PROPOSED SITE IMPROVEMENT PLANS

for

Assessors Map 55 Lot 94

88 Worcester Street

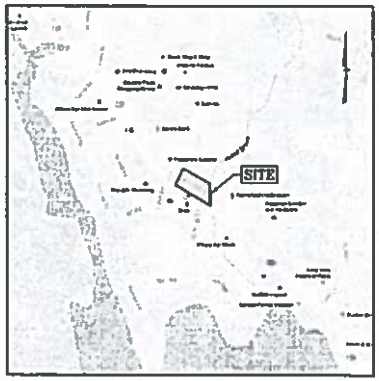
Grafton, Massachusetts

Prepared for:

Petrogas Group New England, Inc.

168 North Main Street

Andover, Massachusetts 01810



LOCUS PLAN

NOT TO SCALE

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7. EROSION AND SEDIMENT CONTROL PLAN
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11. DETAIL SHEET

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2 OF 2. LIGHTING DETAILS (RL-4770-S1-R1)
1 OF 2. BUILDING ELEVATIONS (A101)
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1 OF 1. SIGHT DISTANCE PLAN

NO	DESCRIPTION	BY	DATE
3	REVISE SHEETS 1-11		12/28/17
2	REVISE SHEET 2		11/13/17
1	REVISE SHEETS 2 & 4		11/8/17

REVISIONS

TITLE SHEET

ASSESSORS MAP 55 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

APPROVED BY THE GRAFTON, MA PLANNING BOARD ON _____

CERTIFIED BY: _____

MHF Design Consultants, Inc.

SCALE: NTS	DATE: NOVEMBER 7, 2017	
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO: 408818

RECEIVED

JAN - 3 2018

PLANNING BOARD
GRAFTON, MA

EXHIBIT 21

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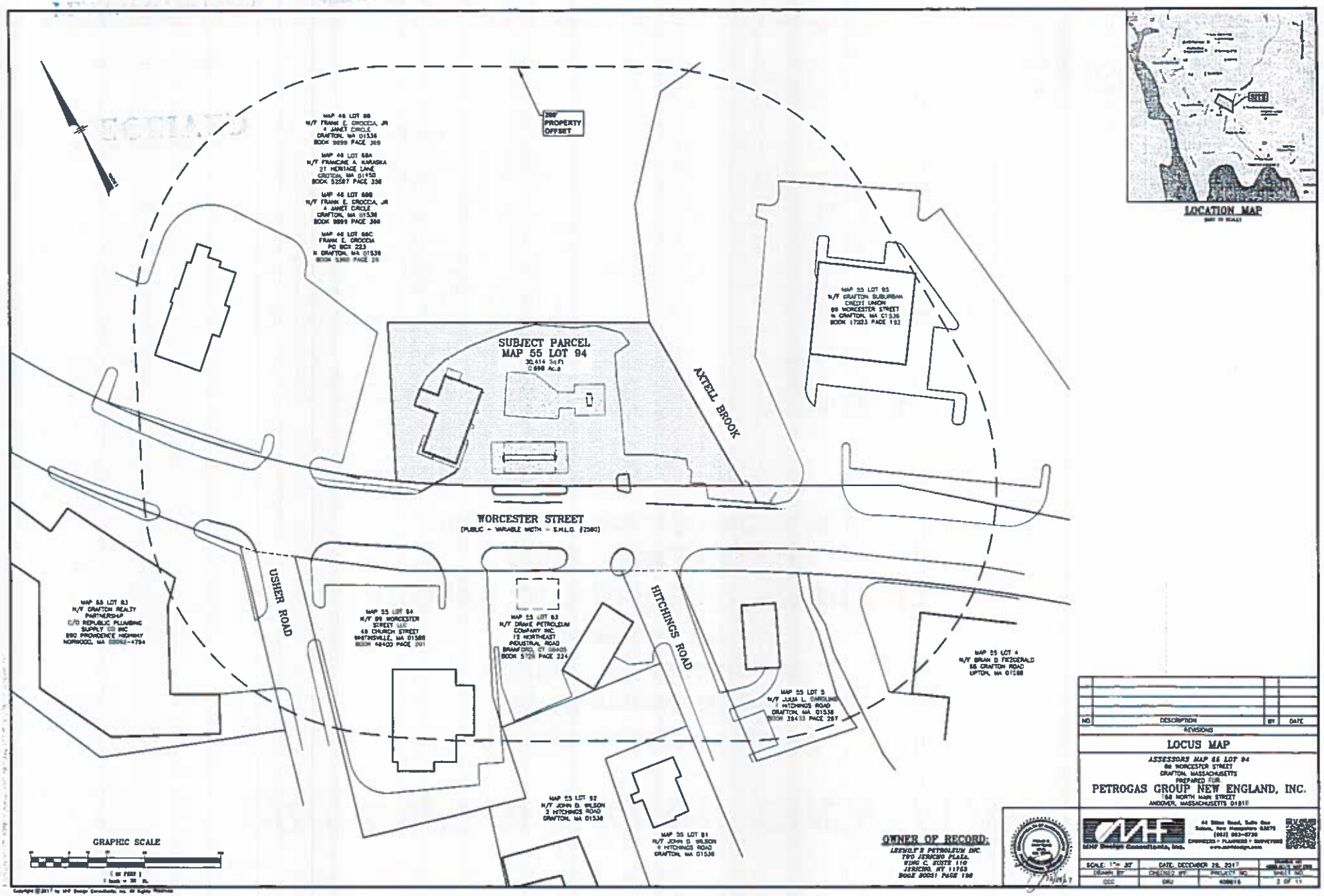


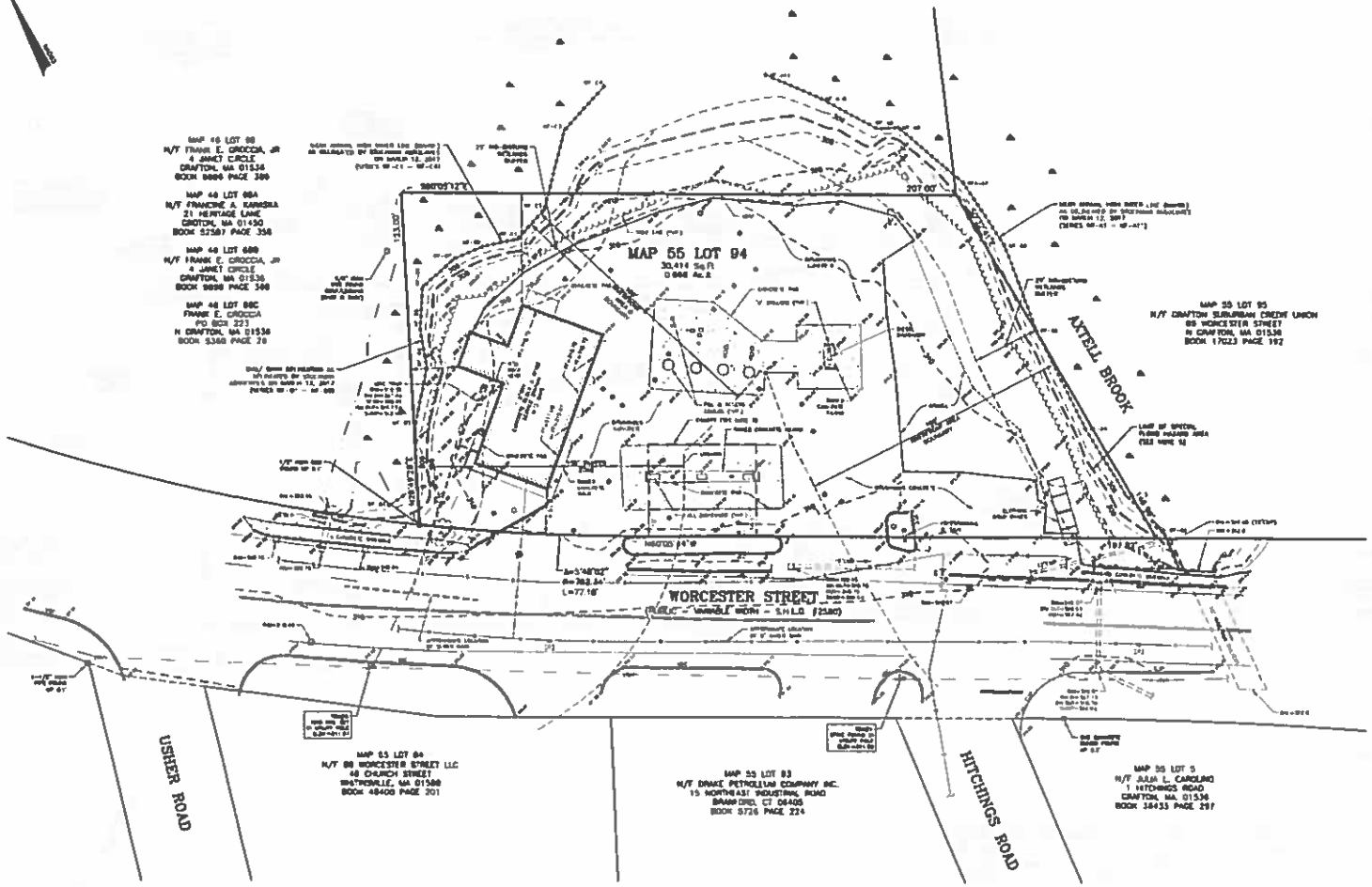
LOCATION MAP
SITE
200' PROPERTY OFFSET
SUBJECT PARCEL
MAP 55 LOT 94
30,414 Sq.Ft.
0.698 Ac.±
AXTELL BROOK
WORCESTER STREET
(PUBLIC - VARIABLE WIDTH - S.H.L.O. #2580)
USHER ROAD
HITCHINGS ROAD
MAP 55 LOT 93
N/F GRAFTON SUBURBAN CREDIT UNION
89 WORCESTER STREET
N GRAFTON, MA 01536
BOOK 17023 PAGE 192
MAP 55 LOT 94
N/F 89 WORCESTER STREET LLC
49 CHURCH STREET
WHITINSVILLE, MA 01588
BOOK 48400 PAGE 201
MAP 55 LOT 93
N/F DRAKE PETROLEUM COMPANY INC.
15 NORTHEAST INDUSTRIAL ROAD
BRANFORD, CT 06405
BOOK 5726 PAGE 224
MAP 55 LOT 5
N/F JULIA L. CAROLINO
1 HITCHINGS ROAD
GRAFTON, MA 01536
BOOK 39433 PAGE 297
MAP 55 LOT 4
N/F BRIAN D FITZGERALD
68 GRAFTON ROAD
UPTON, MA 01568
MAP 55 LOT 92
N/F JOHN D. WILSON
2 HITCHINGS ROAD
GRAFTON, MA 01536
MAP 55 LOT 91
N/F JOHN D. WILSON
4 HITCHINGS ROAD
GRAFTON, MA 01536
MAP 55 LOT 83
N/F GRAFTON REALTY PARTNERSHIP
C/O REPUBLIC PLUMBING SUPPLY CO INC
890 PROVIDENCE HIGHWAY
NORWOOD, MA 02062-4794
GRAPHIC SCALE
OWNER OF RECORD:
LEEMILT'S PETROLEUM INC.
TWO JERICHO PLAZA
WING C, SUITE 110
JERICHO, NY 11753
BOOK 30031 PAGE 198
NO. DESCRIPTION BY DATE
REVISIONS
LOCUS MAP
ASSESSORS MAP 55 LOT 94
89 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR
PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810
MHF Design Consultants, Inc.
SCALE: 1"= 30'
DATE: DECEMBER 29, 2017
DRAWN BY
CHECKED BY
PROJECT NO.
SHEET NO.
CCC
DRJ
2 OF 11

PLAN REFERENCE:

1) WORCESTER DISTRICT REGISTRY OF DEEDS (W.D.R.D.) PLAN BOOK 41 PLAN 14
2) W.D.R.D. PLAN BOOK 147 PLAN 119
3) W.D.R.D. PLAN BOOK 182 PLAN 25
4) W.D.R.D. PLAN BOOK 151 PLAN 46
5) W.D.R.D. PLAN BOOK 182 PLAN 25
6) W.D.R.D. PLAN BOOK 246 PLAN 23
7) W.D.R.D. PLAN BOOK 327 PLAN 42
8) W.D.R.D. PLAN BOOK 539 PLAN 100
9) W.D.R.D. PLAN BOOK 722 PLAN 97
10) W.D.R.D. PLAN BOOK 736 PLAN 119
11) STATE HIGHWAY LAYOUT (S.H.L.O.) #1388
12) S.H.L.O. #2580

LOCATION MAP

(NOT TO SCALE)



NOTES:

1) ZONE: COMMUNITY BUSINESS (CB) DISTRICT
   MIN. LOT SIZE: 40,000 Sq.Ft
   MIN. LOT FRONTAGE: 140 FT.
   SETBACKS:
   FRONT 40 FT
   SIDE 15 FT.
   REAR 15 FT.
   REFER TO THE TOWN OF GRAFTON ZONING ORDINANCE FOR VERIFICATION, ADDITIONAL RESTRICTIONS AND PERMITTED USES.
2) LOCATION OF UNDERGROUND UTILITIES IS APPROXIMATE ONLY. ADDITIONAL UNDERGROUND UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED.
3) ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON MAY 17, 2017 CURB ELEVATIONS SHOWN ARE AT THE "TOE" OF CURB. CURBS ARE 0.50'± HIGH.
4) HORIZONTAL DATUM IS BASED ON NAD83 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON MAY 17, 2017
5) A PORTION OF MAP 55 LOT 94 IS LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) WITH A BASE FLOOD ELEVATION OF 307.1 (NAVD88) PER FLOOD INSURANCE RATE MAP NUMBER 25027C0629E WITH AN EFFECTIVE DATE OF JULY 4, 2011 AND THE FLOOD INSURANCE STUDY OF WORCESTER COUNTY REVISED JULY 16, 2014 (FLOOD PROFILE 10P).
6) SEE BOOK 19733 PAGE 380 FOR VARIANCE GRANTED TO ALLOW THE CONSTRUCTION OF A CANOPY.
7) SEE BOOK 10029 PAGE 37 FOR VARIANCE GRANTING THE CONSTRUCTION OF A SIGN WHOSE DIMENSIONS ARE 8'-2-1/2" WIDE X 3'-7" HIGH TO BE ERECTED AND CHANGED.

CERTIFICATIONS:

1) I CERTIFY THAT THIS SURVEY PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIPS AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE WAYS ALREADY ESTABLISHED, THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
2) I CERTIFY THAT THIS SURVEY AND PLAN CONFORMS TO THE ETHICAL, PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.
3) I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

DAVID W. JORDAN, P.L.S. — 11-29-17 DATE

NO.	DESCRIPTION	BY	DATE
2	MISC. REVISIONS	JAC	12/28/17
1	ADD CANOPY SETBACKS	PWM	11/8/17

REVISIONS

EXISTING CONDITIONS PLAN

ASSESSORS MAP 55 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
160 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

LEGEND

- VERTICAL BITUMINOUS CURB
- VERTICAL CONCRETE CURB
- VERTICAL GRANITE CURB
- OVERHEAD SERVICE WIRES
- SINGLE SOLID WHITE LINE
- WATER LINE
- GAS LINE
- WETLAND LINE
- CONTOUR ELEVATION
- CHAIN LINK FENCE
- UTILITY POLE
- DRAIN MANHOLE
- SEWER MANHOLE
- GAS METER
- SPOT ELEVATION
- BOLLARD
- SIGN
- OBSERVATION WELL
- TREE

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

OWNER OF RECORD:

LEYSELL & PETROLEUM INC.
TWO JERICHO PLAZA
WING C, SUITE 110
JERICHO, NY 11753
DEED 30031 PAGE 198

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44 Milton Road, Suite One
Rochester, New Hampshire 03868
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www.nhfdesign.com

SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		DRAWING NO.
DRAWN BY:	CHECKED BY:	PROJECT NO	SHEET NO
JAC	DWJ	408816	3 OF 11

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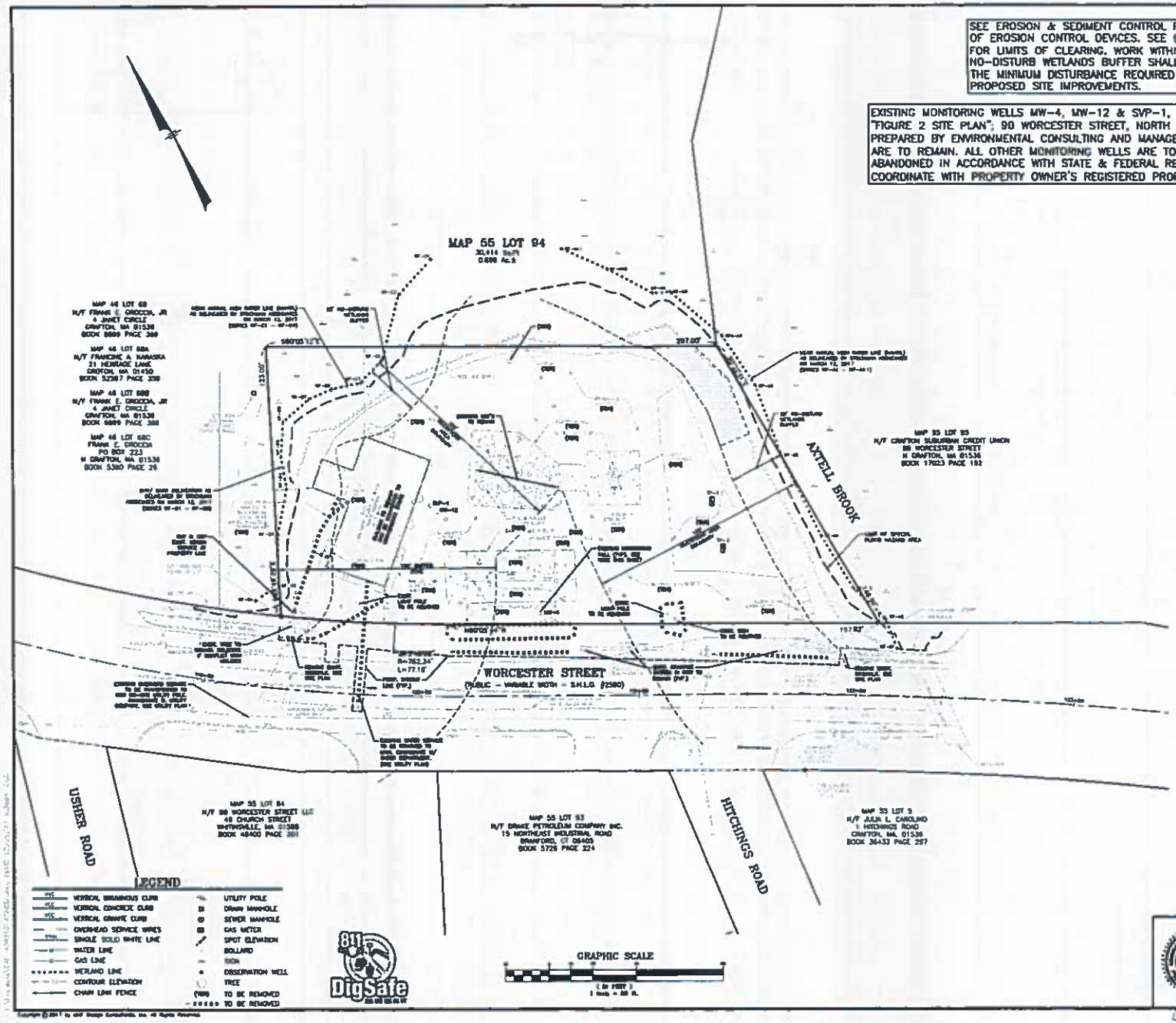
SEE EROSION & SEDIMENT CONTROL PLAN FOR LOCATION OF EROSION CONTROL DEVICES. SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING. WORK WITHIN THE 25' NO-DISTURB WETLANDS BUFFER SHALL BE LIMITED TO THE MINIMUM DISTURBANCE REQUIRED TO COMPLETE THE PROPOSED SITE IMPROVEMENTS.

EXISTING MONITORING WELLS MW-4, MW-12 & SVP-1, (AS IDENTIFIED ON "FIGURE 2 SITE PLAN"; 90 WORCESTER STREET, NORTH GRAFTON, MA; PREPARED BY ENVIRONMENTAL CONSULTING AND MANAGEMENT SERVICES) ARE TO REMAIN. ALL OTHER MONITORING WELLS ARE TO BE REMOVED/ ABANDONED IN ACCORDANCE WITH STATE & FEDERAL REGULATIONS. COORDINATE WITH PROPERTY OWNER'S REGISTERED PROFESSIONAL.



LOCATION MAP

NOTES:

1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE TOWN OF GRAFTON PRIOR TO COMMENCEMENT OF WORK. ALL ENGINEERING 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 PROJECT & 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 TO ALL DETAILS.

5) SAWCUT CONCRETE SLABS-ON-GRADE, UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.

6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT DAMAGE, DRAMAGE 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 PREVENT UNNECESSARY INTERFERENCE WITH CURBS, STREETS, WALKS AND OTHER ADJACENT STRUCTURES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.

9) USE MATERIAL, EQUIPMENT, DISCLOSURES AND OTHER SUPPLIES NECESSARY AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURES 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 DRAIN GRADE AREAS AND WHERE BUILDINGS FROM THE DEMOLITION OF STRUCTURES AND PAVEMENTS, AND THE MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM BURNS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER INCOMPATIBLE MATTER. STONES WHICH WILL NOT BE LARGER THAN 6 INCHES IN DIAMETER, GRADING, FROM DEMOLITION MAY NOT BE USED IN FILL. PRIOR TO PLACEMENT OF FILL MATERIALS, SHOREPINE ALL NECESSARY ACTION IN ORDER TO PREVENT 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 OF PLACEMENT TO AVOID UPWARD SETTLE, GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.

12) REMOVE FROM THE DESIGNATED SITE, AS THE EARLIEST PRACTICABLE TIME, ALL DEBRIS, RUBBISH, UNUSABLE STONE, UNDERGROUND AND COMBUSTIBLE DEBRIS, REMOVED MATERIALS MAY NOT BE BURNED, SHALL NOT BE BURIED ON SITE. DISPOSE OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE DISPOSED IN ACCORDANCE WITH THE PRACTICES AS ADVISED BY THE FIRE DEPARTMENT OR OTHER GOVERNMENT REGULATORY AGENCIES AND DEPARTMENTS.

13) DISCONNECT, CAP OFF AND SEAL ALL UNUSED SERVICE THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION WORK. FOR PROPERLY ALL UNUSED DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY MARKED BEFORE THE COMMENCEMENT OF DEMOLITION TO AVOID THE ACCIDENTAL DISCONNECTION OF ACTIVE SERVICES THAT MAY AFFECT OTHER PARCELS, AND VERIFY ALL APPLICABLE UTILITY COMPANIES TO ENSURE THE COMPLIANCE OF SERVICE.

14) PROTECT EXISTING DRAINAGE STRUCTURES AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE GRADING & DRAINAGE CONTROL PLAN FOR EROSION CONTROL DEVICES.

15) ALL TREES WITHIN DRAINAGE RIGHT-OF-WAYS TO CONTINUE TO GROW AND REMAINING.

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 (800.322.4844) 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL POLICE DEPARTMENT TO WORK OUT TRAFFIC ISSUES.

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

19) EXISTING STRUCTURE SYSTEM TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION. EXISTING DRAINAGE SYSTEM TO BE REUSED/REPLACED AND CONNECTED TO ALL PROPOSED LANDSCAPED AREAS AS NECESSARY.

20) SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING AND GRADING. AFTER CLEARING, GRAD AND STOCKPILE TOP SOIL PER LANDSCAPE PLAN, IF APPLICABLE.

21) THE DEMOLITION OF THE EXISTING SEWER CONNECTION MUST BE SUPERVISED AND INSPECTED BY THE GRAFTON SEWER DEPARTMENT.

22) ALL EXISTING EROSION CONTROLS ALONG SITE PERIMETER SHALL BE REMOVED AS PART OF THIS PROJECT. INSTALL NEW EROSION CONTROLS PER SHEET 7 OF THIS PLAN SET PRIOR TO [illegible] ACTIVITY.

23) THE LIMITS OF WORK FOR THIS PROJECT SHALL BE DEFINED AS THE SILT FENCE LINE AS SHOWN ON SHEET 7 OF THESE PLANS.

NO	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS	[illegible]	12/28/17

REVISIONS

DEMOLITION PLAN

ASSESSORS MAP 55 LOT 94
90 WORCESTER STREET
GRAFTON, MASSACHUSETTS

PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
148 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

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SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		DRAWING NO.
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO: 408016	SHEET NO: 4 OF 11

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SIGN KEY

SIGN ID NUMBER	SIGN	SIZE/REMARKS	NUMBER OF SIGNS
R1-1	STOP	30" x 30" HIGH BRIGHT OR PORT	2
R7-8	R/W	12" x 18" HIGH BRIGHT OR PORT	1
R7-8A	R/W	12" x 6" HIGH BRIGHT OR PORT	1

TABLE OF ZONING REGULATIONS – GRAFTON, MA

ZONE: COMMUNITY BUSINESS (CB) DISTRICT & WATER SUPPLY PROTECTION (WSP) OVERLAY DISTRICT

DESCRIPTION	REQUIRED	EXISTING	PROVIDED
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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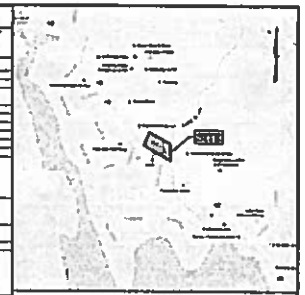

LOCATION MAP

(NOT TO SCALE)

NOTES:

1) [illegible]
2) [illegible]
3) [illegible]
4) [illegible]
5) [illegible]
6) [illegible]
7) [illegible]
8) [illegible]
9) [illegible]
10) [illegible]
11) [illegible]
12) [illegible]
13) [illegible]
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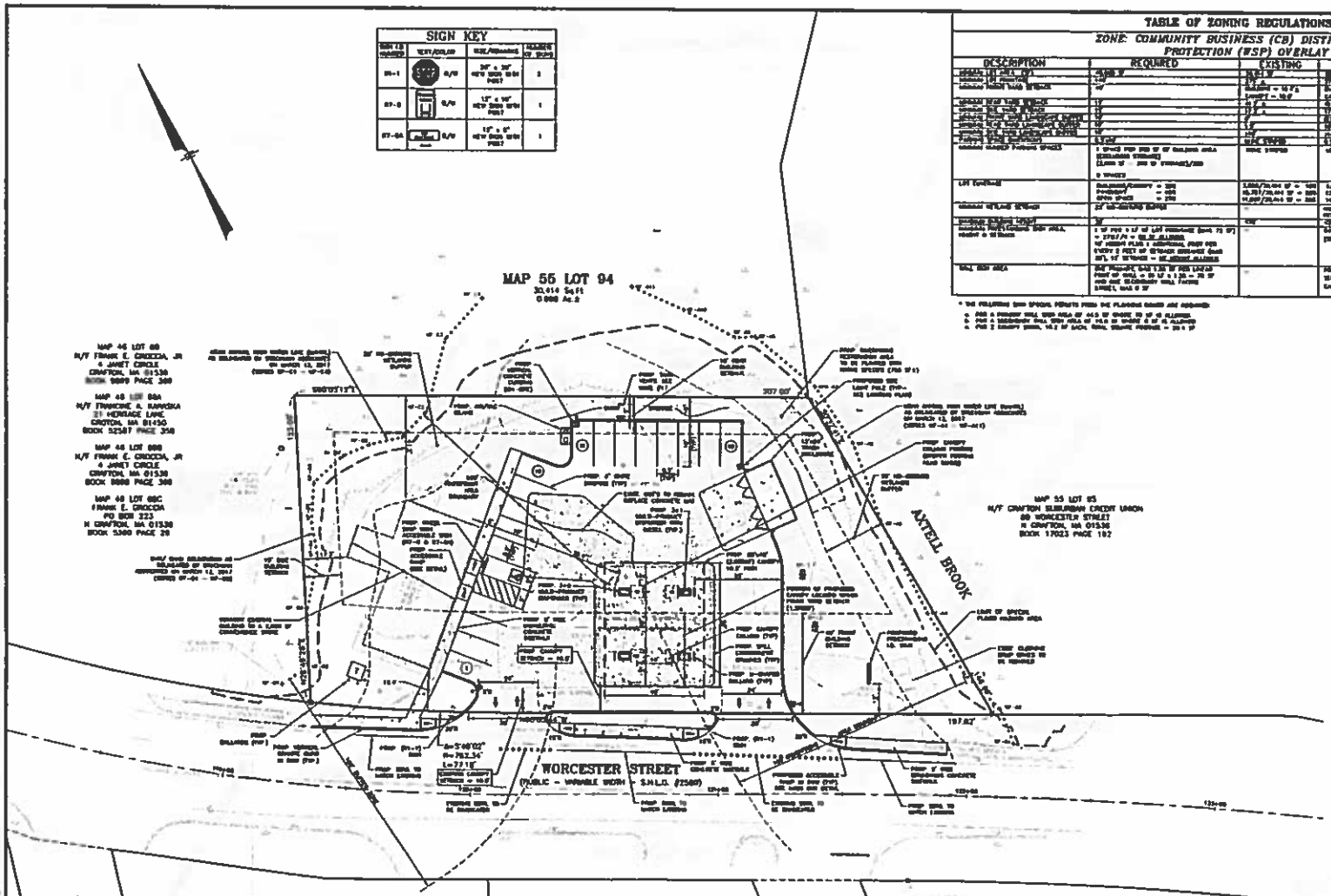

LEGEND

- VERTICAL BITUMINOUS CURB
- VERTICAL CONCRETE CURB
- VERTICAL GRANITE CURB
- OVERHEAD SERVICE WIRES
- SINGLE SOLID WHITE LINE
- WATER LINE
- GAS LINE
- WETLAND LINE
- CONTOUR ELEVATION
- CHAIN LINK FENCE
- UTILITY POLE
- DRAIN MANHOLE
- SEWER MANHOLE
- GAS METER
- SPOT ELEVATION
- BOLLARD
- SIGN
- OBSERVATION WELL
- TREE
- NUMBER OF PARKING SPACES
- PROP. VERTICAL GRANITE CURB

811 DigSafe

GRAPHIC SCALE

1 in = 20 ft.

NO	DESCRIPTION	BY	DATE
3	REVISE PER REVIEW COMMENTS	PRM	12/28/17
2	REVISE EXISTING CANOPY SETBACK	PRM	11/13/17
1	REVISE EXISTING CANOPY SETBACK	PRM	11/3/17

REVISIONS

SITE PLAN

ASSESSORS MAP 55 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS

PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.

100 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

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Salem, New Hampshire 03079
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SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		Drawing No.
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO: 408610	SHEET NO: 3 OF 11

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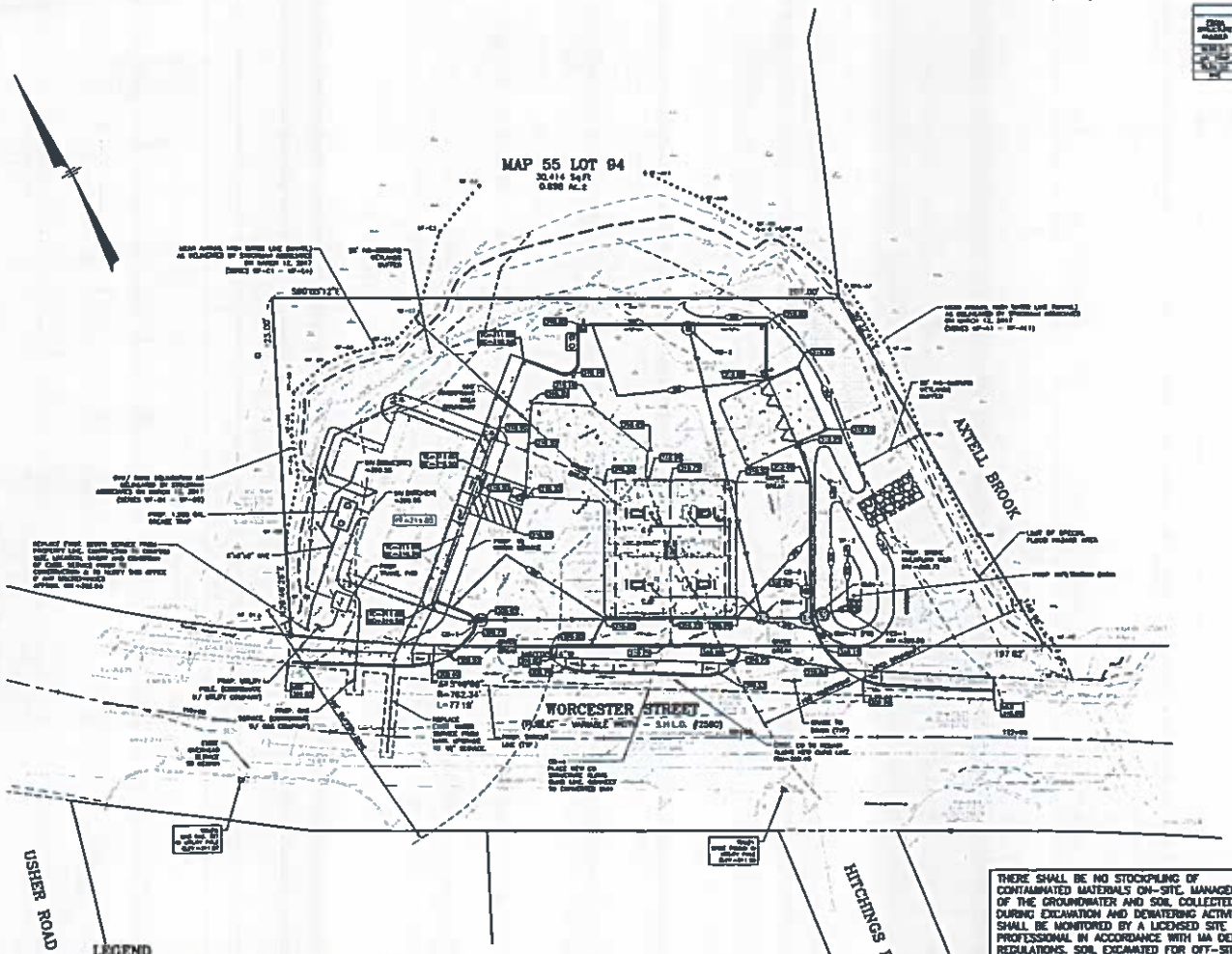

THERE SHALL BE NO STOCKPILING OF CONTAMINATED MATERIALS ON-SITE. MANAGEMENT OF THE GROUNDWATER AND SOIL COLLECTED DURING EXCAVATION AND DEWATERING ACTIVITIES SHALL BE MONITORED BY A LICENSED SITE PROFESSIONAL IN ACCORDANCE WITH MA DEP REGULATIONS. SOIL EXCAVATED FOR OFF-SITE DISPOSAL OR RECYCLING IS NOT TO BE TEMPORARILY STORED ON-SITE AND ANY GROUNDWATER COLLECTED IS TO BE PUMPED TO A FRAC TANK FOR OFF-SITE DISPOSAL.

LEGEND

- VERTICAL BITUMINOUS CURB
- VERTICAL CONCRETE CURB
- VERTICAL GRANITE CURB
- OVERHEAD SERVICE WIRES
- SINGLE SOLID WHITE LINE
- WATER LINE
- GAS LINE
- WETLAND LINE
- CONTOUR ELEVATION
- CHAIN LINK FENCE
- UTILITY POLE
- DRAIN MANHOLE
- SEWER MANHOLE
- GAS METER
- SPOT ELEVATION
- BOLLARD
- SIGN
- OBSERVATION WELL
- TREE
- PROP. GATE VALVE
- PROP. CLEANOUT
- PROP. CATCH BASIN
- PROP. DRAIN MANHOLE
- PROP. SEWER MANHOLE
- MEET EXISTING GRADE
- PROP. SPOT ELEVATION
- PROP. CONTOUR ELEVATION
- PROP. SILT FENCE

GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

DIGSAFE

LOCATION MAP

NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE EMBEDDED HIGH-DENSITY POLYETHYLENE PIPE WITH SMOOTH JOINTS, SUCH AS HDPE, SADDLE WATCHER AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN.
2) ALL SEWER AND SANITARY SEWER PIPE SHALL BE 8" PVC(SDR-35) EXCEPT WHEN 10 FEET OF A BUILDING FOUNDATION PLACE CAST IRON PIPE SHALL BE USED, AND SLOPE=1.0%.
3) ALL SANITARY SEWER PIPE SHALL BE PVC (SDR-35) UNLESS OTHERWISE NOTED.
4) ALL WATER PIPE SHALL BE TYPE "K" COPPER.
5) ELEVATIONS ARE BASED ON NAVD 1988 DATUM.
6) ALL PROPOSED ELEVATIONS AS SHOWN ARE BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
7) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE LOCAL AUTHORITIES AND THE ENGINEER PRIOR TO INSTALLATION.
8) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE SEWER ENGINEER OF ANY DISCREPANCIES. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT POINT OF CONNECTION AND PROCEEDED UP GRADIENT. PROPOSED INVERT POINTS (ENGINEERED) FOR LARGER UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY SLOPE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
9) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
10) ALL SEWER CONSTRUCTION CONFORM TO DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
11) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG-SAFE (811) PRIOR TO COMMENCING ANY EXCAVATION.
12) THIS SITE WILL NOT REQUIRE A NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION SINCE THE DISTURBANCE DOES NOT EXCEED ONE ACRE (ACTUAL DISTURBANCE = 30,500 SF).
13) ALL SITE WORK, AND TEMPORARY CONSTRUCTION DRIVE IMPROVEMENTS, ACCEPTABLE TO MUNICIPAL CRAFTSMEN DEPARTMENT OF PUBLIC WORKS, SHALL BE CONTROLLED DURING DEVELOPMENT WITHIN THE PUBLIC ROAD-OF-WAY.
14) 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 NO PARKING SPACES AND ACCESS AISLES CANNOT EXCEED 2% SLOPE IN ANY DIRECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY ENGINEER OF ANY DISCREPANCIES.
15) CONTRACTOR TO FIELD ADJUST GRADES FOR THE TRAN PAD TO SHED WATER.
16) ALL PVC DATA IS CALCULATED TO CORNER OF STRUCTURE, TYP.
17) ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS AND OUTLETS EQUIPPED WITH "SNAP" OIL HOODS OR APPROVED EQUAL.
18) ANY AND ALL SEWER WORK MUST BE CONDUCTED BY A CONTRACTOR THAT IS A LICENSED SEWER LAYER BY THE SEWER DEPARTMENT. AN APPLICATION AND REQUIREMENTS MAY BE OBTAINED AT THE OFFICE OF THE BOARD OF SEWER COMMISSIONERS LOCATED AT THE TOWN HALL, 30 PROVIDENCE ROAD.
19) THE CHERRY ARC TRAP MUST BE CLEANED AND REPAIRED WITH INFLOW AND OUTFLOW LINES TO BE COPPER. THIS WORK MUST ALSO BE WITNESSED AND INSPECTED BY THE SEWER DEPARTMENT.
20) THE REMOVAL OF THE EXISTING SEWER CONNECTION MUST BE WITNESSED AND INSPECTED BY THE SEWER DEPARTMENT.
21) THE NEW SEWER CONNECTION MUST BE WITNESSED AND INSPECTED BY THE SEWER DEPARTMENT.
22) 24 HOURS MUST BE GIVEN TO THE SEWER DEPARTMENT PRIOR TO BEGINNING ANY SEWER WORK.
23) THE LIMITS OF WORK FOR THIS PROJECT SHALL BE REMOVED AS THE SILT FENCE LINE AS SHOWN ON SHEET 7 OF THESE PLANS.

NO	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS		12/20/17

REVISIONS

GRADING, DRAINAGE & UTILITIES PLAN

ASSESSORS MAP 55 LOT 84
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS

PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

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SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO: 408016	SHEET NO: 6 OF 11

12/20/17

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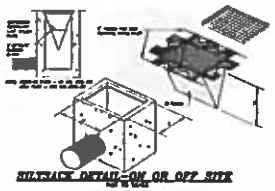
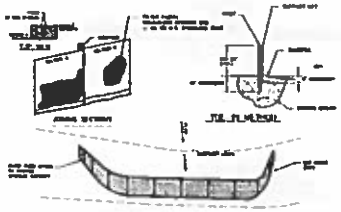
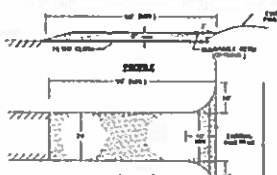
STONE INLET PROTECTION DETAIL-ON SITE



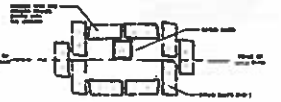
SILTSACK DETAIL-ON OR OFF SITE



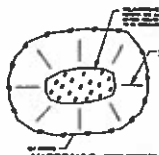
SEDIMENT CONTROL FENCE



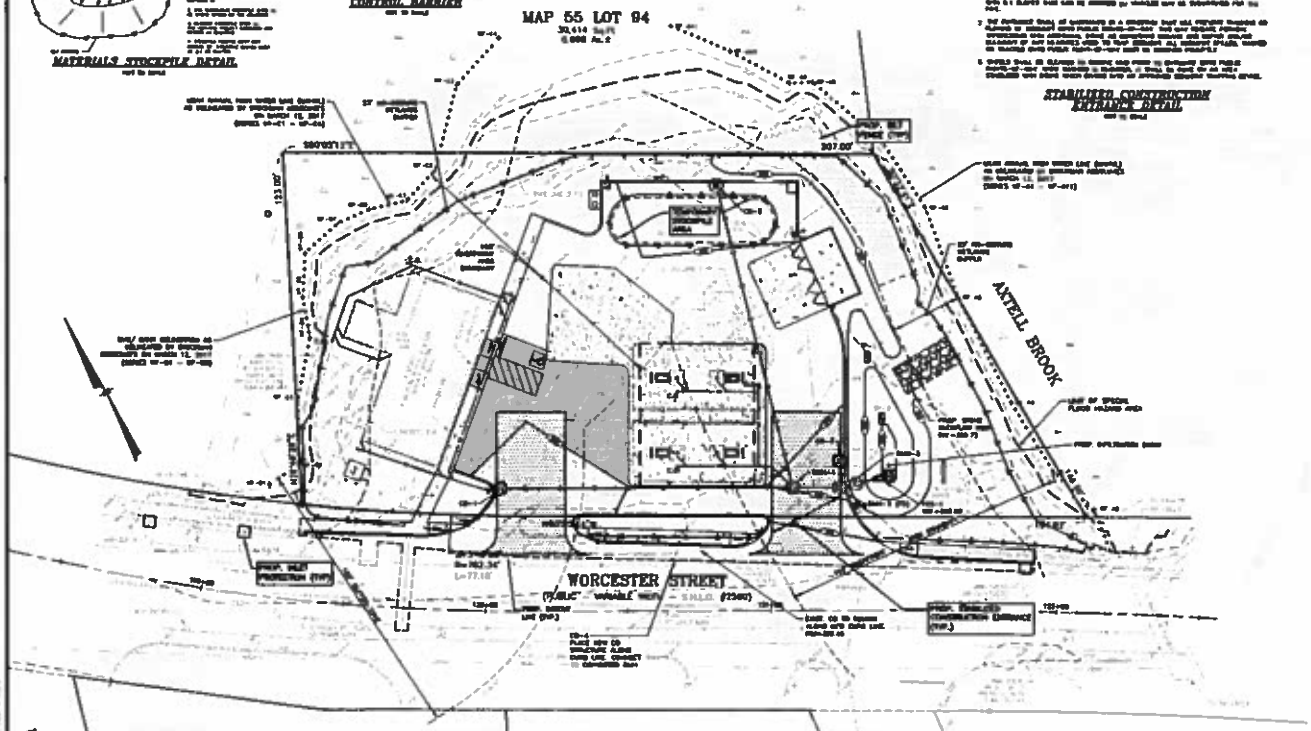
STABILIZED CONSTRUCTION ENTRANCE DETAIL



LOW POINT SEDIMENTATION CONTROL BARRIER



MATERIALS STOCKPILE DETAIL



CONSTRUCTION SEQUENCE:

1) INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
2) CUT AND STRIP AREAS OF PROPOSED CONSTRUCTION.
3) REMOVE AND STOCKPILE ANY EXISTING TOPSOIL SUITABLE FOR RE-USE. STOCKPILE SHALL BE SEEDED TO PREVENT EROSION.
4) CONSTRUCT CLOSED DRAINAGE SYSTEM. PROTECT DRAINAGE INLETS AND OPEN DRAINS WITH SEDIMENTATION BARRIERS.
5) PERFORM SITE GRADING, PLACING SILTATION FENCES AS REQUIRED TO CONTROL THE SEDIMENT.
6) INSTALL UNDERGROUND UTILITIES.
7) SEEDING TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER EACH CONSTRUCTION.
8) DAILY, OR AS REQUIRED, SWEEPING, REPAIRS, AND / OR REMOVAL REPLACEMENT TEMPORARY SEDIMENT BARRIERS, SILTSACKS, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
9) BEGIN EXCAVATION FOR AND CONSTRUCTION OF BUILDINGS.
10) FINISH PAVING ALL DRIVES AND PARKING AREAS.
11) COMPLETE PERMANENT SEEDING AND LANDSCAPING.
12) AFTER GRASS HAS BEEN FULLY ESTABLISHED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

TEMPORARY EROSION CONTROL MEASURES:

1) SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. DIVERTING AND TRAPS ARE TO BE INSPECTED AND CLEANED WHEN ALL SUPPLY HAS A MINIMUM DEPTH OF 18INCHES.
2) SILTSACK SHALL BE MADE OF ACCEPTABLE MATERIALS SEWN, FREE FROM PERVIOUS SEAMS OR WEAK SPOTS, AND SHALL BE DEEP AND SAFE THAT SHALL BE USED.
3) FILL MATERIAL SHALL BE FREE FROM STRAPS, ROOTS, STONES, ETC.
4) STOCKPILED MATERIALS SHALL BE PLACED ONLY IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY TEMPORARY FENCE AND SEEDED TO PREVENT EROSION. FENCE SEDIMENT SHALL REMOVE WEEDS, ALL WEEDS, AND GRASS PLACED AND REMOVED OFF SITE.
5) ALL STOCKPILED AREAS SHALL BE SEEDED AND MULCHED. A MINIMUM OF 6 INCHES OF LOAM SHALL BE SPREADED OVER AND LESS THAN ONE PERCENT OF SEED PER 50 PERCENT WORK OF AREA.
6) SEED MIX SHALL BE (SEED TYPES) OF AND FERTILIZER (FERTILIZER, FERTILIZER, FERTILIZER, FERTILIZER, FERTILIZER, FERTILIZER).
7) AFTER ALL GROUNDED AREAS HAVE BEEN ESTABLISHED THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
8) FOLD SEDIMENT AND TRAPPED LEFT OVER TO BE SEPT FLOW OF ALL TRAPS. PROVIDE SEEDING ON A DAILY BASIS OR AS DIRECTED BY THE CITY.
9) ALL CONTROL A PROPOSED CATCH BASIN WITH FILTER SHALL BE PROTECTED WITH SILT PROTECTION – SEE DETAIL.
10) ALL REMAINING OPENINGS MUST BECOMES DIRECTLY AND A DRAINAGE FILTER AREA.

OPERATIONS/MAINTENANCE PLAN FOR STORMWATER SYSTEM

CONSTRUCTION PHASE:

THE SITE'S ASSOCIATED WITH THIS PROJECT WILL BE OWNED BY PETROGAS GROUP NEW ENGLAND, INC., WHO WILL BE RESPONSIBLE FOR INSPECTION, OPERATION AND MAINTENANCE.

1) THE CONSTRUCTION OF THE INFILTRATION BASIN PROCEDURE AS SHOWN ON THE SITE PLANS OF MAY DESIGN CONSULTANTS, INC.
2) PRIOR TO CONSTRUCTION, ALL SEDIMENTATION CONTROL DEVICES SHOWN ON THE PLAN ARE TO BE INSTALLED. TO PREVENT SILT DEPOSITS FROM ENTERING THE BASIN DURING CONSTRUCTION, THE CONTRACTOR IS TO SET ALL PLACING AT ALL SLOPES UNDER THE CONTROL OF THE OPERATION OF ANY OPEN DRAINAGE PROCEDURE. SUCH PROCEDURE MEASURES ARE TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS.
3) ALL CONSTRUCTION OF DRAINAGE PROCEDURE IS TO BE INSPECTED BY AN APPROPRIATE AGENT TO VERIFY PERFORMANCE TO THE DESIGN PLAN.
4) THE SEQUENCE OF DRAINAGE CONSTRUCTION SHALL BE AS FOLLOWS:
5) CLEAR, GRUB, EXCAVATE AREAS FOR DETENTION SYSTEMS.
6) INSTALL EARTH BERMS, PIPES AND SUPPLIES.
7) DRAINAGE PROCEDURE ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS. UPON NECESSITY OF TO MAKE SILT-UP IN ANY EARTH BERM SLOPE OR ANY OPEN STRUCTURE, CLEANOUT SHALL BE PERFORMED WITHIN 24 HOURS.
8) ALL EXPOSED SOILS SHALL BE IMMEDIATELY STABILIZED WITH A LAYER OF MULCH HAY.
9) UPON STABILIZATION OF EARTH BERMS, SILT PROTECTION – AS REQUIRED ABOVE – SHALL BE REMOVED AND REMOVED WITH TRUCK FOR PAVING.
10) PRIOR TO CONSTRUCTION OF DETENTION AREAS, ALL DRAINAGE STRUCTURES AND PIPES SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION. DURING CONSTRUCTION OF EARTH SITE PLANNING, ALL DRAINAGE PROCEDURE SHALL BE INSPECTED ON A DAILY BASIS AND CLEANED/REPAIRED IMMEDIATELY UPON DISCOVERY OF SEDIMENT BUILD-UP OR DAMAGE.
11) AFTER PAVING IS INSTALLED, IT SHALL BE SWEPT CLEAN ON A MONTHLY BASIS.
12) INSPECTIONS ARE TO BE PERFORMED AND INFORMATION LOGS FILLED OUT AS DIRECTED BY THE TOWN FROM THE START OF CONSTRUCTION THROUGH FINAL STABILIZATION. THE START OF CONSTRUCTION DATE, THE DATE, MAINTENANCE OF WORK PERFORMED WITH CONSTRUCTION FORM, STABILIZATION DATE FOR VEGETATED AREAS AND STABILIZED AREAS.

POST CONSTRUCTION PHASE:

THE OWNER IS TO BE RESPONSIBLE FOR MAINTENANCE OF ALL DRAINAGE STRUCTURES IN THE PROJECT – INCLUDING OPEN PIPES AND DRAINAGE BASINS. THE FUTURE OWNER IS RESPONSIBLE TO PETROGAS GROUP NEW ENGLAND, INC. AND WILL ULTIMATELY BE RESPONSIBLE FOR COMPLIANCE WITH PLAN.

REGULAR MAINTENANCE IS TO INCLUDE THE FOLLOWING:

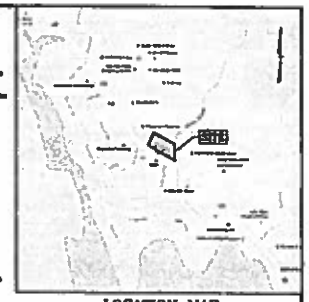
1) INSPECTIONS OF ALL DRAINAGE STRUCTURES AND PIPES SHALL BE MADE ANNUALLY AND AFTER EACH RAINFALL EXCEEDING 1 INCH. ALL DRAINAGE FACILITIES SHALL BE INSPECTED AFTER EACH MAJOR STORM, AND AT MINIMUM ONCE EVERY SIX MONTHS. THE INSPECTION OF SEDIMENT TRAPS, PIPES, ETC., SHALL LOOK FOR EVIDENCE OF THE FOLLOWING CONDITIONS: SILTS, SEDIMENTATION (FROM SILT BASINS OR EARTH BERMS), AND DAMAGED FUNCTION. REPORTS SHALL BE MADE FOR EACH INSPECTION.
2) AFTER INSPECTION, IF ANY OF THE ABOVE CONDITIONS EXIST, THE INSPECTOR SHALL NOTIFY THE DEVELOPER, WHO SHALL IMMEDIATELY ARRANGE FOR ALL NECESSARY REPAIRS AND REMEDIAL MEASURES.
3) PERIODIC MOWING ARE TO BE KEPT CLEAN AS NEEDED (I.E. VISUALLY UNPLEASANT BEFORE BUILD-UP).
4) THE BERM BASINS AND DRAINAGE SYSTEM ARE TO BE INSPECTED EARLY SPRING FOLLOWING SNOW MELTING, FOLLOWING HEAVY RAINS, AND SEDIMENT AFTER INSPECTIONS.
5) ALL DRAINAGE SLOPES SHALL BE INSPECTED EARLY SPRING FOR EROSION, UPON EVIDENCE OF ANY FAILURE (I.E. DRAINAGE BERM AND TRIES SHALL BE PUT IN PLACE AND REPAIRED.
6) DURING THE EARLY MONTHS, ALL SNOW IS TO BE STORED EARLY THAT SUFFICIENT IS CONTROLLED, IN THE EVENT THE AMOUNT OF SNOW EXCEEDS EACH CAPACITY, IT IS TO BE REMOVED OFF-SITE. THE MINIMUM AMOUNT OF SNOW CHEMICALS NEEDED IS TO BE USED.

INFILTRATION BASIN CONSTRUCTION NOTES:

1) DURING CONSTRUCTION, AND EXCESSIVELY COMPACTING SOILS, ENSURE THE INFILTRATION AREAS AND INFILTRATION WILL AVOID THE SPOIL FIELD TO ENSURE SEDIMENT LOADING IS THE TEMPORARY AREA. DIRECT RUNOFF TO THE INFILTRATION BASIN AREA ONLY FROM AREAS THAT ARE STABILIZED. ALWAYS ENSURE SEDIMENTATION PROPERLY ESTABLISHED.
2) TO AVOID COMPACTION OF THE PROPOSED BASINS, WORK FROM THE EDGE OF THE PROPOSED INFILTRATION AREA. NEVER DRIVE HEAVY EQUIPMENT TO THE COLD WORK. THE COLD AND SEDIMENTATION BASINS ARE ONLY PARTLY INSTALLED.
3) PLACE PLANTING SOILS IN 1-FOOT TO 2-FOOT LIFTS AND COMPACTED WITH LIGHT EQUIPMENT, PREFERABLY HAND, THE DESIGN ELEVATION IS REACHED.

THERE SHALL BE NO STOCKPILING OF CONTAMINATED MATERIALS ON-SITE. MANAGEMENT OF THE GROUNDWATER AND SOIL COLLECTED DURING EXCAVATION AND DEWATERING ACTIVITIES SHALL BE MONITORED BY A LICENSED SITE PROFESSIONAL IN ACCORDANCE WITH MA DEP REGULATIONS. SOIL EXCAVATED FOR OFF-SITE DISPOSAL OR RECYCLING IS NOT TO BE TEMPORARILY STORED ON-SITE AND ANY GROUNDWATER COLLECTED IS TO BE PUMPED TO A FRAC TANK FOR OFF-SITE DISPOSAL.

THE PROPOSED SILT FENCE LINE AS SHOWN SHALL IDENTIFY THE LIMITS OF WORK FOR THIS PROJECT



LOCATION MAP

LEGEND

VERTICAL BITUMINOUS CURB	UTILITY POLE		PROP. CLEANOUT
VERTICAL CONCRETE CURB	DRAIN MANHOLE		PROP. CATCH BASIN
VERTICAL GRANITE CURB	SEWER MANHOLE		PROP. DRAIN MANHOLE
OVERHEAD SERVICE WIRES	GAS METER		PROP. SEWER MANHOLE
SINGLE SOLID WHITE LINE	SPOT ELEVATION		MEET EXISTING GRADE
WATER LINE	BOLLARD		PROP. SPOT ELEVATION
GAS LINE	SIGN		PROP. CONTOUR ELEVATION
WETLAND LINE	OBSERVATION WELL		PROP. SILT FENCE
CONTOUR ELEVATION	TREE		
CHAIN LINK FENCE	PROP. GATE VALVE		

GRAPHIC SCALE

NO.	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS	PMW	12/28/17

REVISIONS

EROSION & SEDIMENT CONTROL PLAN

ASSESSORS MAP 55 LOT 94
96 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
158 NORTH MAIN STREET
MIDDLEBORO, MASSACHUSETTS 01818

MDS Design Consultants, Inc.
44 Elm Road, Suite One
Salem, New Hampshire 03079
(603) 893-9718
ENGINEERS • PLANNERS • SURVEYORS
www.mdsdesign.com

SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		SHEET NO.
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408516	7 OF 11

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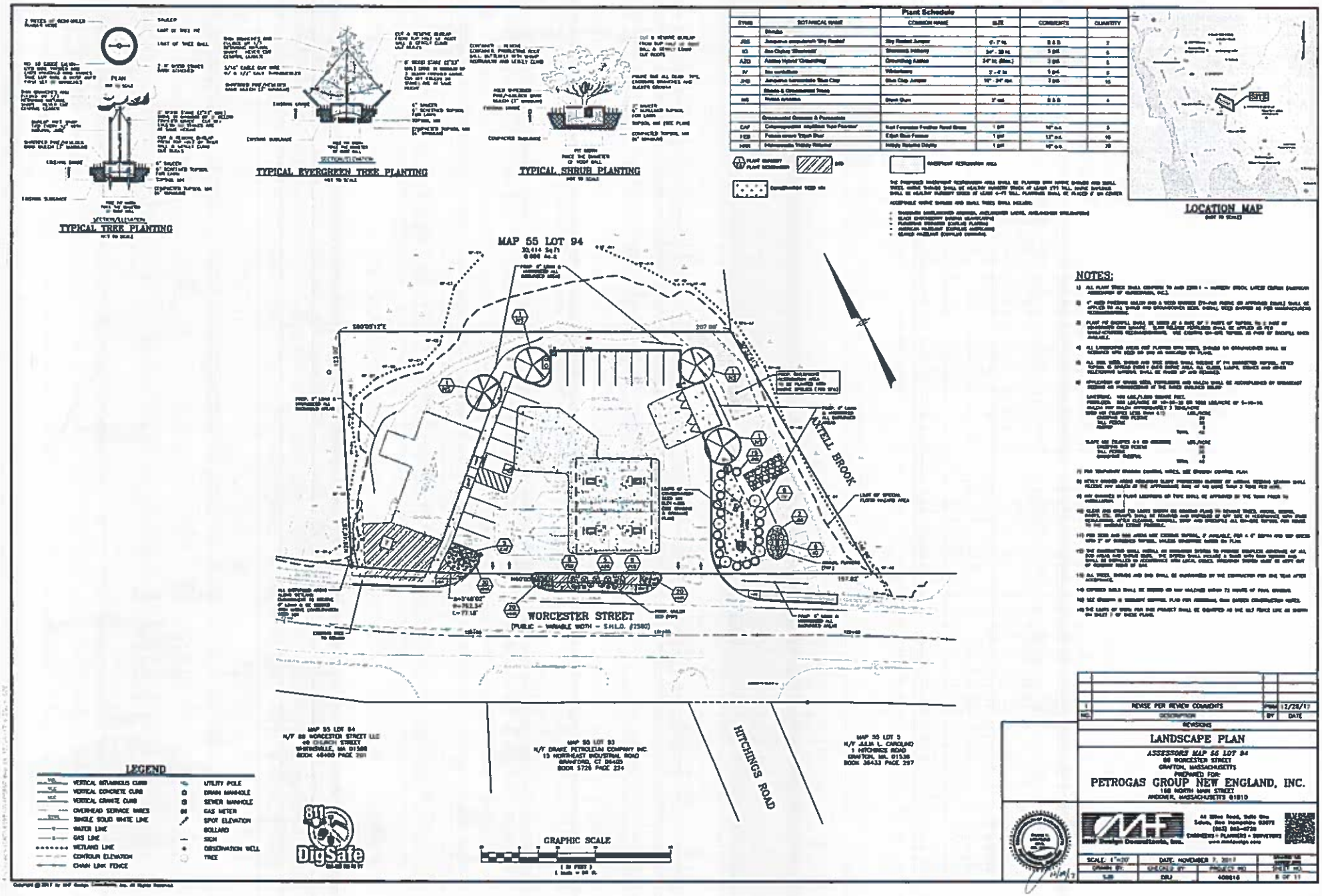

Plant Schedule

SYMB	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS	QUANTITY
	Shrubs				
JSS	Juniperus sabina/chinensis 'Sky Rocket'	Sky Rocket Juniper	6'-7' ht.	B & B	2
IG	Ilex Glabra 'Shamrock'	Shamrock Inkberry	24"-30 ht.	5 gal	6
AZG	Azalea Hybrid 'Girard's Rose'	Girard's Rose Azalea	24" ht. (Min.)	3 gal	6
IV	Ilex verticillata	Winterberry	2'-4' ht	5 gal	6
JCG	Juniperus horizontalis 'Blue Chip'	Blue Chip Juniper	18"-24" out.	2 gal	15
	Shrubs & Ornamental Trees				
SB	Potentilla fruticosa	Shrub Cinq	2' out.	B & B	4
	Groundcover Grasses & Perennials				
CAF	Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass	1 gal	18" o.c.	3
FGB	Fetuca ovina 'Elijah Blue'	Elijah Blue Fescue	1 gal	12" o.c.	46
HSD	Hemerocallis 'Happy Returns'	Happy Returns Daylily	1 gal	18" o.c.	70

PLANT QUANTITY / PLANT DESIGNATION

SOD

CONSERVATION SEED MIX

INVERTFONT RESTORATION AREA

THE PROPOSED INVERTFONT RESTORATION AREA SHALL BE PLANTED WITH NATIVE SHRUBS AND SMALL TREES. NATIVE SHRUBS SHALL BE HEALTHY NURSERY STOCK AT LEAST 2'-3' TALL. NATIVE SHRUBS SHALL BE HEALTHY NURSERY STOCK AT LEAST 4-5' TALL. PLANTINGS SHALL BE PLACED 6' ON CENTER

ACCEPTABLE NATIVE SHRUBS AND SMALL TREES SHALL INCLUDE:

- Serviceberry (AMELANCHIER ARBOREA, AMELANCHIER LAEVIS, AMELANCHIER SPECIATA)
- BLACK CHOKEBERRY (ARONIA MELANOCARPA)
- FLOWERING DOGWOOD (CORNUS FLORIDA)
- AMERICAN HAZELNUT (CORYLUS AMERICANA)
- GRAND HAZELNUT (CORYLUS GRANDA)

NOTES:

1) ALL PLANT TREES SHALL CONFORM TO AND [illegible] – AMERICAN STANDARD FOR NURSERY STOCK, LATEST EDITION (AMERICAN ASSOCIATION OF NURSERYMEN, INC.).

2) 4" MULCH PROVIDED BELOW AND A WOOD SHREDDER (TY-PAR PRODUCT OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS. OVERALL MULCH SHALL BE PER MANUFACTURER RECOMMENDATIONS.

3) PLANT PIT OVERFILL SHALL BE MIXED AT A RATE OF 1 PART OF TOPSOIL TO 1 PART OF SEDIMENTED SAND BEARING. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURER RECOMMENDATIONS. USE CHEMICAL ON-SITE TOPSOIL AS PART OF OVERFILL WHEN AVAILABLE.

4) ALL LANDSCAPED AREAS AND PLANTED BED AREAS, SHRUBS AND GROUNDCOVER SHALL BE SEDIMENTED WITH SEED AND SOD AS INDICATED ON PLANS.

5) ALL BARE ROOTS, SHRUBS AND TREE BEDS SHALL CONSIST OF 6" PULVERIZED TOPSOIL, EXCEPT TOPSOIL IS OPTIONAL FOR ANY SHRUB AREA. ALL GLASS, LAMPS, CANS AND OTHER MALLEABLE MATERIAL SHALL BE PICKED UP AND REMOVED.

6) APPLICATION OF GRASS SEED, FERTILIZER AND MULCH SHALL BE ACCOMPLISHED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AT THE RATES OUTLINED BELOW:

LIMESTONE: 100 LBS./1,000 SQUARE FEET.
FERTILIZER: 500 LBS./ACRE OF 10-20-20 OR THEN LBS./ACRE OF 5-10-10.
MULCH: HAY MULCH APPROXIMATELY 2 TONS/ACRE

SEED MIX (SUPPLIED LESS THAN 4.5%)

	LBS./ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
RYEGRASS	5
TOTAL	45

SLOPE MIX (SUPPLIED 4.5 OR GREATER)

	LBS./ACRE
CREEPING RED FESCUE	20
TALL FESCUE	20
CROWNVETCH (SCARIFIED)	5
TOTAL	45

7) FOR TEMPORARY GRASSED CONTROL MEASURES, SEE EROSION CONTROL PLAN.

8) NEWLY SEEDED AREAS REQUIRING SLOPE STABILIZATION DURING THE NORMAL GROWING SEASON SHALL RECEIVE HAY MULCH AT THE APPROXIMATE RATE OF 90 BALES PER 2 TONS PER ACRE.

9) ANY CHANGES IN PLANT LOCATIONS OR TYPE SHALL BE APPROVED BY THE TOWN PRIOR TO INSTALLATION.

10) CLEAN AND GRADE THE LAWN AREAS AS SHOWN ON PLANS TO REMOVE ROCKS, ROOTS, STUMPS, ETC. STUMPS SHALL BE REMOVED AND REPLACED IF ANY TOPSOIL IS REQUIRED, WITH SAND REPLACEMENT. AFTER CLEANING, SMALL, DEEP AND SHALLOW ALL BARE AREAS TOPSOIL AND SEEDED TO THE ORIGINAL EXISTING PROFILE.

11) FINE SEED AND SOD AREAS ARE SEEDED TOPSOIL, IF AVAILABLE, FOR A 4" DEPTH AND TOP DRESS WITH 2" OF SEDIMENTED TOPSOIL, UNLESS OTHERWISE NOTED ON PLAN.

12) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE WATERING OF ALL SOD AREAS AND SEEDED AREAS. THE WATERING SHALL INCLUDE A TIMER WITH RAIN SENSORS AND SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES. MAINTAIN SEEDED AREAS UNTIL 90 DAYS AFTER OF COMPLETE FINAL OF SOD.

13) ALL SEED, SHRUBS AND SOD SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER ACCEPTANCE.

14) CUTTINGS SHALL BE MADE TO NOT MULCHED WITHIN 72 HOURS OF FINAL GRADING.

15) SEE EROSION & SEDIMENT CONTROL PLAN FOR ADDITIONAL BMPS DURING CONSTRUCTION WORKS.

16) THE LIMITS OF WORK FOR THE PROJECT SHALL BE DEMARCATED BY THE SILT FENCE LINE AS SHOWN ON SHEET 1 OF THESE PLANS.

NO.	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS	PMM	12/28/17

REVISIONS

LANDSCAPE PLAN

ASSESSORS MAP 55 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

MHF Design Consultants, Inc.
44 Elm Road, Suite One
Salem, New Hampshire 03079
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www.mhfdesign.com

SCALE: 1"=20'	DATE: NOVEMBER 3, 2017	
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408010

SHEET 9 OF 11

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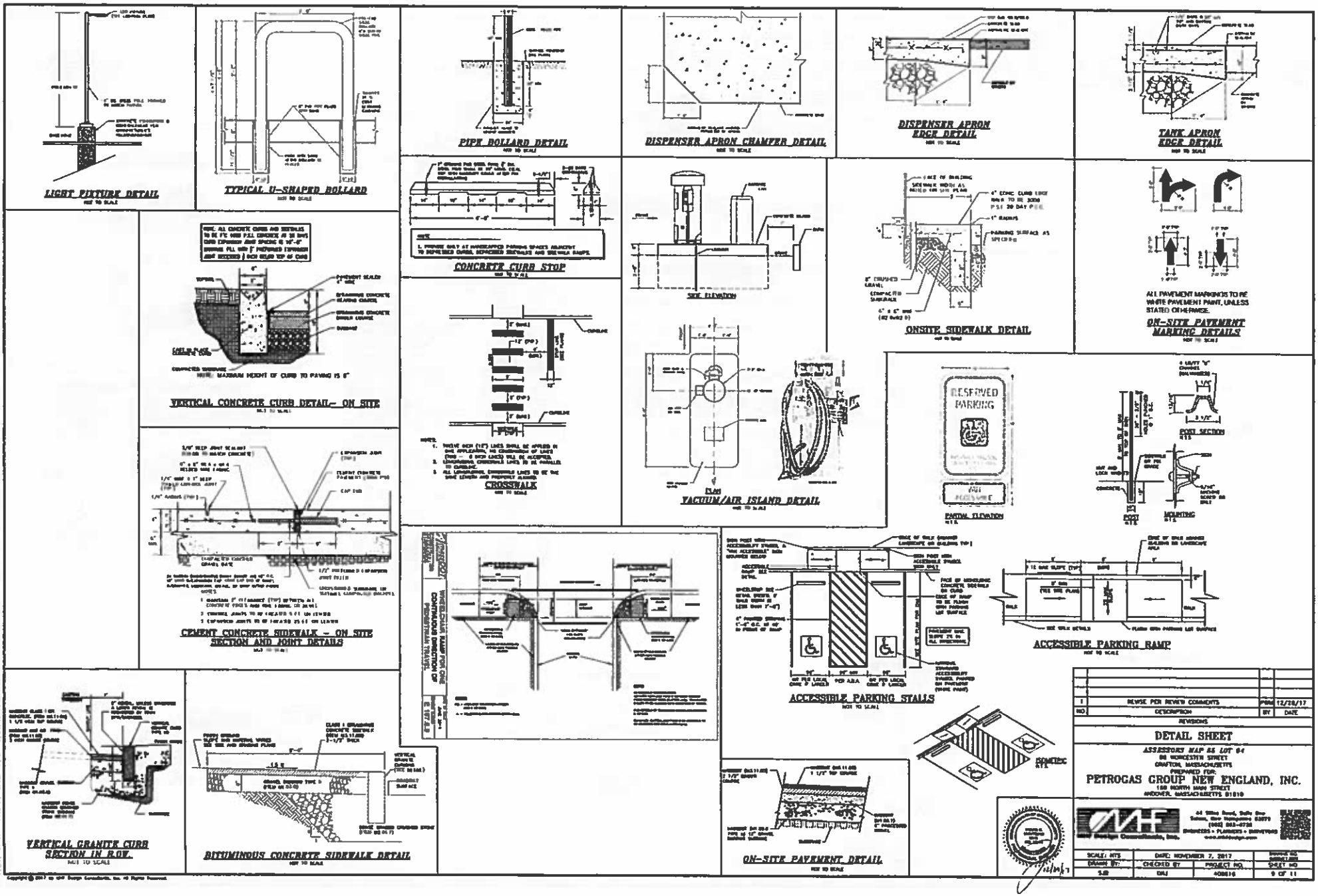
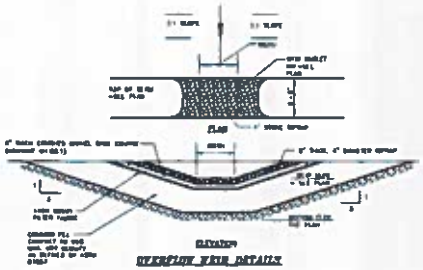
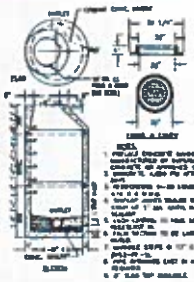

LIGHT FIXTURE DETAIL
TYPICAL U-SHAPED BOLLARD
PIPE BOLLARD DETAIL
DISPENSER APRON CHAMFER DETAIL
DISPENSER APRON EDGE DETAIL
TANK APRON EDGE DETAIL
CONCRETE CURB STOP
SIDE ELEVATION
ONSITE SIDEWALK DETAIL
ALL PAVEMENT MARKINGS TO BE WHITE PAVEMENT PAINT, UNLESS STATED OTHERWISE.
ON-SITE PAVEMENT MARKING DETAILS
VERTICAL CONCRETE CURB DETAIL – ON SITE
CROSSWALK
VACUUM/AIR ISLAND DETAIL
RESERVED PARKING
PARTIAL ELEVATION
POST SECTION
POST
MOUNTING
CEMENT CONCRETE SIDEWALK – ON SITE SECTION AND JOINT DETAILS
WHEELCHAIR RAMP FOR ONE PEDESTRIAN TRAVEL DIRECTION
ACCESSIBLE PARKING STALLS
ACCESSIBLE PARKING RAMP
ISOMETRIC
VERTICAL GRANITE CURB SECTION IN R.O.W.
BITUMINOUS CONCRETE SIDEWALK DETAIL
ON-SITE PAVEMENT DETAIL
1 REVISE PER REVIEW COMMENTS PBM 12/20/17
NO. DESCRIPTION BY DATE
REVISIONS
DETAIL SHEET
ASSESSORS MAP 55 LOT 84
98 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
100 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810
SCALE: NTS
DATE: NOVEMBER 7, 2017
DRAWN BY: SJB
CHECKED BY: DRJ
PROJECT NO. 408616
SHEET NO. 9 OF 11

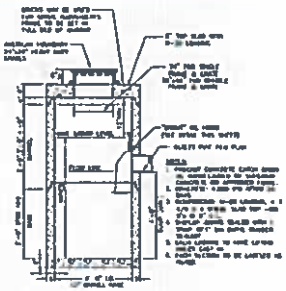
INFILTRATION BASIN – TYP. CROSS SECTION



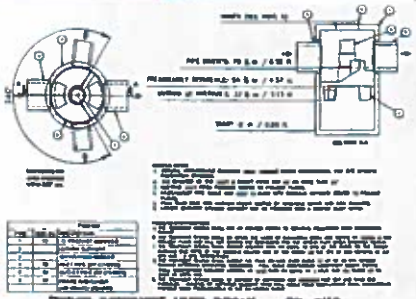
OVERFLOW WEIR DETAILS



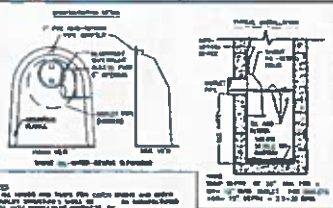
PRECAST CONCRETE DRAIN MANHOLE



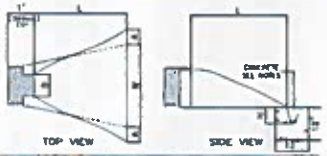
PRECAST CONCRETE CATCH BASIN WITH HOOD



"FIRST DEFENSE" UNIT DETAIL – FD-6HC



SNOUT – OIL – WATER – DEBRIS SEPARATOR

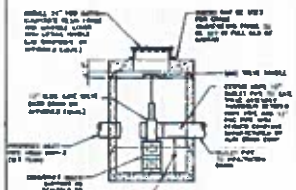


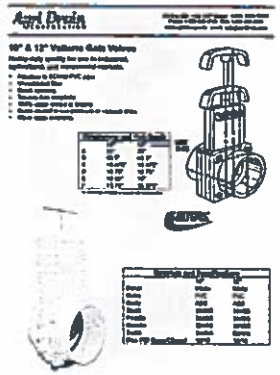
TOP VIEW

SIDE VIEW

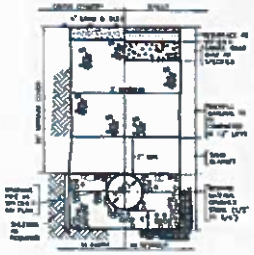
CONSTRUCTION SPECIFICATIONS:

FLARED END SECTION
HIGH DENSITY POLYETHYLENE (HDPE)

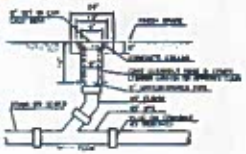




EMERGENCY SHUT OFF VALVE DETAIL (DMH-3)

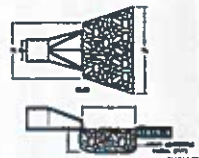


TYPICAL TRENCH SECTION FOR STORM DRAIN



TYPICAL CLEANOUT

LOW PROFILE GRATE PLAN VIEW



OUTLET PROTECTION–FLAT DETAIL

NO	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS		12/28/17

REVISIONS

DETAIL SHEET

ASSESSORS MAP 68 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
160 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

MHF Design Consultants, Inc.
44 Stiles Road, Suite One
Salem, New Hampshire 03079
(603) 893-6720
ENGINEERS • PLANNERS • SURVEYORS
www.mhfdesign.com

SCALE: NTS	DATE: NOVEMBER 7, 2017		
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO: 408818	SHEET NO: 10 OF 11

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FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 52 Worcester Street, Grafton, MA

On-site Review

Deep Hole Number TP 1 Date 8/10/17 Time AM Weather Sunny 60s

Location (stake or on plan)

Land Use Commercial Slope (%) 0-2% Surface Stones None

Vegetation Landscaped

Landform

Position on landscape (shrub or back)

Distances from:

Open Water Body >35 feet Drainage way >5 feet

Potable Wet Area >25 feet Property Line >10 feet

Drinking Water Well >100 feet Other

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Roots, Consistence, % Stones)
0-60"	Fill	Mixed Rocks/clays Fill			
60-120"	C	Sand	2.5y 5/3		

*Indicate if water is present or depth restricted below hole

Parent Material (geologic) Till Depth to Bedrock >120"

Depth to Groundwater 90" Standing Water in Hole 90" Weeping from pit face 90"

Estimated Seasonal High Groundwater 90"

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 52 Worcester Street, Grafton, MA

On-site Review

Deep Hole Number TP 2 Date 8/10/17 Time AM Weather Sunny 60s

Location (stake or on plan)

Land Use Commercial Slope (%) 0-2% Surface Stones None

Vegetation Landscaped

Landform

Position on landscape (shrub or back)

Distances from:

Open Water Body >35 feet Drainage way >5 feet

Potable Wet Area >25 feet Property Line >10 feet

Drinking Water Well >100 feet Other

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Roots, Consistence, % Stones)
0-60"	Fill	Mixed Rocks/clays Fill			
60-120"	C	Sand	2.5y 5/3		

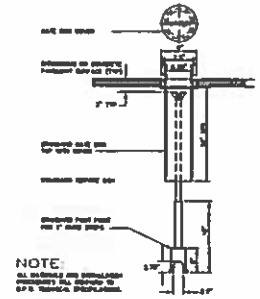
*Indicate if water is present or depth restricted below hole

Parent Material (geologic) Till Depth to Bedrock >120"

Depth to Groundwater 90" Standing Water in Hole 90" Weeping from pit face 90"

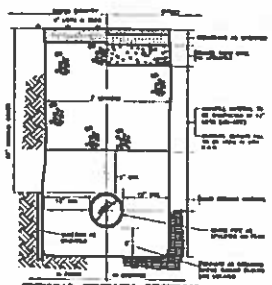
Estimated Seasonal High Groundwater 90"

TEST PIT LOGS



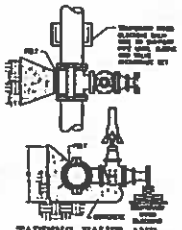
SERVICE BOX INSTALLATION IN PAVEMENT

NOT TO SCALE



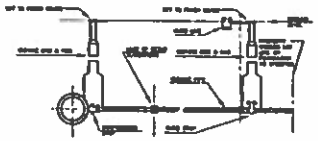
TYPICAL TRENCH SECTION FOR WATER SERVICE

NOT TO SCALE



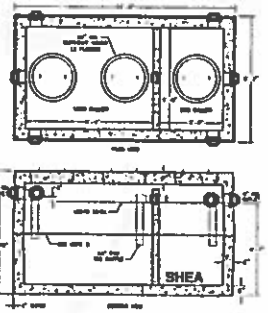
TAPPING VALVE AND SLEEVE DETAIL

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

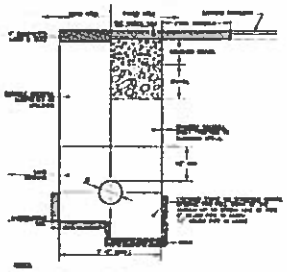
NOT TO SCALE



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

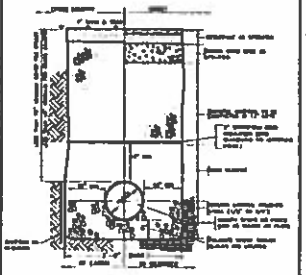
NOT TO SCALE

COMMERCIAL LINE TANK
1500 GALLON HOMOLITHIC



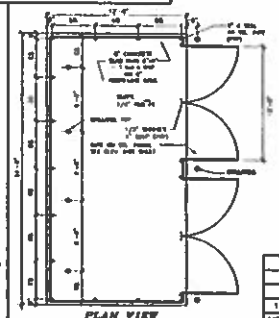
TYPICAL SEWER TRENCH DETAIL

NOT TO SCALE



TYPICAL TRENCH SECTION FOR SANITARY SEWER SERVICE WITH LESS THAN 6' OF COVER

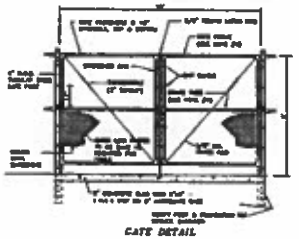
NOT TO SCALE



PLAN VIEW

CHAINLINK TRASH ENCLOSURE FOR GAS STATION

NOT TO SCALE



GATE DETAIL

NO	DESCRIPTION	BY	DATE
1	REVISE PER REVIEW COMMENTS	PWM	12/20/17

REVISIONS

DETAIL SHEET

ASSESSORS MAP 66 LOT 84
68 WORCESTER STREET
GRAFTON, MASSACHUSETTS

PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
100 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

MHF Design Consultants, Inc.
44 Stiles Road, Suite One
Salem, New Hampshire 03079
(603) 893-6720
ENGINEERS • PLANNERS • SURVEYORS
www.mhfdesign.com

SCALE: NTS	DATE: NOVEMBER 7, 2017		Drawing No.
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816	SHEET NO. 11 OF 11

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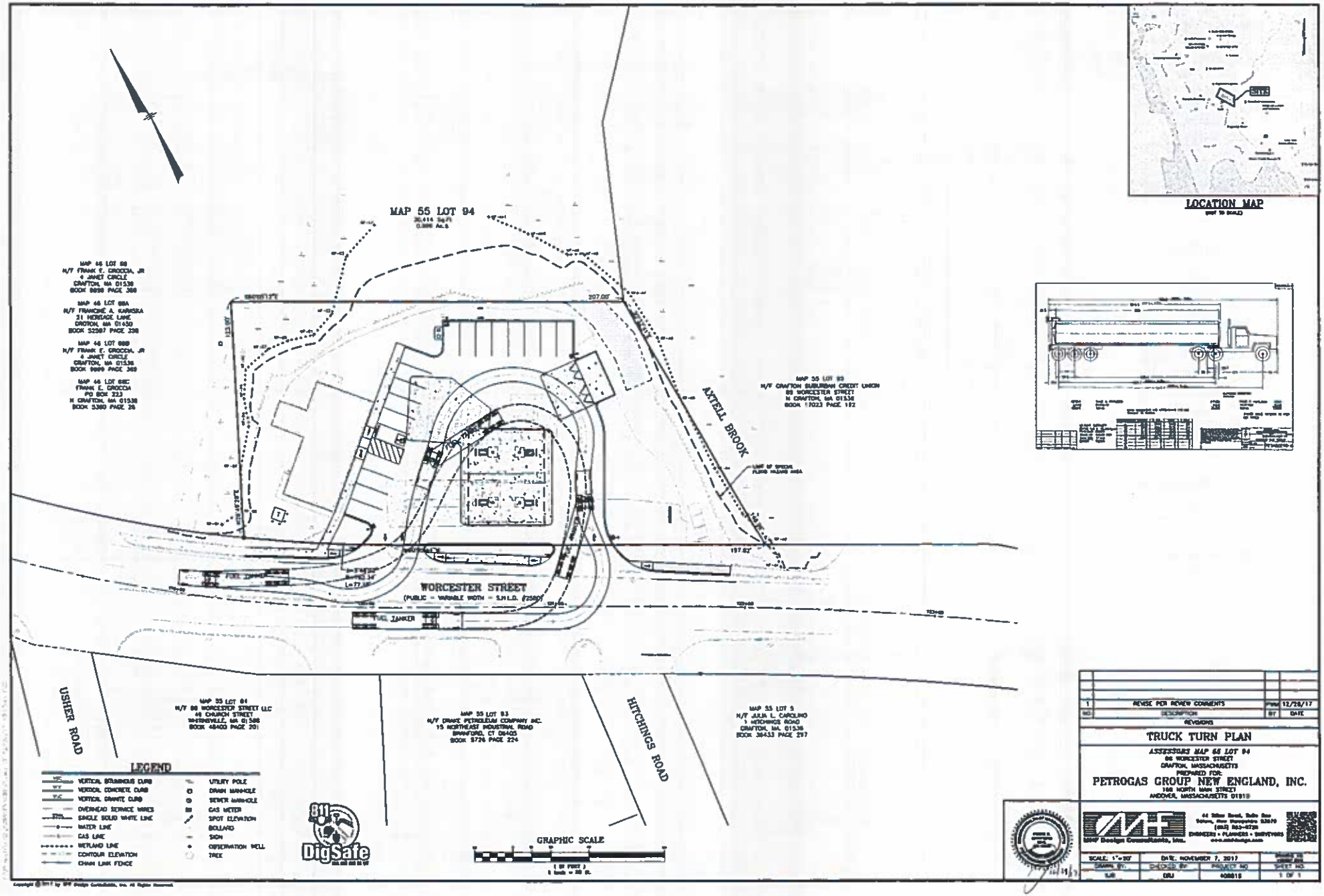
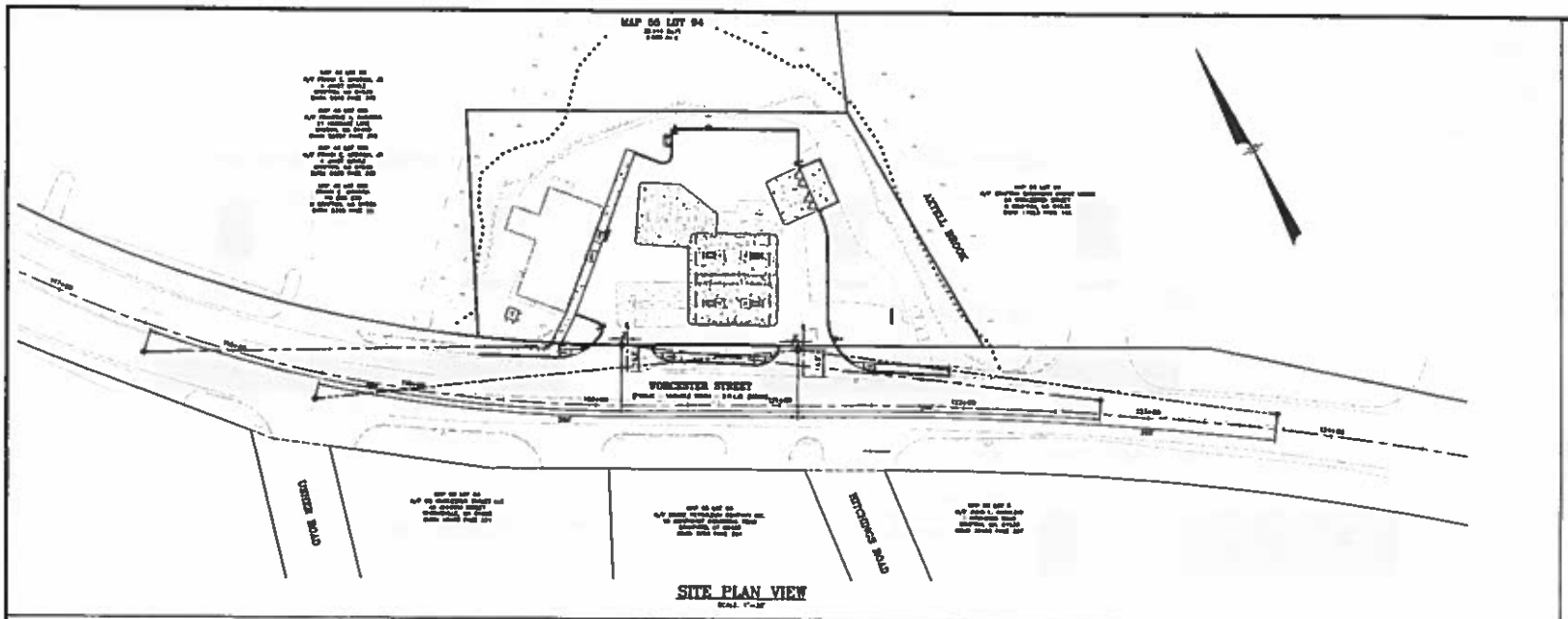
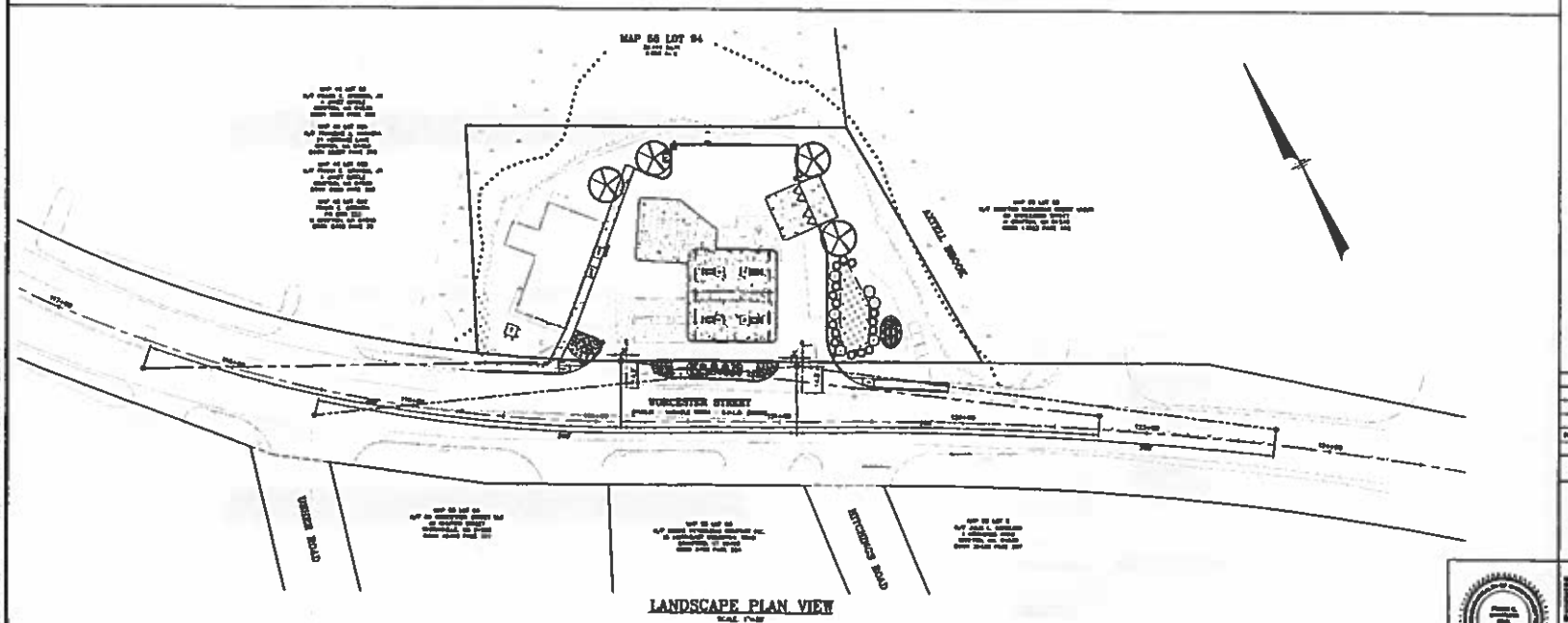

MAP 55 LOT 94
MAP 46 LOT 88
N/F FRANK E. GROCCIA, JR
4 JANET CIRCLE
CRAFTON, MA 01536
BOOK 8898 PAGE 388
MAP 46 LOT 88A
N/F FRANCINE A. KARASKA
31 HERITAGE LANE
GROTON, MA 01450
BOOK 32587 PAGE 338
MAP 46 LOT 88B
N/F FRANK E. GROCCIA, JR
4 JANET CIRCLE
CRAFTON, MA 01536
BOOK 9899 PAGE 369
MAP 46 LOT 88C
FRANK E. GROCCIA
PO BOX 223
N CRAFTON, MA 01536
BOOK 3380 PAGE 26
MAP 55 LOT 93
N/F CRAFTON SUBURBAN CREDIT UNION
89 WORCESTER STREET
N CRAFTON, MA 01536
BOOK 17023 PAGE 182
ANTELL BROOK
WORCESTER STREET
(PUBLIC - VARIABLE WIDTH - S.H.L.D. #2580)
FUEL TANKER
USHER ROAD
MAP 55 LOT 84
N/F 86 WORCESTER STREET LLC
46 CHURCH STREET
WATERVILLE, MA 01588
BOOK 48403 PAGE 201
MAP 55 LOT 83
N/F CRANE PETROLEUM COMPANY INC.
15 NORTHEAST INDUSTRIAL ROAD
BRANFORD, CT 06405
BOOK 5726 PAGE 224
HITCHINGS ROAD
MAP 55 LOT 5
N/F JULIA L. CAROLINO
1 HITCHINGS ROAD
CRAFTON, MA 01536
BOOK 38433 PAGE 297
LEGEND
VERTICAL BITUMINOUS CURB
VERTICAL CONCRETE CURB
VERTICAL GRANITE CURB
OVERHEAD SERVICE WIRES
SINGLE SOLID WHITE LINE
WATER LINE
GAS LINE
WETLAND LINE
CONTOUR ELEVATION
CHAIN LINK FENCE
UTILITY POLE
DRAIN MANHOLE
SEWER MANHOLE
GAS METER
SPOT ELEVATION
BOLLARD
SIGN
OBSERVATION WELL
TREE
DigSafe
GRAPHIC SCALE
LOCATION MAP
SITE
REVISE PER REVIEW COMMENTS
12/28/17
REVISIONS
TRUCK TURN PLAN
ASSESSORS MAP 55 LOT 94
86 WORCESTER STREET
CRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810
BSC Design Consultants, Inc.
ENGINEERS • PLANNERS • SURVEYORS
SCALE: 1"=20'
DATE: NOVEMBER 7, 2017
DRAWN BY: SJB
CHECKED BY: DRJ
PROJECT NO: 408816
SHEET NO: 1 OF 1



SITE PLAN VIEW



LANDSCAPE PLAN VIEW

LOCATION MAP

GRAPHIC SCALE

NO	DESCRIPTION	BY	DATE

REVISIONS

SIGHT DISTANCE PLAN

ASSESSORS MAP 56 LOT 94
80 WORCESTER STREET
GRAFTON, MASSACHUSETTS

PREPARED FOR:

PETROGAS GROUP NEW ENGLAND, INC.
100 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

AVH Design Consultants, Inc.
44 Stiles Road, Suite One
Salem, New Hampshire 03079
(603) 893-6720
ENGINEERS • PLANNERS • SURVEYORS
www.avhdesign.com

SCALE: 1"=30'	DATE: DECEMBER 28, 2017		
DRAWN BY: CCC	CHECKED BY: DRJ	PROJECT NO: 408816	SHEET NO: 1 OF 1

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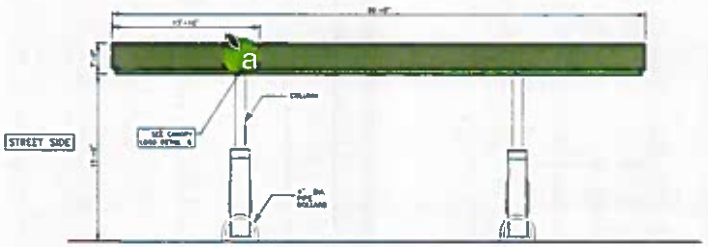
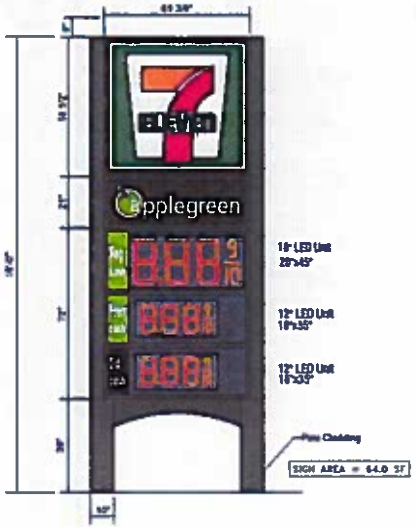


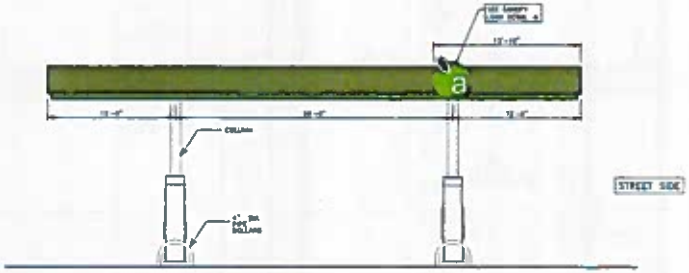
(B) RIGHT ELEVATION – AXTELL BROOK
SCALE: 3/16" = 1'-0"

DISPENSER GRAPHICS DETAIL 'B'
NOT TO SCALE



PROPOSED FREESTANDING SIGN
NOT TO SCALE

SECTION THRU CHANNEL LETTERS
NOT TO SCALE



(D) LEFT ELEVATION – STORE
SCALE: 3/16" = 1'-0"

CORNER & 10FT STANDARD SECTION DETAIL
NOT TO SCALE

CANOPY LOGO DETAIL 'A'
NOT TO SCALE

(C) FRONT ELEVATION – WORCESTER STREET
SCALE: 3/16" = 1'-0"

(A) REAR ELEVATION
SCALE: 3/16" = 1'-0"

NO	DESCRIPTION	BY	DATE
1	REVISE SIGNAGE	HS	12/28/17

REVISIONS

RETAIL FUEL CANOPY ELEVATIONS

ASSESSORS MAP 58 LOT 94
86 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR
PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810

MHF Design Consultants, Inc.
44 Stiles Road, Suite One
Salem, New Hampshire 03079
(603) 893-6720
ENGINEERS • PLANNERS • SURVEYORS
www.mhfdesign.com

SCALE: AS SHOWN	DATE: NOVEMBER 7, 2017		
DRAWN BY	CHECKED BY	PROJECT NO	SHEET NO
DSA	HS	408816	1 OF 1

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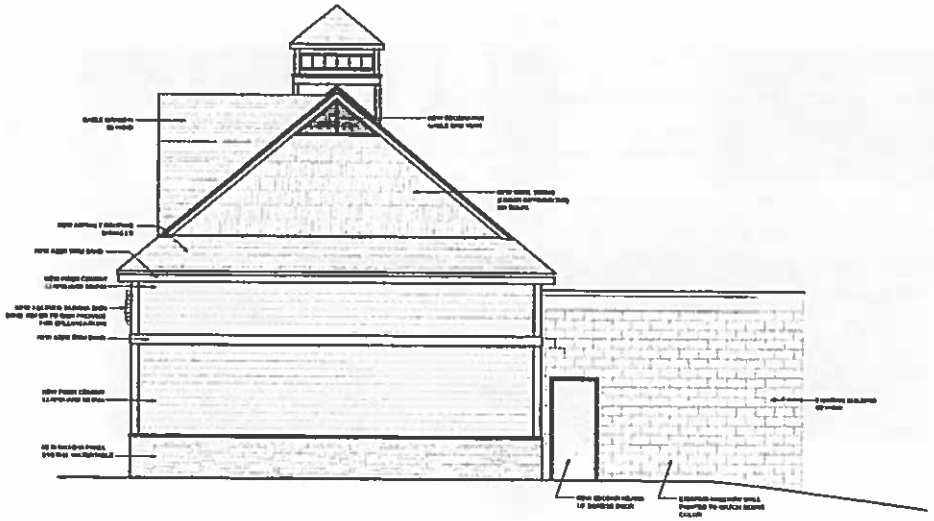
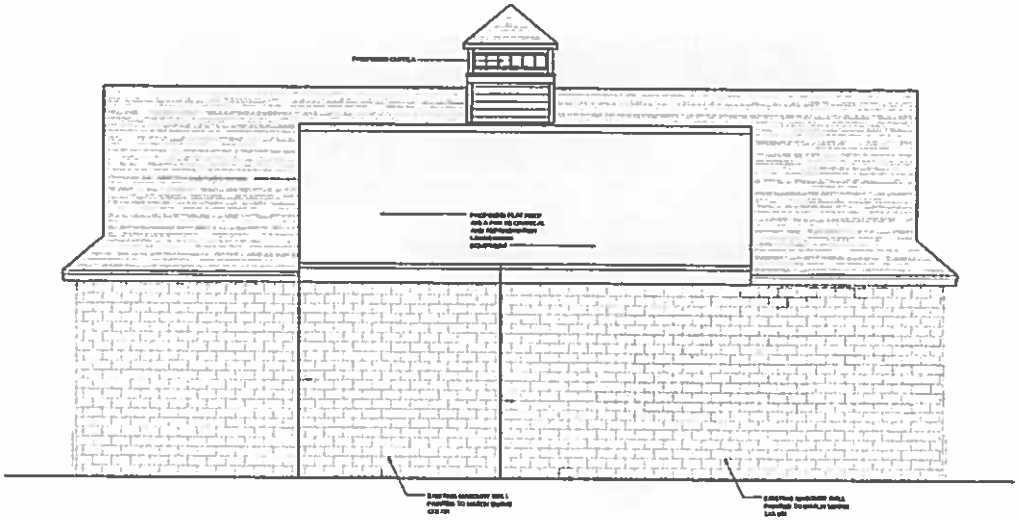


GENERAL NOTE:
EXTERIOR SIGNAGE SHOWN IS FOR REFERENCE ONLY - TENANT SIGN VENDOR TO VERIFY ALL LOCAL CODES, ORDINANCES AND REQUIREMENTS

PROPOSED LEFT SIDE ELEVATION 1



PROPOSED REAR ELEVATION 2

UPLAND ARCHITECTS
UPLANDARCHITECTS.COM

250 E. MAIN STREET
SUITE 13
NORTON, MASSACHUSETTS
02766

T 774-430-3390

WWW.UPLANDARCHITECTS.COM

applegreen
N.Grafton, MA

PROPOSED ELEVATIONS
(rev 9-28-17)

A102

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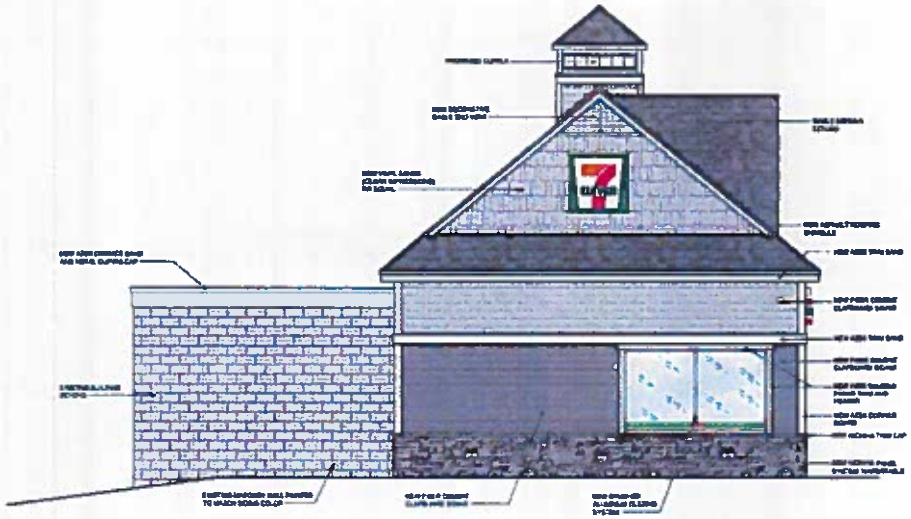

GENERAL NOTE:
EXTERIOR SIGNAGE SHOWN IS FOR REFERENCE ONLY - TENANT SIGN VENDOR TO VERIFY ALL LOCAL CODES, ORDINANCES AND REQUIREMENTS

PROPOSED SIDE ELEVATION 1

PROPOSED FRONT ELEVATION 2

UPLAND ARCHITECTS
UPLANDARCHITECTS.COM
250 E. MAIN STREET
SUITE 13
NORTON, MASSACHUSETTS
02766
T 774-430-3380
WWW.UPLANDARCHITECTS.COM

applegreen
N.Grafton, MA

PROPOSED RENDERED EXTERIOR ELEVATIONS

A101

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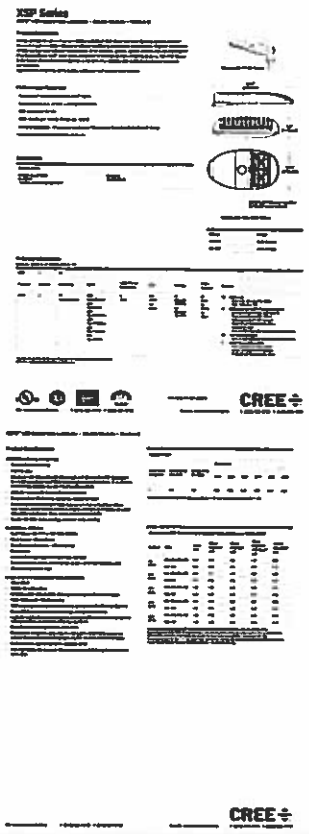
RL-4770-S1-R1

AREA

SYMBOL:	QTY:	LABEL:
	4	A4

EXSP-B-HT-4ME-B-57K-UL-XX



CANOPY

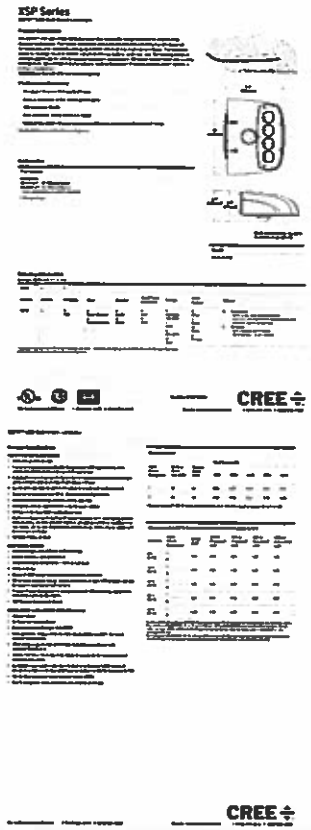
SYMBOL:	QTY:	LABEL:
	12	C9

CPY250-B-DM-D-B-UL-XX-57K

WALL MOUNTED

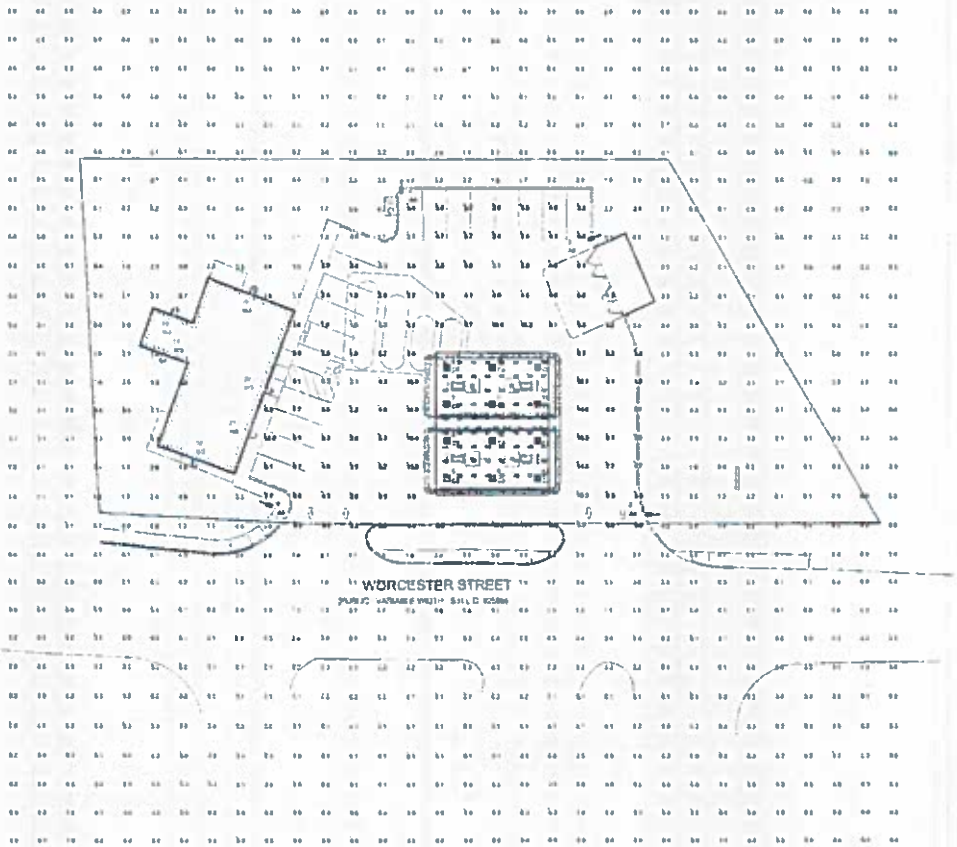
SYMBOL:	QTY:	LABEL:
	6	W3

XSPWA03MC-UX



rla

red leonard associates
1340 Kemper Meadow Dr. | Cincinnati, OH 45240 | 513-674-8500
www.redleonard.com



ALL AREA LIGHTS SHALL BE MOUNTED TO 15 FT. POLES ON 2 FT. CONCRETE BASES.

LUM NO	LABEL	MOUNTING HEIGHT
1	A4	17
2	A4	17
3	A4	17
4	A4	17
5	C9	15.5
6	C9	15.5
7	C9	15.5
8	C9	15.5
9	C9	15.5
10	C9	15.5
11	C9	15.5
12	C9	15.5
13	C9	15.5
14	C9	15.5
15	C9	15.5
16	C9	15.5
17	W3	12
18	W3	12
19	W3	12
20	W3	12
21	W3	12
22	W3	12

NORTH

GRAPHIC SCALE

0 20 40 60 80

LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE PAVED AREA	5.00	16.9	1.3	4.23	12.23
UNDEFINED	0.45	0.7	0.0	N.A.	N.A.
UNDER CANOPY	43.53	50	20	1.30	2.00

SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	ARR. WATTS	TOTAL WATTS	MANUFACTURER	DESCRIPTION
	4	A4	SINGLE	16443	1.000	101	404	CREE, INC.	[illegible]
	12	C9	SINGLE	12406	1.000	95.31	1106.72	CREE, INC.	[illegible]
	6	W3	SINGLE	4031	1.000	42.98	257.76	CREE, INC.	[illegible]

REV.	BY	DATE	DESCRIPTION
[illegible]	[illegible]	[illegible]	REVISED FOR UPDATED SITE PLAN AND CANOPY DESIGN

PETROGAS
GRAFTON, MA
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