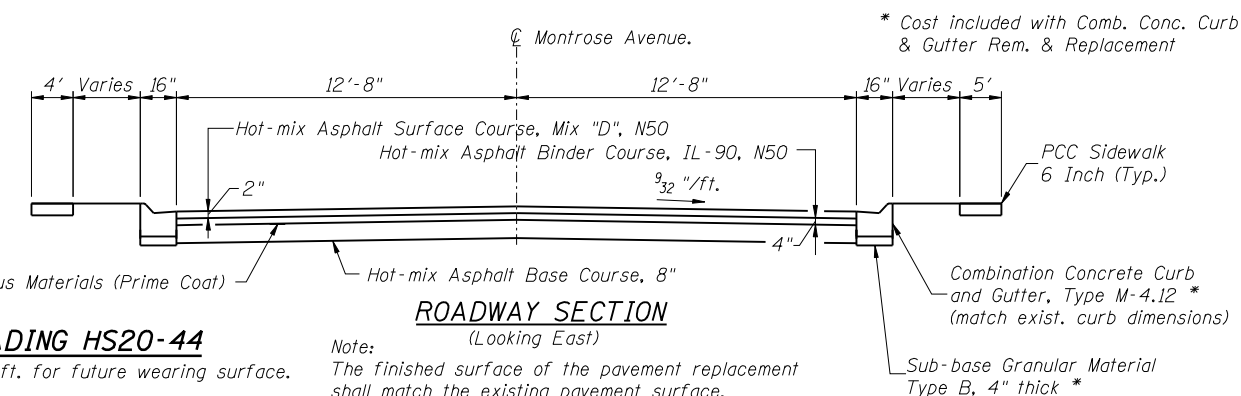
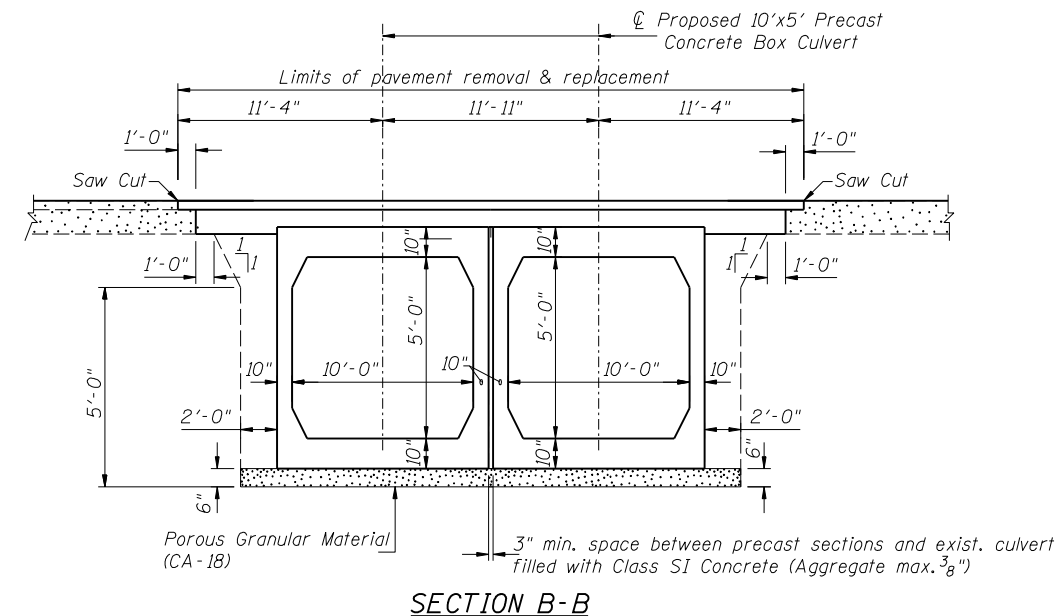
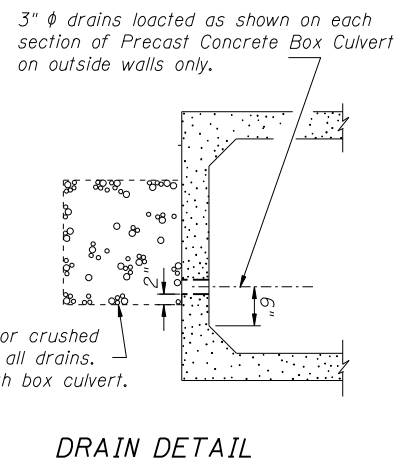
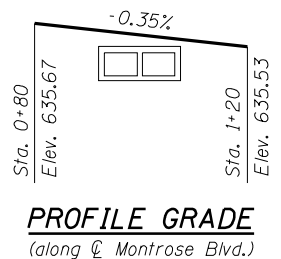
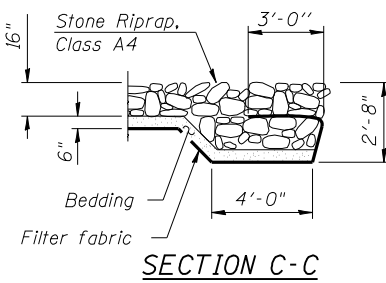
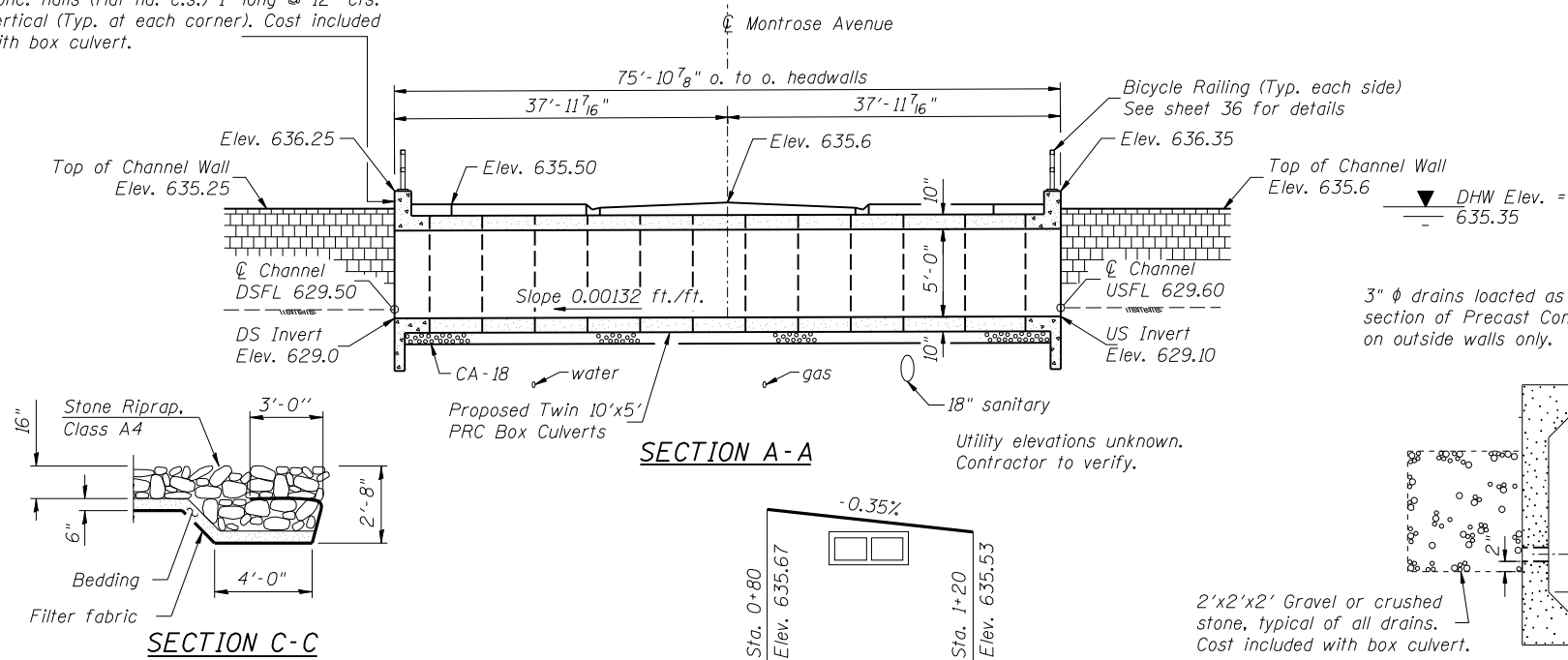


1/2" P/J (12" wide x retaining wall height)  
Conc. nails (flat hd. c.s.) 1" long @ 12" cts.  
vertical (Typ. at each corner). Cost included  
with box culvert.



**LOADING HS20-44**  
Allow 50#/sq. ft. for future wearing surface.

**DESIGN SPECIFICATIONS**  
2002 AASHTO Bridge Design Specifications

**DESIGN STRESSES**  
**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)

**PRECAST UNITS**

$f'_c = 5,000$  psi  
 $f_y = 65,000$  psi (Welded Wire Fabric)  
 $f_y = 60,000$  (Reinforcement)

CRYSTAL CREEK  
BUILT 2010 BY  
IL. DEPT. OF NATURAL RESOURCES  
OFFICE OF WATER RESOURCES  
LOADING HS20

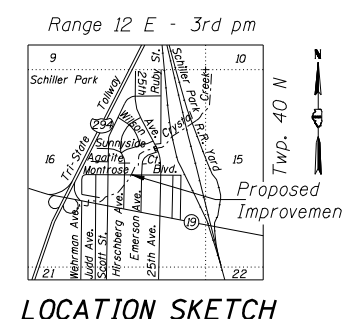
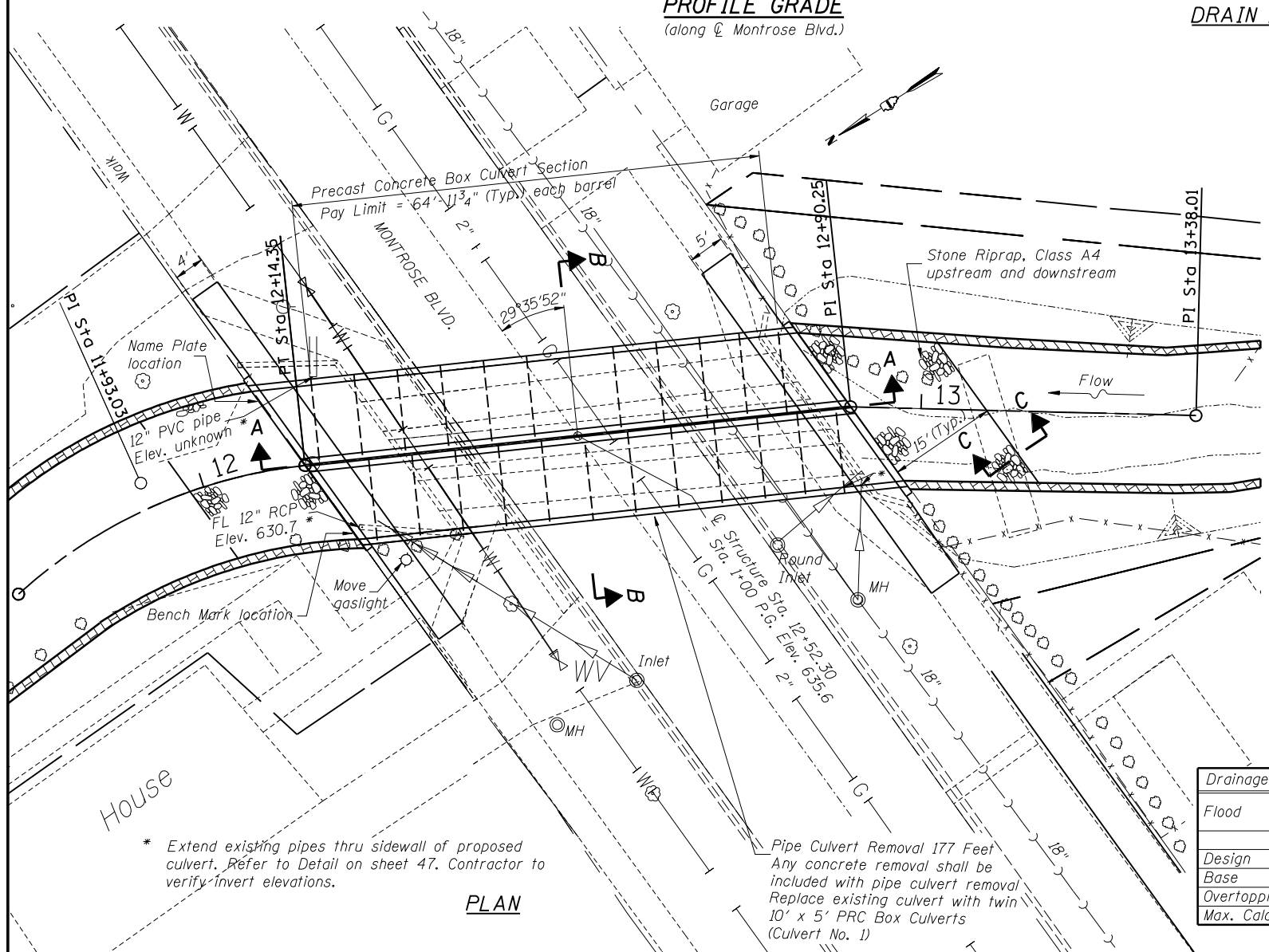
**NAME PLATE**  
See Std. 515001  
(Attach to downstream headwall)

**GENERAL NOTES**

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.  
Reinforcement bars designated (E) shall be epoxy coated.  
All exposed edges of concrete shall be beveled 3/4".  
For backfilling and embankment, see Standard Specifications.  
It shall be the responsibility of the Contractor to divert the stream flow during construction in order to keep the construction areas free of water. The method of water diversion shall be subject to the approval of the Engineer, and the cost shall be included with "Concrete Box Culverts".  
This box culvert has a fill height of 0.5 feet. The Precast Concrete Box Culvert sections shall conform to the requirements of AASHTO M-273.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QTY.
Precast Concrete Box Culvert 10' x 5' (M273)	Foot	130
Concrete Box Culverts	Cu Yd	33.4
Reinforcement Bars, Epoxy Coated	Pound	4,130
Hot-mix Asphalt Base Course, 8"	Sq Yd	105
Hot-mix Asphalt Surface Course, Mix "D", N50	Ton	12
Hot-mix Asphalt Binder Course, IL-90, N50	Ton	25
Portland Cement Concrete Sidewalk 6 Inch	Sq Ft	503
Bicycle Railing	Foot	56
Stone Riprap, Class A4	Sq Yd	81
Filter Fabric	Sq Yd	81
Pavement Removal	Sq Yd	111
Combination Conc. Curb & Gutter Removal and Repl.	Foot	80
Pipe Culvert Removal	Foot	177
Bituminous Materials (Prime Coat)	Gallon	6
Name Plates	Each	1



**WATERWAY INFORMATION**

Drainage Area = 4.24 sq. mi. Low Grade Elev. 635.53 @ Sta. 1+20

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Nat. H.W.E. 633.58	Head - Ft. Exist. Prop.	Headwater El. 636.05	633.58
Design	10	305	45 100	633.58	2.47 0	636.05	633.58
Base	50	484	45 100	635.03	3.09 0.32	638.12	635.35
Overtopping	100	579	45 100	636.14	3.18 0.15	639.32	636.29
Max. Calc.	500						

Designed By TMM Checked By JUF  
 Drawn By JUF Checked By RLP  
 1/29/2010 12:10:29 PM  
 C:\Dwt\Proj\p\Projects\Crystal Creek\Culvert No 1 Montrose Avenue.dgn