Planning and Zoning Information

Owner and Applicant:
Alan and Maureen Pidgeon
P.O. Box 2187
South Burlington, Vt. 05407
(802) – 863-6389

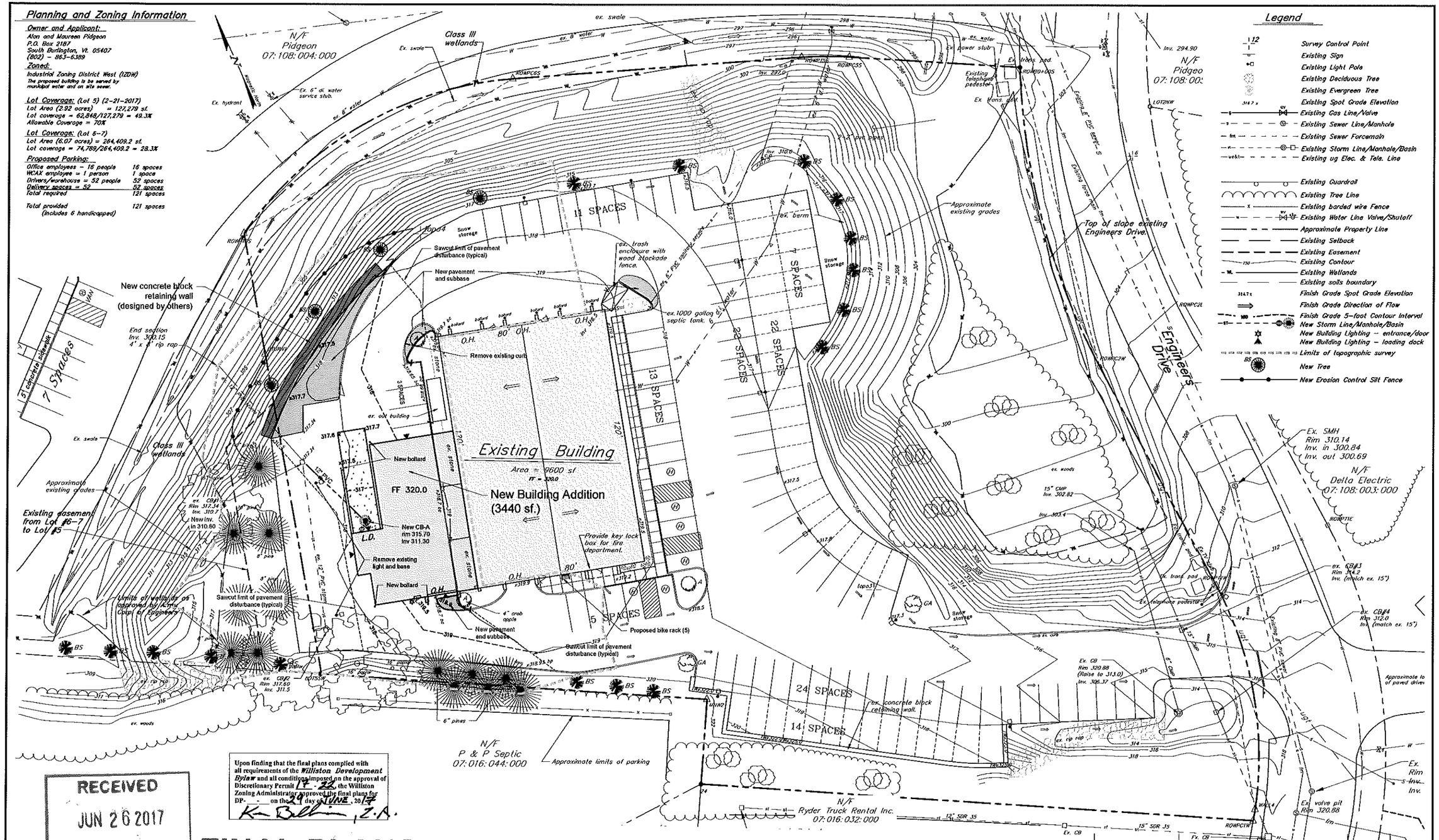
Zoned:
Industrial Zoning District West (IZDW)
The proposed building is to be served by municipal water and on site sewer.

Lot Coverage: (Lot 5) (2-21-2017)
Lot Area (2.92 acres) = 127,279 sf.
Lot coverage = 62,848/127,279 = 49.3%
Allowable Coverage = 70%

Lot Coverage: (Lot 6-7)
Lot Area (6.07 acres) = 264,409.2 sf.
Lot coverage = 74,789/264,409.2 = 28.3%

Proposed Parking:

Office employees – 16 people	16 spaces
WCAX employee = 1 person	1 space
Drivers/warehouse = 52 people	52 spaces
Delivery spaces = 52	52 spaces
Total required	121 spaces
Total provided (includes 6 handicapped)	121 spaces



Legend

- Survey Control Point
- Existing Sign
- Existing Light Pole
- Existing Deciduous Tree
- Existing Evergreen Tree
- Existing Spot Grade Elevation
- Existing Gas Line/Valve
- Existing Sewer Line/Manhole
- Existing Sewer Forcemain
- Existing Storm Line/Manhole/Basin
- Existing ug Elec. & Tele. Line
- Existing Guardrail
- Existing Tree Line
- Existing barded wire Fence
- Existing Water Line Valve/Shutoff
- Approximate Property Line
- Existing Setback
- Existing Easement
- Existing Contour
- Existing Wetlands
- Existing soils boundary
- Finish Grade Spot Grade Elevation
- Finish Grade Direction of Flow
- Finish Grade 5-foot Contour Interval
- New Storm Line/Manhole/Basin
- New Building Lighting – entrance/door
- New Building Lighting – loading dock
- Limits of topographic survey
- New Tree
- New Erosion Control Silt Fence

RECEIVED
JUN 26 2017
PLANNING/ZONING

Upon finding that the final plans complied with all requirements of the *Williston Development Bylaw* and all conditions imposed on the approval of Discretionary Permit 17-22, the Williston Zoning Administrator approved the final plans for DP-____ on the 21 day of JUNE, 2017
K. Bolduc, Z.A.

FINAL PLANS

Proposed Landscaping Schedule

Symbol	Description	Quantity	Caliper / Height
	Seed, Mulch, Fertilizer	1/4 acre	
BS	Blue Spruce/White Pine	4	5' – 6'

Proposed Lighting Schedule

Symbol	Description	Quantity	Type
✡	New Building Lighting – entrance/door	1	LED cut-off
▲	New Building Lighting – loading dock	4	LED cut-off

See Notes on Sheet EX-1

0' 20' 40' 80' 120'
Bar Scale 1" = 20'

STATE OF VERMONT — WILLIAM H. BRZOZA — NO 5703 — REGISTERED PROFESSIONAL ENGINEER

PERMIT DRAWINGS ONLY

Date revised	Description	Checked	Date
6/22/2017	final plan		

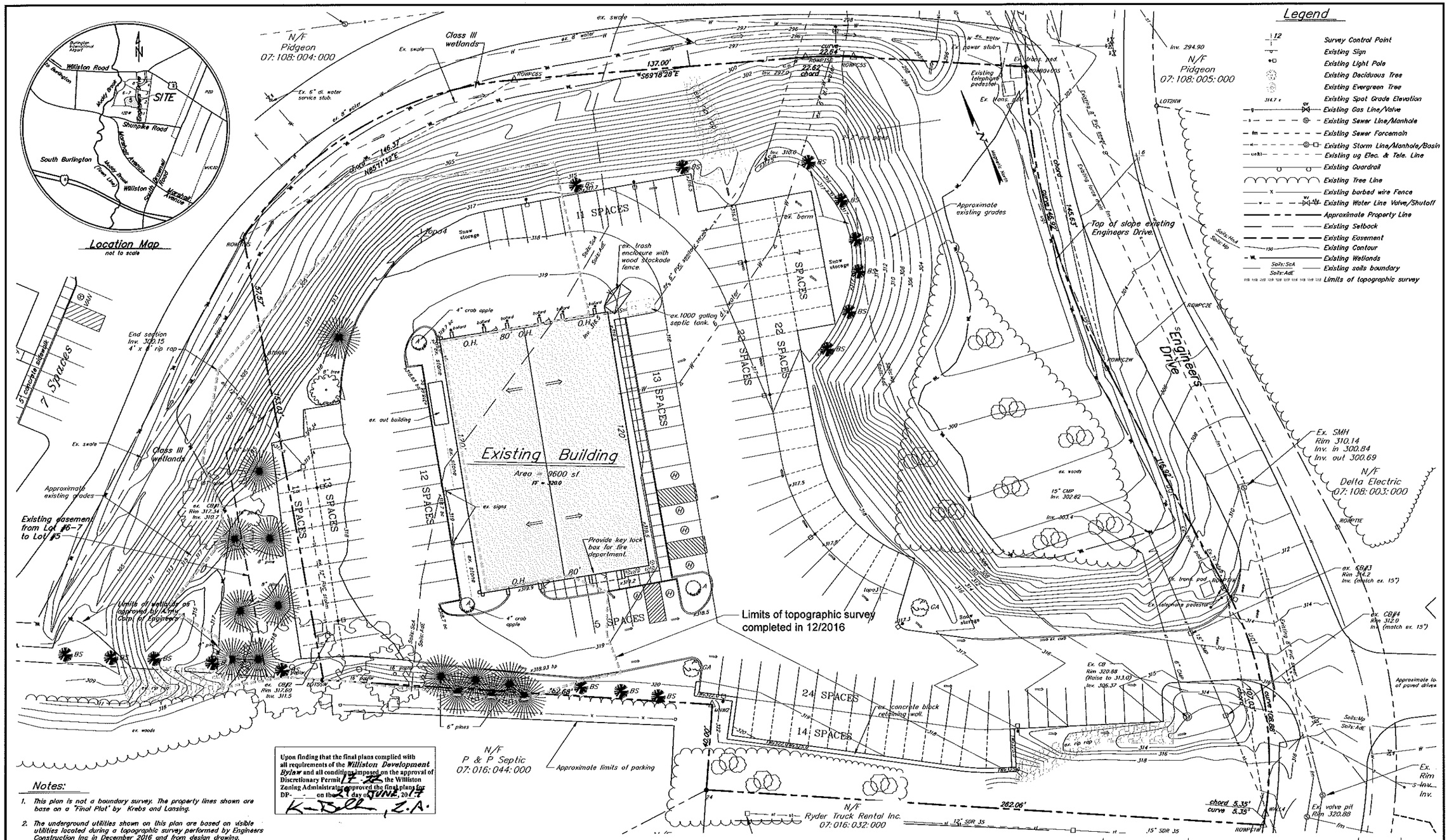
Design	TJB/WHH
Drawn	TJB
Checked	
Scale	1" = 20'
Date	3/28/17
Project	16302/50126/24106

Site Plan
Lot #5
Engineers Industrial Park
Parcel #: 07:108:002.00
Engineers Drive — Williston, Vermont

KREBS & LANSING Consulting Engineers, Inc.
164 Main Street, Colchester, Vermont 05446

16-302-2017.dwg — Krebs & Lansing — 16-302

C-1



Upon finding that the final plans complied with all requirements of the *Williston Development Bylaw* and all conditions imposed on the approval of Discretionary Permit 17-22, the Williston Zoning Administrator approved the final plans for DP- - on the 21 day of JUNE, 2017

K. Bell, Z.A.

Notes:

1. This plan is not a boundary survey. The property lines shown are base on a 'Final Plat' by Krebs and Lansing.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Engineers Construction Inc in December 2016 and from design drawing. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
5. The majority of the existing landscaping and lighting shown taken from design plans. Limited existing landscaping and lighting was located during the 12/2016 topographic survey.

Ex. Landscaping Schedule

Description	Quantity	Caliper / Height	
Green Ash	3	2" – 2 1/2"	GA
Blue Spruce/White Pine	26	5' – 6'	BS
Flowering Crab Apple	3	2" – 2 1/2"	A
Perennial Flowers	6		
Existing vegetation to remain			

Soils Legend

Designation	Description	Slope (percent)
ScA	Scantic silt loam	0 to 2
AdE	Adams and Windsor loam	30 to 60
Mp	Muck and Peat	

0' 20' 40' 80' 120'

Bar Scale 1" = 20'

STATE OF VERMONT — WILLIAM H. NEDDO III — NO 5703 — REGISTERED PROFESSIONAL ENGINEER

PERMIT DRAWINGS ONLY

Date revised	Description	Checked	Date
6/22/2017	final plan		

Design	TJB/WHH
Drawn	TJB
Checked	
Scale	1" = 20'
Date	3/28/17
Project	16302/56125/84158

Existing Conditions Plan

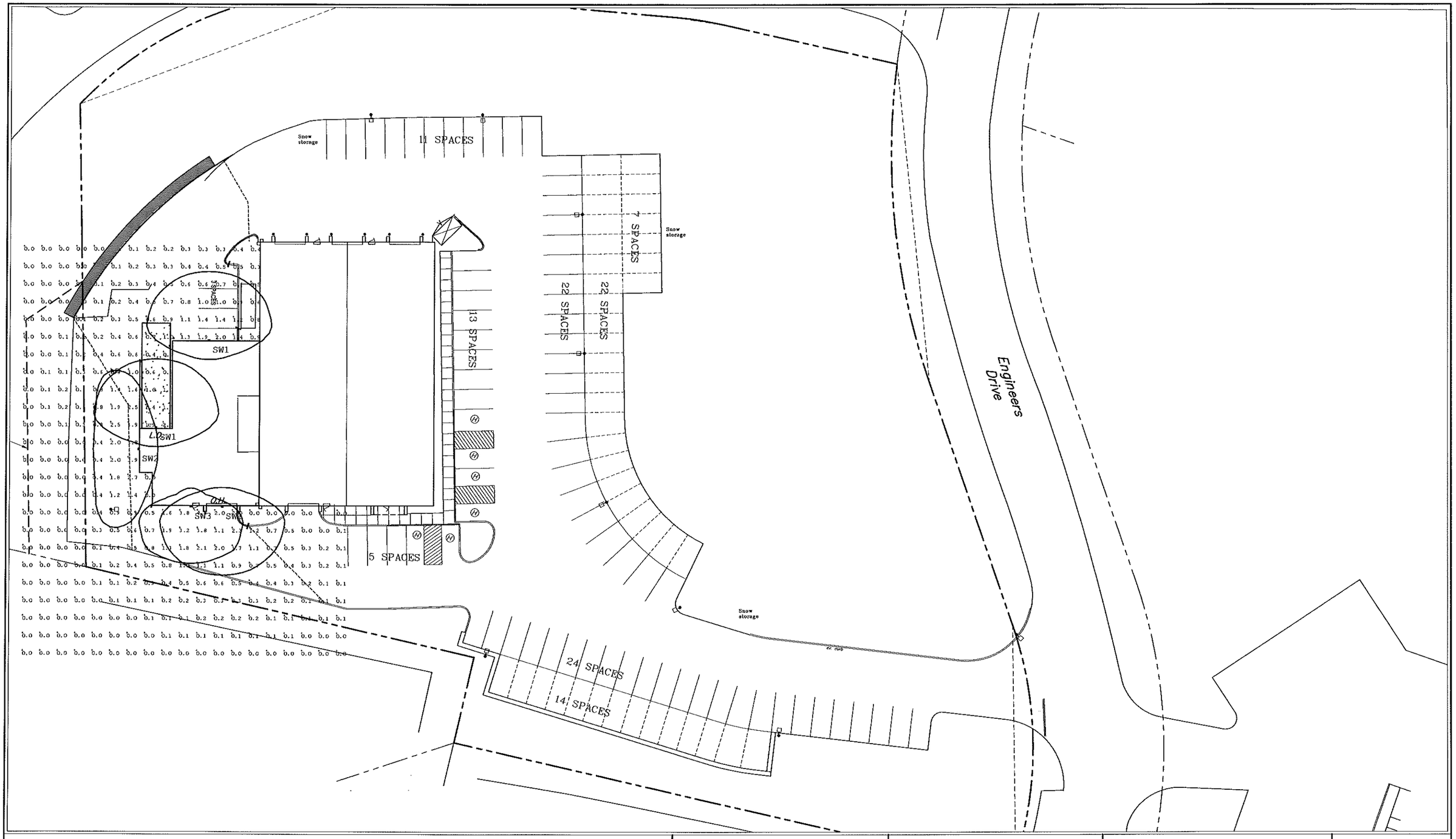
Lot #5
Engineers Industrial Park
Parcel #: 07:108:002.00

Engineers Drive — Williston, Vermont

KREBS & LANSING Consulting Engineers, Inc.
164 Main Street, Colchester, Vermont 05446

16302-2017.dwg — © Krebs & Lansing

EX-1



Upon finding that the final plans complied with all requirements of the *Williston Development Bylaw* and all conditions imposed on the approval of Discretionary Permit/ DP-[illegible] the Williston Zoning Administrator approved the final plans for DP-[illegible] on the [illegible] day of JUNE, 20[illegible]

6/22/2017 final plan

GENERAL DISCLAIMER:

Calculations have been performed according to IES standards and good practice Some differences betw cen measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

* LLF Determined Using Current Published Lamp Data

NOTE TO REVIEWER:

Total Light Loss Factor (LLF) applied at time of design is determined by applying the Lamp Lumen Depreciation (LLD) from current lamp manufacturer's catalog, a Luminaire Dirt Depreciation Factor (LDD) based on IES recommended values and a Ballast Factor (BF) from current ballast specification sheets. Application of an incorrect Light Loss Factor (LLF) will result in forecasts of performance that will not accurately depict actual results.

For proper comparison of photometric layouts, it is essential that you insist all designers use correct Light Loss Factors.

APEX LIGHTING SOLUTIONS
THE POINT WHERE ALL DESIGNS MEET CONCEPTS
446 SMITH STREET
MIDDLETOWN, CT 06457
TELEPHONE 860 632 8705
FACSIMILIE 860 632 8206
www.apexlig.com

PROJECT TITLE:

PRIORITY EXPRESS LOT#5

DRAWING TITLE:

SITE LIGHTING POINT CALCULATION

SCALE: 1"=20'-0"

DATE: 3/27/2017

DRAWN BY: DC

SHEET

SL-1A

Construction Notes

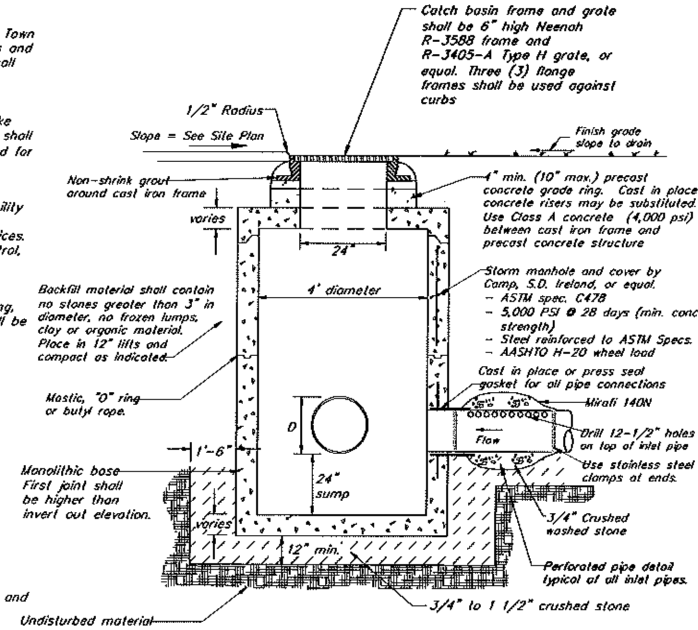
1. The methods and materials of construction shall conform to the latest standards of the Town of Williston and the State of Vermont. All work shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by 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 of Williston prior to making any hook ups. The Contractor shall be solely responsible for all existing utilities and their uninterrupted services. All off-site backfill, sheeting and shoring, dewatering, clearing and grubbing, erosion control, dust control, traffic control, grading, and all incidentals shall be included as part of the required work.
4. Repair of all disturbed areas, grading, seeding, mulching, repair of roads and curbs, paving, and other incidentals are included as part of the required work. All disturbed areas shall be loamed and mulched until permanent ground cover is established.
5. The Contractor shall verify all horizontal control and temporary bench marks before use.
6. The workers 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 flaggers. All barricades left in position overnight are to be properly lighted. Kerosene pots are not acceptable. When work narrows the usable pavement, flaggers shall be employed to aid the flow of traffic so that there will be no undue delays. The Contractor shall be held responsible for the safety of all workers and the general public and all damages to property occurring from or upon the work occasioned by negligence or shall be held responsible for the safety of all workers and the general public and all damages to property occurring from or upon the work occasioned by negligence or day or night within the working area. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652, and applicable to VOSHA regulations.
7. Contractor shall contact Dig Safe prior to any excavation.
8. All new storm pipes extending from structures shall be laid with a pipe laser to elevation and slope as shown on the plans.
9. The Contractor shall sawcut all existing pavement to be removed. The Contractor shall minimize the pavement area disturbance. Contractor shall be responsible for all pavement repair and restoration necessary to complete the work.
10. The Contractor shall be responsible for all construction layout. See Construction Stakeout Notes.
11. Temporary silt fence shall be erected prior to any clearing or construction. Fencing may be erected in phases, but in no case shall construction of clearing proceed 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.
12. Existing plantings are located in general areas as shown on the plans. Contractor shall protect plantings scheduled to remain so as not to damage these or their root systems.
13. Contractor shall comply with all permits and approvals issued for this project.
14. Contractor shall sign on as the Co-Permittee for the State of Vermont Erosion Prevention and Sediment Control permit for the project.
15. Slope stability upon unsaturated soil conditions. If during construction saturated soils are encountered, contact the Engineer immediately.

Road Construction Notes

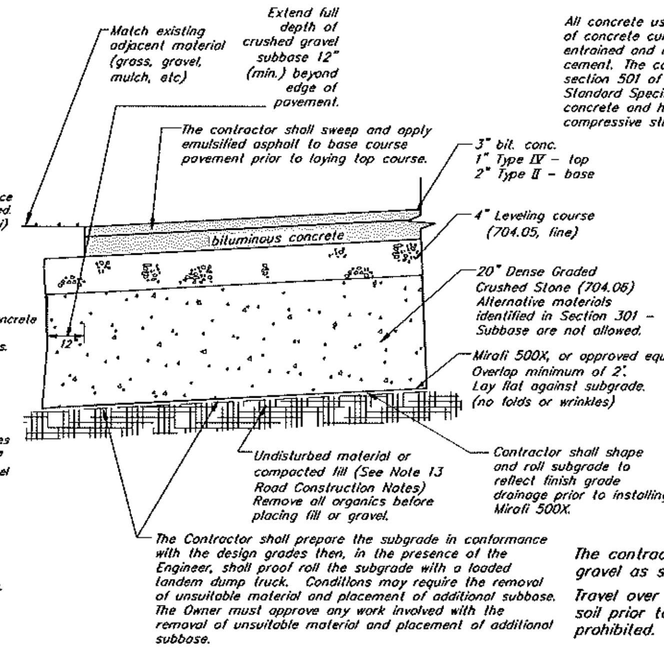
1. New road shall be constructed to the line and grade shown on the drawings. The road and utility locations shall be as typically detailed unless otherwise shown.
2. All road and parking construction shall be completed in accordance with the Vermont Agency of Transportation "Standard Specifications for Construction" 2011, hereafter called Vermont Highway Specifications, specifications found on these plans, and project specifications. In case of conflict, the more stringent specification shall apply as determined by the Engineer.
3. The Contractor shall follow Vermont Highway Specifications (2011) Section 203.11 for placing and spreading embankments.
4. Fill material for road embankment shall meet Note #13 below and be approved by the Engineer. Fill shall be placed in 12" lifts, wetted and compacted with satisfactory compaction equipment to 95% of maximum density (Standard Proctor).
5. Road in fill sections shall be placed and compacted a minimum of 3 feet above top of any utility to be installed before trench is excavated for pipe placement. In trenches and cut sections, the Contractor shall provide all necessary sheeting, shoring and bracing to maintain compliance with all OSHA/VOSHA regulations.
6. Methods for construction of subgrade shall conform to Vermont Highway Specifications (2011) 203.12 or as determined by the Engineer.
7. Any subgrade or subbase disturbed by Contractor, or rendered unsuitable by construction machinery, shall be removed and replaced with approved granular backfill at the Contractor's expense. The subgrade shall be compacted to attain at least 95% of the maximum density (Standard Proctor) before placing road or embankment materials.
8. Sand borrow and cushion shall conform to Vermont Highway Specifications (2011) 703.03. Granular borrow shall conform to the Vermont Highway Specifications 703.04.
9. Gravel subbase for pavement shall conform to Vermont Highway Specifications (2011) 704.05, coarse unless otherwise noted.
10. Leveling course shall conform to Vermont Highway Specifications (2011) 704.05, fine grading. Shoulders shall conform to Section 704.12, Aggregate for Shoulders.
11. Bituminous concrete pavement shall conform to Vermont Highway Specifications (2011) Section 404 and 406. Binder course shall be Type I + II, and finish wearing course shall be Type III, IV, or as detailed.
12. Embankment fill for all impervious areas, EXCLUDING BUILDINGS, shall be a sieve specification as follows:

Sieve	% Finer
4"	100
2"	85-100
#4	60-100
#200	30 maximum

13. Gravel Subbase or Leveling Course shall not be contaminated by work. Construction traffic shall not travel over exposed areas of this material.



Typical Catch Basin Inlet
N.T.S.



Without Concrete Curb
N.T.S.

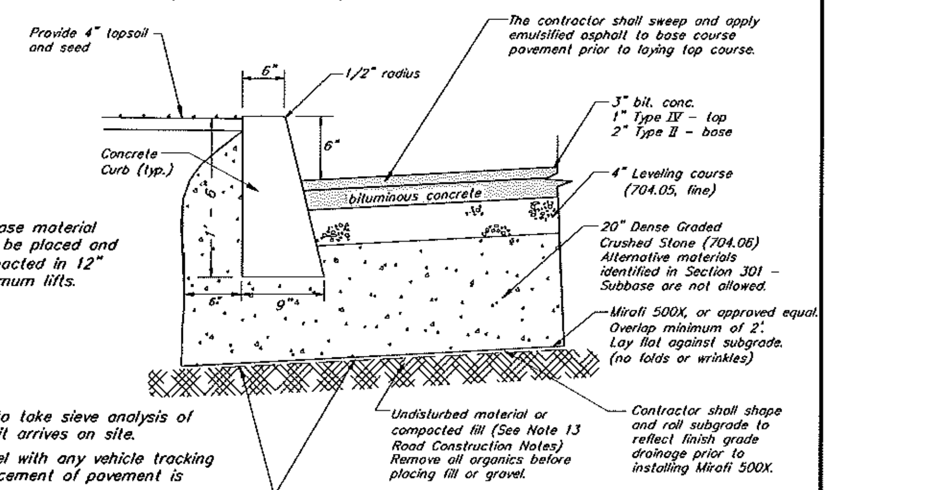
All concrete used in the construction of concrete curb shall be air entrained and made with Portland cement. The concrete shall meet section 501 of the State of Vermont Standard Specification for Class A concrete and have 28 day compressive strength of 4,000 psi.

Concrete Curb
- Broom finish concrete
- All joints to be tool finished
- Expansion/contraction joints every 20' with 1/2" joint filler.
- Score 1/3 total depth at 10' intervals
- Apply 2 coats of Euclid Everclear VOX cure/seal compound to all concrete surfaces, per the manufacturer's specifications.

Joint filler shall be resilient non-extruding cellular fiber joint, uniformly saturated with asphalt, offering a minimum of 70% recovery after compression.

The Engineer shall be contacted at least 24 hours prior to forming concrete curb to review layout.

Subbase material shall be placed and compacted in 12" maximum lifts.



The contractor to take sieve analysis of gravel as soon it arrives on site.

Travel over gravel with any vehicle tracking soil prior to placement of pavement is prohibited.

If gravel is contaminated after placement, the Site Contractor shall be responsible removal of all contaminated gravel and paying for all recommended sieve analysis as determined by the Engineer.

With Concrete Curb

Typical Road Cross Section Detail
N.T.S.

Travel over gravel with any vehicle tracking soil prior to placement of pavement is prohibited.

If gravel is contaminated after placement, the Contractor shall be responsible removal of all contaminated gravel and paying for all recommended sieve analysis as determined by the Engineer.

Contractor shall pour and finish one 20'x20' concrete pad for approval by Owner and Engineer. Concrete Pad shall be used as the basis of quality control.

All concrete used in the construction of Heavy Duty Concrete shall be made with Portland cement. The concrete shall meet section 541 of the State of Vermont Standard Specifications for Construction, have 28 day compressive strength of 5,000 psi, and meet the following mix design.

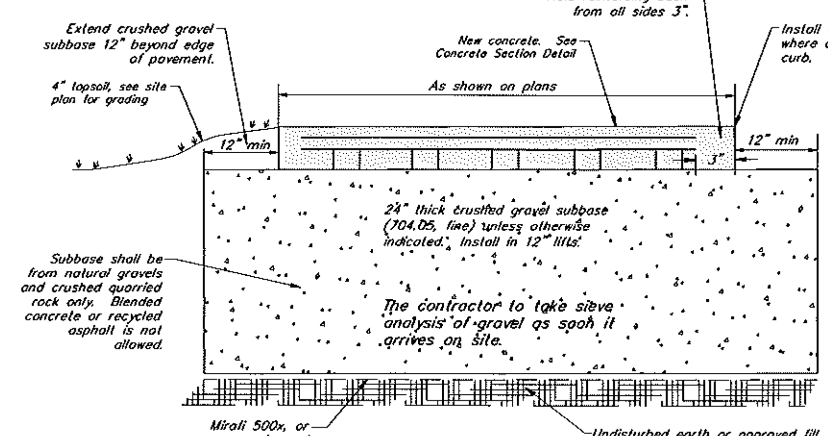
Max. water-cement ratio (lb./lb.)	0.44
Min. cement factor (bags/C.Y.)	7.5
Entrained air content (%)	5 - 7
Slump (inches, before adding HRWR)	2 - 4

Use air entrained agent conforming to ASTM C260 with 5-7% total air. Use high range water reducing agent conforming to ASTM C494 in all concrete.

Concrete shall be installed in alternating pours at construction joints. Refer to Concrete Construction Joint/Control Joint Detail.

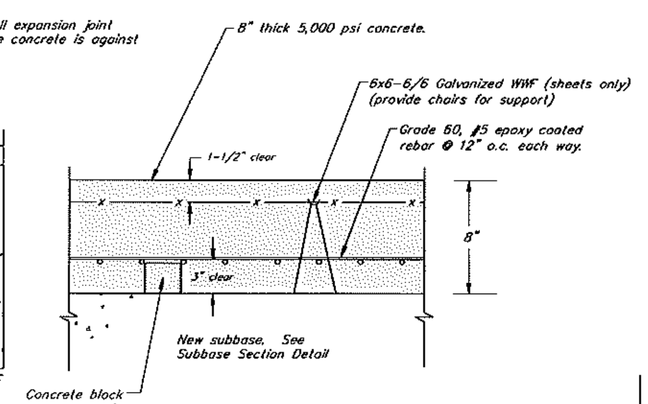
Concrete Notes
- Broom finish concrete
- Construction joints shall be spaced as shown on the Site Plans (max. 20' in all directions). See Site Plan for layout.
- Sawcut control joints 1-1/2" depth at intervals equal to width of sidewalk.
- Apply 2 coats of Chemstop WB siloxane/silane water repellant to all concrete surfaces, per the manufacturer's specifications. Product shall be applied after 7 day curing is complete.
- Concrete construction and curing shall conform to section 618.03 of the current VAOT Standard Specifications for Construction

Note:
Owner or Contractor is not allowed to place deicing materials on newly poured concrete sidewalk for a period of 6 months.



The Contractor shall prepare the subgrade in conformance with the design grades then, in the presence of the Engineer, shall proof roll the subgrade with a loaded tandem dump truck. Conditions may require the removal of unsuitable material and placement of additional subbase. The Owner must approve any work involved with the removal of unsuitable material and placement of additional subbase.

Subbase Section

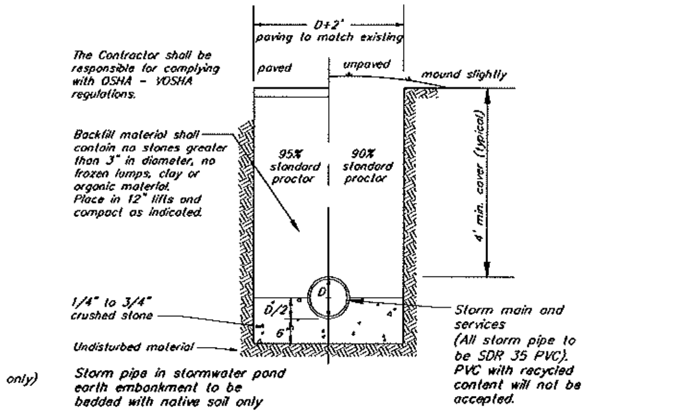


Concrete shall be wet cured for a minimum of 7 days with water and HydraCure S16, or approved equal, wet curing covers.

Concrete Section

New Heavy Duty Concrete Detail
N.T.S.

PVC SDR 35 pipe shall not be installed when the temperature drops below 32° F or goes above 100° F unless prior approval is obtained from the Engineer. Extra care is required when handling PVC pipe during cold weather. PVC pipe shall not be stored outside and exposed to prolonged periods of sunlight as pipe discoloration and reduction in pipe impact strength will occur. If PVC pipe is to be stored on site for 1 month or longer it shall be covered with canvas or other opaque material.



Typical Storm Trench Detail
N.T.S.

Upon finding that the final plans complied with all requirements of the Williston Development Bylaw and all conditions imposed on the approval of Discretionary Permit 17-22 the Williston Zoning Administrator approved the final plans for DP- - on the 29 day of JUNE 20 17

Date revised	Description	Checked	Date
6/22/2017	final plan		

STATE OF VERMONT — WILLIAM H. NEDDE III — NO 5703 — REGISTERED PROFESSIONAL ENGINEER

PERMIT DRAWINGS ONLY

Design	TJB/WHN
Drawn	TJB
Checked	
Scale	not to scale
Date	March 17, 2017
Project	16302/98126/04156

Details

Lot #5
Engineers Industrial Park
Parcel #: 07:108:002.00

Engineers Drive — Williston, Vermont

KREBS & LANSING Consulting Engineers, Inc.
164 Main Street, Colchester, Vermont 05446

16302 details dwg — © Krebs & Lansing

CD-1

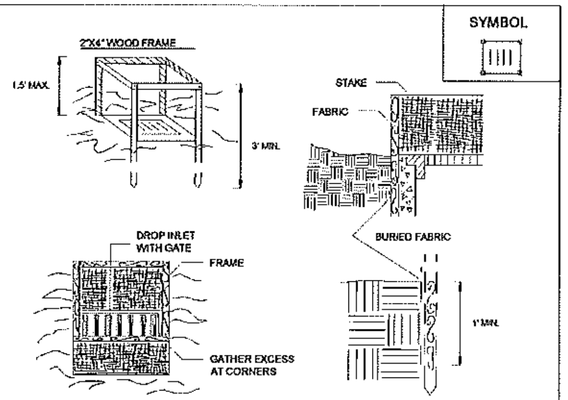
Winter Construction Requirements (October 15th - April 15th)

1. For areas to be stabilized with vegetative cover, seeding shall be completed no later than September 15th to ensure adequate growth and cover.
2. If seeding is not completed by September 15th, additional non-vegetative protection must be used to stabilize the site for the winter period. This includes the use of Erosion Control Matting or netting of a heavy mulch layer.
3. Where mulch is used for temporary stabilization it must be applied at double the standard rate, or a minimum of 3 inches with an 80%-90% cover.
4. Stabilized Construction Entrances shall be enlarged to provide for snow stockpiling.
5. Limits of disturbance shall be moved or replaced to reflect any revised boundaries of winter work.
6. The site shall be managed to provide adequate snow storage and control of meltwater. Cleared snow shall be stored down slope of all areas of disturbance and out of stormwater treatment structures.
7. A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
8. Drainage structures must be kept open and free of snow and ice dams.
9. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.
10. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
    - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
    - Disturbed areas that collect and retain runoff, such as house foundation or open utility trenches.
11. Prior to stabilization, snow or ice must be removed to less than 1 inch thickness
12. Use stone to stabilize areas under construction or where construction vehicle traffic is anticipated. Stone paths should be 10-20 feet wide to accommodate vehicular traffic.

CONSTRUCTION STAKEOUT NOTES

The Contractor shall be responsible for all construction stakeout for the project. The Engineer shall provide the Contractor an AutoCAD R2000 drawing of the site design. The drawing will include horizontal and vertical survey control. Additional survey control will be the responsibility of the Contractor.

1. The Contractor shall be responsible for using proper survey equipment and having properly trained personnel to use this information. Any Contractor that does not have proper equipment or personnel shall subcontract the work to a competent consultant.
2. The horizontal control datum may be based on a coordinate system that is unique for this project. Project north may not refer to astronomic or magnetic north.
3. The Contractor shall check the integrity of survey control points by occupying a control point checking distance to back sight and checking distance and angle to another control point prior to any construction stakeout. The contractor shall not proceed with stakeout if either measured distances or angles do not match calculated values.
4. Graphical images of infrastructure in the AutoCAD drawing may not be in an accurate representation of its size. It is the Contractor's responsibility to verify size and shape of all items to be staked out.
5. After completion of radial stakeout with the survey transit, the Contractor shall check each stakeout point as necessary to verify the horizontal and vertical position of the point and that it is correct in relationship to the rest of the project.
6. The Contractor shall complete all construction stakeout to an accuracy of 0.1 feet (excluding building stakeout).



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: NY STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	FILTER FABRIC DROP INLET PROTECTION

Figure 5.3b Storm Drain Inlet Protection: Filter Fabric

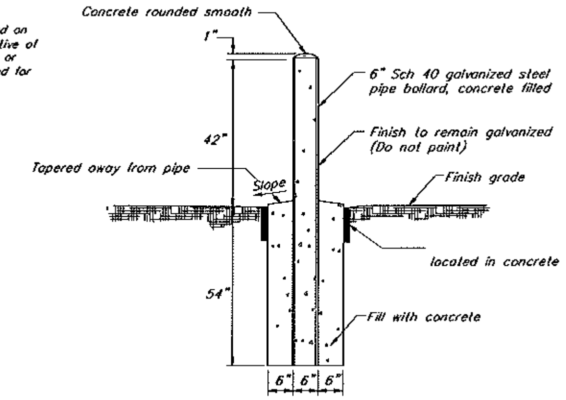
Vermont Standards and Specifications For Erosion Prevention & Sediment Control -2006- Page 5.17

Soil and Seeding Notes

1. Topsoil shall be screened and shall have a minimum 4" depth unless additional depth is specified on the plans (including Landscaping design). Topsoil shall be natural, fertile, friable soil representative of local productive soil and free of clay lumps, stones, subsoil or other foreign matter, not frozen or muddy. Acidity range PH 5-7 not less than three (3) percent humus. Samples will be required for approval. All testing costs will be paid by Contractor.
2. Commercial fertilizer shall be a complete plant food containing nitrogen (50% organic) phosphoric acid and potash. Soil tests will indicate composition required.
3. Hydro seeding is the preferred practice for turf establishment. Specifications are:
   - Fertilizer: 19-19-19 75 lbs per 1,000 gallons of water
   - Lime: 100 lbs. per 1,000 gallons of water
   - Seed: 6 lbs per 1,000 square feet.
     - 71.46% Min. Futura 3000 Per Rye Grass — Germ: 90%
     - 14.81% Min. Dynasty Tall Fescue — Germ: 90%
     - 9.74% Min. Creeping Red Fescue — Germ: 90%
     - 2.32% Max. Crop
     - 1.61% Max. Inert
     - 0.06% Max. Weed
   - Mulch: 300 lbs. per 1,000 gallons of water.
   - Tacifer: 5 lbs. per 1,000 gallons of water.
4. The grass seed may be applied by hand method at a rate of 6 lbs. per 1,000 sq. ft.
5. Areas having soil compaction as a result of construction shall be roto-tilled prior to seeding.
6. If hand seeding, only straw mulch is to be used and secured by netting either organic or inorganic. If inorganic is used, it must be removed before the first mowing.
7. Starter fertilizer shall be applied at the normal rate at the time of seeding. Fertilizer application will not be allowed in sensitive areas and adjacent to drainage ways as determined by the Engineer.
8. Watering is to be done by the Contractor to maintain proper growth. Contractor shall supply the water and all apparatus necessary to apply the water (i.e. hoses, sprinklers, etc.).
9. Staking of all topsoiled areas to control foot traffic will be required. Acceptable staking materials will be grade stakes and twine or string with flagging attached for visibility. Contractor is responsible to maintain stakes throughout the warranty period.
10. A guarantee through the first growing season is required with any sparse or bare areas larger than 1 sq. ft. to be redone.
11. The Contractor shall test topsoil to determine proper application rate of lime and fertilizer. Submit tests to Engineer for approval.
12. Seeding is permitted from May 15 – June 15, and August 15 – September 15. Other seeding is possible at other times with prior approval from the Engineer.

Construction Limit Barriers

- Temporary chain-linked construction fence shall be used to delineate construction limits where practical or where directed in the Contract Documents.
- Orange construction fence or snow fence shall be used to demarcate short-term construction activities as well as around the drip line of any existing trees to remain.
- 3" thick orange polyester mesh webbing may also be used to demarcate construction limits except within 50 feet of any stream, lake, pond or wetland. For this project, polyester mesh webbing should not be used in areas that are proximate to pedestrian or vehicular traffic.

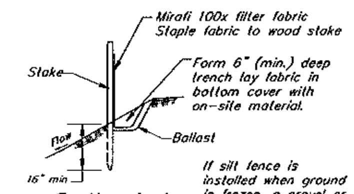


Bollard Detail

N.T.S.

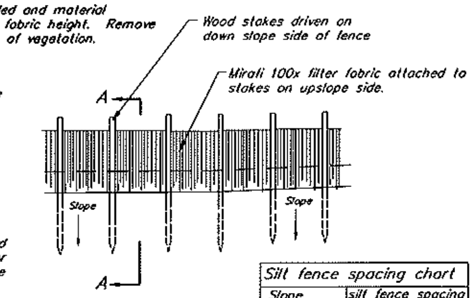
Straw wattles may be used as as substitute for silt fence for areas pre-approved by the Engineer.

NOTE:
1. Contractor shall be responsible for the installation, maintenance, and removal of silt fence in all locations shown on the plans.
2. Maintenance shall be performed as needed and material removed when sediment reaches half of fabric height. Remove silt fence after successful establishment of vegetation.



Section A-A

If silt fence is installed when ground is frozen, a gravel or sand ballast must be used.



Silt fence spacing chart	
Slope	silt fence spacing
5% to 10%	50 ft. or less
10% to 20%	25 ft. or less
> 20%	15 ft. or less

Typical Temporary Silt Fence

N.T.S.

North American Green S75BN

Material Content

Straw	100% (.50 lbs/sq.yd.) (.27 kg/m2)
Netting	Leno woven, 100% biodegradable jute fiber
Weight	approximately 1.64 lbs/1000 s.f.
Thread	Biodegradable

Installed as per manufacturer's specifications.

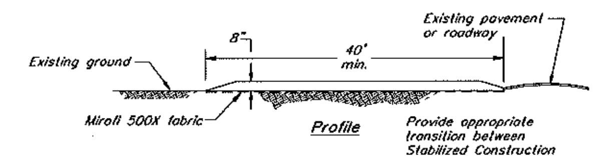
Material Specifications

Erosion control blanket shall be a machine-produced mat of 100% agricultural straw.

The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with natural fiber netting having an approximate 1/2" X 1/2" mesh and be sewn together with biodegradable thread.

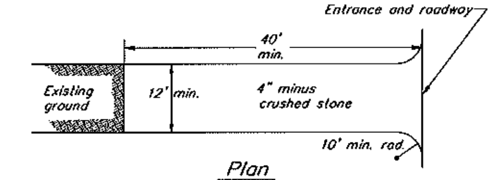
Straw erosion control blanket shall be S75BN as manufactured by North American Green, Inc. (812-867-6632) or equivalent. Erosion control blanket shall have the following properties:

Erosion Control Matting



Profile

Provide appropriate transition between Stabilized Construction Entrance and roadway



Plan

Note:
- Contractor shall be responsible for the installation, maintenance, and removal of a stabilized construction entrance at each construction entrance for the project. The Construction Stabilized Entrance and its continued maintenance shall be a minimum measure to prevent tracking of sediment off-site.
- Contractor to use Mirafi 500x under stone for temporary construction roads.
- Stabilized construction entrances shall be repaired when sediment is tracked offsite. Repair shall include adding additional 4" minus crushed stone and/or removal of contaminated stone.

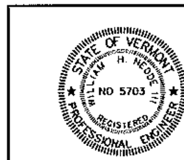
THIS DETAIL TO BE USED FOR ALL TEMPORARY STONE STABILIZATION AREAS

Temporary Stabilized Construction Entrance & Staging Areas

N.T.S.

Upon finding that the final plans complied with all requirements of the *Williston Development Bylaw* and all conditions imposed on the approval of Discretionary Permit 17-22 the Williston Zoning Administrator approved the final plans for DP- - on the 29 day of June, 2017
K. Belliveau, Z.A.

6/22/2017	final plan		
Date revised	Description	Checked	Date



PERMIT DRAWINGS ONLY

Design	TJB/WHN
Drawn	TJB
Checked	
Scale	not to scale
Date	March 17, 2017
Project	16302/90126/81156

Details

Lot #5
Engineers Industrial Park
Parcel #: 07:108:002.00

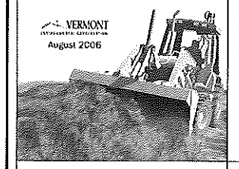
Engineers Drive — Williston, Vermont

KREBS & LANSING Consulting Engineers, Inc.
164 Main Street, Colchester, Vermont 05446

16302 details.dwg — © Krebs & Lansing — CD-2

The Low Risk Site Handbook
for
Erosion Prevention and Sediment Control

VERMONT
Stormwater Construction
August 2006



The Low Risk Site Handbook for Erosion Prevention and Sediment Control

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Construction General Permit 3 (CGP 3) guides an applicant in the development of the permit work to water quality from the construction activity and ensures that the applicant's activity is a Low Risk, Moderate Risk, or Multi-jurisdictional Individual Permit.

The standards in this handbook serve as the required Erosion Prevention and Sediment Control Plan for construction sites determined to be "Low Risk" under GP 3-0020.

Contact Information

VT DEC - Water Quality Division
Stormwater Section
103 South Main Street, Building 10 North
Waterbury, VT 05671-0408
Tel: 802-241-3770 or 4520
www.vtwaterquality.org/stormwater.htm

Table of Contents

Section 1: Introduction

What is erosion prevention and sediment control? 1
Do I need a permit? 2
Application Process 2

Section 2: The Requirements

1. Mark Site Boundaries 3
2. Limit Disturbance Area 5
3. Stabilize Construction Exit 7
4. Install Silt Fence 11
5. Divert Upland Runoff 15
6. Slow Down Channelized Runoff 19
7. Construct Permanent Controls 23
8. Stabilize Exposed Soil 25
9. Winter Stabilization 29
10. Stabilize Soil at Final Grade 33
11. Dewatering Activities 35
12. Inspect Your Site 37

Section 3: Additional Resources

How to calculate slope 39
How to estimate area 39

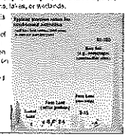
Section 1
Introduction

What is erosion prevention and sediment control?

Soil and water are the most valuable resources of the largest value during construction in Vermont. Soil in its natural state feeds fish and other organisms and cleansing chemical impurities from water.

On most construction sites, vegetation and other activities (plows and protects different areas for removal of soil or other materials, leaving large areas of soil exposed to the elements. During rainfall or snowmelt, the exposed soil may be easily eroded and transported to nearby streams, lakes, or wetlands.

To prevent this from happening, a certain number of simple practices to prevent erosion and control runoff on the construction site must be used.



Do I need a permit?

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Application Process

1. Obtain a copy of the permit and determine the Risk Category of the proposed project. The permit is available online at: www.vtwaterquality.org/stormwater.htm.
2. Submit the Notice of Intent (NOI) form, notifying the Department of your intent to begin construction. *Submit the NOI to DEC at least 60 days before you plan to begin construction unless a shorter time is permitted.
3. Upon receipt of written authorization from DEC, you are cleared to start the permit and may begin construction.
4. If your project is determined to be "Low Risk", you must follow all standards for erosion prevention and sediment control on your construction site.
5. If your site is not considered Low Risk, then you must follow the Department's Manual for Multi-Jurisdictional Stormwater Permit.

Section 2
The Requirements

1. Mark Site Boundaries

Purpose:

Mark the site boundaries to identify the limits of construction. Do not assign or stake to begin the work of disturbance, preserve existing vegetation, and limit erosion potential on the site.

Requirements:

You must physically mark the limits of construction.

How to comply:

Before beginning construction, walk the site boundaries and flag trees, post signs, or install orange safety fence.

Fence is required on any boundary within 50 feet of a stream, lake, pond or wetland, unless the area is already developed (existing roads, buildings, etc.)

Properly installed silt fence prevents sediment from entering a stream or wetland.

2. Limit Disturbance Area

Purpose:

Limit the amount of soil exposed at one time to reduce the potential for erosion on site.

Requirements:

The permitted disturbance area is specified on the Site Review authorization to discharge. Only the acreage listed on the authorization form may be exposed at any given time.

How to comply:

Plan ahead and order the construction activities to ensure that no more than the permitted acreage is disturbed at one time.

Be sure to properly stabilize exposed soil with seed and mulch or erosion control matting before beginning work on a new section of the site.

Properly installed silt fence keeps sediment from leaving the site. Note that the fence has been installed on the contour.

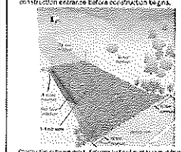
3. Stabilize Construction Entrance

Purpose:

A stabilized construction entrance helps remove mud from vehicle wheels to prevent tracking onto streets.

Requirements:

If there will be any vehicle traffic off of the construction site, you must install a stabilized construction entrance before construction begins.



Construction entrance should be wide enough to accommodate all vehicles that will enter the site. Entrance should be at least 50 feet long and as wide as the site allows.

How to Install:

Rock Size: Use a mix of 1 to 4 inch stone
Depth: 6 inches minimum
Width: 12 feet minimum
Length: 40 feet minimum or length of driveway, if shorter
Geotextile: Place first cloth under and regravel bed

Maintenance:

Replace with clean stone as required to keep sediment from tracking onto the street.

Construction entrance should be wide enough to accommodate all vehicles that will enter the site. Note that the gate allows for easy access by emergency vehicles and a wide turning radius.

For construction exit, place plastic sheeting under the first layer of stone for extra stability. Remove the plastic when you remove the stone.

For existing gravel roadways, first remove the top layer of gravel and then add the stone. Be careful not to bury the gravel underneath the new stone. Keep the gravel on top and add the new stone on top of it.

Wash vehicles in a designated area that will not drain into a stream or wetland. Wash water should be filtered through a vegetated area before entering a stream or wetland.

4. Install Silt Fence

Purpose:

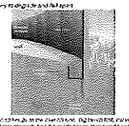
Silt fence slows down runoff and allows it to spread and settle out.

Requirements:

Silt fence must be installed:

- on the downhill side of the construction activities
- between any stream, wetland, storm sewer inlet, or edge of the site and the disturbed soil

* Hay bales may not be used as a sediment barrier due to their tendency to rot and fall apart.



Proper installation of silt fence requires that the fence be buried at the base and the posts be placed on the downhill side of the fence. Note that the posts are placed at an angle to the fence.

Where to place:

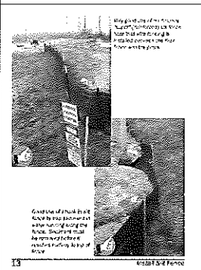
- Place silt fence on the downhill side of base soil. At the bottom of a slope, place fence 10 feet downhill from the end of the slope (if space is available).
- Ensure the silt fence stabilizes a small drainage area.
- Maximum drainage area is 0.25 acre for 100 feet of silt fence.
- Install silt fence across the slope (not up and down hill).
- Install silt fence at the toe of a long hill to break up flow.
- Do not install silt fence across streams, culverts, or ditches to restream buffers.

How to Install silt fence:

- Dig a trench 6 inches deep across the slope
- Install silt fence along the trench
- Ensure stakes are on the downhill side of the fence
- Join fence by rolling the end stakes together
- Drive stakes in against downhill side of fence
- Drive stakes until 20 inches of stakes is in trench
- Push fence into trench and along contour
- Fill trench with soil and pack down

Maintenance:

- Remove accumulated sediment before it is halfway up the fence.
- Ensure that silt fence is buried in ground and there are no gaps.



Silt fence should be installed on the downhill side of the site. Note that the fence has been installed on the contour.

Hay bales are not to be used as a sediment barrier due to their tendency to rot and fall apart.

Hay bales are not to be used as a sediment barrier due to their tendency to rot and fall apart.

5. Divert Upland Runoff

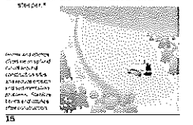
Purpose:

Diversion berms intercept runoff from above the construction area and direct it around the disturbed area. This prevents "clean" water from becoming muddied with soil from the construction site.

Requirements:

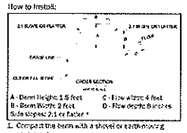
If stormwater runs onto your site from upslope areas and your site meets the following two conditions, you must install a diversion berm before disturbing any soil.

1. Your site is less than or equal to 25 feet in length at any one time (including roads).
2. Average slope of the disturbed area is 20% or less (flat).



Diversion berms should be installed on the contour. Note that the berm has been installed on the contour.

How to Install:

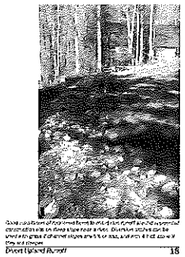


1. Compact the berm with a shovel or a pneumatic roller.
2. Seed and mulch berm or cover with erosion control matting immediately after installation.
3. Stabilize D below channel with seed and some mulch or erosion control matting. Use the chart at each 4 inch stone if the channel slope is greater than 20%*.
4. Ensure the berm drains to an outlet stabilized with riprap. Ensure that there is no erosion at the outlet.
5. The diversion berm shall remain in place until the disturbed area are completely stabilized.

* See page 39 for slope calculations.

Install temporary berm along ground contours to divert runoff around the disturbed area. Berm should be stabilized for construction use and replaced as required.

Install temporary berm along ground contours to divert runoff around the disturbed area. Berm should be stabilized for construction use and replaced as required.



Stabilize the channel with seed and mulch or erosion control matting. Place riprap at the outlet of the channel to prevent erosion.

6. Slow Down Channelized Runoff

Purpose:

Stone check dams reduce erosion in drainage channels by slowing down the stormwater flow.

Requirements:

If there is a concentrated flow (e.g. in a ditch or channel) at the site or on your site, then you must install stone check dams. Hay bales may not be used as check dams.

How to Install:

Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
Side slopes: 2:1 or flatter (use p.39 for slope calculation)
Stone size: Use a mixture of 2 to 6 inch stone
Width: Dams should extend across the width of the channel and extend up the sides of the banks
Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

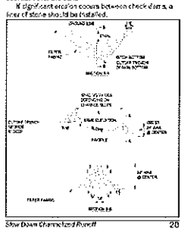
Spacing in feet = Height of check dam in feet / Slope in channel (fr/ft)

Maintenance:

Remove sediment accumulated behind the dam

as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

If significant erosion occurs between check dams, a line of stone should be installed.


DRAINAGE
FLOW
FLOW
FLOW ACTION
STONE CHECK
DAMS BOTTOM
MIDDLE
TOP
FLOW
FLOW
FLOW