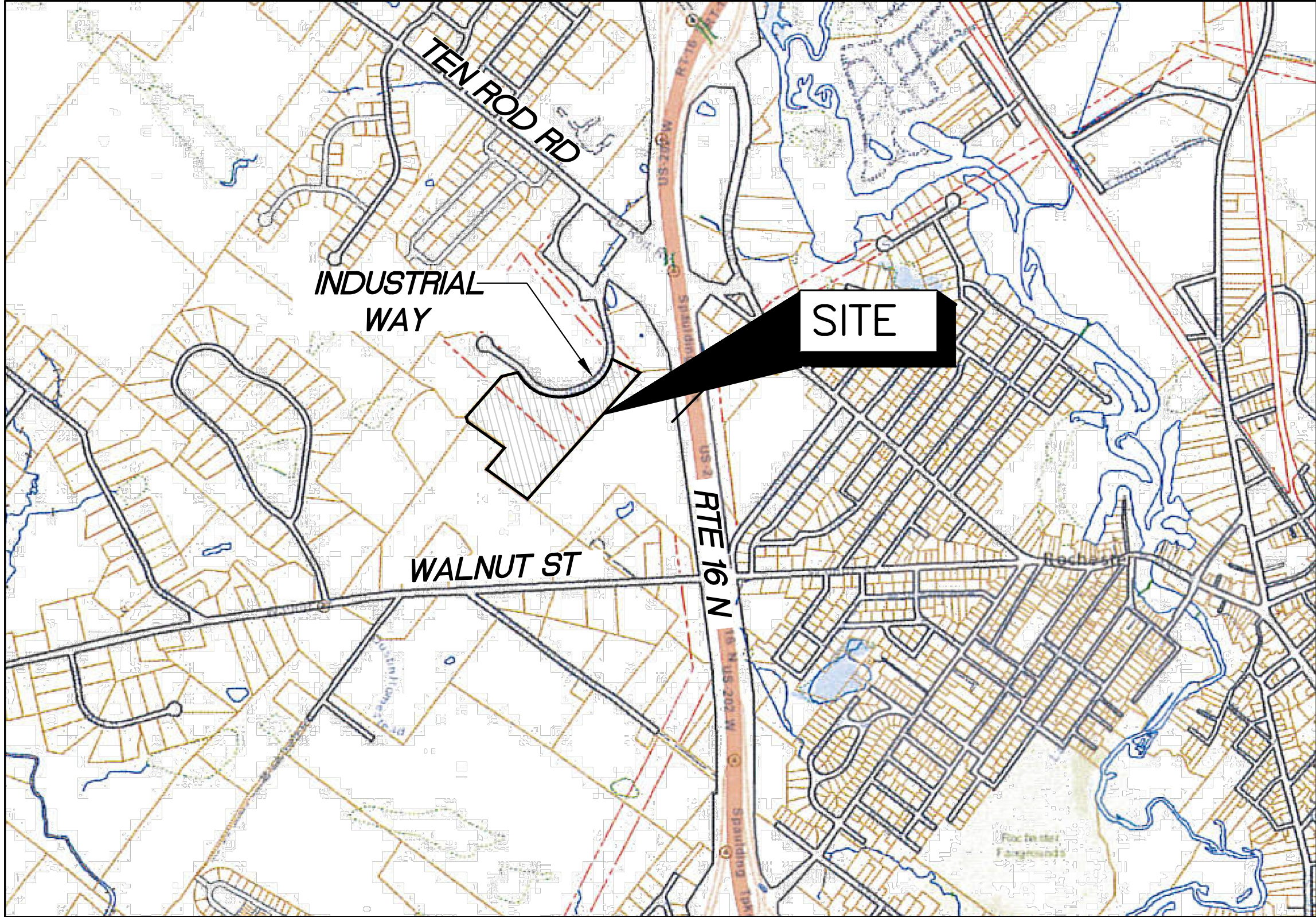
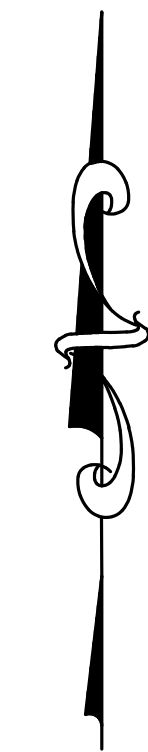


LEGEND		
(STANDARD LEGEND - ALL SYMBOLS SHOWN DO NOT NECESSARILY APPEAR IN THE PLAN SET)		
	EXISTING	PROPOSED
2' CONTOUR	---148---	---148---
10' CONTOUR	---150---	---150---
EDGE OF PAVEMENT	---	---
DRAIN LINE	---D---	---D---
SEWER LINE	---S---	---S---
UNDERGROUND UTILITIES	---UGETC---	---UGETC---
GAS LINE	---XG---	---G---
WATER LINE	---XW---	---W---
OVERHEAD WIRES	---OHW---	---OHW---
VERTICAL GRANITE CURB	---VGC---	---PVC---
SLOPED GRANITE CURB	---SGC---	---PSGC---
FLUSH GRANITE CURB	---FGC---	---PFGC---
CHAIN LINK FENCE	---	---
SHRUB LINE	---	---
SPOT GRADE	X [200.0]	SMH
SEWER MANHOLE	⊙	CB
CATCH BASIN	⊙	DMH
DRAIN MANHOLE	⊙	EMH
FIRE HYDRANT	⊙	
GAS REGULATOR	⊙	
GAS GATE	⊙	
WATER VALVE	⊙	
WATER VALVE	⊙	
THRUST BLOCK	⊙	
ELECTRIC MANHOLE	⊙	
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	⊙	
CONIFER TREE	⊙	
TRAFFIC FLOW	→	→
EDGE OF WETLANDS	---	---
PROPERTY LINE	---	---
SILT FENCE	---	---
STONE CHECK DAM	---	---
INLET PROTECTION	---	---
WELL	⊙	



LOCUS PLAN

SCALE: 1"=1000'

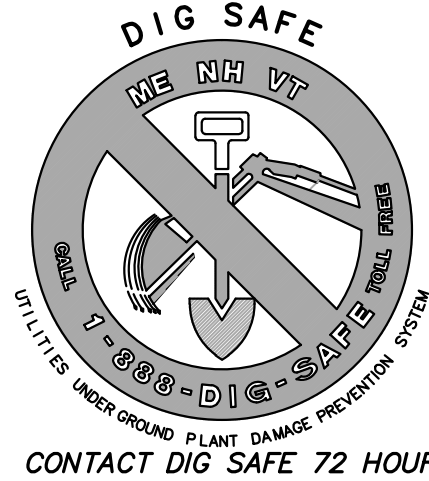
SITE DEVELOPMENT DRAWINGS FOR LAARS HEATING SYSTEMS COMPANY WAREHOUSE 20 INDUSTRIAL WAY ROCHESTER, NH

NPDES NOTES:

1. THIS PROJECT DISTURBS AN AMOUNT 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

DWG	SHEET NAME	REVISION DATE
T1	COVER SHEET	SEPTEMBER 13, 2016
C0	EXISTING CONDITIONS PLAN	SEPTEMBER 13, 2016
C1	SITE PLAN	SEPTEMBER 13, 2016
C2	GRADING AND DRAINAGE PLAN	SEPTEMBER 13, 2016
C3	UTILITY PLAN AND SEDIMENT AND EROSION CONTROL PLAN	SEPTEMBER 13, 2016
C4	DRAINAGE DETAILS	SEPTEMBER 13, 2016
C5	UTILITY DETAILS	SEPTEMBER 13, 2016
C6	CONSTRUCTION DETAILS	SEPTEMBER 13, 2016
C7	SEDIMENT & EROSION CONTROL MEASURES	SEPTEMBER 13, 2016
C8	SEDIMENT & EROSION CONTROL MEASURES	SEPTEMBER 13, 2016
L1	LIGHTING PLAN	SEPTEMBER 13, 2016
L2	LANDSCAPE PLANTING NOTES AND DETAILS PLAN	SEPTEMBER 13, 2016
S1	EXISTING CONDITIONS OVERALL SITE PLAN	SEPTEMBER 13, 2016
S2	PROPOSED CONDITIONS OVERALL SITE PLAN	SEPTEMBER 13, 2016

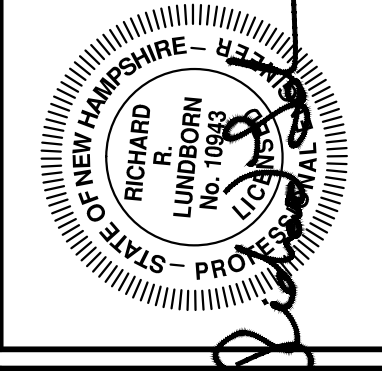


THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. OLD CONSULTING ENG. INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

ABUTTERS

LOCATION	TAX MAP	OWNER	MAILING ADDRESS	DEED REFERENCE
103 WALNUT ST	MAP 122 LOT 93	PUBLIC SERVICE CO OF NH	PO BOX 3430, MANCHESTER, NH 03105-3430	
0 WALNUT ST	MAP 122 LOT 93A	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 CLOITRE 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
35 INDUSTRIAL WAY	MAP 230 LOT 21	NASHUA VP LLC & SULLIVAN	670 NORTH COMMERCIAL ST SUITE 303, MANCHESTER, NH 03101	SCRD: 3310-547

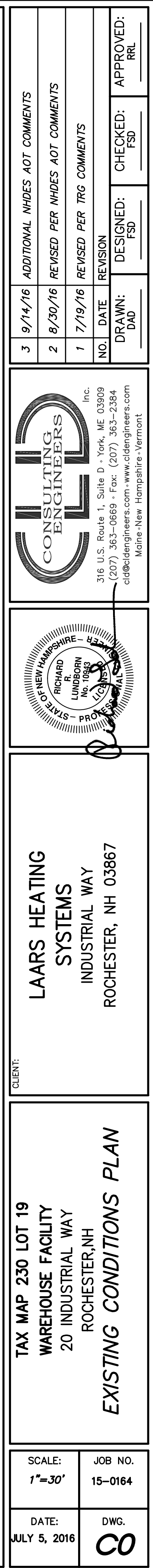
ADDITIONAL NPDES AOT COMMENTS		REVISED PER NPDES AOT COMMENTS		REVISED PER TRC COMMENTS		REVISION		DESIGNED: FSD		CHECKED: FSD		APPROVED: RRL	
3	9/14/16	2	8/30/16	1	7/19/16	NO.	DATE	DRAWN: DAD					

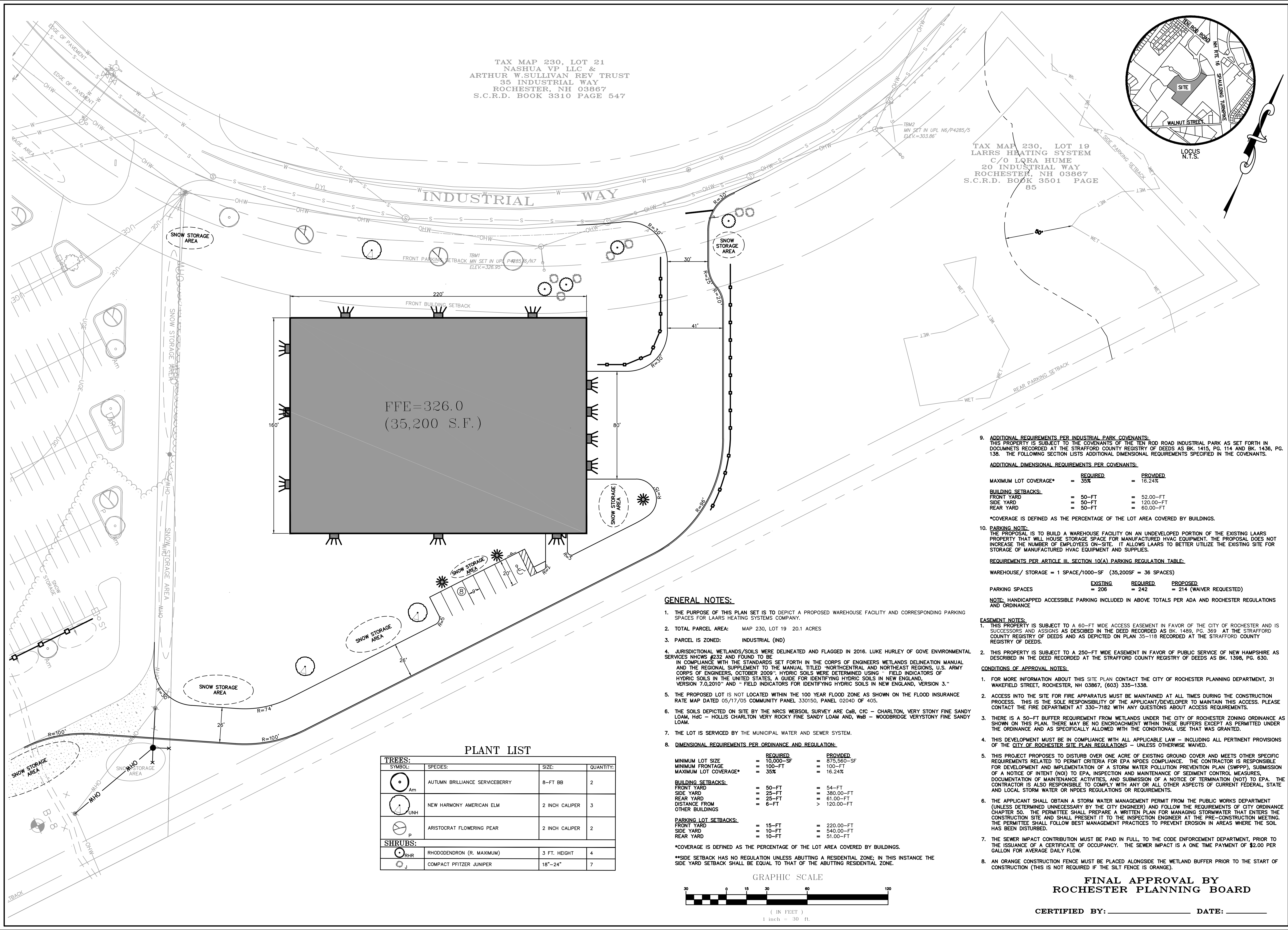


LAARS HEATING
SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

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

SCALE: 1"= SCALE/VERT	JOB NO. 15-0164
DATE: JULY 5, 2016	DWG. T1

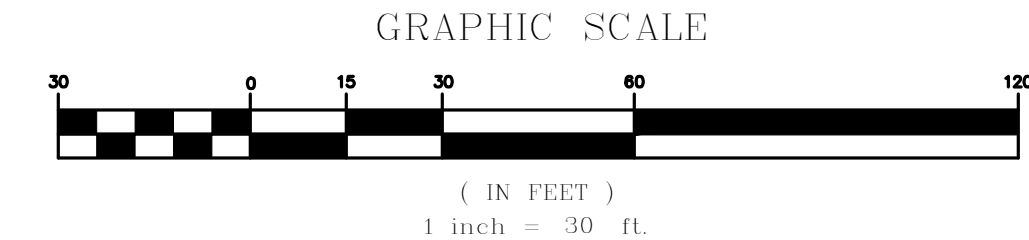




TREES:			
SYMBOL	SPECIES	SIZE	QUANTITY
	AUTUMN BRILLIANCE SERVICEBERRY	8-FT BB	2
	NEW HARMONY AMERICAN ELM	2 INCH CALIPER	3
	ARISTOCRAT FLOWERING PEAR	2 INCH CALIPER	2
SHRUBS:			
	RHODODENDRON (R. MAXIMUM)	3 FT. HEIGHT	4
	COMPACT PFITZER JUNIPER	18"-24"	7

MINIMUM LOT SIZE	= 10,000-SF	= 875,560-SF
MINIMUM FRONTAGE	= 100-FT	= 100-FT
MAXIMUM LOT COVERAGE*	= 35%	= 16.24%
BUILDING SETBACKS:		
FRONT YARD	= 50-FT	= 54-FT
SIDE YARD	= 25-FT	= 380.00-FT
REAR YARD	= 25-FT	= 61.00-FT
DISTANCE FROM OTHER BUILDINGS	= 6-FT	> 120.00-FT
PARKING LOT SETBACKS:		
FRONT YARD	= 15-FT	= 220.00-FT
SIDE YARD	= 10-FT	= 540.00-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.



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:
- | | | |
|-----------------------|----------------|-------------------|
| MAXIMUM LOT COVERAGE* | = REQUIRED 35% | = PROVIDED 16.24% |
|-----------------------|----------------|-------------------|
- BUILDING SETBACKS:
- | | | |
|------------|---------|-------------|
| FRONT YARD | = 50-FT | = 52.00-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:
THIS PROPERTY 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) | |
|---|--|
- PARKING SPACES
- | | | |
|----------------|----------------|-----------------------------------|
| EXISTING = 206 | REQUIRED = 242 | PROPOSED = 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 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. 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 AND 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: _____

39/14/16

ADDITIONAL NHDES AOT COMMENTS

28/30/16

REVISED PER NHDES AOT COMMENTS

17/19/16

REVISED PER TRC COMMENTS

NO.

REVISION

DATE

DESIGNED:

DRAWN:

CHECKED:

APPROVED:

RRL

CONSULTING ENGINEERS

316 U.S. Route 1, Suite D • York, ME 03909

(207) 363-0669 • Fax: (207) 363-2384

cld@cdengineers.com • www.cdengineers.com

Maine-New Hampshire-Vermont

LAARS HEATING SYSTEMS

INDUSTRIAL WAY

ROCHESTER, NH 03867

TAX MAP 230 LOT 19

WAREHOUSE FACILITY

20 INDUSTRIAL WAY

ROCHESTER, NH

SITE PLAN

SCALE:

1"=30'

JOB NO.

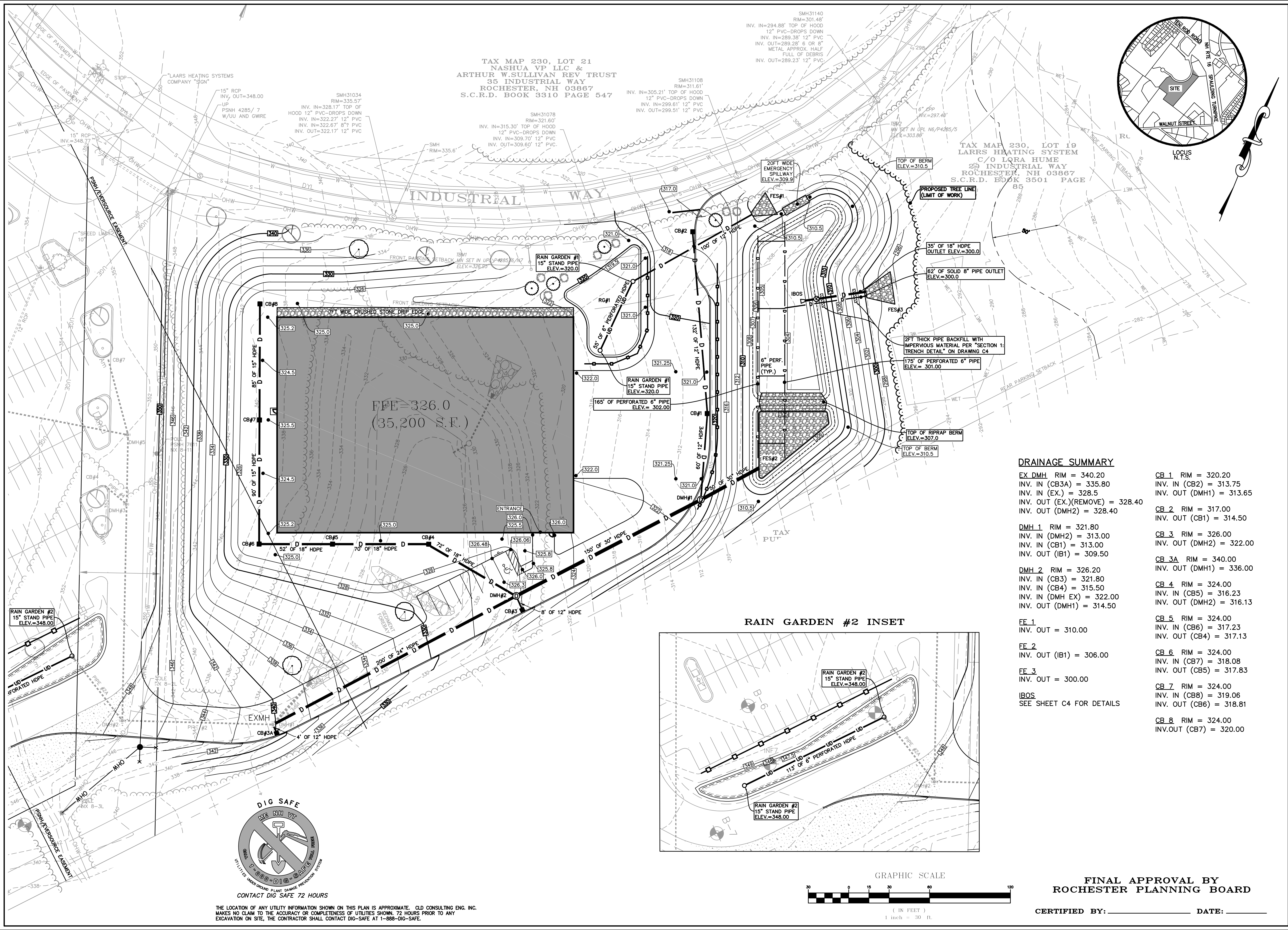
15-0164

DATE:

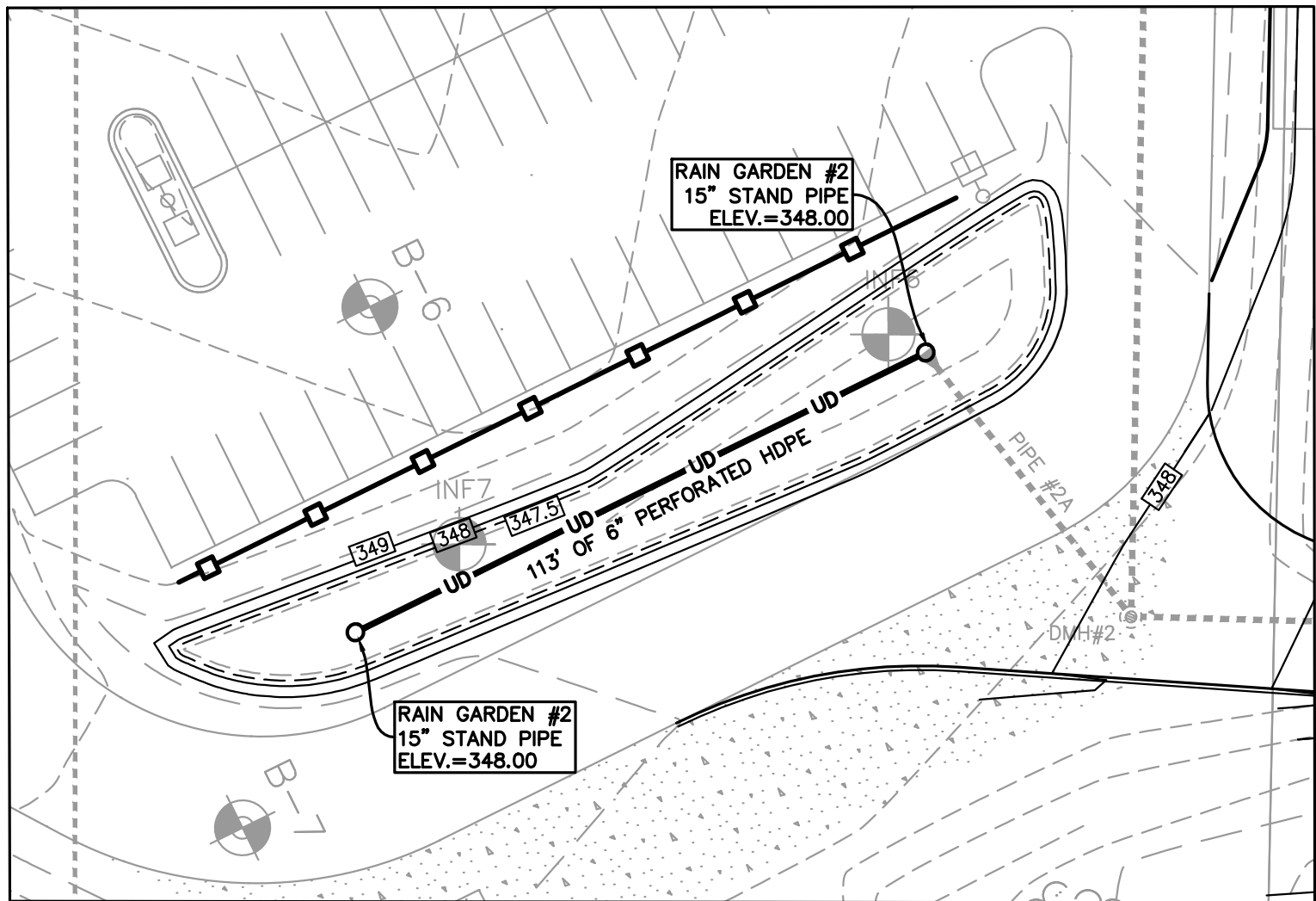
JULY 5, 2016

DWG.

01

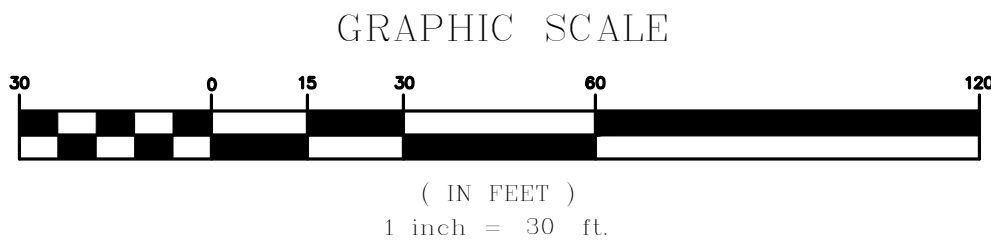


RAIN GARDEN #2 INSET



DRAINAGE SUMMARY

EX DMH	RIM = 340.20	CB 1	RIM = 320.20
INV. IN (CB3A)	= 335.80	INV. IN (CB2)	= 313.75
INV. IN (EX.)	= 328.5	INV. OUT (DMH1)	= 313.65
INV. OUT (EX.) (REMOVE)	= 328.40	CB 2	RIM = 317.00
INV. OUT (DMH2)	= 328.40	INV. OUT (CB1)	= 314.50
DMH 1	RIM = 321.80	CB 3	RIM = 326.00
INV. IN (DMH2)	= 313.00	INV. OUT (DMH2)	= 322.00
INV. IN (CB1)	= 313.00	CB 3A	RIM = 340.00
INV. OUT (IB1)	= 309.50	INV. OUT (DMH1)	= 336.00
DMH 2	RIM = 326.20	CB 4	RIM = 324.00
INV. IN (CB3)	= 321.80	INV. IN (CB5)	= 316.23
INV. IN (CB4)	= 315.50	INV. OUT (DMH2)	= 316.13
INV. IN (DMH EX)	= 322.00	CB 5	RIM = 324.00
INV. OUT (DMH1)	= 314.50	INV. IN (CB6)	= 317.23
FE 1	INV. OUT = 310.00	INV. OUT (CB4)	= 317.13
FE 2	INV. OUT (IB1) = 306.00	CB 6	RIM = 324.00
FE 3	INV. OUT = 300.00	INV. IN (CB7)	= 318.08
IBOS	SEE SHEET C4 FOR DETAILS	INV. OUT (CB5)	= 317.83
		CB 7	RIM = 324.00
		INV. IN (CB8)	= 319.06
		INV. OUT (CB6)	= 318.81
		CB 8	RIM = 324.00
		INV. OUT (CB7)	= 320.00



FINAL APPROVAL BY
ROCHESTER PLANNING BOARD

CERTIFIED BY: _____ DATE: _____

TAX MAP 230 LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH		GRADING AND DRAINAGE PLAN	
SCALE: 1"=30'	JOB NO. 15-0164	DWG. C2	
DATE: JULY 5, 2016		APPROVED: RRL	
REVISION		REVISION	
NO.		NO.	
DATE		DATE	
DRAWN: DAD		CHECKED: ESD	
DESIGNED: ESD		APPROVED: RRL	
9/14/16		9/14/16	
ADDITIONAL NHDES AOT COMMENTS		ADDITIONAL NHDES AOT COMMENTS	
2 8/30/16		2 8/30/16	
REVISED PER NHDES AOT COMMENTS		REVISED PER NHDES AOT COMMENTS	
1 7/19/16		1 7/19/16	
REVISED PER TRC COMMENTS		REVISED PER TRC COMMENTS	

LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

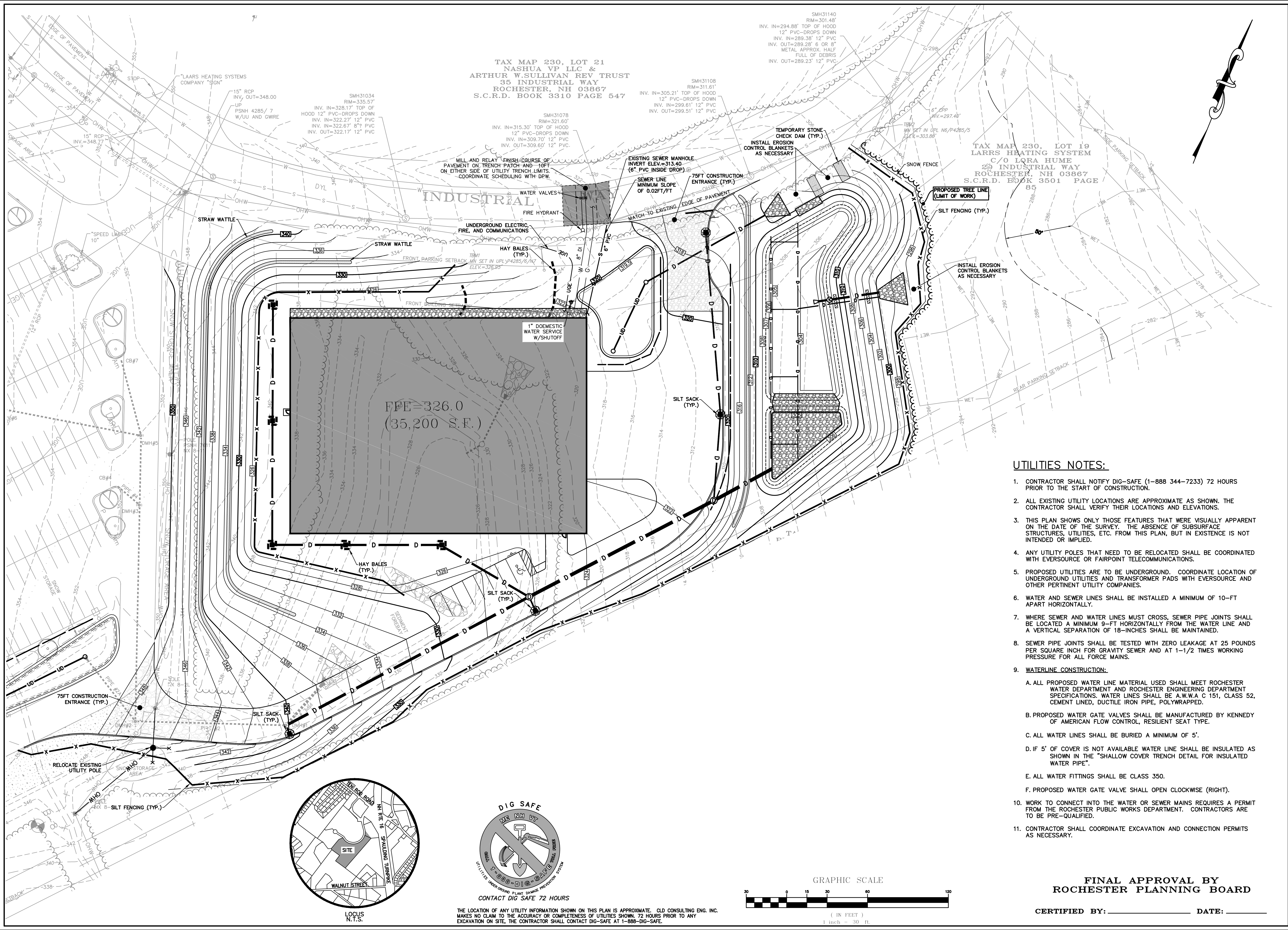
CLIENT:

LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

INC.

316 U.S. Route 1, Suite D • York, ME 03909
(207) 363-0669 • Fax: (207) 363-2384
cid@cidengineers.com • www.cidengineers.com
Maine-New Hampshire-Vermont

NEW HAMPSHIRE - U.S.A.
REGISTERED PROFESSIONAL ENGINEER
RICHARD R. LUNDGREN
No. 1083



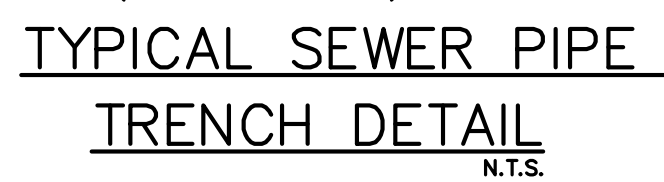
- UTILITIES NOTES:**
1. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888 344-7233) 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
 2. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND ELEVATIONS.
 3. THIS PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT 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 (RIGHT).
 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: _____

TAX MAP 230 LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH		TAX MAP 230, LOT 21 NASHUA VP LLC & ARTHUR W.SULLIVAN REV TRUST 35 INDUSTRIAL WAY ROCHESTER, NH 03867 S.C.R.D. BOOK 3310 PAGE 547		TAX MAP 230, LOT 19 LAARS HEATING SYSTEM C/O LARA HUME 20 INDUSTRIAL WAY ROCHESTER, NH 03867 S.C.R.D. BOOK 3501 PAGE 85	
CLD CONSULTING ENGINEERS 316 U.S. Route 1, Suite D • York, ME 03909 (207) 363-0669 • Fax: (207) 363-2384 clde@cldeengineers.com • www.cldeengineers.com Maine-New Hampshire-Vermont		CLD CONSULTING ENGINEERS 316 U.S. Route 1, Suite D • York, ME 03909 (207) 363-0669 • Fax: (207) 363-2384 clde@cldeengineers.com • www.cldeengineers.com Maine-New Hampshire-Vermont		CLD CONSULTING ENGINEERS 316 U.S. Route 1, Suite D • York, ME 03909 (207) 363-0669 • Fax: (207) 363-2384 clde@cldeengineers.com • www.cldeengineers.com Maine-New Hampshire-Vermont	
LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867	
UTILITY PLAN AND SEDIMENT AND EROSION CONTROL PLAN		UTILITY PLAN AND SEDIMENT AND EROSION CONTROL PLAN		UTILITY PLAN AND SEDIMENT AND EROSION CONTROL PLAN	
SCALE: 1"=30'		JOB NO. 15-0164		DATE: JULY 5, 2016	
DWG. C3		DWG. C3		DWG. C3	

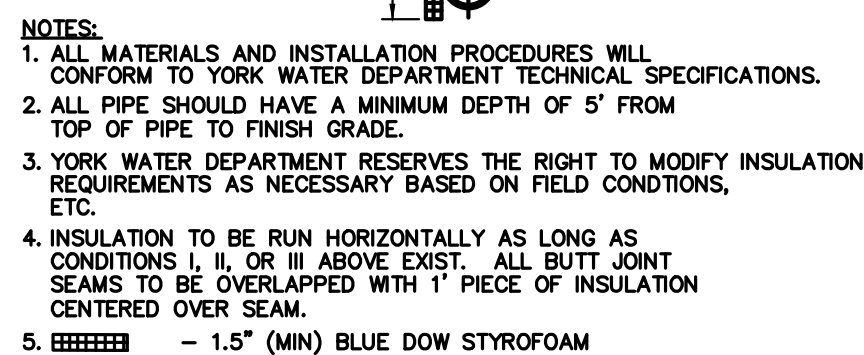
E:\PROJ2015\150164 JEWETT LAARS HEATSYS\CIVIL3\DWG\15-0164_SITEPLAN_OPTION4.4_AOT.DWG



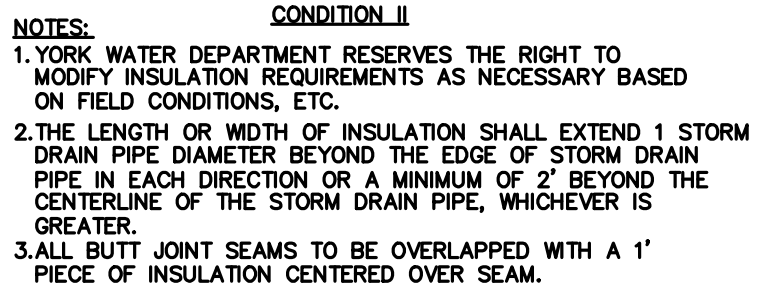
- NOTES:
1. UNDER ROADWAY GAS PIPELINE SHALL BE STEEL OR PLASTIC INSIDE STEEL SLEEVE AND BE ENCASED IN CONCRETE.
 2. MINIMUM OFFSET TO OTHER UNDERGROUND UTILITIES = 12". ELECTRIC CONDUITS SHALL BE CONCRETE ENCASED ADJACENT TO GAS LINE.



CONDUIT SHALL BE AS REQUIRED BY UTILITIES.



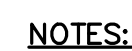
STORM DRAIN—WATERMAIN PARALLEL RUNS



STORM DRAIN – WATERMAIN
INTERSECTING RUNS
NTS

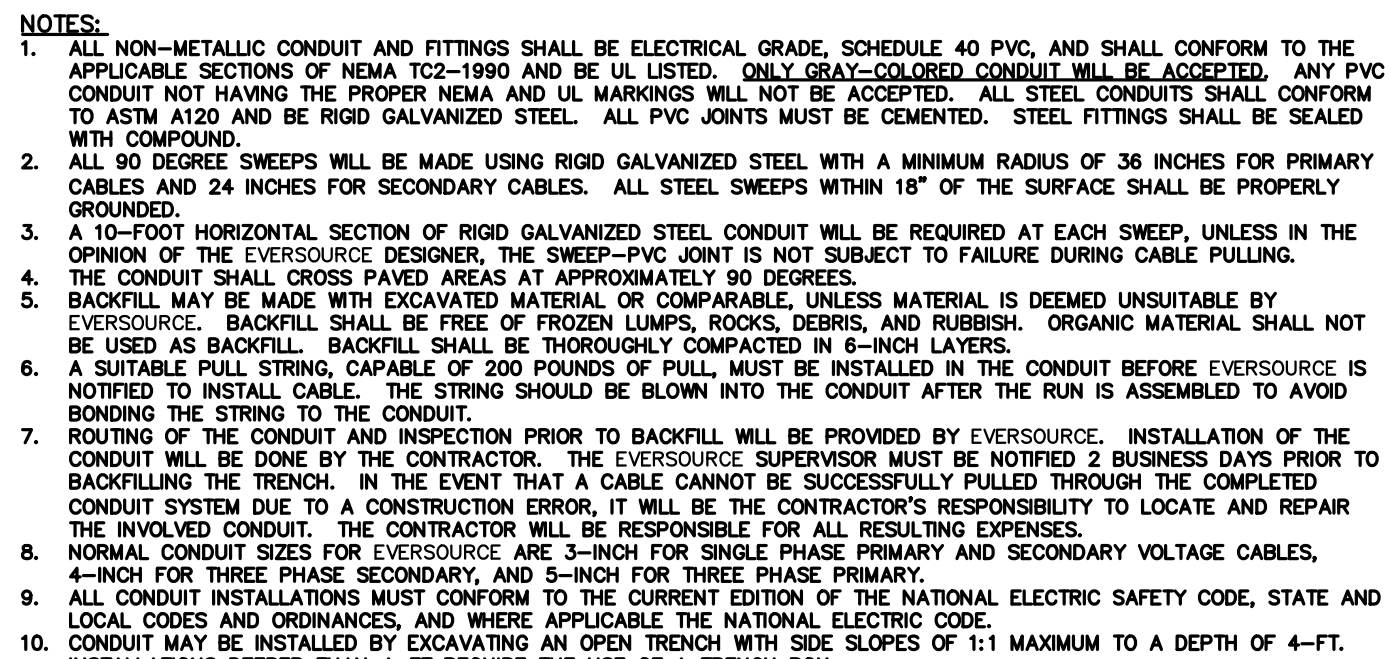


WATER MAIN THRUST BLOCK DETAILS



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".

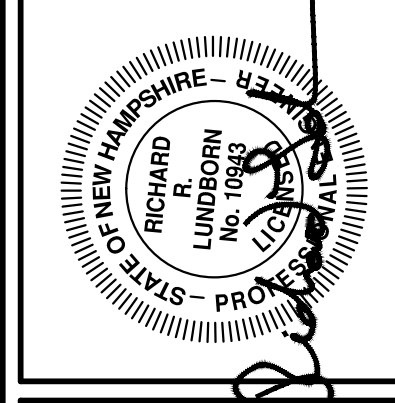
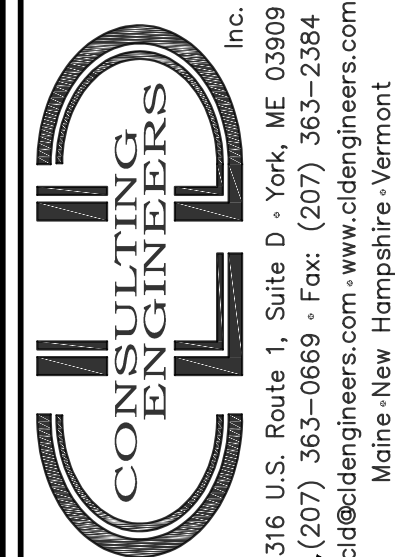
WATER MAIN—NUMEROUS DETAILS SEPARATION



ELECTRICAL &
UNDERGROUND UTILITY
TRENCH INSTALLATION DETAIL



3	9/14/16	ADDITIONAL NHDES AOT COMMENTS
2	8/30/16	REVISED PER NHDES AOT COMMENTS
1	7/19/16	REVISED PER TRG COMMENTS
NO.	DATE	REVISION
DRAWN: DAD		DESIGNED: FSD
		CHECKED: FSD
		APPROVED: RRL

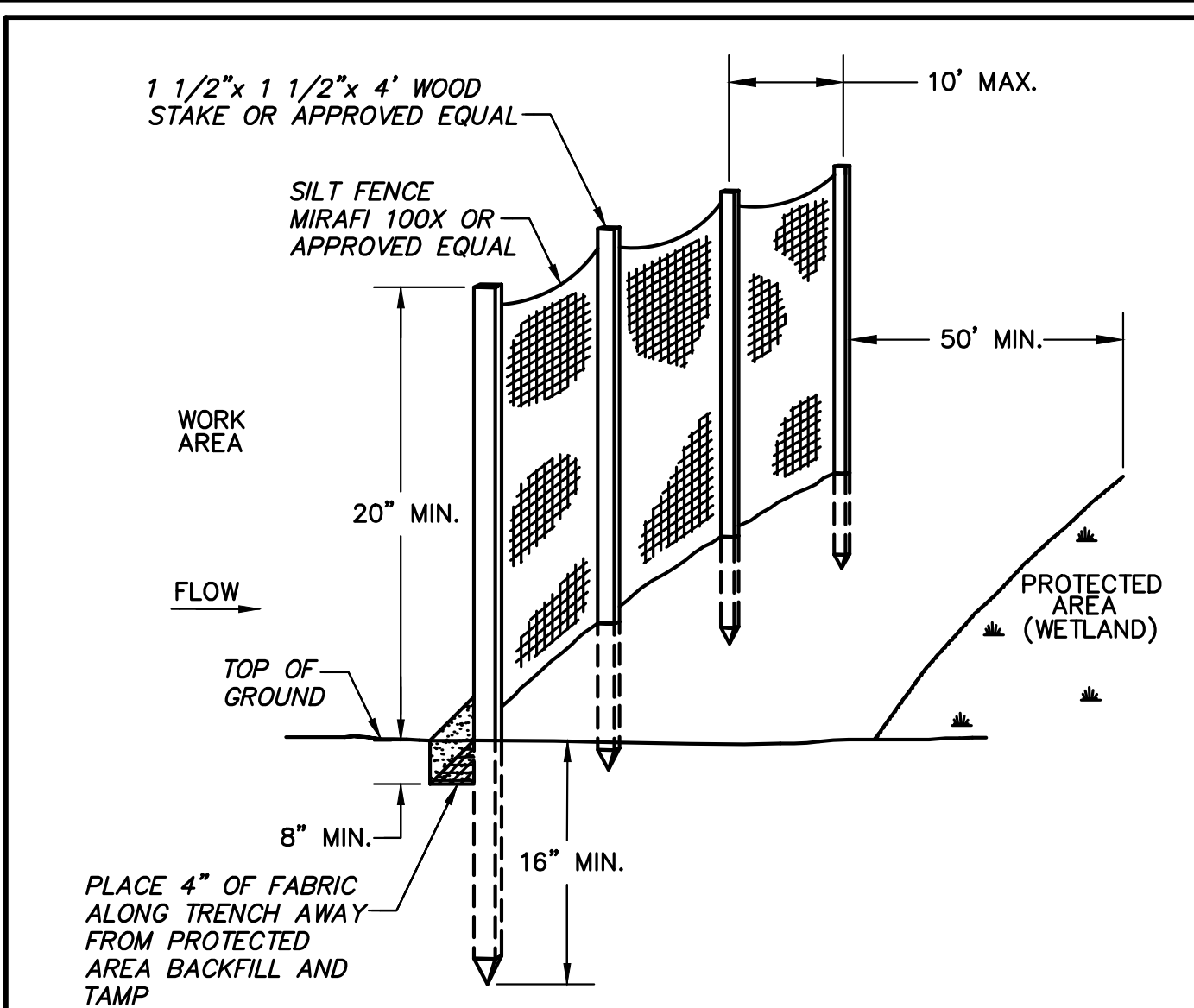


**LAARS HEATING
SYSTEMS**
INDUSTRIAL WAY
ROCHESTER, NH 03867

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

SCALE:	JOB NO.
<i>AS SHOWN</i>	15-0164

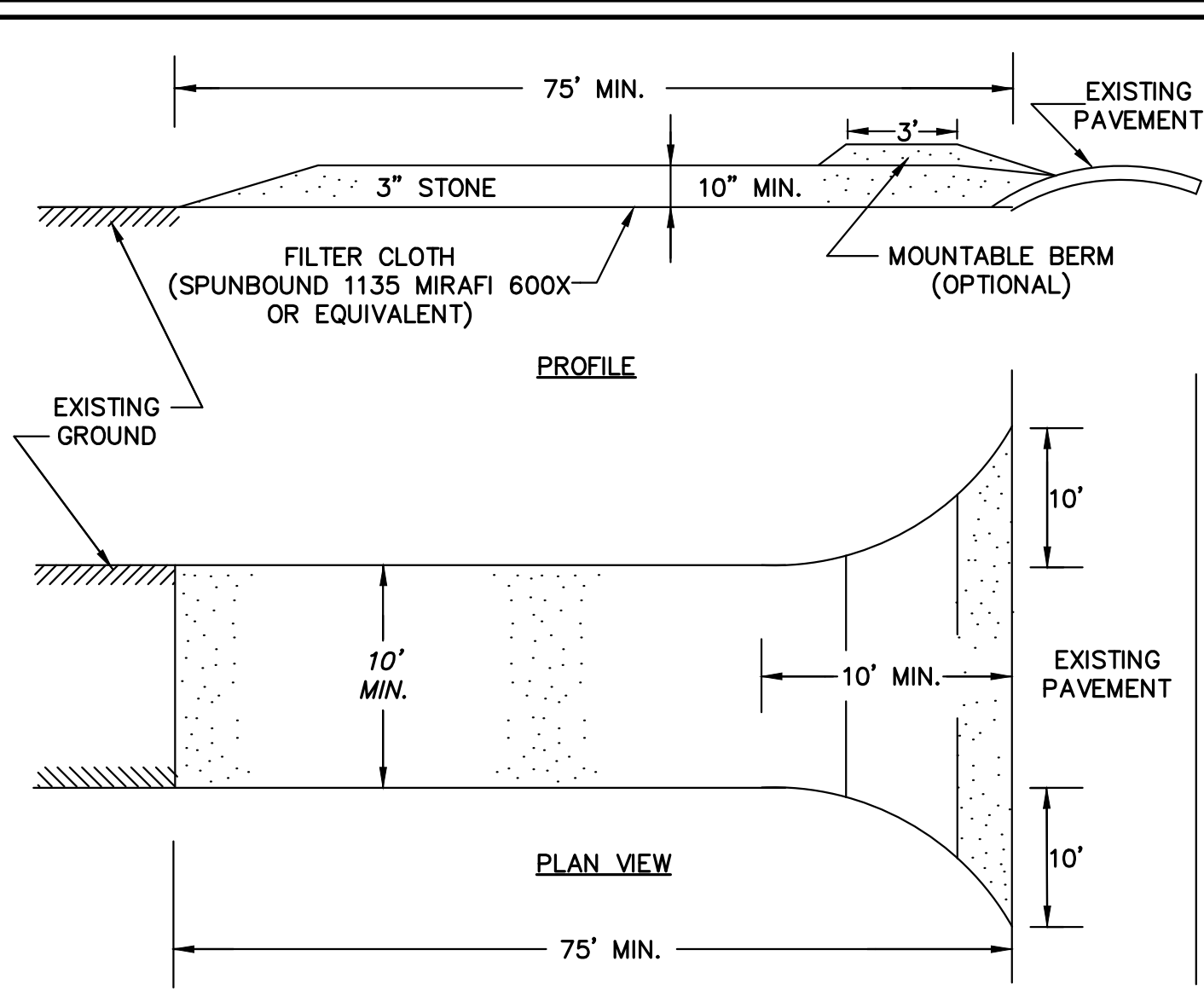
DATE: JULY 5, 2016	DWG. C5
-----------------------	------------



- MAINTENANCE REQUIREMENTS:**
- FENCES SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALLS.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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:**
- 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.
 - THE MAXIMUM CONTRIBUTING DRAINAGE AREA ABOVE THE FENCE SHOULD BE LESS THAN 1A ACRE PER 100 LINEAR FEET OF FENCE;
 - THE MAXIMUM LENGTH OF SLOPE ABOVE THE FENCE SHOULD BE 100 FEET;
 - THE MAXIMUM SLOPE ABOVE THE FENCE SHOULD BE 2:1;
 - 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.
 - SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.
 - THE FILTER FABRIC SHOULD BE A PEROUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.
 - 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.
 - 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.
 - 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.
 - 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.
 - A MANUFACTURED SILT FENCE SYSTEM WITH INTEGRAL POSTS MAY BE USED.
 - POST SPACING SHOULD NOT EXCEED 6 FEET.
 - A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UP GRADIENT FROM THE BARRIER.
 - 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.
 - THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
 - 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.
 - SILT FENCES SHOULD BE INSTALLED WITH "SMILES" OR "J-HOOKS" TO REDUCE THE DRAINAGE AREA THAT ANY SEGMENT WILL IMPOUND.
 - THE ENDS OF THE FENCE SHOULD BE TURNED UPHILL.
 - SILT FENCES PLACED AT THE TOE OF A SLOPE SHOULD BE SET AT LEAST 6 FEET FROM THE TOE. M ALLOW SPACE FOR SHALLOW PONDING AND TO ALLOW FOR MAINTENANCE ACCESS WITHOUT DISTURBING THE SLOPE.
 - 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:**
- 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.
 - THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
 - 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:**
- THE MINIMUM STONE LAYER SHOULD BE 3-INCH CRUSHED STONE.
 - 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.
 - THE PAD SHOULD BE THE FULL WIDTH OF CONSTRUCTION ACCESS ROAD OR 10 FEET, WHICHEVER IS GREATER.
 - THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
 - THE PAD SHOULD BE AT LEAST 10 INCHES THICK.
 - THE GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
 - 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.
 - 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:

- 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.
 - 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**.
 - 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.
 - INSTALL A TEMPORARY CONSTRUCTION EXIT AT THE LOCATION OF THE PROPOSED DRIVEWAY EXTENSION. MAINTAIN AS DIRECTED BY THE TEMPORARY CONSTRUCTION EXIT DETAIL.
 - STOCKPILE STRIPPED TOPSOIL AND CUT MATERIAL TO BE REUSED ON SITE IN AN APPROPRIATE LOCATION IN ACCORDANCE WITH THE **"SOIL STOCKPILE PRACTICES"**. MAINTAIN THE STOCKPILES AS DIRECTED IN THE "SOIL STOCKPILE PRACTICES".
 - PERFORM THE NECESSARY CUTS AND FILLS TO CONSTRUCT THE INFILTRATION BASINS AS DEPICTED ON **SHEET C2** AND IN ACCORDANCE WITH THE INFILTRATION BASIN DETAILS.
 - CONSTRUCT THE SEDIMENT FOREBAYS FOR THE INFILTRATION BASINS. AMEND THE SOILS OF THE INFILTRATION SURFACE AND LOAM SEED AND MULCH THE SIDE SLOPES OF THE BASIN AS DIRECTED IN THE INFILTRATION BASIN DETAILS.
 - PERFORM THE NECESSARY CUTS AND FILLS TO SUBGRADE IN THE BUILDING AND PARKING LOT AREAS.
 - INSTALL REQUIRED FILLS IN MAXIMUM 8-INCH LIFTS AND COMPACT EACH LIFT TO 95% MAXIMUM PROCTOR DENSITY.
 - 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.)
 - 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**.
 - 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.
 - INSTALL ALL GRAVEL BASE AND CRUSHED GRAVEL MATERIALS FOR THE PARKING AREA AND SIDEWALK AS SPECIFIED IN THE CORRESPONDING DETAILS.
 - THE PARKING AREAS SHALL BE STABILIZED (CONSTRUCTED TO GRAVEL BASE COURSE) WITHIN 3 DAYS OF ACHIEVING FINISHED SUBGRADE ELEVATIONS.
 - 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.
 - 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 NHSM, VOL. 3 SHOULD BE EMPLOYED.
 - DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- MAINTENANCE AND INSPECTION:**
- 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.
 - 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.
 - ALL DAMAGED TEMPORARY AND PERMANENT SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES SHOULD BE REPAIRED OR REPLACED IMMEDIATELY UPON NOTICE.
 - SEDIMENT SHALL BE DISPOSED OF PROPERLY EITHER ON SITE OR OFF SITE.
- PROJECT COMPLETION AND STABILIZATION:**
- 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.
 - THE TEMPORARY STORMWATER SEDIMENTATION BASIN SHALL BE REMOVED, THE AREA GRADED TO PROPOSED ELEVATIONS, AND STABILIZED WITHIN THREE DAYS OF REMOVAL.
 - 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:**
- 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.
 - 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.
- THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO **1-ACRE** AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DISCUSSED IN NHSM, 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.
 - 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 NHSM, VOL. 3 FOR SPECIFICATION).
 - 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.
 - ALL STONE COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
 - INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
 - ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (I.E. BY NETTING, TRACKING, WOOD CELLULOSE FIBER).
 - 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.
 - 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.
 - INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.
 - 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.
 - ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
 - 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.
 - 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:

- APPLY DUST CONTROL MEASURES AS NECESSARY TO MAINTAIN CONTROL OF DUST ON SITE.
- WATER APPLICATION:**
 - MOISTEN EXPOSED SOIL SURFACES PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.
 - AVOID EXCESSIVE APPLICATION OF WATER THAT WOULD RESULT IN MOBILIZING SEDIMENT AND SUBSEQUENT DEPOSITION IN NATURAL WATERBODIES.
- STONE APPLICATION:**
 - COVER SURFACE WITH CRUSHED OR COARSE GRAVEL.
 - IN AREAS NEAR WATERWAYS USE ONLY CHEMICALLY STABILIZED OR WASHED AGGREGATE.
- 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:

- 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.

 - IN AREAS THAT WILL NOT BE PAVED:**
 - A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3-INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR A CERTIFIED COMPOST BLANKET HAS BEEN INSTALLED, OR;
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
 - IN AREAS TO BE PAVED:**
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED.
- 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.
- 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**.
- MAXIMUM AREA OF DISTURBANCE:**

THE AREA OF UNSTABILIZED SOIL SHOULD NOT EXCEED **5 ACRES** AT ANY TIME.
- ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
 - FLAG OR OTHERWISE DELINEATE AREAS **NOT** TO BE DISTURBED.
 - EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION.
 - DO NOT TRAFFIC EXPOSED SURFACE WITH CONSTRUCTION EQUIPMENT, IF FEASIBLE. PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
- IF THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
- DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED, ONLY NECESSARY IF INFILTRATING AREAS IN ADDITION TO THE BUILDING FOOT.
- 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**.
- 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**.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHOULD BE STOCKPILED IN THE AMOUNT NECESSARY TO COMPLETE FINISHED GRADING AND BE PROTECTED FROM EROSION.
- STOCKPILES, BORROW AREAS AND SPOILS SHALL BE STABILIZED AS DESCRIBED UNDER **"SOIL STOCKPILE PRACTICES"**.
- 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.
- AREAS TO BE FILLED SHOULD BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND/OR OTHER OBJECTIONABLE MATERIALS.
- 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.
- ALL FILLS SHOULD BE COMPACTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. FILLS INTENDED TO SUPPORT BUILDINGS, STRUCTURES, SITE UTILITIES, CONDUITS AND OTHER FACILITIES, SHOULD BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- 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.
- 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.
- 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**.
- 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 NHSM, VOL.3.
- ROUGHEN THE SURFACE OF ALL SLOPES DURING THE CONSTRUCTION OPERATION TO RETAIN WATER, INCREASE INFILTRATION AND FACILITATE VEGETATION ESTABLISHMENT.
- 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.
- 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.
- STABILIZE ALL GRADED AREAS (AS ABOVE) WITH VEGETATION, CRUSHED STONE, COMPOST-BLANKET, OR OTHER GROUND COVER AS SOON AS POSSIBLE. IF WORK IS INTERRUPTED FOR MORE THAN 21 WORKING DAYS OR MORE, USE MULCH OR OTHER APPROVED METHODS TO STABILIZE AREAS TEMPORARILY WHERE FINAL GRADING MUST BE DELAYED.
- ALL GRADED AREAS SHOULD BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
- DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

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

SOIL STOCKPILE PRACTICES:

- LOCATE STOCKPILES A MINIMUM OF 50-FT. AWAY FROM CONCENTRATED FLOWS OF STORMWATER, DRAINAGE COURSES OR INLETS.
 - PROTECT ALL STOCKPILES FROM STORMWATER RUN-ON USING TEMPORARY PERIMETER MEASURES SUCH AS DIVERSIONS, BERMS, SANDBAGS OR OTHER APPROVED PRACTICES.
 - STOCKPILES SHOULD BE SURROUNDED BY SEDIMENT BARRIERS AS DESCRIBED ON THE PLANS AND IN NHSM VOL. 3. TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILE.
 - IMPLEMENT WIND EROSION CONTROL PRACTICES AS APPROPRIATE ON ALL STOCKPILED MATERIAL.
 - PLACE BAGGED MATERIALS ON PALLETS OR UNDERCOVER.
- PROTECTION OF INACTIVE STOCKPILES:**
- 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.
 - 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:**
- 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.
 - WHEN A STORM IS PREDICTED, STOCKPILES SHOULD BE PROTECTED WITH AN ANCHORED PROTECTIVE COVERING.

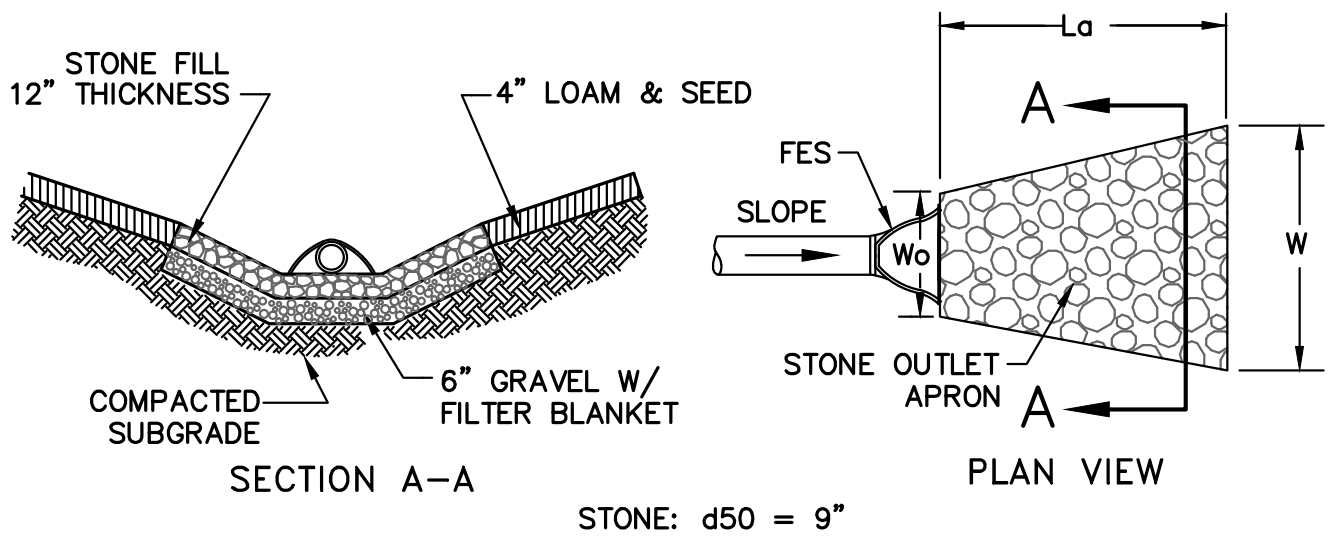
TAX MAP 230 LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH		SEDIMENT & EROSION CONTROL MEASURES	
LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867		CLD ENGINEERS INC. 316 U.S. Route 1, Suite D • York, ME 03909 (207) 363-0669 • Fax: (207) 363-2384 clde@cldeengineers.com • www.cldeengineers.com Maine New Hampshire Vermont	
CLIENT:			
SCALE: AS SHOWN		JOB NO. 15-0164	
DATE: JULY 5, 2016		DWG. C7	

D10=10" RIP-RAP GRADATION

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

APRON DIMENSION TABLE

PIPE OUTLET	W _o	W	L _a	d50
12" HDPE OUTLET FROM RG #1	3'	19.5'	16.5'	9"
30" HDPE OUTLET FROM DMH #1	7.5'	36'	28.5'	9"
15" HDPE OUTLET FROM IS #1	4.5'	24.5'	20'	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.

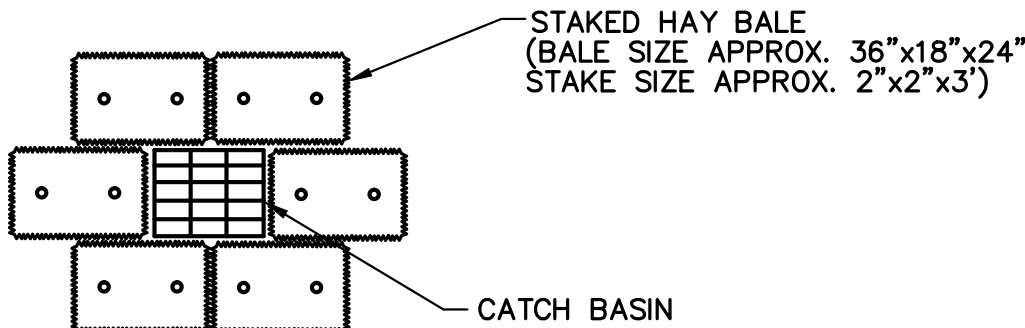
- NOTES:
- ALL PIPE CULVERTS SHALL HAVE END SECTIONS OR HEADWALLS. END SECTION MATERIAL AND MANUFACTURER SHALL MATCH THAT OF THE PIPE CULVERT.
 - THE LARGEST RIP-RAP SIZE DETERMINED DURING HYDROLOGIC ANALYSIS HAS BEEN USED FOR ALL OUTLETS FOR ECONOMY AND SIMPLICITY.
 - APRON LENGTHS, WIDTHS AND THICKNESSES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

- CONSTRUCTION SPECIFICATIONS:
- PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
 - MINIMUM 6" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
 - THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
 - 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.
 - 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.
 - 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:
- 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.
 - THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
 - 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.

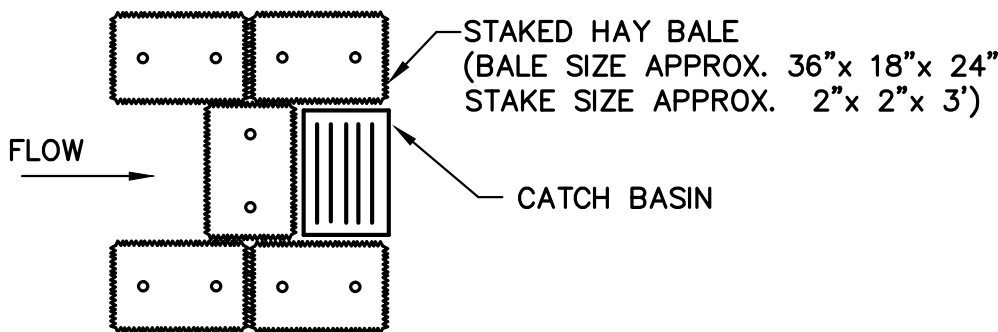
RIP RAP APRON OUTLET PROTECTION

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.

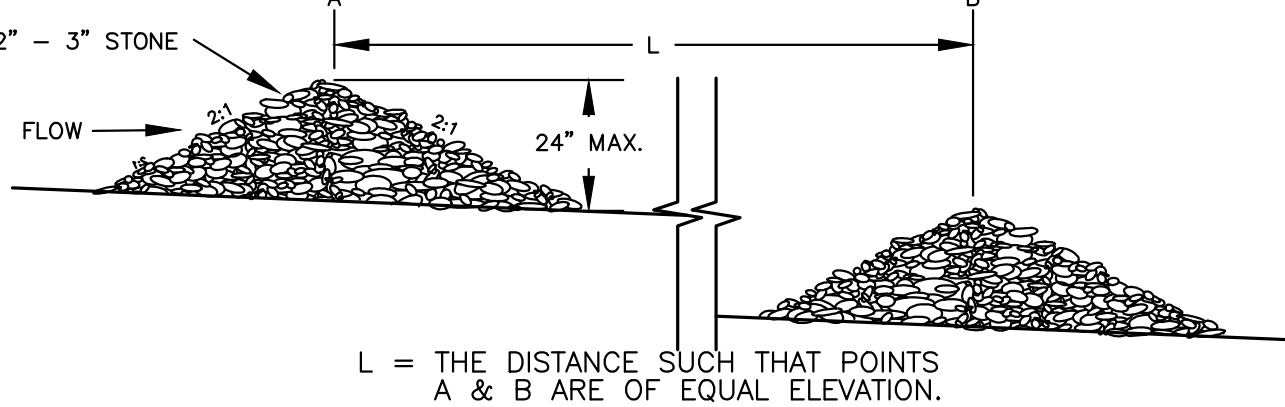
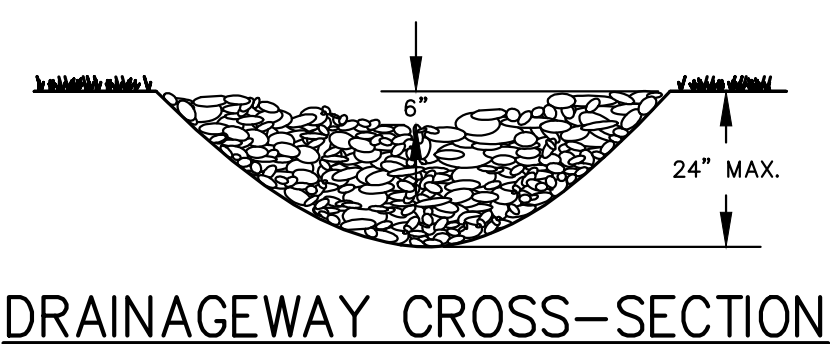
- CONSTRUCTION SPECIFICATIONS:
- PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDE IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4-INCH, 8-INCH AND 12-INCH WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH AND NO GREATER THAN 24 INCHES HIGH.
 - WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) 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.
 - 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 6 INCHES AND MINIMUM STONE SIZE OF 1 INCH.
 - 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:
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
 - 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.
 - 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
0.060	25
0.100	15
0.120	13
0.150	10



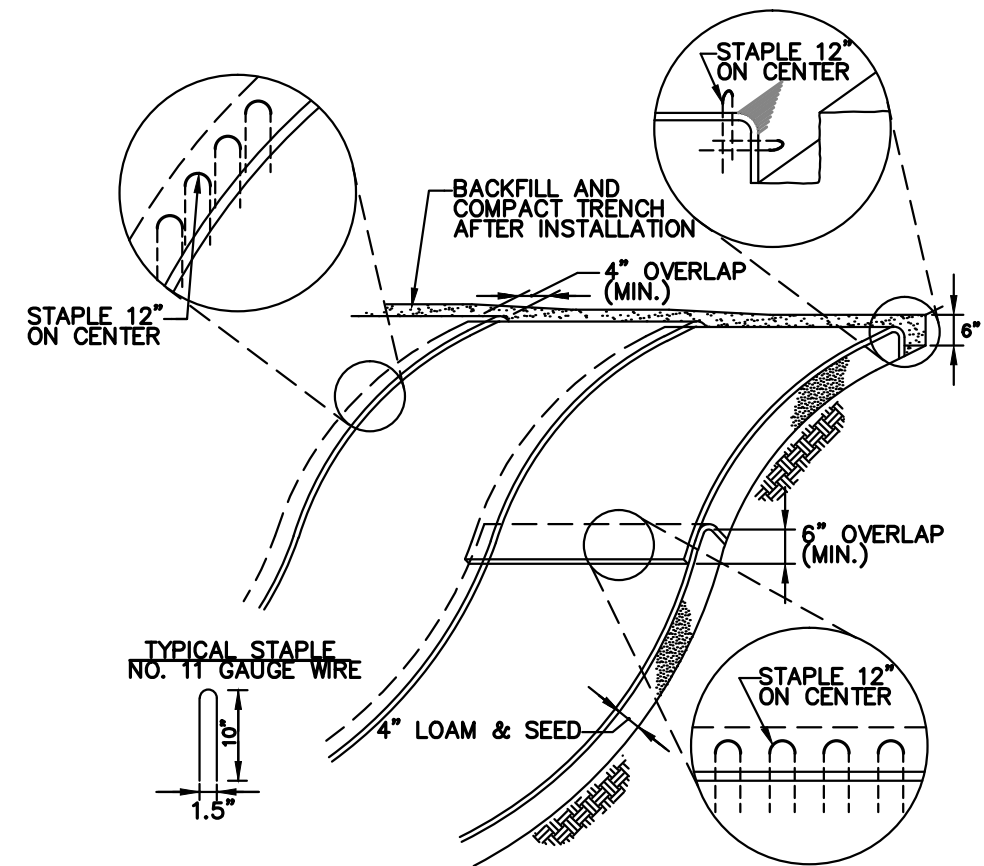
SPACING BETWEEN STONE CHECK DAMS

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

- MAINTENANCE NOTES:
- 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.
 - PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
 - WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED.
 - 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.



- MAINTENANCE REQUIREMENTS:
- ALL BLANKET AND MATS SHOULD BE INSPECTED WEEKLY DURING THE CONSTRUCTION PERIOD, AND AFTER ANY RAINFALL EVENT EXCEEDING 1/2 INCH IN A 24-HOUR PERIOD.
 - ANY FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUT OF THE SLOPE, DISPLACEMENT OF THE MAT, OR DAMAGE TO THE MAT OCCURS, THE AFFECTED SLOPE SHALL BE REPAIRED AND RESEDED, AND THE AFFECTED AREA OF MAT SHALL BE RE-INSTALLED.

- CONSTRUCTION SPECIFICATIONS:
- MANUFACTURE'S INSTALLATION INSTRUCTIONS:
 - PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
 - ROLL THE RECP's (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE, WHEN USING THE DOT SYSTEM. STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 - THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
 - CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.
 - SITE PREPARATION:
 - PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE COMPLETE CONTACT OF THE PROTECTION MATTING WITH THE SOIL.
 - GRADE AND SHAPE AREA IF INSTALLATION.
 - REMOVE ALL ROCKS, CLODS, TRASH, VEGETATIVE OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED BLANKETS WILL HAVE DIRECT CONTACT WITH THE SOIL.
 - PREPARE SEEDBED BY LOOSENING 2-3 INCHES OF TOPSOIL ABOVE FINAL GRADE.
 - INCORPORATE AMENDMENTS, SUCH AS LIME AND FERTILIZER, INTO SOIL ACCORDING TO SOIL TEST AND THE SEEDING PLAN.
 - SEEDING:
 - SEED AREA BEFORE BLANKET INSTALLATION FOR EROSION CONTROL AND REVEGETATION. SEEDING AFTER MAT INSTALLATION IS OFTEN SPECIFIED FOR TURF REINFORCEMENT APPLICATIONS. WHEN SEEDING PRIOR TO BLANKET INSTALLATION, ALL CHECK SLOTS AND OTHER AREAS DISTURBED DURING INSTALLATION MUST BE RESEDED.
 - WHEN SOIL FILLING IS SPECIFIED, SEED THE ENTIRE MATTING AND THE ENTIRE DISTURBED AREA AFTER INSTALLATION AND PRIOR TO FILLING THE MAT WITH SOIL.

EROSION CONTROL – BLANKET SLOPE PROTECTION

N.T.S.

PERMANENT VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:

- INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
- GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
- RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
- 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.
- DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

SEEDBED PREPARATION:

- 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.
- 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.
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
- WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
- IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
- 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

- 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:

- INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE OF INOCULANT.
- APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULPACKER 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.
- WHERE FEASIBLE EXCEPT WHERE EITHER CULPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
- 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 SEEDING 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.
- 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.
- 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.

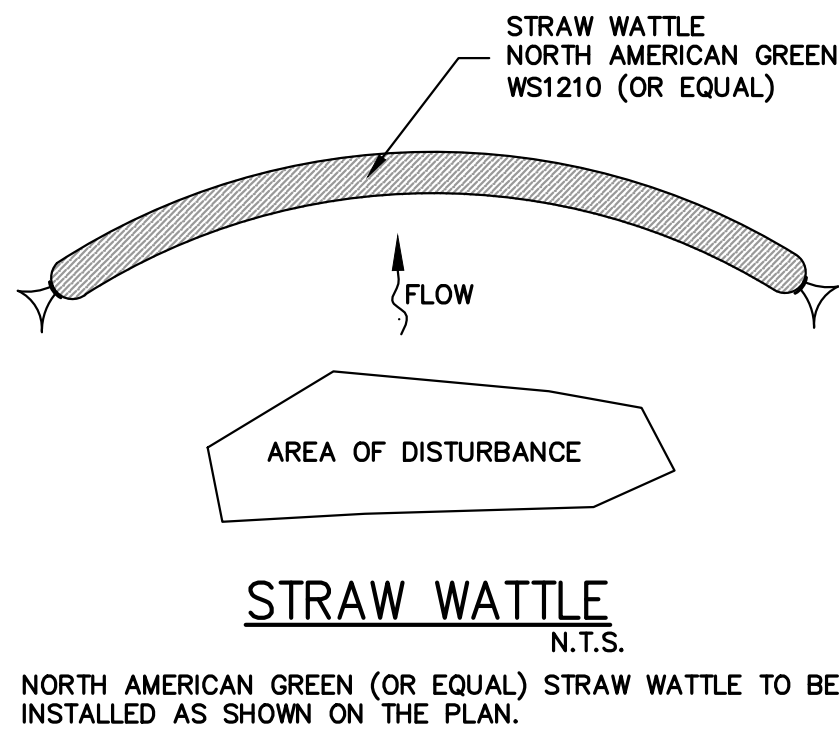
HYDROSEEDING:

- 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.
 - SLOPES MUST BE NO STEEPER THAN 2:1 (2 FEET HORIZONTALLY BY 1 FOOT VERTICALLY).
 - 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.
 - SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
- MAINTENANCE REQUIREMENTS:
- 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.
 - SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION. MOWING HEIGHT AND FREQUENCY DEPEND OF TYPE OF GRASS COVER.
 - BASED ON INSPECTION, AREAS SHOULD BE RESEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
 - AT A MINIMUM 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
 - IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEDED, 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 FILL, BORROW AND DISPOSAL AREAS	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		REDTOP TOTAL	42	0.95
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		REDTOP TOTAL	42	0.95
LIGHTLY USED PARKING LOTS, ODD AREAS, UNPAVED LANDS, AND LOW INTENSITY RECREATION SITES	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		REDTOP TOTAL	42	0.95
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL ESSENTIAL FOR GOOD TURF)	F	CREeping RED FESCUE	50	1.15
		KENTUCKY BLUEGRASS	50	1.15
		TOTAL	100	2.30

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



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

TEMPORARY VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:

- INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
- GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
- RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
- 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.
- DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

SEEDBED PREPARATION:

- STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
- WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
- IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
- 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

- 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:

- APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULPACKER 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.
- TEMPORARY SEED SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15.
- 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.
- 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.

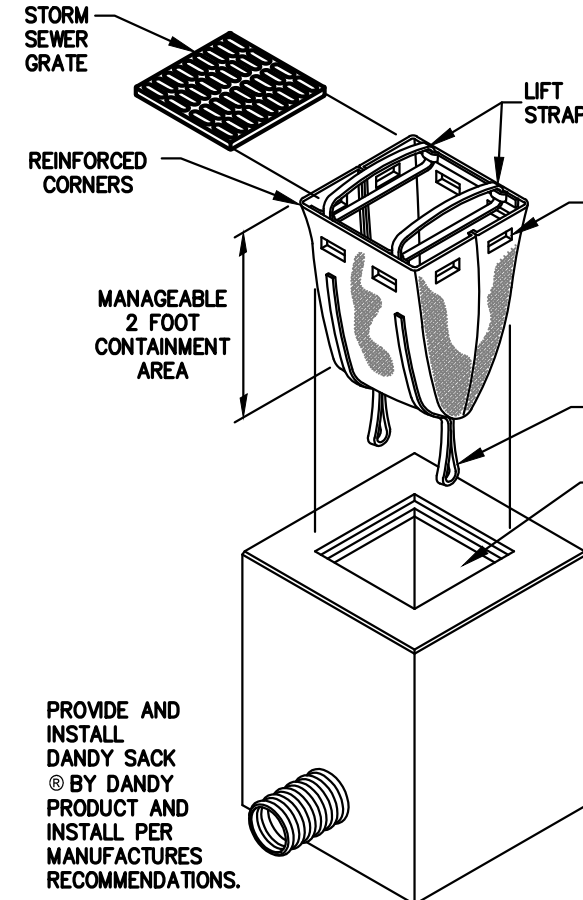
MAINTENANCE REQUIREMENTS:

- TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AFTER ANY RAINFALL EXCEEDING 1/2 INCH IN 24 HOURS ON ACTIVE CONSTRUCTION. TEMPORARY SEEDING SHOULD BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
- BASED ON INSPECTION, AREAS SHOULD BE RESEDED 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.
- IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEDED, 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:
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLE 4-1
 - MINNICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

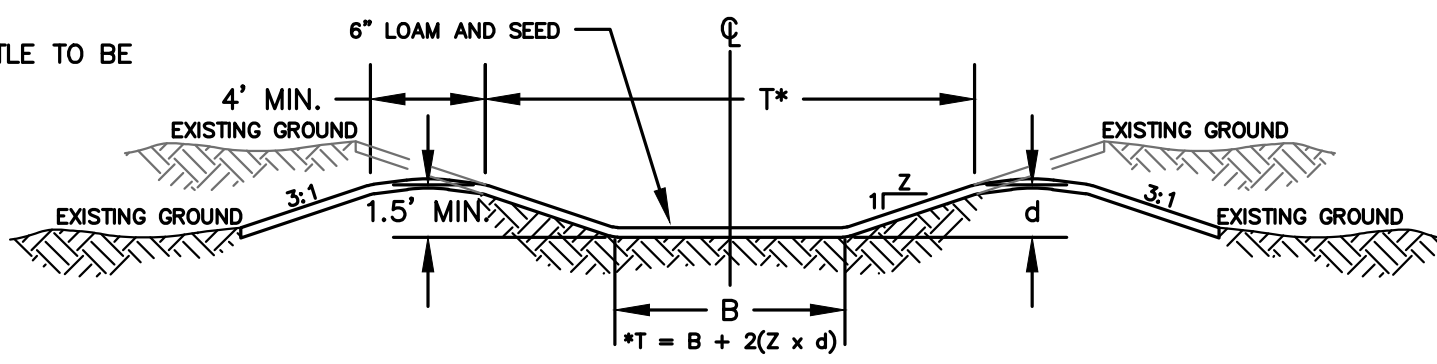


DANDY SACK

N.T.S.

SWALE DIMENSION TABLE

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

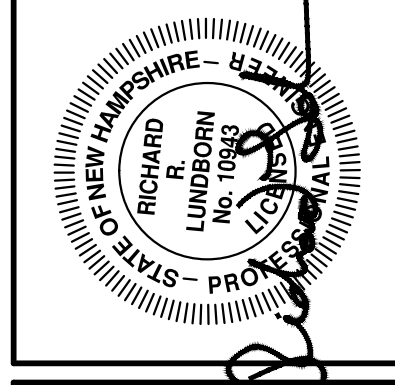
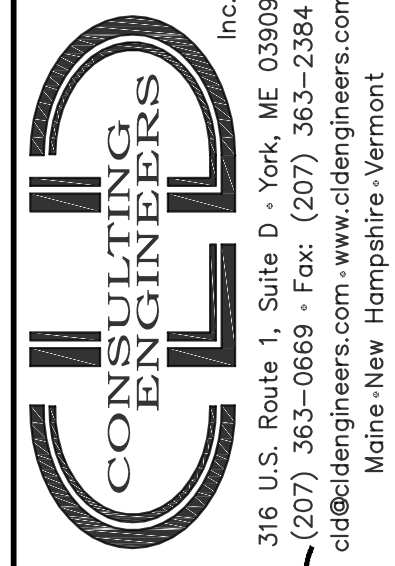


- MAINTENANCE NOTES:
- THE SWALE(S) SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCRoACHMENT OF WEEDS AND WOODY VEGETATION. DO NOT MOW GRASS IN SWALE(S) TOO SHORT. THIS WILL REDUCE THE SWALE'S FILTERING ABILITY.
 - THE SWALE(S) SHOULD BE FERTILIZED ON 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.
 - 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.
 - DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

VEGETATED SWALE DETAIL

N.T.S.

3	9/14/16	ADDITIONAL NHDES AOT COMMENTS
2	8/30/16	REVISED PER NHDES AOT COMMENTS
1	7/19/16	REVISED PER TRG COMMENTS
NO. DATE REVISION		
DRAWN: DAD		DESIGNED: ESD
		CHECKED: ESD
		APPROVED: RRL



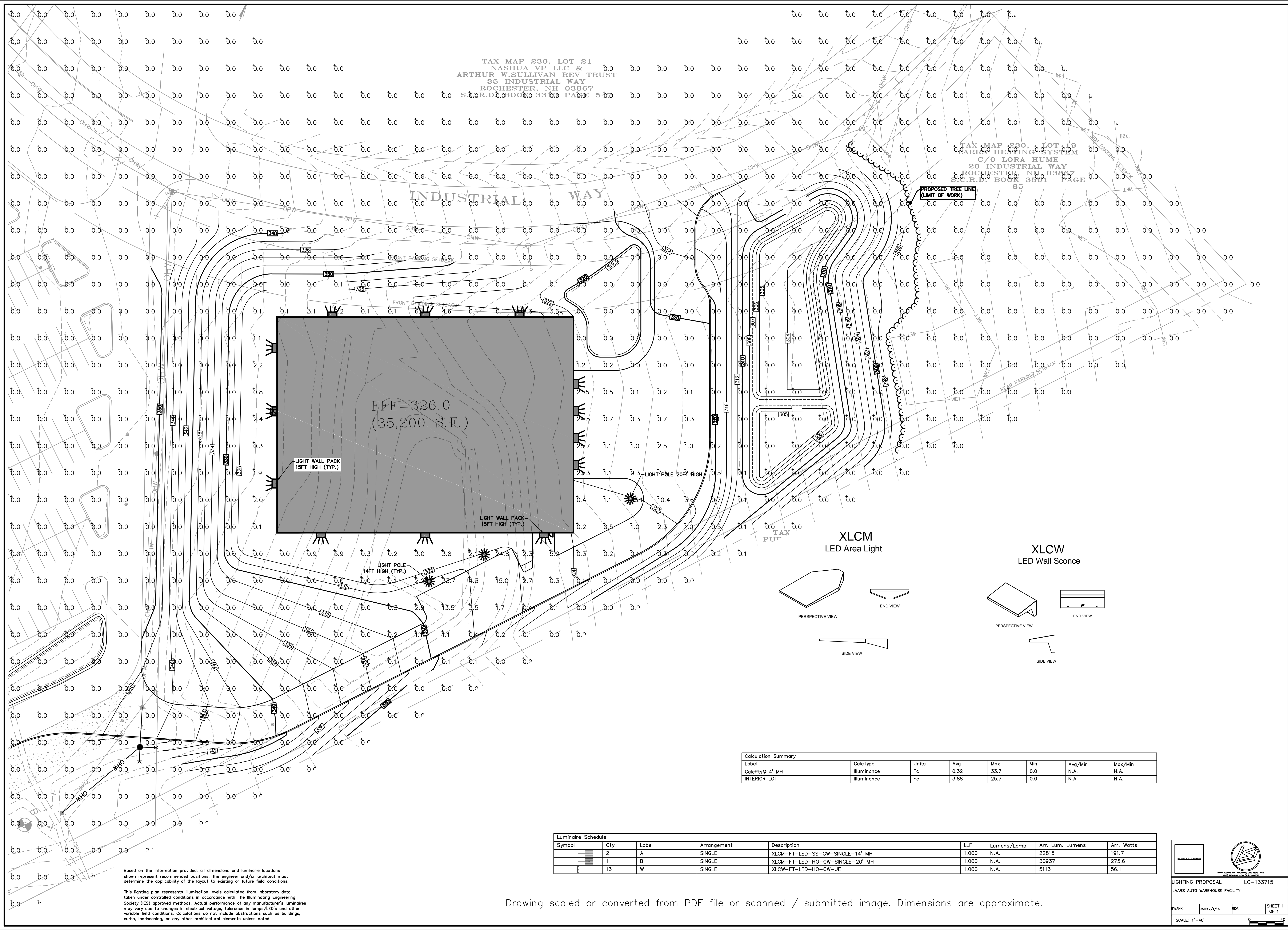
LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03667

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER, NH
SEDIMENT & EROSION CONTROL MEASURES

SCALE: AS SHOWN
JOB NO. 15-0164

DATE: JULY 5, 2016
DWG. C8

F:\PROJECTS\150164 - JEWETT LAARS HEATING SYSTEMS\DWG\15-0164_STEPLAN_OPTION4_1.AOT.DWG 9/14/2016 1:40 PM



TAX MAP 230, LOT 21
NASHUA VP LLC &
ARTHUR W.SULLIVAN REV TRUST
35 INDUSTRIAL WAY
ROCHESTER, NH 03867
S.C.R.D. BOOK 3501 PAGE 5-10

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 8-5

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts@ 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
—	2	A	SINGLE	XLCM-FT-LED-SS-CW-SINGLE-14' MH	1.000	N.A.	22815
—	1	B	SINGLE	XLCM-FT-LED-HO-CW-SINGLE-20' MH	1.000	N.A.	30937
—	13	W	SINGLE	XLCW-FT-LED-HO-CW-UE	1.000	N.A.	5113

LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

LIGHTING PROPOSAL

LO-133715

BY: ANK

DATE: 7/1/16

REV:

SHEET 1 OF 1

SCALE: 1"=40'

0 10 20 40

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

3 9/14/16

2 8/30/16

1 7/19/16

NO.

ADDITIONAL NHDES AOT COMMENTS

REVISED PER NHDES AOT COMMENTS

REVISED PER TRC COMMENTS

REVISION

DATE

9/14/16

8/30/16

7/19/16

NO.

DESIGNED:

ESD

CHECKED:

ESD

APPROVED:

RRL

LAARS HEATING SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03867

CLIENT:

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

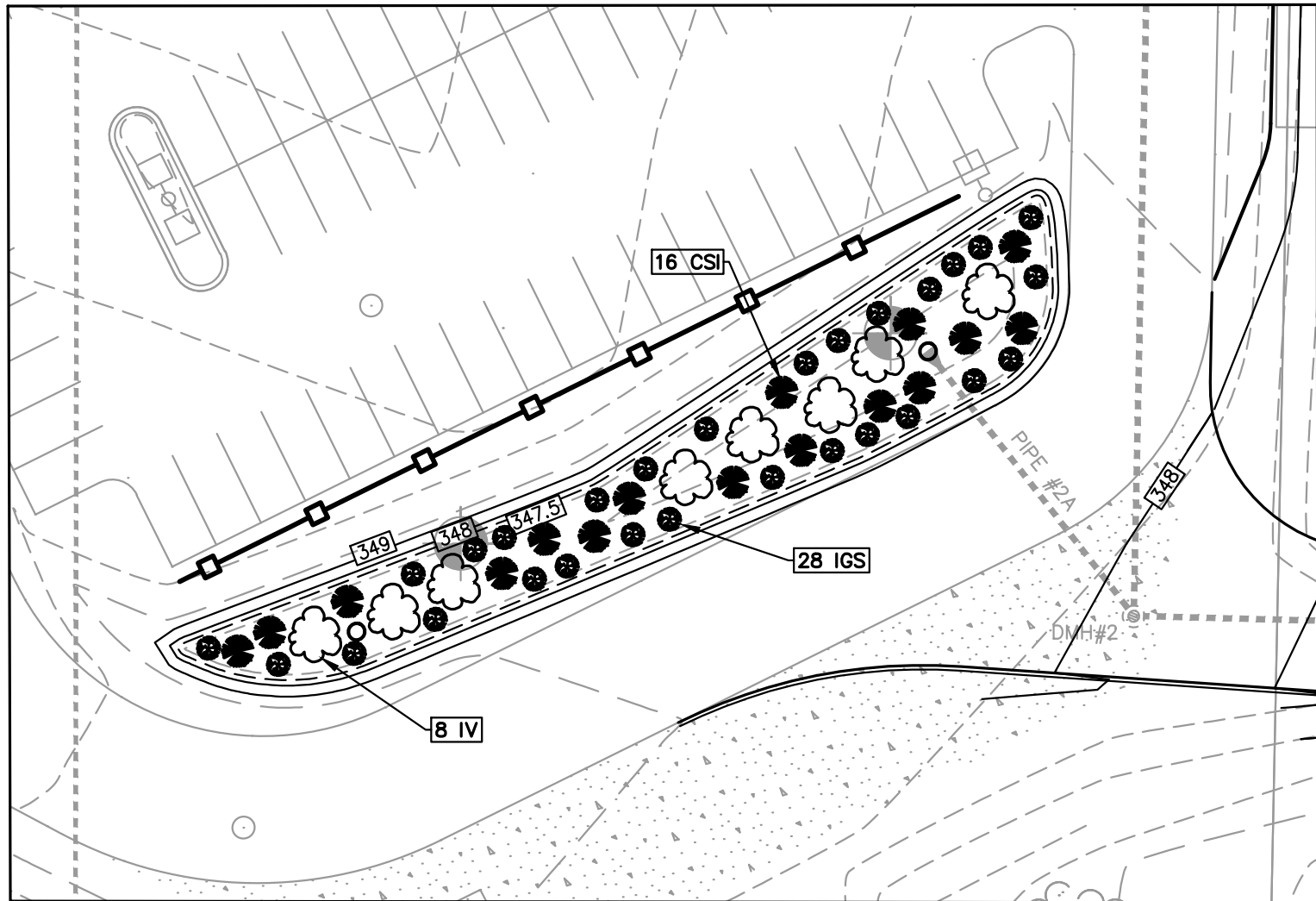
LIGHTING PLAN

SCALE: 1"=30'

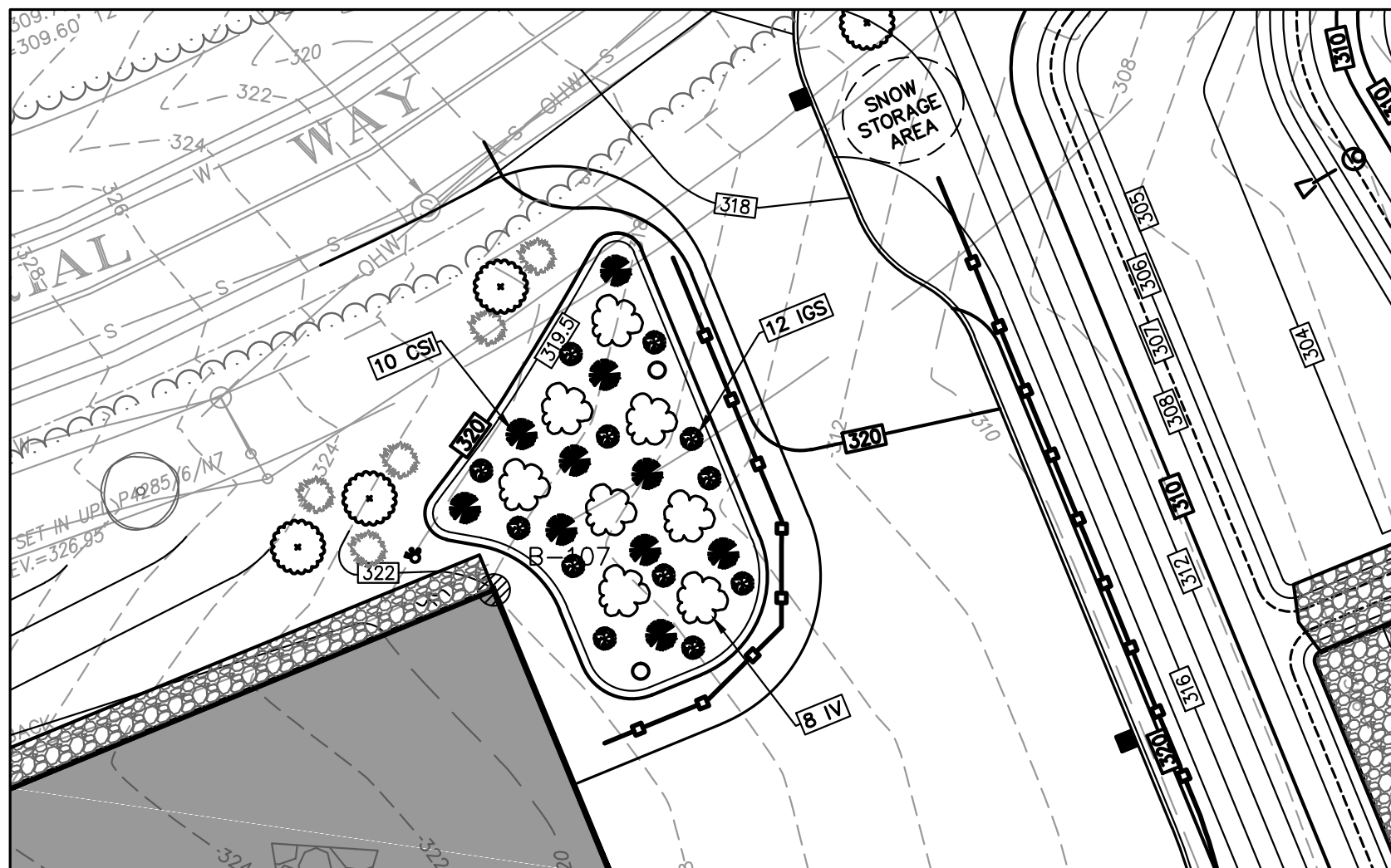
JOB NO. 15-0164

DATE: JULY 5, 2016

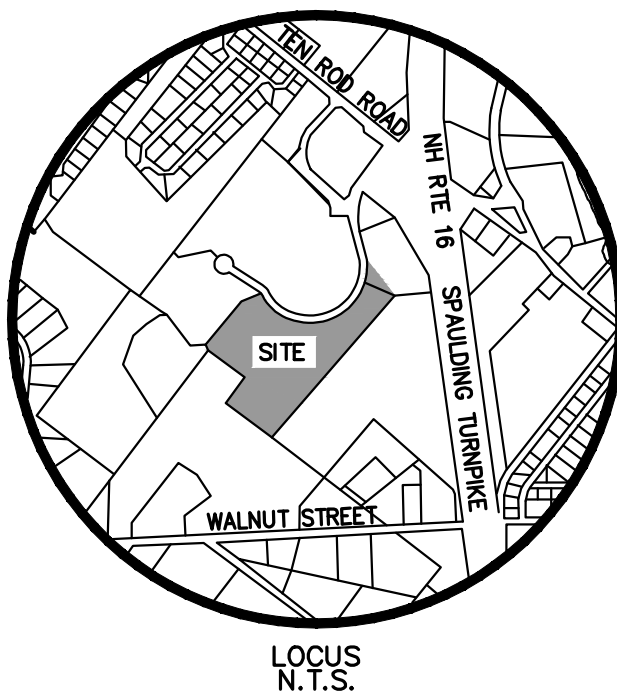
DWG. L1



RAIN GARDEN #2 PLANTING PLAN
1"=30'





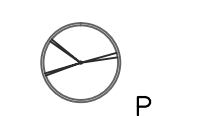


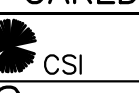


RAIN GARDEN #1 PLANTING PLAN
1"=30'

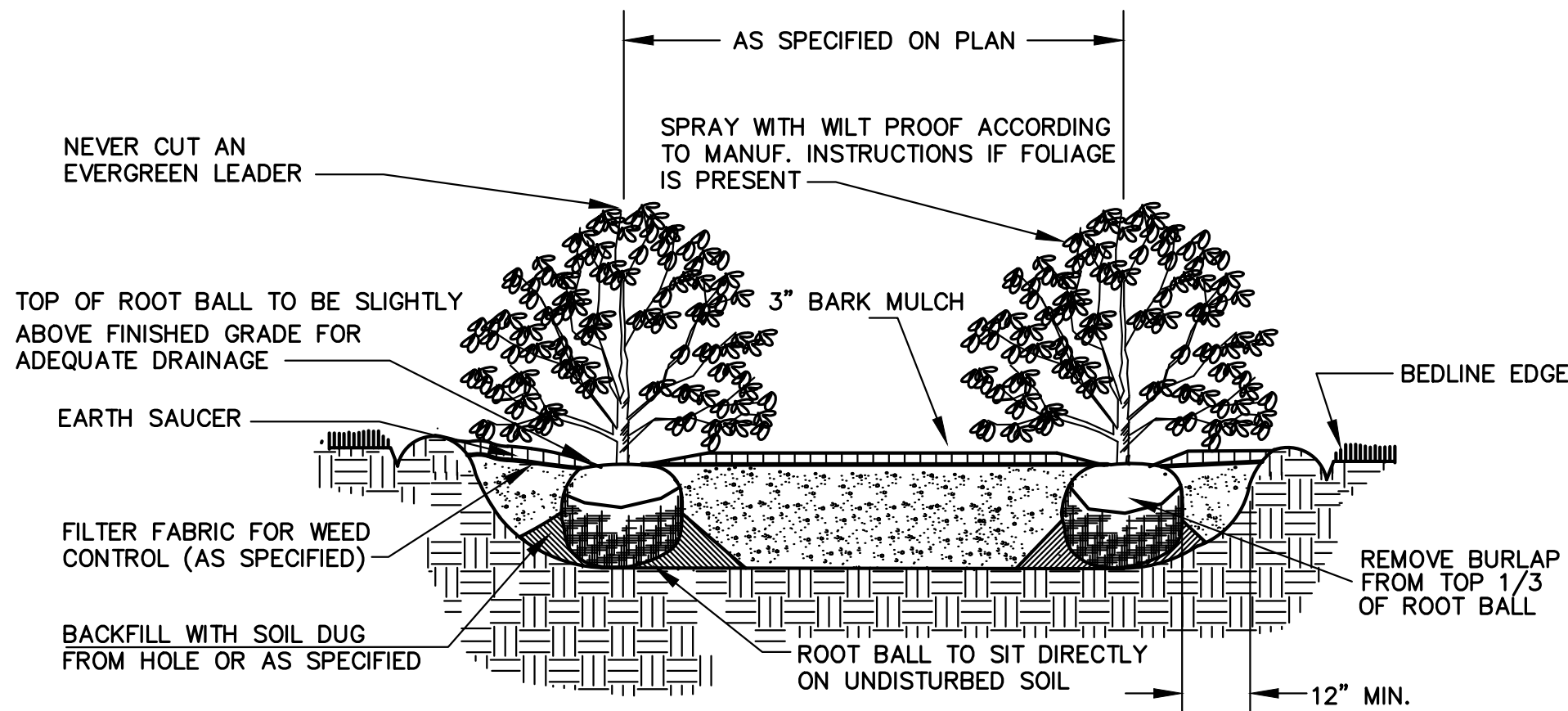


PLANTING NOTES:

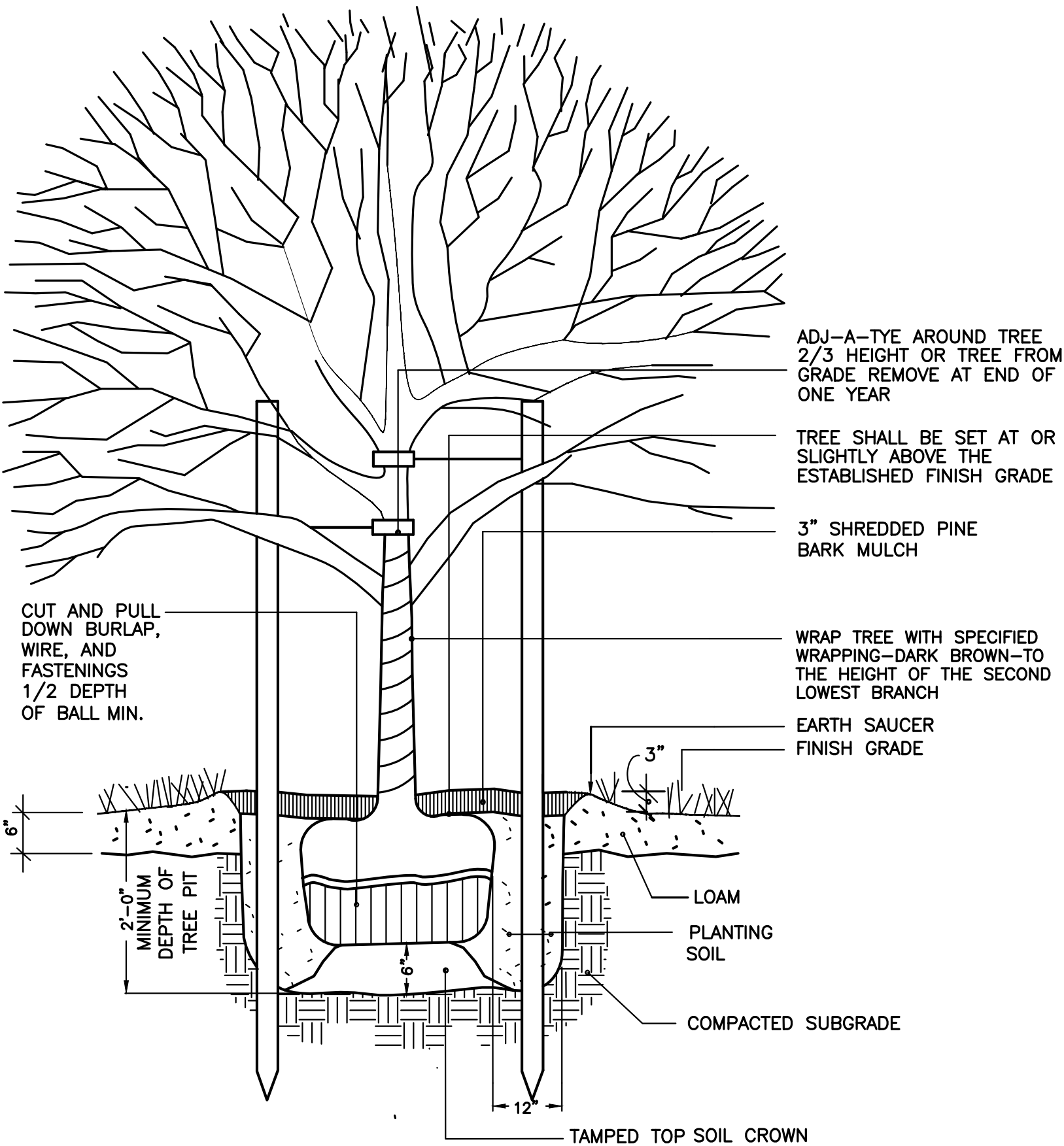
1. CONTRACTOR SHALL SUPPLY PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE PLANTINGS SHOWN ON THESE DRAWINGS OR PLANT LIST - WHICH EVER IS GREATER. CLARIFY DISCREPANCIES PRIOR TO PLACING PURCHASE ORDER.
2. ALL PLANT MATERIALS SHALL CONFORM AT A MINIMUM TO GUIDELINES ESTABLISHED BY LATEST EDITION OF AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK".
3. DECIDUOUS PLANT MATERIAL INSTALLED AFTER SEPTEMBER 30 AND BEFORE APRIL 1 WILL NOT BE REVIEWED FOR ACCEPTANCE DUE TO STAGE OF LEAF PHYSIOLOGY. THIS PLANT MATERIAL WILL NOT BE REVIEWED UNTIL FOLLOWING GROWING SEASON. GUARANTEE PERIOD WILL ONLY BEGIN AFTER ACCEPTANCE BY ENGINEER. EVERGREEN PLANT MATERIAL SHALL BE PLANTED APRIL 1 THROUGH JUNE 1 OR AUGUST 15 THROUGH NOVEMBER 15.
4. REPRESENTATIVE PLANT MATERIAL OF SPECIES SHALL BE LEGIBLY TAGGED WITH PROPER COMMON AND BOTANICAL NAMES. TAGS SHALL REMAIN ON PLANTS UNTIL ACCEPTANCE. PLANTS NOT TAGGED ARE SUBJECT TO REJECTION BY ENGINEER.
5. PLANT MATERIAL IS SUBJECT TO APPROVAL AND OR REJECTION OF ENGINEER AT THE NURSERY OR AT PROJECT SITE.
6. MULCH FOR PLANTED AREAS SHALL BE AGED PINE BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH UNLESS OTHERWISE SHOWN ON DRAWINGS OR NOTED IN SPECIFICATIONS.
7. PLANT MATERIAL SHALL BE LOCATED OUTSIDE BUILDING DRIP-LINE AND POINTS OF CONCENTRATION TO PREVENT DAMAGE FROM ROOF RUN OFF. CLARIFY CONFLICTS WITH ENGINEER PRIOR TO INSTALL.
8. ALL SHRUB GROUPINGS SHALL BE INCORPORATED INTO PLANTING BEDS. WHERE MULCHED PLANT BED ABUTS LAWN CONTRACTOR SHALL PROVIDE A TURF CUT EDGE.
9. ALL PLANT BED EDGES SHALL INTERSECT WITH PAVEMENTS AT 90 DEGREE ANGLES UNLESS OTHERWISE SHOWN ON DRAWINGS.
10. ALL PLANT BED EDGES SHALL BE SMOOTH AND CONSISTENT IN LAYOUT. IRREGULAR, "WAVEY" EDGES WILL NOT BE ACCEPTED.
11. CONTRACTOR SHALL BEGIN WATERING AND MAINTENANCE IMMEDIATELY AFTER PLANTING. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE PLANTINGS ARE TO BE THOROUGHLY WATERED AT LEAST TWICE IN THE FIRST 48 HRS.
12. CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
13. CONTRACTOR SHALL REMOVE ALL TREE STAKING (IF INCLUDED) ONE YEAR AFTER INSTALLATION.
14. ROOT BALL SHALL BEAR SAME RELATIONSHIP TO NEW GRADE AS TO ORIGINAL GRADE UNLESS OTHERWISE NOTED.
15. NO PLANTS SHALL BE PLANTED BEFORE ACCEPTANCE OF SUBSURFACE DRAINAGE AND ROUGH GRADING.
16. NO PLANTS SHALL BE PLANTED BEFORE CONSTRUCTION HAS BEEN COMPLETED IN THAT AREA.
17. IF CONTRACTOR ENCOUNTERS POORLY DRAINING SOILS (BATH TUB EFFECT) OR LEDGE WITHIN ANY PLANTING BED, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY FOR DIRECTION PRIOR TO INSTALLATION.
18. CONTRACTOR SHALL STAKE OR PLACE ON SURFACE OF GROUND ALL PROPOSED PLANT MATERIAL LOCATIONS AS PER PLAN. CONTACT ENGINEER PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL.
19. CONTRACTOR SHALL NOTIFY ENGINEER 72 HOURS MINIMUM IN ADVANCE OF REQUESTED SITE VISIT.
20. AFTER DEVELOPMENT IS COMPLETED, NO GROUND DISTURBED AS A RESULT OF CONSTRUCTION WILL BE LEFT AS EXPOSED BARE SOIL. ALL DISTURBED SURFACES NOT TREATED WILL FOLLOW THE PERMANENT VEGETATION SPECIFICATIONS.

SITE PLANT LIST

TREES			
SYMBOL	SPECIES	SIZE	QUANTITY
	AUTUMN BRILLIANCE SERVICEBERRY	8-FT BB	2
	NEW HARMONY AMERICAN ELM	2 INCH CALIPER	3
	ARISTOCRAT FLOWERING PEAR	2 INCH CALIPER	2
SHRUBS			
	RHODODENDRON (R. MAXIMUM)	3 FT. HEIGHT	4
	COMPACT PFITZER JUNIPER	18"-24"	7
RAIN GARDEN SHRUBS			
	ISANTI RED OCIER DOGWOOD	32" HT.	26
	WINTERBERRY	24" HT.	16
	SHAMROCK INKBERRY	18" HT.	40

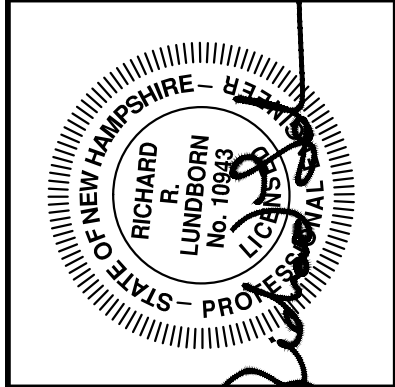
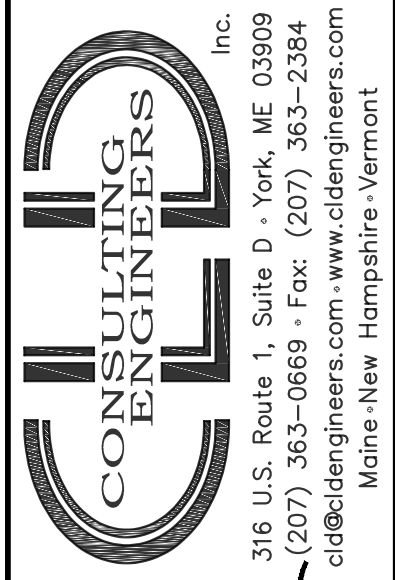


SHRUB PLANTING DETAIL
N.T.S.



DECIDUOUS TREE PLANTING DETAIL
N.T.S.

ADDITIONAL NHDES AOT COMMENTS		REVISED PER NHDES AOT COMMENTS		REVISED PER TRG COMMENTS		REVISION		DESIGNED: FSD		CHECKED: FSD		APPROVED: RRL	
3	9/14/16	2	8/30/16	1	7/19/16	NO.	DATE	DRAWN: DAD					



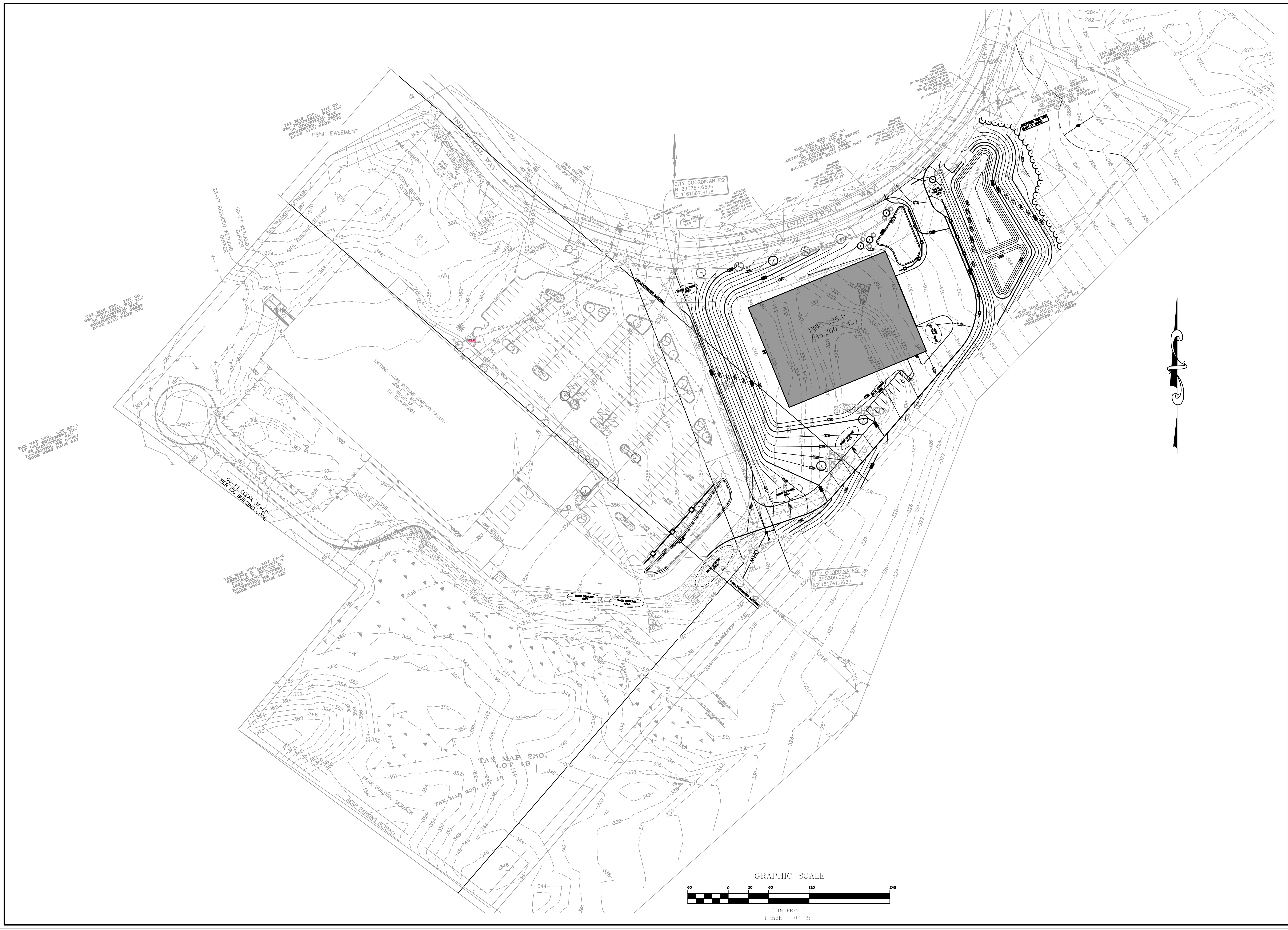
LAARS HEATING
SYSTEMS
INDUSTRIAL WAY
ROCHESTER, NH 03667

TAX MAP 230 LOT 19
WAREHOUSE FACILITY
20 INDUSTRIAL WAY
ROCHESTER, NH
LANDSCAPE PLANTING NOTES
AND DETAILS PLAN

SCALE: AS SHOWN	JOB NO. 15-0164
DATE: JULY 5, 2016	DWG. L2

FINAL APPROVAL BY
ROCHESTER PLANNING BOARD

CERTIFIED BY: _____ DATE: _____



TAX MAP 230 LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH		TAX MAP 280, LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH		TAX MAP 280, LOT 19 WAREHOUSE FACILITY 20 INDUSTRIAL WAY ROCHESTER, NH	
PROPOSED CONDITIONS OVERALL SITE PLAN		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867	
CLIENT:		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867		LAARS HEATING SYSTEMS INDUSTRIAL WAY ROCHESTER, NH 03867	
SCALE: 1"=30'		JOB NO. 15-0164		JOB NO. 15-0164	
DATE: JULY 5, 2016		DWG. S2		DWG. S2	
9/14/16		8/30/16		7/19/16	
3		2		1	
NO.		DATE		REVISION	
DRAWN: DAD		DESIGNED: ESD		CHECKED: ESD	
APPROVED: RRL		APPROVED: RRL		APPROVED: RRL	
