NONRESIDENTIAL SITE PLAN APPLICATION

City of Rochester, New Hampshire

RECEIVED JUL 5 2016 Planning Dept.

[office use only. Check # _____ Amount $_____ Date paid _____]

Date: July 5, 2016 Is a conditional use needed? Yes:____ No: ✓ Unclear:____
(If so, we encourage you to submit an application as soon as possible.)

Property information

Tax map #: 230; Lot #('s): 19; Zoning district: Industrial

Property address/location: 20 Industrial Way, Rochester, NH 03867

Name of project (if applicable): LAARS Heating Systems Company Warehouse Facility

Size of site: 20.1 acres; overlay zoning district(s)? N/A

Property owner

Name (include name of individual): LAARS Heating Systems Company (William Root, General Manager)

Mailing address: 20 Industrial Way, Rochester, NH 03867

Telephone #: (603) 834-6807 Email: BRoot@laars.com

Applicant/developer (if different from property owner)

Name (include name of individual): _____

Mailing address: _____

Telephone #: _____ Email: _____

Engineer/designer

Name (include name of individual): CLD Consulting Engineers, Inc. (Rick Dolce)

Mailing address: 316 U.S. Route 1, York, ME 03909

Telephone #: (207) 363-0669 Fax #: (207) 363-2384

Email address: RickD@cldengineers.com Professional license #: 15050

Proposed activity (check all that apply)

New building(s): ✓ Site development (other structures, parking, utilities, etc.): ✓

Addition(s) onto existing building(s): _____ Demolition: _____ Change of use: _____

(Continued *Nonresidential Site Plan* application Tax Map: 230 Lot: 19 Zone Indus.)

Describe proposed activity/use: The proposed site includes a new 35,200 square foot warehouse, parking area, site access, utilities, landscaping and stormwater management.

Describe existing conditions/use (vacant land?): The current partially developed lot with a 40,000 square foot building and paved lot for employees is used by LAARS Heating Systems Company.

Utility information

City water? yes ✓ no ___; How far is City water from the site? ±50 feet

City sewer? yes ✓ no ___; How far is City sewer from the site? ±50 feet

If City water, what are the estimated total daily needs? unkown gallons per day

If City water, is it proposed for anything other than domestic purposes? yes ___ no ✓

If City sewer, do you plan to discharge anything other than domestic waste? yes ___ no ✓

Where will stormwater be discharged? Proposed Infiltration Basin and Rain Gardens and ultimately to on-site wetlands.

Building information

Type of building(s): Warehouse Facility

Building height: 37'-10" sloping to 34'-6" Finished floor elevation: 326.00

Other information

parking spaces: existing: 206 total proposed: 8; Are there pertinent covenants? Yes

Number of cubic yards of earth being removed from the site 0

Number of existing employees: 120; number of proposed employees total: 120

Check any that are proposed: variance ___; special exception ___; conditional use ___

Wetlands: Is any fill proposed? N; area to be filled: N/A; buffer impact? N

Proposed *post-development* disposition of site (should total 100%)		
	Square footage	**% overall site**
Building footprint(s) – give for each building	144,400 s.f.	16.49%
Parking and vehicle circulation	180,383 s.f.	20.60%
Planted/landscaped areas (excluding drainage)	189,521 s.f.	21.65%
Natural/undisturbed areas (excluding wetlands)	330,135 s.f.	37.71%
Wetlands	11,131 s.f.	1.27%
Other – drainage structures, outside storage, etc.	19,986 s.f.	2.28%

(Continued *Nonresidential Site Plan* application Tax Map: 230 Lot: 19 Zone: I)

Comments

Please feel free to add any comments, additional information, or requests for waivers here:

Submission of application

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

I(we) hereby submit this Site Plan application to the City of Rochester Planning Board pursuant to the City of Rochester Site Plan Regulations and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity.

Signature of property owner: William R. Rost, Laars Heating System

Date: 6/30/16

Signature of applicant/developer: _____

Date: _____

Signature of agent: _____

Richard R. Lundborn, PE

Date: 7/5/16

Authorization to enter subject property

I hereby authorize members of the Rochester Planning Board, Zoning Board of Adjustment, Conservation Commission, Planning Department, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections during the application phase, review phase, post-approval phase, construction phase, and occupancy phase. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property.

Signature of property owner: William R Rost

Date: 6/30/16

CONSULTING ENGINEERS
40 1976 - 2016 YEARS OF QUALITY SERVICE

July 5, 2016

Mr. Seth Creighton, City Planner
City of Rochester
31 Wakefield Street
Rochester, New Hampshire 03867

Re: LAARS Heating Systems Company Warehouse Facility
20 Industrial Way
Tax Map 230, Lot 19
Preliminary Site Review Permit Application
CLD Reference: 15-0164

Dear Mr. Creighton:

On behalf of LAARS Heating Systems Company, CLD Consulting Engineers Inc. is submitting a Site Review Application for a proposed site plan for their property, on Tax Map 230 Lot 19.

The project site is 20.1 acres in size and located within the Industrial Zone. The partially developed lot is currently comprised of an existing 80,000 sf manufacturing facility, a 22,000 sf warehouse, a 6,400 sf office building and paved lot for employee parking. The north part of the lot consists of some drainage swales and an infiltration basin, and a few acres of woods.

The proposed development is to clear the wooded area east of the entrance drive to make room for a 35,200 sf warehouse with an access road wrapping around the building and 8 parking spaces. Stormwater collection structures will be put in place around the building to control runoff for the site, along with an infiltration basin downstream to control runoff.

The project will be served by municipal water and sewer and it is foreseen that the warehouse will be served by natural gas for heat and hot water. New underground utility lines will be installed to service the building. Signage will be located at the entrance on Industrial Way, in accordance with the Rochester Sign Ordinance. Site lighting is designed with full cut-off fixtures, to be dark skies compliant and to meet the City of Rochester lighting regulations.

I look forward to the opportunity to present this project to the Planning Board at the next available meeting. If you have any questions, please do not hesitate to contact me at (207) 363-0669 x314 or rickl@cldengineers.com.

Very truly yours,

Richard R. Lundborn, P.E.

RRL;kb

Enclosures

LAARS Heating Systems Company
20 Industrial Way, Rochester, NH 03867
Tax Map 230, Lot 19

Waiver Request

July 5, 2016

The following summarizes the requests for waivers of submittal requirements for the subject project, per the requirements of the City of Rochester Site Plan Regulations:

Site Plan Review Regulations, Article III, Section 10 – Parking and Circulation

This project is the construction of a new 35,200 square foot warehouse building on the existing site of the LAARS Heating Systems Company. This development includes the new building, underground utilities, loading dock and parking area, rain gardens, infiltration basin, and correlating stormwater system.

Under Article II, Section 10 – Parking and Circulation, "Table of Parking Requirements" in the City of Rochester Site Plan Regulations the minimum number of spaces for a warehouse building of the proposed size is 36 spaces. The submitted site plans depicts eight (8) new spaces being proposed for the warehouse building, which includes one (1) van accessible handicapped parking space.

The existing facility is comprised of 12,800sf of office space, 80,000sf of manufacturing, and 22,000sf of warehousing. Based on the Table of Parking Requirements the number of spaces required for existing uses is 199 spaces (43, 134, and 22 spaces respectively) total. Currently 206 parking spaces exist on site. LAARS Heating Systems Company currently has 120 employees working at the facility, with that number not changing once the new warehouse is complete.

The total number of spaces required for existing and proposed facilities will be 242 spaces, while the total spaces proposed onsite, based on the site plans is 214 spaces. Therefore a waiver is requested.

LEGEND

(STANDARD LEGEND – ALL SYMBOLS SHOWN DO NOT NECESSARILY APPEAR IN THE PLAN SET)

	EXISTING	PROPOSED
2' CONTOUR		248
10' CONTOUR		250
EDGE OF PAVEMENT		
DRAIN LINE		D
SEWER LINE		S
UNDERGROUND UTILITIES		UGETC
GAS LINE		G
WATER LINE		W
OVERHEAD WIRES		OHW
VERTICAL GRANITE CURB		VGC
SLOPED GRANITE CURB		SGC
FLUSH GRANITE CURB		FGC
CHAIN LINK FENCE		
SHRUB LINE		
SPOT GRADE		X 250.0
SEWER MANHOLE		SMH
CATCH BASIN		CB
DRAIN MANHOLE		DMH
FIRE HYDRANT		
GAS REGULATOR		
GAS GATE		
WATER VALVE		
WATER VALVE		
THRUST BLOCK		
ELECTRIC MANHOLE		EMH
STREET SIGN		
UTILITY POLE		
UTILITY POLE & GUY WIRE		
UTILITY POLE W/ LIGHT		
LIGHT POLE (ONE ARM)		
LIGHT POLE (TWO ARMS)		
LIGHT POLE (FOUR ARMS)		
ACCESSIBLE PARKING SPACE		
BOLLARD		
BORING		
TEST PIT		
IRON PIN,DRILL HOLE,BOUND		
DECIDUOUS TREE		SEE LANDSCAPE PLAN
CONIFER TREE		
TRAFFIC FLOW		
EDGE OF WETLANDS		
PROPERTY LINE		
SILT FENCE		
STONE CHECK DAM		
INLET PROTECTION		
WELL		

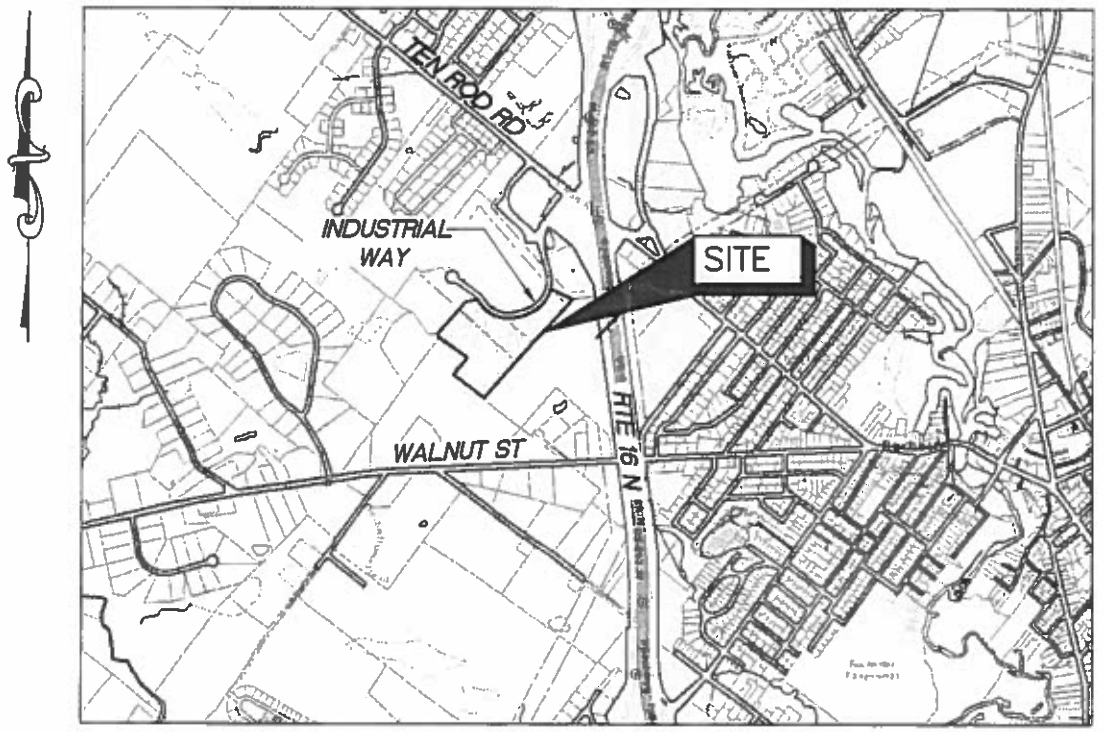
DIG SAFE

CONTACT DIG SAFE 72 HOURS

THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. OLD CONSULTING ENG. INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

SITE DEVELOPMENT DRAWINGS FOR LAARS HEATING SYSTEMS COMPANY WAREHOUSE

20 INDUSTRIAL WAY ROCHESTER, NH



LOCUS PLAN

SCALE: 1"=1000'

NPDES NOTES:

1. THIS PROJECT DISTURBS TBD± SF (20.10± AC) OF LAND WHICH EXCEEDS THE NPDES THRESHOLD AMOUNT OF 43,560 SF (1 AC). THEREFORE, THE PROJECT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/ DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT NPDES PERMIT.

INDEX

ABUTTERS

LOCATION	TAX MAP	OWNER	MAILING ADDRESS	DEED REFERENCE
103 WALNUT ST	MAP 122 LOT 83	PUBLIC SERVICE CO OF NH	PO BOX 3430, MANCHESTER, NH 03105-3430	
0 WALNUT ST	MAP 122 LOT 83A	SPRINT PROP TAX DEPT	PO BOX 8430, KANSAS CITY, MO 64114-8430	
173 WALNUT ST	MAP 230 LOT 14-2	KRISTINE E. BIAGOTTI & DONALD E. KELSEY II	159A WALNUT ST, ROCHESTER, NH 03867	SCRD: 2890-442
10 INDUSTRIAL WAY	MAP 230 LOT 17	ROGER CLOUTRE TRUST	10 INDUSTRIAL WAY, ROCHESTER, NH 03867	SCRD: 2183-156
36 INDUSTRIAL WAY	MAP 230 LOT 20	36A INDUSTRIAL WAY LLC	25 CONSTITUTION DRIVE, BEDFORD, NH 03110	SCRD: 4148-372
28 INDUSTRIAL WAY	MAP 230 LOT 20-1	LP GAS EQUIPMENT INC	PO BOX 1800, ROCHESTER, NH 03866-1800	SCRD: 2369-408
38 INDUSTRIAL WAY	MAP 230 LOT 21	NASHUA VP LLC & SULLIVAN	670 NORTH COMMERCIAL ST SUITE 303, MANCHESTER, NH 03101	SCRD: 3310-547

RECEIVED
JUL 05 2016
Planning Dept.

NO.	DATE	REVISION	DESIGNED: FSD	CHECKED: FSD	APPROVED: RRL
1	DATE	REVISION	DRAWN: DAD		
1	DATE	REVISION			
1	DATE	REVISION			

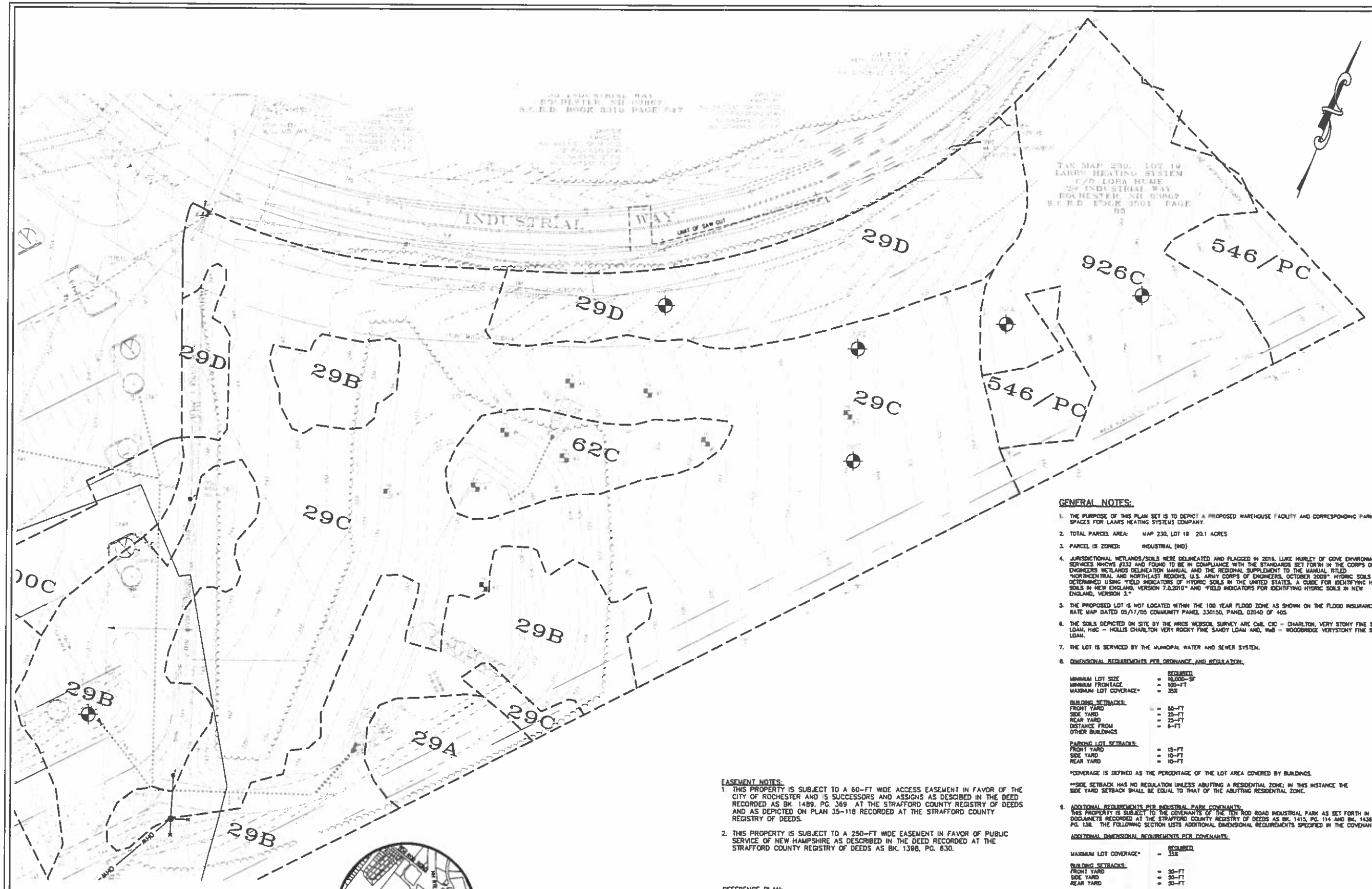
CLD CONSULTING ENGINEERS, P.C.
316 U.S. Route 1, Suite 8 York, ME 03909
(207) 363-0669 Fax (207) 363-2384
cldengineers.com new cldengineers.com
Maine New Hampshire Vermont

CLIENT: LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH
COVER SHEET

SCALE:	JOB NO.
1"= SCALE/VERT	15-0184
DATE: JULY 5, 2016	DWG: T1

F:\PROJECTS\15064 JEWETT LAARS HEATING\DWG\15-064_SITE PLAN_OPTION 4.DWG 7/5/2016 9:21 AM



EASEMENT NOTES:

1. THIS PROPERTY IS SUBJECT TO A 60-FT WIDE ACCESS EASEMENT IN FAVOR OF THE CITY OF ROCHESTER AND IS SUCCESSORS AND ASSIGNS AS DESCIBED IN THE DEED RECORDED AS BK. 1489, PG. 369 AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AND AS DEPICTED ON PLAN 35-118 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS.
2. THIS PROPERTY IS SUBJECT TO A 250-FT WIDE EASEMENT IN FAVOR OF PUBLIC SERVICE OF NEW HAMPSHIRE AS DESCRIBED IN THE DEED RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS BK. 1398, PG. 830.

REFERENCE PLAN:

1. EXISTING FEATURES PLAN; INDUSTRIAL WAY, ROCHESTER, NH STRAFFORD COUNTY FOR LAARS HEATING SYSTEM COMPANY BY NORWAY PLAINS ASSOCIATES, INC., DATED 03/14/11.

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAN SET IS TO DEPICT A PROPOSED WAREHOUSE FACILITY AND CORRESPONDING PARKING SPACES FOR LAARS HEATING SYSTEMS COMPANY.
2. TOTAL PARCEL AREA: MAP 230, LOT 18 20.1 ACRES
3. PARCEL IS ZONED: INDUSTRIAL (IND)
4. JURISDICTIONAL WETLANDS/SOILS WERE DELINEATED AND FLAGGED IN 2016. LUKE HURLEY OF GOVE ENVIRONMENTAL SERVICES NHCWS #232 AND FOUND TO BE IN COMPLIANCE WITH THE STANDARDS SET FORTH IN THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE MANUAL TITLED "NORTHCENTRAL AND NORTHEAST REGIONS, U.S. ARMY CORPS OF ENGINEERS, OCTOBER 2009" HYDRIC SOILS WERE DETERMINED USING "FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 7.0,2010" AND "FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3."
5. THE PROPOSED LOT IS NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAP DATED 05/17/05 COMMUNITY PANEL 330150, PANEL 0204D OF 405.
6. THE SOILS DEPICTED ON SITE BY THE NRCS WEBSOIL SURVEY ARE CaB, CtC – CHARLTON, VERY STONY FINE SANDY LOAM; HdC – HOLLIS CHARLTON VERY ROCKY FINE SANDY LOAM AND, WaB – WOODBRIDGE VERYSTONY FINE SANDY LOAM.
7. THE LOT IS SERVICED BY THE MUNICIPAL WATER AND SEWER SYSTEM.
8. DIMENSIONAL REQUIREMENTS PER ORDINANCE AND REGULATION:

	REQUIRED
MINIMUM LOT SIZE	10,000-SF
MINIMUM FRONTAGE	100-FT
MAXIMUM LOT COVERAGE*	35%
BUILDING SETBACKS:	
FRONT YARD	30-FT
SIDE YARD	10-FT**
REAR YARD	10-FT
DISTANCE FROM OTHER BUILDINGS	10-FT
PARKING LOT SETBACKS:	
FRONT YARD	15
SIDE YARD	10-FT
REAR YARD	10-FT

*COVERAGE IS DEFINED AS THE PERCENTAGE OF THE LOT AREA COVERED BY BUILDINGS.

**SIDE SETBACK HAS NO REGULATION UNLESS ABUTTING A RESIDENTIAL ZONE; IN THIS INSTANCE THE SIDE YARD SETBACK SHALL BE EQUAL TO THAT OF THE ABUTTING RESIDENTIAL ZONE.

9. ADDITIONAL REQUIREMENTS PER INDUSTRIAL PARK COVENANTS:
THIS PROPERTY IS SUBJECT TO THE COVENANTS OF THE TEN ROD ROAD INDUSTRIAL PARK AS SET FORTH IN DOCUMENTS RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS BK. 1415, PG. 114 AND BK. 1436, PG. 138. THE FOLLOWING SECTION LISTS ADDITIONAL DIMENSIONAL REQUIREMENTS SPECIFIED IN THE COVENANTS.

ADDITIONAL DIMENSIONAL REQUIREMENTS PER COVENANTS:

	REQUIRED
MAXIMUM LOT COVERAGE*	35%
BUILDING SETBACKS:	
FRONT YARD	50-FT
SIDE YARD	50-FT
REAR YARD	50-FT

*COVERAGE IS DEFINED AS THE PERCENTAGE OF THE LOT AREA COVERED BY BUILDINGS.

10. PARKING NOTE:

THE PROPOSAL IS TO BUILD A WAREHOUSE FACILITY ON AN UNDEVELOPED PORTION OF THE EXISTING LAARS PROPERTY THAT WILL HOUSE STORAGE SPACE FOR MANUFACTURED HVAC EQUIPMENT. THE PROPOSAL DOES NOT INCREASE THE NUMBER OF EMPLOYEES ON-SITE. IT ALLOWS LAARS TO BETTER UTILIZE THE EXISTING SITE FOR STORAGE OF MANUFACTURED HVAC EQUIPMENT AND SUPPLIES.

REQUIREMENTS PER ARTICLE 18, SECTION 10(A) PARKING REGULATION TABLE:

WAREHOUSE/ STORAGE = 1 SPACE/1000-SF

	EXISTING
PARKING SPACES	= 208

NOTE: HANDICAPPED ACCESSIBLE PARKING INCLUDED IN ABOVE TOTALS PER ADA AND ROCHESTER REGULATIONS AND ORDINANCE

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DAD | DESIGNED: FSD | CHECKED: FSD | APPROVED: RRL

CONSULTING ENGINEERS

316 U.S. Route 1, Suite 8, York, ME 03909
(207) 363-0669 Fax: (207) 363-2984
civil@cesgrp.com www.civilengineers.com
Maine New Hampshire Vermont

CLIENT:
LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

EXISTING CONDITIONS PLAN

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2016	DWG. C0

F:\PROJECTS\15164 LAARS HEATING\DWG\15-0164_SITEPLAN_EXISTING 7/5/2016 10:01 AM

TAX MAP 230, LOT 21
NASHUA VP LLC &
ARTHUR W SULLIVAN REV TRUST
33 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3410 PAGE 847

INDUSTRIAL WAY

TAX MAP 230, LOT 19
LAARS HEATING SYSTEM
C/O LORA HUME
20 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3501 PAGE 65

LOCUS
N.T.S.

STOP BAR
STOP SIGN
SPLIT RAIL FENCE
FFE=326.0
(35,200 S.F.)
LIGHT WALL PACK 15FT HIGH (TYP.)
LIGHT POLE 20FT HIGH
HANDICAPPED VAN ACCESSIBLE PARKING SIGN
LIGHT POLE 14FT HIGH (TYP.)
SNOW STORAGE AREA
AMO

PLANT LIST

TREES:			
	SUGAR BALLSAGE SERVICEBERRY	8-FT MIN	2
	NYSSA SYLVATICA AMERICAN ELM	2 INCH CALIPER	5
	ACER RUBRUM FLAMETREE MAPLE	2 INCH CALIPER	5
SHRUBS:			
	RHODODENDRON (A VARIETY)	2 FT HEIGHT	6
	COMMON WITCH HAZEL	18"-24"	7

SHRUB PLANTING DETAIL
N.T.S.

TREE PLANTING DETAIL
N.T.S.

NOTE:
PLANT TREE AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 1" ABOVE

GENERAL NOTES:

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6. THE SOILS DEPICTED ON SITE BY THE NRCS WEBSOIL SURVEY ARE CaB, CtC – CHARLTON, VERY STONY FINE SANDY LOAM, HdC – HOLLIS CHARLTON VERY ROCKY FINE SANDY LOAM AND, WaB – WOODBRIDGE VERYSTONY FINE SANDY LOAM.
7. THE LOT IS SERVICED BY THE MUNICIPAL WATER AND SEWER SYSTEM.
8. DIMENSIONAL REQUIREMENTS PER ORDINANCE AND REGULATION:

		REQUIRED		PROVIDED
MINIMUM LOT SIZE	=	10,000-SF	=	875,580-SF
MINIMUM FRONTAGE	=	100-FT	=	100-FT
MAXIMUM LOT COVERAGE*	=	35%	=	16.24%
BUILDING SETBACKS:				
FRONT YARD	=	50-FT	=	53-FT
SIDE YARD	=	25-FT	=	380.00-FT
REAR YARD	=	25-FT	=	81.00-FT
DISTANCE FROM OTHER BUILDINGS	=	6-FT	>	120.00-FT
PARKING LOT SETBACKS:				
FRONT YARD	=	15-FT	=	240.00-FT
SIDE YARD	=	10-FT	=	33.00-FT
REAR YARD	=	10-FT	=	51.00-FT

*COVERAGE IS DEFINED AS THE PERCENTAGE OF THE LOT AREA COVERED BY BUILDINGS.

**SIDE SETBACK HAS NO REGULATION UNLESS ABUTTING A RESIDENTIAL ZONE; IN THIS INSTANCE THE SIDE YARD SETBACK SHALL BE EQUAL TO THAT OF THE ABUTTING RESIDENTIAL ZONE.

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft

9. ADDITIONAL REQUIREMENTS PER INDUSTRIAL PARK COVENANTS:
THIS PROPERTY IS SUBJECT TO THE COVENANTS OF THE TEN ROD ROAD INDUSTRIAL PARK AS SET FORTH IN DOCUMENTS RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS BK. 1415, PG. 114 AND BK. 1430, PG. 138. THE FOLLOWING SECTION LISTS ADDITIONAL DIMENSIONAL REQUIREMENTS SPECIFIED IN THE COVENANTS.

ADDITIONAL DIMENSIONAL REQUIREMENTS PER COVENANTS:

		REQUIRED		PROVIDED
MAXIMUM LOT COVERAGE*	=	35%	=	16.24%
BUILDING SETBACKS:				
FRONT YARD	=	50-FT	=	32.00-FT
SIDE YARD	=	50-FT	=	120.00-FT
REAR YARD	=	50-FT	=	60.00-FT

*COVERAGE IS DEFINED AS THE PERCENTAGE OF THE LOT AREA COVERED BY BUILDINGS.

10. PARKING NOTE:
THE PROPOSAL IS TO BUILD A WAREHOUSE FACILITY ON AN UNDEVELOPED PORTION OF THE EXISTING LAARS PROPERTY THAT WILL HOUSE STORAGE SPACE FOR MANUFACTURED HVAC EQUIPMENT. THE PROPOSAL DOES NOT INCREASE THE NUMBER OF EMPLOYEES ON-SITE. IT ALLOWS LAARS TO BETTER UTILIZE THE EXISTING SITE FOR STORAGE OF MANUFACTURED HVAC EQUIPMENT AND SUPPLIES.

REQUIREMENTS PER ARTICLE III, SECTION 10(A) PARKING REGULATION TABLE:

WAREHOUSE/ STORAGE = 1 SPACE/1000-SF (35,200SF = 36 SPACES)

	EXISTING	REQUIRED	PROPOSED
PARKING SPACES	= 208	= 242	= 214 (WAIVER REQUESTED)

NOTE: HANDICAPPED ACCESSIBLE PARKING INCLUDED IN ABOVE TOTALS PER ADA AND ROCHESTER REGULATIONS AND ORDINANCE

EASEMENT NOTES:
1. THIS PROPERTY IS SUBJECT TO A 60-FT WIDE ACCESS EASEMENT IN FAVOR OF THE CITY OF ROCHESTER AND IS SUCCESSORS AND ASSIGNS AS DESCRIBED IN THE DEED RECORDED AS BK. 1489, PG. 369 AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AND AS DEPICTED ON PLAN 33-118 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS.
2. THIS PROPERTY IS SUBJECT TO A 250-FT WIDE EASEMENT IN FAVOR OF PUBLIC SERVICE OF NEW HAMPSHIRE AS DESCRIBED IN THE DEED RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS BK. 1398, PG. 630.

CONDITIONS OF APPROVAL NOTES:
1. FOR MORE INFORMATION ABOUT THIS SITE PLAN CONTACT THE CITY OF ROCHESTER PLANNING DEPARTMENT, 31 WAKEFIELD STREET, ROCHESTER, NH 03867, (603) 335-1338.
2. ACCESS INTO THE SITE FOR FIRE APPARATUS MUST BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PROCESS. THIS IS THE SOLE RESPONSIBILITY OF THE APPLICANT/DEVELOPER TO MAINTAIN THIS ACCESS. PLEASE CONTACT THE FIRE DEPARTMENT AT 330-7182 WITH ANY QUESTIONS ABOUT ACCESS REQUIREMENTS.
3. THERE IS A 50-FT BUFFER REQUIREMENT FROM WETLANDS UNDER THE CITY OF ROCHESTER ZONING ORDINANCE AS SHOWN ON THIS PLAN. THERE MAY BE NO ENCROACHMENT WITHIN THESE BUFFERS EXCEPT AS PERMITTED UNDER THE ORDINANCE AND AS SPECIFICALLY ALLOWED WITH THE CONDITIONAL USE THAT WAS GRANTED.
4. THIS DEVELOPMENT MUST BE IN COMPLIANCE WITH ALL APPLICABLE LAW – INCLUDING ALL PERTINENT PROVISIONS OF THE CITY OF ROCHESTER SITE PLAN REGULATIONS – UNLESS OTHERWISE WAIVED.
5. THIS PROJECT PROPOSES TO DISTURB OVER ONE ACRE OF EXISTING GROUND COVER AND MEETS OTHER SPECIFIC REQUIREMENTS RELATED TO PERMIT CRITERIA FOR EPA NPDES COMPLIANCE. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPMENT AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), SUBMISSION OF A NOTICE OF INTENT (NOI) TO EPA, INSPECTION AND MAINTENANCE OF SEDIMENT CONTROL MEASURES, DOCUMENTATION OF MAINTENANCE ACTIVITIES, AND SUBMISSION OF A NOTICE OF TERMINATION (NOT) TO EPA. THE CONTRACTOR IS ALSO RESPONSIBLE TO COMPLY WITH ANY OR ALL OTHER ASPECTS OF CURRENT FEDERAL, STATE AND LOCAL STORM WATER OR NPDES REGULATIONS OR REQUIREMENTS.
6. THE APPLICANT SHALL OBTAIN A STORM WATER MANAGEMENT PERMIT FROM THE PUBLIC WORKS DEPARTMENT (UNLESS DETERMINED UNNECESSARY BY THE CITY ENGINEER) AND FOLLOW THE REQUIREMENTS OF CITY ORDINANCE CHAPTER 50. THE PERMITTEE SHALL PREPARE A WRITTEN PLAN FOR MANAGING STORMWATER THAT ENTERS THE CONSTRUCTION SITE AND SHALL PRESENT IT TO THE INSPECTION ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE PERMITTEE SHALL FOLLOW BEST MANAGEMENT PRACTICES TO PREVENT EROSION IN AREAS WHERE THE SOIL HAS BEEN DISTURBED.
7. THE SEWER IMPACT CONTRIBUTION MUST BE PAID IN FULL TO THE CODE ENFORCEMENT DEPARTMENT, PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE SEWER IMPACT IS A ONE TIME PAYMENT OF $2.00 PER GALLON FOR AVERAGE DAILY FLOW.
8. AN ORANGE CONSTRUCTION FENCE MUST BE PLACED ALONGSIDE THE WETLAND BUFFER PRIOR TO THE START OF CONSTRUCTION (THIS IS NOT REQUIRED IF THE SILT FENCE IS ORANGE).

FINAL APPROVAL BY
ROCHESTER PLANNING BOARD

CERTIFIED BY: _____ DATE: _____

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DAD | DESIGNED: TSD | CHECKED: TSD | APPROVED: RRC

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Maine New Hampshire Vermont

CLIENT:
LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

SITE PLAN

SCALE:	JOB NO.
1"=30'	15-0164
DATE:	DWG.
JULY 5, 2018	C1

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TAX MAP 230, LOT 21
NASHUA VP LLC &
ARTHUR W.SULLIVAN REV. TRUST
35 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3818 PAGE 547

TAX MAP 230, LOT 19
LAARS HEATING SYSTEM
C/O LISA HUME
20 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3501 PAGE 85

INDUSTRIAL WAY

LOCUS
N.T.S.

FFE=326.0
(35,200 S.F.)

LIMIT OF SAW CUT

EMERGENCY SPILLWAY ELEV.=309.0

TOP OF BERM ELEV.=319.5

PROPOSED TREE LINE (LIMIT OF WORK)

TOP OF RIPRAP BERM ELEV.=307.0

12" STAND PIPE ELEV.=320.0 (TYP.)

35' OF 6" PERFORATED HDPE

RG#1

CB#1 CB#2 CB#3 CB#4 CB#5 CB#6 CB#7

DMH#1 DMH#2

FES#1 FES#2 FES#3

EX.MH

IN FRANCE

RAIN GARDEN #2
15" STAND PIPE

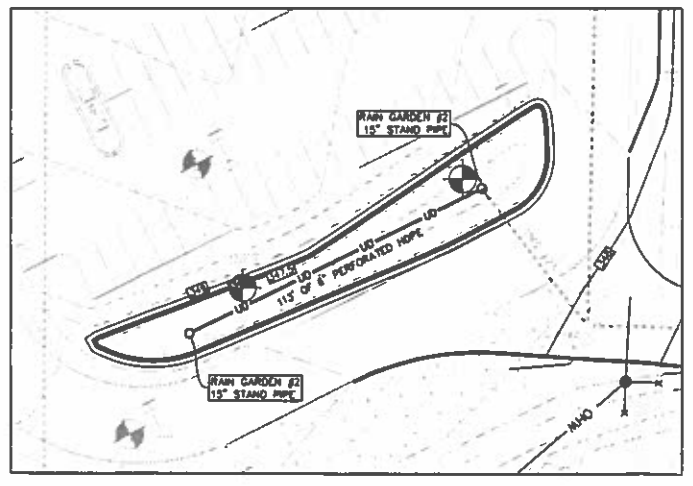
UD-PERFORATED HDPE UD

AMO

CONTACT DIG SAFE 72 HOURS

THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. CLD CONSULTING ENG. INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

RAIN GARDEN #2 INSET



GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft

DRAINAGE SUMMARY

EX DMH RIM = 340.20
INV. IN (EX.) = 328.5
INV. OUT (EX.)(REMOVE) = 328.40
INV. OUT (DMH2) = 328.40

DMH 1 RIM = 321.80
INV. IN (DMH2) = 313.50
INV. IN (CB1) = 313.00
INV. OUT (IB1) = 309.50

DMH 2 RIM = 326.20
INV. IN (CB3) = 321.8
INV. IN (CB4) = 316.12
INV. IN (DMH EX) = 322.00
INV. OUT (DMH1) = 315.00

FF 1
INV. OUT = 310.00

FF 2
INV. OUT (IB1) = 306.00

FF 3
INV. OUT = 300.00

CB 1 RIM = 320.20
INV. IN (CB2) = 313.75
INV. OUT (DMH1) = 313.65

CB 2 RIM = 317.00
INV. OUT (CB1) = 314.50

CB 3 RIM = 326.00
INV. OUT (DMH2) = 322.00

CB 4 RIM = 324.00
INV. IN (CB5) = 317.45
INV. OUT (DMH2) = 317.20

CB 5 RIM = 324.00
INV. IN (CB6) = 318.45
INV. OUT (CB4) = 318.35

CB 6 RIM = 324.00
INV. IN (CB7) = 319.17
INV. OUT (CB5) = 319.05

CB 7 RIM = 324.00
INV. IN (CB8) = 320.30
INV. OUT (CB6) = 320.05

CB 8 RIM = 324.00
INV.OUT (CB7) = 321.00

FINAL APPROVAL BY
ROCHESTER PLANNING BOARD

CERTIFIED BY: _____ DATE: _____

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DAD | DESIGNED: FSD | CHECKED: FSD | APPROVED: RRL

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Maine New Hampshire Vermont

CLIENT:
LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

GRADING AND DRAINAGE PLAN

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2016	DWG. C2

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TAX MAP 230, LOT 21
NASHUA VP LLC &
ARTHUR W SULLIVAN REV TRUST
35 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3910 PAGE 547

TAX MAP 230, LOT 19
LAARS HEATING SYSTEM
C/O TOPA RI ME
20 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3501 PAGE 65

INDUSTRIAL WAY

STRAW WATTLE
STRAW WATTLE
WATER VALVES
FIRE HYDRANT
UNDERGROUND ELECTRIC, FIRE, AND COMMUNICATIONS
HAY BALES (TYP.)
SEWER LINE MINIMUM SLOPE OF 0.02FT/FT
LIMIT OF SAW CUT
CONSTRUCTION ENTRANCE (TYP.)
PROPOSED TREE LINE (LIMIT OF WORK)
SILT FENCING (TYP.)
1" DOMESTIC WATER SERVICE W/SHUTOFF
SILT SACK (TYP.)
FFE=326.0
(35,200 S.F.)
HAY BALES (TYP.)
CONSTRUCTION ENTRANCE (TYP.)
RELOCATE EXISTING UTILITY POLE
SILT FENCING (TYP.)

LOCUS
N.T.S.

DIG SAFE
CONTACT DIG SAFE 72 HOURS

THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. CLD CONSULTING ENG. INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

UTILITIES NOTES:

1. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888 344-7233) 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND ELEVATIONS.
3. THIS PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON THE DATE OF THE SURVEY. THE ABSENCE OF SUBSURFACE STRUCTURES, UTILITIES, ETC. FROM THIS PLAN, BUT IN EXISTENCE IS NOT INTENDED OR IMPLIED.
4. ANY UTILITY POLES THAT NEED TO BE RELOCATED SHALL BE COORDINATED WITH EVERSOURCE OR FAIRPOINT TELECOMMUNICATIONS.
5. PROPOSED UTILITIES ARE TO BE UNDERGROUND. COORDINATE LOCATION OF UNDERGROUND UTILITIES AND TRANSFORMER PADS WITH EVERSOURCE AND OTHER PERTINENT UTILITY COMPANIES.
6. WATER AND SEWER LINES SHALL BE INSTALLED A MINIMUM OF 10-FT APART HORIZONTALLY.
7. WHERE SEWER AND WATER LINES MUST CROSS, SEWER PIPE JOINTS SHALL BE LOCATED A MINIMUM 9-FT HORIZONTALLY FROM THE WATER LINE AND A VERTICAL SEPARATION OF 18-INCHES SHALL BE MAINTAINED.
8. SEWER PIPE JOINTS SHALL BE TESTED WITH ZERO LEAKAGE AT 25 POUNDS PER SQUARE INCH FOR GRAVITY SEWER AND AT 1-1/2 TIMES WORKING PRESSURE FOR ALL FORCE MAINS.
9. WATERLINE CONSTRUCTION:
   - A. ALL PROPOSED WATER LINE MATERIAL USED SHALL MEET ROCHESTER WATER DEPARTMENT AND ROCHESTER ENGINEERING DEPARTMENT SPECIFICATIONS. WATER LINES SHALL BE A.W.W.A C 151, CLASS 52, CEMENT LINED, DUCTILE IRON PIPE, POLYWRAPPED.
   - B. PROPOSED WATER GATE VALVES SHALL BE MANUFACTURED BY KENNEDY OF AMERICAN FLOW CONTROL, RESILIENT SEAT TYPE.
   - C. ALL WATER LINES SHALL BE BURIED A MINIMUM OF 5'.
   - D. IF 5' OF COVER IS NOT AVAILABLE WATER LINE SHALL BE INSULATED AS SHOWN IN THE "SHALLOW COVER TRENCH DETAIL FOR INSULATED WATER PIPE".
   - E. ALL WATER FITTINGS SHALL BE CLASS 350.
   - F. PROPOSED WATER GATE VALVE SHALL OPEN CLOCKWISE (LEFT).
10. WORK TO CONNECT INTO THE WATER OR SEWER MAINS REQUIRES A PERMIT FROM THE ROCHESTER PUBLIC WORKS DEPARTMENT. CONTRACTORS ARE TO BE PRE-QUALIFIED.
11. CONTRACTOR SHALL COORDINATE EXCAVATION AND CONNECTION PERMITS AS NECESSARY.

FINAL APPROVAL BY
ROCHESTER PLANNING BOARD

CERTIFIED BY: _____ DATE: _____

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DJD | DESIGNED: FSD | CHECKED: FSD | APPROVED: RRL

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CLIENT:
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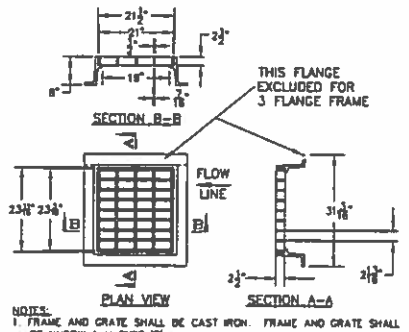
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER, NH

UTILITY PLAN AND SEDIMENT AND EROSION CONTROL PLAN

SCALE:	JOB NO.
1"=30'	15-0184
DATE: JULY 5, 2016	DWG. C3

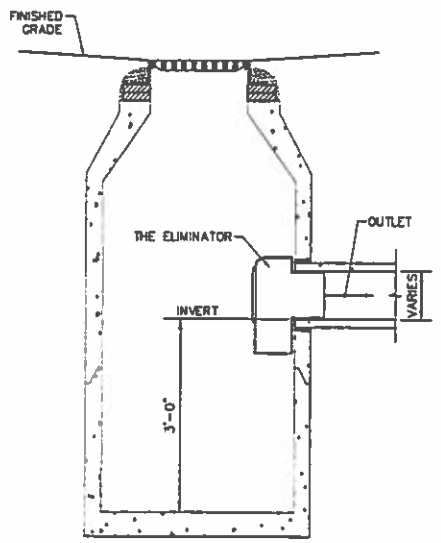
P:\PROJECTS\2015\15-0184 LAARS HEATING\DWG\15-0184_SITE PLAN.DWG 7/5/2016 10:00 AM



NOTES:
1. FRAME AND GRATE SHALL BE CAST IRON. FRAME AND GRATE SHALL BE NEENAH A OR EQUAL.
2. USE 3 FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

CATCH BASIN TYPE 'B' FRAME AND GRATE DETAIL

N.T.S.



CATCH BASIN (CB) WITH 'THE ELIMINATOR' INSERT

N.T.S.

SEDIMENT FOREBAY:

SPECIFICATIONS:
1. CONSTRUCT THE SEDIMENT FOREBAY TO THE GRADES DEPICTED ON THE PLAN AND CROSS-SECTION
2. LOAM AND SEED THE SLOPES AND BOTTOM OF THE SEDIMENT FOREBAY AS PRESCRIBED IN THE "PERMANENT VEGETATION" NOTES FOUND ON SHEET C6.

   SEED MIXTURE = A

MAINTENANCE REQUIREMENTS:
1. INSPECT SEDIMENT FOREBAY BI-ANNUALLY. ONCE IN THE SPRING PRIOR TO MAY 15 AND ONCE IN THE FALL PRIOR TO OCTOBER 15.
2. CONDUCT PERIODIC MOWING OF THE SEDIMENT FOREBAY SLOPES AND EMBANKMENTS (MINIMUM TWICE A YEAR) TO ELIMINATE WOODY GROWTH FROM THE EMBANKMENTS AND BOTTOM. MOWING THE SEDIMENT FOREBAY EMBANKMENTS WHEN MOWING THE REST OF THE SITE IS RECOMMENDED
3. REMOVE DEBRIS FROM THE OUTLET STRUCTURE OF THE SEDIMENT FOREBAY (I.E. STONE CHECK DAM) AT LEAST ONCE ANNUALLY
4. REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION WHEN SEDIMENT HAS REACHED THE RED MARK ON THE SEDIMENT STAFF GAGE INSTALLED IN THE FOREBAY. REMOVE SEDIMENT AND DISPOSE OF IT OFF-SITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

ELEVATION OF RED CLEANOUT MARK ON STAFF GAUGE = 304.50

INFILTRATION BASIN:

SPECIFICATIONS:
1. CONSTRUCT THE INFILTRATION BASIN TO THE GRADES DEPICTED ON THE PLAN AND CROSS-SECTION. ONCE EXCAVATE THE INFILTRATION SURFACE AS DEPICTED TO ACCOMMODATE 12-INCHES OF AMENDED SOIL AND 6-INCHES OF 3/8" PEA GRAVEL (OR COARSE SAND) AS SHOWN IN THE CROSS-SECTION.
2. THE DESIGN INFILTRATION RATE FOR THE BASIN WAS BASED ON THE HYDRAULIC CONDUCTIVITY FOR THE HSG-BTU SOILS. THIS RATE SHOULD BE 2-INCH/HR. IN THE EVENT THAT TEH RATE OF THE HSG-BTU MATERIAL IS IN EXCESS OF 10-INCH/HR, A 1-FT LAYER OF MATERIAL ON THE BOTTOM OF THE INFILTRATION AREA SHALL BE AMENDED TO MEET THE SPECIFIED INFILTRATION RATE RANGE BELOW.

   A 12-INCH LAYER OF ON-SITE MATERIAL MUST BE AMENDED WITH SILT TO SLOW THE EXCESSIVE INFILTRATION RATE OF THE ON-SITE MATERIAL TO

   INFILTRATION RATE RANGE = 10 INCH/HR. – 2 INCH/HR.

   IN NO CASE SHALL THE AMENDED MATERIAL HAVE AN INFILTRATION RATE GREATER THAN 10 INC/HR. AND NO LESS THAN 8 INCH/HR.

   THE MEANS OF AMENDMENT WHETHER THROUGH ADDITION OF SILT MATERIALS TO THE ON-SITE MATERIAL OR A COMBINATION OF METHODS INCLUDING AMENDMENT AND/OR COMPACTION, SHALL BE DESIGNED BY A QUALIFIED GEOTECHNICAL ENGINEER.
3. INFILTRATION RATES FOR THE INFILTRATION SURFACE MUST BE CONFIRMED IN-SITU BY A QUALIFIED PROFESSIONAL (I.E. GEOTECHNICAL ENGINEER, MATERIALS TESTING FIRM, ETC.) IN ACCORDANCE WITH THE METHODS DESCRIBED IN THE "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, SECTION 2-4"
4. LOAM AND SEED ONLY THE SLOPES OF THE INFILTRATION BASIN AS PRESCRIBED IN THE "PERMANENT VEGETATION" NOTES FOUND ON SHEET C6.

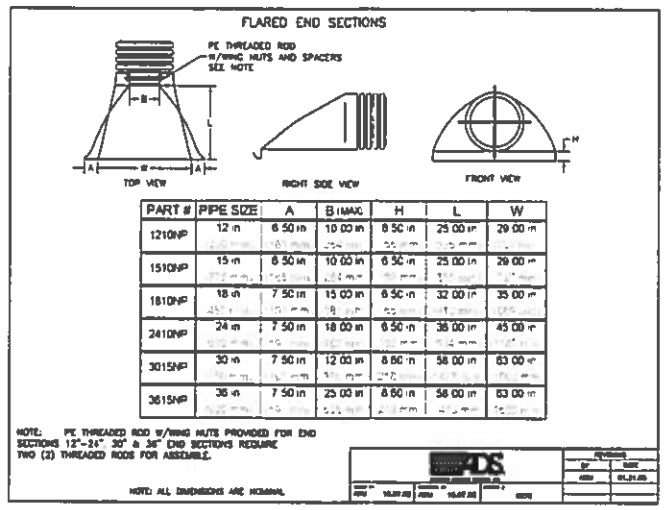
   SEED MIXTURE = A

MAINTENANCE REQUIREMENTS:
1. INSPECT PRETREATMENT MEASURES (I.E. SEDIMENT FOREBAYS), HOODED CATCH BASINS, ETC.) BI-ANNUALLY. ONCE IN THE SPRING PRIOR TO MAY 15 AND ONCE IN THE FALL PRIOR TO OCTOBER 15
2. INSPECT INFILTRATION SURFACE BI-ANNUALLY. ONCE IN THE SPRING PRIOR TO MAY 15 AND ONCE IN THE FALL PRIOR TO OCTOBER 15.

   INSPECT INFILTRATION SURFACE AFTER ANY RAINFALL EVENT OF 2.5-INCHES IN A 24-HOUR PERIOD OR GREATER.

   REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION. REPAIR AREA OF REMOVAL AS NECESSARY TO RESTORE INFILTRATION CAPACITY

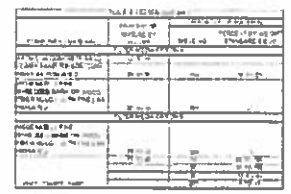
   PERFORM MAINTENANCE AND REHABILITATION BASED ON INSPECTIONS.
3. REMOVE DEBRIS (IF ANY) FROM INFILTRATION BASIN INLET BASED ON INSPECTION.
4. CONDUCT PERIODIC MOWING OF THE INFILTRATION BASIN SLOPES AND EMBANKMENTS (MINIMUM TWICE A YEAR) TO ELIMINATE WOODY GROWTH FROM THE EMBANKMENTS AND BOTTOM. MOWING THE INFILTRATION BASIN EMBANKMENTS WHEN MOWING THE REST OF THE SITE IS RECOMMENDED.
5. IF THE INFILTRATION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL (I.E. PROFESSIONAL ENGINEER, CERTIFIED SOILS SCIENTIST, ETC.) SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE INFILTRATION FUNCTION, INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE INFILTRATION SURFACE.



PART #	PIPE SIZE	A	B MAX.	H	L	W
1210NP	12 in	6.50 in	10.00 in	8.50 in	25.00 in	29.00 in
1510NP	15 in	6.50 in	10.00 in	8.50 in	25.00 in	29.00 in
1810NP	18 in	7.50 in	15.00 in	8.50 in	32.00 in	35.00 in
2410NP	24 in	7.50 in	18.00 in	8.50 in	38.00 in	45.00 in
3015NP	30 in	7.50 in	12.00 in	8.50 in	58.00 in	63.00 in
3615NP	36 in	7.50 in	25.00 in	8.50 in	58.00 in	63.00 in

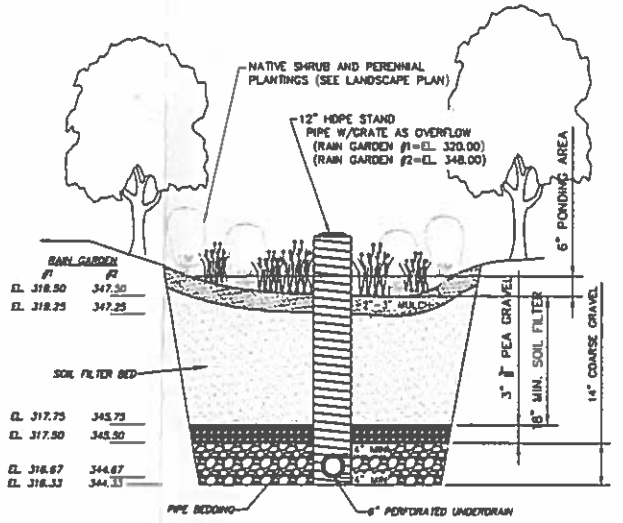
NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24". 30" & 36" END SECTIONS REQUIRE TWO (2) THREADED RODS FOR ASSEMBLY.

NOTE: ALL DIMENSIONS ARE NOMINAL



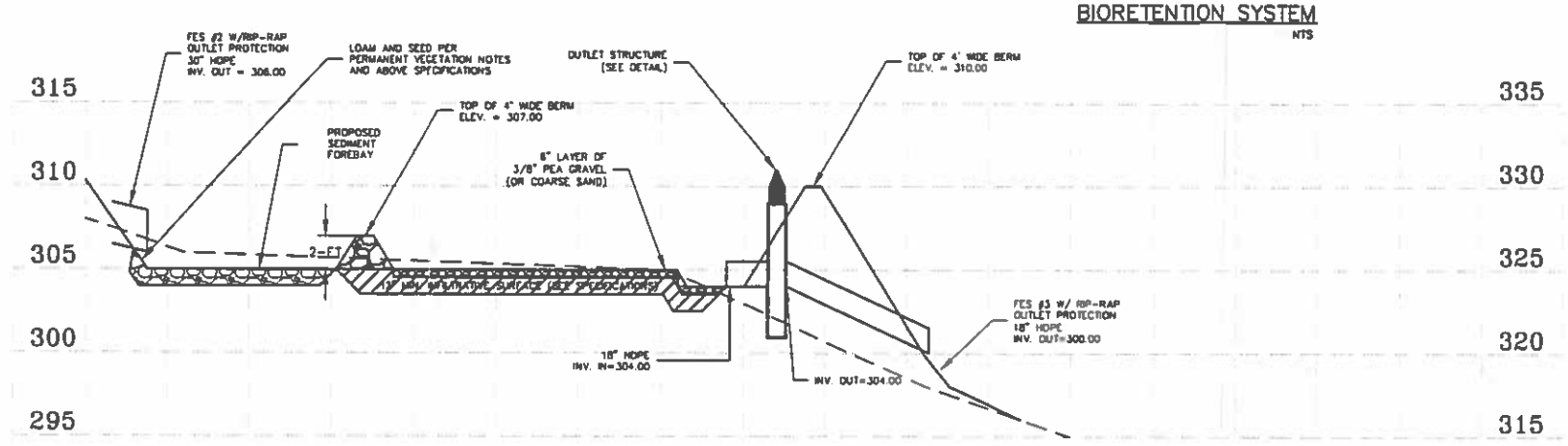
SOIL FILTER MIXTURE

NOTES:
1. DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF AND WATER FROM EXCAVATIONS) TO THE BIORETENTION SYSTEM DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

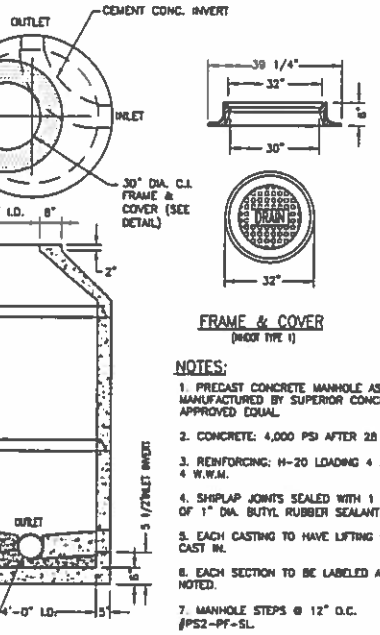


RAIN GARDEN BIORETENTION SYSTEM

NTS



SCALE: HORIZ: 1" = 20', VERT: 1" = 5'

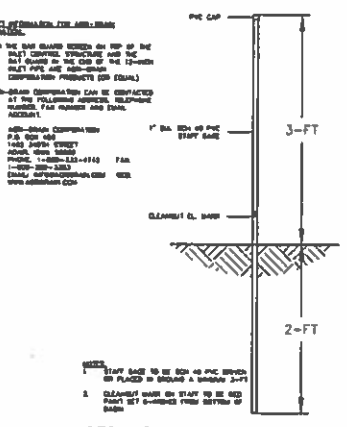


FRAME & COVER
(NDOT TYPE I)

PRECAST CONCRETE DRAIN MANHOLE

MAXIMUM PIPE DIAMETER 30" N.T.S.

NOTES:
1. PRECAST CONCRETE MANHOLE AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING 4 X 4/4 X 4 W.W.M.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA. BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH SECTION TO BE LABELED AS NOTED.
7. MANHOLE STEPS @ 12" O.C. #PS2-PF-SL.
8. PIPE OPENINGS CAST IN AS REQUIRED.
9. 8" SLAB TOP AVAILABLE.

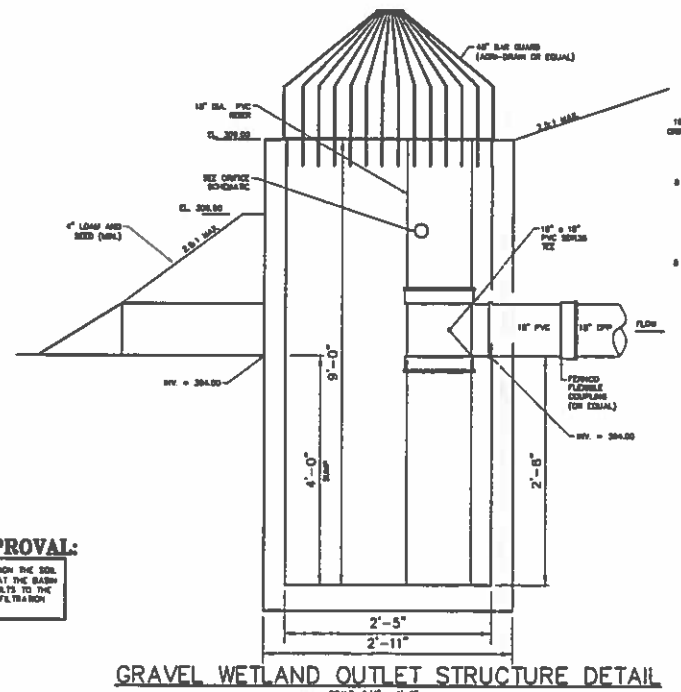


SEDIMENT GAUGE DETAIL

NTS

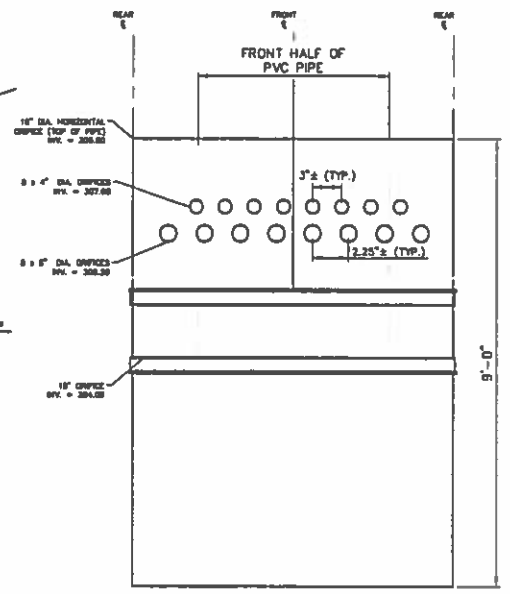
NHDES CONDITION OF APPROVAL:

A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE RETAINED TO DESIGN THE SOIL AMENDMENT (IF NECESSARY) AND PROVIDE INFILTRATION TESTING AT THE BASIN LOCATIONS AND SHALL PROVIDE THE INFORMATION AND TEST RESULTS TO THE DES ALTERATION OF TERRAIN BUREAU TO VERIFY THE ASSUMED INFILTRATION RATES USED IN THE HYDROLOGICAL MODEL.



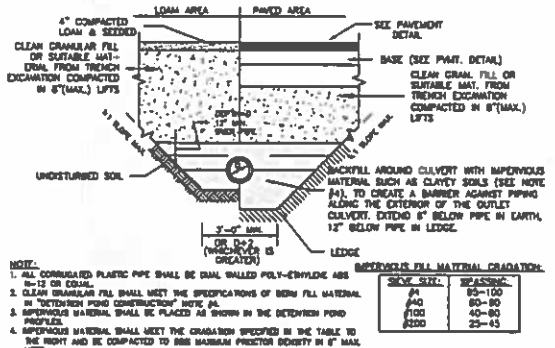
GRAVEL WETLAND OUTLET STRUCTURE DETAIL

SCALE: 3/4" = 1'-0"



ORIFICE SCHEMATIC

SCALE: 3/4" = 1'-0"



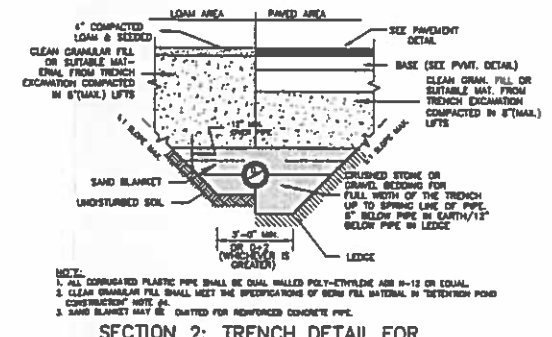
NOTE:
1. ALL CORRUGATED PLASTIC PIPE SHALL BE DUAL WALLED POLY-ETHYLENE ABS M-12 OR EQUAL.
2. CLEAN GRANULAR FILL SHALL MEET THE SPECIFICATIONS OF BERM FILL MATERIAL IN "DETENTION POND CONSTRUCTION" NOTE #6.
3. IMPERVIOUS MATERIAL SHALL BE PLACED AS SHOWN IN THE DETENTION POND PROFILES.
4. IMPERVIOUS MATERIAL SHALL MEET THE GRADATION SPECIFIED IN THE TABLE TO THE RIGHT AND BE COMPACTED TO 85% MAXIMUM PROCTOR DENSITY IN 8" MAX. LIFTS.

IMPERVIOUS FILL MATERIAL GRADATION:

SIEVE SIZE	PERCENTAGE
#4	80-100
#40	60-85
#100	40-60
#200	25-45

SECTION 1: TRENCH DETAIL FOR PRINCIPLE SPILLWAY PIPE

NTS



NOTE:
1. ALL CORRUGATED PLASTIC PIPE SHALL BE DUAL WALLED POLY-ETHYLENE ABS M-12 OR EQUAL.
2. CLEAN GRANULAR FILL SHALL MEET THE SPECIFICATIONS OF BERM FILL MATERIAL IN "DETENTION POND CONSTRUCTION" NOTE #6.
3. SAND BLANKET MAY BE OMITTED FOR REINFORCED CONCRETE PIPE.

SECTION 2: TRENCH DETAIL FOR PRINCIPLE SPILLWAY PIPE

NTS

NO.	DATE	REVISION
1		
2		
3		

DESIGNED: FSD
CHECKED: FSD
APPROVED: RRL
DRAWN: DAD

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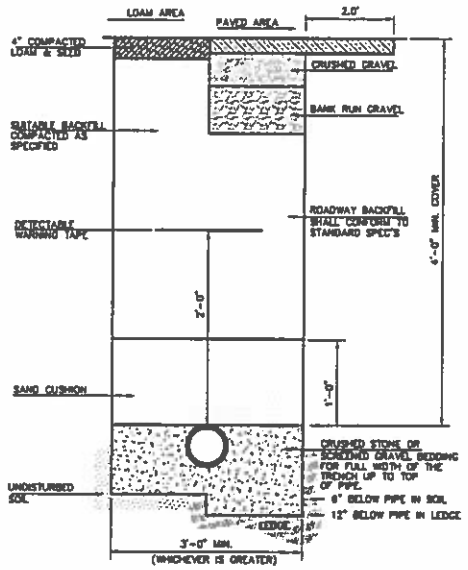
CLIENT:
LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

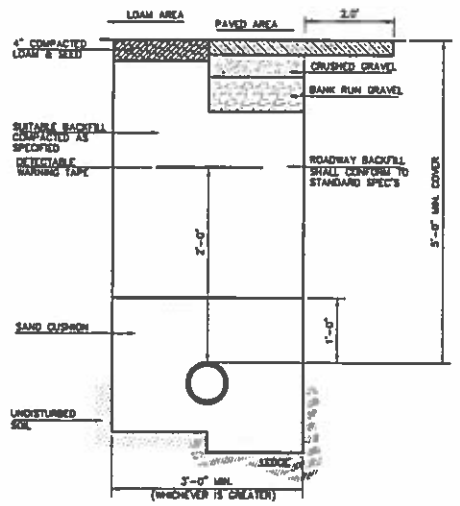
DRAINAGE DETAILS

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2016	DWG. C4

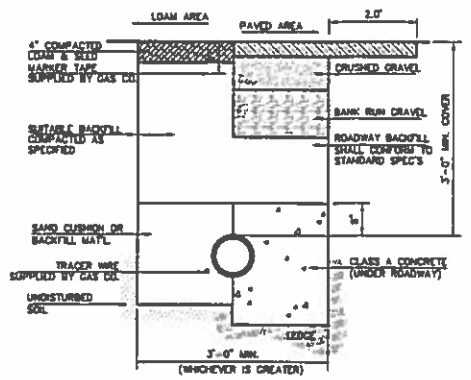
F:\PROJECTS\15164-JENETT LAARS HEATING\DWG\15-0164_SITEPLAN_OPTION 4.DWG 7/5/2016 10:03 AM



TYPICAL SEWER PIPE TRENCH DETAIL
N.T.S.

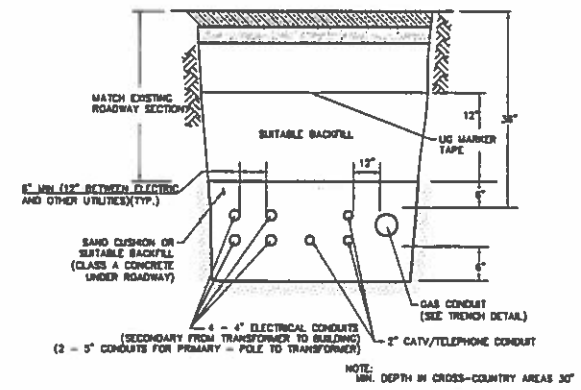


TYPICAL WATER PIPE TRENCH DETAIL
N.T.S.

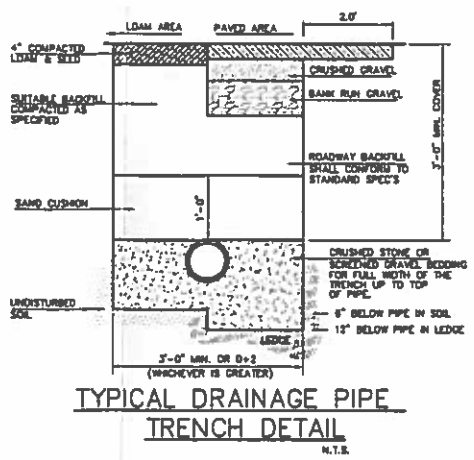


TYPICAL GAS MAIN TRENCH DETAIL
N.T.S.

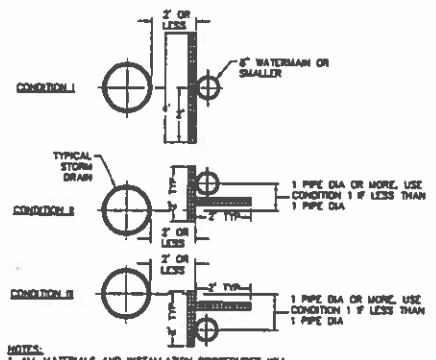
NOTES:
1. UNDER ROADWAY GAS PIPELINE SHALL BE STEEL OR PLASTIC INSIDE STEEL SLEEVE AND BE ENCASED IN CONCRETE.
2. MINIMUM OFFSET TO OTHER UNDERGROUND UTILITIES = 12". ELECTRIC CONDUITS SHALL BE CONCRETE ENCASED ADJACENT TO GAS LINE.



CONDUIT TRENCH DETAIL
N.T.S.
CONDUIT SHALL BE AS REQUIRED BY UTILITIES.

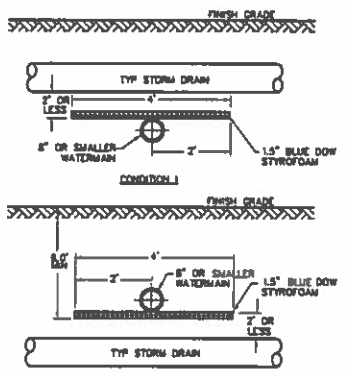


TYPICAL DRAINAGE PIPE TRENCH DETAIL
N.T.S.



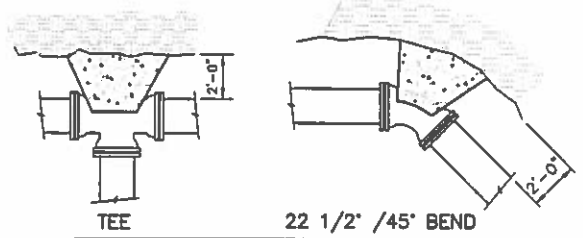
NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO YORK WATER DEPARTMENT TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. YORK WATER DEPARTMENT RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
4. INSULATION TO BE RUN HORIZONTALLY AS LONG AS CONDITIONS I, II, OR III ABOVE EXIST. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH 1' PIECE OF INSULATION CENTERED OVER SEAM.
5. = 1.5" (MIN) BLUE DOW STYROFOAM

STORM DRAIN—WATERMAIN PARALLEL RUNS
N.T.S.



NOTES:
1. YORK WATER DEPARTMENT RESERVES THE RIGHT TO MODIFY INSULATION REQUIREMENTS AS NECESSARY BASED ON FIELD CONDITIONS, ETC.
2. THE LENGTH OR WIDTH OF INSULATION SHALL EXTEND 1 STORM DRAIN PIPE DIAMETER BEYOND THE EDGE OF STORM DRAIN PIPE IN EACH DIRECTION OR A MINIMUM OF 3' BEYOND THE CENTERLINE OF THE STORM DRAIN PIPE, WHICHEVER IS GREATER.
3. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH A 1' PIECE OF INSULATION CENTERED OVER SEAM.

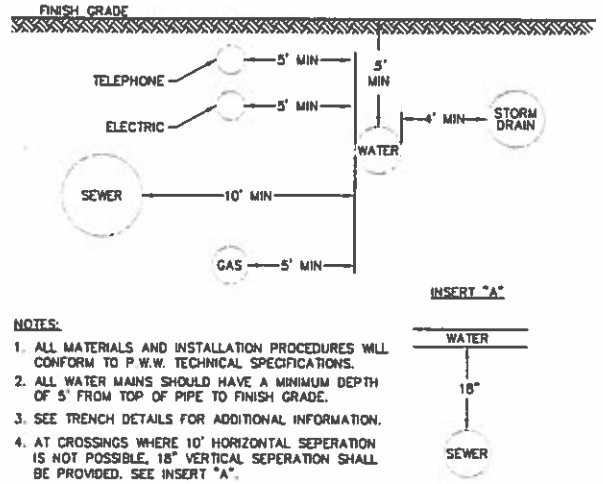
STORM DRAIN – WATERMAIN INTERSECTING RUNS
N.T.S.



MINIMUM THRUST BLOCK BEARING AREA REQ'D AGAINST UNDISTURBED MATERIAL (SQ. FT.)				
PIPE SIZE	TEE	PLUG	45° BEND	22 1/2° & SMALLER
6"	4	3	2	2
8"	6	5	7	7

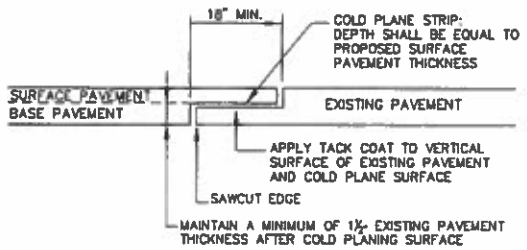
NOTE:
SIZE OF THRUST BLOCK MAY BE INCREASED BY THE ENGINEER TO MEET SOIL CONDITIONS FOUND DURING CONSTRUCTION.

WATER MAIN THRUST BLOCK DETAILS
NTS



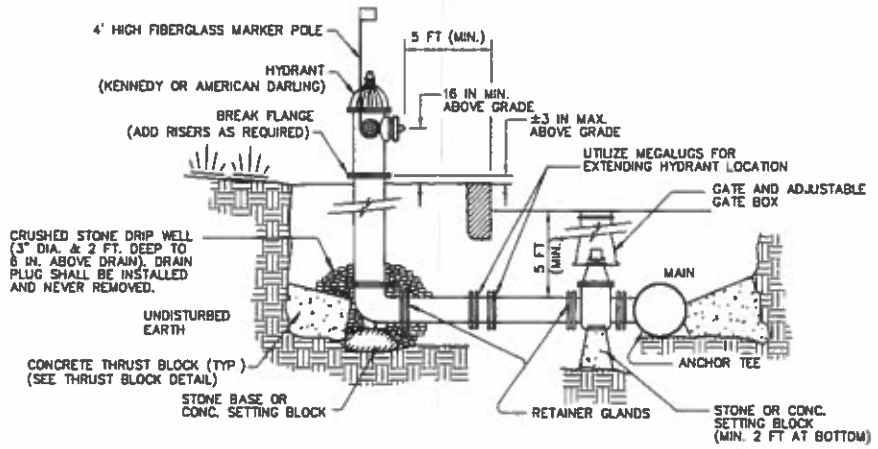
NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO P.W.W. TECHNICAL SPECIFICATIONS.
2. ALL WATER MAINS SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
3. SEE TRENCH DETAILS FOR ADDITIONAL INFORMATION.
4. AT CROSSINGS WHERE 10' HORIZONTAL SEPERATION IS NOT POSSIBLE, 18" VERTICAL SEPERATION SHALL BE PROVIDED. SEE INSERT "A".

WATER MAIN–NUMEROUS DETAILS SEPARATION
N.T.S.

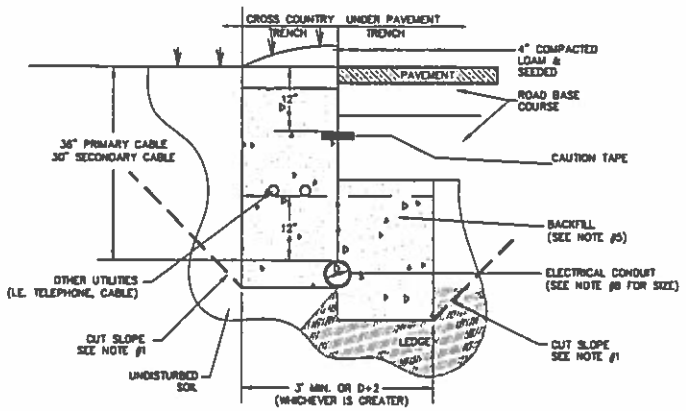


NOTE: COLD PLANE LIMITS MAY BE EXPANDED BEYOND 18" WIDTH AT DIRECTION OF ENGINEER OR OWNER.

PAVEMENT END MATCH
N.T.S.
(FOR REFERENCE PURPOSES ONLY - TO BE INSTALLED BY OTHERS)

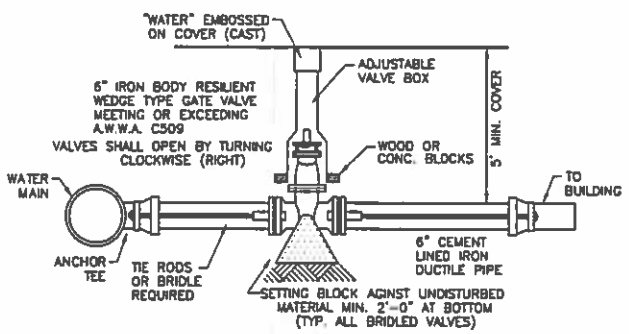


TYPICAL FIRE HYDRANT INSTALLATION
NTS

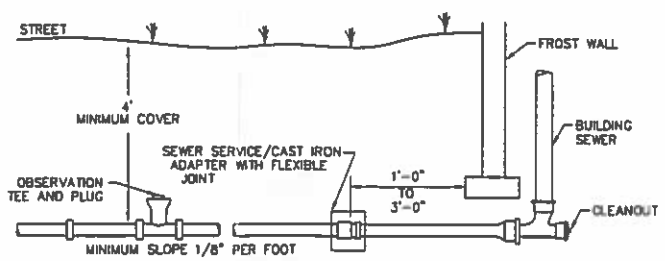


NOTES:
1. ALL NON-METALLIC CONDUIT AND FITTINGS SHALL BE ELECTRICAL GRADE, SCHEDULE 40 PVC, AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEMA TC2-1990 AND BE UL LISTED. ONLY GRAY-COLORED CONDUIT WILL BE ACCEPTED. ANY PVC CONDUIT NOT HAVING THE PROPER NEMA AND UL MARKINGS WILL NOT BE ACCEPTED. ALL STEEL CONDUITS SHALL CONFORM TO ASTM A120 AND BE RIGID GALVANIZED STEEL. ALL PVC JOINTS MUST BE ELECTRICAL. STEEL FITTINGS SHALL BE SEALED WITH COMPOUND.
2. ALL 90 DEGREE SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL WITH A MINIMUM RADIUS OF 36 INCHES FOR PRIMARY CABLES AND 24 INCHES FOR SECONDARY CABLES. ALL STEEL SWEEPS WITHIN 18" OF THE SURFACE SHALL BE PROPERLY GROUNDED.
3. A 10-FOOT HORIZONTAL SECTION OF RIGID GALVANIZED STEEL CONDUIT WILL BE REQUIRED AT EACH SWEEP, UNLESS IN THE OPINION OF THE EVERSOURCE DESIGNER, THE SWEEP—PVC JOINT IS NOT SUBJECT TO FAILURE DURING CABLE PULLING.
4. THE CONDUIT SHALL CROSS PAVED AREAS AT APPROXIMATELY 90 DEGREES.
5. BACKFILL MAY BE MADE WITH EXCAVATED MATERIAL OR COMPARABLE, UNLESS MATERIAL IS DEEMED UNSUITABLE BY EVERSOURCE. BACKFILL SHALL BE FREE OF FROZEN LUMPS, ROCKS, DEBRIS, AND RUBBISH. ORGANIC MATERIAL SHALL NOT BE USED AS BACKFILL. BACKFILL SHALL BE THOROUGHLY COMPACTED IN 6-INCH LAYERS.
6. A SUITABLE PULL STRING, CAPABLE OF 500 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE EVERSOURCE IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
7. ROUTING OF THE CONDUIT AND INSPECTION PRIOR TO BACKFILL WILL BE PROVIDED BY EVERSOURCE. INSTALLATION OF THE CONDUIT WILL BE DONE BY THE CONTRACTOR. THE EVERSOURCE SUPERVISOR MUST BE NOTIFIED 2 BUSINESS DAYS PRIOR TO BACKFILLING THE TRENCH, IN THE EVENT THAT A CABLE CANNOT BE SUCCESSFULLY PULLED THROUGH THE COMPLETED CONDUIT SYSTEM DUE TO A CONSTRUCTION ERROR, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND REPAIR THE INVOLVED CONDUIT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL RESULTING EXPENSES.
8. NORMAL CONDUIT SIZES FOR EVERSOURCE ARE 3-INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES. 4-INCH FOR THREE PHASE SECONDARY, AND 5-INCH FOR THREE PHASE PRIMARY.
9. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND WHERE APPLICABLE THE NATIONAL ELECTRIC CODE.
10. CONDUIT MAY BE INSTALLED BY EXCAVATING AN OPEN TRENCH WITH SIDE SLOPES OF 1:1 MAXIMUM TO A DEPTH OF 4-FT. INSTALLATIONS DEEPER THAN 4-FT REQUIRE THE USE OF A TRENCH BOX.

ELECTRICAL & UNDERGROUND UTILITY TRENCH INSTALLATION DETAIL
N.T.S.



TYPICAL WATER MAIN SERVICE CONNECTION
N.T.S.



BUILDING SEWER SERVICE DETAIL
N.T.S.

NO.	DATE	REVISION	DESIGNED: FSD	CHECKED: FSD	APPROVED: RRL
1	DATE	REVISION			
2	DATE	REVISION			
3	DATE	REVISION			
	DRAWN: DAD				

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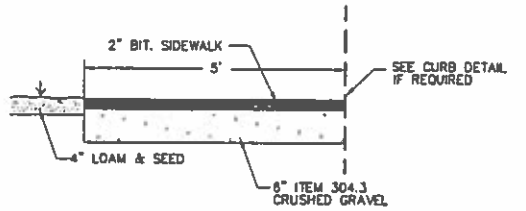
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

UTILITY DETAILS

SCALE:	JOB NO.
1"=30'	15-0184
DATE: JULY 5, 2016	DWG. C5

F:\PROJECTS\15184 JEWETT LAARS HEATING\DWG\15-0184_SITEPLAN_SP.DWG 7/5/2016 10:05 AM



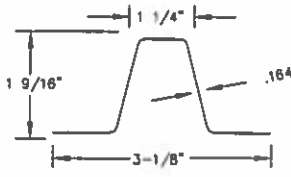
TYPICAL BIT. SIDEWALK DETAIL
N.T.S.

ITEM NO.	SIGN SIZE HEIGHT	SIGN SIZE WIDTH	TEXT	NO. SIGNS REQ'D
R1-1	24"	24"	STOP	1
R7-8a	18"	12"		8
R7-8b	6"	12"	VAN ACCESSIBLE	4
R8-3	18"	12"	NO PARKING	4

NOTES:
1. ALL SIGNS SHALL BE PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. COAST BUS STOP SIGN TO BE PER COAST BUS PROGRAM

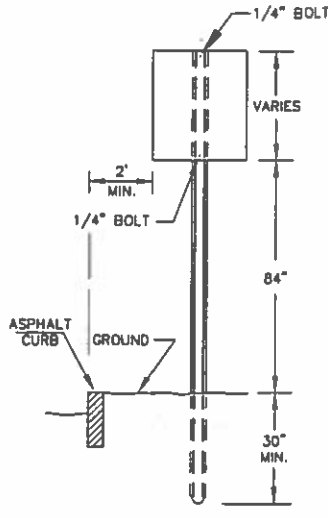
SIGN SCHEDULE
N.T.S.

LENGTH: P-12, 12'-0"; P-14, 14'-0"; P-16, 16'-0".
WEIGHT PER LINEAR FOOT: 2.50 LBS. (MIN.)
HOLES: 3/8" DIA. 1' C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070-1080).
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN, BAKED ON OR AIR DRIED. PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.



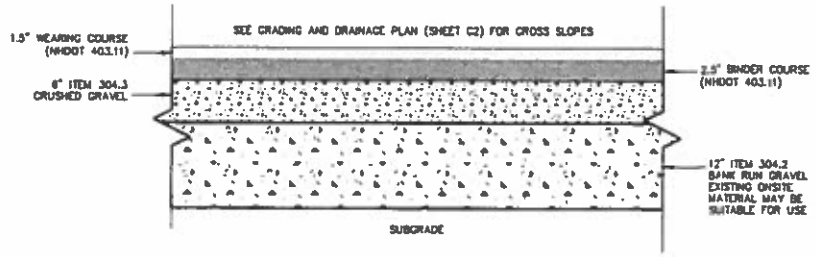
DIMENSIONS SHOWN ARE NOMINAL

ALTERNATE SECTIONS MUST BE APPROVED PRIOR TO USE.



SIGN POST
N.T.S.

NOTES
1. POSTS SHALL BE PLUMB; ANY POST BENT OR OTHERWISE DAMAGED SHALL BE REMOVED AND PROPERLY REPLACED. POSTS MAY BE SET OF DRIVEN.
2. WHEN POSTS ARE SET, HOLES SHALL BE DUG TO THE PROPER DEPTH; AFTER INSERTING POSTS, THE HOLES SHALL BE BACK FILLED WITH SUITABLE MATERIAL IN LAYERS NO TO EXCEED 6" DEEP THOROUGHLY COMPACTED, CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST.
3. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED AND AFTER DRIVING THE TOP OF THE POST SHALL HAVE SUBSTANTIALLY THE SAME CROSS-SECTIONAL DIMENSION AS THE BODY OF THE POST; BATTERED HEADS WILL NOT BE ACCEPTED.
4. POSTS SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST.
5. SIGNS SHALL BE ERECTED IN CONFORMANCE WITH THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
6. WHEN SIGN IS IN PLACE NO PART OF POST SHALL EXTEND ABOVE THE SIGN.



NHDOT ITEM 304.2 (GRAVEL) GRADING REQUIREMENTS:

SIEVE DESIGNATION:	PERCENTAGE BY WEIGHT SQUARE MESH SIEVE:
6 INCH	100%
NO. 4	25-70%
NO. 200	0-12%

GRAVEL SHALL CONTAIN NO PARTICLES OF ROCK EXCEEDING SIX INCHES IN ANY DIMENSION.

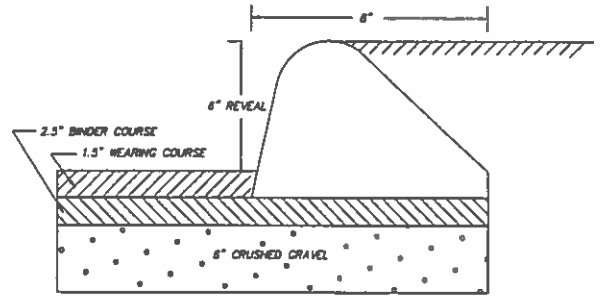
NHDOT ITEM 304.3 (CRUSHED GRAVEL) GRADING REQUIREMENTS:

SIEVE DESIGNATION:	PERCENTAGE BY WEIGHT SQUARE MESH SIEVE:
3 INCH	100%
2 INCH	95-100%
1 INCH	55-85%
NO. 4	27-52%
NO. 200	0-12%

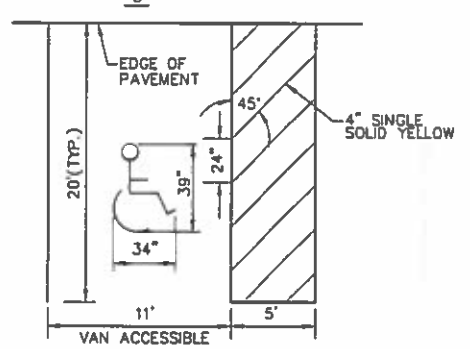
CRUSHED GRAVEL SHALL CONTAIN NO PARTICLES OF ROCK EXCEEDING THREE INCHES IN ANY DIMENSION.

PARKING LOT MATERIALS NOTES:
1. BANK RUN GRAVEL SHALL BE INSTALLED IN MAXIMUM 8 INCH LIFTS AND BE COMPACTED TO 95% MAXIMUM PROCTOR DENSITY TO A DEPTH OF 12 INCHES.
2. CRUSHED GRAVEL SHALL BE INSTALLED IN MAXIMUM 6 INCH LIFTS AND BE COMPACTED TO 95% MAXIMUM PROCTOR DENSITY TO FULL DEPTH.

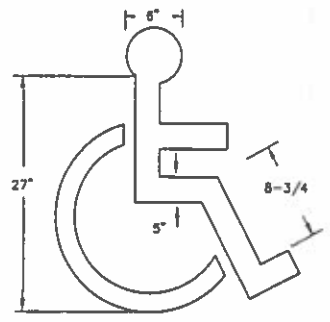
DRIVEWAY AND PARKING AREA CROSS-SECTION
N.T.S.



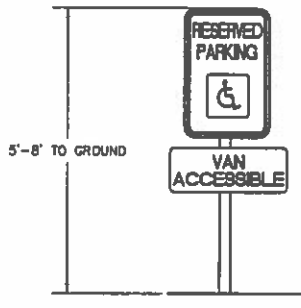
BITUMINOUS CONCRETE CURB DETAIL
N.T.S.



HANDICAP STRIPING DETAIL
N.T.S.

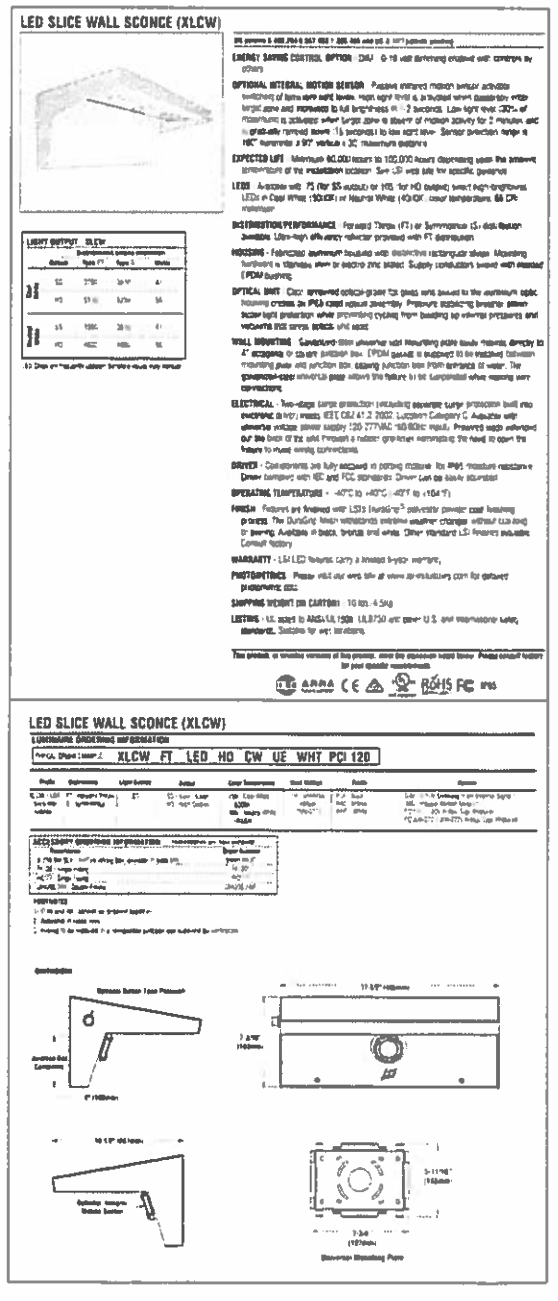


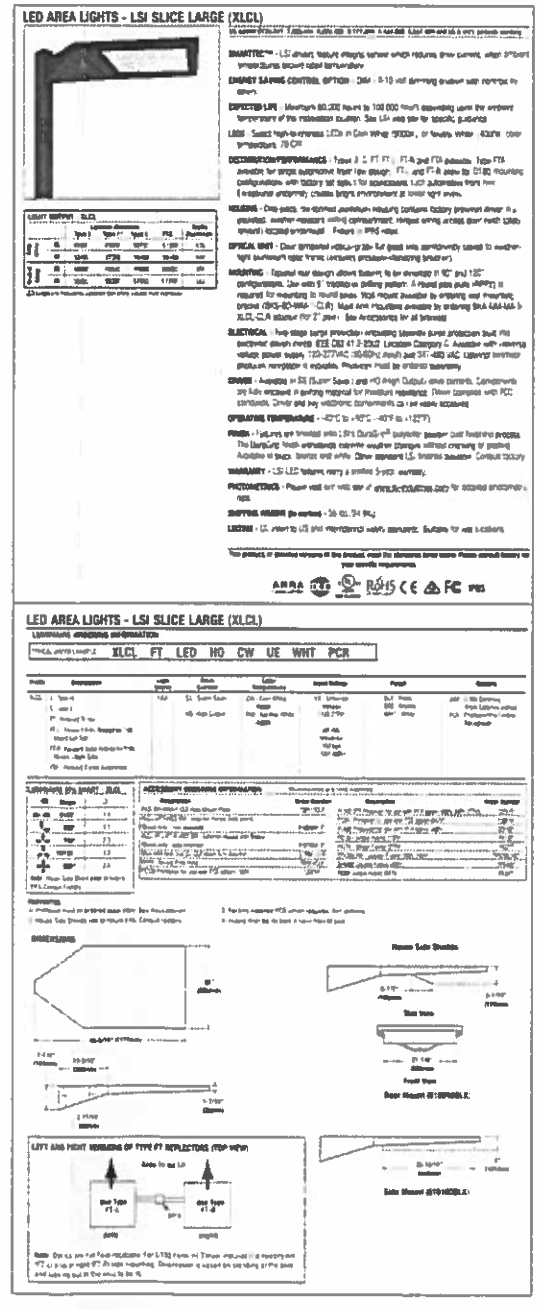
HANDICAPPED PARKING PAVEMENT MARKING
N.T.S.



NOTE: VAN ACCESSIBLE SIGN TO BE ATTACHED TO THE SIGN POST UNDER THE STANDARD HANDICAPPED PARKING SIGN WHERE NOTED ON DRAWINGS.

RESERVED PARKING - HANDICAP & VAN ACCESSIBLE SIGN
N.T.S.





NO.	DATE	REVISION	DRAWN: DAD	DESIGNED: FSD	CHECKED: FSD	APPROVED: RRL
1	DATE	REVISION				
2	DATE	REVISION				
3	DATE	REVISION				

CLE ENGINEERING CONSULTING ENGINEERS, PLLC
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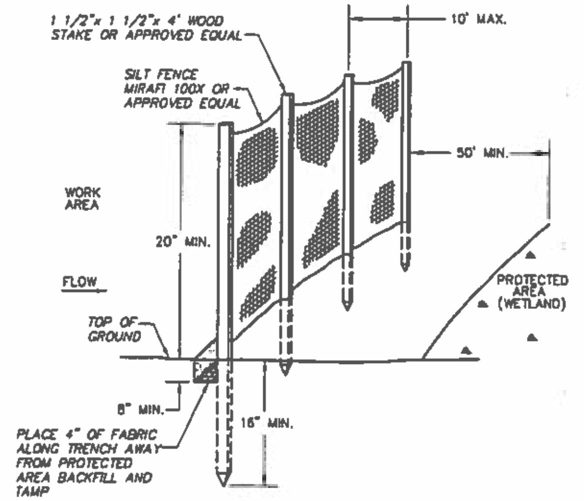
ROCHESTER, NH 03867

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

CONSTRUCTION DETAILS

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2016	DWG. C6

F:\PROJECTS\15-0164 - LAARS HEATING\CAD\15-0164-SITEPLAN_SP-BOH 4.DWG 7/5/2016 10:08 AM



MAINTENANCE REQUIREMENTS:
1. FENCES SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALLS;

2. SEDIMENT DEPOSITION SHOULD BE REMOVED, AT A MINIMUM, WHEN DEPOSITION ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FENCE, AND MOVED TO AN APPROPRIATE LOCATION SO THE SEDIMENT IS NOT READILY TRANSPORTED BACK TOWARD THE SILT FENCE.

3. SILT FENCES SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHOULD BE REPLACED WITH A TEMPORARY CHECK DAM.

4. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY; THE FABRIC SHOULD BE REPLACED PROMPTLY.

5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE PREPARED AND SEEDED.

6. IF THERE IS EVIDENCE OF END FLOW ON PROPERLY INSTALLED BARRIERS, EXTEND BARRIERS UPHILL OR CONSIDER REPLACING THEM WITH OTHER MEASURES, SUCH AS TEMPORARY DIVERSIONS AND SEDIMENT TRAPS.

7. SILT FENCES HAVE A USEFUL LIFE OF ONE SEASON. ON LONGER CONSTRUCTION PROJECTS, SILT FENCE SHOULD BE REPAIRED PERIODICALLY AS REQUIRED TO MAINTAIN EFFECTIVENESS.

CONSTRUCTION SPECIFICATIONS:
1. FENCES SHOULD BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE FENCE. SEDIMENT BARRIERS SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA ABOVE THE FENCE SHOULD BE LESS THAN 1A ACRE PER 100 LINEAR FEET OF FENCE;

3. THE MAXIMUM LENGTH OF SLOPE ABOVE THE FENCE SHOULD BE 100 FEET;

4. THE MAXIMUM SLOPE ABOVE THE FENCE SHOULD BE 2:1;

5. FENCES SHOULD BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSELY AS POSSIBLE, AND
A. THE ENDS OF THE FENCE SHOULD BE FLARED UPSLOPE;
B. THE FABRIC SHOULD BE EMBEDDED A MINIMUM OF 4 INCHES IN DEPTH AND INCHES IN WIDTH IN A TRENCH EXCAVATED INTO THE GROUND, OR IF SITE CONDITIONS INCLUDE FROZEN GROUND, LEDGE, OR THE PRESENCE OF HEAVY ROOTS, THE BASE OF THE FABRIC SHOULD BE EMBEDDED WITH A MINIMUM THICKNESS OF 8 INCHES OF 3/4-INCH STONE;
C. THE SOIL SHOULD BE COMPACTED OVER THE EMBEDDED FABRIC;
D. SUPPORT POSTS SHOULD BE SIZED AND ANCHORED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS WITH MAXIMUM POST SPACING OF 6 FEET;
E. ADJOINING SECTIONS OF THE FENCE SHOULD BE OVERLAPPED BY A MINIMUM OF 6 INCHES (24 INCHES IS PREFERRED), FOLDED AND STAPLED TO A SUPPORT POST. IF METAL POSTS ARE USED, FABRIC SHOULD BE WIRE-TIED DIRECTLY TO THE POSTS WITH THREE DIAGONAL TIES.

6. SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.

7. THE FILTER FABRIC SHOULD BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.

8. THE FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.

9. POSTS FOR SILT FENCES SHOULD BE EITHER 4-INCH DIAMETER WOOD OR 1.33 POUNDS PER LINEAR FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHOULD HAVE, PROJECTIONS FOR FASTENING WIRE TO THEM. POSTS SHOULD BE PLACED ON THE DOWN SLOPE SIDE OF THE FABRIC.

10. THE HEIGHT OF A SILT FENCE SHOULD NOT EXCEED 36 INCHES AS HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

11. THE FILTER FABRIC SHOULD BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY; FILTER CLOTH SHOULD BE SPLICED TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.

12. A MANUFACTURED SILT FENCE SYSTEM WITH INTEGRAL POSTS MAY BE USED.

13. POST SPACING SHOULD NOT EXCEED 6 FEET.

14. A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UP GRADIENT FROM THE BARRIER.

15. THE STANDARD STRENGTH OF FILTER FABRIC SHOULD BE STAPLED OR WIRED TO THE POST, AND 8 INCHES OF THE FABRIC SHOULD BE EXTENDED INTO THE TRENCH. THE FABRIC SHOULD NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

16. THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

17. SILT FENCE MAY BE INSTALLED BY "SLICING" USING MECHANICAL EQUIPMENT SPECIFICALLY DESIGNED FOR THIS PROCEDURE. THE SLICING METHOD USES AN IMPLEMENT TOWED BEHIND A TRACTOR TO "PLOW" OR SLICE THE SILT FENCE MATERIAL INTO THE SOIL. THE SLICING METHOD MINIMALLY DISRUPTS THE SOIL UPWARD AND SLIGHTLY DISPLACES THE SOIL, MAINTAINING THE SOIL'S PROFILE AND CREATING AN OPTIMAL CONDITION FOR SUBSEQUENT MECHANICAL COMPACTION

18. SILT FENCES SHOULD BE INSTALLED WITH "SMILES" OR "J-HOOKS" TO REDUCE THE DRAINAGE AREA THAT ANY SEGMENT WILL IMPOUND.

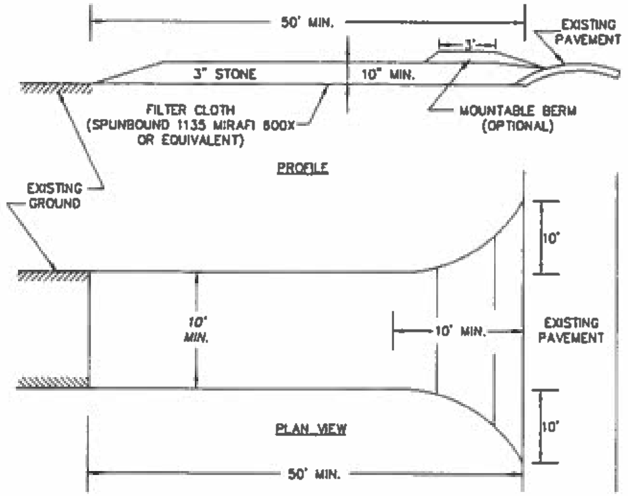
19. THE ENDS OF THE FENCE SHOULD BE TURNED UPHILL.

20. SILT FENCES PLACED AT THE TOE OF A SLOPE SHOULD BE SET AT LEAST 6 FEET FROM THE TOE IN ALLOW SPACE FOR SHALLOW PONDING AND TO ALLOW FOR MAINTENANCE ACCESS WITHOUT DISTURBING THE SLOPE.

21. SILT FENCES SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SILT FENCE BARRIER

N.T.S.



MAINTENANCE REQUIREMENTS:
1. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED.
2. THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY
3. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

CONSTRUCTION SPECIFICATIONS:
1. THE MINIMUM STONE USED SHOULD BE 3-INCH CRUSHED STONE.
2. THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH MOUNTABLE BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE PAD SHOULD BE THE FULL WIDTH OF CONSTRUCTION ACCESS ROAD OR 10 FEET, WHICHEVER IS GREATER.
4. THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
5. THE PAD SHOULD BE AT LEAST 10 INCHES THICK.
6. THE GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
7. THE PAD SHOULD BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF-SITE.
8. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

USDA – SCS STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

PROJECT SPECIFIC CONSTRUCTION PHASING:

1. REFER TO THE "GENERAL CONSTRUCTION PHASING" NOTES PRIOR TO COMMENCING CONSTRUCTION IN ACCORDANCE WITH THE FOLLOWING PHASING. THE "GENERAL CONSTRUCTION PHASING" NOTES APPLY TO THE OVERALL CONSTRUCTION AND SHALL BE ADHERED TO.

2. INSTALL ALL TEMPORARY SEDIMENT CONTROL BARRIERS (I.E. SILT FENCE, EROSION CONTROL MIX BERMS, STONE CHECK DAMS, ETC.) AROUND THE OUTER PERIMETER OF THE CONSTRUCTION SITE AS DEPICTED ON SHEET C2.

3. CLEAR, GRUB AND STRIP THE SITE. STUMPS, BRUSH AND OTHER ORGANIC WASTE SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

4. INSTALL A TEMPORARY CONSTRUCTION EXIT AT THE LOCATION OF THE PROPOSED DRIVEWAY EXTENSION. MAINTAIN AS DIRECTED BY THE TEMPORARY CONSTRUCTION EXIT DETAIL.

5. STOCKPILE STRIPPED TOPSOIL AND CUT MATERIAL TO BE REUSED ON SITE IN AN APPROPRIATE LOCATION IN ACCORDANCE WITH THE "SOIL STOCKPILES PRACTICES". MAINTAIN THE STOCKPILES AS DIRECTED IN THE "SOIL STOCKPILE PRACTICES".

6. PERFORM THE NECESSARY CUTS AND FILLS TO CONSTRUCT THE INFILTRATION BASINS AS DEPICTED ON SHEET C2 AND IN ACCORDANCE WITH THE INFILTRATION BASIN DETAILS.

7. CONSTRUCT THE SEDIMENT FOREBAYS FOR THE INFILTRATION BASINS. AMEND THE SOILS OF THE INFILTRATIVE SURFACE AND LOAM SEED AND MULCH THE SIDE SLOPES OF THE BASIN AS DIRECTED IN THE INFILTRATION BASIN DETAILS.

8. PERFORM THE NECESSARY CUTS AND FILLS TO SUBGRADE IN THE BUILDING AND PARKING LOT AREAS.

A) INSTALL REQUIRED FILLS IN MAXIMUM 8-INCH LIFTS AND COMPACT EACH LIFT TO 95% MAXIMUM PROCTOR DENSITY

9. AS SUBGRADE IS ACHIEVED INSTALL REMAINING SEDIMENT CONTROL BARRIERS WITHIN THE SITE (I.E. ADDITIONAL SILT FENCE, EROSION CONTROL MIX BERMS, CHECK DAMS AND SEDIMENT CONTROLS AND CATCH BASINS, ETC.)

10. INSTALL ALL UTILITIES AND CLOSED DRAINAGE SYSTEM COMPONENTS (I.E. CATCH BASINS, PIPE CULVERTS, FLARED END SECTIONS, ETC.) PER THE CORRESPONDING DETAILS AND AS SHOWN ON SHEET C2. AS EACH STRUCTURE IS COMPLETED INSTALL THE CORRESPONDING TEMPORARY SEDIMENT CONTROL BARRIER DEPICTED ON SHEET C3.

11. ALL CUT AND FILL SLOPES AND LAWN AREAS NOT TO BE PAVED SHALL BE LOAMED AND SEEDED FOR PERMANENT VEGETATION AND STABILIZATION AS DESCRIBED UNDER THE "PERMANENT VEGETATION PRACTICES" WITHIN 3 DAYS OF ACHIEVING FINAL GRADE.

12. INSTALL ALL GRAVEL BASE AND CRUSHED GRAVEL MATERIALS FOR THE PARKING AREA AND SIDEWALK AS SPECIFIED IN THE CORRESPONDING DETAILS.

13. THE PARKING AREAS SHALL BE STABILIZED (CONSTRUCTED TO GRAVEL BASE COURSE) WITHIN 3 DAYS OF ACHIEVING FINISHED SUBGRADE ELEVATIONS.

14. INSTALL PAVEMENT SURFACES AS SOON AS POSSIBLE AFTER INSTALLATION OF GRAVEL BASE AND CRUSHED GRAVEL INSTALLATION, IN ORDER TO LIMIT SOIL EROSION AND POLLUTION OF THE GRAVEL MATERIALS WITH ORGANIC MATERIALS. IN NO CASE SHALL AREAS TO BE PAVED BE LEFT UNPROTECTED THROUGH THE WINTER MONTHS.

15. ALL DISTURBED AREAS EXCLUDING AREAS TO BE PAVED SHALL BE STABILIZED AS SOON AS POSSIBLE. IN NO CASE SHALL ANY DISTURBED AREA BE LEFT UN-STABILIZED FOR LONGER THAN 21 DAYS. IF NECESSARY TEMPORARY STABILIZATION MEASURES AS DISCUSSED IN THE "GENERAL CONSTRUCTION PHASING NOTES" AND NHSMM, VOL. 3 SHOULD BE EMPLOYED.

MAINTENANCE AND INSPECTION:
16. DURING CONSTRUCTION ALL TEMPORARY AND PERMANENT SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES SHOULD BE INSPECTED WEEKLY, AFTER EVERY 1/2 INCH OF RAINFALL AND ANNUALLY.

17. EXCESS SEDIMENT SHOULD BE REMOVED FROM TEMPORARY SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES WHEN IT REACHES PRESCRIBED THRESHOLDS DISCUSSED IN THE DETAILS FOR EACH PRACTICE.

18. ALL DAMAGED TEMPORARY AND PERMANENT SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES SHOULD BE REPAIRED OR REPLACED IMMEDIATELY UPON NOTICE.

19. SEDIMENT SHALL BE DISPOSED OF PROPERLY EITHER ON SITE OR OFF SITE.

PROJECT COMPLETION AND STABILIZATION:
20. UPON PROJECT COMPLETION, ONCE THE SITE IS DEEMED STABILIZED (VEGETATION IS GERMINATED), THE TEMPORARY SEDIMENT CONTROL BARRIERS AND EROSION CONTROL PRACTICES SHALL BE REMOVED. ANY DISTURBANCE CREATED DURING REMOVAL SHALL BE REPAIRED IN AN APPROPRIATE MANNER.

21. THE TEMPORARY STORMWATER SEDIMENTATION BASIN SHALL BE REMOVED, THE AREA GRADED TO PROPOSED ELEVATIONS, AND STABILIZED WITHIN THREE DAYS OF REMOVAL.

22. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM ALL ON SITE CATCH BASINS AND THE SEDIMENT FOREBAYS TO THE INFILTRATION BASINS.

WINTER STABILIZATION & CONSTRUCTION PRACTICES:

MAINTENANCE REQUIREMENTS:
1. MAINTENANCE MEASURES SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION, INCLUDING OVER THE WINTER PERIOD. AFTER EACH RAINFALL, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHOULD CONDUCT INSPECTION OF ALL INSTALLED EROSION CONTROL PRACTICES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUED FUNCTION.

2. FOR ANY AREA STABILIZED BY TEMPORARY OR PERMANENT SEEDING PRIOR TO THE ONSET OF THE WINTER SEASON, THE CONTRACTOR SHOULD CONDUCT AN INSPECTION IN THE SPRING TO ASCERTAIN THE CONDITION OF THE VEGETATION AND REPAIR ANY DAMAGED AREAS OR BARE SPOTS AND RESEED AS REQUIRED TO ACHIEVE AN ESTABLISHED VEGETATIVE COVER (AT LEAST 85% OF AREA VEGETATED WITH HEALTHY, VIGOROUS GROWTH.)

SPECIFICATIONS:
THE FOLLOWING STABILIZATION TECHNIQUES SHOULD BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 15.

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO 1-ACRE AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DISCUSSED IN NHSMM, VOL. 3 AND ELSEWHERE IN THIS PLAN SET, PRIOR TO ANY THAW OR SPRING MELT EVENT. STABILIZATION AS FOLLOWS SHOULD BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
2. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING, OR 2 INCHES OF EROSION CONTROL MIX (REFER TO NHSMM, VOL. 3 FOR SPECIFICATION)
3. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15 SHOULD BE SEEDED AND COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET OR WITH A MINIMUM OF 4 INCHES OF EROSION CONTROL MIX, UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. NOTE THAT COMPOST BLANKETS SHOULD NOT EXCEED 2 INCHES IN THICKNESS OR THEY MAY OVERHEAT.
4. ALL STONE COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
5. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
6. ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (I.E. BY NETTING, TRACKING, WOOD CELLULOSE FIBER).
7. WITHIN 24 HOURS OF STOCKPILING SOIL MATERIALS SHOULD BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A 4 INCH LAYER OF EROSION CONTROL MIX. MULCH SHOULD BE RE-ESTABLISHED PRIOR TO ANY RAIN OR SNOWFALL. NO SOIL STOCKPILE SHOULD BE PLACED (EVEN COVERED WITH MULCH) WITHIN 100-FT OF ANY WETLAND OR OTHER WATER RESOURCE AREA.
8. FROZEN MATERIAL (I.E. FROST LAYER REMOVED DURING WINTER CONSTRUCTION) SHOULD BE STOCKPILED SEPARATELY AND IN A LOCATION AWAY FROM ANY AREA NEEDING PROTECTION. FROZEN MATERIAL STOCKPILES CAN MELT IN SPRING AND BECOME UNWORKABLE AND DIFFICULT TO TRANSPORT DUE TO HIGH SOIL MOISTURE CONTENT.
9. INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.
10. ALL GRASS-LINED DITCHES AND CHANNELS SHOULD BE CONSTRUCTED BY SEPTEMBER 1. ALL DITCHES AND SWALES WHICH DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS AS DETERMINED BY A PROFESSIONAL ENGINEER. IF STONE LINING IS NECESSARY, THE CONTRACTOR MAY NEED TO RE-GRADE THE DITCH AS REQUIRED TO PROVIDE ADEQUATE CROSS-SECTION AFTER ALLOWING FOR PLACEMENT OF THE STONE.
11. ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
12. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER SHOULD BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF SAND AND GRAVEL WITH A GRADATION THAT IS LESS THAN 12% OF THE SAND PORTION, OR MATERIAL PASSING THE NUMBER 4 SIEVE, BY WEIGHT, PASSES THE NUMBER 200 SIEVE.
13. SEDIMENT BARRIERS THAT ARE INSTALLED DURING FROZEN CONDITIONS SHOULD CONSIST OF EROSION CONTROL MIX BERMS, OR CONTINUOUS CONTAINED BERMS. SILT FENCES AND HAY BALES SHOULD NOT BE INSTALLED WHEN FROZEN CONDITIONS PREVENT PROPER EMBEDMENT OF THESE BARRIERS.

DUST CONTROL PRACTICES:

1. APPLY DUST CONTROL MEASURES AS NECESSARY TO MAINTAIN CONTROL OF DUST ON SITE.
2. WATER APPLICATION:
A) MOISTEN EXPOSED SOIL SURFACES PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST
B) AVOID EXCESSIVE APPLICATION OF WATER THAT WOULD RESULT IN MOBILIZING SEDIMENT AND SUBSEQUENT DEPOSITION IN NATURAL WATERBODIES.
3. STONE APPLICATION:
A) COVER SURFACE WITH CRUSHED OR COARSE GRAVEL.
B) IN AREAS NEAR WATERWAYS USE ONLY CHEMICALLY STABILIZED OR WASHED AGGREGATE.
4. REFER TO "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" FOR OTHER ALLOWABLE DUST CONTROL PRACTICES (I.E. COMMERCIAL TACKIFIERS OR CHEMICAL TREATMENTS SUCH AS CALCIUM CHLORIDE, ETC.)

INVASIVE SPECIES NOTE:

THE CONTRACTOR SHALL TAKE STEPS TO PREVENT THE SPREAD OF INVASIVE PLANT, INSECT, AND FUNGAL SPECIES BY MEETING THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
http://gencourt.state.nh.us/rules/state_agencies/agr3800.html

GENERAL CONSTRUCTION PHASING:

1. STABILIZATION:
A SITE IS DEEMED STABILIZED WHEN IT IS IN A CONDITION IN WHICH THE SOIL ON SITE WILL NOT EXPERIENCE ACCELERATED OR UNNATURAL EROSION UNDER THE CONDITIONS OF A 10-YEAR STORM EVENT, SUCH AS BUT NOT LIMITED TO:
A) IN AREAS THAT WILL NOT BE PAVED:
I) A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED;
II) A MINIMUM OF 3-INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR A CERTIFIED COMPOST BLANKET HAS BEEN INSTALLED, OR;
III) EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
B) IN AREAS TO BE PAVED:
I) BASE COURSE GRAVELS HAVE BEEN INSTALLED.

2. TEMPORARY STABILIZATION:
ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE TEMPORARILY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 45 DAYS FROM THE TIME OF INITIAL DISTURBANCE, UNLESS A SHORTER TIME IS SPECIFIED BY LOCAL AUTHORITIES, THE CONSTRUCTION SEQUENCE APPROVED AS PART OF THE ISSUED PERMIT OR AN INDEPENDENT MONITOR.

3. PERMANENT STABILIZATION:
ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE PERMANENTLY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 3 DAYS FOLLOWING FINAL GRADING.

4. MAXIMUM AREA OF DISTURBANCE:
THE AREA OF UNSTABILIZED SOIL SHOULD NOT EXCEED 5 ACRES AT ANY TIME.

5. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
A) FLAG OR OTHERWISE DELINEATE AREAS NOT TO BE DISTURBED.
B) EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION.

6. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHOULD BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN DEPICTED ON SHEET C3.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES AND MEASURES SHOULD BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN DEPICTED ON SHEET C3.

8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHOULD BE STOCKPILED IN THE AMOUNT NECESSARY TO COMPLETE FINISHED GRADING AND BE PROTECTED FROM EROSION

9. STOCKPILES, BORROW AREAS AND SPOILS SHALL BE STABILIZED AS DESCRIBED UNDER "SOIL STOCKPILE PRACTICES".

10. SLOPES SHOULD NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGE.

11. AREAS TO BE FILLED SHOULD BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND/OR OTHER OBJECTIONABLE MATERIALS.

12. AREAS SHOULD BE SCARIFIED TO A MINIMUM DEPTH OF 3-INCHES PRIOR TO PLACEMENT OF TOPSOIL. TOPSOIL SHOULD BE PLACED WITHOUT SIGNIFICANT COMPACTION TO PROVIDE A LOOSE BEDDING FOR PLACEMENT OF SEED.

13. ALL FILLS SHOULD BE COMPACTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, SITE UTILITIES, CONDUITS AND OTHER FACILITIES, SHOULD BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

14. IN GENERAL, FILLS SHOULD BE COMPACTED IN LAYERS RANGING FROM 6 TO 24 INCHES IN THICKNESS. THE CONTRACTOR SHOULD REVIEW THE PROJECT GEOTECHNICAL REPORT AND/OR THE "PROJECT SPECIFIC SEQUENCING NOTES" FOR SPECIFIC GUIDANCE.

15. ANY AND ALL FILL MATERIAL SHOULD BE FREE OF BRUSH, RUBBISH, ROCKS (LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING INSTALLED), LOGS, STUMPS, BUILDING DEBRIS, FROZEN MATERIAL AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.

16. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE (I.E. CLAY, SILT) MATERIALS ARE SUSCEPTIBLE TO ACCELERATED SETTLEMENT AND POTENTIAL ACCELERATED EROSION. WORK IN AREAS OF THESE MATERIALS SHOULD BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER.

17. THE OUTER FACE OF THE FILL SLOPE SHOULD BE ALLOWED TO STAY LOOSE, NOT ROLLED OR COMPACTED, OR BLADE SMOOTHED. A BULLDOZER MAY RUN UP AND DOWN THE FILL SLOPE SO THE DOZER TREADS (CLEAT TRACKS) CREATE GROOVES PERPENDICULAR TO THE SLOPE. IF THE SOIL IS NOT TOO MOIST, EXCESSIVE COMPACTION WILL NOT OCCUR. SEE "SURFACE ROUGHENING" IN THE NHSMM, VOL.3.

18. ROUGHEN THE SURFACE OF ALL SLOPES DURING THE CONSTRUCTION OPERATION TO RETAIN WATER, INCREASE INFILTRATION AND FACILITATE VEGETATION ESTABLISHMENT.

19. USE SLOPE BREAKS, SUCH AS DIVERSIONS, BENCHES, OR CONTOUR FURROWS AS APPROPRIATE TO REDUCE THE LENGTH OF CUT-FILL SLOPES TO LIMIT SHEET AND RILL EROSION AND PREVENT GULLY EROSION. ALL BENCHES SHOULD BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF CONSTRUCTION.

20. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHOULD BE EVALUATED BY A PROFESSIONAL ENGINEER (PREFERABLY THE DESIGN ENGINEER) TO DETERMINE IF THE PROPOSED DESIGN SHOULD BE REVISED TO PROPERLY MANAGE THE CONDITION.

21. STABILIZE ALL GRADED AREAS (AS ABOVE) WITH VEGETATION, CRUSHED STONE, COMPOST BLANKET, OR OTHER GROUND COVER AS SOON AS GRADING IS COMPLETE OR IF WORK IS INTERRUPTED FOR 21 WORKING DAYS OR MORE. USE MULCH OR OTHER APPROVED METHODS TO STABILIZE AREAS TEMPORARILY WHERE FINAL GRADING MUST BE DELAYED.

22. ALL GRADED AREAS SHOULD BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

ABOVE NOTES EXCERPTED, ADAPTED AND REFERENCED FROM "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" (NHSMM, VOL. 3)

SOIL STOCKPILE PRACTICES:

1. LOCATE STOCKPILES A MINIMUM OF 50-FT. AWAY FROM CONCENTRATED FLOWS OF STORMWATER, DRAINAGE COURSES OR INLETS.

2. PROTECT ALL STOCKPILES FROM STORMWATER RUN-ON USING TEMPORARY PERIMETER MEASURES SUCH AS DIVERSIONS, BERMS, SANDBAGS OR OTHER APPROVED PRACTICES.

3. STOCKPILES SHOULD BE SURROUNDED BY SEDIMENT BARRIERS AS DESCRIBED ON THE PLANS AND IN NHSMM VOL. 3. TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILE.

4. IMPLEMENT WIND EROSION CONTROL PRACTICES AS APPROPRIATE ON ALL STOCKPILED MATERIAL.

5. PLACE BAGGED MATERIALS ON PALLETS OR UNDERCOVER

PROTECTION OF INACTIVE STOCKPILES:
6. INACTIVE SOIL STOCKPILES SHOULD BE COVERED WITH ANCHORED TARPS OR PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY SEED AND MULCH OR OTHER TEMPORARY STABILIZATION PRACTICE) AND TEMPORARY PERIMETER SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES.

7. INACTIVE STOCKPILES OF CONCRETE RUBBLE, ASPHALT CONCRETE RUBBLE, AGGREGATE MATERIALS, AND SIMILAR MATERIALS SHOULD BE PROTECTED WITH TEMPORARY SEDIMENT PERIMETER BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES. IF THE MATERIALS ARE A SOURCE OF DUST, THEY SHOULD ALSO BE COVERED.

PROTECTION OF ACTIVE STOCKPILES:
8. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY LINEAR SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) PRIOR TO THE ONSET OF PRECIPITATION. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIAL FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY

9. WHEN A STORM IS PREDICTED, STOCKPILES SHOULD BE PROTECTED WITH AN ANCHORED PROTECTIVE COVERING.

#	DATE	REVISION
#	DATE	REVISION
#	DATE	REVISION
NO.	DATE	REVISION

DRAWN:	DESIGNED:	CHECKED:	APPROVED:
DAD	FSD	FSD	RRL

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SEDIMENT & EROSION CONTROL MEASURES

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2016	DWG. C7

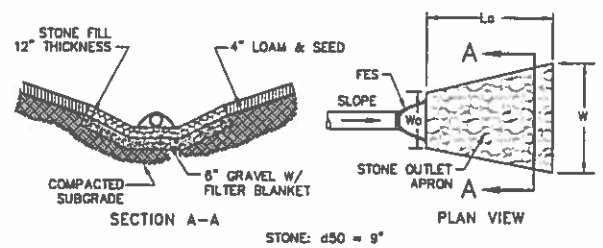
F:\PROJ2015\150164 JEWETT LAARS HEATSYS\CIVIL3\DWG\15-0164_SITEPLAN_OPTION4.DWG 7/5/2016 10:07 AM

D10=10" RIP-RAP GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
100	8	TO	8
85	5	TO	7
50	4	TO	6
15	1	TO	2

APRON DIMENSION TABLE

PIPE OUTLET	Wo	W	Lo	d50
12" HDPE OUTLET FROM EC #1	3'	19.5'	18.5'	9"
30" HDPE OUTLET FROM DMH #1	7.5'	38'	28.5'	9"
15" HDPE OUTLET FROM #8 #1	4.5'	24.5'	20'	9"



STONE: d50 = 9"

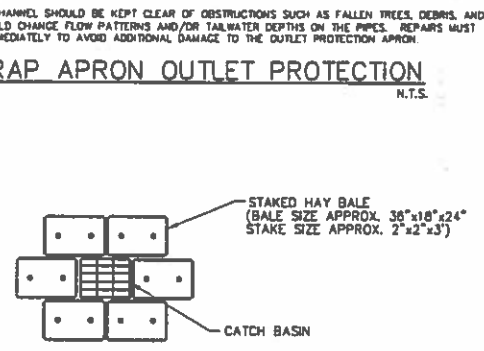
THE HEIGHT OF THE STRUCTURAL LINING ALONG THE CHANNEL SIDES SHALL BEGIN AT THE ELEVATION EQUAL TO THE TOP OF THE CONDUIT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.

NOTES:
1. ALL PIPE CULVERTS SHALL HAVE END SECTIONS OR HEADWALLS. END SECTION MATERIAL AND MANUFACTURER SHALL MATCH THAT OF THE PIPE CULVERT.
2. THE LARGEST RIP-RAP SIZE DETERMINED DURING HYDROLOGIC ANALYSIS HAS BEEN USED FOR ALL OUTLETS FOR ECONOMY AND SIMPLICITY.
3. APRON LENGTHS, WIDTHS AND THICKNESSES HAVE BEEN ROUNDED UP TO WHOLE NUMBERS FOR EASE OF CONSTRUCTION.

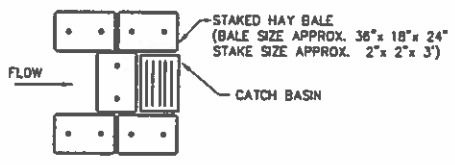
CONSTRUCTION SPECIFICATIONS:
1. PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
2. MINIMUM 8" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
3. THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO (2) PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
5. STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
6. RIP-RAP SIZE CHOSEN FOR THE WORST CASE OF ALL OUTLETS. ALL RIP-RAP USED FOR PIPE OUTLET PROTECTION WILL HAVE THE SAME GRADATION AND THICKNESS.

MAINTENANCE NOTES:
1. OUTLETS SHALL BE INSPECTED AND CLEANED ANNUALLY AND AFTER ANY MAJOR STORM EVENT. ANY EROSION OR DAMAGE TO THE RIP-RAP SHALL BE REPAIRED IMMEDIATELY.
2. THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
3. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

RIP RAP APRON OUTLET PROTECTION
N.T.S.



EROSION PROTECTION - CATCH BASINS AT LOW POINTS
N.T.S.



FOR USE AROUND CATCH BASINS IN AREAS TO BE PAVED, WHICH ARE NOT LOCATED AT PROFILE LOW POINTS

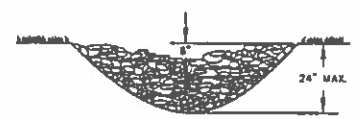
EROSION PROTECTION - CATCH BASINS ON SLOPES
N.T.S.

CONSTRUCTION SPECIFICATIONS:
1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDE IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4-INCH, 8-INCH AND 12-INCH WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH AND NO GREATER THAN 24 INCHES HIGH.
2. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEEPING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS SHALL BE USED.
3. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN ABOVE. STONE GRADATION SHALL BE WELL GRADED WITH THE MAXIMUM STONE SIZE OF 8 INCHES AND MINIMUM STONE SIZE OF 1 INCH.
4. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.

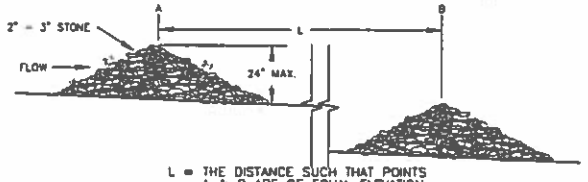
MAINTENANCE NOTES:
1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SEDIMENTATION CONTROL AT CATCH BASINS
N.T.S.

SPACING BETWEEN CHECK DAMS	
SLOPE (FT/FT)	LENGTH (FT)
0.020	75
0.030	50
0.040	37
0.050	30
0.080	19
0.100	15
0.120	13
0.130	10



DRAINAGEWAY CROSS-SECTION



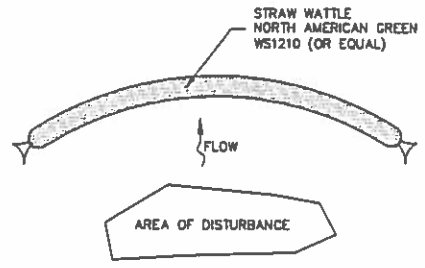
L = THE DISTANCE SUCH THAT POINTS A & B ARE OF EQUAL ELEVATION.

SPACING BETWEEN STONE CHECK DAMS

CONSTRUCTION SPECIFICATIONS:
1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION, AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

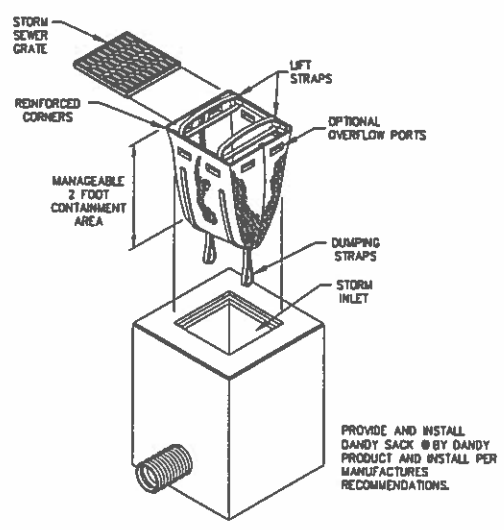
MAINTENANCE NOTES:
1. TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE INSPECTED AFTER EACH STORM AND DAILY DURING PROLONGED STORM EVENTS. ANY DAMAGE TO THE STRUCTURES SHALL BE REPAIRED IMMEDIATELY.
2. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
3. WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED.
4. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM INSTALLATION DETAIL
N.T.S



STRAW WATTLE
N.T.S.

NORTH AMERICAN GREEN (OR EQUAL) STRAW WATTLE TO BE INSTALLED AS SHOWN ON THE PLAN.



DANDY SACK
N.T.S.

PERMANENT VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:
1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
2. GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
3. RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
4. ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

SEEDBED PREPARATION:
1. 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 HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY AND SILT SOILS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
2. 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, TRASH OR OTHER UNSUITABLE MATERIAL.
3. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
4. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
5. IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
6. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:

   LIMESTONE APPLICATION RATE = 3 TONS/ACRE (138 LB./1,000-SF)*

   *EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE

   FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*

   *LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
7. FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:
1. INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE OF INOCULANT.
2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE.
3. WHERE FEASIBLE EXCEPT WHERE EITHER CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
4. SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO FIRST KILLING FROST. WHEN CROWN VETCH IS SEEDED IN LATE SUMMER AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SPECIFIED SEEDING DATES, MULCH ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3 AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
5. AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3.
6. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

HYDROSEEDING:
1. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
2. SLOPES MUST BE NO STEEPER THAN 2:1 (2 FEET HORIZONTALLY BY 1 FOOT VERTICALLY.
3. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
4. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

MAINTENANCE REQUIREMENTS:
1. PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTION, MAINTENANCE AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
2. SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION. MOWING HEIGHT AND FREQUENCY DEPEND OF TYPE OF GRASS COVER.
3. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
4. AT A MINIMUM 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
5. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

PERMANENT VEGETATION SEEDING RECOMMENDATIONS

USE	MIXTURE	SPECIES	LBS./ACRE	LBS./ 1,000-SF
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY RECREATION SITES	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL ESSENTIAL FOR GOOD TURF)	F	CREEPING RED FESCUE KENTUCKY BLUEGRASS TOTAL	50 50 100	1.15 1.15 2.30

SOURCES:
1. NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3.
2. WINNICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

TEMPORARY VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:
1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
2. GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
3. RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
4. ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

SEEDBED PREPARATION:
1. STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
2. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
3. IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
4. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:

   LIMESTONE APPLICATION RATE = 3 TONS/ACRE (138 LB./1,000-SF)*

   *EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE

   FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*

   *LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
5. FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:
1. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTIPACKER TYPE SEEDER OR HYDRO SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
2. TEMPORARY SEED SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15.
3. AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3.
4. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

MAINTENANCE REQUIREMENTS:
1. TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AFTER ANY RAINFALL EXCEEDING 1/2 INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
2. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
3. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

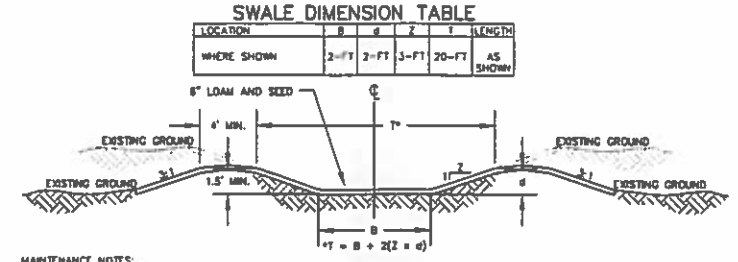
TEMPORARY VEGETATION SEEDING RECOMMENDATIONS

SPECIES	PER ACRE BUSHELS (BU) OR POUNDS (LBS.)	PER 1,000-SF	REMARKS
WINTER RYE	2.5 BU OR 112 LBS.	2.5 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.
OATS	2.5 BU OR 80 LBS.	2.0 LBS.	BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15 FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH.
ANNUAL RYEGRASS	40 LBS.	1.0 LB.	GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15 AND SEPTEMBER 15. COVER THE SEED WITH NO MORE THAN 0.25 INCH OF SOIL.
PERENNIAL RYEGRASS	30 LBS.	0.7 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.

SOURCES:
1. NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLE 4-1
2. WINNICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

SWALE DIMENSION TABLE

LOCATION	B	d	Z	T	LENGTH
WHERE SHOWN	2-FT	2-FT	3-FT	20-FT	AS SHOWN



MAINTENANCE NOTES:
1. THE SWALE(S) SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION. DO NOT MOW GRASS IN SWALE(S) TOO SHORT. THIS WILL REDUCE THE SWALES FILTERING ABILITY.
2. THE SWALE(S) SHOULD BE FERTILIZED ON AN AS NECESSARY BASIS, TO KEEP THE GRASS HEALTHY. OVER FERTILIZATION COULD RESULT IN THE SWALE(S) BECOMING A SOURCE OF POLLUTION TO THE SURROUNDING WETLAND AREAS.
3. THE SWALE(S) SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND RE-VEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

VEGETATED SWALE DETAIL
N.T.S

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DAD | DESIGNED: FSD | CHECKED: FSD | APPROVED: RRL

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TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

SEDIMENT & EROSION CONTROL MEASURES

SCALE:	JOB NO.
1"=30'	15-0164
DATE: JULY 5, 2018	DWG. C8

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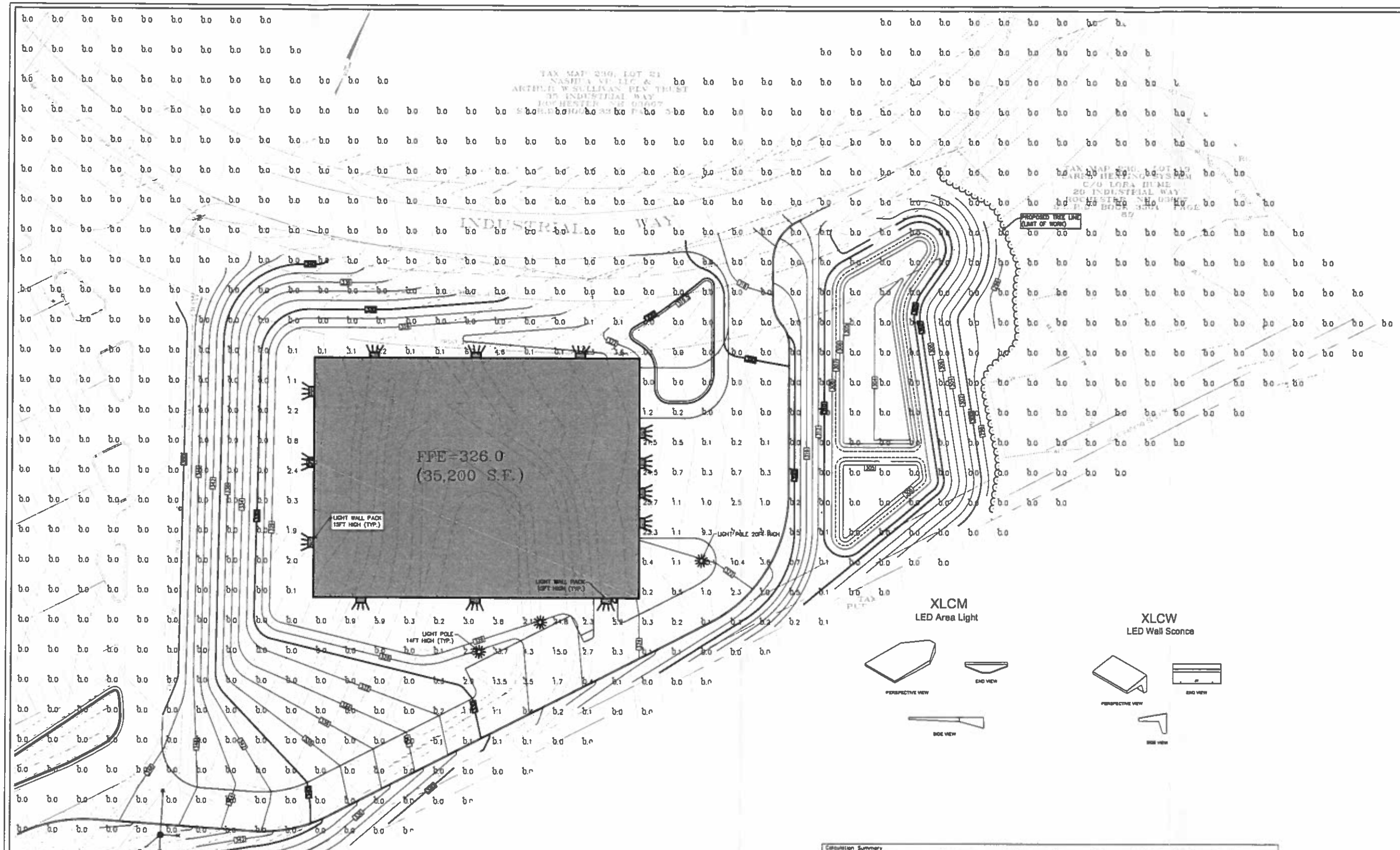

XLCM
LED Area Light

XLCW
LED Wall Sconce

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPlane 4' MH	Illuminance	Fc	0.32	33.7	0.0	N.A.	N.A.
INTERIOR LOT	Illuminance	Fc	3.88	25.7	0.0	N.A.	N.A.

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Description	LLF	Lumens/Lamp	Arr Lum Lumens	Arr Watts
	2	A	SINGLE	XLCM-FT-LED-SS-CW-SINGLE-14' MH	1.000	N.A.	22815	191.7
	1	B	SINGLE	XLCM-FT-LED-HO-CW-SINGLE-20' MH	1.000	N.A.	30937	275.8
	13	W	SINGLE	XLCW-FT-LED-HO-CW-UE	1.000	N.A.	3913	56.1

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted.

Drawing scaled or converted from PDF file or scanned / submitted image. Dimensions are approximate.

NO.	DATE	REVISION
1	DATE	REVISION
2	DATE	REVISION
3	DATE	REVISION

DRAWN: DJD | DESIGNED: TSD | CHECKED: TSD | APPROVED: RRL

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TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER,NH

LIGHTING PLAN

SCALE: 1"=30' | JOB NO. 15-0154
DATE: JULY 5, 2016 | DWG. L1

LIGHTING PROPOSAL LO-133715
LAARS AUTO WAREHOUSE FACILITY
SHEET 1 OF 1
SCALE: 1"=40'

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