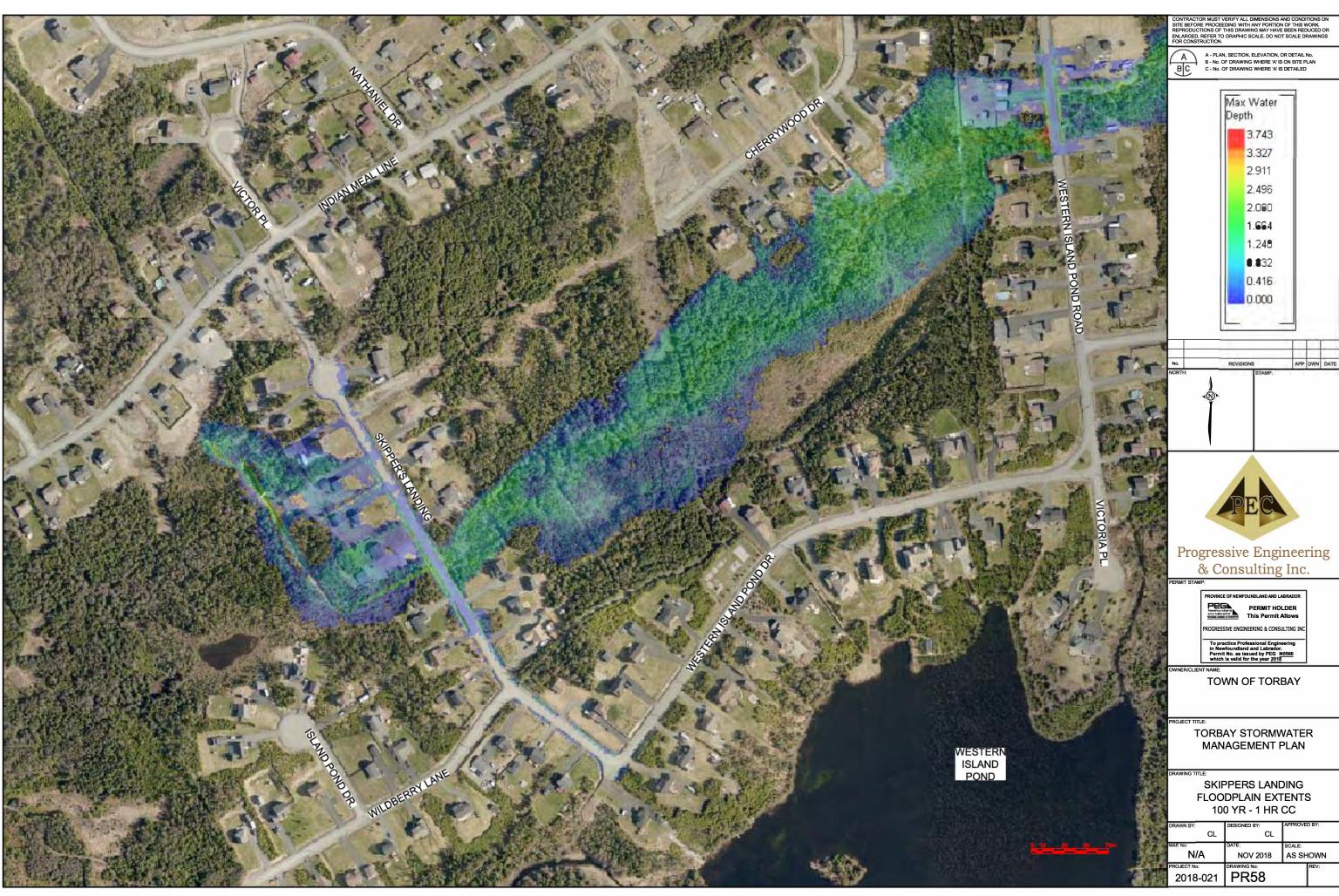
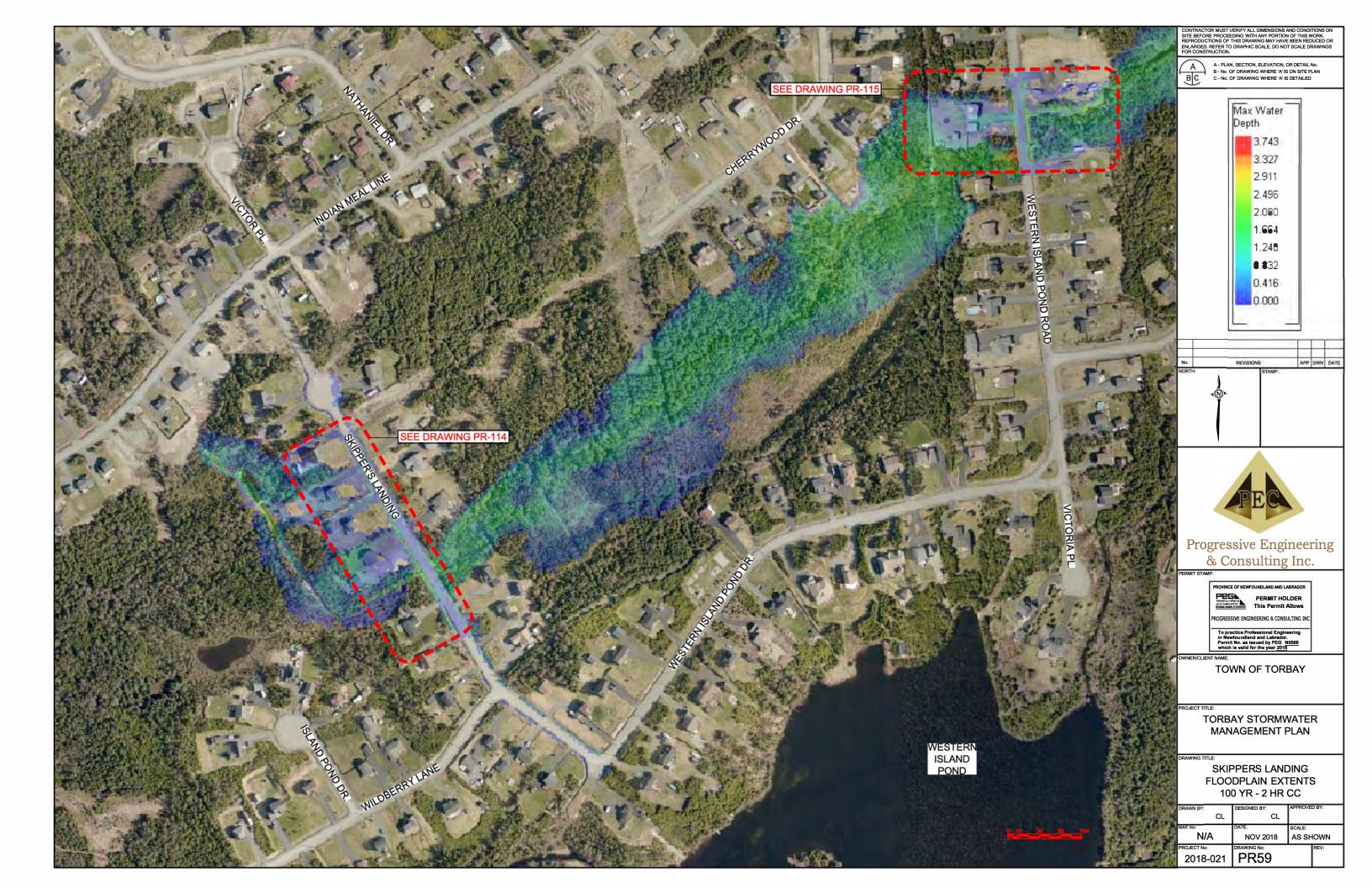
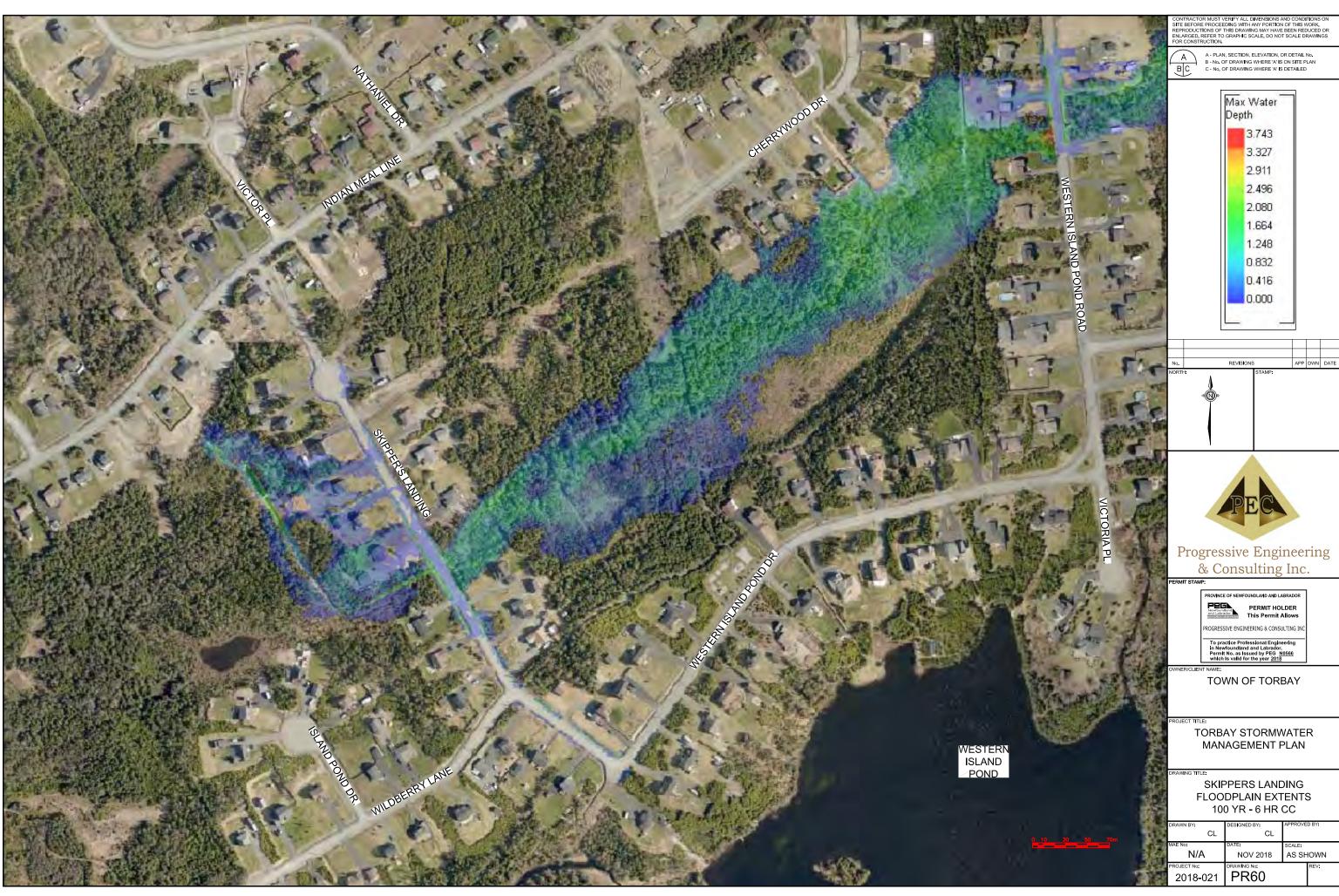
<u>APPENDIX 'F'</u> EXISTING CONDITIONS – FUTURE BUILDOUT FLOODPLAINS



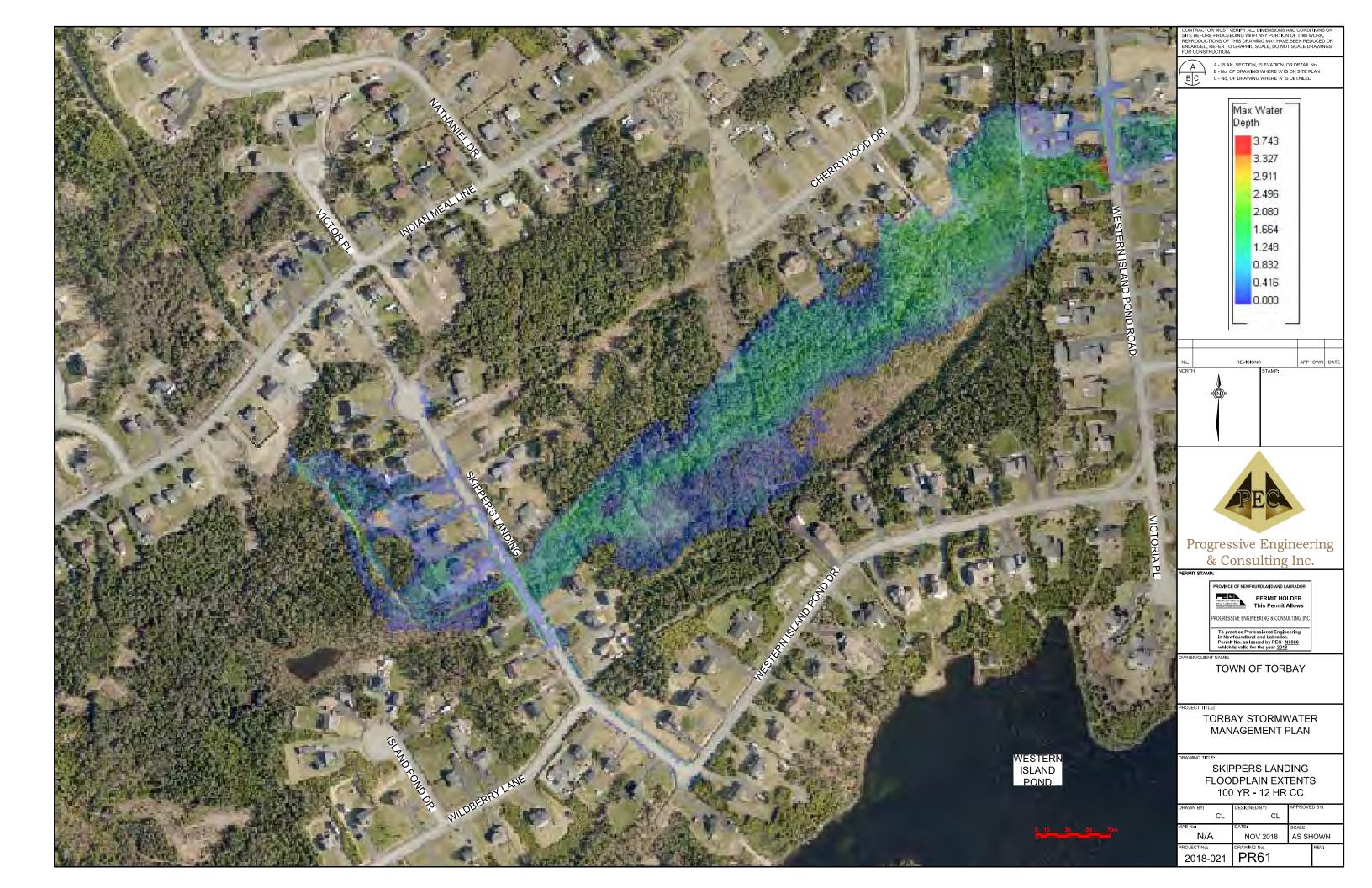
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	PROJECT No: 2018-021	PR58	REV:	

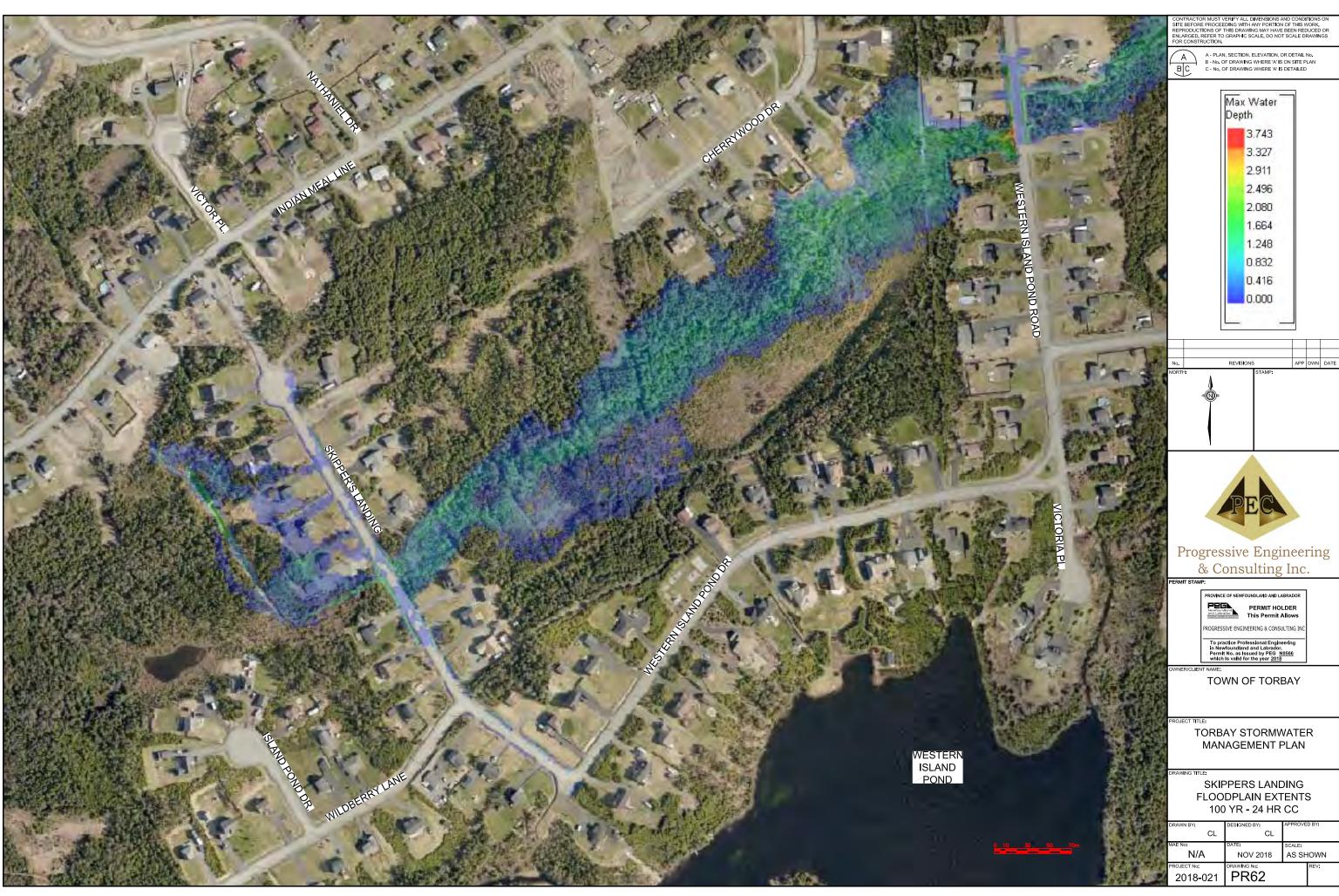






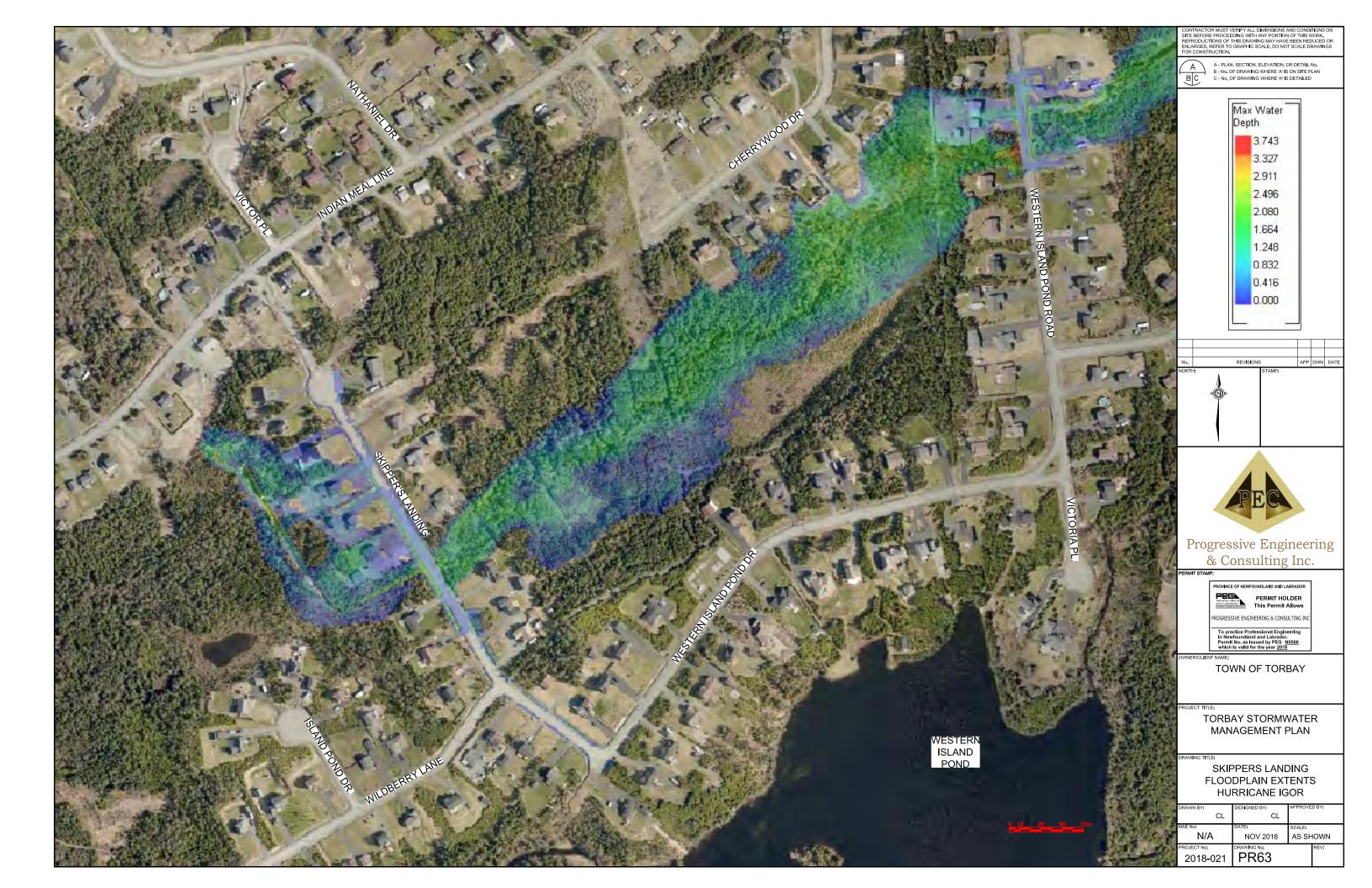
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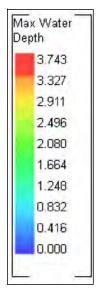


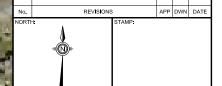
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A - PLAN, SECTION, ELEVATION, OR DETAIL NO. B - No. OF DRAWING WHERE 'A' IS ON SITE PLAN C - No. OF DRAWING WHERE 'A' IS DETAILED







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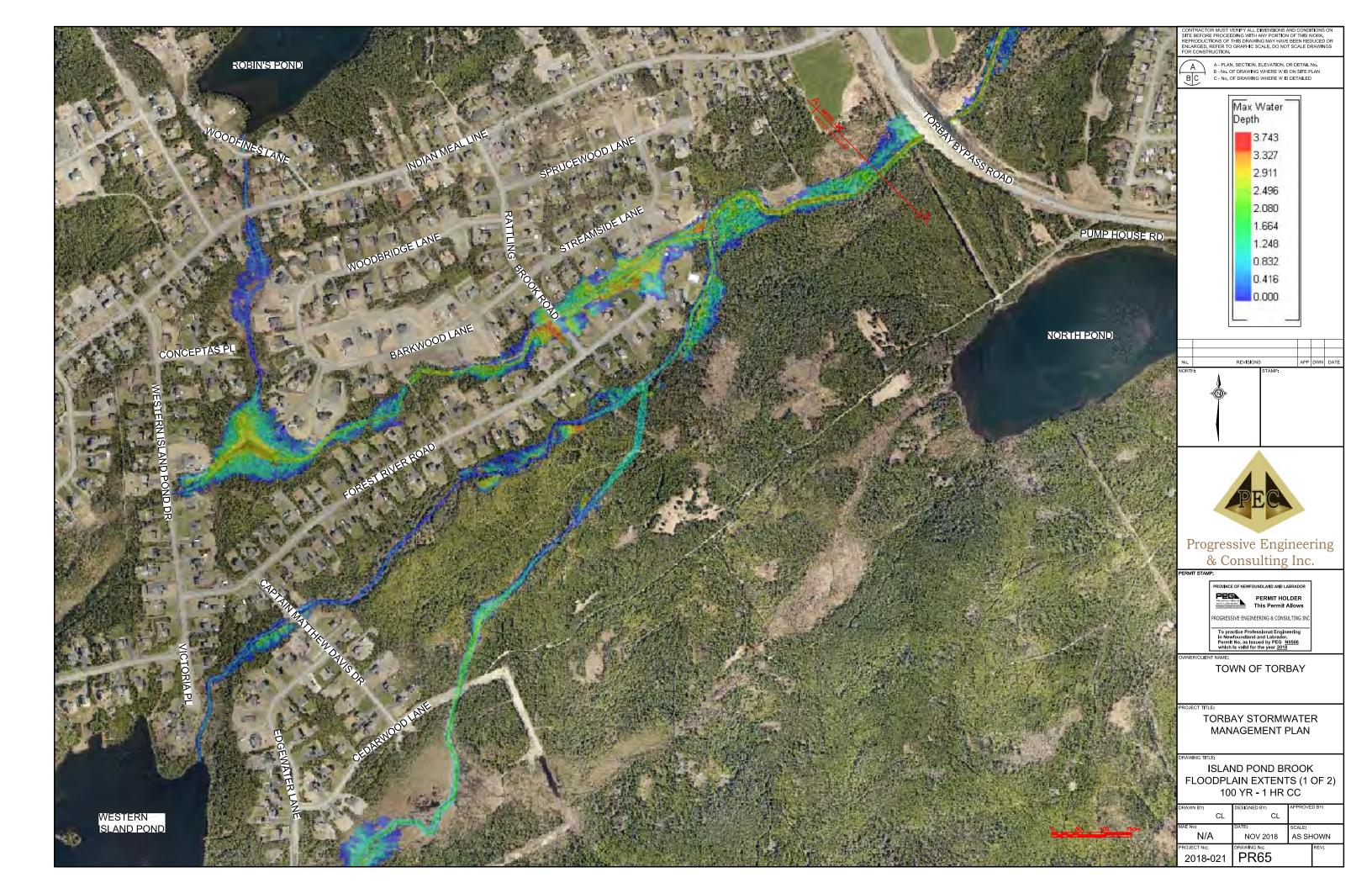
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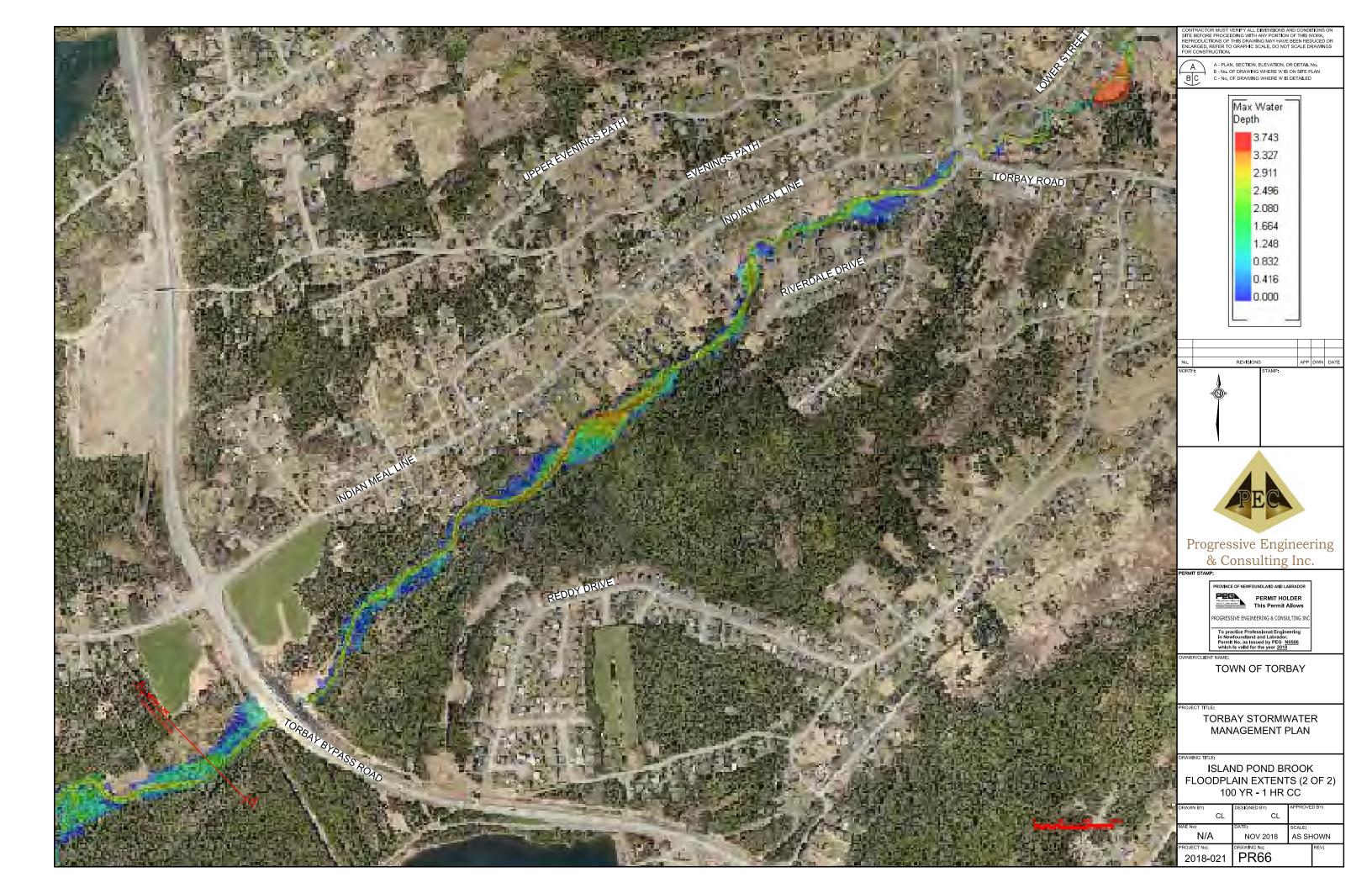
TOWN OF TORBAY

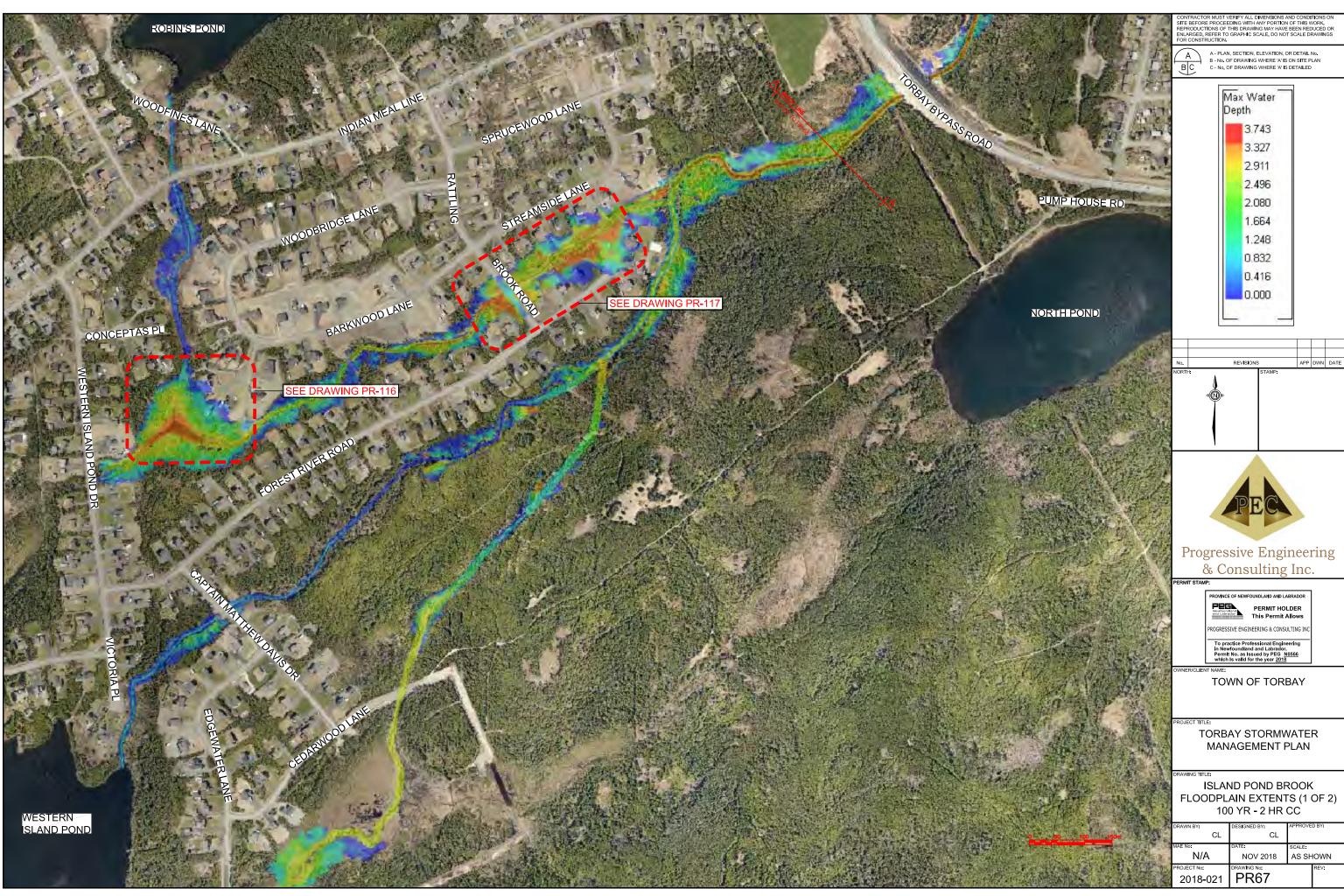
TORBAY STORMWATER MANAGEMENT PLAN

SKIPPERS LANDING FLOODPLAIN EXTENTS HURRICANE CHANTAL

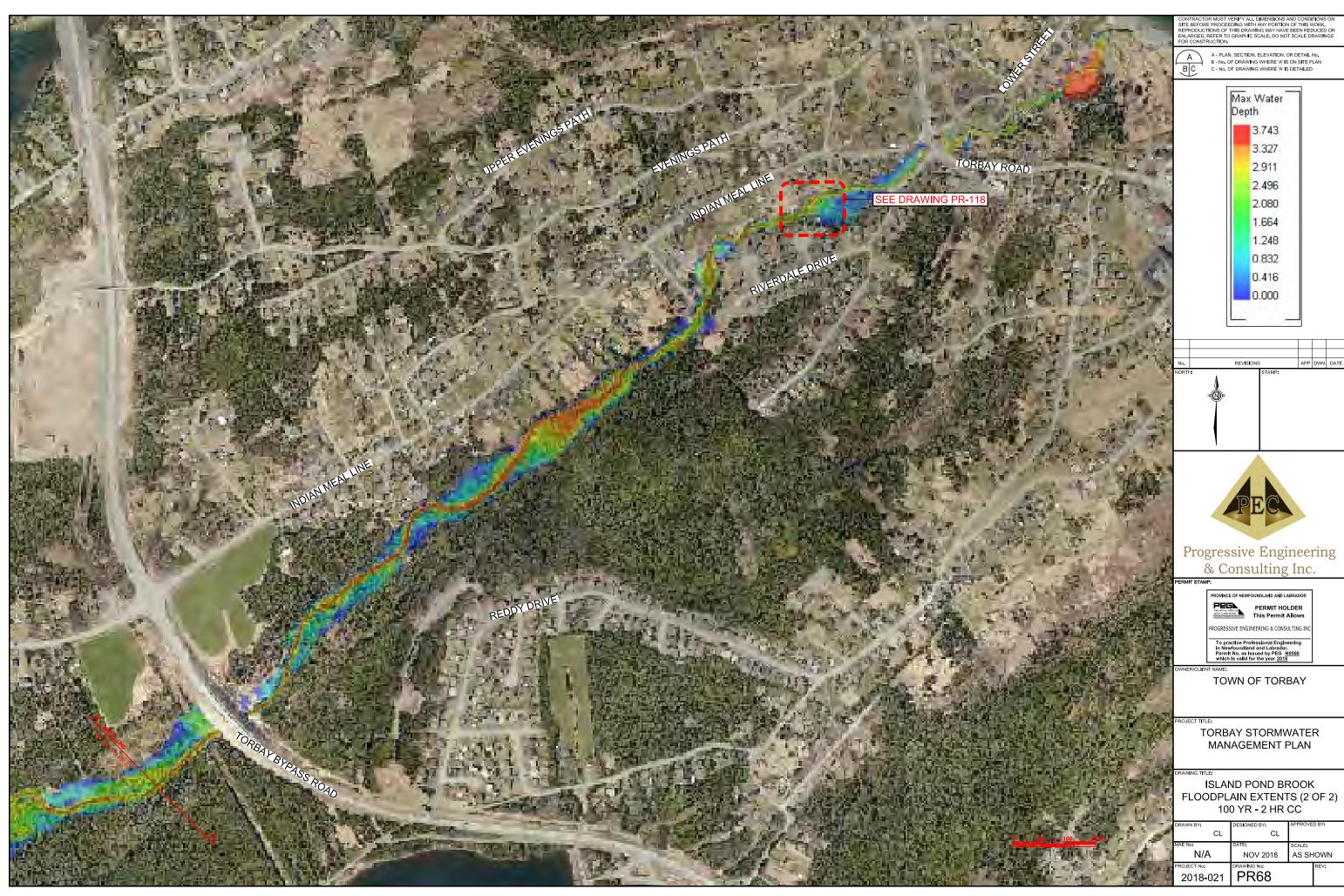
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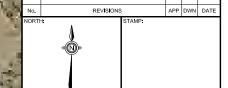






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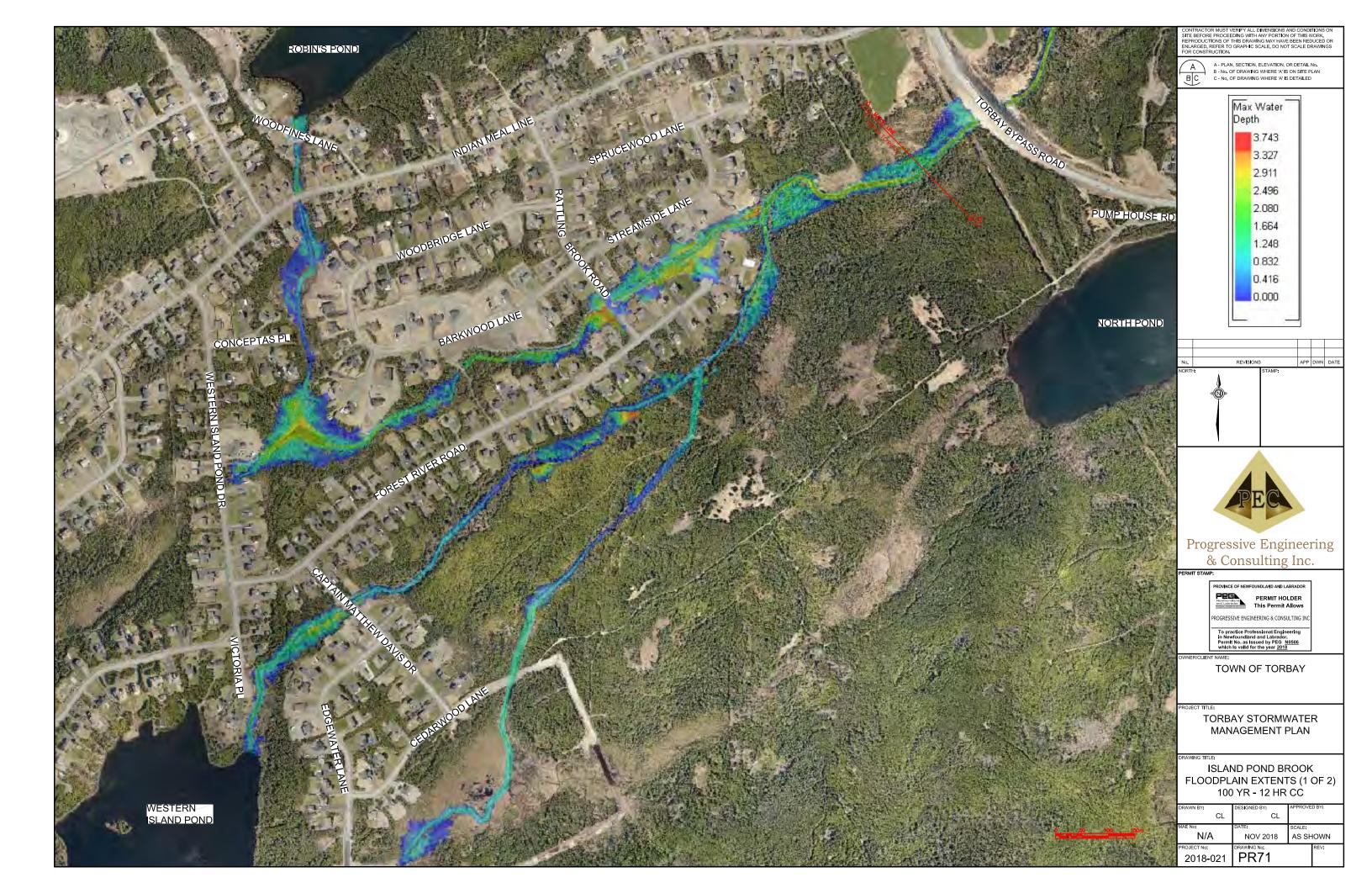


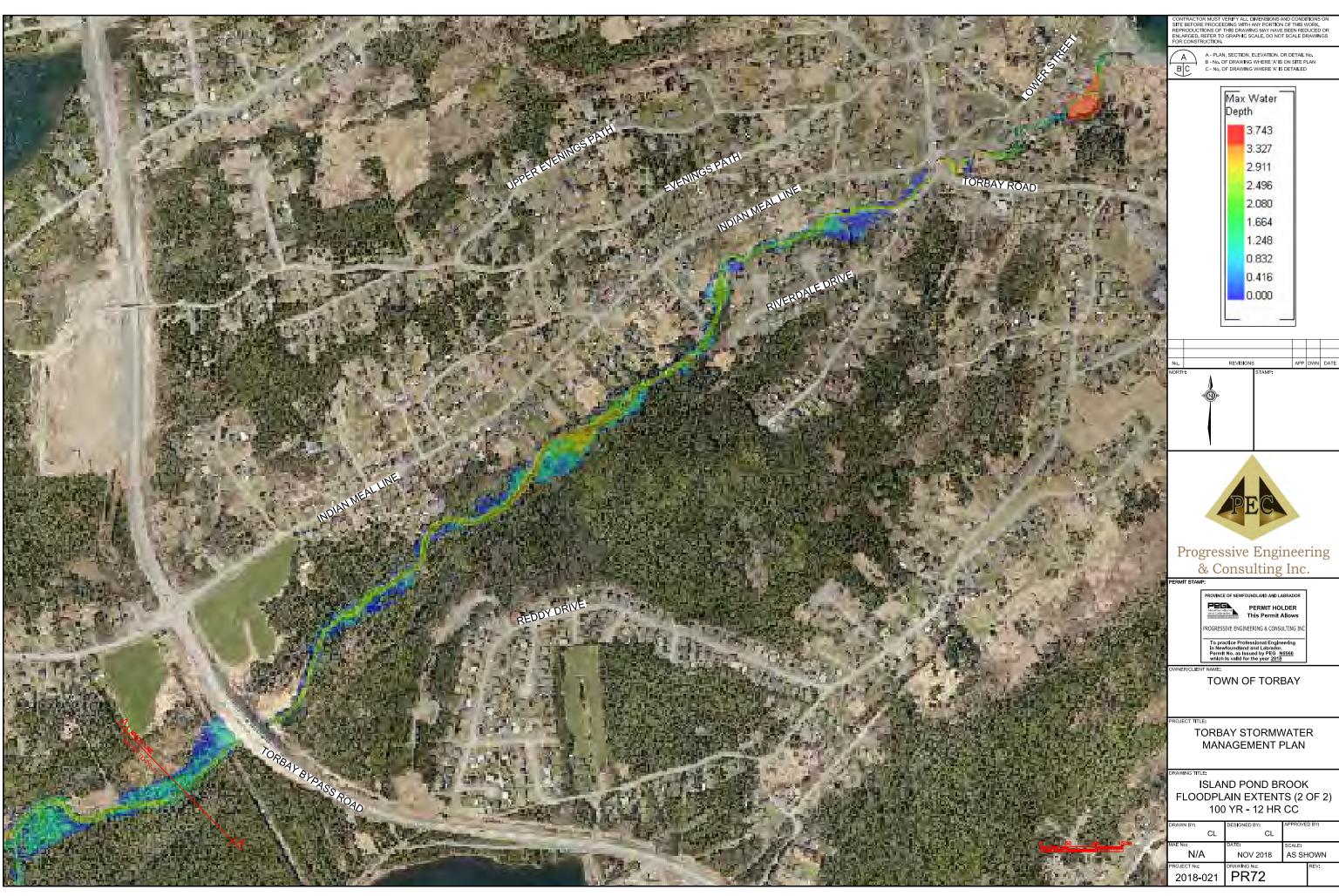


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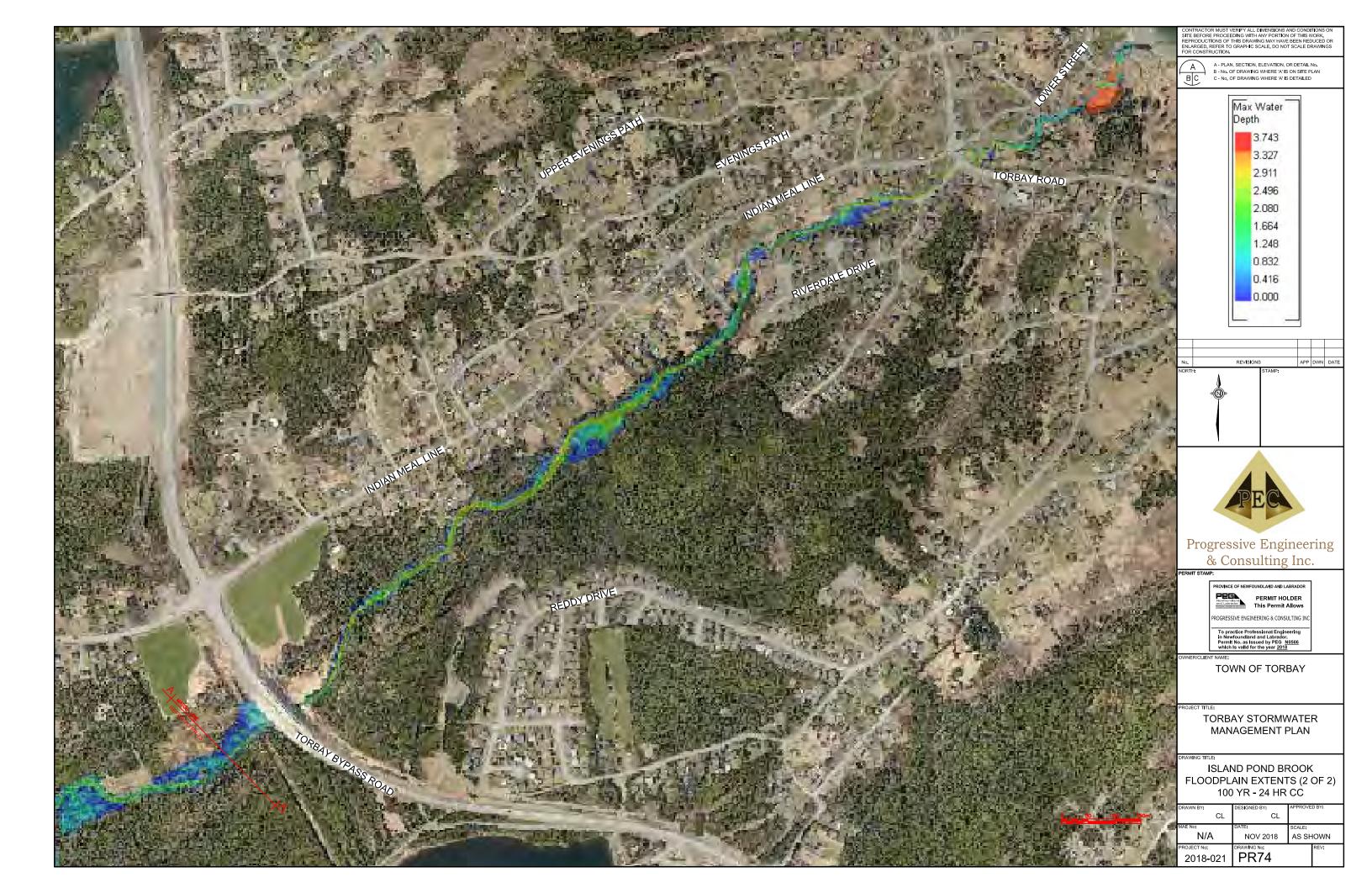




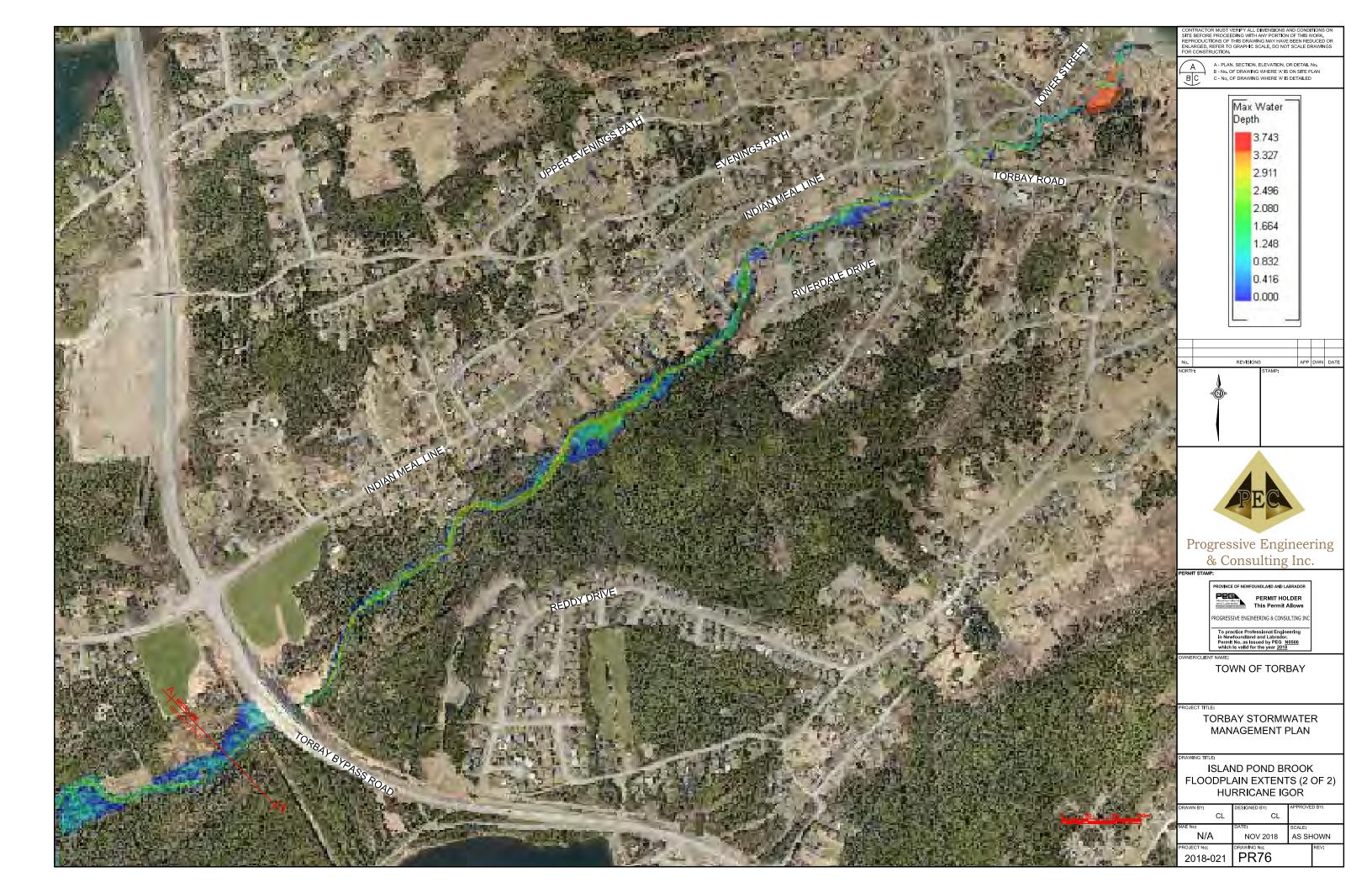


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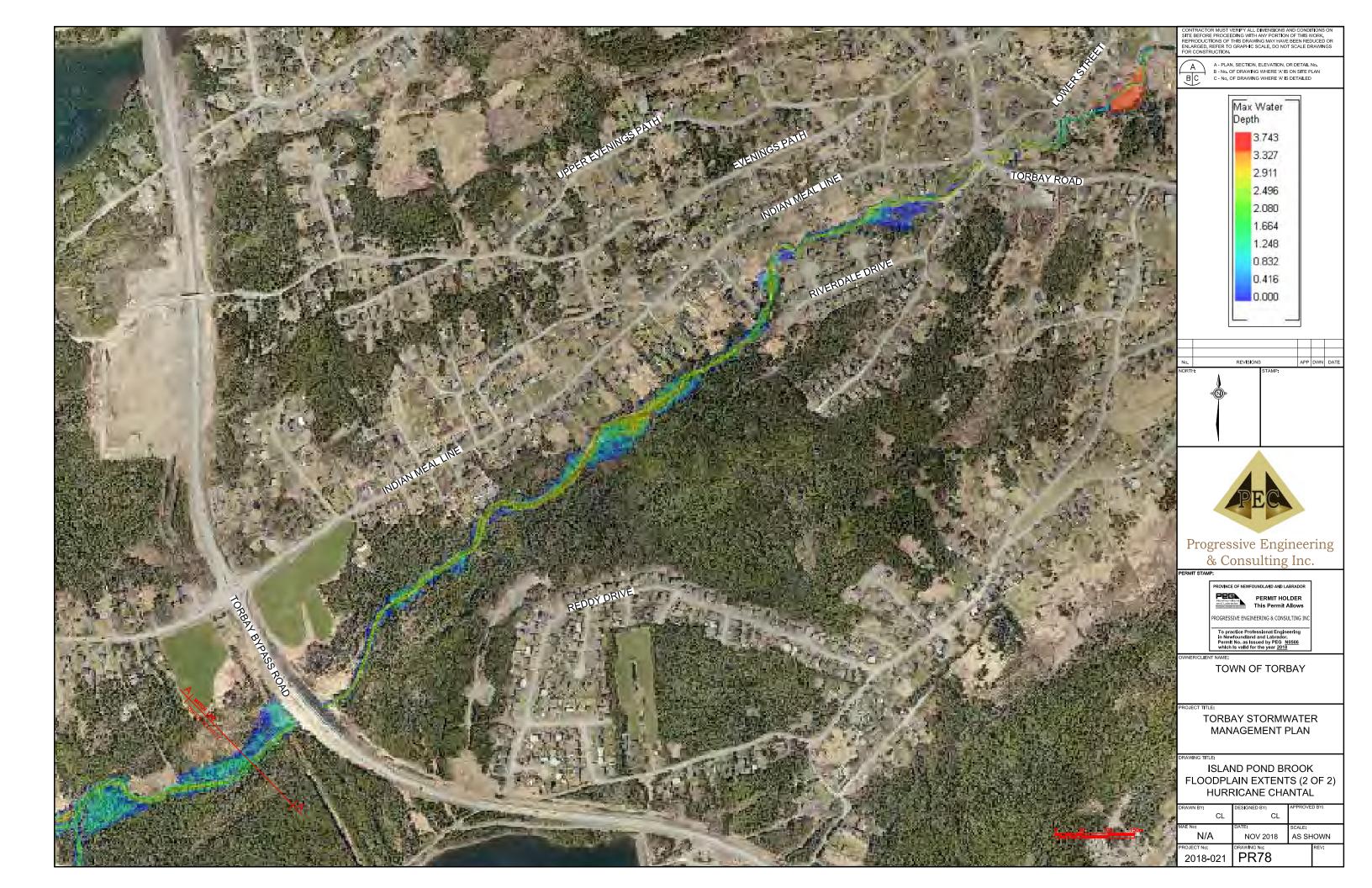








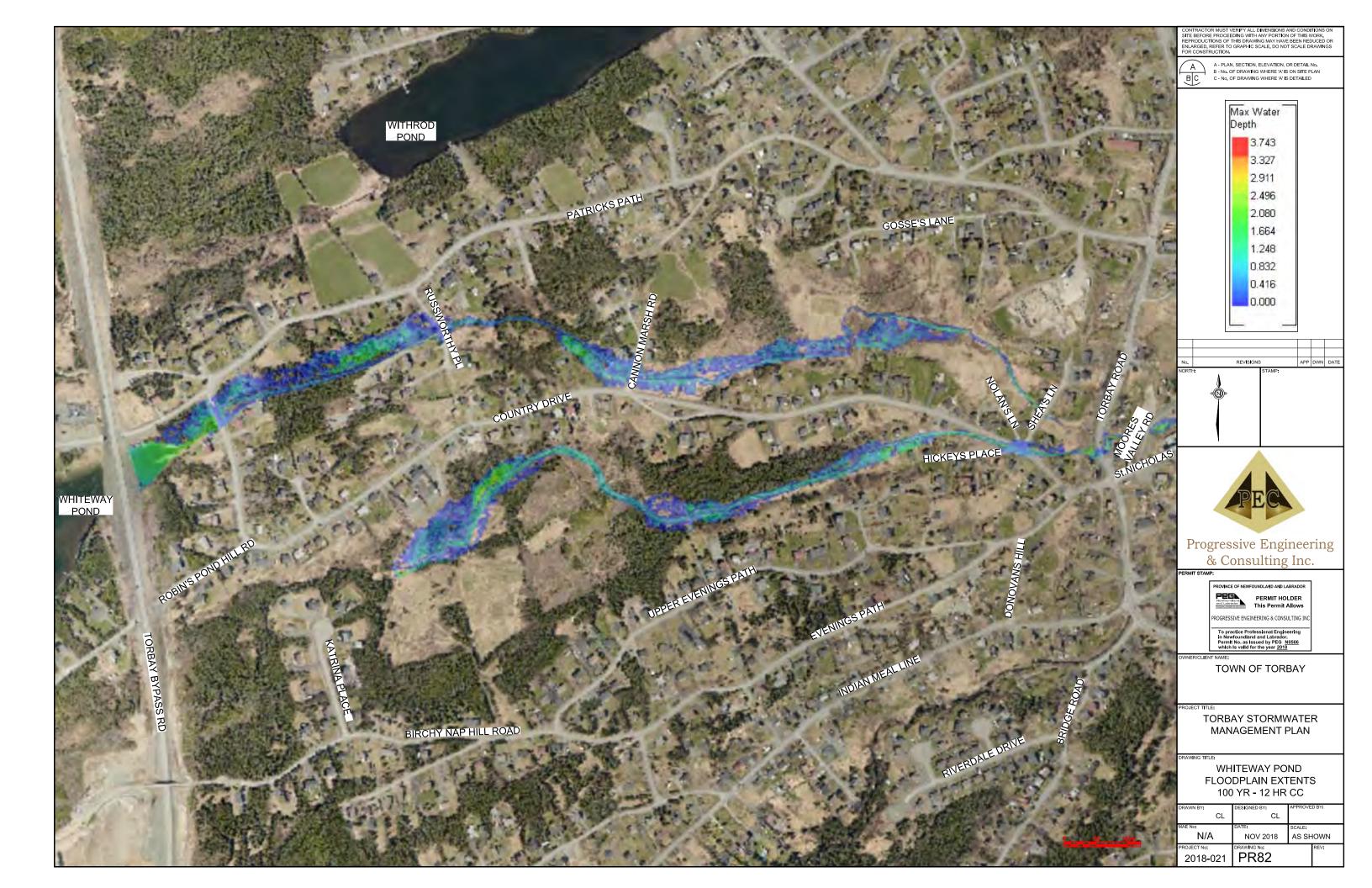




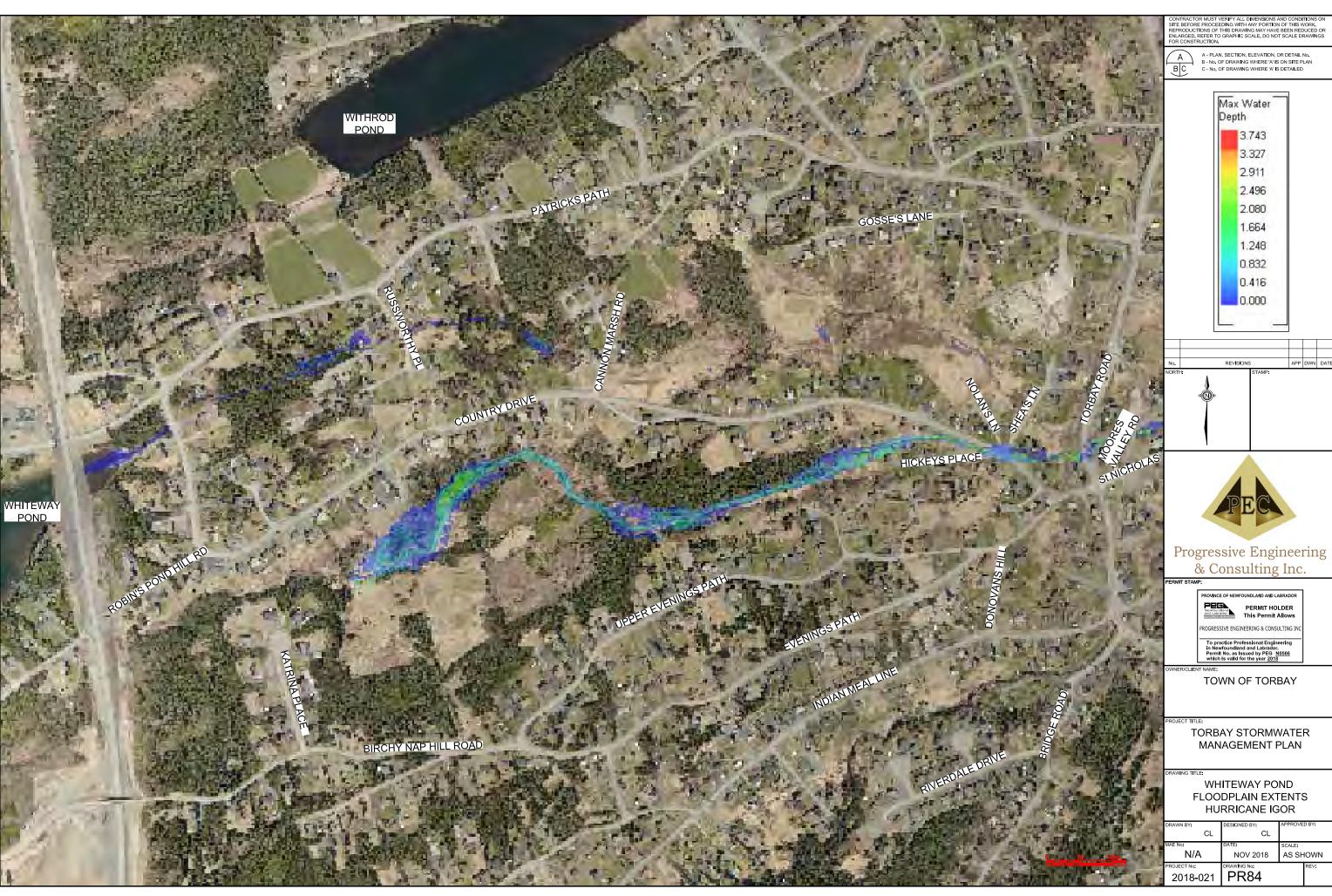






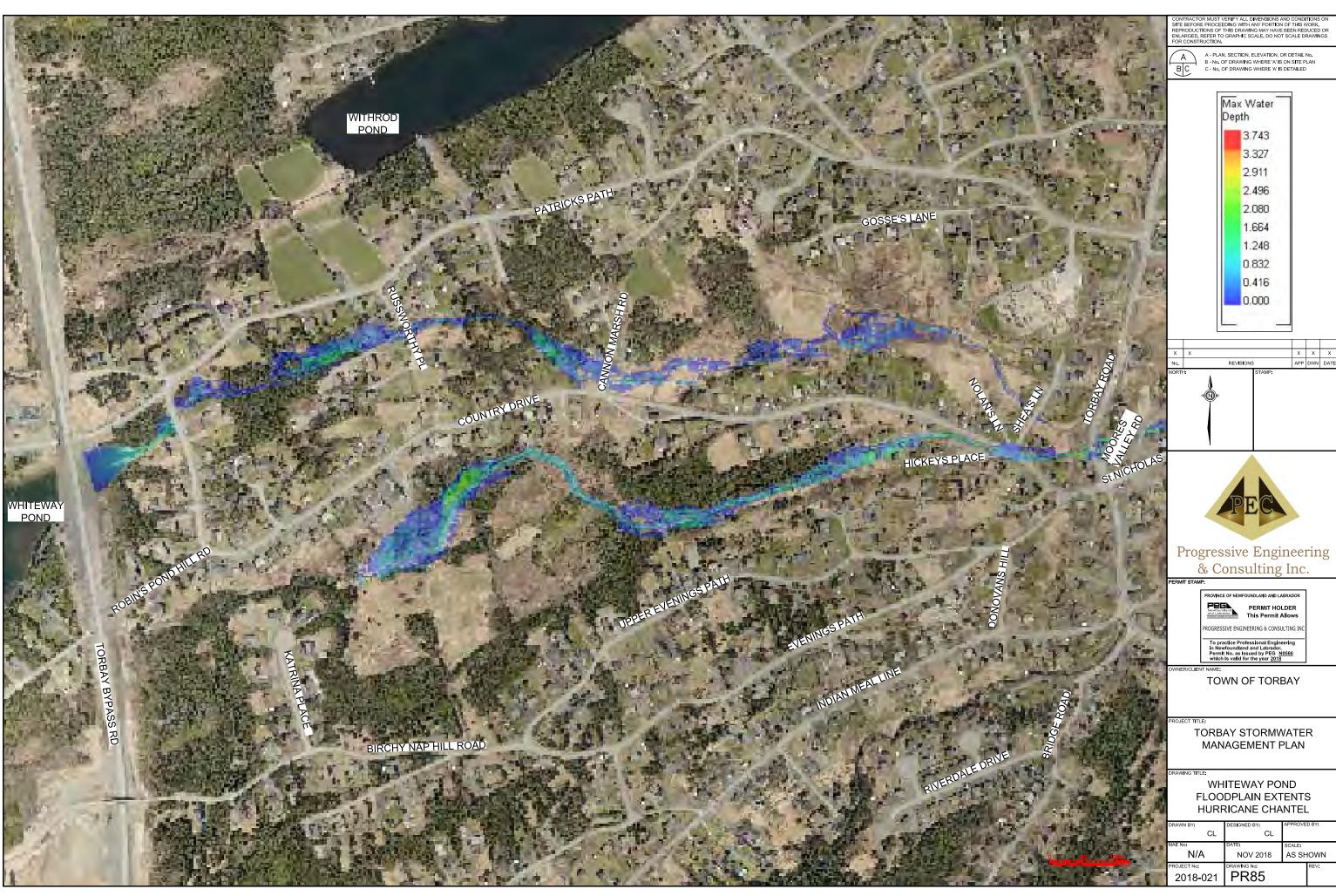






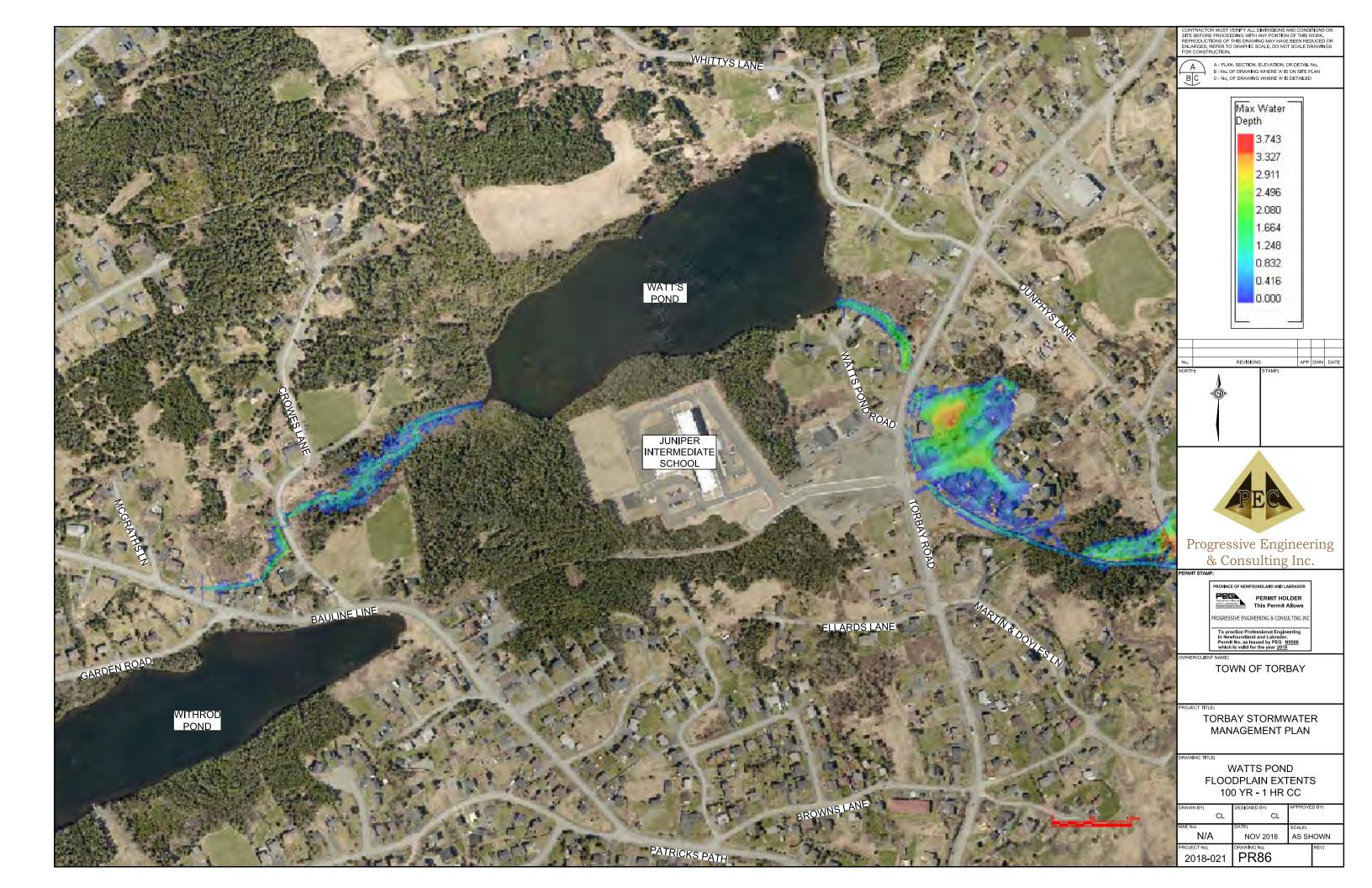


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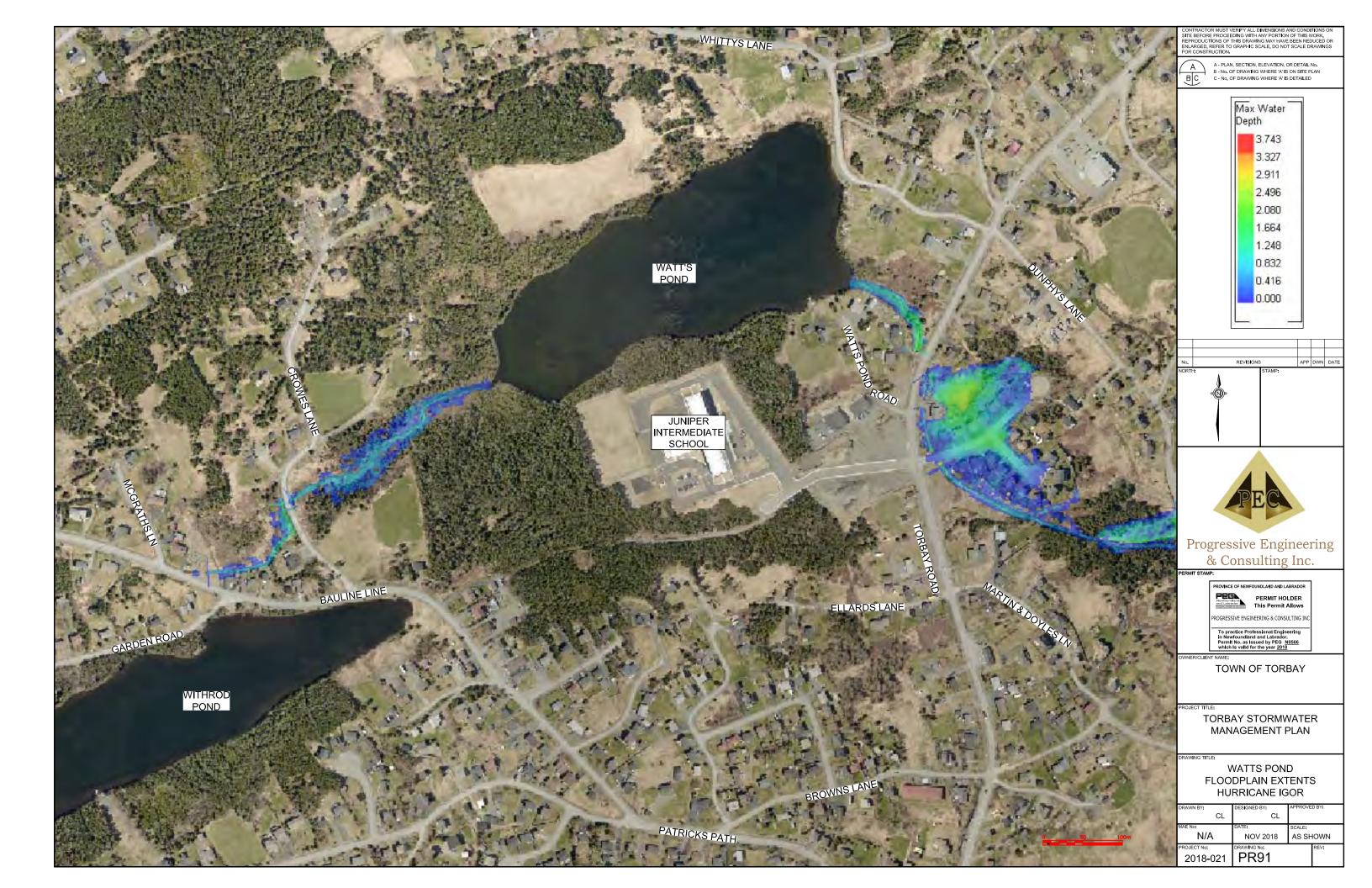


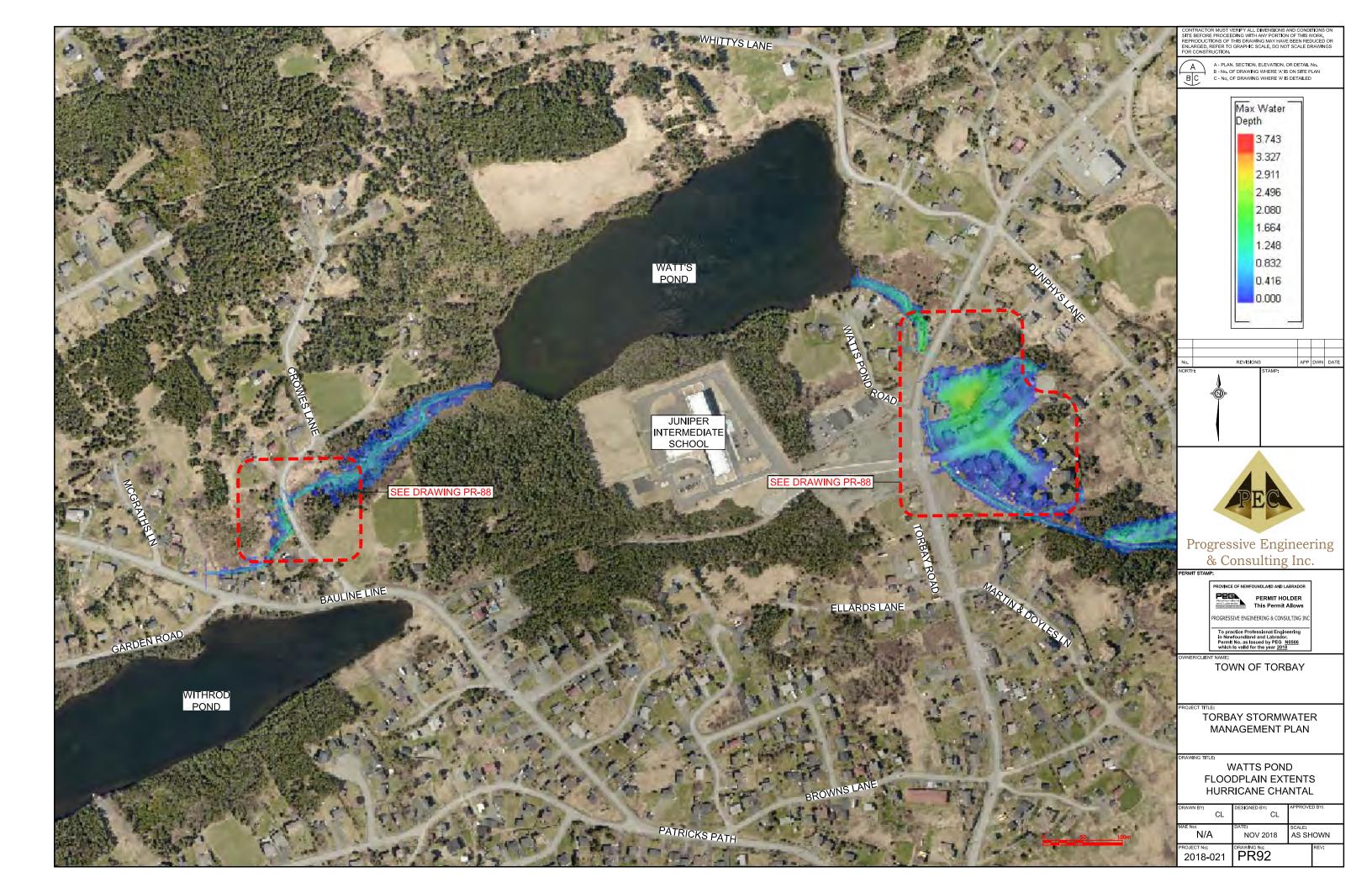


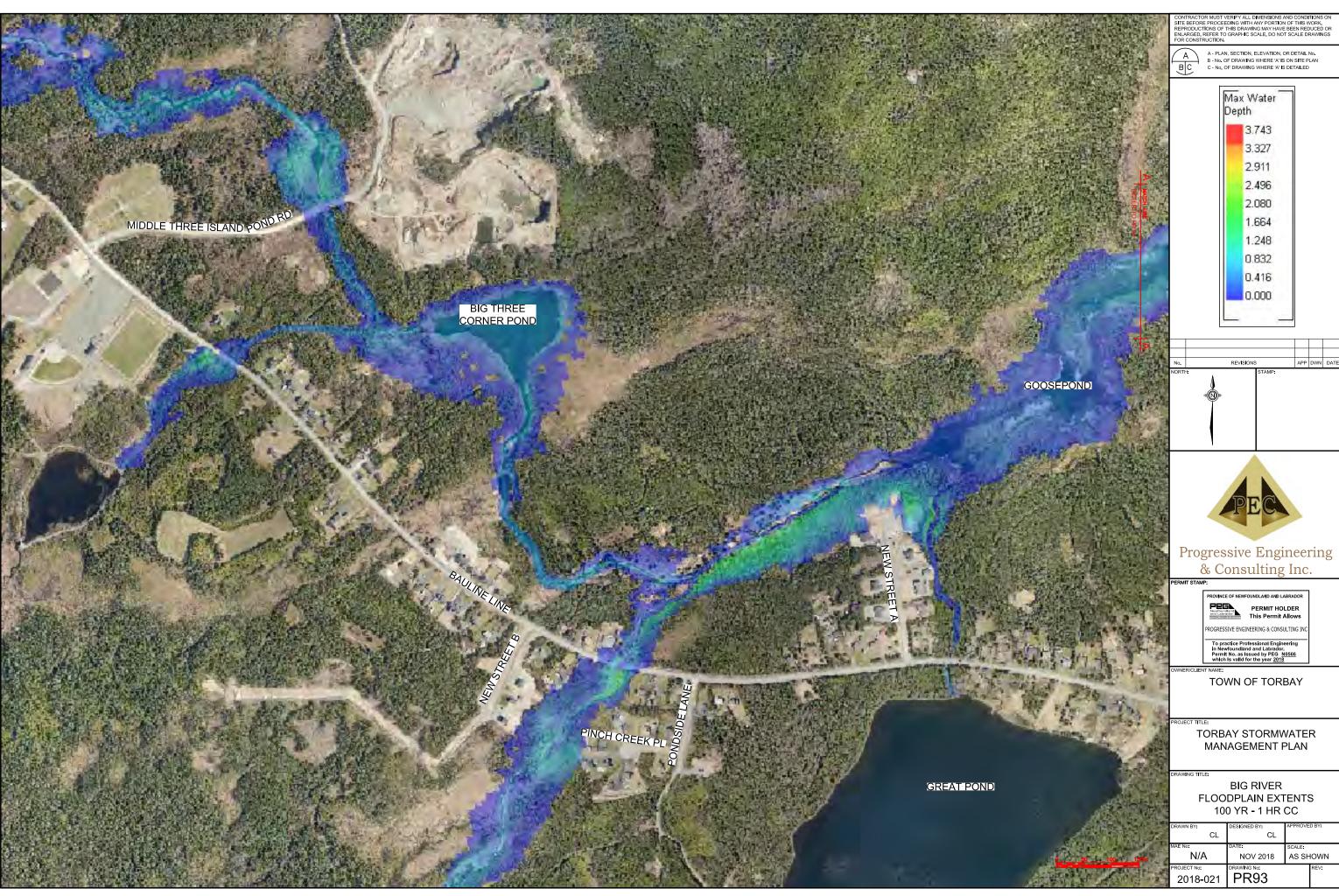




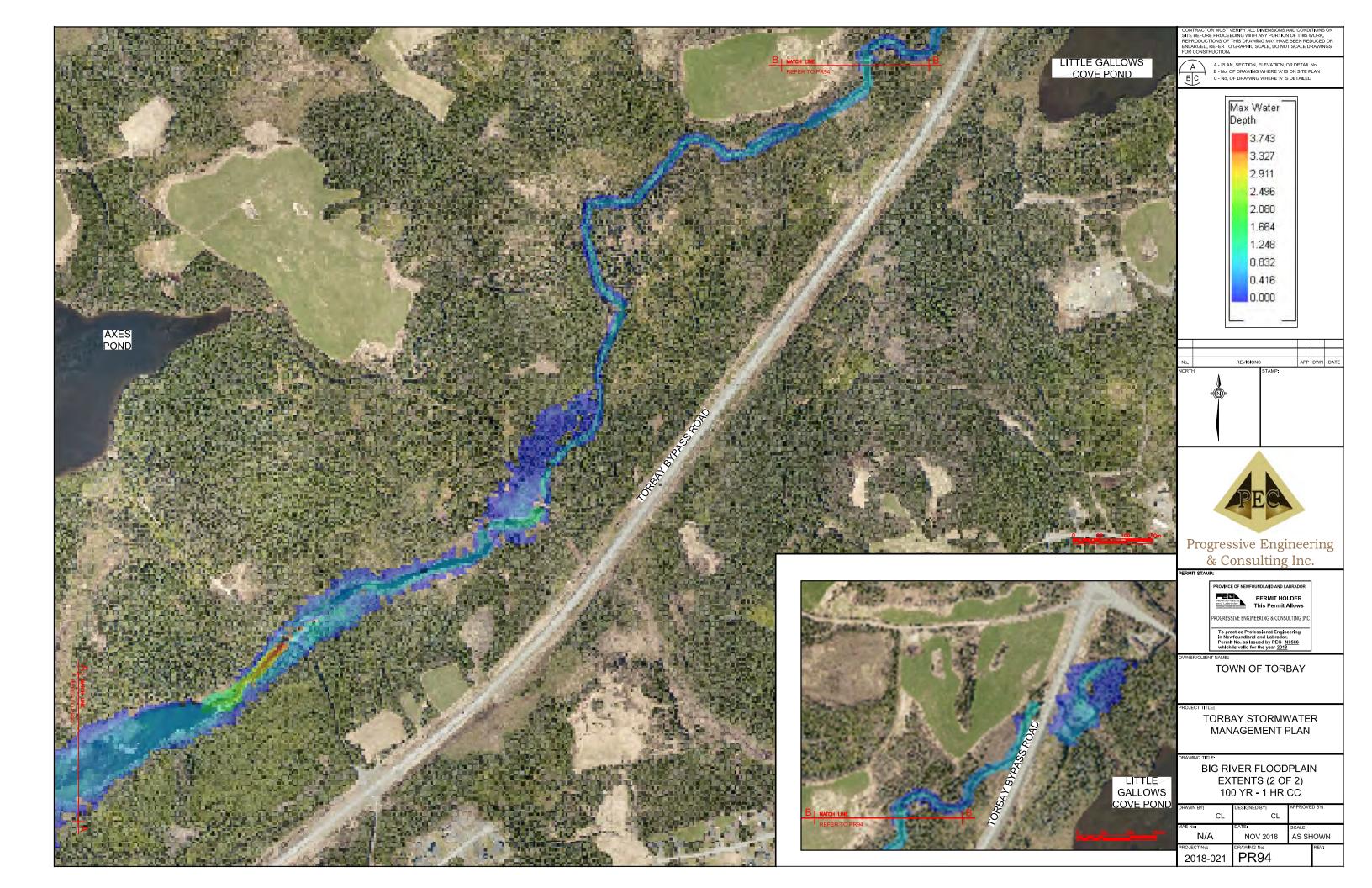








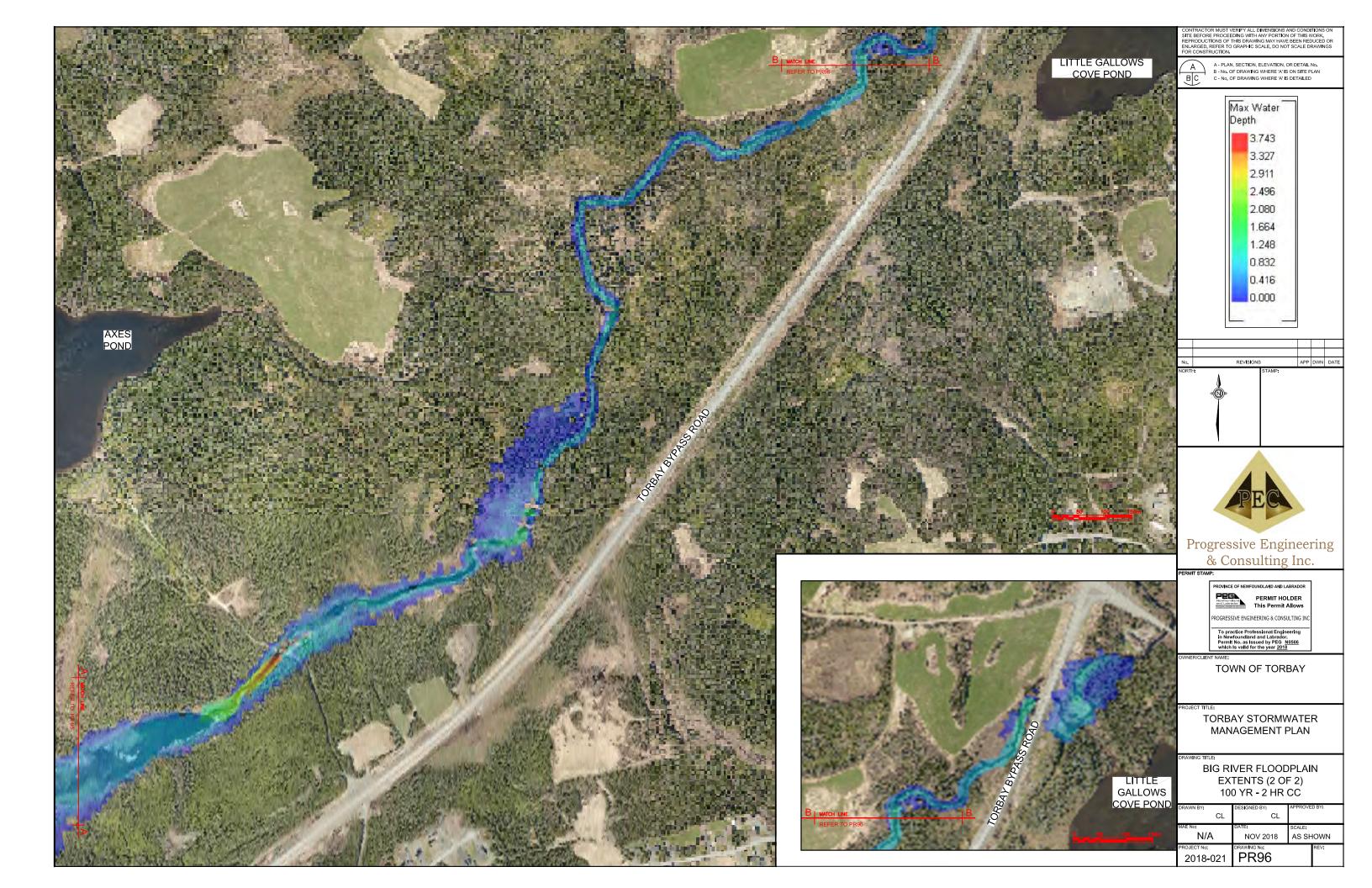
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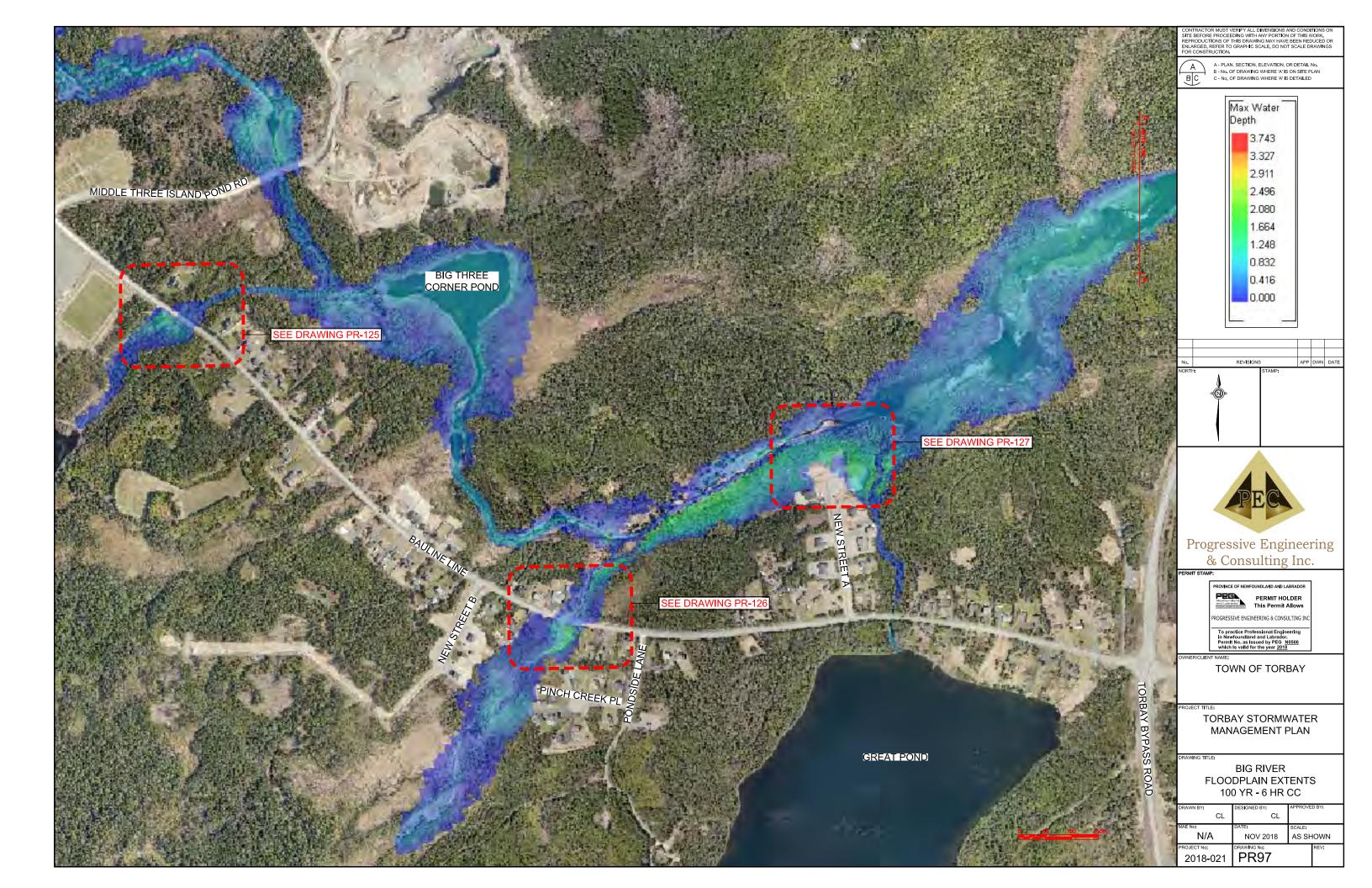


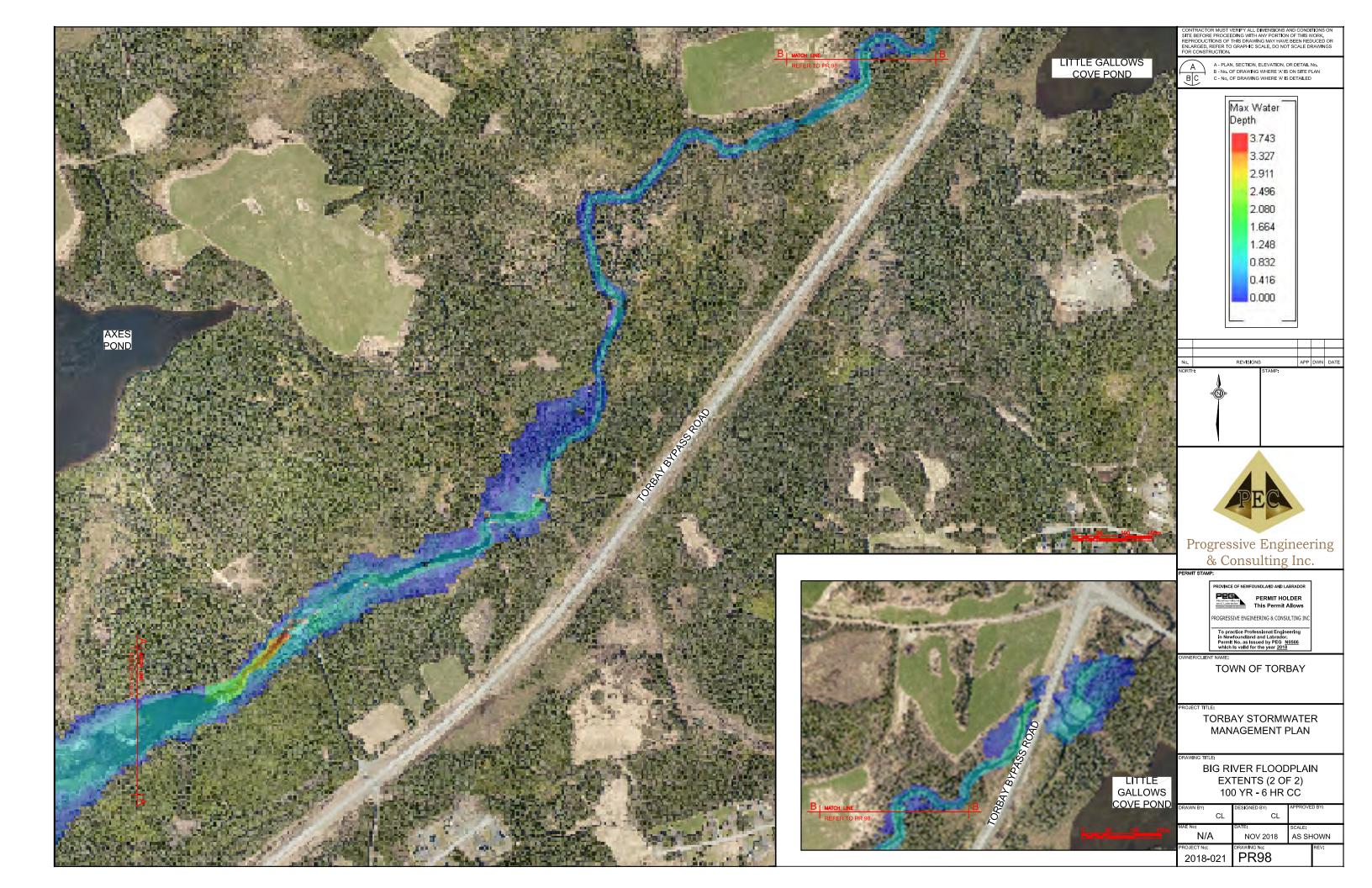


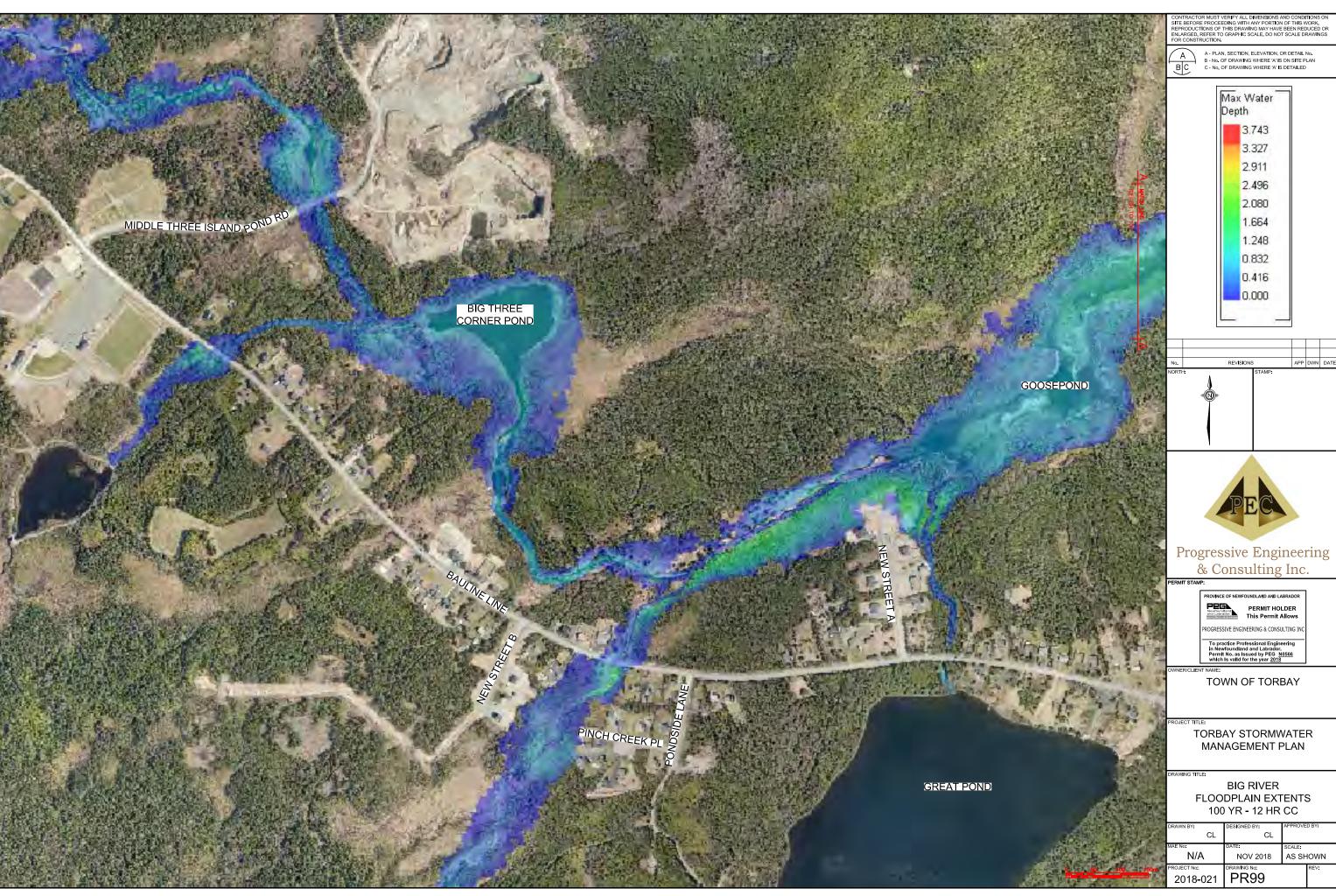
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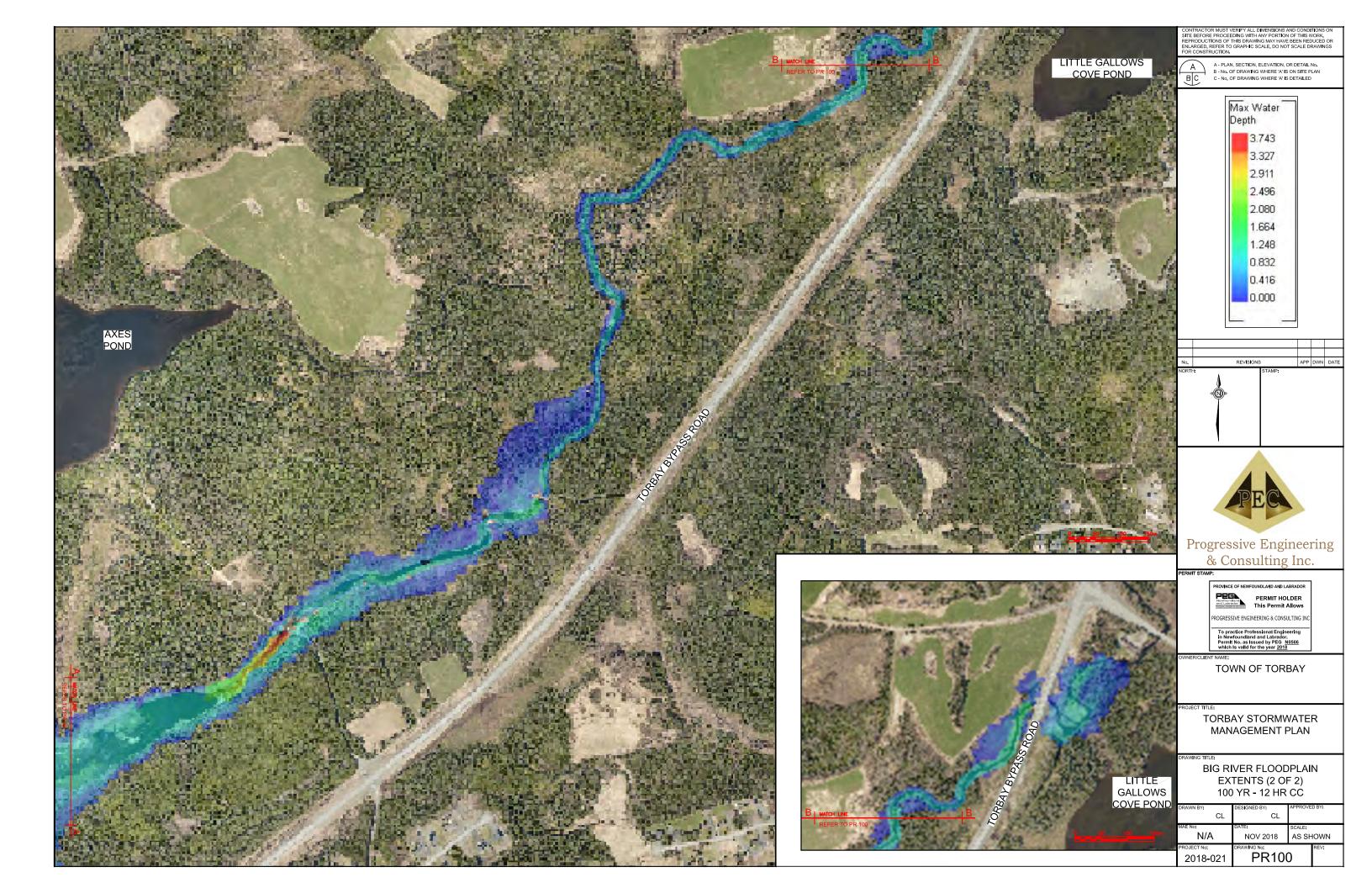


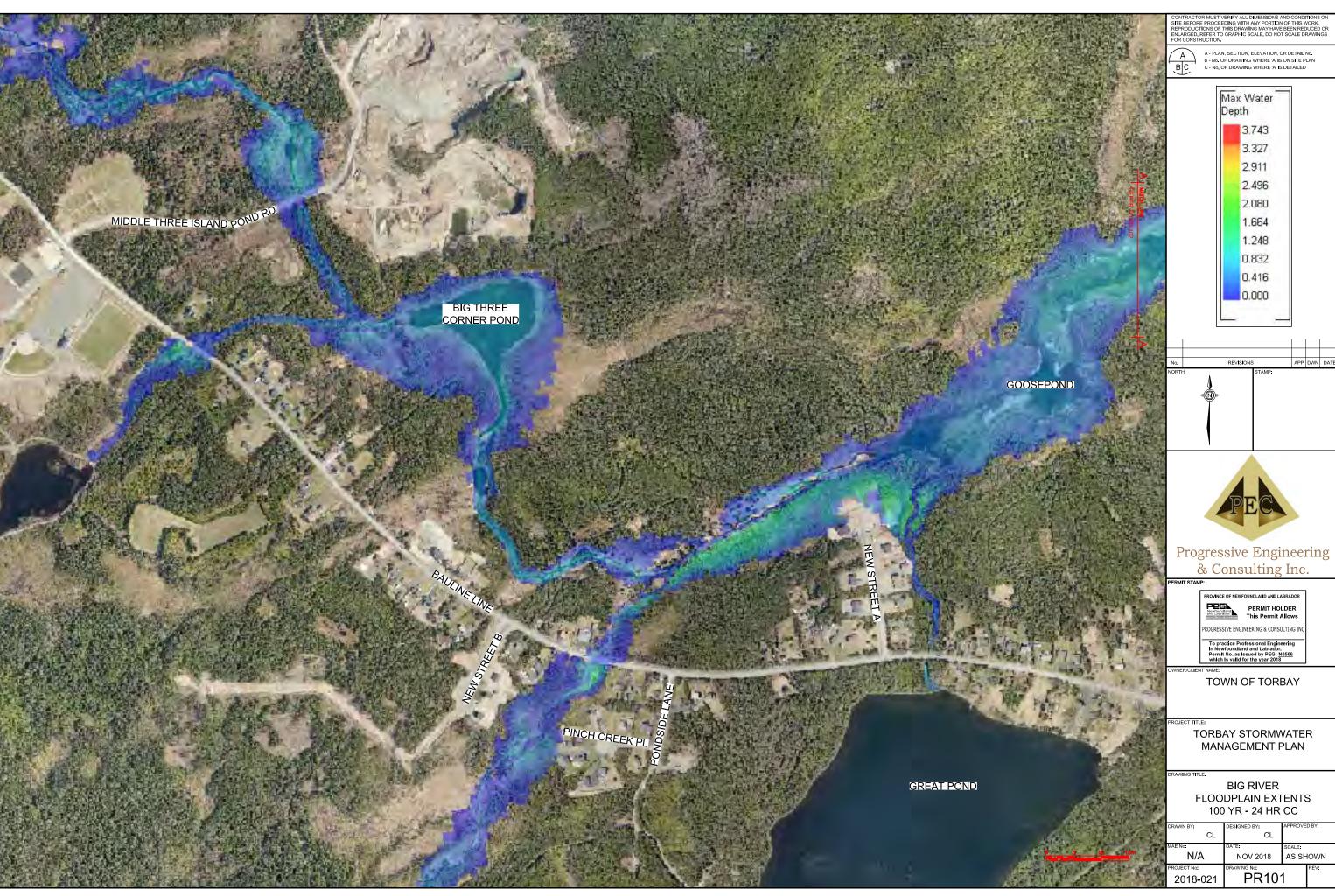




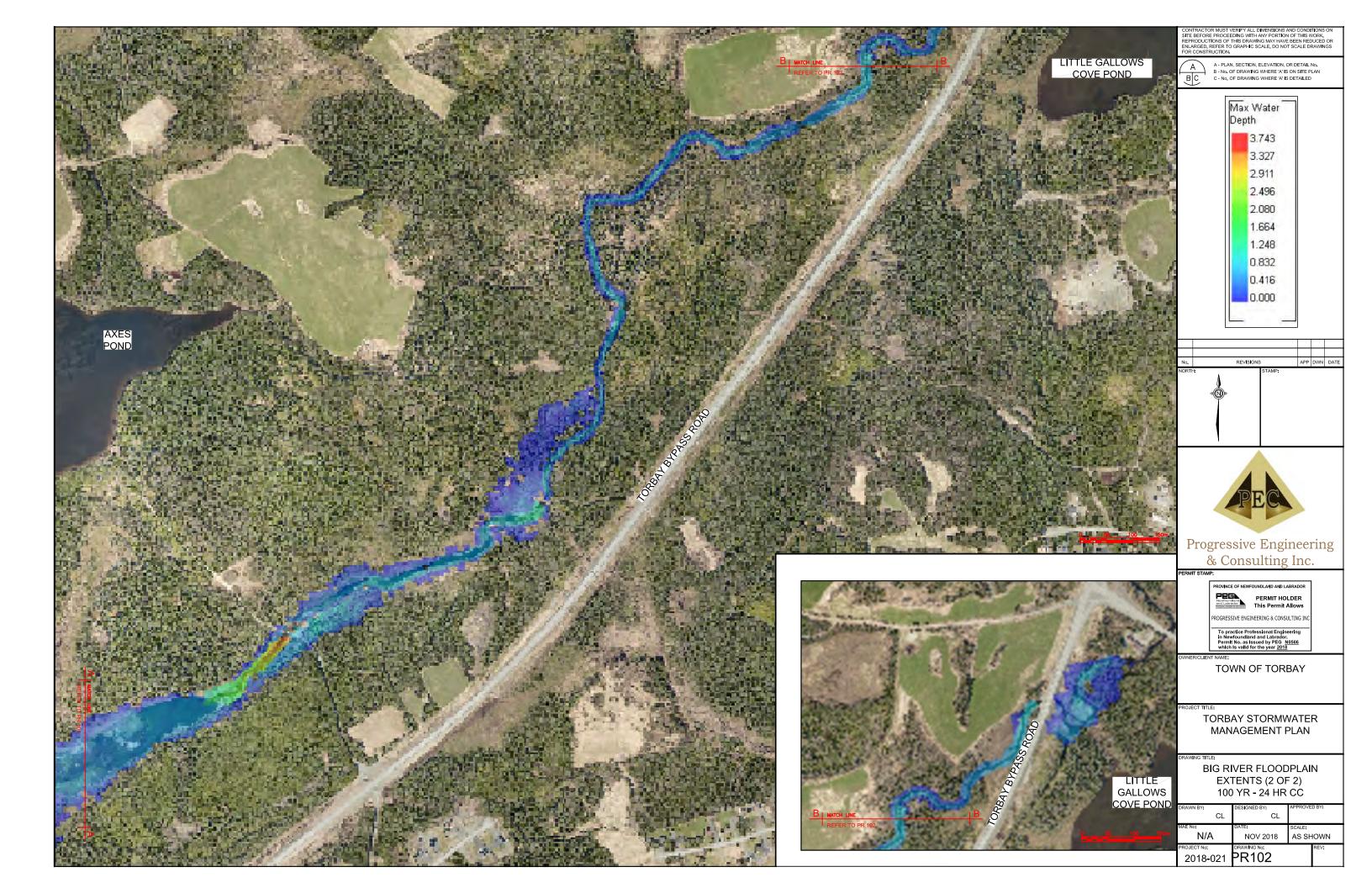
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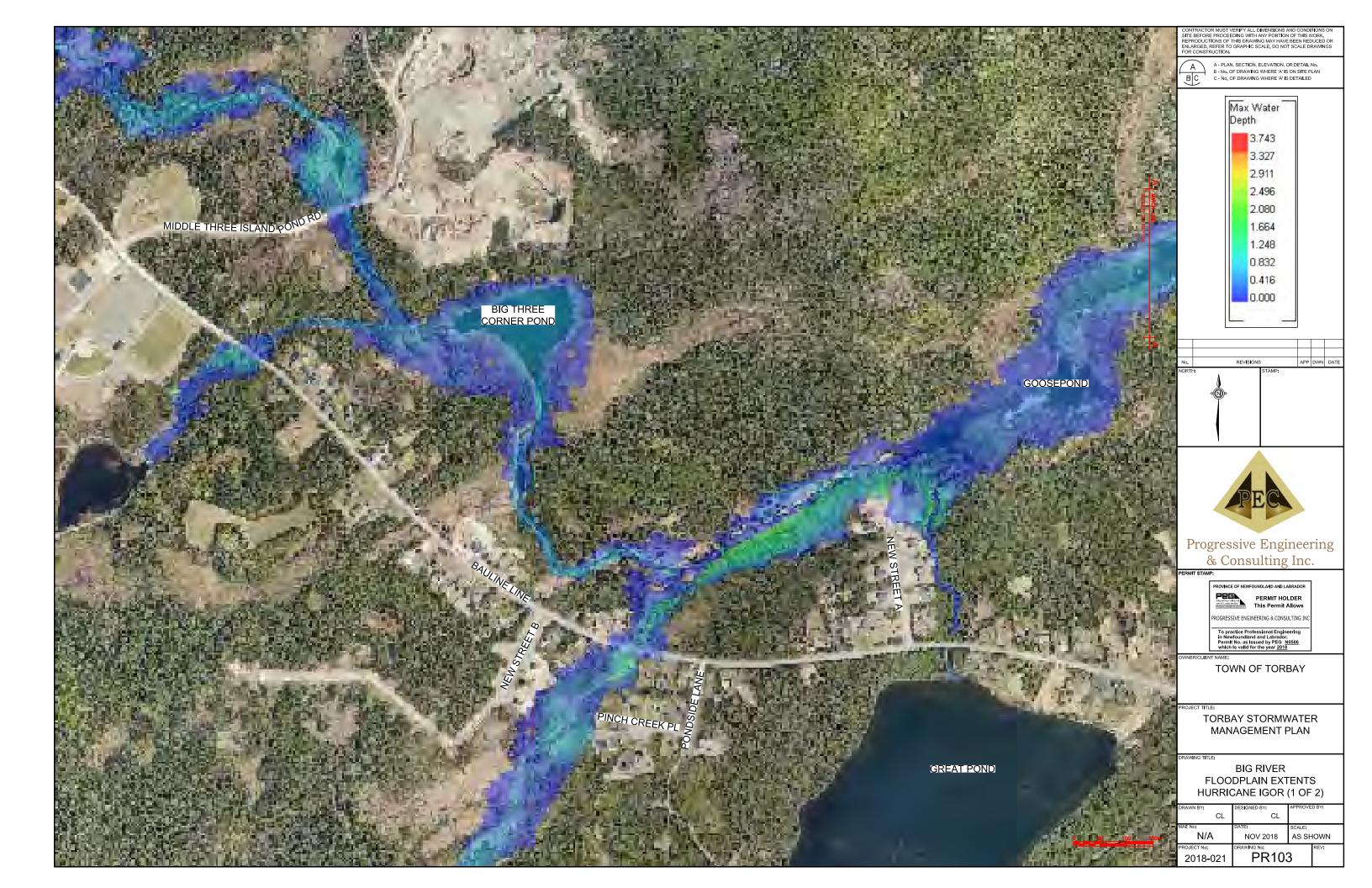
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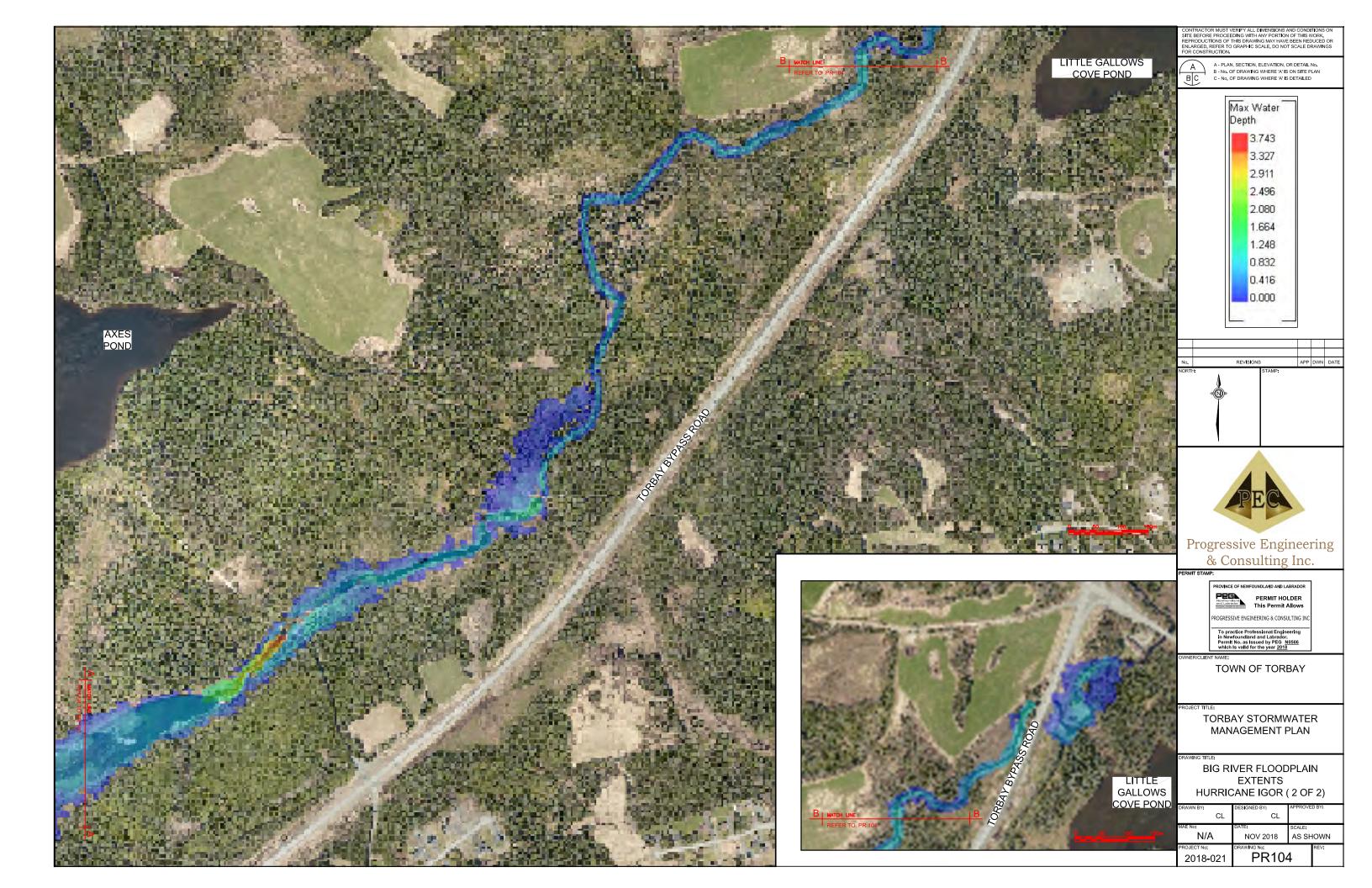




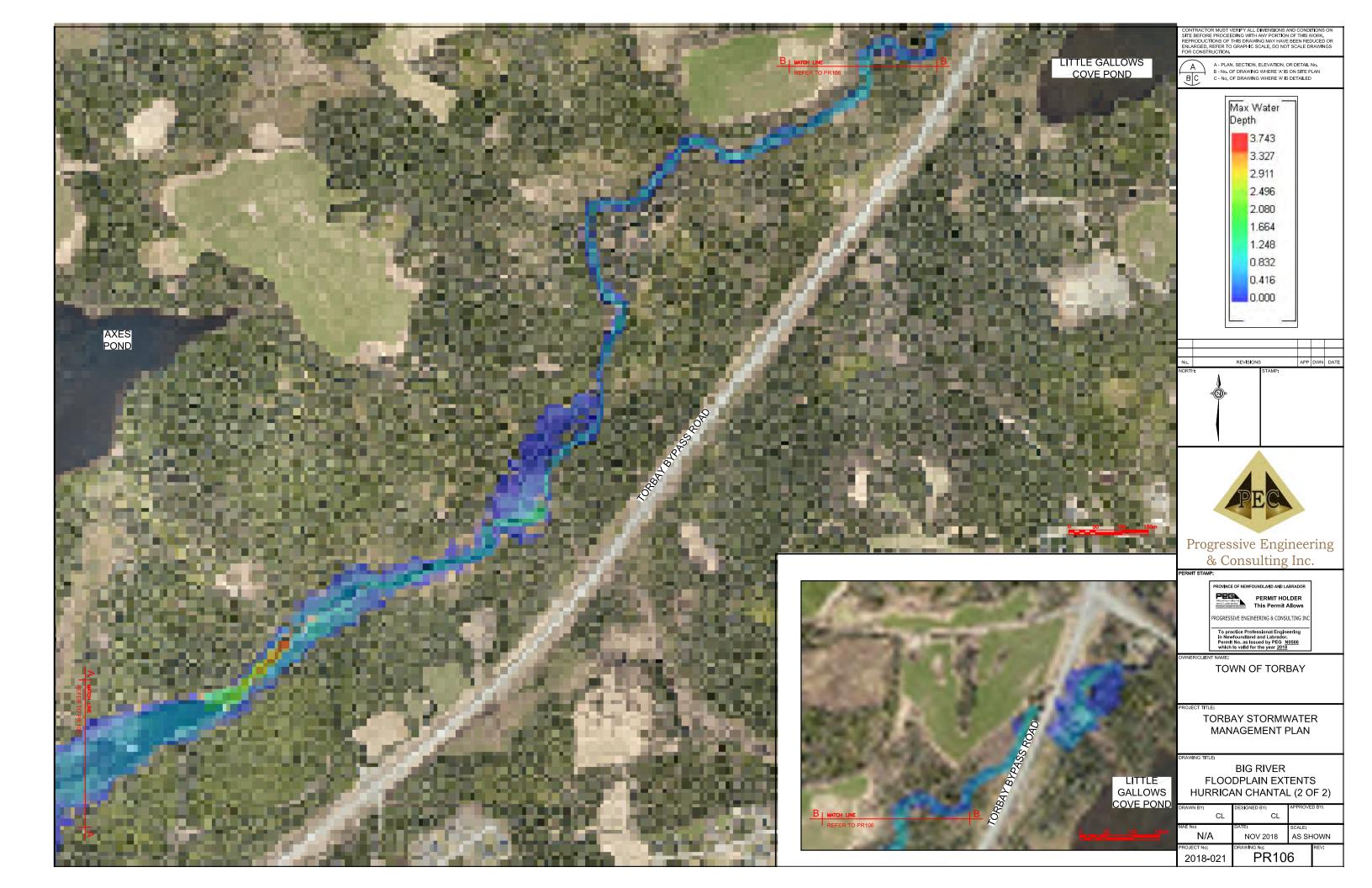
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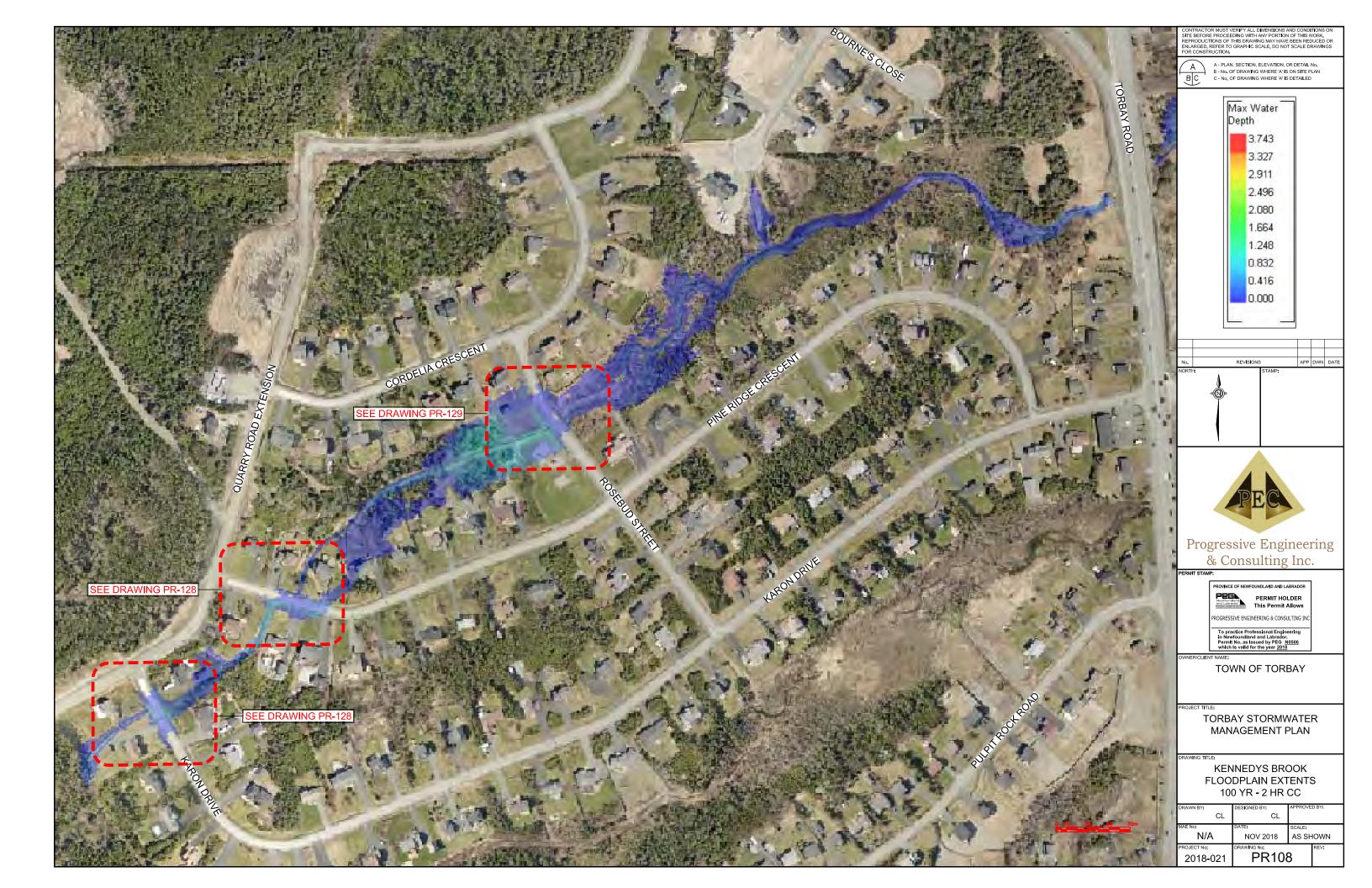








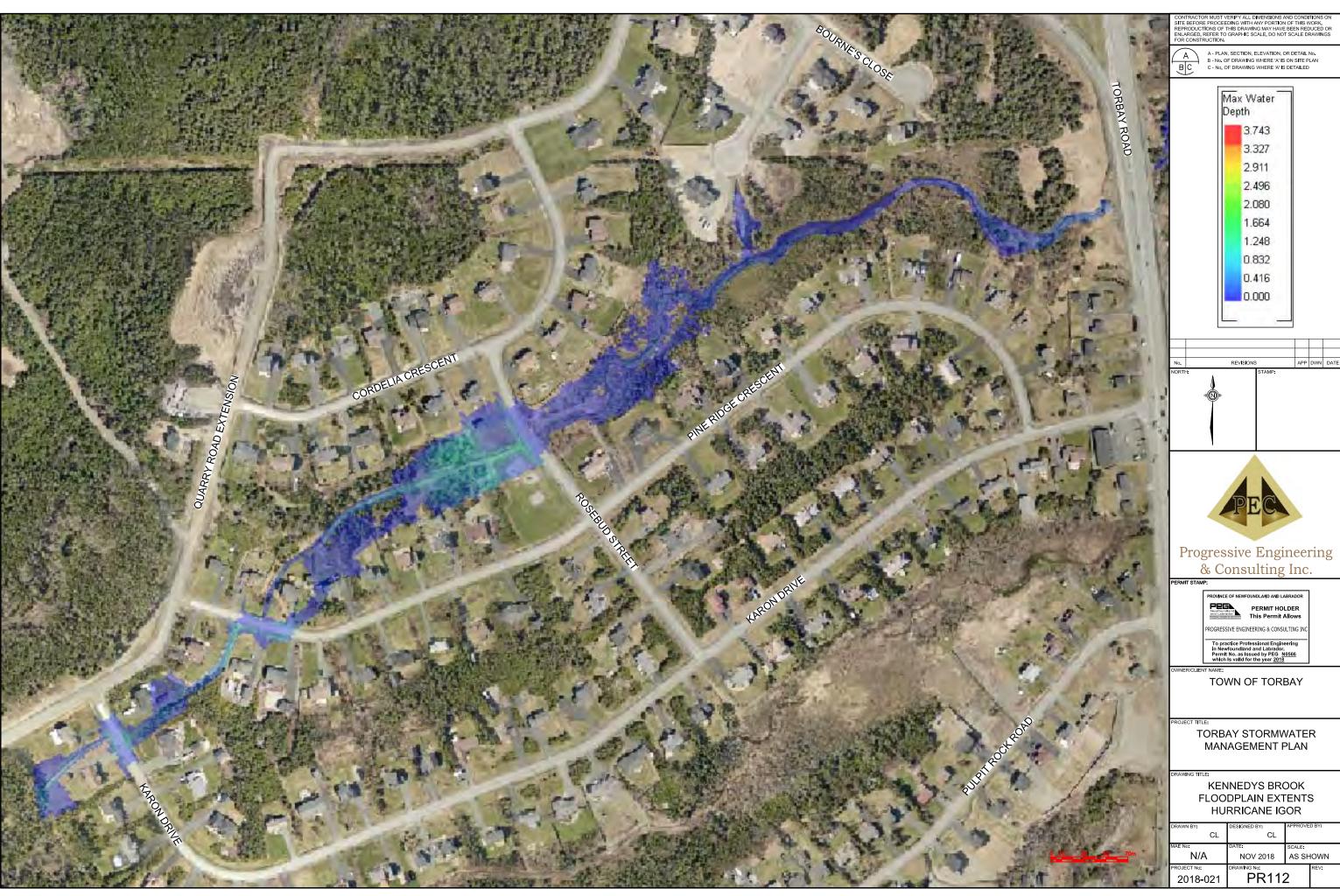


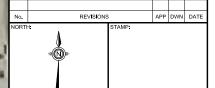










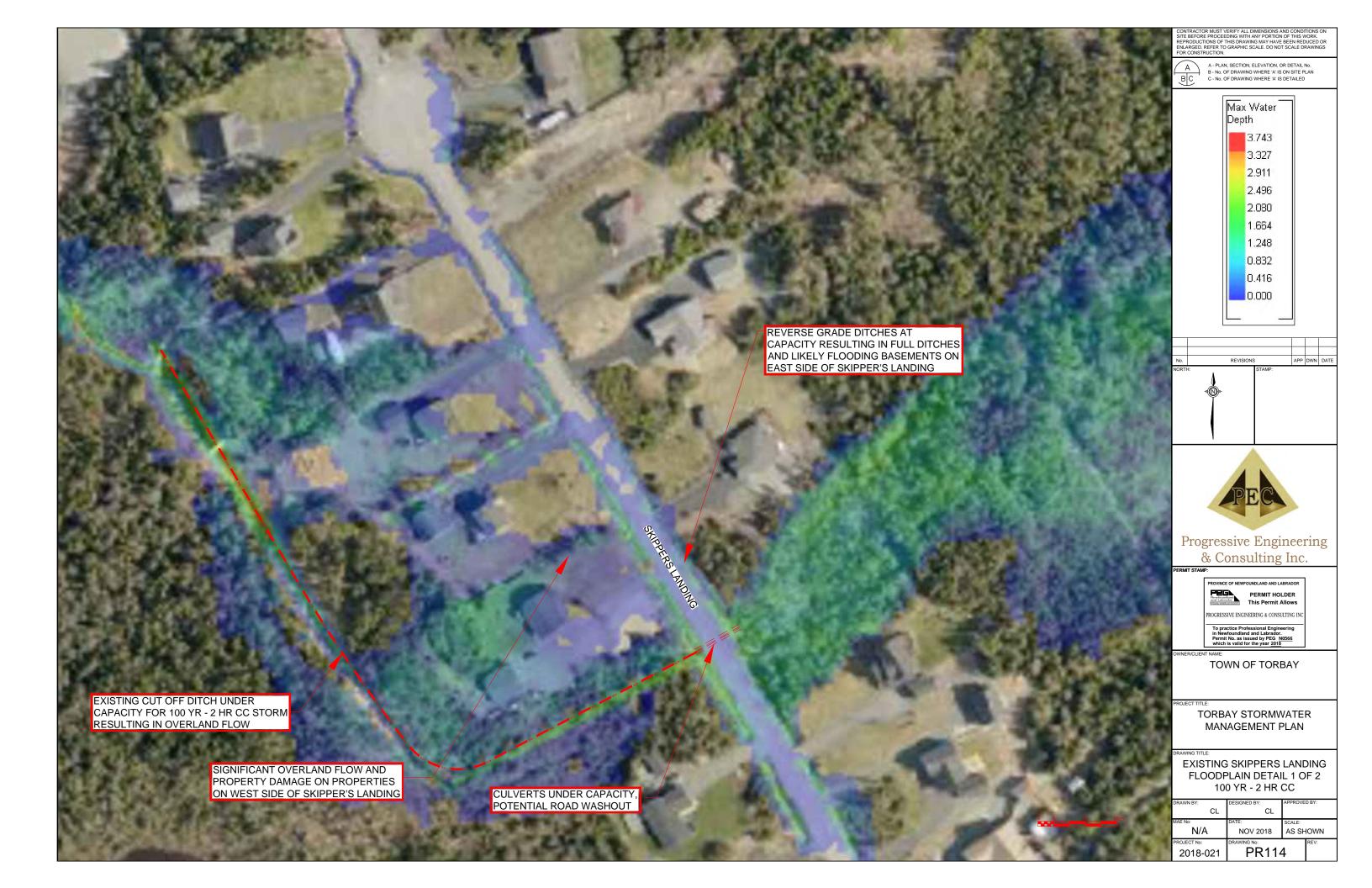


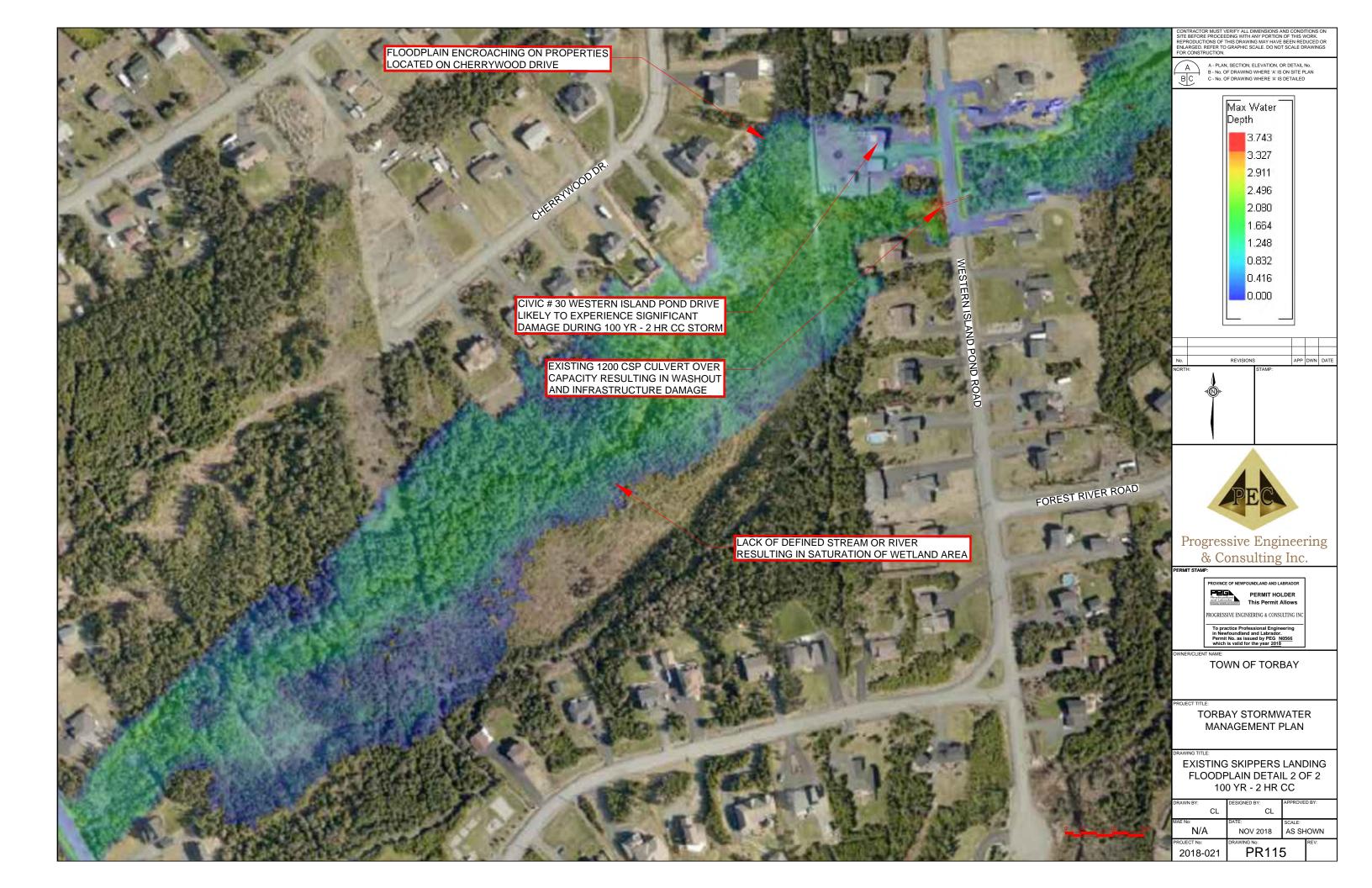
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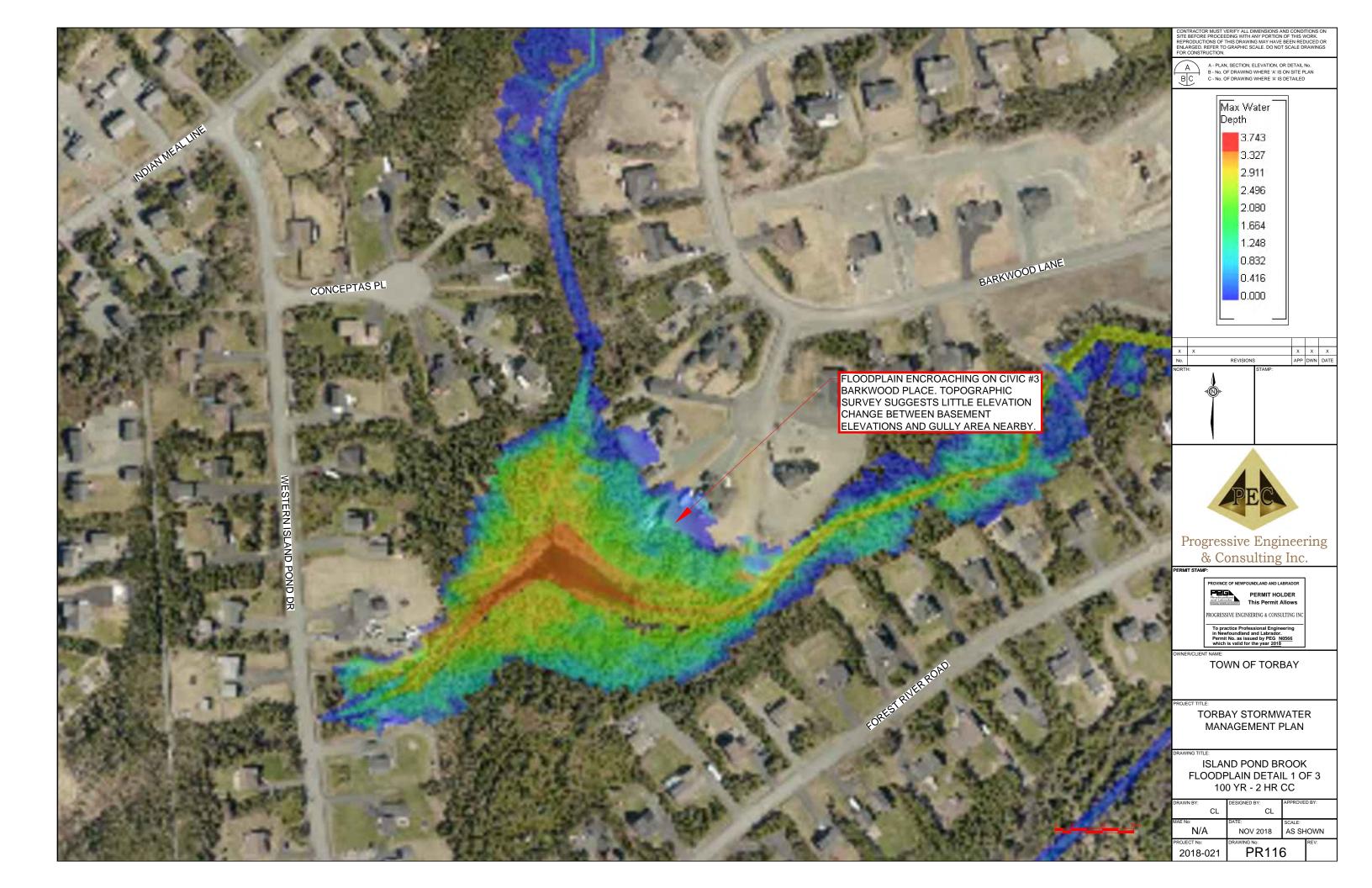


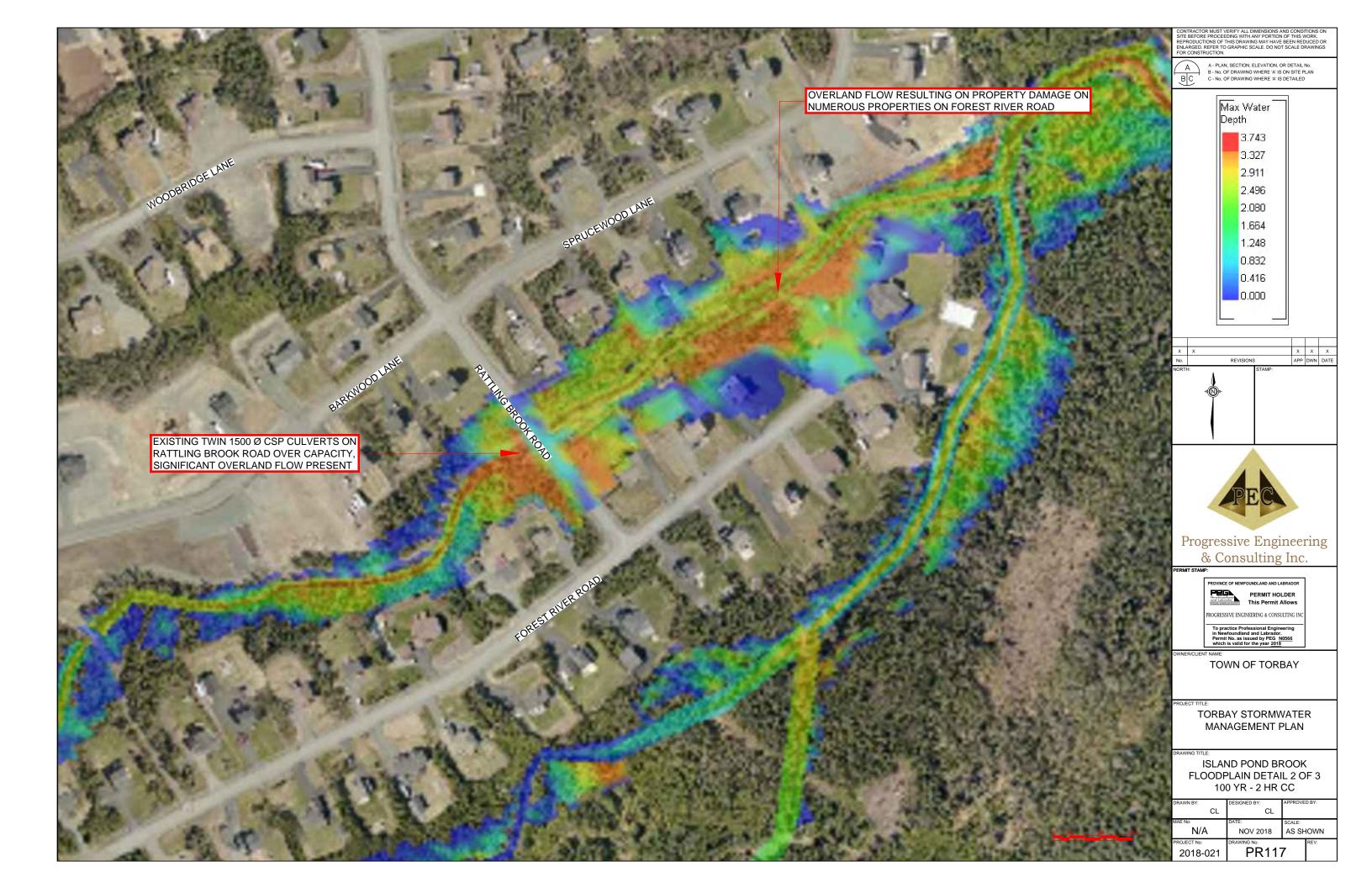


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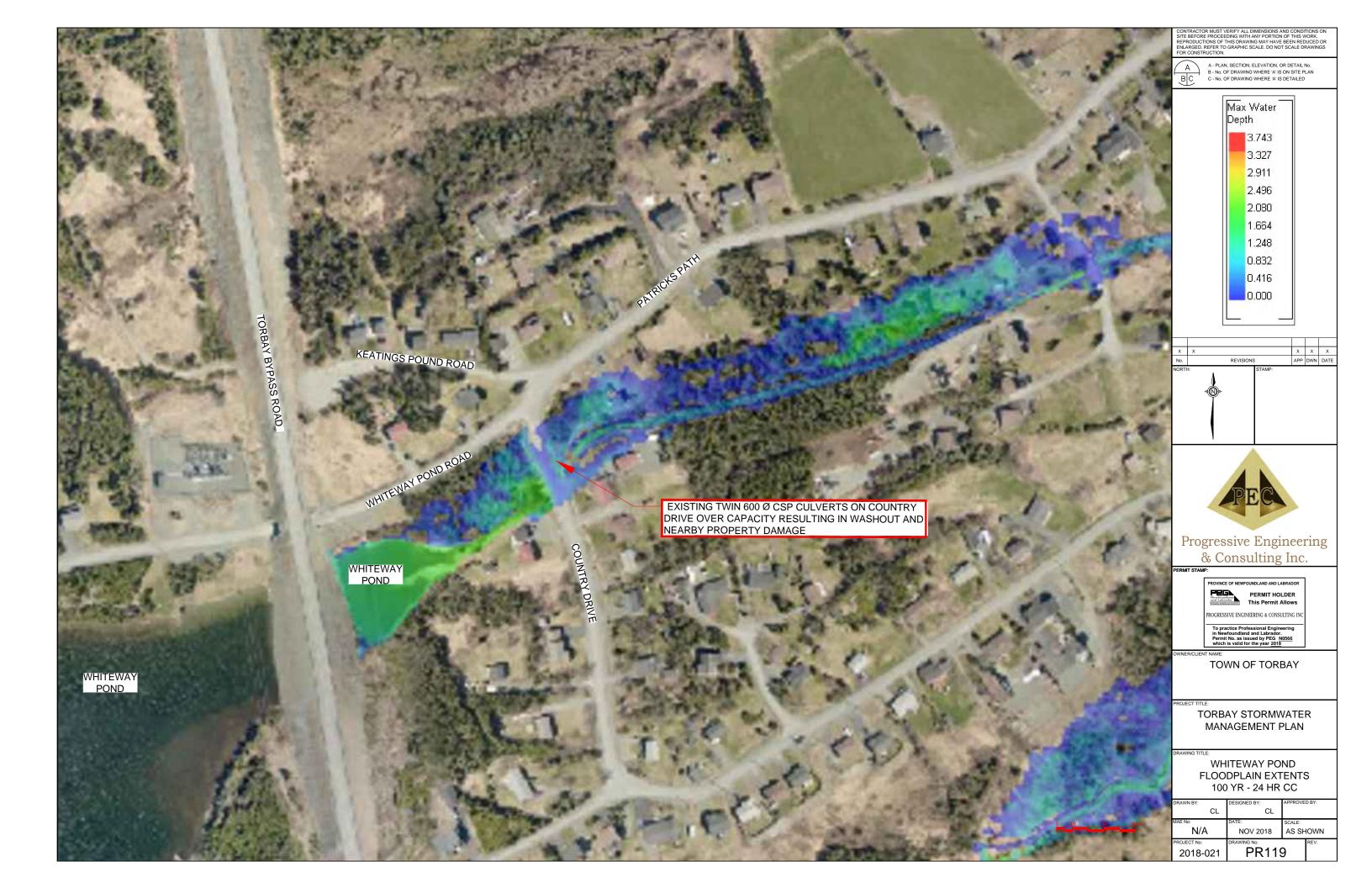


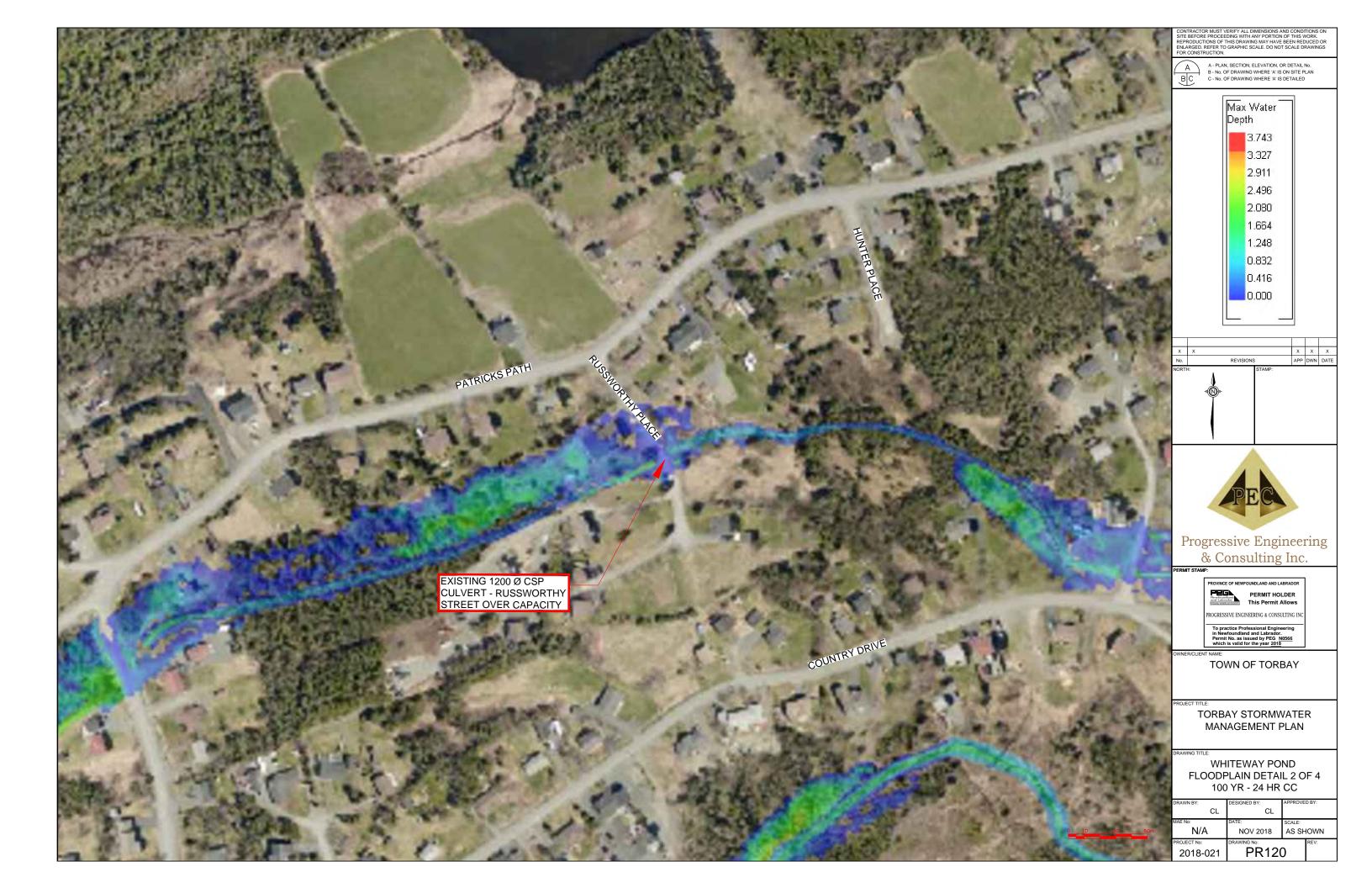




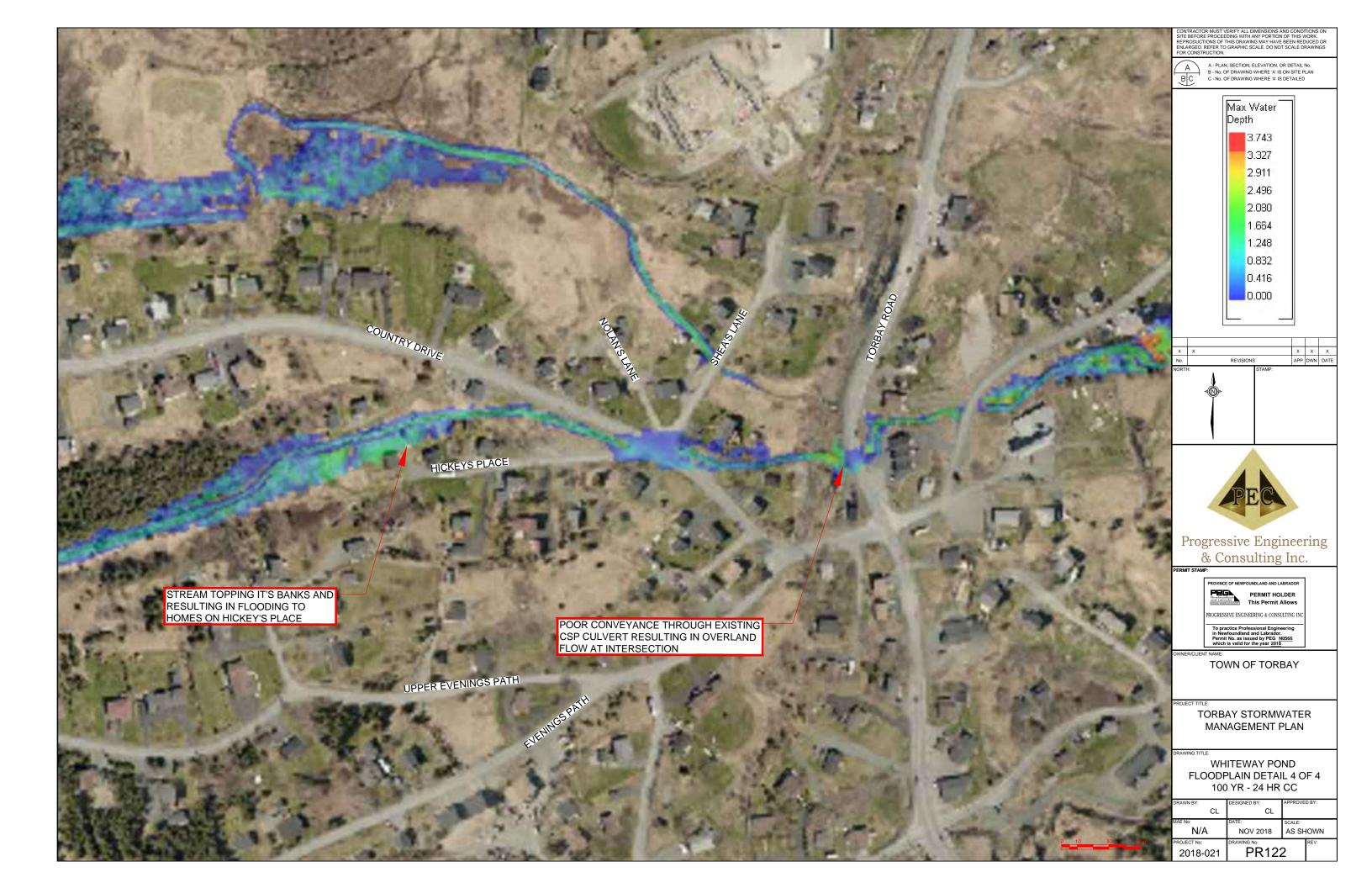


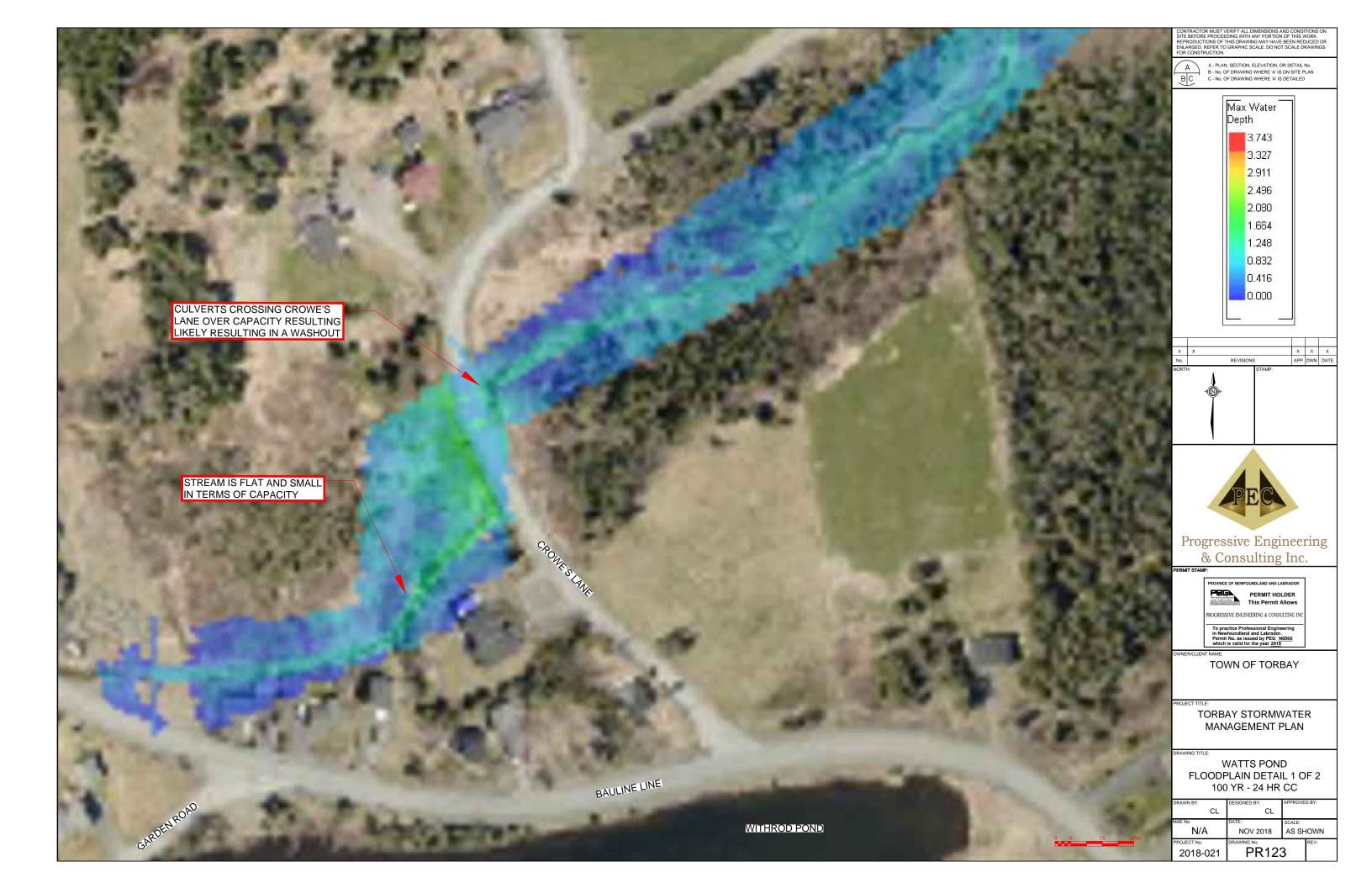


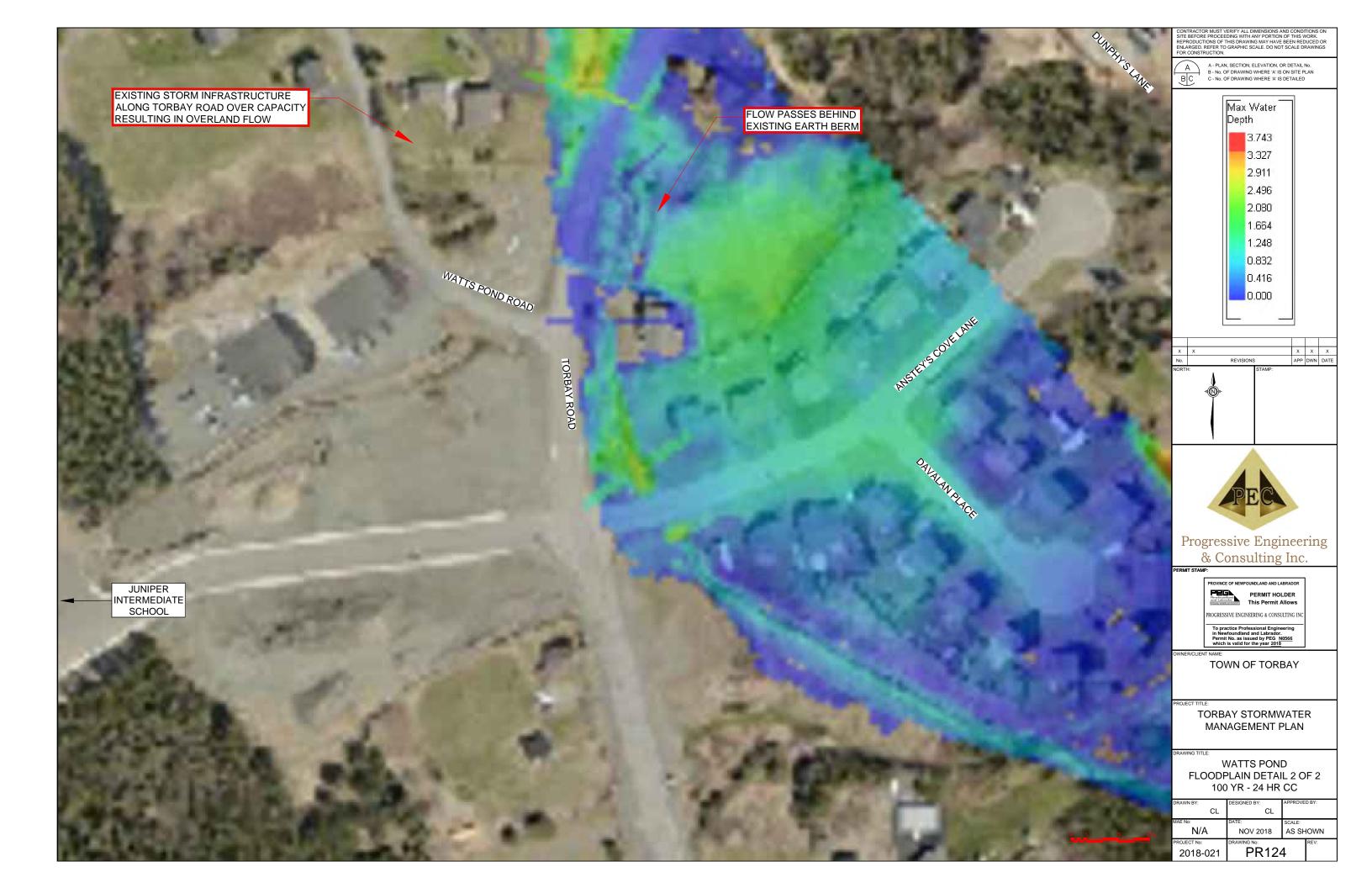




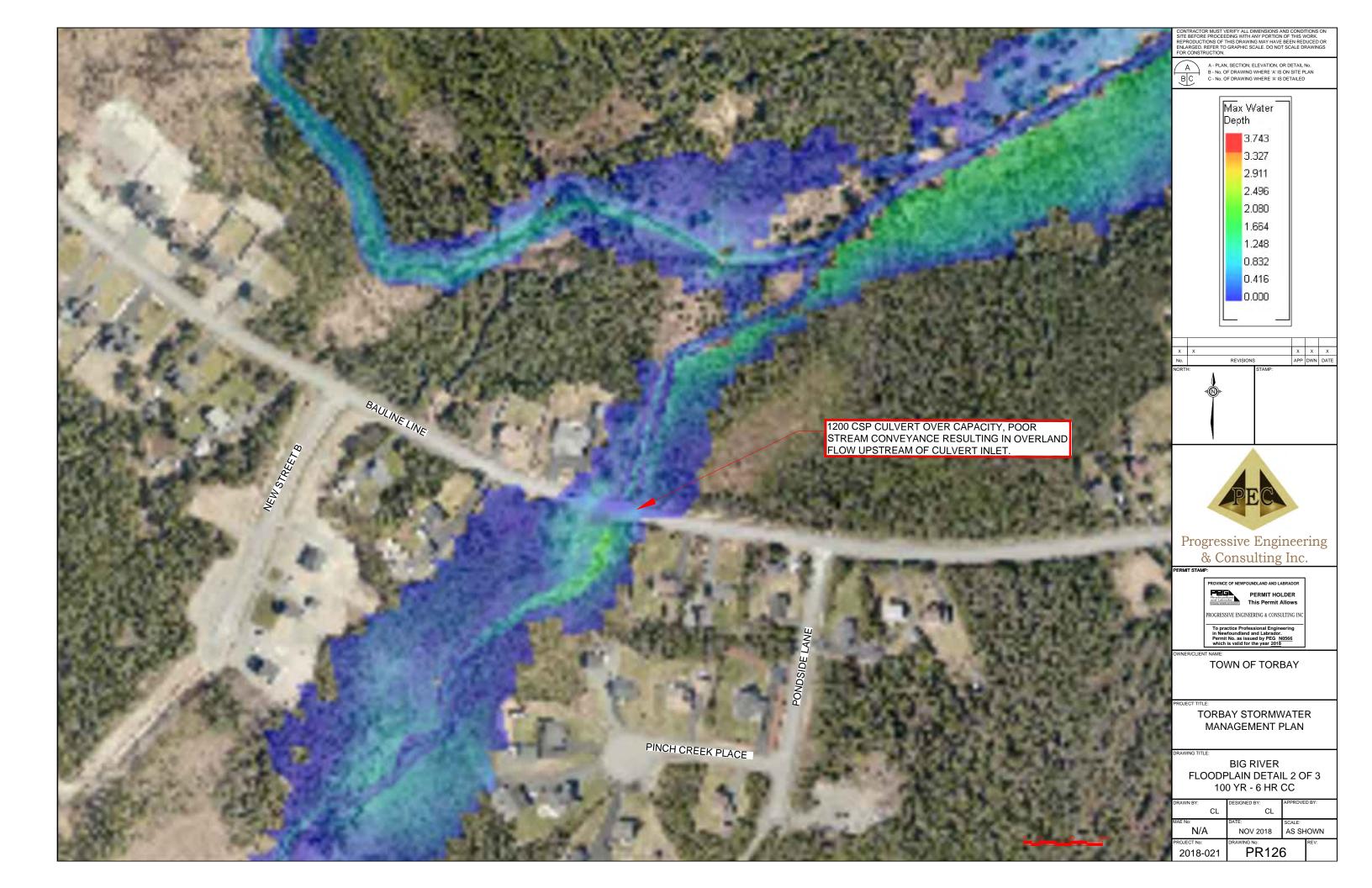


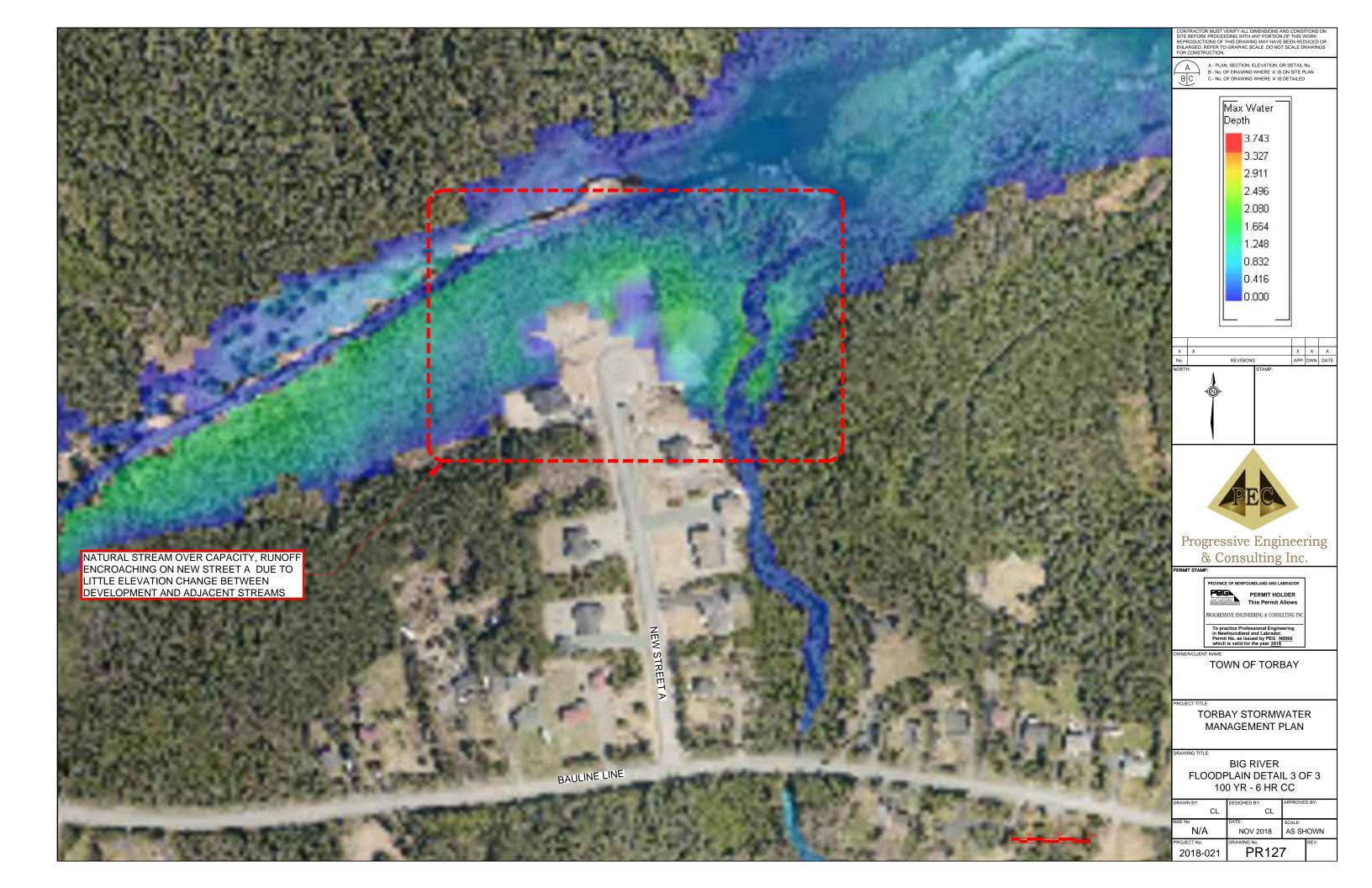




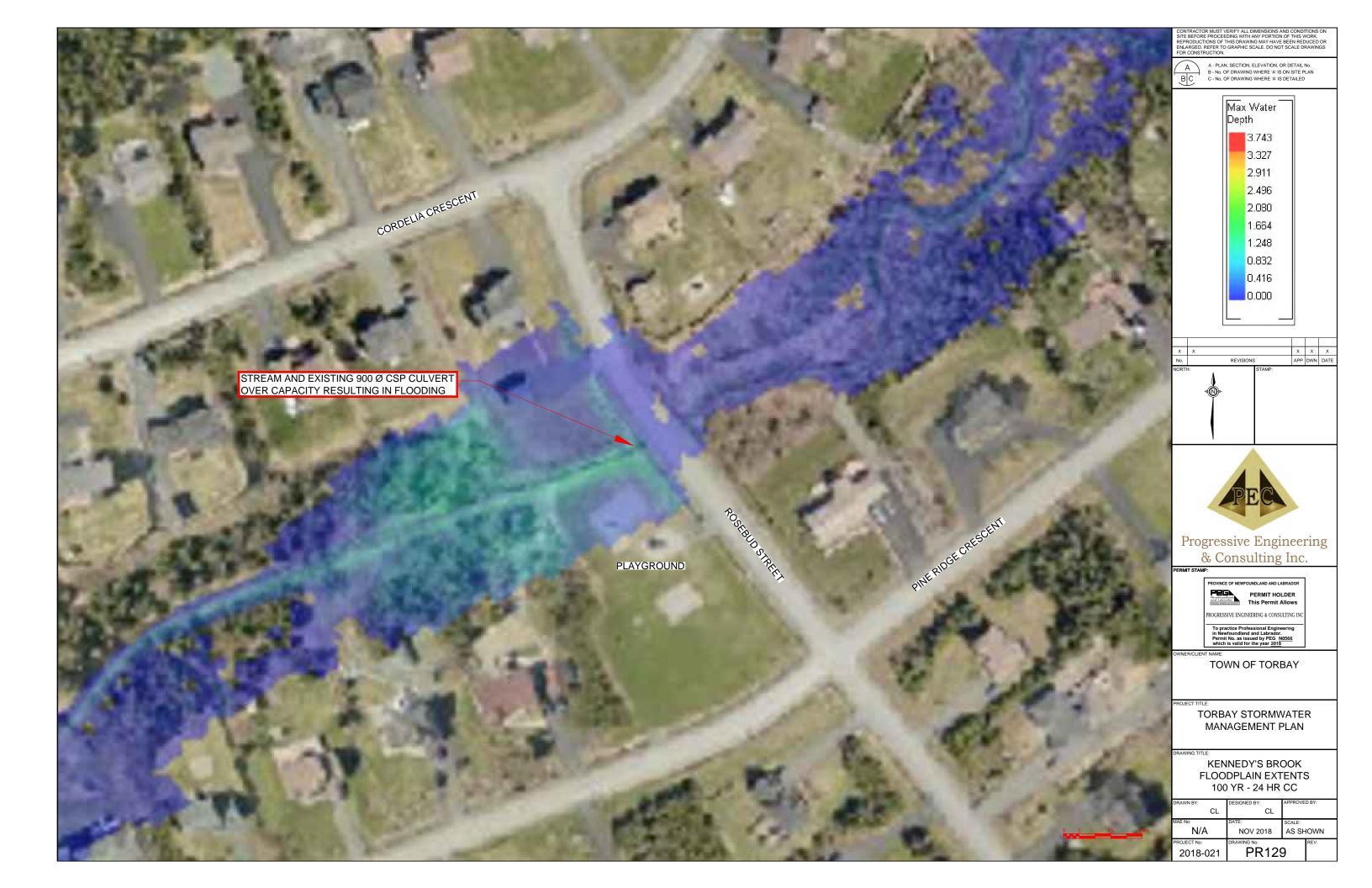




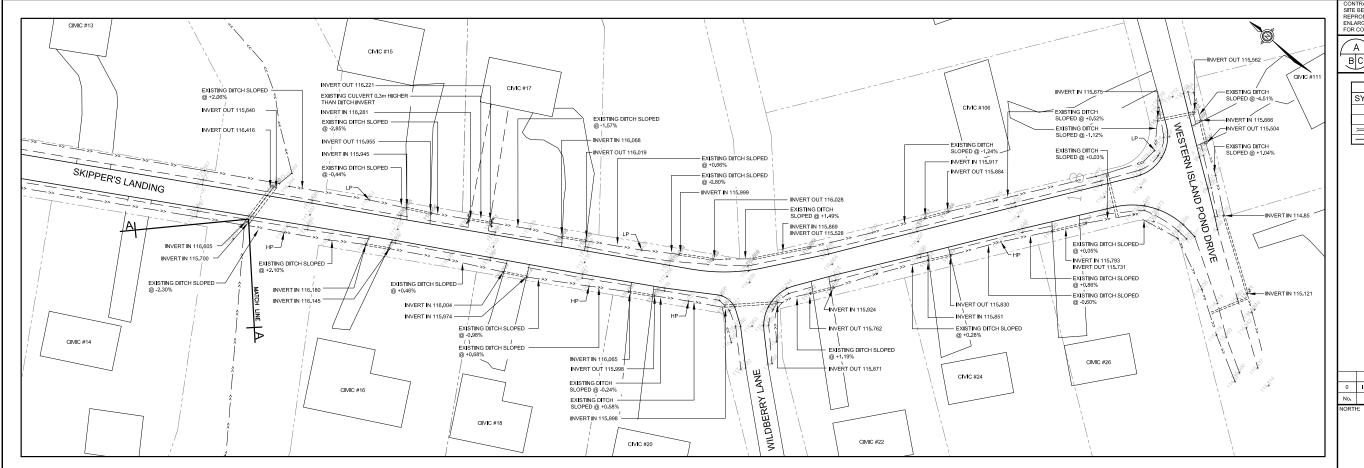








<u>APPENDIX 'G'</u> CONCEPT DRAWINGS – REMEDIAL UPGRADES



CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK, REPRODUCTIONS OF THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. REFER TO GRAPHIC SCALE, DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



A - PLAN, SECTION, ELEVATION, OR DETAIL No. B - No. OF DRAWING WHERE 'A' IS ON SITE PLAN C - No. OF DRAWING WHERE 'A' IS DETAILED

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LEGEND				
	SYMBOL	DESCRIPTION		
	HP	HIGH POINT		

SYMBOL		DESCRIPTION
Γ	HP	HIGH POINT
Γ	LP	LOW POINT
Γ	====	EXISTING CULVERT
Γ		EXISTING DITCH

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Progressive Engineering & Consulting Inc.



PEGA PERMIT HOLDER
This Permit Allows

PROGRESSIVE ENGINEERING & CONSULTING IN

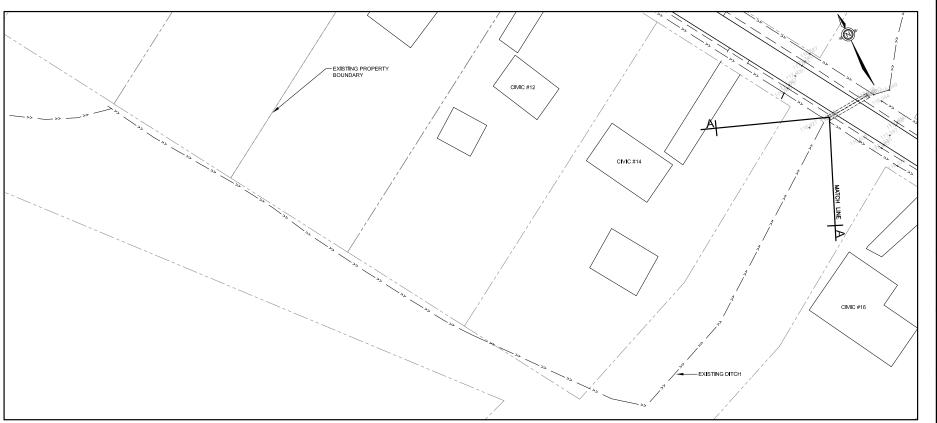
To practice Professional Engineering in Newfoundland and Labrador. Permit No. as issued by PEG N0566 which is valid for the year 2018

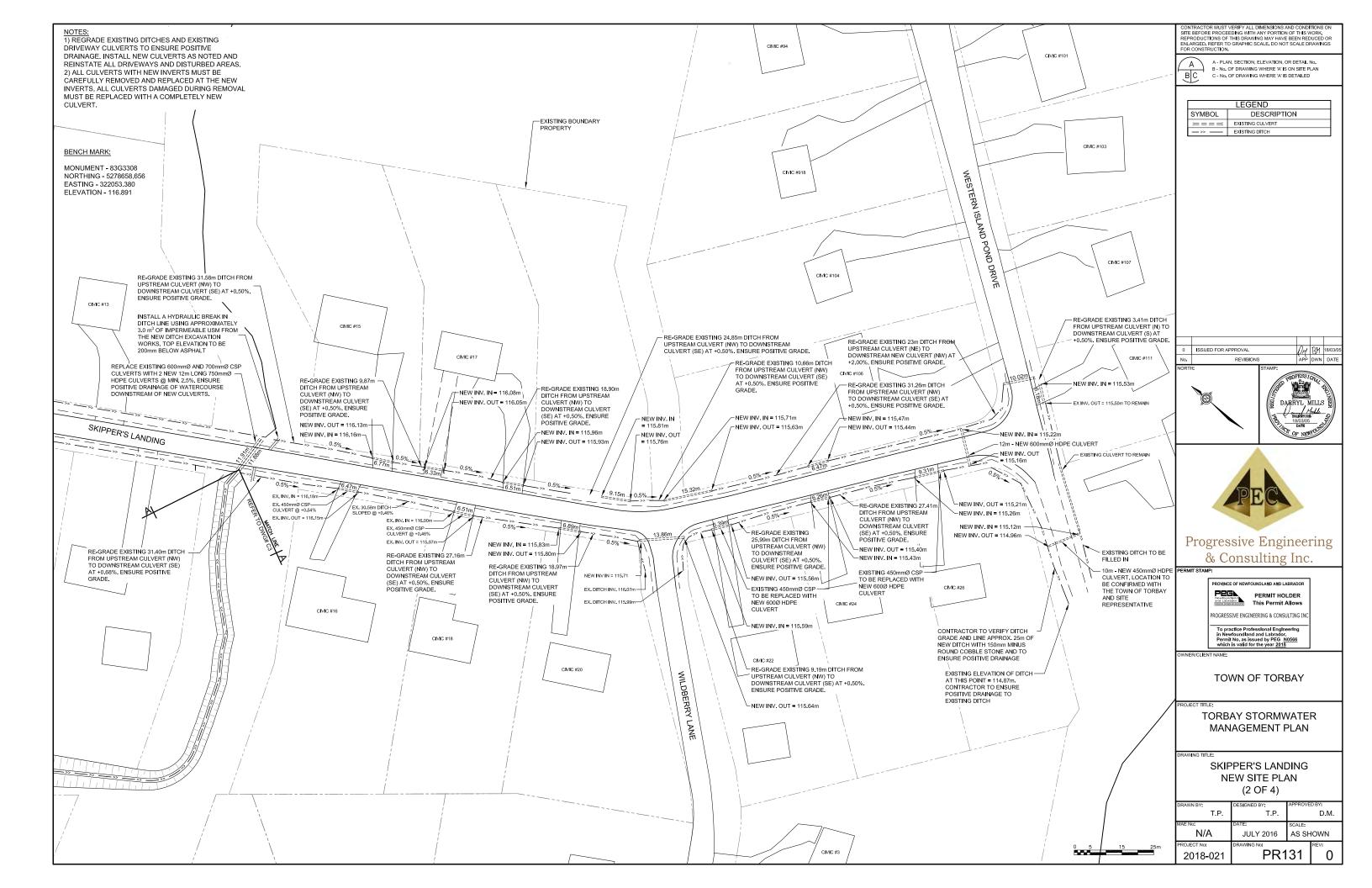
TOWN OF TORBAY

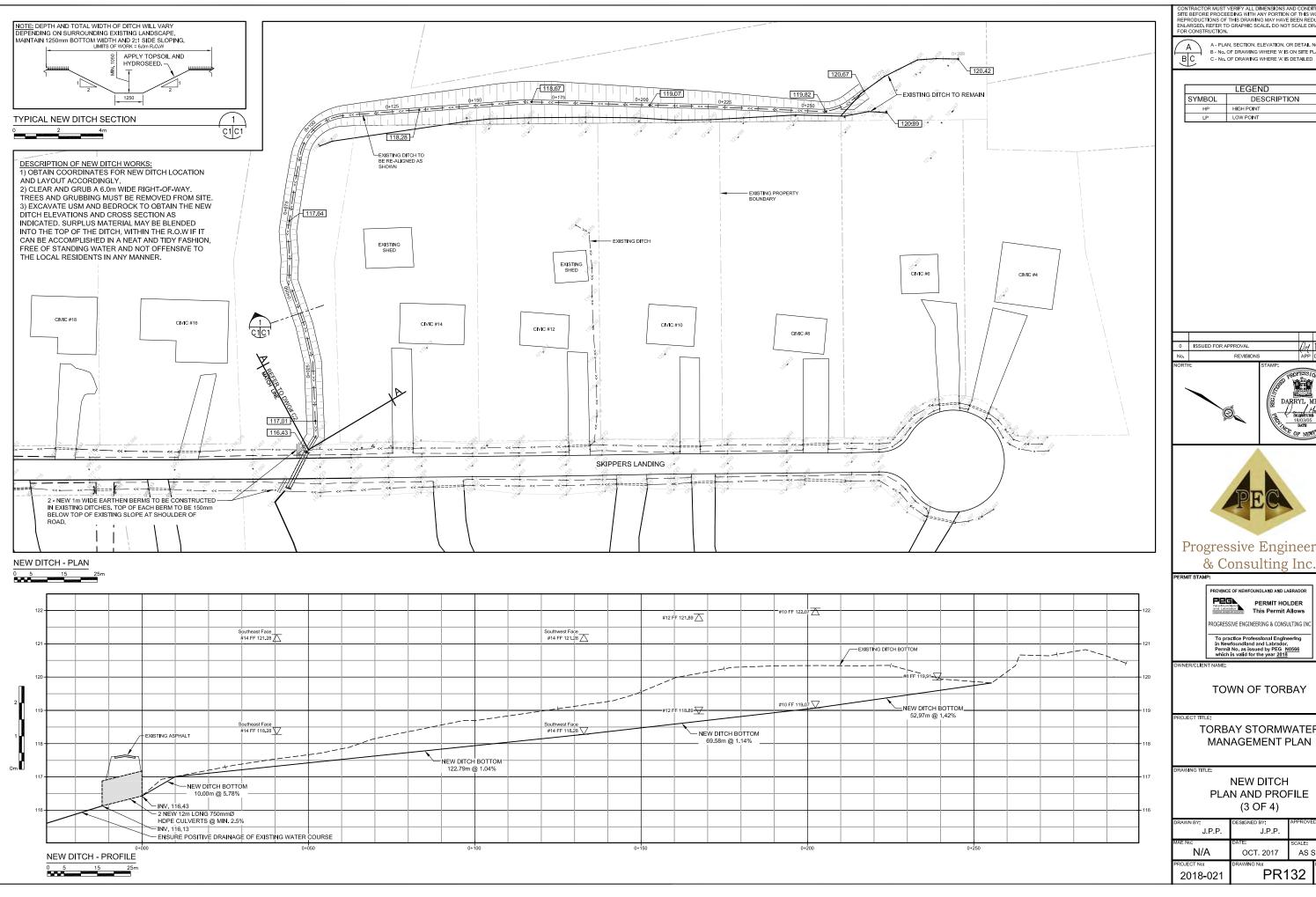
TORBAY STORMWATER MANAGEMENT PLAN

EXISTING SITE PLAN (1 OF 4)

RAWN BY:	DESIGNED BY:	APPROVE	D BY:
T.P.	T.P.		D.M.
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N/A	JULY 2016	AS SHOWN	
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2018-021	PR130		0







CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK, REPRODUCTIONS OF THIS DRAWING MAY HAVE BEEN REDUCED OR ENLAGED, REFER TO GRAPHIC SCALE. DO NOT SCALE DRAWINGS

A - PLAN, SECTION, ELEVATION, OR DETAIL No. B - No. OF DRAWING WHERE 'A' IS ON SITE PLAN

LEGEND				
SYMBOL	DESCRIPTION			
HD	HIGH POINT			

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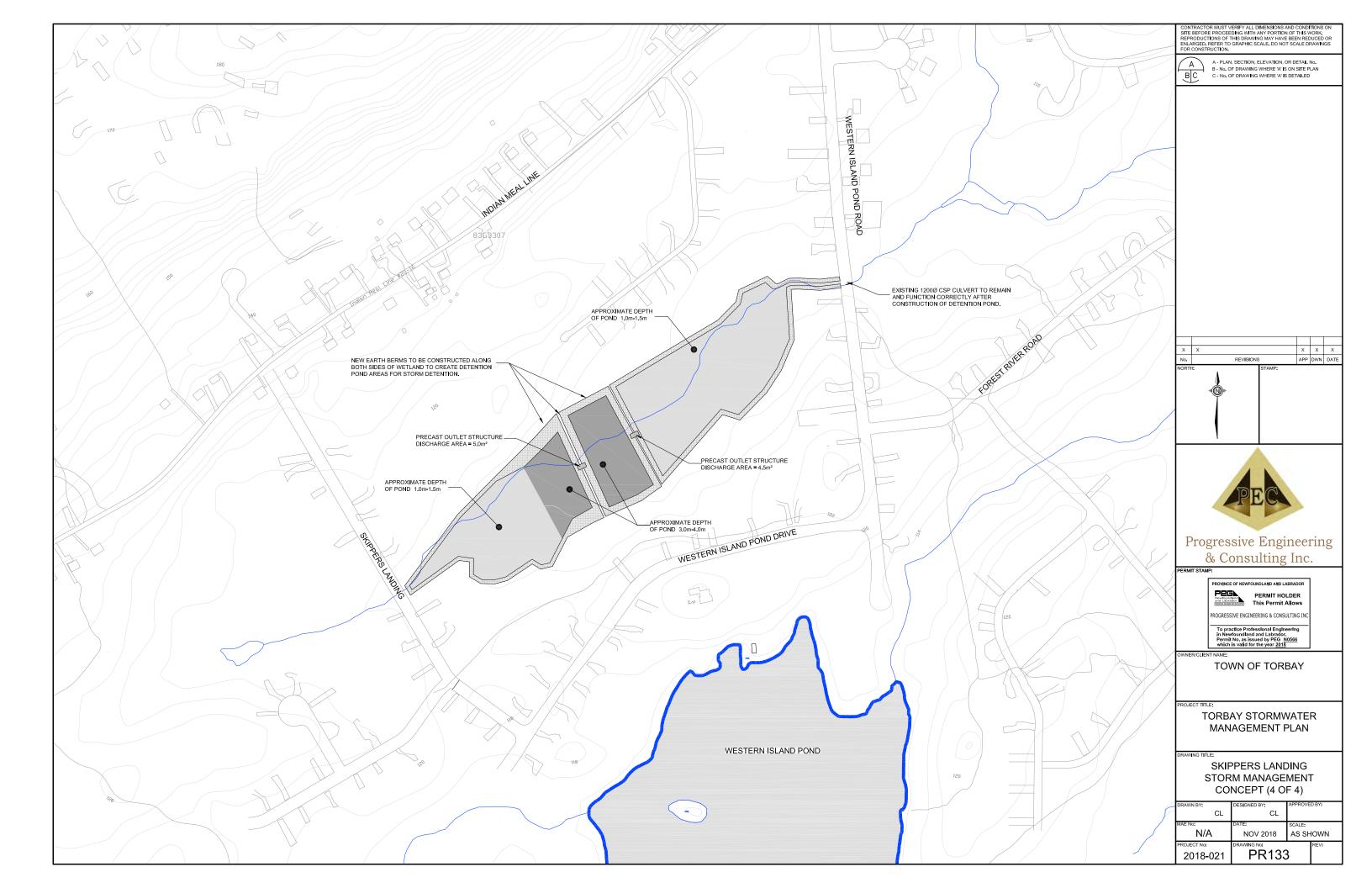
Progressive Engineering & Consulting Inc.

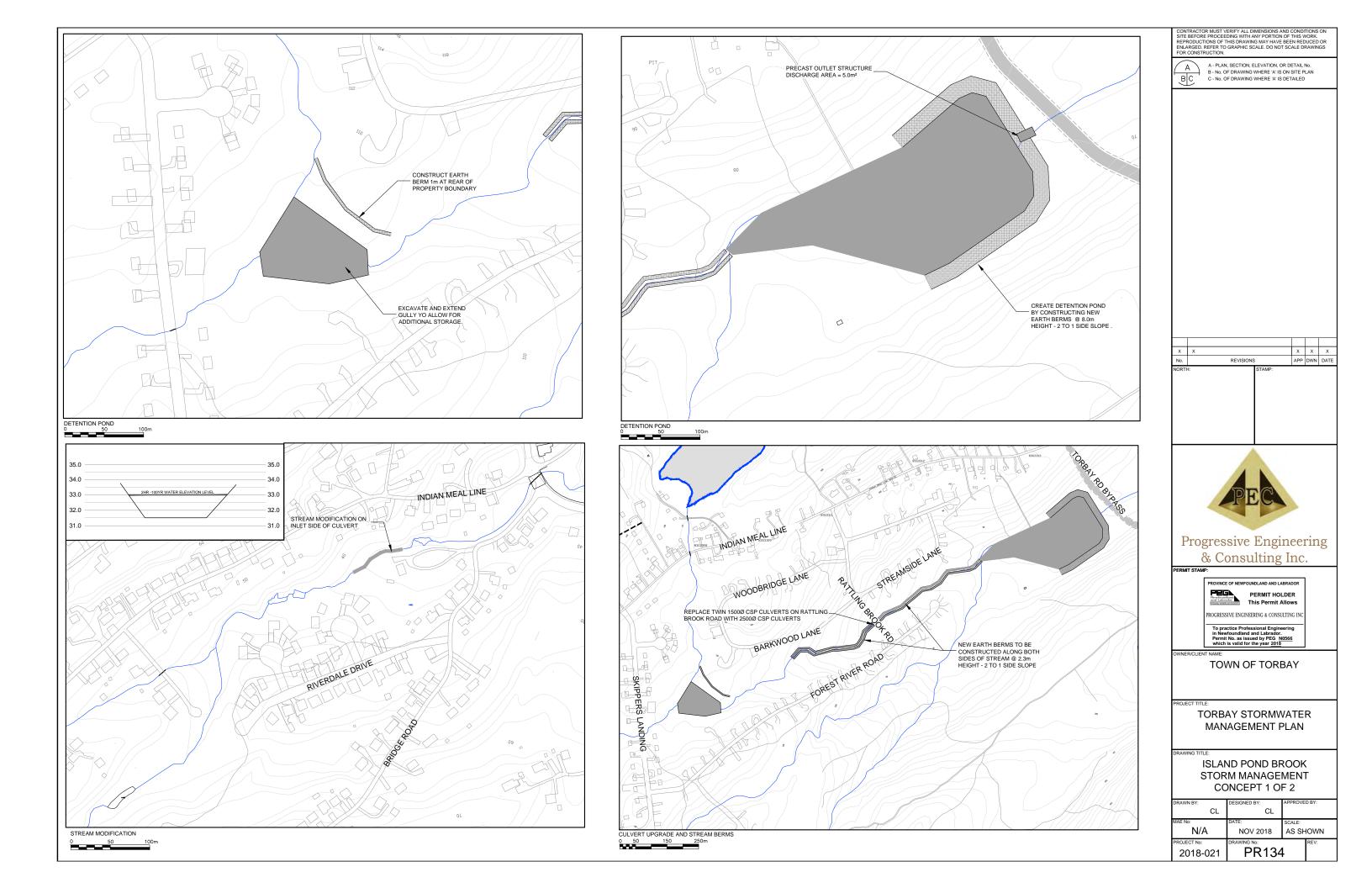
To practice Professional Engineering in Newfoundland and Labrador.
Permit No. as issued by PEG N0566 which is valid for the year 2018

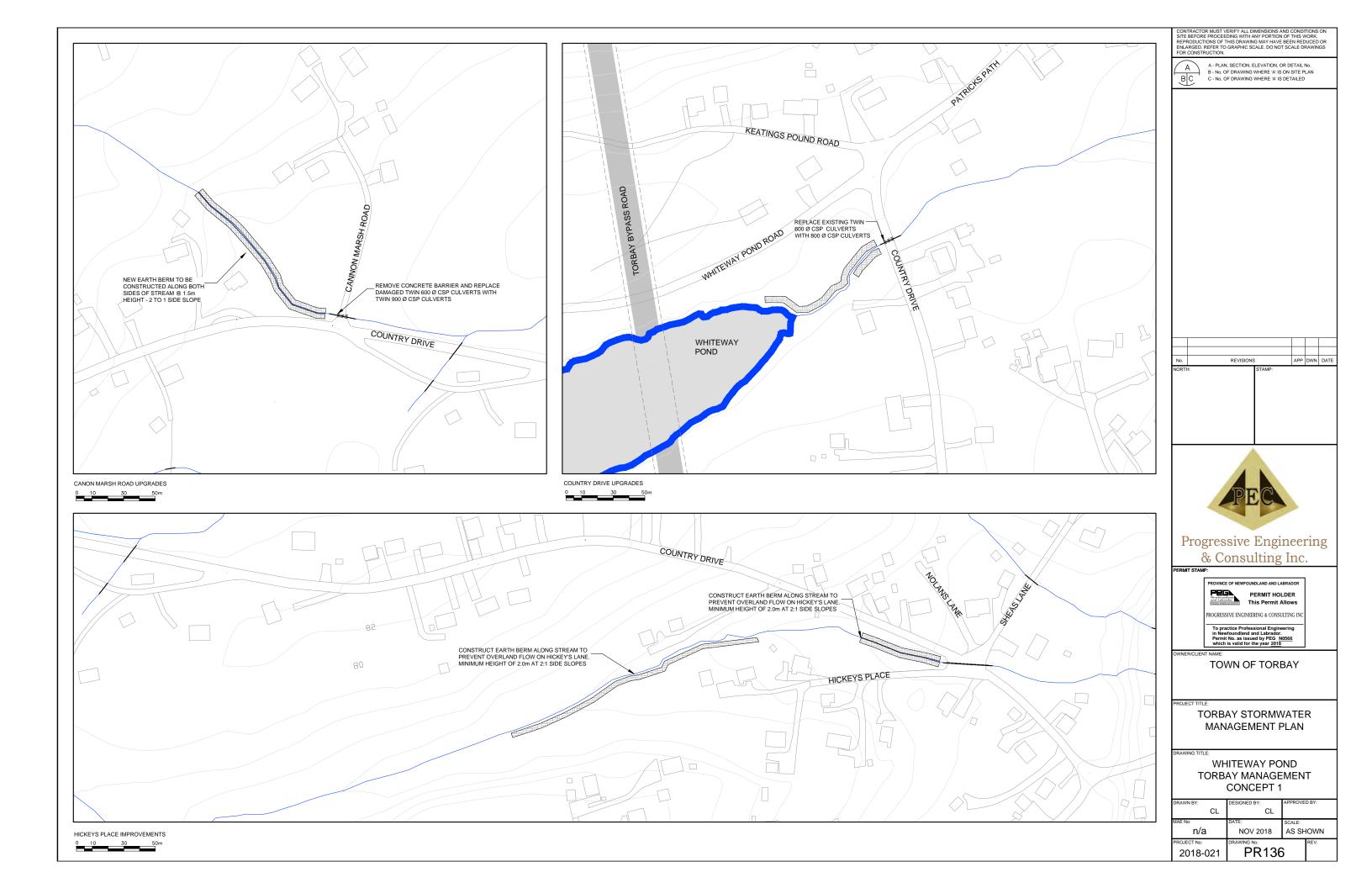
TORBAY STORMWATER MANAGEMENT PLAN

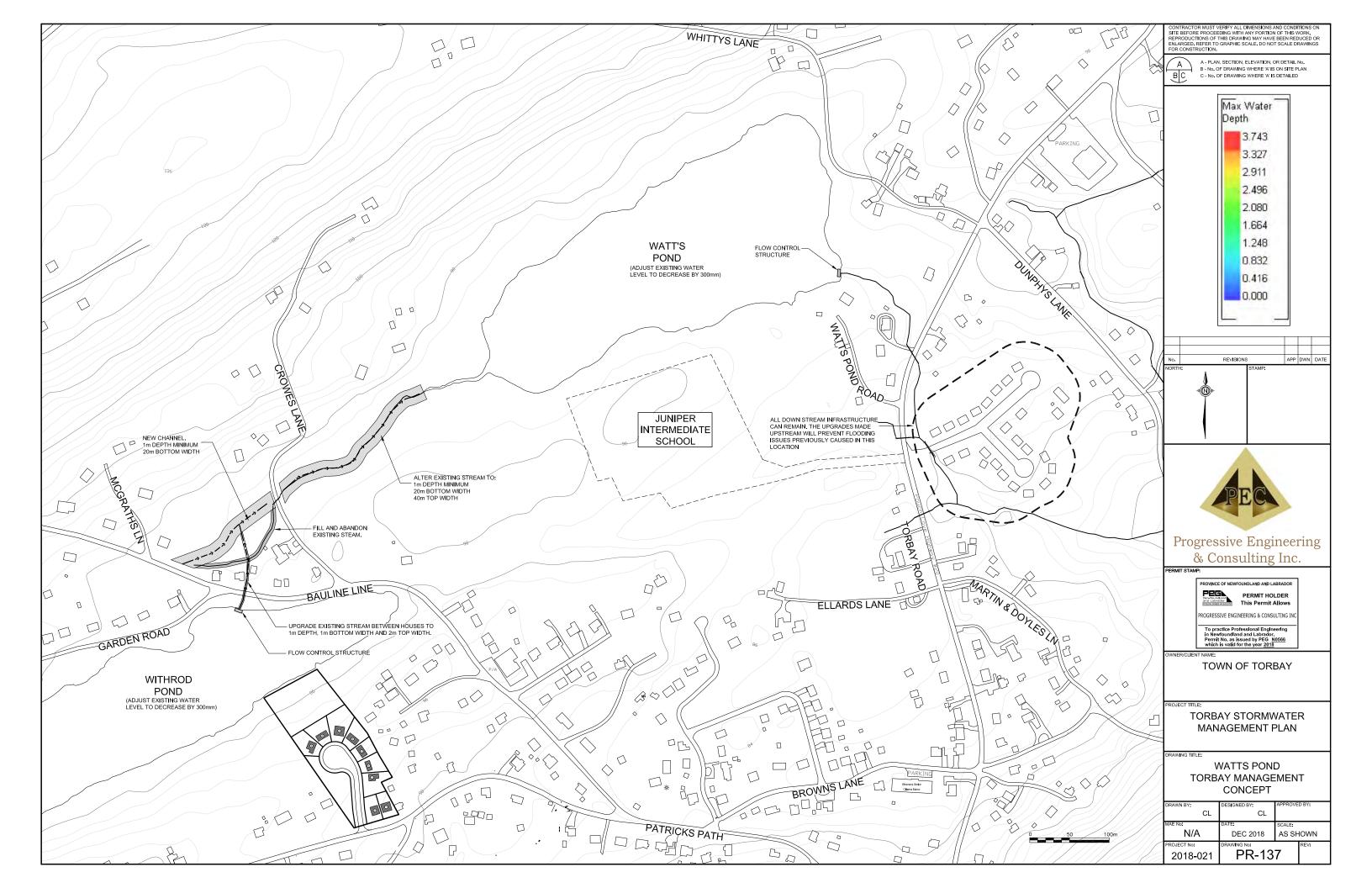
PLAN AND PROFILE (3 OF 4)

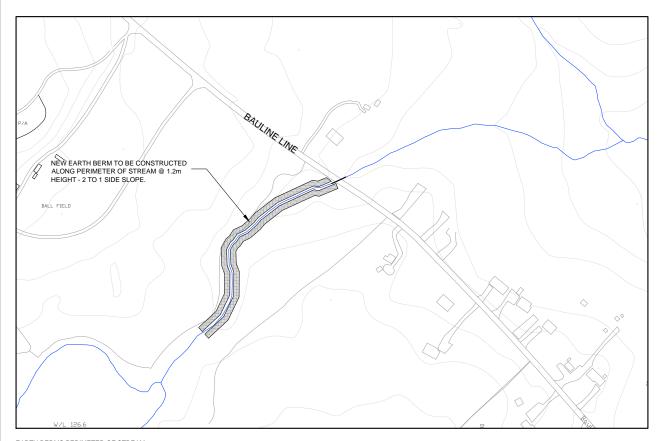
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J.P.P.	J.P.P.		D.M.	
MAE No:	DATE:	SCALE:		
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PROJECT No:	DRAWING No:		REV:	
2018-021	PR1	0		





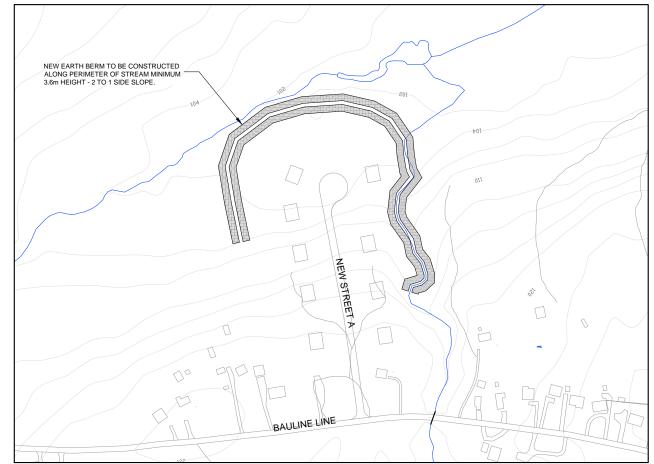






EARTH BERMS PERIMETER OF STREAM

0 50 100m



UPGRADE CULVERT TO 1.2m DIAMETER

BAULINE LINE

STREAM MODIFICATION ON INLET SIDE OF CULVERT

PINCH CREEK PLACE.

118.0
117.0
117.0
116.0
115.0
115.0
115.0
114.0
114.0

STREAM MODIFICATION AND UPGRADE EXISTING CULVERT

0 50 100r

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK. REPRODUCTIONS OF THIS DRAWING MAY HAVE BEEN REDUCED OR ENLARGED. REFER TO GRAPHIC SCALE. DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



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& Consulting Inc.

PERMIT STAMP:

PROVINCE OF NEWFOUNDLAND AND LABRADOR
PERMIT HOLDER
This Permit Allows
PROGRESSIVE ENGINEERING & CONSULTING IN

To practice Professional Engineeriin Newfoundland and Labrador.

Permit No. as issued by PEG N056

which is valid for the year 2018

OWNER/CLIENT NAI

TOWN OF TORBAY

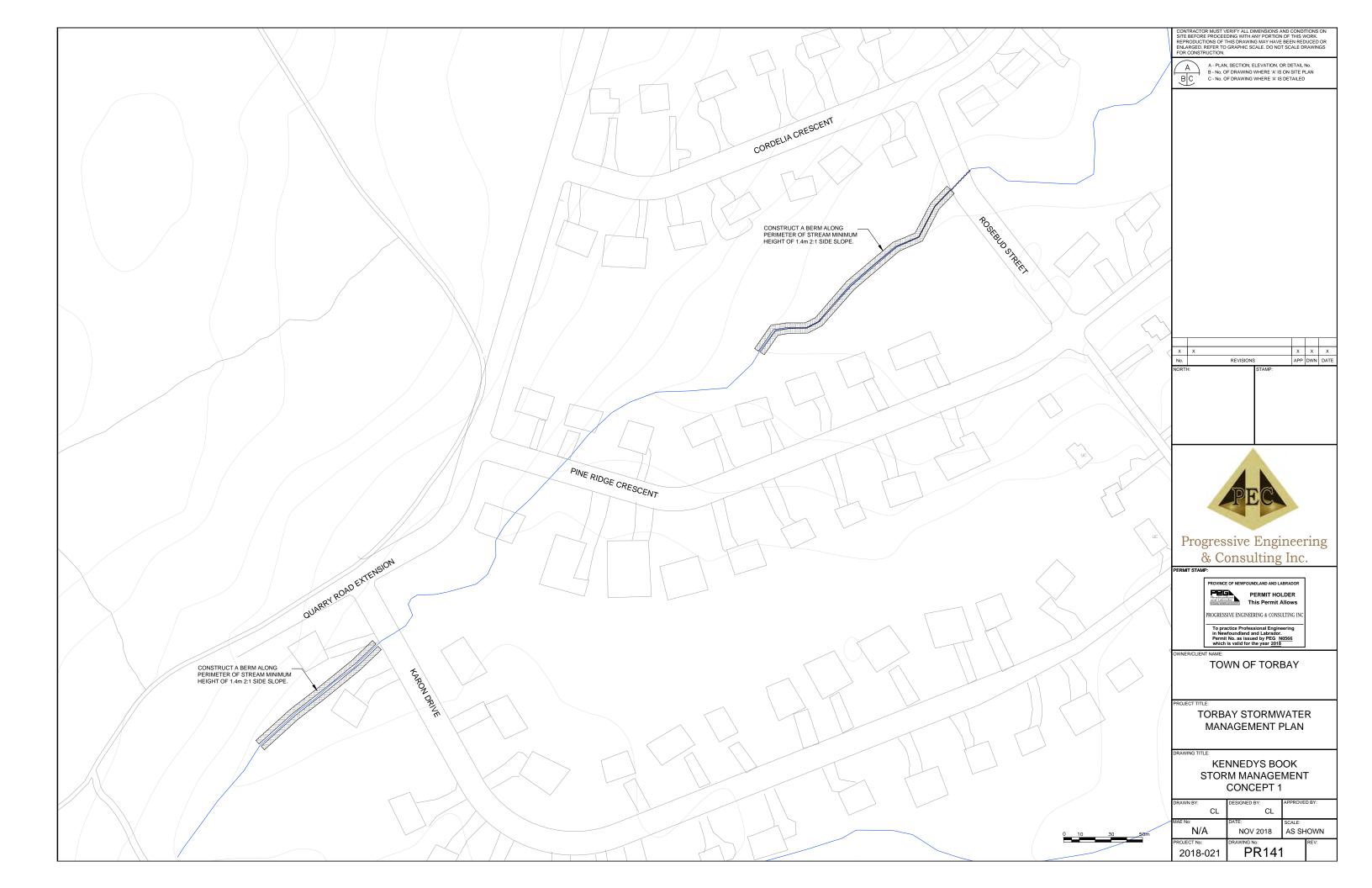
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TORBAY STORMWATER MANAGEMENT PLAN

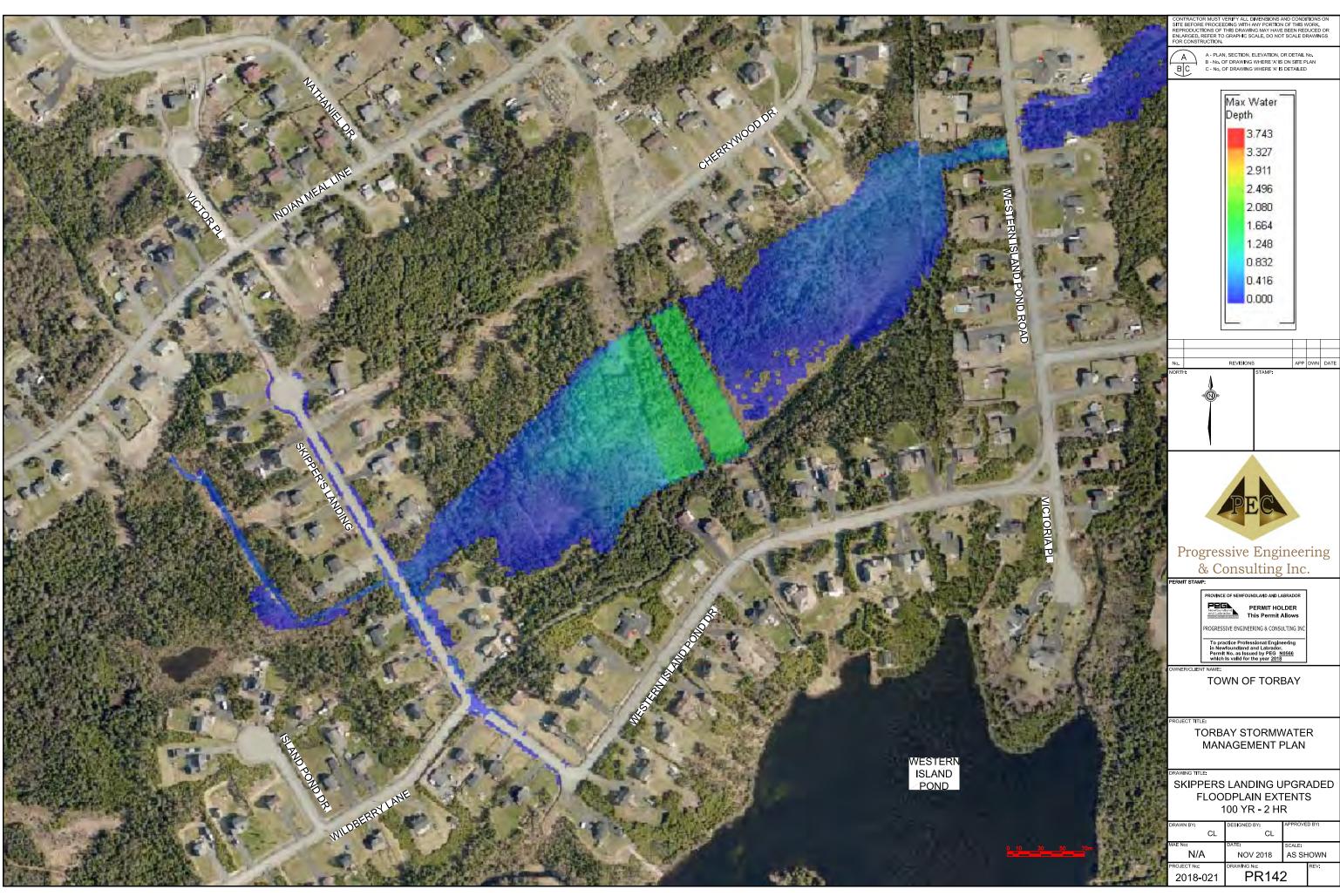
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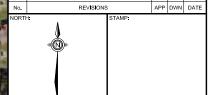
BIG RIVER STORM MANAGEMENT CONCEPT 1

EARTH BERMS AROUND PROPERTIES



APPENDIX 'H' UPGRADED CONDITIONS FLOODPLAINS

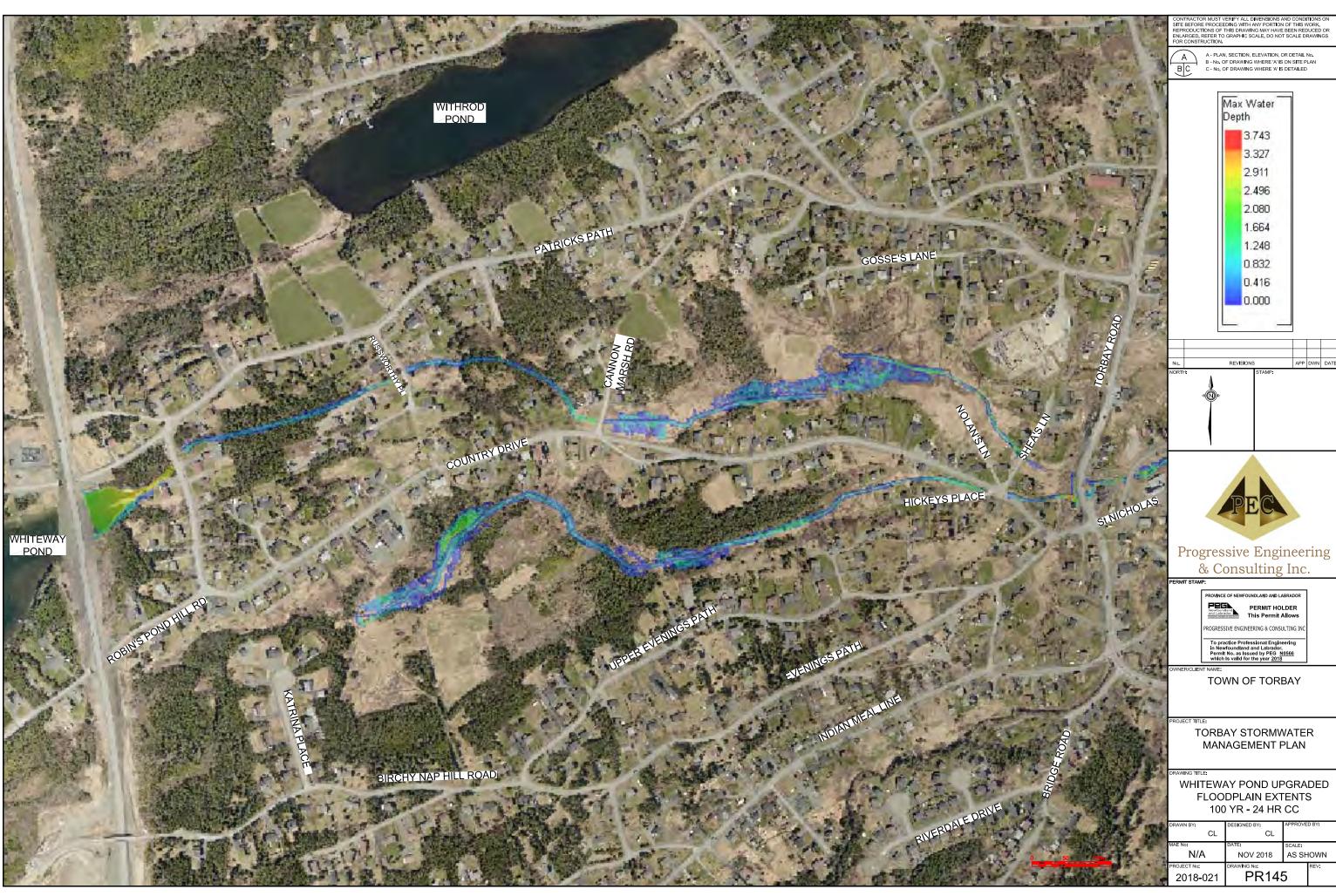


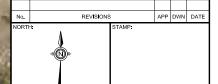


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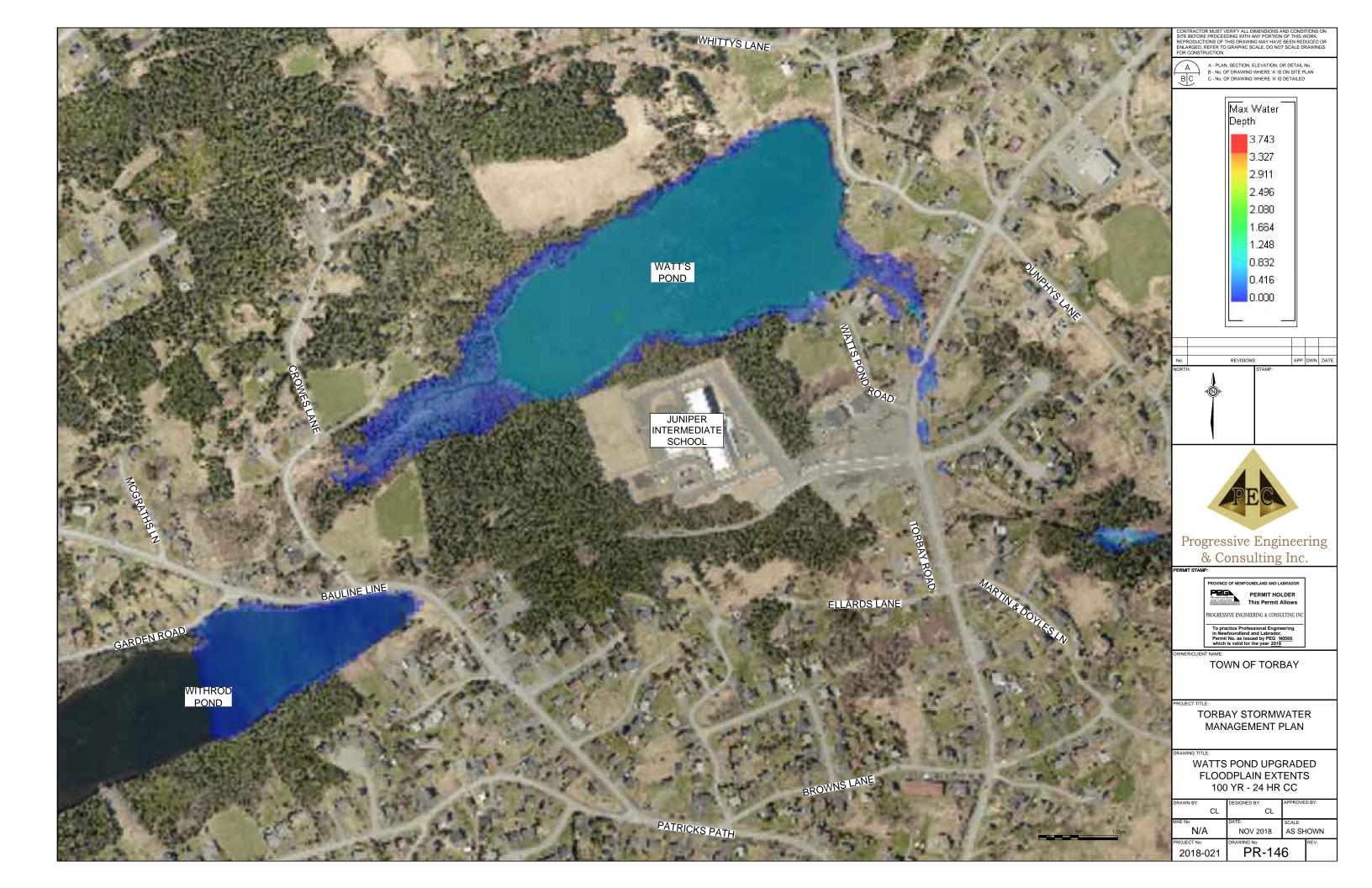


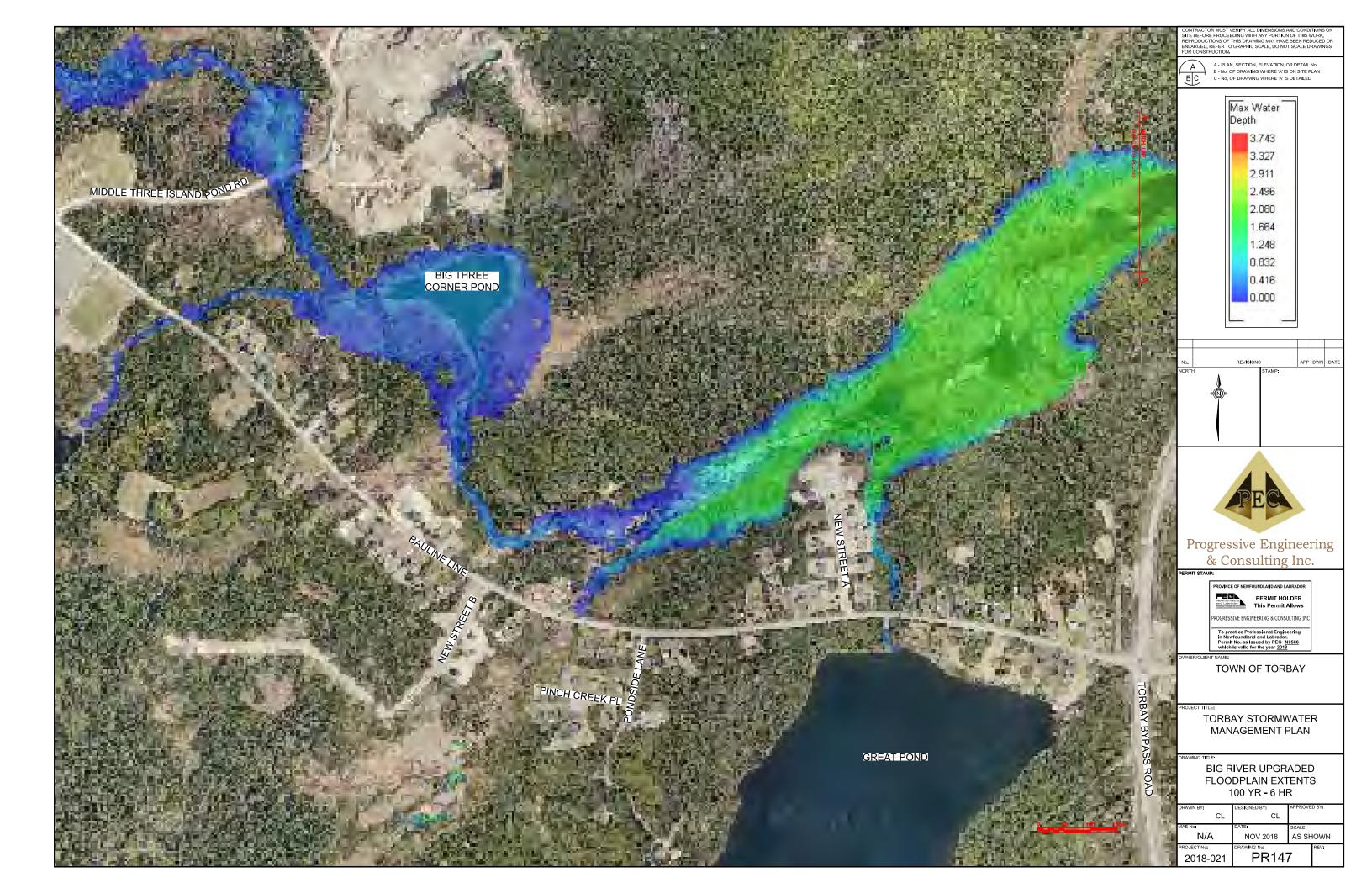


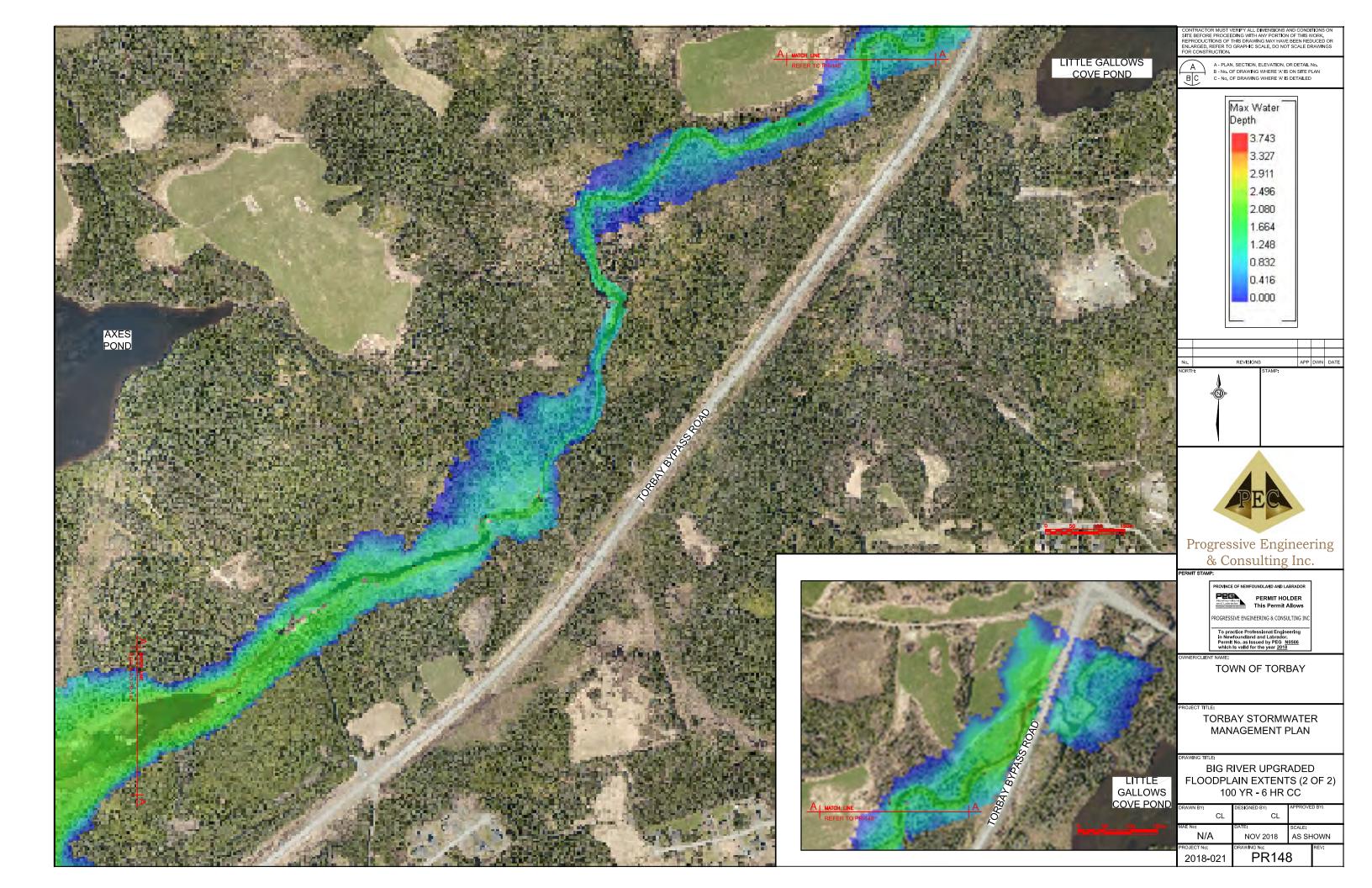


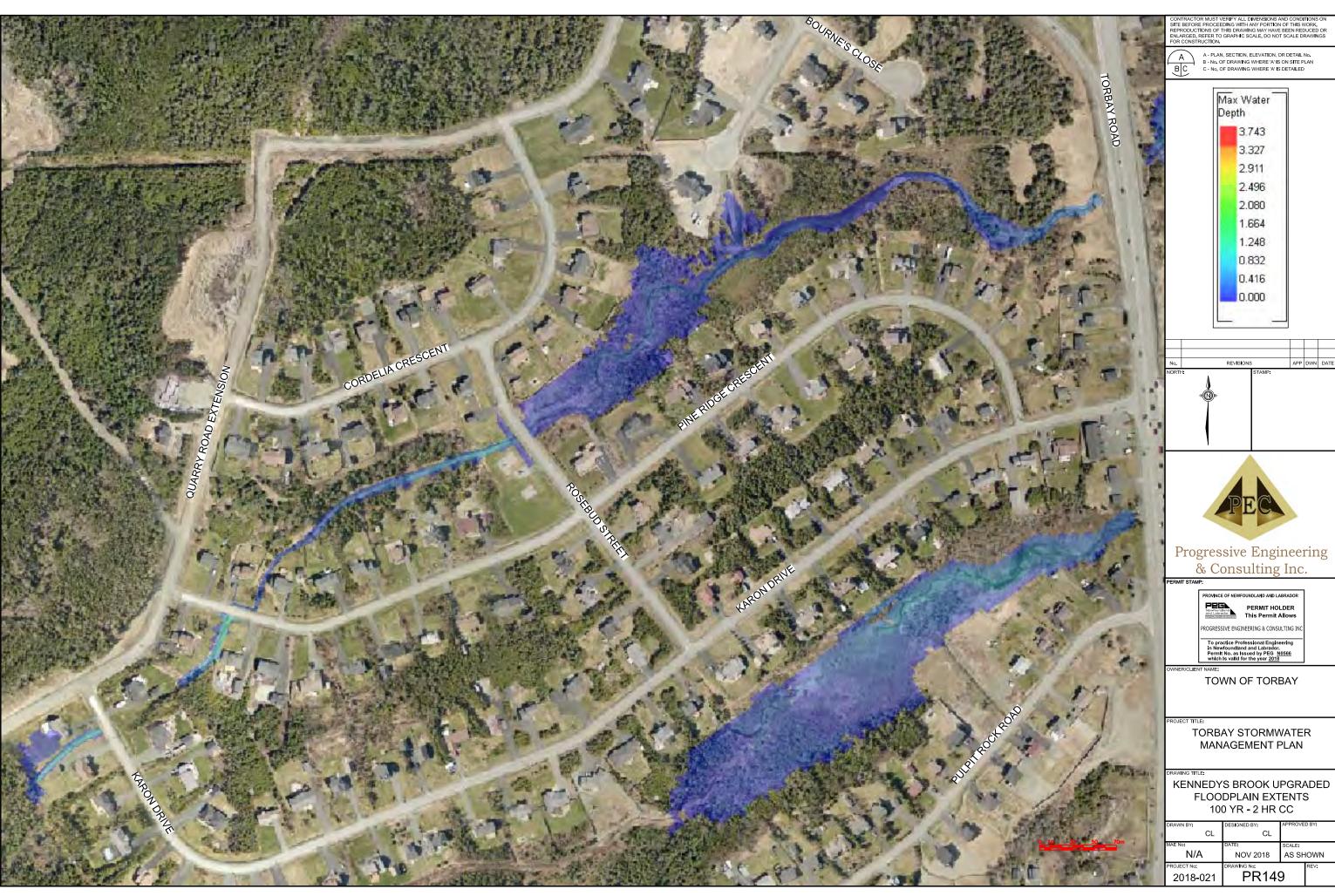


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APPENDIX 'I' CONCEPT ESTIMATES



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 COST ESTIMATE - SKIPPERS LANDING DETENTION POND BUDGET ESTIMATE: \$860,907.08

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
			CONSTRUCTIO	ON COST:	\$748,614.86
			ENGINEERING	}:	\$112,292.23
			TOTAL:		\$860,907.08
	DIVISION #4				
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION	LS	UNIT	\$12,000.00	\$12,000.00
	(Not greater than 5% if on the Island. Or 10% if in				
	Labrador, of Item a. "sub-total" on last page)				
01020	CASH ALLOWANCE				
	Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS				
	Flagperson's Wages	HOUR	800.00	\$20.00	\$16,000.00
	DIVISION #2				
02104	LANDSCAPING, SEEDING AND TREE				
	PRESERVATION				
	Supply & Placing Topsoil	M^2	9524.00	\$8.00	\$76,192.00
	Hydraulic Seeding & Mulching	M^2	9524.00	\$6.00	\$57,144.00
02111	CLEARING & GRUBBING				
	Clearing	HA	2.70	\$2,000.00	\$5,400.00
	Grubbing	HA	2.70	\$8,000.00	\$21,600.00
02215	SITE WORK & SITE GRADING				
	Mass Common Excavation	M ³	4700.00	\$5.00	\$23,500.00
	USM Removal	M ³	1500.00	\$30.00	\$45,000.00
	Imported Glacial Till	M ³	27606.00	\$10.00	\$276,060.00
02233	SELECTED GRANULAR BASE & SUB-BASE				
	MATERIALS				
	Class "A" Granular Base	tonne	100.80	\$20.00	\$2,016.00
	Class "B" Granular Base	tonne	67.20	\$22.00	\$1,478.40
02552	HOT MIX ASPHALT CONCRETE PAVING				** .0
	Surface Course	tonne	36.00	\$150.00	\$5,400.00
02434	PIPE CULVERTS				
	Outlet Control Structure - Pre-Cast Concrete Headwall & Orifices	EACH	2.00	\$15,000.00	\$30,000.00

a) SUB TOTAL \$591,790.40
b) CONTINGENCY (10%) \$59,179.04
b) H.S.T. 15% of a & b. \$97,645.42
c) GRAND TOTAL \$748,614.86



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 COST ESTIMATE - SKIPPERS LANDING DETENTION POND BUDGET ESTIMATE: \$860,907.08

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB



SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
			CONSTRUCTION ENGINEERING TOTAL:		\$1,181,121.01 \$177,168.15 \$1,358,289.16
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION (Not greater than 5% if on the Island. Or 10% if in Labrador, of Item a. "sub-total" on last page)	LS	UNIT	\$5,000.00	\$5,000.00
01020	CASH ALLOWANCE Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS Flagperson's Wages	HOUR	1000.00	\$20.00	\$20,000.00
	DIVISION #2				
02104	LANDSCAPING, SEEDING AND TREE PRESERVATION Supply & Placing Topsoil	M^2	9500.00	\$8.00	\$76,000.00
	Hydraulic Seeding & Mulching	M^2	9500.00	\$6.00	\$57,000.00
02111	CLEARING & GRUBBING Clearing	НА	1.50	\$10,000.00	\$15,000.00
	Grubbing	НА	1.50	\$10,000.00	\$15,000.00
02215	SITE WORK & SITE GRADING Imported Glacial Till	M ³	68000.00	\$10.00	\$680,000.00
02233	SELECTED GRANULAR BASE & SUB-BASE MATERIALS				
	Class "A" Granular Base Class "B" Granular Base	tonne tonne	134.00 200.00	\$20.00 \$22.00	\$2,680.00 \$4,400.00
02552	HOT MIX ASPHALT CONCRETE PAVING Surface Course	tonne	72.00	\$150.00	\$10,800.00
02434	PIPE CULVERTS Supply & Placement of Aluminized or HDPE Culvert				
	2500mm Aluminized CSP	M	36.00	\$550.00	\$19,800.00
02574	RESHAPING & PATCHING ASPHALT PAVEMENT Removal of Asphalt Pavement	M ²	405.00	\$2.50	\$1,012.50
02481	CHANNEL EXCAVATION, CLEARING & DEEPENING				
	Channel Excavation Common	M³	350.00	\$20.00	\$7,000.00



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - ISLAND POND CATCHMENT BUDGET ESTIMATE: \$1,358,289.16

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB

a) SUB TOTAL \$933,692.50

b) CONTINGENCY (10%) \$93,369.25

b) H.S.T. 15% of a & b. \$154,059.26

c) GRAND TOTAL \$1,181,121.01



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - KENNEDY'S BROOK BUDGET ESTIMATE: \$174,419.40

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
			CONSTRUCTION ENGINEERING TOTAL:		\$151,669.05 \$22,750.36 \$174,419.40
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION (Not greater than 5% if on the Island. Or 10% if in Labrador, of Item a. "sub-total" on last page)	LS	UNIT	\$5,000.00	\$5,000.00
01020	CASH ALLOWANCE Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS Flagperson's Wages	HOUR	400.00	\$20.00	\$8,000.00
	DIVISION #2				
02104	LANDSCAPING, SEEDING AND TREE PRESERVATION				
	Supply & Placing Topsoil Hydraulic Seeding & Mulching	M ² M ²	2230.82 2230.82	\$8.00	\$17,846.56 \$13,384.92
02111	CLEARING & GRUBBING Clearing Grubbing	HA HA	0.50 0.50	\$10,000.00 \$10,000.00	\$5,000.00 \$5,000.00
02215	SITE WORK & SITE GRADING Imported Glacial Till	M ³	2420.00	\$10.00	\$24,200.00
02233	SELECTED GRANULAR BASE & SUB-BASE MATERIALS Class "A" Granular Base	tonne	119.00	\$20.00	\$2,380.00
02552	Class "B" Granular Base HOT MIX ASPHALT CONCRETE PAVING	tonne	180.00	\$22.00	\$3,960.00
02434	Surface Course PIPE CULVERTS	tonne	60.00	\$150.00	\$9,000.00
	Supply & Placement of Aluminized or HDPE Culvert 1200mm Aluminized CSP	M	12.00	\$400.00	\$4,800.00
02574	RESHAPING & PATCHING ASPHALT PAVEMENT Removal of Asphalt Pavement	M^2	530.00	\$2.50	\$1,325.00

a) SUB TOTAL \$119,896.48



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - KENNEDY'S BROOK BUDGET ESTIMATE: \$174,419.40

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB

b) CONTINGENCY (10%) \$11,989.65

b) H.S.T. 15% of a & b. \$19,782.92

c) GRAND TOTAL \$151,669.05



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 COST ESTIMATE - WATTS POND UPGRADES BUDGET ESTIMATE: \$404,478.69

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
			CONSTRUCTIO	ON COST:	\$351,720.60
			ENGINEERING	; :	\$52,758.09
			TOTAL:		\$404,478.69
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION	LS	UNIT	\$12,000.00	\$12,000.00
* - * - *	(Not greater than 5% if on the Island. Or 10% if in			4-2,000	4,
	Labrador, of Item a. "sub-total" on last page)				
01020	CASH ALLOWANCE				
	Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS				
	Flagperson's Wages	HOUR	600.00	\$20.00	\$12,000.00
	DIVISION #2				
02111	CLEARING & GRUBBING				
	Clearing	HA	1.55	\$2,000.00	\$3,100.00
	Grubbing	НА	1.55	\$8,000.00	\$12,400.00
02434	PIPE CULVERTS				
	1400mm Aluminized CSP	M	28.00	\$425.00	\$11,900.00
	Outlet Control Structure - Pre-Cast Concrete Headwall & Orifices	EACH	2.00	\$15,000.00	\$30,000.00
02481	CHANNEL EXCAVATION, CLEARING &				
	DEEPENING				
	Channel Excavation				
	Common	M³	8832.00	\$20.00	\$176,640.00

a) SUB TOTAL \$278,040.00
b) CONTINGENCY (10%) \$27,804.00
b) H.S.T. 15% of a & b. \$45,876.60
c) GRAND TOTAL \$351,720.60



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - WHITEWAY POND BUDGET ESTIMATE: \$532,792.92

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
			CONSTRUCTION COST: ENGINEERING: TOTAL:		
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION (Not greater than 5% if on the Island. Or 10% if in Labrador, of Item a. "sub-total" on last page)	LS	UNIT	\$5,000.00	\$5,000.00
01020	CASH ALLOWANCE Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS Flagperson's Wages	HOUR	400.00	\$20.00	\$8,000.00
	DIVISION #2				
02104	LANDSCAPING, SEEDING AND TREE PRESERVATION Supply & Placing Topsoil Hydraulic Seeding & Mulching	M ² M ²	3032.00 3032.00	\$8.00	\$24,256.00 \$18,192.00
02111	CLEARING & GRUBBING	НА	0.84	\$10,000.00	\$8,400.00
	Clearing Grubbing	HA HA	0.84	\$10,000.00	\$8,400.00
02215	SITE WORK & SITE GRADING Imported Glacial Till	M³	6254.44	\$40.00	\$250,177.60
02233	SELECTED GRANULAR BASE & SUB-BASE MATERIALS				_
	Class "A" Granular Base Class "B" Granular Base	tonne tonne	136.06 90.71	\$20.00 \$22.00	\$2,721.20 \$1,995.53
02552	HOT MIX ASPHALT CONCRETE PAVING Surface Course	tonne	48.59	\$150.00	\$7,288.80
02434	PIPE CULVERTS Supply & Placement of Aluminized or HDPE Culvert				
	800mm Aluminized CSP 2.8mm or 320kPa HDPE	M	36.00	\$300.00	\$10,800.00
02574	RESHAPING & PATCHING ASPHALT PAVEMENT Removal of Asphalt Pavement	M²	405.00	\$2.50	\$1,012.50

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\$366,243.63

a) SUB TOTAL



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - WHITEWAY POND BUDGET ESTIMATE: \$532,792.92

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB

b) CONTINGENCY (10%)

\$36,624.36

b) H.S.T. 15% of a & b.

\$60,430.20

c) GRAND TOTAL

\$463,298.19



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - BIG RIVER CATCHMENT BUDGET ESTIMATE: \$429,005.78

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB
		CONSTRUCTION COST: ENGINEERING: TOTAL:			
	DIVISION #1				
01010	MOBILIZATION & DEMOBILIZATION (Not greater than 5% if on the Island. Or 10% if in Labrador, of Item a. "sub-total" on last page)	LS	UNIT	\$5,000.00	\$5,000.00
01020	CASH ALLOWANCE Misc Works as Directed by Owner	Allowance	Allowance	\$20,000.00	\$20,000.00
01570	TRAFFIC REGULATIONS Flagperson's Wages	HOUR	600.00	\$20.00	\$12,000.00
	DIVISION #2				
02104	LANDSCAPING, SEEDING AND TREE PRESERVATION Supply & Placing Topsoil Hydraulic Seeding & Mulching	$\frac{M^2}{M^2}$	3219.00 3219.00	\$8.00 \$6.00	\$25,752.00 \$19,314.00
02111	CLEARING & GRUBBING Clearing Grubbing	HA HA	1.38 1.38	\$10,000.00 \$10,000.00	\$13,800.00 \$13,800.00
02215	SITE WORK & SITE GRADING Imported Glacial Till	M³	12528.00	\$10.00	\$125,280.00
02233	SELECTED GRANULAR BASE & SUB-BASE MATERIALS Class "A" Granular Base	tonne	235.00	\$20.00	\$4,700.00
02552	Class "B" Granular Base HOT MIX ASPHALT CONCRETE PAVING Surface Course	tonne	157.00 84.00	\$22.00	\$3,454.00
02434	PIPE CULVERTS Supply & Placement of Aluminized or HDPE Culvert 1200mm Aluminized CSP	М	32.00	\$400.00	\$12,800.00
02574	2000mm Aluminized CSP 2000mm Aluminized CSP RESHAPING & PATCHING ASPHALT PAVEMENT Removal of Asphalt Pavement	M M	14.00 700.00	\$475.00 \$2.50	\$6,650.00
02481	CHANNEL EXCAVATION, CLEARING & DEEPENING Channel Excavation				
	Common	M ³	900.00	\$20.00	\$18,000.00



PROJECT: TORBAY STORMWATER MANAGEMENT PLAN JOB #:2018-021 PRELIMINARY COST ESTIMATE - BIG RIVER CATCHMENT BUDGET ESTIMATE: \$429,005.78

SECTION	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL
REV:A	ISSUED FOR APPROVALS	DATE:	20-Jun-19	APPROVED BY:	VB

a) SUB TOTAL \$294,900.00

b) CONTINGENCY (10%) \$29,490.00

b) H.S.T. 15% of a & b. \$48,658.50

c) GRAND TOTAL \$373,048.50

APPENDIX 'J' TOWN OF TORBAY ZONING MAP

