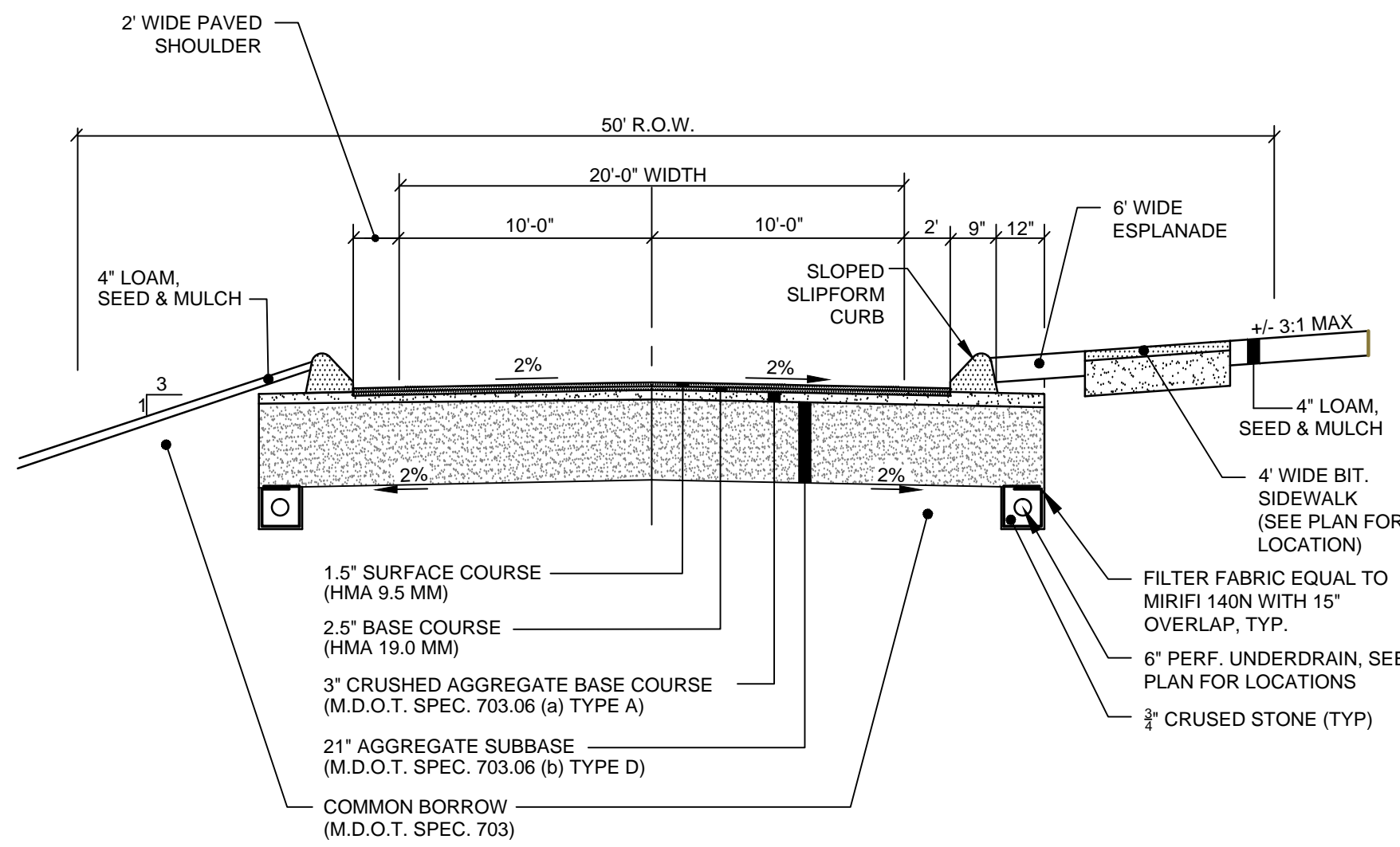


SLIPFORM CURB TIPDOWN DETAIL
NOT TO SCALE



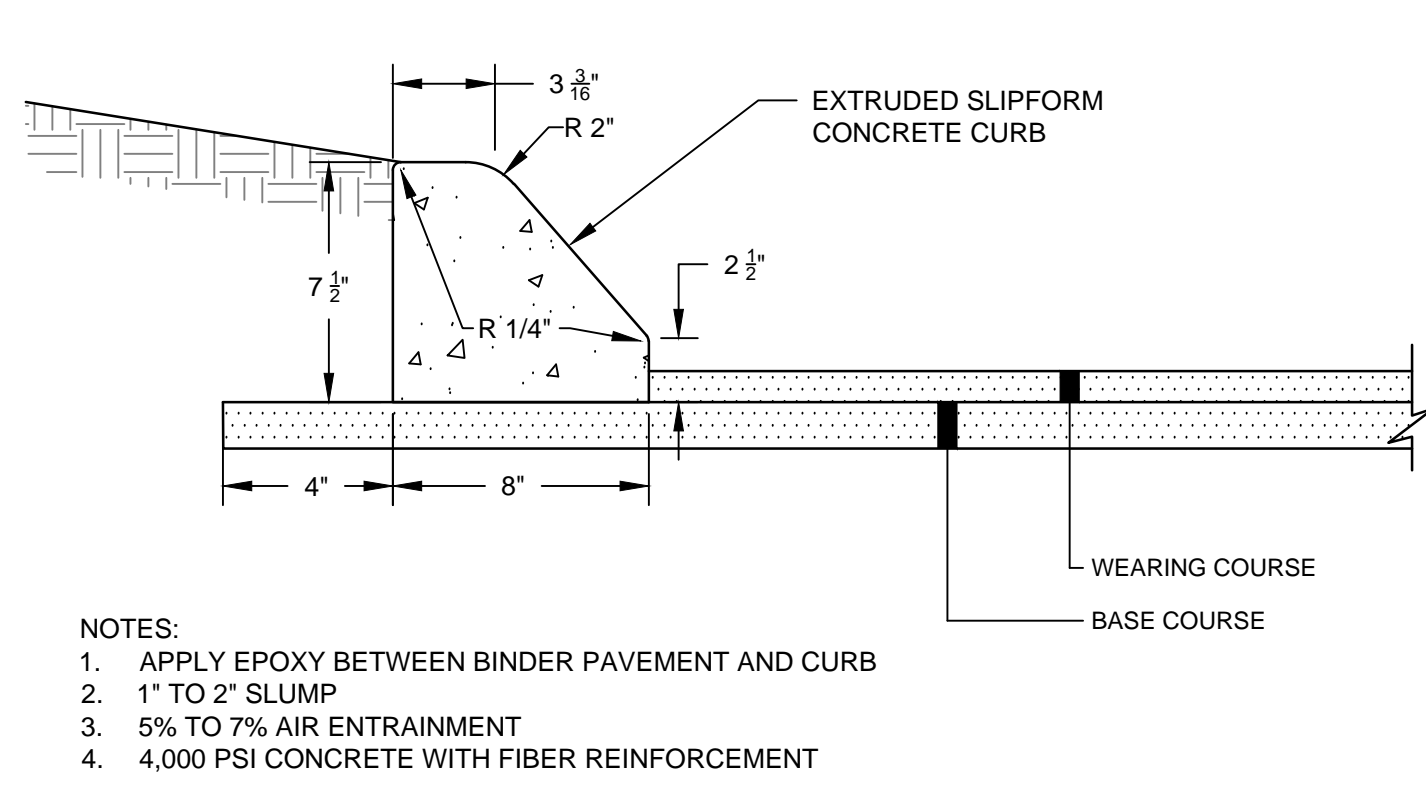
NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY. ROCKS LARGER THAN 8" IN DIAMETER WILL NOT BE USED FOR EMBANKMENT CONSTRUCTION WITHIN A DEPTH OF 2 FEET BENEATH THE FINISHED ROADWAY SUBGRADE (PER MDOT SPECIFICATIONS 203.10)

TYPICAL M.H.P. STREET SECTION
NOT TO SCALE

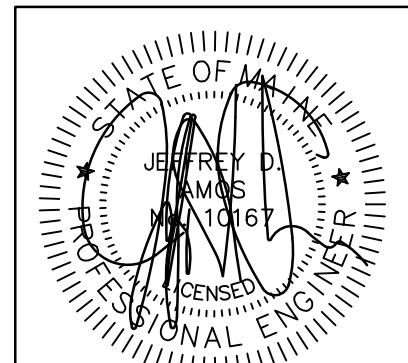


NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY. ROCKS LARGER THAN 8" IN DIAMETER WILL NOT BE USED FOR EMBANKMENT CONSTRUCTION WITHIN A DEPTH OF 2 FEET BENEATH THE FINISHED ROADWAY SUBGRADE (PER MDOT SPECIFICATIONS 203.10)

TYPICAL MAJOR PRIVATE ROAD SECTION
NOT TO SCALE



SLOPED SLIPFORM CONCRETE CURB DETAIL
NOT TO SCALE



SIGNATURE DATE: 3/31/2017

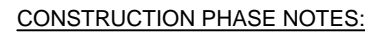
REVISIONS	BY	DATE
1	NO.	DATE
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24	NO.	DATE
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27	NO.	DATE
28	NO.	DATE
29	NO.	DATE
30	NO.	DATE

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www.terradynconsultants.com



Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION	HIGHLAND VIEWS 19 ROOSEVELT TRAIL, WINDHAM, ME DETAILS & NOTES
PREPARED FOR	CHASE CUSTOM HOMES & FINANCE
DATE:	3/31/2017
SCALE:	AS SHOWN
DESIGNED:	JDA
JOB NO:	1636
FILE:	1636 D
SHEET	C-7.2



1. CONSTRUCTION SEQUENCE: 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, 80% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.
2. COMPACTION OF SOIL FILTER, FILTER MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 80% AND 90% STANDARD PROCTOR. THE BED SHOULD BE INSTALLED IN AT LEAST 2 LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.
3. CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:
 - AFTER THE PRELIMINARY CONSTRUCTION OF 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, PLANTED, AND MULCHED. BIO-RETENTION CELLS MUST BE STABILIZED PER THE PROVIDED PLANTING SCHEME AND DENSITY TO THE CANOPY COVERAGE OF 30 AND 50%.
 - AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
4. ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE OBTAINED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
5. TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONSIDERATION AND APPROVAL. SHEETS SHALL INCLUDE:
 - SELECT SAMPLES FOR SAMPLING OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT. 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 COURSE 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 ANALYSIS) AND LESS THAN 10% DRY WEIGHT OF ORGANIC MATERIAL.
 - 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.

NOT TO SCALE



- MATERIAL SPECIFICATION NOTES:

1. LOAMY TOPSOIL LAYER SHALL BE A NON-CLAYIFIED (<2% CLAY CONTENT), LOAMY TOPSOIL SUCH AS USDA LOAMY SAND TOPSOIL WITH 5-8% HUMIFIED ORGANIC MATTER. TOPSOIL FROM THE SITE MAY BE APPROPRIATE BUT MUST BE TESTED FOR ORGANIC MATTER AND CLAY CONTENT. TOPSOIL FROM OTHER SOURCES (HYDROLOGICALLY SEQUESTERED, LOOSE, FRAGILE, AND SHALL BE FREE FROM ADMIXTURES OF SUBSOIL, REFUSE, STONES (GREATER THAN 2 INCHES IN DIAMETER), CLOGS, ROOT AND OTHER UNDESIRABLE FOREIGN MATTER.
2. TOPSOIL SHALL BE GENTLY MIXED WITH THE LOAMY COARSE SAND LAYER TO A DEPTH OF 2'-3".
3. LOAMY COARSE SAND SHALL MEET THE GRADATION REQUIREMENTS OF MinedTop 703.01.
4. WOOD MULCH SHALL BE A MODERATELY FINE, SHREDED BARK MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.



1. CONSTRUCTION OF COMMON BORROW MATERIAL MEETING M.D.O.T. SPECIFICATION 703.
2. PLACE BORROW MATERIAL IN 12" LIFTS COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.

NOT TO SCALE

- CONSTRUCTION PHASE NOTES:**

Construction Sequence: 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 other permanent stabilization unless the runoff from the contributing drainage area is diverted around the filter until stabilization is completed.

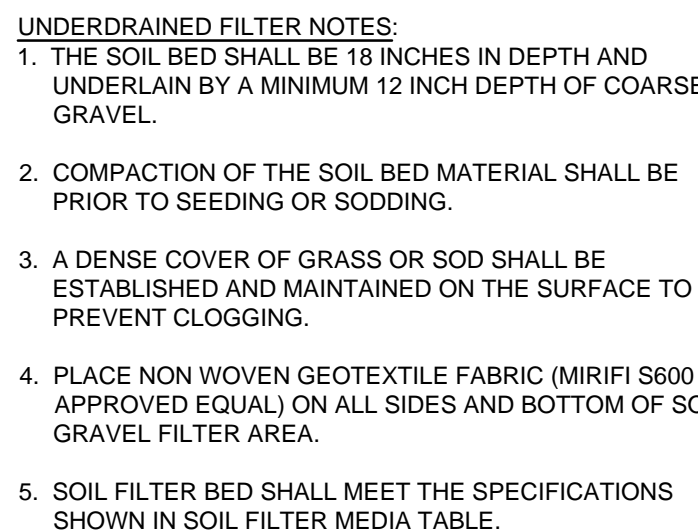
Compaction of Soil Filter: Filter soil media and underdrain bedding material must be compacted to between 90% and 92% standard proctor. The bed should be installed in at least 2 lifts of 9 inches to prevent pockets of loose media.

- Construction Oversight:** Inspection by a professional engineer will occur at a minimum:
- After the 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. Bio-retention cells must be stabilized per the provided seeding scheme and density for the canopy coverage of 30 and 50%.
 - After the first year to inspect health of the vegetation and make corrections, and
 - All the material used for the construction of the filter basin must be confirmed as suitable by the design engineer. Testing must be done by a certified laboratory to show that they are passing DEP specifications.

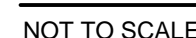
Testing and Submittals: The contractor shall identify the location of the source of each component of the filter media. All results of field and laboratory testing shall be submitted to the project engineer for confirmation. The contractor shall:

- Select samples for sampling of each type of material to be blended for the mixed filter media and samples of the underdrain bedding material. Samples must be a 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 Course Aggregates 1996A) on each type of the sample material. The resulting soil filter media mixture must be 10 to 15 percent by weight passing the No. 20 sieve and 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.

NOT TO SCALE



NOT TO SCALE



SOIL FILTER MEDIA TABLE		
FILTER MEDIA	MIXTURE BY VOLUME	SPECIFICATION
SAND	50%-55%	MEDOT SPEC. 703.01 FINE AGGREGATE FOR CONCRETE
TOPSOIL	20%-30%	LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15-25% FINES PASSING THE #200 SIEVE.
MULCH	20%-30%	MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE

SIGNATURE DATE: 3/31/201


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REVISIONS

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TERRADYN
CONSULTANTS, LLC

Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION

HIGHLAND VIEWS 19 ROOSEVELT TRAIL, WINDHAM, ME STORMWATER DETAILS & NOTES

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE

DATE:	3/31/201
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DATE:	9/5/201
SCALE:	AS SHOWN

SCALE:	AS C
DESIGNED:	IDA

DESIGNED:	JDA
JOB NO:	1636

FILE: 1626 D

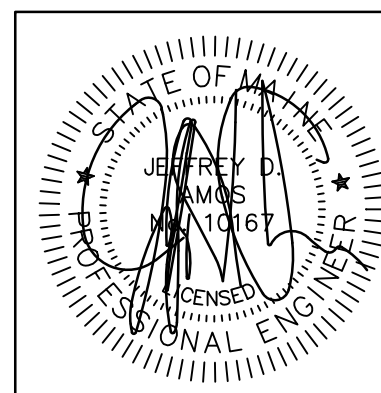
SHEET **C-7.5**

LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- WATERSHED LABEL
- REACH
- CATCH BASIN
- SOIL NAME
- MEDIUM INTENSITY SOIL BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED CONTOUR
- EXISTING STORMDRAIN
- PROPOSED STORMDRAIN
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING BUILDING
- PROPOSED PAVED AREA
- WETLAND AREA
- FORESTED BUFFER AREA

STORMWATER RESTRICTIONS:

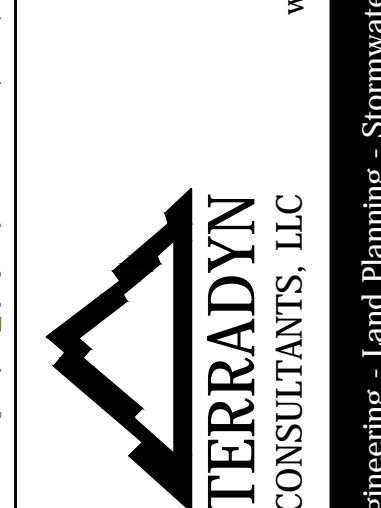
- THE MAXIMUM IMPERVIOUS SURFACE COVERAGE FOR LOTS 1, 2 & 3 IS 2,800 SF. ALL OTHER LOTS ARE LIMITED TO 3,000 SF.
- A RAIN GARDEN SHALL BE CONSTRUCTED ON LOTS 10 & 12 UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.
- ROOF DRAIN FILTER STRIPS SHALL BE INSTALLED ON THE REAR OF EACH MANUFACTURED HOUSING UNIT UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.



SIGNATURE DATE: 3/31/2017

NO.	DATE	REVISIONS	APPROVED BY
2	3/31/2017	REVISED PER TOWN & MDP COMMENTS - SUBMITTED FOR PRELIM. APPROVAL	

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Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
POST DEVELOPMENT WATERSHED MAP
PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	3/31/2017
SCALE:	1"=60'
DESIGNED:	JDA
JOB NO:	1636
FILE:	1636 S
SHEET	C-8.1

HIGHLAND LAKE

	Lot 5 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 5 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 5 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 5 Grass	0.111	0.3	0.0333	0.25	0.008325	Gravel Wetland
	Lot 6 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 6 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 6 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 6 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 7 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 7 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 7 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 7 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 8 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 8 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 8 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 8 Grass	0.23	0.3	0.069	0.25	0.01725	Gravel Wetland
	Lot 9 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 9 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 9 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 9 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 10 Impervious	0.024	1.25	0.03	0.25	0.0075	Gravel Wetland
	Lot 10 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 10 Grass	0.07	0.3	0.021	0.25	0.00525	Gravel Wetland
	Lot 11 Impervious	0.025	1.25	0.03125	0.25	0.0078125	Gravel Wetland
	Lot 11 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 11 Grass	0.07	0.3	0.021	0.25	0.00525	Gravel Wetland
	Lot 20 Grass	0.078	0.3	0.0234	0.25	0.00585	Gravel Wetland
	Lot 21 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 21 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 21 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 21 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 22 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 22 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 22 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 22 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 23 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 23 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 23 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 23 Grass	0.203	0.3	0.0609	0.25	0.015225	Gravel Wetland
	Lot 24 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Gravel Wetland
	Lot 24 Roof	0.017	0.5	0.0085	0.25	0.002125	Gravel Wetland
	Lot 24 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Gravel Wetland + Roof Filter
	Lot 24 Grass	0.134	0.3	0.0402	0.25	0.01005	Gravel Wetland
Lots to Filter Basin							
	Lot 16 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Filter Basin
	Lot 16 Roof	0.017	0.5	0.0085	0.25	0.002125	Filter Basin
	Lot 16 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Filter Basin + Roof Filter
	Lot 16 Grass	0.203	0.3	0.0609	0.25	0.015225	Filter Basin
	Lot 17 Impervious	0.035	1.25	0.04375	0.25	0.0109375	Filter Basin
	Lot 17 Roof	0.017	0.5	0.0085	0.25	0.002125	Filter Basin
	Lot 17 Roof (Rear)	0.017	0.5	0.0085	0.16	0.00136	Filter Basin

Forested Buffer with Level Lip Spreader

The buffer contains soils that are consistent with Soil Group C sandy loam or leamy sand. Table 6 – Sizing Requirements for a buffer with 0-8% slope and stone binned level lip spreader of Chapter 500 shows that standardizing requires that the berm length for a forested buffer must be 75' per acre of impervious area and 25' per acre of lawn. Evaluation of the watershed shows that it contains the following:

Impervious area = 13,088.5' (0.30 AC)
Lawn area = 5,000.5' (0.11 AC)

Standard sizing: $75(0.30) + 11(0.11) = 22.5' + 29' = 25.4'$. 25.4' would yield a treatment factor of 0.4.

Oversized to TF of 0.2: $BMPI = 0.4(BMPI) / (TF) = 0.4(25.4/2) = 0.5'$

Forested Buffer Adjacent to Residential Lot

The buffer contains soils that are consistent with Soil Group C sandy loam or leamy sand. Table 9 – Buffer Size Requirements Based on Soil & Vegetative Cover Types of Chapter 600 shows that standardizing requires that the standard length of flow path for a forested buffer to be 75'. We are proposing a buffer with a 100' long flow path which yields a treatment factor of 0.2:

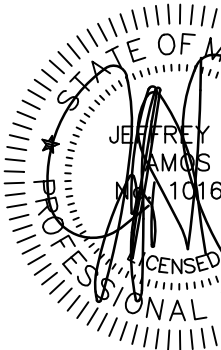
Oversized to 110' flow path: $TF = 0.4(BMPI/BMPI) = 0.4(75/110) = 0.27$

Treatment Factors for Multiple BMPs

$TF = (\text{most efficient BMP}) \times (\text{least efficient BMP})^{1/2}$

Roof drain filter strip with gravel wetland or filter basin: $0.25 \times (0.4)^{1/2} = 0.158 = 0.15$

Roof drain filter strip with 110' long buffer: $0.27 \times (0.4)^{1/2} = 0.171 = 0.17$



SIGNATURE DATE: 3/31/2017

HIGHLAND VIEWS MANUFACTURED HOUSING WINDHAM - 5-17

Observation Hole # TP-16 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	SANDY	DARK	
12	LOAM	BROWN	
18		RED	
24		BROWN	
30	LOOSE		
36	LEAMY	YELLOW	
42	SAND	DARK	
48		GRAY	
54		BROWN	

Soil Classification: C Profile: Good Condition: Parent Slope: 16 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: Jeffrey D. Ames SE # 262 Date: 1-11-17

Observation Hole # TP-15 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	FINE	GRAY	
12	SANDY	RED	
18	LOAM	RED	
24		BROWN	
30	LEAMY	YELLOW	
36		GRAY	
42	SAND	YELLOW	
48		BROWN	
54			

Soil Classification: C Profile: Good Condition: Parent Slope: 16 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: Jeffrey D. Ames SE # 262 Date: 1-11-17

HIGHLAND VIEWS MANUFACTURED HOUSING WINDHAM - 5-17

Observation Hole # TP-16 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	SANDY	RED	
12	LOAM	RED	
18		BROWN	
24	SILT	GRAY	
30	LOAM	BROWN	
36			
42			
48			
54			

Soil Classification: C Profile: Good Condition: Parent Slope: 16 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: Jeffrey D. Ames SE # 262 Date: 1-11-17

Observation Hole # TP-17 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	FINE	RED	
12	LOAM	RED	
18		BROWN	
24	SILT	GRAY	
30	LOAM	BROWN	
36			
42			
48			
54			

Soil Classification: C Profile: Good Condition: Parent Slope: 24 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: Jeffrey D. Ames SE # 262 Date: 1-11-17

HIGHLAND VIEWS MANUFACTURED HOUSING WINDHAM - 5-17

Observation Hole # TP-18 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	FINE	RED	
12	SANDY	RED	
18	LOAM	RED	
24	SILT	GRAY	
30	LOAM	BROWN	
36			
42			
48			
54			

Soil Classification: C Profile: Good Condition: Parent Slope: 16 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: Jeffrey D. Ames SE # 262 Date: 1-11-17

Observation Hole # TP-19 Test Pit ☐ Boring ☐

Depth of organic horizon above mineral soil

Texture	Consistency	Color	Mottling
6	FINE	RED	
12	SANDY	RED	
18	LOAM	RED	
24	SILT	GRAY	
30	LOAM	BROWN	
36			
42			
48			
54			

Soil Classification: C Profile: Good Condition: Parent Slope: 16 Limiting Factor: Depth

Gravel: ☐ Sand: ☐ Silt: ☐ Clay: ☐ Organic: ☐ Root: ☐ Depth: ☐ Pit Depth: ☐

Site Evaluator Signature: