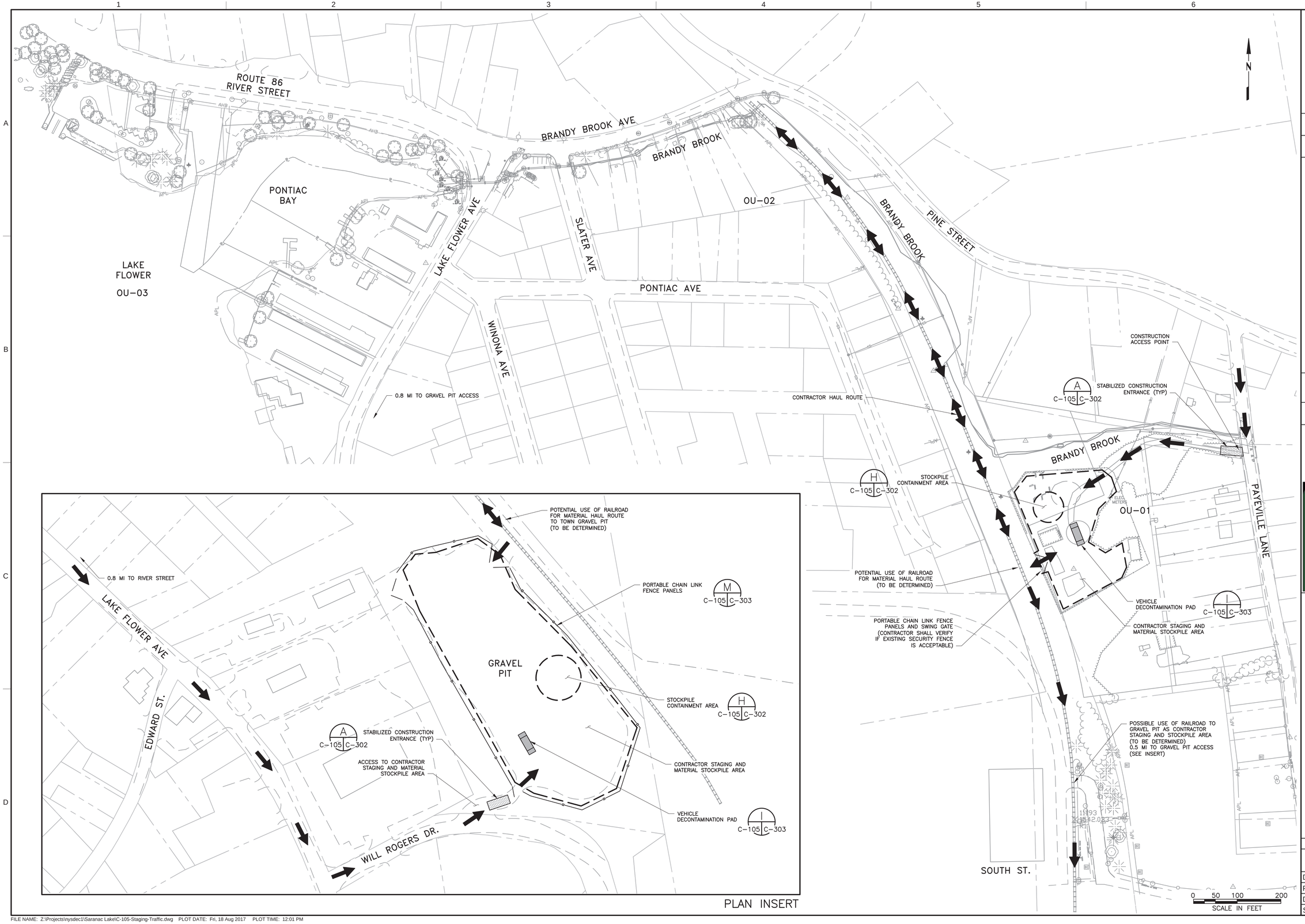

PLAN INSERT

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	PERMITTING		CHL	MJS
		30% DESIGN		MAP	MJS
		REVISION		BY	APVD

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 1071 11 Commercial Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

CIVIL

CONASTRUCTION STAGING AND TRAFFIC PLAN

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-105
SHEET	7 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-105-Staging-Traffic.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 12:01 PM

NOTES:

1. SEE NOTES, LEGEND AND ABBREVIATIONS DRAWING G-002.
2. SEE EROSION AND SEDIMENT CONTROL NOTES DRAWING C-301, AND EROSION AND SEDIMENT CONTROL DETAILS DRAWING C-302.

MATCH LINE – SEE DWG. C-107

BRANDY BROOK AVE.

SLATER AVE.

PINE ST

BRANDY BROOK FLOW

CONSTRUCTION BASELINE (SEE SECTIONS) (TYP)

TEMPORARY ROCK CHECK DAM/COFFERDAM/BLADDER DAM W/ TURBIDITY CURTAIN INSTALLED IMMEDIATELY DOWNSTREAM OF BY-PASS DISCHARGE (TYP)

REMEDIATION CENTERLINE (SEE PROFILES) (TYP)

MGP WASTE LIMIT (TYP)

MAPPED WETLANDS (TYP)

SILT FENCE/AUGMENTED SILTATION FENCE

STABILIZED CONSTRUCTION ENTRANCE

SILT FENCE

INSET MATCH LINE

MATCH LINE – SEE INSET

INSET

CB 31 N 2000521.90 E 591344.32 EL 1536.65

CB 32 N 2000531.38 E 591545.50 EL 1541.76

CBP 33 N 2000336.05 E 591760.14 EL 1542.59

BM BB2 "X" CUT HEADWALL EL 1535.86

BM "X" FLANGE BOLT EL 1542.59

BM "X" CUT HEADWALL EL 1548.42

MH RIM 1543.78

MH RIM 1542.30

MH RIM 1535.8

SMH RIM 1542.02

SMH RIM 1542.48

SMH RIM 1542.20 INV N: 1534.90 INV S: 1534.80

SMH RIM 1543.30 INV N: 1535.40 INV S: 1535.55

SMH RIM 1542.30 INV N: 1535.10 INV S: 1535.05

SMH RIM 1543.79 INV N: 1536.20 INV S: 1536.30

CB RIM 1532.98 INV W: 1528.96 INV E: 1529.05

CB RIM 1532.9 INV 1530.29

CB RIM 1544.87

4'x5.5' CULVERT W/ HEADWALL INV. 1535.1

2'x2' CULVERT INV. 1532.4 (DEBRIS FILLED)

INV. 1533.7 (DEBRIS FILLED)

INV. 1532.7 (DEBRIS FILLED)

24" PCP INV. 1529.9

24" PCP INV. 1533.0 (DEBRIS FILLED)

24" PCP INV. 1533.2 (DEBRIS FILLED)

24" PCP INV. 1530.0

24" PCP INV. 1532.7 (DEBRIS FILLED)

30" CMP INV. 1533.9 (DEBRIS FILLED)

INV. 1535.0

INV. 1537.0

CARLENE K CLOUD (REPUTED OWNER) L. 1340/ P. 130 TM#32.215-4-1

DAVID J MUNN ANNE M MUNN (REPUTED OWNERS) L. 1584/ P. 308 TM#32.215-4-2

NYSARC INC (REPUTED OWNER) L. 1276/ P. 224 TM#32.215-4-3

KARL CAMERON (REPUTED OWNER) L. 1820/ P. 264 TM#32.215-4-4

GEORGE C TOLHURST (REPUTED OWNER) L. 1802/ P. 90 TM#32.215-4-5

BARBARA K KENT (REPUTED OWNER) L. 1117/ P. 49 TM#32.215-4-6

MARK S NASON KARLA NASON (REPUTED OWNERS) L. 884/ P. 333 TM#32.215-6-5

TRUSTEES VILLAGE SARANAC INKE (REPUTED OWNER) L. 947/ P. 87 TM#32.215-6-1

GREGORY PEACOCK (REPUTED OWNER) L 1366 P 74 T.M. 32.215-6-2

GREGORY PEACOCK (REPUTED OWNER) L 1028 P 127 T.M. 32.215-6-3

GREGORY PEACOCK (REPUTED OWNER) T.M. 32.232-1-1.000

SHANE S. FOX (REPUTED OWNER) L 1134 P 75 T.M. 32.232-1-2

RANDOLPH SMITH & LYNN SMITH (REPUTED OWNER) L 884 P 333 T.M. 32.232-1-5

ESSEX COUNTY (REPUTED OWNER) L 1413 P 194 T.M. 32.232-1-15

JANICE M. GAUTHIER (REPUTED OWNER) L 844 P 112 T.M. 32.232-1-6

ROBERT & MARY L. OHMANN (REPUTED OWNER) L 656 P 120

THE PEOPLE OF THE STATE OF NEW YORK (UNDER THE JURISIDICTION OF DORMITORY AUTHORITY OF THE STATE OF

A COLLIER RA L COLLIER TED OWNERS) 337/ P. 66 .231-1-14.1

1-STORY WOOD FRAME

CONC. PAD (REMAINS)

APPROX. LOCATION OF CONC. PAD (REMAINS)

PAYEVILLE LANE

STREET BOUNDARY

CHAIN LINK FENCE

BLDG NO. NUMS

0 20 40 80
SCALE IN FEET

NO.	DATE	DSGN	CHK	APVD
A	8/22/17	CHL	BY	APVD
		MJS	WJW	MJS

PERMITTING REVISION

MAP DR MAP

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NEW YORK OPPORTUNITY

Department of Environmental Conservation

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NYSDEC SITE NUMBER - 516008

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MACTEC

CIVIL

EROSION AND SEDIMENT CONTROL PLAN
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	AUG 2017
PROJ	3611-16-1193
DWG	C-106
SHEET	8 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-106-ESCP OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 12:03 PM

NO.	DATE	DSGN	CHK	APVD
A	8/22/17	MAP	WJW	MAP
		DR	CHL	MJS
			MJS	BY

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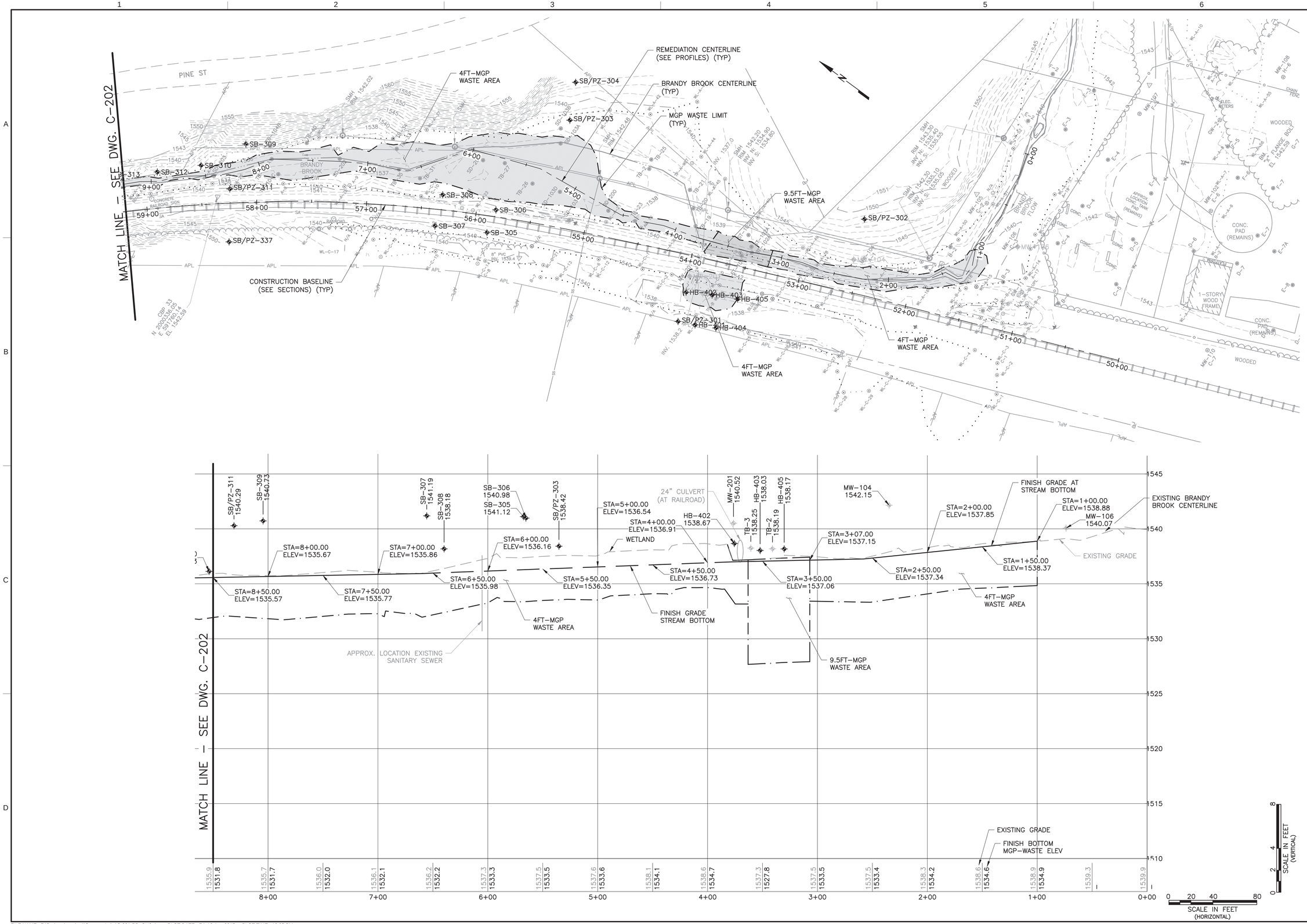
CIVIL

EROSION AND SEDIMENT CONTROL PLAN OU03

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JULY 2017
PROJ	3611-16-1193
DWG	C-107
SHEET	9 OF 29



NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17		MAP	WJW	MJS
A	4/20/17		MAP	CHL	MJS
				MAP	MJS
				BY	APVD

PERMITTING
30% DESIGN
REVISION

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
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SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
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(207) 775-5401

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CIVIL

EXCAVATION PLAN AND PROFILE OU02

VERIFY SCALE

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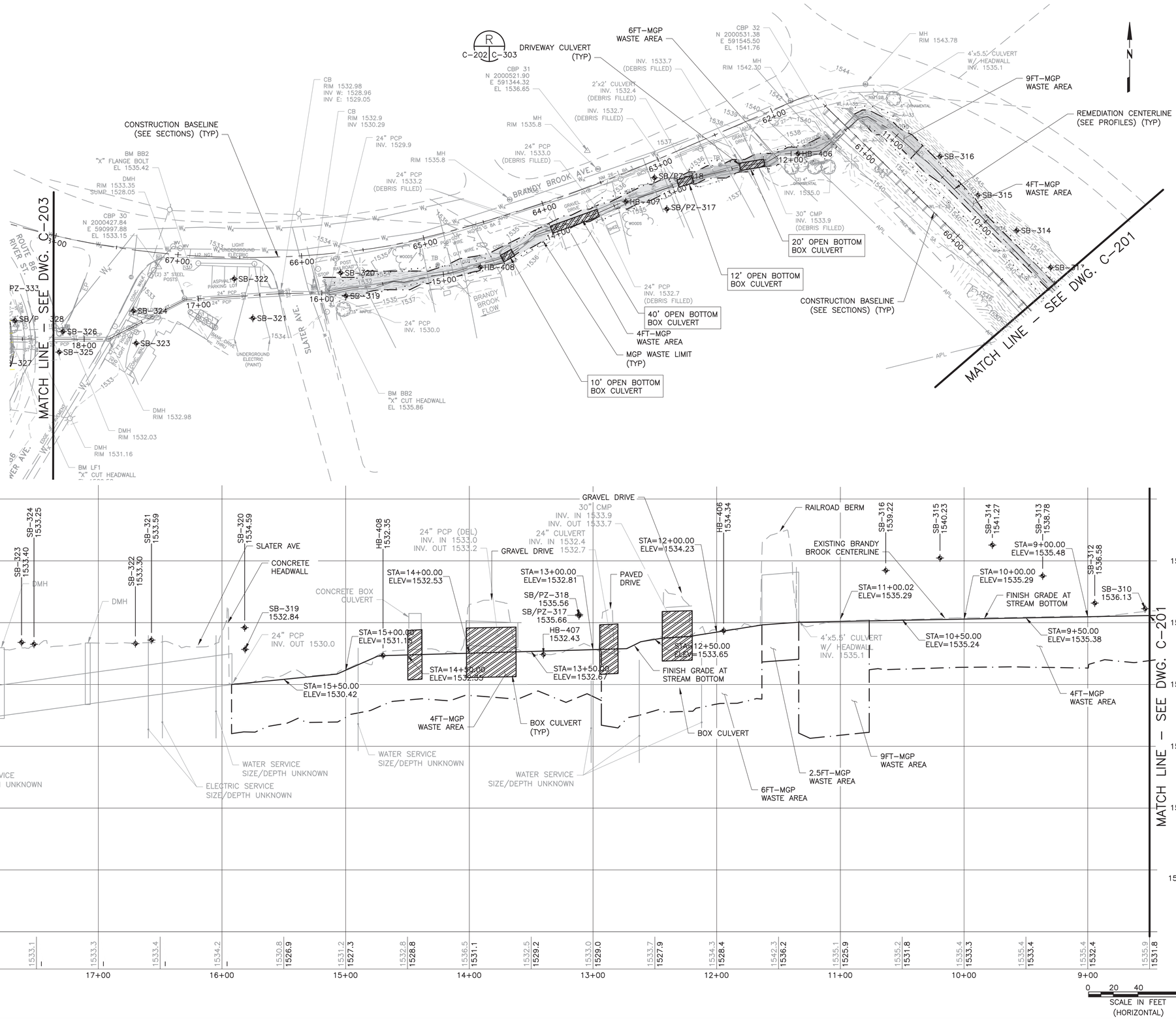
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-201
SHEET	10 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-201-PP- OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 12:07 PM



NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	MAP	WJW	MJS
A	4/20/17	CHL	MJS	MAP	MJS
		MAP	MJS	BY	APVD

PERMITTING
30% DESIGN
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NEW YORK Department of Environmental Conservation

REMEDIAL ACTION
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SARANAC LAKE, NEW YORK
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EXCAVATION PLAN AND PROFILE OU02

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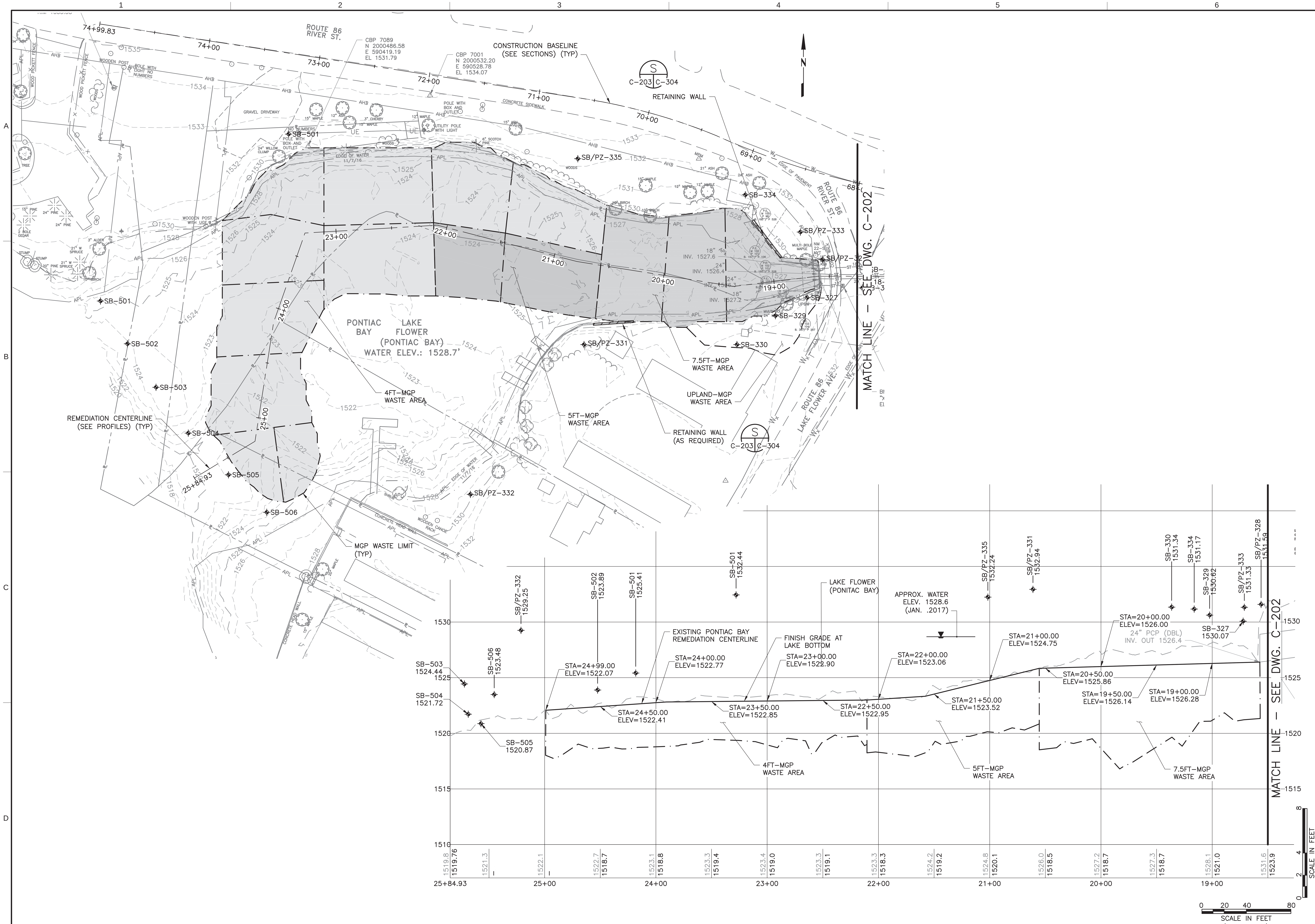
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-202
SHEET	11 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-202-PP- OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 12:11 PM



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NO.	DATE	REVISION	BY	CHK	APVD
B	8/22/17	PERMITTING	MAP	CHL	MJS
A	4/20/17	30% DESIGN	MAP	MAP	MJS

DSGN MAP DR WJW CHK MAP APVD MJS

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

REMEDIAL ACTION
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SARANAC LAKE, NEW YORK
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EXCAVATION PLAN AND PROFILE OU3

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-203
SHEET	12 OF 29

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (STATE STANDARDS) AND THE CONTRACT DOCUMENTS, SPECIFICALLY:

   - SPECIFICATION SECTION 02370 EROSION AND SEDIMENTATION CONTROL;
   - DRAWING C–106, EROSION AND SEDIMENT CONTROL PLAN – OU01;
   - DRAWING C–107, EROSION AND SEDIMENT CONTROL PLAN – OU02;
   - DRAWING C–108, EROSION AND SEDIMENT CONTROL PLAN – OU03;
   - DRAWING C–301, EROSION AND SEDIMENT CONTROL NOTES ; AND
   - DRAWING C–302, EROSION AND SEDIMENT CONTROL DETAILS.

2. REFER TO CONSTRUCTION SEQUENCING NOTES ON DRAWING G–002, NOTES, LEGEND AND ABBREVIATIONS.

3. IF A DISCREPANCY EXISTS BETWEEN THE STATE STANDARDS AND THE CONTRACT DOCUMENTS, THE STATE STANDARDS SHALL TAKE PRECEDENCE.

4. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

5. EROSION AND SEDIMENTATION CONTROLS SHALL BE AUGMENTED OR SUPPLEMENTED IF THE INSTALLED MEASURES DO NOT PROVIDE ADEQUATE PROTECTION OF DOWNSTREAM RESOURCES AS DETERMINED BY THE ENGINEER OR DEPARTMENT.

6. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN FOURTEEN (14) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING AND MULCHING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH HAY OR STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.

7. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES AND TRIBUTARY/CREEK BANKS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH HAY OR STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.

8. ANY STEEP SLOPES (I.E. SLOPES GREATER THAN 3:1) WILL BE COMPLETELY GRADED AND STABILIZED DAILY, AS CONSTRUCTION PROGRESSES.

9. THE STANDARD FOR STABILIZED CONSTRUCTION ENTRANCE REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE.

10. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF WORK OR ONTO PUBLIC RIGHT–OF–WAYS SHALL BE REMOVED IMMEDIATELY.

11. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS AS SOON AS POSSIBLE AFTER FINAL GRADING. IF SEEDING IS NOT PERFORMED WITHIN 48 HOURS OF COMPLETION OF FINAL GRADING, ADDITIONAL SURFACE SCARIFICATION SHALL BE COMPLETED PRIOR TO SEEDING.

12. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS TO BE UNDERTAKEN, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROWTH SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE TO SUSTAIN VEGETATIVE GROWTH. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON–VEGETATIVE MEANS OF PERMANENT STABILIZATION SHALL BE EMPLOYED.

13. DEWATERING OPERATIONS SHALL BE UNDERTAKEN IN A MANNER TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE SPECIFICATIONS.

14. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED PER THE STATE STANDARDS. CALCIUM CHLORIDE SHALL ONLY BE USED FOR DUST CONTROL DURING FREEZING CONDITIONS.

15. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF WORK WITH APPROPRIATE PROTECTIVE EROSION AND SEDIMENTATION CONTROLS.

16. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH GENERAL EROSION AND SEDIMENT CONTROL NOTE NO. 4.

17. STABILIZED PLUNGE POOLS/SCOUR PADS MUST BE INSTALLED AT ALL TEMPORARY TRIBUTARY BYPASS SYSTEM DISCHARGE LOCATIONS AND/OR CONSTRUCTION WATER DISCHARGE LOCATIONS PRIOR TO THE DISCHARGE BECOMING OPERATIONAL.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR DOWNGRADIENT OF STORMWATER OUTFALLS/OUTLETS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

SOIL EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE:

1. STABILIZED CONSTRUCTION ENTRANCE

   A. STABILIZED CONSTRUCTION ENTRANCES SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.

   B. STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES. CHECK FOR DAMAGE/DETERIORATION/CLOGGING AND IMMEDIATELY REPAIR OR RECONSTRUCT AS NECESSARY.

   C. THE PERFORMANCE OF STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED BY LENGTHENING, SCRAPING, OR TOP–DRESSING WITH ADDITIONAL AGGREGATE.

   D. STABILIZED CONSTRUCTION ENTRANCES SHALL HAVE A 6–INCH MINIMUM THICKNESS.

   E. INSPECT ADJACENT IMPERVIOUS SURFACES DAILY (MINIMUM). IMMEDIATELY REMOVE VISIBLE ACCUMULATED SEDIMENT DEPOSITED ON PAVED SURFACES VIA SWEEPING, VACUUMING, OR WASHING. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. PROPERLY DISPOSE OF SEDIMENT.

2. SEDIMENT BARRIERS

   A. SILTATION FENCE

      A.1. SILTATION FENCES SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.

      A.2. REMOVE THE SEDIMENT DEPOSITS OR INSTALL A SECONDARY BARRIER UPSLOPE FROM THE EXISTING BARRIER WHEN SEDIMENT DEPOSITS REACH ONE HALF THE HEIGHT OF THE FENCE. PROPERLY DISPOSE OF SEDIMENT.

      A.3. REPLACE OR REPAIR FENCES WITHIN 24 HOURS OF OBSERVED FAILURE (E.G., DAMAGE OR DECOMPOSITION; FENCE MOVED OUT OF POSITION; UNDERCUTTING, OVERTOPPING, OR FLOW CHANNELS AROUND THE END OF FENCES).

      A.4. MAINTAIN SILTATION FENCES UNTIL THE CONTRIBUTING AREA IS STABILIZED.

   B. AUGMENTED SILTATION FENCE

      B.1. AUGMENTED SILTATION FENCES SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24– HOUR PERIOD.

      B.2. REMOVE THE SEDIMENT DEPOSITS OR INSTALL A SECONDARY BARRIER UPSLOPE FROM THE EXISTING BARRIER WHEN SEDIMENT DEPOSITS REACH ONE HALF THE HEIGHT OF THE FENCE. PROPERLY DISPOSE OF SEDIMENT.

      B.3. REPLACE OR REPAIR FENCES WITHIN 24 HOURS OF OBSERVED FAILURE (E.G., DAMAGE OR DECOMPOSITION; FENCE MOVED OUT OF POSITION; UNDERCUTTING, OVERTOPPING, OR FLOW CHANNELS AROUND THE END OF FENCES).

      B.4. RESHAPE, ADD ADDITIONAL MATERIAL, OR REPLACE FILTER BERM WHEN DISTURBED BY CONSTRUCTION ACTIVITIES OR SIGNIFICANT STORM EVENTS.

      B.5. MAINTAIN AUGMENTED SILTATION FENCES UNTIL THE CONTRIBUTING AREA IS STABILIZED.

   C. FILTER BERMS

      C.1. FILTER BERMS, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24– HOUR PERIOD.

      C.2. REMOVE THE SEDIMENT DEPOSITS FROM THE BARRIER WHEN SEDIMENT DEPOSITS REACH ONE HALF THE HEIGHT OF THE FENCE. PROPERLY DISPOSE OF SEDIMENT.

      C.3. REPLACE OR REPAIR BERMS WITHIN 24 HOURS OF OBSERVED FAILURE (E.G., DAMAGE OR DECOMPOSITION, BERM MATERIAL DISPLACED, OVERTOPPING, OR FLOW AROUND THE END OF BERM).

      C.4. RESHAPE, ADD ADDITIONAL MATERIAL, OR REPLACE FILTER BERM WHEN DISTURBED BY CONSTRUCTION ACTIVITIES OR SIGNIFICANT STORM EVENTS.

      C.5. MAINTAIN FILTER BERMS UNTIL THE CONTRIBUTING AREA IS STABILIZED

3. TURBIDITY BARRIER

   A. TURBIDITY BARRIER, AT A MINIMUM, BE INSPECTED DAILY. IF THE CURTAIN IS ORIENTED IN A MANNER THAT FACES THE PREVAILING WIND, FREQUENTS CHECKS OF THE ANCHORAGE SYSTEM SHALL BE CONDUCTED.

   B. IMMEDIATELY REPAIR OR REPLACE DAMAGED CURTAIN, BUOYS, OR ANCHORAGES.

   C. DURING DREDGING OPERATIONS, REAL–TIME TURBIDITY MONITORING WILL BE CONDUCTED WITH A BUOY–BASED TURBIDITY MONITORING SYSTEM AND DATA REVIEWED ON AN HOURLY BASIS. DISCONTINUE DREDGING OPERATIONS WHEN DATA INDICATES EXCEEDANCE TO THE ESTABLISHED NTU LIMITS ARE EXCEEDED ON OUTSIDE OF BARRIER. MAKE MODIFICATIONS TO TURBIDITY BARRIER TO ACHIEVE ACCEPTABLE PERFORMANCE.

   C. MAINTAIN TURBIDITY BARRIER SYSTEMS UNTIL THE REMEDIATION AND RESTORATION ACTIVITIES ARE COMPLETED FOR THE BAY AND SHORELINE AND TURBIDITY BARRIER SYSTEM IS NO LONGER REQUIRED.

4. TEMPORARY BYPASS SYSTEMS

   A. TEMPORARY BYPASS SYSTEMS SHALL, AT A MINIMUM, BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.

   B. MAINTAIN TEMPORARY BYPASS SYSTEMS UNTIL THE REMEDIATION AND RESTORATION ACTIVITIES ARE COMPLETED FOR EACH PHASE OF WORK AND TEMPORARY TRIBUTARY BYPASS SYSTEM IS NO LONGER REQUIRED.

   C. TEMPORARY CONVEYANCES SHOULD BE COMPLETELY REMOVED AT THE COMPLETION OF BROOK OR BAY RESTORATION.

5. STABILIZED PLUNGE POOL/SCOUR PAD.

   A. STABILIZED PLUNGE POOL/SCOUR PAD, AT A MINIMUM, BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.

   B. REPLACE OR REPAIR POOL/PAD WITHIN 24 HOURS OF OBSERVED FAILURE (E.G., MOVED STONE, ERODED SOIL AROUND OR UNDER THE POOL/PAD, DEPOSITED SEDIMENT). TRIBUTARY BYPASS DISCHARGE SHALL BE SUSPENDED UNTIL THE REPAIR IS COMPLETE.

6. CHECK DAMS

   A. CHECK DAMS SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD.

   B. REPLACE OR REPAIR CHECK DAMS WITHIN 24 HOURS OF OBSERVED FAILURE (E.G., MOVED STONE, ERODED SOIL AROUND OR UNDER THE CHECK DAM, TRAPPED SEDIMENTS OVERTOPPING CHECK DAM).

   C. UNLESS INCORPORATED INTO A PERMANENT STORMWATER MANAGEMENT SYSTEM, CHECK DAMS SHALL BE REMOVED ONCE THE FINAL GRADING AND CHANNEL STABILIZATION IS APPLIED.

   D. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE CHECK DAM. REMOVAL OF SEDIMENT MAY REQUIRE REPLACEMENT OF STONE. PROPERLY DISPOSE OF SEDIMENT.

7. ODOR CONTROL

   A. THE PROJECT SITE AND ADJACENT RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL, AT A MINIMUM, DUST CONTROL SHALL BE CONDUCTED AT ALL TIMES DURING EXCAVATION AND HANDLING OF IMPACTED SOIL AND SEDIMENT.

   B. AIR MONITORING WILL BE CONDUCTED AT THE PERIMETER OF THE WORK AREA BE CONDUCTED TO MEASURE AMOUNTS OF VOLATILE ORGANIC COMPOUNDS (VOCS) ASSOCIATED WITH MGP WASTE, INCLUDING BENZENE AND NAPHTHALENE, ANTICIPATED TO BE RELEASED DURING THE RA.

   C. APPLY ODOR CONTROL MEASURES BASED ON AIR MONITORING READINGS OR WHEN ODOR BECOMES VISUALLY EVIDENT.

   D. ODOR CONTROL MEASURES INCLUDE APPLYING HYDROCARBON VAPOR SUPPRESSING AGENTS, DETERGENTS, OR ODOR–SUPPRESSING FOAMS TO DREDGED SEDIMENTS, ACTIVE IN–SITU STABILIZATION AREAS, AND STOCKPILED WASTES, AND IF SEDIMENT STABILIZATION IS REQUIRED TO MEET DISPOSAL FACILITY REQUIREMENTS, CONDUCTING THE STABILIZATION OPERATIONS IN A TEMPORARY ENCLOSURE.

8. DUST CONTROL

   A. THE PROJECT SITE AND ADJACENT RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL, AT A MINIMUM, DUST CONTROL SHALL BE CONDUCTED AT ALL TIMES DURING EXCAVATION AND HANDLING OF IMPACTED SOIL AND SEDIMENT.

   B. AIR MONITORING WILL BE CONDUCTED AT THE PERIMETER OF THE WORK AREA TO DETERMINE WHEN ENGINEERING CONTROLS (E.G., WATER SPRAY, COVERING STOCKPILES) ARE REQUIRED TO SUPPRESS DUST EMISSION DURING THE EXECUTION OF THE WORK.

   C. APPLY DUST CONTROL MEASURES WHEN FUGITIVE DUST BASED AIR MONITORING READINGS OR DUST BECOMES VISUALLY EVIDENT.

9. TEMPORARY SEEDING AND MULCHING

   A. AREAS RECEIVING TEMPORARY SEEDING AND MULCHING SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.

   B. WHERE SEED/MULCH HAS MOVED OR SOIL EROSION HAS OCCURRED, REPAIR THE AREA APPROPRIATELY AND RE–APPLY SEED AND/OR MULCH. APPLY NETTING, TACKIFIER, OR OTHER ANCHORING TECHNIQUES AS NECESSARY TO PREVENT FAILURE. ADDITIONAL TEMPORARY MEASURES MAY ALSO BE INSTALLED TO CONTROL STORMWATER RUNOFF AND SEDIMENT MOVEMENT.

   C. CONTINUE INSPECTION AND MAINTENANCE OF AREAS RECEIVING TEMPORARY SEEDING AND MULCHING UNTIL AT LEAST 90% OF THE SOIL SURFACE IS BE COVERED BY MATURE, ESTABLISHED VEGETATION CAPABLE OF CONTROLLING SOIL EROSION AND SURVIVING SEVERE WEATHER.

10. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED ONCE DISTURBED AREAS ARE STABILIZED WITH PERMANENT ESTABLISHED VEGETATION, PAVEMENT, RIPRAP, OR GRAVEL.

NO.	DATE	DSGN	DR	CHK
B	8/22/17	MAP	WJW	APVD
A	4/20/17	MAP	MAP	APVD

PERMITTING
30% DESIGN
REVISION

CHL MJS
MAP MJS
BY APVD MJS

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NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
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(207) 775–5401

MACTEC

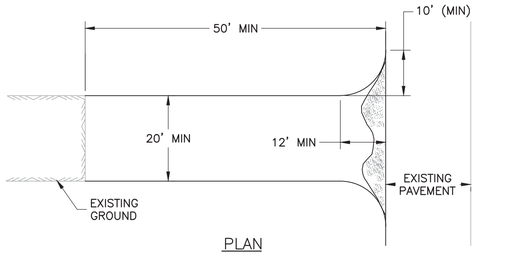
CIVIL

EROSION AND SEDIMENT CONTROL NOTES

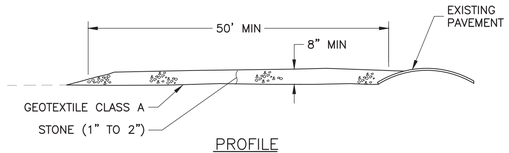
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-301
SHEET	13 OF 29



PLAN

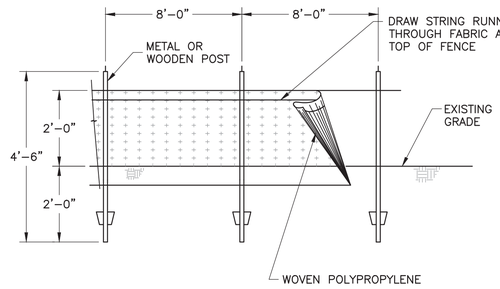


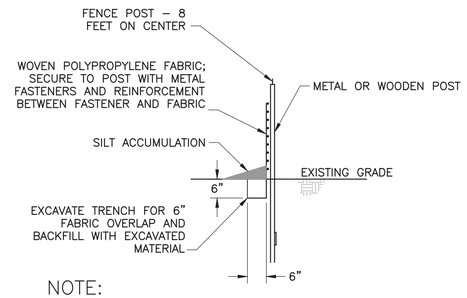
PROFILE

STABILIZED CONSTRUCTION ENTRANCE (A)

NTS

TYP C-302





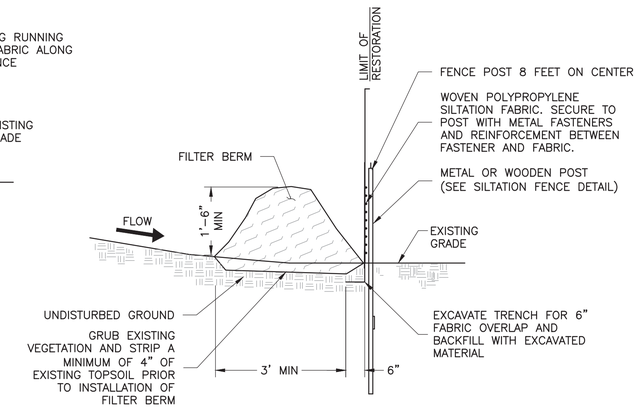
NOTE:

WHERE REQUIRED AT CRITICAL LOCATIONS, AUGMENTED SILT FENCE OR SILTATION FENCE REINFORCED WITH HOG OR CHICKEN WIRE OR INTEGRAL PLASTIC MESH REINFORCING MAY BE USED.

SILT FENCE (B)

NTS

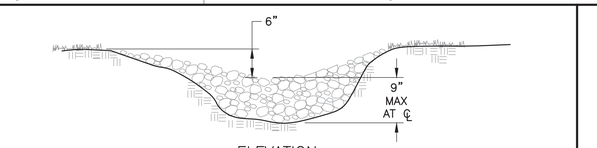
TYP C-302



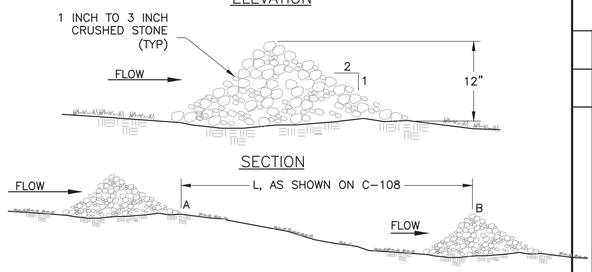
AUGMENTED SILTATION FENCE (C)

NTS

TYP C-302



ELEVATION

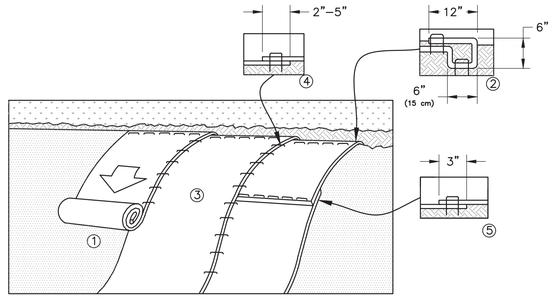


PROFILE

TEMPORARY STONE CHECK DAM (D)

NTS

C-108 C-302



NOTES:

1. PREPARE TOPSOIL BEFORE INSTALLING MATTING, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED TOPSOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED TOPSOIL. SECURE BLANKET OVER COMPACTED GROWING MEDIUM WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE MATTING DOWN THE SLOPE. MATTING WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE TOPSOIL SURFACE. ALL MATTING MUST BE SECURELY FASTENED TO TOPSOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING MANUFACTURER STAPLE PATTERN MARKING, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED MARKS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL MATTING MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON MATTING TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING MATTING (MATTING BEING INSTALLED ON TOP) EVEN WITH THE SEAM ON THE PREVIOUSLY INSTALLED MATTING.
5. CONSECUTIVE MATTING SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE MATTING WIDTH.
6. DETAIL PROVIDED BY NORTH AMERICAN GREEN ®.
7. INSTALL ON ALL FINAL STABILIZED UPLAND SURFACES TO BE VEGETATED WITH SLOPES STEEPER THAN 10H:1V AND UPLAND VEGETATED DRAINAGE SWALES.

BIODEGRADABLE EROSION CONTROL MATTING (E)

NTS

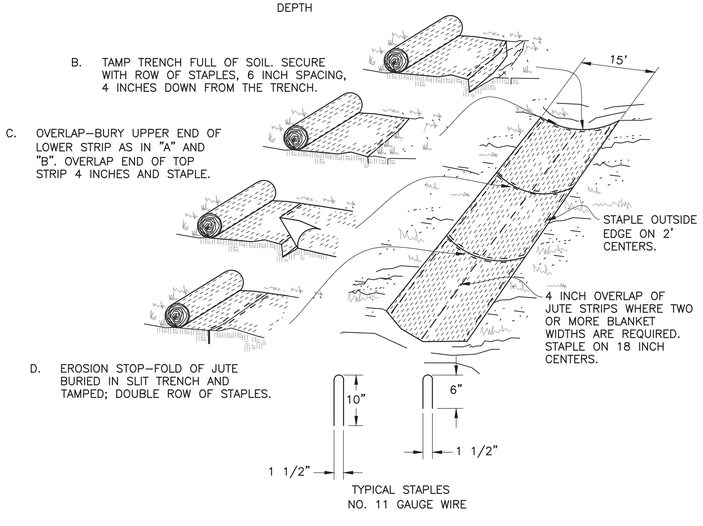
TYP C-302

A. BURY THE TOP END OF THE JUTE STRIPS IN A TRENCH 6 INCHES OR MORE IN DEPTH

B. TAMP TRENCH FULL OF SOIL. SECURE WITH ROW OF STAPLES, 6 INCH SPACING, 4 INCHES DOWN FROM THE TRENCH.

C. OVERLAP-BURY UPPER END OF LOWER STRIP AS IN "A" AND "B". OVERLAP END OF TOP STRIP 4 INCHES AND STAPLE.

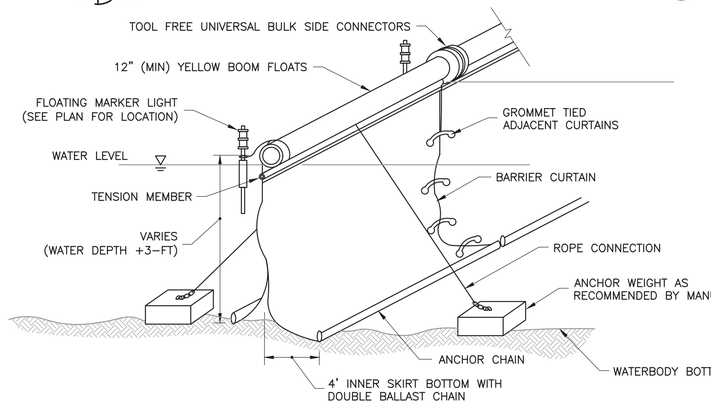
D. EROSION STOP-FOLD OF JUTE BURIED IN SLIT TRENCH AND TAMPED; DOUBLE ROW OF STAPLES.



EROSION CONTROL BLANKET ON SWALE (F)

NTS

TYP C-302



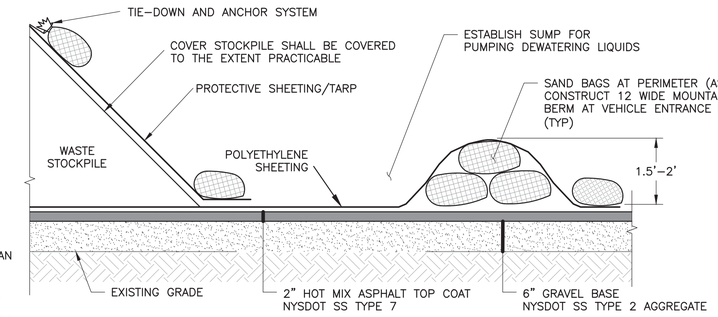
NOTES:

1. PLACE TURBIDITY BARRIER IMMEDIATELY DOWNSTREAM OF BYPASS DISCHARGE.
2. TURBIDITY BARRIER SHALL BE DEPLOYED PRIOR TO DREDGING OR DISTURBING UPLAND SOILS.

TURBIDITY CURTAIN (G)

NTS

TYP C-302



NOTES:

1. GEOMEMBRANE COVER IS NOT REQUIRED FOR STOCKPILES OF CERTIFIED CLEAN MATERIAL; THEY MAY BE USED AS DUST CONTROL MEASURE.
2. SOIL/SEDIMENT STOCKPILE SHALL BE COVERED TO THE EXTENT PRACTICABLE.
3. SOIL/SEDIMENT STOCKPILE SHALL BE LOCATED WITHIN TEMPORARY CONTRACTOR STAGING AND STORAGE AREA.

STOCKPILE CONTAINMENT AREA (H)

NTS

TYP C-302

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	MAP

PERMITTING
30% DESIGN
REVISION

BY	APVD
CHL	MJS
MAP	MJS
CHK	APVD
WJW	MAP
DR	MAP

NEW YORK STATE Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

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Portland, Maine 04112-7050
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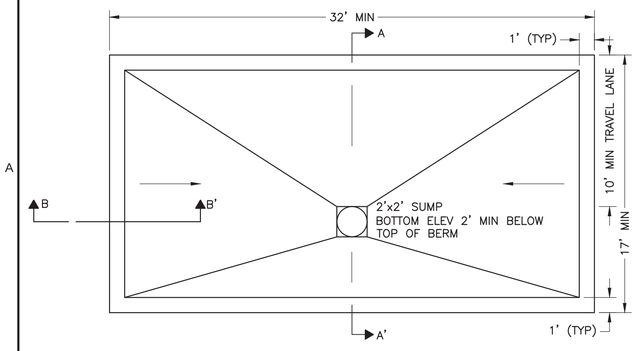
EROSION AND SEDIMENT CONTROL DETAILS

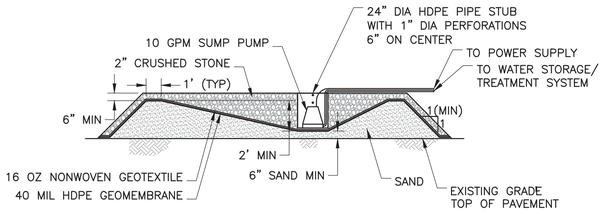
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

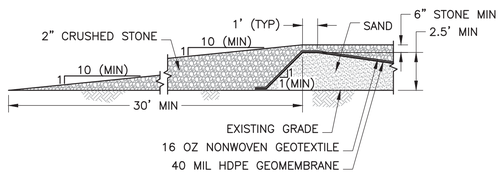
DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-302
SHEET	14 OF 29



PLAN



SECTION A–A'



SECTION B–B'

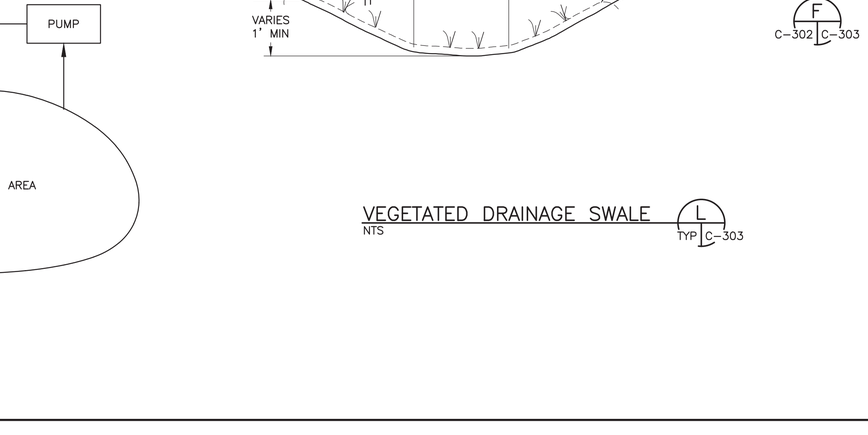
NOTE:

CONTRACTOR MAY PROPOSE ALTERNATE MEANS AND METHODS OF DECONTAMINATION FOR APPROVAL BY THE ENGINEER.

VEHICLE DECONTAMINATION PAD

NTS

TYP I C–303



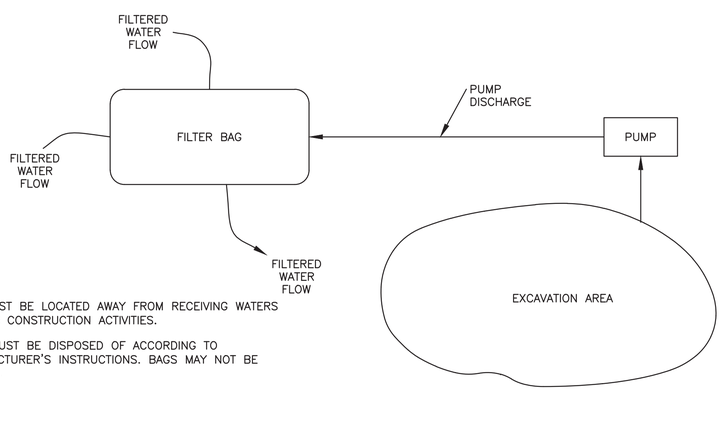
NOTE:

REFER TO NYSDOT STANDARD SHEET NO. M619–3R1

DEWATER STAGING AREA

NTS

TYP J C–303



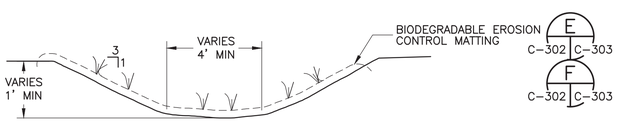
NOTES:

1. BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS AND/OR CONSTRUCTION ACTIVITIES.
2. BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. BAGS MAY NOT BE REUSED.

FILTER BAG FOR DEWATERING

NTS

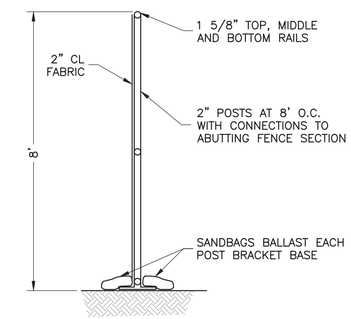
TYP K C–303



VEGETATED DRAINAGE SWALE

NTS

TYP L C–303



PORTABLE CHAIN LINK FENCE PANELS

NTS

TYP M C–303

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	PERMITTING			
		30% DESIGN			
		REVISION			

CHL MJS MAP MJS BY APVD

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 70025, 51 Commercial Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

CIVIL

CIVIL DETAILS - 1

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
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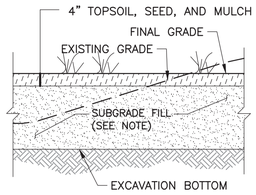
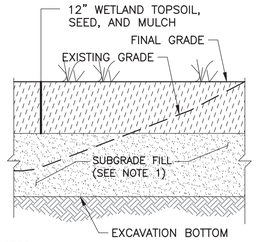
DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-303
SHEET	15 OF 29



NOTE:
DEPTHS OF SUBGRADE FILL VARIES BASED ON ACTUAL EXCAVATION BOTTOM AND FINAL GRADE ELEVATIONS.

VEGETATED UPLAND RESTORATION

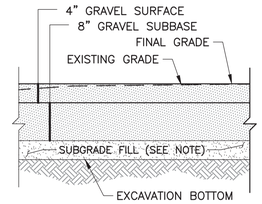
NTS — TYP C-304 (N)



NOTES:
1. DEPTHS OF SUBGRADE FILL VARIES BASED ON ACTUAL EXCAVATION BOTTOM AND FINAL GRADE ELEVATIONS.
2. INSTALL PLANTINGS AS SHOWN ON DRAWINGS.

VEGETATED WETLAND RESTORATION

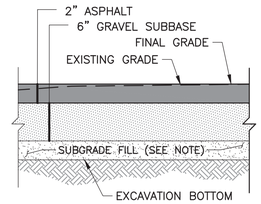
NTS — TYP C-304 (O)



NOTE:
DEPTHS OF SUBGRADE FILL VARIES BASED ON ACTUAL EXCAVATION BOTTOM AND FINAL GRADE ELEVATIONS.

GRAVEL DRIVE RESTORATION

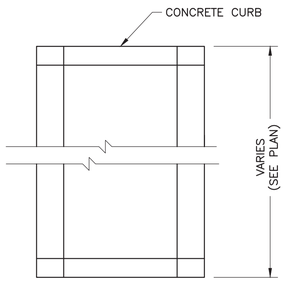
NTS — TYP C-304 (P)



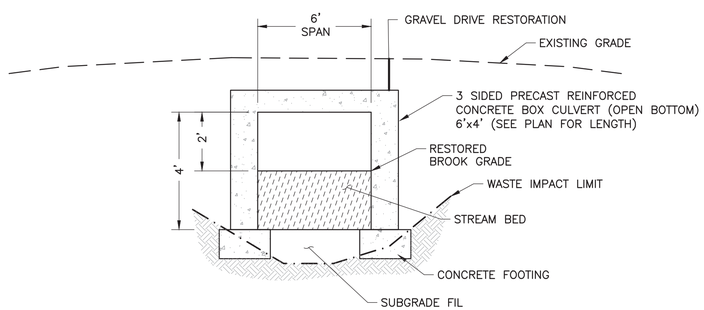
NOTE:
DEPTHS OF SUBGRADE FILL VARIES BASED ON ACTUAL EXCAVATION BOTTOM AND FINAL GRADE ELEVATIONS.

PAVED DRIVE RESTORATION

NTS — TYP C-304 (Q)



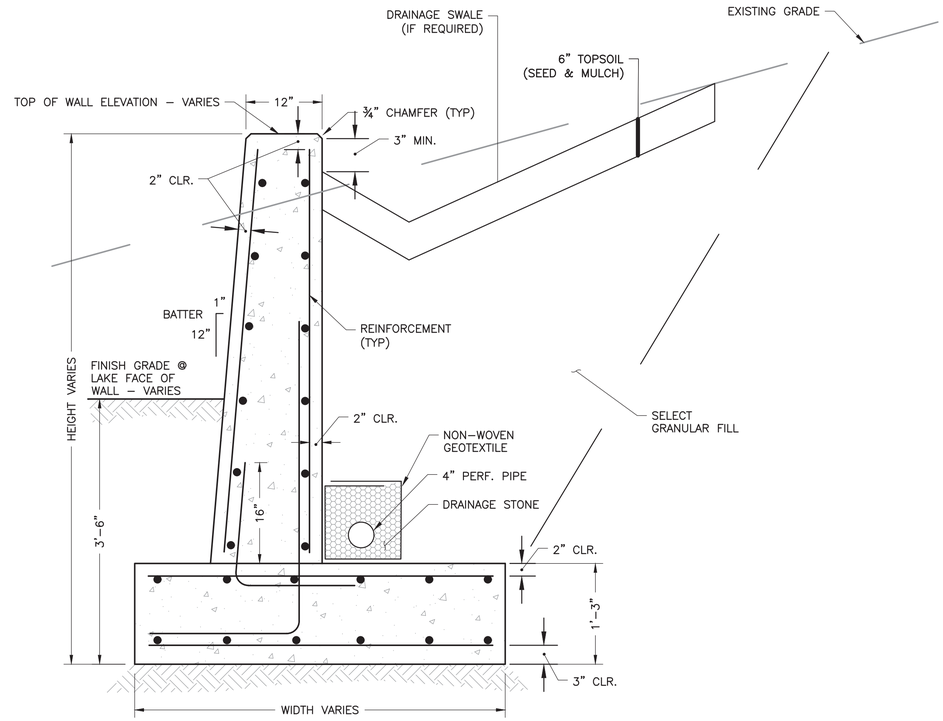
PLAN



SECTION

DRIVEWAY CULVERTS

NTS — TYP C-304 (R)



RETAINING WALL

NTS — TYP C-304 (S)

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	DR

PERMITTING — MAP
30% DESIGN — WJW
REVISION — CHK

BY	APVD
CHL	MJS
MAP	MJS
MAP	APVD
WJW	APVD
CHK	MAP
DR	WJW
MAP	CHK
MJS	DR
APVD	MAP
APVD	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
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(207) 775-5401

MACTEC

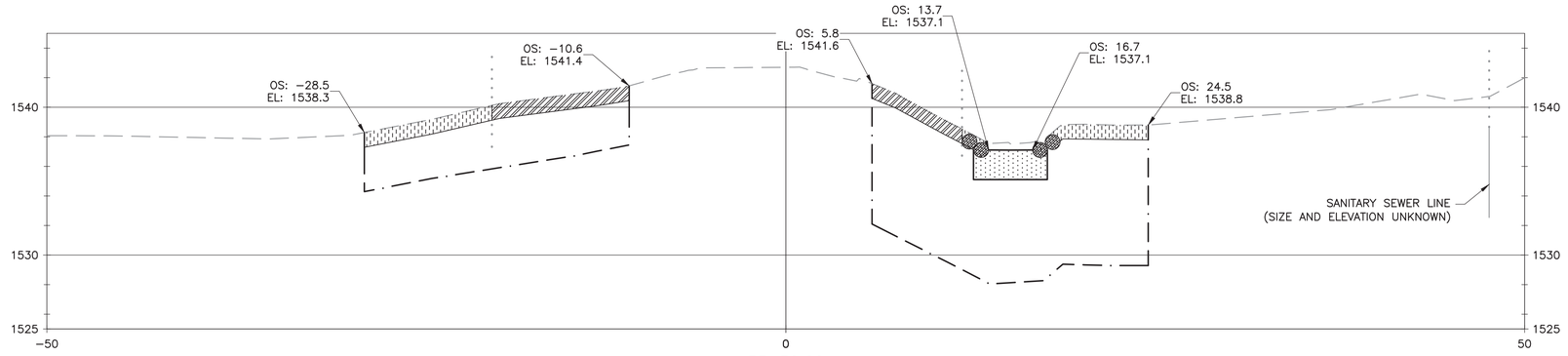
CIVIL

CIVIL DETAILS - 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JULY 2017
PROJ	3611-16-1193
DWG	C-304
SHEET	16 OF 29



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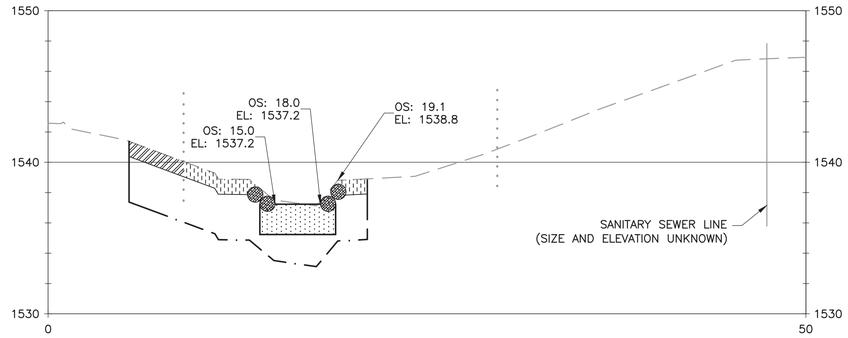

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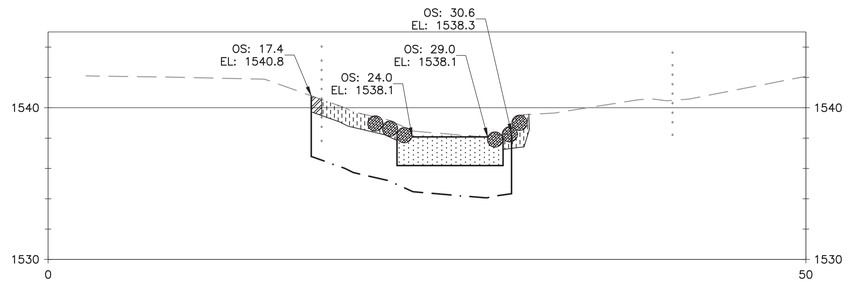

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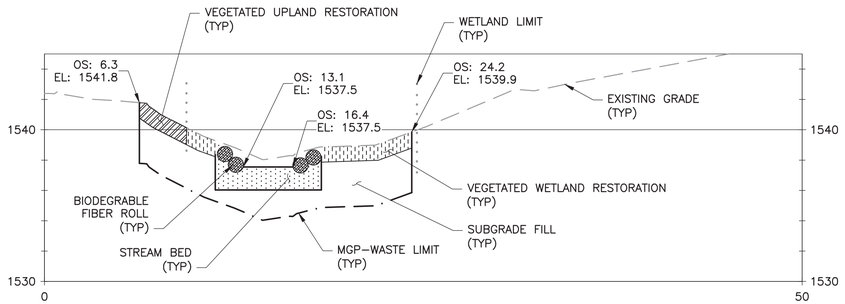

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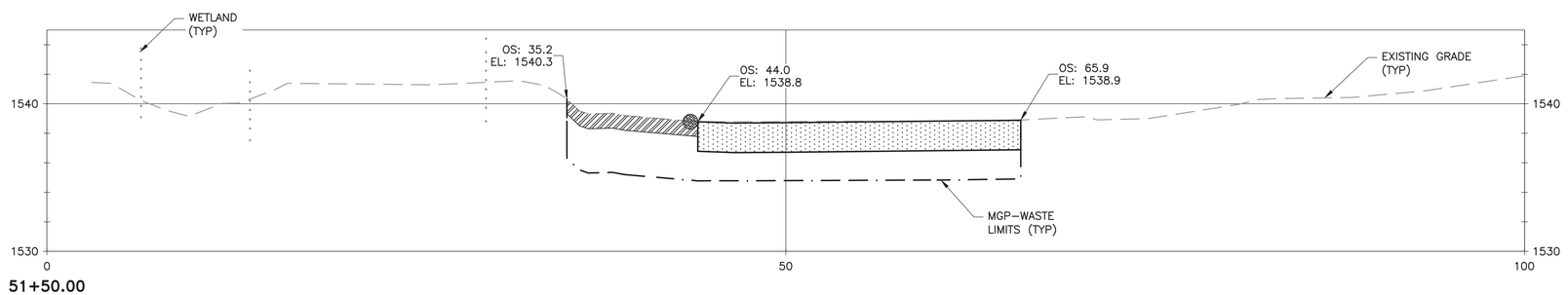

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SCALE IN FEET
VERTICAL
0 2.5 5 10

SCALE IN FEET
HORIZONTAL
0 2.5 5 10

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	PERMITTING 30% DESIGN REVISION	CHL	MAP	MJS

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Portland, Maine 04112-7050
(207) 775-5401

MACTEC

CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-401
SHEET	17 OF 29

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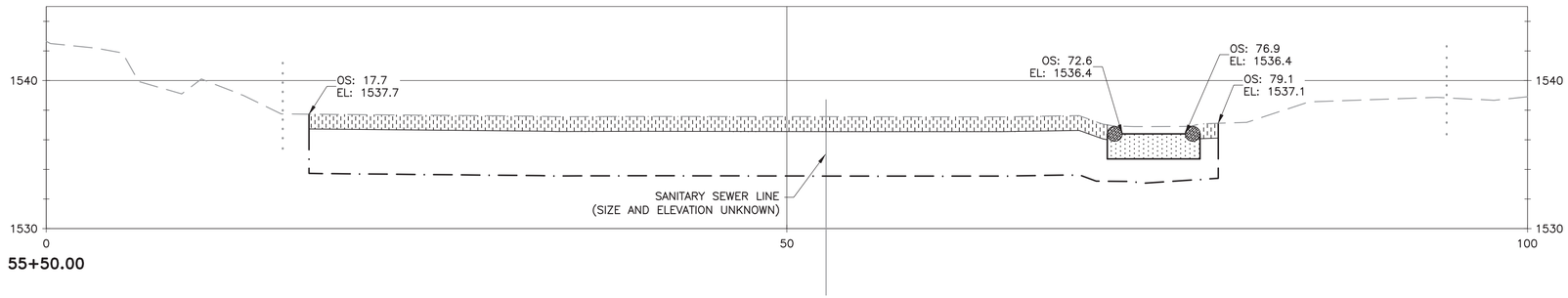

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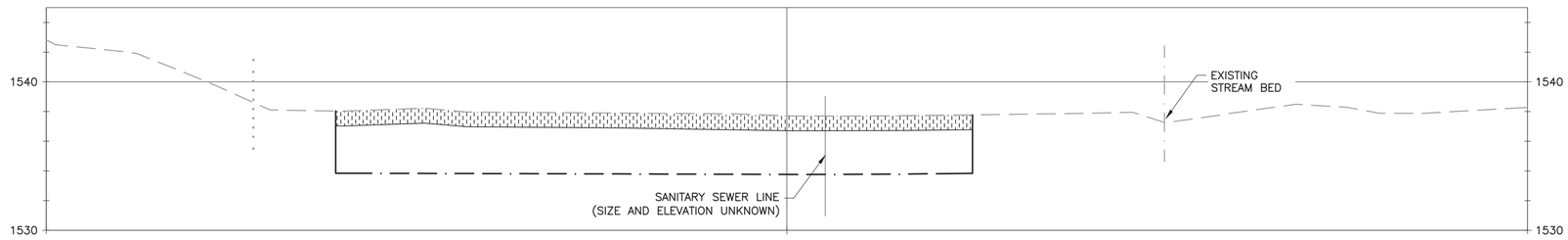

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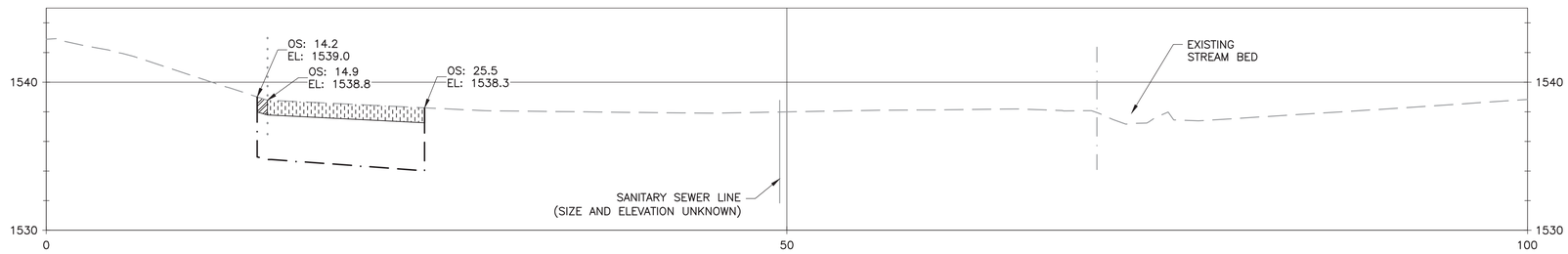

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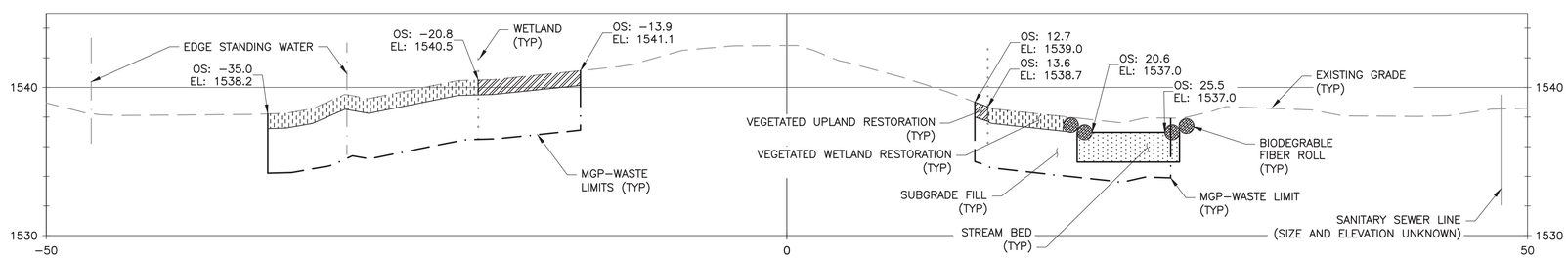


54+00.00

0 2.5 5 10
SCALE IN FEET
HORIZONTAL

0 2.5 5 10
SCALE IN FEET
VERTICAL

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	MAP	WJW	MJS
A	4/20/17	MAP	MJS	MAP	MJS

PERMITTING
30% DESIGN
REVISION

BY	
CHL	
MAP	
APVD	

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 1000, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

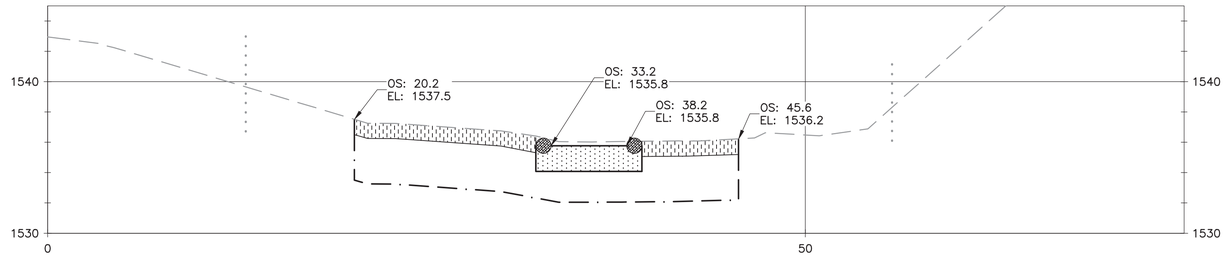
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-402
SHEET	18 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-402-Sections OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:02 PM



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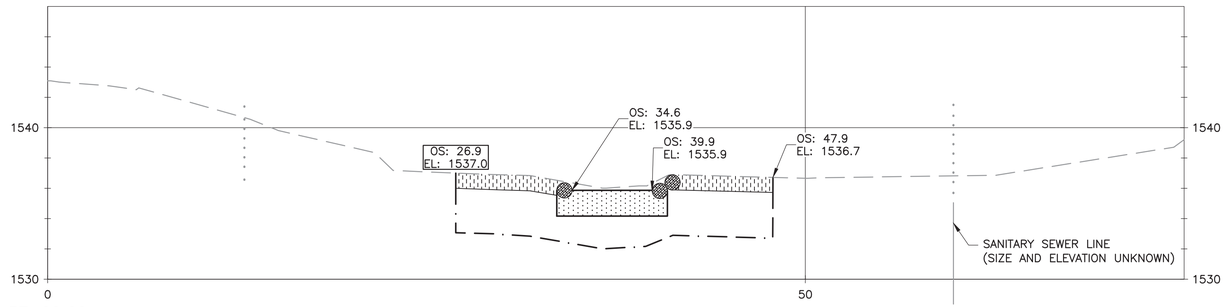

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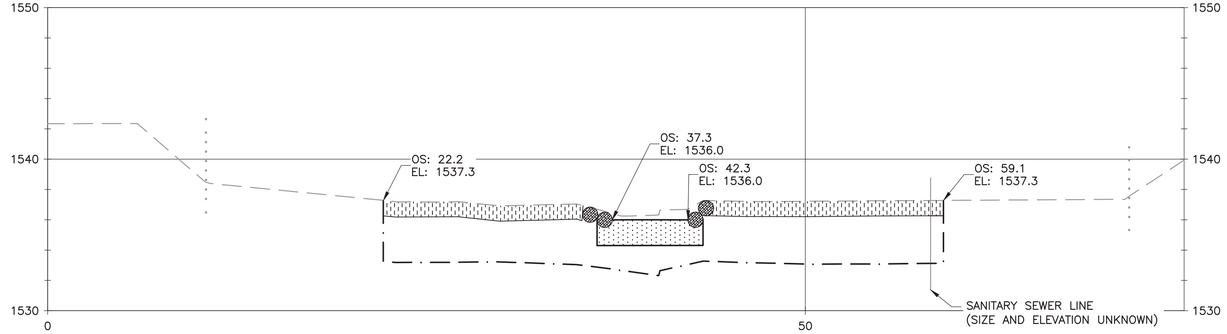
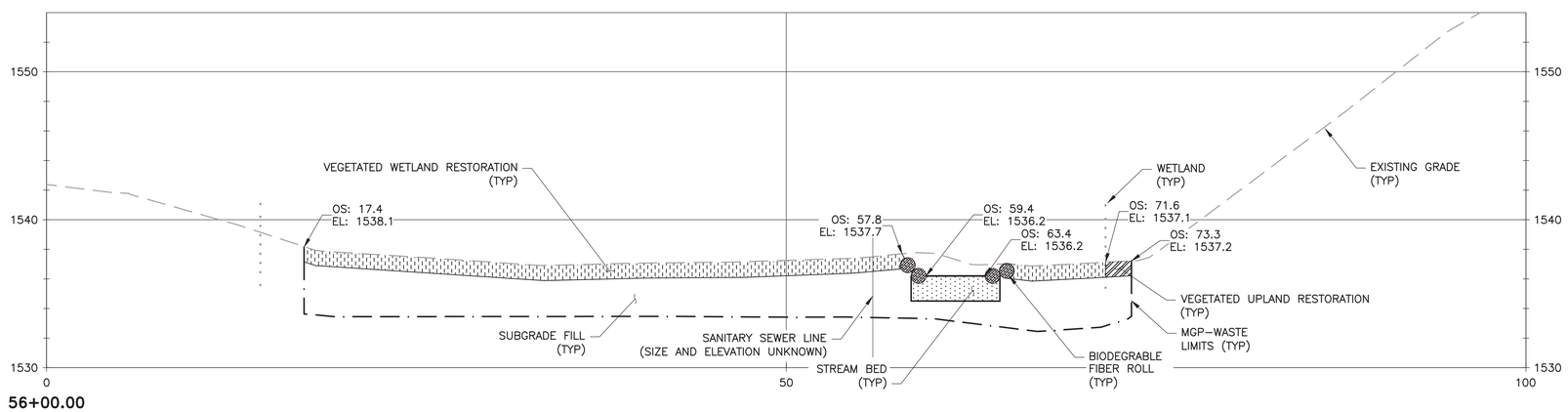


56+50.00



56+00.00

0 2.5 5 10
SCALE IN FEET
HORIZONTAL

0 2.5 5 10
SCALE IN FEET
VERTICAL

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	DR

PERMITTING
30% DESIGN
REVISION

BY	CHK
MJS	APVD
MJS	APVD
CHL	MAP
MAP	WJW
MJS	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

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Portland, Maine 04112-7050
(207) 775-5401

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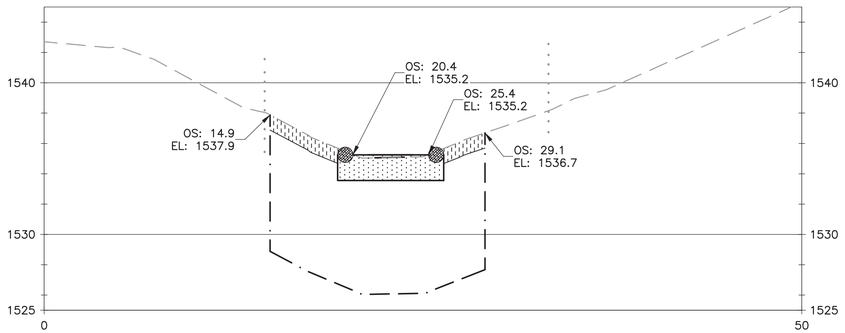
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-403
SHEET	19 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-403-Sections OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:03 PM



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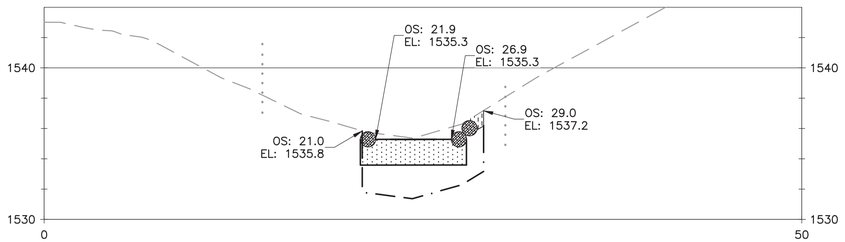

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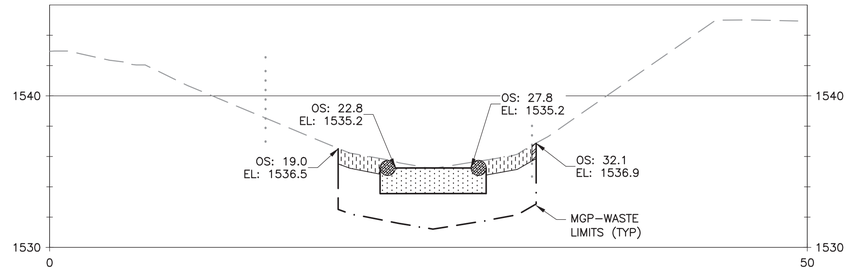

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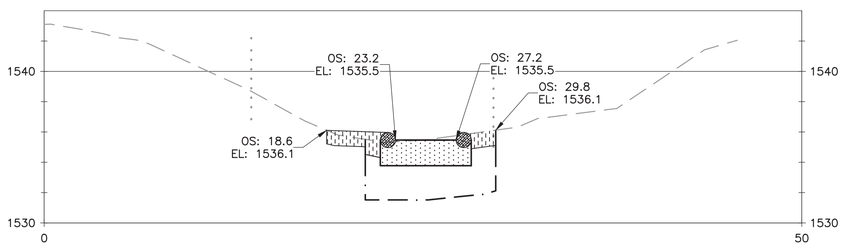
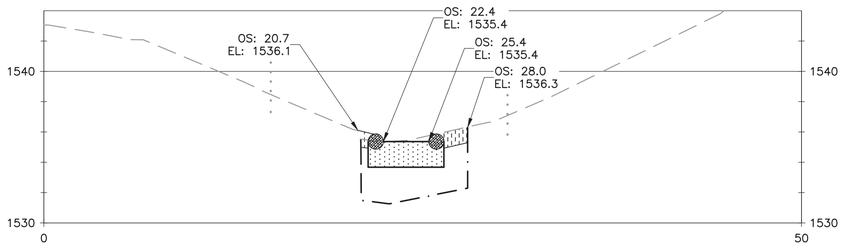
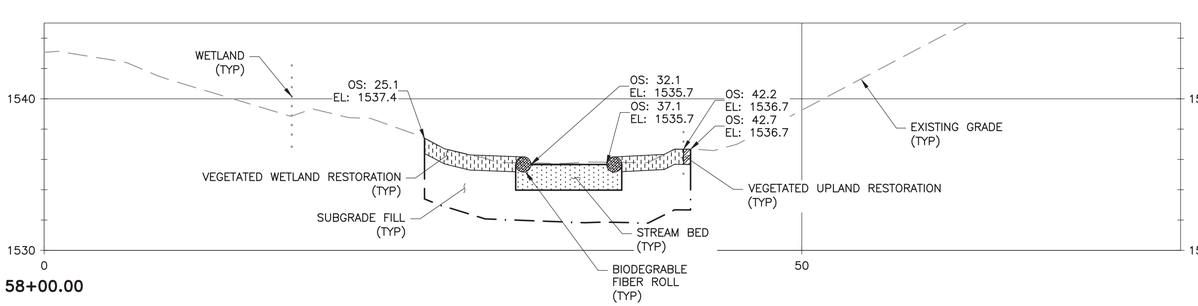


59+00.00



59+50.00



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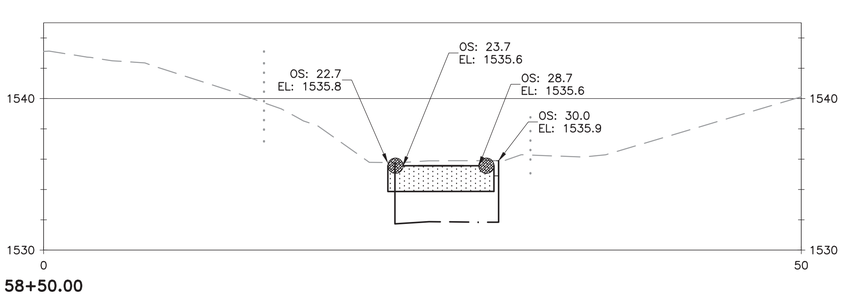

58+50.00

0 2.5 5 10
SCALE IN FEET
HORIZONTAL

0 2.5 5 10
SCALE IN FEET
VERTICAL

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	PERMITTING			
		30% DESIGN			
		REVISION			

	BY	APVD
	CHL	MJS
	MAP	MJS

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NYSDEC SITE NUMBER - 516008

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Portland, Maine 04112-7050
(207) 775-5401

MACTEC

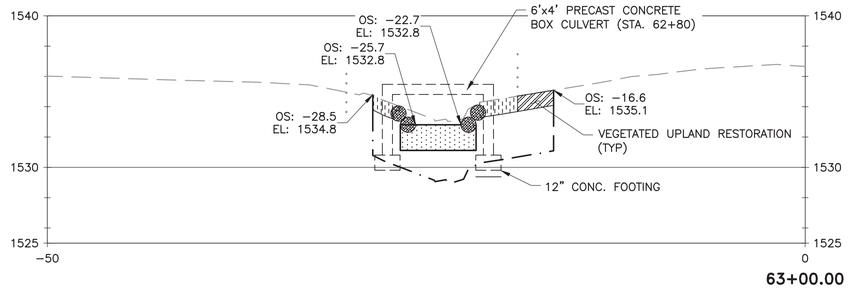
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

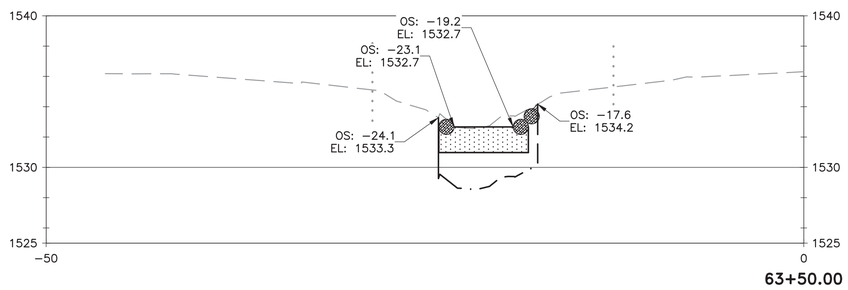
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-404
SHEET	20 OF 29

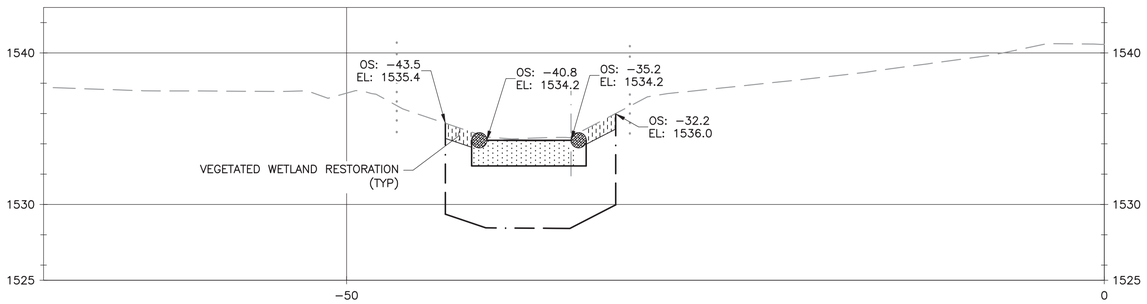
FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-404-Sections OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:04 PM



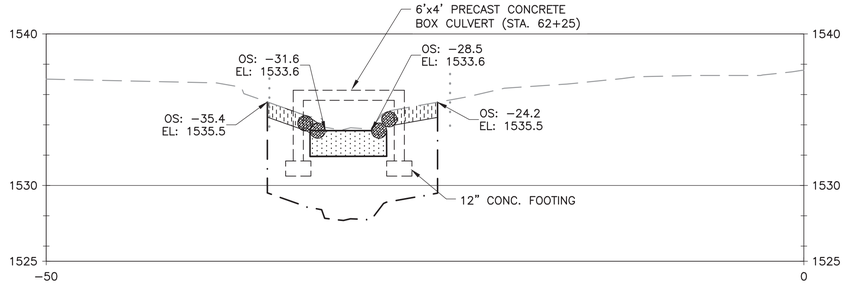
63+00.00



63+50.00



62+00.00



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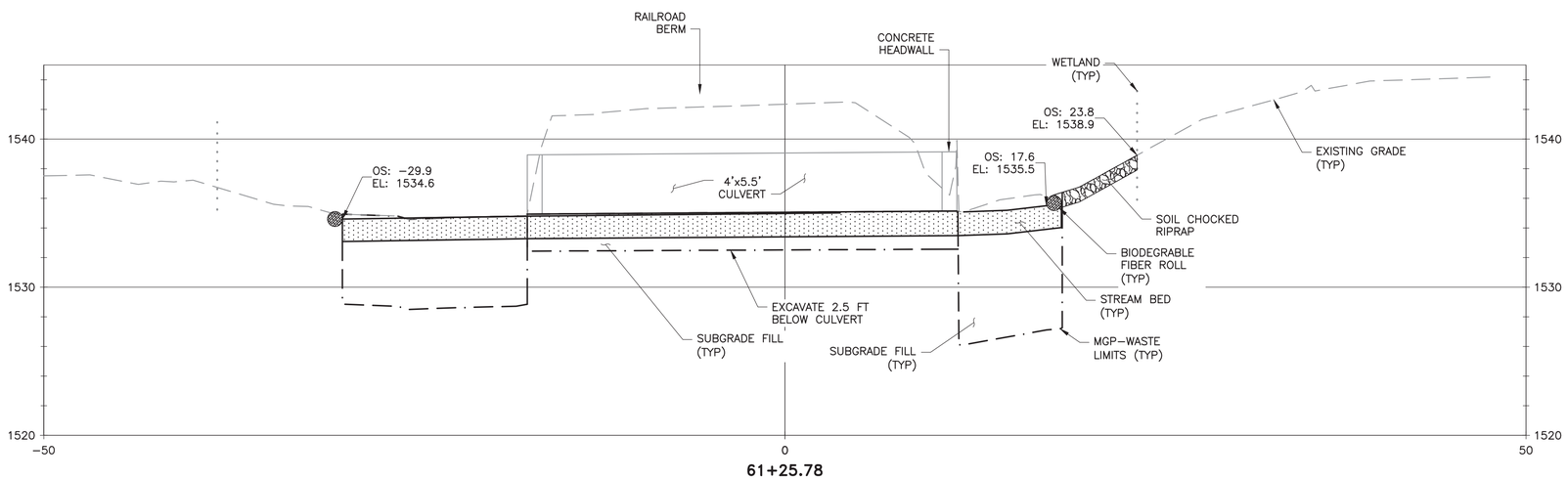


61+25.78

SCALE IN FEET
VERTICAL
0 2.5 5 10

0 2.5 5 10
SCALE IN FEET
HORIZONTAL

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	PERMITTING			
		30% DESIGN			
		REVISION			

BY	APVD
CHL	MJS
MAP	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

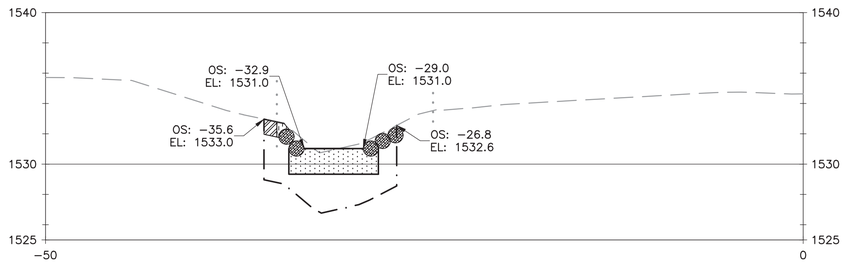
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-405
SHEET	21 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-405-Sections OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:16 PM



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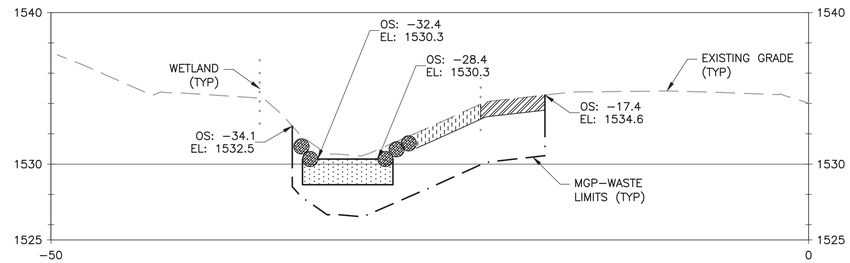

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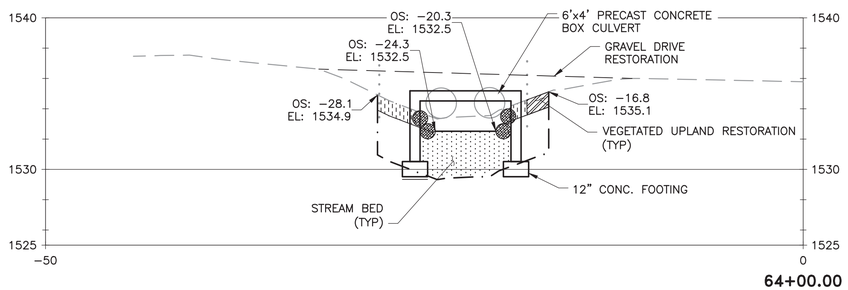

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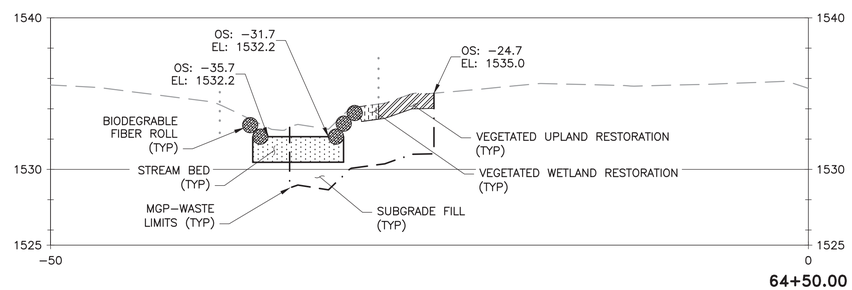

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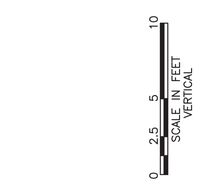


NO.	DATE	DSGN
B	8/22/17	CHL
A	4/20/17	MAP

PERMITTING
30% DESIGN
REVISION

DR	CHK	APVD
MAP	WJW	MAP

BY	APVD
MJS	MJS
MAP	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

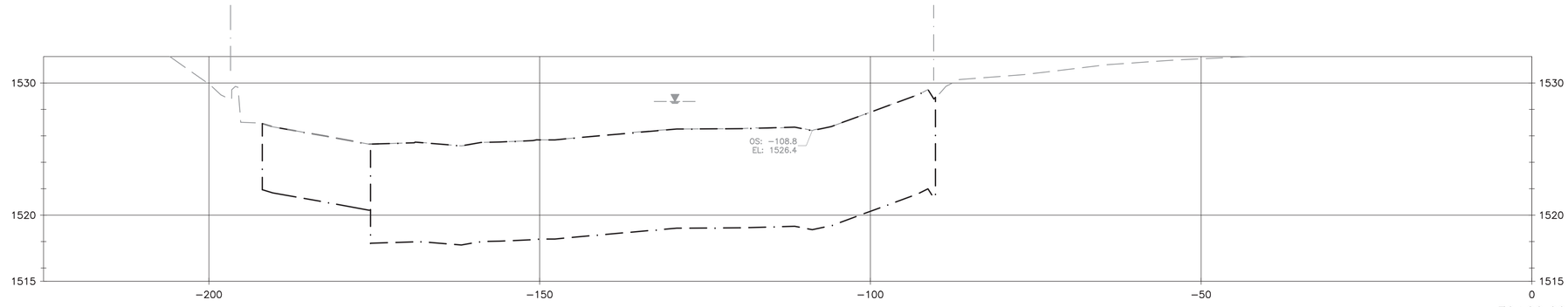
MACTEC

CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU02

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-406
SHEET	22 OF 29



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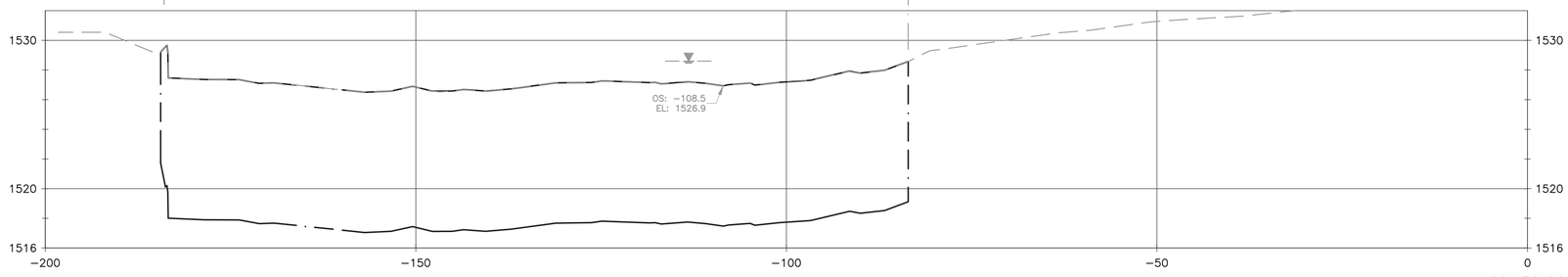
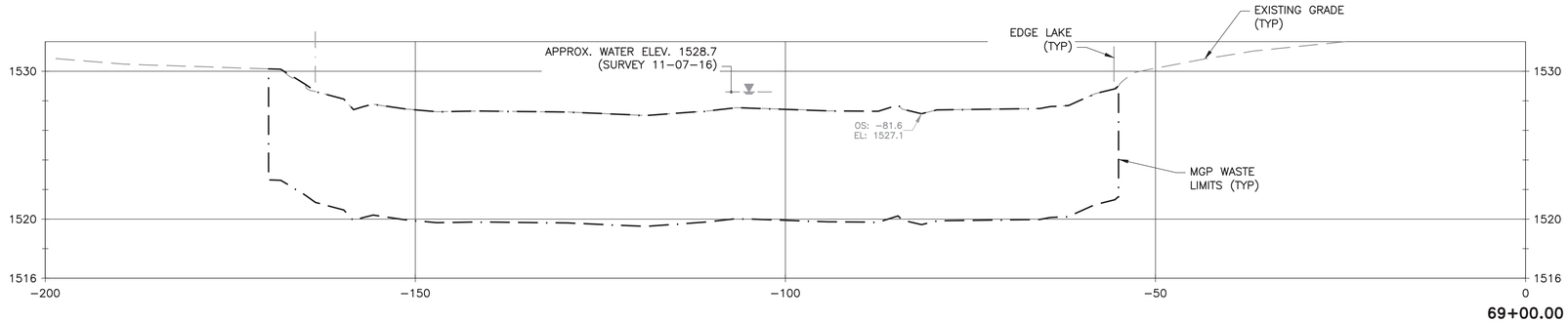


69+50.00



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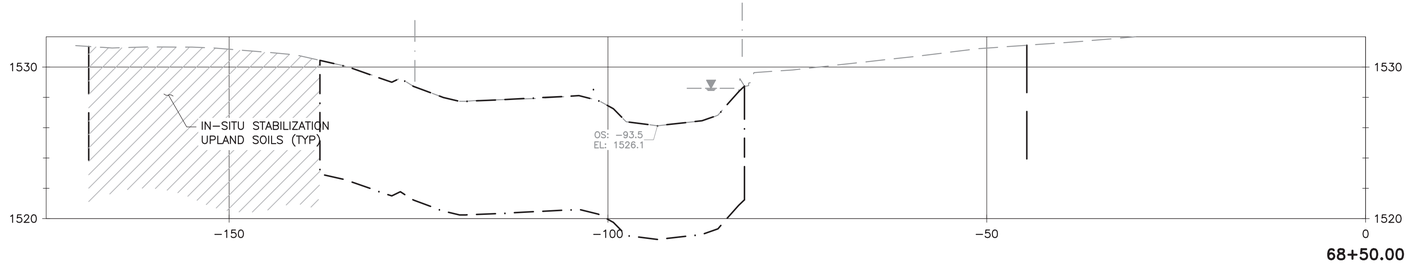

68+50.00

SCALE IN FEET HORIZONTAL: 0, 5, 10, 20

SCALE IN FEET VERTICAL: 0, 2.5, 5, 10

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	DR

PERMITTING
30% DESIGN
REVISION

BY	APVD
CHL	MJS
MAP	MJS
MAP	APVD
WJW	CHK
MAP	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

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CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU03

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-407
SHEET	23 OF 29

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	MAP

PERMITTING
30% DESIGN
REVISION

DR	CHK	APVD
MAP	WJW	MJS

BY	APVD
CL	MJS
MAP	MJS
MAP	MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

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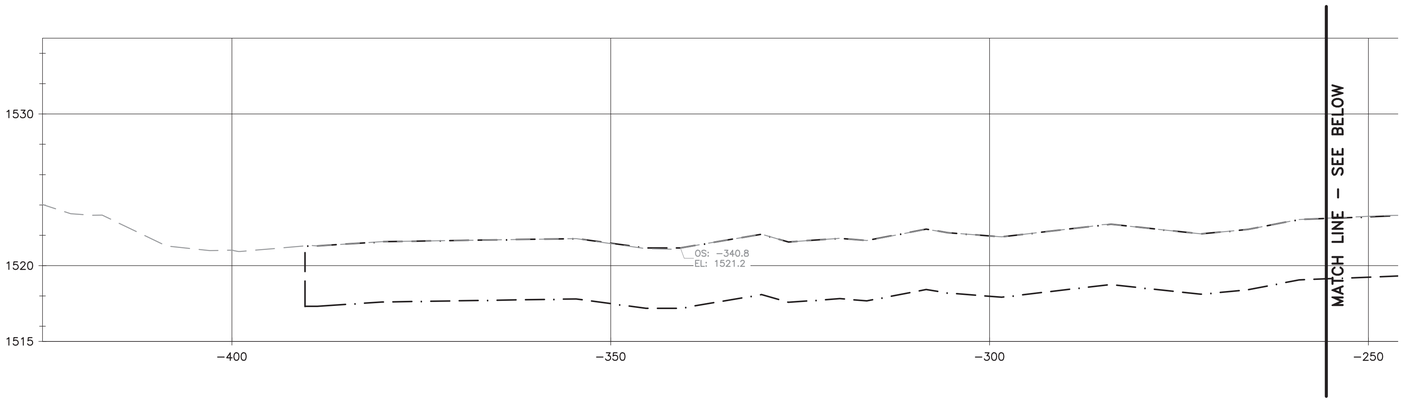
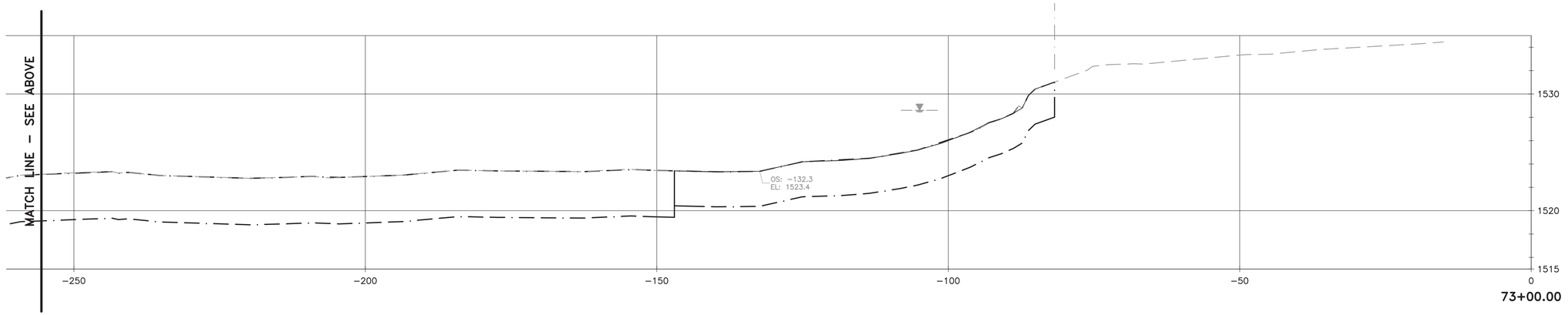
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU03

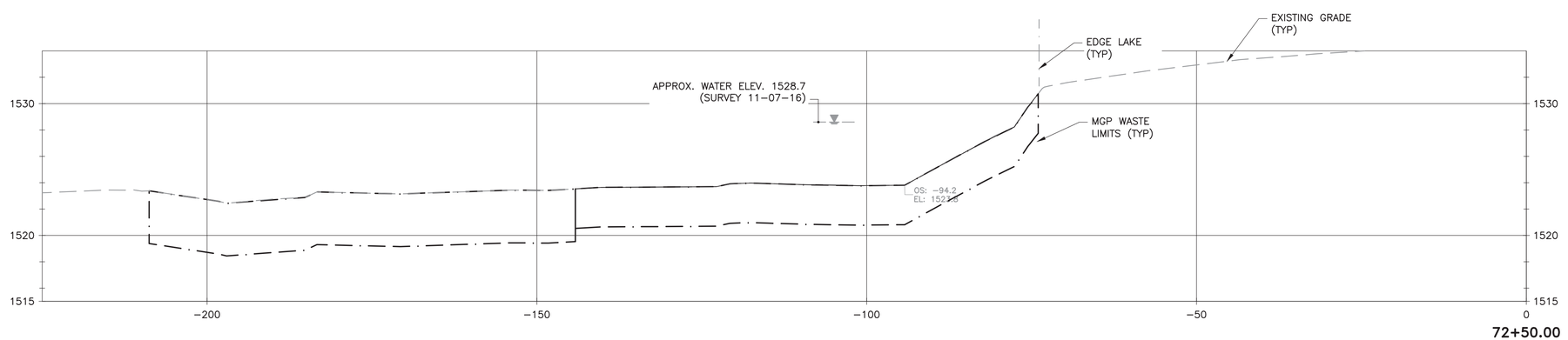
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

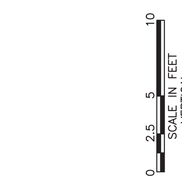
DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-408
SHEET	25 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-408-Sections OU3.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:14 PM









NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	MAP	WJW	MAP	MJS

PERMITTING
30% DESIGN
REVISION

CHL MJS
MAP MJS
BY APVD

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

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SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

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P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

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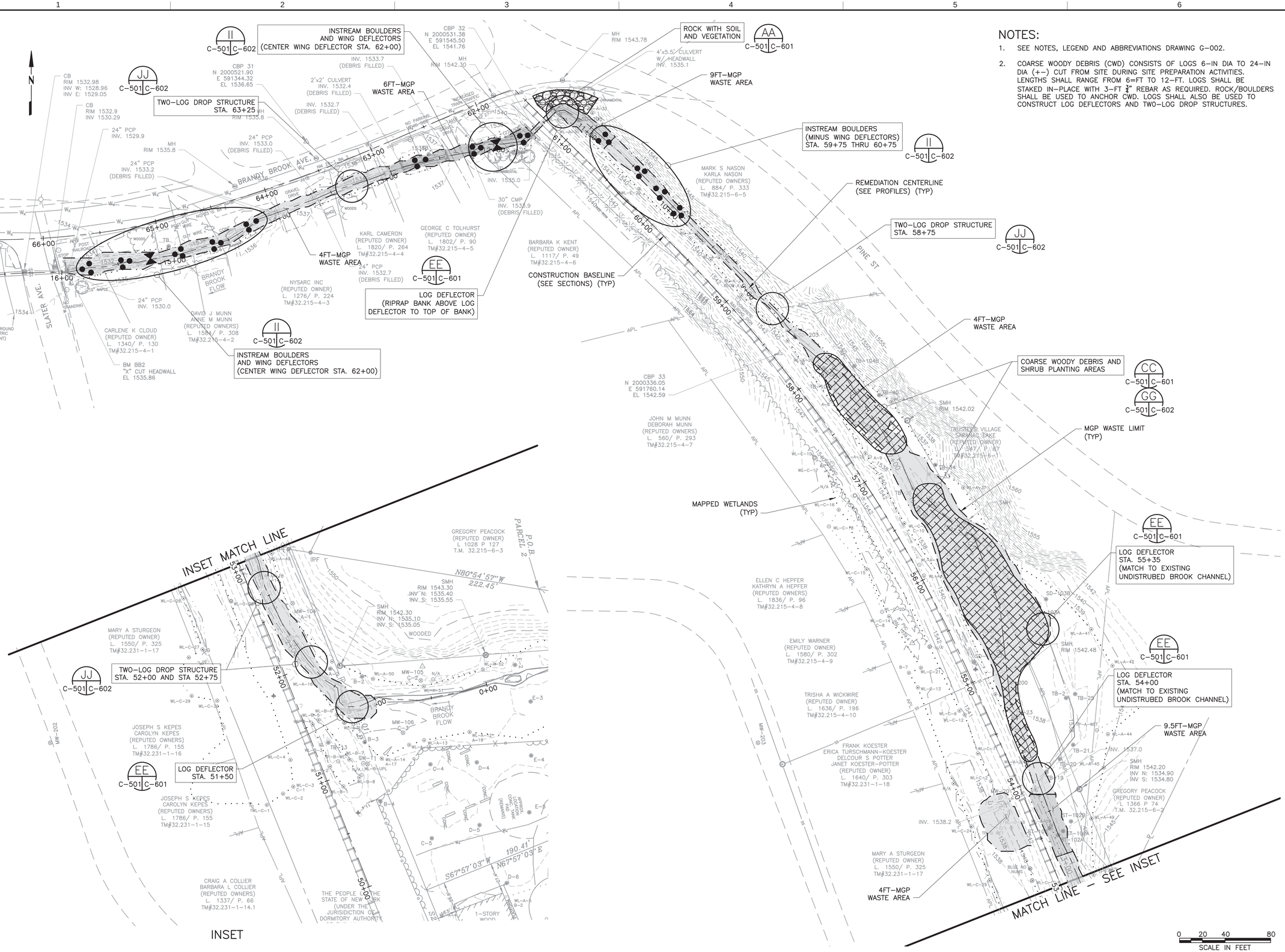
CIVIL
CONSTRUCTION BASELEINE
CROSS SECTIONS
OU03

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-409
SHEET	26 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-409-Sections OU3.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:17 PM



NOTES:

1. SEE NOTES, LEGEND AND ABBREVIATIONS DRAWING G-002.
2. COARSE WOODY DEBRIS (CWD) CONSISTS OF LOGS 6-IN DIA TO 24-IN DIA (+-) CUT FROM SITE DURING SITE PREPARATION ACTIVITIES. LENGTHS SHALL RANGE FROM 6=FT TO 12-FT. LOGS SHALL BE STAKED IN-PLACE WITH 3-FT ¾" REBAR AS REQUIRED. ROCK/BOULDERS SHALL BE USED TO ANCHOR CWD. LOGS SHALL ALSO BE USED TO CONSTRUCT LOG DEFLECTORS AND TWO-LOG DROP STRUCTURES.

NO.	DATE	DSGN	DR	CHK	APVD
B	9/22/17	MAP	WJW	MAP	MJS
A	4/20/17	MAP	CHL	MAP	MJS

PERMITTING
30% DESIGN
REVISION

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 1026, 195 Gray Road
Portland, Maine 04112-7050
(207) 775-5401

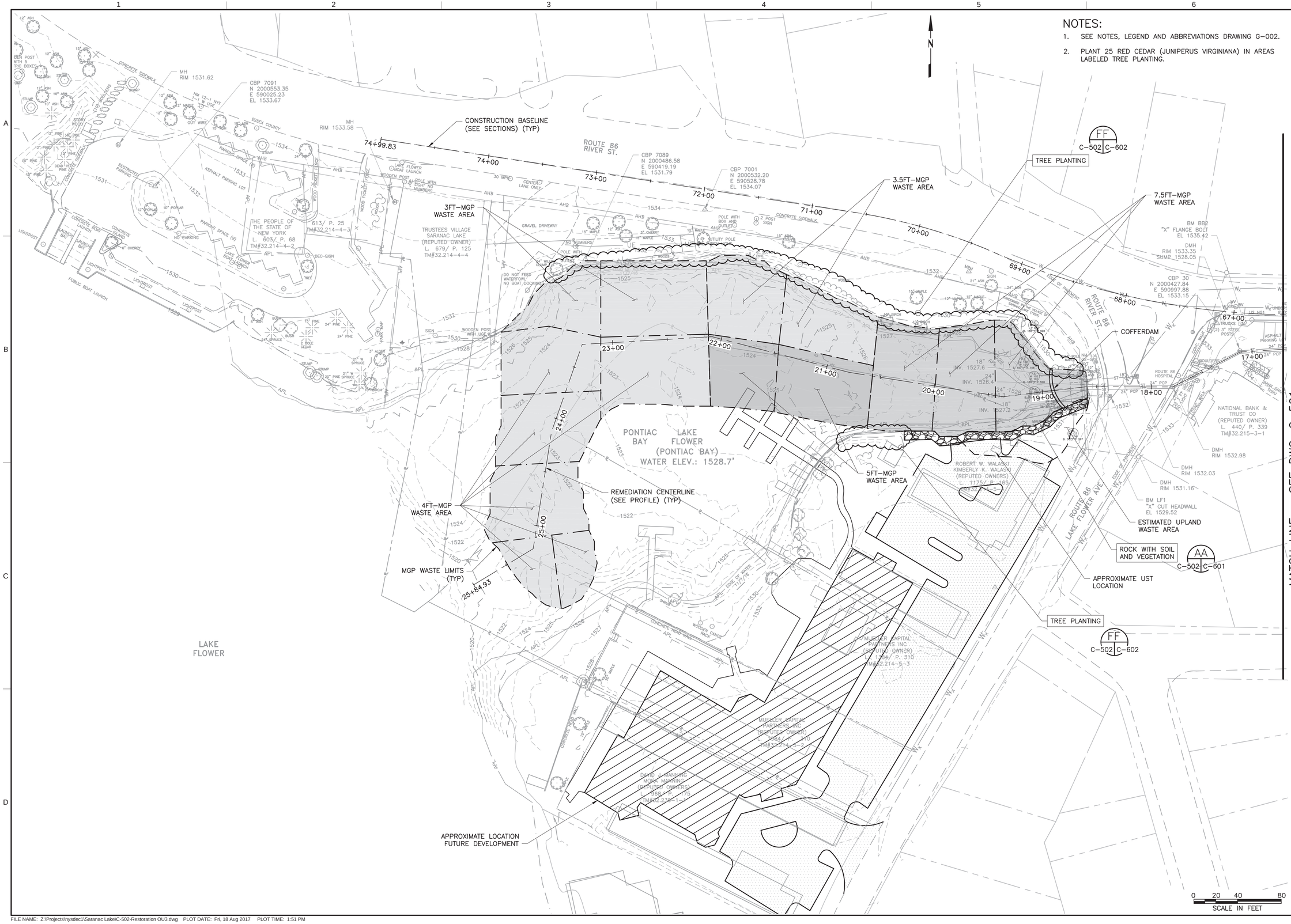
MACTEC

CIVIL
BRANDY BROOK
RESTORATION/LANDSCAPING PLAN
OU02

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JULY 2017
PROJ	3611-16-1193
DWG	C-501
SHEET	26 OF 29

FILE NAME: Z:\Projects\nysdec1\Saranac Lake\C-501-Restoration OU2.dwg PLOT DATE: Fri, 18 Aug 2017 PLOT TIME: 1:32 PM



NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17	MAP	WJW	MAP	MJS
A	4/20/17	MAP		MAP	MJS

PERMITTING
30% DESIGN
REVISION

	BY	APVD
CHL	MJS	
MAP	MJS	

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

NEW YORK STATE DEPARTMENT — Department of Environmental Conservation

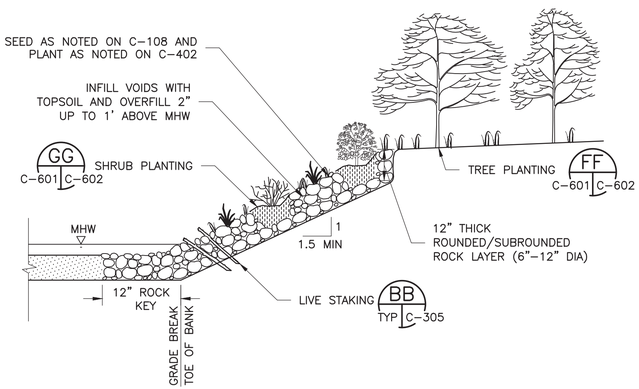
MACTEC Engineering and Consulting, P.C.
P.O. Box 7050, 511 Congress Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

CIVIL
PONTIAC BAY
RESTORATION/LANDSCAPING PLAN
OU03

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JULY 2017
PROJ	3611-16-1193
DWG	C-502
SHEET	27 OF 29

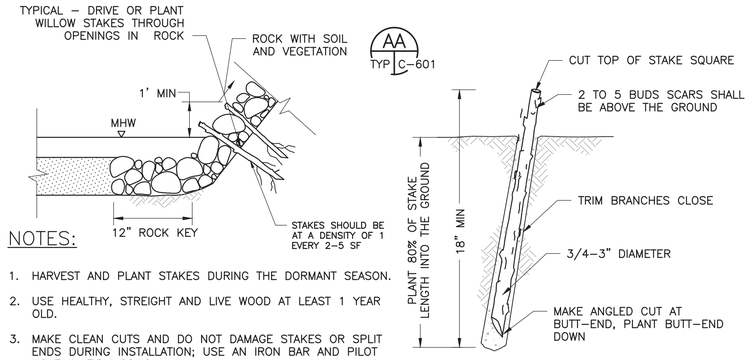


ROCK WITH SOIL AND VEGETATION

AA TYP C–601

NTS

DETAIL ADAPTED FROM REPORT 544, "ENVIRONMENTALLY SENSITIVE CHANNEL– AND BANK–PROTECTION MEASURES" BY THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP), TRANSPORTATION RESEARCH BOARD, 2004.



NOTES:

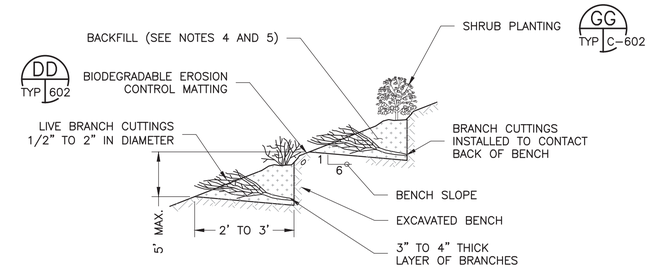
1. HARVEST AND PLANT STAKES DURING THE DORMANT SEASON.
2. USE HEALTHY, STREIGHT AND LIVE WOOD AT LEAST 1 YEAR OLD.
3. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION; USE AN IRON BAR AND PILOT HOLE IN FIRM SOILS.
4. SOAK CUTTINGS FOR AT LEAST 24 HOURS PRIOR TO INSTALLATION. SOAK FOR 5–7 DAYS FOR BEST RESULTS.
5. TAMP THE SOIL AROUND THE STAKE.

LIVE STAKING

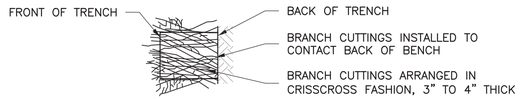
BB TYP C–601

NTS

DETAIL ADAPTED FROM REPORT 544, "ENVIRONMENTALLY SENSITIVE CHANNEL– AND BANK–PROTECTION MEASURES" BY THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP), TRANSPORTATION RESEARCH BOARD, 2004.



SECTION



PLAN

NOTES:

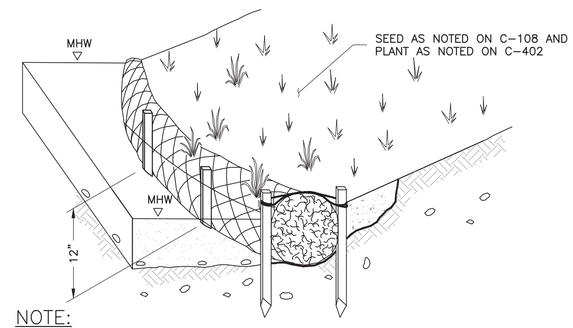
1. BENCH SHALL BE ANGLED SO OUTSIDE EDGE IS HIGHER THAN BACK OF BENCH.
2. LIVE BRANCH CUTTINGS SHALL BE PLACED ON THE BENCH IN A CRISSCROSS OR OVERLAP CONFIGURATION, 3" TO 4" THICK.
3. GROWING TIPS SHALL BE ALIGNED OUT OF THE SLOPE FACE AND SHALL EXTEND SLIGHTLY BEYOND THE FILL AREA.
4. FILL EACH LOWER BENCH WITH SOIL EXCAVATED FROM THE BENCH ABOVE. TOP BENCH TO BE BACKFILLED WITH INITIAL EXCAVATION.
5. PLACE BACKFILL ON TOP OF BRANCHES AND HAND TAMP IN 6" LIFTS TO REDUCE AIR POCKETS.
6. SEED AS NOTED ON C–108 OR PLANT AS NOTED ON C–403 BETWEEN THE BRUSH LAYER ROWS.
7. BRUSH LAYER BENCHES SHALL BE FROM 3' TO 5' VERTICAL APART, DEPENDING ON SLOPE, AS MEASURED BETWEEN FRONT EDGE OF BENCHES.

BRUSH LAYER

CC TYP C–601

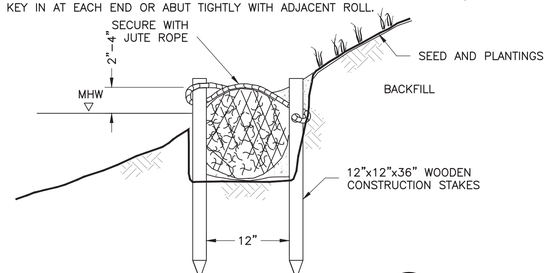
NTS

DETAIL ADAPTED FROM THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AUGUST 2005.



NOTE:

PLACE FIBER ROLLS PARALLEL TO THE BANK ALONG A HORIZONTAL CONTOUR, AND KEY IN AT EACH END OR ABUT TIGHTLY WITH ADJACENT ROLL.

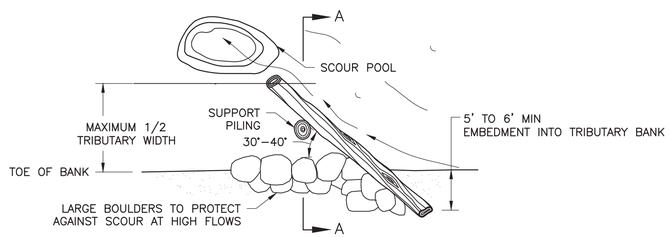


BIODEGRADABLE FIBER ROLL

DD TYP C–601

NTS

DETAIL ADAPTED FROM REPORT 544, "ENVIRONMENTALLY SENSITIVE CHANNEL– AND BANK–PROTECTION MEASURES" BY THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP), TRANSPORTATION RESEARCH BOARD, 2004.



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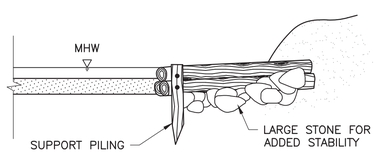


SECTION A–A

NOTES:

1. A SINGLE LARGE LOG OR MULTIPLE SMALLER LOGS CAN BE USED FOR DEFLECTORS; SMALLER LOGS SHALL BE SECURELY ANCHORED TO EACH OTHER WITH METAL RODS/REBAR
2. NOTE THAT SCOUR POOL WILL DEVELOP NATURALLY OVER TIME AND IS NOT TO BE CONSTRUCTED BY THE CONTRACTOR.

LOG DEFLECTOR

EE TYP C–601

NTS

DETAIL ADAPTED FROM "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" DETAIL 3.5(A), REVISED NOVEMBER 2000.

NO.	DATE	DSGN
B	8/22/17	MAP
A	4/20/17	MAP

PERMITTING — CHL MJS
30% DESIGN — MAP MJS
REVISION — BY APVD

DR MAP | CHK WJW | APVD MJS

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 7050, 51 Commercial Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

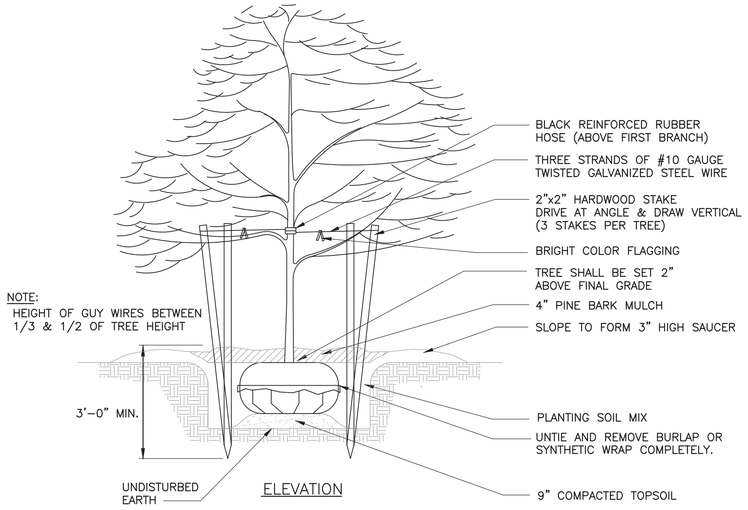
CIVIL

RESTORATION DETAILS -1

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

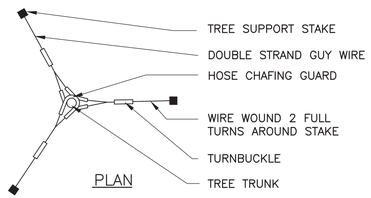
DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-601
SHEET	28 OF 29



ELEVATION

TREE PLANTING

NTS — TYP FF | C-602



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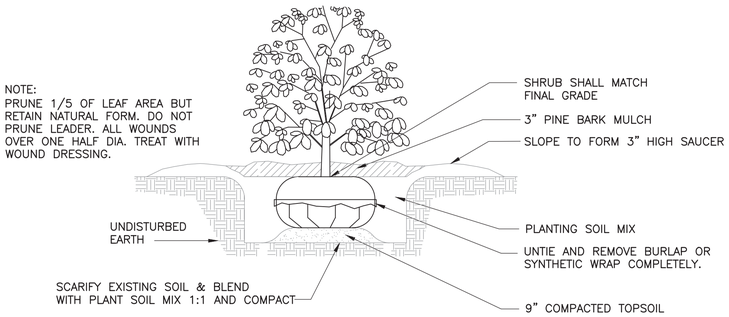
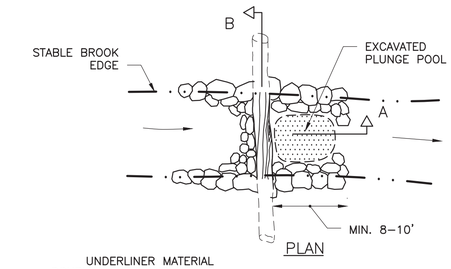


SHRUB PLANTING

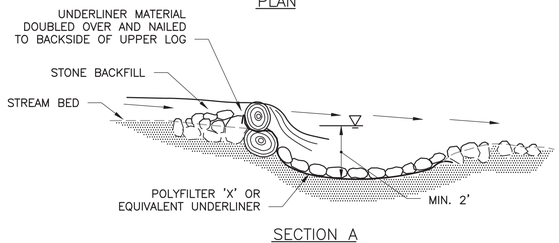
NTS — TYP GG | C-602

NOTES:

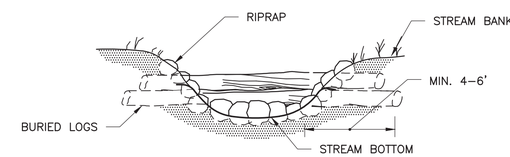
1. BOULDERS SHALL BE ANGULAR AND OBLONG IN SHAPE AND SHALL BE COMPOSED OF THE HARDEST MATERIAL AVAILABLE. THE LONG AXIS OF EACH BOULDER SHALL BE AT LEAST 3-FT AND THE WEIGHT SHALL EXCEED 750 POUNDS. BOULDERS SHALL BE EMBEDDED APPROXIMATELY 1-FT INTO THE STREAM BED TO PROVIDE STABILITY.
2. BOULDER WING DEFLECTORS SHALL BE TIED INTO THE BANK A MINIMUM OF 3 TO 4-FT.
3. BOULDER WING DEFLECTORS MAY BE USED SINGLY OR IN PAIRS (AS SHOWN).



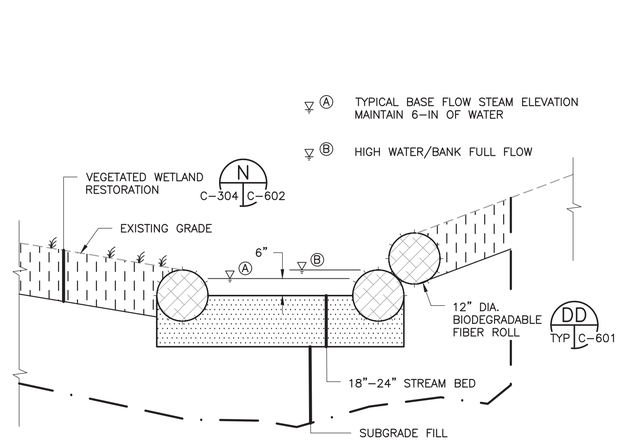
PLAN



SECTION A



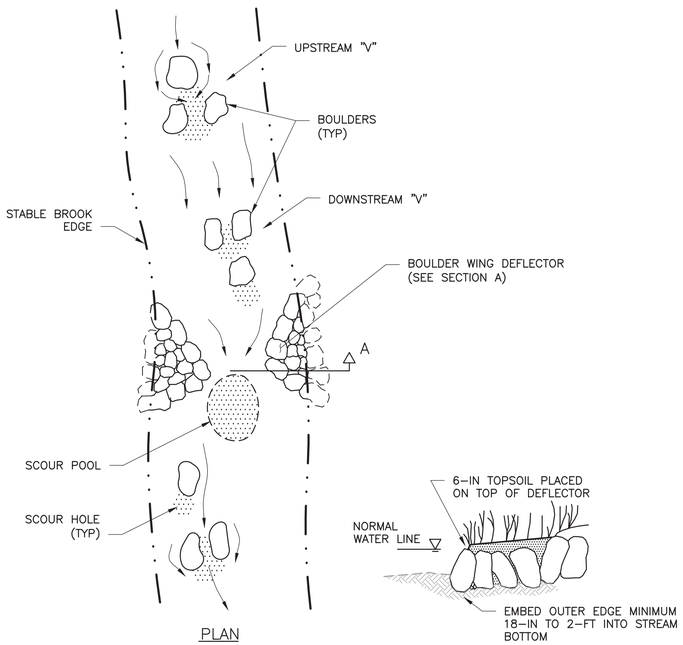
SECTION B



STREAM BED

NTS — TYP HH | C-602

NOTE:
BIODEGRADABLE FIBER ROLL TO BE USED TO CREATE STREAM CHANNEL ALONG REACH OF BROOK IN AREAS OF REMEDIATION.



PLAN

SECTION A

IN-STREAM BOULDER PLACEMENT

NTS — TYP II | C-602

NOTES:

1. DROP STRUCTURE TO BE LOCATED IN NON-RIFFLE AREAS OF STREAM.
2. MINIMUM 12-IN DIAMETER LOGS SHALL BE USED (SYCAMORE IS BEST).
3. LOGS TO EXTEND MINIMUM 4-FT INTO EACH BANK.
4. STRUCTURE SHALL BE ADEQUATELY ARMORED TO WITHSTAND BANK FULL VELOCITIES. CARE MUST BE TAKEN TO AVOID CREATING A FISH BARRIER. THEREFORE, THE DOWNSTREAM FACE OF THE LOG WEIR SHALL NOT BE ARMORED. IN ADDITION, THE VERTICAL DISTANCE BETWEEN PLUNGE POOL AND LOG WEIR CREST SHALL NOT EXCEED 24-IN.
5. LOG DROP STRUCTURES SHALL NOT BE USED WHERE BANK HEIGHT IS LESS THAN 18-IN.
6. PLUNGE POOL SHALL BE A MINIMUM 2-FT DEEP SO AS TO PROVIDE FISH HABITAT.

TWO-LOG DROP STRUCTURE

NTS — TYP JJ | C-602

NO.	DATE	DSGN	DR	CHK	APVD
B	8/22/17		MAP	WJW	MJS
A	4/20/17	CHL	MAP	MJS	MJS
				REVISION	BY

PERMITTING
30% DESIGN

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

REMEDIAL ACTION
SARANAC LAKE GAS CO., INC.
SARANAC LAKE, NEW YORK
NYSDEC SITE NUMBER - 516008

MACTEC Engineering and Consulting, P.C.
P.O. Box 1062, 2 Commercial Street
Portland, Maine 04112-7050
(207) 775-5401

MACTEC

CIVIL

RESTORATION DETAILS - 2

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	FEB 2017
PROJ	3611-16-1193
DWG	C-602
SHEET	29 OF 29

ATTACHMENT F
PRE DESIGN INVESTIGATION FIELD ACTIVITIES REPORT

PRE-DESIGN INVESTIGATION
FIELD ACTIVITIES REPORT
OPERABLE UNITS OU02 AND OU03

SARANAC LAKE GAS COMPANY, INC.
NYSDEC SITE NO. 516008

WORK ASSIGNMENT NO. D007619-39

Prepared for:

New York State Department of Environmental Conservation Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC: 3611161193

AUGUST 2017

PRE-DESIGN INVESTIGATION
FIELD ACTIVITIES REPORT
OPERABLE UNITS OU02 AND OU03

SARANAC LAKE GAS COMPANY, INC.
NYSDEC SITE NO. 516008

WORK ASSIGNMENT NO. D007619-39

Prepared for:

New York State Department of Environmental
Conservation Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC: 3611161193

AUGUST 2017

Submitted by:

Stephanie Lizotte, with permission for

Dylan Farrell
Project Scientist

Approved by:

Mark Stelmack

Mark J. Stelmack, P.E.
Project Manager

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ACOE	Army Corps of Engineers
ASP	analytical services protocols
ASTM	American Society for Testing and Materials
bgs	below ground surface
DNAPL	dense nonaqueous-phase liquid
DUSR	data usability summary report
EPA	Unites States Environmental Protection Agency
FAR	Field Activities Report
FDR	field data records
ft	foot/feet
GPR	ground penetrating radar
HSA	hollow stem augers
IDW	investigation-derived wastes
MACTEC	MACTEC Engineering and Consulting, P.C.
MGP	manufactured gas plant
No.	number
NYLD	New York Leak Detection
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OU	operable units

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PDI	pre-design investigation
PER	Protection of Ecological Resources
PID	photoionization detector
PVC	polyvinyl chloride
RD	remedial design
RI	remedial investigation
SCG	standards, criteria and guidance values
SCO	soil cleanup objectives
SGV	sediment guidance values
Site	Saranac Lake Gas Company
SPT	standard penetration testing
SVOC	semi-volatile organic compounds
SY	square yards
TCLP	Toxicity Characteristics Leaching Procedure
UST	underground storage tank
VOC	volatile organic compound
WA	work assignment

1.0 INTRODUCTION

MACTEC Engineering and Consulting, P.C. (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC), is submitting this Pre-Design Investigation (PDI) Field Activities Report (FAR) for the Saranac Lake Gas Company, Inc. Site – NYSDEC Site 516008 (Site) in the Village of Saranac Lake, in Essex County, New York (Figure 1.1). The Site is listed as a Class 2 Inactive hazardous waste site in the Registry of Hazardous Waste Sites in New York State (NYS). This report has been prepared in accordance with the NYSDEC requirements in work assignment (WA) No. D007619-39 dated September 26, 2016, and with the July 2011 Superfund Standby Contract between MACTEC and the NYSDEC.

The Site, a former manufactured gas plant (MGP) facility, is in a residential setting off Payeville Lane in the Village of Saranac Lake, Essex County. The Site has been separated into three Operable Units (OUs).

The Site facility, OU01, is approximately 4.5 acres in size and is located east of and adjacent to the Adirondack Scenic Railroad right of way. Residential properties border OU01 to the north, east, and part of the west side, and North Country Community College soccer fields and facilities border OU01 to the south. An access road extends from Payeville Lane west to OU01. The Site and surrounding area is serviced by public water; groundwater is not believed to be used as a source of drinking water. Currently, OU01 is a vacant lot with an open, unoccupied one story brick building. Remedial Design (RD) activities for OU01 are not included in WA D007619-39.

Brandy Brook (OU02) flows through OU01 and continues in a northerly direction for approximately 1,000 feet, then turns to the west and flows for 700 feet, where it discharges to Pontiac Bay in Lake Flower. The section of the brook that turns to the west is culverted under a railroad crossing and culverted again under three driveway crossings and below Slater Avenue and Lake Flower Avenue. The driveway crossings range from 8 to 20 feet long and the culverted section below Slater Avenue and Lake Flower Avenue is approximately 250 feet long. The brook channel is approximately 3 to 5 feet wide. The bottom is scoured fine to medium sand, with pockets of mucky organic material in low lying depositional areas. In places of high water flow and where flow through the brook is more channelized, the bottom of the brook is comprised of predominantly gravel and cobbles. The channel is well entrenched with undercut banks for nearly its

entire length. Trees, branches, woody debris, and detritus were observed in the stream channel in multiple locations along the brook.

OU03 includes Pontiac Bay and an adjacent area within Lake Flower. Pontiac Bay (approximately 4 acres) is located along the northeast portion of Lake Flower adjacent to the intersection of Lake Flower Avenue, Brandy Brook Road, and River Street. Lake Flower is a Class A designated water body.

This FAR describes PDI field work conducted in support of the combined RD for OU02 and OU03. The field programs were completed following the procedures described herein and in general accordance with the PDI Field Activities Plan (MACTEC, 2016), Quality Assurance Program Plan (MACTEC, 2011a) and Program Health and Safety Plan (MACTEC, 2011b). This report is organized as follows:

- Section 2.0 describes the field activities conducted at the Site as part of the PDI.
- Section 3.0 presents the results of the PDI activities.
- Section 4.0 refines the current understanding of the extent of Site-related MGP waste-impacts.
- Section 5.0 includes the references discussed in this report.

2.0 PRE-DESIGN INVESTIGATION FIELD ACTIVTIES

Based on the WA and discussions with the NYSDEC, as well as the full-scale remediation proposal presented in the Record of Decision (ROD) for OU02 (NYSDEC, 2016) and OU03 (NYSDEC, 2015), the objective of the 2016/2017 PDI was to collect data to supplement the information gathered during the Remedial Investigation (MACTEC, 2015) to support the combined RD for OU02 and OU03.

The technical objectives of the investigation were to:

- Complete an ecological study, bathymetric study, and wetland delineation at OU02 and OU03
- Complete a topographic and property boundary survey of OU02
- Complete a topographic survey of OU03 shoreline areas and determination of property lines at OU03
- Complete a hydrogeological investigation of OU02 and OU03 to evaluate the depth of groundwater, the potential for groundwater discharge into Pontiac Bay, and to assist with RD dewatering specifications
- Complete an environmental and geotechnical investigation of OU02 to refine the horizontal and vertical extent of MGP waste impact to sediments, to support excavation support design, and to assess the slope stability of Brandy Brook
- Complete an environmental and geotechnical investigation of OU03 to refine the horizontal and vertical extent of MGP waste impact to sediments, to support shoring design, and to identify options available to render saturated sediment suitable for off-site disposal during the remedial action.

The remainder of Section 2.0 describes the field activities conducted during the PDI.

2.1 GENERAL FIELD OPERATIONS

Field activities were conducted in level D personal protection and in accordance with the MACTEC Field Activities Plan (MACTEC, 2016).

Subcontractors chosen to support the field activities included:

- Underground utility clearance was completed by New York Leak Detection, Inc. (NYLD)

- Site topographic, bathymetric, and property boundary surveys were completed by Prudent Engineering, LLP

- Direct push soil borings and piezometer installations were completed by Precision Environmental Services, Inc.

- Land geotechnical auger borings and piezometer installations were completed by Aztech Technologies, Inc.

- Barge-mounted geotechnical drilling was completed by Atlantic Testing Laboratories

- Soil and sediment chemical analyses were provided by TestAmerica, Inc.

- Soil geotechnical analyses were completed by Atlantic Testing Laboratories

- Transport and disposal of investigation derived waste (IDW) was conducted by NRC/OP-TECH

Prior to conducting field work, NYLD used ground penetrating radar (GPR) and power/radio techniques to identify underground utilities near the Site. NYLD's utility survey reports are included in Appendix A.

The Site topographical and bathymetric survey is included in Appendix B. Additionally, a location and elevation survey was performed for the fourteen piezometers installed during the investigation. Horizontal locations were tied to the NYS Plane Coordinate System using North American Datum of 1983, and measured to an accuracy of 0.1 foot. Vertical elevations of wells were tied to mean sea level, using National Geodetic Vertical Datum of 1988, and measured to an accuracy of 0.01 foot (Appendix B).

IDW soil and water was containerized in United States Department of Transportation-approved 55-gallon drums. The IDW was removed from the Site by NRC/OP-TECH and disposed at the ENPRO Services of Vermont, Inc. facility in Williston, Vermont. Waste Profile Forms and Waste Manifest are included in Appendix C.

2.2 SOIL AND SEDIMENT SAMPLING

Soil and sediment sample collection methods are described in the following subsections. Each sample was screened using a photoionization detector (PID) MiniRae 2000 with a 10.6 eV lamp, and soils and sediments were classified using the Unified Soil Classification System and the NYSDEC Guidance, "*Field Descriptions of Samples for Former MGP Sites*". Field observations were recorded on field data records (FDRs) included in Appendix D. Sample locations are shown on Figures 2.1 and 2.2.

2.2.1 Hand Borings

Nine hand borings were collected utilizing Geoprobe® hand tools at selected locations throughout Brandy Brook to further evaluate the nature and extent of MGP-related waste present within the Brook sediments and underlying soils. Hand boring samples were collected at the locations depicted on Figure 2.1.

2.2.2 Direct Push Borings

A total of 43 direct push soil borings were advanced throughout Brandy Brook and along the shoreline of Pontiac Bay using Geoprobe® tooling mounted on a Bobcat® to further delineate the horizontal and vertical extent of MGP waste impacts. A subset of these 43 locations were advanced along the northern shoreline of Pontiac Bay with the purpose of investigating petroleum (gasoline) impacts to soils that were observed in this area. Soil samples were collected continuously using a four-foot long, two-inch diameter core sampler lined with acrylic liners for the collection of discrete subsurface soil samples. Direct push rods were advanced to refusal or field-determined depths. One-inch piezometers were installed at 14 direct push boring locations, as described in further detail in Subsection 2.3.

2.2.3 Hollow Stem Auger Borings

Hollow stem auger (HSA) borings were advanced at seven locations with a Geoprobe® 3230 DT track mounted drill rig. The borings were installed to gather geotechnical data, to further delineate the horizontal and vertical extent of MGP waste impacts, and to install groundwater piezometers.

Either continuous or standard 5-foot interval Standard Penetration Testing (SPT), in accordance with ASTM D 1586, was conducted using 2-inch outside diameter split-spoon samplers. One-inch piezometers were installed at four HSA boring locations, as described in Subsection 2.3.

2.2.4 Barge-mounted Sediment Borings

Six geotechnical borings (SB-501 to SB-506, Figure 2.2) were advanced in Pontiac Bay using a barge-mounted CME-450 drill rig to collect geotechnical data to support shoring design associated with the proposed Pontiac Bay sediment excavation. The six borings were completed to approximately 40 feet below top of sediments, and one (SB-505) was advanced to 60 feet below top of sediments. SPTs were conducted at five foot intervals from top of sediments to the termination of each boring.

2.3 PIEZOMETER INSTALLATION AND HYDRAULIC CONDUCTIVITY TESTING

To evaluate the depth of groundwater at Brandy Brook and Pontiac Bay, and to assist with RD dewatering specifications, a total of 14 piezometers were installed as shown on Figures 2.1 and 2.2 (designated by soil boring/piezometer [SB/PZ] labeling). Each piezometer was installed with a one-inch diameter polyvinyl chloride (PVC) casing with either a five or ten foot, schedule 40 PVC 0.010 inch slotted well screen. Following installation, piezometers were developed by over pumping for twenty minutes with a peristaltic pump. Well construction diagrams and development activities were recorded on FDRs (Appendix D).

Groundwater elevation measurements were collected from a subset of existing monitoring wells and the newly installed piezometers following their installation and development. Additionally, hydraulic conductivity testing was completed on two existing monitoring wells (MW-104 and -106) and on four of the newly installed piezometers. Testing was completed as slug tests using a solid mass of steel rebar (the slug) and a data logger. One falling head test was completed for each well, and one rising head test was completed at PZ-301. The test data was analyzed by the methods of Hvorslev (1951) and Bouwer and Rice (1976) and is included with the FDRs in Appendix D.

2.4 FILTER BAG TESTING AND GEOTECHNICAL LABORATORY ANALYSIS

Filter Bag Testing

Four onsite filter bag dewatering tests were conducted on Pontiac Bay sediments. Test locations are shown on Figure 2.2. Sediment samples were collected from two to three feet below top of sediment and placed in a hanging bag made of geotextile filter material and suspended over a 5-gallon collection bucket. The samples were observed for the ability and ease of the deposits to dewater. Test results are discussed in Subsection 3.3.

Geotechnical Laboratory Analysis

During HSA and barge drilling activities, a subset of soil samples were collected and submitted for the analysis of select geotechnical parameters by Atlantic Testing Laboratories. The borings, sample collection depths, and analytical parameters are presented in Table 2.1. Test results are discussed in Subsection 3.3.

2.5 CHEMICAL LABORATORY ANALYSIS

Three sediment samples and one soil sample were submitted in November 2016 for the analysis of t(34) PAHs as defined by the NYSDEC guidance, *NYSDEC Screening and Assessment of Contaminated Sediments* (NYSDEC, 2014).

Six additional soil samples were submitted in March/April 2017 for the analysis of :

- Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260C
- Semivolatile Organic Compounds (SVOCs) by EPA Method 8270D
- Petroleum Hydrocarbons by New York State Analytical Services Protocols (ASP) Method 310.13

Additionally, two composite sediment samples from borings HB-401 through HB-405 and from borings SB-501 through 506 were submitted for full suite analysis for predisposal characterization, including the following analyses:

- Total polychlorinated biphenyls (PCBs) by method 8082
- Toxicity Characteristics Leaching Procedure (TCLP) VOCs by method 1311/8260
- TCLP SVOCs by method 1311/8270
- TCLP Pesticides by method 8081

- TCLP metals by methods 1311/6010 and 7471
- Ignitability by method 1030A
- pH by method 9045D
- percent solids test by method 160.3
- Reactivity by methods 9010 and 9030.

Validation of laboratory analytical results was completed by MACTEC in accordance with DER-10 (NYSDEC, 2010) and presented in the Data Usability Summary Reports (DUSR) included in Appendix E. Analytical results are discussed in Subsection 3.2.

2.6 ECOLOGICAL AND WETLAND SURVEY

An ecological and wetlands delineation survey was conducted within OU02 and OU03 to delineate wetlands and collect data on wetland functions and values. Wetland delineation activities included hand dug test pits, completion of wetland FDRs, identification and flagging of wetland boundaries, and an evaluation of the wetland functions and values. Wetlands delineation was conducted in accordance with Army Corps of Engineers (ACOE) Wetland Delineation Guidance including the Corps of Engineers Wetland Delineation Manual (ACOE, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, revised January, 2012. Wetlands were classified using the US Fish and Wildlife Service guidance Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al, 1979). The delineation survey is presented as the Wetland Delineation and Functional Assessment Report in Appendix F.

3.0 PRE-DESIGN INVESTIGATION RESULTS

Field observations and analytical results for the soil and sediment samples collected during the PDI are discussed in this section.

3.1 FIELD OBSERVATIONS AND MEASUREMENTS

Evidence of MGP-waste impacts (including visual, olfactory, and/or PID response) observed during soil sampling were identified and recorded on FDRs in accordance with the NYSDEC Field Descriptions of Samples for Former MGP Sites (included in Appendix D). A summary of MGP-waste impacts observed during sampling is summarized in Table 3.1.

3.2 SOIL AND SEDIMENT CHEMICAL ANALYTICAL RESULTS

Validation of the laboratory analytical results was completed by MACTEC in accordance with DER-10 and is presented in the DUSR included in Appendix E.

PAH Analysis

Three sediment samples and one soil sample were analyzed for the NYSDEC Sediment Guidance Target Compound List of 34 PAHs (t(34)PAH). As shown in Table 3.2, PAHs were detected in all three sediment samples, at concentrations within the Class B sediment guidance values (SGV) category in HB-409, and in the Class C SGV category in HB-406. PAHs were also detected above the Restricted Residential Use SCO and the Protection of Ecological Resources (PER) SCO in the one soil sample submitted (SB-330, Table 3.3).

VOC, SVOC, and Petroleum Hydrocarbon Analysis

Six additional soil samples from the shoreline of Pontiac Bay were analyzed for SVOCs by EPA Method 8270D. As shown in Table 3.4, SVOCs were detected above the Restricted Residential Use SCO and the PER SCO in four of the six submitted samples.

One of the six shoreline samples (SB-611) was analyzed for VOCs by EPA Method 8260C, in which three VOCs were detected above the Restricted Residential Use SCO and the Protection of Ecological Resources (PER) SCO (Table 3.4).

Additionally, to further characterize the petroleum impacts that were observed along the northern shoreline of Pontiac Bay, samples SB-607 and SB-611 were analyzed for the Petroleum Hydrocarbon footprint by New York State ASP Method 310.13. The results of this analysis revealed that both samples contained petroleum products which closely resemble highly degraded gasoline and motor oil (Table 3.4).

Predisposal Characterization

Two composite samples were submitted for the full suite analysis for predisposal waste characterization. The results of these analyses are presented in Table 3.5.

3.3 GEOTECHNICAL TESTING RESULTS

Filter Bag Testing

MACTEC performed four onsite filter bag dewatering tests on Pontiac Bay soils (locations shown on Figure 2.2). Observations from these four tests are provided in Table 3.6 below.

Table 3.6 Filter Bag Testing Results

Test ID	Start Time	Finish Time	Initial Volume of Soil	Final Volume of Water	Comments
FBT-1	13:53	14:23	1 Pint	131 mL	Soils cohesive after 30 minutes, fracture easily, dry, not much free water
FBT-2	13:58	14:28	1 Pint	170 mL	Soils cohesive, fracture easily, wetter than FBT-1
FBT-3	14:04	14:34	1 Pint	155 mL	Soils are coarser, traces of fine silt, wetter than FBT-2 and 3, higher organic content as well
FBT-4	14:08	14:38	1 Pint	155 mL	Highest content of fine soils

The filter bag testing indicated that the deposits would not likely be difficult to dewater during the remediation activities and would satisfy disposal facility water content, workability, and strength requirements subsequent to completion of the dewatering program.

Geotechnical Laboratory Testing

MACTEC submitted 12 soil samples to Atlantic Testing Laboratories for the analysis of grain size (American Society for Testing and Materials [ASTM] D422) and direct shear (ASTM D 3080). The

intent of the testing was to provide data to support the design of the sediment removal from Pontiac Bay. Direct shear and grain size testing was conducted to aid in the development of sheet pile cofferdam design should it be determined that the bay would be dewatered during sediment excavation. Grain size data will also be used to support the determination of the potential excavation/dredging methods as well as to further access the most efficient methods to dewater and/or amend excavated sediments prior to offsite disposal. The results of the testing are summarized in Table 3.7. Individual laboratory testing results are presented in Appendix G.

The results of the geotechnical testing of the 12 samples showed that sample SB-506 (S-7) was characterized as silt with lesser amounts of sand and contained approximately 74% material finer that the Standard Number (No.) 200 sieve (characterized as brown silt with some fine sand). The remaining 11 samples were characterized as fine to coarse sand with lesser quantities (6.6 to 34 percent) of material finer than the Standard No. 200 sieve.