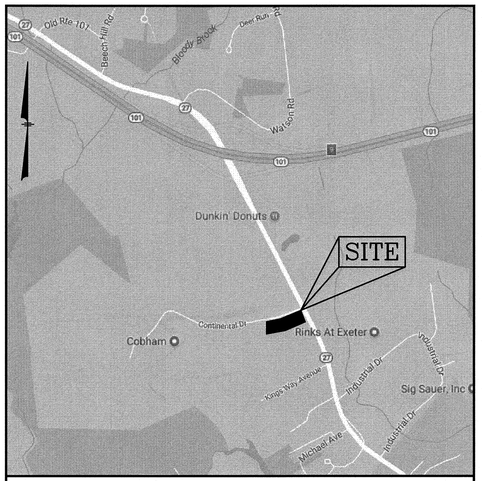
PROPOSED SITE RE-DEVELOPMENT PLANS

for

PROPOSED RETAIL MOTOR FUEL OUTLET
ASSESSORS MAP 47 - PROPOSED LOT 1-2
158 EPPING ROAD
EXETER, NEW HAMPSHIRE 03833

Prepared for:

NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606



LOCATION MAP
(NOT TO SCALE)

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PREPARED FOR
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326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE
FRANK C. MONTEIRO
No. 7853
LICENSED
PROFESSIONAL ENGINEER
5/4/21

REVISIONS		
NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

COVER SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2020283

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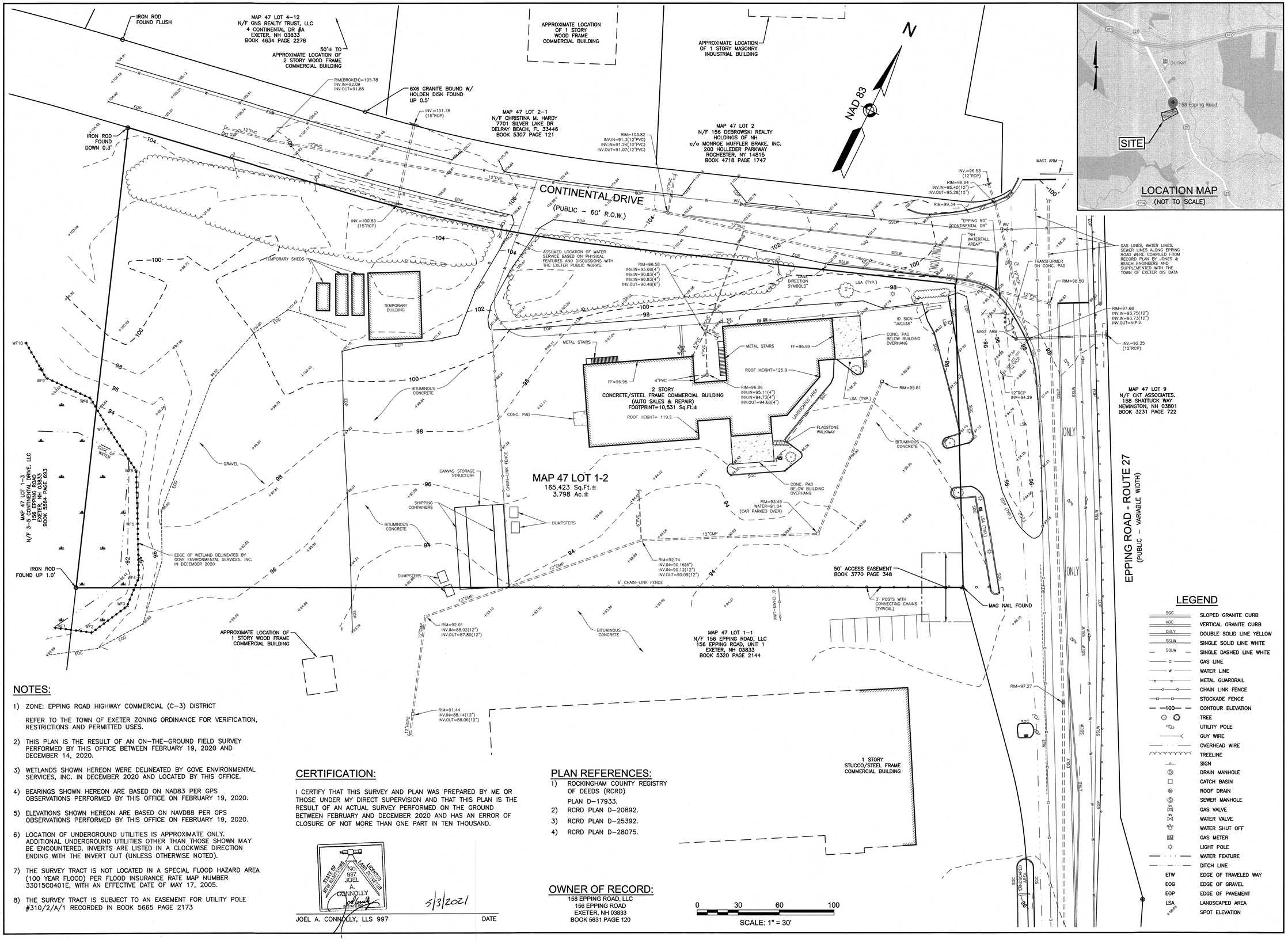

NOTES:

1) ZONE: EPPING ROAD HIGHWAY COMMERCIAL (C-3) DISTRICT

   REFER TO THE TOWN OF EXETER ZONING ORDINANCE FOR VERIFICATION, RESTRICTIONS AND PERMITTED USES.

2) THIS PLAN IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY PERFORMED BY THIS OFFICE BETWEEN FEBRUARY 19, 2020 AND DECEMBER 14, 2020.

3) WETLANDS SHOWN HEREON WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN DECEMBER 2020 AND LOCATED BY THIS OFFICE.

4) BEARINGS SHOWN HEREON ARE BASED ON NAD83 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON FEBRUARY 19, 2020.

5) ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON FEBRUARY 19, 2020.

6) LOCATION OF UNDERGROUND UTILITIES IS APPROXIMATE ONLY. ADDITIONAL UNDERGROUND UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED. INVERTS ARE LISTED IN A CLOCKWISE DIRECTION ENDING WITH THE INVERT OUT (UNLESS OTHERWISE NOTED).

7) THE SURVEY TRACT IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) PER FLOOD INSURANCE RATE MAP NUMBER 33015C0401E, WITH AN EFFECTIVE DATE OF MAY 17, 2005.

8) THE SURVEY TRACT IS SUBJECT TO AN EASEMENT FOR UTILITY POLE #310/2/A/1 RECORDED IN BOOK 5665 PAGE 2173

CERTIFICATION:

I CERTIFY THAT THIS SURVEY AND PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT THIS PLAN IS THE RESULT OF AN ACTUAL SURVEY PERFORMED ON THE GROUND BETWEEN FEBRUARY AND DECEMBER 2020 AND HAS AN ERROR OF CLOSURE OF NOT MORE THAN ONE PART IN TEN THOUSAND.

STATE OF NEW HAMPSHIRE — LICENSED LAND SURVEYOR — No. 997 — JOEL A. CONNOLLY

5/3/2021

JOEL A. CONNOLLY, LLS 997 — DATE

PLAN REFERENCES:

1) ROCKINGHAM COUNTY REGISTRY OF DEEDS (RCRD)

   PLAN D-17933.

2) RCRD PLAN D-20892.

3) RCRD PLAN D-25392.

4) RCRD PLAN D-28075.

OWNER OF RECORD:

158 EPPING ROAD, LLC
156 EPPING ROAD
EXETER, NH 03833
BOOK 5631 PAGE 120

LEGEND

SGC	SLOPED GRANITE CURB
VGC	VERTICAL GRANITE CURB
DSLY	DOUBLE SOLID LINE YELLOW
SSLW	SINGLE SOLID LINE WHITE
SDLW	SINGLE DASHED LINE WHITE
G	GAS LINE
W	WATER LINE
	METAL GUARDRAIL
	CHAIN LINK FENCE
	STOCKADE FENCE
100	CONTOUR ELEVATION
	TREE
	UTILITY POLE
	GUY WIRE
	OVERHEAD WIRE
	TREELINE
	SIGN
	DRAIN MANHOLE
	CATCH BASIN
	ROOF DRAIN
	SEWER MANHOLE
	GAS VALVE
	WATER VALVE
	WATER SHUT OFF
GM	GAS METER
	LIGHT POLE
	WATER FEATURE
	DITCH LINE
ETW	EDGE OF TRAVELED WAY
EOG	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
LSA	LANDSCAPED AREA
98.65	SPOT ELEVATION

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326 CLARK STREET
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PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

REVISIONS

NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
DPD/JAC	JAC

EXISTING CONDITIONS PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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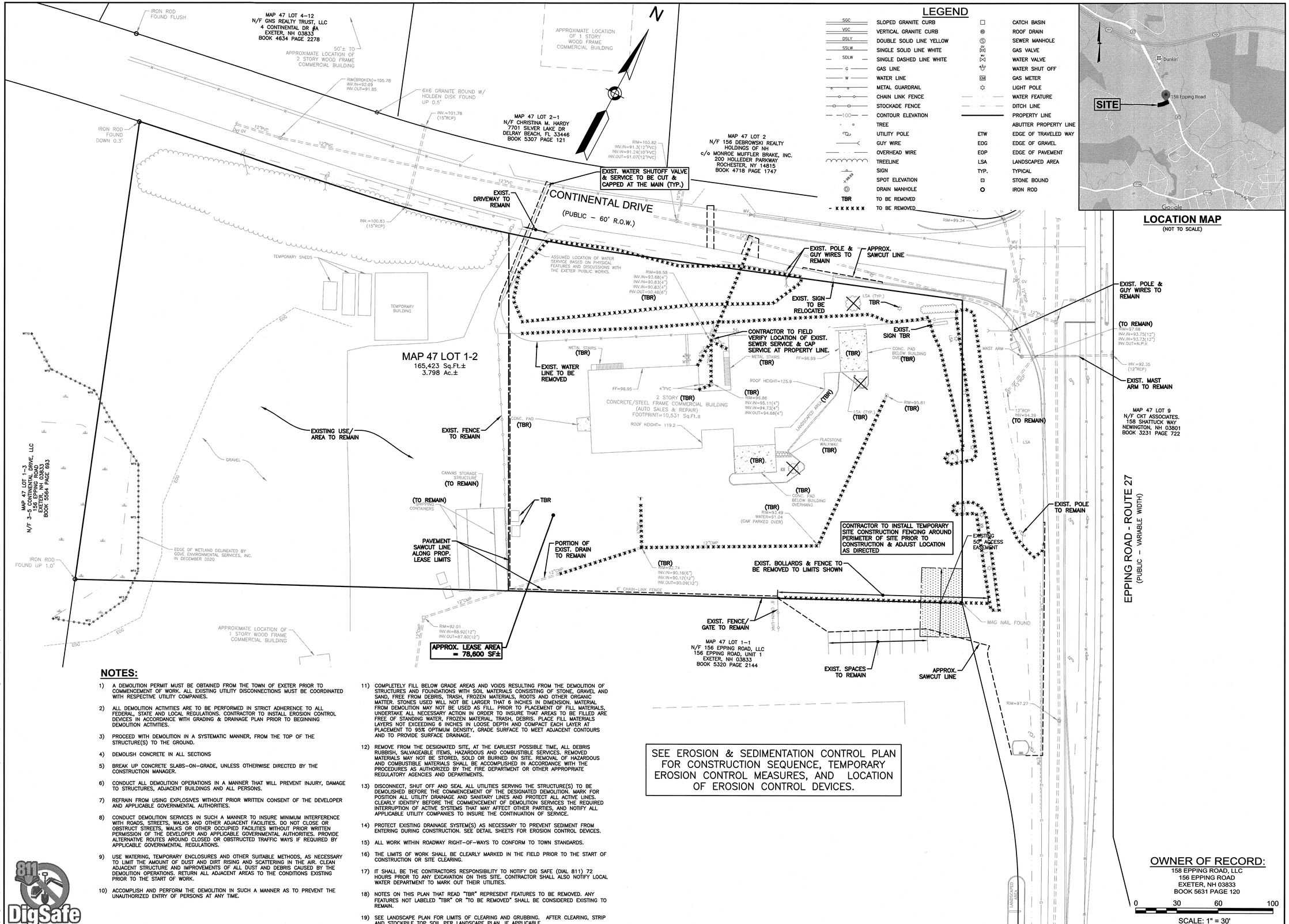

LEGEND

SGC	SLOPED GRANITE CURB		CATCH BASIN
VGC	VERTICAL GRANITE CURB		ROOF DRAIN
DSLY	DOUBLE SOLID LINE YELLOW		SEWER MANHOLE
SSLW	SINGLE SOLID LINE WHITE		GAS VALVE
SDLW	SINGLE DASHED LINE WHITE		WATER VALVE
G	GAS LINE		WATER SHUT OFF
W	WATER LINE	GM	GAS METER
	METAL GUARDRAIL		LIGHT POLE
	CHAIN LINK FENCE		WATER FEATURE
	STOCKADE FENCE		DITCH LINE
100	CONTOUR ELEVATION		PROPERTY LINE
	TREE		ABUTTER PROPERTY LINE
	UTILITY POLE	ETW	EDGE OF TRAVELED WAY
	GUY WIRE	EOG	EDGE OF GRAVEL
	OVERHEAD WIRE	EOP	EDGE OF PAVEMENT
	TREELINE	LSA	LANDSCAPED AREA
	SIGN	TYP.	TYPICAL
98.99	SPOT ELEVATION		STONE BOUND
D	DRAIN MANHOLE		IRON ROD
TBR	TO BE REMOVED		
- - - - - -	TO BE REMOVED		

LOCATION MAP
(NOT TO SCALE)

NOTES:

1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE TOWN OF EXETER PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING UTILITY DISCONNECTIONS MUST BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES.

2) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR TO INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH GRADING & DRAINAGE PLAN PRIOR TO BEGINNING DEMOLITION ACTIVITIES.

3) PROCEED WITH DEMOLITION IN A SYSTEMATIC MANNER, FROM THE TOP OF THE STRUCTURE(S) TO THE GROUND.

4) DEMOLISH CONCRETE IN ALL SECTIONS

5) BREAK UP CONCRETE SLABS–ON–GRADE, UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.

6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT INJURY, DAMAGE TO STRUCTURES, ADJACENT BUILDINGS AND ALL PERSONS.

7) REFRAIN FROM USING EXPLOSIVES WITHOUT PRIOR WRITTEN CONSENT OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES.

8) CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATIVE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.

9) USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS, AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURE AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.

10) ACCOMPLISH AND PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.

11) COMPLETELY FILL BELOW GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. STONES USED WILL NOT BE LARGER THAT 6 INCHES IN DIMENSION. MATERIAL FROM DEMOLITION MAY NOT BE USED AS FILL. PRIOR TO PLACEMENT OF FILL MATERIALS, UNDERTAKE ALL NECESSARY ACTION IN ORDER TO INSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROZEN MATERIAL, TRASH, DEBRIS. PLACE FILL MATERIALS LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH AND COMPACT EACH LAYER AT PLACEMENT TO 95% OPTIMUM DENSITY, GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.

12) REMOVE FROM THE DESIGNATED SITE, AT THE EARLIEST POSSIBLE TIME, ALL DEBRIS RUBBISH, SALVAGEABLE ITEMS, HAZARDOUS AND COMBUSTIBLE SERVICES. REMOVED MATERIALS MAY NOT BE STORED, SOLD OR BURNED ON SITE. REMOVAL OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROCEDURES AS AUTHORIZED BY THE FIRE DEPARTMENT OR OTHER APPROPRIATE REGULATORY AGENCIES AND DEPARTMENTS.

13) DISCONNECT, SHUT OFF AND SEAL ALL UTILITIES SERVING THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION. MARK FOR POSITION ALL UTILITY DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY BEFORE THE COMMENCEMENT OF DEMOLITION SERVICES THE REQUIRED INTERRUPTION OF ACTIVE SYSTEMS THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO INSURE THE CONTINUATION OF SERVICE.

14) PROTECT EXISTING DRAINAGE SYSTEM(S) AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE DETAIL SHEETS FOR EROSION CONTROL DEVICES.

15) ALL WORK WITHIN ROADWAY RIGHT–OF–WAYS TO CONFORM TO TOWN STANDARDS.

16) THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.

17) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY DIG SAFE (DIAL 811) 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER DEPARTMENT TO MARK OUT THEIR UTILITIES.

18) NOTES ON THIS PLAN THAT READ "TBR" REPRESENT FEATURES TO BE REMOVED. ANY FEATURES NOT LABELED "TBR" OR "TO BE REMOVED" SHALL BE CONSIDERED EXISTING TO REMAIN.

19) SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING AND GRUBBING. AFTER CLEARING, STRIP AND STOCKPILE TOP SOIL PER LANDSCAPE PLAN, IF APPLICABLE.

SEE EROSION & SEDIMENTATION CONTROL PLAN FOR CONSTRUCTION SEQUENCE, TEMPORARY EROSION CONTROL MEASURES, AND LOCATION OF EROSION CONTROL DEVICES.

811 DigSafe MA-ME-NH-RI-VT

OWNER OF RECORD:
158 EPPING ROAD, LLC
156 EPPING ROAD
EXETER, NH 03833
BOOK 5631 PAGE 120

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PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE FRANK C. MONTEIRO No. 7959 LICENSED PROFESSIONAL ENGINEER
5/4/21

REVISIONS

NO.	REVISION	DATE

APRIL 20, 2021

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DEMOLITION PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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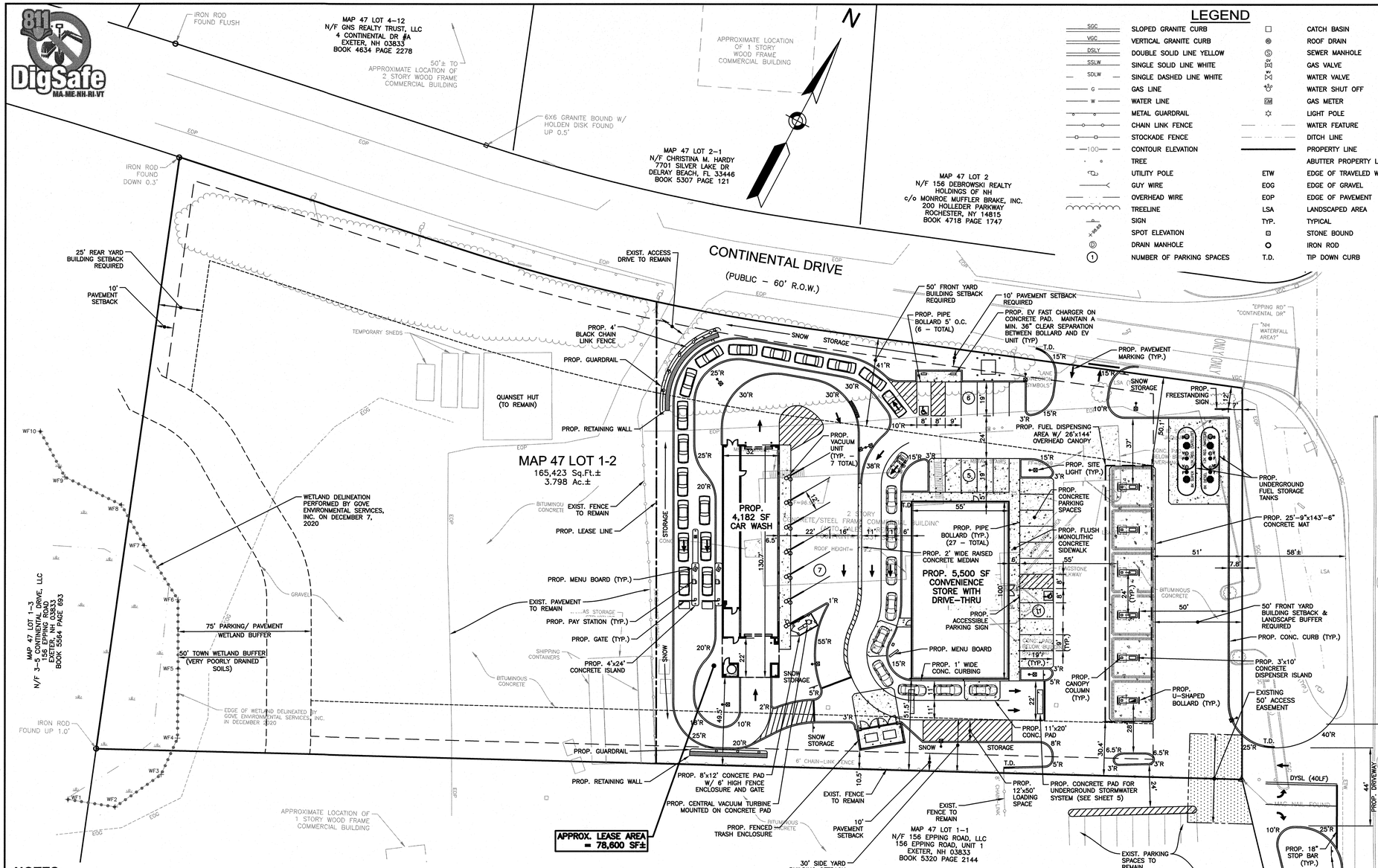
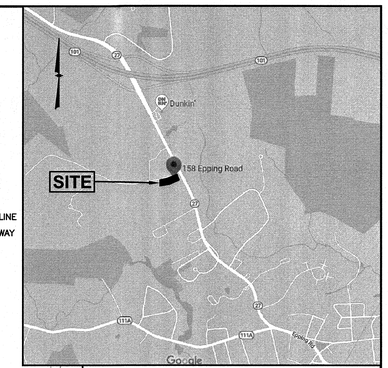


LEGEND

SGC	SLOPED GRANITE CURB		CATCH BASIN
VGC	VERTICAL GRANITE CURB		ROOF DRAIN
DSLY	DOUBLE SOLID LINE YELLOW		SEWER MANHOLE
SSLW	SINGLE SOLID LINE WHITE		GAS VALVE
SDLW	SINGLE DASHED LINE WHITE		WATER VALVE
G	GAS LINE		WATER SHUT OFF
W	WATER LINE		GAS METER
	METAL GUARDRAIL		LIGHT POLE
	CHAIN LINK FENCE		WATER FEATURE
	STOCKADE FENCE		DITCH LINE
100	CONTOUR ELEVATION		PROPERTY LINE
	TREE		ABUTTER PROPERTY LINE
	UTILITY POLE	ETW	EDGE OF TRAVELED WAY
	GUY WIRE	EOG	EDGE OF GRAVEL
	OVERHEAD WIRE	EOP	EDGE OF PAVEMENT
	TREELINE	LSA	LANDSCAPED AREA
	SIGN	TYP.	TYPICAL
+45.45	SPOT ELEVATION		STONE BOUND
	DRAIN MANHOLE		IRON ROD
1	NUMBER OF PARKING SPACES	T.D.	TIP DOWN CURB



LOCATION MAP
(NOT TO SCALE)

NOTES:

1) THE INTENT OF THIS PLAN IS TO REDEVELOP THE EXISTING CAR DEALERSHIP INTO A NEW RETAIL MOTOR FUEL OUTLET WITH DRIVE THRU & CAR WASH.

2) THIS PLAN IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY PERFORMED BY THIS OFFICE BETWEEN FEBRUARY 19, 2020 AND DECEMBER 14, 2020.

3) TAX MAP 47 LOT 1-2

4) ZONING DISTRICT: EPPING ROAD HIGHWAY COMMERCIAL (C-3)

5) LOT AREA = 165,423 Sq.Ft.
= 3.798 Ac.±

6) EXISTING USE: FORMER JAGUAR CAR DEALERSHIP
PROPOSED USE: RETAIL MOTOR FUEL OUTLET INCLUDING A 5,500 SF CONVENIENCE STORE WITH DRIVE THRU, A FUEL CANOPY WITH 6 FUEL DISPENSING ISLANDS (12 FUELING POSITIONS) & AND A 4,182 SF CAR WASH FACILITY.

7) THE FOLLOWING ZONING RELIEF WAS GRANTED BY THE EXETER ZONING BOARD OF ADJUSTMENT ON MARCH 16, 2021:

A) RETAIL SERVICES (INCL. RETAIL SALES/ RESTAURANTS/ DRIVE-IN COMMERCIAL) & AUTOMOBILE WASHING ARE A PERMITTED USES. GASOLINE AND/OR SERVICES STATIONS REQUIRE A SPECIAL EXCEPTION FROM THE ZONING BOARD OF ADJUSTMENT.

B) A VARIANCE FROM SECTION 6.8.2 OF THE EXETER ZONING ORDINANCE WHERE A TOTAL OF 50' OF FONT YARD IS REQUIRED AND NONE IS PROPOSED SINCE THE WIDE TOWN RIGHT-OF-WAY IS INTENDED TO BE USED TO MEET THE INTENT OF THIS ORDINANCE.

C) A VARIANCE FROM SECTION 6.8.2 OF THE EXETER ZONING ORDINANCE FOR THE PROPOSED FREESTANDING SIGN LOCATED WITHIN THE 35' SETBACK FOR SIGNAGE.

8) ALL BUILDINGS AND SITE CONSTRUCTION SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AS REVISED IN 2010, OR LATEST EDITION.

9) WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.

10) A SIGN PERMIT SHALL BE OBTAINED PRIOR TO INSTALLATION.

11) ALL WASTE MATERIALS AND RECYCLABLES SHALL BE CONTAINED WITHIN THE BUILDING(S) OR APPROVED STORAGE FACILITIES AND SHALL NOT BE OTHERWISE STORED ON PROPERTY.

12) EXISTING IMPERVIOUS COVERAGE = 87,976 SF (53.2%)
PROPOSED IMPERVIOUS COVERAGE = 85,930 SF (51.9%)
PROPOSED IMPERVIOUS COVERAGE (WITHIN LEASE LIMITS) = 61,531 SF (78.3%)

13) THE SURVEY TRACT IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) PER FLOOD INSURANCE RATE MAP NUMBER 33015C0401E, WITH AN EFFECTIVE DATE OF MAY 17, 2005.

14) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 811 PRIOR TO ANY EXCAVATION.

15) ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF EXETER AND THE STATE OF NEW HAMPSHIRE.

16) ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND THE STANDARD CONSTRUCTION DRAWINGS AS SUPPLIED BY THE OWNER/DEVELOPER.

17) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY GREENMAN-PEDERSEN INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR AND/OR ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE AND/OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.

18) ALL SNOW SHALL BE STORED IN THE AREA(S) DEPICTED ON THIS PLAN AS SNOW STORAGE AREAS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN PARKING LOTS OR TRAVEL AISLES.

19) REFER TO DETAIL SHEETS FOR ALL SITE DEVELOPMENT DETAILS AND INFORMATION.

TABLE OF ZONING REGULATIONS - EXETER, NH

ZONE: EPPING ROAD HIGHWAY COMMERCIAL (C-3)

DESCRIPTION	REQUIRED	PROVIDED
MINIMUM LOT AREA Sq. Ft.	40,000 SF	165,423 SF
MINIMUM LOT FRONTAGE	N/A	834.10'
MINIMUM FRONT YARD BUILDING SETBACK	50'	51' (CANOPY TO EPPING RD) 50.1' (CANOPY TO CONTINENTAL DR)
MINIMUM SIDE YARD BUILDING SETBACK	30'	30.4' (CANOPY) 51.5' (C-STORE) 49.5' (CAR WASH)
MINIMUM REAR YARD BUILDING SETBACK (BUILDING SETBACK FROM LEASE LINE)	25'	326.7' (38.6')
MINIMUM FRONT LANDSCAPE STRIP	35'	7.8'
PARKING SPACE DIMENSIONS	9'x19'	9'x19'
MINIMUM NUMBER PARKING SPACES	GASOLINE OR AUTOMOTIVE: 1 SPACE PER 300 SF GROSS RETAIL = 4,500 SF RETAIL X 1 SP/300 SF = 15 SPACES RESTAURANT: 1 SPACE PER 3 SEATS (1,000 SF) (ASSUME 12 SEATS) X 1 SP/ 3 SEATS = 4 SPACES TOTAL = 19 SPACES REQUIRED	22 SPACES (EXCLUDES 12 SPACES AT DISPENSERS)
MINIMUM OPEN SPACE	20%	79,493 SF/165,423 SF = 48.1%
MAXIMUM STRUCTURE HEIGHT	50'	< 50'
MAXIMUM BUILDING COVERAGE	40%	13,426 SF/165,423 SF = 8.1%
FREESTANDING SIGN AREA,HEIGHT+SETBACK	24 SF, 25' HIGH, 35' SETBACK	AREA/HEIGHT TBD, 7' SETBACK
WALL SIGN AREA	40 SF	TBD
LOADING SPACE REQUIREMENTS	1 SPACE/4,000 SF + 1 FOR EACH ADDITIONAL 10,000 SF	1 SPACE

TOWN OF EXETER PLANNING BOARD

CHAIRMAN DATE

OWNER OF RECORD:
158 EPPING ROAD, LLC
156 EPPING ROAD
EXETER, NH 03833
BOOK 5631 PAGE 120

0 30 60 100
SCALE: 1" = 30'

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THE STATE OF NEW HAMPSHIRE FRANK C. MONTEIRO No. 7759 LICENSED PROFESSIONAL ENGINEER
5/4/21

REVISIONS

NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

SITE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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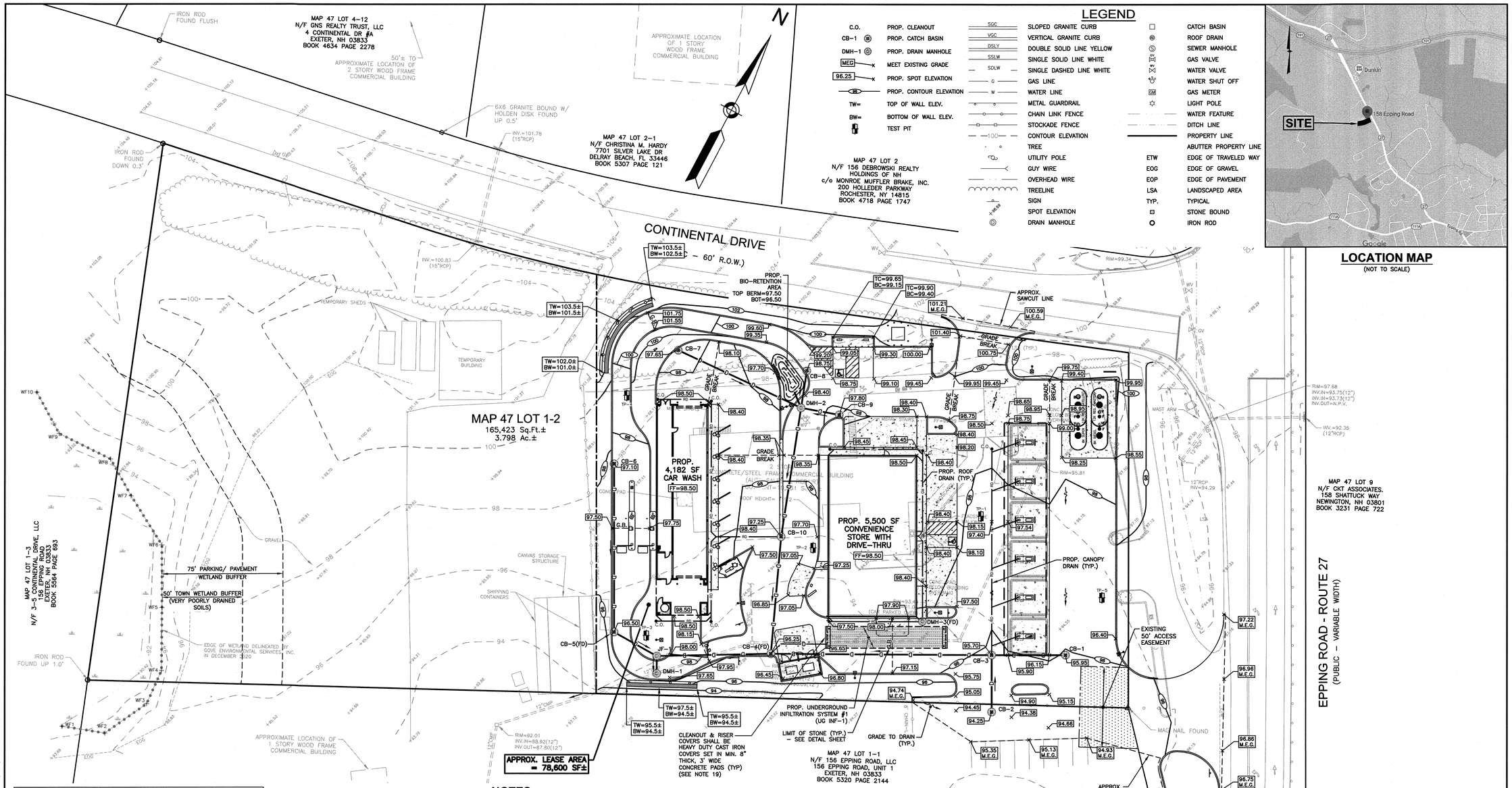

LEGEND

C.O.	PROP. CLEANOUT	SGC	SLOPED GRANITE CURB		CATCH BASIN
CB-1	PROP. CATCH BASIN	VGC	VERTICAL GRANITE CURB		ROOF DRAIN
DMH-1	PROP. DRAIN MANHOLE	DSLY	DOUBLE SOLID LINE YELLOW		SEWER MANHOLE
MEG	MEET EXISTING GRADE	SSLW	SINGLE SOLID LINE WHITE		GAS VALVE
96.25	PROP. SPOT ELEVATION	SDLW	SINGLE DASHED LINE WHITE		WATER VALVE
98	PROP. CONTOUR ELEVATION	G	GAS LINE		WATER SHUT OFF
TW=	TOP OF WALL ELEV.	W	WATER LINE	GM	GAS METER
BW=	BOTTOM OF WALL ELEV.		METAL GUARDRAIL		LIGHT POLE
	TEST PIT		CHAIN LINK FENCE		WATER FEATURE
			STOCKADE FENCE		DITCH LINE
		100	CONTOUR ELEVATION		PROPERTY LINE
			TREE		ABUTTER PROPERTY LINE
			UTILITY POLE	ETW	EDGE OF TRAVELED WAY
			GUY WIRE	EOG	EDGE OF GRAVEL
			OVERHEAD WIRE	EOP	EDGE OF PAVEMENT
			TREELINE	LSA	LANDSCAPED AREA
			SIGN	TYP.	TYPICAL
		98.89	SPOT ELEVATION		STONE BOUND
			DRAIN MANHOLE		IRON ROD

LOCATION MAP
(NOT TO SCALE)

DRAINAGE PIPE SCHEDULE

FROM: STRUCTURE NUMBER	PIPE SIZE (INCHES)	TYPE OF PIPE	APPROX. PIPE LENGTH (FEET)	SLOPE OF PIPE (FT./FT.)	TO: STRUCTURE NUMBER
CB-1	12	HDPE	46	0.013	CB-3
CB-2	12	HDPE	35	0.006	CB-3
CB-3	12	HDPE	137	0.006	CB-4(FD)
CB-4(FD)	12	HDPE	71	0.006	JF-1
CB-5(FD)	12	HDPE	30	0.013	JF-1
CB-6	12	HDPE	104	0.011	CB-5(FD)
CB-7	12	HDPE	84	0.010	DMH-2
CB-8	12	HDPE	23	0.017	DMH-2
CB-9	12	HDPE	24	0.021	DMH-2
CB-10	12	HDPE	73	0.026	CB-4(FD)
DMH-2	12	HDPE	81	0.015	CB-10
DMH-3(FD)	12	HDPE	4	0.018	UG INF.-IN
JF-1	12	HDPE	11	0.009	DMH-1
RAIN GARDEN	6	HDPE	11	0.059	DMH-2
UG INF.-OUT	6	HDPE	86	0.020	CB-4(FD)

DRAINAGE STRUCTURES

CB-1
RIM=95.95
INV.OUT=91.95

CB-2
RIM=94.25
INV.OUT=91.55

CB-3
RIM=95.70
INV.IN=91.34(CB-1)
INV.IN=91.34(CB-2)
INV.OUT=91.24

CB-4(FD)
RIM=96.25
INV.IN=90.42(CB-3)
INV.IN=90.50(CB-10)
INV.IN=92.10(UG INF.-OUT)
INV.OUT=90.32

CB-5(FD)
RIM=96.50
INV.IN=92.00(CB-6)
INV.OUT=91.90

CB-6
RIM=97.10
INV.OUT=93.10

CB-7
*RIM=97.65
INV.OUT=94.65

CB-8
RIM=98.55
INV.OUT=94.75

CB-9
RIM=97.80
INV.OUT=94.30

CB-10
RIM=97.25
INV.IN=92.50(DMH-2)
INV.OUT=92.40

DMH-1
RIM=97.55
INV.IN=89.70(JF-1)
INV.OUT=89.65

DMH-2
RIM=98.35
INV.IN=93.80(CB-7)
INV.IN=93.80(CB-9)
INV.IN=94.35(CB-8)
INV.IN=95.35(RAIN GARDEN)
INV.OUT=93.70

DMH-3(FD)
RIM=97.60
INV.IN=93.50(RD)
INV.OUT=93.40

JELLYFISH FILTER (JF-1)
RIM=98.30
INV.IN=91.50(CB-5(FD))
INV.IN=89.90(CB-4(FD))
INV.OUT=89.80
(SEE DETAIL)

(FD) DENOTES FIRST DEFENSE FD4-HC UNIT OR APPROVED EQUAL (SEE DETAIL)

* DENOTES LOW PROFILE FRAME, GRATE & TOP SLAB

UNDERGROUND INFILTRATION SYSTEM-1
(UG INF.-1)
12"ø PERF. HDPE PIPES
6 ROWS X 70 LF/ROW WITH 2 HEADER PIPES
S=0.000 FT/FT
INV.IN=93.33(DMH-3(FD))
INV.OUT=93.83
INV.PIPE=93.33
BOT.STONE=93.00
(SEE DETAIL)

NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH-DENSITY POLYETHYLENE PIPE WITH STANDARD JOINTS, DUAL-WALL, SMOOTH INTERIOR, AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN. THE UNDERGROUND DETENTION SYSTEM SHALL HAVE WATER TIGHT JOINTS MEETING ASTM D3212 SPECIFICATIONS.

2) ALL ROOF AND CANOPY DRAIN PIPE SHALL BE 6" PVC (SDR-35).

3) ROOF DRAIN TIE-INS AND ALL DRAIN LINES WILL BE INSPECTED PRIOR TO BACKFILL AND PAVING.

4) ELEVATIONS ARE BASED ON NAVD88 DATUM.

5) ALL PROPOSED ELEVATIONS AS SHOWN ARE BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.

6) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.

7) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

8) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.

9) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG-SAFE (DIAL 811) PRIOR TO COMMENCING ANY EXCAVATION.

10) THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION SINCE THE DISTURBANCE EXCEEDS ONE ACRE (ACTUAL DISTURBANCE = 94,000 SF±). THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND MADE ACCESSIBLE TO THE PUBLIC. A COMPLETED NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET: FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.

11) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.

12) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO NHDOT AND EXETER DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT-OF-WAY.

13) ALL ADA ACCESSIBLE WALKWAYS CANNOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE, RAMPS CANNOT EXCEED 8.33% RUNNING SLOPE AND 2% CROSS SLOPE, AND HC PARKING STALLS AND ACCESS AISLES CANNOT EXCEED 2% SLOPE IN ANY DIRECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.

14) SEE UTILITY PLAN FOR DETAILED UTILITY LAYOUT.

15) CONTRACTOR IS TO FIELD ADJUST GRADES FOR THE TANK PAD TO SHED WATER

16) ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS AND OUTLETS EQUIPPED WITH "ELIMINATOR" OIL HOODS OR APPROVED EQUAL.

17) ALL PIPE DATA IS CALCULATED TO CENTER OF STRUCTURE, TYP.

18) CONTRACTOR TO REFER TO THE OPERATION & MAINTENANCE (O&M) MANUAL FOR STORMWATER MANAGEMENT SYSTEMS & SITE MAINTENANCE DURING AND AFTER CONSTRUCTION.

19) CONTRACTOR TO INSTALL RISER STRUCTURES AT EACH CORNER OF UNDERGROUND INFILTRATION SYSTEM AND CLEANOUTS AT EACH END OF EACH ROW TO PROVIDE ACCESS POINTS FOR CLEANING AND MAINTENANCE.
- TOTAL RISERS PROPOSED = 4
- TOTAL CLEANOUTS PROPOSED = 8

20) ALL WATER, SEWER, ROAD (INCLUDING PARKING LOT), AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9.5 GRADING, DRAINAGE, AND EROSION & SEDIMENT CONTROL AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC UTILITIES IN EXETER, NEW HAMPSHIRE.

OWNER OF RECORD:
158 EPPING ROAD, LLC
156 EPPING ROAD
EXETER, NH 03833
BOOK 5631 PAGE 120

GPI Engineering Design Planning Construction Management
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Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE FRANK C. MONTEIRO No. 7759 LICENSED PROFESSIONAL ENGINEER 5/4/21

REVISIONS		
NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

GRADING & DRAINAGE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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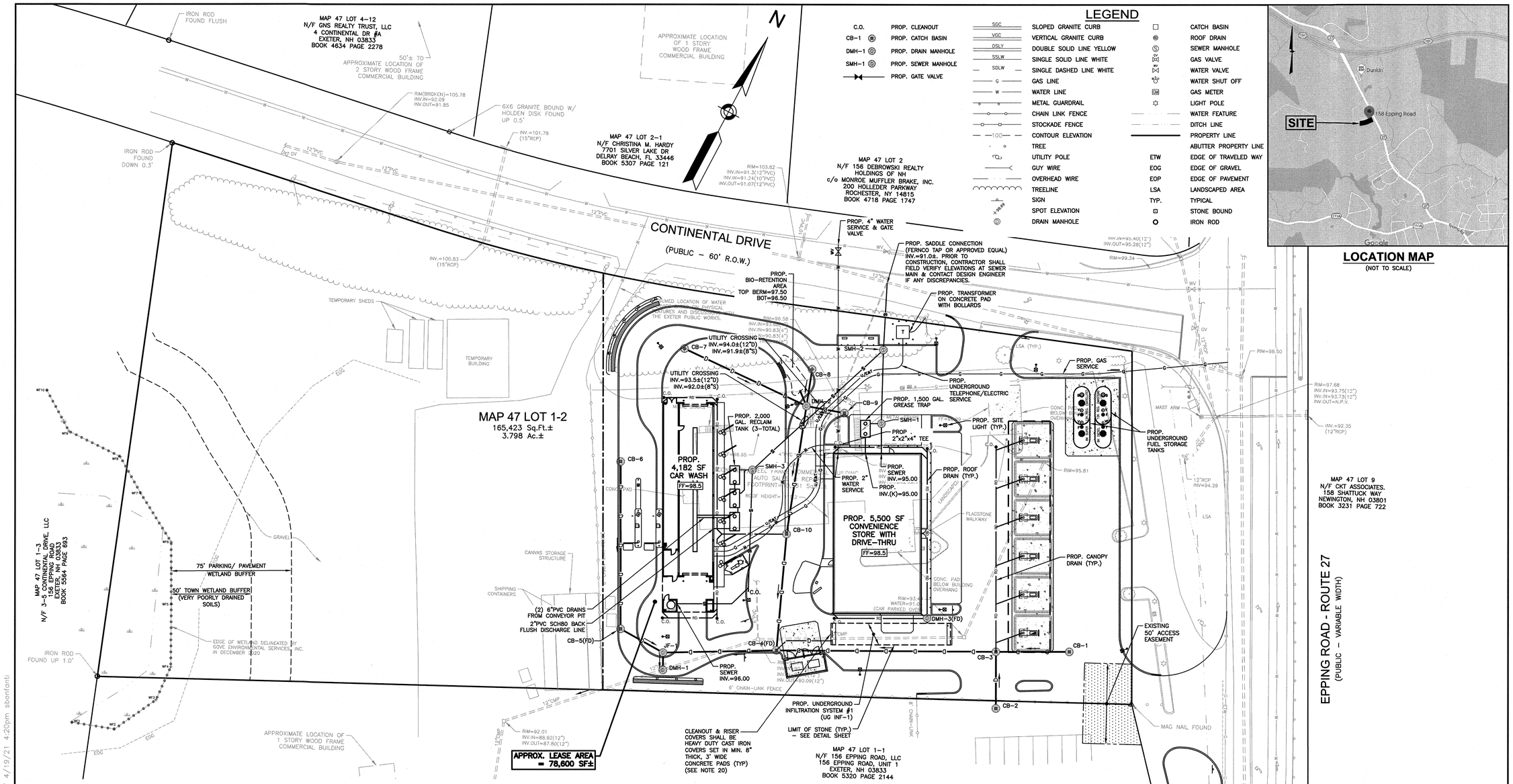

LEGEND

C.O.	PROP. CLEANOUT	SGC	SLOPED GRANITE CURB
CB-1	PROP. CATCH BASIN	VGC	VERTICAL GRANITE CURB
DMH-1	PROP. DRAIN MANHOLE	DSLY	DOUBLE SOLID LINE YELLOW
SMH-1	PROP. SEWER MANHOLE	SSLW	SINGLE SOLID LINE WHITE
	PROP. GATE VALVE	SDLW	SINGLE DASHED LINE WHITE
		G	GAS LINE
		W	WATER LINE
			METAL GUARDRAIL
			CHAIN LINK FENCE
			STOCKADE FENCE
		100	CONTOUR ELEVATION
			TREE
			UTILITY POLE
			GUY WIRE
			OVERHEAD WIRE
			TREELINE
			SIGN
			SPOT ELEVATION
			DRAIN MANHOLE

	CATCH BASIN		
	ROOF DRAIN		
	SEWER MANHOLE		
GV	GAS VALVE		
WV	WATER VALVE		
	WATER SHUT OFF		
GM	GAS METER		
	LIGHT POLE		
	WATER FEATURE		
	DITCH LINE		
	PROPERTY LINE		
	ABUTTER PROPERTY LINE		
ETW	EDGE OF TRAVELED WAY		
EOG	EDGE OF GRAVEL		
EOP	EDGE OF PAVEMENT		
LSA	LANDSCAPED AREA		
TYP.	TYPICAL		
	STONE BOUND		
	IRON ROD		

LOCATION MAP
(NOT TO SCALE)

NOTES:

1) ALL SANITARY SEWER PIPE SHALL BE PVC (SDR-35), UNLESS OTHERWISE NOTED.
2) ALL WATER PIPE SHALL BE COPPER (TYPE K), UNLESS OTHERWISE NOTED.
3) ELEVATIONS ARE BASED ON NAVD88 DATUM.
4) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.
5) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.
6) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
7) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG-SAFE (1-888-344-7233) PRIOR TO COMMENCING ANY EXCAVATION.
8) ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
9) THIS SITE IS SERVED BY MUNICIPAL SEWER AND WATER.
10) ALL ELECTRIC, TELEPHONE AND CABLE TV LINES ARE TO BE UNDERGROUND AND INSTALLED IN CONFORMANCE WITH APPLICABLE UTILITY CO. SPECIFICATIONS.
11) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.
12) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO NHDOT AND TOWN OF EXETER DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT-OF-WAY.
13) SEE GRADING & DRAINAGE PLAN FOR DETAILED DRAINAGE INFORMATION.
14) ELECTRICAL CONDUIT WITHIN 20' OF TANKS OR DISPENSERS MAY NEED TO BE RIGID METAL CONDUIT WITH CONCRETE ENCASEMENT. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND/OR TOWN ELECTRICAL INSPECTOR AS REQUIRED.
15) REFER TO DETAIL SHEETS FOR ALL UTILITY AND DRAINAGE STRUCTURE DETAILS AND ADDITIONAL INFORMATION.
16) ALL SITE LIGHTING SHALL BE AS SHOWN ON THE PLAN AND CONFORM TO THE APPLICABLE TOWN OF EXETER ZONING REGULATIONS.

PUBLIC UTILITIES

UTILITIES	AVAILABLE
(WATER) EXETER PUBLIC WORKS DEPT. (603-773-6157)	YES
(GAS) UNITIL (866-933-3820)	YES
(ELECTRIC) UNITIL (800-582-7276)	YES
(TELEPHONE) CONSOLIDATED COMMUNICATIONS (1-866-984-3001)	YES
(SEWER) EXETER PUBLIC WORKS DEPT. (603-773-6157)	YES

SEWER PIPE SCHEDULE

FROM: STRUCTURE NUMBER	PIPE SIZE (inches)	TYPE OF PIPE	APPROX. PIPE LENGTH (feet)	SLOPE OF PIPE (ft./ft.)	TO: STRUCTURE NUMBER
BLDG. SEWER	4	PVC	19	0.029	SMH-1
BLDG. GR. TRAP	4	PVC	10	0.020	GR. TRAP
GR. TRAP	4	PVC	5	0.020	SMH-1
SMH-1	6	PVC	45	0.067	SMH-2
CAR WASH	6	PVC	125	0.027	SMH-3
SMH-3	8	PVC	110	0.011	SMH-2
SMH-2	8	PVC	43	0.005	EXIST. MAIN

SEWER STRUCTURES

PROPOSED 1,500 GALLON GREASE TRAP
RIM=98.20
INV.IN=94.80
INV.OUT=94.55

PROP. SMH-1
RIM=98.10
INV.IN=94.45
INV.OUT=94.35

PROP. SMH-2
RIM=99.30
INV.IN=91.32
INV.OUT=91.22

PROP. SMH-3
RIM=98.20
INV.IN=92.60
INV.OUT=92.50

OWNER OF RECORD:
158 EPPING ROAD, LLC
156 EPPING ROAD
EXETER, NH 03833
BOOK 5631 PAGE 120

0 30 60 100
SCALE: 1" = 30'

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PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE
FRANK C. MONTEIRO
No. 7652
LICENSED PROFESSIONAL ENGINEER
5/14/21

REVISIONS		
NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

UTILITY PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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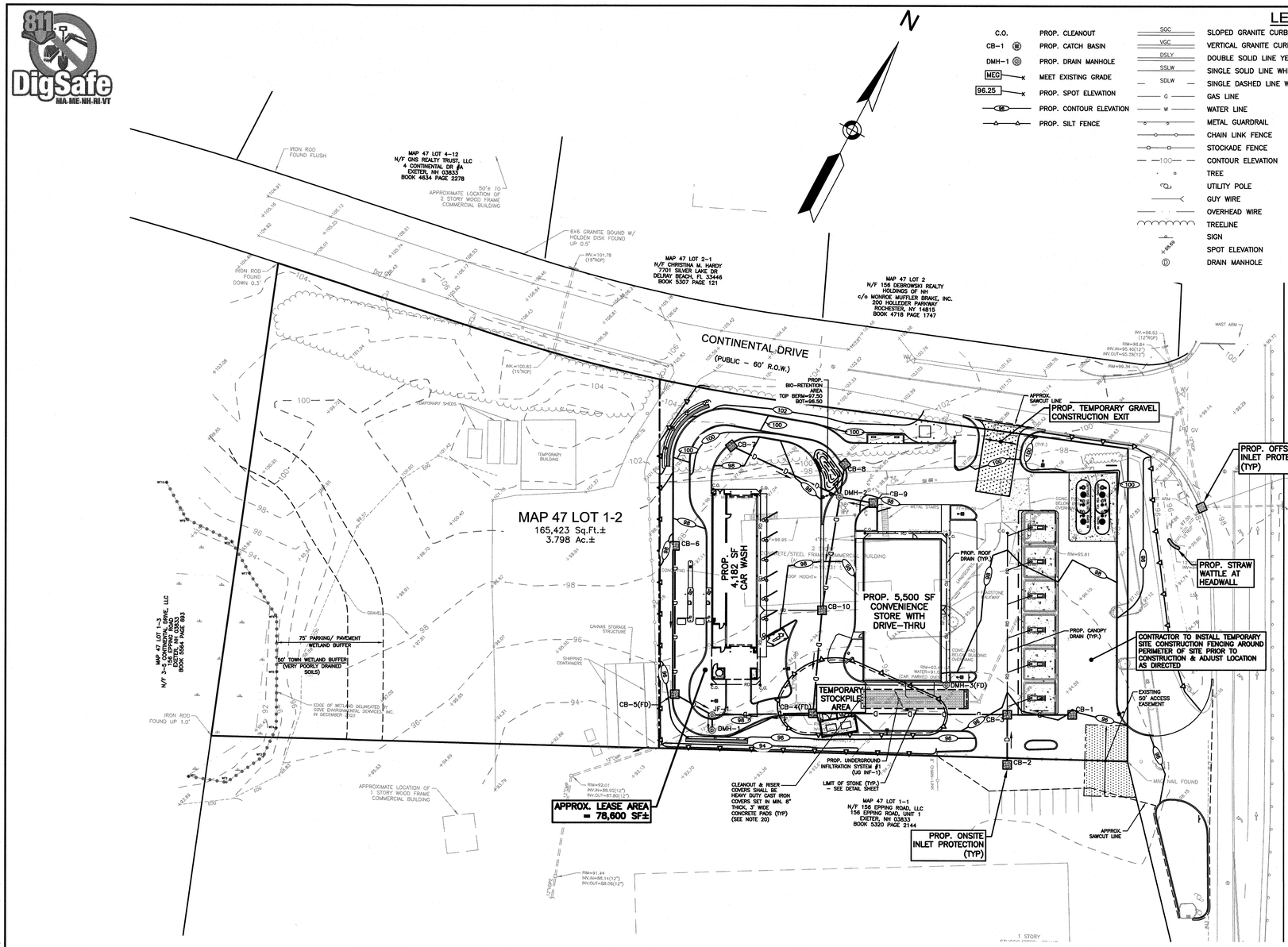
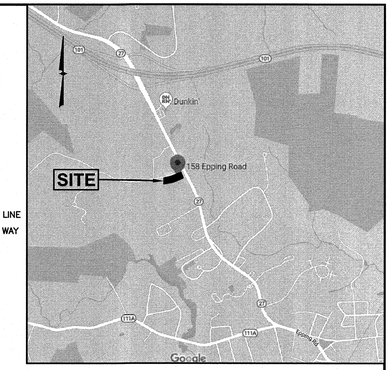


LEGEND

C.O.	PROP. CLEANOUT	SGC	SLOPED GRANITE CURB		CATCH BASIN
CB-1	PROP. CATCH BASIN	VGC	VERTICAL GRANITE CURB		ROOF DRAIN
DMH-1	PROP. DRAIN MANHOLE	DSLY	DOUBLE SOLID LINE YELLOW		SEWER MANHOLE
MEG	MEET EXISTING GRADE	SSLW	SINGLE SOLID LINE WHITE	GV	GAS VALVE
96.25	PROP. SPOT ELEVATION	SDLW	SINGLE DASHED LINE WHITE	WV	WATER VALVE
98	PROP. CONTOUR ELEVATION	G	GAS LINE	WSO	WATER SHUT OFF
	PROP. SILT FENCE	W	WATER LINE	GM	GAS METER
			METAL GUARDRAIL		LIGHT POLE
			CHAIN LINK FENCE		WATER FEATURE
			STOCKADE FENCE		DITCH LINE
		100	CONTOUR ELEVATION		PROPERTY LINE
			TREE		ABUTTER PROPERTY LINE
		UP	UTILITY POLE	ETW	EDGE OF TRAVELED WAY
			GUY WIRE	EOG	EDGE OF GRAVEL
			OVERHEAD WIRE	EOP	EDGE OF PAVEMENT
			TREELINE	LSA	LANDSCAPED AREA
			SIGN	TYP.	TYPICAL
		98.65	SPOT ELEVATION		STONE BOUND
		D	DRAIN MANHOLE		IRON ROD



LOCATION MAP

(NOT TO SCALE)

WINTER STABILIZATION NOTES:

MAINTENANCE REQUIREMENTS:
MAINTENANCE MEASURES SHOULD CONTINUE AS NEEDED THROUGHOUT CONSTRUCTION, INCLUDING THE OVER-WINTER PERIOD. AFTER EACH RAINFALL, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHOULD CONDUCT AN INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUING 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 VEGETATION COVER, AND REPAIR ANY DAMAGE 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:
TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE FOLLOWING STABILIZATION TECHNIQUES SHOULD BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15TH THROUGH MAY 15TH.

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO ONE ACRE AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. SUBJECT TO APPLICABLE REGULATIONS, THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF ACTIVITIES ARE CONDUCTED ACCORDING TO A WINTER CONSTRUCTION PLAN, DEVELOPED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NEW HAMPSHIRE OR A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AS CERTIFIED BY THE CSPESC COUNCIL OF ENVIROCERT INTERNATIONAL, INC.
2. 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:
   A. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, 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 (SEE DESCRIPTION OF EROSION CONTROL MIX BERMS FOR MATERIAL SPECIFICATION).
   B. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER OOTHAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHOULD BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH A MINIMUM 4 INCH THICKNESS 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.
3. ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
4. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH.
5. ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (E.G., BY NETTING, TRACKING, WOOD CELLULOSE FIBER).
6. STOCKPILES OF SOIL MATERIALS SHOULD BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR-INCH LAYER OF EROSION CONTROL MIX. MULCHING SHOULD BE DONE WITHIN 24 HOURS OF STOCKING, AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. NO SOIL STOCKPILE SHOULD BE PLACED (EVEN COVERED WITH MULCH) WITHIN 100 FEET FROM ANY WETLAND OR OTHER WATER RESOURCE AREA.
7. FROZEN MATERIALS, (E.G., FROST LAYER THAT IS REMOVED DURING WINTER CONSTRUCTION), SHOULD BE STOCKPILED SEPARATELY AND IN A LOCATION THAT IS AWAY FROM ANY AREA NEEDING TO BE PROTECTED. STOCKPILES OF FROZEN MATERIAL CAN MELT IN THE SPRING AND BECOME UNWORKABLE AND DIFFICULT TO TRANSPORT DUE TO THE HIGH MOISTURE CONTENT IN THE SOIL.
8. INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
9. ALL GRASS-LINED DITCHES AND CHANNELS SHOULD BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHOULD BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, AS DETERMINED BY A QUALIFIED PROFESSIONAL ENGINEER OR A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AS CERTIFIED BY THE CSPESC COUNCIL OF ENVIROCERT INTERNATIONAL, INC. IF A 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.
10. ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
11. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
12. 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.

TEMPORARY EROSION CONTROL MEASURES:

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. HAY BALE BARRIERS AND SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. BARRIERS AND TRAPS ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
3. BALED HAY AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
4. FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
5. STOCKPILED MATERIALS SHALL BE PLACED ONLY IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY SILTATION FENCE AND SEEDED TO PREVENT EROSION. THESE MEASURES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
6. ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED, A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED AND SEEDING AS SPECIFIED.
7. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
8. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
9. ALL CATCH BASIN INLETS WILL BE PROTECTED WITH LOW POINT SEDIMENTATION BARRIER.
10. ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AND CLEANED AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
11. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.
12. JUTE MATTING OR APPROVED EQUIVALENT SHALL BE PROVIDED ON ALL SLOPES GREATER THAN 3:1.

CONSTRUCTION SEQUENCE NOTES:

1. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY ON-SITE CONSTRUCTION AS SHOWN. ADDITIONAL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS SOON AS PRACTICAL.
2. CONSTRUCT TEMPORARY STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THIS SHEET.
3. CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
4. REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEEDED TO PREVENT EROSION.
5. CONSTRUCT SWALES & STABILIZE PRIOR TO DIRECTING ANY RUNOFF TO THEM.
6. CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALES AND SILTATION FENCES AS REQUIRED TO CONTROL SOIL EROSION. STABILIZE ROADS, PARKING LOTS AND CUT/FILL SLOPES WITHIN 72-HOURS OF ACHIEVING FINISH GRADES.
7. INSTALL UNDERGROUND UTILITIES AND DRAINAGE SYSTEM. NO STORMWATER FLOWS ARE TO BE DIRECTED TO THE INFILTRATION SYSTEMS UNTIL ALL CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
8. BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED OR MULCHED WITHIN 72-HOURS OF ACHIEVING FINISHED GRADES.
9. DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING. AT A MINIMUM, INSPECT EROSION CONTROLS WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
10. BEGIN EXCAVATION FOR CONSTRUCTION OF BUILDINGS.
11. FINISH PAVING ALL ROADWAYS AND DRIVEWAYS.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
14. APPLICATION OF GRASS SEED, FERTILIZERS AND MULCH SHALL BE ACCOMPLISHED BY BROADCAST SEEDING OR HYDROSEEDING AT THE RATES OUTLINED BELOW:

Limestone: 138 lbs./1,000 square feet.
Fertilizer: 13.8 lbs./1,000 SF
Mulch: hay mulch approximately 3 tons/acre unless erosion control matting is used.

Permanent Seed Mix	lbs./acre
Creeping Red Fescue	20
Tall Fescue	20
Redtop	
TOTAL	42

Temporary Seed Mix:	lbs./acre
Winter Rye (Aug. 15-Sept. 15)	112
Oats (No later than May 15)	80

15. NEWLY GRADED AREAS REQUIRING SLOPE PROTECTION OUTSIDE OF NORMAL SEEDING SEASON SHALL RECEIVE HAY MULCH AT THE APPROXIMATE RATE OF NO MORE THAN 2 TONS PER ACRE.
16. THE CONTRACTOR AND DEVELOPER MUST MANAGE THE PROJECT TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
17. FUGITIVE DUST MUST BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000.

EROSION CONTROL NOTES:

1. THE EROSION CONTROL PROCEDURES SHALL CONFORM TO THE NH STORMWATER MANUAL, VOLUME 3, EROSION & SEDIMENT CONTROLS DURING CONSTRUCTION, DECEMBER 2008, OR LATEST EDITION.
2. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED: THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME AS APPROVED BY THE ENGINEER. LAND SHOULD NOT BE LEFT EXPOSED DURING THE WINTER MONTHS.
3. LIMIT OF MAXIMUM AREA OF EXPOSED SOIL AT ANY ONE TIME TO LESS THAN 5 ACRES. THE EXPOSED AREA THAT IS BEING ACTIVELY WORKED DURING WINTER IS TO BE LESS THAN 3 ACRES DURING THE WINTER SEASON.
4. ALL PERMANENT STORM WATER STRUCTURES SHALL BE STABILIZED PRIOR TO DIRECTING FLOW INTO THEM. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURED:
   A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
   B) A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
   C) A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED.
   D) OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
5. SILT FENCE SHALL BE INSTALLED AND MAINTAINED DURING AND AFTER DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER AND FROM LAND UNDERGOING DEVELOPMENT. WHERE POSSIBLE, NATURAL DRAINAGE WAYS SHOULD BE UTILIZED AND LEFT OPEN TO REMOVE EXCESS SURFACE WATER. SILT FENCE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
6. ALL DISTURBED AREAS AND SIDE SLOPES WHICH ARE FINISHED GRADED, WITH NO FURTHER CONSTRUCTION TO TAKE PLACE, SHALL BE LOAMED AND SEEDED WITHIN 72 HOURS AFTER FINAL GRADING. A MINIMUM OF 4" OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. THE SEED MIX SHALL BE AS DESIGNATED BELOW.
7. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION. THE MAXIMUM LENGTH OF TIME FOR THE EXPOSURE OF DISTURBED SOILS SHALL BE 45 DAYS. HAY OR STRAW MULCH SHALL BE APPLIED TO ALL FRESHLY SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. BALES SHALL BE UNSPOILED, AIR DRIED, AND FREE FROM WEED, SEEDS AND ANY COARSE MATERIAL.
8. DURING GRADING OPERATIONS INSTALL HAY BALE BARRIERS ALONG TOE OF SLOPE OF FILL AREAS WHERE SHOWN. BARRIERS ARE TO BE MAINTAINED UNTIL DISTURBED AREAS ARE PAVED OR GRASSED.
9. THE FILL MATERIAL SHALL BE OF APPROVED SOIL TYPE FREE FROM STUMPS, ROOTS, WOOD, ETC. TO BE PLACED IN 12" LIFTS OR AS SPECIFIED. BULLDOZERS, TRUCKS, TRACTORS, OR ROLLERS MAY BE USED FOR COMPACTION BY ROUTING THE EQUIPMENT TO ALL AREAS OR EACH LAYER.
10. AVOID THE USE OF FUTURE OPEN SPACES (LOAM & SEED) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ROADS.

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0 40 100 160
SCALE: 1" = 40'

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PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE
FRANK C. MONTEIRO
No. 7152
LICENSED PROFESSIONAL ENGINEER
5/4/21

REVISIONS

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EROSION & SEDIMENTATION CONTROL PLAN

SCALE: 1"=40'

PROJECT NO. NEX-2020283

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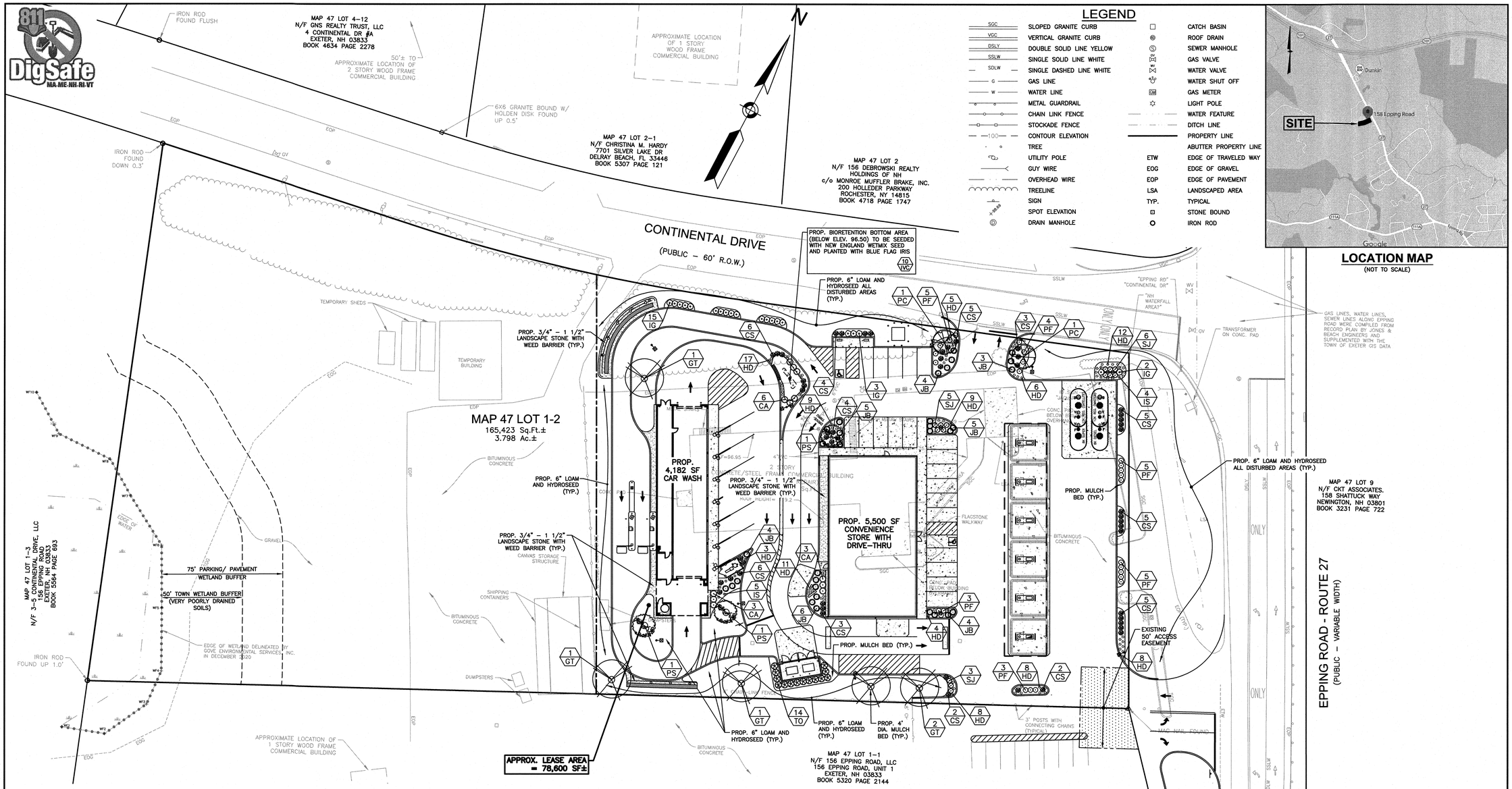

LEGEND

SGC	SLOPED GRANITE CURB		CATCH BASIN
VGC	VERTICAL GRANITE CURB		ROOF DRAIN
DSLY	DOUBLE SOLID LINE YELLOW		SEWER MANHOLE
SSLW	SINGLE SOLID LINE WHITE	GV	GAS VALVE
SDLW	SINGLE DASHED LINE WHITE	WV	WATER VALVE
G	GAS LINE		WATER SHUT OFF
W	WATER LINE	GM	GAS METER
	METAL GUARDRAIL		LIGHT POLE
	CHAIN LINK FENCE		WATER FEATURE
	STOCKADE FENCE		DITCH LINE
100	CONTOUR ELEVATION		PROPERTY LINE
	TREE		ABUTTER PROPERTY LINE
	UTILITY POLE	ETW	EDGE OF TRAVELED WAY
	GUY WIRE	EOG	EDGE OF GRAVEL
	OVERHEAD WIRE	EOP	EDGE OF PAVEMENT
	TREELINE	LSA	LANDSCAPED AREA
	SIGN	TYP.	TYPICAL
+98.93	SPOT ELEVATION		STONE BOUND
	DRAIN MANHOLE		IRON ROD

LOCATION MAP
(NOT TO SCALE)

NOTES:

1) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITION (AMERICAN ASSOCIATION OF NURSERYMEN, INC.).

2) 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY-PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.

3) PLANT PIT BACKFILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PART OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON-SITE TOPSOIL AS PART OF BACKFILL WHEN AVAILABLE.

4) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED AS INDICATED ON PLANS.

5) ALL SEED, SHRUB AND TREE AREAS SHALL RECEIVE 6" PH CORRECTED TOPSOIL. AFTER TOPSOIL IS SPREAD EVENLY OVER ENTIRE AREA, ALL CLODS, LUMPS, STONES AND OTHER DELETERIOUS MATERIAL SHALL BE RAKED UP AND REMOVED.

6) APPLICATION OF GRASS SEED, FERTILIZERS AND MULCH SHALL BE ACCOMPLISHED BY BROADCAST SEEDING OR HYDROSEEDING AT THE RATES OUTLINED BELOW:

LIMESTONE: 100 LBS./1,000 SQUARE FEET.
FERTILIZER: 500 LBS./ACRE OF 10-20-20 OR 1000 LBS/ACRE OF 5-10-10.
MULCH: HAY MULCH APPROXIMATELY 3 TONS/ACRE

SEED MIX (SLOPES LESS THAN 4:1)	LBS/ACRE
CREEPING RED FESCUE	20
TALL FESCUE	15
PERENNIAL RYEGRASS	5
REDTOP	2
	42

SLOPE MIX (SLOPES GREATER THAN 4:1)	LBS/ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
BIRDSFOOT TREEFOIL	8

7) FOR TEMPORARY EROSION CONTROL NOTES, SEE SHEET 7.

8) NEWLY GRADED AREAS REQUIRING SLOPE PROTECTION OUTSIDE OF NORMAL SEEDING SEASON SHALL RECEIVE STRAW MULCH AT THE APPROXIMATE RATE OF NO MORE THAN 3 TONS PER ACRE.

9) ANY CHANGES IN PLANT LOCATIONS OR TYPES SHALL BE APPROVED BY THE DEVELOPER, LANDOWNER AND TOWN PRIOR TO INSTALLATION.

10) CLEAR AND GRUB (TO LIMITS REQUIRED ON GRADING PLAN) TO REMOVE VEGETATION, TREES, ROCKS, DEBRIS, ROOTS, ETC. STUMPS SHALL BE REMOVED AND DISPOSED OF OFF SITE IN ACCORDANCE WITH STATE REGULATIONS. AFTER CLEARING, ROTOTILL, STRIP AND STOCKPILE ALL ON-SITE TOPSOIL FOR REUSE TO THE MAXIMUM EXTENT POSSIBLE.

11) FOR SEED (& SOD) AREAS USE EXISTING TOPSOIL, IF AVAILABLE, FOR A 4" DEPTH AND TOP DRESS WITH 2" OF SCREENED TOPSOIL, UNLESS OTHERWISE NOTED ON PLAN. ALL LOAM OR TOPSOIL IMPORTED OR RE-UTILIZED FROM ON SITE SHALL BE TESTED AND AMENDED AS DIRECTED BY DEVELOPER TO MEET MINIMUM REQUIREMENTS.

12) PLANTINGS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER WRITTEN ACCEPTANCE OF THE DEVELOPER.

13) SLOPES GREATER THAN 3:1 SHALL RECEIVE JUTE MESH OR WOOD EXCELSIOR MATTING NO MORE THAN 24 HOURS AFTER SEEDING. MATTING SHALL BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.

14) EXPOSED SOILS SHALL BE SEEDED OR HAY MULCHED WITHIN 72 HOURS OF FINAL GRADING.

15) ALL WORK SHALL BE COORDINATED WITH APPLICABLE EPA NPDES/SWPPP PERMIT WORK AS REQUIRED.

16) THE CONTRACTOR SHALL INSTALL AN IRRIGATION SYSTEM TO PROVIDE COMPLETE COVERAGE OF ALL SEED AREAS AND SHRUB BEDS WITHIN THE LEASE AREA. THE SYSTEM SHALL INCLUDE A TIMER AND SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.

PLANTING SCHEDULE

PLANT	QNTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALL SIZE	MATURE SIZE/REMARKS
TREES					
GT	5	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	2"– 2 1/2" CAL.	–/STREET–THORNLESS
PS	3	PRUNUS SARGENTII 'COLUMNARIS'	COLUMNAR SARGETN CHERRY	2 1/2"–3" CAL.	–/ORNAMENTAL–SHADE
PC	2	PYRUS CALLERYANA 'CHANTICLEER'	CLEVELAND SELECT CALLERY PEAR	2 1/2"–3" CAL.	–/ORNAMENTAL–SHADE
SHRUBS					
CA	6	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	18"–24"HT. 3 GAL.	3'–4' HT. MAX./WHITE FLOWERS
CS	44	CORNUS SERICEA 'KELSEYI'	COMPACT REDTWIG DOGWOOD	3 GAL 18"–24"HT.	30" HT. MAX./RED TWIG/COMPACT FORM
IG	20	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	2'–2 1/2' HT.	5' HT. MAX./EVERGREEN
JB	31	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	18"–24" SPR.	1' HT. MAX/GROUNDCOVER/BLUE GREEN–SALT TOLERANT
PF	25	POTENTILLA FRUTICOSA 'GOLDSTAR'	GOLDSTAR POTENTILLA	18"–24"HT. 3 GAL.	2'–3' HT. MAX./YELLOW
SJ	14	SPIREA JAPONICA 'MAGIC CARPET'	MAGIC CARPET SPIREA	15"–18" SPR.	2'–3' HT. MAX./PINK
PERENNIALS & GRASSES					
HD	76	HEMEROCALLIS 'STELLA DE ORO'	DWARF YELLOW DAYLILY	1 GAL.	YELLOW FLOWERS/CONTINUOUS BLOOMS
IS	9	IRIS SIBERICA 'CAESAR'S BROTHER'	CAESAR'S BROTHER SIBERIAN IRIS	1 GAL.	PURPLE–BLUE FLOWERS

BIO-RETENTION PLANTING SCHEDULE

PLANT	QNTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALL SIZE	MATURE SIZE/REMARKS
SHRUBS					
CA	6	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	18"–24"HT. 3 GAL.	3'–4' HT. MAX./WHITE FLOWERS
CS	6	CORNUS SERICEA 'KELSEYI'	COMPACT REDTWIG DOGWOOD	3 GAL 18"–24"HT.	30" HT. MAX./RED TWIG/COMPACT FORM
PERENNIALS & GRASSES					
HD	17	HEMEROCALLIS 'STELLA DE ORO'	DWARF YELLOW DAYLILY	1 GAL.	YELLOW FLOWERS/CONTINUOUS BLOOMS
IVC	10	IRIS VERSI COLOR	BLUE FLAG IRIS	1 GAL.	PURPLE–BLUE FLOWERS

(1) XX — PLANT QUANTITY / PLANT DESIGNATION

PROPOSED 3/4"–1 1/2" LANDSCAPE STONE

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0 30 60 100
SCALE: 1" = 30'

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PROPOSED RETAIL MOTOR FUEL OUTLET
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LICENSED PROFESSIONAL ENGINEER
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LANDSCAPE PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

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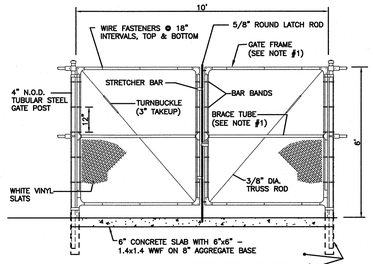
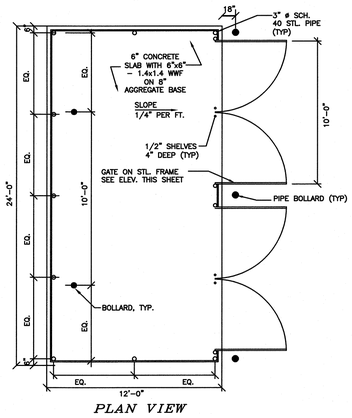


GATE DETAIL

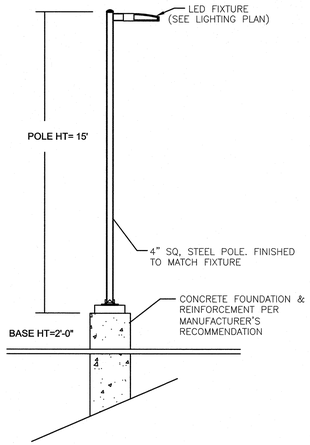
NOTE:
1) NOMINAL OUTSIDE DIAMETER (N.O.D.) OF GATE FRAME AND BRACE TUBE TO BE 1.66" UP TO 6" IN WIDTH, AND 1.90" IF OVER 6" IN WIDTH.



PLAN VIEW

CHAINLINK TRASH ENCLOSURE

NOT TO SCALE



LIGHT FIXTURE DETAIL

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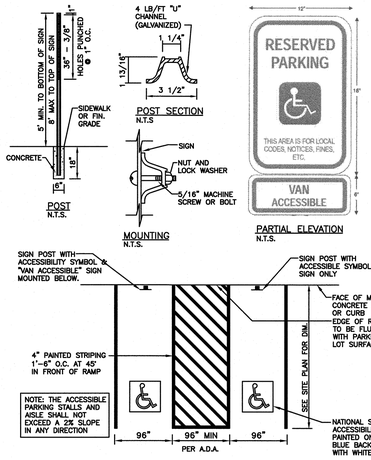

ACCESSIBLE PARKING STALLS

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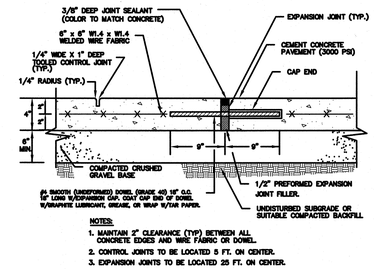

CEMENT CONCRETE SIDEWALK

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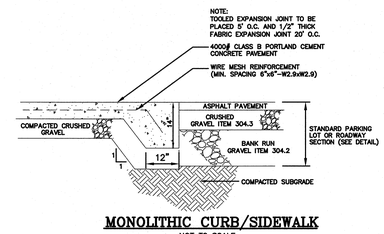

MONOLITHIC CURB/SIDEWALK

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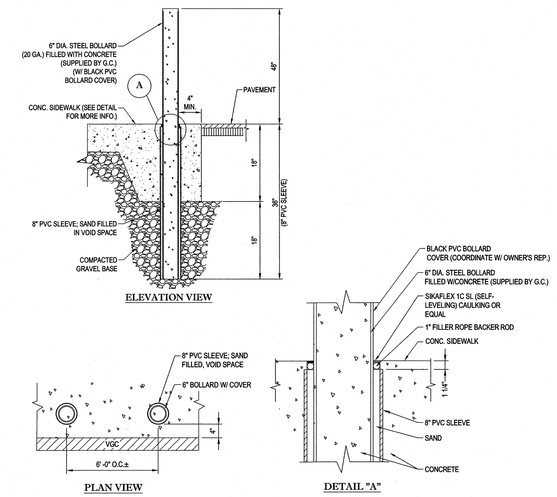
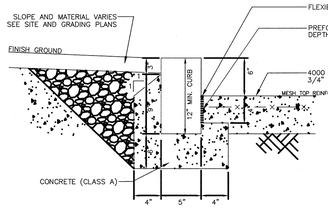


BOLLARD SET IN CONCRETE WALK

NOT TO SCALE

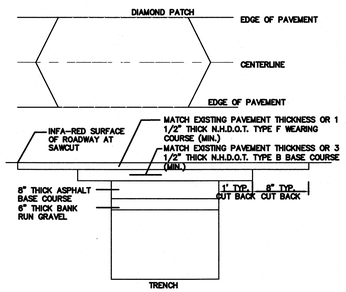


1. MAXIMUM LENGTH OF STRAIGHT CURB STONES – 18"
2. MINIMUM LENGTH OF STRAIGHT CURB STONES – 8'
3. ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
4. SEE PAVEMENT DETAIL FOR SPECIFICATIONS ON PAVEMENT AND GRAVEL.
5. ALL JOINTS ARE TO BE GROUTED

NOTE: VERTICAL GRANITE CURBING TO BE INSTALLED ONLY WHEN IT ABUTS CONCRETE (I.E. TANK MAT, CANOPY MAT, AIR TOWER, REMOTE FILL PAD) SLOPED GRANITE CURBING TO BE INSTALLED IN ALL OTHER LOCATIONS UNLESS SPECIFICALLY IDENTIFIED ON THE SITE PLAN.

VERTICAL GRANITE CURB

NOT TO SCALE



TYPICAL PAVEMENT REPAIR DETAIL

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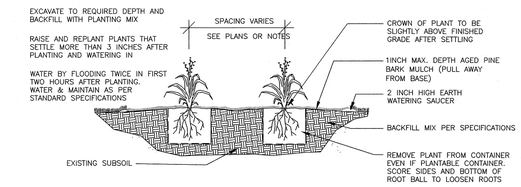

TYPICAL PERENNIAL PLANTING

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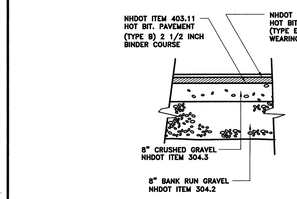

ON–SITE PAVEMENT SECTION

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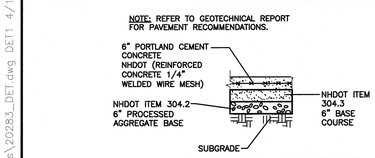
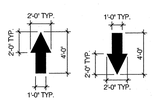


ON–SITE RIGID CONCRETE PAVEMENT DETAIL

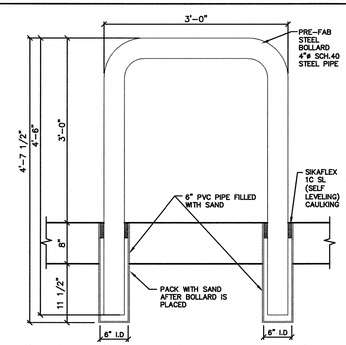
NOT TO SCALE



ALL PAVEMENT MARKINGS TO BE WHITE PAVEMENT PAINT, UNLESS STATED OTHERWISE.

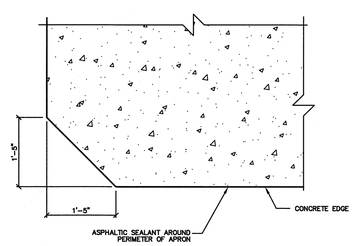
ON–SITE PAVEMENT MARKING DETAILS

NOT TO SCALE



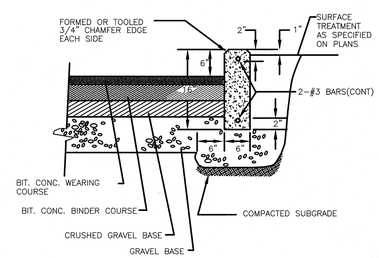
TYPICAL U–SHAPED BOLLARD

NOT TO SCALE



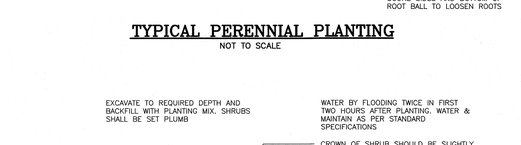
DISPENSER APRON CHAMFER DETAIL

NOT TO SCALE



PAVEMENT AND CONCRETE CURB SECTION ON–SITE

NOT TO SCALE



TYPICAL SHRUB PLANTING

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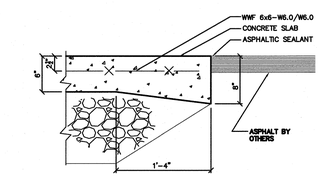

DISPENSER APRON EDGE DETAIL

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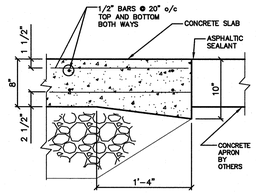

TANK APRON EDGE DETAIL

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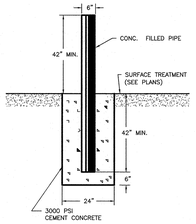

BOLLARD DETAIL

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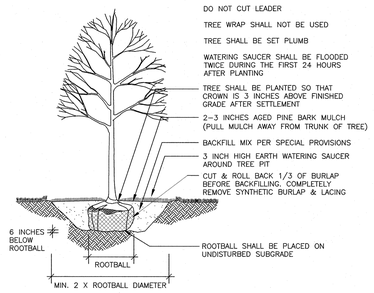

TYPICAL TREE PLANTING

NOT TO SCALE

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE
FRANK C. MONTEIRO
No. 7152
LICENSED PROFESSIONAL ENGINEER
5/4/21

REVISIONS

NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

DETAIL SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2020283

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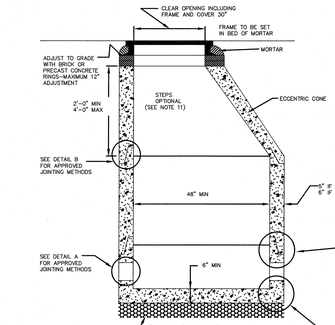
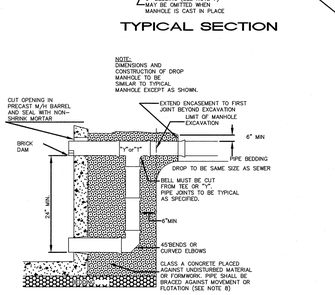
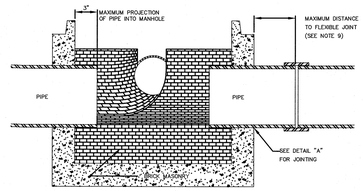


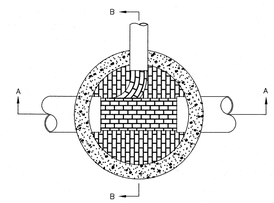
TYPICAL SECTION



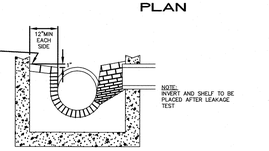
DROP MANHOLE



SECTION A-A



PLAN



NOTE: CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BROCKS SHALL BE LAID ON EDGE.

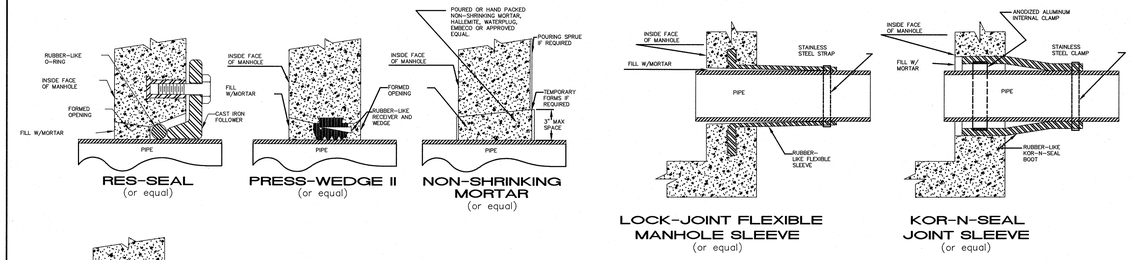
SECTION B-B

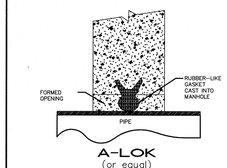
NOTES

1. IT IS THE INTENTION OF THE ENGINEER THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE ENGINEER FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH OR WITHOUT A CAST IN PLACE MONOLITHIC BASE, OR PRECAST OR CONCRETE CAST MONOLITHically IN PLACE, WITH OR WITHOUT REINFORCEMENT, IN ANY APPROVED MANHOLE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, WITH ALL PIPE CONNECTIONS UNDER PRESSURE A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED OR NON-REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED OR NON-REINFORCED CONCRETE.
3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C 478.
4. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. INVERTS AND SHELVES MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE SMOOTH AND SHAPED TO GIVE HYDRAULIC POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE. CROWN AND SLOPE TO DRAIN TOWARD THE FLOW THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
6. FRAMES AND COVERS MANHOLE FRAMES AND COVERS SHALL BE HEAVY DUTY DESIGN AND PROVIDE A 30 INCH CLEAR OPENING. A 3 INCH (MINIMUM HEIGHT) LETTER "S" FOR SEWER OR "D" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
7. BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33.
   CRUSHED STONE PASSING 1 INCH SCREEN
   90–100% PASSING 3/4 INCH SCREEN
   20–55% PASSING 3/8 INCH SCREEN
   0–10% PASSING #4 SEVE
   0–5% PASSING #8 SEVE.
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE. SCREENED GRAVEL OR CRUSHED STONE 1-1/2 TO 1/2 INCH SHALL BE USED.
8. CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3,000 LB.) CONCRETE OF N.H. DEPT. OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
   CEMENT: 6.0 BAGS PER CUBIC YARD
   WATER: 5.75 GALLONS PER BAG OF CEMENT
   MAX. SIZE OF AGGREGATE: 1 INCH
9. FLEXIBLE JOINT A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:
   RCP & VC PIPE (UP THROUGH 18" DIA.) 18"
   RCP & VC PIPE (UP THROUGH 12" DIA.) 18"
   AC & VC PIPE (LARGER THAN 12" DIA.) 36"
10. SHALLOW MANHOLE IN LIEU OF A CONE SECTION. WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED. IT MUST HAVE AN ECCENTRIC ENTRANCE OPENING AND BE CAPABLE OF SUPPORTING H-20 LOADS.
11. MANHOLE STEPS MAY BE PERMITTED, UPON REQUEST BY THE OWNER, AS A SECONDARY SAFETY FEATURE (SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY) WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:
   1. THE STEPS SHALL BE MADE OF 5/8 INCH ROUND STAINLESS STEEL OR ALUMINUM ALLOY. THEY SHALL BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.
   2. THE STEPS SHALL BE EMBEDDED IN THE CON-- CRETE, BY THE MANUFACTURER, DURING MANU-- FACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF THE FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES WILL NOT BE ACCEPTABLE.
   3. THE STEPS SHALL BE THE DROP TYPE WITH A DEPRESSED SECTION FOR HANDHOLD, APPROX. 14" X 10" IN DIMENSION.

NOTE
SEPARATE CONSTRUCTION SPECIFICATIONS ARE ATTACHED OR INCLUDED IN THE CONTRACT DOCUMENTS. THESE STANDARD MANHOLE SPECIFICATIONS ARE NOT COMPLETE WITHOUT THESE SPECIFICATIONS.

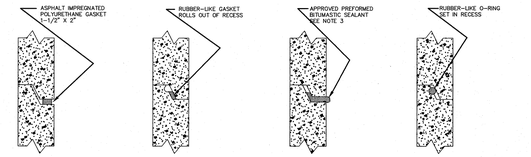
STANDARD MANHOLE – PART A





NOTE: ALL GASKETS, SEALANTS, MORTAR ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

DETAIL A



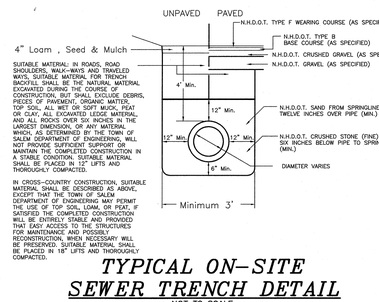
NOTE: ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL B

NOTES

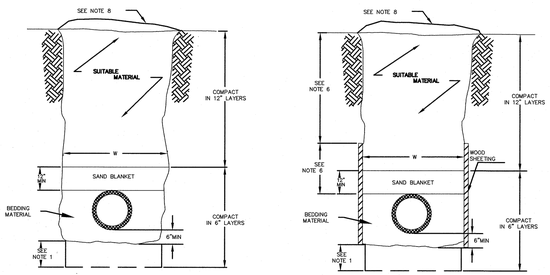
1. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL BE, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND, IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER A NON-SHRINKING MORTAR OR ELASTOMERICSEALANT.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS
   KENT SEAL
   KENT SEAL No. 2

STANDARD MANHOLE – PART B

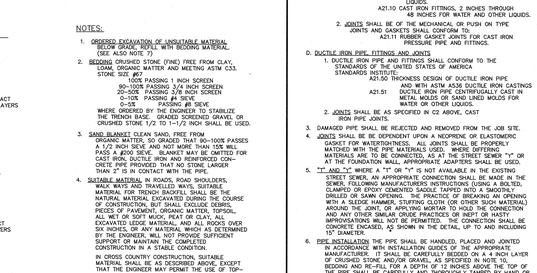


TYPICAL ON-SITE SEWER TRENCH DETAIL

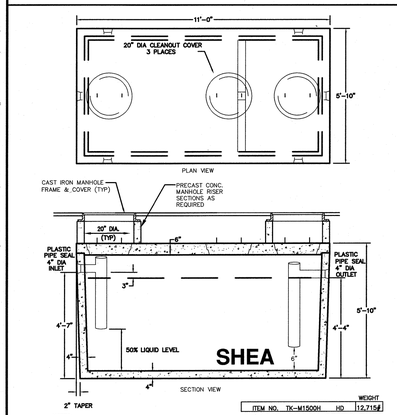
NOT TO SCALE



EARTH CONSTRUCTION



EARTH CONSTRUCTION WITH SHEETING



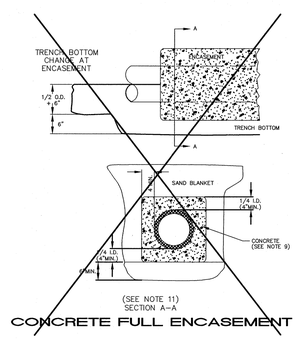
ITEM NO.	WEIGHT
TK-M1500H HD	12,715#

1500 GALLON SEPTIC TANK
MONOLITHIC 4" WALL H-20

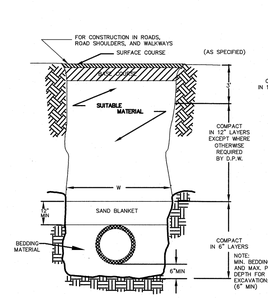
NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. ALL REINFORCEMENT PER ASTM C1227-93.
3. BAFFLE WALL OPTIONAL FOR TWO COMPARTMENT TANKS.
4. TEES AND GAS BAFFLE SOLD SEPARATELY.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.

1,500 GALLON GREASE TRAP DETAIL
(H-20 LOADING)

NOT TO SCALE



CONCRETE FULL ENCASEMENT



LEDGE CONSTRUCTION

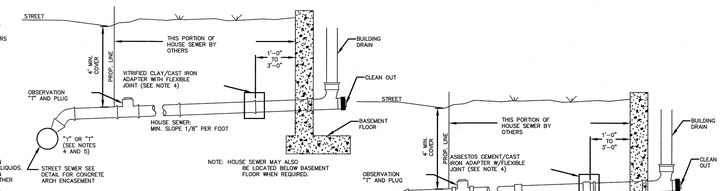
STANDARD TRENCH SECTION

NOTES:

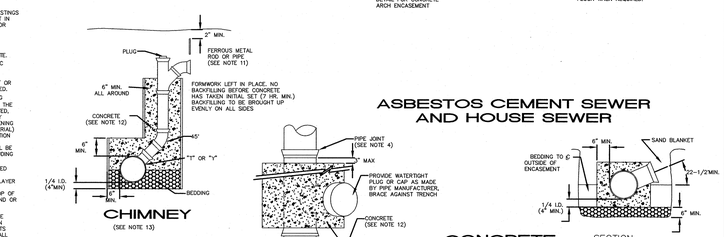
1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE, REFILL WITH BEDDING MATERIAL. (SEE ALSO NOTE 7)
2. BEDDING CRUSHED STONE (FINE) FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33, STONE SIZE #67
   100% PASSING 1 INCH SCREEN
   90–100% PASSING 3/4 INCH SCREEN
   20–55% PASSING 3/8 INCH SCREEN
   0–10% PASSING #4 SEVE
   0–5% PASSING #8 SEVE
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE. GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 TO 1-1/2 INCH SHALL BE USED.
3. SAND BLANKET CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 50–100% PASSES 1-1/2 INCH SEVE, AND NOT MORE THAN 15% WILL PASS A #200 SEVE. BLANKET MAY BE OMITTED FOR CAST IRON, DUCTLE IRON AND REINFORCED CON-- CRETE PIPE PROVIDED THAT NO PIPE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
4. SUITABLE MATERIAL IN ROADS, ROAD SHOULDERS, WALK WAYS AND TRAVELLED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOPSOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES, OR ANY MATERIAL WHICH AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
   IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP-- SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE (AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED.
5. BASE COURSE IF ORDERED BY THE ENGINEER SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUC-- TION OF THE STATE OF N.H. DEPT. OF PUBLIC WORKS AND HIGHWAYS.
6. WOOD SHEETING IF REQUIRED, IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER. IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE THE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISH GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
7. W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D.. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
9. CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000#) CONCRETE OF THE N.H. DEPT. OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
   CEMENT: 6.0 BAGS PER CUBIC YARD
   WATER: 5.75 GALLONS PER BAG OF CEMENT
   MAXIMUM AGGREGATE SIZE: 1 INCH
10. THERE SHALL BE TEN FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS AND 18 INCHES VERTICAL SEPARATION AT CROSSINGS.
   (see disc NOTE 12 below)
   WHERE THE ABOVE SEPARATION CANNOT BE MADE, A WAIVER OF THE STANDARD OF DESIGN MUST BE REQUESTED FROM THE
   STANDARD OF DESIGN MUST SEWER COMMISSION.
11. IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
12. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
   SEWER PIPE SHALL BE CLASS 52 DUCTILE IRON FOR A MINIMUM DISTANCE OF 9 FEET EACH SIDE OF CROSSING.

NOTES

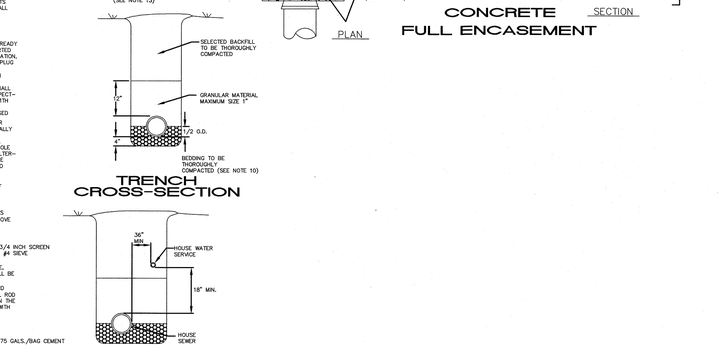
1. MINIMUM SIZE PIPE FOR HOUSE SERVICE SHALL BE 4 INCHES.
2. PIPE AND JOINT MATERIALS
A. VITRIFIED CLAY PIPE
   1. PIPE AND FITTINGS SHALL BE EXTRA STRENGTH CLAY PIPE CONFORMING TO THE REQUIREMENTS OF ASTM C-700.
   2. JOINTS SHALL BE MADE WITH OIL RESISTANT GASKETS IN ACCORDANCE WITH ASTM C-425 TYPE III MANUFACTURERS INSTRUCTIONS FOR INSTALLATION SHALL BE FOLLOWED.
B. ASBESTOS-CEMENT-NON-PRESSURE SEWER PIPE
   1. PIPE AND FITTINGS SHALL CONFORM TO ASTM TENTATIVE SPECIFICATIONS C644 TYPE II.
   2. JOINTS SHALL BE OF THE SLEEVE-COUPLING TYPE CONSTRUCTED WITH TWO RUBBER RINGS TYPE II. COMPRESSOR RINGS SHALL BE OF OIL RESISTANT RUBBER TYPE OR ELASTOMERIC MATERIAL AND SHALL CONFORM TO ASTM SPECIFICATION D1869. MANUFACTURERS INSTRUCTIONS SHALL BE FOLLOWED FOR INSTALLATIONS.
C. CAST IRON PIPE FITTINGS AND JOINTS
   1. CAST IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE:
      A21.1 THICKNESS DESIGN OF CAST IRON PIPE
      A21.4 CEMENT MORTAR LINING FOR CAST IRON PIPE AND FITTINGS
      A21.6 CAST IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS FOR WATER OR OTHER LIQUIDS.
      A21.8 CAST IRON PIPE CENTRIFUGALLY CAST IN SAND LINED MOLDS FOR WATER OR OTHER LIQUIDS.
      A21.10 CAST IRON FITTINGS, 2 INCHES THROUGH 48 INCHES FOR WATER AND OTHER LIQUIDS.
      A21.11 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE AND FITTINGS.
D. DUCTILE IRON PIPE, FITTINGS AND JOINTS
   1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
      A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE
      A21.51 AND WITH ASTM A536 DUCTILE IRON CASTINGS DUCTILE IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS OR SAND LINED MOLDS FOR WATER OR OTHER LIQUIDS
   2. JOINTS SHALL BE AS SPECIFIED IN C2 ABOVE, CAST IRON PIPE JOINTS.
3. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
4. JOINTS SHALL BE BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATERTIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER "Y" OR AT THE FOUNDATION WALL, APPROPRIATE ADAPTERS SHALL BE USED.
5. "T" AND "Y" WHERE A "T" OR "Y" IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE IN THE SEWER. FOLLOWING MANUFACTURERS INSTRUCTIONS (USING A BOLTED, GASKETED SADDLE-TYPE CONNECTION, A TAPPED SADDLE, A SADDLE GASKETED OR SAWN CONNECTION). SADDLES SHALL BE FIRMLY SEALED WITH A SLEDGE HAMMER, STUFFING CLOTH (OR OTHER SUCH MATERIAL) AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED, AS SHOWN IN THE DETAIL, UP TO AND INCLUDING 15" DIAMETER.
6. PIPE INSTALLATION THE PIPE SHALL BE HANDLED, PLACED AND JONTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL, AS SPECIFIED IN NOTE 10, BEDDING SHALL BE FILL FOR A DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE. BACKFILL SHALL BE CAREFULLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.
   THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE HOUSE FOUNDATION WALL. ALL PIPE SHALL BE INSPECTED FOR DEFECTS. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. A WATERTIGHT, EFFICIENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
7. TESTING THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS (PRIOR TO BACKFILLING)
   A. AN OBSERVATION "T" SHALL BE INSTALLED AS SHOWN. WHEN READY TESTING , AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE "T". AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.
   B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS. IF THE TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECT-- IONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.
   * DOES NOT APPLY TO INSTALLATIONS WHERE "Ts" AND "Ys" ARE USED
   C. FLUORESCENT DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE . IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER. IF THE TRENCH IS WET, GROUND WATER SHOULD PROVIDE THE DYE. IF NECESSARY, AN INSPECTION OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST MANHOLE DOWNSTREAM. LEAKAGE OBSERVED IN ANY OF THE ABOVE, ALTER-- NATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG UP, IF NECESSARY, AND RELAID SO AS TO ASSURE WATERTIGHTNESS.
8. ILLEGAL CONNECTION NOTHING BUT SANITARY WASTE FLOW FROM THE HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR ANY OTHER SIMILAR CONNECTION CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.
9. HOUSE WATER SERVICE SHOULD NOT BE LAID IN THE SAME TRENCH AS THE SEWER SERVICE, BUT WHEN NECESSARY, SHALL BE PLACED ABOVE AND TO ONE SIDE OF THE HOUSE SEWER AS SHOWN.
10. BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33–47.
   100%–PASSING 1 INCH SCREEN 90–100%–PASSING 3/4 INCH SCREEN
   20–55%–PASSING 3/8 INCH SCREEN 0–10%–PASSING #4 SEVE
   0–5%–PASSING #8 SEVE
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE (1-1/2 TO 1/2 INCH) SHALL BE USED.
11. LOCATION THE LOCATION OF THE "T" OR "Y" SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE "T" OR "Y", AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.
12. CONCRETE CONCRETE SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE N.H. DEPT. OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
   CEMENT: 6.0 BAGS/C.Y. WATER: 5.75 GALS./BAG CEMENT
   AGGREGATE: 1-1/2 INCH MAX.
13. CHIMNEYS IF VERTICAL DROP INTO THE SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION.

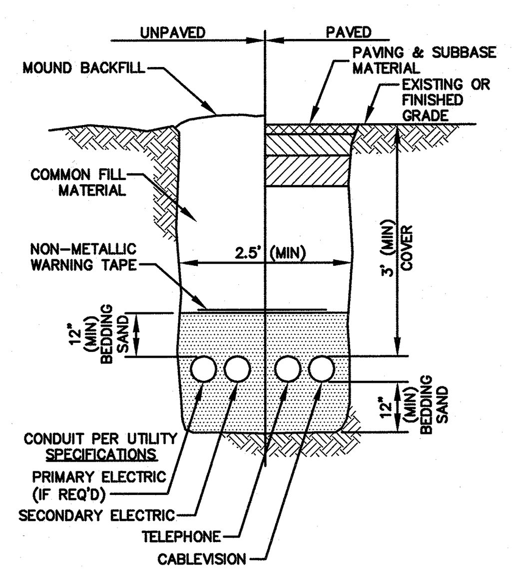


VITRIFIED CLAY SEWER AND HOUSE SEWER



ASBESTOS CEMENT SEWER AND HOUSE SEWER

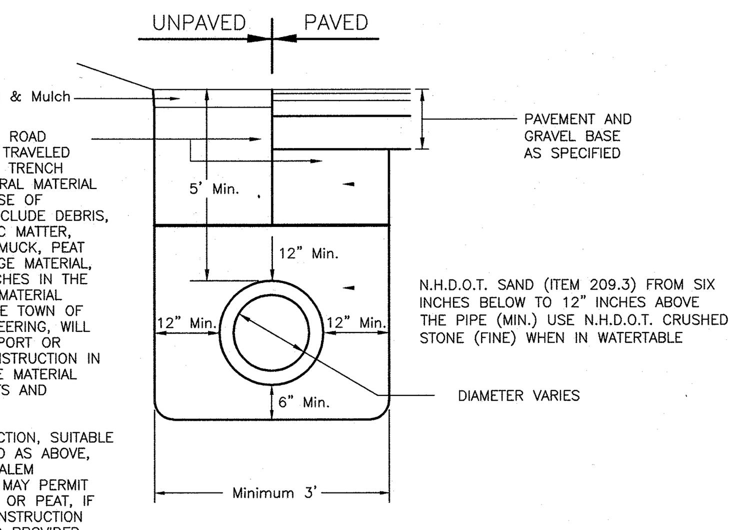

SELECTED BACKFILL T



UTILITY TRENCH
NOT TO SCALE

SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN THE LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE TOWN OF SALEM DEPARTMENT OF ENGINEERING, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. SUITABLE MATERIAL SHALL BE PLACED IN 12" LIFTS AND THOROUGHLY COMPACTED.

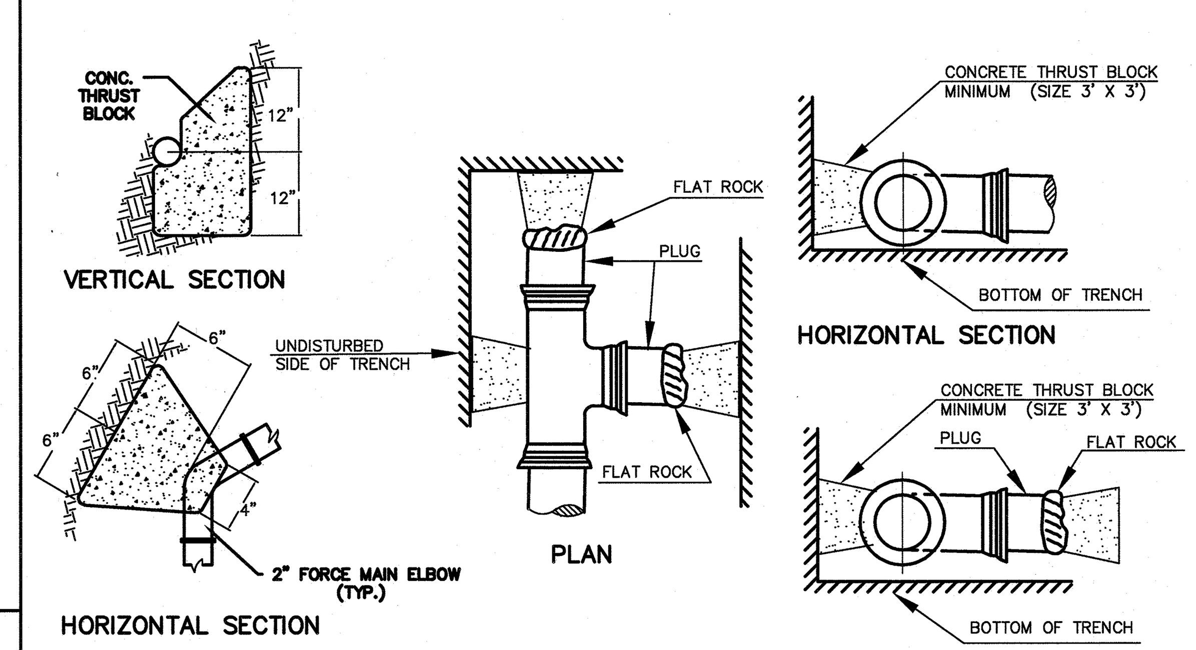
IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE DESCRIBED AS ABOVE, EXCEPT THAT THE TOWN OF SALEM DEPARTMENT OF ENGINEERING MAY PERMIT THE USE OF TOP SOIL, LOAM, OR PEAT, IF SATISFIED THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE STRUCTURES FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED. SUITABLE MATERIAL SHALL BE PLACED IN 18" LIFTS AND THOROUGHLY COMPACTED.



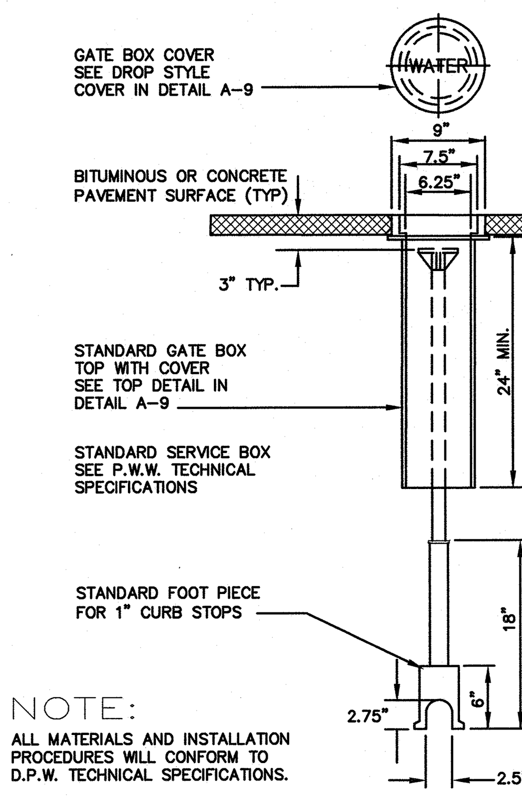
NOTE:
BRONZE WEDGES SHALL BE USED FOR ALL PUSH ON JOINTS

TYPICAL WATER TRENCH DETAIL
NOT TO SCALE

NOTE: ALL WATER SUPPLY MATERIALS TO MEET OR EXCEED LOCAL WATER WORKS SPECIFICATIONS.

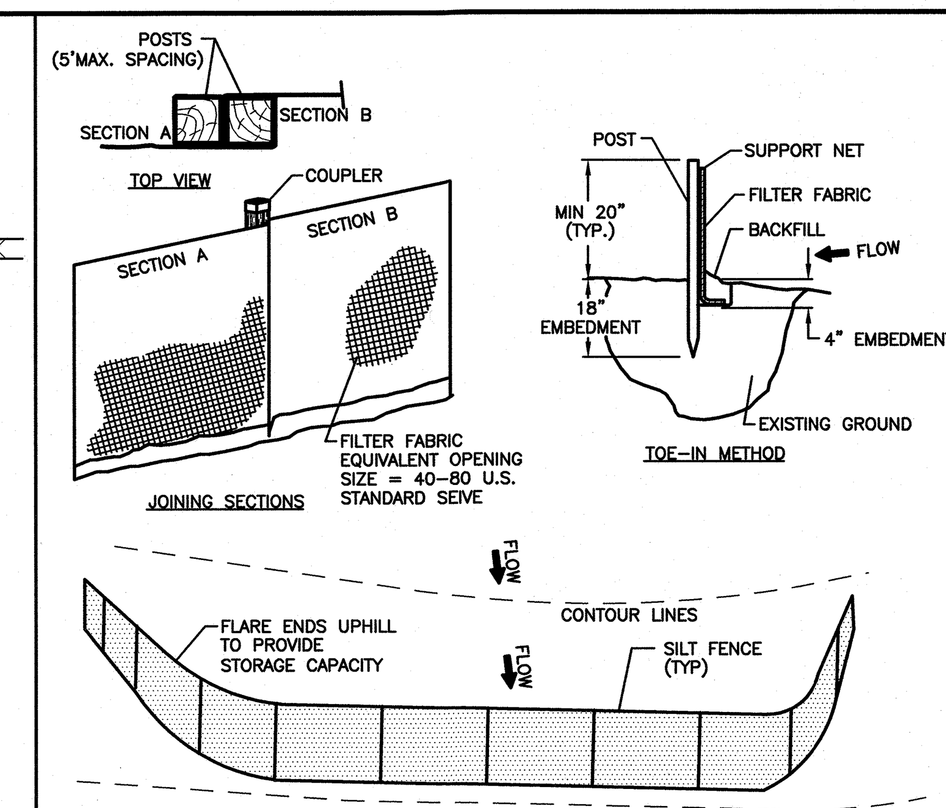


THRUST BLOCK DETAILS
HORIZONTAL SECTION
NOT TO SCALE



NOTE:
ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO D.P.W. TECHNICAL SPECIFICATIONS.

SERVICE BOX INSTALLATION IN PAVEMENT
NOT TO SCALE



CRITERIA FOR SILT FENCES:

1) SILT FENCE FILTER CLOTH: THE FABRIC FOR THE SILT FENCE SHALL MEET THE FOLLOWIING SPECIFICATIONS:

FABRIC PROPERTIES:	MINIMUM ACCEPTABLE VALUES	TEST METHOD
GRAB TENSILE STRENGTH (lbs)	90	ASTM D1682
ELONGATION AT FAILURE (%)	50	ASTM D1682
MULLEN BURST STRENGTH (PSI)	190	ASTM D3786
PUNCTURE STRENGTH (lbs)	40	ASTM D751
EQUIVELANT OPENING SIZE	40–80	US STD SIEVE

2) FENCE POSTS (FOR FABRICATED UNITS) – THE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG. WOOD POSTS WILL BE OF SOUND QUALITY HARDWOOD WITH A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES. STEEL POSTS WILL BE STANDARD T OR U SECTIONS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. MAXIMUM SPACING SHALL BE 6 LINEAR FEET.

3) WIRE FENCE (FOR FABRICATED UNITS) – WIRE FENCING SHALL BE A MINIMUM 14.5 GUAGE WITH A MAXIMUM 6 INCH MESH OPENING.

4) PREFABRICATED UNITS – PREFABRICATED UNITS MAY BE USED IN LIEU OF THE ABOVE METHOD PROVIDING: (1) THE FILTER CLOTH AND FENCE POSTS MEET THE ABOVE CRITERIA; AND (2) THE UNIT IS INTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MAINTENANCE:

1) SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.

2) IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.

3) SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMTELY ONE-HALF THE HEIGHT OF THE BARRIER.

4) SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

CONSTRUCTION SPECIFICATIONS:

1) THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.

2) THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND (4" DEEP & 4" WIDE) AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.

3) WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.

4) FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID-SECTION AND BOTTOM.

5) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EAC OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES (24" IS PREFERRED), FOLDED, AND STAPLED.

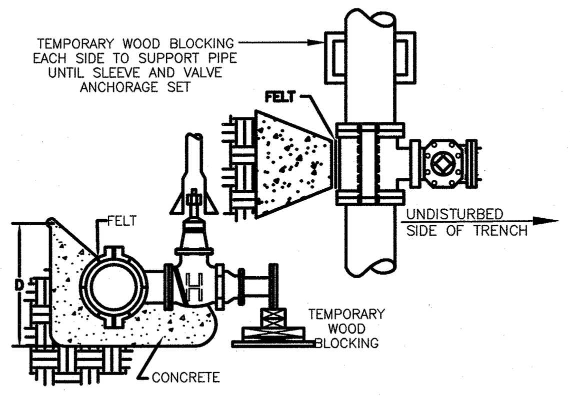
6) POSTS TO BE SPACED AT A MAXIMUM OF 6' ON CENTER.

SEDIMENT CONTROL FENCE
NOT TO SCALE

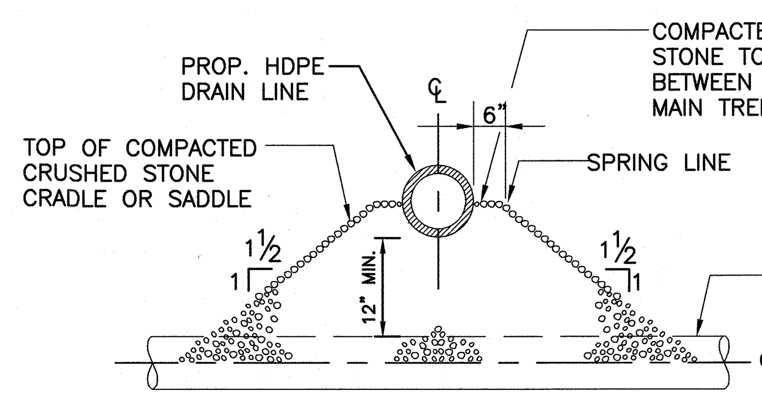
GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

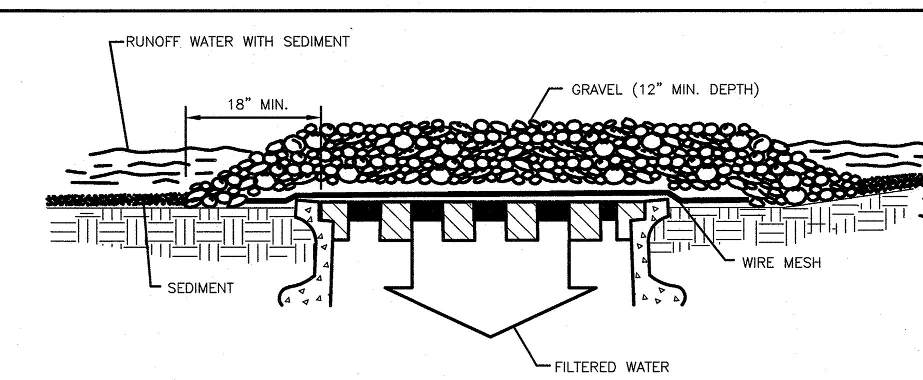
PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833



TAPPING VALVE AND SLEEVE DETAIL
NOT TO SCALE



PIPE CROSSING DETAIL
NOT TO SCALE



CONSTRUCTION SEQUENCE:

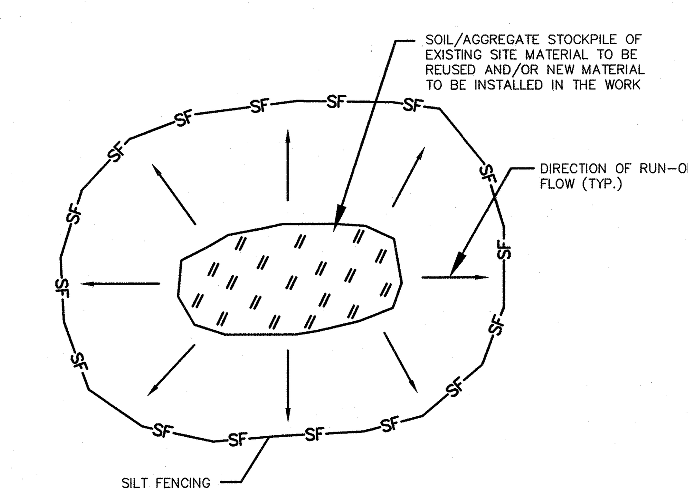
1) A WIRE MESH SHOULD BE PLACED OVER THE DROP INLET OR CURB OPENING SO THAT THE ENTIRE OPENING AND A MINIMUM OF 12 INCHES AROUND THE OPENING ARE COVERED BY THE MESH. THE MESH MAY BE ORDINARY HARDWARE CLOTH OR WIRE MESH WITH OPENINGS UP TO 1/2 INCH.

2) THE WIRE MESH SHOULD BE COVERED WITH CLEAN COARSE AGGREGATE SUCH AS SEWER STONE FOR A MINIMUM DEPTH OF 12 INCHES.

3) THE COARSE AGGREGATE SHOULD EXTEND AT LEAST 18 INCHES ON ALL SIDES OF THE DRAIN OPENING.

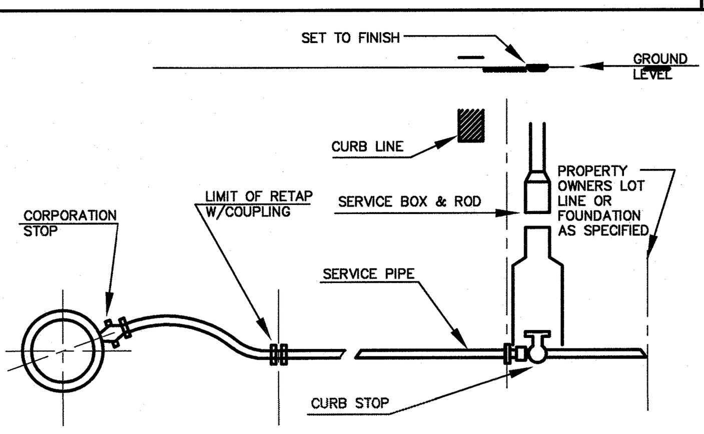
MAINTENANCE: ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM THE TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURAL OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

ON-SITE INLET PROTECTION DETAIL
NOT TO SCALE

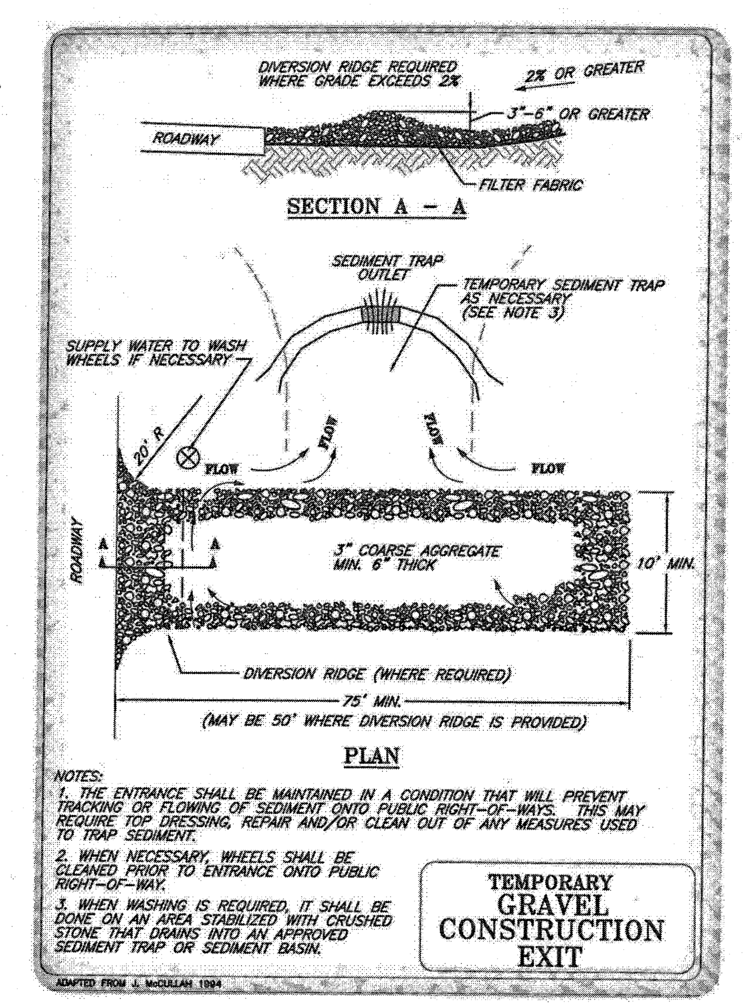


NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.
3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

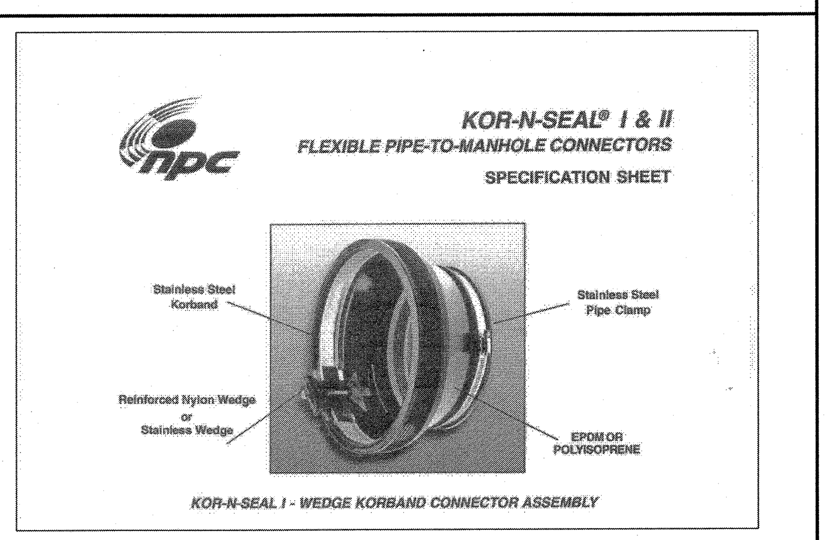
MATERIALS STOCKPILE DETAIL
NOT TO SCALE



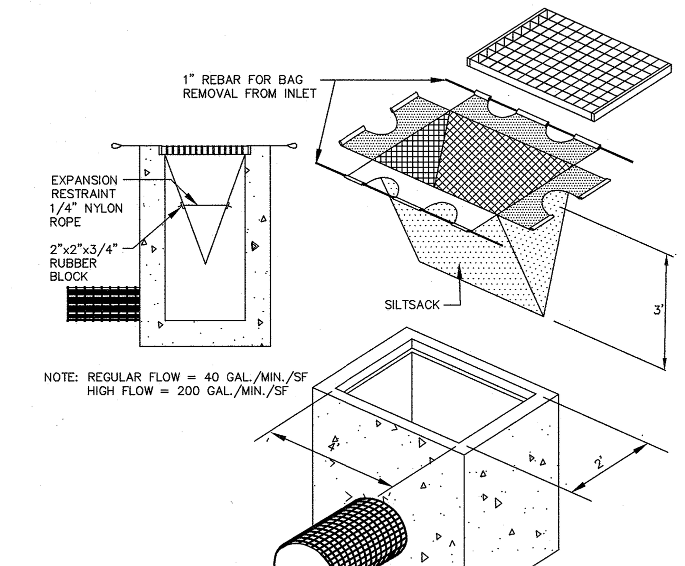
TYPICAL SERVICE CONNECTION
NOT TO SCALE



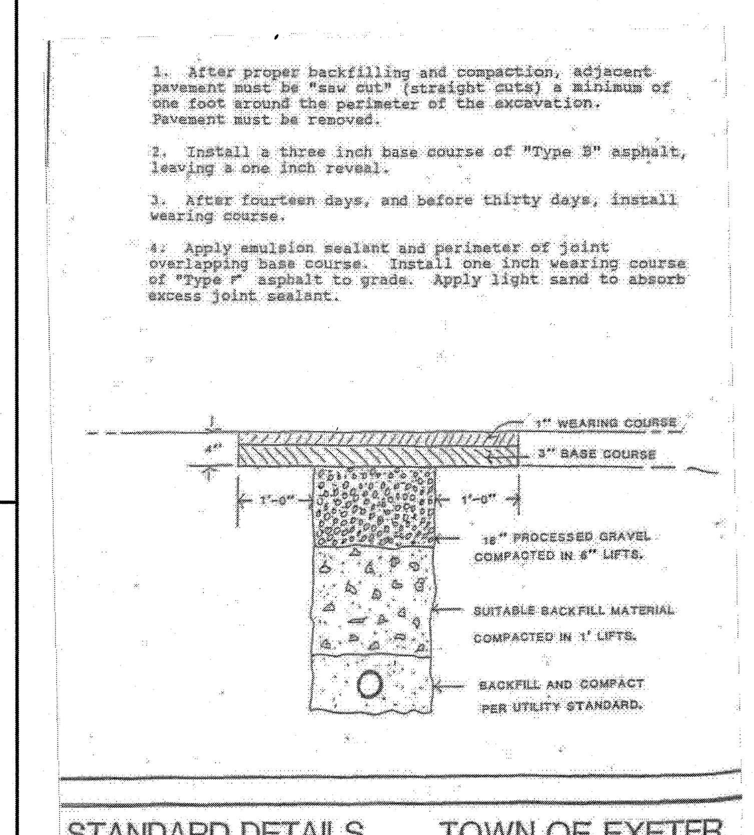
GRAVEL CONSTRUCTION EXIT
NOT TO SCALE



KOR-N-SEAL DETAIL
NOT TO SCALE



SILTSACK DETAIL-ON OR OFF SITE
NOT TO SCALE

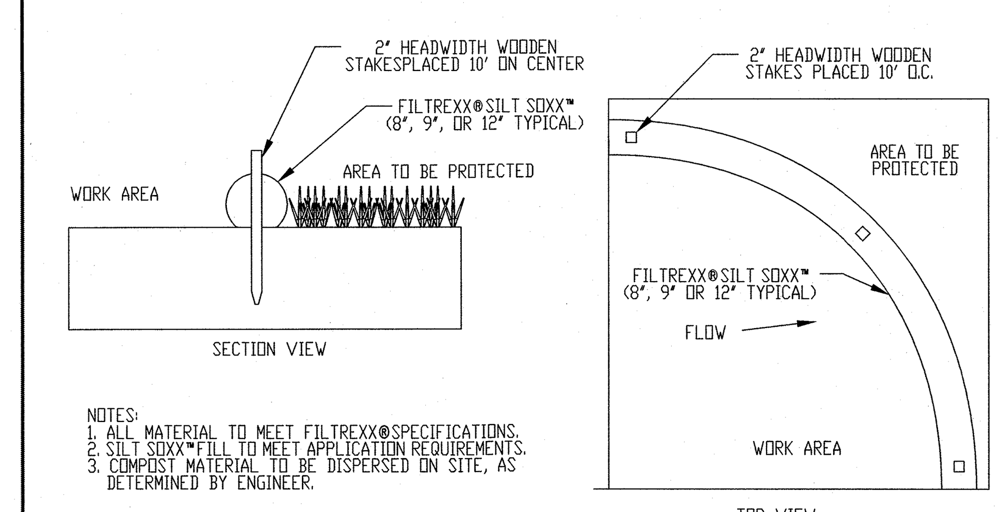

1. After proper backfilling and compaction, adjacent pavement must be "saw cut" (straight cuts) a minimum of one foot around the perimeter of the excavation. Pavement must be removed.

2. Install a three inch base course of "Type B" asphalt, leaving a one inch reveal.

3. After fourteen days, and before thirty days, install wearing course.

4. Apply emulsion sealant and perimeter of joint overlapping base course. Install one inch wearing course of "Type F" asphalt to grade. Apply light sand to absorb excess joint sealant.

STANDARD DETAILS TOWN OF EXETER



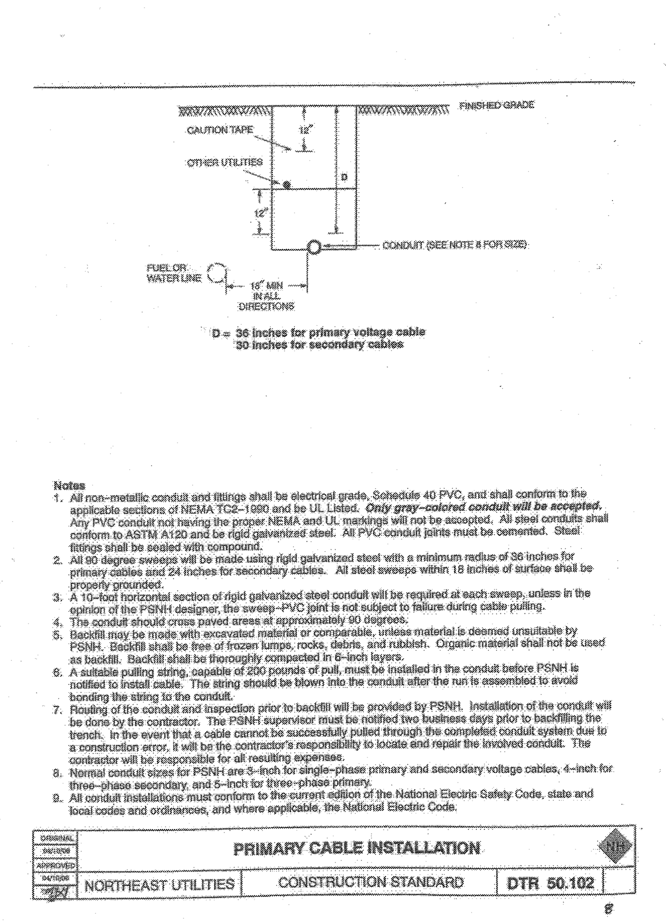
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased

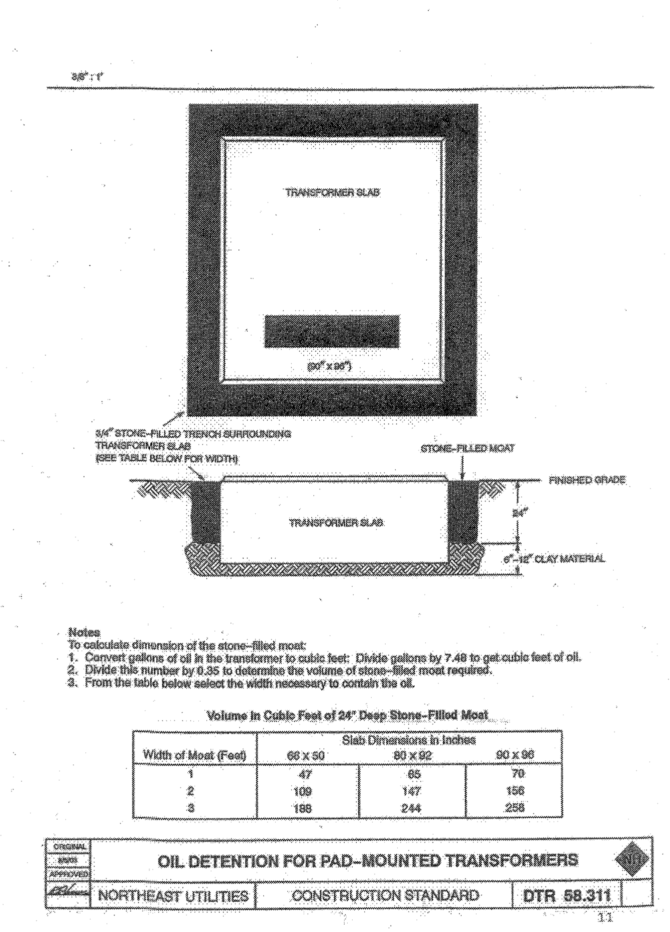
1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

FILTREXX® SILT SOXX™



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 conduit joints must be cemented. 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 inches of 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 PSNH designer, the sweep-PVC joint is not subject to failure during cable pulling.
4. The conduit should cross paved areas at approximately 90 degrees.
5. Backfill may be made with excavated material or comparable, unless material is deemed unsuitable by PSNH. 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 pulling string, capable of 200 pounds of pull, must be installed in the conduit before PSNH 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 PSNH. Installation of the conduit will be done by the contractor. The PSNH supervisor must be notified two 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 PSNH 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.

PRIMARY CABLE INSTALLATION
NORTHEAST UTILITIES | CONSTRUCTION STANDARD | DTR 50.102
8

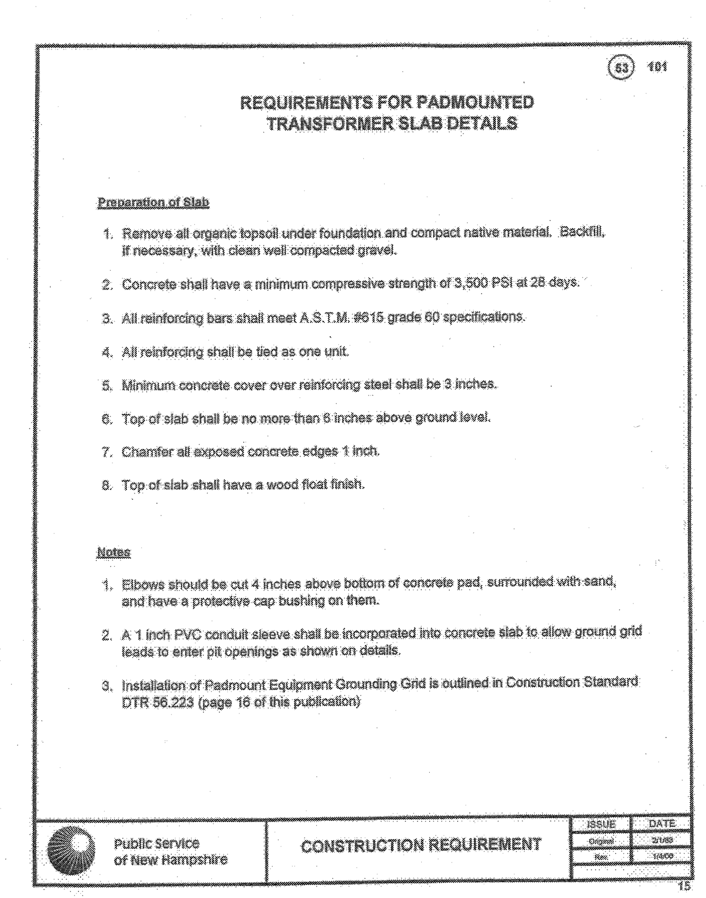


Notes
To calculate dimension of the stone-filled moat:
1. Convert gallons of oil in the transformer to cubic feet: Divide gallons by 7.48 to get cubic feet of oil.
2. Divide this number by 0.35 to determine the volume of stone-filled moat required.
3. From the table below select the width necessary to contain the oil.

Volume in Cubic Feet of 24" Deep Stone-Filled Moat

Width of Moat (Feet)	Slab Dimensions in Inches 66 x 50	80 x 92	90 x 96
1	47	65	70
2	109	147	156
3	188	244	258

OIL DETENTION FOR PAD-MOUNTED TRANSFORMERS
NORTHEAST UTILITIES | CONSTRUCTION STANDARD | DTR 58.311
11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REQUIREMENTS FOR PADMOUNTED TRANSFORMER SLAB DETAILS

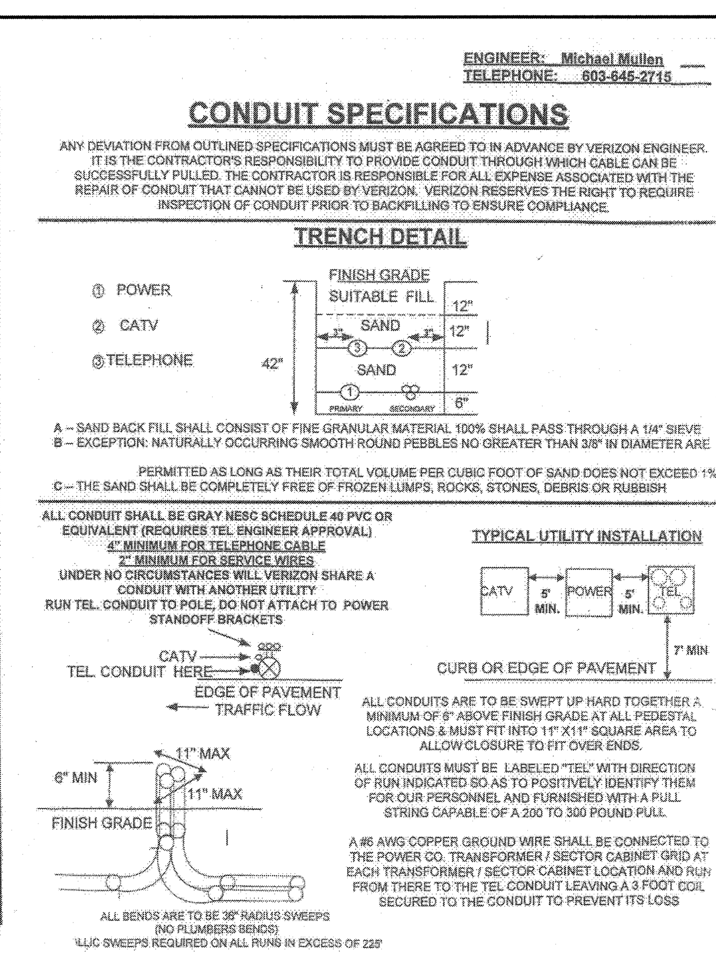
Preparation of Slab

1. Remove all organic topsoil under foundation and compact native material. Backfill, if necessary, with clean well compacted gravel.
2. Concrete shall have a minimum compressive strength of 3,500 PSI at 28 days.
3. All reinforcing bars shall meet A.S.T.M. #615 grade 60 specifications.
4. All reinforcing shall be tied as one unit.
5. Minimum concrete cover over reinforcing steel shall be 3 inches.
6. Top of slab shall be no more than 6 inches above ground level.
7. Chamfer all exposed concrete edges 1 inch.
8. Top of slab shall have a wood float finish.

Notes

1. Elbows should be cut 4 inches above bottom of concrete pad, surrounded with sand, and have a protective cap bushing on them.
2. A 1 inch PVC conduit sleeve shall be incorporated into concrete slab to allow ground grid leads to enter pit openings as shown on details.
3. Installation of Padmount Equipment Grounding Grid is outlined in Construction Standard DTR 56.223 (page 16 of this publication)

Public Service of New Hampshire | CONSTRUCTION REQUIREMENT
15


ENGINEER: Michael Mullen
TELEPHONE: 603-645-2715

CONDUIT SPECIFICATIONS

ANY DEVIATION FROM OUTLINED SPECIFICATIONS MUST BE AGREED TO IN ADVANCE BY VERIZON ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE CONDUIT THROUGH WHICH CABLE CAN BE SUCCESSFULLY PULLED. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXPENSE ASSOCIATED WITH THE REPAIR OF CONDUIT THAT CANNOT BE USED BY VERIZON. VERIZON RESERVES THE RIGHT TO REQUIRE INSPECTION OF CONDUIT PRIOR TO BACKFILLING TO ENSURE COMPLIANCE.

TRENCH DETAIL

A – SAND BACK FILL SHALL CONSIST OF FINE GRANULAR MATERIAL 100% SHALL PASS THROUGH A 1/4" SIEVE
B – EXCEPTION: NATURALLY OCCURRING SMOOTH ROUND PEBBLES NO GREATER THAN 3/8" IN DIAMETER ARE PERMITTED AS LONG AS THEIR TOTAL VOLUME PER CUBIC FOOT OF SAND DOES NOT EXCEED 1%
C – THE SAND SHALL BE COMPLETELY FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS OR RUBBISH

ALL CONDUIT SHALL BE GRAY NESC SCHEDULE 40 PVC OR EQUIVALENT (REQUIRES TEL ENGINEER APPROVAL)
4" MINIMUM FOR TELEPHONE CABLE
2" MINIMUM FOR SERVICE WIRES
UNDER NO CIRCUMSTANCES WILL VERIZON SHARE A CONDUIT WITH ANOTHER UTILITY
RUN TEL. CONDUIT TO POLE, DO NOT ATTACH TO POWER STANDOFF BRACKETS

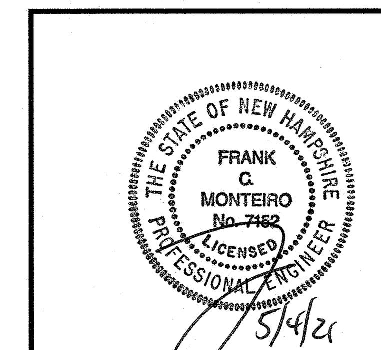
TYPICAL UTILITY INSTALLATION

ALL CONDUITS ARE TO BE SWEPT UP HARD TOGETHER A MINIMUM OF 6" ABOVE FINISH GRADE AT ALL PEDESTAL LOCATIONS & MUST FIT INTO 11" X11" SQUARE AREA TO ALLOW CLOSURE TO FIT OVER ENDS.

ALL CONDUITS MUST BE LABELED "TEL" WITH DIRECTION OF RUN INDICATED SO AS TO POSITIVELY IDENTIFY THEM FOR OUR PERSONNEL AND FURNISHED WITH A PULL STRING CAPABLE OF A 200 TO 300 POUND PULL.

A #6 AWG COPPER GROUND WIRE SHALL BE CONNECTED TO THE POWER CO. TRANSFORMER / SECTOR CABINET GRID AT EACH TRANSFORMER / SECTOR CABINET LOCATION AND RUN FROM THERE TO THE TEL CONDUIT LEAVING A 3 FOOT COIL SECURED TO THE CONDUIT TO PREVENT ITS LOSS

ALL BENDS ARE TO BE 36" RADIUS SWEEPS (NO PLUMBERS BENDS)
...LLIC SWEEPS REQUIRED ON ALL RUNS IN EXCESS OF 225'



REVISIONS

NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

DETAIL SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2020283

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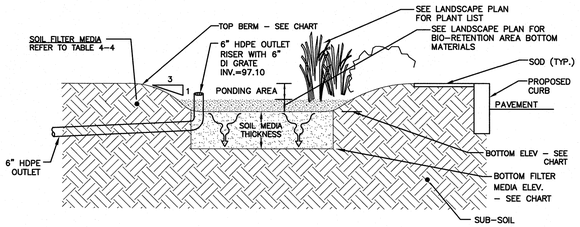
Table 4-4. Bioretention Filter Media			
Component Material	Percent of Mixture by Volume	Gradation of Material: Sieve No.	Gradation of Material: Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Filter Media Option B			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Loamy coarse sand	70 to 80	10	85 to 100
		20	70 to 100
		60	15 to 40
		200	8 to 15

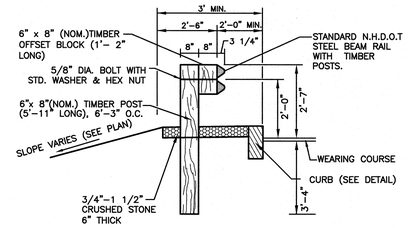


BIORETENTION AREA	TOP BERM ELEVATION	BASIN BOTTOM ELEVATION	SOIL MEDIA THICKNESS	BOTTOM FILTER MEDIA ELEV.
BIORETENTION BASIN #1	97.50	96.50	18"	95.00

NOTES:
FOR ADDITIONAL INFORMATION REFER TO THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 2, POST-CONSTRUCTION BEST MANAGEMENT PRACTICES, DECEMBER 2008.

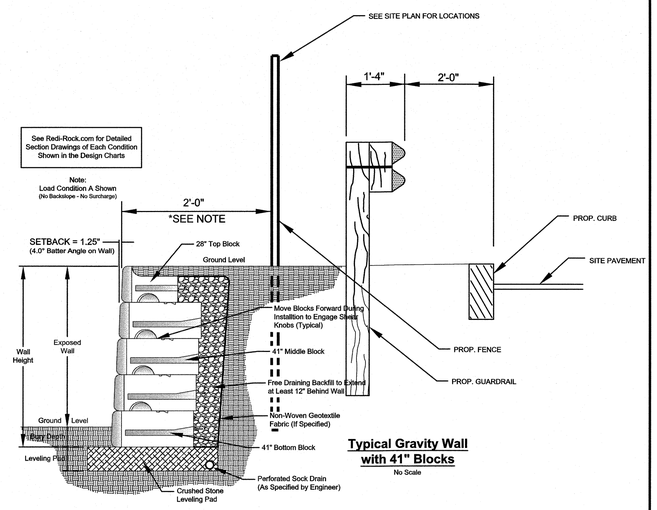
SCHEMATIC BIO-RETENTION AREA DETAIL

NOT TO SCALE



GUARD RAIL DETAIL ALONG RETAINING WALL

NOT TO SCALE



Typical Gravity Wall with 41" Blocks
No Scale

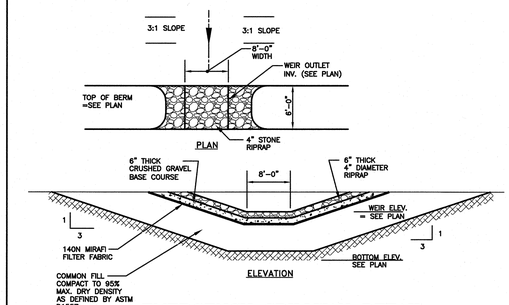
*NOTE

(ADDITIONAL SETBACKS FROM FACE OF WALL MAY BE REQUIRED UPON FINAL ENGINEERED STRUCTURAL WALL DRAWINGS.)

THE CONTRACTOR SHALL SUBMIT TO THE BUILDING INSPECTOR FOR APPROVAL, PRIOR TO START OF CONSTRUCTION, A RETAINING WALL DESIGN UTILIZING THE "REDI-ROCK" WALL (OR APPROVED EQUAL), PREPARED BY AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER CONFORMING TO LOCAL, STATE AND FEDERAL REQUIREMENTS.

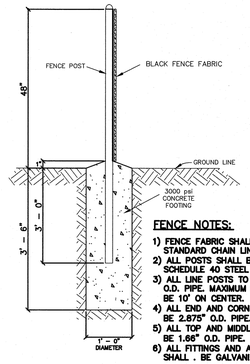
TYPICAL "REDI-ROCK" RETAINING WALL SECTION

NOT TO SCALE



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

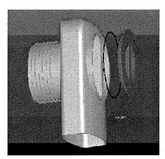


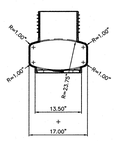
FENCE NOTES:

1) FENCE FABRIC SHALL BE STANDARD CHAIN LINK.
2) ALL POSTS SHALL BE GALVANIZED SCHEDULE 40 STEEL PIPE.
3) ALL LINE POSTS TO BE 2.375" O.D. PIPE. MAXIMUM SPACING TO BE 10' ON CENTER.
4) ALL END AND CORNER POSTS TO BE 2.875" O.D. PIPE.
5) ALL TOP AND MIDDLE RAILS TO BE 1.66" O.D. PIPE.
6) ALL FITTINGS AND ACCESSORIES SHALL . BE GALVANIZED.

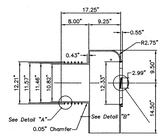
CHAIN LINK FENCE DETAIL

NOT TO SCALE

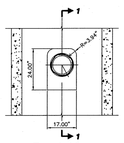




Enlarged Section 2–2

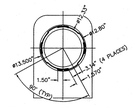


Enlarged Section 1–1



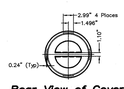
Front View

THE ELIMINATOR CATCH BASIN OIL & DEBRIS TRAP



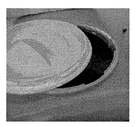
Enlarged Front View

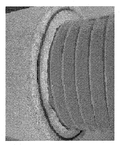
Side View of Cover

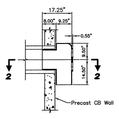


Rear View of Cover w/ Integral Handle

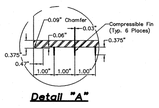
Front View of Cover w/ Integral Handle



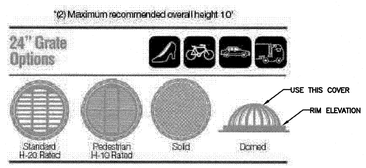


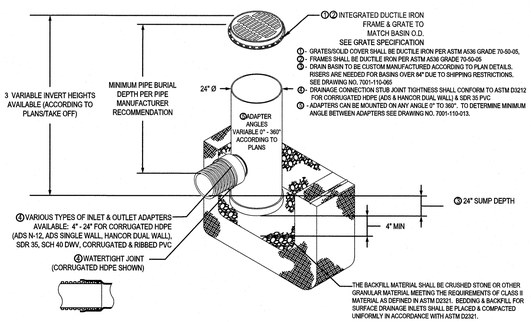


Section 1–1



Detail "A"





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APPD BY CJA	DATE 4-3-06	PROJECT NO./NAME	
DWG SIZE A	SCALE 1:40	SHEET 1 OF 1	DWG NO. 7001-110-192 REV B

Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

TITLE
24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL

NYLOPLAST 24" DRAIN BASIN: 2824AG _ _X

YARD DRAIN DETAIL

NOT TO SCALE

GPI — Engineering | Design | Planning | Construction Management

TEST PIT DATA

Designer of Subsurface Disposal Systems — Diane M. Pantermoller No. 1665 — Department of Environmental Services

Client: Nouria Energy Corporation
Project Address: 158 Epping Road
Town, State: Exeter, NH
Job Number: NEX-2020283
Date: April 6, 2021
Performed by: Diane Pantermoller

Test Pit No. 1 — SCS Soil: Urban Land; ESHWT: 52"; Standing Water: None; Refusal: >104"; Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-52"	Fill/pavement	Mixed Soils	Variable		
52-104"	Cd	Silt Loam	2.5y 5/3	Platy	@52" Distinct

Test Pit No. 2 — SCS Soil: Urban Land; ESHWT: 44"; Standing Water: None; Refusal: >117"; Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-22"	Fill/pavement	Mixed Soils	Variable		
22-117"	Cd	Silt Loam	2.5y 5/3	Platy	@44" Distinct

Test Pit No. 3 — SCS Soil: Scitico Silt Loam; ESHWT: 42"; Standing Water: 104"; Refusal: >108"; Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-36"	Fill	Mixed Soils	Variable		
36-108"	Cd	Silt Loam	2.5y 5/3	Platy	@42" Distinct

Test Pit No. 4 — SCS Soil: Scitico Silt Loam; ESHWT: 24"; Standing Water: None; Refusal: 56"; Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-24"	Fill	Mixed Soils	Variable		
24-56"	Cd	Silt Loam	2.5y 5/3	Platy	@ 24" Distinct

Test Pit No. 5 — SCS Soil: Squamscott; ESHWT: 48"; Standing Water: 60"; Refusal: >102"; Roots: None

Depth	Horizon	Soil Texture	Color	Consistence	Mottles; Quantity/Contrast
0-21"	Fill	Mixed Soils	Variable		
21-72"	C1	Sand	10yr 6/6	FR	
72-102"	C2	Silt Loam	2.5y 5/3	Platy	@48" Distinct

NOTES

TEST PIT LOGS

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE — FRANK C. MONTEIRO No. 7152 — LICENSED PROFESSIONAL ENGINEER — 5/4/21

REVISIONS		
NO.	REVISION	DATE

APRIL 20, 2021

DRAWN/DESIGN BY	CHECKED BY
CCC/CMT	FCM

DETAIL SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2020283

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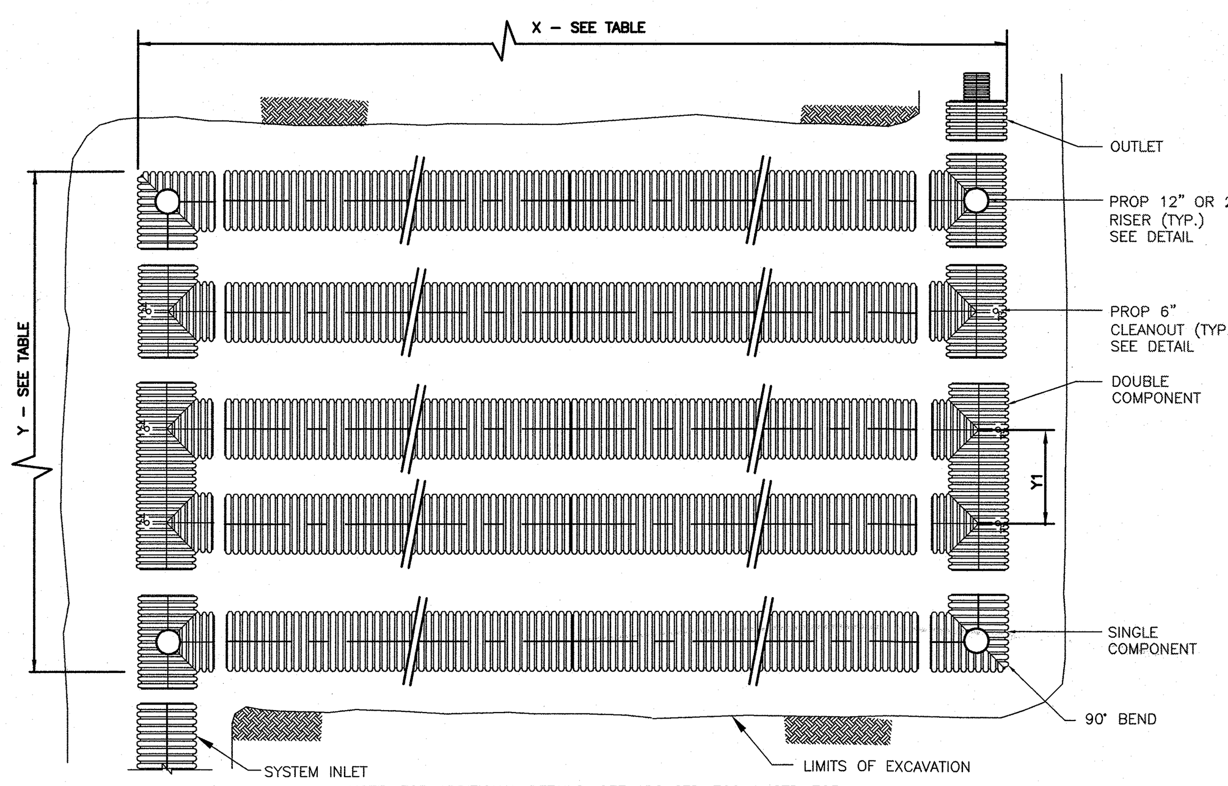
INFILTRATION SYSTEM NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH–DENSITY POLYETHYLENE PIPE, DUAL WALL, SMOOTH INTERIOR AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN.

2) CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER. SUBSTITUTIONS AND SHOP DRAWINGS SHOULD BE APPROVED BY THE ENGINEER.

3) PARTS SPECIFICATIONS SHOWN ARE AS PROVIDED BY ADS, INC., OR APPROVED EQUAL. ANY CHANGES TO THESE SPECIFICATIONS SHOULD BE APPROVED BY DESIGN ENGINEER FOR PERFORMANCE.



NOTE: FOR ADDITIONAL DETAILS, SEE ADS STD–702 & STD–703.

UNDERGROUND STORMWATER INFILTRATION SYSTEM TABLE

UG INFILTRATION SYSTEM	LENGTH (X)	WIDTH (Y)	SPACING (Y1) (O.C. TYP.) *	PIPE SIZE (INCHES) PERF	INV. PIPE ELEV. (A)	# PIPE ROWS
INFILTRATION SYS–1	72.42'	11.80'	25.4"	12" PERF	93.33	6

* SEE TYPICAL CROSS SECTIONS BELOW
WT = WATERTIGHT JOINTS

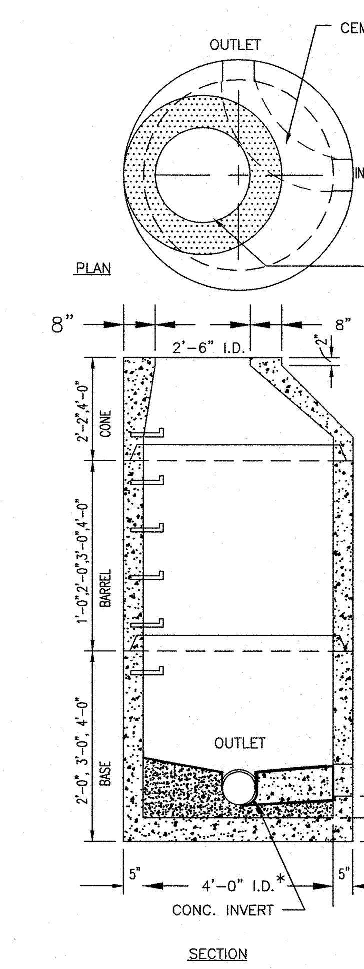
TYPICAL UNDERGROUND INFILTRATION SYSTEM LAYOUT

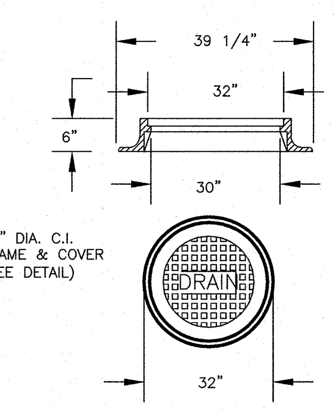
NOT TO SCALE

Table 5-2
Classes of Embedment and Backfill Materials

ASTM D2321[1] Class	ASTM D2321[1] Description	Notation	ASTM D2487 Description	AASHTO M43 Notation	Min. Compaction Required (Std. Proctor Density %)[5]	1 ½ in. (40mm)	No. 4 (4.75mm)	No. 200 (0.075mm)	LL	PI	Uniformity Cu	Curvature Cc
IA[4]	Open-graded, clean manufactured aggregates	N/A	Angular crushed stone or rock, crushed gravel, crushed slag; large voids with little or no fines	5 56	Dumped to Slight	100%	≤10%	<5%	Non Plastic		N/A	
IB	Dense-graded clean manufactured, processed aggregates	N/A	Angular crushed stone or other Class IA material and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; little or no fines			100%	≤50%	<5%	Non Plastic			
II	Clean, coarse-grained soils	GW	Well-graded gravel, gravel-sand mixtures; little or no fines	57 6 67	Moderate (85%)	100%	<50% of "Coarse Fraction"	<5%	Non Plastic		>4	1 to 3
		GP	Poorly-graded gravels, gravel-sand mixtures; little or no fines								<4	<1 or >3
		SW	Well-graded sands, gravelly sands; little or no fines				>50% of "Coarse Fraction"				>6	1 to 3
		SP	Poorly-graded sands, gravelly sands; little or no fines								<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	GW-GC, SP-SM	Sands and gravels which are borderline between clean and with fines	N/A		100%	Varies	5% to 12%	Non Plastic		Same as for GW, GP, SW and SP	
III	Coarse-grained soils with fines	GM	Silty gravels, gravel-sand-silt mixtures	Gravel & sand with <10% fines	Moderate to High (90%)	100%	<50% of "Coarse Fraction"	12% to 50%	N/A	<4 or <"A" Line	N/A	
		GC	Clayey gravels, gravel-sand-clay mixtures							<7 & >"A" Line		
		SM	Silty sands, sand-silt mixtures				>50% of "Coarse Fraction"			>4 or <"A" Line		
		SC	Clayey sands, sand-clay mixtures							>7 & >"A" Line		
IVA[2]	Inorganic fine-grained soils	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	N/A	N/R	100%	100%	>50%	<50	<4 or <"A" Line	N/A	
		CL	Inorganic clays of low to medium plasticity; gravelly, sandy, or silty clays; lean clays	N/A						>7 & >"A" Line		
IVB	Inorganic fine-grained soils	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	N/A	N/R	100%	100%	>50%	>50	<"A" Line	N/A	
		CH	Inorganic clays of high plasticity, fat clays	N/A						>"A" Line		
V	Organic soils or Highly organic soils	OL	Organic silts and organic silty clays of low plasticity	N/A	N/R	100%	100%	>50%	<50	<4 or <"A" Line	N/A	
		OH	Organic clays of medium to high plasticity, organic silts	N/A					>50	<"A" Line		
		PT	Peat and other high organic soils	N/A								

Notes:
1) Refer to ASTM D2321 for more complete soil descriptions.
2) Class IVA material has limited applications and can be difficult to place and compact; use ONLY with the approval of a soil expert. Contact ADS for additional information regarding suitability of this backfill material.
3) N/R indicates that use of this material and/or compaction level is not recommended by ASTM D2321 for the backfill envelope.
4) When using open-graded material, additional precaution must be taken to reduce or eliminate the risk of migration of fines from adjacent material. Refer to ASTM D2321 for more complete information.

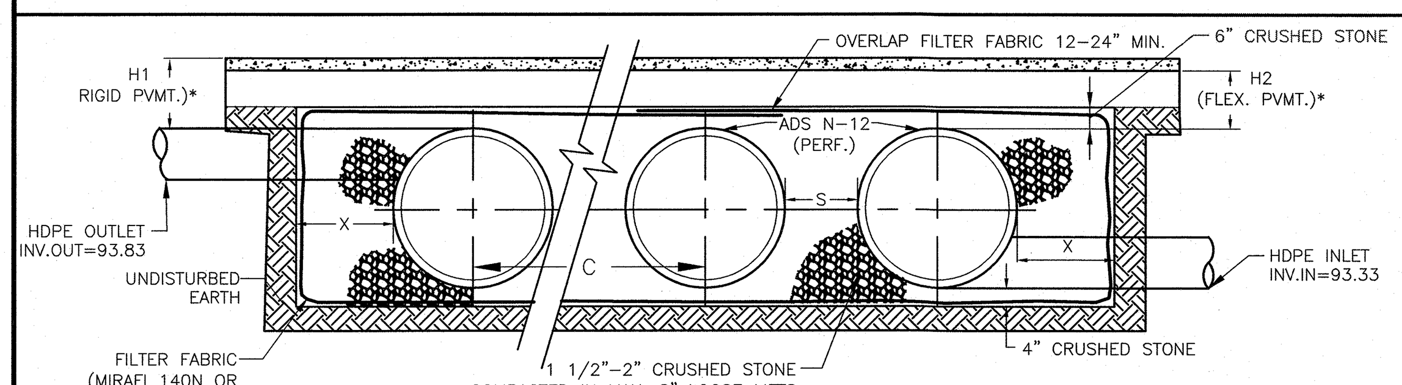




NOTES:
1. PRECAST CONCRETE MANHOLE AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H–20 LOADING 4 X 4/4 X 4 W.W.M.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA. BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH 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.

PRECAST CONCRETE DRAIN MANHOLE

MAXIMUM PIPE DIAMETER 30"
NOT TO SCALE



* H_1, H_2 = 12" FOR UP TO AND INCLUDING 48" N–12
= 24" FOR 60" N–12
* FOR LIVE LOAD INSTALLATIONS PROVIDE 24" COVER FOR 42"–60" N–12

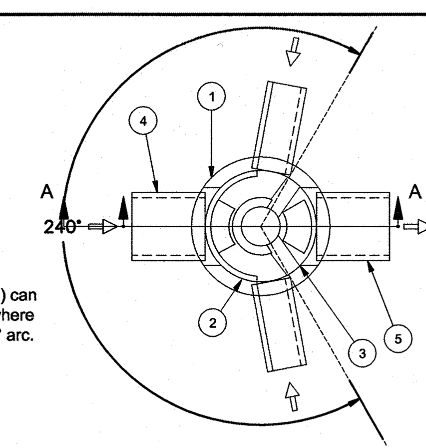
U.G. INF #1 →

NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	TYPICAL SPACING "C"	TYPICAL SIDE WALL "X"
12"	14.5"	11"	25.4"	8"
15"	18"	12"	28.9"	8"
18"	21"	13"	33.9"	9"
24"	28"	13"	40.7"	10"
30"	36"	18"	53.1"	18"
36"	42"	22"	63"	18"
42"	48"	24"	71.9"	18"

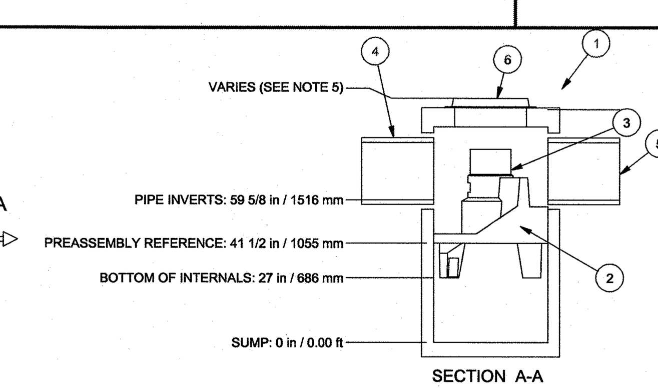
NOTES
1. ALL UNDERGOUND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. SEE GRADING & DRAINAGE PLAN FOR INVERT DATA.
4. EXISTING TOPSOIL, BRUSH, TREES, BOULDERS, FILL AND DEBRIS TO BE REMOVED FOR 5' ALL AROUND UNDERGROUND DETENTION SYSTEM DOWN TO NATIVE MATERIAL. BACKFILL WITH STONE BEDDING MATERIAL (CLASS 1A OR 1B).

TYPICAL UNDERGROUND INFILTRATION SYSTEM CROSS SECTION

NOT TO SCALE



Inlet pipe(s) can enter anywhere within 240° arc.



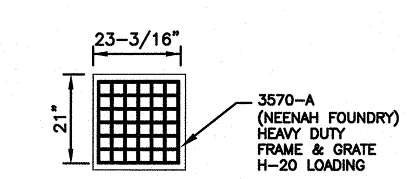
GENERAL NOTES:
1. GENERAL ARRANGEMENT DRAWINGS ONLY. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC FABRICATION DRAWINGS.
2. THE DIAMETER OF THE INLET & OUTLET PIPES MAY BE NO MORE THAN 24".
3. MULTIPLE INLET PIPES POSSIBLE (REFER TO PROJECT PLANS).
4. INLET/OUTLET PIPE ANGLE CAN VARY TO ALIGN WITH DRAINAGE NETWORK (REFER TO PROJECT PLANS).
5. PEAK FLOW RATE AND MINIMUM HEIGHT LIMITED BY AVAILABLE COVER AND PIPE DIAMETER.
6. LARGER SEDIMENT STORAGE CAPACITY MAY BE PROVIDED WITH A DEEPER SUMP DEPTH.

PRODUCT SPECIFICATIONS:
A. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
B. THE TREATMENT SYSTEM SHALL FIT WITHIN THE LIMITS OF EXCAVATION (AREA AND DEPTH) AS SHOWN IN THE PROJECT PLANS AND WILL NOT EXCEED THE DIMENSIONS FOR THE DESIGN FLOW RATES SPECIFIED HEREIN.
C. THE TREATMENT SYSTEM SHALL REMOVE GREATER THAN OR EQUAL TO 90% OF TSS BASED ON THE TARGET PARTICLE SIZE (TPS) OF 106 MICRONS AND/OR 80% OF TSS BASED ON THE TPS OF 230 MICRONS AT 0.7 CFS AND 1.2 CFS, RESPECTIVELY.
D. THE TREATMENT SYSTEM SHALL CONVEY THE PEAK ON–LINE FLOW RATES OF UP TO 18 CFS WITHOUT CAUSING UPSTREAM SURCHARGE CONDITIONS. FULL–SCALE INDEPENDENT LABORATORY SCOUR TESTING SHALL DEMONSTRATE EFFLUENT CONTROL OF LESS THAN OR EQUAL TO 5 MG/L FOR ALL FLOWS UP TO 200% OF MTFR–106.
E. THE TREATMENT SYSTEM SHALL BE CAPABLE OF CAPTURING AND RETAINING FINE SILT AND SAND SIZE PARTICLES. ANALYSIS OF CAPTURED SEDIMENT FROM FULL–SCALE FIELD INSTALLATIONS SHALL DEMONSTRATE PARTICLE SIZES PREDOMINATELY IN THE 20–MICRON RANGE

PARTS LIST				
ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND GRATE
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

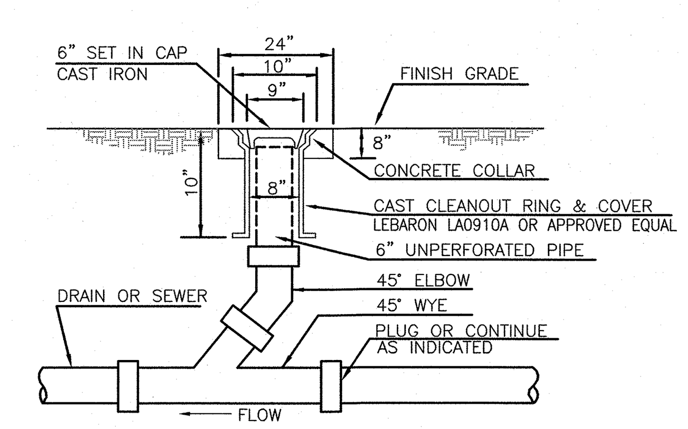
"FIRST DEFENSE" FD–4HC UNIT DETAIL

(OR APPROVED EQUAL)
NOT TO SCALE
NOTE: CONTRACTOR SHALL CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER PRIOR TO CONSTRUCTION.



LOW PROFILE GRATE PLAN VIEW

NOT TO SCALE

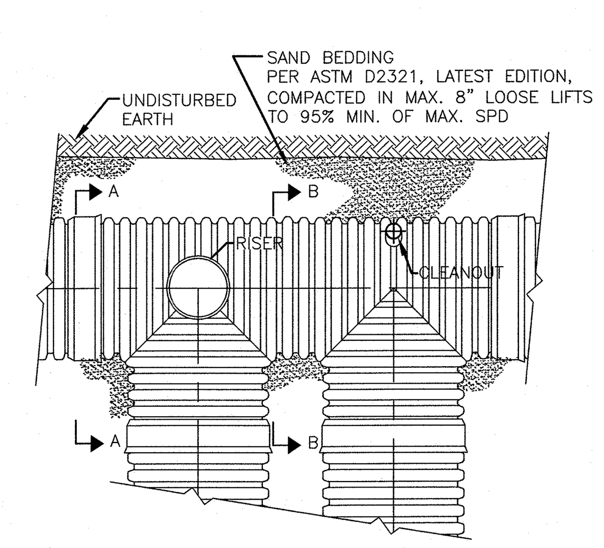


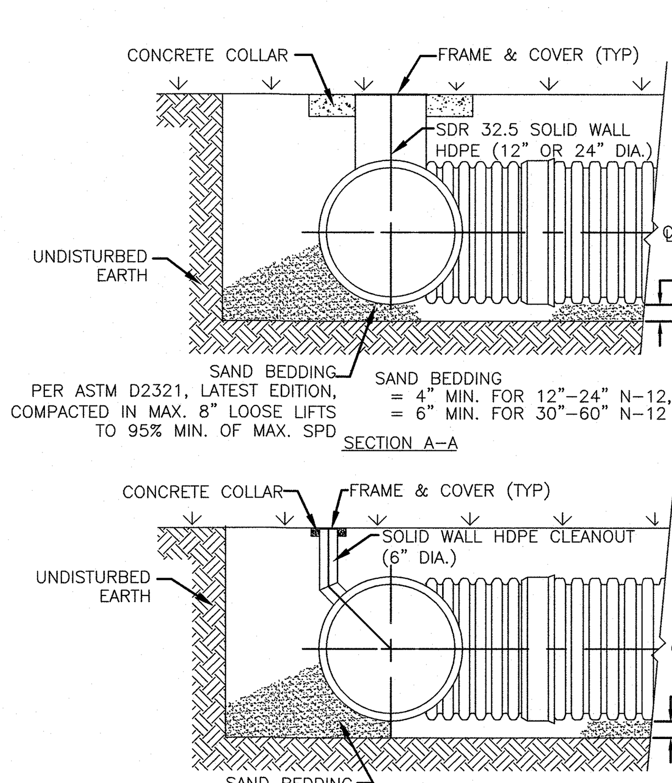
TYPICAL CLEANOUT

NOT TO SCALE

ADS STANDARD DETAILS DISCLAIMER

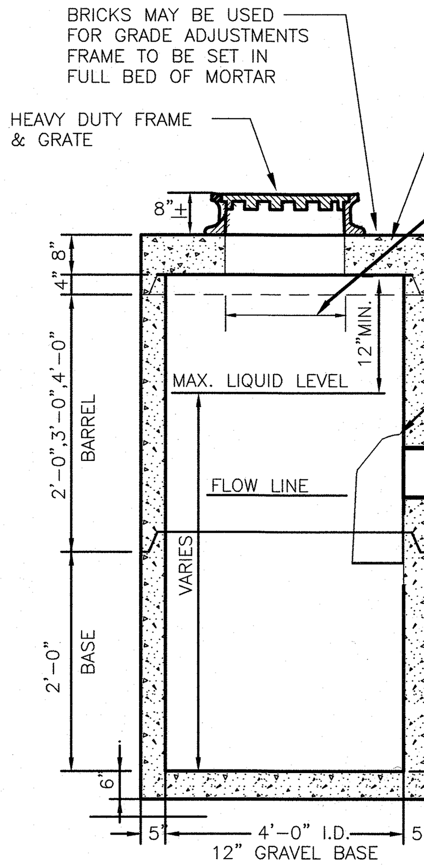
ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS STANDARD DETAIL TO DEMONSTRATE ADS' RECOMMENDED INSTALLATION OF ITS PRODUCTS FOR THE DEPICTED APPLICATION. IN ADDITION TO ADS' RECOMMENDATIONS, THERE MAY BE OTHER NATIONAL, STATE OR LOCAL SPECIFICATIONS THAT ARE PERTINENT TO THIS APPLICATION. ADS' STANDARD DETAIL IS NOT INTENDED TO SUPERSEDE ANY NATIONAL, STATE OR LOCAL SPECIFICATIONS, AND ADS RECOMMENDS THAT THOSE REQUIREMENTS BE REVIEWED AND CONSULTED PRIOR TO THE INSTALLATION OF ADS' PRODUCTS. ADS HAS NOT AUTHORIZED, AND IT BEARS NO RESPONSIBILITY FOR, ANY REVISIONS, ALTERATIONS OR DEVIATIONS FROM THIS STANDARD DETAIL."





TYPICAL RISER AND CLEANOUT DETAILS

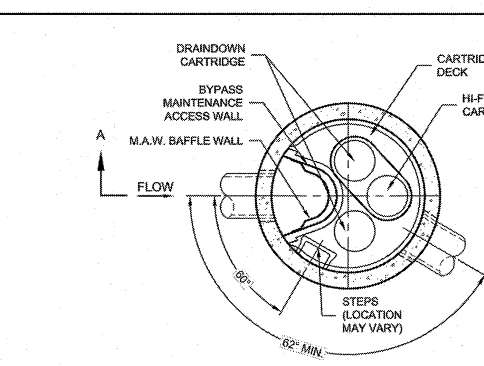
NOT TO SCALE



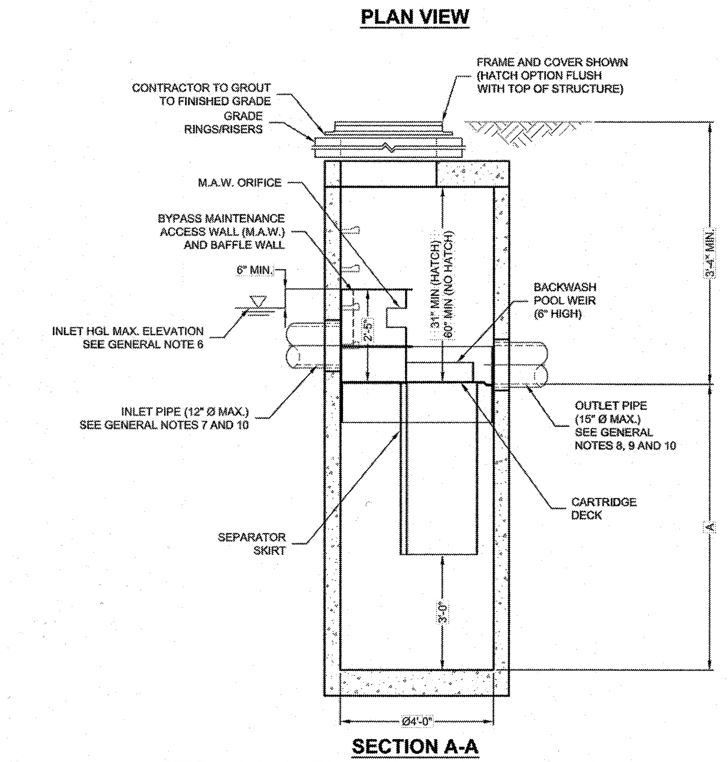
NOTES:
1. PRECAST CONCRETE CATCH BASIN AS MANUFCTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H–20 LOADING, 4 X 4/4 X 4 W.W.M. SLAB TOP –NO. 5'S @ 8" O.C.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF1" DIA BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH SECTION TO BE LABELED AS NOTED.

PRECAST CONCRETE CATCH BASIN WITH HOOD

NOT TO SCALE



1.) CONTRACTOR TO PROVIDE A SHOP DRAWING FOR APPROVAL BY CIVIL ENGINEER PRIOR TO CONSTRUCTION.



JELLYFISH TREATMENT UNIT

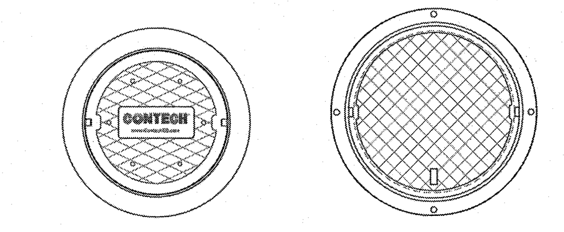
NOT TO SCALE

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN. Ø48" MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 0.45 CFS, AND MAXIMUM BYPASS CAPACITY IS 2.50 CFS. IF THE SITE CONDITIONS EXCEED TOTAL CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION				
CARTRIDGE DEPTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	7'-5"	6'-3"	5'-2"	4'-2"
FLOW RATE HIGH-FLO / DRAINDOWN (cfs) (per cart)	0.18 / 0.09	0.13 / 0.065	0.09 / 0.045	0.05 / 0.025
MAX. CARTS HIGH-FLO/DRAINDOWN	2 / 1			
MAX. BYPASS (cfs)	2.5			
MAX. TREATMENT (cfs)	0.45	0.33	0.22	0.12
MAX. TREATMENT AND BYPASS (cfs) (TOTAL CAPACITY)	2.95	2.83	2.72	2.62

USE THIS (54")



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

HATCH
(Ø36" CAST INTO SLAB)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
BYPASS FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	*/*
CARTRIDGE SIZE	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

SEE GENERAL NOTES 6-10 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	*	
ANTI-FLOTATION BALLAST	WIDTH *	HEIGHT *

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. INLET HGL NOT TO EXCEED 6" BELOW THE TOP OF THE M.A.W. DURING THE PEAK DESIGN STORM, OR 10-YEAR STORM (WHICHEVER IS GREATER).
7. INLET PIPE INVERT ELEVATION VARIES FROM 0" TO 6" MAXIMUM ABOVE THE OUTLET PIPE INVERT.
8. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
9. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
10. THE DIFFERENCE IN THE INLET AND OUTLET PIPE ELEVATIONS FOR RETROFIT INSTALLATIONS TO EXISTING STORM DRAIN PIPES SHALL BE EQUAL TO THE SLOPE OVER THE DIAMETER OF THE MANHOLE; NOT THE EXCEED 6" IN VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET PIPES.
11. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,726; 8,221,618 & US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

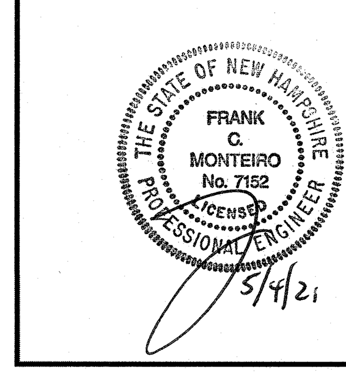
CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JF4
STANDARD DETAIL
ONLINE CONFIGURATION

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
NOURIA ENERGY CORPORATION
326 CLARK STREET
WORCESTER, MA 01606

PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833



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DETAIL SHEET

SCALE: AS NOTED

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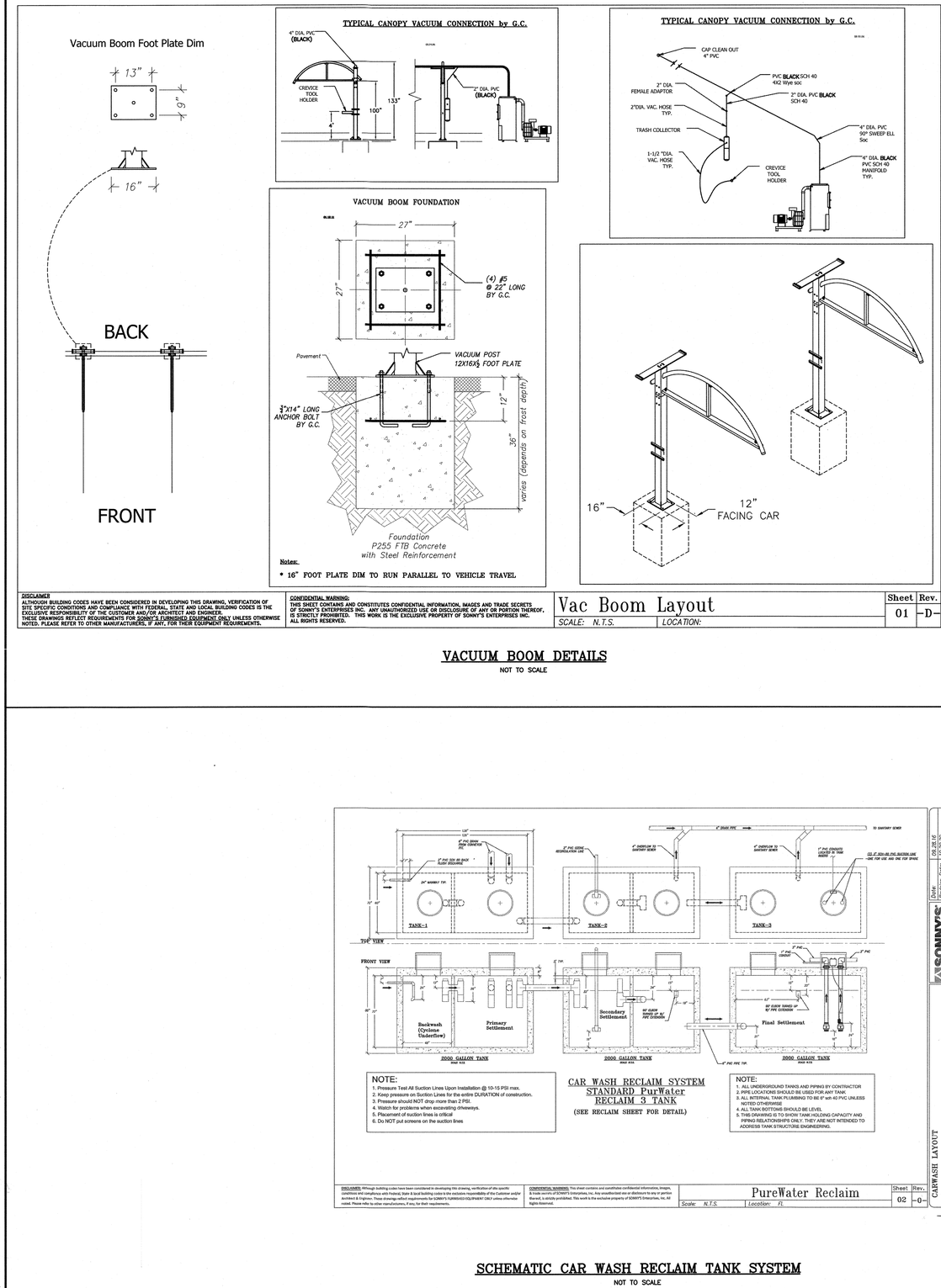
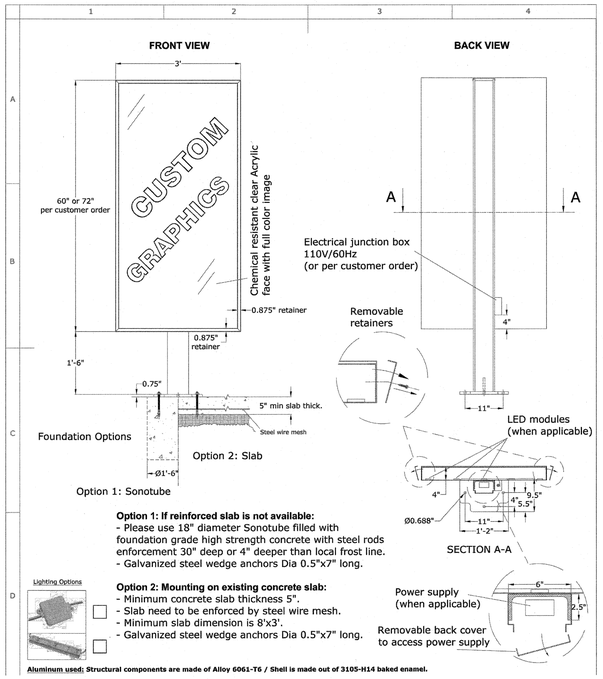


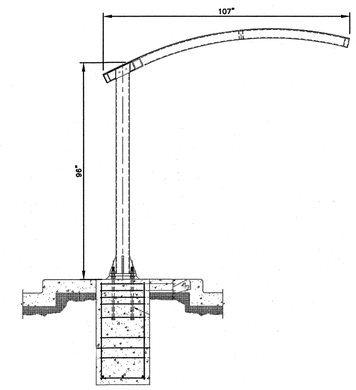
VACUUM BOOM DETAILS

NOT TO SCALE



TYPICAL CAR WASH MENU BOARD

NOT TO SCALE



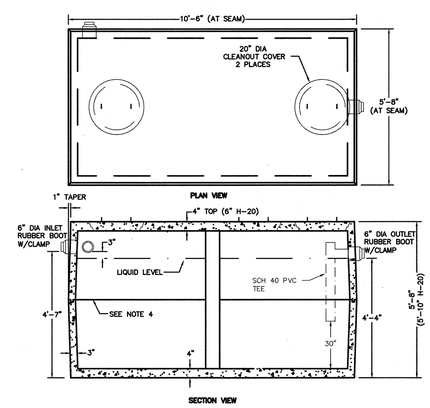
ELEVATION VIEW

TYPICAL OVERHEAD CANOPY AT PAY STATION

NOT TO SCALE

SCHEMATIC CAR WASH RECLAIM TANK SYSTEM

NOT TO SCALE

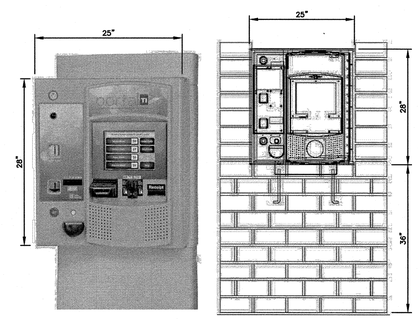


NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. CONSTRUCTION OF SEPTIC TANK CONFORMS WITH 310 CMR, SECTION 15.00 DEP TITLE 5 REGS.
3. ALL REINFORCEMENT PER ASTM C1227.
4. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
5. STRUCTURE SHALL MEET AASHTO HS-20 LOADING.

TYPICAL 1,500 GALLON RECLAIM TANK

NOT TO SCALE



PAY STATION PORTAL

BLOCK PORTAL BASE

TYPICAL CAR WASH PAY STATION DETAILS

NOT TO SCALE

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326 CLARK STREET
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PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

THE STATE OF NEW HAMPSHIRE
FRANK C. MONTEIRO
No. 7162
LICENSED
PROFESSIONAL ENGINEER
5/4/21

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CAR WASH DETAIL SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2020283

1 OF 1

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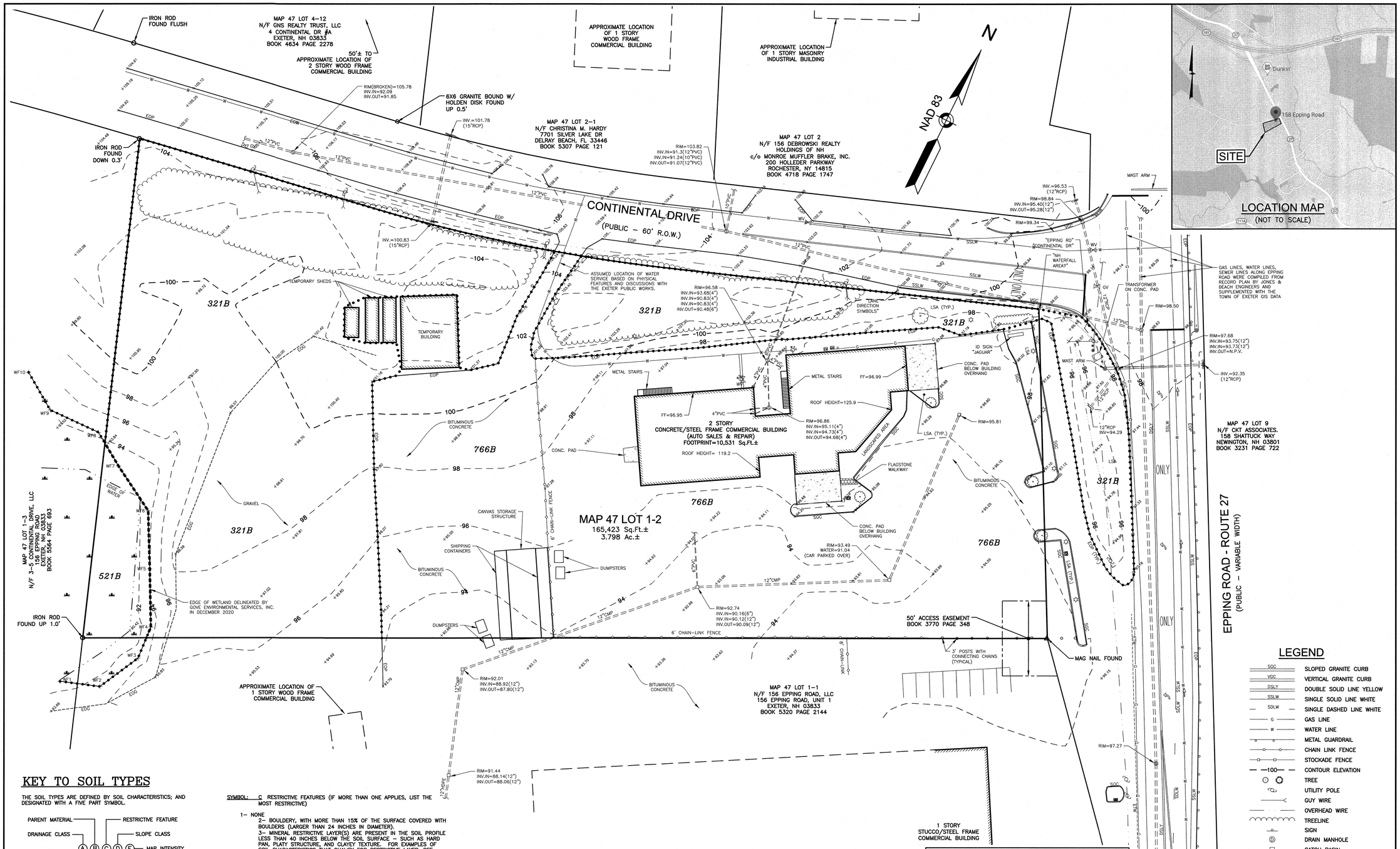

KEY TO SOIL TYPES

THE SOIL TYPES ARE DEFINED BY SOIL CHARACTERISTICS; AND DESIGNATED WITH A FIVE PART SYMBOL.

PARENT MATERIAL — RESTRICTIVE FEATURE
DRAINAGE CLASS — SLOPE CLASS
(A)(B)(C)(D)(E) — MAP INTENSITY

SYMBOL: A DRAINAGE CLASS

1– EXCESSIVELY DRAINED
2– WELL DRAINED
3– MODERATELY WELL DRAINED
4– SOMEWHAT POORLY DRAINED
5– POORLY DRAINED
6– VERY POORLY DRAINED
7– NOT DETERMINABLE (TO BE USED ONLY WITH SYMBOL B–6)

SYMBOL: B PARENT MATERIAL

1– GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES OF SAND OR SAND AND GRAVEL).
2– GLACIAL TILL MATERIAL (ACTIVE ICE) MARINE OR GLACIOLACUSTRINE DEPOSITS (3,4 OR 5)
3– VERY FINE SAND AND SILT DEPOSITS (GLACIAL LAKES)
4– LOAMY/SANDY OVER SILT/CLAY DEPOSITS
5– SILT AND CLAY DEPOSITS (OCEAN WATERS)
6– EXCAVATED, REGRADED OR FILLED (SEE CONNOTATIVE SOIL LEGEND)
7– ALLUVIAL DEPOSITS (FLOOD PLAINS)
8– ORGANIC MATERIALS – FRESH WATER BOGS, ETC.
9– ORGANIC MATERIALS – TIDAL MARSH

SYMBOL: C RESTRICTIVE FEATURES (IF MORE THAN ONE APPLIES, LIST THE MOST RESTRICTIVE)

1– NONE
2– BOULDERY, WITH MORE THAN 15% OF THE SURFACE COVERED WITH BOULDERS (LARGER THAN 24 INCHES IN DIAMETER).
3– MINERAL RESTRICTIVE LAYER(S) ARE PRESENT IN THE SOIL PROFILE LESS THAN 40 INCHES BELOW THE SOIL SURFACE – SUCH AS HARD PAN, PLATY STRUCTURE, AND CLAYEY TEXTURE. FOR EXAMPLES OF SOIL CHARACTERISTICS THAT QUALIFY FOR RESTRICTIVE LAYER, SEE SOIL MANUAL FOR SITE EVALUATIONS IN NEW HAMPSHIRE, 2ND ED. PAGE 3–17, FIGURE 3–14.
4– BEDROCK PRESENT IN THE SOIL PROFILE 0–20 INCHES BELOW THE SOIL SURFACE (BEDROCK IS EITHER A LITHIC OR A PARALITHIC CONTACT – SEE USER NOTE: SOIL TAXONOMY).
5– SUBJECT TO FLOODING.
6– DOES NOT MEET FILL STANDARDS (SEE ADDENDUM – STANDARDS FOR FILL MATERIAL) (ONLY TO BE USED WITH SYMBOL B–8).
7– BEDROCK PRESENT IN THE SOIL PROFILE 20 TO 40 INCHES BELOW THE SOIL SURFACE. (BEDROCK IS EITHER LITHIC OR PARALITHIC CONTACT; SEE SOIL TAXONOMY).
8– AREAS WHERE DEPTH TO BEDROCK IS SO VARIABLE THAT A SINGLE SOIL TYPE CANNOT BE APPLIED, WILL BE MAPPED AS A COMPLEX OF SOIL TYPES AND WILL HAVE A SYMBOL C OF 8.

SYMBOL: D SLOPE CLASS

B– 0% TO 8%
C– 8% TO 15%
D– 15% TO 25%
E– 25% +

SYMBOL: E HIGH INTENSITY SOIL MAP IDENTIFIER – H.

WETLAND NOTES

WETLANDS WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN DECEMBER 2020 UTILIZING THE FOLLOWING STANDARDS:

1) US ARMY CORPS OF ENGINEERS INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, TECHNICAL REPORT ERDC/EL TR–09–19 (OCT 2009).

2) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2010).

3) NORTH AMERICAN DIGITAL FLORA: NATIONAL WETLAND PLANT LIST, VERSION 2.2.1 (2009).

4) CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS–79/31 (1979).

SOIL MAPPING NOTES

1) HIGH INTENSITY SOIL MAPPING WAS PERFORMED TO THE STANDARDS OF THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND SPECIAL PUBLICATION NUMBER 1, HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE, STANDARDS, APRIL 2008.

SOIL LEGEND

WETLAND LINE
361BH SOIL TYPE DESIGNATION
SOIL BOUNDARY

0 30 60 100
SCALE: 1" = 30'

HIGH INTENSITY SOIL SURVEY PERFORMED

STATE OF NEW HAMPSHIRE LUKE HURLEY No. 232 CERTIFIED WETLAND SCIENTIST 4/15/21

STATE OF NEW HAMPSHIRE LUKE D. HURLEY NO. 088 CERTIFIED SOIL SCIENTIST 4/15/21

BY
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DR., BLDG 2, UNIT H, EXETER, NH 03833–7507

LEGEND

SGC	SLOPED GRANITE CURB
VGC	VERTICAL GRANITE CURB
DSLY	DOUBLE SOLID LINE YELLOW
SSLW	SINGLE SOLID LINE WHITE
SDLW	SINGLE DASHED LINE WHITE
G	GAS LINE
W	WATER LINE
	METAL GUARDRAIL
	CHAIN LINK FENCE
	STOCKADE FENCE
100	CONTOUR ELEVATION
	TREE
	UTILITY POLE
	GUY WIRE
	OVERHEAD WIRE
	TREELINE
	SIGN
D	DRAIN MANHOLE
	CATCH BASIN
	ROOF DRAIN
S	SEWER MANHOLE
GV	GAS VALVE
WV	WATER VALVE
WSO	WATER SHUT OFF
GM	GAS METER
	LIGHT POLE
	WATER FEATURE
	DITCH LINE
ETW	EDGE OF TRAVELED WAY
EOG	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
LSA	LANDSCAPED AREA
+98.56	SPOT ELEVATION

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PROPOSED RETAIL MOTOR FUEL OUTLET
158 EPPING ROAD (ROUTE 27)
EXETER, NH 03833

REVISIONS

NO.	REVISION	DATE

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DPD/JAC	JAC

HIGH INTENSITY SOIL SURVEY PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

1 OF 1

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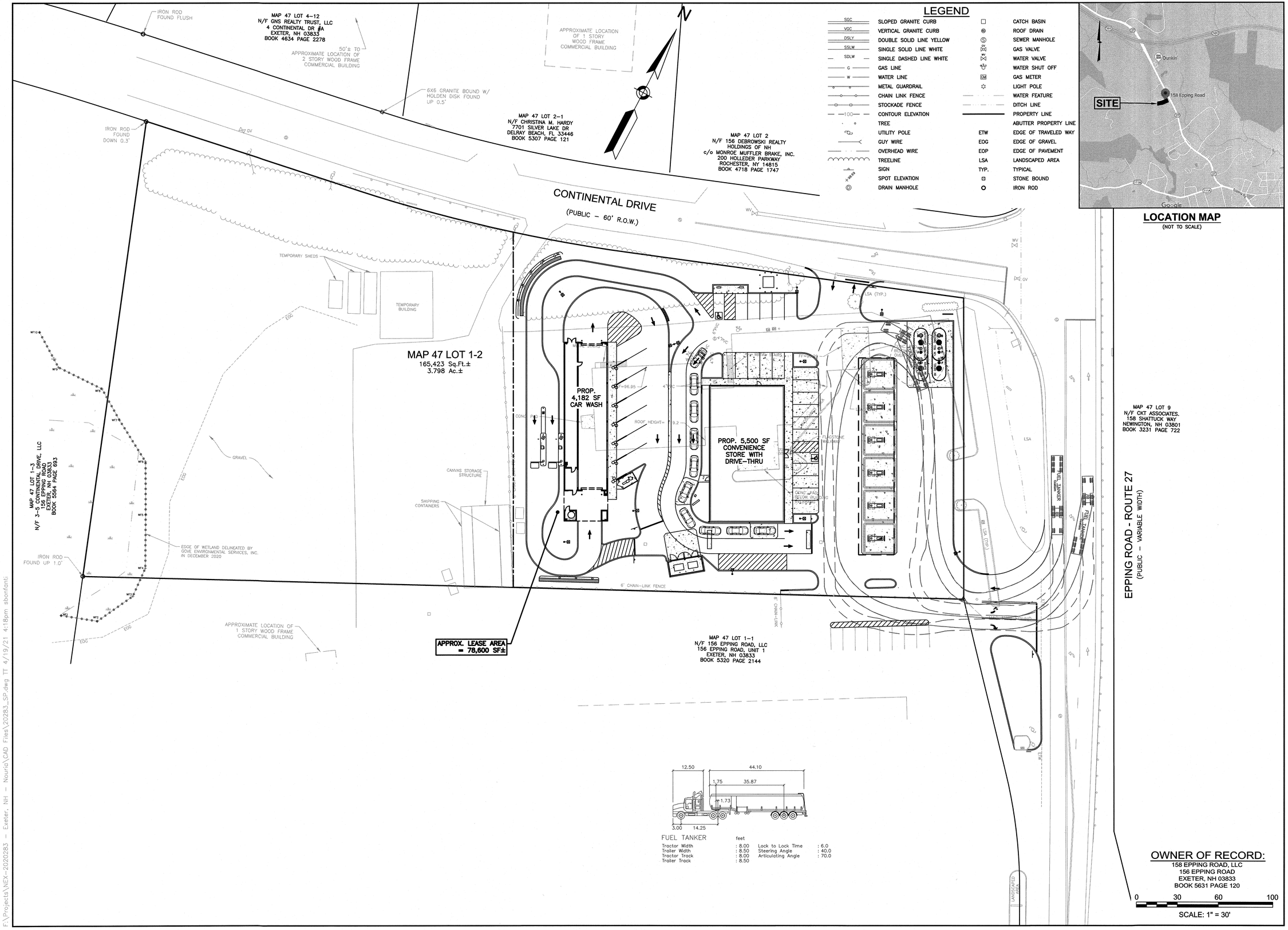

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5/4/21

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TRUCK TURN PLAN

SCALE: 1"=30'

PROJECT NO. NEX-2020283

1 OF 1

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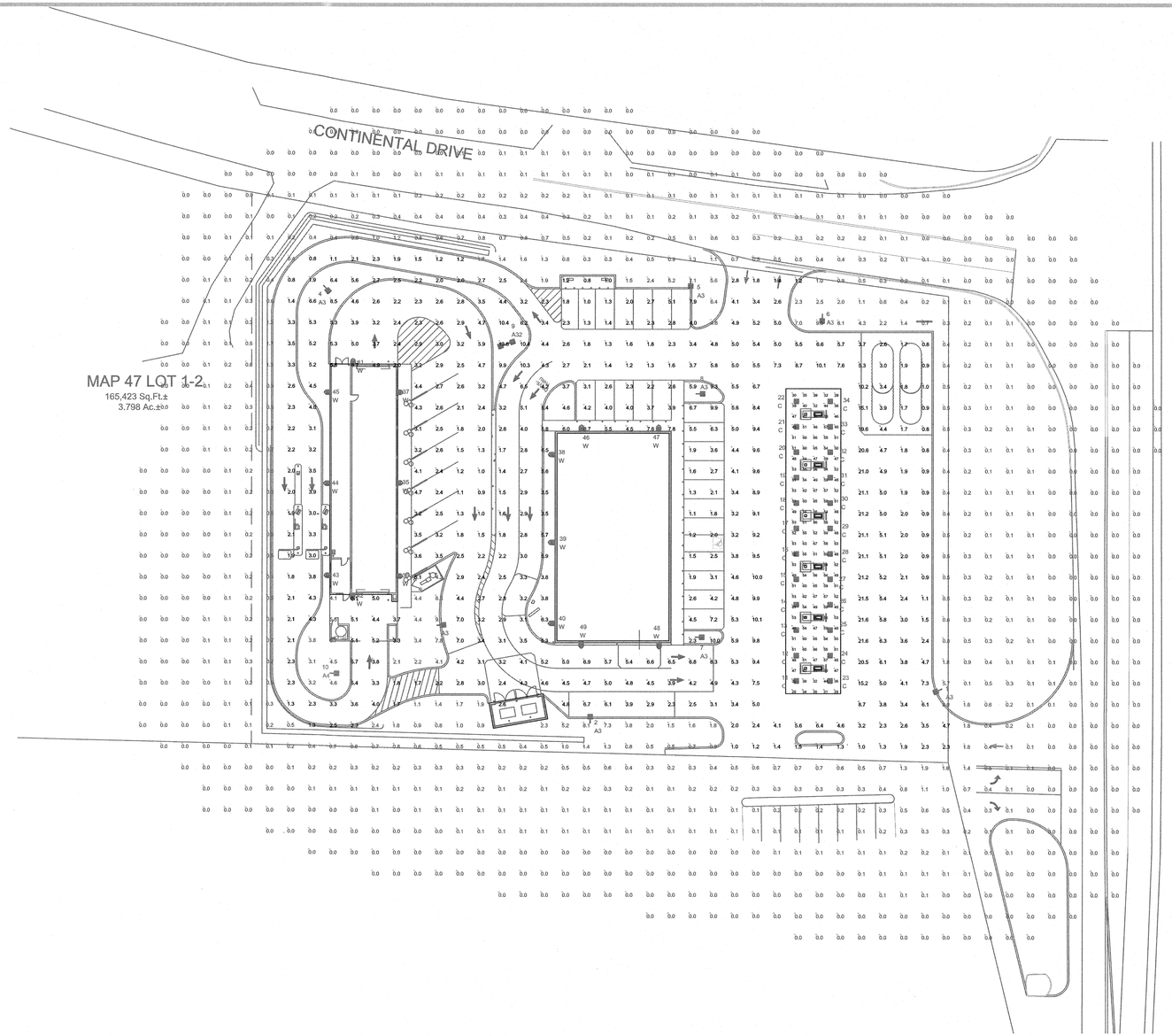

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A3	17
2	A3	17
3	A3	17
4	A3	17
5	A3	17
6	A3	17
7	A3	17
8	A3	17
9	A32	17
10	A4	17
11	C	15
12	C	15
13	C	15
14	C	15
15	C	15
16	C	15
17	C	15
18	C	15
19	C	15
20	C	15
21	C	15
22	C	15
23	C	15
24	C	15
25	C	15
26	C	15
27	C	15
28	C	15
29	C	15
30	C	15
31	C	15
32	C	15
33	C	15
34	C	15
35	W	12
36	W	12
37	W	12
38	W	12
39	W	12
40	W	12
41	W	12
42	W	12
43	W	12
44	W	12
45	W	12
46	W	12
47	W	12
48	W	12
49	W	12

THIS SITE IS LOCATED IN A REGION WHERE
LIGHTING IS REGULATED BY LOCAL ORDINANCES

NOTE:
- ALL AREA LIGHTS ON NEW 15 FT. POLE MOUNTED ON 2 FT. CONCRETE BASE

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PAVED AREA	4.28	21.6	0.8	5.35	27.00
UNDEFINED	0.36	9.5	0.0	N.A.	N.A.
UNDER CANOPY	50.86	67	29	1.75	2.31

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	8	A3	SINGLE	11175	1.030	B2-U0-G2	72	576	Cree Lighting	OSQ-ML-B-XX-XX + OSQM-B-11L-57K7-3M-UL-NM-XX
	1	A32	BACK-BACK	11175	1.030	B2-U0-G2	72	144	Cree Lighting	OSQ-ML-B-XX-XX + OSQM-B-11L-57K7-3M-UL-NM-XX
	1	A4	SINGLE	11174	1.030	B2-U0-G2	72	72	Cree Inc	OSQ-ML-B-XX-XX + OSQM-B-11L-57K7-4M-UL-NM-XX
	24	C	SINGLE	13251	1.030	B3-U0-G1	134	3216	CREE, INC.	CAN-304-SL-RS-06-E-UL-XX-700-57K
	15	W	SINGLE	4270	1.030	B1-U0-G1	31	465	Cree Inc	XSPW-B-WM-3ME-4L-57K-UL-XX

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513-574-9500 | redleonard.com

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SCALE: 1" = 30'
LAYOUT BY: JSG
DWG SIZE: D
DATE: 4/9/21

PROJECT NAME:
NOURIA ENERGY
EXTER, NH
DRAWING NUMBER:
RL-7312-S1

nouria