AMESBURY CHEVROLET

SITE PLAN REVIEW

103 MACY STREET
AMESBURY, MA

Revised February 25, 2016

JOB: # 15008 SPR

TABLE OF CONTENTS

APPENDICES

Civil / Sanitary Municipal Planning
Est. 1975
CAMMETT CE ENGINEERING
Land Survey

Woodbury C. Cammett, PE *MA, NH*
Robert E. Smith, PLS *MA, NH*
Denis Hamel, *CPESC*
Emily Fredette, EIT
Consulting Engineers and Land Surveyors

February 25, 2016

Amesbury Planning Board
62 Friend Street
Amesbury, Ma. 01913

RE: Site Plan Review for Three Way Realty Trust
103 and 107 Macy Street

Dear Board Members,

On behalf of my client, Three Way Realty Trust, we are submitting a revised application for Site Plan Review at 103 and 107 Macy Street, Amesbury, Ma. Please find the following documents and data as part of the application.

- Cover Letter
- Site Plan Review Application
- Application Filing Fee (copy)
- Site Development Plans (Separate Cover)
- Architectural Plans and Elevations (Attached to Site Development Plans)
- Lighting Plans (Attached to Site Development Plans)
- Form D
- List of Abutters

Appendix A – Stormwater Report
Appendix B – Wetland Report
Appendix C– LTPPP
Appendix D – SWPPP
Appendex E – Site Photos
Appendix F – Color 11x17 Open Space Site Plans
Appendix G – Color 11x17 Impervious Areas Site Plans

Civil / Sanitary Municipal Planning
Est. 1975
CAMMETT CE ENGINEERING
Land Survey

Woodbury C. Cammett, PE *MA, NH*
Robert E. Smith, PLS *MA, NH*
Denis Hamel. *CPESC*
Emily Fredette, EIT
Consulting Engineers and Land Surveyors

Project Description

The Site Development is in three Phases. Phase I was the construction of the addition to the Showroom and has been approved and constructed. Phase II is the addition of the 16,000 SF service area. Phase III will be the total site lighting renovation and repaving the remaining parking area as well as Traffic and Access renovations.

This phase, Phase II, of the project consists of constructing a 16,000 sf addition to the easterly side of the existing building. This addition will house a state of the art service department. The vehicular access to the new service area will be from rear (south) side of the building. There will be several man-doors to provide access for safety.

The existing stand alone structure that houses the detailing shop will be razed. The detailing shop will be moved to the existing service bays in the existing building. The current 2 bay Customer Service drives will be expanded to three bays.

The site work consists of demolishing the existing detailing building along with concrete pads and surrounding bituminous pavement. The area around the existing building that is being razed, and the area around the proposed addition will be regraded and repaved to provide better vehicle movements and a more stable surface. The remaining paved parking and display area around the existing building will remain as is.

The existing transformer will have to be moved to facilitate the new building addition. Two new oil and gas separators will be added. One will service the new addition and the other will service the existing service bay and customer drop-off area. Both units will connect to the existing sewer manhole in the front of the site.

The existing gas service line that comes from Clarks Road will be relocated farther back on the site to facilitate the location of the new addition. The gas service will enter the existing building where it currently does.

The existing curb cut from Macy Street to the current detailing shop will remain open, and be used as the service access drive. This will provide access for deliveries to the rear of the building with less conflict with display vehicles and customers. The main entrance will remain open where it currently exists. A mountable island is proposed to be constructed in the current entrance to direct out going vehicles to make a right turn. Landscaped curbed islands will be added to provide better definition and a more athletically appealing entrance. There are three other existing curb cuts. Two will be closed off with curbing and landscaping. The curb cut at the west end will remain as is but will be blocked with a pre-cast concrete planter. This curb cut must remain open due to and existing access easement to the Yeo Chevrolet property to the west. The planter will be filled with annual flowers to provide color without blocking the view of the display vehicles parked along the frontage.

The existing catch basins and drainage piping in the area of the proposed addition will be totally reconstructed. New catch basins and manholes will be installed and will be connected to the existing drainage system west of the main entrance. The existing discharge is to the west edge of the site, into an existing channel. The roof of the new addition will slope to the rear. A gutter along the roof line will collect stormwater and a series of downspouts will discharge into subsurface pipe. This pipe connects to new drain manhole and directs the stormwater to the existing drain line that runs towards the front of the site and existing drainage system. A new catch basin will be added to the rear of the building to collect the stormwater from rear service drive. The catch basin will discharge into the manhole and drainage system described above. There will also be a foundation drain along the portion of the south side, the entire west side, and a portion of

the north side of the new addition. The foundation drain discharges into the new manholes.

The slab of the proposed addition will match the existing building slap elevation. The existing grade is uphill in the area of the addition to the east. The maximum cut will approximately 4 feet. The building foundation will act as a retaining wall for the east end of the building.

The amount of impervious cover will be less after the proposed site work is complete. A portion of the existing paved area around the existing detailing building will be removed and replaced with landscaping. A 5 foot wide landscaped strip will constructed be along the northerly side of the new addition facing Macy Street. In addition, a strip of crushed stone will be installed along a portion of the easterly side of proposed addition. As a result of the decreased impervious area, the Open Space will increase. See attached 11x17 color coded site plans for more detailed information.

The existing Open Space for the site is non-conforming because it is less than the required 30%. The existing Open Space is 24% of the total site area. After the proposed development, the Open Space will be 27%. The increased Open Space is mainly due to a 10' wide buffer being created along the existing wetland system along the rear of the existing and proposed building. See attached 11x17 color site plans for clarification.

We look forward to presenting this application to the Planning Board. An application to the Conservation Commission has also been submitted due to a portion of the project being in the 100' Wetland Buffer Zone. No wetlands are being altered as part of this project.

Civil / Sanitary Municipal Planning
Est. 1975
CAMMETT CE ENGINEERING
Land Survey

Woodbury C. Cammett, PE *MA. NH*

Robert E. Smith, PLS *MA, NH*
Denis Hamel, *CPESC*

Emily Fredette, EIT

Consulting Engineers and Land Surveyors

Sincerely,
W. C. Cammett Engineering, Inc.

Denis M. Hamel
Project Manager

cc: Three Way Realty Trust

Title:M/Winword/2015/Agencyinterface/planningboard/Submittal 02-25-16/15008letterto APB 02-25-16

PLANNING BOARD

Town Hall

APPLICATION FOR SITE PLAN REVIEW

Date _____

Name Brian Fecteau, Trustee of Three Way Realty Trust

Address 103 Macy Street

Amesbury, Ma. 01913

Application is hereby made for a site plan review. Premises affected are situated at 103 & 107 Macy Street _____, Amesbury Massachusetts and on Map # 80, Lot # 13 & 16 of the Assessor's Map.

1. Owner of Property: Three Way Realty Trust
2. Zoning District: Commercial and R20 Residential
3. Lot size: 5.33 Acres
4. Size of Building, Addition or Area of Proposed Work: Existing Building Footprint - 19,070 SF

   Proposed Addition - 16,000 SF
5. Occupancy or Use - Existing: Automobile Sales and Service

   Proposed: Automobile Sales and Service
6. Other Permits Required: Order of Conditions - Amesbury Conservation Commission
7. Submittal:
   * Site Plan - Scale 1" = 40' (Section XI, C-4a of Zoning Bylaw) Ten Copies _____
   * Water and Sewer Plan _____
   * Storm Drainage Plan _____
   * Erosion Control _____
   * Parking Spaces and Plan ____
   * Traffic Plan _____ (If required under C-5d of Zoning Bylaw)
8. Description of Work: Project consists of constructing a 16,000 sf addition

to house a state of the art service department. The existing small building will be razed and the detailing operation will be moved to the existing service bay area. Interior modifications will also be implemented in the existing building.

Signature of Applicant

Owner (if not Applicant)

Filing Fee: $500.00 plus $0.15 per square foot of gross floor area.
Received:_____
Distributed:_____
Hearing:_____

This application must be accompanied by 10 copies of the site plan. Complete details concerning site plan review are in Section XI, Section C - Site Plan Review of the Amesbury Zoning Bylaw.

Job # 15008

Site Plan Review Filling Fee
Date October 9, 2015
Project: Amesbury Chevrolet, 103 Macy Street

FEE: - $500.00 + $0.15 /SF

Proposed Addition - 16,000 sf

16,000 x 0.15 = $$2,400.00

$500.00 + $2,400.00 = $2,900.00

TOTAL FILING FEE = $2,900.00

Title:M/Winword/2015/15008/agencyinterface/planningboard/15008siteplanreviewfiling feecalculations 100815

THIS CHECK IS VOID WITHOUT A SECURITY BACKGROUND AND A SIGNATURE BORDER PRINTED IN A HEAT SENSITIVE INK THAT DISAPPEARS WHEN RUBBED.

103 Macy Street - Amesbury, MA 01913
(978) 388-9700 - Fax: (978) 834-0881

Peoples United Bank
325 MAIN STREET
PORTSMOUTH, NH 00102-4757
52-143/112

DATE	CHECK
10/09/2015	24712

AMOUNT
$ 2,900.00

Pay Two Thousand, Nine Hundred Dollars and no/Cents

TO THE ORDER OF CITY OF AMESBURY

SIGNATURE AREA - A DISAPPEARING BORDER - CHECK BORDER CONTAINS MICROPRINTING

⑈00024712⑈ ⑆221172186⑆ ⑈133005706⑈

Amesbury

Community & Economic Development
Planning – Conservation – Appeals
Tel: (978) 388-8110
Fax: (978) 388-6727

62 Friend Street
Second Floor
Amesbury, MA 01913

ABUTTER NOTIFICATION
POSTAGE FEES

The following is the formula used for determining the postage costs for each application:

Number of Certified Abutters
(including applicant and representative) 21 x .98 = 20.58

TOTAL AMOUNT OWED FOR POSTAGE: $ 20.58

Please remit a check payable to the **City of Amesbury** for the total amount owed for postage. Also, please be advised that your postage fee must be paid prior to you being scheduled for a meeting date.

NOTE: Postage fee subject to change with postage increase.

Effective date: 02/27/2009
Revised: January 2014

HOLD TO LIGHT TO VIEW WATERMARK IN PAPER. HEAT SENSITIVE RED IMAGE DISAPPEARS WITH HEAT. DETECTION CIRCLE REVEALS A LOCK WHEN TESTED

WC CAMMETT ENG INC
297 ELM ST
AMESBURY, MA 01913

The NEWBURYPORT BANK
The Newburyport Five Cents Savings Bank
Newburyport, Mass.
53-7150-2113

20150571

Exactly Twenty and 58 / 100 Dollars

DATE
10/13/2015

AMOUNT
$20.58

PAY TO THE ORDER OF

Amesbury, City of

MA

AUTHORIZED SIGNATURE

Security features. Details on back.

⑆211371502⑆ 2950 032 9⑈

PLANNING BOARD

Amesbury

Town Hall, Amesbury, MA 01913

FORM D
TOWN OF AMESBURY
DESIGNER'S CERTIFICATE

Oct. 9, 2015

To the Planning Board of the Town of Amesbury
In preparing the plan entitled, Amesbury Chevrolet, Site development Plans
I hereby certify that the above named plan and accompanying data is true and correct to the accuracy required by the current Rules and Regulations Governing the Subdivision of Land in Amesbury, Massachusetts, and my source of information about the location of boundaries shown on said plan were one or more of the following:

1. Deed from Yeo Chevrolet, Inc to Three-Way Realty Trust dated May 2, 2006 and recorded in the Essex South Registry Registry in Book 25635, Page 69.
2. Other plans, as follows ESRD Plan Book 97 Plan 60
   1928 State Highway Layout of Main Street
3. Oral information furnished by
4. Actual measurement on the ground from a starting point established by
   Highway bounds from 1928 State Highway Layout
5. Other sources

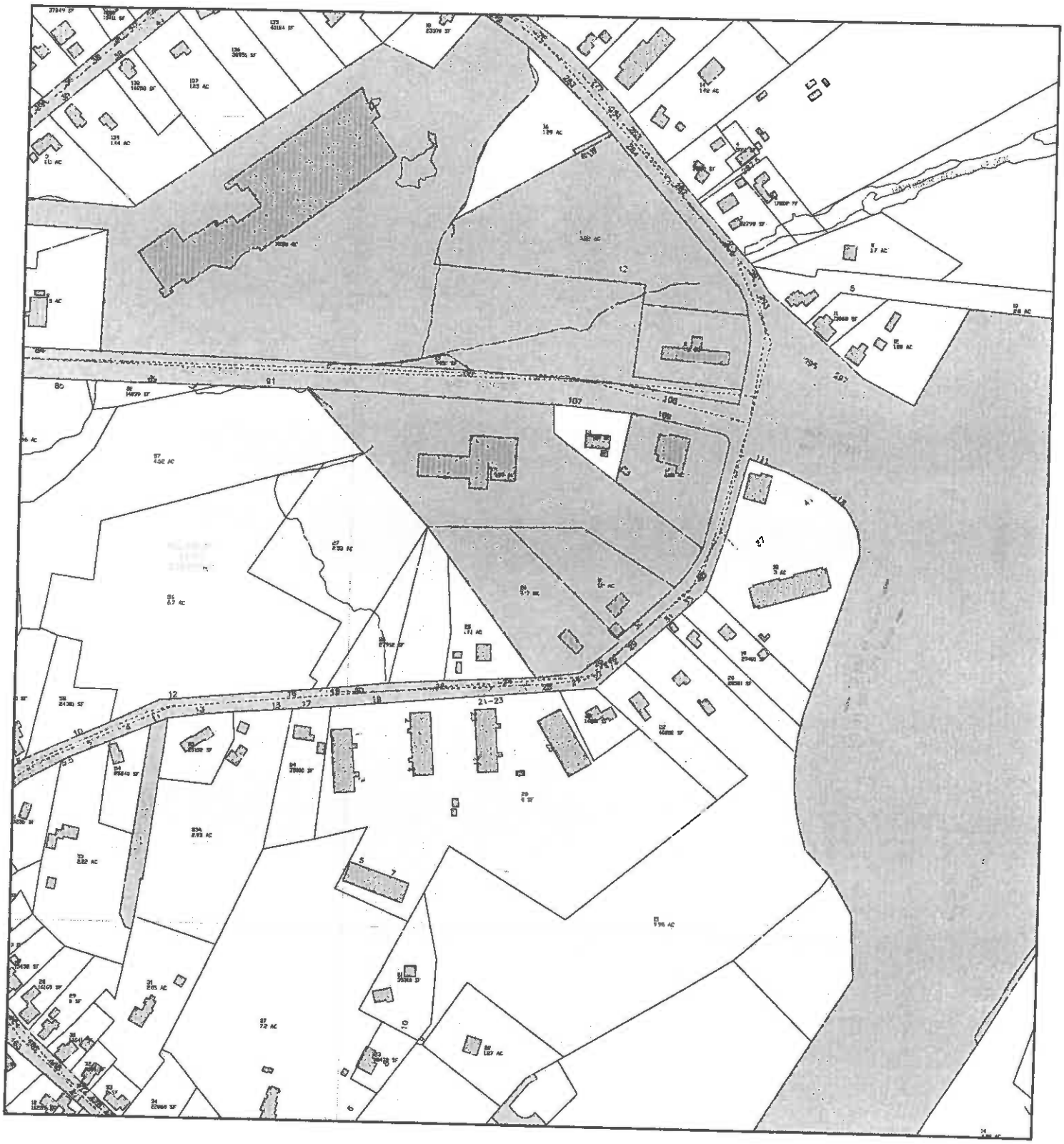
(Seal of Engineer of Surveyor)

COMMONWEALTH OF MASSACHUSETTS
ROBERT E. SMITH JR.
No. 35794
PROFESSIONAL LAND SURVEYOR

Signed
(Registered Professional Engineer of Registered Land Surveyor)

c/o W.C. Cornett Engr.
297 Elm St. Amesbury, MA
Address

107 MACY STREET 80/13 300 FT



Information on this Map is Compiled and Maintained for Assessing Purposes Only

GEOGRAPHIC INFORMATION SYSTEM
VISION APPRAISAL TECHNOLOGY

N

Vision ID: 2824 | Account # | MAP ID: 80/ / 13/ / | Bldg #: 1 of 1 | Bldg Name: | Sec #: 1 of 1 | Card 1 of 1 | State Use: 3300 | Print Date: 10/05/2015 15:20

CURRENT OWNER
THREE-WAY REALTY LLC
107 MACY ST
AMESBURY, MA 01913
Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION
2 Above Street	1 All Public	1 Paved	1 Urban
4 Rolling			4 Bus. District

SUPPLEMENTAL DATA

Other ID: 00028 00000 0029+	Use Change
Sub-Div	Original Lot
Spec.Cond.	NOTES 1296
OWNER OCCU YES	STYLE
ABC	CHAPTER L
NUMBER	
GIS ID: 2824	ASSOC PID#

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COMMERC.	3300	83,700	83,700
COM LAND	3300	206,900	206,900
COMMERC.	3300	8,100	8,100
	Total	298,700	298,700

101
AMESBURY, MA

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
THREE-WAY REALTY LLC	DOC 467006	05/03/2006	Q	I	330,000	00
YEO WILLIAM E TRUSTEE	DOC326348	12/31/1996	U	I	180,000	1A
YEO BEATRICE A	CER43/0434	08/06/1973			0	

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	3300	79,200	2014	3300	79,200	2013	3300	103,600
2015	3300	206,900	2014	3300	206,900	2013	3300	222,900
2015	3300	8,100	2014	3300	8,100	2013	3300	3,900
		Total: 294,200			Total: 294,200			Total: 330,400

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD NAME	STREET INDEX NAME	TRACING	BATCH
0001/A				

NOTES
PRICED W/26A

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	83,700
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	8,100
Appraised Land Value (Bldg)	206,900
Special Land Value	0
Total Appraised Parcel Value	298,700
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	298,700

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
99-163	09/01/1998	CM	Commercial	0	10/01/1995	100	12/31/1998	SIGN CHANGES
93-66	04/12/1993	CM	Commercial	0	07/26/1994	100	08/30/1993	RUBBER ROOF

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
3/13/2007			RD	00	Measur+Listed
7/25/2002			HF	DQ	Data Quality
8/9/2000			HF	DC	Data Change
10/1/1999			HF	DQ	Data Quality
10/27/1998			MT	IR	Income Reconciliation

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	Adj. Unit Price	Land Value
1	3300	Car Dealer Large	C		195	120	17,550	SF	6.74	1.00	A	1.0000	1.00	0400	1.75			11.79	206,900
Total Card Land Units:							17,550	SF	Parcel Total Land Area:		17,550 SF						Total Land Value:		206,900

Property Location: 107 MACY ST

Vision ID: 2824 | Account # | **MAP ID: 80/ / 13/ /** | Bldg #: 1 of 1 | Bldg Name: | Sec #: 1 of 1 | Card 1 of 1 | State Use: 3300 | Print Date: 10/05/2015 15:20

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	25		Service Shop
Model	96		Ind/Comm
Grade	03		Average
Stories	1		
Occupancy	1		
Exterior Wall 1	15		Concr/Cinder
Exterior Wall 2	20		Brick/Masonry
Roof Structure	03		Gable/Hip
Roof Cover	03		Asph/F Gls/Cmp
Interior Wall 1	01		Minim/Masonry
Interior Wall 2			
Interior Floor 1	03		Concr-Finished
Interior Floor 2			
Heating Fuel	03		Gas
Heating Type	04		Forced Air-Duc
AC Type	01		None
Bldg Use	3300		Car Dealer Large
Total Rooms			
Total Bedrms	00		
Total Baths	2		
Heat/AC	00		NONE
Frame Type	03		MASONRY
Baths/Plumbing	02		AVERAGE
Ceiling/Wall	03		SUS-CEIL/MN WL
Rooms/Prtns	02		AVERAGE
Wall Height	12		
% Comn Wall	0		

CONSTRUCTION DETAIL (CONTINUED)

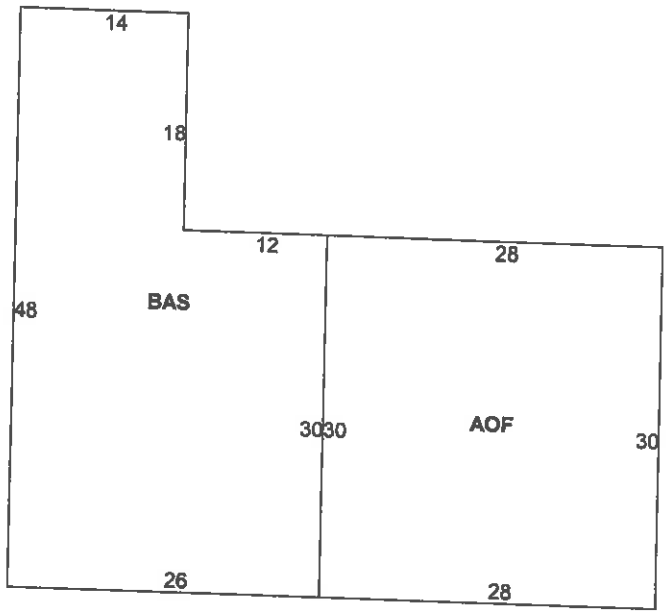
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
3300	Car Dealer Large	100

COST/MARKET VALUATION

Adj. Base Rate:	74.49
Section. RCN:	139,445
Net Other Adj:	0.00
Replace Cost	139,445
AYB	1960
EYB	1973
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	40
Functional Obslnc	0
External Obslnc	0
Cost Trend Factor	1
Condition	
% Complete	
Overall % Cond	60
Apprais Val	83,700
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SGN3	SIGN W/INT L			L	46	77.00	1985		0		50	1,800
LT1	LIGHTS INC 1			L	2	690.00	1985		0		50	700
PAVI	PAV ASPH			L	6,000	3.70	1985		0		25	5,600

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
AOF	Office, (Average)	840	840	840	74.49	62,572
BAS	First Floor	1,032	1,032	1,032	74.49	76,874
	Ttl. Gross Liv/Lease Area:	1,872	1,872	1,872		139,445

ABUTTERS LISTING for 107 MACY STREET 80/13 300 FT
AMESBURY, MA

AV PID	Map	Lot	Unit	Location	Owner's Name	Co_Owner's Name	Address	City	ST	Zip	Book/Page
2688	80	24		26 CLARKS RD	BOUCHER ROBERT J SR & DORIS E	THE BOUCHER FAMILY REVOCABLE T	26 CLARKS RD	AMESBURY	MA	01913	26346/ 116
2821	80	5		30 CLARKS RD	FOWLER P A/J C & R P PHELAN	C/O JEREMY SCHUTZ	30 CLARKS RD	AMESBURY	MA	01913	09271/0280
2628	80	1		284 ELM ST	TRUE HOMESTEAD LIMITED	C/O AMESBURY HOSPITALITY, LLC	41 BRIDLE RIDGE DR	NORTH GRAFTO	MA	01519	09703/0107
6897	79	6		100 MACY ST	CARRIAGETOWN MARKETPLACE LLC	C/O THOMSON PTS	PO BOX 52136	BOSTON	MA	02205	16768/ 416
2690	80	15		102 MACY ST	THREE-WAY REALTY, LLC		107 MACY ST	AMESBURY	MA	01913	25635/ 69
2672	80	16		103 MACY ST	THREE-WAY REALTY LLC		107 MACY ST	AMESBURY	MA	01913	25635/ 69
2639	80	2		108 MACY ST	108 MACY STREET	C/O MABARDY OIL	720 LAFAYETTE ROAD	SEABROOK	NH	03874	28331281
2689	80	17		109 MACY ST	ARC CAFEUSA001, LLC		5505 BLUE LAGOON DRIVE	MIAMI	FL	33126	32655/ 542

Parcel Count: 8

2688
BOUCHER ROBERT J SR & DORIS E TRS
THE BOUCHER FAMILY REVOCABLE
26 CLARKS RD
AMESBURY, MA 01913

2821
FOWLER P A/J C & R P PHELAN
C/O JEREMY SCHUTZ
30 CLARKS RD
AMESBURY, MA 01913

2628
TRUE HOMESTEAD LIMITED
C/O AMESBURY HOSPITALITY, LLC
41 BRIDLE RIDGE DR
NORTH GRAFTON, MA 01519

6897
CARRIAGETOWN MARKETPLACE LLC
C/O THOMSON PTS
PO BOX 52136
BOSTON, MA 02205

2690
THREE-WAY REALTY, LLC
107 MACY ST
AMESBURY, MA 01913

2672
THREE-WAY REALTY LLC
107 MACY ST
AMESBURY, MA 01913

2639
108 MACY STREET
C/O MABARDY OIL
720 LAFAYETTE ROAD
SEABROOK, NH 03874

2689
ARC CAFEUSA001, LLC
5505 BLUE LAGOON DRIVE
C/O BURGER KING CORPORATION
MIAMI, FL 33126

MEMORANDUM

TO: **Amesbury Planning Board**

FROM: **W. C. Cammett Engineering, Inc.**
Denis Hamel

RE: **Abutter to Amesbury Chevrolet**
103 Macy Street, Amesbury, Ma.

The abutter to Amesbury Chevrolet for Assessor's Map 80 Parcel 5 has recently changed. Attached is the current deed showing a transfer from Phelan Family Trust to Jeremy Schultz.

Please adjust the List of Abutters when notifying the abutters of the upcoming meeting.

Sincerely,
W. C. Cammett Engineering, Inc.

Denis M. Hamel
Project Manager

Title:M/Winword/2015/15008/agencyinterface/planningboard/15008memo Amesbury Planning Board 101315

SO.ESSEX #339 Bk:34254 Pg:435
07/29/2015 02:27 PM DEED Pg 1/2
eRecorded

MASSACHUSETTS EXCISE TAX
Southern Essex District ROD
Date: 07/29/2015 02:27 PM
ID: 1078926 Doc# 20150729003390
Fee: $1,026.00 Cons: $225,000.00

MASSACHUSETTS QUITCLAIM DEED LONG FORM

PROPERTY ADDRESS: 30 Clarks Road, Amesbury, MA 010913

I, James C. Phelan, Trustee of the Phelan Family Trust, u/d/t dated November 3, 1987, and recorded with the Essex South District Registry of Deeds in Book 9271, Page 259

of Hampstead, Rockingham County, New Hampshire

for consideration paid, and in full consideration of Two Hundred twenty Five Thousand and 00/100 ($225,000.00) Dollars

grant to Jeremy Schutz, an unmarried man

of 30 Clarks Road, Amesbury, Essex County, Massachusetts 01913

with quitclaim covenants

the land in Amesbury, Essex County, Massachusetts being bounded and described as follows:

[Description and encumbrances, if any]

A certain parcel of land, with the buildings thereon, situated on the Northwesterly side of Clark Road, in said Amesbury, and being shown as Parcel A on a plan entitled "Plan of Land in Amesbury, Mass., as subdivided for Wilfred J. and Eugenie M. Desrochers", dated October 25, 1963, Chas. H. Morse & Son, Engineers, bounded and described as follows:

Beginning at an iron post on Clark Road at the junction of land now or formerly of Yeo Chevrolet Co., Inc; thence running

Along Clark Road South 49° 51' 20" West 174.16 feet to Parcel B on said Plan; thence turning and running

North 45° 09' 30" West along land as shown on said Parcel B 404.15 feet to land now or formerly of Yeo Chevrolet Co., Inc.; thence turning and running

Along said land now or formerly of Yeo Chevrolet Co., Inc. North 87° 03' 50" East 152.57 feet to an iron post at land now or formerly of Yeo Chevrolet, Co., Inc.; thence turning and running

South 55° 58' 10" East along said land now or formerly of Yeo Chevrolet Co., Inc. 322.56 feet to an iron post at Clark Road and the point of beginning; containing 1.14 acres, more or less.

This is not homestead property of the Grantors and there is no other person who can claim the benefit of the Massachusetts Homestead Act, M.G.L. c. 188.

Being the same premises conveyed to the grantor by deed of Patrick F. Phelan and Marilyn Phen dated November 3, 1987 and recorded with the Essex South District Registry of Deeds in Book 9271, Page 280.

Witness my hand and seal this 29th day of July, 2015.

James C. Phelan, Trustee

THE COMMONWEALTH OF MASSACHUSETTS

ESSEX, SS.

On this 29th day of July, 2015, before me, the undersigned notary public, personally appeared James C. Phelan, Trustee as aforesaid, proved to me through satisfactory evidence of identification, which was a driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

MARK LOUIS JANOS
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS
My Comm. Expires Dec. 25, 2020

Notary Public: Mark L. Janos
My commission expires: 12-25-20

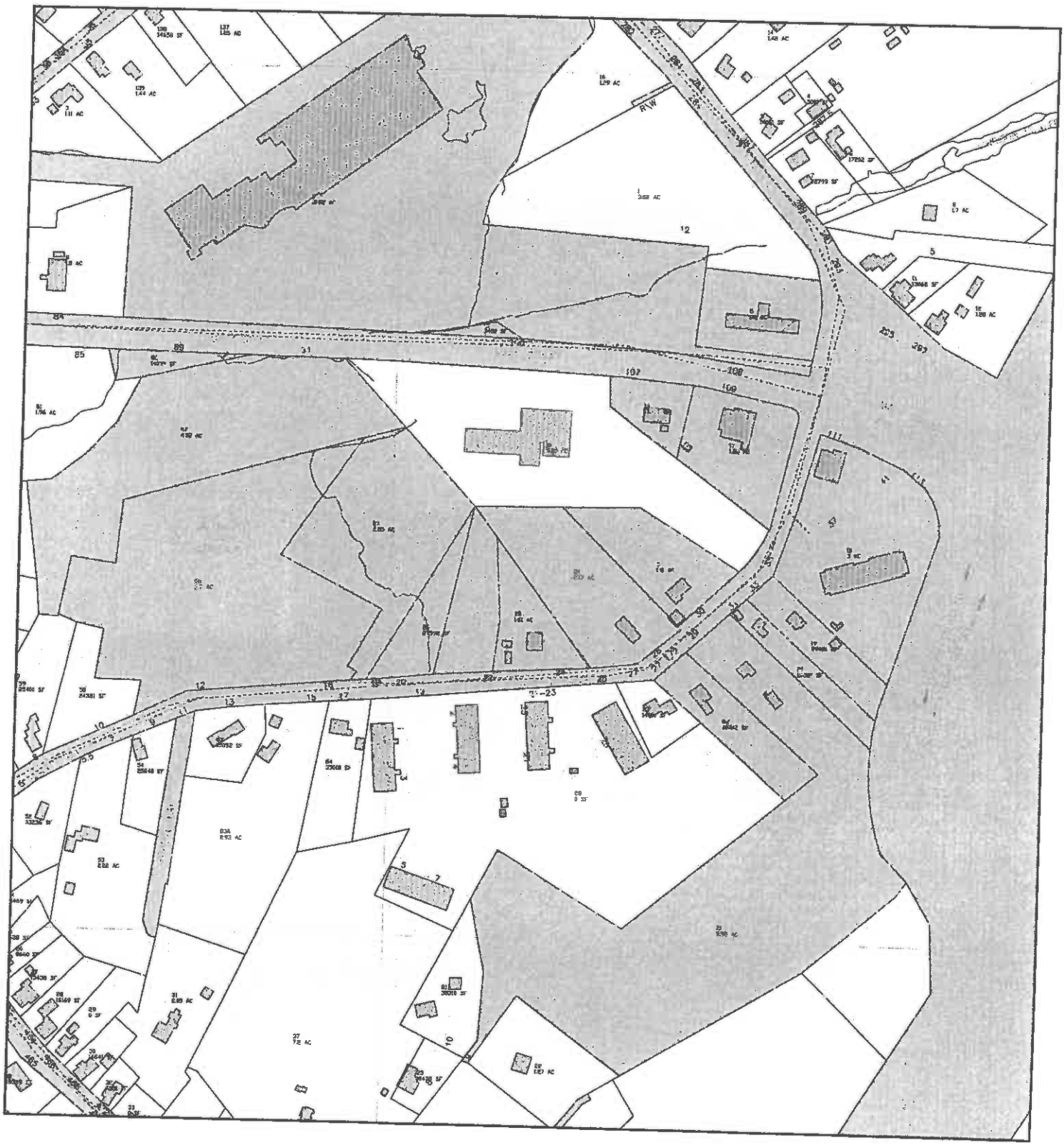
(Individual - Joint Tenants - Tenants in Common)

CHAPTER 183 SEC. 6 AS AMENDED BY CHAPTER 497 OF 1969

Every deed presented for record shall contain or have endorsed upon it the full name, residence and post office address of the grantee and a recital of the amount of the full consideration thereof in dollars or the nature of the other consideration therefor, if not delivered for a specific monetary sum. The full consideration shall mean the total price for the conveyance without deduction for any liens or encumbrances assumed by the grantee or remaining thereon. All such endorsements and recitals shall be recorded as part of the deed. Failure to comply with this section shall not affect the validity of any deed. No register of deeds shall accept a deed for recording unless it is in compliance with the requirements of this section.

F:\RLD\Phelan\Deed\JTA Long.wpd

103 MACY STREET 80/16 300 FT



Information on this Map is Compiled and Maintained for Assessing Purposes Only

GEOGRAPHIC INFORMATION SYSTEM
VISION APPRAISAL TECHNOLOGY

N

Vision ID: 2672 | Account # | MAP ID: 80/ / 16/ / | Bldg #: 1 of 1 | Bldg Name: | Sec #: 1 of 1 | Card 1 of 2 | State Use: 3300 | Print Date: 10/05/2015 15:12

CURRENT OWNER
THREE-WAY REALTY LLC
107 MACY ST
AMESBURY, MA 01913
Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION
2 Above Street	1 All Public	1 Paved	1 Urban
4 Rolling			5 Industrial

SUPPLEMENTAL DATA

Other ID: 00028 00000 0-26A	Use Change
Sub-Div	Original Lot
Spec.Cond.	NOTES
OWNER OCCU YES	STYLE
ABC	CHAPTER L
NUMBER F98	
GIS ID: 2672	ASSOC PID#

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
COMMERC.	3300	1,132,900	1,132,900
COM LAND	3300	665,900	665,900
COMMERC.	3300	140,600	140,600
	Total	1,939,400	1,939,400

101
AMESBURY, MA

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
THREE-WAY REALTY LLC	25635/ 69	05/03/2006	U	I	2,870,000	1C
LAWSON R YEO CHEVROLET INC	05036/0509	02/15/1963			0	
LAWSON R YEO CHEVROLET	4856/ 237	11/18/1961	U	V		

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	3300	1,081,700	2014	3300	1,081,700	2013	3300	1,040,600
2015	3300	665,900	2014	3300	665,900	2013	3300	658,000
2015	3300	140,600	2014	3300	140,600	2013	3300	53,900
	Total:	1,888,200		Total:	1,888,200		Total:	1,752,500

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD NAME	STREET INDEX NAME	TRACING	BATCH
0001/A				

NOTES

W/LOT20-26A INC
AMESBURY CHEVROLET & VOLKSWAGEN

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	1,055,100
Appraised XF (B) Value (Bldg)	77,800
Appraised OB (L) Value (Bldg)	140,600
Appraised Land Value (Bldg)	665,900
Special Land Value	0
Total Appraised Parcel Value	1,939,400
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	1,939,400

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
2012-132	09/12/2011	DE	Demolish	0	04/26/2012	100	04/26/2012	INTERIOR
59	08/15/2007	CM	Commercial	600	05/12/2008	100	05/12/2008	REPL SIGN FACE
547	06/22/2005	CM	Commercial	0	05/12/2008	100	05/12/2008	TEMPORARY BANNEI
01-320	01/22/2001	AD	Addition	0	06/11/2001	100	06/11/2001	SIGNS

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
4/26/2012			JD	BP	Building Permit
5/12/2008			TZ	EI	Exterior Inspection
3/13/2007			RD	00	Measur+Listed
6/11/2001			HF	BP	Building Permit
10/27/1998			MT	IR	Income Reconciliation

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	Adj. Unit Price	Land Value
1	3300	Car Dealer Large	C		700	300	43,560	SF	3.36	1.00	A	1.0000	1.00	0400	1.75			5.88	256,100
1	3300	Car Dealer Large	C				1.50	AC	146,400.00	1.00	0	1.0000	1.00	0400	1.75			256,200.00	384,300
1	3300	Car Dealer Large	C				2.55	AC	10,000.00	1.00	0	1.0000	1.00		0.00			10,000.00	25,500
		Total Card Land Units:					5.05	AC	Parcel Total Land Area:		219,978 SF							Total Land Value:	665,900

Property Location: 103 MACY ST

Vision ID: 2672 | Account # | **MAP ID: 80/ / 16/ /** | Bldg #: 1 of 1 | Bldg Name: | Sec #: 1 of 1 | Card 1 of 2 | State Use: 3300 | Print Date: 10/05/2015 15:12

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	27		Car Dealer
Model	94		Commercial
Grade	03		Average
Stories	2		
Occupancy	1		
Exterior Wall 1	15		Concr/Cinder
Exterior Wall 2			
Roof Structure	01		Flat
Roof Cover	04		Tar & Gravel
Interior Wall 1	01		Minim/Masonry
Interior Wall 2			
Interior Floor 1	03		Concr-Finished
Interior Floor 2			
Heating Fuel	03		Gas
Heating Type	04		Forced Air-Duc
AC Type	01		None
Bldg Use	3300		Car Dealer Large
Total Rooms			
Total Bedrms	00		
Total Baths	2		
Heat/AC	02		HEAT/AC SPLIT
Frame Type	03		MASONRY
Baths/Plumbing	02		AVERAGE
Ceiling/Wall	04		CEIL & MIN WL
Rooms/Prtns	02		AVERAGE
Wall Height	16		
% Comn Wall	0		

CONSTRUCTION DETAIL (CONTINUED)

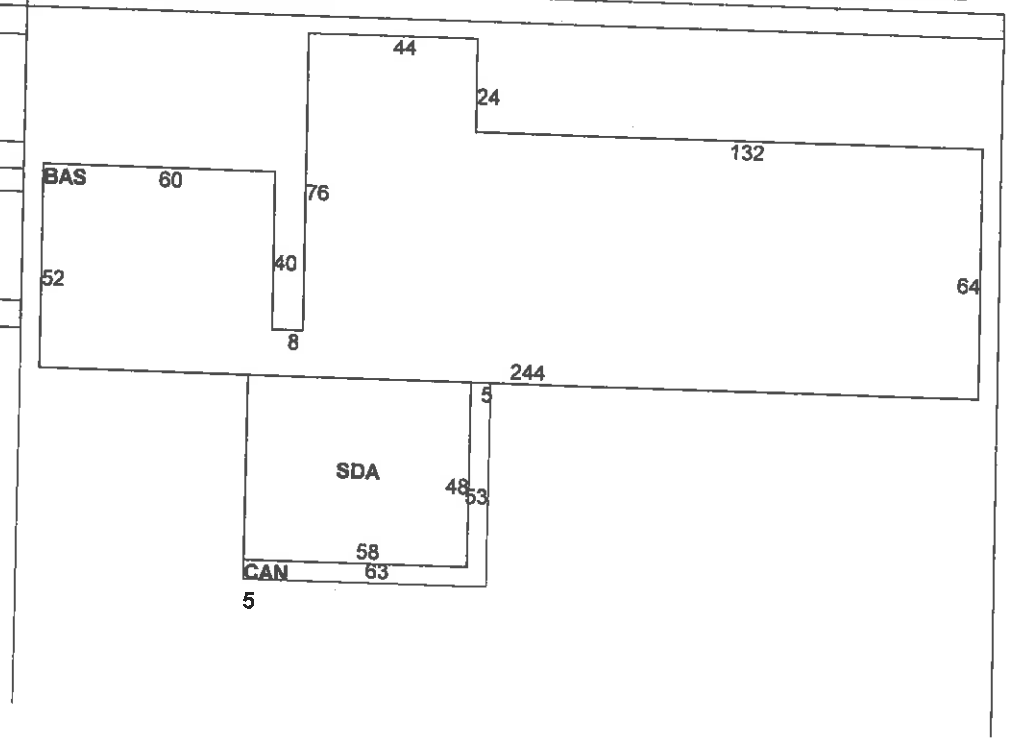
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
3300	Car Dealer Large	100

COST/MARKET VALUATION

Adj. Base Rate:	95.41
Section. RCN:	1,758,502
Net Other Adj:	0.00
Replace Cost	1,758,502
AYB	1962
EYB	1973
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	40
Functional Obsinc	0
External Obsinc	0
Cost Trend Factor	1
Condition	
% Complete	
Overall % Cond	60
Apprais Val	1,055,100
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	

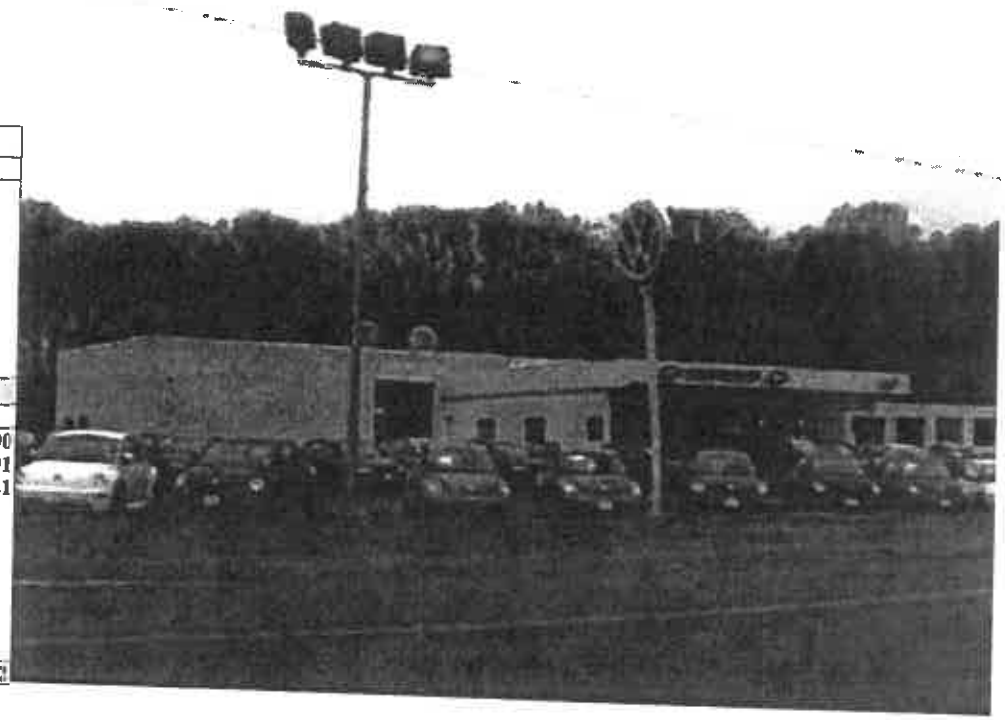


OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
PAV1	PAV ASPH			L	60,000	3.70	1985		0		50	111,000
LT2	LIGHTS INC 2			L	3	1,100.00	1980		0		50	1,700
SGN3	SIGN W/INT L			L	68	77.00	2001		0		70	3,700
FN3	FENCE CHN 6			L	500	20.00	1980		0		50	5,000
SGN3	SIGN W/INT L			L	164	77.00	2001		0		70	8,800
SGN3	SIGN W/INT L			L	84	77.00	2001		0		70	4,500
LT1	LIGHTS INC 1			L	5	690.00	1980		0		50	2,100
LT4	LIGHTS INC 4			L	4	1,900.00	1980		0		50	3,800
LFT1	LIFT LIGHT			B	13	2,700.00	1973		1		100	21,100

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	15,536	15,536	15,536	95.41	1,482,290
CAN	Canopy	0	555	111	19.08	10,591
SDA	Store Display Area	2,784	2,784	2,784	95.41	265,621
	Ttl. Gross Liv/Lease Area:	18,320	18,875	18,431		1,758,502



Property Location: 103 MACY ST

Vision ID: 2672 | **MAP ID: 80/ / 16/ /** | **Bldg Name:** | **Bldg #: 1 of 1** | **Sec #: 1 of 1** | **Card 2 of 2** | **State Use: 3300** | **Print Date: 10/05/2015 15:12**

CURRENT OWNER

THREE-WAY REALTY LLC

107 MACY ST

AMESBURY, MA 01913

Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION

SUPPLEMENTAL DATA

Other ID: 00028 00000 0-26A

GIS ID: 2672 | ASSOC PID#

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
		Total	1,939,400	1,939,400

101
AMESBURY, MA

VISION

RECORD OF OWNERSHIP

BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
Total:			Total:			Total:		

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD NAME	STREET INDEX NAME	TRACING	BATCH
0001/A				

NOTES

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	1,055,100
Appraised XF (B) Value (Bldg)	77,800
Appraised OB (L) Value (Bldg)	140,600
Appraised Land Value (Bldg)	665,900
Special Land Value	0
Total Appraised Parcel Value	1,939,400
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	1,939,400

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Frontage	Depth	Units	Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		Adj. Unit Price	Land Value

Total Card Land Units: 0 SF | Parcel Total Land Area: 219,978 SF | Total Land Value: 0

Property Location: 105 MACY ST
Vision ID: 2672

MAP ID: 80/ / 16/ /

Bldg #: 1 of 1 Bldg Name: Sec #: 1 of 1 Card 2 of 2

State Use: 3300
Print Date: 10/05/2015 15:12

CONSTRUCTION DETAIL			
Element	Cd.	Ch.	Description

CONSTRUCTION DETAIL (CONTINUED)			
Element	Cd.	Ch.	Description

MIXED USE		
Code	Description	Percentage
3300	Car Dealer Large	100

COST/MARKET VALUATION	
Cost Trend Factor	

OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SPR1	SPRINKLERS			B	22,000	0.80	1973		1		100	10,600
MEZ1	MEZZANINE			B	2,080	8.00	1973		1		100	10,000
MEZ3	W/PARTITIO			B	3,344	18.00	1973		1		100	36,100

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
Ttl. Gross Liv/Lease Area:		0	0	0		1,758,502

No Photo On Record

ABUTTERS LISTING for 103 MACY STREET 80/16 300 FT
AMESBURY, MA

AV PID	Map	Lot	Unit	Location	Owner's Name	Co_Owner's Name	Address	City	ST	Zip	Book/Page
2977	79	56		12 CLARKS RD	SALISBURY POINT CEMETERY ASSOC	C/O DUNCAN NOYES	4 BUTTONWOOD RD	AMESBURY	MA	01913	
2686	80	27		18 CLARKS RD	SALISBURY POINT CEMETERY ASSOC	C/O DUNCAN NOYES	4 BUTTONWOOD RD	AMESBURY	MA	01913	
104959	80	25	A	20 CLARKS RD	BC REALTY TRUST	JOHN & ROBERT O CORMIER (TRUST	64 SCHOOL ST	MERRIMAC	MA	01860	33582/ 181
2692	80	26		20A CLARKS RD	SALISBURY POINT CEMETERY ASSOC	C/O DUNCAN NOYES	4 BUTTONWOOD RD	AMESBURY	MA	01913	09860/0437
2687	80	25		22 CLARKS RD	DONAHUE DANIEL J II	DEBRA M DONAHUE (JT)	22 CLARKS RD	AMESBURY	MA	01913	33434/ 55
2688	80	24		26 CLARKS RD	BOUCHER ROBERT J SR & DORIS E	THE BOUCHER FAMILY REVOCABLE T	26 CLARKS RD	AMESBURY	MA	01913	26346/ 116
2677	80	22		27.5 CLARKS RD	ORNE ROBERT	EARL J & THERESA M DAY	27.5 CLARKS RD	AMESBURY	MA	01913	13028/0561
2676	80	21		29 CLARKS RD	LEBLANC ROGER		14 MILL ROAD	IPSWICH	MA	01938	22443/ 401
2821	80	5		30 CLARKS RD	FOWLER P A/J C & R P PHELAN	C/O JEREMY SCHUTZ	30 CLARKS RD	AMESBURY	MA	01913	09271/0280
2825	80	20		31 CLARKS RD	JANCEWICZ JOHN		31 CLARKS RD	AMESBURY	MA	01913	21175/ 166
2675	80	19		33 CLARKS RD	DALTON ROBERT J	KERRI A DALTON	33 CLARKS RD	AMESBURY	MA	01913	18639/ 329
2673	80	18		37 CLARKS RD	CSMC 2007-C5 FFI HOTEL PORTFOL	C/O EASLEY,MCCALEB & ASSOCIATE	2961 A HUNTER MILL ROAD #	OAKTON	VA	22124	33588/ 511
6897	79	6		100 MACY ST	CARRIAGETOWN MARKETPLACE LLC	C/O THOMSON PTS	PO BOX 52136	BOSTON	MA	02205	16768/ 416
2690	80	15		102 MACY ST	THREE-WAY REALTY, LLC		107 MACY ST	AMESBURY	MA	01913	25635/ 69
2824	80	13		107 MACY ST	THREE-WAY REALTY LLC		107 MACY ST	AMESBURY	MA	01913	DOC 467006
2639	80	2		108 MACY ST	108 MACY STREET	C/O MABARDY OIL	720 LAFAYETTE ROAD	SEABROOK	NH	03874	28331281
2689	80	17		109 MACY ST	ARC CAFEUSA001, LLC		5505 BLUE LAGOON DRIVE	MIAMI	FL	33126	32655/ 542
2642	79	82		89 MACY ST	TRUE HOMESTEAD LIMITED	PARTNERSHIP I	C/O H T SEARS / 33 PINE S	EXETER	NH	03833	09703/0107
2641	79	57		91 MACY ST	YEO CHEVROLET INC		P O BOX 607	AMESBURY	MA	01913	27601/ 402

Parcel Count: 19

THE BOARD OF ASSESSORS OF THE TOWN OF AMESBURY, MA HEREBY CERTIFIES THAT THIS LIST OF ABUTTERS IS THE MOST RECENT APPLICABLE TAX LIST AS REQUIRED BY CHAPTER 40A, SECTION 11 OF THE MASSACHUSETTS GENERAL LAWS AS AMENDED.

October 6, 2015

2977
SALISBURY POINT CEMETERY ASSOC
C/O DUNCAN NOYES
4 BUTTONWOOD RD
AMESBURY, MA 01913

2675
DALTON ROBERT J
KERRI A DALTON
33 CLARKS RD
AMESBURY, MA 01913

2686
SALISBURY POINT CEMETERY ASSOC
C/O DUNCAN NOYES
4 BUTTONWOOD RD
AMESBURY, MA 01913

2673
CSMC 2007-C5 FFI HOTEL PORTFOLIO
C/O EASLEY,MCCALEB & ASSOCIATES,
2961 A HUNTER MILL ROAD #802
OAKTON, VA 22124

104959
BC REALTY TRUST
JOHN & ROBERT O CORMIER
64 SCHOOL ST
MERRIMAC, MA 01860

6897
CARRIAGETOWN MARKETPLACE LLC
C/O THOMSON PTS
PO BOX 52136
BOSTON, MA 02205

2692
SALISBURY POINT CEMETERY ASSOC
C/O DUNCAN NOYES
4 BUTTONWOOD RD
AMESBURY, MA 01913

2690
THREE-WAY REALTY, LLC
107 MACY ST
AMESBURY, MA 01913

2687
DONAHUE DANIEL J II
DEBRA M DONAHUE (JT)
22 CLARKS RD
AMESBURY, MA 01913

2824
THREE-WAY REALTY LLC
107 MACY ST
AMESBURY, MA 01913

2688
BOUCHER ROBERT J SR & DORIS E TRS
THE BOUCHER FAMILY REVOCABLE
26 CLARKS RD
AMESBURY, MA 01913

2639
108 MACY STREET
C/O MABARDY OIL
720 LAFAYETTE ROAD
SEABROOK, NH 03874

2677
ORNE ROBERT
EARL J & THERESA M DAY
27.5 CLARKS RD
AMESBURY, MA 01913

2689
ARC CAFEUSA001, LLC
5505 BLUE LAGOON DRIVE
C/O BURGER KING CORPORATION
MIAMI, FL 33126

2676
LEBLANC ROGER
14 MILL ROAD
IPSWICH, MA 01938

2642
TRUE HOMESTEAD LIMITED
PARTNERSHIP I
C/O H T SEARS / 33 PINE ST
EXETER, NH 03833

2821
FOWLER P A/J C & R P PHELAN
C/O JEREMY SCHUTZ
30 CLARKS RD
AMESBURY, MA 01913

2641
YEO CHEVROLET INC
P O BOX 607
AMESBURY, MA 01913

2825
JANCEWICZ JOHN
31 CLARKS RD
AMESBURY, MA 01913

February 25, 2016

Amesbury Planning Board
62 Friend St.
Amesbury, MA 01913

Re: Three Way Realty Trust
Site Plan Review

Dear Board Members,

As Trustee of Three Way Realty Trust, I will comply with all of the Environmental Performance Standards as specified in Section X1.C.8.j items numbered 1 through 9 for the operation of Amesbury Chevrolet.

Brian Fecteau
Trustee of Three Way Realty Trust

2-25-2016
Date

JOHN W. FURRH ASSOCIATES, INC.

Industrial
Marine
Transportation

Consultants
Safety - Loss Prevention - EPA

645 County Street
Suite 6B
Taunton, MA 02780

508.824.4939 - FAX 508.822.8608
customer_service@johnwfurrhassociates.com

Mr. Joe Sedarquist
Amesbury Chevrolet
103 Macy St.
Amesbury, MA 01913

Dear Mr. Sedarquist:

This letter is written certification that Amesbury Chevrolet has completed:

HAZARD COMMUNICATION PROGRAM (29 CFR 1910.1200) This program involved training of affected employees, and review of present Right-to-Know Written Program. This program also aligns with the Global Harmonization System.

HAZWOPER Training (29 CFR 1910.120) This program included training covering your employees through **AWARENESS LEVEL** in accordance with the above regulation.

HAZARD ASSESSMENT TRAINING for Personal Protective Equipment(PPE) to meet OSHA's Final Rule 29 CFR 1910 This program included training of affected employees in the following: 1) When PPE is necessary; 2) What PPE is necessary; 3) How to properly don, doff, adjust & wear PPE; 4) The limitations of PPE; and 5) The proper care, maintenance, useful life, and disposal of the PPE.

FIRE EXTINGUISHER TRAINING to cover the requirement of **29 CFR1910.157(g)**

LOCKOUT-TAGOUT (29 CFR 1910.147) This program included training for your employees reviewing Lockout/Tagout to their scope and responsibilities.

BLOODBORNE PATHOGENS (29 CFR 1910.1030) This program included training for exposure control for your employees to their scope and responsibilities.

All of these steps are designed to keep this company in compliance with OSHA's Hazard Communication Standard and the Right-To-Know Law, OSHA's final rule governing Hazardous Waste Operations and Emergency Response, and to also meet OSHA's Final Rule in 29 CFR 1910 on Personal Protective Equipment, Fire Extinguishers, Lockout/Tagout and Bloodborne Pathogens.

The Training Roster lists the employees that were in attendance.

Sincerely,

Eric Fisher
Instructor/Coordinator

Date 4/17/15

Certificate

JOHN W. FURRH ASSOCIATES INC.

certifies that

AMESBURY CHEVROLET

has completed OSHA Hazard Communication Standard
(29 CFR 1910.1200) to include the Global Harmonization System
and State Right-To-Know Employee Training.

April 11 2013
Date

John W. Furrh
John W. Furrh
Instructor, Registered D.O.L., MA

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF LABOR STANDARDS

Massachusetts Workplace Safety and Health Program
Heather E. Rowe, Director

Eric Fisher

Is registered as a Third Party Instructor under the Right to Know Law, M.G. L. Chapter 111F

July 2, 2014

Registration Number: 15-104

Expiration Date: June 30, 2015

APPENDIX A

Stormwater Report

Stormwater Report Checklist

Stormwater Report

Project #15008

Three Way Realty Trust (Amesbury Chevrolet)
103 Macy Street
Amesbury, Ma.

W.C. Cammett Engineering, Inc.
297 Elm Street - Amesbury, MA
Date: 02/15/2016
Revised: 02-25-2016

TABLE OF CONTENTS

LIST OF FIGURES

APPENDICIES

SITE DESCRIPTION

GENERAL

The 5.33 ± acre project site (SITE) is located at 103 Macy in Amesbury, Ma. The site is developed with an vehicle sales and service building and a auto detailing building with associated parking and utilities. The site has also has frontage on Clarks Road and currently does not use it for access. The site is gently sloping from east to west with sloping areas to abutting properties. There is an area of Bordering Vegetated Wetlands (BVW) at the bottom of slope along the rear of the property and flows to the east and dischages inot a perennial stream along Macy Street. The site is serviced by municipal water and sewer.

Slopes on the Site range from 3% to 33%. Soils on the Site are comprised of Deerfiled, a loamy fine sand, hydrologic group A, Scabaro, a mucky fine sandy loam, hydrologic group A/D, and Urban Land in the central portion of the site developed site. These soil types are from the NRCS, of the USDA. See Appendix B.

The Project is divided into three Phases. Phase I was the addition to the Show Room and modifications to the existing building and has been approved and constructed. Phase II is the addition of the 16,000 SF service area and reconstruction of the stormwater system in the area of the addition. This report is for the Phase II portion of the project. Phase III will be to complete the stormwater system, reconstruct the exterior lighting system, and repave the remaining parking and access areas. Phase III is scheduled to be submitted for review in 2016.

PRE-DEVELOPMENT DRAINAGE CONDITIONS

Phase II portion of the site consists of seven drainage subcatchment areas for stormwater analysis purposes, E1, to E8. Subcatchment E1 is runoff to the wetland swale to the rear of the site TO POINT "A". E2 is the area that the runoff discharges into Macy Street and into an existing catch basin AT POINT "B". Subcatchments E3 to E8 are areas to existing catch basins that are interconnected with drainage pipes of different materials to point "C". Refer to the Pre-Development Drainage Zone Map Figure 1.

PROJECT DESCRIPTION

GENERAL

The proposed project is for construction of an addition to the existing building along with demolition of the existg building currently used for auto detailing.The area of Phase II will be regraded and paved. The existing stormwater drainage system will abandoned and new catch basins, manholes and drainage piping will be installed. Subcatchment D1 corresponds to

existing subcatchments E1 at point "A". D2 coresponds to E2 and shown at point "B". Subcatchment D3 to D8 are areas that discharge to new catch basins and a re connected by new manholes and drasinage pipes and the results are shown at point "C"as Summary Reach 100. The roof of the new addition slopes to the rear and is collected by a gutter and a series of down spouts and discharges into DMH1. Refer to Figure 2, Developed Drainage Zones, for a summary of the proposed drainage subcatchments and their locations.

STORMWATER MANAGEMENT SYSTEM

The basis of the overall design of the system is to safely control stormwater runoff from the proposed development including peak rate and volume of runoff. The proposed parking area/access drive is captured and connect to the existing drainage system.

Refer to the site plans for specific details related to each stormwater component.

POST-DEVELOPMENT DRAINAGE CONDITIONS

Drainage patterns resulting from the proposed development are delineated on Figure 2, *Development Drainage Zones*. The site consists of 8 post-developed subcatchment areas. The porposed drainage system is connected to the existing drainage system that discharges into the perenial stream at Macy Street.

The existing stormwater system is in poor condition and is not sized to handle the runoff from a 25 year storm event. The result is the catch basins overflow and travel overland to the perennial stream. The proposed stormwater system is designed to handle a 25 year storm event up to where it connects to the existing system. This portion of the project is Phase II of the overall development. Phase III will complete the stormwater system for the entire site and safely handle the 25 year storm event.

DESIGN OBJECTIVES / METHODOLOGY

STORMWATER MANAGEMENT SYSTEM

The drainage system was designed to accommodate runoff resulting from 2, 10, 25, and 100 year frequency design storms. The general pattern of the runoff from the Site will remain similar to existing conditions, with runoff generally flowing, under certain storm conditions, to locations identified at each discharge point where stormwaterflows offsite.

RUNOFF QUANTIFICATION

The stormwater analysis was performed using pre-and post-development site criteria to estimate the effects of the proposed development on stormwater runoff conditions. Stormwater runoff rates and volumes were calculated for the 2, 10, 25, and 100 year design storm events. The analysis was performed using HydroCAD[tm], a computerized stormwater modeling system that combines SCS hydrology techniques with standard hydraulic equations.

Total site runoff figures were obtained by summing hydrographs and not by direct addition of peak flows from individual subcatchments. Since peak flows from the individual subcatchments occur at different times, the total runoff figure listed may not equal the sum of the individual peak flows from the various subcatchments. This method provides a more realistic total flow figure than that obtained by direct addition of peak flows.

SUMMARY

STORMWATER RUNOFF COMPARISON

The following tables summarize hydrologic conditions resulting from pre and post development peak storm water runoff.

Table 1: Comparison Point Peak Runoff
2 Year Storm

Site Condition	Runoff Rate (CFS)		Runoff Volume (AF)	
Location	Pre-Dev	Post-Dev	Pre-Dev	Post-Dev
"A"	0.04	0.00	0.012	0.002
"B"	0.25	0.18	0.018	0.013
"C"	4.07	4.19	0.321	0.325
TOTAL	4.36	4.37	0.351	0.340

Table 2: Comparison Point Peak Runoff
10 Year Storm

Site Condition	Runoff Rate (CFS)		Runoff Volume (AF)	
Location	Pre-Dev	Post-Dev	Pre-Dev	Post-Dev
"A"	0.53	0.08	0.057	0.013
"B"	0.44	0.32	0.032	0.023
"C"	6.79	7.86	0.536	0.599
TOTAL	7.76	8.26	0.625	0.635

Table 3: Comparison Point Peak Runoff
25 Year Storm

Site Condition	Runoff Rate (CFS)		Runoff Volume (AF)	
Location	Pre-Dev	Post-Dev	Pre-Dev	Post-Dev
"A"	0.83	0.15	0.077	0.018
"B"	0.50	0.36	0.036	0.026
"C"	7.72	9.14	0.610	0.696
TOTAL	9.05	9.65	0.723	0.740

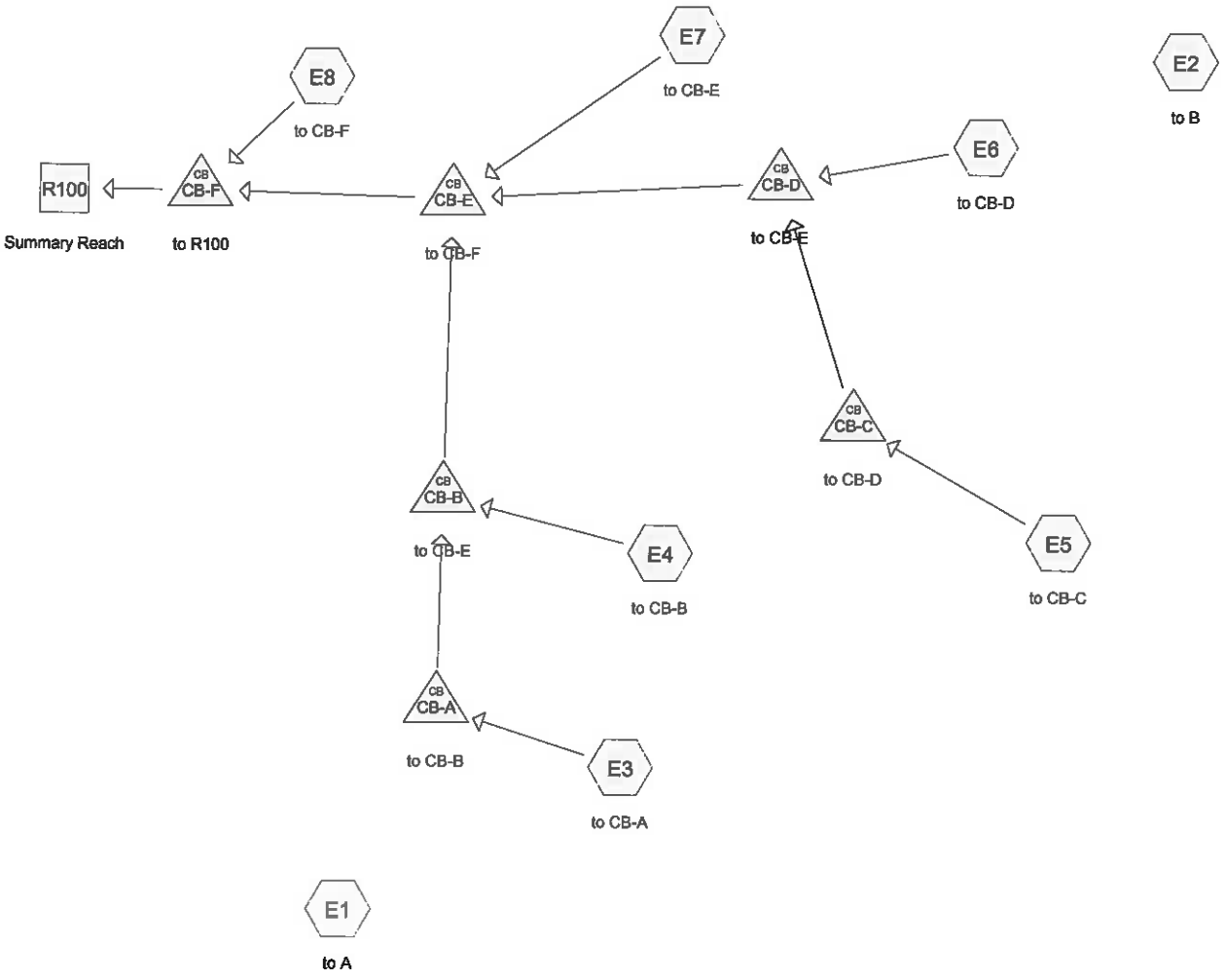
Table 4: Comparison Point Peak Runoff
100 Year Storm

Site Condition	Runoff Rate (CFS)		Runoff Volume (AF)	
Location	Pre-Dev	Post-Dev	Pre-Dev	Post-Dev
"A"	1.82	0.42	0.145	0.036
"B"	0.66	0.49	0.050	0.036
"C"	10.41	12.88	0.823	0.980
TOTAL	12.89	13.79	1.018	1.052

Notes:

At points "A" and "B" the peak flows and runoff volumes are reduced with the developed conditions. At point "C" where the developed system discharges into the existing system there is a slight increase in peak flows and runoff volumes.

The existing system is not functioning and overflowing during at portions of the system for all storm events. The computer model assumes that all the flow goes through the pipes which makes it difficult to compare the existing flows to the developed flows and volumes.



Subcat Reach Pond Link

Routing Diagram for 150008-pre
Prepared by Microsoft, Printed 2/12/2016

Summary for Subcatchment E1: to A

Runoff = 0.04 cfs @ 12.43 hrs, Volume= 0.012 af, Depth> 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.050	98	Paved parking, HSG A
0.091	96	Gravel surface, HSG A
0.285	30	Woods, Good, HSG A
0.459	49	50-75% Grass cover, Fair, HSG A
0.103	65	Brush, Good, HSG C
0.988	52	Weighted Average
0.938		94.94% Pervious Area
0.050		5.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.0	160	0.0260	2.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.4	310	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	480	Total			

Summary for Subcatchment E2: to B

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.018 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG A
0.015	39	>75% Grass cover, Good, HSG A
0.105	90	Weighted Average
0.015		14.29% Pervious Area
0.090		85.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E3: to CB-A

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.058 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.244	98	Paved parking, HSG A
0.244		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E4: to CB-B

Runoff = 0.83 cfs @ 12.07 hrs, Volume= 0.066 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.275	98	Paved parking, HSG A
0.275		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E5: to CB-C

Runoff = 0.08 cfs @ 12.14 hrs, Volume= 0.012 af, Depth> 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.104	98	Paved parking, HSG A
0.042	96	Gravel surface, HSG A
0.282	39	>75% Grass cover, Good, HSG A
0.428	59	Weighted Average
0.324		75.70% Pervious Area
0.104		24.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment E6: to CB-D

Runoff = 0.86 cfs @ 12.07 hrs, Volume= 0.061 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.271	98	Paved parking, HSG A
0.032	96	Gravel surface, HSG A
0.038	39	>75% Grass cover, Good, HSG A
0.341	91	Weighted Average
0.070		20.53% Pervious Area
0.271		79.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment E7: to CB-E

Runoff = 0.65 cfs @ 12.07 hrs, Volume= 0.051 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.213	98	Paved parking, HSG A
0.002	96	Gravel surface, HSG A
0.215	98	Weighted Average
0.002		0.93% Pervious Area
0.213		99.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment E8: to CB-F

Runoff = 0.93 cfs @ 12.07 hrs, Volume= 0.072 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.306	98	Paved parking, HSG A
0.007	39	>75% Grass cover, Good, HSG A
0.313	97	Weighted Average
0.007		2.24% Pervious Area
0.306		97.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R100: Summary Reach

Inflow Area = 1.816 ac, 77.81% Impervious, Inflow Depth > 2.12" for 2 Year event
Inflow = 4.07 cfs @ 12.07 hrs, Volume= 0.321 af
Outflow = 4.07 cfs @ 12.07 hrs, Volume= 0.321 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond CB-A: to CB-B

Inflow Area = 0.244 ac,100.00% Impervious, Inflow Depth > 2.87" for 2 Year event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 0.058 af
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.65' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.20'	**12.0" Round Culvert** L= 95.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.20' / 36.30' S= 0.0095 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.64 cfs @ 12.07 hrs HW=37.64' TW=37.06' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.64 cfs @ 2.83 fps)

Summary for Pond CB-B: to CB-E

Inflow Area = 0.519 ac,100.00% Impervious, Inflow Depth > 2.87" for 2 Year event
Inflow = 1.57 cfs @ 12.07 hrs, Volume= 0.124 af
Outflow = 1.57 cfs @ 12.07 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Primary = 1.57 cfs @ 12.07 hrs, Volume= 0.124 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.12' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.30'	**12.0" Round Culvert** L= 70.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.30' / 35.60' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.23 cfs @ 12.07 hrs HW=37.06' TW=36.74' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.23 cfs @ 2.66 fps)

Summary for Pond CB-C: to CB-D

Inflow Area = 0.428 ac, 24.30% Impervious, Inflow Depth > 0.34" for 2 Year event
Inflow = 0.08 cfs @ 12.14 hrs, Volume= 0.012 af
Outflow = 0.08 cfs @ 12.14 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.14 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 39.54' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	39.40'	**12.0" Round Culvert** L= 138.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.40' / 37.00' S= 0.0174 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.14 hrs HW=39.54' TW=37.43' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.08 cfs @ 1.25 fps)

Summary for Pond CB-D: to CB-E

Inflow Area = 0.769 ac, 48.76% Impervious, Inflow Depth > 1.15" for 2 Year event
Inflow = 0.92 cfs @ 12.08 hrs, Volume= 0.074 af
Outflow = 0.92 cfs @ 12.08 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.08 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.49' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**12.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 35.60' S= 0.0233 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.08 hrs HW=37.48' TW=36.73' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.89 cfs @ 2.36 fps)

Summary for Pond CB-E: to CB-F

Inflow Area = 1.503 ac, 73.65% Impervious, Inflow Depth > 1.99" for 2 Year event
Inflow = 3.13 cfs @ 12.07 hrs, Volume= 0.249 af
Outflow = 3.13 cfs @ 12.07 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min
Primary = 3.13 cfs @ 12.07 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.78' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.60'	**12.0" Round Culvert** L= 95.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 35.60' / 33.50' S= 0.0221 '/' Cc= 0.900
n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.02 cfs @ 12.07 hrs HW=36.74' TW=35.07' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.02 cfs @ 3.84 fps)

Summary for Pond CB-F: to R100

Inflow Area =	1.816 ac, 77.81% Impervious, Inflow Depth > 2.12"	for 2 Year event		
Inflow =	4.07 cfs @ 12.07 hrs, Volume=	0.321 af		
Outflow =	4.07 cfs @ 12.07 hrs, Volume=	0.321 af, Atten= 0%, Lag= 0.0 min		
Primary =	4.07 cfs @ 12.07 hrs, Volume=	0.321 af		

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 35.14' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	**12.0" Round Culvert**
			L= 12.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 33.50' / 33.30' S= 0.0167 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.92 cfs @ 12.07 hrs HW=35.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.92 cfs @ 4.99 fps)

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: to A Runoff Area=0.988 ac 5.06% Impervious Runoff Depth>0.15"
Flow Length=480' Tc=5.5 min CN=52 Runoff=0.04 cfs 0.012 af

Subcatchment E2: to B Runoff Area=0.105 ac 85.71% Impervious Runoff Depth>2.07"
Tc=5.0 min CN=90 Runoff=0.25 cfs 0.018 af

Subcatchment E3: to CB-A Runoff Area=0.244 ac 100.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=0.74 cfs 0.058 af

Subcatchment E4: to CB-B Runoff Area=0.275 ac 100.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=0.83 cfs 0.066 af

Subcatchment E5: to CB-C Runoff Area=0.428 ac 24.30% Impervious Runoff Depth>0.34"
Tc=5.0 min CN=59 Runoff=0.08 cfs 0.012 af

Subcatchment E6: to CB-D Runoff Area=0.341 ac 79.47% Impervious Runoff Depth>2.16"
Tc=5.0 min CN=91 Runoff=0.86 cfs 0.061 af

Subcatchment E7: to CB-E Runoff Area=0.215 ac 99.07% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=0.65 cfs 0.051 af

Subcatchment E8: to CB-F Runoff Area=0.313 ac 97.76% Impervious Runoff Depth>2.76"
Tc=5.0 min CN=97 Runoff=0.93 cfs 0.072 af

Reach R100: Summary Reach Inflow=4.07 cfs 0.321 af
Outflow=4.07 cfs 0.321 af

Pond CB-A: to CB-B Peak Elev=37.65' Inflow=0.74 cfs 0.058 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0095 '/' Outflow=0.74 cfs 0.058 af

Pond CB-B: to CB-E Peak Elev=37.12' Inflow=1.57 cfs 0.124 af
12.0" Round Culvert n=0.011 L=70.0' S=0.0100 '/' Outflow=1.57 cfs 0.124 af

Pond CB-C: to CB-D Peak Elev=39.54' Inflow=0.08 cfs 0.012 af
12.0" Round Culvert n=0.011 L=138.0' S=0.0174 '/' Outflow=0.08 cfs 0.012 af

Pond CB-D: to CB-E Peak Elev=37.49' Inflow=0.92 cfs 0.074 af
12.0" Round Culvert n=0.011 L=60.0' S=0.0233 '/' Outflow=0.92 cfs 0.074 af

Pond CB-E: to CB-F Peak Elev=36.78' Inflow=3.13 cfs 0.249 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0221 '/' Outflow=3.13 cfs 0.249 af

Pond CB-F: to R100 Peak Elev=35.14' Inflow=4.07 cfs 0.321 af
12.0" Round Culvert n=0.011 L=12.0' S=0.0167 '/' Outflow=4.07 cfs 0.321 af

Total Runoff Area = 2.909 ac Runoff Volume = 0.351 af Average Runoff Depth = 1.45"
46.61% Pervious = 1.356 ac 53.39% Impervious = 1.553 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: to A Runoff Area=0.988 ac 5.06% Impervious Runoff Depth>0.69"
Flow Length=480' Tc=5.5 min CN=52 Runoff=0.53 cfs 0.057 af

Subcatchment E2: to B Runoff Area=0.105 ac 85.71% Impervious Runoff Depth>3.63"
Tc=5.0 min CN=90 Runoff=0.44 cfs 0.032 af

Subcatchment E3: to CB-A Runoff Area=0.244 ac 100.00% Impervious Runoff Depth>4.51"
Tc=5.0 min CN=98 Runoff=1.14 cfs 0.092 af

Subcatchment E4: to CB-B Runoff Area=0.275 ac 100.00% Impervious Runoff Depth>4.51"
Tc=5.0 min CN=98 Runoff=1.29 cfs 0.103 af

Subcatchment E5: to CB-C Runoff Area=0.428 ac 24.30% Impervious Runoff Depth>1.09"
Tc=5.0 min CN=59 Runoff=0.48 cfs 0.039 af

Subcatchment E6: to CB-D Runoff Area=0.341 ac 79.47% Impervious Runoff Depth>3.74"
Tc=5.0 min CN=91 Runoff=1.44 cfs 0.106 af

Subcatchment E7: to CB-E Runoff Area=0.215 ac 99.07% Impervious Runoff Depth>4.51"
Tc=5.0 min CN=98 Runoff=1.00 cfs 0.081 af

Subcatchment E8: to CB-F Runoff Area=0.313 ac 97.76% Impervious Runoff Depth>4.40"
Tc=5.0 min CN=97 Runoff=1.45 cfs 0.115 af

Reach R100: Summary Reach Inflow=6.79 cfs 0.536 af
Outflow=6.79 cfs 0.536 af

Pond CB-A: to CB-B Peak Elev=39.66' Inflow=1.14 cfs 0.092 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0095 '/' Outflow=1.14 cfs 0.092 af

Pond CB-B: to CB-E Peak Elev=39.63' Inflow=2.43 cfs 0.195 af
12.0" Round Culvert n=0.011 L=70.0' S=0.0100 '/' Outflow=2.43 cfs 0.195 af

Pond CB-C: to CB-D Peak Elev=39.80' Inflow=0.48 cfs 0.039 af
12.0" Round Culvert n=0.011 L=138.0' S=0.0174 '/' Outflow=0.48 cfs 0.039 af

Pond CB-D: to CB-E Peak Elev=39.55' Inflow=1.90 cfs 0.145 af
12.0" Round Culvert n=0.011 L=60.0' S=0.0233 '/' Outflow=1.90 cfs 0.145 af

Pond CB-E: to CB-F Peak Elev=39.42' Inflow=5.34 cfs 0.421 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0221 '/' Outflow=5.34 cfs 0.421 af

Pond CB-F: to R100 Peak Elev=37.19' Inflow=6.79 cfs 0.536 af
12.0" Round Culvert n=0.011 L=12.0' S=0.0167 '/' Outflow=6.79 cfs 0.536 af

Total Runoff Area = 2.909 ac Runoff Volume = 0.625 af Average Runoff Depth = 2.58"
46.61% Pervious = 1.356 ac 53.39% Impervious = 1.553 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: to A Runoff Area=0.988 ac 5.06% Impervious Runoff Depth>0.94"
Flow Length=480' Tc=5.5 min CN=52 Runoff=0.83 cfs 0.077 af

Subcatchment E2: to B Runoff Area=0.105 ac 85.71% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=90 Runoff=0.50 cfs 0.036 af

Subcatchment E3: to CB-A Runoff Area=0.244 ac 100.00% Impervious Runoff Depth>5.06"
Tc=5.0 min CN=98 Runoff=1.27 cfs 0.103 af

Subcatchment E4: to CB-B Runoff Area=0.275 ac 100.00% Impervious Runoff Depth>5.06"
Tc=5.0 min CN=98 Runoff=1.44 cfs 0.116 af

Subcatchment E5: to CB-C Runoff Area=0.428 ac 24.30% Impervious Runoff Depth>1.41"
Tc=5.0 min CN=59 Runoff=0.64 cfs 0.050 af

Subcatchment E6: to CB-D Runoff Area=0.341 ac 79.47% Impervious Runoff Depth>4.27"
Tc=5.0 min CN=91 Runoff=1.64 cfs 0.121 af

Subcatchment E7: to CB-E Runoff Area=0.215 ac 99.07% Impervious Runoff Depth>5.06"
Tc=5.0 min CN=98 Runoff=1.12 cfs 0.091 af

Subcatchment E8: to CB-F Runoff Area=0.313 ac 97.76% Impervious Runoff Depth>4.94"
Tc=5.0 min CN=97 Runoff=1.62 cfs 0.129 af

Reach R100: Summary Reach Inflow=7.72 cfs 0.610 af
Outflow=7.72 cfs 0.610 af

Pond CB-A: to CB-B Peak Elev=41.34' Inflow=1.27 cfs 0.103 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0095 '/' Outflow=1.27 cfs 0.103 af

Pond CB-B: to CB-E Peak Elev=41.30' Inflow=2.71 cfs 0.219 af
12.0" Round Culvert n=0.011 L=70.0' S=0.0100 '/' Outflow=2.71 cfs 0.219 af

Pond CB-C: to CB-D Peak Elev=41.25' Inflow=0.64 cfs 0.050 af
12.0" Round Culvert n=0.011 L=138.0' S=0.0174 '/' Outflow=0.64 cfs 0.050 af

Pond CB-D: to CB-E Peak Elev=41.23' Inflow=2.26 cfs 0.172 af
12.0" Round Culvert n=0.011 L=60.0' S=0.0233 '/' Outflow=2.26 cfs 0.172 af

Pond CB-E: to CB-F Peak Elev=41.04' Inflow=6.10 cfs 0.481 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0221 '/' Outflow=6.10 cfs 0.481 af

Pond CB-F: to R100 Peak Elev=38.12' Inflow=7.72 cfs 0.610 af
12.0" Round Culvert n=0.011 L=12.0' S=0.0167 '/' Outflow=7.72 cfs 0.610 af

Total Runoff Area = 2.909 ac Runoff Volume = 0.724 af Average Runoff Depth = 2.99"
46.61% Pervious = 1.356 ac 53.39% Impervious = 1.553 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: to A Runoff Area=0.988 ac 5.06% Impervious Runoff Depth>1.76"
Flow Length=480' Tc=5.5 min CN=52 Runoff=1.82 cfs 0.145 af

Subcatchment E2: to B Runoff Area=0.105 ac 85.71% Impervious Runoff Depth>5.67"
Tc=5.0 min CN=90 Runoff=0.66 cfs 0.050 af

Subcatchment E3: to CB-A Runoff Area=0.244 ac 100.00% Impervious Runoff Depth>6.61"
Tc=5.0 min CN=98 Runoff=1.65 cfs 0.134 af

Subcatchment E4: to CB-B Runoff Area=0.275 ac 100.00% Impervious Runoff Depth>6.61"
Tc=5.0 min CN=98 Runoff=1.86 cfs 0.151 af

Subcatchment E5: to CB-C Runoff Area=0.428 ac 24.30% Impervious Runoff Depth>2.40"
Tc=5.0 min CN=59 Runoff=1.17 cfs 0.086 af

Subcatchment E6: to CB-D Runoff Area=0.341 ac 79.47% Impervious Runoff Depth>5.79"
Tc=5.0 min CN=91 Runoff=2.18 cfs 0.164 af

Subcatchment E7: to CB-E Runoff Area=0.215 ac 99.07% Impervious Runoff Depth>6.61"
Tc=5.0 min CN=98 Runoff=1.45 cfs 0.118 af

Subcatchment E8: to CB-F Runoff Area=0.313 ac 97.76% Impervious Runoff Depth>6.49"
Tc=5.0 min CN=97 Runoff=2.11 cfs 0.169 af

Reach R100: Summary Reach Inflow=10.41 cfs 0.823 af
Outflow=10.41 cfs 0.823 af

Pond CB-A: to CB-B Peak Elev=47.40' Inflow=1.65 cfs 0.134 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0095 '/' Outflow=1.65 cfs 0.134 af

Pond CB-B: to CB-E Peak Elev=47.34' Inflow=3.51 cfs 0.286 af
12.0" Round Culvert n=0.011 L=70.0' S=0.0100 '/' Outflow=3.51 cfs 0.286 af

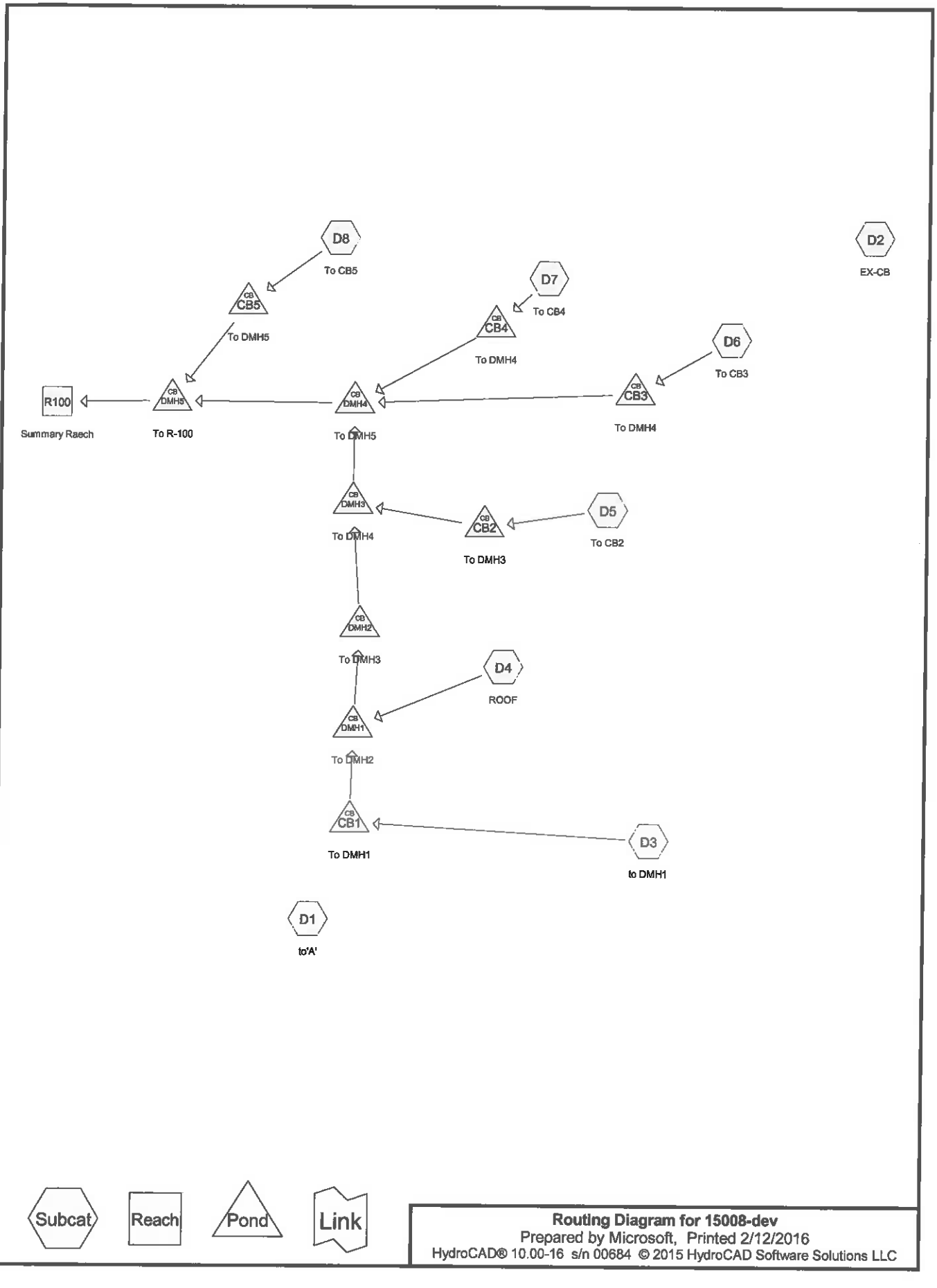
Pond CB-C: to CB-D Peak Elev=47.36' Inflow=1.17 cfs 0.086 af
12.0" Round Culvert n=0.011 L=138.0' S=0.0174 '/' Outflow=1.17 cfs 0.086 af

Pond CB-D: to CB-E Peak Elev=47.30' Inflow=3.32 cfs 0.250 af
12.0" Round Culvert n=0.011 L=60.0' S=0.0233 '/' Outflow=3.32 cfs 0.250 af

Pond CB-E: to CB-F Peak Elev=46.89' Inflow=8.30 cfs 0.654 af
12.0" Round Culvert n=0.011 L=95.0' S=0.0221 '/' Outflow=8.30 cfs 0.654 af

Pond CB-F: to R100 Peak Elev=41.49' Inflow=10.41 cfs 0.823 af
12.0" Round Culvert n=0.011 L=12.0' S=0.0167 '/' Outflow=10.41 cfs 0.823 af

Total Runoff Area = 2.909 ac Runoff Volume = 1.018 af Average Runoff Depth = 4.20"
46.61% Pervious = 1.356 ac 53.39% Impervious = 1.553 ac



Routing Diagram for 15008-dev
Prepared by Microsoft, Printed 2/12/2016

Summary for Subcatchment D1: to'A'

Runoff = 0.00 cfs @ 14.74 hrs, Volume= 0.002 af, Depth> 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.037	49	50-75% Grass cover, Fair, HSG A
0.164	36	Woods, Fair, HSG A
0.109	65	Brush, Good, HSG C
0.310	48	Weighted Average
0.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	5	0.0100	0.03		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.0	15	0.1400	6.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.1	175	0.0260	2.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	175	0.0260	2.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	138	0.0220	2.22		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.9	508	Total			

Summary for Subcatchment D2: EX-CB

Runoff = 0.18 cfs @ 12.08 hrs, Volume= 0.013 af, Depth> 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.067	98	Paved parking, HSG A
0.013	39	>75% Grass cover, Good, HSG A
0.080	88	Weighted Average
0.013		16.25% Pervious Area
0.067		83.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment D3: to DMH1

Runoff = 0.62 cfs @ 12.10 hrs, Volume= 0.055 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.315	98	Paved parking, HSG A
0.098	96	Gravel surface, HSG A
0.597	49	50-75% Grass cover, Fair, HSG A
0.107	36	Woods, Fair, HSG A
1.117	66	Weighted Average
0.802		71.80% Pervious Area
0.315		28.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.3	58	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.7	227	0.0190	2.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	114	0.0310	3.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	85	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.3	494	Total			

Summary for Subcatchment D4: ROOF

Runoff = 1.11 cfs @ 12.07 hrs, Volume= 0.088 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.367	98	Roofs, HSG A
0.367		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment D5: To CB2

Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.114	98	Paved parking, HSG A
0.018	39	>75% Grass cover, Good, HSG A
0.132	90	Weighted Average
0.018		13.64% Pervious Area
0.114		86.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment D6: To CB3

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 0.021 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.130	98	Paved parking, HSG A
0.053	39	>75% Grass cover, Good, HSG A
0.183	81	Weighted Average
0.053		28.96% Pervious Area
0.130		71.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment D7: To CB4

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 0.058 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.280	98	Paved parking, HSG A
0.029	39	>75% Grass cover, Good, HSG A
0.309	92	Weighted Average
0.029		9.39% Pervious Area
0.280		90.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment D8: To CB5

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 0.080 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.378	98	Paved parking, HSG A
0.032	39	>75% Grass cover, Good, HSG A
0.410	93	Weighted Average
0.032		7.80% Pervious Area
0.378		92.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Reach R100: Summary Raech

Inflow Area = 2.518 ac, 62.91% Impervious, Inflow Depth > 1.55" for 2 Year event
Inflow = 4.19 cfs @ 12.08 hrs, Volume= 0.325 af
Outflow = 4.19 cfs @ 12.08 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond CB1: To DMH1

Inflow Area = 1.117 ac, 28.20% Impervious, Inflow Depth > 0.59" for 2 Year event
Inflow = 0.62 cfs @ 12.10 hrs, Volume= 0.055 af
Outflow = 0.62 cfs @ 12.10 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.10 hrs, Volume= 0.055 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.90' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.41'	**15.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.41' / 37.25' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.57 cfs @ 12.10 hrs HW=37.89' TW=37.78' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.57 cfs @ 1.97 fps)

Summary for Pond CB2: To DMH3

Inflow Area = 0.132 ac, 86.36% Impervious, Inflow Depth > 2.07" for 2 Year event
Inflow = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.48' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.19'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.19' / 36.07' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.07 hrs HW=36.47' TW=36.11' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.31 cfs @ 2.51 fps)

Summary for Pond CB3: To DMH4

Inflow Area = 0.183 ac, 71.04% Impervious, Inflow Depth > 1.39" for 2 Year event
Inflow = 0.30 cfs @ 12.08 hrs, Volume= 0.021 af
Outflow = 0.30 cfs @ 12.08 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.08 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.76' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.49'	**12.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.49' / 34.95' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.08 hrs HW=36.75' TW=35.16' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.29 cfs @ 1.75 fps)

Summary for Pond CB4: To DMH4

Inflow Area = 0.309 ac, 90.61% Impervious, Inflow Depth > 2.25" for 2 Year event
Inflow = 0.80 cfs @ 12.07 hrs, Volume= 0.058 af
Outflow = 0.80 cfs @ 12.07 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Primary = 0.80 cfs @ 12.07 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 35.56' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.05'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 35.05' / 34.95' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 12.07 hrs HW=35.55' TW=35.16' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.77 cfs @ 2.91 fps)

Summary for Pond CB5: To DMH5

Inflow Area =	0.410 ac, 92.20% Impervious, Inflow Depth > 2.35"		for 2 Year event	
Inflow =	1.10 cfs @	12.07 hrs, Volume=	0.080 af	
Outflow =	1.10 cfs @	12.07 hrs, Volume=	0.080 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.10 cfs @	12.07 hrs, Volume=	0.080 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.33' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	33.72'	**12.0" Round Culvert**
			L= 5.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 33.72' / 33.62' S= 0.0200 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.07 hrs HW=34.32' TW=33.53' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.06 cfs @ 3.10 fps)

Summary for Pond DMH1: To DMH2

Inflow Area =	1.484 ac, 45.96% Impervious, Inflow Depth > 1.15"		for 2 Year event	
Inflow =	1.69 cfs @	12.08 hrs, Volume=	0.143 af	
Outflow =	1.69 cfs @	12.08 hrs, Volume=	0.143 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.69 cfs @	12.08 hrs, Volume=	0.143 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 37.79' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.15'	**15.0" Round Culvert**
			L= 88.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 37.15' / 36.27' S= 0.0100 '/' Cc= 0.900
			n= 0.013 Cast iron, coated, Flow Area= 1.23 sf

Primary OutFlow Max=1.62 cfs @ 12.08 hrs HW=37.78' TW=36.82' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 1.62 cfs @ 3.84 fps)

Summary for Pond DMH2: To DMH3

Inflow Area =	1.484 ac, 45.96% Impervious, Inflow Depth > 1.15"		for 2 Year event	
Inflow =	1.69 cfs @	12.08 hrs, Volume=	0.143 af	
Outflow =	1.69 cfs @	12.08 hrs, Volume=	0.143 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.69 cfs @	12.08 hrs, Volume=	0.143 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.83' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	36.17'	**15.0" Round Culvert** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 36.17' / 35.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.64 cfs @ 12.08 hrs HW=36.82' TW=36.11' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.64 cfs @ 3.73 fps)

Summary for Pond DMH3: To DMH4

Inflow Area = 1.616 ac, 49.26% Impervious, Inflow Depth > 1.23" for 2 Year event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 0.166 af
Outflow = 2.01 cfs @ 12.08 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.08 hrs, Volume= 0.166 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 36.12' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	35.47'	**18.0" Round Culvert** L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.47' / 34.45' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.95 cfs @ 12.08 hrs HW=36.11' TW=35.16' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.95 cfs @ 2.72 fps)

Summary for Pond DMH4: To DMH5

Inflow Area = 2.108 ac, 57.21% Impervious, Inflow Depth > 1.39" for 2 Year event
Inflow = 3.10 cfs @ 12.08 hrs, Volume= 0.245 af
Outflow = 3.10 cfs @ 12.08 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min
Primary = 3.10 cfs @ 12.08 hrs, Volume= 0.245 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 35.18' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	34.35'	**18.0" Round Culvert** L= 76.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 34.35' / 33.02' S= 0.0175 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.01 cfs @ 12.08 hrs HW=35.16' TW=33.53' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.01 cfs @ 3.07 fps)

Summary for Pond DMH5: To R-100

Inflow Area = 2.518 ac, 62.91% Impervious, Inflow Depth > 1.55" for 2 Year event
Inflow = 4.19 cfs @ 12.08 hrs, Volume= 0.325 af
Outflow = 4.19 cfs @ 12.08 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min
Primary = 4.19 cfs @ 12.08 hrs, Volume= 0.325 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 33.55' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.52'	**24.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 32.52' / 32.42' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.06 cfs @ 12.08 hrs HW=33.53' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.06 cfs @ 3.70 fps)

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment D1: to'A' Runoff Area=0.310 ac 0.00% Impervious Runoff Depth>0.07"
Flow Length=508' Tc=5.9 min CN=48 Runoff=0.00 cfs 0.002 af

Subcatchment D2: EX-CB Runoff Area=0.080 ac 83.75% Impervious Runoff Depth>1.91"
Tc=5.0 min CN=88 Runoff=0.18 cfs 0.013 af

Subcatchment D3: to DMH1 Runoff Area=1.117 ac 28.20% Impervious Runoff Depth>0.59"
Flow Length=494' Tc=5.3 min CN=66 Runoff=0.62 cfs 0.055 af

Subcatchment D4: ROOF Runoff Area=0.367 ac 100.00% Impervious Runoff Depth>2.87"
Tc=5.0 min CN=98 Runoff=1.11 cfs 0.088 af

Subcatchment D5: To CB2 Runoff Area=0.132 ac 86.36% Impervious Runoff Depth>2.07"
Tc=5.0 min CN=90 Runoff=0.32 cfs 0.023 af

Subcatchment D6: To CB3 Runoff Area=0.183 ac 71.04% Impervious Runoff Depth>1.39"
Tc=5.0 min CN=81 Runoff=0.30 cfs 0.021 af

Subcatchment D7: To CB4 Runoff Area=0.309 ac 90.61% Impervious Runoff Depth>2.25"
Tc=5.0 min CN=92 Runoff=0.80 cfs 0.058 af

Subcatchment D8: To CB5 Runoff Area=0.410 ac 92.20% Impervious Runoff Depth>2.35"
Tc=5.0 min CN=93 Runoff=1.10 cfs 0.080 af

Reach R100: Summary Raech Inflow=4.19 cfs 0.325 af
Outflow=4.19 cfs 0.325 af

Pond CB1: To DMH1 Peak Elev=37.90' Inflow=0.62 cfs 0.055 af
15.0" Round Culvert n=0.013 L=8.0' S=0.0200 '/' Outflow=0.62 cfs 0.055 af

Pond CB2: To DMH3 Peak Elev=36.48' Inflow=0.32 cfs 0.023 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0200 '/' Outflow=0.32 cfs 0.023 af

Pond CB3: To DMH4 Peak Elev=36.76' Inflow=0.30 cfs 0.021 af
12.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=0.30 cfs 0.021 af

Pond CB4: To DMH4 Peak Elev=35.56' Inflow=0.80 cfs 0.058 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.80 cfs 0.058 af

Pond CB5: To DMH5 Peak Elev=34.33' Inflow=1.10 cfs 0.080 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.10 cfs 0.080 af

Pond DMH1: To DMH2 Peak Elev=37.79' Inflow=1.69 cfs 0.143 af
15.0" Round Culvert n=0.013 L=88.0' S=0.0100 '/' Outflow=1.69 cfs 0.143 af

Pond DMH2: To DMH3 Peak Elev=36.83' Inflow=1.69 cfs 0.143 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0100 '/' Outflow=1.69 cfs 0.143 af

Pond DMH3: To DMH4 Peak Elev=36.12' Inflow=2.01 cfs 0.166 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0150 '/' Outflow=2.01 cfs 0.166 af

Pond DMH4: To DMH5 Peak Elev=35.18' Inflow=3.10 cfs 0.245 af
18.0" Round Culvert n=0.013 L=76.0' S=0.0175 '/' Outflow=3.10 cfs 0.245 af

Pond DMH5: To R-100 Peak Elev=33.55' Inflow=4.19 cfs 0.325 af
24.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Outflow=4.19 cfs 0.325 af

Total Runoff Area = 2.908 ac Runoff Volume = 0.340 af Average Runoff Depth = 1.40"
43.23% Pervious = 1.257 ac 56.77% Impervious = 1.651 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment D1: to'A' Runoff Area=0.310 ac 0.00% Impervious Runoff Depth>0.50"
Flow Length=508' Tc=5.9 min CN=48 Runoff=0.08 cfs 0.013 af

Subcatchment D2: EX-CB Runoff Area=0.080 ac 83.75% Impervious Runoff Depth>3.43"
Tc=5.0 min CN=88 Runoff=0.32 cfs 0.023 af

Subcatchment D3: to DMH1 Runoff Area=1.117 ac 28.20% Impervious Runoff Depth>1.56"
Flow Length=494' Tc=5.3 min CN=66 Runoff=1.94 cfs 0.145 af

Subcatchment D4: ROOF Runoff Area=0.367 ac 100.00% Impervious Runoff Depth>4.51"
Tc=5.0 min CN=98 Runoff=1.72 cfs 0.138 af

Subcatchment D5: To CB2 Runoff Area=0.132 ac 86.36% Impervious Runoff Depth>3.63"
Tc=5.0 min CN=90 Runoff=0.55 cfs 0.040 af

Subcatchment D6: To CB3 Runoff Area=0.183 ac 71.04% Impervious Runoff Depth>2.76"
Tc=5.0 min CN=81 Runoff=0.59 cfs 0.042 af

Subcatchment D7: To CB4 Runoff Area=0.309 ac 90.61% Impervious Runoff Depth>3.84"
Tc=5.0 min CN=92 Runoff=1.33 cfs 0.099 af

Subcatchment D8: To CB5 Runoff Area=0.410 ac 92.20% Impervious Runoff Depth>3.95"
Tc=5.0 min CN=93 Runoff=1.80 cfs 0.135 af

Reach R100: Summary Raech Inflow=7.86 cfs 0.599 af
Outflow=7.86 cfs 0.599 af

Pond CB1: To DMH1 Peak Elev=38.34' Inflow=1.94 cfs 0.145 af
15.0" Round Culvert n=0.013 L=8.0' S=0.0200 '/' Outflow=1.94 cfs 0.145 af

Pond CB2: To DMH3 Peak Elev=36.60' Inflow=0.55 cfs 0.040 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0200 '/' Outflow=0.55 cfs 0.040 af

Pond CB3: To DMH4 Peak Elev=36.89' Inflow=0.59 cfs 0.042 af
12.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=0.59 cfs 0.042 af

Pond CB4: To DMH4 Peak Elev=35.78' Inflow=1.33 cfs 0.099 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.33 cfs 0.099 af

Pond CB5: To DMH5 Peak Elev=34.55' Inflow=1.80 cfs 0.135 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.80 cfs 0.135 af

Pond DMH1: To DMH2 Peak Elev=38.19' Inflow=3.62 cfs 0.283 af
15.0" Round Culvert n=0.013 L=88.0' S=0.0100 '/' Outflow=3.62 cfs 0.283 af

Pond DMH2: To DMH3 Peak Elev=37.23' Inflow=3.62 cfs 0.283 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0100 '/' Outflow=3.62 cfs 0.283 af

Pond DMH3: To DMH4 Peak Elev=36.48' Inflow=4.16 cfs 0.323 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0150 '/' Outflow=4.16 cfs 0.323 af

Pond DMH4: To DMH5 Peak Elev=35.61' Inflow=6.07 cfs 0.464 af
18.0" Round Culvert n=0.013 L=76.0' S=0.0175 '/' Outflow=6.07 cfs 0.464 af

Pond DMH5: To R-100 Peak Elev=34.01' Inflow=7.86 cfs 0.599 af
24.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Outflow=7.86 cfs 0.599 af

Total Runoff Area = 2.908 ac Runoff Volume = 0.635 af Average Runoff Depth = 2.62"
43.23% Pervious = 1.257 ac 56.77% Impervious = 1.651 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment D1: to'A' Runoff Area=0.310 ac 0.00% Impervious Runoff Depth>0.70"
Flow Length=508' Tc=5.9 min CN=48 Runoff=0.15 cfs 0.018 af

Subcatchment D2: EX-CB Runoff Area=0.080 ac 83.75% Impervious Runoff Depth>3.95"
Tc=5.0 min CN=88 Runoff=0.36 cfs 0.026 af

Subcatchment D3: to DMH1 Runoff Area=1.117 ac 28.20% Impervious Runoff Depth>1.93"
Flow Length=494' Tc=5.3 min CN=66 Runoff=2.45 cfs 0.180 af

Subcatchment D4: ROOF Runoff Area=0.367 ac 100.00% Impervious Runoff Depth>5.06"
Tc=5.0 min CN=98 Runoff=1.92 cfs 0.155 af

Subcatchment D5: To CB2 Runoff Area=0.132 ac 86.36% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=90 Runoff=0.62 cfs 0.046 af

Subcatchment D6: To CB3 Runoff Area=0.183 ac 71.04% Impervious Runoff Depth>3.25"
Tc=5.0 min CN=81 Runoff=0.70 cfs 0.050 af

Subcatchment D7: To CB4 Runoff Area=0.309 ac 90.61% Impervious Runoff Depth>4.38"
Tc=5.0 min CN=92 Runoff=1.51 cfs 0.113 af

Subcatchment D8: To CB5 Runoff Area=0.410 ac 92.20% Impervious Runoff Depth>4.49"
Tc=5.0 min CN=93 Runoff=2.03 cfs 0.153 af

Reach R100: Summary Raech Inflow=9.14 cfs 0.696 af
Outflow=9.14 cfs 0.696 af

Pond CB1: To DMH1 Peak Elev=38.50' Inflow=2.45 cfs 0.180 af
15.0" Round Culvert n=0.013 L=8.0' S=0.0200 '/' Outflow=2.45 cfs 0.180 af

Pond CB2: To DMH3 Peak Elev=36.70' Inflow=0.62 cfs 0.046 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0200 '/' Outflow=0.62 cfs 0.046 af

Pond CB3: To DMH4 Peak Elev=36.93' Inflow=0.70 cfs 0.050 af
12.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=0.70 cfs 0.050 af

Pond CB4: To DMH4 Peak Elev=35.92' Inflow=1.51 cfs 0.113 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.51 cfs 0.113 af

Pond CB5: To DMH5 Peak Elev=34.62' Inflow=2.03 cfs 0.153 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.03 cfs 0.153 af

Pond DMH1: To DMH2 Peak Elev=38.34' Inflow=4.33 cfs 0.335 af
15.0" Round Culvert n=0.013 L=88.0' S=0.0100 '/' Outflow=4.33 cfs 0.335 af

Pond DMH2: To DMH3 Peak Elev=37.37' Inflow=4.33 cfs 0.335 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0100 '/' Outflow=4.33 cfs 0.335 af

Pond DMH3: To DMH4 Peak Elev=36.61' Inflow=4.94 cfs 0.381 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0150 '/' Outflow=4.94 cfs 0.381 af

Pond DMH4: To DMH5 Peak Elev=35.78' Inflow=7.13 cfs 0.543 af
18.0" Round Culvert n=0.013 L=76.0' S=0.0175 '/' Outflow=7.13 cfs 0.543 af

Pond DMH5: To R-100 Peak Elev=34.16' Inflow=9.14 cfs 0.696 af
24.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Outflow=9.14 cfs 0.696 af

Total Runoff Area = 2.908 ac Runoff Volume = 0.741 af Average Runoff Depth = 3.06"
43.23% Pervious = 1.257 ac 56.77% Impervious = 1.651 ac

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment D1: to'A' Runoff Area=0.310 ac 0.00% Impervious Runoff Depth>1.41"
Flow Length=508' Tc=5.9 min CN=48 Runoff=0.42 cfs 0.036 af

Subcatchment D2: EX-CB Runoff Area=0.080 ac 83.75% Impervious Runoff Depth>5.44"
Tc=5.0 min CN=88 Runoff=0.49 cfs 0.036 af

Subcatchment D3: to DMH1 Runoff Area=1.117 ac 28.20% Impervious Runoff Depth>3.08"
Flow Length=494' Tc=5.3 min CN=66 Runoff=4.00 cfs 0.287 af

Subcatchment D4: ROOF Runoff Area=0.367 ac 100.00% Impervious Runoff Depth>6.61"
Tc=5.0 min CN=98 Runoff=2.48 cfs 0.202 af

Subcatchment D5: To CB2 Runoff Area=0.132 ac 86.36% Impervious Runoff Depth>5.67"
Tc=5.0 min CN=90 Runoff=0.83 cfs 0.062 af

Subcatchment D6: To CB3 Runoff Area=0.183 ac 71.04% Impervious Runoff Depth>4.66"
Tc=5.0 min CN=81 Runoff=0.99 cfs 0.071 af

Subcatchment D7: To CB4 Runoff Area=0.309 ac 90.61% Impervious Runoff Depth>5.90"
Tc=5.0 min CN=92 Runoff=2.00 cfs 0.152 af

Subcatchment D8: To CB5 Runoff Area=0.410 ac 92.20% Impervious Runoff Depth>6.02"
Tc=5.0 min CN=93 Runoff=2.68 cfs 0.206 af

Reach R100: Summary Raech Inflow=12.88 cfs 0.980 af
Outflow=12.88 cfs 0.980 af

Pond CB1: To DMH1 Peak Elev=39.70' Inflow=4.00 cfs 0.287 af
15.0" Round Culvert n=0.013 L=8.0' S=0.0200 '/' Outflow=4.00 cfs 0.287 af

Pond CB2: To DMH3 Peak Elev=37.21' Inflow=0.83 cfs 0.062 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0200 '/' Outflow=0.83 cfs 0.062 af

Pond CB3: To DMH4 Peak Elev=37.12' Inflow=0.99 cfs 0.071 af
12.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=0.99 cfs 0.071 af

Pond CB4: To DMH4 Peak Elev=36.75' Inflow=2.00 cfs 0.152 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.00 cfs 0.152 af

Pond CB5: To DMH5 Peak Elev=34.98' Inflow=2.68 cfs 0.206 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.68 cfs 0.206 af

Pond DMH1: To DMH2 Peak Elev=39.41' Inflow=6.44 cfs 0.489 af
15.0" Round Culvert n=0.013 L=88.0' S=0.0100 '/' Outflow=6.44 cfs 0.489 af

Pond DMH2: To DMH3 Peak Elev=38.02' Inflow=6.44 cfs 0.489 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0100 '/' Outflow=6.44 cfs 0.489 af

Pond DMH3: To DMH4 Peak Elev=37.19' Inflow=7.26 cfs 0.552 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0150 '/' Outflow=7.26 cfs 0.552 af

Pond DMH4: To DMH5 Peak Elev=36.53' Inflow=10.23 cfs 0.775 af
18.0" Round Culvert n=0.013 L=76.0' S=0.0175 '/' Outflow=10.23 cfs 0.775 af

Pond DMH5: To R-100 Peak Elev=34.57' Inflow=12.88 cfs 0.980 af
24.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Outflow=12.88 cfs 0.980 af

Total Runoff Area = 2.908 ac Runoff Volume = 1.053 af Average Runoff Depth = 4.35"
43.23% Pervious = 1.257 ac 56.77% Impervious = 1.651 ac

SOILS DATA

256A	DEERFIELD - HYDROLOGIC GROUP - A
602	URBAN LAND
6A	SCARBORO - HYDROLOGIC GROUP -C/D

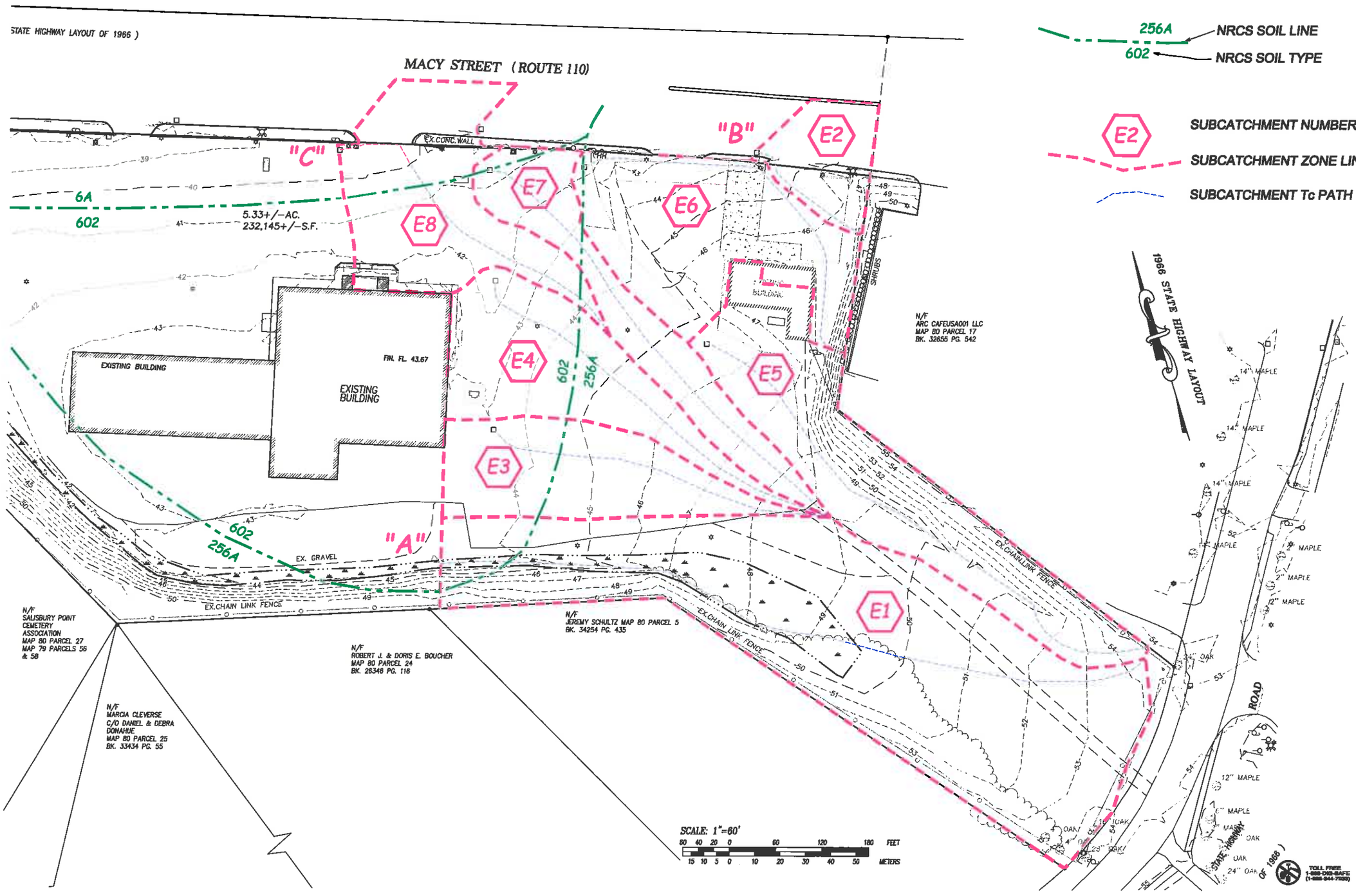
256A — NRCS SOIL LINE

602 — NRCS SOIL TYPE

E2 — SUBCATCHMENT NUMBER

SUBCATCHMENT ZONE LINE

SUBCATCHMENT Tc PATH



FOR REGISTRY USE ONLY

CAMMETT ENGINEERING

297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS &
LAND SURVEYORS SINCE 1975
Visit us on the WEB at www.cammett.com

Sheet Title:

Draiange Zones Pre-Development

Project Title:

Proposed Addition
103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:

Three Way Realty Trust
Brian Fecteau - Trustee
103 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

NO.	DATE	DESCRIPTION	BY
2	02-15-16	MISC. REVISIONS	DH
3	02-25-16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-09-2015
FILE:	K:\...\C3D\15006PE.dwg
FBK:	
JOB #:	15006

FIGURE 1 Pre-Development

SOILS DATA

256A	DEERFIELD - HYDROLOGIC GROUP - A
602	URBAN LAND
6A	SCARBORO - HYDROLOGIC GROUP -C/D

256A — NRCS SOIL LINE
602 — NRCS SOIL TYPE

D2 — SUBCATCHMENT NUMBER
SUBCATCHMENT ZONE LINE
SUBCATCHMENT Tc PATH

STATE HIGHWAY LAYOUT OF 1966)

MACY STREET (ROUTE 110)

"C"

"B"

"A"

EX.CONC. WALL

6A
602

5.33+/-AC.
232,145+/-S.F.

EXISTING BUILDING

New Detailing Area and Stor

3 - Customer Service Drives (2 Exist. + 1 New)

FIN. FL. 43.67

TING DING

Proposed Building Addition
(3 Service Bays)
SLAB ELEV. 49.67
(MATCH EXISTING)

602
256A

EXISTING PAVED AREA TO REMAIN

50' NO BUILD SETBACK

EX. GRAVEL

EX.CHAIN LINK FENCE

D1 D2 D3 D4 D5 D6 D7 D9

N/F
ARC CAFEUSA001 LLC
MAP 80 PARCEL 17
BK. 32655 PG. 542

SHRUBS

LIMIT OF 100' WETLAND BUFFER ZONE

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 27
MAP 79 PARCELS 56 & 58

N/F
ROBERT J. & DORIS E. BOUCHER
MAP 80 PARCEL 24
BK. 26346 PG. 116

N/F
JEREMY SCHULTZ MAP 80 PARCEL 5
BK. 34254 PG. 435

N/F
MARCIA CLEVERSE
C/O DANIEL & DEBRA DONAHUE
MAP 80 PARCEL 25
BK. 33434 PG. 55

1966 STATE HIGHWAY LAYOUT

14" MAPLE
14" MAPLE
14" MAPLE
12" MAPLE
12" MAPLE
24" OAK
12" MAPLE
6" MAPLE
MARY
OAK
OAK
OAK
OAK
24" OAK

ROAD

STATE HIGHWAY OF 1966)

SCALE: 1"=60'

60 40 20 0 60 120 180 FEET
15 10 5 0 10 20 30 40 50 METERS

TOLL FREE 1-888-DIG-SAFE (1-888-344-7233)

FOR REGISTRY USE ONLY

CAMMETT ENGINEERING
297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1975
Visit us on the WEB at www.cammett.com

Sheet Title:
Draiange Zones Post-Development

Project Title:
Proposed Addition
103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:
Three Way Realty Trust
Brian Fecteau - Trustee
103 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

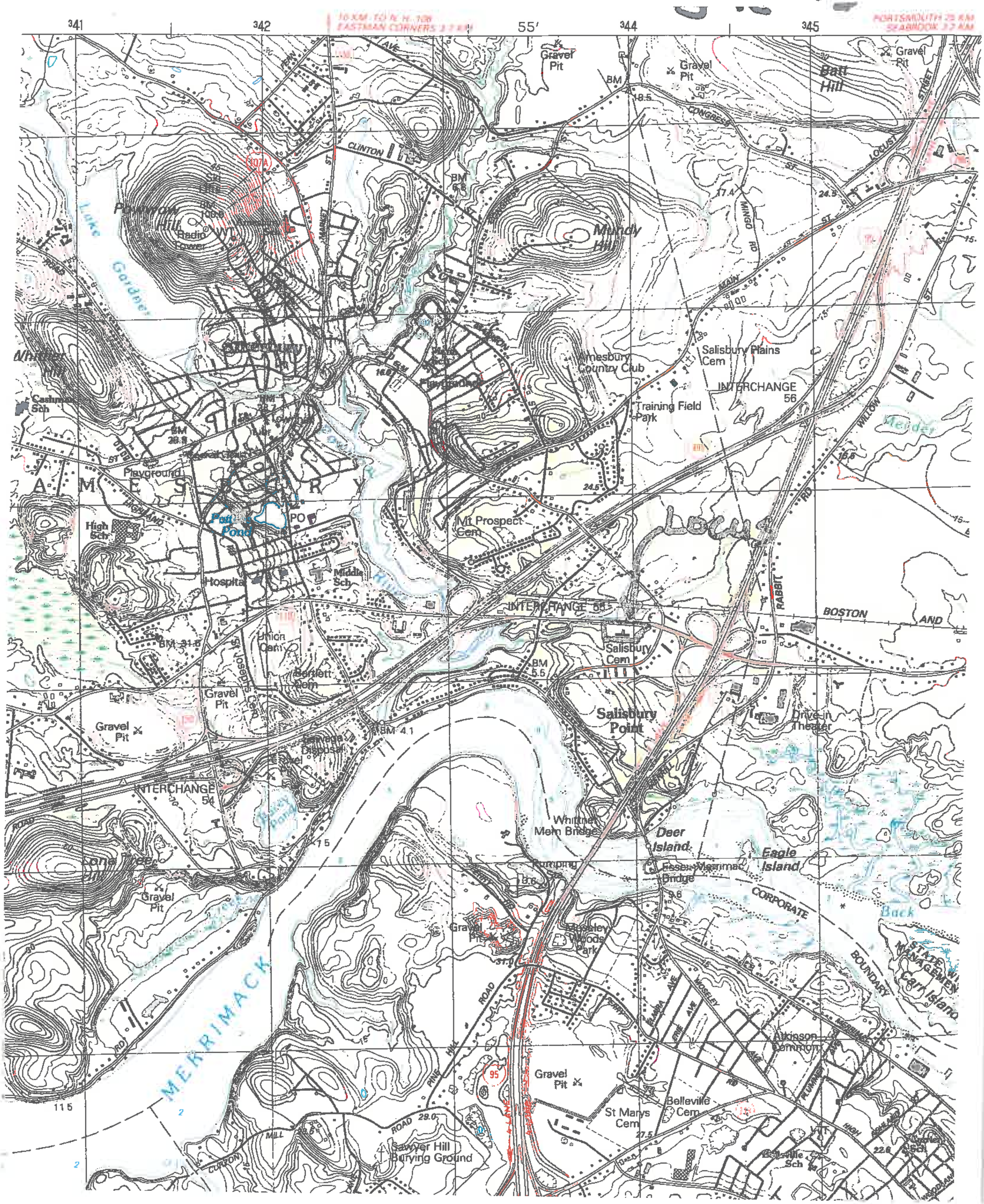
NO.	DATE	DESCRIPTION	BY
2	02-15-16	MISC. REVISIONS	DH
3	02-25-16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-08-2015
FILE:	K:\...\C3D\15008PE.dwg
FBK:	
JOB #:	15008

FIGURE 2 Post-Development

Appendix A



Gravel Pit
Ball Hill
CONGRESS
CLINTON
Powwow Hill
Radio Tower
Lake Gardner
Mundy Hill
MINGO RD
MAIN
LOCUST
STREET
Whittier Hill
Amesbury Country Club
Salisbury Plains Cem
INTERCHANGE 56
Training Field Park
Playground
WILLOW
A M E S B U R Y
Patt Pond
PO
High Sch
Mt Prospect Cem
Hospital
Middle Sch
INTERCHANGE 55
BOSTON AND
RABBIT
Union Cem
Salisbury Cem
Bartlett Cem
Gravel Pit
Salisbury Point
Drive-in Theater
Sewage Disposal
INTERCHANGE 54
Whittier Mem Bridge
Deer Island
Eagle Island
Essex-Merrimac Bridge
CORPORATE
BOUNDARY
Back
Carr Island
Pumping
Gravel Pit
Maudslay Woods Park
MERRIMACK
ROAD
PINE HILL
Atkinson Common
Gravel Pit
95
St Marys Cem
Belleville Cem
Belleville Sch
HIGH
Sawyer Hill Burying Ground
MILL
CURZON

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Essex County, Massachusetts, Northern Part

Appendix B

February 11, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

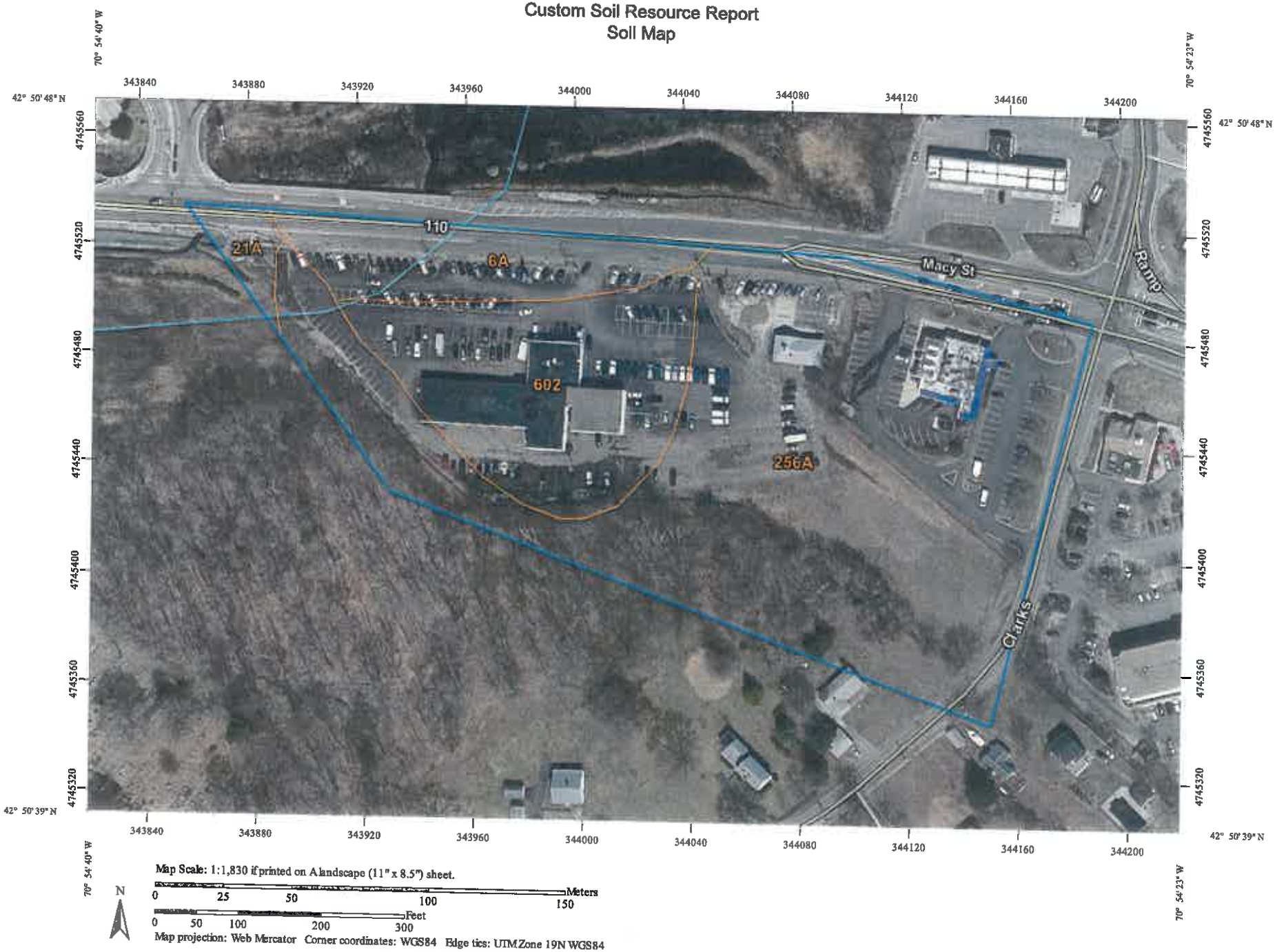
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 11, Sep 28, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—Apr 8, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Essex County, Massachusetts, Northern Part (MA605)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6A	Scarboro mucky fine sandy loam, 0 to 3 percent slopes	0.9	10.1%
21A	Walpole variant fine sandy loam, 0 to 3 percent slopes	0.2	2.1%
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	5.9	67.0%
602	Urban land	1.8	20.8%
Totals for Area of Interest		8.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Essex County, Massachusetts, Northern Part

6A—Scarboro mucky fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svky
Elevation: 0 to 1,320 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scarboro

Setting

Landform: Drainageways, outwash deltas, depressions, outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits derived from schist and/or sandy glaciofluvial deposits derived from gneiss and/or sandy glaciofluvial deposits derived from granite

Typical profile

Oe - 0 to 3 inches: mucky peat
A - 3 to 11 inches: mucky fine sandy loam
Cg1 - 11 to 21 inches: sand
Cg2 - 21 to 65 inches: gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 0 to 2 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D

Minor Components

Swansea

Percent of map unit: 10 percent
Landform: Bogs, swamps
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Wareham

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Walpole

Percent of map unit: 5 percent
Landform: Depressions, depressions, outwash plains, outwash terraces, deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave
Across-slope shape: Concave

21A—Walpole variant fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: vjxl
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Walpole variant and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole Variant

Setting

Landform: Terraces, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loose coarse-loamy glaciofluvial deposits over hard coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam

H2 - 8 to 25 inches: fine sandy loam
H3 - 25 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D

Minor Components

Scarboro

Percent of map unit: 10 percent
Landform: Terraces

Amostown

Percent of map unit: 5 percent

256A—Deerfield loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: vj7g
Elevation: 0 to 1,000 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave

Parent material: Loose sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 33 inches: loamy fine sand
H3 - 33 to 60 inches: stratified sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A

Minor Components

Windsor

Percent of map unit: 15 percent

Wareham

Percent of map unit: 5 percent
Landform: Depressions

602—Urban land

Map Unit Setting

National map unit symbol: vjx3
Frost-free period: 125 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Udorthents
Percent of map unit: 10 percent

Charlton
Percent of map unit: 2 percent

Hinckley
Percent of map unit: 2 percent

Merrimac
Percent of map unit: 2 percent

Paxton
Percent of map unit: 2 percent

Windsor
Percent of map unit: 2 percent

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

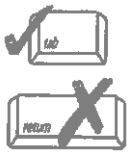
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

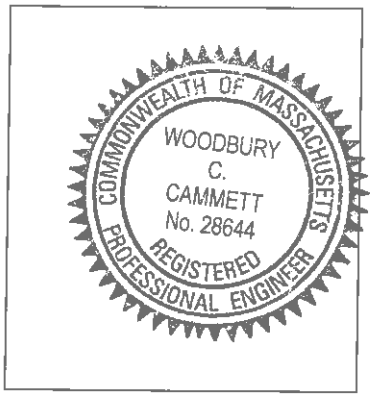
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date 2-15-2016

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☒ Reduced Impervious Area (Redevelopment Only)

☒ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

ATTACHMENT TO CHECKLIST FOR STORMWATER REPORT

Three Way Realty Trust
103 and 107 Macy
Amesbury, MA

Standard 1: No New Untreated Discharges

This project does not involve the creation of any additional untreated stormwater discharge.

Standard 2: Peak Rate Attenuation

There is a reduction in the impervious areas onsite. There is no increase in peak rate of flow offsite for the 2 year storm. The calculations show a slight increase in peak runoff for the 10, 25, and 100 year storms. The existing condition calculations are based on the existing stormwater system passing all the runoff through the existing catch basins and piping system. The existing catch basins and piping are undersized and the calculations indicate that the system backs up for all storm events. The comparison between the existing condition and developed condition is not valid. The proposed stormwater system does not back up for the 25 year storm event.

Standard 3: Recharge

No recharge is required for this project because the entire project lies within the paved surface. There is no increase in impervious area.

Standard 4: Water Quality

This project does not propose any activities during or post-construction that **will** impact water quality other than erosion/sediment control in which a plan has been prepared per Standard 8 requirements. The entire stormwater collection system is being replaced for the Phase II area. All new catch basins will be equipped with a hooded outlet to reduce the TSS in the stormwater flow that does not currently exist.

Standard 5: LUHPPL's

This project is not a use that generates higher potential pollutant loads.

Standard 6: Critical Areas

This project does not discharge to any critical area.

Standard 7: Redevelopment

The application is a redevelopment project.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan (CPPPESC Plan)

Prior to any activity, the silt sock will be installed between the work area and the wetlands to prevent sediment and debris from infiltrating into the wetlands during construction. This temporary erosion control will remain in place until all disturbed areas have been stabilized. During construction, the silt sock will be inspected each work day. Sediment buildup will be removed when one-half the sock height has been reached. The site contractor shall be responsible for inspection and maintenance of the erosion control devices. The silt sock will be removed once all disturbed areas have been permanently re-established with vegetation.

Standard 9: Operation and Maintenance Plan

This inspection and maintenance schedule has been prepared to ensure that the proposed Stormwater Management Facility functions as designed according to the Stormwater Management Policy issued by the Massachusetts Department of Environmental Protection. The Policy defines Stormwater Management Standards as guidelines for stormwater management. The Standards address water quality and quantity using non-structural measures, site planning, and Best Management Practices or BMP's. An inspection and maintenance schedule is necessary for the BMP's to continue to function properly and as designed.

During construction, stormwater management facilities will be inspected at least once bi- weekly and after every rainfall event of 0.5 in. or more. Stormwater Management Facility will be cleaned or maintained as required based upon inspection. The cleaning and maintenance of the BMP's, during construction includes removing trash and debris as well as ensuring that soil erosion is kept to a minimum. (See accompanying Erosion and Sediment Control Plan) The owner, Three Way Realty Trust, will be responsible for inspection and maintenance during construction.

After construction is complete and the site has been stabilized, the following BMP maintenance schedule is proposed.

BMP: <u>Catch Basins</u>

Location –Several locations in the parking and display area.

The catch basins shall be inspected after every major storm event during first 3 months of operation and twice a year thereafter. Manually remove trash, sands and silts twice per year as required. Estimated cost of annual maintenance is <$500

Standard 10: Prohibition of Illicit Discharges

An illicit discharge statement is provided.

APPENDIX B

Wetland Delineation Report

BASBANES WETLAND CONSULTING
39 Hardy St.
Dunstable, MA 01827
(978) 649-3839

Oct 6 2015

W.C. Cammett Engineering, Inc.
297 Elm Street
Amesbury, MA 01913

The following is a report on the delineation of the wetland resource areas on the property at 103 Macy St., Amesbury, MA done on July 13, 2015. The jurisdictional resource areas established in the Massachusetts Wetlands Protection Act and Amesbury Wetland Bylaw that are relevant to this site are 310 CMR 10:55 Bordering Vegetated Wetland.

Delineation Method
A wetland delineation is done by visual survey of topography, evidence of hydrology, and identification of plant species. A determination is made for each plant species as to their indicator status as referenced in the "National List of Plant Species that Occur in Wetlands", published by the Fish and Wildlife Service. The boundary of the wetland is then determined to be where 50% or more of the vegetation community consists of wetland indicator species with a status of FAC or wetter. Where there is a dominance of wetland plants species, evidence of hydrology is looked for, i.e. water stained leaves, drainage patterns, morphological adaptations, and hydric soils. Typically, hydric soils are determined by digging a pit 20" deep and observing the horizons for color and features. Determinations are made referencing "Field Indicators for Identifying Hydric Soils in New England" and color matched to the Munsell Soil Color Charts.

Flagging Series
The wetland resource area is defined by 1 flagging series: the #1A - #21A series. The delineation defines the edge of the resource areas of BVW. The site is disturbed due to development thus the edge of the wetland is basically the edge of pavement.

Vegetation
The upland side of the boundary is pavement in most areas. The vegetation along the wetland boundary consists of the following dominant species:

Maple, Red *Acer rubrum*	FAC
Arrowwood *Viburnum recognitum*	FAC
Highbush Blueberry *Vaccinium corymbosum*	FACW
Staghorn Sumac *Rhus typhina*	UPL
Speckled Alder *Alnus rugosa*	FACW+
Beggars Tick *Bidens frondosa*	FACW
Cattail *Typha latifolia*	OBL
Fern Sensitive *Onoclea sensibilis*	FACW
Giant Reed Grass *Phragmitis australis*	FACW
Goldenrod, Roughstem *Solidago rugosa*	FAC
Horsetail *Equisitum spp.*	FAC
Jewellweed *Impatiens capensis*	FACW

Purple Loosestrife *Lythrum salicaria*	FACW
Reed Canary Grass *Phalaris arundinacea*	FACW+
Soft Rush *Juncus effusus*	FACW

Soils
As referenced to the Soil Survey, the soils in this area are of the Deerfield series in the wetland area and Urban land on the remainder of the site. Soil probes were not necessary as the boundary was well defined by vegetation and topography

FEMA
The site does not lie within a flood zone

Rare Species

Under 310 CMR 10:59 Estimated Habitats of Rare Wildlife, any work proposed within an Estimated or Priority habitat shall be reviewed by the NHESP as well as the Conservation Commission. The site does not fall in part within a Natural Heritage Estimated and Priority Habitat PH 967 as referenced to the NHESP MassGIS website.

If you have any questions please do not hesitate to contact me. Thank you.

Sincerely,

Leah D. Basbanes

Leah D. Basbanes, M.A.
Wetland Consultant/Biologist

The wetland resource areas were delineated/reviewed in the keeping with the Massachusetts Wetland Protection Act and were done so to the best of our abilities. Considering all the variables (seasonal growth form of vegetation, soils conditions, topography, weather, etc.) involved in such an effort, please be advised that despite the best effort, no wetland delineation is considered definitive until verified and approved by the final issuing authority.

APPENDIX C

Long Term Pollution Prevention Plan (LTPPP)

Long Term Pollution Prevention Plan

For:

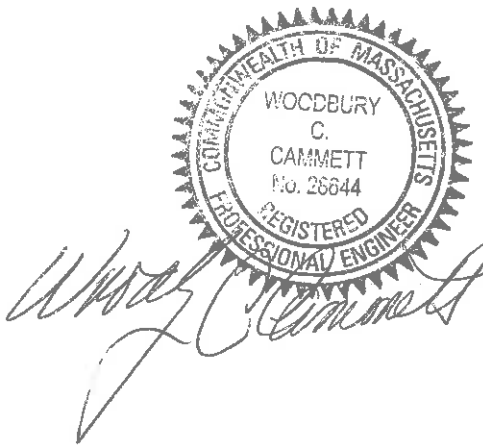
Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913

Operator(s):

Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913

LTPPP Preparation Date:

October 2015
Revised February 2016



2-15-2016

Job # 15008

Contact Information/Responsible Parties

Project Information:

Operator(s):
Three Way Realty Trust
103 Macy Street
Phone: (978) 388-9700

Project Manager(s) or Site Supervisor(s):
Brian Fecteau
Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913
Phone: (978) 388-9700
Email: bfecteau@aol.com

Emergency 24 hour contact:
Brian Fecteau
Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913
Phone: (978) 388-9700
Email: bfecteau@aol.com

1.2 Good Housekeeping Practices

Project Information:

a. Material Handling and Waste Management:

1. Dumpster is to be provided on-site for disposal of trash.

b. Hazardous Waste

1. Hazardous waste materials shall be stored in a dry area protected from precipitation. Hazardous waste materials will be disposed of in accordance with local, state and federal regulations. Hazardous waste material shall not be disposed of in on-site dumpsters.

2. The hazardous waste storage area shall be developed prior to hazardous materials being stored on the site.

3. The storage area will be inspected during the regular monitoring inspections required by the NPDES permit. MSD sheets for all materials shall be located on site.

c. Fertilizers and Pesticides and Herbicides

1. Fertilizer, pesticide, and herbicide should be used sparingly and to manufactures instruction and shall be stored in a dry area protected from precipitation. Emphasis should be given to using low nitrogen fertilizers and organic pesticides.

d. Pavement Sweeping

1. Pavement sweeping shall be performed quarterly and at least once in the spring and once in the fall. Pavement sweeping will remove accumulated sediment from the site and leaves, debris from the fall.

2. Pavement sweeping shall occur at least once in March and once in October.

3. Property owner or owner's maintenance contractor will be responsible for scheduling the activity each year.

e. Snow Removal Management

1. Snow stockpile areas are provided on-site at areas designated on the site plans.

2. D-icing compounds to be utilized on-site shall consist of $CaCl_2$ and calcium magnesium acetate (CMA).

3. Property owner or owner's maintenance contractor will be responsible for the snow and de-icing operations.

4. Snow shall not be plowed into stormwater management areas.

f. Stormwater Operation & Maintenance

OPERATION AND MAINTENANCE PLAN

FOR THE STORMWATER MANAGEMENT FACILITIES

Owner and Responsible Party for Drainage utilities, located on locus property, Operation and Maintenance Plan after completion of project:

Property Owner or Owner's Maintenance Contractor

Three Way Realty Trust has certified that the requirements have been read and understood and that Three Way Realty Trust will implement this Operation and Maintenance Plan. Three Way Realty Trust is willing to provide the necessary financial backing to implement said plan.

__**SEE ATTACHED LETTER**__ Signature **LETTER DATED 10/9/15**

Schedule for Inspection and Maintenance:

This inspection and maintenance schedule has been prepared to ensure that the proposed Stormwater Management Facility functions as designed according to the Stormwater Management Policy issued by the Massachusetts Department of Environmental Protection. The Policy defines Stormwater Management Standards as guidelines for stormwater management. The Standards address water quality and quantity using non-structural measures, site planning, and Best Management Practices or BMP's. An inspection and maintenance schedule is necessary for the BMP's to continue to function properly and as designed.

During construction, stormwater management facilities will be inspected once every seven days and after every rainfall event of 0.50 in. or more. Stormwater Management Facility will be cleaned/maintained as required based upon inspection. The cleaning and maintenance of all BMP's during construction includes removing sediment, replacing or repairing any damaged structure or pipe, and ensuring that soil erosion is kept to a minimum. (See accompanying Stormwater Pollution Prevention Plan - SWPPP) The property operator will be responsible for inspection and maintenance during construction.

After construction is complete and the site has been stabilized, the following BMP maintenance schedule is proposed.

BMP: **Catch basins**

Location – seven within parking lot areas

Catch basins shall be inspected for the first two years on a monthly basis. After the first two years a more suitable inspection schedule will be established based on use. The catch basin shall be cleaned of sediments and debris when build up of sediment reaches a depth of 12". The condition of the hood or outlet tee shall be inspected and replaced or repaired if necessary.
Estimated cost of annual maintenance is $500.

BMP: **Snow Removal Management**

Location – Parking lots and access drives

1. Generally, snow removal from the site will not be required. Snow stockpile areas are provided on-site at areas designated on the site plans.

2. D-icing compounds to be utilized on-site shall consist of $CaC1_2$ and calcium magnesium acetate (CMA).

3. Snow shall not be plowed into stormwater management areas. Snow removal shall be in accordance with Mass DEP Bureau of Resource Protection – Snow Disposal guidelines – No. BRPG01-01.

4. Snow shall be plowed into the area indicated on the plans for snow storage.

5. Accumulate sediment and debris shall be removed in the spring and disposed of in accordance with all local, state and federal laws and regulations.

6. Landscaped areas damaged by sediment removal shall be restored to original conditions.

1.3 Spill Prevention and Control Plan:

a. Spill Prevention Procedures

Spills will be contained and cleaned up immediately. All cleaning materials, rags, etc. shall be disposed of in a proper manner. Spill kits shall be provided on-site in areas easily accessible for personnel to access.

MSD sheets for all materials will be retained on-site in the construction trailer.

If a spill is found to be extensive, the appropriate authorities shall be notified for proper cleanup.

b. Illicit Discharges

All illicit discharges to the stormwater management system are prohibited. These discharges include, but are not limited to, wastewater, stormwater contaminated by contact with process waste, raw materials, toxic pollutants, hazardous substances, oil, or grease. To my knowledge, there are no existing illicit discharges on the site.

Three Way Realty Trust has certified that the illicit discharge statement has been read and understood that any illicit discharge to the stormwater management system is prohibited.

__ **SEE ATTACHED LETTER**__ Signature **LETTER DATED 10/9/15**

STREET SWEEPING LOG

Project Name: Amesbury Chevrolet

Project Location: 103 Macy Street, Amesbury, MA 01913

Owner: Three Way Realty Trust

SWEEP DATE	TYPE OF SWEEPER	LOCATIONS

INSPECTION AND MAINTENANCE CHECKLIST

ITEM	DATE OF INSPECTION AND REQUIRED MAINTENANCE	MAINTENANCE TO BE PROVIDED / COMMENT	DATE MAINTENANCE COMPLETE
Catch basins			
Snow Storage Areas			

Inspected By:_____ Date:_____

APPENDIX D

Stormwater Pollution Prevention Plan (SWPPP)

Stormwater Pollution Prevention Plan

For:

Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913

Operator(s):

Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913

SWPPP Contact(s):

Denis Hamel
W.C. Cammett Engineering, Inc.
297 Elm Street, P.O. Box 329
Amesbury, MA 01913
Office Phone: (978) 388-2157
Office Fax: (978) 388-0428

SWPPP Preparation Date:

October 2015

Estimated Project Dates:

Start of Construction – January 2016
Completion of Construction – July 2016

Job # 15008

Table of Contents

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Project Information:

Project/Site Name: *Amesbury Chevrolet*

Project Street/Location: *103 Macy Street*

City: *Amesbury* State: *Ma.* Zip Code: *01913*

County or Similar Subdivision: *Essex*

Latitude/Longitude

Latitude:	Longitude:
1. *42° 50 ' 46 "* N (degrees, minutes, seconds)	1. *70 ° 54 '* 32" W (degrees, minutes, seconds)
2. _ _ ° _ _ . _ _ ' N (degrees, minutes, decimal)	2. _ _ ° _ _ . _ _ ' W (degrees, minutes, decimal)
3. _ _ . _ _ _ _ ° N (decimal)	3. _ _ . _ _ _ _ ° W (decimal)

Method for determining latitude/longitude:

☐ USGS topographic map (specify scale: *1:24,000*) ☐ EPA Web site ☐ GPS

☒ Other (please specify): Google Earth

Is the project located in Indian country? ☐ Yes ☒ No

If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable."

Is this project considered a federal facility? ☐ Yes ☒ No

NPDES project or permit tracking number:

(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate NPDES construction general permit.)

1.2 Contact Information/ Responsible Parties

Project Information:

Operator(s):
Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913
Phone: (978) 388-9700

Project Manager(s) or Site Supervisor(s):
Brian Fecteau, Trustee
Three Way Realty Trust
103 Macy Street
Amesbury, MA 01913
(978) 388-9700
Email: bfect@aol.com

Stormwater Manager and SWPPP Contact(s):
Denis Hamel, CPESC
W.C. Cammett Engineering, Inc.
297 Elm Street
Amesbury, MA 01913
Phone: (978) 388-2157
Fax: (978) 388-0428
Email: dhamel@cammett.com

Local Authority Contact(s):
Board of Health
9 School Street
Amesbury, Ma. 01913
Ph – 978-388-8134
Fx – 978-388-7874

Conservation Commission
City Hall – 62 Friend Street
Amesbury, Ma. 01913
Ph – 978-388-8110 x317
Fx – 978-388-6727

Department of Public Works
39 South Hunt Rd

Amesbury, Ma. 01913
Ph – 978-388-8116
Fx – 978-388-1769

Planning Board
City Hall - 62 Friend Street
Amesbury, Ma. 01913
Ph – 978-388-8110 x312
Fx – 978-388-6727

Inspectional Services
9 School Street
Amesbury, Ma. 01913
Ph – 978-388-8129
Fx – 978-388-7874

This SWPPP Was Prepared By:
Denis Hamel, CPESC
W. C. Cammett Engineering, Inc.
297 Elm Street
Amesbury, Ma. 01913
Phone: 978-388-2157
Fax: 978-388-0428

1.3 Nature and Sequence of Construction Activity

Project Information:

- The proposed project is the construction of a 16,000 SF addition with associated parking and landscaping.

  Stormwater will be managed on-site utilizing the latest BMP Technology in accordance with Massachusetts DEP Stormwater Management Guidelines.

What is the function of the construction activity?

☐ Residential ☒ Commercial ☐ Industrial ☐ Road Construction

☐ Linear Utility

☐ Other (please specify):_____

Estimated Project Start Date: January 2016

Estimated Project Completion Date: July 2016

1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

Project Information:

Soil Type(s):

- Slopes on the Site range from 3 to 33%. Vegetation on the Site is primarily grass with areas of scrub shrub. The majority of the uplans portion of the site is developed with buildings and paved areas.

Drainage Patterns

- Drainage patterns will generally remain unchanged between pre-development and post-development conditions.
- All stormwater flows overland to wetlands adjacent to the property.

1.5 Construction Site Estimates

Project Information:

The following are estimates of the construction site:

Construction Site Area to be disturbed	1.32 acres
Total Project Area	5.33 acres
Percentage impervious area before construction	60.0 %
Runoff coefficient before construction	N/A
Percentage impervious area after construction	59.2 %
Runoff coefficient after construction	N/A

1.6 Receiving Waters

Project Information:

Description of receiving waters:

Flow from the site flows to adjacent wetland system south of the site to an unnamed stream to the Powwow River.

Description of storm sewer systems:

Channels and culverts at Macy Street prior to the Powwow River.

Description of impaired waters or waters subject to TMDLs: *Not Applicable*

1.7 Site Features and Sensitive Areas to be Protected

Project Information:

Description of unique features and measures to protect them:

- The site has wetland systems adjacent to the Site that will be protected utilizing temporary erosion control devices, stormwater controls and weekly monitoring during the construction process.

1.8 Potential Sources of Pollution

Project Information:

Potentials sources of sediment to stormwater runoff:

- Site demolition
- Building, driveway and parking area grading operations
- Stormwater management grading operation
- Final site grading stabilization measures and landscaping
- Vehicle tracking

Potential pollutants and sources, other than sediment, to stormwater runoff:

POLLUTANT	*SOURCE*
Fertilizers	*Lawns/Landscaped Areas*
Pesticides	*Lawns/Landscaped Areas*
Petroleum Products	*Construction Equipment/Vehicles*
Solvents	*Building/Equipment Maintenance*
Asphalt	*Drive and parking Construction*
Construction Waste	*Site/Building Construction*
Sanitary Facilities	*Staging Area*

1.9 Endangered Species Certification

Project Information:

Are endangered or threatened species and critical habitats on or near the project area?

☐ Yes ☒ No

Describe how this determination was made: A review of the Massachusetts Natural Heritage Atlas 13th edition, October 1, 2008.

If yes, describe the species and/or critical habitat:

If yes, describe or refer to documentation which determines the likelihood of an impact on identified species and/or habitat and the steps taken to address that impact. (Note, if species are present on or near your project site, EPA strongly recommends that the site operator work closely with the appropriate field office of the U.S. Fish and Wildlife Service or National Marine Fisheries Service. Please contact a state or tribal official for concerns related to state or tribal listing of species.)

1.10 Historic Preservation

Project Information:

Are there any historic sites on or near the construction site?

☐ Yes ☒ No

- Describe how this determination was made:

  Review from Massachusetts Historical Commission on October 24, 2012.

- If yes, describe or refer to documentation which determines the likelihood of an impact on this historic site and the steps taken to address that impact.

1.11 Maps

Instructions:

- Attach at least two site maps. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or the major phases of development, for more complicated sites.

These maps should include:

- ☐ Direction(s) of stormwater flow and approximate slopes before and after major grading activities
- ☐ Areas and timing of soil disturbance and areas that will not be disturbed
- ☐ Natural features to be preserved
- ☐ Locations of major structural and non-structural BMPs identified in the SWPPP
- ☐ Locations and timing of stabilization measures
- ☐ Locations of off-site material, waste, borrow, or equipment storage areas
- ☐ Locations of all waters of the U.S., including wetlands
- ☐ Locations where stormwater discharges to a surface water
- ☐ Locations of storm drain inlets
- ☐ Areas where final stabilization has been accomplished
- ☐ For more information, see SWPPP Guide, Chapter 3.C.

Project Information:

- Refer to Appendix for site maps.
  - EX-1
  - SP-1
  - GR-1
  - UT-1
  - DT-1
  - LS-1
  - SC-1

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

Project Information:

2.1 Minimize Disturbed Area and Protect Natural Features and Soil:

a. BMP Measures – Erosion Control Devices

1. The erosion control devices and fencing will be installed prior to construction beginning on the project site.
2. These BMP measures will be inspected during the regular monitoring inspection required by the NPDES permit.
3. The site contractor shall be responsible for maintenance.

b. BMP Measure – Topsoil Preservation

1. Topsoil will be stripped and stockpiled.
2. The stockpiles will be located at least one-hundred feet from sensitive wetland resource areas and will be encircled with silt fence.
3. The site contractor shall be responsible for maintenance.

2.2 Phase Construction Activity:

- Phase I

  The project will be constructed in one phase due to the small nature of the project.

2.3 Control Stormwater Flowing Onto And Through The Project:

a. BMP Measure –Catch basins

1. Catch basin shall be installed in all areas as indicated on the site plans. The basins will be constructed to the specific grade as detailed in the site plans.

2. The basins will be inspected during the regular monitoring inspections required by the NPDES permit.

3. The site contractor shall be responsible for maintenance.

2.4 Stabilize Soils:

a BMP Measure – Temporary Stabilization

1. When construction ceases for more than 30 days in areas of exposed soils, temporary stabilization shall be established by hydroseeding, mulching or installing erosion control blankets in these areas. Seeding shall be completed during the growing season to ensure proper establishment of vegetation.

2. The hydroseeding and or mulching will be conducted in areas where construction has ceased for more than 30 days.

3. The stabilization of these areas will be inspected during the regular monitoring inspections required by the NPDES permit.

4. The site contractor shall be responsible for maintenance.

b. BMP Measure – Permanent Stabilization

1. When construction is completed for each portion of the site, permanent vegetation and landscaping shall be completed utilizing hydroseeding methods, sod installation and/or vegetative plantings to stabilize exposed soils.

2. Permanent stabilization shall be completed as soon as possible, but no later than 14 days after the construction phase is completed.

3. The stabilization of these areas will be inspected during the regular monitoring inspections required by the NPDES permit.

4. The site contractors will be responsible for maintenance.

2.5 Protect Slopes:

a. BMP Measures – Loam/Seed

1. Disturbed/regraded slopes shall be loamed and seeded upon completion to final grade.

2. Slopes will be inspected during the regular monitoring inspections required by the NPDES permit.

3. The site contractor shall be responsible for maintenance.

2.6 Protect Storm Drain Inlets:

a. BMP Measures –Catch Basin Inlets

1. Geotextile fabric (Siltbags) shall be installed in the grate of the all catch basins that will capture runoff during construction.

2. Install fabric prior to construction in all existing catch basins and at time of installation of the proposed catch basin.

3. Inspect the fabric during the regular monitoring inspections required by the NPDES permit. Maintenance will include removal of accumulated sediment as is required to maintain clear openings.

4. Site contractor shall be responsible for maintenance.

2.7 Establish Perimeter Controls and Sediment Barriers:

a. BMP Measure – Silt Sock

1. The silt sock shall be installed as indicated on the plans. The silt sock will be installed with wooden stakes placed approximately at six foot intervals.

2. The silt sock shall be installed before site grading and land disturbing activities begin.

3. The silt sock will be inspected during the regular monitoring inspections required by the NPDES permit; with sediment removed when 1/3 sock height is reached.

4. The site contractor shall be responsible for maintenance.

2.8 Retain Sediment On-Site and Control Dewatering Practices:

a. BMP Measure – Dewatering Area

1. Proposed dewatering area as designated on site plans will be utilized as temporary sediment basins during dewatering activities during site development.

2. The dewatering area shall be constructed according the detail C on plan sheet EC-1.

3. The area will be inspected during the regular monitoring inspections required by the NPDES permit. Accumulated sediment in the basin shall be removed when the basin volume is ½ the original design volume. The perimeter control and embankments shall be repaired/upgraded as required.

4. The site contractor shall be responsible for maintenance.

2.9 Establish Stabilized Construction Exits:

a. BMP Measure – Stabilized Construction Exits

1. Stone bedding shall be installed at all construction exits from the site prior to existing paved areas. The stone bedding shall be a minimum 20 feet wide, 50 feet long and 6 inches thick. The stone shall be two inch crushed stone installed over a geotextile fabric.

2. The stone shall be installed prior to the beginning of construction and will remain in place until the initial course of pavement has been installed.

3. The stone shall be inspected during the regular monitoring inspection required by the NPDES permits. Additional stone shall be added to the exit as required to control tracking of sediment off-site. If the stone bedding no longer controls off-site tracking of sediment, the entire stone bedding shall be removed and replaced with clean stone.

4. The site contractor shall be responsible for maintenance.

2.10 Additional BMPs:

a. BMP Measure – Street Sweeping

1. Street sweeping will be conducted at the project entrance.

2. Street sweeping will occur as conditions dictate.

3. Collected sediment shall be disposed off-site at an approved landfill.

4. The site contractor shall be responsible for maintenance.

SECTION 3: GOOD HOUSEKEEPING BMPS

3.1 Good Housekeeping BMPs

Project Information:

a. Material Handling and Waste Management:

1. Dumpsters shall be provided on-site for disposal of trash and construction debris.

2. Dumpsters will be brought to the site at the start of construction, prior to the generation of solid waste materials.

3. Dumpsters will be inspected during the regular monitoring inspections required by the NPDES permit. Dumpsters will be emptied as necessary to control on-site solid waste.

4. The site contractor shall be responsible for maintenance.

b. Hazardous Waste

1. Hazardous waste materials shall be stored in a dry area protected from precipitation. Hazardous waste materials will be disposed of in accordance with local, state and federal regulations. Hazardous waste material shall not be disposed of in on-site dumpsters.

2. The hazardous waste storage area shall be developed prior to hazardous materials being stored on the site.

3. The storage area will be inspected during the regular monitoring inspections required by the NPDES permit. MSD sheets for all materials shall be located at the construction trailer.

4. The site contractor shall be responsible for maintenance.

c. Sanitary Facilities

1. Temporary sanitary facilities shall be provided on-site in convenient locations for construction personnel.

2. Temporary sanitary facilities shall be brought to the site at the start of construction.

3. The sanitary facilities shall be emptied at least once per week and at greater intervals dependent upon the use. Inspections will be conducted on a weekly basis for any evidence of leakage.

4. The site contractor shall be responsible for maintenance.

3.2 Establish Proper Building Material Staging Areas:

a. Building Material Staging Area

1. Staging areas shall be developed for storage of construction materials. Hazardous materials shall be stored in an area protected from precipitation.

2. Staging areas shall be developed prior to delivery to materials to the project site.

3. Storage areas shall be inspected during the regular monitoring inspections required by the NPDES permit.

4. The site contractor shall be responsible for maintenance.

3.3 Designate Washout Areas:

a. BMP Measure – Concrete Washout

1. Temporary concrete washout areas shall be constructed at locations identified on the site plans. The area will be constructed below grade approximately ten feet long, three feet deep and ten feet wide. The area will be lined with 10 mils thick plastic sheeting. Signage shall be provided identifying washout areas.

   Excess concrete and/or washout material from the concrete trucks shall be discharged to the washout area or disposed of off-site.

   Upon completion if need for the washout area, the hardened concrete shall be removed and disposed of, the area will be filled graded and stabilized.

2. The washout area will be constructed prior to the use of concrete materials.

3. The washout area will be inspected on a daily basis during concrete operations to ensure no tears in the plastic. The washout area must be cleaned out when the capacity of the area is reduced to 25% of available capacity.

4. Site contractor shall be responsible for maintenance.

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices:

a. BMP Measure – Equipment/Vehicle Fueling and Maintenance

1. Construction equipment will be refueled on-site as required by a fuel delivery truck. Large quantities of fuel will not be stored on-site. Only minor vehicle/equipment maintenance will be conducted on-site, major repairs will be conducted off-site.

   Spill-cleanup materials and kits will be provided on-site at the materials storage area.

2. The above practices will be instituted at the start of on-site construction.

3. Construction equipment will be inspected on a weekly basis. Repairs will be made as necessary to fix leaks. Fuel storage area will be inspected during regular inspections as required by the NPDES permit.

4. Site contractor shall be responsible for maintenance.

3.5 Allowable Non-Stormwater Discharges and Control Equipment/Vehicle Washing:

a. BMP Measure – Vehicle Washing

1. There will be no vehicle washing on-site. All washing will be performed off-site.

3.6 Spill Prevention and Control Plan:

a. Spill Prevention Procedures

1. The project will contain no above ground or below ground fuel storage tanks. Equipment and vehicles will be refueled by a fuel delivery truck as required.

   Equipment/vehicle repairs and maintenance will occur offsite, except for minor repairs in order to minimize leaking fluids from vehicles and equipment.

   Hazardous materials will be stored in the staging area in proper containers and be protected from the weather.

   Spills will be contained and cleaned up immediately. All cleaning materials, rags, etc. shall be disposed of in a proper manner. Spill kits shall be provided on-site in areas easily accessible for personnel to access.

   MSD sheets for all materials will be retained on-site in the construction trailer.

2. The spill prevention procedures shall begin at the start of on-site construction.

3. Inspection and observation of these procedures will be conducted on a daily basis. Spills shall be immediately identified and the site supervisors shall be notified.

4. Project site supervisor will be responsible for implementation.

3.7 Any Additional BMPs:

a. Personnel Training

1. All construction personnel including general contractor, sub-contractors, etc. shall be informed of the Stormwater Pollution Prevention Plan, of its procedures and reporting methods.

   Notices and information shall be posted on-site.

2. Notification of the SWPPP shall take place on-site at the start of construction and periodically during the construction period to update the plan.

3. Project site supervisor shall be responsible for confirming the procedures are followed on a daily basis.

4. Project site supervisor shall be responsible for implementation.

3.8 Allowable Non-Stormwater Discharge Management

a. Subgrade Protection and Dewatering Plan

The Site Subcontractor is required to maintain stable-dewatered subgrades for foundations, pavements, and other concerned areas during construction. Subgrade disturbance may be influenced by excavation methods, moisture, precipitation, groundwater control, and construction activities. It is understood that the site soils (sandy silt) are considered highly moisture sensitive and will become weak or soft if exposed to wet conditions and construction activities without mitigation measures. The shallow groundwater or perched water will further impact stability. The Site Subcontractor should take precautions to reduce subgrade disturbance. Such precautions may include diverting storm runoff away from construction areas, reducing traffic in sensitive areas, limiting the extent of exposed subgrades (especially if inclement weather is forecast), prompt backfilling of footings, and maintaining an effective dewatering plan.

The Site Subcontractor shall follow the below dewatering plan to properly protect the bearing subgrades and to protect the adjacent wetlands from contaminated, turbid non-stormwater related discharges:

1. A protective base of ¾ inch minus crushed stone (encased in a geotextile filter fabric such as Mirafi 140N or equal) may be placed at least 10 inches below and laterally beyond the footing limits. Crushed stone shall also be used as structural fill in wet areas. The stone base is to protect the site soils, facilitate any necessary dewatering, and provide a dry/stable base upon which to progress foundation construction. The stone base shall be placed immediately upon exposure and tamped with a plate compactor until exhibiting stable conditions. The protective stone shall be necessary if wet conditions are present during construction.

2. Wet conditions (groundwater table, perched water and/or storm water) will need to be temporarily controlled during construction to complete work in dry conditions and protect the structural integrity of the subgrade. The groundwater table or puddled storm water should be continuously maintained at least one foot below construction grade until backfilling is complete. The groundwater is expected to be controlled with conventional sumps and pumps. The temporary sumps should be filtered with stone and fabric and extend at least 24 inches below construction grade. The footing trenches should have a positive slope towards the sumps. Adequate dewatering and storm water management are necessary for maintaining the competency of the site soils.

3. Stormwater is also expected to "puddle" given the low permeability of the site soils. The groundwater or puddled storm water are expected to be controlled with conventional filtered sumps and submersible pumps. An approximate 10 inch lift of ¾ inch minus crushed stone (protected with a geotextile filter fabric) should be placed atop the wet subgrades for protection and to facilitate

temporary dewatering. The subgrade should slope towards the temporary sumps. The sumps shall extend at least 24 inches below the construction grade and filtered with drainage stone.

4. The bearing subgrade should ultimately be stable, dewatered, protected from frost, and compact throughout construction. Bearing subgrades that become weak or disturb due to wet conditions are considered unsuitable for structural support. The Site Contractor shall ultimately be responsible for the means and methods of temporary groundwater control, subgrade protection, and site stability during construction. An engineer shall be scheduled to review the foundation subgrade conditions and preparation during construction.

5. You are prohibited from discharging ground water or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate controls. Examples of appropriate controls include, but are not limited to, sediment basins or sediment traps, sediment socks, dewatering tanks, tube settlers, weir tanks, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. However, uncontaminated, non-turbid dewatering water can be discharged without be routed to a control. You must meet the following requirements for dewatering activities.

    a. Do not discharge visible floating solids or foam;

    b. Use and oil-water separator or suitable filtration device (such as a cartridge filter) that is designed to remove oil, grease, or other products if dewatering water is found to contain these materials;

    c. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area;

    d. At all points where dewatering water is discharged, design and constructed stormwater conveyance channels to avoid unstabilized areas on the site and to reduce erosion, unless infeasible. Minimize erosion of channels and their embankments, outlets, adjacent streambanks, slopes, and downstream waters during discharge conditions through the use of erosion controls and velocity dissipation devices within and along the length of any constructed stormwater conveyance channel, and at any outlet to provide a non-erosive flow velocity;

    e. With backwash water, either haul it way for disposal or return it to the beginning of the treatment process; and

    f. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.

g. Treatment chemical restrictions. There will be no use of treatment chemicals unless in an emergency. In an emergency it becomes necessary to use polymers, flocculants, or other treatment chemicals at your site, the Contractors shall reasonably comply to with the EPA's NPDES 2012 Construction General Permit requirements for the use of treatment chemicals.

b. Dust Control Watering

1. Watering to control dust will be implemented at the start of construction as weather conditions dictate. Specifically, during windy conditions, the site will be sprayed to control dust transport.

2. Site Contractor will be responsible for determining the frequency/necessity for spraying.

SECTION 4: SELECTING POST-CONSTRUCTION BMPs

4.0 Selecting Post-Construction BMP's

Project Information:

a. Snow Removal Management

1. Access drive and parking areas will be cleared and will be disposed in specific stockpile areas on site.

2. D-icing compounds to be utilized on-site shall consist of $CaCl_2$ and calcium magnesium acetate (CMA).

3. Property owner or owner's maintenance contractor will be responsible for the snow and de-icing operations.

b. Catch Basin Cleaning

1. Inspect silt and debris accumulation in sump of basins at least twice per year., Spring and Fall.

2. Remove debris and sits if volume blocks the outlet or the silt is greater than 12" deep.

3. Property owner or owner's maintenance contractor will be responsible for scheduling the activity each year.

SECTION 5: INSPECTIONS and MAINTENANCE

5.1 Inspections

Project Information:

a. Inspection Personnel

1. Denis Hamel. CPESC, will be responsible for site inspections related to this SWPPP. Inspections will be completed once every seven days and after each rainfall event greater than 0.50".

2. Emily Fredette, E.I.T., will be responsible for site inspections when Denis Hamel is unavailable.

b. Qualifications

1. Denis Hamel is a certified professional in erosion and sediment. He has over twenty five years of experience with stormwater regulations and has prepared over fifteen SWPPP's for construction sites.

2. Emily Fredette is a registered Engineer-In-Training. She has gained experience with stormwater regulations and has conducted inspectional services at several other sites.

c. Inspection Schedule and Procedures

1. The inspection schedule will be inspections once every seven days and after each rainfall event greater than 0.50." The inspections will confirm the project site is complying with the projects SWPPP.

2. Corrective measures will be identified during site inspections by Mr. Hamel or Ms. Fredette, a report will be prepared and submitted to the site's project manager, for implementing corrective measures within 24 hours. Refer to the appendix for sample inspection report.

Project Information:

5.2 Maintenance of Controls

a. Temporary stabilization

Hydroseed disturbed areas as soon as grading is complete in each phase. Inspect weekly.

b. Silt Sock.

Maintain in good condition and remove sediment when 1/3 the height of the sock is reached.

c. Stabilized Construction Entrance

Maintain stone in good condition and replenish as necessary to retain sediment on site.

d. Concrete Washout Area

Maintain good condition and clean out when the capacity of the area is reduced to 25% of available capacity.

e. Catch Basins

Maintenance will include removal of accumulated sediment as is required to maintain clear openings.

f. Goodhousekeeping BMP's

Maintain dumpsters, hazardous materials and sanitary facilities in clean, orderly fashion. Inspect during routine NPDES inspections.

5.3 Corrective Action Log

Project Name: Amesbury Chevrolet

Project Location: 103 Macy, Amesbury, MA

Owner: Three Way Realty Trust

DATE OF INSPECTION	INSPECTOR	BMP UPGRADE	CORRECTIVE ACTION

5.4 Pre-Development and Construction Phase Photographs

Project Name: Amesbury Chevrolet

Project Location: 103 Macy, Amesbury, MA 01913

Owner and Operator: Three Way Realty Trust

See Appendix F

SECTION 6: Recordkeeping and Training

6.1 Recordkeeping

GRADING, CONSTRUCTION ACTIVITY, STABILIZATION LOG

Project Name: Amesbury Chevrolet

Project Location: 103 Macy Street, Amesbury, MA 01913

Owner: Three Way Realty Trust

ACTIVITY DATE	DESCRIPTION OF ACTIVITY	DATE OF GRADING COMPLETION	DATE OF STABILIZATION	LOCATIONS

6.2 Log of Changes to the SWPPP

LOG OF CHANGES TO THE SWPPP

Project Name: Amesbury Chevrolet

Project Location: 103 Macy Street, Amesbury, MA 01913

Owner: Three Way Realty Trust

CHANGE NUMBER	DESCRIPTION OF CHANGE	DATE OF CHANGE	CHANGE PREPARED BY

6.3 Training

Individual Responsible for Training:

- Denis Hamel, CPESC; W.C. Cammett Engineering, Inc.

Training Description:

Provide general training and awareness training for contractors and subcontractors on-site outlining BMP descriptions, maintenance requirements and illicit discharge prevention. Training to include notification process for informing appropriate parties when and where stormwater problems occur and mitigating measures to be undertaken.

Note all training sessions on Training Log in the Appendix.

SECTION 7: FINAL STABILIZATION

a. BMP Description – Seeding/Landscaping

1. Permanent vegetative cover will be established upon the completion of construction (i.e. site grading) within 14 days by hydroseeding. Hydroseeding and planting of landscape features shall occur during the growing season to ensure vegetation will establish prior to winter months.

   Loamed and seeded areas shall be protected from washout by mulching or other acceptable slope protection measures until vegetation begins to grow.

   Loaming and seeding shall be an on-going process to minimize areas of exposed soil conditions.

   After the areas of the site are stabilized, accumulated sediment and erosion control devices can be removed and disposed at an off-site location.

SECTION 8: CERTIFICATION AND NOTIFICATION

Project Information:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Brian Fecteau, Title: Trustee

Signature: _____ Date: _____

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

App A - General Location Map

App B - Site Maps and Details

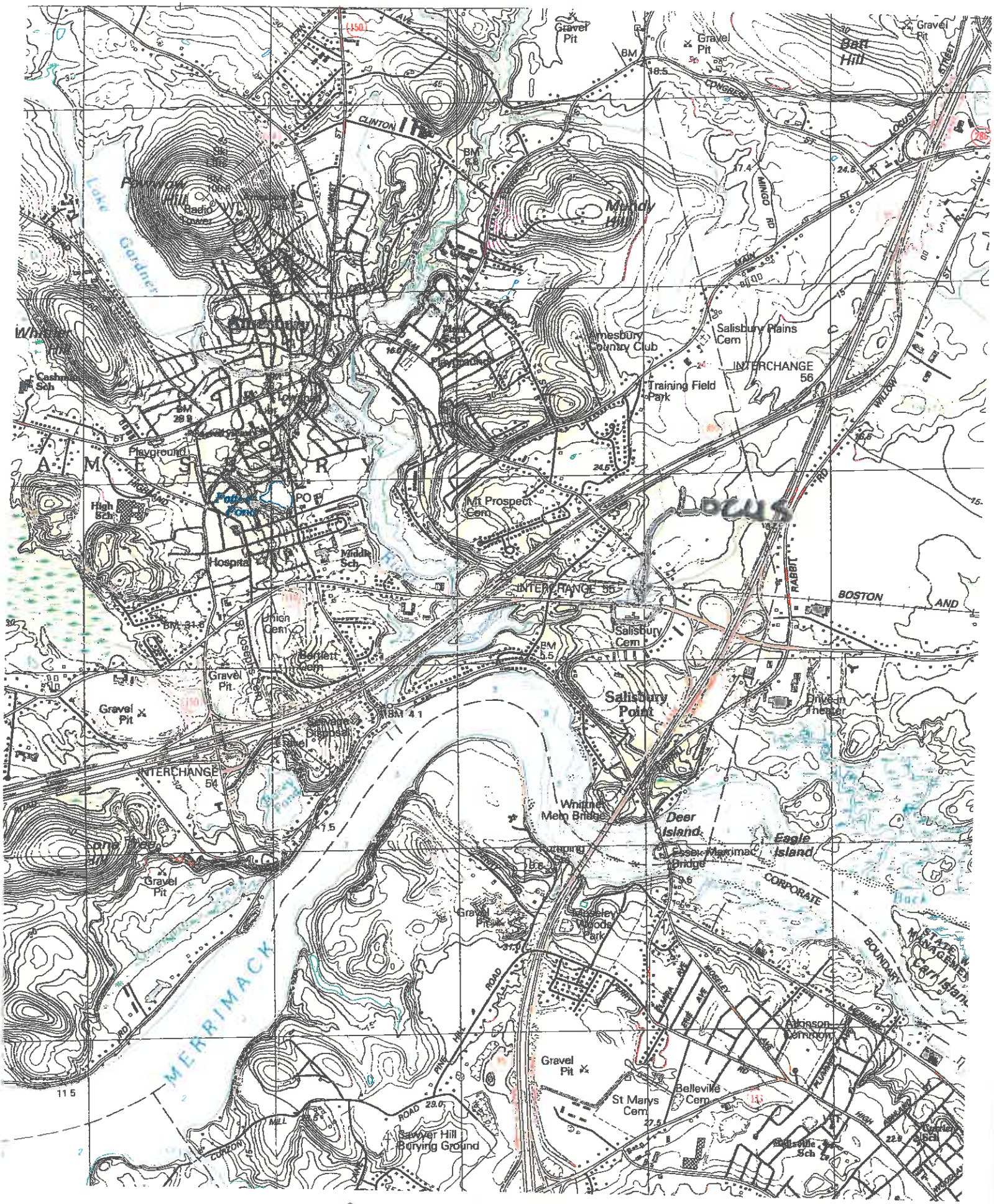
App C - Copy of NOI and acknowledgement letter from EPA/State (Insert Prior to Construction)

App D - Inspection Reports

App E – Pre-Development Photographs

APPENDIX – B

SITE MAPS


Gravel Pit
Bald Hill
Gravel Pit
BM 18.5
CONGRESS
CLINTON
Lake Gardner
Radio Tower
Muddy Hill
MINGO RD
MAIN
Salisbury Plains Cem
Salisbury Country Club
INTERCHANGE 56
Training Field Park
WILLOW RD
Cashman Sch
Playground
Playground
AMESBURY
High Sch
Police Pond
PO
Mt Prospect Cem
Hospital
Middle Sch
INTERCHANGE 55
RABBIT
BOSTON AND
Union Cem
Bartlett Cem
Salisbury Cem
Gravel Pit
Gravel Pit
Salisbury Point
Drive-in Theater
INTERCHANGE 54
Whittier Melvin Bridge
Deer Island
Eagle Island
Essex-Merrimac Bridge
CORPORATE
Lone Tree Hill
Gravel Pit
Gravel Pit
Woodsley Woods Park
STATE MANAGED
Carr Island
MERRIMACK
Atkinson Common
Gravel Pit
St Marys Cem
Belleville Cem
Sawyer Hill Burying Ground
Whittier Sch

Appendix -A

EROSION CONTROL INSPECTION CHECKLIST

ITEM	DATE OF INSPECTION AND REQUIRED MAINTENANCE	MAINTENANCE TO BE PROVIDED / COMMENT	DATE MAINTENANCE COMPLETE
Silt Sock			
Catch Basins			
Dewatering area			

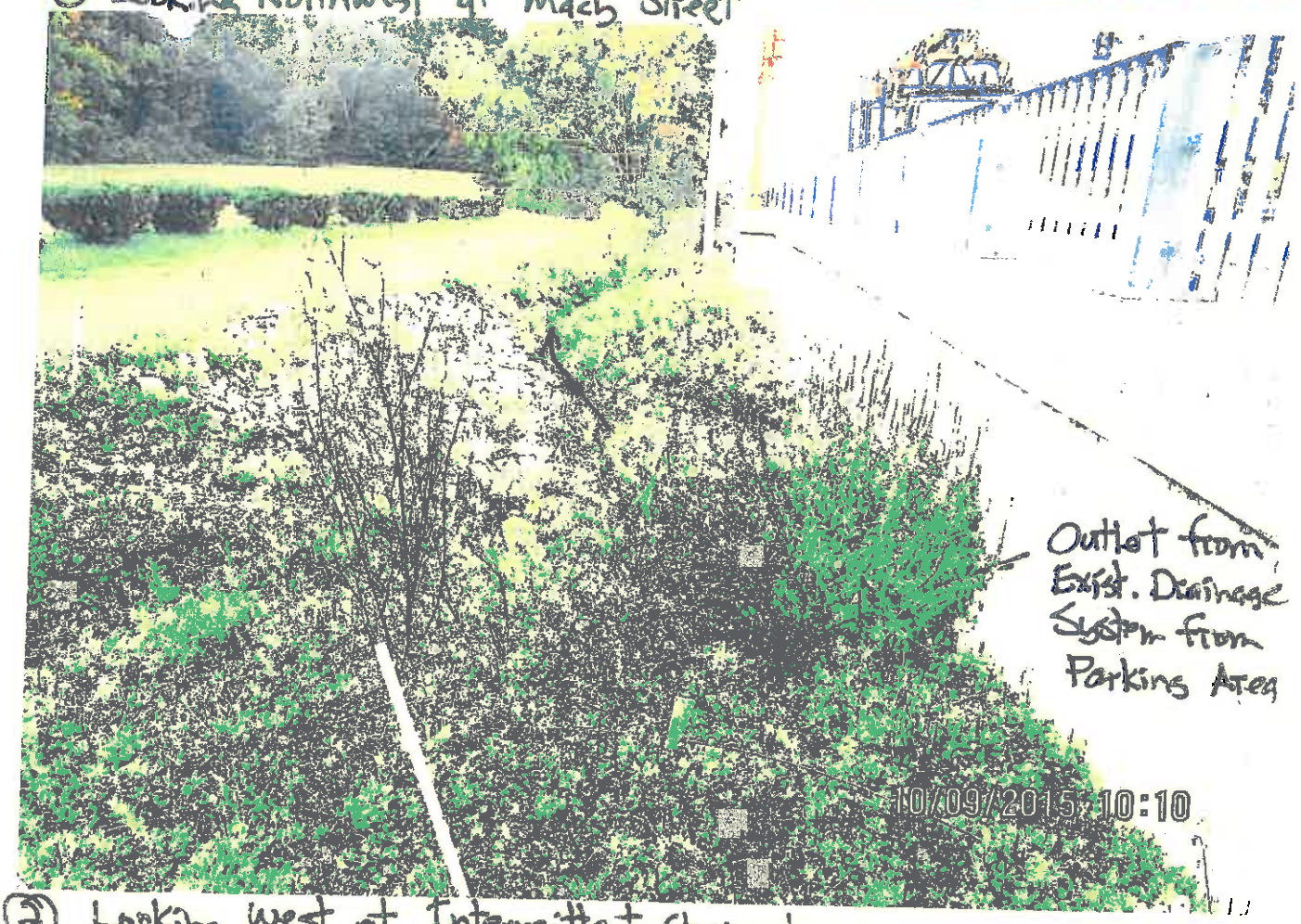
Inspected By:_____ Date:_____

Appendix - D

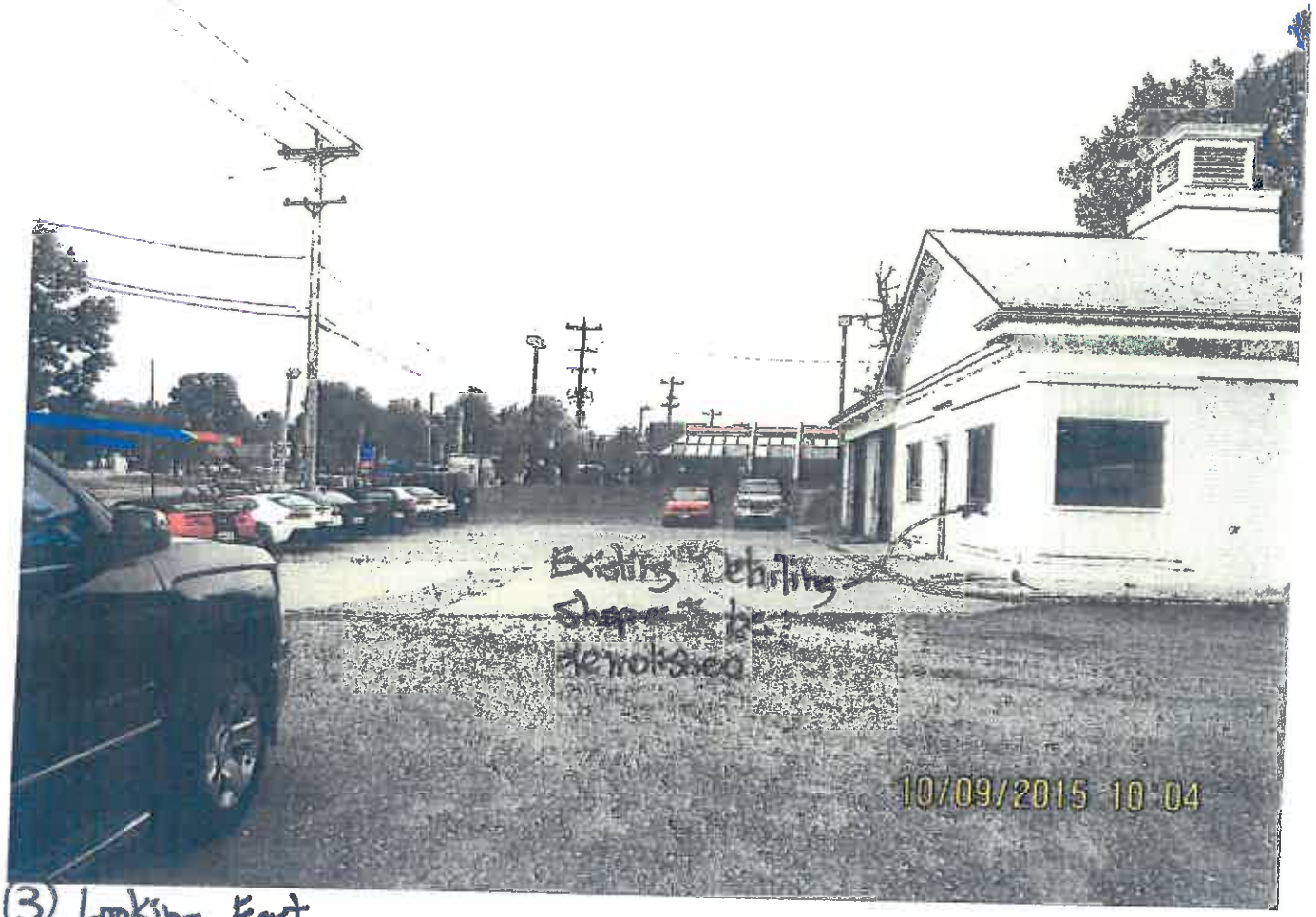
APPENDIX – E

SITE PHOTOS

① Looking Northwest at Macy Street



② Looking West at Intermittent Channel



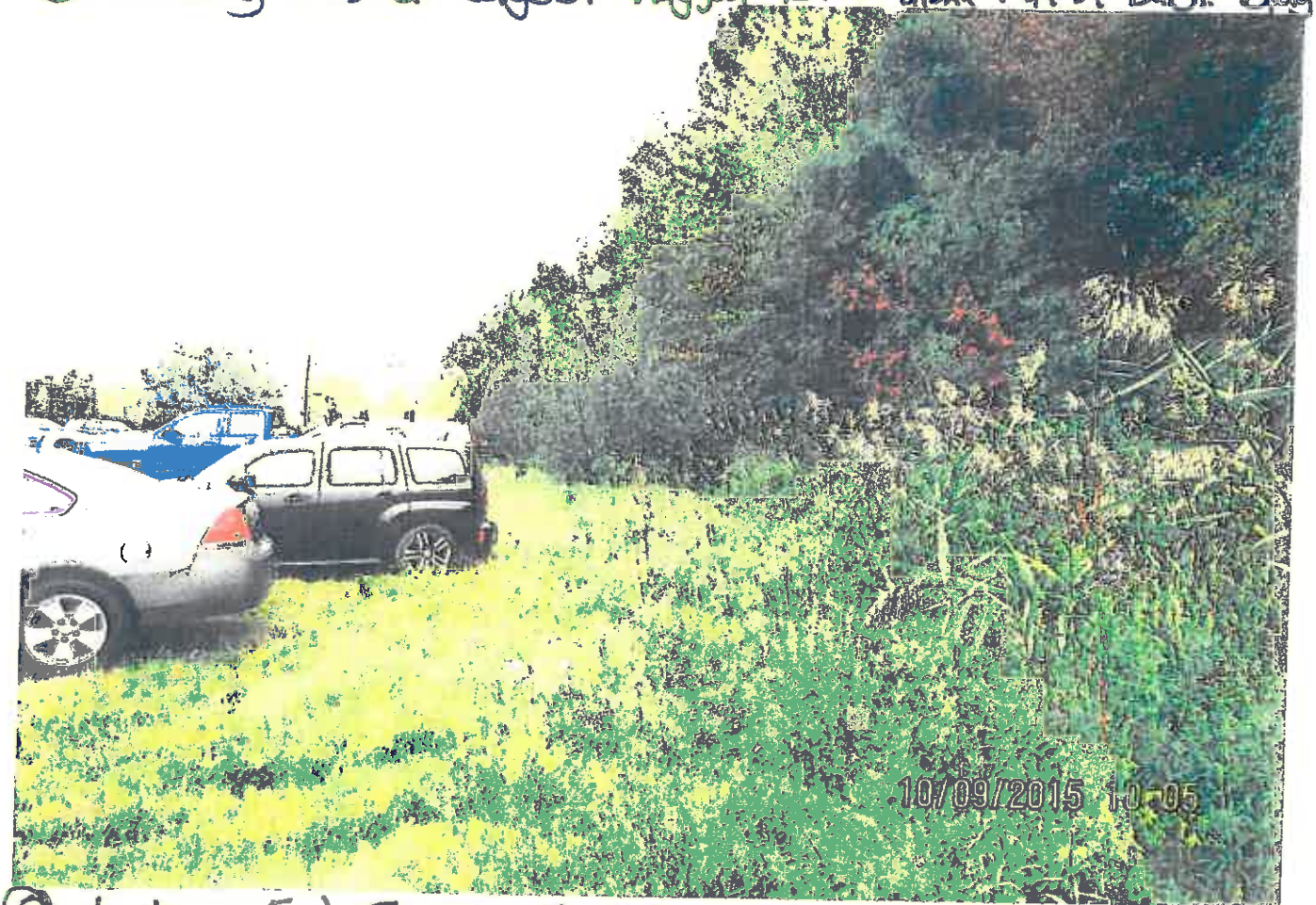
(3) Looking East

(4) Looking South

(5) Looking west at existing Building

(6) Looking west along rear of existing Building

(7) Looking West at edge of flagged BVW along rear of Exist. Bldg.



(8) Looking East Towards Clark Road at edge of BVW

(9) Looking West at east end of Exist. Bldg and Parts delivery area.

(10) Looking South west at Front of Existing Building

October 9, 2015

City of Amesbury
62 Friend Street
Amesbury, Ma. 01913

To Whom It May Concern,

This letter is to verify we are in receipt of the Stormwater Pollution Prevention Plan (SWPPP) that was approved by the City for the proposed addition to our existing facility and we acknowledge all the site operator's activities to prevent stormwater contamination and control sedimentation and erosion to comply with the requirements of the Clean Water Act.

Please let me know if you have any questions or require any further information regarding the above.

Respectfully,

Brian Fecteau
Trustee of Three Way Realty Trust

Title:M/Winword/2015/15008/agencyinterface/conservationcommission/15008letterCOA100915

APPENDIX E

Site Photos

① Looking Northwest at Macy Street

② Looking West at Intermittent Channel

③ Looking East

④ Looking South

(5) Looking West at existing Building

(6) Looking West along rear of existing Building

(7) Looking West at edge of flagged BVW along rear of Exist. Bldg.

(8) Looking East Towards Clark Road at edge of BVW

(9) Looking West at east end of Exist. Bldg and Parts delivery area.

(10) Looking South west at Front of Existing Building

October 9, 2015

City of Amesbury
62 Friend Street
Amesbury, Ma. 01913

To Whom It May Concern,

This letter is to verify we are in receipt of the Stormwater Pollution Prevention Plan (SWPPP) that was approved by the City for the proposed addition to our existing facility and we acknowledge all the site operator's activities to prevent stormwater contamination and control sedimentation and erosion to comply with the requirements of the Clean Water Act.

Please let me know if you have any questions or require any further information regarding the above.

Respectfully,

Brian Fecteau
Trustee of Three Way Realty Trust

Title:M/Winword/2015/15008/agencyinterface/conservationcommission/15008letterCOA100915

APPENDIX F

11x17 Color Open Space Plans

EXISTING OPEN SPACE
55,685 SF
24.0% OF TOTAL PARCEL AREA

NOTE-A
60 FOOT BUILDING SETBACK FROM WETLAND RESOURCE AREA PER LOCAL CONSERVATION COMMISSION REGULATIONS, ADOPTED February 11, 2009, REVISED JULY 11, 2009, AND JUNE 20, 2012, SECTION 21.7 STRUCTURES.

N/F
CARRIAGE TOWN MARKET PLACE, LLC
MAP 79 PARCEL 6
BK. 16768 PG. 416

(PUBLIC WAY – STATE HIGHWAY LAYOUT OF 1966)

MACY STREET (ROUTE 110)

PC 196+10.50

EXISTING CURBED ISLAND

INTERSECTION 1+60.94

INTERSECTION 201+20.00

LOCUS PARCEL
MAP 80 PARCEL 168/3
AREA
5.33+/-AC.
232,145+/-S.F.

EX. CONC. WALL

EX. BIT. CONC.

EX. BROKEN PAVEMENT

EX. CONC.

EX. GRAVEL

EXISTING BUILDING

FIN. FL. 43.67

BIT. CONC.

EX. BIT. CONC.

EX. GRAVEL

EXISTING VEHICLE STORAGE AREA

EX. CHAIN LINK FENCE

SHRUBS

ACCESS EASEMENT

N/F
YEO CHEVROLET, INC.
MAP 79 PARCEL 57
BK. 27601 PG. 402

N/F
ARC CAFEUSA001 LLC
MAP 80 PARCEL 17
BK. 32655 PG. 542

1966 STATE HIGHWAY LAYOUT

14" MAPLE
8" MAPLE
12" MAPLE
24" OAK

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 27
MAP 79 PARCELS 56 & 58

N/F
MARCIA CLEVERSE
C/O DANIEL & DEBRA DONAHUE
MAP 80 PARCEL 25
BK. 33434 PG. 55

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 26
BK. 9860 PG. 437

N/F
ROBERT J. & DORIS E. BOUCHER
MAP 80 PARCEL 24
BK. 26346 PG. 116

N/F
JEREMY SCHULTZ
MAP 80 PARCEL 5
BK. 34254 PG. 435

PC 5+02.54
PT 6+39.91
ROAD
STATE HIGHWAY LAYOUT OF 1966)
PARKS
PUBLIC WAY –

SCALE: 1"=40'
40 20 0 40 80 120 FEET
10 5 0 10 20 30 METERS

TOLL FREE 1-888-DIG-SAFE (1-888-344-7233)

FOR REGISTRY USE ONLY

CAMMETT ENGINEERING
297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1976
Visit us on the WEB at www.cammett.com

Sheet Title:
Existing Conditions
Open Space

Project Title:
Proposed Addition
103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:
Three-Way Realty, LLC
Brian Fecteau, Manager
107 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

NO.	DATE	DESCRIPTION	BY
2	02-15-16	MISC. REVISIONS	DH
3	02-25-16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-09-2015
FILE:	K:\...\C3D\15006PE.dwg
FBK:	
JOB #:	15006

SHEET OS-exist

DEVELOPED OPEN SPACE
62,665 SF
27.0% OF TOTAL PARCEL AREA

NOTE-A
50 FOOT BUILDING SETBACK FROM WETLAND RESOURCE AREA PER LOCAL CONSERVATION COMMISSION REGULATIONS, ADOPTED February 11, 2009, REVISED JULY 11, 2009, AND JUNE 20, 2012, SECTION 21.7 STRUCTURES.

N/F
CARRIAGE TOWN MARKET PLACE, LLC
MAP 79 PARCEL 6
BK. 16768 PG. 416

(PUBLIC WAY – STATE HIGHWAY LAYOUT OF 1966)

MACY STREET (ROUTE 110)

PC 196+10.50

INTERSECTION 14+60.94

INTERSECTION 201+20.00

LOCUS PARCEL
MAP 80 PARCEL 16&13
AREA
5.33+/– AC.
232,145+/–S.F.

EX CONC WALL

ACCESS EASEMENT

N/F
YEO CHEVROLET, INC.
MAP 79 PARCEL 57
BK. 27601 PG. 402

EXISTING BUILDING

FIN. FL. 43.67

EXISTING BUILDING

EXISTING PAVED AREA TO REMAIN

EX. GRAVEL

EX.CHAIN LINK FENCE

N/F
ARC CAFEUSA001 LLC
MAP 80 PARCEL 17
BK. 32855 PG. 542

SHRUBS

1966 STATE HIGHWAY LAYOUT

EX.CHAIN LINK FENCE

EX.CHAIN LINK FENCE

PC 5+02.94

ROAD

PT 6+58.97

STATE HIGHWAY OF 1966)

PUBLIC WAY – LAYOUT

14" MAPLE
8" MAPLE
12" MAPLE
6" MAPLE
24" OAK

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 27
MAP 79 PARCELS 56 & 58

N/F
MARCIA CLEVERSE
C/O DANIEL & DEBRA DONAHUE
MAP 80 PARCEL 25
BK. 33434 PG. 55

N/F
ROBERT J. & DORIS E. BOUCHER
MAP 80 PARCEL 24
BK. 26346 PG. 118

N/F
JEREMY SCHULTZ
MAP 80 PARCEL 5
BK. 34254 PG. 435

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 26
BK. 9860 PG. 437

SCALE: 1"=40'

40 20 0 40 80 120 FEET
10 5 0 10 20 30 METERS

TOLL FREE 1-888-DIG-SAFE (1-888-344-7233)

FOR REGISTRY USE ONLY

CAMMETT ENGINEERING
297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1975
Visit us on the WEB at www.cammett.com

Sheet Title:
Developed Open Space

Project Title:
Proposed Addition
103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:
Three-Way Realty, LLC
Brian Fecteau, Manager
107 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

NO.	DATE	DESCRIPTION	BY
2	02-15-16	MISC. REVISIONS	DH
3	02-25-16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-09-2015
FILE:	K:\...\C3D\15008FE.dwg
FBK:	
JOB #:	15008

SHEET OS-dev

APPENDIX G

11x17 Color Impervious Areas Site Plans Plans

EXISTING PAVEMENT
117,940 SF

EXISTING BUILDINGS
20,966 SF

138,906 SF TOTAL IMPERVIOUS

NOTE-A
50 FOOT BUILDING SETBACK FROM WETLAND RESOURCE AREA PER LOCAL CONSERVATION COMMISSION REGULATIONS, ADOPTED February 11, 2009, REVISED JULY 11, 2009, AND JUNE 20, 2012, SECTION 21.7 STRUCTURES.

N/F
CARRIAGE TOWN MARKET PLACE, LLC
MAP 79 PARCEL 6
BK. 16768 PG. 416

(PUBLIC WAY – STATE HIGHWAY LAYOUT OF 1966)

MACY STREET (ROUTE 110)

PC 196+10.50

EXISTING CURBED ISLAND

INTERSECTION 1+60.94

INTERSECTION 201+20.00

LOCUS PARCEL
MAP 80 PARCEL 16&13
AREA
5.33+/–AC.
232,145+/–S.F.

ACCESS EASEMENT

EX. CONC. WALL

EX. BIT. CONC.

EX. BROKEN PAVEMENT

EX. CONC.

EX. GRAVEL

SHRUBS

EXISTING BUILDING

FIN. FL. 43.67

BIT. CONC.

EX. BIT. CONC.

EX. GRAVEL

EXISTING VEHICLE STORAGE AREA

EX. CHAIN LINK FENCE

N/F
YEO CHEVROLET, INC.
MAP 79 PARCEL 57
BK. 27601 PG. 402

N/F
ARC CAFEUSA001 LLC
MAP 80 PARCEL 17
BK. 32655 PG. 542

1966 STATE HIGHWAY LAYOUT

14" MAPLE
2" MAPLE
24" OAK
12" MAPLE
6" MAPLE
36" OAK

PC 5+02.64

PT 6+58.91

ROAD

MARK'S

PUBLIC WAY – STATE HIGHWAY LAYOUT OF 1966)

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 27
MAP 79 PARCELS 56 & 58

N/F
MARCIA CLEVERSE
C/O DANIEL & DEBRA DONAHUE
MAP 80 PARCEL 25
BK. 33434 PG. 55

N/F
ROBERT J. & DORIS E. BOUCHER
MAP 80 PARCEL 24
BK. 26346 PG. 116

N/F
JEREMY SCHULTZ
MAP 80 PARCEL 5
BK. 34254 PG. 435

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 26
BK. 9860 PG. 437

SCALE: 1"=40'
40 20 0 40 80 120 FEET
10 5 0 10 20 30 METERS

TOLL FREE 1-888-DIG-SAFE (1-888-344-7233)

FOR REGISTRY USE ONLY

CAMMETT ENGINEERING
297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1975
Visit us on the WEB at www.cammett.com

Sheet Title:
Existing Conditions Open Space

Project Title:
Proposed Addition
103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:
Three-Way Realty, LLC
Brian Fecteau, Manager
107 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

NO.	DATE	DESCRIPTION	BY
2	02–15–16	MISC. REVISIONS	DH
3	02–25–16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-09-2015
FILE:	K:\...\C3D\15008FE.dwg
FBK:	
JOB #:	15008

SHEET IMP-exist

DEVELOPED PAVEMENT
103,014 SF

DEVELOPED BUILDING
16,627 SF

EXISTING BUILDING
19,072 SF

138,713 SF TOTAL IMPERVIOUS

NOTE-A

50 FOOT BUILDING SETBACK FROM WETLAND RESOURCE AREA PER LOCAL CONSERVATION COMMISSION REGULATIONS, ADOPTED February 11, 2008, REVISED JULY 11, 2008, AND JUNE 20, 2012, SECTION 21.7 STRUCTURES.

N/F
CARRIAGE TOWN MARKET PLACE, LLC
MAP 79 PARCEL 6
BK. 16768 PG. 418

(PUBLIC WAY – STATE HIGHWAY LAYOUT OF 1966)

MACY STREET (ROUTE 110)

PC 196+10.50

INTERSECTION 1+80.94

INTERSECTION 201+20.00

LOCUS PARCEL
MAP 80 PARCEL 16&13
AREA
5.33+/–AC.
232,145+/–S.F.

EX CONC WALL

ACCESS EASEMENT

EXISTING BUILDING

FIN FL 43.67

EXISTING PAVED AREA TO REMAIN

EX. GRAVEL

EX.CHAIN LINK FENCE

EX.CHAIN LINK FENCE

EX.CHAIN LINK FENCE

SHRUBS

N/F
YEO CHEVROLET, INC.
MAP 79 PARCEL 57
BK. 27601 PG. 402

N/F
ARC CAFEUSA001 LLC
MAP 80 PARCEL 17
BK. 32655 PG. 542

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 27
MAP 79 PARCELS 56 & 58

N/F
MARCIA CLEVERSE
C/O DANIEL & DEBRA DONAHUE
MAP 80 PARCEL 25
BK. 33434 PG. 55

N/F
ROBERT J. & DORIS E. BOUCHER
MAP 80 PARCEL 24
BK. 26346 PG. 116

N/F
JEREMY SCHULTZ
MAP 80 PARCEL 5
BK. 34254 PG. 435

N/F
SALISBURY POINT CEMETERY ASSOCIATION
MAP 80 PARCEL 26
BK. 9860 PG. 437

1966 STATE HIGHWAY LAYOUT

14" MAPLE
14" MAPLE
14" MAPLE
8" MAPLE
2" MAPLE
12" MAPLE
12" MAPLE
5" MAPLE
MAPLE
24" OAK
24" OAK
24" OAK
OAK
OAK

PC 5+02.84.5

ROAD

PT 6+58.97

STATE HIGHWAY

PUBLIC WAY – OF 1966)

MARKS

SCALE: 1"=40'

40 20 0 40 80 120 FEET
10 5 0 10 20 30 METERS

TOLL FREE 1-888-DIG-SAFE (1-888-344-7233)

FOR REGISTRY USE ONLY

CAMMETT ENGINEERING
297 ELM STREET, AMESBURY, MA.
Phone: (978) 388-2157 Fax: (978) 388-0428
CONSULTING ENGINEERS & LAND SURVEYORS SINCE 1975
Visit us on the WEB at www.cammett.com

Sheet Title:

Developed Impervious

Project Title:

Proposed Addition

103 Macy Street (Rte. 110)
Amesbury, MA 01913

Applicant: Owner:

Three-Way Realty, LLC
Brian Fecteau, Manager

107 Macy Street (Rte. 110)
Amesbury, MA 01913

REVISION

NO.	DATE	DESCRIPTION	BY
2	02-15-16	MISC. REVISIONS	DH
3	02-25-16	MISC. REVISIONS	DH

Date:

PROJ. MGR.:	D. HAMEL
FIELD:	-
DESIGN:	D. HAMEL
DRAWN:	D. HAMEL
CHECKED:	W. CAMMETT
DATE:	10-09-2015
FILE:	K:\...\C3D\15006FE.dwg
FBK:	
JOB #:	15006

SHEET IMP-dev