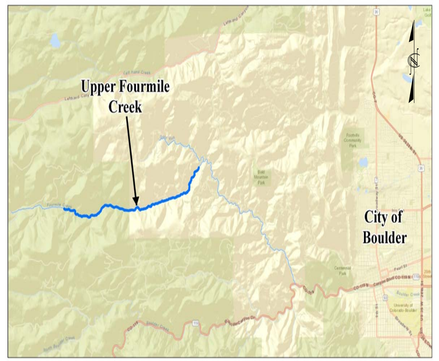
STATE	BAKER PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
CO	138366	1	33

UPPER FOURMILE CREEK STREAM RESTORATION

LOCATION: FOURMILE CANYON DRIVE

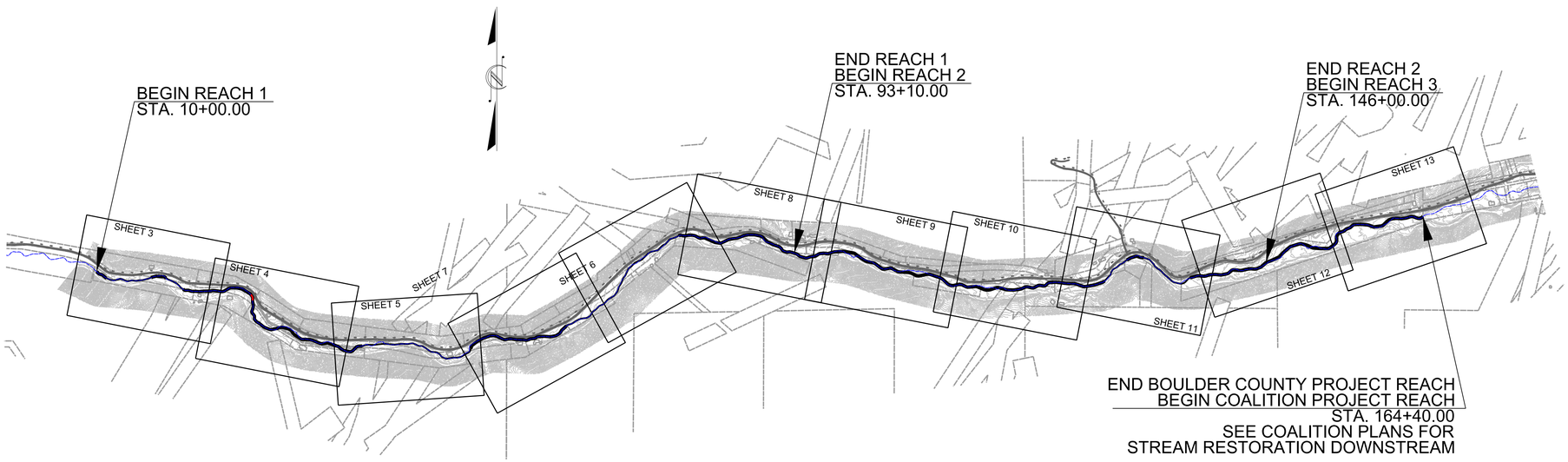
TYPE OF WORK: 30% STREAM RESTORATION PLANS



VICINITY MAP

INDEX OF SHEETS

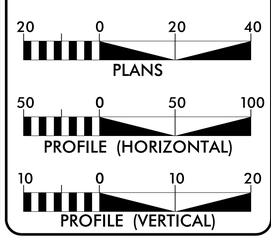
1	TITLE SHEET
1-A	STREAM CONVENTIONAL SYMBOLS GENERAL NOTES VEGETATION SELECTION QUANTITIES
2 - 2F	DETAILS
3 - 13	PLAN SHEETS
P-1 - P-6	PROFILE SHEETS
X-1 - X-5	CROSS SECTION SHEETS
20 - 21	REVEGETATION PLAN SHEETS



No.	DATE	DESCRIPTION	BY	APPROVED

PROJECT: 138366 UPPER FOURMILE CREEK

GRAPHIC SCALES



PRELIMINARY DESIGN DATA

		REACH 1	REACH 2	REACH 3
DESIGN REACH LENGTH (ft)	=	8310	5290	8600
BANKFULL XSEC AREA (sq ft)	=	27.5	29.0	32.5
BANKFULL WIDTH (ft)	=	22.5	22.5	24.0
BANKFULL DEPTH (ft)	=	1.22	1.29	1.36
W/D RATIO	=	18.4	17.5	17.7
DRAINAGE AREA (sq mi)	=	11.2	13.8	15.9

PREPARED FOR

BOULDER COUNTY
DEPARTMENT OF TRANSPORTATION

Boulder County

CONTACT: CLARISSA HAGEMAN

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

TBD
LETTING DATE:

LUCAS BABBITT, PE, CFM
PROJECT ENGINEER

PROJECT ENGINEER

SIGNATURE: *P.E.*

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	1A

PROJECT ENGINEER

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

STREAM CONVENTIONAL SYMBOLS

- STREAM REALIGNMENT REQUIRED AS A RESULT OF ROADWAY IMPROVEMENTS
- EXISTING STREAM ALIGNMENT
- BANKFULL CHANNEL EXTENTS
- EXISTING PROPERTY BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING STRUCTURE / HOMES
- EXISTING ROAD CROSSING
- PROPOSED ROAD CROSSING
- POOL
- ROCK CROSS VANE
- CONSTRUCTED RIFFLE
- CONVERGING BOULDER CLUSTER
- ROCK J-HOOK
- ROCK STEP POOL
- BOULDER BANK PROTECTION
- LOG STEP POOL
- LOG VANE
- ROOT WAD
- LOG J-HOOK
- TOE WOOD BANK PROTECTION
- FLOODPLAIN DEBRIS REMOVAL
- FLOODPLAIN AND WETLAND RESTORATION
- EXISTING CHANNEL FILL
- EMBANKMENT RECONSTRUCTION

**NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

GENERAL NOTES

1. THE CONTRACTOR IS REQUIRED TO INSTALL INSTREAM STRUCTURES USING A EXCAVATOR OR EQUIVALENT WITH A HYDRAULIC THUMB OF SUFFICIENT SIZE TO PLACE BOULDERS, LOGS, AND ROOTWADS.
2. WORK IS BEING PERFORMED AS AN ENVIRONMENTAL RESTORATION PLAN. THE CONTRACTOR SHOULD MAKE ALL REASONABLE EFFORTS TO REDUCE SEDIMENT LOSS AND MINIMIZE DISTURBANCE OF THE SITE WHILE PERFORMING THE CONSTRUCTION WORK.
3. CONTRACTOR SHALL CALL UTILITY NOTIFICATION CENTER OF COLORADO 2 - BUSINESS DAYS IN ADVANCE BEFORE DIGGING, GRADING, OR EXCAVATION FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.
4. PROPOSED CHANNEL ALIGNMENT IS INTENDED TO CAUSE MINIMAL DISTURBANCE TO THE EXISTING TREES AND VEGETATION. THE ON-SITE ENGINEER RESERVES THE RIGHT TO MAKE FIELD-FIT CHANGES TO THESE PLANS AND DETAILS TO FURTHER REDUCE DISTURBANCE.
5. NO FIELD FIT CHANGES SHALL BE MADE WITHOUT ENGINEER BEING PRESENT ON-SITE AND WITHOUT THEIR CONCURRANCE.
6. THIS IS A PRELIMINARY PLAN SET THAT WAS COMPLETED TO EVALUATE MAJOR DESIGN FEATURES PRIOR TO ADVANCING TO THE DESIGN-BUILD PHASE. CONSTRUCTION SHALL NOT BEGIN, OR CONTINUE, WITHOUT ENGINEER BEING PRESENT. AS SUCH, THE ENGINEER RESERVES THE RIGHT TO MAKE DESIGN MODIFICATIONS TO IMPROVE STREAM FUNCTION AND/OR CONSTRUCTABILITY. MODIFICATIONS COULD INCLUDE, BUT ARE NOT LIMITED TO, GRADING MODIFICATIONS, CHANGE IN MATERIAL TYPE, CHANGE IN MATERIAL SIZE, CHANGE IN MATERIAL PLACEMENT, ETC.
7. CONSTRUCTION SHALL BEGIN AT THE UPSTREAM END OF THE PROJECT AT STA 10+00 AND CONTINUE TO THE DOWNSTREAM END AT STA 231+99.97 IN ORDER TO AVOID DAMAGING PREVIOUSLY COMPLETED WORK.
8. THE CONTRACTOR SHALL CONFIRM THE RECEIPT OF ALL NECESSARY PERMITS AND APPROVALS BEFORE THE START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A WAY THAT THE AREA OF DISTURBANCE IS MINIMIZED. ALL EXISTING TREES, SHRUBS AND VEGETATION SHALL BE PROTECTED UNLESS OTHERWISE NOTED ON THE DRAWINGS. NO TREES SHALL BE REMOVED WITHOUT APPROVAL FROM LANDOWNER, ENGINEER, BOULDER COUNTY, AND FOURMILE CREEK COALITION.
10. FOR ALL SITE GRADING, SMOOTH, PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
11. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
12. CONSTRUCTION OF THE PROPOSED WORK WILL TAKE PLACE WITHIN THE CHANNEL AND WATER CONTROL MEASURES WILL BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF DRAINAGE WATER FROM AREAS ADJACENT TO FOURMILE CREEK AND ITS TRIBUTARIES INCLUDING STORMWATER OUTFALLS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTABLISHING MEANS AND METHODS OF GROUND AND SURFACE WATER CONTROL APPROPRIATE FOR CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT DRAWINGS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AND ALL PERMITS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND MAINTAINING IN CONTINUOUS OPERATION, ALL EXISTING STRUCTURES, NOT ALL POTENTIALLY IMPACTED STRUCTURES MAY BE SHOWN ON THE DRAWINGS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ALL STRUCTURES INCLUDING BUT NOT LIMITED TO STREETS, CURB AND GUTTER, BRIDGE PIERS AND ABUTMENTS, CREEK BANK PROTECTION OF VARIOUS TYPES, CREEK DROP STRUCTURES, SIGNS, PEDESTRIAN WALKS, RETAINING WALLS AND FENCING. IN THE EVENT THAT A STRUCTURE OR UTILITY IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR SHALL IMMEDIATELY NOTIFY BOULDER COUNTY IN WRITING AND MAKE REPAIRS IN ACCORDANCE WITH BOULDER COUNTY REQUIREMENTS.
14. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS OF BOULDER COUNTY UNLESS SPECIFICALLY DETAILED OTHERWISE ON THESE PLANS AND ASSOCIATED SPECIFICATIONS.
15. THE CONTRACTOR SHALL MAINTAIN AT THE SITE AT ALL TIMES ONE SIGNED COPY OF THE PROJECT DRAWINGS AND SPECIFICATIONS, ONE COPY OF BOULDER COUNTY STANDARDS, AND ONE COPY OF ALL REQUIRED PERMITS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND SUBMITTING AS-BUILT DRAWINGS TO BOULDER COUNTY.
17. THE CONTRACTOR SHALL PREPARE AND MAINTAIN THE STORMWATER MANAGEMENT PLAN AND OBTAIN THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THROUGH THE COLORADO DEPARTMENT OF PUBLIC HEALTH (CDPHE).
18. THE CONTRACTOR SHALL PROVIDE DAILY ON-SITE SURVEY CONTROL TO THE LEVEL OF DETAIL REQUIRED TO EVALUATE CONSTRUCTION VERSUS THESE DESIGN PLANS.

GROUND COORDINATE TABLE:

PT#	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	261,783.79	36,974.73	6,631.9	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
102	258,761.96	34,659.17	6,736.8	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
103	257,798.11	31,262.07	6,863.0	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
104	256,690.26	26,485.44	7,075.7	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
105	256,656.41	21,945.65	7,262.6	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
106	256,739.56	17,285.07	7,443.4	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP
107	256,847.51	10,921.26	7,694.9	#5 REBAR w/1-1/4" ORANGE PLASTIC CAP

NOTES:
1. THE BASIS OF COORDINATES FOR THIS MAP IS THE NORTH AMERICAN DATUM OF 1983-2011 (NAD 83 (2011)) U.S. SURVEY FEET, BASED LOCALLY UPON THE DAVID EVANS AND ASSOCIATES, INC. CONTROL POINT DEA CP 104 FOR GROUND COORDINATE SCALE FACTOR DETERMINATION.
2. THE BASIS OF ELEVATIONS FOR THIS MAP IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), BASED LOCALLY UPON THE CP 107. ELEVATIONS COMPUTED FROM A NGS OPUS SOLUTION REPORT USING A FOUR (4) HOUR OCCUPATION DATA SET AT DEA CP 107.
3. TO MODIFY GROUND CONTROL TO COLORADO STATE PLANE NORTH ZONE; ADD 1,000,000 FEET TO NORTH COORDINATE, ADD 3,000,000 FEET TO EAST COORDINATE AND MULTIPLY BY 1/CFS (COMBINED SCALE FACTOR = 1/1.000373101 = 0.999627038.
4. FIELDWORK FOR CONTROL WAS COMPLETED NOVEMBER 2013.
5. SET 18" LONG #5 REBAR w/1-1/4" OUTSIDE DIAMETER ORANGE PLASTIC CAP MARKED "DEA INC" AT ALL CONTROL POINTS UNLESS OTHERWISE NOTED, SEE GROUND COORDINATE TABLE ABOVE.

NOTICE:
ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

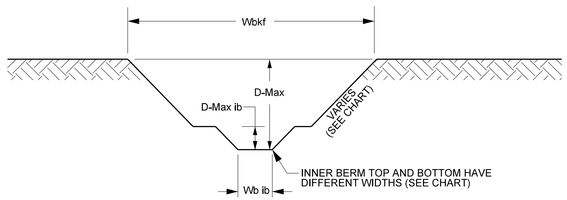
19. THE PROJECT ENGINEER SHALL BE ON-SITE DURING CONSTRUCTION TO HELP INTERPRET DESIGN PLANS.
20. THE PROPOSED PLANS WERE BASED ON NOVEMBER 2013 LiDAR INFORMATION AND NOT DETAILED SURVEY DATA. AS A RESULT, EXISTING TOPOGRAPHY INFORMATION SHOWN ON THIS PLAN SET IS APPROXIMATE ONLY AND ACTUAL CONDITIONS MAY VARY.
21. FLOOD DEBRIS REMOVAL IS PART OF THIS PROJECT AND CONSISTS OF WOODY MATERIAL AND ALLUVIUM. THE LOCATION AND QUANTITY OF FLOOD DEBRIS REMOVAL HAS NOT BEEN DETERMINED. FLOOD DEBRIS REMOVAL WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
22. SOME SECTIONS OF CREEK HAVE BEGUN, AND WILL CONTINUE TO HEAL AND WILL NOT REQUIRE RESOTRATION. THESE LOCATIONS HAVE BEEN IDENTIFIED ON THE PLANS. THESE LOCATIONS WILL BE IDENTIFIED BY ENGINEER DURING CONSTRUCTION.
23. ROADWAY CENTERLINE AND EDGES SHOWN ON PROPOSED PLANS ARE APPROXIMATE.
24. THE CONTRACTOR WILL WORK WITH THE ENGINEER TO IDENTIFY ALLUVIUM AND FLOODPLAIN DEBRIS TO BE REMOVED.
25. THE CONTRACTOR WILL WORK WITH RESIDENTS TO IDENTIFY ACCESS POINTS.
26. MINE TAILINGS EXIST THROUGHOUT THE PROJECT SITE. IN THE EVENT THAT MINE TAILINGS ARE ENCOUNTERED THE CONTRACTOR SHALL NOTIFY BOULDER COUNTY AND REFERENCE COLORADO DIVISION OF MINING RELCLAMATION AND SAFETY PROCEDURE FOR MANAGING HAZARDOUS MATERIALS.
27. IT IS ANTICIPATED THAT BOULDERS WILL BE HARVESTED FROM THE PROJECT SITE OR FROM A NEARBY LOCATION AS DIRECTED BY THE ENGINEER. BOULDERS SHALL BE RELATIVELY FLAT ON EITHER SIDE IN THE SAME DIMENSION, PREFERABLY THE LONG DIMENSION.

R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_01A.dgn

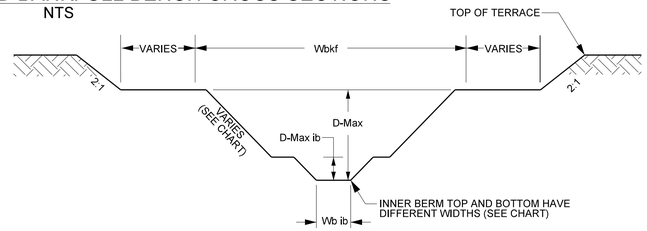
BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

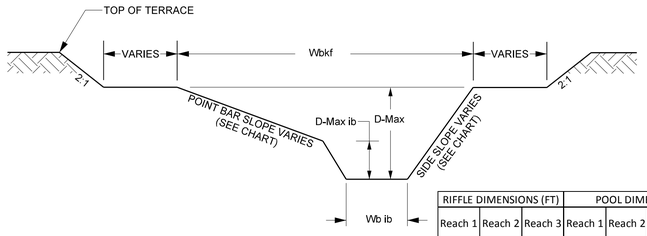
TYPICAL RIFFLE, POOL, AND BANKFULL BENCH CROSS SECTIONS
NTS



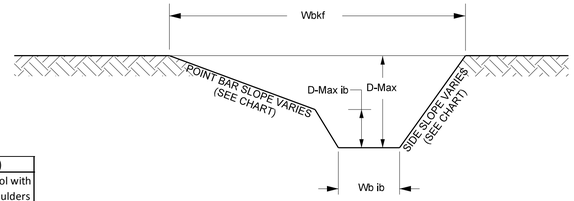
RIFFLE A-A



RIFFLE WITH BANKFULL BENCH



POOL B-B



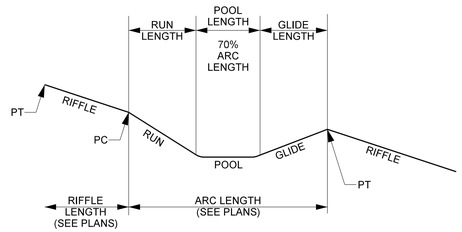
POOL WITH BANKFULL BENCH

RIFFLE DIMENSIONS (FT)			POOL DIMENSIONS (FT)				
Reach 1	Reach 2	Reach 3	Reach 1	Reach 2	Reach 3	Pool with Boulders	
22.5	22.5	24.0	23.5	24.0	25.0	25.0	WIDTH BANKFULL (Wbkf)
1.2	1.3	1.4	1.4	1.4	1.6	1.5	AVERAGE DEPTH (D)
1.9	2.0	2.1	2.5	2.7	2.9	2.7	MAXIMUM DEPTH (D-Max)
18.4	17.5	17.7	17.3	17.2	15.8	16.9	WIDTH TO DEPTH RATIO (Wbkf/D)
3.0	3.0	3.0	1.0	1.0	1.0	2.0	SIDE SLOPE
2.9	2.9	2.5	2.3	1.6	2.0	2.3	INNER BERM SIDE SLOPE
27.5	29.0	32.5	32.0	33.5	39.5	36.9	BANKFULL XSEC AREA
2.4	2.1	2.4	-	-	-	-	INNER BERM BENCH WIDTH (Wbnch)
10.5	10.5	11.5	10.3	9.7	11.0	12.0	INNER BERM WIDTH TOP (W ib)
6.5	6.5	7.5	6.0	6.0	6.5	6.0	INNER BERM WIDTH BOTTOM (Wb ib)
0.5	0.5	0.6	1.1	1.2	1.3	1.1	INNER BERM AVERAGE DEPTH (D ib)
0.7	0.7	0.8	1.3	1.4	1.5	1.4	INNER BERM MAX DEPTH (D-max ib)
20.3	20.3	18.8	9.1	8.1	8.5	11.2	INNER BERM W/D RATIO (W ib/D ib)
5.4	5.4	7.0	11.7	11.6	14.3	12.9	INNER BERM AREA (A ib)

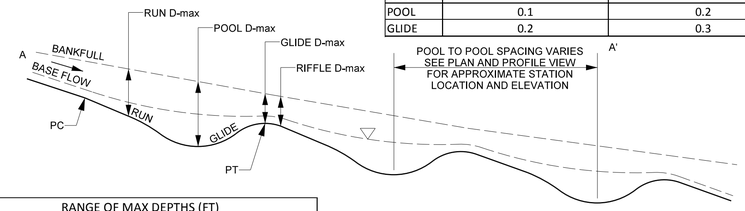
NOTES:

1. DURING CONSTRUCTION CORNERS OF DESIGN CHANNEL WILL BE ROUNDED AND A THALWEG WILL BE SHAPED PER DIRECTION OF ENGINEER.
2. POOL SHOWN ABOVE IS RIGHT BANK POOL ONLY.

TYPICAL PROFILE
NTS

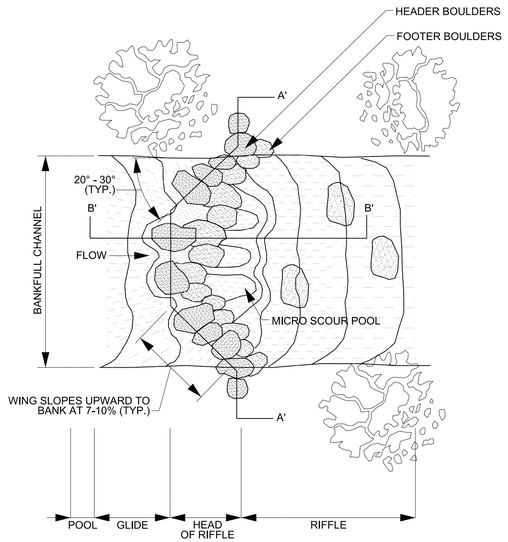


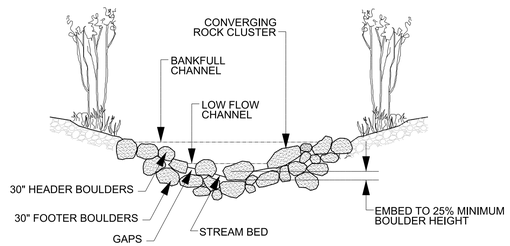
STREAM FACET	RANGE OF FACET SLOPE RATIOS RATIO OF AVG. SLOPE TO FACET SLOPE AVG. WATER SURFACE SLOPE VARIES BY REACH (SEE PLANS)	
	MIN	MAX
RIFFLE	SEE PLANS & PROFILE	
RUN	1	3
POOL	0.1	0.2
GLIDE	0.2	0.3



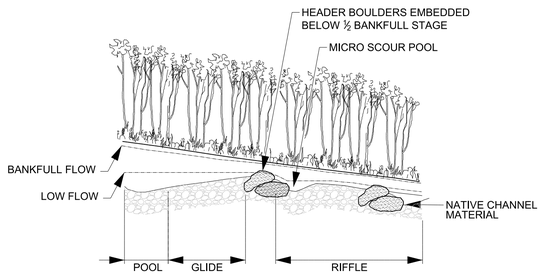
STREAM FACET	RANGE OF MAX DEPTHS (FT)					
	REACH 1		REACH 2		REACH 3	
	MIN	MAX	MIN	MAX	MIN	MAX
RIFFLE	1.9		2.0		2.1	
RUN	1.9	2.2	2.0	2.3	2.1	2.5
POOL	2.2	2.5	2.3	2.7	2.5	2.9
GLIDE	1.5	1.8	1.6	1.9	1.7	2.0

CONVERGING BOULDER CLUSTER
NTS



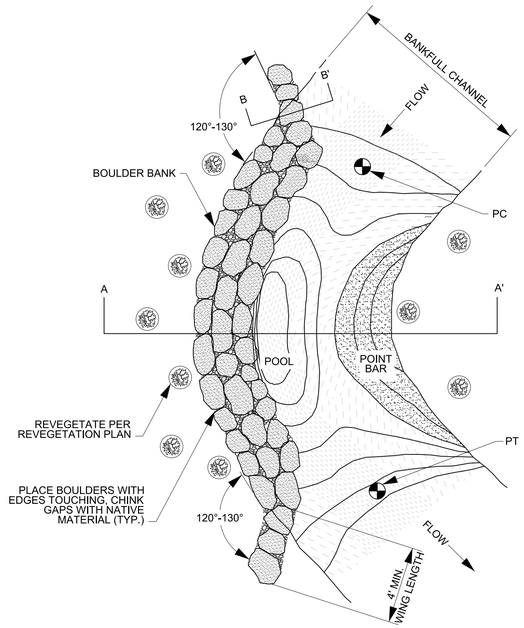


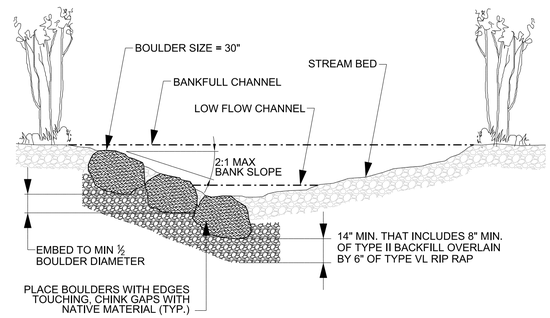
CROSS SECTION A - A'



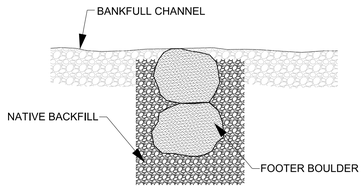
PROFILE B - B'

BOULDER BANK PROTECTION
NTS





CROSS SECTION A - A'



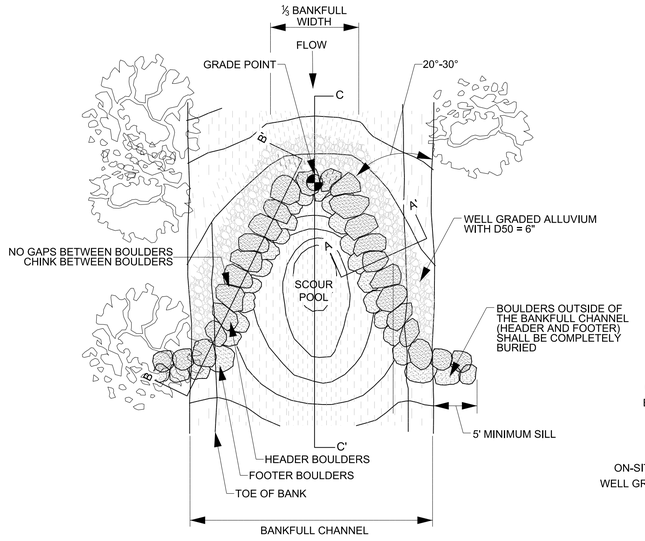
CROSS SECTION B - B'

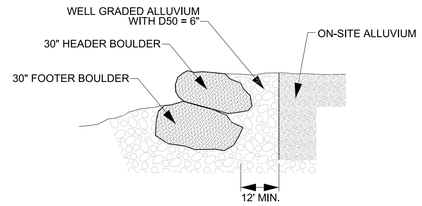
R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2A

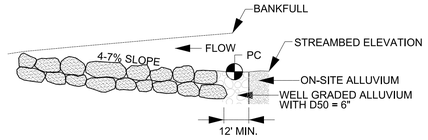
Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

ROCK CROSS VANE
NTS

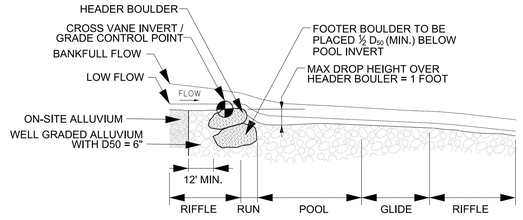




CROSS SECTION A - A'

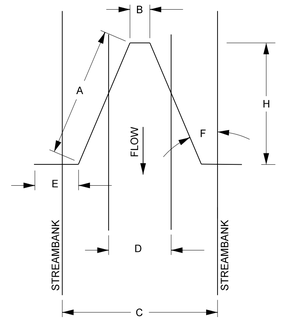


CROSS SECTION B - B'



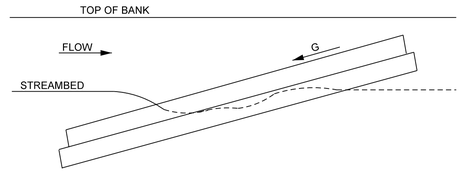
PROFILE C - C'

CROSS VANE TYPICAL
NTS



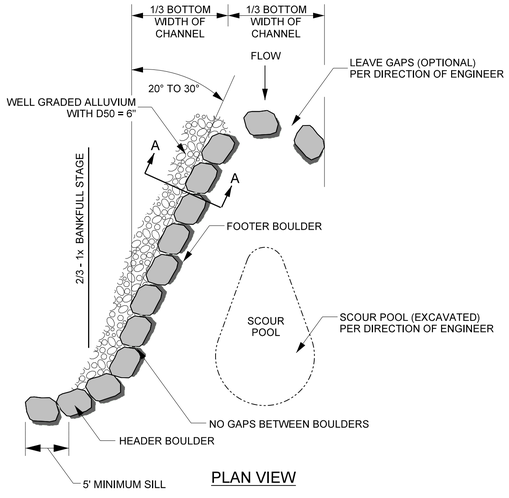
PLAN VIEW

		REACH 1	REACH 2	REACH 3
A	VANE ARM LENGTH	20.1 ft	20.1 ft	21.5 ft
B	INVERT LENGTH	7.4 ft	7.4 ft	7.9 ft
C	BANKFULL WIDTH	22.5 ft	22.5 ft	24.0 ft
D	BOTTOM WIDTH	10.5 ft	10.5 ft	11.5 ft
E	SILL LENGTH	5.0 ft	5.0 ft	5.0 ft
F	VANE ARM ANGLE	22.0 ft	22.0 ft	22.0 ft
G	VANE ARM SLOPE	0.1 ft	0.1 ft	0.1 ft
H	STRUCTURE LENGTH	18.7 ft	18.7 ft	19.9 ft

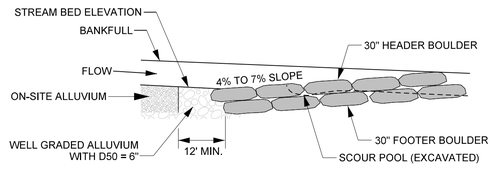


PROFILE VIEW

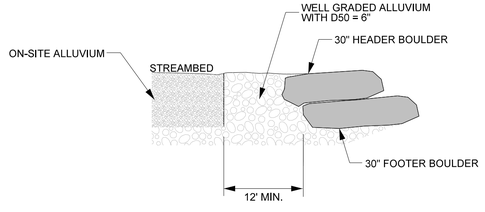
BOULDER J-HOOK VANE
NTS



PLAN VIEW



PROFILE VIEW

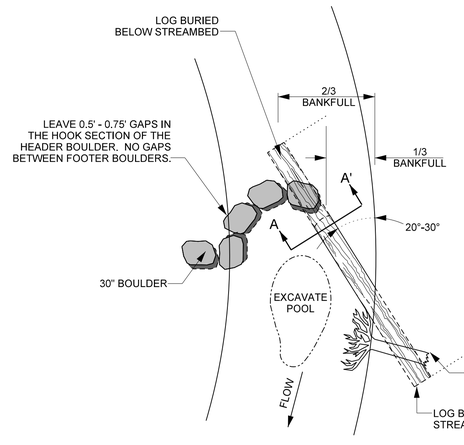


SECTION A - A

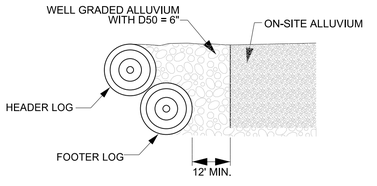
NOTES FOR ALL VANE STRUCTURES:

1. DIG A TRENCH BELOW THE BED FOR FOOTER BOULDERS AND PLACE FILL ON UPSTREAM SIDE OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
2. START AT BANK AND PLACE FOOTER BOULDERS FIRST AND THEN HEADER (TOP) BOULDER.
3. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
4. AN EXTRA BOULDER CAN BE PLACED IN SCOUR POOL FOR HABITAT IMPROVEMENT.
5. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE OF HEADER AND FOOTER BOULDERS.
6. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH ON-SITE ALLUVIUM TO THE ELEVATION OF THE TOP OF THE HEADER BOULDER.

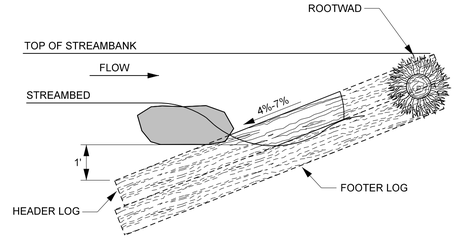
GRADE CONTROL LOG J-HOOK VANE
NTS



PLAN VIEW



SECTION A - A'



PROFILE VIEW

NOTES:

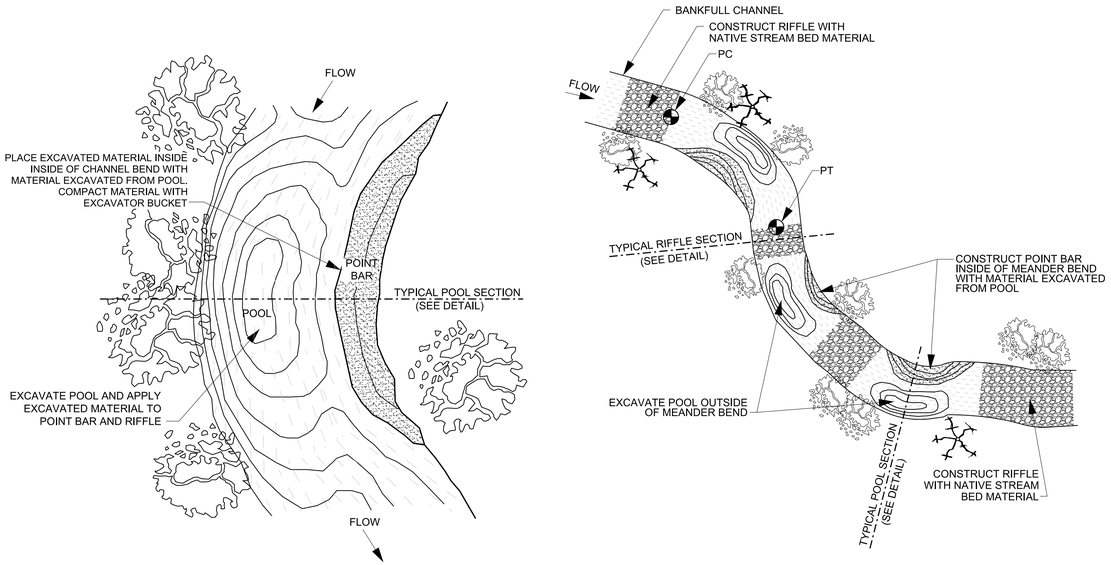
1. LOGS SHOULD BE AT LEAST 10" IN DIAMETER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
2. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
3. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK. SEE ROOTWAD DETAIL.
4. BOULDERS SHOULD BE PLACED ON TOP OF HEADER LOG FOR ACHORING.
5. HEADER BOULDERS TO BE PLACED 0.5 TO 0.75 FEET APART.
6. TRANSPLANTS CAN BE USED INSTEAD OF ROOWADS, PER DIRECTION OF ENGINEER.

R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02A.dgn

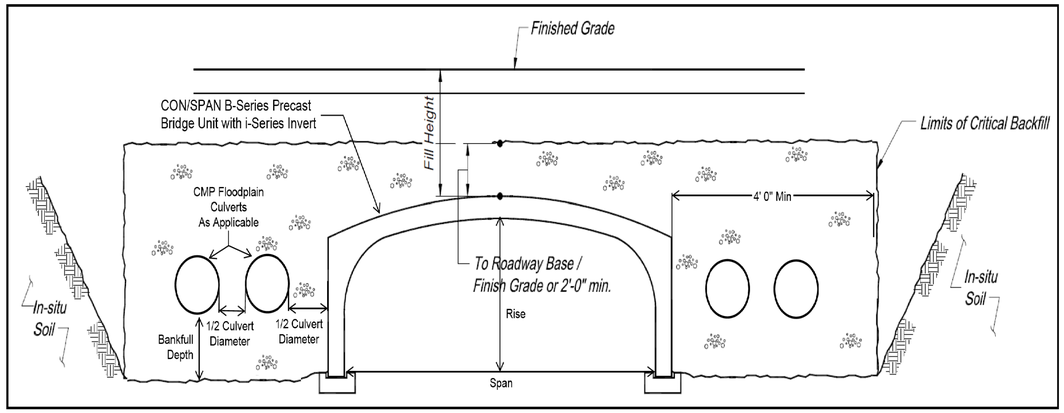
BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2B

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

CONSTRUCTED POOL AND POINT BAR
NTS



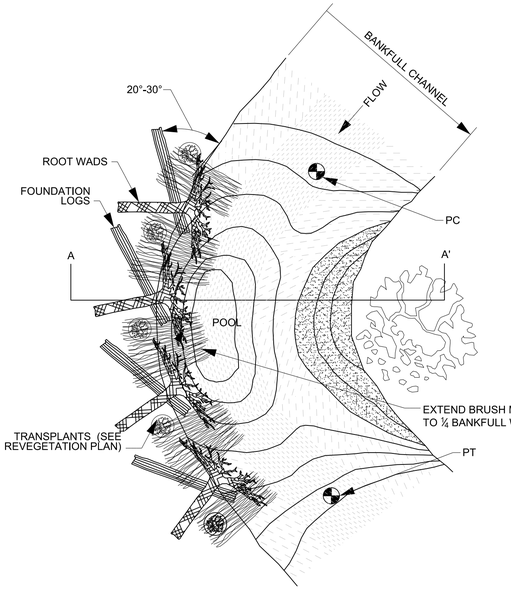
PROPOSED CROSSING STRUCTURE TYPICAL
NTS



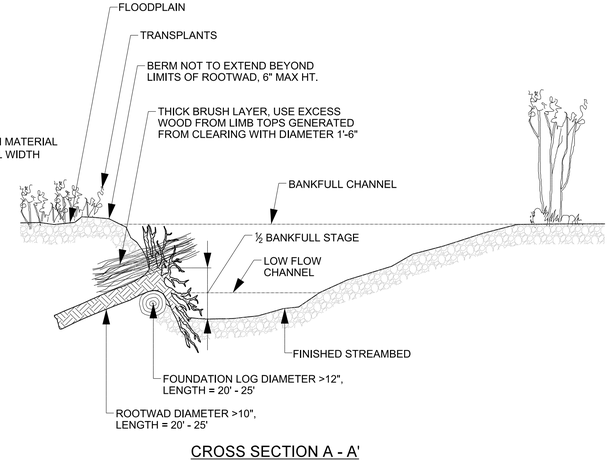
ROOT WADS
NTS

NOTES:

1. IF THE ROOT WAD CANNOT BE DRIVEN INTO THE BANK OR THE BANK NEEDS TO BE RECONSTRUCTED, THE TRENCHING METHOD SHOULD BE USED. THIS METHOD REQUIRES THAT A TRENCH BE EXCAVATED FOR THE LOG PORTION OF THE ROOT WAD. IN THIS CASE, A FOOTER LOG SHOULD BE INSTALLED UNDERNEATH THE ROOT WAD IN A TRENCH EXCAVATED PARALLEL TO THE BANK AND BELOW THE STREAMBED. ONE-THIRD OF THE ROOT WAD SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.
2. BANK PROTECTION SHALL BE EXTENDED A MINIMUM OF 10 FEET UPSTREAM OF PC 10 FEET DOWNSTREAM OF PT UNLESS OTHERWISE NOTED.

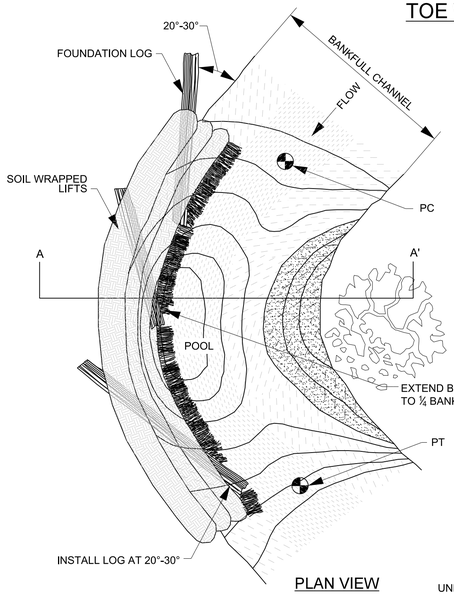


PLAN VIEW



CROSS SECTION A - A'

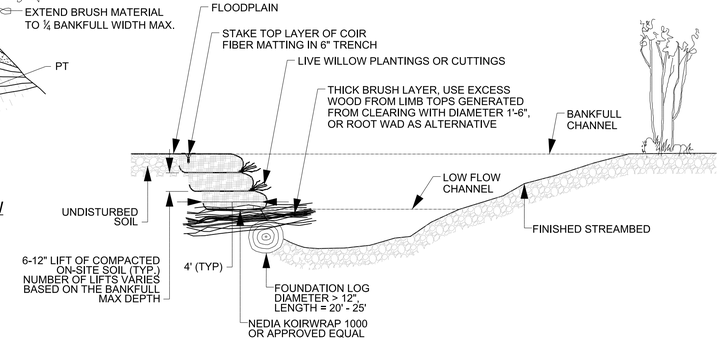
TOE WOOD WITH SOIL WRAPPED LIFT
NTS



PLAN VIEW

NOTES:

1. BANK PROTECTION SHALL BE EXTENDED A MINIMUM OF 10 FEET UPSTREAM OF PC 10 FEET DOWNSTREAM OF PT UNLESS OTHERWISE NOTED.



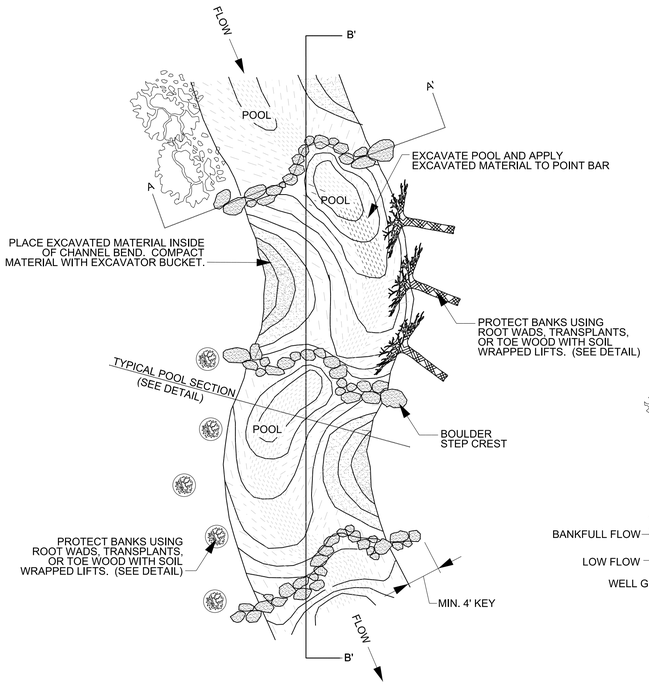
CROSS SECTION A - A'

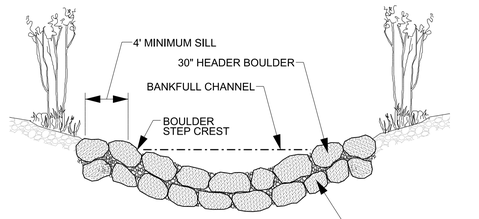
R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02B.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2C

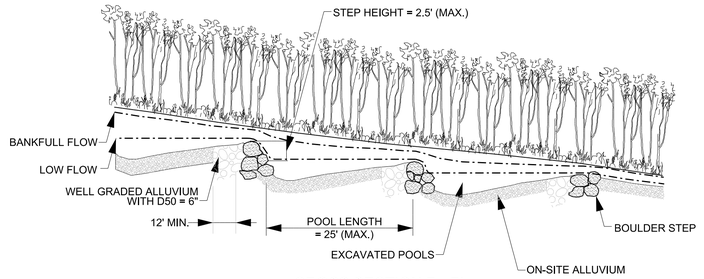
Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

ROCK STEP POOL
NTS



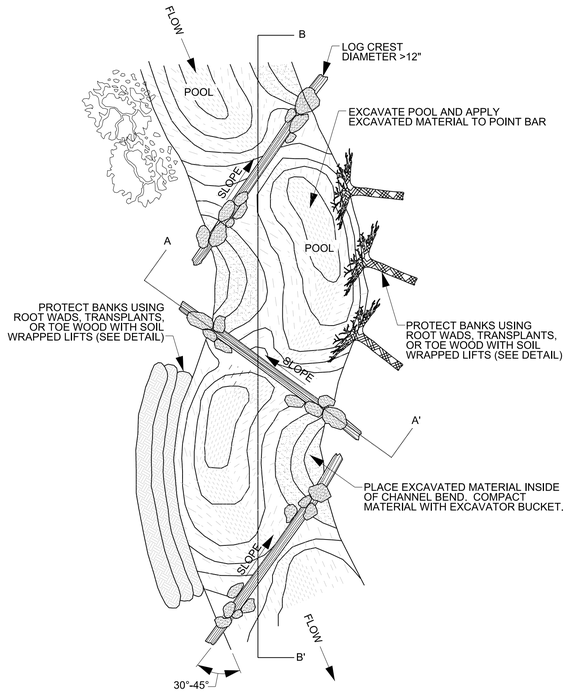


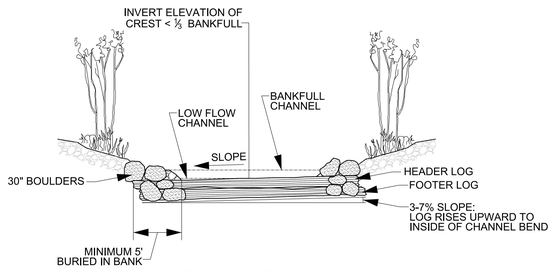
CROSS SECTION A - A'



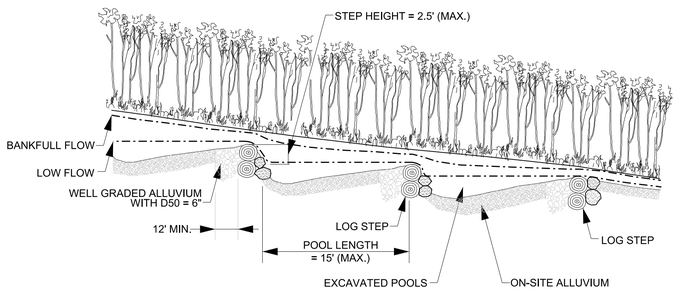
CROSS SECTION B - B'

ROCK AND LOG STEP POOL
NTS



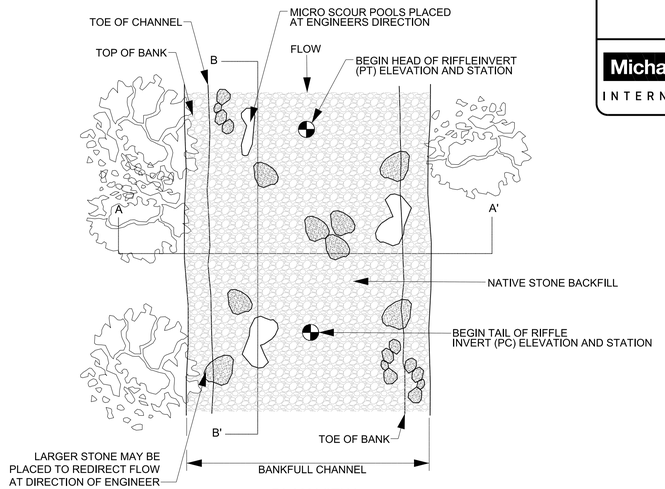


CROSS SECTION A - A'

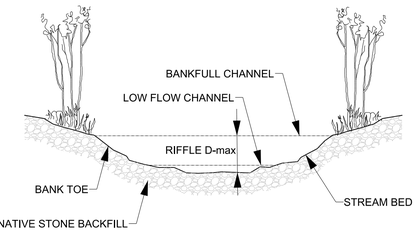


CROSS SECTION B - B'

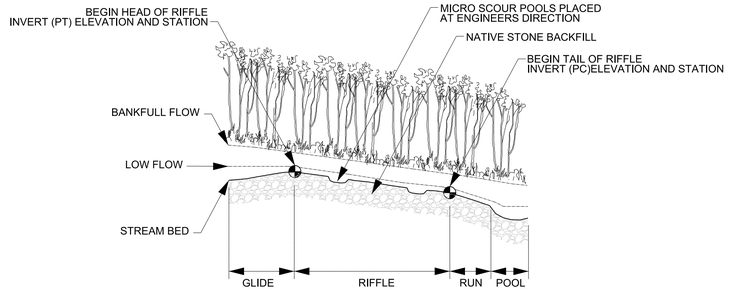
CONSTRUCTED RIFFLE
NTS



PLAN VIEW



CROSS SECTION A - A'



PROFILE B - B'

NOTES:
1. UNDERCUT CHANNEL BED ELEVATION AS NEEDED TO ALLOW FOR LAYERS OF STONE TO ACHIEVE FINAL GRADE.
2. INSTALL STONE BACKFILL, COMPACTED TO GRADE.
3. FINAL CHANNEL BED SHAPE SHOULD BE ROUNDED, SMOOTH, AND CONCAVE, WITH THE ELEVATION OF THE BED 0.2 FT DEEPER IN THE CENTER THAN AT THE EDGES.
4. NOT ALL RIFFLE LOCATIONS SHOWN ON PLANS NEED TO BE COMPLETELY RECONSTRUCTED, SOME JUST NEED TO BE RESHAPED.

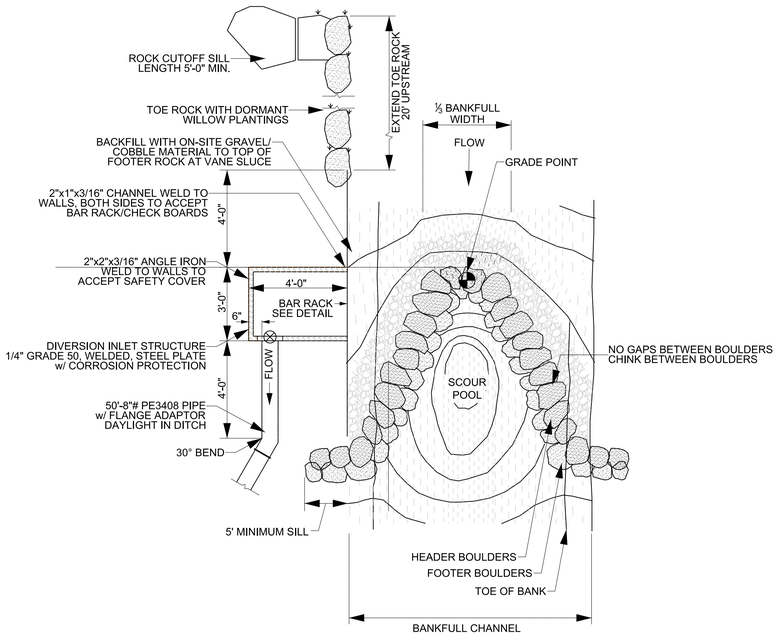
R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02C.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2D

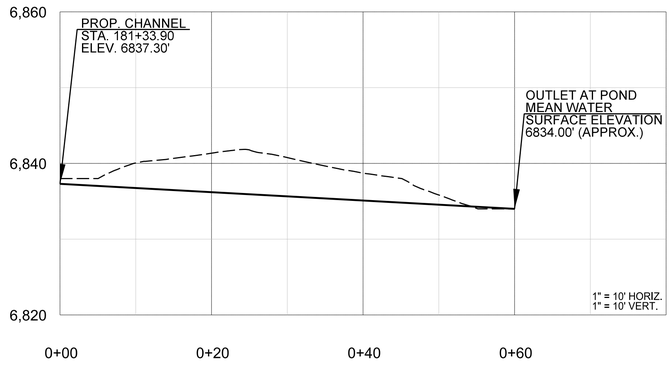
Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

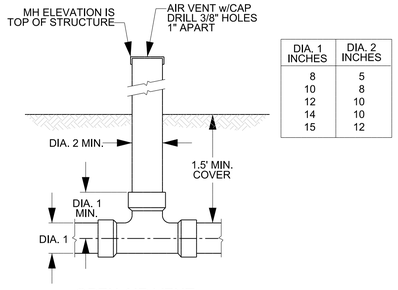
DIVERSION DETAIL

NTS



DIVERSION 1

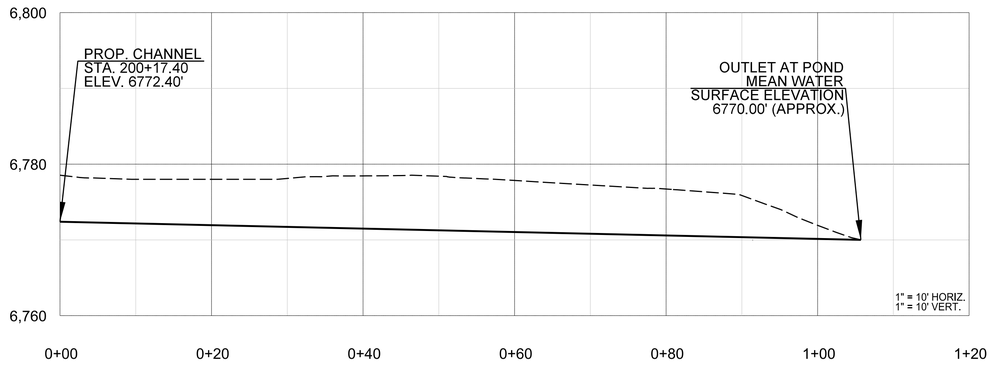


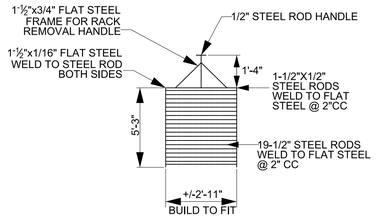


DIA. 1 INCHES	DIA. 2 INCHES
8	5
10	8
12	10
14	10
15	12

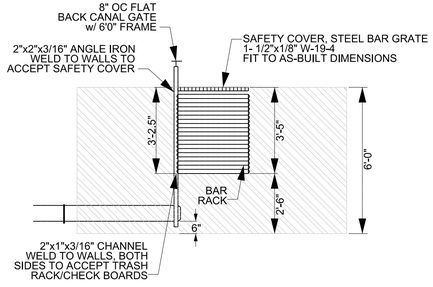
OPEN AIR VENT

DIVERSION 2





BAR RACK DETAIL



SECTION A-A

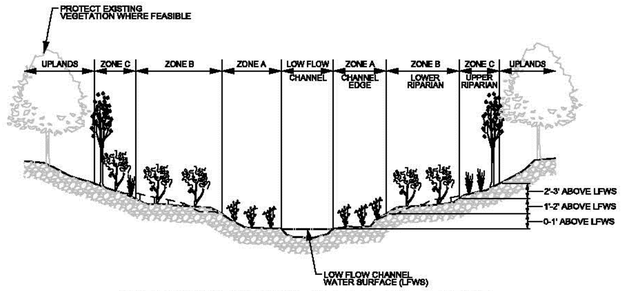
R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02D.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	2E

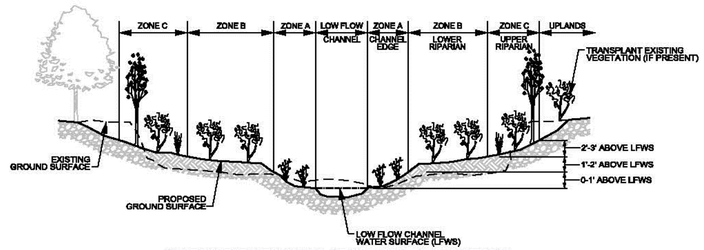
Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

Treatment 1: Restoration Approach for Partially Healed, Overwidened, and Aggraded Reaches

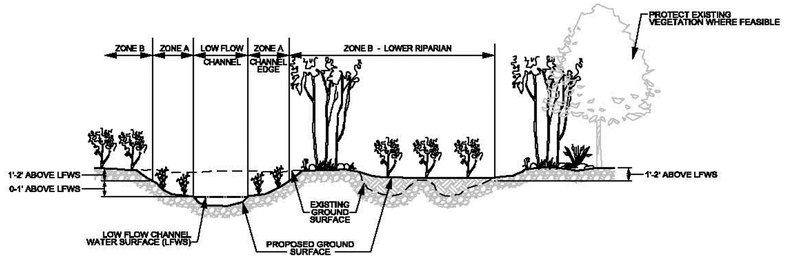
NTS



PARTIALLY HEALED REACHES : SEE TABLE 1 FOR PLANT LIST



OVERWIDENED REACHES : SEE TABLE 1 FOR PLANT LIST



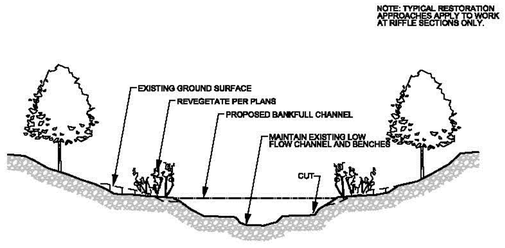
AGGRADED REACHES - CHANNEL RELOCATION : SEE TABLE 1 FOR PLANT LIST

NOTES:
IN REACHES WHERE ROCK GREATER THAN 2 INCH IN DIAMETER COMPRISES OVER 50 PERCENT OF THE CHANNEL BANK MATERIAL, LIVE PLANT MATERIAL (TRANSPLANTS, CONTAINERIZED STOCK, AND CUTTINGS) WILL BE INSTALLED BY USING EQUIPMENT TO EXCAVATE A TRENCH AT THE EDGE OF THE APPROXIMATE BANKFULL CHANNEL. THE BOTTOM OF THE TRENCH WILL CORRESPOND TO THE APPROXIMATE ELEVATION OF THE LOW FLOW CHANNEL WATER SURFACE. THE PLANT MATERIAL WILL BE PLACED INTO THE TRENCH, BACKFILLED, AND LIGHTLY COMPACTED. WILLOW AND COTTONWOOD CUTTINGS MAY BE COMPLETELY BURIED (HORIZONTALLY OR VERTICALLY), BUT ALL OTHER LIVE PLANT MATERIALS WILL BE PLACED UPRIGHT SO THAT AT LEAST ONE-THIRD OF THE PLANT IS ABOVE GROUND (SEE TABLE 5 FOR PLANT LIST).

NOTES:
IF CHANNEL DEGRADATION HAS LEFT EXISTING RIPARIAN VEGETATION ABOVE ITS SUITABLE HEIGHT, THE EXISTING VEGETATION WILL BE TRANSPLANTED TO THE APPROPRIATE ELEVATION ABOVE THE LOW FLOW CHANNEL WATER SURFACE: 0-1' FOR HERBACEOUS WETLAND VEGETATION AND 1'-3' FOR WETLAND/RIPARIAN WOODY VEGETATION.

PARTIALLY HEALED RESTORATION APPROACH

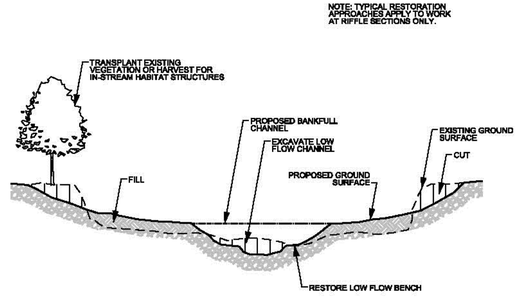
NTS



PARTIALLY HEALED REACHES

OVERWIDENED REACH RESTORATION APPROACH

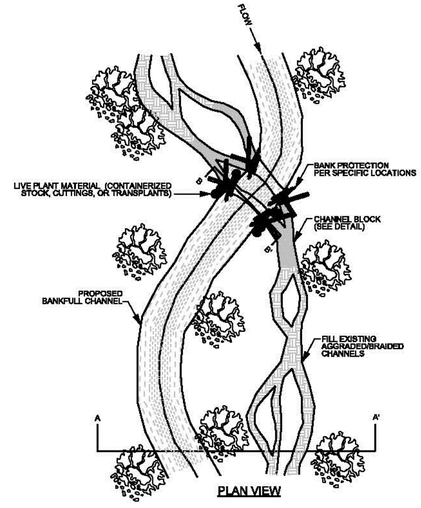
NTS



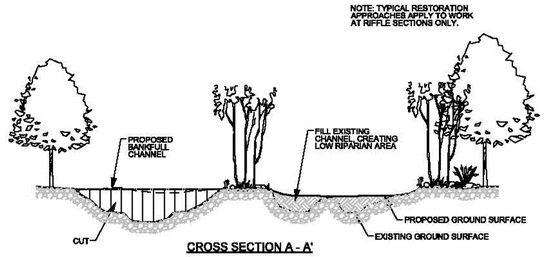
OVERWIDENED REACH

AGGRADED REACH RESTORATION APPROACH

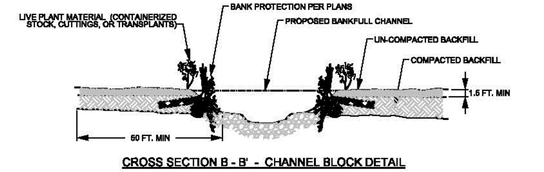
NTS



PLAN VIEW



CROSS SECTION A - A'



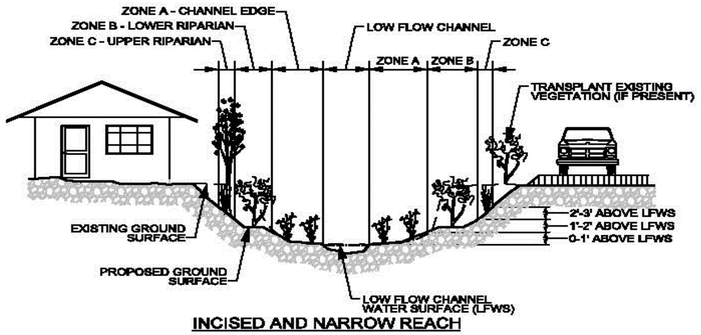
CROSS SECTION B - B' - CHANNEL BLOCK DETAIL

R:\138366.Upper-Fourmile-T01\Design\Plans\138366.PSH_02E.dgn

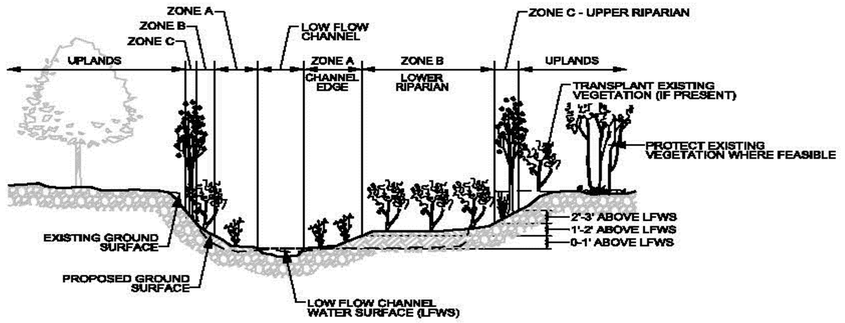
Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

Treatment 1: Restoration Approach for Incised Reaches

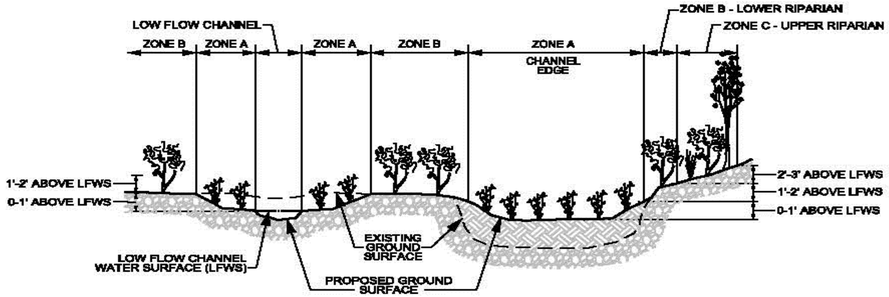
NTS



INCISED AND NARROW REACH



INCISED AND OVER-WIDENED REACH



INCISED REACH - CHANNEL RELOCATION : SEE TABLE 1 FOR PLANT LIST

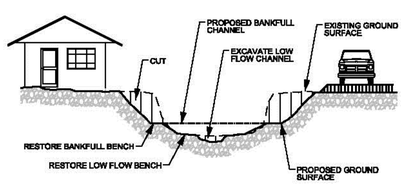
NOTES:
IN REACHES WHERE ROCK GREATER THAN 2 INCH IN DIAMETER COMPRISES OVER 50 PERCENT OF THE CHANNEL BANK MATERIAL, LIVE PLANT MATERIAL (TRANSPLANTS, CONTAINERIZED STOCK, AND CUTTINGS) WILL BE INSTALLED BY USING EQUIPMENT TO EXCAVATE A TRENCH AT THE EDGE OF THE APPROXIMATE BANKFULL CHANNEL. THE BOTTOM OF THE TRENCH WILL CORRESPOND TO THE APPROXIMATE ELEVATION OF THE LOW FLOW CHANNEL WATER SURFACE. THE PLANT MATERIAL WILL BE PLACED INTO THE TRENCH, BACKFILLED, AND LIGHTLY COMPACTED. WILLOW AND COTTONWOOD CUTTINGS MAY BE COMPLETELY BURIED (HORIZONTALLY OR VERTICALLY), BUT ALL OTHER LIVE PLANT MATERIALS WILL BE PLACED UPRIGHT SO THAT AT LEAST ONE-THIRD OF THE PLANT IS ABOVE GROUND (SEE TABLE 5 FOR PLANT LIST).

NOTES:
IF CHANNEL DEGRADATION HAS LEFT EXISTING RIPARIAN VEGETATION ABOVE ITS SUITABLE HEIGHT, THE EXISTING VEGETATION WILL BE TRANSPLANTED TO THE APPROPRIATE ELEVATION ABOVE THE LOW FLOW CHANNEL WATER SURFACE: 0-1' FOR HERBACEOUS WETLAND VEGETATION AND 1'-3' FOR WETLAND/RIPARIAN WOODY VEGETATION.

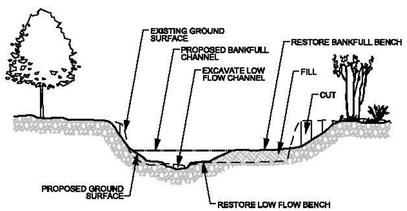
NOTE:
WHERE INCISED REACHES ARE TOO CONSTRAINED TO ALLOW RE-GRADING OF BANK SLOPES, CONSTRUCT SOIL WRAPPED LIFT AT SLOPE EQUAL TO EXISTING GROUND AND REVEGETATE USING TREATMENT 3 (SEE TABLE 3 FOR PLANT LIST).

INCISED REACH RESTORATION APPROACH

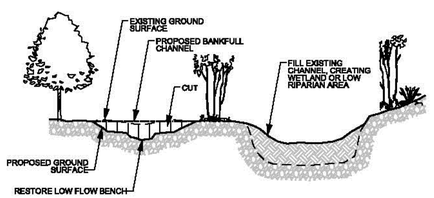
NTS



INCISED AND NARROW REACH



INCISED AND OVER-WIDENED REACH



INCISED REACH CHANNEL RELOCATION

NOTE:
TYPICAL RESTORATION APPROACHES APPLY TO WORK AT RIFFLE SECTIONS ONLY.

NOTE:
WHERE INCISED REACHES ARE TOO CONSTRAINED TO ALLOW RE-GRADING OF BANK SLOPES, CONSTRUCT SOIL WRAPPED LIFT AT SLOPE EQUAL TO EXISTING GROUND AND REVEGETATE USING TREATMENT 3 (SEE TABLE 3 FOR PLANT LIST).

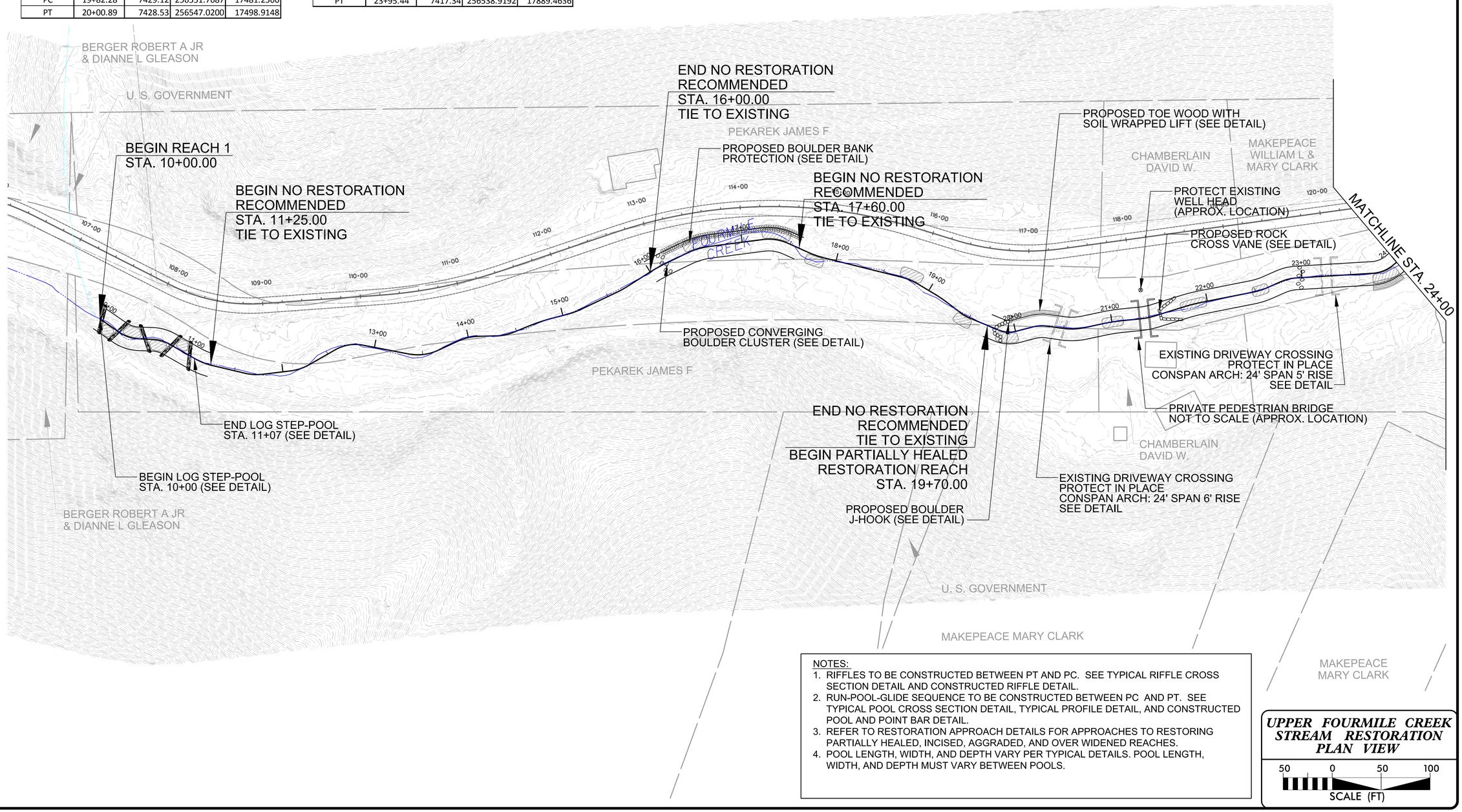
R:\138366_Upper-Fourmile-T01\Design\Plans\138366_PSH_02F.dgn

Description	Station	Elevation	Northing	Easting
BEGIN	10+00.00	7465.01	256740.3210	16583.0454
PC	10+24.65	7463.67	256722.6790	16600.2639
PT	10+45.46	7462.55	256712.5815	16618.1367
PC	10+59.69	7461.78	256709.3232	16631.9914
PT	10+77.69	7460.81	256701.2046	16647.8619
PC	11+07.40	7459.20	256681.7329	16670.3012
PT	11+26.75	7458.50	256671.3126	16686.5259
PC	15+99.06	7441.52	256678.3156	17142.8448
PT	16+18.69	7440.81	256684.3715	17161.5109
PC	16+41.32	7440.00	256690.1042	17183.3947
PT	16+66.66	7439.19	256692.5069	17208.5117
PC	17+21.17	7437.45	256688.9404	17262.9093
PT	17+47.48	7436.61	256680.2520	17287.3901
PC	17+69.99	7435.89	256667.2371	17305.7520
PT	19+53.64	7430.04	256567.6201	17457.4020
PC	19+82.28	7429.12	256551.7687	17481.2566
PT	20+00.89	7428.53	256547.0200	17498.9148

Description	Station	Elevation	Northing	Easting
PC	20+18.10	7427.98	256548.0708	17516.0938
PT	20+33.35	7427.49	256545.9701	17531.0970
PC	20+48.77	7427.00	256540.8391	17545.6338
PT	20+71.72	7426.35	256537.1737	17568.1659
PC	20+90.16	7425.82	256537.4835	17586.6073
PT	21+11.63	7425.21	256536.6352	17608.0472
PC	21+29.01	7424.71	256534.9713	17625.3474
PT	21+44.47	7424.27	256535.0618	17640.7821
PC	21+75.11	7423.40	256538.3531	17671.2481
PT	21+93.99	7422.86	256539.3818	17690.0905
PC	22+46.95	7421.35	256539.4595	17743.0464
PT	22+63.66	7420.88	256541.3137	17759.6211
PC	22+77.86	7420.47	256544.4308	17773.4729
PT	22+94.49	7420.00	256545.1520	17789.9986
PC	23+72.39	7418.00	256534.7349	17867.2026
PT	23+95.44	7417.34	256538.9192	17889.4636

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	3

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120



NOTES:
1. RIFFLES TO BE CONSTRUCTED BETWEEN PT AND PC. SEE TYPICAL RIFFLE CROSS SECTION DETAIL AND CONSTRUCTED RIFFLE DETAIL.
2. RUN-POOL-GLIDE SEQUENCE TO BE CONSTRUCTED BETWEEN PC AND PT. SEE TYPICAL POOL CROSS SECTION DETAIL, TYPICAL PROFILE DETAIL, AND CONSTRUCTED POOL AND POINT BAR DETAIL.
3. REFER TO RESTORATION APPROACH DETAILS FOR APPROACHES TO RESTORING PARTIALLY HEALED, INCISED, AGGRADED, AND OVER WIDENED REACHES.
4. POOL LENGTH, WIDTH, AND DEPTH VARY PER TYPICAL DETAILS. POOL LENGTH, WIDTH, AND DEPTH MUST VARY BETWEEN POOLS.

UPPER FOURMILE CREEK STREAM RESTORATION PLAN VIEW

50 0 50 100
SCALE (FT)

9/15/2016
R:\138366_Upper-Fourmile-T01\Design\Plans\PHASE-1\138366_PSH_03.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	4

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

Description	Station	Elevation	Northing	Easting
PC	24+47.72	7415.85	256564.2477	17935.2039
PT	24+82.01	7414.87	256572.6463	17968.0677
PC	25+15.56	7413.91	256572.4681	18001.6198
PT	25+45.80	7413.05	256569.6498	18031.6837
PC	25+82.28	7412.01	256563.0606	18067.5621
PT	26+00.71	7411.48	256556.6708	18084.7495
PC	26+82.08	7409.16	256515.5181	18154.9460
PT	26+98.90	7408.68	256503.9628	18166.9653
PC	27+22.77	7408.00	256483.8679	18179.8343
PT	27+42.47	7407.29	256465.1301	18184.8339
PC	27+64.36	7406.50	256443.2622	18183.7810
PT	27+90.30	7405.57	256417.5300	18186.2401
PC	28+01.17	7405.18	256406.9690	18188.8096
PT	28+18.17	7404.57	256390.0982	18190.2719
PC	28+30.37	7404.13	256377.9268	18189.4705
PT	28+52.18	7403.31	256356.6565	18184.9830
PC	28+72.15	7402.56	256337.9010	18178.1345
PT	28+99.99	7401.52	256311.6658	18182.6014
PC	29+22.58	7400.67	256294.2089	18196.9330
PT	29+42.74	7399.92	256275.5146	18203.2086
PC	29+56.84	7399.39	256261.4241	18202.6496
PT	29+76.82	7398.64	256242.9491	18208.9819
PC	29+94.02	7398.00	256229.7964	18220.0616
PT	30+09.97	7397.58	256219.7605	18232.3420

Description	Station	Elevation	Northing	Easting
PC	30+25.54	7397.18	256212.3034	18246.0056
PT	30+41.12	7396.77	256203.5992	18258.9012
PC	30+77.83	7395.82	256180.2927	18287.2617
PT	31+08.35	7395.02	256164.6099	18313.3197
PC	31+48.91	7393.96	256148.9769	18350.7472
PT	31+87.86	7392.95	256145.9746	18388.9240
PC	32+70.39	7390.80	256165.4898	18469.1227
PT	33+11.54	7389.18	256163.9725	18509.7207
PC	33+54.77	7387.47	256150.6458	18550.8407
PT	33+98.74	7385.74	256125.5863	18586.1513
PC	34+28.93	7384.55	256101.5506	18604.4162
PT	34+49.44	7383.74	256087.6491	18619.3628
PC	35+18.57	7381.02	256049.9168	18677.2833
PT	35+38.04	7380.25	256044.2465	18695.6493
PC	35+95.19	7377.99	256043.0172	18752.7834
PT	36+53.28	7376.15	256031.1045	18809.2991
PC	37+22.55	7373.94	256004.5154	18873.2600
PT	37+59.28	7372.77	256000.4008	18909.2791
PC	37+96.01	7371.61	256006.4877	18945.5004
PT	38+13.72	7371.04	256005.0929	18962.9792
PC	39+09.48	7368.00	255974.4467	19053.7047
PT	39+29.09	7367.40	255964.9417	19070.7315
PC	39+63.94	7366.35	255942.6908	19097.5522
PT	39+93.54	7365.46	255929.9925	19123.9612

NAD 83

PROPOSED BOULDER BANK PROTECTION (SEE DETAIL)

COORDINATE WITH POWER CROSSING

STREAM REALIGNMENT REQUIRED AS PART OF ROADWAY IMPROVEMENTS. REFER TO ROAD PLANS FOR MORE DETAIL.

MATCHLINE STA. 24+00

ABANDONED CHANNEL

PROPOSED ROOT WAD (SEE DETAIL)

FLOODPLAIN AND WETLAND RESTORATION PER REVEGETATION PLAN (APPROX. LIMITS). GRADE MINOR DEPRESSIONS FOR POCKETS PER ECOLOGIST RECOMMENDATION.

EXISTING DRIVEWAY CROSSING PROTECT IN PLACE CONSPAN ARCH: 24' SPAN 6' RISE 1-24" FLOODPLAIN CULVERT ON EACH SIDE SEE DETAIL

PROPOSED BOULDER BANK PROTECTION (SEE DETAIL)

PROPOSED CONVERGING BOULDER CLUSTER (SEE DETAIL)

FLOODPLAIN AND WETLAND RESTORATION PER REVEGETATION PLAN (APPROX. LIMITS). GRADE MINOR DEPRESSIONS FOR POCKETS PER ECOLOGIST RECOMMENDATION.

END PARTIALLY HEALED RESTORATION REACH
BEGIN AGGRADED RESTORATION REACH
STA. 32+30.00

PROPOSED BOULDER J-HOOK (SEE DETAIL)

PROPOSED TOE WOOD WITH SOIL WRAPPED LIFT (SEE DETAIL)

END AGGRADED RESTORATION REACH
BEGIN INCISED RESTORATION REACH
STA. 35+30.00

PROPOSED CONVERGING BOULDER CLUSTER (SEE DETAIL)

MATCH LINE STA. 40+50

MAKEPEACE WILLIAM L & MARY CLARK

SPARRE GREGORY M

FRICK JOHN WILLIAM

MAKEPEACE MARY CLARK

MARANTHA TRUST

U. S. GOVERNMENT

FOURMILE CREEK

NOTES:
1. RIFFLES TO BE CONSTRUCTED BETWEEN PT AND PC. SEE TYPICAL RIFFLE CROSS SECTION DETAIL AND CONSTRUCTED RIFFLE DETAIL.
2. RUN-POOL-GLIDE SEQUENCE TO BE CONSTRUCTED BETWEEN PC AND PT. SEE TYPICAL POOL CROSS SECTION DETAIL, TYPICAL PROFILE DETAIL, AND CONSTRUCTED POOL AND POINT BAR DETAIL.
3. REFER TO RESTORATION APPROACH DETAILS FOR APPROACHES TO RESTORING PARTIALLY HEALED, INCISED, AGGRADED, AND OVER WIDENED REACHES.
4. POOL LENGTH, WIDTH, AND DEPTH VARY PER TYPICAL DETAILS. POOL LENGTH, WIDTH, AND DEPTH MUST VARY BETWEEN POOLS.

UPPER FOURMILE CREEK STREAM RESTORATION PLAN VIEW

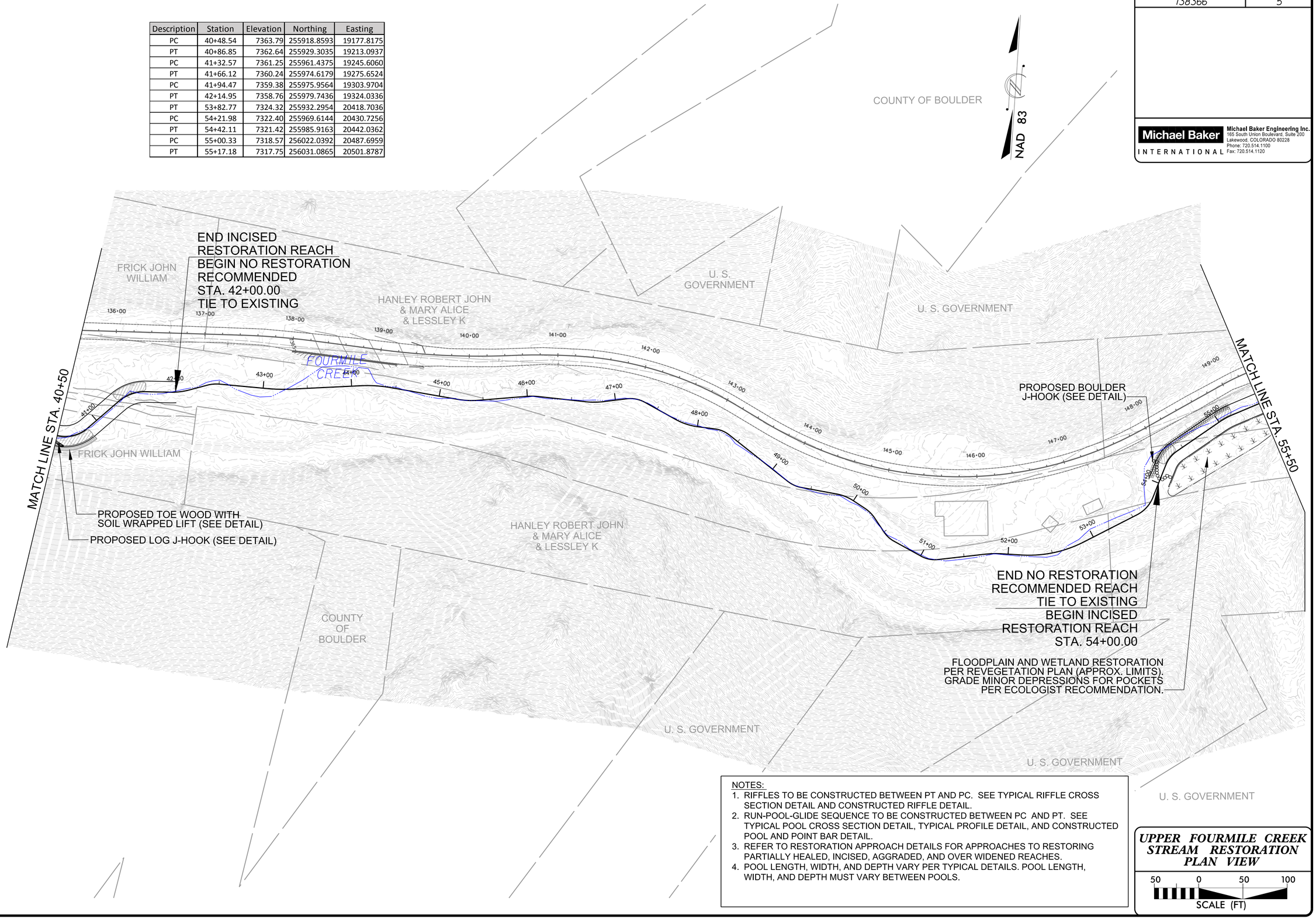
50 0 50 100
SCALE (FT)

9/24/2016
R:\138366_Upper-Fourmile-T01\Design\Plans\PHASE-I\138366_PSH_04.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	5

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120

Description	Station	Elevation	Northing	Easting
PC	40+48.54	7363.79	255918.8593	19177.8175
PT	40+86.85	7362.64	255929.3035	19213.0937
PC	41+32.57	7361.25	255961.4375	19245.6060
PT	41+66.12	7360.24	255974.6179	19275.6524
PC	41+94.47	7359.38	255975.9564	19303.9704
PT	42+14.95	7358.76	255979.7436	19324.0336
PT	53+82.77	7324.32	255932.2954	20418.7036
PC	54+21.98	7322.40	255969.6144	20430.7256
PT	54+42.11	7321.42	255985.9163	20442.0362
PC	55+00.33	7318.57	256022.0392	20487.6959
PT	55+17.18	7317.75	256031.0865	20501.8787



NOTES:
1. RIFFLES TO BE CONSTRUCTED BETWEEN PT AND PC. SEE TYPICAL RIFFLE CROSS SECTION DETAIL AND CONSTRUCTED RIFFLE DETAIL.
2. RUN-POOL-GLIDE SEQUENCE TO BE CONSTRUCTED BETWEEN PC AND PT. SEE TYPICAL POOL CROSS SECTION DETAIL, TYPICAL PROFILE DETAIL, AND CONSTRUCTED POOL AND POINT BAR DETAIL.
3. REFER TO RESTORATION APPROACH DETAILS FOR APPROACHES TO RESTORING PARTIALLY HEALED, INCISED, AGGRADED, AND OVER WIDENED REACHES.
4. POOL LENGTH, WIDTH, AND DEPTH VARY PER TYPICAL DETAILS. POOL LENGTH, WIDTH, AND DEPTH MUST VARY BETWEEN POOLS.

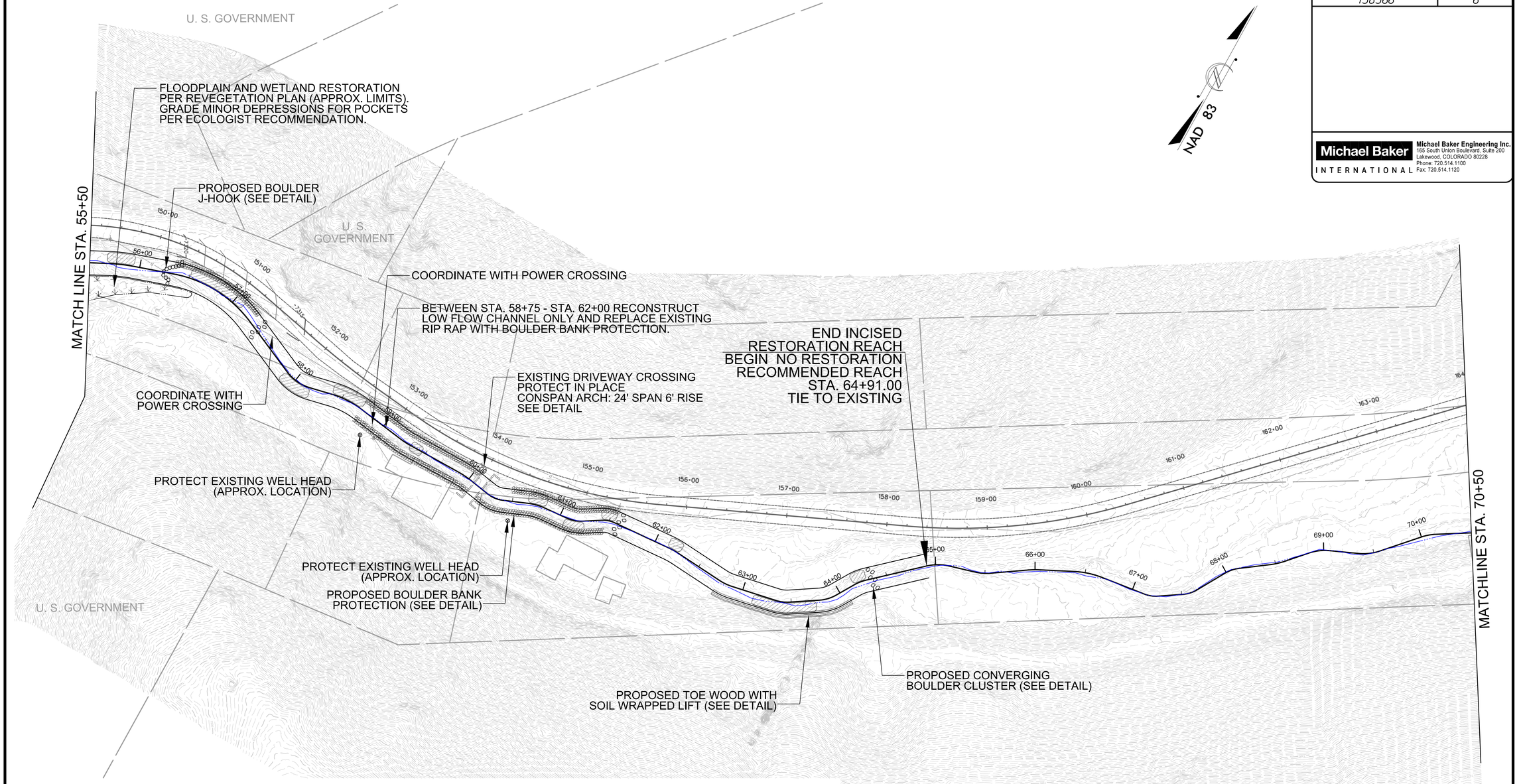
UPPER FOURMILE CREEK STREAM RESTORATION PLAN VIEW

50 0 50 100
SCALE (FT)

8/5/2016
8:37:28 AM
M:\138366_Upper-Fourmile-T01\Design\Plans\PHASE-1\138366_PSH_05.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	6

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120



Description	Station	Elevaton	Northing	Easting
PC	55+67.47	7315.30	256053.6977	20546.7986
PT	55+94.19	7313.99	256063.8739	20571.4677
PC	56+34.47	7312.18	256076.4000	20609.7600
PT	57+26.36	7308.03	256071.3160	20699.3846
PC	57+87.78	7305.27	256045.7408	20755.2269
PT	58+16.73	7303.96	256042.7188	20783.5161
PC	58+39.26	7303.30	256047.5621	20805.5230
PT	58+71.58	7302.36	256048.6972	20837.6483
PC	59+20.00	7300.94	256041.6545	20885.5482
PT	59+32.86	7300.56	256040.6947	20898.3600
PC	59+86.42	7299.00	256040.5039	20951.9229
PT	60+03.42	7298.50	256039.0310	20968.8367
PC	60+24.50	7298.00	256035.4617	20989.6096
PT	60+39.87	7297.45	256037.0639	21004.7045
PC	60+65.76	7296.53	256046.7078	21028.7340
PT	60+83.15	7295.91	256050.6225	21045.6001

Description	Station	Elevaton	Northing	Easting
PC	61+06.13	7295.09	256052.3327	21068.5182
PT	61+24.37	7294.44	256057.8983	21085.7118
PC	61+42.71	7293.79	256067.5107	21101.3332
PT	61+55.20	7293.34	256071.2872	21113.1041
PC	62+13.29	7291.27	256075.3095	21171.0555
PT	62+26.49	7290.80	256075.2491	21184.2433
PC	62+75.15	7289.05	256071.4353	21232.7535
PT	62+88.75	7288.57	256072.2142	21246.2887
PC	63+34.35	7286.93	256080.9803	21291.0409
PT	63+48.13	7286.43	256086.0658	21303.7585
PC	63+77.81	7285.37	256102.0201	21328.7937
PT	63+95.74	7284.73	256114.7088	21341.2441
PC	64+16.25	7283.99	256132.2075	21351.9346
PT	64+29.27	7283.52	256142.1889	21360.2237
PC	64+90.80	7281.31	256183.3643	21405.9449
PT	65+13.80	7280.49	256194.3588	21425.9178

NOTES:
1. RIFFLES TO BE CONSTRUCTED BETWEEN PT AND PC. SEE TYPICAL RIFFLE CROSS SECTION DETAIL AND CONSTRUCTED RIFFLE DETAIL.
2. RUN-POOL-GLIDE SEQUENCE TO BE CONSTRUCTED BETWEEN PC AND PT. SEE TYPICAL POOL CROSS SECTION DETAIL, TYPICAL PROFILE DETAIL, AND CONSTRUCTED POOL AND POINT BAR DETAIL.
3. REFER TO RESTORATION APPROACH DETAILS FOR APPROACHES TO RESTORING PARTIALLY HEALED, INCISED, AGGRADED, AND OVER WIDENED REACHES.
4. POOL LENGTH, WIDTH, AND DEPTH VARY PER TYPICAL DETAILS. POOL LENGTH, WIDTH, AND DEPTH MUST VARY BETWEEN POOLS.

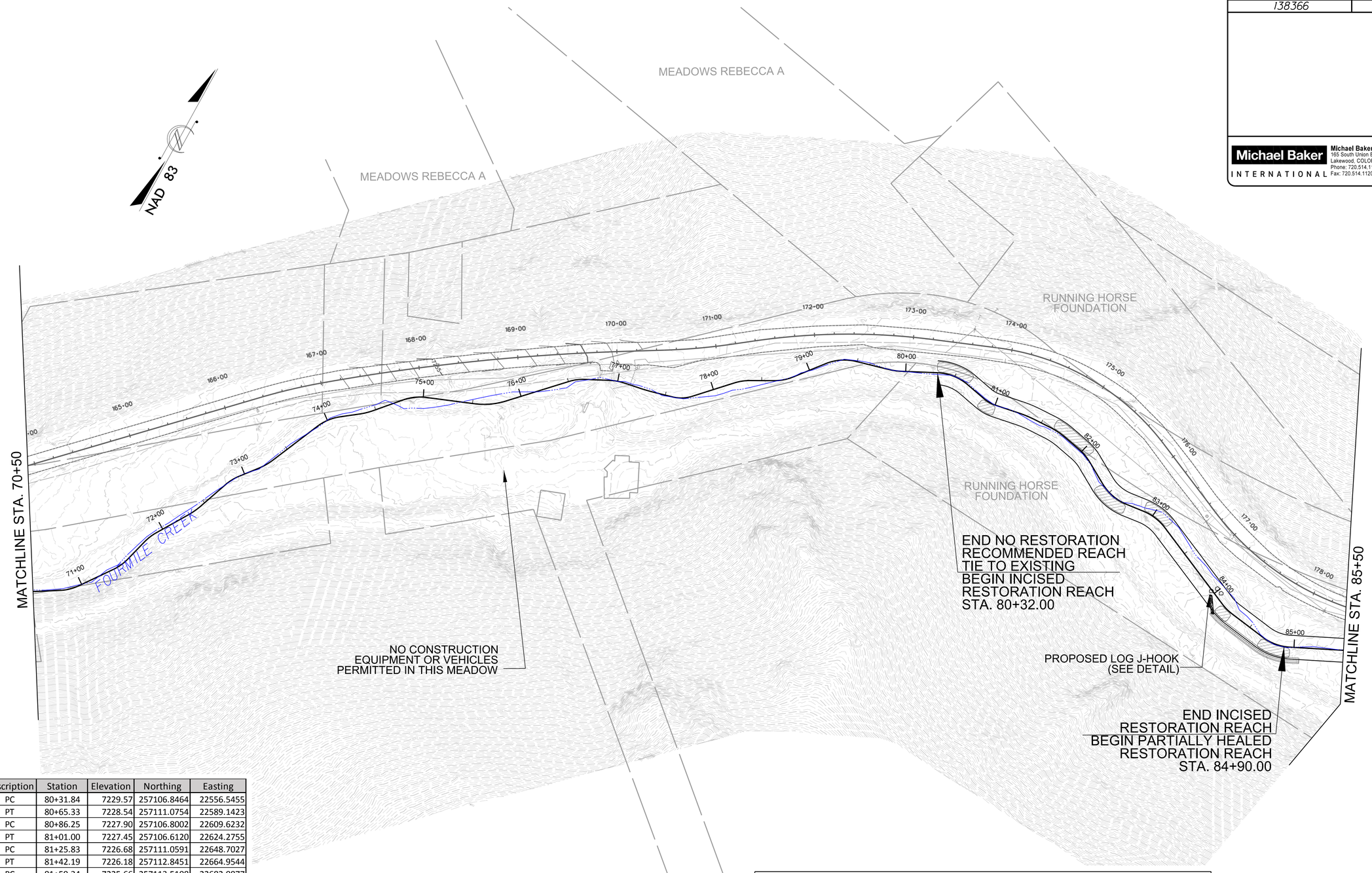
UPPER FOURMILE CREEK STREAM RESTORATION PLAN VIEW

50 0 50 100
SCALE (FT)

9/15/2016
R:\138366_Upper-Fourmile-T01\Design\Plans\PHASE-1\138366_PSH_06.dgn

BAKER PROJECT REFERENCE NO.	SHEET NO.
138366	7

Michael Baker INTERNATIONAL
Michael Baker Engineering Inc.
165 South Union Boulevard, Suite 200
Lakewood, COLORADO 80228
Phone: 720.514.1100
Fax: 720.514.1120



Description	Station	Elevation	Northing	Easting
PC	80+31.84	7229.57	257106.8464	22556.5455
PT	80+65.33	7228.54	257111.0754	22589.1423
PC	80+86.25	7227.90	257106.8002	22609.6232
PT	81+01.00	7227.45	257106.6120	22624.2755
PC	81+25.83	7226.68	257111.0591	22648.7027
PT	81+42.19	7226.18	257112.8451	22664.9544
PC	81+59.34	7225.66	257113.5108	22682.0877
PT	81+78.38	7225.07	257111.8978	22701.0078
PC	81+97.30	7224.49	257107.9720	22719.5232
PT	82+13.35	7224.00	257102.2057	22734.4208
PC	82+38.95	7222.78	257089.2668	22756.5203
PT	82+71.28	7221.25	257082.7525	22787.6120
PC	82+89.52	7220.38	257084.8745	22805.7260
PT	83+17.47	7219.05	257080.6727	22833.0154
PC	84+13.67	7214.48	257041.2560	22920.7719
PT	84+27.51	7213.83	257037.3927	22934.0184
PC	84+66.25	7211.99	257031.7801	22972.3442
PT	84+95.77	7210.95	257036.1198	23001.1148

NOTES:
1. RIFFLES TO BE CONSTRUCTED BETWEEN PT AND PC. SEE TYPICAL RIFFLE CROSS SECTION DETAIL AND CONSTRUCTED RIFFLE DETAIL.
2. RUN-POOL-GLIDE SEQUENCE TO BE CONSTRUCTED BETWEEN PC AND PT. SEE TYPICAL POOL CROSS SECTION DETAIL, TYPICAL PROFILE DETAIL, AND CONSTRUCTED POOL AND POINT BAR DETAIL.
3. REFER TO RESTORATION APPROACH DETAILS FOR APPROACHES TO RESTORING PARTIALLY HEALED, INCISED, AGGRADED, AND OVER WIDENED REACHES.
4. POOL LENGTH, WIDTH, AND DEPTH VARY PER TYPICAL DETAILS. POOL LENGTH, WIDTH, AND DEPTH MUST VARY BETWEEN POOLS.

UPPER FOURMILE CREEK STREAM RESTORATION PLAN VIEW

50 0 50 100
SCALE (FT)

9/15/2016
R:\138366_Upper-Fourmile-T01\Design\Plans\PHASE-I\138366_PSH_07.dgn